Gardline

Geotechnical Report for
Energinet Eltransmission A/S

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REPORT STRUCTURE

VOLUME I:

FIELD OPERATIONS AND PRELIMINARY RESULTS

(BS EN ISO 19901)

VOLUME II:

MEASURED AND DERIVED GEOTECHNICAL PARAMETERS AND FINAL RESULTS

(BS EN ISO 19901)

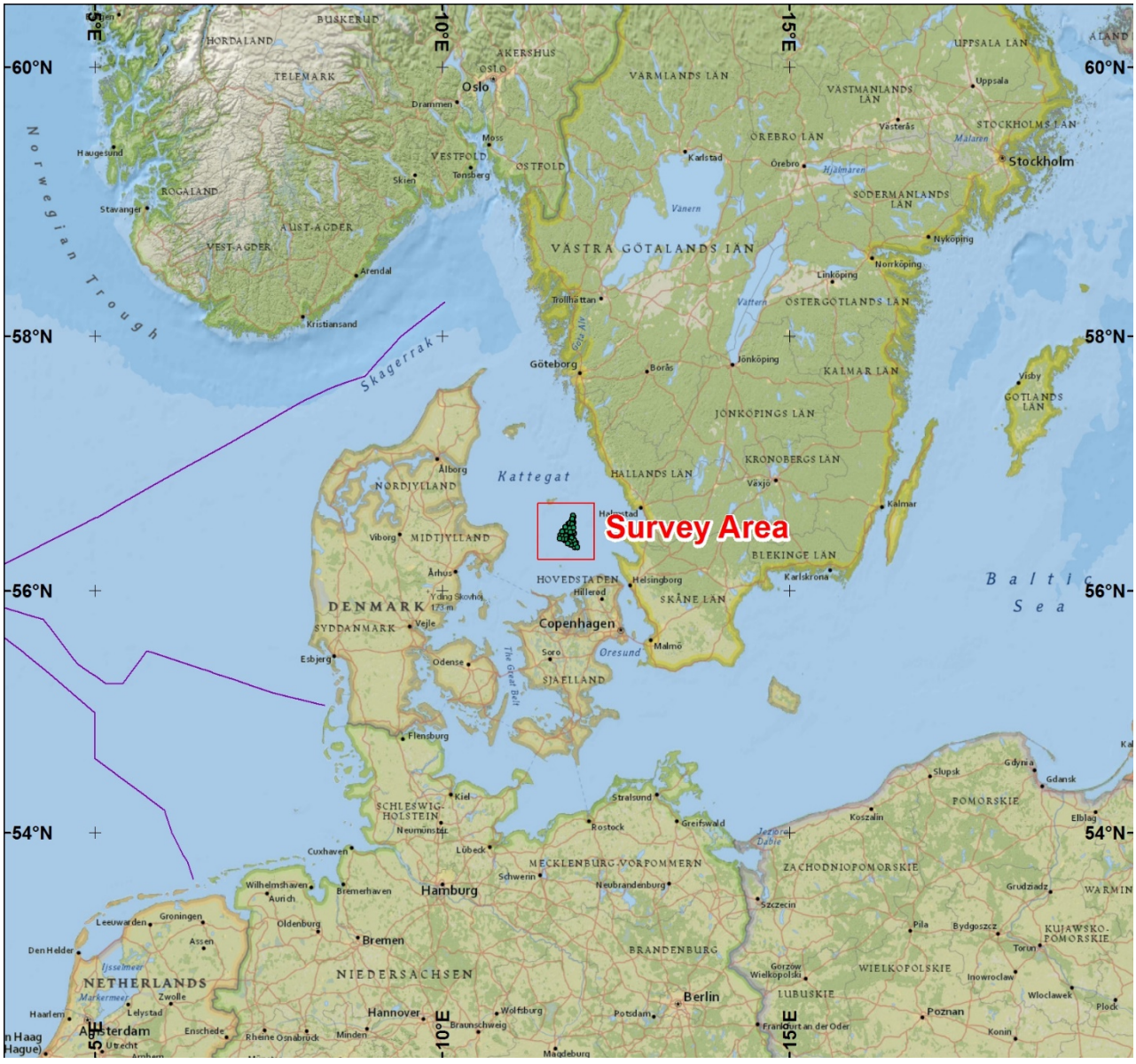
EXECUTIVE SUMMARY

This report presents the geotechnical results for the for the geotechnical site investigation undertaken within the Hesselø Offshore Wind Farm (OWF) site, Denmark.

Energinet Eltransmisson A/S commissioned Gardline Limited (Gardline) to support the development of a new 800-1200MW offshore OWF through the acquisition of geotechnical data which will inform the basis for evaluation of methods for wind turbine foundation design and installation. The objective will be met through acquiring ground information through both Seabed CPT data and Down the Hole (DtH) Sampling and CPTU.

The site investigation was located in the Kattegat Sea, within Danish Territorial waters and partially on the Danish Continental Shelf. The site is approximately 30km north of Zealand, covering an area of around 247km$^{2.}$ Figure I shows the project location boundaries as provided by Energinet.

Figure I – Hesselø OWF locality.



Survey operations were conducted with respect to ETRS89 Ellipsoid, UTM Grid Zone 32N. The grid system is presented in Eastings and Northings (m).

All water depths are reduced to Mean Sea Level (MSL) in metres and can be found in APPENDIX 1 together with location coordinates.

The objectives of the geotechnical investigation were to:

- Acquire geotechnical *in situ* data and samples to determine the feasibility of achieving a safe installation and operation of the Hesselø OWF.
- Facilitate geotechnical onshore laboratory testing as part of the above;

Mobilisation of Gardline's drilling vessel, the M.V. Ocean Vantage, was completed in the port of Hull, England on 24th April 2021. Operations commenced on 24th April 2021 at the seabed CPTU location CPT20 and was completed on 6th June 2021 at the composite borehole location CB10a-BH. Demobilisation was completed in the port of Grenaa, Denmark on 7th June 2021.

Table I provides a summary of the fieldwork, including the number of locations completed, fieldwork dates and vessel details. More details of the fieldwork phase can be found in the operations report in APPENDIX 17.

Table I – Fieldwork Summary

Fieldwork Summary	
Survey Vessel	M.V. Ocean Vantage
Fieldwork dates	24 April 2021 – 7 June 2021
Sampling and CPTU Composite Boreholes	14 (+ 2 Bump overs)
Sampling Boreholes	3
Seabed CPTU locations	33 (+ 11 Retests)
Seabed SCPTU locations	7 (+1 Retest)
PS logging locations	5

In situ Cone Penetration Testing with pore pressure (CPTU), *in situ* Seismic Cone Penetration Testing with pore pressure (SCPTU), PS-Logging, CPTU dissipation tests, extrusion of Shelby tubes, logging and photography, basic soil classification, index strength testing and carbonate content tests were performed onboard the vessel during the geotechnical campaign.

Across the site soft extremely low to medium strength clays were identified in the first 30m below seabed (BSB) with a sand layer between 2.5-12m in some locations. These were followed by firm high strength late glacial clays and silts or dense sands. Glacial tills were found at approximately 50m BSB, and in some locations siltstone and mudstone were found at 55m BSB. CB8-BH was an exception, with soft low strength clays until 1.5m, followed by dense sands and high strength clays until 66m with the location ending with siltstone.

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Symbols

%	Percent	min	Minute
°	Degrees	mm	Millimetre
µm	Micrometres	MPa	Mega Pascal
A_c	Projected area of the cone	N_{kt}	Cone factor
A_n	Cross sectional area of the load cell or shaft	Ohm	Electrical Resistance
B_q	Pore pressure ratio	pH	Potential of Hydrogen
C	Centigrade	P_L	Plastic Limit
c'	Peak effective cohesion intercept	ppm	Parts per million
cm	Centimetres	q_c	Measured cone resistance
C_u	Degree of Sorting	q_{net}	Net cone resistance
d	Depth	q_t	Corrected total cone resistance
D_{10}	10% of soil particles are finer than this size	R_f	Friction ratio
D_{60}	60% of soil particles are finer than this size	R_s	Soil Resistivity
D_r	Relative density / Equivalent relative density	sec	Seconds
e_0	Voids ratio	s_r	Undrained shear strength (remoulded)
F_r	Normalised friction ratio	S_t	Sensitivity
f_s	Local side friction	s_u	Undrained shear strength (intact)
G_0	Initial shear modulus	u_0	Hydrostatic pore pressure
h	Hour	u_2	Pore water pressure measured behind the tip shoulder
I_A	Activity Index	w	Water content
I_L	Liquidity Index	W	Watts
I_P	Plasticity Index	α	Cone area ratio
K	Kelvin	γw	Unit weight of water
K_0	Coefficient of lateral earth pressure	Δu	Pore pressure in excess of hydrostatic
Kg	Kilo grams	ρ	Bulk density
kN	Kilo Newton	ρ_d	Dry density
kPa	Kilo Pascal	ρ_s	Particle Density
L	Litre	σ_1-σ_3	Deviatory stress
m	Metre	σ_3	Cell pressure
Mg	Mega grams	σ_{v0}	Total overburden stress
mg	milligrams	σ'_{v0}	Total effective overburden stress

LIST OF ABBREVIATIONS

Abbreviations

A/S	Aktieselskab (Limited Company)	Ho	Holocene (Age)
API	American Petroleum Institute	ISO	International Standards Organisation
ASR	Average Stress Ratio	Lg	Late Glacial (Age)
ASTM	American Society for Testing and Materials	Ma	Marine (Environment)
Bo	Boulder	MSL	Mean Sea Level
BS	British Standard	MV	Motor Vessel
BSB	Below Seabed	Mw	Meltwater (Environment)
CAUc	Anisotropically Consolidated Undrained Triaxial in Compression	N, E, S, W	North, East, South, West
CAUcyc	Cyclic Anisotropically Consolidated Undrained Triaxial in Compression	OWF	Offshore Wind Farm
CIDc	Isotropically Consolidated Drained Triaxial in Compression	Pg	Post Glacial (Age)
CIUc	Isotropically Consolidated Undrained Triaxial in Compression	PPT	Pocket Penetrometer
CF	Clay Fraction	P-S	Compression-Shear Wave
CL	Clay	PSD	Particle Size Distribution
Co	Cobble	PWP	Pore Water Pressure
CPTU	Cone Penetration Test (with pore pressure)	SBES	Single Beam Echo Sounder
CSR	Cyclic Stress Ratio	SCPTU	Seismic Cone Penetration Test (with pore pressure)
Ct	Cretaceous (Age)	TV	Torvane
DGNSS	Differential Global Navigation Satellite System	UCS	Unconfined Compressive Strength
DSS	Direct Simple Shear	UK	United Kingdom
ED	European Datum	UKAS	United Kingdom Accreditation Service
EIC	Engineer in Charge	UKCS	United Kingdom Continental Shelf
EN	European Norm	UTM	Universal Transverse Mercator
Env	Environment	UUT	Unconsolidated Undrained Triaxial
Fw	Freshwater (Environment)	WC	Water Content
Gc	Glacial (Age)	WISON	Wireline Sounding
Gl	Glacial (Environment)		

VOLUME 2: MEASURED AND DERIVED GEOTECHNICAL PARAMETERS AND FINAL RESULTS

1 Scope of Project

1.1 General

Energinet Eltransmisson A/S (Energinet) commissioned Gardline Limited (Gardline) to support the development of a new 800-1200MW offshore wind farm (OWF) through the acquisition of geotechnical data which will inform the basis for evaluation of methods for wind turbine foundation design and installation. The objective will be met through acquiring ground information through both Seabed CPT data and Down the Hole (DtH) Sampling and CPTU.

The objectives of the geotechnical investigation were to:

- Acquire geotechnical *in situ* data and samples to determine the feasibility of achieving a safe installation and operation of the Hesselø OWF
- Facilitate geotechnical onshore laboratory testing as part of the above

The geotechnical survey comprised of seabed CPTUs, seabed SCPTUs, hybrid downhole sampling and CPTU boreholes, and sampling boreholes utilising a downhole WISON system and PS logging. The termination criteria for each location, as laid out in the scope of work, is provided in Table 1.1.

Table 1.1 – Scope of Work Termination Criteria

Acquisition Type	Target Depth(m)
Seabed CPTU - continuous	70m or refusal
Seabed SCPTU, with seismic acquisition at 1m intervals	Refusal
Composite Sampling and CPTU Boreholes	70m
Sampling Boreholes	70m

The water depths were obtained by SBES (Single Beam Echo Sounder). Depths are to the vertical datum MSL (Mean Sea Level) in metres. The water depth at each location is presented on logs in APPENDIX 2.

2 Geotechnical Descriptions and Soil Profiles

2.1 General

This chapter presents the interpretative composite boreholes, sample boreholes and seabed mode CPTU with test results from the offshore work. Logs are presented 10.50m per page with each log including interpretations of CPTU and sample data where performed. Coordinates and water depths along with dates of each location are stated on each log. Water depth measurements were reduced to MSL in metres.

Geotechnical logs can be found in APPENDIX 2

2.2 Geotechnical Profiles

Table 2.1 summarises the parameters presented on composite borehole logs.

Table 2.1 – Parameters Presented on Logs

Data Type	Symbol	Data Units	Log
Soil Description	-	-	All
Corrected Cone Tip Resistance	q_t	MPa	CPTU, Composite
Sleeve Friction	f_s	MPa	CPTU, Composite
Pore Water Pressure	u_2	kPa	CPTU, Composite
Friction Ratio	R_f	%	CPTU
Pore Pressure Ratio	B_q	%	CPTU
Undrained Shear Strength	s_u	kPa	All
Relative Density	D_r	%	CPTU, Composite
Water Content	-	%	Sample, Composite
Density	-	Mg/m^3	Sample, Composite

2.3 Soil Layering

Layer descriptions were based on visual sample descriptions carried out offshore and *in situ* test results. The presented descriptions were then revised upon completion of the laboratory testing programme onshore. The shear strength for each layer is classified based on shear strength values from onshore isotropically consolidated undrained triaxial (CIUc), onshore anisotropically consolidated undrained triaxial (CAUc) offshore and onshore unconsolidated undrained triaxial (UUT) and offshore and onshore torvane and pocket penetrometer test results.

3 Laboratory Testing Programme

3.1 General

The objective of the laboratory test programme was to evaluate the pertinent physical and mechanical characteristics of the soils encountered at the site.

This section of the report discusses the laboratory testing programme performed. Tests were performed in accordance with standards outlined by Energinet Eltransmission A/S and are summarised in Table 3.1.

Table 3.1 – Laboratory Testing Standards

Laboratory Test Type	Standard
Geological Description	ISO 14688-1 & 2, Danish Geotechnical Society Bulletin 1
Core Photography	ISO 22475-1
Water Content	ISO 17892-1
Bulk and Dry Density	ISO 17892-2
Particle Density	ISO 17892-3
Particle Size Distribution (Wet Sieve)	ISO 17892-4
Particle Size Distribution (Hydrometer)	ISO 17892-4
Incremental Loading Oedometer	ISO 17892-5
Unconfined Compressive Strength (UCS)	ISO 17892-7
Unconsolidated Undrained Triaxial (UUT)	ISO 17892-8
Isotropically Consolidated Undrained Triaxial (CIUc)	ISO 17892-9
Isotropically Consolidated Drained Triaxial (CIDc)	ISO 17892-9
Anisotripocally Consolidated Undrained Triaxial (CAUc)	ISO 17892-9
Atterberg Limits (4 Point Method)	ISO 17892-12
Pocket Penetrometer	ISO 19901-8
Loss on Ignition	BS 1377-3
Acid Soluble Sulphate	BS 1377-3
Acid Soluble Chloride	BS 1377-3
Torvane	BS 1377-7
Rapid Determination of Carbonate Content	ASTM D4373
Cyclic Anisotropically Consolidated Undrained Triaxial (CAUcyc)	ASTM D5311
Thermal Conductivity	ASTM D5334
Direct Simple Shear (DSS)	ASTM D6528
Angularity of Grains	In-house method
Determination of Maximum and Minimum Density of Sands	Danish Geotechnical Society Guidelines

A summary of completed onshore laboratory tests, and the laboratory they were completed in are presented overleaf in Table 3.2.

Table 3.2 – Onshore Laboratory Testing Schedule

Classification Test Type	Lab	Scheduled	Completed	Cancelled
Core Logging	Gardline	24.67m	23.61m*	
Core Photography	Gardline	31	31	
Water Content	Gardline	31	31	
Bulk and Dry Density	Gardline	29	25	4
Particle Density	Gardline	123	123	
Atterberg Limits (4 Point Method)	Gardline	107	107	
Particle Size Distribution (Wet Sieve)	Gardline	127	128	
Particle Size Distribution (Hydrometer)	Gardline	120	119	1
Angularity	Gardline	22	22	
Maximum and Minimum Dry Density	RINA	22	13	9
Carbonate Content	Gardline	42	42	
Acid Soluble Sulphate	Geolabs	42	42	
Loss on Ignition	Gardline	36	36	
Thermal Conductivity	Gardline	23	23	
Acid Soluble Chloride	i2 Analytical	42	42	
Oedometer	Gardline	50	50	
Torvane	Gardline	23	19	4
Pocket Penetrometer	Gardline	1	0	1
Priority UUT	Gardline	30	30	
Priority UUT	Geotechnical Engineering	50	50	
UUT	Gardline	99	92	7
UCS	RINA	1	1	
CIUc	RINA	12	12	
CIDc	RINA	20	20	
CAUc	RINA	28	28	
CAUcyc	RINA	10	9	1
DSS	RINA	14	14	

*Length after extrusion and removal of cuttings

A summary of completed offshore laboratory tests are presented in Table 3.3 below.

Table 3.3 – Offshore Laboratory Testing Schedule

Classification Test Type	Vessel	Scheduled
Sample Photographs	Ocean Vantage	814
Water Content*	Ocean Vantage	1388
Bulk & Dry Density**	Ocean Vantage	85
Bulk Density	Ocean Vantage	499
Pocket Penetrometer	Ocean Vantage	1483
Torvane	Ocean Vantage	1398
Carbonate Content	Ocean Vantage	36

*Water Content includes water contents from density rings
**Bulk and Dry Density from tests using density rings

3.2 Soil Description

Descriptive terms are based on both ISO 14688 and "A guide to engineering geological soil description" - Danish Geological Society, Bulletin 1 and are described in the following order:

- Relative density (SAND) / Shear strength (CLAY)
- MAIN SOIL/ROCK TYPE
- Degree of induration
- Grain size and degree of sorting (SAND) / plasticity (CLAY) / decomposition (PEAT)
- Minor components
- Structures
- Colours
- Mineralogy
- Carbonate content
- Colloquial names (if known)
- Depositional Environment
- Age

3.2.1 Shear Strength Classification

According to ISO 14688, fine grained soils are described using shear strength, as shown in Table 3.4 below:

Table 3.4 – Soil Strength Classification

Undrained Shear Strength of Clays	Undrained Shear Strength (kPa)
Extremely low	0 – 10
Very low	10 - 20
Low	20 – 40
Medium	40 – 75
High	75 – 150
Very high	150 – 300
Extremely high	>300

3.2.2 Main Soil/Rock Type

The classification of soils is usually based on grain size, induration, sorting and plasticity. For clarity the main soil type is always written in capital letters.

3.2.3 Particle Size, Degree of Sorting, Plasticity and Decomposition

The basic soil types as defined by particle size analysis are as follows:

GRAVEL	Coarse	20.0mm to 60.0mm
	Medium	6.0mm to 20.0mm
	Fine	2.0mm to 6.0mm
SAND	Coarse	0.60mm to 2.0mm
	Medium	0.2mm to 0.60mm
	Fine	0.060mm to 0.2mm

SILT	Coarse	0.02mm to 0.060mm
	Medium	0.0060mm to 0.02mm
	Fine	0.002mm to 0.0060mm
CLAY		Less than 0.002mm

The soil descriptions presented were derived from visual description and reviewed once the particle size analysis results became available.

The degree of sorting (C_u) is defined after particle size grading analysis using the expression d_{60}/d_{10}; see Table 3.5 below.

Table 3.5 – Degree of Sorting

Degree of Sorting	C_u
Well Sorted	$C_u < 2$
Sorted	$2 < C_u < 3.5$
Poorly Sorted	$3.5 < C_u < 7$
Unsorted	$C_u > 7$

A glacial TILL deposit must always be expected to contain all grainsize fractions and to be unsorted. Therefore, both grainsize and sorting are omitted when describing glacial TILL. Classification of glacial TILL deposits are summarised in Table 3.6.

Table 3.6 – Classification of glacial TILL deposits

Grain Fraction	CLAY (%)	SILT (%)	SAND (%)	$I_p = W_l - W_p$ (%)
GRAVEL TILL	<12		>25	<4
SAND TILL	<12		>45-50	<4
SILT TILL	<12	>45-50		<4
CLAY TILL, Very silty 12-15 Very sandy 12-15 Sandy (“normal”) 12-15 Medium plasticity >20 High plasticity >30				 4-7 4-7 7-10 >10 >25

The identification and description of fine-grained soils during offshore operations is based on a set of hand tests including plasticity and dilatancy. Descriptions were reviewed upon completion of Atterberg tests.

Table 3.7 below outlines the criteria used to determine the degree of plasticity.

Table 3.7 – Degree of Plasticity

Term	w_L%	I_P%	Clay Percentage (%)	USC-System
Clay, very fat	>80	>50		CV
Clay, fat	50-80	25-50		CH
Clay, lean	30-50	10-25		CM
Clay, silty / sandy	<30	7-10	15-20	CL
Clay, very silty / sandy	<30	4-7	10-15	CL
Silt, very clayey		4-7	<10	ML
Silt, clayey / sandy		<4	<10	ML

OL: Gyttja of Low plasticity
OH: Gyttja of High plasticity
ML: Silt of low plasticity
MH: Silt of high plasticity
CV: Clay of very high plasticity
CH: Clay of high plasticity
CM: Clay of intermediate plasticity
CL: Clay of low plasticity

Plant remains in PEAT were distinguished by observing plant remains with the naked eye and using the “squeeze test” by determining the amount of squeezing between the fingers.

The levels of decomposition exhibited in organic sediments were recorded as summarised in Table 3.8.

Table 3.8 – Degree of Decomposition

Degree of Decomposition	
Undecomposed	The plant remains lie apart without significant amounts of humic matter
Slightly decomposed	A certain amount of humic matter appears between the rather well preserved larger pieces of the sediment
Decomposed	The sample consists of an inhomogeneous mixture of larger, partly decomposed plant remains and humic matter
Strongly decomposed	The sample consists almost entirely of finely dispersed humic matter

3.2.4 Minor Components

The description of secondary constituents was performed offshore by visual observation and was later reviewed after completion of the particle size distribution results onshore.

Secondary soil constituents within a fine soil are classified as summarised in Table 3.9.

Table 3.9 – Secondary Constituent Classification (Fine Soils)

Term	Principal Soil Type	Secondary Constituent
Slightly sandy / slightly gravelly	SILT or CLAY	<10%
Sandy / gravelly	SILT or CLAY	10 - 25%
Very sandy / very gravelly	SILT or CLAY	>25%

Secondary soil constituents within a coarse soil are classified as summarised in Table 3.10.

Table 3.10 – Secondary Constituent Classification (Coarse Soils)

Term	Principal Soil Type	Secondary Constituent
Slightly clayey / slightly silty	SAND or GRAVEL	<5%
Clayey / silty	SAND or GRAVEL	5 - 10%
Very clayey / very silty	SAND or GRAVEL	>10%

In addition to describing secondary soil constituents, shells are described. The terms used are outlined in Table 3.11 below.

Table 3.11 – Shell Classification

Shell Classification	Description
Shells	Indicating intact or almost intact shells
Shell Pieces	Indicating pieces which can easily be identified by an expert
Shell Fragments	Indicating that the shell fragments are of a size rendering a determination impossible without use of a microscope

3.2.5 Structures

Structures are divided into sedimentary and tectonic. Sedimentary structures include layering, laminations, schliering, crossbedding and anything formed by biological activity. Tectonic structures included folds, fractures, slickensides and faults.

3.2.6 Colour

A Munsell colour chart was used for reference when describing the colour of the sample, however the codes were not included in the descriptions.

3.2.7 Mineralogy

Where contrasting mineralogy was observed in the sample it was noted, such as pockets of glauconite or pyritised burrows.

3.2.8 Carbonate Content

Carbonate content was tested offshore by placing a drop of dilute Hydrochloric Acid (HCl) on the sample and noting the strength of the reaction that occurred.

3.2.9 Colloquial Soil Type Names

Colloquial names were not included in soil descriptions.

3.2.10 Depositional Environment

The grain size, degree of sorting, sedimentary structures, fossils as well as knowledge of the general geology from nearby campaigns were used to determine the depositional environment of soils.

3.2.11 Age

The geological age of sediments was determined by cross referencing soils from nearby campaigns in the area.

3.3 Classification Laboratory Test Results

Basic index laboratory tests were performed offshore during operations in the vessel soil laboratory. Testing included soil description, colour identification, natural moisture contents, bulk and dry densities.

Further classification testing was performed onshore based on the laboratory testing schedule agreed between Energinet and Gardline. This included water content, bulk and dry density, particle density, particle size distribution and Atterberg limits.

Offshore and onshore test results are presented in composite borehole logs in APPENDIX 2. Summary tables are presented in APPENDIX 9.

3.3.1 Water Content, Bulk Density and Dry Density

Water content, bulk density, and dry density tests were performed on all representative samples offshore during the geotechnical site investigation and onshore as part of the advanced laboratory testing schedule.

Bulk densities of soil samples were measured by weighing samples of known volume immediately following sample extrusion. Samples were then placed in an oven for a set time before being allowed to cool and their dry weight taken.

Next, the samples are dried until they are at a constant mass. Constant mass is defined as the point in which there is less than 0.1% change in mass of the dry soil, when dried for at least one more hour. If the change in mass of the sample exceeds 0.1% then the sample is dried in the oven for a further hour, and the weighing process repeated until constant mass is achieved.

Density values were consistent across the site and generally show good repeatability.

Water contents (without density) went through the same process. However, the volume of the soil was not known.

Water content values correlate very well between locations.

Water content and bulk and dry density values presented in this report are measured values and no corrections have been applied.

Four bulk and dry density tests were cancelled due to sampling tube disturbance. Standalone water content tests were carried out instead.

Testing was carried out in accordance with ISO 17892-1 & 2.

3.3.2 Particle Density

Particle density tests were completed onshore as scheduled in the laboratory testing program.

The particle density of a soil sample is the ratio between the mass of the dry mineral particles and the mass of distilled water displaced by the dry mineral particles. The fluid pycnometer method was used for all particle density tests.

Testing was carried out in accordance with ISO 17892-3.

3.3.3 Atterberg Limits

Atterberg limits were performed to determine the liquid limit, plastic limit, plasticity index and activity index of a cohesive soil. These help to understand the behaviour of fine-grained sediments encountered during the geotechnical survey.

Water content (w), Plastic Limit (P_L), Liquid Limit (L_L), and Activity Index (A_I) were determined for cohesive samples to provide classification information. In each case, the liquid limit test was performed by the cone penetrometer method. Where necessary, specimens were washed through a 400µm sieve to exclude oversized material.

The liquid limit is the water content at which a soil changes from the liquid to the plastic state. The plastic limit is the water content at which the soil ceases to be plastic when dried further.

Plastic Limit is determined by using 15-20g of soil paste, allowing the specimen to partially dry enough to be rolled into a ball. The ball is then rolled between the palms of the hands until the heat of the hands has dried the soil sufficiently for slight cracks to appear on the specimen's surface.

Next, the specimen is divided into two portions of about equal mass, one portion being divided into three sub-portions. Each sub-portion is moulded into an approximate 6mm diameter thread between the first finger and thumb of each hand. The thread is then placed onto a mixing plate and rolled further, maintaining even thickness across the thread until it reaches 3mm diameter. The process is repeated until the specimen crumbles.

Once each of the three sub-portions have crumbled, the pieces are placed in a container with lid. For the second portion the process is repeated, and all three sub-portions placed into a second container with lid. Each portion then has water content determined according to ISO 17892-1. Plastic limit is calculated by the average of the two water content determinations.

Values of the Plasticity index (I_P) and the Liquidity index (I_L) have been calculated for all fine grained soils. The liquidity index I_L is an index property that relates the natural water content of a fine grained soil to its respective liquid and plastic limits and is expressed as:

$$I_L = \frac{w - P_L}{I_P}$$

The Activity Index is principally dependent on the amount and the type of clay minerals and organic colloids present as well as on the electrolyte content of the pore water within the sample. Activity Index is calculated using the following formula:

$$I_A = \frac{(L_L - P_L)}{CF}$$

Where CF = is the dry mass of particles having an equivalent diameter less than 0,002 mm, divided by the dry mass of the specimen (or of the dry mass of the specimen after removal of the coarse fraction) expressed as a percentage.

Testing was carried out in accordance with ISO 17892-12.

3.3.4 Particle Size Distribution (PSD)

PSD tests were performed on samples as part of the onshore laboratory testing campaign to understand the composition and *in situ* behaviour of the identified soil units.

Soils consist of discrete particles varying in shape and sizes. The purpose of a particle size distribution is to group these particles into size ranges and determine the relevant proportions, by dry weight, of each size range.

Two separate and different procedures are used:

- Wet sieving – used to assess the coarse-grained particle sizes of gravel and sand
- Sedimentation by hydrometer – used for finer silt and clay particles

During sedimentation, a reagent of sodium hexametaphosphate solution is used to help disperse the soil particles; this is made up of 40g of sodium hexametaphosphate in 1 litre of distilled water.

Soils were also pre-treated for organic content. This involved burning off organic matter with Hydrogen Peroxide and then filtering under a vacuum before testing.

PSDs are considered to be of good quality and achieved repeatable results. They strongly correlate with the soil type and behavioural characteristics noted during the logging phase.

Twenty-five tests were completed in SAND, three tests were completed in SILT, seventy-four tests were completed in CLAY, one test was completed in SAND TILL, and twenty-five tests were completed in CLAY TILL.

One hydrometer was cancelled due to there being insufficient material after the wet sieve test.

Testing was carried out in accordance with ISO 17892-4.

3.3.5 Maximum and Minimum Density

Maximum and minimum densities were conducted as part of the onshore laboratory testing campaign.

Maximum dry density values ranged between 1.70Mg/m^3 to 1.84Mg/m^3.

Minimum dry density values ranged between 1.32Mg/m^3 to 1.38Mg/m^3.

Nine tests were cancelled due to their fines content being greater than 10%.

Testing was carried out in accordance with Danish Geotechnical Society Guidelines.

3.3.6 Angularity

Angularity descriptions were undertaken within a selection of cores. In total twenty-two angularity descriptions were conducted across the site. They indicate a wide array of sand angularity, from rounded to angular.

3.4 Total Stress Laboratory Test Results

Index soil strength tests were performed offshore as these provide a fast method for clarification of undrained shear strength in fine grained cohesive soils. Index shear strength tests used offshore included pocket penetrometer and torvane testing apparatus.

Unconsolidated Undrained Triaxial (UUT) tests were performed offshore and onshore to aid design as agreed by Energinet and Gardline. This included intact UUTs and remoulded UUTs.

Shear strength results on the fine-grained units encountered generally correlate well with one another.

Index shear strength results are on the sample logs in APPENDIX 2 and in the shear strength summary tables in APPENDIX 10.

3.4.1 Pocket Penetrometer

The pocket penetrometer is a small handheld device consisting of a steel cylindrical plunger or adaptor and calibrated compression spring located in a cylindrical housing. The plunger is forced to penetrate the soil sample a fixed distance into the soil in a push time of approximately 1 second. The compression of the pocket penetrometer spring is directly calibrated to indicate the undrained shear strength of the soil (s_u). At least three readings should be performed on a specimen and the average of these readings taken as the final measurement.

Three different adapters for the pocket penetrometer were made available in order to facilitate measurements of very high to extremely high strength soils, with a maximum capacity of 1200kPa. Each adapter has a specified calibration factor used to calculate the undrained shear strength.

One onshore pocket penetrometer test was cancelled due to sampling tube disturbance.

Testing was carried out in accordance with ISO 19901-8.

3.4.2 Torvane

The Torvane is a small hand-operated device consisting of a plastic disc with thin, radial vanes projecting from one face. The Torvane is pressed against a flat surface of the soil until the vanes are fully embedded and is rotated through a torsion spring until the soil is sheared. The device is calibrated to indicate shear strength of the soil directly from the rotation of the torsion spring.

Four onshore Torvane tests were cancelled due to sampling tube disturbance.

Testing was carried out in accordance with BS 1377-7.

3.4.3 Unconsolidated Undrained Triaxial (UUT)

The UUT test is used to determine shear strength and stiffness of a soil for design.

In the UUT the test specimen is encapsulated in a latex rubber membrane and subjected to a confining pressure to replicate *in situ* ground conditions. The soil specimen is then loaded axially in a load frame at a constant rate of strain; typically, in the order of 1-2% per minute until the specimen fails. No drainage is allowed at any stage of the test. The undrained shear strength of the soil, s_u is half of the deviator stress at failure:

$$s_u = \frac{\sigma_1 - \sigma_3}{2}$$

Where σ_1-σ_3 is the maximum deviator stress (kN/m^2).

All triaxial results are presented on the borehole log in APPENDIX 2. Triaxial summaries and plots are presented in APPENDIX 11.

Seven UUTs were cancelled due to the specimens fracturing at preparation stage.

Testing at Gardline was carried out in accordance with ISO 17892-8. UUT tests were terminated on 15% axial strain. All UUTs were trimmed to 70mm diameter during sample preparation.

UUT tests carried out at Geotechnical Engineering were tested in accordance with ISO 17892-8, however technician error resulted in tests being terminated using the BS 1377-7 stop criteria. This does not affect the shear strength results, as testing was either terminated after the peak deviator stress was clearly defined, or at 15% axial strain. Shear strength is calculated at peak deviator stress or at 15% axial strain, so this affects the graphical plots only.

3.5 Chemical and Electro-Chemical Tests

Carbonate content, mass loss on ignition, acid soluble sulphate, acid soluble chloride, and thermal conductivity testing was conducted as part of the onshore testing programme.

A summary of all chemical tests is presented in APPENDIX 12.

3.5.1 Carbonate Content

The test procedure is a gasometric method that utilises a simple portable apparatus. The carbonate content of soil is determined by treating a dried soil specimen with hydrochloric acid (HCl) in an enclosed reaction cylinder (reactor). Carbon dioxide (CO_2) gas is exsolved during the reaction between the acid and carbonate fraction of the specimen. The resulting pressure generated in the closed reactor is proportional to the calcite equivalent of the specimen. This pressure is measured with a suitable pressure gauge, or equivalent pressure-measuring device, that is pre-calibrated with reagent-grade calcium carbonate.

It should be noted that the results of this test are calcite equivalent as different carbonate species will result in percentages greater than 100%. This test does not distinguish between the carbonate species and such determination must be made using quantitative chemical analysis methods such as atomic absorption.

Testing was carried out in accordance with ASTM D4373-14.

3.5.2 Loss on Ignition

Loss on ignition testing is used to determine the proportion, by mass, which is lost from a soil by ignition at a certain temperature.

The sample is dried to a constant mass in an oven at 50 ±2.5°C, cooled to room temperature in a desiccator and weighed. The sample is then passed through a 2mm sieve. Any particles that are retained (other than stones) are crushed until they pass through the 2mm sieve. The mass passing the 2mm sieve is then recorded to the nearest 0.1%.

The sample is then divided by successive riffling to produce a sample weighing more than 10g and then pulverized and passed through a 425µm sieve. The sample which passes the 425µm sieve is then riffled to obtain test specimens each weighing 5g. Each specimen is then dried in an oven at 50 ±2.5°C until the difference in successive weighing's, every 4hours, does not exceed 0.1% of the original mass of the sample. The sample is then cooled in a desiccator and weighed to 0.001g.

Next, the crucibles are placed in a furnace, ignited at 440 ±25°C for at least 3 hours, removed from the furnace and allowed to cool to room temperature in a desiccator. The crucible and its contents are then weighed to the nearest 0.001g.

To calculate mass loss on ignition as a percentage of the dry mass passing a 2mm sieve the following equation is used:

$$LoI = \frac{m_3 - m_4}{m_3 - m_c} x100\%$$

Where

m_3 is the mass of the crucible and oven-dry soil specimen
m_4 is the mass of the crucible and specimen after ignition
m_c is the mass of the crucible

Testing was carried out in accordance with BS 1377-3.

3.5.3 Acid Soluble Sulphate

This method determines the acid soluble sulphate content of soils by adding excess HCl to test specimens to dissolve the acid soluble sulphate species into solution. The sulphate in solution is determined gravimetrically by adding barium chloride to the extract to precipitate the sulphate as barium sulphate.

Testing was carried out in accordance with BS 1377-3

3.5.4 Acid Soluble Chloride

This method determines the acid soluble chloride content in soil by extraction with nitric acid. Silver nitrate is added and then followed by titration against thiocyanate.

Testing was carried out in accordance with BS 1377-3

3.5.5 Thermal Conductivity

This test method presents a procedure for determining the thermal conductivity of a soil using a transient heat method. It is applicable for both undisturbed and remoulded soil specimens. This test method is suitable only for isotropic materials and for both dry and saturated materials. It is applicable to materials over a wide temperature range from <0 to >100°C, depending on the suitability of the thermal needle probe construction to temperature extremes.

Testing was carried out in accordance with ASTM D5334-14.

3.6 Consolidation Tests

3.6.1 Incremental Loading Oedometer

Oedometer tests were completed to characterise stress history, compressibility and flow behaviour during one-dimensional compression or swelling of cohesive soils. Oedometer tests had five loading phases during consolidation.

Samples were laterally confined in an oedometer ring and an increment of load was applied to the submerged sample until primary consolidation was achieved. Increments of load were applied to each sample to determine the soil-strain behaviour.

Oedometer tests are considered to be of good quality.

Results and summaries are presented in APPENDIX 13.

Testing was carried out in accordance with ISO 17892-5.

3.7 Effective Stress Tests

The effective stress testing program comprised Isotropically Consolidated Undrained Triaxial Compression (CIUc), Isotropically Consolidated Drained Triaxial (CIDc), Anisotropically Consolidated Undrained Triaxial Compression (CAUc), and Anisotropically Consolidated Undrained Triaxial Compression with Cyclic Loading (CAUcyc) tests.

Effective stress results are presented in APPENDIX 14.

3.7.1 Isotropically Consolidated Undrained Triaxial Compression Tests

CIUc tests were scheduled to determine the isotropically consolidated undrained shear strength, and pore pressure change during shear, when a specimen is subjected to compression under a known effective stress.

The test is carried out in three stages: saturation, consolidation and compression. The saturation stage is used to ensure that all voids are filled with water before testing. The consolidation stage

immediately follows and is used to bring the specimen to the state of effective stress used for carrying out the compression test. The compression stage involves shearing the sample at a constant rate of axial deformation while the cell pressure is maintained. No drainage is permitted and therefore the moisture content remains constant during compression.

From a set of tests, the undrained effective shear strength parameters at failure can be derived.

Testing was carried out in accordance with ISO 17892-9.

3.7.2 Isotropically Consolidated Drained Triaxial Compression Tests

CIDc tests were scheduled to determine the isotropically drained shear strength, and volume change characteristics during compression of a specimen from which the pore water can drain freely.

The test is carried out in three stages: saturation, consolidation and compression. The saturation stage is used to ensure that all voids are filled with water before testing. The consolidation stage immediately follows and is used to bring the specimen to the state of effective stress used for carrying out the compression test. The compression stage involves shearing the sample at a constant rate of axial deformation while the cell pressure is maintained.

All CIDc tests were single specimen single stage tests and were reconstituted to specified target dry densities.

Testing was carried out in accordance with ISO 17892-9.

3.7.3 Anisotropically Consolidated Undrained Triaxial Compression Tests

CAUc tests were scheduled to determine the undrained shear strength characteristics and stress-strain relationships. The tests were preloaded anisotropically to an estimate of the preconsolidation effective stresses, then unloaded back to the existing *in situ* effective stresses prior to shearing. In this way, the specimen is taken through a stress path mimicking its consolidation history and during which it is intended that any disturbance that the specimen may have experience during sampling, or stress relaxation from exhumation may be ‘repaired’ prior to the shearing of the sample.

Testing was carried out in accordance with ISO 17892-9.

3.7.4 Cyclic Anisotropically Consolidated Undrained Triaxial Compression Tests

CAUcyc tests were scheduled to determine the undrained shear strength characteristics and stress-strain relationships with cyclic loading. The tests were prepared and consolidated in the same manner as the CAUc tests. Cyclic loading generally causes an increase in the pore water pressure of the specimen, which results in a decrease in the effective stress and an increase in the cyclic axial deformation.

Pressures were calculated using qnet values from CPTU tests, reference values from nearby static tests, and CSR and ASR values as provided by Energinet.

Table 3.12 overleaf provides a summary of the test specifications for each location.

Table 3.12 – Cyclic CAUc Test Specifications

Test Specimen	Average Static Stress (kPa)	Cyclic Shear Stress (kPa)	Cyclic Average Strain (%)	CSR	ASR
CB3a-BH P19AQ1	46	7	0.20	0.150	0.300
CB5-BH P19Q1	27	13	0.06	0.150	0.250
CB6-BH P12Q1	19	4	0.02	0.100	0.300
CB10-BH P11Q1	22	3	0.02	0.100	0.350
CB10a-BH P24Q1	106	106	0.44	0.300	0.300
CB12-BH P37Q1	76	64	0.28	0.300	0.350
CB13-BH P29Q1	63	20	0.13	0.250	0.300
CB14-BH P19Q1	37	22	6.89	0.150	0.250
OSS2-BH P05Q1	7	3	0.04	0.050	0.250

Table 3.13 below shows shear modulus (MPa) at different cycles

Table 3.13 – Shear Modulus (MPa) against Number of Cycles

Test Specimen	Shear Modulus (MPa) / Number of Cycles								
	1	5	10	20	50	200	500	1000	1500
CB3a-BH P19AQ1	4.61	4.05	3.88	3.63	3.38	3.01	2.73	2.56	2.46
CB5-BH P19Q1	21.48	19.89	18.27	18.27	16.88	16.96	16.07	14.84	14.92
CB6-BH P12Q1	14.59	14.12	11.38	14.12	11.97	11.57	13.65	11.77	11.38
CB10-BH P11Q1	9.20	10.82	11.04	9.20	8.84	9.39	9.02	7.89	9.02
CB10a-BH P24Q1	13.70	17.86	17.56	17.35	16.91	16.06	15.70	15.80	16.06
CB12-BH P37Q1	6.55	14.02	14.92	14.71	14.67	-	-	-	-
CB13-BH P29Q1	21.05	18.96	18.90	17.10	10.56	-	-	-	-
CB14-BH P19Q1	6.41	1.24	-	-	-	-	-	-	-
OSS2-BH P05Q1	5.98	5.33	5.44	5.33	4.99	4.89	4.89	5.22	5.22

One CAUcyc test (OSS1-BH P40Q1) was cancelled due to the specimen failing during the consolidation stage.

Testing was carried out in accordance with ASTM D5311.

3.7.5 Monotonic Direct Simple Shear

Monotonic DSS tests were scheduled to determine the stress-strain-strength relationships for monotonic horizontal loading.

DSS tests were laterally confined using rings and consolidated to the (isotropic) consolidation stress prior to unloading to the vertical in situ stress. Samples were then monotonically sheared under constant volume conditions to determine the stress-strain behaviour of the soil.

Tested in accordance with ASTM D6528-17.

Results are presented in APPENDIX 15.

3.8 Rock Test Results

3.8.1 Unconfined Compressive Strength (UCS)

UCS testing was scheduled to determine the unconfined compressive strength of selected intact rock core specimens.

The specimen is loaded axially in a load frame at atmospheric pressure and at a constant rate of strain; typically, in the order of 0.5-1% per minute until the specimen fails, in order to determine the stress-strain behaviour.

Testing was carried out in accordance with ISO 17892-7.

Results are presented in APPENDIX 16.

4 CPTU Analysis

4.1 General

Seabed mode CPTUs were attempted at each target location using Gardline's 20-tonne (200kN) thrust capacity seabed CPTU rig system utilising a constant tension umbilical winch to provide communications, electrical and hydraulic power to the surface unit. Tests were conducted with 10cm^2 cones calibrated in accordance with ISO 22476-1.

Downhole CPTUs were performed utilising a WISON downhole system via an independent winch and umbilical cable in combination with the drill rig. Tests were carried out in accordance with the requirements of ISO 19901-8:2014 and conducted with 10cm^2 cones calibrated in accordance with ISO 22476-1.

Acquired CPTU data was processed using Gardline proprietary TerraFusion software.

4.2 CPTU Results

In total 14 composite CPTU and sample boreholes (including two bump overs) and 52 seabed CPTU locations (including 12 retests) were completed during the site investigation.

A total of 255 CPTUs were conducted.

Cone offsets were taken on deck before and after the test and downhole before and after each test. The offsets were checked for consistency before and after testing. Cone offsets are tabulated in CPTU Reference Readings for downhole CPTU in APPENDIX 3.

Table 4.1 below summarises the cone offset classifications of the CPTU tests conducted. Where test data fell outside the required standard according to the shift engineer's judgement with reference to ISO 19901-8:2014, a cone change was conducted.

Table 4.1 – Application Class Summary

CPTU Application Class	Total No. Tests
Class 1	190
Class 2	40
Class 3	11
Out of Class	14
Total	255

Table 4.2 below summarises an overview of the reached depths of the seabed CPTU tests and the test termination criteria.

Table 4.2 – Termination Criteria of Seabed Mode CPTU/SCPTU Locations

Location	Push Depth	Termination Criteria
CB3a	59.18	Terminated due to loss of communication with cone
CB4	35.92	Terminated at operators' discretion due to lack of rod support from mudline when pushing into dense material

Location	Push Depth	Termination Criteria
CB5	5.46	Terminated at operators' discretion due to sudden increase in sleeve friction and tip resistance, with poor lateral rod support in the first 2m
CB5a	37.34	Terminated at operators' discretion due to sudden increase in tip resistance, total force and a lack of lateral rod support throughout latter half of test
CB6	6.26	Terminated at operators' discretion due to sudden increase in inclination and tip resistance
CB6a	36.26	Terminated at operators' discretion due to high inclination (18°)
CB7	20.89	Terminated due to acquisition software crashing mid-test causing loss of communication with cone
CB7a	31.27	Terminated due to sleeve friction refusal
CB8	24.61	Terminated at operators' discretion due to an increase in cone inclination to prevent damage to equipment
CB9	41.87	Terminated due to increasing cone inclination of 3° within a metre
CB10	28.99	Terminated at operators' discretion to avoid damage to equipment due to lack of lateral rod support from mudline
CB11	22.28	Terminated at operators' discretion due to lack of lateral rod support from mudline and increasing cone inclination
CB12	35.08	Terminated at operators' discretion due to high risk of rod bend
CB13	34.11	Terminated at operators' discretion due to high inclination and risk of rod bend
CB14	22.79	Terminated due to increasing cone inclination of 3° within a metre
CPT3	7.68	Terminated due to increasing cone inclination of 3° within a metre and increasing tip resistance
CPT3a	3.76	Terminated due to increasing cone inclination of 3° within a metre and increasing tip resistance
CPT3b	2.06	Terminated due to increasing cone inclination of 3° within a metre and increasing tip resistance
CPT4	32.39	Terminated at operators' discretion due to increasing sleeve friction and to prevent damage to the equipment
CPT6	6.08	Terminated at operators' discretion due to sudden increase in sleeve friction and tip resistance
CPT6a	37.04	Terminated at operators' discretion due to increasing total load, tip resistance, and lack of lateral rod support

Location	Push Depth	Termination Criteria
CPT7	36.73	Terminated at operators' discretion due to a sudden increase in tip resistance, high total load, and cone inclination
CPT8	20.81	Terminated at operators' discretion due to lack of lateral rod support from mudline resulting in a high risk of buckling rods when in very dense sands
CPT9	32.64	Terminated due to increasing cone inclination, SBF inclination, and increasing total load
CPT10	37.29	Terminated due to increasing total force, increasing cone inclination, and a lack of lateral rod support from mudline
CPT11	4.15	Terminated due to maximum sleeve friction refusal
CPT11a	43.68	Terminated at operators' discretion due to high inclination, total load, and risk of rod bend
CPT12	39.37	Terminated at operators' discretion due to high inclination,
CPT13	35.91	Terminated due to maximum sleeve friction refusal
CPT14	27.72	Terminated at operators' discretion due to lack of lateral rod support from mudline and increasing cone and SBF inclination
CPT15	49.82	Terminated due to maximum sleeve friction refusal
CPT16	29.78	Terminated due to poor data quality after dissipation test
CPT16a	33.44	Terminated at operators' discretion due to lack of lateral rod support from mudline, increasing total load, and total cone inclination reaching near critical
CPT18	37.79	Terminated at operators' discretion to avoid damage due to lack of lateral rod support from mudline
CPT20	49.82	Terminated at operators' discretion to avoid damage due to lack of lateral rod support from mudline and increasing total load
CPT22	46.18	Terminated due to cone inclination reaching maximum inclination threshold of 12° and the risk of rod bend and buckling rods
CPT23	41.30	Terminated at operators' discretion due to risk of rod bend
CPT25	30.65	Terminated due to loss of communication with cone after attempting a dissipation test
CPT25a	30.37	Terminated due to loss of communication with cone after attempting a dissipation test
CPT25b	31.12	Terminated at operators' discretion due to increasing total load and lack of lateral rod support from mudline
CPT26	37.33	Terminated at operators' discretion to avoid damage due to lateral rod support and an increasing tip load
OSS 1	47.95	Terminated due to loss of communication with cone

Location	Push Depth	Termination Criteria
OSS 1a	18.84	Terminated at operators' discretion due to increasing cone inclination
OSS 2	15.77	Terminated at operators' discretion due to a lack of lateral rod support from mudline resulting in a high risk of buckling rods in very dense sands
SCPT1	2.64	Terminated due to a communication issue with the seismic source
SCPT1a	37.79	Terminated at operators' discretion due to increasing total force and lack of lateral rod support
SCPT2	26.52	Terminated at operators' discretion due to cone inclination exceeding 12° and a lack of lateral rod support in hard ground
SCPT5	30.09	Terminated at operators' discretion due to increasing total load and a lack of lateral rod support from mudline
SCPT17	18.70	Terminated due to increasing cone inclination of 3° within a metre
SCPT19	21.92	Terminated at operators' discretion due to cone inclination reaching the maximum 12°
SCPT21	31.68	Terminated due to rising weather conditions
SCPT24	32.93	Terminated due to increasing cone inclination of 5° within a metre

The SBF for the drill rig was fitted with base inclinometers, measuring the x-axis and y-axis of the rig, which was monitored throughout.

It should be noted that on occasion, CPTU results showed negative pore water pressure (PWP) when penetrating high to extremely high strength clays. This response is common in over-consolidated clays and is caused by cavitation during penetration. Cavitation can be easily identified in the CPTU records when negative PWP appears to reach a limit and flat-line, this limit corresponds to the cavitation pressure.

The minimum negative PWP reading that a cone can register will be a function of the cavitation pressure, which is given by the sum of atmospheric and hydrostatic pressures.
Minimum deck to deck values for each application class are defined in Table 4.3 overleaf.

Table 4.3 – CPTU Application Class Criteria

Application Class	Measured Parameter	Allowable Min. Accuracy
1	Cone Resistance	35 kPa
	Sleeve Friction	5 kPa
	Pore Water Pressure	25 kPa
2	Cone Resistance	100 kPa
	Sleeve Friction	15 kPa
	Pore Water Pressure	50 kPa
3	Cone Resistance	200 kPa
	Sleeve Friction	25 kPa
	Pore Water Pressure	100 kPa

4.3 Presentation of Data

The CPTU data are presented in two sets of plots. The first set represents corrected measured parameters. These plots consist of:

- Cone resistance - q_c
- Sleeve friction - f_s
- Pore water pressure - u_2 (behind the tip)
- Hydrostatic Pore Pressure – u_0
- Cone Inclination

The data acquired downhole was corrected for the error involved in zeroing the cone sensors at the borehole base:

$$u_2 = u_2^* + \gamma_w * d$$
$$q_c = q_c^* + d * \alpha * \gamma_w$$

Where

α	=	the ratio of the cone shaft to the area of the cone
u_2^* & q_c^*	=	the measured values of the downhole CPTU
d	=	depth of borehole below seabed
γ_w	=	unit weight of water
z	=	depth of cone tip below bottom of borehole

The second set represents derived parameters and contains the following calculated data:

- Corrected cone resistance - q_t
- Net cone resistance – q_{net}
- Friction Ratio - R_f
- Pore pressure ratio - B_q

The data for the derived plots were calculated using the following formulae:

$$q_t = q_c + \alpha*\gamma_w*d + (1-\alpha)(u_2 + \gamma_w*d) = q_c + (1-\alpha)u_2 + \gamma_w*d$$
$$R_f = f_s/q_t * 100\%$$

B_q = $\Delta u/q_n$

where q_{net} = $q_t - \sigma_{v0}$
and Δu = $u_2 - \gamma_w * z$

Ratio of the cone shaft to the area of the cone tip - α
Net cone resistance - q_{net}
Pore pressure in excess of hydrostatic pressure - Δu
Total overburden pressure of overlying sediments - σ_{v0}

Measured and derived plots are presented for downhole mode and seabed mode CPTU in APPENDIX 3.

Undrained shear strength (s_u) is calculated using the following formula:

s_u = q_{net}/N_{kt}

where N_{kt} = Cone Factor

Undrained shear strengths are calculated using N_{kt} values of 12.5-16.5 and 15.0-20.0. Undrained shear strengths are only presented for fine grained undrained cohesive soils. Table 3.5 shows the strength descriptor used for CPTU and sample log interpretations.

Relative density of the soil is a measure of the compactness of the soil and varies with the particle size and mineralogy; the gradation and the manner in which the soil mass was compacted (geological history). The relative density has been derived from the CPTU results using the correlation proposed by Jamiolkowski et al. 1988.

Relative density correlations are derived from laboratory tests carried on laboratory tests on normally consolidated, un-cemented, un-aged, clean, predominantly silica sands. If the tested sand stratum contains any deviation from this in the form of gravel, silt or clay content, slight cementation, or high carbonate content, then the estimated relative densities may be deemed to be un-representative.

Relative density (D_r) is calculated using the following formula:

$$D_r = \left[\frac{1}{2.93}\right] \ln\left[\frac{q_c}{205\left(\sigma_m{}'^{0.51}\right)}\right] x100$$

where $\sigma_m{}'$ = $\left[\frac{\sigma'_{vo}\left(1+2K_0\right)}{3}\right]$ Estimated mean effective stress at test depth

σ'_{v0} = Total effective overburden pressure of overlying sediments
K_0 = Coefficient of lateral earth pressure

K_0 is the coefficient of lateral earth pressure; both K_0 values of 0.5 and 1.0 are used on CPTU logs to present a range of relative density values. Engineers should utilise engineering judgement when reviewing the relative density profiles. In general, the lower K_0 value represents normally

consolidated conditions, usually encountered at shallow depths, and the higher K_0 value is more appropriate in overconsolidated soil conditions encountered at greater depth.

All measured and derived CPTU data is presented on CPTU logs in APPENDIX 3.

Table 4.4 – CPTU Application Class Criteria

Relative Density Descriptor	D_r (%)
Very loose	0 – 15
Loose	15 – 35
Medium dense	35 – 65
Dense	65 – 85
Very Dense	85 – 100

The equation used by Jamiolkowski et al. (1988) above, is derived from laboratory tests carried on three well-known silica sands: fine to medium Ticino, Toyoura and Hokksund. Laboratory tests were carried out on fine to medium, normally consolidated, un-cemented, un-aged, clean, predominantly silica sands of low to moderate compressibility. If the tested sand stratum contains any deviation from this in the form of gravel, silt or clay content, slight cementation or high carbonate content, then the estimated relative densities may be deemed to be un-representative.

Since Jamiolkowski's laboratory calibration tests were performed on essentially uniform fine to medium grained "clean" silica sands, the predicted relative density (D_r) results should be applied with caution and the results considered as "equivalent" values of relative density. Furthermore, at low stress levels the Jamiolkowski proposal becomes less accurate for the determination of relative density.

4.4 Rejected Data

For position CB5-BH, the data for CPT4 was rejected as the data was considered void after processing.

For position OSS2-BH, CPT4 was aborted due to poor data quality and the data was not presented.

4.5 N_{kt} Assessment

An interim N_{kt} assessment was carried out using some of the expedited UUT results in the low strength clays using the q_{net} values from the corresponding seabed CPTU tests. Values of 20.0-30.0 were obtained from this assessment, but it is important to note that this range is higher and wider than expected for soils encountered across the site.

It is commonly agreed that UUTs are less reliable for N_{kt} assessments than CAUc and DSS tests. INSAFE classes UUT shear strength values as low reliability when below 20kPa and moderate to low in reliability when below 40kPa.

Upon completion of the DSS and CAUc testing, a further N_{kt} assessment was carried out. Average values of 11.0-15.0 were obtained from this assessment in the lower strength clays, so the values of 12.5-16.5 originally used have not been changed.

For the higher strength clays and tills, values ranged between 8.0-28.0. This range is quite high and scattered so the assessment is inconclusive. The values have not been changed from the original 15.0-20.0.

Visual representations of the N_{kt} assessments can be found in APPENDIX 4.

5 SCPTU Analysis

5.1 General

Seabed mode SCPTU were attempted at each target location using Gardline's 20-tonne (200kN) thrust capacity seabed CPTU rig system utilising a constant tension umbilical winch to provide communications, electrical and hydraulic power to the surface unit. The seismic source was lowered independently as part of the sequence of operations.

SCPTU operations were carried out in accordance with ISO 19901-8:2014. Acquired SCPTU data was processed using Gardline's proprietary SCPTpro processing software.

5.2 Presentation of Data

For each investigated depth, the depth of each geophone below seabed is given along with the horizontal source offset. This allows the assumed wave travel paths and derived seismic velocities to be determined. This is presented in APPENDIX 5.

5.3 Methodology

Processing of SCPT data follows eight steps:

1) Shot File Selection
2) Shear Wave Polarisation Analysis
3) Targeted Analysis
4) Fourier Transform and Filtering
5) Correlation Coefficient
6) Manual Picking
7) Representative Lag Selection
8) Interval Velocity Calculation (SRA method)

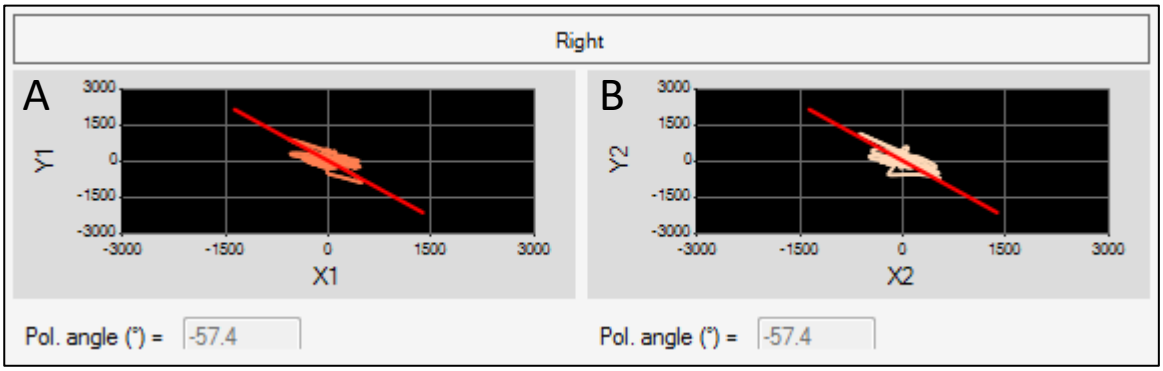
5.3.1 Shot File Selection

Once the seismic cone is at testing depth, several hammer blows are fired: horizontal Left (L), horizontal Right (R) and vertical. Each recorded shot is visualised allowing misfires to be disregarded and the best shots, by means of Signal to Noise Ratio (SNR), selected and stacked.

5.3.2 Shear-Wave Polarisation Analysis

The x-axis and y-axis orientation of the geophones, relative to the source, are not known during SCPT testing. This is paramount to the success of determining shear-wave velocity from horizontal blows. Polarisation analysis reconstructs the primary shear-wave direction, using the x-axis and y-axis signals, providing a best representation of the shear waves while also improving SNR. The reconstructed signal is called Full Waveform (FW); see Figure 2.

Figure 2 - Polarisation Analysis (SCPT_57) Red Line Represents New Primary Axis



Polarisation analysis of top geophone (A) and bottom geophone (B)

5.3.3 Targeted Analysis

It is assumed that the lag of the first shear wave arrival is most representative. The later the lag is measured the less relevant it is for the analysis as it can be associated with more "wandering" or reflected waves paths. It should therefore be noted that the time lag between upper and lower geophones are not constant for a given record.

For this reason, analysis should target the direct shear-wave paths. SCPTpro can focus on a portion of the signals where the hammer blow first appears. This "Target Window" analysis disregards potential correlated noise which could lead to the determination of irrelevant lags. These new "cropped" signals are then analysed in addition to original signals.

5.3.4 Fourier Transform and Filtering

The Fourier Transform is calculated for each signal. This allows the application of filters and cleaning signals from the ambient noise. Fourier Transform handling also provides direct calculation of the Cross-Correlation Function (CC analysis) and the determination of the time lag between top and bottom geophone signals. This is also done for the "cropped" signal (Targeted Cross-Correlation (TCC) analysis).

5.3.5 Correlation Coefficient

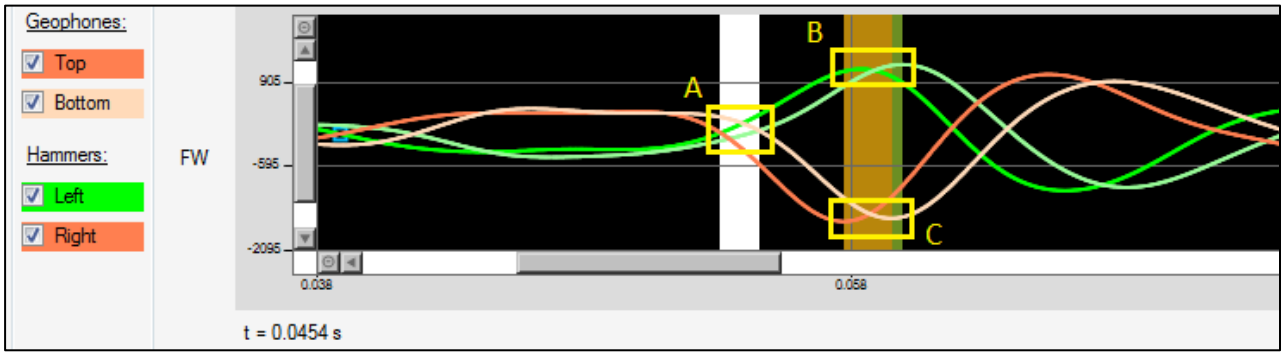
The Correlation Coefficient is calculated for each signal. The Correlation Coefficient provides an assessment of the similarity between two signals after compensating for the lag between them.

5.3.6 Manual Picking

Visualisation and manual selection of signal offsets between identifiable features allows the engineer to select the most representative calculated or "picked" lag. This is done by selecting peaks (on Left or Right signals) or cross-overs (between L and R).

For each record where the hammer blow was clearly identifiable, time delays where manually picked on each available feature among *Peak (Left signal) / Peak (Right signal) / Cross-Over* between the signals; see Figure 3.

Figure 3 –Manual picking on, Cross-Over (A), Left Peaks (B) and Right Peaks (C)



5.3.7 Representative Lag Selection

Several independent methods are used to determine the lag values between the upper and lower geophones.

5.3.8 Interval Velocity Calculation (SRA Method)

Once the delay between signals is determined, an initial assessment of the interval velocity is made assuming direct slant rays between the source and the geophones. This is known as the Straight Ray Assumption (SRA); see Figure 4 below.

The path length difference Δl is then easily determined as:

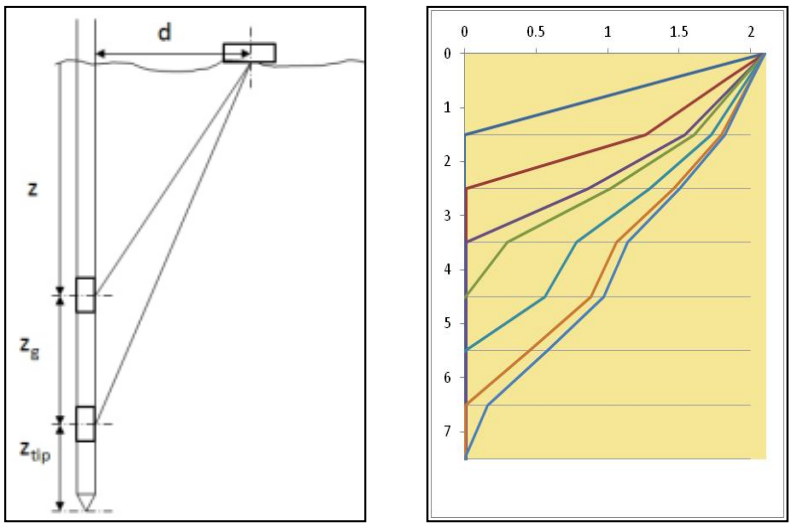
$$\Delta l = \sqrt{(d^2 + (z + z_g)^2} - \sqrt{(d^2 + z^2)}$$

5.3.9 Reduced Velocity Calculation (iterative Method)

To determine the path length difference Δl, SCPTpro can also calculate a more complex method which allows the mechanical properties of the soils to be considered.

Following Snell's Law and Fermat's Principle, a ray penetrating with a non-null inclination into a soil showing a sudden and significant change of impedance will undergo refraction. Therefore, a signal ray path going through a succession of layers with significantly mismatching impedances can be modelled as a succession of straight lines being refracted at each interface between layers; see Figure 4 below.

Figure 4 –Left: Straight Ray Assumption (SRA), Right: Snell's Law and Fermat's Principle



5.4 Results

After thorough review of the data collected, the derivation of the P-wave velocity has been deemed inconclusive. The difficult task of acquiring compression velocities from P-waves in offshore SCPT testing being exacerbated on this site by the very soft soils encountered. Therefore, no P-wave velocities are presented in this report. Corresponding traces along Z-axis geophones are presented in the appendices.

S-wave velocities along with SCPTU data against depth are presented in APPENDIX 5.

6 PS Logging

6.1 General

PS Logging data were acquired at CBT-DH2 and CBT-DH3. Equipment was managed by Robertson Geologging operators and data quality overseen by Robertson Geologging.

6.2 Equipment

PS Logging is used for the in-situ determination of compression (P) and shear (S) wave seismic velocities. The equipment, manufactured by OYO Corporation, comprises a directional seismic source and a pair of directional seismic detectors mounted together with associated power, switching and data transmission electronics, in a 6.25m long wireline sonde (Figures 4.1 and 4.2). It is deployed in a fluid filled uncased borehole from a logging winch (Figure 4.3) fitted with a depth encoder. Operation is controlled using Robertson Geologging Ltd (RGL) software running a RGL Micrologger 2 logging interface unit.

Figures 6.1 and 6.2 PS Logging Sonde Components

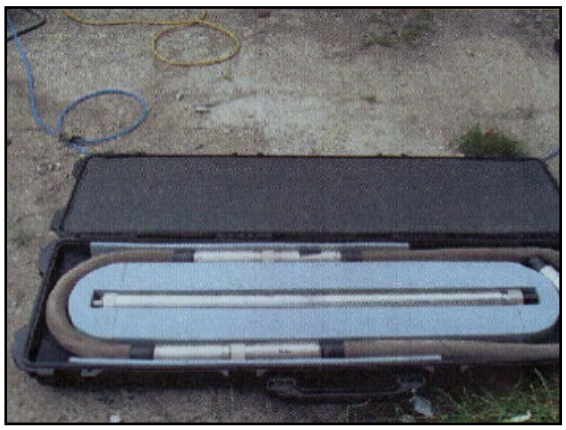
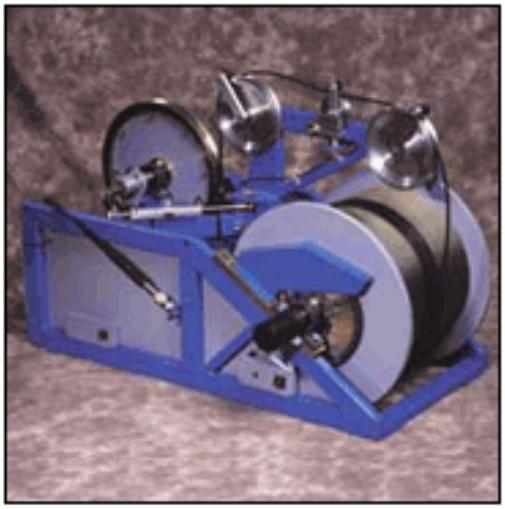


Figure 6.3 Robertson Geologging Winch



6.3 Summary of PS Logging Operations

In operation the seismic source in the sonde is activated to produce a sequence of seismic pulses which excite 'flexural' waves. Depending on the direction of impulse the seismic waves which are generated travel at the P- and S-wave velocities of the formation and are detected by the seismic receivers which are 1 m apart. The difference in arrival time at the lower and upper receivers can be measured from the displayed waveforms and the seismic velocities can then be calculated.

It is necessary for the operator to control the system settings to ensure that the data recorded are of sufficient quality for the arrival time measurements to be carried out. Measurements were made from the bottom up at 1m intervals. The scope of work originally stated testing was to be performed from the base of the borehole to mudline but due to the conditions of the borehole this was not obtainable, and a more pragmatic approach was performed.

From the resulting wave formation plots, the first arrival times from both the compression (P) and shear (S) wave velocities are picked. The seismic velocities are then determined and used along with other geotechnical data such as densities to aide in characterisation of the basic material properties and determination of G_0.

6.4 PS Logging Results

The scheduled start depth and end depth for each borehole varied depending on client requirements and the integrity of the borehole walls in each location. From the borehole log it was decided that the logging would be carried out in stages with the drill pipe moved up/removed in 5-10m intervals to reduce the chance of borehole collapse. Table 6.1 provides a summary of the depths the data was collected.

Table 6.1 – PS Logging Acquisition Stages

Borehole Number	Depth	Comments
CB11a-BH	53.00-4.00	Test completed with a total of 8 runs
OSS2-BH	65.00-4.00	Test completed with a total of 12 runs and a data gap between 29.00 and 24.00 metres due to borehole collapse
CB6-BH	52.00-4.00	Test completed with a total of 10 runs
CB7-BH	52.00-4.00	Test completed with a total of 11 runs
CB14-BH	56.00-47.00	Test completed with a total of 1 run and a data gap between 47.00m and mudline due to borehole collapse

Due to the unstable nature of the upper unconsolidated sediments the extent of PS logging data collected varied with each borehole due to the borehole collapsing or stopping below an area where it was judged to be at high risk of collapse e.g. sand and low strength sediments.

Both P and S wave velocities were picked and represented on a log. In some instances, it was very difficult to pick good shear wave signals. This is often the case as the PS logger nears the seabed as loss of shear waves is expected as the surface is approached; Too much noise and vibration cause the shear waves to become drowned out, as well as the degradation of the borehole caused by drilling operations becomes more pronounced closer to mudline. The data quality was also affected by the amount of time the borehole was left open during drilling operations, as the stability of the borehole walls naturally degrades over time. PS logging results are presented in APPENDIX 6.

7 Dissipation Tests

7.1 General

Dissipation testing is an *in situ* test using a CPTU that measures the rate of pore pressure change and provides important information of a soil's permeability and excess pore water pressure dissipation behaviour for slope stability and liquefaction studies.

7.2 Summary of Dissipation Testing Operations

Dissipation tests can be carried out by stopping the cone at a selected depth within a normal CPTU stroke. As the cone is pushed into saturated sediments, it creates a localized increase in pore pressure near the tip of the cone termed as excess pore pressure. When the cone is stopped and held stationary, the time it takes for the pore pressure to reach equilibrium (or hydrostatic) pore pressure is measured.

Dissipation tests are normally conducted for fine cohesive sediments where the change in pore pressures are significantly pronounced compared to cohesionless sediments where the dissipation rate is fast. The majority of tests undertaken indicate mainly clay sediments where dissipation was slow, however there were a few tests undertaken in sand sediments where dissipation was rapid.

Some of the dissipation tests in fine-grained soils show an asymptote towards a pore pressure that is significantly different to the hydrostatic pore pressure. It is likely that these tests are showing a dilatory response. The higher the dilation, the lower the initial pore pressure, and over time this will rise up before eventually returning to ambient due to the localised dissipation/redistribution of pore pressure occurring. A risk with dissipation tests that have a dilatory response is that the pore pressure sensor may not be fully saturated at the start of the test. If these tests were left running for a significantly longer time, we would expect the pore pressure to eventually return to ambient.

7.3 Dissipation Data Collection Operations

Table 7.1 below summarises the boreholes and depths dissipation tests were conducted. Dissipation plots are presented in APPENDIX 7.

Table 7.1 – Dissipation Acquisition Depths

Location	Depth (m)	Comments
CB6-BH	40.62	Test carried out during CPT02
CB7-BH	37.54	Test carried out during CPT01
CB8-BH	15.36	Test carried out during CPT01
CB9-BH	52.74	Test carried out during CPT04
CB10a-BH	31.22	Test carried out during CPT01
CB11-BH	32.68	Test carried out during CPT04
CB12-BH	42.98	Test carried out during CPT03
CB13-BH	37.26	Test carried out during CPT03
CB14-BH	20.96	Test carried out during CPT01

Location	Depth (m)	Comments
OSS1-BH	70.06	Test carried out during CPT07
OSS2-BH	14.26	Test carried out during CPT01
CB3a	3.50	Seabed CPTU
CB7a	20.00	Seabed CPTU
CB9	39.10	Seabed CPTU
CB12	34.83	Seabed CPTU
CPT15	3.19	Seabed CPTU
CPT16	17.50	Seabed CPTU
CPT16	29.48	Seabed CPTU
CPT16a	33.45	Seabed CPTU
CPT23	40.89	Seabed CPTU
CPT26	37.44	Seabed CPTU
SCPT2	26.53	Seabed SCPTU
SCPT17	18.74	Seabed SCPTU

8 References

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APPENDIX 1- LOCATIONS

1.1 Location Map
1.2 Location Summary

1.1 Location Map

660,000 665,000 670,000 675,000 680,000 685,000 690,000

6,280,000 6,275,000 6,270,000 6,265,000 6,260,000 6,255,000 6,250,000

N GRID

CPT26
CB9-BH CB9
SCPT24
CPT25/25a/25b
CB4-BH CB4
CB12
CB12-BH
CB3a
CPT22
CB3a-BH
CPT23
CPT20
SCPT19
SCPT21
OSS1-BH OSS 1/1a
CPT15
CB13
CPT16/16a
CPT18
SCPT17
CB13-BH
CB10
CB10-BH/CB10a-BH
CPT12
CB7/7a
CPT14
CPT11/11a
CB7-BH
CPT13
CB6/6a
CB6-BH
CPT9
SCPT5
CB11
CB11-BH
CPT6/6a
CPT7
CPT8
CB11a-BH
CB5/5a
Anorm_3
CPT10
CB5-BH
Anorm_2
OSS2-BH
Anorm_1
OSS 2
CB14
CB14-BH
SCPT2
CPT4
CPT3/3a/3b
SCPT1/1a
CB8-BH CB8

660,000 665,000 670,000 675,000 680,000 685,000 690,000

LEGEND

Geotechnical Locations

- 200kN Seabed CPT
- 200kN Seabed SCPT
- Borehole (Hybrid) + PS Logging
- Borehole (Hybrid)
- Borehole (Sampling)

Cross Sections

- CS 1
- CS 2
- CS 3
- CS 4
- CS 5
- CS 6

GEODETIC REFERENCE SYSTEM

Datum	ETRS89
Ellipsoid	GRS80
Projection	UTM Zone 32N

OVERVIEW MAP

SCALE (A3 ORIGINAL)

1:125,000

0 2 4 6 8 10

Kilometers

TITLE

CONTRACTOR

Gardline

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CLIENT

ENERGINET

PROJECT TITLE

Preliminary Investigation Hesselø OWF

DRAWING TITLE

GEOTECHNICAL LOCATION MAP

REV	JOB NUMBER	ISSUE DATE	STATUS
0	11596	10/06/2021	Draft for comment
1	11596	18/10/2021	Cross Section lines added

1.2 Location Summary

Borehole	Easting (m)	Northing (m)	Water Depth (m)	Final Depth (m)	Date of Test	Comments
Anorm_1	675388.0	6253585.8	30.7	10.85	05/06/2021	Borehole Anorm_1 was completed to a depth of 10.85m utilising API drilling & Wison push sampling methods
Anorm_2	674960.6	6253696.4	30.4	10.85	05/06/2021	Borehole Anorm_2 was completed to a depth of 10.85m utilising API drilling & Wison push sampling methods
Anorm_3	674814.0	6255189.3	30.4	10.47	05/06/2021	Borehole Anorm_3 was completed to a depth of 10.47m utilising API drilling & Wison push sampling methods
CB3a-BH	673292.3	6269812.0	31.9	70.30	15/05/2021 - 16/05/2021	Borehole CB3a-BH was completed to a depth of 70.27m utilising API drilling~ Wison CPT and push sampling methods
CB4-BH	675777.1	6272690.2	31.1	70.80	16/05/2021 - 18/05/2021	Borehole CB4-BH was completed to a depth of 70.72m utilising API drilling~ Wison CPT and push sampling methods. Data gap between 37.85 and 42.00m due to the ground conditions impeding recovery~ Drillers note;- Cobbles/ Boulders- testing was attempted at 0.5-1.0m intervals with a number of tools until recovery was successful.
CB5-BH	671117.7	6254702.0	27.2	64.70	09/05/2021 - 11/05/2021	Borehole CB5-BH was completed to a depth of 64.62m utilising API drilling~ Wison CPT and push sampling methods.
CB6-BH	668193.1	6258003.5	26.7	56.70	27/05/2021 - 29/05/2021	Borehole CB6-BH was completed to a depth of 56.70m utilising API drilling~ Wison CPT and push sampling methods. P-S logging was performed from 52.00m to 3.00m below mudline.
CB7-BH	673537.8	6259626.9	31.0	64.32	29/05/2021 - 30/05/2021	Borehole CB7-BH was completed to a depth of 64.32m utilising API drilling~ Wison CPT and push sampling methods. P-S logging was performed from 52m to 4m below mudline.
CB8-BH	679824.2	6248913.9	31.3	70.10	18/05/2021 - 20/05/2021	Borehole CB8-BH was completed to a depth of 70.10m utilising API drilling~ Wison CPT and push sampling methods.
CB9-BH	677391.0	6276213.6	30.9	70.50	03/06/2021 - 04/06/2021	Borehole CB12-BH was completed to a depth of 70.94m utilising API drilling~ Wison CPT and push sampling methods
CB10-BH	678759.8	6261509.5	33.0	29.70	31/05/2021	Borehole CB10-BH was completed to a depth of 29.70m utilising API drilling~ Wison CPT and push sampling methods. Drillers note - the borehole was terminated due to a hard layer/boulder being encountered and drilling could not proceed.
CB10a-BH	678755.5	6261514.2	33.1	70.25	05/06/2021 - 06/06/2021	Borehole CB10a-BH was completed to a depth of 70.25m utilising API drilling~ Wison CPT and push sampling methods.

BOREHOLE LOCATION SUMMARY

ETRS89 UTM 32N

Borehole	Easting (m)	Northing (m)	Water Depth (m)	Final Depth (m)	Date of Test	Comments
CB11-BH	678372.1	6256261.3	31.5	53.12	22/05/2021 - 23/05/2021	Borehole CB11-BH was completed to a depth of 53.12m utilising API drilling~ Wison CPT and push sampling methods~ at which point it was terminated due to rising weather conditions.
CB11a-BH	678366.7	6256257.1	31.5	57.00	24/05/2021	Borehole CB11a-BH was completed to a depth of 57.00m utilising API drilling~ Wison CPT and push sampling methods after open hole drill out to 52.00m. P-S logging was performed from 53.00m up to 4.00m below mudline.
CB12-BH	677450.4	6270639.0	31.9	70.00	02/06/2021 - 03/06/2021	Borehole CB12-BH was completed to a depth of 70.68m utilising API drilling~ Wison CPT and push sampling methods
CB13-BH	670639.2	6262915.3	29.9	66.50	12/05/2021 - 14/05/2021	Borehole CB13-BH was completed to a depth of 66.48m utilising API drilling~ Wison CPT and push sampling methods
CB14-BH	680529.7	6252848.4	31.6	62.35	20/05/2021 - 21/05/2021	Borehole CB14-BH was completed to a depth of 62.33m utilising API drilling~ Wison CPT and push sampling methods.
OSS1-BH	674181.3	6265901.1	31.7	70.20	31/05/2021 - 02/06/2021	Borehole OSS1-BH was completed to a depth of 70.20m utilising API drilling~ Wison CPT and push sampling methods.
OSS2-BH	674911.0	6253674.2	30.0	70.20	25/05/2021 - 27/05/2021	Borehole OSS2-BH was completed to a depth of 70.08m utilising API drilling~ Wison CPT and push sampling methods. P-S logging was performed from 65m to 4m below mudline.

BOREHOLE LOCATION SUMMARY

ETRS89 UTM 32N

Gardline

11596 - Preliminary Investigation - Hesselø OWF

CPTU	Easting (m)	Northing (m)	Water Depth (m)	Penetration (m)	Date of Test	Comments
CB3a	673294.0	6269807.2	31.8	58.00	01/05/2021	Cone out of class. Continuous seabed CPT. Final depth 58m. Test terminated due to loss of communication with cone after snapping rods
CB4	675775.7	6272685.7	30.9	35.73	01/05/2021	Cone class 1. Continuous seabed CPT. Final depth 35.73m. Test terminated at operators discretion due to lack of rod support from mudline when pushing into dense material
CB5	671118.2	6254697.4	27.4	5.46	28/04/2021	Cone class 3. Continuous seabed CPT. Final depth 5.46m. Test terminated at operators discretion due to high increase in sleeve friction and sudden increase in tip resistance~ poor lateral rod support in first 2m
CB5a	671118.6	6254692.2	27.4	37.28	28/04/2021	Cone class 2. Continuous seabed CPT. Final depth 37.28m. Test terminated due to a sudden increase in tip resistance and total force and a lack of lateral rod support throughout latter half of test
CB6	668194.0	6257998.4	26.7	6.10	29/04/2021	Cone class 1. Continuous seabed CPT. Final depth 6.10m. Test terminated at operators discretion due to sudden increase in inclination and tip resistance
CB6a	668194.3	6257993.1	26.8	36.08	29/04/2021	Cone class 1. Continuous seabed CPT. Final depth 36.08 m. Test terminated at operators discretion due to high inclination (18 degrees)
CB7	673538.0	6259621.3	31.0	20.89	29/04/2021	Cone class 2. Continuous seabed CPT. Final depth 20.89m. Test terminated due to acquisition software crashing mid test losing communication with the cone
CB7a	673538.5	6259616.4	31.1	31.03	29/04/2021	Cone class 1. Continuous seabed CPT. Bumpover location. Final depth 31.03m. Dissipation tests performed at 20m and 30m.Test terminated due to sleeve friction refusal
CB8	679824.3	6248908.7	30.7	24.61	27/04/2021	Cone Class1. Continuous seabed CPT. Final depth 24.61m. Test was terminated at operators discretion due to an increase in cone inclination to prevent damage to equipment.
CB9	677390.6	6276209.1	30.9	41.67	02/05/2021	Cone class 2. Continuous seabed CPT. Final depth 41.67. Test terminated due to increasing cone inclination of 3 degrees within a metre
CB10	678760.1	6261514.8	32.0	28.90	26/04/2021	Cone Class1. Continuous seabed CPT. Final depth 28.90m. Test was terminated at operators discretion to avoid damage to equipment due to lack of lateral rod support from mudline
CB11	678372.4	6256256.9	31.4	22.14	26/04/2021	Cone class 3. Continuous seabed CPT. Final depth 22.14m. Test terminated at operators discretion due to lack of lateral rod support from mudline and increasing cone inclination
CB12	677450.3	6270633.5	31.8	34.82	01/05/2021	Cone class 1. Continuous seabed CPT. Final depth 34.82m. Test terminated at operators discretion due to high risk of rod bend
CB13	670639.5	6262910.5	30.0	33.83	30/04/2021	Cone class 1. Continuous seabed CPT. Final depth 33.83m. Test terminated at operators discretion due to high inclination and risk of rod bend
CB14	680529.9	6252844.1	31.6	22.79	27/04/2021	Cone out of class. Continuous seabed CPT. Final depth 22.79m. Test terminated due to a sudden increase of more than 3 degrees of cone inclination
CPT3	676134.1	6251059.5	30.1	7.68	27/04/2021	Cone class 2. Continuous seabed CPT. Final depth 7.68m. Test terminated due to a sudden increase of more than three degrees of cone inclination and increasing tip resistance
CPT3a	676134.2	6251054.3	30.2	3.76	27/04/2021	Cone class 4. Bumpover location. Deck to deck offset readings are shared between 3a and 3b. Continuous seabed CPT. Final depth 3.55m. Test terminated due to a sudden increase of more than three degrees of cone inclination and increasing tip resistance
CPT3b	676133.7	6251066.7	30.2	2.06	27/04/2021	Cone class 2. Continuous seabed CPT. Bumpover location. Final depth 1.96m. Deck to deck offsets are taken at a 5m reference level above seabed. Test terminated due to a sudden increase of more than three degrees of cone inclination and increasing tip resistance
CPT4	679806.4	6251702.4	31.2	32.39	27/04/2021	Cone class 4. Continuous seabed CPT. Final depth 32.39m. Test was terminated at operators discretion due to increasing sleeve and to prevent damage to equipment
CPT6	668836.6	6255857.7	27.0	6.02	29/04/2021	Cone class 2. Continuous seabed CPT. Final depth 6.06m. Test terminated at operators discretion due to sudden increase in sleeve friction and tip resistance
CPT6a	668836.9	6255852.5	26.9	36.80	29/04/2021	Cone class 4. Continuous seabed CPT. Final depth 36.80m. Test terminated at operators discretion due to increasing total load~ tip resistance and lack of lateral rod support
CPT7	671921.2	6256092.0	29.2	36.67	29/04/2021	Cone class 1. Continuous seabed CPT. Final depth 36.67m. Test terminated at operators discretion due to a sudden increase in tip resistance~ high total load and near maximum cone inclination of 11.59 degrees

CPTU LOCATION SUMMARY

ETRS89 UTM 32N

Gardline

11596 - Preliminary Investigation - Hesselø OWF

CPTU	Easting (m)	Northing (m)	Water Depth (m)	Penetration (m)	Date of Test	Comments
CPT8	674879.5	6255586.4	30.6	20.81	27/04/2021	Cone class 1. Continuous seabed CPT. Final depth 20.80m. Test was terminated at the operators discretion due to lack of lateral rod support from mudline~ resulting in a high risk of buckling rods when encountering very dense sands.
CPT9	676157.0	6257143.6	31.5	32.20	26/04/2021	Cone Class 2. Continuous seabed CPT. Final depth 32.20m. Test was terminated due to increasing cone inclination~ SBF inclination and increasing total load.
CPT10	678861.0	6255157.8	31.6	37.29	26/04/2021	Cone class 2. Continuous seabed CPT. Final depth 37.29m. Test terminated due to increasing total force~ increasing cone inclination and a lack of lateral rod support from mudline
CPT11	666385.9	6259321.6	28.8	3.97	29/04/2021	Cone class 1. Continuous seabed CPT. Final depth 3.97m. Test terminated due to a maximum sleeve friction refusal.
CPT11a	666386.2	6259316.5	28.7	43.50	29/04/2021	Cone class 2. Continuous seabed CPT. Final depth 43.46m. Test terminated at operators discretion due to high inclination~ total load and risk of rod bend
CPT12	668527.9	6259970.0	26.1	39.25	29/04/2021	Cone class 2. Continuous seabed CPT. Final depth 39.53m. Test terminated at operators discretion due to high inclination~ total load and risk of rod bend
CPT13	671351.3	6258725.4	29.3	35.43	30/04/2021	Cone class 3. Continuous seabed CPT. Final depth 35.42m. Test terminated due to a maximum sleeve friction refusal.
CPT14	676578.2	6259609.0	32.3	27.58	26/04/2021	Cone Class 4. Continuous seabed CPT. Final depth 27.58m. Test was terminated at operators discretion due to lack of lateral rod support from mudline and increasing cone and SBF inclination
CPT15	668001.6	6262849.6	29.0	48.84	30/04/2021	Cone class 1. Continuous seabed CPT. Final depth 48.84m. Test terminated due to sleeve refusal
CPT16	672157.8	6263407.0	30.9	29.42	30/04/2021	Cone class 2. Continuous seabed CPT. Final depth 29.42m. Test terminated due to poor data quality after dissipation test.
CPT16a	672157.0	6263401.9	30.7	33.34	08/05/2021	Cone class 1. Continuous seabed CPT. Final depth 33.34m. Test terminated at the operators discretion due to increasing total load~ lack of lateral rod support near mudline and total cone inclination reaching near critical
CPT18	677169.5	6263055.4	32.3	37.74	25/04/2021	Cone Class1. Continuous seabed CPT. Final depth 37.74m. Test terminated at operators discretion to avoid damage due to no lateral rod support from mudline
CPT20	673775.6	6266929.1	31.5	49.67	25/04/2021	Cone class 2. Continuous seabed CPT. Final depth 49.67m. Test terminated at operators discretion to avoid damage due to lack of lateral rod support from mudline and an increasing total load
CPT22	674320.0	6270140.2	31.4	44.54	30/04/2021	Cone class 1. Continuous seabed CPT. Final depth 44.45m. Test terminated due to increasing cone inclination reaching maximum cone inclination threshold of 12 degrees~ risk of rod bend and buckling rods
CPT23	676253.1	6269555.3	31.6	40.84	01/05/2021	Out of Class. Continuous seabed CPT. Final depth 40.84m. Test terminated at operators discretion due to risk of rod bend
CPT25	676906.0	6273504.9	31.6	30.31	01/05/2021	Out of class. Continuous seabed CPT. Final depth 30.31m. Test terminated due to lost communication with the cone after attempting a dissipation test which crashed the Gardlog software
CPT25a	676906.4	6273499.9	31.6	30.11	01/05/2021	Cone class 3. Continuous seabed CPT. Final depth 30.11m. Test terminated due to lost communication with the cone after attempting a dissipation test which crashed the Gardlog software
CPT25b	676906.0	6273510.1	31.6	30.86	02/05/2021	Cone class 1. Continuous seabed CPT. Final depth 30.86m. Test terminated at operators discretion due to increasing total load and lack of lateral rod support from mudline
CPT26	676724.1	6276824.7	30.9	37.33	02/05/2021	Cone class 1. Continuous seabed CPT. Final depth 37.33m. Test terminated at operators discretion to avoid damage due to lack of lateral rod support and an increasing tip load
OSS 1	674182.0	6265896.3	31.6	47.95	25/04/2021	OSS1 was completed to a depth of 47.95m~ at which point it was terminated due to loss of communication with the cone. Cone class 4
OSS 1a	674182.4	6265890.9	31.6	18.70	25/04/2021	Cone class 1. Test terminated at operators discretion due to increasing cone inclination. Final depth 18.70m
OSS 2	674909.6	6253669.9	30.0	15.77	27/04/2021	Cone class 1. Continuous seabed CPT. Final depth 15.84m. Test terminated at operators discretion due to a lack of lateral rod support from mudline~ resulting in a high risk of buckling rods when encountering very dense sands

CPTU LOCATION SUMMARY

ETRS89 UTM 32N

Gardline

11596 - Preliminary Investigation - Hesselø OWF

CPTU	Easting (m)	Northing (m)	Water Depth (m)	Penetration (m)	Date of Test	Comments
SCPT1	681923.1	6249312.9	31.2	2.64	28/04/2021	Cone Class 1. Continuous Seismic CPT. Final depth 2.64m. Test was terminated due to seismic source communication issue.
SCPT1a	681923.4	6249306.6	31.7	37.53	05/05/2021	Cone class 1. Continuous seismic seabed CPT. Final depth 37.55m. Test terminated at operators discretion due to increasing total force and lack of lateral rod support
SCPT2	673302.0	6252306.8	28.8	26.26	04/05/2021	Cone class 1. Continuous seismic seabed CPT. Final depth 26.25m. Test terminated at operators discretion due to cone inclination >12 degrees and lack of lateral rod support into hard ground.
SCPT5	665881.4	6256363.1	27.7	29.61	06/05/2021	Cone class 1. Continuous seismic seabed CPT. Final depth 29.74m. Test terminated at operators discretion due increasing total load and a lack of lateral rod support from mudline
SCPT17	675126.2	6262391.1	31.8	18.70	07/05/2021	Cone class 1. Continuous seismic seabed CPT. Final depth 18.70m. Test terminated due to sudden inclination >3 degrees in less than 1 metre
SCPT19	670633.3	6266454.1	30.8	21.92	07/05/2021	Cone class 1. Continuous seabed seismic CPT. Final depth 21.92m. Test terminated due to the maximum cone inclination of 12 degrees was reached
SCPT21	677715.3	6266260.7	32.5	31.68	03/05/2021	Cone class 1. Continuous seismic seabed CPT. Final depth 31.61m. Test terminated due to rising weather conditions.
SCPT24	676059.4	6274402.9	31.2	32.93	03/05/2021	Out of Class. Continuous seismic seabed CPT. Final depth 32.93m. Test terminated due sudden inclination change of 5 degrees in less than 1 metre- attempted to cycle but inclination was too high~ Please note the derived data has been removed where seismic testing was conducted.

CPTU LOCATION SUMMARY

ETRS89 UTM 32N

APPENDIX 2– LOGS

2.1 Legend

LEGENDS

Cores - CPT - Photographs

Soil Identification Symbology

CLAY | SAND | COBBLES | PEAT | VOID

SILT | GRAVEL | CHALK | Mixed Soil

Key to Symbols

Onshore Lab Testing Symbols			Offshore Lab Testing Symbols	
Liquid Limit	Moisture Content	Hand Vane	Moisture Content	Hand Vane
Plastic Limit	Bulk Density	Hand Vane (Remoulded)	Bulk Density	Hand Vane (Remoulded)
CAUC	Dry Density	Fall Cone	Dry Density	Fall Cone
CAUE	Torvane	Fall Cone (Remoulded)	Torvane	Fall Cone (Remoulded)
CIDC	Lab Vane	UUT	Lab Vane	UUT
CIDE	Lab Vane (Remoulded)	UUT (Remoulded)	Lab Vane (Remoulded)	UUT (Remoulded)
CIUC	Pocket Penetrometer	Unit Weight (Density)	Pocket Penetrometer	Unit Weight (Density)
CIUE	p'0 (Oedometer)	Unit Weight (Moisture Content)	Oedometer p1 Janbu Method	Unit Weight (Moisture Content)
DSS	p'1 (Casagrande)			

Strength of Soils

Relative Density Values (%)

Coarse Grained Soils	
0 - 15	Very Loose
15 - 35	Loose
35 - 65	Medium Dense
65 - 85	Dense
85 - 100	Very Dense

Shear Strength Values (kPa)

Fine Grained Soils	
0 - 10	Extremely Low
10 - 20	Very Low
20 - 40	Low
40 - 75	Medium
75 - 150	High
150 - 300	Very High
> 300	Extremely High

As of BS ISO-14688-1&2: 2018

Density of Intact Core (length used for measurement)

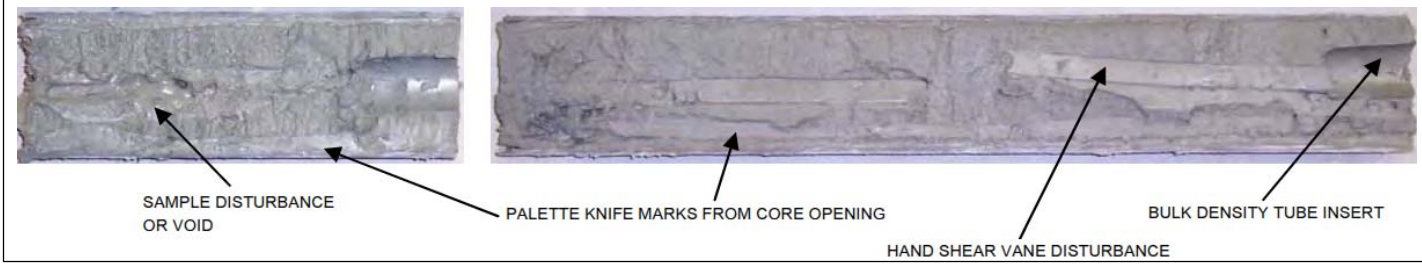
Abbreviations Used

AL : Atterberg Limits	**ANG** : Angularity	**LV** : Laboratory Vane
W_L : Liquid Limit	**n** : Porosity	**CPT** : Cone Penetration Test
W_P : Plastic Limit	**e** : Void Ratio	q_c : Cone End Resistance
I_P : Plasticity Index	**$CaCO_3$** : Calcium Carbonate	f_s : Local Side Friction
I_L : Liquidity Index	**ER**: Electrical Resistivity	U_2 : Pore Pressure (behind Tip)
NP : Non Plastic	**TC**: Thermal Conductivity	**NMC** : Natural Moisture Content
PSD: Particle Size Distribution	**UW** : Unit Weight	**UUT** : Undrained Unconsolidated Triaxial
P_d : Particle Density (formulae)	**GC**: Gravity Core	**UUT(rem)** : Undrained Unconsolidated Triaxial (remoulded)
PD : Particle Density (core log)	**FC**: Fall Cone	**CAUC**: Consolidated Anisotropic Undrained Compression
MAX/MIN : Maximum/Minimum Density	**PC**: Piston Core	**CAUE**: Consolidated Anisotropic Undrained Extension
<425 um : % Sediment passing through sieve	**VC**: Vibrocore	**CIUC** : Consolidated Isotropic Undrained Compression
MPa : MegaPascal	**SBOX**: Shear Box Test	**CIDC**: Consolidated Isotropic Drained Compression
kPa : KiloPascal	**OED**: Oedometer	**DSS**: Direct Simple Shear

Formulae Used (Moisture Content)

Plasticity Index: $I_P = W_L - W_P$	Saturated Density = water density x $[(P_d + e) / (1+e)]$
Liquidity Index: $(NMC - W_P) / I_P$	<425 um = % sediment passing through 425 um sieve
Activity = I_P / (% clay-size fraction by weight)	Saturated Moisture Content: SMC = (e x 100) / P_d

Core Photography



Gardline

LEGENDS

Cores - CPT - Photographs

Engineering Units

UNIT	DESCRIPTION
GC1	Glacial Deposit, Glacial
GC2	Glacial/Meltwater Deposit, Glacial
GC3	Glacial/Marine Deposit, Glacial
H1	Marine Deposit, Holocene
H2	Marine/Freshwater Deposit, Holocene
LG/GC1	Glacial/Marine Deposit, Late Glacial/Glacial
LG/GC2	Marine/Freshwater Deposit, Late Glacial/Glacial
LG1	Glacial Deposit, Late Glacial
LG2	Glacial/Marine Deposit, Late Glacial
LG3	Marine/Meltwater Deposit, Late Glacial
LG4	Marine Deposit, Late Glacial
LG5	Marine/Freshwater Deposit, Late Glacial
PG/LG	Marine/Freshwater Deposit, Post Glacial/Late
PG1	Glacial
PG2	Marine Deposit, Post Glacial
PQ	Marine/Freshwater Deposit, Post Glacial
	Marine Deposit, Cretaceous

2.2 Borehole Logs

Preliminary Investigation, Hesselø OWF

BOREHOLE LOG, LABORATORY TEST RESULTS AND IN SITU CPTU TESTING

Soil Depth (m)	Interpreted Soil Type	Env.	Age
	Extremely low strength CLAY, low plasticity, slightly sandy, slightly gravelly, with shell fragments (<0.03m), strong organic odour, dark greenish grey (GLEY1 5GY 4/1), slightly calcareous	Ma/Fw	Ho
1.60	SAND, fine to medium, well sorted, slightly silty, gravelly, cobbly, with shell fragments (<0.03m), strong organic odour, very dark greenish grey (GLEY1 10Y 3/1), highly calcareous	Ma/Fw	Ho
2.15	Low to medium strength CLAY, high plasticity, with black organic staining, strong organic odour, greenish grey (GLEY1 10Y 5/1), highly calcareous	Ma	Ho
3.70	Low to medium strength CLAY, high plasticity, with black organic staining, grey 2.5Y 5/1), highly calcareous	Ma/Fw	Ho
6.70	Medium strength CLAY, high plasticity, with extremely closely to very closely spaced thick laminations of sand, fine, well sorted, silty, light grey (2.5Y 7/2), highly calcareous between 7.00-8.00m, grey (2.5Y 5/1), highly calcareous	Ma/Fw	Pg

Push Samples: P01, P02, P03, P04, P05, P06, P07, P08, P09, P10

KEY TO SOIL PROFILE

SILT, CLAY, SAND, GRAVEL, COBBLES, CHALK, PEAT, Mixed Soil

Assumed Unit Weight: kN/m³
K_0: -

Area	**Kattegat Sea**	Coordinates	**675388.0E** **6253585.8N**	CRS: **ETRS89**	
Contract	**11596**	Latitude / Longitude		**Comments: Borehole Anorm_1 was completed to a depth of 10.85m utilising API drilling & Wison push sampling methods**	
Client Name / Ref	**Energinet Eltransmission A/S / 384_20_ENE**	Water Depth (mMSL)	**-30.7**		
Vessel	**MV Ocean Vantage**	Date of Test	**05/06/2021**		
Method		Final Borehole Depth	**10.85m**		

QC Status		
Preliminary	Draft	Final
JK/BC (05/06/2021)	**DR** (10/06/2021)	**SMc** (10/11/2021)

Location Name: **Anorm_1**

Preliminary Investigation, Hesselø OWF

BOREHOLE LOG, LABORATORY TEST RESULTS AND IN SITU CPTU TESTING

Relative to (mMSL)	Relative to BSB (m)	Soil Profile	Push Sample	CPTU Push	CPT Ref No. Cone ID Cone Area (a)	Soil Depth (m)	Interpreted Soil Type	Env.	Age
-41.0 to -41.5	10.5 to 11.0		P11			10.00	Medium strength CLAY, high plasticity, sandy, gravelly, dark grey (2.5Y 4/1), highly calcareous	Ma/Fw	Pg
-42.0 to -50.5	11.5 to 19.5						End of borehole at 10.85m		

Water Content (%): 0, 25, 50, 75, 100

Density (Mg/m^3): 3, 2, 1, 0

Particle Size, %: Gravel | Sand | Fines | Silt | Clay

Relative Density, D_r (%): 0, 30, 60, 90, 120

Undrained Shear Strength, Su (kPa): 0, 300, 600, 900, 1200, 1500

Corrected Cone Resistance, q_t (MPa): 0, 12, 24, 36, 48, 60

Sleeve Friction, f_s(MPa): 0, 0.3, 0.6, 0.9, 1.2, 1.5

Pore Pressure, U_2 (kPa): -4500, -2250, 0, 2250, 4500

Ambient Pore Pressure (kPa)

Relative to BSB (m): 10.5 to 19.5

KEY TO SOIL PROFILE

SILT | CLAY | SAND | GRAVEL | COBBLES | CHALK | PEAT | Mixed Soil

Assumed Unit Weight: kN/m^3
K_0: -

Area	**Kattegat Sea**	Coordinates	**675388.0E** **6253585.8N**	CRS: **ETRS89**	QC Status: Preliminary / Draft / Final
Contract	**11596**	Latitude / Longitude		**Comments: Borehole Anorm_1 was completed to a depth of 10.85m utilising API drilling & Wison push sampling methods**	
Client Name / Ref	**Energinet Eltransmission A/S / 384_20_ENE**	Water Depth (mMSL)	**-30.7**		
Vessel	**MV Ocean Vantage**	Date of Test	**05/06/2021**		
Method		Final Borehole Depth	**10.85m**		

Preliminary	Draft	Final
JK/BC (05/06/2021)	**DR** (10/06/2021)	**SMc** (10/11/2021)

Location Name: **Anorm_1**

Preliminary Investigation, Hesselø OWF

BOREHOLE LOG, LABORATORY TEST RESULTS AND IN SITU CPTU TESTING

Soil Depth (m)	Interpreted Soil Type	Env.	Age
	Very low strength CLAY, low plasticity, sandy, slightly gravelly, with shell fragments (<0.01m), strong organic odour, dark greenish grey (GLEY1 5GY 4/1), slightly calcareous	Ma/Fw	Ho
1.06	SAND, fine to medium, well sorted, slightly silty, with shell fragments (<0.03m), strong organic odour, very dark greenish grey (GLEY1 10Y 3/1), highly calcareous	Ma/Fw	Ho
2.27	Low to medium strength CLAY, high plasticity, with black organic staining, grey (2.5Y 5/1), highly calcareous	Ma	Ho
8.50	SAND, fine to medium, well sorted, slightly clayey, slightly gravelly, grey (2.5Y 5/1), highly calcareous	Ma/Fw	Pg

Push Samples: P01, P02, P03, P04, P05, P06, P07, P08, P09, P10, P11

Water Content (%): 0, 25, 50, 75, 100

Density (Mg/m^3): 3, 2, 1, 0

Particle Size, %: Gravel, Sand, Fines, Silt, Clay

Relative Density, D_r (%): 0, 30, 60, 90, 120

Undrained Shear Strength, Su (kPa): 0, 300, 600, 900, 1200, 1500

Corrected Cone Resistance, q_t (MPa): 0, 12, 24, 36, 48, 60

Sleeve Friction, f_s(MPa): 0, 0.3, 0.6, 0.9, 1.2, 1.5

Pore Pressure, U_2 (kPa): -4500, -2250, 0, 2250, 4500

Ambient Pore Pressure (kPa)

Relative to (mMSL): -30.5, -31.0, -31.5, -32.0, -32.5, -33.0, -33.5, -34.0, -34.5, -35.0, -35.5, -36.0, -36.5, -37.0, -37.5, -38.0, -38.5, -39.0, -39.5, -40.0

Relative to BSB (m): 0.5, 1.0, 1.5, 2.0, 2.5, 3.0, 3.5, 4.0, 4.5, 5.0, 5.5, 6.0, 6.5, 7.0, 7.5, 8.0, 8.5, 9.0, 9.5

KEY TO SOIL PROFILE

SILT, CLAY, SAND, GRAVEL, COBBLES, CHALK, PEAT, Mixed Soil

Assumed Unit Weight: kN/m^3
K_0: -

Area	**Kattegat Sea**	Coordinates	**674960.6E** **6253696.4N**	CRS: **ETRS89**	QC Status: Preliminary / Draft / Final
Contract	**11596**	Latitude / Longitude		**Comments: Borehole Anorm_2 was completed to a depth of 10.85m utilising API drilling & Wison push sampling methods**	
Client Name / Ref	**Energinet Eltransmission A/S / 384_20_ENE**	Water Depth (mMSL)	**-30.4**		
Vessel	**MV Ocean Vantage**	Date of Test	**05/06/2021**		**JK/BC** (05/06/2021) / **DR** (10/06/2021) / **SMc** (10/11/2021)
Method		Final Borehole Depth	**10.85m**		

Location Name: **Anorm_2**

Preliminary Investigation, Hesselø OWF

BOREHOLE LOG, LABORATORY TEST RESULTS AND IN SITU CPTU TESTING

Relative to (mMSL)	Relative to BSB (m)	Soil Profile	Push Sample	CPTU Push	CPT Ref No. Cone ID Cone Area (a)	Soil Depth (m)	Interpreted Soil Type	Env.	Age
-40.5 to -50.0	10.5 to 19.5		PH2			10.05	Medium to high strength CLAY, high plasticity, slightly sandy, gravelly, with thick laminations of sand, fine, well sorted, silty, light grey (2.5Y 7/2), highly calcareous, dark greenish grey (GLEY1 10Y 4/1), highly calcareous	Ma	Pg
							End of borehole at 10.85m		

Water Content (%): 0, 25, 50, 75, 100

Density (Mg/m^3): 3, 2, 1, 0

Particle Size, %: Gravel, Sand, Fines, Silt, Clay

Relative Density, D_r (%): 0, 30, 60, 90, 120

Undrained Shear Strength, Su (kPa): 0, 300, 600, 900, 1200, 1500

Corrected Cone Resistance, q_t (MPa): 0, 12, 24, 36, 48, 60

Sleeve Friction, f_s(MPa): 0, 0.3, 0.6, 0.9, 1.2, 1.5

Pore Pressure, U_2 (kPa): -4500, -2250, 0, 2250, 4500

Ambient Pore Pressure (kPa)

KEY TO SOIL PROFILE

SILT, CLAY, SAND, GRAVEL, COBBLES, CHALK, PEAT, Mixed Soil

Assumed Unit Weight: kN/m^3
K_0: -

Area	**Kattegat Sea**	Coordinates	**674960.6E**	**6253696.4N**	CRS: **ETRS89**
Contract	**11596**	Latitude / Longitude			**Comments: Borehole Anorm_2 was completed to a depth of 10.85m utilising API drilling & Wison push sampling methods**
Client Name / Ref	**Energinet Eltransmission A/S / 384_20_ENE**	Water Depth (mMSL)	**-30.4**		
Vessel	**MV Ocean Vantage**	Date of Test	**05/06/2021**		
Method		Final Borehole Depth	**10.85m**		

QC Status		
Preliminary	Draft	Final
JK/BC (05/06/2021)	**DR** (10/06/2021)	**SMc** (10/11/2021)

Location Name: **Anorm_2**

Preliminary Investigation, Hesselø OWF

BOREHOLE LOG, LABORATORY TEST RESULTS AND IN SITU CPTU TESTING

Relative to BSB (m)	Soil Depth (m)	Interpreted Soil Type	Env.	Age
0.5		Extremely low strength CLAY, low plasticity, slightly sandy, very dark greenish grey (GLEY1 10Y 3/1) to dark greenish grey (GLEY1 5GY 4/1), slightly calcareous, organic odour	Ma/Fw	Ho
1.5	1.10	SAND, fine to course, poorly sorted, slightly gravelly, dark grey (GLEY1 4/N) with frequent shell fragments (<0.02m), slightly calcareous	Ma/Fw	Ho
2.5	1.95	Low to medium strength CLAY, high plasticity, greenish grey (GLEY1 10Y 5/1) with pockets (<0.02m) of sand, fine, well sorted, greenish grey (GLEY1 10Y 6/1), slightly calcareous, slight organic odour	Ma	Ho
6.5	5.50	Very low to low strength CLAY, medium plasticity, very sandy, gravelly, greenish grey (GLEY1 10Y 5/1) with pockets (<0.05m) of sand, fine, well sorted, silty, dark greyish brown (2.5Y 4/2), slightly calcareous	Ma/Fw	Ho
8.5	8.70	SAND, fine, well sorted, silty, grey (2.5Y 5/1), slightly calcareous	Ma/Fw	Pg
9.5	9.50	Medium to high strength CLAY, medium plasticity, very sandy, gravelly, greenish grey (GLEY1 10Y 5/1) with pockets (<0.05m) of sand, fine, well sorted, silty, dark greyish brown (2.5Y 4/2), slightly calcareous	Ma	Pg

Push Sample: P01, P02, P03, P04, P05, P06, P07, P08, P09, P10, P11

CPT Ref No. / Cone ID / Cone Area (a)

Water Content (%): 0, 25, 50, 75, 100

Density (Mg/m^3): 3, 2, 1, 0

Particle Size, %: Gravel, Sand, Fines, Silt, Clay

Relative Density, D_r (%): 0, 30, 60, 90, 120

Undrained Shear Strength, Su (kPa): 0, 300, 600, 900, 1200, 1500

Corrected Cone Resistance, q_t (MPa): 0, 12, 24, 36, 48, 60

Sleeve Friction, f_s(MPa): 0, 0.3, 0.6, 0.9, 1.2, 1.5

Pore Pressure, U_2 (kPa): -4500, -2250, 0, 2250, 4500

Ambient Pore Pressure (kPa)

Relative to (mMSL): -30.5, -31.0, -31.5, -32.0, -32.5, -33.0, -33.5, -34.0, -34.5, -35.0, -35.5, -36.0, -36.5, -37.0, -37.5, -38.0, -38.5, -39.0, -39.5, -40.0

Relative to BSB (m): 0.5, 1.0, 1.5, 2.0, 2.5, 3.0, 3.5, 4.0, 4.5, 5.0, 5.5, 6.0, 6.5, 7.0, 7.5, 8.0, 8.5, 9.0, 9.5

KEY TO SOIL PROFILE

SILT, CLAY, SAND, GRAVEL, COBBLES, CHALK, PEAT, Mixed Soil

Assumed Unit Weight: kN/m^3
K_0: -

Area	**Kattegat Sea**	Coordinates	**674814.0E**	**6255189.3N**	CRS: **ETRS89**
Contract	**11596**	Latitude / Longitude			**Comments: Borehole Anorm_3 was completed to a depth of 10.47m utilising API drilling & Wison push sampling methods**
Client Name / Ref	**Energinet Eltransmission A/S / 384_20_ENE**	Water Depth (mMSL)	**-30.4**		
Vessel	**MV Ocean Vantage**	Date of Test	**05/06/2021**		
Method		Final Borehole Depth	**10.47m**		

QC Status		
Preliminary	Draft	Final
JK/BC (04/06/2021)	**DR** (10/06/2021)	**SMc** (10/11/2021)

Location Name: **Anorm_3**

Preliminary Investigation, Hesselø OWF

BOREHOLE LOG, LABORATORY TEST RESULTS AND IN SITU CPTU TESTING

Relative to (mMSL)	Relative to BSB (m)	Soil Profile	Push Sample	CPTU Push	CPT Ref No. Cone ID Cone Area (a)	Soil Depth (m)	Interpreted Soil Type	Env.	Age
-40.5								Ma	Pg
-41.0	10.5						End of borehole at 10.47m		
-41.5	11.0								
-42.0	11.5								
-42.5	12.0								
-43.0	12.5								
-43.5	13.0								
-44.0	13.5								
-44.5	14.0								
-45.0	14.5								
-45.5	15.0								
-46.0	15.5								
-46.5	16.0								
-47.0	16.5								
-47.5	17.0								
-48.0	17.5								
-48.5	18.0								
-49.0	18.5								
-49.5	19.0								
-50.0	19.5								

Water Content (%): 0, 25, 50, 75, 100

Density (Mg/m^3): 3, 2, 1, 0

Particle Size, %: Gravel | Sand | Fines | Silt | Clay

Relative Density, D_r (%): 0, 30, 60, 90, 120

Undrained Shear Strength, Su (kPa): 0, 300, 600, 900, 1200, 1500

Corrected Cone Resistance, q_t (MPa): 0, 12, 24, 36, 48, 60

Sleeve Friction, f_s(MPa): 0, 0.3, 0.6, 0.9, 1.2, 1.5

Pore Pressure, U_2 (kPa): -4500, -2250, 0, 2250, 4500

Ambient Pore Pressure (kPa)

Relative to BSB (m)

KEY TO SOIL PROFILE

SILT | CLAY | SAND | GRAVEL | COBBLES | CHALK | PEAT | Mixed Soil

Assumed Unit Weight: kN/m^3
K_0: -

Area	**Kattegat Sea**	Coordinates	**674814.0E 6255189.3N**	CRS: **ETRS89**	QC Status: Preliminary / Draft / Final
Contract	**11596**	Latitude / Longitude		**Comments: Borehole Anorm_3 was completed to a depth of 10.47m utilising API drilling & Wison push sampling methods**	
Client Name / Ref	**Energinet Eltransmission A/S / 384_20_ENE**	Water Depth (mMSL)	**-30.4**		
Vessel	**MV Ocean Vantage**	Date of Test	**05/06/2021**		
Method		Final Borehole Depth	**10.47m**		

Preliminary	Draft	Final
JK/BC (04/06/2021)	**DR** (10/06/2021)	**SMc** (10/11/2021)

Location Name: **Anorm_3**

Preliminary Investigation, Hesselø OWF

BOREHOLE LOG, LABORATORY TEST RESULTS AND IN SITU CPTU TESTING

Relative to (mMSL)	Relative to BSB (m)	Soil Profile	Push Sample	CPTU Push	CPT Ref No. Cone ID Cone Area (a)	Soil Depth (m)	Interpreted Soil Type	Env.	Age
-32.0 to -41.5	0.0 to 9.5		P01 P02 P03 P04 P05 P06 P07 P08 P09 P10 P11			2.20	Extremely low to very low strength CLAY, low plasticity, sandy, dark greenish grey (GLEY 1 10Y 4/1), slightly calcareous	Ma/Fw	Ho
							Loose becoming medium dense SAND, fine to coarse, poorly sorted to unsorted, clayey, very silty, slightly gravelly dark greenish grey (GLEY 1 10Y 4/1), slightly calcareous with very closely to widely spaced thin laminations of brown organic matter (10YR 4/3) between 4.17m and 9.80m	Ma/Fw	Ho

Water Content (%): 0, 25, 50, 75, 100

Density (Mg/m^3): 3, 2, 1, 0

Particle Size, %	Gravel	Sand	Fines	Silt	Clay
	1	81	18	10	8
	0	84	16	8	8

Relative Density, D_r (%): 0, 30, 60, 90, 120

Undrained Shear Strength, Su (kPa): 0, 300, 600, 900, 1200, 1500

Corrected Cone Resistance, q_t (MPa): 0, 12, 24, 36, 48, 60

Sleeve Friction, f_s(MPa): 0, 0.3, 0.6, 0.9, 1.2, 1.5

Pore Pressure, U_2 (kPa): -4500, -2250, 0, 2250, 4500

Ambient Pore Pressure (kPa)

Relative to BSB (m)

KEY TO SOIL PROFILE

SILT · CLAY · SAND · GRAVEL · COBBLES · CHALK · PEAT · Mixed Soil

Assumed Unit Weight: 20 - 16 kN/m^3
K_0: 0.5 - 2.0
N_{kt}: 15 - 20
$N_{\Delta u}$: 12.5 - 16.5

Area	**Kattegat Sea**	Coordinates	**673292.3E**	**6269812.0N**	CRS: **ETRS89**	QC Status	Location Name
Contract	**11596**	Latitude / Longitude			**Comments: Borehole CB3a-BH was completed to a depth of 70.27m utilising API drilling~ Wison CPT and push sampling methods**	Preliminary / Draft / Final	**CB3a-BH**
Client Name / Ref	**Energinet Eltransmission A/S / 384_20_ENE**	Water Depth (mMSL)	**-31.9**				
Vessel	**MV Ocean Vantage**	Date of Test (Start-End)	**15/05/2021 - 16/05/2021**			**JK/BC** (16/05/2021) / **DR** (10/06/2021) / **SMc** (10/11/2021)	
Method	**Wison**	Final Borehole Depth	**70.30m**				Page: 1/8

Preliminary Investigation, Hesselø OWF

BOREHOLE LOG, LABORATORY TEST RESULTS AND IN SITU CPTU TESTING

Relative to (mMSL)	Relative to BSB (m)	Soil Profile	Push Sample	CPTU Push	CPT Ref No. Cone ID Cone Area (a)	Soil Depth (m)	Interpreted Soil Type	Env.	Age
-42.0 to -51.5	10.5 to 19.5		P12 P13 P14 P15 P16 P17 P18 P19A P20 P21				Loose becoming medium dense SAND, fine to coarse, poorly sorted to unsorted, clayey, very silty, slightly gravelly dark greenish grey (GLEY 1 10Y 4/1), slightly calcareous with very closely to widely spaced thin laminations of brown organic matter (10YR 4/3) between 4.17m and 9.80m 10.88-10.89m: Thick lamination of clay, high plasticity, dark greenish grey (GLEY 1 10Y 4/1), slightly calcareous 11.50-11.85m: Medium bed of sand, fine to medium, well sorted, greenish grey (GLEY 1 10Y 5/1), highly calcareous, with shell fragments (<0.04m)	Ma/Fw	Ho
						12.68	12.58-12.61m: Very thin bed of sand, fine to medium, well sorted, greenish grey (GLEY 1 10Y 5/1), highly calcareous Low becoming medium strength locally medium to high strength CLAY, medium plasticity, slightly sandy, dark greenish grey (GLEY 1 5GY 4/1), slightly calcareous, with pockets of sand, fine, well sorted, dark greenish grey (GLEY 1 5GY 4/1), slightly calcareous (<0.03m)	Ma	Ho

Particle Size, %				
Gravel	Sand	Fines	Silt	Clay
1	89	10	10	0
0	35	65	33	32

Water Content (%): 0 25 50 75 100

Density (Mg/m³): 3 2 1 0

Relative Density, D_r (%): 0 30 60 90 120

Undrained Shear Strength, Su (kPa): 0 300 600 900 1200 1500

Corrected Cone Resistance, q_t (MPa): 0 12 24 36 48 60

Sleeve Friction, f_s(MPa): 0 0.3 0.6 0.9 1.2 1.5

Pore Pressure, U_2 (kPa): -4500 -2250 0 2250 4500

Ambient Pore Pressure (kPa)

KEY TO SOIL PROFILE

SILT, CLAY, SAND, GRAVEL, COBBLES, CHALK, PEAT, Mixed Soil

Assumed Unit Weight: 20 - 16 kN/m³
K_0: 0.5 - 2.0
N_{kt}: 15 - 20
N_{kt}: 12.5 - 16.5

Area	**Kattegat Sea**	Coordinates	**673292.3E 6269812.0N**	CRS: **ETRS89**	QC Status		Location Name
Contract	**11596**	Latitude / Longitude		**Comments: Borehole CB3a-BH was completed to a depth of 70.27m utilising API drilling~ Wison CPT and push sampling methods**	Preliminary	Draft / Final	**CB3a-BH**
Client Name / Ref	**Energinet Eltransmission A/S / 384_20_ENE**	Water Depth (mMSL)	**-31.9**				
Vessel	**MV Ocean Vantage**	Date of Test (Start-End)	**15/05/2021 - 16/05/2021**		**JK/BC** (16/05/2021)	**DR** (10/06/2021) / **SMc** (10/11/2021)	
Method	**Wison**	Final Borehole Depth	**70.30m**				Page: 2/8

Preliminary Investigation, Hesselø OWF

BOREHOLE LOG, LABORATORY TEST RESULTS AND IN SITU CPTU TESTING

Relative to (mMSL)	Relative to BSB (m)	Soil Profile	Push Sample	CPTU Push	CPT Ref No. Cone ID Cone Area (a)	Soil Depth (m)	Interpreted Soil Type	Env.	Age
-52.0 to -52.5	20.5 to 21.0		P22				Low becoming medium strength locally medium to high strength CLAY, medium plasticity, slightly sandy, dark greenish grey (GLEY 1 5GY 4/1), slightly calcareous, with pockets of sand, fine, well sorted, dark greenish grey (GLEY 1 5GY 4/1), slightly calcareous (<0.03m)	Ma	Ho
-53.0 to -53.5	21.5 to 22.0		P23			22.00	Low to medium strength CLAY, medium to high plasticity, very silty, very sandy, slightly gravelly, dark greenish grey (GLEY1 10Y 4/1), with medium to widely spaced thick laminations of sand, fine, well sorted, greenish grey (GLEY1 10Y 5/1), slightly calcareous	Ma/Fw	Ho
-54.0 to -54.5	22.5 to 23.0		P24						
-55.0 to -55.5	23.5 to 24.0		P25						
-56.0 to -56.5	24.5 to 25.0		P26						
-57.0 to -57.5	25.5 to 26.0		P27			26.00	Low to medium strength CLAY, very high plasticity, very silty, slightly sandy, dark greyish brown (2.5Y 4/2), slightly calcareous, with extremely closely to closely spaced thin laminations of silt, non plastic, light brownish grey (10YR 6/2), calcareous, between 30.60m and 35.00m	Ma/Fw	Ho
-58.0 to -58.5	26.5 to 27.0		P28						
-59.0 to -59.5	27.5 to 28.0		P29						
-60.0 to -60.5	28.5 to 29.0		P30						
-61.0 to -61.5	29.5		P31						

Water Content (%): 0, 25, 50, 75, 100

Density (Mg/m^3): 3, 2, 1, 0

Particle Size, %

Gravel	Sand	Fines	Silt	Clay
1	27	72	34	38

Relative Density, D_r (%): 0, 30, 60, 90, 120

Undrained Shear Strength, Su (kPa): 0, 300, 600, 900, 1200, 1500

Corrected Cone Resistance, q_t (MPa): 0, 12, 24, 36, 48, 60

Sleeve Friction, f_s (MPa): 0, 0.3, 0.6, 0.9, 1.2, 1.5

Pore Pressure, U_2 (kPa): -4500, -2250, 0, 2250, 4500

Ambient Pore Pressure (kPa)

KEY TO SOIL PROFILE

SILT, CLAY, SAND, GRAVEL, COBBLES, CHALK, PEAT, Mixed Soil

Assumed Unit Weight: 20 - 16 kN/m^3
K_0: 0.5 - 2.0
N_{kt}: 15 - 20
$N_{\Delta u}$: 12.5 - 16.5

Area	**Kattegat Sea**	Coordinates	**673292.3E 6269812.0N**	CRS: **ETRS89**	QC Status: Preliminary / Draft / Final
Contract	**11596**	Latitude / Longitude		**Comments: Borehole CB3a-BH was completed to a depth of 70.27m utilising API drilling~ Wison CPT and push sampling methods**	
Client Name / Ref	**Energinet Eltransmission A/S / 384_20_ENE**	Water Depth (mMSL)	**-31.9**		
Vessel	**MV Ocean Vantage**	Date of Test (Start-End)	**15/05/2021 - 16/05/2021**		**JK/BC** (16/05/2021) / **DR** (10/06/2021) / **SMc** (10/11/2021)
Method	**Wison**	Final Borehole Depth	**70.30m**		

Location Name: **CB3a-BH**

Preliminary Investigation, Hesselø OWF

BOREHOLE LOG, LABORATORY TEST RESULTS AND IN SITU CPTU TESTING

Relative to (mMSL)	Relative to BSB (m)	Soil Profile	Push Sample	CPTU Push	CPT Ref No. Cone ID Cone Area (a)	Soil Depth (m)	Interpreted Soil Type	Env.	Age
-62.0 to -71.5	30.5 to 39.5		P32, P33, P34, P35, P36, P37, P38, P39, P40, P41				Low to medium strength CLAY, very high plasticity, very silty, slightly sandy, dark greyish brown (2.5Y 4/2), slightly calcareous, with extremely closely to closely spaced thin laminations of silt, non plastic, light brownish grey (10YR 6/2), calcareous, between 30.60m and 35.00m	Ma/Fw	Ho

Water Content (%): 0, 25, 50, 75, 100

Density (Mg/m^3): 3, 2, 1, 0

Particle Size, %: Gravel, Sand, Fines, Silt, Clay

Relative Density, D_r (%): 0, 30, 60, 90, 120

Undrained Shear Strength, Su (kPa): 0, 300, 600, 900, 1200, 1500

Corrected Cone Resistance, q_t (MPa): 0, 12, 24, 36, 48, 60

Sleeve Friction, f_s(MPa): 0, 0.3, 0.6, 0.9, 1.2, 1.5

Pore Pressure, U_2 (kPa): -4500, -2250, 0, 2250, 4500

Ambient Pore Pressure (kPa)

KEY TO SOIL PROFILE

SILT, CLAY, SAND, GRAVEL, COBBLES, CHALK, PEAT, Mixed Soil

Assumed Unit Weight: 20 - 16 kN/m^3
K_0: 0.5 - 2.0
N_{kt}: 15 - 20
N_{kt}: 12.5 - 16.5

Area	**Kattegat Sea**	Coordinates	**673292.3E 6269812.0N**	CRS: **ETRS89**	QC Status: Preliminary / Draft / Final
Contract	**11596**	Latitude / Longitude		**Comments: Borehole CB3a-BH was completed to a depth of 70.27m utilising API drilling~ Wison CPT and push sampling methods**	Location Name: **CB3a-BH**
Client Name / Ref	**Energinet Eltransmission A/S / 384_20_ENE**	Water Depth (mMSL)	**-31.9**		
Vessel	**MV Ocean Vantage**	Date of Test (Start-End)	**15/05/2021 - 16/05/2021**		
Method	**Wison**	Final Borehole Depth	**70.30m**		

Preliminary	Draft	Final
JK/BC (16/05/2021)	**DR** (10/06/2021)	**SMc** (10/11/2021)

Preliminary Investigation, Hesselø OWF

BOREHOLE LOG, LABORATORY TEST RESULTS AND IN SITU CPTU TESTING

Relative to (mMSL)	Relative to BSB (m)	Soil Profile	Push Sample	CPTU Push	CPT Ref No. Cone ID Cone Area (a)	Soil Depth (m)	Interpreted Soil Type	Env.	Age
-72.0 to -81.5	40.5 to 49.5		P42, P43, P44, P45, P46, P47, P48, P49, P50, P51				Low to medium strength CLAY, very high plasticity, very silty, slightly sandy, dark greyish brown (2.5Y 4/2), slightly calcareous, with extremely closely to closely spaced thin laminations of silt, non plastic, light brownish grey (10YR 6/2), calcareous, between 30.60m and 35.00m	Ma/Fw	Ho

Water Content (%) 0 25 50 75 100

Density (Mg/m^3) 3 2 1 0

Particle Size, %	Gravel	Sand	Fines	Silt	Clay
	0	1	99	37	62

Relative Density, D_r (%) 0 30 60 90 120

Undrained Shear Strength, Su (kPa) 0 300 600 900 1200 1500

Corrected Cone Resistance, q_t (MPa) 0 12 24 36 48 60

Sleeve Friction, f_s (MPa) 0 0.3 0.6 0.9 1.2 1.5

Pore Pressure, U_2 (kPa) -4500 -2250 0 2250 4500

Ambient Pore Pressure (kPa)

KEY TO SOIL PROFILE

SILT, CLAY, SAND, GRAVEL, COBBLES, CHALK, PEAT, Mixed Soil

Assumed Unit Weight: 20 - 16 kN/m^3
K_0: 0.5 - 2.0
N_{kt}: 15 - 20
N_{kt}: 12.5 - 16.5

Area	**Kattegat Sea**	Coordinates	**673292.3E 6269812.0N**	CRS: **ETRS89**	
Contract	**11596**	Latitude / Longitude		**Comments: Borehole CB3a-BH was completed to a depth of 70.27m utilising API drilling~ Wison CPT and push sampling methods**	
Client Name / Ref	**Energinet Eltransmission A/S / 384_20_ENE**	Water Depth (mMSL)	**-31.9**		
Vessel	**MV Ocean Vantage**	Date of Test (Start-End)	**15/05/2021 - 16/05/2021**		
Method	**Wison**	Final Borehole Depth	**70.30m**		

QC Status		
Preliminary	Draft	Final
JK/BC (16/05/2021)	**DR** (10/06/2021)	**SMc** (10/11/2021)

Location Name: **CB3a-BH**

Preliminary Investigation, Hesselø OWF

BOREHOLE LOG, LABORATORY TEST RESULTS AND IN SITU CPTU TESTING

Relative to (mMSL)	Relative to BSB (m)	Soil Profile	Push Sample	CPTU Push	CPT Ref No. Cone ID Cone Area (a)	Soil Depth (m)	Interpreted Soil Type	Env.	Age
-82.0 to -91.5	50.5 to 59.5		PS2, PS3, PS4, PS5, PS6, PS7, PS8, PS9, PS10, PS11			50.00	Medium to high strength CLAY, high plasticity, very silty, slightly sandy, dark grey (2.5Y 4/1) calcareous, with occasional black (2.5Y 2.5/1) organic staining	Ma/Fw	Pg
						59.26	Medium to high strength CLAY TILL, low plasticity, very silty, very sandy, slightly gravelly, dark grey (5Y 4/1), slightly calcareous	Ma/Fw	Gc

Water Content (%): 0, 25, 50, 75, 100

Density (Mg/m^3): 3, 2, 1, 0

Particle Size, %	Gravel	Sand	Fines	Silt	Clay
	0	6	94	40	54

Relative Density, D_r (%): 0, 30, 60, 90, 120

Undrained Shear Strength, Su (kPa): 0, 300, 600, 900, 1200, 1500

Corrected Cone Resistance, q_t (MPa): 0, 12, 24, 36, 48, 60

Sleeve Friction, f_s(MPa): 0, 0.3, 0.6, 0.9, 1.2, 1.5

Pore Pressure, U_2 (kPa): -4500, -2250, 0, 2250, 4500

Ambient Pore Pressure (kPa)

KEY TO SOIL PROFILE

SILT, CLAY, SAND, GRAVEL, COBBLES, CHALK, PEAT, Mixed Soil

Assumed Unit Weight: 20 - 16 kN/m^3
K_0: 0.5 - 2.0
N_{kt}: 15 - 20
N_{kt}: 12.5 - 16.5

Area	**Kattegat Sea**	Coordinates	**673292.3E 6269812.0N**	CRS: **ETRS89**	QC Status		Location Name
Contract	**11596**	Latitude / Longitude		**Comments: Borehole CB3a-BH was completed to a depth of 70.27m utilising API drilling~ Wison CPT and push sampling methods**	Preliminary	Draft	Final	**CB3a-BH**
Client Name / Ref	**Energinet Eltransmission A/S / 384_20_ENE**	Water Depth (mMSL)	**-31.9**					
Vessel	**MV Ocean Vantage**	Date of Test (Start-End)	**15/05/2021 - 16/05/2021**		**JK/BC** (16/05/2021)	**DR** (10/06/2021)	**SMc** (10/11/2021)	
Method	**Wison**	Final Borehole Depth	**70.30m**					Page: 6/8

Preliminary Investigation, Hesselø OWF

BOREHOLE LOG, LABORATORY TEST RESULTS AND IN SITU CPTU TESTING

Relative to (mMSL)	Relative to BSB (m)	Soil Depth (m)	Interpreted Soil Type	Env.	Age
-92.0 to -101.5	60.5 to 69.5	0.00	Medium to high strength CLAY TILL, low plasticity, very silty, very sandy, slightly gravelly, dark grey (5Y 4/1), slightly calcareous	Ma/Fw	Gc
-101.0 to -101.5	69.0 to 69.5	69.64	69.64-69.69m: Very thin bed of sand, fine to medium, poorly sorted, clayey, silty, gravelly, dark grey (5Y 4/1), calcareous		

Push Sample: P62, P63, P64

CPT Ref No. / Cone ID / Cone Area (a):
- 01 121126 10cm² (0.79)
- 02 121126 10cm² (0.79)
- 03 121126 10cm² (0.79)

CPTU Push

Water Content (%): 0, 25, 50, 75, 100

Density (Mg/m³): 3, 2, 1, 0

Particle Size, %

Depth (m)	Gravel	Sand	Fines	Silt	Clay
69.64-69.69	1	27	72	53	19

Relative Density, D_r (%): 0, 30, 60, 90, 120

Undrained Shear Strength, Su (kPa): 0, 300, 600, 900, 1200, 1500

Corrected Cone Resistance, q_t (MPa): 0, 12, 24, 36, 48, 60

Sleeve Friction, f_s (MPa): 0, 0.3, 0.6, 0.9, 1.2, 1.5

Pore Pressure, U_2 (kPa): -4500, -2250, 0, 2250, 4500

Ambient Pore Pressure (kPa)

KEY TO SOIL PROFILE

SILT, CLAY, SAND, GRAVEL, COBBLES, CHALK, PEAT, Mixed Soil

Assumed Unit Weight: 20 - 16 kN/m³
K_0: 0.5 - 2.0
N_{kt}: 15 - 20
$N_{\Delta U}$: 12.5 - 16.5

Area	**Kattegat Sea**	Coordinates	**673292.3E 6269812.0N**	CRS: **ETRS89**	QC Status: Preliminary / Draft / Final
Contract	**11596**	Latitude / Longitude		**Comments: Borehole CB3a-BH was completed to a depth of 70.27m utilising API drilling~ Wison CPT and push sampling methods**	
Client Name / Ref	**Energinet Eltransmission A/S / 384_20_ENE**	Water Depth (mMSL)	**-31.9**		
Vessel	**MV Ocean Vantage**	Date of Test (Start-End)	**15/05/2021 - 16/05/2021**		**JK/BC** (16/05/2021) / **DR** (10/06/2021) / **SMc** (10/11/2021)
Method	**Wison**	Final Borehole Depth	**70.30m**		

Location Name: **CB3a-BH**

Preliminary Investigation, Hesselø OWF

BOREHOLE LOG, LABORATORY TEST RESULTS AND IN SITU CPTU TESTING

Relative to (mMSL)	Relative to BSB (m)	Soil Profile	Push Sample	CPTU Push	CPT Ref No. Cone ID Cone Area (a)	Soil Depth (m)	Interpreted Soil Type	Env.	Age
-102.0	70.5							Ma/Fw	Gc
							End of borehole at 70.27m		

Water Content (%): 0 25 50 75 100

Density (Mg/m^3): 3 2 1 0

Particle Size, %: Gravel | Sand | Fines | Silt | Clay

Relative Density, D_r (%): 0 30 60 90 120

Undrained Shear Strength, Su (kPa): 0 300 600 900 1200 1500

Corrected Cone Resistance, q_t (MPa): 0 12 24 36 48 60

Sleeve Friction, f_s(MPa): 0 0.3 0.6 0.9 1.2 1.5

Pore Pressure, U_2 (kPa): -4500 -2250 0 2250 4500

Ambient Pore Pressure (kPa)

Relative to BSB (m): 70.5 71.0 71.5 72.0 72.5 73.0 73.5 74.0 74.5 75.0 75.5 76.0 76.5 77.0 77.5 78.0 78.5 79.0 79.5

Relative to (mMSL): -102.0 -102.5 -103.0 -103.5 -104.0 -104.5 -105.0 -105.5 -106.0 -106.5 -107.0 -107.5 -108.0 -108.5 -109.0 -109.5 -110.0 -110.5 -111.0 -111.5

KEY TO SOIL PROFILE

SILT | CLAY | SAND | GRAVEL | COBBLES | CHALK | PEAT | Mixed Soil

Assumed Unit Weight: 20 - 16 kN/m^3
K_0: 0.5 - 2.0
N_{kt}: 15 - 20
N_{ch}: 12.5 - 16.5

Area	**Kattegat Sea**	Coordinates	**673292.3E 6269812.0N**	CRS: **ETRS89**	QC Status: Preliminary / Draft / Final
Contract	**11596**	Latitude / Longitude		**Comments: Borehole CB3a-BH was completed to a depth of 70.27m utilising API drilling~ Wison CPT and push sampling methods**	
Client Name / Ref	**Energinet Eltransmission A/S / 384_20_ENE**	Water Depth (mMSL)	**-31.9**		
Vessel	**MV Ocean Vantage**	Date of Test (Start-End)	**15/05/2021 - 16/05/2021**		**JK/BC** (16/05/2021) / **DR** (10/06/2021) / **SMc** (10/11/2021)
Method	**Wison**	Final Borehole Depth	**70.30m**		

Location Name: **CB3a-BH**

Preliminary Investigation, Hesselø OWF

BOREHOLE LOG, LABORATORY TEST RESULTS AND IN SITU CPTU TESTING

Soil Depth (m)	Interpreted Soil Type	Env.	Age
0.44	SAND, fine to coarse, unsorted, clayey, very silty, slightly gravelly, with shell fragments and shell pieces (<0.03m), dark olive grey (5Y 3/2), slightly calcareous, organic odour.	Ma	Ho
	Extremely low strength CLAY, low plasticity, sandy, dark greenish grey (GLEY 1 10Y 4/1) with shell fragments (<0.03m)	Ma	Ho
1.82	Very low to low strength CLAY, high plasticty, very silty, slightly sandy, olive brown (2.5Y 4/4) becoming dark greenish grey (GLEY1 10Y 5GY 4/1), slightly calcareous	Ma/Fw	Ho

Particle Size, %	Gravel	Sand	Fines	Silt	Clay
	1	75	24	16	8
	0	4	96	38	58

KEY TO SOIL PROFILE

SILT, CLAY, SAND, GRAVEL, COBBLES, CHALK, PEAT, Mixed Soil

Assumed Unit Weight: 20 - 16 kN/m³
K_0: 0.5 - 2.0
N_{KT}: 15 - 20
N_{KT}: 12.5 - 16.5

Area	**Kattegat Sea**	Coordinates	**675777.1E 6272690.2N**
Contract	**11596**	Latitude / Longitude	
Client Name / Ref	**Energinet Eltransmission A/S / 384_20_ENE**	Water Depth (mMSL)	**-31.1**
Vessel	**MV Ocean Vantage**	Date of Test (Start-End)	**16/05/2021 - 18/05/2021**
Method	**Wison**	Final Borehole Depth	**70.80m**

CRS: **ETRS89**

Comments: Borehole CB4-BH was completed to a depth of 70.72m utilising API drilling~ Wison CPT and push sampling methods. Data gap between 37.85 and 42.00m due to the ground conditions impeding recovery~ Drillers note;- Cobbles/ Boulders- testing was attempted at 0.5-1.0m intervals with a number of tools until recovery was successful.

QC Status	Preliminary	Draft	Final
	JK/BC (16/05/2021)	**DR** (25/06/2021)	**SMc** (10/11/2021)

Location Name: **CB4-BH**

Preliminary Investigation, Hesselø OWF

BOREHOLE LOG, LABORATORY TEST RESULTS AND IN SITU CPTU TESTING

Relative to (mMSL)	Relative to BSB (m)	Soil Profile	Push Sample	CPTU Push	CPT Ref No. Cone ID Cone Area (a)	Soil Depth (m)	Interpreted Soil Type	Env.	Age
-41.5 to -51.0	10.5 to 19.5		P11 to P20				Very low to low strength CLAY, high plasticty, very silty, slightly sandy, olive brown (2.5Y 4/4) becoming dark greenish grey (GLEY1 10Y 5GY 4/1), slightly calcareous	Ma/Fw	Ho

Water Content (%): 0, 25, 50, 75, 100

Density (Mg/m^3): 3, 2, 1, 0

Particle Size, %

Gravel	Sand	Fines	Silt	Clay
0	3	97	55	42

Relative Density, D_r (%): 0, 30, 60, 90, 120

Undrained Shear Strength, Su (kPa): 0, 300, 600, 900, 1200, 1500

Corrected Cone Resistance, q_t (MPa): 0, 12, 24, 36, 48, 60

Sleeve Friction, f_s(MPa): 0, 0.3, 0.6, 0.9, 1.2, 1.5

Pore Pressure, U_2 (kPa): -4500, -2250, 0, 2250, 4500

Ambient Pore Pressure (kPa)

KEY TO SOIL PROFILE

SILT, CLAY, SAND, GRAVEL, COBBLES, CHALK, PEAT, Mixed Soil

Assumed Unit Weight: 20 - 16 kN/m^3
K_0: 0.5 - 2.0
N_{kt}: 15 - 20
N_{kt}: 12.5 - 16.5

Area	**Kattegat Sea**	Coordinates	**675777.1E 6272690.2N**	CRS: **ETRS89**	
Contract	**11596**	Latitude / Longitude		**Comments: Borehole CB4-BH was completed to a depth of 70.72m utilising API drilling~ Wison CPT and push sampling methods. Data gap between 37.85 and 42.00m due to the ground conditions impeding recovery~ Drillers note;- Cobbles/ Boulders- testing was attempted at 0.5-1.0m intervals with a number of tools until recovery was successful.**	
Client Name / Ref	**Energinet Eltransmission A/S / 384_20_ENE**	Water Depth (mMSL)	**-31.1**		
Vessel	**MV Ocean Vantage**	Date of Test (Start-End)	**16/05/2021 - 18/05/2021**		
Method	**Wison**	Final Borehole Depth	**70.80m**		

QC Status		
Preliminary	Draft	Final
JK/BC (16/05/2021)	**DR** (25/06/2021)	**SMc** (10/11/2021)

Location Name: **CB4-BH**

Preliminary Investigation, Hesselø OWF

BOREHOLE LOG, LABORATORY TEST RESULTS AND IN SITU CPTU TESTING

Relative to (mMSL)	Relative to BSB (m)	Soil Depth (m)	Interpreted Soil Type	Env.	Age
-51.5	20.5	20.20	Very low to low strength CLAY, high plasticty, very silty, slightly sandy, dark greenish grey (GLEY1 10Y 5GY 4/1), with extremely closely to closely spaced thin to thick laminations of organic matter, black (GLEY1 2.5/N), slightly calcareous	Ma/Fw	Ho
-55.5	24.5	24.50	Low to medium strength CLAY, high plasticty, very silty, slightly sandy, dark greenish grey (GLEY1 10Y 5GY 4/1), slightly calcareous	Ma/Fw	Ho
-61.0	29.5		26.50-27.36m: Very closely to closely spaced thin laminations of silt, non plastic, light greenish grey (GLEY1 10Y 7/1), slightly calcareous		

Soil Profile: P21, P22, P23, P24, P25, P26, P27, P28, P29, P30

Push Sample / CPTU Push / CPT Ref No. / Cone ID / Cone Area (a)

Water Content (%): 0 25 50 75 100

Density (Mg/m^3): 3 2 1 0

Particle Size, %

Gravel	Sand	Fines	Silt	Clay
0	3	97	50	47
0	2	98	52	46

Relative Density, D_r (%): 0 30 60 90 120

Undrained Shear Strength, Su (kPa): 0 300 600 900 1200 1500

Corrected Cone Resistance, q_t (MPa): 0 12 24 36 48 60

Sleeve Friction, f_s (MPa): 0 0.3 0.6 0.9 1.2 1.5

Pore Pressure, U_2 (kPa): -4500 -2250 0 2250 4500

Ambient Pore Pressure (kPa)

KEY TO SOIL PROFILE

SILT, CLAY, SAND, GRAVEL, COBBLES, CHALK, PEAT, Mixed Soil

Assumed Unit Weight: 20 - 16 kN/m^3
K_0: 0.5 - 2.0
N_{cone}: 15 - 20
N_{M}: 12.5 - 16.5

Area	**Kattegat Sea**	Coordinates	**675777.1E 6272690.2N**
Contract	**11596**	Latitude / Longitude	
Client Name / Ref	**Energinet Eltransmission A/S / 384_20_ENE**	Water Depth (mMSL)	**-31.1**
Vessel	**MV Ocean Vantage**	Date of Test (Start-End)	**16/05/2021 - 18/05/2021**
Method	**Wison**	Final Borehole Depth	**70.80m**

CRS: **ETRS89**

Comments: Borehole CB4-BH was completed to a depth of 70.72m utilising API drilling~ Wison CPT and push sampling methods. Data gap between 37.85 and 42.00m due to the ground conditions impeding recovery~ Drillers note;- Cobbles/ Boulders- testing was attempted at 0.5-1.0m intervals with a number of tools until recovery was successful.

QC Status	Preliminary	Draft	Final
	JK/BC (16/05/2021)	**DR** (25/06/2021)	**SMc** (10/11/2021)

Location Name: **CB4-BH**

Preliminary Investigation, Hesselø OWF

BOREHOLE LOG, LABORATORY TEST RESULTS AND IN SITU CPTU TESTING

Relative to (mMSL)	Relative to BSB (m)	Soil Depth (m)	Interpreted Soil Type	Env.	Age
-61.5	30.5				
-62.0	31.0				
-62.5	31.5				
-63.0	32.0		Low to medium strength CLAY, high plasticty, very silty, slightly sandy, dark greenish grey (GLEY1 10Y 5GY 4/1), slightly calcareous	Ma/Fw	Ho
-63.5	32.5	32.41			
-64.0	33.0		Very high strength CLAY TILL, medium plasticity, very silty, very sandy, slightly gravelly, very dark greenish grey (GLEY 1 10Y 3/1), highly calcareous, with pockets (<0.05m) of silt, non-plastic, light grey (5Y 7/2), highly calcareous, between 36.80-37.05m		
-64.5	33.5				
-65.0	34.0				
-65.5	34.5			Ma/Fw	Gc
-66.0	35.0				
-66.5	35.5				
-67.0	36.0				
-67.5	36.5				
-68.0	37.0				
-68.5	37.5	37.27	SAND, fine to medium, poorly sorted, gravelly, cobbly, with pockets of clay (<0.04m), light olive grey (5Y 6/2), slightly calcareous	Gl	Gc
-69.0	38.0				
-69.5	38.5				
-70.0	39.0				
-70.5	39.5				
-71.0					

Push Sample / CPTU Push: P31, P32, P33, P34, P35, P36, P37, P38, P39

CPT Ref No. / Cone ID / Cone Area (a):
- 01 / 101017 / 10cm² (0.78)
- 02 / 101017 / 10cm² (0.78)
- 03 / 121126 / 10cm² (0.79)

Particle Size, %	Gravel	Sand	Fines	Silt	Clay
	4	50	46	26	20
	10	49	41	24	17

Water Content (%): 0, 25, 50, 75, 100

Density (Mg/m³): 3, 2, 1, 0

Relative Density, D_r (%): 0, 30, 60, 90, 120

Undrained Shear Strength, Su (kPa): 0, 300, 600, 900, 1200, 1500

Corrected Cone Resistance, q_t (MPa): 0, 12, 24, 36, 48, 60

Sleeve Friction, f_s(MPa): 0, 0.3, 0.6, 0.9, 1.2, 1.5

Pore Pressure, U_2 (kPa): -4500, -2250, 0, 2250, 4500

Ambient Pore Pressure (kPa)

KEY TO SOIL PROFILE

SILT, CLAY, SAND, GRAVEL, COBBLES, CHALK, PEAT, Mixed Soil

Assumed Unit Weight: 20 - 16 kN/m³
K_0: 0.5 - 2.0
N_{kt}: 15 - 20
N_{kt}: 12.5 - 16.5

Area	**Kattegat Sea**	Coordinates	**675777.1E 6272690.2N**
Contract	**11596**	Latitude / Longitude	
Client Name / Ref	**Energinet Eltransmission A/S / 384_20_ENE**	Water Depth (mMSL)	**-31.1**
Vessel	**MV Ocean Vantage**	Date of Test (Start-End)	**16/05/2021 - 18/05/2021**
Method	**Wison**	Final Borehole Depth	**70.80m**

CRS: **ETRS89**

Comments: Borehole CB4-BH was completed to a depth of 70.72m utilising API drilling~ Wison CPT and push sampling methods. Data gap between 37.85 and 42.00m due to the ground conditions impeding recovery~ Drillers note;- Cobbles/ Boulders- testing was attempted at 0.5-1.0m intervals with a number of tools until recovery was successful.

QC Status	Preliminary	Draft	Final
	JK/BC (16/05/2021)	**DR** (25/06/2021)	**SMc** (10/11/2021)

Location Name: **CB4-BH**

Preliminary Investigation, Hesselø OWF

BOREHOLE LOG, LABORATORY TEST RESULTS AND IN SITU CPTU TESTING

Relative to (mMSL)	Relative to BSB (m)	Soil Depth (m)	Interpreted Soil Type	Env.	Age
-71.5 to -81.0	40.5 to 49.5	42.88	SAND, fine to medium, poorly sorted, gravelly, cobbly, with pockets of clay (<0.04m), light olive grey (5Y 6/2), slightly calcareous	Gl	Gc
		46.00	Very high to extremely high strength CLAY, high plasticity, very silty, sandy, slightly gravelly, very dark bluish grey (GLEY 2 5B 3/1), slightly calcareous	Gl/Mw	Gc
			Very high to extremely high strength CLAY, high plasticity, very silty, sandy, bluish black (GLEY2 10B 2.5/1), strong organic odour, non calcareous 48.57-48.66m: Thin bed of gravel	Gl/Mw	Gc

Soil Profile: Push Sample / CPTU Push

CPT Ref No. / Cone ID / Cone Area (a)

- 04 121126 10cm² (0.79)
- 05 121126 10cm² (0.79)
- 06 121126 10cm² (0.79)

Push Samples: P46, P47, P48, P49, P50, P51, P52

Particle Size, %	Gravel	Sand	Fines	Silt	Clay
	1	12	87	43	44
	0	22	78	47	31

Water Content (%): 0 25 50 75 100

Density (Mg/m³): 3 2 1 0

Relative Density, D_r (%): 0 30 60 90 120

Undrained Shear Strength, Su (kPa): 0 300 600 900 1200 1500

Corrected Cone Resistance, q_t (MPa): 0 12 24 36 48 60

Sleeve Friction, f_s (MPa): 0 0.3 0.6 0.9 1.2 1.5

Pore Pressure, U_2 (kPa): -4500 -2250 0 2250 4500

Ambient Pore Pressure (kPa)

KEY TO SOIL PROFILE

SILT, CLAY, SAND, GRAVEL, COBBLES, CHALK, PEAT, Mixed Soil

Assumed Unit Weight: 20 - 16 kN/m³
K_0: 0.5 - 2.0
N_{kt}: 15 - 20
N_{ch}: 12.5 - 16.5

Area	**Kattegat Sea**	Coordinates	**675777.1E 6272690.2N**
Contract	**11596**	Latitude / Longitude	
Client Name / Ref	**Energinet Eltransmission A/S / 384_20_ENE**	Water Depth (mMSL)	**-31.1**
Vessel	**MV Ocean Vantage**	Date of Test (Start-End)	**16/05/2021 - 18/05/2021**
Method	**Wison**	Final Borehole Depth	**70.80m**

CRS: **ETRS89**

Comments: Borehole CB4-BH was completed to a depth of 70.72m utilising API drilling~ Wison CPT and push sampling methods. Data gap between 37.85 and 42.00m due to the ground conditions impeding recovery~ Drillers note;- Cobbles/ Boulders- testing was attempted at 0.5-1.0m intervals with a number of tools until recovery was successful.

QC Status	Preliminary	Draft	Final
	JK/BC (16/05/2021)	**DR** (25/06/2021)	**SMc** (10/11/2021)

Location Name: **CB4-BH**

Preliminary Investigation, Hesselø OWF

BOREHOLE LOG, LABORATORY TEST RESULTS AND IN SITU CPTU TESTING

Relative to (mMSL)	Relative to BSB (m)	Soil Profile	Push Sample	CPTU Push	CPT Ref No. Cone ID Cone Area (a)	Soil Depth (m)	Interpreted Soil Type	Env.	Age
-81.5 to -91.0	50.5 to 59.5		PS3, PS4, PS5		07 121126 10cm² (0.79); 08 121126 10cm² (0.79); 09 121126 10cm² (0.79)		Very high to extremely high strength CLAY, high plasticity, very silty, sandy, bluish black (GLEY2 10B 2.5/1), strong organic odour, non calcareous	Gl/Mw	Gc
						55.00	Extremely high strength CLAY, high plasticity, very silty, sandy, slightly gravelly, very dark greenish grey (GLEY1 5GY 3/1), with shell fragments (<0.01m), calcareous	Gl/Mw	Gc

Water Content (%): 0, 25, 50, 75, 100

Density (Mg/m³): 3, 2, 1, 0

Particle Size, %

Gravel	Sand	Fines	Silt	Clay
0	8	92	55	37

Relative Density, D_r (%): 0, 30, 60, 90, 120

Undrained Shear Strength, Su (kPa): 0, 300, 600, 900, 1200, 1500

Corrected Cone Resistance, q_t (MPa): 0, 12, 24, 36, 48, 60

Sleeve Friction, f_s (MPa): 0, 0.3, 0.6, 0.9, 1.2, 1.5

Pore Pressure, U_2 (kPa): -4500, -2250, 0, 2250, 4500

Ambient Pore Pressure (kPa)

KEY TO SOIL PROFILE

SILT, CLAY, SAND, GRAVEL, COBBLES, CHALK, PEAT, Mixed Soil

Assumed Unit Weight: 20 - 16 kN/m³
K_0: 0.5 - 2.0
N_{kt}: 15 - 20
N_{kt}: 12.5 - 16.5

Area	**Kattegat Sea**	Coordinates	**675777.1E**	**6272690.2N**	CRS: **ETRS89**
Contract	**11596**	Latitude / Longitude			
Client Name / Ref	**Energinet Eltransmission A/S / 384_20_ENE**	Water Depth (mMSL)	**-31.1**		
Vessel	**MV Ocean Vantage**	Date of Test (Start-End)	**16/05/2021 - 18/05/2021**		
Method	**Wison**	Final Borehole Depth	**70.80m**		

Comments: Borehole CB4-BH was completed to a depth of 70.72m utilising API drilling~ Wison CPT and push sampling methods. Data gap between 37.85 and 42.00m due to the ground conditions impeding recovery~ Drillers note;- Cobbles/ Boulders- testing was attempted at 0.5-1.0m intervals with a number of tools until recovery was successful.

QC Status		
Preliminary	Draft	Final
JK/BC (16/05/2021)	**DR** (25/06/2021)	**SMc** (10/11/2021)

Location Name: **CB4-BH**

Preliminary Investigation, Hesselø OWF

BOREHOLE LOG, LABORATORY TEST RESULTS AND IN SITU CPTU TESTING

Relative to (mMSL)	Relative to BSB (m)	Soil Depth (m)	Interpreted Soil Type	Env.	Age
-91.5 to -94.0	60.5 to 63.0	62.95	Extremely high strength CLAY, high plasticity, very silty, sandy, slightly gravelly, very dark greenish grey (GLEY1 5GY 3/1), with shell fragments (<0.01m), calcareous	Gl/Mw	Gc
-94.0 to -101.0	63.0 to 69.5		Extremely high strength CLAY, medium plasticity, very silty, sandy, very dark greenish grey (GLEY1 5GY 3/1), with frequent shell fragments (<0.03m) and widely to very widely spaced thin beds of gravel between 65.38m and 68.35m, calcareous	Gl/Mw	Gc

Push Sample: PS6, PS7, PS8

CPT Push: 10 (121126, 10cm² (0.79)); 11 (121126, 10cm² (0.79)); 12 (121126, 10cm² (0.79))

Particle Size, %: Gravel 0; Sand 18; Fines 82; Silt 56; Clay 26

Water Content (%): 0 25 50 75 100

Density (Mg/m³): 3 2 1 0

Relative Density, D_r (%): 0 30 60 90 120

Undrained Shear Strength, Su (kPa): 0 300 600 900 1200 1500

Corrected Cone Resistance, q_t (MPa): 0 12 24 36 48 60

Sleeve Friction, f_s (MPa): 0 0.3 0.6 0.9 1.2 1.5

Pore Pressure, U_2 (kPa): -4500 -2250 0 2250 4500

Ambient Pore Pressure (kPa)

KEY TO SOIL PROFILE

SILT, CLAY, SAND, GRAVEL, COBBLES, CHALK, PEAT, Mixed Soil

Assumed Unit Weight: 20 - 16 kN/m³
K_0: 0.5 - 2.0
N_{cr}: 15 - 20
N_{cr}: 12.5 - 16.5

Area	**Kattegat Sea**	Coordinates	**675777.1E 6272690.2N**	CRS: **ETRS89**	
Contract	**11596**	Latitude / Longitude		**Comments: Borehole CB4-BH was completed to a depth of 70.72m utilising API drilling~ Wison CPT and push sampling methods. Data gap between 37.85 and 42.00m due to the ground conditions impeding recovery~ Drillers note;- Cobbles/ Boulders- testing was attempted at 0.5-1.0m intervals with a number of tools until recovery was successful.**	
Client Name / Ref	**Energinet Eltransmission A/S / 384_20_ENE**	Water Depth (mMSL)	**-31.1**		
Vessel	**MV Ocean Vantage**	Date of Test (Start-End)	**16/05/2021 - 18/05/2021**		
Method	**Wison**	Final Borehole Depth	**70.80m**		

QC Status		
Preliminary	Draft	Final
JK/BC (16/05/2021)	**DR** (25/06/2021)	**SMc** (10/11/2021)

Location Name: **CB4-BH**

Preliminary Investigation, Hesselø OWF

BOREHOLE LOG, LABORATORY TEST RESULTS AND IN SITU CPTU TESTING

Relative to (mMSL)	Relative to BSB (m)	Soil Profile	Push Sample	CPTU Push	CPT Ref No. Cone ID Cone Area (a)	Soil Depth (m)	Interpreted Soil Type	Env.	Age
-101.5	70.5		P59				Extremely high strength CLAY, medium plasticity, very silty, sandy, very dark greenish grey (GLEY1 5GY 3/1), with frequent shell fragments (<0.03m) and widely to very widely spaced thin beds of gravel between 65.38m and 68.35m, calcareous	Gl/Mw	Gc
-102.0	71.0						End of borehole at 70.72m		
-102.5	71.5								
-103.0	72.0								
-103.5	72.5								
-104.0	73.0								
-104.5	73.5								
-105.0	74.0								
-105.5	74.5								
-106.0	75.0								
-106.5	75.5								
-107.0	76.0								
-107.5	76.5								
-108.0	77.0								
-108.5	77.5								
-109.0	78.0								
-109.5	78.5								
-110.0	79.0								
-110.5	79.5								
-111.0									

Water Content (%): 0, 25, 50, 75, 100

Density (Mg/m^3): 3, 2, 1, 0

Particle Size, %: Gravel, Sand, Fines, Silt, Clay

Relative Density, D_r (%): 0, 30, 60, 90, 120

Undrained Shear Strength, Su (kPa): 0, 300, 600, 900, 1200, 1500

Corrected Cone Resistance, q_t (MPa): 0, 12, 24, 36, 48, 60

Sleeve Friction, f_s(MPa): 0, 0.3, 0.6, 0.9, 1.2, 1.5

Pore Pressure, U_2 (kPa): -4500, -2250, 0, 2250, 4500

Ambient Pore Pressure (kPa)

Relative to BSB (m): 70.5, 71.0, 71.5, 72.0, 72.5, 73.0, 73.5, 74.0, 74.5, 75.0, 75.5, 76.0, 76.5, 77.0, 77.5, 78.0, 78.5, 79.0, 79.5

KEY TO SOIL PROFILE

SILT, CLAY, SAND, GRAVEL, COBBLES, CHALK, PEAT, Mixed Soil

Assumed Unit Weight: 20 - 16 kN/m^3
K_0: 0.5 - 2.0
N_{kt}: 15 - 20
N_{kt}: 12.5 - 16.5

Area	**Kattegat Sea**	Coordinates	**675777.1E 6272690.2N**	CRS: **ETRS89**	QC Status: Preliminary / Draft / Final
Contract	**11596**	Latitude / Longitude		**Comments: Borehole CB4-BH was completed to a depth of 70.72m utilising API drilling~ Wison CPT and push sampling methods. Data gap between 37.85 and 42.00m due to the ground conditions impeding recovery~ Drillers note;- Cobbles/ Boulders- testing was attempted at 0.5-1.0m intervals with a number of tools until recovery was successful.**	
Client Name / Ref	**Energinet Eltransmission A/S / 384_20_ENE**	Water Depth (mMSL)	**-31.1**		
Vessel	**MV Ocean Vantage**	Date of Test (Start-End)	**16/05/2021 - 18/05/2021**		
Method	**Wison**	Final Borehole Depth	**70.80m**		

Preliminary	Draft	Final
JK/BC (16/05/2021)	**DR** (25/06/2021)	**SMc** (10/11/2021)

Location Name: **CB4-BH**

Preliminary Investigation, Hesselø OWF

BOREHOLE LOG, LABORATORY TEST RESULTS AND IN SITU CPTU TESTING

Relative to BSB (m)	Soil Depth (m)	Interpreted Soil Type	Env.	Age
0.5	0.40	SAND, fine to coarse, unsorted, clayey, very silty, slightly gravelly, dark greenish grey (GLEY1 4/1), slightly calcareous	Ma	Ho
1.0 – 2.0		Extremely low to very low strength CLAY, low plasticity, slightly sandy, with shell fragments (<0.03m), dark greenish grey (GLEY1 4/1), slightly calcareous	Ma	Ho
2.5	2.50	Dense to very dense locally medium dense SAND, fine to coarse, sorted, slightly silty, slightly gravelly, with shell fragments (<0.04m), dark greenish grey (GLEY 1 4/1), calcareous	Ma/Fw	Ho
5.5	5.67	Low to medium strength CLAY, medium to high plasticity, very silty, slightly sandy, olive grey (5Y 4/2), calcareous, with occasional black organic staining, widely spaced thin laminations of clayey silt, light olive grey (5Y 6/2), calcareous between 34.14 and 34.86m	Ma	Ho
9.5				

Relative to BSB (m)	Gravel	Sand	Fines	Silt	Clay
0.5	3	71	26	19	7
2.5	1	96	3	3	0

Water Content (%) 0 25 50 75 100

Density (Mg/m^3) 3 2 1 0

Particle Size, %

Relative Density, D_r (%) 0 30 60 90 120

Undrained Shear Strength, Su (kPa) 0 300 600 900 1200 1500

Corrected Cone Resistance, q_t (MPa) 0 12 24 36 48 60

Sleeve Friction, f_s (MPa) 0 0.3 0.6 0.9 1.2 1.5

Pore Pressure, U_2 (kPa) -4500 -2250 0 2250 4500

Ambient Pore Pressure (kPa)

KEY TO SOIL PROFILE

SILT, CLAY, SAND, GRAVEL, COBBLES, CHALK, PEAT, Mixed Soil

Assumed Unit Weight: 20 - 16 kN/m^3
K_0: 0.5 - 2.0
N_{kt}: 15 - 20
N_{kt}: 12.5 - 16.5

Area	**Kattegat Sea**	Coordinates	**671117.7E 6254702.0N**	CRS: **ETRS89**	
Contract	**11596**	Latitude / Longitude		**Comments: Borehole CB5-BH was completed to a depth of 64.62m utilising API drilling~ Wison CPT and push sampling methods.**	
Client Name / Ref	**Energinet Eltransmission A/S / 384_20_ENE**	Water Depth (mMSL)	**-27.2**		
Vessel	**MV Ocean Vantage**	Date of Test (Start-End)	**09/05/2021 - 11/05/2021**		
Method	**Wison**	Final Borehole Depth	**64.70m**		

QC Status			Location Name
Preliminary	Draft	Final	**CB5-BH**
JK/BC (11/05/2021)	**DR** (10/06/2021)	**SMc** (10/11/2021)	

Preliminary Investigation, Hesselø OWF

BOREHOLE LOG, LABORATORY TEST RESULTS AND IN SITU CPTU TESTING

Relative to (mMSL)	Relative to BSB (m)	Soil Profile	Push Sample	CPTU Push	CPT Ref No. Cone ID Cone Area (a)	Soil Depth (m)	Interpreted Soil Type	Env.	Age
-37.5 to -47.0	10.5 to 19.5		P12 to P21				Low to medium strength CLAY, medium to high plasticity, very silty, slightly sandy, olive grey (5Y 4/2), calcareous, with occasional black organic staining, widely spaced thin laminations of clayey silt, light olive grey (5Y 6/2), calcareous between 34.14 and 34.86m 10.85-10.89m: Thin bed of gravel, fine	Ma	Ho

Water Content (%): 0 25 50 75 100

Density (Mg/m^3): 3 2 1 0

Particle Size, %

Gravel	Sand	Fines	Silt	Clay
0	5	95	49	46
0	2	98	44	54

Relative Density, D_r (%): 0 30 60 90 120

Undrained Shear Strength, Su (kPa): 0 300 600 900 1200 1500

Corrected Cone Resistance, q_t (MPa): 0 12 24 36 48 60

Sleeve Friction, f_s(MPa): 0 0.3 0.6 0.9 1.2 1.5

Pore Pressure, U_2 (kPa): -4500 -2250 0 2250 4500

Ambient Pore Pressure (kPa)

KEY TO SOIL PROFILE

SILT, CLAY, SAND, GRAVEL, COBBLES, CHALK, PEAT, Mixed Soil

Assumed Unit Weight: 20 - 16 kN/m^3
K_0: 0.5 - 2.0
N_{kt}: 15 - 20
N_{kt}: 12.5 - 16.5

Area	**Kattegat Sea**	Coordinates	**671117.7E 6254702.0N**	CRS: **ETRS89**	QC Status: Preliminary / Draft / Final
Contract	**11596**	Latitude / Longitude		**Comments: Borehole CB5-BH was completed to a depth of 64.62m utilising API drilling~ Wison CPT and push sampling methods.**	
Client Name / Ref	**Energinet Eltransmission A/S / 384_20_ENE**	Water Depth (mMSL)	**-27.2**		
Vessel	**MV Ocean Vantage**	Date of Test (Start-End)	**09/05/2021 - 11/05/2021**		**JK/BC** (11/05/2021) / **DR** (10/06/2021) / **SMc** (10/11/2021)
Method	**Wison**	Final Borehole Depth	**64.70m**		

Location Name: **CB5-BH**

Gardline

Preliminary Investigation, Hesselø OWF

BOREHOLE LOG, LABORATORY TEST RESULTS AND IN SITU CPTU TESTING

Relative to (mMSL)	Relative to BSB (m)	Soil Profile	Push Sample	CPTU Push	CPT Ref No. Cone ID Cone Area (a)	Soil Depth (m)	Interpreted Soil Type	Env.	Age
-47.5 to -57.0	20.5 to 29.5		P22 P23 P24 P25 P26 P27 P28 P29 P30 P31				Low to medium strength CLAY, medium to high plasticity, very silty, slightly sandy, olive grey (5Y 4/2), calcareous, with occasional black organic staining, widely spaced thin laminations of clayey silt, light olive grey (5Y 6/2), calcareous between 34.14 and 34.86m	Ma	Ho

Water Content (%): 0 25 50 75 100

Density (Mg/m^3): 3 2 1 0

Particle Size, %: Gravel | Sand | Fines | Silt | Clay

Relative Density, D_r (%): 0 30 60 90 120

Undrained Shear Strength, Su (kPa): 0 300 600 900 1200 1500

Corrected Cone Resistance, q_t (MPa): 0 12 24 36 48 60

Sleeve Friction, f_s(MPa): 0 0.3 0.6 0.9 1.2 1.5

Pore Pressure, U_2 (kPa): -4500 -2250 0 2250 4500

Ambient Pore Pressure (kPa)

KEY TO SOIL PROFILE

SILT | CLAY | SAND | GRAVEL | COBBLES | CHALK | PEAT | Mixed Soil

Assumed Unit Weight: 20 - 16 kN/m^3
K_0: 0.5 - 2.0
N_{kt}: 15 - 20
N_{kt}: 12.5 - 16.5

Area	**Kattegat Sea**	Coordinates	**671117.7E 6254702.0N**	CRS: **ETRS89**	QC Status: Preliminary / Draft / Final
Contract	**11596**	Latitude / Longitude		**Comments: Borehole CB5-BH was completed to a depth of 64.62m utilising API drilling~ Wison CPT and push sampling methods.**	Location Name: **CB5-BH**
Client Name / Ref	**Energinet Eltransmission A/S / 384_20_ENE**	Water Depth (mMSL)	**-27.2**		
Vessel	**MV Ocean Vantage**	Date of Test (Start-End)	**09/05/2021 - 11/05/2021**		**JK/BC** (11/05/2021) / **DR** (10/06/2021) / **SMc** (10/11/2021)
Method	**Wison**	Final Borehole Depth	**64.70m**		

Preliminary Investigation, Hesselø OWF

BOREHOLE LOG, LABORATORY TEST RESULTS AND IN SITU CPTU TESTING

Relative to (mMSL)	Relative to BSB (m)	Soil Depth (m)	Interpreted Soil Type	Env.	Age
-57.5	30.5	30.50	Low to medium strength CLAY, medium to high plasticity, very silty, slightly sandy, olive grey (5Y 4/2), calcareous, with occasional black organic staining, widely spaced thin laminations of clayey silt, light olive grey (5Y 6/2), calcareous between 34.14 and 34.86m	Ma	Ho
-58.0	31.0				
-58.5	31.5				
-59.0	32.0				
-59.5	32.5				
-60.0	33.0				
-60.5	33.5				
-61.0	34.0		34.14-34.15m: Thin lamination of clayey silt, light olive grey (5Y 6/2), calcareous		
-61.5	34.5				
-62.0	35.0	35.00	34.85-34.86m: Thin lamination of clayey silt, light olive grey (5Y 6/2), calcareous		
-62.5	35.5		Medium to high strength CLAY, sandy, slightly gravelly, with shell fragments (<0.01m), dark olive grey (5Y 3/2), calcareous	Ma/Fw	Pg
-63.0	36.0				
-63.5	36.5				
-64.0	37.0				
-64.5	37.5	37.50	SILT, low plasticity, very clayey, sandy, slightly micaceous, grey (5Y 6/1), calcareous	Ma/Fw	Lg
-65.0	38.0	37.85	Dense to very dense SAND, fine to coarse, unsorted, very silty, slightly gravelly, dark grey (5Y 4/1), slightly calcareous	Ma/Mw	Lg
-65.5	38.5				
-66.0	39.0				
-66.5	39.5	39.30	High to very high becoming extremely high strength CLAY, medium plasticity, very dark greenish grey (GLEY 1 3/1), highly calcareous, with widely spaced thin beds of dense sand and frequent shell fragments (<0.01m) between 45.50m and 49.00m	Gl	Lg
-67.0					

Gravel	Sand	Fines	Silt	Clay
0	4	96	55	41
0	13	87	72	15
2	85	13	13	0

KEY TO SOIL PROFILE

SILT · CLAY · SAND · GRAVEL · COBBLES · CHALK · PEAT · Mixed Soil

Assumed Unit Weight: 20 - 16 kN/m³
K_0: 0.5 - 2.0
N_{kt}: 15 - 20
N_{kt}: 12.5 - 16.5

Area	**Kattegat Sea**	Coordinates	**671117.7E 6254702.0N**	CRS: **ETRS89**	
Contract	**11596**	Latitude / Longitude		**Comments: Borehole CB5-BH was completed to a depth of 64.62m utilising API drilling~ Wison CPT and push sampling methods.**	
Client Name / Ref	**Energinet Eltransmission A/S / 384_20_ENE**	Water Depth (mMSL)	**-27.2**		
Vessel	**MV Ocean Vantage**	Date of Test (Start-End)	**09/05/2021 - 11/05/2021**		
Method	**Wison**	Final Borehole Depth	**64.70m**		

QC Status			Location Name
Preliminary	Draft	Final	**CB5-BH**
JK/BC (11/05/2021)	**DR** (10/06/2021)	**SMc** (10/11/2021)	

Preliminary Investigation, Hesselø OWF

BOREHOLE LOG, LABORATORY TEST RESULTS AND IN SITU CPTU TESTING

Relative to (mMSL)	Relative to BSB (m)	Soil Depth (m)	Interpreted Soil Type	Env.	Age
-67.5	40.5		High to very high becoming extremely high strength CLAY, medium plasticity, very dark greenish grey (GLEY 1 3/1), highly calcareous, with widely spaced thin beds of dense sand and frequent shell fragments (<0.01m) between 45.50m and 49.00m		
-68.0	41.0				
-68.5	41.5				
-69.0	42.0				
-69.5	42.5		42.50-42.67m: Thin bed of clay, high plasticity, slightly sandy, slightly silty, slightly gravelly, very dark greenish grey (GLEY 1 3/1), with granodiorite cobble (<87mm)		
-70.0	43.0				
-70.5	43.5				
-71.0	44.0				
-71.5	44.5			Gl	Lg
-72.0	45.0				
-72.5	45.5				
-73.0	46.0				
-73.5	46.5				
-74.0	47.0				
-74.5	47.5		47.74-47.77m: Pocket (<0.04m) of SAND, silty, fine, well sorted, greenish grey (GLEY1 10Y 5/1) calcareous		
-75.0	48.0				
-75.5	48.5				
-76.0	49.0	48.80	Extremely high strength CLAY, very high plasticity, slightly gravelly, dark greenish grey (GLEY 1 10Y 4/1), highly calcareous, interbedded to very dense SAND, fine, well sorted, silty, dark greenish grey (GLEY 1 10Y 4/1), highly calcareous 49.20-49.40m: Medium bed of medium dense sand	Gl	Gc/Lg
-76.5	49.5				
-77.0					

Soil Profile: P43, P44, P45, P46, P47, P48, P49, P50, P51, P52, P53

CPT Ref No. / Cone ID / Cone Area (a):
- 01 101017 10cm² (0.78)
- 02 081213G 10cm² (0.81)
- 03 101017 10cm² (0.78)
- 04 101017 10cm² (0.78)
- 05 101017 10cm² (0.78)
- 06 101017 10cm² (0.78)
- 07

Push Sample / CPTU Push

Water Content (%): 0, 25, 50, 75, 100

Density (Mg/m³): 3, 2, 1, 0

Particle Size, %: Gravel, Sand, Fines, Silt, Clay

Relative Density, D_r (%): 0, 30, 60, 90, 120

Undrained Shear Strength, Su (kPa): 0, 300, 600, 900, 1200, 1500

Corrected Cone Resistance, q_t (MPa): 0, 12, 24, 36, 48, 60

Sleeve Friction, f_s(MPa): 0, 0.3, 0.6, 0.9, 1.2, 1.5

Pore Pressure, U_2 (kPa): -4500, -2250, 0, 2250, 4500

Ambient Pore Pressure (kPa)

KEY TO SOIL PROFILE

SILT, CLAY, SAND, GRAVEL, COBBLES, CHALK, PEAT, Mixed Soil

Assumed Unit Weight: 20 - 16 kN/m³
K_0: 0.5 - 2.0
N_{kt}: 15 - 20
N_{ch}: 12.5 - 16.5

Area	**Kattegat Sea**	Coordinates	**671117.7E** **6254702.0N**	CRS: **ETRS89**	QC Status: Preliminary / Draft / Final
Contract	**11596**	Latitude / Longitude		**Comments: Borehole CB5-BH was completed to a depth of 64.62m utilising API drilling~ Wison CPT and push sampling methods.**	Location Name: **CB5-BH**
Client Name / Ref	**Energinet Eltransmission A/S / 384_20_ENE**	Water Depth (mMSL)	**-27.2**		
Vessel	**MV Ocean Vantage**	Date of Test (Start-End)	**09/05/2021 - 11/05/2021**		
Method	**Wison**	Final Borehole Depth	**64.70m**		

Preliminary	Draft	Final
JK/BC (11/05/2021)	**DR** (10/06/2021)	**SMc** (10/11/2021)

Preliminary Investigation, Hesselø OWF

BOREHOLE LOG, LABORATORY TEST RESULTS AND IN SITU CPTU TESTING

Relative to BSB (m)	Soil Depth (m)	Interpreted Soil Type	Env.	Age
50.5		Extremely high strength CLAY, very high plasticity, slightly gravelly, dark greenish grey (GLEY 1 10Y 4/1), highly calcareous, interbedded with dense to very dense SAND, fine, well sorted, silty, dark greenish grey (GLEY 1 10Y 4/1), highly calcareous		
51.5		51.79-51.96m: Thin bed of extremely high strength clay		
53.0			Gl	Gc/Lg
56.0	56.00	Extremely high strength CLAY TILL, low plasticity, very silty, very sandy, gravelly, grey (5Y 5/1), calcareous	Gl/Ma	Gc
59.0	59.00	Dense to very dense SAND, fine to medium, well sorted, slightly gravelly, very dark grey (5Y 3/1), non-calcareous 59.13-59.20m: extremely high strength clay, high plasticity, slightly sandy, slightly gravelly, grey (5Y 6/1), non-calcareous, with pockets of silt (<0.04m)	Gl	Gc

Push Samples: PS4, PS5, PS6, PS7

CPT Ref No. / Cone ID / Cone Area (a):
- 08 101017 10cm² (0.78)
- 09 101017 10cm² (0.78)
- 10 101017 10cm² (0.78)
- 11 101017 10cm² (0.78)
- 12 101017 10cm² (0.78)
- 13 130102 10cm² (0.74)
- 14 130102 10cm² (0.74)
- 15 071102 10cm² (0.76)

Particle Size, %

Gravel	Sand	Fines	Silt	Clay
10	30	60	23	37

Water Content (%): 0, 25, 50, 75, 100

Density (Mg/m³): 3, 2, 1, 0

Relative Density, D_r (%): 0, 30, 60, 90, 120

Undrained Shear Strength, Su (kPa): 0, 300, 600, 900, 1200, 1500

Corrected Cone Resistance, q_t (MPa): 0, 12, 24, 36, 48, 60

Sleeve Friction, f_s(MPa): 0, 0.3, 0.6, 0.9, 1.2, 1.5

Pore Pressure, U_2 (kPa): -4500, -2250, 0, 2250, 4500

Ambient Pore Pressure (kPa)

KEY TO SOIL PROFILE

SILT, CLAY, SAND, GRAVEL, COBBLES, CHALK, PEAT, Mixed Soil

Assumed Unit Weight: 20 - 16 kN/m³
K_0: 0.5 - 2.0
N_{kt}: 15 - 20
N_{kt}: 12.5 - 16.5

Area	**Kattegat Sea**	Coordinates	**671117.7E** **6254702.0N**	CRS: **ETRS89**	QC Status: Preliminary / Draft / Final
Contract	**11596**	Latitude / Longitude		**Comments: Borehole CB5-BH was completed to a depth of 64.62m utilising API drilling~ Wison CPT and push sampling methods.**	Location Name: **CB5-BH**
Client Name / Ref	**Energinet Eltransmission A/S / 384_20_ENE**	Water Depth (mMSL)	**-27.2**		
Vessel	**MV Ocean Vantage**	Date of Test (Start-End)	**09/05/2021 - 11/05/2021**		
Method	**Wison**	Final Borehole Depth	**64.70m**		**JK/BC** (11/05/2021) / **DR** (10/06/2021) / **SMc** (10/11/2021)

Preliminary Investigation, Hesselø OWF

BOREHOLE LOG, LABORATORY TEST RESULTS AND IN SITU CPTU TESTING

Relative to (mMSL)	Relative to BSB (m)	Soil Depth (m)	Interpreted Soil Type	Env.	Age
-87.5 to -88.5	60.5 to 61.5	61.50	Dense to very dense SAND, fine to medium, well sorted, slightly gravelly, very dark grey (5Y 3/1), non-calcareous	Gl	Gc
-89.0 to -91.5	62.0 to 64.5	64.62	SILTSTONE, slightly micaceous, very dark greyish brown (2.5Y 3/2), non-calcareous	Gl	Ct
-92.0 to -97.0	65.0 to 69.5		End of borehole at 64.70m		

Soil Profile; Push Sample; CPTU Push; CPT Ref No. / Cone ID / Cone Area (a): 16 071102 10cm² (0.76); 17 071102 10cm² (0.76); 18 101017 10cm² (0.78); PS2; 19 101017 10cm² (0.78); PS3; 20 101017 10cm² (0.78); PS1; PS4

Water Content (%): 0 25 50 75 100

Density (Mg/m³): 3 2 1 0

Particle Size, %

Gravel	Sand	Fines	Silt	Clay
0	30	70	61	9

Relative Density, D_r (%): 0 30 60 90 120

Undrained Shear Strength, Su (kPa): 0 300 600 900 1200 1500

Corrected Cone Resistance, q_t (MPa): 0 12 24 36 48 60

Sleeve Friction, f_s (MPa): 0 0.3 0.6 0.9 1.2 1.5

Pore Pressure, U_2 (kPa): -4500 -2250 0 2250 4500

Ambient Pore Pressure (kPa)

KEY TO SOIL PROFILE

SILT; CLAY; SAND; GRAVEL; COBBLES; CHALK; PEAT; Mixed Soil

Assumed Unit Weight: 20 - 16 kN/m³
K_0: 0.5 - 2.0
N_{kt}: 15 - 20
$N_{\Delta u}$: 12.5 - 16.5

Area	**Kattegat Sea**	Coordinates	**671117.7E 6254702.0N**	CRS: **ETRS89**	
Contract	**11596**	Latitude / Longitude		**Comments: Borehole CB5-BH was completed to a depth of 64.62m utilising API drilling~ Wison CPT and push sampling methods.**	
Client Name / Ref	**Energinet Eltransmission A/S / 384_20_ENE**	Water Depth (mMSL)	**-27.2**		
Vessel	**MV Ocean Vantage**	Date of Test (Start-End)	**09/05/2021 - 11/05/2021**		
Method	**Wison**	Final Borehole Depth	**64.70m**		

QC Status		
Preliminary	Draft	Final
JK/BC (11/05/2021)	**DR** (10/06/2021)	**SMc** (10/11/2021)

Location Name: **CB5-BH**

Preliminary Investigation, Hesselø OWF

BOREHOLE LOG, LABORATORY TEST RESULTS AND IN SITU CPTU TESTING

Soil Depth (m)	Interpreted Soil Type	Env.	Age
0.05	Extremely low strength CLAY, low plasticity, silty, sandy, very dark greenish grey (GLEY 1 10Y 3/1), slightly calcareous	Ma/Fw	Ho
	SAND, fine to coarse, poorly sorted, clayey, silty, gravelly, with shell fragments, shell pieces, and shell, very dark greyish green (10Y 5GY 3/2), non calcareous	Ma/Fw	Ho
1.00	Very low strength CLAY, medium plasticity, silty, sandy, very dark greenish grey (GLEY 1 10Y 3/1), slightly calcareous, with closely to very closely spaced thin to thick laminations of silt, medium to high plasticity, olive grey (5Y 4/2), slightly calcareous.		
	Very low strength CLAY, low plasticity, silty, sandy, very dark greenish grey (GLEY 1 10Y 3/1), slightly calcareous	Ma	Ho
3.00	SILT, very clayey, sandy, slightly gravelly, medium plasticity, greenish black (GLEY 2 2.5/1 5BG), slightly calcareous. Fibrous organics at 3.20m and 3.69m	Ma/Fw Ma/Fw	Ho Ho
3.90	Very low strength CLAY, low plasticity, silty, sandy, very dark greenish grey (GLEY 1 10Y 3/1), slightly calcareous, with closely to very closely spaced thin to thick laminations of silt, medium to high plasticity, olive grey (5Y 4/2), slightly calcareous. Fibrous organics at 3.20m and 3.69m	Ma/Fw	Ho
5.08	Dense to very dense SAND, fine to coarse, sorted, silty, slightly gravelly, dark grey (5Y 4/1), with shell fragments (<0.05m), highly calcareous	Ma/Fw	Ho
5.87	Very low to low strength CLAY, medium to high plasticity, very silty, slightly sandy, dark grey (5Y 4/1) with black organic staining and pockets (<0.05m) of silt, light olive grey (5Y 4/1) between 9.50m and 11.25m, slightly calcareous	Ma	Ho

Particle Size, %	Gravel	Sand	Fines	Silt	Clay
3.90 – 5.08	1	14	85	68	17
5.08 – 5.87	2	93	5	5	0

KEY TO SOIL PROFILE

SILT · CLAY · SAND · GRAVEL · COBBLES · CHALK · PEAT · Mixed Soil

Assumed Unit Weight: 20 - 16 kN/m³
K_0: 0.5 - 2.0
N_{kt}: 15 - 20
N_{ke}: 12.5 - 16.5

Area	**Kattegat Sea**	Coordinates	**668193.1E 6258003.5N**
Contract	**11596**	Latitude / Longitude	
Client Name / Ref	**Energinet Eltransmission A/S / 384_20_ENE**	Water Depth (mMSL)	**-26.7**
Vessel	**MV Ocean Vantage**	Date of Test (Start-End)	**27/05/2021 - 29/05/2021**
Method	**Wison**	Final Borehole Depth	**56.70m**

CRS: **ETRS89**

Comments: Borehole CB6-BH was completed to a depth of 56.70m utilising API drilling~ Wison CPT and push sampling methods. P-S logging was performed from 52.00m to 3.00m below mudline.

QC Status	Preliminary	Draft	Final
	JK/BC (27/05/2021)	**DR** (10/06/2021)	**SMc** (10/11/2021)

Location Name: **CB6-BH**

Preliminary Investigation, Hesselø OWF

BOREHOLE LOG, LABORATORY TEST RESULTS AND IN SITU CPTU TESTING

Relative to (mMSL)	Relative to BSB (m)	Soil Profile	Push Sample	CPTU Push	CPT Ref No. Cone ID Cone Area (a)	Soil Depth (m)	Interpreted Soil Type	Env.	Age	Gravel	Sand	Fines	Silt	Clay
-37.0	10.5		P11				Very low to low strength CLAY, medium to high plasticity, very silty, slightly sandy, dark grey (5Y 4/1) with black organic staining and pockets (<0.05m) of silt, light olive grey (5Y 4/1) between 9.50m and 11.25m, slightly calcareous	Ma	Ho	0	3	97	57	40
-37.5	11.0		P12											
-38.0	11.5													
-38.5	12.0		P13											
-39.0	12.5													
-39.5	13.0		P14											
-40.0	13.5													
-40.5	14.0		P15											
-41.0	14.5													
-41.5	15.0		P16			15.46	Low to medium strength CLAY, high plasticity, slightly silty, dark grey (5Y 4/1), with very closely to medium spaced thin laminations and pockets (<0.02m) of silt, olive grey (5Y 5/2), highly calcareous			0	2	98	46	52
-42.0	15.5													
-42.5	16.0		P17											
-43.0	16.5													
-43.5	17.0		P18											
-44.0	17.5							Ma/Fw	Ho	2	17	81	38	43
-44.5	18.0		P19				17.50-18.40m: Thick bed of low to medium strength CLAY, high plasticity, slightly silty, slightly gravelly, dark grey (5Y 4/1), highly calcareous							
-45.0	18.5													
-45.5	19.0		P20											
-46.0	19.5													
-46.5														

Water Content (%): 0, 25, 50, 75, 100

Density (Mg/m^3): 3, 2, 1, 0

Relative Density, D_r (%): 0, 30, 60, 90, 120

Undrained Shear Strength, Su (kPa): 0, 300, 600, 900, 1200, 1500

Corrected Cone Resistance, q_t (MPa): 0, 12, 24, 36, 48, 60

Sleeve Friction, f_s (MPa): 0, 0.3, 0.6, 0.9, 1.2, 1.5

Pore Pressure, U_2 (kPa): -4500, -2250, 0, 2250, 4500

Ambient Pore Pressure (kPa)

Relative to BSB (m): 10.5, 11.0, 11.5, 12.0, 12.5, 13.0, 13.5, 14.0, 14.5, 15.0, 15.5, 16.0, 16.5, 17.0, 17.5, 18.0, 18.5, 19.0, 19.5

KEY TO SOIL PROFILE

SILT, CLAY, SAND, GRAVEL, COBBLES, CHALK, PEAT, Mixed Soil

Assumed Unit Weight: 20 - 16 kN/m^3
K_0: 0.5 - 2.0
N_{kt}: 15 - 20
N_{kt}: 12.5 - 16.5

Area	**Kattegat Sea**	Coordinates	**668193.1E 6258003.5N**	CRS: **ETRS89**	QC Status: Preliminary / Draft / Final
Contract	**11596**	Latitude / Longitude		**Comments: Borehole CB6-BH was completed to a depth of 56.70m utilising API drilling~ Wison CPT and push sampling methods. P-S logging was performed from 52.00m to 3.00m below mudline.**	**JK/BC** (27/05/2021) / **DR** (10/06/2021) / **SMc** (10/11/2021)
Client Name / Ref	**Energinet Eltransmission A/S / 384_20_ENE**	Water Depth (mMSL)	**-26.7**		
Vessel	**MV Ocean Vantage**	Date of Test (Start-End)	**27/05/2021 - 29/05/2021**		
Method	**Wison**	Final Borehole Depth	**56.70m**		

Location Name: **CB6-BH**

Preliminary Investigation, Hesselø OWF

BOREHOLE LOG, LABORATORY TEST RESULTS AND IN SITU CPTU TESTING

Relative to (mMSL)	Relative to BSB (m)	Soil Profile	Push Sample	CPTU Push	CPT Ref No. Cone ID Cone Area (a)	Soil Depth (m)	Interpreted Soil Type	Env.	Age
-47.0 to -56.5	20.5 to 29.5		P21 to P30				Low to medium strength CLAY, high plasticity, slightly silty, dark grey (5Y 4/1), with very closely to medium spaced thin laminations and pockets (<0.02m) of silt, olive grey (5Y 5/2), highly calcareous 25.50-26.50m: Thick bed of low to medium strength clay, high plasticity, slightly silty, slightly gravelly, dark grey (5Y 4/1), highly calcareous	Ma/Fw	Ho

Water Content (%): 0 25 50 75 100

Density (Mg/m^3): 3 2 1 0

Particle Size, %: Gravel | Sand | Fines | Silt | Clay

Relative Density, D_r (%): 0 30 60 90 120

Undrained Shear Strength, Su (kPa): 0 300 600 900 1200 1500

Corrected Cone Resistance, q_t (MPa): 0 12 24 36 48 60

Sleeve Friction, f_s(MPa): 0 0.3 0.6 0.9 1.2 1.5

Pore Pressure, U_2 (kPa): -4500 -2250 0 2250 4500

Ambient Pore Pressure (kPa)

KEY TO SOIL PROFILE

SILT, CLAY, SAND, GRAVEL, COBBLES, CHALK, PEAT, Mixed Soil

Assumed Unit Weight: 20 - 16 kN/m^3
K_0: 0.5 - 2.0
N_{kt}: 15 - 20
N_{kt}: 12.5 - 16.5

Area	**Kattegat Sea**	Coordinates	**668193.1E 6258003.5N**	CRS: **ETRS89**	QC Status: Preliminary / Draft / Final
Contract	**11596**	Latitude / Longitude		**Comments: Borehole CB6-BH was completed to a depth of 56.70m utilising API drilling~ Wison CPT and push sampling methods. P-S logging was performed from 52.00m to 3.00m below mudline.**	Location Name: **CB6-BH**
Client Name / Ref	**Energinet Eltransmission A/S / 384_20_ENE**	Water Depth (mMSL)	**-26.7**		
Vessel	**MV Ocean Vantage**	Date of Test (Start-End)	**27/05/2021 - 29/05/2021**		
Method	**Wison**	Final Borehole Depth	**56.70m**		

Preliminary	Draft	Final
JK/BC (27/05/2021)	**DR** (10/06/2021)	**SMc** (10/11/2021)

Preliminary Investigation, Hesselø OWF

BOREHOLE LOG, LABORATORY TEST RESULTS AND IN SITU CPTU TESTING

Relative to (mMSL)	Relative to BSB (m)	Soil Depth (m)	Interpreted Soil Type	Env.	Age
-57.0	30.5	30.50	Low to medium strength CLAY, high plasticity, slightly silty, dark grey (5Y 4/1), with very closely to medium spaced thin laminations and pockets (<0.02m) of silt, olive grey (5Y 5/2), highly calcareous	Ma/Fw	Ho
-57.5 to -61.0	31.0 to 34.0		Medium to high strength CLAY, high plasticity, very silty, very sandy, slightly gravelly, dark grey (5Y 4/1), calcareous	Ma/Fw	Pg
-61.5 to -66.0	34.5 to 39.0	34.52	Medium to high strength CLAY, high plasticity, very silty, slightly sandy, grey (2.5Y 5/1), with medium spaced thin laminations and pockets (<0.02m) of silt, greyish brown (2.5Y 5/2), calcareous	Ma/Fw	Pg
-66.5	39.5	39.68		Ma/Fw	Gc

Push Sample: P31, P32, P33, P34, P35, P36, P37, P38, P39, P40, P41

CPT Push: 01, 120826, 10cm² (0.76)

Particle Size, %

Gravel	Sand	Fines	Silt	Clay
0	2	98	49	49
0	1	99	39	60

KEY TO SOIL PROFILE

SILT, CLAY, SAND, GRAVEL, COBBLES, CHALK, PEAT, Mixed Soil

Assumed Unit Weight: 20 - 16 kN/m³
K_0: 0.5 - 2.0
N_{cone}: 15 - 20
N_{M1}: 12.5 - 16.5

Area	**Kattegat Sea**	Coordinates	**668193.1E 6258003.5N**	CRS: **ETRS89**	QC Status: Preliminary / Draft / Final
Contract	**11596**	Latitude / Longitude		**Comments: Borehole CB6-BH was completed to a depth of 56.70m utilising API drilling~ Wison CPT and push sampling methods. P-S logging was performed from 52.00m to 3.00m below mudline.**	
Client Name / Ref	**Energinet Eltransmission A/S / 384_20_ENE**	Water Depth (mMSL)	**-26.7**		
Vessel	**MV Ocean Vantage**	Date of Test (Start-End)	**27/05/2021 - 29/05/2021**		**JK/BC** (27/05/2021) / **DR** (10/06/2021) / **SMc** (10/11/2021)
Method	**Wison**	Final Borehole Depth	**56.70m**		

Location Name: **CB6-BH**

Preliminary Investigation, Hesselø OWF

BOREHOLE LOG, LABORATORY TEST RESULTS AND IN SITU CPTU TESTING

Relative to (mMSL)	Relative to BSB (m)	Soil Profile	Push Sample	CPTU Push	CPT Ref No. Cone ID Cone Area (a)	Soil Depth (m)	Interpreted Soil Type	Env.	Age
-67.0 to -76.5	40.5 to 49.5		P41, P42, P43, P44, P45, P46, P47, P48, P49, P50, P51, P52		02 120826 10cm² (0.76); 03 071102 10cm² (0.76); 04 121003 10cm² (0.78); 05 121003 10cm² (0.78); 06 121003 10cm² (0.78); 07 121003 10cm² (0.78); 08 120826 10cm² (0.76); 09 121003 10cm² (0.78)		High to extremely high strength CLAY TILL, medium plasticity, very silty, very sandy, slightly gravelly, very dark grey (GLEY1 3/N), highly calcareous with medium to widely spaced thin to medium beds of dense to very dense sand, fine, well sorted, silty, grey (5Y 6/1) and gravel, fine to coarse, poorly sorted, clayey between 48.75m and 54.38m	Ma/Fw	Gc

Gravel	Sand	Fines	Silt	Clay
2	42	56	34	22

Water Content (%) 0 25 50 75 100 | Density (Mg/m³) 3 2 1 0 | Relative Density, D_r (%) 0 30 60 90 120 | Undrained Shear Strength, Su (kPa) 0 300 600 900 1200 1500 | Corrected Cone Resistance, q_t (MPa) 0 12 24 36 48 60 | Sleeve Friction, f_s (MPa) 0 0.3 0.6 0.9 1.2 1.5 | Pore Pressure, U_2 (kPa) -4500 -2250 0 2250 4500 | Ambient Pore Pressure (kPa)

KEY TO SOIL PROFILE

SILT, CLAY, SAND, GRAVEL, COBBLES, CHALK, PEAT, Mixed Soil

Assumed Unit Weight: 20 - 16 kN/m³
K_0: 0.5 - 2.0
N_{kt}: 15 - 20
N_{kt}: 12.5 - 16.5

Area	**Kattegat Sea**	Coordinates	**668193.1E 6258003.5N**	CRS: **ETRS89**	QC Status: Preliminary / Draft / Final
Contract	**11596**	Latitude / Longitude		**Comments: Borehole CB6-BH was completed to a depth of 56.70m utilising API drilling~ Wison CPT and push sampling methods. P-S logging was performed from 52.00m to 3.00m below mudline.**	Location Name: **CB6-BH**
Client Name / Ref	**Energinet Eltransmission A/S / 384_20_ENE**	Water Depth (mMSL)	**-26.7**		
Vessel	**MV Ocean Vantage**	Date of Test (Start-End)	**27/05/2021 - 29/05/2021**		
Method	**Wison**	Final Borehole Depth	**56.70m**		

Preliminary	Draft	Final
JK/BC (27/05/2021)	**DR** (10/06/2021)	**SMc** (10/11/2021)

Preliminary Investigation, Hesselø OWF

BOREHOLE LOG, LABORATORY TEST RESULTS AND IN SITU CPTU TESTING

Relative to (mMSL)	Relative to BSB (m)	Soil Profile	Push Sample	CPTU Push	CPT Ref No. Cone ID Cone Area (a)	Soil Depth (m)	Interpreted Soil Type	Env.	Age
-77.0	50.5				10 121003 10cm² (0.78)		High to extremely high strength CLAY TILL, medium plasticity, very silty, very sandy, slightly gravelly, very dark grey (GLEY1 3/N), highly calcareous with medium to widely spaced thin to medium beds of dense to very dense sand, fine, well sorted, silty, grey (5Y 6/1) and gravel, fine to coarse, poorly sorted, clayey between 48.75m and 54.38m		
-77.5	51.0				11 121003 10cm² (0.78)				
-78.0	51.5								
-78.5	52.0				12 121003 10cm² (0.78)				
-79.0	52.5							Ma/Fw	Gc
-79.5	53.0		PS		13 121126 10cm² (0.79)				
-80.0	53.5								
-80.5	54.0				14 121005G 10cm² (0.78)				
-81.0	54.5								
-81.5	55.0				15 121005G 10cm² (0.78)	55.00	SILTSTONE, slightly indurated, very dark brown (10YR 2/2), micaceous, non calcareous		
-82.0	55.5								
-82.5	56.0		PS					Gl	Ct
-83.0	56.5		PS						
-83.5	57.0						End of borehole at 56.70m		
-84.0	57.5								
-84.5	58.0								
-85.0	58.5								
-85.5	59.0								
-86.0	59.5								
-86.5									

Water Content (%): 0, 25, 50, 75, 100

Density (Mg/m³): 3, 2, 1, 0

Particle Size, %: Gravel, Sand, Fines, Silt, Clay

Relative Density, D_r (%): 0, 30, 60, 90, 120

Undrained Shear Strength, Su (kPa): 0, 300, 600, 900, 1200, 1500

Corrected Cone Resistance, q_t (MPa): 0, 12, 24, 36, 48, 60

Sleeve Friction, f_s(MPa): 0, 0.3, 0.6, 0.9, 1.2, 1.5

Pore Pressure, U_2 (kPa): -4500, -2250, 0, 2250, 4500

Ambient Pore Pressure (kPa)

Relative to BSB (m): 50.5, 51.0, 51.5, 52.0, 52.5, 53.0, 53.5, 54.0, 54.5, 55.0, 55.5, 56.0, 56.5, 57.0, 57.5, 58.0, 58.5, 59.0, 59.5

KEY TO SOIL PROFILE

SILT, CLAY, SAND, GRAVEL, COBBLES, CHALK, PEAT, Mixed Soil

Assumed Unit Weight: 20 - 16 kN/m³
K_0: 0.5 - 2.0
N_{kt}: 15 - 20
$N_{\Delta t}$: 12.5 - 16.5

Area	**Kattegat Sea**	Coordinates	**668193.1E 6258003.5N**	CRS: **ETRS89**	QC Status: Preliminary / Draft / Final
Contract	**11596**	Latitude / Longitude		**Comments: Borehole CB6-BH was completed to a depth of 56.70m utilising API drilling~ Wison CPT and push sampling methods. P-S logging was performed from 52.00m to 3.00m below mudline.**	
Client Name / Ref	**Energinet Eltransmission A/S / 384_20_ENE**	Water Depth (mMSL)	**-26.7**		
Vessel	**MV Ocean Vantage**	Date of Test (Start-End)	**27/05/2021 - 29/05/2021**		**JK/BC** (27/05/2021) / **DR** (10/06/2021) / **SMc** (10/11/2021)
Method	**Wison**	Final Borehole Depth	**56.70m**		

Location Name: **CB6-BH**

Preliminary Investigation, Hesselø OWF

BOREHOLE LOG, LABORATORY TEST RESULTS AND IN SITU CPTU TESTING

Relative to (mMSL)	Relative to BSB (m)	Soil Depth (m)	Interpreted Soil Type	Env.	Age
-31.5 to -32.0	0.5 to 1.0		Extremely low strength CLAY, medium plasticity, very silty, very sandy, slightly gravelly, with shell fragments (<0.02m) dark greenish grey (GLEY1 10Y 4/1), slightly calcareous	Ma/Fw	Ho
-32.5 to -33.0	1.5 to 2.0	2.09	SAND, fine to coarse, unsorted, clayey, silty, gravelly, grey (5Y 5/1), highly calcareous	Ma/Fw	Ho
-33.5 to -40.5	2.5 to 9.5	2.75	Low to medium strength CLAY, high plasticity, very silty, slightly sandy, with pockets (<0.02m) of silt, light grey (5Y 7/1), with black organic staining, dark grey (5Y 4/1), highly calcareous	Ma	Ho

Push Sample: P01, P02, P03, P04, P05, P06, P07, P08, P09, P10, P11

CPT Ref No. / Cone ID / Cone Area (a)

Soil Depth (m)	Gravel	Sand	Fines	Silt	Clay
2.09	1	35	64	44	20
2.75	12	73	15	7	8
	0	1	99	40	59

Water Content (%): 0, 25, 50, 75, 100

Density (Mg/m^3): 3, 2, 1, 0

Particle Size, %

Relative Density, D_r (%): 0, 30, 60, 90, 120

Undrained Shear Strength, Su (kPa): 0, 300, 600, 900, 1200, 1500

Corrected Cone Resistance, q_t (MPa): 0, 12, 24, 36, 48, 60

Sleeve Friction, f_s(MPa): 0, 0.3, 0.6, 0.9, 1.2, 1.5

Pore Pressure, U_2 (kPa): -4500, -2250, 0, 2250, 4500

Ambient Pore Pressure (kPa)

KEY TO SOIL PROFILE

SILT, CLAY, SAND, GRAVEL, COBBLES, CHALK, PEAT, Mixed Soil

Assumed Unit Weight: 20 - 16 kN/m^3
K_0: 0.5 - 2.0
N_{kt}: 15 - 20
$N_{\Delta u}$: 12.5 - 16.5

Area	**Kattegat Sea**	Coordinates	**673537.8E 6259626.9N**
Contract	**11596**	Latitude / Longitude	
Client Name / Ref	**Energinet Eltransmission A/S / 384_20_ENE**	Water Depth (mMSL)	**-31.0**
Vessel	**MV Ocean Vantage**	Date of Test (Start-End)	**29/05/2021 - 30/05/2021**
Method	**Wison**	Final Borehole Depth	**64.32m**

CRS: **ETRS89**

Comments: Borehole CB7-BH was completed to a depth of 64.32m utilising API drilling~ Wison CPT and push sampling methods. P-S logging was performed from 52m to 4m below mudline.

QC Status		
Preliminary	Draft	Final
JK/BC (29/05/2021)	**DR** (10/06/2021)	**SMc** (10/11/2021)

Location Name: **CB7-BH**

Preliminary Investigation, Hesselø OWF

BOREHOLE LOG, LABORATORY TEST RESULTS AND IN SITU CPTU TESTING

Relative to (mMSL)	Relative to BSB (m)	Soil Profile	Push Sample	CPTU Push	CPT Ref No. Cone ID Cone Area (a)	Soil Depth (m)	Interpreted Soil Type	Env.	Age
-41.5	10.5		P12				Low to medium strength CLAY, high plasticity, very silty, slightly sandy, with pockets (<0.02m) of silt, light grey (5Y 7/1), with black organic staining, dark grey (5Y 4/1), highly calcareous	Ma	Ho
-42.0	11.0		P13						
-42.5	11.5								
-43.0	12.0		P14						
-43.5	12.5								
-44.0	13.0		P15						
-44.5	13.5								
-45.0	14.0		P16						
-45.5	14.5								
-46.0	15.0		P17						
-46.5	15.5								
-47.0	16.0		P18						
-47.5	16.5								
-48.0	17.0		P19						
-48.5	17.5					17.50	Medium strength CLAY, high plasticity, with very closely to medium spaced thin to thick laminations of sand, fine, well sorted, silty, grey (5Y 5/1), highly calcareous, dark grey (5Y 4/1), highly calcareous	Ma/Fw	Pg
-49.0	18.0		P20						
-49.5	18.5								
-50.0	19.0		P21						
-50.5	19.5					19.50	Medium strength CLAY, medium plasticity, very silty, sandy, slightly gravelly, dark grey (5Y 4/1), slightly calcareous	Ma/Fw	Pg

Water Content (%): 0 25 50 75 100

Density (Mg/m^3): 3 2 1 0

Particle Size, %

Gravel	Sand	Fines	Silt	Clay
0	2	98	43	55

Relative Density, D_r (%): 0 30 60 90 120

Undrained Shear Strength, Su (kPa): 0 300 600 900 1200 1500

Corrected Cone Resistance, q_t (MPa): 0 12 24 36 48 60

Sleeve Friction, f_s (MPa): 0 0.3 0.6 0.9 1.2 1.5

Pore Pressure, U_2 (kPa): -4500 -2250 0 2250 4500

Ambient Pore Pressure (kPa)

KEY TO SOIL PROFILE

SILT, CLAY, SAND, GRAVEL, COBBLES, CHALK, PEAT, Mixed Soil

Assumed Unit Weight: 20 - 16 kN/m^3
K_0: 0.5 - 2.0
N_{kt}: 15 - 20
N_{kt}: 12.5 - 16.5

Area	**Kattegat Sea**	Coordinates	**673537.8E 6259626.9N**	CRS: **ETRS89**	
Contract	**11596**	Latitude / Longitude		**Comments: Borehole CB7-BH was completed to a depth of 64.32m utilising API drilling~ Wison CPT and push sampling methods. P-S logging was performed from 52m to 4m below mudline.**	
Client Name / Ref	**Energinet Eltransmission A/S / 384_20_ENE**	Water Depth (mMSL)	**-31.0**		
Vessel	**MV Ocean Vantage**	Date of Test (Start-End)	**29/05/2021 - 30/05/2021**		
Method	**Wison**	Final Borehole Depth	**64.32m**		

QC Status			Location Name
Preliminary	Draft	Final	**CB7-BH**
JK/BC (29/05/2021)	**DR** (10/06/2021)	**SMc** (10/11/2021)	

Preliminary Investigation, Hesselø OWF

BOREHOLE LOG, LABORATORY TEST RESULTS AND IN SITU CPTU TESTING

Relative to (mMSL)	Relative to BSB (m)	Soil Profile	Push Sample	CPTU Push	CPT Ref No. Cone ID Cone Area (a)	Soil Depth (m)	Interpreted Soil Type	Env.	Age
-51.5 to -60.5	20.5 to 29.5		P22 P23 P24 P25 P26 P27 P28 P29 P30 P31A				Medium strength CLAY, medium plasticity, very silty, sandy, slightly gravelly, dark grey (5Y 4/1), slightly calcareous	Ma/Fw	Pg

Water Content (%): 0 25 50 75 100

Density (Mg/m^3): 3 2 1 0

Particle Size, %

Gravel	Sand	Fines	Silt	Clay
4	23	73	45	28

Relative Density, D_r (%): 0 30 60 90 120

Undrained Shear Strength, Su (kPa): 0 300 600 900 1200 1500

Corrected Cone Resistance, q_t (MPa): 0 12 24 36 48 60

Sleeve Friction, f_s(MPa): 0 0.3 0.6 0.9 1.2 1.5

Pore Pressure, U_2 (kPa): -4500 -2250 0 2250 4500

Ambient Pore Pressure (kPa)

KEY TO SOIL PROFILE

SILT, CLAY, SAND, GRAVEL, COBBLES, CHALK, PEAT, Mixed Soil

Assumed Unit Weight: 20 - 16 kN/m^3
K_C: 0.5 - 2.0
N_{KC}: 15 - 20
N_{KT}: 12.5 - 16.5

Area	**Kattegat Sea**	Coordinates	**673537.8E 6259626.9N**	CRS: **ETRS89**	
Contract	**11596**	Latitude / Longitude		**Comments: Borehole CB7-BH was completed to a depth of 64.32m utilising API drilling~ Wison CPT and push sampling methods. P-S logging was performed from 52m to 4m below mudline.**	
Client Name / Ref	**Energinet Eltransmission A/S / 384_20_ENE**	Water Depth (mMSL)	**-31.0**		
Vessel	**MV Ocean Vantage**	Date of Test (Start-End)	**29/05/2021 - 30/05/2021**		
Method	**Wison**	Final Borehole Depth	**64.32m**		

QC Status			Location Name
Preliminary	Draft	Final	**CB7-BH**
JK/BC (29/05/2021)	**DR** (10/06/2021)	**SMc** (10/11/2021)	

Preliminary Investigation, Hesselø OWF

BOREHOLE LOG, LABORATORY TEST RESULTS AND IN SITU CPTU TESTING

Relative to BSB (m)	Soil Depth (m)	Interpreted Soil Type	Env.	Age	Gravel	Sand	Fines	Silt	Clay
30.5	30.86	Medium strength CLAY, medium plasticity, very silty, sandy, slightly gravelly, dark grey (5Y 4/1), slightly calcareous	Ma/Fw	Pg					
31.0		Medium strength CLAY TILL, medium plasticity, very silty, very sandy, slightly gravelly, dark grey (5Y 4/1), highly calcareous							
31.5					6	25	69	37	32
32.0									
32.5			Ma/Fw	Gc					
33.0		32.50-33.35m: Thick bed of medium strength clay, medium plasticity, sandy, slightly gravelly, dark grey (5Y 4/1), highly calcareous							
34.0									
34.5	34.50	High to very high strength CLAY, medium plasticity, sandy, slightly gravelly, grey (5Y 5/1), slightly calcareous	Gl	Gc					
35.0									
35.5									
36.0									
36.5									
37.0									
37.5									
38.0									
38.5	38.50	Very to extremely high strength CLAY, low plasticity, very silty, very sandy, slightly gravelly, very dark grey (GLEY1 4/N) to dark grey (GLEY1 3/N), slightly calcareous	Gl/Mw	Gc	4	59	37	24	13
39.0									
39.5									

Push Sample: P32, P33, P34, P35, P36, P37, P38, P39, P40, P41

CPT Push: 01 121005G 10cm² (0.78)

Water Content (%): 0, 25, 50, 75, 100

Density (Mg/m³): 3, 2, 1, 0

Particle Size, %

Relative Density, D_r (%): 0, 30, 60, 90, 120

Undrained Shear Strength, Su (kPa): 0, 300, 600, 900, 1200, 1500

Corrected Cone Resistance, q_t (MPa): 0, 12, 24, 36, 48, 60

Sleeve Friction, f_s (MPa): 0, 0.3, 0.6, 0.9, 1.2, 1.5

Pore Pressure, U_2 (kPa): -4500, -2250, 0, 2250, 4500

Ambient Pore Pressure (kPa)

KEY TO SOIL PROFILE

SILT, CLAY, SAND, GRAVEL, COBBLES, CHALK, PEAT, Mixed Soil

Assumed Unit Weight: 20 - 16 kN/m³
K_0: 0.5 - 2.0
N_{kt}: 15 - 20
N_{kt}: 12.5 - 16.5

Area	**Kattegat Sea**	Coordinates	**673537.8E**	**6259626.9N**	CRS: **ETRS89**
Contract	**11596**	Latitude / Longitude			**Comments: Borehole CB7-BH was completed to a depth of 64.32m utilising API drilling~ Wison CPT and push sampling methods. P-S logging was performed from 52m to 4m below mudline.**
Client Name / Ref	**Energinet Eltransmission A/S / 384_20_ENE**	Water Depth (mMSL)	**-31.0**		
Vessel	**MV Ocean Vantage**	Date of Test (Start-End)	**29/05/2021 - 30/05/2021**		
Method	**Wison**	Final Borehole Depth	**64.32m**		

QC Status			Location Name
Preliminary	Draft	Final	**CB7-BH**
JK/BC (29/05/2021)	**DR** (10/06/2021)	**SMc** (10/11/2021)	

Preliminary Investigation, Hesselø OWF

BOREHOLE LOG, LABORATORY TEST RESULTS AND IN SITU CPTU TESTING

Relative to (mMSL)	Relative to BSB (m)	Soil Depth (m)	Interpreted Soil Type	Env.	Age
-71.5 to -80.5	40.5 to 49.5		Very to extremely high strength CLAY, low plasticity, very silty, very sandy, slightly gravelly, very dark grey (GLEY1 4/N) to dark grey (GLEY1 3/N), slightly calcareous	Gl/Mw	Gc
		44.92	Extremely high strength CLAY, medium plasticity, slightly silty, gravelly, very dark greenish grey (GLEY1 10GY 3/1), slightly calcareous 45.46-45.51m: Very thin bed of gravel	Gl/Mw	Gc
		47.50	Extremely high strength CLAY, medium plasticity, very silty, slightly sandy, very dark greenish grey (GLEY1 5GY 3/1), highly calcareous	Gl/Mw	Gc

Push Sample: P42, P43, P44, P45, P46, P47, P48, P49, P50, P51, P52

CPT Push: 02 121005G 10cm² (0.78); 03 121004 10cm² (0.78); 04 121004 10cm² (0.78)

Water Content (%): 0, 25, 50, 75, 100

Density (Mg/m³): 3, 2, 1, 0

Particle Size, %: Gravel, Sand, Fines, Silt, Clay

Relative Density, D_r (%): 0, 30, 60, 90, 120

Undrained Shear Strength, Su (kPa): 0, 300, 600, 900, 1200, 1500

Corrected Cone Resistance, q_t (MPa): 0, 12, 24, 36, 48, 60

Sleeve Friction, f_s (MPa): 0, 0.3, 0.6, 0.9, 1.2, 1.5

Pore Pressure, U_2 (kPa): -4500, -2250, 0, 2250, 4500

Ambient Pore Pressure (kPa)

KEY TO SOIL PROFILE

SILT, CLAY, SAND, GRAVEL, COBBLES, CHALK, PEAT, Mixed Soil

Assumed Unit Weight: 20 - 16 kN/m³
K_0: 0.5 - 2.0
N_{kt}: 15 - 20
N_{ch}: 12.5 - 16.5

Area	**Kattegat Sea**	Coordinates	**673537.8E**	**6259626.9N**	CRS: **ETRS89**
Contract	**11596**	Latitude / Longitude			**Comments: Borehole CB7-BH was completed to a depth of 64.32m utilising API drilling~ Wison CPT and push sampling methods. P-S logging was performed from 52m to 4m below mudline.**
Client Name / Ref	**Energinet Eltransmission A/S / 384_20_ENE**	Water Depth (mMSL)	**-31.0**		
Vessel	**MV Ocean Vantage**	Date of Test (Start-End)	**29/05/2021 - 30/05/2021**		
Method	**Wison**	Final Borehole Depth	**64.32m**		

QC Status			Location Name
Preliminary	Draft	Final	**CB7-BH**
JK/BC (29/05/2021)	**DR** (10/06/2021)	**SMc** (10/11/2021)	

Preliminary Investigation, Hesselø OWF

BOREHOLE LOG, LABORATORY TEST RESULTS AND IN SITU CPTU TESTING

Relative to (mMSL)	Relative to BSB (m)	Soil Profile	Push Sample	CPTU Push	CPT Ref No. Cone ID Cone Area (a)	Soil Depth (m)	Interpreted Soil Type	Env.	Age
-81.5 to -90.5	50.5 to 59.5		P63 P54 P55		05 121004 10cm² (0.78); 06 121004 10cm² (0.78); 07 121004 10cm² (0.78)		Extremely high strength CLAY, medium plasticity, very silty, slightly sandy, very dark greenish grey (GLEY1 5GY 3/1), highly calcareous	Gl/Mw	Gc

Water Content (%): 0 25 50 75 100

Density (Mg/m³): 3 2 1 0

Particle Size, %: Gravel 0; Sand 4; Fines 96; Silt 32; Clay 64

Relative Density, D_r (%): 0 30 60 90 120

Undrained Shear Strength, Su (kPa): 0 300 600 900 1200 1500

Corrected Cone Resistance, q_t (MPa): 0 12 24 36 48 60

Sleeve Friction, f_s (MPa): 0 0.3 0.6 0.9 1.2 1.5

Pore Pressure, U_2 (kPa): -4500 -2250 0 2250 4500

Ambient Pore Pressure (kPa)

KEY TO SOIL PROFILE

SILT; CLAY; SAND; GRAVEL; COBBLES; CHALK; PEAT; Mixed Soil

Assumed Unit Weight: 20 - 16 kN/m³
K_0: 0.5 - 2.0
N_{kt}: 15 - 20
N_{kt}: 12.5 - 16.5

Area	**Kattegat Sea**	Coordinates	**673537.8E**	**6259626.9N**	CRS: **ETRS89**
Contract	**11596**	Latitude / Longitude			**Comments: Borehole CB7-BH was completed to a depth of 64.32m utilising API drilling~ Wison CPT and push sampling methods. P-S logging was performed from 52m to 4m below mudline.**
Client Name / Ref	**Energinet Eltransmission A/S / 384_20_ENE**	Water Depth (mMSL)	**-31.0**		
Vessel	**MV Ocean Vantage**	Date of Test (Start-End)	**29/05/2021 - 30/05/2021**		
Method	**Wison**	Final Borehole Depth	**64.32m**		

QC Status			Location Name
Preliminary	Draft	Final	**CB7-BH**
JK/BC (29/05/2021)	**DR** (10/06/2021)	**SMc** (10/11/2021)	

Preliminary Investigation, Hesselø OWF

BOREHOLE LOG, LABORATORY TEST RESULTS AND IN SITU CPTU TESTING

Depth (m)	Interpreted Soil Type	Env.	Age
		Gl/Mw	Gc
60.31	Extremely high strength CLAY TILL, medium plasticity, silty, sandy, gravelly, dark greenish grey (GLEY1 10Y 4/1), highly calcareous	Gl/Mw	Gc
63.81	Weak MUDSTONE, slightly indurated, slightly micaceous with extremely closely spaced thin laminations of siltstone, light grey (5Y 7/2) to very dark greenish grey (GLEY1 10Y 3/1), slightly calcareous	Gl	Ct
64.30	End of borehole at 64.32m		

CPT Ref No. / Cone ID / Cone Area (a): 08 121004 10cm² (0.78); 09 121004 10cm² (0.78); 10 121004 10cm² (0.78)

Push Sample: PSO; PSO

KEY TO SOIL PROFILE

SILT, CLAY, SAND, GRAVEL, COBBLES, CHALK, PEAT, Mixed Soil

Assumed Unit Weight: 20 - 16 kN/m³
K_0: 0.5 - 2.0
N_{kt}: 15 - 20
N_{vt}: 12.5 - 16.5

Area	**Kattegat Sea**	Coordinates	**673537.8E 6259626.9N**	CRS: **ETRS89**	QC Status: Preliminary / Draft / Final
Contract	**11596**	Latitude / Longitude		**Comments: Borehole CB7-BH was completed to a depth of 64.32m utilising API drilling~ Wison CPT and push sampling methods. P-S logging was performed from 52m to 4m below mudline.**	Location Name: **CB7-BH**
Client Name / Ref	**Energinet Eltransmission A/S / 384_20_ENE**	Water Depth (mMSL)	**-31.0**		
Vessel	**MV Ocean Vantage**	Date of Test (Start-End)	**29/05/2021 - 30/05/2021**		**JK/BC** (29/05/2021) / **DR** (10/06/2021) / **SMc** (10/11/2021)
Method	**Wison**	Final Borehole Depth	**64.32m**		Page: 7/7

Preliminary Investigation, Hesselø OWF

BOREHOLE LOG, LABORATORY TEST RESULTS AND IN SITU CPTU TESTING

Soil Depth (m)	Interpreted Soil Type	Env.	Age	Gravel	Sand	Fines	Silt	Clay
	CLAY, medium plasticity, silty, very sandy, slightly gravelly, with shell fragments, shell pieces, and shell, dark greenish grey (GLEY 14/1 10Y), rare black organic staining, non-calcareous to slightly calcareous.	Ma/Fw	Ho	1	60	39	25	14
1.00	Extremely low strength CLAY, low plasticity, sandy, gravelly, dark greenish grey (GLEY 1 10Y 4/1), slightly calcareous	Ma/Fw	Ho					
1.50	Dense to very dense SAND, fine to coarse, unsorted, clayey, silty, gravelly, dark greyish brown (2.5Y 4/2), slightly calcareous, with occasional pockets (<0.04m) of clay, high plasticity, dark greyish brown (2.5Y 4/2), slightly calcareous 2.50-2.60m: Thick lamination of gravel, coarse, very dark grey (GLEY 1 3/N), non calcareous	Ma/Fw	Ho	9	75	16	6	10
5.00	Dense to very dense SAND, fine to coarse, unsorted, clayey, very silty, dark greyish brown (2.5Y 4/2), with pockets (<0.02m) of clay, high plasticity, dark greyish brown (2.5Y 4/2), calcareous	Ma	Ho	0	76	24	17	7

KEY TO SOIL PROFILE

SILT, CLAY, SAND, GRAVEL, COBBLES, CHALK, PEAT, Mixed Soil

Assumed Unit Weight: 20 - 16 kN/m³
K_0: 0.5 - 2.0
N_{kt}: 15 - 20
N_{ke}: 12.5 - 16.5

Area	**Kattegat Sea**	Coordinates	**679824.2E 6248913.9N**
Contract	**11596**	Latitude / Longitude	
Client Name / Ref	**Energinet Eltransmission A/S / 384_20_ENE**	Water Depth (mMSL)	**-31.3**
Vessel	**MV Ocean Vantage**	Date of Test (Start-End)	**18/05/2021 - 20/05/2021**
Method	**Wison**	Final Borehole Depth	**70.10m**

CRS: **ETRS89**

Comments: Borehole CB8-BH was completed to a depth of 70.10m utilising API drilling~ Wison CPT and push sampling methods.

QC Status		
Preliminary	Draft	Final
JK/BC (20/05/2021)	**DR** (10/06/2021)	**SMc** (10/11/2021)

Location Name: **CB8-BH**

Preliminary Investigation, Hesselø OWF

BOREHOLE LOG, LABORATORY TEST RESULTS AND IN SITU CPTU TESTING

Relative to (mMSL)	Relative to BSB (m)	Soil Profile	Push Sample	CPTU Push	CPT Ref No. Cone ID Cone Area (a)	Soil Depth (m)	Interpreted Soil Type	Env.	Age
-41.5 to -43.0	10.5 to 12.0		P14, P15				Dense to very dense SAND, fine to coarse, unsorted, clayey, very silty, dark greyish brown (2.5Y 4/2), with pockets (<0.02m) of clay, high plasticity, dark greyish brown (2.5Y 4/2), calcareous	Ma	Ho
-43.5 to -46.0	12.5 to 15.0		P16, P17, P18, P19	01 120825 10cm² (0.76)		12.00	Medium dense to dense SAND, fine to medium, sorted, olive brown (2.5Y 4/4), slightly calcareous	Ma	Pg
-46.5 to -51.0	15.5 to 19.5		P20, P21, P22, P23, P24			18.48	SAND, fine to medium, well sorted, slightly silty, olive brown (2.5Y 4/4), slightly calcareous, with pockets (<0.01m) of clay, high plasticity, dark greyish brown (2.5Y 4/2), slightly calcareous	Ma	Lg

Water Content (%): 0, 25, 50, 75, 100

Density (Mg/m³): 3, 2, 1, 0

Particle Size, %

Gravel	Sand	Fines	Silt	Clay
0	94	6	6	0

Relative Density, D_r (%): 0, 30, 60, 90, 120

Undrained Shear Strength, Su (kPa): 0, 300, 600, 900, 1200, 1500

Corrected Cone Resistance, q_t (MPa): 0, 12, 24, 36, 48, 60

Sleeve Friction, f_s (MPa): 0, 0.3, 0.6, 0.9, 1.2, 1.5

Pore Pressure, U_2 (kPa): -4500, -2250, 0, 2250, 4500

Ambient Pore Pressure (kPa)

Relative to BSB (m): 10.5, 11.0, 11.5, 12.0, 12.5, 13.0, 13.5, 14.0, 14.5, 15.0, 15.5, 16.0, 16.5, 17.0, 17.5, 18.0, 18.5, 19.0, 19.5

KEY TO SOIL PROFILE

SILT, CLAY, SAND, GRAVEL, COBBLES, CHALK, PEAT, Mixed Soil

Assumed Unit Weight: 20 - 16 kN/m³
K_0: 0.5 - 2.0
N_{kt}: 15 - 20
$N_{\Delta u}$: 12.5 - 16.5

Area	**Kattegat Sea**	Coordinates	**679824.2E 6248913.9N**	CRS: **ETRS89**	QC Status: Preliminary / Draft / Final
Contract	**11596**	Latitude / Longitude		**Comments: Borehole CB8-BH was completed to a depth of 70.10m utilising API drilling~ Wison CPT and push sampling methods.**	
Client Name / Ref	**Energinet Eltransmission A/S / 384_20_ENE**	Water Depth (mMSL)	**-31.3**		
Vessel	**MV Ocean Vantage**	Date of Test (Start-End)	**18/05/2021 - 20/05/2021**		**JK/BC** (20/05/2021) / **DR** (10/06/2021) / **SMc** (10/11/2021)
Method	**Wison**	Final Borehole Depth	**70.10m**		

Location Name: **CB8-BH**

Preliminary Investigation, Hesselø OWF

BOREHOLE LOG, LABORATORY TEST RESULTS AND IN SITU CPTU TESTING

Relative to (mMSL)	Relative to BSB (m)	Soil Depth (m)	Interpreted Soil Type	Env.	Age
		20.25		Ma	Lg
			Very high strength CLAY, medium plasticty, silty, sandy, slightly gravelly, dark greyish brown (2.5Y 4/2), slightly calcareous		
		25.27	Dense to very dense SAND, fine to coarse, unsorted, clayey, very silty, slightly gravelly, dark grey (2.5Y 4/1), slightly calcareous	Ma	Lg
				Gl/Ma	Lg

Push Sample: P25, P26, P27, P28, P29, P30, P31, P32, P33, P34

CPTU Push: 02 120825 10cm² (0.76); 03 120825 10cm² (0.76); 04 120825 10cm² (0.76); 05 120825 10cm² (0.76)

CPT Ref No. / Cone ID / Cone Area (a)

Water Content (%): 0 25 50 75 100

Density (Mg/m³): 3 2 1 0

Particle Size, %

Gravel	Sand	Fines	Silt	Clay
1	25	74	44	30
1	78	21	12	9

Relative Density, D_r (%): 0 30 60 90 120

Undrained Shear Strength, Su (kPa): 0 300 600 900 1200 1500

Corrected Cone Resistance, q_t (MPa): 0 12 24 36 48 60

Sleeve Friction, f_s (MPa): 0 0.3 0.6 0.9 1.2 1.5

Pore Pressure, U_2 (kPa): -4500 -2250 0 2250 4500

Ambient Pore Pressure (kPa)

Relative to BSB (m)

KEY TO SOIL PROFILE

SILT, CLAY, SAND, GRAVEL, COBBLES, CHALK, PEAT, Mixed Soil

Assumed Unit Weight: 20 - 16 kN/m³
K_0: 0.5 - 2.0
N_{qT}: 15 - 20
$N_{\gamma T}$: 12.5 - 16.5

Area	**Kattegat Sea**	Coordinates	**679824.2E 6248913.9N**	CRS: **ETRS89**	QC Status: Preliminary / Draft / Final
Contract	**11596**	Latitude / Longitude		**Comments: Borehole CB8-BH was completed to a depth of 70.10m utilising API drilling~ Wison CPT and push sampling methods.**	
Client Name / Ref	**Energinet Eltransmission A/S / 384_20_ENE**	Water Depth (mMSL)	**-31.3**		
Vessel	**MV Ocean Vantage**	Date of Test (Start-End)	**18/05/2021 - 20/05/2021**		**JK/BC** (20/05/2021) / **DR** (10/06/2021) / **SMc** (10/11/2021)
Method	**Wison**	Final Borehole Depth	**70.10m**		

Location Name: **CB8-BH**

Preliminary Investigation, Hesselø OWF

BOREHOLE LOG, LABORATORY TEST RESULTS AND IN SITU CPTU TESTING

Relative to (mMSL)	Relative to BSB (m)	Soil Depth (m)	Interpreted Soil Type	Env.	Age
-61.5 to -71.0	30.5 to 39.5	30.00	Extremely high strength CLAY TILL, high becoming medium plasticity, very silty, very sandy, slightly gravelly, very dark greenish grey (GLEY 1 10Y 4/1), slightly calcareous, with medum to widely spaced thin beds of gravel		
			34.95-34.98m: Very thin bed of sand, fine, well sorted, slightly silty, greenish grey (GLEY 1 10Y 6/1), calcareous 35.07-35.14m: Thin bed of sand, fine, well sorted, slightly silty, dark greenish grey (GLEY 1 10Y 4/1), calcareous	Gl/Ma	Gc
			36.33-36.43m: Thin bed of sand, fine to medium, well sorted, clayey, very dark greenish grey (GLEY 2 10BG 3/1), non-calcareous		

Soil Profile: P35, P36, P37, P38, P39, P40, P41, P42, P43, P44

Push Sample / CPTU Push

CPT Ref No. Cone ID Cone Area (a)

- 06 120825 10cm² (0.76)
- 07 120825 10cm² (0.76)
- 08 121126 10cm² (0.79)
- 09 121126 10cm² (0.79)

Water Content (%): 0 25 50 75 100

Density (Mg/m³): 3 2 1 0

Particle Size, %

Gravel	Sand	Fines	Silt	Clay
1	27	72	50	22

Relative Density, D_r (%): 0 30 60 90 120

Undrained Shear Strength, Su (kPa): 0 300 600 900 1200 1500

Corrected Cone Resistance, q_t (MPa): 0 12 24 36 48 60

Sleeve Friction, f_s (MPa): 0 0.3 0.6 0.9 1.2 1.5

Pore Pressure, U_2 (kPa): -4500 -2250 0 2250 4500

Ambient Pore Pressure (kPa)

Relative to BSB (m)

KEY TO SOIL PROFILE

SILT, CLAY, SAND, GRAVEL, COBBLES, CHALK, PEAT, Mixed Soil

Assumed Unit Weight: 20 - 16 kN/m³

K_0: 0.5 - 2.0

N_{cone}: 15 - 20

N_{ROT}: 12.5 - 16.5

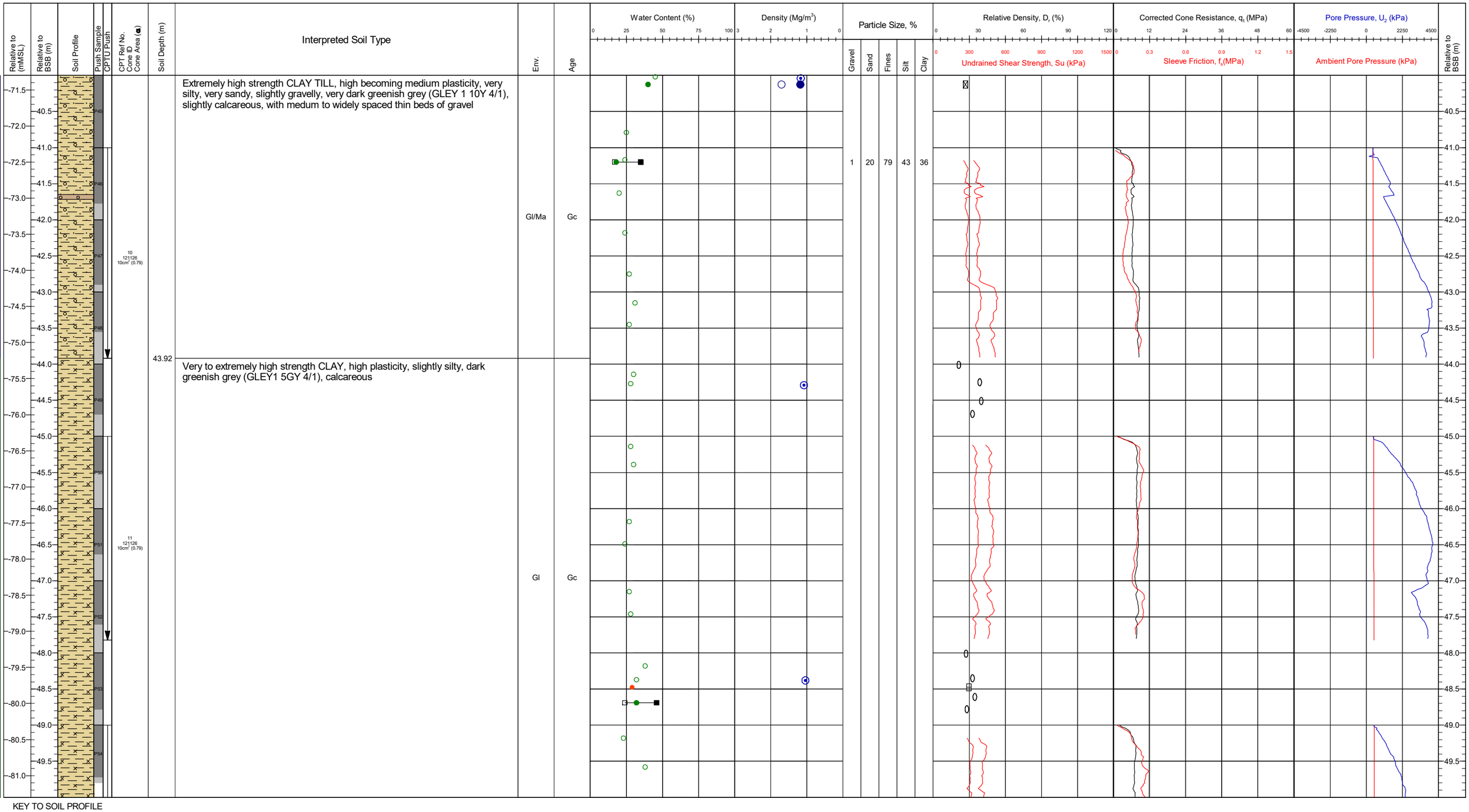
Area	**Kattegat Sea**	Coordinates	**679824.2E** **6248913.9N**	CRS: **ETRS89**	QC Status: Preliminary / Draft / Final
Contract	**11596**	Latitude / Longitude		**Comments: Borehole CB8-BH was completed to a depth of 70.10m utilising API drilling~ Wison CPT and push sampling methods.**	**JK/BC** (20/05/2021) / **DR** (10/06/2021) / **SMc** (10/11/2021)
Client Name / Ref	**Energinet Eltransmission A/S / 384_20_ENE**	Water Depth (mMSL)	**-31.3**		
Vessel	**MV Ocean Vantage**	Date of Test (Start-End)	**18/05/2021 - 20/05/2021**		
Method	**Wison**	Final Borehole Depth	**70.10m**		

Location Name: **CB8-BH**

Preliminary Investigation, Hesselø OWF

BOREHOLE LOG, LABORATORY TEST RESULTS AND IN SITU CPTU TESTING

Relative to (mMSL)	Relative to BSB (m)	Soil Profile	Push Sample	CPTU Push	CPT Ref No. Cone ID Cone Area (a)	Soil Depth (m)	Interpreted Soil Type	Env.	Age
-71.5	40.5		P45				Extremely high strength CLAY TILL, high becoming medium plasticity, very silty, very sandy, slightly gravelly, very dark greenish grey (GLEY 1 10Y 4/1), slightly calcareous, with medum to widely spaced thin beds of gravel	Gl/Ma	Gc
-72.0	41.0								
-72.5	41.5		P46						
-73.0									
-73.5	42.0		P47		10 121126 10cm² (0.79)				
-74.0	42.5								
-74.5	43.0		P48						
-75.0	43.5								
-75.5	44.0		P49			43.92	Very to extremely high strength CLAY, high plasticity, slightly silty, dark greenish grey (GLEY1 5GY 4/1), calcareous		
-76.0	44.5								
-76.5	45.0		P50						
-77.0	45.5								
-77.5	46.0		P51		11 121126 10cm² (0.79)			Gl	Gc
-78.0	46.5								
-78.5	47.0		P52						
-79.0	47.5								
-79.5	48.0		P53						
-80.0	48.5								
-80.5	49.0		P54						
-81.0	49.5								



KEY TO SOIL PROFILE

SILT · CLAY · SAND · GRAVEL · COBBLES · CHALK · PEAT · Mixed Soil

Assumed Unit Weight: 20 - 16 kN/m³
K_0: 0.5 - 2.0
N_{kt}: 15 - 20
N_{ct}: 12.5 - 16.5

Area	**Kattegat Sea**	Coordinates	**679824.2E 6248913.9N**	CRS: **ETRS89**	QC Status: Preliminary / Draft / Final
Contract	**11596**	Latitude / Longitude		**Comments: Borehole CB8-BH was completed to a depth of 70.10m utilising API drilling~ Wison CPT and push sampling methods.**	
Client Name / Ref	**Energinet Eltransmission A/S / 384_20_ENE**	Water Depth (mMSL)	**-31.3**		
Vessel	**MV Ocean Vantage**	Date of Test (Start-End)	**18/05/2021 - 20/05/2021**		
Method	**Wison**	Final Borehole Depth	**70.10m**		

Preliminary	Draft	Final
JK/BC (20/05/2021)	**DR** (10/06/2021)	**SMc** (10/11/2021)

Location Name: **CB8-BH**

Preliminary Investigation, Hesselø OWF

BOREHOLE LOG, LABORATORY TEST RESULTS AND IN SITU CPTU TESTING

Relative to BSB (m)	Soil Depth (m)	Interpreted Soil Type	Env.	Age
50.5		Very to extremely high strength CLAY, high plasticity, slightly silty, dark greenish grey (GLEY1 5GY 4/1), calcareous	Gl	Gc
51.5		50.00-50.31m: Medium bed of very to extremely high strength CLAY, high plasticity, sandy, dark greenish grey (GLEY1 5GY 4/1) mottled olive grey (5Y 4/2), calcareous		
52.5		53.00-53.20m: Extremely high strength CLAY, gravelly, high plasticity, very dark greenish grey (GLEY1 5GY 3/1), calcareous		
53.5	53.29	Medium dense to dense locally very dense SAND, fine to medium, well sorted, clayey, dark greenish grey (GLEY1 10Y 4/1) with widely spaced thin beds of clay, high plasticity, sandy, gravelly, dark greenish grey (GLEY1 10Y 4/1), calcareous between 55.00m and 57.70m		
54.5				
55.5				
56.5			Gl/Ma	Gc
57.5				
58.5				
59.5	59.50	Extremely high strength CLAY, high plasticity, silty, dark greyish brown (2.5Y 4/2) with widely spaced medium to thick beds of clay, high plasticity, slightly silty, gravelly, dark greyish brown (2.5Y 4/2), calcareous	Gl/Mw	Gc

Push Sample: P52, P54, P57, P58

CPT Push — CPT Ref No. / Cone ID / Cone Area (a):

Ref No.	Cone ID	Cone Area (a)
12	121126	10cm² (0.79)
13	121126	10cm² (0.79)
14	120825	10cm² (0.76)
15	120825	10cm² (0.76)
16	120825	10cm² (0.76)
17	120825	10cm² (0.76)
18	120825	10cm² (0.76)
19	120825	

Water Content (%): 0, 25, 50, 75, 100

Density (Mg/m³): 3, 2, 1, 0

Particle Size, %: Gravel, Sand, Fines, Silt, Clay

Relative Density, D_r (%): 0, 30, 60, 90, 120

Undrained Shear Strength, Su (kPa): 0, 300, 600, 900, 1200, 1500

Corrected Cone Resistance, q_t (MPa): 0, 12, 24, 36, 48, 60

Sleeve Friction, f_s (MPa): 0, 0.3, 0.6, 0.9, 1.2, 1.5

Pore Pressure, U_2 (kPa): -4500, -2250, 0, 2250, 4500

Ambient Pore Pressure (kPa)

KEY TO SOIL PROFILE

SILT, CLAY, SAND, GRAVEL, COBBLES, CHALK, PEAT, Mixed Soil

Assumed Unit Weight: 20 - 16 kN/m³
K_0: 0.5 - 2.0
N_{kt}: 15 - 20
N_{kt}: 12.5 - 16.5

Area	**Kattegat Sea**	Coordinates	**679824.2E**	**6248913.9N**	CRS: **ETRS89**
Contract	**11596**	Latitude / Longitude			**Comments: Borehole CB8-BH was completed to a depth of 70.10m utilising API drilling~ Wison CPT and push sampling methods.**
Client Name / Ref	**Energinet Eltransmission A/S / 384_20_ENE**	Water Depth (mMSL)	**-31.3**		
Vessel	**MV Ocean Vantage**	Date of Test (Start-End)	**18/05/2021 - 20/05/2021**		
Method	**Wison**	Final Borehole Depth	**70.10m**		

QC Status			Location Name
Preliminary	Draft	Final	**CB8-BH**
JK/BC (20/05/2021)	**DR** (10/06/2021)	**SMc** (10/11/2021)	

Preliminary Investigation, Hesselø OWF

BOREHOLE LOG, LABORATORY TEST RESULTS AND IN SITU CPTU TESTING

Relative to (mMSL)	Relative to BSB (m)	Soil Profile	Push Sample	CPTU Push	CPT Ref No. Cone ID Cone Area (a)	Soil Depth (m)	Interpreted Soil Type	Env.	Age
-91.5	60.5				10cm² (0.76)		Extremely high strength CLAY, high plasticity, silty, dark greyish brown (2.5Y 4/2) with widely spaced medium to thick beds of clay, high plasticity, slightly silty, gravelly, dark greyish brown (2.5Y 4/2), calcareous 60.21-60.30m: Thin bed of medium dense to dense SAND		
-92.0	61.0				20 120825 10cm² (0.76)				
-92.5	61.5		PS0						
-93.0	62.0				21 120825 10cm² (0.76)				
-93.5	62.5							Gl/Mw	Gc
-94.0	63.0								
-94.5	63.5						63.31-63.39m: Thin bed of gravel		
-95.0	64.0				22 121126 10cm² (0.79)				
-95.5	64.5								
-96.0	65.0								
-96.5	65.5		PS0			65.30	CLAY, high plasticity, slightly silty, gravelly, dark olive brown (2.5Y 4/2) becoming black (2.5Y 2.5/1), calcareous	Gl/Mw	Gc
-97.0	66.0								
-97.5	66.5				23 121126 10cm² (0.79)	66.50	Weak SILTSTONE, slightly indurated, slightly sandy, micaceous, very dark greyish brown (2.5Y 5/2) becoming very dark grey (5Y 3/1), non-calcareous, with occasional organic staining and pockets (<0.02m) of sand, fine, well sorted, silty, light grey (5Y 7/1), non-calcareous		
-98.0	67.0								
-98.5	67.5		PS1		24 120825 10cm² (0.76)				
-99.0	68.0							Gl/Mw	Ct
-99.5	68.5		PS2		25 120825 10cm² (0.76)				
-100.0	69.0		PS3						
-100.5	69.5								
-101.0									

Water Content (%): 0 25 50 75 100

Density (Mg/m³): 3 2 1 0

Particle Size, %: Gravel | Sand | Fines | Silt | Clay

Relative Density, D_r (%): 0 30 60 90 120

Undrained Shear Strength, Su (kPa): 0 300 600 900 1200 1500

Corrected Cone Resistance, q_t (MPa): 0 12 24 36 48 60

Sleeve Friction, f_s (MPa): 0 0.3 0.6 0.9 1.2 1.5

Pore Pressure, U_2 (kPa): -4500 -2250 0 2250 4500

Ambient Pore Pressure (kPa)

Relative to BSB (m)

KEY TO SOIL PROFILE

SILT, CLAY, SAND, GRAVEL, COBBLES, CHALK, PEAT, Mixed Soil

Assumed Unit Weight: 20 - 16 kN/m³
K_0: 0.5 - 2.0
N_{kt}: 15 - 20
N_{kt}: 12.5 - 16.5

Area	**Kattegat Sea**	Coordinates	**679824.2E** **6248913.9N**	CRS: **ETRS89**	QC Status: Preliminary / Draft / Final
Contract	**11596**	Latitude / Longitude		**Comments: Borehole CB8-BH was completed to a depth of 70.10m utilising API drilling~ Wison CPT and push sampling methods.**	**JK/BC** (20/05/2021) / **DR** (10/06/2021) / **SMc** (10/11/2021)
Client Name / Ref	**Energinet Eltransmission A/S / 384_20_ENE**	Water Depth (mMSL)	**-31.3**		
Vessel	**MV Ocean Vantage**	Date of Test (Start-End)	**18/05/2021 - 20/05/2021**		
Method	**Wison**	Final Borehole Depth	**70.10m**		

Location Name: **CB8-BH**

Preliminary Investigation, Hesselø OWF

BOREHOLE LOG, LABORATORY TEST RESULTS AND IN SITU CPTU TESTING

Relative to (mMSL)	Relative to BSB (m)	Soil Profile	Push Sample	CPTU Push	CPT Ref No. Cone ID Cone Area (a)	Soil Depth (m)	Interpreted Soil Type	Env.	Age
-101.5	70.5		P64				End of borehole at 70.10m		
-102.0	71.0								
-102.5	71.5								
-103.0	72.0								
-103.5	72.5								
-104.0	73.0								
-104.5	73.5								
-105.0	74.0								
-105.5	74.5								
-106.0	75.0								
-106.5	75.5								
-107.0	76.0								
-107.5	76.5								
-108.0	77.0								
-108.5	77.5								
-109.0	78.0								
-109.5	78.5								
-110.0	79.0								
-110.5	79.5								
-111.0									

Water Content (%): 0 25 50 75 100

Density (Mg/m^3): 3 2 1 0

Particle Size, %: Gravel | Sand | Fines | Silt | Clay

Relative Density, D_r (%): 0 30 60 90 120

Undrained Shear Strength, Su (kPa): 0 300 600 900 1200 1500

Corrected Cone Resistance, q_t (MPa): 0 12 24 36 48 60

Sleeve Friction, f_s(MPa): 0 0.3 0.6 0.9 1.2 1.5

Pore Pressure, U_2 (kPa): -4500 -2250 0 2250 4500

Ambient Pore Pressure (kPa)

Relative to BSB (m): 70.5 71.0 71.5 72.0 72.5 73.0 73.5 74.0 74.5 75.0 75.5 76.0 76.5 77.0 77.5 78.0 78.5 79.0 79.5

KEY TO SOIL PROFILE

SILT | CLAY | SAND | GRAVEL | COBBLES | CHALK | PEAT | Mixed Soil

Assumed Unit Weight: 20 - 16 kN/m^3
K_0: 0.5 - 2.0
N_{kt}: 15 - 20
N_{kt}: 12.5 - 16.5

Area	**Kattegat Sea**	Coordinates	**679824.2E 6248913.9N**	CRS: **ETRS89**	QC Status: Preliminary / Draft / Final
Contract	**11596**	Latitude / Longitude		**Comments: Borehole CB8-BH was completed to a depth of 70.10m utilising API drilling~ Wison CPT and push sampling methods.**	
Client Name / Ref	**Energinet Eltransmission A/S / 384_20_ENE**	Water Depth (mMSL)	**-31.3**		
Vessel	**MV Ocean Vantage**	Date of Test (Start-End)	**18/05/2021 - 20/05/2021**		**JK/BC** (20/05/2021) / **DR** (10/06/2021) / **SMc** (10/11/2021)
Method	**Wison**	Final Borehole Depth	**70.10m**		

Location Name: **CB8-BH**

Preliminary Investigation, Hesselø OWF

BOREHOLE LOG, LABORATORY TEST RESULTS AND IN SITU CPTU TESTING

Relative to (mMSL)	Relative to BSB (m)	Soil Depth (m)	Interpreted Soil Type	Env.	Age
-31.0	0.0		Extremely low strength CLAY, low plasticity, silty, sandy, gravelly, dark grey (5Y 4/1), calcareous	Ma/Fw	Ho
-32.0	1.0	1.00	Extremely low to low strength CLAY, high plasticity, very silty, slightly sandy, with shell fragments (<0.04m), dark grey (5Y 4/1) becoming dark greyish brown (2.5Y 4/2), highly calcareous	Ma/Fw	Ho
-40.0	9.0	9.00	Very low to low strength CLAY, high plasticity, very silty, slightly sandy, dark greyish brown (2.5Y 4/2), slightly calcareous with closely spaced thick laminations of silt, non plastic, greyish brown (2.5Y 5/2) and occaisional black staining, calcareous	Ma/Fw	Ho

Soil Profile: P01, P02, P03, P04, P05, P06, P07, P08, P09, P10

Particle Size, %: Gravel 0; Sand 1; Fines 99; Silt 37; Clay 62

Water Content (%): 0 25 50 75 100

Density (Mg/m^3): 3 2 1 0

Relative Density, D_r (%): 0 30 60 90 120

Undrained Shear Strength, Su (kPa): 0 300 600 900 1200 1500

Corrected Cone Resistance, q_t (MPa): 0 12 24 36 48 60

Sleeve Friction, f_s(MPa): 0 0.3 0.6 0.9 1.2 1.5

Pore Pressure, U_2 (kPa): -4500 -2250 0 2250 4500

Ambient Pore Pressure (kPa)

KEY TO SOIL PROFILE

SILT, CLAY, SAND, GRAVEL, COBBLES, CHALK, PEAT, Mixed Soil

Assumed Unit Weight: 20 - 16 kN/m^3
K_0: 0.5 - 2.0
N_{kt}: 15 - 20
$N_{\Delta u}$: 12.5 - 16.5

Area	**Kattegat Sea**	Coordinates	**677391.0E**	**6276213.6N**	CRS: **ETRS89**
Contract	**11596**	Latitude / Longitude			**Comments: Borehole CB9-BH was completed to a depth of 70.94m utilising API drilling~ Wison CPT and push sampling methods**
Client Name / Ref	**Energinet Eltransmission A/S / 384_20_ENE**	Water Depth (mMSL)	**-30.9**		
Vessel	**MV Ocean Vantage**	Date of Test (Start-End)	**03/06/2021 - 04/06/2021**		
Method	**Wison**	Final Borehole Depth	**70.50m**		

QC Status			Location Name
Preliminary	Draft	Final	**CB9-BH**
JK/BC (03/06/2021)	**DR** (10/06/2021)	**SMc** (10/11/2021)	

Preliminary Investigation, Hesselø OWF

BOREHOLE LOG, LABORATORY TEST RESULTS AND IN SITU CPTU TESTING

Relative to (mMSL)	Relative to BSB (m)	Soil Profile	Push Sample	CPTU Push	CPT Ref No. Cone ID Cone Area (a)	Soil Depth (m)	Interpreted Soil Type	Env.	Age
-41.0 to -50.5	10.5 to 19.5		P11 P12 P13 P14 P15 P16 P17 P18 P19 P20				Very low to low strength CLAY, high plasticity, very silty, slightly sandy, dark greyish brown (2.5Y 4/2), slightly calcareous with closely spaced thick laminations of silt, non plastic, greyish brown (2.5Y 5/2) and occaisional black staining, calcareous	Ma/Fw	Ho
						15.00	Low to medium strength CLAY, high plasticity, dark greyish brown (2.5Y 4/2), slightly calcareous with closely spaced thick laminations of silt, non plastic, greyish brown (2.5Y 5/2), calcareous	Ma/Fw	Ho
						18.00	Low to medium strength CLAY, high plasticity, very silty, dark grey (2.5Y 4/1), slightly calcareous	Ma/Fw	Ho

Water Content (%): 0, 25, 50, 75, 100

Density (Mg/m^3): 3, 2, 1, 0

Particle Size, %

Gravel	Sand	Fines	Silt	Clay
0	1	99	37	62

Relative Density, D_r (%): 0, 30, 60, 90, 120

Undrained Shear Strength, Su (kPa): 0, 300, 600, 900, 1200, 1500

Corrected Cone Resistance, q_t (MPa): 0, 12, 24, 36, 48, 60

Sleeve Friction, f_s(MPa): 0, 0.3, 0.6, 0.9, 1.2, 1.5

Pore Pressure, U_2 (kPa): -4500, -2250, 0, 2250, 4500

Ambient Pore Pressure (kPa)

KEY TO SOIL PROFILE

SILT, CLAY, SAND, GRAVEL, COBBLES, CHALK, PEAT, Mixed Soil

Assumed Unit Weight: 20 - 16 kN/m^3
K_0: 0.5 - 2.0
N_{KT}: 15 - 20
N_{KT}: 12.5 - 16.5

Area	**Kattegat Sea**	Coordinates	**677391.0E 6276213.6N**	CRS: **ETRS89**	QC Status: Preliminary / Draft / Final
Contract	**11596**	Latitude / Longitude		**Comments: Borehole CB9-BH was completed to a depth of 70.94m utilising API drilling~ Wison CPT and push sampling methods**	Location Name: **CB9-BH**
Client Name / Ref	**Energinet Eltransmission A/S / 384_20_ENE**	Water Depth (mMSL)	**-30.9**		
Vessel	**MV Ocean Vantage**	Date of Test (Start-End)	**03/06/2021 - 04/06/2021**		
Method	**Wison**	Final Borehole Depth	**70.50m**		

Preliminary	Draft	Final
JK/BC (03/06/2021)	**DR** (10/06/2021)	**SMc** (10/11/2021)

Preliminary Investigation, Hesselø OWF

BOREHOLE LOG, LABORATORY TEST RESULTS AND IN SITU CPTU TESTING

Relative to (mMSL)	Relative to BSB (m)	Soil Profile	Push Sample	CPTU Push	CPT Ref No. Cone ID Cone Area (a)	Soil Depth (m)	Interpreted Soil Type	Env.	Age
-51.0 to -60.5	20.5 to 29.5		P21 to P30			22.00	Low to medium strength CLAY, high plasticity, very silty, dark grey (2.5Y 4/1), slightly calcareous	Ma/Fw	Ho
							Low to medium strength CLAY, high plasticity, very silty, slightly sandy, dark grey (2.5Y 4/1), slightly calcareous with extremely closely to closely spaced laminations of silt, non plastic, greyish brown (2.5Y 5/2) and frequent black staining, calcareous	Ma/Fw	Pg

Water Content (%): 0, 25, 50, 75, 100

Density (Mg/m^3): 3, 2, 1, 0

Particle Size, %	Gravel	Sand	Fines	Silt	Clay
Ho	0	0	100	41	59
Pg	0	1	99	45	54

Relative Density, D_r (%): 0, 30, 60, 90, 120

Undrained Shear Strength, Su (kPa): 0, 300, 600, 900, 1200, 1500

Corrected Cone Resistance, q_t (MPa): 0, 12, 24, 36, 48, 60

Sleeve Friction, f_s(MPa): 0, 0.3, 0.6, 0.9, 1.2, 1.5

Pore Pressure, U_2 (kPa): -4500, -2250, 0, 2250, 4500

Ambient Pore Pressure (kPa)

KEY TO SOIL PROFILE

SILT, CLAY, SAND, GRAVEL, COBBLES, CHALK, PEAT, Mixed Soil

Assumed Unit Weight: 20 - 16 kN/m^3
K_0: 0.5 - 2.0
N_{KT}: 15 - 20
N_{kt}: 12.5 - 16.5

Area	**Kattegat Sea**	Coordinates	**677391.0E 6276213.6N**	CRS: **ETRS89**	QC Status: Preliminary / Draft / Final
Contract	**11596**	Latitude / Longitude		**Comments: Borehole CB9-BH was completed to a depth of 70.94m utilising API drilling~ Wison CPT and push sampling methods**	
Client Name / Ref	**Energinet Eltransmission A/S / 384_20_ENE**	Water Depth (mMSL)	**-30.9**		
Vessel	**MV Ocean Vantage**	Date of Test (Start-End)	**03/06/2021 - 04/06/2021**		**JK/BC** (03/06/2021) / **DR** (10/06/2021) / **SMc** (10/11/2021)
Method	**Wison**	Final Borehole Depth	**70.50m**		

Location Name: **CB9-BH**

Preliminary Investigation, Hesselø OWF

BOREHOLE LOG, LABORATORY TEST RESULTS AND IN SITU CPTU TESTING

Relative to (mMSL)	Relative to BSB (m)	Soil Profile	Push Sample	CPTU Push	CPT Ref No. Cone ID Cone Area (a)	Soil Depth (m)	Interpreted Soil Type	Env.	Age
-61.0 to -70.5	30.5 to 39.5		P31, P32, P33, P34, P35, P36, P37, P38, P39, P40			31.87	Low to medium strength CLAY, high plasticity, very silty, slightly sandy, dark grey (2.5Y 4/1), slightly calcareous with extremely closely to closely spaced laminations of silt, non plastic, greyish brown (2.5Y 5/2) and frequent black staining, calcareous	Ma/Fw	Pg
							Low to medium strength CLAY, high plasticity, dark grey (2.5Y 4/1) mottled brown (7.5YR 5/2), slightly calcareous with very closely to closely spaced thin laminations of silt, non plastic, greyish brown (2.5Y 4/2), calcareous	Ma/Fw	Pg
							39.27-39.47m: Medium bed of sand, fine to coarse, poorly sorted, dark greyish brown (2.5Y 4/2), slightly calcareous		

Water Content (%): 0, 25, 50, 75, 100

Density (Mg/m^3): 3, 2, 1, 0

Particle Size, %

Gravel	Sand	Fines	Silt	Clay
0	1	99	46	53

Relative Density, D_r (%): 0, 30, 60, 90, 120

Undrained Shear Strength, Su (kPa): 0, 300, 600, 900, 1200, 1500

Corrected Cone Resistance, q_t (MPa): 0, 12, 24, 36, 48, 60

Sleeve Friction, f_s(MPa): 0, 0.3, 0.6, 0.9, 1.2, 1.5

Pore Pressure, U_2 (kPa): -4500, -2250, 0, 2250, 4500

Ambient Pore Pressure (kPa)

KEY TO SOIL PROFILE

SILT, CLAY, SAND, GRAVEL, COBBLES, CHALK, PEAT, Mixed Soil

Assumed Unit Weight: 20 - 16 kN/m^3
K_C: 0.5 - 2.0
N_{KT}: 15 - 20
$N_{\Delta U}$: 12.5 - 16.5

Area	**Kattegat Sea**	Coordinates	**677391.0E 6276213.6N**	CRS: **ETRS89**	QC Status: Preliminary / Draft / Final
Contract	**11596**	Latitude / Longitude		**Comments: Borehole CB9-BH was completed to a depth of 70.94m utilising API drilling~ Wison CPT and push sampling methods**	
Client Name / Ref	**Energinet Eltransmission A/S / 384_20_ENE**	Water Depth (mMSL)	**-30.9**		
Vessel	**MV Ocean Vantage**	Date of Test (Start-End)	**03/06/2021 - 04/06/2021**		**JK/BC** (03/06/2021) / **DR** (10/06/2021) / **SMc** (10/11/2021)
Method	**Wison**	Final Borehole Depth	**70.50m**		

Location Name: **CB9-BH**

Preliminary Investigation, Hesselø OWF

BOREHOLE LOG, LABORATORY TEST RESULTS AND IN SITU CPTU TESTING

Relative to (mMSL)	Relative to BSB (m)	Soil Profile	Push Sample	CPTU Push	CPT Ref No. Cone ID Cone Area (a)	Soil Depth (m)	Interpreted Soil Type	Env.	Age
-71.0 to -80.5	40.5 to 49.5		P41 P42 P43 P44 P45 P46 P47 P48 P49 P50		01 120826 10cm² (0.76); 02 120826 10cm² (0.76); 03 120826 10cm² (0.76)	40.00	High to very high strength CLAY TILL, low plasticity, very silty, very sandy, slightly gravelly, very dark greenish grey (GLEY1 10GY 3/1), highly calcareous	Ma/Fw	Gc

Water Content (%): 0 25 50 75 100

Density (Mg/m³): 3 2 1 0

Particle Size, %: Gravel 2; Sand 58; Fines 40; Silt 27; Clay 13

Relative Density, D_r (%): 0 30 60 90 120

Undrained Shear Strength, Su (kPa): 0 300 600 900 1200 1500

Corrected Cone Resistance, q_t (MPa): 0 12 24 36 48 60

Sleeve Friction, f_s (MPa): 0 0.3 0.6 0.9 1.2 1.5

Pore Pressure, U_2 (kPa): -4500 -2250 0 2250 4500

Ambient Pore Pressure (kPa)

Relative to BSB (m): 40.5 41.0 41.5 42.0 42.5 43.0 43.5 44.0 44.5 45.0 45.5 46.0 46.5 47.0 47.5 48.0 48.5 49.0 49.5

KEY TO SOIL PROFILE

SILT, CLAY, SAND, GRAVEL, COBBLES, CHALK, PEAT, Mixed Soil

Assumed Unit Weight: 20 - 16 kN/m³
K_0: 0.5 - 2.0
N_{kt}: 15 - 20
N_{kt}: 12.5 - 16.5

Area	**Kattegat Sea**	Coordinates	**677391.0E 6276213.6N**
Contract	**11596**	Latitude / Longitude	
Client Name / Ref	**Energinet Eltransmission A/S / 384_20_ENE**	Water Depth (mMSL)	**-30.9**
Vessel	**MV Ocean Vantage**	Date of Test (Start-End)	**03/06/2021 - 04/06/2021**
Method	**Wison**	Final Borehole Depth	**70.50m**

CRS: **ETRS89**

Comments: Borehole CB9-BH was completed to a depth of 70.94m utilising API drilling~ Wison CPT and push sampling methods

QC Status		
Preliminary	Draft	Final
JK/BC (03/06/2021)	**DR** (10/06/2021)	**SMc** (10/11/2021)

Location Name: **CB9-BH**

Preliminary Investigation, Hesselø OWF

BOREHOLE LOG, LABORATORY TEST RESULTS AND IN SITU CPTU TESTING

Relative to (mMSL)	Relative to BSB (m)	Soil Profile	Push Sample	CPTU Push	CPT Ref No. Cone ID Cone Area (a)	Soil Depth (m)	Interpreted Soil Type	Env.	Age
-81.0	50.5						High to very high strength CLAY TILL, low plasticity, very silty, very sandy, slightly gravelly, very dark greenish grey (GLEY1 10GY 3/1), highly calcareous	Ma/Fw	Gc
-82.0	51.5				04 120826 10cm² (0.76)				
-83.0	52.5								
-84.0	53.5								
-85.0	54.5		P51						
-86.0	55.5				05 120826 10cm² (0.76)				
-87.0	56.5					56.09	Dense to very dense locally medium dense SAND, fine, well sorted, clayey, silty, very dark grey (GLEY1 3/N), highly calcareous	Gl	Gc
-88.0	57.5				06 121005G 10cm² (0.78)				
-89.0	58.5		P54						
-90.0	59.5		P53		07 121005G	59.50		Gl/Mw	Gc

Water Content (%): 0, 25, 50, 75, 100

Density (Mg/m³): 3, 2, 1, 0

Particle Size, %: Gravel, Sand, Fines, Silt, Clay

Relative Density, D_r (%): 0, 30, 60, 90, 120

Undrained Shear Strength, Su (kPa): 0, 300, 600, 900, 1200, 1500

Corrected Cone Resistance, q_t (MPa): 0, 12, 24, 36, 48, 60

Sleeve Friction, f_s (MPa): 0, 0.3, 0.6, 0.9, 1.2, 1.5

Pore Pressure, U_2 (kPa): -4500, -2250, 0, 2250, 4500

Ambient Pore Pressure (kPa)

Relative to BSB (m): 50.5, 51.0, 51.5, 52.0, 52.5, 53.0, 53.5, 54.0, 54.5, 55.0, 55.5, 56.0, 56.5, 57.0, 57.5, 58.0, 58.5, 59.0, 59.5

KEY TO SOIL PROFILE

SILT, CLAY, SAND, GRAVEL, COBBLES, CHALK, PEAT, Mixed Soil

Assumed Unit Weight: 20 - 16 kN/m³
K_0: 0.5 - 2.0
N_{kt}: 15 - 20
N_{kt}: 12.5 - 16.5

Area	**Kattegat Sea**	Coordinates	**677391.0E 6276213.6N**	CRS: **ETRS89**	QC Status: Preliminary / Draft / Final
Contract	**11596**	Latitude / Longitude		**Comments: Borehole CB9-BH was completed to a depth of 70.94m utilising API drilling~ Wison CPT and push sampling methods**	
Client Name / Ref	**Energinet Eltransmission A/S / 384_20_ENE**	Water Depth (mMSL)	**-30.9**		
Vessel	**MV Ocean Vantage**	Date of Test (Start-End)	**03/06/2021 - 04/06/2021**		**JK/BC** (03/06/2021) / **DR** (10/06/2021) / **SMc** (10/11/2021)
Method	**Wison**	Final Borehole Depth	**70.50m**		

Location Name: **CB9-BH**

Preliminary Investigation, Hesselø OWF

BOREHOLE LOG, LABORATORY TEST RESULTS AND IN SITU CPTU TESTING

Relative to (mMSL)	Relative to BSB (m)	Soil Depth (m)	Interpreted Soil Type	Env.	Age
-91.0	60.5		Extremely high strength CLAY, high plasticity, with pockets (<0.04m) of sand, fine to medium, well sorted, greenish grey (GLEY1 10Y 5/1), highly calcareous, with shell fragments (<0.02m), greenish black (GLEY2 5BG 2.5/1), highly calcareous	Gl/Mw	Gc
-94.0	63.5	63.50	Extremely high strength CLAY, high plasticity, slightly silty, slightly gravelly with pockets of silt, non plastic, light grey (5Y 7/1), very dark greenish grey (GLEY1 5GY 3/1), highly calcareous	Gl/Mw	Gc
-98.0	67.5	67.50	Extremely high strength CLAY TILL, high plasticity, very silty,very sandy, slightly gravelly, bluish black (GLEY2 2.5/1) becoming very dark grey (GLEY1 3/N), slightly calcareous with occasional shell fragments (<0.01m)	Gl/Mw	Gc

Push Sample: P56, P57

CPT Push — CPT Ref No. / Cone ID / Cone Area (a):

- 08 120826 10cm² (0.76)
- 09 120826 10cm² (0.76)
- 10 121005G 10cm² (0.78)
- 11 121005G 10cm² (0.78)
- 12 120826 10cm² (0.76)

Water Content (%): 0 25 50 75 100

Density (Mg/m³): 3 2 1 0

Particle Size, %: Gravel | Sand | Fines | Silt | Clay

Relative Density, D_r (%): 0 30 60 90 120

Undrained Shear Strength, Su (kPa): 0 300 600 900 1200 1500

Corrected Cone Resistance, q_t (MPa): 0 12 24 36 48 60

Sleeve Friction, f_s (MPa): 0 0.3 0.6 0.9 1.2 1.5

Pore Pressure, U_2 (kPa): -4500 -2250 0 2250 4500

Ambient Pore Pressure (kPa)

Relative to BSB (m): 60.5 61.0 61.5 62.0 62.5 63.0 63.5 64.0 64.5 65.0 65.5 66.0 66.5 67.0 67.5 68.0 68.5 69.0 69.5

KEY TO SOIL PROFILE

SILT · CLAY · SAND · GRAVEL · COBBLES · CHALK · PEAT · Mixed Soil

Assumed Unit Weight: 20 - 16 kN/m³
K_0: 0.5 - 2.0
N_{kt}: 15 - 20
N_{kt}: 12.5 - 16.5

Area	**Kattegat Sea**	Coordinates	**677391.0E**	**6276213.6N**	CRS: **ETRS89**
Contract	**11596**	Latitude / Longitude			**Comments: Borehole CB9-BH was completed to a depth of 70.94m utilising API drilling~ Wison CPT and push sampling methods**
Client Name / Ref	**Energinet Eltransmission A/S / 384_20_ENE**	Water Depth (mMSL)	**-30.9**		
Vessel	**MV Ocean Vantage**	Date of Test (Start-End)	**03/06/2021 - 04/06/2021**		
Method	**Wison**	Final Borehole Depth	**70.50m**		

QC Status			Location Name
Preliminary	Draft	Final	**CB9-BH**
JK/BC (03/06/2021)	**DR** (10/06/2021)	**SMc** (10/11/2021)	

Preliminary Investigation, Hesselø OWF

BOREHOLE LOG, LABORATORY TEST RESULTS AND IN SITU CPTU TESTING

Relative to (mMSL)	Relative to BSB (m)	Soil Profile	Push Sample	CPTU Push	CPT Ref No. Cone ID Cone Area (a)	Soil Depth (m)	Interpreted Soil Type	Env.	Age
-101.0	70.5						Extremely high strength CLAY TILL, high plasticity, very silty,very sandy, slightly gravelly, bluish black (GLEY2 2.5/1) becoming very dark grey (GLEY1 3/N), slightly calcareous with occasional shell fragments (<0.01m) End of borehole at 70.29m		

Water Content (%): 0 25 50 75 100

Density (Mg/m^3): 3 2 1 0

Particle Size, %

Gravel	Sand	Fines	Silt	Clay
1	20	79	51	28

Relative Density, D_r (%): 0 30 60 90 120

Undrained Shear Strength, Su (kPa): 0 300 600 900 1200 1500

Corrected Cone Resistance, q_t (MPa): 0 12 24 36 48 60

Sleeve Friction, f_s(MPa): 0 0.3 0.6 0.9 1.2 1.5

Pore Pressure, U_2 (kPa): -4500 -2250 0 2250 4500

Ambient Pore Pressure (kPa)

Relative to BSB (m): 70.5 71.0 71.5 72.0 72.5 73.0 73.5 74.0 74.5 75.0 75.5 76.0 76.5 77.0 77.5 78.0 78.5 79.0 79.5

KEY TO SOIL PROFILE

SILT, CLAY, SAND, GRAVEL, COBBLES, CHALK, PEAT, Mixed Soil

Assumed Unit Weight: 20 - 16 kN/m^3
K_0: 0.5 - 2.0
N_{kt}: 15 - 20
N_{kt}: 12.5 - 16.5

Area	**Kattegat Sea**	Coordinates	**677391.0E 6276213.6N**	CRS: **ETRS89**	QC Status
Contract	**11596**	Latitude / Longitude		**Comments: Borehole CB9-BH was completed to a depth of 70.94m utilising API drilling~ Wison CPT and push sampling methods**	Preliminary / Draft / Final
Client Name / Ref	**Energinet Eltransmission A/S / 384_20_ENE**	Water Depth (mMSL)	**-30.9**		
Vessel	**MV Ocean Vantage**	Date of Test (Start-End)	**03/06/2021 - 04/06/2021**		**JK/BC** (03/06/2021) / **DR** (10/06/2021) / **SMc** (10/11/2021)
Method	**Wison**	Final Borehole Depth	**70.50m**		

Location Name: **CB9-BH**

Preliminary Investigation, Hesselø OWF

BOREHOLE LOG, LABORATORY TEST RESULTS AND IN SITU CPTU TESTING

Relative to (mMSL)	Relative to BSB (m)	Soil Profile	Push Sample	CPTU Push	CPT Ref No. Cone ID Cone Area (a)	Soil Depth (m)	Interpreted Soil Type	Env.	Age
-33.0 to -42.5	0.0 to 9.5		P01 P02 P03 P04 P05 P06 P07 P08 P09 P10				Very low to low strength CLAY, high plasticity, dark greyish brown (2.5Y 4/2), slightly calcareous, with pockets (<0.02m) of silt, non plastic, light brownish grey (2.5Y 6/2), calcareous between 12.00-14.82m 0.63-0.74m: Thin bed of CLAY,high plasticity , very silty, sandy, slightly gravelly. dark greyish brown (2.5Y 4/2), sightly calcareous	Ma/Fw	Ho

Water Content (%): 0, 25, 50, 75, 100

Density (Mg/m^3): 3, 2, 1, 0

Particle Size, %

Gravel	Sand	Fines	Silt	Clay
2	10	88	53	35

Relative Density, D_r (%): 0, 30, 60, 90, 120

Undrained Shear Strength, Su (kPa): 0, 300, 600, 900, 1200, 1500

Corrected Cone Resistance, q_t (MPa): 0, 12, 24, 36, 48, 60

Sleeve Friction, f_s(MPa): 0, 0.3, 0.6, 0.9, 1.2, 1.5

Pore Pressure, U_2 (kPa): -4500, -2250, 0, 2250, 4500

Ambient Pore Pressure (kPa)

KEY TO SOIL PROFILE

SILT, CLAY, SAND, GRAVEL, COBBLES, CHALK, PEAT, Mixed Soil

Assumed Unit Weight: kN/m^3

K_0: -

Area	**Kattegat Sea**	Coordinates	**678759.8E**	**6261509.5N**	CRS: **ETRS89**
Contract	**11596**	Latitude / Longitude			**Comments: Borehole CB10-BH was completed to a depth of 29.70m utilising API drilling~ Wison CPT and push sampling methods. Drillers note - the borehole was terminated due to a hard layer/boulder being encountered and drilling could not proceed.**
Client Name / Ref	**Energinet Eltransmission A/S / 384_20_ENE**	Water Depth (mMSL)	**-33.0**		
Vessel	**MV Ocean Vantage**	Date of Test	**31/05/2021**		
Method	**Wison**	Final Borehole Depth	**29.70m**		

QC Status			Location Name
Preliminary	Draft	Final	**CB10-BH**
JK/BC (31/05/2021)	**DR** (10/06/2021)	**SMc** (10/11/2021)	

Preliminary Investigation, Hesselø OWF

BOREHOLE LOG, LABORATORY TEST RESULTS AND IN SITU CPTU TESTING

Relative to (mMSL)	Relative to BSB (m)	Soil Depth (m)	Interpreted Soil Type	Env.	Age
-43.5	10.5		Very low to low strength CLAY, high plasticity, dark greyish brown (2.5Y 4/2), slightly calcareous, with pockets (<0.02m) of silt, non plastic, light brownish grey (2.5Y 6/2), calcareous between 12.00-14.82m	Ma/Fw	Ho
-44.0	11.0				
-44.5	11.5				
-45.0	12.0				
-45.5	12.5				
-46.0	13.0				
-46.5	13.5				
-47.0	14.0				
-47.5	14.5	14.82	Low to medium strength CLAY, high plasticity, very silty, slightly sandy, with black organic staining, dark grey (5Y 4/1), slightly calcareous	Ma/Fw	Ho
-48.0	15.0				
-48.5	15.5				
-49.0	16.0				
-49.5	16.5				
-50.0	17.0				
-50.5	17.5				
-51.0	18.0				
-51.5	18.5				
-52.0	19.0				
-52.5	19.5				

Soil Profile: P11, P12, P13, P14, P15, P16, P17, P18, P19, P20

Push Sample

CPTU Push

CPT Ref No. / Cone ID / Cone Area (a)

Water Content (%): 0, 25, 50, 75, 100

Density (Mg/m^3): 3, 2, 1, 0

Particle Size, %

Relative to BSB (m)	Gravel	Sand	Fines	Silt	Clay
10.5	0	2	98	24	74
19.0	0	1	99	45	54

Relative Density, D_r (%): 0, 30, 60, 90, 120

Undrained Shear Strength, Su (kPa): 0, 300, 600, 900, 1200, 1500

Corrected Cone Resistance, q_t (MPa): 0, 12, 24, 36, 48, 60

Sleeve Friction, f_s (MPa): 0, 0.3, 0.6, 0.9, 1.2, 1.5

Pore Pressure, U_2 (kPa): -4500, -2250, 0, 2250, 4500

Ambient Pore Pressure (kPa)

KEY TO SOIL PROFILE

SILT, CLAY, SAND, GRAVEL, COBBLES, CHALK, PEAT, Mixed Soil

Assumed Unit Weight: kN/m^3

K_0: -

Area	**Kattegat Sea**	Coordinates	**678759.8E**	**6261509.5N**	CRS: **ETRS89**
Contract	**11596**	Latitude / Longitude			**Comments: Borehole CB10-BH was completed to a depth of 29.70m utilising API drilling~ Wison CPT and push sampling methods. Drillers note - the borehole was terminated due to a hard layer/boulder being encountered and drilling could not proceed.**
Client Name / Ref	**Energinet Eltransmission A/S / 384_20_ENE**	Water Depth (mMSL)	**-33.0**		
Vessel	**MV Ocean Vantage**	Date of Test	**31/05/2021**		
Method	**Wison**	Final Borehole Depth	**29.70m**		

QC Status		
Preliminary	Draft	Final
JK/BC (31/05/2021)	**DR** (10/06/2021)	**SMc** (10/11/2021)

Location Name: **CB10-BH**

Preliminary Investigation, Hesselø OWF

BOREHOLE LOG, LABORATORY TEST RESULTS AND IN SITU CPTU TESTING

Relative to (mMSL)	Relative to BSB (m)	Soil Depth (m)	Interpreted Soil Type	Env.	Age
-53.5	20.5	20.46	Low to medium strength CLAY, high plasticity, very silty, slightly sandy, with black organic staining, dark grey (5Y 4/1), slightly calcareous	Ma/Fw	Ho
-54.0	21.0		Low to medium strength CLAY, high plasticity, silty, slightly sandy, slightly gravelly, with pockets (<0.02m) of sand, fine, well sorted, grey (5Y 5/1), highly calcareous, with black organic staining, dark grey (5Y 4/2), highly calcareous		
-54.5	21.5				
-55.0	22.0				
-55.5	22.5				
-56.0	23.0				
-56.5	23.5			Ma/Fw	Ho
-57.0	24.0				
-57.5	24.5				
-58.0	25.0				
-58.5	25.5				
-59.0	26.0				
-59.5	26.5	26.47	Medium to high becoming very high strength CLAY, high plasticity, slightly sandy, slightly gravelly, dark grey (5Y 4/1), highly calcareous	Ma/Fw	Pg
-60.0	27.0				
-60.5	27.5				
-61.0	28.0				
-61.5	28.5	28.49	High to very high strength CLAY TILL, medium plasticity, very silty, sandy, slightly gravelly, very dark greenish grey (GLEY1 10Y 3/1), highly calcareous	Ma/Fw	Gc
-62.0	29.0		End of borehole at 29.70m		
-62.5	29.5				

Push Sample: P24, P25, P26, P27, P28, P28A, P30, P31

CPT Push

CPT Ref No.
Cone ID
Cone Area (a)

Water Content (%): 0, 25, 50, 75, 100

Density (Mg/m^3): 3, 2, 1, 0

Particle Size, %

Gravel	Sand	Fines	Silt	Clay
0	5	95	57	38
9	39	52	25	27

Relative Density, D_r (%): 0, 30, 60, 90, 120

Undrained Shear Strength, Su (kPa): 0, 300, 600, 900, 1200, 1500

Corrected Cone Resistance, q_t (MPa): 0, 12, 24, 36, 48, 60

Sleeve Friction, f_s(MPa): 0, 0.3, 0.6, 0.9, 1.2, 1.5

Pore Pressure, U_2 (kPa): -4500, -2250, 0, 2250, 4500

Ambient Pore Pressure (kPa)

Relative to BSB (m)

KEY TO SOIL PROFILE

SILT, CLAY, SAND, GRAVEL, COBBLES, CHALK, PEAT, Mixed Soil

Assumed Unit Weight: kN/m^3
K_0: -

Area	**Kattegat Sea**	Coordinates	**678759.8E**	**6261509.5N**	CRS: **ETRS89**
Contract	**11596**	Latitude / Longitude			**Comments: Borehole CB10-BH was completed to a depth of 29.70m utilising API drilling~ Wison CPT and push sampling methods. Drillers note - the borehole was terminated due to a hard layer/boulder being encountered and drilling could not proceed.**
Client Name / Ref	**Energinet Eltransmission A/S / 384_20_ENE**	Water Depth (mMSL)	**-33.0**		
Vessel	**MV Ocean Vantage**	Date of Test	**31/05/2021**		
Method	**Wison**	Final Borehole Depth	**29.70m**		

QC Status			Location Name
Preliminary	Draft	Final	**CB10-BH**
JK/BC (31/05/2021)	**DR** (10/06/2021)	**SMc** (10/11/2021)	Page: 3/3

Preliminary Investigation, Hesselø OWF

BOREHOLE LOG, LABORATORY TEST RESULTS AND IN SITU CPTU TESTING

Relative to (mMSL)	Relative to BSB (m)	Soil Profile	Push Sample	CPTU Push	CPT Ref No. Cone ID Cone Area (a)	Soil Depth (m)	Interpreted Soil Type	Env.	Age	Water Content (%) 0 25 50 75 100	Density (Mg/m^3) 3 2 1 0	Particle Size, % Gravel Sand Fines Silt Clay	Relative Density, D_r (%) 0 30 60 90 120	Undrained Shear Strength, Su (kPa) 0 300 600 900 1200 1500	Corrected Cone Resistance, q_t (MPa) 0 12 24 36 48 60	Sleeve Friction, f_s(MPa) 0 0.3 0.6 0.9 1.2 1.5	Pore Pressure, U_2 (kPa) -4500 -2250 0 2250 4500	Ambient Pore Pressure (kPa)	Relative to BSB (m)
-33.5	0.5																		0.5
-34.0	1.0																		1.0
-34.5	1.5																		1.5
-35.0	2.0																		2.0
-35.5	2.5																		2.5
-36.0	3.0																		3.0
-36.5	3.5																		3.5
-37.0	4.0																		4.0
-37.5	4.5																		4.5
-38.0	5.0																		5.0
-38.5	5.5																		5.5
-39.0	6.0																		6.0
-39.5	6.5																		6.5
-40.0	7.0																		7.0
-40.5	7.5																		7.5
-41.0	8.0																		8.0
-41.5	8.5																		8.5
-42.0	9.0																		9.0
-42.5	9.5																		9.5
-43.0																			

KEY TO SOIL PROFILE

SILT, CLAY, SAND, GRAVEL, COBBLES, CHALK, PEAT, Mixed Soil

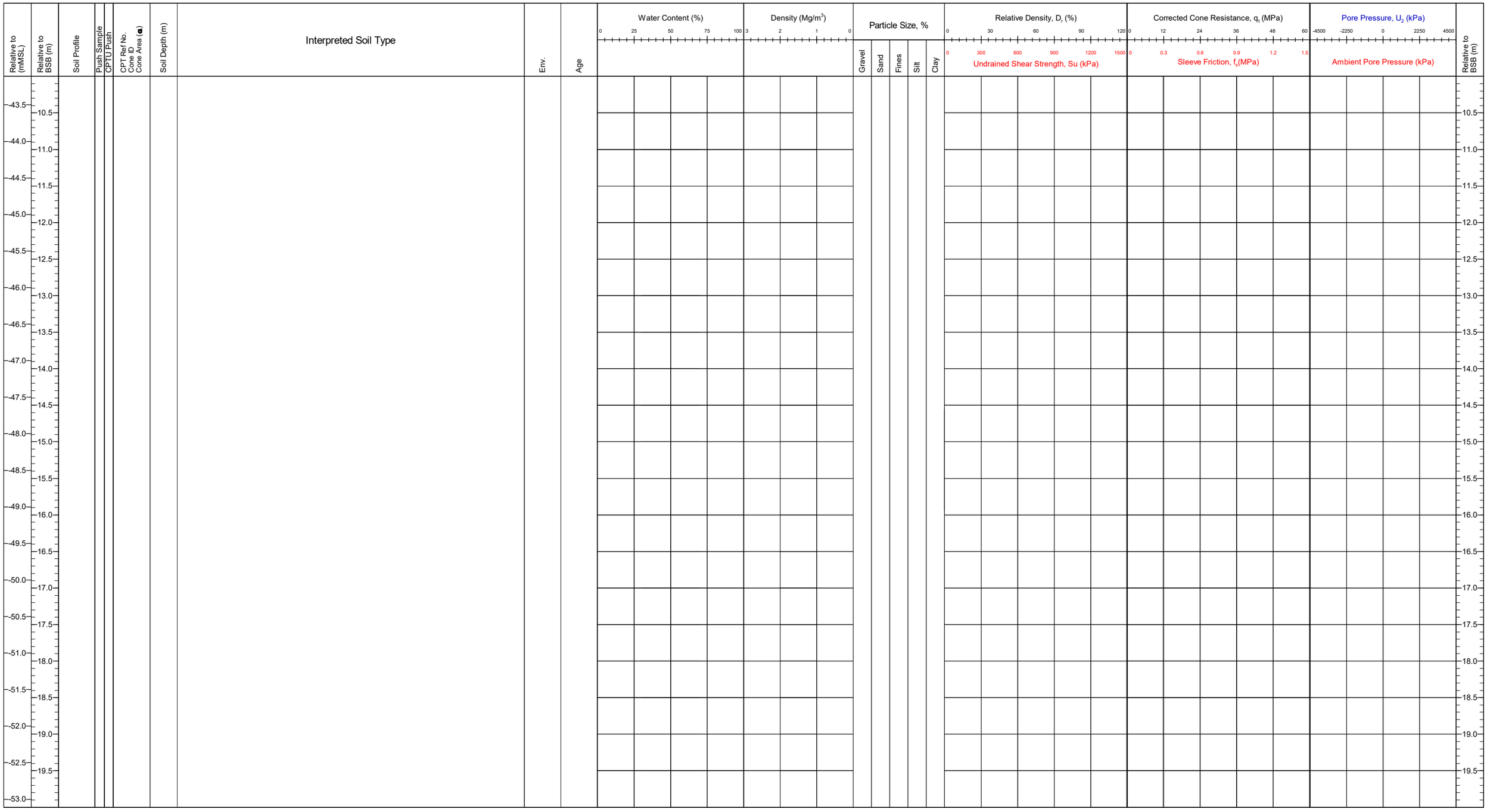
Assumed Unit Weight: 20 - 16 kN/m^3
K_0: 0.5 - 2.0
N_{kt}: 15 - 20
N_{vt}: 12.5 - 16.5

Area	**Kattegat Sea**	Coordinates	**678755.5E 6261514.2N**	CRS: **ETRS89**	QC Status: Preliminary / Draft / Final
Contract	**11596**	Latitude / Longitude		**Comments: Borehole CB10a-BH was completed to a depth of 70.25m utilising API drilling~ Wison CPT and push sampling methods.**	
Client Name / Ref	**Energinet Eltransmission A/S / 384_20_ENE**	Water Depth (mMSL)	**-33.1**		
Vessel	**MV Ocean Vantage**	Date of Test (Start-End)	**05/06/2021 - 06/06/2021**		**JK/BC** (05/06/2021) / **DR** (10/06/2021) / **SMc** (10/11/2021)
Method	**Wison**	Final Borehole Depth	**70.25m**		

Location Name: **CB10a-BH**

Preliminary Investigation, Hesselø OWF

BOREHOLE LOG, LABORATORY TEST RESULTS AND IN SITU CPTU TESTING



KEY TO SOIL PROFILE

SILT · CLAY · SAND · GRAVEL · COBBLES · CHALK · PEAT · Mixed Soil

Assumed Unit Weight: 20 - 16 kN/m³
K_0: 0.5 - 2.0
N_{kt}: 15 - 20
N_{vt}: 12.5 - 16.5

Area	**Kattegat Sea**	Coordinates	**678755.5E 6261514.2N**	CRS: **ETRS89**	QC Status: Preliminary / Draft / Final
Contract	**11596**	Latitude / Longitude		**Comments: Borehole CB10a-BH was completed to a depth of 70.25m utilising API drilling~ Wison CPT and push sampling methods.**	
Client Name / Ref	**Energinet Eltransmission A/S / 384_20_ENE**	Water Depth (mMSL)	**-33.1**		
Vessel	**MV Ocean Vantage**	Date of Test (Start-End)	**05/06/2021 - 06/06/2021**		**JK/BC** (05/06/2021) / **DR** (10/06/2021) / **SMc** (10/11/2021)
Method	**Wison**	Final Borehole Depth	**70.25m**		

Location Name: **CB10a-BH**

Preliminary Investigation, Hesselø OWF

BOREHOLE LOG, LABORATORY TEST RESULTS AND IN SITU CPTU TESTING

Relative to (mMSL)	Relative to BSB (m)	Soil Profile	Push Sample	CPTU Push	CPT Ref No. Cone ID Cone Area (a)	Soil Depth (m)	Interpreted Soil Type	Env.	Age
-53.5	20.5								
-54.0	21.0								
-54.5	21.5								
-55.0	22.0								
-55.5	22.5								
-56.0	23.0								
-56.5	23.5								
-57.0	24.0								
-57.5	24.5								
-58.0	25.0								
-58.5	25.5								
-59.0	26.0								
-59.5	26.5								
-60.0	27.0								
-60.5	27.5								
-61.0	28.0								
-61.5	28.5								
-62.0	29.0								
-62.5	29.5		P01				High to very high strength CLAY, medium plasticity, silty, very sandy, slightly gravelly, dark greenish grey (GLEY1 5GY 4/1), calcareous	Gl	Gc
-63.0									

Water Content (%): 0 25 50 75 100

Density (Mg/m^3): 3 2 1 0

Particle Size, %: Gravel | Sand | Fines | Silt | Clay

Relative Density, D_r (%): 0 30 60 90 120

Undrained Shear Strength, Su (kPa): 0 300 600 900 1200 1500

Corrected Cone Resistance, q_t (MPa): 0 12 24 36 48 60

Sleeve Friction, f_s(MPa): 0 0.3 0.6 0.9 1.2 1.5

Pore Pressure, U_2 (kPa): -4500 -2250 0 2250 4500

Ambient Pore Pressure (kPa)

Relative to BSB (m): 20.5 21.0 21.5 22.0 22.5 23.0 23.5 24.0 24.5 25.0 25.5 26.0 26.5 27.0 27.5 28.0 28.5 29.0 29.5

KEY TO SOIL PROFILE

SILT | CLAY | SAND | GRAVEL | COBBLES | CHALK | PEAT | Mixed Soil

Assumed Unit Weight: 20 - 16 kN/m^3
K_0: 0.5 - 2.0
N_{kt}: 15 - 20
N_{ke}: 12.5 - 16.5

Area	**Kattegat Sea**	Coordinates	**678755.5E 6261514.2N**	CRS: **ETRS89**	
Contract	**11596**	Latitude / Longitude		**Comments: Borehole CB10a-BH was completed to a depth of 70.25m utilising API drilling~ Wison CPT and push sampling methods.**	
Client Name / Ref	**Energinet Eltransmission A/S / 384_20_ENE**	Water Depth (mMSL)	**-33.1**		
Vessel	**MV Ocean Vantage**	Date of Test (Start-End)	**05/06/2021 - 06/06/2021**		
Method	**Wison**	Final Borehole Depth	**70.25m**		

QC Status			Location Name
Preliminary	Draft	Final	**CB10a-BH**
JK/BC (05/06/2021)	**DR** (10/06/2021)	**SMc** (10/11/2021)	

Preliminary Investigation, Hesselø OWF

BOREHOLE LOG, LABORATORY TEST RESULTS AND IN SITU CPTU TESTING

Relative to BSB (m)	Soil Depth (m)	Interpreted Soil Type	Env.	Age	Gravel	Sand	Fines	Silt	Clay
30.5	30.60	High to very high strength CLAY, medium plasticity, silty, very sandy, slightly gravelly, dark greenish grey (GLEY1 5GY 4/1), calcareous	Gl	Gc	3	39	58	36	22
31.0		Medium dense to dense SAND, fine to coarse, sorted, slighly silty, slightly gravelly, dark greenish grey (GLEY1 10Y 4/1) to grey (5Y 5/1), slightly calcareous	Gl	Gc	2	95	3	3	0
33.0	33.00	Dense to very dense SAND, fine, well sorted, clayey, very silty, grey (5Y 5/1), non calcareous	Gl	Gc	0	67	33	24	9
36.5		36.45-36.46m: Thick lamination of clay, medium plasticity, silty, dark greenish grey (GLEY1 10Y 4/1), slightly calcareous							
37.0	37.00	Very high to extremely high strength CLAY, medium plasticity, sandy, slightly gravelly, greenish black (GLEY1 10Y 2.5/1) with pockets (<0.03m) of sand, fine, well sorted, very dark greenish grey (GLEY1 10Y 3/1), slightly calcareous	Gl	Gc					
39.0	38.80	Very high to extremely high strength CLAY, medium plasticity, very silty, slightly sandy, greenish black (GLEY1 10Y 2.5/1), slightly calcareous	Gl	Gc					

Push Sample: P02, P03, P04, P05, P06, P07, P08, P09, P10, P11, P12

CPT Push: 01 121005G 10cm² (0.78); 02 121004 10cm² (0.78); 03 121004 10cm² (0.78); 04 121004 10cm² (0.78); 05 121005G 10cm² (0.78)

Water Content (%): 0, 25, 50, 75, 100

Density (Mg/m³): 3, 2, 1, 0

Relative Density, D_r (%): 0, 30, 60, 90, 120

Undrained Shear Strength, Su (kPa): 0, 300, 600, 900, 1200, 1500

Corrected Cone Resistance, q_t (MPa): 0, 12, 24, 36, 48, 60

Sleeve Friction, f_s (MPa): 0, 0.3, 0.6, 0.9, 1.2, 1.5

Pore Pressure, U_2 (kPa): -4500, -2250, 0, 2250, 4500

Ambient Pore Pressure (kPa)

KEY TO SOIL PROFILE

SILT, CLAY, SAND, GRAVEL, COBBLES, CHALK, PEAT, Mixed Soil

Assumed Unit Weight: 20 - 16 kN/m³
$K_{2'}$: 0.5 - 2.0
N_{kt}: 15 - 20
N_{kt}: 12.5 - 16.5

Area	**Kattegat Sea**	Coordinates	**678755.5E**	**6261514.2N**	CRS: **ETRS89**
Contract	**11596**	Latitude / Longitude			**Comments: Borehole CB10a-BH was completed to a depth of 70.25m utilising API drilling~ Wison CPT and push sampling methods.**
Client Name / Ref	**Energinet Eltransmission A/S / 384_20_ENE**	Water Depth (mMSL)	**-33.1**		
Vessel	**MV Ocean Vantage**	Date of Test (Start-End)	**05/06/2021 - 06/06/2021**		
Method	**Wison**	Final Borehole Depth	**70.25m**		

QC Status		
Preliminary	Draft	Final
JK/BC (05/06/2021)	**DR** (10/06/2021)	**SMc** (10/11/2021)

Location Name: **CB10a-BH**

Preliminary Investigation, Hesselø OWF

BOREHOLE LOG, LABORATORY TEST RESULTS AND IN SITU CPTU TESTING

Relative to (mMSL)	Relative to BSB (m)	Soil Profile	Push Sample	CPTU Push	CPT Ref No. Cone ID Cone Area (a)	Soil Depth (m)	Interpreted Soil Type	Env.	Age
-73.5 to -83.0	40.5 to 49.5		P13, P14, P15, P16, P17, P18, P19, P20, P21, P22		06 121005G 10cm² (0.78); 07 121005G 10cm² (0.78)	41.60	Very high to extremely high strength CLAY, medium plasticity, very silty, slightly sandy, greenish black (GLEY1 10Y 2.5/1), slightly calcareous	Gl	Gc
							Extremely high strength CLAY, high plasticity, slightly gravelly, with pockets (<0.03m) of sand, fine, well sorted, greenish grey (GLEY1 5GY 6/1), highly calcareous, very dark greenish grey (GLEY1 5GY 3/1), highly calcareous	Gl	Gc
							45.00-45.55m: Extremely high strength CLAY, medium plasticity, slightly silty, very dark greyish brown (10YR 3/2), non calcareous with very closely spaced laminations of silt, non plastic, dark greenish grey (GLEY1 10Y 4/1), slightly calcareous		
						48.27	Extremely high strength CLAY, high plasticity, very silty, slightly sandy, with shell fragments (<0.02m), very dark greenish grey (GLEY1 5GY 3/1), highly calcareous	Gl	Gc

Particle Size, %				
Gravel	Sand	Fines	Silt	Clay
0	5	95	46	49
0	3	97	43	54

Water Content (%): 0, 25, 50, 75, 100

Density (Mg/m³): 3, 2, 1, 0

Relative Density, D_r (%): 0, 30, 60, 90, 120

Undrained Shear Strength, Su (kPa): 0, 300, 600, 900, 1200, 1500

Corrected Cone Resistance, q_t (MPa): 0, 12, 24, 36, 48, 60

Sleeve Friction, f_s(MPa): 0, 0.3, 0.6, 0.9, 1.2, 1.5

Pore Pressure, U_2 (kPa): -4500, -2250, 0, 2250, 4500

Ambient Pore Pressure (kPa)

KEY TO SOIL PROFILE

SILT, CLAY, SAND, GRAVEL, COBBLES, CHALK, PEAT, Mixed Soil

Assumed Unit Weight: 20 - 16 kN/m³
K_0: 0.5 - 2.0
N_{cone}: 15 - 20
N_{M}: 12.5 - 16.5

Area	**Kattegat Sea**	Coordinates	**678755.5E 6261514.2N**	CRS: **ETRS89**	QC Status: Preliminary / Draft / Final
Contract	**11596**	Latitude / Longitude		**Comments: Borehole CB10a-BH was completed to a depth of 70.25m utilising API drilling~ Wison CPT and push sampling methods.**	
Client Name / Ref	**Energinet Eltransmission A/S / 384_20_ENE**	Water Depth (mMSL)	**-33.1**		
Vessel	**MV Ocean Vantage**	Date of Test (Start-End)	**05/06/2021 - 06/06/2021**		**JK/BC** (05/06/2021) / **DR** (10/06/2021) / **SMc** (10/11/2021)
Method	**Wison**	Final Borehole Depth	**70.25m**		

Location Name: **CB10a-BH**

Preliminary Investigation, Hesselø OWF

BOREHOLE LOG, LABORATORY TEST RESULTS AND IN SITU CPTU TESTING

Relative to (mMSL)	Relative to BSB (m)	Soil Profile	Push Sample	CPTU Push	CPT Ref No. Cone ID Cone Area (a)	Soil Depth (m)	Interpreted Soil Type	Env.	Age
-83.5 to -93.0	50.5 to 59.5		P23 P24 P25		08 12100SQ 10cm² (0.78); 09 12100SG 10cm² (0.78); 10 12100SG 10cm² (0.78)		Extremely high strength CLAY, high plasticity, very silty, slightly sandy, with shell fragments (<0.02m), very dark greenish grey (GLEY1 5GY 3/1), highly calcareous	Gl	Gc

Water Content (%): 0 25 50 75 100

Density (Mg/m³): 3 2 1 0

Particle Size, %: Gravel | Sand | Fines | Silt | Clay

Relative Density, D_r (%): 0 30 60 90 120

Undrained Shear Strength, Su (kPa): 0 300 600 900 1200 1500

Corrected Cone Resistance, q_t (MPa): 0 12 24 36 48 60

Sleeve Friction, f_s (MPa): 0 0.3 0.6 0.9 1.2 1.5

Pore Pressure, U_2 (kPa): -4500 -2250 0 2250 4500

Ambient Pore Pressure (kPa)

KEY TO SOIL PROFILE

SILT, CLAY, SAND, GRAVEL, COBBLES, CHALK, PEAT, Mixed Soil

Assumed Unit Weight: 20 - 16 kN/m³
K_0: 0.5 - 2.0
N_{kt}: 15 - 20
N_{kt}: 12.5 - 16.5

Area	**Kattegat Sea**	Coordinates	**678755.5E 6261514.2N**	CRS: **ETRS89**	QC Status: Preliminary / Draft / Final
Contract	**11596**	Latitude / Longitude		**Comments: Borehole CB10a-BH was completed to a depth of 70.25m utilising API drilling~ Wison CPT and push sampling methods.**	Location Name: **CB10a-BH**
Client Name / Ref	**Energinet Eltransmission A/S / 384_20_ENE**	Water Depth (mMSL)	**-33.1**		
Vessel	**MV Ocean Vantage**	Date of Test (Start-End)	**05/06/2021 - 06/06/2021**		
Method	**Wison**	Final Borehole Depth	**70.25m**		

Preliminary	Draft	Final
JK/BC (05/06/2021)	**DR** (10/06/2021)	**SMc** (10/11/2021)

Preliminary Investigation, Hesselø OWF

BOREHOLE LOG, LABORATORY TEST RESULTS AND IN SITU CPTU TESTING

Relative to (mMSL)	Relative to BSB (m)	Soil Profile	Push Sample	CPTU Push	CPT Ref No. Cone ID Cone Area (a)	Soil Depth (m)	Interpreted Soil Type	Env.	Age
-93.5	60.5						Extremely high strength CLAY, high plasticity, very silty, slightly sandy, with shell fragments (<0.02m), very dark greenish grey (GLEY1 5GY 3/1), highly calcareous	Gl	Gc
-94.0	61.0								
-94.5	61.5				11 121005G 10cm² (0.78)				
-95.0	62.0								
-95.5	62.5								
-96.0	63.0		P26						
-96.5	63.5								
-97.0	64.0								
-97.5	64.5				12 121005G 10cm² (0.78)				
-98.0	65.0					64.95	Extremely high strength CLAY, slightly gravelly, very high plasticity, very fissured, slickensided, dark grey (10YR 4/1), highly calcareous		
-98.5	65.5							Gl	Gc
-99.0	66.0								
-99.5	66.5		P27						
-100.0	67.0								
-100.5	67.5								
-101.0	68.0		P28			67.73	Extremely high strength CLAY, high plasticity, very silty, sandy, with pockets (<0.02m) of silt, light grey (5Y 7/2), dark greenish grey (GLEY1 10Y 4/1), calcareous		
-101.5	68.5				13 121005G 10cm² (0.78)			Gl	Gc
-102.0	69.0								
-102.5	69.5								
-103.0									

Water Content (%): 0, 25, 50, 75, 100

Density (Mg/m^3): 3, 2, 1, 0

Particle Size, %: Gravel | Sand | Fines | Silt | Clay

Relative Density, D_r (%): 0, 30, 60, 90, 120

Undrained Shear Strength, Su (kPa): 0, 300, 600, 900, 1200, 1500

Corrected Cone Resistance, q_t (MPa): 0, 12, 24, 36, 48, 60

Sleeve Friction, f_s(MPa): 0, 0.3, 0.6, 0.9, 1.2, 1.5

Pore Pressure, U_2 (kPa): -4500, -2250, 0, 2250, 4500

Ambient Pore Pressure (kPa)

Relative to BSB (m): 60.5, 61.0, 61.5, 62.0, 62.5, 63.0, 63.5, 64.0, 64.5, 65.0, 65.5, 66.0, 66.5, 67.0, 67.5, 68.0, 68.5, 69.0, 69.5

KEY TO SOIL PROFILE

SILT | CLAY | SAND | GRAVEL | COBBLES | CHALK | PEAT | Mixed Soil

Assumed Unit Weight: 20 - 16 kN/m³
K_C: 0.5 - 2.0
N_{KT}: 15 - 20
N_{kt}: 12.5 - 16.5

Area	**Kattegat Sea**	Coordinates	**678755.5E**	**6261514.2N**	CRS: **ETRS89**	QC Status	Location Name
Contract	**11596**	Latitude / Longitude			**Comments: Borehole CB10a-BH was completed to a depth of 70.25m utilising API drilling~ Wison CPT and push sampling methods.**	Preliminary / Draft / Final	**CB10a-BH**
Client Name / Ref	**Energinet Eltransmission A/S / 384_20_ENE**	Water Depth (mMSL)	**-33.1**				
Vessel	**MV Ocean Vantage**	Date of Test (Start-End)	**05/06/2021 - 06/06/2021**				
Method	**Wison**	Final Borehole Depth	**70.25m**			JK/BC (05/06/2021) / DR (10/06/2021) / SMc (10/11/2021)	Page: 7/8

Preliminary Investigation, Hesselø OWF

BOREHOLE LOG, LABORATORY TEST RESULTS AND IN SITU CPTU TESTING

Relative to (mMSL)	Relative to BSB (m)	Soil Profile	Push Sample	CPTU Push	CPT Ref No. Cone ID Cone Area (a)	Soil Depth (m)	Interpreted Soil Type	Env.	Age
-103.5	70.5		P29					Gl	Gc
							End of borehole at 70.25m		
-104.0	71.0								
-104.5	71.5								
-105.0	72.0								
-105.5	72.5								
-106.0	73.0								
-106.5	73.5								
-107.0	74.0								
-107.5	74.5								
-108.0	75.0								
-108.5	75.5								
-109.0	76.0								
-109.5	76.5								
-110.0	77.0								
-110.5	77.5								
-111.0	78.0								
-111.5	78.5								
-112.0	79.0								
-112.5	79.5								
-113.0									

Water Content (%): 0, 25, 50, 75, 100

Density (Mg/m^3): 3, 2, 1, 0

Particle Size, %	Gravel	Sand	Fines	Silt	Clay
	0	10	90	59	31

Relative Density, D_r (%): 0, 30, 60, 90, 120

Undrained Shear Strength, Su (kPa): 0, 300, 600, 900, 1200, 1500

0

Corrected Cone Resistance, q_t (MPa): 0, 12, 24, 36, 48, 60

Sleeve Friction, f_s(MPa): 0, 0.3, 0.6, 0.9, 1.2, 1.5

Pore Pressure, U_2 (kPa): -4500, -2250, 0, 2250, 4500

Ambient Pore Pressure (kPa)

KEY TO SOIL PROFILE

SILT, CLAY, SAND, GRAVEL, COBBLES, CHALK, PEAT, Mixed Soil

Assumed Unit Weight: 20 - 16 kN/m^3
K_0: 0.5 - 2.0
N_{kt}: 15 - 20
N_{kt}: 12.5 - 16.5

Area	**Kattegat Sea**	Coordinates	**678755.5E 6261514.2N**	CRS: **ETRS89**	QC Status: Preliminary / Draft / Final
Contract	**11596**	Latitude / Longitude		**Comments: Borehole CB10a-BH was completed to a depth of 70.25m utilising API drilling~ Wison CPT and push sampling methods.**	
Client Name / Ref	**Energinet Eltransmission A/S / 384_20_ENE**	Water Depth (mMSL)	**-33.1**		
Vessel	**MV Ocean Vantage**	Date of Test (Start-End)	**05/06/2021 - 06/06/2021**		**JK/BC** (05/06/2021) / **DR** (10/06/2021) / **SMc** (10/11/2021)
Method	**Wison**	Final Borehole Depth	**70.25m**		

Location Name: **CB10a-BH**

Preliminary Investigation, Hesselø OWF

BOREHOLE LOG, LABORATORY TEST RESULTS AND IN SITU CPTU TESTING

Relative to (mMSL)	Relative to BSB (m)	Soil Profile	Sample Type	CPTU Push	CPT Ref No. Cone ID Cone Area (a)	Soil Depth (m)		Env.	Age
-33.5 to -42.5	0.5 to 9.5						Very low to low strength CLAY, high plasticity, silty, slightly sandy, dark greyish brown (2.5Y 4/2), slightly calcareous, with pockets (<0.02m) of silt, non plastic, light brownish grey (2.5Y 6/2), calcareous between 12.00-14.82m	Ma/Fw	Ho

Water Content (%) 0 25 50 75 100

Density (Mg/m^3) 3 2 1 0

Particle Size, %

Gravel	Sand	Fines	Silt	Clay
2	10	88	53	35

Relative Density, D_r (%) 0 30 60 90 120

Undrained Shear Strength, Su (kPa) 0 300 600 900 1200 1500

Corrected Cone Resistance, q_t (MPa) 0 12 24 36 48 60

Sleeve Friction, f_s(MPa) 0 0.3 0.6 0.9 1.2 1.5

Pore Pressure, U_2 (kPa) -4500 -2250 0 2250 4500

Ambient Pore Pressure (kPa)

Relative to BSB (m) 0.5 1.0 1.5 2.0 2.5 3.0 3.5 4.0 4.5 5.0 5.5 6.0 6.5 7.0 7.5 8.0 8.5 9.0 9.5

KEY TO SOIL PROFILE

SILT, CLAY, SAND, GRAVEL, COBBLES, CHALK, PEAT, Mixed Soil

Assumed Unit Weight: kN/m^3
K_0: -

Area	**Kattegat Sea**	Coordinates	**678759.8E**	**6261509.5N**	CRS: **ETRS89**
Contract	**11596**	Latitude / Longitude			**Comments: Boreholes CB10-BH and CB10a-BH combined.**
Client Name / Ref	**Energinet Eltransmission A/S / 384_20_ENE**	Water Depth (mMSL)	**-33.0**		
Vessel	**MV Ocean Vantage**	Date of Test (Start-End)			
Method	**Wison**	Final Borehole Depth	**70.25m**		

QC Status		
Preliminary	Draft	Final
JK/BC (06/06/2021)	**DR** (10/06/2021)	**SMc** (10/11/2021)

Location Names
CB10-BH
CB10a-BH

Preliminary Investigation, Hesselø OWF

BOREHOLE LOG, LABORATORY TEST RESULTS AND IN SITU CPTU TESTING

Soil Depth (m)	Description	Env.	Age	Gravel	Sand	Fines	Silt	Clay
	Very low to low strength CLAY, high plasticity, silty, slightly sandy, dark greyish brown (2.5Y 4/2), slightly calcareous, with pockets (<0.02m) of silt, non plastic, light brownish grey (2.5Y 6/2), calcareous between 12.00-14.82m	Ma/Fw	Ho	0	2	98	24	74
14.82	Low to medium strength CLAY, high plasticity, very silty, slightly sandy, with black organic staining, dark grey (5Y 4/1), slightly calcareous	Ma/Fw	Ho	0	1	99	45	54

Water Content (%) 0 25 50 75 100 — Density (Mg/m³) 3 2 1 0 — Relative Density, D_r (%) 0 30 60 90 120 — Undrained Shear Strength, Su (kPa) 0 300 600 900 1200 1500 — Corrected Cone Resistance, q_t (MPa) 0 12 24 36 48 60 — Sleeve Friction, f_s (MPa) 0 0.3 0.6 0.9 1.2 1.5 — Pore Pressure, U_2 (kPa) -4500 -2250 0 2250 4500 — Ambient Pore Pressure (kPa)

Relative to (mMSL) / Relative to BSB (m): -43.5 / 10.5 to -52.5 / 19.5

KEY TO SOIL PROFILE

SILT · CLAY · SAND · GRAVEL · COBBLES · CHALK · PEAT · Mixed Soil

Assumed Unit Weight: kN/m³
K_0: -

Area	**Kattegat Sea**	Coordinates	**678759.8E 6261509.5N**	CRS: **ETRS89**	QC Status: Preliminary / Draft / Final
Contract	**11596**	Latitude / Longitude		**Comments: Boreholes CB10-BH and CB10a-BH combined.**	
Client Name / Ref	**Energinet Eltransmission A/S / 384_20_ENE**	Water Depth (mMSL)	**-33.0**		
Vessel	**MV Ocean Vantage**	Date of Test (Start-End)			**JK/BC** (06/06/2021) / **DR** (10/06/2021) / **SMc** (10/11/2021)
Method	**Wison**	Final Borehole Depth	**70.25m**		

Location Names: CB10-BH

Preliminary Investigation, Hesselø OWF

BOREHOLE LOG, LABORATORY TEST RESULTS AND IN SITU CPTU TESTING

Relative to (mMSL)	Relative to BSB (m)	Soil Depth (m)		Env.	Age
-53.5	20.5	20.46	Low to medium strength CLAY, high plasticity, very silty, slightly sandy, with black organic staining, dark grey (5Y 4/1), slightly calcareous	Ma/Fw	Ho
-54.0 to -61.5	21.0 to 28.5	20.46 to 28.49	Low to medium strength CLAY, high plasticity, silty, slightly sandy, slightly gravelly, with pockets (<0.02m) of sand, fine, well sorted, grey (5Y 5/1), highly calcareous, with black organic staining, dark grey (5Y 4/2), highly calcareous	Ma/Fw	Ho
-59.5 to -60.5	26.5 to 27.5	26.47	Medium to high becoming very high strength CLAY, high plasticity, slightly sandy, slightly gravelly, dark grey (5Y 4/1), highly calcareous	Ma/Fw	Pg
-61.5 to -62.5	28.5 to 29.5	28.49	High to very high strength CLAY TILL, medium plasticity, very silty, very sandy, slightly gravelly, very dark greenish grey (GLEY1 10Y 3/1), highly calcareous	Ma/Fw	Gc

Water Content (%): 0, 25, 50, 75, 100

Density (Mg/m^3): 3, 2, 1, 0

Particle Size, %

Gravel	Sand	Fines	Silt	Clay
0	5	95	57	38
9	39	52	25	27

Relative Density, D_r (%): 0, 30, 60, 90, 120

Undrained Shear Strength, Su (kPa): 0, 300, 600, 900, 1200, 1500

Corrected Cone Resistance, q_t (MPa): 0, 12, 24, 36, 48, 60

Sleeve Friction, f_s(MPa): 0, 0.3, 0.6, 0.9, 1.2, 1.5

Pore Pressure, U_2 (kPa): -4500, -2250, 0, 2250, 4500

Ambient Pore Pressure (kPa)

KEY TO SOIL PROFILE

SILT, CLAY, SAND, GRAVEL, COBBLES, CHALK, PEAT, Mixed Soil

Assumed Unit Weight: kN/m^3
K_0: -

Area	**Kattegat Sea**	Coordinates	**678759.8E**	**6261509.5N**	CRS: **ETRS89**
Contract	**11596**	Latitude / Longitude			**Comments: Boreholes CB10-BH and CB10a-BH combined.**
Client Name / Ref	**Energinet Eltransmission A/S / 384_20_ENE**	Water Depth (mMSL)	**-33.0**		
Vessel	**MV Ocean Vantage**	Date of Test (Start-End)			
Method	**Wison**	Final Borehole Depth	**70.25m**		

QC Status		
Preliminary	Draft	Final
JK/BC (06/06/2021)	**DR** (10/06/2021)	**SMc** (10/11/2021)

Location Names
CB10-BH
CB10a-BH

Preliminary Investigation, Hesselø OWF

BOREHOLE LOG, LABORATORY TEST RESULTS AND IN SITU CPTU TESTING

Soil Depth (m)	Soil Description	Env.	Age
	High to very high strength CLAY TILL, medium plasticity, very silty, very sandy, slightly gravelly, very dark greenish grey (GLEY1 10Y 3/1), highly calcareous	Ma/Fw Gl	Gc
30.60	High to very high strength CLAY, medium plasticity, sandy, gravelly, dark greenish grey (GLEY1 5GY 4/1), calcareous		
	Medium dense to dense SAND, fine to coarse, sorted, slighly silty, slightly gravelly, dark greenish grey (GLEY1 10Y 4/1) to grey (5Y 5/1), slightly calcareous	Gl	Gc
33.00	Dense to very dense SAND, fine, well sorted, clayey, very silty, grey (5Y 5/1), non calcareous		
	36.45m - 36.46m: 36.45-36.46m: Thick lamination of clay, medium plasticity, silty, dark greenish grey (GLEY1 10Y 4/1), slightly calcareous	Gl	Gc
37.00	Very high to extremely high strength CLAY, medium plasticity, sandy, slightly gravelly, greenish black (GLEY1 10Y 2.5/1) with pockets (<0.03m) of sand, fine, well sorted, very dark greenish grey (GLEY1 10Y 3/1), slightly calcareous	Gl	Gc
38.80	Very high to extremely high strength CLAY, medium plasticity, very silty, slightly sandy, greenish black (GLEY1 10Y 2.5/1), slightly calcareous	Gl	Gc

Particle Size, %	Gravel	Sand	Fines	Silt	Clay
	3	39	58	36	22
	2	95	3	3	0
	0	67	33	24	9

Relative to (mMSL) / Relative to BSB (m): 30.5, 31.0, 31.5, 32.0, 32.5, 33.0, 33.5, 34.0, 34.5, 35.0, 35.5, 36.0, 36.5, 37.0, 37.5, 38.0, 38.5, 39.0, 39.5

Soil Profile: P02, P03, P04, P05, P06, P07, P08, P09, P10, P11, P12

Sample Type / CPTU Push / CPT Ref No. Cone ID Cone Area (a):
- 01 121005G 10cm² (0.78)
- 02 121004 10cm² (0.78)
- 03 121004 10cm² (0.78)
- 04 121004 10cm² (0.78)
- 05 121005G 10cm² (0.78)

Water Content (%): 0, 25, 50, 75, 100

Density (Mg/m³): 3, 2, 1, 0

Relative Density, D_r (%): 0, 30, 60, 90, 120

Undrained Shear Strength, Su (kPa): 0, 300, 600, 900, 1200, 1500

Corrected Cone Resistance, q_t (MPa): 0, 12, 24, 36, 48, 60

Sleeve Friction, f_s(MPa): 0, 0.3, 0.6, 0.9, 1.2, 1.5

Pore Pressure, U_2 (kPa): -4500, -2250, 0, 2250, 4500

Ambient Pore Pressure (kPa)

KEY TO SOIL PROFILE

SILT, CLAY, SAND, GRAVEL, COBBLES, CHALK, PEAT, Mixed Soil

Assumed Unit Weight: 20 - 16 kN/m³
K_0: 0.5 - 2.0
N_{kt}: 15 - 20
N_{kt}: 12.5 - 16.5

Area	**Kattegat Sea**	Coordinates	**678759.8E**	**6261509.5N**	CRS: **ETRS89**
Contract	**11596**	Latitude / Longitude			**Comments: Boreholes CB10-BH and CB10a-BH combined.**
Client Name / Ref	**Energinet Eltransmission A/S / 384_20_ENE**	Water Depth (mMSL)	**-33.0**		
Vessel	**MV Ocean Vantage**	Date of Test (Start-End)			
Method	**Wison**	Final Borehole Depth	**70.25m**		

QC Status	Preliminary	Draft	Final
	JK/BC (06/06/2021)	**DR** (10/06/2021)	**SMc** (10/11/2021)

Location Names: CB10a-BH

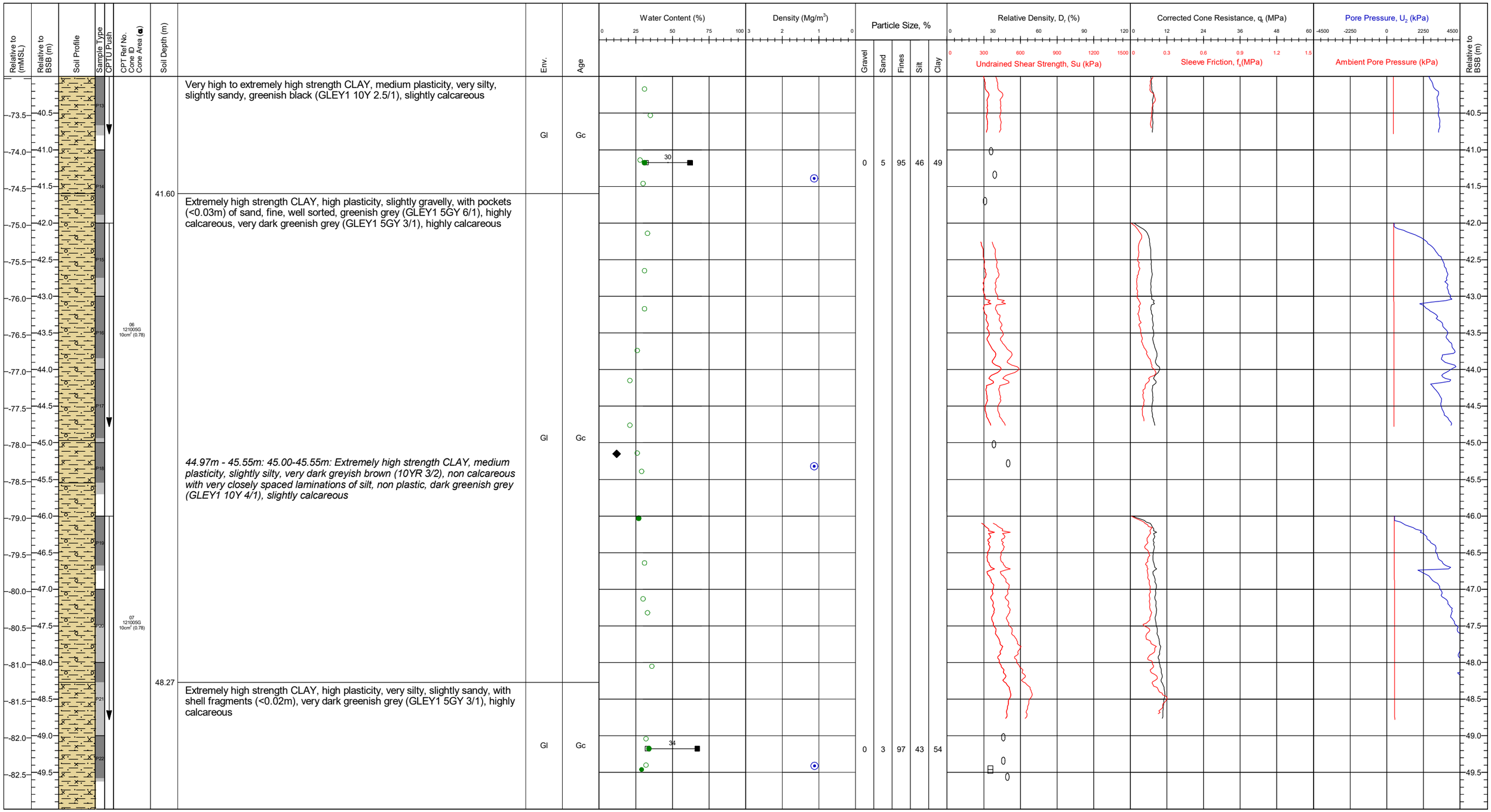
Preliminary Investigation, Hesselø OWF

BOREHOLE LOG, LABORATORY TEST RESULTS AND IN SITU CPTU TESTING

Soil Depth (m)	Soil Description	Env.	Age
	Very high to extremely high strength CLAY, medium plasticity, very silty, slightly sandy, greenish black (GLEY1 10Y 2.5/1), slightly calcareous	Gl	Gc
41.60	Extremely high strength CLAY, high plasticity, slightly gravelly, with pockets (<0.03m) of sand, fine, well sorted, greenish grey (GLEY1 5GY 6/1), highly calcareous, very dark greenish grey (GLEY1 5GY 3/1), highly calcareous	Gl	Gc
	44.97m - 45.55m: 45.00-45.55m: Extremely high strength CLAY, medium plasticity, slightly silty, very dark greyish brown (10YR 3/2), non calcareous with very closely spaced laminations of silt, non plastic, dark greenish grey (GLEY1 10Y 4/1), slightly calcareous		
48.27	Extremely high strength CLAY, high plasticity, very silty, slightly sandy, with shell fragments (<0.02m), very dark greenish grey (GLEY1 5GY 3/1), highly calcareous	Gl	Gc

CPT Ref No. 06 121005G, Cone ID 10cm² (0.78)
CPT Ref No. 07 121005G, Cone ID 10cm² (0.78)

Particle Size, %	Gravel	Sand	Fines	Silt	Clay
	0	5	95	46	49
	0	3	97	43	54



KEY TO SOIL PROFILE

SILT, CLAY, SAND, GRAVEL, COBBLES, CHALK, PEAT, Mixed Soil

Assumed Unit Weight: 20 - 16 kN/m³
K_0: 0.5 - 2.0
N_{60}: 15 - 20
N_{60}: 12.5 - 16.5

Area	**Kattegat Sea**	Coordinates	**678759.8E**	**6261509.5N**	CRS: **ETRS89**
Contract	**11596**	Latitude / Longitude			**Comments: Boreholes CB10-BH and CB10a-BH combined.**
Client Name / Ref	**Energinet Eltransmission A/S / 384_20_ENE**	Water Depth (mMSL)	**-33.0**		
Vessel	**MV Ocean Vantage**	Date of Test (Start-End)			
Method	**Wison**	Final Borehole Depth	**70.25m**		

QC Status	Preliminary	Draft	Final
	JK/BC (06/06/2021)	**DR** (10/06/2021)	**SMc** (10/11/2021)

Location Names
CB10a-BH

Preliminary Investigation, Hesselø OWF

BOREHOLE LOG, LABORATORY TEST RESULTS AND IN SITU CPTU TESTING

Relative to (mMSL)	Relative to BSB (m)	Soil Profile	Sample Type	CPTU Push	CPT Ref No. Cone ID Cone Area (a)	Soil Depth (m)		Env.	Age
-83.5	50.5						Extremely high strength CLAY, high plasticity, very silty, slightly sandy, with shell fragments (<0.02m), very dark greenish grey (GLEY1 5GY 3/1), highly calcareous		
-84.0	51.0								
-84.5	51.5				08 121005G 10cm² (0.78)				
-85.0	52.0								
-85.5	52.5								
-86.0	53.0		P23						
-86.5	53.5								
-87.0	54.0								
-87.5	54.5				09 121005G 10cm² (0.78)				
-88.0	55.0							Gl	Gc
-88.5	55.5								
-89.0	56.0		P24						
-89.5	56.5								
-90.0	57.0								
-90.5	57.5								
-91.0	58.0								
-91.5	58.5		P25		10 121005G 10cm² (0.78)				
-92.0	59.0								
-92.5	59.5								

Water Content (%): 0, 25, 50, 75, 100

Density (Mg/m³): 3, 2, 1, 0

Particle Size, %: Gravel, Sand, Fines, Silt, Clay

Relative Density, D_r (%): 0, 30, 60, 90, 120

Undrained Shear Strength, Su (kPa): 0, 300, 600, 900, 1200, 1500

Corrected Cone Resistance, q_t (MPa): 0, 12, 24, 36, 48, 60

Sleeve Friction, f_s (MPa): 0, 0.3, 0.6, 0.9, 1.2, 1.5

Pore Pressure, U_2 (kPa): -4500, -2250, 0, 2250, 4500

Ambient Pore Pressure (kPa)

Relative to BSB (m): 50.5, 51.0, 51.5, 52.0, 52.5, 53.0, 53.5, 54.0, 54.5, 55.0, 55.5, 56.0, 56.5, 57.0, 57.5, 58.0, 58.5, 59.0, 59.5

KEY TO SOIL PROFILE

SILT, CLAY, SAND, GRAVEL, COBBLES, CHALK, PEAT, Mixed Soil

Assumed Unit Weight: 20 - 16 kN/m³
K_0: 0.5 - 2.0
N_{kt}: 15 - 20
N_{kt}: 12.5 - 16.5

Area	**Kattegat Sea**	Coordinates	**678759.8E** **6261509.5N**	CRS: **ETRS89**	QC Status: Preliminary / Draft / Final
Contract	**11596**	Latitude / Longitude		**Comments: Boreholes CB10-BH and CB10a-BH combined.**	
Client Name / Ref	**Energinet Eltransmission A/S / 384_20_ENE**	Water Depth (mMSL)	**-33.0**		
Vessel	**MV Ocean Vantage**	Date of Test (Start-End)			
Method	**Wison**	Final Borehole Depth	**70.25m**		**JK/BC** (06/06/2021) / **DR** (10/06/2021) / **SMc** (10/11/2021)

Location Names: CB10a-BH

Preliminary Investigation, Hesselø OWF

BOREHOLE LOG, LABORATORY TEST RESULTS AND IN SITU CPTU TESTING

Soil Depth (m)	Soil Description	Env.	Age
	Extremely high strength CLAY, high plasticity, very silty, slightly sandy, with shell fragments (<0.02m), very dark greenish grey (GLEY1 5GY 3/1), highly calcareous	Gl	Gc
64.95	Extremely high strength CLAY, slightly gravelly, very high plasticity, very fissured, slickensided, dark grey (10YR 4/1), highly calcareous	Gl	Gc
67.73	Extremely high strength CLAY, high plasticity, very silty, sandy, with pockets (<0.02m) of silt, light grey (5Y 7/2), dark greenish grey (GLEY1 10Y 4/1), calcareous	Gl	Gc

Sample Type: P26, P27, P28

CPT Ref No. / Cone ID / Cone Area (a):
- 11 — 121005G — 10cm² (0.78)
- 12 — 121005G — 10cm² (0.78)
- 13 — 121005G — 10cm² (0.78)

CPTU Push

Water Content (%): 0 25 50 75 100

Density (Mg/m³): 3 2 1 0

Particle Size, %: Gravel | Sand | Fines | Silt | Clay

Relative Density, D_r (%): 0 30 60 90 120

Undrained Shear Strength, Su (kPa): 0 300 600 900 1200 1500

Corrected Cone Resistance, q_t (MPa): 0 12 24 36 48 60

Sleeve Friction, f_s (MPa): 0 0.3 0.6 0.9 1.2 1.5

Pore Pressure, U_2 (kPa): -4500 -2250 0 2250 4500

Ambient Pore Pressure (kPa)

Relative to (mMSL): -93.5 -94.0 -94.5 -95.0 -95.5 -96.0 -96.5 -97.0 -97.5 -98.0 -98.5 -99.0 -99.5 -100.0 -100.5 -101.0 -101.5 -102.0 -102.5

Relative to BSB (m): 60.5 61.0 61.5 62.0 62.5 63.0 63.5 64.0 64.5 65.0 65.5 66.0 66.5 67.0 67.5 68.0 68.5 69.0 69.5

KEY TO SOIL PROFILE

SILT, CLAY, SAND, GRAVEL, COBBLES, CHALK, PEAT, Mixed Soil

Assumed Unit Weight: 20 - 16 kN/m³
K_2: 0.5 - 2.0
N_{kt}: 15 - 20
N_{ch}: 12.5 - 16.5

Area	**Kattegat Sea**	Coordinates	**678759.8E**	**6261509.5N**	CRS: **ETRS89**
Contract	**11596**	Latitude / Longitude			**Comments: Boreholes CB10-BH and CB10a-BH combined.**
Client Name / Ref	**Energinet Eltransmission A/S / 384_20_ENE**	Water Depth (mMSL)	**-33.0**		
Vessel	**MV Ocean Vantage**	Date of Test (Start-End)			
Method	**Wison**	Final Borehole Depth	**70.25m**		

QC Status		
Preliminary	Draft	Final
JK/BC (06/06/2021)	**DR** (10/06/2021)	**SMc** (10/11/2021)

Location Names: CB10a-BH

Preliminary Investigation, Hesselø OWF

BOREHOLE LOG, LABORATORY TEST RESULTS AND IN SITU CPTU TESTING

Relative to (mMSL)	Relative to BSB (m)	Soil Depth (m)	Soil Description	Env.	Age
-103.5	70.5	70.25	Extremely high strength CLAY, high plasticity, very silty, sandy, with pockets (<0.02m) of silt, light grey (5Y 7/2), dark greenish grey (GLEY1 10Y 4/1), calcareous	Gl	Gc
			End of borehole at 70.25m		

Soil Profile: P20

Sample Type / CPTU Push / CPT Ref No. / Cone ID / Cone Area (a)

Water Content (%): 0 25 50 75 100 — 20

Density (Mg/m^3): 3 2 1 0

Particle Size, %

Gravel	Sand	Fines	Silt	Clay
0	10	90	59	31

Relative Density, D_r (%): 0 30 60 90 120

Undrained Shear Strength, Su (kPa): 0 300 600 900 1200 1500 — 0

Corrected Cone Resistance, q_t (MPa): 0 12 24 36 48 60

Sleeve Friction, f_s(MPa): 0 0.3 0.6 0.9 1.2 1.5

Pore Pressure, U_2 (kPa): -4500 -2250 0 2250 4500

Ambient Pore Pressure (kPa)

Relative to BSB (m): 70.5 71.0 71.5 72.0 72.5 73.0 73.5 74.0 74.5 75.0 75.5 76.0 76.5 77.0 77.5 78.0 78.5 79.0 79.5

KEY TO SOIL PROFILE

SILT, CLAY, SAND, GRAVEL, COBBLES, CHALK, PEAT, Mixed Soil

Assumed Unit Weight: 20 - 16 kN/m^3
K_0: 0.5 - 2.0
N_{kt}: 15 - 20
N_{kt}: 12.5 - 16.5

Area	**Kattegat Sea**	Coordinates	**678759.8E** **6261509.5N**	CRS: **ETRS89**	
Contract	**11596**	Latitude / Longitude		**Comments: Boreholes CB10-BH and CB10a-BH combined.**	
Client Name / Ref	**Energinet Eltransmission A/S / 384_20_ENE**	Water Depth (mMSL)	**-33.0**		
Vessel	**MV Ocean Vantage**	Date of Test (Start-End)			
Method	**Wison**	Final Borehole Depth	**70.25m**		

QC Status		
Preliminary	Draft	Final
JK/BC (06/06/2021)	**DR** (10/06/2021)	**SMc** (10/11/2021)

Location Names
CB10a-BH

Preliminary Investigation, Hesselø OWF

BOREHOLE LOG, LABORATORY TEST RESULTS AND IN SITU CPTU TESTING

Relative to (mMSL)	Relative to BSB (m)	Soil Profile	Push Sample	CPTU Push	CPT Ref No. Cone ID Cone Area (a)	Soil Depth (m)	Interpreted Soil Type	Env.	Age
-32.0	0.5		P01				Extremely low strength CLAY, medium plasticity, sandy, gravelly, dark greenish grey (GLEY1 10Y 4/1), non-calcareous	Ma/Fw	Ho
-32.5	1.0		P02			1.00	SAND, medium to coarse, poorly sorted, gravelly, with shell fragments (<0.08m), olive grey (5Y 4/2), highly calcareous 1.32-1.44m: Thin bed of clay, high plasticity, sandy, gravelly, olive grey (5Y 4/2), highly calcareous	Ma/Fw	Ho
-33.0	1.5					1.66			
-33.5	2.0		P03				Low to medium strength CLAY, high plasticity, very silty, slightly sandy, with pockets (<0.05m) of silt, light grey (5Y 7/2) and black organic staining, dark greyish brown (2.5Y 4/2), slightly calcareous		
-34.0	2.5								
-34.5	3.0		P04						
-35.0	3.5								
-35.5	4.0		P05						
-36.0	4.5								
-36.5	5.0		P06					Ma	Ho
-37.0	5.5								
-37.5	6.0		P07						
-38.0	6.5								
-38.5	7.0		P08						
-39.0	7.5								
-39.5	8.0		P09						
-40.0	8.5								
-40.5	9.0		P10						
-41.0	9.5								

Water Content (%): 0, 25, 50, 75, 100

Density (Mg/m^3): 3, 2, 1, 0

Particle Size, %				
Gravel	Sand	Fines	Silt	Clay
2	69	29	17	12
15	57	28	12	16
0	1	99	33	66

Relative Density, D_r (%): 0, 30, 60, 90, 120

Undrained Shear Strength, Su (kPa): 0, 300, 600, 900, 1200, 1500

Corrected Cone Resistance, q_t (MPa): 0, 12, 24, 36, 48, 60

Sleeve Friction, f_s(MPa): 0, 0.3, 0.6, 0.9, 1.2, 1.5

Pore Pressure, U_2 (kPa): -4500, -2250, 0, 2250, 4500

Ambient Pore Pressure (kPa)

KEY TO SOIL PROFILE

SILT, CLAY, SAND, GRAVEL, COBBLES, CHALK, PEAT, Mixed Soil

Assumed Unit Weight: 20 - 16 kN/m^3
K_0: 0.5 - 2.0
N_{kt}: 15 - 20
N_{kt}: 12.5 - 16.5

Area	**Kattegat Sea**	Coordinates	**678372.1E 6256261.3N**	CRS: **ETRS89**	QC Status
Contract	**11596**	Latitude / Longitude		**Comments: Borehole CB11-BH was completed to a depth of 53.12m utilising API drilling~ Wison CPT and push sampling methods~ at which point it was terminated due to rising weather conditions.**	Preliminary / Draft / Final
Client Name / Ref	**Energinet Eltransmission A/S / 384_20_ENE**	Water Depth (mMSL)	**-31.5**		
Vessel	**MV Ocean Vantage**	Date of Test (Start-End)	**22/05/2021 - 23/05/2021**		**JK/BC** (23/05/2021) / **DR** (10/06/2021) / **SMc** (10/11/2021)
Method	**Wison**	Final Borehole Depth	**53.12m**		

Location Name: **CB11-BH**

Preliminary Investigation, Hesselø OWF

BOREHOLE LOG, LABORATORY TEST RESULTS AND IN SITU CPTU TESTING

Relative to (mMSL)	Relative to BSB (m)	Soil Profile	Push Sample	CPTU Push	CPT Ref No. Cone ID Cone Area (a)	Soil Depth (m)	Interpreted Soil Type	Env.	Age
-42.0 to -51.0	10.5 to 19.5		P11 to P20				Low to medium strength CLAY, high plasticity, very silty, slightly sandy, with pockets (<0.05m) of silt, light grey (5Y 7/2) and black organic staining, dark greyish brown (2.5Y 4/2), slightly calcareous	Ma	Ho

Water Content (%): 0, 25, 50, 75, 100

Density (Mg/m^3): 3, 2, 1, 0

Particle Size, %: Gravel | Sand | Fines | Silt | Clay

Relative Density, D_r (%): 0, 30, 60, 90, 120

Undrained Shear Strength, Su (kPa): 0, 300, 600, 900, 1200, 1500

Corrected Cone Resistance, q_t (MPa): 0, 12, 24, 36, 48, 60

Sleeve Friction, f_s(MPa): 0, 0.3, 0.6, 0.9, 1.2, 1.5

Pore Pressure, U_2 (kPa): -4500, -2250, 0, 2250, 4500

Ambient Pore Pressure (kPa)

Relative to BSB (m): 10.5, 11.0, 11.5, 12.0, 12.5, 13.0, 13.5, 14.0, 14.5, 15.0, 15.5, 16.0, 16.5, 17.0, 17.5, 18.0, 18.5, 19.0, 19.5

KEY TO SOIL PROFILE

SILT | CLAY | SAND | GRAVEL | COBBLES | CHALK | PEAT | Mixed Soil

Assumed Unit Weight: 20 - 16 kN/m^3
K_0: 0.5 - 2.0
N_{kt}: 15 - 20
N_{kt}: 12.5 - 16.5

Area	**Kattegat Sea**	Coordinates	**678372.1E 6256261.3N**	CRS: **ETRS89**	
Contract	**11596**	Latitude / Longitude		**Comments: Borehole CB11-BH was completed to a depth of 53.12m utilising API drilling~ Wison CPT and push sampling methods~ at which point it was terminated due to rising weather conditions.**	
Client Name / Ref	**Energinet Eltransmission A/S / 384_20_ENE**	Water Depth (mMSL)	**-31.5**		
Vessel	**MV Ocean Vantage**	Date of Test (Start-End)	**22/05/2021 - 23/05/2021**		
Method	**Wison**	Final Borehole Depth	**53.12m**		

QC Status			Location Name
Preliminary	Draft	Final	**CB11-BH**
JK/BC (23/05/2021)	**DR** (10/06/2021)	**SMc** (10/11/2021)	

Preliminary Investigation, Hesselø OWF

BOREHOLE LOG, LABORATORY TEST RESULTS AND IN SITU CPTU TESTING

Relative to (mMSL)	Relative to BSB (m)	Soil Depth (m)	Interpreted Soil Type	Env.	Age	Gravel	Sand	Fines	Silt	Clay
-52.0 to -53.5	20.5 to 22.0	22.08	Low to medium strength CLAY, high plasticity, very silty, slightly sandy, with pockets (<0.05m) of silt, light grey (5Y 7/2) and black organic staining, dark greyish brown (2.5Y 4/2), slightly calcareous	Ma	Ho					
-53.5 to -55.0	22.0 to 23.5	24.00	Low to medium strength CLAY, high plasticity, very silty, slightly sandy, slightly gravelly, with black organic staining, dark grey (5Y 4/1), highly calcareous	Ma/Fw	Ho	0	1	99	44	55
-55.5 to -57.0	24.0 to 25.5	26.00	Medium to high strength CLAY, high plasticity, very silty, slightly sandy, dark grey (5Y 4/1), highly calcareous	Ma/Fw	Pg	0	1	99	49	50
-57.5 to -61.0	26.0 to 29.5		High to very high strength CLAY TILL, medium plasticity, very silty, very sandy, slightly gravelly, dark grey (5Y 4/1), with shell fragments (<0.02m), highly calcareous	Ma/Fw	Gc					

Push Sample: P21, P22, P23, P24, P25, P26, P27, P28, P29, P30

CPT Ref No. / Cone ID / Cone Area (a): 01 120826 10cm² (0.76); 02 120826 10cm² (0.76); 03 120826 10cm² (0.76)

Water Content (%): 0 25 50 75 100

Density (Mg/m³): 3 2 1 0

Relative Density, D_r (%): 0 30 60 90 120

Undrained Shear Strength, Su (kPa): 0 300 600 900 1200 1500

Corrected Cone Resistance, q_t (MPa): 0 12 24 36 48 60

Sleeve Friction, f_s (MPa): 0 0.3 0.6 0.9 1.2 1.5

Pore Pressure, U_2 (kPa): -4500 -2250 0 2250 4500

Ambient Pore Pressure (kPa)

KEY TO SOIL PROFILE

SILT, CLAY, SAND, GRAVEL, COBBLES, CHALK, PEAT, Mixed Soil

Assumed Unit Weight: 20 - 16 kN/m³
K_0: 0.5 - 2.0
N_{kt}: 15 - 20
N_{ch}: 12.5 - 16.5

Area	**Kattegat Sea**	Coordinates	**678372.1E 6256261.3N**
Contract	**11596**	Latitude / Longitude	
Client Name / Ref	**Energinet Eltransmission A/S / 384_20_ENE**	Water Depth (mMSL)	**-31.5**
Vessel	**MV Ocean Vantage**	Date of Test (Start-End)	**22/05/2021 - 23/05/2021**
Method	**Wison**	Final Borehole Depth	**53.12m**

CRS: **ETRS89**

Comments: Borehole CB11-BH was completed to a depth of 53.12m utilising API drilling~ Wison CPT and push sampling methods~ at which point it was terminated due to rising weather conditions.

QC Status		
Preliminary	Draft	Final
JK/BC (23/05/2021)	**DR** (10/06/2021)	**SMc** (10/11/2021)

Location Name: **CB11-BH**

Preliminary Investigation, Hesselø OWF

BOREHOLE LOG, LABORATORY TEST RESULTS AND IN SITU CPTU TESTING

Relative to (mMSL)	Relative to BSB (m)	Soil Profile	Push Sample	CPTU Push	CPT Ref No. Cone ID Cone Area (a)	Soil Depth (m)	Interpreted Soil Type	Env.	Age
-62.0	30.5		P31				High to very high strength CLAY TILL, medium plasticity, very silty, very sandy, slightly gravelly, dark grey (5Y 4/1), with shell fragments (<0.02m), highly calcareous	Ma/Fw	Gc
-62.5	31.0								
-63.0	31.5		P32						
-63.5	32.0								
-64.0	32.5		P33						
-64.5	33.0								
-65.0	33.5		P34		04 120826 10cm² (0.76)				
-65.5	34.0								
-66.0	34.5		P35						
-66.5	35.0								
-67.0	35.5		P36				35.80-36.34m: Medium bed of medium dense to dense sand, fine, well sorted, clayey, silty, greenish grey (GLEY1 10Y 5/1), calcareous		
-67.5	36.0								
-68.0	36.5		P37			36.60	Very to extremely high strength CLAY, high plasticity, very silty, slightly sandy, greenish black (GLEY1 5GY 2.5/1), non calcareous	Gl	Gc
-68.5	37.0								
-69.0	37.5		P38		05 120826 10cm² (0.76)	37.35	CLAY, high plasticity, very silty, very sandy, slightly gravelly, very dark greenish grey (GLEY1 10Y 3/1), slightly calcareous		
-69.5	38.0								
-70.0	38.5		P39					Gl	Gc
-70.5	39.0								
-71.0	39.5		P40						

Water Content (%): 0, 25, 50, 75, 100

Density (Mg/m³): 3, 2, 1, 0

Particle Size, %	Gravel	Sand	Fines	Silt	Clay
	9	38	53	31	22
	0	7	93	67	26
	0	11	89	59	30

Relative Density, D_r (%): 0, 30, 60, 90, 120

Undrained Shear Strength, Su (kPa): 0, 300, 600, 900, 1200, 1500

Corrected Cone Resistance, q_t (MPa): 0, 12, 24, 36, 48, 60

Sleeve Friction, f_s(MPa): 0, 0.3, 0.6, 0.9, 1.2, 1.5

Pore Pressure, U_2 (kPa): -4500, -2250, 0, 2250, 4500

Ambient Pore Pressure (kPa)

KEY TO SOIL PROFILE

SILT · CLAY · SAND · GRAVEL · COBBLES · CHALK · PEAT · Mixed Soil

Assumed Unit Weight: 20 - 16 kN/m³
K_0: 0.5 - 2.0
N_{kt}: 15 - 20
N_{cv}: 12.5 - 16.5

Area	**Kattegat Sea**	Coordinates	**678372.1E**	**6256261.3N**	CRS: **ETRS89**
Contract	**11596**	Latitude / Longitude			**Comments: Borehole CB11-BH was completed to a depth of 53.12m utilising API drilling~ Wison CPT and push sampling methods~ at which point it was terminated due to rising weather conditions.**
Client Name / Ref	**Energinet Eltransmission A/S / 384_20_ENE**	Water Depth (mMSL)	**-31.5**		
Vessel	**MV Ocean Vantage**	Date of Test (Start-End)	**22/05/2021 - 23/05/2021**		
Method	**Wison**	Final Borehole Depth	**53.12m**		

QC Status			Location Name
Preliminary	Draft	Final	**CB11-BH**
JK/BC (23/05/2021)	**DR** (10/06/2021)	**SMc** (10/11/2021)	

Preliminary Investigation, Hesselø OWF

BOREHOLE LOG, LABORATORY TEST RESULTS AND IN SITU CPTU TESTING

Relative to (mMSL)	Relative to BSB (m)	Soil Depth (m)	Interpreted Soil Type	Env.	Age
-72.0	40.5		CLAY, high plasticity, very silty, very sandy, slightly gravelly, very dark greenish grey (GLEY1 10Y 3/1), slightly calcareous	Gl	Gc
-73.5	42.0	42.00	Extremely high strength CLAY TILL, high plasticity, very silty, very sandy, slightly gravelly, very dark greenish grey (GLEY1 10GY 3/1), slightly calcareous	Gl	Gc
-75.5	44.0		Extremely high strength CLAY, high plasticity, slightly gravelly, very dark greenish grey (GLEY1 10GY 3/1) becoming dark greenish grey (GLEY1 10Y 4/1), slightly calcareous	Gl	Gc
-77.5	46.0	46.00	Extremely high strength CLAY, high plasticity, very silty, sandy, very dark greenish grey (GLEY1 5GY 3/1), highly calcareous	Gl	Gc

Soil Profile: P41, P42, P43, P44, P45, P46, P47, P48, P49, P50

Push Sample / CPTU Push

CPT Ref No. / Cone ID / Cone Area (a)

06 120826 10cm² (0.76)

07 120826 10cm² (0.76)

08 120826 10cm² (0.76)

Soil Depth (m)	Gravel	Sand	Fines	Silt	Clay
42.00	1	24	75	23	52
46.00	1	23	76	36	40
	0	12	88	56	32

Water Content (%): 0, 25, 50, 75, 100

Density (Mg/m³): 3, 2, 1, 0

Particle Size, %

Relative Density, D_r (%): 0, 30, 60, 90, 120

Undrained Shear Strength, Su (kPa): 0, 300, 600, 900, 1200, 1500

Corrected Cone Resistance, q_t (MPa): 0, 12, 24, 36, 48, 60

Sleeve Friction, f_s(MPa): 0, 0.3, 0.6, 0.9, 1.2, 1.5

Pore Pressure, U_2 (kPa): -4500, -2250, 0, 2250, 4500

Ambient Pore Pressure (kPa)

Relative to BSB (m): 40.5, 41.0, 41.5, 42.0, 42.5, 43.0, 43.5, 44.0, 44.5, 45.0, 45.5, 46.0, 46.5, 47.0, 47.5, 48.0, 48.5, 49.0, 49.5

KEY TO SOIL PROFILE

SILT, CLAY, SAND, GRAVEL, COBBLES, CHALK, PEAT, Mixed Soil

Assumed Unit Weight: 20 - 16 kN/m³

K_0: 0.5 - 2.0

N_{kt}: 15 - 20

N_{kt}: 12.5 - 16.5

Area	**Kattegat Sea**	Coordinates	**678372.1E**	**6256261.3N**	CRS: **ETRS89**
Contract	**11596**	Latitude / Longitude			**Comments: Borehole CB11-BH was completed to a depth of 53.12m utilising API drilling~ Wison CPT and push sampling methods~ at which point it was terminated due to rising weather conditions.**
Client Name / Ref	**Energinet Eltransmission A/S / 384_20_ENE**	Water Depth (mMSL)	**-31.5**		
Vessel	**MV Ocean Vantage**	Date of Test (Start-End)	**22/05/2021 - 23/05/2021**		
Method	**Wison**	Final Borehole Depth	**53.12m**		

QC Status			Location Name
Preliminary	Draft	Final	**CB11-BH**
JK/BC (23/05/2021)	**DR** (10/06/2021)	**SMc** (10/11/2021)	

Preliminary Investigation, Hesselø OWF

BOREHOLE LOG, LABORATORY TEST RESULTS AND IN SITU CPTU TESTING

Relative to BSB (m)	Soil Depth (m)	Interpreted Soil Type	Env.	Age
50.5		Extremely high strength CLAY, high plasticity, very silty, sandy, very dark greenish grey (GLEY1 5GY 3/1), highly calcareous	Gl	Gc
		50.32-50.58m: Medium bed of gravel		
	50.60	Extremely high strength CLAY, silty with medium to widely spaced thin beds of gravel between 51.30m and 52.56m	Gl	Gc
53.0	53.00	Dense to very dense SAND, gravelly	Gl	Gc
		End of borehole at 53.12m		

Push Sample: 09 120826 10cm² (0.76); 10 120826 10cm² (0.76)

Water Content (%); Density (Mg/m³); Particle Size, % (Gravel, Sand, Fines, Silt, Clay); Relative Density, D_r (%); Undrained Shear Strength, Su (kPa); Corrected Cone Resistance, q_t (MPa); Sleeve Friction, f_s(MPa); Pore Pressure, U_2 (kPa); Ambient Pore Pressure (kPa)

KEY TO SOIL PROFILE

SILT; CLAY; SAND; GRAVEL; COBBLES; CHALK; PEAT; Mixed Soil

Assumed Unit Weight: 20 - 16 kN/m³
K_0: 0.5 - 2.0
N_{kt}: 15 - 20
N_{kt}: 12.5 - 16.5

Area	**Kattegat Sea**	Coordinates	**678372.1E**	**6256261.3N**	CRS: **ETRS89**
Contract	**11596**	Latitude / Longitude			**Comments: Borehole CB11-BH was completed to a depth of 53.12m utilising API drilling~ Wison CPT and push sampling methods~ at which point it was terminated due to rising weather conditions.**
Client Name / Ref	**Energinet Eltransmission A/S / 384_20_ENE**	Water Depth (mMSL)	**-31.5**		
Vessel	**MV Ocean Vantage**	Date of Test (Start-End)	**22/05/2021 - 23/05/2021**		
Method	**Wison**	Final Borehole Depth	**53.12m**		

QC Status		
Preliminary	Draft	Final
JK/BC (23/05/2021)	**DR** (10/06/2021)	**SMc** (10/11/2021)

Location Name: **CB11-BH**

Preliminary Investigation, Hesselø OWF

BOREHOLE LOG, LABORATORY TEST RESULTS AND IN SITU CPTU TESTING

Relative to (mMSL)	Relative to BSB (m)	Soil Profile	Push Sample	CPTU Push	CPT Ref No. Cone ID Cone Area (a)	Soil Depth (m)	Interpreted Soil Type	Env.	Age	Water Content (%) 0 25 50 75 100	Density (Mg/m^3) 3 2 1 0	Particle Size, % Gravel Sand Fines Silt Clay	Relative Density, D_r (%) 0 30 60 90 120	Undrained Shear Strength, Su (kPa) 0 300 600 900 1200 1500	Corrected Cone Resistance, q_t (MPa) 0 12 24 36 48 60	Sleeve Friction, f_s(MPa) 0 0.3 0.6 0.9 1.2 1.5	Pore Pressure, U_2 (kPa) -4500 -2250 0 2250 4500	Ambient Pore Pressure (kPa)	Relative to BSB (m)
-32.0	0.5																		0.5
-32.5	1.0																		1.0
-33.0	1.5																		1.5
-33.5	2.0																		2.0
-34.0	2.5																		2.5
-34.5	3.0																		3.0
-35.0	3.5																		3.5
-35.5	4.0																		4.0
-36.0	4.5																		4.5
-36.5	5.0																		5.0
-37.0	5.5																		5.5
-37.5	6.0																		6.0
-38.0	6.5																		6.5
-38.5	7.0																		7.0
-39.0	7.5																		7.5
-39.5	8.0																		8.0
-40.0	8.5																		8.5
-40.5	9.0																		9.0
-41.0	9.5																		9.5
-41.5																			

KEY TO SOIL PROFILE

SILT, CLAY, SAND, GRAVEL, COBBLES, CHALK, PEAT, Mixed Soil

Assumed Unit Weight: 20 - 16 kN/m^3
K_0: 0.5 - 2.0
N_{kt}: 15 - 20
N_{kt}: 12.5 - 16.5

Area	**Kattegat Sea**	Coordinates	**678366.7E**	**6256257.1N**	CRS: **ETRS89**
Contract	**11596**	Latitude / Longitude			**Comments: Borehole CB11a-BH was completed to a depth of 57.00m utilising API drilling~ Wison CPT and push sampling methods after open hole drill out to 52.00m. P-S logging was performed from 53.00m up to 4.00m below mudline.**
Client Name / Ref	**Energinet Eltransmission A/S / 384_20_ENE**	Water Depth (mMSL)	**-31.5**		
Vessel	**MV Ocean Vantage**	Date of Test	**24/05/2021**		
Method	**Wison**	Final Borehole Depth	**57.00m**		

QC Status		
Preliminary	Draft	Final
JK/BC (24/05/2021)	**DR** (10/06/2021)	**SMc** (10/11/2021)

Location Name: **CB11a-BH**

Preliminary Investigation, Hesselø OWF

BOREHOLE LOG, LABORATORY TEST RESULTS AND IN SITU CPTU TESTING

Relative to (mMSL) | Relative to BSB (m) | Soil Profile | Push Sample | CPTU Push | CPT Ref No. Cone ID Cone Area (a) | Soil Depth (m) | Interpreted Soil Type | Env. | Age

Water Content (%): 0 25 50 75 100

Density (Mg/m^3): 3 2 1 0

Particle Size, %: Gravel | Sand | Fines | Silt | Clay

Relative Density, D_r (%): 0 30 60 90 120

Undrained Shear Strength, Su (kPa): 0 300 600 900 1200 1500

Corrected Cone Resistance, q_t (MPa): 0 12 24 36 48 60

Sleeve Friction, f_s(MPa): 0 0.3 0.6 0.9 1.2 1.5

Pore Pressure, U_2 (kPa): -4500 -2250 0 2250 4500

Ambient Pore Pressure (kPa)

Relative to (mMSL)	Relative to BSB (m)
-42.0	10.5
-42.5	11.0
-43.0	11.5
-43.5	12.0
-44.0	12.5
-44.5	13.0
-45.0	13.5
-45.5	14.0
-46.0	14.5
-46.5	15.0
-47.0	15.5
-47.5	16.0
-48.0	16.5
-48.5	17.0
-49.0	17.5
-49.5	18.0
-50.0	18.5
-50.5	19.0
-51.0	19.5
-51.5	

KEY TO SOIL PROFILE

SILT, CLAY, SAND, GRAVEL, COBBLES, CHALK, PEAT, Mixed Soil

Assumed Unit Weight: 20 - 16 kN/m^3
K_0: 0.5 - 2.0
N_{kt}: 15 - 20
N_{ke}: 12.5 - 16.5

Area	**Kattegat Sea**	Coordinates	**678366.7E**	**6256257.1N**	CRS: **ETRS89**
Contract	**11596**	Latitude / Longitude			**Comments: Borehole CB11a-BH was completed to a depth of 57.00m utilising API drilling~ Wison CPT and push sampling methods after open hole drill out to 52.00m. P-S logging was performed from 53.00m up to 4.00m below mudline.**
Client Name / Ref	**Energinet Eltransmission A/S / 384_20_ENE**	Water Depth (mMSL)	**-31.5**		
Vessel	**MV Ocean Vantage**	Date of Test	**24/05/2021**		
Method	**Wison**	Final Borehole Depth	**57.00m**		

QC Status		
Preliminary	Draft	Final
JK/BC (24/05/2021)	**DR** (10/06/2021)	**SMc** (10/11/2021)

Location Name: **CB11a-BH**

Preliminary Investigation, Hesselø OWF

BOREHOLE LOG, LABORATORY TEST RESULTS AND IN SITU CPTU TESTING

Relative to (mMSL)	Relative to BSB (m)	Soil Profile	Push Sample	CPTU Push	CPT Ref No. Cone ID Cone Area (a)	Soil Depth (m)	Interpreted Soil Type	Env.	Age	Water Content (%) 0 25 50 75 100	Density (Mg/m^3) 3 2 1 0	Particle Size, % Gravel Sand Fines Silt Clay	Relative Density, D_r (%) 0 30 60 90 120	Undrained Shear Strength, Su (kPa) 0 300 600 900 1200 1500	Corrected Cone Resistance, q_t (MPa) 0 12 24 36 48 60	Sleeve Friction, f_s(MPa) 0 0.3 0.6 0.9 1.2 1.5	Pore Pressure, U_2 (kPa) -4500 -2250 0 2250 4500	Ambient Pore Pressure (kPa)	Relative to BSB (m)
-52.0	20.5																		20.5
-52.5	21.0																		21.0
-53.0	21.5																		21.5
-53.5	22.0																		22.0
-54.0	22.5																		22.5
-54.5	23.0																		23.0
-55.0	23.5																		23.5
-55.5	24.0																		24.0
-56.0	24.5																		24.5
-56.5	25.0																		25.0
-57.0	25.5																		25.5
-57.5	26.0																		26.0
-58.0	26.5																		26.5
-58.5	27.0																		27.0
-59.0	27.5																		27.5
-59.5	28.0																		28.0
-60.0	28.5																		28.5
-60.5	29.0																		29.0
-61.0	29.5																		29.5
-61.5																			

KEY TO SOIL PROFILE

SILT · CLAY · SAND · GRAVEL · COBBLES · CHALK · PEAT · Mixed Soil

Assumed Unit Weight: 20 - 16 kN/m^3
K_0: 0.5 - 2.0
N_{kt}: 15 - 20
N_{ke}: 12.5 - 16.5

Area	**Kattegat Sea**	Coordinates	**678366.7E**	**6256257.1N**	CRS: **ETRS89**
Contract	**11596**	Latitude / Longitude			**Comments: Borehole CB11a-BH was completed to a depth of 57.00m utilising API drilling~ Wison CPT and push sampling methods after open hole drill out to 52.00m. P-S logging was performed from 53.00m up to 4.00m below mudline.**
Client Name / Ref	**Energinet Eltransmission A/S / 384_20_ENE**	Water Depth (mMSL)	**-31.5**		
Vessel	**MV Ocean Vantage**	Date of Test	**24/05/2021**		
Method	**Wison**	Final Borehole Depth	**57.00m**		

QC Status		
Preliminary	Draft	Final
JK/BC (24/05/2021)	**DR** (10/06/2021)	**SMc** (10/11/2021)

Location Name: **CB11a-BH**

Preliminary Investigation, Hesselø OWF

BOREHOLE LOG, LABORATORY TEST RESULTS AND IN SITU CPTU TESTING

Relative to (mMSL)	Relative to BSB (m)	Soil Profile	Push Sample	CPTU Push	CPT Ref No. Cone ID Cone Area (a)	Soil Depth (m)	Interpreted Soil Type	Env.	Age	Water Content (%) 0 25 50 75 100	Density (Mg/m^3) 3 2 1 0	Particle Size, % Gravel	Sand	Fines	Silt	Clay	Relative Density, D_r (%) 0 30 60 90 120	Undrained Shear Strength, Su (kPa) 0 300 600 900 1200 1500	Corrected Cone Resistance, q_t (MPa) 0 12 24 36 48 60	Sleeve Friction, f_s(MPa) 0 0.3 0.6 0.9 1.2 1.5	Pore Pressure, U_2 (kPa) -4500 -2250 0 2250 4500	Ambient Pore Pressure (kPa)	Relative to BSB (m)
-62.0	30.5																						30.5
-62.5	31.0																						31.0
-63.0	31.5																						31.5
-63.5	32.0																						32.0
-64.0	32.5																						32.5
-64.5	33.0																						33.0
-65.0	33.5																						33.5
-65.5	34.0																						34.0
-66.0	34.5																						34.5
-66.5	35.0																						35.0
-67.0	35.5																						35.5
-67.5	36.0																						36.0
-68.0	36.5																						36.5
-68.5	37.0																						37.0
-69.0	37.5																						37.5
-69.5	38.0																						38.0
-70.0	38.5																						38.5
-70.5	39.0																						39.0
-71.0	39.5																						39.5
-71.5																							

KEY TO SOIL PROFILE

SILT · CLAY · SAND · GRAVEL · COBBLES · CHALK · PEAT · Mixed Soil

Assumed Unit Weight: 20 - 16 kN/m^3
K_0: 0.5 - 2.0
N_{kt}: 15 - 20
N_{kt}: 12.5 - 16.5

Area	**Kattegat Sea**	Coordinates	**678366.7E**	**6256257.1N**	CRS: **ETRS89**
Contract	**11596**	Latitude / Longitude			**Comments: Borehole CB11a-BH was completed to a depth of 57.00m utilising API drilling~ Wison CPT and push sampling methods after open hole drill out to 52.00m. P-S logging was performed from 53.00m up to 4.00m below mudline.**
Client Name / Ref	**Energinet Eltransmission A/S / 384_20_ENE**	Water Depth (mMSL)	**-31.5**		
Vessel	**MV Ocean Vantage**	Date of Test	**24/05/2021**		
Method	**Wison**	Final Borehole Depth	**57.00m**		

QC Status		
Preliminary	Draft	Final
JK/BC (24/05/2021)	**DR** (10/06/2021)	**SMc** (10/11/2021)

Location Name: **CB11a-BH**

Preliminary Investigation, Hesselø OWF

BOREHOLE LOG, LABORATORY TEST RESULTS AND IN SITU CPTU TESTING

Relative to (mMSL)	Relative to BSB (m)	Soil Profile	Push Sample	CPTU Push	CPT Ref No. Cone ID Cone Area (a)	Soil Depth (m)	Interpreted Soil Type	Env.	Age	Water Content (%) 0 25 50 75 100	Density (Mg/m^3) 3 2 1 0	Particle Size, % Gravel Sand Fines Silt Clay	Relative Density, D_r (%) 0 30 60 90 120	Undrained Shear Strength, Su (kPa) 0 300 600 900 1200 1500	Corrected Cone Resistance, q_t (MPa) 0 12 24 36 48 60	Sleeve Friction, f_s(MPa) 0 0.3 0.6 0.9 1.2 1.5	Pore Pressure, U_2 (kPa) -4500 -2250 0 2250 4500	Ambient Pore Pressure (kPa)	Relative to BSB (m)
-72.0	40.5																		40.5
-72.5	41.0																		41.0
-73.0	41.5																		41.5
-73.5	42.0																		42.0
-74.0	42.5																		42.5
-74.5	43.0																		43.0
-75.0	43.5																		43.5
-75.5	44.0																		44.0
-76.0	44.5																		44.5
-76.5	45.0																		45.0
-77.0	45.5																		45.5
-77.5	46.0																		46.0
-78.0	46.5																		46.5
-78.5	47.0																		47.0
-79.0	47.5																		47.5
-79.5	48.0																		48.0
-80.0	48.5																		48.5
-80.5	49.0																		49.0
-81.0	49.5																		49.5
-81.5																			

KEY TO SOIL PROFILE

SILT, CLAY, SAND, GRAVEL, COBBLES, CHALK, PEAT, Mixed Soil

Assumed Unit Weight: 20 - 16 kN/m^3
K_0: 0.5 - 2.0
N_{kt}: 15 - 20
N_{kt}: 12.5 - 16.5

Area	**Kattegat Sea**	Coordinates	**678366.7E** **6256257.1N**	CRS: **ETRS89**	QC Status: Preliminary / Draft / Final
Contract	**11596**	Latitude / Longitude		**Comments: Borehole CB11a-BH was completed to a depth of 57.00m utilising API drilling~ Wison CPT and push sampling methods after open hole drill out to 52.00m. P-S logging was performed from 53.00m up to 4.00m below mudline.**	
Client Name / Ref	**Energinet Eltransmission A/S / 384_20_ENE**	Water Depth (mMSL)	**-31.5**		
Vessel	**MV Ocean Vantage**	Date of Test	**24/05/2021**		**JK/BC** (24/05/2021) / **DR** (10/06/2021) / **SMc** (10/11/2021)
Method	**Wison**	Final Borehole Depth	**57.00m**		

Location Name: **CB11a-BH**

Preliminary Investigation, Hesselø OWF

BOREHOLE LOG, LABORATORY TEST RESULTS AND IN SITU CPTU TESTING

Relative to (mMSL)	Relative to BSB (m)	Soil Depth (m)	Interpreted Soil Type	Env.	Age
-82.0 to -91.5	50.5 to 59.5	0.00	Extremely high strength CLAY TILL, medium plasticity, very silty, very sandy, very gravelly, dark grey (5Y 4/1), highly calcareous		
		55.64	Weak MUDSTONE, indurated, slightly micaceous, with siltstone laminations, extremely closely spaced, light grey (5Y 7/2), greenish black (GLEY2 2.5/10G), non-calcareous	Gl	Ct
			End of borehole at 57.00m		

Soil Profile: Push Sample; CPTU Push; CPT Ref No. / Cone ID / Cone Area (a)

- 01 120825 10cm² (0.76)
- P01
- 02 121125 10cm² (0.8)
- 03 121125 10cm² (0.8)
- 04 120826 10cm² (0.76)
- P02
- 05 120826 10cm² (0.76)

Water Content (%): 0 25 50 75 100

Density (Mg/m³): 3 2 1 0

Particle Size, %

Gravel	Sand	Fines	Silt	Clay
7	36	57	42	15

Relative Density, D_r (%): 0 30 60 90 120

Undrained Shear Strength, Su (kPa): 0 300 600 900 1200 1500

Corrected Cone Resistance, q_t (MPa): 0 12 24 36 48 60

Sleeve Friction, f_s (MPa): 0 0.3 0.6 0.9 1.2 1.5

Pore Pressure, U_2 (kPa): -4500 -2250 0 2250 4500

Ambient Pore Pressure (kPa)

KEY TO SOIL PROFILE

SILT, CLAY, SAND, GRAVEL, COBBLES, CHALK, PEAT, Mixed Soil

Assumed Unit Weight: 20 - 16 kN/m³
K_0: 0.5 - 2.0
N_{cr}: 15 - 20
N_{cr}: 12.5 - 16.5

Area	**Kattegat Sea**	Coordinates	**678366.7E**	**6256257.1N**	CRS: **ETRS89**
Contract	**11596**	Latitude / Longitude			**Comments: Borehole CB11a-BH was completed to a depth of 57.00m utilising API drilling~ Wison CPT and push sampling methods after open hole drill out to 52.00m. P-S logging was performed from 53.00m up to 4.00m below mudline.**
Client Name / Ref	**Energinet Eltransmission A/S / 384_20_ENE**	Water Depth (mMSL)	**-31.5**		
Vessel	**MV Ocean Vantage**	Date of Test	**24/05/2021**		
Method	**Wison**	Final Borehole Depth	**57.00m**		

QC Status			Location Name
Preliminary	Draft	Final	**CB11a-BH**
JK/BC (24/05/2021)	**DR** (10/06/2021)	**SMc** (10/11/2021)	

Preliminary Investigation, Hesselø OWF

BOREHOLE LOG, LABORATORY TEST RESULTS AND IN SITU CPTU TESTING

Relative to (mMSL)	Relative to BSB (m)	Soil Profile	Sample Type	CPTU Push	CPT Ref No. Cone ID Cone Area (a)	Soil Depth (m)		Env.	Age
-32.0	0.5		P01				Extremely low strength CLAY, medium plasticity, sandy, gravelly, dark greenish grey (GLEY1 10Y 4/1), non-calcareous	Ma/Fw	Ho
-32.5	1.0		P02			1.00	SAND, medium to coarse, poorly sorted, gravelly, with shell fragments (<0.08m), olive grey (5Y 4/2), highly calcareous *1.32m - 1.46m: 1.32-1.44m: Thin bed of clay, high plasticity, sandy, gravelly, olive grey (5Y 4/2), highly calcareous*	Ma/Fw	Ho
-33.0	1.5					1.66	Low to medium strength CLAY, high plasticity, very silty, slightly sandy, with pockets (<0.05m) of silt, light grey (5Y 7/2) and black organic staining, dark greyish brown (2.5Y 4/2), slightly calcareous		
-33.5	2.0								
-34.0	2.5		P03						
-34.5	3.0								
-35.0	3.5		P04						
-35.5	4.0								
-36.0	4.5		P05						
-36.5	5.0								
-37.0	5.5		P06						
-37.5	6.0							Ma	Ho
-38.0	6.5		P07						
-38.5	7.0								
-39.0	7.5		P08						
-39.5	8.0								
-40.0	8.5		P09						
-40.5	9.0								
-41.0	9.5		P10						

Water Content (%): 0, 25, 50, 75, 100

Density (Mg/m^3): 3, 2, 1, 0

Particle Size, %				
Gravel	Sand	Fines	Silt	Clay
2	69	29	17	12
15	57	28	12	16
0	1	99	33	66

Relative Density, D_r (%): 0, 30, 60, 90, 120

Undrained Shear Strength, Su (kPa): 0, 300, 600, 900, 1200, 1500

Corrected Cone Resistance, q_t (MPa): 0, 12, 24, 36, 48, 60

Sleeve Friction, f_s(MPa): 0, 0.3, 0.6, 0.9, 1.2, 1.5

Pore Pressure, U_2 (kPa): -4500, -2250, 0, 2250, 4500

Ambient Pore Pressure (kPa)

Relative to BSB (m)

KEY TO SOIL PROFILE

SILT, CLAY, SAND, GRAVEL, COBBLES, CHALK, PEAT, Mixed Soil

Assumed Unit Weight: 20 - 16 kN/m^3
K_0: 0.5 - 2.0
N_{kt}: 15 - 20
N_{kt}: 12.5 - 16.5

Area	**Kattegat Sea**	Coordinates	**678372.1E**	**6256261.3N**	CRS: **ETRS89**	QC Status	Location Names CB11-BH CB11a-BH
Contract	**11596**	Latitude / Longitude			**Comments: Boreholes CB11-BH and CB11a-BH Combined.**	Preliminary / Draft / Final	
Client Name / Ref	**Energinet Eltransmission A/S / 384_20_ENE**	Water Depth (mMSL)	**-31.5**				
Vessel	**MV Ocean Vantage**	Date of Test (Start-End)				**JK/BC** (05/06/2021) / **DR** (10/06/2021) / **SMc** (10/11/2021)	
Method	**Wison**	Final Borehole Depth	**57.00m**				Page: 1/6

Preliminary Investigation, Hesselø OWF

BOREHOLE LOG, LABORATORY TEST RESULTS AND IN SITU CPTU TESTING

Gardline

Relative to (mMSL)	Relative to BSB (m)	Soil Profile	Sample Type / CPTU Push	CPT Ref No. / Cone ID / Cone Area (a)	Soil Depth (m)		Env.	Age
-42.0	10.5		P11			Low to medium strength CLAY, high plasticity, very silty, slightly sandy, with pockets (<0.05m) of silt, light grey (5Y 7/2) and black organic staining, dark greyish brown (2.5Y 4/2), slightly calcareous		
-42.5	11.0							
-43.0	11.5		P12					
-43.5	12.0							
-44.0	12.5		P13					
-44.5	13.0							
-45.0	13.5		P14					
-45.5	14.0							
-46.0	14.5		P15					
-46.5	15.0						Ma	Ho
-47.0	15.5		P16					
-47.5	16.0							
-48.0	16.5		P17					
-48.5	17.0							
-49.0	17.5		P18					
-49.5	18.0							
-50.0	18.5		P19					
-50.5	19.0							
-51.0	19.5		P20					

Water Content (%): 0, 25, 50, 75, 100

Density (Mg/m^3): 3, 2, 1, 0

Particle Size, %: Gravel | Sand | Fines | Silt | Clay

Relative Density, D_r (%): 0, 30, 60, 90, 120

Undrained Shear Strength, Su (kPa): 0, 300, 600, 900, 1200, 1500

Corrected Cone Resistance, q_t (MPa): 0, 12, 24, 36, 48, 60

Sleeve Friction, f_s(MPa): 0, 0.3, 0.6, 0.9, 1.2, 1.5

Pore Pressure, U_2 (kPa): -4500, -2250, 0, 2250, 4500

Ambient Pore Pressure (kPa)

KEY TO SOIL PROFILE

SILT | CLAY | SAND | GRAVEL | COBBLES | CHALK | PEAT | Mixed Soil

Assumed Unit Weight: 20 - 16 kN/m^3
K_0: 0.5 - 2.0
N_{kT}: 15 - 20
$N_{\Delta u}$: 12.5 - 16.5

Area	**Kattegat Sea**	Coordinates	**678372.1E** **6256261.3N**	CRS: **ETRS89**	QC Status: Preliminary / Draft / Final
Contract	**11596**	Latitude / Longitude		**Comments: Boreholes CB11-BH and CB11a-BH Combined.**	
Client Name / Ref	**Energinet Eltransmission A/S / 384_20_ENE**	Water Depth (mMSL)	**-31.5**		
Vessel	**MV Ocean Vantage**	Date of Test (Start-End)			**JK/BC** (05/06/2021) / **DR** (10/06/2021) / **SMc** (10/11/2021)
Method	**Wison**	Final Borehole Depth	**57.00m**		

Location Names: CB11-BH

Preliminary Investigation, Hesselø OWF

BOREHOLE LOG, LABORATORY TEST RESULTS AND IN SITU CPTU TESTING

Soil Depth (m)	Soil Description	Env.	Age
	Low to medium strength CLAY, high plasticity, very silty, slightly sandy, with pockets (<0.05m) of silt, light grey (5Y 7/2) and black organic staining, dark greyish brown (2.5Y 4/2), slightly calcareous	Ma	Ho
22.08	Low to medium strength CLAY, high plasticity, very silty, slightly sandy, slightly gravelly, with black organic staining, dark grey (5Y 4/1), highly calcareous	Ma/Fw	Ho
24.00	Medium to high strength CLAY, high plasticity, very silty, slightly sandy, dark grey (5Y 4/1), highly calcareous	Ma/Fw	Pg
26.00	High to very high strength CLAY TILL, medium plasticity, very silty, very sandy, slightly gravelly, dark grey (5Y 4/1), with shell fragments (<0.02m), highly calcareous	Ma/Fw	Gc

CPT Ref No. / Cone ID / Cone Area (a): 01 120826 10cm² (0.76); 02 120826 10cm² (0.76); 03 120826 10cm² (0.76)

Particle Size, %:

Gravel	Sand	Fines	Silt	Clay
0	1	99	44	55
0	1	99	49	50

KEY TO SOIL PROFILE

SILT, CLAY, SAND, GRAVEL, COBBLES, CHALK, PEAT, Mixed Soil

Assumed Unit Weight: 20 - 16 kN/m³
K_0: 0.5 - 2.0
N_{kt}: 15 - 20
$N_{\Delta u}$: 12.5 - 16.5

Area	**Kattegat Sea**	Coordinates	**678372.1E**	**6256261.3N**	CRS: **ETRS89**
Contract	**11596**	Latitude / Longitude			**Comments: Boreholes CB11-BH and CB11a-BH Combined.**
Client Name / Ref	**Energinet Eltransmission A/S / 384_20_ENE**	Water Depth (mMSL)	**-31.5**		
Vessel	**MV Ocean Vantage**	Date of Test (Start-End)			
Method	**Wison**	Final Borehole Depth	**57.00m**		

QC Status		
Preliminary	Draft	Final
JK/BC (05/06/2021)	**DR** (10/06/2021)	**SMc** (10/11/2021)

Location Names: CB11-BH

Preliminary Investigation, Hesselø OWF

BOREHOLE LOG, LABORATORY TEST RESULTS AND IN SITU CPTU TESTING

Soil Depth (m)	Description	Env.	Age
	High to very high strength CLAY TILL, medium plasticity, very silty, very sandy, slightly gravelly, dark grey (5Y 4/1), with shell fragments (<0.02m), highly calcareous	Ma/Fw	Gc
	35.80m - 36.34m: 35.80-36.34m: Medium bed of medium dense to dense sand, fine, well sorted, clayey, silty, greenish grey (GLEY1 10Y 5/1), calcareous		
36.60	Very to extremely high strength CLAY, high plasticity, very silty, slightly sandy, greenish black (GLEY1 5GY 2.5/1), non calcareous	Gl	Gc
37.35	CLAY, high plasticity, very silty, very sandy, slightly gravelly, very dark greenish grey (GLEY1 10Y 3/1), slightly calcareous	Gl	Gc

Sample Type: P31, P32, P33, P34, P35, P36, P37, P38, P39, P40

CPT Ref No. / Cone ID / Cone Area (a): 04 120826 10cm² (0.76); 05 120826 10cm² (0.76)

Water Content (%): 14; 30; 27

Particle Size, %	Gravel	Sand	Fines	Silt	Clay
	9	38	53	31	22
	0	7	93	67	26
	0	11	89	59	30

KEY TO SOIL PROFILE

SILT, CLAY, SAND, GRAVEL, COBBLES, CHALK, PEAT, Mixed Soil

Assumed Unit Weight: 20 - 16 kN/m³
K_0: 0.5 - 2.0
N_{kt}: 15 - 20
$N_{\Delta t}$: 12.5 - 16.5

Area	**Kattegat Sea**	Coordinates	**678372.1E**	**6256261.3N**	CRS: **ETRS89**
Contract	**11596**	Latitude / Longitude			**Comments: Boreholes CB11-BH and CB11a-BH Combined.**
Client Name / Ref	**Energinet Eltransmission A/S / 384_20_ENE**	Water Depth (mMSL)	**-31.5**		
Vessel	**MV Ocean Vantage**	Date of Test (Start-End)			
Method	**Wison**	Final Borehole Depth	**57.00m**		

QC Status		
Preliminary	Draft	Final
JK/BC (05/06/2021)	**DR** (10/06/2021)	**SMc** (10/11/2021)

Location Names
CB11-BH

Preliminary Investigation, Hesselø OWF

BOREHOLE LOG, LABORATORY TEST RESULTS AND IN SITU CPTU TESTING

Soil Depth (m)	Soil Description	Env.	Age
	CLAY, high plasticity, very silty, very sandy, slightly gravelly, very dark greenish grey (GLEY1 10Y 3/1), slightly calcareous	Gl	Gc
42.00	Extremely high strength CLAY TILL, high plasticity, very silty, very sandy, slightly gravelly, very dark greenish grey (GLEY1 10GY 3/1), slightly calcareous	Gl	Gc
	Extremely high strength CLAY, high plasticity, slightly gravelly, very dark greenish grey (GLEY1 10GY 3/1) becoming dark greenish grey (GLEY1 10Y 4/1), slightly calcareous	Gl	Gc
46.00	Extremely high strength CLAY, high plasticity, very silty, sandy, very dark greenish grey (GLEY1 5GY 3/1), highly calcareous	Gl	Gc

CPT Ref No. / Cone ID / Cone Area (a): 06 120826 10cm² (0.76); 07 120826 10cm² (0.76); 08 120826 10cm² (0.76)

Sample Type / CPTU Push: P41, P42, P43, P44, P45, P46, P47, P48, P49, P50

Water Content (%): 35; 23; 25

Particle Size, %

Soil Depth (m)	Gravel	Sand	Fines	Silt	Clay
42.00	1	24	75	23	52
46.00	1	23	76	36	40
	0	12	88	56	32

Relative Density, D_r (%); Undrained Shear Strength, Su (kPa)

Corrected Cone Resistance, q_t (MPa); Sleeve Friction, f_s (MPa)

Pore Pressure, U_2 (kPa); Ambient Pore Pressure (kPa)

Relative to (mMSL): -72.0, -72.5, -73.0, -73.5, -74.0, -74.5, -75.0, -75.5, -76.0, -76.5, -77.0, -77.5, -78.0, -78.5, -79.0, -79.5, -80.0, -80.5, -81.0

Relative to BSB (m): 40.5, 41.0, 41.5, 42.0, 42.5, 43.0, 43.5, 44.0, 44.5, 45.0, 45.5, 46.0, 46.5, 47.0, 47.5, 48.0, 48.5, 49.0, 49.5

KEY TO SOIL PROFILE

SILT; CLAY; SAND; GRAVEL; COBBLES; CHALK; PEAT; Mixed Soil

Assumed Unit Weight: 20 - 16 kN/m³
K_0: 0.5 - 2.0
N_{kt}: 15 - 20
N_{kt}: 12.5 - 16.5

Area	**Kattegat Sea**	Coordinates	**678372.1E**	**6256261.3N**	CRS: **ETRS89**
Contract	**11596**	Latitude / Longitude			**Comments: Boreholes CB11-BH and CB11a-BH Combined.**
Client Name / Ref	**Energinet Eltransmission A/S / 384_20_ENE**	Water Depth (mMSL)	**-31.5**		
Vessel	**MV Ocean Vantage**	Date of Test (Start-End)			
Method	**Wison**	Final Borehole Depth	**57.00m**		

QC Status		
Preliminary	Draft	Final
JK/BC (05/06/2021)	**DR** (10/06/2021)	**SMc** (10/11/2021)

Location Names: CB11-BH

Preliminary Investigation, Hesselø OWF

BOREHOLE LOG, LABORATORY TEST RESULTS AND IN SITU CPTU TESTING

Soil Depth (m)	Soil Description	Env.	Age
	Extremely high strength CLAY, high plasticity, very silty, sandy, very dark greenish grey (GLEY1 5GY 3/1), highly calcareous	Gl	Gc
	50.32m - 50.58m: 50.32-50.58m: Medium bed of gravel		
50.60	Extremely high strength CLAY, silty with medium to widely spaced thin beds of gravel between 51.30m and 52.56m	Gl	Gc
52.02	Extremely high strength CLAY TILL, very silty, very sandy, very gravelly, dark grey (5Y 4/1), highly calcareous	Gl	Gc
53.00	Dense to very dense SAND, gravelly	Gl	Gc
53.12	Weak MUDSTONE, indurated, slightly micaceous, with siltstone laminations, extremely closely spaced, light grey (5Y 7/2), greenish black (GLEY2 2.5/10G), non-calcareous	Gl	Ct
57.00	End of borehole at 57.00m		

Particle Size, %: Gravel 7; Sand 36; Fines 57; Silt 42; Clay 15

CPT Ref No. / Cone ID / Cone Area (a): 09 120826 10cm² (0.76); 01 120825 10cm² (0.76); 02 121125 10cm² (0,8); 10 120826 10cm² (0.76); 03 121125 10cm² (0,8); 04 120826 10cm² (0.76); 05 120826 10cm² (0.76)

KEY TO SOIL PROFILE

SILT, CLAY, SAND, GRAVEL, COBBLES, CHALK, PEAT, Mixed Soil

Assumed Unit Weight: 20 - 16 kN/m³
K_0: 0.5 - 2.0
N_{kt}: 15 - 20
$N_{\Delta u}$: 12.5 - 16.5

Area	**Kattegat Sea**	Coordinates	**678372.1E**	**6256261.3N**	CRS: **ETRS89**
Contract	**11596**	Latitude / Longitude			**Comments: Boreholes CB11-BH and CB11a-BH Combined.**
Client Name / Ref	**Energinet Eltransmission A/S / 384_20_ENE**	Water Depth (mMSL)	**-31.5**		
Vessel	**MV Ocean Vantage**	Date of Test (Start-End)			
Method	**Wison**	Final Borehole Depth	**57.00m**		

QC Status	Preliminary	Draft	Final
	JK/BC (05/06/2021)	**DR** (10/06/2021)	**SMc** (10/11/2021)

Location Names: CB11-BH, CB11a-BH

Preliminary Investigation, Hesselø OWF

BOREHOLE LOG, LABORATORY TEST RESULTS AND IN SITU CPTU TESTING

Relative to (mMSL)	Relative to BSB (m)	Soil Profile	Push Sample	CPTU Push	CPT Ref No. Cone ID Cone Area (a)	Soil Depth (m)	Interpreted Soil Type	Env.	Age
-32.0 to -41.5	0.5 to 9.5		P01 P02 P03 P04 P05 P06 P07 P08 P09 P10			0.93	Extremely low strength CLAY, low plasticity, sandy, dark greenish olive (10Y-5GY 4/2) to dark grey (5Y 4/1), non calcareous	Ma/Fw	Ho
						4.80	Extremely low to very low strength CLAY, high plasticity, very silty, slightly sandy, with black organic staining greyish brown (2.5Y 4/1) to dark grey (5Y 4/1), highly calcareous	Ma/Fw	Ho
							Low becoming medium strength CLAY, high plasticity, very silty, slightly sandy, with black organic staining dark grey (5Y 4/1), highly calcareous	Ma/Fw	Ho

Water Content (%): 0, 25, 50, 75, 100

Density (Mg/m^3): 3, 2, 1, 0

Particle Size, %

Gravel	Sand	Fines	Silt	Clay
0	1	99	38	61

Relative Density, D_r (%): 0, 30, 60, 90, 120

Undrained Shear Strength, Su (kPa): 0, 300, 600, 900, 1200, 1500

Corrected Cone Resistance, q_t (MPa): 0, 12, 24, 36, 48, 60

Sleeve Friction, f_s(MPa): 0, 0.3, 0.6, 0.9, 1.2, 1.5

Pore Pressure, U_2 (kPa): -4500, -2250, 0, 2250, 4500

Ambient Pore Pressure (kPa)

KEY TO SOIL PROFILE

SILT, CLAY, SAND, GRAVEL, COBBLES, CHALK, PEAT, Mixed Soil

Assumed Unit Weight: 20 - 16 kN/m^3
K_p: 0.5 - 2.0
N_{cv}: 15 - 20
N_{cv}: 12.5 - 16.5

Area	**Kattegat Sea**	Coordinates	**677450.4E**	**6270639.0N**	CRS: **ETRS89**
Contract	**11596**	Latitude / Longitude			**Comments: Borehole CB12-BH was completed to a depth of 70.68m utilising API drilling~ Wison CPT and push sampling methods**
Client Name / Ref	**Energinet Eltransmission A/S / 384_20_ENE**	Water Depth (mMSL)	**-31.9**		
Vessel	**MV Ocean Vantage**	Date of Test (Start-End)	**02/06/2021 - 03/06/2021**		
Method	**Wison**	Final Borehole Depth	**70.00m**		

QC Status		
Preliminary	Draft	Final
JK/BC (02/06/2021)	**DR** (10/06/2021)	**SMc** (10/11/2021)

Location Name: **CB12-BH**

Preliminary Investigation, Hesselø OWF

BOREHOLE LOG, LABORATORY TEST RESULTS AND IN SITU CPTU TESTING

Relative to (mMSL)	Relative to BSB (m)	Soil Profile	Push Sample	CPTU Push	CPT Ref No. Cone ID Cone Area (a)	Soil Depth (m)	Interpreted Soil Type	Env.	Age
-42.0 to -51.5	10.5 to 19.5		P11 to P20				Low becoming medium strength CLAY, high plasticity, very silty, slightly sandy, with black organic staining dark grey (5Y 4/1), highly calcareous	Ma/Fw	Ho
							15.00-16.00m: Thick bed of low strength clay, high plasticity, slightly gravelly, with black organic staining, dark grey (5Y 4/1), highly calcareous		
							19.22-19.25m: Very thin bed of clay, medium plasticity, sandy, gravelly, dark grey (5Y 4/1), calcareous		

Water Content (%): 0, 25, 50, 75, 100

Density (Mg/m^3): 3, 2, 1, 0

Particle Size, %

Gravel	Sand	Fines	Silt	Clay
0	1	99	42	57

Relative Density, D_r (%): 0, 30, 60, 90, 120

Undrained Shear Strength, Su (kPa): 0, 300, 600, 900, 1200, 1500

Corrected Cone Resistance, q_t (MPa): 0, 12, 24, 36, 48, 60

Sleeve Friction, f_s(MPa): 0, 0.3, 0.6, 0.9, 1.2, 1.5

Pore Pressure, U_2 (kPa): -4500, -2250, 0, 2250, 4500

Ambient Pore Pressure (kPa)

KEY TO SOIL PROFILE

SILT, CLAY, SAND, GRAVEL, COBBLES, CHALK, PEAT, Mixed Soil

Assumed Unit Weight: 20 - 16 kN/m^3
K_0: 0.5 - 2.0
N_{cone}: 15 - 20
N_{cyl}: 12.5 - 16.5

Area	**Kattegat Sea**	Coordinates	**677450.4E 6270639.0N**	CRS: **ETRS89**	QC Status: Preliminary / Draft / Final
Contract	**11596**	Latitude / Longitude		**Comments: Borehole CB12-BH was completed to a depth of 70.68m utilising API drilling~ Wison CPT and push sampling methods**	
Client Name / Ref	**Energinet Eltransmission A/S / 384_20_ENE**	Water Depth (mMSL)	**-31.9**		
Vessel	**MV Ocean Vantage**	Date of Test (Start-End)	**02/06/2021 - 03/06/2021**		**JK/BC** (02/06/2021) / **DR** (10/06/2021) / **SMc** (10/11/2021)
Method	**Wison**	Final Borehole Depth	**70.00m**		

Location Name: **CB12-BH**

Preliminary Investigation, Hesselø OWF

BOREHOLE LOG, LABORATORY TEST RESULTS AND IN SITU CPTU TESTING

Relative to (mMSL)	Relative to BSB (m)	Soil Profile	Push Sample	CPTU Push	CPT Ref No. Cone ID Cone Area (a)	Soil Depth (m)	Interpreted Soil Type	Env.	Age
-52.0 to -61.5	20.5 to 29.5		P21 to P30			20.00	Medium strength CLAY, high plasticity, very silty, slightly sandy, slightly gravelly, with black organic staining, dark grey (5Y 4/1), calcareous	Ma/Fw	Pg
						22.00	Medium strength CLAY, high plasticity, silty, slightly sandy, dark grey (5Y 4/1) becoming dark greenish grey (GLEY1 10Y 4/1) with closely spaced thick laminations of sand, fine, well sorted, silty, grey (5Y 5/1), highly calcareous with black organic staining, dark grey (5Y 4/1), calcareous	Ma/Fw	Pg

Water Content (%): 0, 25, 50, 75, 100

Density (Mg/m^3): 3, 2, 1, 0

Particle Size, %	Gravel	Sand	Fines	Silt	Clay
	0	2	98	40	58
	0	3	97	51	46

Relative Density, D_r (%): 0, 30, 60, 90, 120

Undrained Shear Strength, Su (kPa): 0, 300, 600, 900, 1200, 1500

Corrected Cone Resistance, q_t (MPa): 0, 12, 24, 36, 48, 60

Sleeve Friction, f_s(MPa): 0, 0.3, 0.6, 0.9, 1.2, 1.5

Pore Pressure, U_2 (kPa): -4500, -2250, 0, 2250, 4500

Ambient Pore Pressure (kPa)

Relative to BSB (m): 20.5, 21.0, 21.5, 22.0, 22.5, 23.0, 23.5, 24.0, 24.5, 25.0, 25.5, 26.0, 26.5, 27.0, 27.5, 28.0, 28.5, 29.0, 29.5

KEY TO SOIL PROFILE

SILT, CLAY, SAND, GRAVEL, COBBLES, CHALK, PEAT, Mixed Soil

Assumed Unit Weight: 20 - 16 kN/m^3
K_0: 0.5 - 2.0
N_{kt}: 15 - 20
$N_{\Delta u}$: 12.5 - 16.5

Area	**Kattegat Sea**	Coordinates	**677450.4E 6270639.0N**	CRS: **ETRS89**	
Contract	**11596**	Latitude / Longitude		**Comments: Borehole CB12-BH was completed to a depth of 70.68m utilising API drilling~ Wison CPT and push sampling methods**	
Client Name / Ref	**Energinet Eltransmission A/S / 384_20_ENE**	Water Depth (mMSL)	**-31.9**		
Vessel	**MV Ocean Vantage**	Date of Test (Start-End)	**02/06/2021 - 03/06/2021**		
Method	**Wison**	Final Borehole Depth	**70.00m**		

QC Status	Preliminary	Draft	Final
	JK/BC (02/06/2021)	**DR** (10/06/2021)	**SMc** (10/11/2021)

Location Name: **CB12-BH**

Preliminary Investigation, Hesselø OWF

BOREHOLE LOG, LABORATORY TEST RESULTS AND IN SITU CPTU TESTING

Relative to BSB (m)	Soil Depth (m)	Interpreted Soil Type	Env.	Age
30.5	30.75	Medium strength CLAY, high plasticity, silty, slightly sandy, dark grey (5Y 4/1) becoming dark greenish grey (GLEY1 10Y 4/1) with closely spaced thick laminations of sand, fine, well sorted, silty, grey (5Y 5/1), highly calcareous with black organic staining, dark grey (5Y 4/1), calcareous	Ma/Fw	Pg
31.0		High to very high strength CLAY TILL, medium plasticity, very silty, very sandy, slightly gravelly, very dark greenish grey (GLEY1 5GY 3/1), highly calcareous		
32.0		33.60-33.65m: Very thin bed of sand, fine, well sorted, clayey, silty, gravelly, greenish grey (GLEY1 10Y 5/1), highly calcareous	Ma/Fw	Gc
38.0	38.00	Dense to very dense SAND, fine to medium, sorted, very silty, dark greenish grey (GLEY1 10Y 4/1) to dark grey (2.5Y 4/1), calcareous	Gl	Gc

Particle Size, %: Gravel 3; Sand 25; Fines 72; Silt 45; Clay 27

KEY TO SOIL PROFILE

SILT, CLAY, SAND, GRAVEL, COBBLES, CHALK, PEAT, Mixed Soil

Assumed Unit Weight: 20 - 16 kN/m³
K_0: 0.5 - 2.0
N_{kt}: 15 - 20
N_{kt}: 12.5 - 16.5

Area	**Kattegat Sea**	Coordinates	**677450.4E**	**6270639.0N**	CRS: **ETRS89**
Contract	**11596**	Latitude / Longitude			**Comments: Borehole CB12-BH was completed to a depth of 70.68m utilising API drilling~ Wison CPT and push sampling methods**
Client Name / Ref	**Energinet Eltransmission A/S / 384_20_ENE**	Water Depth (mMSL)	**-31.9**		
Vessel	**MV Ocean Vantage**	Date of Test (Start-End)	**02/06/2021 - 03/06/2021**		
Method	**Wison**	Final Borehole Depth	**70.00m**		

QC Status			Location Name
Preliminary	Draft	Final	**CB12-BH**
JK/BC (02/06/2021)	**DR** (10/06/2021)	**SMc** (10/11/2021)	

Preliminary Investigation, Hesselø OWF

BOREHOLE LOG, LABORATORY TEST RESULTS AND IN SITU CPTU TESTING

Relative to (mMSL)	Relative to BSB (m)	Soil Depth (m)	Interpreted Soil Type	Env.	Age
-72.0 to -75.0	40.5 to 43.0	0.00	Dense to very dense SAND, fine to medium, sorted, very silty, dark greenish grey (GLEY1 10Y 4/1) to dark grey (2.5Y 4/1), calcareous	Gl	Gc
-75.5 to -81.5	43.5 to 49.5	43.50	Very high to extremely high strength CLAY TILL, medium plasticity, very silty, very sandy, slightly gravelly, greenish black (GLEY1 10GY 2.5/1) to bluish black (GLEY2 2.5/1), highly calcareous with very closely spaced thick laminations of silt, non plastic, dark greenish grey (GLEY1 10Y 4/1) and closely to medium spaced thin laminations of sand, fine to medium, well sorted, greenish grey (GLEY1 10Y 5/1) calcareous, organic odour 44.65-44.71m: Very thin bed of sand, fine to medium, well sorted, gravelly, dark grey (2.5Y 4/1), slightly calcareous	Gl/Mw	Gc

Soil Profile: Push Sample: P41, P42, P43, P44, P45, P46, P47, P48, P49, P50, P51

CPT Push: 01 121005G 10cm² (0.78); 02 121005G 10cm² (0.78); 03 121004 10cm² (0.78); 04 121005G 10cm² (0.78); 05 121005G 10cm² (0.78)

Water Content (%): 0 25 50 75 100

Density (Mg/m³): 3 2 1 0

Particle Size, %

Gravel	Sand	Fines	Silt	Clay
0	89	11	11	0
2	42	56	38	18

Relative Density, D_r (%): 0 30 60 90 120

Undrained Shear Strength, Su (kPa): 0 300 600 900 1200 1500

Corrected Cone Resistance, q_t (MPa): 0 12 24 36 48 60

Sleeve Friction, f_s (MPa): 0 0.3 0.6 0.9 1.2 1.5

Pore Pressure, U_2 (kPa): -4500 -2250 0 2250 4500

Ambient Pore Pressure (kPa)

Relative to BSB (m): 40.5 41.0 41.5 42.0 42.5 43.0 43.5 44.0 44.5 45.0 45.5 46.0 46.5 47.0 47.5 48.0 48.5 49.0 49.5

KEY TO SOIL PROFILE

SILT, CLAY, SAND, GRAVEL, COBBLES, CHALK, PEAT, Mixed Soil

Assumed Unit Weight: 20 - 16 kN/m³
K_0: 0.5 - 2.0
N_{kt}: 15 - 20
N_{kt}: 12.5 - 16.5

Area	**Kattegat Sea**	Coordinates	**677450.4E 6270639.0N**	CRS: **ETRS89**	QC Status: Preliminary / Draft / Final
Contract	**11596**	Latitude / Longitude		**Comments: Borehole CB12-BH was completed to a depth of 70.68m utilising API drilling~ Wison CPT and push sampling methods**	Location Name: **CB12-BH**
Client Name / Ref	**Energinet Eltransmission A/S / 384_20_ENE**	Water Depth (mMSL)	**-31.9**		
Vessel	**MV Ocean Vantage**	Date of Test (Start-End)	**02/06/2021 - 03/06/2021**		**JK/BC** (02/06/2021) / **DR** (10/06/2021) / **SMc** (10/11/2021)
Method	**Wison**	Final Borehole Depth	**70.00m**		Page: 5/7

Preliminary Investigation, Hesselø OWF

BOREHOLE LOG, LABORATORY TEST RESULTS AND IN SITU CPTU TESTING

Relative to (mMSL)	Relative to BSB (m)	Soil Depth (m)	Interpreted Soil Type	Env.	Age
-82.0 to -91.5	50.5 to 59.5	52.50	Very high to extremely high strength CLAY TILL, medium plasticity, very silty, very sandy, slightly gravelly, greenish black (GLEY1 10GY 2.5/1) to bluish black (GLEY2 2.5/1), highly calcareous with very closely spaced thick laminations of silt, non plastic, dark greenish grey (GLEY1 10Y 4/1) and closely to medium spaced thin laminations of sand, fine to medium, well sorted, greenish grey (GLEY1 10Y 5/1) calcareous, organic odour	Gl/Mw	Gc
		54.71	Very high to extremely high strength CLAY, high plasticity, slightly silty, slight organic odour, very dark greenish grey (GLEY1 10GY 3/1), highly calcareous with medium spaced very thin beds of gravel	Gl	Gc
			Extremely high strength CLAY, high plasticity, very silty, slightly sandy, slightly gravelly, with pockets (<0.03m) of sand, fine, well sorted, greenish grey (GLEY1 10Y 5/1), highly calcareous, with shell fragments (<0.02m), very dark greenish grey (GLEY1 5GY 3/1), highly calcareous 56.07-56.26m: Thin bed of dense to very dense sand	Gl	Gc

Push Sample: PS2, PS3, PS4

CPT Ref No. / Cone ID / Cone Area (a): 06 121005G 10cm² (0.78); 07 121005G 10cm² (0.78); 08 121005G 10cm² (0.78)

Water Content (%): 0 25 50 75 100

Density (Mg/m³): 3 2 1 0

Particle Size, %: Gravel | Sand | Fines | Silt | Clay

Relative Density, D_r (%): 0 30 60 90 120

Undrained Shear Strength, Su (kPa): 0 300 600 900 1200 1500

Corrected Cone Resistance, q_t (MPa): 0 12 24 36 48 60

Sleeve Friction, f_s (MPa): 0 0.3 0.6 0.9 1.2 1.5

Pore Pressure, U_2 (kPa): -4500 -2250 0 2250 4500

Ambient Pore Pressure (kPa)

KEY TO SOIL PROFILE

SILT, CLAY, SAND, GRAVEL, COBBLES, CHALK, PEAT, Mixed Soil

Assumed Unit Weight: 20 - 16 kN/m³
K_0: 0.5 - 2.0
N_{kt}: 15 - 20
N_{kt}: 12.5 - 16.5

Area	**Kattegat Sea**	Coordinates	**677450.4E 6270639.0N**	CRS: **ETRS89**	QC Status: Preliminary / Draft / Final
Contract	**11596**	Latitude / Longitude		**Comments: Borehole CB12-BH was completed to a depth of 70.68m utilising API drilling~ Wison CPT and push sampling methods**	Location Name: **CB12-BH**
Client Name / Ref	**Energinet Eltransmission A/S / 384_20_ENE**	Water Depth (mMSL)	**-31.9**		
Vessel	**MV Ocean Vantage**	Date of Test (Start-End)	**02/06/2021 - 03/06/2021**		**JK/BC** (02/06/2021) / **DR** (10/06/2021) / **SMc** (10/11/2021)
Method	**Wison**	Final Borehole Depth	**70.00m**		

Preliminary Investigation, Hesselø OWF

BOREHOLE LOG, LABORATORY TEST RESULTS AND IN SITU CPTU TESTING

Relative to (mMSL)	Relative to BSB (m)	Soil Depth (m)	Interpreted Soil Type	Env.	Age
-92.0 to -95.5	60.5 to 63.5	0.00 to 63.76	Extremely high strength CLAY, high plasticity, very silty, slightly sandy, slightly gravelly, with pockets (<0.03m) of sand, fine, well sorted, greenish grey (GLEY1 10Y 5/1), highly calcareous, with shell fragments (<0.02m), very dark greenish grey (GLEY1 5GY 3/1), highly calcareous	Gl	Gc
-95.5 to -101.5	63.5 to 69.5	63.76 to 69.78	Extremely high strength CLAY, high plasticity, slightly silty, with shell fragments (<0.02m), with black organic staining, very dark greenish grey (GLEY1 5GY 3/1), highly calcareous 65.39-65.45m: Very thin bed of gravel End of borehole at 69.78m	Gl	Gc

Soil Profile: PS6, PS6, PS7

Push Sample: P56, P57

CPTU Push

CPT Ref No. / Cone ID / Cone Area (a):
- 09 121005G 10cm² (0.78)
- 10 121005G 10cm² (0.78)
- 11 121005G 10cm² (0.78)

Water Content (%): 0 25 50 75 100

Density (Mg/m³): 3 2 1 0

Particle Size, %

Gravel	Sand	Fines	Silt	Clay
0	6	94	53	41

Relative Density, D_r (%): 0 30 60 90 120

Undrained Shear Strength, Su (kPa): 0 300 600 900 1200 1500

Corrected Cone Resistance, q_t (MPa): 0 12 24 36 48 60

Sleeve Friction, f_s(MPa): 0 0.3 0.6 0.9 1.2 1.5

Pore Pressure, U_2 (kPa): -4500 -2250 0 2250 4500

Ambient Pore Pressure (kPa)

Relative to BSB (m): 60.5 61.0 61.5 62.0 62.5 63.0 63.5 64.0 64.5 65.0 65.5 66.0 66.5 67.0 67.5 68.0 68.5 69.0 69.5

KEY TO SOIL PROFILE

SILT, CLAY, SAND, GRAVEL, COBBLES, CHALK, PEAT, Mixed Soil

Assumed Unit Weight: 20 - 16 kN/m³
K_0: 0.5 - 2.0
N_{kt}: 15 - 20
N_{kt}: 12.5 - 16.5

Area	**Kattegat Sea**	Coordinates	**677450.4E** **6270639.0N**	CRS: **ETRS89**	
Contract	**11596**	Latitude / Longitude		**Comments: Borehole CB12-BH was completed to a depth of 70.68m utilising API drilling~ Wison CPT and push sampling methods**	
Client Name / Ref	**Energinet Eltransmission A/S / 384_20_ENE**	Water Depth (mMSL)	**-31.9**		
Vessel	**MV Ocean Vantage**	Date of Test (Start-End)	**02/06/2021 - 03/06/2021**		
Method	**Wison**	Final Borehole Depth	**70.00m**		

QC Status			Location Name
Preliminary	Draft	Final	**CB12-BH**
JK/BC (02/06/2021)	**DR** (10/06/2021)	**SMc** (10/11/2021)	

Preliminary Investigation, Hesselø OWF

BOREHOLE LOG, LABORATORY TEST RESULTS AND IN SITU CPTU TESTING

Relative to (mMSL)	Relative to BSB (m)	Soil Profile	Push Sample	CPTU Push	CPT Ref No. Cone ID Cone Area (a)	Soil Depth (m)	Interpreted Soil Type	Env.	Age
-30.0	0		P01				Extremely low strength CLAY, low plasticity, very silty, very sandy, slightly micaceous, with shell fragments (<0.03m), dark greenish grey (GLEY 1 10Y 4/1), slightly calcareous	Ma/Fw	Ho
-30.5	0.5								
-31.0	1.0		P02						
-31.5	1.5								
-32.0	2.0		P03						
-32.5	2.5								
-33.0	3.0		P04			3.01	Low strength CLAY, high plasticity, very silty, slightly sandy, olive grey (5Y 4/2), slightly calcareous, with medium spaed thin to medium beds of medium dense becoming very dense sand, fine to medium, well sorted, with shell fragments (<0.01m), very dark grey (GLEY 1 4/N), slightly calcareous between 3.05 and 3.75m		
-33.5	3.5								
-34.0	4.0		P05						
-34.5	4.5								
-35.0	5.0		P06						
-35.5	5.5								
-36.0	6.0		P07						
-36.5	6.5							Ma/Fw	Ho
-37.0	7.0		P08						
-37.5	7.5								
-38.0	8.0		P09						
-38.5	8.5								
-39.0	9.0		P10						
-39.5	9.5								

Water Content (%): 0, 25, 50, 75, 100

Density (Mg/m^3): 3, 2, 1, 0

Particle Size, %

Gravel	Sand	Fines	Silt	Clay
0	62	38	25	13

Relative Density, D_r (%): 0, 30, 60, 90, 120

Undrained Shear Strength, Su (kPa): 0, 300, 600, 900, 1200, 1500

Corrected Cone Resistance, q_t (MPa): 0, 12, 24, 36, 48, 60

Sleeve Friction, f_s(MPa): 0, 0.3, 0.6, 0.9, 1.2, 1.5

Pore Pressure, U_2 (kPa): -4500, -2250, 0, 2250, 4500

Ambient Pore Pressure (kPa)

KEY TO SOIL PROFILE

SILT, CLAY, SAND, GRAVEL, COBBLES, CHALK, PEAT, Mixed Soil

Assumed Unit Weight: 20 - 16 kN/m^3
K_C: 0.5 - 2.0
N_{KT}: 15 - 20
N_{kt}: 12.5 - 16.5

Area	**Kattegat Sea**	Coordinates	**670639.2E 6262915.3N**	CRS: **ETRS89**	QC Status: Preliminary / Draft / Final
Contract	**11596**	Latitude / Longitude		**Comments: Borehole CB13-BH was completed to a depth of 66.48m utilising API drilling~ Wison CPT and push sampling methods**	
Client Name / Ref	**Energinet Eltransmission A/S / 384_20_ENE**	Water Depth (mMSL)	**-29.9**		
Vessel	**MV Ocean Vantage**	Date of Test (Start-End)	**12/05/2021 - 14/05/2021**		**JK/BC** (14/05/2021) / **DR** (10/06/2021) / **SMc** (10/11/2021)
Method	**Wison**	Final Borehole Depth	**66.50m**		

Location Name: **CB13-BH**

Preliminary Investigation, Hesselø OWF

BOREHOLE LOG, LABORATORY TEST RESULTS AND IN SITU CPTU TESTING

Relative to (mMSL)	Relative to BSB (m)	Soil Profile	Push Sample	CPTU Push	CPT Ref No. Cone ID Cone Area (a)	Soil Depth (m)	Interpreted Soil Type	Env.	Age
-40.0 to -49.5	10.5 to 19.5		P11 to P21				Low strength CLAY, high plasticity, very silty, slightly sandy, olive grey (5Y 4/2), slightly calcareous, with medium spaed thin to medium beds of medium dense becoming very dense sand, fine to medium, well sorted, with shell fragments (<0.01m), very dark grey (GLEY 1 4/N), slightly calcareous between 3.05 and 3.75m	Ma/Fw	Ho

Water Content (%): 0 25 50 75 100

Density (Mg/m^3): 3 2 1 0

Particle Size, %

Gravel	Sand	Fines	Silt	Clay
0	1	99	48	51

Relative Density, D_r (%): 0 30 60 90 120

Undrained Shear Strength, Su (kPa): 0 300 600 900 1200 1500

Corrected Cone Resistance, q_t (MPa): 0 12 24 36 48 60

Sleeve Friction, f_s(MPa): 0 0.3 0.6 0.9 1.2 1.5

Pore Pressure, U_2 (kPa): -4500 -2250 0 2250 4500

Ambient Pore Pressure (kPa)

KEY TO SOIL PROFILE

SILT · CLAY · SAND · GRAVEL · COBBLES · CHALK · PEAT · Mixed Soil

Assumed Unit Weight: 20 - 16 kN/m^3
K_0: 0.5 - 2.0
N_{kt}: 15 - 20
N_{kt}: 12.5 - 16.5

Area	**Kattegat Sea**	Coordinates	**670639.2E 6262915.3N**	CRS: **ETRS89**	QC Status: Preliminary / Draft / Final
Contract	**11596**	Latitude / Longitude		**Comments: Borehole CB13-BH was completed to a depth of 66.48m utilising API drilling~ Wison CPT and push sampling methods**	
Client Name / Ref	**Energinet Eltransmission A/S / 384_20_ENE**	Water Depth (mMSL)	**-29.9**		
Vessel	**MV Ocean Vantage**	Date of Test (Start-End)	**12/05/2021 - 14/05/2021**		**JK/BC** (14/05/2021) / **DR** (10/06/2021) / **SMc** (10/11/2021)
Method	**Wison**	Final Borehole Depth	**66.50m**		

Location Name: **CB13-BH**

Preliminary Investigation, Hesselø OWF

BOREHOLE LOG, LABORATORY TEST RESULTS AND IN SITU CPTU TESTING

Relative to (mMSL)	Relative to BSB (m)	Soil Depth (m)	Interpreted Soil Type	Env.	Age
-50.0 to -55.0	20.5 to 25.0	0.00	Low strength CLAY, high plasticity, very silty, slightly sandy, olive grey (5Y 4/2), slightly calcareous, with medium spaed thin to medium beds of medium dense becoming very dense sand, fine to medium, well sorted, with shell fragments (<0.01m), very dark grey (GLEY 1 4/N), slightly calcareous between 3.05 and 3.75m	Ma/Fw	Ho
-55.0 to -59.5	25.0 to 29.5	24.99	Medium strength CLAY, high plasticity, very silty, slightly sandy, slightly gravelly, olive grey (5Y 4/2) to dark olive grey (5Y 3/2), calcareous	Ma/Fw	Pg

Push Sample: P22, P23, P24, P25, P26, P27, P28, P29, P30, P31

CPT Ref No. / Cone ID / Cone Area (a)

CPTU Push

Water Content (%): 0, 25, 50, 75, 100

Density (Mg/m^3): 3, 2, 1, 0

Particle Size, %

Gravel	Sand	Fines	Silt	Clay
0	4	96	50	46
0	1	99	43	56

Relative Density, D_r (%): 0, 30, 60, 90, 120

Undrained Shear Strength, Su (kPa): 0, 300, 600, 900, 1200, 1500

Corrected Cone Resistance, q_t (MPa): 0, 12, 24, 36, 48, 60

Sleeve Friction, f_s (MPa): 0, 0.3, 0.6, 0.9, 1.2, 1.5

Pore Pressure, U_2 (kPa): -4500, -2250, 0, 2250, 4500

Ambient Pore Pressure (kPa)

KEY TO SOIL PROFILE

SILT, CLAY, SAND, GRAVEL, COBBLES, CHALK, PEAT, Mixed Soil

Assumed Unit Weight: 20 - 16 kN/m^3
K_0: 0.5 - 2.0
N_{kt}: 15 - 20
N_{ch}: 12.5 - 16.5

Area	**Kattegat Sea**	Coordinates	**670639.2E 6262915.3N**
Contract	**11596**	Latitude / Longitude	
Client Name / Ref	**Energinet Eltransmission A/S / 384_20_ENE**	Water Depth (mMSL)	**-29.9**
Vessel	**MV Ocean Vantage**	Date of Test (Start-End)	**12/05/2021 - 14/05/2021**
Method	**Wison**	Final Borehole Depth	**66.50m**

CRS: **ETRS89**

Comments: Borehole CB13-BH was completed to a depth of 66.48m utilising API drilling~ Wison CPT and push sampling methods

QC Status		
Preliminary	Draft	Final
JK/BC (14/05/2021)	**DR** (10/06/2021)	**SMc** (10/11/2021)

Location Name: **CB13-BH**

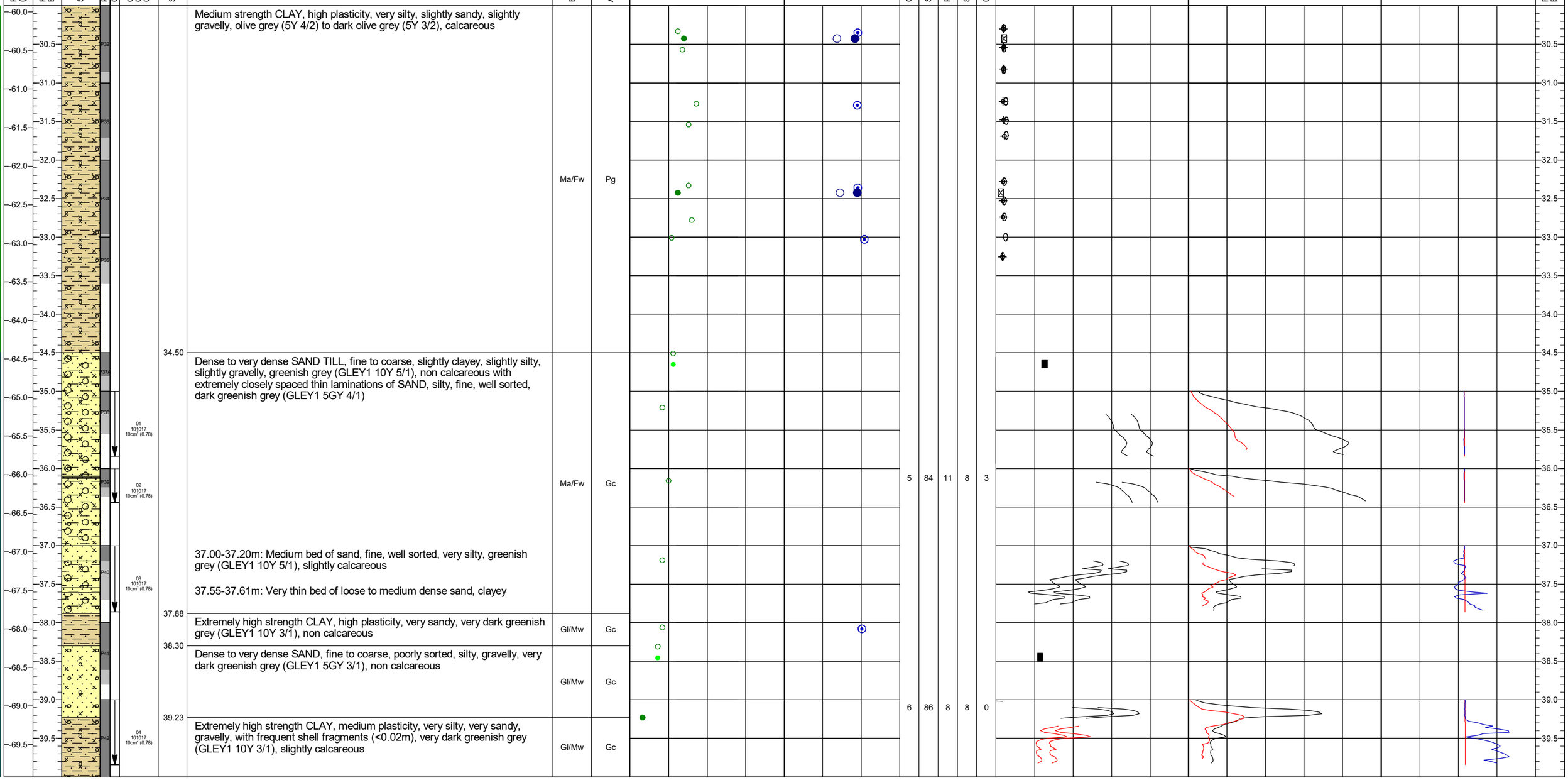
Preliminary Investigation, Hesselø OWF

BOREHOLE LOG, LABORATORY TEST RESULTS AND IN SITU CPTU TESTING

Relative to (mMSL)	Relative to BSB (m)	Soil Depth (m)	Interpreted Soil Type	Env.	Age	Gravel	Sand	Fines	Silt	Clay
-60.0	30.5		Medium strength CLAY, high plasticity, very silty, slightly sandy, slightly gravelly, olive grey (5Y 4/2) to dark olive grey (5Y 3/2), calcareous	Ma/Fw	Pg					
-64.5	34.5	34.50	Dense to very dense SAND TILL, fine to coarse, slightly clayey, slightly silty, slightly gravelly, greenish grey (GLEY1 10Y 5/1), non calcareous with extremely closely spaced thin laminations of SAND, silty, fine, well sorted, dark greenish grey (GLEY1 5GY 4/1) 37.00-37.20m: Medium bed of sand, fine, well sorted, very silty, greenish grey (GLEY1 10Y 5/1), slightly calcareous 37.55-37.61m: Very thin bed of loose to medium dense sand, clayey	Ma/Fw	Gc	5	84	11	8	3
-68.0	38.0	37.88	Extremely high strength CLAY, high plasticity, very sandy, very dark greenish grey (GLEY1 10Y 3/1), non calcareous	Gl/Mw	Gc					
-68.5	38.5	38.30	Dense to very dense SAND, fine to coarse, poorly sorted, silty, gravelly, very dark greenish grey (GLEY1 5GY 3/1), non calcareous	Gl/Mw	Gc					
-69.5	39.5	39.23	Extremely high strength CLAY, medium plasticity, very silty, very sandy, gravelly, with frequent shell fragments (<0.02m), very dark greenish grey (GLEY1 10Y 3/1), slightly calcareous	Gl/Mw	Gc	6	86	8	8	0

Push Sample: P32, P33, P34, P35, P37, P38, 01 101017 10cm² (0.78), P39, 02 101017 10cm² (0.78), P40, 03 101017 10cm² (0.78), P41, P42, 04 101017 10cm² (0.78)

CPT Ref No. / Cone ID / Cone Area (a)



KEY TO SOIL PROFILE

SILT, CLAY, SAND, GRAVEL, COBBLES, CHALK, PEAT, Mixed Soil

Assumed Unit Weight: 20 - 16 kN/m³
K_0: 0.5 - 2.0
N_{kt}: 15 - 20
N_{kt}: 12.5 - 16.5

Area	**Kattegat Sea**	Coordinates	**670639.2E 6262915.3N**	CRS: **ETRS89**	
Contract	**11596**	Latitude / Longitude		**Comments: Borehole CB13-BH was completed to a depth of 66.48m utilising API drilling~ Wison CPT and push sampling methods**	
Client Name / Ref	**Energinet Eltransmission A/S / 384_20_ENE**	Water Depth (mMSL)	**-29.9**		
Vessel	**MV Ocean Vantage**	Date of Test (Start-End)	**12/05/2021 - 14/05/2021**		
Method	**Wison**	Final Borehole Depth	**66.50m**		

QC Status			Location Name
Preliminary	Draft	Final	**CB13-BH**
JK/BC (14/05/2021)	**DR** (10/06/2021)	**SMc** (10/11/2021)	

Preliminary Investigation, Hesselø OWF

BOREHOLE LOG, LABORATORY TEST RESULTS AND IN SITU CPTU TESTING

Relative to (mMSL)	Relative to BSB (m)	Soil Depth (m)	Interpreted Soil Type	Env.	Age
-70.0	40.5		Extremely high strength CLAY, medium plasticity, very silty, very sandy, gravelly, with frequent shell fragments (<0.02m), very dark greenish grey (GLEY1 10Y 3/1), slightly calcareous	Gl/Mw	Gc
-73.0	43.0	43.00	Extremely high strength CLAY, low plasticity, very silty, with frequent shell fragments (<0.03m), very dark greenish grey (GLEY1 10GY 3/1) becoming greenish grey (GLEY1 10Y 5/1), slightly calcareous 44.19-44.26m: Thin bed of gravel	Gl/Mw	Gc
-75.0	45.0	45.14	Extremely high strength CLAY, high plasticity, very dark greenish grey (GLEY 1 10GY 3/1), highly calcareous	Gl/Mw	Gc

Push Sample: P43, P44, P45, P46, P47, P48, P49, P50, P51, P52

CPTU Push: 05 101017 10cm² (0.78); 06 101017 10cm² (0.78); 07 101017 10cm² (0.78)

Particle Size, %	Gravel	Sand	Fines	Silt	Clay
	7	35	58	15	43

Water Content (%): 0, 25, 50, 75, 100

Density (Mg/m³): 3, 2, 1, 0

Relative Density, D_r (%): 0, 30, 60, 90, 120

Undrained Shear Strength, Su (kPa): 0, 300, 600, 900, 1200, 1500

Corrected Cone Resistance, q_t (MPa): 0, 12, 24, 36, 48, 60

Sleeve Friction, f_s(MPa): 0, 0.3, 0.6, 0.9, 1.2, 1.5

Pore Pressure, U_2 (kPa): -4500, -2250, 0, 2250, 4500

Ambient Pore Pressure (kPa)

KEY TO SOIL PROFILE

SILT · CLAY · SAND · GRAVEL · COBBLES · CHALK · PEAT · Mixed Soil

Assumed Unit Weight: 20 - 16 kN/m³
K_0: 0.5 - 2.0
N_{kt}: 15 - 20
$N_{\Delta u}$: 12.5 - 16.5

Area	**Kattegat Sea**	Coordinates	**670639.2E 6262915.3N**	CRS: **ETRS89**	
Contract	**11596**	Latitude / Longitude		**Comments: Borehole CB13-BH was completed to a depth of 66.48m utilising API drilling~ Wison CPT and push sampling methods**	
Client Name / Ref	**Energinet Eltransmission A/S / 384_20_ENE**	Water Depth (mMSL)	**-29.9**		
Vessel	**MV Ocean Vantage**	Date of Test (Start-End)	**12/05/2021 - 14/05/2021**		
Method	**Wison**	Final Borehole Depth	**66.50m**		

QC Status			Location Name
Preliminary	Draft	Final	**CB13-BH**
JK/BC (14/05/2021)	**DR** (10/06/2021)	**SMc** (10/11/2021)	

Preliminary Investigation, Hesselø OWF

BOREHOLE LOG, LABORATORY TEST RESULTS AND IN SITU CPTU TESTING

Relative to (mMSL)	Relative to BSB (m)	Soil Depth (m)	Interpreted Soil Type	Env.	Age
-80.0	50.5		Extremely high strength CLAY, high plasticity, very dark greenish grey (GLEY 1 10GY 3/1), highly calcareous	Gl/Mw	Gc
			55.38-55.46m: Thin bed of gravel		
-86.0	56.0	56.00	Extremely high strength CLAY, very high plasticity, silty, slightly sandy, with pockets of silt (<0.02m), very dark greyish brown (10 YR 3/2), highly calcareous	Gl/Mw	Gc
-88.0	58.0	57.85	Extremely high strength CLAY TILL, medium plasticity, very silty, very sandy, gravelly, dark greenish grey (GLEY 1 10Y 4/1), highly calcareous with medium to widely spaced thin to medium beds of gravel	Gl/Mw	Gc

Soil Profile: Push Sample; CPTU Push; CPT Ref No. 08 101017 10cm² (0.78); CPT Ref No. 09 101017 10cm² (0.78); CPT Ref No. 10 101017 10cm² (0.78); PS3; PS4; PS5

Water Content (%): 0 25 50 75 100

Density (Mg/m³): 3 2 1 0

Particle Size, %	Gravel	Sand	Fines	Silt	Clay
	0	1	99	23	76
	10	36	54	25	29

Relative Density, D_r (%): 0 30 60 90 120

Undrained Shear Strength, Su (kPa): 0 300 600 900 1200 1500

Corrected Cone Resistance, q_t (MPa): 0 12 24 36 48 60

Sleeve Friction, f_s (MPa): 0 0.3 0.6 0.9 1.2 1.5

Pore Pressure, U_2 (kPa): -4500 -2250 0 2250 4500

Ambient Pore Pressure (kPa)

KEY TO SOIL PROFILE

SILT; CLAY; SAND; GRAVEL; COBBLES; CHALK; PEAT; Mixed Soil

Assumed Unit Weight: 20 - 16 kN/m³
K_p: 0.5 - 2.0
N_{kt}: 15 - 20
N_{kt}: 12.5 - 16.5

Area	**Kattegat Sea**	Coordinates	**670639.2E 6262915.3N**	CRS: **ETRS89**	
Contract	**11596**	Latitude / Longitude		**Comments: Borehole CB13-BH was completed to a depth of 66.48m utilising API drilling~ Wison CPT and push sampling methods**	
Client Name / Ref	**Energinet Eltransmission A/S / 384_20_ENE**	Water Depth (mMSL)	**-29.9**		
Vessel	**MV Ocean Vantage**	Date of Test (Start-End)	**12/05/2021 - 14/05/2021**		
Method	**Wison**	Final Borehole Depth	**66.50m**		

QC Status			Location Name
Preliminary	Draft	Final	**CB13-BH**
JK/BC (14/05/2021)	**DR** (10/06/2021)	**SMc** (10/11/2021)	

Preliminary Investigation, Hesselø OWF

BOREHOLE LOG, LABORATORY TEST RESULTS AND IN SITU CPTU TESTING

Relative to BSB (m)	Interpreted Soil Type	Env.	Age	Soil Depth (m)
60.5	Extremely high strength CLAY TILL, medium plasticity, very silty, very sandy, gravelly, dark greenish grey (GLEY 1 10Y 4/1), highly calcareous with medium to widely spaced thin to medium beds of gravel	Gl/Mw	Gc	
64.28	Extremely high strength CLAY, high plasticity, dark grey (5Y 4/1), non calcareous with very closely to closely spaced thin laminations of silt (<0.01m)	Gl	Gc	
	Extremely high strength CLAY, high plasticity, dark grey (5Y 4/1), non calcareous with very closely to closely spaced thin laminations of silt (<0.01m)	Gl	Gc	
65.50	Very weak CLAYSTONE, indurated, dark grey (5Y 4/1), non calcareous	Ma	Ct	
66.48	End of borehole at 66.50m			

Push Samples: PS6, PS7, PS8, PS9, PS10

CPT Ref No. / Cone ID / Cone Area (a): 11 101017 10cm² (0.78); 12 101017 10cm² (0.78); 13 101017 10cm² (0.78); 14 101017 10cm² (0.78)

Water Content (%): 0, 25, 50, 75, 100

Density (Mg/m³): 3, 2, 1, 0

Particle Size, %: Gravel, Sand, Fines, Silt, Clay

Relative Density, D_r (%): 0, 30, 60, 90, 120

Undrained Shear Strength, Su (kPa): 0, 300, 600, 900, 1200, 1500

Corrected Cone Resistance, q_t (MPa): 0, 12, 24, 36, 48, 60

Sleeve Friction, f_s(MPa): 0, 0.3, 0.6, 0.9, 1.2, 1.5

Pore Pressure, U_2 (kPa): -4500, -2250, 0, 2250, 4500

Ambient Pore Pressure (kPa)

KEY TO SOIL PROFILE

SILT, CLAY, SAND, GRAVEL, COBBLES, CHALK, PEAT, Mixed Soil

Assumed Unit Weight: 20 - 16 kN/m³
K_0: 0.5 - 2.0
N_{cr}: 15 - 20
N_{ch}: 12.5 - 16.5

Area	**Kattegat Sea**	Coordinates	**670639.2E 6262915.3N**	CRS: **ETRS89**	
Contract	**11596**	Latitude / Longitude		**Comments: Borehole CB13-BH was completed to a depth of 66.48m utilising API drilling~ Wison CPT and push sampling methods**	
Client Name / Ref	**Energinet Eltransmission A/S / 384_20_ENE**	Water Depth (mMSL)	**-29.9**		
Vessel	**MV Ocean Vantage**	Date of Test (Start-End)	**12/05/2021 - 14/05/2021**		
Method	**Wison**	Final Borehole Depth	**66.50m**		

QC Status		
Preliminary	Draft	Final
JK/BC (14/05/2021)	**DR** (10/06/2021)	**SMc** (10/11/2021)

Location Name: **CB13-BH**

Preliminary Investigation, Hesselø OWF

BOREHOLE LOG, LABORATORY TEST RESULTS AND IN SITU CPTU TESTING

Soil Depth (m)	Interpreted Soil Type	Env.	Age
0.28	Extremely low strength CLAY, medium plasticity, silty, slightly sandy, dark greenish grey (GLEY 1 10Y 4/1), calcareous, strong organic odour, with shell fragments (<0.02m)	Ma/Fw	Ho
0.82	SAND, fine to coarse, unsorted, very clayey, very silty, slightly gravely, very dark greyish olive (10Y 3/2), non calcareous	Ma/Fw	Ho
2.23	Extremely low strength CLAY, medium plasticity, sandy, slightly gravelly, dark greenish grey (GLEY 1 10Y 4/1), calcareous, with shell fragments (<0.02m)	Ma	Ho
4.22	SAND, fine to coarse, unsorted, clayey, silty, very gravelly, dark grey (5Y 4/1), highly calcareous 2.35-2.50m: Thin bed of gravel	Ma/Fw	Ho
	Very low to low becoming low to medium strength CLAY, high plasticity, very silty, slightly sandy greyish brown (10YR 5/2), calcareous with occasional black staining between 13.00m and 17.00m	Ma	Ho

Particle Size, %

Gravel	Sand	Fines	Silt	Clay
3	64	33	19	14
34	54	12	7	5
0	1	99	46	53

KEY TO SOIL PROFILE

SILT, CLAY, SAND, GRAVEL, COBBLES, CHALK, PEAT, Mixed Soil

Assumed Unit Weight: 20 - 16 kN/m³
K_0: 0.5 - 2.0
N_{kt}: 15 - 20
N_{kt}: 12.5 - 16.5

Area	**Kattegat Sea**	Coordinates	**680529.7E 6252848.4N**	CRS: **ETRS89**	QC Status: Preliminary / Draft / Final
Contract	**11596**	Latitude / Longitude		**Comments: Borehole CB14-BH was completed to a depth of 62.33m utilising API drilling~ Wison CPT and push sampling methods.**	
Client Name / Ref	**Energinet Eltransmission A/S / 384_20_ENE**	Water Depth (mMSL)	**-31.6**		
Vessel	**MV Ocean Vantage**	Date of Test (Start-End)	**20/05/2021 - 21/05/2021**		**JK/BC** (21/05/2021) / **DR** (10/06/2021) / **SMc** (10/11/2021)
Method	**Wison**	Final Borehole Depth	**62.35m**		

Location Name: **CB14-BH**

Preliminary Investigation, Hesselø OWF

BOREHOLE LOG, LABORATORY TEST RESULTS AND IN SITU CPTU TESTING

Relative to (mMSL)	Relative to BSB (m)	Soil Profile	Push Sample	CPTU Push	CPT Ref No. Cone ID Cone Area (a)	Soil Depth (m)	Interpreted Soil Type	Env.	Age
-42.0 to -51.5	10.5 to 19.5		P11 to P20				Very low to low becoming low to medium strength CLAY, high plasticity, very silty, slightly sandy greyish brown (10YR 5/2), calcareous with occasional black staining between 13.00m and 17.00m	Ma	Ho
							14.65-14.67m: Thick lamination of sand, fine to coarse, well sorted, dark grey (2.5Y 4/1), calcareous		
							15.00-15.88m: Thick bed of low to medium strength clay, high plasticity, slightly gravelly, dark greyish brown (2.5Y 4/2) with frequent black staining (2.5Y 2.5/1), calcareous		
						17.00	Low to medium strength CLAY, medium plasticity, very silty, slightly sandy, dark grey (2.5Y 4/1) with extremely closely to closely spaced thin laminations of silt, non plastic, dark greyish brown (2.5Y 4/2), calcareous	Ma/Fw	Ho
						19.79		Ma/Fw	Pg

Water Content (%): 0 25 50 75 100

Density (Mg/m^3): 3 2 1 0

Particle Size, %: Gravel | Sand | Fines | Silt | Clay

Gravel	Sand	Fines	Silt	Clay
0	1	99	42	57

Relative Density, D_r (%): 0 30 60 90 120

Undrained Shear Strength, Su (kPa): 0 300 600 900 1200 1500

Corrected Cone Resistance, q_t (MPa): 0 12 24 36 48 60

Sleeve Friction, f_s(MPa): 0 0.3 0.6 0.9 1.2 1.5

Pore Pressure, U_2 (kPa): -4500 -2250 0 2250 4500

Ambient Pore Pressure (kPa)

KEY TO SOIL PROFILE

SILT, CLAY, SAND, GRAVEL, COBBLES, CHALK, PEAT, Mixed Soil

Assumed Unit Weight: 20 - 16 kN/m^3
K_0: 0.5 - 2.0
N_{kt}: 15 - 20
N_{kt}: 12.5 - 16.5

Area	**Kattegat Sea**	Coordinates	**680529.7E 6252848.4N**	CRS: **ETRS89**	QC Status: Preliminary / Draft / Final
Contract	**11596**	Latitude / Longitude		**Comments: Borehole CB14-BH was completed to a depth of 62.33m utilising API drilling~ Wison CPT and push sampling methods.**	Location Name: **CB14-BH**
Client Name / Ref	**Energinet Eltransmission A/S / 384_20_ENE**	Water Depth (mMSL)	**-31.6**		
Vessel	**MV Ocean Vantage**	Date of Test (Start-End)	**20/05/2021 - 21/05/2021**		JK/BC (21/05/2021) / DR (10/06/2021) / SMc (10/11/2021)
Method	**Wison**	Final Borehole Depth	**62.35m**		

Preliminary Investigation, Hesselø OWF

BOREHOLE LOG, LABORATORY TEST RESULTS AND IN SITU CPTU TESTING

Relative to (mMSL)	Relative to BSB (m)	Soil Depth (m)	Interpreted Soil Type	Env.	Age	Gravel	Sand	Fines	Silt	Clay
-52.0	20.5		Extremely high strength CLAY, low plasticity, very silty, very sandy, greyish brown (2.5Y 5/2), slightly calcareous 20.40-20.48m: Thin bed of high strength clay	Ma/Fw	Pg	0	63	37	27	10
-53.0	21.0	21.00	High to very high strength locally extremely high strength CLAY, medium plasticity, very silty, very sandy, slightly gravelly, dark grey (2.5Y 4/1), slightly calcareous with pockets (<0.06m) of sand, fine to medium, well sorted, silty, dark greyish brown (2.5Y 4/2), slightly calcareous 24.82-25.21m: Medium bed of very low to low strength clay	Ma/Fw	Pg					
-58.5	27.0	27.00	Medium to high strength CLAY, medium plasticity, very silty, very sandy, slightly gravelly, with pockets (<0.06m) and very closely spaced thick laminations of sand, fine, well sorted, light olive brown (2.5Y 4/3), dark grey (2.5Y 4/1), calcareous	Ma/Fw	Pg	3	32	65	39	26
-60.5	28.5	28.84	Medium dense SAND, fine to medium, unsorted, clayey, very silty, dark greyish brown (2.5Y 4/2), calcareous	Ma/Fw	Pg	3	30	67	46	21
-61.5	29.5					0	76	24	19	5

Water Content (%) 0 25 50 75 100

Density (Mg/m^3) 3 2 1 0

Particle Size, %

Relative Density, D_r (%) 0 30 60 90 120

Undrained Shear Strength, Su (kPa) 0 300 600 900 1200 1500

Corrected Cone Resistance, q_t (MPa) 0 12 24 36 48 60

Sleeve Friction, f_s (MPa) 0 0.3 0.6 0.9 1.2 1.5

Pore Pressure, U_2 (kPa) -4500 -2250 0 2250 4500

Ambient Pore Pressure (kPa)

Push Sample: P21, P22, P23, P24, P25, P26, P27, P28, P29, P30

CPTU Push

CPT Ref No. / Cone ID / Cone Area (a)

01 121126 10cm² (0.79)

02 121126 10cm² (0.79)

03 120826 10cm² (0.76)

KEY TO SOIL PROFILE

SILT, CLAY, SAND, GRAVEL, COBBLES, CHALK, PEAT, Mixed Soil

Assumed Unit Weight: 20 - 16 kN/m³
K_0: 0.5 - 2.0
N_{kt}: 15 - 20
N_{kt}: 12.5 - 16.5

Area	**Kattegat Sea**	Coordinates	**680529.7E 6252848.4N**
Contract	**11596**	Latitude / Longitude	
Client Name / Ref	**Energinet Eltransmission A/S / 384_20_ENE**	Water Depth (mMSL)	**-31.6**
Vessel	**MV Ocean Vantage**	Date of Test (Start-End)	**20/05/2021 - 21/05/2021**
Method	**Wison**	Final Borehole Depth	**62.35m**

CRS: **ETRS89**

Comments: Borehole CB14-BH was completed to a depth of 62.33m utilising API drilling~ Wison CPT and push sampling methods.

QC Status		
Preliminary	Draft	Final
JK/BC (21/05/2021)	**DR** (10/06/2021)	**SMc** (10/11/2021)

Location Name: **CB14-BH**

Preliminary Investigation, Hesselø OWF

BOREHOLE LOG, LABORATORY TEST RESULTS AND IN SITU CPTU TESTING

Relative to BSB (m)	Soil Depth (m)	Interpreted Soil Type	Env.	Age
30.5 – 30.76	30.76	Medium dense SAND, fine to medium, unsorted, clayey, very silty, dark greyish brown (2.5Y 4/2), calcareous	Ma/Fw	Pg
30.76 – 37.76	37.76	Very high strength CLAY TILL, medium plasticity, very silty, sandy, slightly gravelly, very dark greenish grey (GLEY1 5GY 3/1), slightly calcareous	Ma/Fw	Gc
37.76 – 39.5		Very high to extremely high strength CLAY, medium plasticity, very silty, very sandy, with pockets (<0.03m) of sand, medium to coarse, well sorted, dark greenish grey (GLEY1 10Y 4/1), very dark greenish grey (GLEY1 5GY 3/1), slightly calcareous	Gl	Gc

Push Sample: P31, P32, P33, P34, P35, P36, P37, P38, P39, P40

CPT Push: 04 120826 10cm² (0.76); 05 120826 10cm² (0.76)

Particle Size, %	Gravel	Sand	Fines	Silt	Clay
Medium dense SAND	2	20	78	45	33
Very high strength CLAY TILL	0	35	65	33	32

Water Content (%); Density (Mg/m³); Relative Density, D_r (%); Undrained Shear Strength, Su (kPa); Corrected Cone Resistance, q_t (MPa); Sleeve Friction, f_s (MPa); Pore Pressure, U_2 (kPa); Ambient Pore Pressure (kPa)

KEY TO SOIL PROFILE

SILT, CLAY, SAND, GRAVEL, COBBLES, CHALK, PEAT, Mixed Soil

Assumed Unit Weight: 20 - 16 kN/m³
K_C: 0.5 - 2.0
N_{KT}: 15 - 20
N_{kt}: 12.5 - 16.5

Area	**Kattegat Sea**	Coordinates	**680529.7E 6252848.4N**
Contract	**11596**	Latitude / Longitude	
Client Name / Ref	**Energinet Eltransmission A/S / 384_20_ENE**	Water Depth (mMSL)	**-31.6**
Vessel	**MV Ocean Vantage**	Date of Test (Start-End)	**20/05/2021 - 21/05/2021**
Method	**Wison**	Final Borehole Depth	**62.35m**

CRS: **ETRS89**

Comments: Borehole CB14-BH was completed to a depth of 62.33m utilising API drilling~ Wison CPT and push sampling methods.

QC Status	Preliminary	Draft	Final
	JK/BC (21/05/2021)	**DR** (10/06/2021)	**SMc** (10/11/2021)

Location Name: **CB14-BH**

Preliminary Investigation, Hesselø OWF

BOREHOLE LOG, LABORATORY TEST RESULTS AND IN SITU CPTU TESTING

Relative to (mMSL)	Relative to BSB (m)	Soil Profile	Push Sample	CPTU Push	CPT Ref No. Cone ID Cone Area (a)	Soil Depth (m)	Interpreted Soil Type	Env.	Age
-72.0 to -74.0	40.5 to 42.5		P41 P42 P43		06 120826 10cm² (0.76)	42.68	Very high to extremely high strength CLAY, medium plasticity, very silty, very sandy, with pockets (<0.03m) of sand, medium to coarse, well sorted, dark greenish grey (GLEY1 10Y 4/1), very dark greenish grey (GLEY1 5GY 3/1), slightly calcareous	Gl	Gc
-74.5 to -81.5	43.0 to 49.5		P44 P45 P46 P47 P48 P49 P50		07 120826 10cm² (0.76) 08 120826 10cm² (0.76)		Extremely high strength CLAY, high plasticity, very silty, slightly sandy, with shell fragments (<0.02m), with pockets of silt (<0.03m), light grey (5Y 7/2), between 43.00m and 43.69m, very dark greenish grey (GLEY1 5GY 3/1), slightly calcareous	Gl	Gc

Water Content (%): 0, 25, 50, 75, 100

Density (Mg/m³): 3, 2, 1, 0

Particle Size, %

Gravel	Sand	Fines	Silt	Clay
0	2	98	59	39

Relative Density, D_r (%): 0, 30, 60, 90, 120

Undrained Shear Strength, Su (kPa): 0, 300, 600, 900, 1200, 1500

Corrected Cone Resistance, q_t (MPa): 0, 12, 24, 36, 48, 60

Sleeve Friction, f_s (MPa): 0, 0.3, 0.6, 0.9, 1.2, 1.5

Pore Pressure, U_2 (kPa): -4500, -2250, 0, 2250, 4500

Ambient Pore Pressure (kPa)

Relative to BSB (m): 40.5 to 49.5

KEY TO SOIL PROFILE

SILT, CLAY, SAND, GRAVEL, COBBLES, CHALK, PEAT, Mixed Soil

Assumed Unit Weight: 20 - 16 kN/m³
K_0: 0.5 - 2.0
N_{kt}: 15 - 20
N_{kt}: 12.5 - 16.5

Area	**Kattegat Sea**	Coordinates	**680529.7E 6252848.4N**	CRS: **ETRS89**	QC Status: Preliminary / Draft / Final
Contract	**11596**	Latitude / Longitude		**Comments: Borehole CB14-BH was completed to a depth of 62.33m utilising API drilling~ Wison CPT and push sampling methods.**	
Client Name / Ref	**Energinet Eltransmission A/S / 384_20_ENE**	Water Depth (mMSL)	**-31.6**		
Vessel	**MV Ocean Vantage**	Date of Test (Start-End)	**20/05/2021 - 21/05/2021**		**JK/BC** (21/05/2021) / **DR** (10/06/2021) / **SMc** (10/11/2021)
Method	**Wison**	Final Borehole Depth	**62.35m**		

Location Name: **CB14-BH**

Preliminary Investigation, Hesselø OWF

BOREHOLE LOG, LABORATORY TEST RESULTS AND IN SITU CPTU TESTING

Relative to (mMSL)	Relative to BSB (m)	Soil Profile	Push Sample	CPTU Push	CPT Ref No. Cone ID Cone Area (a)	Soil Depth (m)	Interpreted Soil Type	Env.	Age
-82.0 to -91.5	50.5 to 59.5		PS1, PS2		09 120826 10cm² (0.76); 10 120826 10cm² (0.76); 11 120826 10cm² (0.76); 12 120825 10cm² (0.76)	53.00	Extremely high strength CLAY, high plasticity, very silty, slightly sandy, with shell fragments (<0.02m), with pockets of silt (<0.03m), light grey (5Y 7/2), between 43.00m and 43.69m, very dark greenish grey (GLEY1 5GY 3/1), slightly calcareous	Gl	Gc
							Extremely high strength CLAY, high plasticity, slightly sandy, slightly gravelly, with pockets (<0.06m) of sand, fine, with shell fragments (<0.03m) very dark greenish grey (GLEY 1 5GY 3/1), highly calcareous	Gl	Gc
						58.64	Dense to very dense SAND, silty	Gl	Gc

Water Content (%) 0 25 50 75 100

Density (Mg/m³) 3 2 1 0

Particle Size, % — Gravel | Sand | Fines | Silt | Clay

Relative Density, D_r (%) 0 30 60 90 120

Undrained Shear Strength, Su (kPa) 0 300 600 900 1200 1500

Corrected Cone Resistance, q_t (MPa) 0 12 24 36 48 60

Sleeve Friction, f_s (MPa) 0 0.3 0.6 0.9 1.2 1.5

Pore Pressure, U_2 (kPa) -4500 -2250 0 2250 4500

Ambient Pore Pressure (kPa)

KEY TO SOIL PROFILE

SILT · CLAY · SAND · GRAVEL · COBBLES · CHALK · PEAT · Mixed Soil

Assumed Unit Weight: 20 - 16 kN/m³
K_0: 0.5 - 2.0
N_{kt}: 15 - 20
N_{ke}: 12.5 - 16.5

Area	**Kattegat Sea**	Coordinates	**680529.7E**	**6252848.4N**	CRS: **ETRS89**
Contract	**11596**	Latitude / Longitude			
Client Name / Ref	**Energinet Eltransmission A/S / 384_20_ENE**	Water Depth (mMSL)	**-31.6**		**Comments: Borehole CB14-BH was completed to a depth of 62.33m utilising API drilling~ Wison CPT and push sampling methods.**
Vessel	**MV Ocean Vantage**	Date of Test (Start-End)	**20/05/2021 - 21/05/2021**		
Method	**Wison**	Final Borehole Depth	**62.35m**		

QC Status			Location Name
Preliminary	Draft	Final	**CB14-BH**
JK/BC (21/05/2021)	**DR** (10/06/2021)	**SMc** (10/11/2021)	

Preliminary Investigation, Hesselø OWF

BOREHOLE LOG, LABORATORY TEST RESULTS AND IN SITU CPTU TESTING

Soil Depth (m)	Interpreted Soil Type	Env.	Age
60.00	Extremely high strength CLAY, very high plasticity, very silty, very dark greenish grey (GLEY1 5GY 3/1), friable, tending towards siltstone, non calcareous		
	61.10-61.28m: Thin bed of gravel	Gl	Gc
62.00	SILTSTONE, indurated, micaceous, dark greenish grey (GLEY1 10Y 3/1), non calcareous	Gl	Ct
62.33	End of borehole at 62.35m		

Push Sample: PS(U) 13 121125 10cm² (0.8); PS(U) 14 121125 10cm² (0.8); PS(U) 15 121125 10cm² (0.8)

CPTU Push

Water Content (%): 0, 25, 50, 75, 100

Density (Mg/m³): 3, 2, 1, 0

Particle Size, %: Gravel, Sand, Fines, Silt, Clay

Relative Density, D_r (%): 0, 30, 60, 90, 120

Undrained Shear Strength, Su (kPa): 0, 300, 600, 900, 1200, 1500

Corrected Cone Resistance, q_t (MPa): 0, 12, 24, 36, 48, 60

Sleeve Friction, f_s(MPa): 0, 0.3, 0.6, 0.9, 1.2, 1.5

Pore Pressure, U_2 (kPa): -4500, -2250, 0, 2250, 4500

Ambient Pore Pressure (kPa)

Relative to (mMSL): -92.0, -92.5, -93.0, -93.5, -94.0, -94.5, -95.0, -95.5, -96.0, -96.5, -97.0, -97.5, -98.0, -98.5, -99.0, -99.5, -100.0, -100.5, -101.0, -101.5

Relative to BSB (m): 60.5, 61.0, 61.5, 62.0, 62.5, 63.0, 63.5, 64.0, 64.5, 65.0, 65.5, 66.0, 66.5, 67.0, 67.5, 68.0, 68.5, 69.0, 69.5

KEY TO SOIL PROFILE

SILT, CLAY, SAND, GRAVEL, COBBLES, CHALK, PEAT, Mixed Soil

Assumed Unit Weight: 20 - 16 kN/m³
K_0: 0.5 - 2.0
N_{kt}: 15 - 20
N_{kt}: 12.5 - 16.5

Area	**Kattegat Sea**	Coordinates	**680529.7E 6252848.4N**	CRS: **ETRS89**	QC Status: Preliminary / Draft / Final
Contract	**11596**	Latitude / Longitude		**Comments: Borehole CB14-BH was completed to a depth of 62.33m utilising API drilling~ Wison CPT and push sampling methods.**	Location Name: **CB14-BH**
Client Name / Ref	**Energinet Eltransmission A/S / 384_20_ENE**	Water Depth (mMSL)	**-31.6**		
Vessel	**MV Ocean Vantage**	Date of Test (Start-End)	**20/05/2021 - 21/05/2021**		
Method	**Wison**	Final Borehole Depth	**62.35m**		

Preliminary	Draft	Final
JK/BC (21/05/2021)	**DR** (10/06/2021)	**SMc** (10/11/2021)

Preliminary Investigation, Hesselø OWF

BOREHOLE LOG, LABORATORY TEST RESULTS AND IN SITU CPTU TESTING

Relative to (mMSL)	Relative to BSB (m)	Soil Profile	Push Sample	CPTU Push	CPT Ref No. Cone ID Cone Area (a)	Soil Depth (m)	Interpreted Soil Type	Env.	Age
-32.0 to -41.5	0.5 to 9.5		P01 P02 P03 P04 P05 P06 P07 P08 P09 P10			2.63	Extremely low to low strength CLAY, medium plasticity, very silty, very sandy, slightly gravelly, dark greenish grey (GLEY1 10Y 4/1), slightly calcareous	Ma/Fw	Ho
							Extremely low to low strength CLAY, high plasticity, very silty, slightly sandy, greyish brown (2.5Y 5/2), slightly calcareous	Ma/Fw	Ho

Water Content (%): 0, 25, 50, 75, 100

Density (Mg/m^3): 3, 2, 1, 0

Particle Size, %	Gravel	Sand	Fines	Silt	Clay
	1	47	52	30	22
	0	3	97	39	58

Relative Density, D_r (%): 0, 30, 60, 90, 120

Undrained Shear Strength, Su (kPa): 0, 300, 600, 900, 1200, 1500

Corrected Cone Resistance, q_t (MPa): 0, 12, 24, 36, 48, 60

Sleeve Friction, f_s (MPa): 0, 0.3, 0.6, 0.9, 1.2, 1.5

Pore Pressure, U_2 (kPa): -4500, -2250, 0, 2250, 4500

Ambient Pore Pressure (kPa)

KEY TO SOIL PROFILE

SILT · CLAY · SAND · GRAVEL · COBBLES · CHALK · PEAT · Mixed Soil

Assumed Unit Weight: 20 - 16 kN/m^3
K_0: 0.5 - 2.0
N_{kt}: 15 - 20
N_{kt}: 12.5 - 16.5

Area	**Kattegat Sea**	Coordinates	**674181.3E 6265901.1N**	CRS: **ETRS89**	
Contract	**11596**	Latitude / Longitude		**Comments: Borehole OSS1-BH was completed to a depth of 70.20m utilising API drilling~ Wison CPT and push sampling methods.**	
Client Name / Ref	**Energinet Eltransmission A/S / 384_20_ENE**	Water Depth (mMSL)	**-31.7**		
Vessel	**MV Ocean Vantage**	Date of Test (Start-End)	**31/05/2021 - 02/06/2021**		
Method	**Wison**	Final Borehole Depth	**70.20m**		

QC Status			Location Name
Preliminary	Draft	Final	**OSS1-BH**
JK/BC (31/05/2021)	**DR** (10/06/2021)	**SMc** (10/11/2021)	

Preliminary Investigation, Hesselø OWF

BOREHOLE LOG, LABORATORY TEST RESULTS AND IN SITU CPTU TESTING

Relative to (mMSL)	Relative to BSB (m)	Soil Profile	Push Sample	CPTU Push	CPT Ref No. Cone ID Cone Area (a)	Soil Depth (m)	Interpreted Soil Type	Env.	Age
-42.0	10.5		P11				Extremely low to low strength CLAY, high plasticity, very silty, slightly sandy, greyish brown (2.5Y 5/2), slightly calcareous		
-42.5	11.0								
-43.0	11.5		P12				Very low to low strength CLAY, high plasticity, greyish brown (2.5Y 5/2), slightly calcareous		
-43.5	12.0								
-44.0	12.5		P13						
-44.5	13.0								
-45.0	13.5		P14						
-45.5	14.0							Ma/Fw	Ho
-46.0	14.5		P15					Ma/Fw	Ho
-46.5	15.0								
-47.0	15.5		P16						
-47.5	16.0								
-48.0	16.5		P17						
-48.5	17.0								
-49.0	17.5		P18						
-49.5	18.0					17.87	Low to medium strength CLAY, high plasticity, very silty, sightly sandy, with occasional black staining, greyish brown (2.5Y 5/2), slightly calcareous		
-50.0	18.5		P19					Ma/Fw	Pg
-50.5	19.0								
-51.0	19.5		P20						
-51.5									

Relative to BSB (m)	Water Content (%)	Density (Mg/m^3)	Gravel	Sand	Fines	Silt	Clay	Relative Density, D_r (%) / Undrained Shear Strength, Su (kPa)	Corrected Cone Resistance, q_t (MPa) / Sleeve Friction, f_s (MPa)	Pore Pressure, U_2 (kPa) / Ambient Pore Pressure (kPa)	Relative to BSB (m)
10.5	0 25 50 75 100	3 2 1 0						0 30 60 90 120 / 0 300 600 900 1200 1500	0 12 24 36 48 60 / 0 0.3 0.6 0.9 1.2 1.5	-4500 -2250 0 2250 4500	10.5
11.0											11.0
11.5											11.5
12.0			0	2	98	54	44				12.0
12.5											12.5
13.0											13.0
13.5											13.5
14.0											14.0
14.5											14.5
15.0											15.0
15.5											15.5
16.0											16.0
16.5											16.5
17.0											17.0
17.5											17.5
18.0			0	1	99	68	31				18.0
18.5											18.5
19.0											19.0
19.5											19.5

KEY TO SOIL PROFILE

SILT, CLAY, SAND, GRAVEL, COBBLES, CHALK, PEAT, Mixed Soil

Assumed Unit Weight: 20 - 16 kN/m^3
K_0: 0.5 - 2.0
N_{kt}: 15 - 20
N_{kt}: 12.5 - 16.5

Area	**Kattegat Sea**	Coordinates	**674181.3E 6265901.1N**	CRS: **ETRS89**	QC Status: Preliminary / Draft / Final
Contract	**11596**	Latitude / Longitude		**Comments: Borehole OSS1-BH was completed to a depth of 70.20m utilising API drilling~ Wison CPT and push sampling methods.**	Location Name: **OSS1-BH**
Client Name / Ref	**Energinet Eltransmission A/S / 384_20_ENE**	Water Depth (mMSL)	**-31.7**		
Vessel	**MV Ocean Vantage**	Date of Test (Start-End)	**31/05/2021 - 02/06/2021**		**JK/BC** (31/05/2021) / **DR** (10/06/2021) / **SMc** (10/11/2021)
Method	**Wison**	Final Borehole Depth	**70.20m**		Page: 2/8

Preliminary Investigation, Hesselø OWF

BOREHOLE LOG, LABORATORY TEST RESULTS AND IN SITU CPTU TESTING

Relative to (mMSL)	Relative to BSB (m)	Soil Profile	Push Sample	CPTU Push	CPT Ref No. Cone ID Cone Area (a)	Soil Depth (m)	Interpreted Soil Type	Env.	Age
-52.0 to -61.5	20.5 to 29.5		P21 to P30			29.94	Low to medium strength CLAY, high plasticity, very silty, sightly sandy, with occasional black staining, greyish brown (2.5Y 5/2), slightly calcareous 26.60-27.88m: Thick bed of low to medium strength clay, high plasticity, slightly sandy, slightly gravelly, with occasional black staining, dark grey (2.5Y 4/1), slightly calcareous	Ma/Fw	Pg

Water Content (%): 0, 25, 50, 75, 100

Density (Mg/m^3): 3, 2, 1, 0

Particle Size, %: Gravel | Sand | Fines | Silt | Clay

Relative Density, D_r (%): 0, 30, 60, 90, 120

Undrained Shear Strength, Su (kPa): 0, 300, 600, 900, 1200, 1500

Corrected Cone Resistance, q_t (MPa): 0, 12, 24, 36, 48, 60

Sleeve Friction, f_s(MPa): 0, 0.3, 0.6, 0.9, 1.2, 1.5

Pore Pressure, U_2 (kPa): -4500, -2250, 0, 2250, 4500

Ambient Pore Pressure (kPa)

KEY TO SOIL PROFILE

SILT | CLAY | SAND | GRAVEL | COBBLES | CHALK | PEAT | Mixed Soil

Assumed Unit Weight: 20 - 16 kN/m^3
K_0: 0.5 - 2.0
N_{kt}: 15 - 20
N_{kt}: 12.5 - 16.5

Area	**Kattegat Sea**	Coordinates	**674181.3E 6265901.1N**	CRS: **ETRS89**	QC Status: Preliminary / Draft / Final
Contract	**11596**	Latitude / Longitude		**Comments: Borehole OSS1-BH was completed to a depth of 70.20m utilising API drilling~ Wison CPT and push sampling methods.**	
Client Name / Ref	**Energinet Eltransmission A/S / 384_20_ENE**	Water Depth (mMSL)	**-31.7**		
Vessel	**MV Ocean Vantage**	Date of Test (Start-End)	**31/05/2021 - 02/06/2021**		**JK/BC** (31/05/2021) / **DR** (10/06/2021) / **SMc** (10/11/2021)
Method	**Wison**	Final Borehole Depth	**70.20m**		

Location Name: **OSS1-BH**

Preliminary Investigation, Hesselø OWF

BOREHOLE LOG, LABORATORY TEST RESULTS AND IN SITU CPTU TESTING

Relative to (mMSL)	Relative to BSB (m)	Soil Profile	Push Sample	CPTU Push	CPT Ref No. Cone ID Cone Area (a)	Soil Depth (m)	Interpreted Soil Type	Env.	Age
-62.0 to -71.5	30.5 to 39.5		P31, P32, P33, P34, P35, P36A, P37, P38A, P39, P40				Medium strength CLAY, medium plasticity, silty, slightly sandy, slightly gravelly, dark grey (2.5Y 4/1), slightly calcareous	Ma/Fw	Lg

Water Content (%): 0 25 50 75 100

Density (Mg/m^3): 3 2 1 0

Particle Size, %

Gravel	Sand	Fines	Silt	Clay
3	18	79	47	32

Relative Density, D_r (%): 0 30 60 90 120

Undrained Shear Strength, Su (kPa): 0 300 600 900 1200 1500

Corrected Cone Resistance, q_t (MPa): 0 12 24 36 48 60

Sleeve Friction, f_s(MPa): 0 0.3 0.6 0.9 1.2 1.5

Pore Pressure, U_2 (kPa): -4500 -2250 0 2250 4500

Ambient Pore Pressure (kPa)

KEY TO SOIL PROFILE

SILT, CLAY, SAND, GRAVEL, COBBLES, CHALK, PEAT, Mixed Soil

Assumed Unit Weight: 20 - 16 kN/m^3
K_0: 0.5 - 2.0
N_{kt}: 15 - 20
$N_{\Delta u}$: 12.5 - 16.5

Area	**Kattegat Sea**	Coordinates	**674181.3E 6265901.1N**	CRS: **ETRS89**	QC Status: Preliminary / Draft / Final
Contract	**11596**	Latitude / Longitude		**Comments: Borehole OSS1-BH was completed to a depth of 70.20m utilising API drilling~ Wison CPT and push sampling methods.**	
Client Name / Ref	**Energinet Eltransmission A/S / 384_20_ENE**	Water Depth (mMSL)	**-31.7**		
Vessel	**MV Ocean Vantage**	Date of Test (Start-End)	**31/05/2021 - 02/06/2021**		**JK/BC** (31/05/2021) / **DR** (10/06/2021) / **SMc** (10/11/2021)
Method	**Wison**	Final Borehole Depth	**70.20m**		

Location Name: **OSS1-BH**

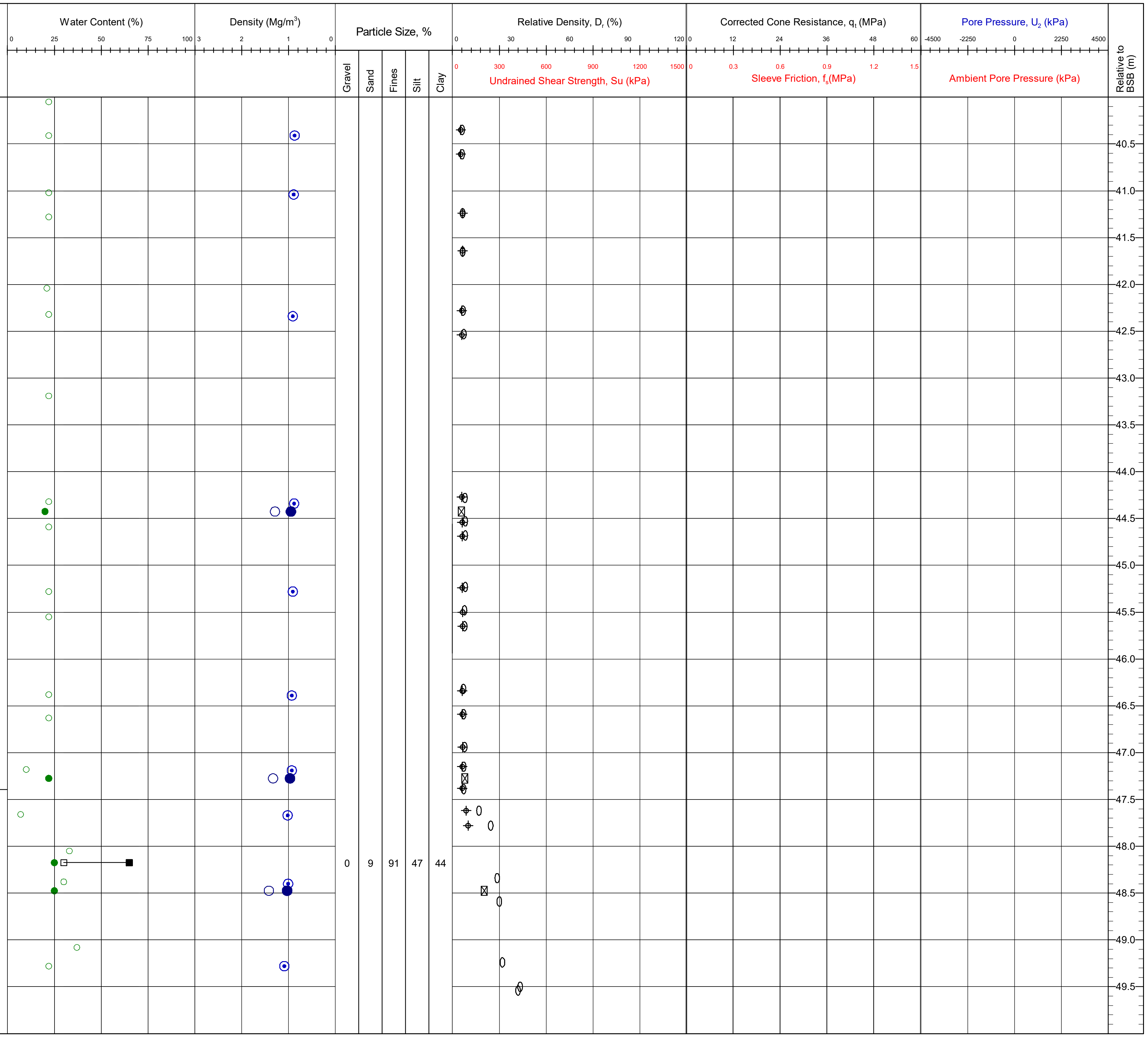
Preliminary Investigation, Hesselø OWF

BOREHOLE LOG, LABORATORY TEST RESULTS AND IN SITU CPTU TESTING

Relative to (mMSL)	Relative to BSB (m)	Soil Profile	Push Sample	CPTU Push	CPT Ref No. / Cone ID / Cone Area (α)	Soil Depth (m)	Interpreted Soil Type	Env.	Age
-72.0 to -79.0	40.5 to 47.4		P41, P42, P43, P44, P45, P46, P47, P48				Medium strength CLAY, medium plasticity, silty, slightly sandy, slightly gravelly, dark grey (2.5Y 4/1), slightly calcareous	Ma/Fw	Lg
-79.0 to -81.5	47.4 to 49.5		P48, P49, P50			47.40	Very high to extremely high strength CLAY, high plasticity very silty, slightly sandy, with pockets (<0.02m) of sand, fine, well sorted with shell fragments (<0.04m), very dark greenish grey (GLEY1 5GY 3/1), highly calcareous	Ma/Fw	Lg

Relative to (mMSL) scale: -72.0, -72.5, -73.0, -73.5, -74.0, -74.5, -75.0, -75.5, -76.0, -76.5, -77.0, -77.5, -78.0, -78.5, -79.0, -79.5, -80.0, -80.5, -81.0, -81.5

Relative to BSB (m) scale: 40.5, 41.0, 41.5, 42.0, 42.5, 43.0, 43.5, 44.0, 44.5, 45.0, 45.5, 46.0, 46.5, 47.0, 47.5, 48.0, 48.5, 49.0, 49.5



KEY TO SOIL PROFILE

SILT, CLAY, SAND, GRAVEL, COBBLES, CHALK, PEAT, Mixed Soil

Assumed Unit Weight: 20 - 16 kN/m³
K_0: 0.5 - 2.0
N_{KT}: 15 - 20
N_{KT}: 12.5 - 16.5

Area	Kattegat Sea	Coordinates	674181.3E 6265901.1N
Contract	11596	Latitude / Longitude	
Client Name / Ref	Energinet Eltransmission A/S / 384_20_ENE	Water Depth (mMSL)	-31.7
Vessel	MV Ocean Vantage	Date of Test (Start-End)	31/05/2021 - 02/06/2021
Method	Wison	Final Borehole Depth	70.20m

CRS: **ETRS89**

Comments: Borehole OSS1-BH was completed to a depth of 70.20m utilising API drilling~ Wison CPT and push sampling methods.

QC Status		
Preliminary	Draft	Final
JK/BC (31/05/2021)	DR (10/06/2021)	SMc (10/11/2021)

Location Name

OSS1-BH

Preliminary Investigation, Hesselø OWF

BOREHOLE LOG, LABORATORY TEST RESULTS AND IN SITU CPTU TESTING

Relative to (mMSL)	Relative to BSB (m)	Soil Depth (m)	Interpreted Soil Type	Env.	Age
-82.0 to -84.5	50.5 to 52.5	53.00	Very high to extremely high strength CLAY, high plasticity very silty, slightly sandy, with pockets (<0.02m) of sand, fine, well sorted with shell fragments (<0.04m), very dark greenish grey (GLEY1 5GY 3/1), highly calcareous	Ma/Fw	Lg
-85.0 to -91.5	53.0 to 59.5		Very high to extremely high strength CLAY TILL, medium plasticity, very silty, slightly sandy, slightly gravelly, dark greenish grey (GLEY1 10Y 4/1) to greenish grey (GLEY1 10Y 5/1), highly calcareous 53.66-53.78m: Thin bed of gravel 58.03-58.08: Very thin bed of medium dense sand, silty	Ma/Fw	Gc

Soil Profile: SILT, SAND, CHALK, CLAY, GRAVEL, PEAT, COBBLES, Mixed Soil

Push Sample: PS1, PS2, PS3, PS4

CPTU Push

CPT Ref No. / Cone ID / Cone Area (a):
- 01 121004 10cm² (0.78)
- 02 121004 10cm² (0.78)
- 03 121126 10cm² (0.79)
- 04 121126 10cm² (0.79)

Water Content (%): 0 25 50 75 100

Density (Mg/m³): 3 2 1 0

Particle Size, %: Gravel, Sand, Fines, Silt, Clay

Relative Density, D_r (%): 0 30 60 90 120

Undrained Shear Strength, Su (kPa): 0 300 600 900 1200 1500

Corrected Cone Resistance, q_t (MPa): 0 12 24 36 48 60

Sleeve Friction, f_s(MPa): 0 0.3 0.6 0.9 1.2 1.5

Pore Pressure, U_2 (kPa): -4500 -2250 0 2250 4500

Ambient Pore Pressure (kPa)

Assumed Unit Weight: 20 - 16 kN/m³
K_0: 0.5 - 2.0
N_{kt}: 15 - 20
$N_{\Delta t}$: 12.5 - 16.5

Area	**Kattegat Sea**	Coordinates	**674181.3E 6265901.1N**	CRS: **ETRS89**	QC Status: Preliminary / Draft / Final
Contract	**11596**	Latitude / Longitude		**Comments: Borehole OSS1-BH was completed to a depth of 70.20m utilising API drilling~ Wison CPT and push sampling methods.**	Location Name: **OSS1-BH**
Client Name / Ref	**Energinet Eltransmission A/S / 384_20_ENE**	Water Depth (mMSL)	**-31.7**		
Vessel	**MV Ocean Vantage**	Date of Test (Start-End)	**31/05/2021 - 02/06/2021**		**JK/BC** (31/05/2021) / **DR** (10/06/2021) / **SMc** (10/11/2021)
Method	**Wison**	Final Borehole Depth	**70.20m**		

Preliminary Investigation, Hesselø OWF

BOREHOLE LOG, LABORATORY TEST RESULTS AND IN SITU CPTU TESTING

Relative to (mMSL)	Relative to BSB (m)	Soil Profile	Push Sample	CPTU Push	CPT Ref No. Cone ID Cone Area (a)	Soil Depth (m)	Interpreted Soil Type	Env.	Age
-92.0 to -101.5	60.5 to 69.5				05 121126 10cm² (0.79) 06 121126 10cm² (0.79) 07 121126 10cm² (0.79)		Very high to extremely high strength CLAY TILL, medium plasticity, very silty, slightly sandy, slightly gravelly, dark greenish grey (GLEY1 10Y 4/1) to greenish grey (GLEY1 10Y 5/1), highly calcareous	Ma/Fw	Gc

Water Content (%): 0 25 50 75 100

Density (Mg/m³): 3 2 1 0

Particle Size, %: Gravel | Sand | Fines | Silt | Clay

Relative Density, D_r (%): 0 30 60 90 120

Undrained Shear Strength, Su (kPa): 0 300 600 900 1200 1500

Corrected Cone Resistance, q_t (MPa): 0 12 24 36 48 60

Sleeve Friction, f_s (MPa): 0 0.3 0.6 0.9 1.2 1.5

Pore Pressure, U_2 (kPa): -4500 -2250 0 2250 4500

Ambient Pore Pressure (kPa)

KEY TO SOIL PROFILE

SILT · CLAY · SAND · GRAVEL · COBBLES · CHALK · PEAT · Mixed Soil

Assumed Unit Weight: 20 - 16 kN/m³
K_0: 0.5 - 2.0
N_{kt}: 15 - 20
$N_{\Delta u}$: 12.5 - 16.5

Area	**Kattegat Sea**	Coordinates	**674181.3E**	**6265901.1N**	CRS: **ETRS89**
Contract	**11596**	Latitude / Longitude			**Comments: Borehole OSS1-BH was completed to a depth of 70.20m utilising API drilling~ Wison CPT and push sampling methods.**
Client Name / Ref	**Energinet Eltransmission A/S / 384_20_ENE**	Water Depth (mMSL)	**-31.7**		
Vessel	**MV Ocean Vantage**	Date of Test (Start-End)	**31/05/2021 - 02/06/2021**		
Method	**Wison**	Final Borehole Depth	**70.20m**		

QC Status			Location Name
Preliminary	Draft	Final	**OSS1-BH**
JK/BC (31/05/2021)	**DR** (10/06/2021)	**SMc** (10/11/2021)	

Preliminary Investigation, Hesselø OWF

BOREHOLE LOG, LABORATORY TEST RESULTS AND IN SITU CPTU TESTING

Relative to (mMSL)	Relative to BSB (m)	Soil Profile	Push Sample / CPTU Push	CPT Ref No. / Cone ID / Cone Area (a)	Soil Depth (m)	Interpreted Soil Type	Env.	Age
-102.0	70.5						Ma/Fw	Gc
						End of borehole at 70.20m		

Water Content (%): 0 25 50 75 100

Density (Mg/m^3): 3 2 1 0

Particle Size, %	Gravel	Sand	Fines	Silt	Clay
	1	6	93	65	28

Relative Density, D_r (%): 0 30 60 90 120

Undrained Shear Strength, Su (kPa): 0 300 600 900 1200 1500

Corrected Cone Resistance, q_t (MPa): 0 12 24 36 48 60

Sleeve Friction, f_s(MPa): 0 0.3 0.6 0.9 1.2 1.5

Pore Pressure, U_2 (kPa): -4500 -2250 0 2250 4500

Ambient Pore Pressure (kPa)

Relative to BSB (m): 70.5 71.0 71.5 72.0 72.5 73.0 73.5 74.0 74.5 75.0 75.5 76.0 76.5 77.0 77.5 78.0 78.5 79.0 79.5

KEY TO SOIL PROFILE

SILT, CLAY, SAND, GRAVEL, COBBLES, CHALK, PEAT, Mixed Soil

Assumed Unit Weight: 20 - 16 kN/m^3
K_0: 0.5 - 2.0
N_{kt}: 15 - 20
$N_{\Delta u}$: 12.5 - 16.5

Area	**Kattegat Sea**	Coordinates	**674181.3E 6265901.1N**	CRS: **ETRS89**	
Contract	**11596**	Latitude / Longitude		**Comments: Borehole OSS1-BH was completed to a depth of 70.20m utilising API drilling~ Wison CPT and push sampling methods.**	
Client Name / Ref	**Energinet Eltransmission A/S / 384_20_ENE**	Water Depth (mMSL)	**-31.7**		
Vessel	**MV Ocean Vantage**	Date of Test (Start-End)	**31/05/2021 - 02/06/2021**		
Method	**Wison**	Final Borehole Depth	**70.20m**		

QC Status		
Preliminary	Draft	Final
JK/BC (31/05/2021)	**DR** (10/06/2021)	**SMc** (10/11/2021)

Location Name: **OSS1-BH**

Preliminary Investigation, Hesselø OWF

BOREHOLE LOG, LABORATORY TEST RESULTS AND IN SITU CPTU TESTING

Relative to BSB (m)	Soil Depth (m)	Interpreted Soil Type	Env.	Age
0.5 – 1.87	1.87	Extremely low strength CLAY, medium to high plasticity, very silty, sandy, very dark greenish grey (GLEY1 10Y 3/1), with few shell fragments (<0.01m), non calcareous	Ma/Fw	Ho
1.87 – 2.68	2.68	Dense to very dense SAND, fine to medium, sorted, slightly silty, with frequent shell fragments (<0.01m), slightly calcareous	Ma/Fw	Ho
2.68 – 6.09	6.09	Low to medium strength CLAY, high plasticity, very silty, sandy, slightly gravelly, dark grey (5Y 4/1), slightly calcareous	Ma	Ho
6.09 – 7.36	7.36	Low to medium strength CLAY, high plasticity, slightly sandy, slightly gravelly, dark grey (5Y 4/1), slightly calcareous	Ma/Fw	Ho
7.36 – 9.5		High strength CLAY, medium plasticity, very silty, sandy, slightly gravelly, dark grey (5Y 4/1), highly calcareous	Ma/Fw	Pg

Relative to BSB (m)	Gravel	Sand	Fines	Silt	Clay
0.5 – 1.87	0	37	63	29	34
1.87 – 2.68	0	95	5	5	0
2.68 – 6.09	0	1	99	36	63
6.09 – 7.36					
7.36 – 9.5					

Push Samples: P01, P02, P03, P04, P05, P06, P07, P08, P09, P10, P11

Water Content (%); Density (Mg/m³); Particle Size, %; Relative Density, D_r (%); Undrained Shear Strength, Su (kPa); Corrected Cone Resistance, q_t (MPa); Sleeve Friction, f_s (MPa); Pore Pressure, U_2 (kPa); Ambient Pore Pressure (kPa)

KEY TO SOIL PROFILE

SILT; CLAY; SAND; GRAVEL; COBBLES; CHALK; PEAT; Mixed Soil

Assumed Unit Weight: 20 - 16 kN/m³
K_0: 0.5 - 2.0
N_{kt}: 15 - 20
N_{kt}: 12.5 - 16.5

Area	**Kattegat Sea**	Coordinates	**674911.0E 6253674.2N**	CRS: **ETRS89**	QC Status: Preliminary / Draft / Final
Contract	**11596**	Latitude / Longitude		**Comments: Borehole OSS2-BH was completed to a depth of 70.08m utilising API drilling~ Wison CPT and push sampling methods. P-S logging was performed from 65m to 4m below mudline.**	
Client Name / Ref	**Energinet Eltransmission A/S / 384_20_ENE**	Water Depth (mMSL)	**-30.0**		
Vessel	**MV Ocean Vantage**	Date of Test (Start-End)	**25/05/2021 - 27/05/2021**		**JK/BC** (27/05/2021) / **DR** (10/06/2021) / **SMc** (10/11/2021)
Method	**Wison**	Final Borehole Depth	**70.20m**		

Location Name: **OSS2-BH**

Preliminary Investigation, Hesselø OWF

BOREHOLE LOG, LABORATORY TEST RESULTS AND IN SITU CPTU TESTING

Relative to (mMSL)	Relative to BSB (m)	Soil Depth (m)	Interpreted Soil Type	Env.	Age
-40.0	10.5		High strength CLAY, medium plasticity, very silty, sandy, slightly gravelly, dark grey (5Y 4/1), highly calcareous	Ma/Fw	Pg
-44.5	14.5	14.28	Very dense SAND, fine, well sorted, clayey, silty, slightly gravelly, grey (5Y 5/1), highly calcareous	Ma/Fw	Pg
-48.0	18.0	17.88	Extremely high strength CLAY, high plasticity, silty, sandy, gravelly, dark grey (5Y 4/1), highly calcareous	Ma/Fw	Pg
-49.5	19.5				

Soil Profile: P12, P13, P14, P15, P16, P17, P18, P23, P24, P25

Push Sample / CPTU Push

CPT Ref No. Cone ID Cone Area (a)	Soil Depth (m)
01 120825 10cm² (0.76)	14.28
02 120825 10cm² (0.76)	
03 120825 10cm² (0.76)	
04 121126 10cm² (0.79)	17.88
05 121126 10cm² (0.79)	

Water Content (%): 0, 25, 50, 75, 100

Density (Mg/m³): 3, 2, 1, 0

Particle Size, %

Gravel	Sand	Fines	Silt	Clay
1	19	80	49	31

Relative Density, D_r (%): 0, 30, 60, 90, 120

Undrained Shear Strength, Su (kPa): 0, 300, 600, 900, 1200, 1500

Corrected Cone Resistance, q_t (MPa): 0, 12, 24, 36, 48, 60

Sleeve Friction, f_s(MPa): 0, 0.3, 0.6, 0.9, 1.2, 1.5

Pore Pressure, U_2 (kPa): -4500, -2250, 0, 2250, 4500

Ambient Pore Pressure (kPa)

KEY TO SOIL PROFILE

SILT, CLAY, SAND, GRAVEL, COBBLES, CHALK, PEAT, Mixed Soil

Assumed Unit Weight: 20 - 16 kN/m³
K_0: 0.5 - 2.0
N_{cv}: 15 - 20
N_{ch}: 12.5 - 16.5

Area	**Kattegat Sea**	Coordinates	**674911.0E 6253674.2N**
Contract	**11596**	Latitude / Longitude	
Client Name / Ref	**Energinet Eltransmission A/S / 384_20_ENE**	Water Depth (mMSL)	**-30.0**
Vessel	**MV Ocean Vantage**	Date of Test (Start-End)	**25/05/2021 - 27/05/2021**
Method	**Wison**	Final Borehole Depth	**70.20m**

CRS: **ETRS89**

Comments: Borehole OSS2-BH was completed to a depth of 70.08m utilising API drilling~ Wison CPT and push sampling methods. P-S logging was performed from 65m to 4m below mudline.

QC Status		
Preliminary	Draft	Final
JK/BC (27/05/2021)	**DR** (10/06/2021)	**SMc** (10/11/2021)

Location Name: **OSS2-BH**

Preliminary Investigation, Hesselø OWF

BOREHOLE LOG, LABORATORY TEST RESULTS AND IN SITU CPTU TESTING

Relative to BSB (m)	Soil Depth (m)	Interpreted Soil Type	Env.	Age	Gravel	Sand	Fines	Silt	Clay
20.5		Extremely high strength CLAY, high plasticity, silty, sandy, gravelly, dark grey (5Y 4/1), highly calcareous	Ma/Fw	Pg					
24.0	24.00	CLAY, low plasticity, silty, sandy, dark grey (5Y 4/1), highly calcareous	Ma/Fw	Pg	0	46	54	19	35
24.5	24.50	Dense to very dense SAND, fine to medium, unsorted, clayey, very silty, slightly gravelly, grey (2.5Y 5/1), highly calcareous	Ma/Fw	Pg/Lg	2	69	29	24	5
28.0	28.00	High to very high strength CLAY, medium plasticity, very silty, very sandy, slightly gravelly, dark grey (5Y 4/1), highly calcareous, with pockets of sand (<0.02m) fine, well sorted, dark grey (5Y 4/1), calcareous	Ma/Fw	Pg/Lg	3	31	66	31	35

Push Sample: P25, P26, P30, P31, P32, P33, P34, P35, P36, P37

PTU Push: 06 121126 10cm² (0.79); 07 120826 10cm² (0.76); 08 120826 10cm² (0.76); 09 121005G 10cm² (0.78); 10 121005G 10cm² (0.78); 11 121005G 10cm² (0.78); 12 121126 10cm² (0.79)

Water Content (%): 0, 25, 50, 75, 100

Density (Mg/m³): 3, 2, 1, 0

Relative Density, D_r (%): 0, 30, 60, 90, 120

Undrained Shear Strength, Su (kPa): 0, 300, 600, 900, 1200, 1500

Corrected Cone Resistance, q_t (MPa): 0, 12, 24, 36, 48, 60

Sleeve Friction, f_s (MPa): 0, 0.3, 0.6, 0.9, 1.2, 1.5

Pore Pressure, U_2 (kPa): -4500, -2250, 0, 2250, 4500

Ambient Pore Pressure (kPa)

KEY TO SOIL PROFILE

SILT, CLAY, SAND, GRAVEL, COBBLES, CHALK, PEAT, Mixed Soil

Assumed Unit Weight: 20 - 16 kN/m³
K_0: 0.5 - 2.0
N_{kt}: 15 - 20
N_{kt}: 12.5 - 16.5

Area	**Kattegat Sea**	Coordinates	**674911.0E**	**6253674.2N**	CRS: **ETRS89**
Contract	**11596**	Latitude / Longitude			**Comments: Borehole OSS2-BH was completed to a depth of 70.08m utilising API drilling~ Wison CPT and push sampling methods. P-S logging was performed from 65m to 4m below mudline.**
Client Name / Ref	**Energinet Eltransmission A/S / 384_20_ENE**	Water Depth (mMSL)	**-30.0**		
Vessel	**MV Ocean Vantage**	Date of Test (Start-End)	**25/05/2021 - 27/05/2021**		
Method	**Wison**	Final Borehole Depth	**70.20m**		

QC Status			Location Name
Preliminary	Draft	Final	**OSS2-BH**
JK/BC (27/05/2021)	**DR** (10/06/2021)	**SMc** (10/11/2021)	

Preliminary Investigation, Hesselø OWF

BOREHOLE LOG, LABORATORY TEST RESULTS AND IN SITU CPTU TESTING

Interpreted Soil Type	Env.	Age
	Ma/Fw	Pg/Lg
Dense to very dense locally medium dense SAND, silty	Ma/Fw	Lg
Very high to extremely high strength CLAY TILL, medium plasticity, very silty, very sandy, slightly gravelly, with pockets of sand (<0.05m), fine, well sorted, very dark greenish grey (GLEY1 5GY 3/1), slightly calcareous		
35.40-35.72m: Medium bed of dense to very dense sand, silty	Ma/Fw	Gc
37.57-37.98m: Medium bed of dense to very dense sand, silty		

Soil Depth (m): 30.31, 30.90

CPT Ref No. / Cone ID / Cone Area (a): 13 121005G 10cm² (0.78); 14 121126 10cm² (0.79); 15 121126 10cm² (0.79)

Push Sample: P38, P39, P40, P41, P42, P43, P44, P45, P46, P47

Water Content (%): 0 25 50 75 100

Density (Mg/m³): 3 2 1 0

Particle Size, %: Gravel, Sand, Fines, Silt, Clay

Relative Density, D_r (%): 0 30 60 90 120

Undrained Shear Strength, Su (kPa): 0 300 600 900 1200 1500

Corrected Cone Resistance, q_t (MPa): 0 12 24 36 48 60

Sleeve Friction, f_s (MPa): 0 0.3 0.6 0.9 1.2 1.5

Pore Pressure, U_2 (kPa): -4500 -2250 0 2250 4500

Ambient Pore Pressure (kPa)

Relative to (mMSL): -60.0 -60.5 -61.0 -61.5 -62.0 -62.5 -63.0 -63.5 -64.0 -64.5 -65.0 -65.5 -66.0 -66.5 -67.0 -67.5 -68.0 -68.5 -69.0 -69.5

Relative to BSB (m): 30.5 31.0 31.5 32.0 32.5 33.0 33.5 34.0 34.5 35.0 35.5 36.0 36.5 37.0 37.5 38.0 38.5 39.0 39.5

KEY TO SOIL PROFILE

SILT, CLAY, SAND, GRAVEL, COBBLES, CHALK, PEAT, Mixed Soil

Assumed Unit Weight: 20 - 16 kN/m³
K_0: 0.5 - 2.0
N_{KT}: 15 - 20
N_{kt}: 12.5 - 16.5

Area	**Kattegat Sea**	Coordinates	**674911.0E 6253674.2N**	CRS: **ETRS89**	QC Status: Preliminary / Draft / Final
Contract	**11596**	Latitude / Longitude		**Comments: Borehole OSS2-BH was completed to a depth of 70.08m utilising API drilling~ Wison CPT and push sampling methods. P-S logging was performed from 65m to 4m below mudline.**	
Client Name / Ref	**Energinet Eltransmission A/S / 384_20_ENE**	Water Depth (mMSL)	**-30.0**		
Vessel	**MV Ocean Vantage**	Date of Test (Start-End)	**25/05/2021 - 27/05/2021**		**JK/BC** (27/05/2021) / **DR** (10/06/2021) / **SMc** (10/11/2021)
Method	**Wison**	Final Borehole Depth	**70.20m**		

Location Name: **OSS2-BH**

Preliminary Investigation, Hesselø OWF

BOREHOLE LOG, LABORATORY TEST RESULTS AND IN SITU CPTU TESTING

Relative to (mMSL)	Relative to BSB (m)	Soil Profile	Push Sample	CPTU Push	CPT Ref No. Cone ID Cone Area (a)	Soil Depth (m)	Interpreted Soil Type	Env.	Age
-70.0 to -70.5	40.5		P48				Very high to extremely high strength CLAY TILL, medium plasticity, very silty, very sandy, slightly gravelly, with pockets of sand (<0.05m), fine, well sorted, very dark greenish grey (GLEY1 5GY 3/1), slightly calcareous		
-71.0 to -71.5	41.0 to 41.5		P49						
-72.0 to -72.5	42.0 to 42.5		P50		16 121126 10cm² (0.79)			Ma/Fw	Gc
-73.0 to -73.5	43.0 to 43.5		P51						
-74.0 to -74.5	44.0 to 44.5		P52						
-75.0 to -75.5	45.0 to 45.5		P53			45.00	Extremely high strength CLAY, high plasticity, very silty, slightly sandy dark greenish grey (GLEY1 5GY 4/1), highly calcareous		
-76.0 to -76.5	46.0 to 46.5		P54		17 121126 10cm² (0.79)				
-77.0 to -77.5	47.0 to 47.5		P55					Gl	Gc
-78.0 to -78.5	48.0 to 48.5		P56						
-79.0 to -79.5	49.0 to 49.5		P57						

Particle Size, %				
Gravel	Sand	Fines	Silt	Clay
2	28	70	39	31
0	1	99	54	45

Water Content (%): 0 25 50 75 100

Density (Mg/m³): 3 2 1 0

Relative Density, D_r (%): 0 30 60 90 120

Undrained Shear Strength, Su (kPa): 0 300 600 900 1200 1500

Corrected Cone Resistance, q_t (MPa): 0 12 24 36 48 60

Sleeve Friction, f_s (MPa): 0 0.3 0.6 0.9 1.2 1.5

Pore Pressure, U_2 (kPa): -4500 -2250 0 2250 4500

Ambient Pore Pressure (kPa)

KEY TO SOIL PROFILE

SILT, CLAY, SAND, GRAVEL, COBBLES, CHALK, PEAT, Mixed Soil

Assumed Unit Weight: 20 - 16 kN/m³
K_0: 0.5 - 2.0
N_{kt}: 15 - 20
$N_{\Delta u}$: 12.5 - 16.5

Area	**Kattegat Sea**	Coordinates	**674911.0E 6253674.2N**	CRS: **ETRS89**	QC Status: Preliminary / Draft / Final
Contract	**11596**	Latitude / Longitude		**Comments: Borehole OSS2-BH was completed to a depth of 70.08m utilising API drilling~ Wison CPT and push sampling methods. P-S logging was performed from 65m to 4m below mudline.**	
Client Name / Ref	**Energinet Eltransmission A/S / 384_20_ENE**	Water Depth (mMSL)	**-30.0**		
Vessel	**MV Ocean Vantage**	Date of Test (Start-End)	**25/05/2021 - 27/05/2021**		**JK/BC** (27/05/2021) / **DR** (10/06/2021) / **SMc** (10/11/2021)
Method	**Wison**	Final Borehole Depth	**70.20m**		Location Name: **OSS2-BH**

Preliminary Investigation, Hesselø OWF

BOREHOLE LOG, LABORATORY TEST RESULTS AND IN SITU CPTU TESTING

Relative to (mMSL)	Relative to BSB (m)	Soil Profile	Push Sample	CPTU Push	CPT Ref No. Cone ID Cone Area (a)	Soil Depth (m)	Interpreted Soil Type	Env.	Age
-80.0 to -89.5	50.5 to 59.5		PS5, PS6, PS7		18 121126 10cm² (0.79); 19 121126 10cm² (0.79); 20 121126 10cm² (0.79); 21 121126 10cm² (0.79); 22 121126 10cm² (0.79)	57.25	Extremely high strength CLAY, high plasticity, very silty, slightly sandy dark greenish grey (GLEY1 5GY 4/1), highly calcareous	Gl	Gc
							CLAY TILL, low to medium plasticity, very silty, very sandy, gravelly, grey (5Y 6/1), highly calcareous	Gl	Gc

Water Content (%): 0 25 50 75 100

Density (Mg/m³): 3 2 1 0

Particle Size, %: Gravel, Sand, Fines, Silt, Clay

Relative Density, D_r (%): 0 30 60 90 120

Undrained Shear Strength, Su (kPa): 0 300 600 900 1200 1500

Corrected Cone Resistance, q_t (MPa): 0 12 24 36 48 60

Sleeve Friction, f_s (MPa): 0 0.3 0.6 0.9 1.2 1.5

Pore Pressure, U_2 (kPa): -4500 -2250 0 2250 4500

Ambient Pore Pressure (kPa)

KEY TO SOIL PROFILE

SILT, CLAY, SAND, GRAVEL, COBBLES, CHALK, PEAT, Mixed Soil

Assumed Unit Weight: 20 - 16 kN/m³
K_0: 0.5 - 2.0
N_{kt}: 15 - 20
N_{ke}: 12.5 - 16.5

Area	**Kattegat Sea**	Coordinates	**674911.0E 6253674.2N**	CRS: **ETRS89**	
Contract	**11596**	Latitude / Longitude		**Comments: Borehole OSS2-BH was completed to a depth of 70.08m utilising API drilling~ Wison CPT and push sampling methods. P-S logging was performed from 65m to 4m below mudline.**	
Client Name / Ref	**Energinet Eltransmission A/S / 384_20_ENE**	Water Depth (mMSL)	**-30.0**		
Vessel	**MV Ocean Vantage**	Date of Test (Start-End)	**25/05/2021 - 27/05/2021**		
Method	**Wison**	Final Borehole Depth	**70.20m**		

QC Status			Location Name
Preliminary	Draft	Final	**OSS2-BH**
JK/BC (27/05/2021)	**DR** (10/06/2021)	**SMc** (10/11/2021)	

Preliminary Investigation, Hesselø OWF

BOREHOLE LOG, LABORATORY TEST RESULTS AND IN SITU CPTU TESTING

Relative to (mMSL)	Relative to BSB (m)	Soil Depth (m)	Interpreted Soil Type	Env.	Age
-90.0 to -99.5	60.5 to 69.5	66.50	CLAY TILL, low to medium plasticity, very silty, very sandy, gravelly, grey (5Y 6/1), highly calcareous	Gl	Gc
			64.50-64.75m: Medium bed of CLAY, non plastic, very sandy, gravelly, black (10YR 2/1), organic, non calcareous		
			Dense to very dense SAND, fine to medium, sorted, silty, grey (2.5Y 6/1), slightly cemented, calcareous	Gl	Gc

Soil Profile: Push Sample: PB1, PB2, PB3, PB4, PB5; CPTU Push

CPT Ref No. / Cone ID / Cone Area (a):
- 23, 121126, 10cm² (0.79)
- 24, 121003, 10cm² (0.78)
- 25, 120826, 10cm² (0.76)
- 26, 121003, 10cm² (0.78)
- 27, 121003, 10cm² (0.78)
- 28, 121003, 10cm² (0.78)
- 29, 121003, 10cm² (0.78)
- 30, 121003, 10cm² (0.78)
- 31, 121003, 10cm² (0.78)

Water Content (%): 0, 25, 50, 75, 100

Density (Mg/m³): 3, 2, 1, 0

Particle Size, %

Gravel	Sand	Fines	Silt	Clay
11	24	65	48	17
0	92	8	8	0

Relative Density, D_r (%): 0, 30, 60, 90, 120

Undrained Shear Strength, Su (kPa): 0, 300, 600, 900, 1200, 1500

Corrected Cone Resistance, q_t (MPa): 0, 12, 24, 36, 48, 60

Sleeve Friction, f_s (MPa): 0, 0.3, 0.6, 0.9, 1.2, 1.5

Pore Pressure, U_2 (kPa): -4500, -2250, 0, 2250, 4500

Ambient Pore Pressure (kPa)

KEY TO SOIL PROFILE

SILT, CLAY, SAND, GRAVEL, COBBLES, CHALK, PEAT, Mixed Soil

Assumed Unit Weight: 20 - 16 kN/m³
K_0: 0.5 - 2.0
N_{kt}: 15 - 20
N_{kt}: 12.5 - 16.5

Area	**Kattegat Sea**	Coordinates	**674911.0E 6253674.2N**
Contract	**11596**	Latitude / Longitude	
Client Name / Ref	**Energinet Eltransmission A/S / 384_20_ENE**	Water Depth (mMSL)	**-30.0**
Vessel	**MV Ocean Vantage**	Date of Test (Start-End)	**25/05/2021 - 27/05/2021**
Method	**Wison**	Final Borehole Depth	**70.20m**

CRS: **ETRS89**

Comments: Borehole OSS2-BH was completed to a depth of 70.08m utilising API drilling~ Wison CPT and push sampling methods. P-S logging was performed from 65m to 4m below mudline.

QC Status		
Preliminary	Draft	Final
JK/BC (27/05/2021)	**DR** (10/06/2021)	**SMc** (10/11/2021)

Location Name: **OSS2-BH**

Preliminary Investigation, Hesselø OWF

BOREHOLE LOG, LABORATORY TEST RESULTS AND IN SITU CPTU TESTING

Relative to (mMSL)	Relative to BSB (m)	Soil Profile	Push Sample	CPTU Push	CPT Ref No. Cone ID Cone Area (a)	Soil Depth (m)	Interpreted Soil Type	Env.	Age
-100.0	70.5	× × × ×	PS			70.00 70.08	SILTSTONE, slightly indurated, black (5Y 2.5/1), non calcareous End of borehole at 70.20m	Gl	Ct

Water Content (%): 0 25 50 75 100

Density (Mg/m^3): 3 2 1 0

Particle Size, %: Gravel | Sand | Fines | Silt | Clay

Relative Density, D_r (%): 0 30 60 90 120

Undrained Shear Strength, Su (kPa): 0 300 600 900 1200 1500

Corrected Cone Resistance, q_t (MPa): 0 12 24 36 48 60

Sleeve Friction, f_s(MPa): 0 0.3 0.6 0.9 1.2 1.5

Pore Pressure, U_2 (kPa): -4500 -2250 0 2250 4500

Ambient Pore Pressure (kPa)

Relative to BSB (m): 70.5 71.0 71.5 72.0 72.5 73.0 73.5 74.0 74.5 75.0 75.5 76.0 76.5 77.0 77.5 78.0 78.5 79.0 79.5

KEY TO SOIL PROFILE

SILT, CLAY, SAND, GRAVEL, COBBLES, CHALK, PEAT, Mixed Soil

Assumed Unit Weight: 20 - 16 kN/m^3
K_0: 0.5 - 2.0
N_{kt}: 15 - 20
N_{ke}: 12.5 - 16.5

Area	**Kattegat Sea**	Coordinates	**674911.0E 6253674.2N**	CRS: **ETRS89**	QC Status: Preliminary / Draft / Final
Contract	**11596**	Latitude / Longitude		**Comments: Borehole OSS2-BH was completed to a depth of 70.08m utilising API drilling~ Wison CPT and push sampling methods. P-S logging was performed from 65m to 4m below mudline.**	
Client Name / Ref	**Energinet Eltransmission A/S / 384_20_ENE**	Water Depth (mMSL)	**-30.0**		
Vessel	**MV Ocean Vantage**	Date of Test (Start-End)	**25/05/2021 - 27/05/2021**		**JK/BC** (27/05/2021) / **DR** (10/06/2021) / **SMc** (10/11/2021)
Method	**Wison**	Final Borehole Depth	**70.20m**		

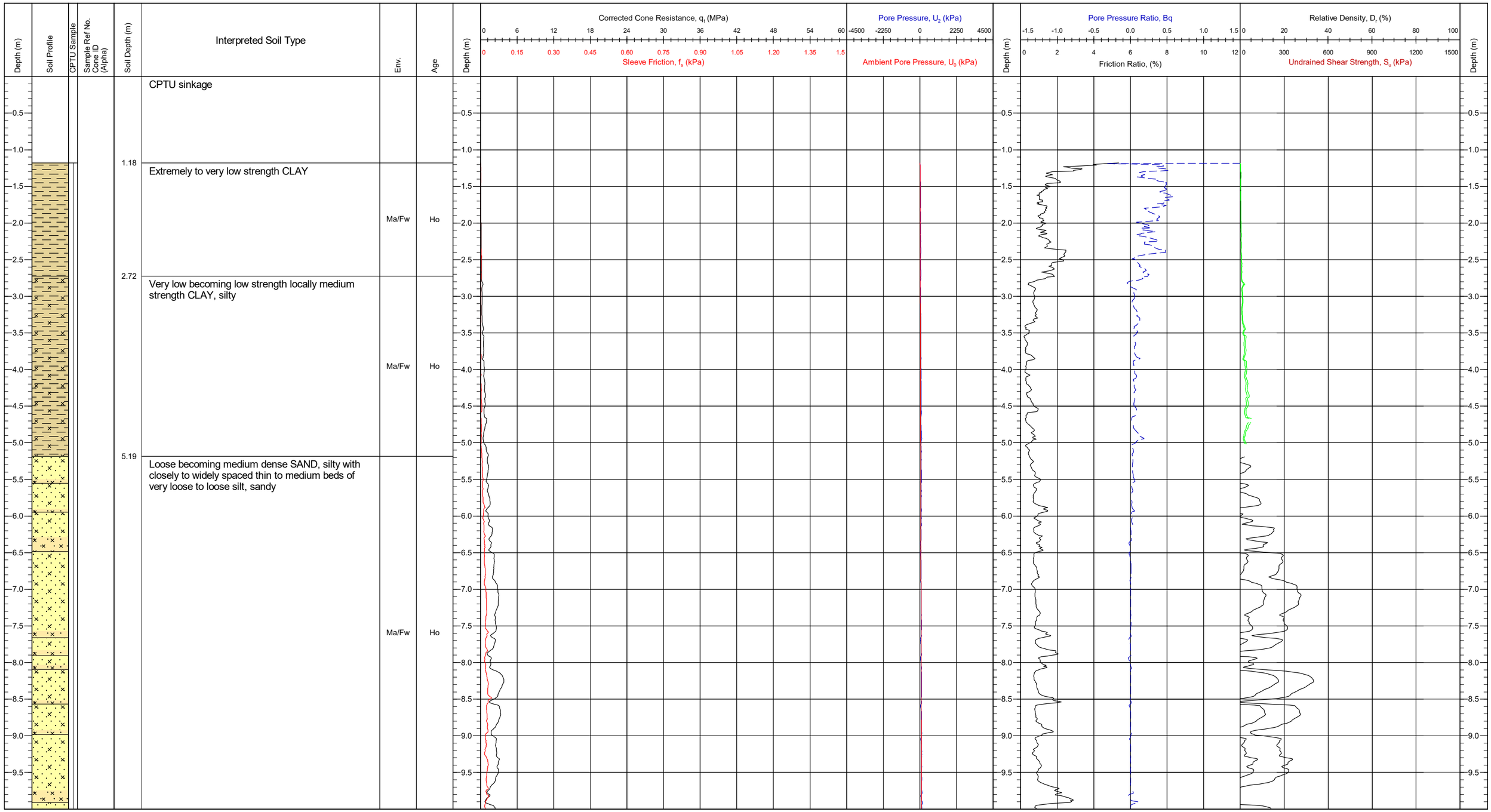
Location Name: **OSS2-BH**

2.3 Seabed CPTU Logs

Preliminary Investigation, Hesselø OWF

IN SITU CPTU TESTING

Soil Depth (m)	Interpreted Soil Type	Env.	Age
	CPTU sinkage		
1.18	Extremely to very low strength CLAY	Ma/Fw	Ho
2.72	Very low becoming low strength locally medium strength CLAY, silty	Ma/Fw	Ho
5.19	Loose becoming medium dense SAND, silty with closely to widely spaced thin to medium beds of very loose to loose silt, sandy	Ma/Fw	Ho



KEY TO SOIL PROFILE

SILT · CLAY · SAND · GRAVEL · COBBLES · CHALK · PEAT · Mixed Soil

Assumed Unit Weight: 20 - 16 kN/m³
K_c: 0.5 - 2.0
N_{kt}: 12.5 - 16.5
N_{ke}: 15 - 20
K_c: 0.5 - 2.0

Area	**Kattegat Sea**	Coordinates	**673294.0E 6269807.2N**
Contract	**11596**	Water Depth (mMSL)	**31.8**
Client Name/Ref	**Energinet Eltransmission A/S/384_20_ENE**	Date of Test	**01/05/2021**
Vessel	**MV Ocean Vantage**	Cone No.(type)/α Factor	**120910 (50cm²) / 0.81**
Method	**20 kN Sea bed CPT**	Base Inclination	**X = 1.1° / Y = 1.0°**

CRS: **ETRS89**

Comments:
Cone out of class. Continuous seabed CPT. Final depth 58m. Test terminated due to loss of communication with cone after snapping rods

QC Status		
Preliminary	Draft	Final
JK/BC (01/05/2021)	**DR** (25/06/2021)	**SMc** (10/11/2021)

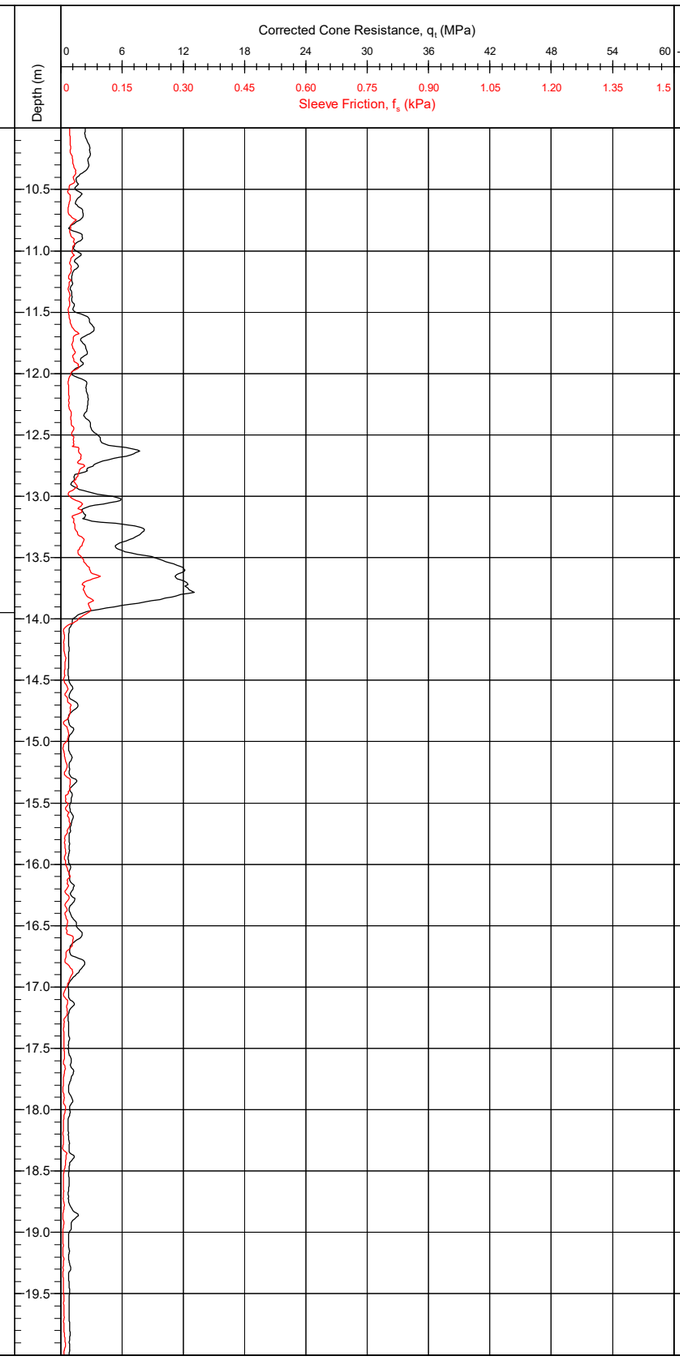
CPT Name: **CB3a**

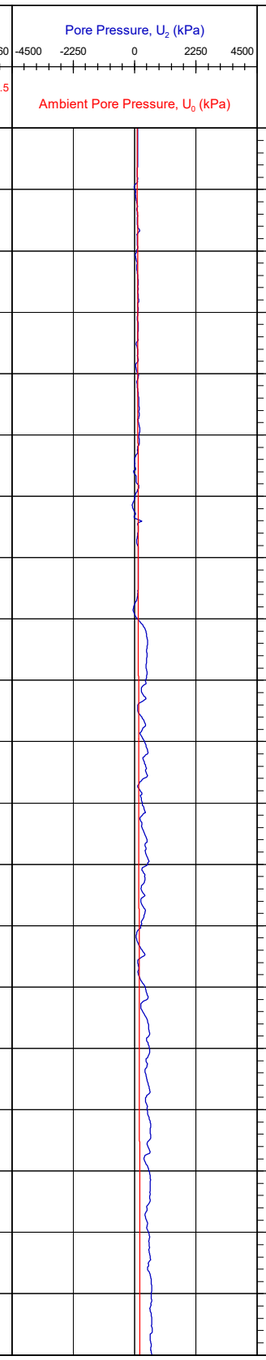
Preliminary Investigation, Hesselø OWF

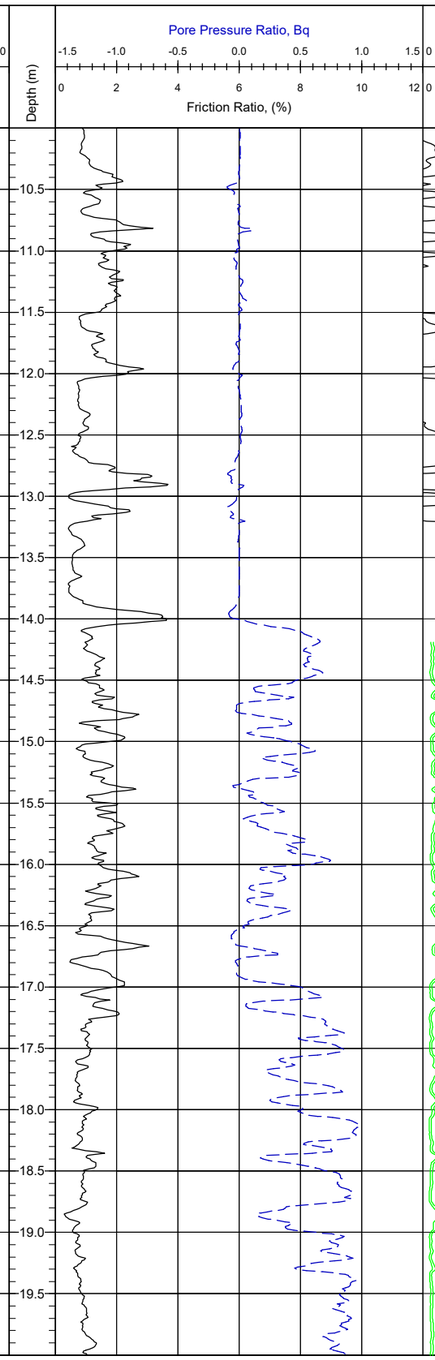
IN SITU CPTU TESTING

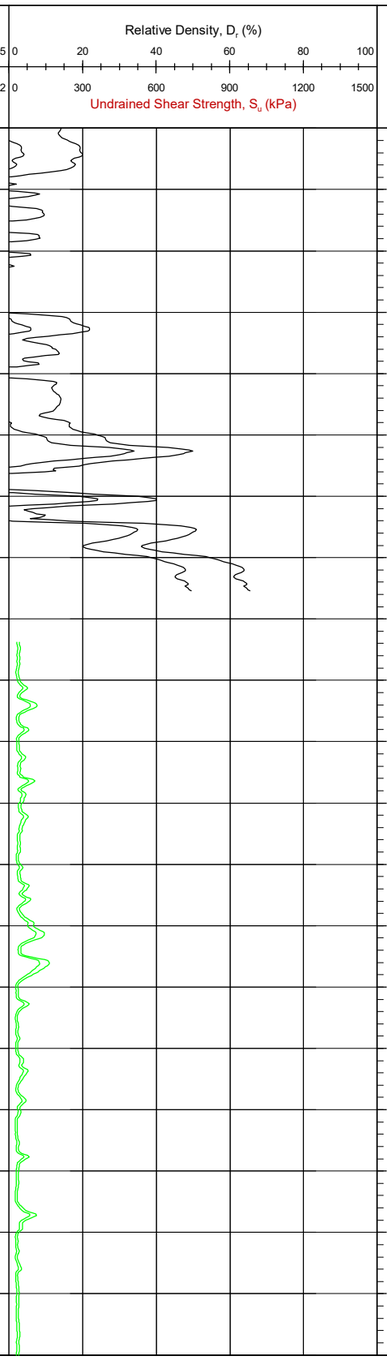
Interpreted Soil Type	Env.	Age
Loose becoming medium dense SAND, silty with closely to widely spaced thin to medium beds of very loose to loose silt, sandy	Ma/Fw	Ho
Low to medium strength locally medium to high strength CLAY, sandy becoming silty at 17.86m	Ma	Ho

Soil Depth (m): 13.95









KEY TO SOIL PROFILE

SILT · CLAY · SAND · GRAVEL · COBBLES · CHALK · PEAT · Mixed Soil

Assumed Unit Weight: 20 - 16 kN/m³
K_C: 0.5 - 2.0
N_{kt}: 12.5 - 16.5
$N_{\Delta u}$: 15 - 20
K_C: 0.5 - 2.0

Area	**Kattegat Sea**	Coordinates	**673294.0E 6269807.2N**	CRS: **ETRS89**	
Contract	**11596**	Water Depth (mMSL)	**31.8**	**Comments:** **Cone out of class. Continuous seabed CPT. Final depth 58m. Test terminated due to loss of communication with cone after snapping rods**	
Client Name/Ref	**Energinet Eltransmission A/S/384_20_ENE**	Date of Test	**01/05/2021**		
Vessel	**MV Ocean Vantage**	Cone No.(type)/α Factor	**120910 (50cm²) / 0.81**		
Method	**20 kN Sea bed CPT**	Base Inclination	**X = 1.1° / Y = 1.0°**		

QC Status		
Preliminary	Draft	Final
JK/BC (01/05/2021)	**DR** (25/06/2021)	**SMc** (10/11/2021)

CPT Name: **CB3a**

Preliminary Investigation, Hesselø OWF

IN SITU CPTU TESTING

Depth (m)	Interpreted Soil Type	Env.	Age
20.22	Low to medium strength locally medium to high strength CLAY, sandy becoming silty at 17.86m	Ma	Ho
26.22	*24.70-25.03m: Closely spaced thin beds of medium to high strength clay, sandy* Medium becoming high strength CLAY, sandy	Ma/Fw	Pg

Corrected Cone Resistance, q_t (MPa) / Sleeve Friction, f_s (kPa)

Pore Pressure, U_2 (kPa) / Ambient Pore Pressure, U_0 (kPa)

Pore Pressure Ratio, Bq / Friction Ratio, (%)

Relative Density, D_r (%) / Undrained Shear Strength, S_u (kPa)

KEY TO SOIL PROFILE

SILT, CLAY, SAND, GRAVEL, COBBLES, CHALK, PEAT, Mixed Soil

Assumed Unit Weight: 20 - 16 kN/m³
K_C: 0.5 - 2.0
N_{kt}: 12.5 - 16.5
$N_{\Delta u}$: 15 - 20
K_C: 0.5 - 2.0

Area	**Kattegat Sea**	Coordinates	**673294.0E 6269807.2N**
Contract	**11596**	Water Depth (mMSL)	**31.8**
Client Name/Ref	**Energinet Eltransmission A/S/384_20_ENE**	Date of Test	**01/05/2021**
Vessel	**MV Ocean Vantage**	Cone No.(type)/α Factor	**120910 (50cm²) / 0.81**
Method	**20 kN Sea bed CPT**	Base Inclination	**X = 1.1° / Y = 1.0°**

CRS: **ETRS89**

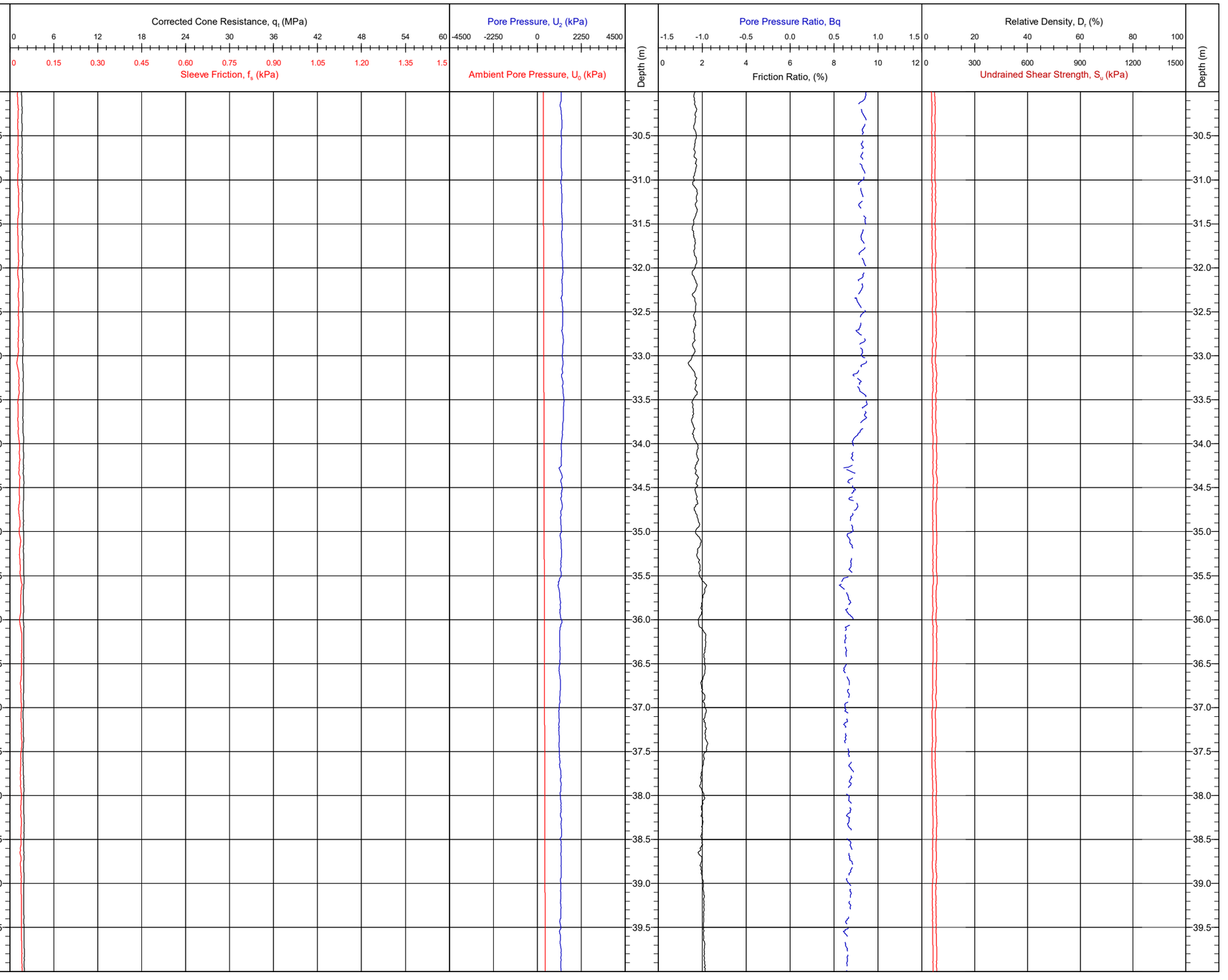
Comments:
Cone out of class. Continuous seabed CPT. Final depth 58m. Test terminated due to loss of communication with cone after snapping rods

QC Status		
Preliminary	Draft	Final
JK/BC (01/05/2021)	**DR** (25/06/2021)	**SMc** (10/11/2021)

CPT Name: **CB3a**

Preliminary Investigation, Hesselø OWF
IN SITU CPTU TESTING

Depth (m)	Soil Profile	CPTU Sample	Sample Ref No. Cone ID (Alpha)	Soil Depth (m)	Interpreted Soil Type	Env.	Age
30.5			1 120910(50) 0.81		Medium becoming high strength CLAY, sandy		
31.0							
31.5							
32.0							
32.5							
33.0							
33.5							
34.0							
34.5							
35.0						Ma/Fw	Pg
35.5							
36.0							
36.5							
37.0							
37.5							
38.0							
38.5							
39.0							
39.5							



KEY TO SOIL PROFILE

SILT · CLAY · SAND · GRAVEL · COBBLES · CHALK · PEAT · Mixed Soil

Assumed Unit Weight: 20 - 16 kN/m³
K_C: 0.5 - 2.0
N_{kt}: 12.5 - 16.5
N_{ch}: 15 - 20
K_C: 0.5 - 2.0

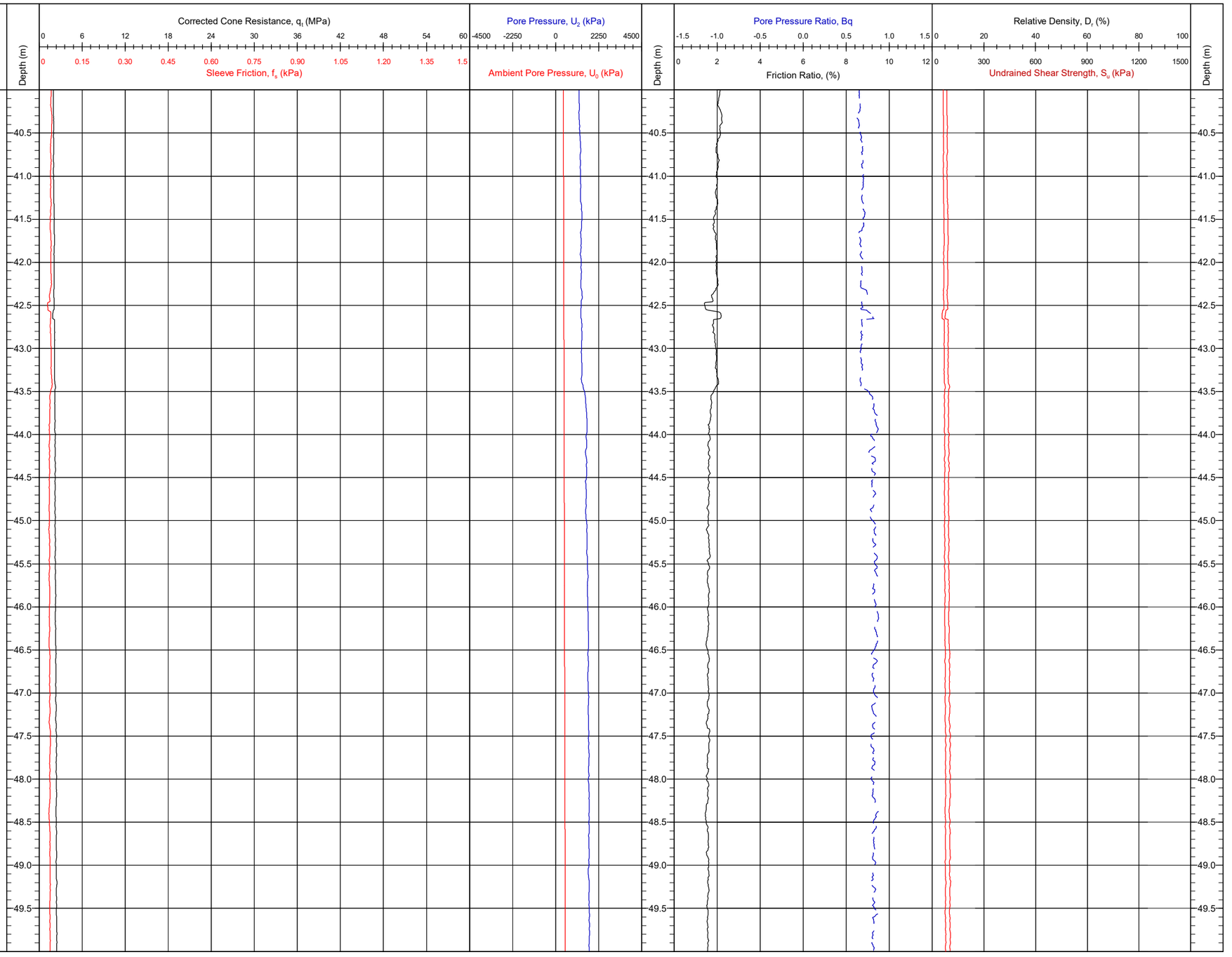
Area	**Kattegat Sea**	Coordinates	**673294.0E 6269807.2N**	CRS: **ETRS89**	QC Status: Preliminary / Draft / Final
Contract	**11596**	Water Depth (mMSL)	**31.8**	**Comments:** **Cone out of class. Continuous seabed CPT. Final depth 58m. Test terminated due to loss of communication with cone after snapping rods**	**JK/BC** (01/05/2021) / **DR** (25/06/2021) / **SMc** (10/11/2021)
Client Name/Ref	**Energinet Eltransmission A/S/384_20_ENE**	Date of Test	**01/05/2021**		
Vessel	**MV Ocean Vantage**	Cone No.(type)/α Factor	**120910 (50cm²) / 0.81**		
Method	**20 kN Sea bed CPT**	Base Inclination	**X = 1.1° / Y = 1.0°**		

CPT Name: **CB3a**

Preliminary Investigation, Hesselø OWF

IN SITU CPTU TESTING

Depth (m)	Soil Profile	CPTU Sample	Sample Ref No. Cone ID (Alpha)	Soil Depth (m)	Interpreted Soil Type	Env.	Age
40.5 – 49.5					Medium becoming high strength CLAY, sandy	Ma/Fw	Pg



KEY TO SOIL PROFILE

SILT · CLAY · SAND · GRAVEL · COBBLES · CHALK · PEAT · Mixed Soil

Assumed Unit Weight: 20 - 16 kN/m³
K_C 0.5 - 2.0
N_{kt} 12.5 - 16.5
$N_{\Delta u}$ 15 - 20
K_C 0.5 - 2.0

Area	**Kattegat Sea**	Coordinates	**673294.0E 6269807.2N**
Contract	**11596**	Water Depth (mMSL)	**31.8**
Client Name/Ref	**Energinet Eltransmission A/S/384_20_ENE**	Date of Test	**01/05/2021**
Vessel	**MV Ocean Vantage**	Cone No.(type)/α Factor	**120910 (50cm²) / 0.81**
Method	**20 kN Sea bed CPT**	Base Inclination	**X = 1.1° / Y = 1.0°**

CRS: **ETRS89**

Comments:
Cone out of class. Continuous seabed CPT. Final depth 58m. Test terminated due to loss of communication with cone after snapping rods

QC Status		
Preliminary	Draft	Final
JK/BC (01/05/2021)	**DR** (25/06/2021)	**SMc** (10/11/2021)

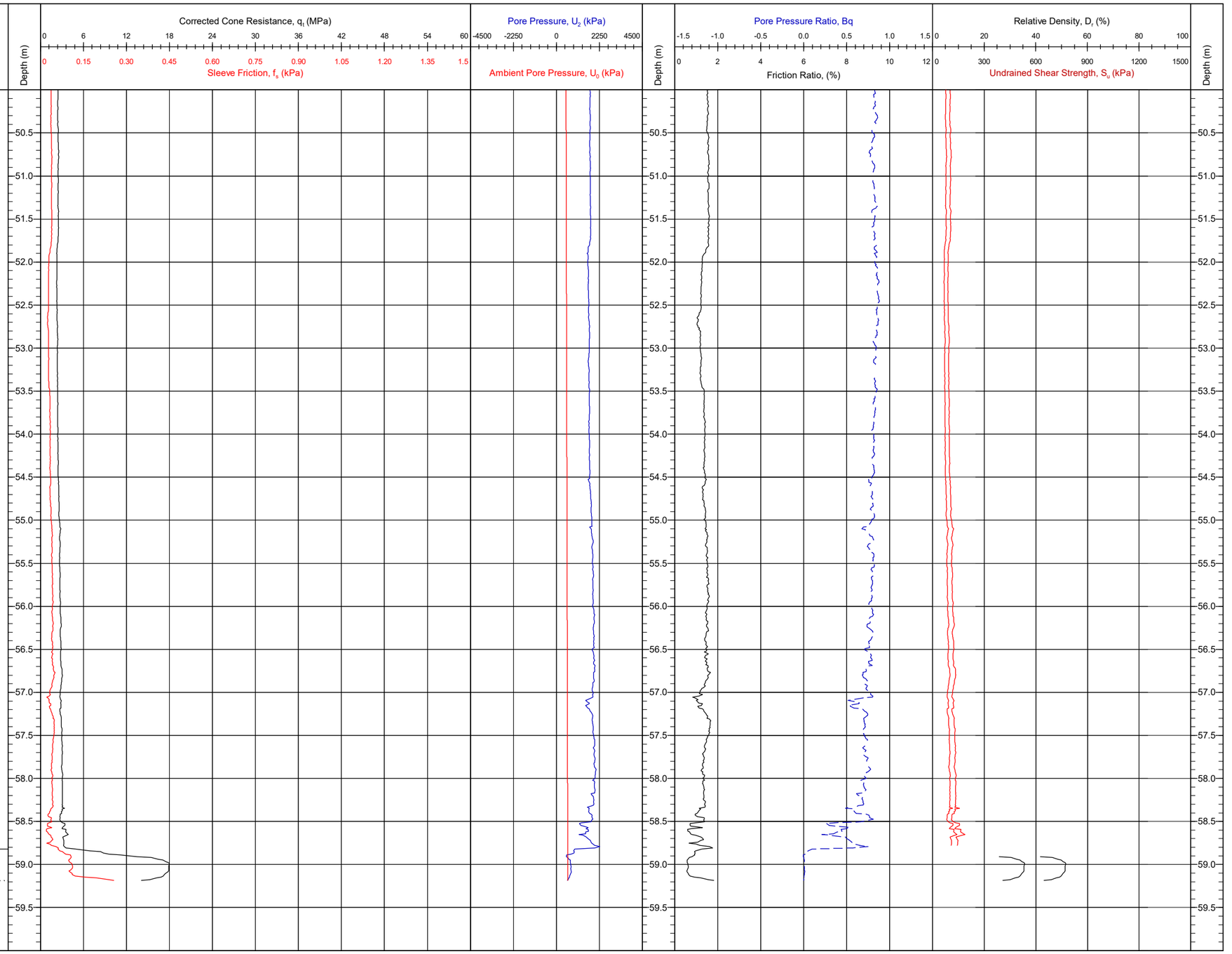
CPT Name

CB3a

Preliminary Investigation, Hesselø OWF

IN SITU CPTU TESTING

Depth (m)	Soil Profile	CPTU Sample	Sample Ref No. Cone ID (Alpha)	Soil Depth (m)	Interpreted Soil Type	Env.	Age
50.5					Medium becoming high strength CLAY, sandy	Ma/Fw	Pg
58.82				58.82	Loose to medium dense SAND	Ma/Fw	Gc
					End of CPTU test at 59.19m		



KEY TO SOIL PROFILE

SILT · CLAY · SAND · GRAVEL · COBBLES · CHALK · PEAT · Mixed Soil

Assumed Unit Weight: 20 - 16 kN/m³
K_C 0.5 - 2.0
N_{kt} 12.5 - 16.5
N_{ke} 15 - 20
K_C 0.5 - 2.0

Area	**Kattegat Sea**	Coordinates	**673294.0E 6269807.2N**	CRS: **ETRS89**	QC Status: Preliminary / Draft / Final
Contract	**11596**	Water Depth (mMSL)	**31.8**	**Comments:** Cone out of class. Continuous seabed CPT. Final depth 58m. Test terminated due to loss of communication with cone after snapping rods	**JK/BC** (01/05/2021) / **DR** (25/06/2021) / **SMc** (10/11/2021)
Client Name/Ref	**Energinet Eltransmission A/S/384_20_ENE**	Date of Test	**01/05/2021**		
Vessel	**MV Ocean Vantage**	Cone No.(type)/α Factor	**120910 (50cm²) / 0.81**		
Method	**20 kN Sea bed CPT**	Base Inclination	**X = 1.1° / Y = 1.0°**		

CPT Name: **CB3a**

Preliminary Investigation, Hesselø OWF

IN SITU CPTU TESTING

Soil Depth (m)	Interpreted Soil Type	Env.	Age
0.19	CPTU sinkage		
	Extremely low strength CLAY	Ma/Fw	Ho
1.16	Loose to medium dense locally dense SAND with closely spaced beds of loose sand, silty	Ma/Fw	Ho
2.32	Low strength CLAY, silty	Ma	Ho
6.06	Low to medium strength CLAY with very widely spaced thin beds of gravel	Ma/Fw	Ho

KEY TO SOIL PROFILE

SILT, CLAY, SAND, GRAVEL, COBBLES, CHALK, PEAT, Mixed Soil

Assumed Unit Weight: 20 - 16 kN/m³
K_C 0.5 - 2.0
N_{kt} 12.5 - 16.5
$N_{\Delta u}$ 15 - 20
K_S 0.5 - 2.0

Area	**Kattegat Sea**	Coordinates	**675775.7E 6272685.7N**
Contract	**11596**	Water Depth (mMSL)	**30.9**
Client Name/Ref	**Energinet Eltransmission A/S/384_20_ENE**	Date of Test	**01/05/2021**
Vessel	**MV Ocean Vantage**	Cone No.(type)/α Factor	**130909 (50cm²) / 0.82**
Method	**20 kN Sea bed CPT**	Base Inclination	**X = 1.1° / Y = 0.9°**

CRS: **ETRS89**

Comments:
Cone class 1. Continuous seabed CPT. Final depth 35.73m. Test terminated at operators discretion due to lack of rod support from mudline when pushing into dense material

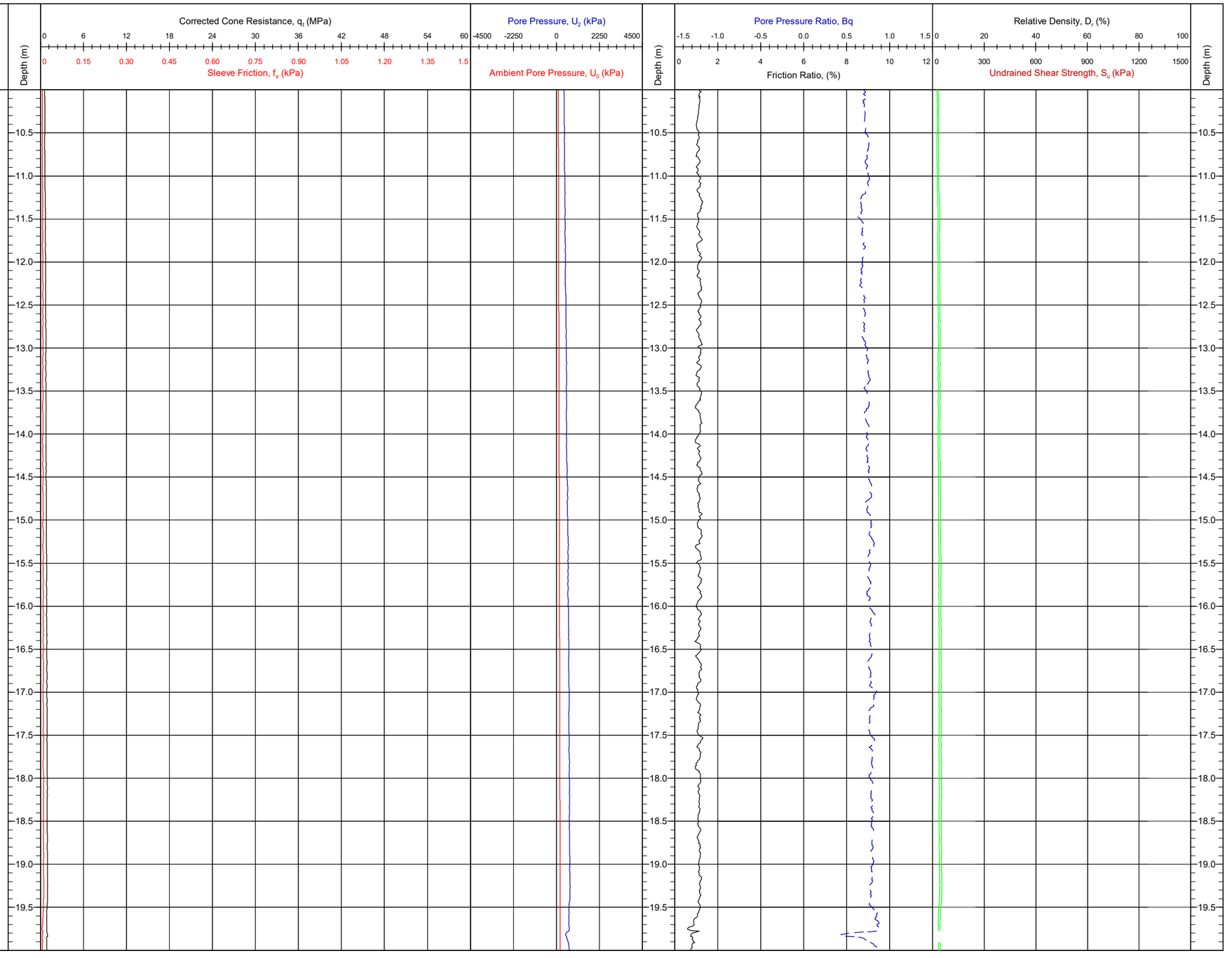
QC Status		
Preliminary	Draft	Final
JK/BC (01/05/2021)	**DR** (10/06/2021)	**SMc** (10/11/2021)

CPT Name: **CB4**

Preliminary Investigation, Hesselø OWF

IN SITU CPTU TESTING

Depth (m)	Soil Profile	CPTU Sample	Sample Ref No. Cone ID (Alpha)	Soil Depth (m)	Interpreted Soil Type	Env.	Age
10.5–19.5			1 130909(50) 0.82		Low to medium strength CLAY with very widely spaced thin beds of gravel	Ma/Fw	Ho



KEY TO SOIL PROFILE

SILT · CLAY · SAND · GRAVEL · COBBLES · CHALK · PEAT · Mixed Soil

Assumed Unit Weight: 20 - 16 kN/m³
K_0: 0.5 - 2.0
N_{kt}: 12.5 - 16.5
N_{Q}: 15 - 20
K_0: 0.5 - 2.0

Area	**Kattegat Sea**	Coordinates	**675775.7E 6272685.7N**
Contract	**11596**	Water Depth (mMSL)	**30.9**
Client Name/Ref	**Energinet Eltransmission A/S/384_20_ENE**	Date of Test	**01/05/2021**
Vessel	**MV Ocean Vantage**	Cone No.(type)/α Factor	**130909 (50cm²) / 0.82**
Method	**20 kN Sea bed CPT**	Base Inclination	**X = 1.1° / Y = 0.9°**

CRS: **ETRS89**

Comments:
Cone class 1. Continuous seabed CPT. Final depth 35.73m. Test terminated at operators discretion due to lack of rod support from mudline when pushing into dense material

QC Status		
Preliminary	Draft	Final
JK/BC (01/05/2021)	**DR** (10/06/2021)	**SMc** (10/11/2021)

CPT Name

CB4

Preliminary Investigation, Hesselø OWF

IN SITU CPTU TESTING

Depth (m)	Soil Profile	CPTU Sample	Sample Ref No. Cone ID (Alpha)	Soil Depth (m)	Interpreted Soil Type	Env.	Age
20.5 – 29.5					Low to medium strength CLAY with very widely spaced thin beds of gravel	Ma/Fw	Ho

Corrected Cone Resistance, q_t (MPa): 0 6 12 18 24 30 36 42 48 54 60

Sleeve Friction, f_s (kPa): 0 0.15 0.30 0.45 0.60 0.75 0.90 1.05 1.20 1.35 1.5

Pore Pressure, U_2 (kPa): -4500 -2250 0 2250 4500

Ambient Pore Pressure, U_0 (kPa)

Pore Pressure Ratio, Bq: -1.5 -1.0 -0.5 0.0 0.5 1.0 1.5

Friction Ratio, (%): 0 2 4 6 8 10 12

Relative Density, D_r (%): 0 20 40 60 80 100

Undrained Shear Strength, S_u (kPa): 0 300 600 900 1200 1500

KEY TO SOIL PROFILE

SILT · CLAY · SAND · GRAVEL · COBBLES · CHALK · PEAT · Mixed Soil

Assumed Unit Weight: 20 - 16 kN/m³
K_c: 0.5 - 2.0
N_{kt}: 12.5 - 16.5
N_{ke}: 15 - 20
K_p: 0.5 - 2.0

Area	**Kattegat Sea**	Coordinates	**675775.7E 6272685.7N**
Contract	**11596**	Water Depth (mMSL)	**30.9**
Client Name/Ref	**Energinet Eltransmission A/S/384_20_ENE**	Date of Test	**01/05/2021**
Vessel	**MV Ocean Vantage**	Cone No.(type)/α Factor	**130909 (50cm²) / 0.82**
Method	**20 kN Sea bed CPT**	Base Inclination	**X = 1.1° / Y = 0.9°**

CRS: **ETRS89**

Comments:
Cone class 1. Continuous seabed CPT. Final depth 35.73m. Test terminated at operators discretion due to lack of rod support from mudline when pushing into dense material

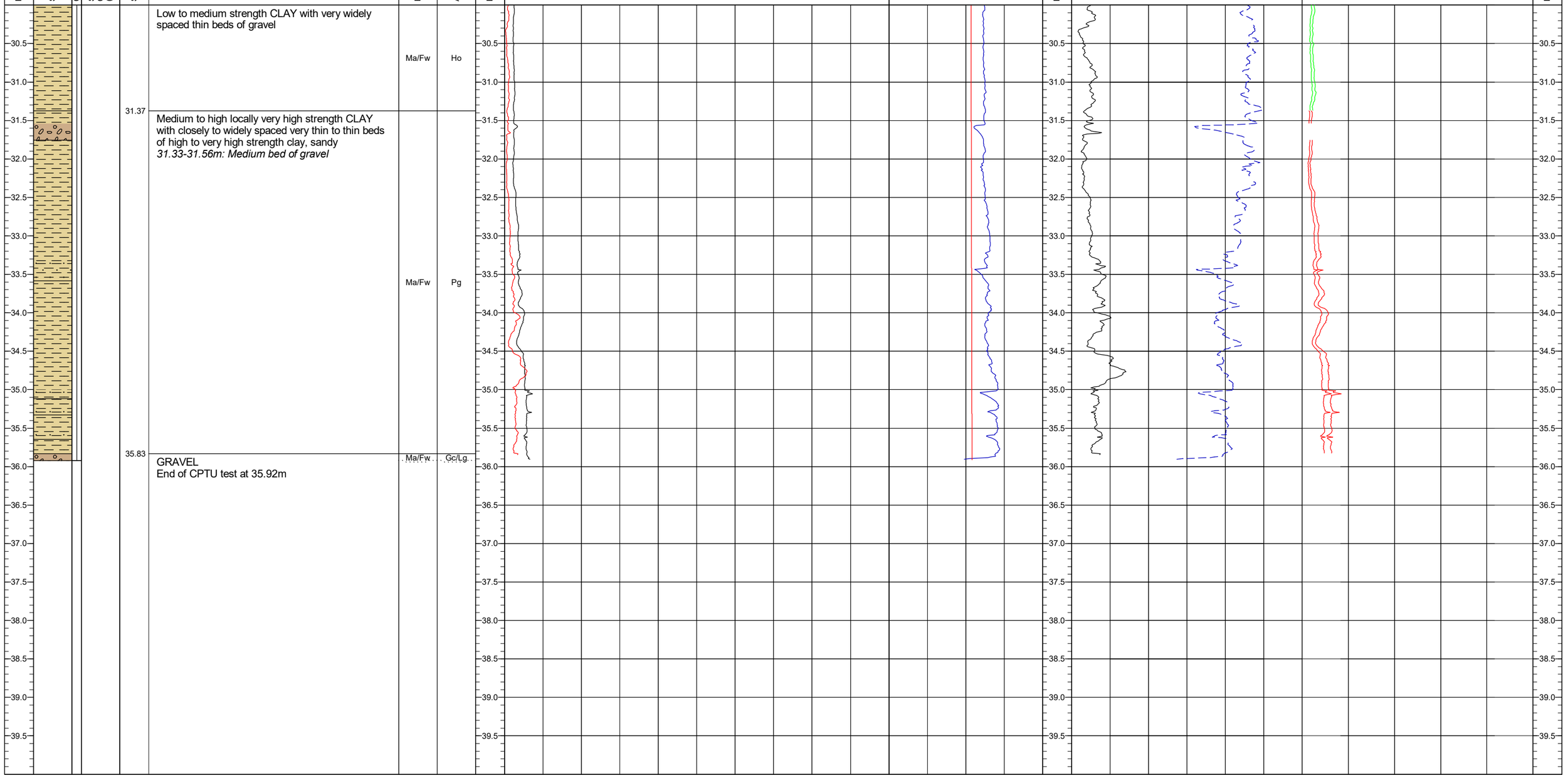
QC Status		
Preliminary	Draft	Final
JK/BC (01/05/2021)	**DR** (10/06/2021)	**SMc** (10/11/2021)

CPT Name: **CB4**

Preliminary Investigation, Hesselø OWF

IN SITU CPTU TESTING

Depth (m)	Interpreted Soil Type	Env.	Age
0.00	Low to medium strength CLAY with very widely spaced thin beds of gravel	Ma/Fw	Ho
31.37	Medium to high locally very high strength CLAY with closely to widely spaced very thin to thin beds of high to very high strength clay, sandy *31.33-31.56m: Medium bed of gravel*	Ma/Fw	Pg
35.83	GRAVEL End of CPTU test at 35.92m	Ma/Fw	Gc/Lg



KEY TO SOIL PROFILE

SILT · CLAY · SAND · GRAVEL · COBBLES · CHALK · PEAT · Mixed Soil

Assumed Unit Weight: 20 - 16 kN/m³
K_C: 0.5 - 2.0
N_{kt}: 12.5 - 16.5
$N_{\Delta u}$: 15 - 20
K_C: 0.5 - 2.0

Area	**Kattegat Sea**	Coordinates	**675775.7E 6272685.7N**
Contract	**11596**	Water Depth (mMSL)	**30.9**
Client Name/Ref	**Energinet Eltransmission A/S/384_20_ENE**	Date of Test	**01/05/2021**
Vessel	**MV Ocean Vantage**	Cone No.(type)/α Factor	**130909 (50cm²) / 0.82**
Method	**20 kN Sea bed CPT**	Base Inclination	**X = 1.1° / Y = 0.9°**

CRS: **ETRS89**

Comments:
Cone class 1. Continuous seabed CPT. Final depth 35.73m. Test terminated at operators discretion due to lack of rod support from mudline when pushing into dense material

QC Status		
Preliminary	Draft	Final
JK/BC (01/05/2021)	**DR** (10/06/2021)	**SMc** (10/11/2021)

CPT Name: **CB4**

Preliminary Investigation, Hesselø OWF

IN SITU CPTU TESTING

Soil Depth (m)	Interpreted Soil Type	Env.	Age
0.17	Extremely low strength CLAY	Ma/Fw	Ho
	Very low to low strength CLAY	Ma/Fw	Ho
2.47	Medium dense to dense SAND	Ma/Fw	Ho
2.82	Dense to very dense SAND, silty, slightly gravelly *2.85-3.06m: Medium bed of dense to very dense sand, silty* *4.14-4.50m: Medium bed of dense to very dense sand, silty*	Ma/Fw	Ho
	5.25-5.27m: Very thin bed of gravel		
	End of CPTU test at 5.46m		

Sample Ref No. / Cone ID (Alpha): 1 / 130909(50) / 0.82

Corrected Cone Resistance, q_t (MPa) 0 6 12 18 24 30 36 42 48 54 60

Sleeve Friction, f_s (kPa) 0 0.15 0.30 0.45 0.60 0.75 0.90 1.05 1.20 1.35 1.5

Pore Pressure, U_2 (kPa) -4500 -2250 0 2250 4500

Ambient Pore Pressure, U_0 (kPa)

Pore Pressure Ratio, Bq -1.5 -1.0 -0.5 0.0 0.5 1.0 1.5

Friction Ratio, (%) 0 2 4 6 8 10 12

Relative Density, D_r (%) 0 20 40 60 80 100

Undrained Shear Strength, S_u (kPa) 0 300 600 900 1200 1500

KEY TO SOIL PROFILE

SILT, CLAY, SAND, GRAVEL, COBBLES, CHALK, PEAT, Mixed Soil

Assumed Unit Weight: 20 - 16 kN/m³
K_{cr} 0.5 - 2.0
N_{cr} 12.5 - 16.5
N_{kt} 15 - 20
K_c 0.5 - 2.0

Area	**Kattegat Sea**	Coordinates	**671118.2E 6254697.4N**
Contract	**11596**	Water Depth (mMSL)	**27.4**
Client Name/Ref	**Energinet Eltransmission A/S/384_20_ENE**	Date of Test	**28/04/2021**
Vessel	**MV Ocean Vantage**	Cone No.(type)/α Factor	**130909 (50cm²) / 0.82**
Method	**20 kN Sea bed CPT**	Base Inclination	**X = 1.0° / Y = 1.0°**

CRS: **ETRS89**

Comments:
Cone class 3. Continuous seabed CPT. Final depth 5.46m. Test terminated at operators discretion due to high increase in sleeve friction and sudden increase in tip resistance~ poor lateral rod support in first 2m

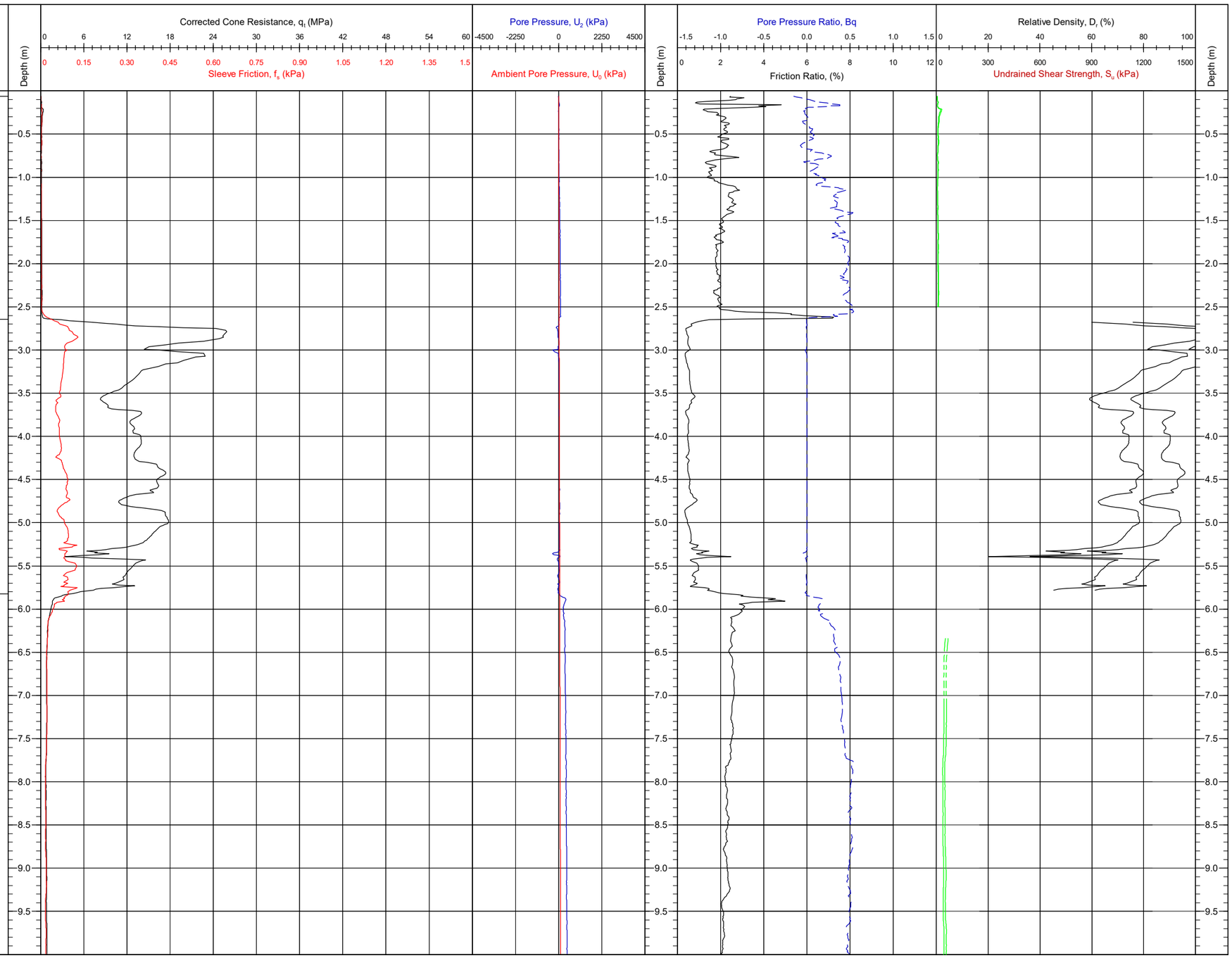
QC Status	Preliminary	Draft	Final
	JK/BC (28/04/2021)	**DR** (10/06/2021)	**SMc** (10/11/2021)

CPT Name: **CB5**

Preliminary Investigation, Hesselø OWF

IN SITU CPTU TESTING

Soil Depth (m)	Interpreted Soil Type	Env.	Age
0.06	CPTU sinkage		
	Very low becoming low strength CLAY	Ma/Fw	Ho
2.65	Dense to very dense locally medium dense SAND, slightly silty, slightly gravelly	Ma/Fw	Pg
	5.32-5.36m: Very thin bed of loose to medium dense sand, silty		
5.83	Medium to high strength CLAY	Ma	Pg



KEY TO SOIL PROFILE

SILT · CLAY · SAND · GRAVEL · COBBLES · CHALK · PEAT · Mixed Soil

Assumed Unit Weight: 20 - 16 kN/m³
K_c: 0.5 - 2.0
N_{kt}: 12.5 - 16.5
N_{ke}: 15 - 20
K_c: 0.5 - 2.0

Area	**Kattegat Sea**	Coordinates	**671118.6E 6254692.2N**
Contract	**11596**	Water Depth (mMSL)	**27.4**
Client Name/Ref	**Energinet Eltransmission A/S/384_20_ENE**	Date of Test	**28/04/2021**
Vessel	**MV Ocean Vantage**	Cone No.(type)/α Factor	**191114 (50cm²) / 0.76**
Method	**20 kN Sea bed CPT**	Base Inclination	**X = 0.5° / Y = 0.0°**

CRS: **ETRS89**

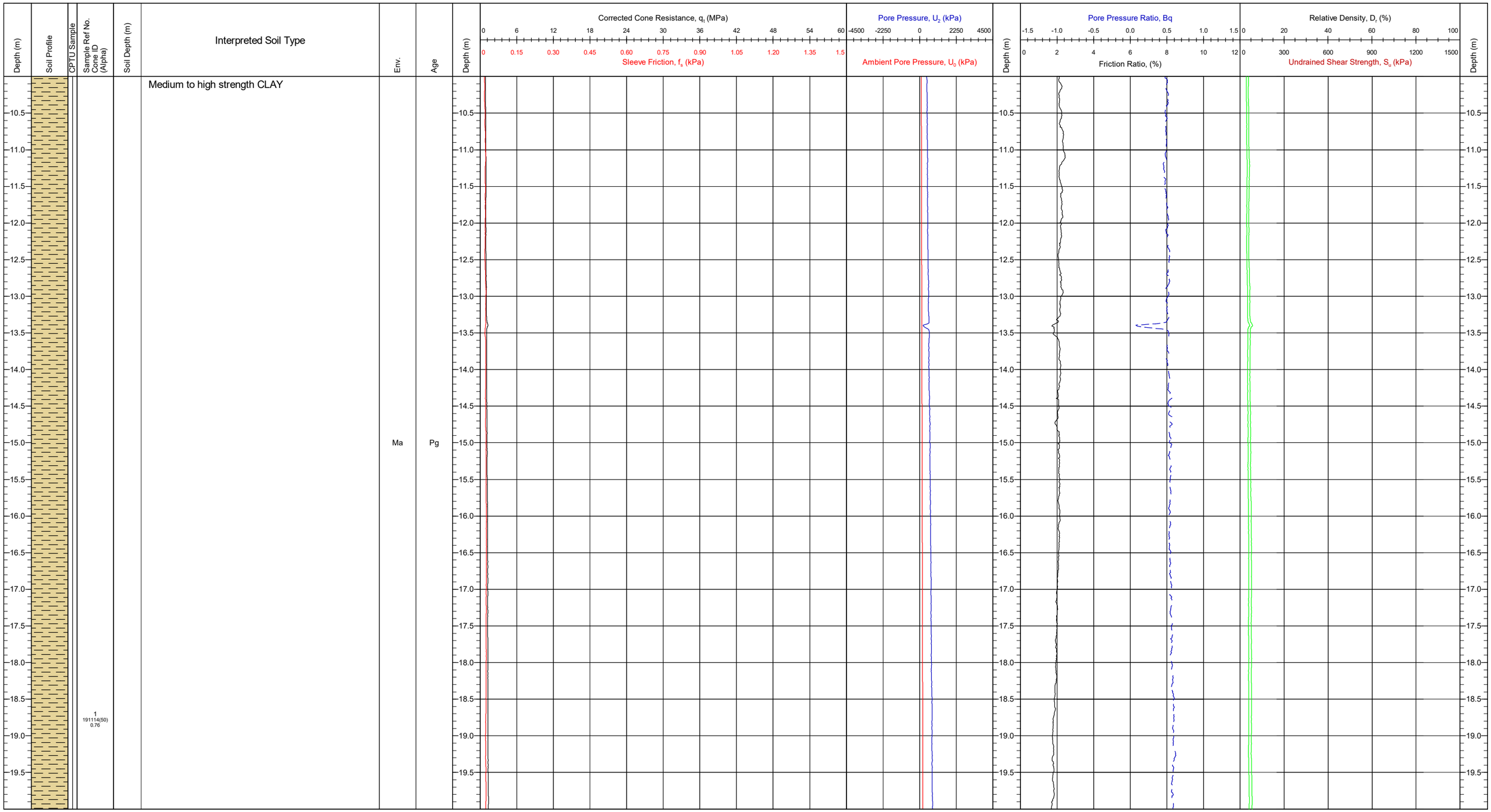
Comments:
Cone class 2. Continuous seabed CPT. Final depth 37.28m. Test terminated due to a sudden increase in tip resistance and total force and a lack of lateral rod support throughout latter half of test

QC Status	Preliminary	Draft	Final
	JK/BC (28/04/2021)	**DR** (10/06/2021)	**SMc** (10/11/2021)

CPT Name: **CB5a**

Preliminary Investigation, Hesselø OWF

IN SITU CPTU TESTING



KEY TO SOIL PROFILE

SILT · CLAY · SAND · GRAVEL · COBBLES · CHALK · PEAT · Mixed Soil

Assumed Unit Weight: 20 - 16 kN/m³
K_C 0.5 - 2.0
N_{kt} 12.5 - 16.5
N_{ke} 15 - 20
K_C 0.5 - 2.0

Area	**Kattegat Sea**	Coordinates	**671118.6E 6254692.2N**
Contract	**11596**	Water Depth (mMSL)	**27.4**
Client Name/Ref	**Energinet Eltransmission A/S/384_20_ENE**	Date of Test	**28/04/2021**
Vessel	**MV Ocean Vantage**	Cone No.(type)/α Factor	**191114 (50cm²) / 0.76**
Method	**20 kN Sea bed CPT**	Base Inclination	**X = 0.5° / Y = 0.0°**

CRS: **ETRS89**

Comments:
Cone class 2. Continuous seabed CPT. Final depth 37.28m. Test terminated due to a sudden increase in tip resistance and total force and a lack of lateral rod support throughout latter half of test

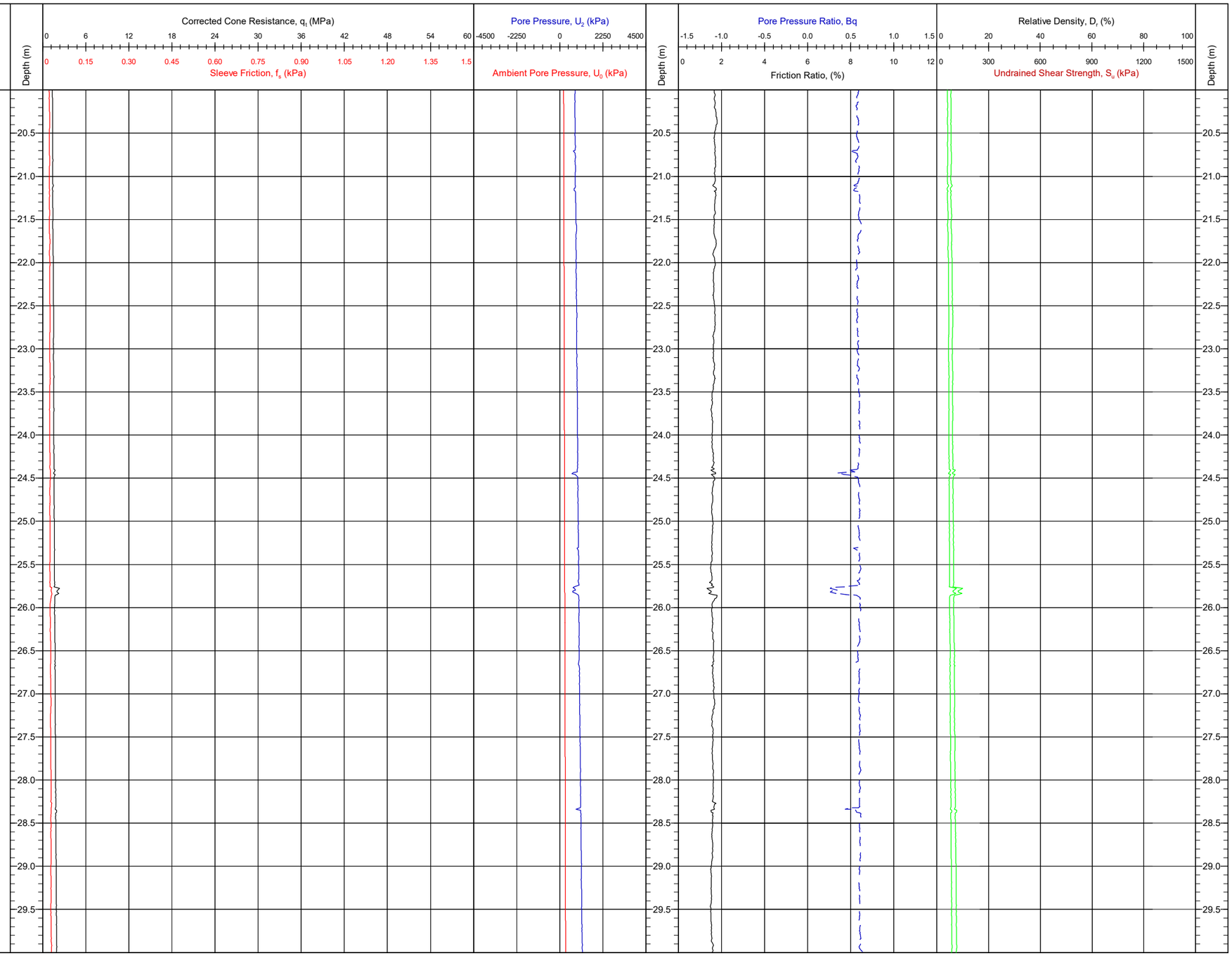
QC Status		
Preliminary	Draft	Final
JK/BC (28/04/2021)	**DR** (10/06/2021)	**SMc** (10/11/2021)

CPT Name

CB5a

Preliminary Investigation, Hesselø OWF
IN SITU CPTU TESTING

Depth (m)	Soil Profile	CPTU Sample	Sample Ref No. Cone ID (Alpha)	Soil Depth (m)	Interpreted Soil Type	Env.	Age
20.5					Medium to high strength CLAY		
21.0							
21.5							
22.0							
22.5							
23.0							
23.5							
24.0							
24.5							
25.0						Ma	Pg
25.5					*25.75-25.87m: Thin bed of medium to high strength clay, sandy*		
26.0							
26.5							
27.0							
27.5							
28.0							
28.5							
29.0							
29.5							



KEY TO SOIL PROFILE

SILT · CLAY · SAND · GRAVEL · COBBLES · CHALK · PEAT · Mixed Soil

Assumed Unit Weight: 20 - 16 kN/m³
K_0: 0.5 - 2.0
N_{kt}: 12.5 - 16.5
N_{ke}: 15 - 20
K_0: 0.5 - 2.0

Area	**Kattegat Sea**	Coordinates	**671118.6E 6254692.2N**
Contract	**11596**	Water Depth (mMSL)	**27.4**
Client Name/Ref	**Energinet Eltransmission A/S/384_20_ENE**	Date of Test	**28/04/2021**
Vessel	**MV Ocean Vantage**	Cone No.(type)/α Factor	**191114 (50cm²) / 0.76**
Method	**20 kN Sea bed CPT**	Base Inclination	**X = 0.5° / Y = 0.0°**

CRS: **ETRS89**

Comments:
Cone class 2. Continuous seabed CPT. Final depth 37.28m. Test terminated due to a sudden increase in tip resistance and total force and a lack of lateral rod support throughout latter half of test

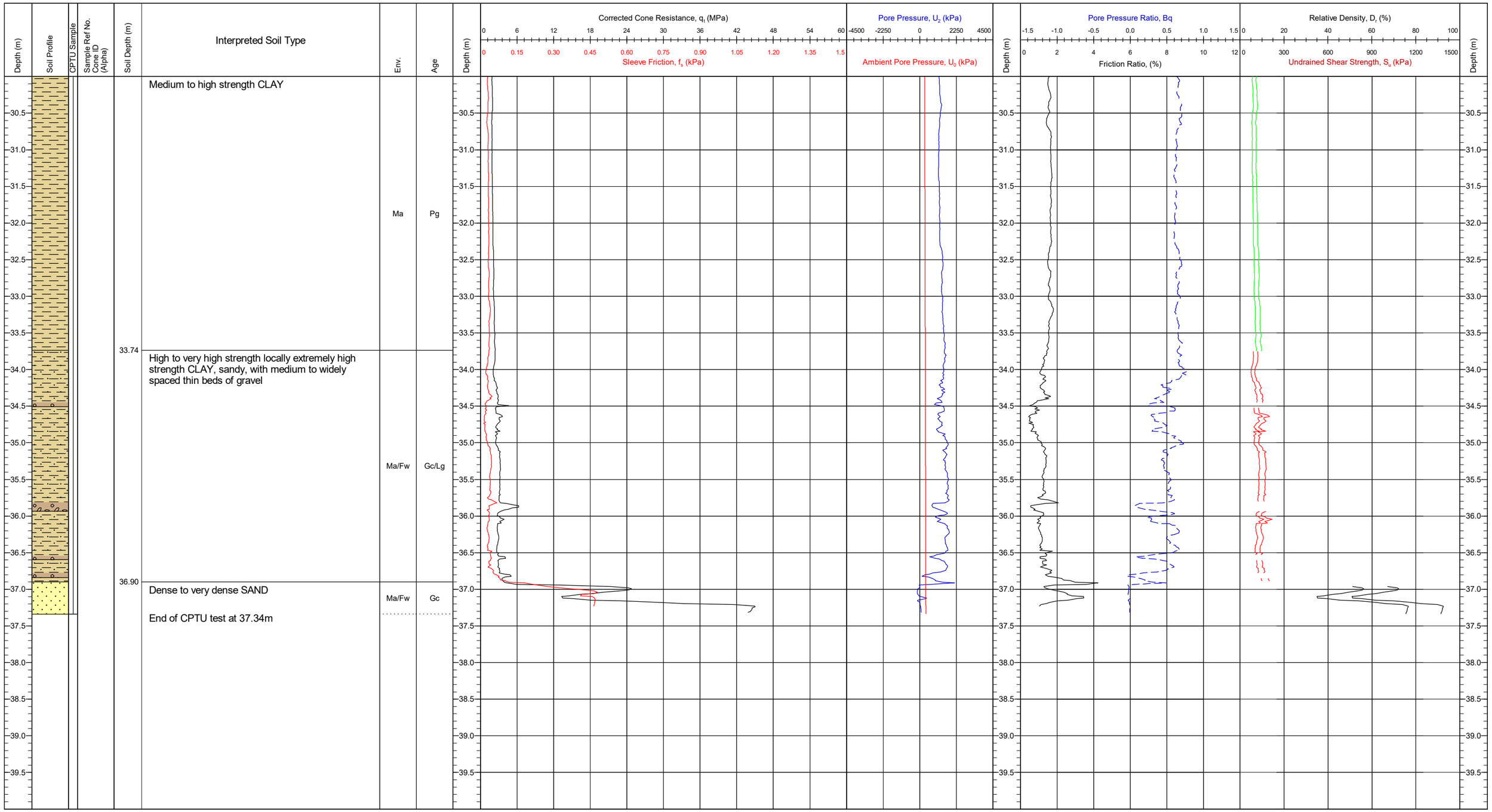
QC Status	Preliminary	Draft	Final
	JK/BC (28/04/2021)	DR (10/06/2021)	SMc (10/11/2021)

CPT Name: **CB5a**

Preliminary Investigation, Hesselø OWF

IN SITU CPTU TESTING

Soil Depth (m)	Interpreted Soil Type	Env.	Age
	Medium to high strength CLAY	Ma	Pg
33.74	High to very high strength locally extremely high strength CLAY, sandy, with medium to widely spaced thin beds of gravel	Ma/Fw	Gc/Lg
36.90	Dense to very dense SAND End of CPTU test at 37.34m	Ma/Fw	Gc



KEY TO SOIL PROFILE

SILT · CLAY · SAND · GRAVEL · COBBLES · CHALK · PEAT · Mixed Soil

Assumed Unit Weight: 20 - 16 kN/m³
K_C 0.5 - 2.0
N_{kt} 12.5 - 16.5
$N_{\Delta u}$ 15 - 20
K_C 0.5 - 2.0

Area	**Kattegat Sea**	Coordinates	**671118.6E 6254692.2N**
Contract	**11596**	Water Depth (mMSL)	**27.4**
Client Name/Ref	**Energinet Eltransmission A/S/384_20_ENE**	Date of Test	**28/04/2021**
Vessel	**MV Ocean Vantage**	Cone No.(type)/α Factor	**191114 (50cm²) / 0.76**
Method	**20 kN Sea bed CPT**	Base Inclination	**X = 0.5° / Y = 0.0°**

CRS: **ETRS89**

Comments:
Cone class 2. Continuous seabed CPT. Final depth 37.28m. Test terminated due to a sudden increase in tip resistance and total force and a lack of lateral rod support throughout latter half of test

QC Status		
Preliminary	Draft	Final
JK/BC (28/04/2021)	**DR** (10/06/2021)	**SMc** (10/11/2021)

CPT Name

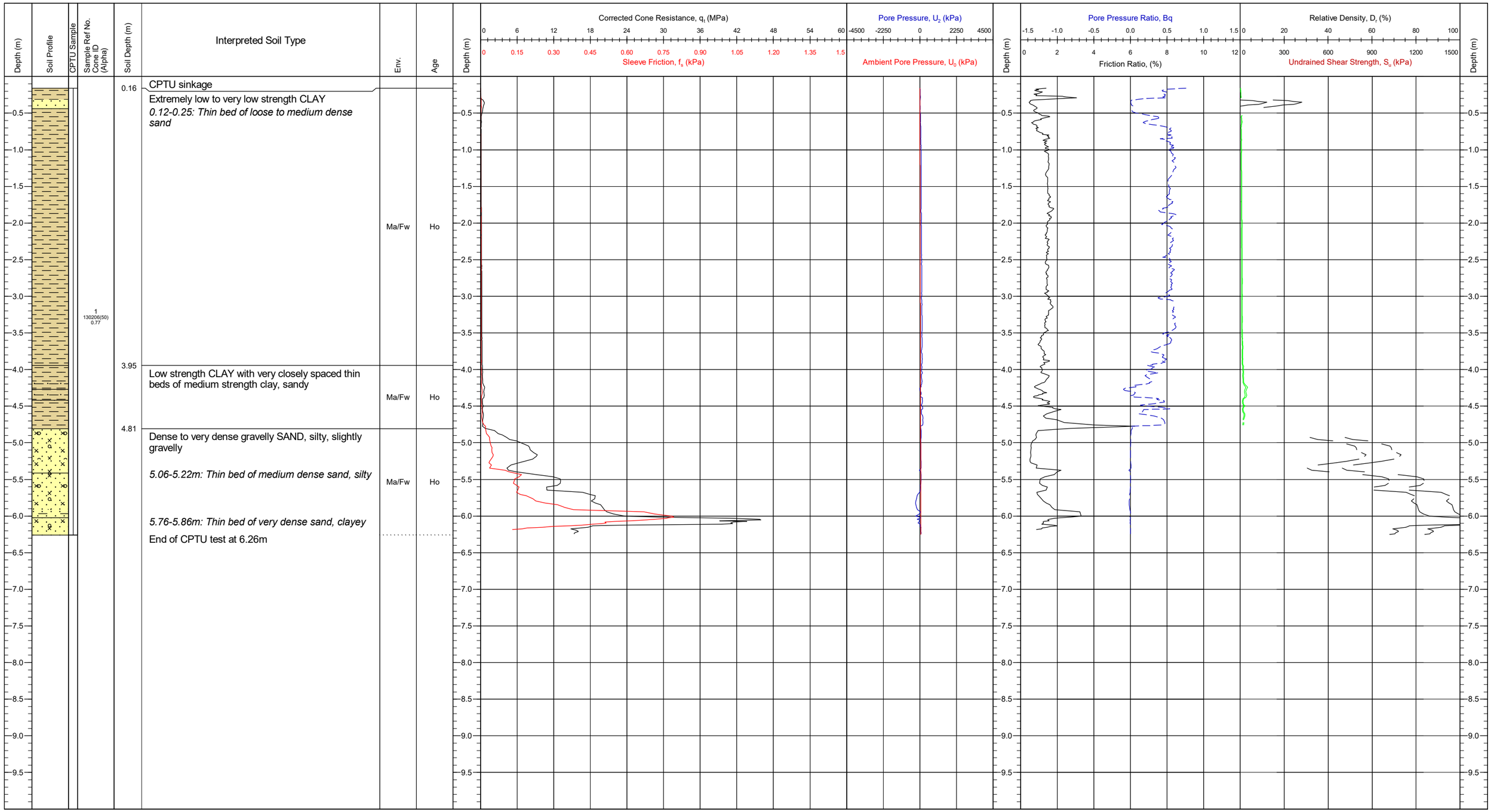
CB5a

Preliminary Investigation, Hesselø OWF

IN SITU CPTU TESTING

Soil Depth (m)	Interpreted Soil Type	Env.	Age
0.16	CPTU sinkage		
	Extremely low to very low strength CLAY *0.12-0.25: Thin bed of loose to medium dense sand*	Ma/Fw	Ho
3.95	Low strength CLAY with very closely spaced thin beds of medium strength clay, sandy	Ma/Fw	Ho
4.81	Dense to very dense gravelly SAND, silty, slightly gravelly *5.06-5.22m: Thin bed of medium dense sand, silty* *5.76-5.86m: Thin bed of very dense sand, clayey* End of CPTU test at 6.26m	Ma/Fw	Ho

CPTU Sample: 1 — Sample Ref No. / Cone ID (Alpha): 130206(50) 0.77



KEY TO SOIL PROFILE

SILT · CLAY · SAND · GRAVEL · COBBLES · CHALK · PEAT · Mixed Soil

Assumed Unit Weight: 20 - 16 kN/m³
K_C: 0.5 - 2.0
N_{kt}: 12.5 - 16.5
$N_{\Delta u}$: 15 - 20
K_C: 0.5 - 2.0

Area	**Kattegat Sea**	Coordinates	**668194.0E 6257998.4N**
Contract	**11596**	Water Depth (mMSL)	**26.7**
Client Name/Ref	**Energinet Eltransmission A/S/384_20_ENE**	Date of Test	**29/04/2021**
Vessel	**MV Ocean Vantage**	Cone No.(type)/α Factor	**130206 (50cm²) / 0.77**
Method	**20 kN Sea bed CPT**	Base Inclination	**X = 1.1° / Y = 1.0°**

CRS: **ETRS89**

Comments:
Cone class 1. Continuous seabed CPT. Final depth 6.10m. Test terminated at operators discretion due to sudden increase in inclination and tip resistance

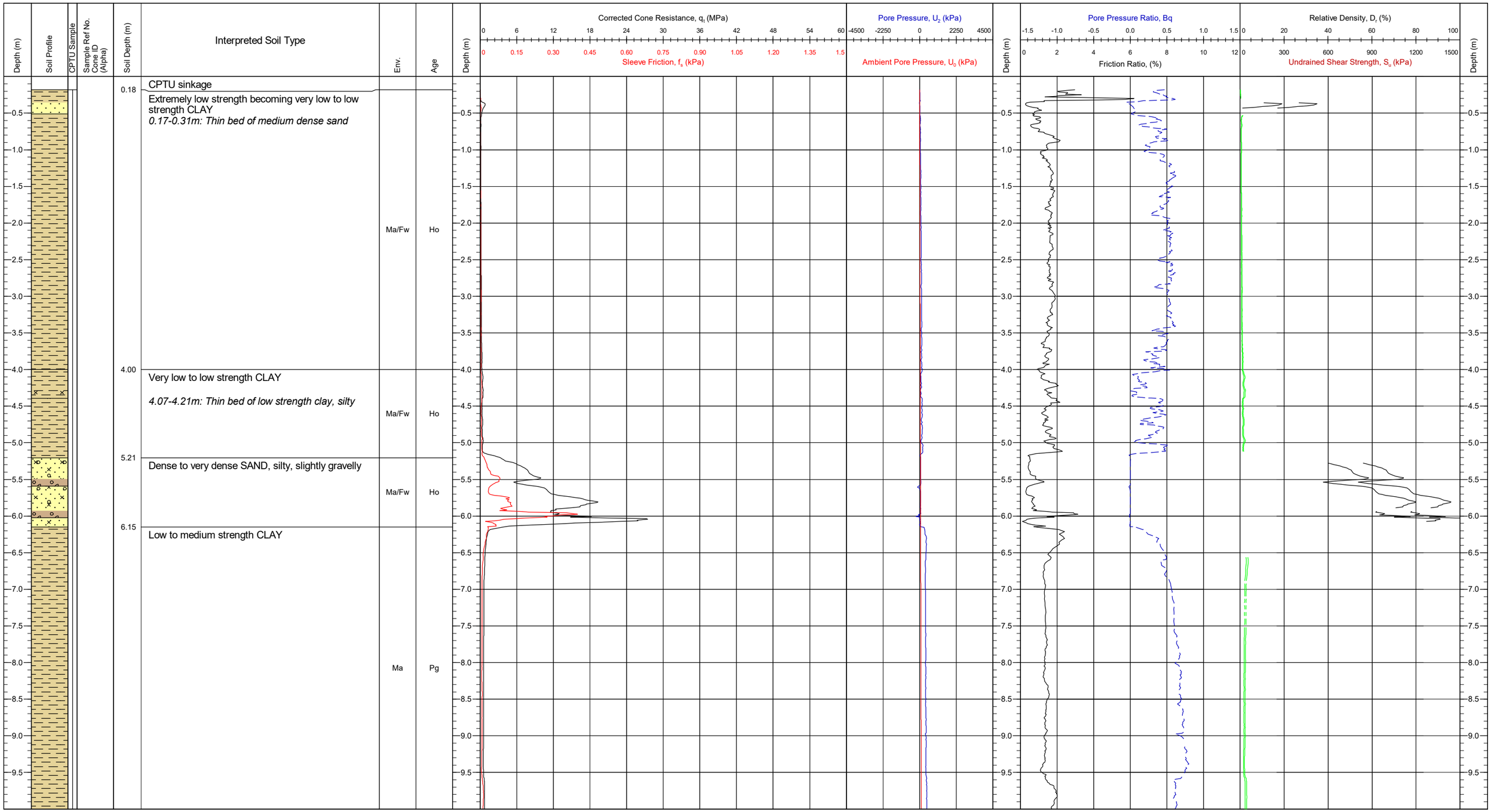
QC Status		
Preliminary	Draft	Final
JK/BC (29/04/2021)	**DR** (10/06/2021)	**SMc** (10/11/2021)

CPT Name: **CB6**

Preliminary Investigation, Hesselø OWF

IN SITU CPTU TESTING

Soil Depth (m)	Interpreted Soil Type	Env.	Age
0.18	CPTU sinkage		
	Extremely low strength becoming very low to low strength CLAY *0.17-0.31m: Thin bed of medium dense sand*	Ma/Fw	Ho
4.00	Very low to low strength CLAY *4.07-4.21m: Thin bed of low strength clay, silty*	Ma/Fw	Ho
5.21	Dense to very dense SAND, silty, slightly gravelly	Ma/Fw	Ho
6.15	Low to medium strength CLAY	Ma	Pg



KEY TO SOIL PROFILE

SILT · CLAY · SAND · GRAVEL · COBBLES · CHALK · PEAT · Mixed Soil

Assumed Unit Weight: 20 - 16 kN/m³
K_{c^2} 0.5 - 2.0
N_{kt^2} 12.5 - 16.5
N_{kt^3} 15 - 20
K_{c^3} 0.5 - 2.0

Area	**Kattegat Sea**	Coordinates	**668194.3E 6257993.1N**
Contract	**11596**	Water Depth (mMSL)	**26.8**
Client Name/Ref	**Energinet Eltransmission A/S/384_20_ENE**	Date of Test	**29/04/2021**
Vessel	**MV Ocean Vantage**	Cone No.(type)/α Factor	**130206 (50cm²) / 0.77**
Method	**20 kN Sea bed CPT**	Base Inclination	**X = 1.1° / Y = 1.0°**

CRS: **ETRS89**

Comments:
Cone class 1. Continuous seabed CPT. Final depth 36.08 m. Test terminated at operators discretion due to high inclination (18 degrees)

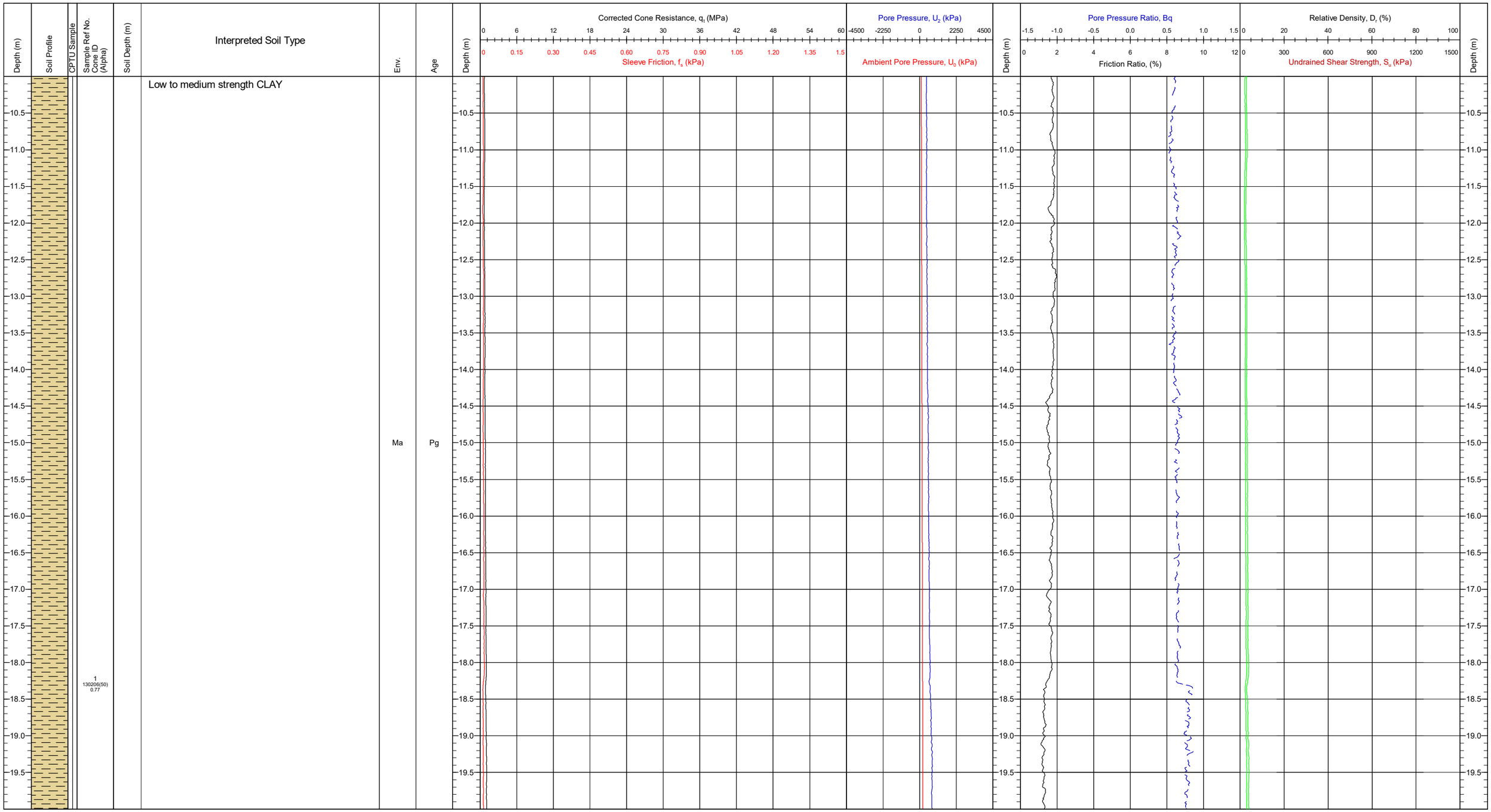
QC Status		
Preliminary	Draft	Final
JK/BC (29/04/2021)	**DR** (10/06/2021)	**SMc** (10/11/2021)

CPT Name

CB6a

Preliminary Investigation, Hesselø OWF

IN SITU CPTU TESTING



KEY TO SOIL PROFILE

SILT · CLAY · SAND · GRAVEL · COBBLES · CHALK · PEAT · Mixed Soil

Assumed Unit Weight: 20 - 16 kN/m³
K_C 0.5 - 2.0
N_{kT} 12.5 - 16.5
$N_{\Delta U}$ 15 - 20
K_S 0.5 - 2.0

Area	**Kattegat Sea**	Coordinates	**668194.3E 6257993.1N**
Contract	**11596**	Water Depth (mMSL)	**26.8**
Client Name/Ref	**Energinet Eltransmission A/S/384_20_ENE**	Date of Test	**29/04/2021**
Vessel	**MV Ocean Vantage**	Cone No.(type)/α Factor	**130206 (50cm²) / 0.77**
Method	**20 kN Sea bed CPT**	Base Inclination	**X = 1.1° / Y = 1.0°**

CRS: **ETRS89**

Comments:
Cone class 1. Continuous seabed CPT. Final depth 36.08 m. Test terminated at operators discretion due to high inclination (18 degrees)

QC Status		
Preliminary	Draft	Final
JK/BC (29/04/2021)	**DR** (10/06/2021)	**SMc** (10/11/2021)

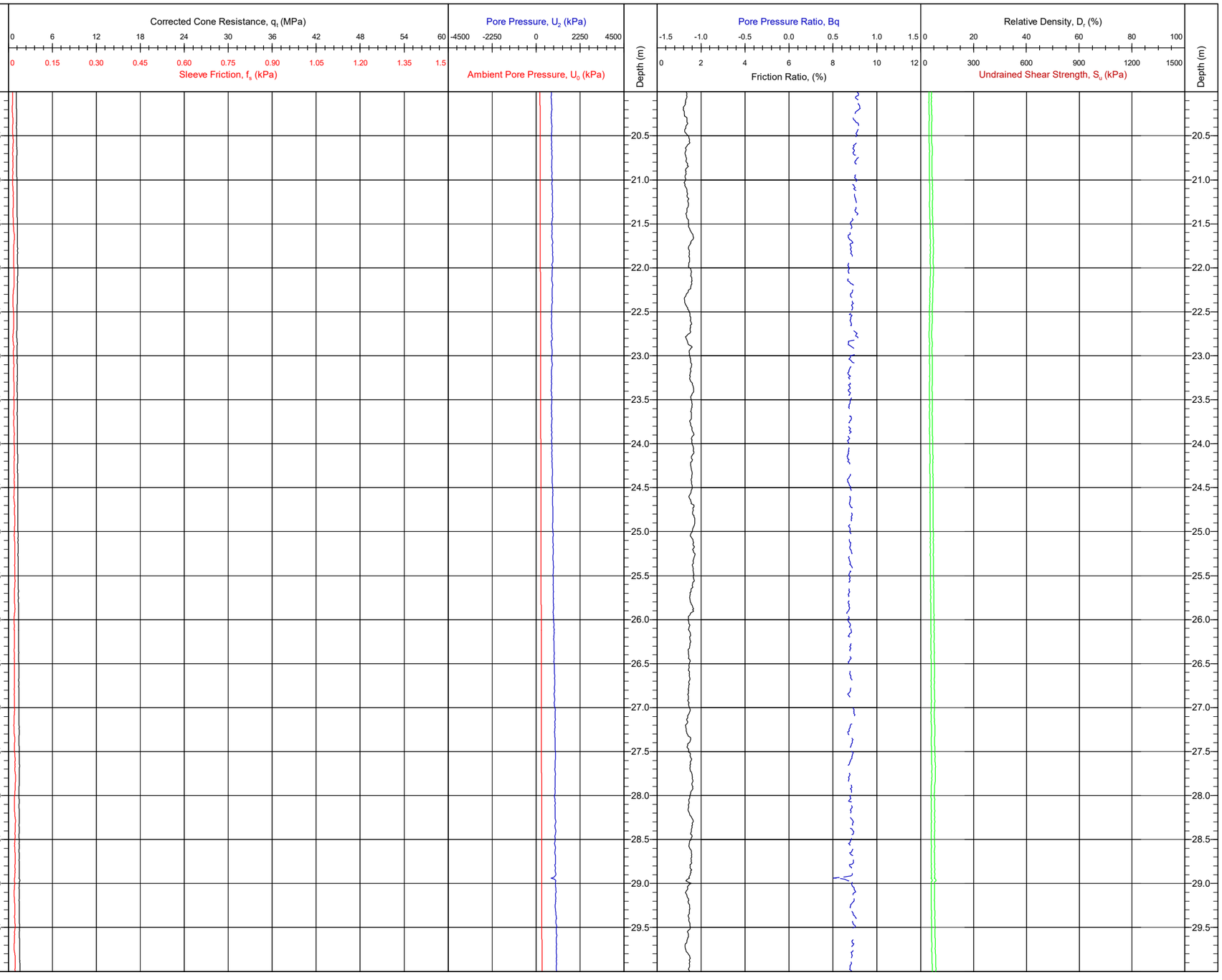
CPT Name

CB6a

Preliminary Investigation, Hesselø OWF

IN SITU CPTU TESTING

Depth (m)	Soil Profile	CPTU Sample	Sample Ref No. Cone ID (Alpha)	Soil Depth (m)	Interpreted Soil Type	Env.	Age
20.5					Low to medium strength CLAY		
21.0							
21.5							
22.0							
22.5							
23.0							
23.5							
24.0							
24.5							
25.0						Ma	Pg
25.5							
26.0							
26.5							
27.0							
27.5							
28.0							
28.5							
29.0					*28.72-28.78m: Thin bed of medium strength clay, sandy*		
29.5							



KEY TO SOIL PROFILE

SILT · CLAY · SAND · GRAVEL · COBBLES · CHALK · PEAT · Mixed Soil

Assumed Unit Weight: 20 - 16 kN/m³
K_c: 0.5 - 2.0
N_{kt}: 12.5 - 16.5
N_{cv}: 15 - 20
K_c: 0.5 - 2.0

Area	**Kattegat Sea**	Coordinates	**668194.3E 6257993.1N**
Contract	**11596**	Water Depth (mMSL)	**26.8**
Client Name/Ref	**Energinet Eltransmission A/S/384_20_ENE**	Date of Test	**29/04/2021**
Vessel	**MV Ocean Vantage**	Cone No.(type)/α Factor	**130206 (50cm²) / 0.77**
Method	**20 kN Sea bed CPT**	Base Inclination	**X = 1.1° / Y = 1.0°**

CRS: **ETRS89**

Comments:
Cone class 1. Continuous seabed CPT. Final depth 36.08 m. Test terminated at operators discretion due to high inclination (18 degrees)

QC Status	Preliminary	Draft	Final
	JK/BC (29/04/2021)	**DR** (10/06/2021)	**SMc** (10/11/2021)

CPT Name

CB6a

Preliminary Investigation, Hesselø OWF

IN SITU CPTU TESTING

Soil Depth (m)	Interpreted Soil Type	Env.	Age
	Low to medium strength CLAY		
	30.67-30.75m: Thin bed of very high strength clay, sandy	Ma	Pg
32.09	High strength CLAY	Ma/Fw	Pg
36.26	End of CPTU test at 36.26m		

Corrected Cone Resistance, q_t (MPa) 0 6 12 18 24 30 36 42 48 54 60

Sleeve Friction, f_s (kPa) 0 0.15 0.30 0.45 0.60 0.75 0.90 1.05 1.20 1.35 1.5

Pore Pressure, U_2 (kPa) -4500 -2250 0 2250 4500

Ambient Pore Pressure, U_0 (kPa)

Pore Pressure Ratio, Bq -1.5 -1.0 -0.5 0.0 0.5 1.0 1.5

Friction Ratio, (%) 0 2 4 6 8 10 12

Relative Density, D_r (%) 0 20 40 60 80 100

Undrained Shear Strength, S_u (kPa) 0 300 600 900 1200 1500

Depth (m) 30.5 31.0 31.5 32.0 32.5 33.0 33.5 34.0 34.5 35.0 35.5 36.0 36.5 37.0 37.5 38.0 38.5 39.0 39.5

KEY TO SOIL PROFILE

SILT, CLAY, SAND, GRAVEL, COBBLES, CHALK, PEAT, Mixed Soil

Assumed Unit Weight: 20 - 16 kN/m³
K_0: 0.5 - 2.0
N_{kt}: 12.5 - 16.5
$N_{\Delta u}$: 15 - 20
K_0: 0.5 - 2.0

Area	**Kattegat Sea**	Coordinates	**668194.3E 6257993.1N**
Contract	**11596**	Water Depth (mMSL)	**26.8**
Client Name/Ref	**Energinet Eltransmission A/S/384_20_ENE**	Date of Test	**29/04/2021**
Vessel	**MV Ocean Vantage**	Cone No.(type)/α Factor	**130206 (50cm²) / 0.77**
Method	**20 kN Sea bed CPT**	Base Inclination	**X = 1.1° / Y = 1.0°**

CRS: **ETRS89**

Comments:
Cone class 1. Continuous seabed CPT. Final depth 36.08 m. Test terminated at operators discretion due to high inclination (18 degrees)

QC Status		
Preliminary	Draft	Final
JK/BC (29/04/2021)	**DR** (10/06/2021)	**SMc** (10/11/2021)

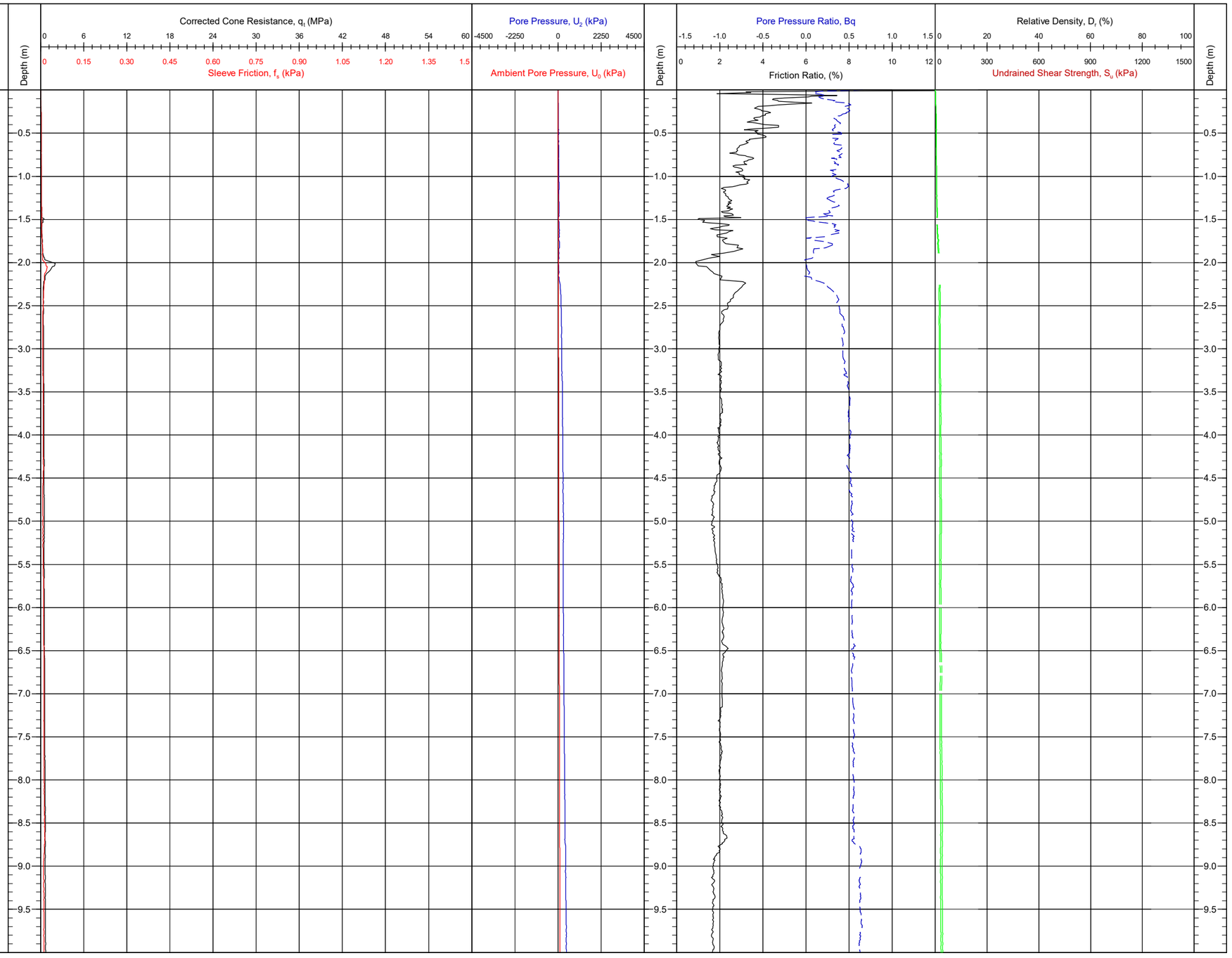
CPT Name

CB6a

Preliminary Investigation, Hesselø OWF

IN SITU CPTU TESTING

Depth (m)	Soil Profile	CPTU Sample	Sample Ref No. Cone ID (Alpha)	Soil Depth (m)	Interpreted Soil Type	Env.	Age
0.0					Very low to low strength becoming medium strength CLAY with medium spaced thin to medium beds of gravel		
1.5					*2.00-2.25m: Medium bed of SAND, silty, gravelly*		
5.0						Ma/Fw	Ho



KEY TO SOIL PROFILE

SILT · CLAY · SAND · GRAVEL · COBBLES · CHALK · PEAT · Mixed Soil

Assumed Unit Weight: 20 - 16 kN/m³
K_c 0.5 - 2.0
N_{kt} 12.5 - 16.5
$N_{\Delta u}$ 15 - 20
K_c 0.5 - 2.0

Area	**Kattegat Sea**	Coordinates	**673538.0E 6259621.3N**
Contract	**11596**	Water Depth (mMSL)	**31.0**
Client Name/Ref	**Energinet Eltransmission A/S/384_20_ENE**	Date of Test	**29/04/2021**
Vessel	**MV Ocean Vantage**	Cone No.(type)/α Factor	**181005 (50cm²) / 0.73**
Method	**20 kN Sea bed CPT**	Base Inclination	**X = 1.2° / Y = 0.7°**

CRS: **ETRS89**

Comments:
Cone class 2. Continuous seabed CPT. Final depth 20.89m. Test terminated due to acquisition software crashing mid test losing communication with the cone

QC Status		
Preliminary	Draft	Final
JK/BC (29/04/2021)	**DR** (10/06/2021)	**SMc** (10/11/2021)

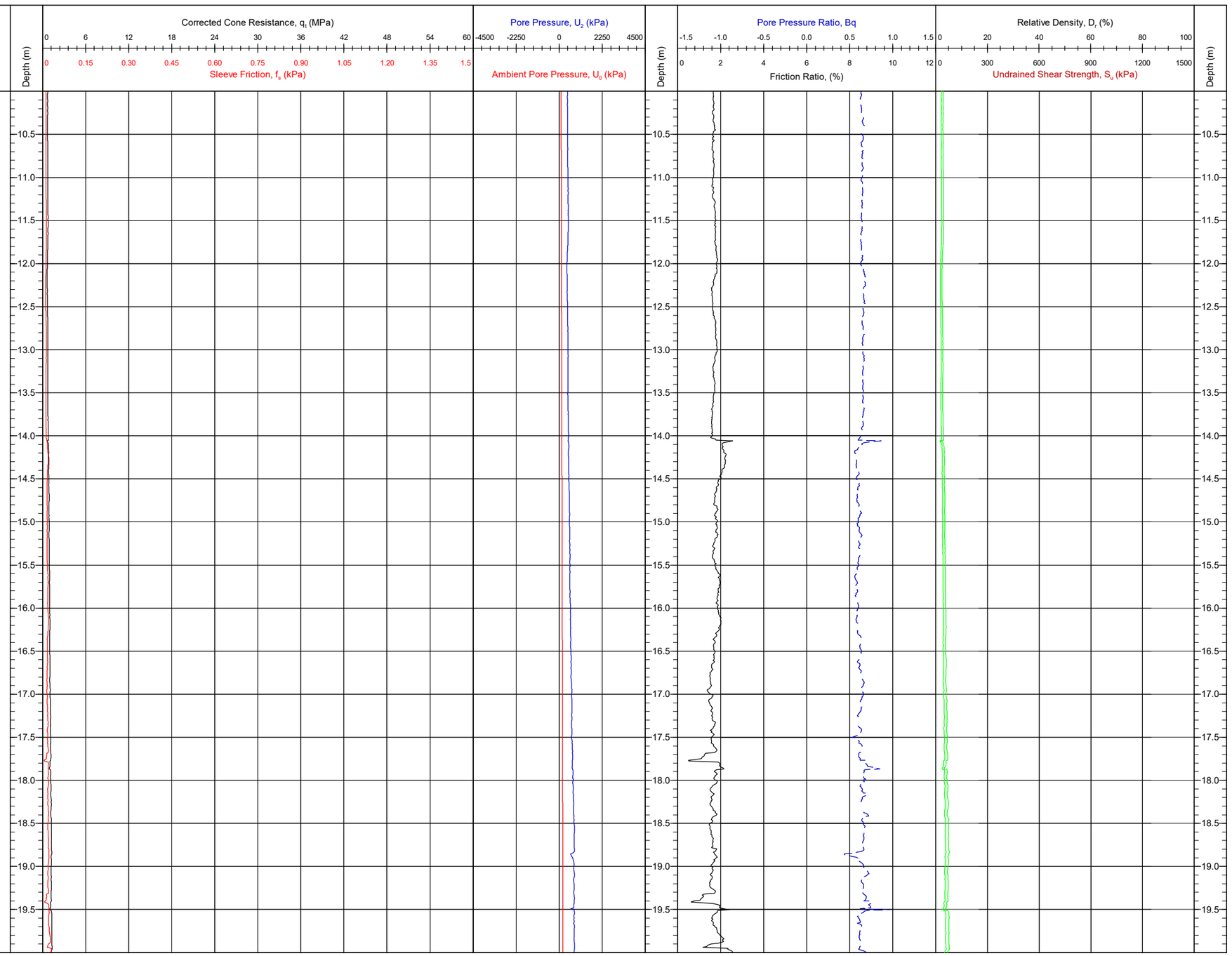
CPT Name

CB7

Preliminary Investigation, Hesselø OWF

IN SITU CPTU TESTING

Depth (m)	Soil Profile	CPTU Sample	Sample Ref No. Cone ID (Alpha)	Soil Depth (m)	Interpreted Soil Type	Env.	Age
10.5 – 19.5			1 181005(50) 0.73		Very low to low strength becoming medium strength CLAY with medium spaced thin to medium beds of gravel	Ma/Fw	Ho



KEY TO SOIL PROFILE

SILT · CLAY · SAND · GRAVEL · COBBLES · CHALK · PEAT · Mixed Soil

Assumed Unit Weight: 20 - 16 kN/m³
K_C 0.5 - 2.0
N_{kt} 12.5 - 16.5
$N_{\Delta u}$ 15 - 20
K_C 0.5 - 2.0

Area	**Kattegat Sea**	Coordinates	**673538.0E 6259621.3N**
Contract	**11596**	Water Depth (mMSL)	**31.0**
Client Name/Ref	**Energinet Eltransmission A/S/384_20_ENE**	Date of Test	**29/04/2021**
Vessel	**MV Ocean Vantage**	Cone No.(type)/α Factor	**181005 (50cm²) / 0.73**
Method	**20 kN Sea bed CPT**	Base Inclination	**X = 1.2° / Y = 0.7°**

CRS: **ETRS89**

Comments:
Cone class 2. Continuous seabed CPT. Final depth 20.89m. Test terminated due to acquisition software crashing mid test losing communication with the cone

QC Status	Preliminary	Draft	Final
	JK/BC (29/04/2021)	**DR** (10/06/2021)	**SMc** (10/11/2021)

CPT Name: **CB7**

Preliminary Investigation, Hesselø OWF
IN SITU CPTU TESTING

Soil Depth (m)	Interpreted Soil Type	Env.	Age
	Very low to low strength becoming medium strength CLAY with medium spaced thin to medium beds of gravel	Ma/Fw	Ho
20.89	End of CPTU test at 20.89m		

Corrected Cone Resistance, q_t (MPa) 0 6 12 18 24 30 36 42 48 54 60

Sleeve Friction, f_s (kPa) 0 0.15 0.30 0.45 0.60 0.75 0.90 1.05 1.20 1.35 1.5

Pore Pressure, U_2 (kPa) -4500 -2250 0 2250 4500

Ambient Pore Pressure, U_0 (kPa)

Pore Pressure Ratio, Bq -1.5 -1.0 -0.5 0.0 0.5 1.0 1.5

Friction Ratio, (%) 0 2 4 6 8 10 12

Relative Density, D_r (%) 0 20 40 60 80 100

Undrained Shear Strength, S_u (kPa) 0 300 600 900 1200 1500

Depth (m) 20.5 21.0 21.5 22.0 22.5 23.0 23.5 24.0 24.5 25.0 25.5 26.0 26.5 27.0 27.5 28.0 28.5 29.0 29.5

KEY TO SOIL PROFILE

SILT · CLAY · SAND · GRAVEL · COBBLES · CHALK · PEAT · Mixed Soil

Assumed Unit Weight: 20 - 16 kN/m³
K_C 0.5 - 2.0
N_{kt} 12.5 - 16.5
$N_{\Delta u}$ 15 - 20
K_C 0.5 - 2.0

Area	**Kattegat Sea**	Coordinates	**673538.0E 6259621.3N**
Contract	**11596**	Water Depth (mMSL)	**31.0**
Client Name/Ref	**Energinet Eltransmission A/S/384_20_ENE**	Date of Test	**29/04/2021**
Vessel	**MV Ocean Vantage**	Cone No.(type)/α Factor	**181005 (50cm²) / 0.73**
Method	**20 kN Sea bed CPT**	Base Inclination	**X = 1.2° / Y = 0.7°**

CRS: **ETRS89**

Comments:
Cone class 2. Continuous seabed CPT. Final depth 20.89m. Test terminated due to acquisition software crashing mid test losing communication with the cone

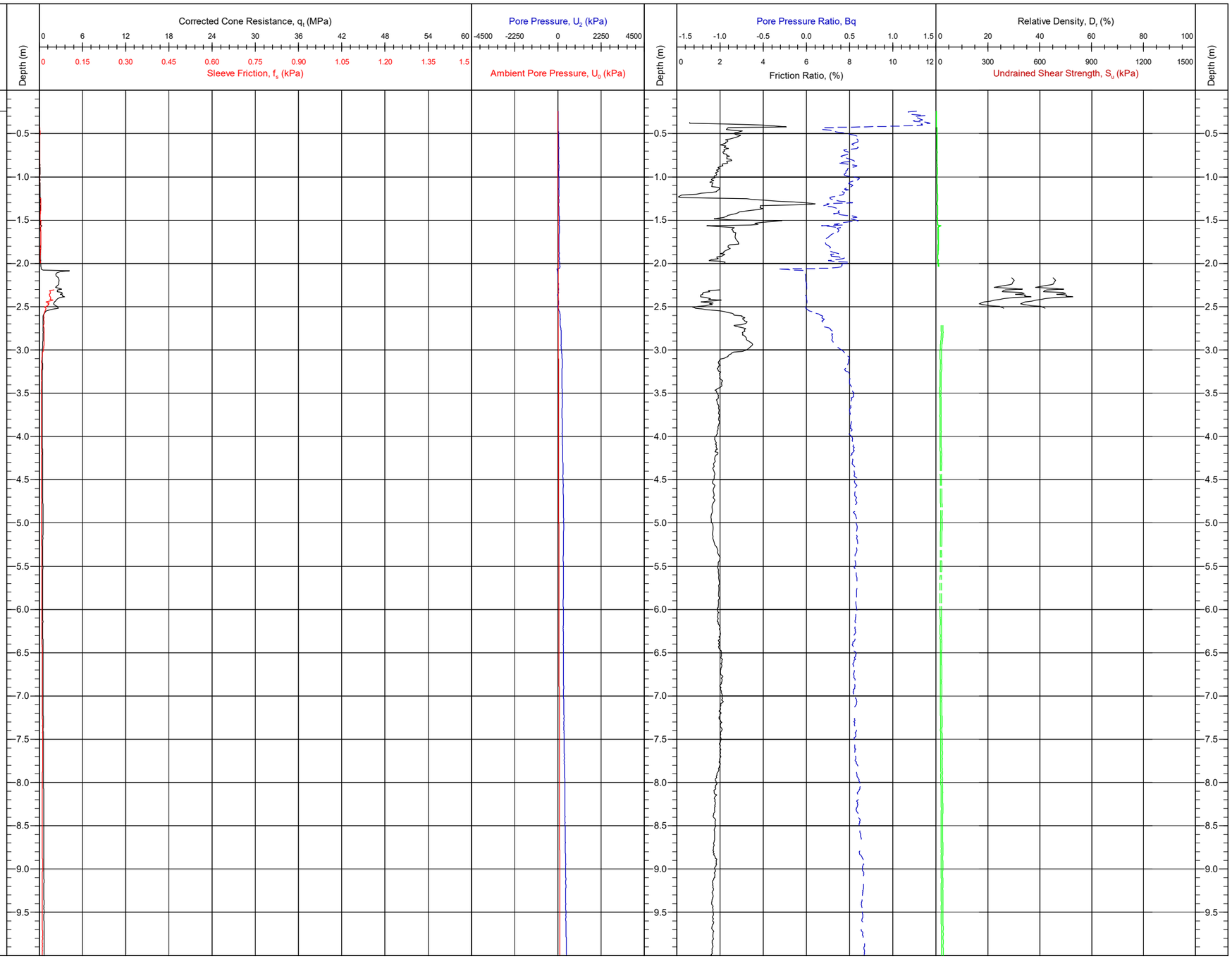
QC Status		
Preliminary	Draft	Final
JK/BC (29/04/2021)	**DR (10/06/2021)**	**SMc (10/11/2021)**

CPT Name **CB7**

Preliminary Investigation, Hesselø OWF

IN SITU CPTU TESTING

Depth (m)	Soil Profile	CPTU Sample	Sample Ref No. Cone ID (Alpha)	Soil Depth (m)	Interpreted Soil Type	Env.	Age
					CPTU sinkage		
				0.24	Extremely low to low strength becoming low to medium strength CLAY with widely spaced very thin to thin beds of gravel		
					1.80-2.33m: Medium bed of loose to medium dense sand, silty		
						Ma/Fw	Ho



KEY TO SOIL PROFILE

SILT · CLAY · SAND · GRAVEL · COBBLES · CHALK · PEAT · Mixed Soil

Assumed Unit Weight: 20 - 16 kN/m³
K_c: 0.5 - 2.0
N_{kt}: 12.5 - 16.5
$N_{\Delta u}$: 15 - 20
K_c: 0.5 - 2.0

Area	**Kattegat Sea**	Coordinates	**673538.5E 6259616.4N**
Contract	**11596**	Water Depth (mMSL)	**31.1**
Client Name/Ref	**Energinet Eltransmission A/S/384_20_ENE**	Date of Test	**29/04/2021**
Vessel	**MV Ocean Vantage**	Cone No.(type)/α Factor	**181005 (50cm²) / 0.73**
Method	**20 kN Sea bed CPT**	Base Inclination	**X = 1.2° / Y = 0.8°**

CRS: **ETRS89**

Comments:
Cone class 1. Continuous seabed CPT. Bumpover location. Final depth 31.03m. Dissipation tests performed at 20m and 30m.Test terminated due to sleeve friction refusal

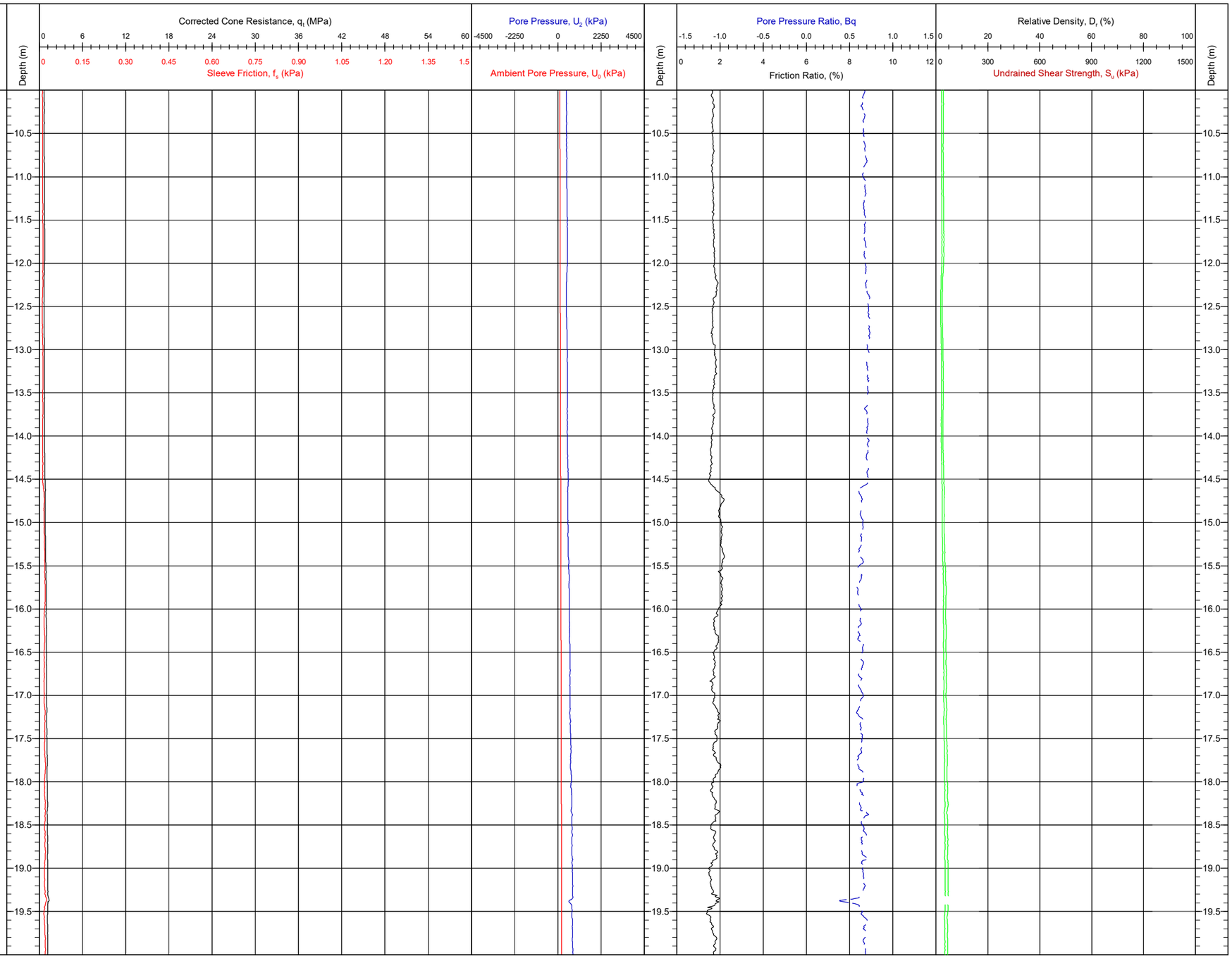
QC Status		
Preliminary	Draft	Final
JK/BC (30/04/2021)	**DR** (10/06/2021)	**SMc** (10/11/2021)

CPT Name: **CB7a**

Preliminary Investigation, Hesselø OWF

IN SITU CPTU TESTING

Depth (m)	Soil Profile	CPTU Sample	Sample Ref No. Cone ID (Alpha)	Soil Depth (m)	Interpreted Soil Type	Env.	Age
10.5 – 19.5			1 181005(50) 0.73		Extremely low to low strength becoming low to medium strength CLAY with widely spaced very thin to thin beds of gravel	Ma/Fw	Ho



KEY TO SOIL PROFILE

SILT, CLAY, SAND, GRAVEL, COBBLES, CHALK, PEAT, Mixed Soil

Assumed Unit Weight: 20 - 16 kN/m³
K_C 0.5 - 2.0
N_{kt} 12.5 - 16.5
$N_{\Delta u}$ 15 - 20
K_C 0.5 - 2.0

Area	**Kattegat Sea**	Coordinates	**673538.5E 6259616.4N**
Contract	**11596**	Water Depth (mMSL)	**31.1**
Client Name/Ref	**Energinet Eltransmission A/S/384_20_ENE**	Date of Test	**29/04/2021**
Vessel	**MV Ocean Vantage**	Cone No.(type)/α Factor	**181005 (50cm²) / 0.73**
Method	**20 kN Sea bed CPT**	Base Inclination	**X = 1.2° / Y = 0.8°**

CRS: **ETRS89**

Comments:
Cone class 1. Continuous seabed CPT. Bumpover location. Final depth 31.03m. Dissipation tests performed at 20m and 30m.Test terminated due to sleeve friction refusal

QC Status		
Preliminary	Draft	Final
JK/BC (30/04/2021)	**DR** (10/06/2021)	**SMc** (10/11/2021)

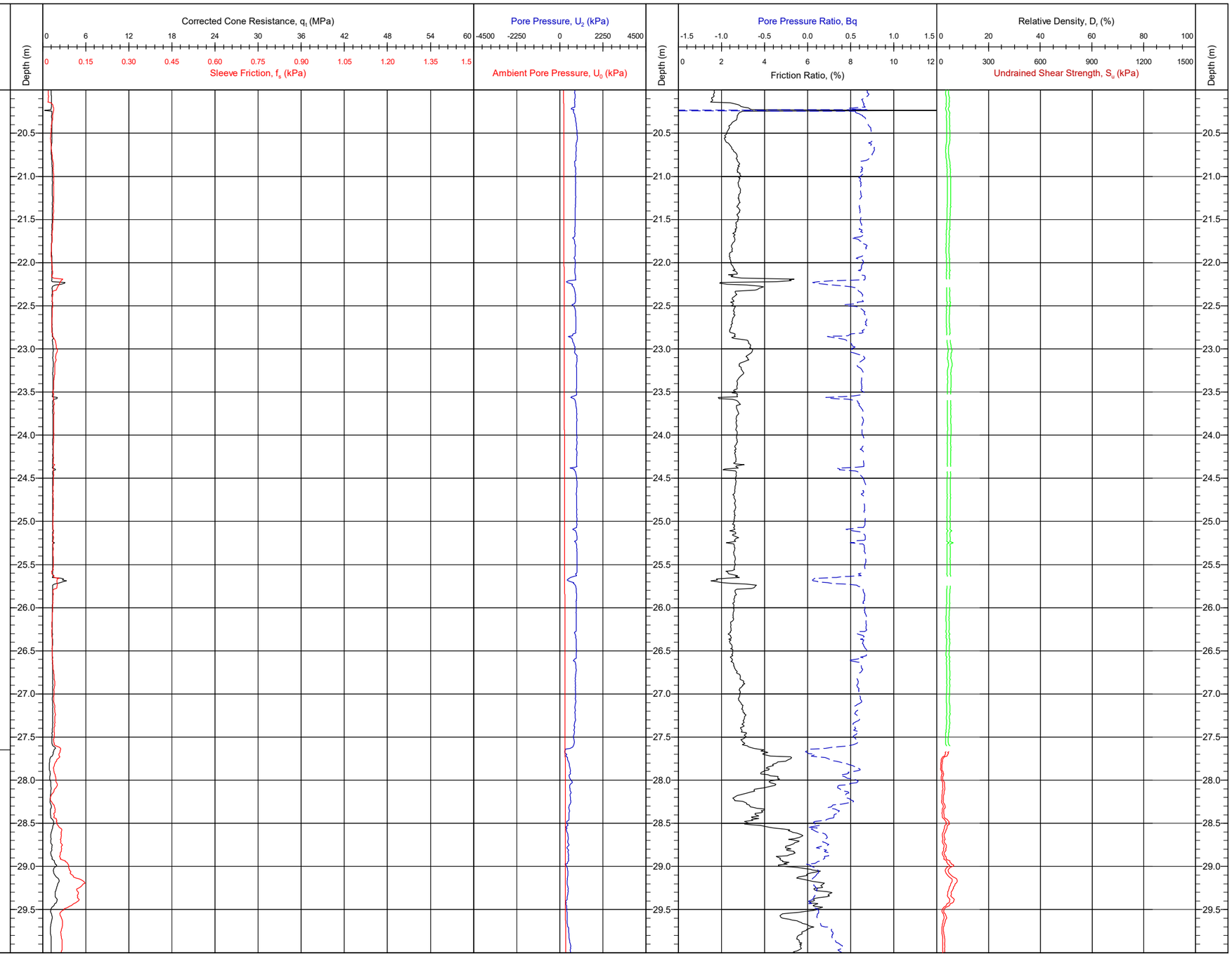
CPT Name

CB7a

Preliminary Investigation, Hesselø OWF

IN SITU CPTU TESTING

Depth (m)	Interpreted Soil Type	Env.	Age
20.5	Extremely low to low strength becoming low to medium strength CLAY with widely spaced very thin to thin beds of gravel	Ma/Fw	Ho
27.65	Medium to high strength CLAY, silty, sandy	Ma/Fw	Pg



KEY TO SOIL PROFILE

SILT, CLAY, SAND, GRAVEL, COBBLES, CHALK, PEAT, Mixed Soil

Assumed Unit Weight: 20 - 16 kN/m³
K_0: 0.5 - 2.0
N_{kt}: 12.5 - 16.5
N_{ke}: 15 - 20
K_0: 0.5 - 2.0

Area	**Kattegat Sea**	Coordinates	**673538.5E 6259616.4N**
Contract	**11596**	Water Depth (mMSL)	**31.1**
Client Name/Ref	**Energinet Eltransmission A/S/384_20_ENE**	Date of Test	**29/04/2021**
Vessel	**MV Ocean Vantage**	Cone No.(type)/α Factor	**181005 (50cm²) / 0.73**
Method	**20 kN Sea bed CPT**	Base Inclination	**X = 1.2° / Y = 0.8°**

CRS: **ETRS89**

Comments:
Cone class 1. Continuous seabed CPT. Bumpover location. Final depth 31.03m. Dissipation tests performed at 20m and 30m.Test terminated due to sleeve friction refusal

QC Status		
Preliminary	Draft	Final
JK/BC (30/04/2021)	**DR** (10/06/2021)	**SMc** (10/11/2021)

CPT Name

CB7a

Preliminary Investigation, Hesselø OWF

IN SITU CPTU TESTING

Depth (m)	Soil Profile	CPTU Sample	Sample Ref No. Cone ID (Alpha)	Soil Depth (m)	Interpreted Soil Type	Env.	Age
30.5					Medium to high strength CLAY, silty, sandy	Ma/Fw	Pg
31.0				31.13	Very dense SAND	Ma/Fw	Pg/Lg
31.5					End of CPTU test at 31.27m		

Corrected Cone Resistance, q_t (MPa): 0 6 12 18 24 30 36 42 48 54 60

Sleeve Friction, f_s (kPa): 0 0.15 0.30 0.45 0.60 0.75 0.90 1.05 1.20 1.35 1.5

Pore Pressure, U_2 (kPa): -4500 -2250 0 2250 4500

Ambient Pore Pressure, U_0 (kPa)

Pore Pressure Ratio, Bq: -1.5 -1.0 -0.5 0.0 0.5 1.0 1.5

Friction Ratio, (%): 0 2 4 6 8 10 12

Relative Density, D_r (%): 0 20 40 60 80 100

Undrained Shear Strength, S_u (kPa): 0 300 600 900 1200 1500

Depth (m): 30.5 31.0 31.5 32.0 32.5 33.0 33.5 34.0 34.5 35.0 35.5 36.0 36.5 37.0 37.5 38.0 38.5 39.0 39.5

KEY TO SOIL PROFILE

SILT · CLAY · SAND · GRAVEL · COBBLES · CHALK · PEAT · Mixed Soil

Assumed Unit Weight: 20 - 16 kN/m³

K_C 0.5 - 2.0
N_{kt} 12.5 - 16.5
N_{ke} 15 - 20
K_C 0.5 - 2.0

Area	**Kattegat Sea**	Coordinates	**673538.5E 6259616.4N**	CRS: **ETRS89**	
Contract	**11596**	Water Depth (mMSL)	**31.1**	**Comments:** **Cone class 1. Continuous seabed CPT. Bumpover location. Final depth 31.03m. Dissipation tests performed at 20m and 30m.Test terminated due to sleeve friction refusal**	
Client Name/Ref	**Energinet Eltransmission A/S/384_20_ENE**	Date of Test	**29/04/2021**		
Vessel	**MV Ocean Vantage**	Cone No.(type)/α Factor	**181005 (50cm²) / 0.73**		
Method	**20 kN Sea bed CPT**	Base Inclination	**X = 1.2° / Y = 0.8°**		

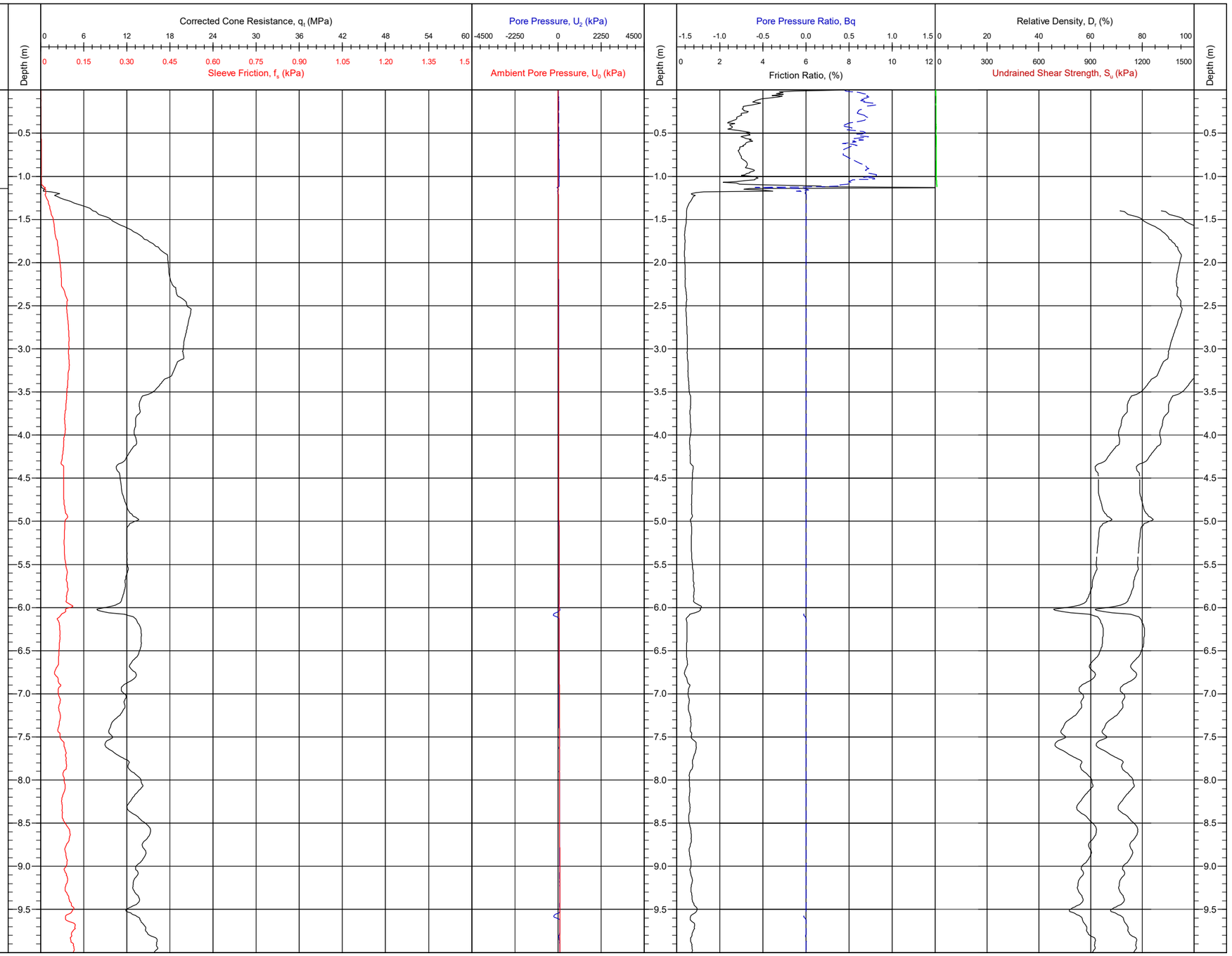
QC Status		
Preliminary	Draft	Final
JK/BC (30/04/2021)	**DR** (10/06/2021)	**SMc** (10/11/2021)

CPT Name: **CB7a**

Preliminary Investigation, Hesselø OWF

IN SITU CPTU TESTING

Depth (m)	Soil Profile	CPTU Sample	Sample Ref No. Cone ID (Alpha)	Soil Depth (m)	Interpreted Soil Type	Env.	Age
0.5 – 9.5				1.14	Extremely low to very low strength CLAY	Ma/Fw	Ho
					Dense to very dense SAND with widely to very widely spaced thin beds of loose to medium dense sand, silty	Ma/Fw	Ho



KEY TO SOIL PROFILE

SILT · CLAY · SAND · GRAVEL · COBBLES · CHALK · PEAT · Mixed Soil

Assumed Unit Weight: 20 - 16 kN/m³
$K_{Q'}$ 0.5 - 2.0
N_{kt} 12.5 - 16.5
$N_{\Delta u}$ 15 - 20
K_Q 0.5 - 2.0

Area	**Kattegat Sea**	Coordinates	**679824.3E 6248908.7N**
Contract	**11596**	Water Depth (mMSL)	**30.7**
Client Name/Ref	**Energinet Eltransmission A/S/384_20_ENE**	Date of Test	**27/04/2021**
Vessel	**MV Ocean Vantage**	Cone No.(type)/α Factor	**130206 (50cm²) / 0.77**
Method	**20 kN Sea bed CPT**	Base Inclination	**X = 0.1° / Y = 0.0°**

CRS: **ETRS89**

Comments:
Cone Class1. Continuous seabed CPT. Final depth 24.61m. Test was terminated at operators discretion due to an increase in cone inclination to prevent damage to equipment.

QC Status		
Preliminary	Draft	Final
JK/BC (27/04/2021)	**DR** (10/06/2021)	**SMc** (10/11/2021)

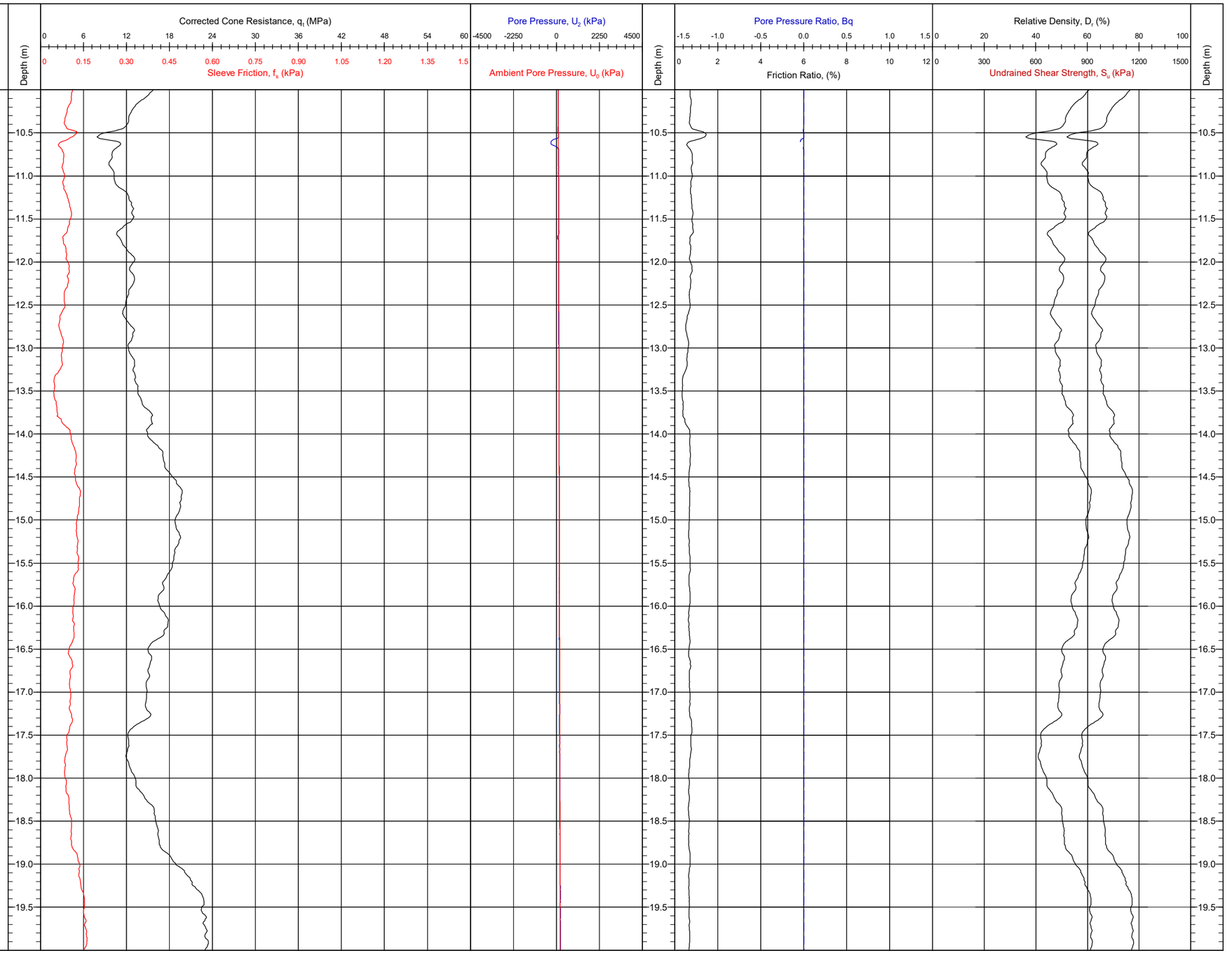
CPT Name

CB8

Preliminary Investigation, Hesselø OWF

IN SITU CPTU TESTING

Depth (m)	Soil Profile	CPTU Sample	Sample Ref No. Cone ID (Alpha)	Soil Depth (m)	Interpreted Soil Type	Env.	Age
10.5 – 19.5			1 130206(50) 0.77		Dense to very dense SAND with widely to very widely spaced thin beds of loose to medium dense sand, silty	Ma/Fw	Ho



KEY TO SOIL PROFILE

SILT · CLAY · SAND · GRAVEL · COBBLES · CHALK · PEAT · Mixed Soil

Assumed Unit Weight: 20 - 16 kN/m³
K_C: 0.5 - 2.0
N_{KT}: 12.5 - 16.5
N_{Q}: 15 - 20
K_D: 0.5 - 2.0

Area	**Kattegat Sea**	Coordinates	**679824.3E 6248908.7N**	CRS: **ETRS89**	QC Status: Preliminary / Draft / Final
Contract	**11596**	Water Depth (mMSL)	**30.7**	**Comments:** **Cone Class1. Continuous seabed CPT. Final depth 24.61m. Test was terminated at operators discretion due to an increase in cone inclination to prevent damage to equipment.**	
Client Name/Ref	**Energinet Eltransmission A/S/384_20_ENE**	Date of Test	**27/04/2021**		
Vessel	**MV Ocean Vantage**	Cone No.(type)/α Factor	**130206 (50cm²) / 0.77**		
Method	**20 kN Sea bed CPT**	Base Inclination	**X = 0.1° / Y = 0.0°**		

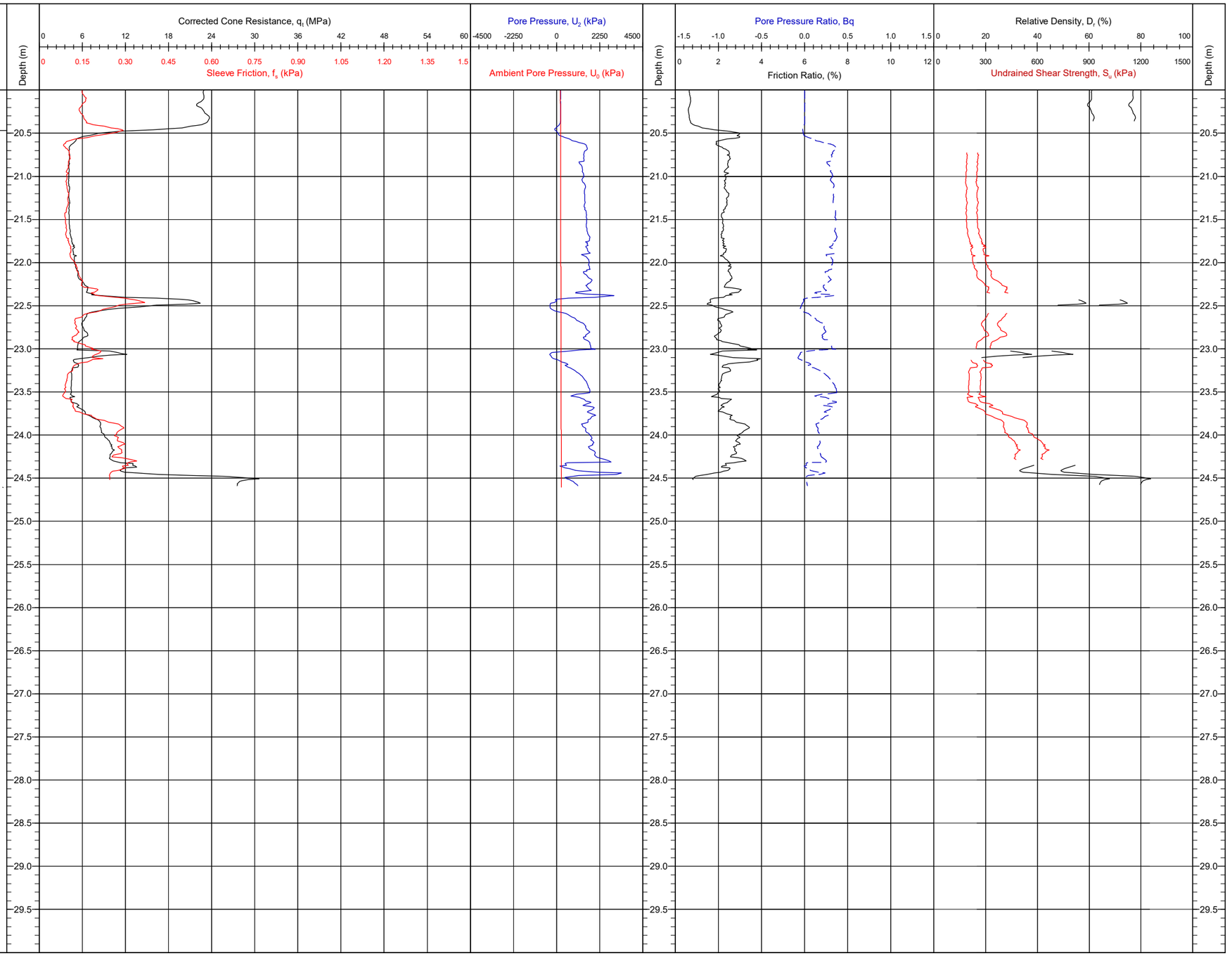
Preliminary	Draft	Final
JK/BC (27/04/2021)	**DR** (10/06/2021)	**SMc** (10/11/2021)

CPT Name: **CB8**

Preliminary Investigation, Hesselø OWF

IN SITU CPTU TESTING

Soil Depth (m)	Interpreted Soil Type	Env.	Age
		Ma/Fw	Ho
20.47	Very high to extremely high strength CLAY with medium to widely spaced medium to thick beds of medium dense to dense sand	Ma	Pg
	End of CPTU test at 24.61m		



KEY TO SOIL PROFILE

SILT, CLAY, SAND, GRAVEL, COBBLES, CHALK, PEAT, Mixed Soil

Assumed Unit Weight: 20 - 16 kN/m³
K_C 0.5 - 2.0
N_{kt} 12.5 - 16.5
$N_{\Delta u}$ 15 - 20
K_C 0.5 - 2.0

Area	**Kattegat Sea**	Coordinates	**679824.3E 6248908.7N**
Contract	**11596**	Water Depth (mMSL)	**30.7**
Client Name/Ref	**Energinet Eltransmission A/S/384_20_ENE**	Date of Test	**27/04/2021**
Vessel	**MV Ocean Vantage**	Cone No.(type)/α Factor	**130206 (50cm²) / 0.77**
Method	**20 kN Sea bed CPT**	Base Inclination	**X = 0.1° / Y = 0.0°**

CRS: **ETRS89**

Comments:
Cone Class1. Continuous seabed CPT. Final depth 24.61m. Test was terminated at operators discretion due to an increase in cone inclination to prevent damage to equipment.

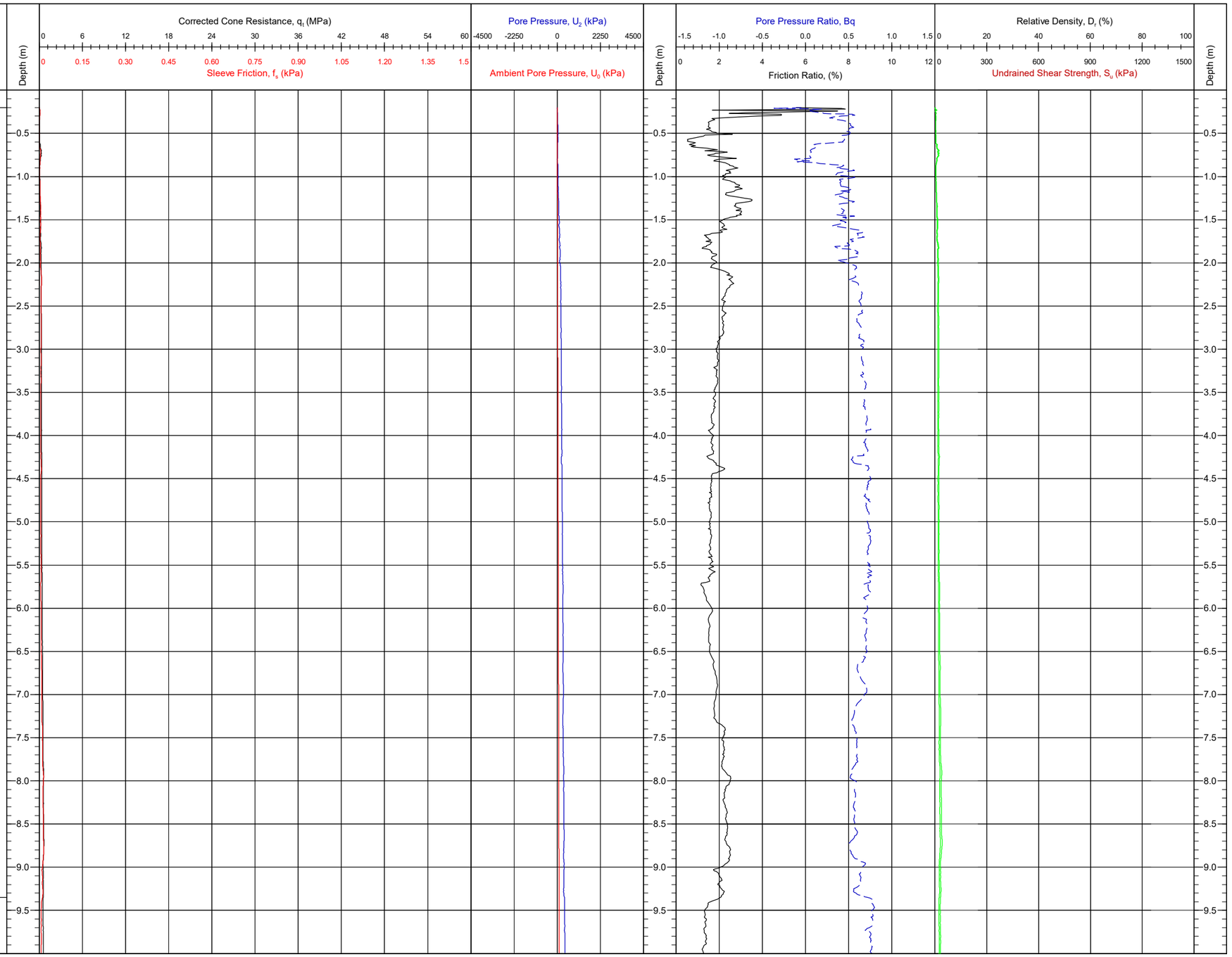
QC Status		
Preliminary	Draft	Final
JK/BC (27/04/2021)	**DR** (10/06/2021)	**SMc** (10/11/2021)

CPT Name: **CB8**

Preliminary Investigation, Hesselø OWF

IN SITU CPTU TESTING

Soil Depth (m)	Interpreted Soil Type	Env.	Age
	CPTU sinkage		
0.20	Extremely low to very low strength becoming medium strength CLAY	Ma/Fw	Ho
9.35	Extremely low to very low strength becoming medium to high strength CLAY	Ma/Fw	Pg



KEY TO SOIL PROFILE

SILT, CLAY, SAND, GRAVEL, COBBLES, CHALK, PEAT, Mixed Soil

Assumed Unit Weight: 20 - 16 kN/m³
K_c: 0.5 - 2.0
N_{kt}: 12.5 - 16.5
N_{ke}: 15 - 20
K_c: 0.5 - 2.0

Area	**Kattegat Sea**	Coordinates	**677390.6E 6276209.1N**
Contract	**11596**	Water Depth (mMSL)	**30.9**
Client Name/Ref	**Energinet Eltransmission A/S/384_20_ENE**	Date of Test	**02/05/2021**
Vessel	**MV Ocean Vantage**	Cone No.(type)/α Factor	**130909 (50cm²) / 0.82**
Method	**20 kN Sea bed CPT**	Base Inclination	**X = 1.1° / Y = 0.9°**

CRS: **ETRS89**

Comments:
Cone class 2. Continuous seabed CPT. Final depth 41.67. Test terminated due to increasing cone inclination of 3 degrees within a metre

QC Status		
Preliminary	Draft	Final
JK/BC (02/05/2021)	**DR** (10/06/2021)	**SMc** (10/11/2021)

CPT Name: **CB9**

Preliminary Investigation, Hesselø OWF

IN SITU CPTU TESTING

Depth (m)	Soil Profile	CPTU Sample	Sample Ref No. Cone ID (Alpha)	Soil Depth (m)	Interpreted Soil Type	Env.	Age
10.5–19.5					Extremely low to very low strength becoming medium to high strength CLAY	Ma/Fw	Pg

Corrected Cone Resistance, q_t (MPa): 0 6 12 18 24 30 36 42 48 54 60

Sleeve Friction, f_s (kPa): 0 0.15 0.30 0.45 0.60 0.75 0.90 1.05 1.20 1.35 1.5

Pore Pressure, U_2 (kPa): -4500 -2250 0 2250 4500

Ambient Pore Pressure, U_0 (kPa)

Pore Pressure Ratio, Bq: -1.5 -1.0 -0.5 0.0 0.5 1.0 1.5

Friction Ratio, (%): 0 2 4 6 8 10 12

Relative Density, D_r (%): 0 20 40 60 80 100

Undrained Shear Strength, S_u (kPa): 0 300 600 900 1200 1500

KEY TO SOIL PROFILE

SILT · CLAY · SAND · GRAVEL · COBBLES · CHALK · PEAT · Mixed Soil

Assumed Unit Weight: 20 - 16 kN/m³
K_c: 0.5 - 2.0
N_{kt}: 12.5 - 16.5
N_{kt}: 15 - 20
K_c: 0.5 - 2.0

Area	**Kattegat Sea**	Coordinates	**677390.6E 6276209.1N**
Contract	**11596**	Water Depth (mMSL)	**30.9**
Client Name/Ref	**Energinet Eltransmission A/S/384_20_ENE**	Date of Test	**02/05/2021**
Vessel	**MV Ocean Vantage**	Cone No.(type)/α Factor	**130909 (50cm²) / 0.82**
Method	**20 kN Sea bed CPT**	Base Inclination	**X = 1.1° / Y = 0.9°**

CRS: **ETRS89**

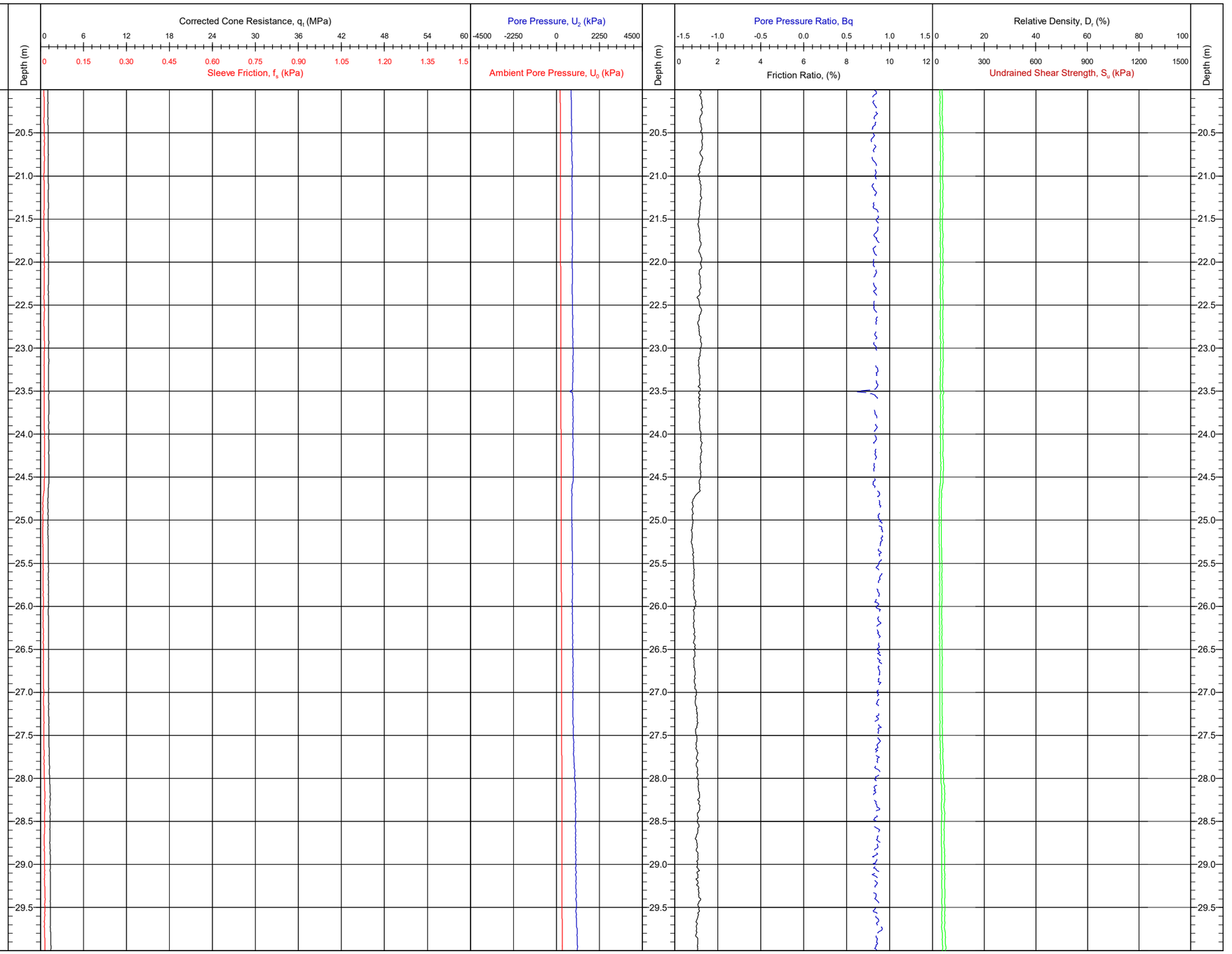
Comments:
Cone class 2. Continuous seabed CPT. Final depth 41.67. Test terminated due to increasing cone inclination of 3 degrees within a metre

QC Status		
Preliminary	Draft	Final
JK/BC (02/05/2021)	**DR** (10/06/2021)	**SMc** (10/11/2021)

CPT Name: **CB9**

Preliminary Investigation, Hesselø OWF
IN SITU CPTU TESTING

Depth (m)	Soil Profile	CPTU Sample	Sample Ref No. Cone ID (Alpha)	Soil Depth (m)	Interpreted Soil Type	Env.	Age
20.5 – 29.5			1 130909(50) 0.82		Extremely low to very low strength becoming medium to high strength CLAY	Ma/Fw	Pg



KEY TO SOIL PROFILE

SILT · CLAY · SAND · GRAVEL · COBBLES · CHALK · PEAT · Mixed Soil

Assumed Unit Weight: 20 - 16 kN/m³
K_c 0.5 - 2.0
N_{kt} 12.5 - 16.5
$N_{\Delta u}$ 15 - 20
K_c 0.5 - 2.0

Area	**Kattegat Sea**	Coordinates	**677390.6E 6276209.1N**	CRS: **ETRS89**	QC Status: Preliminary / Draft / Final
Contract	**11596**	Water Depth (mMSL)	**30.9**	**Comments:** **Cone class 2. Continuous seabed CPT. Final depth 41.67. Test terminated due to increasing cone inclination of 3 degrees within a metre**	**JK/BC** (02/05/2021) / **DR** (10/06/2021) / **SMc** (10/11/2021)
Client Name/Ref	**Energinet Eltransmission A/S/384_20_ENE**	Date of Test	**02/05/2021**		
Vessel	**MV Ocean Vantage**	Cone No.(type)/α Factor	**130909 (50cm²) / 0.82**		
Method	**20 kN Sea bed CPT**	Base Inclination	**X = 1.1° / Y = 0.9°**		

CPT Name: **CB9**

Preliminary Investigation, Hesselø OWF

IN SITU CPTU TESTING

Depth (m)	Interpreted Soil Type	Env.	Age
30.5	Extremely low to very low strength becoming medium to high strength CLAY	Ma/Fw	Pg
38.15	Loose to medium dense SAND with extremely closely to medium spaced thin beds of loose to medium dense sand, silty, and high to very high strength clay, sandy	Ma/Fw	Lg

Corrected Cone Resistance, q_t (MPa) 0 6 12 18 24 30 36 42 48 54 60

Sleeve Friction, f_s (kPa) 0 0.15 0.30 0.45 0.60 0.75 0.90 1.05 1.20 1.35 1.5

Pore Pressure, U_2 (kPa) -4500 -2250 0 2250 4500

Ambient Pore Pressure, U_0 (kPa)

Pore Pressure Ratio, Bq -1.5 -1.0 -0.5 0.0 0.5 1.0 1.5

Friction Ratio, (%) 0 2 4 6 8 10 12

Relative Density, D_r (%) 0 20 40 60 80 100

Undrained Shear Strength, S_u (kPa) 0 300 600 900 1200 1500

KEY TO SOIL PROFILE

SILT, CLAY, SAND, GRAVEL, COBBLES, CHALK, PEAT, Mixed Soil

Assumed Unit Weight: 20 - 16 kN/m³
K_C 0.5 - 2.0
N_{kt} 12.5 - 16.5
$N_{\Delta u}$ 15 - 20
K_C 0.5 - 2.0

Area	**Kattegat Sea**	Coordinates	**677390.6E 6276209.1N**
Contract	**11596**	Water Depth (mMSL)	**30.9**
Client Name/Ref	**Energinet Eltransmission A/S/384_20_ENE**	Date of Test	**02/05/2021**
Vessel	**MV Ocean Vantage**	Cone No.(type)/α Factor	**130909 (50cm²) / 0.82**
Method	**20 kN Sea bed CPT**	Base Inclination	**X = 1.1° / Y = 0.9°**

CRS: **ETRS89**

Comments:
Cone class 2. Continuous seabed CPT. Final depth 41.67. Test terminated due to increasing cone inclination of 3 degrees within a metre

QC Status		
Preliminary	Draft	Final
JK/BC (02/05/2021)	**DR** (10/06/2021)	**SMc** (10/11/2021)

CPT Name

CB9

Preliminary Investigation, Hesselø OWF

IN SITU CPTU TESTING

Soil Depth (m)	Interpreted Soil Type	Env.	Age
40.08	High to very high strength CLAY		
	40.46-40.57m: Thin bed of gravel	Ma/Fw	Lg
41.79			
41.87	Medium dense to dense SAND	Ma/Fw	Gc
	End of CPTU test at 41.87m		

Corrected Cone Resistance, q_t (MPa) / Sleeve Friction, f_s (kPa)

Pore Pressure, U_2 (kPa) / Ambient Pore Pressure, U_0 (kPa)

Pore Pressure Ratio, Bq / Friction Ratio, (%)

Relative Density, D_r (%) / Undrained Shear Strength, S_u (kPa)

KEY TO SOIL PROFILE

SILT, CLAY, SAND, GRAVEL, COBBLES, CHALK, PEAT, Mixed Soil

Assumed Unit Weight: 20 - 16 kN/m³
K_C 0.5 - 2.0
N_{kt} 12.5 - 16.5
$N_{\Delta u}$ 15 - 20
K_C 0.5 - 2.0

Area	**Kattegat Sea**	Coordinates	**677390.6E 6276209.1N**
Contract	**11596**	Water Depth (mMSL)	**30.9**
Client Name/Ref	**Energinet Eltransmission A/S/384_20_ENE**	Date of Test	**02/05/2021**
Vessel	**MV Ocean Vantage**	Cone No.(type)/α Factor	**130909 (50cm²) / 0.82**
Method	**20 kN Sea bed CPT**	Base Inclination	**X = 1.1° / Y = 0.9°**

CRS: **ETRS89**

Comments:
Cone class 2. Continuous seabed CPT. Final depth 41.67. Test terminated due to increasing cone inclination of 3 degrees within a metre

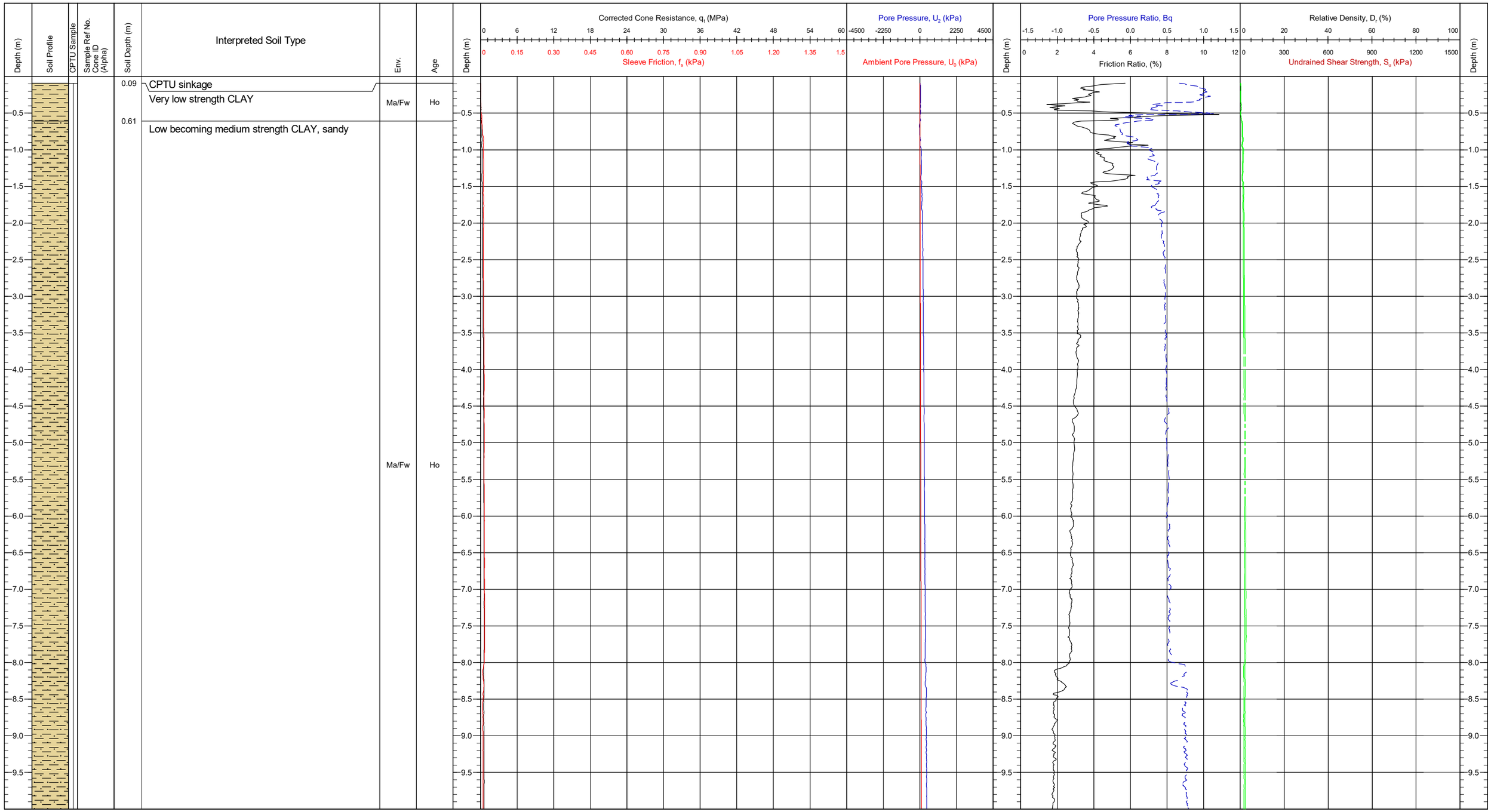
QC Status		
Preliminary	Draft	Final
JK/BC (02/05/2021)	**DR** (10/06/2021)	**SMc** (10/11/2021)

CPT Name: **CB9**

Preliminary Investigation, Hesselø OWF

IN SITU CPTU TESTING

Soil Depth (m)	Interpreted Soil Type	Env.	Age
0.09	CPTU sinkage		
	Very low strength CLAY	Ma/Fw	Ho
0.61	Low becoming medium strength CLAY, sandy	Ma/Fw	Ho



KEY TO SOIL PROFILE

SILT · CLAY · SAND · GRAVEL · COBBLES · CHALK · PEAT · Mixed Soil

Assumed Unit Weight: 20 - 16 kN/m³
K_C 0.5 - 2.0
N_{kt} 12.5 - 16.5
N_Δ 15 - 20
K_C 0.5 - 2.0

Area	**Kattegat Sea**	Coordinates	**678760.1E 6261514.8N**
Contract	**11596**	Water Depth (mMSL)	**32.0**
Client Name/Ref	**Energinet Eltransmission A/S/384_20_ENE**	Date of Test	**26/04/2021**
Vessel	**MV Ocean Vantage**	Cone No.(type)/α Factor	**120910 (50cm²) / 0.81**
Method	**20 kN Sea bed CPT**	Base Inclination	**X = 0.1° / Y = 0.0°**

CRS: **ETRS89**

Comments:
Cone Class1. Continuous seabed CPT. Final depth 28.90m. Test was terminated at operators discretion to avoid damage to equipment due to lack of lateral rod support from mudline

QC Status		
Preliminary	Draft	Final
JK/BC (26/04/2021)	**DR** (10/06/2021)	**SMc** (10/11/2021)

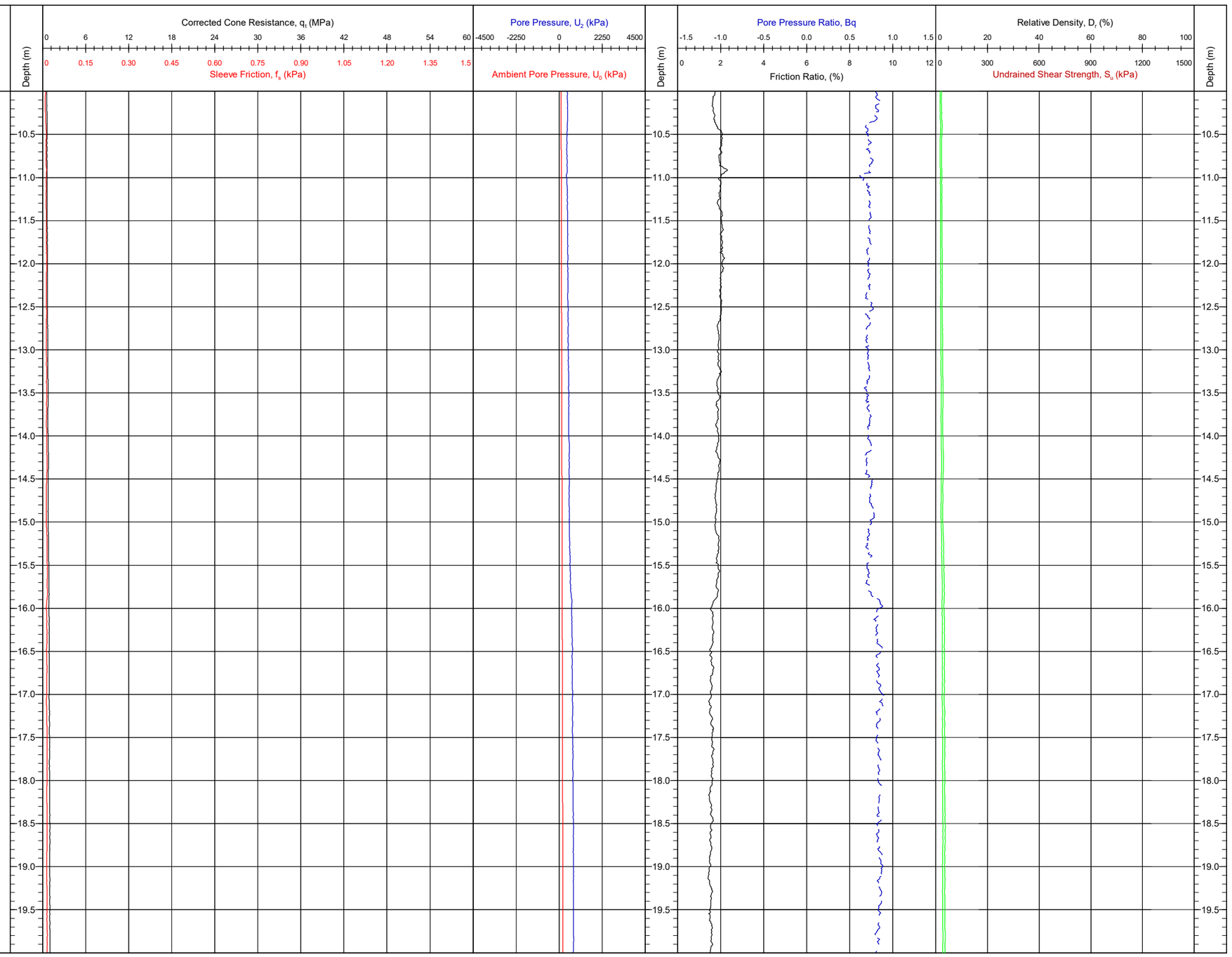
CPT Name

CB10

Preliminary Investigation, Hesselø OWF

IN SITU CPTU TESTING

Depth (m)	Soil Profile	CPTU Sample	Sample Ref No. Cone ID (Alpha)	Soil Depth (m)	Interpreted Soil Type	Env.	Age
10.5					Low becoming medium strength CLAY, sandy		
11.0							
11.5							
12.0							
12.5							
13.0							
13.5							
14.0							
14.5			1 120910(50) 0.81				
15.0						Ma/Fw	Ho
15.5							
16.0							
16.5							
17.0							
17.5							
18.0							
18.5							
19.0							
19.5							



KEY TO SOIL PROFILE

SILT · CLAY · SAND · GRAVEL · COBBLES · CHALK · PEAT · Mixed Soil

Assumed Unit Weight: 20 - 16 kN/m³
K_C 0.5 - 2.0
N_{kt} 12.5 - 16.5
$N_{\Delta u}$ 15 - 20
K_C 0.5 - 2.0

Area	**Kattegat Sea**	Coordinates	**678760.1E 6261514.8N**
Contract	**11596**	Water Depth (mMSL)	**32.0**
Client Name/Ref	**Energinet Eltransmission A/S/384_20_ENE**	Date of Test	**26/04/2021**
Vessel	**MV Ocean Vantage**	Cone No.(type)/α Factor	**120910 (50cm²) / 0.81**
Method	**20 kN Sea bed CPT**	Base Inclination	**X = 0.1° / Y = 0.0°**

CRS: **ETRS89**

Comments:
Cone Class1. Continuous seabed CPT. Final depth 28.90m. Test was terminated at operators discretion to avoid damage to equipment due to lack of lateral rod support from mudline

QC Status		
Preliminary	Draft	Final
JK/BC (26/04/2021)	**DR** (10/06/2021)	**SMc** (10/11/2021)

CPT Name

CB10

Preliminary Investigation, Hesselø OWF

IN SITU CPTU TESTING

Depth (m)	Interpreted Soil Type	Env.	Age
20.5	Low becoming medium strength CLAY, sandy	Ma/Fw	Ho
24.0	*23.69-23.88m: Thin bed of clay*		
24.65	High to very high strength CLAY, slightly gravelly, with medium spaced thin beds of very high strength clay, sandy	Ma/Fw	Pg
29.0	End of CPTU test at 28.99m		

Corrected Cone Resistance, q_t (MPa) 0 6 12 18 24 30 36 42 48 54 60

Sleeve Friction, f_s (kPa) 0 0.15 0.30 0.45 0.60 0.75 0.90 1.05 1.20 1.35 1.5

Pore Pressure, U_2 (kPa) -4500 -2250 0 2250 4500

Ambient Pore Pressure, U_0 (kPa)

Pore Pressure Ratio, Bq -1.5 -1.0 -0.5 0.0 0.5 1.0 1.5

Friction Ratio, (%) 0 2 4 6 8 10 12

Relative Density, D_r (%) 0 20 40 60 80 100

Undrained Shear Strength, S_u (kPa) 0 300 600 900 1200 1500

KEY TO SOIL PROFILE

SILT, CLAY, SAND, GRAVEL, COBBLES, CHALK, PEAT, Mixed Soil

Assumed Unit Weight: 20 - 16 kN/m³
K_C: 0.5 - 2.0
N_{KT}: 12.5 - 16.5
$N_{\Delta U}$: 15 - 20
K_D: 0.5 - 2.0

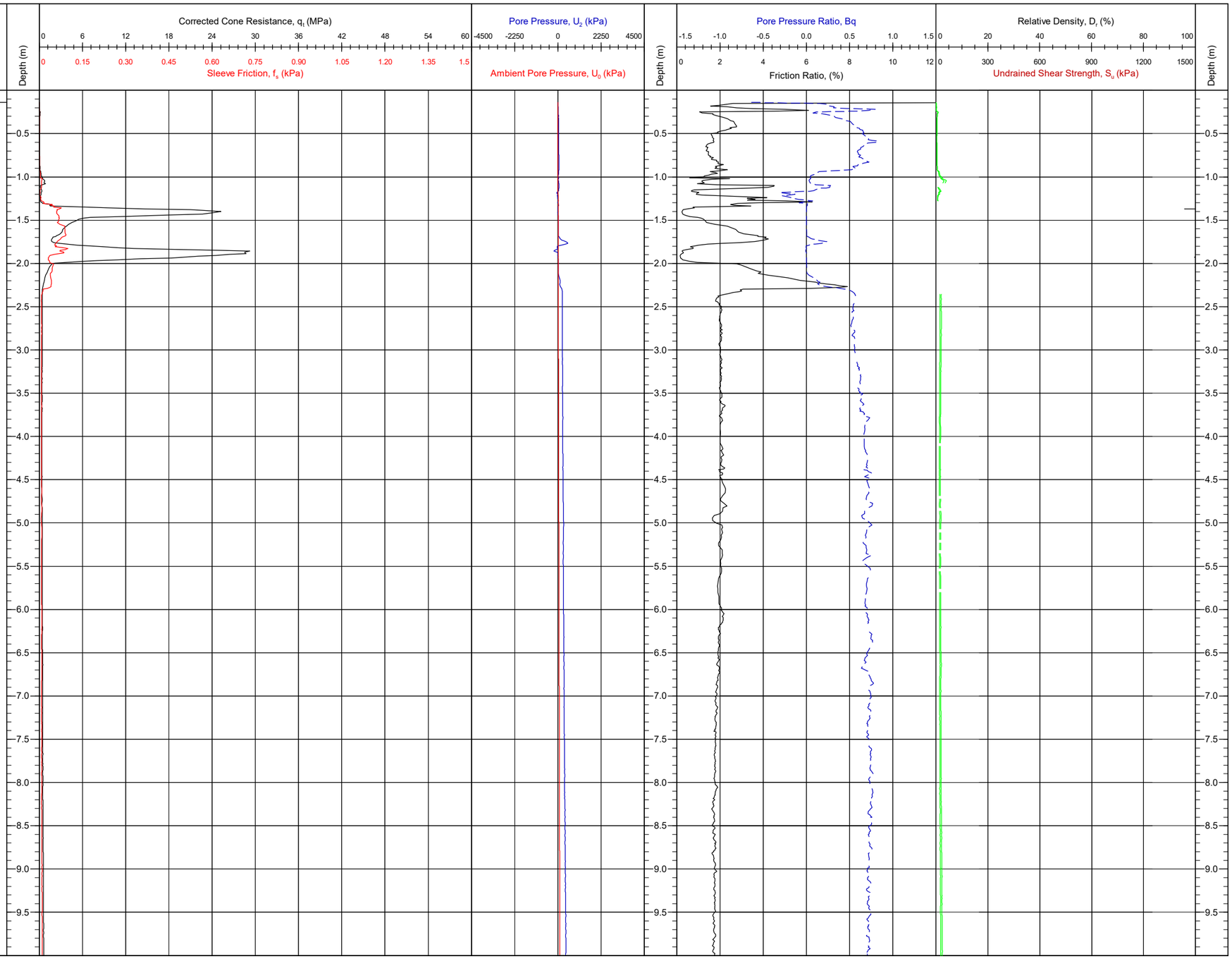
Area	**Kattegat Sea**	Coordinates	**678760.1E 6261514.8N**	CRS: **ETRS89**	QC Status: Preliminary / Draft / Final
Contract	**11596**	Water Depth (mMSL)	**32.0**	**Comments:** **Cone Class1. Continuous seabed CPT. Final depth 28.90m. Test was terminated at operators discretion to avoid damage to equipment due to lack of lateral rod support from mudline**	**JK/BC** (26/04/2021) / **DR** (10/06/2021) / **SMc** (10/11/2021)
Client Name/Ref	**Energinet Eltransmission A/S/384_20_ENE**	Date of Test	**26/04/2021**		
Vessel	**MV Ocean Vantage**	Cone No.(type)/α Factor	**120910 (50cm²) / 0.81**		
Method	**20 kN Sea bed CPT**	Base Inclination	**X = 0.1° / Y = 0.0°**		

CPT Name: **CB10**

Preliminary Investigation, Hesselø OWF

IN SITU CPTU TESTING

Depth (m)	Interpreted Soil Type	Soil Depth (m)	Env.	Age
	CPTU sinkage	0.14		
	Very low to low strength CLAY with medium spaced medium beds of dense to very dense sand between 1.19m and 1.86m		Ma/Fw	Ho
	0.83-0.95m: Very thin bed of very high strength clay, sandy			
	1.50-1.61m: Thin bed of high to very high strength clay			



KEY TO SOIL PROFILE

SILT, CLAY, SAND, GRAVEL, COBBLES, CHALK, PEAT, Mixed Soil

Assumed Unit Weight: 20 - 16 kN/m³
K_C: 0.5 - 2.0
N_{kt}: 12.5 - 16.5
N_{kt}: 15 - 20
K_C: 0.5 - 2.0

Area	**Kattegat Sea**	Coordinates	**678372.4E 6256256.9N**	CRS: **ETRS89**	QC Status: Preliminary / Draft / Final
Contract	**11596**	Water Depth (mMSL)	**31.4**	**Comments:** **Cone class 3. Continuous seabed CPT. Final depth 22.14m. Test terminated at operators discretion due to lack of lateral rod support from mudline and increasing cone inclination**	
Client Name/Ref	**Energinet Eltransmission A/S/384_20_ENE**	Date of Test	**26/04/2021**		
Vessel	**MV Ocean Vantage**	Cone No.(type)/α Factor	**120829 (50cm²) / 0.80**		
Method	**20 kN Sea bed CPT**	Base Inclination	**X = 0.0° / Y = 0.0°**		

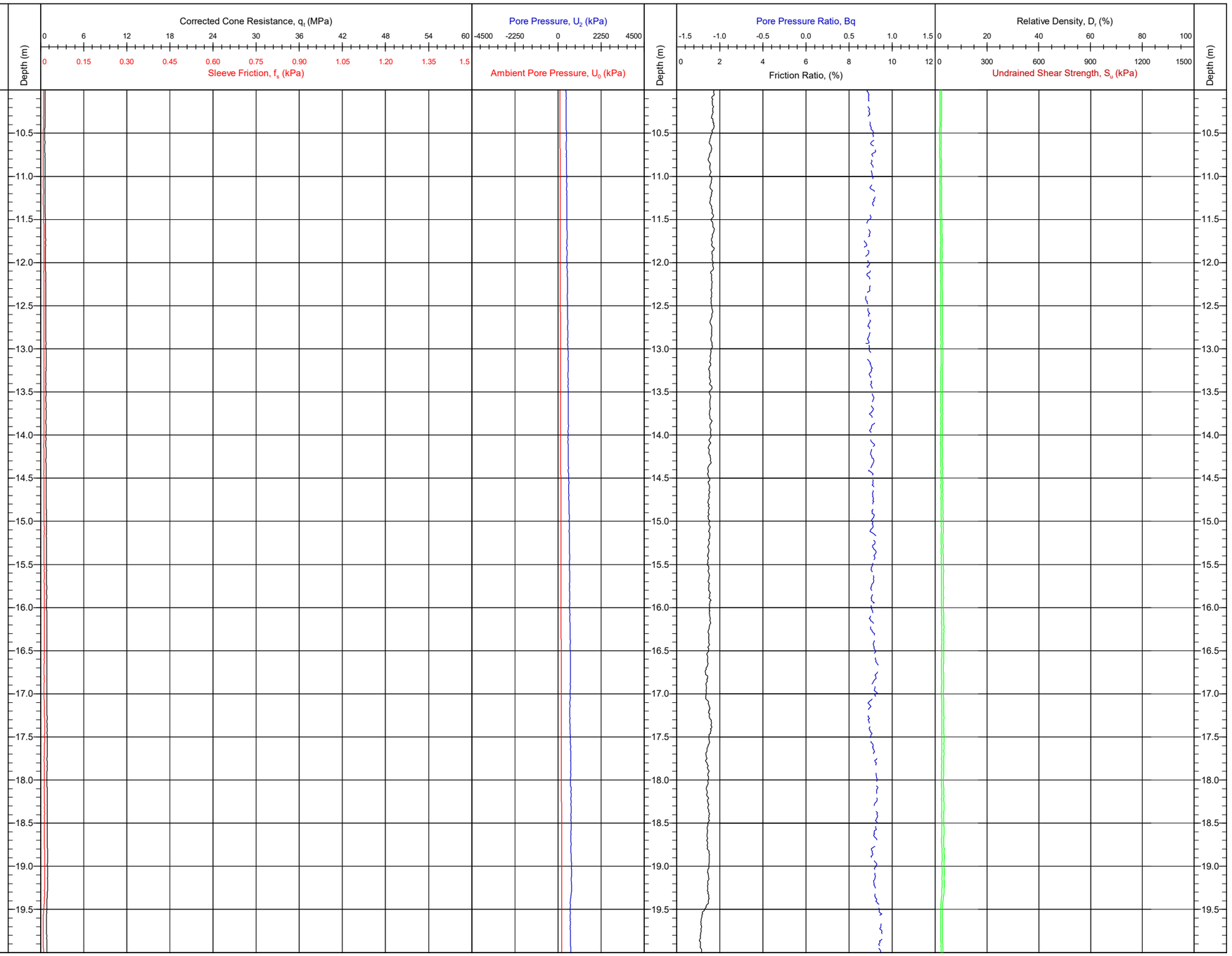
Preliminary	Draft	Final
JK/BC (29/04/2021)	**DR** (10/06/2021)	**SMc** (10/11/2021)

CPT Name: **CB11**

Preliminary Investigation, Hesselø OWF

IN SITU CPTU TESTING

Depth (m)	Soil Profile	CPTU Sample	Sample Ref No. Cone ID (Alpha)	Soil Depth (m)	Interpreted Soil Type	Env.	Age
10.5–19.5			1 120829(50) 0.8		Very low to low strength CLAY with medium spaced medium beds of dense to very dense sand between 1.19m and 1.86m	Ma/Fw	Ho



KEY TO SOIL PROFILE

SILT · CLAY · SAND · GRAVEL · COBBLES · CHALK · PEAT · Mixed Soil

Assumed Unit Weight: 20 - 16 kN/m³
K_0: 0.5 - 2.0
N_{kt}: 12.5 - 16.5
N_{ke}: 15 - 20
K_0: 0.5 - 2.0

Area	**Kattegat Sea**	Coordinates	**678372.4E 6256256.9N**
Contract	**11596**	Water Depth (mMSL)	**31.4**
Client Name/Ref	**Energinet Eltransmission A/S/384_20_ENE**	Date of Test	**26/04/2021**
Vessel	**MV Ocean Vantage**	Cone No.(type)/α Factor	**120829 (50cm²) / 0.80**
Method	**20 kN Sea bed CPT**	Base Inclination	**X = 0.0° / Y = 0.0°**

CRS: **ETRS89**

Comments:
Cone class 3. Continuous seabed CPT. Final depth 22.14m. Test terminated at operators discretion due to lack of lateral rod support from mudline and increasing cone inclination

QC Status		
Preliminary	Draft	Final
JK/BC (29/04/2021)	**DR** (10/06/2021)	**SMc** (10/11/2021)

CPT Name

CB11

Preliminary Investigation, Hesselø OWF

IN SITU CPTU TESTING

Depth (m)	Interpreted Soil Type	Env.	Age
20.5	Very low to low strength CLAY with medium spaced medium beds of dense to very dense sand between 1.19m and 1.86m		
21.0	*20.65-20.91m: Medium dense to dense sand, silty*	Ma/Fw	Ho
21.5			
22.0	End of CPTU test at 22.28m		

Corrected Cone Resistance, q_t (MPa) 0 6 12 18 24 30 36 42 48 54 60

Sleeve Friction, f_s (kPa) 0 0.15 0.30 0.45 0.60 0.75 0.90 1.05 1.20 1.35 1.5

Pore Pressure, U_2 (kPa) -4500 -2250 0 2250 4500

Ambient Pore Pressure, U_0 (kPa)

Pore Pressure Ratio, Bq -1.5 -1.0 -0.5 0.0 0.5 1.0 1.5

Friction Ratio, (%) 0 2 4 6 8 10 12

Relative Density, D_r (%) 0 20 40 60 80 100

Undrained Shear Strength, S_u (kPa) 0 300 600 900 1200 1500

KEY TO SOIL PROFILE

SILT, CLAY, SAND, GRAVEL, COBBLES, CHALK, PEAT, Mixed Soil

Assumed Unit Weight: 20 - 16 kN/m³
K_C 0.5 - 2.0
N_{kt} 12.5 - 16.5
$N_{\Delta u}$ 15 - 20
K_C 0.5 - 2.0

Area	**Kattegat Sea**	Coordinates	**678372.4E 6256256.9N**
Contract	**11596**	Water Depth (mMSL)	**31.4**
Client Name/Ref	**Energinet Eltransmission A/S/384_20_ENE**	Date of Test	**26/04/2021**
Vessel	**MV Ocean Vantage**	Cone No.(type)/α Factor	**120829 (50cm²) / 0.80**
Method	**20 kN Sea bed CPT**	Base Inclination	**X = 0.0° / Y = 0.0°**

CRS: **ETRS89**

Comments:
Cone class 3. Continuous seabed CPT. Final depth 22.14m. Test terminated at operators discretion due to lack of lateral rod support from mudline and increasing cone inclination

QC Status		
Preliminary	Draft	Final
JK/BC (29/04/2021)	**DR (10/06/2021)**	**SMc (10/11/2021)**

CPT Name

CB11

Preliminary Investigation, Hesselø OWF

IN SITU CPTU TESTING

Soil Depth (m)	Interpreted Soil Type	Env.	Age
	CPTU sinkage		
0.26	Extremely low to very low strength CLAY *0.28-0.44m: Thin bed of very loose sand, clayey*	Ma/Fw	Ho
2.13	Low becoming medium locally high strength CLAY with widely to very widely spaced thin beds of clay, sandy	Ma/Fw	Ho

Corrected Cone Resistance, q_t (MPa) 0 6 12 18 24 30 36 42 48 54 60

Sleeve Friction, f_s (kPa) 0 0.15 0.30 0.45 0.60 0.75 0.90 1.05 1.20 1.35 1.5

Pore Pressure, U_2 (kPa) -4500 -2250 0 2250 4500

Ambient Pore Pressure, U_0 (kPa)

Pore Pressure Ratio, Bq -1.5 -1.0 -0.5 0.0 0.5 1.0 1.5

Friction Ratio, (%) 0 2 4 6 8 10 12

Relative Density, D_r (%) 0 20 40 60 80 100

Undrained Shear Strength, S_u (kPa) 0 300 600 900 1200 1500

KEY TO SOIL PROFILE

SILT, CLAY, SAND, GRAVEL, COBBLES, CHALK, PEAT, Mixed Soil

Assumed Unit Weight: 20 - 16 kN/m³
K_C 0.5 - 2.0
N_{kt} 12.5 - 16.5
$N_{\Delta u}$ 15 - 20
K_C 0.5 - 2.0

Area	**Kattegat Sea**	Coordinates	**677450.3E 6270633.5N**
Contract	**11596**	Water Depth (mMSL)	**31.8**
Client Name/Ref	**Energinet Eltransmission A/S/384_20_ENE**	Date of Test	**01/05/2021**
Vessel	**MV Ocean Vantage**	Cone No.(type)/α Factor	**130909 (50cm²) / 0.82**
Method	**20 kN Sea bed CPT**	Base Inclination	**X = 1.2° / Y = 0.9°**

CRS: **ETRS89**

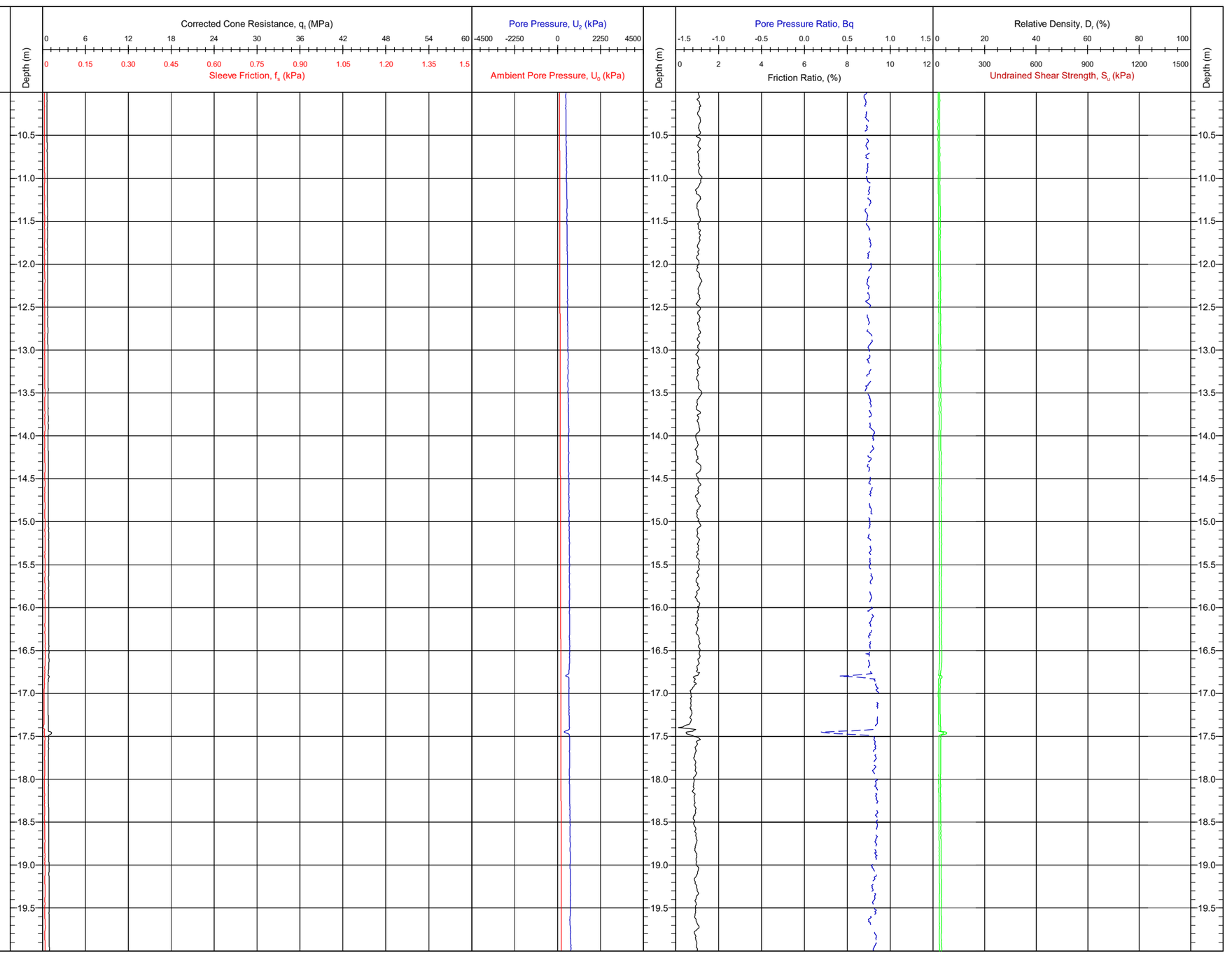
Comments:
Cone class 1. Continuous seabed CPT. Final depth 34.82m. Test terminated at operators discretion due to high risk of rod bend

QC Status	Preliminary	Draft	Final
	JK/BC (01/05/2021)	**DR** (10/06/2021)	**SMc** (10/11/2021)

CPT Name: **CB12**

Preliminary Investigation, Hesselø OWF
IN SITU CPTU TESTING

Depth (m)	Soil Profile	CPTU Sample	Sample Ref No. Cone ID (Alpha)	Soil Depth (m)	Interpreted Soil Type	Env.	Age
10.5 – 19.5			1 130909(50) 0.82		Low becoming medium locally high strength CLAY with widely to very widely spaced thin beds of clay, sandy	Ma/Fw	Ho



KEY TO SOIL PROFILE

SILT · CLAY · SAND · GRAVEL · COBBLES · CHALK · PEAT · Mixed Soil

Assumed Unit Weight: 20 - 16 kN/m³
K_0: 0.5 - 2.0
N_{kt}: 12.5 - 16.5
N_{ke}: 15 - 20
K_0: 0.5 - 2.0

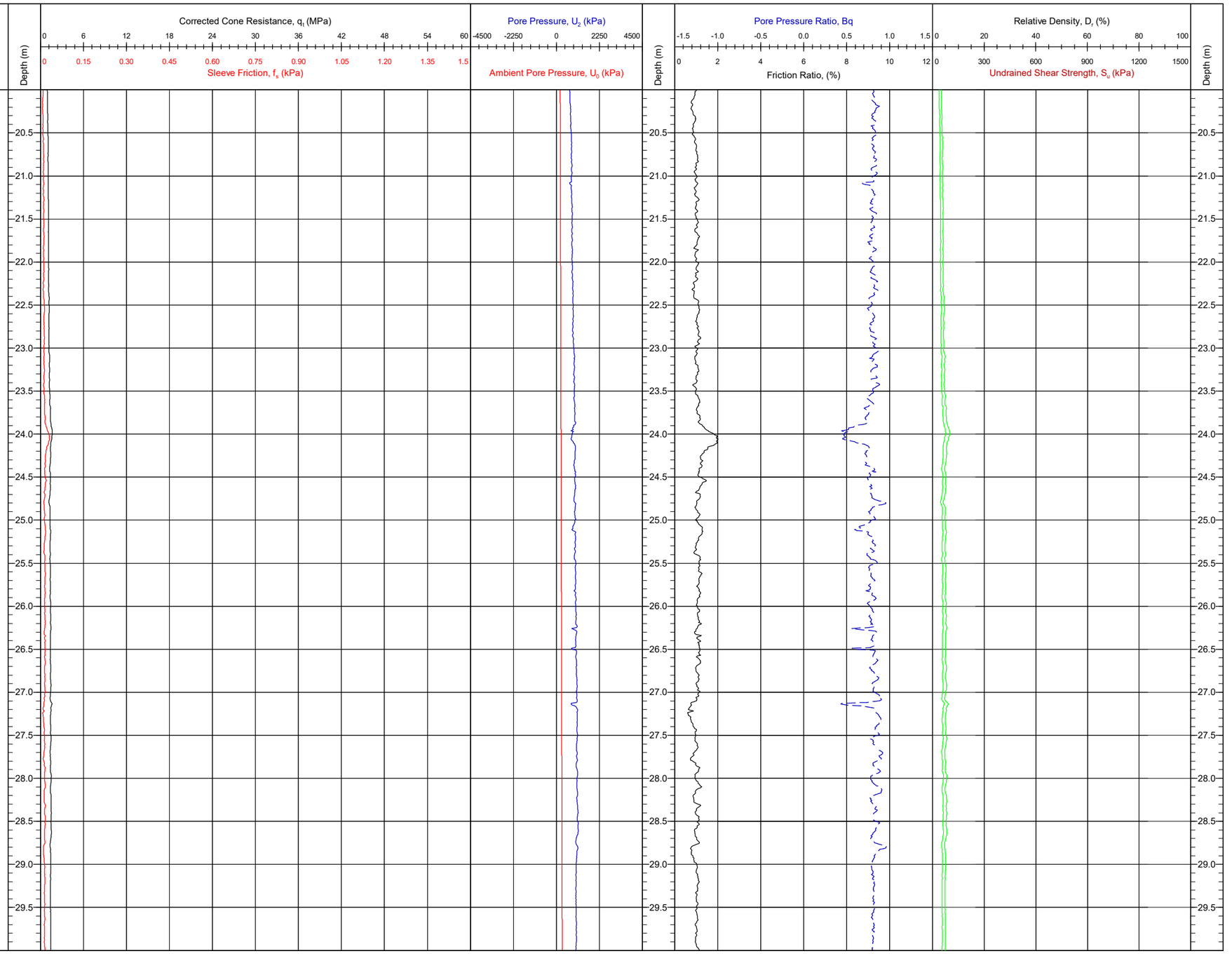
Area	**Kattegat Sea**	Coordinates	**677450.3E 6270633.5N**	CRS: **ETRS89**	QC Status: Preliminary / Draft / Final
Contract	**11596**	Water Depth (mMSL)	**31.8**	**Comments:** **Cone class 1. Continuous seabed CPT. Final depth 34.82m. Test terminated at operators discretion due to high risk of rod bend**	
Client Name/Ref	**Energinet Eltransmission A/S/384_20_ENE**	Date of Test	**01/05/2021**		
Vessel	**MV Ocean Vantage**	Cone No.(type)/α Factor	**130909 (50cm²) / 0.82**		**JK/BC** (01/05/2021) / **DR** (10/06/2021) / **SMc** (10/11/2021)
Method	**20 kN Sea bed CPT**	Base Inclination	**X = 1.2° / Y = 0.9°**		

CPT Name: **CB12**

Preliminary Investigation, Hesselø OWF

IN SITU CPTU TESTING

Depth (m)	Soil Profile	CPTU Sample	Sample Ref No. Cone ID (Alpha)	Soil Depth (m)	Interpreted Soil Type	Env.	Age
20.5 – 29.5					Low becoming medium locally high strength CLAY with widely to very widely spaced thin beds of clay, sandy	Ma/Fw	Ho



KEY TO SOIL PROFILE

SILT · CLAY · SAND · GRAVEL · COBBLES · CHALK · PEAT · Mixed Soil

Assumed Unit Weight: 20 - 16 kN/m³
K_C 0.5 - 2.0
N_{kt} 12.5 - 16.5
$N_{\Delta u}$ 15 - 20
K_C 0.5 - 2.0

Area	**Kattegat Sea**	Coordinates	**677450.3E 6270633.5N**
Contract	**11596**	Water Depth (mMSL)	**31.8**
Client Name/Ref	**Energinet Eltransmission A/S/384_20_ENE**	Date of Test	**01/05/2021**
Vessel	**MV Ocean Vantage**	Cone No.(type)/α Factor	**130909 (50cm²) / 0.82**
Method	**20 kN Sea bed CPT**	Base Inclination	**X = 1.2° / Y = 0.9°**

CRS: **ETRS89**

Comments:
Cone class 1. Continuous seabed CPT. Final depth 34.82m. Test terminated at operators discretion due to high risk of rod bend

QC Status		
Preliminary	Draft	Final
JK/BC (01/05/2021)	**DR** (10/06/2021)	**SMc** (10/11/2021)

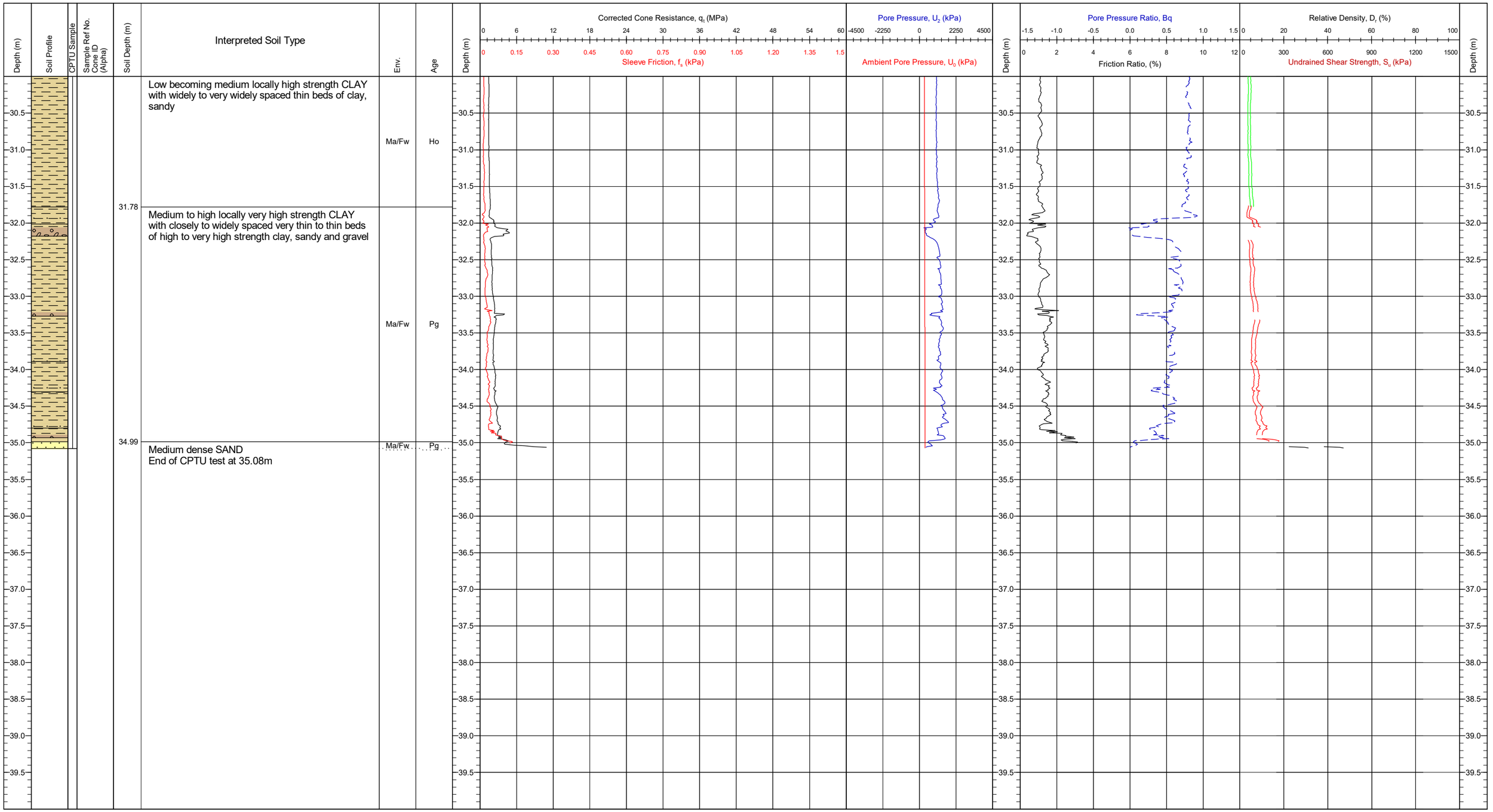
CPT Name

CB12

Preliminary Investigation, Hesselø OWF

IN SITU CPTU TESTING

Soil Depth (m)	Interpreted Soil Type	Env.	Age
	Low becoming medium locally high strength CLAY with widely to very widely spaced thin beds of clay, sandy	Ma/Fw	Ho
31.78	Medium to high locally very high strength CLAY with closely to widely spaced very thin to thin beds of high to very high strength clay, sandy and gravel	Ma/Fw	Pg
34.99	Medium dense SAND End of CPTU test at 35.08m	Ma/Fw	Pg



KEY TO SOIL PROFILE

SILT · CLAY · SAND · GRAVEL · COBBLES · CHALK · PEAT · Mixed Soil

Assumed Unit Weight: 20 - 16 kN/m³
K_C 0.5 - 2.0
N_{kt} 12.5 - 16.5
$N_{\Delta u}$ 15 - 20
K_C 0.5 - 2.0

Area	**Kattegat Sea**	Coordinates	**677450.3E**	**6270633.5N**	CRS: **ETRS89**
Contract	**11596**	Water Depth (mMSL)	**31.8**		**Comments:** **Cone class 1. Continuous seabed CPT. Final depth 34.82m. Test terminated at operators discretion due to high risk of rod bend**
Client Name/Ref	**Energinet Eltransmission A/S/384_20_ENE**	Date of Test	**01/05/2021**		
Vessel	**MV Ocean Vantage**	Cone No.(type)/α Factor	**130909 (50cm²) / 0.82**		
Method	**20 kN Sea bed CPT**	Base Inclination	**X = 1.2° / Y = 0.9°**		

QC Status		
Preliminary	Draft	Final
JK/BC (01/05/2021)	**DR** (10/06/2021)	**SMc** (10/11/2021)

CPT Name

CB12

Preliminary Investigation, Hesselø OWF

IN SITU CPTU TESTING

Soil Depth (m)	Interpreted Soil Type	Env.	Age
	CPTU sinkage		
0.28	Extremely low to very low strength CLAY	Ma/Fw	Ho
3.58	Medium dense to dense becoming very dense SAND	Ma/Fw	Ho
4.62	Low to medium strength CLAY, sandy	Ma	Pg

Corrected Cone Resistance, q_t (MPa) 0 6 12 18 24 30 36 42 48 54 60

Sleeve Friction, f_s (kPa) 0 0.15 0.30 0.45 0.60 0.75 0.90 1.05 1.20 1.35 1.5

Pore Pressure, U_2 (kPa) -4500 -2250 0 2250 4500

Ambient Pore Pressure, U_0 (kPa)

Pore Pressure Ratio, Bq -1.5 -1.0 -0.5 0.0 0.5 1.0 1.5

Friction Ratio, (%) 0 2 4 6 8 10 12

Relative Density, D_r (%) 0 20 40 60 80 100

Undrained Shear Strength, S_u (kPa) 0 300 600 900 1200 1500

Depth (m) 0.5 1.0 1.5 2.0 2.5 3.0 3.5 4.0 4.5 5.0 5.5 6.0 6.5 7.0 7.5 8.0 8.5 9.0 9.5

KEY TO SOIL PROFILE

SILT, CLAY, SAND, GRAVEL, COBBLES, CHALK, PEAT, Mixed Soil

Assumed Unit Weight: 20 - 16 kN/m³
K_c: 0.5 - 2.0
N_{kt}: 12.5 - 16.5
N_{ke}: 15 - 20
K_c: 0.5 - 2.0

Area	**Kattegat Sea**	Coordinates	**670639.5E 6262910.5N**
Contract	**11596**	Water Depth (mMSL)	**30.0**
Client Name/Ref	**Energinet Eltransmission A/S/384_20_ENE**	Date of Test	**30/04/2021**
Vessel	**MV Ocean Vantage**	Cone No.(type)/α Factor	**181004 (50cm²) / 0.81**
Method	**20 kN Sea bed CPT**	Base Inclination	**X = 1.1° / Y = 1.0°**

CRS: **ETRS89**

Comments:
Cone class 1. Continuous seabed CPT. Final depth 33.83m. Test terminated at operators discretion due to high inclination and risk of rod bend

QC Status	Preliminary	Draft	Final
	JK/BC (30/04/2021)	**DR** (10/06/2021)	**SMc** (10/11/2021)

CPT Name: **CB13**

Preliminary Investigation, Hesselø OWF
IN SITU CPTU TESTING

Depth (m)	Soil Profile	CPTU Sample	Sample Ref No. Cone ID (Alpha)	Soil Depth (m)	Interpreted Soil Type	Env.	Age
10.5 – 19.5		1	181004(50) 0.81		Low to medium strength CLAY, sandy	Ma	Pg

Corrected Cone Resistance, q_t (MPa) 0 6 12 18 24 30 36 42 48 54 60
Sleeve Friction, f_s (kPa) 0 0.15 0.30 0.45 0.60 0.75 0.90 1.05 1.20 1.35 1.5

Pore Pressure, U_2 (kPa) -4500 -2250 0 2250 4500
Ambient Pore Pressure, U_0 (kPa)

Pore Pressure Ratio, Bq -1.5 -1.0 -0.5 0.0 0.5 1.0 1.5
Friction Ratio, (%) 0 2 4 6 8 10 12

Relative Density, D_r (%) 0 20 40 60 80 100
Undrained Shear Strength, S_u (kPa) 0 300 600 900 1200 1500

KEY TO SOIL PROFILE

SILT, CLAY, SAND, GRAVEL, COBBLES, CHALK, PEAT, Mixed Soil

Assumed Unit Weight: 20 - 16 kN/m³
K_c: 0.5 - 2.0
N_{kt}: 12.5 - 16.5
N_{ke}: 15 - 20
K_c: 0.5 - 2.0

Area	**Kattegat Sea**	Coordinates	**670639.5E 6262910.5N**
Contract	**11596**	Water Depth (mMSL)	**30.0**
Client Name/Ref	**Energinet Eltransmission A/S/384_20_ENE**	Date of Test	**30/04/2021**
Vessel	**MV Ocean Vantage**	Cone No.(type)/α Factor	**181004 (50cm²) / 0.81**
Method	**20 kN Sea bed CPT**	Base Inclination	**X = 1.1° / Y = 1.0°**

CRS: **ETRS89**

Comments:
Cone class 1. Continuous seabed CPT. Final depth 33.83m. Test terminated at operators discretion due to high inclination and risk of rod bend

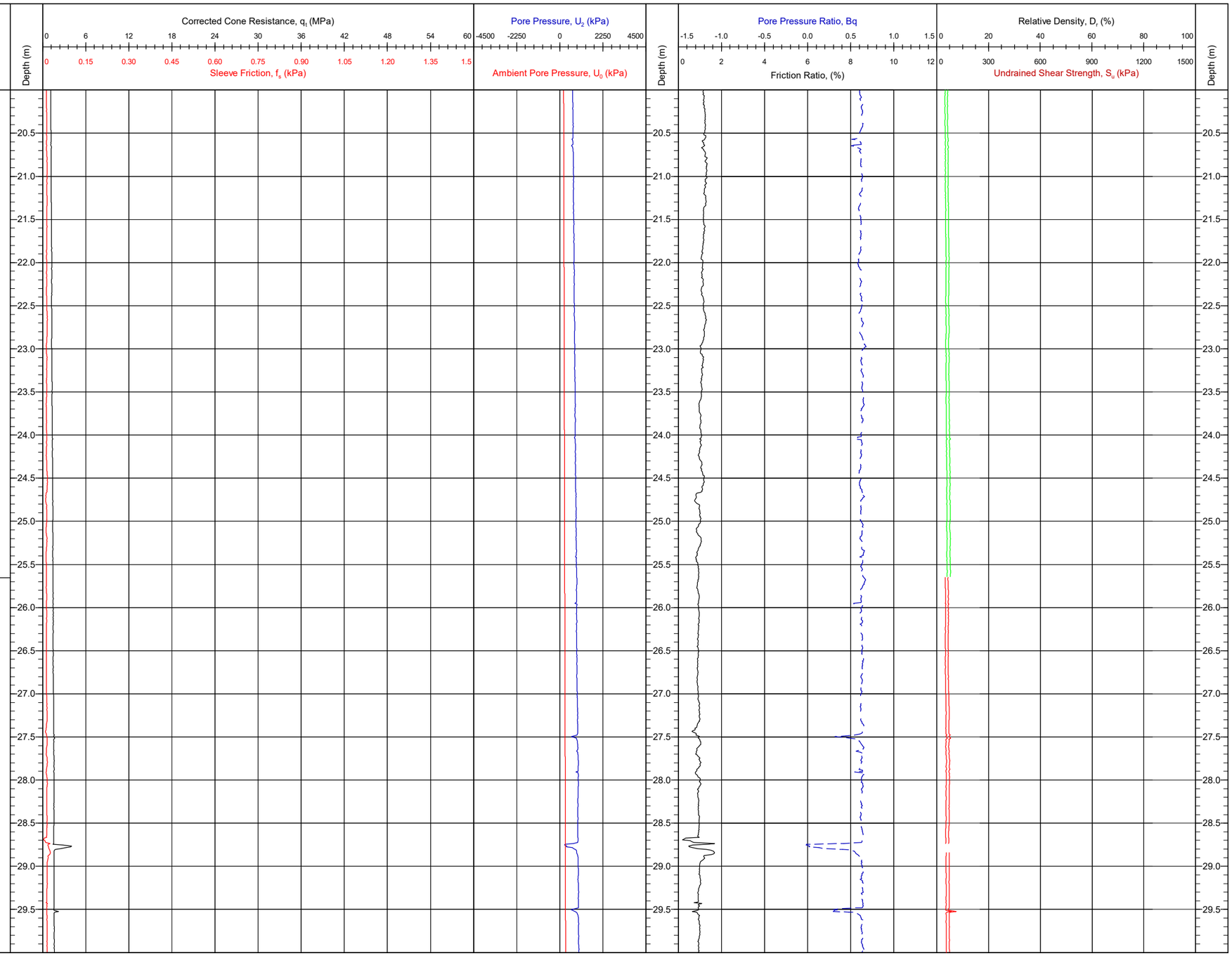
QC Status	Preliminary	Draft	Final
	JK/BC (30/04/2021)	**DR** (10/06/2021)	**SMc** (10/11/2021)

CPT Name: **CB13**

Preliminary Investigation, Hesselø OWF

IN SITU CPTU TESTING

Depth (m)	Soil Profile	CPTU Sample	Sample Ref No. Cone ID (Alpha)	Soil Depth (m)	Interpreted Soil Type	Env.	Age
					Low to medium strength CLAY, sandy	Ma	Pg
				25.66	Medium to high strength CLAY with widely spaced very thin to thin beds of clay, sandy, between 27.20m and 29.27m	Ma/Fw	Pg
					28.48-28.55m: Thin bed of gravel		



KEY TO SOIL PROFILE

SILT · CLAY · SAND · GRAVEL · COBBLES · CHALK · PEAT · Mixed Soil

Assumed Unit Weight: 20 - 16 kN/m³
K_C 0.5 - 2.0
N_{kt} 12.5 - 16.5
$N_{\Delta u}$ 15 - 20
K_S 0.5 - 2.0

Area	**Kattegat Sea**	Coordinates	**670639.5E 6262910.5N**	CRS: **ETRS89**	
Contract	**11596**	Water Depth (mMSL)	**30.0**	**Comments:** **Cone class 1. Continuous seabed CPT. Final depth 33.83m. Test terminated at operators discretion due to high inclination and risk of rod bend**	
Client Name/Ref	**Energinet Eltransmission A/S/384_20_ENE**	Date of Test	**30/04/2021**		
Vessel	**MV Ocean Vantage**	Cone No.(type)/α Factor	**181004 (50cm²) / 0.81**		
Method	**20 kN Sea bed CPT**	Base Inclination	**X = 1.1° / Y = 1.0°**		

QC Status		
Preliminary	Draft	Final
JK/BC (30/04/2021)	**DR** (10/06/2021)	**SMc** (10/11/2021)

CPT Name

CB13

Preliminary Investigation, Hesselø OWF
IN SITU CPTU TESTING

Soil Depth (m)	Interpreted Soil Type	Env.	Age
	Medium to high strength CLAY with widely spaced very thin to thin beds of clay, sandy, between 27.20m and 29.27m	Ma/Fw	Pg
33.93	*33.49-33.61m: Thin bed of high strength clay, sandy*	Ma/Fw	Pg
	Medium dense SAND End of CPTU test at 34.11m		

Corrected Cone Resistance, q_t (MPa) / Sleeve Friction, f_s (kPa)

Pore Pressure, U_2 (kPa) / Ambient Pore Pressure, U_0 (kPa)

Pore Pressure Ratio, Bq / Friction Ratio, (%)

Relative Density, D_r (%) / Undrained Shear Strength, S_u (kPa)

KEY TO SOIL PROFILE

SILT, CLAY, SAND, GRAVEL, COBBLES, CHALK, PEAT, Mixed Soil

Assumed Unit Weight: 20 - 16 kN/m³
K_C 0.5 - 2.0
N_{kt} 12.5 - 16.5
$N_{\Delta u}$ 15 - 20
K_C 0.5 - 2.0

Area	**Kattegat Sea**	Coordinates	**670639.5E 6262910.5N**	CRS: **ETRS89**	
Contract	**11596**	Water Depth (mMSL)	**30.0**	**Comments:** **Cone class 1. Continuous seabed CPT. Final depth 33.83m. Test terminated at operators discretion due to high inclination and risk of rod bend**	
Client Name/Ref	**Energinet Eltransmission A/S/384_20_ENE**	Date of Test	**30/04/2021**		
Vessel	**MV Ocean Vantage**	Cone No.(type)/α Factor	**181004 (50cm²) / 0.81**		
Method	**20 kN Sea bed CPT**	Base Inclination	**X = 1.1° / Y = 1.0°**		

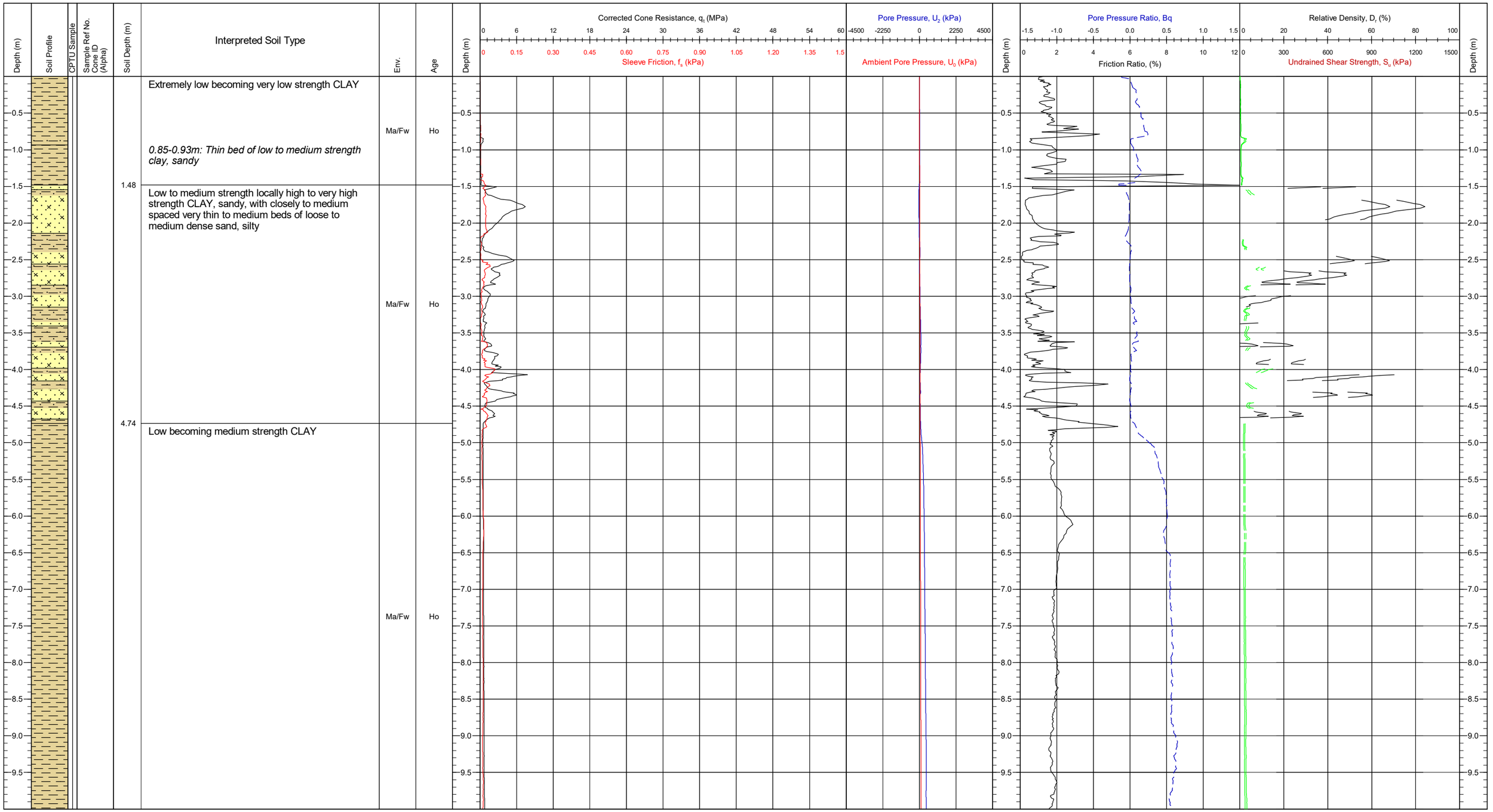
QC Status		
Preliminary	Draft	Final
JK/BC (30/04/2021)	**DR** (10/06/2021)	**SMc** (10/11/2021)

CPT Name: **CB13**

Preliminary Investigation, Hesselø OWF

IN SITU CPTU TESTING

Soil Depth (m)	Interpreted Soil Type	Env.	Age
0.00	Extremely low becoming very low strength CLAY *0.85-0.93m: Thin bed of low to medium strength clay, sandy*	Ma/Fw	Ho
1.48	Low to medium strength locally high to very high strength CLAY, sandy, with closely to medium spaced very thin to medium beds of loose to medium dense sand, silty	Ma/Fw	Ho
4.74	Low becoming medium strength CLAY	Ma/Fw	Ho



KEY TO SOIL PROFILE

SILT · CLAY · SAND · GRAVEL · COBBLES · CHALK · PEAT · Mixed Soil

Assumed Unit Weight: 20 - 16 kN/m³
K_C 0.5 - 2.0
N_{KT} 12.5 - 16.5
$N_{\Delta u}$ 15 - 20
K_C 0.5 - 2.0

Area	**Kattegat Sea**	Coordinates	**680529.9E 6252844.1N**	CRS: **ETRS89**	QC Status: Preliminary / Draft / Final
Contract	**11596**	Water Depth (mMSL)	**31.6**		
Client Name/Ref	**Energinet Eltransmission A/S/384_20_ENE**	Date of Test	**27/04/2021**	**Comments:** Cone out of class. Continuous seabed CPT. Final depth 22.79m. Test terminated due to a sudden increase of more than 3 degrees of cone inclination	**JK/BC** (27/04/2021) / **DR** (10/06/2021) / **SMc** (10/11/2021)
Vessel	**MV Ocean Vantage**	Cone No.(type)/α Factor	**100976 (50cm²) / 0.78**		
Method	**20 kN Sea bed CPT**	Base Inclination	**X = 0.0° / Y = -0.1°**		

CPT Name: **CB14**

Preliminary Investigation, Hesselø OWF

IN SITU CPTU TESTING

Depth (m)	Soil Profile	CPTU Sample	Sample Ref No. Cone ID (Alpha)	Soil Depth (m)	Interpreted Soil Type	Env.	Age
10.5					Low becoming medium strength CLAY		
11.0			1 100976(50) 0.78				
11.5							
12.0							
12.5							
13.0							
13.5							
14.0							
14.5						Ma/Fw	Ho
15.0							
15.5							
16.0							
16.5							
17.0							
17.5							
18.0							
18.5							
19.0				19.13			
19.5					Medium to high strength locally high to very high strength CLAY, sandy, with very closely to medium spaced very thin to thin beds of loose to medium dense sand, silty and sand, clayey	Ma/Fw	Pg

Corrected Cone Resistance, q_t (MPa): 0 6 12 18 24 30 36 42 48 54 60

Sleeve Friction, f_s (kPa): 0 0.15 0.30 0.45 0.60 0.75 0.90 1.05 1.20 1.35 1.5

Pore Pressure, U_2 (kPa): -4500 -2250 0 2250 4500

Ambient Pore Pressure, U_0 (kPa)

Pore Pressure Ratio, Bq: -1.5 -1.0 -0.5 0.0 0.5 1.0 1.5

Friction Ratio, (%): 0 2 4 6 8 10 12

Relative Density, D_r (%): 0 20 40 60 80 100

Undrained Shear Strength, S_u (kPa): 0 300 600 900 1200 1500

KEY TO SOIL PROFILE

SILT, CLAY, SAND, GRAVEL, COBBLES, CHALK, PEAT, Mixed Soil

Assumed Unit Weight: 20 - 16 kN/m³
K_C 0.5 - 2.0
N_{kt} 12.5 - 16.5
$N_{\Delta u}$ 15 - 20
K_Q 0.5 - 2.0

Area	**Kattegat Sea**	Coordinates	**680529.9E 6252844.1N**
Contract	**11596**	Water Depth (mMSL)	**31.6**
Client Name/Ref	**Energinet Eltransmission A/S/384_20_ENE**	Date of Test	**27/04/2021**
Vessel	**MV Ocean Vantage**	Cone No.(type)/α Factor	**100976 (50cm²) / 0.78**
Method	**20 kN Sea bed CPT**	Base Inclination	**X = 0.0° / Y = -0.1°**

CRS: **ETRS89**

Comments:
Cone out of class. Continuous seabed CPT. Final depth 22.79m. Test terminated due to a sudden increase of more than 3 degrees of cone inclination

QC Status		
Preliminary	Draft	Final
JK/BC (27/04/2021)	**DR** (10/06/2021)	**SMc** (10/11/2021)

CPT Name

CB14

Preliminary Investigation, Hesselø OWF

IN SITU CPTU TESTING

Soil Depth (m)	Interpreted Soil Type	Env.	Age
	Medium to high strength locally high to very high strength CLAY, sandy, with very closely to medium spaced very thin to thin beds of loose to medium dense sand, silty and sand, clayey	Ma/Fw	Pg
22.69	Dense to very dense silty SAND	Ma/Fw	Pg
22.79	End of CPTU test at 22.79m		

Corrected Cone Resistance, q_t (MPa) 0 6 12 18 24 30 36 42 48 54 60

Sleeve Friction, f_s (kPa) 0 0.15 0.30 0.45 0.60 0.75 0.90 1.05 1.20 1.35 1.5

Pore Pressure, U_2 (kPa) -4500 -2250 0 2250 4500

Ambient Pore Pressure, U_0 (kPa)

Pore Pressure Ratio, Bq -1.5 -1.0 -0.5 0.0 0.5 1.0 1.5

Friction Ratio, (%) 0 2 4 6 8 10 12

Relative Density, D_r (%) 0 20 40 60 80 100

Undrained Shear Strength, S_u (kPa) 0 300 600 900 1200 1500

Depth (m) 20.5 21.0 21.5 22.0 22.5 23.0 23.5 24.0 24.5 25.0 25.5 26.0 26.5 27.0 27.5 28.0 28.5 29.0 29.5

KEY TO SOIL PROFILE

SILT · CLAY · SAND · GRAVEL · COBBLES · CHALK · PEAT · Mixed Soil

Assumed Unit Weight: 20 - 16 kN/m³
K_C 0.5 - 2.0
N_{kt} 12.5 - 16.5
$N_{\Delta u}$ 15 - 20
K_C 0.5 - 2.0

Area	**Kattegat Sea**	Coordinates	**680529.9E 6252844.1N**
Contract	**11596**	Water Depth (mMSL)	**31.6**
Client Name/Ref	**Energinet Eltransmission A/S/384_20_ENE**	Date of Test	**27/04/2021**
Vessel	**MV Ocean Vantage**	Cone No.(type)/α Factor	**100976 (50cm²) / 0.78**
Method	**20 kN Sea bed CPT**	Base Inclination	**X = 0.0° / Y = -0.1°**

CRS: **ETRS89**

Comments:
Cone out of class. Continuous seabed CPT. Final depth 22.79m. Test terminated due to a sudden increase of more than 3 degrees of cone inclination

QC Status		
Preliminary	Draft	Final
JK/BC (27/04/2021)	**DR** (10/06/2021)	**SMc** (10/11/2021)

CPT Name

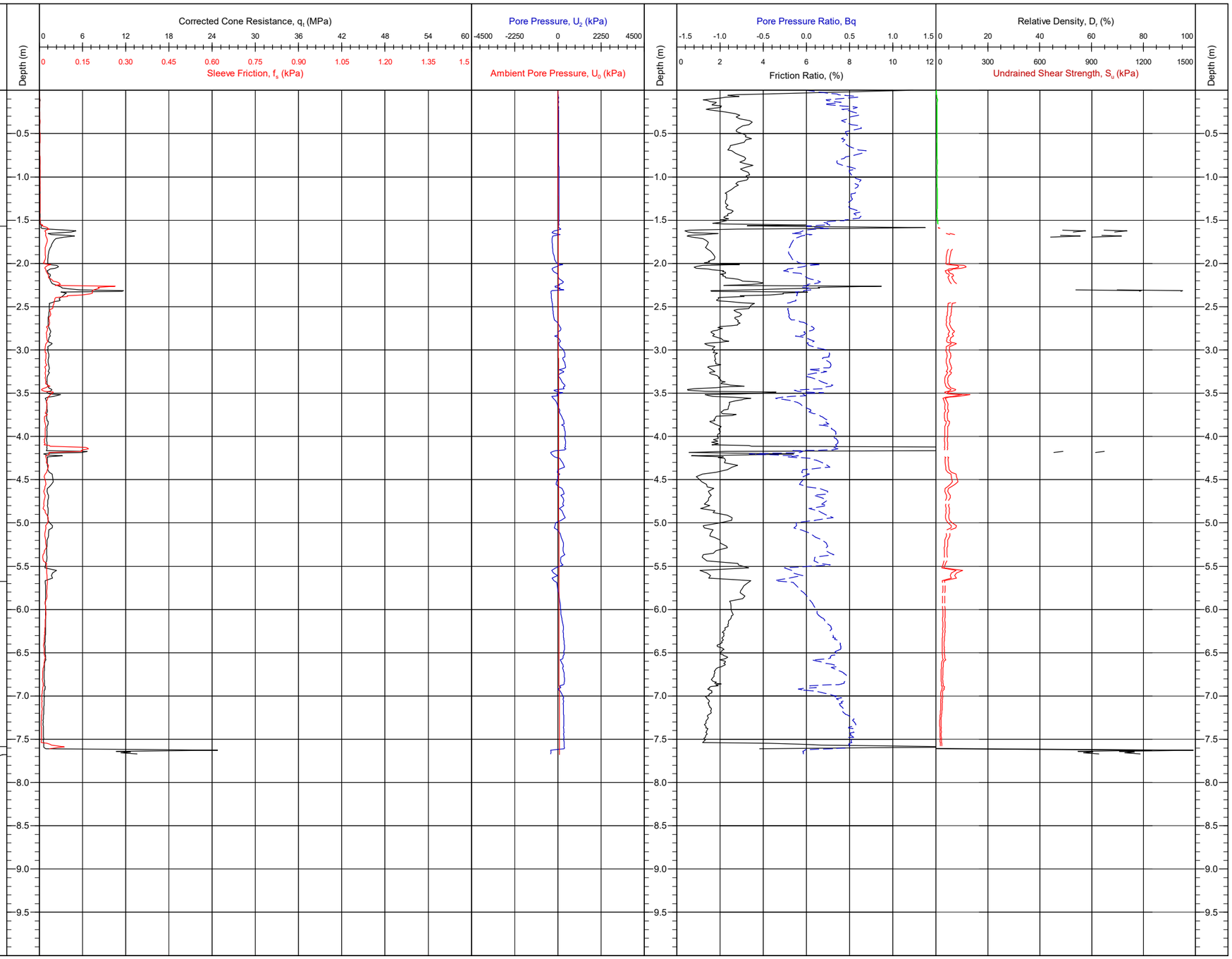
CB14

Preliminary Investigation, Hesselø OWF

IN SITU CPTU TESTING

Soil Depth (m)	Interpreted Soil Type	Env.	Age
0.00	Extremely low to very low strength CLAY	Ma/Fw	Ho
1.57	Medium to high strength locally very high strength CLAY, sandy, with very closely to very widely spaced very thin beds of medium dense to dense sand, silty	Ma/Fw	Pg
5.68	Medium strength CLAY	Ma/Fw	Pg
7.59	Dense to very dense SAND	Ma/Fw	Pg
7.68	End of CPTU test at 7.68m		

CPTU Sample: 1 — Sample Ref No. / Cone ID (Alpha): 130206(50) 0.77



KEY TO SOIL PROFILE

SILT, CLAY, SAND, GRAVEL, COBBLES, CHALK, PEAT, Mixed Soil

Assumed Unit Weight: 20 - 16 kN/m³
K_0: 0.5 - 2.0
N_{kt}: 12.5 - 16.5
$N_{\Delta u}$: 15 - 20
K_0: 0.5 - 2.0

Area	**Kattegat Sea**	Coordinates	**676134.1E 6251059.5N**
Contract	**11596**	Water Depth (mMSL)	**30.1**
Client Name/Ref	**Energinet Eltransmission A/S/384_20_ENE**	Date of Test	**27/04/2021**
Vessel	**MV Ocean Vantage**	Cone No.(type)/α Factor	**130206 (50cm²) / 0.77**
Method	**20 kN Sea bed CPT**	Base Inclination	**X = 0.0° / Y = 0.0°**

CRS: **ETRS89**

Comments:
Cone class 2. Continuous seabed CPT. Final depth 7.68m. Test terminated due to a sudden increase of more than three degrees of cone inclination and increasing tip resistance

QC Status		
Preliminary	Draft	Final
JK/BC (27/04/2021)	**DR** (10/06/2021)	**SMc** (10/11/2021)

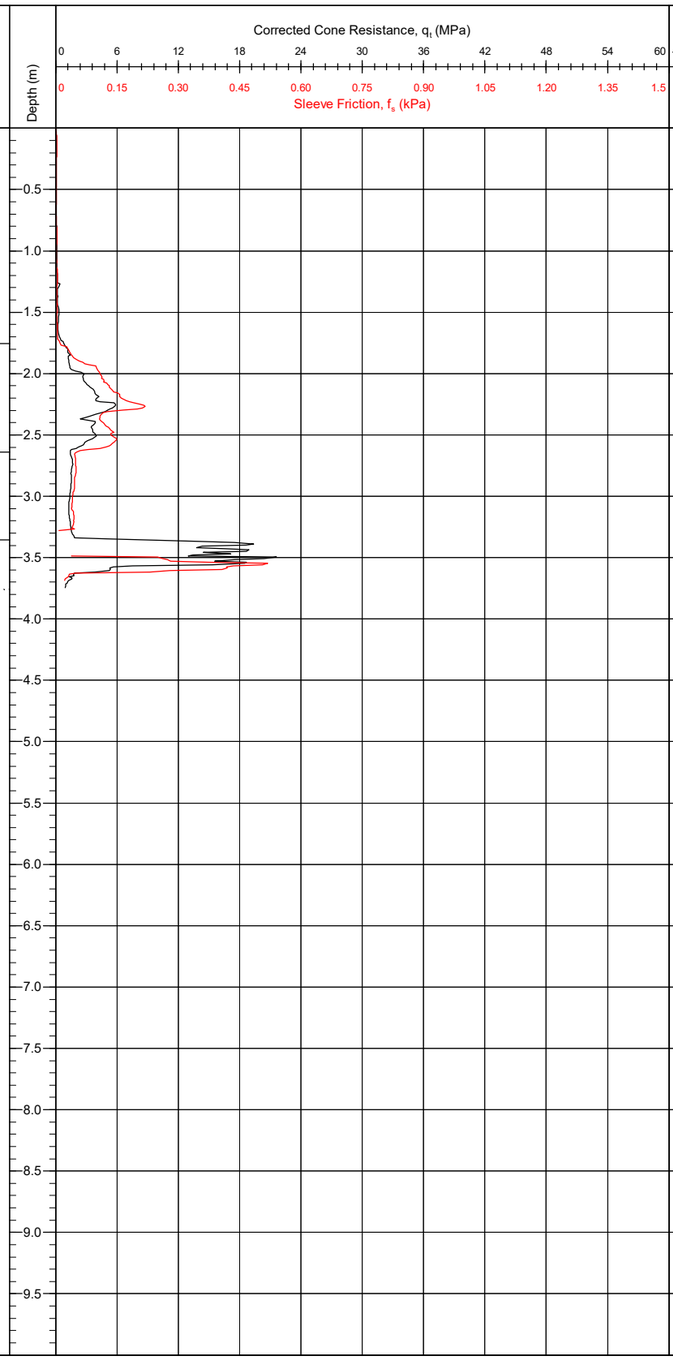
CPT Name: **CPT3**

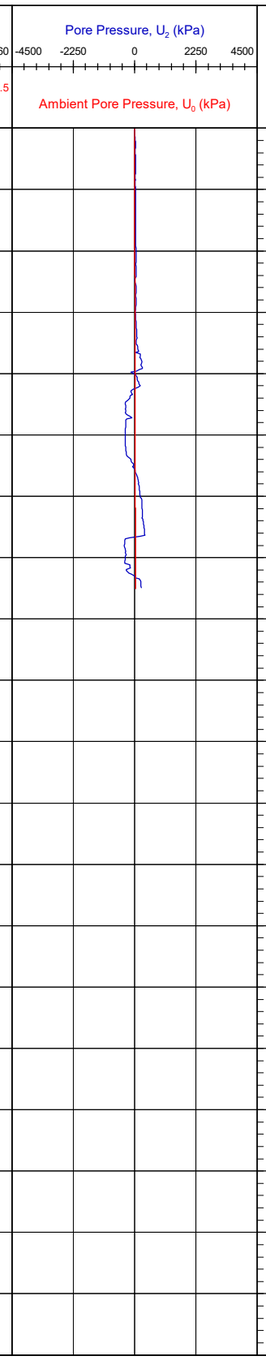
Preliminary Investigation, Hesselø OWF

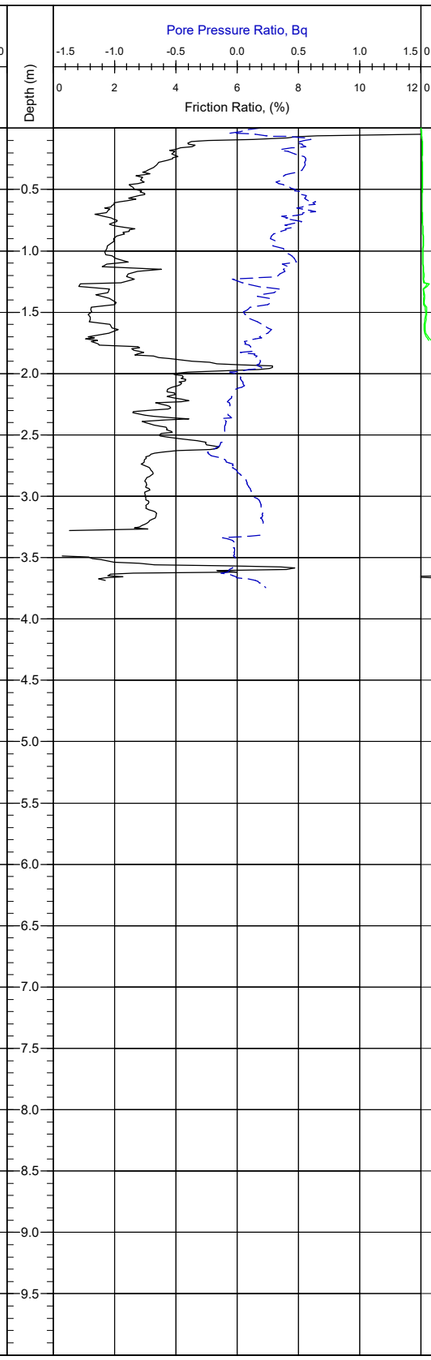
IN SITU CPTU TESTING

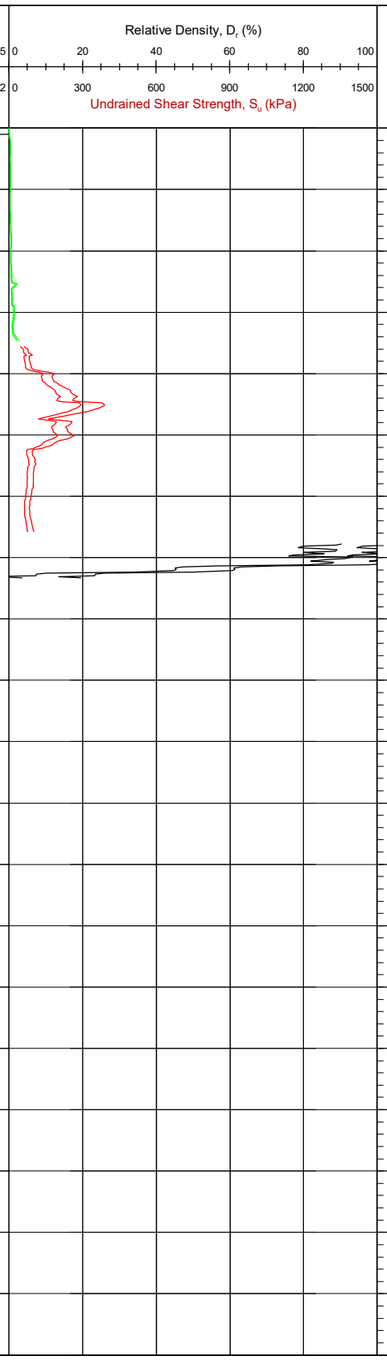
Depth (m)	Interpreted Soil Type	Env.	Age
0.00	Extremely low to very low strength CLAY	Ma/Fw	Ho
1.76	Medium to extremely high strength CLAY	Ma/Fw	Ho
2.64	High to very high strength CLAY	Ma/Fw	Pg
3.36	Dense to very dense SAND	Ma/Fw	Pg
	End of CPTU test at 3.76m		

CPTU Sample: 1 (181007(50) 0.72)









KEY TO SOIL PROFILE

SILT, CLAY, SAND, GRAVEL, COBBLES, CHALK, PEAT, Mixed Soil

Assumed Unit Weight: 20 - 16 kN/m³
K_C 0.5 - 2.0
N_{kt} 12.5 - 16.5
$N_{\Delta u}$ 15 - 20
K_C 0.5 - 2.0

Area	**Kattegat Sea**	Coordinates	**676134.2E 6251054.3N**
Contract	**11596**	Water Depth (mMSL)	**30.2**
Client Name/Ref	**Energinet Eltransmission A/S/384_20_ENE**	Date of Test	**27/04/2021**
Vessel	**MV Ocean Vantage**	Cone No.(type)/α Factor	**181007 (50cm²) / 0.72**
Method	**20 kN Sea bed CPT**	Base Inclination	**X = 0.0° / Y = 0.0°**

CRS: **ETRS89**

Comments:
Cone class 4. Bumpover location. Deck to deck offset readings are shared between 3a and 3b. Continuous seabed CPT. Final depth 3.55m. Test terminated due to a sudden increase of more than three degrees of cone inclination and increasing tip resistance

QC Status		
Preliminary	Draft	Final
JK/BC (27/04/2021)	**DR** (10/06/2021)	**SMc** (10/11/2021)

CPT Name: **CPT3a**

Preliminary Investigation, Hesselø OWF

IN SITU CPTU TESTING

Depth (m)	Soil Profile	CPTU Sample	Sample Ref No. Cone ID (Alpha)	Soil Depth (m)	Interpreted Soil Type	Env.	Age
			1 181007(50) 0.72		Extremely low to very low strength CLAY	Ma/Fw	Ho
				1.84	*1.69-1.80m: Thin bed of dense to very dense sand, silty*	Ma/Fw	Pg
				2.06	*1.78-1.82m: Very thin bed of very high strength clay, sandy* Very dense SAND		
					End of CPTU test at 2.06m		

Corrected Cone Resistance, q_t (MPa) 0 6 12 18 24 30 36 42 48 54 60
Sleeve Friction, f_s (kPa) 0 0.15 0.30 0.45 0.60 0.75 0.90 1.05 1.20 1.35 1.5

Pore Pressure, U_2 (kPa) -4500 -2250 0 2250 4500
Ambient Pore Pressure, U_0 (kPa)

Pore Pressure Ratio, Bq -1.5 -1.0 -0.5 0.0 0.5 1.0 1.5
Friction Ratio, (%) 0 2 4 6 8 10 12

Relative Density, D_r (%) 0 20 40 60 80 100
Undrained Shear Strength, S_u (kPa) 0 300 600 900 1200 1500

KEY TO SOIL PROFILE

SILT, CLAY, SAND, GRAVEL, COBBLES, CHALK, PEAT, Mixed Soil

Assumed Unit Weight: 20 - 16 kN/m³
K_C 0.5 - 2.0
N_{kt} 12.5 - 16.5
N_{ke} 15 - 20
K_C 0.5 - 2.0

Area	**Kattegat Sea**	Coordinates	**676133.7E 6251066.7N**	CRS: **ETRS89**	
Contract	**11596**	Water Depth (mMSL)	**30.2**	**Comments:** **Cone class 2. Continuous seabed CPT. Bumpover location. Final depth 1.96m. Deck to deck offsets are taken at a 5m reference level above seabed. Test terminated due to a sudden increase of more than three degrees of cone inclination and increasing tip resistance**	
Client Name/Ref	**Energinet Eltransmission A/S/384_20_ENE**	Date of Test	**27/04/2021**		
Vessel	**MV Ocean Vantage**	Cone No.(type)/α Factor	**181007 (50cm²) / 0.72**		
Method	**20 kN Sea bed CPT**	Base Inclination	**X = 0.0° / Y = 0.0°**		

QC Status		
Preliminary	Draft	Final
JK/BC (27/04/2021)	**DR** (10/06/2021)	**SMc** (10/11/2021)

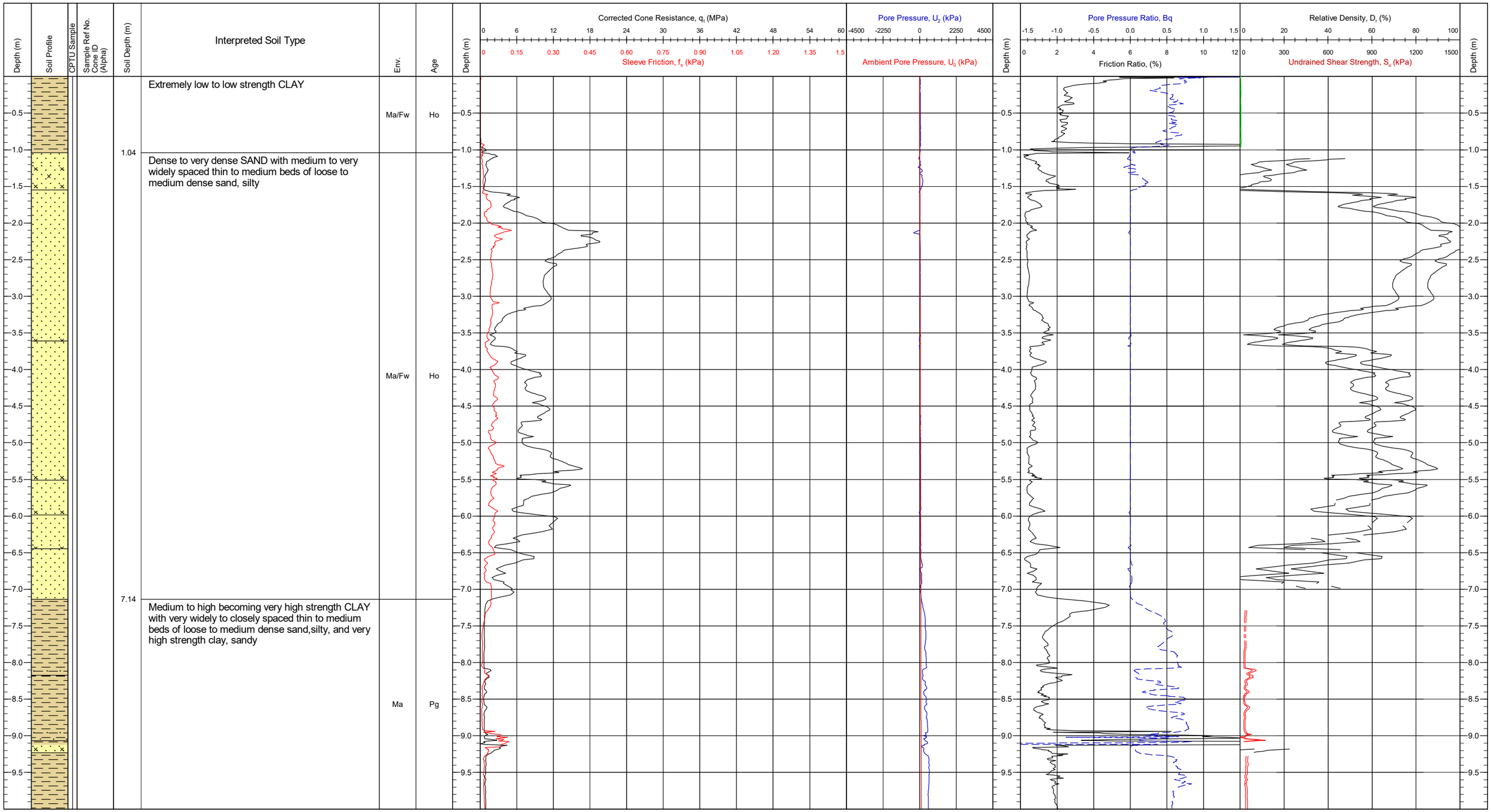
CPT Name

CPT3b

Preliminary Investigation, Hesselø OWF

IN SITU CPTU TESTING

Soil Depth (m)	Interpreted Soil Type	Env.	Age
1.04	Extremely low to low strength CLAY	Ma/Fw	Ho
7.14	Dense to very dense SAND with medium to very widely spaced thin to medium beds of loose to medium dense sand, silty	Ma/Fw	Ho
	Medium to high becoming very high strength CLAY with very widely to closely spaced thin to medium beds of loose to medium dense sand,silty, and very high strength clay, sandy	Ma	Pg



KEY TO SOIL PROFILE

SILT · CLAY · SAND · GRAVEL · COBBLES · CHALK · PEAT · Mixed Soil

Assumed Unit Weight: 20 - 16 kN/m³
K_C 0.5 - 2.0
N_{KT} 12.5 - 16.5
$N_{\Delta u}$ 15 - 20
K_C 0.5 - 2.0

Area	**Kattegat Sea**	Coordinates	**679806.4E 6251702.4N**
Contract	**11596**	Water Depth (mMSL)	**31.2**
Client Name/Ref	**Energinet Eltransmission A/S/384_20_ENE**	Date of Test	**27/04/2021**
Vessel	**MV Ocean Vantage**	Cone No.(type)/α Factor	**061040 (50cm²) / 0.76**
Method	**20 kN Sea bed CPT**	Base Inclination	**X = 0.0° / Y = 0.1°**

CRS: **ETRS89**

Comments:
Cone class 4. Continuous seabed CPT. Final depth 32.39m. Test was terminated at operators discretion due to increasing sleeve and to prevent damage to equipment

QC Status		
Preliminary	Draft	Final
JK/BC (27/04/2021)	**DR** (10/06/2021)	**SMc** (10/11/2021)

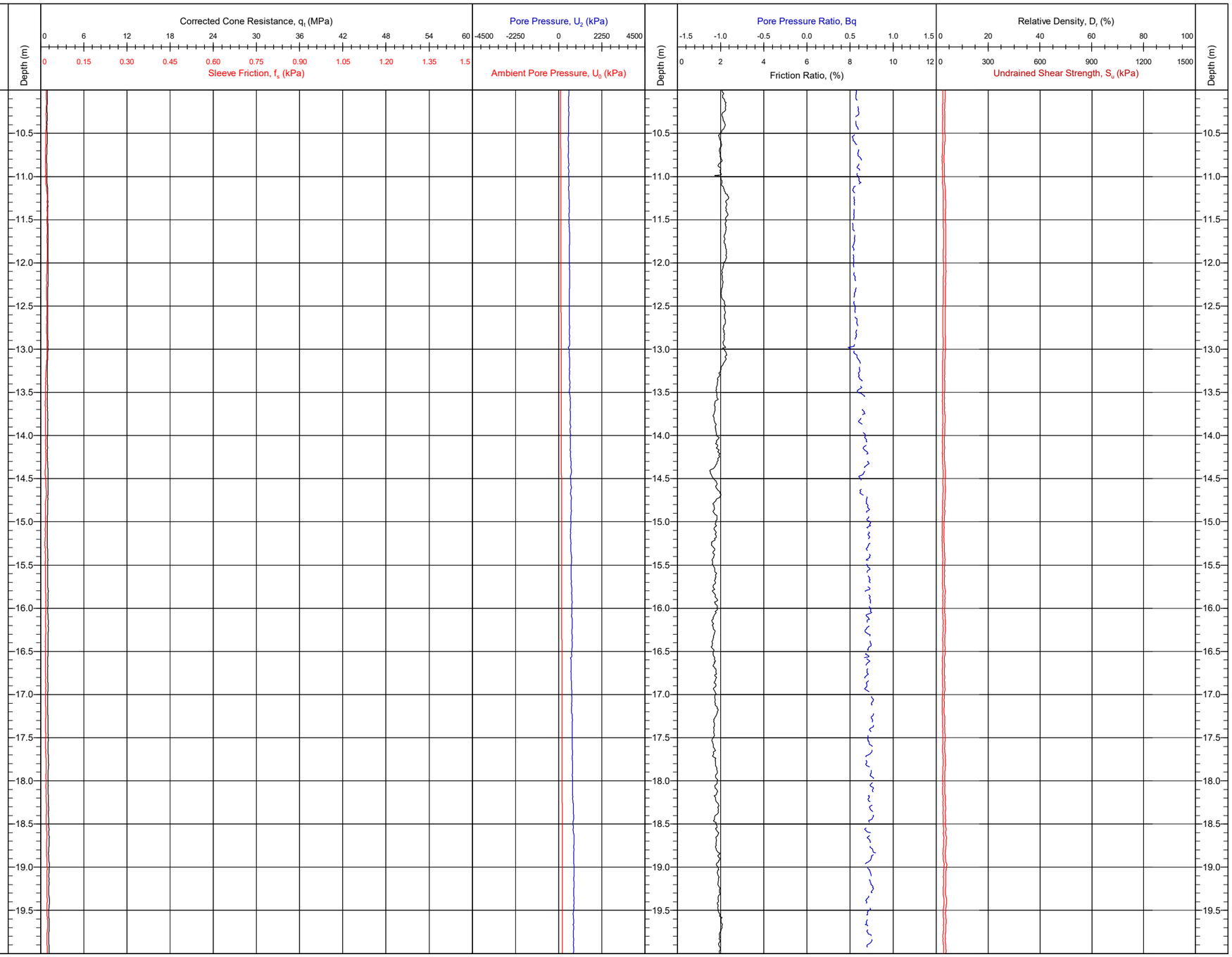
CPT Name

CPT4

Preliminary Investigation, Hesselø OWF

IN SITU CPTU TESTING

Depth (m)	Soil Profile	CPTU Sample	Sample Ref No. Cone ID (Alpha)	Soil Depth (m)	Interpreted Soil Type	Env.	Age
10.5 – 19.5		1 061040(50) 0.76			Medium to high becoming very high strength CLAY with very widely to closely spaced thin to medium beds of loose to medium dense sand,silty, and very high strength clay, sandy	Ma	Pg



KEY TO SOIL PROFILE

SILT · CLAY · SAND · GRAVEL · COBBLES · CHALK · PEAT · Mixed Soil

Assumed Unit Weight: 20 - 16 kN/m³
K_C: 0.5 - 2.0
N_{KT}: 12.5 - 16.5
$N_{\Delta u}$: 15 - 20
K_C: 0.5 - 2.0

Area	**Kattegat Sea**	Coordinates	**679806.4E 6251702.4N**	CRS: **ETRS89**	
Contract	**11596**	Water Depth (mMSL)	**31.2**	**Comments:** **Cone class 4. Continuous seabed CPT. Final depth 32.39m. Test was terminated at operators discretion due to increasing sleeve and to prevent damage to equipment**	
Client Name/Ref	**Energinet Eltransmission A/S/384_20_ENE**	Date of Test	**27/04/2021**		
Vessel	**MV Ocean Vantage**	Cone No.(type)/α Factor	**061040 (50cm²) / 0.76**		
Method	**20 kN Sea bed CPT**	Base Inclination	**X = 0.0° / Y = 0.1°**		

QC Status		
Preliminary	Draft	Final
JK/BC (27/04/2021)	**DR** (10/06/2021)	**SMc** (10/11/2021)

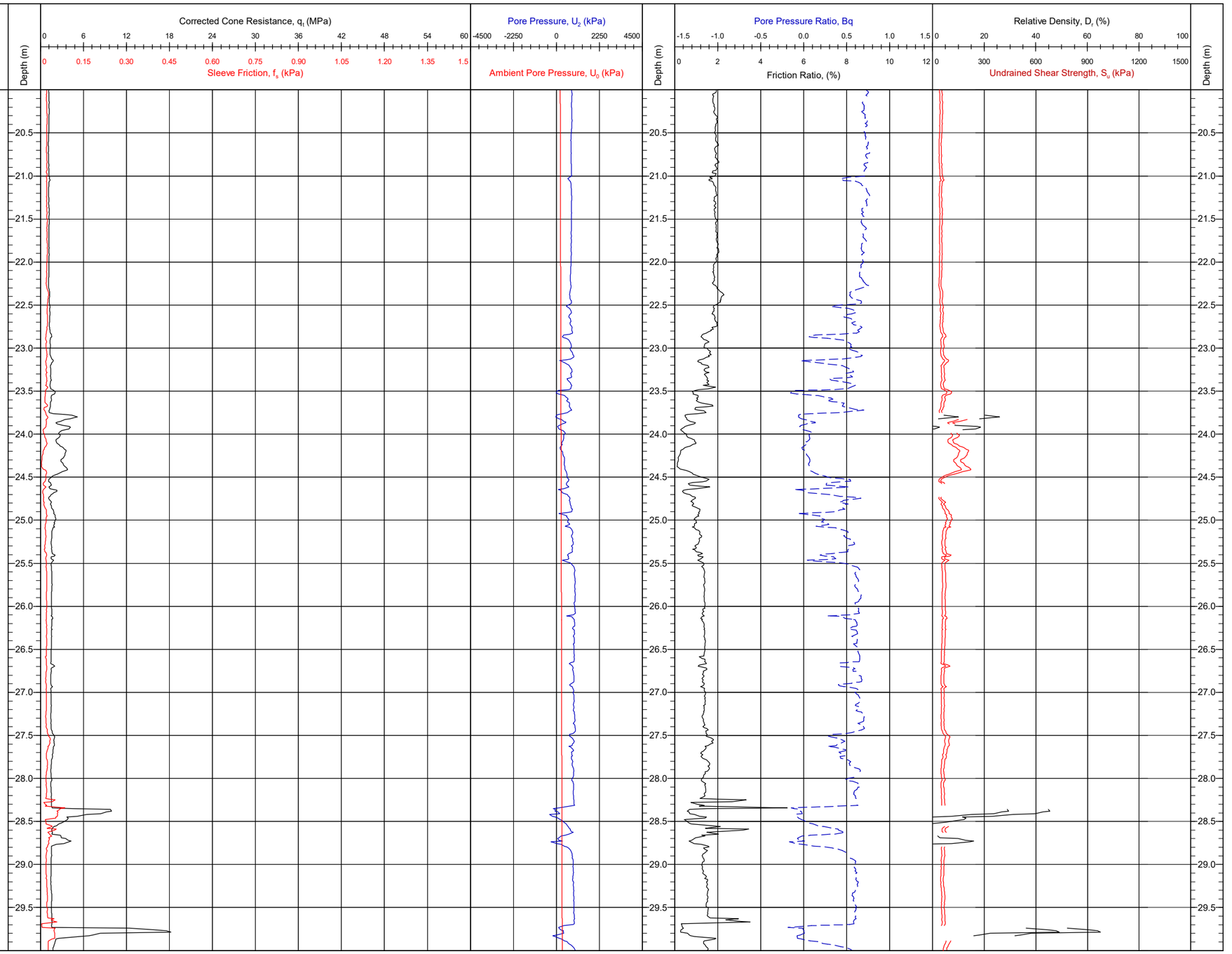
CPT Name

CPT4

Preliminary Investigation, Hesselø OWF

IN SITU CPTU TESTING

Depth (m)	Soil Profile	CPTU Sample	Sample Ref No. Cone ID (Alpha)	Soil Depth (m)	Interpreted Soil Type	Env.	Age
20.5 – 29.5					Medium to high becoming very high strength CLAY with very widely to closely spaced thin to medium beds of loose to medium dense sand,silty, and very high strength clay, sandy	Ma	Pg



KEY TO SOIL PROFILE

SILT · CLAY · SAND · GRAVEL · COBBLES · CHALK · PEAT · Mixed Soil

Assumed Unit Weight: 20 - 16 kN/m³
K_C: 0.5 - 2.0
N_{KT}: 12.5 - 16.5
$N_{\Delta u}$: 15 - 20
K_Q: 0.5 - 2.0

Area	**Kattegat Sea**	Coordinates	**679806.4E 6251702.4N**
Contract	**11596**	Water Depth (mMSL)	**31.2**
Client Name/Ref	**Energinet Eltransmission A/S/384_20_ENE**	Date of Test	**27/04/2021**
Vessel	**MV Ocean Vantage**	Cone No.(type)/α Factor	**061040 (50cm²) / 0.76**
Method	**20 kN Sea bed CPT**	Base Inclination	**X = 0.0° / Y = 0.1°**

CRS: **ETRS89**

Comments:
Cone class 4. Continuous seabed CPT. Final depth 32.39m. Test was terminated at operators discretion due to increasing sleeve and to prevent damage to equipment

QC Status		
Preliminary	Draft	Final
JK/BC (27/04/2021)	**DR** (10/06/2021)	**SMc** (10/11/2021)

CPT Name

CPT4

Preliminary Investigation, Hesselø OWF

IN SITU CPTU TESTING

Soil Depth (m)	Interpreted Soil Type	Env.	Age
	Medium to high becoming very high strength CLAY with very widely to closely spaced thin to medium beds of loose to medium dense sand,silty, and very high strength clay, sandy	Ma	Pg
32.39	*32.16-32.38m: Medium bed of dense to very dense sand*		
	End of CPTU test at 32.39m		

Corrected Cone Resistance, q_t (MPa) 0 6 12 18 24 30 36 42 48 54 60

Sleeve Friction, f_s (kPa) 0 0.15 0.30 0.45 0.60 0.75 0.90 1.05 1.20 1.35 1.5

Pore Pressure, U_2 (kPa) -4500 -2250 0 2250 4500

Ambient Pore Pressure, U_0 (kPa)

Pore Pressure Ratio, Bq -1.5 -1.0 -0.5 0.0 0.5 1.0 1.5

Friction Ratio, (%) 0 2 4 6 8 10 12

Relative Density, D_r (%) 0 20 40 60 80 100

Undrained Shear Strength, S_u (kPa) 0 300 600 900 1200 1500

Depth (m) 30.5 31.0 31.5 32.0 32.5 33.0 33.5 34.0 34.5 35.0 35.5 36.0 36.5 37.0 37.5 38.0 38.5 39.0 39.5

KEY TO SOIL PROFILE

SILT · CLAY · SAND · GRAVEL · COBBLES · CHALK · PEAT · Mixed Soil

Assumed Unit Weight: 20 - 16 kN/m³
K_C 0.5 - 2.0
N_{kt} 12.5 - 16.5
N_{ke} 15 - 20
K_C 0.5 - 2.0

Area	**Kattegat Sea**	Coordinates	**679806.4E 6251702.4N**
Contract	**11596**	Water Depth (mMSL)	**31.2**
Client Name/Ref	**Energinet Eltransmission A/S/384_20_ENE**	Date of Test	**27/04/2021**
Vessel	**MV Ocean Vantage**	Cone No.(type)/α Factor	**061040 (50cm²) / 0.76**
Method	**20 kN Sea bed CPT**	Base Inclination	**X = 0.0° / Y = 0.1°**

CRS: **ETRS89**

Comments:
Cone class 4. Continuous seabed CPT. Final depth 32.39m. Test was terminated at operators discretion due to increasing sleeve and to prevent damage to equipment

QC Status		
Preliminary	Draft	Final
JK/BC (27/04/2021)	**DR** (10/06/2021)	**SMc** (10/11/2021)

CPT Name

CPT4

Preliminary Investigation, Hesselø OWF

IN SITU CPTU TESTING

Soil Depth (m)	Interpreted Soil Type	Env.	Age
0.06	CPTU sinkage Extremely low to very low strength CLAY with closely to widely spaced thin to thick beds of low to medium strength clay, sandy	Ma/Fw	Ho
3.63	Dense to very dense SAND	Ma/Fw	Pg
	5.68-5.87m: Thin bed of loose to medium dense sand, silty		
	End of CPTU test at 6.08m		

Sample Ref No. / Cone ID (Alpha): 1 / 191114(50) / 0.76

Corrected Cone Resistance, q_t (MPa) 0 6 12 18 24 30 36 42 48 54 60

Sleeve Friction, f_s (kPa) 0 0.15 0.30 0.45 0.60 0.75 0.90 1.05 1.20 1.35 1.5

Pore Pressure, U_2 (kPa) -4500 -2250 0 2250 4500

Ambient Pore Pressure, U_0 (kPa)

Pore Pressure Ratio, Bq -1.5 -1.0 -0.5 0.0 0.5 1.0 1.5

Friction Ratio, (%) 0 2 4 6 8 10 12

Relative Density, D_r (%) 0 20 40 60 80 100

Undrained Shear Strength, S_u (kPa) 0 300 600 900 1200 1500

KEY TO SOIL PROFILE

SILT, CLAY, SAND, GRAVEL, COBBLES, CHALK, PEAT, Mixed Soil

Assumed Unit Weight: 20 - 16 kN/m³
K_C 0.5 - 2.0
N_{kt} 12.5 - 16.5
$N_{\Delta u}$ 15 - 20
K_C 0.5 - 2.0

Area	**Kattegat Sea**	Coordinates	**668836.6E 6255857.7N**
Contract	**11596**	Water Depth (mMSL)	**27.0**
Client Name/Ref	**Energinet Eltransmission A/S/384_20_ENE**	Date of Test	**29/04/2021**
Vessel	**MV Ocean Vantage**	Cone No.(type)/α Factor	**191114 (50cm²) / 0.76**
Method	**20 kN Sea bed CPT**	Base Inclination	**X = -0.3° / Y = 0.8°**

CRS: **ETRS89**

Comments:
Cone class 2. Continuous seabed CPT. Final depth 6.06m. Test terminated at operators discretion due to sudden increase in sleeve friction and tip resistance

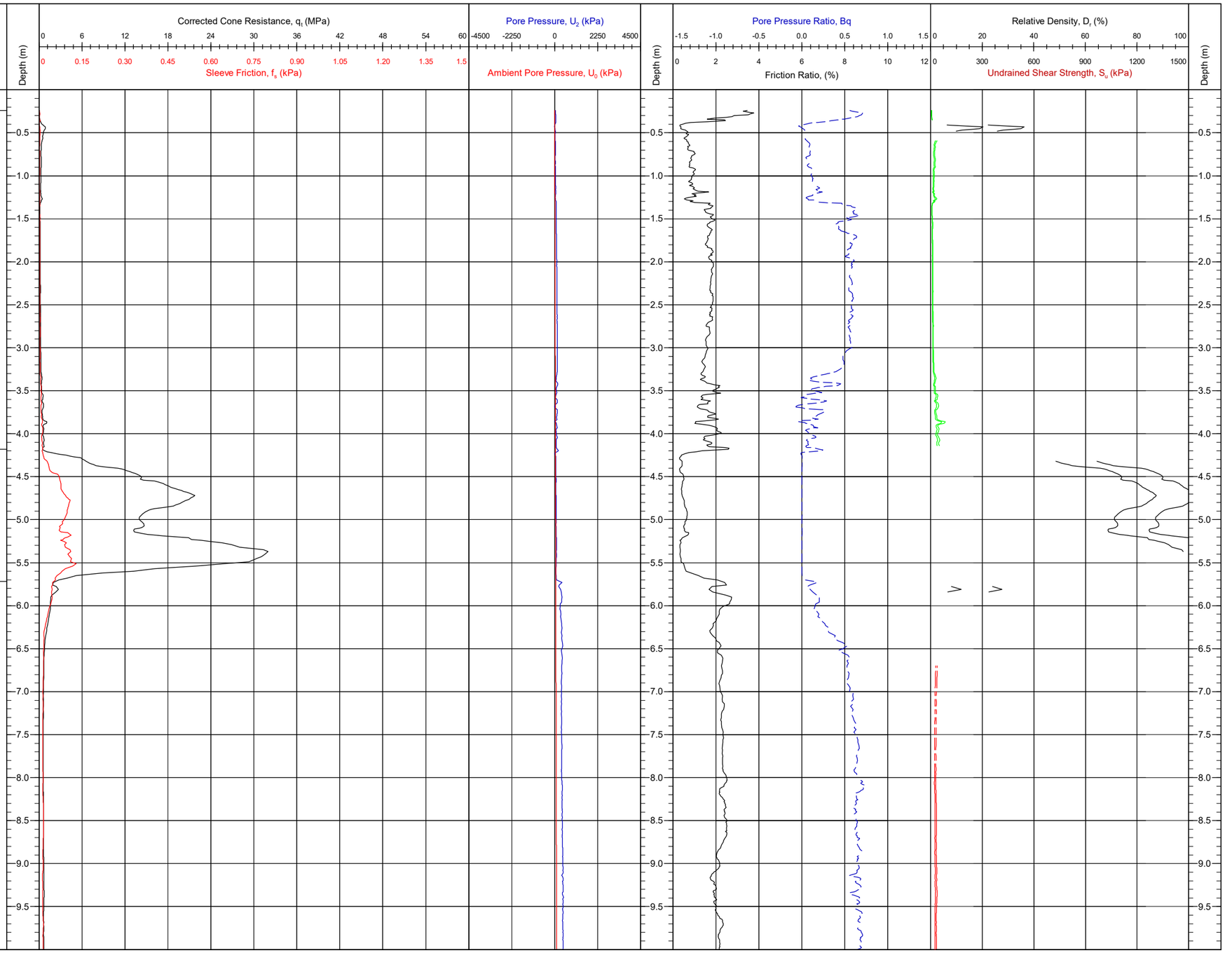
QC Status	Preliminary	Draft	Final
	JK/BC (29/04/2021)	**DR** (10/06/2021)	**SMc** (10/11/2021)

CPT Name: **CPT6**

Preliminary Investigation, Hesselø OWF

IN SITU CPTU TESTING

Soil Depth (m)	Interpreted Soil Type	Env.	Age
	CPTU sinkage		
0.24	Extremely low to very low strength CLAY with closely to very widely spaced thin to medium beds of low to high strength clay, sandy *0.15-0.30m: Thin bed of loose to medium dense sand*	Ma/Fw	Ho
4.18	Dense to very dense SAND	Ma/Fw	Ho
5.72	Low to medium strength CLAY *5.52-5.61m: Thin bed of loose sand, silty*	Ma/Fw	Ho



KEY TO SOIL PROFILE

SILT · CLAY · SAND · GRAVEL · COBBLES · CHALK · PEAT · Mixed Soil

Assumed Unit Weight: 20 - 16 kN/m³
K_C: 0.5 - 2.0
N_{kt}: 12.5 - 16.5
$N_{\Delta u}$: 15 - 20
K_C: 0.5 - 2.0

Area	**Kattegat Sea**	Coordinates	**668836.9E 6255852.5N**	CRS: **ETRS89**	QC Status: Preliminary / Draft / Final
Contract	**11596**	Water Depth (mMSL)	**26.9**	**Comments:** **Cone class 4. Continuous seabed CPT. Final depth 36.80m. Test terminated at operators discretion due to increasing total load~ tip resistance and lack of lateral rod support**	**JK/BC** (29/04/2021) / **DR** (10/06/2021) / **SMc** (10/11/2021)
Client Name/Ref	**Energinet Eltransmission A/S/384_20_ENE**	Date of Test	**29/04/2021**		
Vessel	**MV Ocean Vantage**	Cone No.(type)/α Factor	**120829 (50cm²) / 0.80**		
Method	**20 kN Sea bed CPT**	Base Inclination	**X = 1.1° / Y = 1.0°**		

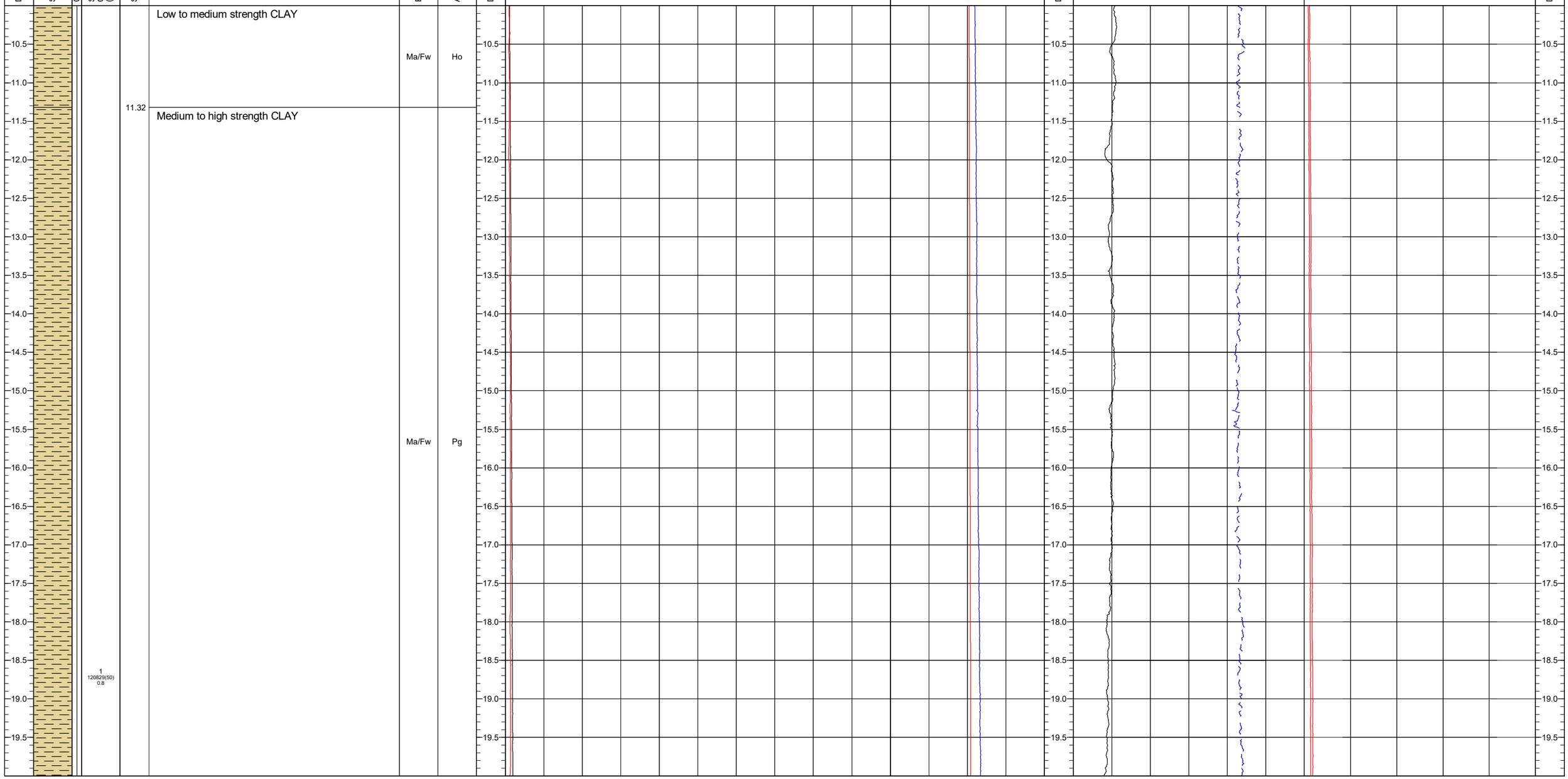
CPT Name: **CPT6a**

Preliminary Investigation, Hesselø OWF

IN SITU CPTU TESTING

Soil Depth (m)	Interpreted Soil Type	Env.	Age
	Low to medium strength CLAY	Ma/Fw	Ho
11.32	Medium to high strength CLAY	Ma/Fw	Pg

CPTU Sample: 1 120829(50) 0.8



KEY TO SOIL PROFILE

SILT · CLAY · SAND · GRAVEL · COBBLES · CHALK · PEAT · Mixed Soil

Assumed Unit Weight: 20 - 16 kN/m³
K_0: 0.5 - 2.0
N_{kt}: 12.5 - 16.5
N_{ke}: 15 - 20
K_0: 0.5 - 2.0

Area	**Kattegat Sea**	Coordinates	**668836.9E 6255852.5N**
Contract	**11596**	Water Depth (mMSL)	**26.9**
Client Name/Ref	**Energinet Eltransmission A/S/384_20_ENE**	Date of Test	**29/04/2021**
Vessel	**MV Ocean Vantage**	Cone No.(type)/α Factor	**120829 (50cm²) / 0.80**
Method	**20 kN Sea bed CPT**	Base Inclination	**X = 1.1° / Y = 1.0°**

CRS: **ETRS89**

Comments:
Cone class 4. Continuous seabed CPT. Final depth 36.80m. Test terminated at operators discretion due to increasing total load~ tip resistance and lack of lateral rod support

QC Status	Preliminary	Draft	Final
	JK/BC (29/04/2021)	**DR** (10/06/2021)	**SMc** (10/11/2021)

CPT Name: **CPT6a**

Preliminary Investigation, Hesselø OWF
IN SITU CPTU TESTING

Medium to high strength CLAY

Ma/Fw

Pg

KEY TO SOIL PROFILE

SILT, CLAY, SAND, GRAVEL, COBBLES, CHALK, PEAT, Mixed Soil

Assumed Unit Weight: 20 - 16 kN/m³
K_c: 0.5 - 2.0
N_{kt}: 12.5 - 16.5
N_{ke}: 15 - 20
K_c: 0.5 - 2.0

Area	**Kattegat Sea**	Coordinates	**668836.9E 6255852.5N**	CRS: **ETRS89**	QC Status: Preliminary / Draft / Final
Contract	**11596**	Water Depth (mMSL)	**26.9**	**Comments:** **Cone class 4. Continuous seabed CPT. Final depth 36.80m. Test terminated at operators discretion due to increasing total load~ tip resistance and lack of lateral rod support**	
Client Name/Ref	**Energinet Eltransmission A/S/384_20_ENE**	Date of Test	**29/04/2021**		
Vessel	**MV Ocean Vantage**	Cone No.(type)/α Factor	**120829 (50cm²) / 0.80**		
Method	**20 kN Sea bed CPT**	Base Inclination	**X = 1.1° / Y = 1.0°**		**JK/BC (29/04/2021)** / **DR (10/06/2021)** / **SMc (10/11/2021)**

CPT Name: **CPT6a**

Preliminary Investigation, Hesselø OWF

IN SITU CPTU TESTING

Depth (m)	Interpreted Soil Type	Env.	Age
30.5	Medium to high strength CLAY	Ma/Fw	Pg
34.59	High to very high strength CLAY with closely to widely spaced very thin to thin beds of very high strength clay, sandy *34.91-34.97m: Thin bed of loose sand, silty*	Ma/Fw	Pg
36.93	Medium dense SAND End of CPTU test at 37.04m	Ma/Fw	Lg

Corrected Cone Resistance, q_t (MPa) 0 6 12 18 24 30 36 42 48 54 60

Sleeve Friction, f_s (kPa) 0 0.15 0.30 0.45 0.60 0.75 0.90 1.05 1.20 1.35 1.5

Pore Pressure, U_2 (kPa) -4500 -2250 0 2250 4500

Ambient Pore Pressure, U_0 (kPa)

Pore Pressure Ratio, Bq -1.5 -1.0 -0.5 0.0 0.5 1.0 1.5

Friction Ratio, (%) 0 2 4 6 8 10 12

Relative Density, D_r (%) 0 20 40 60 80 100

Undrained Shear Strength, S_u (kPa) 0 300 600 900 1200 1500

KEY TO SOIL PROFILE

SILT · CLAY · SAND · GRAVEL · COBBLES · CHALK · PEAT · Mixed Soil

Assumed Unit Weight: 20 - 16 kN/m³
K_c: 0.5 - 2.0
N_{kt}: 12.5 - 16.5
$N_{\Delta u}$: 15 - 20
K_c: 0.5 - 2.0

Area	**Kattegat Sea**	Coordinates	**668836.9E 6255852.5N**
Contract	**11596**	Water Depth (mMSL)	**26.9**
Client Name/Ref	**Energinet Eltransmission A/S/384_20_ENE**	Date of Test	**29/04/2021**
Vessel	**MV Ocean Vantage**	Cone No.(type)/α Factor	**120829 (50cm²) / 0.80**
Method	**20 kN Sea bed CPT**	Base Inclination	**X = 1.1° / Y = 1.0°**

CRS: **ETRS89**

Comments:
Cone class 4. Continuous seabed CPT. Final depth 36.80m. Test terminated at operators discretion due to increasing total load~ tip resistance and lack of lateral rod support

QC Status	Preliminary	Draft	Final
	JK/BC (29/04/2021)	**DR** (10/06/2021)	**SMc** (10/11/2021)

CPT Name: **CPT6a**

Preliminary Investigation, Hesselø OWF

IN SITU CPTU TESTING

Soil Depth (m)	Interpreted Soil Type	Env.	Age
0.06	CPTU sinkage Extremely low to very low strength CLAY	Ma/Fw	Ho
2.06	Medium dense to dense locally very dense SAND	Ma/Fw	Ho
3.40	*3.13-3.19m: Thin bed of gravel* Medium to high strength CLAY with widely to very widely spaced thin beds of high strength clay, silty	Ma	Pg

Corrected Cone Resistance, q_t (MPa) / Sleeve Friction, f_s (kPa)

Pore Pressure, U_2 (kPa) / Ambient Pore Pressure, U_0 (kPa)

Pore Pressure Ratio, Bq / Friction Ratio, (%)

Relative Density, D_r (%) / Undrained Shear Strength, S_u (kPa)

KEY TO SOIL PROFILE

SILT, CLAY, SAND, GRAVEL, COBBLES, CHALK, PEAT, Mixed Soil

Assumed Unit Weight: 20 - 16 kN/m³
K_C 0.5 - 2.0
N_{KT} 12.5 - 16.5
N_{kt} 15 - 20
K_C 0.5 - 2.0

Area	**Kattegat Sea**	Coordinates	**671921.2E 6256092.0N**
Contract	**11596**	Water Depth (mMSL)	**29.2**
Client Name/Ref	**Energinet Eltransmission A/S/384_20_ENE**	Date of Test	**29/04/2021**
Vessel	**MV Ocean Vantage**	Cone No.(type)/α Factor	**191114 (50cm²) / 0.76**
Method	**20 kN Sea bed CPT**	Base Inclination	**X = 0.0° / Y = 0.0°**

CRS: **ETRS89**

Comments:
Cone class 1. Continuous seabed CPT. Final depth 36.67m. Test terminated at operators discretion due to a sudden increase in tip resistance~ high total load and near maximum cone inclination of 11.59 degrees

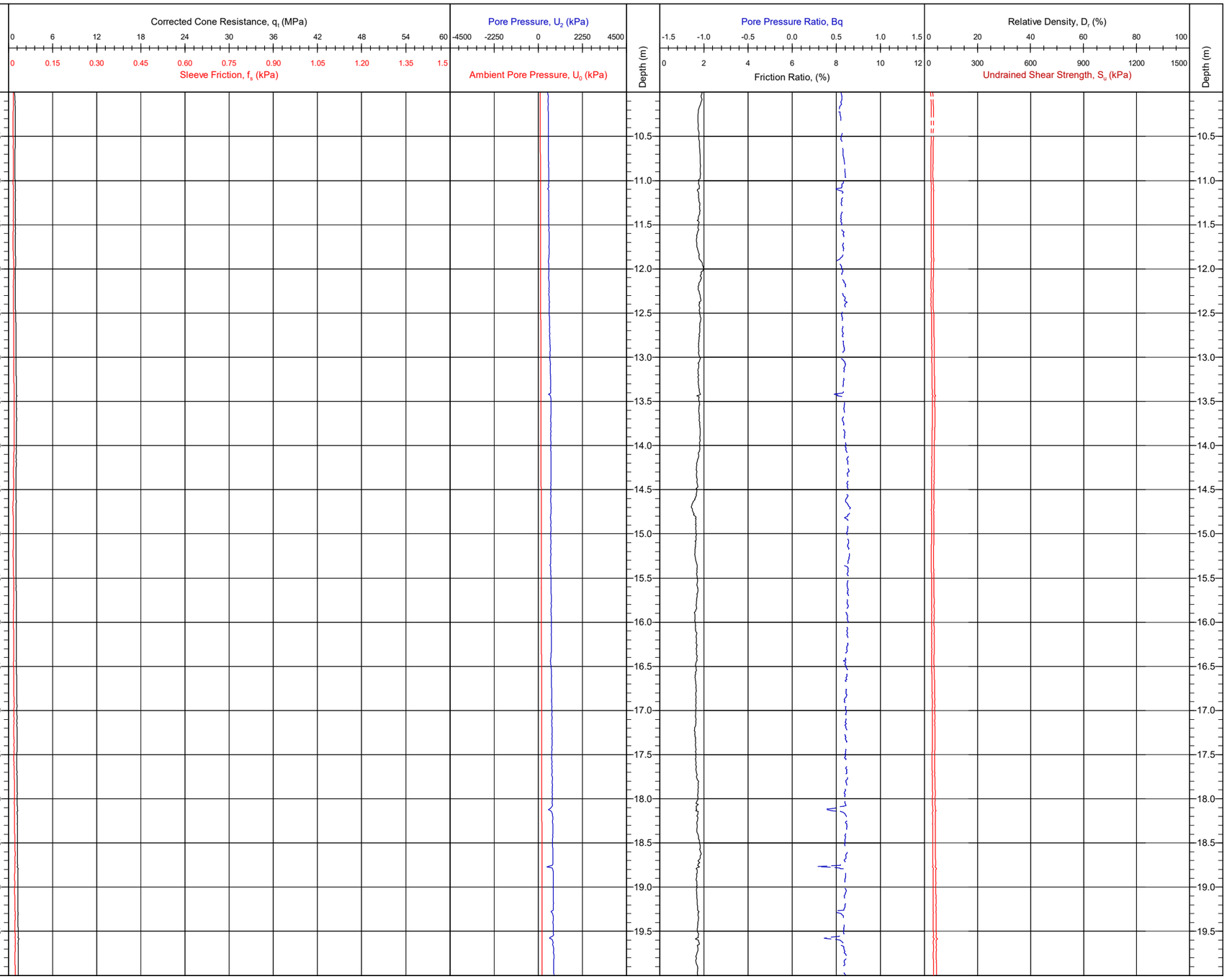
QC Status		
Preliminary	Draft	Final
JK/BC (29/04/2021)	**DR** (10/06/2021)	**SMc** (10/11/2021)

CPT Name: **CPT7**

Preliminary Investigation, Hesselø OWF

IN SITU CPTU TESTING

Depth (m)	Soil Profile	CPTU Sample	Sample Ref No. Cone ID (Alpha)	Soil Depth (m)	Interpreted Soil Type	Env.	Age
10.5 – 19.5		1	191114(50) 0.76		Medium to high strength CLAY with widely to very widely spaced thin beds of high strength clay, silty	Ma	Pg



KEY TO SOIL PROFILE

SILT · CLAY · SAND · GRAVEL · COBBLES · CHALK · PEAT · Mixed Soil

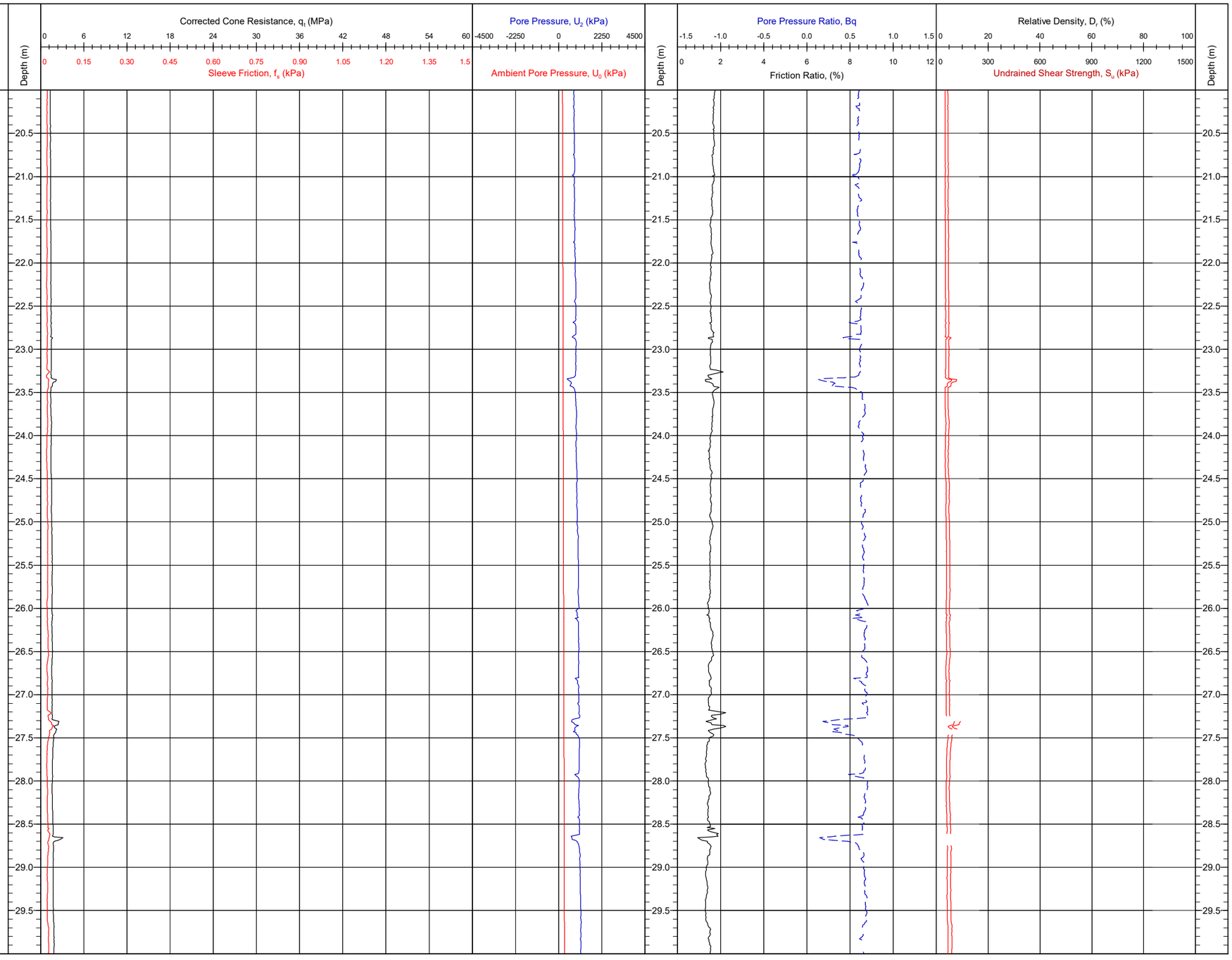
Assumed Unit Weight: 20 - 16 kN/m³
K_0: 0.5 - 2.0
N_{kt}: 12.5 - 16.5
N_{ke}: 15 - 20
K_0: 0.5 - 2.0

Area	**Kattegat Sea**	Coordinates	**671921.2E 6256092.0N**	CRS: **ETRS89**	CPT Name **CPT7**
Contract	**11596**	Water Depth (mMSL)	**29.2**	**Comments:** **Cone class 1. Continuous seabed CPT. Final depth 36.67m. Test terminated at operators discretion due to a sudden increase in tip resistance~ high total load and near maximum cone inclination of 11.59 degrees**	
Client Name/Ref	**Energinet Eltransmission A/S/384_20_ENE**	Date of Test	**29/04/2021**		
Vessel	**MV Ocean Vantage**	Cone No.(type)/α Factor	**191114 (50cm²) / 0.76**		
Method	**20 kN Sea bed CPT**	Base Inclination	**X = 0.0° / Y = 0.0°**		

QC Status		
Preliminary	Draft	Final
JK/BC (29/04/2021)	**DR** (10/06/2021)	**SMc** (10/11/2021)

Preliminary Investigation, Hesselø OWF
IN SITU CPTU TESTING

Depth (m)	Soil Profile	CPTU Sample	Sample Ref No. Cone ID (Alpha)	Soil Depth (m)	Interpreted Soil Type	Env.	Age
20.5 – 29.5					Medium to high strength CLAY with widely to very widely spaced thin beds of high strength clay, silty	Ma	Pg



KEY TO SOIL PROFILE

SILT · CLAY · SAND · GRAVEL · COBBLES · CHALK · PEAT · Mixed Soil

Assumed Unit Weight: 20 - 16 kN/m³
K_0: 0.5 - 2.0
N_{kt}: 12.5 - 16.5
$N_{\Delta u}$: 15 - 20
K_0: 0.5 - 2.0

Area	**Kattegat Sea**	Coordinates	**671921.2E 6256092.0N**	CRS: **ETRS89**	QC Status
Contract	**11596**	Water Depth (mMSL)	**29.2**	**Comments:** **Cone class 1. Continuous seabed CPT. Final depth 36.67m. Test terminated at operators discretion due to a sudden increase in tip resistance~ high total load and near maximum cone inclination of 11.59 degrees**	Preliminary: **JK/BC** (29/04/2021) · Draft: **DR** (10/06/2021) · Final: **SMc** (10/11/2021)
Client Name/Ref	**Energinet Eltransmission A/S/384_20_ENE**	Date of Test	**29/04/2021**		
Vessel	**MV Ocean Vantage**	Cone No.(type)/α Factor	**191114 (50cm²) / 0.76**		
Method	**20 kN Sea bed CPT**	Base Inclination	**X = 0.0° / Y = 0.0°**		

CPT Name: **CPT7**

Preliminary Investigation, Hesselø OWF

IN SITU CPTU TESTING

Depth (m)	Interpreted Soil Type	Env.	Age
30.5	Medium to high strength CLAY with widely to very widely spaced thin beds of high strength clay, silty	Ma	Pg
35.03	Medium dense to dense becoming very dense SAND, silty	Ma/Fw	Lg
36.73	End of CPTU test at 36.73m		

Corrected Cone Resistance, q_t (MPa) 0 6 12 18 24 30 36 42 48 54 60

Sleeve Friction, f_s (kPa) 0 0.15 0.30 0.45 0.60 0.75 0.90 1.05 1.20 1.35 1.5

Pore Pressure, U_2 (kPa) -4500 -2250 0 2250 4500

Ambient Pore Pressure, U_0 (kPa)

Pore Pressure Ratio, Bq -1.5 -1.0 -0.5 0.0 0.5 1.0 1.5

Friction Ratio, (%) 0 2 4 6 8 10 12

Relative Density, D_r (%) 0 20 40 60 80 100

Undrained Shear Strength, S_u (kPa) 0 300 600 900 1200 1500

KEY TO SOIL PROFILE

SILT, CLAY, SAND, GRAVEL, COBBLES, CHALK, PEAT, Mixed Soil

Assumed Unit Weight: 20 - 16 kN/m³
K_C: 0.5 - 2.0
N_{KT}: 12.5 - 16.5
$N_{\Delta u}$: 15 - 20
K_D: 0.5 - 2.0

Area	**Kattegat Sea**	Coordinates	**671921.2E 6256092.0N**
Contract	**11596**	Water Depth (mMSL)	**29.2**
Client Name/Ref	**Energinet Eltransmission A/S/384_20_ENE**	Date of Test	**29/04/2021**
Vessel	**MV Ocean Vantage**	Cone No.(type)/α Factor	**191114 (50cm²) / 0.76**
Method	**20 kN Sea bed CPT**	Base Inclination	**X = 0.0° / Y = 0.0°**

CRS: **ETRS89**

Comments:
Cone class 1. Continuous seabed CPT. Final depth 36.67m. Test terminated at operators discretion due to a sudden increase in tip resistance~ high total load and near maximum cone inclination of 11.59 degrees

QC Status		
Preliminary	Draft	Final
JK/BC (29/04/2021)	**DR** (10/06/2021)	**SMc** (10/11/2021)

CPT Name **CPT7**

Preliminary Investigation, Hesselø OWF

IN SITU CPTU TESTING

Depth (m)	Interpreted Soil Type	Env.	Age
0.0 – 5.0	Low to medium strength becoming high strength CLAY with extremely widely to widely spaced very thin beds of high strength clay, sandy	Ma/Fw	Ho
1.22 – 1.47	*Thin bed of loose to medium dense sand, silty*		

Corrected Cone Resistance, q_t (MPa) 0 6 12 18 24 30 36 42 48 54 60

Sleeve Friction, f_s (kPa) 0 0.15 0.30 0.45 0.60 0.75 0.90 1.05 1.20 1.35 1.5

Pore Pressure, U_2 (kPa) -4500 -2250 0 2250 4500

Ambient Pore Pressure, U_0 (kPa)

Pore Pressure Ratio, Bq -1.5 -1.0 -0.5 0.0 0.5 1.0 1.5

Friction Ratio, (%) 0 2 4 6 8 10 12

Relative Density, D_r (%) 0 20 40 60 80 100

Undrained Shear Strength, S_u (kPa) 0 300 600 900 1200 1500

KEY TO SOIL PROFILE

SILT · CLAY · SAND · GRAVEL · COBBLES · CHALK · PEAT · Mixed Soil

Assumed Unit Weight: 20 - 16 kN/m³

K_C 0.5 - 2.0

N_{kt} 12.5 - 16.5

$N_{\Delta u}$ 15 - 20

K_C 0.5 - 2.0

Area	**Kattegat Sea**	Coordinates	**674879.5E 6255586.4N**
Contract	**11596**	Water Depth (mMSL)	**30.6**
Client Name/Ref	**Energinet Eltransmission A/S/384_20_ENE**	Date of Test	**27/04/2021**
Vessel	**MV Ocean Vantage**	Cone No.(type)/α Factor	**081208 (50cm²) / 0.78**
Method	**20 kN Sea bed CPT**	Base Inclination	**X = 1.1° / Y = 1.0°**

CRS: **ETRS89**

Comments:
Cone class 1. Continuous seabed CPT. Final depth 20.80m. Test was terminated at the operators discretion due to lack of lateral rod support from mudline~ resulting in a high risk of buckling rods when encountering very dense sands.

QC Status		
Preliminary	Draft	Final
JK/BC (27/04/2021)	**DR** (10/06/2021)	**SMc** (10/11/2021)

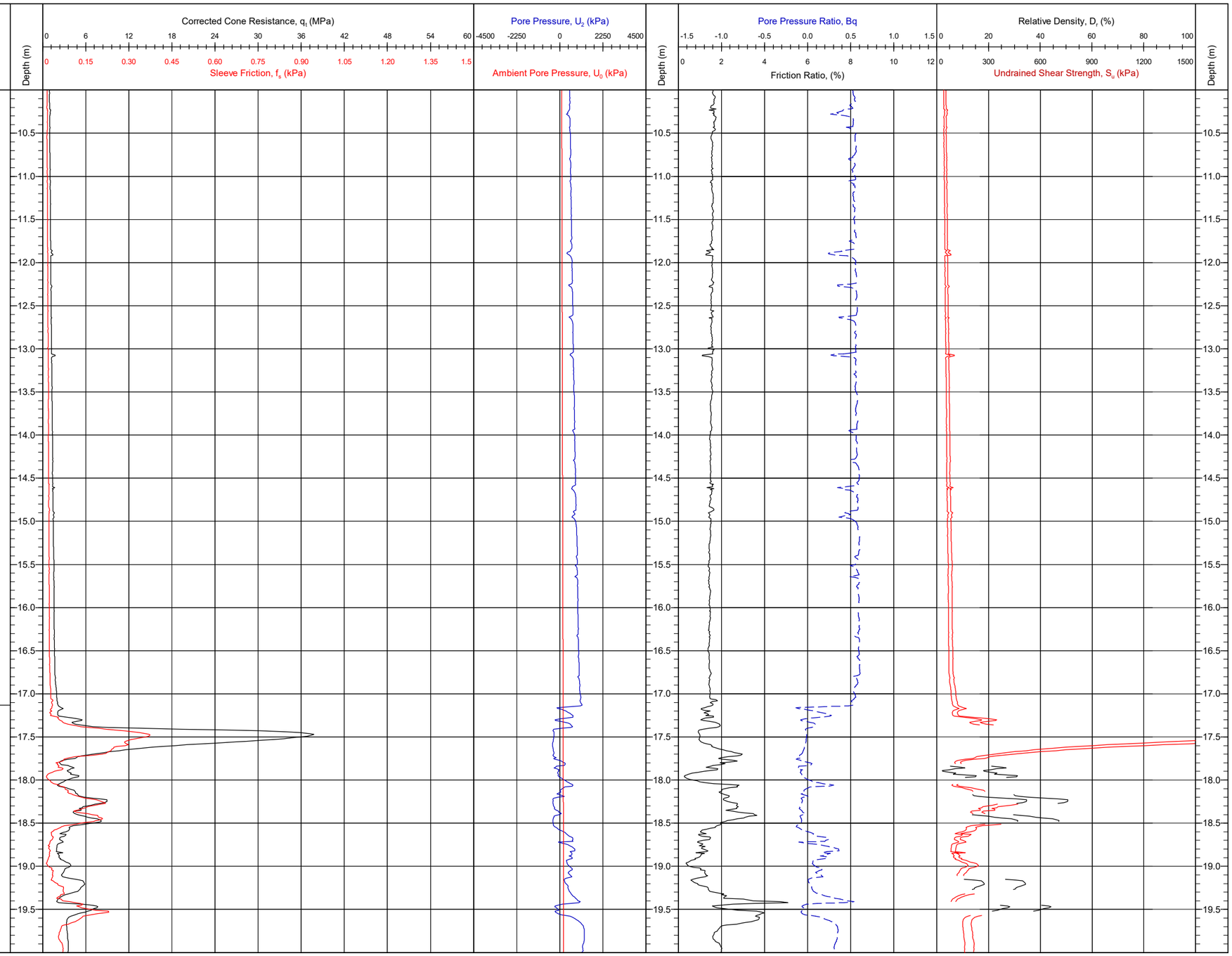
CPT Name

CPT8

Preliminary Investigation, Hesselø OWF

IN SITU CPTU TESTING

Depth (m)	Soil Profile	CPTU Sample	Sample Ref No. Cone ID (Alpha)	Soil Depth (m)	Interpreted Soil Type	Env.	Age
10.5			1 081208(50) 0.78		Low to medium strength becoming high strength CLAY with extremely widely to widely spaced very thin beds of high strength clay, sandy	Ma/Fw	Ho
17.13					High to very high locally extremely high strength CLAY, sandy, with closely to medium spaced thin beds of medium dense to dense locally very dense sand, silty	Ma/Fw	Pg



KEY TO SOIL PROFILE

SILT · CLAY · SAND · GRAVEL · COBBLES · CHALK · PEAT · Mixed Soil

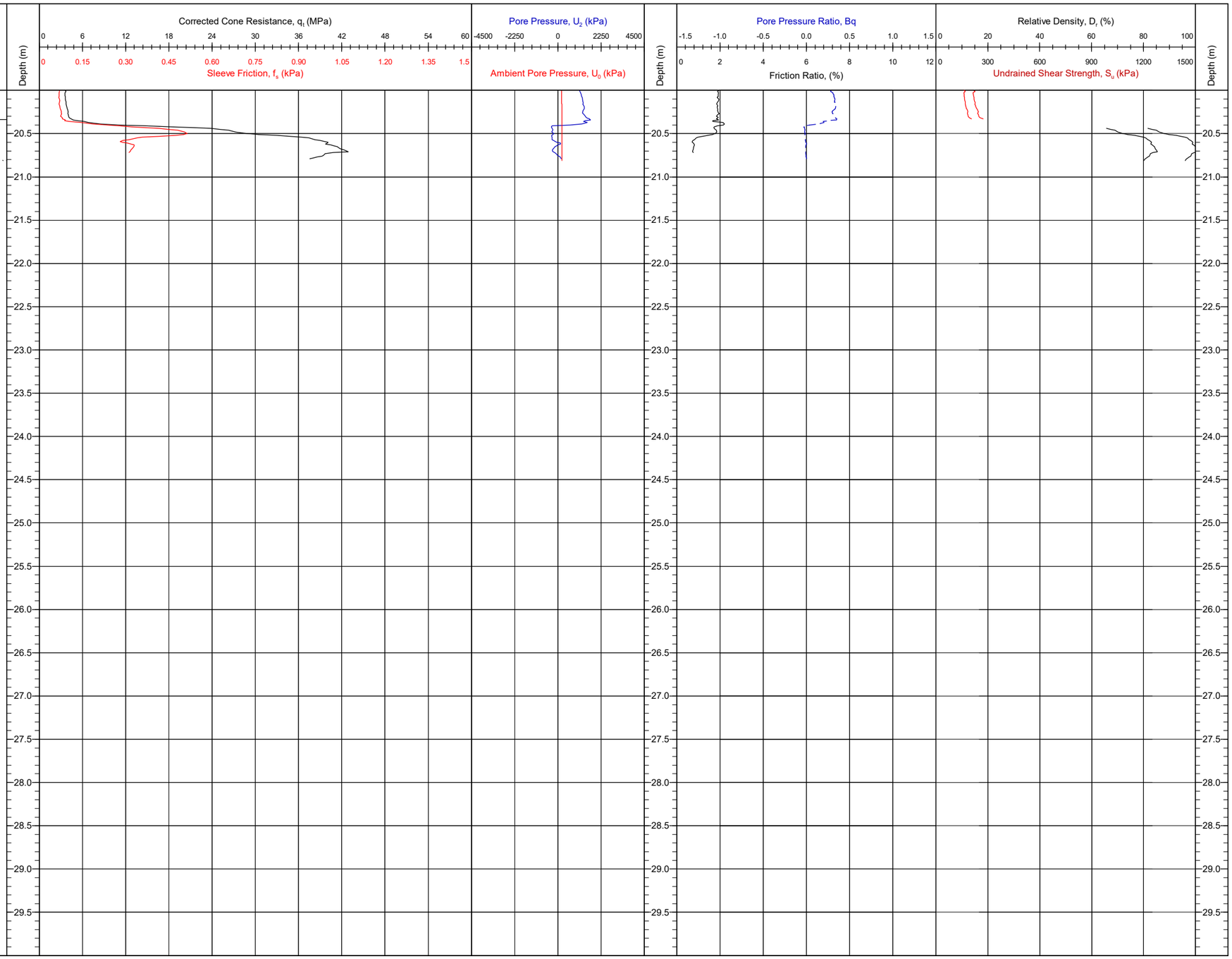
Assumed Unit Weight: 20 - 16 kN/m³
K_0: 0.5 - 2.0
N_{cb}: 12.5 - 16.5
N_{kt}: 15 - 20
K_0: 0.5 - 2.0

Area	**Kattegat Sea**	Coordinates	**674879.5E 6255586.4N**	CRS: **ETRS89**	QC Status: Preliminary / Draft / Final
Contract	**11596**	Water Depth (mMSL)	**30.6**	**Comments:** **Cone class 1. Continuous seabed CPT. Final depth 20.80m. Test was terminated at the operators discretion due to lack of lateral rod support from mudline~ resulting in a high risk of buckling rods when encountering very dense sands.**	**JK/BC** (27/04/2021) / **DR** (10/06/2021) / **SMc** (10/11/2021)
Client Name/Ref	**Energinet Eltransmission A/S/384_20_ENE**	Date of Test	**27/04/2021**		
Vessel	**MV Ocean Vantage**	Cone No.(type)/α Factor	**081208 (50cm²) / 0.78**		
Method	**20 kN Sea bed CPT**	Base Inclination	**X = 1.1° / Y = 1.0°**		

CPT Name: **CPT8**

Preliminary Investigation, Hesselø OWF
IN SITU CPTU TESTING

Depth (m)	Soil Profile	CPTU Sample	Sample Ref No. Cone ID (Alpha)	Soil Depth (m)	Interpreted Soil Type	Env.	Age
						Ma/Fw	Pg
				20.34	Dense to very dense SAND	Ma/Fw	Pg
					End of CPTU test at 20.81m		



KEY TO SOIL PROFILE

SILT · CLAY · SAND · GRAVEL · COBBLES · CHALK · PEAT · Mixed Soil

Assumed Unit Weight: 20 - 16 kN/m³
K_C 0.5 - 2.0
N_{kt} 12.5 - 16.5
N_{ke} 15 - 20
K_C 0.5 - 2.0

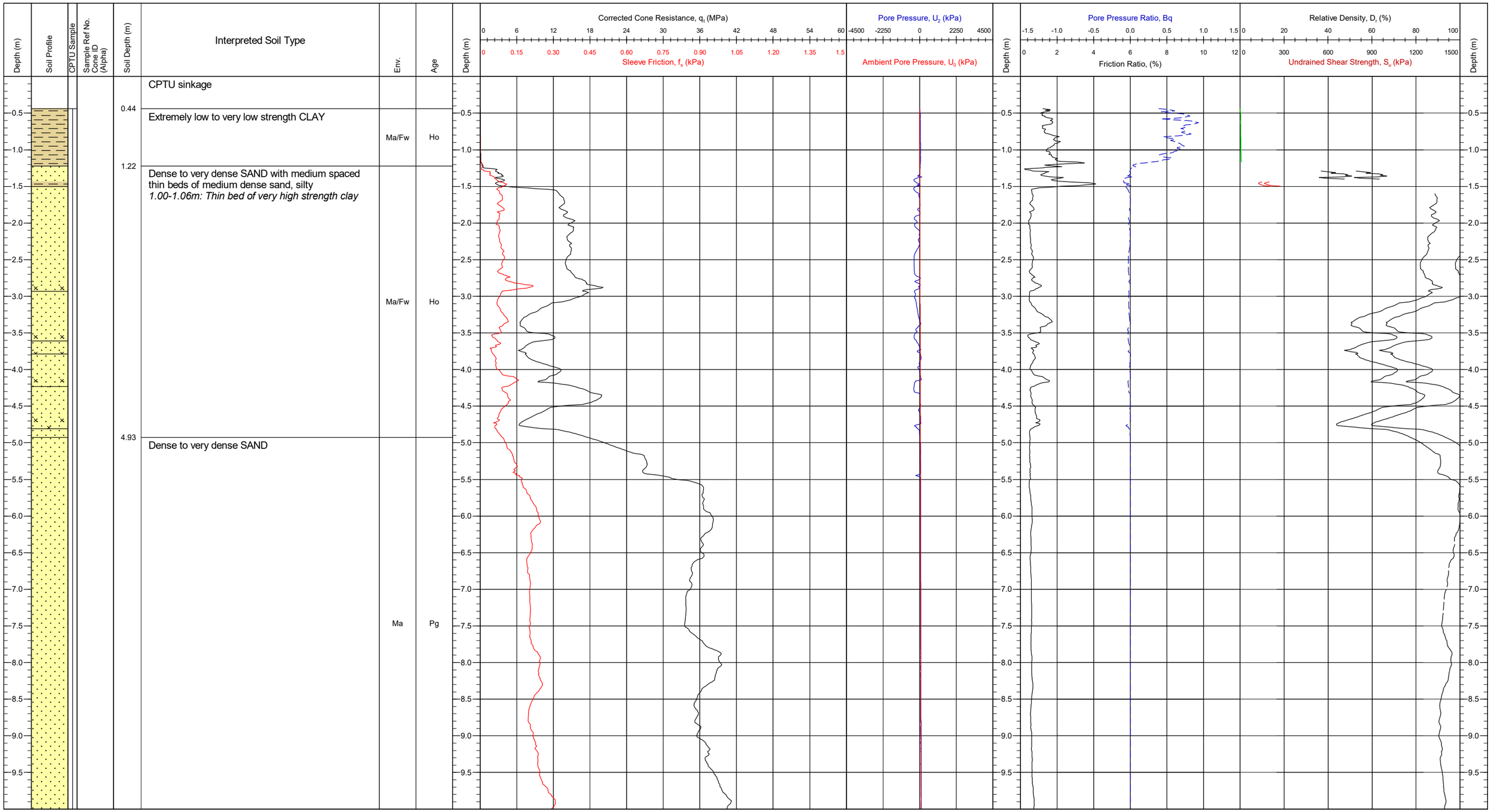
Area	**Kattegat Sea**	Coordinates	**674879.5E 6255586.4N**	CRS: **ETRS89**	QC Status: Preliminary / Draft / Final
Contract	**11596**	Water Depth (mMSL)	**30.6**	**Comments:** **Cone class 1. Continuous seabed CPT. Final depth 20.80m. Test was terminated at the operators discretion due to lack of lateral rod support from mudline~ resulting in a high risk of buckling rods when encountering very dense sands.**	**JK/BC** (27/04/2021) / **DR** (10/06/2021) / **SMc** (10/11/2021)
Client Name/Ref	**Energinet Eltransmission A/S/384_20_ENE**	Date of Test	**27/04/2021**		
Vessel	**MV Ocean Vantage**	Cone No.(type)/α Factor	**081208 (50cm²) / 0.78**		
Method	**20 kN Sea bed CPT**	Base Inclination	**X = 1.1° / Y = 1.0°**		

CPT Name: **CPT8**

Preliminary Investigation, Hesselø OWF

IN SITU CPTU TESTING

Soil Depth (m)	Interpreted Soil Type	Env.	Age
	CPTU sinkage		
0.44	Extremely low to very low strength CLAY	Ma/Fw	Ho
1.22	Dense to very dense SAND with medium spaced thin beds of medium dense sand, silty *1.00-1.06m: Thin bed of very high strength clay*	Ma/Fw	Ho
4.93	Dense to very dense SAND	Ma	Pg



KEY TO SOIL PROFILE

SILT · CLAY · SAND · GRAVEL · COBBLES · CHALK · PEAT · Mixed Soil

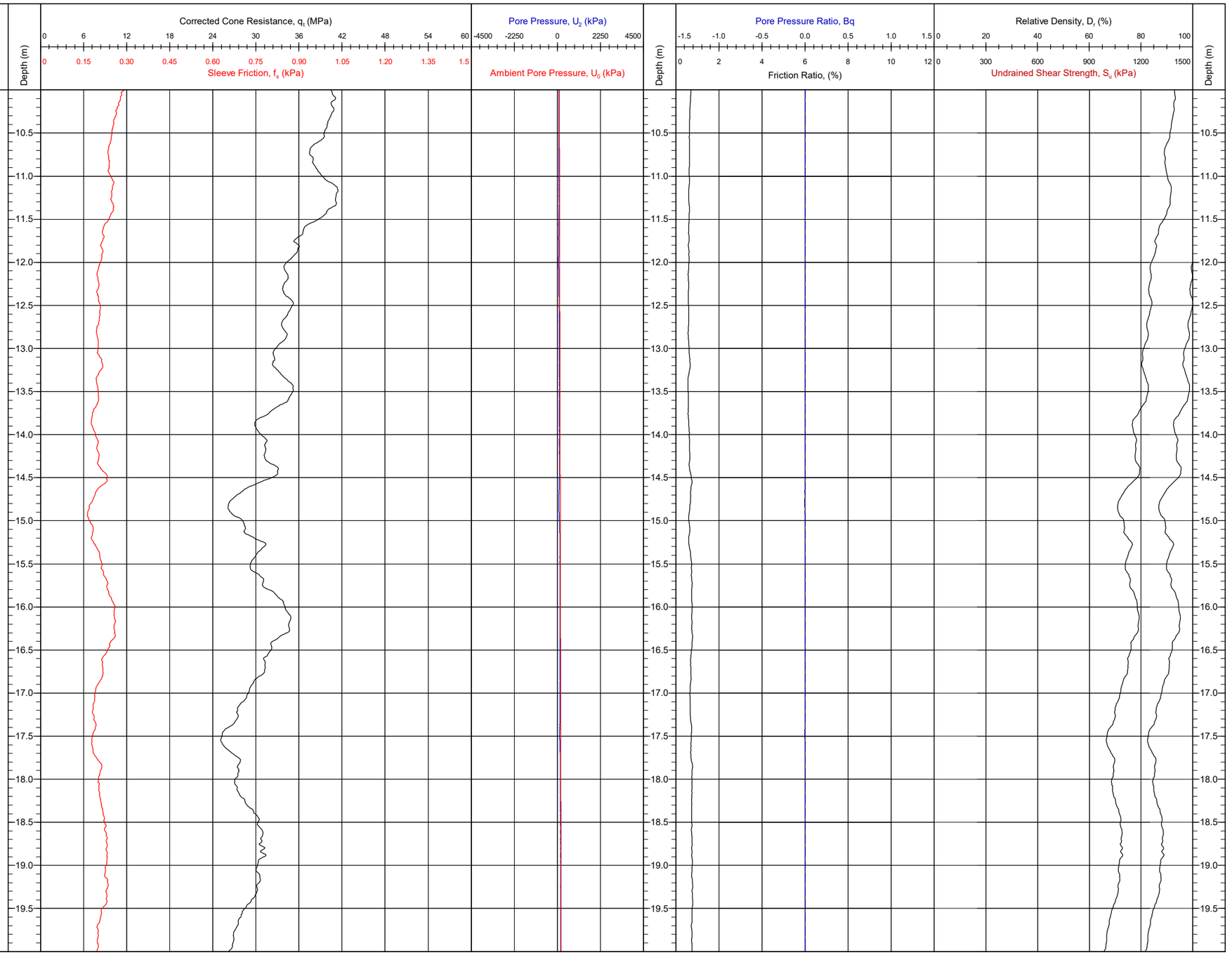
Assumed Unit Weight: 20 - 16 kN/m³
K_C: 0.5 - 2.0
N_{kt}: 12.5 - 16.5
$N_{\Delta u}$: 15 - 20
K_C: 0.5 - 2.0

Area	**Kattegat Sea**	Coordinates	**676157.0E 6257143.6N**	CRS: **ETRS89**	QC Status: Preliminary / Draft / Final
Contract	**11596**	Water Depth (mMSL)	**31.5**	**Comments:** **Cone Class 2. Continuous seabed CPT. Final depth 32.20m. Test was terminated due to increasing cone inclination~ SBF inclination and increasing total load.**	
Client Name/Ref	**Energinet Eltransmission A/S/384_20_ENE**	Date of Test	**26/04/2021**		
Vessel	**MV Ocean Vantage**	Cone No.(type)/α Factor	**130206 (50cm²) / 0.77**		**JK/BC (26/04/2021)** / **DR (10/06/2021)** / **SMc (10/11/2021)**
Method	**20 kN Sea bed CPT**	Base Inclination	**X = 1.5° / Y = 2.6°**		

CPT Name: **CPT9**

Preliminary Investigation, Hesselø OWF
IN SITU CPTU TESTING

Depth (m)	Soil Profile	CPTU Sample	Sample Ref No. Cone ID (Alpha)	Soil Depth (m)	Interpreted Soil Type	Env.	Age
10.5 – 19.5			1 130206(50) 0.77		Dense to very dense SAND	Ma	Pg



KEY TO SOIL PROFILE

SILT · CLAY · SAND · GRAVEL · COBBLES · CHALK · PEAT · Mixed Soil

Assumed Unit Weight: 20 - 16 kN/m³
K_c: 0.5 - 2.0
N_{kt}: 12.5 - 16.5
N_{ke}: 15 - 20
K_c: 0.5 - 2.0

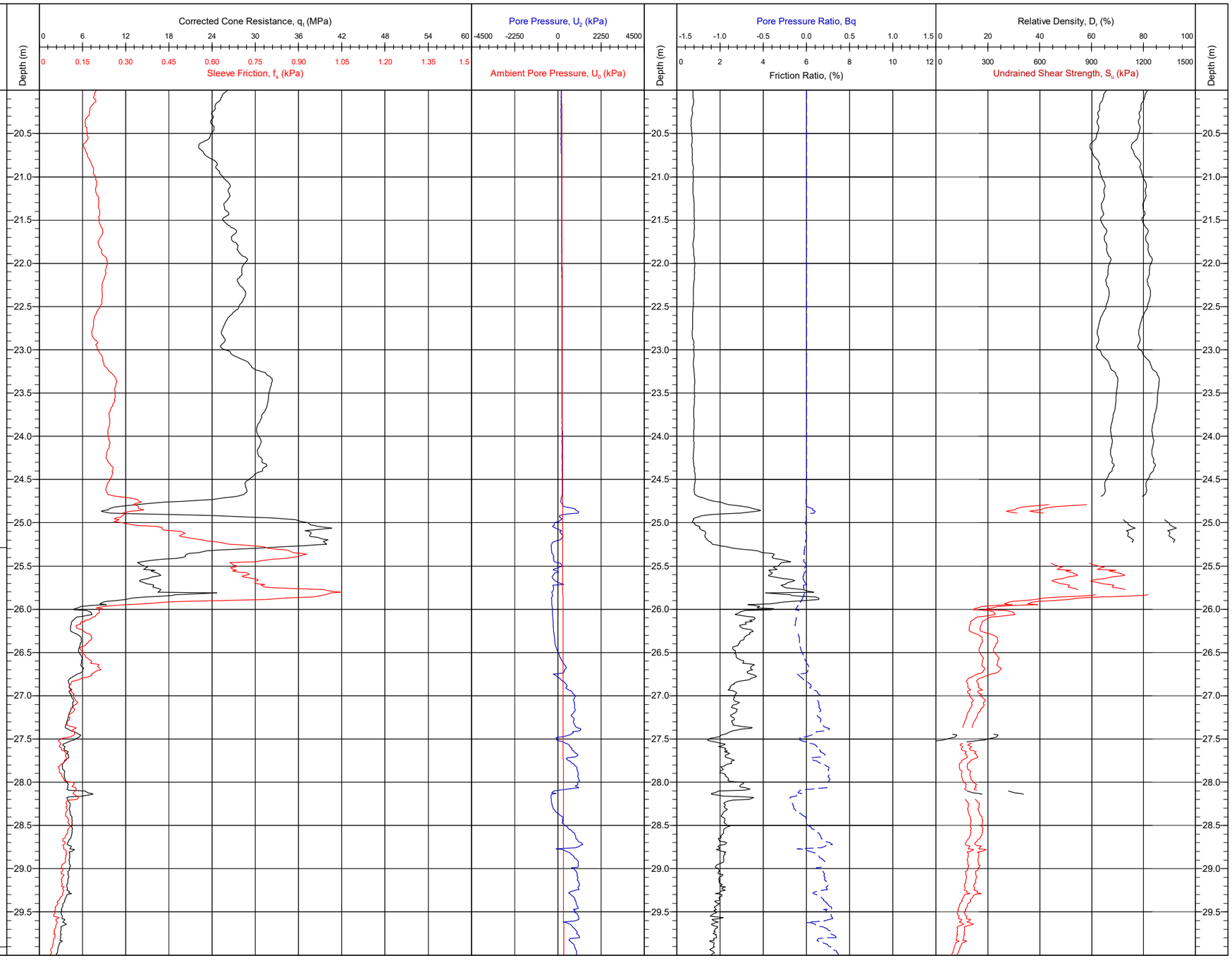
Area	**Kattegat Sea**	Coordinates	**676157.0E 6257143.6N**	CRS: **ETRS89**	QC Status: Preliminary / Draft / Final
Contract	**11596**	Water Depth (mMSL)	**31.5**	**Comments:** **Cone Class 2. Continuous seabed CPT. Final depth 32.20m. Test was terminated due to increasing cone inclination~ SBF inclination and increasing total load.**	
Client Name/Ref	**Energinet Eltransmission A/S/384_20_ENE**	Date of Test	**26/04/2021**		
Vessel	**MV Ocean Vantage**	Cone No.(type)/α Factor	**130206 (50cm²) / 0.77**		
Method	**20 kN Sea bed CPT**	Base Inclination	**X = 1.5° / Y = 2.6°**		

Preliminary	Draft	Final
JK/BC (26/04/2021)	**DR** (10/06/2021)	**SMc** (10/11/2021)

CPT Name: **CPT9**

Preliminary Investigation, Hesselø OWF
IN SITU CPTU TESTING

Depth (m)	Interpreted Soil Type	Env.	Age
	Dense to very dense SAND	Ma	Pg
	24.35-24.45m: Thin bed of extremely high strength clay, silty		
25.29	Very high to extremely high strength CLAY with medium spaced thin beds of loose to medium dense silty sand *24.86-25.57m: Thick bed of extremely high strength clay*	Ma/Fw	Pg
29.91		Ma/Fw	Pg



KEY TO SOIL PROFILE

SILT · CLAY · SAND · GRAVEL · COBBLES · CHALK · PEAT · Mixed Soil

Assumed Unit Weight: 20 - 16 kN/m³
K_C: 0.5 - 2.0
N_{kt}: 12.5 - 16.5
$N_{\Delta u}$: 15 - 20
K_D: 0.5 - 2.0

Area	**Kattegat Sea**	Coordinates	**676157.0E 6257143.6N**
Contract	**11596**	Water Depth (mMSL)	**31.5**
Client Name/Ref	**Energinet Eltransmission A/S/384_20_ENE**	Date of Test	**26/04/2021**
Vessel	**MV Ocean Vantage**	Cone No.(type)/α Factor	**130206 (50cm²) / 0.77**
Method	**20 kN Sea bed CPT**	Base Inclination	**X = 1.5° / Y = 2.6°**

CRS: **ETRS89**

Comments:
Cone Class 2. Continuous seabed CPT. Final depth 32.20m. Test was terminated due to increasing cone inclination~ SBF inclination and increasing total load.

QC Status		
Preliminary	Draft	Final
JK/BC (26/04/2021)	**DR** (10/06/2021)	**SMc** (10/11/2021)

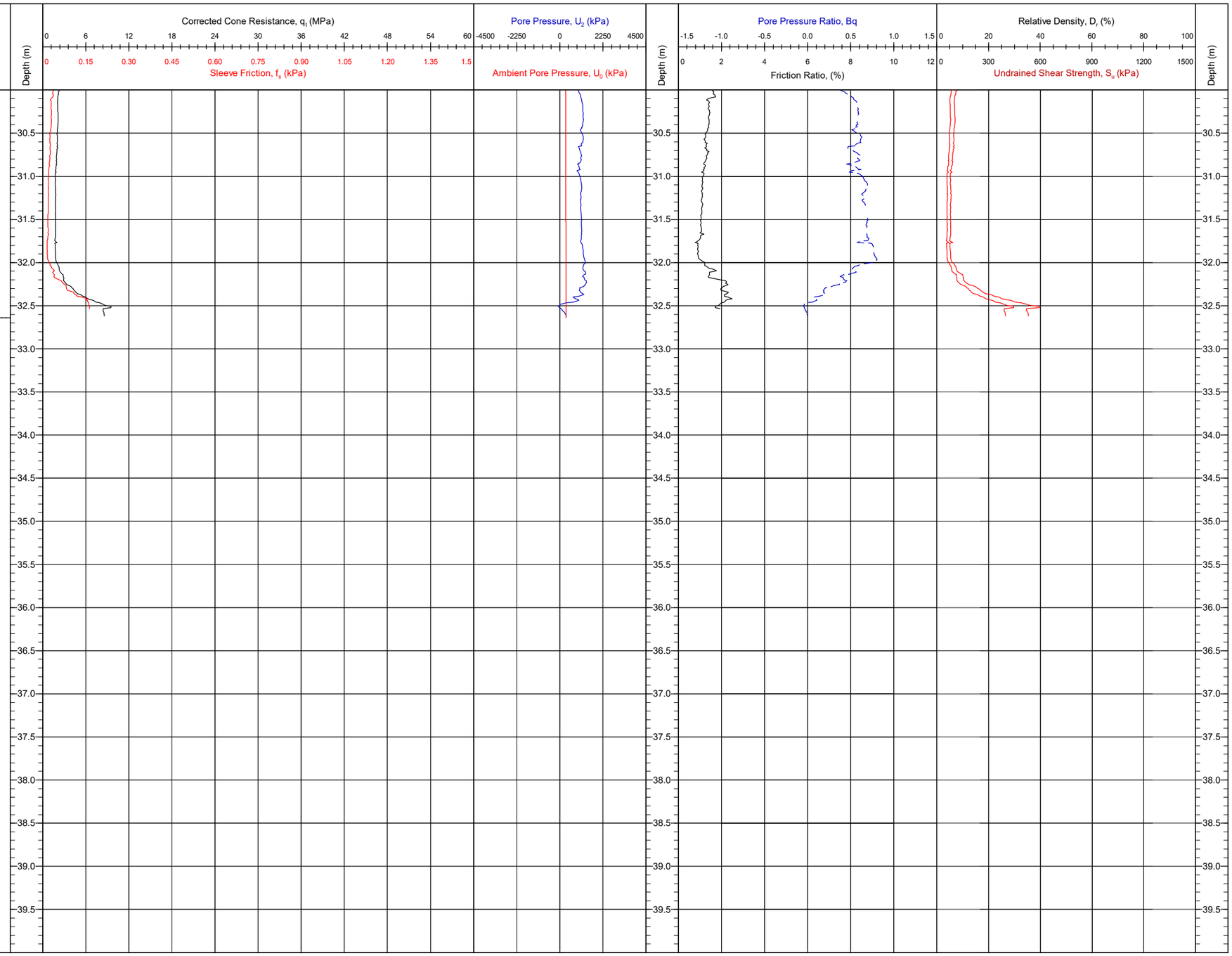
CPT Name

CPT9

Preliminary Investigation, Hesselø OWF

IN SITU CPTU TESTING

Soil Depth (m)	Interpreted Soil Type	Env.	Age
	High strength CLAY	Ma/Fw	Pg
32.64	*31.67-32.20m: Medium bed of very high to extremely high strength clay*		
	End of CPTU test at 32.64m		



KEY TO SOIL PROFILE

SILT · CLAY · SAND · GRAVEL · COBBLES · CHALK · PEAT · Mixed Soil

Assumed Unit Weight: 20 - 16 kN/m³
K_C 0.5 - 2.0
N_{kt} 12.5 - 16.5
N_{ke} 15 - 20
K_C 0.5 - 2.0

Area	**Kattegat Sea**	Coordinates	**676157.0E 6257143.6N**
Contract	**11596**	Water Depth (mMSL)	**31.5**
Client Name/Ref	**Energinet Eltransmission A/S/384_20_ENE**	Date of Test	**26/04/2021**
Vessel	**MV Ocean Vantage**	Cone No.(type)/α Factor	**130206 (50cm²) / 0.77**
Method	**20 kN Sea bed CPT**	Base Inclination	**X = 1.5° / Y = 2.6°**

CRS: **ETRS89**

Comments:
Cone Class 2. Continuous seabed CPT. Final depth 32.20m. Test was terminated due to increasing cone inclination~ SBF inclination and increasing total load.

QC Status		
Preliminary	Draft	Final
JK/BC (26/04/2021)	**DR** (10/06/2021)	**SMc** (10/11/2021)

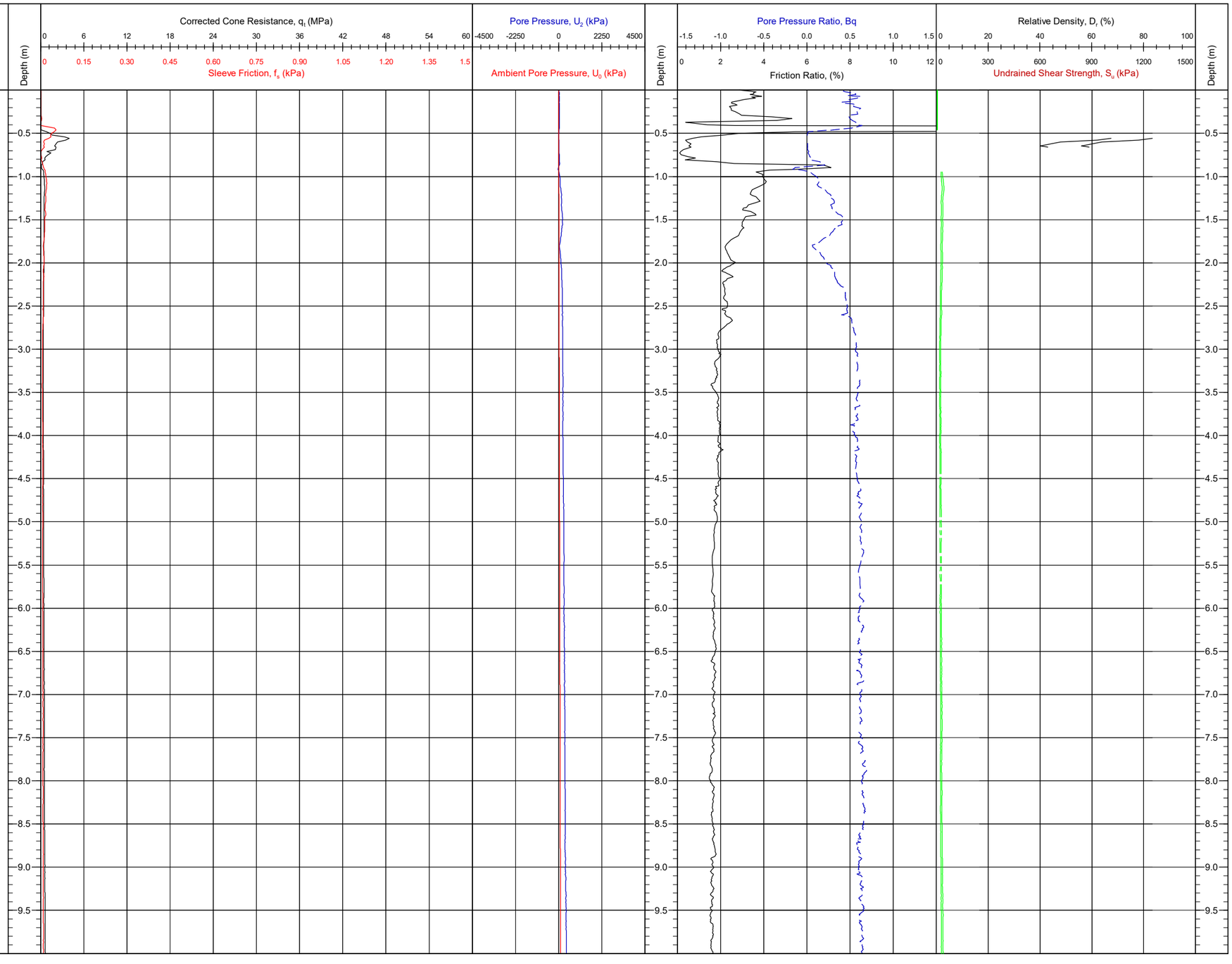
CPT Name

CPT9

Preliminary Investigation, Hesselø OWF

IN SITU CPTU TESTING

Depth (m)	Soil Profile	CPTU Sample	Sample Ref No. Cone ID (Alpha)	Soil Depth (m)	Interpreted Soil Type	Env.	Age
					Extremely low to very low strength becoming medium to high strength CLAY with widely to very widely spaced thin beds of loose to medium dense sand, silty *0.55-0.79m: Medium bed of medium dense to dense sand, silty*	Ma/Fw	Ho



KEY TO SOIL PROFILE

SILT · CLAY · SAND · GRAVEL · COBBLES · CHALK · PEAT · Mixed Soil

Assumed Unit Weight: 20 - 16 kN/m³
K_C 0.5 - 2.0
N_{kt} 12.5 - 16.5
$N_{\Delta u}$ 15 - 20
K_C 0.5 - 2.0

Area	**Kattegat Sea**	Coordinates	**678861.0E 6255157.8N**
Contract	**11596**	Water Depth (mMSL)	**31.6**
Client Name/Ref	**Energinet Eltransmission A/S/384_20_ENE**	Date of Test	**26/04/2021**
Vessel	**MV Ocean Vantage**	Cone No.(type)/α Factor	**100976 (50cm²) / 0.78**
Method	**20 kN Sea bed CPT**	Base Inclination	**X = 0.0° / Y = -0.1°**

CRS: **ETRS89**

Comments:
Cone class 2. Continuous seabed CPT. Final depth 37.29m. Test terminated due to increasing total force~ increasing cone inclination and a lack of lateral rod support from mudline

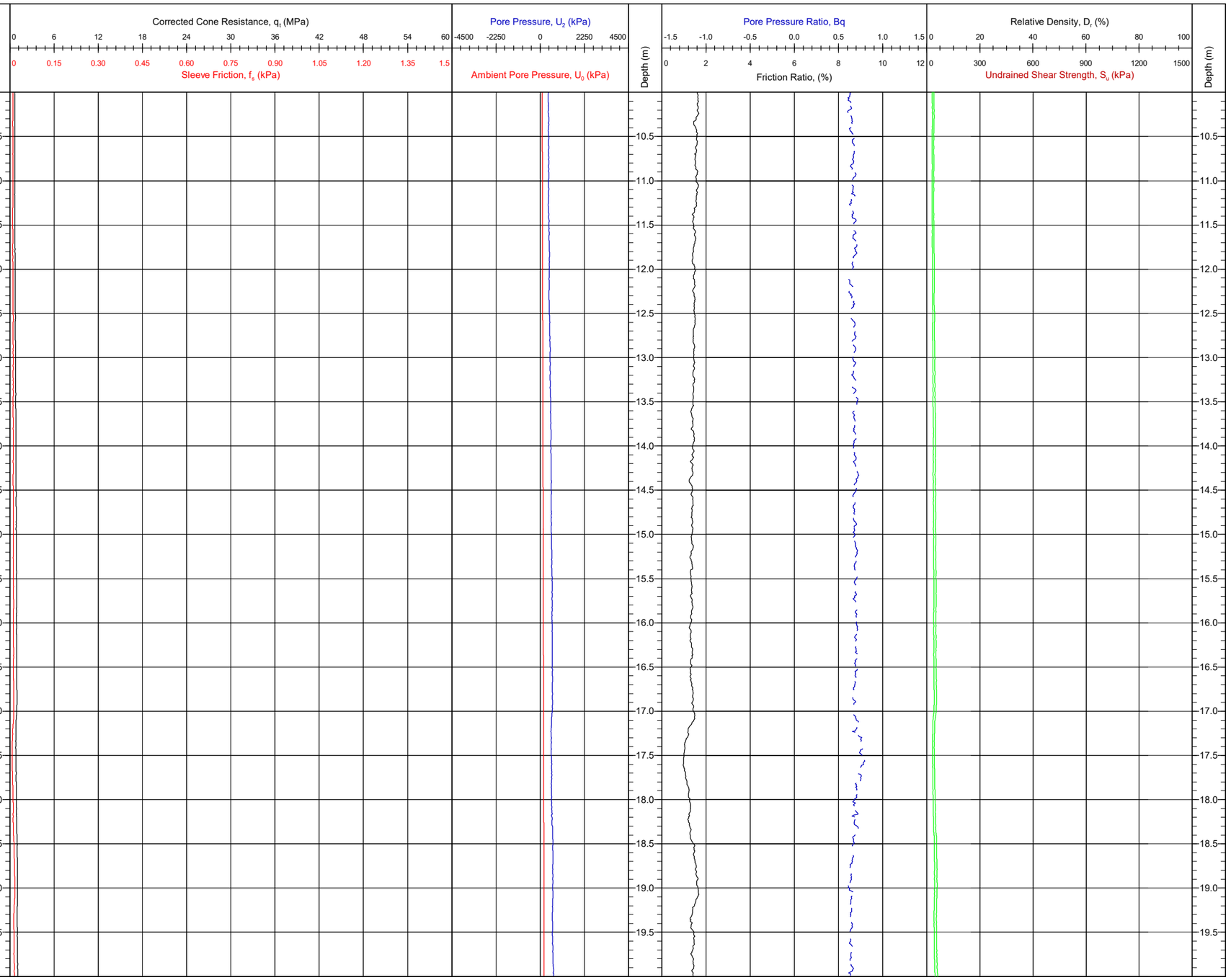
QC Status	Preliminary	Draft	Final
	JK/BC (28/04/2021)	**DR** (10/06/2021)	**SMc** (10/11/2021)

CPT Name

CPT10

Preliminary Investigation, Hesselø OWF
IN SITU CPTU TESTING

Depth (m)	Soil Profile	CPTU Sample	Sample Ref No. Cone ID (Alpha)	Soil Depth (m)	Interpreted Soil Type	Env.	Age
10.5 – 19.5			1 100976(50) 0.78		Extremely low to very low strength becoming medium to high strength CLAY with widely to very widely spaced thin beds of loose to medium dense sand, silty	Ma/Fw	Ho



KEY TO SOIL PROFILE

SILT · CLAY · SAND · GRAVEL · COBBLES · CHALK · PEAT · Mixed Soil

Assumed Unit Weight: 20 - 16 kN/m³
$K_{c'}$ 0.5 - 2.0
N_{kt} 12.5 - 16.5
$N_{\Delta u}$ 15 - 20
K_c 0.5 - 2.0

Area	**Kattegat Sea**	Coordinates	**678861.0E 6255157.8N**
Contract	**11596**	Water Depth (mMSL)	**31.6**
Client Name/Ref	**Energinet Eltransmission A/S/384_20_ENE**	Date of Test	**26/04/2021**
Vessel	**MV Ocean Vantage**	Cone No.(type)/α Factor	**100976 (50cm²) / 0.78**
Method	**20 kN Sea bed CPT**	Base Inclination	**X = 0.0° / Y = -0.1°**

CRS: **ETRS89**

Comments:
Cone class 2. Continuous seabed CPT. Final depth 37.29m. Test terminated due to increasing total force~ increasing cone inclination and a lack of lateral rod support from mudline

QC Status		
Preliminary	Draft	Final
JK/BC (28/04/2021)	**DR** (10/06/2021)	**SMc** (10/11/2021)

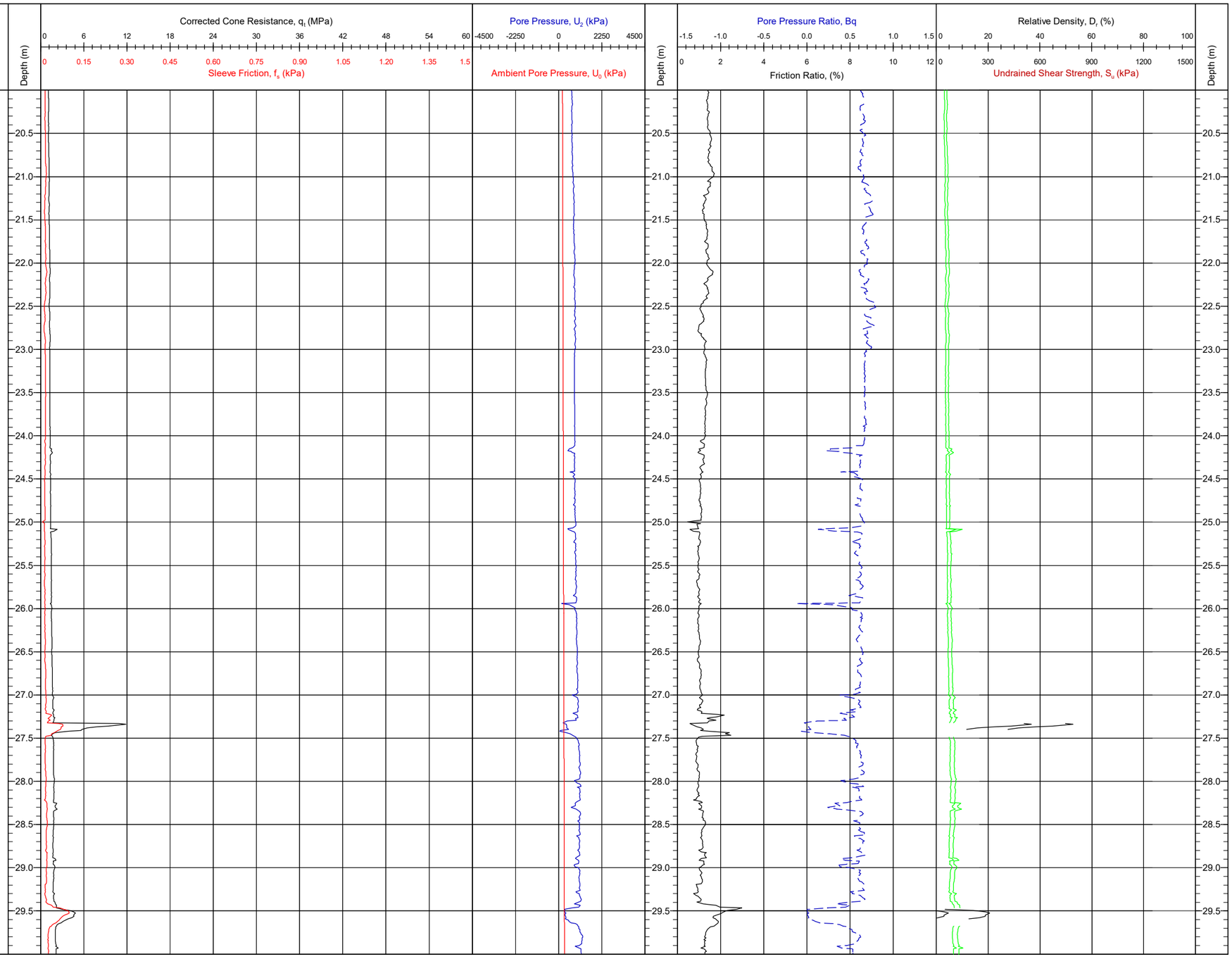
CPT Name

CPT10

Preliminary Investigation, Hesselø OWF

IN SITU CPTU TESTING

Depth (m)	Soil Profile	CPTU Sample	Sample Ref No. Cone ID (Alpha)	Soil Depth (m)	Interpreted Soil Type	Env.	Age
20.5					Extremely low to very low strength becoming medium to high strength CLAY with widely to very widely spaced thin beds of loose to medium dense sand, silty		
21.0							
21.5							
22.0							
22.5							
23.0							
23.5							
24.0							
24.5							
25.0						Ma/Fw	Ho
25.5							
26.0							
26.5							
27.0							
27.5					*27.37-27.44m: Thin bed of medium dense to dense sand, silty*		
28.0							
28.5							
29.0							
29.5							



KEY TO SOIL PROFILE

SILT · CLAY · SAND · GRAVEL · COBBLES · CHALK · PEAT · Mixed Soil

Assumed Unit Weight: 20 - 16 kN/m³
K_C: 0.5 - 2.0
N_{KT}: 12.5 - 16.5
$N_{\Delta U}$: 15 - 20
K_C: 0.5 - 2.0

Area	**Kattegat Sea**	Coordinates	**678861.0E 6255157.8N**	CRS: **ETRS89**	
Contract	**11596**	Water Depth (mMSL)	**31.6**	**Comments:** **Cone class 2. Continuous seabed CPT. Final depth 37.29m. Test terminated due to increasing total force~ increasing cone inclination and a lack of lateral rod support from mudline**	
Client Name/Ref	**Energinet Eltransmission A/S/384_20_ENE**	Date of Test	**26/04/2021**		
Vessel	**MV Ocean Vantage**	Cone No.(type)/α Factor	**100976 (50cm²) / 0.78**		
Method	**20 kN Sea bed CPT**	Base Inclination	**X = 0.0° / Y = -0.1°**		

QC Status		
Preliminary	Draft	Final
JK/BC (28/04/2021)	**DR** (10/06/2021)	**SMc** (10/11/2021)

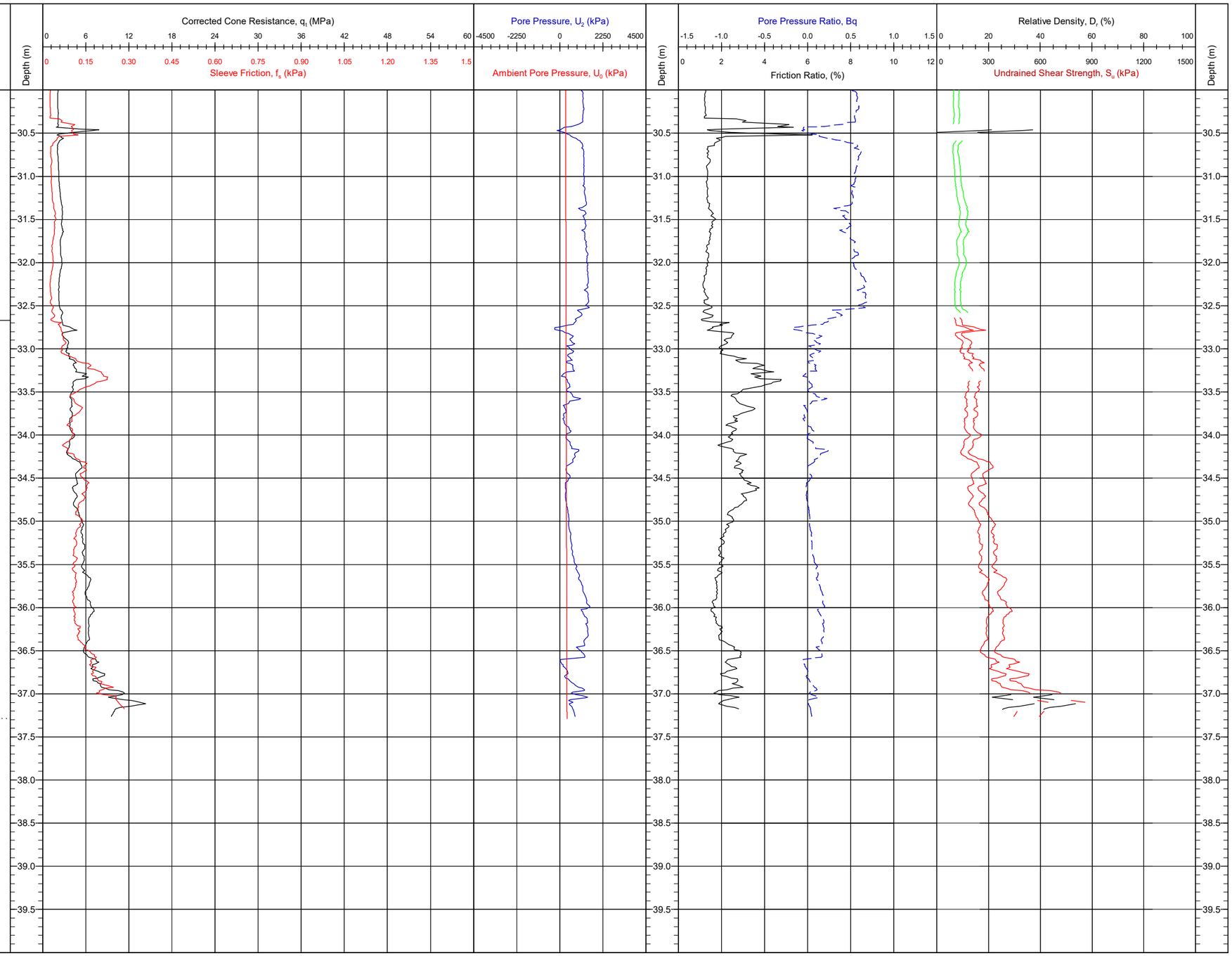
CPT Name

CPT10

Preliminary Investigation, Hesselø OWF

IN SITU CPTU TESTING

Soil Depth (m)	Interpreted Soil Type	Env.	Age
	Extremely low to very low strength becoming medium to high strength CLAY with widely to very widely spaced thin beds of loose to medium dense sand, silty	Ma/Fw	Ho
32.67	High to very high strength becoming very high to extremely high strength CLAY, sandy, with very closely spaced thin beds of loose to medium dense sand, silty *33.27-33.35m: Thin bed of gravel*	Ma/Fw	Lg
	End of CPTU test at 37.29m		



KEY TO SOIL PROFILE

SILT · CLAY · SAND · GRAVEL · COBBLES · CHALK · PEAT · Mixed Soil

Assumed Unit Weight: 20 - 16 kN/m³
K_C 0.5 - 2.0
N_{KT} 12.5 - 16.5
$N_{\Delta U}$ 15 - 20
K_S 0.5 - 2.0

Area	**Kattegat Sea**	Coordinates	**678861.0E 6255157.8N**
Contract	**11596**	Water Depth (mMSL)	**31.6**
Client Name/Ref	**Energinet Eltransmission A/S/384_20_ENE**	Date of Test	**26/04/2021**
Vessel	**MV Ocean Vantage**	Cone No.(type)/α Factor	**100976 (50cm²) / 0.78**
Method	**20 kN Sea bed CPT**	Base Inclination	**X = 0.0° / Y = -0.1°**

CRS: **ETRS89**

Comments:
Cone class 2. Continuous seabed CPT. Final depth 37.29m. Test terminated due to increasing total force~ increasing cone inclination and a lack of lateral rod support from mudline

QC Status	Preliminary	Draft	Final
	JK/BC (28/04/2021)	DR (10/06/2021)	SMc (10/11/2021)

CPT Name

CPT10

Preliminary Investigation, Hesselø OWF

IN SITU CPTU TESTING

Soil Depth (m)	Interpreted Soil Type	Env.	Age
0.18	CPTU sinkage		
0.34	Extremely low strength CLAY	Ma/Fw	Ho
	Very low to low strength CLAY	Ma/Fw	Ho
2.67	Very dense clayey SAND	Ma	Ho
	3.84-3.90m: Thin bed of gravel		
	End of CPTU test at 4.15m		

Sample Ref No. / Cone ID (Alpha): 1 / 181004(50) / 0.81

Corrected Cone Resistance, q_t (MPa) 0 6 12 18 24 30 36 42 48 54 60

Sleeve Friction, f_s (kPa) 0 0.15 0.30 0.45 0.60 0.75 0.90 1.05 1.20 1.35 1.5

Pore Pressure, U_2 (kPa) -4500 -2250 0 2250 4500

Ambient Pore Pressure, U_0 (kPa)

Pore Pressure Ratio, Bq -1.5 -1.0 -0.5 0.0 0.5 1.0 1.5

Friction Ratio, (%) 0 2 4 6 8 10 12

Relative Density, D_r (%) 0 20 40 60 80 100

Undrained Shear Strength, S_u (kPa) 0 300 600 900 1200 1500

KEY TO SOIL PROFILE

SILT, CLAY, SAND, GRAVEL, COBBLES, CHALK, PEAT, Mixed Soil

Assumed Unit Weight: 20 - 16 kN/m³
K_C 0.5 - 2.0
N_{kt} 12.5 - 16.5
$N_{\Delta u}$ 15 - 20
K_C 0.5 - 2.0

Area	**Kattegat Sea**	Coordinates	**666385.9E 6259321.6N**
Contract	**11596**	Water Depth (mMSL)	**28.8**
Client Name/Ref	**Energinet Eltransmission A/S/384_20_ENE**	Date of Test	**29/04/2021**
Vessel	**MV Ocean Vantage**	Cone No.(type)/α Factor	**181004 (50cm²) / 0.81**
Method	**20 kN Sea bed CPT**	Base Inclination	**X = 1.1° / Y = 0.9°**

CRS: **ETRS89**

Comments:
Cone class 1. Continuous seabed CPT. Final depth 3.97m. Test terminated due to a maximum sleeve friction refusal.

QC Status		
Preliminary	Draft	Final
JK/BC (29/04/2021)	**DR** (10/06/2021)	**SMc** (10/11/2021)

CPT Name: **CPT11**

Preliminary Investigation, Hesselø OWF

IN SITU CPTU TESTING

Soil Depth (m)	Interpreted Soil Type	Env.	Age
0.18	CPTU sinkage		
	Extremely low to very low strength CLAY	Ma/Fw	Ho
2.61	Very dense clayey SAND	Ma/Fw	Ho
4.11	Low to medium strength CLAY with widely to very widely spaced thin beds of clay, sandy	Ma/Fw	Pg

Corrected Cone Resistance, q_t (MPa) / Sleeve Friction, f_s (kPa)

Pore Pressure, U_2 (kPa) / Ambient Pore Pressure, U_0 (kPa)

Pore Pressure Ratio, Bq / Friction Ratio, (%)

Relative Density, D_r (%) / Undrained Shear Strength, S_u (kPa)

KEY TO SOIL PROFILE

SILT, CLAY, SAND, GRAVEL, COBBLES, CHALK, PEAT, Mixed Soil

Assumed Unit Weight: 20 - 16 kN/m³
K_C: 0.5 - 2.0
N_{KT}: 12.5 - 16.5
$N_{\Delta u}$: 15 - 20
K_C: 0.5 - 2.0

Area	**Kattegat Sea**	Coordinates	**666386.2E 6259316.5N**
Contract	**11596**	Water Depth (mMSL)	**28.7**
Client Name/Ref	**Energinet Eltransmission A/S/384_20_ENE**	Date of Test	**29/04/2021**
Vessel	**MV Ocean Vantage**	Cone No.(type)/α Factor	**181004 (50cm²) / 0.81**
Method	**20 kN Sea bed CPT**	Base Inclination	**X = 1.1° / Y = 1.0°**

CRS: **ETRS89**

Comments:
Cone class 2. Continuous seabed CPT. Final depth 43.46m. Test terminated at operators discretion due to high inclination~ total load and risk of rod bend

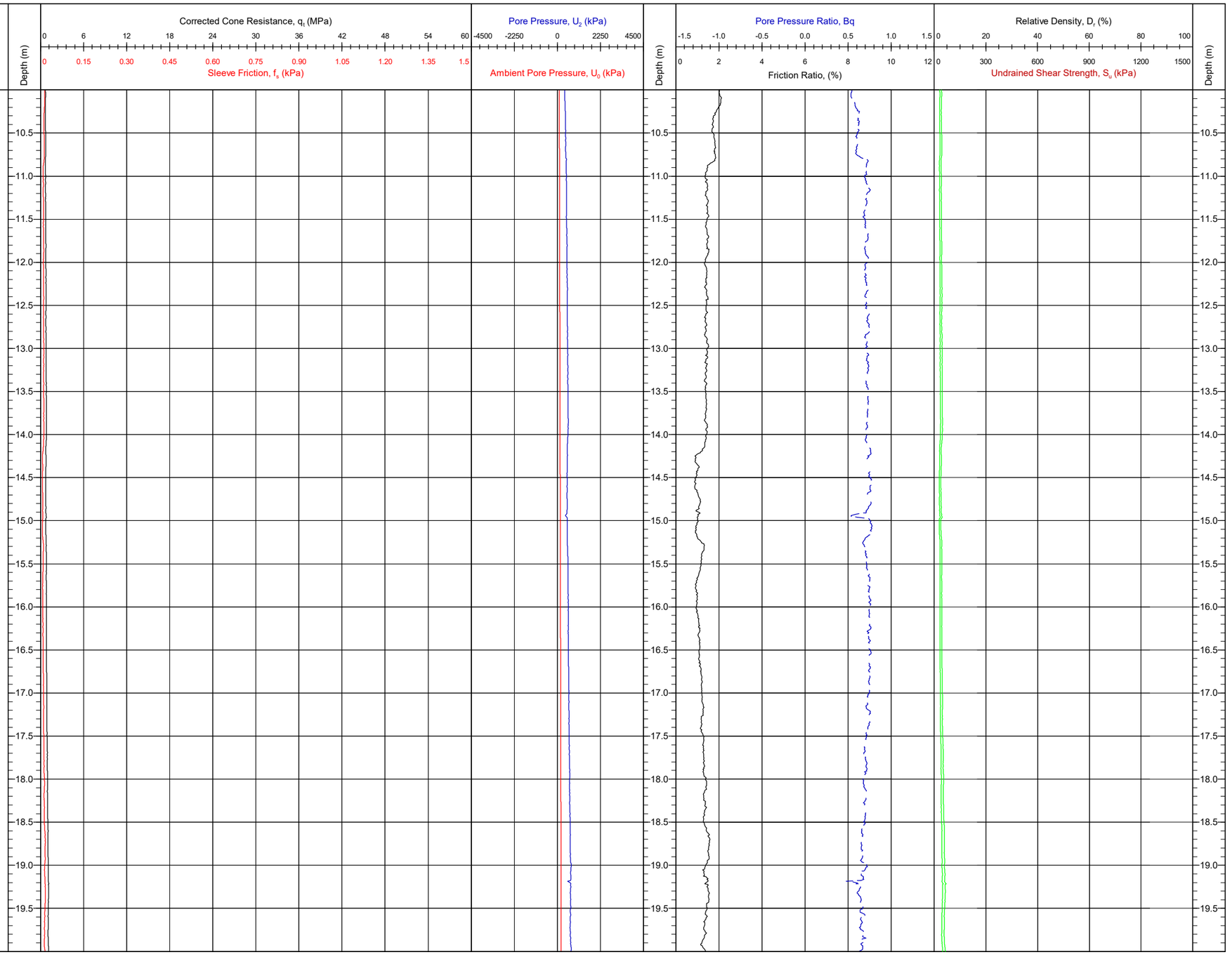
QC Status	Preliminary	Draft	Final
	JK/BC (29/04/2021)	**DR** (10/06/2021)	**SMc** (10/11/2021)

CPT Name: **CPT11a**

Preliminary Investigation, Hesselø OWF

IN SITU CPTU TESTING

Depth (m)	Soil Profile	CPTU Sample	Sample Ref No. Cone ID (Alpha)	Soil Depth (m)	Interpreted Soil Type	Env.	Age
10.5 – 19.5					Low to medium strength CLAY with widely to very widely spaced thin beds of clay, sandy	Ma/Fw	Pg



KEY TO SOIL PROFILE

SILT · CLAY · SAND · GRAVEL · COBBLES · CHALK · PEAT · Mixed Soil

Assumed Unit Weight: 20 - 16 kN/m³
K_c 0.5 - 2.0
N_{kt} 12.5 - 16.5
$N_{\Delta u}$ 15 - 20
K_c 0.5 - 2.0

Area	**Kattegat Sea**	Coordinates	**666386.2E 6259316.5N**	CRS: **ETRS89**	QC Status: Preliminary / Draft / Final
Contract	**11596**	Water Depth (mMSL)	**28.7**	**Comments:** **Cone class 2. Continuous seabed CPT. Final depth 43.46m. Test terminated at operators discretion due to high inclination~ total load and risk of rod bend**	
Client Name/Ref	**Energinet Eltransmission A/S/384_20_ENE**	Date of Test	**29/04/2021**		
Vessel	**MV Ocean Vantage**	Cone No.(type)/α Factor	**181004 (50cm²) / 0.81**		
Method	**20 kN Sea bed CPT**	Base Inclination	**X = 1.1° / Y = 1.0°**		

Preliminary	Draft	Final
JK/BC (29/04/2021)	**DR** (10/06/2021)	**SMc** (10/11/2021)

CPT Name: **CPT11a**

Preliminary Investigation, Hesselø OWF

IN SITU CPTU TESTING

Depth (m)	Soil Profile	CPTU Sample	Sample Ref No. Cone ID (Alpha)	Soil Depth (m)	Interpreted Soil Type	Env.	Age
20.5 – 21.60			1 181004(50) 0.81		Low to medium strength CLAY with widely to very widely spaced thin beds of clay, sandy	Ma/Fw	Pg
21.60 – 29.5				21.60	High strength CLAY	Ma/Fw	Lg

Corrected Cone Resistance, q_t (MPa): 0 6 12 18 24 30 36 42 48 54 60

Sleeve Friction, f_s (kPa): 0 0.15 0.30 0.45 0.60 0.75 0.90 1.05 1.20 1.35 1.5

Pore Pressure, U_2 (kPa): -4500 -2250 0 2250 4500

Ambient Pore Pressure, U_0 (kPa)

Pore Pressure Ratio, Bq: -1.5 -1.0 -0.5 0.0 0.5 1.0 1.5

Friction Ratio, (%): 0 2 4 6 8 10 12

Relative Density, D_r (%): 0 20 40 60 80 100

Undrained Shear Strength, S_u (kPa): 0 300 600 900 1200 1500

KEY TO SOIL PROFILE

SILT, CLAY, SAND, GRAVEL, COBBLES, CHALK, PEAT, Mixed Soil

Assumed Unit Weight: 20 - 16 kN/m³
K_D: 0.5 - 2.0
N_{kt}: 12.5 - 16.5
N_{Bq}: 15 - 20
K_D: 0.5 - 2.0

Area	**Kattegat Sea**	Coordinates	**666386.2E 6259316.5N**
Contract	**11596**	Water Depth (mMSL)	**28.7**
Client Name/Ref	**Energinet Eltransmission A/S/384_20_ENE**	Date of Test	**29/04/2021**
Vessel	**MV Ocean Vantage**	Cone No.(type)/α Factor	**181004 (50cm²) / 0.81**
Method	**20 kN Sea bed CPT**	Base Inclination	**X = 1.1° / Y = 1.0°**

CRS: **ETRS89**

Comments:
Cone class 2. Continuous seabed CPT. Final depth 43.46m. Test terminated at operators discretion due to high inclination~ total load and risk of rod bend

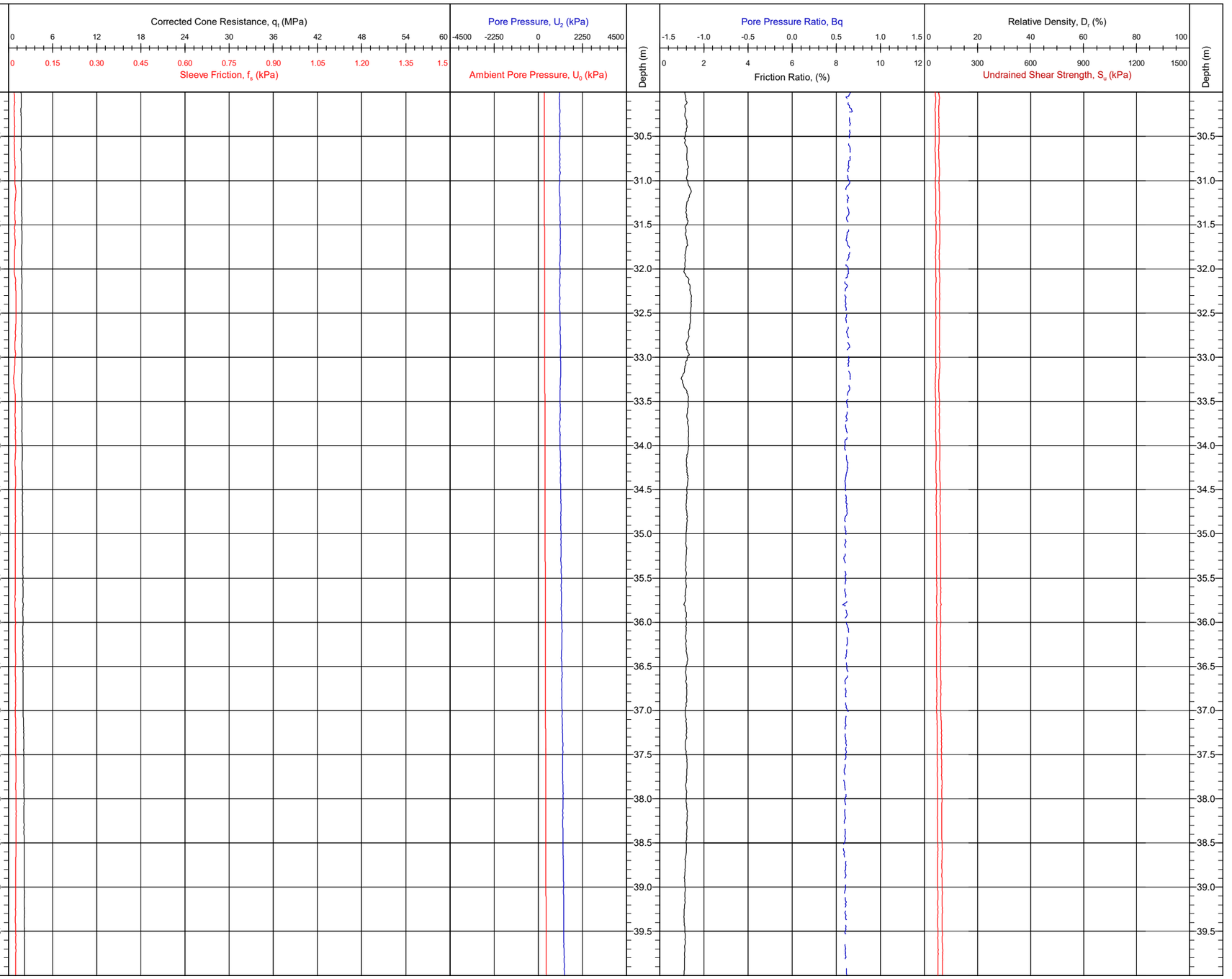
QC Status	Preliminary	Draft	Final
	JK/BC (29/04/2021)	**DR** (10/06/2021)	**SMc** (10/11/2021)

CPT Name: **CPT11a**

Preliminary Investigation, Hesselø OWF

IN SITU CPTU TESTING

Depth (m)	Soil Profile	CPTU Sample	Sample Ref No. Cone ID (Alpha)	Soil Depth (m)	Interpreted Soil Type	Env.	Age
30.5					High strength CLAY		
31.0							
31.5							
32.0							
32.5							
33.0							
33.5							
34.0							
34.5							
35.0						Ma/Fw	Lg
35.5							
36.0							
36.5							
37.0							
37.5							
38.0							
38.5							
39.0							
39.5							



KEY TO SOIL PROFILE

SILT · CLAY · SAND · GRAVEL · COBBLES · CHALK · PEAT · Mixed Soil

Assumed Unit Weight: 20 - 16 kN/m³
K_0: 0.5 - 2.0
N_{kt}: 12.5 - 16.5
$N_{\Delta u}$: 15 - 20
K_0: 0.5 - 2.0

Area	**Kattegat Sea**	Coordinates	**666386.2E 6259316.5N**	CRS: **ETRS89**	QC Status
Contract	**11596**	Water Depth (mMSL)	**28.7**	**Comments:** **Cone class 2. Continuous seabed CPT. Final depth 43.46m. Test terminated at operators discretion due to high inclination~ total load and risk of rod bend**	Preliminary: **JK/BC** (29/04/2021) · Draft: **DR** (10/06/2021) · Final: **SMc** (10/11/2021)
Client Name/Ref	**Energinet Eltransmission A/S/384_20_ENE**	Date of Test	**29/04/2021**		
Vessel	**MV Ocean Vantage**	Cone No.(type)/α Factor	**181004 (50cm²) / 0.81**		
Method	**20 kN Sea bed CPT**	Base Inclination	**X = 1.1° / Y = 1.0°**		

CPT Name: **CPT11a**

Preliminary Investigation, Hesselø OWF

IN SITU CPTU TESTING

Soil Depth (m)	Interpreted Soil Type	Env.	Age
		Ma/Fw	Lg
40.12	High to very high strength CLAY, silty	Ma/Fw	Lg
	End of CPTU test at 43.68m		

Corrected Cone Resistance, q_t (MPa) / Sleeve Friction, f_s (kPa)

Pore Pressure, U_2 (kPa) / Ambient Pore Pressure, U_0 (kPa)

Pore Pressure Ratio, Bq / Friction Ratio, (%)

Relative Density, D_r (%) / Undrained Shear Strength, S_u (kPa)

KEY TO SOIL PROFILE

SILT, CLAY, SAND, GRAVEL, COBBLES, CHALK, PEAT, Mixed Soil

Assumed Unit Weight: 20 - 16 kN/m³
K_C 0.5 - 2.0
N_{kt} 12.5 - 16.5
$N_{\Delta u}$ 15 - 20
K_C 0.5 - 2.0

Area	**Kattegat Sea**	Coordinates	**666386.2E 6259316.5N**
Contract	**11596**	Water Depth (mMSL)	**28.7**
Client Name/Ref	**Energinet Eltransmission A/S/384_20_ENE**	Date of Test	**29/04/2021**
Vessel	**MV Ocean Vantage**	Cone No.(type)/α Factor	**181004 (50cm²) / 0.81**
Method	**20 kN Sea bed CPT**	Base Inclination	**X = 1.1° / Y = 1.0°**

CRS: **ETRS89**

Comments:
Cone class 2. Continuous seabed CPT. Final depth 43.46m. Test terminated at operators discretion due to high inclination~ total load and risk of rod bend

QC Status		
Preliminary	Draft	Final
JK/BC (29/04/2021)	**DR** (10/06/2021)	**SMc** (10/11/2021)

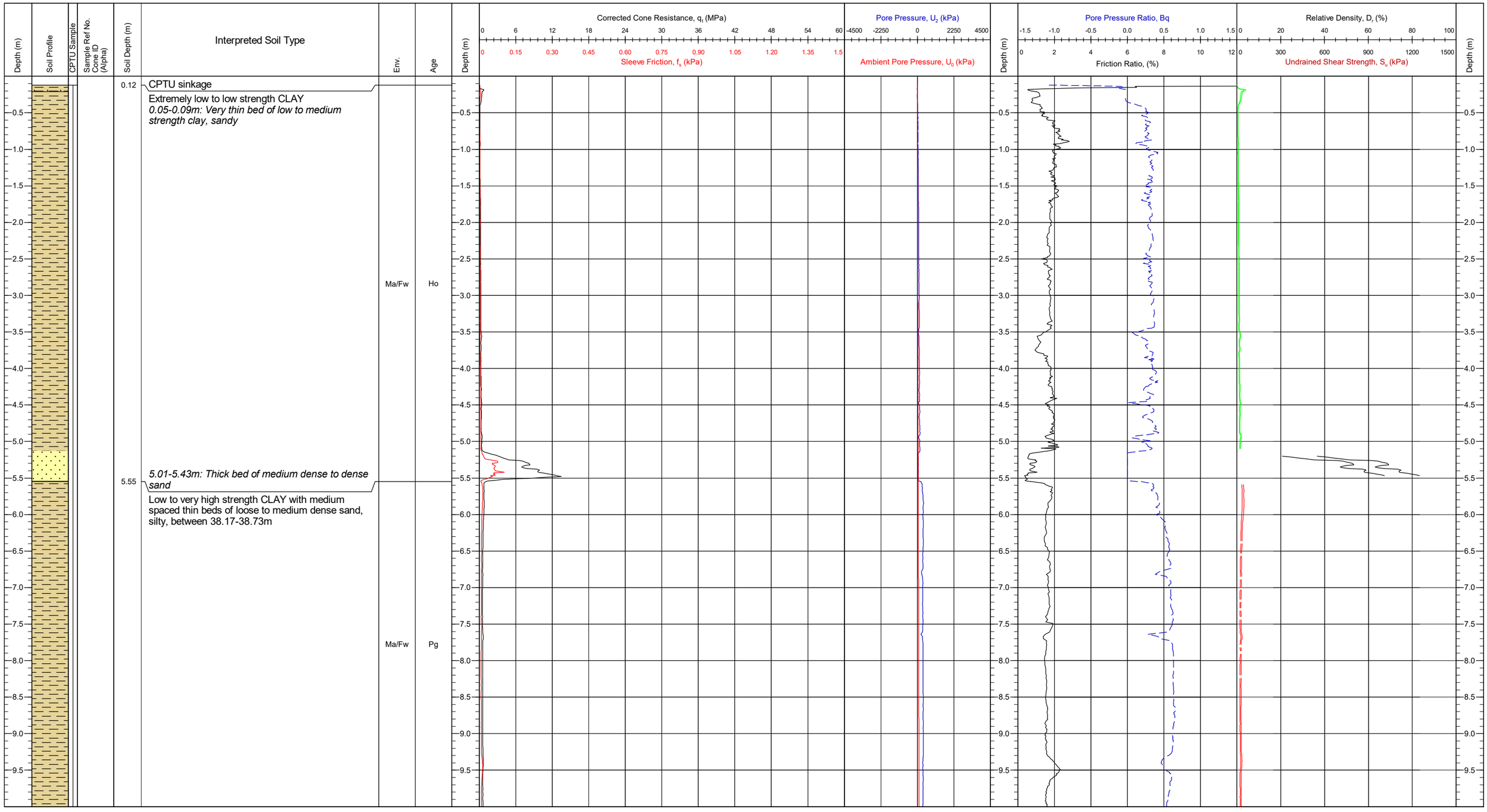
CPT Name

CPT11a

Preliminary Investigation, Hesselø OWF

IN SITU CPTU TESTING

Soil Depth (m)	Interpreted Soil Type	Env.	Age
0.12	CPTU sinkage Extremely low to low strength CLAY *0.05-0.09m: Very thin bed of low to medium strength clay, sandy*	Ma/Fw	Ho
5.55	*5.01-5.43m: Thick bed of medium dense to dense sand* Low to very high strength CLAY with medium spaced thin beds of loose to medium dense sand, silty, between 38.17-38.73m	Ma/Fw	Pg



KEY TO SOIL PROFILE

SILT · CLAY · SAND · GRAVEL · COBBLES · CHALK · PEAT · Mixed Soil

Assumed Unit Weight: 20 - 16 kN/m³
K_0: 0.5 - 2.0
N_{kt}: 12.5 - 16.5
N_{ke}: 15 - 20
K_0: 0.5 - 2.0

Area	**Kattegat Sea**	Coordinates	**668527.9E 6259970.0N**	CRS: **ETRS89**	QC Status: Preliminary / Draft / Final
Contract	**11596**	Water Depth (mMSL)	**26.1**	**Comments:** **Cone class 2. Continuous seabed CPT. Final depth 39.53m. Test terminated at operators discretion due to high inclination~ total load and risk of rod bend**	
Client Name/Ref	**Energinet Eltransmission A/S/384_20_ENE**	Date of Test	**29/04/2021**		
Vessel	**MV Ocean Vantage**	Cone No.(type)/α Factor	**181005 (50cm²) / 0.73**		
Method	**20 kN Sea bed CPT**	Base Inclination	**X = 1.2° / Y = 0.8°**		

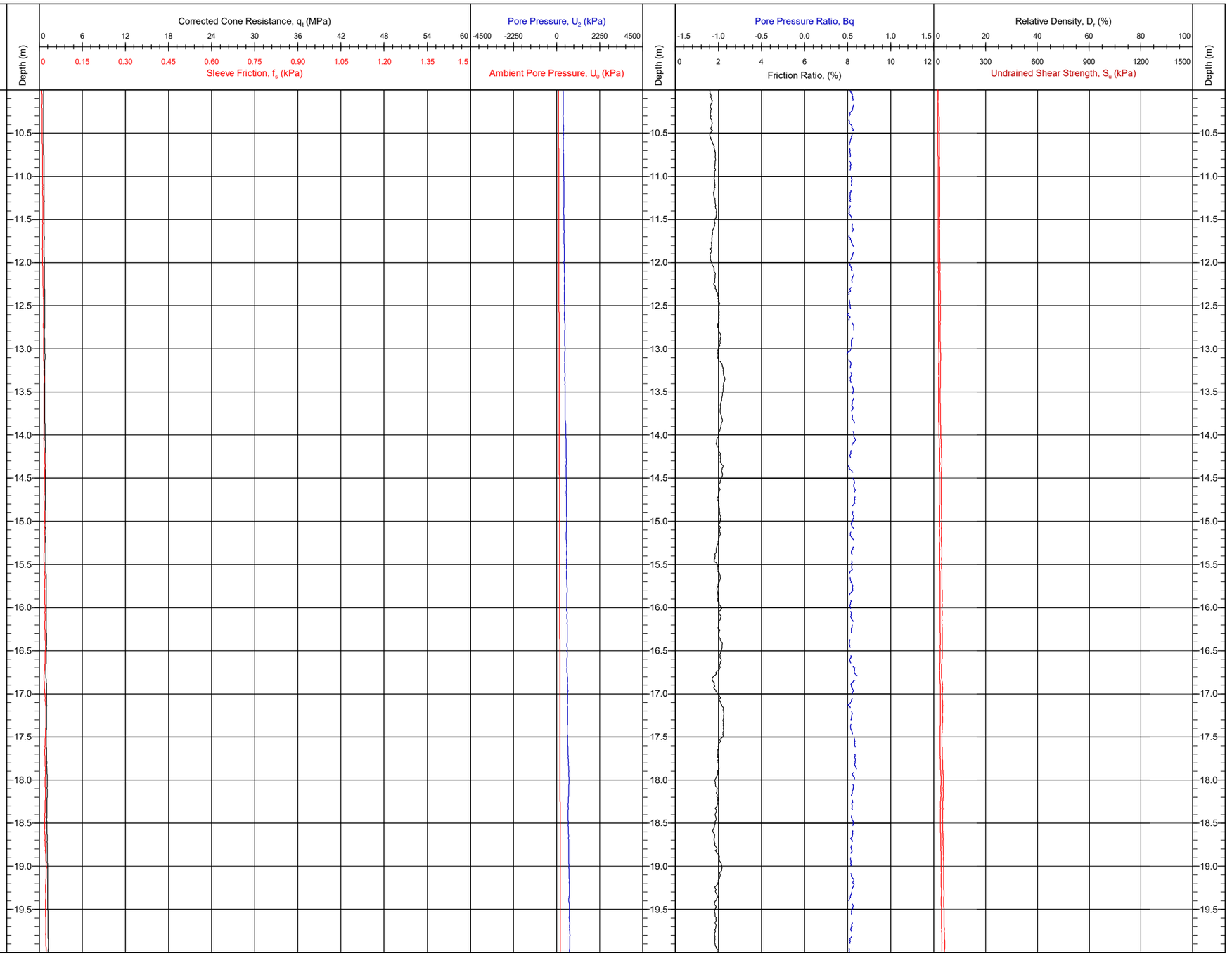
Preliminary	Draft	Final
JK/BC (29/04/2021)	**DR** (10/06/2021)	**SMc** (10/11/2021)

CPT Name: **CPT12**

Preliminary Investigation, Hesselø OWF

IN SITU CPTU TESTING

Depth (m)	Soil Profile	CPTU Sample	Sample Ref No. Cone ID (Alpha)	Soil Depth (m)	Interpreted Soil Type	Env.	Age
10.5 – 19.5			1 181005(50) 0.73		Low to very high strength CLAY with medium spaced thin beds of loose to medium dense sand, silty, between 38.17-38.73m	Ma/Fw	Pg



KEY TO SOIL PROFILE

SILT · CLAY · SAND · GRAVEL · COBBLES · CHALK · PEAT · Mixed Soil

Assumed Unit Weight: 20 - 16 kN/m³
K_C 0.5 - 2.0
N_{kt} 12.5 - 16.5
N_{ke} 15 - 20
K_C 0.5 - 2.0

Area	**Kattegat Sea**	Coordinates	**668527.9E 6259970.0N**
Contract	**11596**	Water Depth (mMSL)	**26.1**
Client Name/Ref	**Energinet Eltransmission A/S/384_20_ENE**	Date of Test	**29/04/2021**
Vessel	**MV Ocean Vantage**	Cone No.(type)/α Factor	**181005 (50cm²) / 0.73**
Method	**20 kN Sea bed CPT**	Base Inclination	**X = 1.2° / Y = 0.8°**

CRS: **ETRS89**

Comments:
Cone class 2. Continuous seabed CPT. Final depth 39.53m. Test terminated at operators discretion due to high inclination~ total load and risk of rod bend

QC Status		
Preliminary	Draft	Final
JK/BC (29/04/2021)	**DR** (10/06/2021)	**SMc** (10/11/2021)

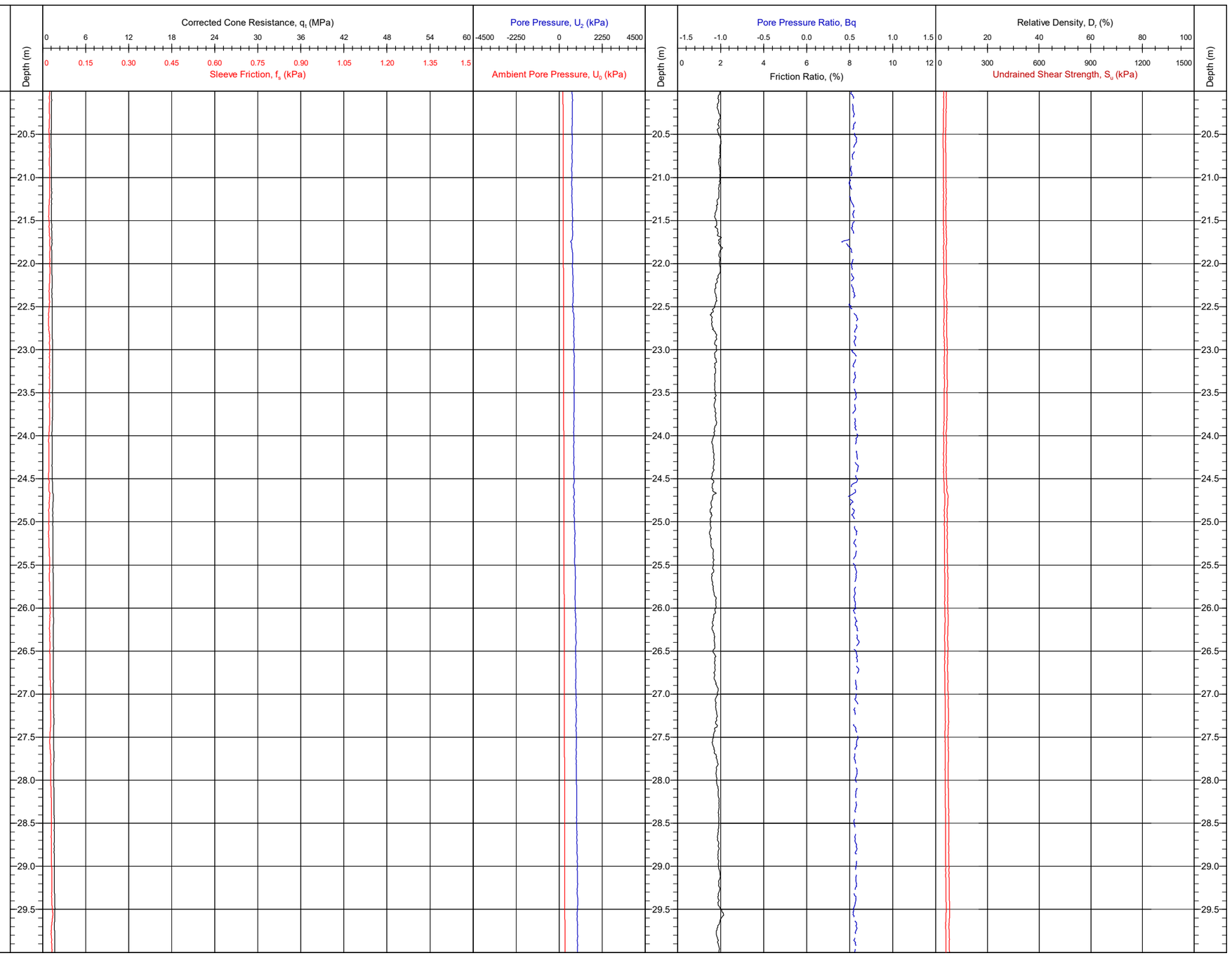
CPT Name

CPT12

Preliminary Investigation, Hesselø OWF

IN SITU CPTU TESTING

Depth (m)	Soil Profile	CPTU Sample	Sample Ref No. Cone ID (Alpha)	Soil Depth (m)	Interpreted Soil Type	Env.	Age
20.5–29.5					Low to very high strength CLAY with medium spaced thin beds of loose to medium dense sand, silty, between 38.17-38.73m	Ma/Fw	Pg



KEY TO SOIL PROFILE

SILT · CLAY · SAND · GRAVEL · COBBLES · CHALK · PEAT · Mixed Soil

Assumed Unit Weight: 20 - 16 kN/m³
K_C 0.5 - 2.0
N_{kt} 12.5 - 16.5
$N_{\Delta u}$ 15 - 20
K_S 0.5 - 2.0

Area	**Kattegat Sea**	Coordinates	**668527.9E 6259970.0N**
Contract	**11596**	Water Depth (mMSL)	**26.1**
Client Name/Ref	**Energinet Eltransmission A/S/384_20_ENE**	Date of Test	**29/04/2021**
Vessel	**MV Ocean Vantage**	Cone No.(type)/α Factor	**181005 (50cm²) / 0.73**
Method	**20 kN Sea bed CPT**	Base Inclination	**X = 1.2° / Y = 0.8°**

CRS: **ETRS89**

Comments:
Cone class 2. Continuous seabed CPT. Final depth 39.53m. Test terminated at operators discretion due to high inclination~ total load and risk of rod bend

QC Status	Preliminary	Draft	Final
	JK/BC (29/04/2021)	**DR** (10/06/2021)	**SMc** (10/11/2021)

CPT Name: **CPT12**

Preliminary Investigation, Hesselø OWF

IN SITU CPTU TESTING

Depth (m)	Interpreted Soil Type	Env.	Age
30.5	Low to very high strength CLAY with medium spaced thin beds of loose to medium dense sand, silty, between 38.17-38.73m	Ma/Fw	Pg
39.17	Medium dense to very dense SAND, silty End of CPTU test at 39.37m	Ma/Fw	Lg

Corrected Cone Resistance, q_t (MPa) 0 6 12 18 24 30 36 42 48 54 60

Sleeve Friction, f_s (kPa) 0 0.15 0.30 0.45 0.60 0.75 0.90 1.05 1.20 1.35 1.5

Pore Pressure, U_2 (kPa) -4500 -2250 0 2250 4500

Ambient Pore Pressure, U_0 (kPa)

Pore Pressure Ratio, Bq -1.5 -1.0 -0.5 0.0 0.5 1.0 1.5

Friction Ratio, (%) 0 2 4 6 8 10 12

Relative Density, D_r (%) 0 20 40 60 80 100

Undrained Shear Strength, S_u (kPa) 0 300 600 900 1200 1500

KEY TO SOIL PROFILE

SILT · CLAY · SAND · GRAVEL · COBBLES · CHALK · PEAT · Mixed Soil

Assumed Unit Weight: 20 - 16 kN/m³
K_C: 0.5 - 2.0
N_{kt}: 12.5 - 16.5
N_{ke}: 15 - 20
K_C: 0.5 - 2.0

Area	**Kattegat Sea**	Coordinates	**668527.9E 6259970.0N**
Contract	**11596**	Water Depth (mMSL)	**26.1**
Client Name/Ref	**Energinet Eltransmission A/S/384_20_ENE**	Date of Test	**29/04/2021**
Vessel	**MV Ocean Vantage**	Cone No.(type)/α Factor	**181005 (50cm²) / 0.73**
Method	**20 kN Sea bed CPT**	Base Inclination	**X = 1.2° / Y = 0.8°**

CRS: **ETRS89**

Comments:
Cone class 2. Continuous seabed CPT. Final depth 39.53m. Test terminated at operators discretion due to high inclination~ total load and risk of rod bend

QC Status		
Preliminary	Draft	Final
JK/BC (29/04/2021)	**DR** (10/06/2021)	**SMc** (10/11/2021)

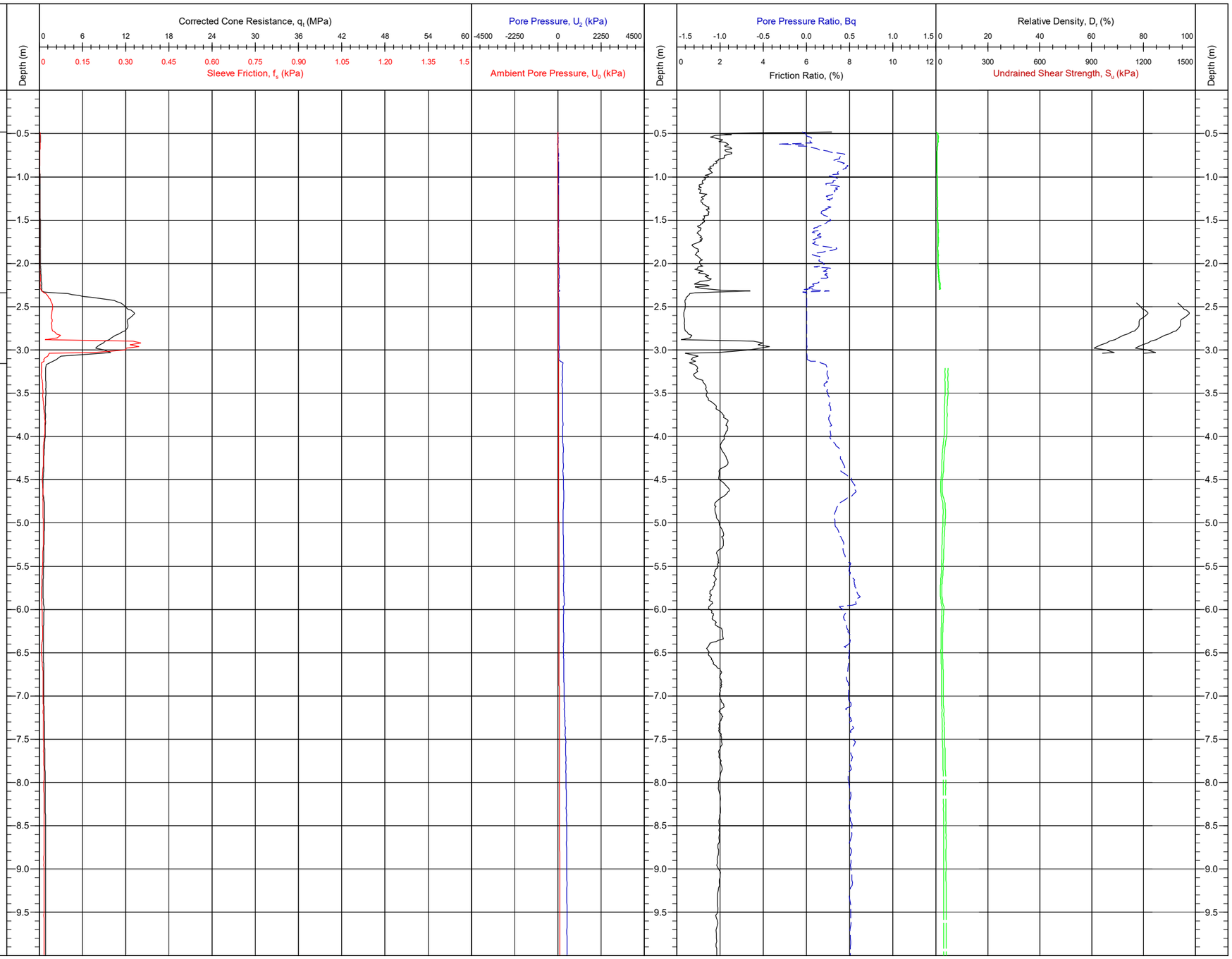
CPT Name

CPT12

Preliminary Investigation, Hesselø OWF

IN SITU CPTU TESTING

Soil Depth (m)	Interpreted Soil Type	Env.	Age
	CPTU sinkage		
0.48	Extremely low to very low strength CLAY	Ma/Fw	Ho
2.34	Very dense SAND, clayey	Ma/Fw	Pg
3.16	Medium to high strength CLAY	Ma/Fw	Pg



KEY TO SOIL PROFILE

SILT · CLAY · SAND · GRAVEL · COBBLES · CHALK · PEAT · Mixed Soil

Assumed Unit Weight: 20 - 16 kN/m³
K_0: 0.5 - 2.0
N_{kt}: 12.5 - 16.5
N_{ke}: 15 - 20
K_0: 0.5 - 2.0

Area	**Kattegat Sea**	Coordinates	**671351.3E 6258725.4N**
Contract	**11596**	Water Depth (mMSL)	**29.3**
Client Name/Ref	**Energinet Eltransmission A/S/384_20_ENE**	Date of Test	**30/04/2021**
Vessel	**MV Ocean Vantage**	Cone No.(type)/α Factor	**181009 (50cm²) / 0.86**
Method	**20 kN Sea bed CPT**	Base Inclination	**X = 1.2° / Y = 0.8°**

CRS: **ETRS89**

Comments:
Cone class 3. Continuous seabed CPT. Final depth 35.42m. Test terminated due to a maximum sleeve friction refusal.

QC Status	Preliminary	Draft	Final
	JK/BC (30/04/2021)	**DR** (10/06/2021)	**SMc** (10/11/2021)

CPT Name

CPT13

Preliminary Investigation, Hesselø OWF

IN SITU CPTU TESTING

Depth (m)	Soil Profile	CPTU Sample	Sample Ref No. Cone ID (Alpha)	Soil Depth (m)	Interpreted Soil Type	Env.	Age
10.5 – 19.5			1 181009(50) 0.86		Medium to high strength CLAY	Ma/Fw	Pg

Corrected Cone Resistance, q_t (MPa): 0 6 12 18 24 30 36 42 48 54 60

Sleeve Friction, f_s (kPa): 0 0.15 0.30 0.45 0.60 0.75 0.90 1.05 1.20 1.35 1.5

Pore Pressure, U_2 (kPa): -4500 -2250 0 2250 4500

Ambient Pore Pressure, U_0 (kPa)

Pore Pressure Ratio, Bq: -1.5 -1.0 -0.5 0.0 0.5 1.0 1.5

Friction Ratio, (%): 0 2 4 6 8 10 12

Relative Density, D_r (%): 0 20 40 60 80 100

Undrained Shear Strength, S_u (kPa): 0 300 600 900 1200 1500

KEY TO SOIL PROFILE

SILT · CLAY · SAND · GRAVEL · COBBLES · CHALK · PEAT · Mixed Soil

Assumed Unit Weight: 20 - 16 kN/m³
K_C 0.5 - 2.0
N_{kt} 12.5 - 16.5
$N_{\Delta u}$ 15 - 20
K_D 0.5 - 2.0

Area	**Kattegat Sea**	Coordinates	**671351.3E 6258725.4N**
Contract	**11596**	Water Depth (mMSL)	**29.3**
Client Name/Ref	**Energinet Eltransmission A/S/384_20_ENE**	Date of Test	**30/04/2021**
Vessel	**MV Ocean Vantage**	Cone No.(type)/α Factor	**181009 (50cm²) / 0.86**
Method	**20 kN Sea bed CPT**	Base Inclination	**X = 1.2° / Y = 0.8°**

CRS: **ETRS89**

Comments:
Cone class 3. Continuous seabed CPT. Final depth 35.42m. Test terminated due to a maximum sleeve friction refusal.

QC Status	Draft	Final
Preliminary		
JK/BC (30/04/2021)	**DR** (10/06/2021)	**SMc** (10/11/2021)

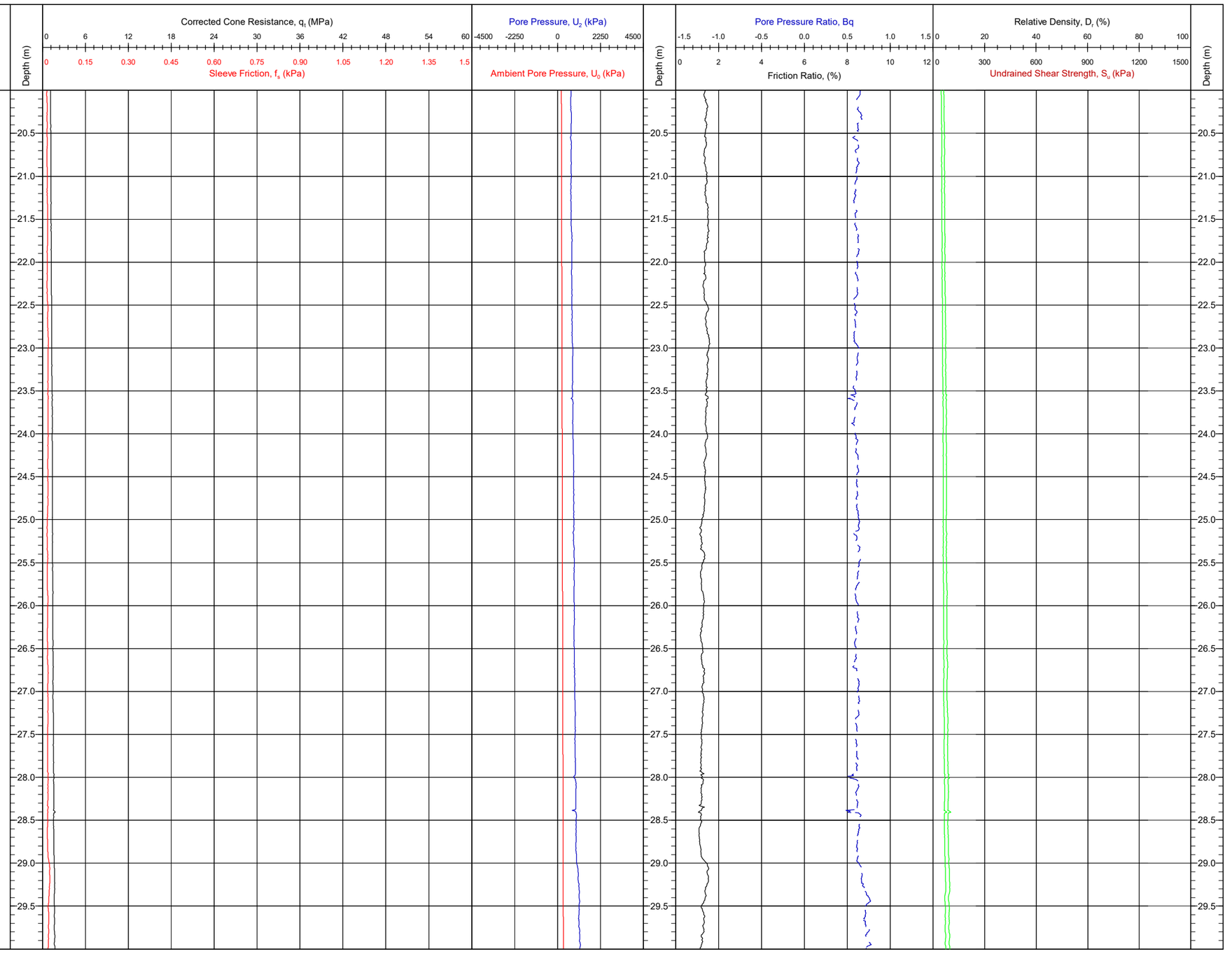
CPT Name

CPT13

Preliminary Investigation, Hesselø OWF

IN SITU CPTU TESTING

Depth (m)	Soil Profile	CPTU Sample	Sample Ref No. Cone ID (Alpha)	Soil Depth (m)	Interpreted Soil Type	Env.	Age
20.5					Medium to high strength CLAY		
21.0							
21.5							
22.0							
22.5							
23.0							
23.5							
24.0							
24.5							
25.0						Ma/Fw	Pg
25.5							
26.0							
26.5							
27.0							
27.5							
28.0							
28.5							
29.0							
29.5							



KEY TO SOIL PROFILE

SILT · CLAY · SAND · GRAVEL · COBBLES · CHALK · PEAT · Mixed Soil

Assumed Unit Weight: 20 - 16 kN/m³
K_C 0.5 - 2.0
N_{kt} 12.5 - 16.5
$N_{\Delta u}$ 15 - 20
K_Q 0.5 - 2.0

Area	**Kattegat Sea**	Coordinates	**671351.3E 6258725.4N**
Contract	**11596**	Water Depth (mMSL)	**29.3**
Client Name/Ref	**Energinet Eltransmission A/S/384_20_ENE**	Date of Test	**30/04/2021**
Vessel	**MV Ocean Vantage**	Cone No.(type)/α Factor	**181009 (50cm²) / 0.86**
Method	**20 kN Sea bed CPT**	Base Inclination	**X = 1.2° / Y = 0.8°**

CRS: **ETRS89**

Comments:
Cone class 3. Continuous seabed CPT. Final depth 35.42m. Test terminated due to a maximum sleeve friction refusal.

QC Status		
Preliminary	Draft	Final
JK/BC (30/04/2021)	**DR** (10/06/2021)	**SMc** (10/11/2021)

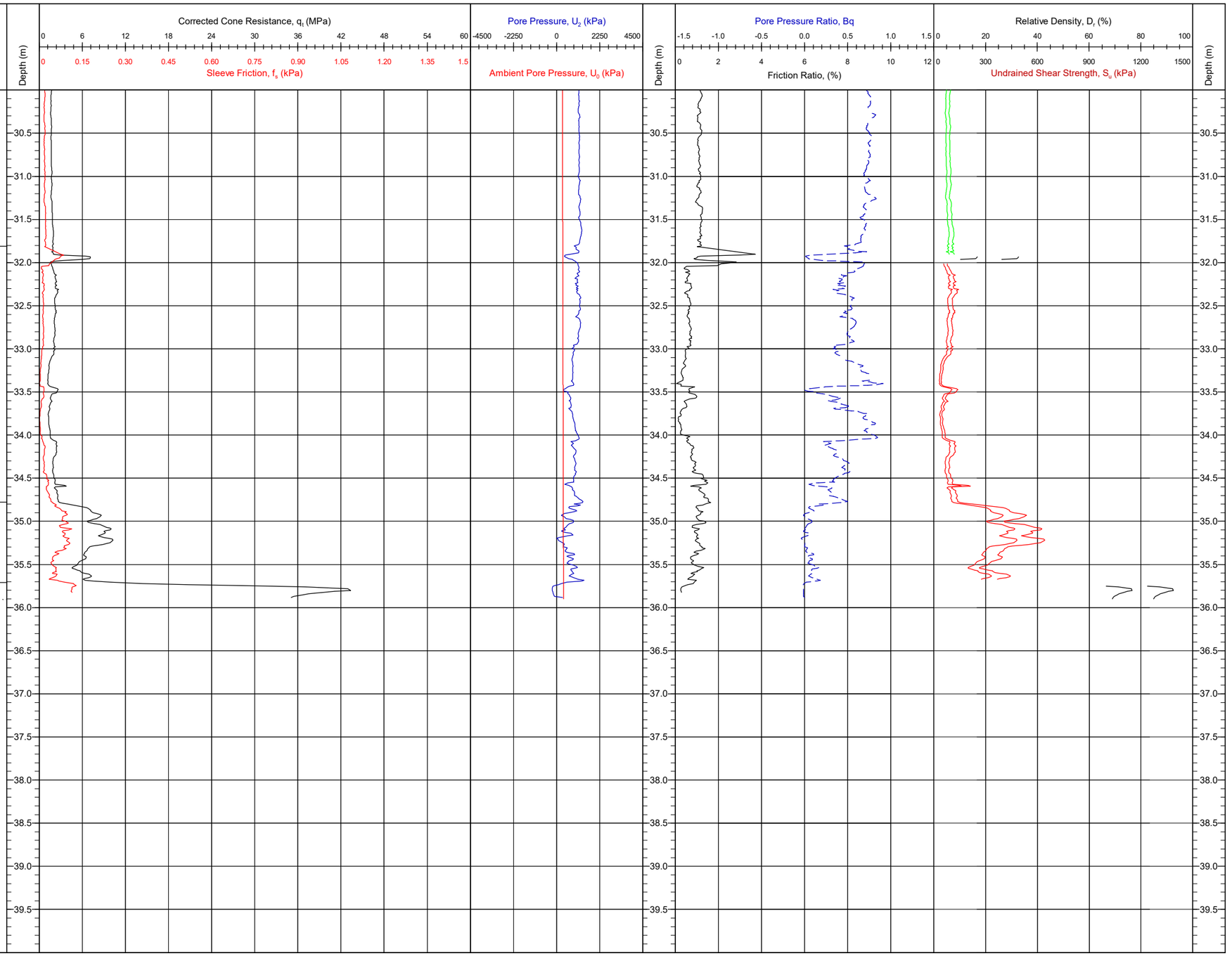
CPT Name

CPT13

Preliminary Investigation, Hesselø OWF

IN SITU CPTU TESTING

Soil Depth (m)	Interpreted Soil Type	Env.	Age
	Medium to high strength CLAY	Ma/Fw	Pg
31.81	Medium to high strength CLAY with widely spaced very thin to thin beds of high to very high strength clay, sandy *31.42-31.48m: Thin bed of loose sand, silty*	Ma/Fw	Pg
34.78	Very high to extremely high strength CLAY with closely spaced thin beds of extremely high strength clay, sandy	Ma/Fw	Lg
35.71	Very dense SAND End of CPTU test at 35.91m	Ma/Fw	Lg



KEY TO SOIL PROFILE

SILT · CLAY · SAND · GRAVEL · COBBLES · CHALK · PEAT · Mixed Soil

Assumed Unit Weight: 20 - 16 kN/m³
K_C 0.5 - 2.0
N_{kt} 12.5 - 16.5
$N_{\Delta u}$ 15 - 20
K_C 0.5 - 2.0

Area	**Kattegat Sea**	Coordinates	**671351.3E 6258725.4N**
Contract	**11596**	Water Depth (mMSL)	**29.3**
Client Name/Ref	**Energinet Eltransmission A/S/384_20_ENE**	Date of Test	**30/04/2021**
Vessel	**MV Ocean Vantage**	Cone No.(type)/α Factor	**181009 (50cm²) / 0.86**
Method	**20 kN Sea bed CPT**	Base Inclination	**X = 1.2° / Y = 0.8°**

CRS: **ETRS89**

Comments:
Cone class 3. Continuous seabed CPT. Final depth 35.42m. Test terminated due to a maximum sleeve friction refusal.

QC Status		
Preliminary	Draft	Final
JK/BC (30/04/2021)	**DR** (10/06/2021)	**SMc** (10/11/2021)

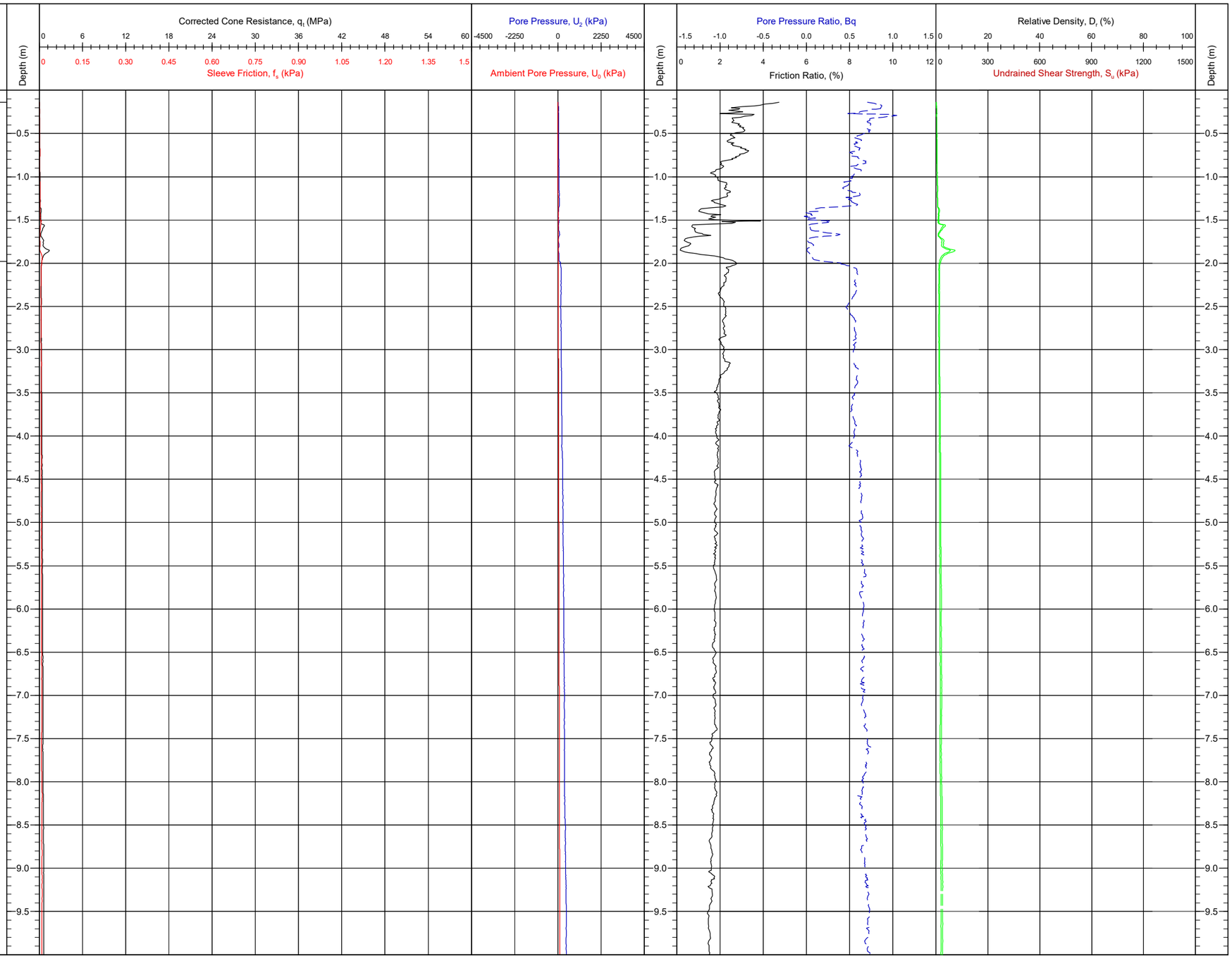
CPT Name

CPT13

Preliminary Investigation, Hesselø OWF

IN SITU CPTU TESTING

Soil Depth (m)	Interpreted Soil Type	Env.	Age
0.14	CPTU sinkage		
	Extremely low to very low strength CLAY with closely spaced thin beds of medium to high strength clay, sandy	Ma/Fw	Ho
1.98	Low to medium strength CLAY	Ma/Fw	Ho



KEY TO SOIL PROFILE

SILT, CLAY, SAND, GRAVEL, COBBLES, CHALK, PEAT, Mixed Soil

Assumed Unit Weight: 20 - 16 kN/m³
K_{s1}: 0.5 - 2.0
N_{kt1}: 12.5 - 16.5
N_{kt2}: 15 - 20
K_{s2}: 0.5 - 2.0

Area	**Kattegat Sea**	Coordinates	**676578.2E 6259609.0N**
Contract	**11596**	Water Depth (mMSL)	**32.3**
Client Name/Ref	**Energinet Eltransmission A/S/384_20_ENE**	Date of Test	**26/04/2021**
Vessel	**MV Ocean Vantage**	Cone No.(type)/α Factor	**130206 (50cm²) / 0.77**
Method	**20 kN Sea bed CPT**	Base Inclination	**X = -0.3° / Y = 1.8°**

CRS: **ETRS89**

Comments:
Cone Class 4. Continuous seabed CPT. Final depth 27.58m. Test was terminated at operators discretion due to lack of lateral rod support from mudline and increasing cone and SBF inclination

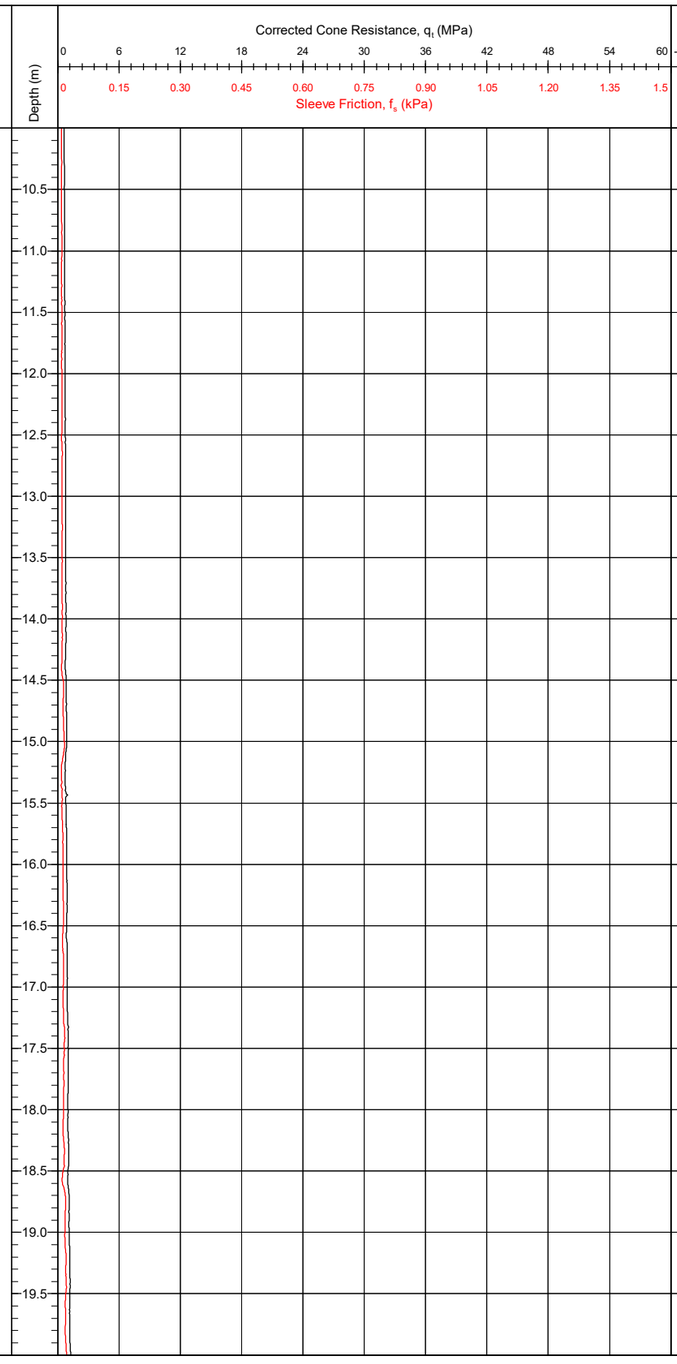
QC Status		
Preliminary	Draft	Final
JK/BC (26/04/2021)	**DR** (10/06/2021)	**SMc** (10/11/2021)

CPT Name

CPT14

Preliminary Investigation, Hesselø OWF
IN SITU CPTU TESTING

Depth (m)	Soil Profile	CPTU Sample	Sample Ref No. Cone ID (Alpha)	Soil Depth (m)	Interpreted Soil Type	Env.	Age
10.5 – 19.5			1 130206(50) 0.77		Low to medium strength CLAY	Ma/Fw	Ho



KEY TO SOIL PROFILE

SILT · CLAY · SAND · GRAVEL · COBBLES · CHALK · PEAT · Mixed Soil

Assumed Unit Weight: 20 - 16 kN/m³
K_C 0.5 - 2.0
N_{kt} 12.5 - 16.5
$N_{\Delta u}$ 15 - 20
K_C 0.5 - 2.0

Area	**Kattegat Sea**	Coordinates	**676578.2E 6259609.0N**
Contract	**11596**	Water Depth (mMSL)	**32.3**
Client Name/Ref	**Energinet Eltransmission A/S/384_20_ENE**	Date of Test	**26/04/2021**
Vessel	**MV Ocean Vantage**	Cone No.(type)/α Factor	**130206 (50cm²) / 0.77**
Method	**20 kN Sea bed CPT**	Base Inclination	**X = -0.3° / Y = 1.8°**

CRS: **ETRS89**

Comments:
Cone Class 4. Continuous seabed CPT. Final depth 27.58m. Test was terminated at operators discretion due to lack of lateral rod support from mudline and increasing cone and SBF inclination

QC Status		
Preliminary	Draft	Final
JK/BC (26/04/2021)	**DR** (10/06/2021)	**SMc** (10/11/2021)

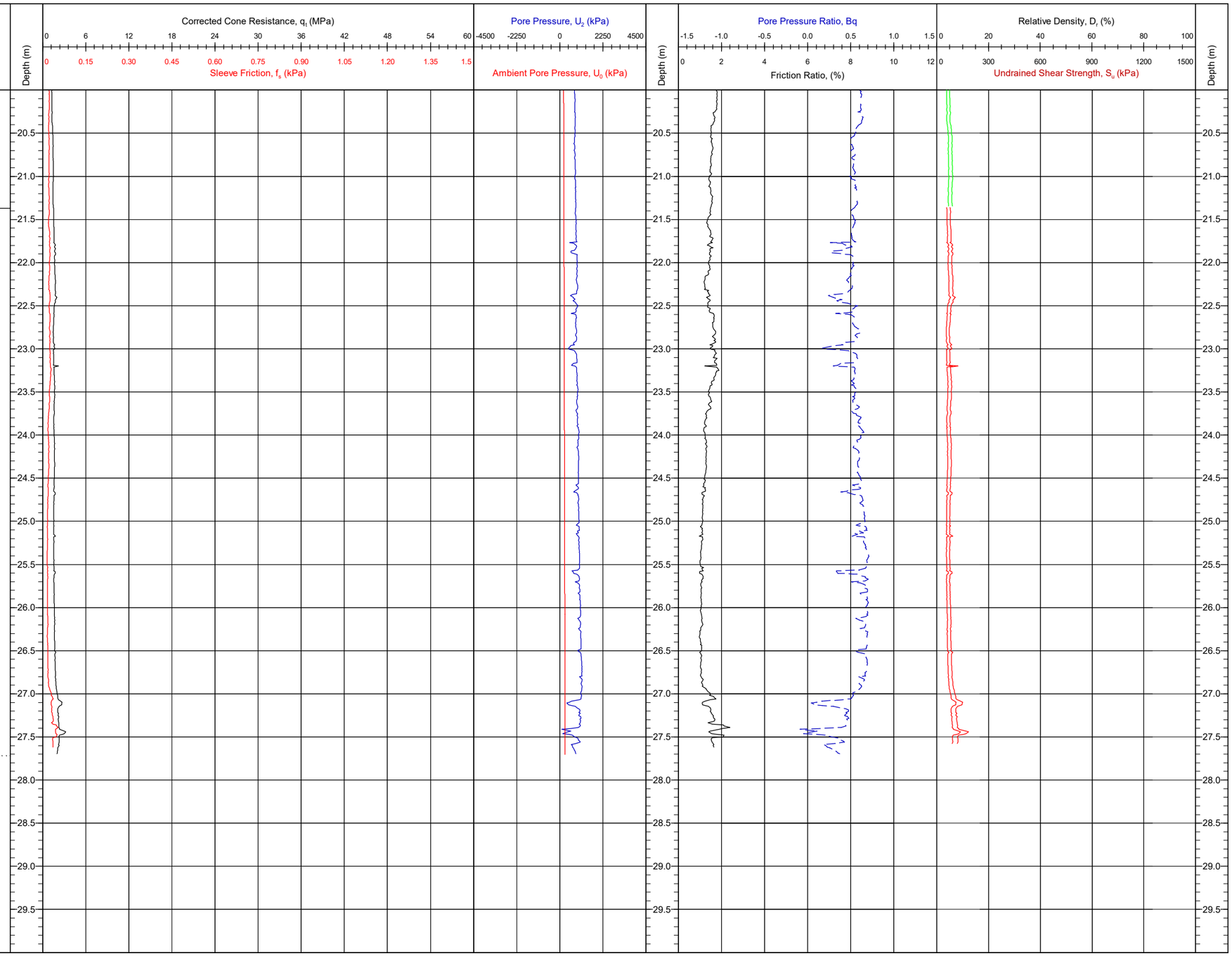
CPT Name: **CPT14**

Preliminary Investigation, Hesselø OWF

IN SITU CPTU TESTING

Soil Type	Env.	Age
Low to medium strength CLAY	Ma/Fw	Ho
Medium to high strength CLAY with medium spaced thin beds of high to very high strength clay, sandy	Ma/Fw	Pg
End of CPTU test at 27.72m		

Soil Depth (m): 21.37



KEY TO SOIL PROFILE

SILT, CLAY, SAND, GRAVEL, COBBLES, CHALK, PEAT, Mixed Soil

Assumed Unit Weight: 20 - 16 kN/m³
K_c: 0.5 - 2.0
N_{kt}: 12.5 - 16.5
N_{ke}: 15 - 20
K_c: 0.5 - 2.0

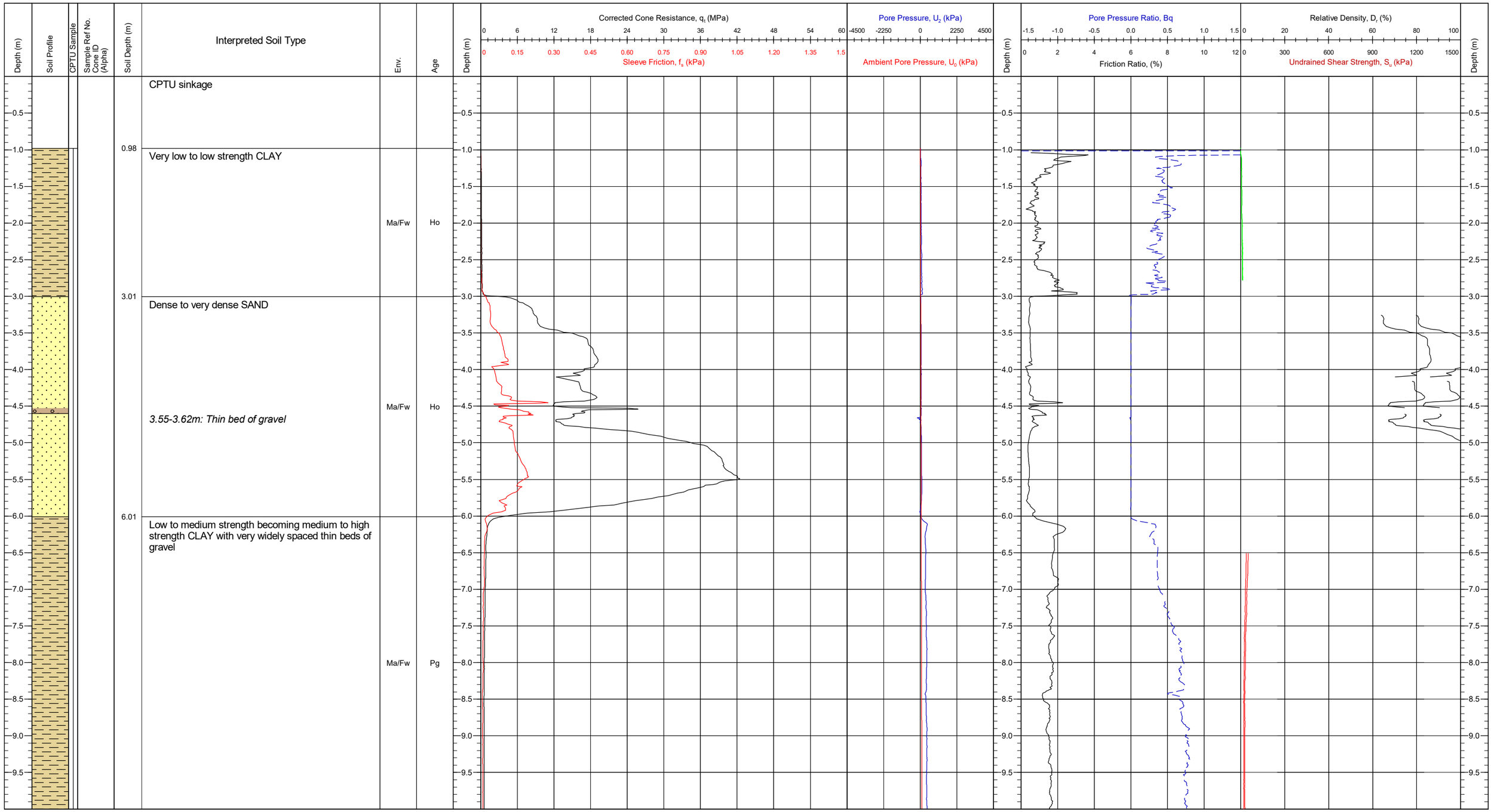
Area	**Kattegat Sea**	Coordinates	**676578.2E 6259609.0N**	CRS: **ETRS89**	QC Status: Preliminary / Draft / Final
Contract	**11596**	Water Depth (mMSL)	**32.3**	**Comments:** **Cone Class 4. Continuous seabed CPT. Final depth 27.58m. Test was terminated at operators discretion due to lack of lateral rod support from mudline and increasing cone and SBF inclination**	
Client Name/Ref	**Energinet Eltransmission A/S/384_20_ENE**	Date of Test	**26/04/2021**		
Vessel	**MV Ocean Vantage**	Cone No.(type)/α Factor	**130206 (50cm²) / 0.77**		
Method	**20 kN Sea bed CPT**	Base Inclination	**X = -0.3° / Y = 1.8°**		

Preliminary	Draft	Final
JK/BC (26/04/2021)	**DR** (10/06/2021)	**SMc** (10/11/2021)

CPT Name: **CPT14**

Preliminary Investigation, Hesselø OWF
IN SITU CPTU TESTING

Soil Depth (m)	Interpreted Soil Type	Env.	Age
	CPTU sinkage		
0.98	Very low to low strength CLAY	Ma/Fw	Ho
3.01	Dense to very dense SAND *3.55-3.62m: Thin bed of gravel*	Ma/Fw	Ho
6.01	Low to medium strength becoming medium to high strength CLAY with very widely spaced thin beds of gravel	Ma/Fw	Pg



KEY TO SOIL PROFILE

SILT · CLAY · SAND · GRAVEL · COBBLES · CHALK · PEAT · Mixed Soil

Assumed Unit Weight: 20 - 16 kN/m³
K_C 0.5 - 2.0
N_{kt} 12.5 - 16.5
$N_{\Delta u}$ 15 - 20
K_C 0.5 - 2.0

Area	**Kattegat Sea**	Coordinates	**668001.6E 6262849.6N**
Contract	**11596**	Water Depth (mMSL)	**29.0**
Client Name/Ref	**Energinet Eltransmission A/S/384_20_ENE**	Date of Test	**30/04/2021**
Vessel	**MV Ocean Vantage**	Cone No.(type)/α Factor	**120910 (50cm²) / 0.81**
Method	**20 kN Sea bed CPT**	Base Inclination	**X = 1.1° / Y = 0.8°**

CRS: **ETRS89**

Comments:
Cone class 1. Continuous seabed CPT. Final depth 48.84m. Test terminated due to sleeve refusal

QC Status		
Preliminary	Draft	Final
JK/BC (01/05/2021)	**DR** (10/06/2021)	**SMc** (10/11/2021)

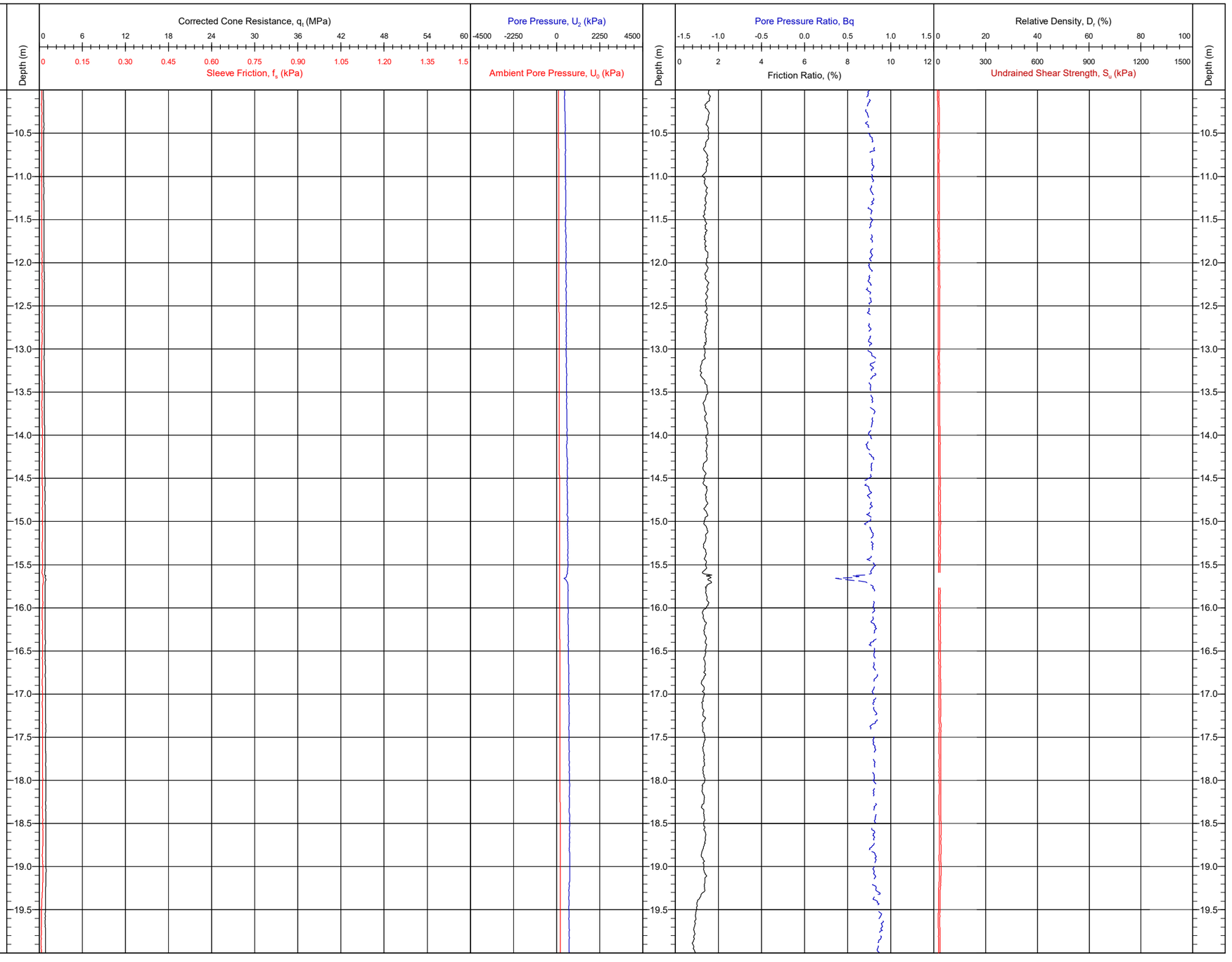
CPT Name

CPT15

Preliminary Investigation, Hesselø OWF

IN SITU CPTU TESTING

Depth (m)	Soil Profile	CPTU Sample	Sample Ref No. Cone ID (Alpha)	Soil Depth (m)	Interpreted Soil Type	Env.	Age
10.5 – 19.5					Low to medium strength becoming medium to high strength CLAY with very widely spaced thin beds of gravel	Ma/Fw	Pg



KEY TO SOIL PROFILE

SILT · CLAY · SAND · GRAVEL · COBBLES · CHALK · PEAT · Mixed Soil

Assumed Unit Weight: 20 - 16 kN/m³
K_C: 0.5 - 2.0
N_{kt}: 12.5 - 16.5
$N_{\Delta u}$: 15 - 20
K_C: 0.5 - 2.0

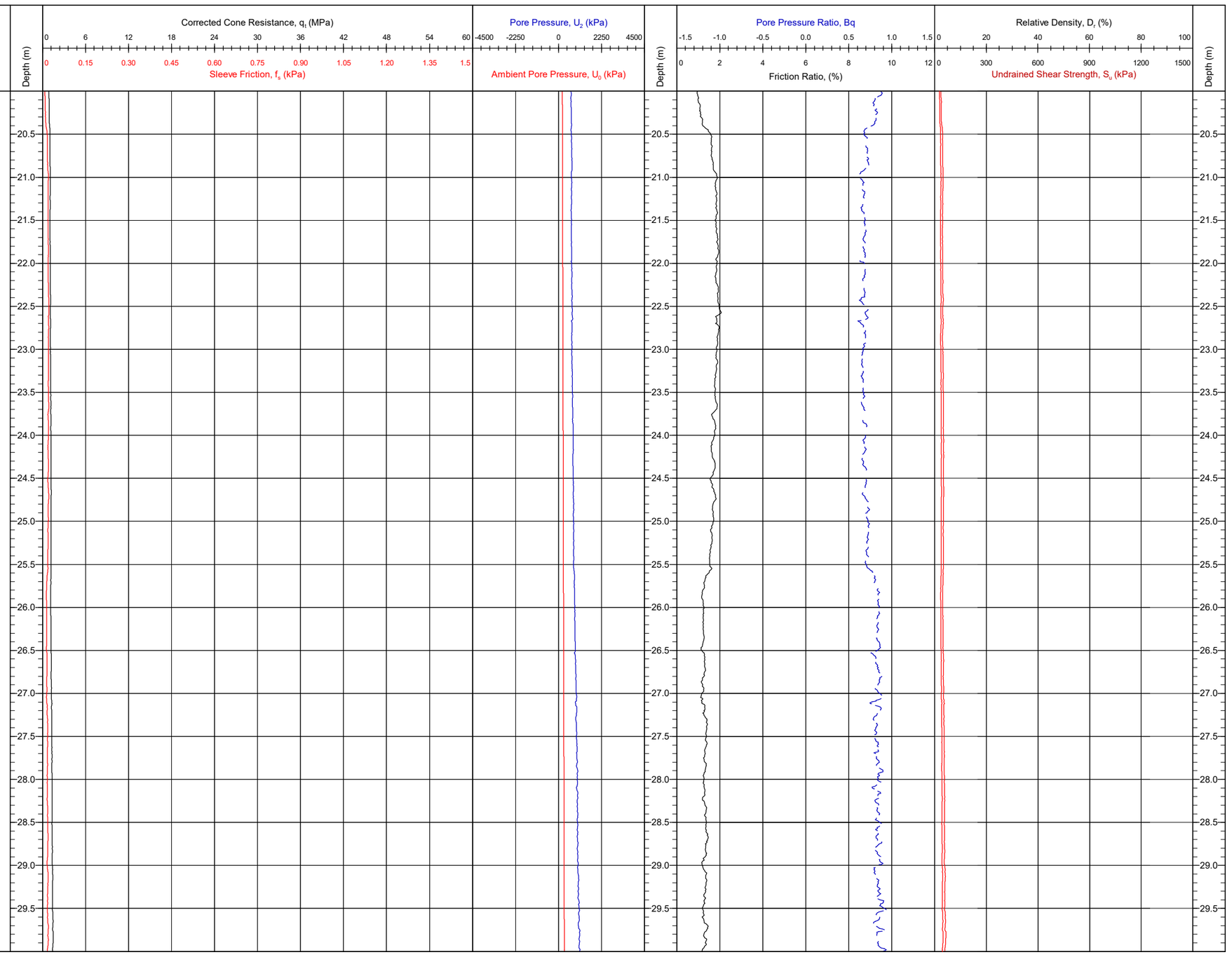
Area	**Kattegat Sea**	Coordinates	**668001.6E 6262849.6N**	CRS: **ETRS89**	QC Status
Contract	**11596**	Water Depth (mMSL)	**29.0**	**Comments:** **Cone class 1. Continuous seabed CPT. Final depth 48.84m. Test terminated due to sleeve refusal**	Preliminary: **JK/BC (01/05/2021)** · Draft: **DR (10/06/2021)** · Final: **SMc (10/11/2021)**
Client Name/Ref	**Energinet Eltransmission A/S/384_20_ENE**	Date of Test	**30/04/2021**		
Vessel	**MV Ocean Vantage**	Cone No.(type)/α Factor	**120910 (50cm²) / 0.81**		
Method	**20 kN Sea bed CPT**	Base Inclination	**X = 1.1° / Y = 0.8°**		

CPT Name: **CPT15**

Preliminary Investigation, Hesselø OWF

IN SITU CPTU TESTING

Depth (m)	Soil Profile	CPTU Sample	Sample Ref No. Cone ID (Alpha)	Soil Depth (m)	Interpreted Soil Type	Env.	Age
20.5 – 29.5		1	120910(50) 0.81		Low to medium strength becoming medium to high strength CLAY with very widely spaced thin beds of gravel	Ma/Fw	Pg



KEY TO SOIL PROFILE

SILT · CLAY · SAND · GRAVEL · COBBLES · CHALK · PEAT · Mixed Soil

Assumed Unit Weight: 20 - 16 kN/m³
K_C 0.5 - 2.0
N_{kt} 12.5 - 16.5
$N_{\Delta u}$ 15 - 20
K_C 0.5 - 2.0

Area	**Kattegat Sea**	Coordinates	**668001.6E 6262849.6N**
Contract	**11596**	Water Depth (mMSL)	**29.0**
Client Name/Ref	**Energinet Eltransmission A/S/384_20_ENE**	Date of Test	**30/04/2021**
Vessel	**MV Ocean Vantage**	Cone No.(type)/α Factor	**120910 (50cm²) / 0.81**
Method	**20 kN Sea bed CPT**	Base Inclination	**X = 1.1° / Y = 0.8°**

CRS: **ETRS89**

Comments:
Cone class 1. Continuous seabed CPT. Final depth 48.84m. Test terminated due to sleeve refusal

QC Status		
Preliminary	Draft	Final
JK/BC (01/05/2021)	**DR** (10/06/2021)	**SMc** (10/11/2021)

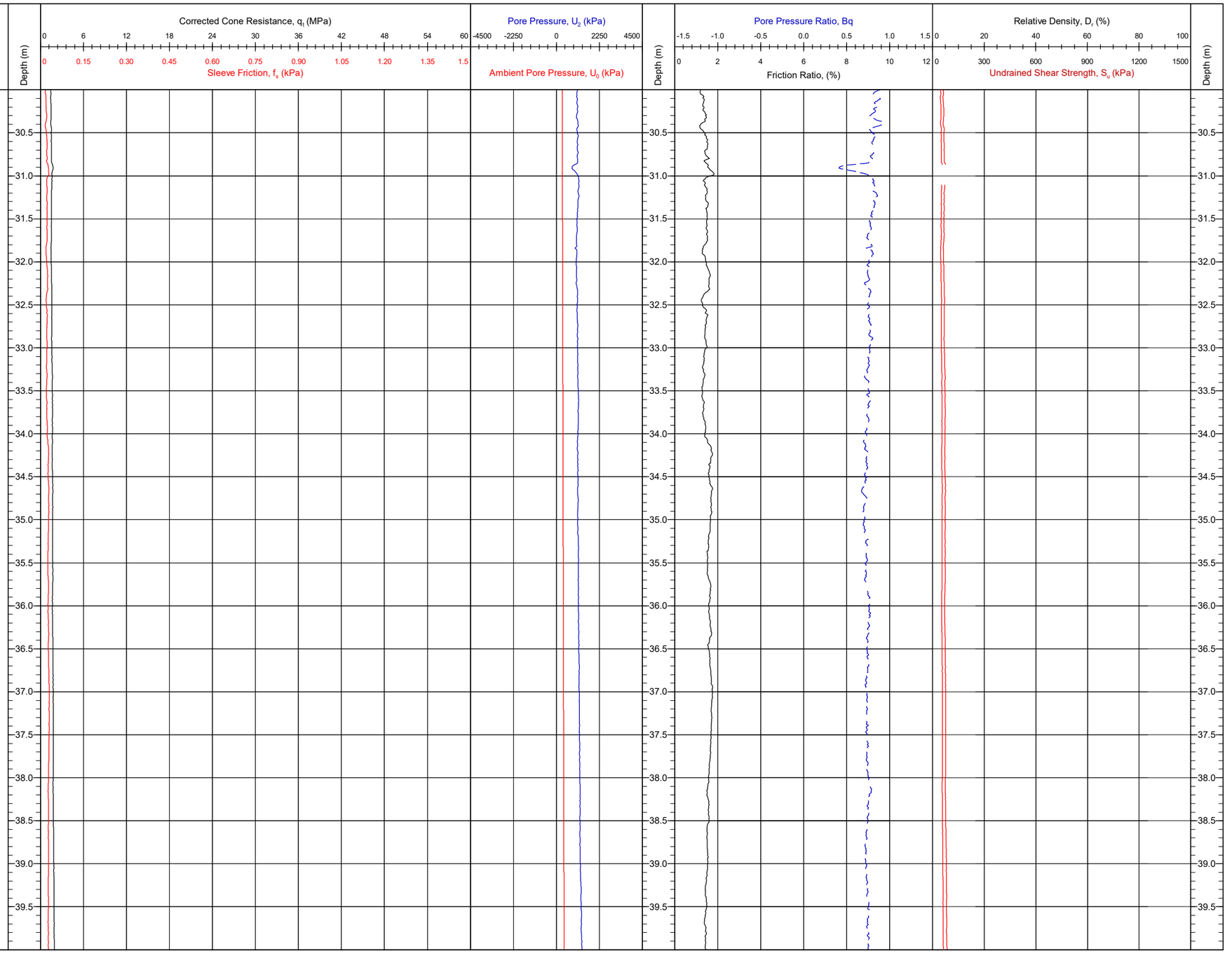
CPT Name

CPT15

Preliminary Investigation, Hesselø OWF

IN SITU CPTU TESTING

Depth (m)	Soil Profile	CPTU Sample	Sample Ref No. Cone ID (Alpha)	Soil Depth (m)	Interpreted Soil Type	Env.	Age
30.5 – 39.5					Low to medium strength becoming medium to high strength CLAY with very widely spaced thin beds of gravel	Ma/Fw	Pg



KEY TO SOIL PROFILE

SILT · CLAY · SAND · GRAVEL · COBBLES · CHALK · PEAT · Mixed Soil

Assumed Unit Weight: 20 - 16 kN/m³
K_0: 0.5 - 2.0
N_{kt}: 12.5 - 16.5
$N_{\Delta u}$: 15 - 20
K_0: 0.5 - 2.0

Area	**Kattegat Sea**	Coordinates	**668001.6E 6262849.6N**
Contract	**11596**	Water Depth (mMSL)	**29.0**
Client Name/Ref	**Energinet Eltransmission A/S/384_20_ENE**	Date of Test	**30/04/2021**
Vessel	**MV Ocean Vantage**	Cone No.(type)/α Factor	**120910 (50cm²) / 0.81**
Method	**20 kN Sea bed CPT**	Base Inclination	**X = 1.1° / Y = 0.8°**

CRS: **ETRS89**

Comments:
Cone class 1. Continuous seabed CPT. Final depth 48.84m. Test terminated due to sleeve refusal

QC Status	Preliminary	Draft	Final
	JK/BC (01/05/2021)	**DR** (10/06/2021)	**SMc** (10/11/2021)

CPT Name: **CPT15**

Preliminary Investigation, Hesselø OWF

IN SITU CPTU TESTING

Depth (m)	Interpreted Soil Type	Env.	Age
40.50	Low to medium strength becoming medium to high strength CLAY with very widely spaced thin beds of gravel	Ma/Fw	Pg
48.60	Loose to medium dense SAND, silty, with medium spaced thin beds of very high to extremely high strength clay, sandy	Ma/Fw	Gc
49.82	End of CPTU test at 49.82m		

Corrected Cone Resistance, q_t (MPa) 0 6 12 18 24 30 36 42 48 54 60

Sleeve Friction, f_s (kPa) 0 0.15 0.30 0.45 0.60 0.75 0.90 1.05 1.20 1.35 1.5

Pore Pressure, U_2 (kPa) -4500 -2250 0 2250 4500

Ambient Pore Pressure, U_0 (kPa)

Pore Pressure Ratio, Bq -1.5 -1.0 -0.5 0.0 0.5 1.0 1.5

Friction Ratio, (%) 0 2 4 6 8 10 12

Relative Density, D_r (%) 0 20 40 60 80 100

Undrained Shear Strength, S_u (kPa) 0 300 600 900 1200 1500

KEY TO SOIL PROFILE

SILT, CLAY, SAND, GRAVEL, COBBLES, CHALK, PEAT, Mixed Soil

Assumed Unit Weight: 20 - 16 kN/m³
K_C 0.5 - 2.0
N_{kt} 12.5 - 16.5
$N_{\Delta u}$ 15 - 20
K_C 0.5 - 2.0

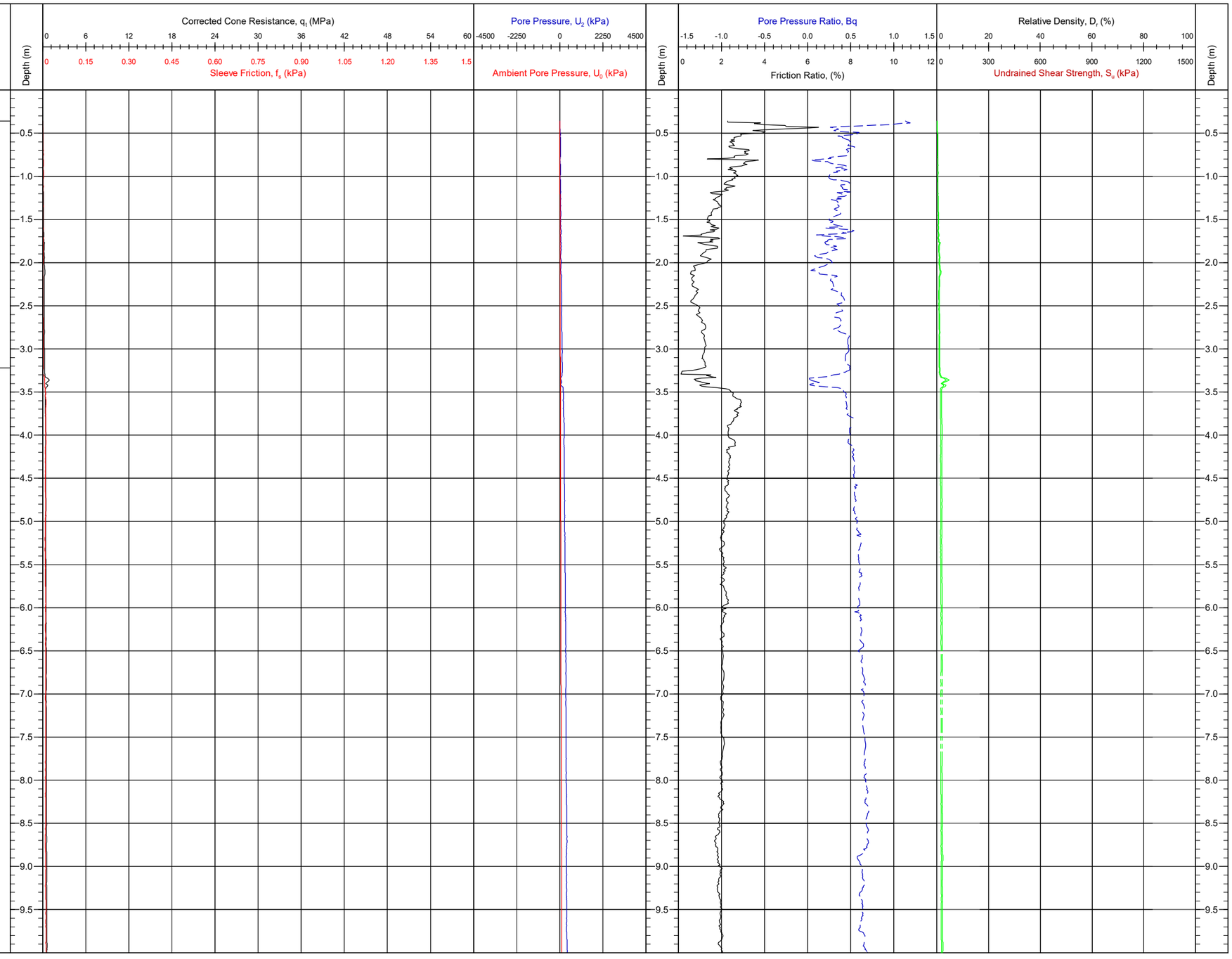
Area	**Kattegat Sea**	Coordinates	**668001.6E 6262849.6N**	CRS: **ETRS89**	
Contract	**11596**	Water Depth (mMSL)	**29.0**	**Comments:** **Cone class 1. Continuous seabed CPT. Final depth 48.84m. Test terminated due to sleeve refusal**	
Client Name/Ref	**Energinet Eltransmission A/S/384_20_ENE**	Date of Test	**30/04/2021**		
Vessel	**MV Ocean Vantage**	Cone No.(type)/α Factor	**120910 (50cm²) / 0.81**		
Method	**20 kN Sea bed CPT**	Base Inclination	**X = 1.1° / Y = 0.8°**		

QC Status			CPT Name
Preliminary	Draft	Final	**CPT15**
JK/BC (01/05/2021)	**DR** (10/06/2021)	**SMc** (10/11/2021)	

Preliminary Investigation, Hesselø OWF

IN SITU CPTU TESTING

Soil Depth (m)	Interpreted Soil Type	Env.	Age
	CPTU sinkage		
0.36	Extremely low to very low strength CLAY	Ma/Fw	Ho
3.22	Low strength CLAY	Ma/Fw	Ho



KEY TO SOIL PROFILE

SILT · CLAY · SAND · GRAVEL · COBBLES · CHALK · PEAT · Mixed Soil

Assumed Unit Weight: 20 - 16 kN/m³
K_C 0.5 - 2.0
N_{KT} 12.5 - 16.5
$N_{\Delta U}$ 15 - 20
K_S 0.5 - 2.0

Area	**Kattegat Sea**	Coordinates	**672157.8E 6263407.0N**
Contract	**11596**	Water Depth (mMSL)	**30.9**
Client Name/Ref	**Energinet Eltransmission A/S/384_20_ENE**	Date of Test	**30/04/2021**
Vessel	**MV Ocean Vantage**	Cone No.(type)/α Factor	**181004 (50cm²) / 0.81**
Method	**20 kN Sea bed CPT**	Base Inclination	**X = 1.1° / Y = 1.0°**

CRS: **ETRS89**

Comments:
Cone class 2. Continuous seabed CPT. Final depth 29.42m. Test terminated due to poor data quality after dissipation test.

QC Status		
Preliminary	Draft	Final
JK/BC (30/04/2021)	**DR** (10/06/2021)	**SMc** (10/11/2021)

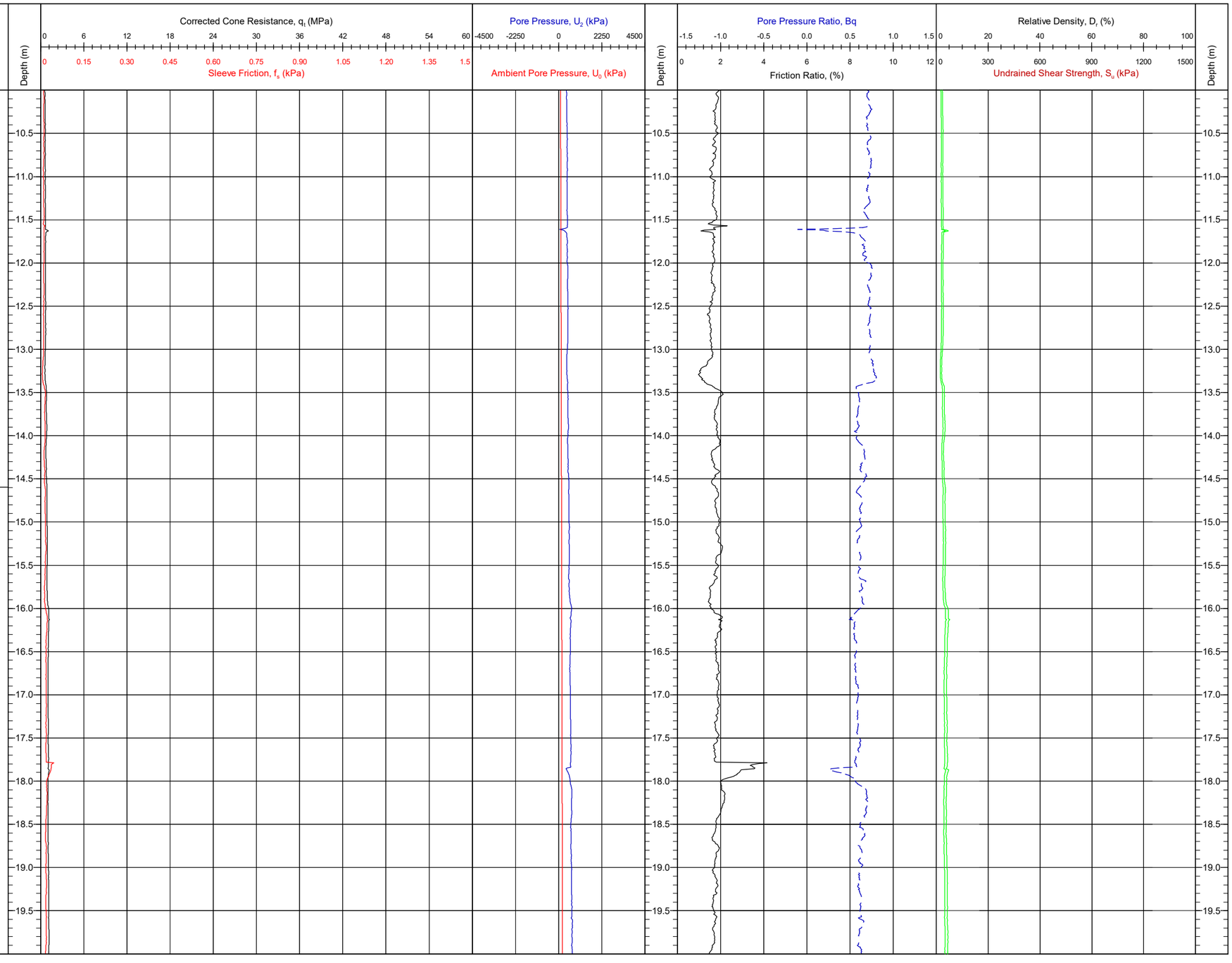
CPT Name

CPT16

Preliminary Investigation, Hesselø OWF

IN SITU CPTU TESTING

Depth (m)	Soil Profile	CPTU Sample	Sample Ref No. Cone ID (Alpha)	Soil Depth (m)	Interpreted Soil Type	Env.	Age
					Low strength CLAY	Ma/Fw	Ho
			1 181004(50) 0.81	14.60	Low to medium strength CLAY with closely to very widely spaced very thin to thin beds of high to very high strength clay, sandy	Ma/Fw	Ho



KEY TO SOIL PROFILE

SILT · CLAY · SAND · GRAVEL · COBBLES · CHALK · PEAT · Mixed Soil

Assumed Unit Weight: 20 - 16 kN/m³
K_c: 0.5 - 2.0
N_{kt}: 12.5 - 16.5
N_{ke}: 15 - 20
K_c: 0.5 - 2.0

Area	**Kattegat Sea**	Coordinates	**672157.8E 6263407.0N**	CRS: **ETRS89**	QC Status: Preliminary / Draft / Final
Contract	**11596**	Water Depth (mMSL)	**30.9**	**Comments:** **Cone class 2. Continuous seabed CPT. Final depth 29.42m. Test terminated due to poor data quality after dissipation test.**	**JK/BC** (30/04/2021) / **DR** (10/06/2021) / **SMc** (10/11/2021)
Client Name/Ref	**Energinet Eltransmission A/S/384_20_ENE**	Date of Test	**30/04/2021**		
Vessel	**MV Ocean Vantage**	Cone No.(type)/α Factor	**181004 (50cm²) / 0.81**		
Method	**20 kN Sea bed CPT**	Base Inclination	**X = 1.1° / Y = 1.0°**		

CPT Name: **CPT16**

Preliminary Investigation, Hesselø OWF
IN SITU CPTU TESTING

Depth (m)	Soil Profile	CPTU Sample	Sample Ref No. Cone ID (Alpha)	Soil Depth (m)	Interpreted Soil Type	Env.	Age
20.5					Low to medium strength CLAY with closely to very widely spaced very thin to thin beds of high to very high strength clay, sandy	Ma/Fw	Ho
28.48					High to very high strength CLAY with very closely to closely spaced very thin to medium beds of very high to extremely high strength clay, sandy	Ma/Fw	Pg
29.78					End of CPTU test at 29.78m		

Corrected Cone Resistance, q_t (MPa) 0 6 12 18 24 30 36 42 48 54 60
Sleeve Friction, f_s (kPa) 0 0.15 0.30 0.45 0.60 0.75 0.90 1.05 1.20 1.35 1.5

Pore Pressure, U_2 (kPa) -4500 -2250 0 2250 4500
Ambient Pore Pressure, U_0 (kPa)

Pore Pressure Ratio, Bq -1.5 -1.0 -0.5 0.0 0.5 1.0 1.5
Friction Ratio, (%) 0 2 4 6 8 10 12

Relative Density, D_r (%) 0 20 40 60 80 100
Undrained Shear Strength, S_u (kPa) 0 300 600 900 1200 1500

KEY TO SOIL PROFILE

SILT, CLAY, SAND, GRAVEL, COBBLES, CHALK, PEAT, Mixed Soil

Assumed Unit Weight: 20 - 16 kN/m³
K_C 0.5 - 2.0
N_{KT} 12.5 - 16.5
$N_{\Delta u}$ 15 - 20
K_S 0.5 - 2.0

Area	**Kattegat Sea**	Coordinates	**672157.8E 6263407.0N**
Contract	**11596**	Water Depth (mMSL)	**30.9**
Client Name/Ref	**Energinet Eltransmission A/S/384_20_ENE**	Date of Test	**30/04/2021**
Vessel	**MV Ocean Vantage**	Cone No.(type)/α Factor	**181004 (50cm²) / 0.81**
Method	**20 kN Sea bed CPT**	Base Inclination	**X = 1.1° / Y = 1.0°**

CRS: **ETRS89**

Comments:
Cone class 2. Continuous seabed CPT. Final depth 29.42m. Test terminated due to poor data quality after dissipation test.

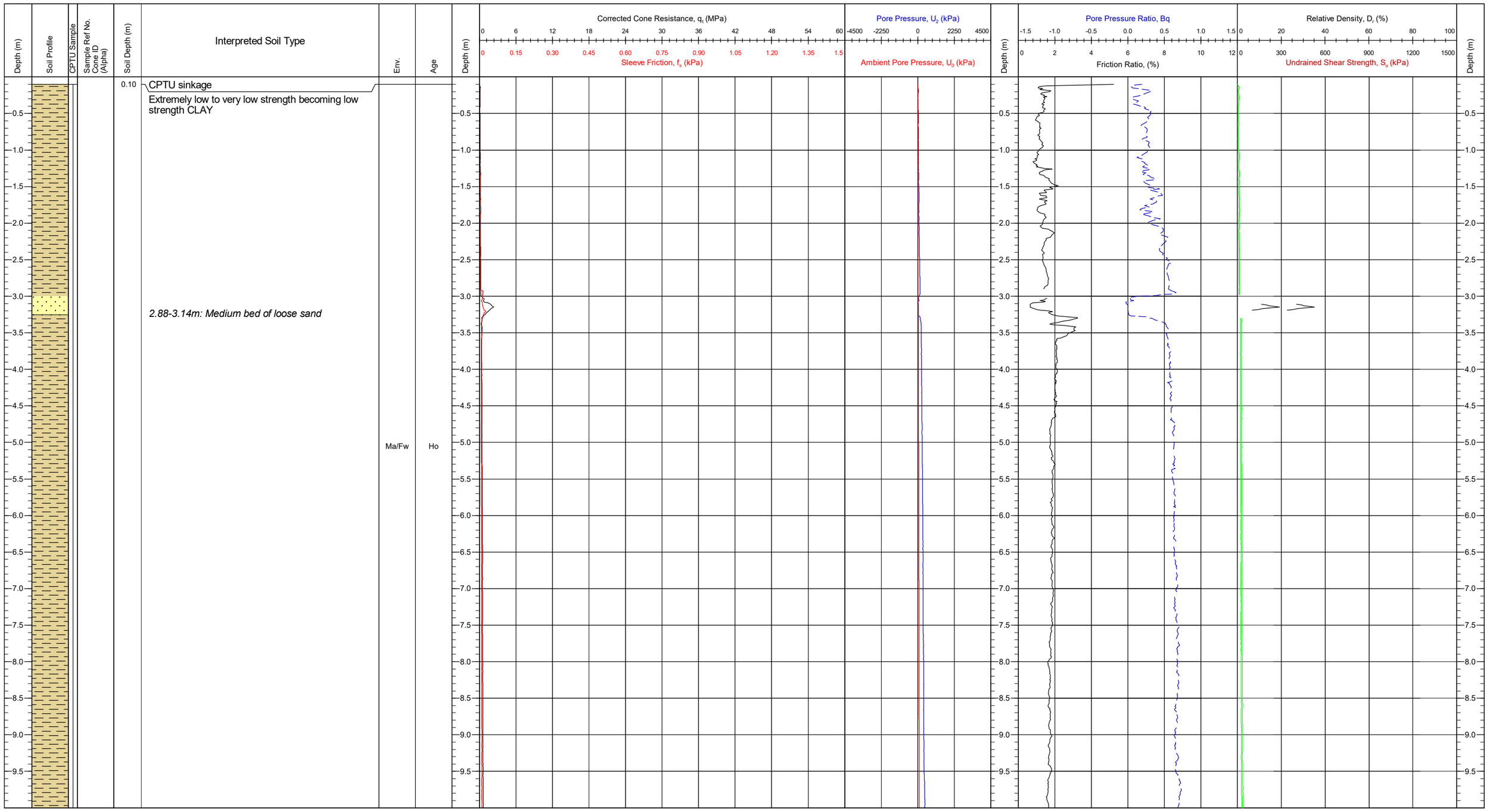
QC Status		
Preliminary	Draft	Final
JK/BC (30/04/2021)	**DR** (10/06/2021)	**SMc** (10/11/2021)

CPT Name: **CPT16**

Preliminary Investigation, Hesselø OWF

IN SITU CPTU TESTING

Soil Profile	Soil Depth (m)	Interpreted Soil Type	Env.	Age
	0.10	CPTU sinkage		
		Extremely low to very low strength becoming low strength CLAY		
		2.88-3.14m: Medium bed of loose sand		
			Ma/Fw	Ho



KEY TO SOIL PROFILE

SILT, CLAY, SAND, GRAVEL, COBBLES, CHALK, PEAT, Mixed Soil

Assumed Unit Weight: 20 - 16 kN/m³
K_0: 0.5 - 2.0
N_{kt}: 12.5 - 16.5
N_{ke}: 15 - 20
K_0: 0.5 - 2.0

Area	**Kattegat Sea**	Coordinates	**672157.0E 6263401.9N**
Contract	**11596**	Water Depth (mMSL)	**30.7**
Client Name/Ref	**Energinet Eltransmission A/S/384_20_ENE**	Date of Test	**08/05/2021**
Vessel	**MV Ocean Vantage**	Cone No.(type)/α Factor	**130206 (50cm²) / 0.77**
Method	**20 kN Sea bed CPT**	Base Inclination	**X = 1.0° / Y = 1.0°**

CRS: **ETRS89**

Comments:
Cone class 1. Continuous seabed CPT. Final depth 33.34m. Test terminated at the operators discretion due to increasing total load~ lack of lateral rod support near mudline and total cone inclination reaching near critical

QC Status		
Preliminary	Draft	Final
JK/BC (08/05/2021)	**DR** (10/06/2021)	**SMc** (10/11/2021)

CPT Name

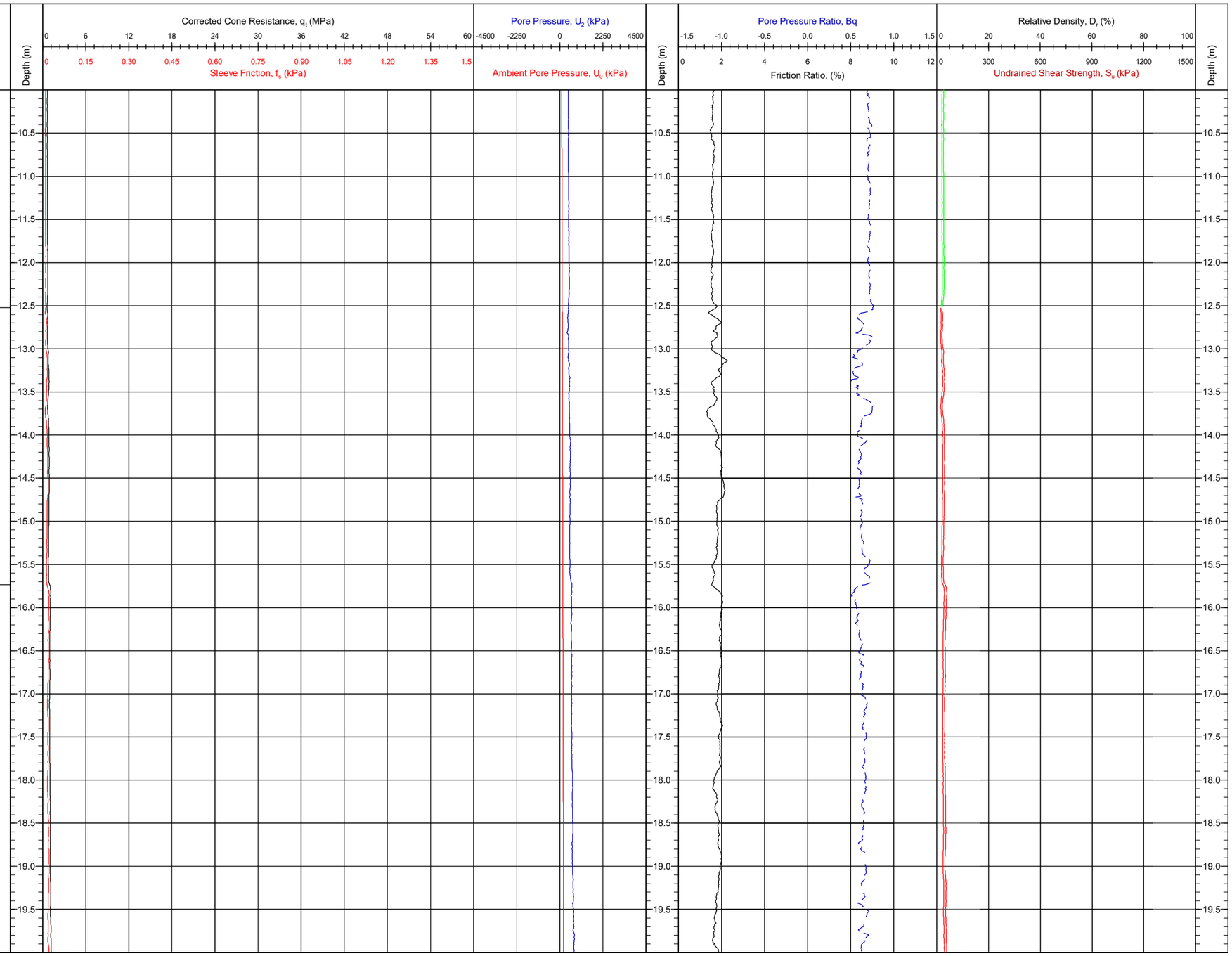
CPT16a

Preliminary Investigation, Hesselø OWF

IN SITU CPTU TESTING

Soil Type	Env.	Age	Soil Depth (m)
Extremely low to very low strength becoming low strength CLAY	Ma/Fw	Ho	12.52
Low to medium strength CLAY	Ma/Fw	Ho	15.74
Medium strength CLAY	Ma/Fw	Pg	

CPTU Sample: 1 — 130206(50) — 0.77



KEY TO SOIL PROFILE

SILT · CLAY · SAND · GRAVEL · COBBLES · CHALK · PEAT · Mixed Soil

Assumed Unit Weight: 20 - 16 kN/m³
K_C: 0.5 - 2.0
N_{KT}: 12.5 - 16.5
$N_{\Delta U}$: 15 - 20
K_Q: 0.5 - 2.0

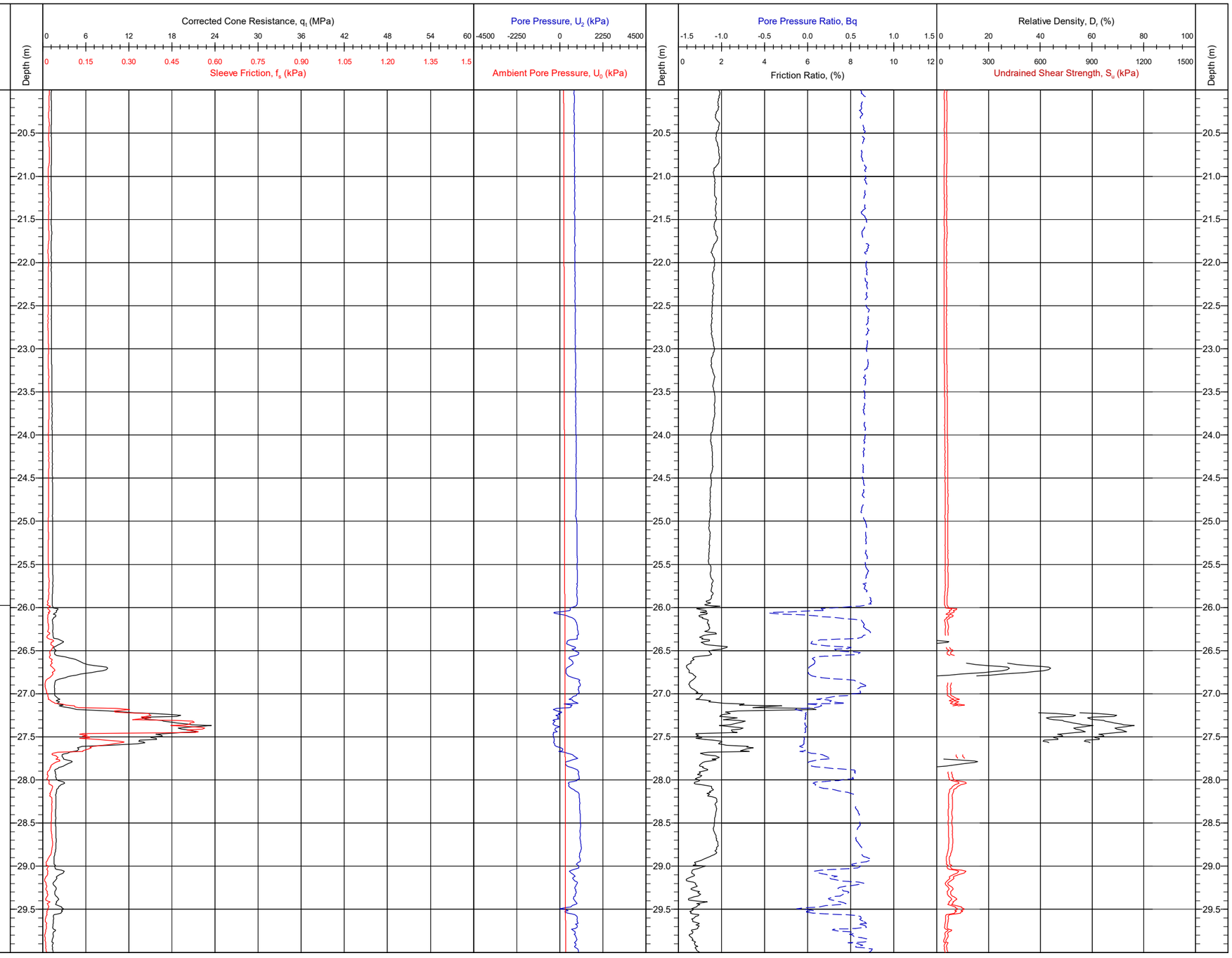
Area	**Kattegat Sea**	Coordinates	**672157.0E**	**6263401.9N**	CRS: **ETRS89**
Contract	**11596**	Water Depth (mMSL)	**30.7**		**Comments:** Cone class 1. Continuous seabed CPT. Final depth 33.34m. Test terminated at the operators discretion due to increasing total load~ lack of lateral rod support near mudline and total cone inclination reaching near critical
Client Name/Ref	**Energinet Eltransmission A/S/384_20_ENE**	Date of Test	**08/05/2021**		
Vessel	**MV Ocean Vantage**	Cone No.(type)/α Factor	**130206 (50cm²) / 0.77**		
Method	**20 kN Sea bed CPT**	Base Inclination	**X = 1.0° / Y = 1.0°**		

QC Status		
Preliminary	Draft	Final
JK/BC (08/05/2021)	**DR** (10/06/2021)	**SMc** (10/11/2021)

CPT Name: **CPT16a**

Preliminary Investigation, Hesselø OWF
IN SITU CPTU TESTING

Depth (m)	Interpreted Soil Type	Env.	Age
20.5	Medium strength CLAY	Ma/Fw	Pg
25.98	Medium to high strength CLAY with closely to widely spaced thin to medium beds of loose to medium dense locally dense sand, silty, and high to very high strength clay, sandy, between 25.86-29.40m *27.09-27.52m: Medium bed of medium dense to dense sand, gravelly*	Ma/Fw	Pg
29.5			



KEY TO SOIL PROFILE

SILT · CLAY · SAND · GRAVEL · COBBLES · CHALK · PEAT · Mixed Soil

Assumed Unit Weight: 20 - 16 kN/m³
K_C: 0.5 - 2.0
N_{kt}: 12.5 - 16.5
$N_{\Delta u}$: 15 - 20
K_S: 0.5 - 2.0

Area	**Kattegat Sea**	Coordinates	**672157.0E 6263401.9N**
Contract	**11596**	Water Depth (mMSL)	**30.7**
Client Name/Ref	**Energinet Eltransmission A/S/384_20_ENE**	Date of Test	**08/05/2021**
Vessel	**MV Ocean Vantage**	Cone No.(type)/α Factor	**130206 (50cm²) / 0.77**
Method	**20 kN Sea bed CPT**	Base Inclination	**X = 1.0° / Y = 1.0°**

CRS: **ETRS89**

Comments:
Cone class 1. Continuous seabed CPT. Final depth 33.34m. Test terminated at the operators discretion due to increasing total load~ lack of lateral rod support near mudline and total cone inclination reaching near critical

QC Status		
Preliminary	Draft	Final
JK/BC (08/05/2021)	**DR** (10/06/2021)	**SMc** (10/11/2021)

CPT Name: **CPT16a**

Preliminary Investigation, Hesselø OWF
IN SITU CPTU TESTING

Depth (m)	Interpreted Soil Type	Env.	Age
	Medium to high strength CLAY with closely to widely spaced thin to medium beds of loose to medium dense locally dense sand, silty, and high to very high strength clay, sandy, between 25.86-29.40m	Ma/Fw	Pg
33.28	Dense SAND	Ma/Fw	Pg
33.44	End of CPTU test at 33.44m		

Corrected Cone Resistance, q_t (MPa) / Sleeve Friction, f_s (kPa)

Pore Pressure, U_2 (kPa) / Ambient Pore Pressure, U_0 (kPa)

Pore Pressure Ratio, Bq / Friction Ratio, (%)

Relative Density, D_r (%) / Undrained Shear Strength, S_u (kPa)

KEY TO SOIL PROFILE

SILT, CLAY, SAND, GRAVEL, COBBLES, CHALK, PEAT, Mixed Soil

Assumed Unit Weight: 20 - 16 kN/m³
K_C 0.5 - 2.0
N_{kt} 12.5 - 16.5
N_{Q} 15 - 20
K_C 0.5 - 2.0

Area	**Kattegat Sea**	Coordinates	**672157.0E 6263401.9N**
Contract	**11596**	Water Depth (mMSL)	**30.7**
Client Name/Ref	**Energinet Eltransmission A/S/384_20_ENE**	Date of Test	**08/05/2021**
Vessel	**MV Ocean Vantage**	Cone No.(type)/α Factor	**130206 (50cm²) / 0.77**
Method	**20 kN Sea bed CPT**	Base Inclination	**X = 1.0° / Y = 1.0°**

CRS: **ETRS89**

Comments:
Cone class 1. Continuous seabed CPT. Final depth 33.34m. Test terminated at the operators discretion due to increasing total load~ lack of lateral rod support near mudline and total cone inclination reaching near critical

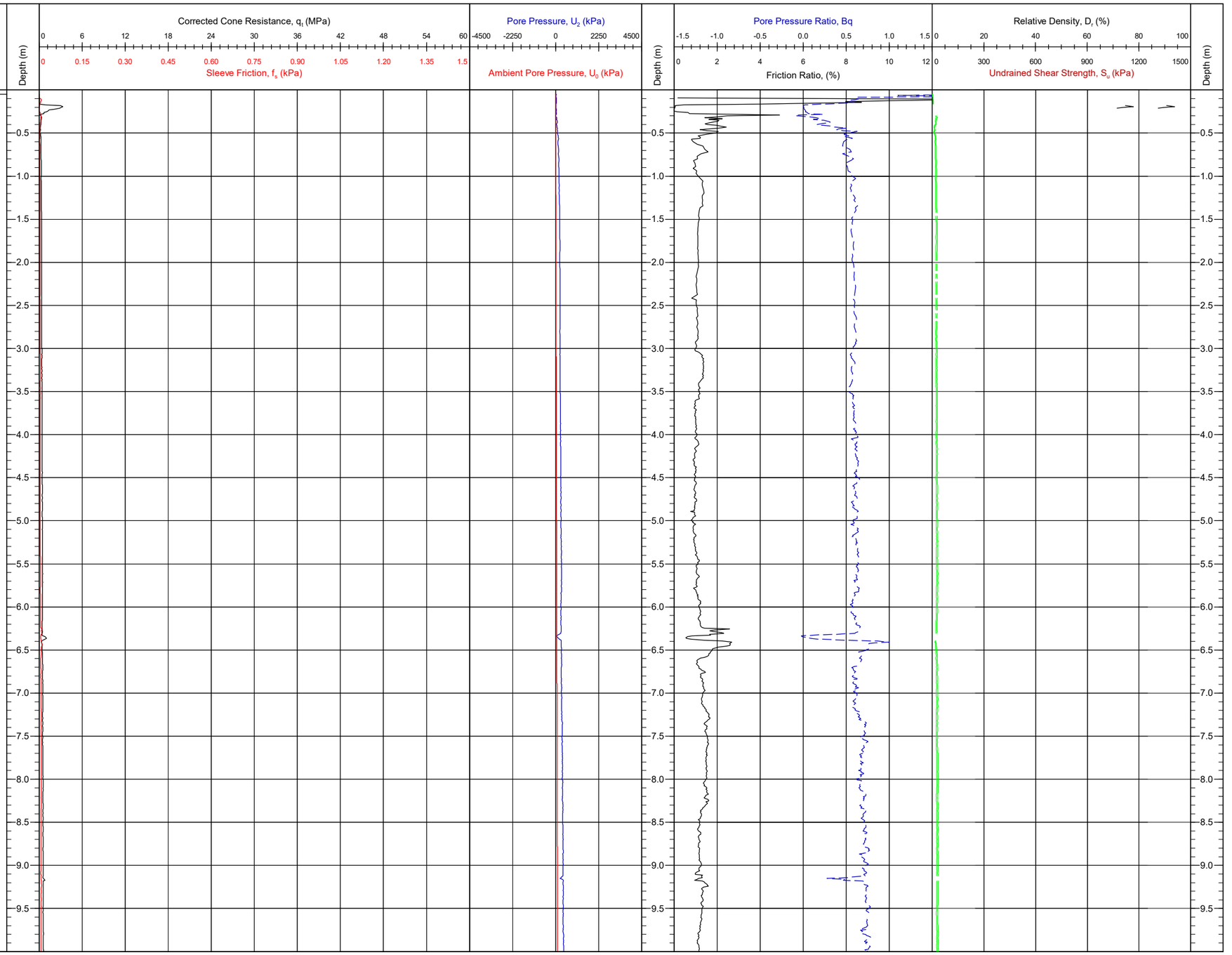
QC Status		
Preliminary	Draft	Final
JK/BC (08/05/2021)	**DR** (10/06/2021)	**SMc** (10/11/2021)

CPT Name: **CPT16a**

Preliminary Investigation, Hesselø OWF

IN SITU CPTU TESTING

Depth (m)	Soil Profile	CPTU Sample	Sample Ref No. Cone ID (Alpha)	Soil Depth (m)	Interpreted Soil Type	Env.	Age
				0.05	CPTU sinkage Extremely low to medium strength CLAY with very widely spaced thin beds of gravel *0.12-0.23m: Thin bed of dense to very dense sand*	Ma/Fw	Ho



KEY TO SOIL PROFILE

SILT · CLAY · SAND · GRAVEL · COBBLES · CHALK · PEAT · Mixed Soil

Assumed Unit Weight: 20 - 16 kN/m³
K_c: 0.5 - 2.0
N_{kt}: 12.5 - 16.5
N_{Qt}: 15 - 20
K_c: 0.5 - 2.0

Area	**Kattegat Sea**	Coordinates	**677169.5E 6263055.4N**	CRS: **ETRS89**	QC Status: Preliminary / Draft / Final
Contract	**11596**	Water Depth (mMSL)	**32.3**	**Comments:** **Cone Class1. Continuous seabed CPT. Final depth 37.74m. Test terminated at operators discretion to avoid damage due to no lateral rod support from mudline**	
Client Name/Ref	**Energinet Eltransmission A/S/384_20_ENE**	Date of Test	**25/04/2021**		
Vessel	**MV Ocean Vantage**	Cone No.(type)/α Factor	**061040 (50cm²) / 0.76**		**JK/BC** (25/04/2021) / **DR** (10/06/2021) / **SMc** (10/11/2021)
Method	**20 kN Sea bed CPT**	Base Inclination	**X = -2.0° / Y = 3.9°**		

CPT Name: **CPT18**

Preliminary Investigation, Hesselø OWF
IN SITU CPTU TESTING

Depth (m)	Soil Profile	CPTU Sample	Sample Ref No. Cone ID (Alpha)	Soil Depth (m)	Interpreted Soil Type	Env.	Age
10.5 – 19.5			1 061040(50) 0.76		Extremely low to medium strength CLAY with very widely spaced thin beds of gravel	Ma/Fw	Ho
					17.46-17.57m: Thin bed of medium to high strength clay, sandy		
				19.21	Very low to high strength CLAY with widely to very widely spaced thin beds of gravel	Ma/Fw	Pg

Corrected Cone Resistance, q_t (MPa): 0 6 12 18 24 30 36 42 48 54 60

Sleeve Friction, f_s (kPa): 0 0.15 0.30 0.45 0.60 0.75 0.90 1.05 1.20 1.35 1.5

Pore Pressure, U_2 (kPa): -4500 -2250 0 2250 4500

Ambient Pore Pressure, U_0 (kPa)

Pore Pressure Ratio, Bq: -1.5 -1.0 -0.5 0.0 0.5 1.0 1.5

Friction Ratio, (%): 0 2 4 6 8 10 12

Relative Density, D_r (%): 0 20 40 60 80 100

Undrained Shear Strength, S_u (kPa): 0 300 600 900 1200 1500

KEY TO SOIL PROFILE

SILT, CLAY, SAND, GRAVEL, COBBLES, CHALK, PEAT, Mixed Soil

Assumed Unit Weight: 20 - 16 kN/m³
K_{c^2} 0.5 - 2.0
N_{kt^2} 12.5 - 16.5
N_{kt^1} 15 - 20
K_{c^1} 0.5 - 2.0

Area	**Kattegat Sea**	Coordinates	**677169.5E 6263055.4N**
Contract	**11596**	Water Depth (mMSL)	**32.3**
Client Name/Ref	**Energinet Eltransmission A/S/384_20_ENE**	Date of Test	**25/04/2021**
Vessel	**MV Ocean Vantage**	Cone No.(type)/α Factor	**061040 (50cm²) / 0.76**
Method	**20 kN Sea bed CPT**	Base Inclination	**X = -2.0° / Y = 3.9°**

CRS: **ETRS89**

Comments:
Cone Class1. Continuous seabed CPT. Final depth 37.74m. Test terminated at operators discretion to avoid damage due to no lateral rod support from mudline

QC Status		
Preliminary	Draft	Final
JK/BC (25/04/2021)	**DR** (10/06/2021)	**SMc** (10/11/2021)

CPT Name: **CPT18**

Preliminary Investigation, Hesselø OWF

IN SITU CPTU TESTING

Depth (m)	Soil Profile	CPTU Sample	Sample Ref No. Cone ID (Alpha)	Soil Depth (m)	Interpreted Soil Type	Env.	Age
20.5 – 29.5					Very low to high strength CLAY with widely to very widely spaced thin beds of gravel	Ma/Fw	Pg

Corrected Cone Resistance, q_t (MPa): 0 6 12 18 24 30 36 42 48 54 60

Sleeve Friction, f_s (kPa): 0 0.15 0.30 0.45 0.60 0.75 0.90 1.05 1.20 1.35 1.5

Pore Pressure, U_2 (kPa): -4500 -2250 0 2250 4500

Ambient Pore Pressure, U_0 (kPa)

Pore Pressure Ratio, Bq: -1.5 -1.0 -0.5 0.0 0.5 1.0 1.5

Friction Ratio, (%): 0 2 4 6 8 10 12

Relative Density, D_r (%): 0 20 40 60 80 100

Undrained Shear Strength, S_u (kPa): 0 300 600 900 1200 1500

KEY TO SOIL PROFILE

SILT · CLAY · SAND · GRAVEL · COBBLES · CHALK · PEAT · Mixed Soil

Assumed Unit Weight: 20 - 16 kN/m³

K_c: 0.5 - 2.0
N_{kt}: 12.5 - 16.5
N_{ke}: 15 - 20
K_c: 0.5 - 2.0

Area	**Kattegat Sea**	Coordinates	**677169.5E 6263055.4N**
Contract	**11596**	Water Depth (mMSL)	**32.3**
Client Name/Ref	**Energinet Eltransmission A/S/384_20_ENE**	Date of Test	**25/04/2021**
Vessel	**MV Ocean Vantage**	Cone No.(type)/α Factor	**061040 (50cm²) / 0.76**
Method	**20 kN Sea bed CPT**	Base Inclination	**X = -2.0° / Y = 3.9°**

CRS: **ETRS89**

Comments:
Cone Class1. Continuous seabed CPT. Final depth 37.74m. Test terminated at operators discretion to avoid damage due to no lateral rod support from mudline

QC Status		
Preliminary	Draft	Final
JK/BC (25/04/2021)	**DR** (10/06/2021)	**SMc** (10/11/2021)

CPT Name

CPT18

Preliminary Investigation, Hesselø OWF

IN SITU CPTU TESTING

Depth (m)	Interpreted Soil Type	Env.	Age
30.5	Very low to high strength CLAY with widely to very widely spaced thin beds of gravel	Ma/Fw	Pg
36.19	High to very high strength CLAY, silty, with widely spaced thin to medium beds of medium dense sand, silty	Ma/Fw	Lg
37.79	End of CPTU test at 37.79m		

Corrected Cone Resistance, q_t (MPa) 0 6 12 18 24 30 36 42 48 54 60

Sleeve Friction, f_s (kPa) 0 0.15 0.30 0.45 0.60 0.75 0.90 1.05 1.20 1.35 1.5

Pore Pressure, U_2 (kPa) -4500 -2250 0 2250 4500

Ambient Pore Pressure, U_0 (kPa)

Pore Pressure Ratio, Bq -1.5 -1.0 -0.5 0.0 0.5 1.0 1.5

Friction Ratio, (%) 0 2 4 6 8 10 12

Relative Density, D_r (%) 0 20 40 60 80 100

Undrained Shear Strength, S_u (kPa) 0 300 600 900 1200 1500

KEY TO SOIL PROFILE

SILT, CLAY, SAND, GRAVEL, COBBLES, CHALK, PEAT, Mixed Soil

Assumed Unit Weight: 20 - 16 kN/m³
K_C 0.5 - 2.0
N_{KT} 12.5 - 16.5
$N_{\Delta U}$ 15 - 20
K_S 0.5 - 2.0

Area	**Kattegat Sea**	Coordinates	**677169.5E 6263055.4N**
Contract	**11596**	Water Depth (mMSL)	**32.3**
Client Name/Ref	**Energinet Eltransmission A/S/384_20_ENE**	Date of Test	**25/04/2021**
Vessel	**MV Ocean Vantage**	Cone No.(type)/α Factor	**061040 (50cm²) / 0.76**
Method	**20 kN Sea bed CPT**	Base Inclination	**X = -2.0° / Y = 3.9°**

CRS: **ETRS89**

Comments:
Cone Class1. Continuous seabed CPT. Final depth 37.74m. Test terminated at operators discretion to avoid damage due to no lateral rod support from mudline

QC Status		
Preliminary	Draft	Final
JK/BC (25/04/2021)	**DR** (10/06/2021)	**SMc** (10/11/2021)

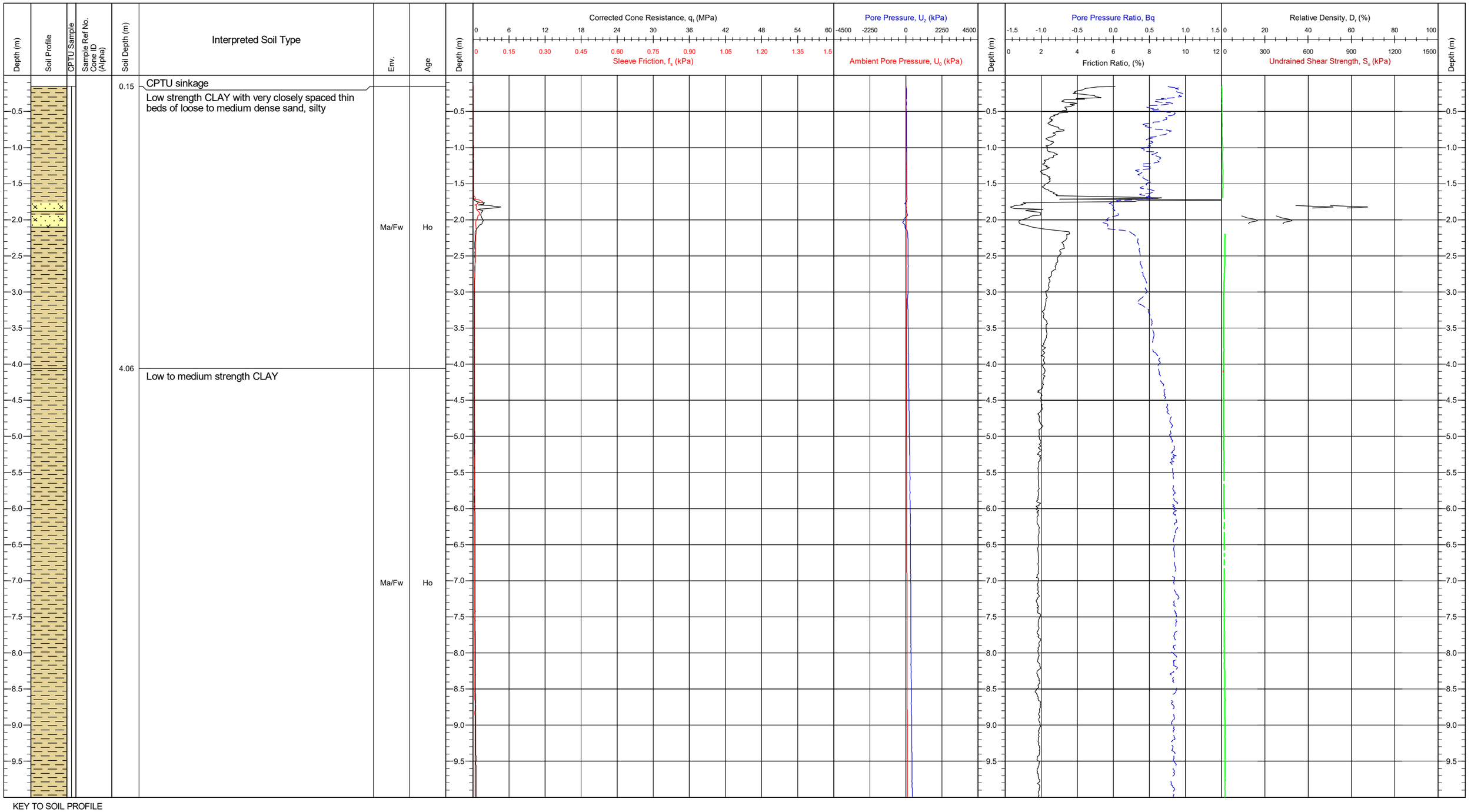
CPT Name

CPT18

Preliminary Investigation, Hesselø OWF

IN SITU CPTU TESTING

Soil Depth (m)	Interpreted Soil Type	Env.	Age
0.15	CPTU sinkage		
	Low strength CLAY with very closely spaced thin beds of loose to medium dense sand, silty	Ma/Fw	Ho
4.06	Low to medium strength CLAY	Ma/Fw	Ho



KEY TO SOIL PROFILE

SILT · CLAY · SAND · GRAVEL · COBBLES · CHALK · PEAT · Mixed Soil

Assumed Unit Weight: 20 - 16 kN/m³
K_p: 0.5 - 2.0
N_{kt}: 12.5 - 16.5
N_{ke}: 15 - 20
K_p: 0.5 - 2.0

Area	**Kattegat Sea**	Coordinates	**673775.6E 6266929.1N**
Contract	**11596**	Water Depth (mMSL)	**31.5**
Client Name/Ref	**Energinet Eltransmission A/S/384_20_ENE**	Date of Test	**25/04/2021**
Vessel	**MV Ocean Vantage**	Cone No.(type)/α Factor	**120829 (50cm²) / 0.80**
Method	**20 kN Sea bed CPT**	Base Inclination	**X = 0.1° / Y = -0.1°**

CRS: **ETRS89**

Comments:
Cone class 2. Continuous seabed CPT. Final depth 49.67m. Test terminated at operators discretion to avoid damage due to lack of lateral rod support from mudline and an increasing total load

QC Status		
Preliminary	Draft	Final
JK/BC (25/04/2021)	**DR** (10/06/2021)	**SMc** (10/11/2021)

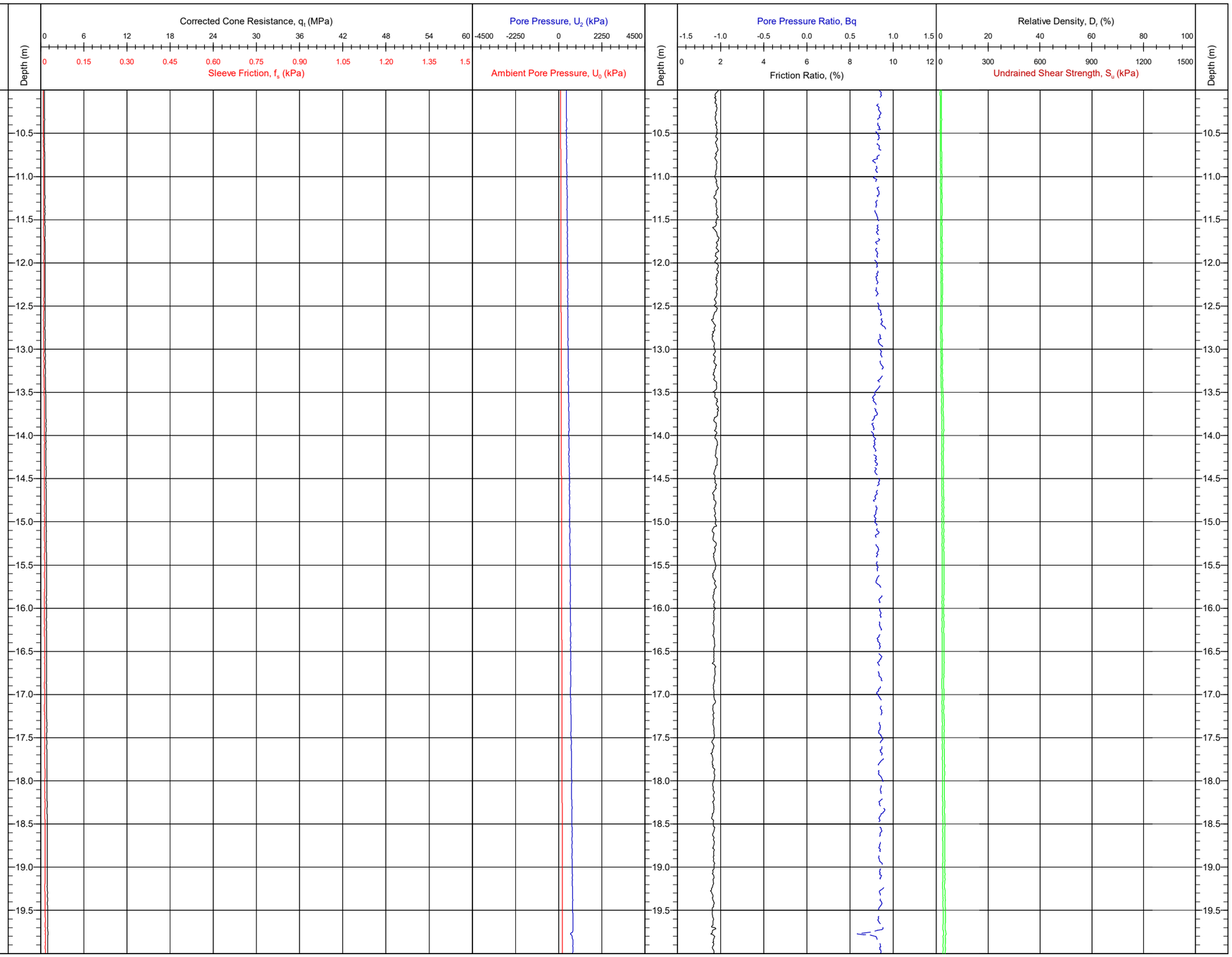
CPT Name

CPT20

Preliminary Investigation, Hesselø OWF

IN SITU CPTU TESTING

Depth (m)	Soil Profile	CPTU Sample	Sample Ref No. Cone ID (Alpha)	Soil Depth (m)	Interpreted Soil Type	Env.	Age
10.5 – 19.5					Low to medium strength CLAY	Ma/Fw	Ho



KEY TO SOIL PROFILE

SILT, CLAY, SAND, GRAVEL, COBBLES, CHALK, PEAT, Mixed Soil

Assumed Unit Weight: 20 - 16 kN/m³
K_C 0.5 - 2.0
N_{kT} 12.5 - 16.5
$N_{\Delta U}$ 15 - 20
K_S 0.5 - 2.0

Area	**Kattegat Sea**	Coordinates	**673775.6E 6266929.1N**
Contract	**11596**	Water Depth (mMSL)	**31.5**
Client Name/Ref	**Energinet Eltransmission A/S/384_20_ENE**	Date of Test	**25/04/2021**
Vessel	**MV Ocean Vantage**	Cone No.(type)/α Factor	**120829 (50cm²) / 0.80**
Method	**20 kN Sea bed CPT**	Base Inclination	**X = 0.1° / Y = -0.1°**

CRS: **ETRS89**

Comments:
Cone class 2. Continuous seabed CPT. Final depth 49.67m. Test terminated at operators discretion to avoid damage due to lack of lateral rod support from mudline and an increasing total load

QC Status		
Preliminary	Draft	Final
JK/BC (25/04/2021)	**DR** (10/06/2021)	**SMc** (10/11/2021)

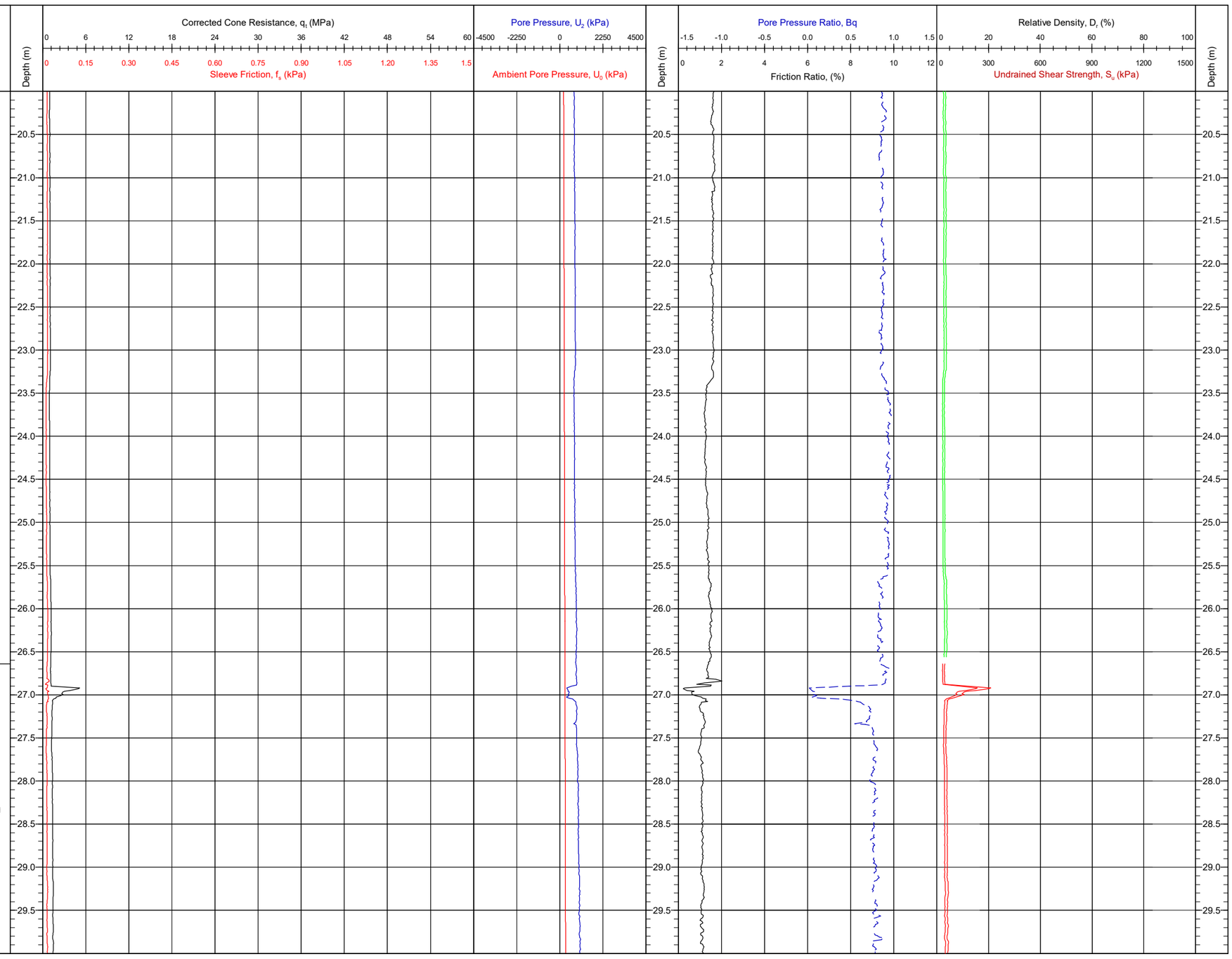
CPT Name

CPT20

Preliminary Investigation, Hesselø OWF

IN SITU CPTU TESTING

Depth (m)	Soil Profile	CPTU Sample	Sample Ref No. Cone ID (Alpha)	Soil Depth (m)	Interpreted Soil Type	Env.	Age
20.5 – 29.5			1 120829(50) 0.8		Low to medium strength CLAY	Ma/Fw	Ho
				26.64	Medium to high strength CLAY with widely to very widely spaced thin to medium beds of very high strength clay, sandy	Ma/Fw	Pg/Lg



KEY TO SOIL PROFILE

SILT, CLAY, SAND, GRAVEL, COBBLES, CHALK, PEAT, Mixed Soil

Assumed Unit Weight: 20 - 16 kN/m³
K_C 0.5 - 2.0
N_{kt} 12.5 - 16.5
$N_{\Delta u}$ 15 - 20
K_C 0.5 - 2.0

Area	**Kattegat Sea**	Coordinates	**673775.6E 6266929.1N**
Contract	**11596**	Water Depth (mMSL)	**31.5**
Client Name/Ref	**Energinet Eltransmission A/S/384_20_ENE**	Date of Test	**25/04/2021**
Vessel	**MV Ocean Vantage**	Cone No.(type)/α Factor	**120829 (50cm²) / 0.80**
Method	**20 kN Sea bed CPT**	Base Inclination	**X = 0.1° / Y = -0.1°**

CRS: **ETRS89**

Comments:
Cone class 2. Continuous seabed CPT. Final depth 49.67m. Test terminated at operators discretion to avoid damage due to lack of lateral rod support from mudline and an increasing total load

QC Status		
Preliminary	Draft	Final
JK/BC (25/04/2021)	**DR** (10/06/2021)	**SMc** (10/11/2021)

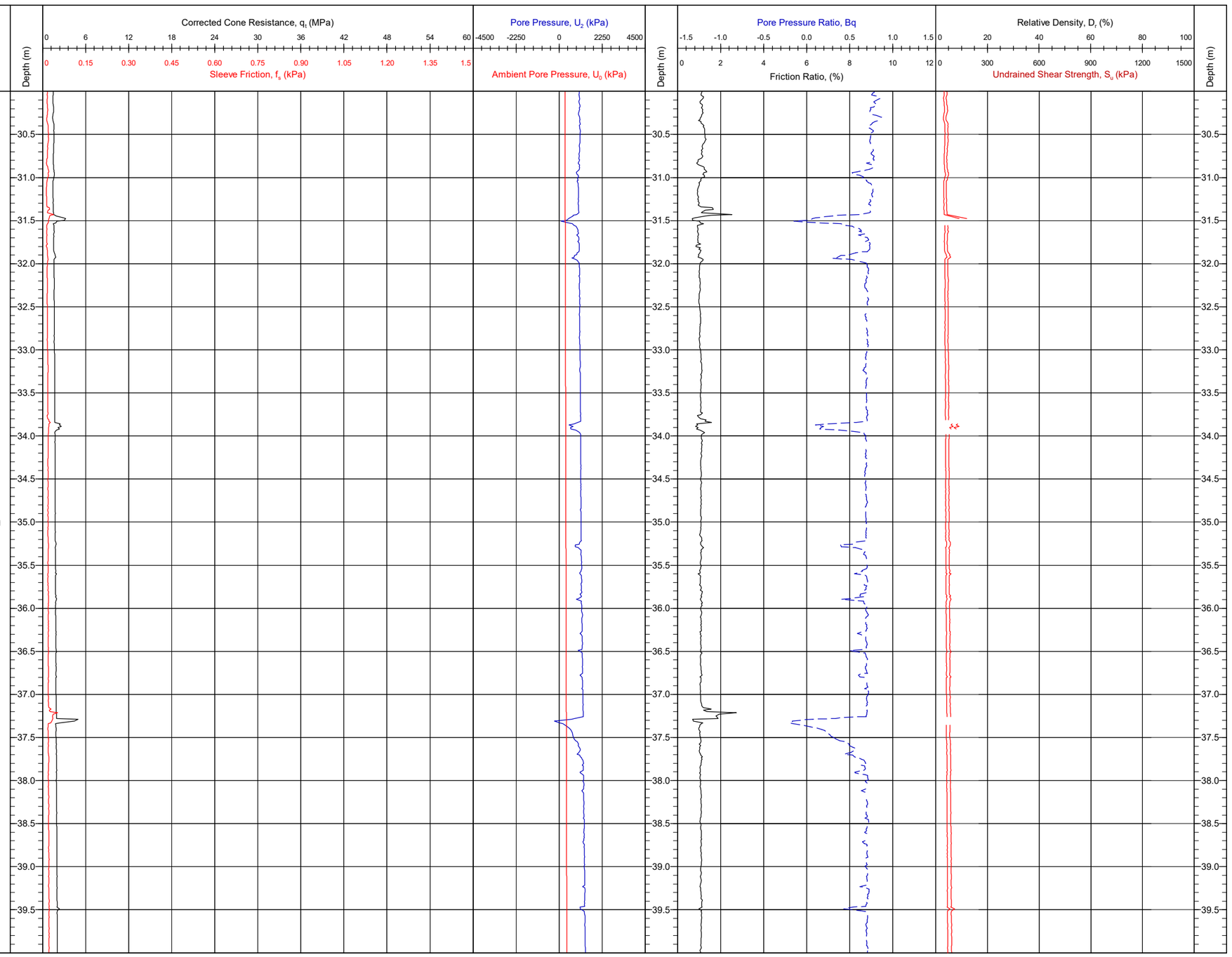
CPT Name

CPT20

Preliminary Investigation, Hesselø OWF

IN SITU CPTU TESTING

Depth (m)	Soil Profile	CPTU Sample	Sample Ref No. Cone ID (Alpha)	Soil Depth (m)	Interpreted Soil Type	Env.	Age
30.5 – 39.5					Medium to high strength CLAY with widely to very widely spaced thin to medium beds of very high strength clay, sandy	Ma/Fw	Pg/Lg



KEY TO SOIL PROFILE

SILT · CLAY · SAND · GRAVEL · COBBLES · CHALK · PEAT · Mixed Soil

Assumed Unit Weight: 20 - 16 kN/m³
K_C 0.5 - 2.0
N_{kt} 12.5 - 16.5
$N_{\Delta u}$ 15 - 20
K_C 0.5 - 2.0

Area	**Kattegat Sea**	Coordinates	**673775.6E 6266929.1N**
Contract	**11596**	Water Depth (mMSL)	**31.5**
Client Name/Ref	**Energinet Eltransmission A/S/384_20_ENE**	Date of Test	**25/04/2021**
Vessel	**MV Ocean Vantage**	Cone No.(type)/α Factor	**120829 (50cm²) / 0.80**
Method	**20 kN Sea bed CPT**	Base Inclination	**X = 0.1° / Y = -0.1°**

CRS: **ETRS89**

Comments:
Cone class 2. Continuous seabed CPT. Final depth 49.67m. Test terminated at operators discretion to avoid damage due to lack of lateral rod support from mudline and an increasing total load

QC Status		
Preliminary	Draft	Final
JK/BC (25/04/2021)	**DR** (10/06/2021)	**SMc** (10/11/2021)

CPT Name

CPT20

Preliminary Investigation, Hesselø OWF

IN SITU CPTU TESTING

Depth (m)	Interpreted Soil Type	Env.	Age
40.5	Medium to high strength CLAY with widely to very widely spaced thin to medium beds of very high strength clay, sandy	Ma/Fw	Pg/Lg
	47.72-47.76m: Thin bed of gravel		
48.64	Very high to extremely high strength CLAY	Ma/Fw	Lg
49.82	End of CPTU test at 49.82m		

Corrected Cone Resistance, q_t (MPa) 0 6 12 18 24 30 36 42 48 54 60

Sleeve Friction, f_s (kPa) 0 0.15 0.30 0.45 0.60 0.75 0.90 1.05 1.20 1.35 1.5

Pore Pressure, U_2 (kPa) -4500 -2250 0 2250 4500

Ambient Pore Pressure, U_0 (kPa)

Pore Pressure Ratio, Bq -1.5 -1.0 -0.5 0.0 0.5 1.0 1.5

Friction Ratio, (%) 0 2 4 6 8 10 12

Relative Density, D_r (%) 0 20 40 60 80 100

Undrained Shear Strength, S_u (kPa) 0 300 600 900 1200 1500

KEY TO SOIL PROFILE

SILT, CLAY, SAND, GRAVEL, COBBLES, CHALK, PEAT, Mixed Soil

Assumed Unit Weight: 20 - 16 kN/m³
K_c 0.5 - 2.0
N_{kt} 12.5 - 16.5
N_{ke} 15 - 20
K_c 0.5 - 2.0

Area	**Kattegat Sea**	Coordinates	**673775.6E 6266929.1N**
Contract	**11596**	Water Depth (mMSL)	**31.5**
Client Name/Ref	**Energinet Eltransmission A/S/384_20_ENE**	Date of Test	**25/04/2021**
Vessel	**MV Ocean Vantage**	Cone No.(type)/α Factor	**120829 (50cm²) / 0.80**
Method	**20 kN Sea bed CPT**	Base Inclination	**X = 0.1° / Y = -0.1°**

CRS: **ETRS89**

Comments:
Cone class 2. Continuous seabed CPT. Final depth 49.67m. Test terminated at operators discretion to avoid damage due to lack of lateral rod support from mudline and an increasing total load

QC Status		
Preliminary	Draft	Final
JK/BC (25/04/2021)	**DR** (10/06/2021)	**SMc** (10/11/2021)

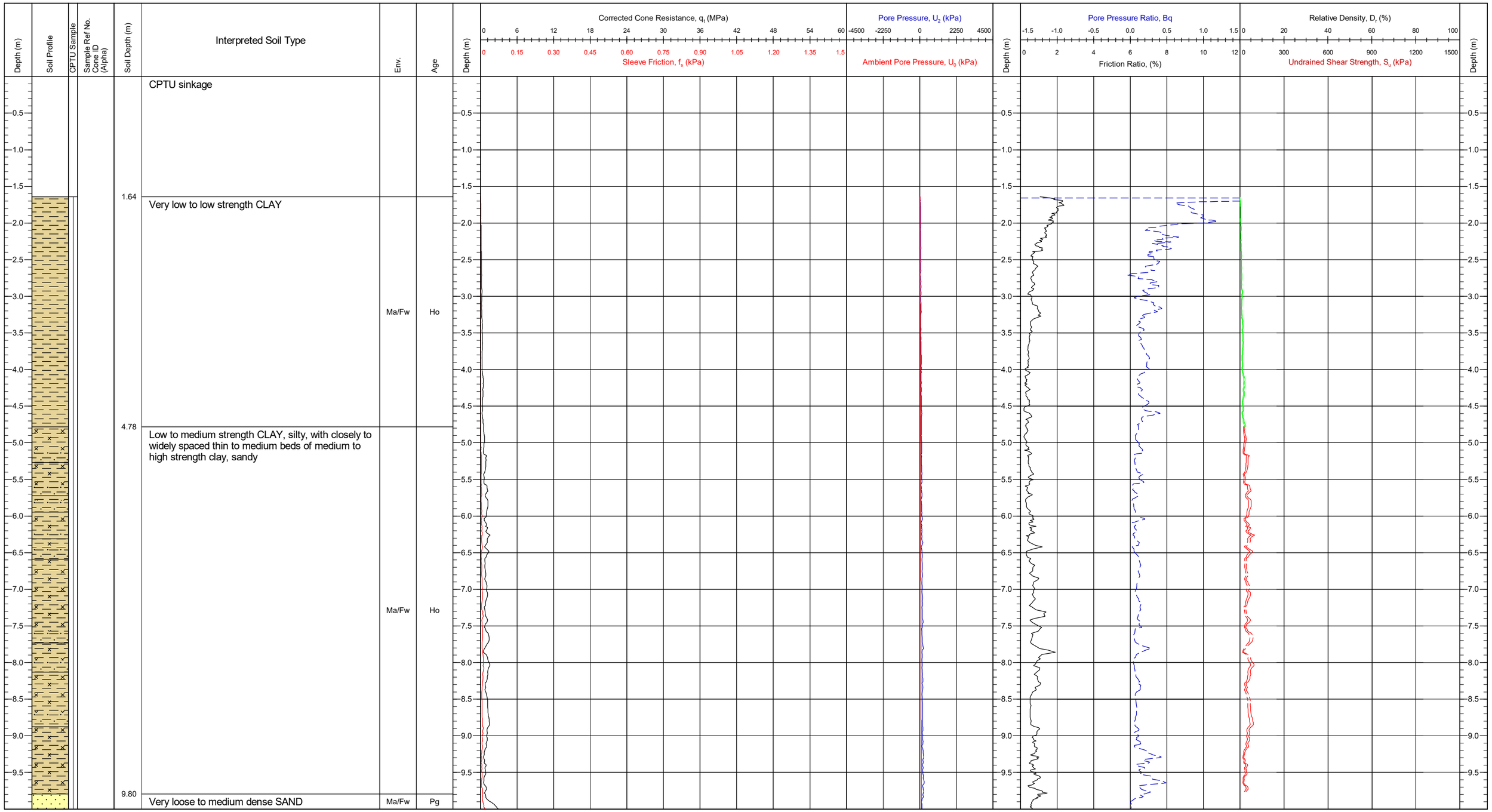
CPT Name

CPT20

Preliminary Investigation, Hesselø OWF

IN SITU CPTU TESTING

Soil Depth (m)	Interpreted Soil Type	Env.	Age
	CPTU sinkage		
1.64	Very low to low strength CLAY	Ma/Fw	Ho
4.78	Low to medium strength CLAY, silty, with closely to widely spaced thin to medium beds of medium to high strength clay, sandy	Ma/Fw	Ho
9.80	Very loose to medium dense SAND	Ma/Fw	Pg



KEY TO SOIL PROFILE

SILT · CLAY · SAND · GRAVEL · COBBLES · CHALK · PEAT · Mixed Soil

Assumed Unit Weight: 20 - 16 kN/m³
K_C: 0.5 - 2.0
N_{KT}: 12.5 - 16.5
$N_{\Delta u}$: 15 - 20
K_Q: 0.5 - 2.0

Area	**Kattegat Sea**	Coordinates	**674320.0E 6270140.2N**	CRS: **ETRS89**	
Contract	**11596**	Water Depth (mMSL)	**31.4**	**Comments:** **Cone class 1. Continuous seabed CPT. Final depth 44.45m. Test terminated due to increasing cone inclination reaching maximum cone inclination threshold of 12 degrees~ risk of rod bend and buckling rods**	
Client Name/Ref	**Energinet Eltransmission A/S/384_20_ENE**	Date of Test	**30/04/2021**		
Vessel	**MV Ocean Vantage**	Cone No.(type)/α Factor	**181004 (50cm²) / 0.81**		
Method	**20 kN Sea bed CPT**	Base Inclination	**X = 1.2° / Y = 0.9°**		

QC Status		
Preliminary	Draft	Final
JK/BC (30/04/2021)	**DR** (10/06/2021)	**SMc** (10/11/2021)

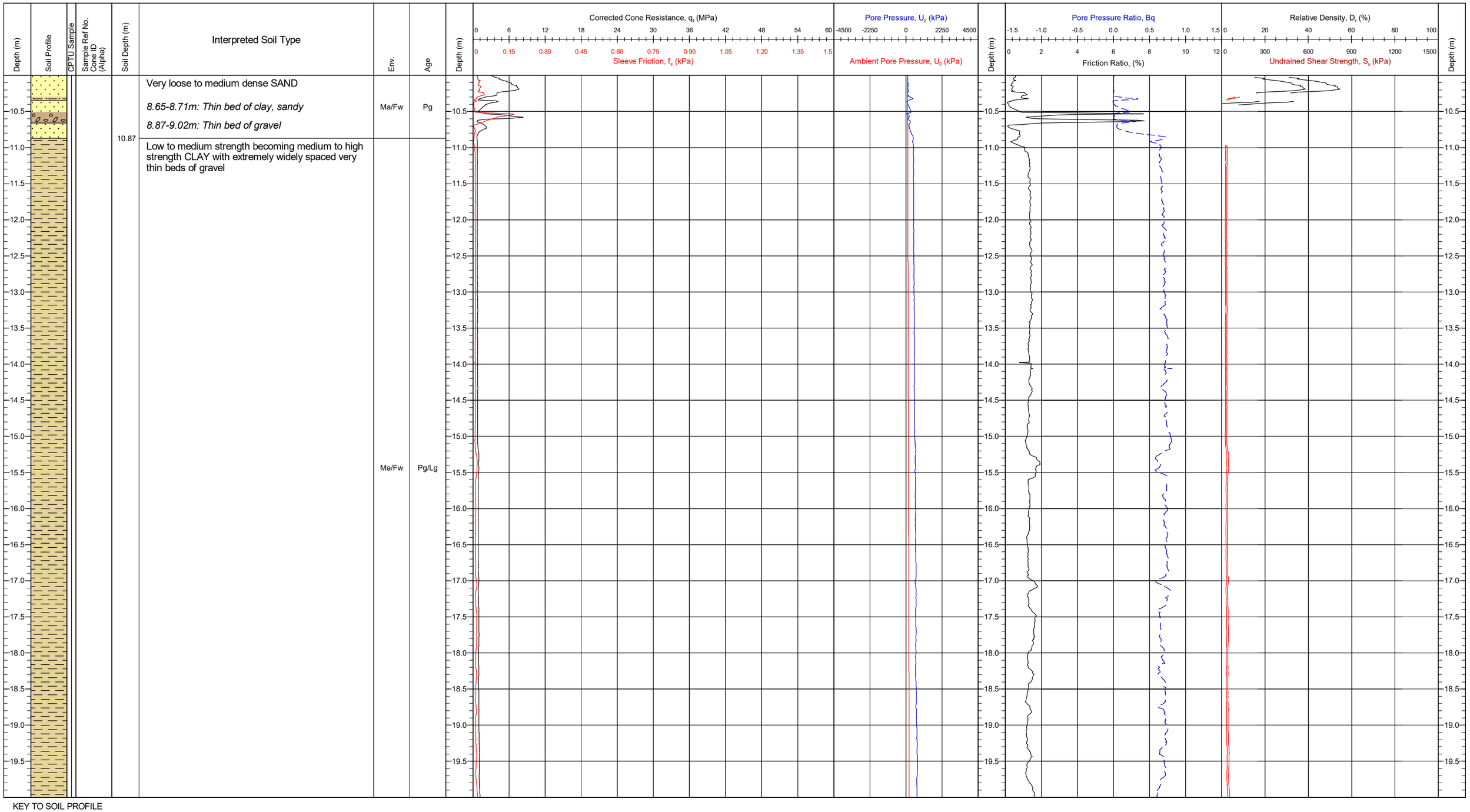
CPT Name

CPT22

Preliminary Investigation, Hesselø OWF

IN SITU CPTU TESTING

Soil Depth (m)	Interpreted Soil Type	Env.	Age
	Very loose to medium dense SAND		
	8.65-8.71m: Thin bed of clay, sandy	Ma/Fw	Pg
	8.87-9.02m: Thin bed of gravel		
10.87	Low to medium strength becoming medium to high strength CLAY with extremely widely spaced very thin beds of gravel		
		Ma/Fw	Pg/Lg



KEY TO SOIL PROFILE

SILT · CLAY · SAND · GRAVEL · COBBLES · CHALK · PEAT · Mixed Soil

Assumed Unit Weight: 20 - 16 kN/m³
K_C 0.5 - 2.0
N_{kt} 12.5 - 16.5
$N_{\Delta u}$ 15 - 20
K_Q 0.5 - 2.0

Area	**Kattegat Sea**	Coordinates	**674320.0E 6270140.2N**
Contract	**11596**	Water Depth (mMSL)	**31.4**
Client Name/Ref	**Energinet Eltransmission A/S/384_20_ENE**	Date of Test	**30/04/2021**
Vessel	**MV Ocean Vantage**	Cone No.(type)/α Factor	**181004 (50cm²) / 0.81**
Method	**20 kN Sea bed CPT**	Base Inclination	**X = 1.2° / Y = 0.9°**

CRS: **ETRS89**

Comments:
Cone class 1. Continuous seabed CPT. Final depth 44.45m. Test terminated due to increasing cone inclination reaching maximum cone inclination threshold of 12 degrees~ risk of rod bend and buckling rods

QC Status		
Preliminary	Draft	Final
JK/BC (30/04/2021)	**DR** (10/06/2021)	**SMc** (10/11/2021)

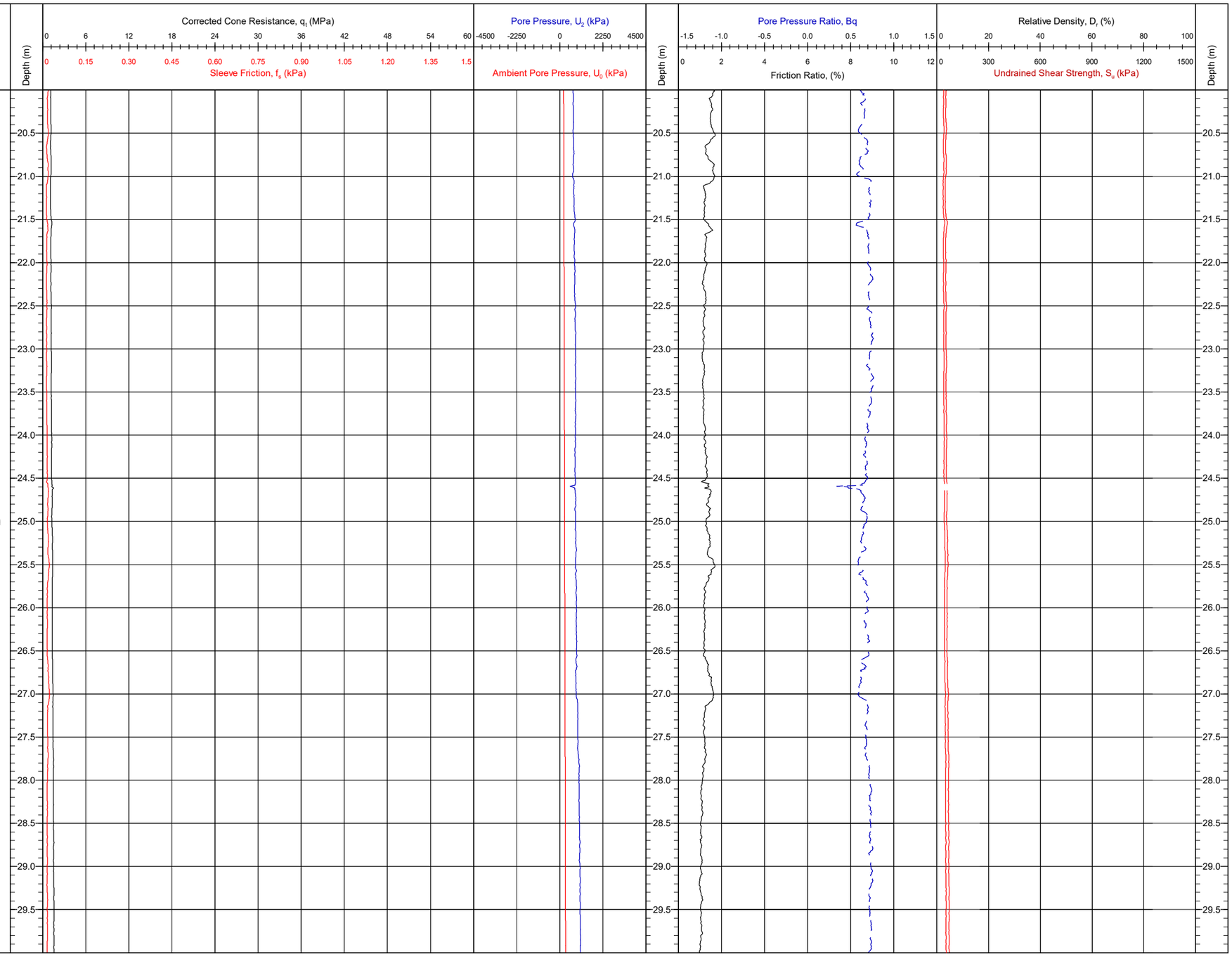
CPT Name

CPT22

Preliminary Investigation, Hesselø OWF

IN SITU CPTU TESTING

Depth (m)	Soil Profile	CPTU Sample	Sample Ref No. Cone ID (Alpha)	Soil Depth (m)	Interpreted Soil Type	Env.	Age
20.5					Low to medium strength becoming medium to high strength CLAY with extremely widely spaced very thin beds of gravel		
21.0							
21.5							
22.0							
22.5							
23.0							
23.5							
24.0			1 181004(50) 0.81				
24.5							
25.0						Ma/Fw	Pg/Lg
25.5							
26.0							
26.5							
27.0							
27.5							
28.0							
28.5							
29.0							
29.5							



KEY TO SOIL PROFILE

SILT · CLAY · SAND · GRAVEL · COBBLES · CHALK · PEAT · Mixed Soil

Assumed Unit Weight: 20 - 16 kN/m³
K_C 0.5 - 2.0
N_{kt} 12.5 - 16.5
$N_{\Delta u}$ 15 - 20
K_C 0.5 - 2.0

Area	**Kattegat Sea**	Coordinates	**674320.0E 6270140.2N**
Contract	**11596**	Water Depth (mMSL)	**31.4**
Client Name/Ref	**Energinet Eltransmission A/S/384_20_ENE**	Date of Test	**30/04/2021**
Vessel	**MV Ocean Vantage**	Cone No.(type)/α Factor	**181004 (50cm²) / 0.81**
Method	**20 kN Sea bed CPT**	Base Inclination	**X = 1.2° / Y = 0.9°**

CRS: **ETRS89**

Comments:
Cone class 1. Continuous seabed CPT. Final depth 44.45m. Test terminated due to increasing cone inclination reaching maximum cone inclination threshold of 12 degrees~ risk of rod bend and buckling rods

QC Status		
Preliminary	Draft	Final
JK/BC (30/04/2021)	**DR** (10/06/2021)	**SMc** (10/11/2021)

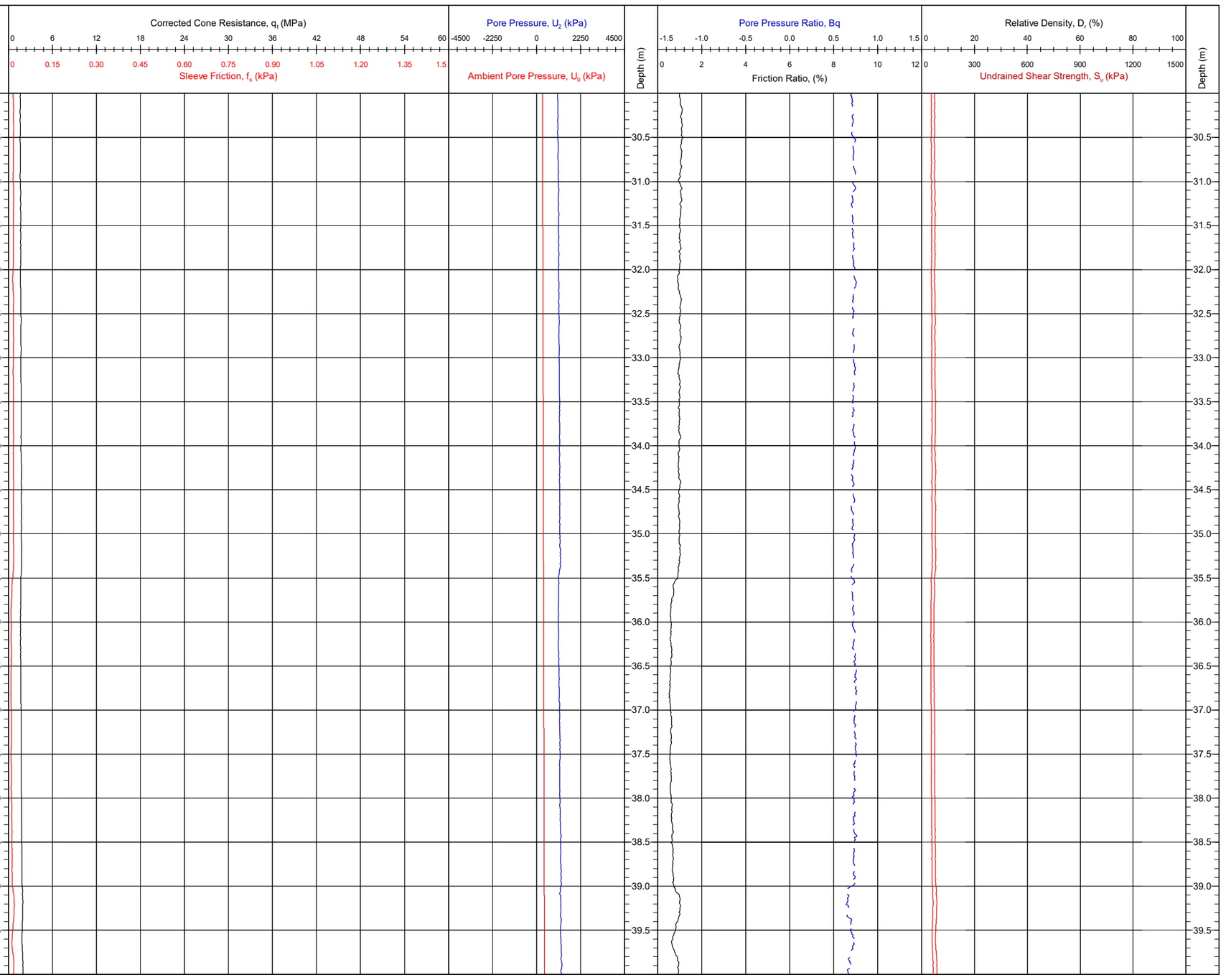
CPT Name

CPT22

Preliminary Investigation, Hesselø OWF

IN SITU CPTU TESTING

Depth (m)	Soil Profile	CPTU Sample	Sample Ref No. Cone ID (Alpha)	Soil Depth (m)	Interpreted Soil Type	Env.	Age
30.5 – 39.5					Low to medium strength becoming medium to high strength CLAY with extremely widely spaced very thin beds of gravel	Ma/Fw	Pg/Lg



KEY TO SOIL PROFILE

SILT · CLAY · SAND · GRAVEL · COBBLES · CHALK · PEAT · Mixed Soil

Assumed Unit Weight: 20 - 16 kN/m³
K_C 0.5 - 2.0
N_{kt} 12.5 - 16.5
$N_{\Delta u}$ 15 - 20
K_C 0.5 - 2.0

Area	**Kattegat Sea**	Coordinates	**674320.0E 6270140.2N**
Contract	**11596**	Water Depth (mMSL)	**31.4**
Client Name/Ref	**Energinet Eltransmission A/S/384_20_ENE**	Date of Test	**30/04/2021**
Vessel	**MV Ocean Vantage**	Cone No.(type)/α Factor	**181004 (50cm²) / 0.81**
Method	**20 kN Sea bed CPT**	Base Inclination	**X = 1.2° / Y = 0.9°**

CRS: **ETRS89**

Comments:
Cone class 1. Continuous seabed CPT. Final depth 44.45m. Test terminated due to increasing cone inclination reaching maximum cone inclination threshold of 12 degrees~ risk of rod bend and buckling rods

QC Status		
Preliminary	Draft	Final
JK/BC (30/04/2021)	**DR** (10/06/2021)	**SMc** (10/11/2021)

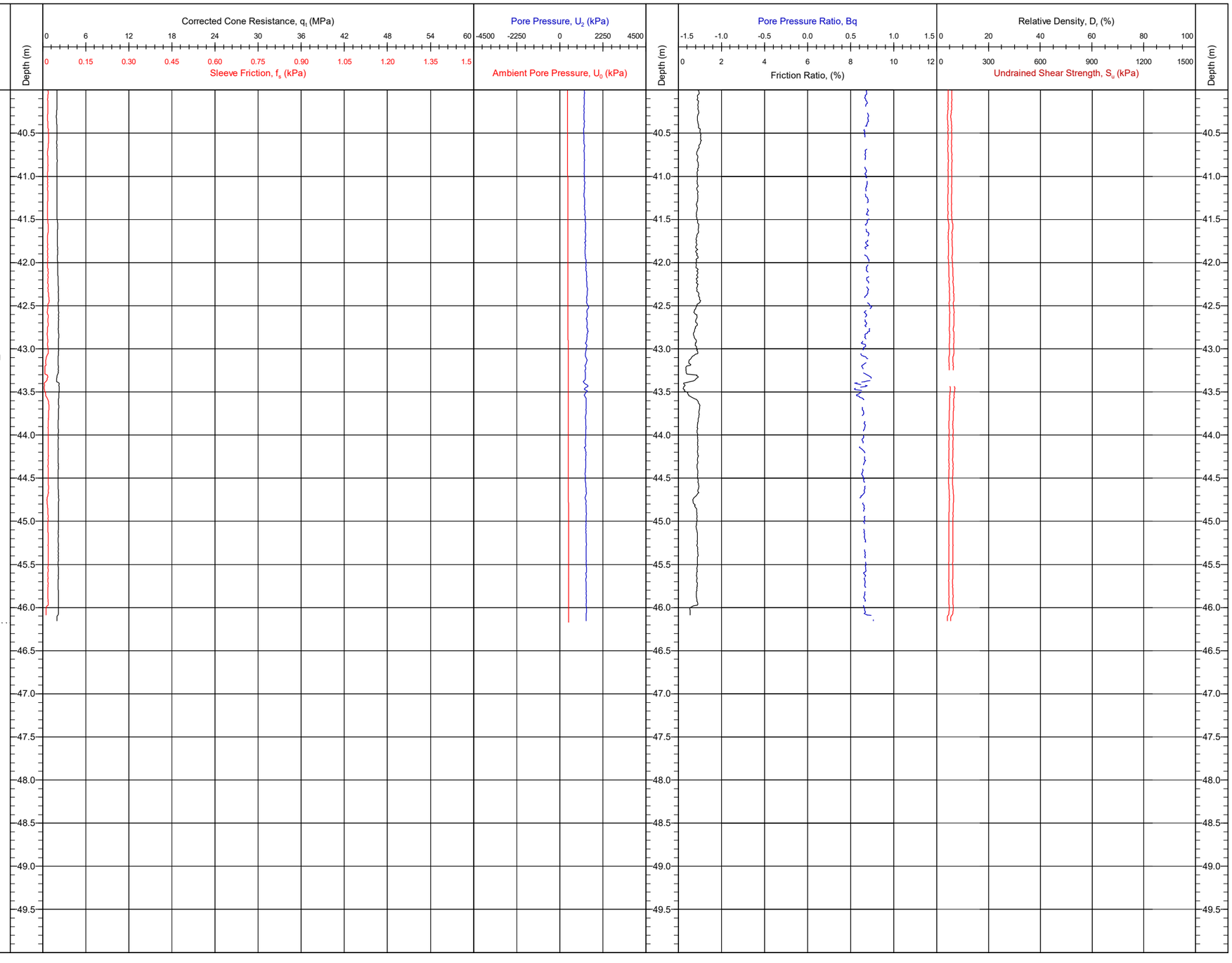
CPT Name

CPT22

Preliminary Investigation, Hesselø OWF

IN SITU CPTU TESTING

Depth (m)	Soil Profile	CPTU Sample	Sample Ref No. Cone ID (Alpha)	Soil Depth (m)	Interpreted Soil Type	Env.	Age
40.5					Low to medium strength becoming medium to high strength CLAY with extremely widely spaced very thin beds of gravel	Ma/Fw	Pg/Lg
41.0							
41.5							
42.0							
42.5							
43.0							
43.5							
44.0							
44.5							
45.0							
45.5							
46.0					End of CPTU test at 46.18m		
46.5							
47.0							
47.5							
48.0							
48.5							
49.0							
49.5							



KEY TO SOIL PROFILE

SILT · CLAY · SAND · GRAVEL · COBBLES · CHALK · PEAT · Mixed Soil

Assumed Unit Weight: 20 - 16 kN/m³
K_C 0.5 - 2.0
N_{kt} 12.5 - 16.5
$N_{\Delta u}$ 15 - 20
K_C 0.5 - 2.0

Area	**Kattegat Sea**	Coordinates	**674320.0E 6270140.2N**	CRS: **ETRS89**	QC Status
Contract	**11596**	Water Depth (mMSL)	**31.4**	**Comments:** **Cone class 1. Continuous seabed CPT. Final depth 44.45m. Test terminated due to increasing cone inclination reaching maximum cone inclination threshold of 12 degrees~ risk of rod bend and buckling rods**	Preliminary: **JK/BC** (30/04/2021) · Draft: **DR** (10/06/2021) · Final: **SMc** (10/11/2021)
Client Name/Ref	**Energinet Eltransmission A/S/384_20_ENE**	Date of Test	**30/04/2021**		
Vessel	**MV Ocean Vantage**	Cone No.(type)/α Factor	**181004 (50cm²) / 0.81**		
Method	**20 kN Sea bed CPT**	Base Inclination	**X = 1.2° / Y = 0.9°**		

CPT Name: **CPT22**

Preliminary Investigation, Hesselø OWF
IN SITU CPTU TESTING

Interpreted Soil Type	Env.	Age	Soil Depth (m)
CPTU sinkage			
Very low to low strength CLAY with medium spaced thin beds of clay, sandy	Ma/Fw	Ho	0.46

Corrected Cone Resistance, q_t (MPa) / Sleeve Friction, f_s (kPa)

Pore Pressure, U_2 (kPa) / Ambient Pore Pressure, U_0 (kPa)

Pore Pressure Ratio, Bq / Friction Ratio, (%)

Relative Density, D_r (%) / Undrained Shear Strength, S_u (kPa)

KEY TO SOIL PROFILE

SILT, CLAY, SAND, GRAVEL, COBBLES, CHALK, PEAT, Mixed Soil

Assumed Unit Weight: 20 - 16 kN/m³
K_c: 0.5 - 2.0
N_{kt}: 12.5 - 16.5
N_{ke}: 15 - 20
K_c: 0.5 - 2.0

Area	**Kattegat Sea**	Coordinates	**676253.1E 6269555.3N**
Contract	**11596**	Water Depth (mMSL)	**31.6**
Client Name/Ref	**Energinet Eltransmission A/S/384_20_ENE**	Date of Test	**01/05/2021**
Vessel	**MV Ocean Vantage**	Cone No.(type)/α Factor	**191114 (50cm²) / 0.76**
Method	**20 kN Sea bed CPT**	Base Inclination	**X = 1.2° / Y = 0.7°**

CRS: **ETRS89**

Comments:
Out of Class. Continuous seabed CPT. Final depth 40.84m. Test terminated at operators discretion due to risk of rod bend

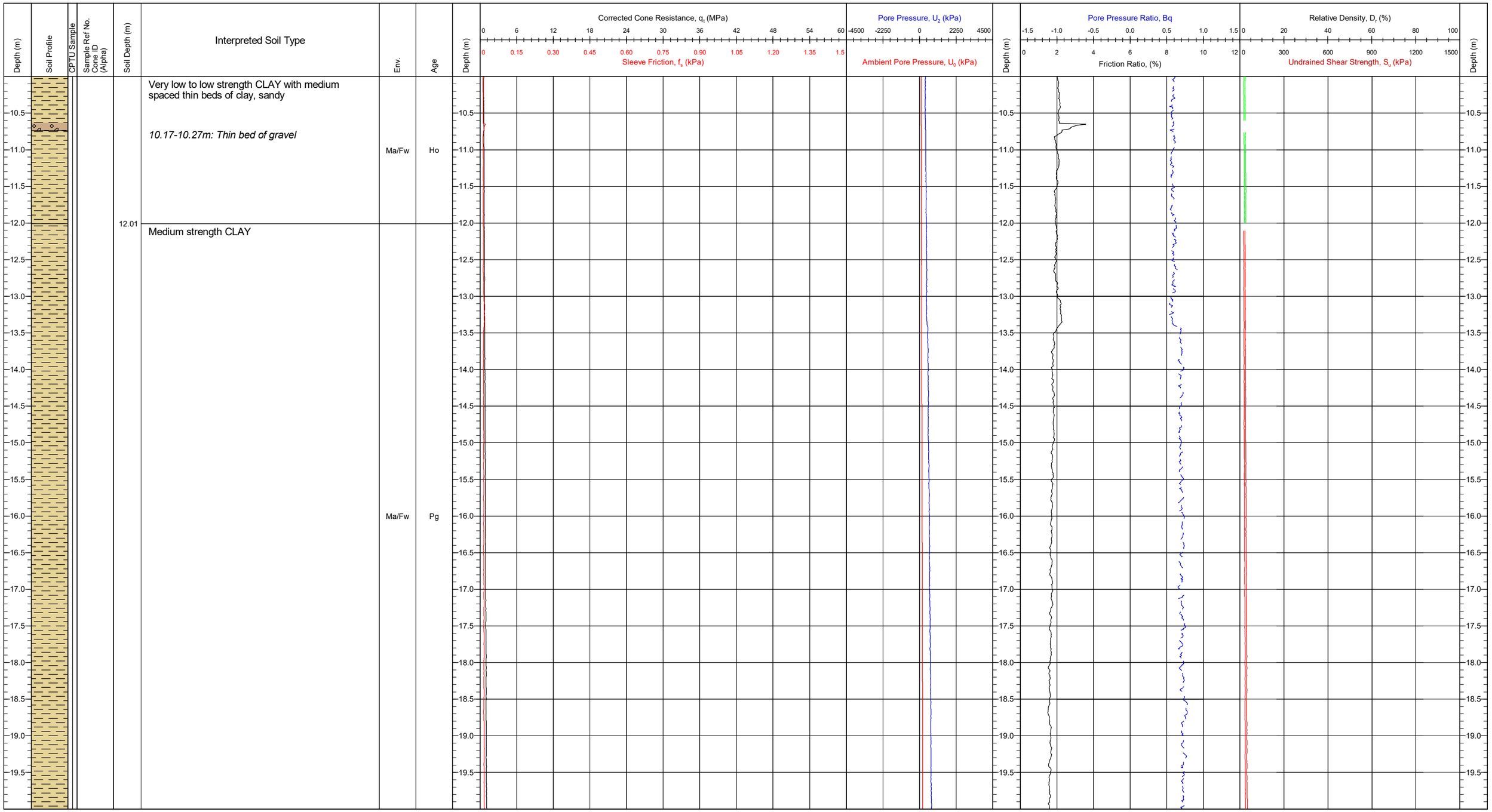
QC Status		
Preliminary	Draft	Final
JK/BC (01/05/2021)	**DR** (10/06/2021)	**SMc** (10/11/2021)

CPT Name: **CPT23**

Preliminary Investigation, Hesselø OWF

IN SITU CPTU TESTING

Soil Depth (m)	Interpreted Soil Type	Env.	Age
	Very low to low strength CLAY with medium spaced thin beds of clay, sandy *10.17-10.27m: Thin bed of gravel*	Ma/Fw	Ho
12.01	Medium strength CLAY	Ma/Fw	Pg



KEY TO SOIL PROFILE

SILT · CLAY · SAND · GRAVEL · COBBLES · CHALK · PEAT · Mixed Soil

Assumed Unit Weight: 20 - 16 kN/m³
K_C: 0.5 - 2.0
N_{KT}: 12.5 - 16.5
N_{kt}: 15 - 20
K_T: 0.5 - 2.0

Area	**Kattegat Sea**	Coordinates	**676253.1E 6269555.3N**
Contract	**11596**	Water Depth (mMSL)	**31.6**
Client Name/Ref	**Energinet Eltransmission A/S/384_20_ENE**	Date of Test	**01/05/2021**
Vessel	**MV Ocean Vantage**	Cone No.(type)/α Factor	**191114 (50cm²) / 0.76**
Method	**20 kN Sea bed CPT**	Base Inclination	**X = 1.2° / Y = 0.7°**

CRS: **ETRS89**

Comments:
Out of Class. Continuous seabed CPT. Final depth 40.84m. Test terminated at operators discretion due to risk of rod bend

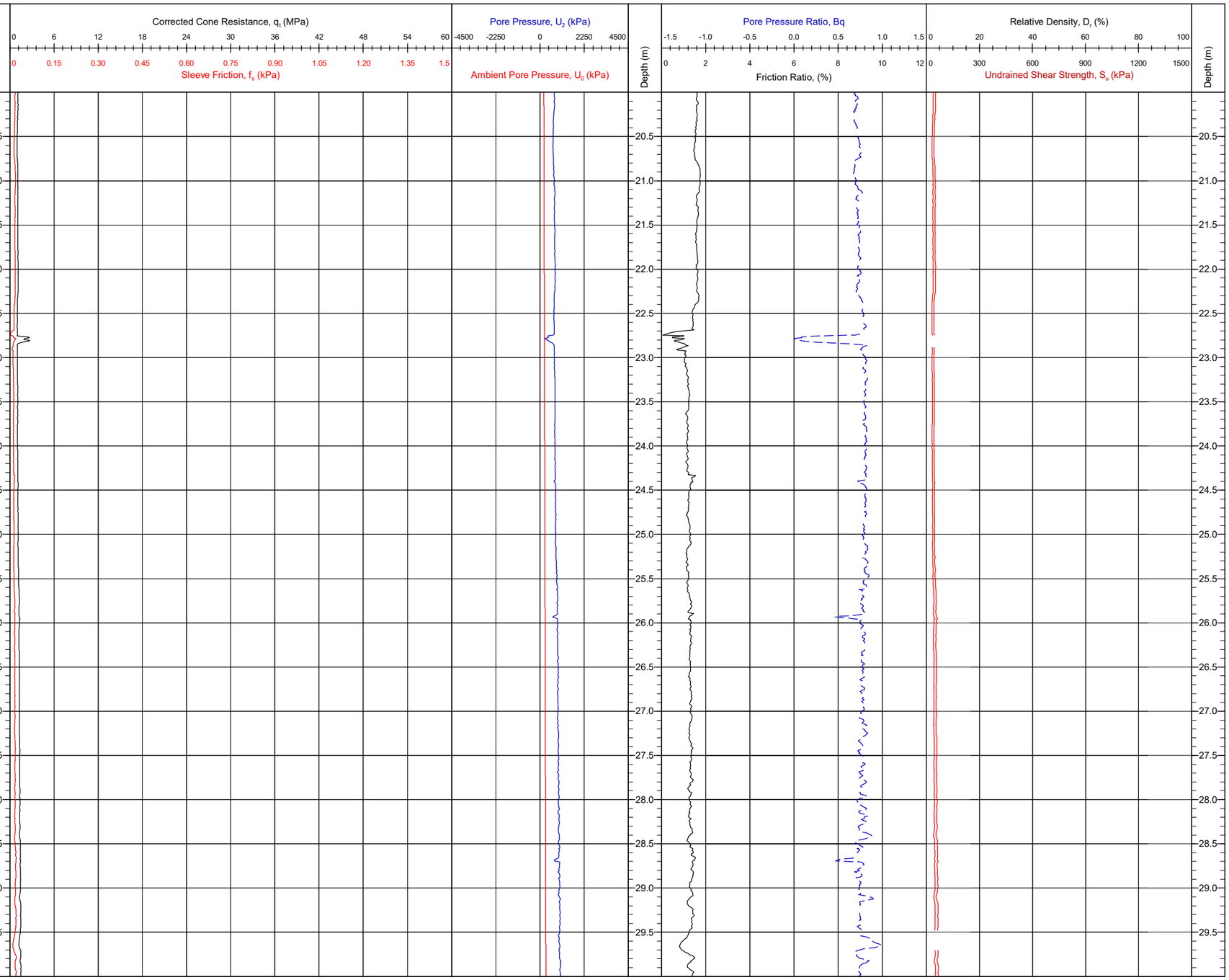
QC Status		
Preliminary	Draft	Final
JK/BC (01/05/2021)	**DR** (10/06/2021)	**SMc** (10/11/2021)

CPT Name

CPT23

Preliminary Investigation, Hesselø OWF
IN SITU CPTU TESTING

Depth (m)	Soil Profile	CPTU Sample	Sample Ref No. Cone ID (Alpha)	Soil Depth (m)	Interpreted Soil Type	Env.	Age
20.5					Medium strength CLAY		
21.0			1 191114(50) 0.76				
21.5							
22.0							
22.5					*22.29-22.38m: Thin bed of gravel*		
23.0							
23.5							
24.0						Ma/Fw	Pg
24.5							
25.0							
25.5							
26.0							
26.5							
27.0							
27.5							
28.0							
28.5				28.57	Medium to high strength CLAY with very widely spaced very thin to thin beds of gravel		
29.0						Ma/Fw	Pg
29.5							



KEY TO SOIL PROFILE

SILT · CLAY · SAND · GRAVEL · COBBLES · CHALK · PEAT · Mixed Soil

Assumed Unit Weight: 20 - 16 kN/m³
K_0: 0.5 - 2.0
N_{kt}: 12.5 - 16.5
N_{ke}: 15 - 20
K_0: 0.5 - 2.0

Area	**Kattegat Sea**	Coordinates	**676253.1E 6269555.3N**
Contract	**11596**	Water Depth (mMSL)	**31.6**
Client Name/Ref	**Energinet Eltransmission A/S/384_20_ENE**	Date of Test	**01/05/2021**
Vessel	**MV Ocean Vantage**	Cone No.(type)/α Factor	**191114 (50cm²) / 0.76**
Method	**20 kN Sea bed CPT**	Base Inclination	**X = 1.2° / Y = 0.7°**

CRS: **ETRS89**

Comments:
Out of Class. Continuous seabed CPT. Final depth 40.84m. Test terminated at operators discretion due to risk of rod bend

QC Status		
Preliminary	Draft	Final
JK/BC (01/05/2021)	**DR** (10/06/2021)	**SMc** (10/11/2021)

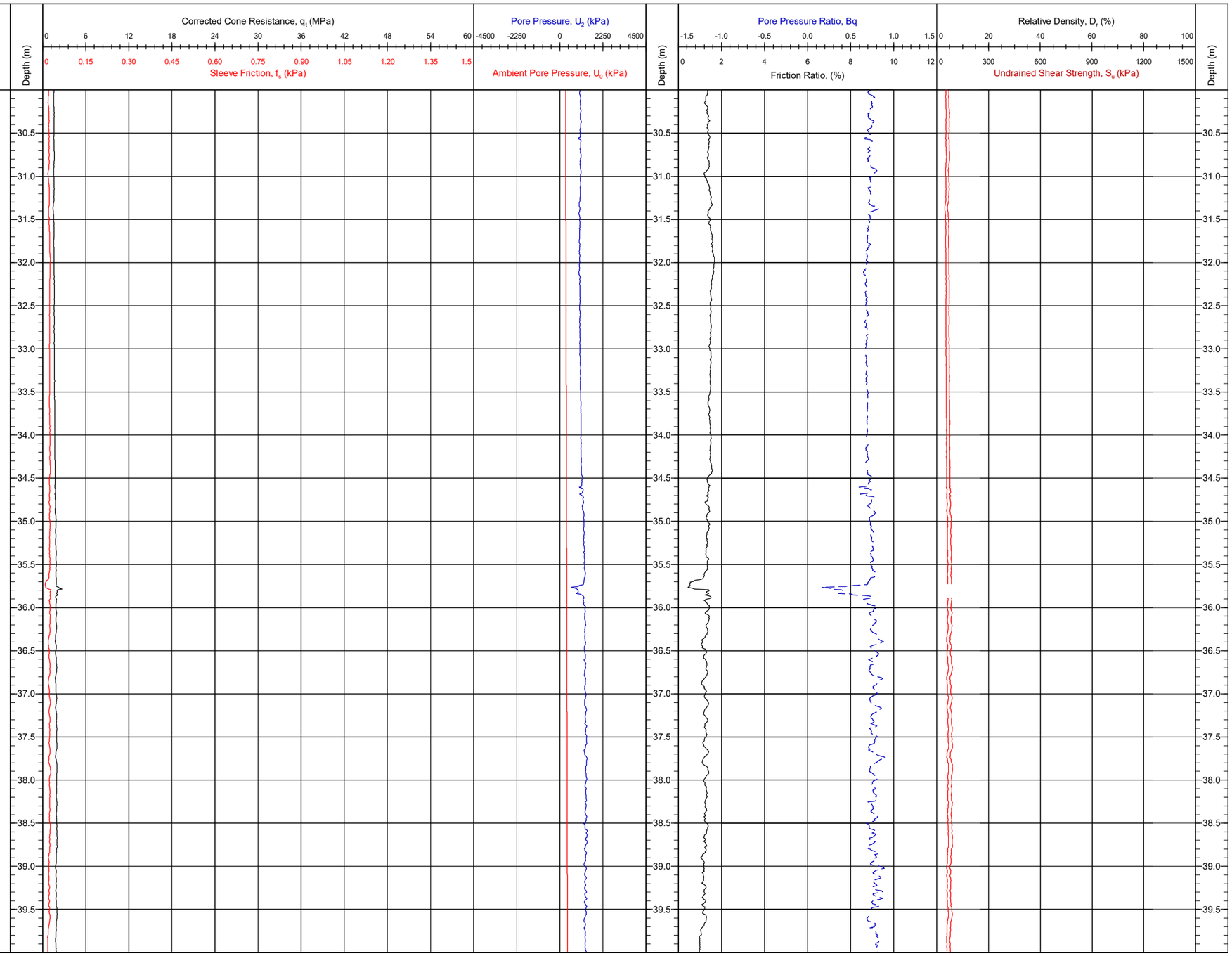
CPT Name

CPT23

Preliminary Investigation, Hesselø OWF

IN SITU CPTU TESTING

Depth (m)	Soil Profile	CPTU Sample	Sample Ref No. Cone ID (Alpha)	Soil Depth (m)	Interpreted Soil Type	Env.	Age
30.5					Medium to high strength CLAY with very widely spaced very thin to thin beds of gravel		
31.0							
31.5							
32.0							
32.5							
33.0							
33.5							
34.0							
34.5							
35.0						Ma/Fw	Pg
35.5							
36.0							
36.5							
37.0							
37.5							
38.0							
38.5							
39.0							
39.5							



KEY TO SOIL PROFILE

SILT · CLAY · SAND · GRAVEL · COBBLES · CHALK · PEAT · Mixed Soil

Assumed Unit Weight: 20 - 16 kN/m³
K_0: 0.5 - 2.0
N_{kt}: 12.5 - 16.5
$N_{\Delta u}$: 15 - 20
K_0: 0.5 - 2.0

Area	**Kattegat Sea**	Coordinates	**676253.1E 6269555.3N**	CRS: **ETRS89**	QC Status
Contract	**11596**	Water Depth (mMSL)	**31.6**	**Comments:** **Out of Class. Continuous seabed CPT. Final depth 40.84m. Test terminated at operators discretion due to risk of rod bend**	Preliminary: **JK/BC** (01/05/2021) · Draft: **DR** (10/06/2021) · Final: **SMc** (10/11/2021)
Client Name/Ref	**Energinet Eltransmission A/S/384_20_ENE**	Date of Test	**01/05/2021**		
Vessel	**MV Ocean Vantage**	Cone No.(type)/α Factor	**191114 (50cm²) / 0.76**		
Method	**20 kN Sea bed CPT**	Base Inclination	**X = 1.2° / Y = 0.7°**		

CPT Name: **CPT23**

Preliminary Investigation, Hesselø OWF

IN SITU CPTU TESTING

Depth (m)	Soil Profile	CPTU Sample	Sample Ref No. Cone ID (Alpha)	Soil Depth (m)	Interpreted Soil Type	Env.	Age
40.5					Medium to high strength CLAY with very widely spaced very thin to thin beds of gravel	Ma/Fw	Pg
41.0				41.12	Very high strength CLAY, silty End of CPTU test at 41.30m	Ma/Fw	Lg

Corrected Cone Resistance, q_t (MPa) 0 6 12 18 24 30 36 42 48 54 60

Sleeve Friction, f_s (kPa) 0 0.15 0.30 0.45 0.60 0.75 0.90 1.05 1.20 1.35 1.5

Pore Pressure, U_2 (kPa) -4500 -2250 0 2250 4500

Ambient Pore Pressure, U_0 (kPa)

Pore Pressure Ratio, Bq -1.5 -1.0 -0.5 0.0 0.5 1.0 1.5

Friction Ratio, (%) 0 2 4 6 8 10 12

Relative Density, D_r (%) 0 20 40 60 80 100

Undrained Shear Strength, S_u (kPa) 0 300 600 900 1200 1500

Depth (m) 40.5 41.0 41.5 42.0 42.5 43.0 43.5 44.0 44.5 45.0 45.5 46.0 46.5 47.0 47.5 48.0 48.5 49.0 49.5

KEY TO SOIL PROFILE

SILT · CLAY · SAND · GRAVEL · COBBLES · CHALK · PEAT · Mixed Soil

Assumed Unit Weight: 20 - 16 kN/m³
K_C 0.5 - 2.0
N_{kt} 12.5 - 16.5
$N_{\Delta u}$ 15 - 20
K_C 0.5 - 2.0

Area	**Kattegat Sea**	Coordinates	**676253.1E 6269555.3N**
Contract	**11596**	Water Depth (mMSL)	**31.6**
Client Name/Ref	**Energinet Eltransmission A/S/384_20_ENE**	Date of Test	**01/05/2021**
Vessel	**MV Ocean Vantage**	Cone No.(type)/α Factor	**191114 (50cm²) / 0.76**
Method	**20 kN Sea bed CPT**	Base Inclination	**X = 1.2° / Y = 0.7°**

CRS: **ETRS89**

Comments:
Out of Class. Continuous seabed CPT. Final depth 40.84m. Test terminated at operators discretion due to risk of rod bend

QC Status		
Preliminary	Draft	Final
JK/BC (01/05/2021)	**DR** (10/06/2021)	**SMc** (10/11/2021)

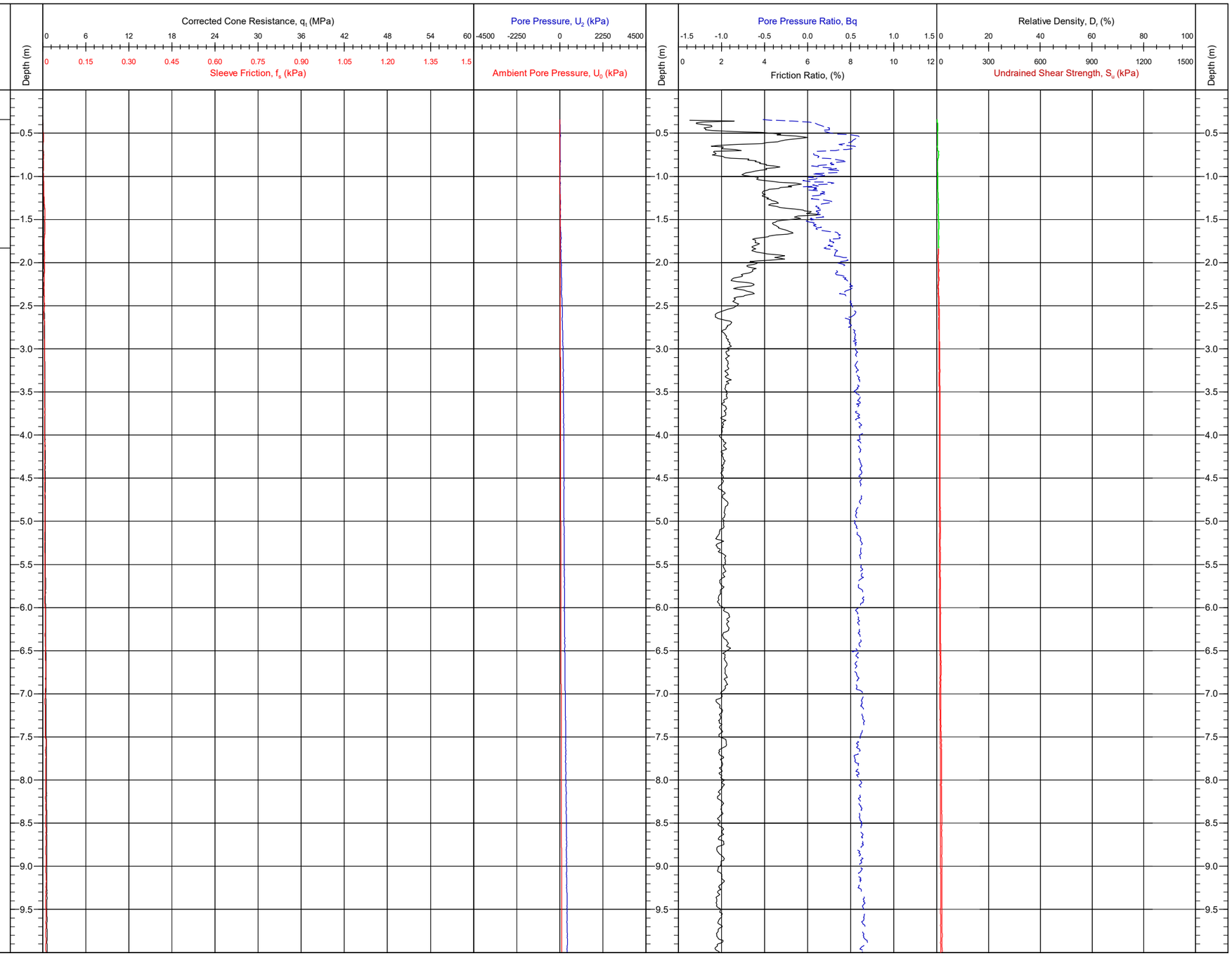
CPT Name

CPT23

Preliminary Investigation, Hesselø OWF

IN SITU CPTU TESTING

Soil Depth (m)	Interpreted Soil Type	Env.	Age
	CPTU sinkage		
0.34	Extremely low to very low strength CLAY, silty	Ma/Fw	Ho
1.83	Low to medium strength locally high strength CLAY with closely to medium spaced very thin beds of medium to high strength locally very high strength clay, sandy	Ma/Fw	Ho



KEY TO SOIL PROFILE

SILT · CLAY · SAND · GRAVEL · COBBLES · CHALK · PEAT · Mixed Soil

Assumed Unit Weight: 20 - 16 kN/m³
K_c: 0.5 - 2.0
N_{kt}: 12.5 - 16.5
N_{ke}: 15 - 20
K_c: 0.5 - 2.0

Area	**Kattegat Sea**	Coordinates	**676906.0E 6273504.9N**
Contract	**11596**	Water Depth (mMSL)	**31.6**
Client Name/Ref	**Energinet Eltransmission A/S/384_20_ENE**	Date of Test	**01/05/2021**
Vessel	**MV Ocean Vantage**	Cone No.(type)/α Factor	**081208 (50cm²) / 0.78**
Method	**20 kN Sea bed CPT**	Base Inclination	**X = -0.1° / Y = 0.0°**

CRS: **ETRS89**

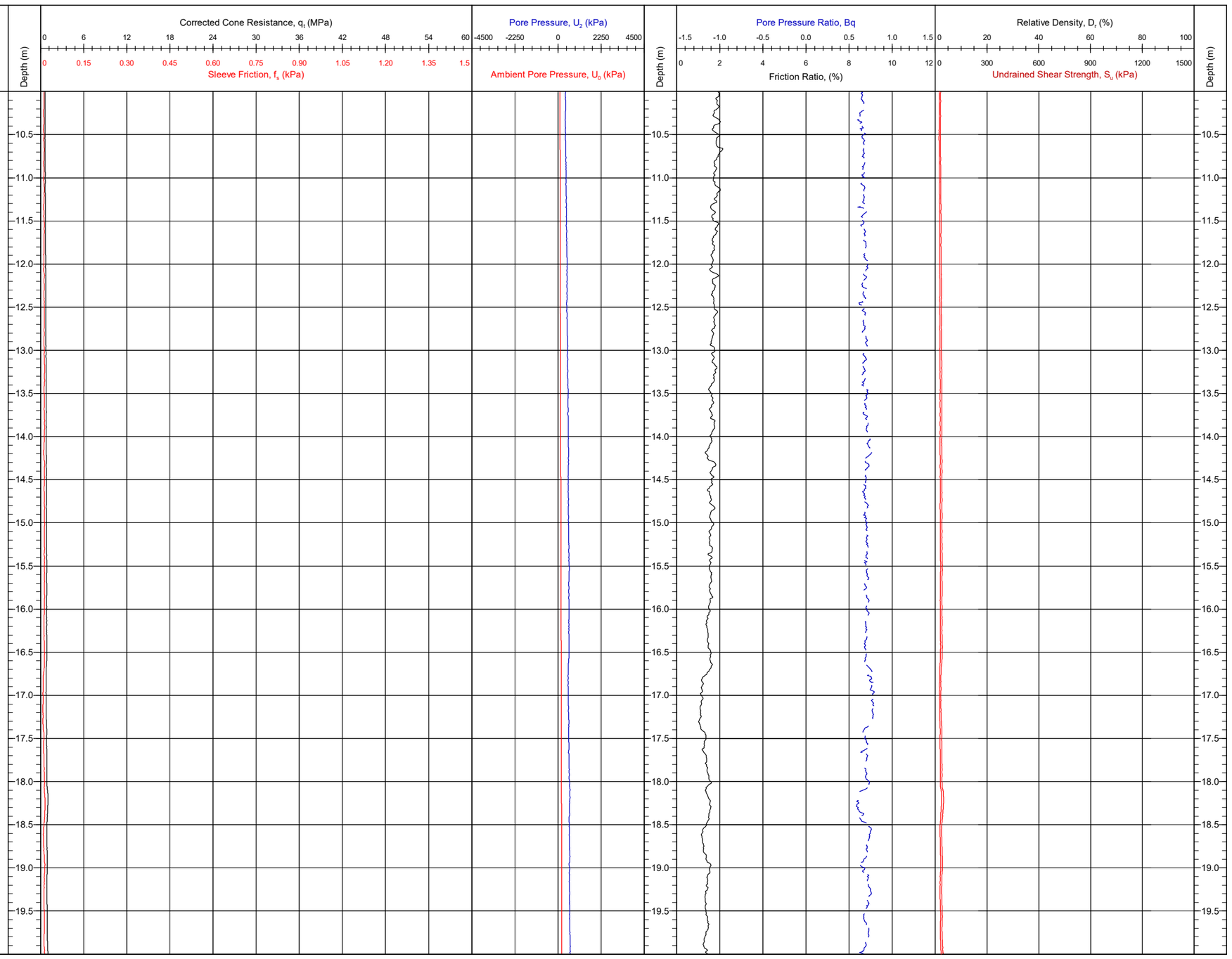
Comments:
Out of class. Continuous seabed CPT. Final depth 30.31m. Test terminated due to lost communication with the cone after attempting a dissipation test which crashed the Gardlog software

QC Status	Preliminary	Draft	Final
	JK/BC (01/05/2021)	**DR** (10/06/2021)	**SMc** (10/11/2021)

CPT Name: **CPT25**

Preliminary Investigation, Hesselø OWF
IN SITU CPTU TESTING

Depth (m)	Soil Profile	CPTU Sample	Sample Ref No. Cone ID (Alpha)	Soil Depth (m)	Interpreted Soil Type	Env.	Age
10.5 – 19.5			1 081208(50) 0.78		Low to medium strength locally high strength CLAY with closely to medium spaced very thin beds of medium to high strength locally very high strength clay, sandy	Ma/Fw	Ho



KEY TO SOIL PROFILE

SILT, CLAY, SAND, GRAVEL, COBBLES, CHALK, PEAT, Mixed Soil

Assumed Unit Weight: 20 - 16 kN/m³
K_C: 0.5 - 2.0
N_{kt}: 12.5 - 16.5
N_{ke}: 15 - 20
K_C: 0.5 - 2.0

Area	**Kattegat Sea**	Coordinates	**676906.0E 6273504.9N**	CRS: **ETRS89**	QC Status: Preliminary / Draft / Final
Contract	**11596**	Water Depth (mMSL)	**31.6**	**Comments:** **Out of class. Continuous seabed CPT. Final depth 30.31m. Test terminated due to lost communication with the cone after attempting a dissipation test which crashed the Gardlog software**	
Client Name/Ref	**Energinet Eltransmission A/S/384_20_ENE**	Date of Test	**01/05/2021**		
Vessel	**MV Ocean Vantage**	Cone No.(type)/α Factor	**081208 (50cm²) / 0.78**		**JK/BC** (01/05/2021) / **DR** (10/06/2021) / **SMc** (10/11/2021)
Method	**20 kN Sea bed CPT**	Base Inclination	**X = -0.1° / Y = 0.0°**		

CPT Name: **CPT25**

Preliminary Investigation, Hesselø OWF

IN SITU CPTU TESTING

Depth (m)	Interpreted Soil Type	Env.	Age
20.5	Low to medium strength locally high strength CLAY with closely to medium spaced very thin beds of medium to high strength locally very high strength clay, sandy	Ma/Fw	Ho
29.5	*29.35-29.40m: Very thin bed of gravel*		

Corrected Cone Resistance, q_t (MPa): 0 6 12 18 24 30 36 42 48 54 60

Sleeve Friction, f_s (kPa): 0 0.15 0.30 0.45 0.60 0.75 0.90 1.05 1.20 1.35 1.5

Pore Pressure, U_2 (kPa): -4500 -2250 0 2250 4500

Ambient Pore Pressure, U_0 (kPa)

Pore Pressure Ratio, Bq: -1.5 -1.0 -0.5 0.0 0.5 1.0 1.5

Friction Ratio, (%): 0 2 4 6 8 10 12

Relative Density, D_r (%): 0 20 40 60 80 100

Undrained Shear Strength, S_u (kPa): 0 300 600 900 1200 1500

KEY TO SOIL PROFILE

SILT, CLAY, SAND, GRAVEL, COBBLES, CHALK, PEAT, Mixed Soil

Assumed Unit Weight: 20 - 16 kN/m³

K_C: 0.5 - 2.0
N_{kt}: 12.5 - 16.5
$N_{\Delta u}$: 15 - 20
K_C: 0.5 - 2.0

Area	**Kattegat Sea**	Coordinates	**676906.0E 6273504.9N**
Contract	**11596**	Water Depth (mMSL)	**31.6**
Client Name/Ref	**Energinet Eltransmission A/S/384_20_ENE**	Date of Test	**01/05/2021**
Vessel	**MV Ocean Vantage**	Cone No.(type)/α Factor	**081208 (50cm²) / 0.78**
Method	**20 kN Sea bed CPT**	Base Inclination	**X = -0.1° / Y = 0.0°**

CRS: **ETRS89**

Comments:
Out of class. Continuous seabed CPT. Final depth 30.31m. Test terminated due to lost communication with the cone after attempting a dissipation test which crashed the Gardlog software

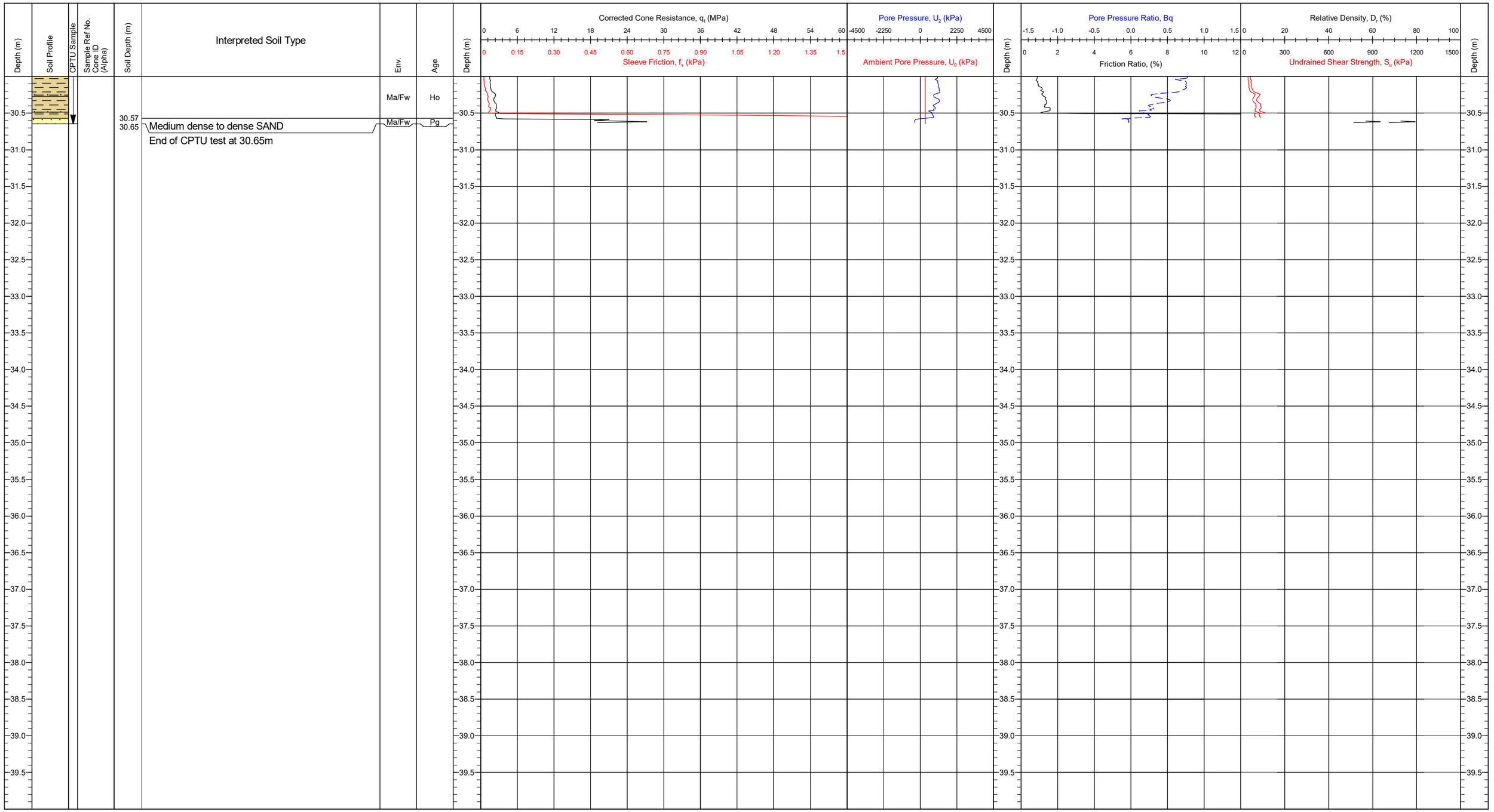
QC Status	Preliminary	Draft	Final
	JK/BC (01/05/2021)	**DR** (10/06/2021)	**SMc** (10/11/2021)

CPT Name: **CPT25**

Preliminary Investigation, Hesselø OWF

IN SITU CPTU TESTING

Soil Depth (m)	Interpreted Soil Type	Env.	Age
		Ma/Fw	Ho
30.57			
30.65	Medium dense to dense SAND	Ma/Fw	Pg
	End of CPTU test at 30.65m		



KEY TO SOIL PROFILE

SILT · CLAY · SAND · GRAVEL · COBBLES · CHALK · PEAT · Mixed Soil

Assumed Unit Weight: 20 - 16 kN/m³
K_C 0.5 - 2.0
N_{kt} 12.5 - 16.5
N_{ke} 15 - 20
K_C 0.5 - 2.0

Area	**Kattegat Sea**	Coordinates	**676906.0E 6273504.9N**
Contract	**11596**	Water Depth (mMSL)	**31.6**
Client Name/Ref	**Energinet Eltransmission A/S/384_20_ENE**	Date of Test	**01/05/2021**
Vessel	**MV Ocean Vantage**	Cone No.(type)/α Factor	**081208 (50cm²) / 0.78**
Method	**20 kN Sea bed CPT**	Base Inclination	**X = -0.1° / Y = 0.0°**

CRS: **ETRS89**

Comments:
Out of class. Continuous seabed CPT. Final depth 30.31m. Test terminated due to lost communication with the cone after attempting a dissipation test which crashed the Gardlog software

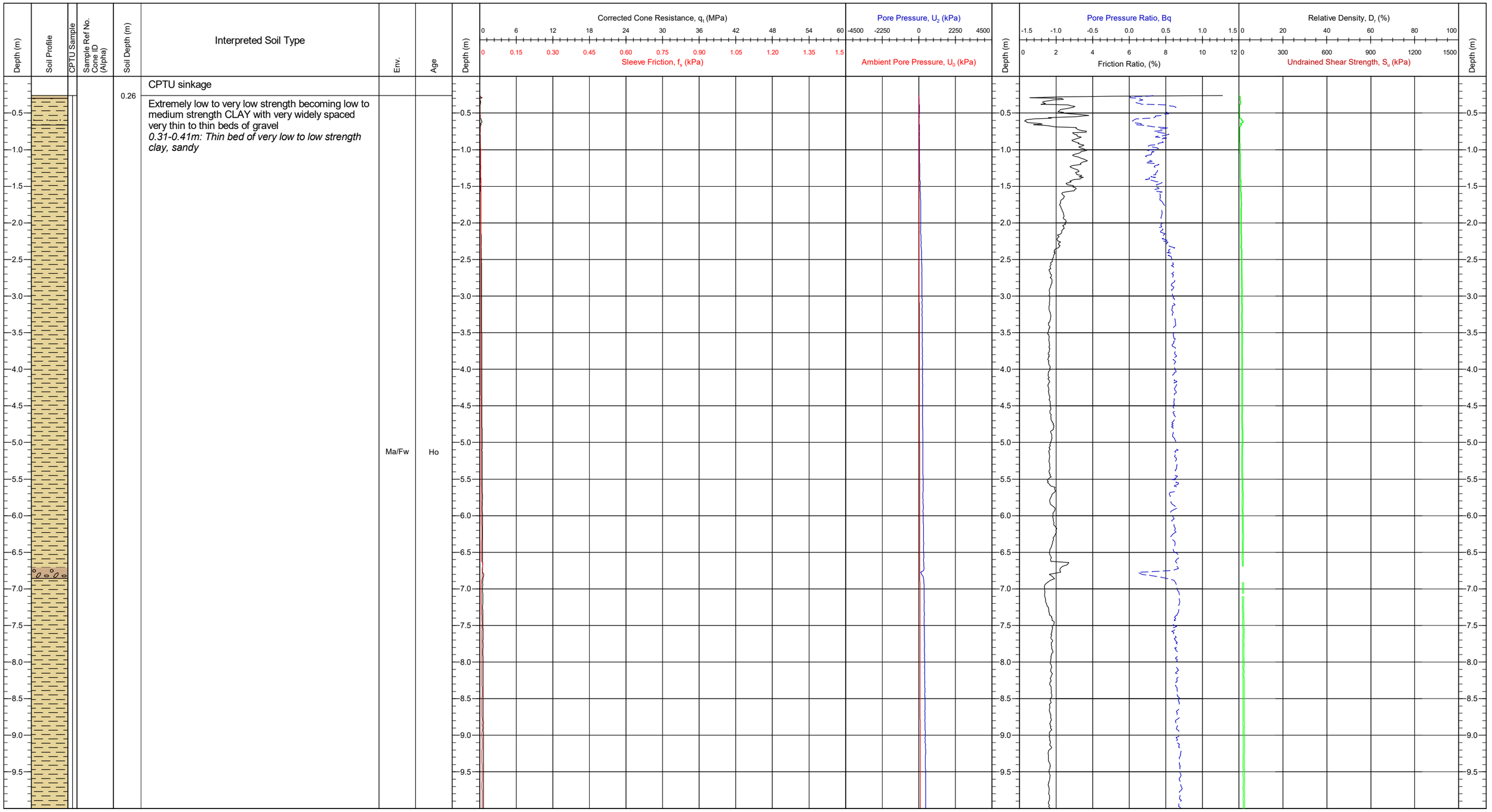
QC Status		
Preliminary	Draft	Final
JK/BC (01/05/2021)	**DR** (10/06/2021)	**SMc** (10/11/2021)

CPT Name

CPT25

Preliminary Investigation, Hesselø OWF
IN SITU CPTU TESTING

Soil Depth (m)	Interpreted Soil Type	Env.	Age
	CPTU sinkage		
0.26	Extremely low to very low strength becoming low to medium strength CLAY with very widely spaced very thin to thin beds of gravel *0.31-0.41m: Thin bed of very low to low strength clay, sandy*	Ma/Fw	Ho



KEY TO SOIL PROFILE

SILT · CLAY · SAND · GRAVEL · COBBLES · CHALK · PEAT · Mixed Soil

Assumed Unit Weight: 20 - 16 kN/m³
K_0: 0.5 - 2.0
N_{kt}: 12.5 - 16.5
N_{ke}: 15 - 20
K_0: 0.5 - 2.0

Area	**Kattegat Sea**	Coordinates	**676906.4E 6273499.9N**
Contract	**11596**	Water Depth (mMSL)	**31.6**
Client Name/Ref	**Energinet Eltransmission A/S/384_20_ENE**	Date of Test	**01/05/2021**
Vessel	**MV Ocean Vantage**	Cone No.(type)/α Factor	**120829 (50cm²) / 0.80**
Method	**20 kN Sea bed CPT**	Base Inclination	**X = 1.2° / Y = 0.5°**

CRS: **ETRS89**

Comments:
Cone class 3. Continuous seabed CPT. Final depth 30.11m. Test terminated due to lost communication with the cone after attempting a dissipation test which crashed the Gardlog software

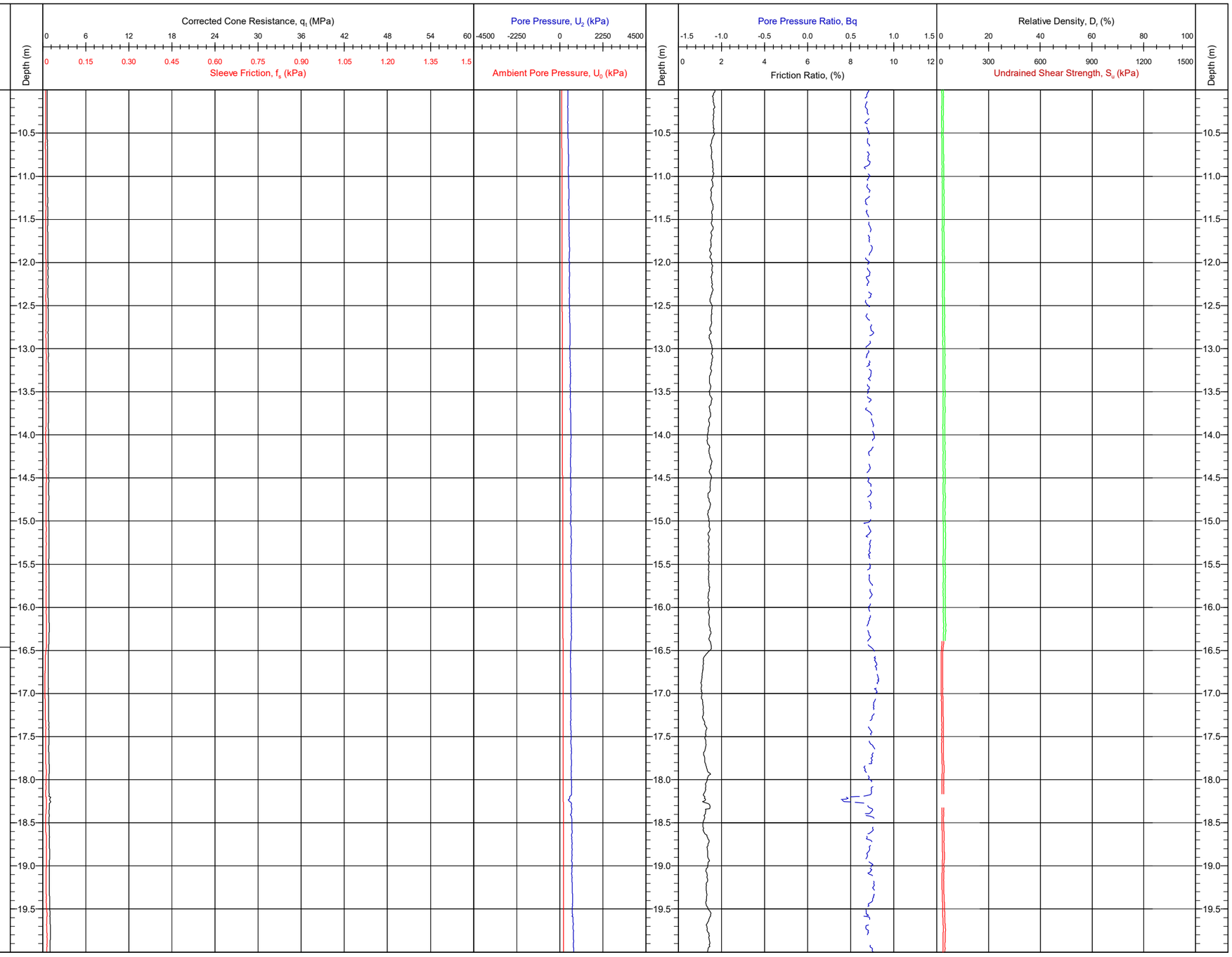
QC Status		
Preliminary	Draft	Final
JK/BC (01/05/2021)	**DR** (10/06/2021)	**SMc** (10/11/2021)

CPT Name

CPT25a

Preliminary Investigation, Hesselø OWF
IN SITU CPTU TESTING

Depth (m)	Soil Profile	CPTU Sample	Sample Ref No. Cone ID (Alpha)	Soil Depth (m)	Interpreted Soil Type	Env.	Age
10.5 – 16.46			1 120829(50) 0.8		Extremely low to very low strength becoming low to medium strength CLAY with very widely spaced very thin to thin beds of gravel	Ma/Fw	Ho
16.46 – 19.5				16.46	Medium to high strength CLAY, silty, with very widely spaced very thin to thin beds of gravel	Ma/Fw	Pg



KEY TO SOIL PROFILE

SILT · CLAY · SAND · GRAVEL · COBBLES · CHALK · PEAT · Mixed Soil

Assumed Unit Weight: 20 - 16 kN/m³
K_0: 0.5 - 2.0
N_{kt}: 12.5 - 16.5
N_{ke}: 15 - 20
K_0: 0.5 - 2.0

Area	**Kattegat Sea**	Coordinates	**676906.4E 6273499.9N**
Contract	**11596**	Water Depth (mMSL)	**31.6**
Client Name/Ref	**Energinet Eltransmission A/S/384_20_ENE**	Date of Test	**01/05/2021**
Vessel	**MV Ocean Vantage**	Cone No.(type)/α Factor	**120829 (50cm²) / 0.80**
Method	**20 kN Sea bed CPT**	Base Inclination	**X = 1.2° / Y = 0.5°**

CRS: **ETRS89**

Comments:
Cone class 3. Continuous seabed CPT. Final depth 30.11m. Test terminated due to lost communication with the cone after attempting a dissipation test which crashed the Gardlog software

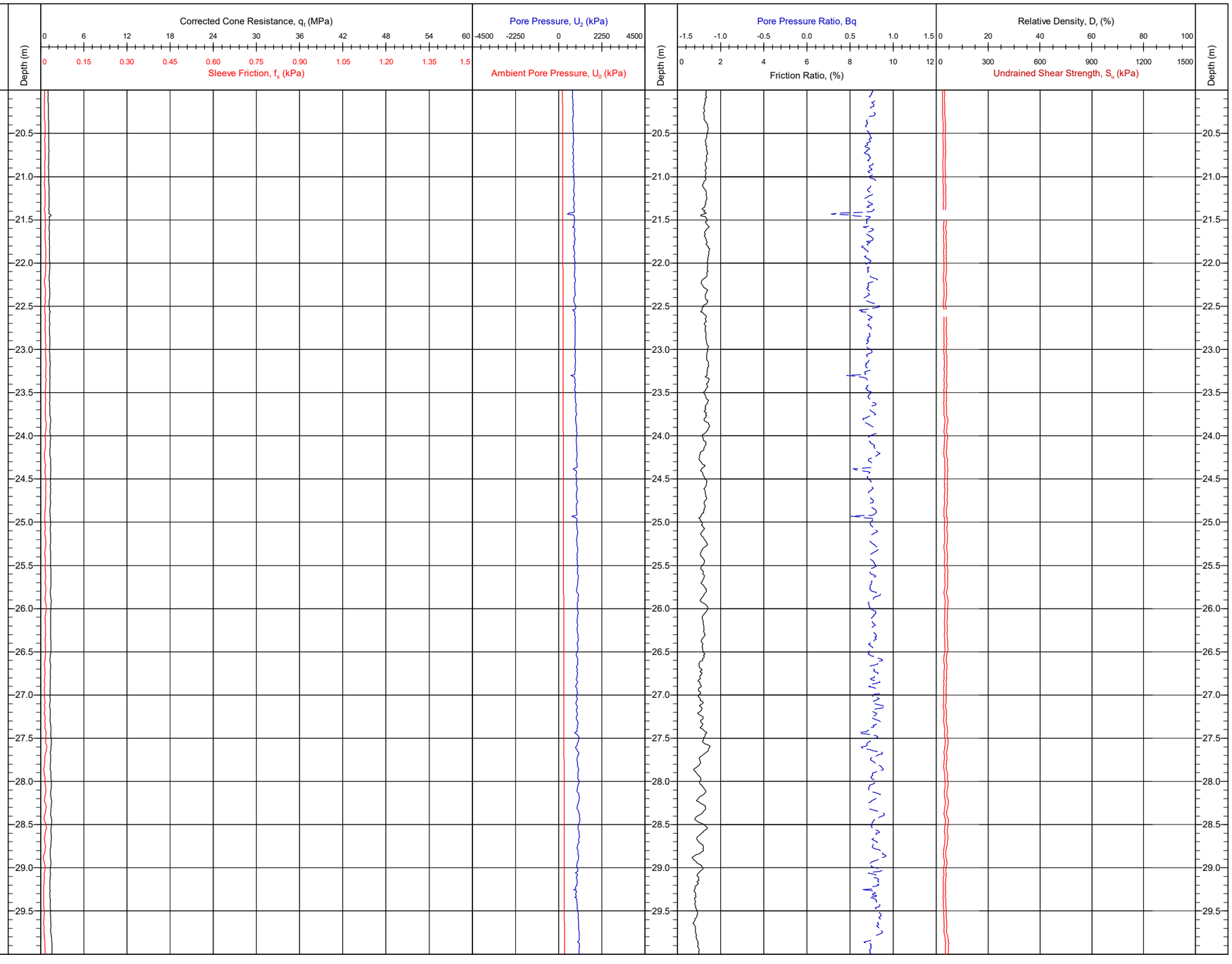
QC Status	Preliminary	Draft	Final
	JK/BC (01/05/2021)	**DR** (10/06/2021)	**SMc** (10/11/2021)

CPT Name: **CPT25a**

Preliminary Investigation, Hesselø OWF

IN SITU CPTU TESTING

Depth (m)	Soil Profile	CPTU Sample	Sample Ref No. Cone ID (Alpha)	Soil Depth (m)	Interpreted Soil Type	Env.	Age
20.5 – 29.5					Medium to high strength CLAY, silty, with very widely spaced very thin to thin beds of gravel	Ma/Fw	Pg



KEY TO SOIL PROFILE

SILT · CLAY · SAND · GRAVEL · COBBLES · CHALK · PEAT · Mixed Soil

Assumed Unit Weight: 20 - 16 kN/m³
K_0: 0.5 - 2.0
N_{kt}: 12.5 - 16.5
$N_{\Delta u}$: 15 - 20
K_0: 0.5 - 2.0

Area	**Kattegat Sea**	Coordinates	**676906.4E 6273499.9N**	CRS: **ETRS89**	QC Status: Preliminary / Draft / Final
Contract	**11596**	Water Depth (mMSL)	**31.6**	**Comments:** **Cone class 3. Continuous seabed CPT. Final depth 30.11m. Test terminated due to lost communication with the cone after attempting a dissipation test which crashed the Gardlog software**	**JK/BC** (01/05/2021) / **DR** (10/06/2021) / **SMc** (10/11/2021)
Client Name/Ref	**Energinet Eltransmission A/S/384_20_ENE**	Date of Test	**01/05/2021**		
Vessel	**MV Ocean Vantage**	Cone No.(type)/α Factor	**120829 (50cm²) / 0.80**		
Method	**20 kN Sea bed CPT**	Base Inclination	**X = 1.2° / Y = 0.5°**		

CPT Name: **CPT25a**

Preliminary Investigation, Hesselø OWF
IN SITU CPTU TESTING

Soil Profile	Soil Depth (m)	Interpreted Soil Type	Env.	Age
			Ma/Fw	Pg
	30.34	Medium dense to dense SAND End of CPTU test at 30.37m	Ma/Fw	Pg

Corrected Cone Resistance, q_t (MPa) 0 6 12 18 24 30 36 42 48 54 60
Sleeve Friction, f_s (kPa) 0 0.15 0.30 0.45 0.60 0.75 0.90 1.05 1.20 1.35 1.5

Pore Pressure, U_2 (kPa) -4500 -2250 0 2250 4500
Ambient Pore Pressure, U_0 (kPa)

Pore Pressure Ratio, Bq -1.5 -1.0 -0.5 0.0 0.5 1.0 1.5
Friction Ratio, (%) 0 2 4 6 8 10 12

Relative Density, D_r (%) 0 20 40 60 80 100
Undrained Shear Strength, S_u (kPa) 0 300 600 900 1200 1500

Depth (m) 30.5 31.0 31.5 32.0 32.5 33.0 33.5 34.0 34.5 35.0 35.5 36.0 36.5 37.0 37.5 38.0 38.5 39.0 39.5

KEY TO SOIL PROFILE

SILT, CLAY, SAND, GRAVEL, COBBLES, CHALK, PEAT, Mixed Soil

Assumed Unit Weight: 20 - 16 kN/m³
K_C 0.5 - 2.0
N_{kt} 12.5 - 16.5
N_{ke} 15 - 20
K_C 0.5 - 2.0

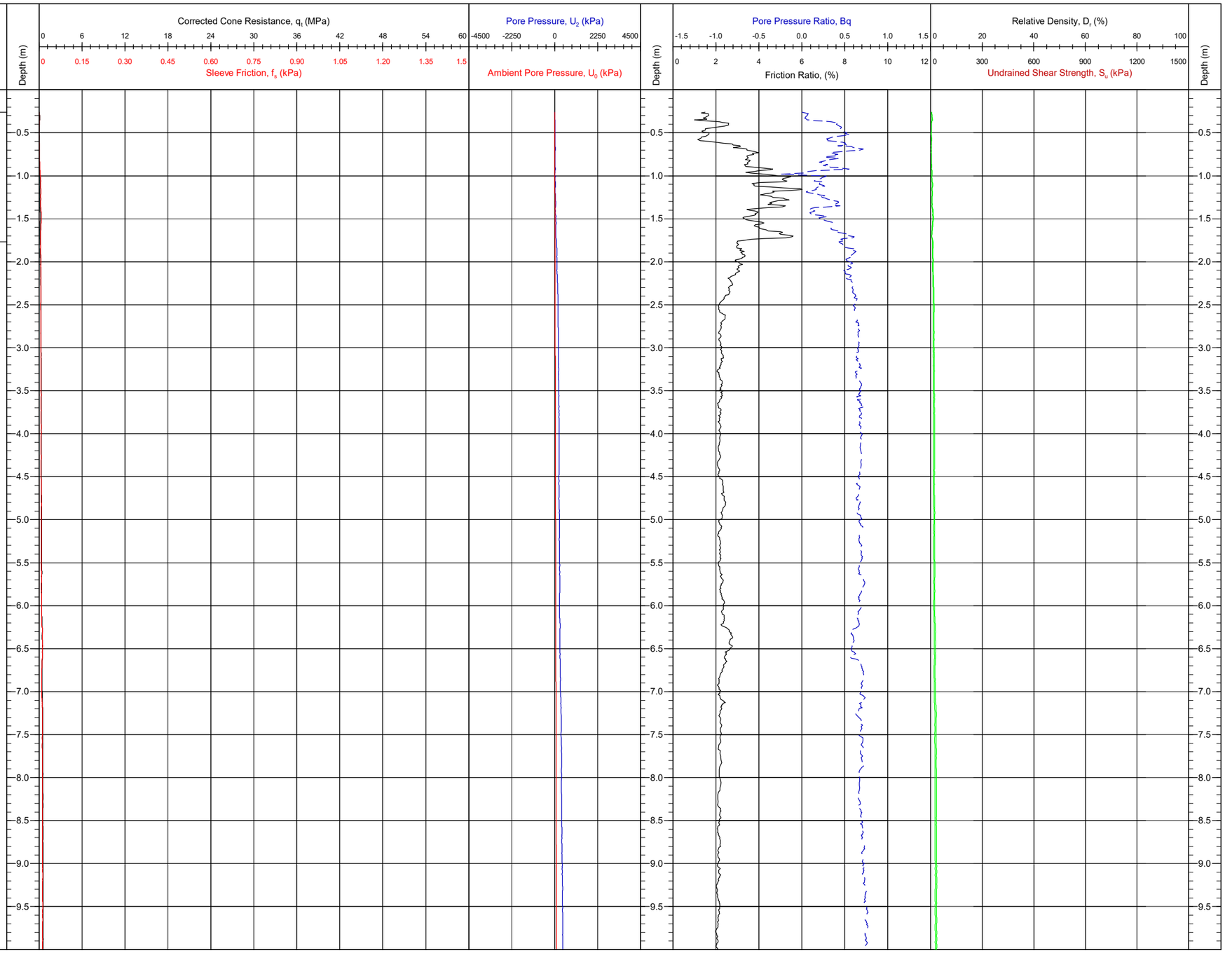
Area	**Kattegat Sea**	Coordinates	**676906.4E 6273499.9N**	CRS: **ETRS89**	QC Status: Preliminary / Draft / Final
Contract	**11596**	Water Depth (mMSL)	**31.6**	**Comments:** Cone class 3. Continuous seabed CPT. Final depth 30.11m. Test terminated due to lost communication with the cone after attempting a dissipation test which crashed the Gardlog software	**JK/BC** (01/05/2021) / **DR** (10/06/2021) / **SMc** (10/11/2021)
Client Name/Ref	**Energinet Eltransmission A/S/384_20_ENE**	Date of Test	**01/05/2021**		
Vessel	**MV Ocean Vantage**	Cone No.(type)/α Factor	**120829 (50cm²) / 0.80**		
Method	**20 kN Sea bed CPT**	Base Inclination	**X = 1.2° / Y = 0.5°**		

CPT Name: **CPT25a**

Preliminary Investigation, Hesselø OWF

IN SITU CPTU TESTING

Soil Depth (m)	Interpreted Soil Type	Env.	Age
	CPTU sinkage		
0.26	Extremely low to very low strength CLAY, silty	Ma/Fw	Ho
1.77	Very low to medium strength CLAY	Ma/Fw	Ho



KEY TO SOIL PROFILE

SILT · CLAY · SAND · GRAVEL · COBBLES · CHALK · PEAT · Mixed Soil

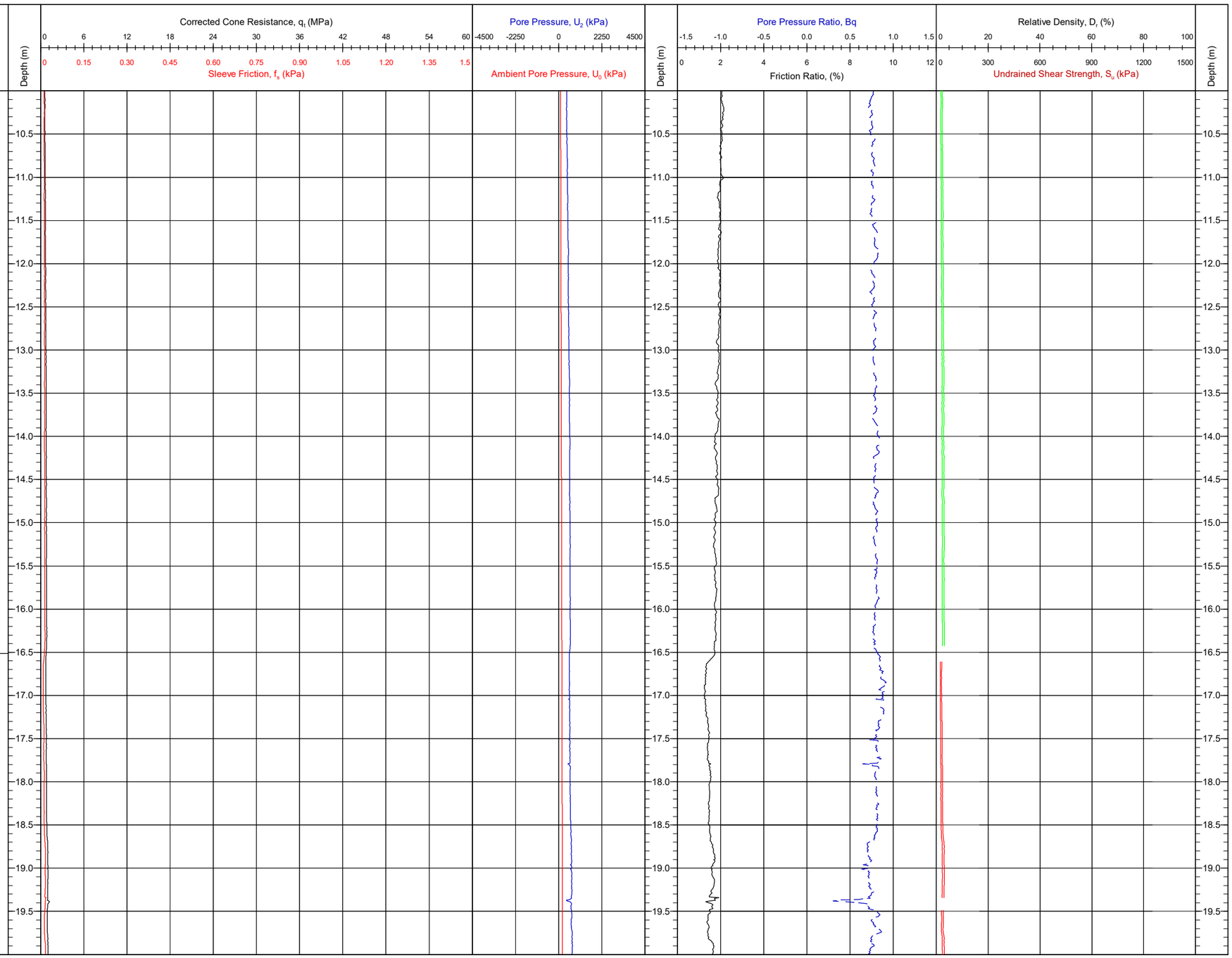
Assumed Unit Weight: 20 - 16 kN/m³
K_C 0.5 - 2.0
N_{kt} 12.5 - 16.5
$N_{\Delta u}$ 15 - 20
K_C 0.5 - 2.0

Area	**Kattegat Sea**	Coordinates	**676906.0E 6273510.1N**	CRS: **ETRS89**	QC Status: Preliminary / Draft / Final
Contract	**11596**	Water Depth (mMSL)	**31.6**	**Comments:** **Cone class 1. Continuous seabed CPT. Final depth 30.86m. Test terminated at operators discretion due to increasing total load and lack of lateral rod support from mudline**	**JK/BC (02/05/2021)** / **DR (10/06/2021)** / **SMc (10/11/2021)**
Client Name/Ref	**Energinet Eltransmission A/S/384_20_ENE**	Date of Test	**02/05/2021**		
Vessel	**MV Ocean Vantage**	Cone No.(type)/α Factor	**130206 (50cm²) / 0.77**		
Method	**20 kN Sea bed CPT**	Base Inclination	**X = 1.1° / Y = 0.9°**		

CPT Name: **CPT25b**

Preliminary Investigation, Hesselø OWF
IN SITU CPTU TESTING

Depth (m)	Soil Profile	CPTU Sample	Sample Ref No. Cone ID (Alpha)	Soil Depth (m)	Interpreted Soil Type	Env.	Age
10.5					Very low to medium strength CLAY	Ma/Fw	Ho
19.5			1 130206(50) 0.77	16.51	Low to medium strength locally high strength CLAY *19.11-19.19m: Thin bed of gravel*	Ma/Fw	Pg



KEY TO SOIL PROFILE

SILT · CLAY · SAND · GRAVEL · COBBLES · CHALK · PEAT · Mixed Soil

Assumed Unit Weight: 20 - 16 kN/m³
K_0: 0.5 - 2.0
N_{kt}: 12.5 - 16.5
N_{ke}: 15 - 20
K_0: 0.5 - 2.0

Area	**Kattegat Sea**	Coordinates	**676906.0E 6273510.1N**	CRS: **ETRS89**	
Contract	**11596**	Water Depth (mMSL)	**31.6**	**Comments:** **Cone class 1. Continuous seabed CPT. Final depth 30.86m. Test terminated at operators discretion due to increasing total load and lack of lateral rod support from mudline**	
Client Name/Ref	**Energinet Eltransmission A/S/384_20_ENE**	Date of Test	**02/05/2021**		
Vessel	**MV Ocean Vantage**	Cone No.(type)/α Factor	**130206 (50cm²) / 0.77**		
Method	**20 kN Sea bed CPT**	Base Inclination	**X = 1.1° / Y = 0.9°**		

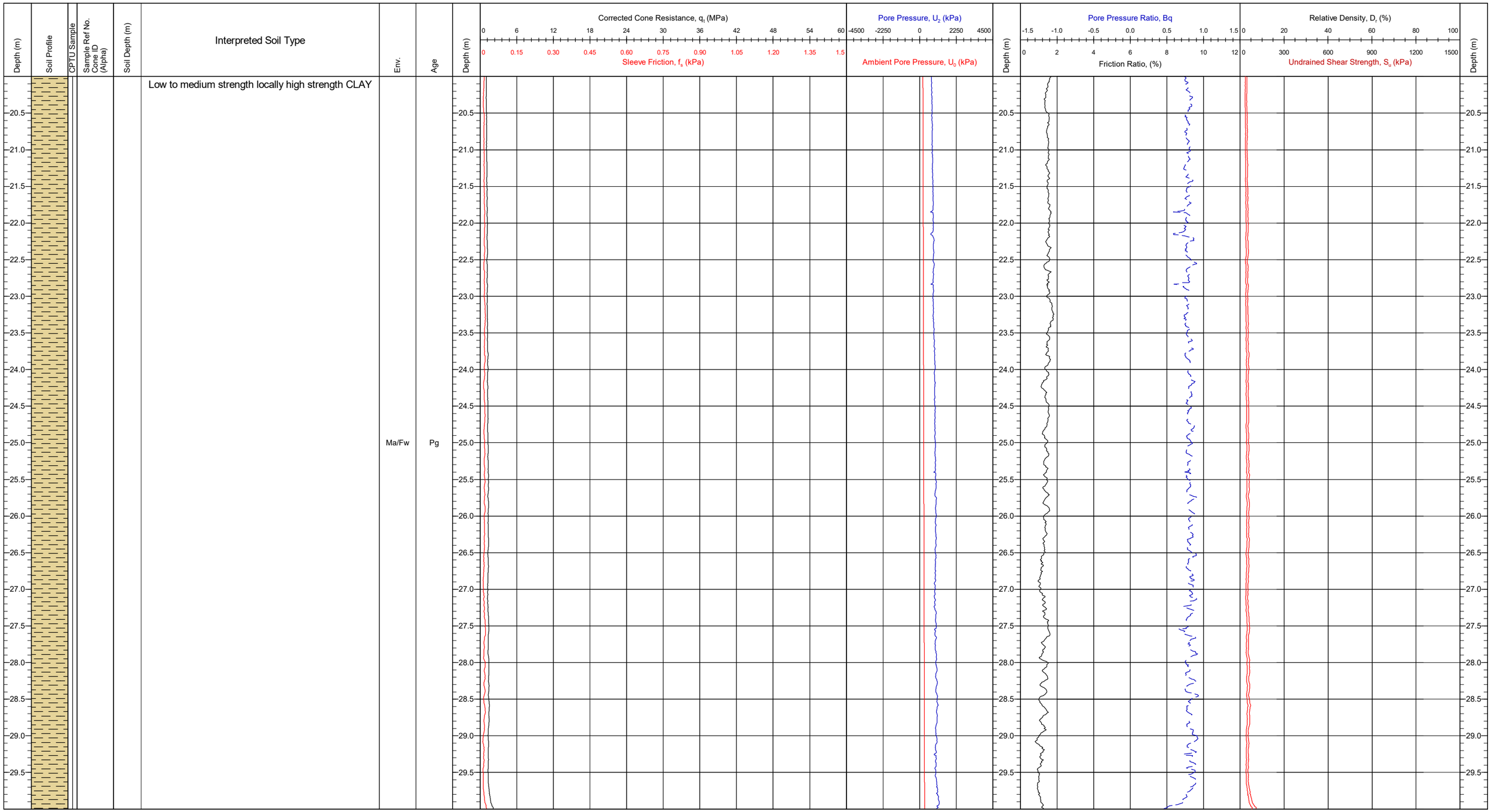
QC Status		
Preliminary	Draft	Final
JK/BC (02/05/2021)	**DR** (10/06/2021)	**SMc** (10/11/2021)

CPT Name

CPT25b

Preliminary Investigation, Hesselø OWF

IN SITU CPTU TESTING



KEY TO SOIL PROFILE

SILT · CLAY · SAND · GRAVEL · COBBLES · CHALK · PEAT · Mixed Soil

Assumed Unit Weight: 20 - 16 kN/m³
K_C: 0.5 - 2.0
N_{kt}: 12.5 - 16.5
$N_{\Delta u}$: 15 - 20
K_C: 0.5 - 2.0

Area	**Kattegat Sea**	Coordinates	**676906.0E 6273510.1N**
Contract	**11596**	Water Depth (mMSL)	**31.6**
Client Name/Ref	**Energinet Eltransmission A/S/384_20_ENE**	Date of Test	**02/05/2021**
Vessel	**MV Ocean Vantage**	Cone No.(type)/α Factor	**130206 (50cm²) / 0.77**
Method	**20 kN Sea bed CPT**	Base Inclination	**X = 1.1° / Y = 0.9°**

CRS: **ETRS89**

Comments:
Cone class 1. Continuous seabed CPT. Final depth 30.86m. Test terminated at operators discretion due to increasing total load and lack of lateral rod support from mudline

QC Status		
Preliminary	Draft	Final
JK/BC (02/05/2021)	**DR** (10/06/2021)	**SMc** (10/11/2021)

CPT Name

CPT25b

Preliminary Investigation, Hesselø OWF

IN SITU CPTU TESTING

Depth (m)	Interpreted Soil Type	Env.	Age
	Low to medium strength locally high strength CLAY	Ma/Fw	Pg
	30.00-30.15m:Thin bed of loose sand, silty		
30.74	*30.39-30.47: Thin bed of high to very high strength clay, sandy*	Ma/Fw	Pg
	Loose to medium dense becoming dense SAND, silty		
	End of CPTU test at 31.12m		

Corrected Cone Resistance, q_t (MPa) 0 6 12 18 24 30 36 42 48 54 60

Sleeve Friction, f_s (kPa) 0 0.15 0.30 0.45 0.60 0.75 0.90 1.05 1.20 1.35 1.5

Pore Pressure, U_2 (kPa) -4500 -2250 0 2250 4500

Ambient Pore Pressure, U_0 (kPa)

Pore Pressure Ratio, Bq -1.5 -1.0 -0.5 0.0 0.5 1.0 1.5

Friction Ratio, (%) 0 2 4 6 8 10 12

Relative Density, D_r (%) 0 20 40 60 80 100

Undrained Shear Strength, S_u (kPa) 0 300 600 900 1200 1500

Depth (m) 30.5 31.0 31.5 32.0 32.5 33.0 33.5 34.0 34.5 35.0 35.5 36.0 36.5 37.0 37.5 38.0 38.5 39.0 39.5

KEY TO SOIL PROFILE

SILT · CLAY · SAND · GRAVEL · COBBLES · CHALK · PEAT · Mixed Soil

Assumed Unit Weight: 20 - 16 kN/m³
K_C 0.5 - 2.0
N_{kt} 12.5 - 16.5
$N_{\Delta u}$ 15 - 20
K_C 0.5 - 2.0

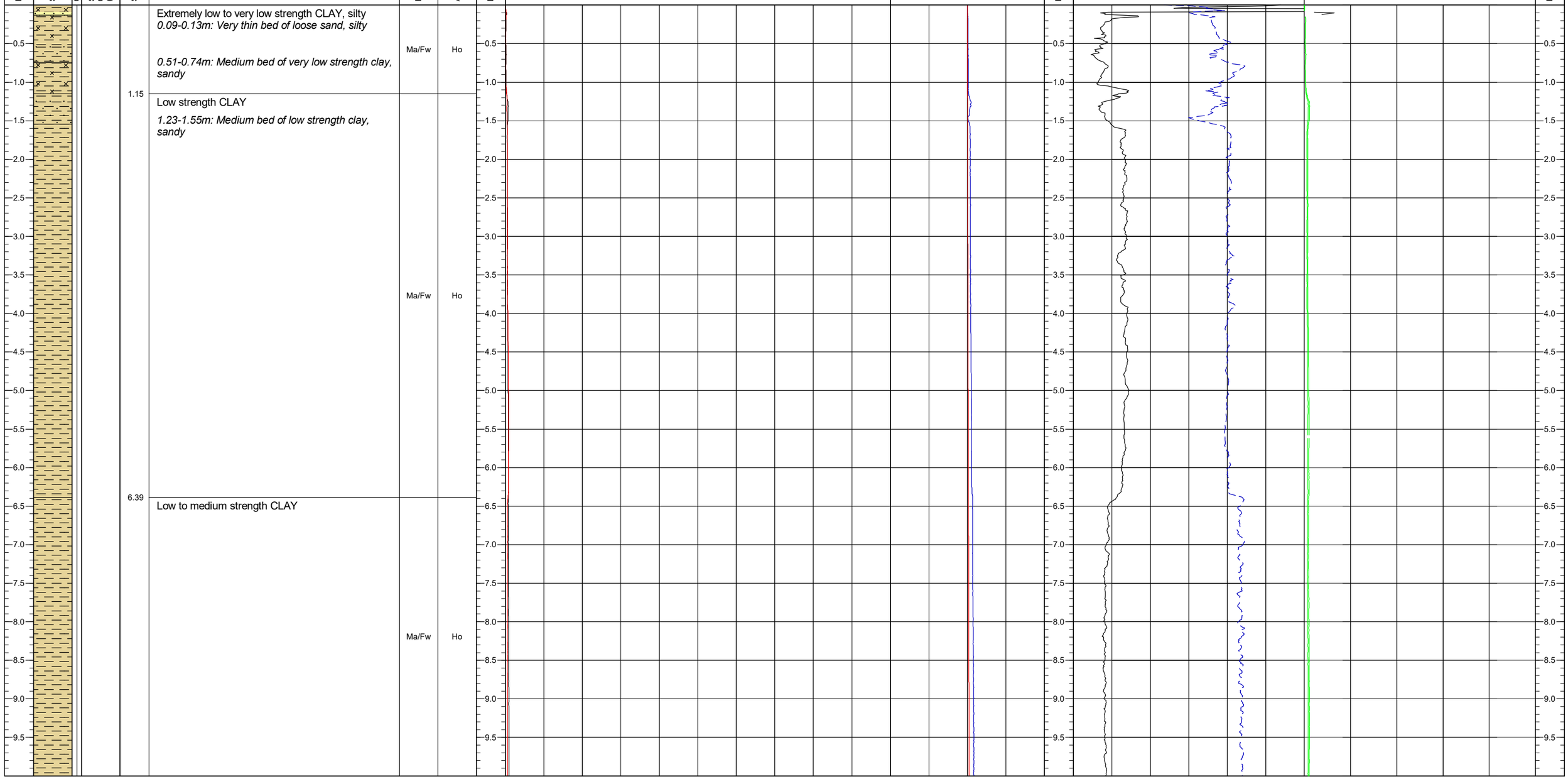
Area	**Kattegat Sea**	Coordinates	**676906.0E 6273510.1N**	CRS: **ETRS89**	QC Status: Preliminary / Draft / Final
Contract	**11596**	Water Depth (mMSL)	**31.6**	**Comments:** **Cone class 1. Continuous seabed CPT. Final depth 30.86m. Test terminated at operators discretion due to increasing total load and lack of lateral rod support from mudline**	**JK/BC** (02/05/2021) / **DR** (10/06/2021) / **SMc** (10/11/2021)
Client Name/Ref	**Energinet Eltransmission A/S/384_20_ENE**	Date of Test	**02/05/2021**		
Vessel	**MV Ocean Vantage**	Cone No.(type)/α Factor	**130206 (50cm²) / 0.77**		
Method	**20 kN Sea bed CPT**	Base Inclination	**X = 1.1° / Y = 0.9°**		

CPT Name: **CPT25b**

Preliminary Investigation, Hesselø OWF

IN SITU CPTU TESTING

Soil Depth (m)	Interpreted Soil Type	Env.	Age
	Extremely low to very low strength CLAY, silty *0.09-0.13m: Very thin bed of loose sand, silty* *0.51-0.74m: Medium bed of very low strength clay, sandy*	Ma/Fw	Ho
1.15	Low strength CLAY *1.23-1.55m: Medium bed of low strength clay, sandy*	Ma/Fw	Ho
6.39	Low to medium strength CLAY	Ma/Fw	Ho



KEY TO SOIL PROFILE

SILT · CLAY · SAND · GRAVEL · COBBLES · CHALK · PEAT · Mixed Soil

Assumed Unit Weight: 20 - 16 kN/m³
K_c: 0.5 - 2.0
N_{kt}: 12.5 - 16.5
$N_{\Delta u}$: 15 - 20
K_p: 0.5 - 2.0

Area	**Kattegat Sea**	Coordinates	**676724.1E 6276824.7N**	CRS: **ETRS89**	
Contract	**11596**	Water Depth (mMSL)	**30.9**	**Comments:** **Cone class 1. Continuous seabed CPT. Final depth 37.33m. Test terminated at operators discretion to avoid damage due to lack of lateral rod support and an increasing tip load**	
Client Name/Ref	**Energinet Eltransmission A/S/384_20_ENE**	Date of Test	**02/05/2021**		
Vessel	**MV Ocean Vantage**	Cone No.(type)/α Factor	**191114 (50cm²) / 0.76**		
Method	**20 kN Sea bed CPT**	Base Inclination	**X = 1.1° / Y = 1.0°**		

QC Status		
Preliminary	Draft	Final
JK/BC (02/05/2021)	**DR** (10/06/2021)	**SMc** (10/11/2021)

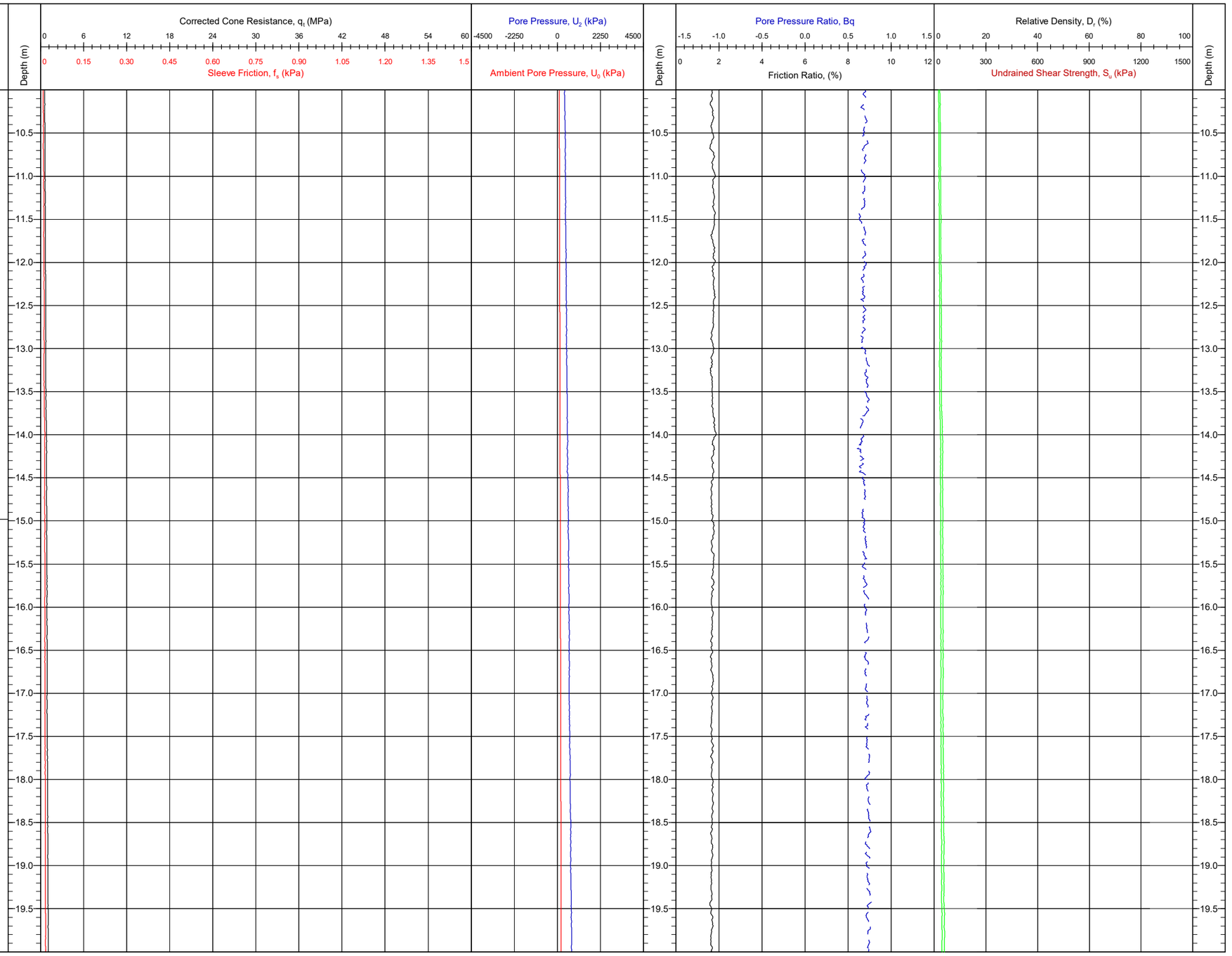
CPT Name

CPT26

Preliminary Investigation, Hesselø OWF

IN SITU CPTU TESTING

Depth (m)	Soil Profile	CPTU Sample	Sample Ref No. Cone ID (Alpha)	Soil Depth (m)	Interpreted Soil Type	Env.	Age
10.5 – 14.98					Low to medium strength CLAY	Ma/Fw	Ho
14.98 – 19.5		1	191114(50) 0.76	14.98	Medium strength CLAY	Ma/Fw	Pg



KEY TO SOIL PROFILE

SILT · CLAY · SAND · GRAVEL · COBBLES · CHALK · PEAT · Mixed Soil

Assumed Unit Weight: 20 - 16 kN/m³
K_c: 0.5 - 2.0
N_{kt}: 12.5 - 16.5
N_{ke}: 15 - 20
K_c: 0.5 - 2.0

Area	**Kattegat Sea**	Coordinates	**676724.1E 6276824.7N**
Contract	**11596**	Water Depth (mMSL)	**30.9**
Client Name/Ref	**Energinet Eltransmission A/S/384_20_ENE**	Date of Test	**02/05/2021**
Vessel	**MV Ocean Vantage**	Cone No.(type)/α Factor	**191114 (50cm²) / 0.76**
Method	**20 kN Sea bed CPT**	Base Inclination	**X = 1.1° / Y = 1.0°**

CRS: **ETRS89**

Comments:
Cone class 1. Continuous seabed CPT. Final depth 37.33m. Test terminated at operators discretion to avoid damage due to lack of lateral rod support and an increasing tip load

QC Status		
Preliminary	Draft	Final
JK/BC (02/05/2021)	**DR** (10/06/2021)	**SMc** (10/11/2021)

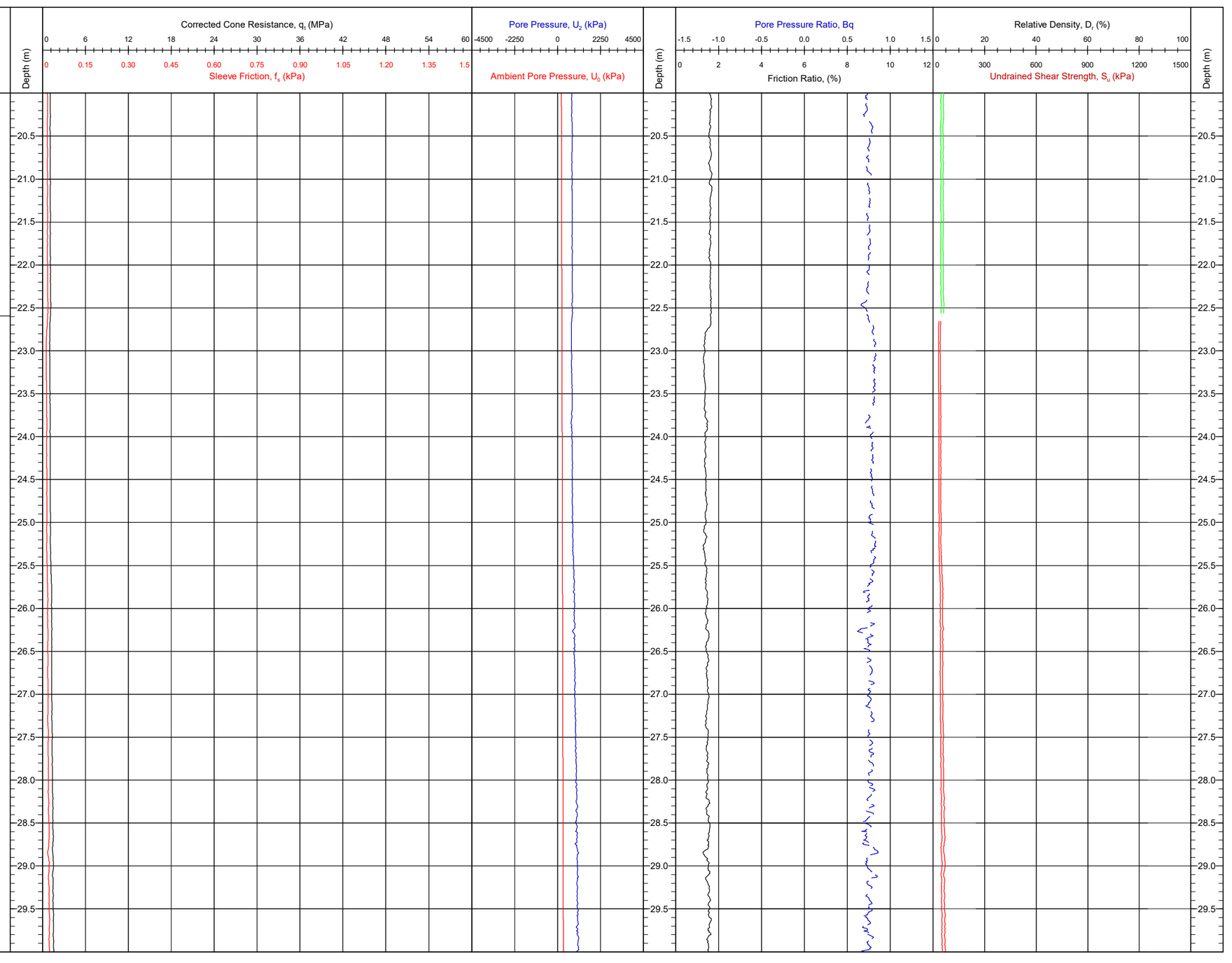
CPT Name

CPT26

Preliminary Investigation, Hesselø OWF

IN SITU CPTU TESTING

Depth (m)	Soil Profile	CPTU Sample	Sample Ref No. Cone ID (Alpha)	Soil Depth (m)	Interpreted Soil Type	Env.	Age
20.5 – 29.5				22.60	Medium strength CLAY	Ma/Fw	Pg
					Medium to high strength CLAY	Ma/Fw	Pg



KEY TO SOIL PROFILE

SILT · CLAY · SAND · GRAVEL · COBBLES · CHALK · PEAT · Mixed Soil

Assumed Unit Weight: 20 - 16 kN/m³
K_c: 0.5 - 2.0
N_{kt}: 12.5 - 16.5
N_{ke}: 15 - 20
K_c: 0.5 - 2.0

Area	**Kattegat Sea**	Coordinates	**676724.1E 6276824.7N**	CRS: **ETRS89**	QC Status: Preliminary / Draft / Final
Contract	**11596**	Water Depth (mMSL)	**30.9**	**Comments:** **Cone class 1. Continuous seabed CPT. Final depth 37.33m. Test terminated at operators discretion to avoid damage due to lack of lateral rod support and an increasing tip load**	
Client Name/Ref	**Energinet Eltransmission A/S/384_20_ENE**	Date of Test	**02/05/2021**		
Vessel	**MV Ocean Vantage**	Cone No.(type)/α Factor	**191114 (50cm²) / 0.76**		
Method	**20 kN Sea bed CPT**	Base Inclination	**X = 1.1° / Y = 1.0°**		

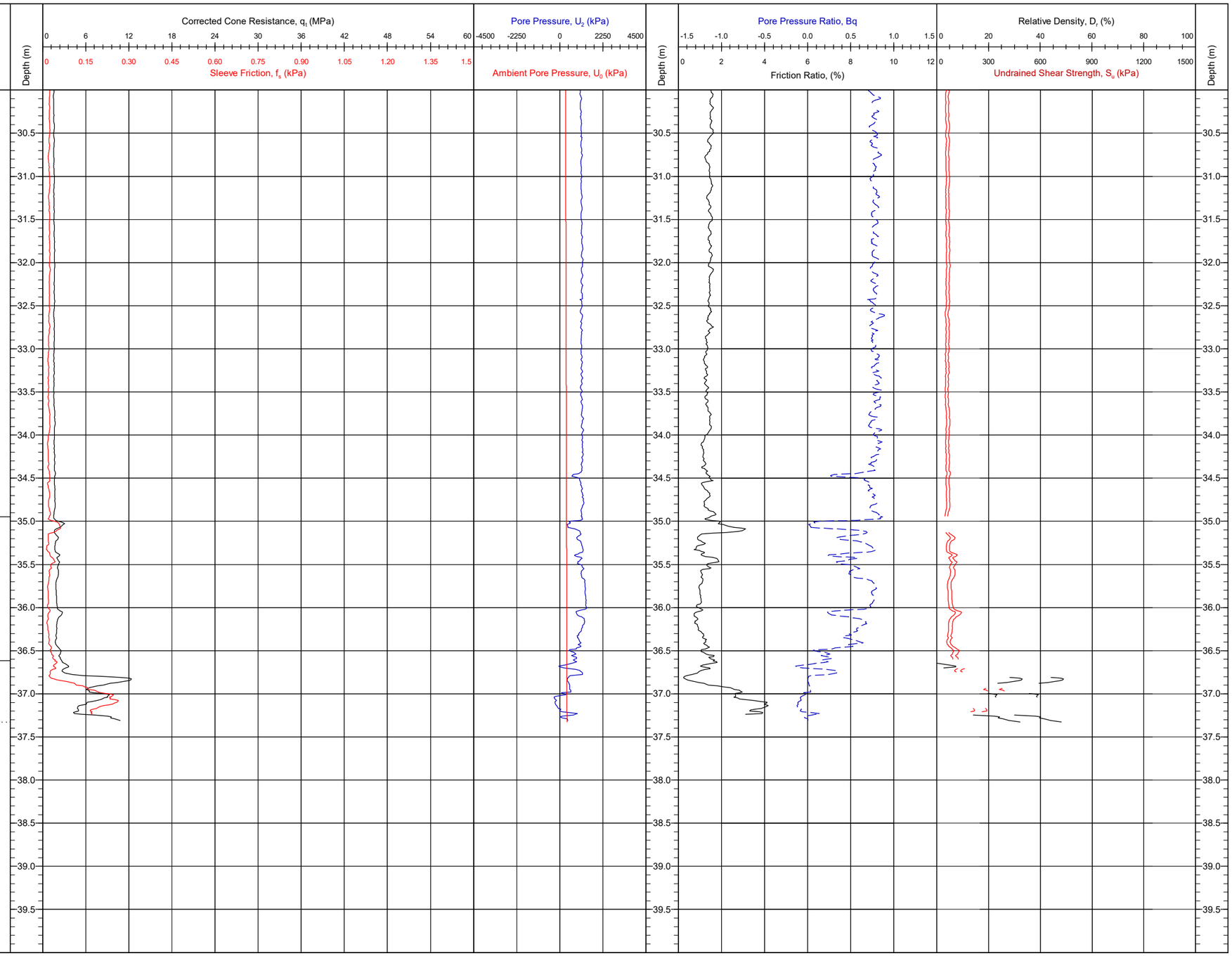
Preliminary	Draft	Final
JK/BC (02/05/2021)	**DR** (10/06/2021)	**SMc** (10/11/2021)

CPT Name: **CPT26**

Preliminary Investigation, Hesselø OWF

IN SITU CPTU TESTING

Depth (m)	Soil Profile	CPTU Sample	Sample Ref No. Cone ID (Alpha)	Soil Depth (m)	Interpreted Soil Type	Env.	Age
					Medium to high strength CLAY	Ma/Fw	Pg
				34.95	Medium to high strength CLAY with medium spaced thin beds of high strength clay, sandy and gravel	Ma/Fw	Pg
				36.62	Loose to medium dense SAND with medium spaced thin beds of very high to extremely high strength clay	Ma/Fw	Lg
					End of CPTU test at 37.33m		



KEY TO SOIL PROFILE

SILT · CLAY · SAND · GRAVEL · COBBLES · CHALK · PEAT · Mixed Soil

Assumed Unit Weight: 20 - 16 kN/m³
K_C: 0.5 - 2.0
N_{KT}: 12.5 - 16.5
$N_{\Delta u}$: 15 - 20
K_D: 0.5 - 2.0

Area	**Kattegat Sea**	Coordinates	**676724.1E 6276824.7N**	CRS: **ETRS89**	
Contract	**11596**	Water Depth (mMSL)	**30.9**	**Comments:** **Cone class 1. Continuous seabed CPT. Final depth 37.33m. Test terminated at operators discretion to avoid damage due to lack of lateral rod support and an increasing tip load**	
Client Name/Ref	**Energinet Eltransmission A/S/384_20_ENE**	Date of Test	**02/05/2021**		
Vessel	**MV Ocean Vantage**	Cone No.(type)/α Factor	**191114 (50cm²) / 0.76**		
Method	**20 kN Sea bed CPT**	Base Inclination	**X = 1.1° / Y = 1.0°**		

QC Status		
Preliminary	Draft	Final
JK/BC (02/05/2021)	**DR** (10/06/2021)	**SMc** (10/11/2021)

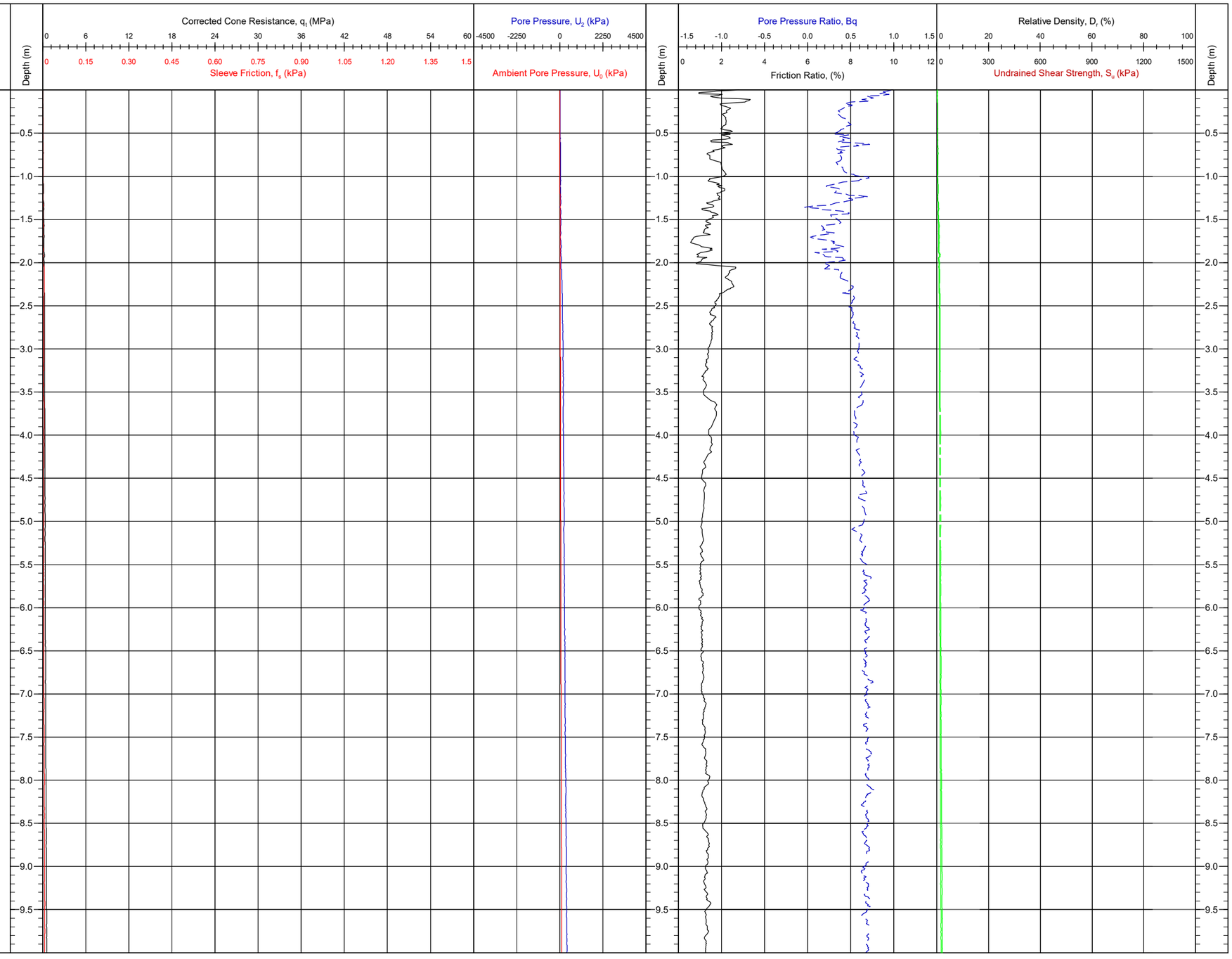
CPT Name

CPT26

Preliminary Investigation, Hesselø OWF

IN SITU CPTU TESTING

Depth (m)	Soil Profile	CPTU Sample	Sample Ref No. Cone ID (Alpha)	Soil Depth (m)	Interpreted Soil Type	Env.	Age
					Low to medium strength CLAY		
						Ma/Fw	Ho



KEY TO SOIL PROFILE

SILT, CLAY, SAND, GRAVEL, COBBLES, CHALK, PEAT, Mixed Soil

Assumed Unit Weight: 20 - 16 kN/m³
K_p: 0.5 - 2.0
N_{kt}: 12.5 - 16.5
N_{ke}: 15 - 20
K_p: 0.5 - 2.0

Area	**Kattegat Sea**	Coordinates	**674182.0E 6265896.3N**	CRS: **ETRS89**	
Contract	**11596**	Water Depth (mMSL)	**31.6**	**Comments:** **OSS1 was completed to a depth of 47.95m~ at which point it was terminated due to loss of communication with the cone. Cone class 4**	
Client Name/Ref	**Energinet Eltransmission A/S/384_20_ENE**	Date of Test	**25/04/2021**		
Vessel	**MV Ocean Vantage**	Cone No.(type)/α Factor	**100415 (50cm²) / 0.80**		
Method	**20 kN Sea bed CPT**	Base Inclination	**X = 0.0° / Y = 0.0°**		

QC Status		
Preliminary	Draft	Final
JK/BC (25/04/2021)	**DR** (10/06/2021)	**SMc** (10/11/2021)

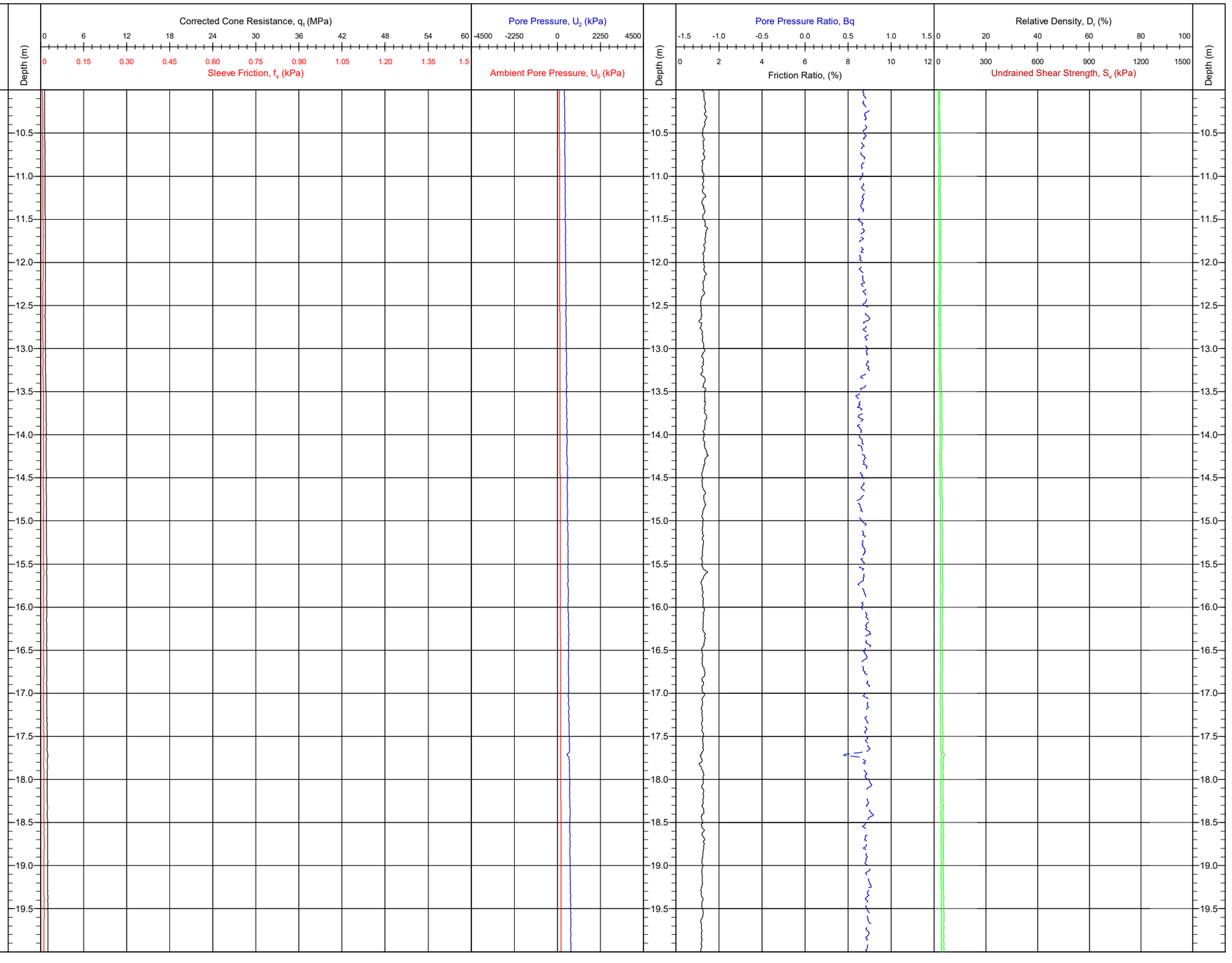
CPT Name

OSS 1

Preliminary Investigation, Hesselø OWF

IN SITU CPTU TESTING

Depth (m)	Soil Profile	CPTU Sample	Sample Ref No. Cone ID (Alpha)	Soil Depth (m)	Interpreted Soil Type	Env.	Age
10.5 – 19.5					Low to medium strength CLAY	Ma/Fw	Ho



KEY TO SOIL PROFILE

SILT · CLAY · SAND · GRAVEL · COBBLES · CHALK · PEAT · Mixed Soil

Assumed Unit Weight: 20 - 16 kN/m³
K_C 0.5 - 2.0
N_{KT} 12.5 - 16.5
N_{KT} 15 - 20
K_C 0.5 - 2.0

Area	**Kattegat Sea**	Coordinates	**674182.0E 6265896.3N**
Contract	**11596**	Water Depth (mMSL)	**31.6**
Client Name/Ref	**Energinet Eltransmission A/S/384_20_ENE**	Date of Test	**25/04/2021**
Vessel	**MV Ocean Vantage**	Cone No.(type)/α Factor	**100415 (50cm²) / 0.80**
Method	**20 kN Sea bed CPT**	Base Inclination	**X = 0.0° / Y = 0.0°**

CRS: **ETRS89**

Comments:
OSS1 was completed to a depth of 47.95m~ at which point it was terminated due to loss of communication with the cone. Cone class 4

QC Status		
Preliminary	Draft	Final
JK/BC (25/04/2021)	**DR** (10/06/2021)	**SMc** (10/11/2021)

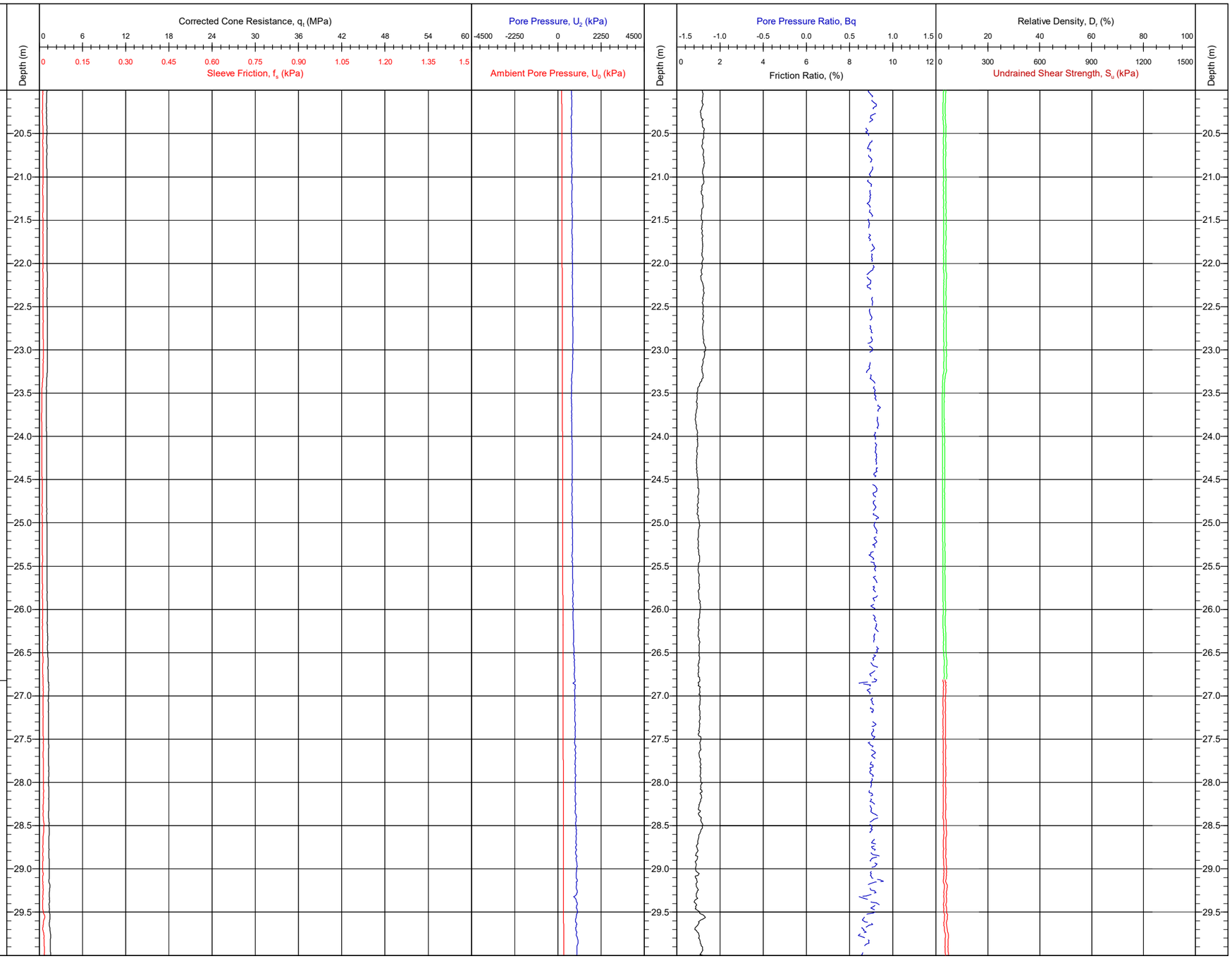
CPT Name

OSS 1

Preliminary Investigation, Hesselø OWF

IN SITU CPTU TESTING

Depth (m)	Soil Profile	CPTU Sample	Sample Ref No. Cone ID (Alpha)	Soil Depth (m)	Interpreted Soil Type	Env.	Age
20.5 – 23.5			1 100415(50) 0.8		Low to medium strength CLAY	Ma/Fw	Ho
23.5 – 29.5				26.82	Medium to high strength CLAY with very closely spaced very thin beds of high strength clay, sandy	Ma/Fw	Pg



KEY TO SOIL PROFILE

SILT · CLAY · SAND · GRAVEL · COBBLES · CHALK · PEAT · Mixed Soil

Assumed Unit Weight: 20 - 16 kN/m³
K_C: 0.5 - 2.0
N_{KT}: 12.5 - 16.5
$N_{\Delta u}$: 15 - 20
K_Q: 0.5 - 2.0

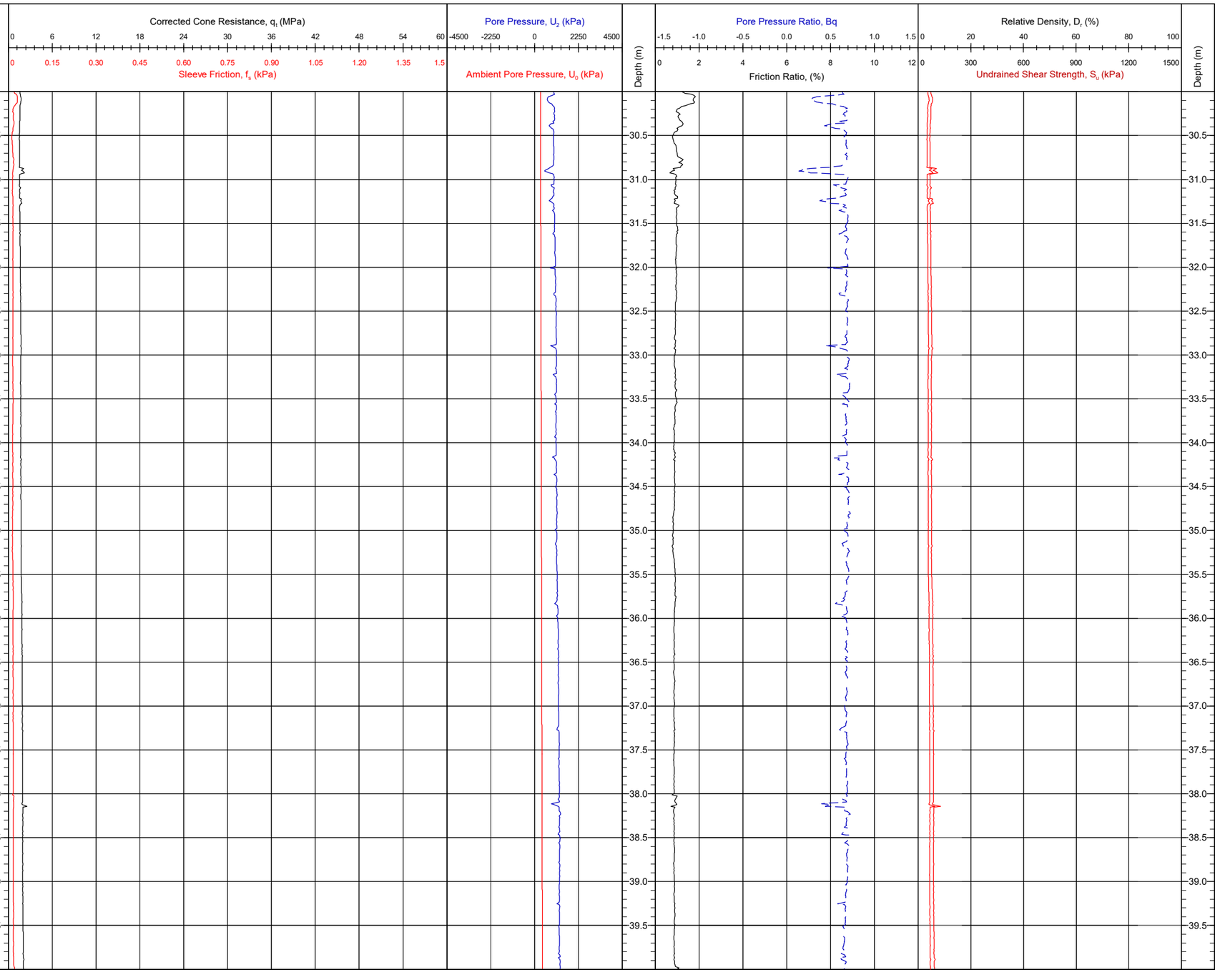
Area	**Kattegat Sea**	Coordinates	**674182.0E 6265896.3N**	CRS: **ETRS89**	QC Status: Preliminary / Draft / Final
Contract	**11596**	Water Depth (mMSL)	**31.6**	**Comments:** **OSS1 was completed to a depth of 47.95m~ at which point it was terminated due to loss of communication with the cone. Cone class 4**	
Client Name/Ref	**Energinet Eltransmission A/S/384_20_ENE**	Date of Test	**25/04/2021**		
Vessel	**MV Ocean Vantage**	Cone No.(type)/α Factor	**100415 (50cm²) / 0.80**		
Method	**20 kN Sea bed CPT**	Base Inclination	**X = 0.0° / Y = 0.0°**		**JK/BC (25/04/2021)** / **DR (10/06/2021)** / **SMc (10/11/2021)**

CPT Name: **OSS 1**

Preliminary Investigation, Hesselø OWF

IN SITU CPTU TESTING

Depth (m)	Soil Profile	CPTU Sample	Sample Ref No. Cone ID (Alpha)	Soil Depth (m)	Interpreted Soil Type	Env.	Age
30.5 – 39.5					Medium to high strength CLAY with very closely spaced very thin beds of high strength clay, sandy	Ma/Fw	Pg



KEY TO SOIL PROFILE

SILT · CLAY · SAND · GRAVEL · COBBLES · CHALK · PEAT · Mixed Soil

Assumed Unit Weight: 20 - 16 kN/m³
K_0: 0.5 - 2.0
N_{kt}: 12.5 - 16.5
N_{ke}: 15 - 20
K_0: 0.5 - 2.0

Area	**Kattegat Sea**	Coordinates	**674182.0E 6265896.3N**
Contract	**11596**	Water Depth (mMSL)	**31.6**
Client Name/Ref	**Energinet Eltransmission A/S/384_20_ENE**	Date of Test	**25/04/2021**
Vessel	**MV Ocean Vantage**	Cone No.(type)/α Factor	**100415 (50cm²) / 0.80**
Method	**20 kN Sea bed CPT**	Base Inclination	**X = 0.0° / Y = 0.0°**

CRS: **ETRS89**

Comments:
OSS1 was completed to a depth of 47.95m~ at which point it was terminated due to loss of communication with the cone. Cone class 4

QC Status		
Preliminary	Draft	Final
JK/BC (25/04/2021)	**DR** (10/06/2021)	**SMc** (10/11/2021)

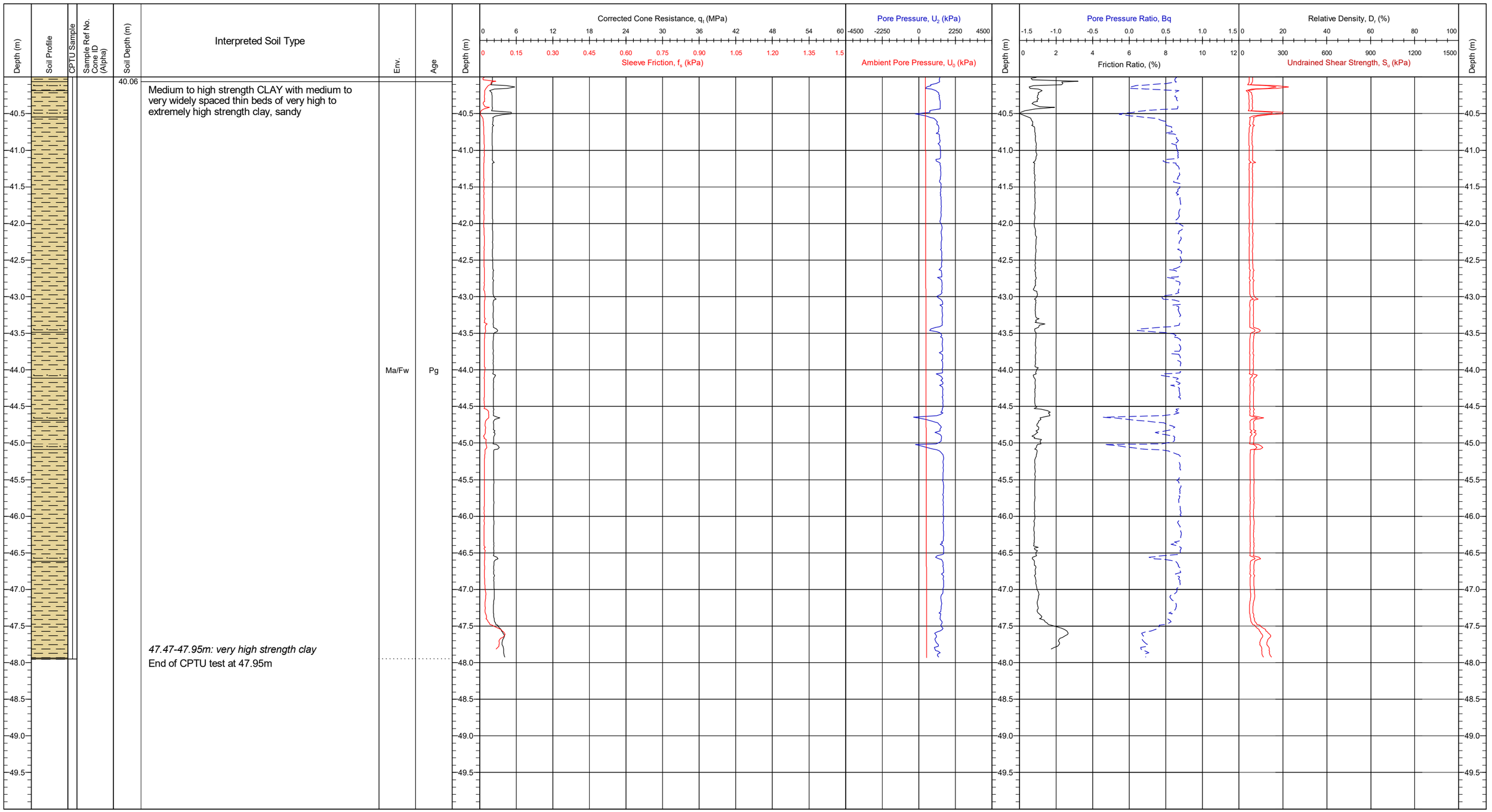
CPT Name

OSS 1

Preliminary Investigation, Hesselø OWF

IN SITU CPTU TESTING

Soil Depth (m)	Interpreted Soil Type	Env.	Age
40.06	Medium to high strength CLAY with medium to very widely spaced thin beds of very high to extremely high strength clay, sandy	Ma/Fw	Pg
	47.47-47.95m: very high strength clay		
	End of CPTU test at 47.95m		



KEY TO SOIL PROFILE

SILT · CLAY · SAND · GRAVEL · COBBLES · CHALK · PEAT · Mixed Soil

Assumed Unit Weight: 20 - 16 kN/m³
K_0: 0.5 - 2.0
N_{kt}: 12.5 - 16.5
N_{ke}: 15 - 20
K_0: 0.5 - 2.0

Area	**Kattegat Sea**	Coordinates	**674182.0E 6265896.3N**
Contract	**11596**	Water Depth (mMSL)	**31.6**
Client Name/Ref	**Energinet Eltransmission A/S/384_20_ENE**	Date of Test	**25/04/2021**
Vessel	**MV Ocean Vantage**	Cone No.(type)/α Factor	**100415 (50cm²) / 0.80**
Method	**20 kN Sea bed CPT**	Base Inclination	**X = 0.0° / Y = 0.0°**

CRS: **ETRS89**

Comments:
OSS1 was completed to a depth of 47.95m~ at which point it was terminated due to loss of communication with the cone. Cone class 4

QC Status		
Preliminary	Draft	Final
JK/BC (25/04/2021)	**DR** (10/06/2021)	**SMc** (10/11/2021)

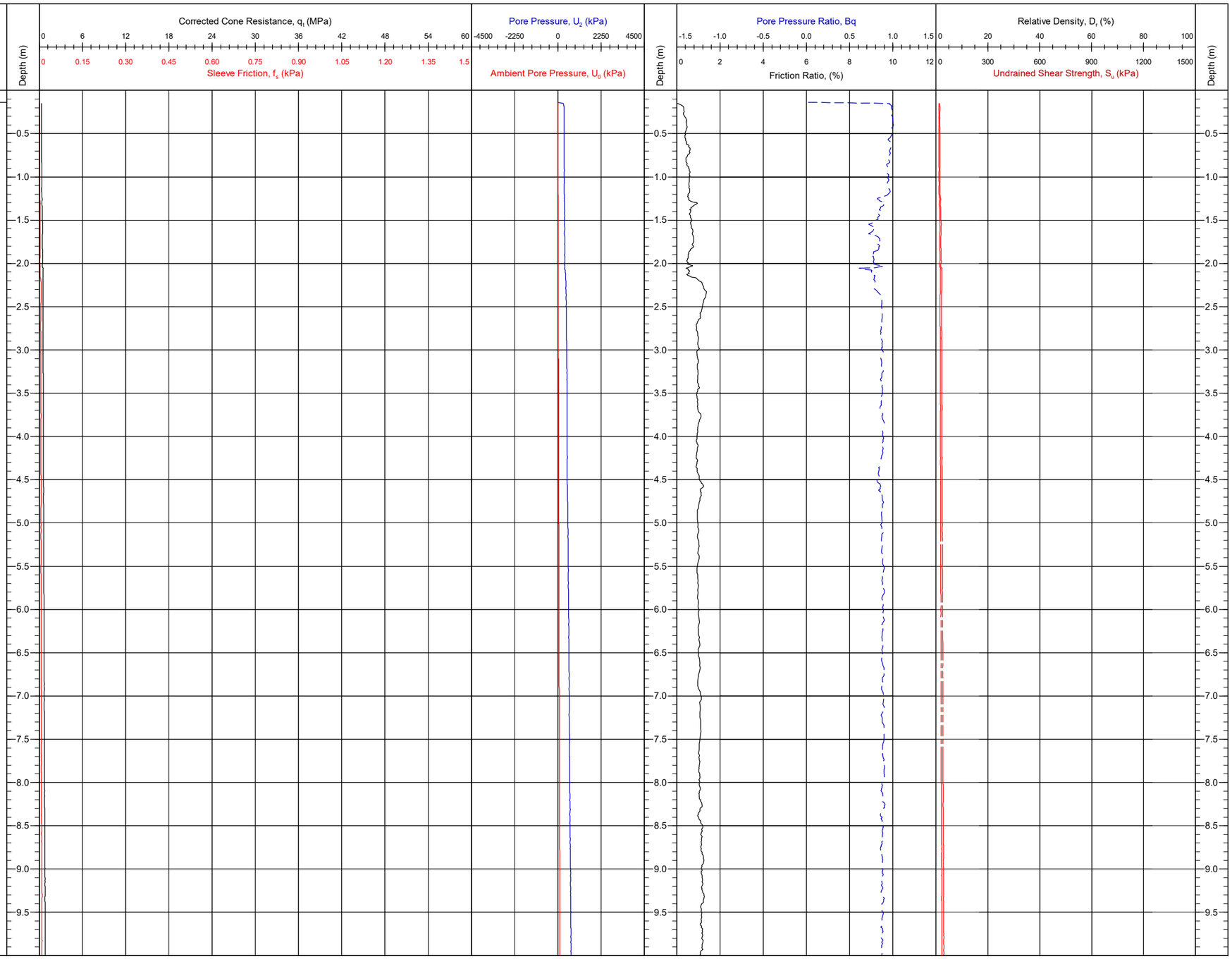
CPT Name

OSS 1

Preliminary Investigation, Hesselø OWF

IN SITU CPTU TESTING

Depth (m)	Soil Profile	CPTU Sample	Sample Ref No. Cone ID (Alpha)	Soil Depth (m)	Interpreted Soil Type	Env.	Age
				0.14	CPTU sinkage Low to medium strength CLAY	Ma/Fw	Ho
			1 120910(50) 0.81				



KEY TO SOIL PROFILE

SILT · CLAY · SAND · GRAVEL · COBBLES · CHALK · PEAT · Mixed Soil

Assumed Unit Weight: 20 - 16 kN/m³
K_c: 0.5 - 2.0
N_{kt}: 12.5 - 16.5
$N_{\Delta u}$: 15 - 20
K_c: 0.5 - 2.0

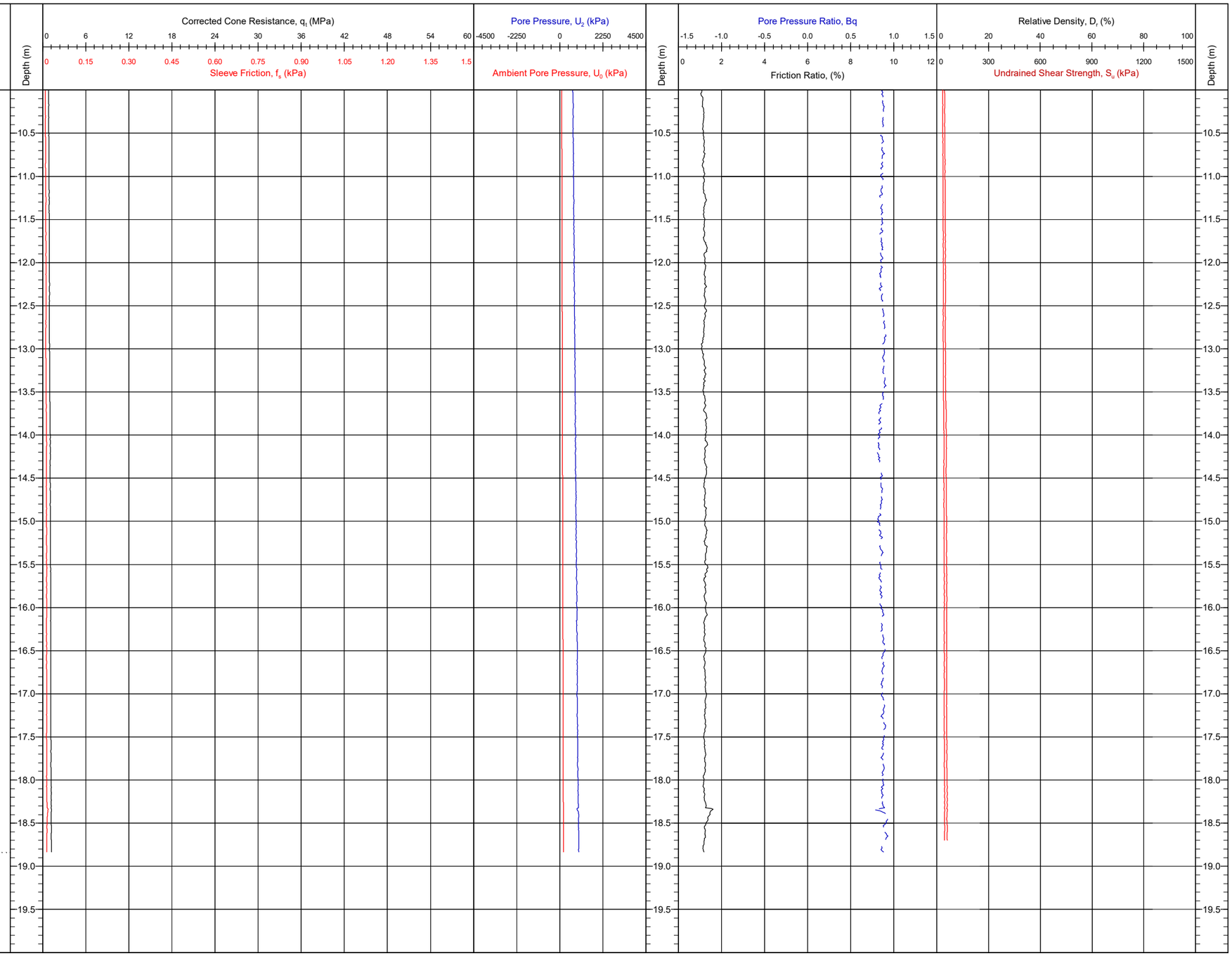
Area	**Kattegat Sea**	Coordinates	**674182.4E 6265890.9N**	CRS: **ETRS89**	QC Status
Contract	**11596**	Water Depth (mMSL)	**31.6**	**Comments:** **Cone class 1. Test terminated at operators discretion due to increasing cone inclination. Final depth 18.70m**	Preliminary: **JK/BC** (25/04/2021) Draft: **DR** (10/06/2021) Final: **SMc** (10/11/2021)
Client Name/Ref	**Energinet Eltransmission A/S/384_20_ENE**	Date of Test	**25/04/2021**		
Vessel	**MV Ocean Vantage**	Cone No.(type)/α Factor	**120910 (50cm²) / 0.81**		
Method	**20 kN Sea bed CPT**	Base Inclination	**X = -0.6° / Y = 1.6°**		

CPT Name: **OSS 1a**

Preliminary Investigation, Hesselø OWF

IN SITU CPTU TESTING

Depth (m)	Soil Profile	CPTU Sample	Sample Ref No. Cone ID (Alpha)	Soil Depth (m)	Interpreted Soil Type	Env.	Age
10.5					Low to medium strength CLAY		
11.0							
11.5							
12.0							
12.5							
13.0							
13.5							
14.0							
14.5						Ma/Fw	Ho
15.0							
15.5							
16.0							
16.5							
17.0							
17.5							
18.0							
18.5							
19.0					End of CPTU test at 18.84m		
19.5							



KEY TO SOIL PROFILE

SILT · CLAY · SAND · GRAVEL · COBBLES · CHALK · PEAT · Mixed Soil

Assumed Unit Weight: 20 - 16 kN/m³
K_C 0.5 - 2.0
N_{kt} 12.5 - 16.5
$N_{\Delta u}$ 15 - 20
K_C 0.5 - 2.0

Area	**Kattegat Sea**	Coordinates	**674182.4E 6265890.9N**	CRS: **ETRS89**	QC Status: Preliminary **JK/BC (25/04/2021)** · Draft **DR (10/06/2021)** · Final **SMc (10/11/2021)**
Contract	**11596**	Water Depth (mMSL)	**31.6**	**Comments:** Cone class 1. Test terminated at operators discretion due to increasing cone inclination. Final depth 18.70m	CPT Name **OSS 1a**
Client Name/Ref	**Energinet Eltransmission A/S/384_20_ENE**	Date of Test	**25/04/2021**		
Vessel	**MV Ocean Vantage**	Cone No.(type)/α Factor	**120910 (50cm²) / 0.81**		
Method	**20 kN Sea bed CPT**	Base Inclination	**X = -0.6° / Y = 1.6°**		Page: 2/2

Preliminary Investigation, Hesselø OWF

IN SITU CPTU TESTING

Depth (m)	Interpreted Soil Type	Env.	Age
0.00	Extremely low to very low strength CLAY with closely to widely spaced thin beds of medium to high strength clay, sandy	Ma/Fw	Ho
1.94	Medium to high becoming very high strength CLAY *2.04-2.75m: Thick bed of dense to very dense sand*	Ma/Fw	Pg
6.67	Medium to high becoming very high strength CLAY, sandy, with medium spaced thin beds of very high strength sandy clay	Ma/Fw	Pg

CPTU Sample: 1 (081208(50) 0.78)

Corrected Cone Resistance, q_t (MPa) / Sleeve Friction, f_s (kPa)

Pore Pressure, U_2 (kPa) / Ambient Pore Pressure, U_0 (kPa)

Pore Pressure Ratio, Bq / Friction Ratio, (%)

Relative Density, D_r (%) / Undrained Shear Strength, S_u (kPa)

KEY TO SOIL PROFILE

SILT, CLAY, SAND, GRAVEL, COBBLES, CHALK, PEAT, Mixed Soil

Assumed Unit Weight: 20 - 16 kN/m³
K_C 0.5 - 2.0
N_{kt} 12.5 - 16.5
$N_{\Delta u}$ 15 - 20
K_C 0.5 - 2.0

Area	**Kattegat Sea**	Coordinates	**674909.6E 6253669.9N**
Contract	**11596**	Water Depth (mMSL)	**30.0**
Client Name/Ref	**Energinet Eltransmission A/S/384_20_ENE**	Date of Test	**27/04/2021**
Vessel	**MV Ocean Vantage**	Cone No.(type)/α Factor	**081208 (50cm²) / 0.78**
Method	**20 kN Sea bed CPT**	Base Inclination	**X = 1.0° / Y = 1.0°**

CRS: **ETRS89**

Comments:
Cone class 1. Continuous seabed CPT. Final depth 15.84m. Test terminated at operators discretion due to a lack of lateral rod support from mudline~ resulting in a high risk of buckling rods when encountering very dense sands

QC Status	Preliminary	Draft	Final
	JK/BC (27/04/2021)	**DR** (10/06/2021)	**SMc** (10/11/2021)

CPT Name: **OSS 2**

Preliminary Investigation, Hesselø OWF

IN SITU CPTU TESTING

Depth (m)	Interpreted Soil Type	Env.	Age
10.5	Medium to high becoming very high strength CLAY, sandy, with medium spaced thin beds of very high strength sandy clay	Ma/Fw	Pg
14.05	*14.05-14.71m: Thick bed of medium dense to dense sand, silty*		
15.12	Very dense SAND, silty, slightly gravelly	Ma/Fw	Pg
15.77	End of CPTU test at 15.77m		

Corrected Cone Resistance, q_t (MPa) / Sleeve Friction, f_s (kPa)

Pore Pressure, U_2 (kPa) / Ambient Pore Pressure, U_0 (kPa)

Pore Pressure Ratio, Bq / Friction Ratio, (%)

Relative Density, D_r (%) / Undrained Shear Strength, S_u (kPa)

KEY TO SOIL PROFILE

SILT, CLAY, SAND, GRAVEL, COBBLES, CHALK, PEAT, Mixed Soil

Assumed Unit Weight: 20 - 16 kN/m³
K_c: 0.5 - 2.0
N_{kt}: 12.5 - 16.5
N_{ke}: 15 - 20
K_c: 0.5 - 2.0

Area	**Kattegat Sea**	Coordinates	**674909.6E 6253669.9N**
Contract	**11596**	Water Depth (mMSL)	**30.0**
Client Name/Ref	**Energinet Eltransmission A/S/384_20_ENE**	Date of Test	**27/04/2021**
Vessel	**MV Ocean Vantage**	Cone No.(type)/α Factor	**081208 (50cm²) / 0.78**
Method	**20 kN Sea bed CPT**	Base Inclination	**X = 1.0° / Y = 1.0°**

CRS: **ETRS89**

Comments:
Cone class 1. Continuous seabed CPT. Final depth 15.84m. Test terminated at operators discretion due to a lack of lateral rod support from mudline~ resulting in a high risk of buckling rods when encountering very dense sands

QC Status		
Preliminary	Draft	Final
JK/BC (27/04/2021)	**DR** (10/06/2021)	**SMc** (10/11/2021)

CPT Name

OSS 2

Preliminary Investigation, Hesselø OWF

IN SITU CPTU TESTING

Soil Depth (m)	Interpreted Soil Type	Env.	Age
0.18	Extremely low strength CLAY	Ma/Fw	Ho
	Very low to low strength CLAY with closely to medium spaced very thin to thin beds of low strength clay, sandy	Ma/Fw	Ho
	1.85-1.90m: Very thin bed of medium dense sand		
2.64	End of CPTU test at 2.64m		

Sample Ref No. / Cone ID (Alpha): 1 / 130104(50) / 0.77

Corrected Cone Resistance, q_t (MPa) 0 6 12 18 24 30 36 42 48 54 60

Sleeve Friction, f_s (kPa) 0 0.15 0.30 0.45 0.60 0.75 0.90 1.05 1.20 1.35 1.5

Pore Pressure, U_2 (kPa) -4500 -2250 0 2250 4500

Ambient Pore Pressure, U_0 (kPa)

Pore Pressure Ratio, Bq -1.5 -1.0 -0.5 0.0 0.5 1.0 1.5

Friction Ratio, (%) 0 2 4 6 8 10 12

Relative Density, D_r (%) 0 20 40 60 80 100

Undrained Shear Strength, S_u (kPa) 0 300 600 900 1200 1500

KEY TO SOIL PROFILE

SILT, CLAY, SAND, GRAVEL, COBBLES, CHALK, PEAT, Mixed Soil

Assumed Unit Weight: 20 - 16 kN/m³
K_C 0.5 - 2.0
N_{kt} 12.5 - 16.5
$N_{\Delta u}$ 15 - 20
K_C 0.5 - 2.0

Area	**Kattegat Sea**	Coordinates	**681923.1E 6249312.9N**
Contract	**11596**	Water Depth (mMSL)	**31.2**
Client Name/Ref	**Energinet Eltransmission A/S/384_20_ENE**	Date of Test	**28/04/2021**
Vessel	**MV Ocean Vantage**	Cone No.(type)/α Factor	**130104 (50cm²) / 0.77**
Method	**20 kN Sea bed CPT**	Base Inclination	**X = 1.1° / Y = 1.0°**

CRS: **ETRS89**

Comments:
Cone Class 1. Continous Seismic CPT.Final depth 2.64m. Test was terminated due to seismic source communication issue.

QC Status		
Preliminary	Draft	Final
JK/BC (28/04/2021)	**DR** (10/06/2021)	**SMc** (10/11/2021)

CPT Name: **SCPT1**

2.4 Seabed SCPTU Logs

Preliminary Investigation, Hesselø OWF

IN SITU CPTU TESTING

Soil Depth (m)	Interpreted Soil Type	Env.	Age
	CPTU sinkage		
0.26	Extremely low strength CLAY	Ma/Fw	Ho
1.02	Very low to low strength CLAY with closely spaced thin to medium beds of medium dense to dense sand, silty	Ma/Fw	Ho
3.27	Low to medium becoming high strength CLAY	Ma/Fw	Pg

Corrected Cone Resistance, q_t (MPa) / Sleeve Friction, f_s (kPa)

Pore Pressure, U_2 (kPa) / Ambient Pore Pressure, U_0 (kPa)

Pore Pressure Ratio, Bq / Friction Ratio, (%)

Relative Density, D_r (%) / Undrained Shear Strength, S_u (kPa)

KEY TO SOIL PROFILE

SILT, CLAY, SAND, GRAVEL, COBBLES, CHALK, PEAT, Mixed Soil

Assumed Unit Weight: 20 - 16 kN/m³
K_c: 0.5 - 2.0
N_{kt}: 12.5 - 16.5
N_{ke}: 15 - 20
K_c: 0.5 - 2.0

Area	**Kattegat Sea**	Coordinates	**681923.4E 6249306.6N**
Contract	**11596**	Water Depth (mMSL)	**31.7**
Client Name/Ref	**Energinet Eltransmission A/S/384_20_ENE**	Date of Test	**05/05/2021**
Vessel	**MV Ocean Vantage**	Cone No.(type)/α Factor	**130206 (50cm²) / 0.77**
Method	**20 kN Sea bed CPT**	Base Inclination	**X = 1.1° / Y = 1.0°**

CRS: **ETRS89**

Comments:
Cone class 1. Continuous seismic seabed CPT. Final depth 37.55m. Test terminated at operators discretion due to increasing total force and lack of lateral rod support

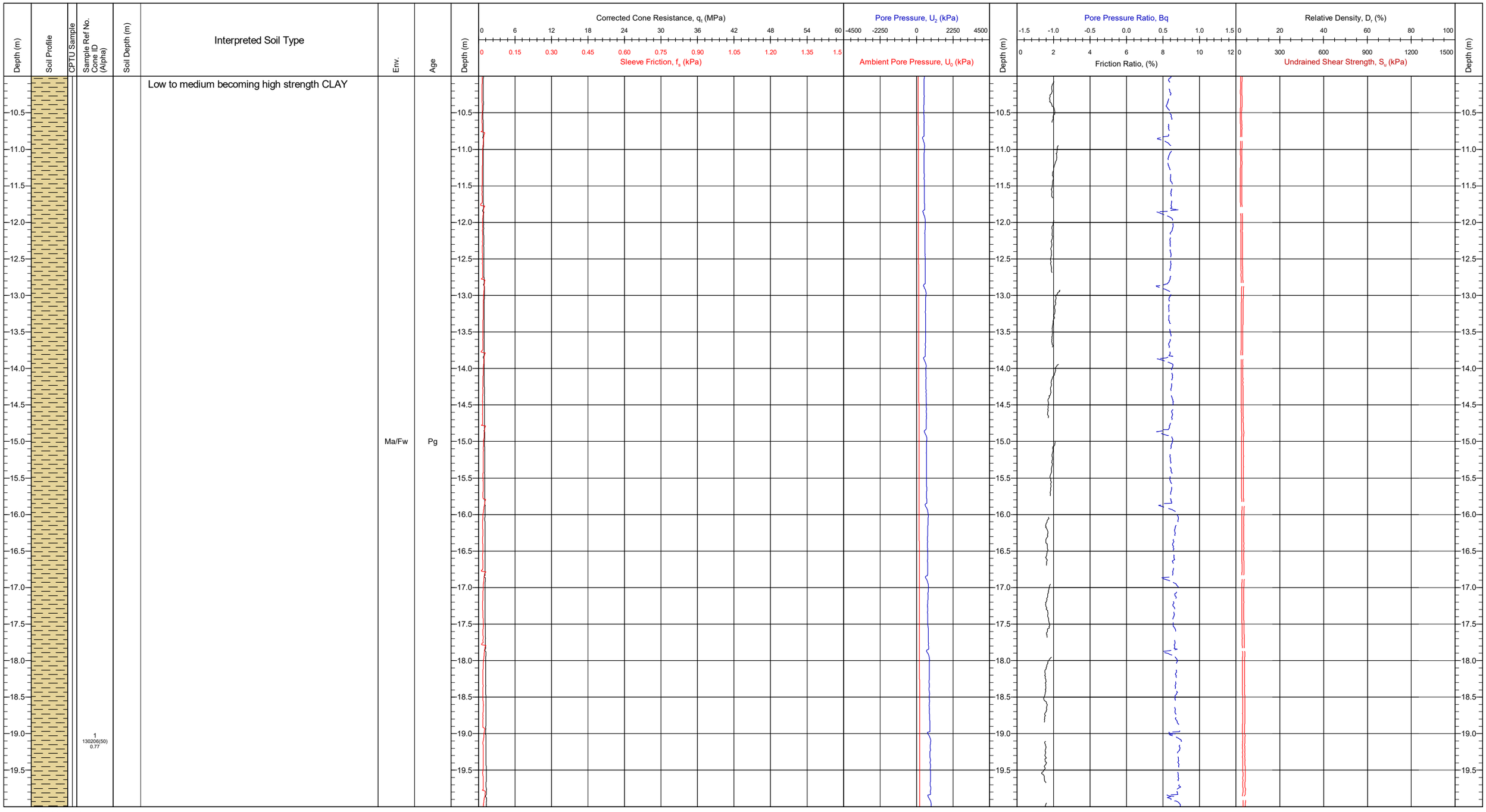
QC Status		
Preliminary	Draft	Final
JK/BC (06/05/2021)	**DR** (10/06/2021)	**SMc** (10/11/2021)

CPT Name

SCPT1a

Preliminary Investigation, Hesselø OWF

IN SITU CPTU TESTING



KEY TO SOIL PROFILE

SILT · CLAY · SAND · GRAVEL · COBBLES · CHALK · PEAT · Mixed Soil

Assumed Unit Weight: 20 - 16 kN/m³
K_C 0.5 - 2.0
N_{kt} 12.5 - 16.5
$N_{\Delta u}$ 15 - 20
K_C 0.5 - 2.0

Area	**Kattegat Sea**	Coordinates	**681923.4E 6249306.6N**
Contract	**11596**	Water Depth (mMSL)	**31.7**
Client Name/Ref	**Energinet Eltransmission A/S/384_20_ENE**	Date of Test	**05/05/2021**
Vessel	**MV Ocean Vantage**	Cone No.(type)/α Factor	**130206 (50cm²) / 0.77**
Method	**20 kN Sea bed CPT**	Base Inclination	**X = 1.1° / Y = 1.0°**

CRS: **ETRS89**

Comments:
Cone class 1. Continuous seismic seabed CPT. Final depth 37.55m. Test terminated at operators discretion due to increasing total force and lack of lateral rod support

QC Status		
Preliminary	Draft	Final
JK/BC (06/05/2021)	**DR** (10/06/2021)	**SMc** (10/11/2021)

CPT Name

SCPT1a

Preliminary Investigation, Hesselø OWF

IN SITU CPTU TESTING

Depth (m)	Soil Profile	CPTU Sample	Sample Ref No. Cone ID (Alpha)	Soil Depth (m)	Interpreted Soil Type	Env.	Age
20.5					Low to medium becoming high strength CLAY		
21.0							
21.5							
22.0							
22.5							
23.0							
23.5							
24.0							
24.5						Ma/Fw	Pg
25.0							
25.5							
26.0							
26.5							
27.0							
27.5							
28.0							
28.5							
29.0							
29.5				29.63		Ma/Fw	Pg

Corrected Cone Resistance, q_t (MPa): 0 6 12 18 24 30 36 42 48 54 60

Sleeve Friction, f_s (kPa): 0 0.15 0.30 0.45 0.60 0.75 0.90 1.05 1.20 1.35 1.5

Pore Pressure, U_2 (kPa): -4500 -2250 0 2250 4500

Ambient Pore Pressure, U_0 (kPa)

Pore Pressure Ratio, Bq: -1.5 -1.0 -0.5 0.0 0.5 1.0 1.5

Friction Ratio, (%): 0 2 4 6 8 10 12

Relative Density, D_r (%): 0 20 40 60 80 100

Undrained Shear Strength, S_u (kPa): 0 300 600 900 1200 1500

KEY TO SOIL PROFILE

SILT · CLAY · SAND · GRAVEL · COBBLES · CHALK · PEAT · Mixed Soil

Assumed Unit Weight: 20 - 16 kN/m³

K_c: 0.5 - 2.0
N_{kt}: 12.5 - 16.5
N_{ch}: 15 - 20
K_c: 0.5 - 2.0

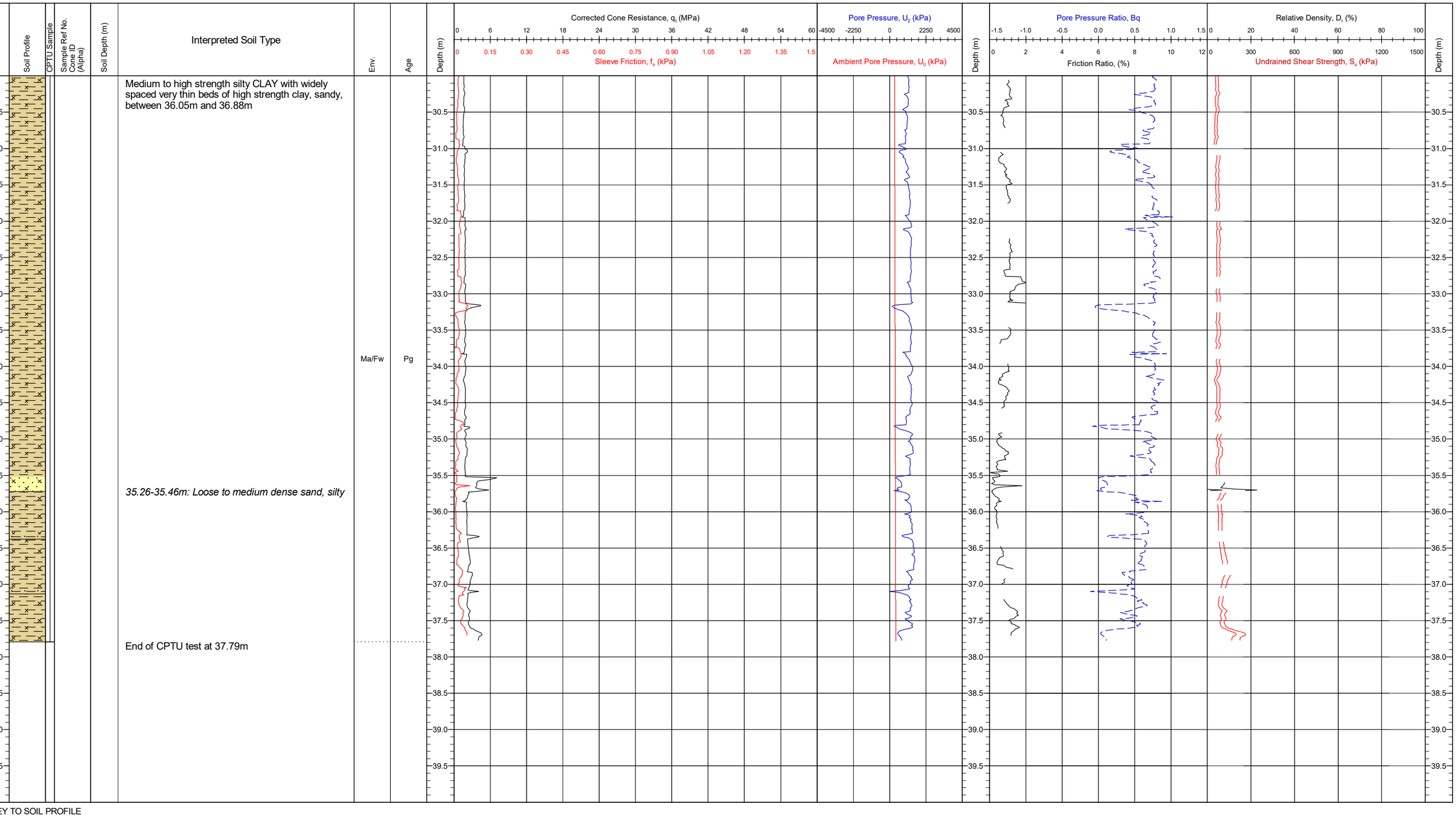
Area	**Kattegat Sea**	Coordinates	**681923.4E 6249306.6N**	CRS: **ETRS89**	QC Status
Contract	**11596**	Water Depth (mMSL)	**31.7**	**Comments:** **Cone class 1. Continuous seismic seabed CPT. Final depth 37.55m. Test terminated at operators discretion due to increasing total force and lack of lateral rod support**	Preliminary: **JK/BC** (06/05/2021); Draft: **DR** (10/06/2021); Final: **SMc** (10/11/2021)
Client Name/Ref	**Energinet Eltransmission A/S/384_20_ENE**	Date of Test	**05/05/2021**		
Vessel	**MV Ocean Vantage**	Cone No.(type)/α Factor	**130206 (50cm²) / 0.77**		
Method	**20 kN Sea bed CPT**	Base Inclination	**X = 1.1° / Y = 1.0°**		

CPT Name: **SCPT1a**

Preliminary Investigation, Hesselø OWF

IN SITU CPTU TESTING

Depth (m)	Interpreted Soil Type	Env.	Age
30.5	Medium to high strength silty CLAY with widely spaced very thin beds of high strength clay, sandy, between 36.05m and 36.88m	Ma/Fw	Pg
35.26	*35.26-35.46m: Loose to medium dense sand, silty*		
37.79	End of CPTU test at 37.79m		



KEY TO SOIL PROFILE

SILT · CLAY · SAND · GRAVEL · COBBLES · CHALK · PEAT · Mixed Soil

Assumed Unit Weight: 20 - 16 kN/m³
K_C: 0.5 - 2.0
N_{kt}: 12.5 - 16.5
N_{Q}: 15 - 20
K_Q: 0.5 - 2.0

Area	**Kattegat Sea**	Coordinates	**681923.4E 6249306.6N**
Contract	**11596**	Water Depth (mMSL)	**31.7**
Client Name/Ref	**Energinet Eltransmission A/S/384_20_ENE**	Date of Test	**05/05/2021**
Vessel	**MV Ocean Vantage**	Cone No.(type)/α Factor	**130206 (50cm²) / 0.77**
Method	**20 kN Sea bed CPT**	Base Inclination	**X = 1.1° / Y = 1.0°**

CRS: **ETRS89**

Comments:
Cone class 1. Continuous seismic seabed CPT. Final depth 37.55m. Test terminated at operators discretion due to increasing total force and lack of lateral rod support

QC Status	Preliminary	Draft	Final
	JK/BC (06/05/2021)	**DR** (10/06/2021)	**SMc** (10/11/2021)

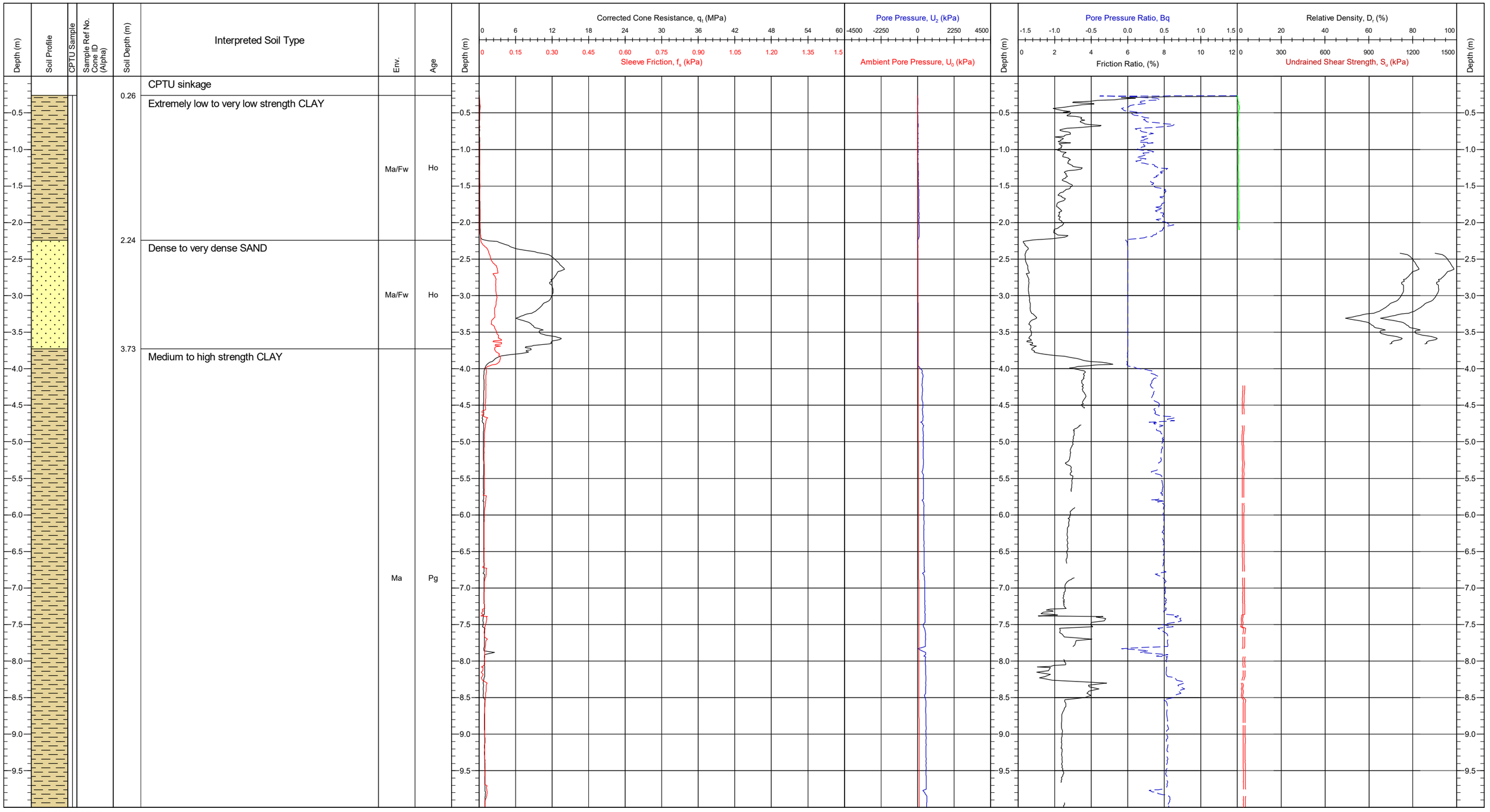
CPT Name

SCPT1a

Preliminary Investigation, Hesselø OWF

IN SITU CPTU TESTING

Soil Depth (m)	Interpreted Soil Type	Env.	Age
	CPTU sinkage		
0.26	Extremely low to very low strength CLAY	Ma/Fw	Ho
2.24	Dense to very dense SAND	Ma/Fw	Ho
3.73	Medium to high strength CLAY	Ma	Pg



KEY TO SOIL PROFILE

SILT · CLAY · SAND · GRAVEL · COBBLES · CHALK · PEAT · Mixed Soil

Assumed Unit Weight: 20 - 16 kN/m³
K_c 0.5 - 2.0
N_{kt} 12.5 - 16.5
$N_{\Delta u}$ 15 - 20
K_c 0.5 - 2.0

Area	**Kattegat Sea**	Coordinates	**673302.0E 6252306.8N**
Contract	**11596**	Water Depth (mMSL)	**28.8**
Client Name/Ref	**Energinet Eltransmission A/S/384_20_ENE**	Date of Test	**04/05/2021**
Vessel	**MV Ocean Vantage**	Cone No.(type)/α Factor	**130909 (50cm²) / 0.82**
Method	**20 kN Sea bed CPT**	Base Inclination	**X = 1.2° / Y = 0.7°**

CRS: **ETRS89**

Comments:
Cone class 1. Continuous seismic seabed CPT. Final depth 26.25m. Test terminated at operators discretion due to cone inclination >12 degrees and lack of lateral rod support into hard ground.

QC Status		
Preliminary	Draft	Final
JK/BC (04/05/2021)	**DR** (10/06/2021)	**SMc** (10/11/2021)

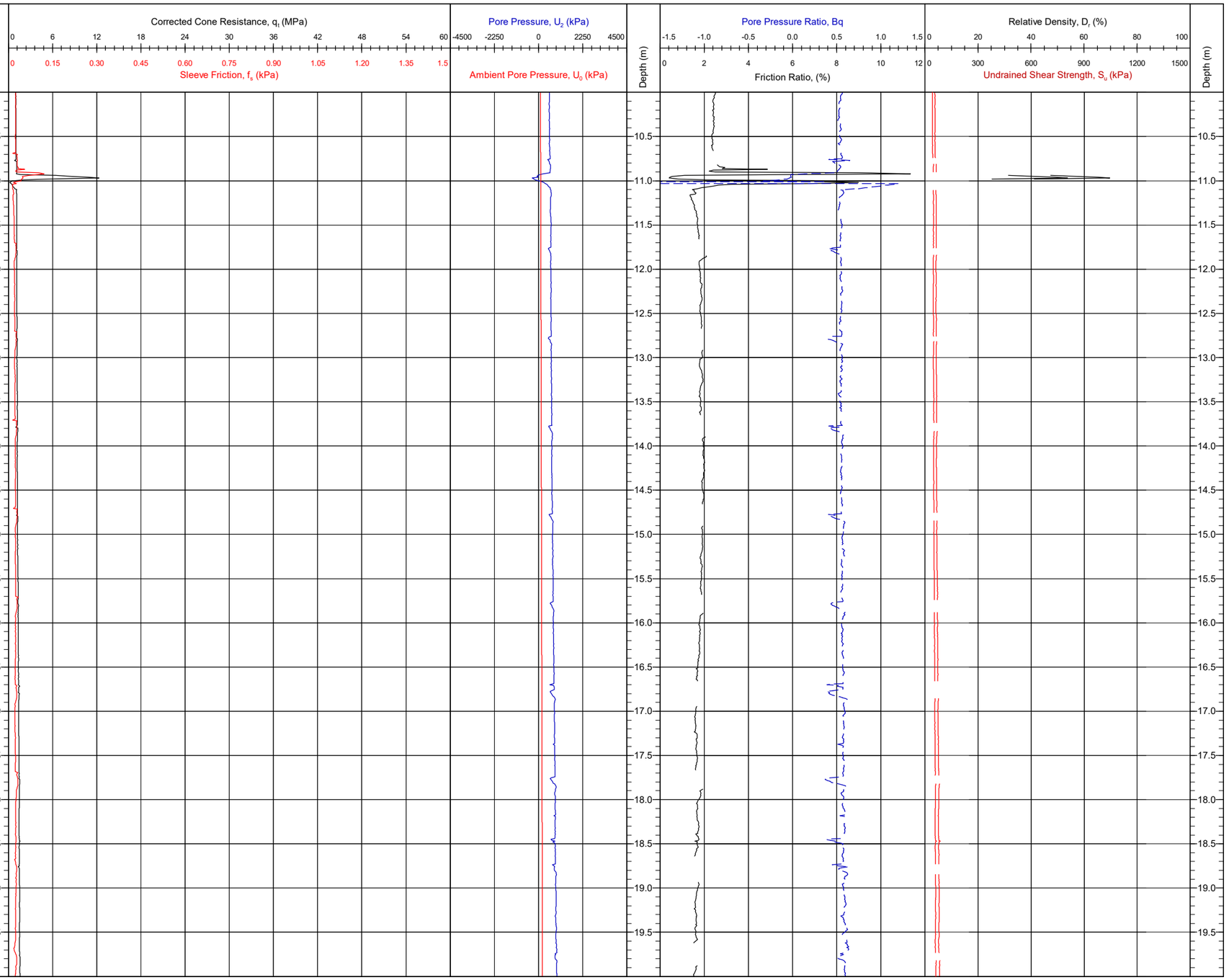
CPT Name

SCPT2

Preliminary Investigation, Hesselø OWF

IN SITU CPTU TESTING

Depth (m)	Soil Profile	CPTU Sample	Sample Ref No. Cone ID (Alpha)	Soil Depth (m)	Interpreted Soil Type	Env.	Age
10.5					Medium to high strength CLAY		
11.0					*10.66-10.73: Thin bed of medium dense to dense sand*		
11.5							
12.0							
12.5							
13.0							
13.5			1 130909(50) 0.82				
14.0							
14.5							
15.0						Ma	Pg
15.5							
16.0							
16.5							
17.0							
17.5							
18.0							
18.5							
19.0							
19.5							



KEY TO SOIL PROFILE

SILT · CLAY · SAND · GRAVEL · COBBLES · CHALK · PEAT · Mixed Soil

Assumed Unit Weight: 20 - 16 kN/m³
K_C: 0.5 - 2.0
N_{kt}: 12.5 - 16.5
$N_{\Delta u}$: 15 - 20
K_C: 0.5 - 2.0

Area	**Kattegat Sea**	Coordinates	**673302.0E 6252306.8N**	CRS: **ETRS89**	QC Status
Contract	**11596**	Water Depth (mMSL)	**28.8**	**Comments:** **Cone class 1. Continuous seismic seabed CPT. Final depth 26.25m. Test terminated at operators discretion due to cone inclination >12 degrees and lack of lateral rod support into hard ground.**	Preliminary: **JK/BC** (04/05/2021) Draft: **DR** (10/06/2021) Final: **SMc** (10/11/2021)
Client Name/Ref	**Energinet Eltransmission A/S/384_20_ENE**	Date of Test	**04/05/2021**		
Vessel	**MV Ocean Vantage**	Cone No.(type)/α Factor	**130909 (50cm²) / 0.82**		
Method	**20 kN Sea bed CPT**	Base Inclination	**X = 1.2° / Y = 0.7°**		

CPT Name: **SCPT2**

Preliminary Investigation, Hesselø OWF

IN SITU CPTU TESTING

Depth (m)	Interpreted Soil Type	Env.	Age
20.5	Medium to high strength CLAY	Ma	Pg
26.13	Medium dense SAND	Ma/Fw	Pg
26.52	End of CPTU test at 26.52m		

Corrected Cone Resistance, q_t (MPa) 0 6 12 18 24 30 36 42 48 54 60

Sleeve Friction, f_s (kPa) 0 0.15 0.30 0.45 0.60 0.75 0.90 1.05 1.20 1.35 1.5

Pore Pressure, U_2 (kPa) -4500 -2250 0 2250 4500

Ambient Pore Pressure, U_0 (kPa)

Pore Pressure Ratio, Bq -1.5 -1.0 -0.5 0.0 0.5 1.0 1.5

Friction Ratio, (%) 0 2 4 6 8 10 12

Relative Density, D_r (%) 0 20 40 60 80 100

Undrained Shear Strength, S_u (kPa) 0 300 600 900 1200 1500

KEY TO SOIL PROFILE

SILT, CLAY, SAND, GRAVEL, COBBLES, CHALK, PEAT, Mixed Soil

Assumed Unit Weight: 20 - 16 kN/m³
K_C 0.5 - 2.0
N_{kt} 12.5 - 16.5
N_{ke} 15 - 20
K_C 0.5 - 2.0

Area	**Kattegat Sea**	Coordinates	**673302.0E 6252306.8N**
Contract	**11596**	Water Depth (mMSL)	**28.8**
Client Name/Ref	**Energinet Eltransmission A/S/384_20_ENE**	Date of Test	**04/05/2021**
Vessel	**MV Ocean Vantage**	Cone No.(type)/α Factor	**130909 (50cm²) / 0.82**
Method	**20 kN Sea bed CPT**	Base Inclination	**X = 1.2° / Y = 0.7°**

CRS: **ETRS89**

Comments:
Cone class 1. Continuous seismic seabed CPT. Final depth 26.25m. Test terminated at operators discretion due to cone inclination >12 degrees and lack of lateral rod support into hard ground.

QC Status		
Preliminary	Draft	Final
JK/BC (04/05/2021)	**DR** (10/06/2021)	**SMc** (10/11/2021)

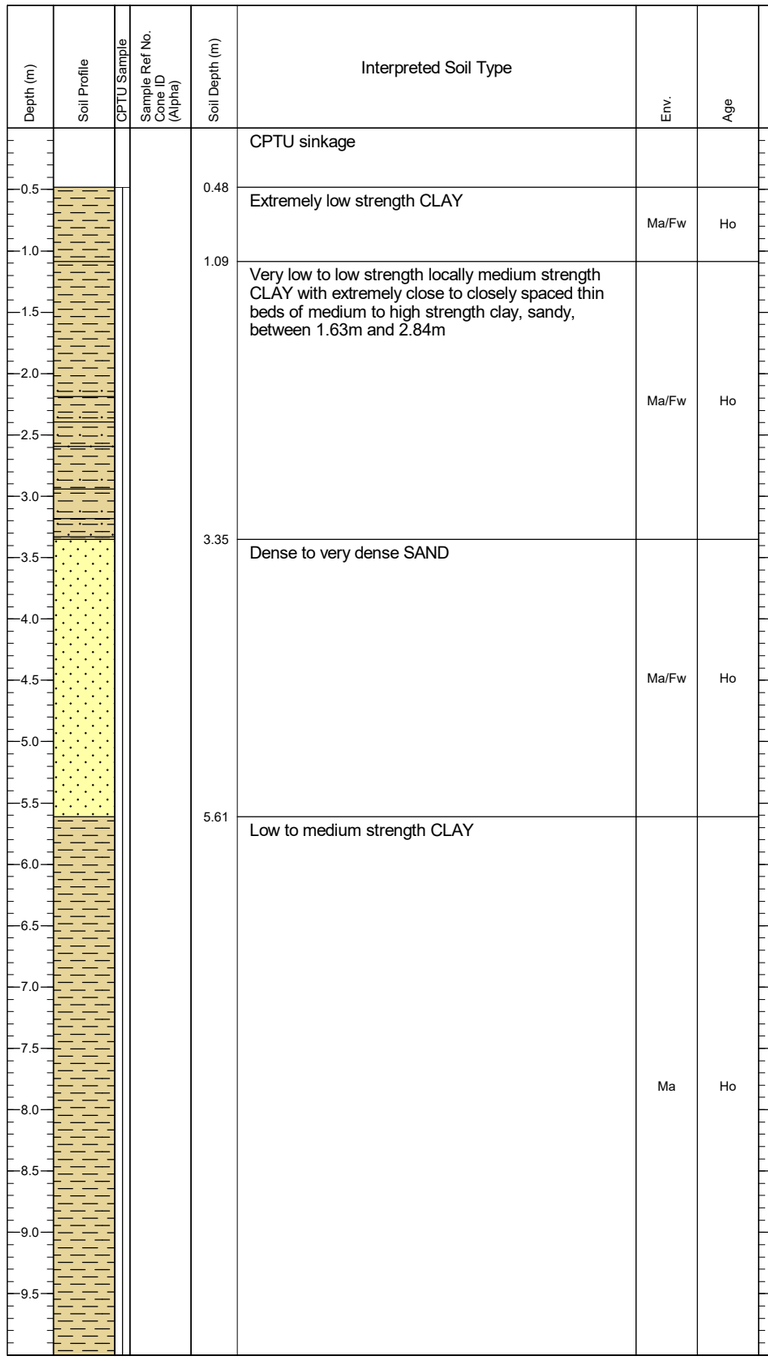
CPT Name

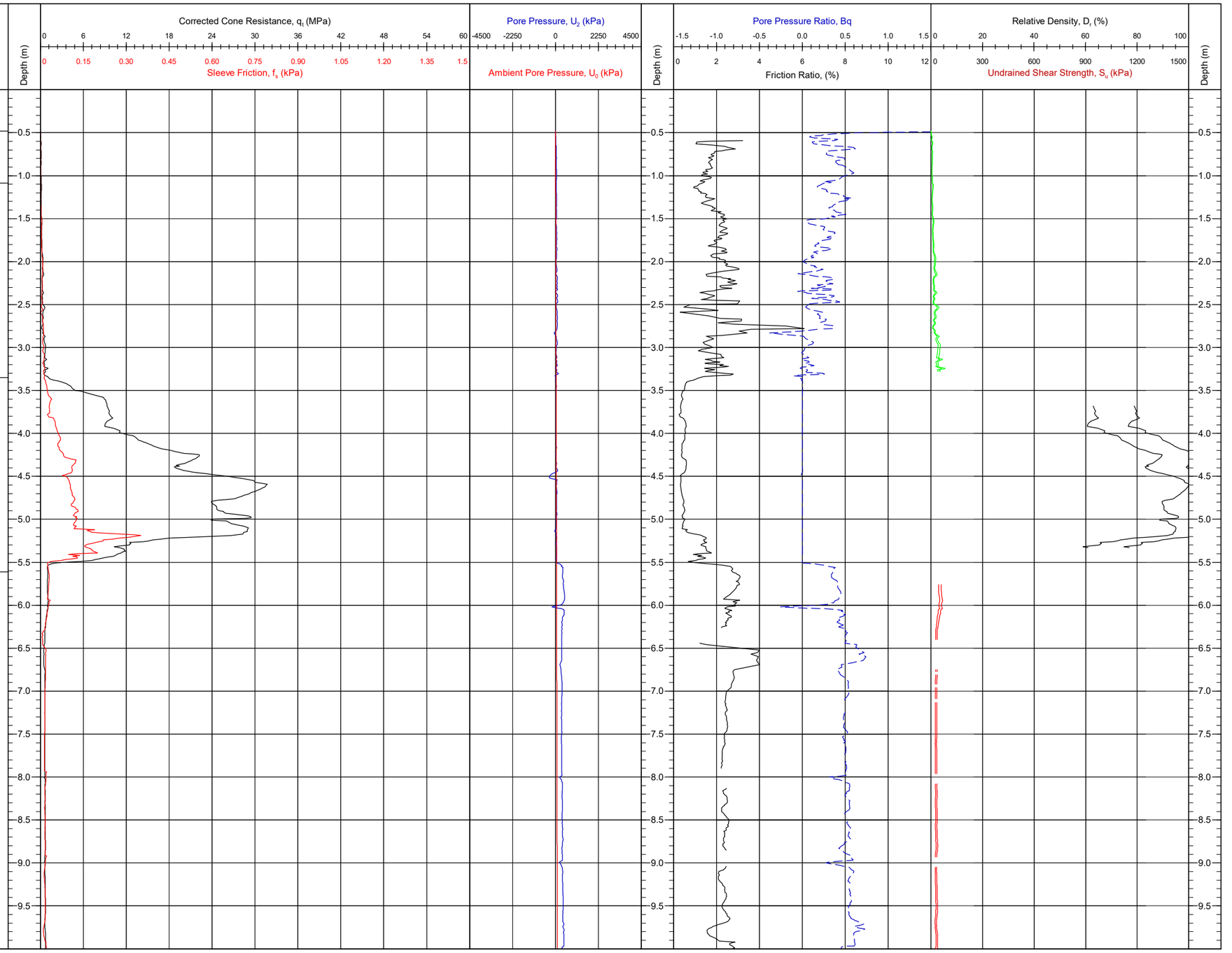
SCPT2

Preliminary Investigation, Hesselø OWF

IN SITU CPTU TESTING

Soil Depth (m)	Interpreted Soil Type	Env.	Age
	CPTU sinkage		
0.48	Extremely low strength CLAY	Ma/Fw	Ho
1.09	Very low to low strength locally medium strength CLAY with extremely close to closely spaced thin beds of medium to high strength clay, sandy, between 1.63m and 2.84m	Ma/Fw	Ho
3.35	Dense to very dense SAND	Ma/Fw	Ho
5.61	Low to medium strength CLAY	Ma	Ho





KEY TO SOIL PROFILE

SILT, CLAY, SAND, GRAVEL, COBBLES, CHALK, PEAT, Mixed Soil

Assumed Unit Weight: 20 - 16 kN/m³
K_c: 0.5 - 2.0
N_{kt}: 12.5 - 16.5
N_{ke}: 15 - 20
K_c: 0.5 - 2.0

Area	**Kattegat Sea**	Coordinates	**665881.4E 6256363.1N**
Contract	**11596**	Water Depth (mMSL)	**27.7**
Client Name/Ref	**Energinet Eltransmission A/S/384_20_ENE**	Date of Test	**06/05/2021**
Vessel	**MV Ocean Vantage**	Cone No.(type)/α Factor	**191114 (50cm²) / 0.76**
Method	**20 kN Sea bed CPT**	Base Inclination	**X = 1.1° / Y = 0.9°**

CRS: **ETRS89**

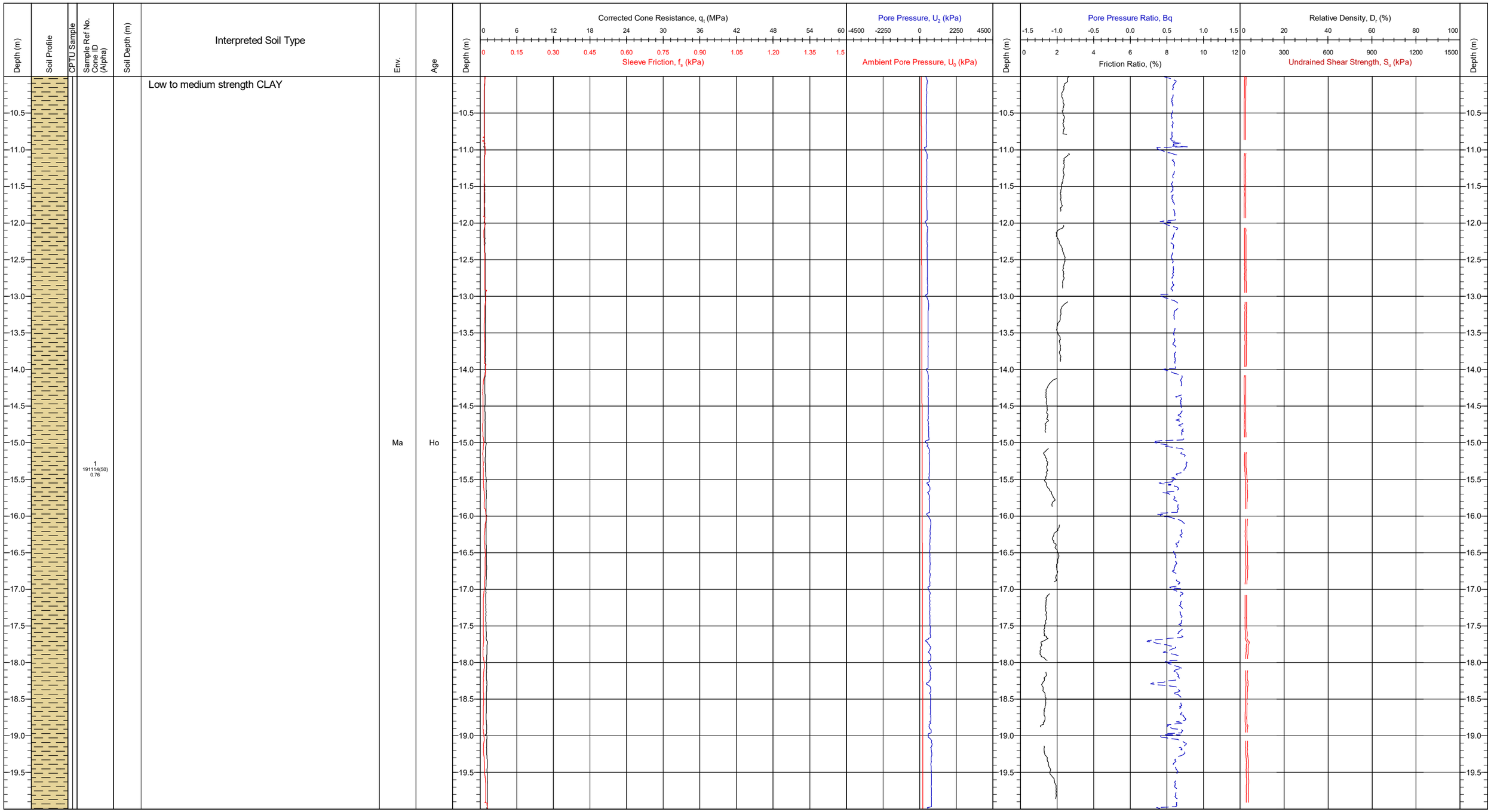
Comments:
Cone class 1. Continuous seismic seabed CPT. Final depth 29.74m. Test terminated at operators discretion due increasing total load and a lack of lateral rod support from mudline

QC Status	Preliminary	Draft	Final
	JK/BC (07/05/2021)	**DR** (10/06/2021)	**SMc** (10/11/2021)

CPT Name: **SCPT5**

Preliminary Investigation, Hesselø OWF

IN SITU CPTU TESTING



KEY TO SOIL PROFILE

SILT · CLAY · SAND · GRAVEL · COBBLES · CHALK · PEAT · Mixed Soil

Assumed Unit Weight: 20 - 16 kN/m³
K_C 0.5 - 2.0
N_{kT} 12.5 - 16.5
$N_{\Delta u}$ 15 - 20
K_S 0.5 - 2.0

Area	**Kattegat Sea**	Coordinates	**665881.4E 6256363.1N**
Contract	**11596**	Water Depth (mMSL)	**27.7**
Client Name/Ref	**Energinet Eltransmission A/S/384_20_ENE**	Date of Test	**06/05/2021**
Vessel	**MV Ocean Vantage**	Cone No.(type)/α Factor	**191114 (50cm²) / 0.76**
Method	**20 kN Sea bed CPT**	Base Inclination	**X = 1.1° / Y = 0.9°**

CRS: **ETRS89**

Comments:
Cone class 1. Continuous seismic seabed CPT. Final depth 29.74m. Test terminated at operators discretion due increasing total load and a lack of lateral rod support from mudline

QC Status		
Preliminary	Draft	Final
JK/BC (07/05/2021)	**DR** (10/06/2021)	**SMc** (10/11/2021)

CPT Name

SCPT5

Preliminary Investigation, Hesselø OWF

IN SITU CPTU TESTING

Depth (m)	Soil Profile	CPTU Sample	Sample Ref No. Cone ID (Alpha)	Soil Depth (m)	Interpreted Soil Type	Env.	Age
20.5 – 29.5					Low to medium strength CLAY	Ma	Ho

Corrected Cone Resistance, q_t (MPa): 0 6 12 18 24 30 36 42 48 54 60

Sleeve Friction, f_s (kPa): 0 0.15 0.30 0.45 0.60 0.75 0.90 1.05 1.20 1.35 1.5

Pore Pressure, U_2 (kPa): -4500 -2250 0 2250 4500

Ambient Pore Pressure, U_0 (kPa)

Pore Pressure Ratio, Bq: -1.5 -1.0 -0.5 0.0 0.5 1.0 1.5

Friction Ratio, (%): 0 2 4 6 8 10 12

Relative Density, D_r (%): 0 20 40 60 80 100

Undrained Shear Strength, S_u (kPa): 0 300 600 900 1200 1500

KEY TO SOIL PROFILE

SILT, CLAY, SAND, GRAVEL, COBBLES, CHALK, PEAT, Mixed Soil

Assumed Unit Weight: 20 - 16 kN/m³
K_p: 0.5 - 2.0
N_{kt}: 12.5 - 16.5
N_{ke}: 15 - 20
K_p: 0.5 - 2.0

Area	**Kattegat Sea**	Coordinates	**665881.4E 6256363.1N**
Contract	**11596**	Water Depth (mMSL)	**27.7**
Client Name/Ref	**Energinet Eltransmission A/S/384_20_ENE**	Date of Test	**06/05/2021**
Vessel	**MV Ocean Vantage**	Cone No.(type)/α Factor	**191114 (50cm²) / 0.76**
Method	**20 kN Sea bed CPT**	Base Inclination	**X = 1.1° / Y = 0.9°**

CRS: **ETRS89**

Comments:
Cone class 1. Continuous seismic seabed CPT. Final depth 29.74m. Test terminated at operators discretion due increasing total load and a lack of lateral rod support from mudline

QC Status		
Preliminary	Draft	Final
JK/BC (07/05/2021)	**DR** (10/06/2021)	**SMc** (10/11/2021)

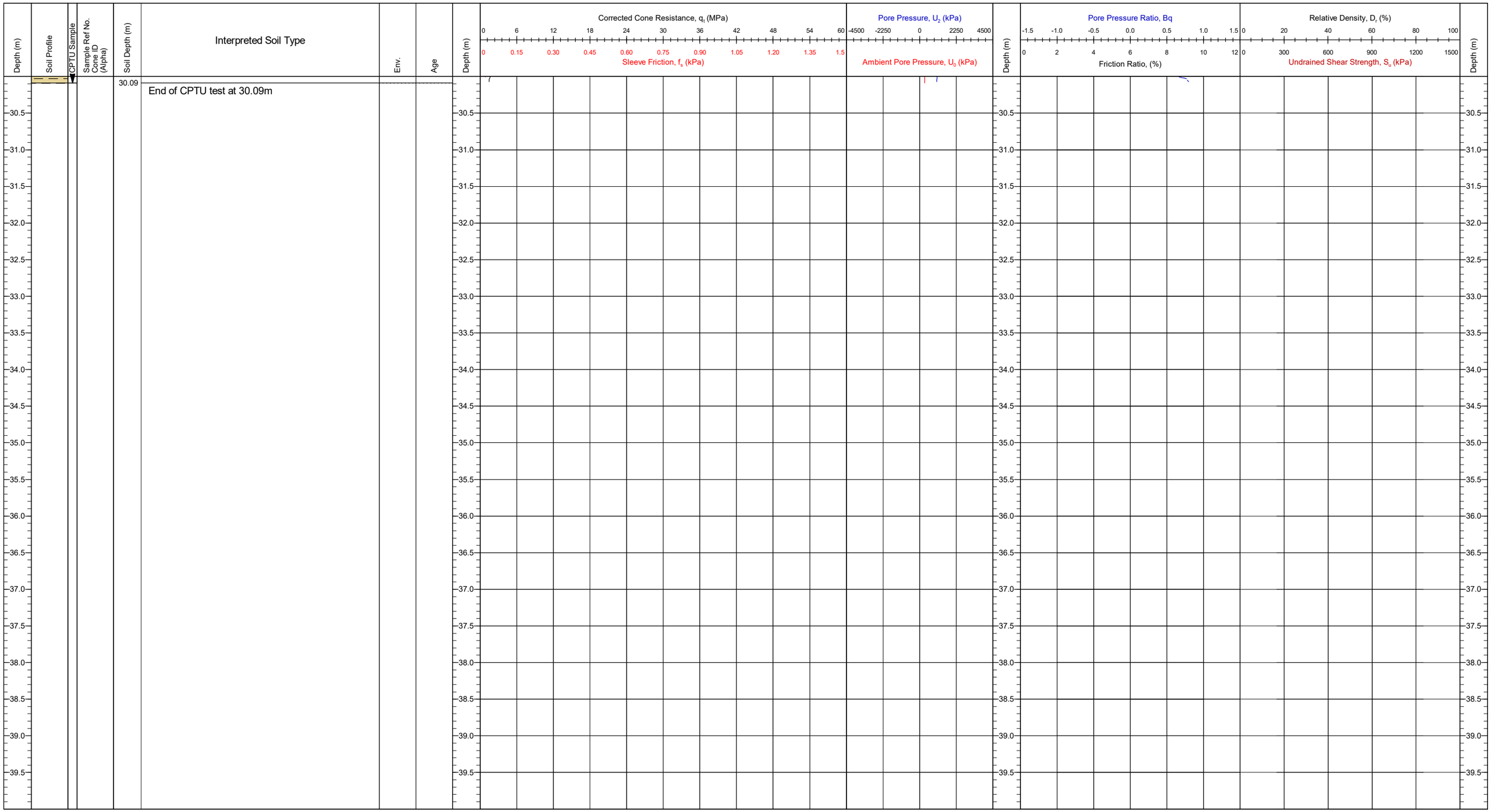
CPT Name

SCPT5

Preliminary Investigation, Hesselø OWF

IN SITU CPTU TESTING

Soil Profile	Soil Depth (m)	Interpreted Soil Type	Env.	Age
	30.09	End of CPTU test at 30.09m		



KEY TO SOIL PROFILE

SILT · CLAY · SAND · GRAVEL · COBBLES · CHALK · PEAT · Mixed Soil

Assumed Unit Weight: 20 - 16 kN/m³
K_C 0.5 - 2.0
N_{kt} 12.5 - 16.5
N_{ke} 15 - 20
K_C 0.5 - 2.0

Area	**Kattegat Sea**	Coordinates	**665881.4E 6256363.1N**
Contract	**11596**	Water Depth (mMSL)	**27.7**
Client Name/Ref	**Energinet Eltransmission A/S/384_20_ENE**	Date of Test	**06/05/2021**
Vessel	**MV Ocean Vantage**	Cone No.(type)/α Factor	**191114 (50cm²) / 0.76**
Method	**20 kN Sea bed CPT**	Base Inclination	**X = 1.1° / Y = 0.9°**

CRS: **ETRS89**

Comments:
Cone class 1. Continuous seismic seabed CPT. Final depth 29.74m. Test terminated at operators discretion due increasing total load and a lack of lateral rod support from mudline

QC Status		
Preliminary	Draft	Final
JK/BC (07/05/2021)	**DR** (10/06/2021)	**SMc** (10/11/2021)

CPT Name

SCPT5

Preliminary Investigation, Hesselø OWF

IN SITU CPTU TESTING

Soil Depth (m)	Interpreted Soil Type	Env.	Age
	Extremely low to very low strength CLAY	Ma/Fw	Ho
1.94	Dense to very dense locally loose to medium dense SAND with medium spaced thin beds of medium strength clay between 2.12m and 2.94m	Ma/Fw	Ho
3.00	Very low to low strength locally medium strength CLAY with extremely close to closely spaced thin to medium beds of loose to medium dense sand between 3.82m and 5.92m	Ma	Ho
5.97	Very low to low strength CLAY with medium to widely spaced thin beds of medium to high strength clay, sandy, between 8.00m and 9.95m and widely to very widely spaced thin beds of loose to medium dense sand, silty, between 9.66m and 10.94m	Ma/Fw	Ho

CPTU Sample: 1 081208(50) 0.78

Corrected Cone Resistance, q_t (MPa) / Sleeve Friction, f_s (kPa)

Pore Pressure, U_2 (kPa) / Ambient Pore Pressure, U_0 (kPa)

Pore Pressure Ratio, Bq / Friction Ratio, (%)

Relative Density, D_r (%) / Undrained Shear Strength, S_u (kPa)

KEY TO SOIL PROFILE

SILT, CLAY, SAND, GRAVEL, COBBLES, CHALK, PEAT, Mixed Soil

Assumed Unit Weight: 20 - 16 kN/m³
K_C 0.5 - 2.0
N_{KT} 12.5 - 16.5
N_{BQ} 15 - 20
K_D 0.5 - 2.0

Area	**Kattegat Sea**	Coordinates	**675126.2E 6262391.1N**
Contract	**11596**	Water Depth (mMSL)	**31.8**
Client Name/Ref	**Energinet Eltransmission A/S/384_20_ENE**	Date of Test	**07/05/2021**
Vessel	**MV Ocean Vantage**	Cone No.(type)/α Factor	**081208 (50cm²) / 0.78**
Method	**20 kN Sea bed CPT**	Base Inclination	**X = 1.1° / Y = 1.0°**

CRS: **ETRS89**

Comments:
Cone class 1. Continuous seismic seabed CPT. Final depth 18.70m. Test terminated due to sudden inclination >3 degrees in less than 1 metre

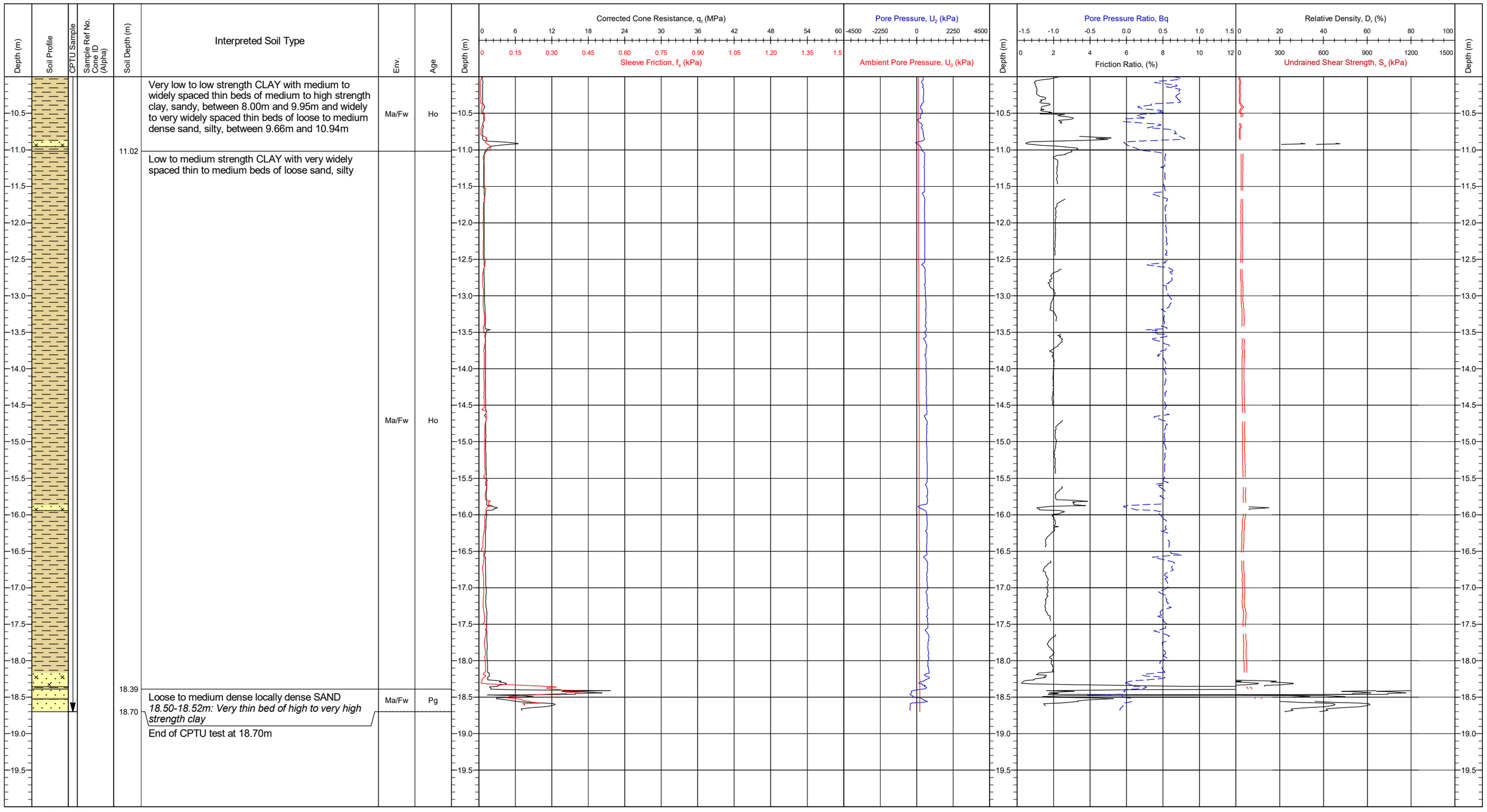
QC Status		
Preliminary	Draft	Final
JK/BC (07/05/2021)	**DR** (10/06/2021)	**SMc** (10/11/2021)

CPT Name: **SCPT17**

Preliminary Investigation, Hesselø OWF

IN SITU CPTU TESTING

Soil Depth (m)	Interpreted Soil Type	Env.	Age
	Very low to low strength CLAY with medium to widely spaced thin beds of medium to high strength clay, sandy, between 8.00m and 9.95m and widely to very widely spaced thin beds of loose to medium dense sand, silty, between 9.66m and 10.94m	Ma/Fw	Ho
11.02	Low to medium strength CLAY with very widely spaced thin to medium beds of loose sand, silty	Ma/Fw	Ho
18.39	Loose to medium dense locally dense SAND	Ma/Fw	Pg
18.70	*18.50-18.52m: Very thin bed of high to very high strength clay*		
	End of CPTU test at 18.70m		



KEY TO SOIL PROFILE

SILT · CLAY · SAND · GRAVEL · COBBLES · CHALK · PEAT · Mixed Soil

Assumed Unit Weight: 20 - 16 kN/m³
K_0: 0.5 - 2.0
N_{kt}: 12.5 - 16.5
$N_{\Delta u}$: 15 - 20
K_0: 0.5 - 2.0

Area	**Kattegat Sea**	Coordinates	**675126.2E 6262391.1N**
Contract	**11596**	Water Depth (mMSL)	**31.8**
Client Name/Ref	**Energinet Eltransmission A/S/384_20_ENE**	Date of Test	**07/05/2021**
Vessel	**MV Ocean Vantage**	Cone No.(type)/α Factor	**081208 (50cm²) / 0.78**
Method	**20 kN Sea bed CPT**	Base Inclination	**X = 1.1° / Y = 1.0°**

CRS: **ETRS89**

Comments:
Cone class 1. Continuous seismic seabed CPT. Final depth 18.70m. Test terminated due to sudden inclination >3 degrees in less than 1 metre

QC Status		
Preliminary	Draft	Final
JK/BC (07/05/2021)	**DR** (10/06/2021)	**SMc** (10/11/2021)

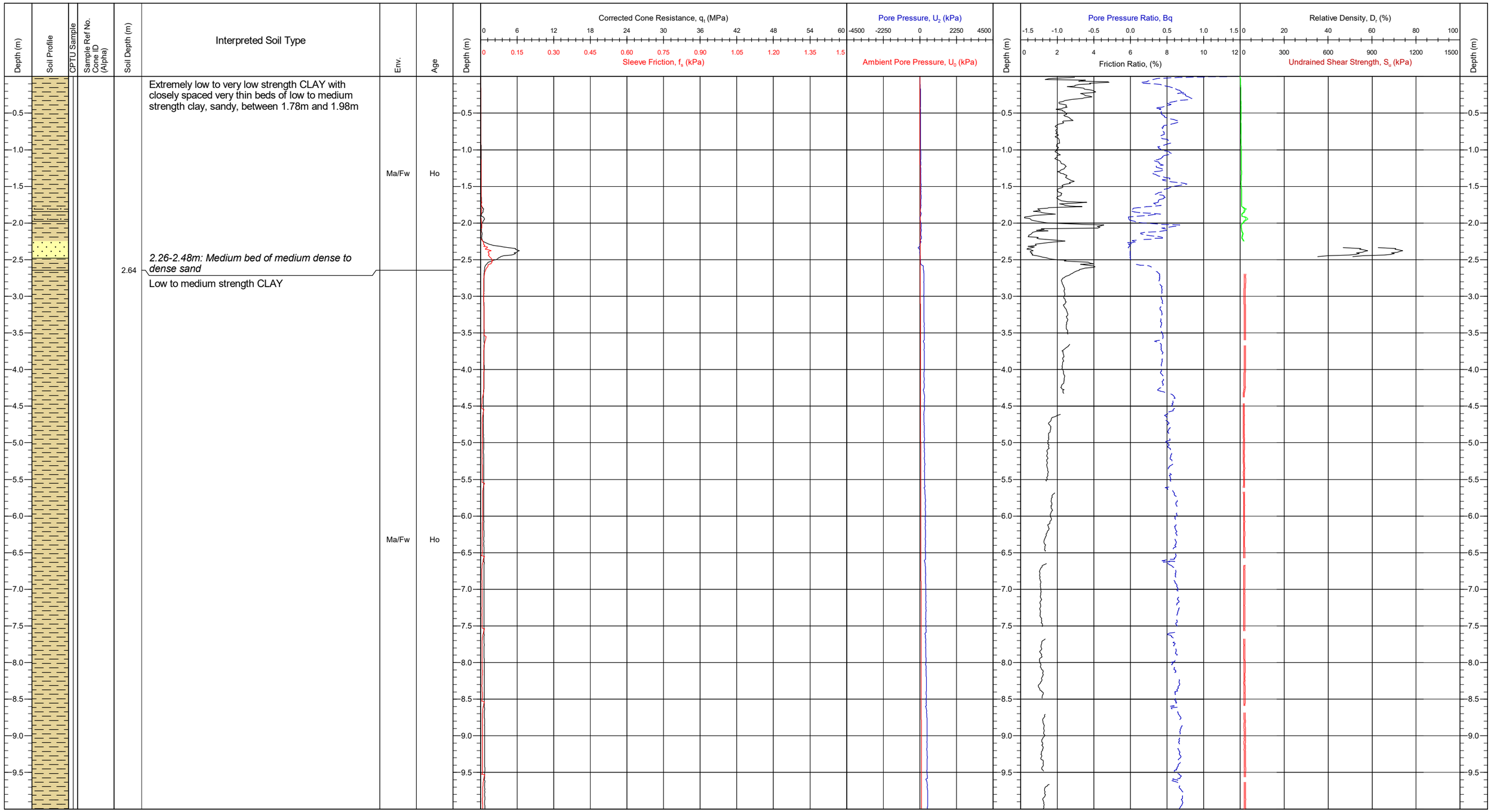
CPT Name

SCPT17

Preliminary Investigation, Hesselø OWF

IN SITU CPTU TESTING

Soil Depth (m)	Interpreted Soil Type	Env.	Age
	Extremely low to very low strength CLAY with closely spaced very thin beds of low to medium strength clay, sandy, between 1.78m and 1.98m	Ma/Fw	Ho
2.64	*2.26-2.48m: Medium bed of medium dense to dense sand*		
	Low to medium strength CLAY	Ma/Fw	Ho



KEY TO SOIL PROFILE

SILT · CLAY · SAND · GRAVEL · COBBLES · CHALK · PEAT · Mixed Soil

Assumed Unit Weight: 20 - 16 kN/m³
K_0: 0.5 - 2.0
N_{kt}: 12.5 - 16.5
N_{ke}: 15 - 20
K_0: 0.5 - 2.0

Area	**Kattegat Sea**	Coordinates	**670633.3E 6266454.1N**
Contract	**11596**	Water Depth (mMSL)	**30.8**
Client Name/Ref	**Energinet Eltransmission A/S/384_20_ENE**	Date of Test	**07/05/2021**
Vessel	**MV Ocean Vantage**	Cone No.(type)/α Factor	**130909 (50cm²) / 0.82**
Method	**20 kN Sea bed CPT**	Base Inclination	**X = 1.1° / Y = 0.9°**

CRS: **ETRS89**

Comments:
Cone class 1. Continuous seabed seismic CPT. Final depth 21.92m. Test terminated due to the maximum cone inclination of 12 degrees was reached

QC Status		
Preliminary	Draft	Final
JK/BC (07/05/2021)	**DR** (10/06/2021)	**SMc** (10/11/2021)

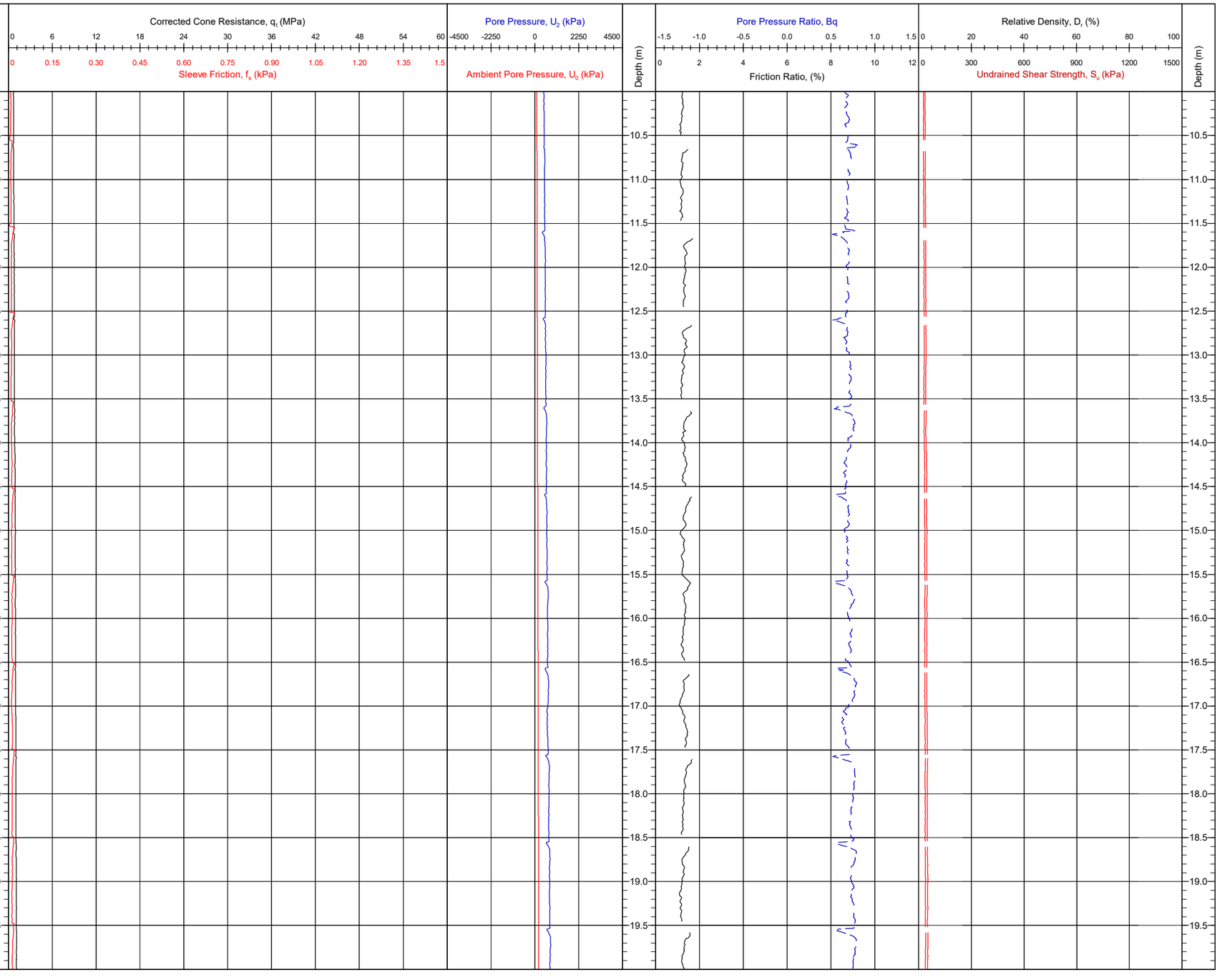
CPT Name

SCPT19

Preliminary Investigation, Hesselø OWF

IN SITU CPTU TESTING

Depth (m)	Soil Profile	CPTU Sample	Sample Ref No. Cone ID (Alpha)	Soil Depth (m)	Interpreted Soil Type	Env.	Age
10.5					Low to medium strength CLAY		
11.0			1 130909(50) 0.82				
11.5							
12.0							
12.5							
13.0							
13.5							
14.0							
14.5							
15.0						Ma/Fw	Ho
15.5							
16.0							
16.5							
17.0							
17.5							
18.0							
18.5							
19.0							
19.5							



KEY TO SOIL PROFILE

SILT · CLAY · SAND · GRAVEL · COBBLES · CHALK · PEAT · Mixed Soil

Assumed Unit Weight: 20 - 16 kN/m³
K_C 0.5 - 2.0
N_{KT} 12.5 - 16.5
N_{Bq} 15 - 20
K_C 0.5 - 2.0

Area	**Kattegat Sea**	Coordinates	**670633.3E 6266454.1N**	CRS: **ETRS89**	QC Status: Preliminary / Draft / Final
Contract	**11596**	Water Depth (mMSL)	**30.8**	**Comments:** **Cone class 1. Continuous seabed seismic CPT. Final depth 21.92m. Test terminated due to the maximum cone inclination of 12 degrees was reached**	
Client Name/Ref	**Energinet Eltransmission A/S/384_20_ENE**	Date of Test	**07/05/2021**		
Vessel	**MV Ocean Vantage**	Cone No.(type)/α Factor	**130909 (50cm²) / 0.82**		
Method	**20 kN Sea bed CPT**	Base Inclination	**X = 1.1° / Y = 0.9°**		

Preliminary	Draft	Final
JK/BC (07/05/2021)	**DR** (10/06/2021)	**SMc** (10/11/2021)

CPT Name

SCPT19

Preliminary Investigation, Hesselø OWF
IN SITU CPTU TESTING

Depth (m)	Interpreted Soil Type	Env.	Age
20.5	Low to medium strength CLAY	Ma/Fw	Ho
22.0	End of CPTU test at 21.92m		

Corrected Cone Resistance, q_t (MPa): 0 6 12 18 24 30 36 42 48 54 60
Sleeve Friction, f_s (kPa): 0 0.15 0.30 0.45 0.60 0.75 0.90 1.05 1.20 1.35 1.5
Pore Pressure, U_2 (kPa): -4500 -2250 0 2250 4500
Ambient Pore Pressure, U_0 (kPa)
Pore Pressure Ratio, Bq: -1.5 -1.0 -0.5 0.0 0.5 1.0 1.5
Friction Ratio, (%): 0 2 4 6 8 10 12
Relative Density, D_r (%): 0 20 40 60 80 100
Undrained Shear Strength, S_u (kPa): 0 300 600 900 1200 1500

KEY TO SOIL PROFILE

SILT, CLAY, SAND, GRAVEL, COBBLES, CHALK, PEAT, Mixed Soil

Assumed Unit Weight: 20 - 16 kN/m³
K_C 0.5 - 2.0
N_{kt} 12.5 - 16.5
$N_{\Delta u}$ 15 - 20
K_C 0.5 - 2.0

Area	**Kattegat Sea**	Coordinates	**670633.3E 6266454.1N**
Contract	**11596**	Water Depth (mMSL)	**30.8**
Client Name/Ref	**Energinet Eltransmission A/S/384_20_ENE**	Date of Test	**07/05/2021**
Vessel	**MV Ocean Vantage**	Cone No.(type)/α Factor	**130909 (50cm²) / 0.82**
Method	**20 kN Sea bed CPT**	Base Inclination	**X = 1.1° / Y = 0.9°**

CRS: **ETRS89**

Comments:
Cone class 1. Continuous seabed seismic CPT. Final depth 21.92m. Test terminated due to the maximum cone inclination of 12 degrees was reached

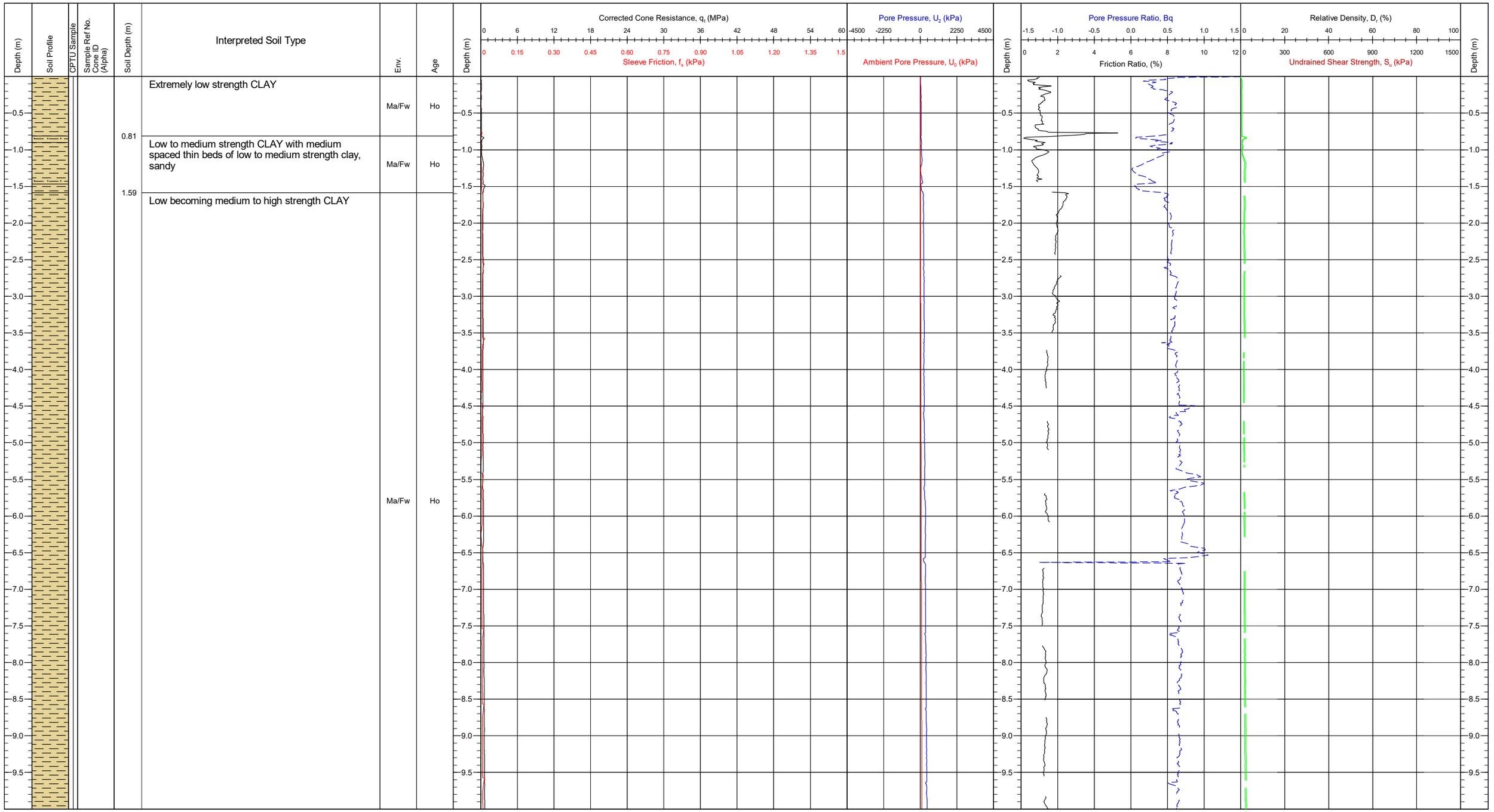
QC Status		
Preliminary	Draft	Final
JK/BC (07/05/2021)	**DR** (10/06/2021)	**SMc** (10/11/2021)

CPT Name
SCPT19

Preliminary Investigation, Hesselø OWF

IN SITU CPTU TESTING

Soil Depth (m)	Interpreted Soil Type	Env.	Age
0.00	Extremely low strength CLAY	Ma/Fw	Ho
0.81	Low to medium strength CLAY with medium spaced thin beds of low to medium strength clay, sandy	Ma/Fw	Ho
1.59	Low becoming medium to high strength CLAY	Ma/Fw	Ho



KEY TO SOIL PROFILE

SILT · CLAY · SAND · GRAVEL · COBBLES · CHALK · PEAT · Mixed Soil

Assumed Unit Weight: 20 - 16 kN/m³
K_C 0.5 - 2.0
N_{kt} 12.5 - 16.5
$N_{\Delta u}$ 15 - 20
K_C 0.5 - 2.0

Area	**Kattegat Sea**	Coordinates	**677715.3E 6266260.7N**
Contract	**11596**	Water Depth (mMSL)	**32.5**
Client Name/Ref	**Energinet Eltransmission A/S/384_20_ENE**	Date of Test	**03/05/2021**
Vessel	**MV Ocean Vantage**	Cone No.(type)/α Factor	**120829 (50cm²) / 0.80**
Method	**20 kN Sea bed CPT**	Base Inclination	**X = 1.1° / Y = 1.0°**

CRS: **ETRS89**

Comments:
Cone class 1. Continuous seismic seabed CPT. Final depth 31.61m. Test terminated due to rising weather conditions.

QC Status		
Preliminary	Draft	Final
JK/BC (04/05/2021)	**DR** (10/06/2021)	**SMc** (10/11/2021)

CPT Name

SCPT21

Preliminary Investigation, Hesselø OWF

IN SITU CPTU TESTING

Depth (m)	Soil Profile	CPTU Sample	Sample Ref No. Cone ID (Alpha)	Soil Depth (m)	Interpreted Soil Type	Env.	Age
10.5					Low becoming medium to high strength CLAY		
11.0							
11.5							
12.0							
12.5							
13.0							
13.5							
14.0							
14.5							
15.0						Ma/Fw	Ho
15.5			1 120829(50) 0.8				
16.0							
16.5							
17.0							
17.5							
18.0							
18.5							
19.0							
19.5							

Corrected Cone Resistance, q_t (MPa): 0 6 12 18 24 30 36 42 48 54 60

Sleeve Friction, f_s (kPa): 0 0.15 0.30 0.45 0.60 0.75 0.90 1.05 1.20 1.35 1.5

Pore Pressure, U_2 (kPa): -4500 -2250 0 2250 4500

Ambient Pore Pressure, U_0 (kPa)

Pore Pressure Ratio, Bq: -1.5 -1.0 -0.5 0.0 0.5 1.0 1.5

Friction Ratio, (%): 0 2 4 6 8 10 12

Relative Density, D_r (%): 0 20 40 60 80 100

Undrained Shear Strength, S_u (kPa): 0 300 600 900 1200 1500

KEY TO SOIL PROFILE

SILT, CLAY, SAND, GRAVEL, COBBLES, CHALK, PEAT, Mixed Soil

Assumed Unit Weight: 20 - 16 kN/m³
K_C 0.5 - 2.0
N_{kt} 12.5 - 16.5
$N_{\Delta U}$ 15 - 20
K_C 0.5 - 2.0

Area	**Kattegat Sea**	Coordinates	**677715.3E 6266260.7N**	CRS: **ETRS89**	QC Status
Contract	**11596**	Water Depth (mMSL)	**32.5**	**Comments:** **Cone class 1. Continuous seismic seabed CPT. Final depth 31.61m. Test terminated due to rising weather conditions.**	Preliminary: **JK/BC** (04/05/2021); Draft: **DR** (10/06/2021); Final: **SMc** (10/11/2021)
Client Name/Ref	**Energinet Eltransmission A/S/384_20_ENE**	Date of Test	**03/05/2021**		
Vessel	**MV Ocean Vantage**	Cone No.(type)/α Factor	**120829 (50cm²) / 0.80**		
Method	**20 kN Sea bed CPT**	Base Inclination	**X = 1.1° / Y = 1.0°**		

CPT Name: **SCPT21**

Preliminary Investigation, Hesselø OWF
IN SITU CPTU TESTING

Depth (m)	Interpreted Soil Type	Env.	Age
20.5	Low becoming medium to high strength CLAY	Ma/Fw	Ho
21.0			
21.5			
22.0			
22.5			
23.0			
23.5			
24.0			
24.5			
25.0			
25.5			
26.0			
26.5	*26.06-26.28m: Thin bed of loose to medium dense sand, silty*		
27.0			
27.5			
28.0			
28.5			
29.0			
29.5			

Corrected Cone Resistance, q_t (MPa): 0 6 12 18 24 30 36 42 48 54 60

Sleeve Friction, f_s (kPa): 0 0.15 0.30 0.45 0.60 0.75 0.90 1.05 1.20 1.35 1.5

Pore Pressure, U_2 (kPa): -4500 -2250 0 2250 4500

Ambient Pore Pressure, U_0 (kPa)

Pore Pressure Ratio, Bq: -1.5 -1.0 -0.5 0.0 0.5 1.0 1.5

Friction Ratio, (%): 0 2 4 6 8 10 12

Relative Density, D_r (%): 0 20 40 60 80 100

Undrained Shear Strength, S_u (kPa): 0 300 600 900 1200 1500

KEY TO SOIL PROFILE

SILT · CLAY · SAND · GRAVEL · COBBLES · CHALK · PEAT · Mixed Soil

Assumed Unit Weight: 20 - 16 kN/m³
K_C 0.5 - 2.0
N_{kt} 12.5 - 16.5
$N_{\Delta u}$ 15 - 20
K_C 0.5 - 2.0

Area	**Kattegat Sea**	Coordinates	**677715.3E 6266260.7N**
Contract	**11596**	Water Depth (mMSL)	**32.5**
Client Name/Ref	**Energinet Eltransmission A/S/384_20_ENE**	Date of Test	**03/05/2021**
Vessel	**MV Ocean Vantage**	Cone No.(type)/α Factor	**120829 (50cm²) / 0.80**
Method	**20 kN Sea bed CPT**	Base Inclination	**X = 1.1° / Y = 1.0°**

CRS: **ETRS89**

Comments:
Cone class 1. Continuous seismic seabed CPT. Final depth 31.61m. Test terminated due to rising weather conditions.

QC Status		
Preliminary	Draft	Final
JK/BC (04/05/2021)	**DR** (10/06/2021)	**SMc** (10/11/2021)

CPT Name: **SCPT21**

Preliminary Investigation, Hesselø OWF

IN SITU CPTU TESTING

Depth (m)	Interpreted Soil Type	Env.	Age
30.5	Low becoming medium to high strength CLAY	Ma/Fw	Ho
31.5	End of CPTU test at 31.68m		

Corrected Cone Resistance, q_t (MPa) — 0 6 12 18 24 30 36 42 48 54 60

Sleeve Friction, f_s (kPa) — 0 0.15 0.30 0.45 0.60 0.75 0.90 1.05 1.20 1.35 1.5

Pore Pressure, U_2 (kPa) — -4500 -2250 0 2250 4500

Ambient Pore Pressure, U_0 (kPa)

Pore Pressure Ratio, Bq — -1.5 -1.0 -0.5 0.0 0.5 1.0 1.5

Friction Ratio, (%) — 0 2 4 6 8 10 12

Relative Density, D_r (%) — 0 20 40 60 80 100

Undrained Shear Strength, S_u (kPa) — 0 300 600 900 1200 1500

KEY TO SOIL PROFILE

SILT · CLAY · SAND · GRAVEL · COBBLES · CHALK · PEAT · Mixed Soil

Assumed Unit Weight: 20 - 16 kN/m³
K_C 0.5 - 2.0
N_{kt} 12.5 - 16.5
N_{ke} 15 - 20
K_C 0.5 - 2.0

Area	**Kattegat Sea**	Coordinates	**677715.3E 6266260.7N**
Contract	**11596**	Water Depth (mMSL)	**32.5**
Client Name/Ref	**Energinet Eltransmission A/S/384_20_ENE**	Date of Test	**03/05/2021**
Vessel	**MV Ocean Vantage**	Cone No.(type)/α Factor	**120829 (50cm²) / 0.80**
Method	**20 kN Sea bed CPT**	Base Inclination	**X = 1.1° / Y = 1.0°**

CRS: **ETRS89**

Comments:
Cone class 1. Continuous seismic seabed CPT. Final depth 31.61m. Test terminated due to rising weather conditions.

QC Status		
Preliminary	Draft	Final
JK/BC (04/05/2021)	**DR** (10/06/2021)	**SMc** (10/11/2021)

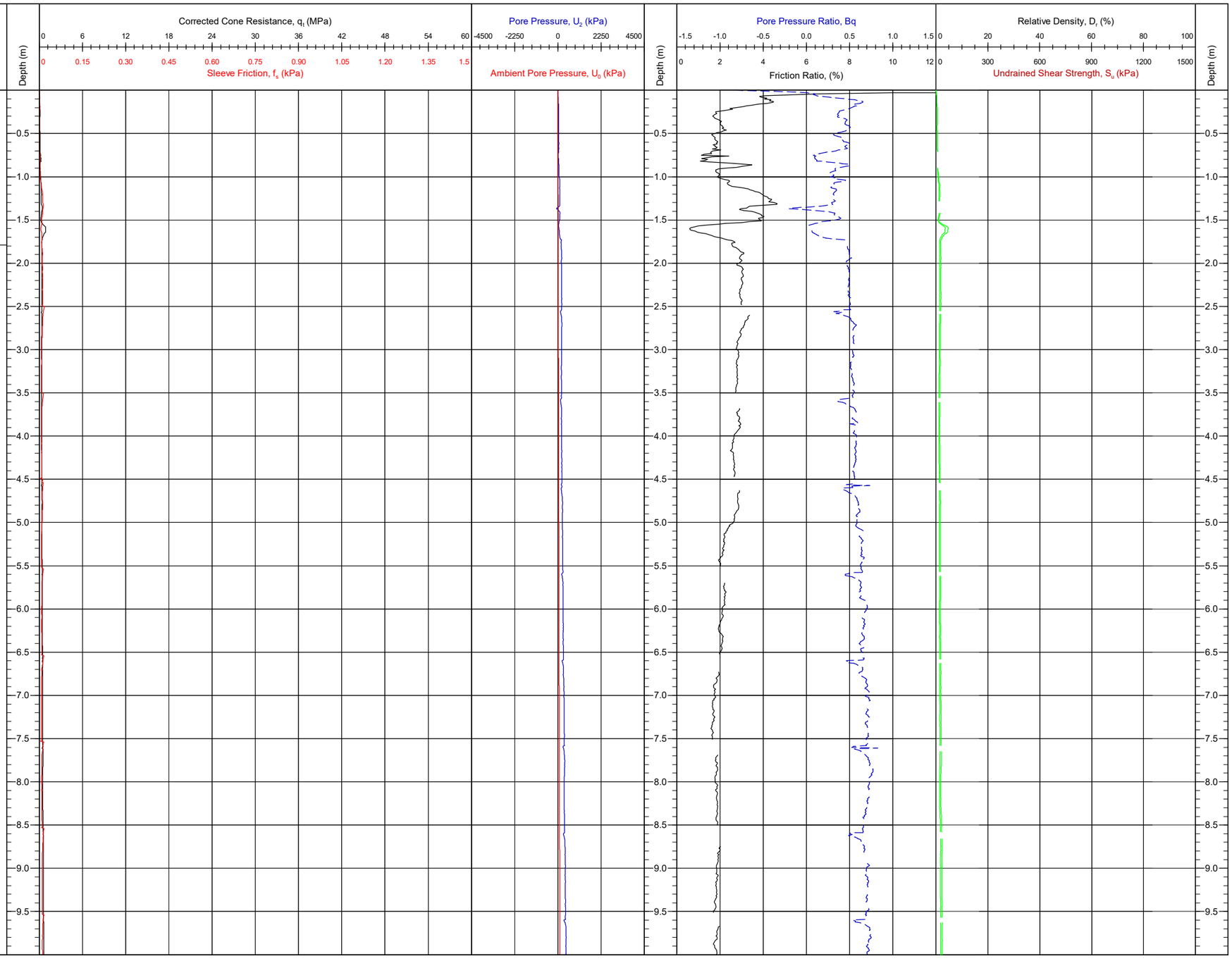
CPT Name

SCPT21

Preliminary Investigation, Hesselø OWF

IN SITU CPTU TESTING

Depth (m)	Interpreted Soil Type	Env.	Age
0.0	Extremely low to very low strength CLAY, silty	Ma/Fw	Ho
1.79	*1.55-1.70m: Thin bed of clay, sandy*		
	Low strength CLAY		
9.80		Ma/Fw	Ho



KEY TO SOIL PROFILE

SILT · CLAY · SAND · GRAVEL · COBBLES · CHALK · PEAT · Mixed Soil

Assumed Unit Weight: 20 - 16 kN/m³
K_0: 0.5 - 2.0
N_{kt}: 12.5 - 16.5
N_{ke}: 15 - 20
K_0: 0.5 - 2.0

Area	**Kattegat Sea**	Coordinates	**676059.4E 6274402.9N**
Contract	**11596**	Water Depth (mMSL)	**31.2**
Client Name/Ref	**Energinet Eltransmission A/S/384_20_ENE**	Date of Test	**03/05/2021**
Vessel	**MV Ocean Vantage**	Cone No.(type)/α Factor	**130206 (50cm²) / 0.77**
Method	**20 kN Sea bed CPT**	Base Inclination	**X = 1.2° / Y = 0.8°**

CRS: **ETRS89**

Comments:
Out of Class. Continuous seismic seabed CPT. Final depth 32.93m. Test terminated due sudden inclination change of 5 degrees in less than 1 metre- attempted to cycle but inclination was too high~ Please note the derived data has been removed where seismic testing was conducted.

QC Status		
Preliminary	Draft	Final
JK/BC (03/05/2021)	**DR** (10/06/2021)	**SMc** (10/11/2021)

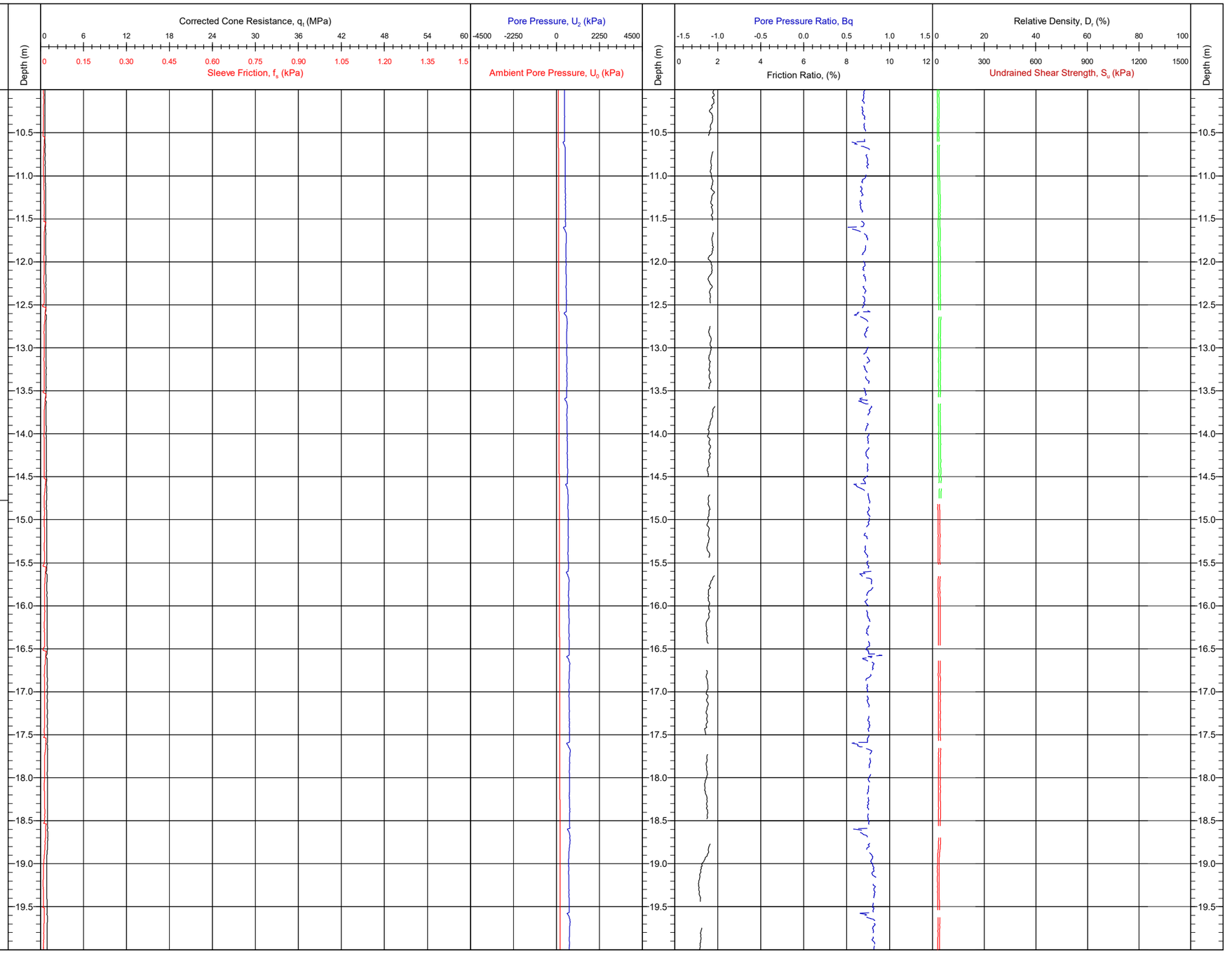
CPT Name

SCPT24

Preliminary Investigation, Hesselø OWF

IN SITU CPTU TESTING

Depth (m)	Soil Profile	CPTU Sample	Sample Ref No. Cone ID (Alpha)	Soil Depth (m)	Interpreted Soil Type	Env.	Age
10.5 – 14.77					Low strength CLAY	Ma/Fw	Ho
14.77 – 19.5			1 130206(50) 0.77	14.77	Low to medium strength CLAY	Ma/Fw	Ho



KEY TO SOIL PROFILE

SILT, CLAY, SAND, GRAVEL, COBBLES, CHALK, PEAT, Mixed Soil

Assumed Unit Weight: 20 - 16 kN/m³
K_C: 0.5 - 2.0
N_{kt}: 12.5 - 16.5
$N_{\Delta u}$: 15 - 20
K_D: 0.5 - 2.0

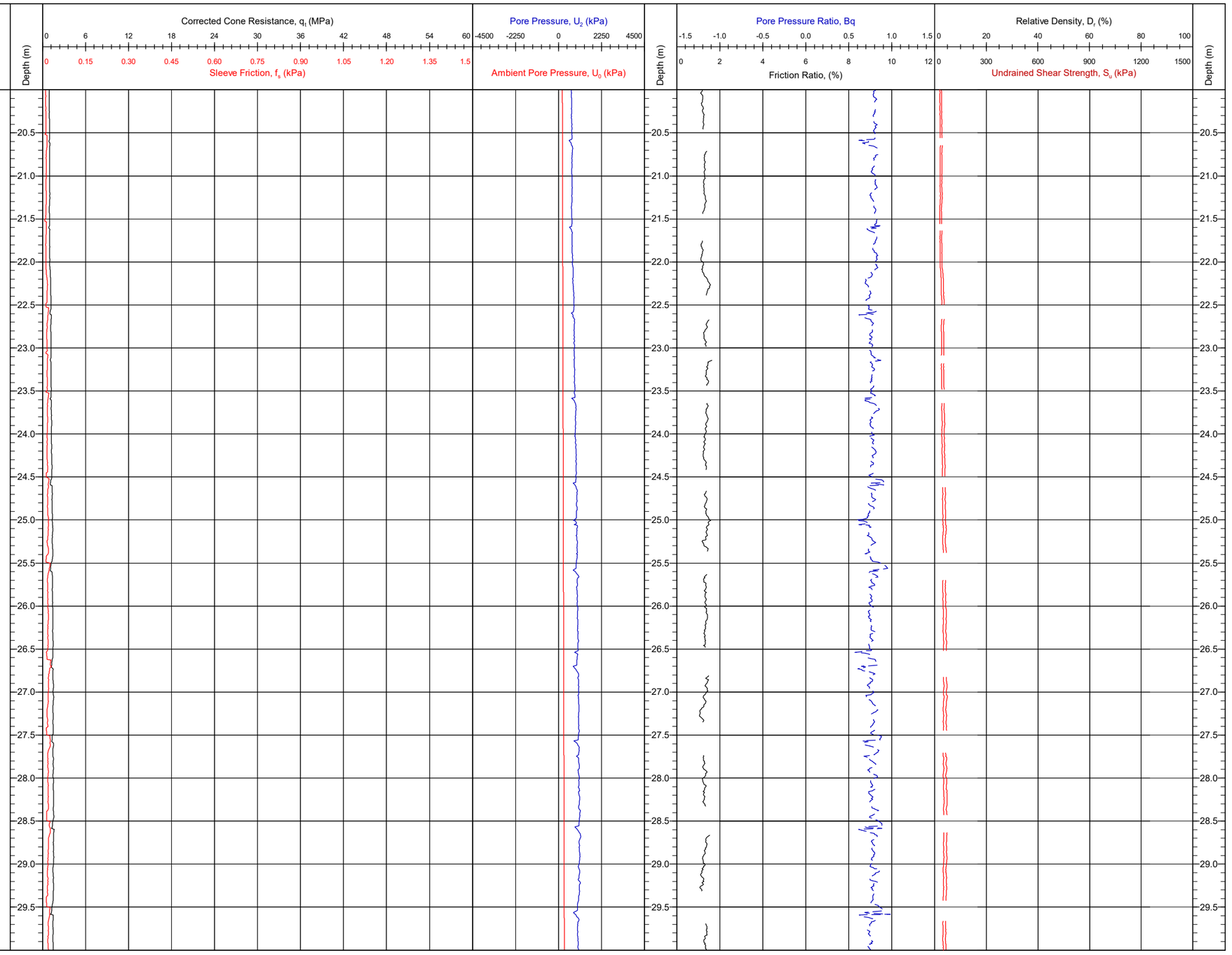
Area	**Kattegat Sea**	Coordinates	**676059.4E 6274402.9N**	CRS: **ETRS89**	QC Status: Preliminary / Draft / Final
Contract	**11596**	Water Depth (mMSL)	**31.2**	**Comments:** **Out of Class. Continuous seismic seabed CPT. Final depth 32.93m. Test terminated due sudden inclination change of 5 degrees in less than 1 metre- attempted to cycle but inclination was too high~ Please note the derived data has been removed where seismic testing was conducted.**	
Client Name/Ref	**Energinet Eltransmission A/S/384_20_ENE**	Date of Test	**03/05/2021**		
Vessel	**MV Ocean Vantage**	Cone No.(type)/α Factor	**130206 (50cm²) / 0.77**		**JK/BC** (03/05/2021) / **DR** (10/06/2021) / **SMc** (10/11/2021)
Method	**20 kN Sea bed CPT**	Base Inclination	**X = 1.2° / Y = 0.8°**		

CPT Name: **SCPT24**

Preliminary Investigation, Hesselø OWF

IN SITU CPTU TESTING

Depth (m)	Soil Profile	CPTU Sample	Sample Ref No. Cone ID (Alpha)	Soil Depth (m)	Interpreted Soil Type	Env.	Age
20.5					Low to medium strength CLAY		
21.0							
21.5							
22.0							
22.5							
23.0							
23.5							
24.0							
24.5							
25.0						Ma/Fw	Ho
25.5							
26.0							
26.5							
27.0							
27.5							
28.0							
28.5							
29.0							
29.5							



KEY TO SOIL PROFILE

SILT, CLAY, SAND, GRAVEL, COBBLES, CHALK, PEAT, Mixed Soil

Assumed Unit Weight: 20 - 16 kN/m³
K_p: 0.5 - 2.0
N_{kt}: 12.5 - 16.5
N_{ke}: 15 - 20
K_p: 0.5 - 2.0

Area	**Kattegat Sea**	Coordinates	**676059.4E 6274402.9N**	CRS: **ETRS89**	QC Status: Preliminary / Draft / Final
Contract	**11596**	Water Depth (mMSL)	**31.2**	**Comments:** **Out of Class. Continuous seismic seabed CPT. Final depth 32.93m. Test terminated due sudden inclination change of 5 degrees in less than 1 metre- attempted to cycle but inclination was too high~ Please note the derived data has been removed where seismic testing was conducted.**	
Client Name/Ref	**Energinet Eltransmission A/S/384_20_ENE**	Date of Test	**03/05/2021**		
Vessel	**MV Ocean Vantage**	Cone No.(type)/α Factor	**130206 (50cm²) / 0.77**		**JK/BC** (03/05/2021) / **DR** (10/06/2021) / **SMc** (10/11/2021)
Method	**20 kN Sea bed CPT**	Base Inclination	**X = 1.2° / Y = 0.8°**		

CPT Name: **SCPT24**

Preliminary Investigation, Hesselø OWF

IN SITU CPTU TESTING

Soil Depth (m)	Interpreted Soil Type	Env.	Age
	Low to medium strength CLAY	Ma/Fw	Ho
32.82	GRAVEL End of CPTU test at 32.93m	Ma/Fw	Gc/Lg

Corrected Cone Resistance, q_t (MPa) / Sleeve Friction, f_s (kPa)

Pore Pressure, U_2 (kPa) / Ambient Pore Pressure, U_0 (kPa)

Pore Pressure Ratio, Bq / Friction Ratio, (%)

Relative Density, D_r (%) / Undrained Shear Strength, S_u (kPa)

KEY TO SOIL PROFILE

SILT, CLAY, SAND, GRAVEL, COBBLES, CHALK, PEAT, Mixed Soil

Assumed Unit Weight: 20 - 16 kN/m³
K_C 0.5 - 2.0
N_{kt} 12.5 - 16.5
$N_{\Delta u}$ 15 - 20
K_C 0.5 - 2.0

Area	**Kattegat Sea**	Coordinates	**676059.4E 6274402.9N**
Contract	**11596**	Water Depth (mMSL)	**31.2**
Client Name/Ref	**Energinet Eltransmission A/S/384_20_ENE**	Date of Test	**03/05/2021**
Vessel	**MV Ocean Vantage**	Cone No.(type)/α Factor	**130206 (50cm²) / 0.77**
Method	**20 kN Sea bed CPT**	Base Inclination	**X = 1.2° / Y = 0.8°**

CRS: **ETRS89**

Comments:
Out of Class. Continuous seismic seabed CPT. Final depth 32.93m. Test terminated due sudden inclination change of 5 degrees in less than 1 metre- attempted to cycle but inclination was too high~ Please note the derived data has been removed where seismic testing was conducted.

QC Status		
Preliminary	Draft	Final
JK/BC (03/05/2021)	**DR** (10/06/2021)	**SMc** (10/11/2021)

CPT Name

SCPT24

2.5 Downhole and Seabed Combined Logs

Preliminary Investigation, Hesselø OWF

BOREHOLE LOG, LABORATORY TEST RESULTS AND IN SITU CPTU TESTING

Soil Depth (m)	Soil Description	Env.	Age
	Extremely low to very low strength CLAY, low plasticity, sandy, dark greenish grey (GLEY 1 10Y 4/1), slightly calcareous	Ma/Fw	Ho
2.20	Loose becoming medium dense SAND, fine to coarse, poorly sorted to unsorted, clayey, very silty, slightly gravelly dark greenish grey (GLEY 1 10Y 4/1), slightly calcareous with very closely to widely spaced thin laminations of brown organic matter (10YR 4/3) between 4.17m and 9.80m	Ma/Fw	Ho

Particle Size, %	Gravel	Sand	Fines	Silt	Clay
	1	81	18	10	8
	0	84	16	8	8

KEY TO SOIL PROFILE

SILT · CLAY · SAND · GRAVEL · COBBLES · CHALK · PEAT · Mixed Soil

Assumed Unit Weight: 20 - 16 kN/m³
K_0: 0.5 - 2.0
N_{cone}: 15 - 20
N_{ball}: 12.5 - 16.5

Area	**Kattegat Sea**	Coordinates	**673294.0E**	**6269807.2N**	CRS: **ETRS89**
Contract	**11596**	Latitude / Longitude			
Client Name / Ref	**Energinet Eltransmission A/S / 384_20_ENE**	Water Depth (mMSL)	**-31.8**		
Vessel	**MV Ocean Vantage**	Date of Test (Start-End)			
Method	**20 kN Sea bed CPT**	Final Borehole Depth	**70.30m**		

Comments: Location data taken from CB3a. CB3a out of class test terminated at 58.00m due to loss of communication with cone after snapping rods. Continuous seabed CPT. Borehole CB3a-BH was completed to a depth of 70.27m utilising API drilling~ Wison CPT and push sampling methods.

QC Status	Preliminary	Draft	Final
	BC/JK (25/06/2021)	**DR** (25/06/2021)	**SMc** (10/11/2021)

Location Names
CB3a
CB3a-BH

Preliminary Investigation, Hesselø OWF

BOREHOLE LOG, LABORATORY TEST RESULTS AND IN SITU CPTU TESTING

Soil Depth (m)	Soil Description	Env.	Age
	Loose becoming medium dense SAND, fine to coarse, poorly sorted to unsorted, clayey, very silty, slightly gravelly dark greenish grey (GLEY 1 10Y 4/1), slightly calcareous with very closely to widely spaced thin laminations of brown organic matter (10YR 4/3) between 4.17m and 9.80m	Ma/Fw	Ho
	10.88m - 10.89m: 10.88-10.89m: Thick lamination of clay, high plasticity, dark greenish grey (GLEY 1 10Y 4/1), slightly calcareous		
	11.50m - 11.85m: 11.50-11.85m: Medium bed of sand, fine to medium, well sorted, greenish grey (GLEY 1 10Y 5/1), highly calcareous, with shell fragments (<0.04m)		
12.68	*12.58m - 12.61m: 12.58-12.61m: Very thin bed of sand, fine to medium, well sorted, greenish grey (GLEY 1 10Y 5/1), highly calcareous*		
	Low becoming medium strength locally medium to high strength CLAY, medium plasticity, slightly sandy, dark greenish grey (GLEY 1 5GY 4/1), slightly calcareous, with pockets of sand, fine, well sorted, dark greenish grey (GLEY 1 5GY 4/1), slightly calcareous (<0.03m)	Ma	Ho

Particle Size, %	Gravel	Sand	Fines	Silt	Clay
	1	89	10	10	0
	0	35	65	33	32

KEY TO SOIL PROFILE

SILT, CLAY, SAND, GRAVEL, COBBLES, CHALK, PEAT, Mixed Soil

Assumed Unit Weight: 20 - 16 kN/m³
K_0: 0.5 - 2.0
N_{kt}: 15 - 20
N_{ch}: 12.5 - 16.5

Area	**Kattegat Sea**	Coordinates	**673294.0E**	**6269807.2N**	CRS: **ETRS89**
Contract	**11596**	Latitude / Longitude			**Comments: Location data taken from CB3a. CB3a out of class test terminated at 58.00m due to loss of communication with cone after snapping rods. Continuous seabed CPT. Borehole CB3a-BH was completed to a depth of 70.27m utilising API drilling~ Wison CPT and push sampling methods.**
Client Name / Ref	**Energinet Eltransmission A/S / 384_20_ENE**	Water Depth (mMSL)	**-31.8**		
Vessel	**MV Ocean Vantage**	Date of Test (Start-End)			
Method	**20 kN Sea bed CPT**	Final Borehole Depth	**70.30m**		

QC Status	Preliminary	Draft	Final
	BC/JK (25/06/2021)	**DR** (25/06/2021)	**SMc** (10/11/2021)

Location Names
CB3a
CB3a-BH

Preliminary Investigation, Hesselø OWF

BOREHOLE LOG, LABORATORY TEST RESULTS AND IN SITU CPTU TESTING

Relative to (mMSL)	Relative to BSB (m)	Soil Profile	Sample Type	CPTU Push	CPT Ref No. Cone ID Cone Area (a)	Soil Depth (m)		Env.	Age
-52.0	20.5		P22				Low becoming medium strength locally medium to high strength CLAY, medium plasticity, slightly sandy, dark greenish grey (GLEY 1 5GY 4/1), slightly calcareous, with pockets of sand, fine, well sorted, dark greenish grey (GLEY 1 5GY 4/1), slightly calcareous (<0.03m)	Ma	Ho
-52.5	21.0								
-53.0	21.5		P23						
-53.5	22.0					22.00	Low to medium strength CLAY, medium to high plasticity, very silty, very sandy, slightly gravelly, dark greenish grey (GLEY1 10Y 4/1), with medium to widely spaced thick laminations of sand, fine, well sorted, greenish grey (GLEY1 10Y 5/1), slightly calcareous		
-54.0	22.5		P24						
-54.5	23.0								
-55.0	23.5		P25						
-55.5	24.0							Ma/Fw	Ho
-56.0	24.5		P26						
-56.5	25.0								
-57.0	25.5		P27						
-57.5	26.0					26.00	Low to medium strength CLAY, very high plasticity, very silty, slightly sandy, dark greyish brown (2.5Y 4/2), slightly calcareous, with extremely closely to closely spaced thin laminations of silt, non plastic, light brownish grey (10YR 6/2), calcareous, between 30.60m and 35.00m		
-58.0	26.5		P28						
-58.5	27.0								
-59.0	27.5		P29						
-59.5	28.0							Ma/Fw	Ho
-60.0	28.5		P30						
-60.5	29.0								
-61.0	29.5		P31						
-61.5									

Water Content (%): 0, 25, 50, 75, 100

Density (Mg/m^3): 3, 2, 1, 0

Particle Size, %

Gravel	Sand	Fines	Silt	Clay
1	27	72	34	38

Relative Density, D_r (%): 0, 30, 60, 90, 120

Undrained Shear Strength, Su (kPa): 0, 300, 600, 900, 1200, 1500

Corrected Cone Resistance, q_t (MPa): 0, 12, 24, 36, 48, 60

Sleeve Friction, f_s(MPa): 0, 0.3, 0.6, 0.9, 1.2, 1.5

Pore Pressure, U_2 (kPa): -4500, -2250, 0, 2250, 4500

Ambient Pore Pressure (kPa)

KEY TO SOIL PROFILE

SILT, CLAY, SAND, GRAVEL, COBBLES, CHALK, PEAT, Mixed Soil

Assumed Unit Weight: 20 - 16 kN/m^3
K_0: 0.5 - 2.0
N_{kt}: 15 - 20
N_{kt}: 12.5 - 16.5

Area	**Kattegat Sea**	Coordinates	**673294.0E** **6269807.2N**	CRS: **ETRS89**	
Contract	**11596**	Latitude / Longitude		**Comments: Location data taken from CB3a. CB3a out of class test terminated at 58.00m due to loss of communication with cone after snapping rods. Continuous seabed CPT. Borehole CB3a-BH was completed to a depth of 70.27m utilising API drilling~ Wison CPT and push sampling methods.**	
Client Name / Ref	**Energinet Eltransmission A/S / 384_20_ENE**	Water Depth (mMSL)	**-31.8**		
Vessel	**MV Ocean Vantage**	Date of Test (Start-End)			
Method	**20 kN Sea bed CPT**	Final Borehole Depth	**70.30m**		

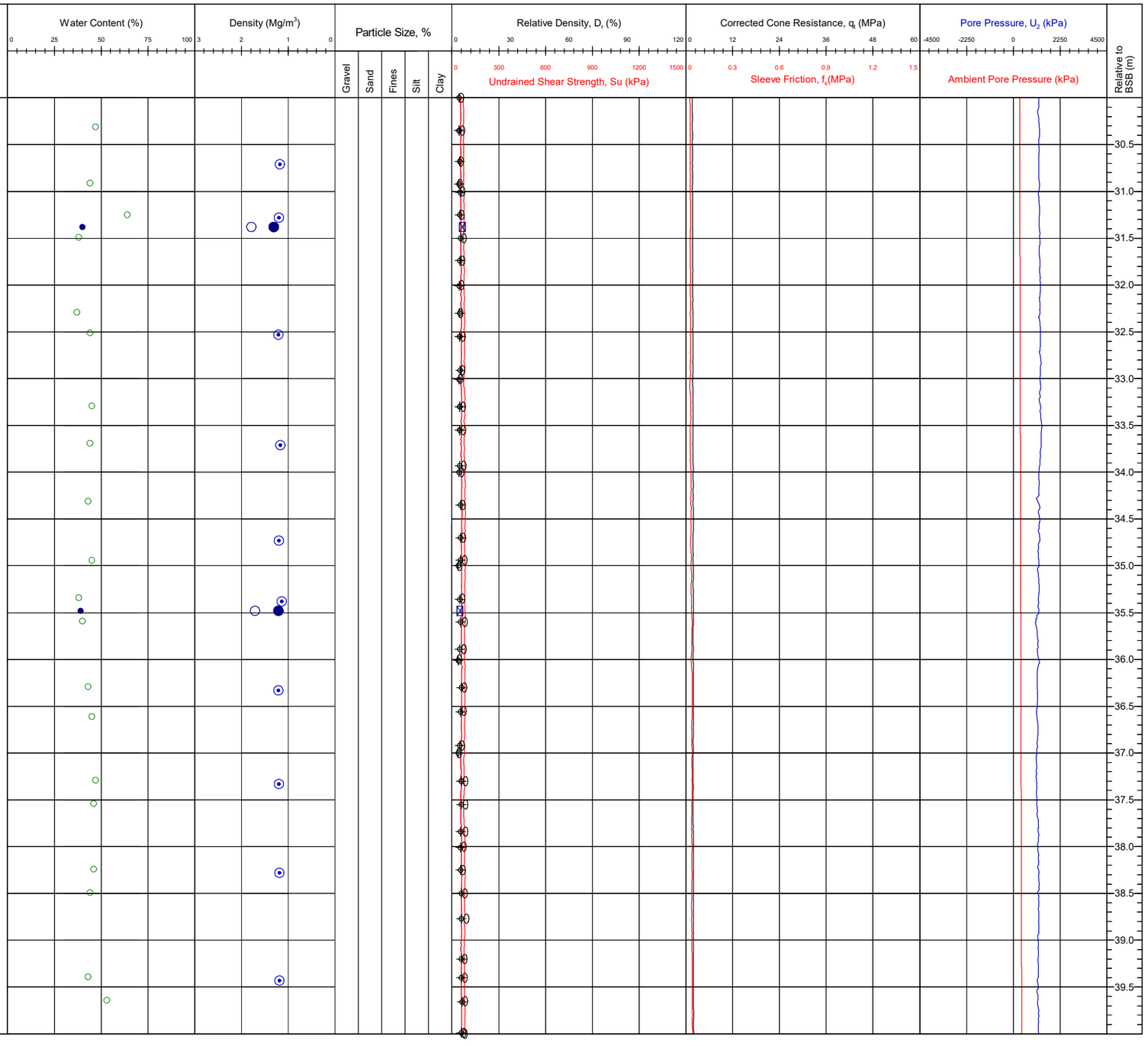
QC Status		
Preliminary	Draft	Final
BC/JK (25/06/2021)	**DR** (25/06/2021)	**SMc** (10/11/2021)

Location Names
CB3a
CB3a-BH

Preliminary Investigation, Hesselø OWF

BOREHOLE LOG, LABORATORY TEST RESULTS AND IN SITU CPTU TESTING

Relative to (mMSL)	Relative to BSB (m)	Soil Profile	Sample Type	CPTU Push	CPT Ref No. Cone ID Cone Area (a)	Soil Depth (m)		Env.	Age
-62.0	30.5		P32		01 120910 10cm² (0.81)		Low to medium strength CLAY, very high plasticity, very silty, slightly sandy, dark greyish brown (2.5Y 4/2), slightly calcareous, with extremely closely to closely spaced thin laminations of silt, non plastic, light brownish grey (10YR 6/2), calcareous, between 30.60m and 35.00m	Ma/Fw	Ho
-62.5	31.0								
-63.0	31.5		P33						
-63.5	32.0								
-64.0	32.5		P34						
-64.5	33.0								
-65.0	33.5		P35						
-65.5	34.0								
-66.0	34.5		P36						
-66.5	35.0								
-67.0	35.5		P37						
-67.5	36.0								
-68.0	36.5		P38						
-68.5	37.0								
-69.0	37.5		P39						
-69.5	38.0								
-70.0	38.5		P40						
-70.5	39.0								
-71.0	39.5		P41						
-71.5									



KEY TO SOIL PROFILE

SILT · CLAY · SAND · GRAVEL · COBBLES · CHALK · PEAT · Mixed Soil

Assumed Unit Weight: 20 - 16 kN/m³
K_0: 0.5 - 2.0
N_{kt}: 15 - 20
N_{kt}: 12.5 - 16.5

Area	**Kattegat Sea**	Coordinates	**673294.0E** **6269807.2N**	CRS: **ETRS89**	QC Status: Preliminary / Draft / Final
Contract	**11596**	Latitude / Longitude		**Comments: Location data taken from CB3a. CB3a out of class test terminated at 58.00m due to loss of communication with cone after snapping rods. Continuous seabed CPT. Borehole CB3a-BH was completed to a depth of 70.27m utilising API drilling~ Wison CPT and push sampling methods.**	**BC/JK** (25/06/2021) / **DR** (25/06/2021) / **SMc** (10/11/2021)
Client Name / Ref	**Energinet Eltransmission A/S / 384_20_ENE**	Water Depth (mMSL)	**-31.8**		
Vessel	**MV Ocean Vantage**	Date of Test (Start-End)			
Method	**20 kN Sea bed CPT**	Final Borehole Depth	**70.30m**		

Location Names
CB3a
CB3a-BH

Preliminary Investigation, Hesselø OWF

BOREHOLE LOG, LABORATORY TEST RESULTS AND IN SITU CPTU TESTING

Relative to (mMSL)	Relative to BSB (m)	Soil Profile	Sample Type	CPTU Push	CPT Ref No. Cone ID Cone Area (a)	Soil Depth (m)		Env.	Age
-72.0 to -81.5	40.5 to 49.5		P42 P43 P44 P45 P46 P47 P48 P49 P50 P51				Low to medium strength CLAY, very high plasticity, very silty, slightly sandy, dark greyish brown (2.5Y 4/2), slightly calcareous, with extremely closely to closely spaced thin laminations of silt, non plastic, light brownish grey (10YR 6/2), calcareous, between 30.60m and 35.00m	Ma/Fw	Ho

Water Content (%): 0, 25, 50, 75, 100

Density (Mg/m^3): 3, 2, 1, 0

Particle Size, %

Gravel	Sand	Fines	Silt	Clay
0	1	99	37	62

Relative Density, D_r (%): 0, 30, 60, 90, 120

Undrained Shear Strength, Su (kPa): 0, 300, 600, 900, 1200, 1500

Corrected Cone Resistance, q_t (MPa): 0, 12, 24, 36, 48, 60

Sleeve Friction, f_s(MPa): 0, 0.3, 0.6, 0.9, 1.2, 1.5

Pore Pressure, U_2 (kPa): -4500, -2250, 0, 2250, 4500

Ambient Pore Pressure (kPa)

KEY TO SOIL PROFILE

SILT, CLAY, SAND, GRAVEL, COBBLES, CHALK, PEAT, Mixed Soil

Assumed Unit Weight: 20 - 16 kN/m^3
K_0: 0.5 - 2.0
N_{kt}: 15 - 20
N_{ch}: 12.5 - 16.5

Area	**Kattegat Sea**	Coordinates	**673294.0E**	**6269807.2N**	CRS: **ETRS89**
Contract	**11596**	Latitude / Longitude			**Comments: Location data taken from CB3a. CB3a out of class test terminated at 58.00m due to loss of communication with cone after snapping rods. Continuous seabed CPT. Borehole CB3a-BH was completed to a depth of 70.27m utilising API drilling~ Wison CPT and push sampling methods.**
Client Name / Ref	**Energinet Eltransmission A/S / 384_20_ENE**	Water Depth (mMSL)	**-31.8**		
Vessel	**MV Ocean Vantage**	Date of Test (Start-End)			
Method	**20 kN Sea bed CPT**	Final Borehole Depth	**70.30m**		

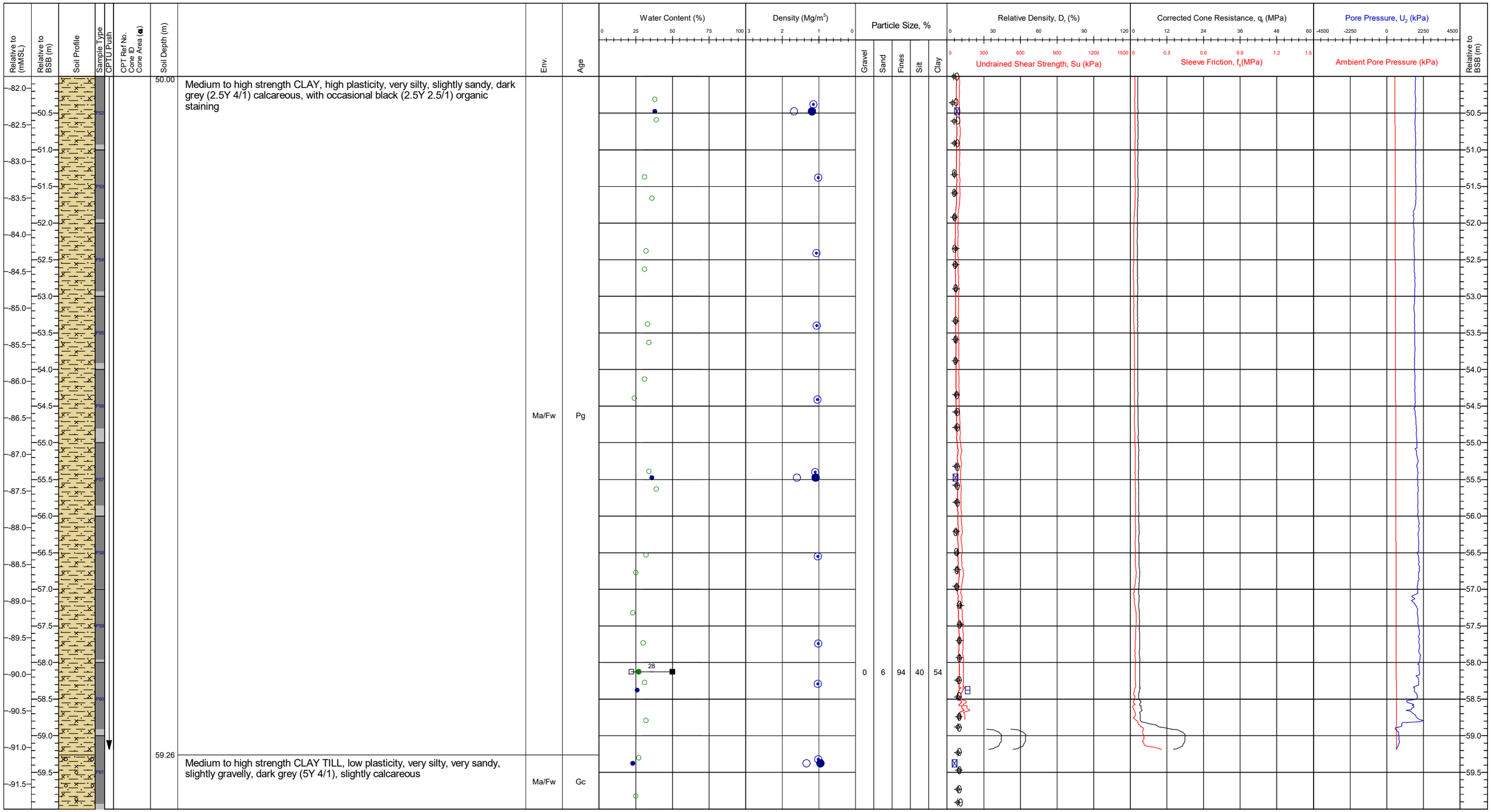
QC Status		
Preliminary	Draft	Final
BC/JK (25/06/2021)	**DR** (25/06/2021)	**SMc** (10/11/2021)

Location Names
CB3a
CB3a-BH

Preliminary Investigation, Hesselø OWF

BOREHOLE LOG, LABORATORY TEST RESULTS AND IN SITU CPTU TESTING

Relative to (mMSL)	Relative to BSB (m)	Soil Profile	Sample Type	CPTU Push	CPT Ref No. Cone ID Cone Area (a)	Soil Depth (m)		Env.	Age
-82.0	50.5		PS2			50.00	Medium to high strength CLAY, high plasticity, very silty, slightly sandy, dark grey (2.5Y 4/1) calcareous, with occasional black (2.5Y 2.5/1) organic staining	Ma/Fw	Pg
-82.5	51.0								
-83.0	51.5		PS3						
-83.5	52.0								
-84.0	52.5		PS4						
-84.5	53.0								
-85.0	53.5		PS5						
-85.5	54.0								
-86.0	54.5		PS6						
-86.5	55.0								
-87.0	55.5		PS7						
-87.5	56.0								
-88.0	56.5		PS8						
-88.5	57.0								
-89.0	57.5		PS9						
-89.5	58.0								
-90.0	58.5		PS0						
-90.5	59.0								
-91.0	59.5		PS1			59.26	Medium to high strength CLAY TILL, low plasticity, very silty, very sandy, slightly gravelly, dark grey (5Y 4/1), slightly calcareous	Ma/Fw	Gc
-91.5									



KEY TO SOIL PROFILE

SILT · CLAY · SAND · GRAVEL · COBBLES · CHALK · PEAT · Mixed Soil

Assumed Unit Weight: 20 - 16 kN/m³
K_0: 0.5 - 2.0
N_{kt}: 15 - 20
N_{ke}: 12.5 - 16.5

Area	**Kattegat Sea**	Coordinates	**673294.0E**	**6269807.2N**	CRS: **ETRS89**
Contract	**11596**	Latitude / Longitude			**Comments: Location data taken from CB3a. CB3a out of class test terminated at 58.00m due to loss of communication with cone after snapping rods. Continuous seabed CPT. Borehole CB3a-BH was completed to a depth of 70.27m utilising API drilling~ Wison CPT and push sampling methods.**
Client Name / Ref	**Energinet Eltransmission A/S / 384_20_ENE**	Water Depth (mMSL)	**-31.8**		
Vessel	**MV Ocean Vantage**	Date of Test (Start-End)			
Method	**20 kN Sea bed CPT**	Final Borehole Depth	**70.30m**		

QC Status		
Preliminary	Draft	Final
BC/JK (25/06/2021)	**DR** (25/06/2021)	**SMc** (10/11/2021)

Location Names
CB3a
CB3a-BH

Preliminary Investigation, Hesselø OWF

BOREHOLE LOG, LABORATORY TEST RESULTS AND IN SITU CPTU TESTING

Gardline

Relative to (mMSL)	Relative to BSB (m)	Soil Profile	Sample Type	CPTU Push	CPT Ref No. Cone ID Cone Area (a)	Soil Depth (m)	Env.	Age
-92.0 to -101.5	60.5 to 69.5				01 121126 10cm² (0.79); 02 121126 10cm² (0.79); 03 121126 10cm² (0.79)		Ma/Fw	Gc

Medium to high strength CLAY TILL, low plasticity, very silty, very sandy, slightly gravelly, dark grey (5Y 4/1), slightly calcareous

69.64m - 69.69m: 69.64-69.69m: Very thin bed of sand, fine to medium, poorly sorted, clayey, silty, gravelly, dark grey (5Y 4/1), calcareous

Water Content (%): 0 25 50 75 100

Density (Mg/m³): 3 2 1 0

Particle Size, %

Gravel	Sand	Fines	Silt	Clay
1	27	72	53	19

Relative Density, D_r (%): 0 30 60 90 120

Undrained Shear Strength, Su (kPa): 0 300 600 900 1200 1500

Corrected Cone Resistance, q_t (MPa): 0 12 24 36 48 60

Sleeve Friction, f_s (MPa): 0 0.3 0.6 0.9 1.2 1.5

Pore Pressure, U_2 (kPa): -4500 -2250 0 2250 4500

Ambient Pore Pressure (kPa)

KEY TO SOIL PROFILE

SILT; CLAY; SAND; GRAVEL; COBBLES; CHALK; PEAT; Mixed Soil

Assumed Unit Weight: 20 - 16 kN/m³
K_0: 0.5 - 2.0
N_{kt}: 15 - 20
$N_{\Delta u}$: 12.5 - 16.5

Area	**Kattegat Sea**	Coordinates	**673294.0E**	**6269807.2N**	CRS: **ETRS89**
Contract	**11596**	Latitude / Longitude			
Client Name / Ref	**Energinet Eltransmission A/S / 384_20_ENE**	Water Depth (mMSL)	**-31.8**		
Vessel	**MV Ocean Vantage**	Date of Test (Start-End)			
Method	**Wison**	Final Borehole Depth	**70.30m**		

Comments: Location data taken from CB3a. CB3a out of class test terminated at 58.00m due to loss of communication with cone after snapping rods. Continuous seabed CPT, Borehole CB3a-BH was completed to a depth of 70.27m utilising API drilling~ Wison CPT and push sampling methods.

QC Status		
Preliminary	Draft	Final
BC/JK (25/06/2021)	**DR** (25/06/2021)	**SMc** (10/11/2021)

Location Names: CB3a-BH

Preliminary Investigation, Hesselø OWF

BOREHOLE LOG, LABORATORY TEST RESULTS AND IN SITU CPTU TESTING

Relative to (mMSL)	Relative to BSB (m)	Soil Profile	Sample Type	CPTU Push	CPT Ref No. Cone ID Cone Area (a)	Soil Depth (m)		Env.	Age
-102.0	70.5					70.27	Medium to high strength CLAY TILL, low plasticity, very silty, very sandy, slightly gravelly, dark grey (5Y 4/1), slightly calcareous End of borehole at 70.27m	Ma/Fw	Gc

Water Content (%): 0 25 50 75 100

Density (Mg/m^3): 3 2 1 0

Particle Size, %: Gravel | Sand | Fines | Silt | Clay

Relative Density, D_r (%): 0 30 60 90 120

Undrained Shear Strength, Su (kPa): 0 300 600 900 1200 1500

Corrected Cone Resistance, q_t (MPa): 0 12 24 36 48 60

Sleeve Friction, f_s(MPa): 0 0.3 0.6 0.9 1.2 1.5

Pore Pressure, U_2 (kPa): -4500 -2250 0 2250 4500

Ambient Pore Pressure (kPa)

Relative to BSB (m): 70.5 71.0 71.5 72.0 72.5 73.0 73.5 74.0 74.5 75.0 75.5 76.0 76.5 77.0 77.5 78.0 78.5 79.0 79.5

Relative to (mMSL): -102.0 -102.5 -103.0 -103.5 -104.0 -104.5 -105.0 -105.5 -106.0 -106.5 -107.0 -107.5 -108.0 -108.5 -109.0 -109.5 -110.0 -110.5 -111.0 -111.5

KEY TO SOIL PROFILE

SILT, CLAY, SAND, GRAVEL, COBBLES, CHALK, PEAT, Mixed Soil

Assumed Unit Weight: 20 - 16 kN/m^3
K_0: 0.5 - 2.0
N_{kt}: 15 - 20
N_{s1}: 12.5 - 16.5

Area	**Kattegat Sea**	Coordinates	**673294.0E**	**6269807.2N**	CRS: **ETRS89**
Contract	**11596**	Latitude / Longitude			**Comments: Location data taken from CB3a. CB3a out of class test terminated at 58.00m due to loss of communication with cone after snapping rods. Continuous seabed CPT. Borehole CB3a-BH was completed to a depth of 70.27m utilising API drilling~ Wison CPT and push sampling methods.**
Client Name / Ref	**Energinet Eltransmission A/S / 384_20_ENE**	Water Depth (mMSL)	**-31.8**		
Vessel	**MV Ocean Vantage**	Date of Test (Start-End)			
Method	**Wison**	Final Borehole Depth	**70.30m**		

QC Status		
Preliminary	Draft	Final
BC/JK (25/06/2021)	**DR** (25/06/2021)	**SMc** (10/11/2021)

Location Names
CB3a-BH

Preliminary Investigation, Hesselø OWF

BOREHOLE LOG, LABORATORY TEST RESULTS AND IN SITU CPTU TESTING

Relative to (mMSL)	Relative to BSB (m)	Soil Depth (m)		Env.	Age
-31.5	0.5	0.44	SAND, fine to coarse, unsorted, clayey, very silty, slightly gravelly, with shell fragments and shell pieces (<0.03m), dark olive grey (5Y 3/2), slightly calcareous, organic odour.	Ma	Ho
-32.0 to -32.5	1.0 to 1.5		Extremely low strength CLAY, low plasticity, sandy, dark greenish grey (GLEY 1 10Y 4/1) with shell fragments (<0.03m)	Ma	Ho
-33.0	2.0	1.82	Very low to low strength CLAY, high plasticty, very silty, slightly sandy, olive brown (2.5Y 4/4) becoming dark greenish grey (GLEY1 10Y 5GY 4/1), slightly calcareous		
-34.0 to -40.5	3.0 to 9.5			Ma/Fw	Ho

Sample Type: CPTU Push

CPT Ref No. / Cone ID / Cone Area (a)

Water Content (%): 0, 25, 50, 75, 100

Density (Mg/m^3): 3, 2, 1, 0

Particle Size, %

Relative to BSB (m)	Gravel	Sand	Fines	Silt	Clay
0.44 – 1.82	1	75	24	16	8
1.82 – 9.5	0	4	96	38	58

Relative Density, D_r (%): 0, 30, 60, 90, 120

Undrained Shear Strength, Su (kPa): 0, 300, 600, 900, 1200, 1500

Corrected Cone Resistance, q_t (MPa): 0, 12, 24, 36, 48, 60

Sleeve Friction, f_s(MPa): 0, 0.3, 0.6, 0.9, 1.2, 1.5

Pore Pressure, U_2 (kPa): -4500, -2250, 0, 2250, 4500

Ambient Pore Pressure (kPa)

Relative to BSB (m): 0.5 to 9.5

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KEY TO SOIL PROFILE

SILT, CLAY, SAND, GRAVEL, COBBLES, CHALK, PEAT, Mixed Soil

Assumed Unit Weight: 20 - 16 kN/m^3
K_C: 0.5 - 2.0
N_{kt}: 15 - 20
N_{kt}: 12.5 - 16.5

Area	**Kattegat Sea**	Coordinates	**675776.4E** **6272688.0N**
Contract	**11596**	Latitude / Longitude	
Client Name / Ref	**Energinet Eltransmission A/S / 384_20_ENE**	Water Depth (mMSL)	**-31.0**
Vessel	**MV Ocean Vantage**	Date of Test (Start-End)	
Method	**20 kN Sea bed CPT**	Final Borehole Depth	**70.80m**

CRS: **ETRS89**

Comments: Location data taken from CB4. CB4 class 1 test terminated at 35.73m at operators discretion due to lack of rod support from mudline when pushing into dense material. Continuous seabed CPT. Borehole CB4-BH was completed to a depth of 70.72m utilising API drilling~ Wison CPT and push sampling methods. Data gap between 37.85 and 42.00m due to the ground conditions impeding recovery~ Drillers note;- Cobbles/ ~~Boulders- testing was attempted at 0.5-1.0m intervals with~~ a number of tools until recovery was successful.

QC Status		
Preliminary	Draft	Final
BC/JK (25/06/2021)	**DR** (25/06/2021)	**SMc** (10/11/2021)

Location Names
CB4
CB4-BH

Preliminary Investigation, Hesselø OWF

BOREHOLE LOG, LABORATORY TEST RESULTS AND IN SITU CPTU TESTING

Relative to (mMSL)	Relative to BSB (m)	Soil Profile	Sample Type	CPTU Push	CPT Ref No. Cone ID Cone Area (a)	Soil Depth (m)		Env.	Age
-41.5	10.5						Very low to low strength CLAY, high plasticty, very silty, slightly sandy, olive brown (2.5Y 4/4) becoming dark greenish grey (GLEY1 10Y 5GY 4/1), slightly calcareous		
-42.0	11.0		PW						
-42.5	11.5								
-43.0	12.0		PW						
-43.5	12.5								
-44.0	13.0		PW						
-44.5	13.5								
-45.0	14.0		PW						
-45.5	14.5								
-46.0	15.0		PW					Ma/Fw	Ho
-46.5	15.5								
-47.0	16.0		PW						
-47.5	16.5								
-48.0	17.0		PW						
-48.5	17.5								
-49.0	18.0		PW		01 130909 10cm² (0.82)				
-49.5	18.5								
-50.0	19.0		PW						
-50.5	19.5								

Water Content (%): 0, 25, 50, 75, 100

Density (Mg/m^3): 3, 2, 1, 0

Particle Size, %: Gravel, Sand, Fines, Silt, Clay

Relative Density, D_r (%): 0, 30, 60, 90, 120

Undrained Shear Strength, Su (kPa): 0, 300, 600, 900, 1200, 1500

Corrected Cone Resistance, q_t (MPa): 0, 12, 24, 36, 48, 60

Sleeve Friction, f_s(MPa): 0, 0.3, 0.6, 0.9, 1.2, 1.5

Pore Pressure, U_2 (kPa): -4500, -2250, 0, 2250, 4500

Ambient Pore Pressure (kPa)

Relative to BSB (m): 10.5, 11.0, 11.5, 12.0, 12.5, 13.0, 13.5, 14.0, 14.5, 15.0, 15.5, 16.0, 16.5, 17.0, 17.5, 18.0, 18.5, 19.0, 19.5

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Gravel	Sand	Fines	Silt	Clay
0	3	97	55	42

KEY TO SOIL PROFILE

SILT, CLAY, SAND, GRAVEL, COBBLES, CHALK, PEAT, Mixed Soil

Assumed Unit Weight: 20 - 16 kN/m^3
K_0: 0.5 - 2.0
N_{kt}: 15 - 20
N_{kt}: 12.5 - 16.5

Area	**Kattegat Sea**	Coordinates	**675776.4E**	**6272688.0N**	CRS: **ETRS89**
Contract	**11596**	Latitude / Longitude			
Client Name / Ref	**Energinet Eltransmission A/S / 384_20_ENE**	Water Depth (mMSL)	**-31.0**		
Vessel	**MV Ocean Vantage**	Date of Test (Start-End)			
Method	**20 kN Sea bed CPT**	Final Borehole Depth	**70.80m**		

Comments: Location data taken from CB4. CB4 class 1 test terminated at 35.73m at operators discretion due to lack of rod support from mudline when pushing into dense material. Continuous seabed CPT. Borehole CB4-BH was completed to a depth of 70.72m utilising API drilling~ Wison CPT and push sampling methods. Data gap between 37.85 and 42.00m due to the ground conditions impeding recovery~ Drillers note;- Cobbles/ ~~Boulders- testing was attempted at 0.5-1.0m intervals with~~ a number of tools until recovery was successful.

QC Status		
Preliminary	Draft	Final
BC/JK (25/06/2021)	**DR** (25/06/2021)	**SMc** (10/11/2021)

Location Names
CB4
CB4-BH

Preliminary Investigation, Hesselø OWF

BOREHOLE LOG, LABORATORY TEST RESULTS AND IN SITU CPTU TESTING

Relative to (mMSL)	Relative to BSB (m)	Soil Depth (m)		Env.	Age
-51.5	20.5	20.20	Very low to low strength CLAY, high plasticty, very silty, slightly sandy, olive brown (2.5Y 4/4) becoming dark greenish grey (GLEY1 10Y 5GY 4/1), slightly calcareous	Ma/Fw	Ho
-52.0	21.0		Very low to low strength CLAY, high plasticty, very silty, slightly sandy, dark greenish grey (GLEY1 10Y 5GY 4/1), with extremely closely to closely spaced thin to thick laminations of organic matter, black (GLEY1 2.5/N), slightly calcareous		
-52.5	21.5				
-53.0	22.0				
-53.5	22.5			Ma/Fw	Ho
-54.0	23.0				
-54.5	23.5				
-55.0	24.0				
-55.5	24.5	24.50	Low to medium strength CLAY, high plasticty, very silty, slightly sandy, dark greenish grey (GLEY1 10Y 5GY 4/1), slightly calcareous		
-56.0	25.0				
-56.5	25.5				
-57.0	26.0				
-57.5	26.5		*26.50m - 27.36m: 26.50-27.36m: Very closely to closely spaced thin laminations of silt, non plastic, light greenish grey (GLEY1 10Y 7/1), slightly calcareous*	Ma/Fw	Ho
-58.0	27.0				
-58.5	27.5				
-59.0	28.0				
-59.5	28.5				
-60.0	29.0				
-60.5	29.5				

Water Content (%): 0 25 50 75 100 — Density (Mg/m³): 3 2 1 0

Particle Size, %				
Gravel	Sand	Fines	Silt	Clay
0	3	97	50	47
0	2	98	52	46

Relative Density, D_r (%): 0 30 60 90 120

Undrained Shear Strength, Su (kPa): 0 300 600 900 1200 1500

Corrected Cone Resistance, q_t (MPa): 0 12 24 36 48 60

Sleeve Friction, f_s (MPa): 0 0.3 0.6 0.9 1.2 1.5

Pore Pressure, U_2 (kPa): -4500 -2250 0 2250 4500

Ambient Pore Pressure (kPa)

KEY TO SOIL PROFILE

SILT, CLAY, SAND, GRAVEL, COBBLES, CHALK, PEAT, Mixed Soil

Assumed Unit Weight: 20 - 16 kN/m³
K_0: 0.5 - 2.0
N_{kt}: 15 - 20
$N_{\Delta u}$: 12.5 - 16.5

Area	**Kattegat Sea**	Coordinates	**675776.4E 6272688.0N**
Contract	**11596**	Latitude / Longitude	
Client Name / Ref	**Energinet Eltransmission A/S / 384_20_ENE**	Water Depth (mMSL)	**-31.0**
Vessel	**MV Ocean Vantage**	Date of Test (Start-End)	
Method	**20 kN Sea bed CPT**	Final Borehole Depth	**70.80m**

CRS: **ETRS89**

Comments: Location data taken from CB4. CB4 class 1 test terminated at 35.73m at operators discretion due to lack of rod support from mudline when pushing into dense material. Continuous seabed CPT. Borehole CB4-BH was completed to a depth of 70.72m utilising API drilling~ Wison CPT and push sampling methods. Data gap between 37.85 and 42.00m due to the ground conditions impeding recovery~ Drillers note;- Cobbles/ ~~Boulders- testing was attempted at 0.5-1.0m intervals with~~ a number of tools until recovery was successful.

QC Status		
Preliminary	Draft	Final
BC/JK (25/06/2021)	**DR** (25/06/2021)	**SMc** (10/11/2021)

Location Names
CB4
CB4-BH

Preliminary Investigation, Hesselø OWF

BOREHOLE LOG, LABORATORY TEST RESULTS AND IN SITU CPTU TESTING

Soil Depth (m)	Soil Description	Env.	Age
	Low to medium strength CLAY, high plasticty, very silty, slightly sandy, dark greenish grey (GLEY1 10Y 5GY 4/1), slightly calcareous	Ma/Fw	Ho
32.41	Very high strength CLAY TILL, medium plasticity, very silty, very sandy, slightly gravelly, very dark greenish grey (GLEY 1 10Y 3/1), highly calcareous, with pockets (<0.05m) of silt, non-plastic, light grey (5Y 7/2), highly calcareous, between 36.80-37.05m	Ma/Fw	Gc
37.27	SAND, fine to medium, poorly sorted, gravelly, cobbly, with pockets of clay (<0.04m), light olive grey (5Y 6/2), slightly calcareous	Gl	Gc

CPT Ref No. / Cone ID / Cone Area (a): 01 101017 10cm² (0.78); 02 101017 10cm² (0.78); 03 121126 10cm² (0.79)

Particle Size, %	Gravel	Sand	Fines	Silt	Clay
	4	50	46	26	20
	10	49	41	24	17

KEY TO SOIL PROFILE

SILT · CLAY · SAND · GRAVEL · COBBLES · CHALK · PEAT · Mixed Soil

Assumed Unit Weight: 20 - 16 kN/m³
K_0: 0.5 - 2.0
N_{kt}: 15 - 20
N_{kt}: 12.5 - 16.5

Area	**Kattegat Sea**	Coordinates	**675776.4E**	**6272688.0N**	CRS: **ETRS89**
Contract	**11596**	Latitude / Longitude			
Client Name / Ref	**Energinet Eltransmission A/S / 384_20_ENE**	Water Depth (mMSL)	**-31.0**		
Vessel	**MV Ocean Vantage**	Date of Test (Start-End)			
Method	**20 kN Sea bed CPT**	Final Borehole Depth	**70.80m**		

Comments: Location data taken from CB4. CB4 class 1 test terminated at 35.73m at operators discretion due to lack of rod support from mudline when pushing into dense material. Continuous seabed CPT. Borehole CB4-BH was completed to a depth of 70.72m utilising API drilling~ Wison CPT and push sampling methods. Data gap between 37.85 and 42.00m due to the ground conditions impeding recovery~ Drillers note;- Cobbles/ ~~Boulders- testing was attempted at 0.5-1.0m intervals with~~ a number of tools until recovery was successful.

QC Status	Preliminary	Draft	Final
	BC/JK (25/06/2021)	**DR** (25/06/2021)	**SMc** (10/11/2021)

Location Names
CB4
CB4-BH

Preliminary Investigation, Hesselø OWF

BOREHOLE LOG, LABORATORY TEST RESULTS AND IN SITU CPTU TESTING

Soil Depth (m)	Description	Env.	Age
	SAND, fine to medium, poorly sorted, gravelly, cobbly, with pockets of clay (<0.04m), light olive grey (5Y 6/2), slightly calcareous	Gl	Gc
42.88	Very high to extremely high strength CLAY, high plasticity, very silty, sandy, slightly gravelly, very dark bluish grey (GLEY 2 5B 3/1), slightly calcareous	Gl/Mw	Gc
46.00	Very high to extremely high strength CLAY, high plasticity, very silty, sandy, bluish black (GLEY2 10B 2.5/1), strong organic odour, non calcareous *48.57m - 48.66m: 48.57-48.66m: Thin bed of gravel*	Gl/Mw	Gc

Water Content (%): 34 (42.88 m); 28 (46.00 m)

Particle Size, %	Gravel	Sand	Fines	Silt	Clay
42.88 m	1	12	87	43	44
46.00 m	0	22	78	47	31

CPT Ref No. 121126; Cone ID 04, 05, 06; Cone Area (a) 10cm² (0.79)

KEY TO SOIL PROFILE

SILT; CLAY; SAND; GRAVEL; COBBLES; CHALK; PEAT; Mixed Soil

Assumed Unit Weight: 20 - 16 kN/m³
K_0: 0.5 - 2.0
N_{kt}: 15 - 20
N_{ch}: 12.5 - 16.5

Area	**Kattegat Sea**	Coordinates	**675776.4E**	**6272688.0N**	CRS: **ETRS89**
Contract	**11596**	Latitude / Longitude			
Client Name / Ref	**Energinet Eltransmission A/S / 384_20_ENE**	Water Depth (mMSL)	**-31.0**		
Vessel	**MV Ocean Vantage**	Date of Test (Start-End)			
Method	**Wison**	Final Borehole Depth	**70.80m**		

Comments: Location data taken from CB4. CB4 class 1 test terminated at 35.73m at operators discretion due to lack of rod support from mudline when pushing into dense material. Continuous seabed CPT. Borehole CB4-BH was completed to a depth of 70.72m utilising API drilling~ Wison CPT and push sampling methods. Data gap between 37.85 and 42.00m due to the ground conditions impeding recovery~ Drillers note;- Cobbles/ Boulders- testing was attempted at 0.5-1.0m intervals with a number of tools until recovery was successful.

QC Status		
Preliminary	Draft	Final
BC/JK (25/06/2021)	**DR** (25/06/2021)	**SMc** (10/11/2021)

Location Names: CB4-BH

Preliminary Investigation, Hesselø OWF

BOREHOLE LOG, LABORATORY TEST RESULTS AND IN SITU CPTU TESTING

Relative to (mMSL)	Relative to BSB (m)	Soil Profile	Sample Type	CPTU Push	CPT Ref No. Cone ID Cone Area (a)	Soil Depth (m)		Env.	Age
-81.5	50.5						Very high to extremely high strength CLAY, high plasticity, very silty, sandy, bluish black (GLEY2 10B 2.5/1), strong organic odour, non calcareous	Gl/Mw	Gc
-82.0	51.0								
-82.5	51.5				07 121126 10cm² (0.79)				
-83.0	52.0								
-83.5	52.5								
-84.0	53.0								
-84.5	53.5								
-85.0	54.0								
-85.5	54.5				08 121126 10cm² (0.79)				
-86.0	55.0					55.00	Extremely high strength CLAY, high plasticity, very silty, sandy, slightly gravelly, very dark greenish grey (GLEY1 5GY 3/1), with shell fragments (<0.01m), calcareous	Gl/Mw	Gc
-86.5	55.5								
-87.0	56.0								
-87.5	56.5								
-88.0	57.0								
-88.5	57.5								
-89.0	58.0								
-89.5	58.5				09 121126 10cm² (0.79)				
-90.0	59.0								
-90.5	59.5								

Water Content (%): 0, 25, 50, 75, 100

Density (Mg/m^3): 3, 2, 1, 0

Particle Size, %: Gravel, Sand, Fines, Silt, Clay

Relative Density, D_r (%): 0, 30, 60, 90, 120

Undrained Shear Strength, Su (kPa): 0, 300, 600, 900, 1200, 1500

Corrected Cone Resistance, q_t (MPa): 0, 12, 24, 36, 48, 60

Sleeve Friction, f_s(MPa): 0, 0.3, 0.6, 0.9, 1.2, 1.5

Pore Pressure, U_2 (kPa): -4500, -2250, 0, 2250, 4500

Ambient Pore Pressure (kPa)

38

Gravel	Sand	Fines	Silt	Clay
0	8	92	55	37

Relative to BSB (m)

KEY TO SOIL PROFILE

SILT, CLAY, SAND, GRAVEL, COBBLES, CHALK, PEAT, Mixed Soil

Assumed Unit Weight: 20 - 16 kN/m^3
K_0: 0.5 - 2.0
N_{kt}: 15 - 20
N_{kt}: 12.5 - 16.5

Area	**Kattegat Sea**	Coordinates	**675776.4E**	**6272688.0N**	CRS: **ETRS89**
Contract	**11596**	Latitude / Longitude			
Client Name / Ref	**Energinet Eltransmission A/S / 384_20_ENE**	Water Depth (mMSL)	**-31.0**		
Vessel	**MV Ocean Vantage**	Date of Test (Start-End)			
Method	**Wison**	Final Borehole Depth	**70.80m**		

Comments: Location data taken from CB4. CB4 class 1 test terminated at 35.73m at operators discretion due to lack of rod support from mudline when pushing into dense material. Continuous seabed CPT. Borehole CB4-BH was completed to a depth of 70.72m utilising API drilling~ Wison CPT and push sampling methods. Data gap between 37.85 and 42.00m due to the ground conditions impeding recovery~ Drillers note;- Cobbles/ ~~Boulders- testing was attempted at 0.5-1.0m intervals with~~ a number of tools until recovery was successful.

QC Status		
Preliminary	Draft	Final
BC/JK (25/06/2021)	**DR** (25/06/2021)	**SMc** (10/11/2021)

Location Names
CB4-BH

Preliminary Investigation, Hesselø OWF

BOREHOLE LOG, LABORATORY TEST RESULTS AND IN SITU CPTU TESTING

Soil Depth (m)	Soil Description	Env.	Age
	Extremely high strength CLAY, high plasticity, very silty, sandy, slightly gravelly, very dark greenish grey (GLEY1 5GY 3/1), with shell fragments (<0.01m), calcareous	Gl/Mw	Gc
62.95	Extremely high strength CLAY, medium plasticity, very silty, sandy, very dark greenish grey (GLEY1 5GY 3/1), with frequent shell fragments (<0.03m) and widely to very widely spaced thin beds of gravel between 65.38m and 68.35m, calcareous	Gl/Mw	Gc

Particle Size, %: Gravel 0; Sand 18; Fines 82; Silt 56; Clay 26

KEY TO SOIL PROFILE

SILT, CLAY, SAND, GRAVEL, COBBLES, CHALK, PEAT, Mixed Soil

Assumed Unit Weight: 20 - 16 kN/m³
K_0 0.5 - 2.0
N_{cv} 15 - 20
N_{kt} 12.5 - 16.5

Area	**Kattegat Sea**	Coordinates	**675776.4E 6272688.0N**
Contract	**11596**	Latitude / Longitude	
Client Name / Ref	**Energinet Eltransmission A/S / 384_20_ENE**	Water Depth (mMSL)	**-31.0**
Vessel	**MV Ocean Vantage**	Date of Test (Start-End)	
Method	**Wison**	Final Borehole Depth	**70.80m**

CRS: **ETRS89**

Comments: Location data taken from CB4. CB4 class 1 test terminated at 35.73m at operators discretion due to lack of rod support from mudline when pushing into dense material. Continuous seabed CPT. Borehole CB4-BH was completed to a depth of 70.72m utilising API drilling~ Wison CPT and push sampling methods. Data gap between 37.85 and 42.00m due to the ground conditions impeding recovery~ Drillers note;- Cobbles/ ~~Boulders- testing was attempted at 0.5-1.0m intervals with~~ a number of tools until recovery was successful.

QC Status	Preliminary	Draft	Final
	BC/JK (25/06/2021)	**DR** (25/06/2021)	**SMc** (10/11/2021)

Location Names
CB4-BH

Preliminary Investigation, Hesselø OWF

BOREHOLE LOG, LABORATORY TEST RESULTS AND IN SITU CPTU TESTING

Relative to (mMSL)	Relative to BSB (m)	Soil Profile	Sample Type	CPTU Push	CPT Ref No. Cone ID Cone Area (a)	Soil Depth (m)		Env.	Age
-101.5	70.5						Extremely high strength CLAY, medium plasticity, very silty, sandy, very dark greenish grey (GLEY1 5GY 3/1), with frequent shell fragments (<0.03m) and widely to very widely spaced thin beds of gravel between 65.38m and 68.35m, calcareous	Gl/Mw	Gc
						70.72	End of borehole at 70.80m		
-102.0	71.0								
-102.5	71.5								
-103.0	72.0								
-103.5	72.5								
-104.0	73.0								
-104.5	73.5								
-105.0	74.0								
-105.5	74.5								
-106.0	75.0								
-106.5	75.5								
-107.0	76.0								
-107.5	76.5								
-108.0	77.0								
-108.5	77.5								
-109.0	78.0								
-109.5	78.5								
-110.0	79.0								
-110.5	79.5								

Water Content (%): 0, 25, 50, 75, 100

Density (Mg/m^3): 3, 2, 1, 0

Particle Size, %: Gravel | Sand | Fines | Silt | Clay

Relative Density, D_r (%): 0, 30, 60, 90, 120

Undrained Shear Strength, Su (kPa): 0, 300, 600, 900, 1200, 1500

Corrected Cone Resistance, q_t (MPa): 0, 12, 24, 36, 48, 60

Sleeve Friction, f_s(MPa): 0, 0.3, 0.6, 0.9, 1.2, 1.5

Pore Pressure, U_2 (kPa): -4500, -2250, 0, 2250, 4500

Ambient Pore Pressure (kPa)

Relative to BSB (m): 70.5, 71.0, 71.5, 72.0, 72.5, 73.0, 73.5, 74.0, 74.5, 75.0, 75.5, 76.0, 76.5, 77.0, 77.5, 78.0, 78.5, 79.0, 79.5

KEY TO SOIL PROFILE

SILT | CLAY | SAND | GRAVEL | COBBLES | CHALK | PEAT | Mixed Soil

Assumed Unit Weight: 20 - 16 kN/m^3
K_0: 0.5 - 2.0
N_{kt}: 15 - 20
N_{s1}: 12.5 - 16.5

Area	**Kattegat Sea**	Coordinates	**675776.4E**	**6272688.0N**	CRS: **ETRS89**
Contract	**11596**	Latitude / Longitude			
Client Name / Ref	**Energinet Eltransmission A/S / 384_20_ENE**	Water Depth (mMSL)	**-31.0**		
Vessel	**MV Ocean Vantage**	Date of Test (Start-End)			
Method	**Wison**	Final Borehole Depth	**70.80m**		

Comments: Location data taken from CB4. CB4 class 1 test terminated at 35.73m at operators discretion due to lack of rod support from mudline when pushing into dense material. Continuous seabed CPT. Borehole CB4-BH was completed to a depth of 70.72m utilising API drilling~ Wison CPT and push sampling methods. Data gap between 37.85 and 42.00m due to the ground conditions impeding recovery~ Drillers note;- Cobbles/ ~~Boulders- testing was attempted at 0.5-1.0m intervals with~~ a number of tools until recovery was successful.

QC Status		
Preliminary	Draft	Final
BC/JK (25/06/2021)	**DR** (25/06/2021)	**SMc** (10/11/2021)

Location Names
CB4-BH

Preliminary Investigation, Hesselø OWF

BOREHOLE LOG, LABORATORY TEST RESULTS AND IN SITU CPTU TESTING

Soil Depth (m)	Soil Description	Env.	Age
0.40	SAND, fine to coarse, unsorted, clayey, very silty, slightly gravelly, dark greenish grey (GLEY1 4/1), slightly calcareous	Ma	Ho
	Extremely low to very low strength CLAY, low plasticity, slightly sandy, with shell fragments (<0.03m), dark greenish grey (GLEY1 4/1), slightly calcareous	Ma	Ho
2.50	Dense to very dense locally medium dense SAND, fine to coarse, sorted, slightly silty, slightly gravelly, with shell fragments (<0.04m), dark greenish grey (GLEY 1 4/1), calcareous	Ma/Fw	Ho
5.67	Low to medium strength CLAY, medium to high plasticity, very silty, slightly sandy, olive grey (5Y 4/2), calcareous, with occasional black organic staining, widely spaced thin laminations of clayey silt, light olive grey (5Y 6/2), calcareous between 34.14 and 34.86m	Ma	Ho

Soil Depth (m)	Gravel	Sand	Fines	Silt	Clay
0.40	3	71	26	19	7
2.50	1	96	3	3	0

KEY TO SOIL PROFILE

SILT, CLAY, SAND, GRAVEL, COBBLES, CHALK, PEAT, Mixed Soil

Assumed Unit Weight: 20 - 16 kN/m³
K_C 0.5 - 2.0
N_{KT} 15 - 20
N_{kt} 12.5 - 16.5

Area	**Kattegat Sea**	Coordinates	**671118.6E**	**6254692.2N**	CRS: **ETRS89**
Contract	**11596**	Latitude / Longitude			
Client Name / Ref	**Energinet Eltransmission A/S / 384_20_ENE**	Water Depth (mMSL)	**-27.4**		
Vessel	**MV Ocean Vantage**	Date of Test (Start-End)			
Method	**20 kN Sea bed CPT**	Final Borehole Depth	**64.70m**		

Comments: Location data taken from CB5a. CB5a class 2 test terminated at 37.28m due to a sudden increase in tip resistance and total force and a lack of lateral rod support throughout latter half of test. Continuous seabed CPT. Borehole CB5-BH was completed to a depth of 64.62m utilising API drilling~ Wison CPT and push sampling methods.

QC Status		
Preliminary	Draft	Final
BC/JK (28/06/2021)	**DR** (28/06/2021)	**SMc** (10/11/2021)

Location Names
CB5a
CB5-BH

Preliminary Investigation, Hesselø OWF

BOREHOLE LOG, LABORATORY TEST RESULTS AND IN SITU CPTU TESTING

Relative to (mMSL)	Relative to BSB (m)	Soil Profile	Sample Type	CPTU Push	CPT Ref No. Cone ID Cone Area (a)	Soil Depth (m)		Env.	Age
-37.5	10.5						Low to medium strength CLAY, medium to high plasticity, very silty, slightly sandy, olive grey (5Y 4/2), calcareous, with occasional black organic staining, widely spaced thin laminations of clayey silt, light olive grey (5Y 6/2), calcareous between 34.14 and 34.86m *10.85m - 10.89m: 10.85-10.89m: Thin bed of gravel, fine*	Ma	Ho
-38.0	11.0								
-38.5	11.5								
-39.0	12.0								
-39.5	12.5								
-40.0	13.0								
-40.5	13.5								
-41.0	14.0								
-41.5	14.5								
-42.0	15.0								
-42.5	15.5								
-43.0	16.0								
-43.5	16.5								
-44.0	17.0								
-44.5	17.5								
-45.0	18.0								
-45.5	18.5								
-46.0	19.0				01 191114 10cm² (0.76)				
-46.5	19.5								
-47.0									

Water Content (%): 0, 25, 50, 75, 100 — Density (Mg/m³): 3, 2, 1, 0

Particle Size, %	Gravel	Sand	Fines	Silt	Clay
27	0	5	95	49	46
33	0	2	98	44	54

Relative Density, D_r (%): 0, 30, 60, 90, 120

Undrained Shear Strength, Su (kPa): 0, 300, 600, 900, 1200, 1500

Corrected Cone Resistance, q_t (MPa): 0, 12, 24, 36, 48, 60

Sleeve Friction, f_s(MPa): 0, 0.3, 0.6, 0.9, 1.2, 1.5

Pore Pressure, U_2 (kPa): -4500, -2250, 0, 2250, 4500

Ambient Pore Pressure (kPa)

KEY TO SOIL PROFILE

SILT, CLAY, SAND, GRAVEL, COBBLES, CHALK, PEAT, Mixed Soil

Assumed Unit Weight: 20 - 16 kN/m³
K_0: 0.5 - 2.0
N_{kt}: 15 - 20
N_{kt}: 12.5 - 16.5

Area	**Kattegat Sea**	Coordinates	**671118.6E**	**6254692.2N**	CRS: **ETRS89**
Contract	**11596**	Latitude / Longitude			**Comments: Location data taken from CB5a. CB5a class 2 test terminated at 37.28m due to a sudden increase in tip resistance and total force and a lack of lateral rod support throughout latter half of test. Continuous seabed CPT. Borehole CB5-BH was completed to a depth of 64.62m utilising API drilling~ Wison CPT and push sampling methods.**
Client Name / Ref	**Energinet Eltransmission A/S / 384_20_ENE**	Water Depth (mMSL)	**-27.4**		
Vessel	**MV Ocean Vantage**	Date of Test (Start-End)			
Method	**20 kN Sea bed CPT**	Final Borehole Depth	**64.70m**		

QC Status		
Preliminary	Draft	Final
BC/JK (28/06/2021)	**DR** (28/06/2021)	**SMc** (10/11/2021)

Location Names
CB5a
CB5-BH

Preliminary Investigation, Hesselø OWF

BOREHOLE LOG, LABORATORY TEST RESULTS AND IN SITU CPTU TESTING

Relative to (mMSL)	Relative to BSB (m)	Soil Profile	Sample Type	CPTU Push	CPT Ref No. Cone ID Cone Area (a)	Soil Depth (m)		Env.	Age
-47.5 to -57.0	20.5 to 29.5						Low to medium strength CLAY, medium to high plasticity, very silty, slightly sandy, olive grey (5Y 4/2), calcareous, with occasional black organic staining, widely spaced thin laminations of clayey silt, light olive grey (5Y 6/2), calcareous between 34.14 and 34.86m	Ma	Ho

Water Content (%): 0 25 50 75 100

Density (Mg/m^3): 3 2 1 0

Particle Size, %: Gravel | Sand | Fines | Silt | Clay

Relative Density, D_r (%): 0 30 60 90 120

Undrained Shear Strength, Su (kPa): 0 300 600 900 1200 1500

Corrected Cone Resistance, q_t (MPa): 0 12 24 36 48 60

Sleeve Friction, f_s(MPa): 0 0.3 0.6 0.9 1.2 1.5

Pore Pressure, U_2 (kPa): -4500 -2250 0 2250 4500

Ambient Pore Pressure (kPa)

Relative to BSB (m): 20.5 21.0 21.5 22.0 22.5 23.0 23.5 24.0 24.5 25.0 25.5 26.0 26.5 27.0 27.5 28.0 28.5 29.0 29.5

KEY TO SOIL PROFILE

SILT | CLAY | SAND | GRAVEL | COBBLES | CHALK | PEAT | Mixed Soil

Assumed Unit Weight: 20 - 16 kN/m^3
K_c: 0.5 - 2.0
N_{kt}: 15 - 20
N_{kt}: 12.5 - 16.5

Area	**Kattegat Sea**	Coordinates	**671118.6E**	**6254692.2N**	CRS: **ETRS89**
Contract	**11596**	Latitude / Longitude			**Comments: Location data taken from CB5a. CB5a class 2 test terminated at 37.28m due to a sudden increase in tip resistance and total force and a lack of lateral rod support throughout latter half of test. Continuous seabed CPT. Borehole CB5-BH was completed to a depth of 64.62m utilising API drilling~ Wison CPT and push sampling methods.**
Client Name / Ref	**Energinet Eltransmission A/S / 384_20_ENE**	Water Depth (mMSL)	**-27.4**		
Vessel	**MV Ocean Vantage**	Date of Test (Start-End)			
Method	**20 kN Sea bed CPT**	Final Borehole Depth	**64.70m**		

QC Status		
Preliminary	Draft	Final
BC/JK (28/06/2021)	**DR** (28/06/2021)	**SMc** (10/11/2021)

Location Names
CB5a
CB5-BH

Preliminary Investigation, Hesselø OWF

BOREHOLE LOG, LABORATORY TEST RESULTS AND IN SITU CPTU TESTING

Relative to BSB (m)	Soil Depth (m)	Description	Env.	Age
30.5		Low to medium strength CLAY, medium to high plasticity, very silty, slightly sandy, olive grey (5Y 4/2), calcareous, with occasional black organic staining, widely spaced thin laminations of clayey silt, light olive grey (5Y 6/2), calcareous between 34.14 and 34.86m	Ma	Ho
34.5		*34.14m - 34.15m: 34.14-34.15m: Thin lamination of clayey silt, light olive grey (5Y 6/2), calcareous*		
35.0		*34.85m - 34.86m: 34.85-34.86m: Thin lamination of clayey silt, light olive grey (5Y 6/2), calcareous*		
	35.00	Medium to high strength CLAY, sandy, slightly gravelly, with shell fragments (<0.01m), dark olive grey (5Y 3/2), calcareous	Ma/Fw	Pg
	37.50	SILT, low plasticity, very clayey, sandy, slightly micaceous, grey (5Y 6/1), calcareous	Ma/Fw	Lg
	37.85	Dense to very dense SAND, fine to coarse, unsorted, very silty, slightly gravelly, dark grey (5Y 4/1), slightly calcareous	Ma/Mw	Lg
	39.30	High to very high becoming extremely high strength CLAY, medium plasticity, very dark greenish grey (GLEY 1 3/1), highly calcareous, with widely spaced thin beds of dense sand and frequent shell fragments (<0.01m) between 45.50m and 49.00m	Gl	Lg

Gravel	Sand	Fines	Silt	Clay
0	4	96	55	41
0	13	87	72	15
2	85	13	13	0

KEY TO SOIL PROFILE

SILT · CLAY · SAND · GRAVEL · COBBLES · CHALK · PEAT · Mixed Soil

Assumed Unit Weight: 20 - 16 kN/m³
K_0: 0.5 - 2.0
N_{kt}: 15 - 20
N_{kt}: 12.5 - 16.5

Area	**Kattegat Sea**	Coordinates	**671118.6E**	**6254692.2N**	CRS: **ETRS89**
Contract	**11596**	Latitude / Longitude			**Comments: Location data taken from CB5a. CB5a class 2 test terminated at 37.28m due to a sudden increase in tip resistance and total force and a lack of lateral rod support throughout latter half of test. Continuous seabed CPT. Borehole CB5-BH was completed to a depth of 64.62m utilising API drilling~ Wison CPT and push sampling methods.**
Client Name / Ref	**Energinet Eltransmission A/S / 384_20_ENE**	Water Depth (mMSL)	**-27.4**		
Vessel	**MV Ocean Vantage**	Date of Test (Start-End)			
Method	**20 kN Sea bed CPT**	Final Borehole Depth	**64.70m**		

QC Status		
Preliminary	Draft	Final
BC/JK (28/06/2021)	**DR** (28/06/2021)	**SMc** (10/11/2021)

Location Names
CB5a
CB5-BH

Preliminary Investigation, Hesselø OWF

BOREHOLE LOG, LABORATORY TEST RESULTS AND IN SITU CPTU TESTING

Relative to BSB (m)	Soil Depth (m)	Description	Env.	Age
40.5		High to very high becoming extremely high strength CLAY, medium plasticity, very dark greenish grey (GLEY 1 3/1), highly calcareous, with widely spaced thin beds of dense sand and frequent shell fragments (<0.01m) between 45.50m and 49.00m		
		42.50m - 42.67m: 42.50-42.67m: Thin bed of clay, high plasticity, slightly sandy, slightly silty, slightly gravelly, very dark greenish grey (GLEY 1 3/1), with granodiorite cobble (<87mm)		
		47.74m - 47.77m: 47.74-47.77m: Pocket (<0.04m) of SAND, silty, fine, well sorted, greenish grey (GLEY1 10Y 5/1) calcareous	Gl	Lg
48.80		Extremely high strength CLAY, very high plasticity, slightly gravelly, dark greenish grey (GLEY 1 10Y 4/1), highly calcareous, interbedded with dense to very dense SAND, fine, well sorted, silty, dark greenish grey (GLEY 1 10Y 4/1), highly calcareous *49.20m - 49.40m: 49.20-49.40m: Medium bed of medium dense sand*	Gl	Gc/Lg

Sample Type / CPTU Push: 01 101017 10cm² (0.78); 02 081213G 10cm² (0.81); 03 101017 10cm² (0.78); 04 101017 10cm² (0.78); 05 101017 10cm² (0.78); 06 101017 10cm² (0.78); 07

Water Content (%) 0 25 50 75 100 | Density (Mg/m³) 3 2 1 0 | Particle Size, % (Gravel, Sand, Fines, Silt, Clay) | Relative Density, D_r (%) 0 30 60 90 120 | Undrained Shear Strength, Su (kPa) 0 300 600 900 1200 1500 | Corrected Cone Resistance, q_t (MPa) 0 12 24 36 48 60 | Sleeve Friction, f_s (MPa) 0 0.3 0.6 0.9 1.2 1.5 | Pore Pressure, U_2 (kPa) -4500 -2250 0 2250 4500 | Ambient Pore Pressure (kPa)

KEY TO SOIL PROFILE

SILT, CLAY, SAND, GRAVEL, COBBLES, CHALK, PEAT, Mixed Soil

Assumed Unit Weight: 20 - 16 kN/m³
$K_{0'}$: 0.5 - 2.0
N_{kt}: 15 - 20
$N_{\Delta u}$: 12.5 - 16.5

Area	**Kattegat Sea**	Coordinates	**671118.6E**	**6254692.2N**	CRS: **ETRS89**
Contract	**11596**	Latitude / Longitude			**Comments: Location data taken from CB5a. CB5a class 2 test terminated at 37.28m due to a sudden increase in tip resistance and total force and a lack of lateral rod support throughout latter half of test. Continuous seabed CPT. Borehole CB5-BH was completed to a depth of 64.62m utilising API drilling~ Wison CPT and push sampling methods.**
Client Name / Ref	**Energinet Eltransmission A/S / 384_20_ENE**	Water Depth (mMSL)	**-27.4**		
Vessel	**MV Ocean Vantage**	Date of Test (Start-End)			
Method	**Wison**	Final Borehole Depth	**64.70m**		

QC Status		
Preliminary	Draft	Final
BC/JK (28/06/2021)	**DR** (28/06/2021)	**SMc** (10/11/2021)

Location Names
CB5-BH

Preliminary Investigation, Hesselø OWF

BOREHOLE LOG, LABORATORY TEST RESULTS AND IN SITU CPTU TESTING

Relative to BSB (m)	Soil Depth (m)	Description	Env.	Age
50.5 – 56.0		Extremely high strength CLAY, very high plasticity, slightly gravelly, dark greenish grey (GLEY 1 10Y 4/1), highly calcareous, interbedded with dense to very dense SAND, fine, well sorted, silty, dark greenish grey (GLEY 1 10Y 4/1), highly calcareous *51.82m - 51.98m: 51.79-51.96m: Thin bed of extremely high strength clay*	Gl	Gc/Lg
56.0 – 59.0	56.00	Extremely high strength CLAY TILL, low plasticity, very silty, very sandy, gravelly, grey (5Y 5/1), calcareous	Gl/Ma	Gc
59.0 – 64.7	59.00	Dense to very dense SAND, fine to medium, well sorted, slightly gravelly, very dark grey (5Y 3/1), non-calcareous *59.13m - 59.22m: 59.13-59.20m: extremely high strength clay, high plasticity, slightly sandy, slightly gravelly, grey (5Y 6/1), non-calcareous, with pockets of silt (<0.04m)*	Gl	Gc

CPT Ref No. / Cone ID / Cone Area (a):
- 08 101017 10cm² (0.78)
- 09 101017 10cm² (0.78)
- 10 101017 10cm² (0.78)
- 11 101017 10cm² (0.78)
- 12 101017 10cm² (0.78)
- 13 130102 10cm² (0.74)
- 14 130102 10cm² (0.74)
- 15 071102 10cm² (0.76)

Particle Size, %:

Gravel	Sand	Fines	Silt	Clay
10	30	60	23	37

Water Content (%): 0 25 50 75 100
Density (Mg/m³): 3 2 1 0
Relative Density, D_r (%): 0 30 60 90 120
Undrained Shear Strength, Su (kPa): 0 300 600 900 1200 1500
Corrected Cone Resistance, q_t (MPa): 0 12 24 36 48 60
Sleeve Friction, f_s (MPa): 0 0.3 0.6 0.9 1.2 1.5
Pore Pressure, U_2 (kPa): -4500 -2250 0 2250 4500
Ambient Pore Pressure (kPa)

KEY TO SOIL PROFILE

SILT, CLAY, SAND, GRAVEL, COBBLES, CHALK, PEAT, Mixed Soil

Assumed Unit Weight: 20 - 16 kN/m³
K_0: 0.5 - 2.0
N_{kt}: 15 - 20
N_{kt}: 12.5 - 16.5

Area	**Kattegat Sea**	Coordinates	**671118.6E**	**6254692.2N**	CRS: **ETRS89**
Contract	**11596**	Latitude / Longitude			
Client Name / Ref	**Energinet Eltransmission A/S / 384_20_ENE**	Water Depth (mMSL)	**-27.4**		
Vessel	**MV Ocean Vantage**	Date of Test (Start-End)			
Method	**Wison**	Final Borehole Depth	**64.70m**		

Comments: Location data taken from CB5a. CB5a class 2 test terminated at 37.28m due to a sudden increase in tip resistance and total force and a lack of lateral rod support throughout latter half of test. Continuous seabed CPT. Borehole CB5-BH was completed to a depth of 64.62m utilising API drilling~ Wison CPT and push sampling methods.

QC Status		
Preliminary	Draft	Final
BC/JK (28/06/2021)	**DR** (28/06/2021)	**SMc** (10/11/2021)

Location Names: CB5-BH

Preliminary Investigation, Hesselø OWF

BOREHOLE LOG, LABORATORY TEST RESULTS AND IN SITU CPTU TESTING

Soil Depth (m)	Soil Description	Env.	Age
	Dense to very dense SAND, fine to medium, well sorted, slightly gravelly, very dark grey (5Y 3/1), non-calcareous	Gl	Gc
61.50	SILTSTONE, slightly micaceous, very dark greyish brown (2.5Y 3/2), non-calcareous	Gl	Ct
64.62	End of borehole at 64.70m		

CPT Ref No. / Cone ID / Cone Area (a): 16 071102 10cm² (0.76); 17 071102 10cm² (0.76); 18 101017 10cm² (0.78); 19 101017 10cm² (0.78); 20 101017 10cm² (0.78)

Sample Type / CPTU Push: PSt, PSt, PEt, PEt

Water Content (%): 14

Particle Size, %	Gravel	Sand	Fines	Silt	Clay
	0	30	70	61	9

KEY TO SOIL PROFILE

SILT, CLAY, SAND, GRAVEL, COBBLES, CHALK, PEAT, Mixed Soil

Assumed Unit Weight: 20 - 16 kN/m³
K_0: 0.5 - 2.0
N_{kt}: 15 - 20
N_{ch}: 12.5 - 16.5

Area	**Kattegat Sea**	Coordinates	**671118.6E**	**6254692.2N**	CRS: **ETRS89**
Contract	**11596**	Latitude / Longitude			**Comments: Location data taken from CB5a. CB5a class 2 test terminated at 37.28m due to a sudden increase in tip resistance and total force and a lack of lateral rod support throughout latter half of test. Continuous seabed CPT. Borehole CB5-BH was completed to a depth of 64.62m utilising API drilling- Wison CPT and push sampling methods.**
Client Name / Ref	**Energinet Eltransmission A/S / 384_20_ENE**	Water Depth (mMSL)	**-27.4**		
Vessel	**MV Ocean Vantage**	Date of Test (Start-End)			
Method	**Wison**	Final Borehole Depth	**64.70m**		

QC Status	Preliminary	Draft	Final
	BC/JK (28/06/2021)	**DR** (28/06/2021)	**SMc** (10/11/2021)

Location Names: CB5-BH

Preliminary Investigation, Hesselø OWF

BOREHOLE LOG, LABORATORY TEST RESULTS AND IN SITU CPTU TESTING

Soil Depth (m)	Soil Description	Env.	Age
0.05	Extremely low strength CLAY, low plasticity, silty, sandy, very dark greenish grey (GLEY 1 10Y 3/1), slightly calcareous	Ma/Fw	Ho
	SAND, fine to coarse, poorly sorted, clayey, silty, gravelly, with shell fragments, shell pieces, and shell, very dark greyish green (10Y 5GY 3/2), non calcareous	Ma/Fw	Ho
1.00	Very low strength CLAY, medium plasticity, silty, sandy, very dark greenish grey (GLEY 1 10Y 3/1), slightly calcareous, with closely to very closely spaced thin to thick laminations of silt, medium to high plasticity, olive grey (5Y 4/2), slightly calcareous.		
	Very low strength CLAY, low plasticity, silty, sandy, very dark greenish grey (GLEY 1 10Y 3/1), slightly calcareous	Ma	Ho
3.00	SILT, very clayey, sandy, slightly gravelly, medium plasticity, greenish black (GLEY 2 2.5/1 5BG), slightly calcareous. Fibrous organics at 3.20m and 3.69m	Ma/Fw Ma/Fw	Ho Ho
3.90	Very low strength CLAY, low plasticity, silty, sandy, very dark greenish grey (GLEY 1 10Y 3/1), slightly calcareous, with closely to very closely spaced thin to thick laminations of silt, medium to high plasticity, olive grey (5Y 4/2), slightly calcareous. Fibrous organics at 3.20m and 3.69m	Ma/Fw	Ho
5.08	Dense to very dense SAND, fine to coarse, sorted, silty, slightly gravelly, dark grey (5Y 4/1), with shell fragments (<0.05m), highly calcareous	Ma/Fw	Ho
5.87	Very low to low strength CLAY, medium to high plasticity, very silty, slightly sandy, dark grey (5Y 4/1) with black organic staining and pockets (<0.05m) of silt, light olive grey (5Y 4/1) between 9.50m and 11.25m, slightly calcareous	Ma	Ho

Particle Size, %

Soil Depth (m)	Gravel	Sand	Fines	Silt	Clay
3.00	1	14	85	68	17
5.08	2	93	5	5	0

KEY TO SOIL PROFILE

SILT, CLAY, SAND, GRAVEL, COBBLES, CHALK, PEAT, Mixed Soil

Assumed Unit Weight: 20 - 16 kN/m³
K_0: 0.5 - 2.0
N_{KT}: 15 - 20
$N_{\Delta u}$: 12.5 - 16.5

Area	**Kattegat Sea**	Coordinates	**668193.7E 6257998.3N**
Contract	**11596**	Latitude / Longitude	
Client Name / Ref	**Energinet Eltransmission A/S / 384_20_ENE**	Water Depth (mMSL)	**-26.7**
Vessel	**MV Ocean Vantage**	Date of Test (Start-End)	
Method	**20 kN Sea bed CPT**	Final Borehole Depth	**56.70m**

CRS: **ETRS89**

Comments: Location data taken from CB6a. CB6a class 1 test terminated at 36.08m at operators discretion due to high inclination (18 degrees). Continuous seabed CPT. Borehole CB6-BH was completed to a depth of 56.70m utilising API drilling~ Wison CPT and push sampling methods. P-S logging was performed from 52.00m to 3.00m below mudline.

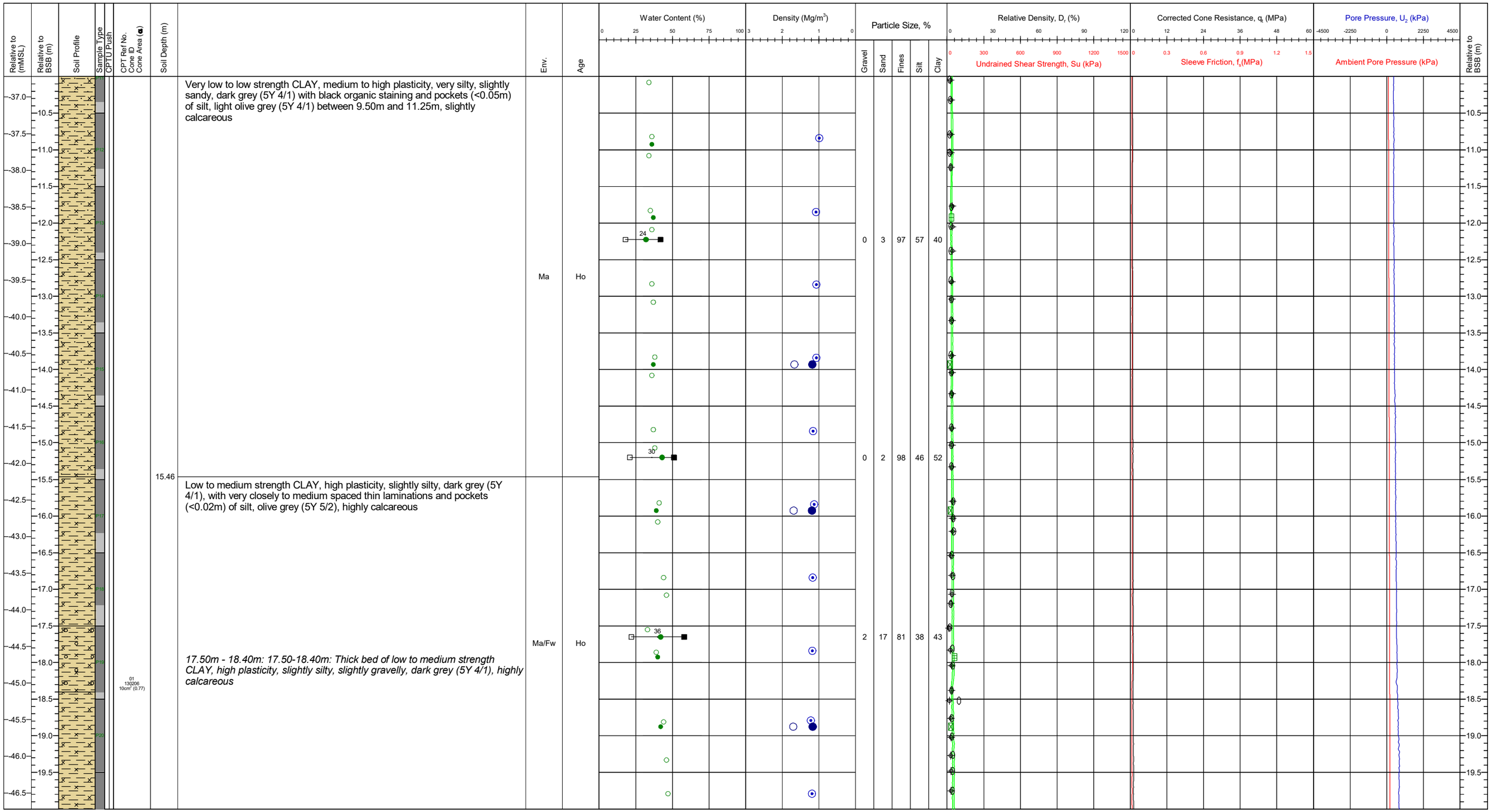
QC Status	Preliminary	Draft	Final
	BC/JK (28/06/2021)	**DR** (28/06/2021)	**SMc** (10/11/2021)

Location Names
CB6a
CB6-BH

Preliminary Investigation, Hesselø OWF

BOREHOLE LOG, LABORATORY TEST RESULTS AND IN SITU CPTU TESTING

Relative to (mMSL)	Relative to BSB (m)	Soil Profile	Sample Type	CPTU Push	CPT Ref No. Cone ID Cone Area (a)	Soil Depth (m)		Env.	Age
-37.0	10.5			PP2			Very low to low strength CLAY, medium to high plasticity, very silty, slightly sandy, dark grey (5Y 4/1) with black organic staining and pockets (<0.05m) of silt, light olive grey (5Y 4/1) between 9.50m and 11.25m, slightly calcareous	Ma	Ho
-37.5	11.0			PP3					
-38.0	11.5								
-38.5	12.0			PP4					
-39.0	12.5								
-39.5	13.0			PP5					
-40.0	13.5								
-40.5	14.0			PP6					
-41.0	14.5								
-41.5	15.0			PP7					
-42.0	15.5					15.46	Low to medium strength CLAY, high plasticity, slightly silty, dark grey (5Y 4/1), with very closely to medium spaced thin laminations and pockets (<0.02m) of silt, olive grey (5Y 5/2), highly calcareous		
-42.5	16.0			PP8					
-43.0	16.5								
-43.5	17.0			PP9					
-44.0	17.5								
-44.5	18.0			PP10	01 130206 10cm² (0.77)		*17.50m - 18.40m: 17.50-18.40m: Thick bed of low to medium strength CLAY, high plasticity, slightly silty, slightly gravelly, dark grey (5Y 4/1), highly calcareous*	Ma/Fw	Ho
-45.0	18.5								
-45.5	19.0			PP11					
-46.0	19.5								
-46.5									



KEY TO SOIL PROFILE

SILT · CLAY · SAND · GRAVEL · COBBLES · CHALK · PEAT · Mixed Soil

Assumed Unit Weight: 20 - 16 kN/m³
K_0: 0.5 - 2.0
N_{kt}: 15 - 20
N_{kt}: 12.5 - 16.5

Area	**Kattegat Sea**	Coordinates	**668193.7E**	**6257998.3N**	CRS: **ETRS89**
Contract	**11596**	Latitude / Longitude			**Comments: Location data taken from CB6a. CB6a class 1 test terminated at 36.08m at operators discretion due to high inclination (18 degrees). Continuous seabed CPT. Borehole CB6-BH was completed to a depth of 56.70m utilising API drilling~ Wison CPT and push sampling methods. P-S logging was performed from 52.00m to 3.00m below mudline.**
Client Name / Ref	**Energinet Eltransmission A/S / 384_20_ENE**	Water Depth (mMSL)	**-26.7**		
Vessel	**MV Ocean Vantage**	Date of Test (Start-End)			
Method	**20 kN Sea bed CPT**	Final Borehole Depth	**56.70m**		

QC Status		
Preliminary	Draft	Final
BC/JK (28/06/2021)	**DR** (28/06/2021)	**SMc** (10/11/2021)

Location Names
CB6a
CB6-BH

Preliminary Investigation, Hesselø OWF

BOREHOLE LOG, LABORATORY TEST RESULTS AND IN SITU CPTU TESTING

Relative to (mMSL)	Relative to BSB (m)	Soil Profile	Sample Type	CPTU Push	CPT Ref No. Cone ID Cone Area (a)	Soil Depth (m)		Env.	Age
-47.0 to -56.5	20.5 to 29.5		P20 P21 P22 P23 P24 P25 P26 P27 P28 P29 P30				Low to medium strength CLAY, high plasticity, slightly silty, dark grey (5Y 4/1), with very closely to medium spaced thin laminations and pockets (<0.02m) of silt, olive grey (5Y 5/2), highly calcareous *22.50m - 23.50m: 25.50-26.50m: Thick bed of low to medium strength clay, high plasticity, slightly silty, slightly gravelly, dark grey (5Y 4/1), highly calcareous*	Ma/Fw	Ho

Water Content (%) 0 25 50 75 100 | Density (Mg/m^3) 3 2 1 0 | Particle Size, % (Gravel, Sand, Fines, Silt, Clay) | Relative Density, D_r (%) 0 30 60 90 120 | Undrained Shear Strength, Su (kPa) 0 300 600 900 1200 1500 | Corrected Cone Resistance, q_t (MPa) 0 12 24 36 48 60 | Sleeve Friction, f_s (MPa) 0 0.3 0.6 0.9 1.2 1.5 | Pore Pressure, U_2 (kPa) -4500 -2250 0 2250 4500 | Ambient Pore Pressure (kPa) | Relative to BSB (m) 20.5 to 29.5

KEY TO SOIL PROFILE

SILT · CLAY · SAND · GRAVEL · COBBLES · CHALK · PEAT · Mixed Soil

Assumed Unit Weight: 20 - 16 kN/m^3
K_0: 0.5 - 2.0
N_{kt}: 15 - 20
N_{kt}: 12.5 - 16.5

Area	**Kattegat Sea**	Coordinates	**668193.7E** **6257998.3N**	CRS: **ETRS89**	QC Status: Preliminary / Draft / Final
Contract	**11596**	Latitude / Longitude		**Comments: Location data taken from CB6a. CB6a class 1 test terminated at 36.08m at operators discretion due to high inclination (18 degrees). Continuous seabed CPT. Borehole CB6-BH was completed to a depth of 56.70m utilising API drilling~ Wison CPT and push sampling methods. P-S logging was performed from 52.00m to 3.00m below mudline.**	**BC/JK** (28/06/2021) / **DR** (28/06/2021) / **SMc** (10/11/2021)
Client Name / Ref	**Energinet Eltransmission A/S / 384_20_ENE**	Water Depth (mMSL)	**-26.7**		
Vessel	**MV Ocean Vantage**	Date of Test (Start-End)			
Method	**20 kN Sea bed CPT**	Final Borehole Depth	**56.70m**		

Location Names
CB6a
CB6-BH

Preliminary Investigation, Hesselø OWF

BOREHOLE LOG, LABORATORY TEST RESULTS AND IN SITU CPTU TESTING

Relative to (mMSL)	Relative to BSB (m)	Soil Depth (m)		Env.	Age
-57.0	30.5	30.50	Low to medium strength CLAY, high plasticity, slightly silty, dark grey (5Y 4/1), with very closely to medium spaced thin laminations and pockets (<0.02m) of silt, olive grey (5Y 5/2), highly calcareous	Ma/Fw	Ho
-57.5 to -61.0	31.0 to 34.5		Medium to high strength CLAY, high plasticity, very silty, very sandy, slightly gravelly, dark grey (5Y 4/1), calcareous	Ma/Fw	Pg
-61.5 to -66.0	35.0 to 39.5	34.52	Medium to high strength CLAY, high plasticity, very silty, slightly sandy, grey (2.5Y 5/1), with medium spaced thin laminations and pockets (<0.02m) of silt, greyish brown (2.5Y 5/2), calcareous	Ma/Fw	Pg
-66.5	39.5	39.68		Ma/Fw	Gc

Sample Type: P-S; CPTU Push: P-S; CPT Ref No. 01, Cone ID 122826, Cone Area (a) 10cm² (0.76)

Water Content (%): 0, 25, 50, 75, 100

Density (Mg/m³): 3, 2, 1, 0

Particle Size, %

Gravel	Sand	Fines	Silt	Clay
0	2	98	49	49
0	1	99	39	60

Relative Density, D_r (%): 0, 30, 60, 90, 120

Undrained Shear Strength, Su (kPa): 0, 300, 600, 900, 1200, 1500

Corrected Cone Resistance, q_t (MPa): 0, 12, 24, 36, 48, 60

Sleeve Friction, f_s (MPa): 0, 0.3, 0.6, 0.9, 1.2, 1.5

Pore Pressure, U_2 (kPa): -4500, -2250, 0, 2250, 4500

Ambient Pore Pressure (kPa)

KEY TO SOIL PROFILE

SILT, CLAY, SAND, GRAVEL, COBBLES, CHALK, PEAT, Mixed Soil

Assumed Unit Weight: 20 - 16 kN/m³
K_C: 0.5 - 2.0
N_{KT}: 15 - 20
N_{HT}: 12.5 - 16.5

Area	**Kattegat Sea**	Coordinates	**668193.7E**	**6257998.3N**	CRS: **ETRS89**
Contract	**11596**	Latitude / Longitude			
Client Name / Ref	**Energinet Eltransmission A/S / 384_20_ENE**	Water Depth (mMSL)	**-26.7**		
Vessel	**MV Ocean Vantage**	Date of Test (Start-End)			
Method	**20 kN Sea bed CPT**	Final Borehole Depth	**56.70m**		

Comments: Location data taken from CB6a. CB6a class 1 test terminated at 36.08m at operators discretion due to high inclination (18 degrees). Continuous seabed CPT. Borehole CB6-BH was completed to a depth of 56.70m utilising API drilling~ Wison CPT and push sampling methods. P-S logging was performed from 52.00m to 3.00m below mudline.

QC Status	Preliminary	Draft	Final
	BC/JK (28/06/2021)	**DR** (28/06/2021)	**SMc** (10/11/2021)

Location Names
CB6a
CB6-BH

Preliminary Investigation, Hesselø OWF

BOREHOLE LOG, LABORATORY TEST RESULTS AND IN SITU CPTU TESTING

Relative to (mMSL)	Relative to BSB (m)	Soil Profile	Sample Type	CPTU Push	CPT Ref No. Cone ID Cone Area (a)	Soil Depth (m)		Env.	Age
-67.0	40.5		P40				High to extremely high strength CLAY TILL, medium plasticity, very silty, very sandy, slightly gravelly, very dark grey (GLEY1 3/N), highly calcareous with medium to widely spaced thin to medium beds of dense to very dense sand, fine, well sorted, silty, grey (5Y 6/1) and gravel, fine to coarse, poorly sorted, clayey between 48.75m and 54.38m	Ma/Fw	Gc
-67.5	41.0		P40		02 120826 10cm² (0.76)				
-68.0	41.5		P40						
-68.5	42.0		P40						
-69.0	42.5		P40						
-69.5	43.0		P40						
-70.0	43.5		P40		03 071102 10cm² (0.76)				
-70.5	44.0		P40		04 121003 10cm² (0.78)				
-71.0	44.5		P40		05 121003 10cm² (0.78)				
-71.5	45.0								
-72.0	45.5		P40		06 121003 10cm² (0.78)				
-72.5	46.0								
-73.0	46.5		P40						
-73.5	47.0								
-74.0	47.5		P40		07 121003 10cm² (0.78)				
-74.5	48.0								
-75.0	48.5		P40		08 120826 10cm² (0.76)				
-75.5	49.0								
-76.0	49.5				09 121003 10cm² (0.78)				
-76.5									

Water Content (%): 0, 25, 50, 75, 100

Density (Mg/m^3): 3, 2, 1, 0

Particle Size, %

Gravel	Sand	Fines	Silt	Clay
2	42	56	34	22

Relative Density, D_r (%): 0, 30, 60, 90, 120

Undrained Shear Strength, Su (kPa): 0, 300, 600, 900, 1200, 1500

Corrected Cone Resistance, q_t (MPa): 0, 12, 24, 36, 48, 60

Sleeve Friction, f_s(MPa): 0, 0.3, 0.6, 0.9, 1.2, 1.5

Pore Pressure, U_2 (kPa): -4500, -2250, 0, 2250, 4500

Ambient Pore Pressure (kPa)

Relative to BSB (m): 40.5, 41.0, 41.5, 42.0, 42.5, 43.0, 43.5, 44.0, 44.5, 45.0, 45.5, 46.0, 46.5, 47.0, 47.5, 48.0, 48.5, 49.0, 49.5

KEY TO SOIL PROFILE

SILT, CLAY, SAND, GRAVEL, COBBLES, CHALK, PEAT, Mixed Soil

Assumed Unit Weight: 20 - 16 kN/m^3
K_0: 0.5 - 2.0
N_{kt}: 15 - 20
N_{kt}: 12.5 - 16.5

Area	**Kattegat Sea**	Coordinates	**668193.7E**	**6257998.3N**	CRS: **ETRS89**
Contract	**11596**	Latitude / Longitude			**Comments: Location data taken from CB6a. CB6a class 1 test terminated at 36.08m at operators discretion due to high inclination (18 degrees). Continuous seabed CPT. Borehole CB6-BH was completed to a depth of 56.70m utilising API drilling~ Wison CPT and push sampling methods. P-S logging was performed from 52.00m to 3.00m below mudline.**
Client Name / Ref	**Energinet Eltransmission A/S / 384_20_ENE**	Water Depth (mMSL)	**-26.7**		
Vessel	**MV Ocean Vantage**	Date of Test (Start-End)			
Method	**Wison**	Final Borehole Depth	**56.70m**		

QC Status		
Preliminary	Draft	Final
BC/JK (28/06/2021)	**DR** (28/06/2021)	**SMc** (10/11/2021)

Location Names
CB6-BH

Preliminary Investigation, Hesselø OWF

BOREHOLE LOG, LABORATORY TEST RESULTS AND IN SITU CPTU TESTING

Relative to BSB (m)	Soil Depth (m)	Description	Env.	Age
50.5		High to extremely high strength CLAY TILL, medium plasticity, very silty, very sandy, slightly gravelly, very dark grey (GLEY1 3/N), highly calcareous with medium to widely spaced thin to medium beds of dense to very dense sand, fine, well sorted, silty, grey (5Y 6/1) and gravel, fine to coarse, poorly sorted, clayey between 48.75m and 54.38m	Ma/Fw	Gc
55.00		SILTSTONE, slightly indurated, very dark brown (10YR 2/2), micaceous, non calcareous	Gl	Ct
56.70		End of borehole at 56.70m		

CPT Ref No. / Cone ID / Cone Area (a): 10 121003 10cm² (0.78); 11 121003 10cm² (0.78); 12 121003 10cm² (0.78); 13 121126 10cm² (0.79); 14 121005G 10cm² (0.78); 15 121005G 10cm² (0.78)

Sample Type: PBS; PBS

Water Content (%): 0 25 50 75 100

Density (Mg/m³): 3 2 1 0

Particle Size, %: Gravel | Sand | Fines | Silt | Clay

Relative Density, D_r (%): 0 30 60 90 120

Undrained Shear Strength, Su (kPa): 0 300 600 900 1200 1500

Corrected Cone Resistance, q_t (MPa): 0 12 24 36 48 60

Sleeve Friction, f_s(MPa): 0 0.3 0.6 0.9 1.2 1.5

Pore Pressure, U_2 (kPa): -4500 -2250 0 2250 4500

Ambient Pore Pressure (kPa)

KEY TO SOIL PROFILE

SILT · CLAY · SAND · GRAVEL · COBBLES · CHALK · PEAT · Mixed Soil

Assumed Unit Weight: 20 - 16 kN/m³
K_0: 0.5 - 2.0
N_{kt}: 15 - 20
N_{kt}: 12.5 - 16.5

Area	**Kattegat Sea**	Coordinates	**668193.7E**	**6257998.3N**	CRS: **ETRS89**
Contract	**11596**	Latitude / Longitude			**Comments: Location data taken from CB6a. CB6a class 1 test terminated at 36.08m at operators discretion due to high inclination (18 degrees). Continuous seabed CPT. Borehole CB6-BH was completed to a depth of 56.70m utilising API drilling~ Wison CPT and push sampling methods. P-S logging was performed from 52.00m to 3.00m below mudline.**
Client Name / Ref	**Energinet Eltransmission A/S / 384_20_ENE**	Water Depth (mMSL)	**-26.7**		
Vessel	**MV Ocean Vantage**	Date of Test (Start-End)			
Method	**Wison**	Final Borehole Depth	**56.70m**		

QC Status			Location Names
Preliminary	Draft	Final	CB6-BH
BC/JK (28/06/2021)	**DR** (28/06/2021)	**SMc** (10/11/2021)	

Preliminary Investigation, Hesselø OWF

BOREHOLE LOG, LABORATORY TEST RESULTS AND IN SITU CPTU TESTING

Soil Depth (m)	Soil Description	Env.	Age
	Extremely low strength CLAY, medium plasticity, very silty, very sandy, slightly gravelly, with shell fragments (<0.02m) dark greenish grey (GLEY1 10Y 4/1), slightly calcareous	Ma/Fw	Ho
2.09	SAND, fine to coarse, unsorted, clayey, silty, gravelly, grey (5Y 5/1), highly calcareous	Ma/Fw	Ho
2.75	Low to medium strength CLAY, high plasticity, very silty, slightly sandy, with pockets (<0.02m) of silt, light grey (5Y 7/1), with black organic staining, dark grey (5Y 4/1), highly calcareous	Ma	Ho

Particle Size, %

Gravel	Sand	Fines	Silt	Clay
1	35	64	44	20
12	73	15	7	8
0	1	99	40	59

KEY TO SOIL PROFILE

SILT, CLAY, SAND, GRAVEL, COBBLES, CHALK, PEAT, Mixed Soil

Assumed Unit Weight: 20 - 16 kN/m³
K_0: 0.5 - 2.0
N_{cone}: 15 - 20
N_{cyl}: 12.5 - 16.5

Area	**Kattegat Sea**	Coordinates	**673538.5E**	**6259616.4N**	CRS: **ETRS89**
Contract	**11596**	Latitude / Longitude			
Client Name / Ref	**Energinet Eltransmission A/S / 384_20_ENE**	Water Depth (mMSL)	**-31.1**		
Vessel	**MV Ocean Vantage**	Date of Test (Start-End)			
Method	**20 kN Sea bed CPT**	Final Borehole Depth	**64.32m**		

Comments: Location data taken from CB7a. CB7a class 1 test terminated at 31.03m due to sleeve friction refusal. Continuous seabed CPT. Borehole CB7-BH was completed to a depth of 64.32m utilising API drilling~ Wison CPT and push sampling methods. P-S logging was performed from 52m to 4m below mudline.

QC Status	Preliminary	Draft	Final
	BC/JK (28/06/2021)	**DR** (28/06/2021)	**SMc** (10/11/2021)

Location Names
CB7a
CB7-BH

Preliminary Investigation, Hesselø OWF

BOREHOLE LOG, LABORATORY TEST RESULTS AND IN SITU CPTU TESTING

Relative to (mMSL)	Relative to BSB (m)	Soil Profile	Sample Type	CPTU Push	CPT Ref No. Cone ID Cone Area (a)	Soil Depth (m)		Env.	Age
-41.5	10.5		PMP				Low to medium strength CLAY, high plasticity, very silty, slightly sandy, with pockets (<0.02m) of silt, light grey (5Y 7/1), with black organic staining, dark grey (5Y 4/1), highly calcareous	Ma	Ho
-42.0	11.0		PMP						
-42.5	11.5								
-43.0	12.0		PMP						
-43.5	12.5								
-44.0	13.0		PMP						
-44.5	13.5								
-45.0	14.0		PMP						
-45.5	14.5								
-46.0	15.0		PMP						
-46.5	15.5								
-47.0	16.0		PMP		01 181005 10cm² (0.73)				
-47.5	16.5								
-48.0	17.0		PMP						
-48.5	17.5					17.50	Medium strength CLAY, high plasticity, with very closely to medium spaced thin to thick laminations of sand, fine, well sorted, silty, grey (5Y 5/1), highly calcareous, dark grey (5Y 4/1), highly calcareous	Ma/Fw	Pg
-49.0	18.0		PMP						
-49.5	18.5								
-50.0	19.0		PMP						
-50.5	19.5					19.50	Medium strength CLAY, medium plasticity, very silty, sandy, slightly gravelly, dark grey (5Y 4/1), slightly calcareous	Ma/Fw	Pg
-51.0									

Water Content (%): 0, 25, 50, 75, 100

Density (Mg/m³): 3, 2, 1, 0

Particle Size, %: Gravel, Sand, Fines, Silt, Clay

Gravel	Sand	Fines	Silt	Clay
0	2	98	43	55

Relative Density, D_r (%): 0, 30, 60, 90, 120

Undrained Shear Strength, Su (kPa): 0, 300, 600, 900, 1200, 1500

Corrected Cone Resistance, q_t (MPa): 0, 12, 24, 36, 48, 60

Sleeve Friction, f_s(MPa): 0, 0.3, 0.6, 0.9, 1.2, 1.5

Pore Pressure, U_2 (kPa): -4500, -2250, 0, 2250, 4500

Ambient Pore Pressure (kPa)

KEY TO SOIL PROFILE

SILT, CLAY, SAND, GRAVEL, COBBLES, CHALK, PEAT, Mixed Soil

Assumed Unit Weight: 20 - 16 kN/m³
K_0: 0.5 - 2.0
N_{KT}: 15 - 20
N_{kt}: 12.5 - 16.5

Area	**Kattegat Sea**	Coordinates	**673538.5E**	**6259616.4N**	CRS: **ETRS89**
Contract	**11596**	Latitude / Longitude			**Comments: Location data taken from CB7a. CB7a class 1 test terminated at 31.03m due to sleeve friction refusal. Continuous seabed CPT. Borehole CB7-BH was completed to a depth of 64.32m utilising API drilling~ Wison CPT and push sampling methods. P-S logging was performed from 52m to 4m below mudline.**
Client Name / Ref	**Energinet Eltransmission A/S / 384_20_ENE**	Water Depth (mMSL)	**-31.1**		
Vessel	**MV Ocean Vantage**	Date of Test (Start-End)			
Method	**20 kN Sea bed CPT**	Final Borehole Depth	**64.32m**		

QC Status		
Preliminary	Draft	Final
BC/JK (28/06/2021)	**DR** (28/06/2021)	**SMc** (10/11/2021)

Location Names
CB7a
CB7-BH

Preliminary Investigation, Hesselø OWF

BOREHOLE LOG, LABORATORY TEST RESULTS AND IN SITU CPTU TESTING

Relative to (mMSL)	Relative to BSB (m)	Soil Profile	Sample Type	CPTU Push	CPT Ref No. Cone ID Cone Area (a)	Soil Depth (m)	Soil Description	Env.	Age
-51.5 to -61.0	20.5 to 29.5						Medium strength CLAY, medium plasticity, very silty, sandy, slightly gravelly, dark grey (5Y 4/1), slightly calcareous	Ma/Fw	Pg

Water Content (%) 0 25 50 75 100

Density (Mg/m^3) 3 2 1 0

Particle Size, %

Gravel	Sand	Fines	Silt	Clay
4	23	73	45	28

Relative Density, D_r (%) 0 30 60 90 120

Undrained Shear Strength, Su (kPa) 0 300 600 900 1200 1500

Corrected Cone Resistance, q_t (MPa) 0 12 24 36 48 60

Sleeve Friction, f_s(MPa) 0 0.3 0.6 0.9 1.2 1.5

Pore Pressure, U_2 (kPa) -4500 -2250 0 2250 4500

Ambient Pore Pressure (kPa)

KEY TO SOIL PROFILE

SILT, CLAY, SAND, GRAVEL, COBBLES, CHALK, PEAT, Mixed Soil

Assumed Unit Weight: 20 - 16 kN/m^3
K_0: 0.5 - 2.0
N_{kt}: 15 - 20
N_{kt}: 12.5 - 16.5

Area	**Kattegat Sea**	Coordinates	**673538.5E**	**6259616.4N**	CRS: **ETRS89**
Contract	**11596**	Latitude / Longitude			**Comments: Location data taken from CB7a. CB7a class 1 test terminated at 31.03m due to sleeve friction refusal. Continuous seabed CPT. Borehole CB7-BH was completed to a depth of 64.32m utilising API drilling~ Wison CPT and push sampling methods. P-S logging was performed from 52m to 4m below mudline.**
Client Name / Ref	**Energinet Eltransmission A/S / 384_20_ENE**	Water Depth (mMSL)	**-31.1**		
Vessel	**MV Ocean Vantage**	Date of Test (Start-End)			
Method	**20 kN Sea bed CPT**	Final Borehole Depth	**64.32m**		

QC Status		
Preliminary	Draft	Final
BC/JK (28/06/2021)	**DR** (28/06/2021)	**SMc** (10/11/2021)

Location Names
CB7a
CB7-BH

Preliminary Investigation, Hesselø OWF

BOREHOLE LOG, LABORATORY TEST RESULTS AND IN SITU CPTU TESTING

Soil Depth (m)	Description	Env.	Age
	Medium strength CLAY, medium plasticity, very silty, sandy, slightly gravelly, dark grey (5Y 4/1), slightly calcareous	Ma/Fw	Pg
30.86	Medium strength CLAY TILL, medium plasticity, very silty, very sandy, slightly gravelly, dark grey (5Y 4/1), highly calcareous		
	32.50m - 33.35m: 32.50-33.35m: Thick bed of medium strength clay, medium plasticity, sandy, slightly gravelly, dark grey (5Y 4/1), highly calcareous	Ma/Fw	Gc
34.50	High to very high strength CLAY, medium plasticity, sandy, slightly gravelly, grey (5Y 5/1), slightly calcareous	Gl	Gc
38.50	Very to extremely high strength CLAY, low plasticity, very silty, very sandy, slightly gravelly, very dark grey (GLEY1 4/N) to dark grey (GLEY1 3/N), slightly calcareous	Gl/Mw	Gc

Sample Type: 01 121005G 10cm² (0.78)

Particle Size, %	Gravel	Sand	Fines	Silt	Clay
	6	25	69	37	32
	4	59	37	24	13

KEY TO SOIL PROFILE

SILT · CLAY · SAND · GRAVEL · COBBLES · CHALK · PEAT · Mixed Soil

Assumed Unit Weight: 20 - 16 kN/m³
K_0: 0.5 - 2.0
N_{kt}: 15 - 20
N_{ch}: 12.5 - 16.5

Area	**Kattegat Sea**	Coordinates	**673538.5E**	**6259616.4N**	CRS: **ETRS89**
Contract	**11596**	Latitude / Longitude			
Client Name / Ref	**Energinet Eltransmission A/S / 384_20_ENE**	Water Depth (mMSL)	**-31.1**		
Vessel	**MV Ocean Vantage**	Date of Test (Start-End)			
Method	**20 kN Sea bed CPT**	Final Borehole Depth	**64.32m**		

Comments: Location data taken from CB7a. CB7a class 1 test terminated at 31.03m due to sleeve friction refusal. Continuous seabed CPT. Borehole CB7-BH was completed to a depth of 64.32m utilising API drilling~ Wison CPT and push sampling methods. P-S logging was performed from 52m to 4m below mudline.

QC Status	Preliminary	Draft	Final
	BC/JK (28/06/2021)	**DR** (28/06/2021)	**SMc** (10/11/2021)

Location Names
CB7a
CB7-BH

Preliminary Investigation, Hesselø OWF

BOREHOLE LOG, LABORATORY TEST RESULTS AND IN SITU CPTU TESTING

Relative to (mMSL)	Relative to BSB (m)	Soil Profile	Sample Type	CPTU Push	CPT Ref No. Cone ID Cone Area (a)	Soil Depth (m)		Env.	Age
-71.5	40.5		PMa				Very to extremely high strength CLAY, low plasticity, very silty, very sandy, slightly gravelly, very dark grey (GLEY1 4/N) to dark grey (GLEY1 3/N), slightly calcareous	Gl/Mw	Gc
-72.0	41.0		PMa		02 121005G 10cm² (0.78)				
-72.5	41.5		PMa						
-73.0	42.0		PMa						
-73.5	42.5		PMa						
-74.0	43.0		PMa						
-74.5	43.5		PMa						
-75.0	44.0		PMa						
-75.5	44.5		PMa						
-76.0	45.0		PMa		03 121004 10cm² (0.78)	44.92	Extremely high strength CLAY, medium plasticity, slightly silty, gravelly, very dark greenish grey (GLEY1 10GY 3/1), slightly calcareous *45.46m - 45.51m: 45.46-45.51m: Very thin bed of gravel*	Gl/Mw	Gc
-76.5	45.5		PMa						
-77.0	46.0		PMa						
-77.5	46.5		PMa						
-78.0	47.0		PMa						
-78.5	47.5		PMa			47.50	Extremely high strength CLAY, medium plasticity, very silty, slightly sandy, very dark greenish grey (GLEY1 5GY 3/1), highly calcareous	Gl/Mw	Gc
-79.0	48.0		PMa						
-79.5	48.5		PMa						
-80.0	49.0		PMa		04 121004 10cm² (0.78)				
-80.5	49.5		PMa						
-81.0									

Water Content (%): 0, 25, 50, 75, 100

Density (Mg/m³): 3, 2, 1, 0

Particle Size, %: Gravel | Sand | Fines | Silt | Clay

Relative Density, D_r (%): 0, 30, 60, 90, 120

Undrained Shear Strength, Su (kPa): 0, 300, 600, 900, 1200, 1500

Corrected Cone Resistance, q_t (MPa): 0, 12, 24, 36, 48, 60

Sleeve Friction, f_s (MPa): 0, 0.3, 0.6, 0.9, 1.2, 1.5

Pore Pressure, U_2 (kPa): -4500, -2250, 0, 2250, 4500

Ambient Pore Pressure (kPa)

Relative to BSB (m): 40.5 to 49.5

KEY TO SOIL PROFILE

SILT, CLAY, SAND, GRAVEL, COBBLES, CHALK, PEAT, Mixed Soil

Assumed Unit Weight: 20 - 16 kN/m³
K_0: 0.5 - 2.0
N_{kt}: 15 - 20
N_{kt}: 12.5 - 16.5

Area	**Kattegat Sea**	Coordinates	**673538.5E**	**6259616.4N**	CRS: **ETRS89**
Contract	**11596**	Latitude / Longitude			**Comments: Location data taken from CB7a. CB7a class 1 test terminated at 31.03m due to sleeve friction refusal. Continuous seabed CPT. Borehole CB7-BH was completed to a depth of 64.32m utilising API drilling~ Wison CPT and push sampling methods. P-S logging was performed from 52m to 4m below mudline.**
Client Name / Ref	**Energinet Eltransmission A/S / 384_20_ENE**	Water Depth (mMSL)	**-31.1**		
Vessel	**MV Ocean Vantage**	Date of Test (Start-End)			
Method	**Wison**	Final Borehole Depth	**64.32m**		

QC Status		
Preliminary	Draft	Final
BC/JK (28/06/2021)	**DR** (28/06/2021)	**SMc** (10/11/2021)

Location Names
CB7-BH

Preliminary Investigation, Hesselø OWF

BOREHOLE LOG, LABORATORY TEST RESULTS AND IN SITU CPTU TESTING

Gardline

Relative to (mMSL)	Relative to BSB (m)	Soil Profile	Sample Type	CPTU Push	CPT Ref No. Cone ID Cone Area (a)	Soil Depth (m)	Soil Description	Env.	Age
-81.5 to -91.0	50.5 to 59.5				05 121004 10cm² (0.78); 06 121004 10cm² (0.78); 07 121004 10cm² (0.78)		Extremely high strength CLAY, medium plasticity, very silty, slightly sandy, very dark greenish grey (GLEY1 5GY 3/1), highly calcareous	Gl/Mw	Gc

Water Content (%): 0 25 50 75 100

Density (Mg/m³): 3 2 1 0

Particle Size, %

Gravel	Sand	Fines	Silt	Clay
0	4	96	32	64

Relative Density, D_r (%): 0 30 60 90 120

Undrained Shear Strength, Su (kPa): 0 300 600 900 1200 1500

Corrected Cone Resistance, q_t (MPa): 0 12 24 36 48 60

Sleeve Friction, f_s (MPa): 0 0.3 0.6 0.9 1.2 1.5

Pore Pressure, U_2 (kPa): -4500 -2250 0 2250 4500

Ambient Pore Pressure (kPa)

KEY TO SOIL PROFILE

SILT · CLAY · SAND · GRAVEL · COBBLES · CHALK · PEAT · Mixed Soil

Assumed Unit Weight: 20 - 16 kN/m³
K_0: 0.5 - 2.0
N_{kt}: 15 - 20
N_{kt}: 12.5 - 16.5

Area	**Kattegat Sea**	Coordinates	**673538.5E**	**6259616.4N**	CRS: **ETRS89**
Contract	**11596**	Latitude / Longitude			
Client Name / Ref	**Energinet Eltransmission A/S / 384_20_ENE**	Water Depth (mMSL)	**-31.1**		
Vessel	**MV Ocean Vantage**	Date of Test (Start-End)			
Method	**Wison**	Final Borehole Depth	**64.32m**		

Comments: Location data taken from CB7a. CB7a class 1 test terminated at 31.03m due to sleeve friction refusal. Continuous seabed CPT. Borehole CB7-BH was completed to a depth of 64.32m utilising API drilling~ Wison CPT and push sampling methods. P-S logging was performed from 52m to 4m below mudline.

QC Status		
Preliminary	Draft	Final
BC/JK (28/06/2021)	**DR** (28/06/2021)	**SMc** (10/11/2021)

Location Names
CB7-BH

Preliminary Investigation, Hesselø OWF

BOREHOLE LOG, LABORATORY TEST RESULTS AND IN SITU CPTU TESTING

Depth (m)	Description	Env.	Age
60.31	Extremely high strength CLAY, medium plasticity, very silty, slightly sandy, very dark greenish grey (GLEY1 5GY 3/1), highly calcareous	Gl/Mw	Gc
	Extremely high strength CLAY TILL, medium plasticity, silty, sandy, gravelly, dark greenish grey (GLEY1 10Y 4/1), highly calcareous	Gl/Mw	Gc
63.81	Weak MUDSTONE, slightly indurated, slightly micaceous with extremely closely spaced thin laminations of siltstone, light grey (5Y 7/2) to very dark greenish grey (GLEY1 10Y 3/1), slightly calcareous	Gl	Ct
64.30	End of borehole at 64.32m		

CPT Ref No. / Cone ID / Cone Area (a): 08 121004 10cm² (0.78); 09 121004 10cm² (0.78); 10 121004 10cm² (0.78)

KEY TO SOIL PROFILE

SILT, CLAY, SAND, GRAVEL, COBBLES, CHALK, PEAT, Mixed Soil

Assumed Unit Weight: 20 - 16 kN/m³
K_0: 0.5 - 2.0
N_{kt}: 15 - 20
$N_{\Delta u}$: 12.5 - 16.5

Area	**Kattegat Sea**	Coordinates	**673538.5E**	**6259616.4N**	CRS: **ETRS89**
Contract	**11596**	Latitude / Longitude			**Comments: Location data taken from CB7a. CB7a class 1 test terminated at 31.03m due to sleeve friction refusal. Continuous seabed CPT. Borehole CB7-BH was completed to a depth of 64.32m utilising API drilling~ Wison CPT and push sampling methods. P-S logging was performed from 52m to 4m below mudline.**
Client Name / Ref	**Energinet Eltransmission A/S / 384_20_ENE**	Water Depth (mMSL)	**-31.1**		
Vessel	**MV Ocean Vantage**	Date of Test (Start-End)			
Method	**Wison**	Final Borehole Depth	**64.32m**		

QC Status	Preliminary	Draft	Final
	BC/JK (28/06/2021)	**DR** (28/06/2021)	**SMc** (10/11/2021)

Location Names: CB7-BH

Preliminary Investigation, Hesselø OWF

BOREHOLE LOG, LABORATORY TEST RESULTS AND IN SITU CPTU TESTING

Soil Depth (m)	Description	Env.	Age	Gravel	Sand	Fines	Silt	Clay
	CLAY, medium plasticity, silty, very sandy, slightly gravelly, with shell fragments, shell pieces, and shell, dark greenish grey (GLEY 14/1 10Y), rare black organic staining, non-calcareous to slightly calcareous.	Ma/Fw	Ho	1	60	39	25	14
1.00	Extremely low strength CLAY, low plasticity, sandy, gravelly, dark greenish grey (GLEY 1 10Y 4/1), slightly calcareous	Ma/Fw	Ho					
1.50	SAND, fine to coarse, unsorted, clayey, silty, gravelly, dark greyish brown (2.5Y 4/2), slightly calcareous, with occasional pockets (<0.04m) of clay, high plasticity, dark greyish brown (2.5Y 4/2), slightly calcareous *2.50m - 2.60m: 2.50-2.60m: Thick lamination of gravel, coarse, very dark grey (GLEY 1 3/N), non calcareous*	Ma/Fw	Ho	9	75	16	6	10
5.00	Dense to very dense SAND, fine to coarse, unsorted, clayey, very silty, dark greyish brown (2.5Y 4/2), with pockets (<0.02m) of clay, high plasticity, dark greyish brown (2.5Y 4/2), calcareous	Ma	Ho	0	76	24	17	7

Water Content (%) 0 25 50 75 100

Density (Mg/m^3) 3 2 1 0

Relative Density, D_r (%) 0 30 60 90 120

Undrained Shear Strength, Su (kPa) 0 300 600 900 1200 1500

Corrected Cone Resistance, q_t (MPa) 0 12 24 36 48 60

Sleeve Friction, f_s(MPa) 0 0.3 0.6 0.9 1.2 1.5

Pore Pressure, U_2 (kPa) -4500 -2250 0 2250 4500

Ambient Pore Pressure (kPa)

KEY TO SOIL PROFILE

SILT, CLAY, SAND, GRAVEL, COBBLES, CHALK, PEAT, Mixed Soil

Assumed Unit Weight: 20 - 16 kN/m^3
K_0: 0.5 - 2.0
N_{kt}: 15 - 20
$N_{\Delta u}$: 12.5 - 16.5

Area	**Kattegat Sea**	Coordinates	**679824.3E**	**6248908.7N**	CRS: **ETRS89**
Contract	**11596**	Latitude / Longitude			**Comments: Location data taken from CB8. CB8 class 1 test terminated at 24.61m at operators discretion due to an increase in cone inclination to prevent damage to equipment. Continuous seabed CPT. Borehole CB8-BH was completed to a depth of 70.10m utilising API drilling~ Wison CPT and push sampling methods.**
Client Name / Ref	**Energinet Eltransmission A/S / 384_20_ENE**	Water Depth (mMSL)	**-30.7**		
Vessel	**MV Ocean Vantage**	Date of Test (Start-End)			
Method	**20 kN Sea bed CPT**	Final Borehole Depth	**70.10m**		

QC Status		
Preliminary	Draft	Final
BC/JK (28/06/2021)	**DR** (28/06/2021)	**SMc** (10/11/2021)

Location Names
CB8
CB8-BH

Preliminary Investigation, Hesselø OWF

BOREHOLE LOG, LABORATORY TEST RESULTS AND IN SITU CPTU TESTING

Soil Depth (m)	Soil Description	Env.	Age
	Dense to very dense SAND, fine to coarse, unsorted, clayey, very silty, dark greyish brown (2.5Y 4/2), with pockets (<0.02m) of clay, high plasticity, dark greyish brown (2.5Y 4/2), calcareous	Ma	Ho
12.00	Medium dense to dense SAND, fine to medium, sorted, olive brown (2.5Y 4/4), slightly calcareous	Ma	Pg
18.48	SAND, fine to medium, well sorted, slightly silty, olive brown (2.5Y 4/4), slightly calcareous, with pockets (<0.01m) of clay, high plasticity, dark greyish brown (2.5Y 4/2), slightly calcareous	Ma	Lg

CPT Ref No. 01, Cone ID 132206, Cone Area (a) 10cm² (0.77)
CPT Ref No. 01, Cone ID 129825, Cone Area (a) 10cm² (0.76)

Particle Size, %: Gravel 0, Sand 94, Fines 6, Silt 6, Clay 0

KEY TO SOIL PROFILE

SILT, SAND, CHALK, CLAY, GRAVEL, PEAT, COBBLES, Mixed Soil

Assumed Unit Weight: 20 - 16 kN/m³
K_p: 0.5 - 2.0
N_{kt}: 15 - 20
N_{kt}: 12.5 - 16.5

Area	**Kattegat Sea**	Coordinates	**679824.3E**	**6248908.7N**	CRS: **ETRS89**
Contract	**11596**	Latitude / Longitude			
Client Name / Ref	**Energinet Eltransmission A/S / 384_20_ENE**	Water Depth (mMSL)	**-30.7**		
Vessel	**MV Ocean Vantage**	Date of Test (Start-End)			
Method	**20 kN Sea bed CPT**	Final Borehole Depth	**70.10m**		

Comments: Location data taken from CB8. CB8 class 1 test terminated at 24.61m at operators discretion due to an increase in cone inclination to prevent damage to equipment. Continuous seabed CPT. Borehole CB8-BH was completed to a depth of 70.10m utilising API drilling~ Wison CPT and push sampling methods.

QC Status	Preliminary	Draft	Final
	BC/JK (28/06/2021)	**DR** (28/06/2021)	**SMc** (10/11/2021)

Location Names: CB8, CB8-BH

Preliminary Investigation, Hesselø OWF

BOREHOLE LOG, LABORATORY TEST RESULTS AND IN SITU CPTU TESTING

Soil Depth (m)	Soil Description	Env.	Age
20.25	SAND, fine to medium, well sorted, slightly silty, olive brown (2.5Y 4/4), slightly calcareous, with pockets (<0.01m) of clay, high plasticity, dark greyish brown (2.5Y 4/2), slightly calcareous	Ma	Lg
	Very high strength CLAY, medium plasticity, silty, sandy, slightly gravelly, dark greyish brown (2.5Y 4/2), slightly calcareous		
25.27	Dense to very dense SAND, fine to coarse, unsorted, clayey, very silty, slightly gravelly, dark grey (2.5Y 4/1), slightly calcareous	Gl/Ma	Lg

Sample Type / CPTU Push / CPT Ref No. / Cone ID / Cone Area (a):
- 02 120825 10cm² (0.76)
- 03 120825 10cm² (0.76)
- 04 120825 10cm² (0.76)
- 05 120825 10cm² (0.76)

Particle Size, %

Soil Depth (m)	Gravel	Sand	Fines	Silt	Clay
20.25	1	25	74	44	30
25.27	1	78	21	12	9

KEY TO SOIL PROFILE

SILT, CLAY, SAND, GRAVEL, COBBLES, CHALK, PEAT, Mixed Soil

Assumed Unit Weight: 20 - 16 kN/m³
K_0: 0.5 - 2.0
N_{kt}: 15 - 20
N_{ch}: 12.5 - 16.5

Area	**Kattegat Sea**	Coordinates	**679824.3E**	**6248908.7N**	CRS: **ETRS89**
Contract	**11596**	Latitude / Longitude			
Client Name / Ref	**Energinet Eltransmission A/S / 384_20_ENE**	Water Depth (mMSL)	**-30.7**		
Vessel	**MV Ocean Vantage**	Date of Test (Start-End)			
Method	**20 kN Sea bed CPT**	Final Borehole Depth	**70.10m**		

Comments: Location data taken from CB8. CB8 class 1 test terminated at 24.61m at operators discretion due to an increase in cone inclination to prevent damage to equipment. Continuous seabed CPT. Borehole CB8-BH was completed to a depth of 70.10m utilising API drilling~ Wison CPT and push sampling methods.

QC Status	Preliminary	Draft	Final
	BC/JK (28/06/2021)	DR (28/06/2021)	SMc (10/11/2021)

Location Names
CB8
CB8-BH

Preliminary Investigation, Hesselø OWF

BOREHOLE LOG, LABORATORY TEST RESULTS AND IN SITU CPTU TESTING

Soil Depth (m)	Description	Env.	Age
30.00	Extremely high strength CLAY TILL, high becoming medium plasticity, very silty, very sandy, slightly gravelly, very dark greenish grey (GLEY 1 10Y 4/1), slightly calcareous, with medum to widely spaced thin beds of gravel		
	34.95m - 34.99m: 34.95-34.98m: Very thin bed of sand, fine, well sorted, slightly silty, greenish grey (GLEY 1 10Y 6/1), calcareous *35.07m - 35.14m: 35.07-35.14m: Thin bed of sand, fine, well sorted, slightly silty, dark greenish grey (GLEY 1 10Y 4/1), calcareous*	Gl/Ma	Gc
	36.33m - 36.43m: 36.33-36.43m: Thin bed of sand, fine to medium, well sorted, clayey, very dark greenish grey (GLEY 2 10BG 3/1), non-calcareous		

CPT Ref No. / Cone ID / Cone Area (a): 06 120825 10cm² (0.76); 07 120825 10cm² (0.76); 08 121126 10cm² (0.79); 09 121126 10cm² (0.79)

Particle Size, %: Gravel 1; Sand 27; Fines 72; Silt 50; Clay 22

KEY TO SOIL PROFILE

SILT, CLAY, SAND, GRAVEL, COBBLES, CHALK, PEAT, Mixed Soil

Assumed Unit Weight: 20 - 16 kN/m³
K_0: 0.5 - 2.0
N_{kt}: 15 - 20
N_{kt}: 12.5 - 16.5

Area	**Kattegat Sea**	Coordinates	**679824.3E**	**6248908.7N**	CRS: **ETRS89**
Contract	**11596**	Latitude / Longitude			**Comments: Location data taken from CB8. CB8 class 1 test terminated at 24.61m at operators discretion due to an increase in cone inclination to prevent damage to equipment. Continuous seabed CPT. Borehole CB8-BH was completed to a depth of 70.10m utilising API drilling~ Wison CPT and push sampling methods.**
Client Name / Ref	**Energinet Eltransmission A/S / 384_20_ENE**	Water Depth (mMSL)	**-30.7**		
Vessel	**MV Ocean Vantage**	Date of Test (Start-End)			
Method	**Wison**	Final Borehole Depth	**70.10m**		

QC Status			Location Names
Preliminary	Draft	Final	CB8-BH
BC/JK (28/06/2021)	**DR** (28/06/2021)	**SMc** (10/11/2021)	

Preliminary Investigation, Hesselø OWF

BOREHOLE LOG, LABORATORY TEST RESULTS AND IN SITU CPTU TESTING

Soil Depth (m)	Description	Env.	Age
	Extremely high strength CLAY TILL, high becoming medium plasticity, very silty, very sandy, slightly gravelly, very dark greenish grey (GLEY 1 10Y 4/1), slightly calcareous, with medum to widely spaced thin beds of gravel	Gl/Ma	Gc
43.92	Very to extremely high strength CLAY, high plasticity, slightly silty, dark greenish grey (GLEY1 5GY 4/1), calcareous	Gl	Gc

Particle Size, %: Gravel 1; Sand 20; Fines 79; Silt 43; Clay 36

CPT Ref No. 10, Cone ID 121126, Cone Area (a) 10cm² (0.79)

CPT Ref No. 11, Cone ID 121126, Cone Area (a) 10cm² (0.79)

KEY TO SOIL PROFILE

SILT, CLAY, SAND, GRAVEL, COBBLES, CHALK, PEAT, Mixed Soil

Assumed Unit Weight: 20 - 16 kN/m³
K_0: 0.5 - 2.0
N_{KT}: 15 - 20
N_{kt}: 12.5 - 16.5

Area	**Kattegat Sea**	Coordinates	**679824.3E**	**6248908.7N**	CRS: **ETRS89**
Contract	**11596**	Latitude / Longitude			**Comments: Location data taken from CB8. CB8 class 1 test terminated at 24.61m at operators discretion due to an increase in cone inclination to prevent damage to equipment. Continuous seabed CPT. Borehole CB8-BH was completed to a depth of 70.10m utilising API drilling~ Wison CPT and push sampling methods.**
Client Name / Ref	**Energinet Eltransmission A/S / 384_20_ENE**	Water Depth (mMSL)	**-30.7**		
Vessel	**MV Ocean Vantage**	Date of Test (Start-End)			
Method	**Wison**	Final Borehole Depth	**70.10m**		

QC Status		
Preliminary	Draft	Final
BC/JK (28/06/2021)	**DR** (28/06/2021)	**SMc** (10/11/2021)

Location Names: CB8-BH

Preliminary Investigation, Hesselø OWF

BOREHOLE LOG, LABORATORY TEST RESULTS AND IN SITU CPTU TESTING

Soil Depth (m)	Description	Env.	Age
	Very to extremely high strength CLAY, high plasticity, slightly silty, dark greenish grey (GLEY1 5GY 4/1), calcareous	Gl	Gc
	52.00m - 52.31m: 50.00-50.31m: Medium bed of very to extremely high strength CLAY, high plasticity, sandy, dark greenish grey (GLEY1 5GY 4/1) mottled olive grey (5Y 4/2), calcareous		
	53.00m - 53.20m: 53.00-53.20m: Extremely high strength CLAY, gravelly, high plasticity, very dark greenish grey (GLEY1 5GY 3/1), calcareous		
53.29	Medium dense to dense locally very dense SAND, fine to medium, well sorted, clayey, dark greenish grey (GLEY1 10Y 4/1) with widely spaced thin beds of clay, high plasticity, sandy, gravelly, dark greenish grey (GLEY1 10Y 4/1), calcareous between 55.00m and 57.70m		
		Gl/Ma	Gc
59.50	Extremely high strength CLAY, high plasticity, silty, dark greyish brown (2.5Y 4/2) with widely spaced medium to thick beds of clay, high plasticity, slightly silty, gravelly, dark greyish brown (2.5Y 4/2), calcareous	Gl/Mw	Gc

KEY TO SOIL PROFILE

SILT · CLAY · SAND · GRAVEL · COBBLES · CHALK · PEAT · Mixed Soil

Assumed Unit Weight: 20 - 16 kN/m³
K_0: 0.5 - 2.0
N_{kt}: 15 - 20
N_{ch}: 12.5 - 16.5

Area	**Kattegat Sea**	Coordinates	**679824.3E**	**6248908.7N**	CRS: **ETRS89**
Contract	**11596**	Latitude / Longitude			
Client Name / Ref	**Energinet Eltransmission A/S / 384_20_ENE**	Water Depth (mMSL)	**-30.7**		
Vessel	**MV Ocean Vantage**	Date of Test (Start-End)			
Method	**Wison**	Final Borehole Depth	**70.10m**		

Comments: Location data taken from CB8. CB8 class 1 test terminated at 24.61m at operators discretion due to an increase in cone inclination to prevent damage to equipment. Continuous seabed CPT. Borehole CB8-BH was completed to a depth of 70.10m utilising API drilling~ Wison CPT and push sampling methods.

QC Status	Preliminary	Draft	Final
	BC/JK (28/06/2021)	**DR** (28/06/2021)	**SMc** (10/11/2021)

Location Names: CB8-BH

Preliminary Investigation, Hesselø OWF

BOREHOLE LOG, LABORATORY TEST RESULTS AND IN SITU CPTU TESTING

Relative to BSB (m)	Soil Depth (m)	Description	Env.	Age
60.5 – 65.30	60.5 – 65.30	Extremely high strength CLAY, high plasticity, silty, dark greyish brown (2.5Y 4/2) with widely spaced medium to thick beds of clay, high plasticity, slightly silty, gravelly, dark greyish brown (2.5Y 4/2), calcareous *60.21m - 60.30m: 60.21-60.30m: Thin bed of medium dense to dense SAND* *63.31m - 63.39m: 63.31-63.39m: Thin bed of gravel*	Gl/Mw	Gc
65.30 – 66.50	65.30 – 66.50	CLAY, high plasticity, slightly silty, gravelly, dark olive brown (2.5Y 4/2) becoming black (2.5Y 2.5/1), calcareous	Gl/Mw	Gc
66.50 – 70.10	66.50 – 70.10	Weak SILTSTONE, slightly indurated, slightly sandy, micaceous, very dark greyish brown (2.5Y 5/2) becoming very dark grey (5Y 3/1), non-calcareous, with occasional organic staining and pockets (<0.02m) of sand, fine, well sorted, silty, light grey (5Y 7/1), non-calcareous	Gl/Mw	Ct

Sample Type / CPTU Push / CPT Ref No. / Cone ID / Cone Area (a):
- 20 — 120825 — 10cm² (0.76)
- 21 — 120825 — 10cm² (0.76)
- 22 — 121126 — 10cm² (0.79)
- 23 — 121126 — 10cm² (0.79)
- 24 — 120825 — 10cm² (0.76)
- 25 — 120825 — 10cm² (0.76)

Water Content (%): 0 25 50 75 100
Density (Mg/m³): 3 2 1 0
Particle Size, %: Gravel | Sand | Fines | Silt | Clay
Relative Density, D_r (%): 0 30 60 90 120
Undrained Shear Strength, Su (kPa): 0 300 600 900 1200 1500
Corrected Cone Resistance, q_t (MPa): 0 12 24 36 48 60
Sleeve Friction, f_s (MPa): 0 0.3 0.6 0.9 1.2 1.5
Pore Pressure, U_2 (kPa): -4500 -2250 0 2250 4500
Ambient Pore Pressure (kPa)

KEY TO SOIL PROFILE

SILT · CLAY · SAND · GRAVEL · COBBLES · CHALK · PEAT · Mixed Soil

Assumed Unit Weight: 20 - 16 kN/m³
$K_{0_{NC}}$: 0.5 - 2.0
N_{kt}: 15 - 20
N_{kt}: 12.5 - 16.5

Area	**Kattegat Sea**	Coordinates	**679824.3E**	**6248908.7N**
Contract	**11596**	Latitude / Longitude		
Client Name / Ref	**Energinet Eltransmission A/S / 384_20_ENE**	Water Depth (mMSL)	**-30.7**	
Vessel	**MV Ocean Vantage**	Date of Test (Start-End)		
Method	**Wison**	Final Borehole Depth	**70.10m**	

CRS: **ETRS89**

Comments: Location data taken from CB8. CB8 class 1 test terminated at 24.61m at operators discretion due to an increase in cone inclination to prevent damage to equipment. Continuous seabed CPT. Borehole CB8-BH was completed to a depth of 70.10m utilising API drilling~ Wison CPT and push sampling methods.

QC Status	Preliminary	Draft	Final
	BC/JK (28/06/2021)	**DR** (28/06/2021)	**SMc** (10/11/2021)

Location Names: CB8-BH

Preliminary Investigation, Hesselø OWF

BOREHOLE LOG, LABORATORY TEST RESULTS AND IN SITU CPTU TESTING

Relative to (mMSL)	Relative to BSB (m)	Soil Profile	Sample Type	CPTU Push	CPT Ref No. Cone ID Cone Area (a)	Soil Depth (m)		Env.	Age
-101.0	70.5	× × × ×				70.10	Weak SILTSTONE, slightly indurated, slightly sandy, micaceous, very dark greyish brown (2.5Y 5/2) becoming very dark grey (5Y 3/1), non-calcareous, with occasional organic staining and pockets (<0.02m) of sand, fine, well sorted, silty, light grey (5Y 7/1), non-calcareous	Gl/Mw	Ct
-101.5	71.0						End of borehole at 70.10m		
-102.0	71.5								
-102.5	72.0								
-103.0	72.5								
-103.5	73.0								
-104.0	73.5								
-104.5	74.0								
-105.0	74.5								
-105.5	75.0								
-106.0	75.5								
-106.5	76.0								
-107.0	76.5								
-107.5	77.0								
-108.0	77.5								
-108.5	78.0								
-109.0	78.5								
-109.5	79.0								
-110.0	79.5								
-110.5									

Water Content (%): 0, 25, 50, 75, 100

Density (Mg/m^3): 3, 2, 1, 0

Particle Size, %: Gravel | Sand | Fines | Silt | Clay

Relative Density, D_r (%): 0, 30, 60, 90, 120

Undrained Shear Strength, Su (kPa): 0, 300, 600, 900, 1200, 1500

Corrected Cone Resistance, q_t (MPa): 0, 12, 24, 36, 48, 60

Sleeve Friction, f_s(MPa): 0, 0.3, 0.6, 0.9, 1.2, 1.5

Pore Pressure, U_2 (kPa): -4500, -2250, 0, 2250, 4500

Ambient Pore Pressure (kPa)

KEY TO SOIL PROFILE

SILT, CLAY, SAND, GRAVEL, COBBLES, CHALK, PEAT, Mixed Soil

Assumed Unit Weight: 20 - 16 kN/m^3
K_0: 0.5 - 2.0
N_{kt}: 15 - 20
N_{kt}: 12.5 - 16.5

Area	**Kattegat Sea**	Coordinates	**679824.3E** **6248908.7N**	CRS: **ETRS89**	QC Status
Contract	**11596**	Latitude / Longitude		**Comments: Location data taken from CB8. CB8 class 1 test terminated at 24.61m at operators discretion due to an increase in cone inclination to prevent damage to equipment. Continuous seabed CPT. Borehole CB8-BH was completed to a depth of 70.10m utilising API drilling~ Wison CPT and push sampling methods.**	Preliminary / Draft / Final
Client Name / Ref	**Energinet Eltransmission A/S / 384_20_ENE**	Water Depth (mMSL)	**-30.7**		
Vessel	**MV Ocean Vantage**	Date of Test (Start-End)			**BC/JK** (28/06/2021) / **DR** (28/06/2021) / **SMc** (10/11/2021)
Method	**Wison**	Final Borehole Depth	**70.10m**		

Location Names: CB8-BH

Preliminary Investigation, Hesselø OWF

BOREHOLE LOG, LABORATORY TEST RESULTS AND IN SITU CPTU TESTING

Soil Depth (m)	Soil Description	Env.	Age
	Extremely low strength CLAY, low plasticity, silty, sandy, gravelly, dark grey (5Y 4/1), calcareous	Ma/Fw	Ho
1.00	Extremely low to low strength CLAY, high plasticity, very silty, slightly sandy, with shell fragments (<0.04m), dark grey (5Y 4/1) becoming dark greyish brown (2.5Y 4/2), highly calcareous	Ma/Fw	Ho
9.00	Very low to low strength CLAY, high plasticity, very silty, slightly sandy, dark greyish brown (2.5Y 4/2), slightly calcareous with closely spaced thick laminations of silt, non plastic, greyish brown (2.5Y 5/2) and occaisional black staining, calcareous	Ma/Fw	Ho

Particle Size, %: Gravel 0, Sand 1, Fines 99, Silt 37, Clay 62

KEY TO SOIL PROFILE

SILT, CLAY, SAND, GRAVEL, COBBLES, CHALK, PEAT, Mixed Soil

Assumed Unit Weight: 20 - 16 kN/m³
K_p: 0.5 - 2.0
N_{cv}: 15 - 20
N_{ch}: 12.5 - 16.5

Area	**Kattegat Sea**	Coordinates	**677390.6E**	**6276209.1N**	CRS: **ETRS89**
Contract	**11596**	Latitude / Longitude			**Comments: Location data taken from CB9. CB9 class 2 test terminated at 41.67m due to increasing cone inclination of 3 degrees within a metre. Continuous seabed CPT. Borehole CB9-BH was completed to a depth of 70.94m utilising API drilling~ Wison CPT and push sampling methods.**
Client Name / Ref	**Energinet Eltransmission A/S / 384_20_ENE**	Water Depth (mMSL)	**-30.9**		
Vessel	**MV Ocean Vantage**	Date of Test (Start-End)			
Method	**20 kN Sea bed CPT**	Final Borehole Depth	**70.50m**		

QC Status		
Preliminary	Draft	Final
BC/JK (28/06/2021)	**DR** (28/06/2021)	**SMc** (10/11/2021)

Location Names
CB9
CB9-BH

Preliminary Investigation, Hesselø OWF

BOREHOLE LOG, LABORATORY TEST RESULTS AND IN SITU CPTU TESTING

Soil Depth (m)	Soil Description	Env.	Age
	Very low to low strength CLAY, high plasticity, very silty, slightly sandy, dark greyish brown (2.5Y 4/2), slightly calcareous with closely spaced thick laminations of silt, non plastic, greyish brown (2.5Y 5/2) and occaisional black staining, calcareous	Ma/Fw	Ho
15.00	Low to medium strength CLAY, high plasticity, dark greyish brown (2.5Y 4/2), slightly calcareous with closely spaced thick laminations of silt, non plastic, greyish brown (2.5Y 5/2), calcareous	Ma/Fw	Ho
18.00	Low to medium strength CLAY, high plasticity, very silty, dark grey (2.5Y 4/1), slightly calcareous	Ma/Fw	Ho

Particle Size, %: Gravel 0; Sand 1; Fines 99; Silt 37; Clay 62

Water Content (%) 39

Relative Density, D_r (%); Undrained Shear Strength, Su (kPa); Corrected Cone Resistance, q_t (MPa); Sleeve Friction, f_s (MPa); Pore Pressure, U_2 (kPa); Ambient Pore Pressure (kPa)

KEY TO SOIL PROFILE

SILT, CLAY, SAND, GRAVEL, COBBLES, CHALK, PEAT, Mixed Soil

Assumed Unit Weight: 20 - 16 kN/m³
K_0: 0.5 - 2.0
N_{kt}: 15 - 20
$N_{\Delta u}$: 12.5 - 16.5

Area	**Kattegat Sea**	Coordinates	**677390.6E**	**6276209.1N**	CRS: **ETRS89**
Contract	**11596**	Latitude / Longitude			**Comments: Location data taken from CB9. CB9 class 2 test terminated at 41.67m due to increasing cone inclination of 3 degrees within a metre. Continuous seabed CPT. Borehole CB9-BH was completed to a depth of 70.94m utilising API drilling~ Wison CPT and push sampling methods.**
Client Name / Ref	**Energinet Eltransmission A/S / 384_20_ENE**	Water Depth (mMSL)	**-30.9**		
Vessel	**MV Ocean Vantage**	Date of Test (Start-End)			
Method	**20 kN Sea bed CPT**	Final Borehole Depth	**70.50m**		

QC Status		
Preliminary	Draft	Final
BC/JK (28/06/2021)	**DR** (28/06/2021)	**SMc** (10/11/2021)

Location Names
CB9
CB9-BH

Preliminary Investigation, Hesselø OWF

BOREHOLE LOG, LABORATORY TEST RESULTS AND IN SITU CPTU TESTING

Relative to (mMSL)	Relative to BSB (m)	Soil Profile	Sample Type	CPTU Push	CPT Ref No. Cone ID Cone Area (a)	Soil Depth (m)		Env.	Age
-51.0	20.5		P21		01 130909 10cm² (0.82)		Low to medium strength CLAY, high plasticity, very silty, dark grey (2.5Y 4/1), slightly calcareous	Ma/Fw	Ho
-52.0	21.5		P22			22.00	Low to medium strength CLAY, high plasticity, very silty, slightly sandy, dark grey (2.5Y 4/1), slightly calcareous with extremely closely to closely spaced laminations of silt, non plastic, greyish brown (2.5Y 5/2) and frequent black staining, calcareous		
-53.0	22.5		P23						
-54.0	23.5		P24						
-55.0	24.5		P25						
-56.0	25.5		P26					Ma/Fw	Pg
-57.0	26.5		P27						
-58.0	27.5		P28						
-59.0	28.5		P29						
-60.0	29.5		P30						

Water Content (%): 0 25 50 75 100 — 38, 29

Density (Mg/m³): 3 2 1 0

Particle Size, %	Gravel	Sand	Fines	Silt	Clay
	0	0	100	41	59
	0	1	99	45	54

Relative Density, D_r (%): 0 30 60 90 120

Undrained Shear Strength, Su (kPa): 0 300 600 900 1200 1500

Corrected Cone Resistance, q_t (MPa): 0 12 24 36 48 60

Sleeve Friction, f_s(MPa): 0 0.3 0.6 0.9 1.2 1.5

Pore Pressure, U_2 (kPa): -4500 -2250 0 2250 4500

Ambient Pore Pressure (kPa)

KEY TO SOIL PROFILE

SILT, CLAY, SAND, GRAVEL, COBBLES, CHALK, PEAT, Mixed Soil

Assumed Unit Weight: 20 - 16 kN/m³
K_0: 0.5 - 2.0
N_{kt}: 15 - 20
N_{kt}: 12.5 - 16.5

Area	**Kattegat Sea**	Coordinates	**677390.6E**	**6276209.1N**	CRS: **ETRS89**
Contract	**11596**	Latitude / Longitude			**Comments: Location data taken from CB9. CB9 class 2 test terminated at 41.67m due to increasing cone inclination of 3 degrees within a metre. Continuous seabed CPT. Borehole CB9-BH was completed to a depth of 70.94m utilising API drilling~ Wison CPT and push sampling methods.**
Client Name / Ref	**Energinet Eltransmission A/S / 384_20_ENE**	Water Depth (mMSL)	**-30.9**		
Vessel	**MV Ocean Vantage**	Date of Test (Start-End)			
Method	**20 kN Sea bed CPT**	Final Borehole Depth	**70.50m**		

QC Status		
Preliminary	Draft	Final
BC/JK (28/06/2021)	**DR** (28/06/2021)	**SMc** (10/11/2021)

Location Names
CB9
CB9-BH

Preliminary Investigation, Hesselø OWF

BOREHOLE LOG, LABORATORY TEST RESULTS AND IN SITU CPTU TESTING

Depth (m)	Description	Env.	Age
0 – 31.87	Low to medium strength CLAY, high plasticity, very silty, slightly sandy, dark grey (2.5Y 4/1), slightly calcareous with extremely closely to closely spaced laminations of silt, non plastic, greyish brown (2.5Y 5/2) and frequent black staining, calcareous	Ma/Fw	Pg
31.87 – 70.50	Low to medium strength CLAY, high plasticity, dark grey (2.5Y 4/1) mottled brown (7.5YR 5/2), slightly calcareous with very closely to closely spaced thin laminations of silt, non plastic, greyish brown (2.5Y 4/2), calcareous	Ma/Fw	Pg
39.28 – 39.48	*39.28m - 39.48m: 39.27-39.47m: Medium bed of sand, fine to coarse, poorly sorted, dark greyish brown (2.5Y 4/2), slightly calcareous*		

Particle Size, %: Gravel 0, Sand 1, Fines 99, Silt 46, Clay 53

KEY TO SOIL PROFILE

SILT, CLAY, SAND, GRAVEL, COBBLES, CHALK, PEAT, Mixed Soil

Assumed Unit Weight: 20 - 16 kN/m³
K_0: 0.5 - 2.0
N_{KT}: 15 - 20
N_{BT}: 12.5 - 16.5

Area	**Kattegat Sea**	Coordinates	**677390.6E**	**6276209.1N**	CRS: **ETRS89**
Contract	**11596**	Latitude / Longitude			**Comments: Location data taken from CB9. CB9 class 2 test terminated at 41.67m due to increasing cone inclination of 3 degrees within a metre. Continuous seabed CPT. Borehole CB9-BH was completed to a depth of 70.94m utilising API drilling~ Wison CPT and push sampling methods.**
Client Name / Ref	**Energinet Eltransmission A/S / 384_20_ENE**	Water Depth (mMSL)	**-30.9**		
Vessel	**MV Ocean Vantage**	Date of Test (Start-End)			
Method	**20 kN Sea bed CPT**	Final Borehole Depth	**70.50m**		

QC Status		
Preliminary	Draft	Final
BC/JK (28/06/2021)	**DR** (28/06/2021)	**SMc** (10/11/2021)

Location Names
CB9
CB9-BH

Preliminary Investigation, Hesselø OWF

BOREHOLE LOG, LABORATORY TEST RESULTS AND IN SITU CPTU TESTING

Soil Depth (m)	Soil Description	Env.	Age
40.00	Low to medium strength CLAY, high plasticity, dark grey (2.5Y 4/1) mottled brown (7.5YR 5/2), slightly calcareous with very closely to closely spaced thin laminations of silt, non plastic, greyish brown (2.5Y 4/2), calcareous	Ma/Fw	Pg
	High to very high strength CLAY TILL, low plasticity, very silty, very sandy, slightly gravelly, very dark greenish grey (GLEY1 10GY 3/1), highly calcareous	Ma/Fw	Gc

Particle Size, %: Gravel 2, Sand 58, Fines 40, Silt 27, Clay 13

CPT Ref No. / Cone ID / Cone Area (a): 01 120826 10cm² (0.76); 02 120826 10cm² (0.76); 03 120826 10cm² (0.76)

KEY TO SOIL PROFILE

SILT, CLAY, SAND, GRAVEL, COBBLES, CHALK, PEAT, Mixed Soil

Assumed Unit Weight: 20 - 16 kN/m³
K_0: 0.5 - 2.0
N_{kt}: 15 - 20
N_{Ah}: 12.5 - 16.5

Area	**Kattegat Sea**	Coordinates	**677390.6E**	**6276209.1N**	CRS: **ETRS89**
Contract	**11596**	Latitude / Longitude			**Comments: Location data taken from CB9. CB9 class 2 test terminated at 41.67m due to increasing cone inclination of 3 degrees within a metre. Continuous seabed CPT. Borehole CB9-BH was completed to a depth of 70.94m utilising API drilling~ Wison CPT and push sampling methods.**
Client Name / Ref	**Energinet Eltransmission A/S / 384_20_ENE**	Water Depth (mMSL)	**-30.9**		
Vessel	**MV Ocean Vantage**	Date of Test (Start-End)			
Method	**20 kN Sea bed CPT**	Final Borehole Depth	**70.50m**		

QC Status		
Preliminary	Draft	Final
BC/JK (28/06/2021)	**DR** (28/06/2021)	**SMc** (10/11/2021)

Location Names
CB9
CB9-BH

Preliminary Investigation, Hesselø OWF

BOREHOLE LOG, LABORATORY TEST RESULTS AND IN SITU CPTU TESTING

Relative to (mMSL)	Relative to BSB (m)	Soil Profile	Sample Type	CPTU Push	CPT Ref No. Cone ID Cone Area (a)	Soil Depth (m)		Env.	Age
-81.0	50.5						High to very high strength CLAY TILL, low plasticity, very silty, very sandy, slightly gravelly, very dark greenish grey (GLEY1 10GY 3/1), highly calcareous	Ma/Fw	Gc
-82.0	51.0								
-83.0	52.0				04 120826 10cm² (0.76)				
-84.0	53.0								
-85.0	54.0		PS1						
-86.0	55.0				05 120826 10cm² (0.76)				
-87.0	56.0					56.09	Dense to very dense locally medium dense SAND, fine, well sorted, clayey, silty, very dark grey (GLEY1 3/N), highly calcareous	Gl	Gc
-88.0	57.0								
-89.0	58.0				06 121005G2 10cm² (0.78)				
-90.0	59.0		PS4						
-90.5	59.5		PS5		07 121005G	59.50		Gl/Mw	Gc

Water Content (%): 0 25 50 75 100

Density (Mg/m³): 3 2 1 0

Particle Size, %: Gravel | Sand | Fines | Silt | Clay

Relative Density, D_r (%): 0 30 60 90 120

Undrained Shear Strength, Su (kPa): 0 300 600 900 1200 1500

Corrected Cone Resistance, q_t (MPa): 0 12 24 36 48 60

Sleeve Friction, f_s(MPa): 0 0.3 0.6 0.9 1.2 1.5

Pore Pressure, U_2 (kPa): -4500 -2250 0 2250 4500

Ambient Pore Pressure (kPa)

Relative to BSB (m): 50.5 51.0 51.5 52.0 52.5 53.0 53.5 54.0 54.5 55.0 55.5 56.0 56.5 57.0 57.5 58.0 58.5 59.0 59.5

KEY TO SOIL PROFILE

SILT | CLAY | SAND | GRAVEL | COBBLES | CHALK | PEAT | Mixed Soil

Assumed Unit Weight: 20 - 16 kN/m³
K_0: 0.5 - 2.0
N_{kt}: 15 - 20
$N_{\Delta u}$: 12.5 - 16.5

Area	**Kattegat Sea**	Coordinates	**677390.6E**	**6276209.1N**	CRS: **ETRS89**
Contract	**11596**	Latitude / Longitude			**Comments: Location data taken from CB9. CB9 class 2 test terminated at 41.67m due to increasing cone inclination of 3 degrees within a metre. Continuous seabed CPT. Borehole CB9-BH was completed to a depth of 70.94m utilising API drilling~ Wison CPT and push sampling methods.**
Client Name / Ref	**Energinet Eltransmission A/S / 384_20_ENE**	Water Depth (mMSL)	**-30.9**		
Vessel	**MV Ocean Vantage**	Date of Test (Start-End)			
Method	**Wison**	Final Borehole Depth	**70.50m**		

QC Status		
Preliminary	Draft	Final
BC/JK (28/06/2021)	**DR** (28/06/2021)	**SMc** (10/11/2021)

Location Names
CB9-BH

Preliminary Investigation, Hesselø OWF

BOREHOLE LOG, LABORATORY TEST RESULTS AND IN SITU CPTU TESTING

Soil Depth (m)	Soil Description	Env.	Age
	Extremely high strength CLAY, high plasticity, with pockets (<0.04m) of sand, fine to medium, well sorted, greenish grey (GLEY1 10Y 5/1), highly calcareous, with shell fragments (<0.02m), greenish black (GLEY2 5BG 2.5/1), highly calcareous	Gl/Mw	Gc
63.50	Extremely high strength CLAY, high plasticity, slightly silty, slightly gravelly with pockets of silt, non plastic, light grey (5Y 7/1), very dark greenish grey (GLEY1 5GY 3/1), highly calcareous	Gl/Mw	Gc
67.50	Extremely high strength CLAY TILL, high plasticity, very silty,very sandy, slightly gravelly, bluish black (GLEY2 2.5/1) becoming very dark grey (GLEY1 3/N), slightly calcareous with occasional shell fragments (<0.01m)	Gl/Mw	Gc

Relative to (mMSL) / Relative to BSB (m): 91.0 / 60.5 to 100.5 / 69.5

Soil Profile / Sample Type / CPTU Push

CPT Ref No. / Cone ID / Cone Area (a):
- 08 120826 10cm² (0.76)
- B56
- 09 120826 10cm² (0.76)
- 10 121005G 10cm² (0.78)
- 11 121005G 10cm² (0.78)
- B57
- 12 120826 10cm² (0.76)

Water Content (%): 0 25 50 75 100

Density (Mg/m³): 3 2 1 0

Particle Size, %: Gravel | Sand | Fines | Silt | Clay

Relative Density, D_r (%): 0 30 60 90 120

Undrained Shear Strength, Su (kPa): 0 300 600 900 1200 1500

Corrected Cone Resistance, q_t (MPa): 0 12 24 36 48 60

Sleeve Friction, f_s(MPa): 0 0.3 0.6 0.9 1.2 1.5

Pore Pressure, U_2 (kPa): -4500 -2250 0 2250 4500

Ambient Pore Pressure (kPa)

Relative to BSB (m): 60.5 to 69.5

KEY TO SOIL PROFILE

SILT · CLAY · SAND · GRAVEL · COBBLES · CHALK · PEAT · Mixed Soil

Assumed Unit Weight: 20 - 16 kN/m³
K_0: 0.5 - 2.0
N_{kt}: 15 - 20
N_{kt}: 12.5 - 16.5

Area	**Kattegat Sea**	Coordinates	**677390.6E**	**6276209.1N**	CRS: **ETRS89**
Contract	**11596**	Latitude / Longitude			**Comments: Location data taken from CB9. CB9 class 2 test terminated at 41.67m due to increasing cone inclination of 3 degrees within a metre. Continuous seabed CPT. Borehole CB9-BH was completed to a depth of 70.94m utilising API drilling~ Wison CPT and push sampling methods.**
Client Name / Ref	**Energinet Eltransmission A/S / 384_20_ENE**	Water Depth (mMSL)	**-30.9**		
Vessel	**MV Ocean Vantage**	Date of Test (Start-End)			
Method	**Wison**	Final Borehole Depth	**70.50m**		

QC Status		
Preliminary	Draft	Final
BC/JK (28/06/2021)	**DR** (28/06/2021)	**SMc** (10/11/2021)

Location Names: CB9-BH

Preliminary Investigation, Hesselø OWF

BOREHOLE LOG, LABORATORY TEST RESULTS AND IN SITU CPTU TESTING

Relative to (mMSL)	Relative to BSB (m)	Soil Profile	Sample Type	CPTU Push	CPT Ref No. Cone ID Cone Area (a)	Soil Depth (m)		Env.	Age
-101.0	70.5						Extremely high strength CLAY TILL, high plasticity, very silty,very sandy, slightly gravelly, bluish black (GLEY2 2.5/1) becoming very dark grey (GLEY1 3/N), slightly calcareous with occasional shell fragments (<0.01m)	Gl/Mw	Gc
-102.0	71.0					70.94	End of borehole at 70.50m		

Water Content (%): 0 25 50 75 100 — 33

Density (Mg/m^3): 3 2 1 0

Particle Size, %

Gravel	Sand	Fines	Silt	Clay
1	20	79	51	28

Relative Density, D_r (%): 0 30 60 90 120

Undrained Shear Strength, Su (kPa): 0 300 600 900 1200 1500

Corrected Cone Resistance, q_t (MPa): 0 12 24 36 48 60

Sleeve Friction, f_s(MPa): 0 0.3 0.6 0.9 1.2 1.5

Pore Pressure, U_2 (kPa): -4500 -2250 0 2250 4500

Ambient Pore Pressure (kPa)

Relative to BSB (m): 70.5 71.0 71.5 72.0 72.5 73.0 73.5 74.0 74.5 75.0 75.5 76.0 76.5 77.0 77.5 78.0 78.5 79.0 79.5

KEY TO SOIL PROFILE

SILT, CLAY, SAND, GRAVEL, COBBLES, CHALK, PEAT, Mixed Soil

Assumed Unit Weight: 20 - 16 kN/m^3
K_0: 0.5 - 2.0
N_{kt}: 15 - 20
N_{ct}: 12.5 - 16.5

Area	**Kattegat Sea**	Coordinates	**677390.6E 6276209.1N**	CRS: **ETRS89**	
Contract	**11596**	Latitude / Longitude		**Comments: Location data taken from CB9. CB9 class 2 test terminated at 41.67m due to increasing cone inclination of 3 degrees within a metre. Continuous seabed CPT. Borehole CB9-BH was completed to a depth of 70.94m utilising API drilling~ Wison CPT and push sampling methods.**	
Client Name / Ref	**Energinet Eltransmission A/S / 384_20_ENE**	Water Depth (mMSL)	**-30.9**		
Vessel	**MV Ocean Vantage**	Date of Test (Start-End)			
Method	**Wison**	Final Borehole Depth	**70.50m**		

QC Status		
Preliminary	Draft	Final
BC/JK (28/06/2021)	**DR** (28/06/2021)	**SMc** (10/11/2021)

Location Names
CB9-BH

Preliminary Investigation, Hesselø OWF

BOREHOLE LOG, LABORATORY TEST RESULTS AND IN SITU CPTU TESTING

Relative to (mMSL)	Relative to BSB (m)	Soil Profile	Sample Type	CPTU Push	CPT Ref No. Cone ID Cone Area (a)	Soil Depth (m)		Env.	Age
-32.5 to -42.0	0.5 to 9.5						Very low to low strength CLAY, high plasticity, silty, slightly sandy, dark greyish brown (2.5Y 4/2), slightly calcareous, with pockets (<0.02m) of silt, non plastic, light brownish grey (2.5Y 6/2), calcareous between 12.00-14.82m	Ma/Fw	Ho

Water Content (%) 0 25 50 75 100

Density (Mg/m^3) 3 2 1 0

Particle Size, %

Gravel	Sand	Fines	Silt	Clay
2	10	88	53	35

Relative Density, D_r (%) 0 30 60 90 120

Undrained Shear Strength, Su (kPa) 0 300 600 900 1200 1500

Corrected Cone Resistance, q_t (MPa) 0 12 24 36 48 60

Sleeve Friction, f_s(MPa) 0 0.3 0.6 0.9 1.2 1.5

Pore Pressure, U_2 (kPa) -4500 -2250 0 2250 4500

Ambient Pore Pressure (kPa)

Relative to BSB (m) 0.5 1.0 1.5 2.0 2.5 3.0 3.5 4.0 4.5 5.0 5.5 6.0 6.5 7.0 7.5 8.0 8.5 9.0 9.5

Relative to (mMSL) -32.5 -33.0 -33.5 -34.0 -34.5 -35.0 -35.5 -36.0 -36.5 -37.0 -37.5 -38.0 -38.5 -39.0 -39.5 -40.0 -40.5 -41.0 -41.5 -42.0

KEY TO SOIL PROFILE

SILT, CLAY, SAND, GRAVEL, COBBLES, CHALK, PEAT, Mixed Soil

Assumed Unit Weight: 20 - 16 kN/m^3
K_0: 0.5 - 2.0
N_{kt}: 15 - 20
$N_{\Delta u}$: 12.5 - 16.5

Area	**Kattegat Sea**	Coordinates	**678760.1E**	**6261514.8N**	CRS: **ETRS89**
Contract	**11596**	Latitude / Longitude			**Comments: Location data taken from CB10. CB10 class 1 test terminated at 28.90m at operators discretion to avoid damage to equipment due to lack of lateral rod support from mudline. Borehole CB10-BH was completed to a depth of 29.70m utilising API drilling- Wison CPT and push sampling methods. Borehole terminated due to hard layer being encountered and drilling could not proceed. Borehole CB10a-BH was completed to a depth of 70.25m ~~utilising API drilling- Wison CPT and push sampling~~ methods.**
Client Name / Ref	**Energinet Eltransmission A/S / 384_20_ENE**	Water Depth (mMSL)	**-32.0**		
Vessel	**MV Ocean Vantage**	Date of Test (Start-End)			
Method	**20 kN Sea bed CPT**	Final Borehole Depth	**70.25m**		

QC Status		
Preliminary	Draft	Final
BC/JK (28/06/2021)	**DR** (28/06/2021)	**SMc** (10/11/2021)

Location Names
CB10
CB10-BH
CB10a-BH

Preliminary Investigation, Hesselø OWF

BOREHOLE LOG, LABORATORY TEST RESULTS AND IN SITU CPTU TESTING

Relative to (mMSL)	Relative to BSB (m)	Soil Profile	Sample Type	CPTU Push	CPT Ref No. Cone ID Cone Area (a)	Soil Depth (m)		Env.	Age
-42.5	10.5						Very low to low strength CLAY, high plasticity, silty, slightly sandy, dark greyish brown (2.5Y 4/2), slightly calcareous, with pockets (<0.02m) of silt, non plastic, light brownish grey (2.5Y 6/2), calcareous between 12.00-14.82m	Ma/Fw	Ho
-43.0	11.0								
-43.5	11.5								
-44.0	12.0								
-44.5	12.5								
-45.0	13.0								
-45.5	13.5								
-46.0	14.0								
-46.5	14.5				01 120910 10cm² (0.81)	14.82	Low to medium strength CLAY, high plasticity, very silty, slightly sandy, with black organic staining, dark grey (5Y 4/1), slightly calcareous	Ma/Fw	Ho
-47.0	15.0								
-47.5	15.5								
-48.0	16.0								
-48.5	16.5								
-49.0	17.0								
-49.5	17.5								
-50.0	18.0								
-50.5	18.5								
-51.0	19.0								
-51.5	19.5								
-52.0									

Water Content (%): 0 25 50 75 100 — Density (Mg/m³): 3 2 1 0

Particle Size, %

Gravel	Sand	Fines	Silt	Clay
0	2	98	24	74
0	1	99	45	54

Relative Density, D_r (%): 0 30 60 90 120

Undrained Shear Strength, Su (kPa): 0 300 600 900 1200 1500

Corrected Cone Resistance, q_t (MPa): 0 12 24 36 48 60

Sleeve Friction, f_s (MPa): 0 0.3 0.6 0.9 1.2 1.5

Pore Pressure, U_2 (kPa): -4500 -2250 0 2250 4500

Ambient Pore Pressure (kPa)

KEY TO SOIL PROFILE

SILT, CLAY, SAND, GRAVEL, COBBLES, CHALK, PEAT, Mixed Soil

Assumed Unit Weight: 20 - 16 kN/m³
K_0: 0.5 - 2.0
N_{kt}: 15 - 20
N_{ke}: 12.5 - 16.5

Area	**Kattegat Sea**	Coordinates	**678760.1E**	**6261514.8N**	CRS: **ETRS89**
Contract	**11596**	Latitude / Longitude			
Client Name / Ref	**Energinet Eltransmission A/S / 384_20_ENE**	Water Depth (mMSL)	**-32.0**		
Vessel	**MV Ocean Vantage**	Date of Test (Start-End)			
Method	**20 kN Sea bed CPT**	Final Borehole Depth	**70.25m**		

Comments: Location data taken from CB10. CB10 class 1 test terminated at 28.90m at operators discretion to avoid damage to equipment due to lack of lateral rod support from mudline. Borehole CB10-BH was completed to a depth of 29.70m utilising API drilling~ Wison CPT and push sampling methods. Borehole terminated due to hard layer being encountered and drilling could not proceed. Borehole CB10a-BH was completed to a depth of 70.25m ~~utilising API drilling~ Wison CPT and push sampling~~ methods.

QC Status		
Preliminary	Draft	Final
BC/JK (28/06/2021)	**DR** (28/06/2021)	**SMc** (10/11/2021)

Location Names
CB10
CB10-BH

Preliminary Investigation, Hesselø OWF

BOREHOLE LOG, LABORATORY TEST RESULTS AND IN SITU CPTU TESTING

Soil Depth (m)	Description	Env.	Age
20.46	Low to medium strength CLAY, high plasticity, very silty, slightly sandy, with black organic staining, dark grey (5Y 4/1), slightly calcareous	Ma/Fw	Ho
	Low to medium strength CLAY, high plasticity, silty, slightly sandy, slightly gravelly, with pockets (<0.02m) of sand, fine, well sorted, grey (5Y 5/1), highly calcareous, with black organic staining, dark grey (5Y 4/2), highly calcareous	Ma/Fw	Ho
26.47	Medium to high becoming very high strength CLAY, high plasticity, slightly sandy, slightly gravelly, dark grey (5Y 4/1), highly calcareous	Ma/Fw	Pg
28.49	High to very high strength CLAY TILL, medium plasticity, very silty, very sandy, slightly gravelly, very dark greenish grey (GLEY1 10Y 3/1), highly calcareous	Ma/Fw	Gc

Particle Size, %

Gravel	Sand	Fines	Silt	Clay
0	5	95	57	38
9	39	52	25	27

KEY TO SOIL PROFILE

SILT, CLAY, SAND, GRAVEL, COBBLES, CHALK, PEAT, Mixed Soil

Assumed Unit Weight: 20 - 16 kN/m³
K_0: 0.5 - 2.0
N_{kt}: 15 - 20
N_{kt}: 12.5 - 16.5

Area	**Kattegat Sea**	Coordinates	**678760.1E**	**6261514.8N**	CRS: **ETRS89**
Contract	**11596**	Latitude / Longitude			
Client Name / Ref	**Energinet Eltransmission A/S / 384_20_ENE**	Water Depth (mMSL)	**-32.0**		
Vessel	**MV Ocean Vantage**	Date of Test (Start-End)			
Method	**20 kN Sea bed CPT**	Final Borehole Depth	**70.25m**		

Comments: Location data taken from CB10. CB10 class 1 test terminated at 28.90m at operators discretion to avoid damage to equipment due to lack of lateral rod support from mudline. Borehole CB10-BH was completed to a depth of 29.70m utilising API drilling~ Wison CPT and push sampling methods. Borehole terminated due to hard layer being encountered and drilling could not proceed. Borehole CB10a-BH was completed to a depth of 70.25m ~~utilising API drilling~~ Wison CPT and push sampling methods.

QC Status		
Preliminary	Draft	Final
BC/JK (28/06/2021)	**DR** (28/06/2021)	**SMc** (10/11/2021)

Location Names
CB10
CB10-BH
CB10a-BH

Preliminary Investigation, Hesselø OWF

BOREHOLE LOG, LABORATORY TEST RESULTS AND IN SITU CPTU TESTING

Soil Depth (m)	Soil Description	Env.	Age
30.60	High to very high strength CLAY TILL, medium plasticity, very silty, very sandy, slightly gravelly, very dark greenish grey (GLEY1 10Y 3/1), highly calcareous High to very high strength CLAY, medium plasticity, sandy, gravelly, dark greenish grey (GLEY1 5GY 4/1), calcareous	Ma/Fw Gl	Gc
33.00	Medium dense to dense SAND, fine to coarse, sorted, slighly silty, slightly gravelly, dark greenish grey (GLEY1 10Y 4/1) to grey (5Y 5/1), slightly calcareous	Gl	Gc
	Dense to very dense SAND, fine, well sorted, clayey, very silty, grey (5Y 5/1), non calcareous		
	36.45m - 36.46m: 36.45-36.46m: Thick lamination of clay, medium plasticity, silty, dark greenish grey (GLEY1 10Y 4/1), slightly calcareous	Gl	Gc
37.00	Very high to extremely high strength CLAY, medium plasticity, sandy, slightly gravelly, greenish black (GLEY1 10Y 2.5/1) with pockets (<0.03m) of sand, fine, well sorted, very dark greenish grey (GLEY1 10Y 3/1), slightly calcareous	Gl	Gc
38.80	Very high to extremely high strength CLAY, medium plasticity, very silty, slightly sandy, greenish black (GLEY1 10Y 2.5/1), slightly calcareous	Gl	Gc

Soil Depth (m)	Gravel	Sand	Fines	Silt	Clay
30.60	3	39	58	36	22
33.00	2	95	3	3	0
37.00	0	67	33	24	9

Relative to (mMSL): 62.5, 63.0, 63.5, 64.0, 64.5, 65.0, 65.5, 66.0, 66.5, 67.0, 67.5, 68.0, 68.5, 69.0, 69.5, 70.0, 70.5, 71.0, 71.5, 72.0

Relative to BSB (m): 30.5, 31.0, 31.5, 32.0, 32.5, 33.0, 33.5, 34.0, 34.5, 35.0, 35.5, 36.0, 36.5, 37.0, 37.5, 38.0, 38.5, 39.0, 39.5

Sample Type / CPTU Push: P02, P03, P04, P05, P06, P07, P08, P09, P10, P11, P12

CPT Ref No. / Cone ID / Cone Area (a):
- 01 121005G 10cm² (0.78)
- 02 121004 10cm² (0.78)
- 03 121004 10cm² (0.78)
- 04 121004 10cm² (0.78)
- 05 121005G 10cm² (0.78)

Water Content (%): 0, 25, 50, 75, 100

Density (Mg/m³): 3, 2, 1, 0

Relative Density, D_r (%): 0, 30, 60, 90, 120

Undrained Shear Strength, Su (kPa): 0, 300, 600, 900, 1200, 1500

Corrected Cone Resistance, q_t (MPa): 0, 12, 24, 36, 48, 60

Sleeve Friction, f_s(MPa): 0, 0.3, 0.6, 0.9, 1.2, 1.5

Pore Pressure, U_2 (kPa): -4500, -2250, 0, 2250, 4500

Ambient Pore Pressure (kPa)

KEY TO SOIL PROFILE

SILT, CLAY, SAND, GRAVEL, COBBLES, CHALK, PEAT, Mixed Soil

Assumed Unit Weight: 20 - 16 kN/m³
K_0: 0.5 - 2.0
N_{KT}: 15 - 20
N_{KT}: 12.5 - 16.5

Area	**Kattegat Sea**	Coordinates	**678760.1E**	**6261514.8N**	CRS: **ETRS89**
Contract	**11596**	Latitude / Longitude			
Client Name / Ref	**Energinet Eltransmission A/S / 384_20_ENE**	Water Depth (mMSL)	**-32.0**		
Vessel	**MV Ocean Vantage**	Date of Test (Start-End)			
Method	**Wison**	Final Borehole Depth	**70.25m**		

Comments: Location data taken from CB10. CB10 class 1 test terminated at 28.90m at operators discretion to avoid damage to equipment due to lack of lateral rod support from mudline. Borehole CB10-BH was completed to a depth of 29.70m utilising API drilling~ Wison CPT and push sampling methods. Borehole terminated due to hard layer being encountered and drilling could not proceed. Borehole CB10a-BH was completed to a depth of 70.25m ~~utilising API drilling~ Wison CPT and push sampling methods.~~

QC Status			Location Names
Preliminary	Draft	Final	CB10a-BH
BC/JK (28/06/2021)	**DR** (28/06/2021)	**SMc** (10/11/2021)	

Preliminary Investigation, Hesselø OWF

BOREHOLE LOG, LABORATORY TEST RESULTS AND IN SITU CPTU TESTING

Soil Depth (m)	Soil Description	Env.	Age
	Very high to extremely high strength CLAY, medium plasticity, very silty, slightly sandy, greenish black (GLEY1 10Y 2.5/1), slightly calcareous	Gl	Gc
41.60	Extremely high strength CLAY, high plasticity, slightly gravelly, with pockets (<0.03m) of sand, fine, well sorted, greenish grey (GLEY1 5GY 6/1), highly calcareous, very dark greenish grey (GLEY1 5GY 3/1), highly calcareous	Gl	Gc
	44.97m - 45.55m: 45.00-45.55m: Extremely high strength CLAY, medium plasticity, slightly silty, very dark greyish brown (10YR 3/2), non calcareous with very closely spaced laminations of silt, non plastic, dark greenish grey (GLEY1 10Y 4/1), slightly calcareous		
48.27	Extremely high strength CLAY, high plasticity, very silty, slightly sandy, with shell fragments (<0.02m), very dark greenish grey (GLEY1 5GY 3/1), highly calcareous	Gl	Gc

Sample Type: P13, P14, P15, P16, P17, P18, P19, P20, P21, P22

CPT Ref No. / Cone ID / Cone Area (a): 06 121005G 10cm² (0.78); 07 121005G 10cm² (0.78)

Soil Depth (m)	Gravel	Sand	Fines	Silt	Clay
41.60	0	5	95	46	49
48.27	0	3	97	43	54

Water Content (%) 0 25 50 75 100; Density (Mg/m³) 3 2 1 0; Particle Size, %; Relative Density, D_r (%) 0 30 60 90 120; Undrained Shear Strength, Su (kPa) 0 300 600 900 1200 1500; Corrected Cone Resistance, q_t (MPa) 0 12 24 36 48 60; Sleeve Friction, f_s(MPa) 0 0.3 0.6 0.9 1.2 1.5; Pore Pressure, U_2 (kPa) -4500 -2250 0 2250 4500; Ambient Pore Pressure (kPa); Relative to (mMSL); Relative to BSB (m)

KEY TO SOIL PROFILE

SILT, CLAY, SAND, GRAVEL, COBBLES, CHALK, PEAT, Mixed Soil

Assumed Unit Weight: 20 - 16 kN/m³
K_p: 0.5 - 2.0
N_{HT}: 15 - 20
N_{HT}: 12.5 - 16.5

Area	**Kattegat Sea**	Coordinates	**678760.1E 6261514.8N**
Contract	**11596**	Latitude / Longitude	
Client Name / Ref	**Energinet Eltransmission A/S / 384_20_ENE**	Water Depth (mMSL)	**-32.0**
Vessel	**MV Ocean Vantage**	Date of Test (Start-End)	
Method	**Wison**	Final Borehole Depth	**70.25m**

CRS: **ETRS89**

Comments: Location data taken from CB10. CB10 class 1 test terminated at 28.90m at operators discretion to avoid damage to equipment due to lack of lateral rod support from mudline. Borehole CB10-BH was completed to a depth of 29.70m utilising API drilling~ Wison CPT and push sampling methods. Borehole terminated due to hard layer being encountered and drilling could not proceed. Borehole CB10a-BH was completed to a depth of 70.25m ~~utilising API drilling~ Wison CPT and push sampling~~ methods.

QC Status	Preliminary	Draft	Final
	BC/JK (28/06/2021)	**DR** (28/06/2021)	**SMc** (10/11/2021)

Location Names: CB10a-BH

Preliminary Investigation, Hesselø OWF

BOREHOLE LOG, LABORATORY TEST RESULTS AND IN SITU CPTU TESTING

Relative to (mMSL)	Relative to BSB (m)	Soil Profile	Sample Type	CPTU Push	CPT Ref No. Cone ID Cone Area (a)	Soil Depth (m)		Env.	Age
-82.5 to -92.0	50.5 to 59.5		P23 P24 P25		08 121005G 10cm² (0.78) 09 121005G 10cm² (0.78) 10 121005G 10cm² (0.78)		Extremely high strength CLAY, high plasticity, very silty, slightly sandy, with shell fragments (<0.02m), very dark greenish grey (GLEY1 5GY 3/1), highly calcareous	Gl	Gc

Water Content (%): 0 25 50 75 100

Density (Mg/m³): 3 2 1 0

Particle Size, %: Gravel | Sand | Fines | Silt | Clay

Relative Density, D_r (%): 0 30 60 90 120

Undrained Shear Strength, Su (kPa): 0 300 600 900 1200 1500

Corrected Cone Resistance, q_t (MPa): 0 12 24 36 48 60

Sleeve Friction, f_s (MPa): 0 0.3 0.6 0.9 1.2 1.5

Pore Pressure, U_2 (kPa): -4500 -2250 0 2250 4500

Ambient Pore Pressure (kPa)

Relative to BSB (m): 50.5 51.0 51.5 52.0 52.5 53.0 53.5 54.0 54.5 55.0 55.5 56.0 56.5 57.0 57.5 58.0 58.5 59.0 59.5

KEY TO SOIL PROFILE

SILT | CLAY | SAND | GRAVEL | COBBLES | CHALK | PEAT | Mixed Soil

Assumed Unit Weight: 20 - 16 kN/m³
K_0: 0.5 - 2.0
N_{kt}: 15 - 20
N_{kt}: 12.5 - 16.5

Area	**Kattegat Sea**	Coordinates	**678760.1E**	**6261514.8N**	CRS: **ETRS89**
Contract	**11596**	Latitude / Longitude			
Client Name / Ref	**Energinet Eltransmission A/S / 384_20_ENE**	Water Depth (mMSL)	**-32.0**		
Vessel	**MV Ocean Vantage**	Date of Test (Start-End)			
Method	**Wison**	Final Borehole Depth	**70.25m**		

Comments: Location data taken from CB10. CB10 class 1 test terminated at 28.90m at operators discretion to avoid damage to equipment due to lack of lateral rod support from mudline. Borehole CB10-BH was completed to a depth of 29.70m utilising API drilling~ Wison CPT and push sampling methods. Borehole terminated due to hard layer being encountered and drilling could not proceed. Borehole CB10a-BH was completed to a depth of 70.25m ~~utilising API drilling~ Wison CPT and push sampling~~ methods.

QC Status		
Preliminary	Draft	Final
BC/JK (28/06/2021)	**DR** (28/06/2021)	**SMc** (10/11/2021)

Location Names
CB10a-BH

Preliminary Investigation, Hesselø OWF

BOREHOLE LOG, LABORATORY TEST RESULTS AND IN SITU CPTU TESTING

Soil Depth (m)	Soil Description	Env.	Age
	Extremely high strength CLAY, high plasticity, very silty, slightly sandy, with shell fragments (<0.02m), very dark greenish grey (GLEY1 5GY 3/1), highly calcareous	Gl	Gc
64.95	Extremely high strength CLAY, slightly gravelly, very high plasticity, very fissured, slickensided, dark grey (10YR 4/1), highly calcareous	Gl	Gc
67.73	Extremely high strength CLAY, high plasticity, very silty, sandy, with pockets (<0.02m) of silt, light grey (5Y 7/2), dark greenish grey (GLEY1 10Y 4/1), calcareous	Gl	Gc

Relative to (mMSL): -92.5, -93.0, -93.5, -94.0, -94.5, -95.0, -95.5, -96.0, -96.5, -97.0, -97.5, -98.0, -98.5, -99.0, -99.5, -100.0, -100.5, -101.0, -101.5, -102.0

Relative to BSB (m): 60.5, 61.0, 61.5, 62.0, 62.5, 63.0, 63.5, 64.0, 64.5, 65.0, 65.5, 66.0, 66.5, 67.0, 67.5, 68.0, 68.5, 69.0, 69.5

Sample Type: P26, P27, P28

CPT Ref No. Cone ID Cone Area (a):
11 121005G 10cm² (0.78)
12 121005G 10cm² (0.78)
13 121005G 10cm² (0.78)

Water Content (%): 0, 25, 50, 75, 100

Density (Mg/m³): 3, 2, 1, 0

Particle Size, %: Gravel, Sand, Fines, Silt, Clay

Relative Density, D_r (%): 0, 30, 60, 90, 120

Undrained Shear Strength, Su (kPa): 0, 300, 600, 900, 1200, 1500

Corrected Cone Resistance, q_t (MPa): 0, 12, 24, 36, 48, 60

Sleeve Friction, f_s(MPa): 0, 0.3, 0.6, 0.9, 1.2, 1.5

Pore Pressure, U_2 (kPa): -4500, -2250, 0, 2250, 4500

Ambient Pore Pressure (kPa)

KEY TO SOIL PROFILE

SILT, CLAY, SAND, GRAVEL, COBBLES, CHALK, PEAT, Mixed Soil

Assumed Unit Weight: 20 - 16 kN/m³
K_2: 0.5 - 2.0
N_{kt}: 15 - 20
N_{ch}: 12.5 - 16.5

Area	**Kattegat Sea**	Coordinates	**678760.1E**	**6261514.8N**	CRS: **ETRS89**
Contract	**11596**	Latitude / Longitude			
Client Name / Ref	**Energinet Eltransmission A/S / 384_20_ENE**	Water Depth (mMSL)	**-32.0**		
Vessel	**MV Ocean Vantage**	Date of Test (Start-End)			
Method	**Wison**	Final Borehole Depth	**70.25m**		

Comments: Location data taken from CB10. CB10 class 1 test terminated at 28.90m at operators discretion to avoid damage to equipment due to lack of lateral rod support from mudline. Borehole CB10-BH was completed to a depth of 29.70m utilising API drilling~ Wison CPT and push sampling methods. Borehole terminated due to hard layer being encountered and drilling could not proceed. Borehole CB10a-BH was completed to a depth of 70.25m utilising API drilling~ Wison CPT and push sampling methods.

QC Status		
Preliminary	Draft	Final
BC/JK (28/06/2021)	**DR** (28/06/2021)	**SMc** (10/11/2021)

Location Names
CB10a-BH

Preliminary Investigation, Hesselø OWF

BOREHOLE LOG, LABORATORY TEST RESULTS AND IN SITU CPTU TESTING

Soil Depth (m)	Soil Description	Env.	Age
70.25	Extremely high strength CLAY, high plasticity, very silty, sandy, with pockets (<0.02m) of silt, light grey (5Y 7/2), dark greenish grey (GLEY1 10Y 4/1), calcareous	Gl	Gc
	End of borehole at 70.25m		

Soil Depth (m)	Gravel	Sand	Fines	Silt	Clay
70.25	0	10	90	59	31

KEY TO SOIL PROFILE

SILT, CLAY, SAND, GRAVEL, COBBLES, CHALK, PEAT, Mixed Soil

Assumed Unit Weight: 20 - 16 kN/m³
K_0: 0.5 - 2.0
N_{kt}: 15 - 20
N_{ke}: 12.5 - 16.5

Area	**Kattegat Sea**	Coordinates	**678760.1E**	**6261514.8N**	CRS: **ETRS89**
Contract	**11596**	Latitude / Longitude			
Client Name / Ref	**Energinet Eltransmission A/S / 384_20_ENE**	Water Depth (mMSL)	**-32.0**		
Vessel	**MV Ocean Vantage**	Date of Test (Start-End)			
Method	**Wison**	Final Borehole Depth	**70.25m**		

Comments: Location data taken from CB10. CB10 class 1 test terminated at 28.90m at operators discretion to avoid damage to equipment due to lack of lateral rod support from mudline. Borehole CB10-BH was completed to a depth of 29.70m utilising API drilling~ Wison CPT and push sampling methods. Borehole terminated due to hard layer being encountered and drilling could not proceed. Borehole CB10a-BH was completed to a depth of 70.25m ~~utilising API drilling~ Wison CPT and push sampling~~ methods.

QC Status	Preliminary	Draft	Final
	BC/JK (28/06/2021)	**DR** (28/06/2021)	**SMc** (10/11/2021)

Location Names
CB10a-BH

Preliminary Investigation, Hesselø OWF

BOREHOLE LOG, LABORATORY TEST RESULTS AND IN SITU CPTU TESTING

Relative to (mMSL)	Relative to BSB (m)	Soil Depth (m)	Soil Description	Env.	Age
-31.5 to -32.0	0 to 0.5	0.00	Extremely low strength CLAY, medium plasticity, sandy, gravelly, dark greenish grey (GLEY1 10Y 4/1), non-calcareous	Ma/Fw	Ho
-32.5 to -33.0	1.0 to 1.5	1.00	SAND, medium to coarse, poorly sorted, gravelly, with shell fragments (<0.08m), olive grey (5Y 4/2), highly calcareous *1.32m - 1.46m: 1.32-1.44m: Thin bed of clay, high plasticity, sandy, gravelly, olive grey (5Y 4/2), highly calcareous*	Ma/Fw	Ho
-33.5 to -41.0	2.0 to 9.5	1.66	Low to medium strength CLAY, high plasticity, very silty, slightly sandy, with pockets (<0.05m) of silt, light grey (5Y 7/2) and black organic staining, dark greyish brown (2.5Y 4/2), slightly calcareous	Ma	Ho

Soil Profile: P01, P02, P03, P04, P05, P06, P07, P08, P09, P10

Sample Type / CPTU Push

CPT Ref No. / Cone ID / Cone Area (a)

Water Content (%): 0, 25, 50, 75, 100 — 21 — 37

Density (Mg/m^3): 3, 2, 1, 0

Particle Size, %

Soil Depth (m)	Gravel	Sand	Fines	Silt	Clay
0.00	2	69	29	17	12
1.00	15	57	28	12	16
1.66	0	1	99	33	66

Relative Density, D_r (%): 0, 30, 60, 90, 120

Undrained Shear Strength, Su (kPa): 0, 300, 600, 900, 1200, 1500

Corrected Cone Resistance, q_t (MPa): 0, 12, 24, 36, 48, 60

Sleeve Friction, f_s(MPa): 0, 0.3, 0.6, 0.9, 1.2, 1.5

Pore Pressure, U_2 (kPa): -4500, -2250, 0, 2250, 4500

Ambient Pore Pressure (kPa)

Relative to BSB (m): 0 to 9.5

KEY TO SOIL PROFILE

SILT, CLAY, SAND, GRAVEL, COBBLES, CHALK, PEAT, Mixed Soil

Assumed Unit Weight: 20 - 16 kN/m^3
K_0: 0.5 - 2.0
N_{kt}: 15 - 20
N_{kt}: 12.5 - 16.5

Area	**Kattegat Sea**	Coordinates	**678372.4E 6256256.9N**
Contract	**11596**	Latitude / Longitude	
Client Name / Ref	**Energinet Eltransmission A/S / 384_20_ENE**	Water Depth (mMSL)	**-31.4**
Vessel	**MV Ocean Vantage**	Date of Test (Start-End)	
Method	**20 kN Sea bed CPT**	Final Borehole Depth	**57.00m**

CRS: **ETRS89**

Comments: Location data taken from CB11. CB11 class 3 test terminated at 22.14m at operators discretion due to lack of lateral rod support from mudline and increasing cone inclination. Borehole CB11-BH was completed to a depth of 53.12m utilising API drilling~ Wison CPT and push sampling methods~ at which point it was terminated due to rising weather conditions. Borehole CB11a-BH was completed to a depth of 57.00m utilising API drilling~ ~~Wison CPT and push sampling methods after open hole~~ drill out to 52.00m. P-S logging was performed from 53.00m up to 4.00m below mudline.

QC Status	Preliminary	Draft	Final
	BC/JK (28/06/2021)	**DR** (28/06/2021)	**SMc** (10/11/2021)

Location Names
CB11
CB11-BH
CB11a-BH

Preliminary Investigation, Hesselø OWF

BOREHOLE LOG, LABORATORY TEST RESULTS AND IN SITU CPTU TESTING

Gardline

Relative to (mMSL)	Relative to BSB (m)	Soil Profile	Sample Type	CPTU Push	CPT Ref No. Cone ID Cone Area (a)	Soil Depth (m)	Env.	Age
-41.5	10.5		P11					
-42.0	11.0				01 120829 10cm² (0.8)			
-42.5	11.5		P12					
-43.0	12.0							
-43.5	12.5		P13					
-44.0	13.0							
-44.5	13.5		P14					
-45.0	14.0							
-45.5	14.5		P15					
-46.0	15.0						Ma	Ho
-46.5	15.5		P16					
-47.0	16.0							
-47.5	16.5		P17					
-48.0	17.0							
-48.5	17.5		P18					
-49.0	18.0							
-49.5	18.5		P19					
-50.0	19.0							
-50.5	19.5		P20					
-51.0								

Low to medium strength CLAY, high plasticity, very silty, slightly sandy, with pockets (<0.05m) of silt, light grey (5Y 7/2) and black organic staining, dark greyish brown (2.5Y 4/2), slightly calcareous

Water Content (%): 0 25 50 75 100

Density (Mg/m^3): 3 2 1 0

Particle Size, %: Gravel | Sand | Fines | Silt | Clay

Relative Density, D_r (%): 0 30 60 90 120

Undrained Shear Strength, Su (kPa): 0 300 600 900 1200 1500

Corrected Cone Resistance, q_t (MPa): 0 12 24 36 48 60

Sleeve Friction, f_s(MPa): 0 0.3 0.6 0.9 1.2 1.5

Pore Pressure, U_2 (kPa): -4500 -2250 0 2250 4500

Ambient Pore Pressure (kPa)

Relative to BSB (m): 10.5 11.0 11.5 12.0 12.5 13.0 13.5 14.0 14.5 15.0 15.5 16.0 16.5 17.0 17.5 18.0 18.5 19.0 19.5

KEY TO SOIL PROFILE

SILT | CLAY | SAND | GRAVEL | COBBLES | CHALK | PEAT | Mixed Soil

Assumed Unit Weight: 20 - 16 kN/m^3
K_0: 0.5 - 2.0
N_{kt}: 15 - 20
N_{cv}: 12.5 - 16.5

Area	**Kattegat Sea**	Coordinates	**678372.4E**	**6256256.9N**	CRS: **ETRS89**
Contract	**11596**	Latitude / Longitude			
Client Name / Ref	**Energinet Eltransmission A/S / 384_20_ENE**	Water Depth (mMSL)	**-31.4**		
Vessel	**MV Ocean Vantage**	Date of Test (Start-End)			
Method	**20 kN Sea bed CPT**	Final Borehole Depth	**57.00m**		

Comments: Location data taken from CB11. CB11 class 3 test terminated at 22.14m at operators discretion due to lack of lateral rod support from mudline and increasing cone inclination. Borehole CB11-BH was completed to a depth of 53.12m utilising API drilling~ Wison CPT and push sampling methods~ at which point it was terminated due to rising weather conditions. Borehole CB11a-BH was completed to a depth of 57.00m utilising API drilling~ ~~Wison CPT and push sampling methods after open hole~~ drill out to 52.00m. P-S logging was performed from 53.00m up to 4.00m below mudline.

QC Status		
Preliminary	Draft	Final
BC/JK (28/06/2021)	**DR** (28/06/2021)	**SMc** (10/11/2021)

Location Names
CB11
CB11-BH

Preliminary Investigation, Hesselø OWF

BOREHOLE LOG, LABORATORY TEST RESULTS AND IN SITU CPTU TESTING

Soil Depth (m)	Soil Description	Env.	Age
	Low to medium strength CLAY, high plasticity, very silty, slightly sandy, with pockets (<0.05m) of silt, light grey (5Y 7/2) and black organic staining, dark greyish brown (2.5Y 4/2), slightly calcareous	Ma	Ho
22.08	Low to medium strength CLAY, high plasticity, very silty, slightly sandy, slightly gravelly, with black organic staining, dark grey (5Y 4/1), highly calcareous	Ma/Fw	Ho
24.00	Medium to high strength CLAY, high plasticity, very silty, slightly sandy, dark grey (5Y 4/1), highly calcareous	Ma/Fw	Pg
26.00	High to very high strength CLAY TILL, medium plasticity, very silty, very sandy, slightly gravelly, dark grey (5Y 4/1), with shell fragments (<0.02m), highly calcareous	Ma/Fw	Gc

Sample Type: 3D, 28

CPT Ref No. / Cone ID / Cone Area (a): 01 120826 10cm² (0.76); 02 120826 10cm² (0.76); 03 120826 10cm² (0.76)

Particle Size, %

Gravel	Sand	Fines	Silt	Clay
0	1	99	44	55
0	1	99	49	50

KEY TO SOIL PROFILE

SILT, CLAY, SAND, GRAVEL, COBBLES, CHALK, PEAT, Mixed Soil

Assumed Unit Weight: 20 - 16 kN/m³
K_0: 0.5 - 2.0
N_{kt}: 15 - 20
N_{ch}: 12.5 - 16.5

Area	**Kattegat Sea**	Coordinates	**678372.4E**	**6256256.9N**	CRS: **ETRS89**
Contract	**11596**	Latitude / Longitude			
Client Name / Ref	**Energinet Eltransmission A/S / 384_20_ENE**	Water Depth (mMSL)	**-31.4**		
Vessel	**MV Ocean Vantage**	Date of Test (Start-End)			
Method	**20 kN Sea bed CPT**	Final Borehole Depth	**57.00m**		

Comments: Location data taken from CB11. CB11 class 3 test terminated at 22.14m at operators discretion due to lack of lateral rod support from mudline and increasing cone inclination. Borehole CB11-BH was completed to a depth of 53.12m utilising API drilling~ Wison CPT and push sampling methods~ at which point it was terminated due to rising weather conditions. Borehole CB11a-BH was completed to a depth of 57.00m utilising API drilling~ Wison CPT and push sampling methods after open hole drill out to 52.00m. P-S logging was performed from 53.00m up to 4.00m below mudline.

QC Status	Preliminary	Draft	Final
	BC/JK (28/06/2021)	**DR** (28/06/2021)	**SMc** (10/11/2021)

Location Names: CB11, CB11-BH

Preliminary Investigation, Hesselø OWF

BOREHOLE LOG, LABORATORY TEST RESULTS AND IN SITU CPTU TESTING

Soil Depth (m)	Description	Env.	Age
	High to very high strength CLAY TILL, medium plasticity, very silty, very sandy, slightly gravelly, dark grey (5Y 4/1), with shell fragments (<0.02m), highly calcareous	Ma/Fw	Gc
	35.80m - 36.34m: 35.80-36.34m: Medium bed of medium dense to dense sand, fine, well sorted, clayey, silty, greenish grey (GLEY1 10Y 5/1), calcareous		
36.60	Very to extremely high strength CLAY, high plasticity, very silty, slightly sandy, greenish black (GLEY1 5GY 2.5/1), non calcareous	Gl	Gc
37.35	CLAY, high plasticity, very silty, very sandy, slightly gravelly, very dark greenish grey (GLEY1 10Y 3/1), slightly calcareous	Gl	Gc

Sample Type: P31, P32, P33, P34, P35, P36, P37, P38, P39, P40

CPT Ref No. / Cone ID / Cone Area (a): 04 120826 10cm² (0.76); 05 120826 10cm² (0.76)

Water Content (%): 14; 30; 27

Particle Size, %	Gravel	Sand	Fines	Silt	Clay
	9	38	53	31	22
	0	7	93	67	26
	0	11	89	59	30

Relative to (mMSL) / Relative to BSB (m): 61.5 / 30.5 to 71.0 / 39.5

Relative Density, D_r (%): 0 30 60 90 120

Undrained Shear Strength, Su (kPa): 0 300 600 900 1200 1500

Corrected Cone Resistance, q_t (MPa): 0 12 24 36 48 60

Sleeve Friction, f_s (MPa): 0 0.3 0.6 0.9 1.2 1.5

Pore Pressure, U_2 (kPa): -4500 -2250 0 2250 4500

Ambient Pore Pressure (kPa)

KEY TO SOIL PROFILE

SILT, CLAY, SAND, GRAVEL, COBBLES, CHALK, PEAT, Mixed Soil

Assumed Unit Weight: 20 - 16 kN/m³
K_0: 0.5 - 2.0
N_{kt}: 15 - 20
N_{ch}: 12.5 - 16.5

Area	**Kattegat Sea**	Coordinates	**678372.4E**	**6256256.9N**	CRS: **ETRS89**
Contract	**11596**	Latitude / Longitude			
Client Name / Ref	**Energinet Eltransmission A/S / 384_20_ENE**	Water Depth (mMSL)	**-31.4**		
Vessel	**MV Ocean Vantage**	Date of Test (Start-End)			
Method	**Wison**	Final Borehole Depth	**57.00m**		

Comments: Location data taken from CB11. CB11 class 3 test terminated at 22.14m at operators discretion due to lack of lateral rod support from mudline and increasing cone inclination. Borehole CB11-BH was completed to a depth of 53.12m utilising API drilling~ Wison CPT and push sampling methods~ at which point it was terminated due to rising weather conditions. Borehole CB11a-BH was completed to a depth of 57.00m utilising API drilling~ ~~Wison CPT and push sampling methods after open hole~~ drill out to 52.00m. P-S logging was performed from 53.00m up to 4.00m below mudline.

QC Status	Preliminary	Draft	Final
	BC/JK (28/06/2021)	**DR** (28/06/2021)	**SMc** (10/11/2021)

Location Names: CB11-BH

Preliminary Investigation, Hesselø OWF

BOREHOLE LOG, LABORATORY TEST RESULTS AND IN SITU CPTU TESTING

Soil Depth (m)	Soil Description	Env.	Age
42.00	CLAY, high plasticity, very silty, very sandy, slightly gravelly, very dark greenish grey (GLEY1 10Y 3/1), slightly calcareous	Gl	Gc
46.00	Extremely high strength CLAY TILL, high plasticity, very silty, very sandy, slightly gravelly, very dark greenish grey (GLEY1 10GY 3/1), slightly calcareous	Gl	Gc
	Extremely high strength CLAY, high plasticity, slightly gravelly, very dark greenish grey (GLEY1 10GY 3/1) becoming dark greenish grey (GLEY1 10Y 4/1), slightly calcareous	Gl	Gc
	Extremely high strength CLAY, high plasticity, very silty, sandy, very dark greenish grey (GLEY1 5GY 3/1), highly calcareous	Gl	Gc

Soil Depth (m)	Gravel	Sand	Fines	Silt	Clay
42.00	1	24	75	23	52
46.00	1	23	76	36	40
	0	12	88	56	32

CPT Ref No. / Cone ID / Cone Area (a): 06 120826 10cm² (0.76); 07 120826 10cm² (0.76); 08 120826 10cm² (0.76)

Sample Type / CPTU Push: P41, P42, P43, P44, P45, P46, P47, P48, P49, P50

KEY TO SOIL PROFILE

SILT, CLAY, SAND, GRAVEL, COBBLES, CHALK, PEAT, Mixed Soil

Assumed Unit Weight: 20 - 16 kN/m³
K_0: 0.5 - 2.0
N_{kt}: 15 - 20
$N_{Δ}$: 12.5 - 16.5

Area	**Kattegat Sea**	Coordinates	**678372.4E 6256256.9N**
Contract	**11596**	Latitude / Longitude	
Client Name / Ref	**Energinet Eltransmission A/S / 384_20_ENE**	Water Depth (mMSL)	**-31.4**
Vessel	**MV Ocean Vantage**	Date of Test (Start-End)	
Method	**Wison**	Final Borehole Depth	**57.00m**

CRS: **ETRS89**

Comments: Location data taken from CB11. CB11 class 3 test terminated at 22.14m at operators discretion due to lack of lateral rod support from mudline and increasing cone inclination. Borehole CB11-BH was completed to a depth of 53.12m utilising API drilling~ Wison CPT and push sampling methods~ at which point it was terminated due to rising weather conditions. Borehole CB11a-BH was completed to a depth of 57.00m utilising API drilling~ ~~Wison CPT and push sampling methods after open hole~~ drill out to 52.00m. P-S logging was performed from 53.00m up to 4.00m below mudline.

QC Status	Preliminary	Draft	Final
	BC/JK (28/06/2021)	**DR** (28/06/2021)	**SMc** (10/11/2021)

Location Names: CB11-BH

Preliminary Investigation, Hesselø OWF

BOREHOLE LOG, LABORATORY TEST RESULTS AND IN SITU CPTU TESTING

Soil Depth (m)	Soil Description	Env.	Age
	Extremely high strength CLAY, high plasticity, very silty, sandy, very dark greenish grey (GLEY1 5GY 3/1), highly calcareous	Gl	Gc
	50.32m - 50.58m: 50.32-50.58m: Medium bed of gravel		
50.60	Extremely high strength CLAY, silty with medium to widely spaced thin beds of gravel between 51.30m and 52.56m	Gl	Gc
52.02	Extremely high strength CLAY TILL, very silty, very sandy, very gravelly, dark grey (5Y 4/1), highly calcareous	Gl	Gc
53.00	Dense to very dense SAND, gravelly	Gl	Gc
53.12	Weak MUDSTONE, indurated, slightly micaceous, with siltstone laminations, extremely closely spaced, light grey (5Y 7/2), greenish black (GLEY2 2.5/10G), non-calcareous	Gl	Ct
57.00	End of borehole at 57.00m		

Particle Size, %: Gravel 7; Sand 36; Fines 57; Silt 42; Clay 15

CPT Ref No. / Cone ID / Cone Area (a): 09 120826 10cm² (0.76); 01 120825 10cm² (0.76); 02 121125 10cm² (0,8); 10 120826 10cm² (0.76); 03 121125 10cm² (0,8); 04 120826 10cm² (0.76); 05 120826 10cm² (0.76)

KEY TO SOIL PROFILE

SILT, CLAY, SAND, GRAVEL, COBBLES, CHALK, PEAT, Mixed Soil

Assumed Unit Weight: 20 - 16 kN/m³
K_0: 0.5 - 2.0
N_{kt}: 15 - 20
N_{ch}: 12.5 - 16.5

Area	**Kattegat Sea**	Coordinates	**678372.4E**	**6256256.9N**
Contract	**11596**	Latitude / Longitude		
Client Name / Ref	**Energinet Eltransmission A/S / 384_20_ENE**	Water Depth (mMSL)	**-31.4**	
Vessel	**MV Ocean Vantage**	Date of Test (Start-End)		
Method	**Wison**	Final Borehole Depth	**57.00m**	

CRS: **ETRS89**

Comments: Location data taken from CB11. CB11 class 3 test terminated at 22.14m at operators discretion due to lack of lateral rod support from mudline and increasing cone inclination. Borehole CB11-BH was completed to a depth of 53.12m utilising API drilling~ Wison CPT and push sampling methods~ at which point it was terminated due to rising weather conditions. Borehole CB11a-BH was completed to a depth of 57.00m utilising API drilling~ ~~Wison CPT and push sampling methods after open hole~~ drill out to 52.00m. P-S logging was performed from 53.00m up to 4.00m below mudline.

QC Status	Preliminary	Draft	Final
	BC/JK (28/06/2021)	**DR** (28/06/2021)	**SMc** (10/11/2021)

Location Names: CB11-BH, CB11a-BH

Preliminary Investigation, Hesselø OWF

BOREHOLE LOG, LABORATORY TEST RESULTS AND IN SITU CPTU TESTING

Soil Depth (m)	Soil Description	Env.	Age
	Extremely low strength CLAY, low plasticity, sandy, dark greenish olive (10Y-5GY 4/2) to dark grey (5Y 4/1), non calcareous	Ma/Fw	Ho
0.93	Extremely low to very low strength CLAY, high plasticity, very silty, slightly sandy, with black organic staining greyish brown (2.5Y 4/1) to dark grey (5Y 4/1), highly calcareous	Ma/Fw	Ho
4.80	Low becoming medium strength CLAY, high plasticity, very silty, slightly sandy, with black organic staining dark grey (5Y 4/1), highly calcareous	Ma/Fw	Ho

Water Content (%) 0 25 50 75 100 — Density (Mg/m^3) 3 2 1 0 — Particle Size, % — Relative Density, D_r (%) 0 30 60 90 120 — Corrected Cone Resistance, q_t (MPa) 0 12 24 36 48 60 — Pore Pressure, U_2 (kPa) -4500 -2250 0 2250 4500

Gravel	Sand	Fines	Silt	Clay
0	1	99	38	61

Undrained Shear Strength, Su (kPa) 0 300 600 900 1200 1500 — Sleeve Friction, f_s (MPa) 0 0.3 0.6 0.9 1.2 1.5 — Ambient Pore Pressure (kPa)

KEY TO SOIL PROFILE

SILT, CLAY, SAND, GRAVEL, COBBLES, CHALK, PEAT, Mixed Soil

Assumed Unit Weight: 20 - 16 kN/m^3
K_0: 0.5 - 2.0
N_{kt}: 15 - 20
N_{kt}: 12.5 - 16.5

Area	**Kattegat Sea**	Coordinates	**677450.3E**	**6270633.5N**	CRS: **ETRS89**
Contract	**11596**	Latitude / Longitude			**Comments: Location data taken from CB12. CB12 class 1 test terminated at 34.82m at operators discretion due to high risk of rod bend. Continuous seabed CPT. Borehole CB12-BH was completed to a depth of 70.68m utilising API drilling~ Wison CPT and push sampling methods.**
Client Name / Ref	**Energinet Eltransmission A/S / 384_20_ENE**	Water Depth (mMSL)	**-31.8**		
Vessel	**MV Ocean Vantage**	Date of Test (Start-End)			
Method	**20 kN Sea bed CPT**	Final Borehole Depth	**70.00m**		

QC Status		
Preliminary	Draft	Final
BC/JK (25/06/2021)	**DR** (25/06/2021)	**SMc** (10/11/2021)

Location Names
CB12
CB12-BH

Preliminary Investigation, Hesselø OWF

BOREHOLE LOG, LABORATORY TEST RESULTS AND IN SITU CPTU TESTING

Relative to (mMSL)	Relative to BSB (m)	Soil Profile	Sample Type	CPTU Push	CPT Ref No. Cone ID Cone Area (a)	Soil Depth (m)		Env.	Age
-42.0	10.5		P11				Low becoming medium strength CLAY, high plasticity, very silty, slightly sandy, with black organic staining dark grey (5Y 4/1), highly calcareous		
-42.5	11.0								
-43.0	11.5		P12						
-43.5	12.0								
-44.0	12.5		P13						
-44.5	13.0								
-45.0	13.5		P14						
-45.5	14.0								
-46.0	14.5		P15						
-46.5	15.0							Ma/Fw	Ho
-47.0	15.5		P16				*15.00m - 16.00m: 15.00-16.00m: Thick bed of low strength clay, high plasticity, slightly gravelly, with black organic staining, dark grey (5Y 4/1), highly calcareous*		
-47.5	16.0								
-48.0	16.5		P17						
-48.5	17.0								
-49.0	17.5		P18		01 130909 10cm² (0.82)				
-49.5	18.0								
-50.0	18.5		P19						
-50.5	19.0								
-51.0	19.5		P20				*19.22m - 19.25m: 19.22-19.25m: Very thin bed of clay, medium plasticity, sandy, gravelly, dark grey (5Y 4/1), calcareous*		
-51.5									

Water Content (%): 0, 25, 50, 75, 100

Density (Mg/m³): 3, 2, 1, 0

Particle Size, %

Gravel	Sand	Fines	Silt	Clay
0	1	99	42	57

Relative Density, D_r (%): 0, 30, 60, 90, 120

Undrained Shear Strength, Su (kPa): 0, 300, 600, 900, 1200, 1500

Corrected Cone Resistance, q_t (MPa): 0, 12, 24, 36, 48, 60

Sleeve Friction, f_s(MPa): 0, 0.3, 0.6, 0.9, 1.2, 1.5

Pore Pressure, U_2 (kPa): -4500, -2250, 0, 2250, 4500

Ambient Pore Pressure (kPa)

KEY TO SOIL PROFILE

SILT · CLAY · SAND · GRAVEL · COBBLES · CHALK · PEAT · Mixed Soil

Assumed Unit Weight: 20 - 16 kN/m³
K_0: 0.5 - 2.0
N_{kt}: 15 - 20
N_{ch}: 12.5 - 16.5

Area	**Kattegat Sea**	Coordinates	**677450.3E**	**6270633.5N**	CRS: **ETRS89**
Contract	**11596**	Latitude / Longitude			**Comments: Location data taken from CB12. CB12 class 1 test terminated at 34.82m at operators discretion due to high risk of rod bend. Continuous seabed CPT. Borehole CB12-BH was completed to a depth of 70.68m utilising API drilling~ Wison CPT and push sampling methods.**
Client Name / Ref	**Energinet Eltransmission A/S / 384_20_ENE**	Water Depth (mMSL)	**-31.8**		
Vessel	**MV Ocean Vantage**	Date of Test (Start-End)			
Method	**20 kN Sea bed CPT**	Final Borehole Depth	**70.00m**		

QC Status		
Preliminary	Draft	Final
BC/JK (25/06/2021)	**DR** (25/06/2021)	**SMc** (10/11/2021)

Location Names
CB12
CB12-BH

Preliminary Investigation, Hesselø OWF

BOREHOLE LOG, LABORATORY TEST RESULTS AND IN SITU CPTU TESTING

Soil Depth (m)	Soil Description	Env.	Age
20.00	Medium strength CLAY, high plasticity, very silty, slightly sandy, slightly gravelly, with black organic staining, dark grey (5Y 4/1), calcareous	Ma/Fw	Pg
22.00	Medium strength CLAY, high plasticity, silty, slightly sandy, dark grey (5Y 4/1) becoming dark greenish grey (GLEY1 10Y 4/1) with closely spaced thick laminations of sand, fine, well sorted, silty, grey (5Y 5/1), highly calcareous with black organic staining, dark grey (5Y 4/1), calcareous	Ma/Fw	Pg

Water Content (%) 0 25 50 75 100 | Density (Mg/m³) 3 2 1 0

Particle Size, %	Gravel	Sand	Fines	Silt	Clay
	0	2	98	40	58
	0	3	97	51	46

Relative Density, D_r (%) 0 30 60 90 120 | Undrained Shear Strength, Su (kPa) 0 300 600 900 1200 1500

Corrected Cone Resistance, q_t (MPa) 0 12 24 36 48 60 | Sleeve Friction, f_s(MPa) 0 0.3 0.6 0.9 1.2 1.5

Pore Pressure, U_2 (kPa) -4500 -2250 0 2250 4500 | Ambient Pore Pressure (kPa)

Relative to (mMSL): -52.0 -52.5 -53.0 -53.5 -54.0 -54.5 -55.0 -55.5 -56.0 -56.5 -57.0 -57.5 -58.0 -58.5 -59.0 -59.5 -60.0 -60.5 -61.0 -61.5

Relative to BSB (m): 20.5 21.0 21.5 22.0 22.5 23.0 23.5 24.0 24.5 25.0 25.5 26.0 26.5 27.0 27.5 28.0 28.5 29.0 29.5

Soil Profile / Sample Type / CPTU Push: P21 P22 P23 P24 P25 P26 P27 P28 P29 P30

CPT Ref No. / Cone ID / Cone Area (a)

KEY TO SOIL PROFILE

SILT, CLAY, SAND, GRAVEL, COBBLES, CHALK, PEAT, Mixed Soil

Assumed Unit Weight: 20 - 16 kN/m³
K_0: 0.5 - 2.0
N_{kt}: 15 - 20
N_{kt}: 12.5 - 16.5

Area	**Kattegat Sea**	Coordinates	**677450.3E**	**6270633.5N**	CRS: **ETRS89**
Contract	**11596**	Latitude / Longitude			**Comments: Location data taken from CB12. CB12 class 1 test terminated at 34.82m at operators discretion due to high risk of rod bend. Continuous seabed CPT. Borehole CB12-BH was completed to a depth of 70.68m utilising API drilling~ Wison CPT and push sampling methods.**
Client Name / Ref	**Energinet Eltransmission A/S / 384_20_ENE**	Water Depth (mMSL)	**-31.8**		
Vessel	**MV Ocean Vantage**	Date of Test (Start-End)			
Method	**20 kN Sea bed CPT**	Final Borehole Depth	**70.00m**		

QC Status	Preliminary	Draft	Final
	BC/JK (25/06/2021)	**DR** (25/06/2021)	**SMc** (10/11/2021)

Location Names
CB12
CB12-BH

Preliminary Investigation, Hesselø OWF

BOREHOLE LOG, LABORATORY TEST RESULTS AND IN SITU CPTU TESTING

Soil Depth (m)	Description	Env.	Age
	Medium strength CLAY, high plasticity, silty, slightly sandy, dark grey (5Y 4/1) becoming dark greenish grey (GLEY1 10Y 4/1) with closely spaced thick laminations of sand, fine, well sorted, silty, grey (5Y 5/1), highly calcareous with black organic staining, dark grey (5Y 4/1), calcareous	Ma/Fw	Pg
30.75	High to very high strength CLAY TILL, medium plasticity, very silty, very sandy, slightly gravelly, very dark greenish grey (GLEY1 5GY 3/1), highly calcareous		
	33.60m - 33.65m: 33.60-33.65m: Very thin bed of sand, fine, well sorted, clayey, silty, gravelly, greenish grey (GLEY1 10Y 5/1), highly calcareous	Ma/Fw	Gc
38.00	Dense to very dense SAND, fine to medium, sorted, very silty, dark greenish grey (GLEY1 10Y 4/1) to dark grey (2.5Y 4/1), calcareous	Gl	Gc

Particle Size, %: Gravel 3, Sand 25, Fines 72, Silt 45, Clay 27

KEY TO SOIL PROFILE

SILT, CLAY, SAND, GRAVEL, COBBLES, CHALK, PEAT, Mixed Soil

Assumed Unit Weight: 20 - 16 kN/m³
K_0: 0.5 - 2.0
N_{cv}: 15 - 20
N_{ch}: 12.5 - 16.5

Area	**Kattegat Sea**	Coordinates	**677450.3E**	**6270633.5N**	CRS: **ETRS89**
Contract	**11596**	Latitude / Longitude			
Client Name / Ref	**Energinet Eltransmission A/S / 384_20_ENE**	Water Depth (mMSL)	**-31.8**		
Vessel	**MV Ocean Vantage**	Date of Test (Start-End)			
Method	**20 kN Sea bed CPT**	Final Borehole Depth	**70.00m**		

Comments: Location data taken from CB12. CB12 class 1 test terminated at 34.82m at operators discretion due to high risk of rod bend. Continuous seabed CPT. Borehole CB12-BH was completed to a depth of 70.68m utilising API drilling~ Wison CPT and push sampling methods.

QC Status	Preliminary	Draft	Final
	BC/JK (25/06/2021)	**DR** (25/06/2021)	**SMc** (10/11/2021)

Location Names
CB12
CB12-BH

Preliminary Investigation, Hesselø OWF

BOREHOLE LOG, LABORATORY TEST RESULTS AND IN SITU CPTU TESTING

Soil Depth (m)	Soil Description	Env.	Age
	Dense to very dense SAND, fine to medium, sorted, very silty, dark greenish grey (GLEY1 10Y 4/1) to dark grey (2.5Y 4/1), calcareous	Gl	Gc
43.50	Very high to extremely high strength CLAY TILL, medium plasticity, very silty, very sandy, slightly gravelly, greenish black (GLEY1 10GY 2.5/1) to bluish black (GLEY2 2.5/1), highly calcareous with very closely spaced thick laminations of silt, non plastic, dark greenish grey (GLEY1 10Y 4/1) and closely to medium spaced thin laminations of sand, fine to medium, well sorted, greenish grey (GLEY1 10Y 5/1) calcareous, organic odour *44.65m - 44.71m: 44.65-44.71m: Very thin bed of sand, fine to medium, well sorted, gravelly, dark grey (2.5Y 4/1), slightly calcareous*	Gl/Mw	Gc

Particle Size, %	Gravel	Sand	Fines	Silt	Clay
	0	89	11	11	0
	2	42	56	38	18

CPT Ref No. / Cone ID / Cone Area (a): 01 121005G 10cm² (0.78); 02 121005G 10cm² (0.78); 03 121004 10cm² (0.78); 04 121005G 10cm² (0.78); 05 121005G 10cm² (0.78)

Water Content (%) 0 25 50 75 100 | Density (Mg/m³) 3 2 1 0 | Relative Density, D_r (%) 0 30 60 90 120 | Undrained Shear Strength, Su (kPa) 0 300 600 900 1200 1500 | Corrected Cone Resistance, q_t (MPa) 0 12 24 36 48 60 | Sleeve Friction, f_s (MPa) 0 0.3 0.6 0.9 1.2 1.5 | Pore Pressure, U_2 (kPa) -4500 -2250 0 2250 4500 | Ambient Pore Pressure (kPa)

KEY TO SOIL PROFILE

SILT · CLAY · SAND · GRAVEL · COBBLES · CHALK · PEAT · Mixed Soil

Assumed Unit Weight: 20 - 16 kN/m³
K_0: 0.5 - 2.0
N_{cone}: 15 - 20
N_{rel}: 12.5 - 16.5

Area	**Kattegat Sea**	Coordinates	**677450.3E**	**6270633.5N**	CRS: **ETRS89**
Contract	**11596**	Latitude / Longitude			
Client Name / Ref	**Energinet Eltransmission A/S / 384_20_ENE**	Water Depth (mMSL)	**-31.8**		
Vessel	**MV Ocean Vantage**	Date of Test (Start-End)			
Method	**Wison**	Final Borehole Depth	**70.00m**		

Comments: Location data taken from CB12. CB12 class 1 test terminated at 34.82m at operators discretion due to high risk of rod bend. Continuous seabed CPT. Borehole CB12-BH was completed to a depth of 70.68m utilising API drilling~ Wison CPT and push sampling methods.

QC Status	Preliminary	Draft	Final
	BC/JK (25/06/2021)	**DR** (25/06/2021)	**SMc** (10/11/2021)

Location Names: CB12-BH

Preliminary Investigation, Hesselø OWF

BOREHOLE LOG, LABORATORY TEST RESULTS AND IN SITU CPTU TESTING

Relative to (mMSL)	Relative to BSB (m)	Soil Depth (m)	Description	Env.	Age
-82.0 to -84.0	50.5 to 52.5	52.50	Very high to extremely high strength CLAY TILL, medium plasticity, very silty, very sandy, slightly gravelly, greenish black (GLEY1 10GY 2.5/1) to bluish black (GLEY2 2.5/1), highly calcareous with very closely spaced thick laminations of silt, non plastic, dark greenish grey (GLEY1 10Y 4/1) and closely to medium spaced thin laminations of sand, fine to medium, well sorted, greenish grey (GLEY1 10Y 5/1) calcareous, organic odour	Gl/Mw	Gc
-84.5 to -86.5	52.5 to 54.5	54.71	Very high to extremely high strength CLAY, high plasticity, slightly silty, slight organic odour, very dark greenish grey (GLEY1 10GY 3/1), highly calcareous with medium spaced very thin beds of gravel	Gl	Gc
-86.5 to -91.5	54.5 to 59.5		Extremely high strength CLAY, high plasticity, very silty, slightly sandy, slightly gravelly, with pockets (<0.03m) of sand, fine, well sorted, greenish grey (GLEY1 10Y 5/1), highly calcareous, with shell fragments (<0.02m), very dark greenish grey (GLEY1 5GY 3/1), highly calcareous *56.06m - 56.26m: 56.07-56.26m: Thin bed of dense to very dense sand*	Gl	Gc

Sample Type: PSO, PSO, PSH
CPT Ref No. / Cone ID / Cone Area (a): 06 121005G 10cm² (0.78); 07 121005G 10cm² (0.78); 08 121005G 10cm² (0.78)

Water Content (%) 0 25 50 75 100
Density (Mg/m³) 3 2 1 0
Particle Size, % — Gravel, Sand, Fines, Silt, Clay
Relative Density, D_r (%) 0 30 60 90 120
Undrained Shear Strength, Su (kPa) 0 300 600 900 1200 1500
Corrected Cone Resistance, q_t (MPa) 0 12 24 36 48 60
Sleeve Friction, f_s (MPa) 0 0.3 0.6 0.9 1.2 1.5
Pore Pressure, U_2 (kPa) -4500 -2250 0 2250 4500
Ambient Pore Pressure (kPa)

KEY TO SOIL PROFILE

SILT, CLAY, SAND, GRAVEL, COBBLES, CHALK, PEAT, Mixed Soil

Assumed Unit Weight: 20 - 16 kN/m³
K_C 0.5 - 2.0
N_{kt} 15 - 20
N_{kt} 12.5 - 16.5

Area	**Kattegat Sea**	Coordinates	**677450.3E**	**6270633.5N**	CRS: **ETRS89**
Contract	**11596**	Latitude / Longitude			**Comments: Location data taken from CB12. CB12 class 1 test terminated at 34.82m at operators discretion due to high risk of rod bend. Continuous seabed CPT. Borehole CB12-BH was completed to a depth of 70.68m utilising API drilling~ Wison CPT and push sampling methods.**
Client Name / Ref	**Energinet Eltransmission A/S / 384_20_ENE**	Water Depth (mMSL)	**-31.8**		
Vessel	**MV Ocean Vantage**	Date of Test (Start-End)			
Method	**Wison**	Final Borehole Depth	**70.00m**		

QC Status		
Preliminary	Draft	Final
BC/JK (25/06/2021)	**DR** (25/06/2021)	**SMc** (10/11/2021)

Location Names: CB12-BH

Preliminary Investigation, Hesselø OWF

BOREHOLE LOG, LABORATORY TEST RESULTS AND IN SITU CPTU TESTING

Soil Depth (m)	Soil Description	Env.	Age
63.76	Extremely high strength CLAY, high plasticity, very silty, slightly sandy, slightly gravelly, with pockets (<0.03m) of sand, fine, well sorted, greenish grey (GLEY1 10Y 5/1), highly calcareous, with shell fragments (<0.02m), very dark greenish grey (GLEY1 5GY 3/1), highly calcareous	Gl	Gc
	Extremely high strength CLAY, high plasticity, slightly silty, with shell fragments (<0.02m), with black organic staining, very dark greenish grey (GLEY1 5GY 3/1), highly calcareous	Gl	Gc
	65.39m - 65.45m: 65.39-65.45m: Very thin bed of gravel	Gl	Gc
	End of borehole at 70.00m		

Particle Size, %

Gravel	Sand	Fines	Silt	Clay
0	6	94	53	41

KEY TO SOIL PROFILE

SILT, CLAY, SAND, GRAVEL, COBBLES, CHALK, PEAT, Mixed Soil

Assumed Unit Weight: 20 - 16 kN/m³
K_0: 0.5 - 2.0
N_{kt}: 15 - 20
N_{kt}: 12.5 - 16.5

Area	**Kattegat Sea**	Coordinates	**677450.3E**	**6270633.5N**	CRS: **ETRS89**
Contract	**11596**	Latitude / Longitude			
Client Name / Ref	**Energinet Eltransmission A/S / 384_20_ENE**	Water Depth (mMSL)	**-31.8**		
Vessel	**MV Ocean Vantage**	Date of Test (Start-End)			
Method	**Wison**	Final Borehole Depth	**70.00m**		

Comments: Location data taken from CB12. CB12 class 1 test terminated at 34.82m at operators discretion due to high risk of rod bend. Continuous seabed CPT. Borehole CB12-BH was completed to a depth of 70.68m utilising API drilling~ Wison CPT and push sampling methods.

QC Status	Preliminary	Draft	Final
	BC/JK (25/06/2021)	**DR** (25/06/2021)	**SMc** (10/11/2021)

Location Names
CB12-BH

Preliminary Investigation, Hesselø OWF

BOREHOLE LOG, LABORATORY TEST RESULTS AND IN SITU CPTU TESTING

Relative to (mMSL)	Relative to BSB (m)	Soil Profile	Sample Type	CPTU Push	CPT Ref No. Cone ID Cone Area (a)	Soil Depth (m)		Env.	Age
-102.0	70.5					70.68	Extremely high strength CLAY, high plasticity, slightly silty, with shell fragments (<0.02m), with black organic staining, very dark greenish grey (GLEY1 5GY 3/1), highly calcareous	Gl	Gc
-102.5	71.0						End of borehole at 70.00m		
-103.0	71.5								
-103.5	72.0								
-104.0	72.5								
-104.5	73.0								
-105.0	73.5								
-105.5	74.0								
-106.0	74.5								
-106.5	75.0								
-107.0	75.5								
-107.5	76.0								
-108.0	76.5								
-108.5	77.0								
-109.0	77.5								
-109.5	78.0								
-110.0	78.5								
-110.5	79.0								
-111.0	79.5								
-111.5									

Water Content (%): 0, 25, 50, 75, 100

Density (Mg/m^3): 3, 2, 1, 0

Particle Size, %: Gravel, Sand, Fines, Silt, Clay

Relative Density, D_r (%): 0, 30, 60, 90, 120

Undrained Shear Strength, Su (kPa): 0, 300, 600, 900, 1200, 1500

Corrected Cone Resistance, q_t (MPa): 0, 12, 24, 36, 48, 60

Sleeve Friction, f_s(MPa): 0, 0.3, 0.6, 0.9, 1.2, 1.5

Pore Pressure, U_2 (kPa): -4500, -2250, 0, 2250, 4500

Ambient Pore Pressure (kPa)

Relative to BSB (m): 70.5, 71.0, 71.5, 72.0, 72.5, 73.0, 73.5, 74.0, 74.5, 75.0, 75.5, 76.0, 76.5, 77.0, 77.5, 78.0, 78.5, 79.0, 79.5

KEY TO SOIL PROFILE

SILT, CLAY, SAND, GRAVEL, COBBLES, CHALK, PEAT, Mixed Soil

Assumed Unit Weight: 20 - 16 kN/m^3
K_0: 0.5 - 2.0
N_{kt}: 15 - 20
N_{kt}: 12.5 - 16.5

Area	**Kattegat Sea**	Coordinates	**677450.3E**	**6270633.5N**	CRS: **ETRS89**
Contract	**11596**	Latitude / Longitude			**Comments: Location data taken from CB12. CB12 class 1 test terminated at 34.82m at operators discretion due to high risk of rod bend. Continuous seabed CPT. Borehole CB12-BH was completed to a depth of 70.68m utilising API drilling~ Wison CPT and push sampling methods.**
Client Name / Ref	**Energinet Eltransmission A/S / 384_20_ENE**	Water Depth (mMSL)	**-31.8**		
Vessel	**MV Ocean Vantage**	Date of Test (Start-End)			
Method	**Wison**	Final Borehole Depth	**70.00m**		

QC Status		
Preliminary	Draft	Final
BC/JK (25/06/2021)	**DR** (25/06/2021)	**SMc** (10/11/2021)

Location Names
CB12-BH

Preliminary Investigation, Hesselø OWF

BOREHOLE LOG, LABORATORY TEST RESULTS AND IN SITU CPTU TESTING

Soil Depth (m)	Soil Description	Env.	Age
	Extremely low strength CLAY, low plasticity, very silty, very sandy, slightly micaceous, with shell fragments (<0.03m), dark greenish grey (GLEY 1 10Y 4/1), slightly calcareous	Ma/Fw	Ho
3.01	Low strength CLAY, high plasticity, very silty, slightly sandy, olive grey (5Y 4/2), slightly calcareous, with medium spaed thin to medium beds of medium dense becoming very dense sand, fine to medium, well sorted, with shell fragments (<0.01m), very dark grey (GLEY 1 4/N), slightly calcareous between 3.05 and 3.75m	Ma/Fw	Ho

Particle Size, %	Gravel	Sand	Fines	Silt	Clay
	0	62	38	25	13

KEY TO SOIL PROFILE

SILT · CLAY · SAND · GRAVEL · COBBLES · CHALK · PEAT · Mixed Soil

Assumed Unit Weight: 20 - 16 kN/m³
K_C 0.5 - 2.0
N_{KT} 15 - 20
N_{KT} 12.5 - 16.5

Area	**Kattegat Sea**	Coordinates	**670639.5E**	**6262910.5N**	CRS: **ETRS89**
Contract	**11596**	Latitude / Longitude			**Comments: Location data taken from CB13. CB13 class 1 test terminated at 33.83m at operators discretion due to high inclination and risk of rod bend. Continuous seabed CPT. Borehole CB13-BH was completed to a depth of 66.48m utilising API drilling~ Wison CPT and push sampling methods**
Client Name / Ref	**Energinet Eltransmission A/S / 384_20_ENE**	Water Depth (mMSL)	**-30.0**		
Vessel	**MV Ocean Vantage**	Date of Test (Start-End)			
Method	**20 kN Sea bed CPT**	Final Borehole Depth	**66.50m**		

QC Status	Preliminary	Draft	Final
	BC/JK (25/06/2021)	**DR** (25/06/2021)	**SMc** (10/11/2021)

Location Names
CB13
CB13-BH

Preliminary Investigation, Hesselø OWF

BOREHOLE LOG, LABORATORY TEST RESULTS AND IN SITU CPTU TESTING

Relative to (mMSL)	Relative to BSB (m)	Soil Profile	Sample Type	CPTU Push	CPT Ref No. Cone ID Cone Area (a)	Soil Depth (m)		Env.	Age
-40.5 to -49.5	10.5 to 19.5				01 181004 10cm² (0.81)		Low strength CLAY, high plasticity, very silty, slightly sandy, olive grey (5Y 4/2), slightly calcareous, with medium spaed thin to medium beds of medium dense becoming very dense sand, fine to medium, well sorted, with shell fragments (<0.01m), very dark grey (GLEY 1 4/N), slightly calcareous between 3.05 and 3.75m	Ma/Fw	Ho

Water Content (%): 0, 25, 50, 75, 100

Density (Mg/m³): 3, 2, 1, 0

28

Particle Size, %

Gravel	Sand	Fines	Silt	Clay
0	1	99	48	51

Relative Density, D_r (%): 0, 30, 60, 90, 120

Undrained Shear Strength, Su (kPa): 0, 300, 600, 900, 1200, 1500

Corrected Cone Resistance, q_t (MPa): 0, 12, 24, 36, 48, 60

Sleeve Friction, f_s(MPa): 0, 0.3, 0.6, 0.9, 1.2, 1.5

Pore Pressure, U_2 (kPa): -4500, -2250, 0, 2250, 4500

Ambient Pore Pressure (kPa)

KEY TO SOIL PROFILE

SILT, CLAY, SAND, GRAVEL, COBBLES, CHALK, PEAT, Mixed Soil

Assumed Unit Weight: 20 - 16 kN/m³
K_0: 0.5 - 2.0
N_{kt}: 15 - 20
N_{kt}: 12.5 - 16.5

Area	**Kattegat Sea**	Coordinates	**670639.5E**	**6262910.5N**	CRS: **ETRS89**
Contract	**11596**	Latitude / Longitude			**Comments: Location data taken from CB13. CB13 class 1 test terminated at 33.83m at operators discretion due to high inclination and risk of rod bend. Continuous seabed CPT. Borehole CB13-BH was completed to a depth of 66.48m utilising API drilling~ Wison CPT and push sampling methods**
Client Name / Ref	**Energinet Eltransmission A/S / 384_20_ENE**	Water Depth (mMSL)	**-30.0**		
Vessel	**MV Ocean Vantage**	Date of Test (Start-End)			
Method	**20 kN Sea bed CPT**	Final Borehole Depth	**66.50m**		

QC Status		
Preliminary	Draft	Final
BC/JK (25/06/2021)	**DR** (25/06/2021)	**SMc** (10/11/2021)

Location Names
CB13
CB13-BH

Preliminary Investigation, Hesselø OWF

BOREHOLE LOG, LABORATORY TEST RESULTS AND IN SITU CPTU TESTING

Relative to (mMSL)	Relative to BSB (m)	Soil Depth (m)	Description	Env.	Age
-50.5 to -55.0	20.5 to 25.0	0.00	Low strength CLAY, high plasticity, very silty, slightly sandy, olive grey (5Y 4/2), slightly calcareous, with medium spaed thin to medium beds of medium dense becoming very dense sand, fine to medium, well sorted, with shell fragments (<0.01m), very dark grey (GLEY 1 4/N), slightly calcareous between 3.05 and 3.75m	Ma/Fw	Ho
-55.0 to -59.5	25.0 to 29.5	24.99	Medium strength CLAY, high plasticity, very silty, slightly sandy, slightly gravelly, olive grey (5Y 4/2) to dark olive grey (5Y 3/2), calcareous	Ma/Fw	Pg

Water Content (%): 0, 25, 50, 75, 100

Density (Mg/m^3): 3, 2, 1, 0

Particle Size, %

Gravel	Sand	Fines	Silt	Clay
0	4	96	50	46
0	1	99	43	56

Relative Density, D_r (%): 0, 30, 60, 90, 120

Undrained Shear Strength, Su (kPa): 0, 300, 600, 900, 1200, 1500

Corrected Cone Resistance, q_t (MPa): 0, 12, 24, 36, 48, 60

Sleeve Friction, f_s(MPa): 0, 0.3, 0.6, 0.9, 1.2, 1.5

Pore Pressure, U_2 (kPa): -4500, -2250, 0, 2250, 4500

Ambient Pore Pressure (kPa)

KEY TO SOIL PROFILE

SILT, CLAY, SAND, GRAVEL, COBBLES, CHALK, PEAT, Mixed Soil

Assumed Unit Weight: 20 - 16 kN/m^3
K_0: 0.5 - 2.0
N_{kt}: 15 - 20
$N_{\Delta u}$: 12.5 - 16.5

Area	**Kattegat Sea**	Coordinates	**670639.5E**	**6262910.5N**	CRS: **ETRS89**
Contract	**11596**	Latitude / Longitude			
Client Name / Ref	**Energinet Eltransmission A/S / 384_20_ENE**	Water Depth (mMSL)	**-30.0**		
Vessel	**MV Ocean Vantage**	Date of Test (Start-End)			
Method	**20 kN Sea bed CPT**	Final Borehole Depth	**66.50m**		

Comments: Location data taken from CB13. CB13 class 1 test terminated at 33.83m at operators discretion due to high inclination and risk of rod bend. Continuous seabed CPT. Borehole CB13-BH was completed to a depth of 66.48m utilising API drilling~ Wison CPT and push sampling methods

QC Status		
Preliminary	Draft	Final
BC/JK (25/06/2021)	**DR** (25/06/2021)	**SMc** (10/11/2021)

Location Names
CB13
CB13-BH

Preliminary Investigation, Hesselø OWF

BOREHOLE LOG, LABORATORY TEST RESULTS AND IN SITU CPTU TESTING

Relative to (mMSL)	Relative to BSB (m)	Soil Depth (m)	Description	Env.	Age	Gravel	Sand	Fines	Silt	Clay
			Medium strength CLAY, high plasticity, very silty, slightly sandy, slightly gravelly, olive grey (5Y 4/2) to dark olive grey (5Y 3/2), calcareous	Ma/Fw	Pg					
		34.50	Dense to very dense SAND TILL, fine to coarse, slightly clayey, slightly silty, slightly gravelly, greenish grey (GLEY1 10Y 5/1), non calcareous with extremely closely spaced thin laminations of SAND, silty, fine, well sorted, dark greenish grey (GLEY1 5GY 4/1)	Ma/Fw	Gc	5	84	11	8	3
			37.00m - 37.20m: 37.00-37.20m: Medium bed of sand, fine, well sorted, very silty, greenish grey (GLEY1 10Y 5/1), slightly calcareous							
			37.55m - 37.61m: 37.55-37.61m: Very thin bed of loose to medium dense sand, clayey							
		37.88	Extremely high strength CLAY, high plasticity, very sandy, very dark greenish grey (GLEY1 10Y 3/1), non calcareous	Gl/Mw	Gc					
		38.30	Dense to very dense SAND, fine to coarse, poorly sorted, silty, gravelly, very dark greenish grey (GLEY1 5GY 3/1), non calcareous	Gl/Mw	Gc	6	86	8	8	0
		39.23	Extremely high strength CLAY, medium plasticity, very silty, very sandy, gravelly, with frequent shell fragments (<0.02m), very dark greenish grey (GLEY1 10Y 3/1), slightly calcareous	Gl/Mw	Gc					

Sample Type: 01 101017 10cm² (0.78); 02 101017 10cm² (0.78); 03 101017 10cm² (0.78); 04 101017 10cm² (0.78)

CPT Ref No. / Cone ID / Cone Area (a): CPTU Push

Water Content (%): 0 25 50 75 100

Density (Mg/m³): 3 2 1 0

Relative Density, D_r (%): 0 30 60 90 120

Undrained Shear Strength, Su (kPa): 0 300 600 900 1200 1500

Corrected Cone Resistance, q_t (MPa): 0 12 24 36 48 60

Sleeve Friction, f_s (MPa): 0 0.3 0.6 0.9 1.2 1.5

Pore Pressure, U_2 (kPa): -4500 -2250 0 2250 4500

Ambient Pore Pressure (kPa)

KEY TO SOIL PROFILE

SILT, CLAY, SAND, GRAVEL, COBBLES, CHALK, PEAT, Mixed Soil

Assumed Unit Weight: 20 - 16 kN/m³
K_0: 0.5 - 2.0
N_{kt}: 15 - 20
N_{kt}: 12.5 - 16.5

Area	**Kattegat Sea**	Coordinates	**670639.5E 6262910.5N**
Contract	**11596**	Latitude / Longitude	
Client Name / Ref	**Energinet Eltransmission A/S / 384_20_ENE**	Water Depth (mMSL)	**-30.0**
Vessel	**MV Ocean Vantage**	Date of Test (Start-End)	
Method	**20 kN Sea bed CPT**	Final Borehole Depth	**66.50m**

CRS: **ETRS89**

Comments: Location data taken from CB13. CB13 class 1 test terminated at 33.83m at operators discretion due to high inclination and risk of rod bend. Continuous seabed CPT. Borehole CB13-BH was completed to a depth of 66.48m utilising API drilling~ Wison CPT and push sampling methods

QC Status		
Preliminary	Draft	Final
BC/JK (25/06/2021)	**DR** (25/06/2021)	**SMc** (10/11/2021)

Location Names
CB13
CB13-BH

Preliminary Investigation, Hesselø OWF

BOREHOLE LOG, LABORATORY TEST RESULTS AND IN SITU CPTU TESTING

Soil Depth (m)	Soil Description	Env.	Age
	Extremely high strength CLAY, medium plasticity, very silty, very sandy, gravelly, with frequent shell fragments (<0.02m), very dark greenish grey (GLEY1 10Y 3/1), slightly calcareous	Gl/Mw	Gc
43.00	Extremely high strength CLAY, low plasticity, very silty, with frequent shell fragments (<0.03m), very dark greenish grey (GLEY1 10GY 3/1) becoming greenish grey (GLEY1 10Y 5/1), slightly calcareous *44.18m - 44.26m: 44.19-44.26m: Thin bed of gravel*	Gl/Mw	Gc
45.14	Extremely high strength CLAY, high plasticity, very dark greenish grey (GLEY 1 10GY 3/1), highly calcareous	Gl/Mw	Gc

Particle Size, %: Gravel 7; Sand 35; Fines 58; Silt 15; Clay 43

CPT Ref No. / Cone ID / Cone Area (a): 05 101017 10cm² (0.78); 06 101017 10cm² (0.78); 07 101017 10cm² (0.78)

KEY TO SOIL PROFILE

SILT, CLAY, SAND, GRAVEL, COBBLES, CHALK, PEAT, Mixed Soil

Assumed Unit Weight: 20 - 16 kN/m³
K_0: 0.5 - 2.0
N_{kt}: 15 - 20
N_{ct}: 12.5 - 16.5

Area	**Kattegat Sea**	Coordinates	**670639.5E**	**6262910.5N**	CRS: **ETRS89**
Contract	**11596**	Latitude / Longitude			
Client Name / Ref	**Energinet Eltransmission A/S / 384_20_ENE**	Water Depth (mMSL)	**-30.0**		
Vessel	**MV Ocean Vantage**	Date of Test (Start-End)			
Method	**Wison**	Final Borehole Depth	**66.50m**		

Comments: Location data taken from CB13. CB13 class 1 test terminated at 33.83m at operators discretion due to high inclination and risk of rod bend. Continuous seabed CPT. Borehole CB13-BH was completed to a depth of 66.48m utilising API drilling~ Wison CPT and push sampling methods

QC Status	Preliminary	Draft	Final
	BC/JK (25/06/2021)	**DR** (25/06/2021)	**SMc** (10/11/2021)

Location Names: CB13-BH

Preliminary Investigation, Hesselø OWF

BOREHOLE LOG, LABORATORY TEST RESULTS AND IN SITU CPTU TESTING

Relative to (mMSL)	Relative to BSB (m)	Soil Depth (m)	Description	Env.	Age
-80.5	50.5		Extremely high strength CLAY, high plasticity, very dark greenish grey (GLEY 1 10GY 3/1), highly calcareous	Gl/Mw	Gc
			55.37m - 55.47m: 55.38-55.46m: Thin bed of gravel		
		56.00	Extremely high strength CLAY, very high plasticity, silty, slightly sandy, with pockets of silt (<0.02m), very dark greyish brown (10 YR 3/2), highly calcareous	Gl/Mw	Gc
		57.85	Extremely high strength CLAY TILL, medium plasticity, very silty, very sandy, gravelly, dark greenish grey (GLEY 1 10Y 4/1), highly calcareous with medium to widely spaced thin to medium beds of gravel	Gl/Mw	Gc

Sample Type / CPTU Push / CPT Ref No. / Cone ID / Cone Area (a): 08 101017 10cm² (0.78); 09 101017 10cm² (0.78); 10 101017 10cm² (0.78)

Water Content (%): 0 25 50 75 100 — Density (Mg/m³): 3 2 1 0

Particle Size, %	Gravel	Sand	Fines	Silt	Clay
	0	1	99	23	76
	10	36	54	25	29

Relative Density, D_r (%): 0 30 60 90 120 — Undrained Shear Strength, Su (kPa): 0 300 600 900 1200 1500

Corrected Cone Resistance, q_t (MPa): 0 12 24 36 48 60 — Sleeve Friction, f_s (MPa): 0 0.3 0.6 0.9 1.2 1.5

Pore Pressure, U_2 (kPa): -4500 -2250 0 2250 4500 — Ambient Pore Pressure (kPa)

Relative to BSB (m): 50.5 51.0 51.5 52.0 52.5 53.0 53.5 54.0 54.5 55.0 55.5 56.0 56.5 57.0 57.5 58.0 58.5 59.0 59.5

KEY TO SOIL PROFILE

SILT, CLAY, SAND, GRAVEL, COBBLES, CHALK, PEAT, Mixed Soil

Assumed Unit Weight: 20 - 16 kN/m³
K_0: 0.5 - 2.0
N_{cv}: 15 - 20
N_{ch}: 12.5 - 16.5

Area	**Kattegat Sea**	Coordinates	**670639.5E**	**6262910.5N**	CRS: **ETRS89**
Contract	**11596**	Latitude / Longitude			
Client Name / Ref	**Energinet Eltransmission A/S / 384_20_ENE**	Water Depth (mMSL)	**-30.0**		
Vessel	**MV Ocean Vantage**	Date of Test (Start-End)			
Method	**Wison**	Final Borehole Depth	**66.50m**		

Comments: Location data taken from CB13. CB13 class 1 test terminated at 33.83m at operators discretion due to high inclination and risk of rod bend. Continuous seabed CPT. Borehole CB13-BH was completed to a depth of 66.48m utilising API drilling~ Wison CPT and push sampling methods

QC Status	Preliminary	Draft	Final
	BC/JK (25/06/2021)	**DR** (25/06/2021)	**SMc** (10/11/2021)

Location Names: CB13-BH

Preliminary Investigation, Hesselø OWF

BOREHOLE LOG, LABORATORY TEST RESULTS AND IN SITU CPTU TESTING

Relative to BSB (m)	Soil Depth (m)	Soil Description	Env.	Age
60.5		Extremely high strength CLAY TILL, medium plasticity, very silty, very sandy, gravelly, dark greenish grey (GLEY 1 10Y 4/1), highly calcareous with medium to widely spaced thin to medium beds of gravel	Gl/Mw	Gc
64.5	64.28	Extremely high strength CLAY, high plasticity, dark grey (5Y 4/1), non calcareous with very closely to closely spaced thin laminations of silt (<0.01m)	Gl	Gc
65.5		Extremely high strength CLAY, high plasticity, dark grey (5Y 4/1), non calcareous with very closely to closely spaced thin laminations of silt (<0.01m)	Gl	Gc
	65.50	Very weak CLAYSTONE, indurated, dark grey (5Y 4/1), non calcareous	Ma	Ct
	66.48	End of borehole at 66.50m		

Sample Type: PSO

CPT Ref No. / Cone ID / Cone Area (a):
- 11 — 101017 — 10cm² (0.78)
- 12 — 101017 — 10cm² (0.78)
- 13 — 101017 — 10cm² (0.78)
- 14 — 101017 — 10cm² (0.78)

Water Content (%): 0 25 50 75 100

Density (Mg/m³): 3 2 1 0

Particle Size, %: Gravel | Sand | Fines | Silt | Clay

Relative Density, D_r (%): 0 30 60 90 120

Undrained Shear Strength, Su (kPa): 0 300 600 900 1200 1500

Corrected Cone Resistance, q_t (MPa): 0 12 24 36 48 60

Sleeve Friction, f_s(MPa): 0 0.3 0.6 0.9 1.2 1.5

Pore Pressure, U_2 (kPa): -4500 -2250 0 2250 4500

Ambient Pore Pressure (kPa)

Relative to (mMSL): -90.5 -91.0 -91.5 -92.0 -92.5 -93.0 -93.5 -94.0 -94.5 -95.0 -95.5 -96.0 -96.5 -97.0 -97.5 -98.0 -98.5 -99.0 -99.5

Relative to BSB (m): 60.5 61.0 61.5 62.0 62.5 63.0 63.5 64.0 64.5 65.0 65.5 66.0 66.5 67.0 67.5 68.0 68.5 69.0 69.5

KEY TO SOIL PROFILE

SILT, CLAY, SAND, GRAVEL, COBBLES, CHALK, PEAT, Mixed Soil

Assumed Unit Weight: 20 - 16 kN/m³
K_0: 0.5 - 2.0
N_{cr}: 15 - 20
N_{qr}: 12.5 - 16.5

Area	**Kattegat Sea**	Coordinates	**670639.5E**	**6262910.5N**	CRS: **ETRS89**
Contract	**11596**	Latitude / Longitude			**Comments: Location data taken from CB13. CB13 class 1 test terminated at 33.83m at operators discretion due to high inclination and risk of rod bend. Continuous seabed CPT. Borehole CB13-BH was completed to a depth of 66.48m utilising API drilling~ Wison CPT and push sampling methods**
Client Name / Ref	**Energinet Eltransmission A/S / 384_20_ENE**	Water Depth (mMSL)	**-30.0**		
Vessel	**MV Ocean Vantage**	Date of Test (Start-End)			
Method	**Wison**	Final Borehole Depth	**66.50m**		

QC Status		
Preliminary	Draft	Final
BC/JK (25/06/2021)	**DR** (25/06/2021)	**SMc** (10/11/2021)

Location Names: CB13-BH

Preliminary Investigation, Hesselø OWF

BOREHOLE LOG, LABORATORY TEST RESULTS AND IN SITU CPTU TESTING

Soil Depth (m)	Soil Description	Env.	Age
0.28	Extremely low strength CLAY, medium plasticity, silty, slightly sandy, dark greenish grey (GLEY 1 10Y 4/1), calcareous, strong organic odour, with shell fragments (<0.02m)	Ma/Fw	Ho
0.82	SAND, fine to coarse, unsorted, very clayey, very silty, slightly gravely, very dark greyish olive (10Y 3/2), non calcareous	Ma/Fw	Ho
2.23	Extremely low strength CLAY, medium plasticity, sandy, slightly gravelly, dark greenish grey (GLEY 1 10Y 4/1), calcareous, with shell fragments (<0.02m)	Ma	Ho
4.22	SAND, fine to coarse, unsorted, clayey, silty, very gravelly, dark grey (5Y 4/1), highly calcareous *2.35m - 2.51m: 2.35-2.50m: Thin bed of gravel*	Ma/Fw	Ho
	Very low to low becoming low to medium strength CLAY, high plasticity, very silty, slightly sandy greyish brown (10YR 5/2), calcareous with occasional black staining between 13.00m and 17.00m	Ma	Ho

Particle Size, %

Gravel	Sand	Fines	Silt	Clay
3	64	33	19	14
34	54	12	7	5
0	1	99	46	53

KEY TO SOIL PROFILE

SILT, CLAY, SAND, GRAVEL, COBBLES, CHALK, PEAT, Mixed Soil

Assumed Unit Weight: 20 - 16 kN/m³
K_0: 0.5 - 2.0
N_{kt}: 15 - 20
N_{ke}: 12.5 - 16.5

Area	**Kattegat Sea**	Coordinates	**680529.9E** **6252844.1N**	CRS: **ETRS89**	QC Status: Preliminary / Draft / Final
Contract	**11596**	Latitude / Longitude		**Comments: Location data taken from CB14. CB14 out of class test terminated at 22.79m due to a sudden increase of more than 3 degrees of cone inclination. Continuous seabed CPT. Borehole CB14-BH was completed to a depth of 62.33m utilising API drilling~ Wison CPT and push sampling methods.**	
Client Name / Ref	**Energinet Eltransmission A/S / 384_20_ENE**	Water Depth (mMSL)	**-31.6**		
Vessel	**MV Ocean Vantage**	Date of Test (Start-End)			**BC/JK** (25/06/2021) / **DR** (25/06/2021) / **SMc** (10/11/2021)
Method	**20 kN Sea bed CPT**	Final Borehole Depth	**62.35m**		

Location Names
CB14
CB14-BH

Preliminary Investigation, Hesselø OWF

BOREHOLE LOG, LABORATORY TEST RESULTS AND IN SITU CPTU TESTING

Relative to BSB (m)	Soil Depth (m)	Description	Env.	Age
10.5		Very low to low becoming low to medium strength CLAY, high plasticity, very silty, slightly sandy greyish brown (10YR 5/2), calcareous with occasional black staining between 13.00m and 17.00m	Ma	Ho
		14.65m - 14.67m: 14.65-14.67m: Thick lamination of sand, fine to coarse, well sorted, dark grey (2.5Y 4/1), calcareous		
		15.00m - 15.88m: 15.00-15.88m: Thick bed of low to medium strength clay, high plasticity, slightly gravelly, dark greyish brown (2.5Y 4/2) with frequent black staining (2.5Y 2.5/1), calcareous		
	17.00	Low to medium strength CLAY, medium plasticity, very silty, slightly sandy, dark grey (2.5Y 4/1) with extremely closely to closely spaced thin laminations of silt, non plastic, dark greyish brown (2.5Y 4/2), calcareous	Ma/Fw	Ho
	19.79		Ma/Fw	Pg

CPT Ref No. 01, Cone ID 100976, Cone Area (a) 10cm² (0.78)

Particle Size, %: Gravel 0, Sand 1, Fines 99, Silt 42, Clay 57

KEY TO SOIL PROFILE

SILT, CLAY, SAND, GRAVEL, COBBLES, CHALK, PEAT, Mixed Soil

Assumed Unit Weight: 20 - 16 kN/m³
K_0: 0.5 - 2.0
N_{kt}: 15 - 20
N_{cv}: 12.5 - 16.5

Area	**Kattegat Sea**	Coordinates	**680529.9E**	**6252844.1N**	CRS: **ETRS89**
Contract	**11596**	Latitude / Longitude			**Comments: Location data taken from CB14. CB14 out of class test terminated at 22.79m due to a sudden increase of more than 3 degrees of cone inclination. Continuous seabed CPT. Borehole CB14-BH was completed to a depth of 62.33m utilising API drilling~ Wison CPT and push sampling methods.**
Client Name / Ref	**Energinet Eltransmission A/S / 384_20_ENE**	Water Depth (mMSL)	**-31.6**		
Vessel	**MV Ocean Vantage**	Date of Test (Start-End)			
Method	**20 kN Sea bed CPT**	Final Borehole Depth	**62.35m**		

QC Status		
Preliminary	Draft	Final
BC/JK (25/06/2021)	**DR** (25/06/2021)	**SMc** (10/11/2021)

Location Names
CB14
CB14-BH

Preliminary Investigation, Hesselø OWF

BOREHOLE LOG, LABORATORY TEST RESULTS AND IN SITU CPTU TESTING

Soil Depth (m)	Description	Env.	Age	Gravel	Sand	Fines	Silt	Clay
	Extremely high strength CLAY, low plasticity, very silty, very sandy, greyish brown (2.5Y 5/2), slightly calcareous *20.40m - 20.48m: 20.40-20.48m: Thin bed of high strength clay*	Ma/Fw	Pg	0	63	37	27	10
21.00	High to very high strength locally extremely high strength CLAY, medium plasticity, very silty, very sandy, slightly gravelly, dark grey (2.5Y 4/1), slightly calcareous with pockets (<0.06m) of sand, fine to medium, well sorted, silty, dark greyish brown (2.5Y 4/2), slightly calcareous *24.82m - 25.21m: 24.82-25.21m: Medium bed of very low to low strength clay*	Ma/Fw	Pg					
27.00	Medium to high strength CLAY, medium plasticity, very silty, very sandy, slightly gravelly, with pockets (<0.06m) and very closely spaced thick laminations of sand, fine, well sorted, light olive brown (2.5Y 4/3), dark grey (2.5Y 4/1), calcareous	Ma/Fw	Pg	3	32	65	39	26
28.84	Medium dense SAND, fine to medium, unsorted, clayey, very silty, dark greyish brown (2.5Y 4/2), calcareous	Ma/Fw	Pg	3	30	67	46	21
				0	76	24	19	5

CPT Ref No. 01, Cone ID 121126, Cone Area (a) 10cm² (0.79)
CPT Ref No. 02, Cone ID 121126, Cone Area (a) 10cm² (0.79)
CPT Ref No. 03, Cone ID 120826, Cone Area (a) 10cm² (0.76)

KEY TO SOIL PROFILE

SILT, CLAY, SAND, GRAVEL, COBBLES, CHALK, PEAT, Mixed Soil

Assumed Unit Weight: 20 - 16 kN/m³
K_0: 0.5 - 2.0
N_{kt}: 15 - 20
N_{ke}: 12.5 - 16.5

Area	**Kattegat Sea**	Coordinates	**680529.9E 6252844.1N**
Contract	**11596**	Latitude / Longitude	
Client Name / Ref	**Energinet Eltransmission A/S / 384_20_ENE**	Water Depth (mMSL)	**-31.6**
Vessel	**MV Ocean Vantage**	Date of Test (Start-End)	
Method	**20 kN Sea bed CPT**	Final Borehole Depth	**62.35m**

CRS: **ETRS89**

Comments: Location data taken from CB14. CB14 out of class test terminated at 22.79m due to a sudden increase of more than 3 degrees of cone inclination. Continuous seabed CPT. Borehole CB14-BH was completed to a depth of 62.33m utilising API drilling~ Wison CPT and push sampling methods.

QC Status	Preliminary	Draft	Final
	BC/JK (25/06/2021)	**DR** (25/06/2021)	**SMc** (10/11/2021)

Location Names
CB14
CB14-BH

Preliminary Investigation, Hesselø OWF

BOREHOLE LOG, LABORATORY TEST RESULTS AND IN SITU CPTU TESTING

Soil Depth (m)	Soil Description	Env.	Age
	Medium dense SAND, fine to medium, unsorted, clayey, very silty, dark greyish brown (2.5Y 4/2), calcareous	Ma/Fw	Pg
30.76	Very high strength CLAY TILL, medium plasticity, very silty, sandy, slightly gravelly, very dark greenish grey (GLEY1 5GY 3/1), slightly calcareous	Ma/Fw	Gc
37.76	Very high to extremely high strength CLAY, medium plasticity, very silty, very sandy, with pockets (<0.03m) of sand, medium to coarse, well sorted, dark greenish grey (GLEY1 10Y 4/1), very dark greenish grey (GLEY1 5GY 3/1), slightly calcareous	Gl	Gc

Particle Size, %

Gravel	Sand	Fines	Silt	Clay
2	20	78	45	33
0	35	65	33	32

CPT Ref No. 04, 120826, 10cm² (0.76)

CPT Ref No. 05, 120826, 10cm² (0.76)

KEY TO SOIL PROFILE

SILT, CLAY, SAND, GRAVEL, COBBLES, CHALK, PEAT, Mixed Soil

Assumed Unit Weight: 20 - 16 kN/m³
K_0: 0.5 - 2.0
N_{kt}: 15 - 20
$N_{\Delta u}$: 12.5 - 16.5

Area	**Kattegat Sea**	Coordinates	**680529.9E**	**6252844.1N**	CRS: **ETRS89**
Contract	**11596**	Latitude / Longitude			**Comments: Location data taken from CB14. CB14 out of class test terminated at 22.79m due to a sudden increase of more than 3 degrees of cone inclination. Continuous seabed CPT. Borehole CB14-BH was completed to a depth of 62.33m utilising API drilling~ Wison CPT and push sampling methods.**
Client Name / Ref	**Energinet Eltransmission A/S / 384_20_ENE**	Water Depth (mMSL)	**-31.6**		
Vessel	**MV Ocean Vantage**	Date of Test (Start-End)			
Method	**Wison**	Final Borehole Depth	**62.35m**		

QC Status		
Preliminary	Draft	Final
BC/JK (25/06/2021)	**DR** (25/06/2021)	**SMc** (10/11/2021)

Location Names
CB14-BH

Preliminary Investigation, Hesselø OWF

BOREHOLE LOG, LABORATORY TEST RESULTS AND IN SITU CPTU TESTING

Relative to (mMSL)	Relative to BSB (m)	Soil Depth (m)	Soil Description	Env.	Age
-72.0 to -81.5	40.5 to 49.5	42.68	Very high to extremely high strength CLAY, medium plasticity, very silty, very sandy, with pockets (<0.03m) of sand, medium to coarse, well sorted, dark greenish grey (GLEY1 10Y 4/1), very dark greenish grey (GLEY1 5GY 3/1), slightly calcareous	Gl	Gc
			Extremely high strength CLAY, high plasticity, very silty, slightly sandy, with shell fragments (<0.02m), with pockets of silt (<0.03m), light grey (5Y 7/2), between 43.00m and 43.69m, very dark greenish grey (GLEY1 5GY 3/1), slightly calcareous	Gl	Gc

Sample Type: PVC
CPTU Push
CPT Ref No. / Cone ID / Cone Area (a): 06 120826 10cm² (0.76); 07 120826 10cm² (0.76); 08 120826 10cm² (0.76)

Water Content (%): 0 25 50 75 100
Density (Mg/m³): 3 2 1 0

Particle Size, %	Gravel	Sand	Fines	Silt	Clay
	0	2	98	59	39

Relative Density, D_r (%): 0 30 60 90 120
Undrained Shear Strength, Su (kPa): 0 300 600 900 1200 1500
Corrected Cone Resistance, q_t (MPa): 0 12 24 36 48 60
Sleeve Friction, f_s (MPa): 0 0.3 0.6 0.9 1.2 1.5
Pore Pressure, U_2 (kPa): -4500 -2250 0 2250 4500
Ambient Pore Pressure (kPa)

KEY TO SOIL PROFILE

SILT, CLAY, SAND, GRAVEL, COBBLES, CHALK, PEAT, Mixed Soil

Assumed Unit Weight: 20 - 16 kN/m³
K_0: 0.5 - 2.0
N_{cv}: 15 - 20
N_{ch}: 12.5 - 16.5

Area	**Kattegat Sea**	Coordinates	**680529.9E**	**6252844.1N**	CRS: **ETRS89**
Contract	**11596**	Latitude / Longitude			
Client Name / Ref	**Energinet Eltransmission A/S / 384_20_ENE**	Water Depth (mMSL)	**-31.6**		
Vessel	**MV Ocean Vantage**	Date of Test (Start-End)			
Method	**Wison**	Final Borehole Depth	**62.35m**		

Comments: Location data taken from CB14. CB14 out of class test terminated at 22.79m due to a sudden increase of more than 3 degrees of cone inclination. Continuous seabed CPT. Borehole CB14-BH was completed to a depth of 62.33m utilising API drilling~ Wison CPT and push sampling methods.

QC Status	Preliminary	Draft	Final
	BC/JK (25/06/2021)	**DR** (25/06/2021)	**SMc** (10/11/2021)

Location Names: CB14-BH

Preliminary Investigation, Hesselø OWF

BOREHOLE LOG, LABORATORY TEST RESULTS AND IN SITU CPTU TESTING

Soil Depth (m)	Description	Env.	Age
	Extremely high strength CLAY, high plasticity, very silty, slightly sandy, with shell fragments (<0.02m), with pockets of silt (<0.03m), light grey (5Y 7/2), between 43.00m and 43.69m, very dark greenish grey (GLEY1 5GY 3/1), slightly calcareous	Gl	Gc
53.00	Extremely high strength CLAY, high plasticity, slightly sandy, slightly gravelly, with pockets (<0.06m) of sand, fine, with shell fragments (<0.03m) very dark greenish grey (GLEY 1 5GY 3/1), highly calcareous	Gl	Gc
58.64	Dense to very dense SAND, silty	Gl	Gc

Relative to (mMSL) / Relative to BSB (m) / Soil Profile / Sample Type / CPTU Push / CPT Ref No. Cone ID Cone Area (a)

CPTU Push: 09 120826 10cm² (0.76); 10 120826 10cm² (0.76); 11 120826 10cm² (0.76); 12 120825 10cm² (0.76)

Water Content (%): 0 25 50 75 100

Density (Mg/m³): 3 2 1 0

Particle Size, %: Gravel | Sand | Fines | Silt | Clay

Relative Density, D_r (%): 0 30 60 90 120

Undrained Shear Strength, Su (kPa): 0 300 600 900 1200 1500

Corrected Cone Resistance, q_t (MPa): 0 12 24 36 48 60

Sleeve Friction, f_s(MPa): 0 0.3 0.6 0.9 1.2 1.5

Pore Pressure, U_2 (kPa): -4500 -2250 0 2250 4500

Ambient Pore Pressure (kPa)

Relative to BSB (m): 50.5 51.0 51.5 52.0 52.5 53.0 53.5 54.0 54.5 55.0 55.5 56.0 56.5 57.0 57.5 58.0 58.5 59.0 59.5

Relative to (mMSL): -82.0 -82.5 -83.0 -83.5 -84.0 -84.5 -85.0 -85.5 -86.0 -86.5 -87.0 -87.5 -88.0 -88.5 -89.0 -89.5 -90.0 -90.5 -91.0 -91.5

KEY TO SOIL PROFILE

SILT · CLAY · SAND · GRAVEL · COBBLES · CHALK · PEAT · Mixed Soil

Assumed Unit Weight: 20 - 16 kN/m³
K_0: 0.5 - 2.0
N_{kt}: 15 - 20
$N_{\Delta u}$: 12.5 - 16.5

Area	**Kattegat Sea**	Coordinates	**680529.9E**	**6252844.1N**	CRS: **ETRS89**
Contract	**11596**	Latitude / Longitude			
Client Name / Ref	**Energinet Eltransmission A/S / 384_20_ENE**	Water Depth (mMSL)	**-31.6**		
Vessel	**MV Ocean Vantage**	Date of Test (Start-End)			
Method	**Wison**	Final Borehole Depth	**62.35m**		

Comments: Location data taken from CB14. CB14 out of class test terminated at 22.79m due to a sudden increase of more than 3 degrees of cone inclination. Continuous seabed CPT. Borehole CB14-BH was completed to a depth of 62.33m utilising API drilling~ Wison CPT and push sampling methods.

QC Status		
Preliminary	Draft	Final
BC/JK (25/06/2021)	**DR** (25/06/2021)	**SMc** (10/11/2021)

Location Names: CB14-BH

Preliminary Investigation, Hesselø OWF

BOREHOLE LOG, LABORATORY TEST RESULTS AND IN SITU CPTU TESTING

Soil Depth (m)	Soil Description	Env.	Age
60.00	Extremely high strength CLAY, very high plasticity, very silty, very dark greenish grey (GLEY1 5GY 3/1), friable, tending towards siltstone, non calcareous		
	61.10m - 61.28m: 61.10-61.28m: Thin bed of gravel	Gl	Gc
62.00	SILTSTONE, indurated, micaceous, dark greenish grey (GLEY1 10Y 3/1), non calcareous	Gl	Ct
62.33	End of borehole at 62.35m		

Sample Type: 13 121125 10cm² (0.8); 14 121125 10cm² (0.8); 15 121125 10cm² (0.8)

Water Content (%) 0 25 50 75 100

Density (Mg/m³) 3 2 1 0

Particle Size, % — Gravel, Sand, Fines, Silt, Clay

Relative Density, D_r (%) 0 30 60 90 120

Undrained Shear Strength, Su (kPa) 0 300 600 900 1200 1500

Corrected Cone Resistance, q_t (MPa) 0 12 24 36 48 60

Sleeve Friction, f_s(MPa) 0 0.3 0.6 0.9 1.2 1.5

Pore Pressure, U_2 (kPa) -4500 -2250 0 2250 4500

Ambient Pore Pressure (kPa)

Relative to (mMSL): -92.0 -92.5 -93.0 -93.5 -94.0 -94.5 -95.0 -95.5 -96.0 -96.5 -97.0 -97.5 -98.0 -98.5 -99.0 -99.5 -100.0 -100.5 -101.0 -101.5

Relative to BSB (m): 60.5 61.0 61.5 62.0 62.5 63.0 63.5 64.0 64.5 65.0 65.5 66.0 66.5 67.0 67.5 68.0 68.5 69.0 69.5

KEY TO SOIL PROFILE

SILT, CLAY, SAND, GRAVEL, COBBLES, CHALK, PEAT, Mixed Soil

Assumed Unit Weight: 20 - 16 kN/m³
K_0: 0.5 - 2.0
N_{kt}: 15 - 20
N_{ke}: 12.5 - 16.5

Area	**Kattegat Sea**	Coordinates	**680529.9E**	**6252844.1N**	CRS: **ETRS89**
Contract	**11596**	Latitude / Longitude			**Comments: Location data taken from CB14. CB14 out of class test terminated at 22.79m due to a sudden increase of more than 3 degrees of cone inclination. Continuous seabed CPT. Borehole CB14-BH was completed to a depth of 62.33m utilising API drilling~ Wison CPT and push sampling methods.**
Client Name / Ref	**Energinet Eltransmission A/S / 384_20_ENE**	Water Depth (mMSL)	**-31.6**		
Vessel	**MV Ocean Vantage**	Date of Test (Start-End)			
Method	**Wison**	Final Borehole Depth	**62.35m**		

QC Status	Preliminary	Draft	Final
	BC/JK (25/06/2021)	**DR** (25/06/2021)	**SMc** (10/11/2021)

Location Names: CB14-BH

Preliminary Investigation, Hesselø OWF

BOREHOLE LOG, LABORATORY TEST RESULTS AND IN SITU CPTU TESTING

Soil Depth (m)	Soil Description	Env.	Age
	Extremely low to low strength CLAY, medium plasticity, very silty, very sandy, slightly gravelly, dark greenish grey (GLEY1 10Y 4/1), slightly calcareous	Ma/Fw	Ho
2.63	Extremely low to low strength CLAY, high plasticity, very silty, slightly sandy, greyish brown (2.5Y 5/2), slightly calcareous	Ma/Fw	Ho

Gravel	Sand	Fines	Silt	Clay
1	47	52	30	22
0	3	97	39	58

KEY TO SOIL PROFILE

SILT, CLAY, SAND, GRAVEL, COBBLES, CHALK, PEAT, Mixed Soil

Assumed Unit Weight: 20 - 16 kN/m³
K_0: 0.5 - 2.0
N_{kt}: 15 - 20
N_{kt}: 12.5 - 16.5

Area	**Kattegat Sea**	Coordinates	**674182.0E**	**6265896.3N**	CRS: **ETRS89**
Contract	**11596**	Latitude / Longitude			**Comments: Location data taken from OSS 1. OSS 1 out of class test terminated at 47.95m due to loss of communication with the cone. Borehole OSS1-BH was completed to a depth of 70.20m utilising API drilling~ Wison CPT and push sampling methods.**
Client Name / Ref	**Energinet Eltransmission A/S / 384_20_ENE**	Water Depth (mMSL)	**-31.6**		
Vessel	**MV Ocean Vantage**	Date of Test (Start-End)			
Method	**20 kN Sea bed CPT**	Final Borehole Depth	**70.20m**		

QC Status		
Preliminary	Draft	Final
BC/JK (28/06/2021)	**DR** (28/06/2021)	**SMc** (10/11/2021)

Location Names
OSS 1
OSS1-BH

Preliminary Investigation, Hesselø OWF

BOREHOLE LOG, LABORATORY TEST RESULTS AND IN SITU CPTU TESTING

Relative to (mMSL)	Relative to BSB (m)	Soil Profile	Sample Type	CPTU Push	CPT Ref No. Cone ID Cone Area (a)	Soil Depth (m)		Env.	Age
-42.0	10.5						Extremely low to low strength CLAY, high plasticity, very silty, slightly sandy, greyish brown (2.5Y 5/2), slightly calcareous		
-42.5	11.0						Very low to low strength CLAY, high plasticity, greyish brown (2.5Y 5/2), slightly calcareous		
-43.0	11.5								
-43.5	12.0								
-44.0	12.5								
-44.5	13.0								
-45.0	13.5								
-45.5	14.0							Ma/Fw	Ho
-46.0	14.5							Ma/Fw	Ho
-46.5	15.0								
-47.0	15.5								
-47.5	16.0								
-48.0	16.5								
-48.5	17.0								
-49.0	17.5								
-49.5	18.0					17.87	Low to medium strength CLAY, high plasticity, very silty, sightly sandy, with occasional black staining, greyish brown (2.5Y 5/2), slightly calcareous	Ma/Fw	Pg
-50.0	18.5								
-50.5	19.0								
-51.0	19.5								
-51.5									

Water Content (%): 0 25 50 75 100

Density (Mg/m³): 3 2 1 0

Particle Size, %				
Gravel	Sand	Fines	Silt	Clay
0	2	98	54	44
0	1	99	68	31

Relative Density, D_r (%): 0 30 60 90 120

Undrained Shear Strength, Su (kPa): 0 300 600 900 1200 1500

Corrected Cone Resistance, q_t (MPa): 0 12 24 36 48 60

Sleeve Friction, f_s (MPa): 0 0.3 0.6 0.9 1.2 1.5

Pore Pressure, U_2 (kPa): -4500 -2250 0 2250 4500

Ambient Pore Pressure (kPa)

KEY TO SOIL PROFILE

SILT, CLAY, SAND, GRAVEL, COBBLES, CHALK, PEAT, Mixed Soil

Assumed Unit Weight: 20 - 16 kN/m³
K_0: 0.5 - 2.0
N_{kt}: 15 - 20
N_{kt}: 12.5 - 16.5

Area	**Kattegat Sea**	Coordinates	**674182.0E**	**6265896.3N**	CRS: **ETRS89**
Contract	**11596**	Latitude / Longitude			**Comments: Location data taken from OSS 1. OSS 1 out of class test terminated at 47.95m due to loss of communication with the cone. Borehole OSS1-BH was completed to a depth of 70.20m utilising API drilling~ Wison CPT and push sampling methods.**
Client Name / Ref	**Energinet Eltransmission A/S / 384_20_ENE**	Water Depth (mMSL)	**-31.6**		
Vessel	**MV Ocean Vantage**	Date of Test (Start-End)			
Method	**20 kN Sea bed CPT**	Final Borehole Depth	**70.20m**		

QC Status		
Preliminary	Draft	Final
BC/JK (28/06/2021)	**DR** (28/06/2021)	**SMc** (10/11/2021)

Location Names
OSS 1
OSS1-BH

Preliminary Investigation, Hesselø OWF

BOREHOLE LOG, LABORATORY TEST RESULTS AND IN SITU CPTU TESTING

Relative to (mMSL)	Relative to BSB (m)	Soil Profile	Sample Type	CPTU Push	CPT Ref No. Cone ID Cone Area (a)	Soil Depth (m)		Env.	Age
-52.0	20.5						Low to medium strength CLAY, high plasticity, very silty, sightly sandy, with occasional black staining, greyish brown (2.5Y 5/2), slightly calcareous		
-52.5	21.0								
-53.0	21.5								
-53.5	22.0								
-54.0	22.5								
-54.5	23.0								
-55.0	23.5								
-55.5	24.0				01 100415 10cm² (0,8)				
-56.0	24.5								
-56.5	25.0							Ma/Fw	Pg
-57.0	25.5								
-57.5	26.0								
-58.0	26.5								
-58.5	27.0						*26.61m - 27.88m: 26.60-27.88m: Thick bed of low to medium strength clay, high plasticity, slightly sandy, slightly gravelly, with occasional black staining, dark grey (2.5Y 4/1), slightly calcareous*		
-59.0	27.5								
-59.5	28.0								
-60.0	28.5								
-60.5	29.0								
-61.0	29.5								
-61.5						29.94			

Water Content (%): 0, 25, 50, 75, 100

Density (Mg/m^3): 3, 2, 1, 0

Particle Size, %: Gravel | Sand | Fines | Silt | Clay

Relative Density, D_r (%): 0, 30, 60, 90, 120

Undrained Shear Strength, Su (kPa): 0, 300, 600, 900, 1200, 1500

Corrected Cone Resistance, q_t (MPa): 0, 12, 24, 36, 48, 60

Sleeve Friction, f_s(MPa): 0, 0.3, 0.6, 0.9, 1.2, 1.5

Pore Pressure, U_2 (kPa): -4500, -2250, 0, 2250, 4500

Ambient Pore Pressure (kPa)

KEY TO SOIL PROFILE

SILT | CLAY | SAND | GRAVEL | COBBLES | CHALK | PEAT | Mixed Soil

Assumed Unit Weight: 20 - 16 kN/m^3
K_0: 0.5 - 2.0
N_{kt}: 15 - 20
N_{kt}: 12.5 - 16.5

Area	**Kattegat Sea**	Coordinates	**674182.0E** **6265896.3N**	CRS: **ETRS89**	QC Status: Preliminary / Draft / Final
Contract	**11596**	Latitude / Longitude		**Comments: Location data taken from OSS 1. OSS 1 out of class test terminated at 47.95m due to loss of communication with the cone. Borehole OSS1-BH was completed to a depth of 70.20m utilising API drilling~ Wison CPT and push sampling methods.**	
Client Name / Ref	**Energinet Eltransmission A/S / 384_20_ENE**	Water Depth (mMSL)	**-31.6**		
Vessel	**MV Ocean Vantage**	Date of Test (Start-End)			**BC/JK** (28/06/2021) / **DR** (28/06/2021) / **SMc** (10/11/2021)
Method	**20 kN Sea bed CPT**	Final Borehole Depth	**70.20m**		

Location Names
OSS 1
OSS1-BH

Preliminary Investigation, Hesselø OWF

BOREHOLE LOG, LABORATORY TEST RESULTS AND IN SITU CPTU TESTING

Relative to (mMSL)	Relative to BSB (m)	Soil Profile	Sample Type	CPTU Push	CPT Ref No. Cone ID Cone Area (a)	Soil Depth (m)		Env.	Age
-62.0 to -71.5	30.5 to 39.5						Medium strength CLAY, medium plasticity, silty, slightly sandy, slightly gravelly, dark grey (2.5Y 4/1), slightly calcareous	Ma/Fw	Lg

Water Content (%) 0 25 50 75 100

Density (Mg/m^3) 3 2 1 0

Particle Size, %

Gravel	Sand	Fines	Silt	Clay
3	18	79	47	32

Relative Density, D_r (%) 0 30 60 90 120

Undrained Shear Strength, Su (kPa) 0 300 600 900 1200 1500

Corrected Cone Resistance, q_t (MPa) 0 12 24 36 48 60

Sleeve Friction, f_s(MPa) 0 0.3 0.6 0.9 1.2 1.5

Pore Pressure, U_2 (kPa) -4500 -2250 0 2250 4500

Ambient Pore Pressure (kPa)

KEY TO SOIL PROFILE

SILT, CLAY, SAND, GRAVEL, COBBLES, CHALK, PEAT, Mixed Soil

Assumed Unit Weight: 20 - 16 kN/m^3
K_0: 0.5 - 2.0
N_{kt}: 15 - 20
$N_{\Delta u}$: 12.5 - 16.5

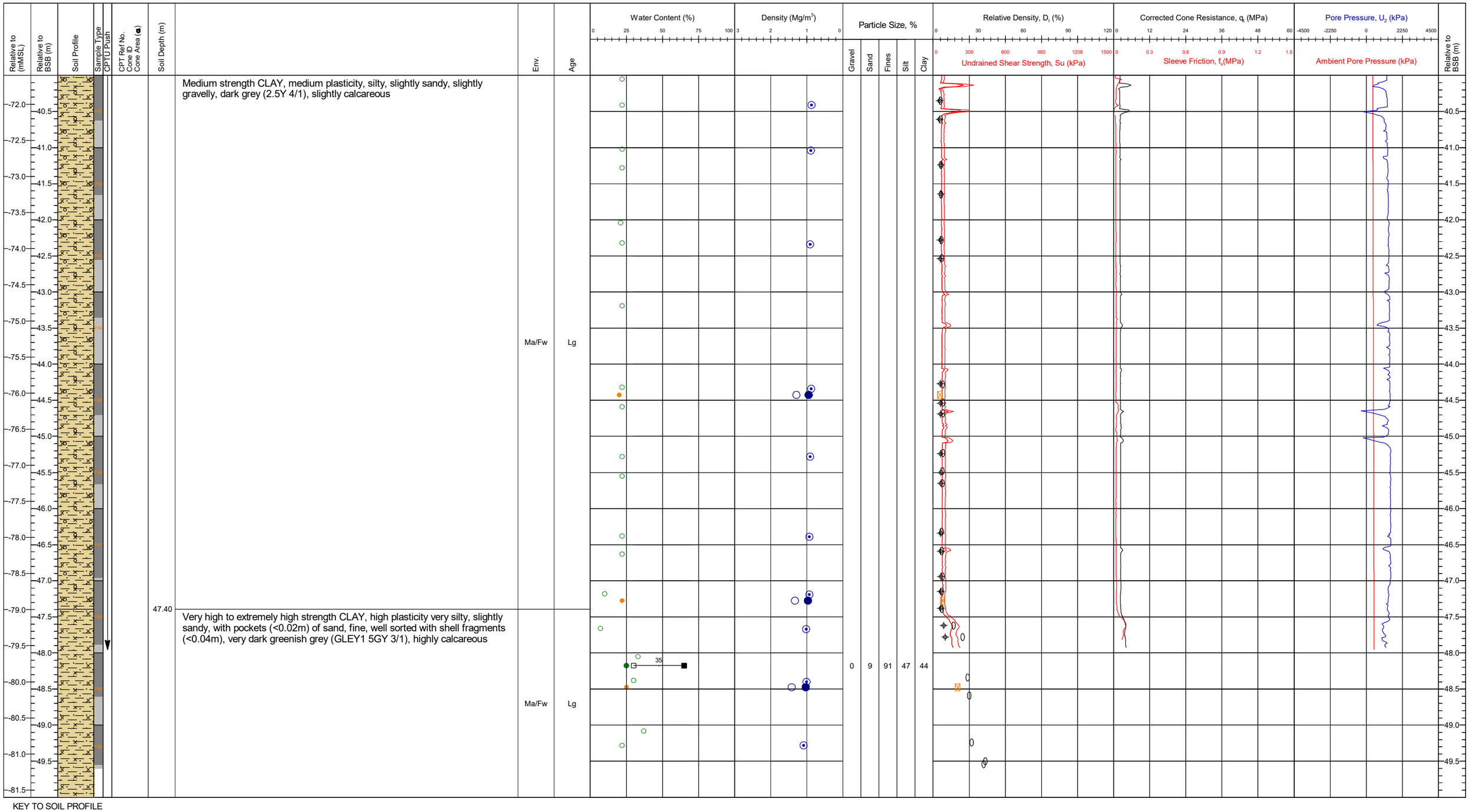
Area	**Kattegat Sea**	Coordinates	**674182.0E**	**6265896.3N**	CRS: **ETRS89**
Contract	**11596**	Latitude / Longitude			**Comments: Location data taken from OSS 1. OSS 1 out of class test terminated at 47.95m due to loss of communication with the cone. Borehole OSS1-BH was completed to a depth of 70.20m utilising API drilling~ Wison CPT and push sampling methods.**
Client Name / Ref	**Energinet Eltransmission A/S / 384_20_ENE**	Water Depth (mMSL)	**-31.6**		
Vessel	**MV Ocean Vantage**	Date of Test (Start-End)			
Method	**20 kN Sea bed CPT**	Final Borehole Depth	**70.20m**		

QC Status		
Preliminary	Draft	Final
BC/JK (28/06/2021)	**DR** (28/06/2021)	**SMc** (10/11/2021)

Location Names
OSS 1
OSS1-BH

Preliminary Investigation, Hesselø OWF

BOREHOLE LOG, LABORATORY TEST RESULTS AND IN SITU CPTU TESTING



KEY TO SOIL PROFILE

SILT · CLAY · SAND · GRAVEL · COBBLES · CHALK · PEAT · Mixed Soil

Assumed Unit Weight: 20 - 16 kN/m³
K_0: 0.5 - 2.0
N_{kt}: 15 - 20
N_{Ic}: 12.5 - 16.5

Area	**Kattegat Sea**	Coordinates	**674182.0E**	**6265896.3N**	CRS: **ETRS89**
Contract	**11596**	Latitude / Longitude			**Comments: Location data taken from OSS 1. OSS 1 out of class test terminated at 47.95m due to loss of communication with the cone. Borehole OSS1-BH was completed to a depth of 70.20m utilising API drilling~ Wison CPT and push sampling methods.**
Client Name / Ref	**Energinet Eltransmission A/S / 384_20_ENE**	Water Depth (mMSL)	**-31.6**		
Vessel	**MV Ocean Vantage**	Date of Test (Start-End)			
Method	**20 kN Sea bed CPT**	Final Borehole Depth	**70.20m**		

QC Status		
Preliminary	Draft	Final
BC/JK (28/06/2021)	**DR** (28/06/2021)	**SMc** (10/11/2021)

Location Names
OSS 1
OSS1-BH

Preliminary Investigation, Hesselø OWF

BOREHOLE LOG, LABORATORY TEST RESULTS AND IN SITU CPTU TESTING

Relative to (mMSL)	Relative to BSB (m)	Soil Depth (m)	Soil Description	Env.	Age
-82.0 to -84.5	50.5 to 52.5	0.00 to 53.00	Very high to extremely high strength CLAY, high plasticity very silty, slightly sandy, with pockets (<0.02m) of sand, fine, well sorted with shell fragments (<0.04m), very dark greenish grey (GLEY1 5GY 3/1), highly calcareous	Ma/Fw	Lg
-85.0 to -91.5	53.5 to 59.5	53.00 to 70.20	Very high to extremely high strength CLAY TILL, medium plasticity, very silty, slightly sandy, slightly gravelly, dark greenish grey (GLEY1 10Y 4/1) to greenish grey (GLEY1 10Y 5/1), highly calcareous *53.66m - 53.78m: 53.66-53.78m: Thin bed of gravel* *58.03m - 58.08m: 58.03-58.08m: Very thin bed of medium dense sand, silty*	Ma/Fw	Gc

Sample Type / CPTU Push / CPT Ref No. / Cone ID / Cone Area (a):
- 01 121004 10cm² (0.78)
- 02 121004 10cm² (0.78)
- 03 121126 10cm² (0.79)
- 04 121126 10cm² (0.79)

Water Content (%): 0 25 50 75 100

Density (Mg/m³): 3 2 1 0

Particle Size, %: Gravel | Sand | Fines | Silt | Clay

Relative Density, D_r (%): 0 30 60 90 120

Undrained Shear Strength, Su (kPa): 0 300 600 900 1200 1500

Corrected Cone Resistance, q_t (MPa): 0 12 24 36 48 60

Sleeve Friction, f_s(MPa): 0 0.3 0.6 0.9 1.2 1.5

Pore Pressure, U_2 (kPa): -4500 -2250 0 2250 4500

Ambient Pore Pressure (kPa)

KEY TO SOIL PROFILE

SILT · CLAY · SAND · GRAVEL · COBBLES · CHALK · PEAT · Mixed Soil

Assumed Unit Weight: 20 - 16 kN/m³
K_0: 0.5 - 2.0
N_{kt}: 15 - 20
N_{kt}: 12.5 - 16.5

Area	**Kattegat Sea**	Coordinates	**674182.0E**	**6265896.3N**	CRS: **ETRS89**
Contract	**11596**	Latitude / Longitude			**Comments: Location data taken from OSS 1. OSS 1 out of class test terminated at 47.95m due to loss of communication with the cone. Borehole OSS1-BH was completed to a depth of 70.20m utilising API drilling~ Wison CPT and push sampling methods.**
Client Name / Ref	**Energinet Eltransmission A/S / 384_20_ENE**	Water Depth (mMSL)	**-31.6**		
Vessel	**MV Ocean Vantage**	Date of Test (Start-End)			
Method	**Wison**	Final Borehole Depth	**70.20m**		

QC Status		
Preliminary	Draft	Final
BC/JK (28/06/2021)	**DR** (28/06/2021)	**SMc** (10/11/2021)

Location Names: OSS1-BH

Preliminary Investigation, Hesselø OWF

BOREHOLE LOG, LABORATORY TEST RESULTS AND IN SITU CPTU TESTING

Gardline

Relative to (mMSL)	Relative to BSB (m)	Soil Profile	Sample Type	CPTU Push	CPT Ref No. Cone ID Cone Area (a)	Soil Depth (m)	Env.	Age
-92.0 to -101.5	60.5 to 69.5				05 121126 10cm² (0.79); 06 121126 10cm² (0.79); 07 121126 10cm² (0.79)		Ma/Fw	Gc

Very high to extremely high strength CLAY TILL, medium plasticity, very silty, slightly sandy, slightly gravelly, dark greenish grey (GLEY1 10Y 4/1) to greenish grey (GLEY1 10Y 5/1), highly calcareous

Water Content (%) 0 25 50 75 100

Density (Mg/m³) 3 2 1 0

Particle Size, % — Gravel | Sand | Fines | Silt | Clay

Relative Density, D_r (%) 0 30 60 90 120

Undrained Shear Strength, Su (kPa) 0 300 600 900 1200 1500

Corrected Cone Resistance, q_t (MPa) 0 12 24 36 48 60

Sleeve Friction, f_s (MPa) 0 0.3 0.6 0.9 1.2 1.5

Pore Pressure, U_2 (kPa) -4500 -2250 0 2250 4500

Ambient Pore Pressure (kPa)

Relative to BSB (m) 60.5 61.0 61.5 62.0 62.5 63.0 63.5 64.0 64.5 65.0 65.5 66.0 66.5 67.0 67.5 68.0 68.5 69.0 69.5

KEY TO SOIL PROFILE

SILT · CLAY · SAND · GRAVEL · COBBLES · CHALK · PEAT · Mixed Soil

Assumed Unit Weight: 20 - 16 kN/m³
K_0: 0.5 - 2.0
N_{kt}: 15 - 20
N_{kt}: 12.5 - 16.5

Area	**Kattegat Sea**	Coordinates	**674182.0E**	**6265896.3N**	CRS: **ETRS89**
Contract	**11596**	Latitude / Longitude			**Comments: Location data taken from OSS 1. OSS 1 out of class test terminated at 47.95m due to loss of communication with the cone. Borehole OSS1-BH was completed to a depth of 70.20m utilising API drilling~ Wison CPT and push sampling methods.**
Client Name / Ref	**Energinet Eltransmission A/S / 384_20_ENE**	Water Depth (mMSL)	**-31.6**		
Vessel	**MV Ocean Vantage**	Date of Test (Start-End)			
Method	**Wison**	Final Borehole Depth	**70.20m**		

QC Status		
Preliminary	Draft	Final
BC/JK (28/06/2021)	**DR** (28/06/2021)	**SMc** (10/11/2021)

Location Names
OSS1-BH

Preliminary Investigation, Hesselø OWF

BOREHOLE LOG, LABORATORY TEST RESULTS AND IN SITU CPTU TESTING

Relative to (mMSL)	Relative to BSB (m)	Soil Profile	Soil Depth (m)		Env.	Age
-102.0	70.5		70.20	Very high to extremely high strength CLAY TILL, medium plasticity, very silty, slightly sandy, slightly gravelly, dark greenish grey (GLEY1 10Y 4/1) to greenish grey (GLEY1 10Y 5/1), highly calcareous	Ma/Fw	Gc
				End of borehole at 70.20m		

Sample Type: CPTU Push

CPT Ref No. / Cone ID / Cone Area (a)

Water Content (%): 0 25 50 75 100 — 19

Density (Mg/m^3): 3 2 1 0

Particle Size, %	Gravel	Sand	Fines	Silt	Clay
	1	6	93	65	28

Relative Density, D_r (%): 0 30 60 90 120

Undrained Shear Strength, Su (kPa): 0 300 600 900 1200 1500

Corrected Cone Resistance, q_t (MPa): 0 12 24 36 48 60

Sleeve Friction, f_s(MPa): 0 0.3 0.6 0.9 1.2 1.5

Pore Pressure, U_2 (kPa): -4500 -2250 0 2250 4500

Ambient Pore Pressure (kPa)

Relative to BSB (m): 70.5 71.0 71.5 72.0 72.5 73.0 73.5 74.0 74.5 75.0 75.5 76.0 76.5 77.0 77.5 78.0 78.5 79.0 79.5

Relative to (mMSL): -102.0 -102.5 -103.0 -103.5 -104.0 -104.5 -105.0 -105.5 -106.0 -106.5 -107.0 -107.5 -108.0 -108.5 -109.0 -109.5 -110.0 -110.5 -111.0 -111.5

KEY TO SOIL PROFILE

SILT, CLAY, SAND, GRAVEL, COBBLES, CHALK, PEAT, Mixed Soil

Assumed Unit Weight: 20 - 16 kN/m^3
K_0: 0.5 - 2.0
N_{kt}: 15 - 20
N_{ke}: 12.5 - 16.5

Area	**Kattegat Sea**	Coordinates	**674182.0E**	**6265896.3N**	CRS: **ETRS89**
Contract	**11596**	Latitude / Longitude			**Comments: Location data taken from OSS 1. OSS 1 out of class test terminated at 47.95m due to loss of communication with the cone. Borehole OSS1-BH was completed to a depth of 70.20m utilising API drilling~ Wison CPT and push sampling methods.**
Client Name / Ref	**Energinet Eltransmission A/S / 384_20_ENE**	Water Depth (mMSL)	**-31.6**		
Vessel	**MV Ocean Vantage**	Date of Test (Start-End)			
Method	**Wison**	Final Borehole Depth	**70.20m**		

QC Status	Preliminary	Draft	Final
	BC/JK (28/06/2021)	**DR** (28/06/2021)	**SMc** (10/11/2021)

Location Names: OSS1-BH

Preliminary Investigation, Hesselø OWF

BOREHOLE LOG, LABORATORY TEST RESULTS AND IN SITU CPTU TESTING

Soil Depth (m)	Description	Env.	Age
	Extremely low strength CLAY, medium to high plasticity, very silty, sandy, very dark greenish grey (GLEY1 10Y 3/1), with few shell fragments (<0.01m), non calcareous	Ma/Fw	Ho
1.87	Dense to very dense SAND, fine to medium, sorted, slightly silty, with frequent shell fragments (<0.01m), slightly calcareous	Ma/Fw	Ho
2.68	Low to medium strength CLAY, high plasticity, very silty, slightly sandy, dark grey (5Y 4/1), slightly calcareous	Ma	Ho
6.09	Low to medium strength CLAY, high plasticity, slightly sandy, slightly gravelly, dark grey (5Y 4/1), slightly calcareous	Ma/Fw	Ho
7.36	High strength CLAY, medium plasticity, very silty, sandy, slightly gravelly, dark grey (5Y 4/1), highly calcareous	Ma/Fw	Pg

CPT Ref No. 01, Cone ID 081208, Cone Area (a) 10cm² (0.78)

Particle Size, %	Gravel	Sand	Fines	Silt	Clay
	0	37	63	29	34
	0	95	5	5	0
	0	1	99	36	63

Water Content (%) 0 25 50 75 100 · Density (Mg/m³) 3 2 1 0 · Relative Density, D_r (%) 0 30 60 90 120 · Undrained Shear Strength, Su (kPa) 0 300 600 900 1200 1500 · Corrected Cone Resistance, q_t (MPa) 0 12 24 36 48 60 · Sleeve Friction, f_s (MPa) 0 0.3 0.6 0.9 1.2 1.5 · Pore Pressure, U_2 (kPa) -4500 -2250 0 2250 4500 · Ambient Pore Pressure (kPa)

KEY TO SOIL PROFILE

SILT · CLAY · SAND · GRAVEL · COBBLES · CHALK · PEAT · Mixed Soil

Assumed Unit Weight: 20 - 16 kN/m³
K_p: 0.5 - 2.0
N_{kt}: 15 - 20
N_{kt}: 12.5 - 16.5

Area	**Kattegat Sea**	Coordinates	**674909.6E**	**6253669.9N**	CRS: **ETRS89**
Contract	**11596**	Latitude / Longitude			
Client Name / Ref	**Energinet Eltransmission A/S / 384_20_ENE**	Water Depth (mMSL)	**-30.0**		
Vessel	**MV Ocean Vantage**	Date of Test (Start-End)			
Method	**20 kN Sea bed CPT**	Final Borehole Depth	**70.20m**		

Comments: Location data taken from OSS 2. OSS 2 class 1 test terminated at 15.84m at operators discretion due to a lack of lateral rod support from mudline~ resulting in a high risk of buckling rods when encountering very dense sands. Borehole OSS2-BH was completed to a depth of 70.08m utilising API drilling~ Wison CPT and push sampling methods. P-S logging was performed from 65m to 4m below mudline.

QC Status	Preliminary	Draft	Final
	BC/JK (28/06/2021)	**DR** (28/06/2021)	**SMc** (10/11/2021)

Location Names
OSS 2
OSS2-BH

Preliminary Investigation, Hesselø OWF

BOREHOLE LOG, LABORATORY TEST RESULTS AND IN SITU CPTU TESTING

Soil Depth (m)	Description	Env.	Age
	High strength CLAY, medium plasticity, very silty, sandy, slightly gravelly, dark grey (5Y 4/1), highly calcareous	Ma/Fw	Pg
14.28	Very dense SAND, fine, well sorted, clayey, silty, slightly gravelly, grey (5Y 5/1), highly calcareous	Ma/Fw	Pg
17.88	Extremely high strength CLAY, high plasticity, silty, sandy, gravelly, dark grey (5Y 4/1), highly calcareous	Ma/Fw	Pg

Particle Size, %: Gravel 1; Sand 19; Fines 80; Silt 49; Clay 31

CPT Ref No. / Cone ID / Cone Area (a): 01 120825 10cm² (0.76); 02 120825 10cm² (0.76); 03 120825 10cm² (0.76); 04 121126 10cm² (0.79); 05 121126 10cm² (0.79)

KEY TO SOIL PROFILE

SILT, CLAY, SAND, GRAVEL, COBBLES, CHALK, PEAT, Mixed Soil

Assumed Unit Weight: 20 - 16 kN/m³
K_0: 0.5 - 2.0
N_{kt}: 15 - 20
N_{kt}: 12.5 - 16.5

Area	**Kattegat Sea**	Coordinates	**674909.6E**	**6253669.9N**	CRS: **ETRS89**
Contract	**11596**	Latitude / Longitude			**Comments: Location data taken from OSS 2. OSS 2 class 1 test terminated at 15.84m at operators discretion due to a lack of lateral rod support from mudline~ resulting in a high risk of buckling rods when encountering very dense sands. Borehole OSS2-BH was completed to a depth of 70.08m utilising API drilling~ Wison CPT and push sampling methods. P-S logging was performed from 65m to 4m below mudline.**
Client Name / Ref	**Energinet Eltransmission A/S / 384_20_ENE**	Water Depth (mMSL)	**-30.0**		
Vessel	**MV Ocean Vantage**	Date of Test (Start-End)			
Method	**20 kN Sea bed CPT**	Final Borehole Depth	**70.20m**		

QC Status		
Preliminary	Draft	Final
BC/JK (28/06/2021)	**DR** (28/06/2021)	**SMc** (10/11/2021)

Location Names
OSS 2
OSS2-BH

Preliminary Investigation, Hesselø OWF

BOREHOLE LOG, LABORATORY TEST RESULTS AND IN SITU CPTU TESTING

Soil Depth (m)	Soil Description	Env.	Age	Gravel	Sand	Fines	Silt	Clay
	Extremely high strength CLAY, high plasticity, silty, sandy, gravelly, dark grey (5Y 4/1), highly calcareous	Ma/Fw	Pg					
24.00	CLAY, low plasticity, silty, sandy, dark grey (5Y 4/1), highly calcareous	Ma/Fw	Pg	0	46	54	19	35
24.50	Dense to very dense SAND, fine to medium, unsorted, clayey, very silty, slightly gravelly, grey (2.5Y 5/1), highly calcareous	Ma/Fw	Pg/Lg	2	69	29	24	5
28.00	High to very high strength CLAY, medium plasticity, very silty, very sandy, slightly gravelly, dark grey (5Y 4/1), highly calcareous, with pockets of sand (<0.02m) fine, well sorted, dark grey (5Y 4/1), calcareous	Ma/Fw	Pg/Lg	3	31	66	31	35

KEY TO SOIL PROFILE

SILT, CLAY, SAND, GRAVEL, COBBLES, CHALK, PEAT, Mixed Soil

Assumed Unit Weight: 20 - 16 kN/m³
K_p: 0.5 - 2.0
N_{kt}: 15 - 20
N_{ch}: 12.5 - 16.5

Area	**Kattegat Sea**	Coordinates	**674909.6E**	**6253669.9N**	CRS: **ETRS89**
Contract	**11596**	Latitude / Longitude			
Client Name / Ref	**Energinet Eltransmission A/S / 384_20_ENE**	Water Depth (mMSL)	**-30.0**		
Vessel	**MV Ocean Vantage**	Date of Test (Start-End)			
Method	**Wison**	Final Borehole Depth	**70.20m**		

Comments: Location data taken from OSS 2. OSS 2 class 1 test terminated at 15.84m at operators discretion due to a lack of lateral rod support from mudline~ resulting in a high risk of buckling rods when encountering very dense sands. Borehole OSS2-BH was completed to a depth of 70.08m utilising API drilling~ Wison CPT and push sampling methods. P-S logging was performed from 65m to 4m below mudline.

QC Status	Preliminary	Draft	Final
	BC/JK (28/06/2021)	**DR** (28/06/2021)	**SMc** (10/11/2021)

Location Names: OSS2-BH

Preliminary Investigation, Hesselø OWF

BOREHOLE LOG, LABORATORY TEST RESULTS AND IN SITU CPTU TESTING

Soil Depth (m)	Soil Description	Env.	Age
30.31	High to very high strength CLAY, medium plasticity, very silty, very sandy, slightly gravelly, dark grey (5Y 4/1), highly calcareous, with pockets of sand (<0.02m) fine, well sorted, dark grey (5Y 4/1), calcareous	Ma/Fw	Pg/Lg
	Dense to very dense locally medium dense SAND, silty	Ma/Fw	Lg
30.90	Very high to extremely high strength CLAY TILL, medium plasticity, very silty, very sandy, slightly gravelly, with pockets of sand (<0.05m), fine, well sorted, very dark greenish grey (GLEY1 5GY 3/1), slightly calcareous		
	35.38m - 35.61m: 35.40-35.72m: Medium bed of dense to very dense sand, silty	Ma/Fw	Gc
	37.59m - 38.00m: 37.57-37.98m: Medium bed of dense to very dense sand, silty		

CPT Ref No. / Cone ID / Cone Area (a): 13 121055 10cm² (0.78); 14 121126 10cm² (0.78); 15 121126 10cm² (0.78)

Water Content (%) 0 25 50 75 100

Density (Mg/m³) 3 2 1 0

Particle Size, % — Gravel, Sand, Fines, Silt, Clay

Relative Density, D_r (%) 0 30 60 90 120

Undrained Shear Strength, Su (kPa) 0 300 600 900 1200 1500

Corrected Cone Resistance, q_t (MPa) 0 12 24 36 48 60

Sleeve Friction, f_s (MPa) 0 0.3 0.6 0.9 1.2 1.5

Pore Pressure, U_2 (kPa) -4500 -2250 0 2250 4500

Ambient Pore Pressure (kPa)

KEY TO SOIL PROFILE

SILT, CLAY, SAND, GRAVEL, COBBLES, CHALK, PEAT, Mixed Soil

Assumed Unit Weight: 20 - 16 kN/m³
K_0: 0.5 - 2.0
N_{kt}: 15 - 20
N_{ch}: 12.5 - 16.5

Area	**Kattegat Sea**	Coordinates	**674909.6E**	**6253669.9N**	CRS: **ETRS89**
Contract	**11596**	Latitude / Longitude			**Comments: Location data taken from OSS 2. OSS 2 class 1 test terminated at 15.84m at operators discretion due to a lack of lateral rod support from mudline~ resulting in a high risk of buckling rods when encountering very dense sands. Borehole OSS2-BH was completed to a depth of 70.08m utilising API drilling~ Wison CPT and push sampling methods. P-S logging was performed from 65m to 4m below mudline.**
Client Name / Ref	**Energinet Eltransmission A/S / 384_20_ENE**	Water Depth (mMSL)	**-30.0**		
Vessel	**MV Ocean Vantage**	Date of Test (Start-End)			
Method	**Wison**	Final Borehole Depth	**70.20m**		

QC Status		
Preliminary	Draft	Final
BC/JK (28/06/2021)	**DR** (28/06/2021)	**SMc** (10/11/2021)

Location Names: OSS2-BH

Preliminary Investigation, Hesselø OWF

BOREHOLE LOG, LABORATORY TEST RESULTS AND IN SITU CPTU TESTING

Relative to (mMSL)	Relative to BSB (m)	Soil Profile	Sample Type	CPTU Push	CPT Ref No. Cone ID Cone Area (a)	Soil Depth (m)		Env.	Age
-70.0	40.5		PMA				Very high to extremely high strength CLAY TILL, medium plasticity, very silty, very sandy, slightly gravelly, with pockets of sand (<0.05m), fine, well sorted, very dark greenish grey (GLEY1 5GY 3/1), slightly calcareous	Ma/Fw	Gc
-71.0	41.0		PMA						
-71.5	41.5		PMA						
-72.0	42.0		PMA						
-72.5	42.5		PMA		H 121126 10cm² (0.79)				
-73.0	43.0		PMA						
-73.5	43.5		PMA						
-74.0	44.0		PMA						
-74.5	44.5		PMA						
-75.0	45.0		PMA			45.00	Extremely high strength CLAY, high plasticity, very silty, slightly sandy dark greenish grey (GLEY1 5GY 4/1), highly calcareous	Gl	Gc
-75.5	45.5		PMA						
-76.0	46.0		PMA						
-76.5	46.5		PMA		17 121126 10cm² (0.79)				
-77.0	47.0		PMA						
-77.5	47.5		PMA						
-78.0	48.0		PMA						
-78.5	48.5		PMA						
-79.0	49.0		PMA						
-79.5	49.5		PMA						

Water Content (%): 0, 25, 50, 75, 100 — 23 — 30

Density (Mg/m^3): 3, 2, 1, 0

Particle Size, %	Gravel	Sand	Fines	Silt	Clay
	2	28	70	39	31
	0	1	99	54	45

Relative Density, D_r (%): 0, 30, 60, 90, 120

Undrained Shear Strength, Su (kPa): 0, 300, 600, 900, 1200, 1500

Corrected Cone Resistance, q_t (MPa): 0, 12, 24, 36, 48, 60

Sleeve Friction, f_s(MPa): 0, 0.3, 0.6, 0.9, 1.2, 1.5

Pore Pressure, U_2 (kPa): -4500, -2250, 0, 2250, 4500

Ambient Pore Pressure (kPa)

KEY TO SOIL PROFILE

SILT, CLAY, SAND, GRAVEL, COBBLES, CHALK, PEAT, Mixed Soil

Assumed Unit Weight: 20 - 16 kN/m^3
K_0: 0.5 - 2.0
N_{kt}: 15 - 20
N_{ch}: 12.5 - 16.5

Area	**Kattegat Sea**	Coordinates	**674909.6E**	**6253669.9N**
Contract	**11596**	Latitude / Longitude		
Client Name / Ref	**Energinet Eltransmission A/S / 384_20_ENE**	Water Depth (mMSL)	**-30.0**	
Vessel	**MV Ocean Vantage**	Date of Test (Start-End)		
Method	**Wison**	Final Borehole Depth	**70.20m**	

CRS: **ETRS89**

Comments: Location data taken from OSS 2. OSS 2 class 1 test terminated at 15.84m at operators discretion due to a lack of lateral rod support from mudline~ resulting in a high risk of buckling rods when encountering very dense sands. Borehole OSS2-BH was completed to a depth of 70.08m utilising API drilling~ Wison CPT and push sampling methods. P-S logging was performed from 65m to 4m below mudline.

QC Status	Preliminary	Draft	Final
	BC/JK (28/06/2021)	**DR** (28/06/2021)	**SMc** (10/11/2021)

Location Names
OSS2-BH

Preliminary Investigation, Hesselø OWF

BOREHOLE LOG, LABORATORY TEST RESULTS AND IN SITU CPTU TESTING

Relative to (mMSL)	Relative to BSB (m)	Soil Profile	Sample Type	CPTU Push	CPT Ref No. Cone ID Cone Area (a)	Soil Depth (m)		Env.	Age
-80.0									
-80.5	50.5				18 121126 10cm² (0.79)				
-81.0	51.0								
-81.5	51.5								
-82.0	52.0								
-82.5	52.5								
-83.0	53.0								
-83.5	53.5				19 121126 10cm² (0.79)			Gl	Gc
-84.0	54.0								
-84.5	54.5								
-85.0	55.0								
-85.5	55.5								
-86.0	56.0								
-86.5	56.5								
-87.0	57.0				20 121126 10cm² (0.79)				
-87.5	57.5					57.25	CLAY TILL, low to medium plasticity, very silty, very sandy, gravelly, grey (5Y 6/1), highly calcareous		
-88.0	58.0				21 121126 10cm² (0.79)			Gl	Gc
-88.5	58.5								
-89.0	59.0								
-89.5	59.5				22 121126 10cm² (0.79)				

Extremely high strength CLAY, high plasticity, very silty, slightly sandy dark greenish grey (GLEY1 5GY 4/1), highly calcareous

Water Content (%): 0 25 50 75 100

Density (Mg/m³): 3 2 1 0

Particle Size, %: Gravel | Sand | Fines | Silt | Clay

Relative Density, D_r (%): 0 30 60 90 120

Undrained Shear Strength, Su (kPa): 0 300 600 900 1200 1500

Corrected Cone Resistance, q_t (MPa): 0 12 24 36 48 60

Sleeve Friction, f_s(MPa): 0 0.3 0.6 0.9 1.2 1.5

Pore Pressure, U_2 (kPa): -4500 -2250 0 2250 4500

Ambient Pore Pressure (kPa)

Relative to BSB (m)

KEY TO SOIL PROFILE

SILT | CLAY | SAND | GRAVEL | COBBLES | CHALK | PEAT | Mixed Soil

Assumed Unit Weight: 20 - 16 kN/m³
K_0: 0.5 - 2.0
N_{kt}: 15 - 20
N_{kt}: 12.5 - 16.5

Area	**Kattegat Sea**	Coordinates	**674909.6E**	**6253669.9N**	CRS: **ETRS89**
Contract	**11596**	Latitude / Longitude			
Client Name / Ref	**Energinet Eltransmission A/S / 384_20_ENE**	Water Depth (mMSL)	**-30.0**		
Vessel	**MV Ocean Vantage**	Date of Test (Start-End)			
Method	**Wison**	Final Borehole Depth	**70.20m**		

Comments: Location data taken from OSS 2. OSS 2 class 1 test terminated at 15.84m at operators discretion due to a lack of lateral rod support from mudline~ resulting in a high risk of buckling rods when encountering very dense sands. Borehole OSS2-BH was completed to a depth of 70.08m utilising API drilling~ Wison CPT and push sampling methods. P-S logging was performed from 65m to 4m below mudline.

QC Status		
Preliminary	Draft	Final
BC/JK (28/06/2021)	**DR** (28/06/2021)	**SMc** (10/11/2021)

Location Names
OSS2-BH

Preliminary Investigation, Hesselø OWF

BOREHOLE LOG, LABORATORY TEST RESULTS AND IN SITU CPTU TESTING

Relative to BSB (m)	Soil Depth (m)	Description	Env.	Age
60.5		CLAY TILL, low to medium plasticity, very silty, very sandy, gravelly, grey (5Y 6/1), highly calcareous	Gl	Gc
64.5		*64.50m - 64.75m: 64.50-64.75m: Medium bed of CLAY, non plastic, very sandy, gravelly, black (10YR 2/1), organic, non calcareous*		
66.5	66.50	Dense to very dense SAND, fine to medium, sorted, silty, grey (2.5Y 6/1), slightly cemented, calcareous	Gl	Gc

Water Content (%) 0 25 50 75 100 — Density (Mg/m³) 3 2 1 0 — Particle Size, % — Relative Density, D_r (%) 0 30 60 90 120 — Corrected Cone Resistance, q_t (MPa) 0 12 24 36 48 60 — Pore Pressure, U_2 (kPa) -4500 -2250 0 2250 4500

Gravel	Sand	Fines	Silt	Clay
11	24	65	48	17
0	92	8	8	0

Undrained Shear Strength, Su (kPa) 0 300 600 900 1200 1500 — Sleeve Friction, f_s (MPa) 0 0.3 0.6 0.9 1.2 1.5 — Ambient Pore Pressure (kPa)

KEY TO SOIL PROFILE

SILT · CLAY · SAND · GRAVEL · COBBLES · CHALK · PEAT · Mixed Soil

Assumed Unit Weight: 20 - 16 kN/m³
K_0: 0.5 - 2.0
N_{kt}: 15 - 20
N_{kt}: 12.5 - 16.5

Area	**Kattegat Sea**	Coordinates	**674909.6E**	**6253669.9N**	CRS: **ETRS89**
Contract	**11596**	Latitude / Longitude			**Comments: Location data taken from OSS 2. OSS 2 class 1 test terminated at 15.84m at operators discretion due to a lack of lateral rod support from mudline~ resulting in a high risk of buckling rods when encountering very dense sands. Borehole OSS2-BH was completed to a depth of 70.08m utilising API drilling~ Wison CPT and push sampling methods. P-S logging was performed from 65m to 4m below mudline.**
Client Name / Ref	**Energinet Eltransmission A/S / 384_20_ENE**	Water Depth (mMSL)	**-30.0**		
Vessel	**MV Ocean Vantage**	Date of Test (Start-End)			
Method	**Wison**	Final Borehole Depth	**70.20m**		

QC Status		
Preliminary	Draft	Final
BC/JK (28/06/2021)	**DR** (28/06/2021)	**SMc** (10/11/2021)

Location Names
OSS2-BH

Preliminary Investigation, Hesselø OWF

BOREHOLE LOG, LABORATORY TEST RESULTS AND IN SITU CPTU TESTING

Relative to (mMSL)	Relative to BSB (m)	Soil Profile	Sample Type	CPTU Push	CPT Ref No. Cone ID Cone Area (a)	Soil Depth (m)		Env.	Age
-100.0	70.5					70.00 70.08	SILTSTONE, slightly indurated, black (5Y 2.5/1), non calcareous End of borehole at 70.20m	Gl	Ct

Water Content (%): 0 25 50 75 100

Density (Mg/m^3): 3 2 1 0

Particle Size, %: Gravel | Sand | Fines | Silt | Clay

Relative Density, D_r (%): 0 30 60 90 120

Undrained Shear Strength, Su (kPa): 0 300 600 900 1200 1500

Corrected Cone Resistance, q_t (MPa): 0 12 24 36 48 60

Sleeve Friction, f_s(MPa): 0 0.3 0.6 0.9 1.2 1.5

Pore Pressure, U_2 (kPa): -4500 -2250 0 2250 4500

Ambient Pore Pressure (kPa)

KEY TO SOIL PROFILE

SILT · CLAY · SAND · GRAVEL · COBBLES · CHALK · PEAT · Mixed Soil

Assumed Unit Weight: 20 - 16 kN/m^3
K_0: 0.5 - 2.0
N_{kt}: 15 - 20
N_{ke}: 12.5 - 16.5

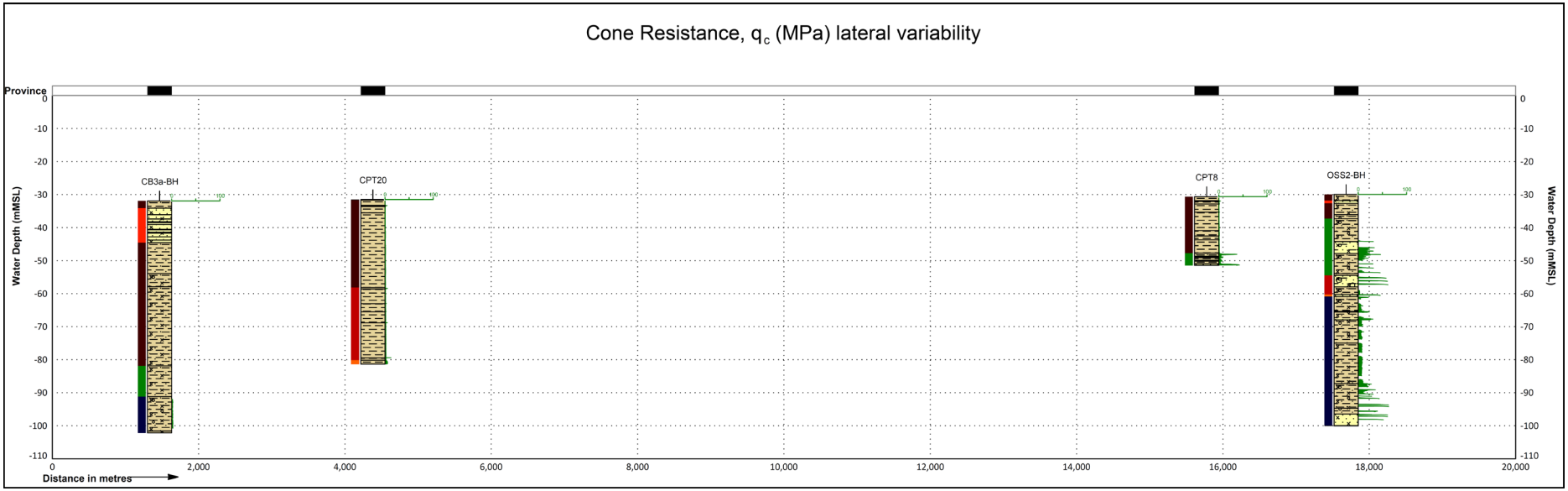
Area	**Kattegat Sea**	Coordinates	**674909.6E** **6253669.9N**	CRS: **ETRS89**	
Contract	**11596**	Latitude / Longitude		**Comments: Location data taken from OSS 2. OSS 2 class 1 test terminated at 15.84m at operators discretion due to a lack of lateral rod support from mudline~ resulting in a high risk of buckling rods when encountering very dense sands. Borehole OSS2-BH was completed to a depth of 70.08m utilising API drilling~ Wison CPT and push sampling methods. P-S logging was performed from 65m to 4m below mudline.**	
Client Name / Ref	**Energinet Eltransmission A/S / 384_20_ENE**	Water Depth (mMSL)	**-30.0**		
Vessel	**MV Ocean Vantage**	Date of Test (Start-End)			
Method	**Wison**	Final Borehole Depth	**70.20m**		

QC Status		
Preliminary	Draft	Final
BC/JK (28/06/2021)	**DR** (28/06/2021)	**SMc** (10/11/2021)

Location Names
OSS2-BH

2.6 Geological Cross Section Logs

Cross Section 1: CB3a-BH-CPT20-CPT8-OSS2-BH



Legend:

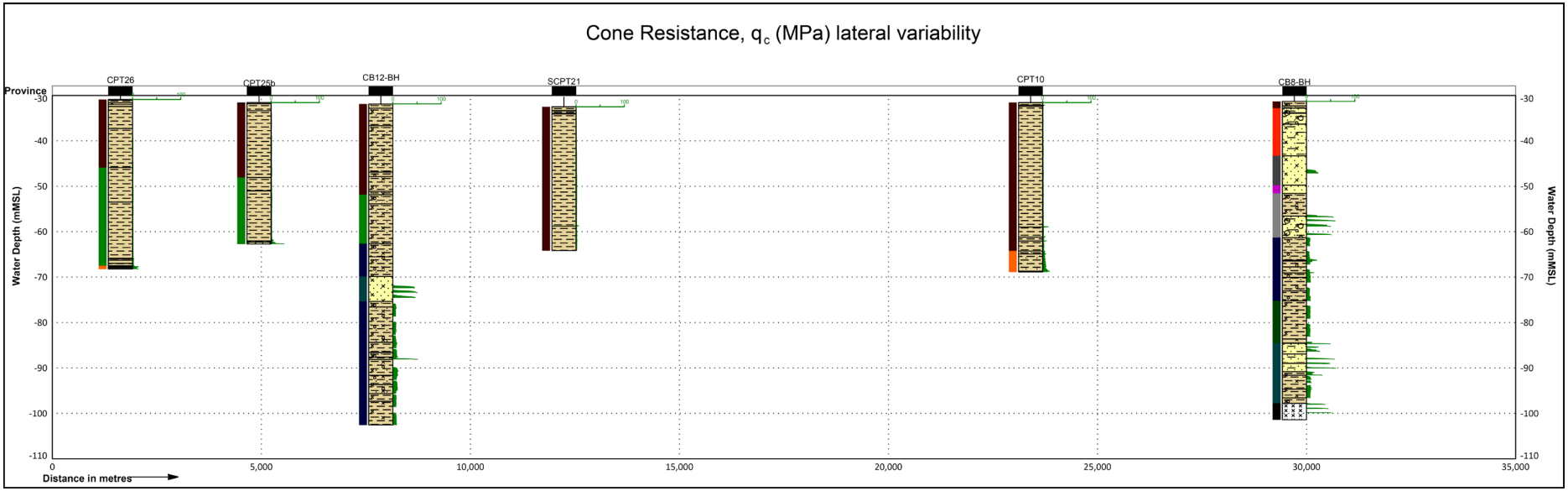
Soil parameters

Cone Resistance, q_c (MPa) profile

Engineering Units

UNIT	DESCRIPTION
GC1	Glacial Deposit, Glacial
GC2	Glacial/Meltwater Deposit, Glacial
GC3	Glacial/Marine Deposit, Glacial
H1	Marine Deposit, Holocene
H2	Marine/Freshwater Deposit, Holocene
LG/GC1	Glacial/Marine Deposit, Late Glacial/Glacial
LG/GC2	Marine/Freshwater Deposit, Late Glacial/Glacial
LG1	Glacial Deposit, Late Glacial
LG2	Glacial/Marine Deposit, Late Glacial
LG3	Marine/Meltwater Deposit, Late Glacial
LG4	Marine Deposit, Late Glacial
LG5	Marine/Freshwater Deposit, Late Glacial
PG/LG	Marine/Freshwater Deposit, Post Glacial/Late
PG1	Glacial
PG2	Marine Deposit, Post Glacial
PQ	Marine/Freshwater Deposit, Post Glacial Marine Deposit, Cretaceous

Cross Section 2: CPT26-CPT25b-CB12-BH-SCPT21-CPT10-CB8-BH



Legend:

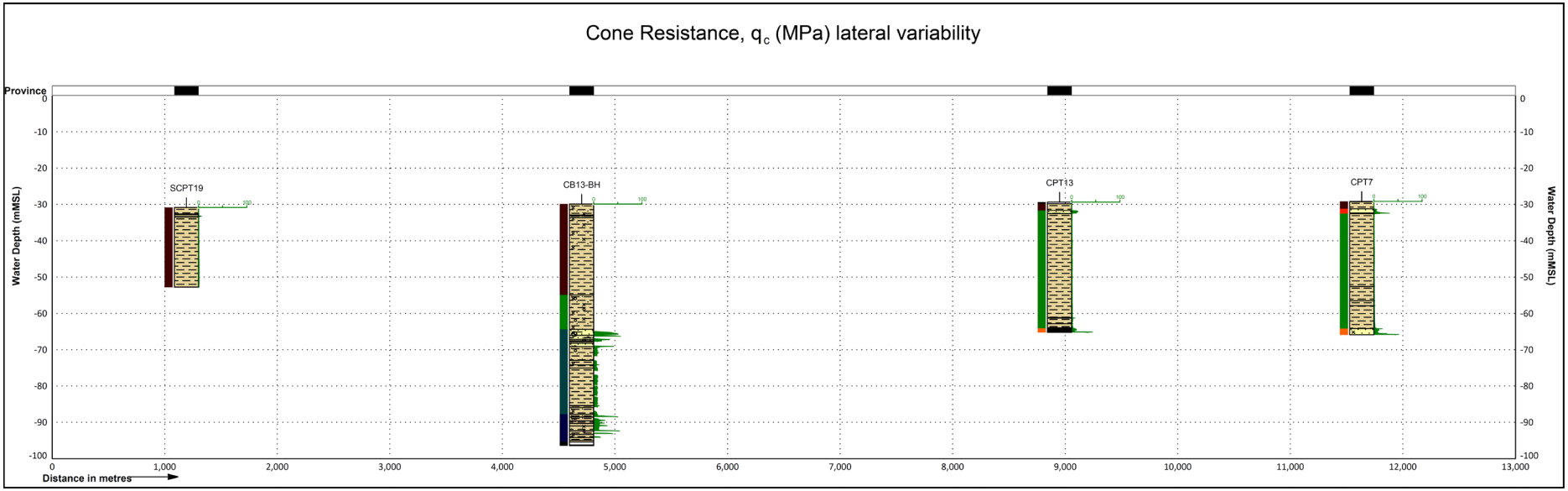
Soil parameters

Cone Resistance, q_c (MPa) profile

Engineering Units

UNIT	DESCRIPTION
GC1	Glacial Deposit, Glacial
GC2	Glacial/Meltwater Deposit, Glacial
GC3	Glacial/Marine Deposit, Glacial
H1	Marine Deposit, Holocene
H2	Marine/Freshwater Deposit, Holocene
LG/GC1	Glacial/Marine Deposit, Late Glacial/Glacial
LG/GC2	Marine/Freshwater Deposit, Late Glacial/Glacial
LG1	Glacial Deposit, Late Glacial
LG2	Glacial/Marine Deposit, Late Glacial
LG3	Marine/Meltwater Deposit, Late Glacial
LG4	Marine Deposit, Late Glacial
LG5	Marine/Freshwater Deposit, Late Glacial
PG/LG	Marine/Freshwater Deposit, Post Glacial/Late
PG1	Glacial
PG2	Marine Deposit, Post Glacial
PQ	Marine/Freshwater Deposit, Post Glacial Marine Deposit, Cretaceous

Cross Section 3: SCPT19-CB13-BH-CPT13-CPT7



Legend:

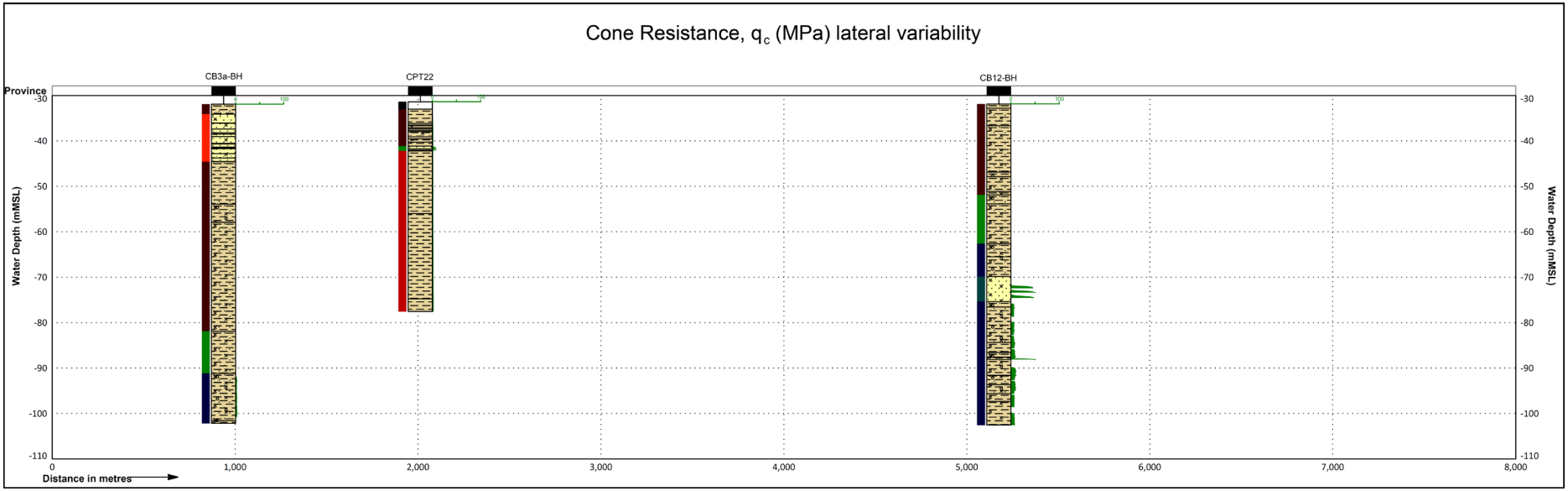
Soil parameters

Cone Resistance, q_c (MPa) profile

Engineering Units

UNIT	DESCRIPTION
GC1	Glacial Deposit, Glacial
GC2	Glacial/Meltwater Deposit, Glacial
GC3	Glacial/Marine Deposit, Glacial
H1	Marine Deposit, Holocene
H2	Marine/Freshwater Deposit, Holocene
LG/GC1	Glacial/Marine Deposit, Late Glacial/Glacial
LG/GC2	Marine/Freshwater Deposit, Late Glacial/Glacial
LG1	Glacial Deposit, Late Glacial
LG2	Glacial/Marine Deposit, Late Glacial
LG3	Marine/Meltwater Deposit, Late Glacial
LG4	Marine Deposit, Late Glacial
LG5	Marine/Freshwater Deposit, Late Glacial
PG/LG	Marine/Freshwater Deposit, Post Glacial/Late
PG1	Glacial
PG2	Marine Deposit, Post Glacial
PQ	Marine/Freshwater Deposit, Post Glacial Marine Deposit, Cretaceous

Cross Section 4: CB3a-BH-CPT22-CB12-BH



Legend:

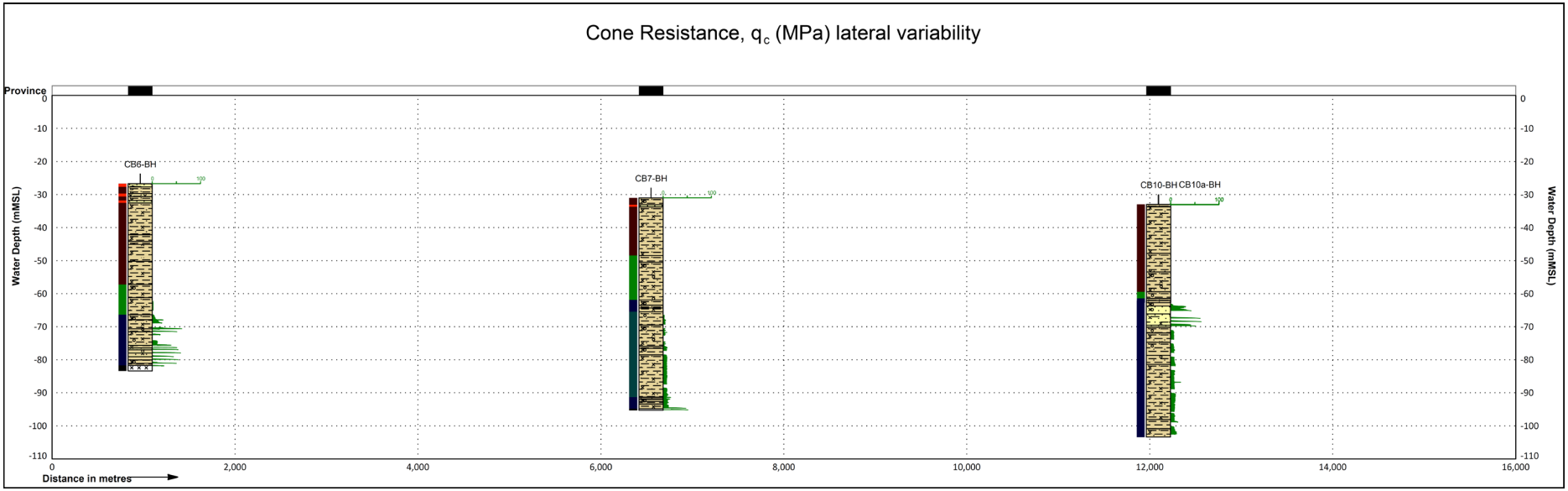
Soil parameters

Cone Resistance, q_c (MPa) profile

Engineering Units

UNIT	DESCRIPTION
GC1	Glacial Deposit, Glacial
GC2	Glacial/Meltwater Deposit, Glacial
GC3	Glacial/Marine Deposit, Glacial
H1	Marine Deposit, Holocene
H2	Marine/Freshwater Deposit, Holocene
LG/GC1	Glacial/Marine Deposit, Late Glacial/Glacial
LG/GC2	Marine/Freshwater Deposit, Late Glacial/Glacial
LG1	Glacial Deposit, Late Glacial
LG2	Glacial/Marine Deposit, Late Glacial
LG3	Marine/Meltwater Deposit, Late Glacial
LG4	Marine Deposit, Late Glacial
LG5	Marine/Freshwater Deposit, Late Glacial
PG/LG	Marine/Freshwater Deposit, Post Glacial/Late
PG1	Glacial
PG2	Marine Deposit, Post Glacial
PQ	Marine/Freshwater Deposit, Post Glacial
	Marine Deposit, Cretaceous

Cross Section 5: CB6-BH—CB7-BH-CB10-BH-CB10a-BH



Legend:

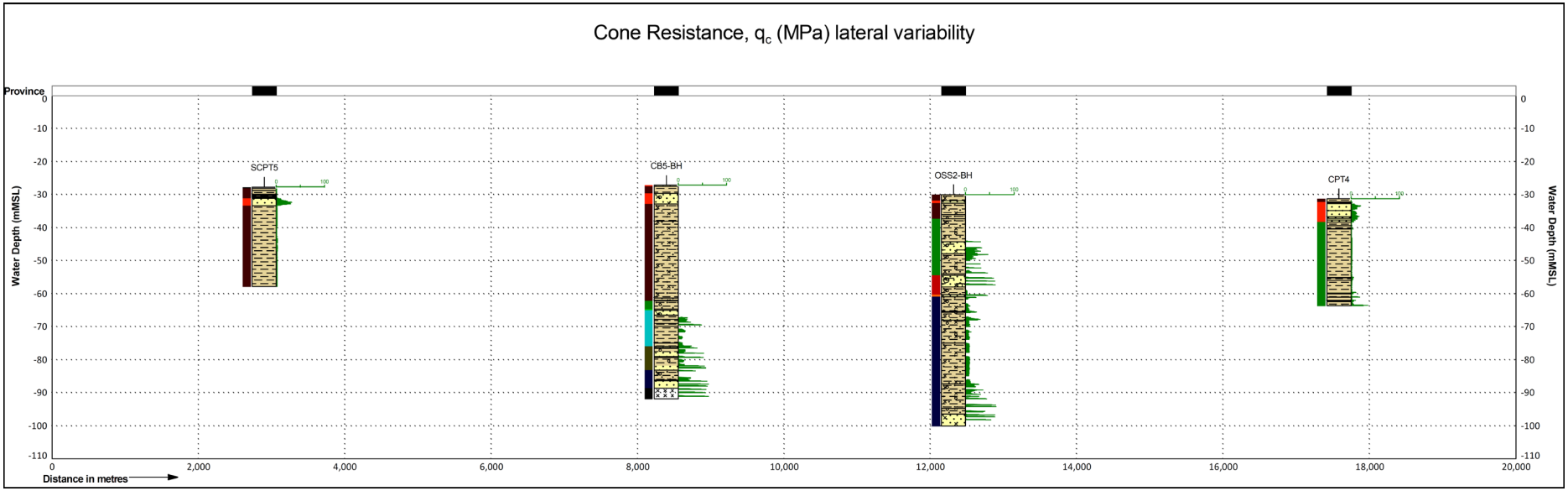
Soil parameters

Cone Resistance, q_c (MPa) profile

Engineering Units

UNIT	DESCRIPTION
GC1	Glacial Deposit, Glacial
GC2	Glacial/Meltwater Deposit, Glacial
GC3	Glacial/Marine Deposit, Glacial
H1	Marine Deposit, Holocene
H2	Marine/Freshwater Deposit, Holocene
LG/GC1	Glacial/Marine Deposit, Late Glacial/Glacial
LG/GC2	Marine/Freshwater Deposit, Late Glacial/Glacial
LG1	Glacial Deposit, Late Glacial
LG2	Glacial/Marine Deposit, Late Glacial
LG3	Marine/Meltwater Deposit, Late Glacial
LG4	Marine Deposit, Late Glacial
LG5	Marine/Freshwater Deposit, Late Glacial
PG/LG	Marine/Freshwater Deposit, Post Glacial/Late
PG1	Glacial
PG2	Marine Deposit, Post Glacial
PQ	Marine/Freshwater Deposit, Post Glacial Marine Deposit, Cretaceous

Cross Section 6: SCPT5-CB5-BH-OSS2-BH-CPT4



Legend:

Soil parameters

Cone Resistance, q_c (MPa) profile

Engineering Units

UNIT	DESCRIPTION
GC1	Glacial Deposit, Glacial
GC2	Glacial/Meltwater Deposit, Glacial
GC3	Glacial/Marine Deposit, Glacial
H1	Marine Deposit, Holocene
H2	Marine/Freshwater Deposit, Holocene
LG/GC1	Glacial/Marine Deposit, Late Glacial/Glacial
LG/GC2	Marine/Freshwater Deposit, Late Glacial/Glacial
LG1	Glacial Deposit, Late Glacial
LG2	Glacial/Marine Deposit, Late Glacial
LG3	Marine/Meltwater Deposit, Late Glacial
LG4	Marine Deposit, Late Glacial
LG5	Marine/Freshwater Deposit, Late Glacial
PG/LG	Marine/Freshwater Deposit, Post Glacial/Late
PG1	Glacial
PG2	Marine Deposit, Post Glacial
PQ	Marine/Freshwater Deposit, Post Glacial Marine Deposit, Cretaceous

APPENDIX 3– DOWNHOLE CPTU DATA

3.1 Downhole CPTU Reference Reading Logs

Gardline

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11596

ENERGINET

CPT Name	Cone Number	Cone Size (cm^2)	Alpha Factor	Zero on Deck			Zero Before Test			Zero After Test			Zero on Deck			Ending Test Comments
				q_c (MPa)	f_s (MPa)	U_2 (kPa)	q_c (MPa)	f_s (MPa)	U_2 (kPa)	q_c (MPa)	f_s (MPa)	U_2 (kPa)	q_c (MPa)	f_s (MPa)	U_2 (kPa)	
CB3a-BH - CPT1	121126	10	0.79	- 0.98	0.015	- 63.4	- 0.21	0.015	908.8	- 0.20	0.013	906.9	- 1.00	0.014	- 67.9	
CB3a-BH - CPT2	121126	10	0.79	- 0.99	0.014	- 57.6	- 0.23	0.015	900.4	- 0.23	0.012	906.3	- 1.00	0.013	- 62.7	
CB3a-BH - CPT3	121126	10	0.79	- 1.10	0.014	- 67.4	- 0.31	0.015	920.3	- 0.32	0.012	913.6	- 1.09	0.014	- 68.6	
CB4-BH - CPT1	101017	10	0.78	1.34	0.015	70.6	1.87	0.016	749.0	1.81	0.012	648.3	1.34	0.013	64.1	
CB4-BH - CPT2	101017	10	0.78	1.35	0.013	69.6	1.81	0.015	665.5	1.75	- 0.120	657.1	1.32	- 0.121	66.1	
CB4-BH - CPT3	121126	10	0.79	- 1.23	0.013	- 68.8	- 0.73	0.013	594.2	- 0.72	0.012	578.6	- 1.21	0.014	- 68.4	
CB4-BH - CPT4	121126	10	0.79	- 1.19	0.015	- 67.8	- 0.64	0.016	670.0	- 0.62	0.013	661.0	- 1.16	0.015	- 71.0	
CB4-BH - CPT5	121126	10	0.79	- 1.20	0.015	- 69.0	- 0.66	0.014	643.7	- 0.64	0.012	637.2	- 1.17	0.013	- 65.1	
CB4-BH - CPT6	121126	10	0.79	- 1.16	0.013	- 66.6	- 0.58	0.014	721.6	- 0.64	0.014	652.3	- 1.13	0.013	- 64.8	
CB4-BH - CPT7	121126	10	0.79	- 1.17	0.013	- 67.9	- 0.57	0.014	755.1	- 0.58	0.014	621.9	- 1.19	0.013	- 60.5	
CB4-BH - CPT8	121126	10	0.79	- 1.18	0.013	- 66.3	- 0.51	0.013	801.1	- 0.60	0.013	737.0	- 1.19	0.012	- 70.6	
CB4-BH - CPT9	121126	10	0.79	- 1.18	0.013	- 67.2	- 0.51	0.012	818.9	- 0.52	0.015	778.6	- 1.18	0.012	- 66.4	
CB4-BH - CPT10	121126	10	0.79	- 1.18	0.012	- 67.9	- 0.50	0.012	845.0	- 0.51	0.017	798.7	- 1.21	0.012	- 68.7	
CB4-BH - CPT11	121126	10	0.79	- 1.20	0.012	- 67.4	- 0.47	0.012	893.0	- 0.54	0.015	807.5	- 1.21	0.013	- 67.5	
CB4-BH - CPT12	121126	10	0.79	- 1.20	0.013	- 67.0	- 0.44	0.012	926.5	- 0.52	0.014	857.7	- 1.20	0.013	- 67.4	
CB5-BH - CPT1	101017	10	0.78	1.17	0.014	109.8	2.23	0.016	760.3	2.23	0.011	506.5	1.18	0.011	100.3	
CB5-BH - CPT2	081213G	10	0.81	1.08	0.022	215.8	1.58	0.020	873.1	0.61	0.033	2730.6	0.37	0.042	408.0	

CPTU CONE OFFSETS

Gardline

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11596

ENERGINET

CPT Name	Cone Number	Cone Size (cm^2)	Alpha Factor	Zero on Deck			Zero Before Test			Zero After Test			Zero on Deck			Ending Test Comments
				q_c (MPa)	f_s (MPa)	U_2 (kPa)	q_c (MPa)	f_s (MPa)	U_2 (kPa)	q_c (MPa)	f_s (MPa)	U_2 (kPa)	q_c (MPa)	f_s (MPa)	U_2 (kPa)	
CB5-BH - CPT3	101017	10	0.78	1.02	0.011	64.4	1.58	0.014	782.8	1.57	0.012	776.4	1.03	0.012	66.6	
CB5-BH - CPT4	101017	10	0.78	1.03	0.011	69.1	1.60	0.013	785.4	1.42	0.012	631.5	0.99	0.012	69.5	
CB5-BH - CPT5	101017	10	0.78	1.00	0.012	70.0	1.57	0.014	812.3	1.52	0.013	741.5	1.00	0.012	74.5	
CB5-BH - CPT6	101017	10	0.78	1.01	0.013	73.2	1.59	0.016	830.1	1.57	0.012	460.9	0.98	0.012	71.2	
CB5-BH - CPT7	101017	10	0.78	1.00	0.012	75.9	1.60	0.014	854.2	1.59	0.012	508.4	0.99	0.012	69.6	
CB5-BH - CPT8	101017	10	0.78	0.99	0.012	72.3	1.66	0.016	880.7	1.62	0.011	864.2	1.01	0.012	70.3	
CB5-BH - CPT9	101017	10	0.78	1.01	0.012	71.4	1.61	0.013	876.1	1.61	0.013	866.2	0.99	0.012	68.6	
CB5-BH - CPT10	101017	10	0.78	1.03	0.014	71.8	1.65	0.012	880.0	1.60	0.013	833.8	0.99	0.014	70.6	
CB5-BH - CPT11	101017	10	0.78	0.99	0.013	77.1	1.64	0.013	889.3	1.63	0.012	861.7	1.00	0.013	74.1	
CB5-BH - CPT12	101017	10	0.78	1.01	0.014	70.7	1.65	0.012	903.9	1.70	0.011	867.2	1.08	0.013	70.0	
CB5-BH - CPT13	130102	10	0.74	1.47	- 0.053	- 17.1	2.10	- 0.053	820.4	2.12	- 0.055	818.5	1.46	- 0.053	- 20.9	
CB5-BH - CPT14	130102	10	0.74	1.64	- 0.059	12.4	2.36	- 0.067	841.9	2.35	- 0.072	822.4	1.65	- 0.062	12.6	
CB5-BH - CPT15	071102	10	0.76	1.36	0.048	- 12.9	2.07	0.044	866.2	2.09	0.044	870.9	1.42	0.046	- 12.8	
CB5-BH - CPT16	071102	10	0.76	1.52	0.037	- 8.7	2.11	0.042	890.4	2.12	0.042	890.5	1.53	0.037	- 6.4	
CB5-BH - CPT17	071102	10	0.76	1.33	0.066	- 12.1	1.95	0.017	861.3	1.98	0.027	865.5	1.36	0.031	- 5.8	
CB5-BH - CPT18	101017	10	0.78	1.05	0.013	97.4	1.71	0.016	955.5	1.73	0.011	945.6	1.03	0.012	92.8	
CB5-BH - CPT19	101017	10	0.78	1.03	0.012	62.3	1.70	0.013	966.2	1.73	0.011	961.3	1.02	0.012	58.5	

CPTU CONE OFFSETS

Gardline

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ENERGINET

CPT Name	Cone Number	Cone Size (cm^2)	Alpha Factor	Zero on Deck			Zero Before Test			Zero After Test			Zero on Deck			Ending Test Comments
				q_c (MPa)	f_s (MPa)	U_2 (kPa)	q_c (MPa)	f_s (MPa)	U_2 (kPa)	q_c (MPa)	f_s (MPa)	U_2 (kPa)	q_c (MPa)	f_s (MPa)	U_2 (kPa)	
CB5-BH - CPT20	101017	10	0.78	1.01	0.013	69.2	1.72	0.013	985.8	1.80	0.012	978.8	1.08	0.013	68.6	
CB6-BH - CPT1	120826	10	0.76	0.35	0.009	40.5	0.76	0.014	678.3	0.80	0.007	634.3	0.38	0.007	39.9	
CB6-BH - CPT2	120826	10	0.76	0.36	0.007	39.4	0.85	0.007	712.2	0.78	0.007	41.7	0.28	0.007	54.7	
CB6-BH - CPT3	071102	10	0.76	1.57	0.067	- 4.8	2.09	0.067	702.4	2.11	0.066	691.9	1.55	0.067	- 3.9	
CB6-BH - CPT4	121003	10	0.78	1.32	0.047	96.1	1.86	0.049	805.6	1.87	0.045	797.4	1.29	0.047	90.6	
CB6-BH - CPT5	121003	10	0.78	1.29	0.046	91.2	1.81	0.048	770.4	1.90	0.045	747.4	1.32	0.047	91.0	
CB6-BH - CPT6	121003	10	0.78	1.30	0.047	90.6	1.84	0.049	818.3	1.79	0.045	699.6	1.33	0.047	89.5	
CB6-BH - CPT7	121003	10	0.78	1.32	0.047	91.6	1.87	0.048	830.0	1.90	0.049	827.3	1.33	0.048	89.4	
CB6-BH - CPT8	120826	10	0.76	0.28	0.007	39.3	0.80	0.009	798.6	0.83	0.007	87.6	0.28	0.007	34.8	
CB6-BH - CPT9	121003	10	0.78	1.34	0.046	90.6	1.89	0.047	853.7	1.91	0.046	848.5	1.34	0.047	89.5	
CB6-BH - CPT10	121003	10	0.78	1.33	0.047	89.1	1.88	0.047	853.7	1.89	0.049	836.1	1.32	0.048	90.3	
CB6-BH - CPT11	121003	10	0.78	1.33	0.047	88.4	1.88	0.048	869.6	1.90	0.046	860.2	1.32	0.047	89.2	
CB6-BH - CPT12	121003	10	0.78	1.30	0.046	88.3	1.88	0.047	874.6	1.92	0.046	851.0	1.33	0.047	89.7	
CB6-BH - CPT13	121126	10	0.79	- 1.19	0.015	- 71.9	- 0.56	0.016	711.0	- 0.42	0.014	117.0	- 1.01	0.013	- 71.1	
CB6-BH - CPT14	121005G	10	0.78	1.28	0.069	69.0	1.87	0.068	872.8	1.88	0.066	852.3	1.25	0.066	75.4	
CB6-BH - CPT15	121005G	10	0.78	1.27	0.067	69.6	1.88	0.065	887.1	1.76	0.066	874.4	1.22	0.066	71.7	
CB7-BH - CPT1	121005G	10	0.78	1.23	0.067	112.6	1.72	0.069	744.5	1.71	0.068	558.7	1.23	0.066	112.6	

CPTU CONE OFFSETS

Gardline

Preliminary Investigation - Hesselø OWF
11596

ENERGINET

CPT Name	Cone Number	Cone Size (cm^2)	Alpha Factor	Zero on Deck			Zero Before Test			Zero After Test			Zero on Deck			Ending Test Comments
				q_c (MPa)	f_s (MPa)	U_2 (kPa)	q_c (MPa)	f_s (MPa)	U_2 (kPa)	q_c (MPa)	f_s (MPa)	U_2 (kPa)	q_c (MPa)	f_s (MPa)	U_2 (kPa)	
CB7-BH - CPT2	121005G	10	0.78	1.20	0.067	75.7	1.78	0.068	787.8	1.77	0.067	471.0	1.22	0.066	82.8	
CB7-BH - CPT3	121004	10	0.78	1.53	0.079	79.1	2.14	0.079	836.9	2.12	0.079	796.9	1.51	0.077	82.0	
CB7-BH - CPT4	121004	10	0.78	1.51	0.077	81.8	2.17	0.079	879.1	2.17	0.082	794.1	1.50	0.077	80.6	
CB7-BH - CPT5	121004	10	0.78	1.53	0.078	105.6	2.18	0.079	903.1	2.17	0.081	794.1	1.55	0.078	115.0	
CB7-BH - CPT6	121004	10	0.78	1.50	0.077	80.1	2.21	0.079	940.4	2.20	0.078	847.3	1.53	0.079	86.6	
CB7-BH - CPT7	121004	10	0.78	1.51	0.078	81.2	2.24	0.079	984.6	2.24	0.081	806.8	1.52	0.080	85.2	
CB7-BH - CPT8	121004	10	0.78	1.51	0.079	86.9	2.24	0.077	1016.6	2.27	0.079	823.5	1.50	0.078	81.4	
CB7-BH - CPT9	121004	10	0.78	1.52	0.077	95.2	2.17	0.078	934.5	2.16	0.078	933.8	1.49	0.079	97.4	
CB7-BH - CPT10	121004	10	0.78	1.46	0.078	79.3	2.12	0.079	957.2	2.12	0.078	566.5	1.47	0.082	81.5	
CB8-BH - CPT1	120825	10	0.76	0.30	0.009	- 118.3	0.66	0.013	324.3	0.69	0.010	312.1	0.31	0.009	- 117.9	
CB8-BH - CPT2	120825	10	0.76	0.32	0.009	- 116.5	0.77	0.011	460.2	0.73	0.008	400.8	0.29	0.008	- 118.6	
CB8-BH - CPT3	120825	10	0.76	0.30	0.008	- 117.1	0.74	0.009	423.7	0.79	0.008	397.8	0.31	0.008	- 119.1	
CB8-BH - CPT4	120825	10	0.76	0.32	0.009	- 117.3	0.78	0.009	444.4	0.81	0.008	380.6	0.29	0.008	- 119.0	
CB8-BH - CPT5	120825	10	0.76	0.32	0.009	- 117.9	0.80	0.010	473.7	0.75	0.009	413.3	0.29	0.008	- 118.5	
CB8-BH - CPT6	120825	10	0.76	0.28	0.008	- 119.0	0.76	0.009	477.0	0.68	0.008	432.7	0.25	0.008	- 115.7	
CB8-BH - CPT7	120825	10	0.76	0.27	0.008	- 116.4	0.75	0.009	477.8	0.72	0.008	454.9	0.27	0.008	- 113.3	
CB8-BH - CPT8	121126	10	0.79	- 1.14	0.015	- 65.8	- 0.67	0.016	515.1	- 0.75	0.013	396.2	- 1.12	0.014	- 60.3	

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				q_c (MPa)	f_s (MPa)	U_2 (kPa)	q_c (MPa)	f_s (MPa)	U_2 (kPa)	q_c (MPa)	f_s (MPa)	U_2 (kPa)	q_c (MPa)	f_s (MPa)	U_2 (kPa)	
CB8-BH - CPT9	121126	10	0.79	- 1.15	0.013	- 68.1	- 0.62	0.012	621.9	- 0.69	0.014	518.2	- 1.18	0.013	- 71.6	
CB8-BH - CPT10	121126	10	0.79	- 1.17	0.012	- 68.3	- 0.67	0.013	593.3	- 0.69	0.013	513.8	- 1.19	0.012	- 69.7	
CB8-BH - CPT11	121126	10	0.79	- 1.18	0.012	- 68.2	- 0.57	0.012	728.0	- 0.61	0.016	630.2	- 1.16	0.012	- 71.6	
CB8-BH - CPT12	121126	10	0.79	- 1.17	0.013	- 68.2	- 0.54	0.013	761.7	- 0.58	0.017	668.8	- 1.17	0.012	- 65.9	
CB8-BH - CPT13	121126	10	0.79	- 1.22	0.013	- 67.2	- 0.52	0.012	795.7	- 0.72	0.012	682.3	- 1.24	0.012	- 57.8	
CB8-BH - CPT14	120825	10	0.76	0.33	0.009	- 117.2	0.99	0.010	723.8	0.90	0.008	667.7	0.32	0.008	- 115.4	
CB8-BH - CPT15	120825	10	0.76	0.26	0.008	- 117.0	0.97	0.008	725.4	0.89	0.008	643.7	0.26	0.007	- 112.9	
CB8-BH - CPT16	120825	10	0.76	0.27	0.008	- 115.8	0.96	0.008	746.6	0.96	0.008	679.0	0.29	0.008	- 115.3	
CB8-BH - CPT17	120825	10	0.76	0.29	0.008	- 116.2	1.00	0.009	755.9	0.96	0.008	639.3	0.30	0.008	- 116.1	
CB8-BH - CPT18	120825	10	0.76	0.30	0.008	- 116.3	1.01	0.009	755.8	0.92	0.008	682.1	0.24	0.008	- 116.1	
CB8-BH - CPT19	120825	10	0.76	0.29	0.008	- 116.4	1.00	0.009	767.0	0.96	0.008	686.6	0.31	0.008	- 114.9	
CB8-BH - CPT20	120825	10	0.76	0.32	0.008	- 115.7	1.04	0.008	785.1	1.01	0.008	658.4	0.32	0.008	- 114.8	
CB8-BH - CPT21	120825	10	0.76	0.32	0.008	- 114.9	1.06	0.008	801.0	1.03	0.007	730.1	0.32	0.007	- 113.4	
CB8-BH - CPT22	121126	10	0.79	- 1.25	0.013	- 68.6	- 0.53	0.013	886.3	- 0.55	0.015	855.2	- 1.28	0.012	- 69.1	
CB8-BH - CPT23	121126	10	0.79	- 1.26	0.012	- 67.8	- 0.50	0.012	921.2	- 0.66	0.012	921.2	- 1.40	0.012	- 61.9	
CB8-BH - CPT24	120825	10	0.76	0.35	0.008	- 111.4	1.11	0.008	862.4	1.12	0.009	854.8	0.38	0.008	- 114.7	
CB8-BH - CPT25	120825	10	0.76	0.38	0.008	- 115.9	1.16	0.009	871.5	1.13	0.009	851.3	0.35	0.008	- 115.2	

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				q_c (MPa)	f_s (MPa)	U_2 (kPa)	q_c (MPa)	f_s (MPa)	U_2 (kPa)	q_c (MPa)	f_s (MPa)	U_2 (kPa)	q_c (MPa)	f_s (MPa)	U_2 (kPa)	
CB9-BH - CPT1	120826	10	0.76	0.50	0.016	33.5	1.02	0.020	771.1	1.08	0.014	733.6	0.51	0.017	41.3	
CB9-BH - CPT2	120826	10	0.76	0.45	0.017	68.0	0.97	0.020	799.3	1.00	0.014	750.1	0.47	0.016	65.7	
CB9-BH - CPT3	120826	10	0.76	0.47	0.016	67.3	1.01	0.021	850.8	1.08	0.014	858.5	0.48	0.016	67.0	
CB9-BH - CPT4	120826	10	0.76	0.47	0.016	66.6	1.02	0.021	872.6	1.09	0.014	875.2	0.48	0.015	66.5	
CB9-BH - CPT5	120826	10	0.76	0.46	0.015	66.9	1.03	0.020	874.3	1.05	0.014	869.4	0.46	0.015	62.1	
CB9-BH - CPT6	121005G	10	0.78	1.31	0.072	65.9	1.97	0.069	939.1	1.95	0.069	930.0	1.28	0.071	69.0	
CB9-BH - CPT7	121005G	10	0.78	1.26	0.070	71.7	1.88	0.068	903.8	1.84	0.068	911.2	1.26	0.072	69.0	
CB9-BH - CPT8	120826	10	0.76	0.46	0.015	43.8	1.15	0.021	964.8	1.12	0.015	956.7	0.50	0.016	49.2	
CB9-BH - CPT9	120826	10	0.76	0.51	0.016	66.7	1.42	0.020	1004.2	1.21	0.014	983.1	0.51	0.013	72.3	
CB9-BH - CPT10	121005G	10	0.78	1.22	0.070	66.9	1.94	0.068	1046.0	1.95	0.071	1024.8	1.22	0.069	77.4	
CB9-BH - CPT11	121005G	10	0.78	1.24	0.070	67.2	1.98	0.068	1039.7	1.94	0.069	1028.4	1.23	0.070	70.8	
CB9-BH - CPT12	120826	10	0.76	0.53	0.014	29.0	1.34	0.020	1048.8	1.25	0.014	881.5	0.53	0.014	25.3	
CB10a-BH - CPT1	121005G	10	0.78	1.31	0.070	96.6	1.81	0.071	725.6	1.81	0.069	631.1	1.34	0.068	88.2	
CB10a-BH - CPT2	121004	10	0.78	1.58	0.084	76.6	2.10	0.082	764.9	2.10	0.082	750.8	1.57	0.082	88.6	
CB10a-BH - CPT3	121004	10	0.78	1.58	0.081	77.1	2.11	0.081	774.9	2.09	0.080	754.4	1.56	0.084	95.6	
CB10a-BH - CPT4	121004	10	0.78	1.57	0.079	77.0	2.10	0.079	782.7	2.14	0.080	420.3	1.58	0.080	83.2	
CB10a-BH - CPT5	121005G	10	0.78	1.36	0.069	70.9	1.88	0.070	791.2	1.93	0.075	770.1	1.39	0.070	80.6	

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				q_c (MPa)	f_s (MPa)	U_2 (kPa)	q_c (MPa)	f_s (MPa)	U_2 (kPa)	q_c (MPa)	f_s (MPa)	U_2 (kPa)	q_c (MPa)	f_s (MPa)	U_2 (kPa)	
CB10a-BH - CPT6	121005G	10	0.78	1.37	0.069	70.2	1.93	0.070	835.1	1.88	0.071	770.0	1.37	0.069	83.5	
CB10a-BH - CPT7	121005G	10	0.78	1.40	0.069	108.4	1.94	0.070	798.3	1.94	0.073	739.5	1.41	0.069	105.8	
CB10a-BH - CPT8	121005G	10	0.78	1.40	0.069	108.8	1.95	0.069	791.9	1.96	0.069	690.4	1.40	0.070	102.2	
CB10a-BH - CPT9	121005G	10	0.78	1.39	0.070	108.4	2.00	0.074	964.7	2.05	0.070	523.3	1.41	0.070	99.3	
CB10a-BH - CPT10	121005G	10	0.78	1.41	0.069	108.5	1.98	0.074	905.1	1.97	0.071	774.9	1.43	0.071	103.3	
CB10a-BH - CPT11	121005G	10	0.78	1.42	0.070	108.6	2.08	0.078	1016.0	2.09	0.076	796.0	1.41	0.071	104.2	
CB10a-BH - CPT12	121005G	10	0.78	1.39	0.070	106.3	2.08	0.071	1025.1	2.12	0.071	873.5	1.40	0.070	101.7	
CB10a-BH - CPT13	121005G	10	0.78	1.37	0.071	76.5	2.12	0.072	1079.9	2.14	0.071	521.3	1.39	0.074	70.5	
CB11-BH - CPT1	120826	10	0.76	0.20	0.001	80.1	0.58	0.003	587.5	0.58	0.000	596.2	0.19	0.001	75.9	
CB11-BH - CPT2	120826	10	0.76	0.20	0.001	79.5	0.61	0.001	627.1	0.47	0.000	463.8	0.20	0.001	79.5	
CB11-BH - CPT3	120826	10	0.76	0.17	0.001	39.8	0.63	0.000	656.5	0.58	0.000	612.3	0.14	0.000	37.3	
CB11-BH - CPT4	120826	10	0.76	0.16	0.000	39.4	0.66	0.000	699.9	0.61	0.001	649.5	0.18	0.000	46.7	
CB11-BH - CPT5	120826	10	0.76	0.22	0.001	52.6	0.72	0.000	731.8	0.37	0.001	423.7	0.18	0.000	59.2	
CB11-BH - CPT6	120826	10	0.76	0.19	0.000	40.6	0.74	0.001	788.3	0.67	0.002	749.4	0.16	0.000	46.0	
CB11-BH - CPT7	120826	10	0.76	0.18	0.001	39.9	0.82	0.000	895.4	0.76	0.002	848.7	0.17	0.000	43.5	
CB11-BH - CPT8	120826	10	0.76	0.21	0.001	77.8	0.85	0.000	928.5	0.70	0.001	690.6	0.18	0.000	68.3	
CB11-BH - CPT9	120826	10	0.76	0.20	0.001	79.2	0.85	0.001	932.9	0.60	0.001	555.8	0.18	0.001	71.4	

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				q_c (MPa)	f_s (MPa)	U_2 (kPa)	q_c (MPa)	f_s (MPa)	U_2 (kPa)	q_c (MPa)	f_s (MPa)	U_2 (kPa)	q_c (MPa)	f_s (MPa)	U_2 (kPa)	
CB11-BH - CPT10	120826	10	0.76	0.18	0.001	77.8	0.85	0.003	992.2	0.00	0.000	0.0	0.00	0.000	0.0	
CB11a-BH - CPT1	120825	10	0.76	0.39	0.012	- 115.9	1.05	0.010	737.0	0.95	0.008	679.7	0.86	0.011	- 120.5	
CB11a-BH - CPT2	121125	10	0.80	0.51	0.011	32.7	1.24	0.012	933.4	1.22	0.009	923.7	0.50	0.011	62.8	
CB11a-BH - CPT3	121125	10	0.80	0.48	0.011	40.8	1.25	0.012	975.9	0.93	0.009	956.2	0.19	0.010	30.7	
CB11a-BH - CPT4	120826	10	0.76	0.24	0.002	42.9	0.89	0.001	924.3	0.87	0.002	981.9	0.22	0.003	41.5	
CB11a-BH - CPT5	120826	10	0.76	0.21	0.003	38.7	0.90	0.003	986.3	0.84	0.002	981.8	0.18	0.005	37.9	
CB12-BH - CPT1	121005G	10	0.78	1.27	0.070	72.5	1.86	0.072	814.0	1.86	0.070	750.1	1.30	0.070	80.8	
CB12-BH - CPT2	121005G	10	0.78	1.29	0.069	74.3	1.91	0.070	817.7	1.83	0.069	759.1	1.28	0.069	84.1	
CB12-BH - CPT3	121004	10	0.78	1.59	0.088	77.9	2.17	0.094	844.6	2.13	0.084	809.8	1.56	0.083	79.4	
CB12-BH - CPT4	121005G	10	0.78	1.28	0.070	80.1	1.91	0.072	846.4	1.84	0.071	830.8	1.26	0.069	85.6	
CB12-BH - CPT5	121005G	10	0.78	1.25	0.069	73.1	1.91	0.070	878.0	1.82	0.074	796.9	1.26	0.070	74.1	
CB12-BH - CPT6	121005G	10	0.78	1.25	0.069	73.1	1.91	0.069	914.4	1.86	0.070	883.8	1.25	0.069	73.6	
CB12-BH - CPT7	121005G	10	0.78	1.25	0.069	77.5	1.93	0.069	919.6	1.92	0.069	753.4	1.27	0.071	72.8	
CB12-BH - CPT8	121005G	10	0.78	1.29	0.070	70.8	1.99	0.069	964.0	1.99	0.074	965.7	1.30	0.072	78.2	
CB12-BH - CPT9	121005G	10	0.78	1.27	0.069	79.5	2.04	0.069	1007.0	2.04	0.070	531.0	1.28	0.069	77.2	
CB12-BH - CPT10	121005G	10	0.78	1.29	0.069	76.6	2.02	0.069	1012.6	1.98	0.070	1004.4	1.26	0.070	83.0	
CB12-BH - CPT11	121005G	10	0.78	1.30	0.069	111.6	2.06	0.069	1070.2	2.03	0.071	1054.9	1.32	0.070	108.5	

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				q_c (MPa)	f_s (MPa)	U_2 (kPa)	q_c (MPa)	f_s (MPa)	U_2 (kPa)	q_c (MPa)	f_s (MPa)	U_2 (kPa)	q_c (MPa)	f_s (MPa)	U_2 (kPa)	
CB13-BH - CPT1	101017	10	0.78	1.20	0.014	63.5	1.73	0.015	725.9	1.78	0.013	683.6	1.19	0.014	60.7	
CB13-BH - CPT2	101017	10	0.78	1.17	0.014	65.6	1.73	0.016	747.8	1.73	0.012	728.1	1.16	0.013	61.3	
CB13-BH - CPT3	101017	10	0.78	1.04	0.014	63.9	1.61	0.013	712.4	1.58	0.012	715.3	1.05	0.013	64.3	
CB13-BH - CPT4	101017	10	0.78	1.04	0.014	61.4	1.56	0.013	716.0	1.60	0.013	712.1	1.06	0.012	67.1	
CB13-BH - CPT5	101017	10	0.78	1.27	0.014	94.7	1.86	0.014	776.6	1.83	0.013	569.1	1.27	0.012	93.5	
CB13-BH - CPT6	101017	10	0.78	1.25	0.013	100.7	1.80	0.012	801.9	1.80	0.013	797.6	1.25	0.012	97.6	
CB13-BH - CPT7	101017	10	0.78	1.25	0.013	98.4	1.82	0.013	804.3	1.84	0.012	807.0	1.27	0.012	91.5	
CB13-BH - CPT8	101017	10	0.78	1.35	0.013	71.5	1.88	0.013	782.0	1.82	0.012	789.2	1.27	0.012	64.1	
CB13-BH - CPT9	101017	10	0.78	1.27	0.014	64.9	1.93	0.012	908.4	1.92	0.013	893.5	1.25	0.012	69.3	
CB13-BH - CPT10	101017	10	0.78	1.22	0.012	68.0	1.81	0.013	800.0	1.88	0.011	335.8	1.23	0.012	69.7	
CB13-BH - CPT11	101017	10	0.78	1.25	0.013	69.1	1.92	0.015	897.5	1.89	0.011	391.7	1.25	0.014	65.0	
CB13-BH - CPT12	101017	10	0.78	1.24	0.014	65.3	1.95	0.012	1000.1	1.95	0.012	308.5	1.27	0.014	65.2	
CB13-BH - CPT13	101017	10	0.78	1.26	0.013	65.3	1.96	0.012	994.4	2.01	0.013	993.9	1.27	0.013	65.8	
CB13-BH - CPT14	101017	10	0.78	1.29	0.013	101.8	2.00	0.012	1014.3	1.93	0.012	124.2	1.26	0.013	92.6	
CB14-BH - CPT1	121126	10	0.79	- 1.20	0.014	- 65.8	- 0.75	0.016	472.6	- 1.05	0.012	359.3	- 1.11	0.012	- 50.9	
CB14-BH - CPT2	121126	10	0.79	- 1.30	0.012	- 32.8	- 0.90	0.012	486.4	- 0.99	0.012	443.9	- 1.33	0.012	- 32.7	
CB14-BH - CPT3	120826	10	0.76	0.19	0.002	81.3	0.64	0.003	665.4	0.60	0.000	603.2	0.19	0.001	80.7	

CPTU CONE OFFSETS

Gardline

Preliminary Investigation - Hesselø OWF
11596

ENERGINET

CPT Name	Cone Number	Cone Size (cm^2)	Alpha Factor	Zero on Deck			Zero Before Test			Zero After Test			Zero on Deck			Ending Test Comments
				q_c (MPa)	f_s (MPa)	U_2 (kPa)	q_c (MPa)	f_s (MPa)	U_2 (kPa)	q_c (MPa)	f_s (MPa)	U_2 (kPa)	q_c (MPa)	f_s (MPa)	U_2 (kPa)	
CB14-BH - CPT4	120826	10	0.76	0.19	0.002	81.2	0.68	0.002	728.4	0.62	0.000	641.1	0.18	0.001	75.8	
CB14-BH - CPT5	120826	10	0.76	0.19	0.002	81.0	0.71	0.002	768.8	0.70	0.001	714.0	0.17	0.001	75.2	
CB14-BH - CPT6	120826	10	0.76	0.18	0.002	80.3	0.70	0.002	753.6	0.62	0.002	742.6	0.17	0.001	73.3	
CB14-BH - CPT7	120826	10	0.76	0.18	0.002	79.8	0.69	0.006	827.4	0.72	0.000	830.4	0.16	0.001	70.3	
CB14-BH - CPT8	120826	10	0.76	0.14	0.002	48.3	0.78	0.005	922.1	0.76	0.002	838.1	0.12	0.001	46.9	
CB14-BH - CPT9	120826	10	0.76	0.12	0.002	37.6	0.78	0.002	945.1	0.79	0.002	861.0	0.14	0.001	40.8	
CB14-BH - CPT10	120826	10	0.76	0.14	0.001	50.0	0.79	0.001	953.5	0.76	0.001	756.3	0.13	0.000	58.4	
CB14-BH - CPT11	120826	10	0.76	0.16	0.001	79.6	0.82	0.002	1018.2	0.73	0.000	912.6	0.15	0.000	71.3	
CB14-BH - CPT12	120825	10	0.76	0.38	0.011	- 153.0	1.11	0.012	787.9	1.17	0.008	763.0	0.46	0.009	- 121.4	
CB14-BH - CPT13	121125	10	0.80	0.54	0.012	21.8	1.33	0.013	1000.1	1.32	0.008	947.9	0.56	0.012	25.8	
CB14-BH - CPT14	121125	10	0.80	0.56	0.013	28.9	1.31	0.011	1010.8	1.24	0.011	979.7	0.50	0.014	27.8	
CB14-BH - CPT15	121125	10	0.80	0.50	0.014	27.2	1.26	0.011	1000.1	1.30	0.009	930.7	0.54	0.012	34.0	
OSS1-BH - CPT1	121004	10	0.78	1.54	0.078	113.4	2.13	0.079	882.6	2.13	0.083	884.0	1.51	0.077	116.5	
OSS1-BH - CPT2	121004	10	0.78	1.51	0.078	117.0	2.15	0.078	937.7	2.12	0.103	850.3	1.54	0.101	116.3	
OSS1-BH - CPT3	121126	10	0.79	- 1.17	0.015	- 69.8	- 0.48	0.016	777.6	- 0.50	0.013	769.0	- 1.17	0.014	- 68.2	
OSS1-BH - CPT4	121126	10	0.79	- 1.14	0.015	- 35.3	- 0.46	0.017	822.7	- 0.43	0.013	817.3	- 1.11	0.013	- 38.2	
OSS1-BH - CPT5	121126	10	0.79	- 1.06	0.014	- 38.4	- 0.36	0.013	891.0	- 0.47	0.014	812.7	- 1.15	0.014	- 38.1	

CPTU CONE OFFSETS

Gardline

Preliminary Investigation - Hesselø OWF
11596

ENERGINET

CPT Name	Cone Number	Cone Size (cm^2)	Alpha Factor	Zero on Deck			Zero Before Test			Zero After Test			Zero on Deck			Ending Test Comments
				q_c (MPa)	f_s (MPa)	U_2 (kPa)	q_c (MPa)	f_s (MPa)	U_2 (kPa)	q_c (MPa)	f_s (MPa)	U_2 (kPa)	q_c (MPa)	f_s (MPa)	U_2 (kPa)	
OSS1-BH - CPT6	121126	10	0.79	- 1.17	0.014	- 71.1	- 0.38	0.013	925.7	- 0.43	0.015	834.1	- 1.18	0.013	- 61.7	
OSS1-BH - CPT7	121126	10	0.79	- 1.17	0.013	- 70.9	- 0.21	0.013	970.3	- 0.56	0.013	841.1	- 1.08	0.014	- 69.3	
OSS2-BH - CPT1	120825	10	0.76	0.21	0.012	- 120.1	0.58	0.014	356.0	0.39	0.008	361.4	0.15	0.009	- 119.5	
OSS2-BH - CPT2	120825	10	0.76	0.23	0.010	- 120.1	0.33	0.010	347.9	0.67	0.008	341.0	0.33	0.008	- 121.5	
OSS2-BH - CPT3	120825	10	0.76	0.35	0.009	- 121.0	0.68	0.009	349.9	0.85	0.008	342.7	0.48	0.008	- 122.8	
OSS2-BH - CPT4	121126	10	0.79	- 1.18	0.016	- 63.9	- 1.08	0.013	- 72.5	0.00	0.000	0.0	0.00	0.000	0.0	
OSS2-BH - CPT5	121126	10	0.79	- 1.09	0.014	- 66.7	- 0.72	0.013	399.7	- 0.79	0.014	354.4	- 1.07	0.014	- 69.5	
OSS2-BH - CPT6	121126	10	0.79	- 1.10	0.015	- 33.8	- 0.75	0.014	452.8	- 0.68	0.016	406.0	- 1.00	0.016	- 35.8	
OSS2-BH - CPT7	120826	10	0.76	0.29	0.007	41.3	0.69	0.007	561.7	0.68	0.004	500.9	0.33	0.005	43.6	
OSS2-BH - CPT8	120826	10	0.76	0.35	0.006	39.6	0.75	0.004	585.1	0.67	0.005	518.2	0.32	0.004	37.8	
OSS2-BH - CPT9	121005G	10	0.78	1.27	0.067	73.3	1.71	0.067	628.2	1.67	0.066	599.8	1.22	0.065	72.0	
OSS2-BH - CPT10	121005G	10	0.78	1.23	0.066	72.8	1.67	0.065	644.3	1.68	0.065	617.6	1.23	0.065	71.9	
OSS2-BH - CPT11	121005G	10	0.78	1.24	0.065	73.0	1.68	0.065	651.4	1.69	0.065	612.5	1.24	0.065	72.0	
OSS2-BH - CPT12	121126	10	0.79	- 1.00	0.017	- 35.1	- 0.59	0.015	526.3	- 0.70	0.013	476.3	- 1.08	0.013	- 35.3	
OSS2-BH - CPT13	121005G	10	0.78	1.23	0.065	76.4	1.71	0.065	690.5	1.68	0.066	654.2	1.21	0.064	76.1	
OSS2-BH - CPT14	121126	10	0.79	- 1.10	0.013	- 70.0	- 0.62	0.013	558.8	- 0.66	0.014	304.7	- 1.10	0.012	- 58.0	
OSS2-BH - CPT15	121126	10	0.79	- 1.10	0.013	- 70.6	- 0.58	0.013	615.9	- 0.92	0.013	345.2	- 1.13	0.013	- 69.8	

CPTU CONE OFFSETS

Gardline

Preliminary Investigation - Hesselø OWF
11596

ENERGINET

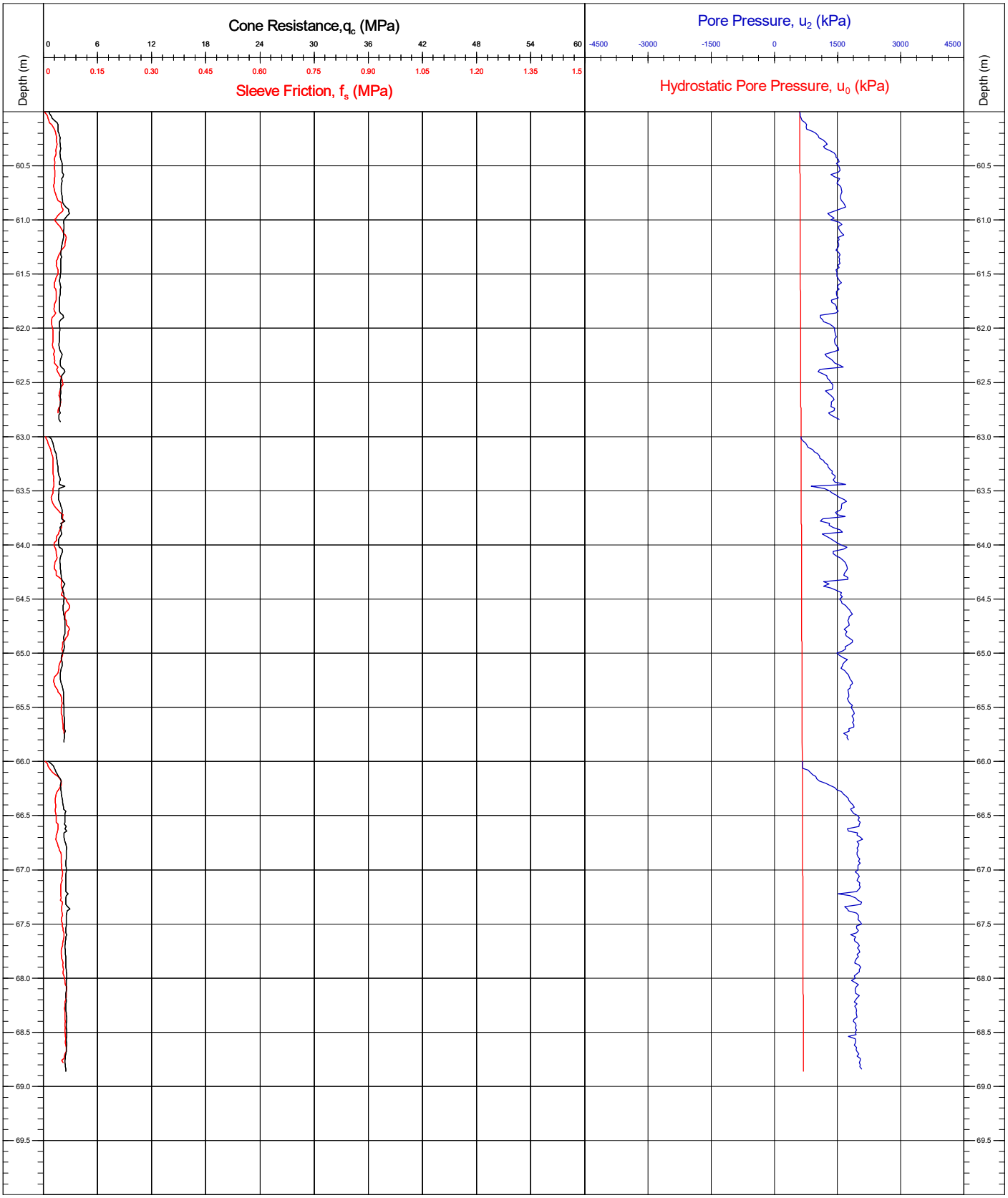
CPT Name	Cone Number	Cone Size (cm^2)	Alpha Factor	Zero on Deck			Zero Before Test			Zero After Test			Zero on Deck			Ending Test Comments
				q_c (MPa)	f_s (MPa)	U_2 (kPa)	q_c (MPa)	f_s (MPa)	U_2 (kPa)	q_c (MPa)	f_s (MPa)	U_2 (kPa)	q_c (MPa)	f_s (MPa)	U_2 (kPa)	
OSS2-BH - CPT16	121126	10	0.79	- 1.09	0.013	- 32.7	- 0.65	0.013	581.6	- 0.65	0.014	574.6	- 1.10	0.013	- 35.7	
OSS2-BH - CPT17	121126	10	0.79	- 1.13	0.013	- 69.9	- 0.57	0.013	685.5	- 0.57	0.014	490.9	- 1.12	0.013	- 61.3	
OSS2-BH - CPT18	121126	10	0.79	- 1.09	0.013	- 35.1	- 0.54	0.013	723.3	- 0.53	0.014	485.2	- 1.10	0.013	- 36.6	
OSS2-BH - CPT19	121126	10	0.79	- 1.11	0.013	- 70.7	- 0.50	0.013	754.5	- 0.43	0.017	752.2	- 1.13	0.013	- 66.1	
OSS2-BH - CPT20	121126	10	0.79	- 1.08	0.013	- 32.2	- 0.50	0.013	765.8	- 0.64	0.013	775.5	- 1.05	0.014	- 36.9	
OSS2-BH - CPT21	121126	10	0.79	- 1.07	0.014	- 63.7	- 0.43	0.015	799.6	- 0.49	0.013	800.8	- 1.09	0.013	- 71.0	
OSS2-BH - CPT22	121126	10	0.79	- 1.10	0.013	- 57.3	- 0.35	0.013	820.4	- 0.53	0.012	788.2	- 1.11	0.012	- 43.6	
OSS2-BH - CPT23	121126	10	0.79	- 1.13	0.012	- 71.7	- 0.42	0.013	827.7	- 0.59	0.013	819.2	- 1.26	0.012	- 72.2	
OSS2-BH - CPT24	121003	10	0.78	1.32	0.044	94.5	2.29	0.045	1009.0	1.97	0.041	976.7	1.28	0.041	114.6	
OSS2-BH - CPT25	120826	10	0.76	0.41	0.008	44.1	1.13	0.009	986.1	0.94	0.006	940.1	0.29	0.006	38.0	
OSS2-BH - CPT26	121003	10	0.78	1.26	0.042	91.9	2.02	0.041	1031.3	2.05	0.041	1008.2	1.29	0.041	91.4	
OSS2-BH - CPT27	121003	10	0.78	1.29	0.041	91.0	2.05	0.041	1036.0	2.05	0.040	1016.5	1.30	0.042	91.7	
OSS2-BH - CPT28	121003	10	0.78	1.30	0.042	92.0	2.08	0.041	1058.9	2.01	0.042	983.3	1.27	0.042	91.1	
OSS2-BH - CPT29	121003	10	0.78	1.28	0.042	91.7	2.03	0.043	1068.9	2.15	0.042	1052.6	1.38	0.042	90.9	
OSS2-BH - CPT30	121003	10	0.78	1.38	0.042	91.4	2.12	0.044	1072.0	2.07	0.042	1054.9	1.32	0.042	90.4	
OSS2-BH - CPT31	121003	10	0.78	1.31	0.042	90.8	2.04	0.045	1062.1	2.06	0.042	1057.1	1.28	0.043	90.0	

CPTU CONE OFFSETS

3.2 Downhole CPTU Measured Logs

Preliminary Investigation, Hesselø OWF

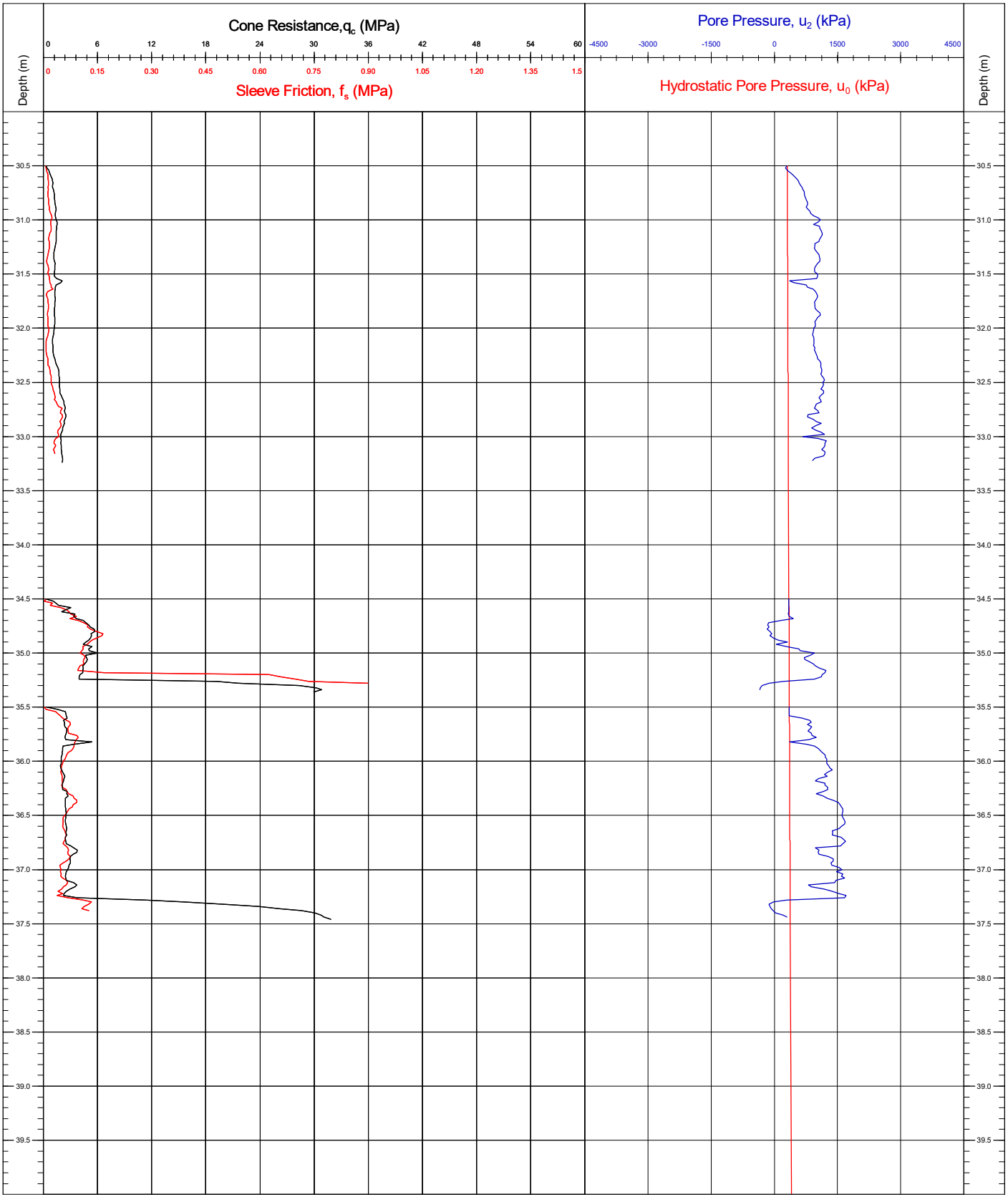
IN SITU CPTU TESTING - MEASURED PARAMETERS



Area	**Kattegat Sea**	Coordinates	**673292.30E 6269812.00N**	CPT Number **CB3a-BH**
Contract	**11596**	Latitude / Longitude		
Client Name/Ref	**Energinet Eltransmission A/S/384_20_ENE**	Water Depth (mMSL)	**31.90**	
Vessel	**MV Ocean Vantage**	Date of Test (Start/End)	**15/05/2021 to 16/05/2021**	Page: 1/1
Comments: Borehole CB3a-BH was completed to a depth of 70.27m utilising API drilling~ Wison CPT and push sampling methods		Cone No.(size)/α Factor	**121126 (10cm^2) / 0.79**	QC Status
		Base Inclination	**X = 0.0° / Y = 0.0°**	Preliminary: **JK/BC** (16/05/2021); Draft: **DR** (10/06/2021); Final: **SMc** (10/11/2021)
		CRS **ETRS89**		

Preliminary Investigation, Hesselø OWF

IN SITU CPTU TESTING - MEASURED PARAMETERS

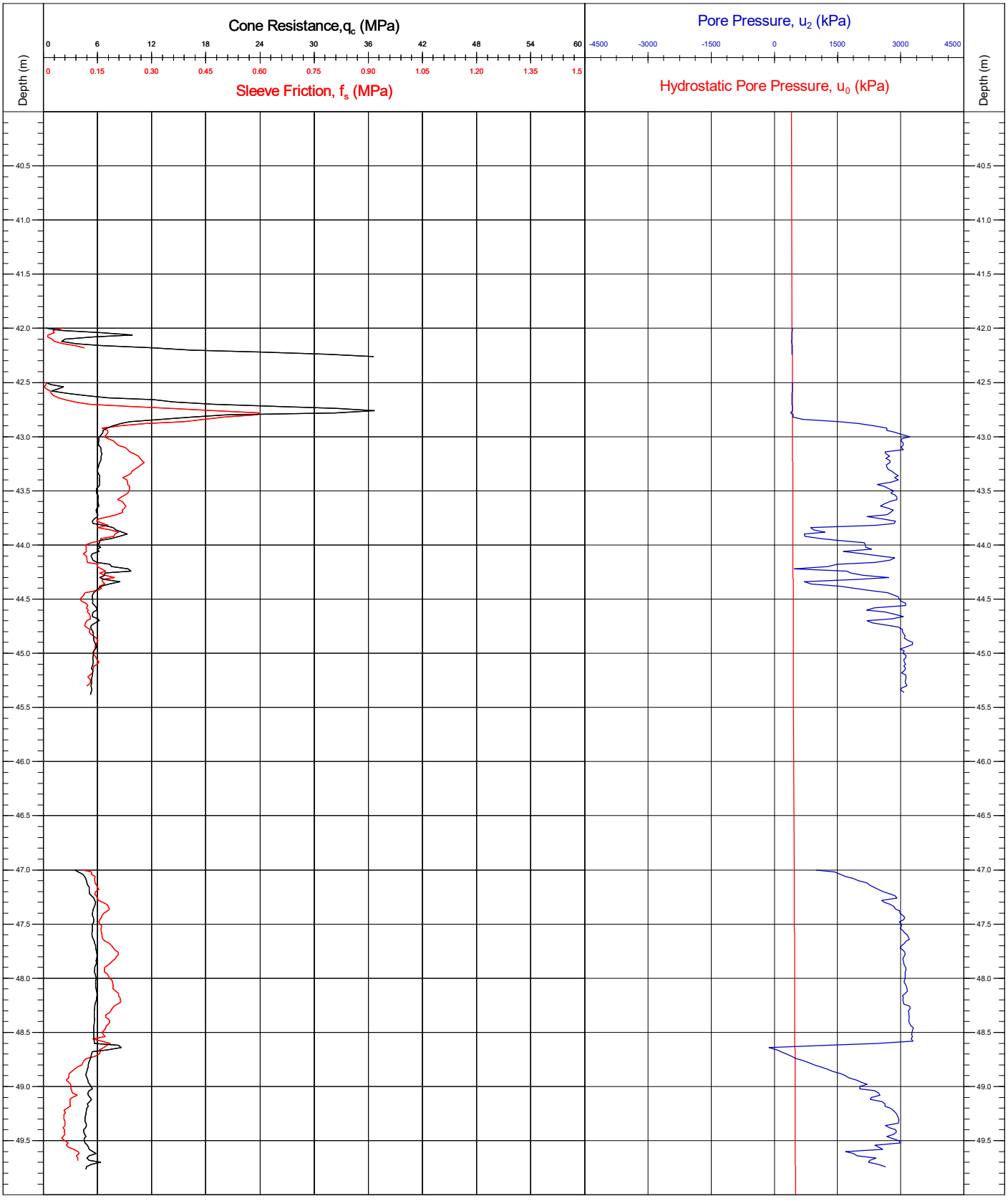


Area	**Kattegat Sea**	Coordinates	**675777.10E 6272690.20N**	CPT Number	**CB4-BH**
Contract	**11596**	Latitude / Longitude			
Client Name/Ref	**Energinet Eltransmission A/S/384_20_ENE**	Water Depth (mMSL)	**31.12**		
Vessel	**MV Ocean Vantage**	Date of Test (Start/End)	**16/05/2021 to 18/05/2021**	Page: 1/4	
		Cone No.(size)/α Factor	**101017 (10cm^2) / 0.78**	QC Status	
		Base Inclination	**X = 0.0° / Y = 0.0°**	Preliminary / Draft / Final	
		CRS **ETRS89**		**JK/BC** (16/05/2021) / **DR** (25/06/2021) / **SMc** (10/11/2021)	

Comments: Borehole CB4-BH was completed to a depth of 70.72m utilising API drilling~ Wison CPT and push sampling methods. Data gap between 37.85 and 42.00m due to the ground conditions impeding recovery~ Drillers note;- Cobbles/ Boulders- testing was attempted at 0.5-1.0m intervals with a number of tools until recovery was successful.

Preliminary Investigation, Hesselø OWF

IN SITU CPTU TESTING - MEASURED PARAMETERS

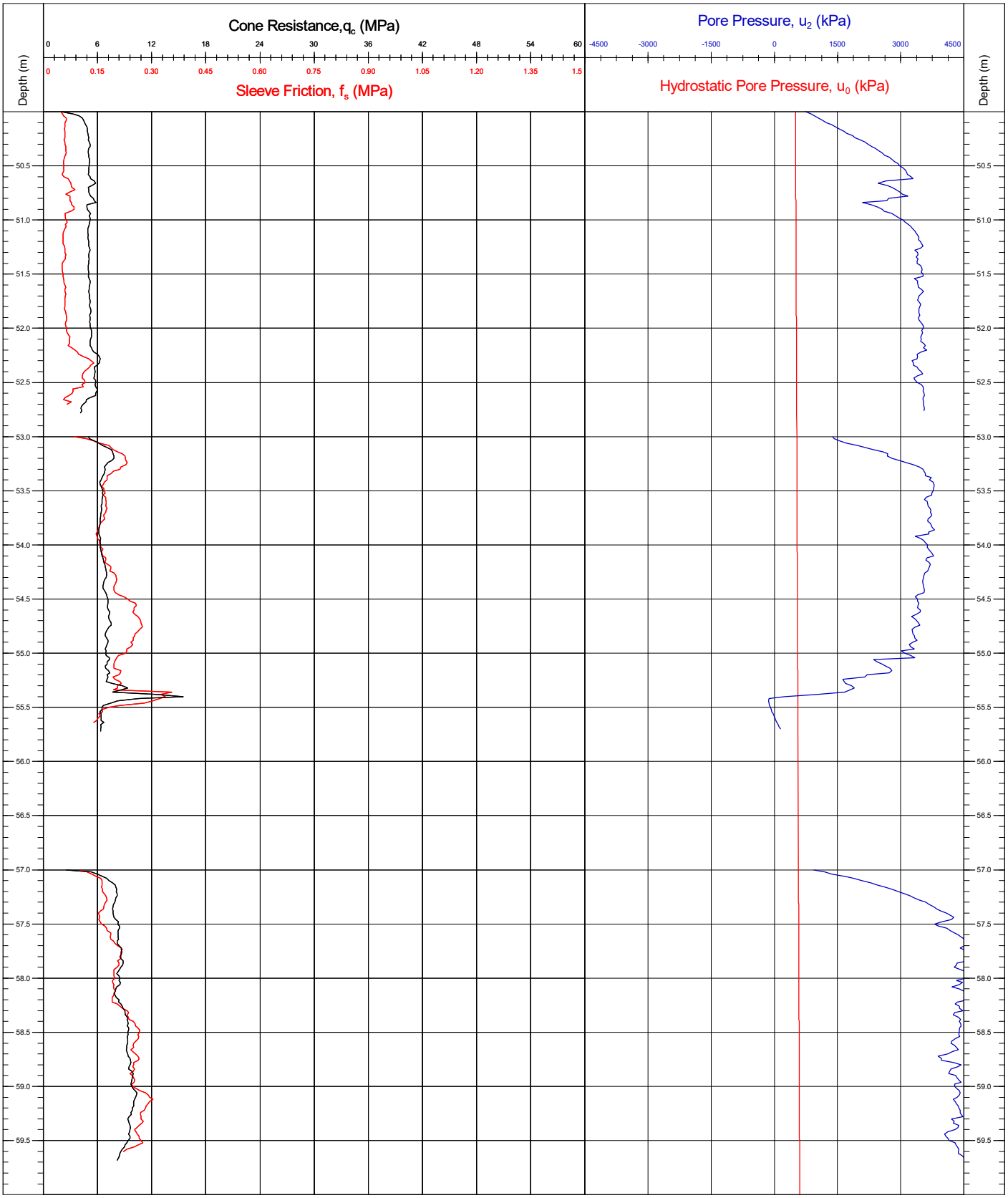


Area	**Kattegat Sea**	Coordinates	**675777.10E 6272690.20N**	CPT Number	**CB4-BH**
Contract	**11596**	Latitude / Longitude			
Client Name/Ref	**Energinet Eltransmission A/S/384_20_ENE**	Water Depth (mMSL)	**31.12**		
Vessel	**MV Ocean Vantage**	Date of Test (Start/End)	**16/05/2021 to 18/05/2021**	Page: 2/4	
		Cone No.(size)/α Factor	**101017 (10cm^2) / 0.78**	QC Status	
		Base Inclination	**X = 0.0° / Y = 0.0°**	Preliminary: **JK/BC** (16/05/2021)	Draft: **DR** (25/06/2021)
		CRS **ETRS89**			Final: **SMc** (10/11/2021)

Comments: Borehole CB4-BH was completed to a depth of 70.72m utilising API drilling~ Wison CPT and push sampling methods. Data gap between 37.85 and 42.00m due to the ground conditions impeding recovery~ Drillers note;- Cobbles/ Boulders- testing was attempted at 0.5-1.0m intervals with a number of tools until recovery was successful.

Preliminary Investigation, Hesselø OWF

IN SITU CPTU TESTING - MEASURED PARAMETERS

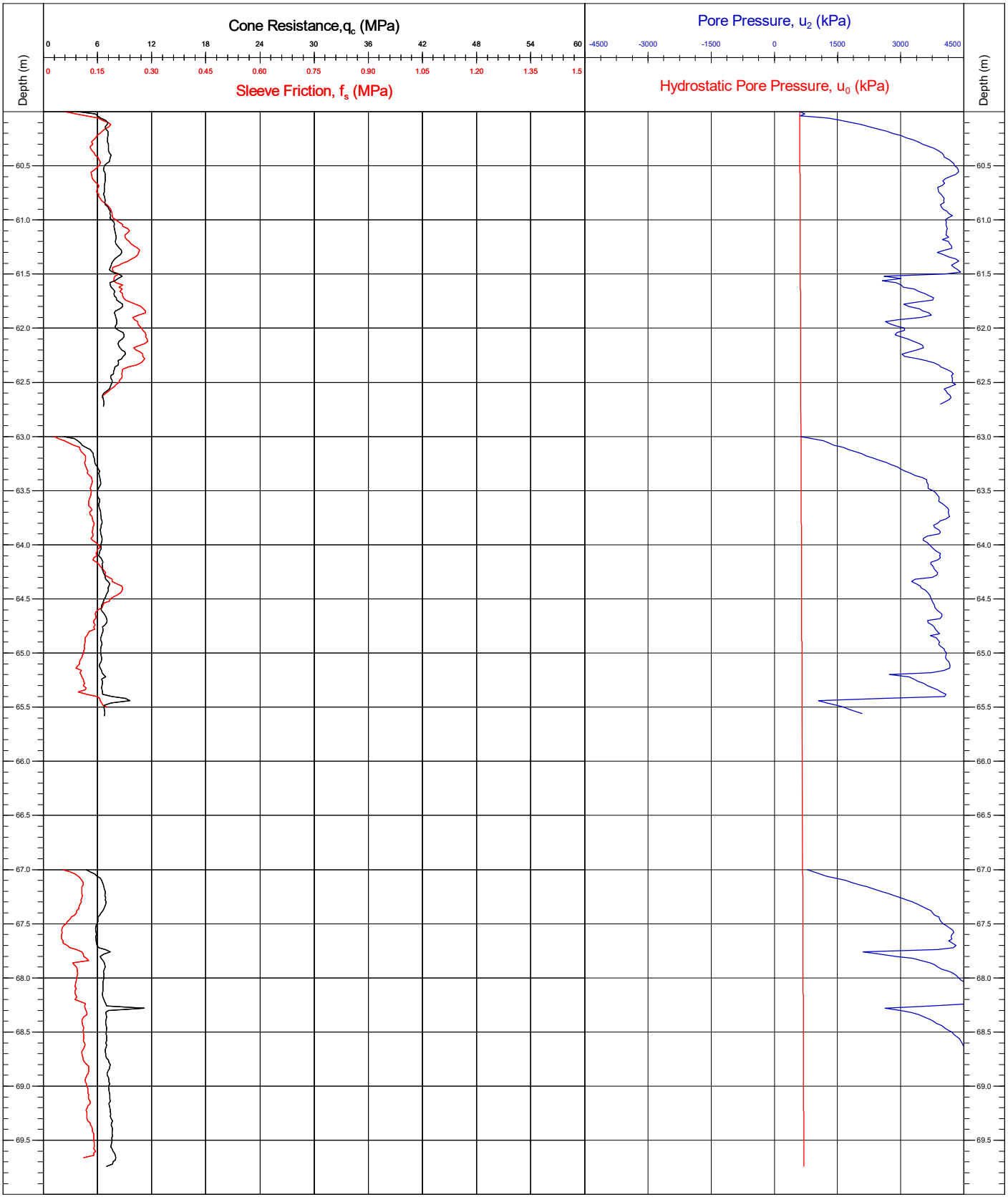


Area	**Kattegat Sea**	Coordinates	**675777.10E 6272690.20N**	CPT Number	**CB4-BH**
Contract	**11596**	Latitude / Longitude			
Client Name/Ref	**Energinet Eltransmission A/S/384_20_ENE**	Water Depth (mMSL)	**31.12**		
Vessel	**MV Ocean Vantage**	Date of Test (Start/End)	**16/05/2021 to 18/05/2021**	Page: 3/4	
		Cone No.(size)/α Factor	**101017 (10cm^2) / 0.78**	QC Status	
		Base Inclination	**X = 0.0° / Y = 0.0°**	Preliminary: **JK/BC** (16/05/2021)	Draft: **DR** (25/06/2021)
		CRS **ETRS89**			Final: **SMc** (10/11/2021)

Comments: Borehole CB4-BH was completed to a depth of 70.72m utilising API drilling~ Wison CPT and push sampling methods. Data gap between 37.85 and 42.00m due to the ground conditions impeding recovery~ Drillers note;- Cobbles/ Boulders- testing was attempted at 0.5-1.0m intervals with a number of tools until recovery was successful.

Preliminary Investigation, Hesselø OWF

IN SITU CPTU TESTING - MEASURED PARAMETERS

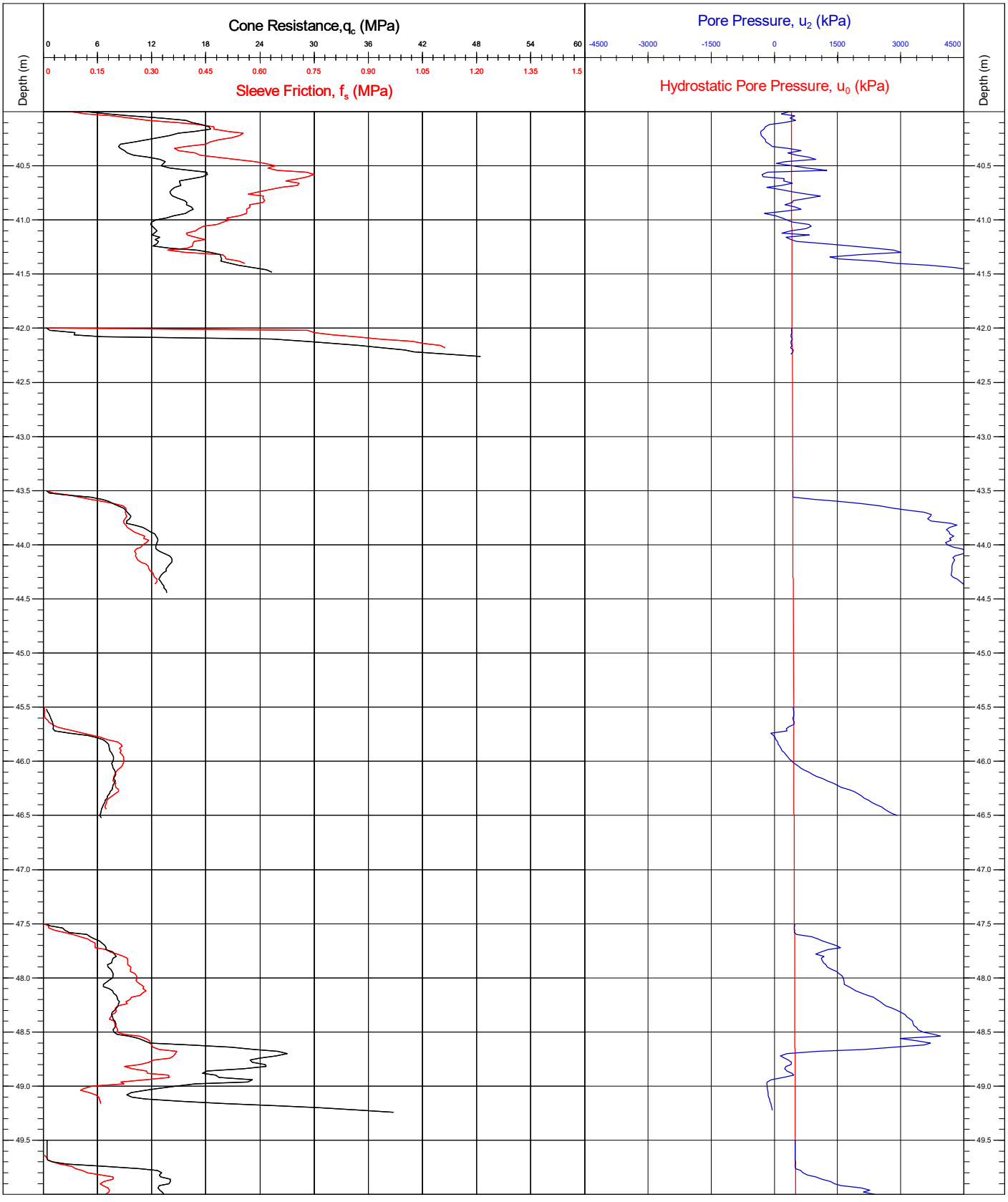


Area	**Kattegat Sea**	Coordinates	**675777.10E 6272690.20N**	CPT Number	**CB4-BH**
Contract	**11596**	Latitude / Longitude			
Client Name/Ref	**Energinet Eltransmission A/S/384_20_ENE**	Water Depth (mMSL)	**31.12**		
Vessel	**MV Ocean Vantage**	Date of Test (Start/End)	**16/05/2021 to 18/05/2021**	Page: 4/4	
		Cone No.(size)/α Factor	**101017 (10cm^2) / 0.78**	QC Status	
		Base Inclination	**X = 0.0° / Y = 0.0°**	Preliminary: **JK/BC** (16/05/2021)	Draft: **DR** (25/06/2021)
		CRS **ETRS89**			Final: **SMc** (10/11/2021)

Comments: Borehole CB4-BH was completed to a depth of 70.72m utilising API drilling~ Wison CPT and push sampling methods. Data gap between 37.85 and 42.00m due to the ground conditions impeding recovery~ Drillers note;- Cobbles/ Boulders- testing was attempted at 0.5-1.0m intervals with a number of tools until recovery was successful.

Preliminary Investigation, Hesselø OWF

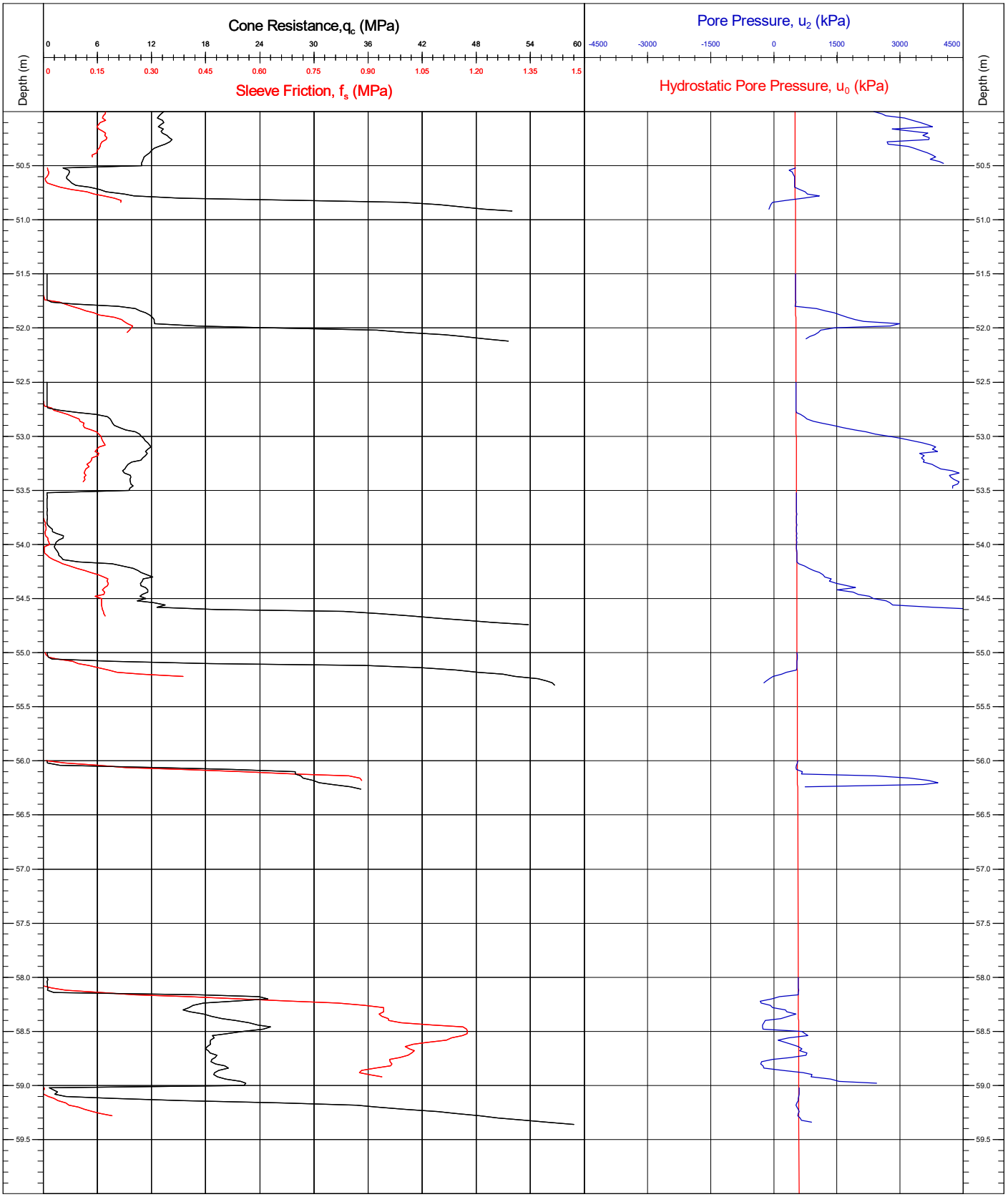
IN SITU CPTU TESTING - MEASURED PARAMETERS



Area	**Kattegat Sea**	Coordinates	**671117.70E 6254702.00N**	CPT Number	**CB5-BH**
Contract	**11596**	Latitude / Longitude			
Client Name/Ref	**Energinet Eltransmission A/S/384_20_ENE**	Water Depth (mMSL)	**27.15**		
Vessel	**MV Ocean Vantage**	Date of Test (Start/End)	**09/05/2021 to 11/05/2021**	Page: 1/3	
Comments: Borehole CB5-BH was completed to a depth of 64.62m utilising API drilling~ Wison CPT and push sampling methods.		Cone No.(size)/α Factor	**101017 (10cm^2) / 0.78**	QC Status	
		Base Inclination	**X = 0.0° / Y = 0.0°**	Preliminary / Draft / Final	
		CRS **ETRS89**		**JK/BC** (11/05/2021) / **DR** (10/06/2021) / **SMc** (10/11/2021)	

Preliminary Investigation, Hesselø OWF

IN SITU CPTU TESTING - MEASURED PARAMETERS

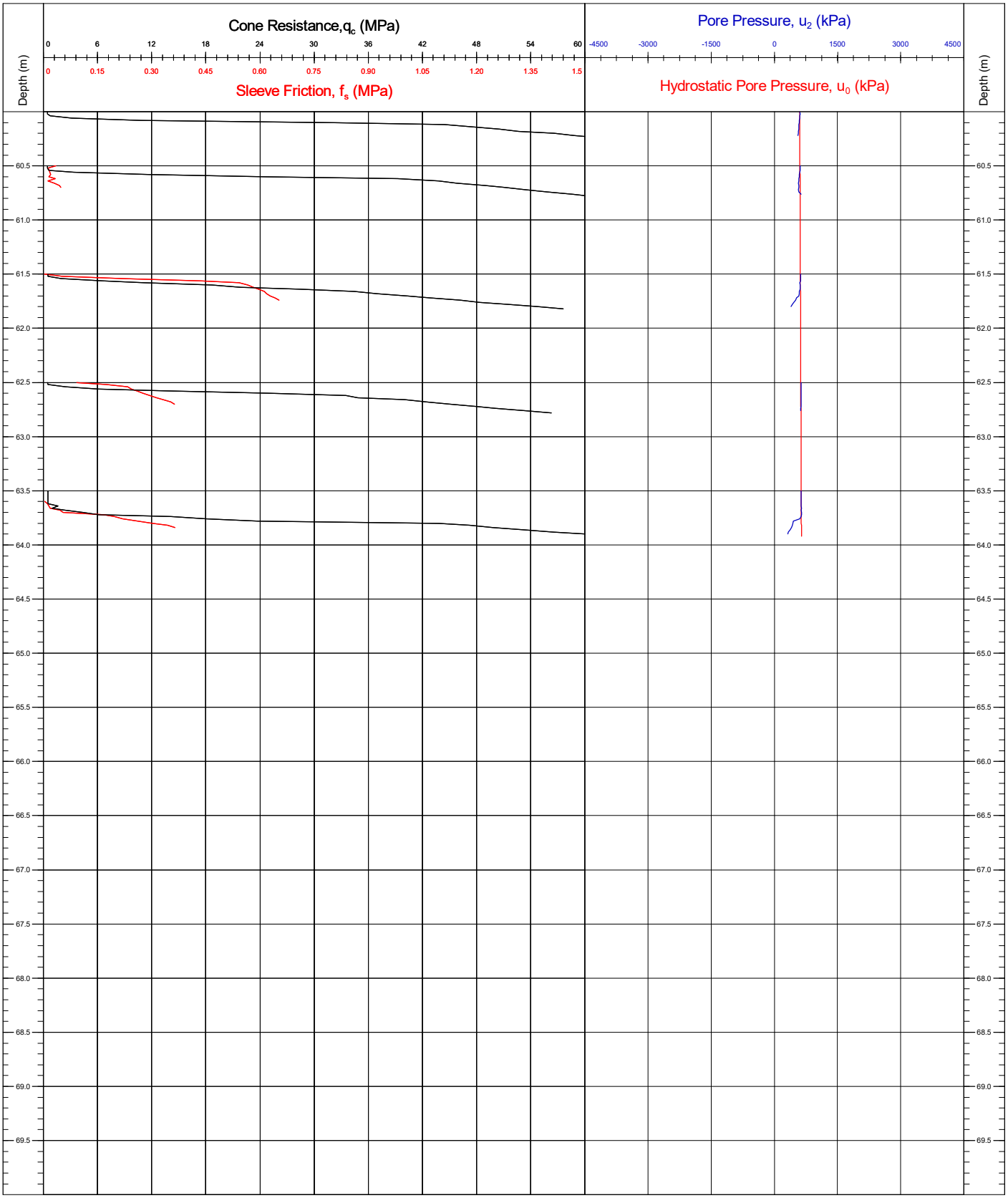


Area	**Kattegat Sea**	Coordinates	**671117.70E 6254702.00N**	CPT Number	**CB5-BH**
Contract	**11596**	Latitude / Longitude			
Client Name/Ref	**Energinet Eltransmission A/S/384_20_ENE**	Water Depth (mMSL)	**27.15**		
Vessel	**MV Ocean Vantage**	Date of Test (Start/End)	**09/05/2021 to 11/05/2021**	Page: 2/3	
Comments: Borehole CB5-BH was completed to a depth of 64.62m utilising API drilling~ Wison CPT and push sampling methods.		Cone No.(size)/α Factor	**101017 (10cm^2) / 0.78**	QC Status	
		Base Inclination	**X = 0.0° / Y = 0.0°**	Preliminary: **JK/BC** (11/05/2021)	Draft: **DR** (10/06/2021)
		CRS **ETRS89**			Final: **SMc** (10/11/2021)

Gardline

Preliminary Investigation, Hesselø OWF

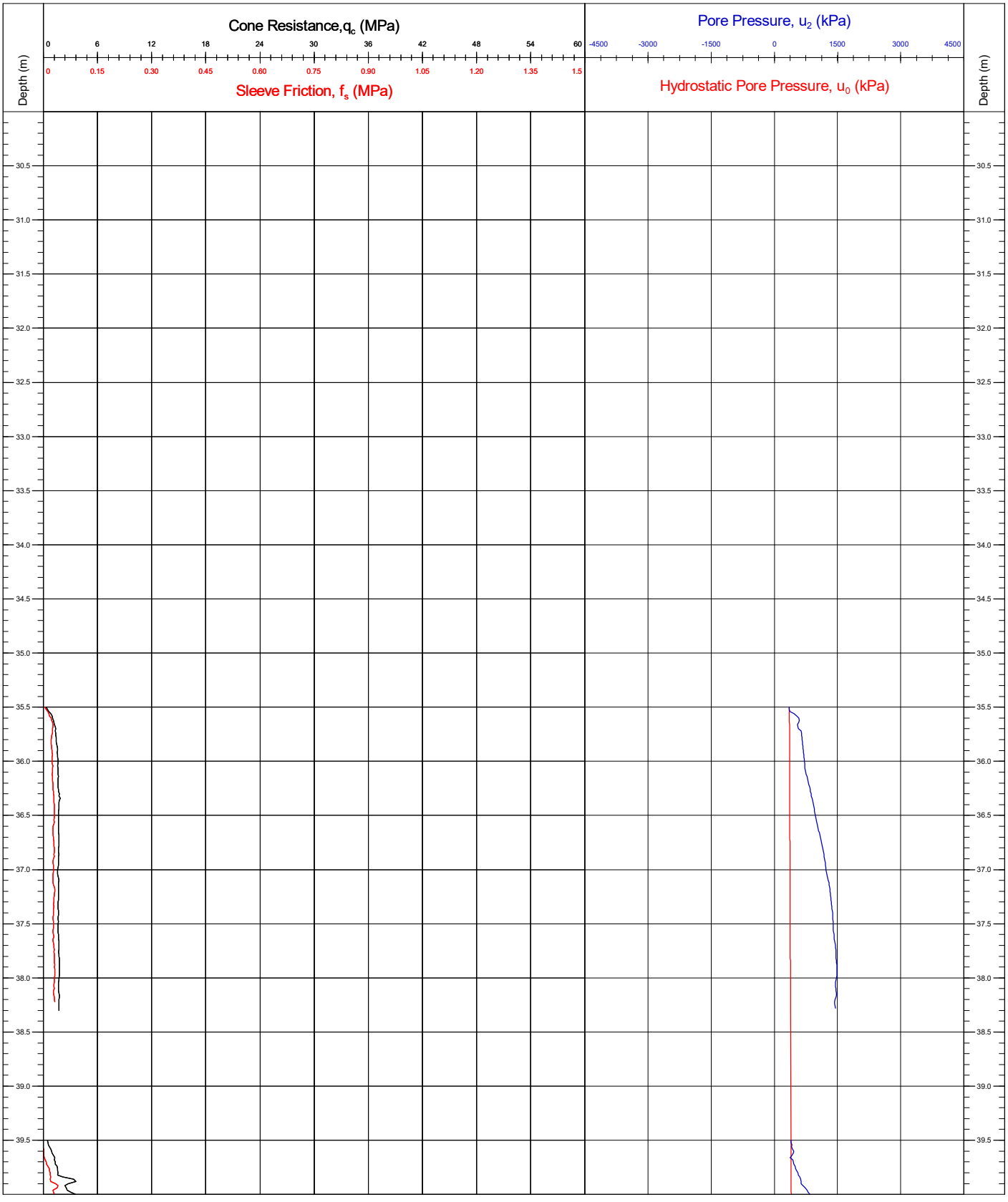
IN SITU CPTU TESTING - MEASURED PARAMETERS



Area	**Kattegat Sea**	Coordinates	**671117.70E 6254702.00N**	CPT Number	**CB5-BH**
Contract	**11596**	Latitude / Longitude			
Client Name/Ref	**Energinet Eltransmission A/S/384_20_ENE**	Water Depth (mMSL)	**27.15**		
Vessel	**MV Ocean Vantage**	Date of Test (Start/End)	**09/05/2021 to 11/05/2021**	Page: 3/3	
Comments: Borehole CB5-BH was completed to a depth of 64.62m utilising API drilling~ Wison CPT and push sampling methods.		Cone No.(size)/α Factor	**101017 (10cm^2) / 0.78**	QC Status	
		Base Inclination	**X = 0.0° / Y = 0.0°**	Preliminary: **JK/BC** (11/05/2021)	Draft: **DR** (10/06/2021)
		CRS **ETRS89**			Final: **SMc** (10/11/2021)

Preliminary Investigation, Hesselø OWF

IN SITU CPTU TESTING - MEASURED PARAMETERS

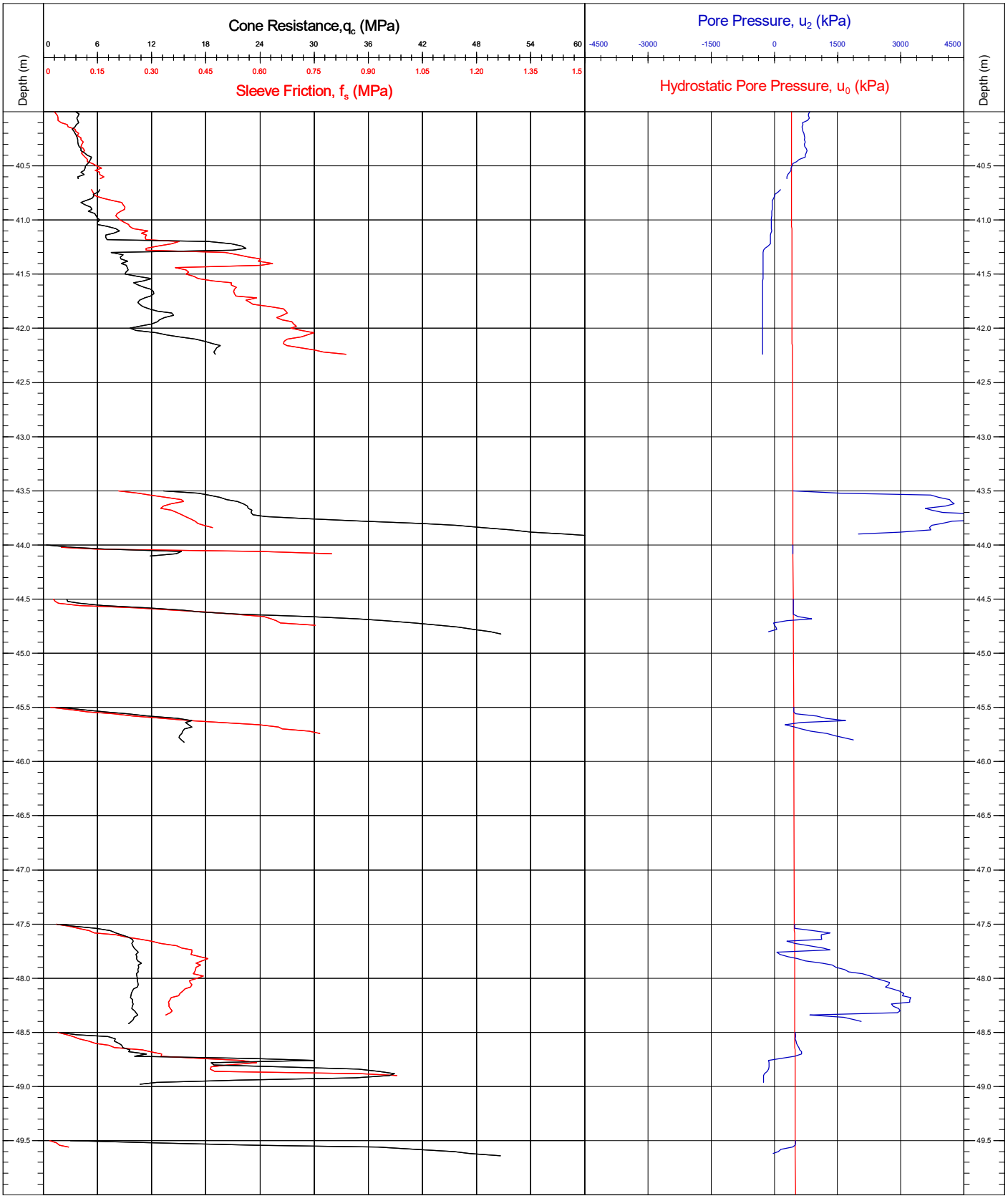


Area	**Kattegat Sea**	Coordinates	**668193.10E 6258003.50N**	CPT Number	**CB6-BH**
Contract	**11596**	Latitude / Longitude			
Client Name/Ref	**Energinet Eltransmission A/S/384_20_ENE**	Water Depth (mMSL)	**26.69**		
Vessel	**MV Ocean Vantage**	Date of Test (Start/End)	**27/05/2021 to 29/05/2021**	Page: 1/3	
		Cone No.(size)/α Factor	**120826 (10cm^2) / 0.76**	QC Status	
		Base Inclination	**X = 0.0° / Y = 0.0°**	Preliminary: **JK/BC** (27/05/2021)	Draft: **DR** (10/06/2021)
		CRS **ETRS89**			Final: **SMc** (10/11/2021)

Comments: Borehole CB6-BH was completed to a depth of 56.70m utilising API drilling~ Wison CPT and push sampling methods. P-S logging was performed from 52.00m to 3.00m below mudline.

Preliminary Investigation, Hesselø OWF

IN SITU CPTU TESTING - MEASURED PARAMETERS

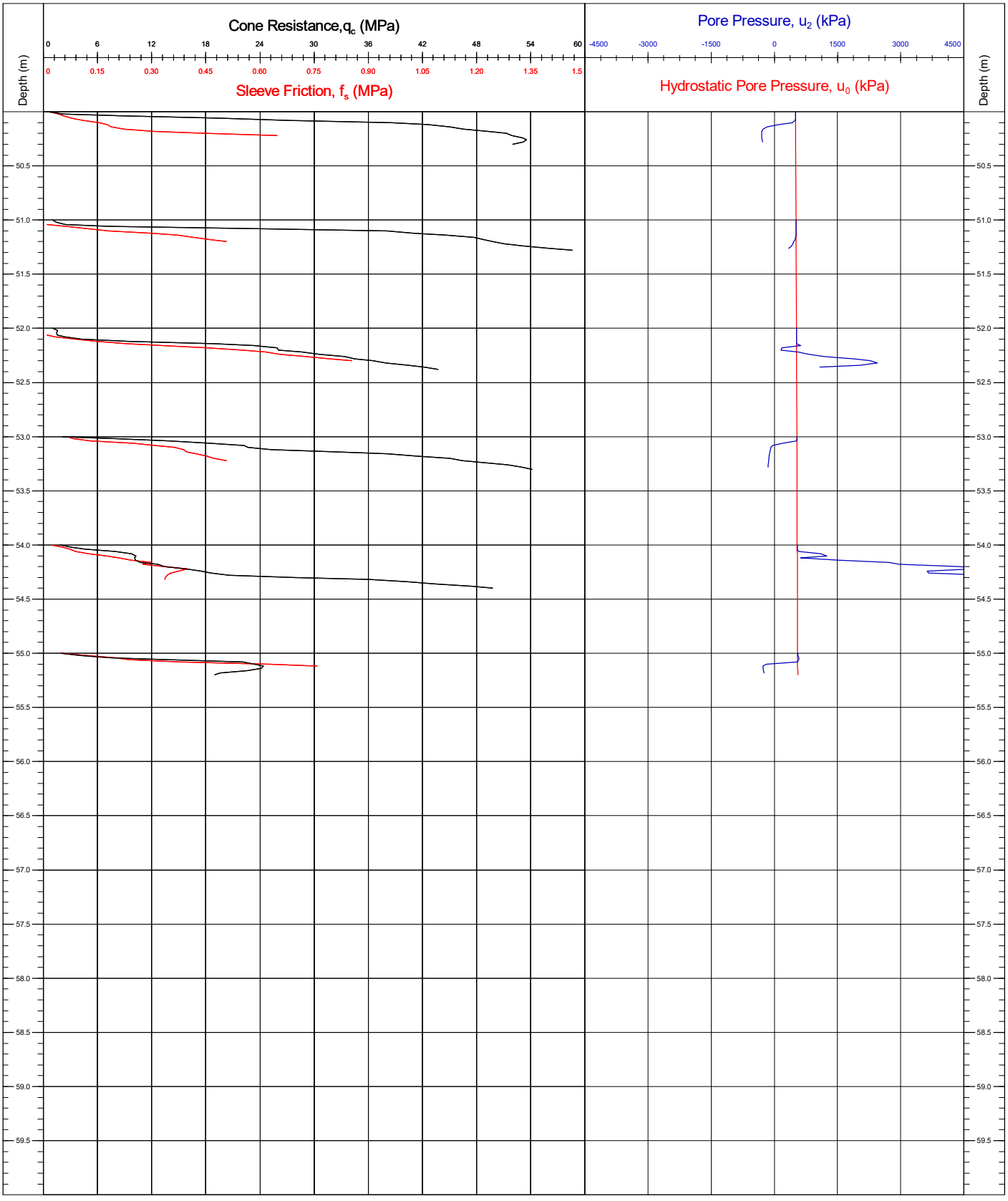


Area	**Kattegat Sea**	Coordinates	**668193.10E 6258003.50N**	CPT Number	**CB6-BH**
Contract	**11596**	Latitude / Longitude			
Client Name/Ref	**Energinet Eltransmission A/S/384_20_ENE**	Water Depth (mMSL)	**26.69**		
Vessel	**MV Ocean Vantage**	Date of Test (Start/End)	**27/05/2021 to 29/05/2021**	Page: 2/3	
		Cone No.(size)/α Factor	**120826 (10cm^2) / 0.76**	QC Status	
		Base Inclination	**X = 0.0° / Y = 0.0°**	Preliminary / Draft / Final	
		CRS **ETRS89**		**JK/BC (27/05/2021)** / **DR (10/06/2021)** / **SMc (10/11/2021)**	

Comments: Borehole CB6-BH was completed to a depth of 56.70m utilising API drilling~ Wison CPT and push sampling methods. P-S logging was performed from 52.00m to 3.00m below mudline.

Preliminary Investigation, Hesselø OWF

IN SITU CPTU TESTING - MEASURED PARAMETERS

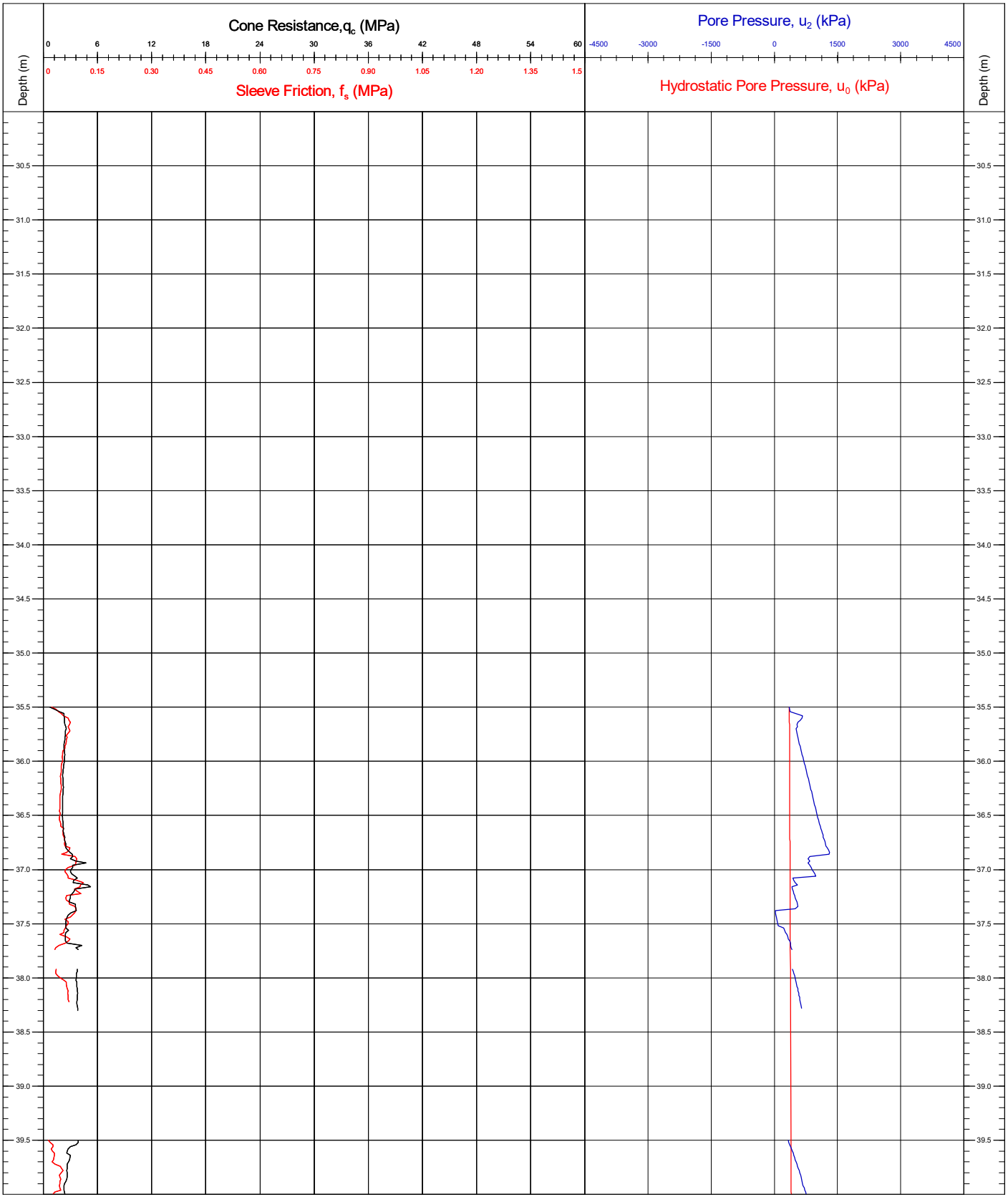


Area	**Kattegat Sea**	Coordinates	**668193.10E 6258003.50N**	CPT Number	**CB6-BH**
Contract	**11596**	Latitude / Longitude			
Client Name/Ref	**Energinet Eltransmission A/S/384_20_ENE**	Water Depth (mMSL)	**26.69**		
Vessel	**MV Ocean Vantage**	Date of Test (Start/End)	**27/05/2021 to 29/05/2021**	Page: 3/3	
		Cone No.(size)/α Factor	**120826 (10cm^2) / 0.76**	QC Status	
		Base Inclination	**X = 0.0° / Y = 0.0°**	Preliminary: **JK/BC** (27/05/2021)	Draft: **DR** (10/06/2021)
		CRS **ETRS89**			Final: **SMc** (10/11/2021)

Comments: Borehole CB6-BH was completed to a depth of 56.70m utilising API drilling~ Wison CPT and push sampling methods. P-S logging was performed from 52.00m to 3.00m below mudline.

Preliminary Investigation, Hesselø OWF

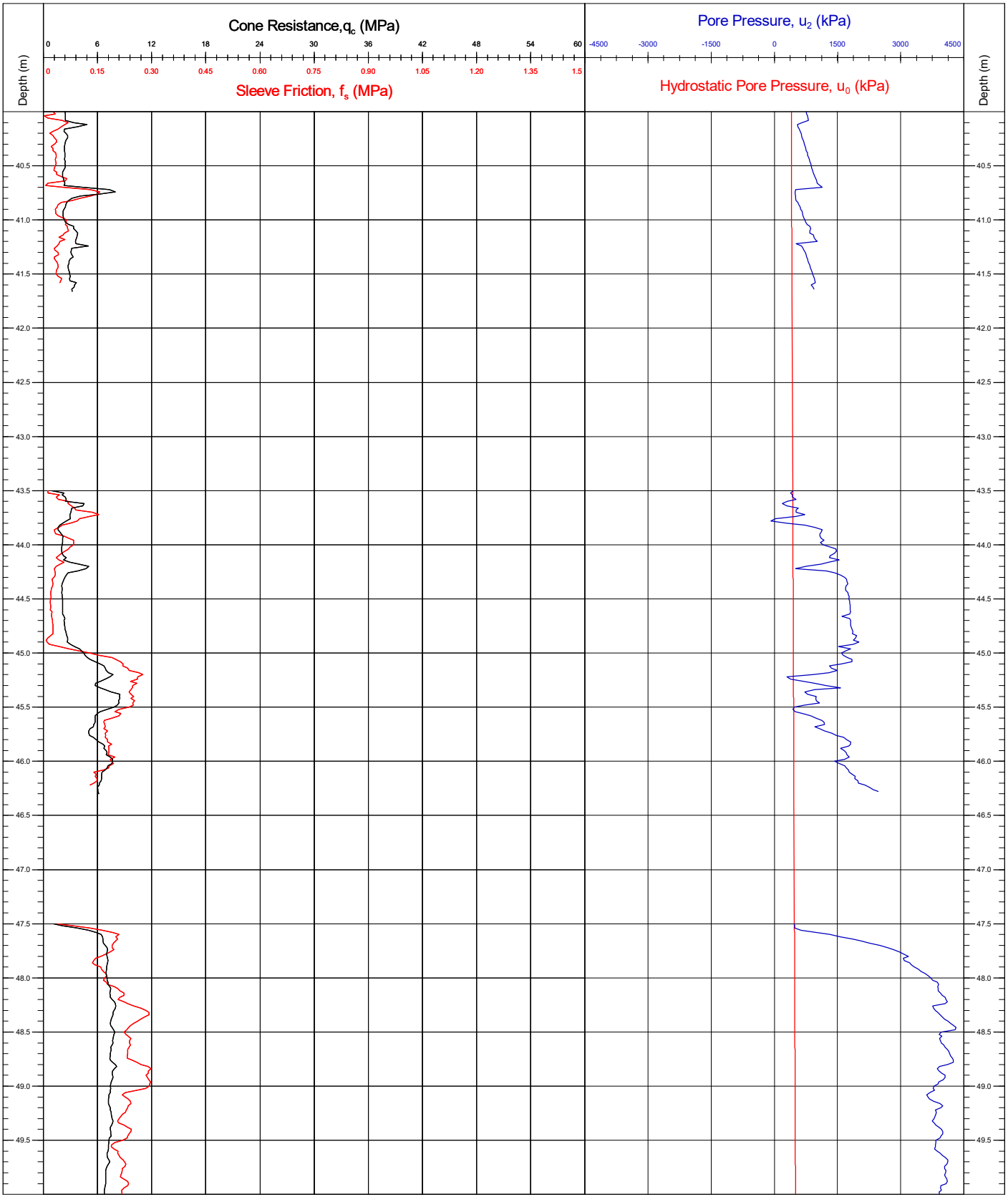
IN SITU CPTU TESTING - MEASURED PARAMETERS



Area	**Kattegat Sea**	Coordinates	**673537.80E** **6259626.90N**	CPT Number	**CB7-BH**
Contract	**11596**	Latitude / Longitude			
Client Name/Ref	**Energinet Eltransmission A/S/384_20_ENE**	Water Depth (mMSL)	**30.99**		
Vessel	**MV Ocean Vantage**	Date of Test (Start/End)	**29/05/2021 to 30/05/2021**	Page: 1/4	
Comments: Borehole CB7-BH was completed to a depth of 64.32m utilising API drilling~ Wison CPT and push sampling methods. P-S logging was performed from 52m to 4m below mudline.		Cone No.(size)/α Factor	**121005G (10cm^2) / 0.78**	QC Status	
		Base Inclination	**X = 0.0° / Y = 0.0°**	Preliminary: **JK/BC (29/05/2021)**	Draft: **DR (10/06/2021)**
		CRS **ETRS89**			Final: **SMc (10/11/2021)**

Preliminary Investigation, Hesselø OWF

IN SITU CPTU TESTING - MEASURED PARAMETERS

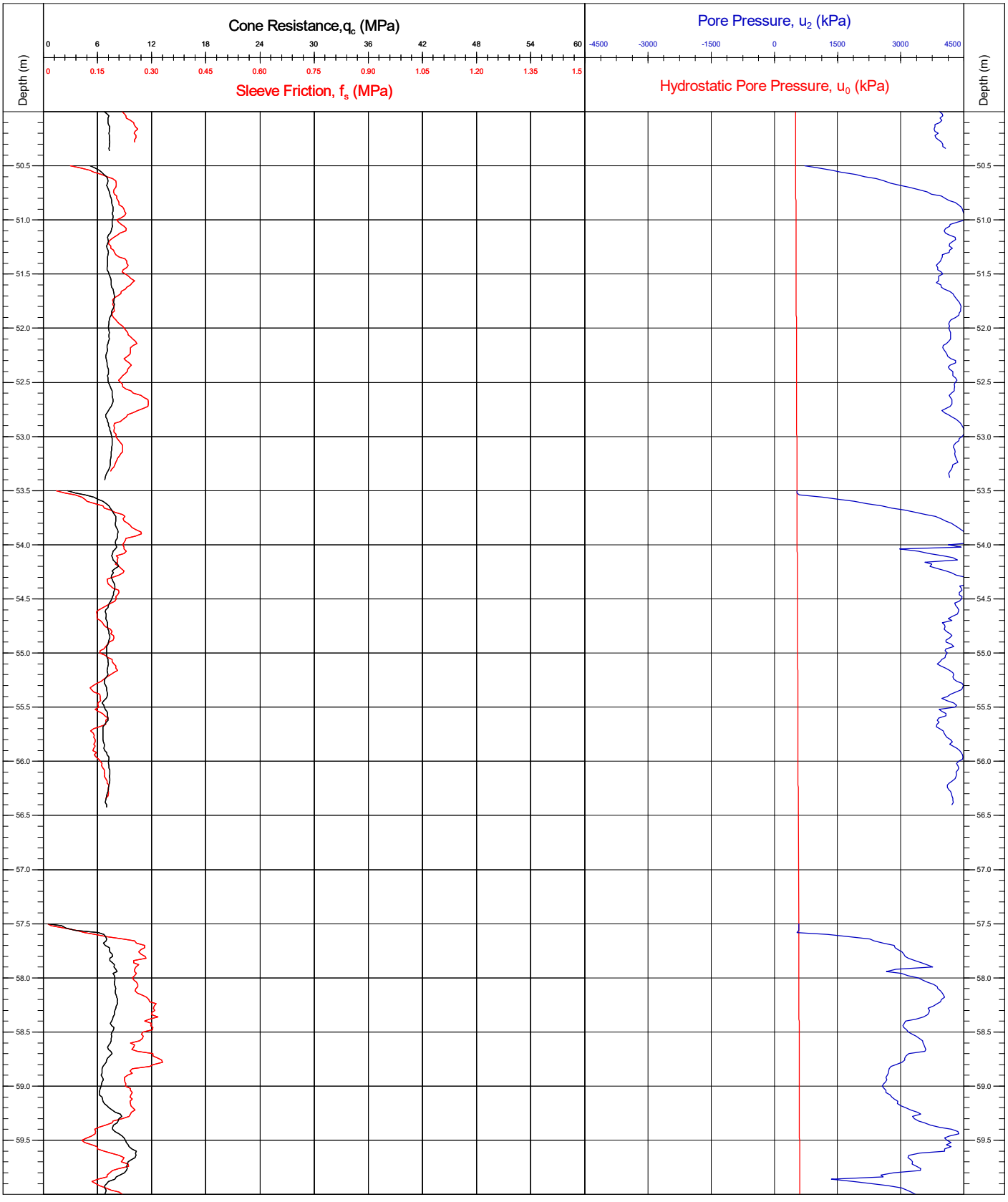


Area	**Kattegat Sea**	Coordinates	**673537.80E 6259626.90N**	CPT Number	**CB7-BH**
Contract	**11596**	Latitude / Longitude			
Client Name/Ref	**Energinet Eltransmission A/S/384_20_ENE**	Water Depth (mMSL)	**30.99**		
Vessel	**MV Ocean Vantage**	Date of Test (Start/End)	**29/05/2021 to 30/05/2021**	Page: 2/4	
		Cone No.(size)/α Factor	**121005G (10cm^2) / 0.78**	QC Status	
		Base Inclination	**X = 0.0° / Y = 0.0°**	Preliminary / Draft / Final	
		CRS **ETRS89**		**JK/BC** (29/05/2021) / **DR** (10/06/2021) / **SMc** (10/11/2021)	

Comments: Borehole CB7-BH was completed to a depth of 64.32m utilising API drilling~ Wison CPT and push sampling methods. P-S logging was performed from 52m to 4m below mudline.

Preliminary Investigation, Hesselø OWF

IN SITU CPTU TESTING - MEASURED PARAMETERS

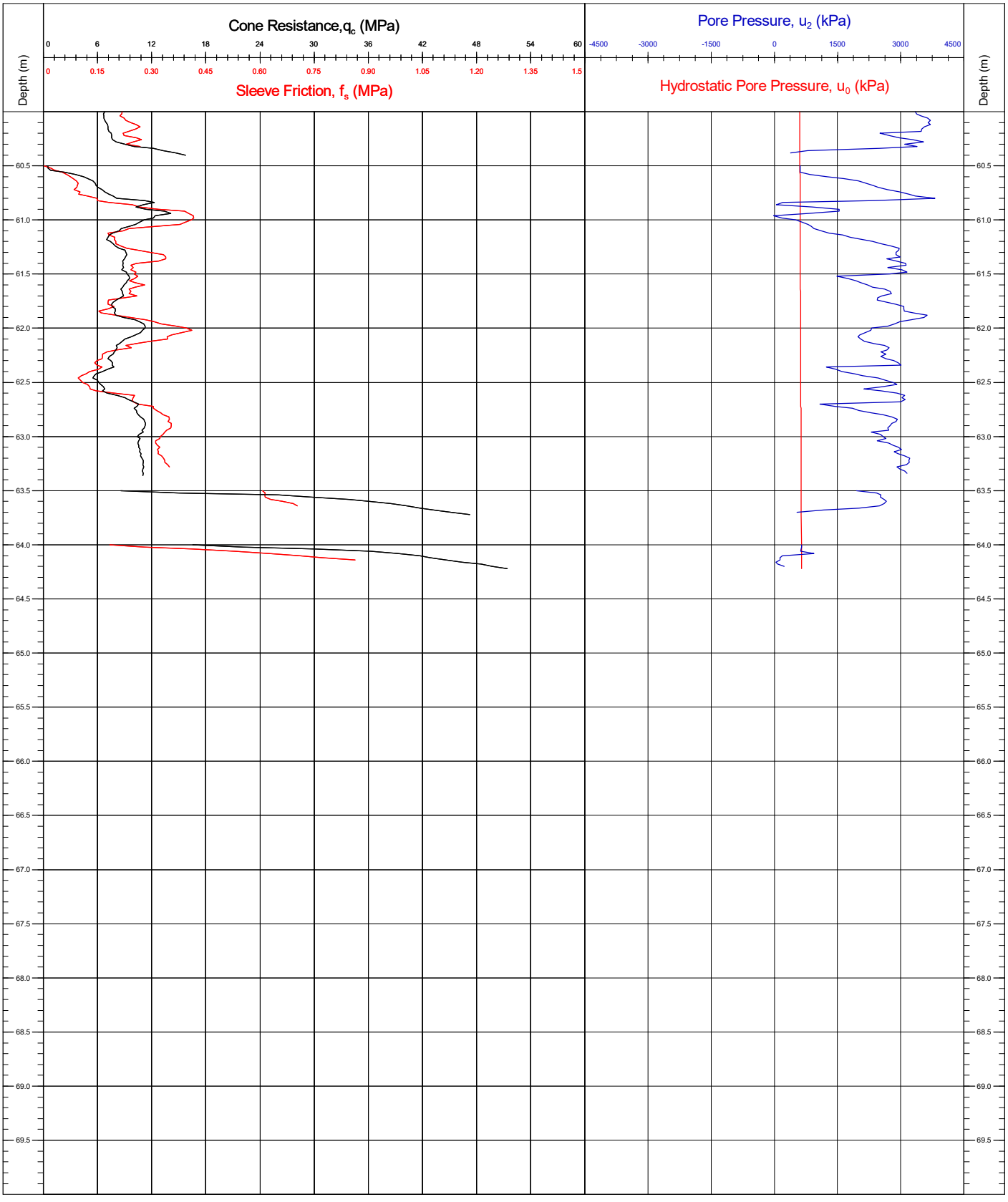


Area	**Kattegat Sea**	Coordinates	**673537.80E 6259626.90N**	CPT Number	**CB7-BH**
Contract	**11596**	Latitude / Longitude			
Client Name/Ref	**Energinet Eltransmission A/S/384_20_ENE**	Water Depth (mMSL)	**30.99**		
Vessel	**MV Ocean Vantage**	Date of Test (Start/End)	**29/05/2021 to 30/05/2021**	Page: 3/4	
		Cone No.(size)/α Factor	**121005G (10cm^2) / 0.78**	QC Status	
		Base Inclination	**X = 0.0° / Y = 0.0°**	Preliminary: **JK/BC (29/05/2021)**	Draft: **DR (10/06/2021)**
		CRS **ETRS89**			Final: **SMc (10/11/2021)**

Comments: Borehole CB7-BH was completed to a depth of 64.32m utilising API drilling~ Wison CPT and push sampling methods. P-S logging was performed from 52m to 4m below mudline.

Preliminary Investigation, Hesselø OWF

IN SITU CPTU TESTING - MEASURED PARAMETERS

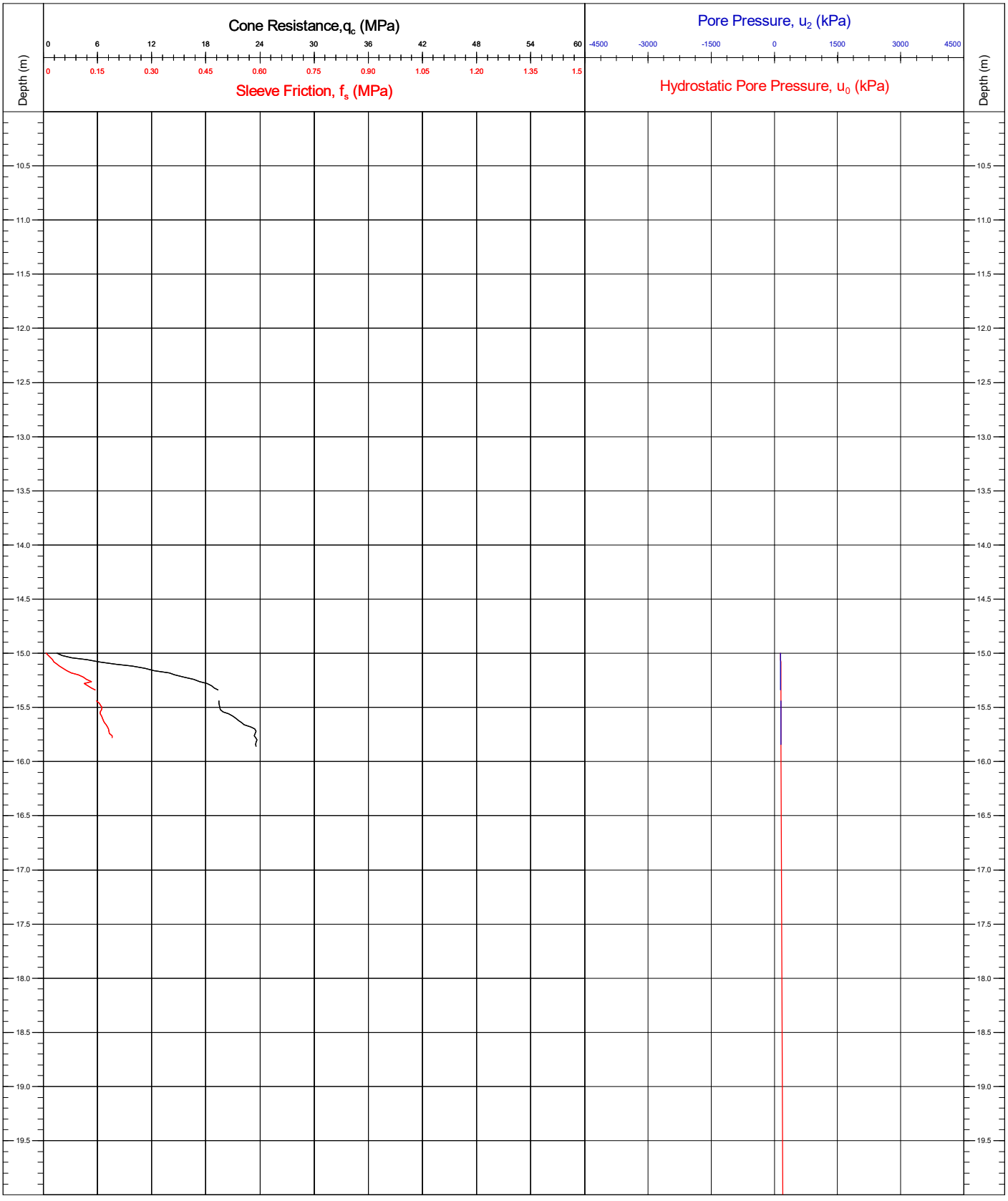


Area	**Kattegat Sea**	Coordinates	**673537.80E 6259626.90N**	CPT Number	**CB7-BH**
Contract	**11596**	Latitude / Longitude			
Client Name/Ref	**Energinet Eltransmission A/S/384_20_ENE**	Water Depth (mMSL)	**30.99**		
Vessel	**MV Ocean Vantage**	Date of Test (Start/End)	**29/05/2021 to 30/05/2021**	Page: 4/4	
		Cone No.(size)/α Factor	**121005G (10cm^2) / 0.78**	QC Status	
		Base Inclination	**X = 0.0° / Y = 0.0°**	Preliminary: **JK/BC** (29/05/2021)	Draft: **DR** (10/06/2021) / Final: **SMc** (10/11/2021)
		CRS **ETRS89**			

Comments: Borehole CB7-BH was completed to a depth of 64.32m utilising API drilling~ Wison CPT and push sampling methods. P-S logging was performed from 52m to 4m below mudline.

Preliminary Investigation, Hesselø OWF

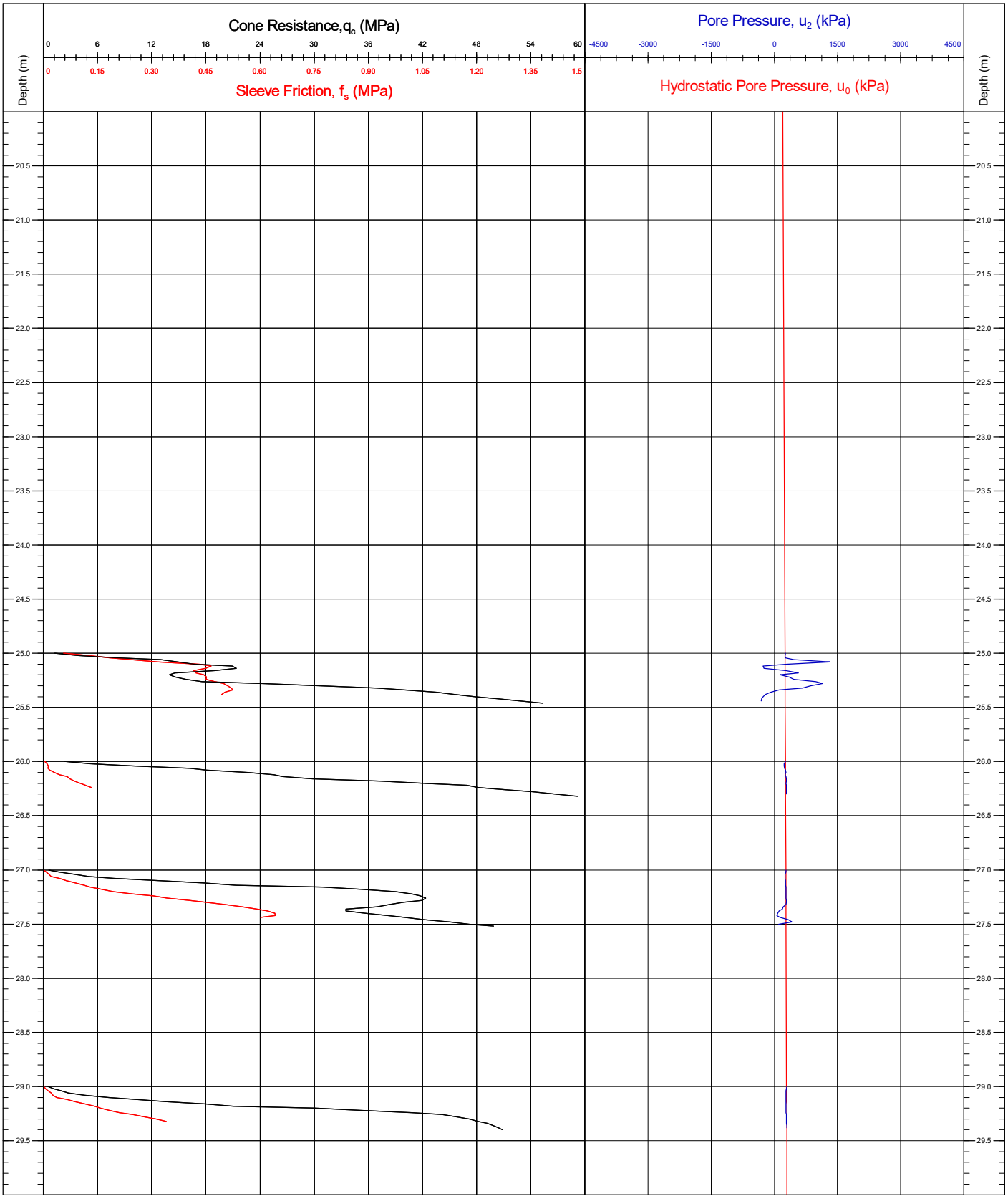
IN SITU CPTU TESTING - MEASURED PARAMETERS



Area	**Kattegat Sea**	Coordinates	**679824.20E 6248913.90N**	CPT Number	**CB8-BH**
Contract	**11596**	Latitude / Longitude			
Client Name/Ref	**Energinet Eltransmission A/S/384_20_ENE**	Water Depth (mMSL)	**31.30**		
Vessel	**MV Ocean Vantage**	Date of Test (Start/End)	**18/05/2021 to 20/05/2021**	Page: 1/6	
Comments: Borehole CB8-BH was completed to a depth of 70.10m utilising API drilling~ Wison CPT and push sampling methods.		Cone No.(size)/α Factor	**120825 (10cm^2) / 0.76**	QC Status	
		Base Inclination	**X = 0.0° / Y = 0.0°**	Preliminary / Draft / Final	
		CRS **ETRS89**		**JK/BC** (20/05/2021) / **DR** (10/06/2021) / **SMc** (10/11/2021)	

Preliminary Investigation, Hesselø OWF

IN SITU CPTU TESTING - MEASURED PARAMETERS

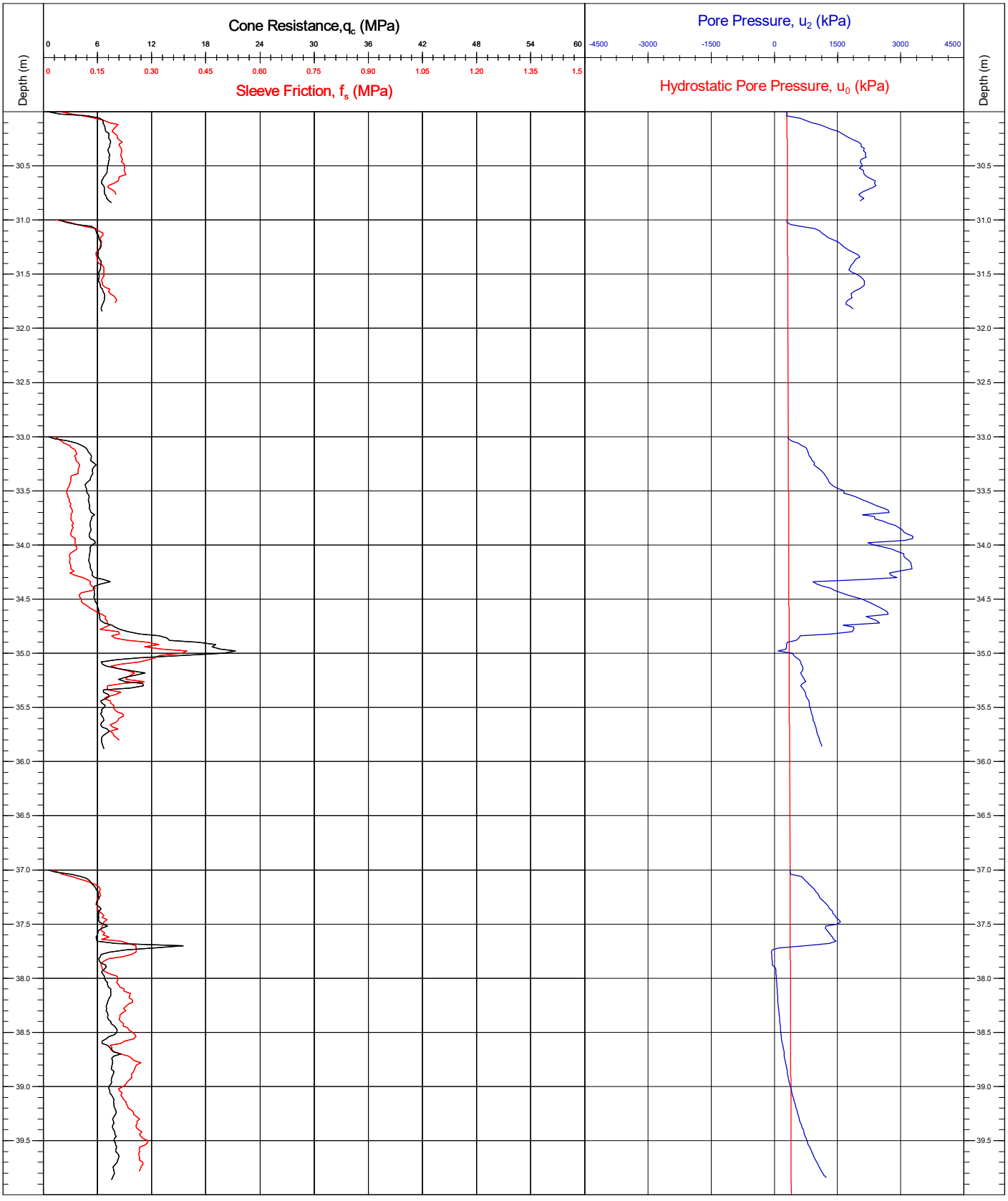


Area	**Kattegat Sea**	Coordinates	**679824.20E 6248913.90N**	CPT Number	**CB8-BH**
Contract	**11596**	Latitude / Longitude			
Client Name/Ref	**Energinet Eltransmission A/S/384_20_ENE**	Water Depth (mMSL)	**31.30**		
Vessel	**MV Ocean Vantage**	Date of Test (Start/End)	**18/05/2021 to 20/05/2021**	Page: 2/6	
Comments: Borehole CB8-BH was completed to a depth of 70.10m utilising API drilling~ Wison CPT and push sampling methods.		Cone No.(size)/α Factor	**120825 (10cm^2) / 0.76**	QC Status	
		Base Inclination	**X = 0.0° / Y = 0.0°**	Preliminary: **JK/BC** (20/05/2021)	Draft: **DR** (10/06/2021)
		CRS **ETRS89**			Final: **SMc** (10/11/2021)

Gardline

Preliminary Investigation, Hesselø OWF

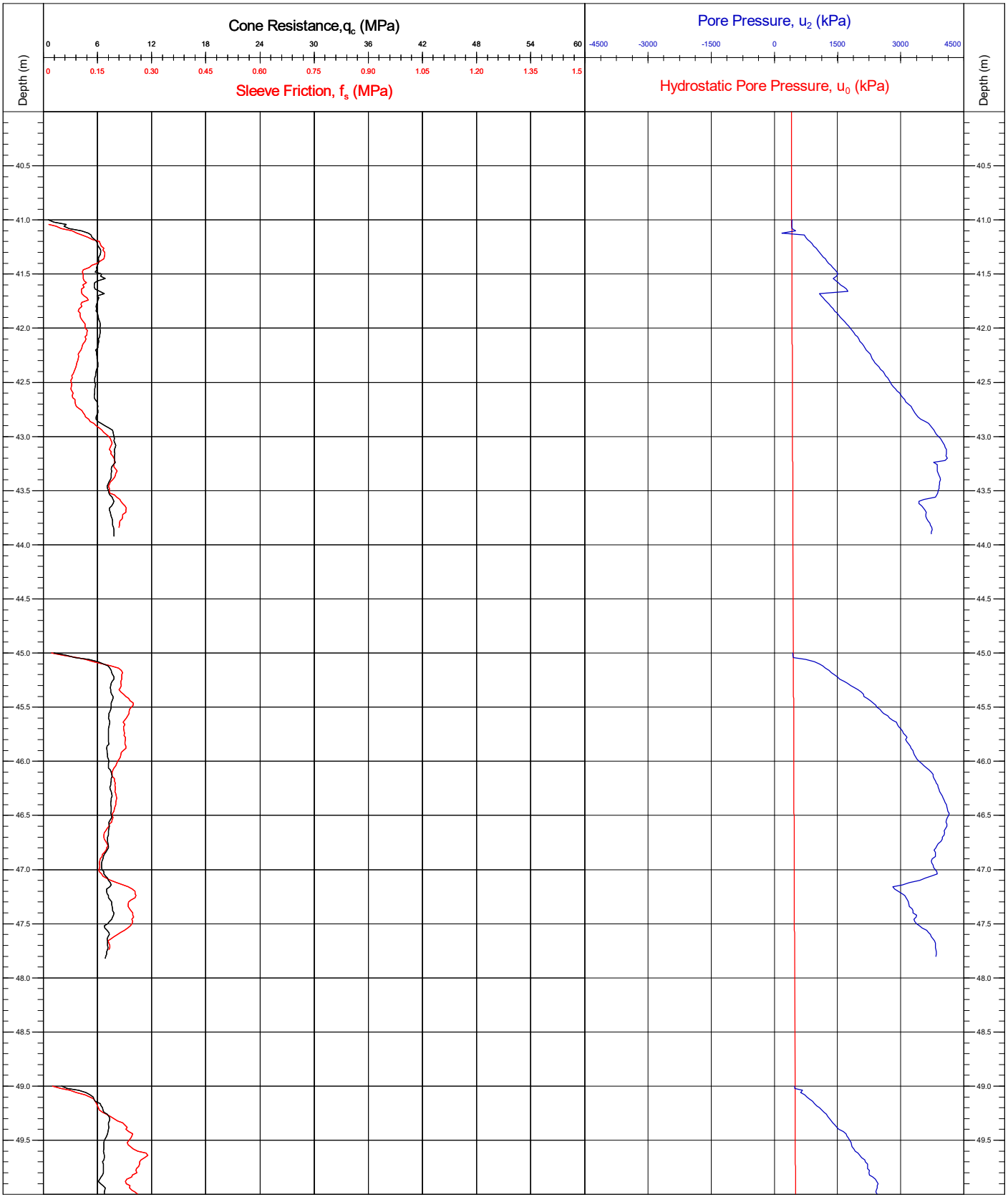
IN SITU CPTU TESTING - MEASURED PARAMETERS



Area	**Kattegat Sea**	Coordinates	**679824.20E 6248913.90N**	CPT Number	**CB8-BH**
Contract	**11596**	Latitude / Longitude			
Client Name/Ref	**Energinet Eltransmission A/S/384_20_ENE**	Water Depth (mMSL)	**31.30**		
Vessel	**MV Ocean Vantage**	Date of Test (Start/End)	**18/05/2021 to 20/05/2021**	Page: 3/6	
Comments: Borehole CB8-BH was completed to a depth of 70.10m utilising API drilling~ Wison CPT and push sampling methods.		Cone No.(size)/α Factor	**120825 (10cm^2) / 0.76**	QC Status	
		Base Inclination	**X = 0.0° / Y = 0.0°**	Preliminary: **JK/BC** (20/05/2021)	Draft: **DR** (10/06/2021)
		CRS **ETRS89**			Final: **SMc** (10/11/2021)

Preliminary Investigation, Hesselø OWF

IN SITU CPTU TESTING - MEASURED PARAMETERS

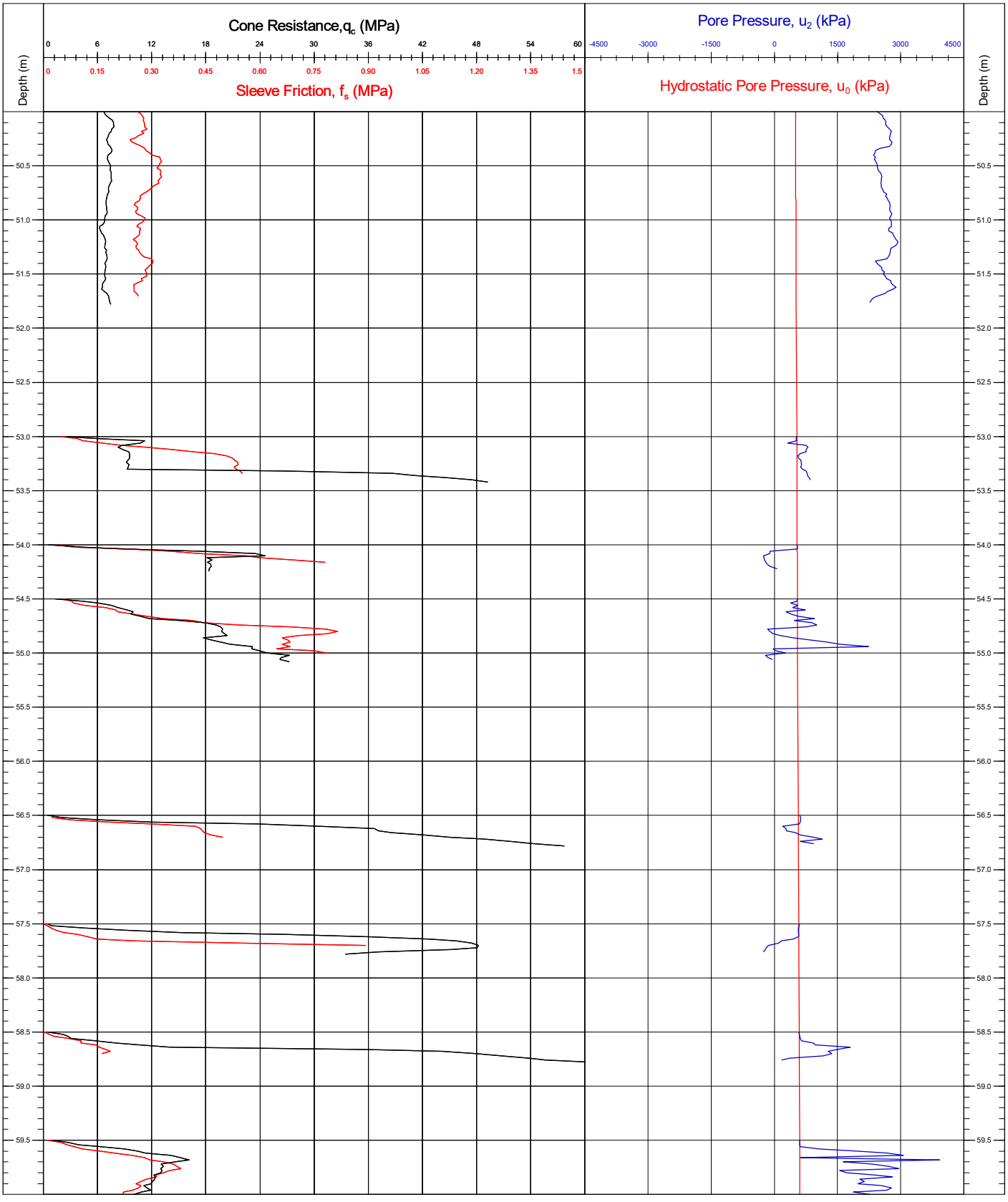


Area	**Kattegat Sea**	Coordinates	**679824.20E 6248913.90N**	CPT Number	**CB8-BH**
Contract	**11596**	Latitude / Longitude			
Client Name/Ref	**Energinet Eltransmission A/S/384_20_ENE**	Water Depth (mMSL)	**31.30**		
Vessel	**MV Ocean Vantage**	Date of Test (Start/End)	**18/05/2021 to 20/05/2021**	Page: 4/6	
Comments: Borehole CB8-BH was completed to a depth of 70.10m utilising API drilling~ Wison CPT and push sampling methods.		Cone No.(size)/α Factor	**120825 (10cm^2) / 0.76**	QC Status	
		Base Inclination	**X = 0.0° / Y = 0.0°**	Preliminary / Draft / Final	
		CRS **ETRS89**		**JK/BC** (20/05/2021) / **DR** (10/06/2021) / **SMc** (10/11/2021)	

Gardline

Preliminary Investigation, Hesselø OWF

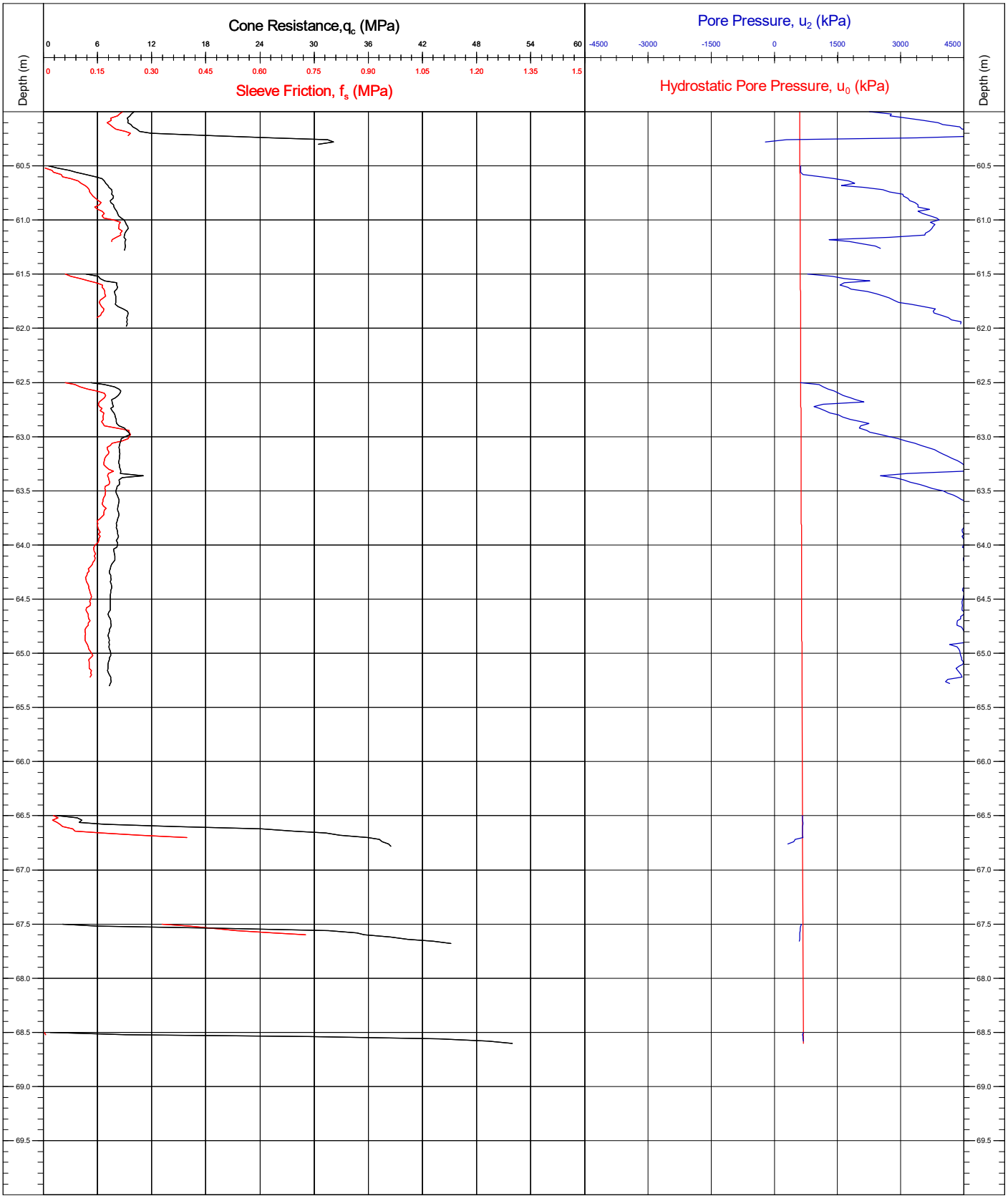
IN SITU CPTU TESTING - MEASURED PARAMETERS



Area	**Kattegat Sea**	Coordinates	**679824.20E 6248913.90N**	CPT Number	**CB8-BH**
Contract	**11596**	Latitude / Longitude			
Client Name/Ref	**Energinet Eltransmission A/S/384_20_ENE**	Water Depth (mMSL)	**31.30**		
Vessel	**MV Ocean Vantage**	Date of Test (Start/End)	**18/05/2021 to 20/05/2021**	Page: 5/6	
Comments: Borehole CB8-BH was completed to a depth of 70.10m utilising API drilling~ Wison CPT and push sampling methods.		Cone No.(size)/α Factor	**120825 (10cm^2) / 0.76**	QC Status	
		Base Inclination	**X = 0.0° / Y = 0.0°**	Preliminary: **JK/BC** (20/05/2021)	Draft: **DR** (10/06/2021)
		CRS **ETRS89**			Final: **SMc** (10/11/2021)

Preliminary Investigation, Hesselø OWF

IN SITU CPTU TESTING - MEASURED PARAMETERS

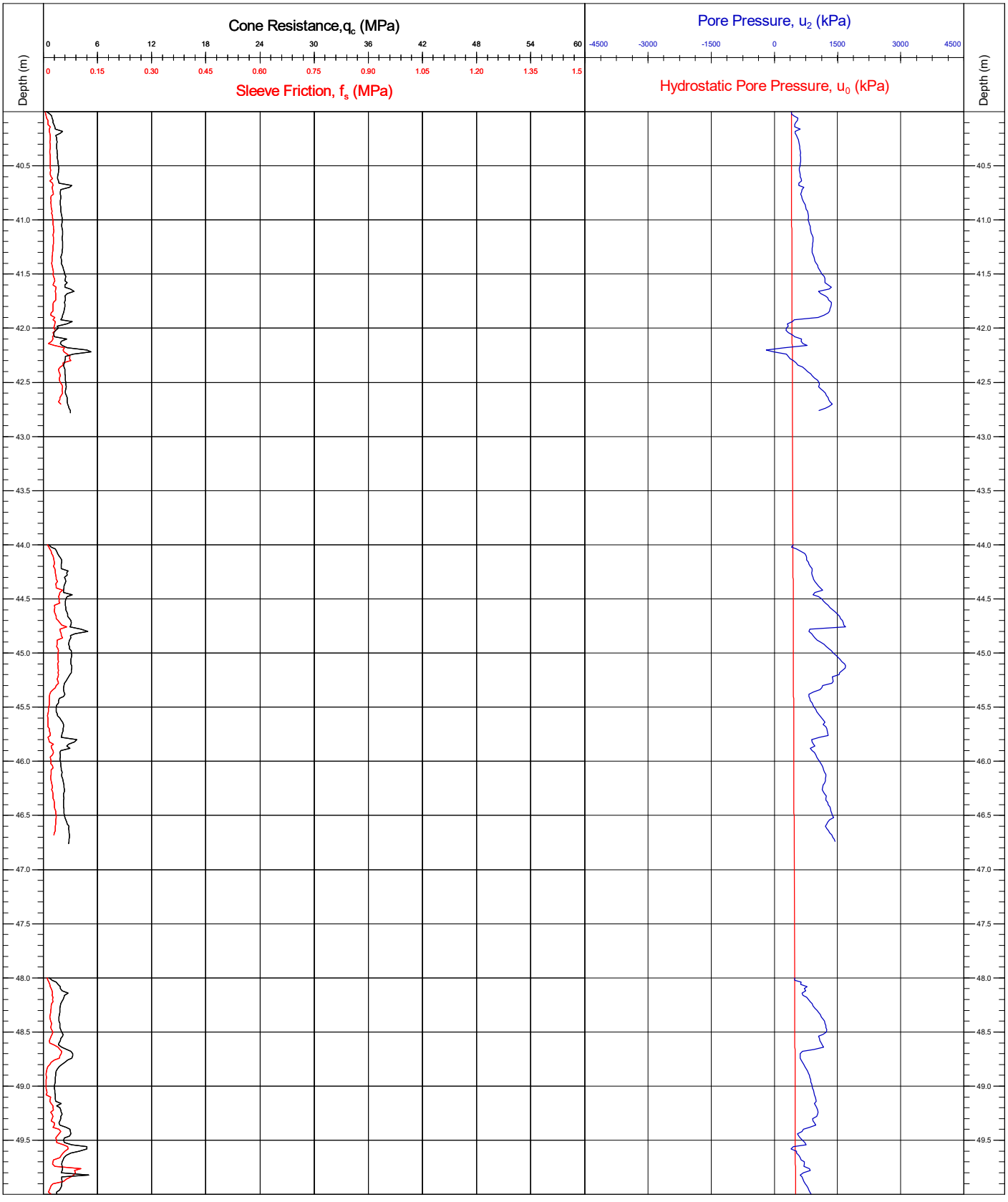


Area	**Kattegat Sea**	Coordinates	**679824.20E 6248913.90N**	CPT Number	**CB8-BH**
Contract	**11596**	Latitude / Longitude			
Client Name/Ref	**Energinet Eltransmission A/S/384_20_ENE**	Water Depth (mMSL)	**31.30**		
Vessel	**MV Ocean Vantage**	Date of Test (Start/End)	**18/05/2021 to 20/05/2021**	Page: 6/6	
Comments: Borehole CB8-BH was completed to a depth of 70.10m utilising API drilling~ Wison CPT and push sampling methods.		Cone No.(size)/α Factor	**120825 (10cm^2) / 0.76**	QC Status	
		Base Inclination	**X = 0.0° / Y = 0.0°**	Preliminary / Draft / Final	
		CRS **ETRS89**		**JK/BC** (20/05/2021) / **DR** (10/06/2021) / **SMc** (10/11/2021)	

Gardline

Preliminary Investigation, Hesselø OWF

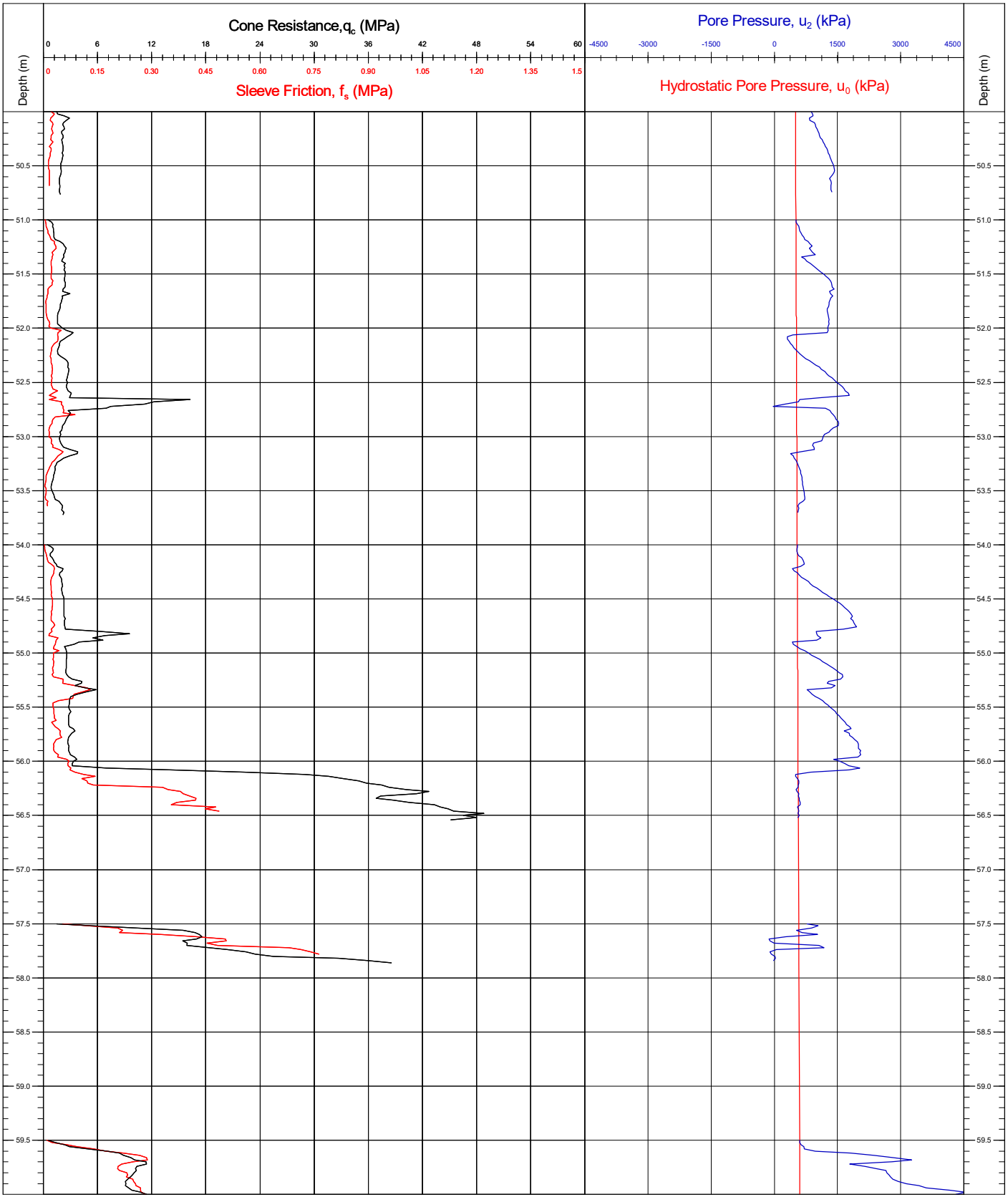
IN SITU CPTU TESTING - MEASURED PARAMETERS



Area	**Kattegat Sea**	Coordinates	**677391.00E**	**6276213.60N**	CPT Number
Contract	**11596**	Latitude / Longitude			**CB9-BH**
Client Name/Ref	**Energinet Eltransmission A/S/384_20_ENE**	Water Depth (mMSL)	**30.85**		
Vessel	**MV Ocean Vantage**	Date of Test (Start/End)	**03/06/2021 to 04/06/2021**		Page: 1/4
Comments: Borehole CB9-BH was completed to a depth of 70.94m utilising API drilling~ Wison CPT and push sampling methods		Cone No.(size)/α Factor	**120826 (10cm^2) / 0.76**		QC Status
		Base Inclination	**X = 0.0° / Y = 0.0°**		Preliminary: **JK/BC** (03/06/2021) · Draft: **DR** (10/06/2021) · Final: **SMc** (10/11/2021)
		CRS	**ETRS89**		

Preliminary Investigation, Hesselø OWF

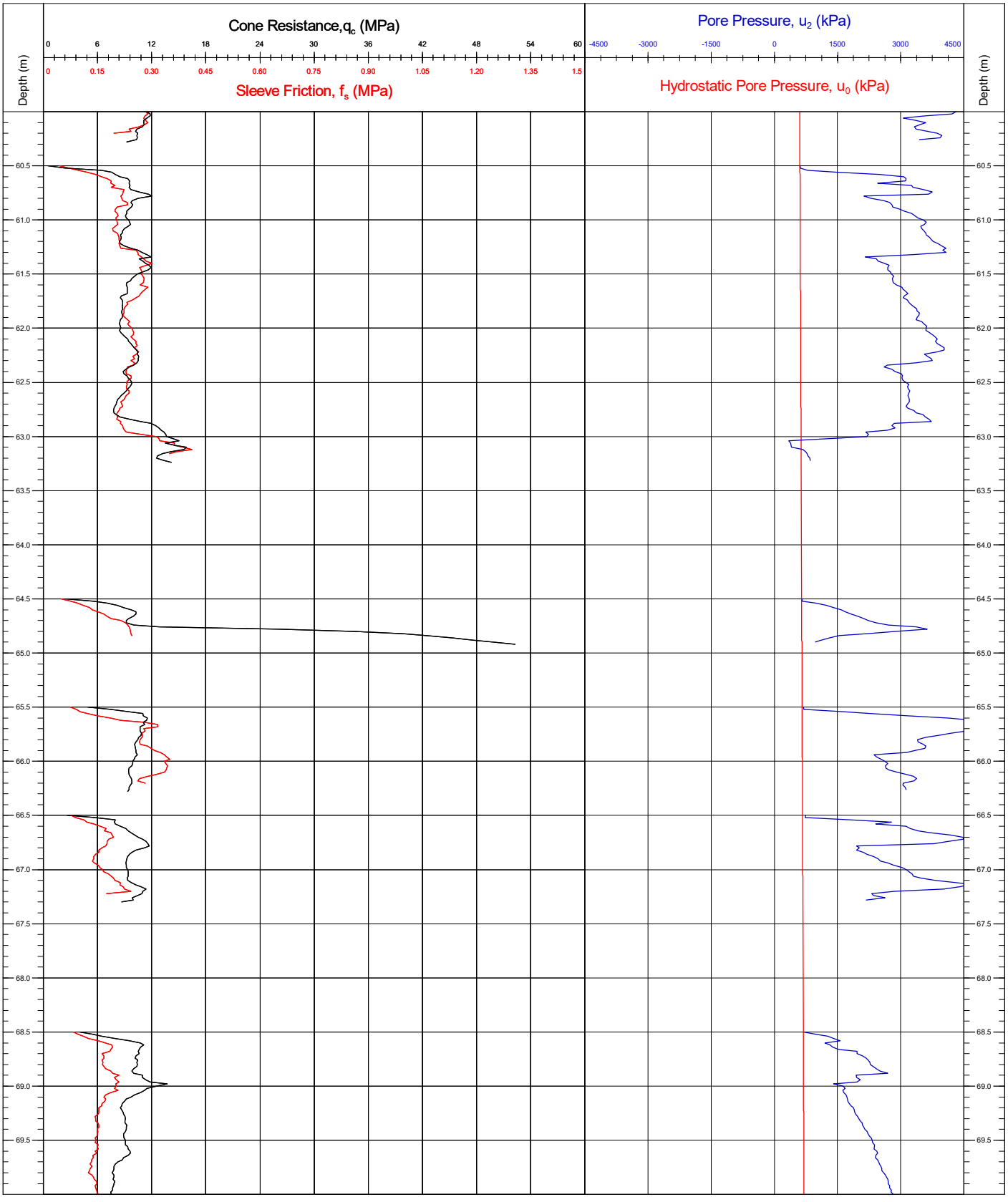
IN SITU CPTU TESTING - MEASURED PARAMETERS



Area	**Kattegat Sea**	Coordinates	**677391.00E 6276213.60N**	CPT Number	**CB9-BH**
Contract	**11596**	Latitude / Longitude			
Client Name/Ref	**Energinet Eltransmission A/S/384_20_ENE**	Water Depth (mMSL)	**30.85**		
Vessel	**MV Ocean Vantage**	Date of Test (Start/End)	**03/06/2021 to 04/06/2021**	Page: 2/4	
Comments: Borehole CB9-BH was completed to a depth of 70.94m utilising API drilling~ Wison CPT and push sampling methods		Cone No.(size)/α Factor	**120826 (10cm^2) / 0.76**	QC Status	
		Base Inclination	**X = 0.0° / Y = 0.0°**	Preliminary / Draft / Final	
		CRS **ETRS89**		**JK/BC** (03/06/2021) / **DR** (10/06/2021) / **SMc** (10/11/2021)	

Preliminary Investigation, Hesselø OWF

IN SITU CPTU TESTING - MEASURED PARAMETERS

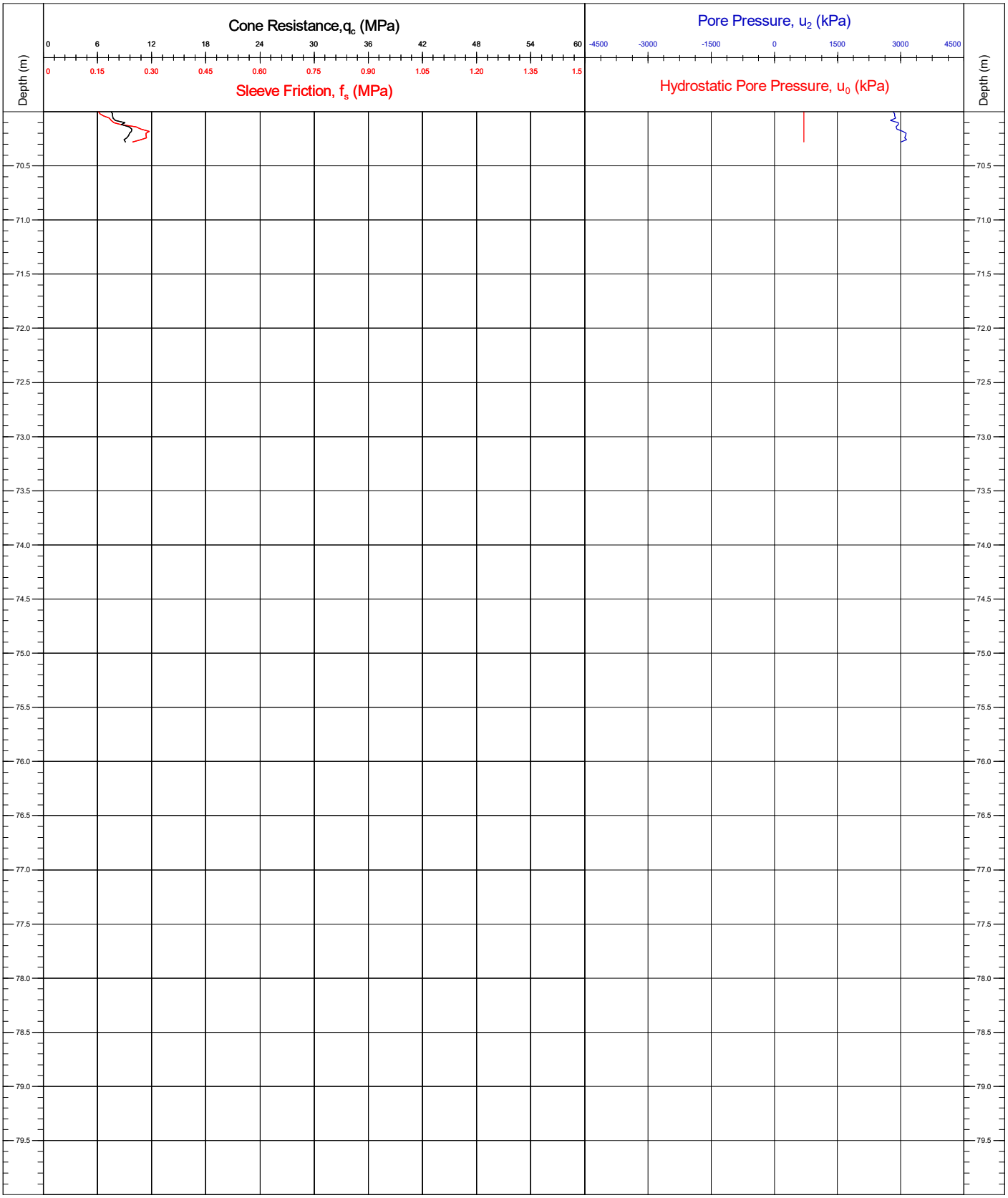


Area	**Kattegat Sea**	Coordinates	**677391.00E 6276213.60N**	CPT Number	**CB9-BH**
Contract	**11596**	Latitude / Longitude			
Client Name/Ref	**Energinet Eltransmission A/S/384_20_ENE**	Water Depth (mMSL)	**30.85**		
Vessel	**MV Ocean Vantage**	Date of Test (Start/End)	**03/06/2021 to 04/06/2021**	Page: 3/4	
Comments: Borehole CB9-BH was completed to a depth of 70.94m utilising API drilling~ Wison CPT and push sampling methods		Cone No.(size)/α Factor	**120826 (10cm^2) / 0.76**	QC Status	
		Base Inclination	**X = 0.0° / Y = 0.0°**	Preliminary / Draft / Final	
		CRS **ETRS89**		**JK/BC** (03/06/2021) / **DR** (10/06/2021) / **SMc** (10/11/2021)	

Gardline

Preliminary Investigation, Hesselø OWF

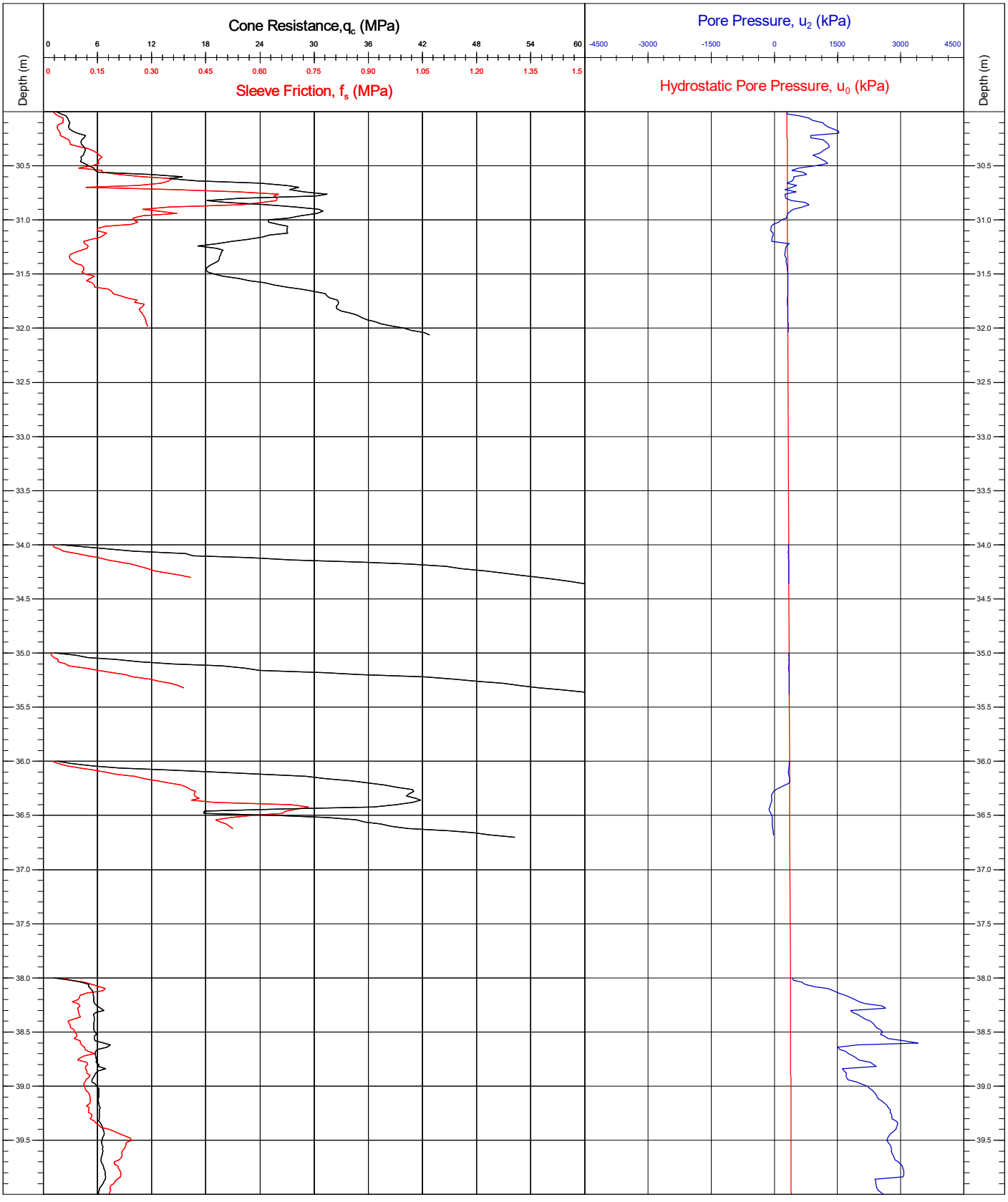
IN SITU CPTU TESTING - MEASURED PARAMETERS



Area	**Kattegat Sea**	Coordinates	**677391.00E** **6276213.60N**	CPT Number	**CB9-BH**
Contract	**11596**	Latitude / Longitude			
Client Name/Ref	**Energinet Eltransmission A/S/384_20_ENE**	Water Depth (mMSL)	**30.85**		
Vessel	**MV Ocean Vantage**	Date of Test (Start/End)	**03/06/2021 to 04/06/2021**	Page: 4/4	
Comments: Borehole CB9-BH was completed to a depth of 70.94m utilising API drilling~ Wison CPT and push sampling methods		Cone No.(size)/α Factor	**120826 (10cm^2) / 0.76**	QC Status	
		Base Inclination	**X = 0.0° / Y = 0.0°**	Preliminary / Draft / Final	
		CRS **ETRS89**		**JK/BC** (03/06/2021) / **DR** (10/06/2021) / **SMc** (10/11/2021)	

Preliminary Investigation, Hesselø OWF

IN SITU CPTU TESTING - MEASURED PARAMETERS

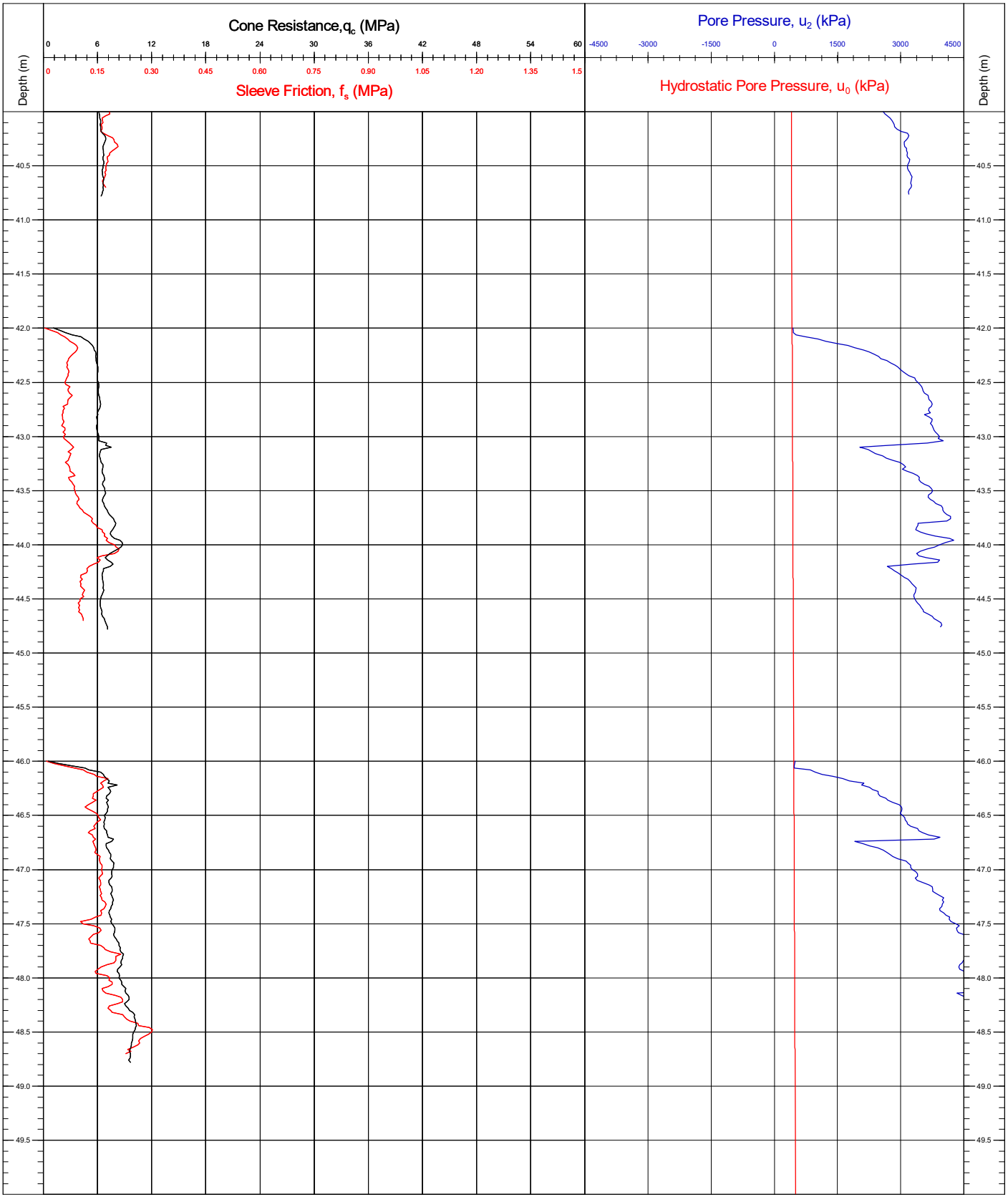


Area	**Kattegat Sea**	Coordinates	**678755.50E 6261514.20N**	CPT Number	
Contract	**11596**	Latitude / Longitude		**CB10a-BH**	
Client Name/Ref	**Energinet Eltransmission A/S/384_20_ENE**	Water Depth (mMSL)	**33.11**		
Vessel	**MV Ocean Vantage**	Date of Test (Start/End)	**05/06/2021 to 06/06/2021**	Page: 1/4	
Comments: Borehole CB10a-BH was completed to a depth of 70.25m utilising API drilling~ Wison CPT and push sampling methods.		Cone No.(size)/α Factor	**121005G (10cm^2) / 0.78**	QC Status	
		Base Inclination	**X = 0.0° / Y = 0.0°**	Preliminary / Draft / Final	
		CRS **ETRS89**		**JK/BC** (05/06/2021) / **DR** (10/06/2021) / **SMc** (10/11/2021)	

Gardline

Preliminary Investigation, Hesselø OWF

IN SITU CPTU TESTING - MEASURED PARAMETERS

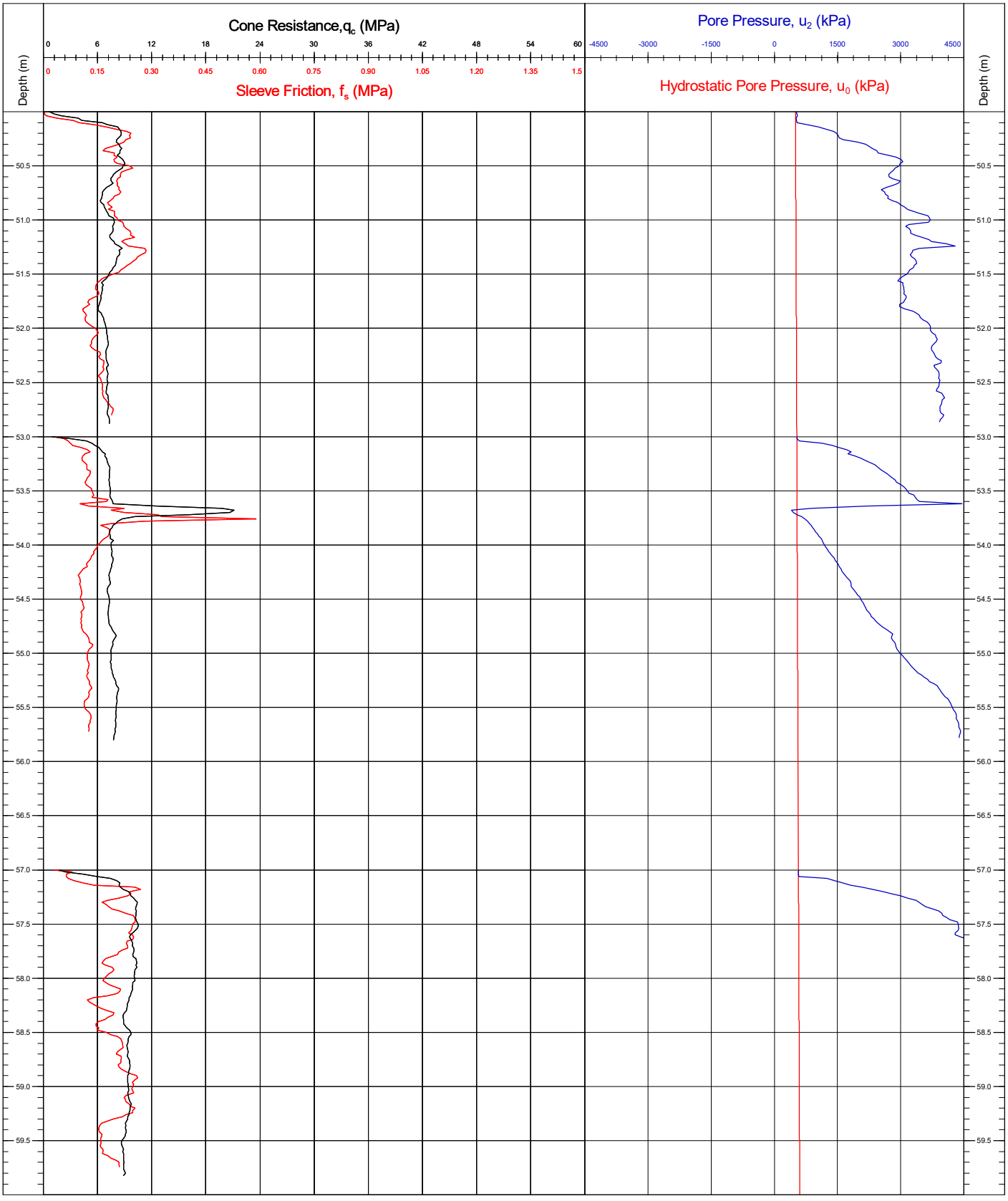


Area	**Kattegat Sea**	Coordinates	**678755.50E 6261514.20N**	CPT Number	
Contract	**11596**	Latitude / Longitude		**CB10a-BH**	
Client Name/Ref	**Energinet Eltransmission A/S/384_20_ENE**	Water Depth (mMSL)	**33.11**		
Vessel	**MV Ocean Vantage**	Date of Test (Start/End)	**05/06/2021 to 06/06/2021**	Page: 2/4	
		Cone No.(size)/α Factor	**121005G (10cm^2) / 0.78**	QC Status	
		Base Inclination	**X = 0.0° / Y = 0.0°**	Preliminary / Draft / Final	
		CRS **ETRS89**		**JK/BC** (05/06/2021) / **DR** (10/06/2021) / **SMc** (10/11/2021)	

Comments: Borehole CB10a-BH was completed to a depth of 70.25m utilising API drilling~ Wison CPT and push sampling methods.

Preliminary Investigation, Hesselø OWF

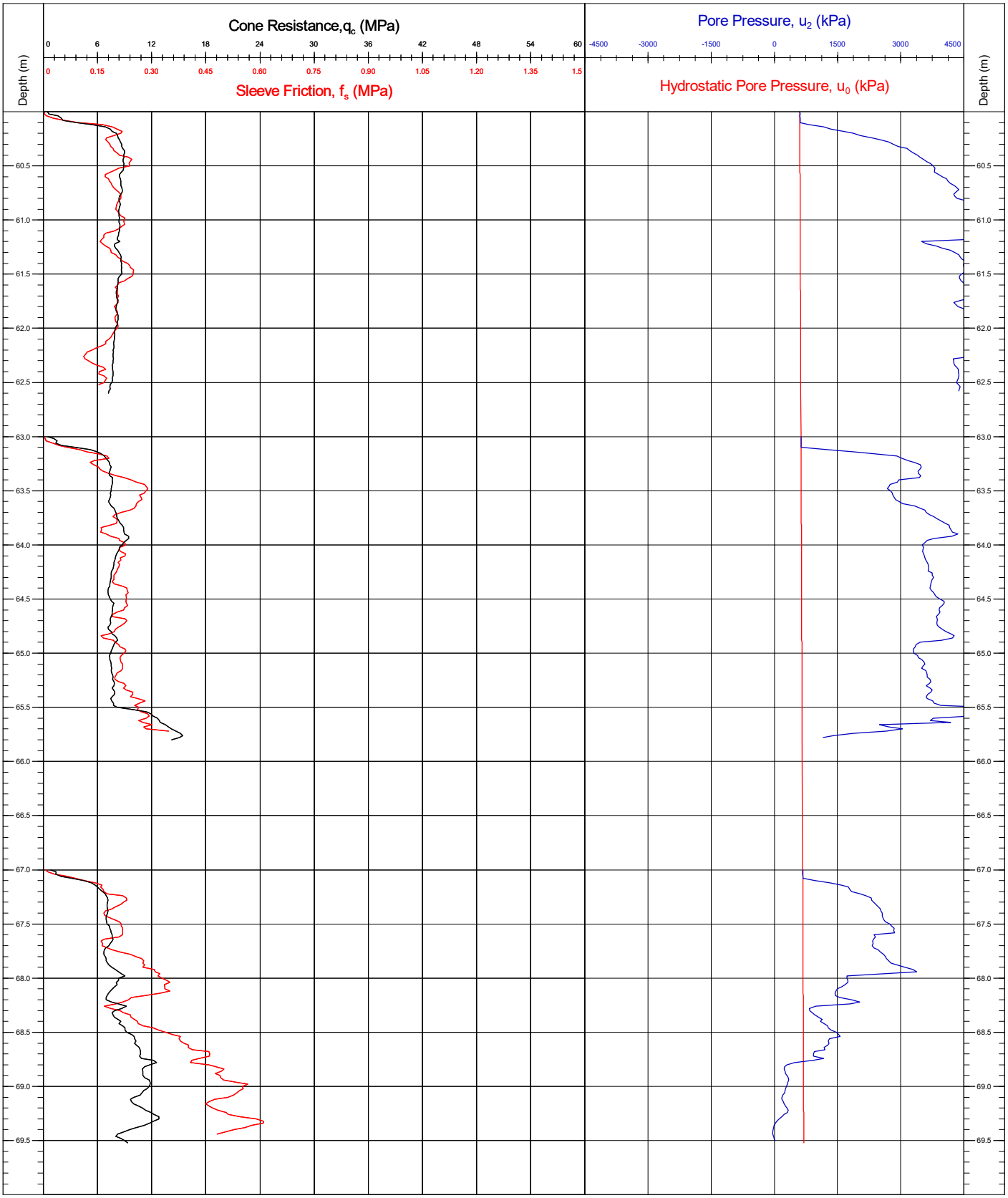
IN SITU CPTU TESTING - MEASURED PARAMETERS



Area	**Kattegat Sea**	Coordinates	**678755.50E 6261514.20N**	CPT Number	
Contract	**11596**	Latitude / Longitude		**CB10a-BH**	
Client Name/Ref	**Energinet Eltransmission A/S/384_20_ENE**	Water Depth (mMSL)	**33.11**		
Vessel	**MV Ocean Vantage**	Date of Test (Start/End)	**05/06/2021 to 06/06/2021**	Page: 3/4	
Comments: Borehole CB10a-BH was completed to a depth of 70.25m utilising API drilling~ Wison CPT and push sampling methods.		Cone No.(size)/α Factor	**121005G (10cm^2) / 0.78**	QC Status	
		Base Inclination	**X = 0.0° / Y = 0.0°**	Preliminary: **JK/BC** (05/06/2021)	Draft: **DR** (10/06/2021)
		CRS **ETRS89**			Final: **SMc** (10/11/2021)

Preliminary Investigation, Hesselø OWF

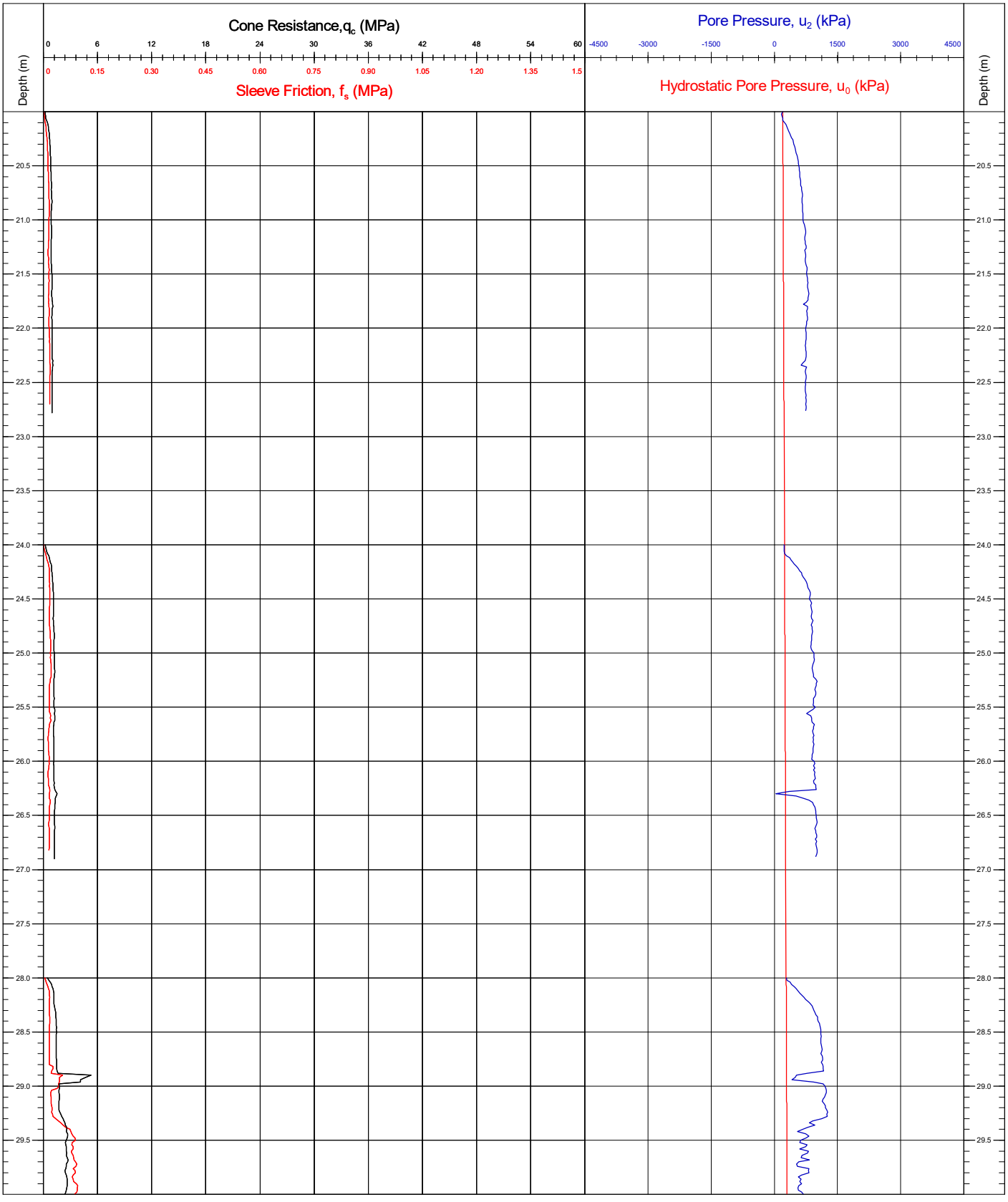
IN SITU CPTU TESTING - MEASURED PARAMETERS



Area	**Kattegat Sea**	Coordinates	**678755.50E 6261514.20N**	CPT Number	**CB10a-BH**
Contract	**11596**	Latitude / Longitude			
Client Name/Ref	**Energinet Eltransmission A/S/384_20_ENE**	Water Depth (mMSL)	**33.11**		
Vessel	**MV Ocean Vantage**	Date of Test (Start/End)	**05/06/2021 to 06/06/2021**	Page: 4/4	
Comments: Borehole CB10a-BH was completed to a depth of 70.25m utilising API drilling~ Wison CPT and push sampling methods.		Cone No.(size)/α Factor	**121005G (10cm^2) / 0.78**	QC Status	
		Base Inclination	**X = 0.0° / Y = 0.0°**	Preliminary: **JK/BC (05/06/2021)**	Draft: **DR (10/06/2021)**
		CRS **ETRS89**			Final: **SMc (10/11/2021)**

Preliminary Investigation, Hesselø OWF

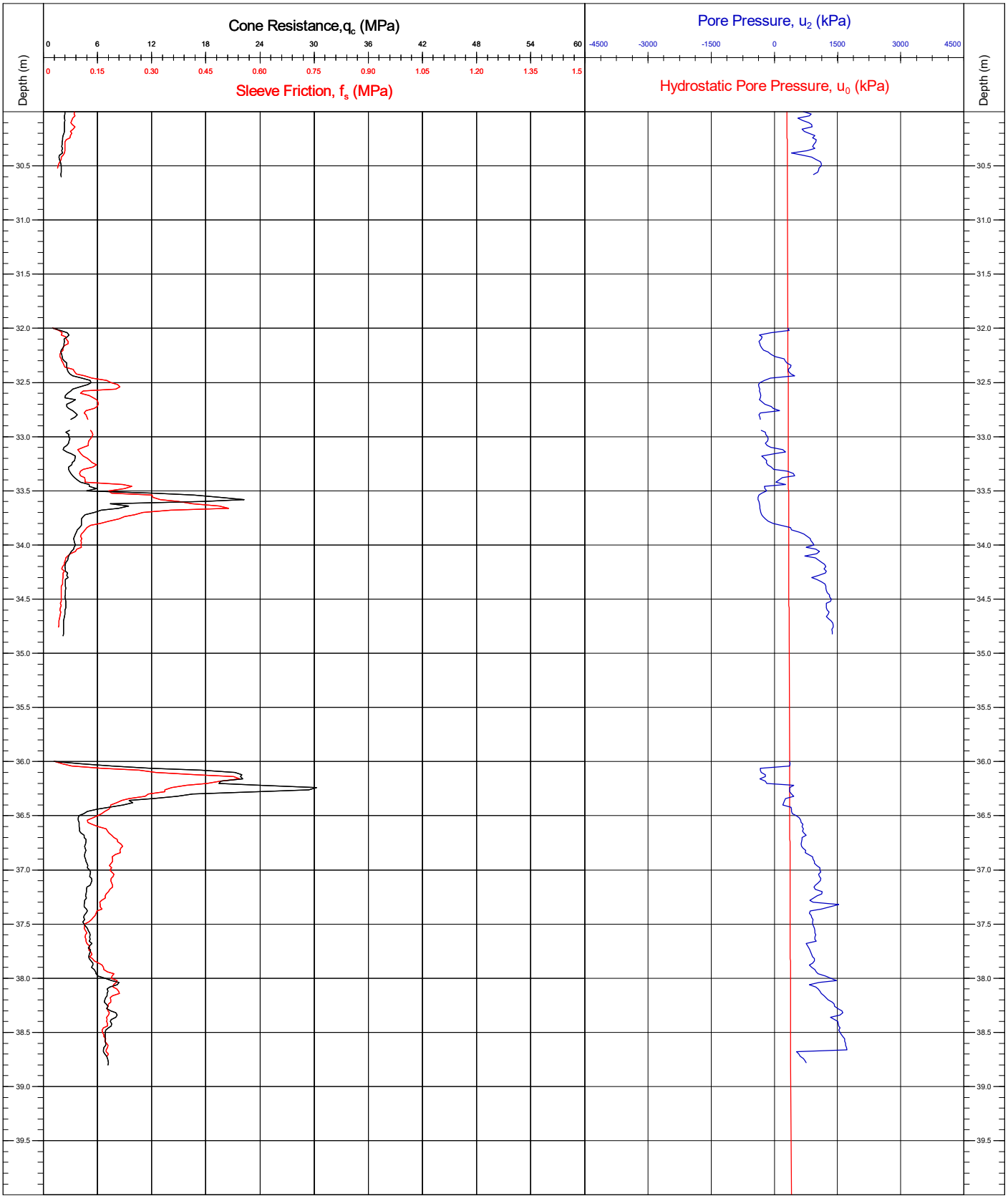
IN SITU CPTU TESTING - MEASURED PARAMETERS



Area	**Kattegat Sea**	Coordinates	**678372.10E 6256261.30N**	CPT Number	**CB11-BH**
Contract	**11596**	Latitude / Longitude			
Client Name/Ref	**Energinet Eltransmission A/S/384_20_ENE**	Water Depth (mMSL)	**31.48**		
Vessel	**MV Ocean Vantage**	Date of Test (Start/End)	**22/05/2021 to 23/05/2021**	Page: 1/4	
Comments: Borehole CB11-BH was completed to a depth of 53.12m utilising API drilling~ Wison CPT and push sampling methods~ at which point it was terminated due to rising weather conditions.		Cone No.(size)/α Factor	**120826 (10cm^2) / 0.76**	QC Status	
		Base Inclination	**X = 0.0° / Y = 0.0°**	Preliminary: **JK/BC** (23/05/2021)	Draft: **DR** (10/06/2021) / Final: **SMc** (10/11/2021)
		CRS **ETRS89**			

Preliminary Investigation, Hesselø OWF

IN SITU CPTU TESTING - MEASURED PARAMETERS



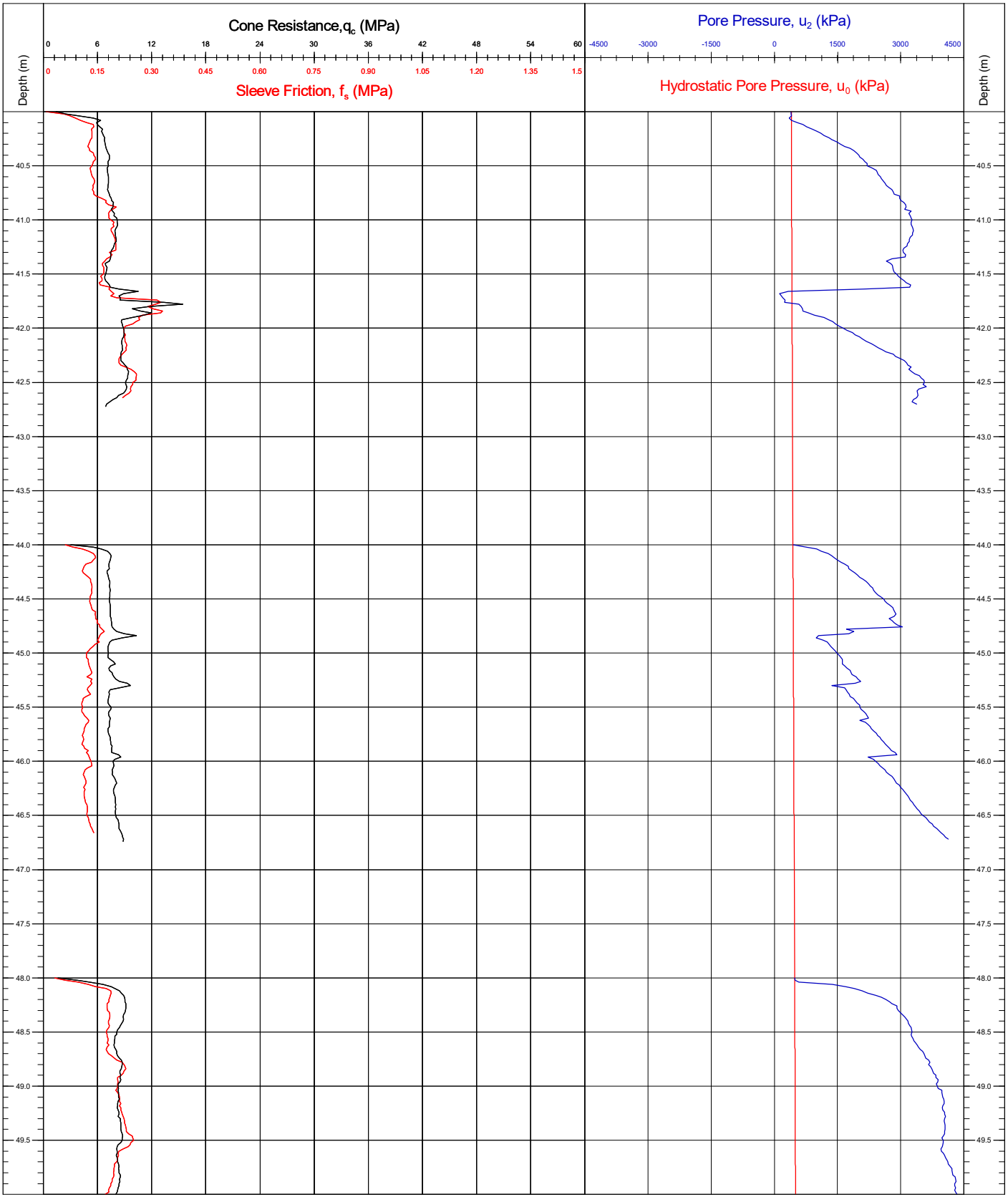
Area	**Kattegat Sea**	Coordinates	**678372.10E 6256261.30N**	CPT Number	**CB11-BH**
Contract	**11596**	Latitude / Longitude			
Client Name/Ref	**Energinet Eltransmission A/S/384_20_ENE**	Water Depth (mMSL)	**31.48**		
Vessel	**MV Ocean Vantage**	Date of Test (Start/End)	**22/05/2021 to 23/05/2021**	Page: 2/4	
		Cone No.(size)/α Factor	**120826 (10cm^2) / 0.76**	QC Status	
		Base Inclination	**X = 0.0° / Y = 0.0°**	Preliminary / Draft / Final	
		CRS **ETRS89**		**JK/BC** (23/05/2021) / **DR** (10/06/2021) / **SMc** (10/11/2021)	

Comments: Borehole CB11-BH was completed to a depth of 53.12m utilising API drilling~ Wison CPT and push sampling methods~ at which point it was terminated due to rising weather conditions.

Gardline

Preliminary Investigation, Hesselø OWF

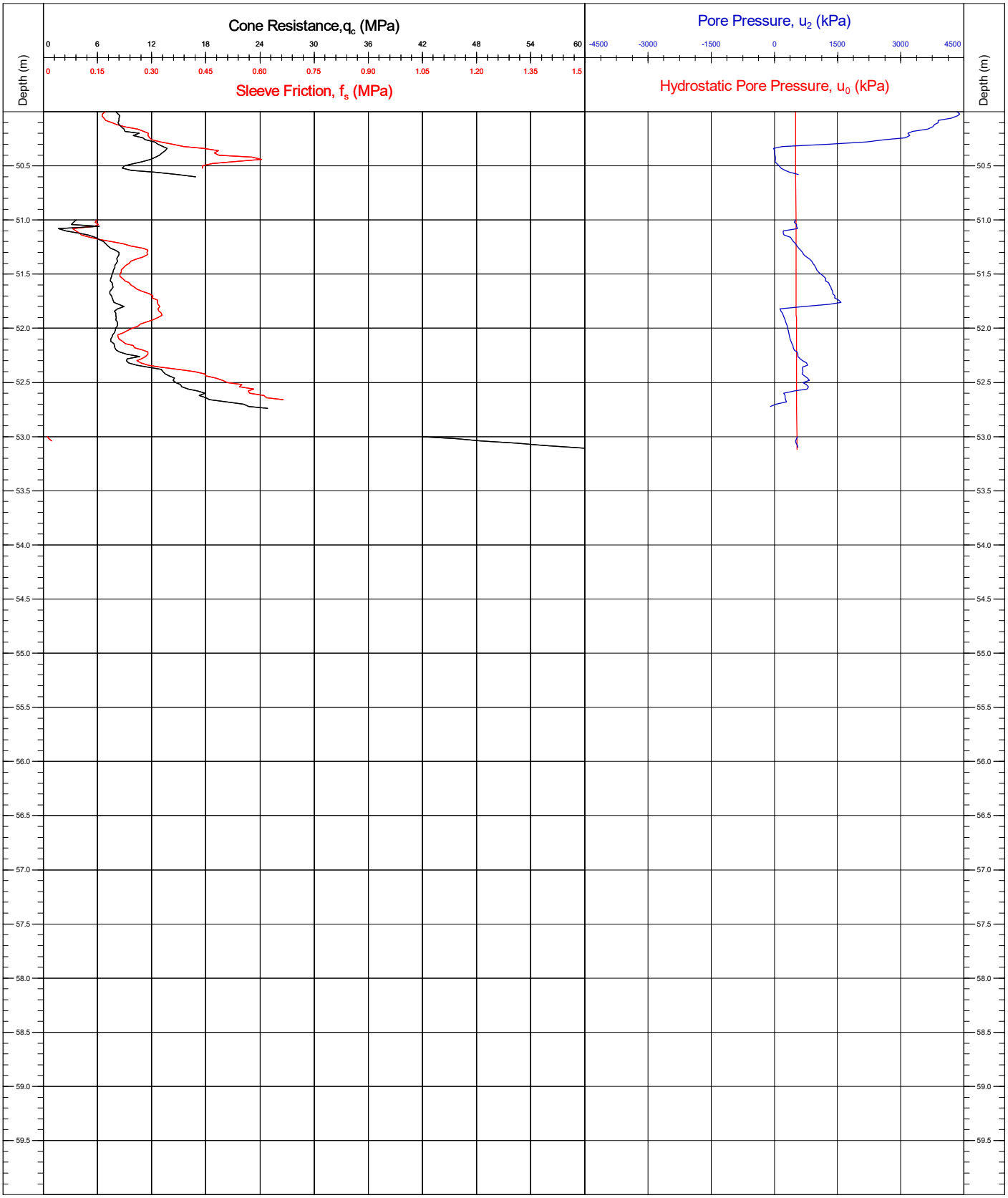
IN SITU CPTU TESTING - MEASURED PARAMETERS



Area	**Kattegat Sea**	Coordinates	**678372.10E 6256261.30N**	CPT Number	**CB11-BH**
Contract	**11596**	Latitude / Longitude			
Client Name/Ref	**Energinet Eltransmission A/S/384_20_ENE**	Water Depth (mMSL)	**31.48**		
Vessel	**MV Ocean Vantage**	Date of Test (Start/End)	**22/05/2021 to 23/05/2021**	Page: 3/4	
Comments: Borehole CB11-BH was completed to a depth of 53.12m utilising API drilling~ Wison CPT and push sampling methods~ at which point it was terminated due to rising weather conditions.		Cone No.(size)/α Factor	**120826 (10cm^2) / 0.76**	QC Status	
		Base Inclination	**X = 0.0° / Y = 0.0°**	Preliminary: **JK/BC** (23/05/2021)	Draft: **DR** (10/06/2021) / Final: **SMc** (10/11/2021)
		CRS **ETRS89**			

Preliminary Investigation, Hesselø OWF

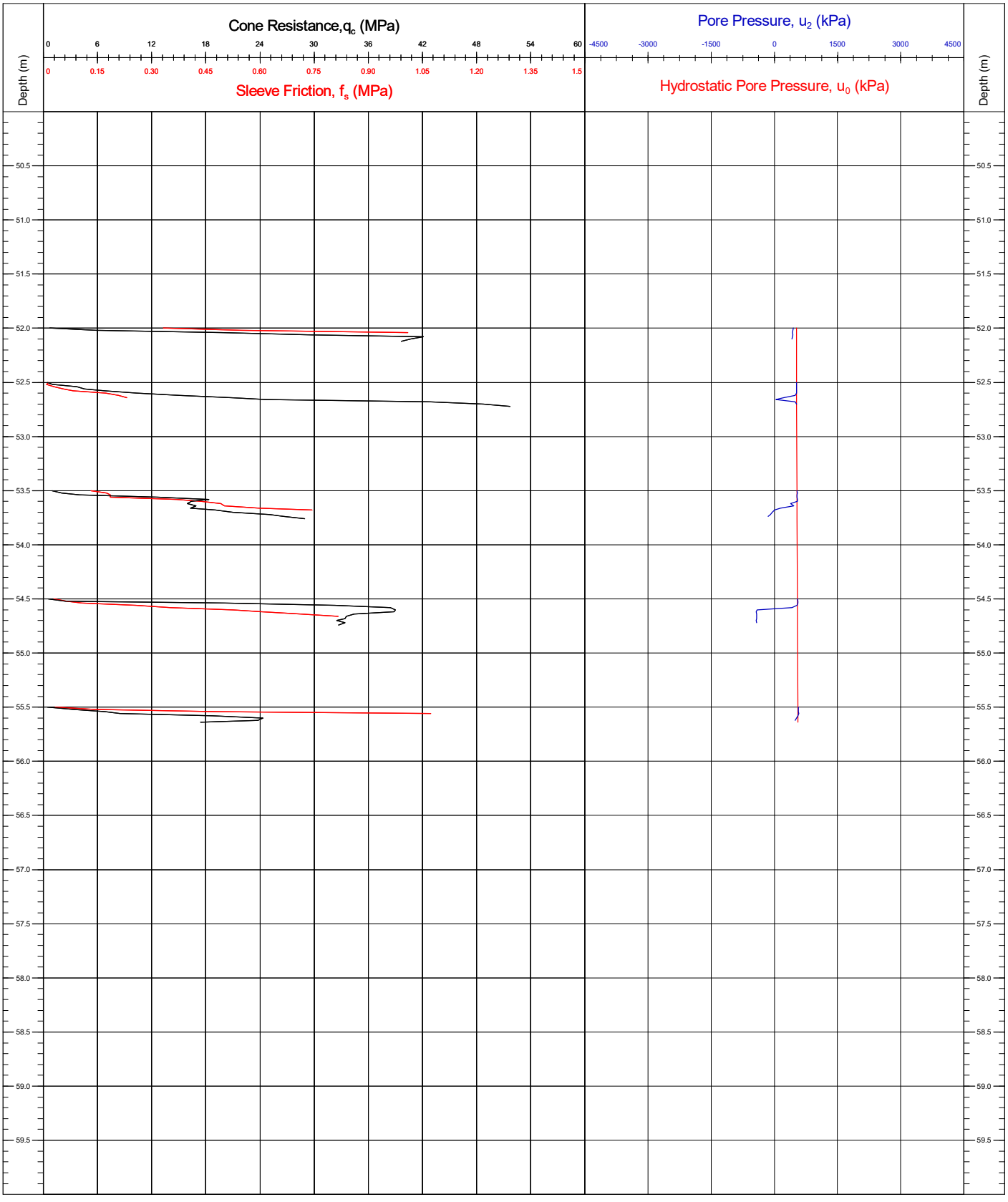
IN SITU CPTU TESTING - MEASURED PARAMETERS



Area	**Kattegat Sea**	Coordinates	**678372.10E 6256261.30N**	CPT Number	**CB11-BH**
Contract	**11596**	Latitude / Longitude			
Client Name/Ref	**Energinet Eltransmission A/S/384_20_ENE**	Water Depth (mMSL)	**31.48**		
Vessel	**MV Ocean Vantage**	Date of Test (Start/End)	**22/05/2021 to 23/05/2021**	Page: 4/4	
Comments: Borehole CB11-BH was completed to a depth of 53.12m utilising API drilling~ Wison CPT and push sampling methods~ at which point it was terminated due to rising weather conditions.		Cone No.(size)/α Factor	**120826 (10cm^2) / 0.76**	QC Status	
		Base Inclination	**X = 0.0° / Y = 0.0°**	Preliminary: **JK/BC (23/05/2021)**	Draft: **DR (10/06/2021)**
		CRS **ETRS89**			Final: **SMc (10/11/2021)**

Preliminary Investigation, Hesselø OWF

IN SITU CPTU TESTING - MEASURED PARAMETERS

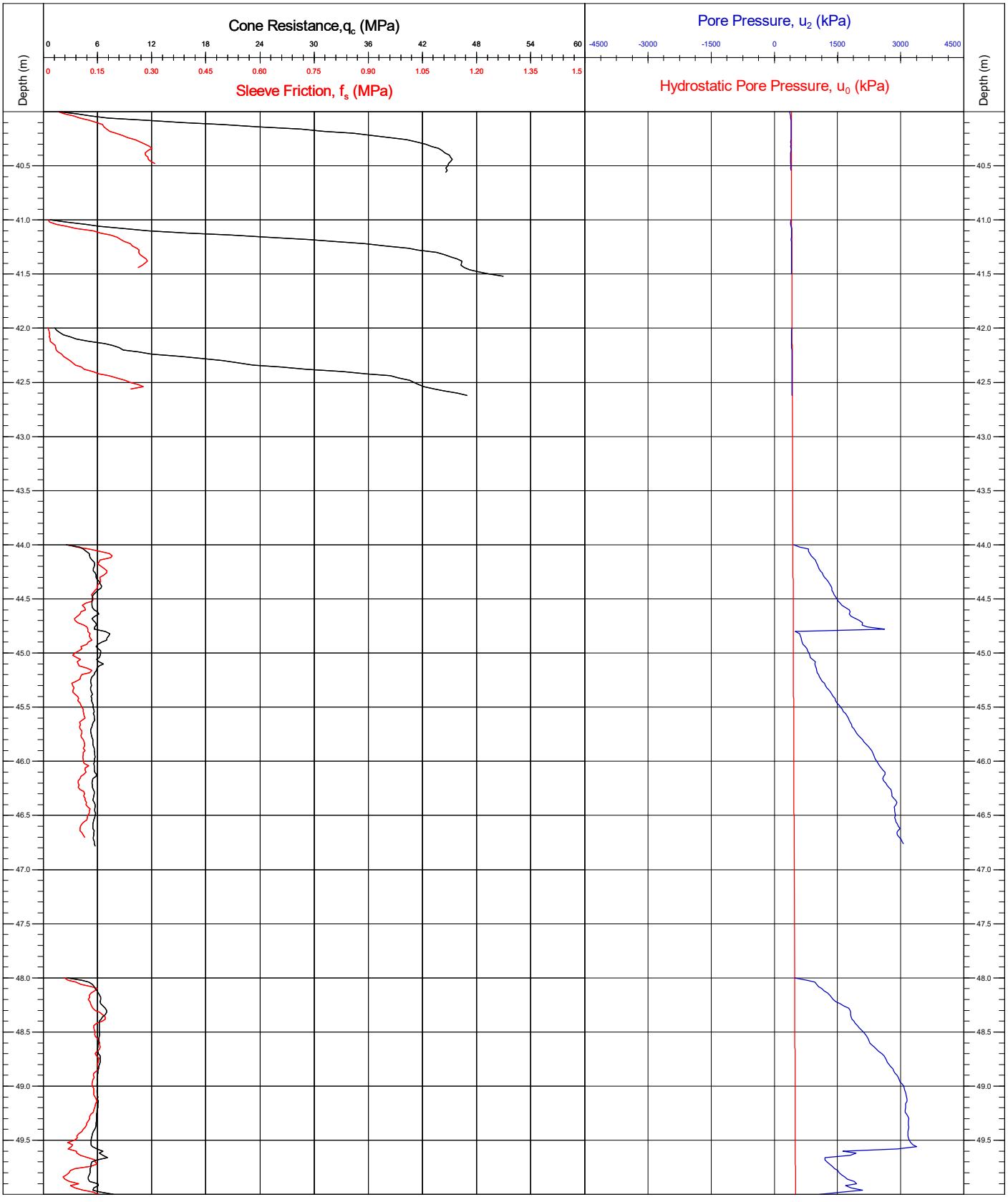


Area	**Kattegat Sea**	Coordinates	**678366.70E** **6256257.10N**	CPT Number	
Contract	**11596**	Latitude / Longitude		**CB11a-BH**	
Client Name/Ref	**Energinet Eltransmission A/S/384_20_ENE**	Water Depth (mMSL)	**31.54**		
Vessel	**MV Ocean Vantage**	Date of Test	**24/05/2021**	Page: 1/1	
		Cone No.(size)/α Factor	**120825 (10cm^2) / 0.76**	QC Status	
		Base Inclination	**X = 0.0° / Y = 0.0°**	Preliminary / Draft / Final	
		CRS **ETRS89**		**JK/BC** (24/05/2021) / **DR** (10/06/2021) / **SMc** (10/11/2021)	

Comments: Borehole CB11a-BH was completed to a depth of 57.00m utilising API drilling~ Wison CPT and push sampling methods after open hole drill out to 52.00m. P-S logging was performed from 53.00m up to 4.00m below mudline.

Preliminary Investigation, Hesselø OWF

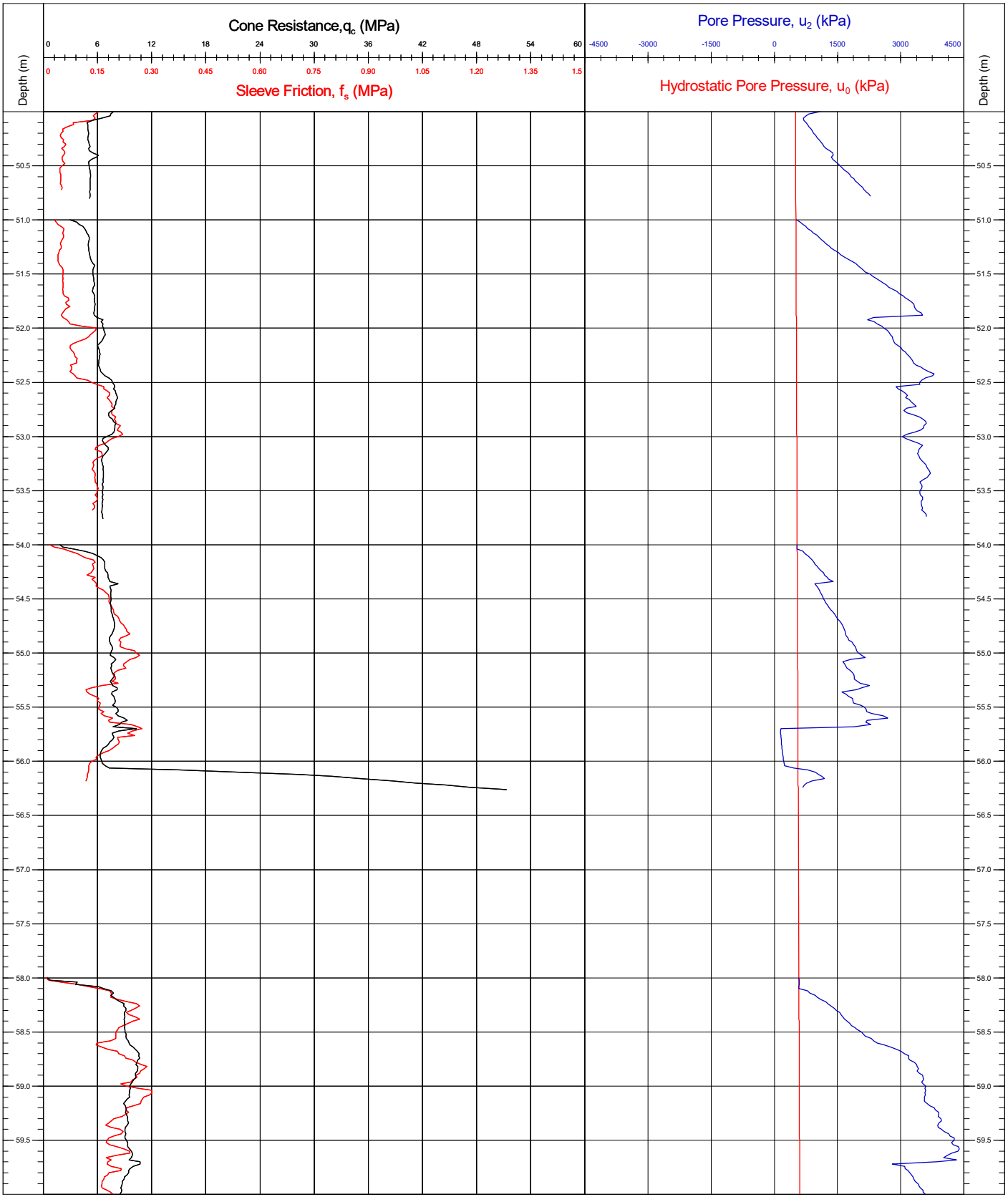
IN SITU CPTU TESTING - MEASURED PARAMETERS



Area	**Kattegat Sea**	Coordinates	**677450.40E 6270639.00N**	CPT Number	
Contract	**11596**	Latitude / Longitude		**CB12-BH**	
Client Name/Ref	**Energinet Eltransmission A/S/384_20_ENE**	Water Depth (mMSL)	**31.86**		
Vessel	**MV Ocean Vantage**	Date of Test (Start/End)	**02/06/2021 to 03/06/2021**	Page: 1/3	
Comments: Borehole CB12-BH was completed to a depth of 70.68m utilising API drilling~ Wison CPT and push sampling methods		Cone No.(size)/α Factor	**121005G (10cm^2) / 0.78**	QC Status	
		Base Inclination	**X = 0.0° / Y = 0.0°**	Preliminary: **JK/BC** (02/06/2021)	Draft: **DR** (10/06/2021)
		CRS **ETRS89**			Final: **SMc** (10/11/2021)

Preliminary Investigation, Hesselø OWF

IN SITU CPTU TESTING - MEASURED PARAMETERS

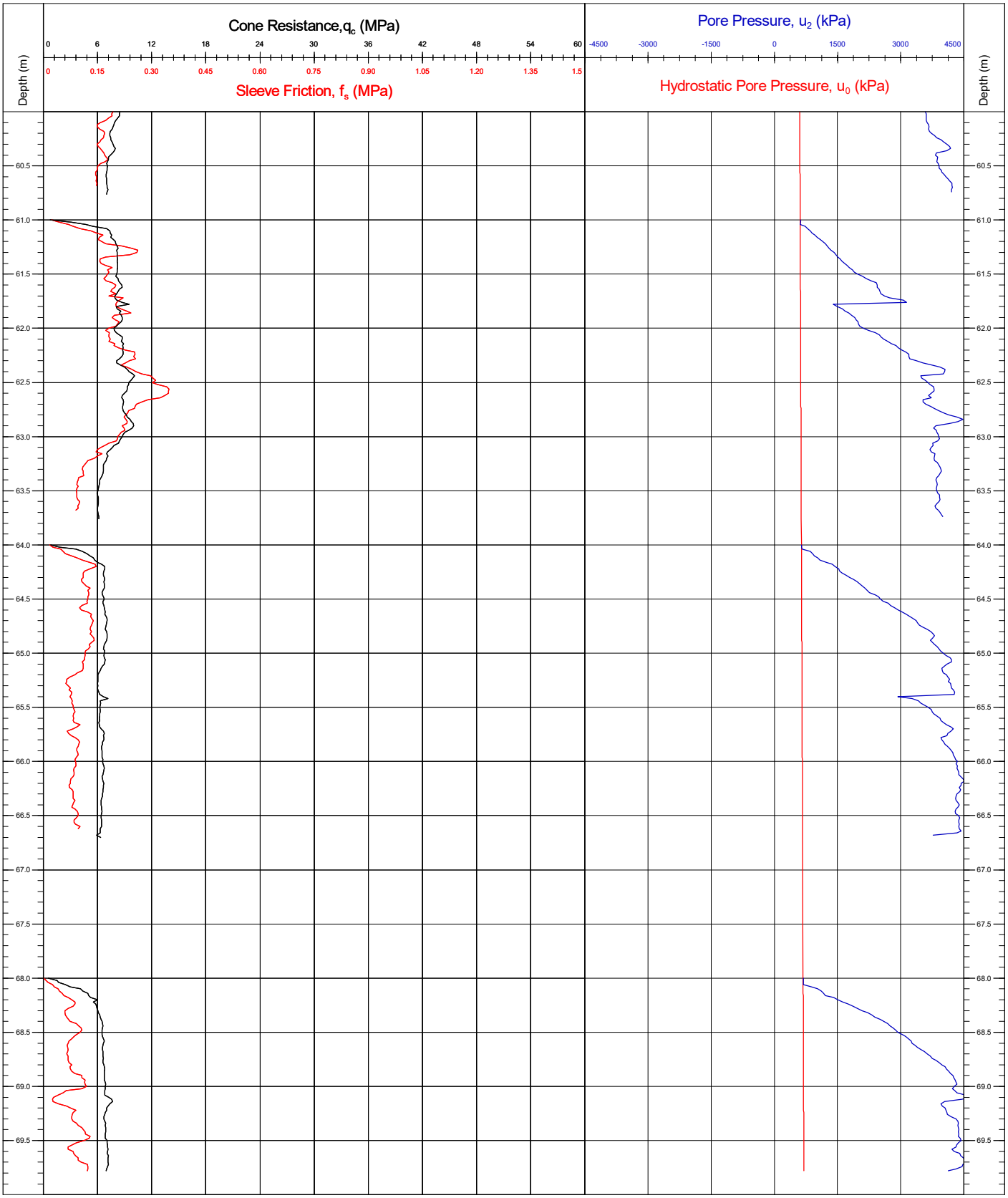


Area	**Kattegat Sea**	Coordinates	**677450.40E 6270639.00N**	CPT Number **CB12-BH**
Contract	**11596**	Latitude / Longitude		
Client Name/Ref	**Energinet Eltransmission A/S/384_20_ENE**	Water Depth (mMSL)	**31.86**	
Vessel	**MV Ocean Vantage**	Date of Test (Start/End)	**02/06/2021 to 03/06/2021**	Page: 2/3
Comments: Borehole CB12-BH was completed to a depth of 70.68m utilising API drilling~ Wison CPT and push sampling methods		Cone No.(size)/α Factor	**121005G (10cm^2) / 0.78**	QC Status
		Base Inclination	**X = 0.0° / Y = 0.0°**	Preliminary: **JK/BC** (02/06/2021) · Draft: **DR** (10/06/2021) · Final: **SMc** (10/11/2021)
		CRS **ETRS89**		

Gardline

Preliminary Investigation, Hesselø OWF

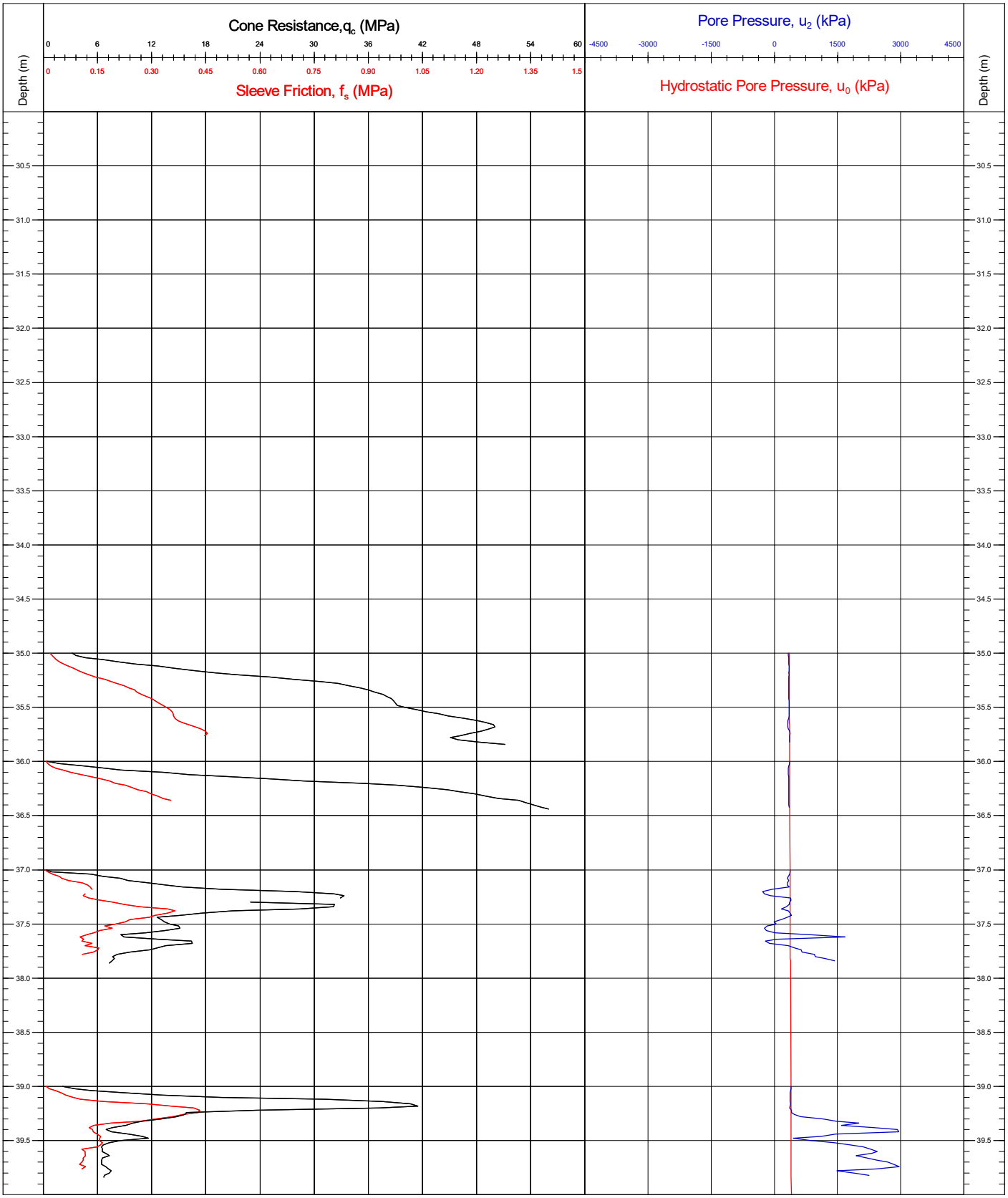
IN SITU CPTU TESTING - MEASURED PARAMETERS



Area	**Kattegat Sea**	Coordinates	**677450.40E 6270639.00N**	CPT Number	**CB12-BH**
Contract	**11596**	Latitude / Longitude			
Client Name/Ref	**Energinet Eltransmission A/S/384_20_ENE**	Water Depth (mMSL)	**31.86**		
Vessel	**MV Ocean Vantage**	Date of Test (Start/End)	**02/06/2021 to 03/06/2021**	Page: 3/3	
Comments: Borehole CB12-BH was completed to a depth of 70.68m utilising API drilling~ Wison CPT and push sampling methods		Cone No.(size)/α Factor	**121005G (10cm^2) / 0.78**	QC Status	
		Base Inclination	**X = 0.0° / Y = 0.0°**	Preliminary: **JK/BC** (02/06/2021)	Draft: **DR** (10/06/2021) / Final: **SMc** (10/11/2021)
		CRS **ETRS89**			

Preliminary Investigation, Hesselø OWF

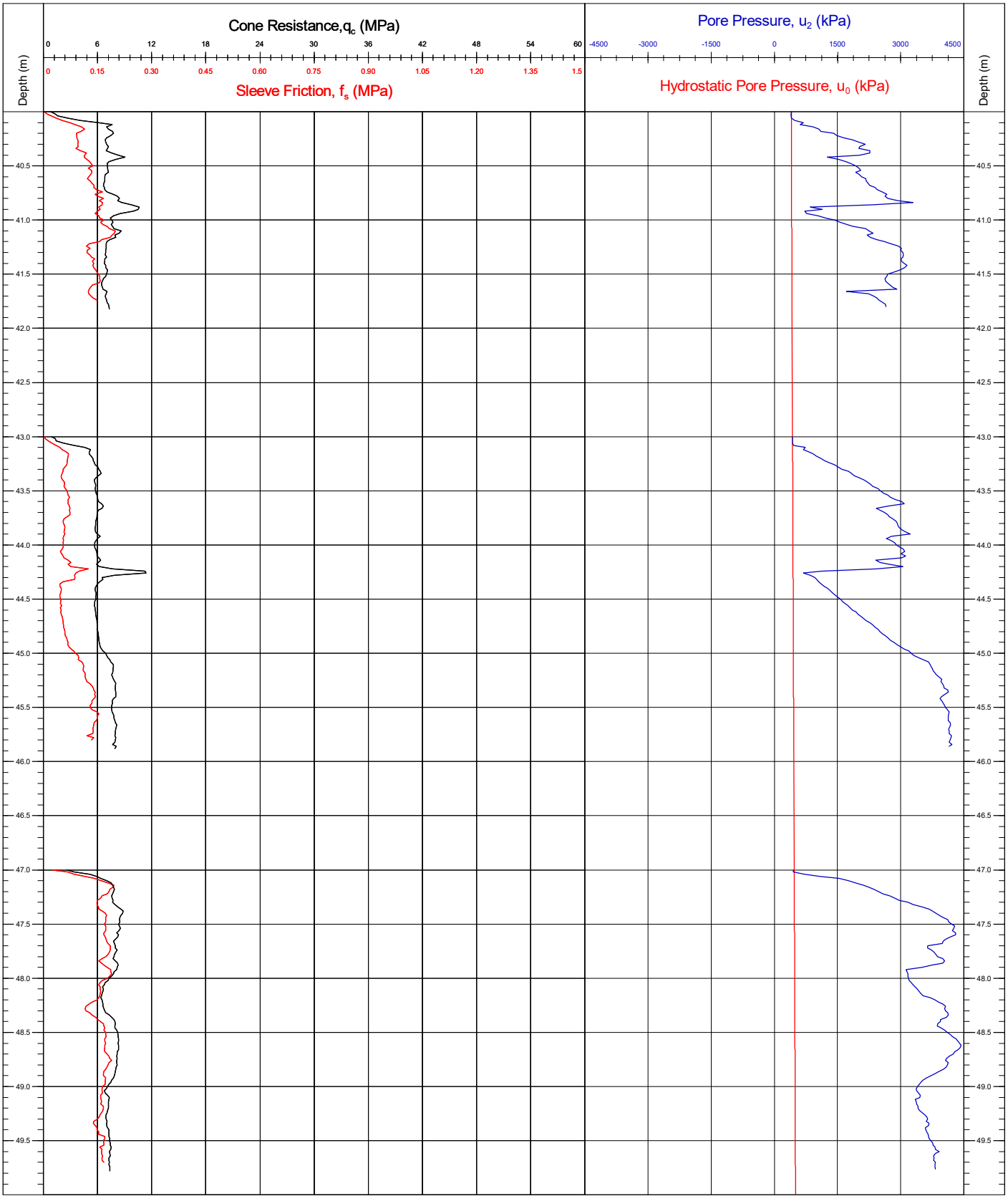
IN SITU CPTU TESTING - MEASURED PARAMETERS



Area	**Kattegat Sea**	Coordinates	**670639.20E 6262915.30N**	CPT Number	**CB13-BH**
Contract	**11596**	Latitude / Longitude			
Client Name/Ref	**Energinet Eltransmission A/S/384_20_ENE**	Water Depth (mMSL)	**29.92**		
Vessel	**MV Ocean Vantage**	Date of Test (Start/End)	**12/05/2021 to 14/05/2021**	Page: 1/4	
Comments: Borehole CB13-BH was completed to a depth of 66.48m utilising API drilling~ Wison CPT and push sampling methods		Cone No.(size)/α Factor	**101017 (10cm^2) / 0.78**	QC Status	
		Base Inclination	**X = 0.0° / Y = 0.0°**	Preliminary / Draft / Final	
		CRS **ETRS89**		**JK/BC** (14/05/2021) / **DR** (10/06/2021) / **SMc** (10/11/2021)	

Preliminary Investigation, Hesselø OWF

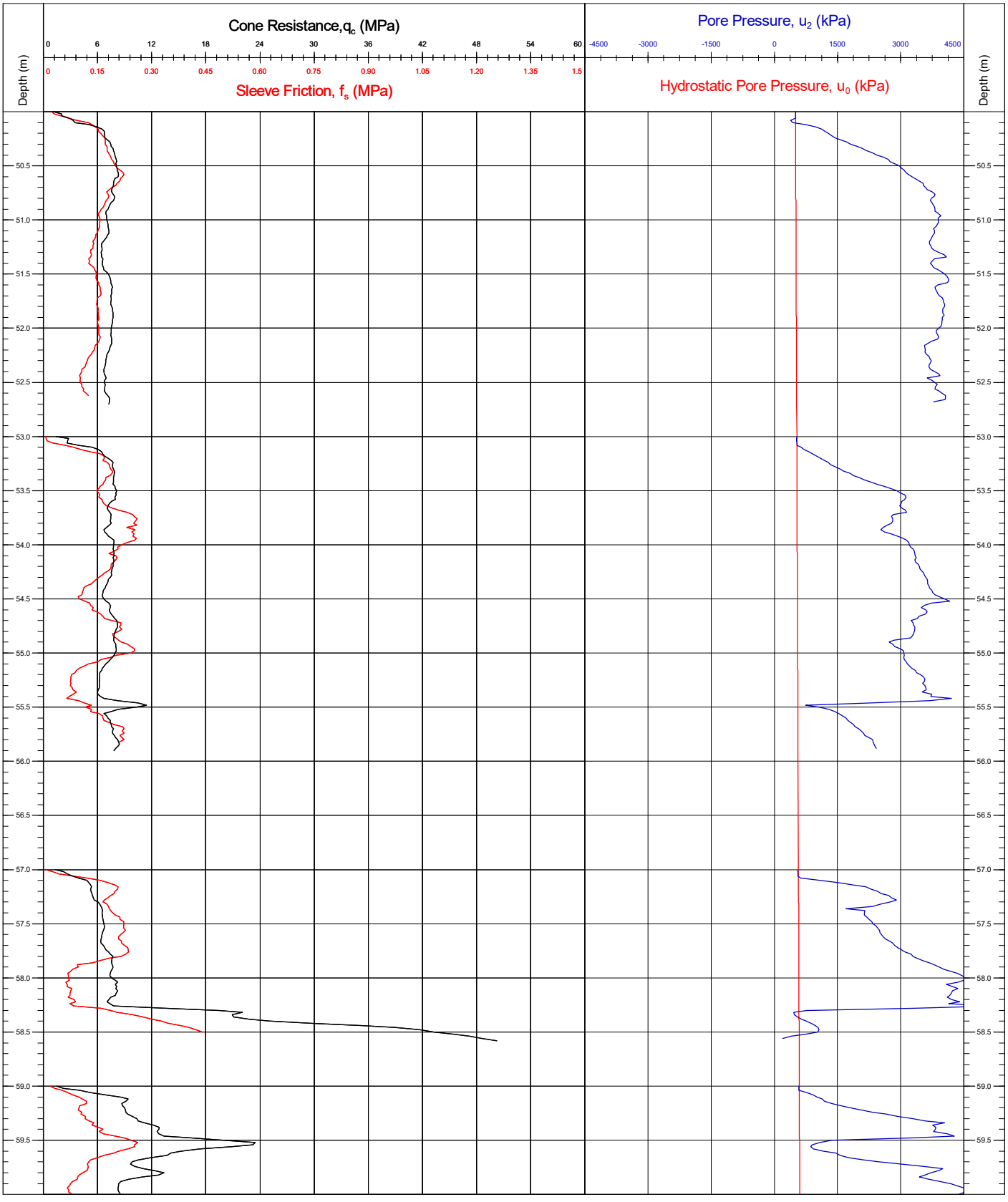
IN SITU CPTU TESTING - MEASURED PARAMETERS



Area	**Kattegat Sea**	Coordinates	**670639.20E 6262915.30N**	CPT Number	**CB13-BH**
Contract	**11596**	Latitude / Longitude			
Client Name/Ref	**Energinet Eltransmission A/S/384_20_ENE**	Water Depth (mMSL)	**29.92**		
Vessel	**MV Ocean Vantage**	Date of Test (Start/End)	**12/05/2021 to 14/05/2021**	Page: 2/4	
Comments: Borehole CB13-BH was completed to a depth of 66.48m utilising API drilling~ Wison CPT and push sampling methods		Cone No.(size)/α Factor	**101017 (10cm^2) / 0.78**	QC Status	
		Base Inclination	**X = 0.0° / Y = 0.0°**	Preliminary / Draft / Final	
		CRS **ETRS89**		**JK/BC** (14/05/2021) / **DR** (10/06/2021) / **SMc** (10/11/2021)	

Preliminary Investigation, Hesselø OWF

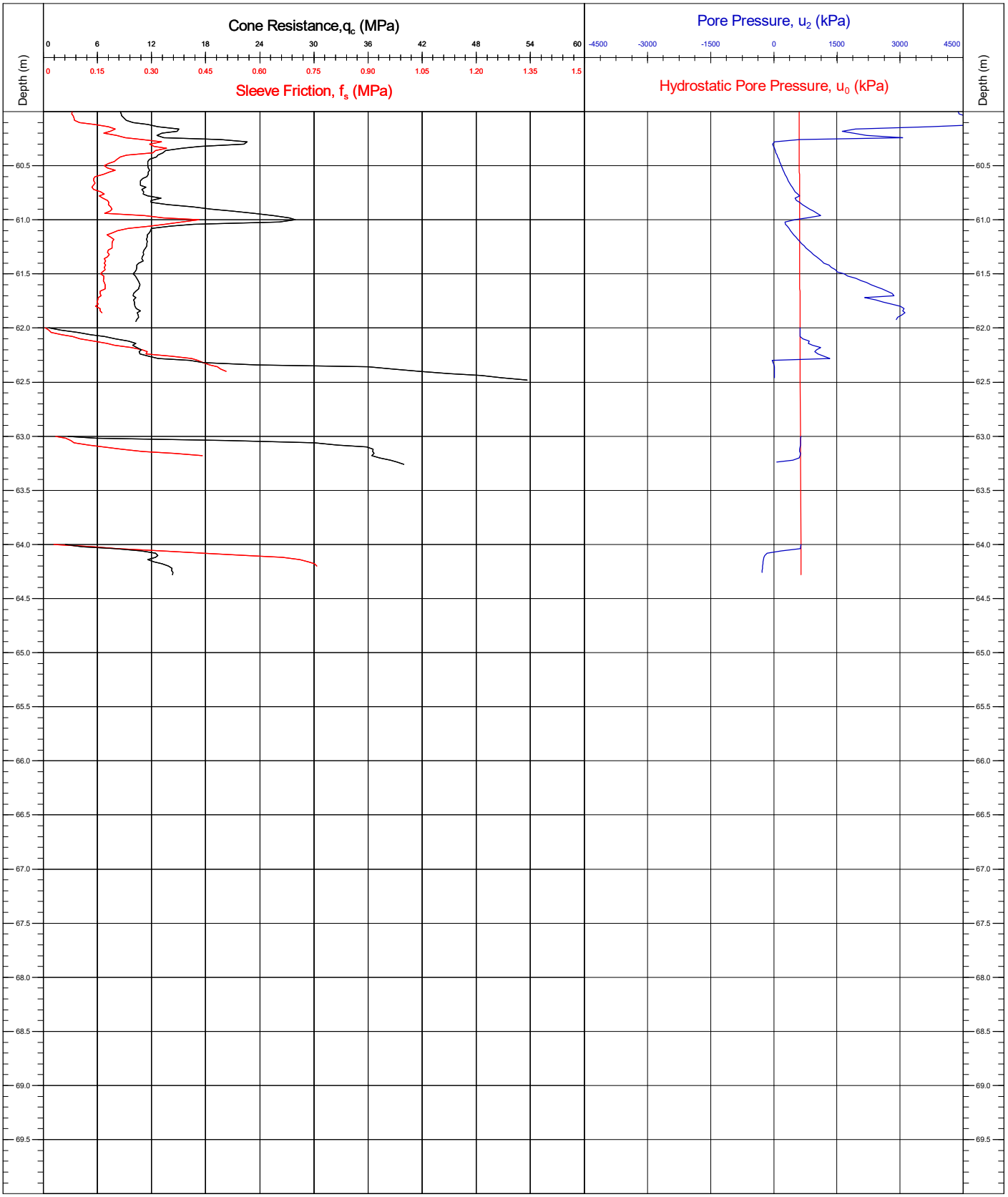
IN SITU CPTU TESTING - MEASURED PARAMETERS



Area	**Kattegat Sea**	Coordinates	**670639.20E 6262915.30N**	CPT Number	**CB13-BH**
Contract	**11596**	Latitude / Longitude			
Client Name/Ref	**Energinet Eltransmission A/S/384_20_ENE**	Water Depth (mMSL)	**29.92**		
Vessel	**MV Ocean Vantage**	Date of Test (Start/End)	**12/05/2021 to 14/05/2021**	Page: 3/4	
Comments: Borehole CB13-BH was completed to a depth of 66.48m utilising API drilling~ Wison CPT and push sampling methods		Cone No.(size)/α Factor	**101017 (10cm^2) / 0.78**	QC Status	
		Base Inclination	**X = 0.0° / Y = 0.0°**	Preliminary / Draft / Final	
		CRS **ETRS89**		**JK/BC** (14/05/2021) / **DR** (10/06/2021) / **SMc** (10/11/2021)	

Preliminary Investigation, Hesselø OWF

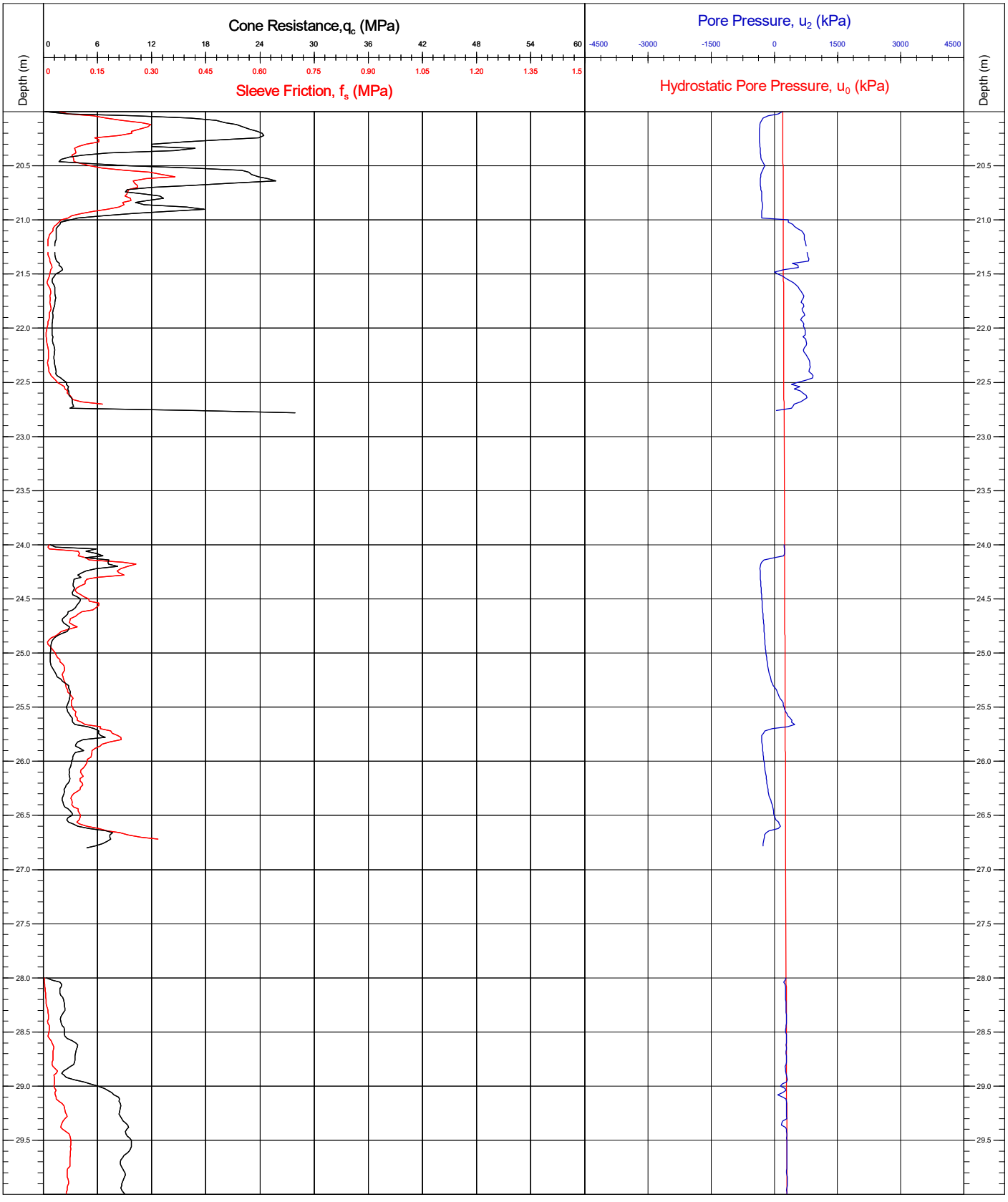
IN SITU CPTU TESTING - MEASURED PARAMETERS



Area	**Kattegat Sea**	Coordinates	**670639.20E 6262915.30N**	CPT Number	**CB13-BH**
Contract	**11596**	Latitude / Longitude			
Client Name/Ref	**Energinet Eltransmission A/S/384_20_ENE**	Water Depth (mMSL)	**29.92**		
Vessel	**MV Ocean Vantage**	Date of Test (Start/End)	**12/05/2021 to 14/05/2021**	Page: 4/4	
Comments: Borehole CB13-BH was completed to a depth of 66.48m utilising API drilling~ Wison CPT and push sampling methods		Cone No.(size)/α Factor	**101017 (10cm^2) / 0.78**	QC Status	
		Base Inclination	**X = 0.0° / Y = 0.0°**	Preliminary: **JK/BC** (14/05/2021)	Draft: **DR** (10/06/2021) / Final: **SMc** (10/11/2021)
		CRS **ETRS89**			

Preliminary Investigation, Hesselø OWF

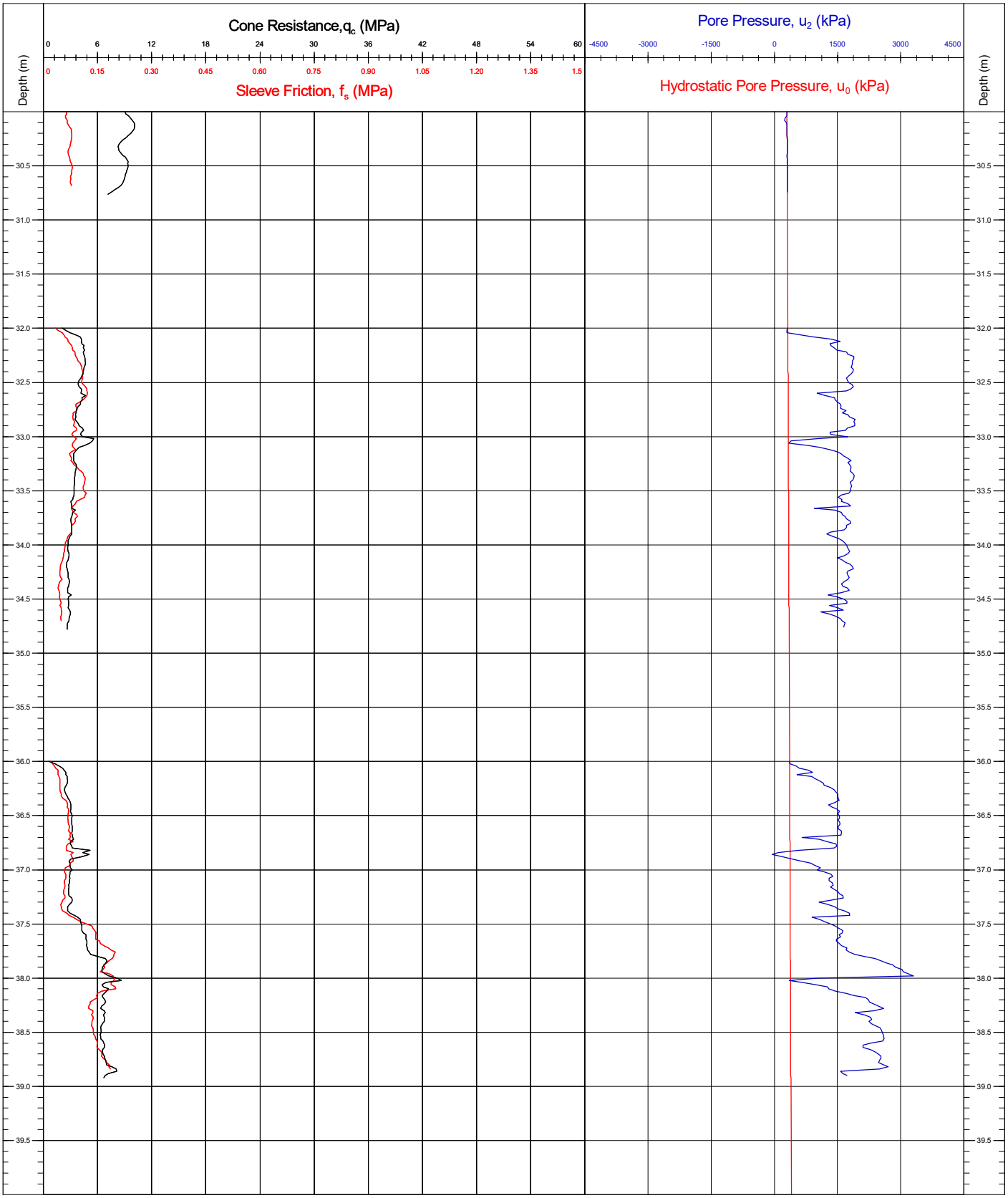
IN SITU CPTU TESTING - MEASURED PARAMETERS



Area	**Kattegat Sea**	Coordinates	**680529.70E 6252848.40N**	CPT Number	**CB14-BH**
Contract	**11596**	Latitude / Longitude			
Client Name/Ref	**Energinet Eltransmission A/S/384_20_ENE**	Water Depth (mMSL)	**31.60**		
Vessel	**MV Ocean Vantage**	Date of Test (Start/End)	**20/05/2021 to 21/05/2021**	Page: 1/5	
Comments: Borehole CB14-BH was completed to a depth of 62.33m utilising API drilling~ Wison CPT and push sampling methods.		Cone No.(size)/α Factor	**121126 (10cm^2) / 0.79**	QC Status	
		Base Inclination	**X = 0.0° / Y = 0.0°**	Preliminary / Draft / Final	
		CRS **ETRS89**		**JK/BC** (21/05/2021) / **DR** (10/06/2021) / **SMc** (10/11/2021)	

Preliminary Investigation, Hesselø OWF

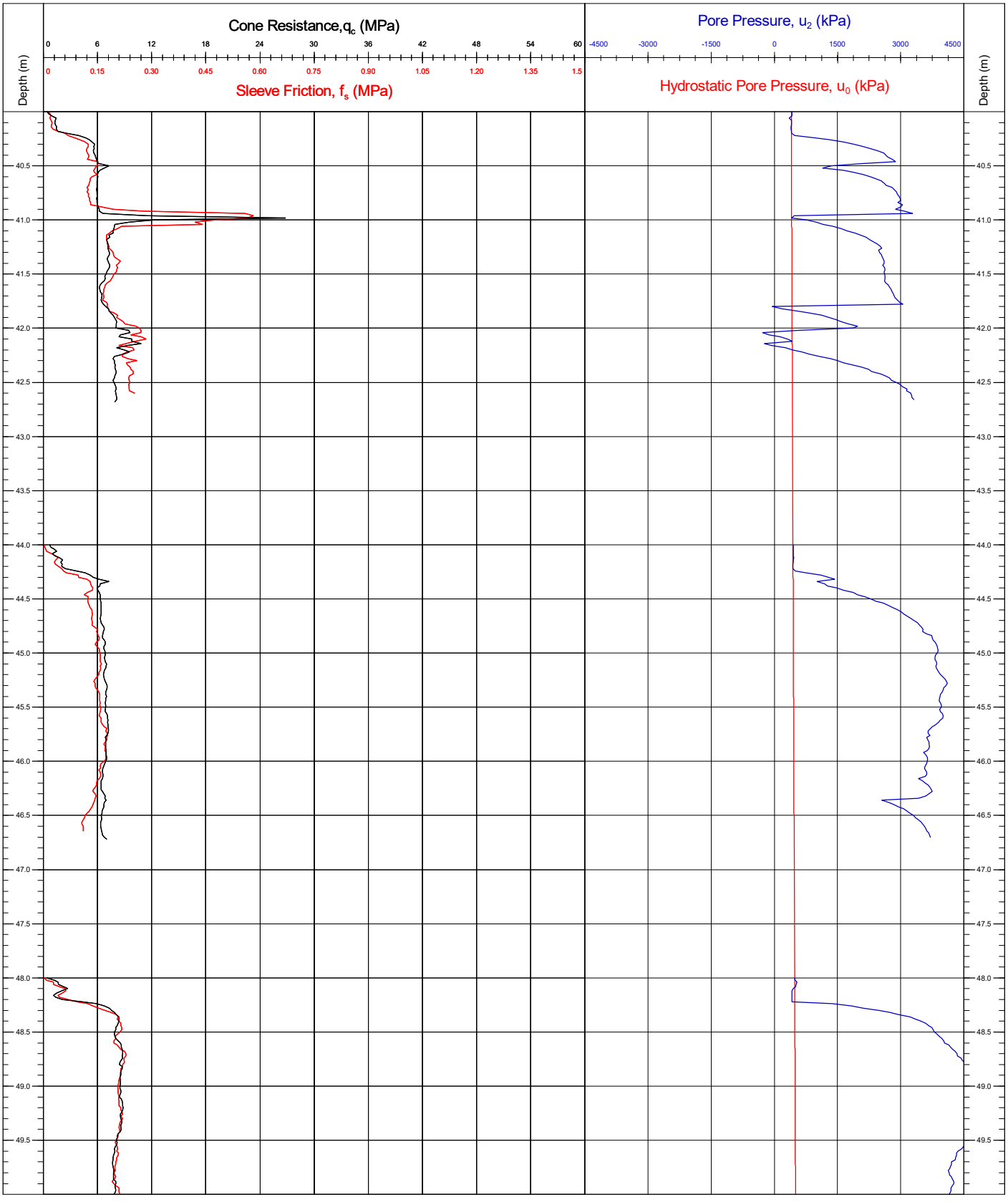
IN SITU CPTU TESTING - MEASURED PARAMETERS



Area	**Kattegat Sea**	Coordinates	**680529.70E 6252848.40N**	CPT Number	**CB14-BH**
Contract	**11596**	Latitude / Longitude			
Client Name/Ref	**Energinet Eltransmission A/S/384_20_ENE**	Water Depth (mMSL)	**31.60**		
Vessel	**MV Ocean Vantage**	Date of Test (Start/End)	**20/05/2021 to 21/05/2021**	Page: 2/5	
Comments: Borehole CB14-BH was completed to a depth of 62.33m utilising API drilling~ Wison CPT and push sampling methods.		Cone No.(size)/α Factor	**121126 (10cm^2) / 0.79**	QC Status	
		Base Inclination	**X = 0.0° / Y = 0.0°**	Preliminary / Draft / Final	
		CRS **ETRS89**		**JK/BC** (21/05/2021) / **DR** (10/06/2021) / **SMc** (10/11/2021)	

Preliminary Investigation, Hesselø OWF

IN SITU CPTU TESTING - MEASURED PARAMETERS

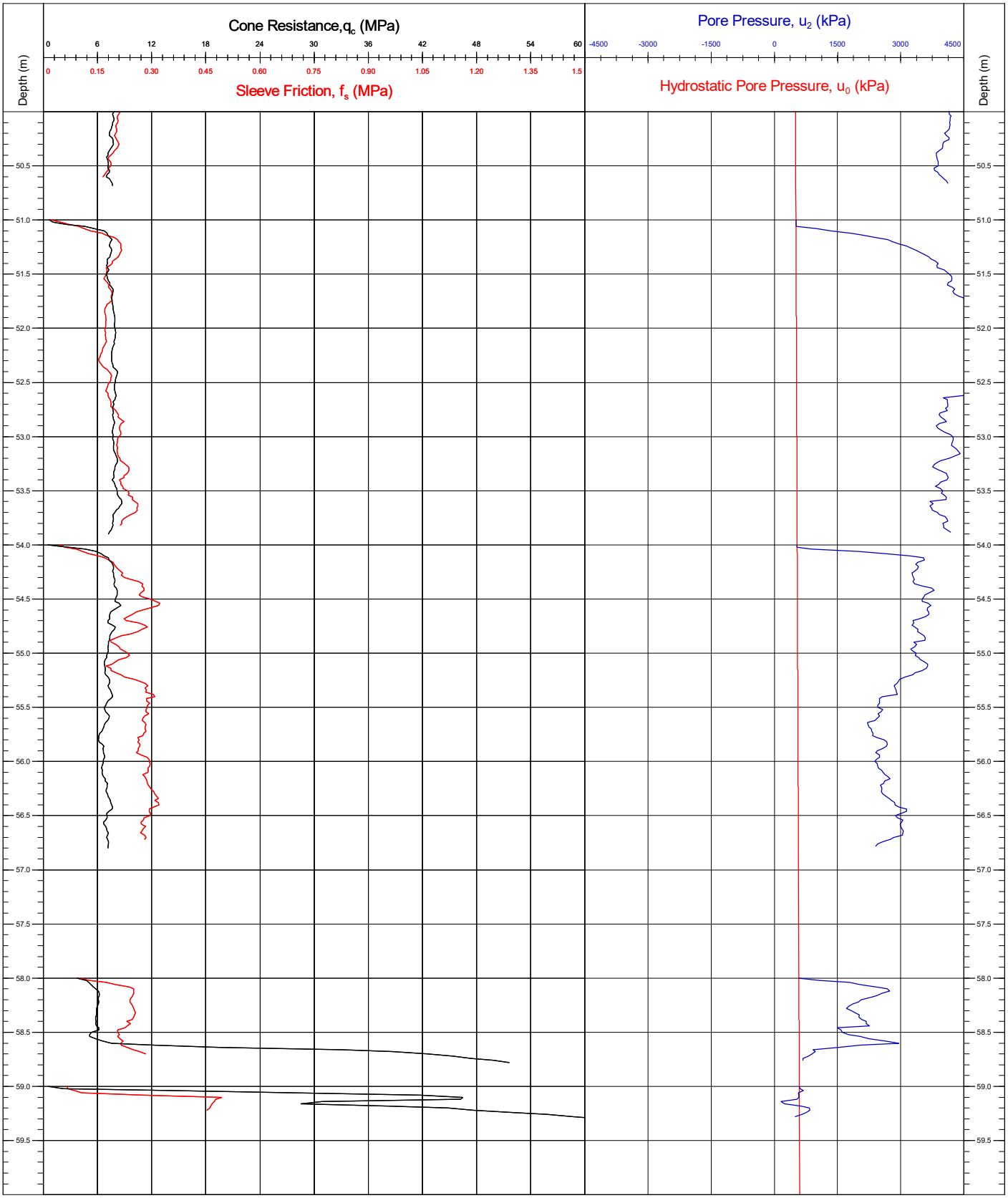


Area	**Kattegat Sea**	Coordinates	**680529.70E 6252848.40N**	CPT Number	**CB14-BH**
Contract	**11596**	Latitude / Longitude			
Client Name/Ref	**Energinet Eltransmission A/S/384_20_ENE**	Water Depth (mMSL)	**31.60**		
Vessel	**MV Ocean Vantage**	Date of Test (Start/End)	**20/05/2021 to 21/05/2021**	Page: 3/5	
Comments: Borehole CB14-BH was completed to a depth of 62.33m utilising API drilling~ Wison CPT and push sampling methods.		Cone No.(size)/α Factor	**121126 (10cm^2) / 0.79**	QC Status	
		Base Inclination	**X = 0.0° / Y = 0.0°**	Preliminary / Draft / Final	
		CRS **ETRS89**		**JK/BC** (21/05/2021) / **DR** (10/06/2021) / **SMc** (10/11/2021)	

Gardline

Preliminary Investigation, Hesselø OWF

IN SITU CPTU TESTING - MEASURED PARAMETERS

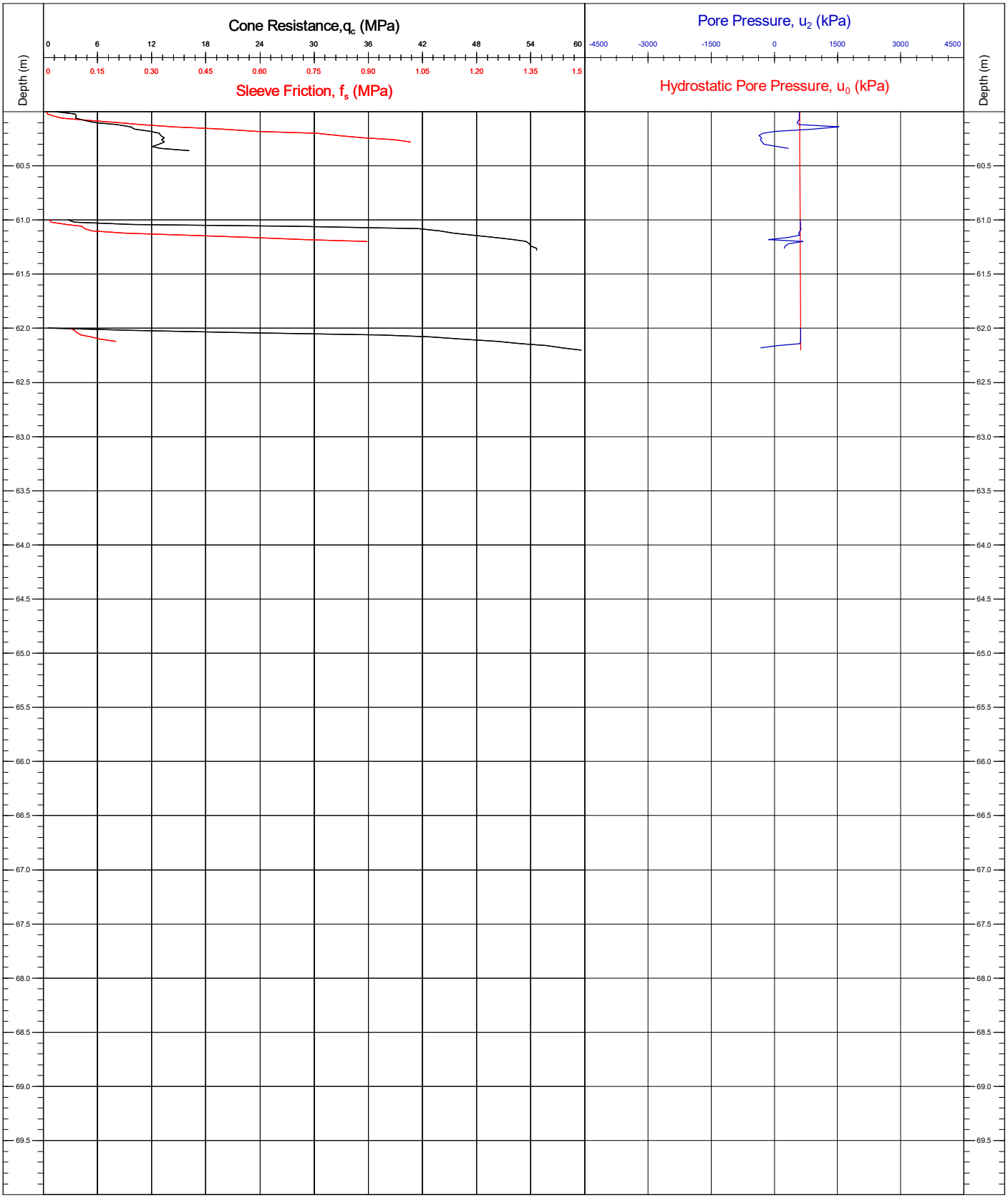


Area	**Kattegat Sea**	Coordinates	**680529.70E 6252848.40N**	CPT Number	**CB14-BH**
Contract	**11596**	Latitude / Longitude			
Client Name/Ref	**Energinet Eltransmission A/S/384_20_ENE**	Water Depth (mMSL)	**31.60**		
Vessel	**MV Ocean Vantage**	Date of Test (Start/End)	**20/05/2021 to 21/05/2021**	Page: 4/5	
Comments: Borehole CB14-BH was completed to a depth of 62.33m utilising API drilling~ Wison CPT and push sampling methods.		Cone No.(size)/α Factor	**121126 (10cm^2) / 0.79**	QC Status	
		Base Inclination	**X = 0.0° / Y = 0.0°**	Preliminary: **JK/BC** (21/05/2021)	Draft: **DR** (10/06/2021)
		CRS **ETRS89**			Final: **SMc** (10/11/2021)

Gardline

Preliminary Investigation, Hesselø OWF

IN SITU CPTU TESTING - MEASURED PARAMETERS



Area	**Kattegat Sea**	Coordinates	**680529.70E 6252848.40N**	CPT Number	**CB14-BH**
Contract	**11596**	Latitude / Longitude			
Client Name/Ref	**Energinet Eltransmission A/S/384_20_ENE**	Water Depth (mMSL)	**31.60**		
Vessel	**MV Ocean Vantage**	Date of Test (Start/End)	**20/05/2021 to 21/05/2021**	Page: 5/5	
Comments: Borehole CB14-BH was completed to a depth of 62.33m utilising API drilling~ Wison CPT and push sampling methods.		Cone No.(size)/α Factor	**121126 (10cm^2) / 0.79**	QC Status	
		Base Inclination	**X = 0.0° / Y = 0.0°**	Preliminary: **JK/BC** (21/05/2021)	Draft: **DR** (10/06/2021)
		CRS **ETRS89**			Final: **SMc** (10/11/2021)

Gardline

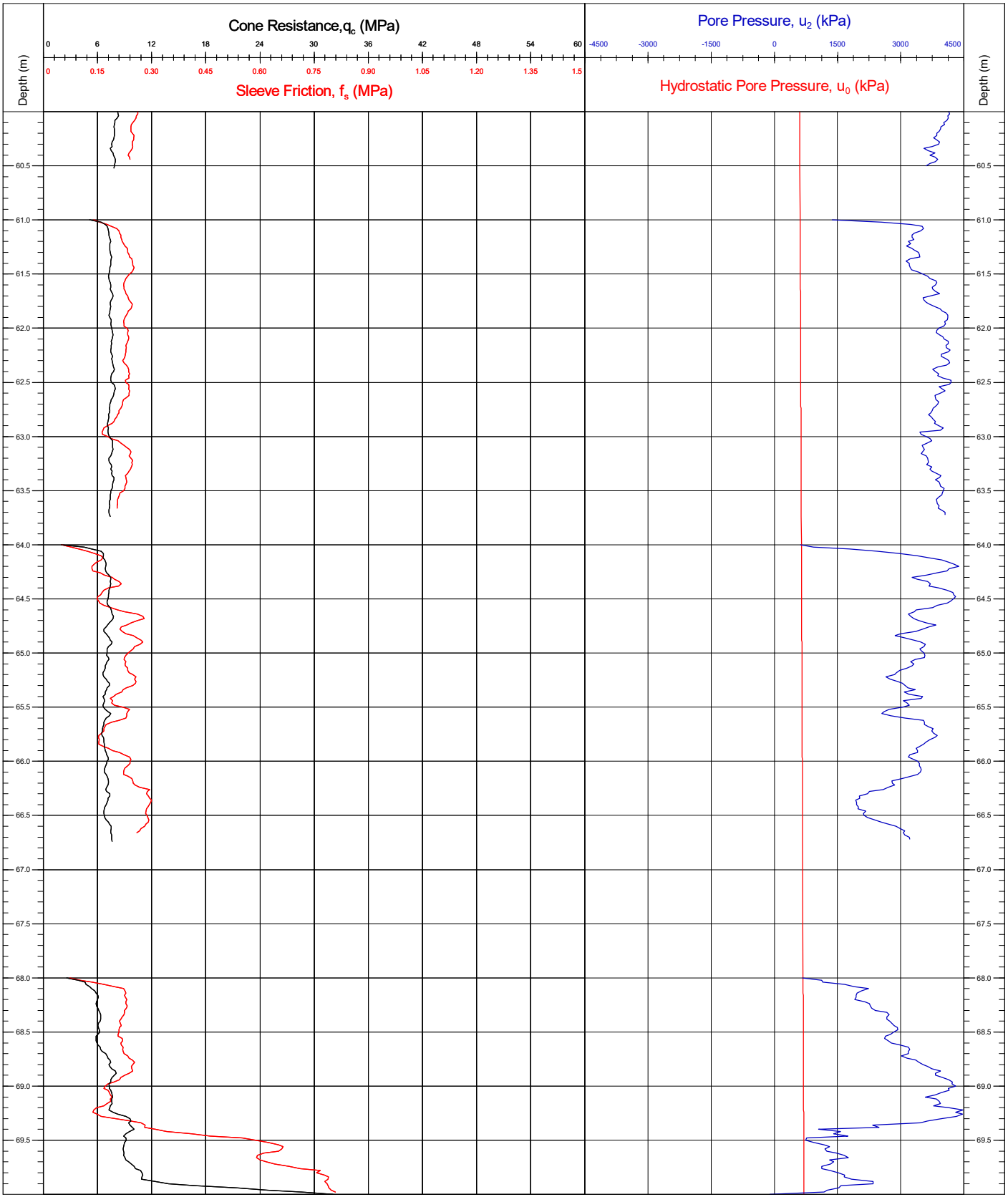
Preliminary Investigation, Hesselø OWF

IN SITU CPTU TESTING - MEASURED PARAMETERS

Area	**Kattegat Sea**	Coordinates	**674181.30E 6265901.10N**	CPT Number	**OSS1-BH**
Contract	**11596**	Latitude / Longitude			
Client Name/Ref	**Energinet Eltransmission A/S/384_20_ENE**	Water Depth (mMSL)	**31.74**		
Vessel	**MV Ocean Vantage**	Date of Test (Start/End)	**31/05/2021 to 02/06/2021**	Page: 1/3	
Comments: Borehole OSS1-BH was completed to a depth of 70.20m utilising API drilling~ Wison CPT and push sampling methods.		Cone No.(size)/α Factor	**121004 (10cm^2) / 0.78**	QC Status	
		Base Inclination	**X = 0.0° / Y = 0.0°**	Preliminary / Draft / Final	
		CRS **ETRS89**		**JK/BC** (31/05/2021) / **DR** (10/06/2021) / **SMc** (10/11/2021)	

Preliminary Investigation, Hesselø OWF

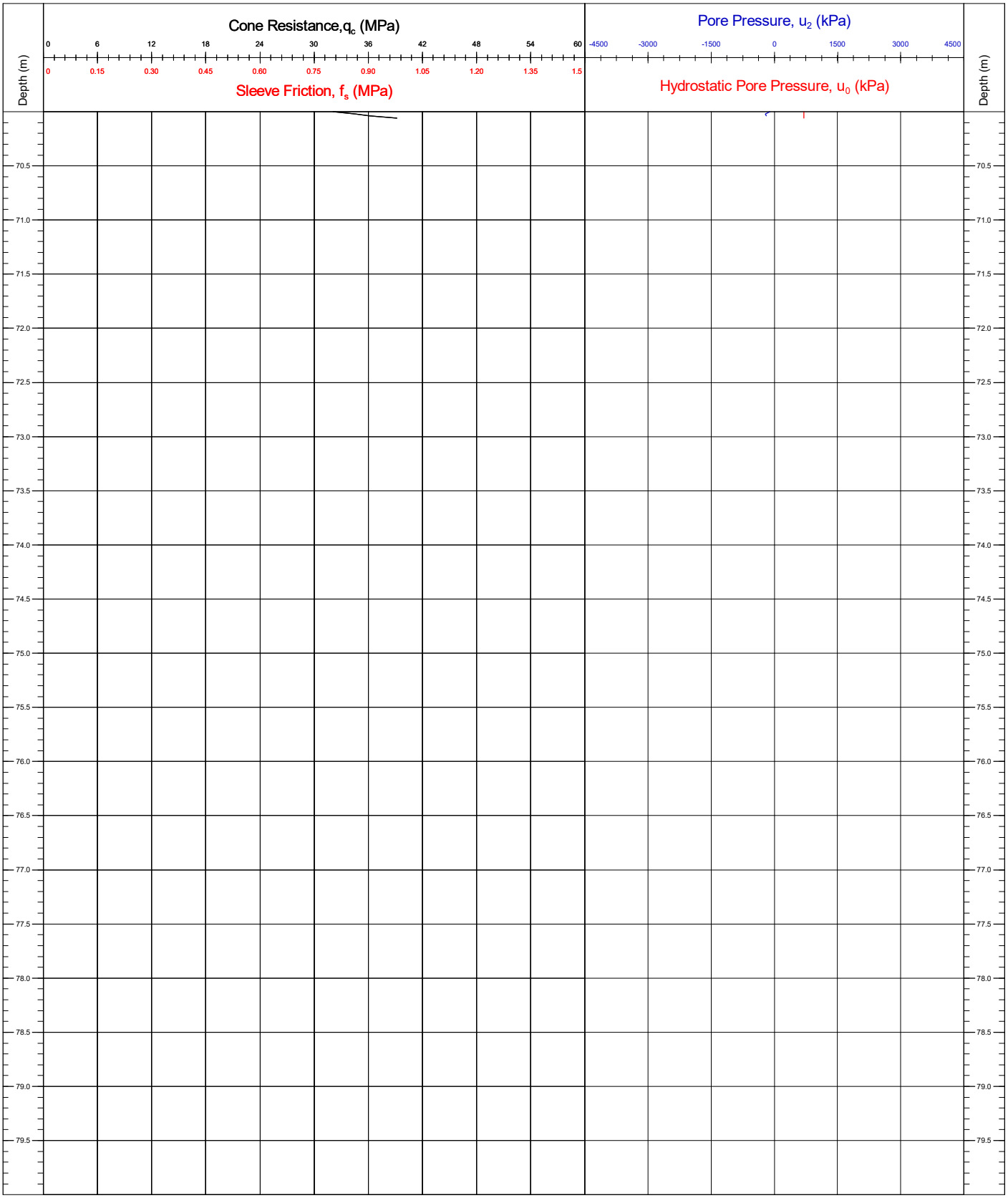
IN SITU CPTU TESTING - MEASURED PARAMETERS



Area	**Kattegat Sea**	Coordinates	**674181.30E 6265901.10N**	CPT Number	**OSS1-BH**
Contract	**11596**	Latitude / Longitude			
Client Name/Ref	**Energinet Eltransmission A/S/384_20_ENE**	Water Depth (mMSL)	**31.74**		
Vessel	**MV Ocean Vantage**	Date of Test (Start/End)	**31/05/2021 to 02/06/2021**	Page: 2/3	
Comments: Borehole OSS1-BH was completed to a depth of 70.20m utilising API drilling~ Wison CPT and push sampling methods.		Cone No.(size)/α Factor	**121004 (10cm^2) / 0.78**	QC Status	
		Base Inclination	**X = 0.0° / Y = 0.0°**	Preliminary: **JK/BC** (31/05/2021)	Draft: **DR** (10/06/2021)
		CRS **ETRS89**			Final: **SMc** (10/11/2021)

Preliminary Investigation, Hesselø OWF

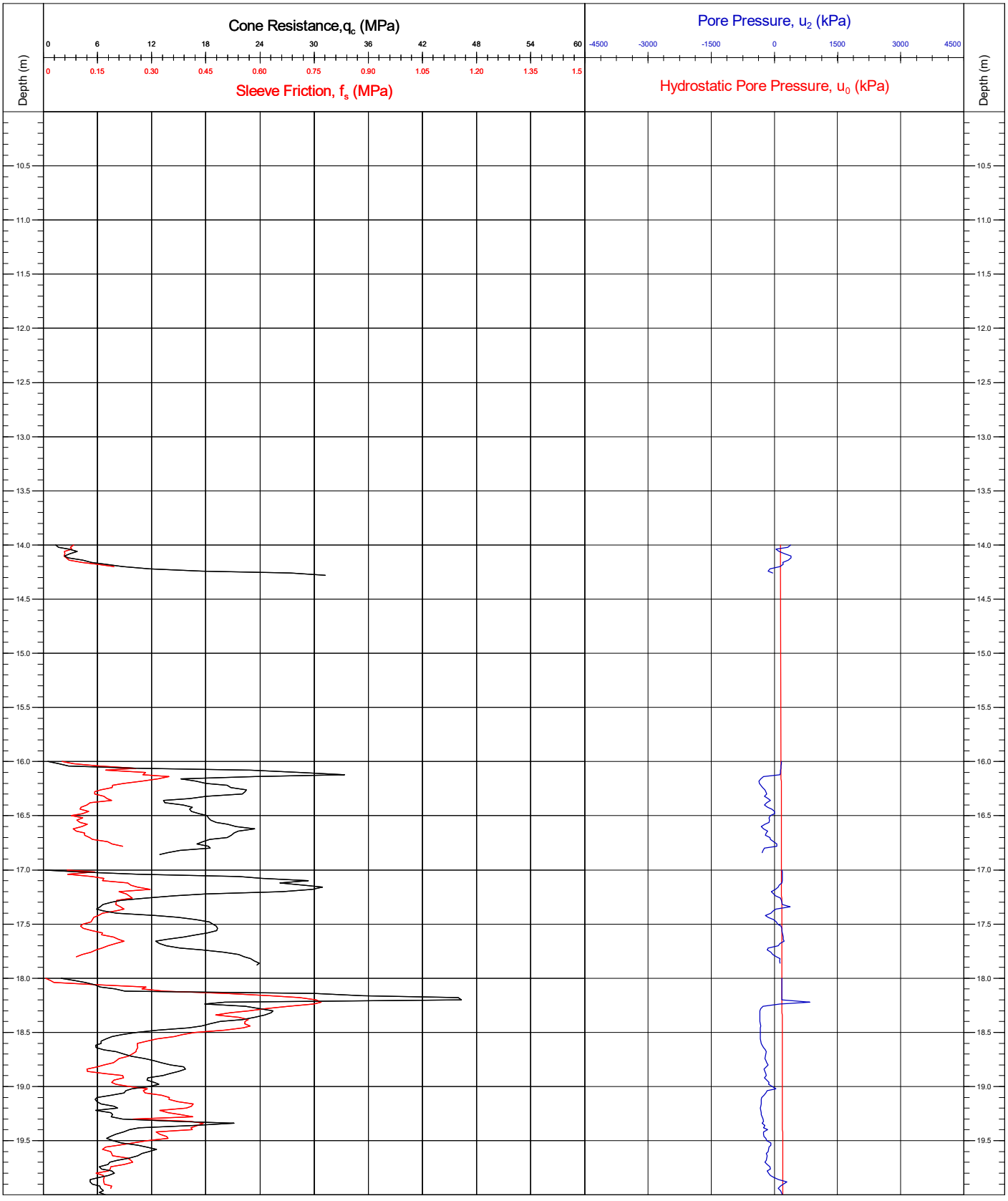
IN SITU CPTU TESTING - MEASURED PARAMETERS



Area	**Kattegat Sea**	Coordinates	**674181.30E 6265901.10N**	CPT Number	**OSS1-BH**
Contract	**11596**	Latitude / Longitude			
Client Name/Ref	**Energinet Eltransmission A/S/384_20_ENE**	Water Depth (mMSL)	**31.74**		
Vessel	**MV Ocean Vantage**	Date of Test (Start/End)	**31/05/2021 to 02/06/2021**	Page: 3/3	
Comments: Borehole OSS1-BH was completed to a depth of 70.20m utilising API drilling~ Wison CPT and push sampling methods.		Cone No.(size)/α Factor	**121004 (10cm^2) / 0.78**	QC Status	
		Base Inclination	**X = 0.0° / Y = 0.0°**	Preliminary: **JK/BC** (31/05/2021)	Draft: **DR** (10/06/2021)
		CRS **ETRS89**			Final: **SMc** (10/11/2021)

Preliminary Investigation, Hesselø OWF

IN SITU CPTU TESTING - MEASURED PARAMETERS



Area	**Kattegat Sea**
Contract	**11596**
Client Name/Ref	**Energinet Eltransmission A/S/384_20_ENE**
Vessel	**MV Ocean Vantage**

Comments: Borehole OSS2-BH was completed to a depth of 70.08m utilising API drilling~ Wison CPT and push sampling methods. P-S logging was performed from 65m to 4m below mudline.

Coordinates	**674911.00E 6253674.20N**
Latitude / Longitude	
Water Depth (mMSL)	**29.96**
Date of Test (Start/End)	**25/05/2021 to 27/05/2021**
Cone No.(size)/α Factor	**120825 (10cm^2) / 0.76**
Base Inclination	**X = 0.0° / Y = 0.0°**
CRS	**ETRS89**

CPT Number

OSS2-BH

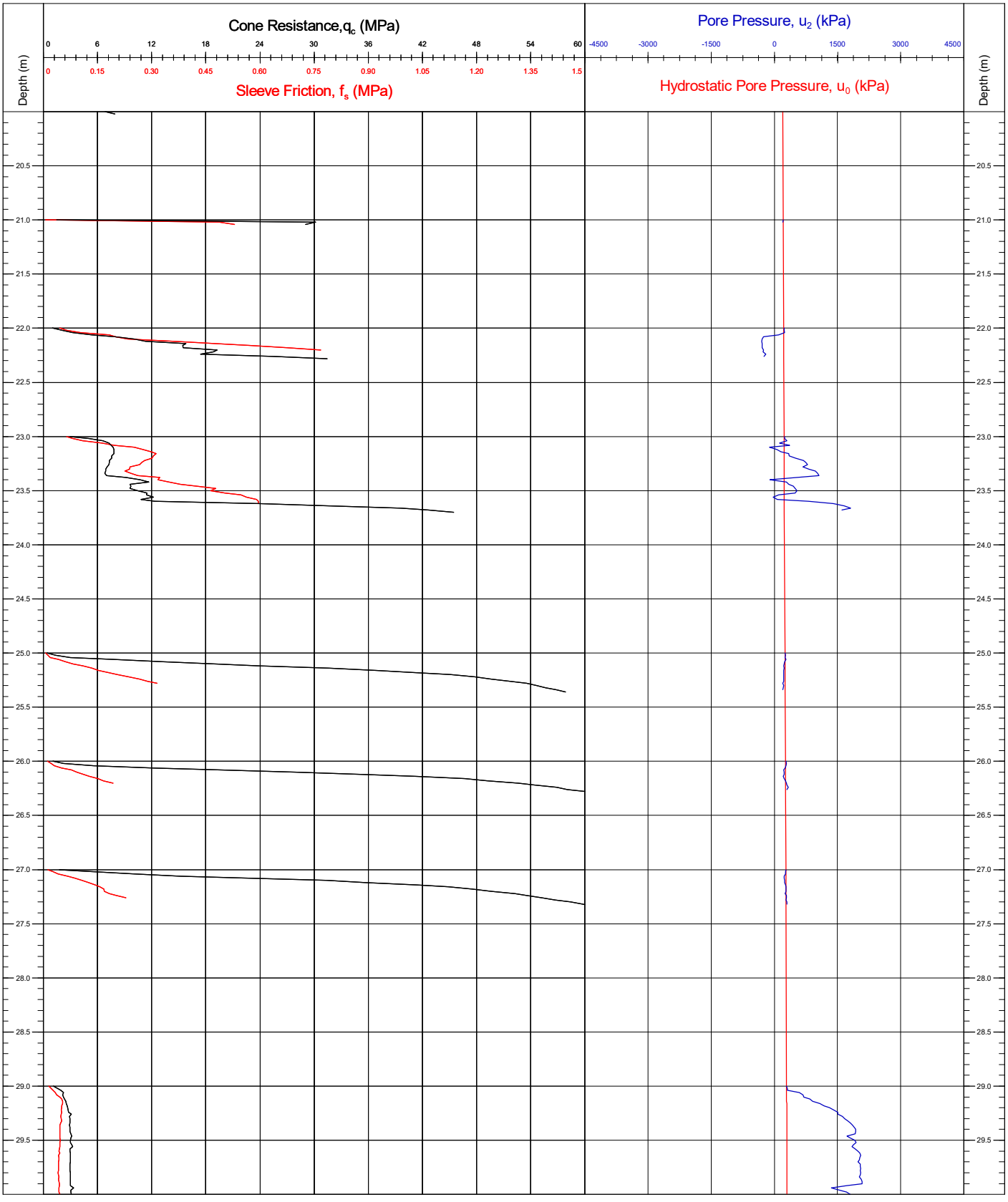
Page: 1/6

QC Status

Preliminary	Draft	Final
JK/BC (27/05/2021)	**DR (10/06/2021)**	**SMc (10/11/2021)**

Preliminary Investigation, Hesselø OWF

IN SITU CPTU TESTING - MEASURED PARAMETERS

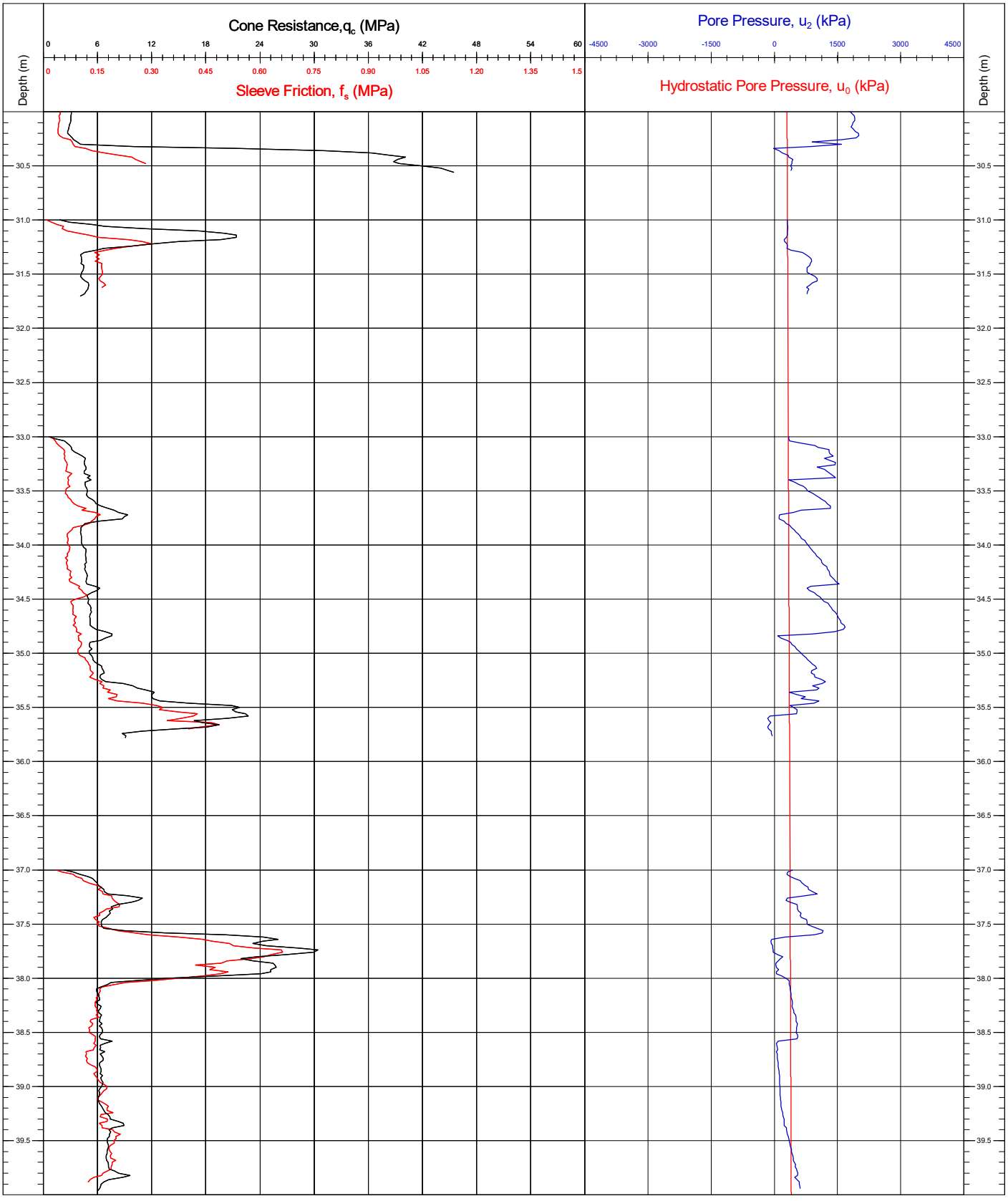


Area	**Kattegat Sea**	Coordinates	**674911.00E** **6253674.20N**	CPT Number	**OSS2-BH**
Contract	**11596**	Latitude / Longitude			
Client Name/Ref	**Energinet Eltransmission A/S/384_20_ENE**	Water Depth (mMSL)	**29.96**		
Vessel	**MV Ocean Vantage**	Date of Test (Start/End)	**25/05/2021 to 27/05/2021**	Page: 2/6	
		Cone No.(size)/α Factor	**120825 (10cm^2) / 0.76**	QC Status	
		Base Inclination	**X = 0.0° / Y = 0.0°**	Preliminary: **JK/BC** (27/05/2021)	Draft: **DR** (10/06/2021)
		CRS **ETRS89**			Final: **SMc** (10/11/2021)

Comments: Borehole OSS2-BH was completed to a depth of 70.08m utilising API drilling~ Wison CPT and push sampling methods. P-S logging was performed from 65m to 4m below mudline.

Preliminary Investigation, Hesselø OWF

IN SITU CPTU TESTING - MEASURED PARAMETERS

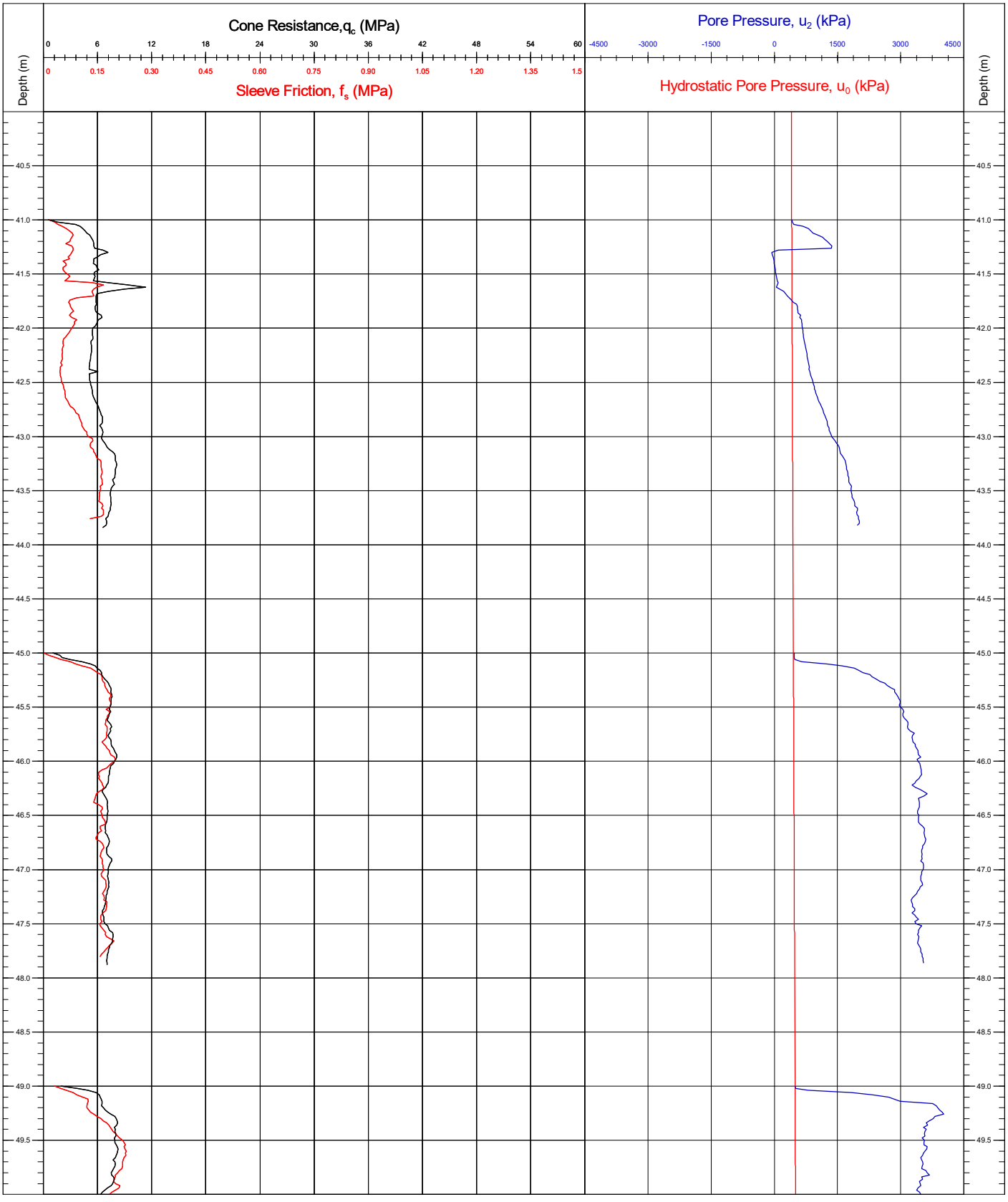


Area	**Kattegat Sea**	Coordinates	**674911.00E 6253674.20N**	CPT Number	**OSS2-BH**
Contract	**11596**	Latitude / Longitude			
Client Name/Ref	**Energinet Eltransmission A/S/384_20_ENE**	Water Depth (mMSL)	**29.96**		
Vessel	**MV Ocean Vantage**	Date of Test (Start/End)	**25/05/2021 to 27/05/2021**	Page: 3/6	
		Cone No.(size)/α Factor	**120825 (10cm^2) / 0.76**	QC Status	
		Base Inclination	**X = 0.0° / Y = 0.0°**	Preliminary: **JK/BC** (27/05/2021)	Draft: **DR** (10/06/2021)
		CRS **ETRS89**			Final: **SMc** (10/11/2021)

Comments: Borehole OSS2-BH was completed to a depth of 70.08m utilising API drilling~ Wison CPT and push sampling methods. P-S logging was performed from 65m to 4m below mudline.

Preliminary Investigation, Hesselø OWF

IN SITU CPTU TESTING - MEASURED PARAMETERS

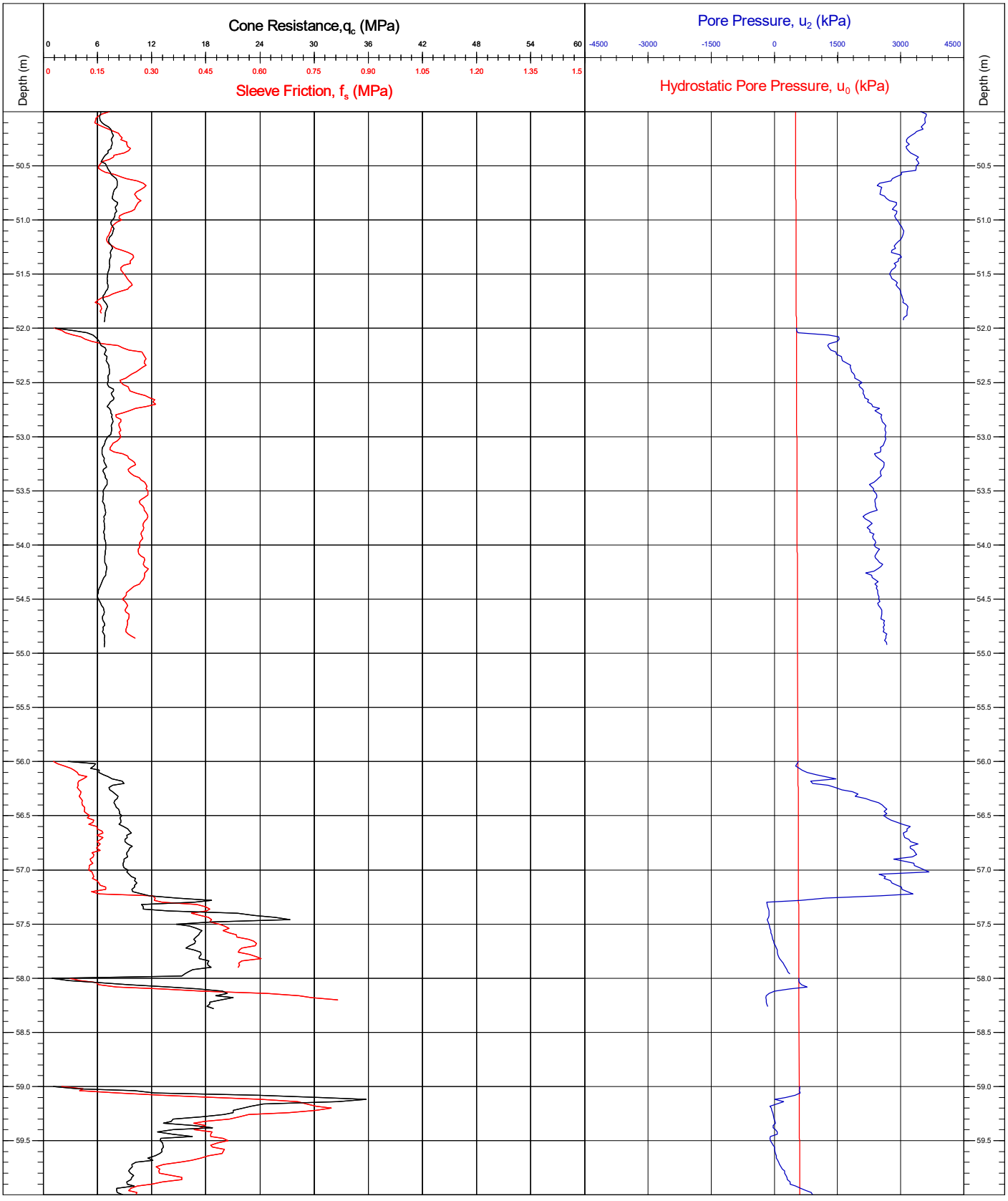


Area	**Kattegat Sea**	Coordinates	**674911.00E 6253674.20N**	CPT Number	
Contract	**11596**	Latitude / Longitude		**OSS2-BH**	
Client Name/Ref	**Energinet Eltransmission A/S/384_20_ENE**	Water Depth (mMSL)	**29.96**		
Vessel	**MV Ocean Vantage**	Date of Test (Start/End)	**25/05/2021 to 27/05/2021**	Page: 4/6	
		Cone No.(size)/α Factor	**120825 (10cm^2) / 0.76**	QC Status	
		Base Inclination	**X = 0.0° / Y = 0.0°**	Preliminary: **JK/BC** (27/05/2021)	Draft: **DR** (10/06/2021)
		CRS **ETRS89**			Final: **SMc** (10/11/2021)

Comments: Borehole OSS2-BH was completed to a depth of 70.08m utilising API drilling~ Wison CPT and push sampling methods. P-S logging was performed from 65m to 4m below mudline.

Preliminary Investigation, Hesselø OWF

IN SITU CPTU TESTING - MEASURED PARAMETERS



Area	**Kattegat Sea**
Contract	**11596**
Client Name/Ref	**Energinet Eltransmission A/S/384_20_ENE**
Vessel	**MV Ocean Vantage**

Comments: Borehole OSS2-BH was completed to a depth of 70.08m utilising API drilling~ Wison CPT and push sampling methods. P-S logging was performed from 65m to 4m below mudline.

Coordinates	**674911.00E 6253674.20N**
Latitude / Longitude	
Water Depth (mMSL)	**29.96**
Date of Test (Start/End)	**25/05/2021 to 27/05/2021**
Cone No.(size)/α Factor	**120825 (10cm^2) / 0.76**
Base Inclination	**X = 0.0° / Y = 0.0°**
CRS **ETRS89**	

CPT Number

OSS2-BH

Page: 5/6

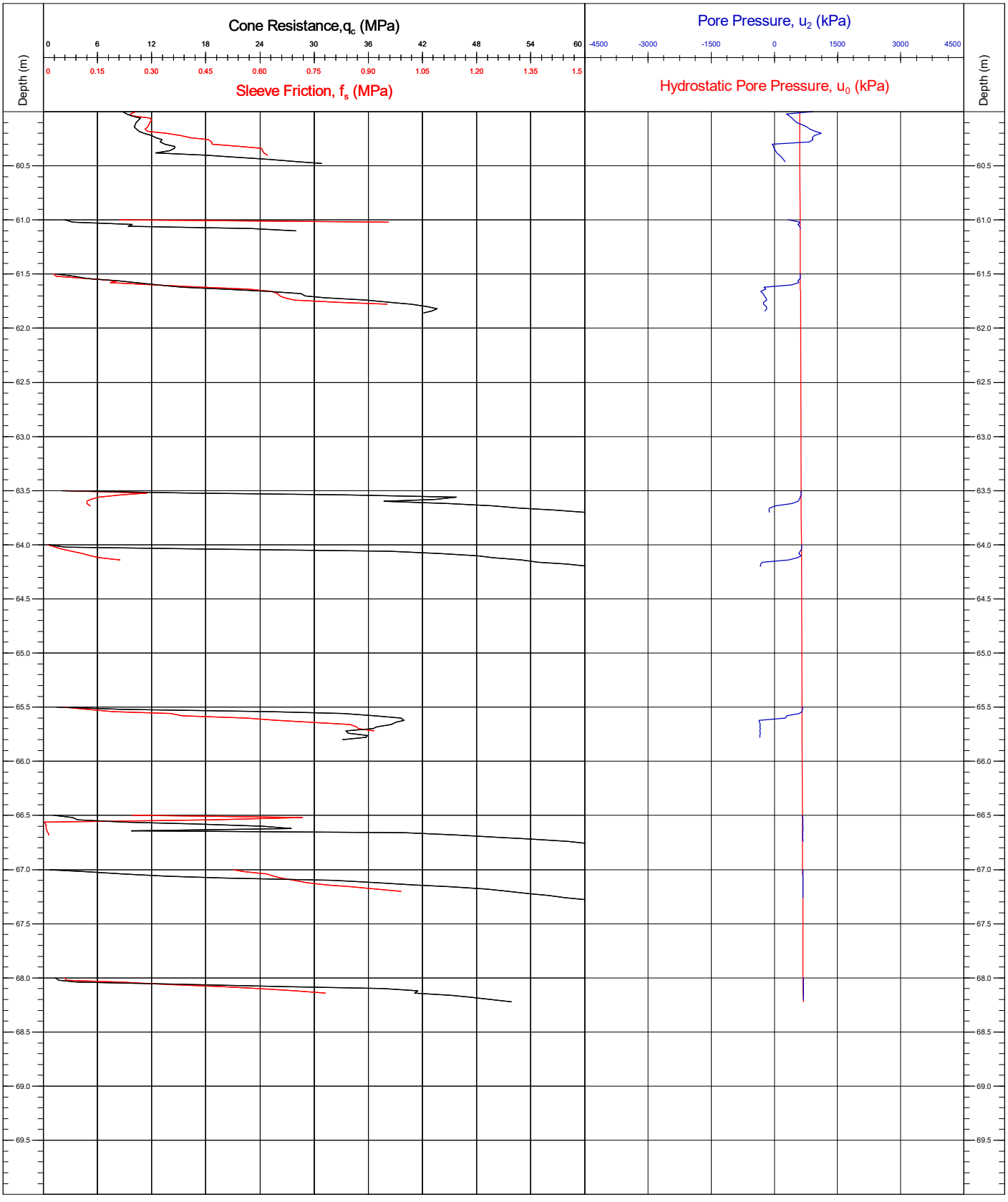
QC Status

Preliminary	Draft	Final
JK/BC (27/05/2021)	**DR** (10/06/2021)	**SMc** (10/11/2021)

Gardline

Preliminary Investigation, Hesselø OWF

IN SITU CPTU TESTING - MEASURED PARAMETERS



Area	**Kattegat Sea**	Coordinates	**674911.00E 6253674.20N**	CPT Number	**OSS2-BH**
Contract	**11596**	Latitude / Longitude			
Client Name/Ref	**Energinet Eltransmission A/S/384_20_ENE**	Water Depth (mMSL)	**29.96**		
Vessel	**MV Ocean Vantage**	Date of Test (Start/End)	**25/05/2021 to 27/05/2021**	Page: 6/6	
		Cone No.(size)/α Factor	**120825 (10cm^2) / 0.76**	QC Status	
		Base Inclination	**X = 0.0° / Y = 0.0°**	Preliminary: **JK/BC** (27/05/2021)	Draft: **DR** (10/06/2021) / Final: **SMc** (10/11/2021)
		CRS **ETRS89**			

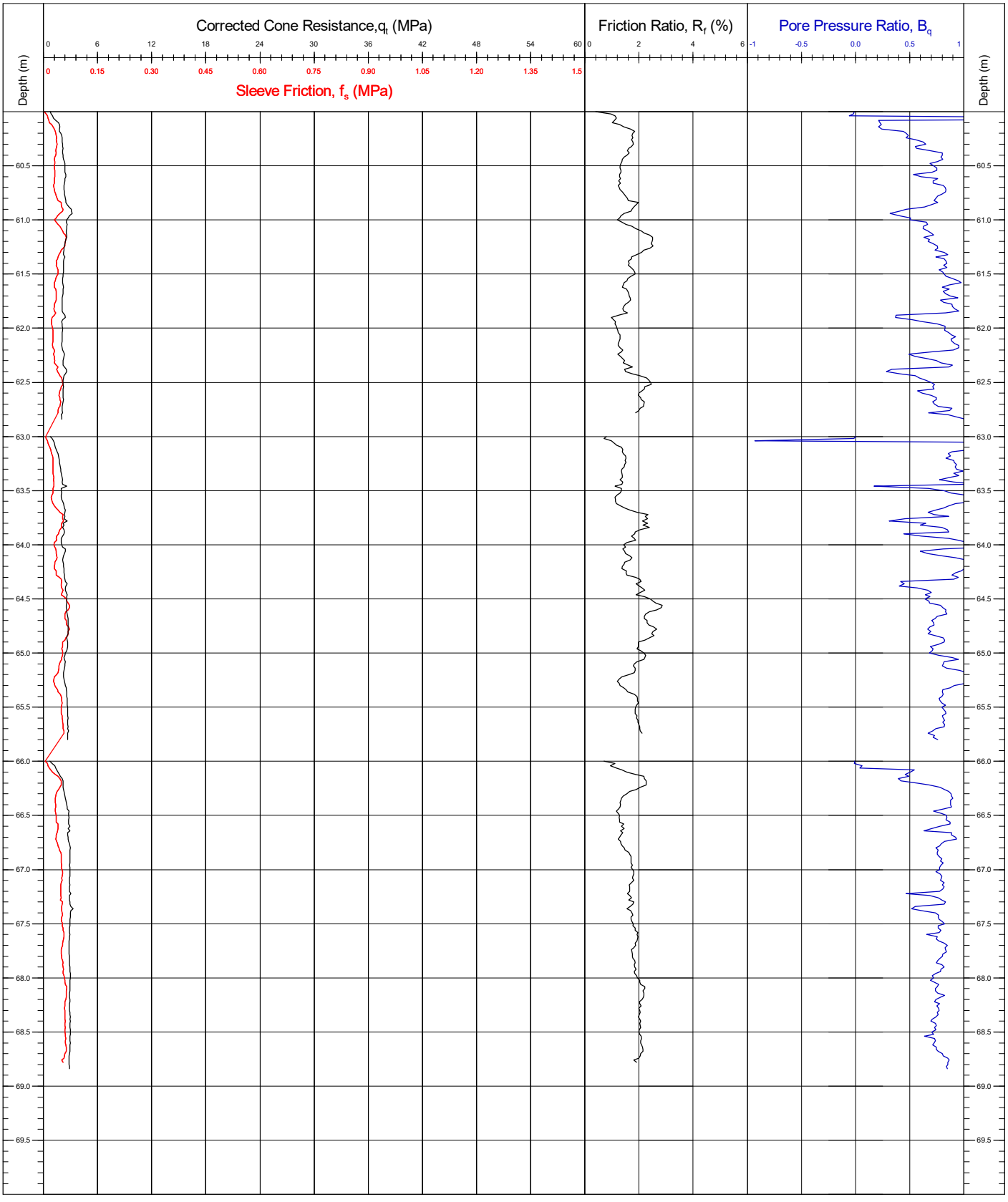
Comments: Borehole OSS2-BH was completed to a depth of 70.08m utilising API drilling~ Wison CPT and push sampling methods. P-S logging was performed from 65m to 4m below mudline.

3.3 Downhole CPTU Derived Logs

Gardline

Preliminary Investigation, Hesselø OWF

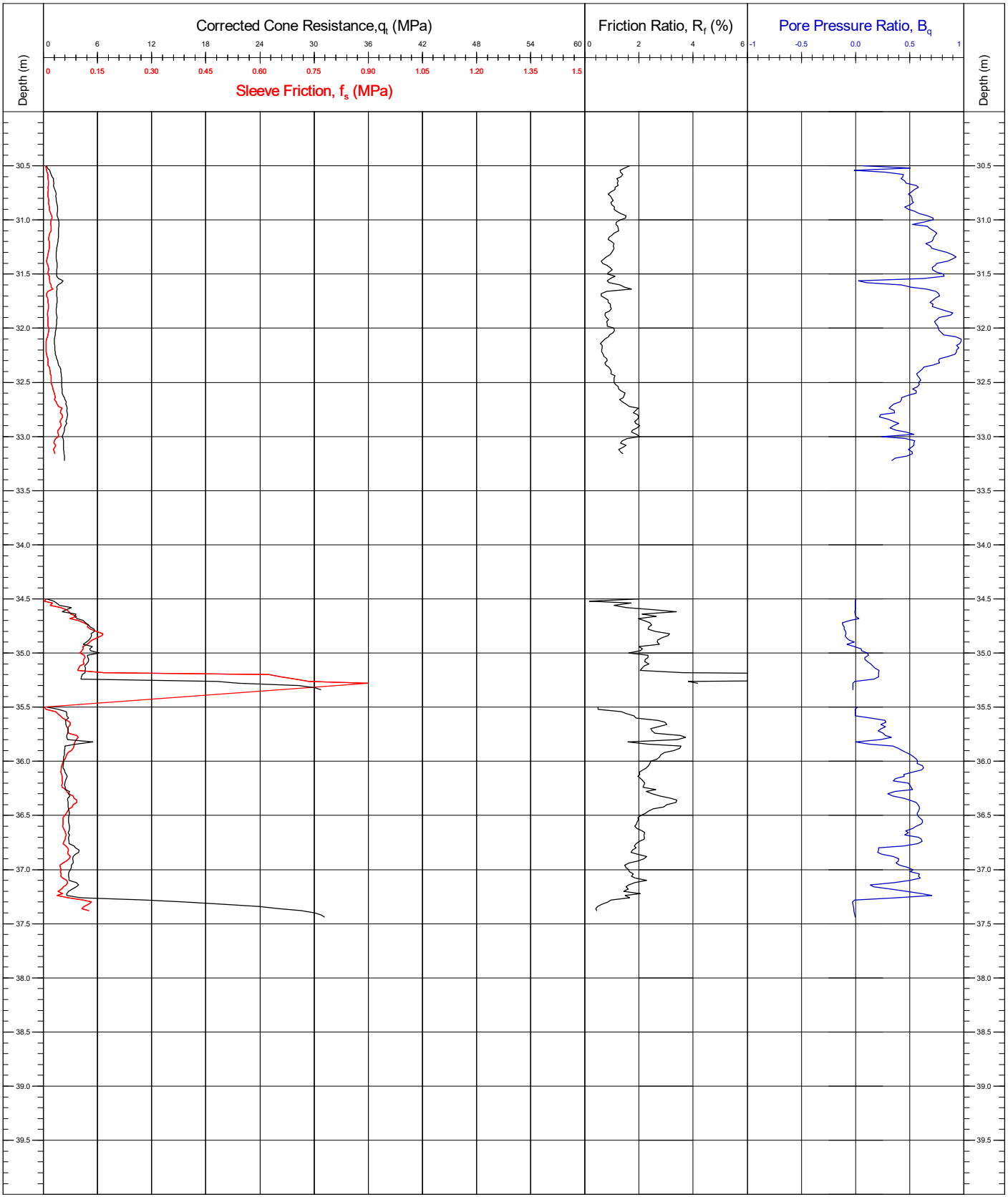
IN SITU CPTU TESTING - DERIVED PARAMETERS



Area	**Kattegat Sea**	Coordinates	**673292.30E 6269812.00N**	CPT Number	**CB3a-BH**
Contract	**11596**	Latitude / Longitude			
Client Name/Ref	**Energinet Eltransmission A/S/384_20_ENE**	Water Depth (mMSL)	**31.90**		
Vessel	**MV Ocean Vantage**	Date of Test (Start/End)	**15/05/2021 to 16/05/2021**	Page: 1/1	
Comments: Borehole CB3a-BH was completed to a depth of 70.27m utilising API drilling~ Wison CPT and push sampling methods		Cone No.(size)/α Factor	**121126 (10cm^2) / 0.79**	QC Status	
		Base Inclination	**X = 0.0° / Y = 0.0°**	Preliminary / Draft / Final	
		CRS **ETRS89**		**JK/BC** (16/05/2021) / **DR** (10/06/2021) / **SMc** (10/11/2021)	

Preliminary Investigation, Hesselø OWF

IN SITU CPTU TESTING - DERIVED PARAMETERS



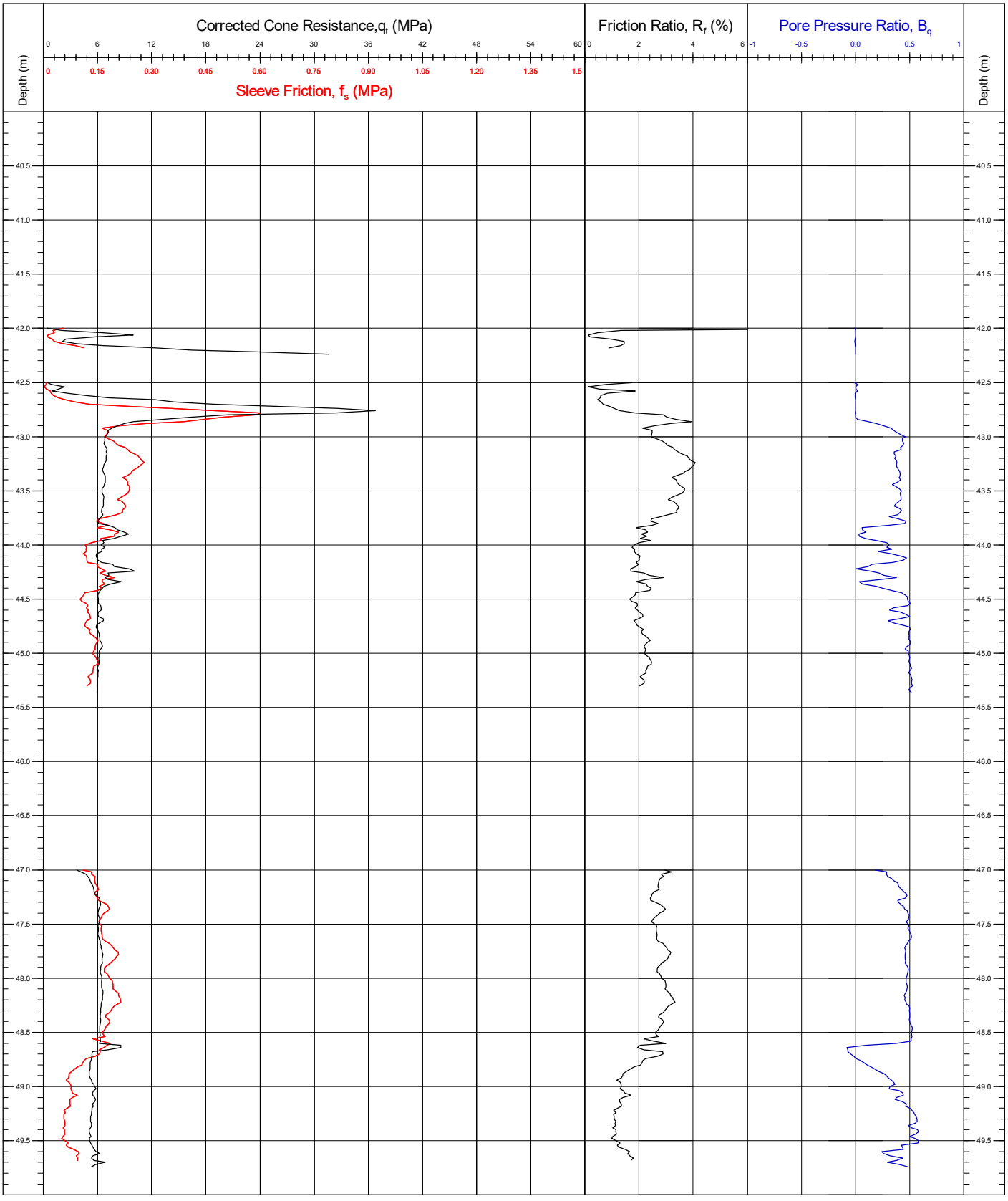
Area	**Kattegat Sea**	Coordinates	**675777.10E 6272690.20N**	CPT Number	**CB4-BH**
Contract	**11596**	Latitude / Longitude			
Client Name/Ref	**Energinet Eltransmission A/S/384_20_ENE**	Water Depth (mMSL)	**31.12**		
Vessel	**MV Ocean Vantage**	Date of Test (Start/End)	**16/05/2021 to 18/05/2021**	Page: 1/4	
		Cone No.(size)/α Factor	**101017 (10cm^2) / 0.78**	QC Status	
		Base Inclination	**X = 0.0° / Y = 0.0°**	Preliminary / Draft / Final	
		CRS **ETRS89**		**JK/BC** (16/05/2021) / **DR** (25/06/2021) / **SMc** (10/11/2021)	

Comments: Borehole CB4-BH was completed to a depth of 70.72m utilising API drilling~ Wison CPT and push sampling methods. Data gap between 37.85 and 42.00m due to the ground conditions impeding recovery~ Drillers note;- Cobbles/ Boulders- testing was attempted at 0.5-1.0m intervals with a number of tools until recovery was successful.

Gardline

Preliminary Investigation, Hesselø OWF

IN SITU CPTU TESTING - DERIVED PARAMETERS



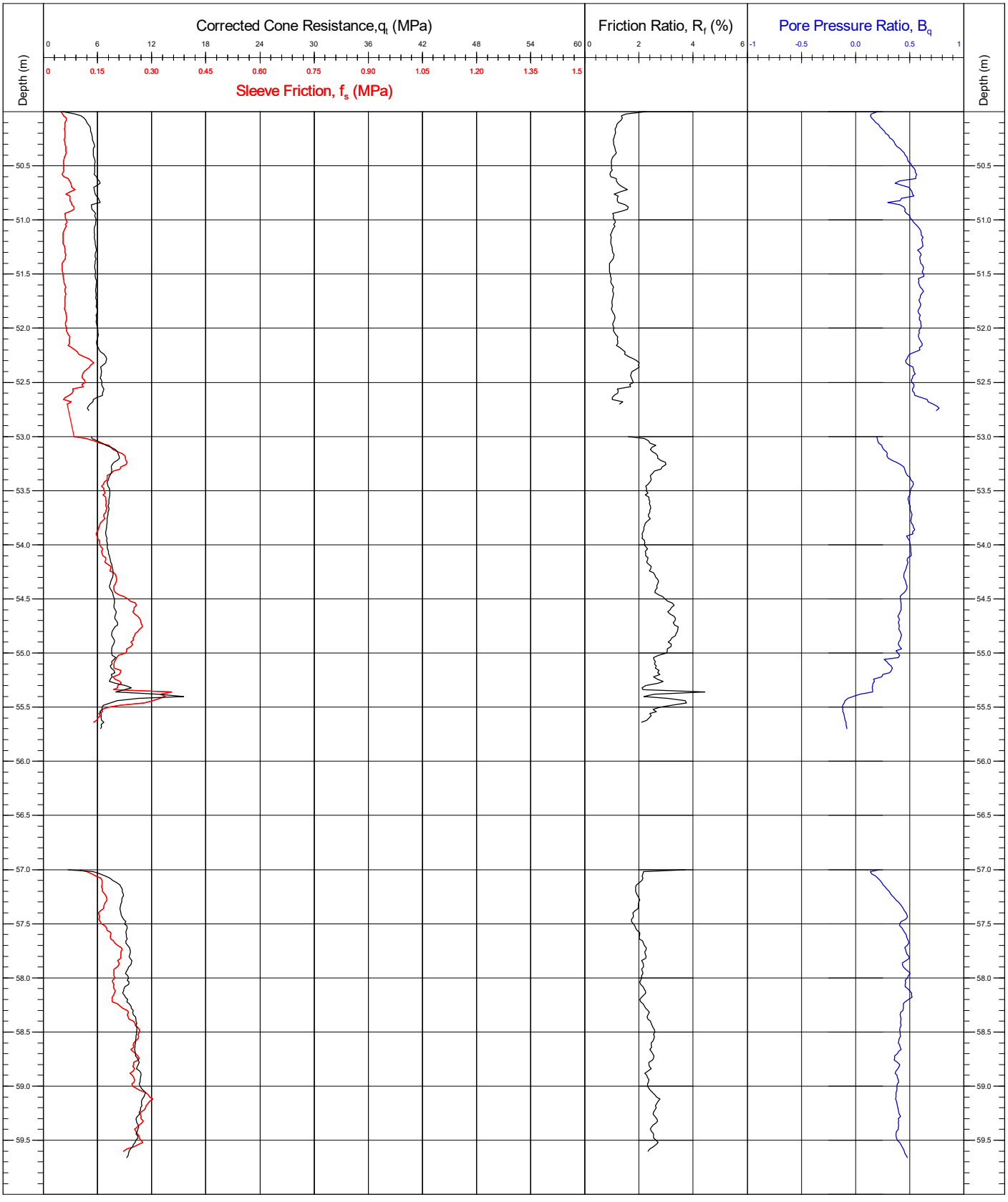
Area	**Kattegat Sea**	Coordinates	**675777.10E 6272690.20N**	CPT Number	**CB4-BH**
Contract	**11596**	Latitude / Longitude			
Client Name/Ref	**Energinet Eltransmission A/S/384_20_ENE**	Water Depth (mMSL)	**31.12**		
Vessel	**MV Ocean Vantage**	Date of Test (Start/End)	**16/05/2021 to 18/05/2021**	Page: 2/4	
		Cone No.(size)/α Factor	**101017 (10cm^2) / 0.78**	QC Status	
		Base Inclination	**X = 0.0° / Y = 0.0°**	Preliminary / Draft / Final	
		CRS **ETRS89**		**JK/BC** (16/05/2021) / **DR** (25/06/2021) / **SMc** (10/11/2021)	

Comments: Borehole CB4-BH was completed to a depth of 70.72m utilising API drilling~ Wison CPT and push sampling methods. Data gap between 37.85 and 42.00m due to the ground conditions impeding recovery~ Drillers note;- Cobbles/ Boulders- testing was attempted at 0.5-1.0m intervals with a number of tools until recovery was successful.

Gardline

Preliminary Investigation, Hesselø OWF

IN SITU CPTU TESTING - DERIVED PARAMETERS



Area	**Kattegat Sea**
Contract	**11596**
Client Name/Ref	**Energinet Eltransmission A/S/384_20_ENE**
Vessel	**MV Ocean Vantage**

Comments: Borehole CB4-BH was completed to a depth of 70.72m utilising API drilling~ Wison CPT and push sampling methods. Data gap between 37.85 and 42.00m due to the ground conditions impeding recovery~ Drillers note;- Cobbles/ Boulders- testing was attempted at 0.5-1.0m intervals with a number of tools until recovery was successful.

Coordinates	**675777.10E 6272690.20N**
Latitude / Longitude	
Water Depth (mMSL)	**31.12**
Date of Test (Start/End)	**16/05/2021 to 18/05/2021**
Cone No.(size)/α Factor	**101017 (10cm^2) / 0.78**
Base Inclination	**X = 0.0° / Y = 0.0°**
CRS **ETRS89**	

CPT Number

CB4-BH

Page: 3/4

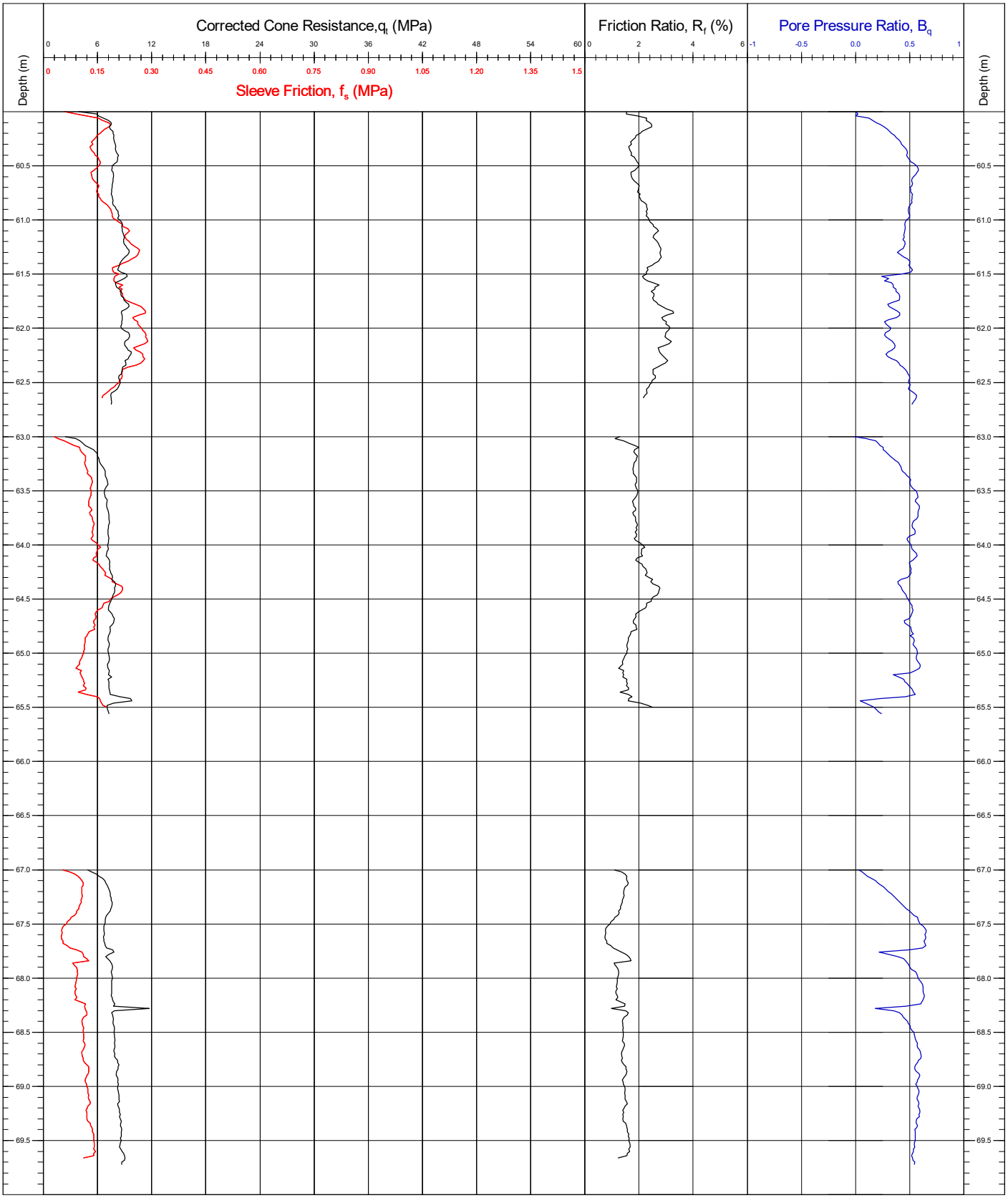
QC Status

Preliminary	Draft	Final
JK/BC (16/05/2021)	**DR** (25/06/2021)	**SMc** (10/11/2021)

Gardline

Preliminary Investigation, Hesselø OWF

IN SITU CPTU TESTING - DERIVED PARAMETERS



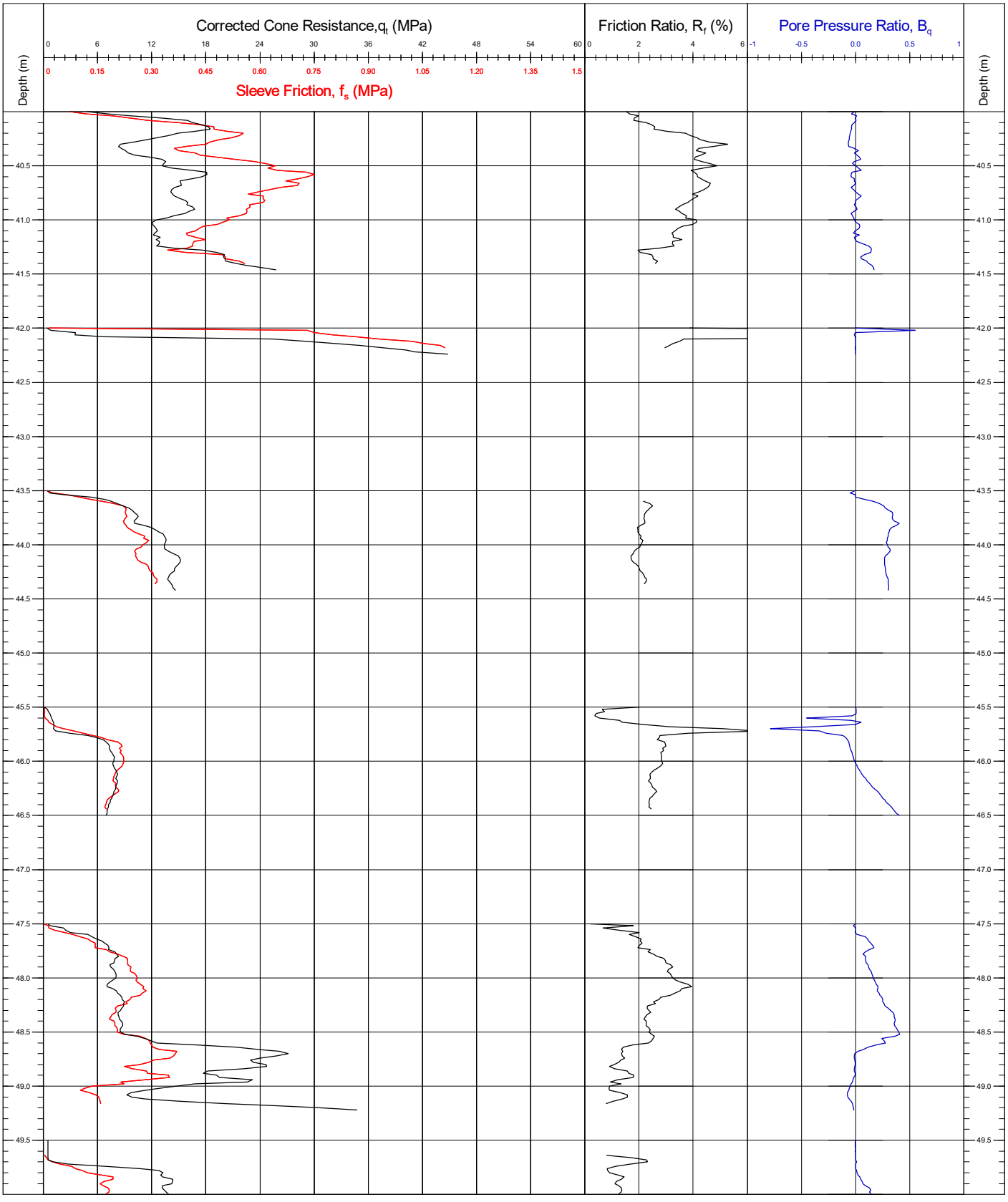
Area	**Kattegat Sea**	Coordinates	**675777.10E 6272690.20N**	CPT Number	**CB4-BH**
Contract	**11596**	Latitude / Longitude			
Client Name/Ref	**Energinet Eltransmission A/S/384_20_ENE**	Water Depth (mMSL)	**31.12**		
Vessel	**MV Ocean Vantage**	Date of Test (Start/End)	**16/05/2021 to 18/05/2021**	Page: 4/4	
		Cone No.(size)/α Factor	**101017 (10cm^2) / 0.78**	QC Status	
		Base Inclination	**X = 0.0° / Y = 0.0°**	Preliminary / Draft / Final	
		CRS **ETRS89**		**JK/BC** (16/05/2021) / **DR** (25/06/2021) / **SMc** (10/11/2021)	

Comments: Borehole CB4-BH was completed to a depth of 70.72m utilising API drilling~ Wison CPT and push sampling methods. Data gap between 37.85 and 42.00m due to the ground conditions impeding recovery~ Drillers note;- Cobbles/ Boulders- testing was attempted at 0.5-1.0m intervals with a number of tools until recovery was successful.

Gardline

Preliminary Investigation, Hesselø OWF

IN SITU CPTU TESTING - DERIVED PARAMETERS

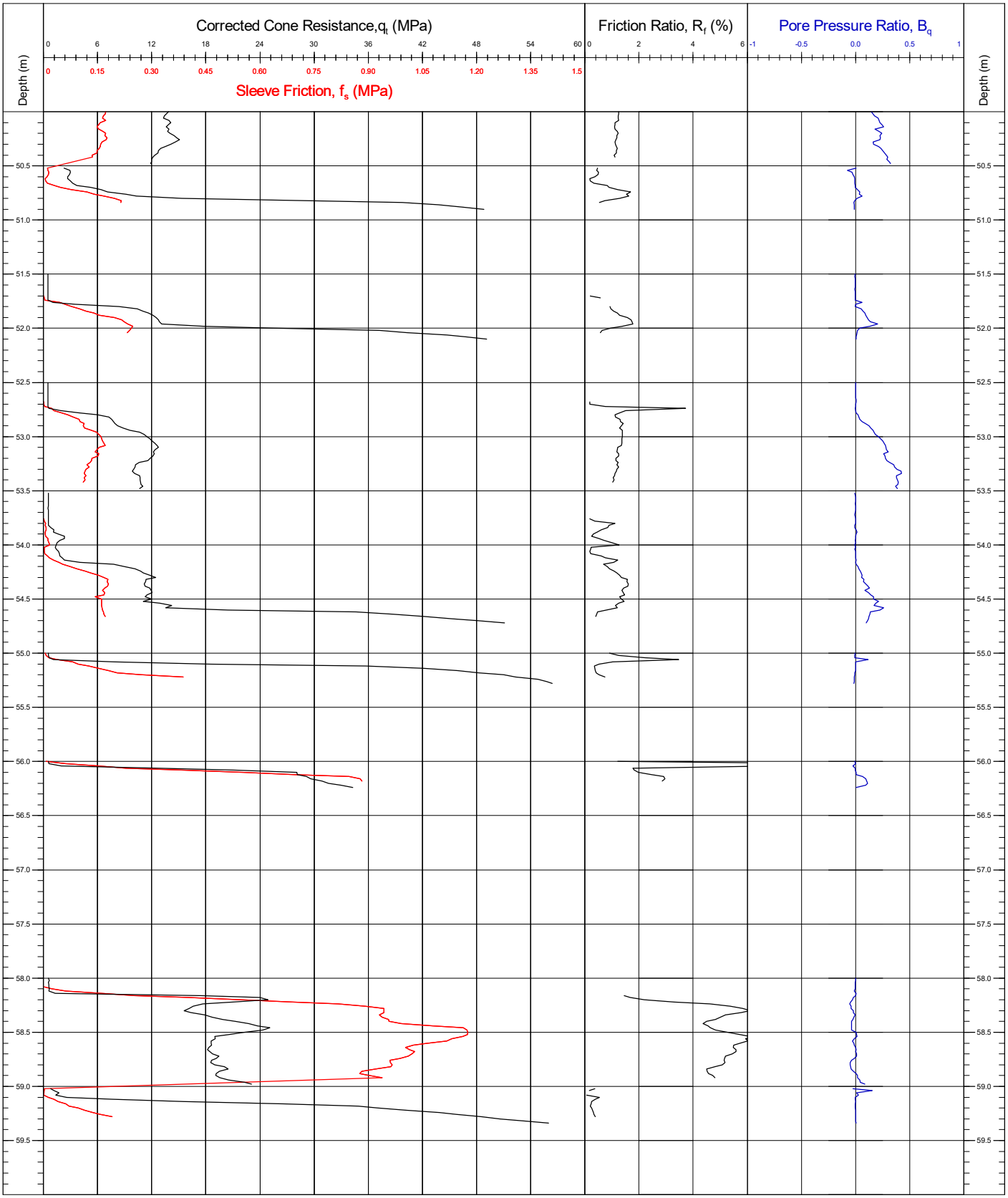


Area	**Kattegat Sea**	Coordinates	**671117.70E 6254702.00N**	CPT Number	**CB5-BH**
Contract	**11596**	Latitude / Longitude			
Client Name/Ref	**Energinet Eltransmission A/S/384_20_ENE**	Water Depth (mMSL)	**27.15**		
Vessel	**MV Ocean Vantage**	Date of Test (Start/End)	**09/05/2021 to 11/05/2021**	Page: 1/3	
Comments: Borehole CB5-BH was completed to a depth of 64.62m utilising API drilling~ Wison CPT and push sampling methods.		Cone No.(size)/α Factor	**101017 (10cm^2) / 0.78**	QC Status	
		Base Inclination	**X = 0.0° / Y = 0.0°**	Preliminary: **JK/BC** (11/05/2021)	Draft: **DR** (10/06/2021)
		CRS **ETRS89**			Final: **SMc** (10/11/2021)

Gardline

Preliminary Investigation, Hesselø OWF

IN SITU CPTU TESTING - DERIVED PARAMETERS

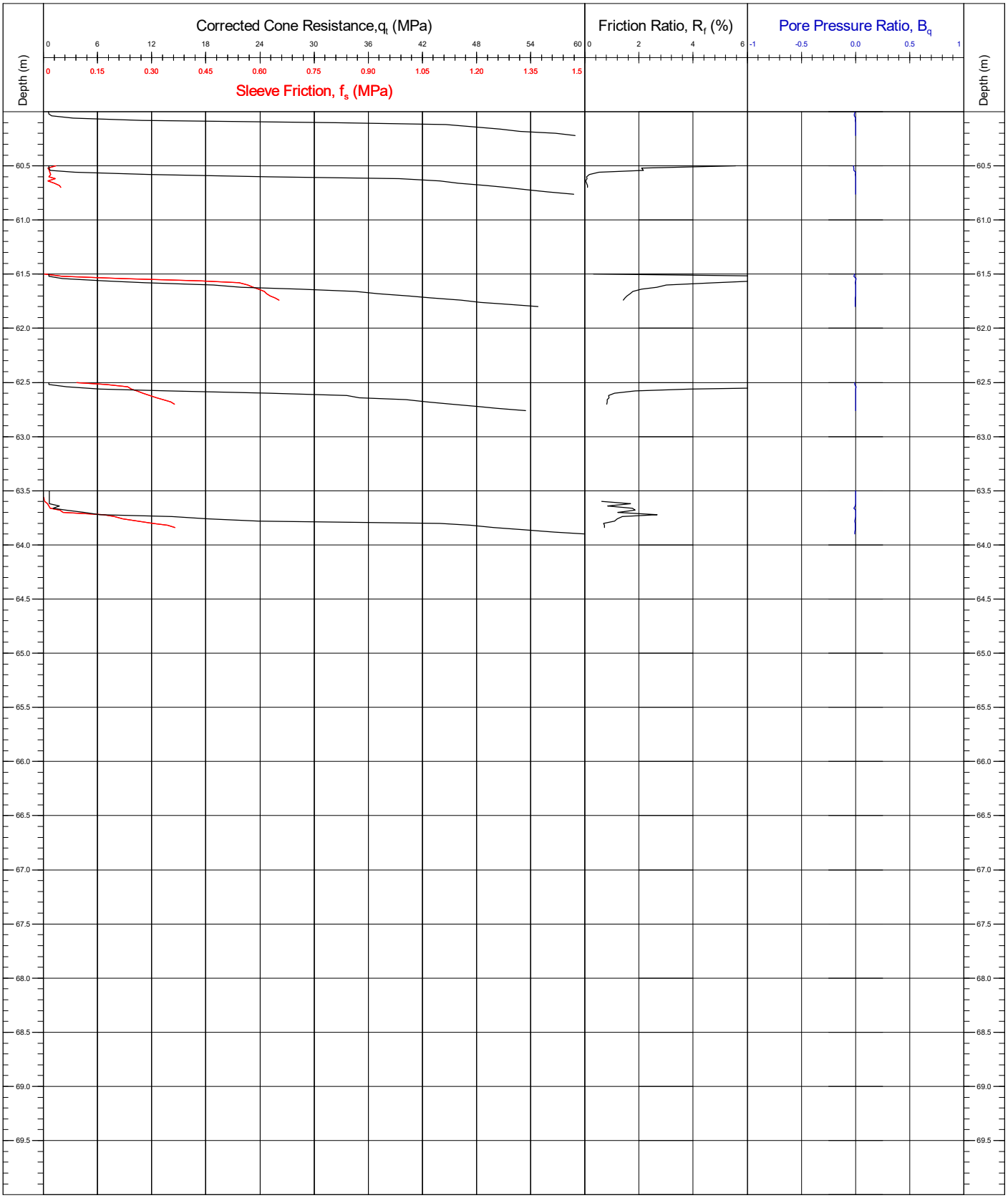


Area	**Kattegat Sea**	Coordinates	**671117.70E 6254702.00N**	CPT Number	**CB5-BH**
Contract	**11596**	Latitude / Longitude			
Client Name/Ref	**Energinet Eltransmission A/S/384_20_ENE**	Water Depth (mMSL)	**27.15**		
Vessel	**MV Ocean Vantage**	Date of Test (Start/End)	**09/05/2021 to 11/05/2021**	Page: 2/3	
Comments: Borehole CB5-BH was completed to a depth of 64.62m utilising API drilling~ Wison CPT and push sampling methods.		Cone No.(size)/α Factor	**101017 (10cm^2) / 0.78**	QC Status	
		Base Inclination	**X = 0.0° / Y = 0.0°**	Preliminary / Draft / Final	
		CRS **ETRS89**		**JK/BC** (11/05/2021) / **DR** (10/06/2021) / **SMc** (10/11/2021)	

Gardline

Preliminary Investigation, Hesselø OWF

IN SITU CPTU TESTING - DERIVED PARAMETERS

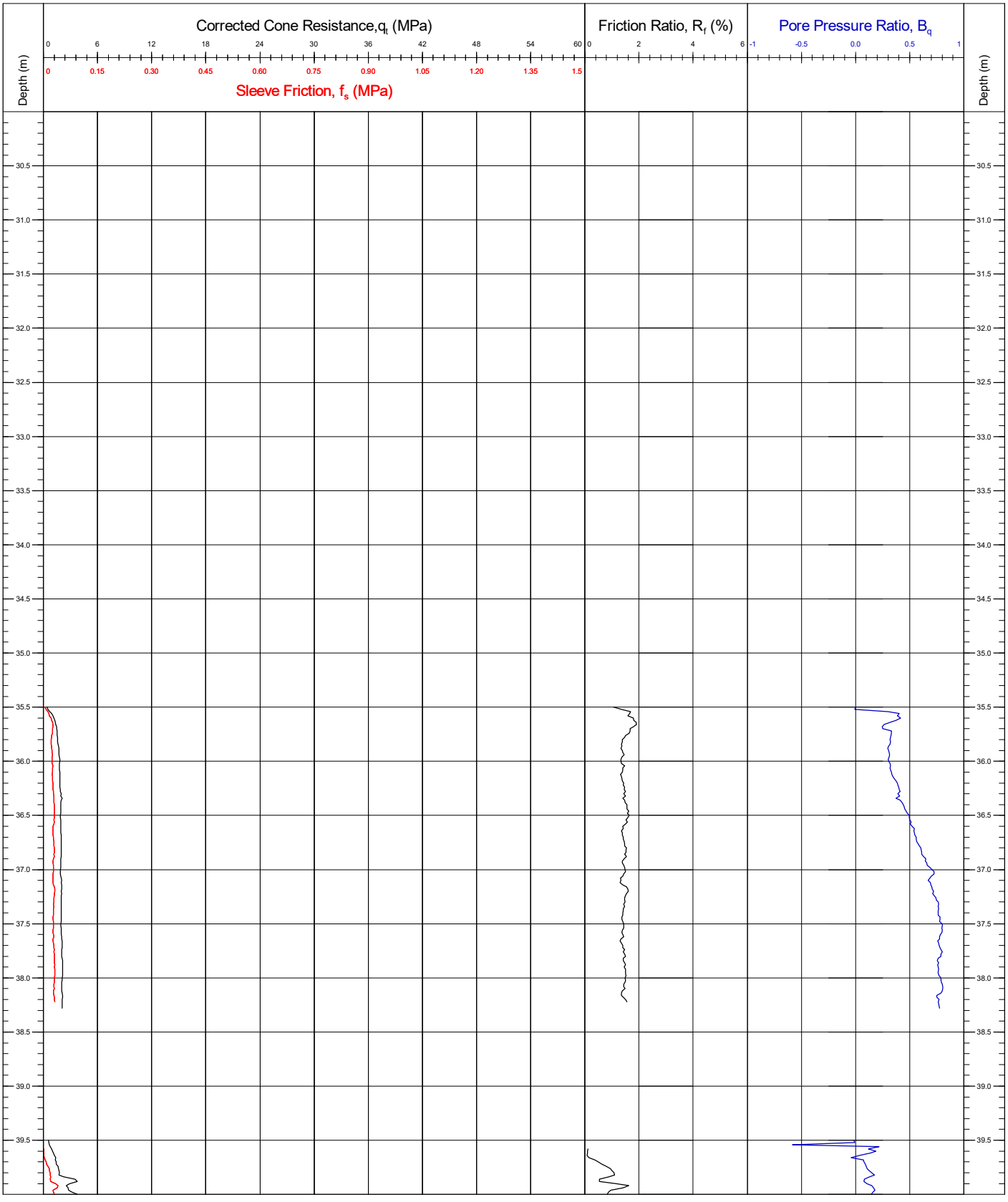


Area	**Kattegat Sea**	Coordinates	**671117.70E 6254702.00N**	CPT Number	**CB5-BH**
Contract	**11596**	Latitude / Longitude			
Client Name/Ref	**Energinet Eltransmission A/S/384_20_ENE**	Water Depth (mMSL)	**27.15**		
Vessel	**MV Ocean Vantage**	Date of Test (Start/End)	**09/05/2021 to 11/05/2021**	Page: 3/3	
Comments: Borehole CB5-BH was completed to a depth of 64.62m utilising API drilling~ Wison CPT and push sampling methods.		Cone No.(size)/α Factor	**101017 (10cm^2) / 0.78**	QC Status	
		Base Inclination	**X = 0.0° / Y = 0.0°**	Preliminary: **JK/BC** (11/05/2021)	Draft: **DR** (10/06/2021)
		CRS **ETRS89**			Final: **SMc** (10/11/2021)

Gardline

Preliminary Investigation, Hesselø OWF

IN SITU CPTU TESTING - DERIVED PARAMETERS



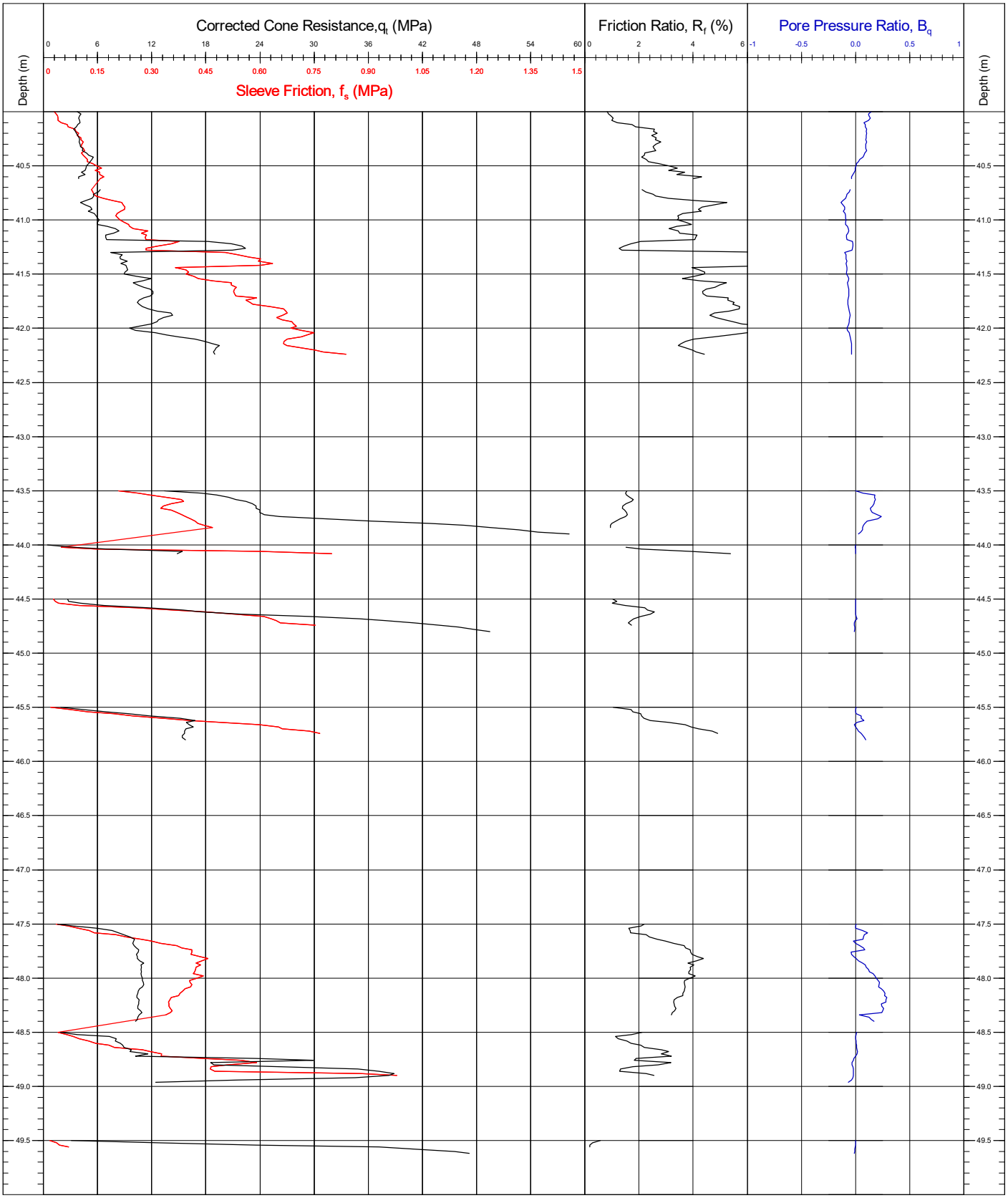
Area	**Kattegat Sea**	Coordinates	**668193.10E 6258003.50N**	CPT Number	**CB6-BH**
Contract	**11596**	Latitude / Longitude			
Client Name/Ref	**Energinet Eltransmission A/S/384_20_ENE**	Water Depth (mMSL)	**26.69**		
Vessel	**MV Ocean Vantage**	Date of Test (Start/End)	**27/05/2021 to 29/05/2021**	Page: 1/3	
		Cone No.(size)/α Factor	**120826 (10cm^2) / 0.76**	QC Status	
		Base Inclination	**X = 0.0° / Y = 0.0°**	Preliminary: **JK/BC** (27/05/2021)	Draft: **DR** (10/06/2021) / Final: **SMc** (10/11/2021)
		CRS **ETRS89**			

Comments: Borehole CB6-BH was completed to a depth of 56.70m utilising API drilling~ Wison CPT and push sampling methods. P-S logging was performed from 52.00m to 3.00m below mudline.

Gardline

Preliminary Investigation, Hesselø OWF

IN SITU CPTU TESTING - DERIVED PARAMETERS



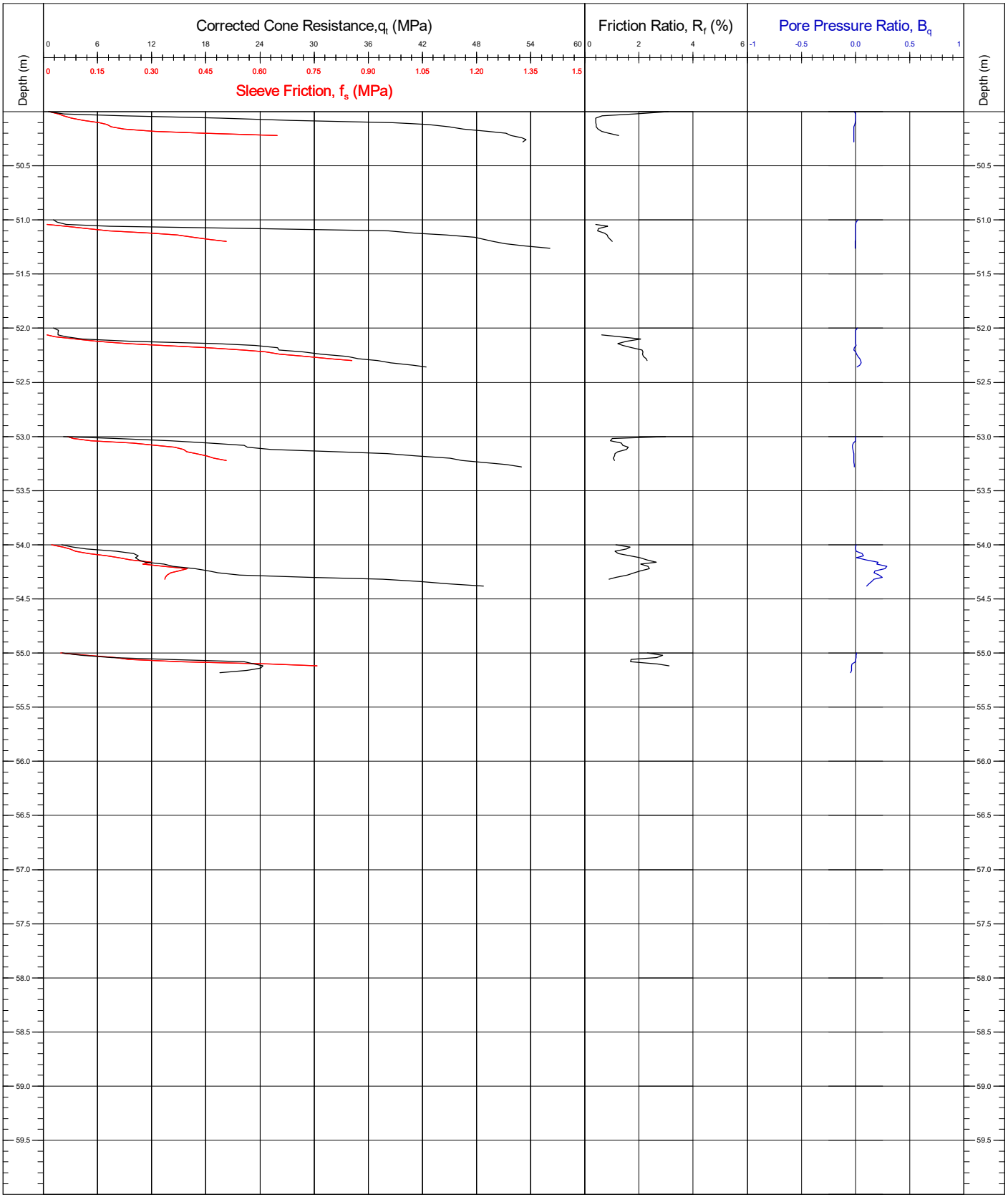
Area	**Kattegat Sea**	Coordinates	**668193.10E 6258003.50N**	CPT Number	
Contract	**11596**	Latitude / Longitude		**CB6-BH**	
Client Name/Ref	**Energinet Eltransmission A/S/384_20_ENE**	Water Depth (mMSL)	**26.69**		
Vessel	**MV Ocean Vantage**	Date of Test (Start/End)	**27/05/2021 to 29/05/2021**	Page: 2/3	
		Cone No.(size)/α Factor	**120826 (10cm^2) / 0.76**	QC Status	
		Base Inclination	**X = 0.0° / Y = 0.0°**	Preliminary: **JK/BC** (27/05/2021)	Draft: **DR** (10/06/2021)
		CRS **ETRS89**			Final: **SMc** (10/11/2021)

Comments: Borehole CB6-BH was completed to a depth of 56.70m utilising API drilling~ Wison CPT and push sampling methods. P-S logging was performed from 52.00m to 3.00m below mudline.

Gardline

Preliminary Investigation, Hesselø OWF

IN SITU CPTU TESTING - DERIVED PARAMETERS



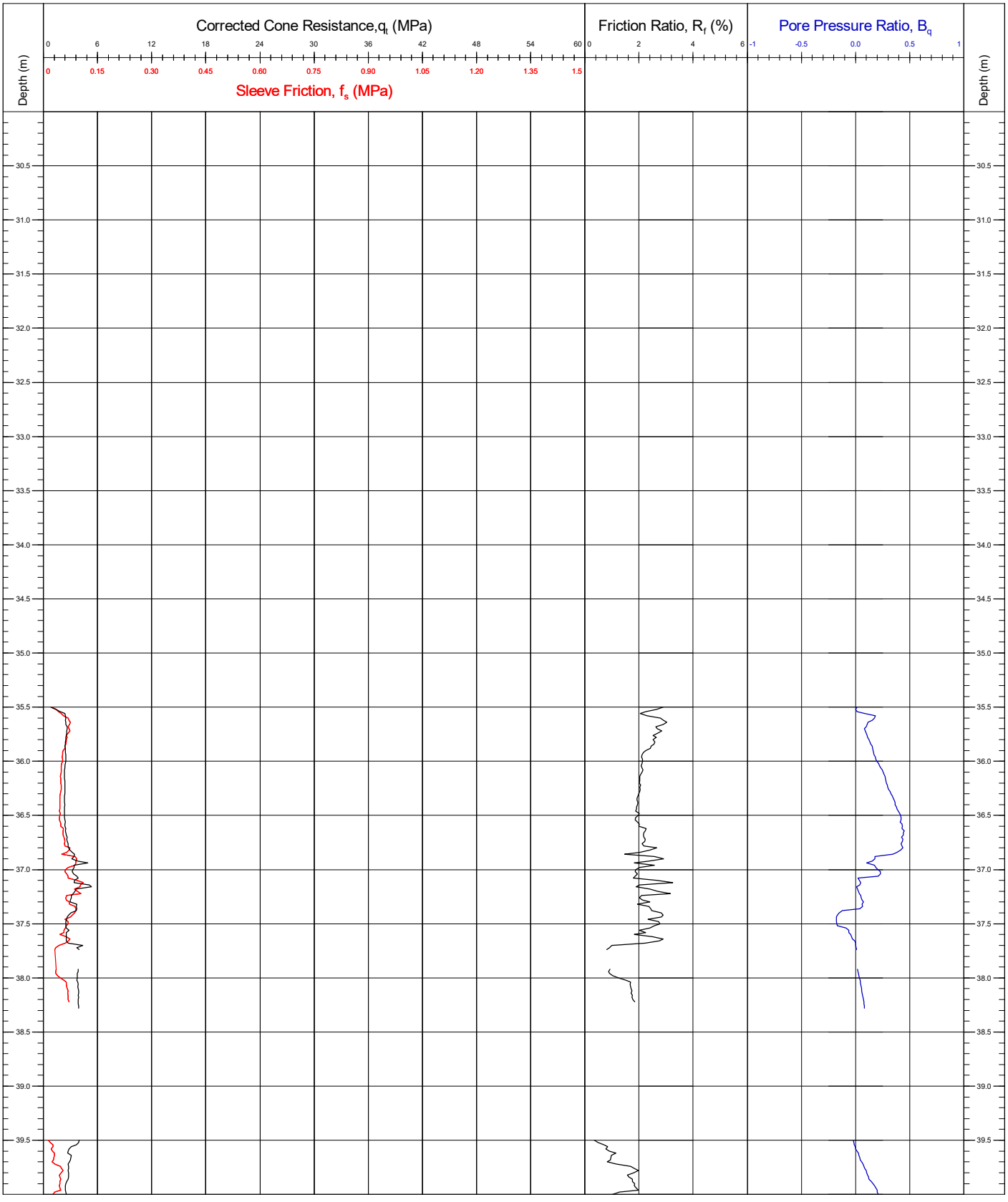
Area	**Kattegat Sea**	Coordinates	**668193.10E 6258003.50N**	CPT Number	
Contract	**11596**	Latitude / Longitude		**CB6-BH**	
Client Name/Ref	**Energinet Eltransmission A/S/384_20_ENE**	Water Depth (mMSL)	**26.69**		
Vessel	**MV Ocean Vantage**	Date of Test (Start/End)	**27/05/2021 to 29/05/2021**	Page: 3/3	
		Cone No.(size)/α Factor	**120826 (10cm^2) / 0.76**	QC Status	
		Base Inclination	**X = 0.0° / Y = 0.0°**	Preliminary: **JK/BC** (27/05/2021)	Draft: **DR** (10/06/2021)
		CRS **ETRS89**			Final: **SMc** (10/11/2021)

Comments: Borehole CB6-BH was completed to a depth of 56.70m utilising API drilling~ Wison CPT and push sampling methods. P-S logging was performed from 52.00m to 3.00m below mudline.

Gardline

Preliminary Investigation, Hesselø OWF

IN SITU CPTU TESTING - DERIVED PARAMETERS



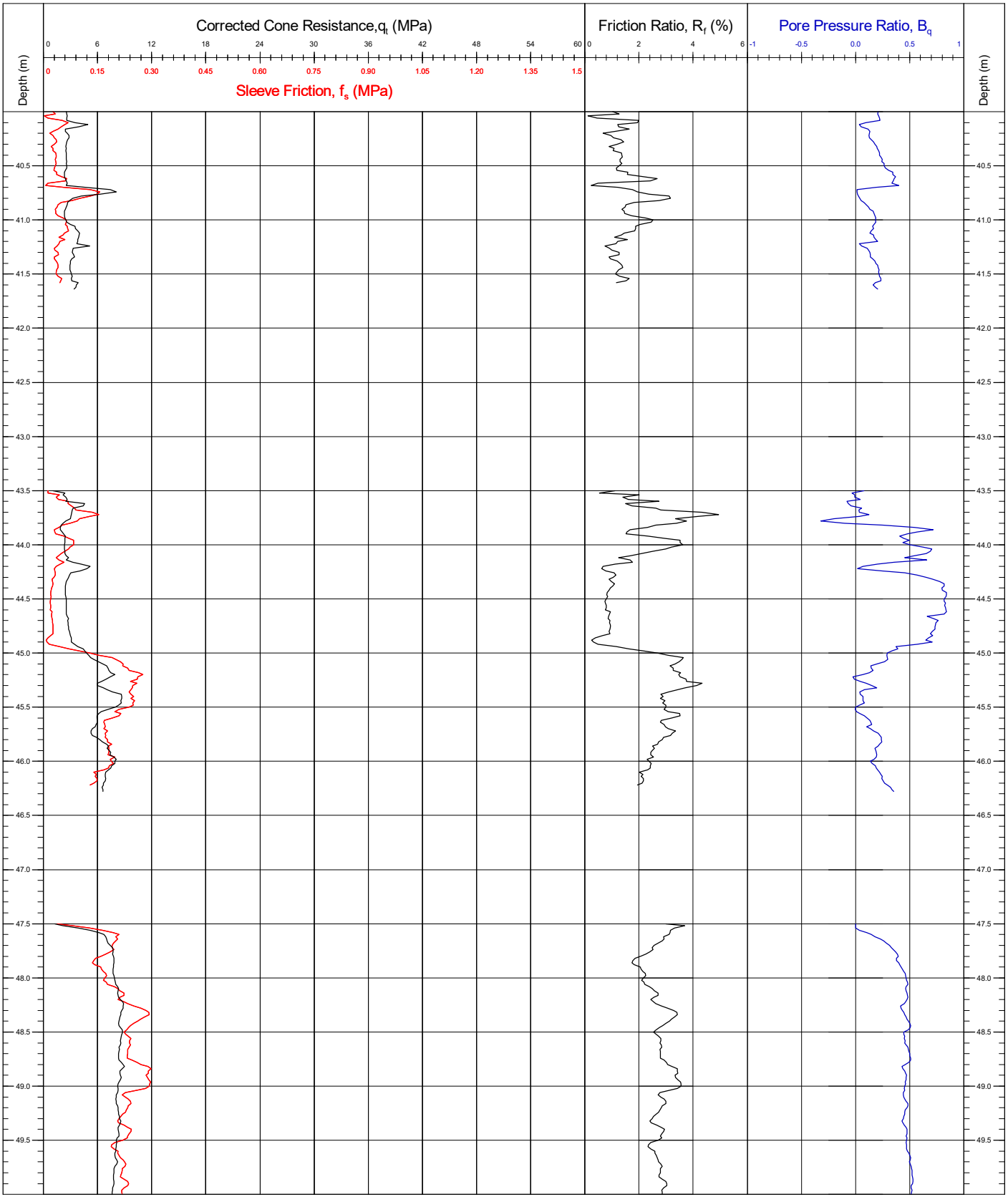
Area	**Kattegat Sea**	Coordinates	**673537.80E 6259626.90N**	CPT Number	
Contract	**11596**	Latitude / Longitude		**CB7-BH**	
Client Name/Ref	**Energinet Eltransmission A/S/384_20_ENE**	Water Depth (mMSL)	**30.99**		
Vessel	**MV Ocean Vantage**	Date of Test (Start/End)	**29/05/2021 to 30/05/2021**	Page: 1/4	
		Cone No.(size)/α Factor	**121005G (10cm^2) / 0.78**	QC Status	
		Base Inclination	**X = 0.0° / Y = 0.0°**	Preliminary: **JK/BC (29/05/2021)**	Draft: **DR (10/06/2021)**
		CRS **ETRS89**			Final: **SMc (10/11/2021)**

Comments: Borehole CB7-BH was completed to a depth of 64.32m utilising API drilling~ Wison CPT and push sampling methods. P-S logging was performed from 52m to 4m below mudline.

Gardline

Preliminary Investigation, Hesselø OWF

IN SITU CPTU TESTING - DERIVED PARAMETERS



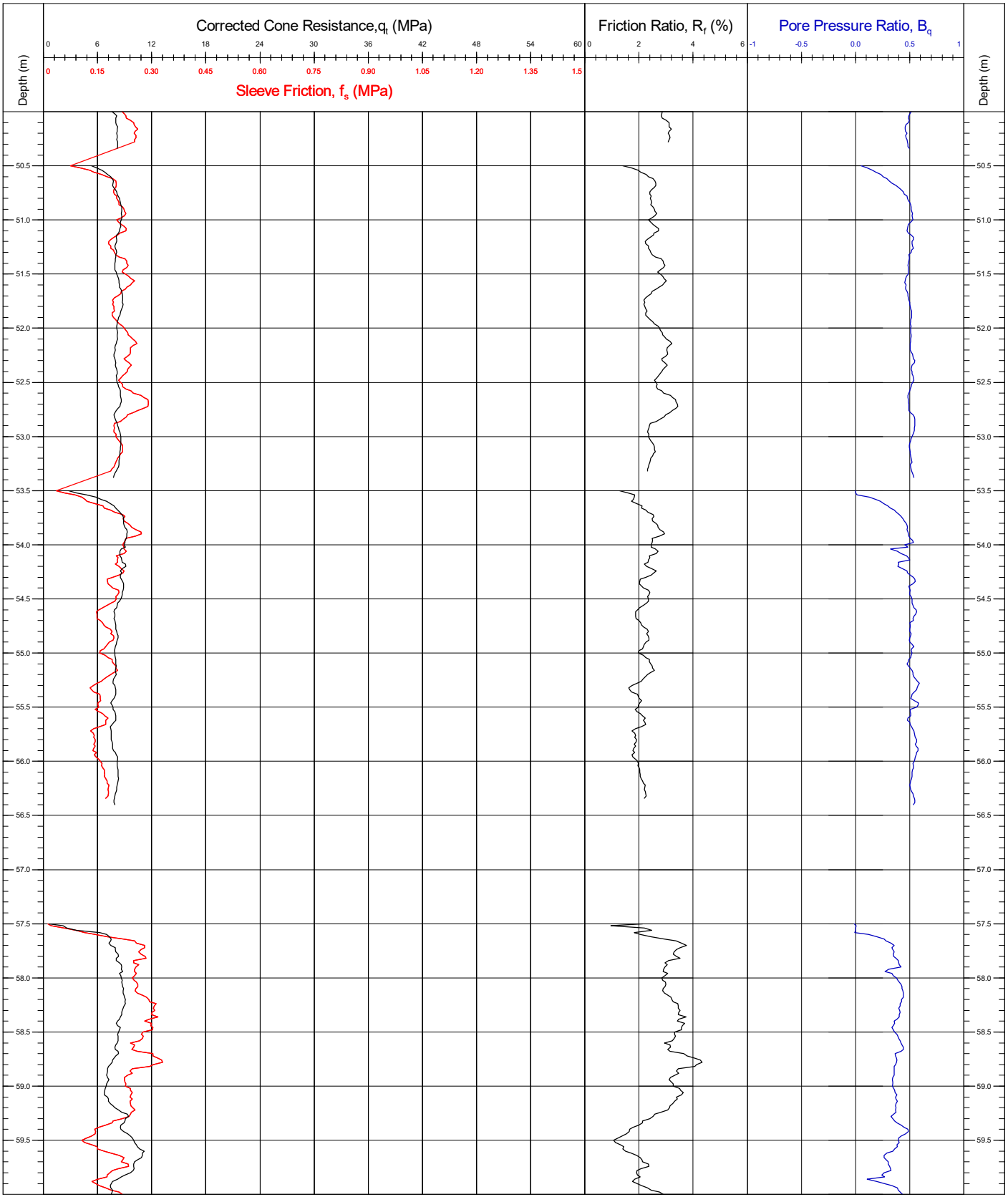
Area	**Kattegat Sea**	Coordinates	**673537.80E 6259626.90N**	CPT Number	**CB7-BH**
Contract	**11596**	Latitude / Longitude			
Client Name/Ref	**Energinet Eltransmission A/S/384_20_ENE**	Water Depth (mMSL)	**30.99**		
Vessel	**MV Ocean Vantage**	Date of Test (Start/End)	**29/05/2021 to 30/05/2021**	Page: 2/4	
		Cone No.(size)/α Factor	**121005G (10cm^2) / 0.78**	QC Status	
		Base Inclination	**X = 0.0° / Y = 0.0°**	Preliminary / Draft / Final	
		CRS **ETRS89**		**JK/BC** (29/05/2021) / **DR** (10/06/2021) / **SMc** (10/11/2021)	

Comments: Borehole CB7-BH was completed to a depth of 64.32m utilising API drilling~ Wison CPT and push sampling methods. P-S logging was performed from 52m to 4m below mudline.

Gardline

Preliminary Investigation, Hesselø OWF

IN SITU CPTU TESTING - DERIVED PARAMETERS



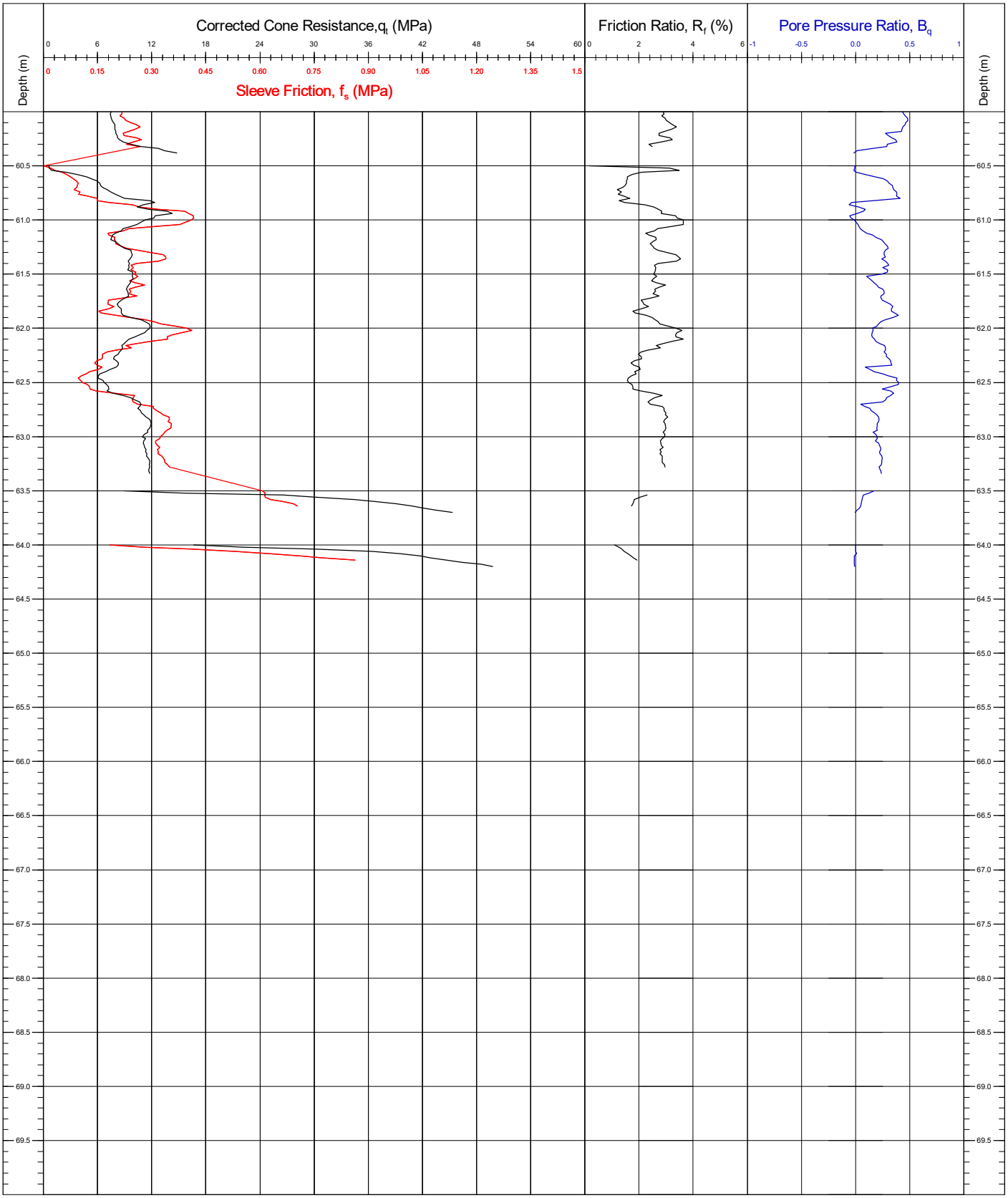
Area	**Kattegat Sea**	Coordinates	**673537.80E 6259626.90N**	CPT Number	**CB7-BH**
Contract	**11596**	Latitude / Longitude			
Client Name/Ref	**Energinet Eltransmission A/S/384_20_ENE**	Water Depth (mMSL)	**30.99**		
Vessel	**MV Ocean Vantage**	Date of Test (Start/End)	**29/05/2021 to 30/05/2021**	Page: 3/4	
		Cone No.(size)/α Factor	**121005G (10cm^2) / 0.78**	QC Status	
		Base Inclination	**X = 0.0° / Y = 0.0°**	Preliminary: **JK/BC (29/05/2021)**	Draft: **DR (10/06/2021)**
		CRS **ETRS89**			Final: **SMc (10/11/2021)**

Comments: Borehole CB7-BH was completed to a depth of 64.32m utilising API drilling~ Wison CPT and push sampling methods. P-S logging was performed from 52m to 4m below mudline.

Gardline

Preliminary Investigation, Hesselø OWF

IN SITU CPTU TESTING - DERIVED PARAMETERS



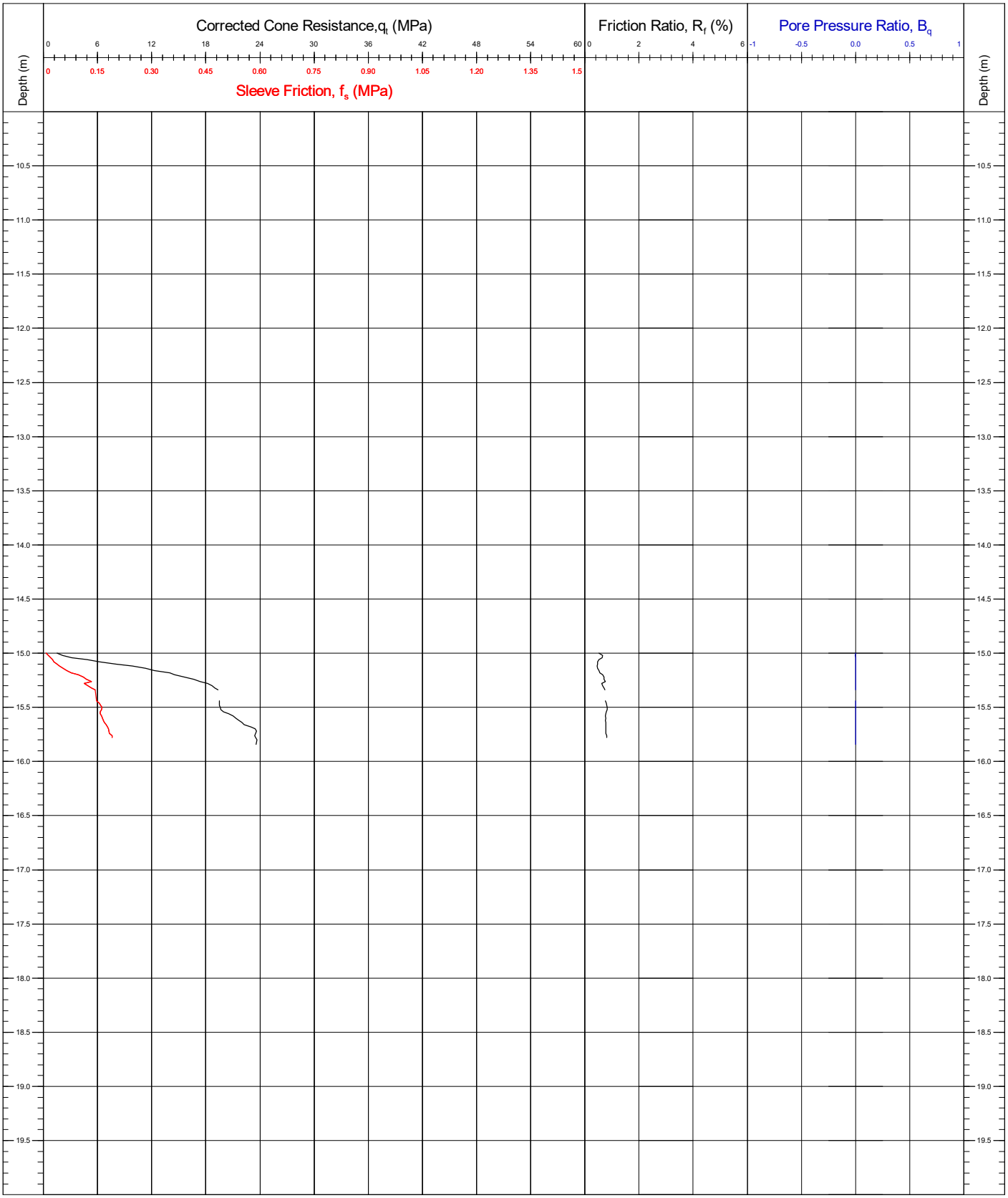
Area	**Kattegat Sea**	Coordinates	**673537.80E 6259626.90N**	CPT Number	**CB7-BH**
Contract	**11596**	Latitude / Longitude			
Client Name/Ref	**Energinet Eltransmission A/S/384_20_ENE**	Water Depth (mMSL)	**30.99**		
Vessel	**MV Ocean Vantage**	Date of Test (Start/End)	**29/05/2021 to 30/05/2021**	Page: 4/4	
		Cone No.(size)/α Factor	**121005G (10cm^2) / 0.78**	QC Status	
		Base Inclination	**X = 0.0° / Y = 0.0°**	Preliminary / Draft / Final	
		CRS **ETRS89**		**JK/BC** (29/05/2021) / **DR** (10/06/2021) / **SMc** (10/11/2021)	

Comments: Borehole CB7-BH was completed to a depth of 64.32m utilising API drilling~ Wison CPT and push sampling methods. P-S logging was performed from 52m to 4m below mudline.

Gardline

Preliminary Investigation, Hesselø OWF

IN SITU CPTU TESTING - DERIVED PARAMETERS

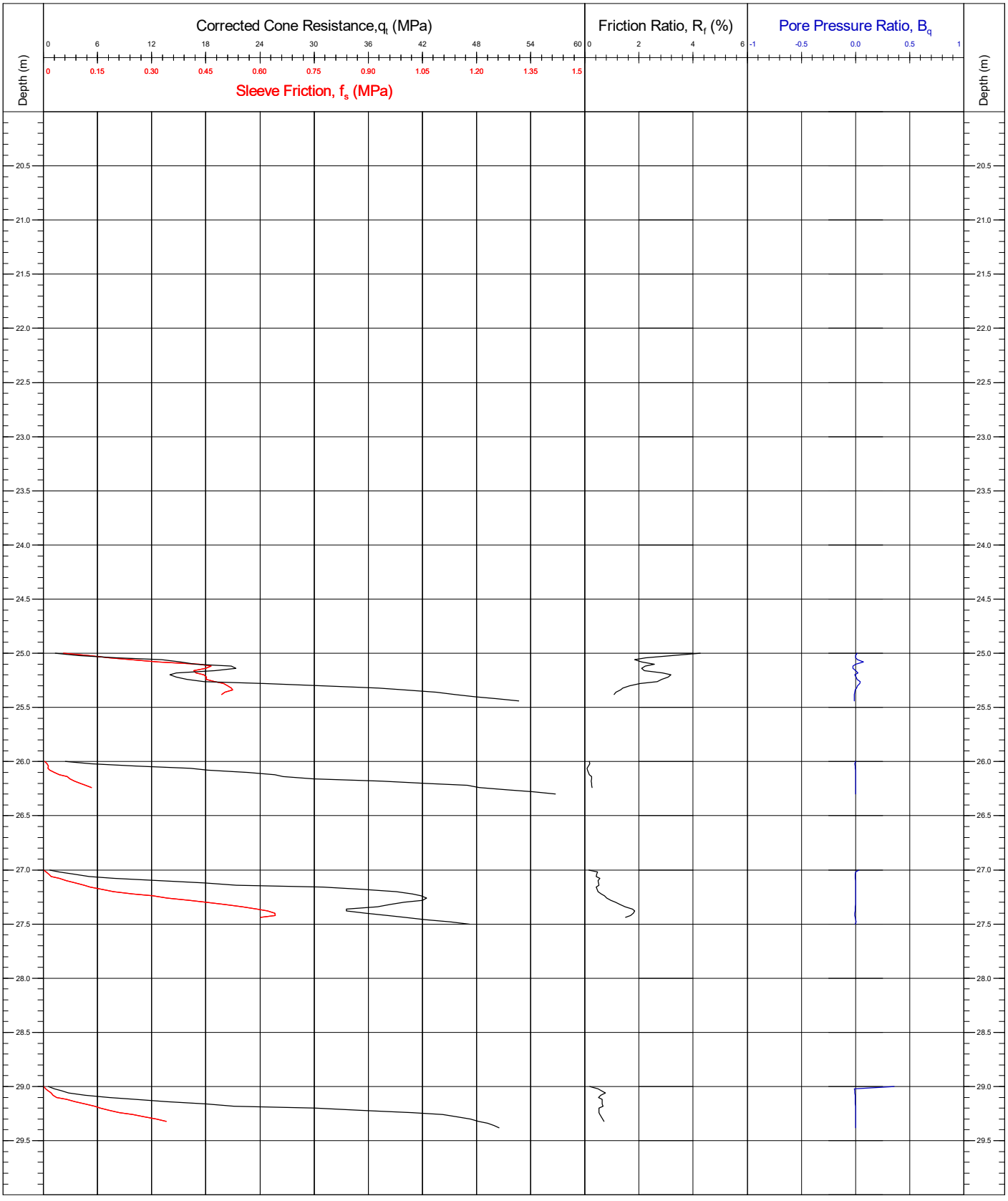


Area	**Kattegat Sea**	Coordinates	**679824.20E 6248913.90N**	CPT Number	**CB8-BH**
Contract	**11596**	Latitude / Longitude			
Client Name/Ref	**Energinet Eltransmission A/S/384_20_ENE**	Water Depth (mMSL)	**31.30**		
Vessel	**MV Ocean Vantage**	Date of Test (Start/End)	**18/05/2021 to 20/05/2021**	Page: 1/6	
Comments: Borehole CB8-BH was completed to a depth of 70.10m utilising API drilling~ Wison CPT and push sampling methods.		Cone No.(size)/α Factor	**120825 (10cm^2) / 0.76**	QC Status	
		Base Inclination	**X = 0.0° / Y = 0.0°**	Preliminary / Draft / Final	
		CRS **ETRS89**		**JK/BC** (20/05/2021) / **DR** (10/06/2021) / **SMc** (10/11/2021)	

Gardline

Preliminary Investigation, Hesselø OWF

IN SITU CPTU TESTING - DERIVED PARAMETERS

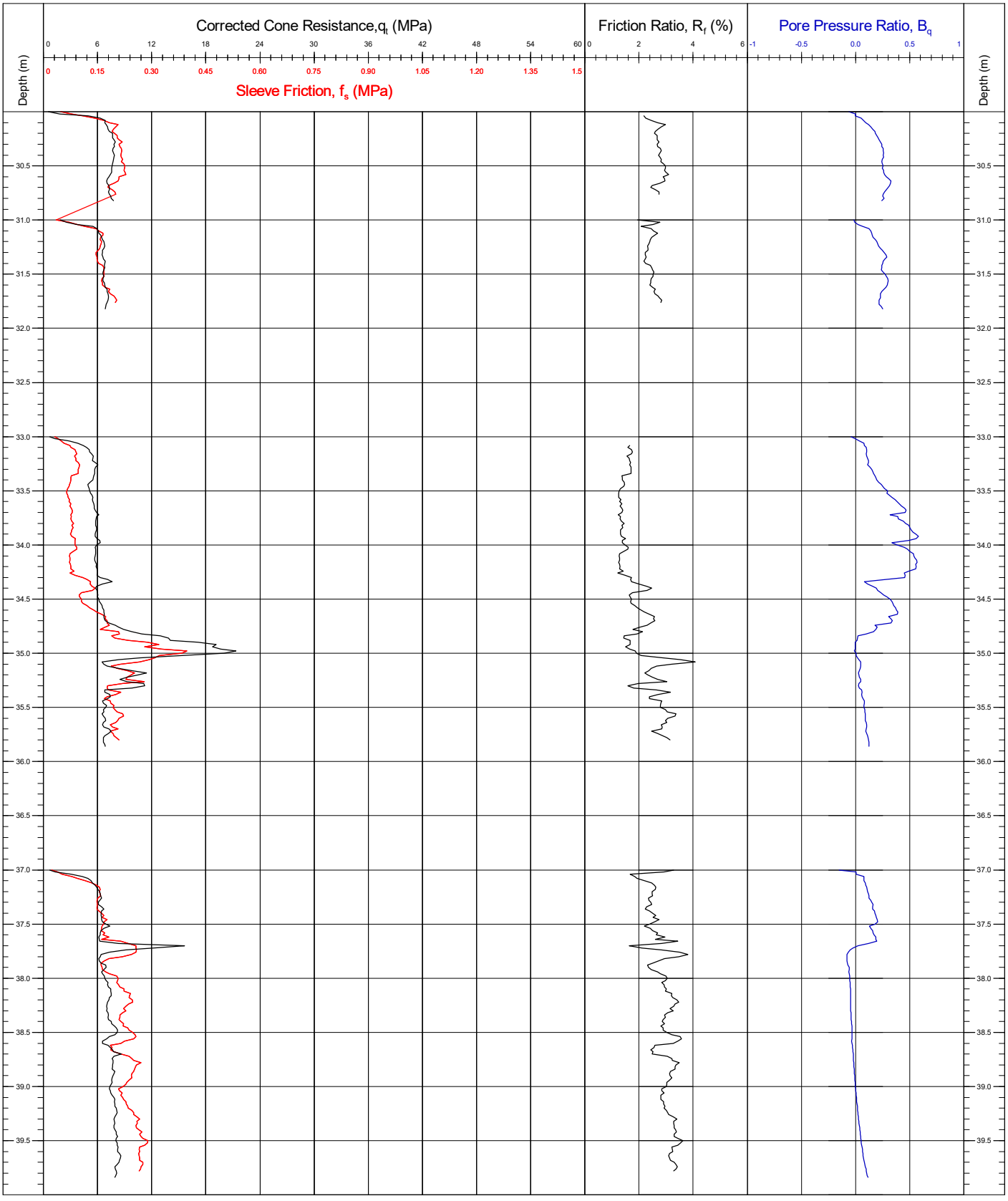


Area	**Kattegat Sea**	Coordinates	**679824.20E 6248913.90N**	CPT Number	**CB8-BH**
Contract	**11596**	Latitude / Longitude			
Client Name/Ref	**Energinet Eltransmission A/S/384_20_ENE**	Water Depth (mMSL)	**31.30**		
Vessel	**MV Ocean Vantage**	Date of Test (Start/End)	**18/05/2021 to 20/05/2021**	Page: 2/6	
Comments: Borehole CB8-BH was completed to a depth of 70.10m utilising API drilling~ Wison CPT and push sampling methods.		Cone No.(size)/α Factor	**120825 (10cm^2) / 0.76**	QC Status	
		Base Inclination	**X = 0.0° / Y = 0.0°**	Preliminary: **JK/BC (20/05/2021)**	Draft: **DR (10/06/2021)**
		CRS **ETRS89**			Final: **SMc (10/11/2021)**

Gardline

Preliminary Investigation, Hesselø OWF

IN SITU CPTU TESTING - DERIVED PARAMETERS

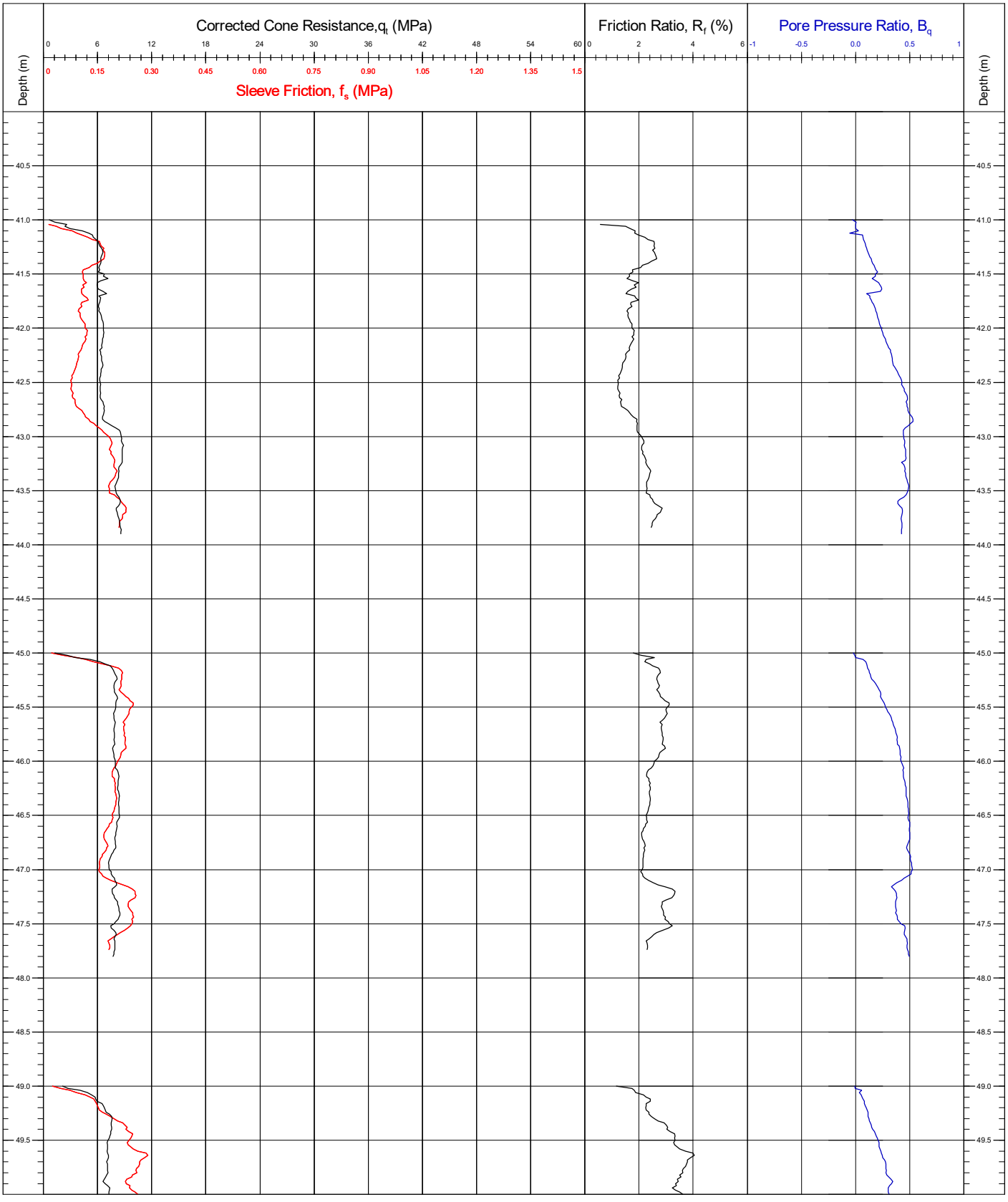


Area	**Kattegat Sea**	Coordinates	**679824.20E 6248913.90N**	CPT Number	**CB8-BH**
Contract	**11596**	Latitude / Longitude			
Client Name/Ref	**Energinet Eltransmission A/S/384_20_ENE**	Water Depth (mMSL)	**31.30**		
Vessel	**MV Ocean Vantage**	Date of Test (Start/End)	**18/05/2021 to 20/05/2021**	Page: 3/6	
Comments: Borehole CB8-BH was completed to a depth of 70.10m utilising API drilling~ Wison CPT and push sampling methods.		Cone No.(size)/α Factor	**120825 (10cm^2) / 0.76**	QC Status	
		Base Inclination	**X = 0.0° / Y = 0.0°**	Preliminary: **JK/BC** (20/05/2021)	Draft: **DR** (10/06/2021)
		CRS **ETRS89**			Final: **SMc** (10/11/2021)

Gardline

Preliminary Investigation, Hesselø OWF

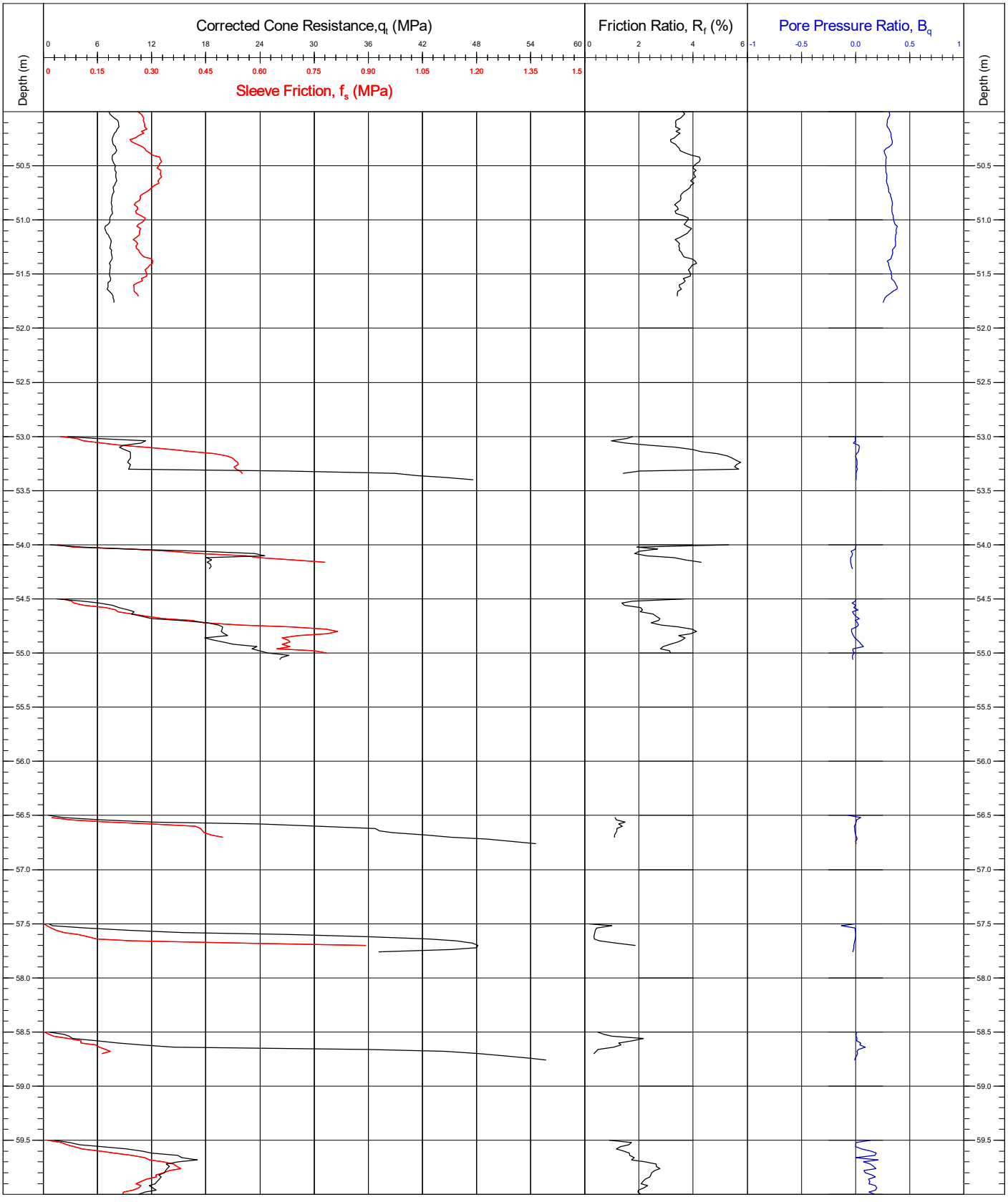
IN SITU CPTU TESTING - DERIVED PARAMETERS



Area	**Kattegat Sea**	Coordinates	**679824.20E 6248913.90N**	CPT Number	**CB8-BH**
Contract	**11596**	Latitude / Longitude			
Client Name/Ref	**Energinet Eltransmission A/S/384_20_ENE**	Water Depth (mMSL)	**31.30**		
Vessel	**MV Ocean Vantage**	Date of Test (Start/End)	**18/05/2021 to 20/05/2021**	Page: 4/6	
Comments: Borehole CB8-BH was completed to a depth of 70.10m utilising API drilling~ Wison CPT and push sampling methods.		Cone No.(size)/α Factor	**120825 (10cm^2) / 0.76**	QC Status	
		Base Inclination	**X = 0.0° / Y = 0.0°**	Preliminary: **JK/BC** (20/05/2021)	Draft: **DR** (10/06/2021)
		CRS **ETRS89**			Final: **SMc** (10/11/2021)

Preliminary Investigation, Hesselø OWF

IN SITU CPTU TESTING - DERIVED PARAMETERS

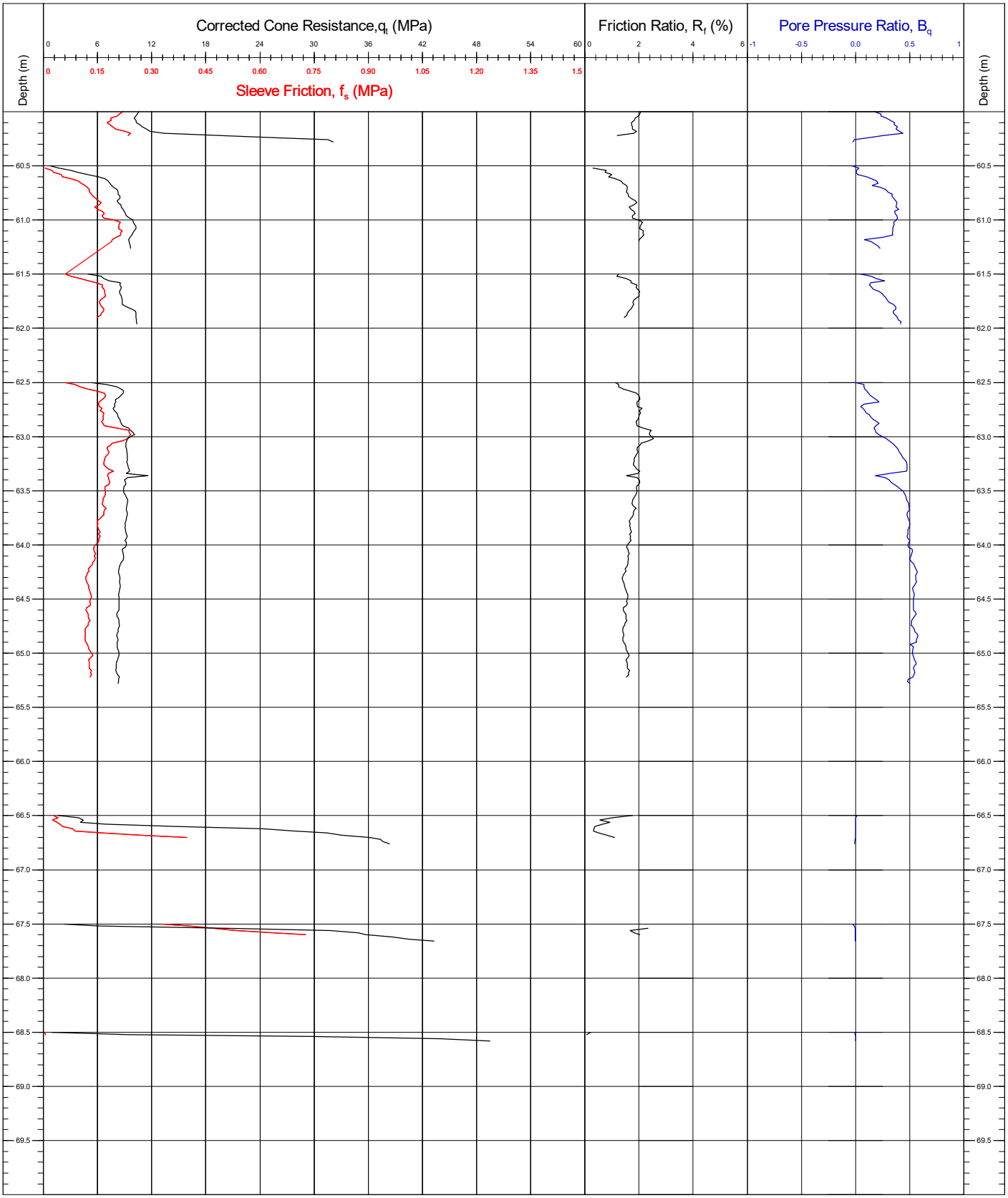


Area	**Kattegat Sea**	Coordinates	**679824.20E 6248913.90N**	CPT Number	**CB8-BH**
Contract	**11596**	Latitude / Longitude			
Client Name/Ref	**Energinet Eltransmission A/S/384_20_ENE**	Water Depth (mMSL)	**31.30**		
Vessel	**MV Ocean Vantage**	Date of Test (Start/End)	**18/05/2021 to 20/05/2021**	Page: 5/6	
Comments: Borehole CB8-BH was completed to a depth of 70.10m utilising API drilling~ Wison CPT and push sampling methods.		Cone No.(size)/α Factor	**120825 (10cm^2) / 0.76**	QC Status	
		Base Inclination	**X = 0.0° / Y = 0.0°**	Preliminary: **JK/BC** (20/05/2021)	Draft: **DR** (10/06/2021)
		CRS **ETRS89**			Final: **SMc** (10/11/2021)

Gardline

Preliminary Investigation, Hesselø OWF

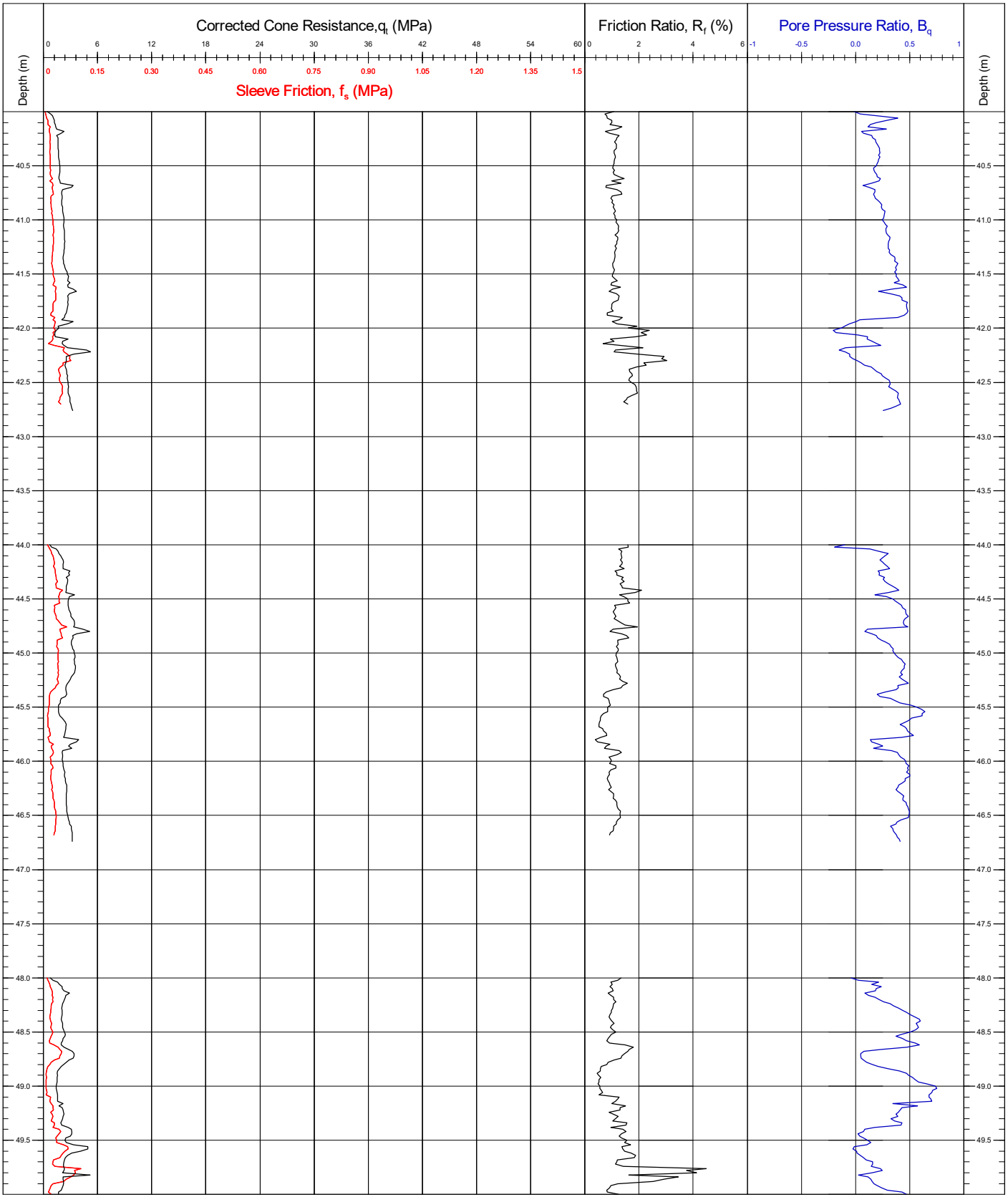
IN SITU CPTU TESTING - DERIVED PARAMETERS



Area	**Kattegat Sea**	Coordinates	**679824.20E 6248913.90N**	CPT Number	**CB8-BH**
Contract	**11596**	Latitude / Longitude			
Client Name/Ref	**Energinet Eltransmission A/S/384_20_ENE**	Water Depth (mMSL)	**31.30**		
Vessel	**MV Ocean Vantage**	Date of Test (Start/End)	**18/05/2021 to 20/05/2021**	Page: 6/6	
Comments: Borehole CB8-BH was completed to a depth of 70.10m utilising API drilling~ Wison CPT and push sampling methods.		Cone No.(size)/α Factor	**120825 (10cm^2) / 0.76**	QC Status	
		Base Inclination	**X = 0.0° / Y = 0.0°**	Preliminary / Draft / Final	
		CRS **ETRS89**		**JK/BC** (20/05/2021) / **DR** (10/06/2021) / **SMc** (10/11/2021)	

Preliminary Investigation, Hesselø OWF

IN SITU CPTU TESTING - DERIVED PARAMETERS

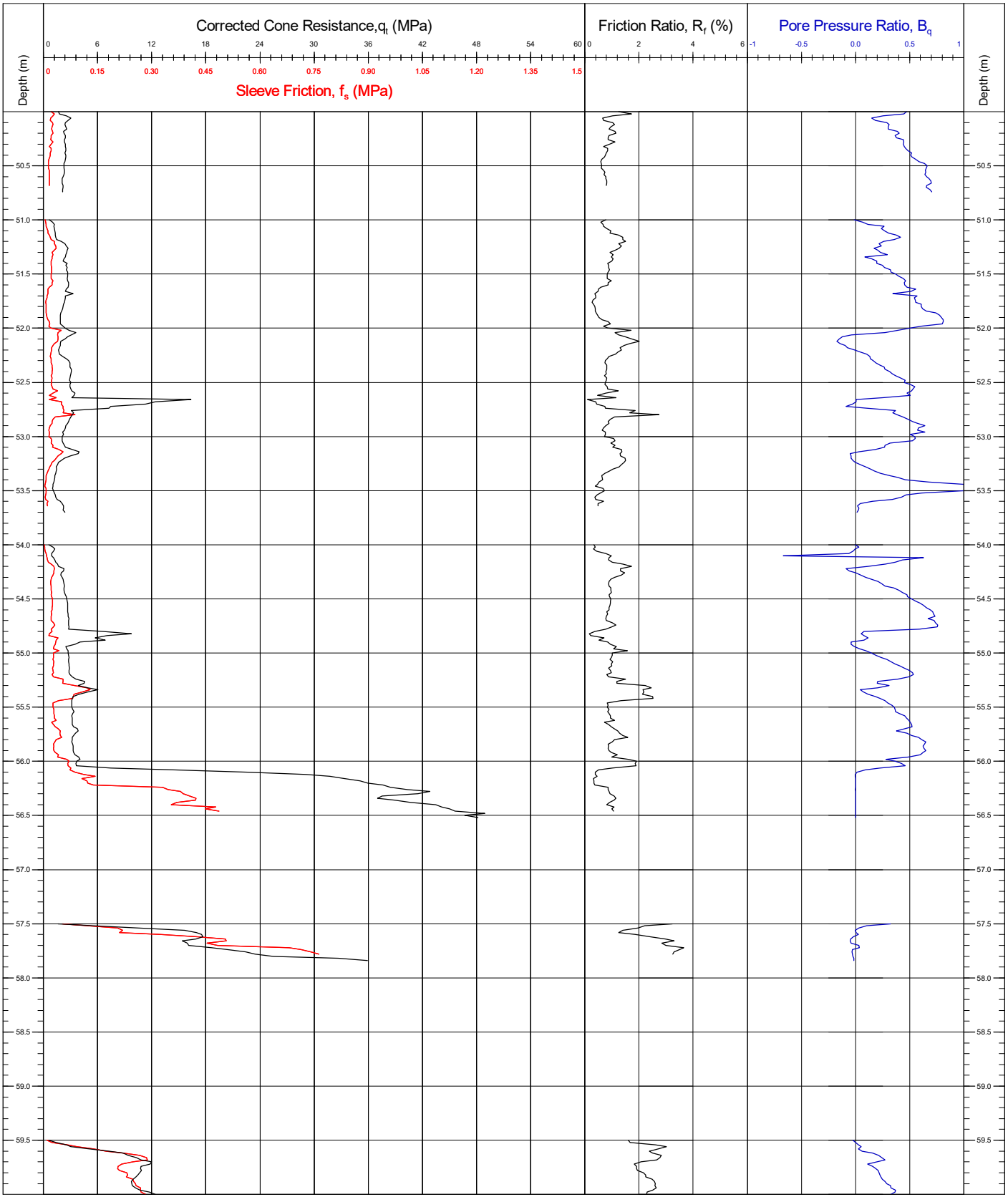


Area	**Kattegat Sea**	Coordinates	**677391.00E 6276213.60N**	CPT Number	
Contract	**11596**	Latitude / Longitude		**CB9-BH**	
Client Name/Ref	**Energinet Eltransmission A/S/384_20_ENE**	Water Depth (mMSL)	**30.85**		
Vessel	**MV Ocean Vantage**	Date of Test (Start/End)	**03/06/2021 to 04/06/2021**	Page: 1/4	
Comments: Borehole CB9-BH was completed to a depth of 70.94m utilising API drilling~ Wison CPT and push sampling methods		Cone No.(size)/α Factor	**120826 (10cm^2) / 0.76**	QC Status	
		Base Inclination	**X = 0.0° / Y = 0.0°**	Preliminary / Draft / Final	
		CRS **ETRS89**		**JK/BC** (03/06/2021) / **DR** (10/06/2021) / **SMc** (10/11/2021)	

Gardline

Preliminary Investigation, Hesselø OWF

IN SITU CPTU TESTING - DERIVED PARAMETERS

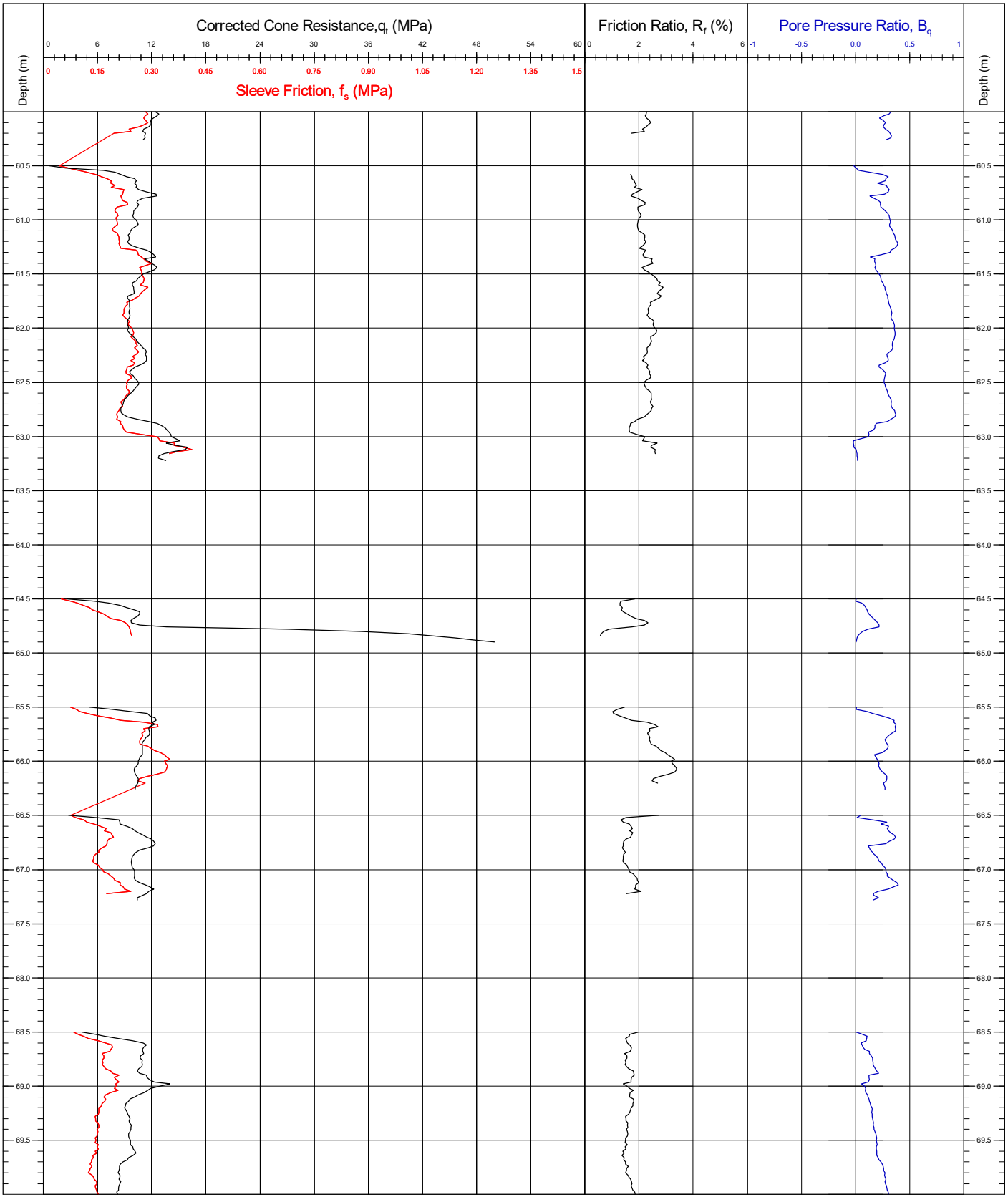


Area	**Kattegat Sea**	Coordinates	**677391.00E 6276213.60N**	CPT Number	**CB9-BH**
Contract	**11596**	Latitude / Longitude			
Client Name/Ref	**Energinet Eltransmission A/S/384_20_ENE**	Water Depth (mMSL)	**30.85**		
Vessel	**MV Ocean Vantage**	Date of Test (Start/End)	**03/06/2021 to 04/06/2021**	Page: 2/4	
Comments: Borehole CB9-BH was completed to a depth of 70.94m utilising API drilling~ Wison CPT and push sampling methods		Cone No.(size)/α Factor	**120826 (10cm^2) / 0.76**	QC Status	
		Base Inclination	**X = 0.0° / Y = 0.0°**	Preliminary: **JK/BC** (03/06/2021)	Draft: **DR** (10/06/2021)
		CRS **ETRS89**			Final: **SMc** (10/11/2021)

Gardline

Preliminary Investigation, Hesselø OWF

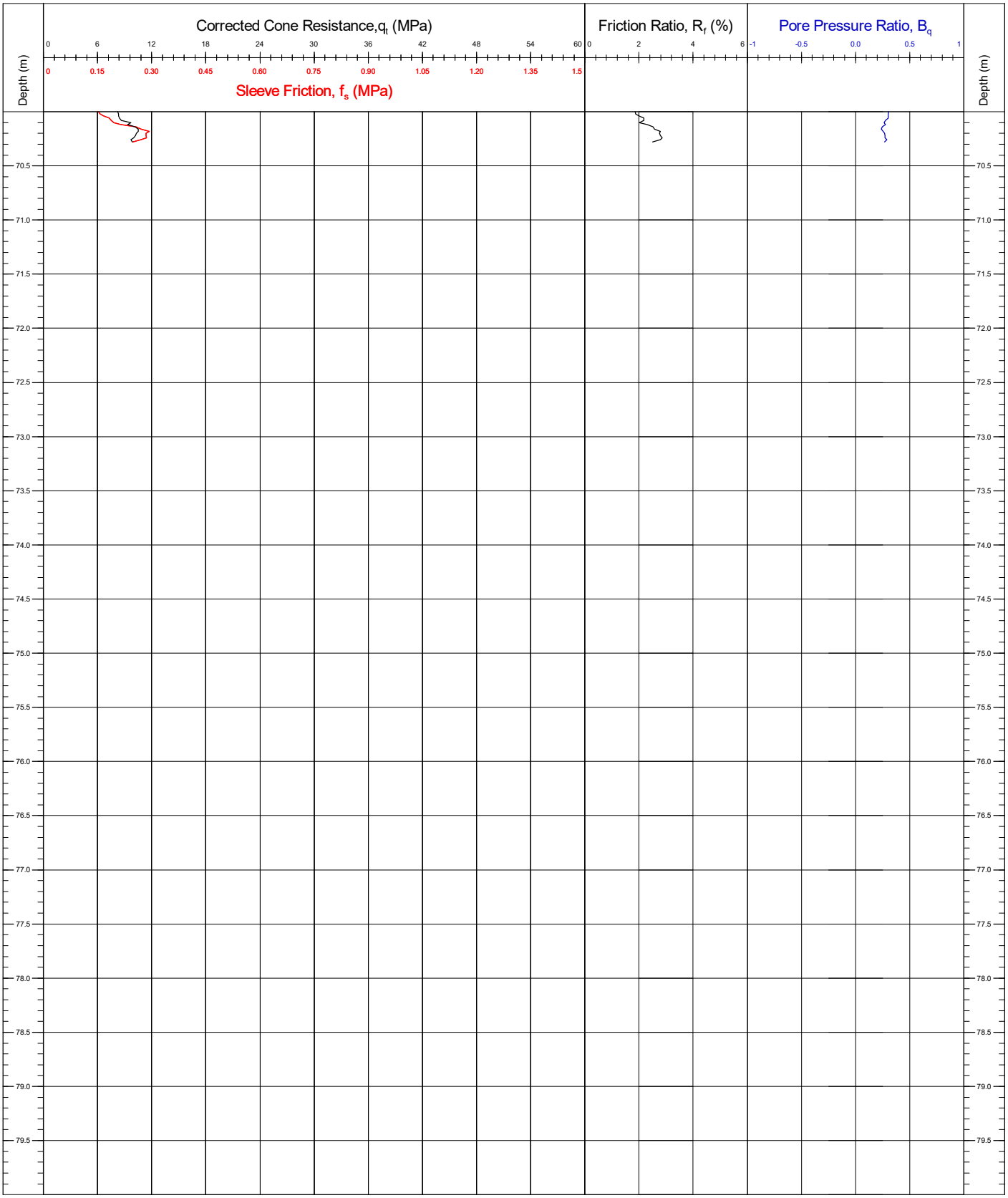
IN SITU CPTU TESTING - DERIVED PARAMETERS



Area	**Kattegat Sea**	Coordinates	**677391.00E 6276213.60N**	CPT Number	**CB9-BH**
Contract	**11596**	Latitude / Longitude			
Client Name/Ref	**Energinet Eltransmission A/S/384_20_ENE**	Water Depth (mMSL)	**30.85**		
Vessel	**MV Ocean Vantage**	Date of Test (Start/End)	**03/06/2021 to 04/06/2021**	Page: 3/4	
Comments: Borehole CB9-BH was completed to a depth of 70.94m utilising API drilling~ Wison CPT and push sampling methods		Cone No.(size)/α Factor	**120826 (10cm^2) / 0.76**	QC Status	
		Base Inclination	**X = 0.0° / Y = 0.0°**	Preliminary: **JK/BC** (03/06/2021)	Draft: **DR** (10/06/2021)
		CRS **ETRS89**			Final: **SMc** (10/11/2021)

Preliminary Investigation, Hesselø OWF

IN SITU CPTU TESTING - DERIVED PARAMETERS

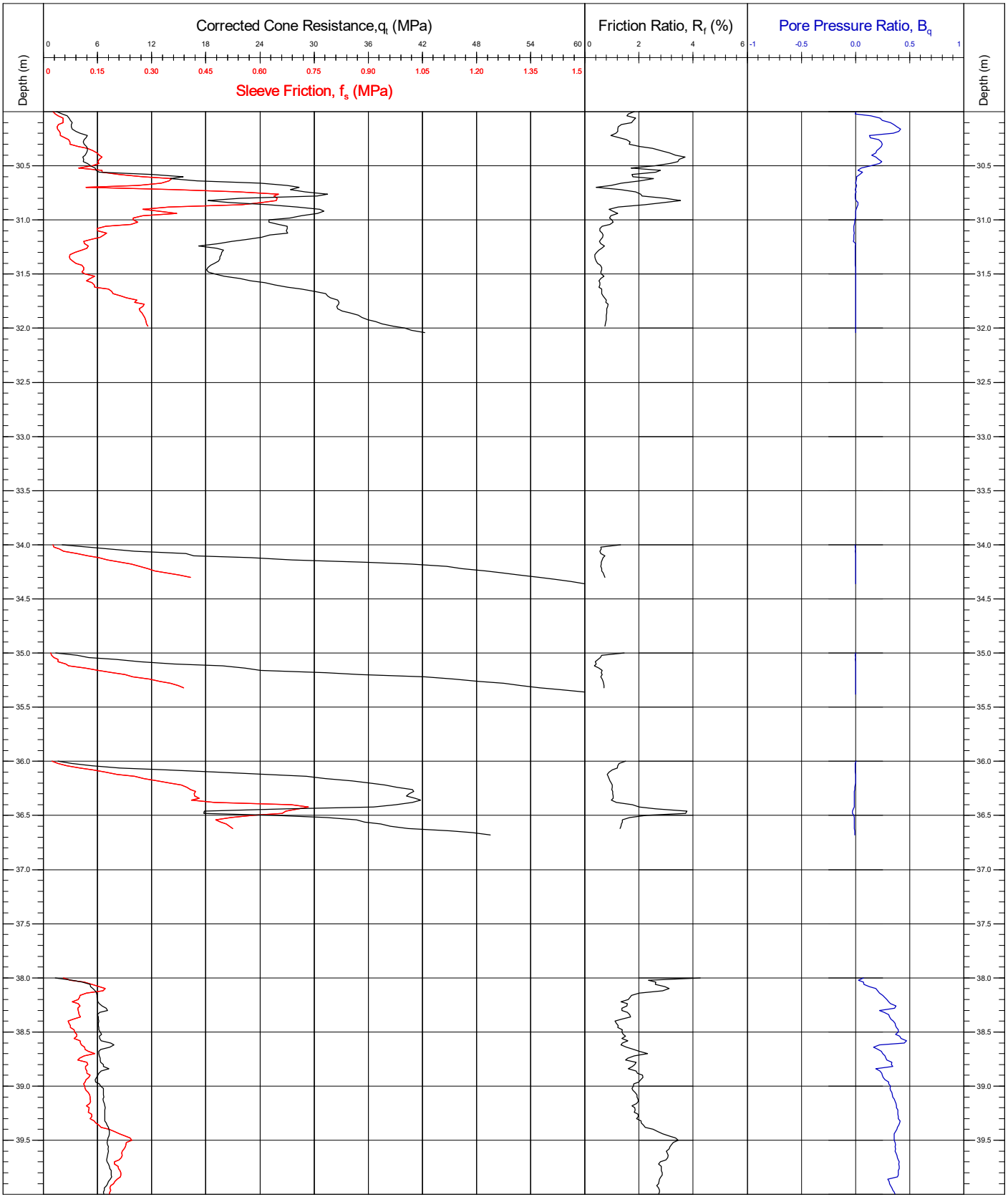


Area	**Kattegat Sea**	Coordinates	**677391.00E 6276213.60N**	CPT Number	**CB9-BH**
Contract	**11596**	Latitude / Longitude			
Client Name/Ref	**Energinet Eltransmission A/S/384_20_ENE**	Water Depth (mMSL)	**30.85**		
Vessel	**MV Ocean Vantage**	Date of Test (Start/End)	**03/06/2021 to 04/06/2021**	Page: 4/4	
Comments: Borehole CB9-BH was completed to a depth of 70.94m utilising API drilling~ Wison CPT and push sampling methods		Cone No.(size)/α Factor	**120826 (10cm^2) / 0.76**	QC Status	
		Base Inclination	**X = 0.0° / Y = 0.0°**	Preliminary / Draft / Final	
		CRS **ETRS89**		**JK/BC** (03/06/2021) / **DR** (10/06/2021) / **SMc** (10/11/2021)	

Gardline

Preliminary Investigation, Hesselø OWF

IN SITU CPTU TESTING - DERIVED PARAMETERS

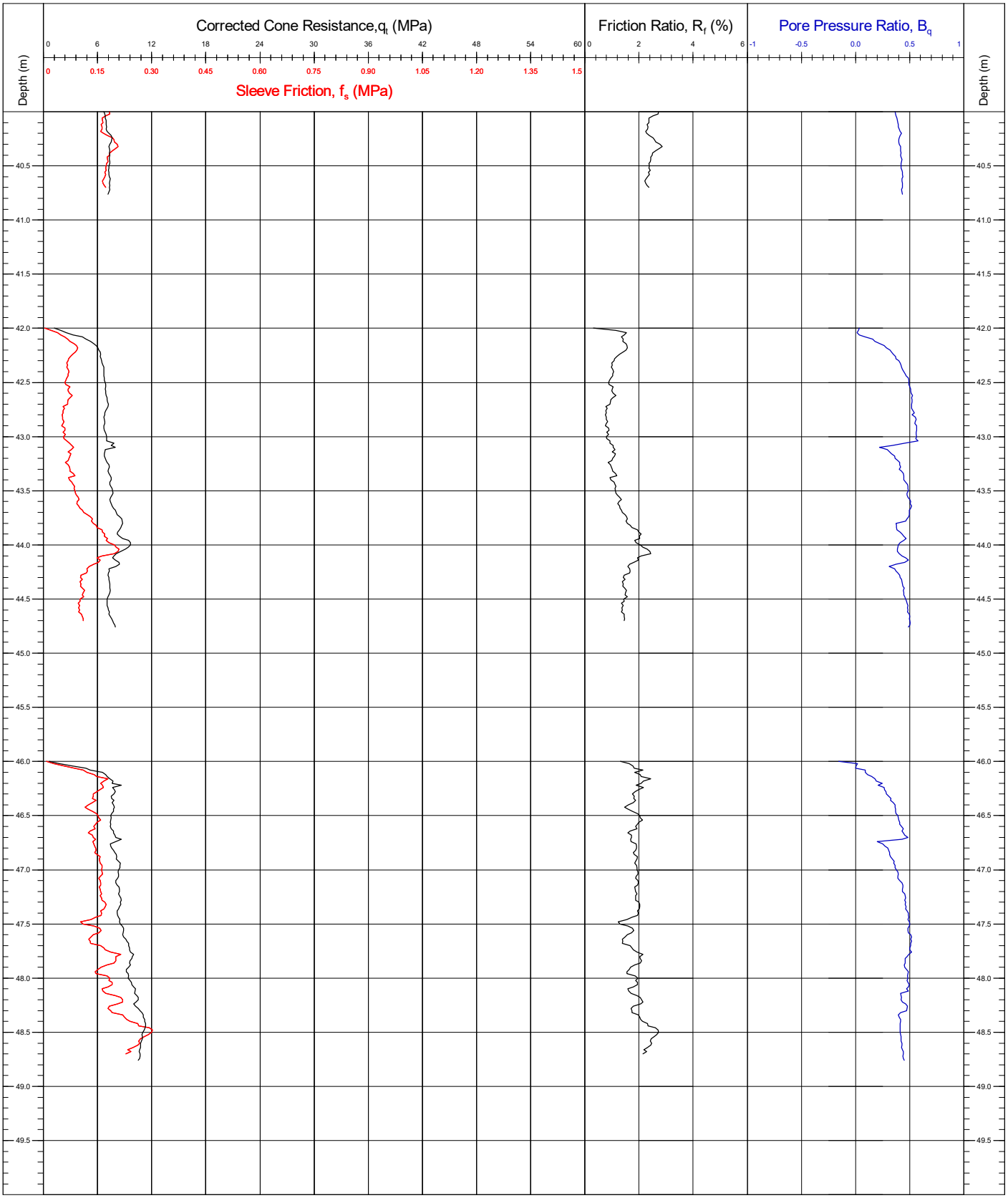


Area	**Kattegat Sea**	Coordinates	**678755.50E 6261514.20N**	CPT Number	
Contract	**11596**	Latitude / Longitude		**CB10a-BH**	
Client Name/Ref	**Energinet Eltransmission A/S/384_20_ENE**	Water Depth (mMSL)	**33.11**		
Vessel	**MV Ocean Vantage**	Date of Test (Start/End)	**05/06/2021 to 06/06/2021**	Page: 1/4	
Comments: Borehole CB10a-BH was completed to a depth of 70.25m utilising API drilling~ Wison CPT and push sampling methods.		Cone No.(size)/α Factor	**121005G (10cm^2) / 0.78**	QC Status	
		Base Inclination	**X = 0.0° / Y = 0.0°**	Preliminary: **JK/BC** (05/06/2021)	Draft: **DR** (10/06/2021)
		CRS **ETRS89**			Final: **SMc** (10/11/2021)

Gardline

Preliminary Investigation, Hesselø OWF

IN SITU CPTU TESTING - DERIVED PARAMETERS

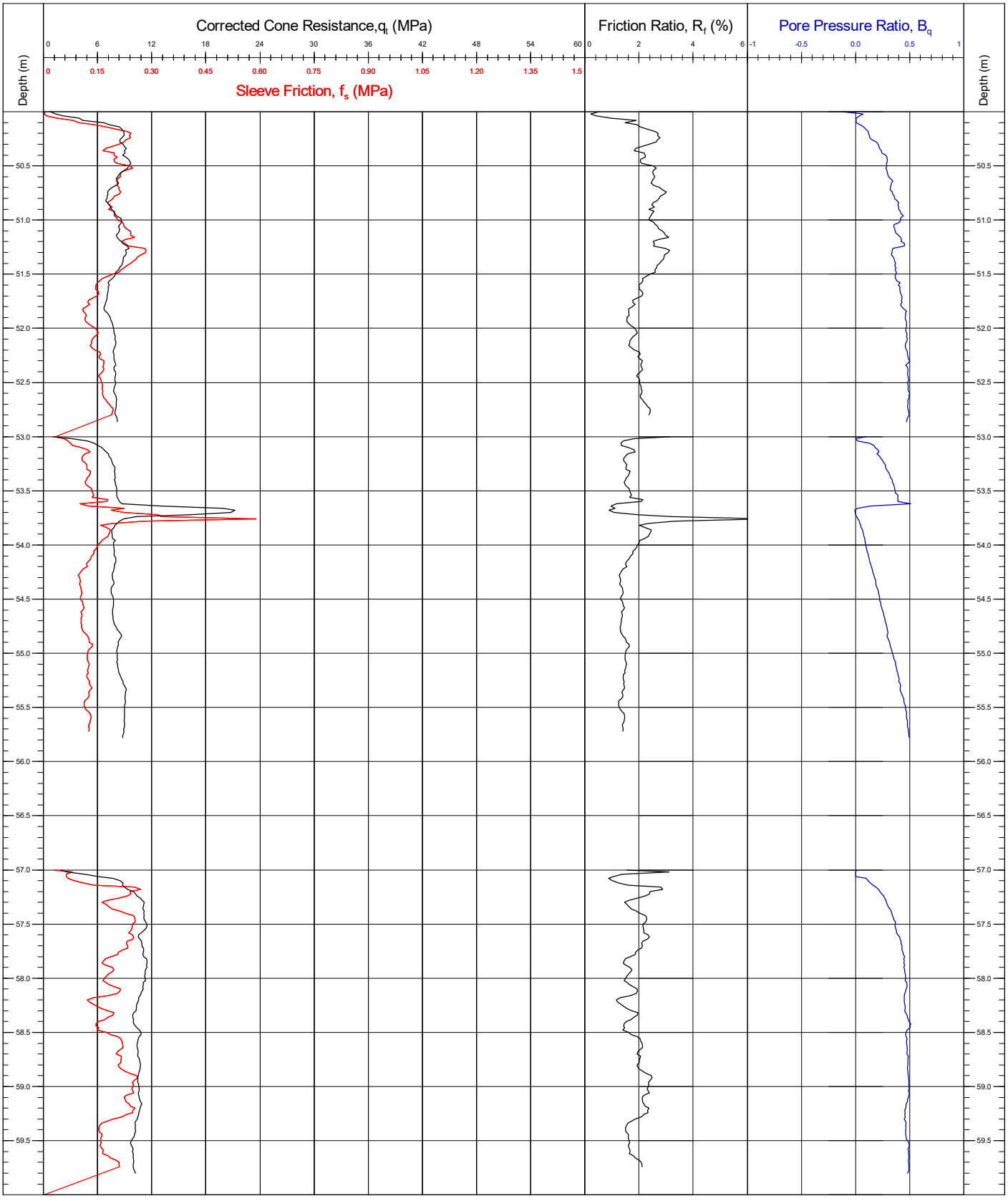


Area	**Kattegat Sea**	Coordinates	**678755.50E 6261514.20N**	CPT Number	**CB10a-BH**
Contract	**11596**	Latitude / Longitude			
Client Name/Ref	**Energinet Eltransmission A/S/384_20_ENE**	Water Depth (mMSL)	**33.11**		
Vessel	**MV Ocean Vantage**	Date of Test (Start/End)	**05/06/2021 to 06/06/2021**	Page: 2/4	
Comments: Borehole CB10a-BH was completed to a depth of 70.25m utilising API drilling~ Wison CPT and push sampling methods.		Cone No.(size)/α Factor	**121005G (10cm^2) / 0.78**	QC Status	
		Base Inclination	**X = 0.0° / Y = 0.0°**	Preliminary: **JK/BC** (05/06/2021)	Draft: **DR** (10/06/2021)
		CRS **ETRS89**			Final: **SMc** (10/11/2021)

Gardline

Preliminary Investigation, Hesselø OWF

IN SITU CPTU TESTING - DERIVED PARAMETERS

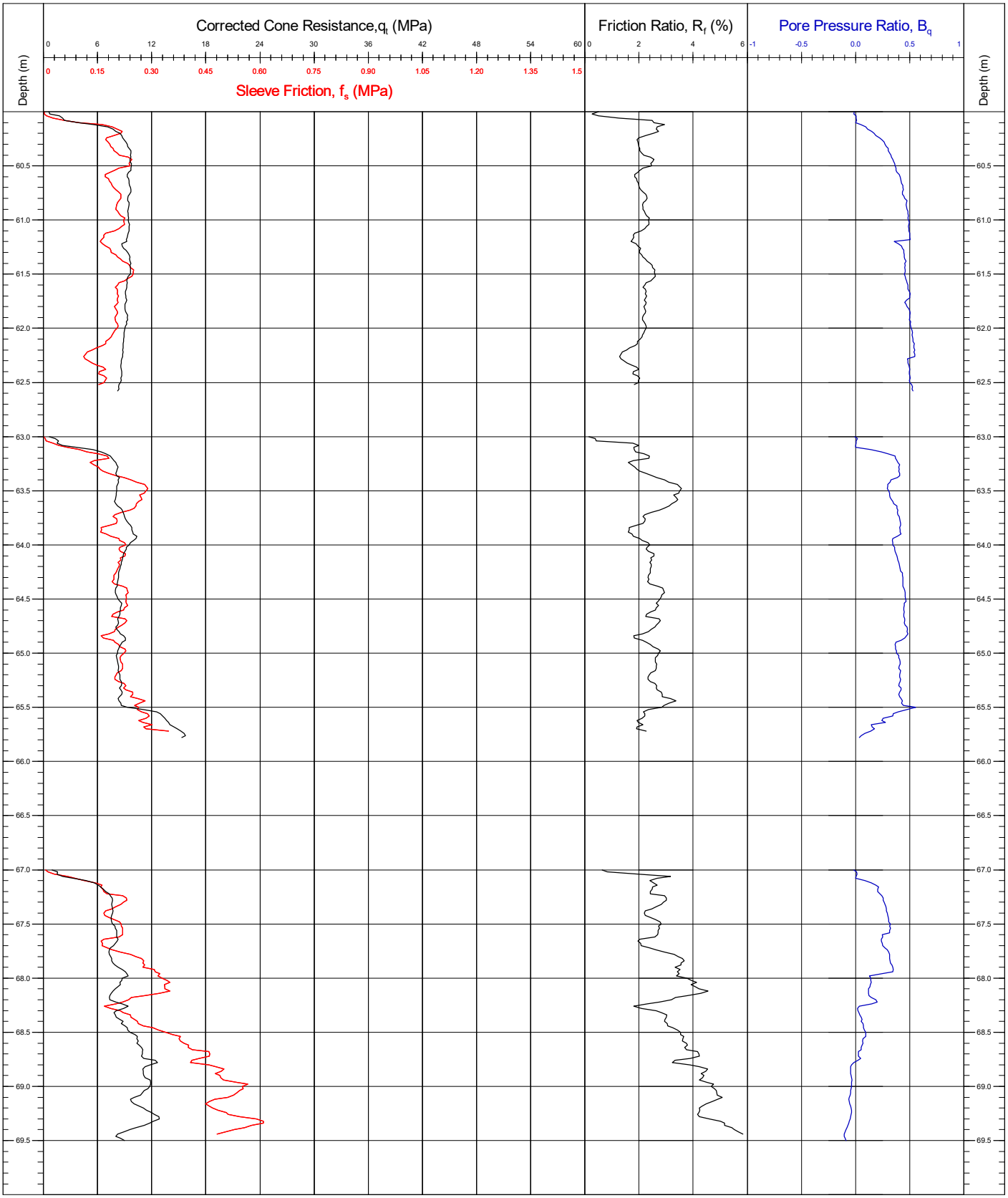


Area	**Kattegat Sea**	Coordinates	**678755.50E 6261514.20N**	CPT Number	**CB10a-BH**
Contract	**11596**	Latitude / Longitude			
Client Name/Ref	**Energinet Eltransmission A/S/384_20_ENE**	Water Depth (mMSL)	**33.11**		
Vessel	**MV Ocean Vantage**	Date of Test (Start/End)	**05/06/2021 to 06/06/2021**	Page: 3/4	
Comments: Borehole CB10a-BH was completed to a depth of 70.25m utilising API drilling~ Wison CPT and push sampling methods.		Cone No.(size)/α Factor	**121005G (10cm^2) / 0.78**	QC Status	
		Base Inclination	**X = 0.0° / Y = 0.0°**	Preliminary: **JK/BC** (05/06/2021)	Draft: **DR** (10/06/2021)
		CRS **ETRS89**			Final: **SMc** (10/11/2021)

Gardline

Preliminary Investigation, Hesselø OWF

IN SITU CPTU TESTING - DERIVED PARAMETERS

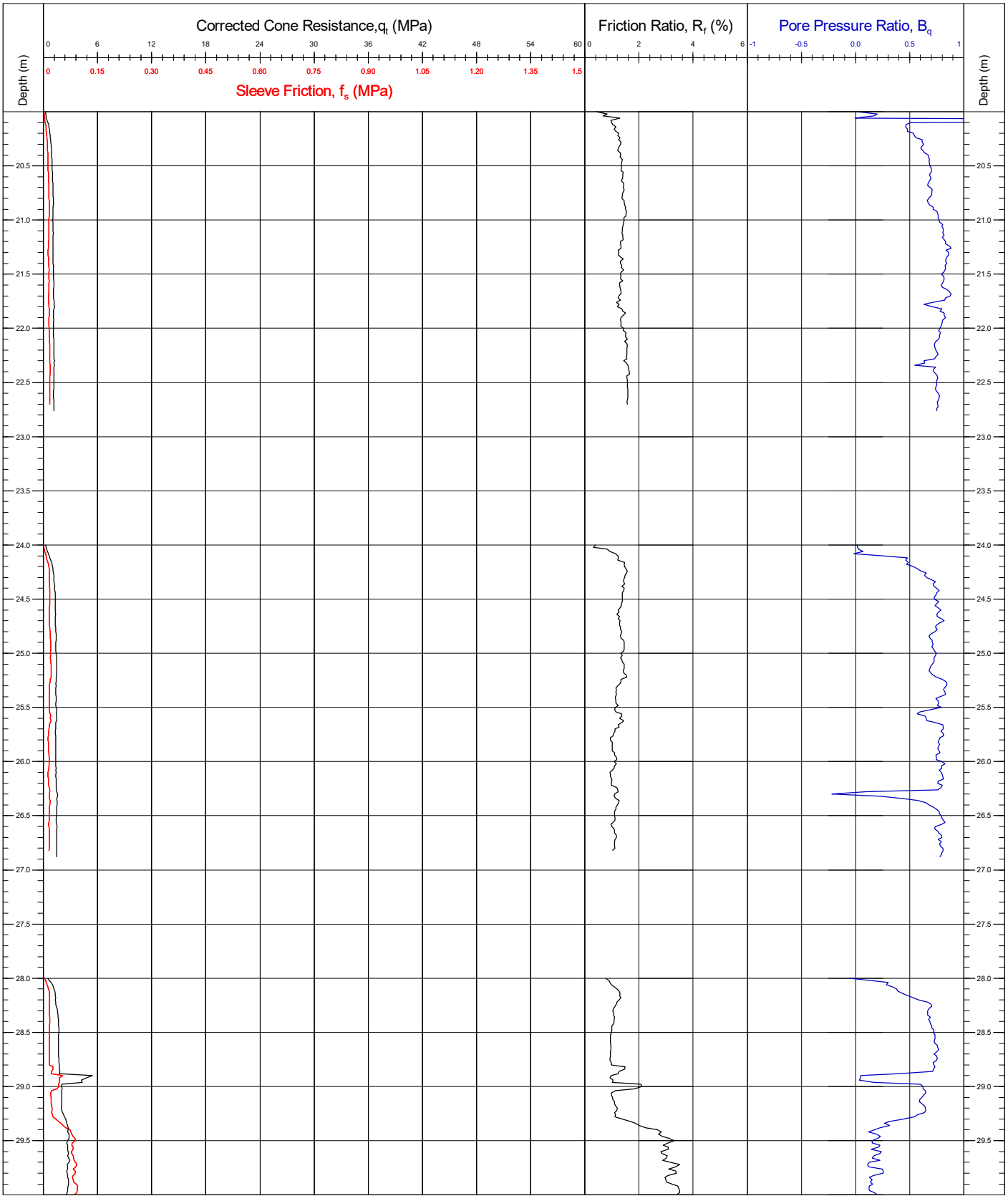


Area	**Kattegat Sea**	Coordinates	**678755.50E 6261514.20N**	CPT Number	
Contract	**11596**	Latitude / Longitude		**CB10a-BH**	
Client Name/Ref	**Energinet Eltransmission A/S/384_20_ENE**	Water Depth (mMSL)	**33.11**		
Vessel	**MV Ocean Vantage**	Date of Test (Start/End)	**05/06/2021 to 06/06/2021**	Page: 4/4	
		Cone No.(size)/α Factor	**121005G (10cm^2) / 0.78**	QC Status	
		Base Inclination	**X = 0.0° / Y = 0.0°**	Preliminary: **JK/BC** (05/06/2021)	Draft: **DR** (10/06/2021)
		CRS **ETRS89**			Final: **SMc** (10/11/2021)

Comments: Borehole CB10a-BH was completed to a depth of 70.25m utilising API drilling~ Wison CPT and push sampling methods.

Preliminary Investigation, Hesselø OWF

IN SITU CPTU TESTING - DERIVED PARAMETERS

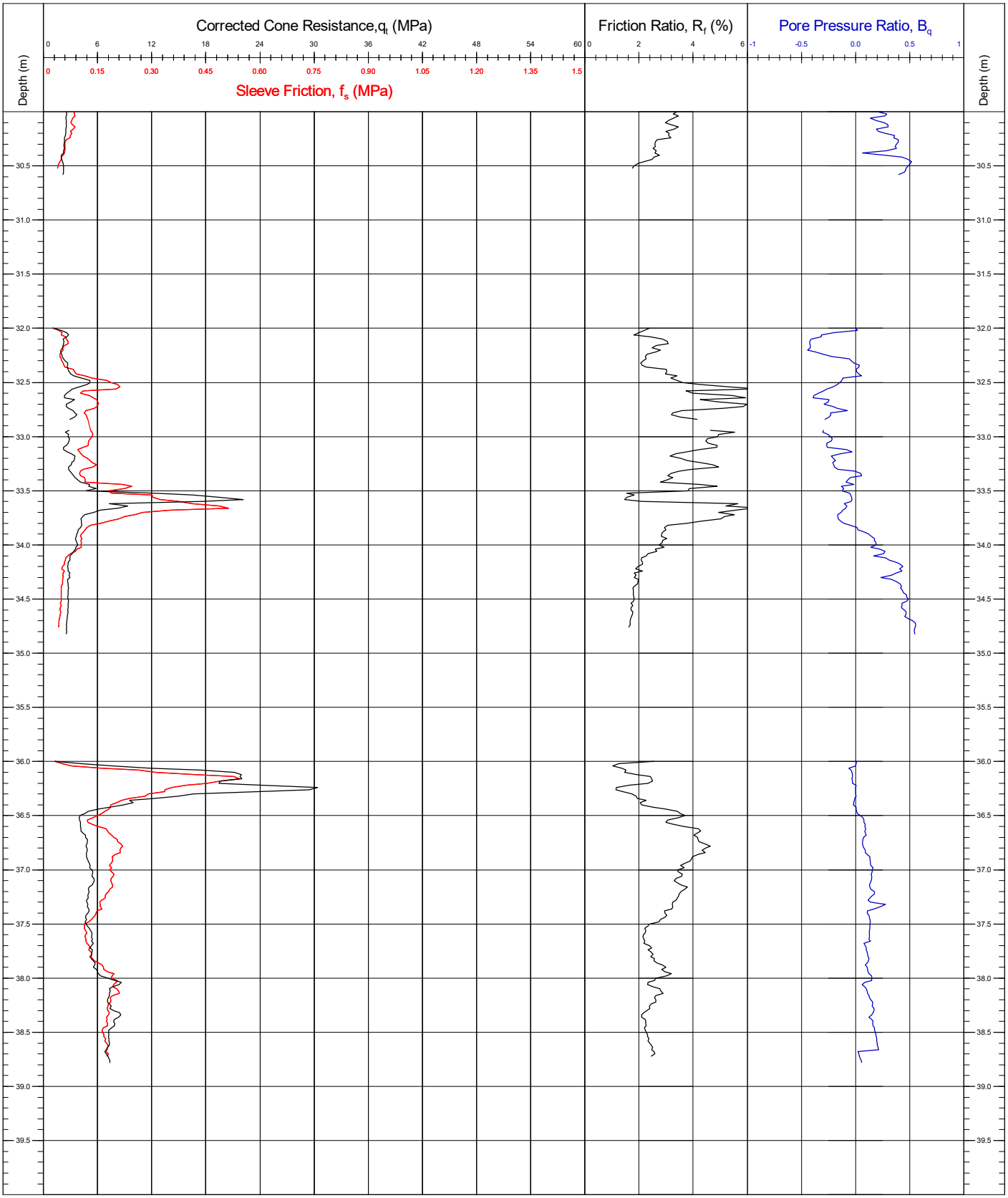


Area	**Kattegat Sea**	Coordinates	**678372.10E 6256261.30N**	CPT Number	**CB11-BH**
Contract	**11596**	Latitude / Longitude			
Client Name/Ref	**Energinet Eltransmission A/S/384_20_ENE**	Water Depth (mMSL)	**31.48**		
Vessel	**MV Ocean Vantage**	Date of Test (Start/End)	**22/05/2021 to 23/05/2021**	Page: 1/4	
Comments: Borehole CB11-BH was completed to a depth of 53.12m utilising API drilling~ Wison CPT and push sampling methods~ at which point it was terminated due to rising weather conditions.		Cone No.(size)/α Factor	**120826 (10cm^2) / 0.76**	QC Status	
		Base Inclination	**X = 0.0° / Y = 0.0°**	Preliminary: **JK/BC** (23/05/2021)	Draft: **DR** (10/06/2021)
		CRS **ETRS89**			Final: **SMc** (10/11/2021)

Gardline

Preliminary Investigation, Hesselø OWF

IN SITU CPTU TESTING - DERIVED PARAMETERS



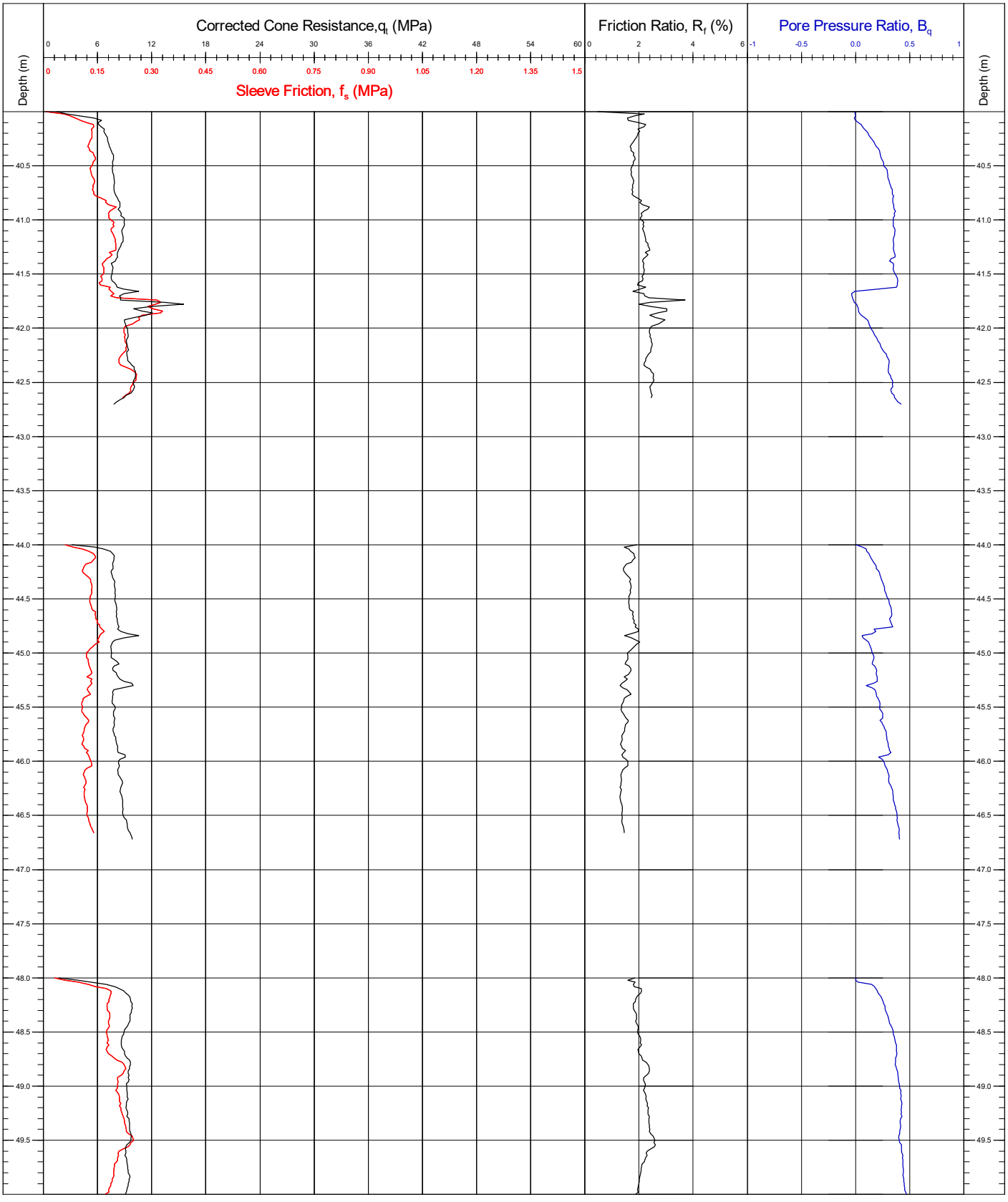
Area	**Kattegat Sea**	Coordinates	**678372.10E 6256261.30N**	CPT Number	
Contract	**11596**	Latitude / Longitude		**CB11-BH**	
Client Name/Ref	**Energinet Eltransmission A/S/384_20_ENE**	Water Depth (mMSL)	**31.48**		
Vessel	**MV Ocean Vantage**	Date of Test (Start/End)	**22/05/2021 to 23/05/2021**	Page: 2/4	
		Cone No.(size)/α Factor	**120826 (10cm^2) / 0.76**	QC Status	
		Base Inclination	**X = 0.0° / Y = 0.0°**	Preliminary: **JK/BC** (23/05/2021)	Draft: **DR** (10/06/2021)
		CRS **ETRS89**			Final: **SMc** (10/11/2021)

Comments: Borehole CB11-BH was completed to a depth of 53.12m utilising API drilling~ Wison CPT and push sampling methods~ at which point it was terminated due to rising weather conditions.

Gardline

Preliminary Investigation, Hesselø OWF

IN SITU CPTU TESTING - DERIVED PARAMETERS



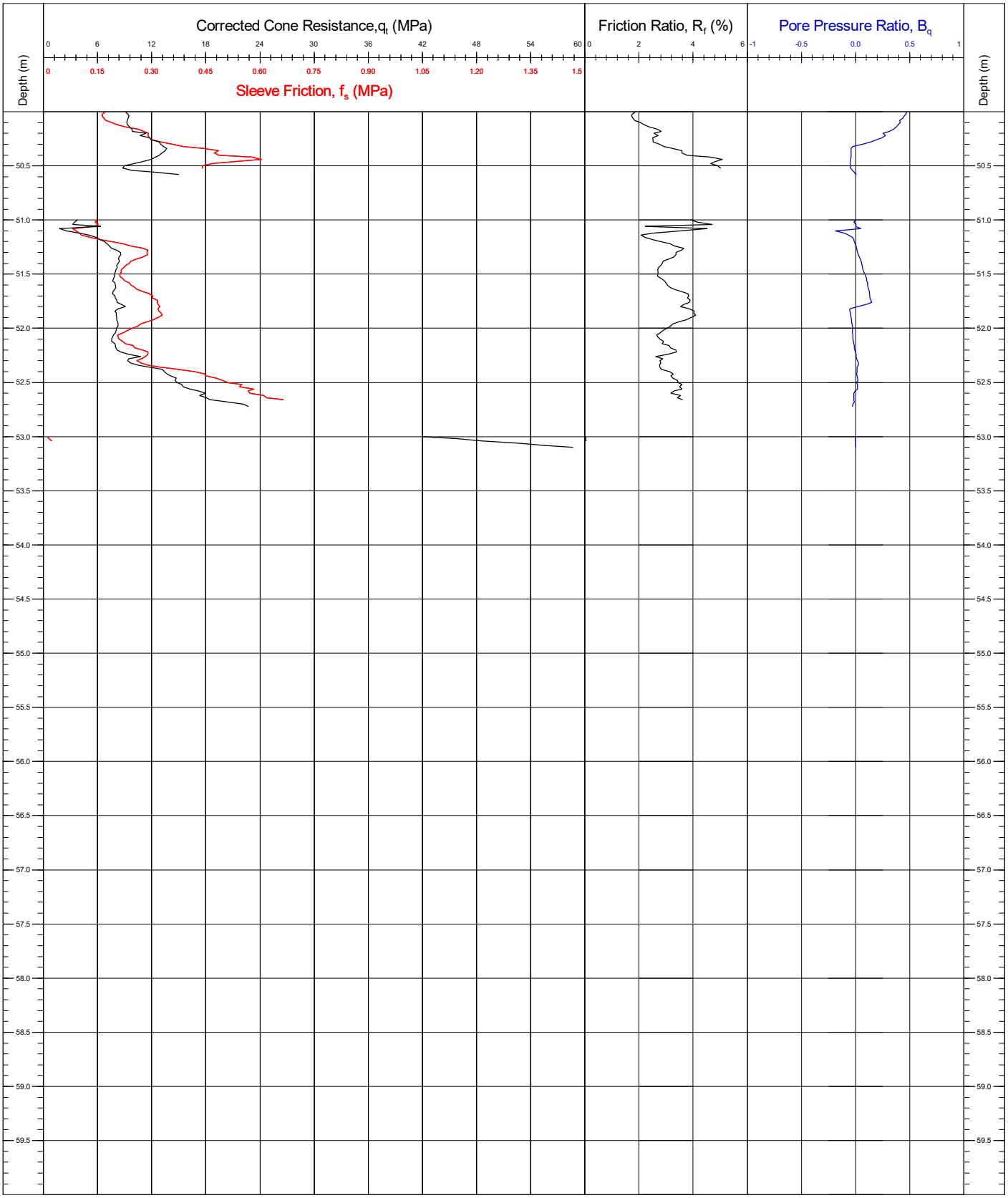
Area	**Kattegat Sea**	Coordinates	**678372.10E 6256261.30N**	CPT Number	**CB11-BH**
Contract	**11596**	Latitude / Longitude			
Client Name/Ref	**Energinet Eltransmission A/S/384_20_ENE**	Water Depth (mMSL)	**31.48**		
Vessel	**MV Ocean Vantage**	Date of Test (Start/End)	**22/05/2021 to 23/05/2021**	Page: 3/4	
		Cone No.(size)/α Factor	**120826 (10cm^2) / 0.76**	QC Status	
		Base Inclination	**X = 0.0° / Y = 0.0°**	Preliminary / Draft / Final	
		CRS **ETRS89**		**JK/BC** (23/05/2021) / **DR** (10/06/2021) / **SMc** (10/11/2021)	

Comments: Borehole CB11-BH was completed to a depth of 53.12m utilising API drilling~ Wison CPT and push sampling methods~ at which point it was terminated due to rising weather conditions.

Gardline

Preliminary Investigation, Hesselø OWF

IN SITU CPTU TESTING - DERIVED PARAMETERS



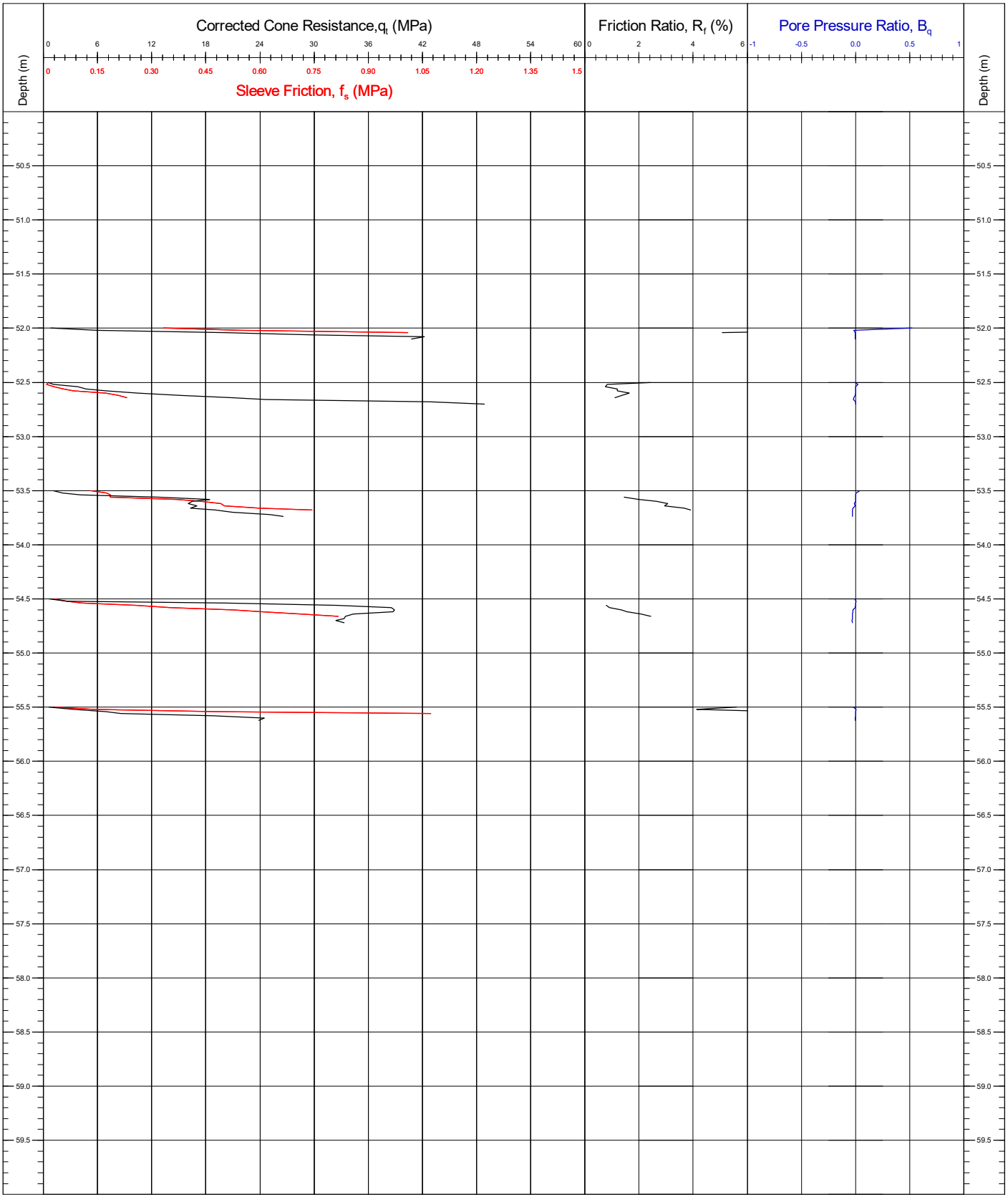
Area	**Kattegat Sea**	Coordinates	**678372.10E 6256261.30N**	CPT Number	**CB11-BH**
Contract	**11596**	Latitude / Longitude			
Client Name/Ref	**Energinet Eltransmission A/S/384_20_ENE**	Water Depth (mMSL)	**31.48**		
Vessel	**MV Ocean Vantage**	Date of Test (Start/End)	**22/05/2021 to 23/05/2021**	Page: 4/4	
		Cone No.(size)/α Factor	**120826 (10cm^2) / 0.76**	QC Status	
		Base Inclination	**X = 0.0° / Y = 0.0°**	Preliminary / Draft / Final	
		CRS **ETRS89**		**JK/BC** (23/05/2021) / **DR** (10/06/2021) / **SMc** (10/11/2021)	

Comments: Borehole CB11-BH was completed to a depth of 53.12m utilising API drilling~ Wison CPT and push sampling methods~ at which point it was terminated due to rising weather conditions.

Gardline

Preliminary Investigation, Hesselø OWF

IN SITU CPTU TESTING - DERIVED PARAMETERS

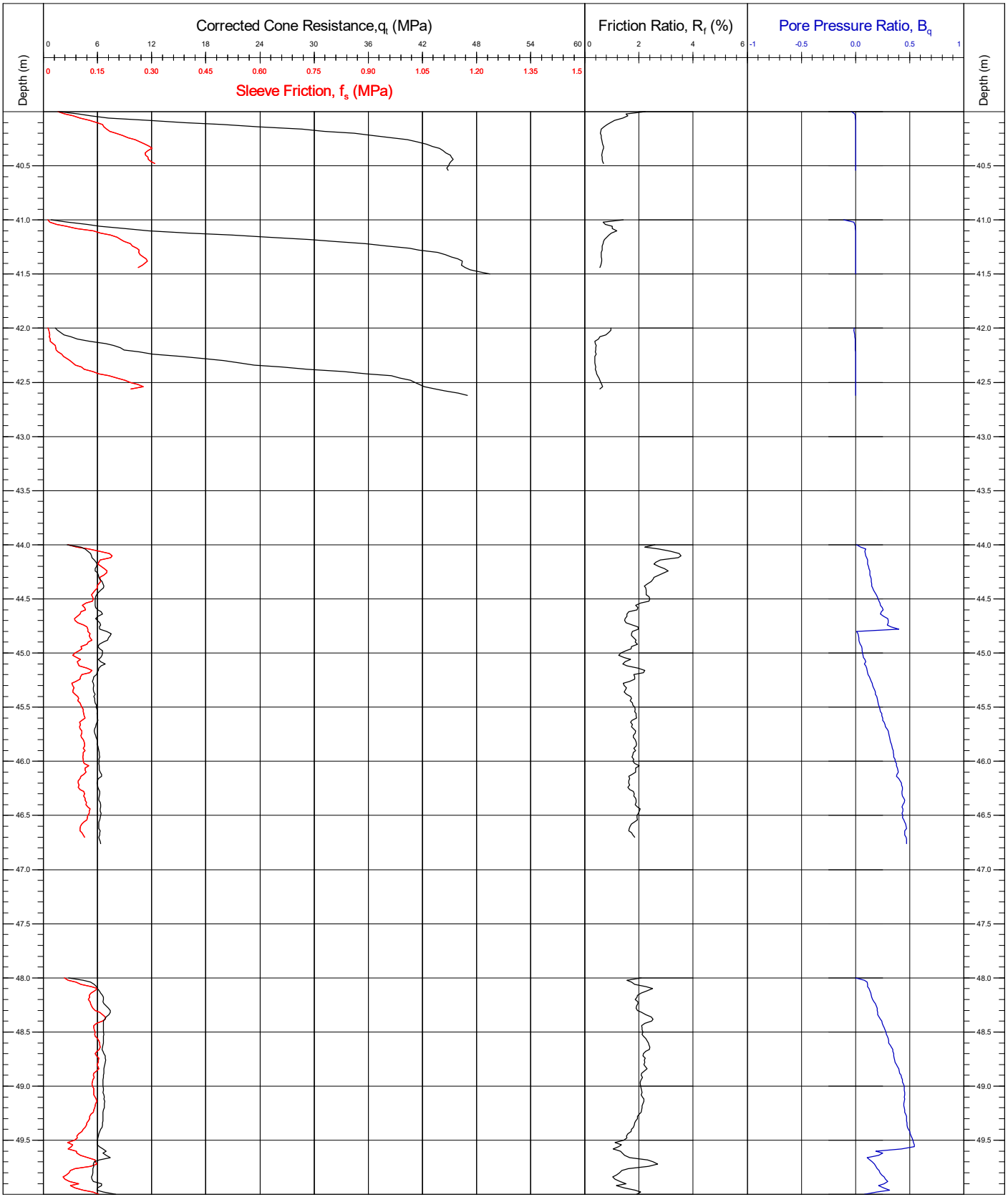


Area	**Kattegat Sea**	Coordinates	**678366.70E 6256257.10N**	CPT Number	
Contract	**11596**	Latitude / Longitude		**CB11a-BH**	
Client Name/Ref	**Energinet Eltransmission A/S/384_20_ENE**	Water Depth (mMSL)	**31.54**		
Vessel	**MV Ocean Vantage**	Date of Test	**24/05/2021**	Page: 1/1	
		Cone No.(size)/α Factor	**120825 (10cm^2) / 0.76**	QC Status	
		Base Inclination	**X = 0.0° / Y = 0.0°**	Preliminary / Draft / Final	
		CRS **ETRS89**		**JK/BC** (24/05/2021) / **DR** (10/06/2021) / **SMc** (10/11/2021)	

Comments: Borehole CB11a-BH was completed to a depth of 57.00m utilising API drilling~ Wison CPT and push sampling methods after open hole drill out to 52.00m. P-S logging was performed from 53.00m up to 4.00m below mudline.

Preliminary Investigation, Hesselø OWF

IN SITU CPTU TESTING - DERIVED PARAMETERS

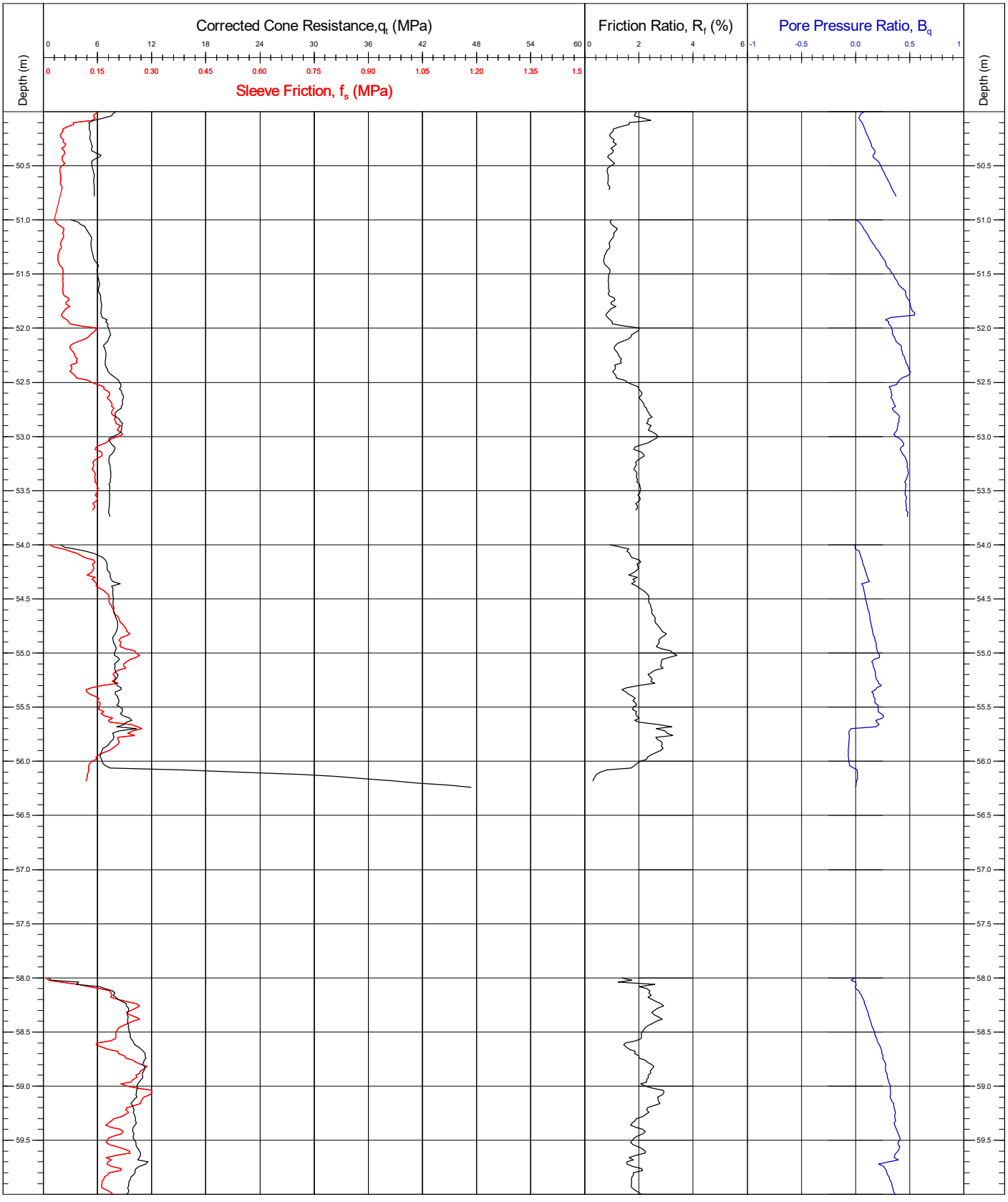


Area	**Kattegat Sea**	Coordinates	**677450.40E 6270639.00N**	CPT Number	**CB12-BH**
Contract	**11596**	Latitude / Longitude			
Client Name/Ref	**Energinet Eltransmission A/S/384_20_ENE**	Water Depth (mMSL)	**31.86**		
Vessel	**MV Ocean Vantage**	Date of Test (Start/End)	**02/06/2021 to 03/06/2021**	Page: 1/3	
Comments: Borehole CB12-BH was completed to a depth of 70.68m utilising API drilling~ Wison CPT and push sampling methods		Cone No.(size)/α Factor	**121005G (10cm^2) / 0.78**	QC Status	
		Base Inclination	**X = 0.0° / Y = 0.0°**	Preliminary / Draft / Final	
		CRS **ETRS89**		**JK/BC** (02/06/2021) / **DR** (10/06/2021) / **SMc** (10/11/2021)	

Gardline

Preliminary Investigation, Hesselø OWF

IN SITU CPTU TESTING - DERIVED PARAMETERS

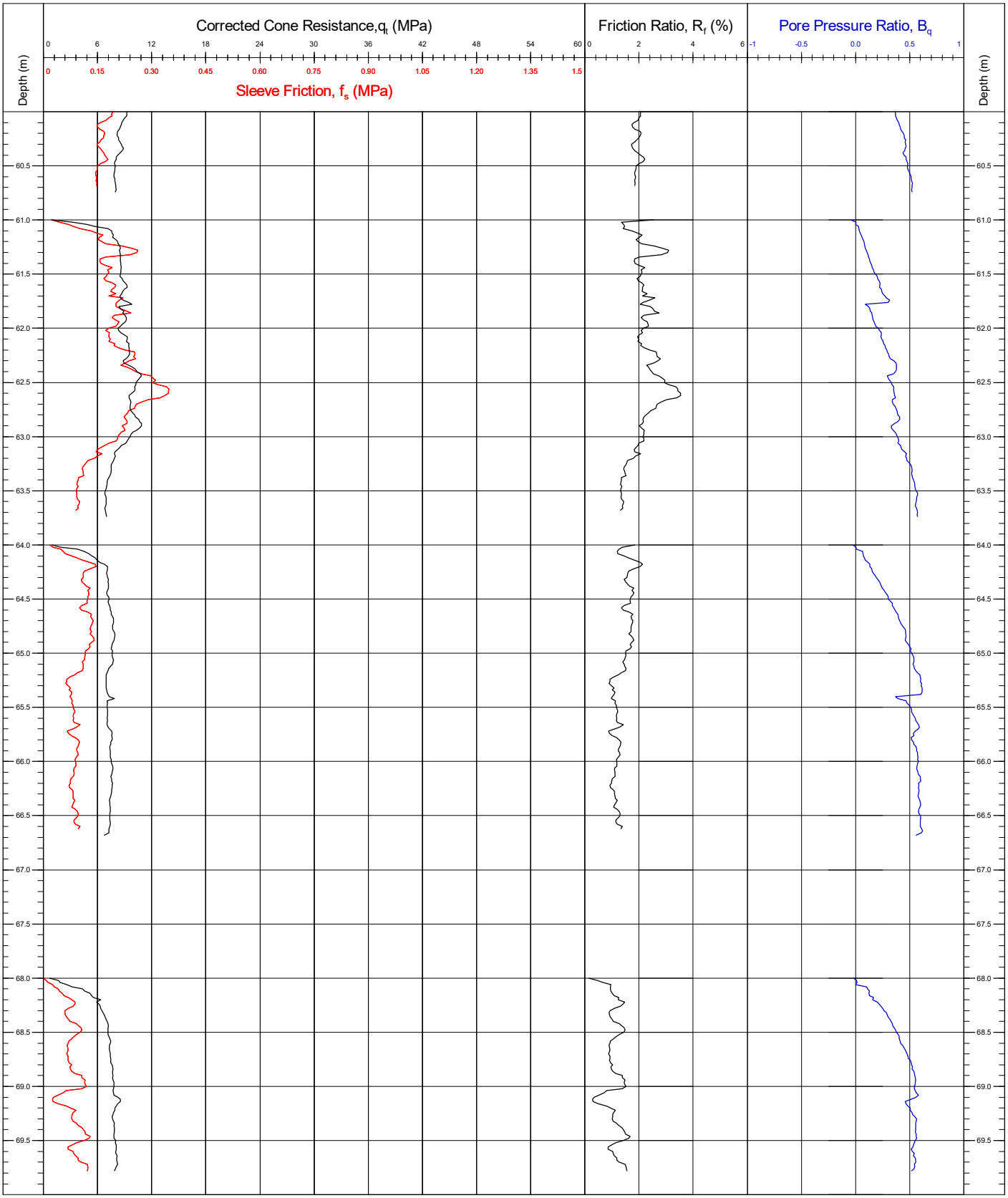


Area	**Kattegat Sea**	Coordinates	**677450.40E 6270639.00N**	CPT Number	**CB12-BH**
Contract	**11596**	Latitude / Longitude			
Client Name/Ref	**Energinet Eltransmission A/S/384_20_ENE**	Water Depth (mMSL)	**31.86**		
Vessel	**MV Ocean Vantage**	Date of Test (Start/End)	**02/06/2021 to 03/06/2021**	Page: 2/3	
Comments: Borehole CB12-BH was completed to a depth of 70.68m utilising API drilling~ Wison CPT and push sampling methods		Cone No.(size)/α Factor	**121005G (10cm^2) / 0.78**	QC Status	
		Base Inclination	**X = 0.0° / Y = 0.0°**	Preliminary / Draft / Final	
		CRS **ETRS89**		**JK/BC** (02/06/2021) / **DR** (10/06/2021) / **SMc** (10/11/2021)	

Gardline

Preliminary Investigation, Hesselø OWF

IN SITU CPTU TESTING - DERIVED PARAMETERS

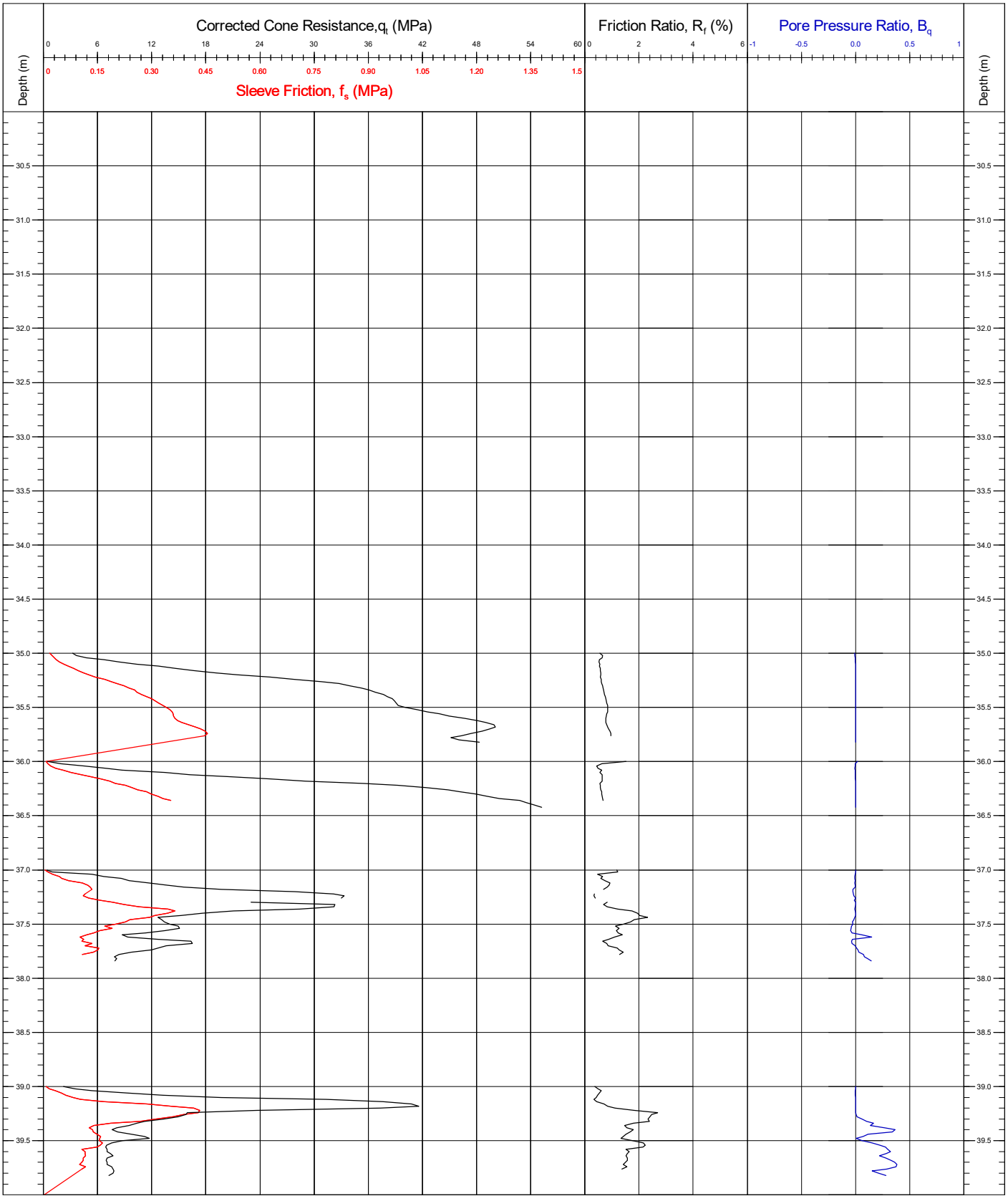


Area	**Kattegat Sea**	Coordinates	**677450.40E 6270639.00N**	CPT Number	**CB12-BH**
Contract	**11596**	Latitude / Longitude			
Client Name/Ref	**Energinet Eltransmission A/S/384_20_ENE**	Water Depth (mMSL)	**31.86**		
Vessel	**MV Ocean Vantage**	Date of Test (Start/End)	**02/06/2021 to 03/06/2021**	Page: 3/3	
Comments: Borehole CB12-BH was completed to a depth of 70.68m utilising API drilling~ Wison CPT and push sampling methods		Cone No.(size)/α Factor	**121005G (10cm^2) / 0.78**	QC Status	
		Base Inclination	**X = 0.0° / Y = 0.0°**	Preliminary: **JK/BC** (02/06/2021)	Draft: **DR** (10/06/2021)
		CRS **ETRS89**			Final: **SMc** (10/11/2021)

Gardline

Preliminary Investigation, Hesselø OWF

IN SITU CPTU TESTING - DERIVED PARAMETERS

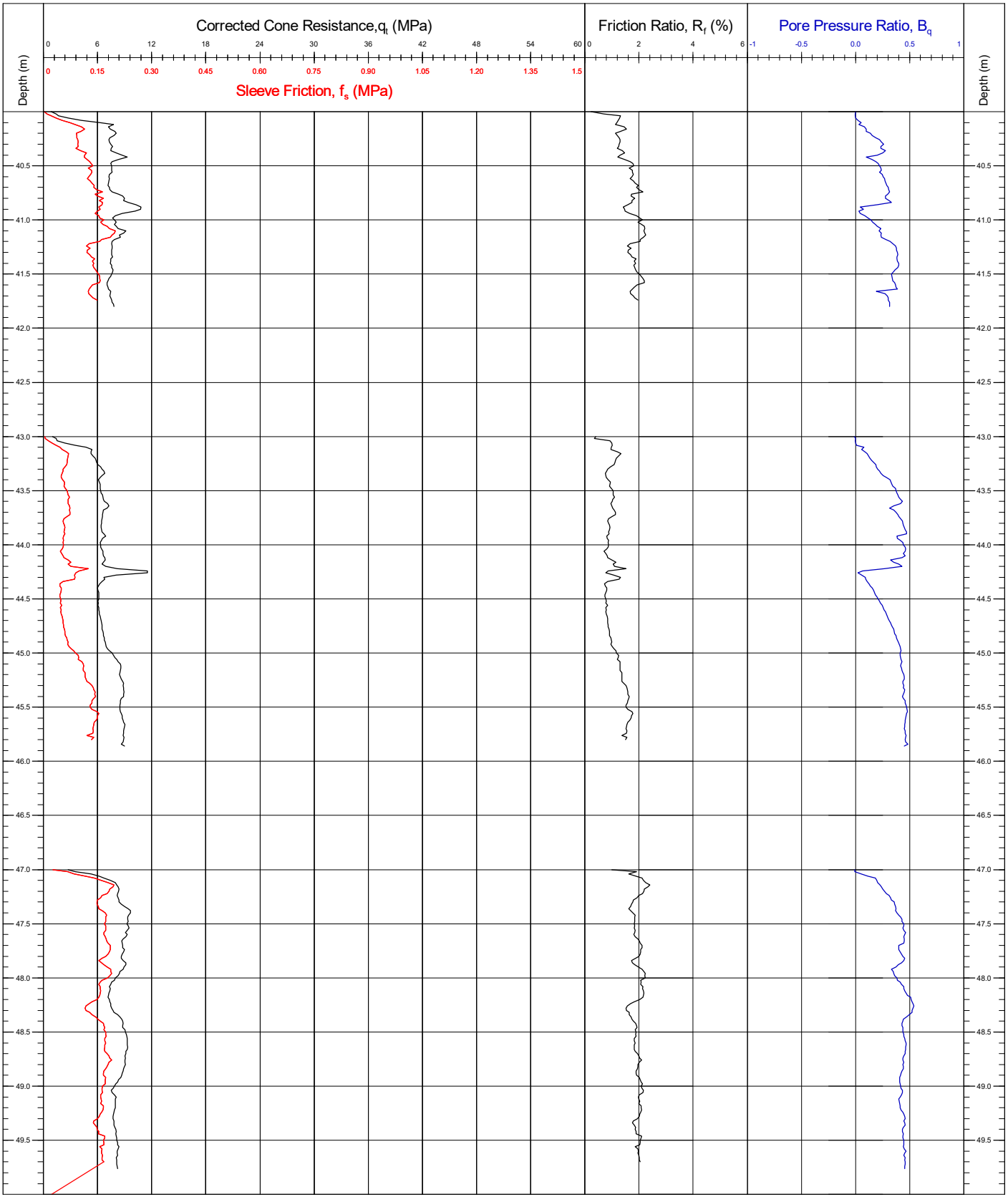


Area	**Kattegat Sea**	Coordinates	**670639.20E 6262915.30N**	CPT Number	**CB13-BH**
Contract	**11596**	Latitude / Longitude			
Client Name/Ref	**Energinet Eltransmission A/S/384_20_ENE**	Water Depth (mMSL)	**29.92**		
Vessel	**MV Ocean Vantage**	Date of Test (Start/End)	**12/05/2021 to 14/05/2021**	Page: 1/4	
Comments: Borehole CB13-BH was completed to a depth of 66.48m utilising API drilling~ Wison CPT and push sampling methods		Cone No.(size)/α Factor	**101017 (10cm^2) / 0.78**	QC Status	
		Base Inclination	**X = 0.0° / Y = 0.0°**	Preliminary / Draft / Final	
		CRS **ETRS89**		**JK/BC** (14/05/2021) / **DR** (10/06/2021) / **SMc** (10/11/2021)	

Gardline

Preliminary Investigation, Hesselø OWF

IN SITU CPTU TESTING - DERIVED PARAMETERS

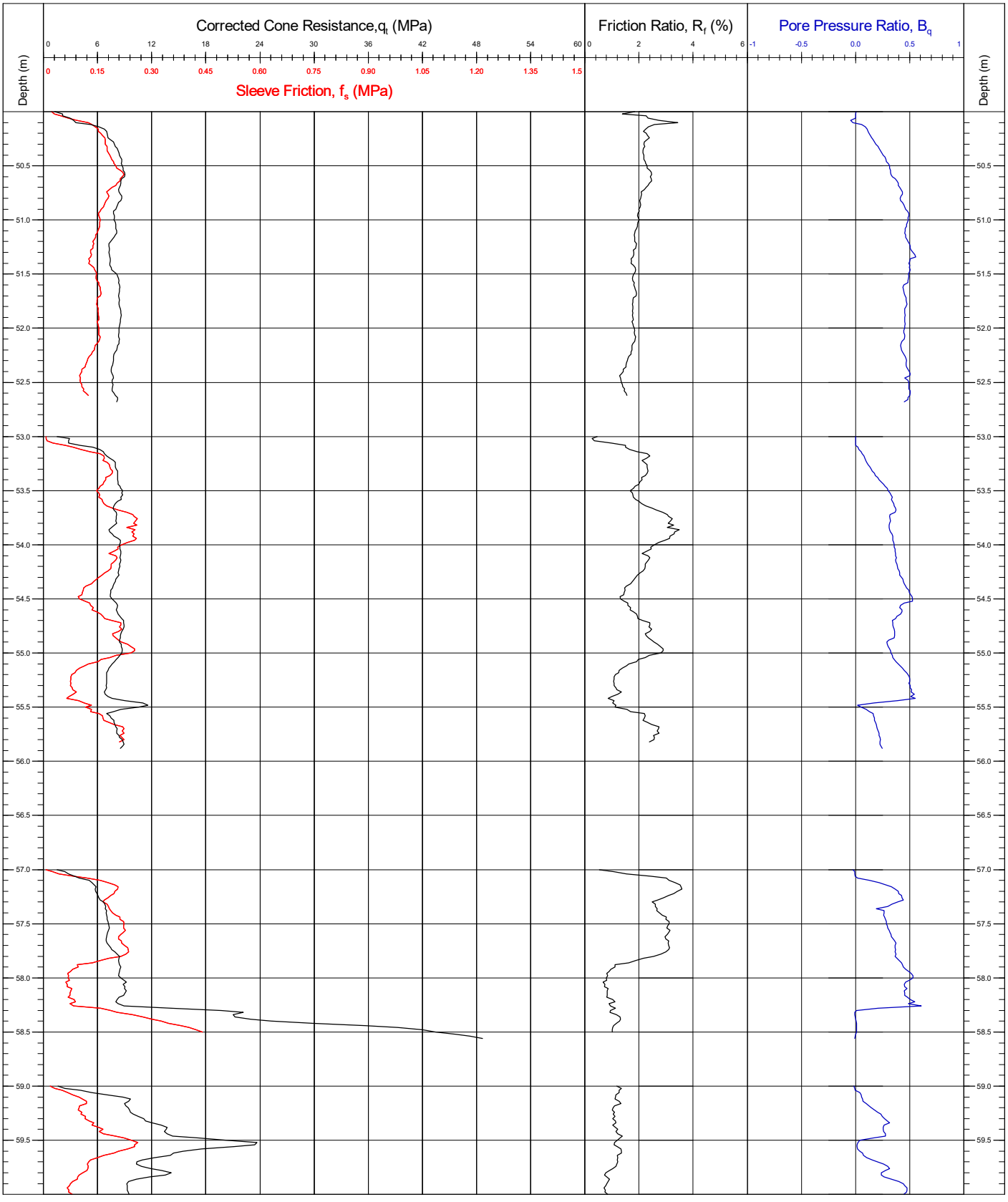


Area	**Kattegat Sea**	Coordinates	**670639.20E 6262915.30N**	CPT Number	**CB13-BH**
Contract	**11596**	Latitude / Longitude			
Client Name/Ref	**Energinet Eltransmission A/S/384_20_ENE**	Water Depth (mMSL)	**29.92**		
Vessel	**MV Ocean Vantage**	Date of Test (Start/End)	**12/05/2021 to 14/05/2021**	Page: 2/4	
Comments: Borehole CB13-BH was completed to a depth of 66.48m utilising API drilling~ Wison CPT and push sampling methods		Cone No.(size)/α Factor	**101017 (10cm^2) / 0.78**	QC Status	
		Base Inclination	**X = 0.0° / Y = 0.0°**	Preliminary / Draft / Final	
		CRS **ETRS89**		**JK/BC** (14/05/2021) / **DR** (10/06/2021) / **SMc** (10/11/2021)	

Gardline

Preliminary Investigation, Hesselø OWF

IN SITU CPTU TESTING - DERIVED PARAMETERS

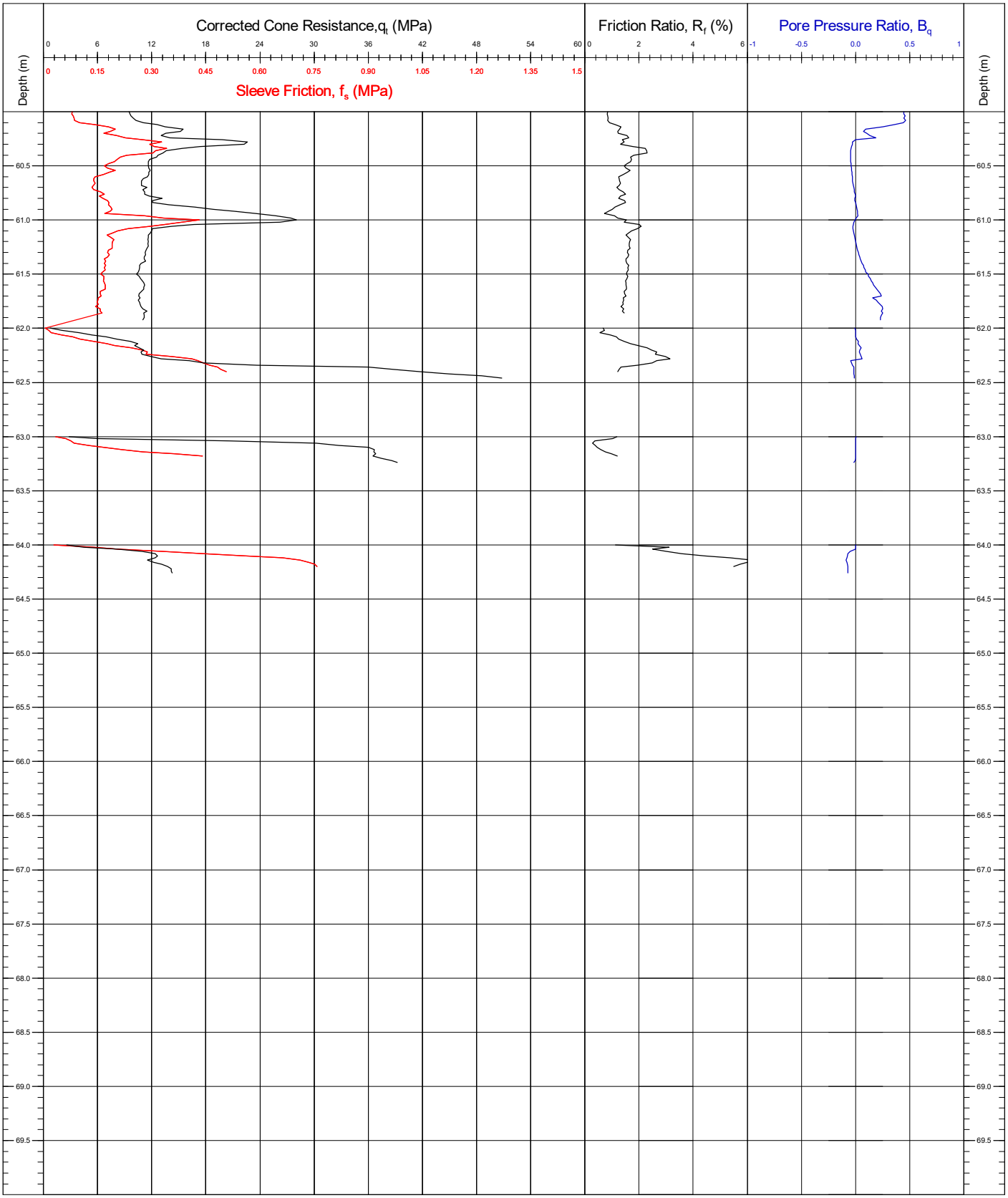


Area	**Kattegat Sea**	Coordinates	**670639.20E 6262915.30N**	CPT Number	**CB13-BH**
Contract	**11596**	Latitude / Longitude			
Client Name/Ref	**Energinet Eltransmission A/S/384_20_ENE**	Water Depth (mMSL)	**29.92**		
Vessel	**MV Ocean Vantage**	Date of Test (Start/End)	**12/05/2021 to 14/05/2021**	Page: 3/4	
Comments: Borehole CB13-BH was completed to a depth of 66.48m utilising API drilling~ Wison CPT and push sampling methods		Cone No.(size)/α Factor	**101017 (10cm^2) / 0.78**	QC Status	
		Base Inclination	**X = 0.0° / Y = 0.0°**	Preliminary / Draft / Final	
		CRS **ETRS89**		**JK/BC** (14/05/2021) / **DR** (10/06/2021) / **SMc** (10/11/2021)	

Gardline

Preliminary Investigation, Hesselø OWF

IN SITU CPTU TESTING - DERIVED PARAMETERS

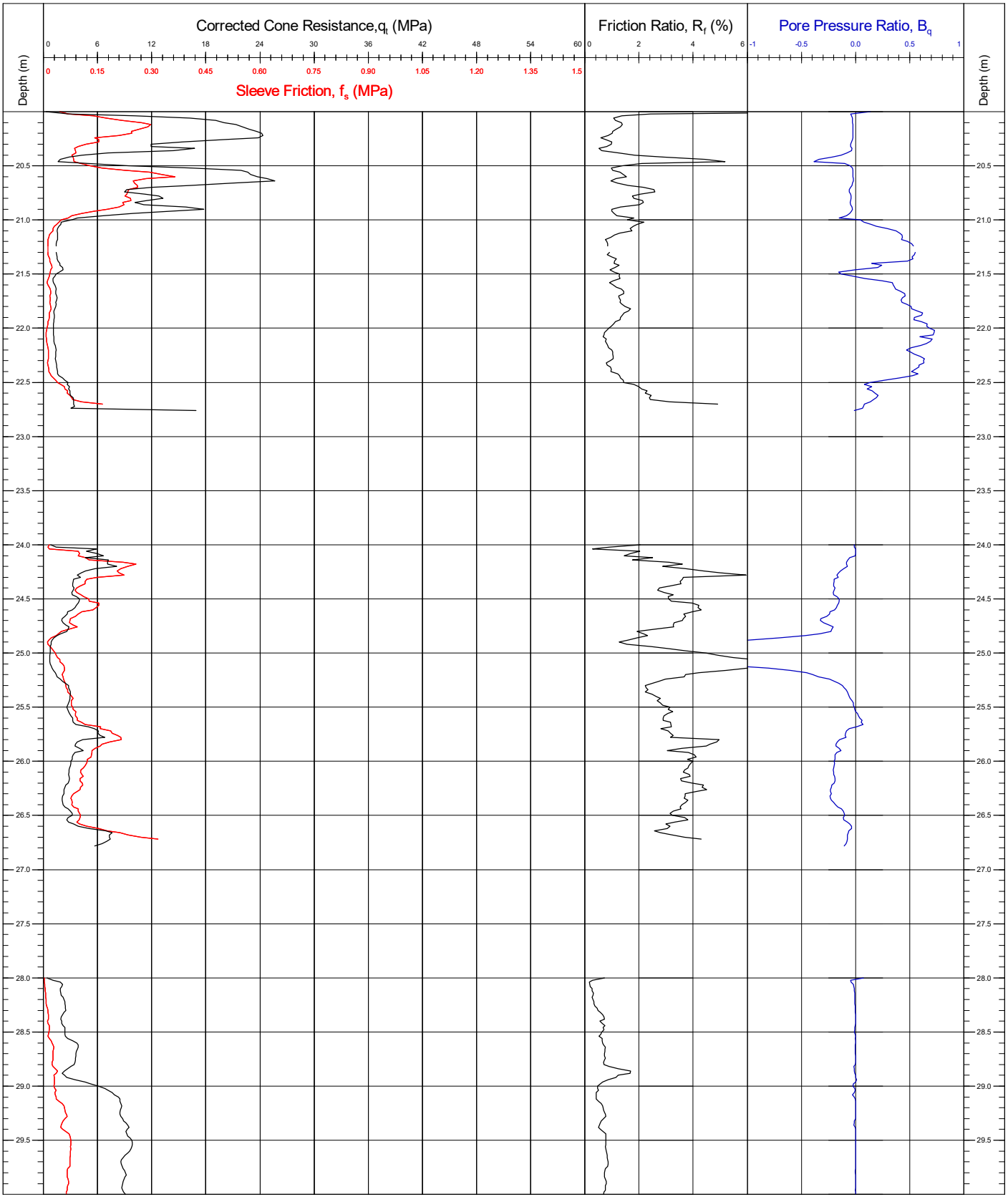


Area	**Kattegat Sea**	Coordinates	**670639.20E 6262915.30N**	CPT Number	**CB13-BH**
Contract	**11596**	Latitude / Longitude			
Client Name/Ref	**Energinet Eltransmission A/S/384_20_ENE**	Water Depth (mMSL)	**29.92**		
Vessel	**MV Ocean Vantage**	Date of Test (Start/End)	**12/05/2021 to 14/05/2021**	Page: 4/4	
Comments: Borehole CB13-BH was completed to a depth of 66.48m utilising API drilling~ Wison CPT and push sampling methods		Cone No.(size)/α Factor	**101017 (10cm^2) / 0.78**	QC Status	
		Base Inclination	**X = 0.0° / Y = 0.0°**	Preliminary: **JK/BC** (14/05/2021)	Draft: **DR** (10/06/2021)
		CRS **ETRS89**			Final: **SMc** (10/11/2021)

Gardline

Preliminary Investigation, Hesselø OWF

IN SITU CPTU TESTING - DERIVED PARAMETERS

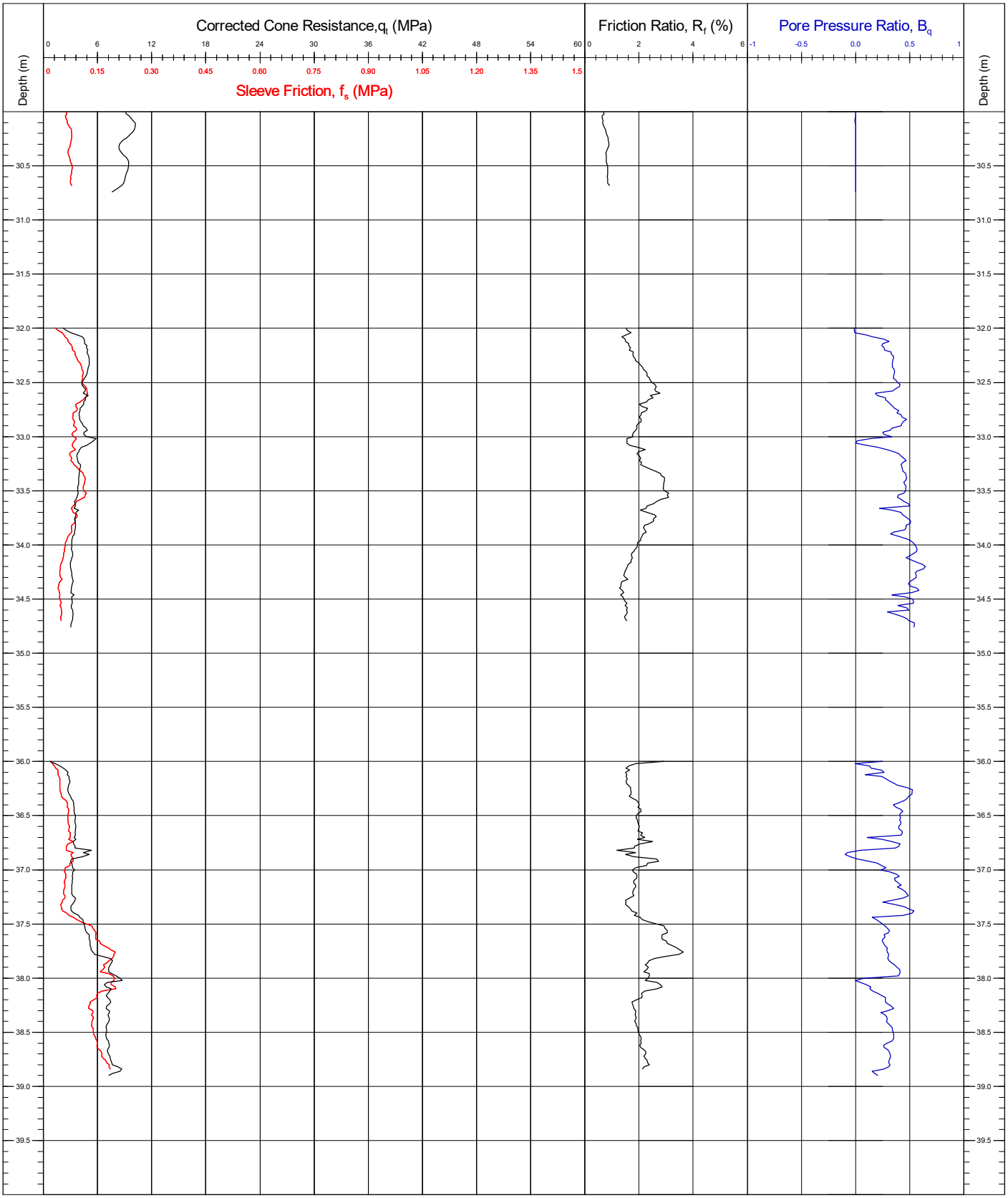


Area	**Kattegat Sea**	Coordinates	**680529.70E 6252848.40N**	CPT Number	**CB14-BH**
Contract	**11596**	Latitude / Longitude			
Client Name/Ref	**Energinet Eltransmission A/S/384_20_ENE**	Water Depth (mMSL)	**31.60**		
Vessel	**MV Ocean Vantage**	Date of Test (Start/End)	**20/05/2021 to 21/05/2021**	Page: 1/5	
Comments: Borehole CB14-BH was completed to a depth of 62.33m utilising API drilling~ Wison CPT and push sampling methods.		Cone No.(size)/α Factor	**121126 (10cm^2) / 0.79**	QC Status	
		Base Inclination	**X = 0.0° / Y = 0.0°**	Preliminary / Draft / Final	
		CRS **ETRS89**		**JK/BC** (21/05/2021) / **DR** (10/06/2021) / **SMc** (10/11/2021)	

Gardline

Preliminary Investigation, Hesselø OWF

IN SITU CPTU TESTING - DERIVED PARAMETERS

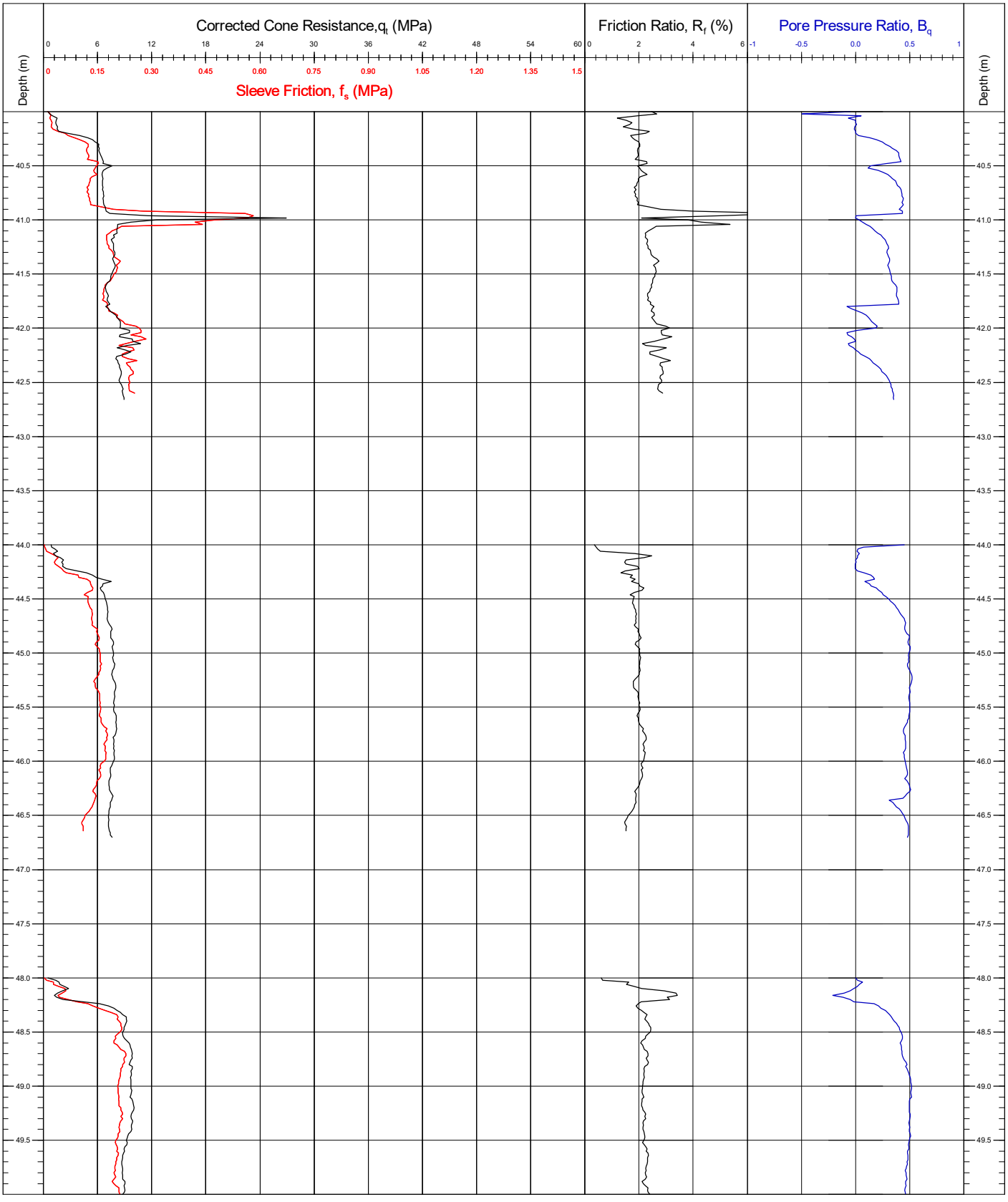


Area	**Kattegat Sea**	Coordinates	**680529.70E 6252848.40N**	CPT Number	**CB14-BH**
Contract	**11596**	Latitude / Longitude			
Client Name/Ref	**Energinet Eltransmission A/S/384_20_ENE**	Water Depth (mMSL)	**31.60**		
Vessel	**MV Ocean Vantage**	Date of Test (Start/End)	**20/05/2021 to 21/05/2021**	Page: 2/5	
Comments: Borehole CB14-BH was completed to a depth of 62.33m utilising API drilling~ Wison CPT and push sampling methods.		Cone No.(size)/α Factor	**121126 (10cm^2) / 0.79**	QC Status	
		Base Inclination	**X = 0.0° / Y = 0.0°**	Preliminary / Draft / Final	
		CRS **ETRS89**		**JK/BC** (21/05/2021) / **DR** (10/06/2021) / **SMc** (10/11/2021)	

Gardline

Preliminary Investigation, Hesselø OWF

IN SITU CPTU TESTING - DERIVED PARAMETERS

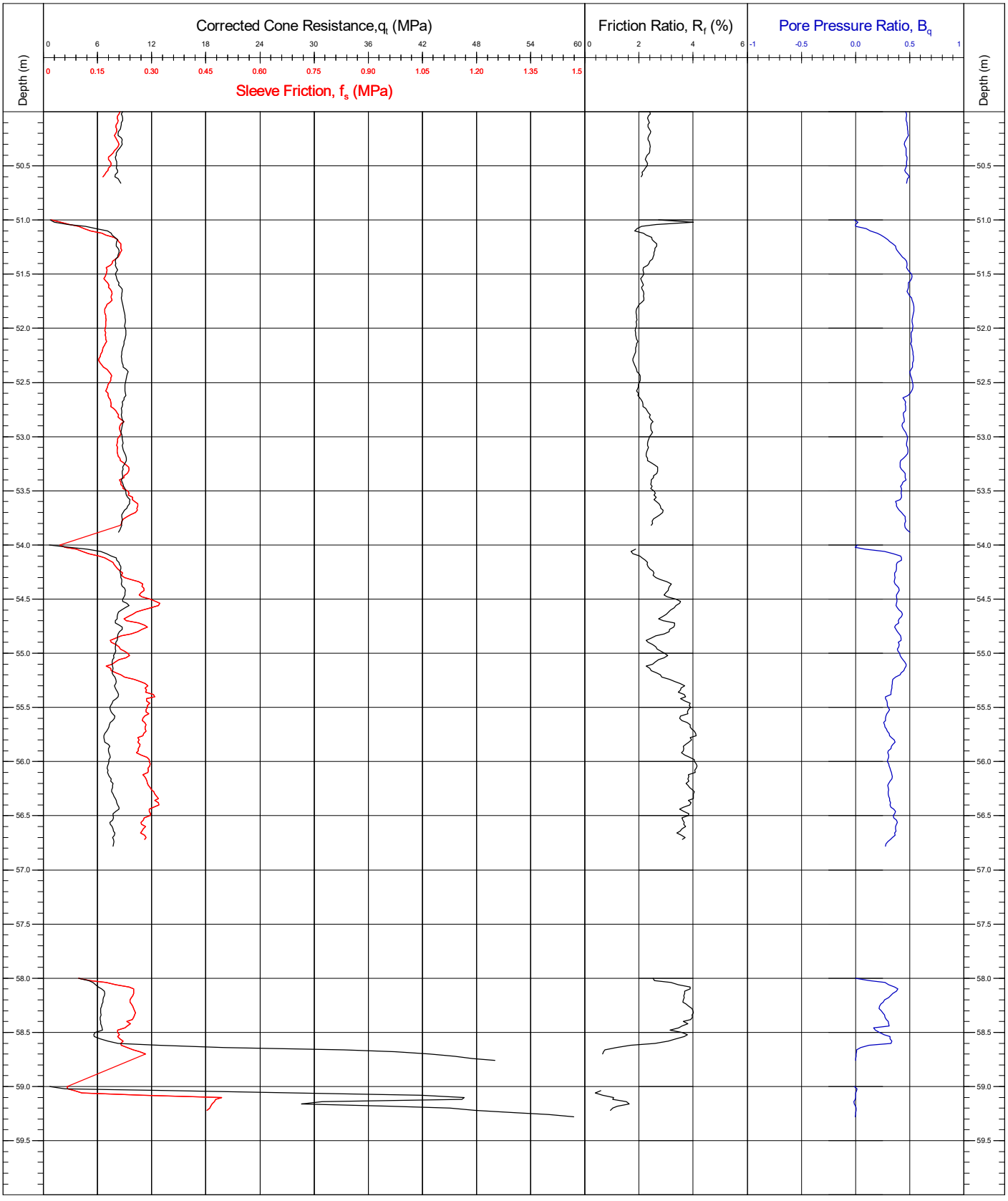


Area	**Kattegat Sea**	Coordinates	**680529.70E 6252848.40N**	CPT Number	**CB14-BH**
Contract	**11596**	Latitude / Longitude			
Client Name/Ref	**Energinet Eltransmission A/S/384_20_ENE**	Water Depth (mMSL)	**31.60**		
Vessel	**MV Ocean Vantage**	Date of Test (Start/End)	**20/05/2021 to 21/05/2021**	Page: 3/5	
Comments: Borehole CB14-BH was completed to a depth of 62.33m utilising API drilling~ Wison CPT and push sampling methods.		Cone No.(size)/α Factor	**121126 (10cm^2) / 0.79**	QC Status	
		Base Inclination	**X = 0.0° / Y = 0.0°**	Preliminary: **JK/BC** (21/05/2021)	Draft: **DR** (10/06/2021)
		CRS **ETRS89**			Final: **SMc** (10/11/2021)

Gardline

Preliminary Investigation, Hesselø OWF

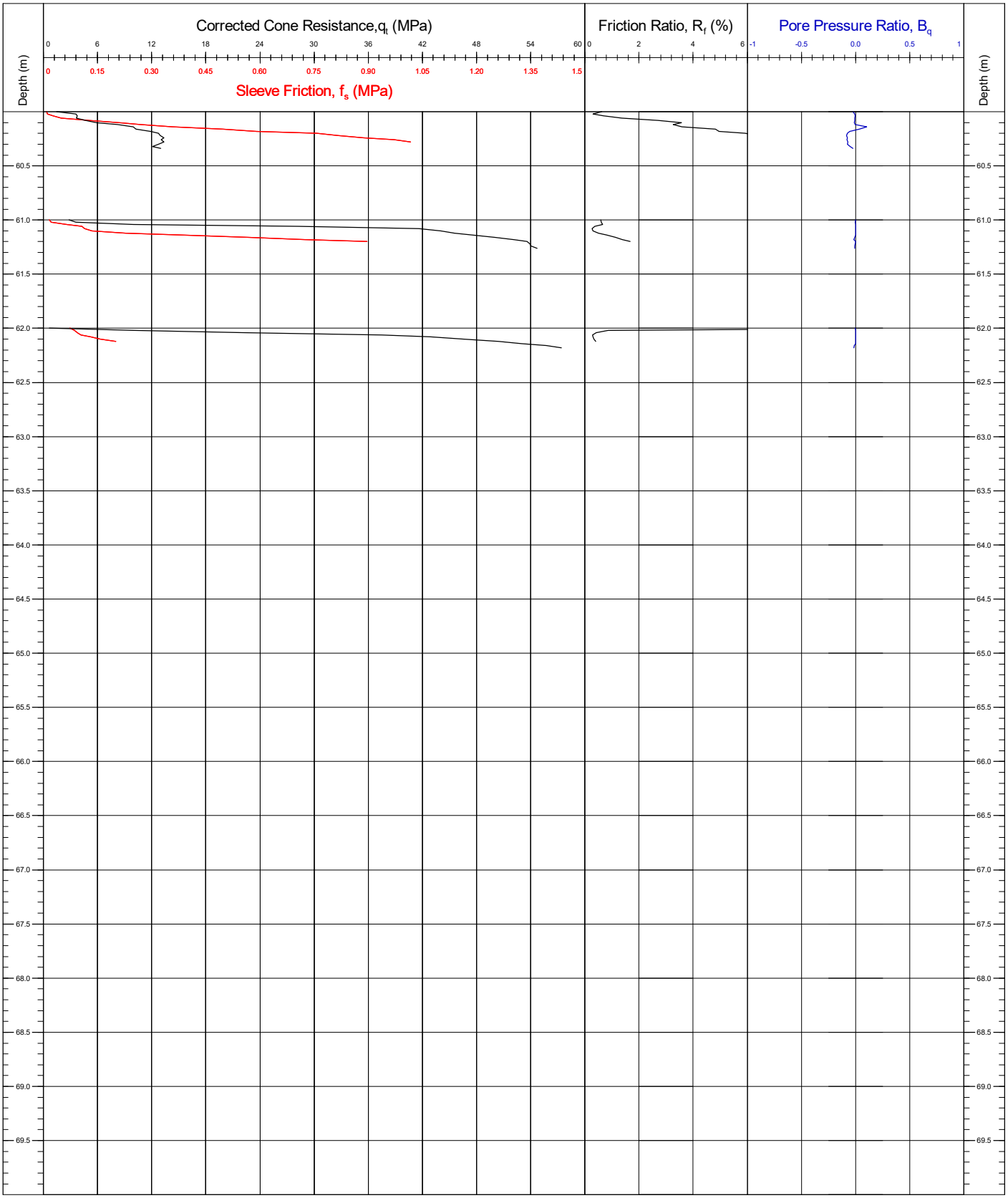
IN SITU CPTU TESTING - DERIVED PARAMETERS



Area	**Kattegat Sea**	Coordinates	**680529.70E 6252848.40N**	CPT Number	**CB14-BH**
Contract	**11596**	Latitude / Longitude			
Client Name/Ref	**Energinet Eltransmission A/S/384_20_ENE**	Water Depth (mMSL)	**31.60**		
Vessel	**MV Ocean Vantage**	Date of Test (Start/End)	**20/05/2021 to 21/05/2021**	Page: 4/5	
Comments: Borehole CB14-BH was completed to a depth of 62.33m utilising API drilling~ Wison CPT and push sampling methods.		Cone No.(size)/α Factor	**121126 (10cm^2) / 0.79**	QC Status	
		Base Inclination	**X = 0.0° / Y = 0.0°**	Preliminary / Draft / Final	
		CRS **ETRS89**		**JK/BC** (21/05/2021) / **DR** (10/06/2021) / **SMc** (10/11/2021)	

Preliminary Investigation, Hesselø OWF

IN SITU CPTU TESTING - DERIVED PARAMETERS

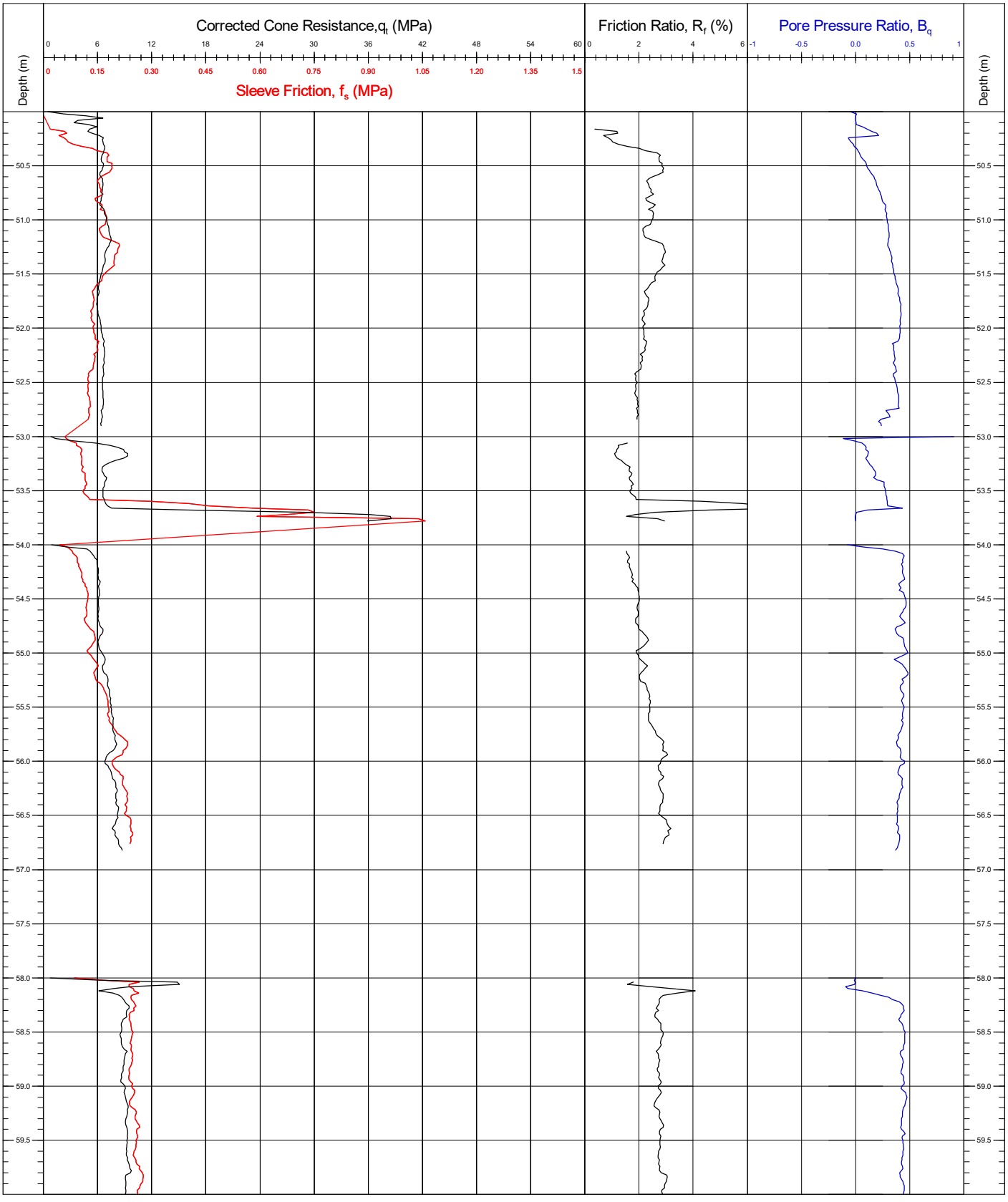


Area	**Kattegat Sea**	Coordinates	**680529.70E 6252848.40N**	CPT Number	**CB14-BH**
Contract	**11596**	Latitude / Longitude			
Client Name/Ref	**Energinet Eltransmission A/S/384_20_ENE**	Water Depth (mMSL)	**31.60**		
Vessel	**MV Ocean Vantage**	Date of Test (Start/End)	**20/05/2021 to 21/05/2021**	Page: 5/5	
Comments: Borehole CB14-BH was completed to a depth of 62.33m utilising API drilling~ Wison CPT and push sampling methods.		Cone No.(size)/α Factor	**121126 (10cm^2) / 0.79**	QC Status	
		Base Inclination	**X = 0.0° / Y = 0.0°**	Preliminary: **JK/BC** (21/05/2021)	Draft: **DR** (10/06/2021)
		CRS **ETRS89**			Final: **SMc** (10/11/2021)

Gardline

Preliminary Investigation, Hesselø OWF

IN SITU CPTU TESTING - DERIVED PARAMETERS

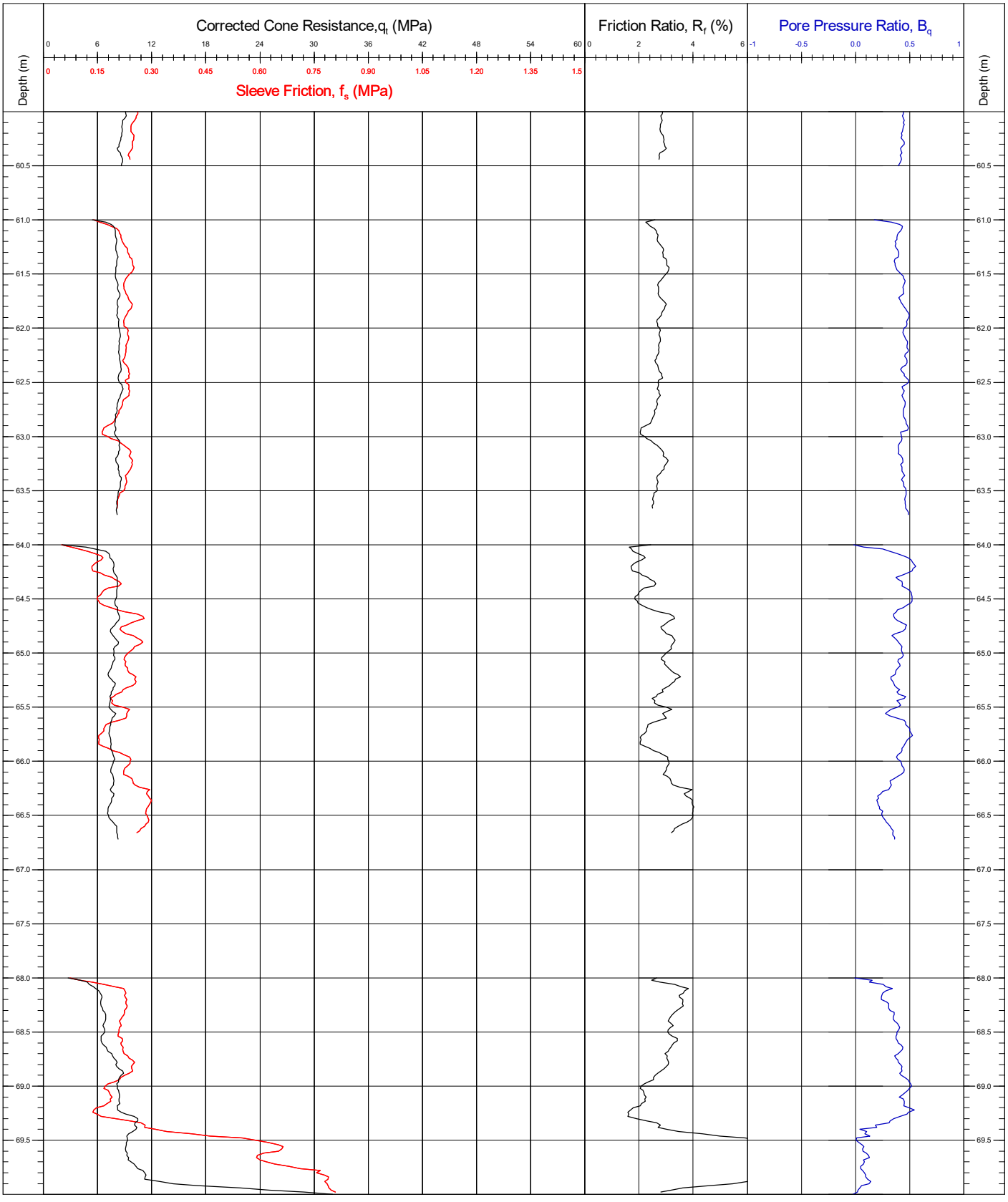


Area	**Kattegat Sea**	Coordinates	**674181.30E 6265901.10N**	CPT Number	**OSS1-BH**
Contract	**11596**	Latitude / Longitude			
Client Name/Ref	**Energinet Eltransmission A/S/384_20_ENE**	Water Depth (mMSL)	**31.74**		
Vessel	**MV Ocean Vantage**	Date of Test (Start/End)	**31/05/2021 to 02/06/2021**	Page: 1/3	
Comments: Borehole OSS1-BH was completed to a depth of 70.20m utilising API drilling~ Wison CPT and push sampling methods.		Cone No.(size)/α Factor	**121004 (10cm^2) / 0.78**	QC Status	
		Base Inclination	**X = 0.0° / Y = 0.0°**	Preliminary / Draft / Final	
		CRS **ETRS89**		**JK/BC** (31/05/2021) / **DR** (10/06/2021) / **SMc** (10/11/2021)	

Gardline

Preliminary Investigation, Hesselø OWF

IN SITU CPTU TESTING - DERIVED PARAMETERS

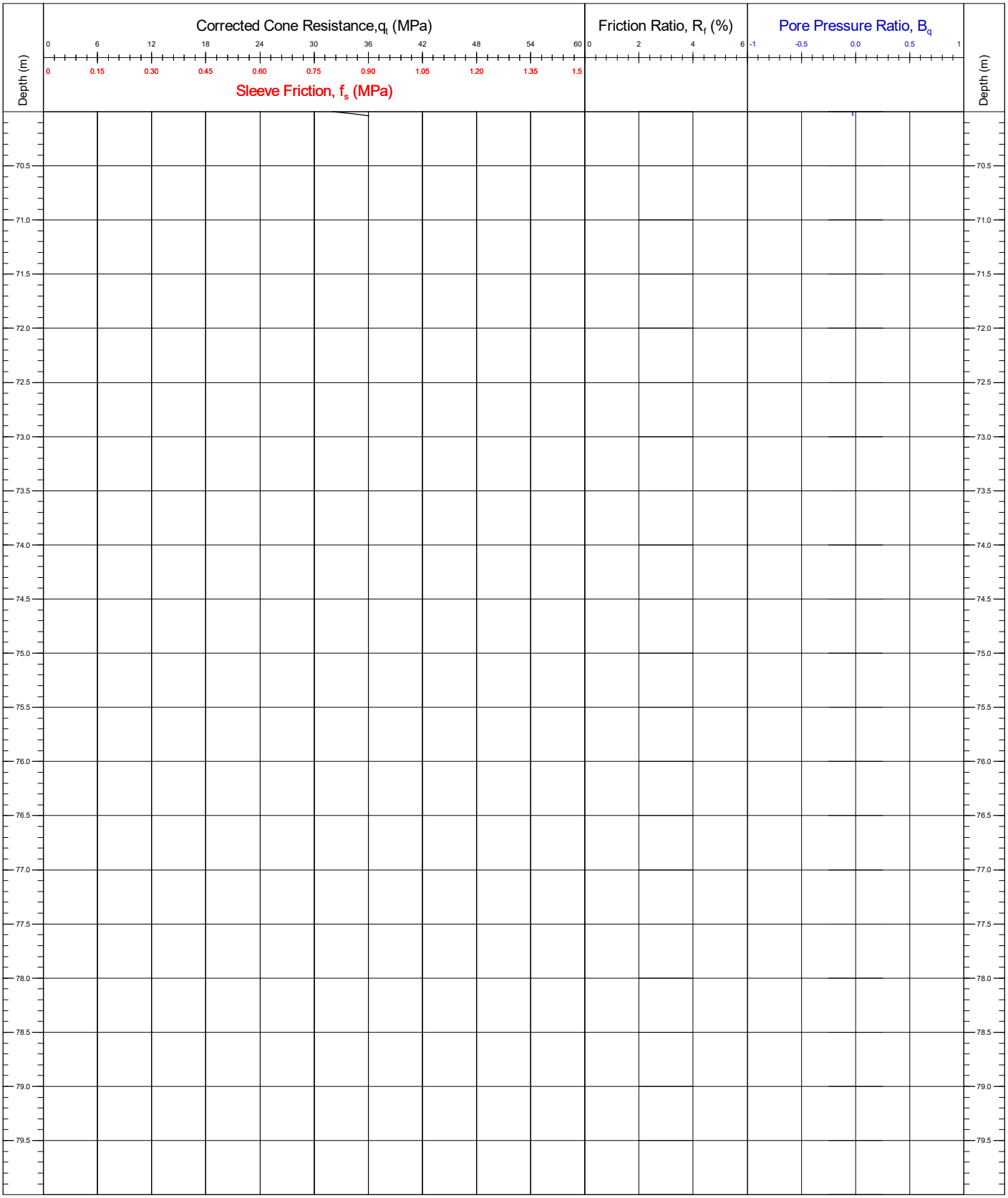


Area	**Kattegat Sea**	Coordinates	**674181.30E 6265901.10N**	CPT Number	
Contract	**11596**	Latitude / Longitude		**OSS1-BH**	
Client Name/Ref	**Energinet Eltransmission A/S/384_20_ENE**	Water Depth (mMSL)	**31.74**		
Vessel	**MV Ocean Vantage**	Date of Test (Start/End)	**31/05/2021 to 02/06/2021**	Page: 2/3	
Comments: Borehole OSS1-BH was completed to a depth of 70.20m utilising API drilling~ Wison CPT and push sampling methods.		Cone No.(size)/α Factor	**121004 (10cm^2) / 0.78**	QC Status	
		Base Inclination	**X = 0.0° / Y = 0.0°**	Preliminary: **JK/BC** (31/05/2021)	Draft: **DR** (10/06/2021)
		CRS **ETRS89**			Final: **SMc** (10/11/2021)

Gardline

Preliminary Investigation, Hesselø OWF

IN SITU CPTU TESTING - DERIVED PARAMETERS

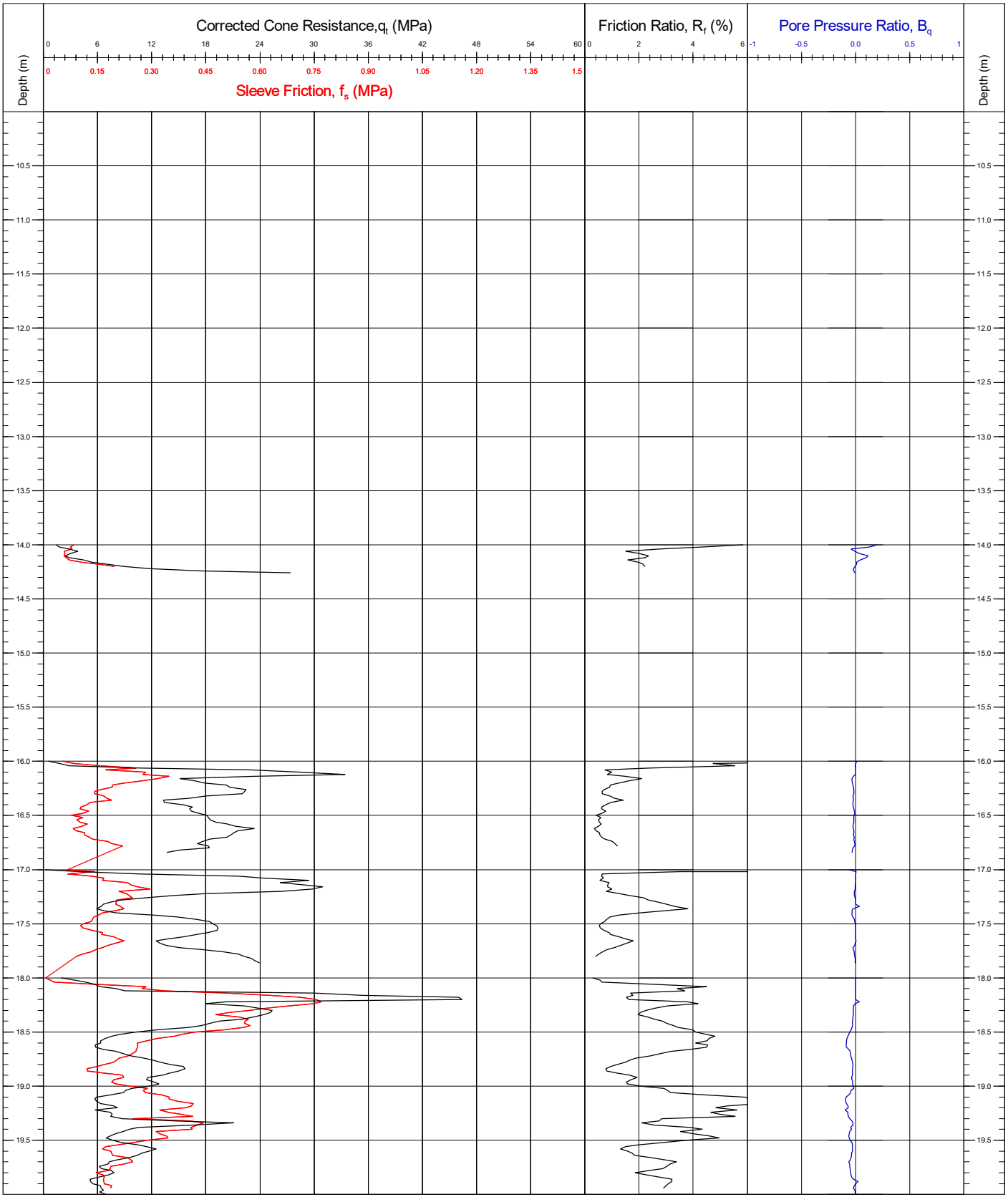


Area	**Kattegat Sea**	Coordinates	**674181.30E 6265901.10N**	CPT Number	**OSS1-BH**
Contract	**11596**	Latitude / Longitude			
Client Name/Ref	**Energinet Eltransmission A/S/384_20_ENE**	Water Depth (mMSL)	**31.74**		
Vessel	**MV Ocean Vantage**	Date of Test (Start/End)	**31/05/2021 to 02/06/2021**	Page: 3/3	
Comments: Borehole OSS1-BH was completed to a depth of 70.20m utilising API drilling~ Wison CPT and push sampling methods.		Cone No.(size)/α Factor	**121004 (10cm^2) / 0.78**	QC Status	
		Base Inclination	**X = 0.0° / Y = 0.0°**	Preliminary: **JK/BC** (31/05/2021)	Draft: **DR** (10/06/2021)
		CRS **ETRS89**			Final: **SMc** (10/11/2021)

Gardline

Preliminary Investigation, Hesselø OWF

IN SITU CPTU TESTING - DERIVED PARAMETERS



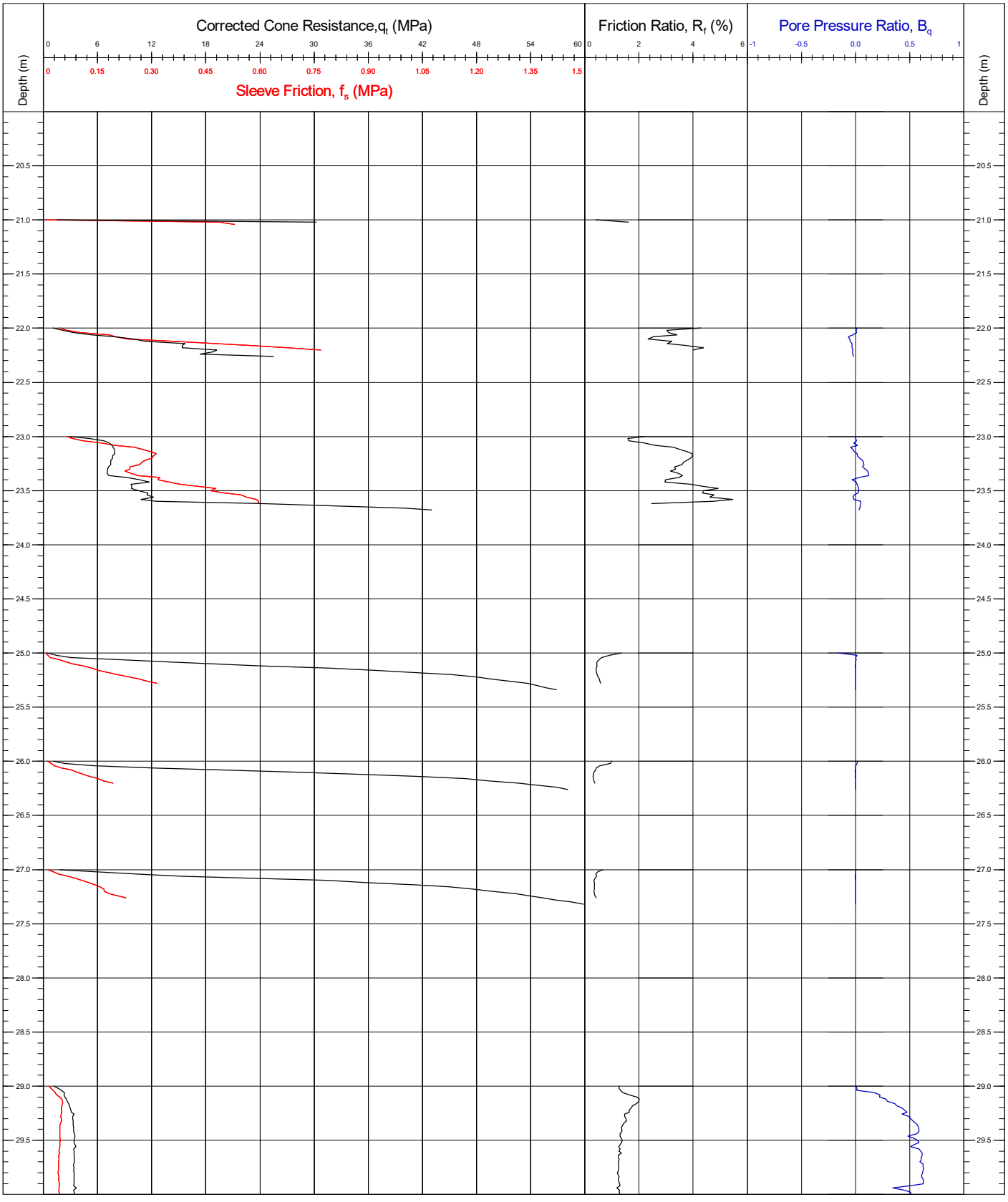
Area	**Kattegat Sea**	Coordinates	**674911.00E 6253674.20N**	CPT Number	
Contract	**11596**	Latitude / Longitude		**OSS2-BH**	
Client Name/Ref	**Energinet Eltransmission A/S/384_20_ENE**	Water Depth (mMSL)	**29.96**		
Vessel	**MV Ocean Vantage**	Date of Test (Start/End)	**25/05/2021 to 27/05/2021**	Page: 1/6	
		Cone No.(size)/α Factor	**120825 (10cm^2) / 0.76**	QC Status	
		Base Inclination	**X = 0.0° / Y = 0.0°**	Preliminary: **JK/BC** (27/05/2021)	Draft: **DR** (10/06/2021)
		CRS **ETRS89**			Final: **SMc** (10/11/2021)

Comments: Borehole OSS2-BH was completed to a depth of 70.08m utilising API drilling~ Wison CPT and push sampling methods. P-S logging was performed from 65m to 4m below mudline.

Gardline

Preliminary Investigation, Hesselø OWF

IN SITU CPTU TESTING - DERIVED PARAMETERS

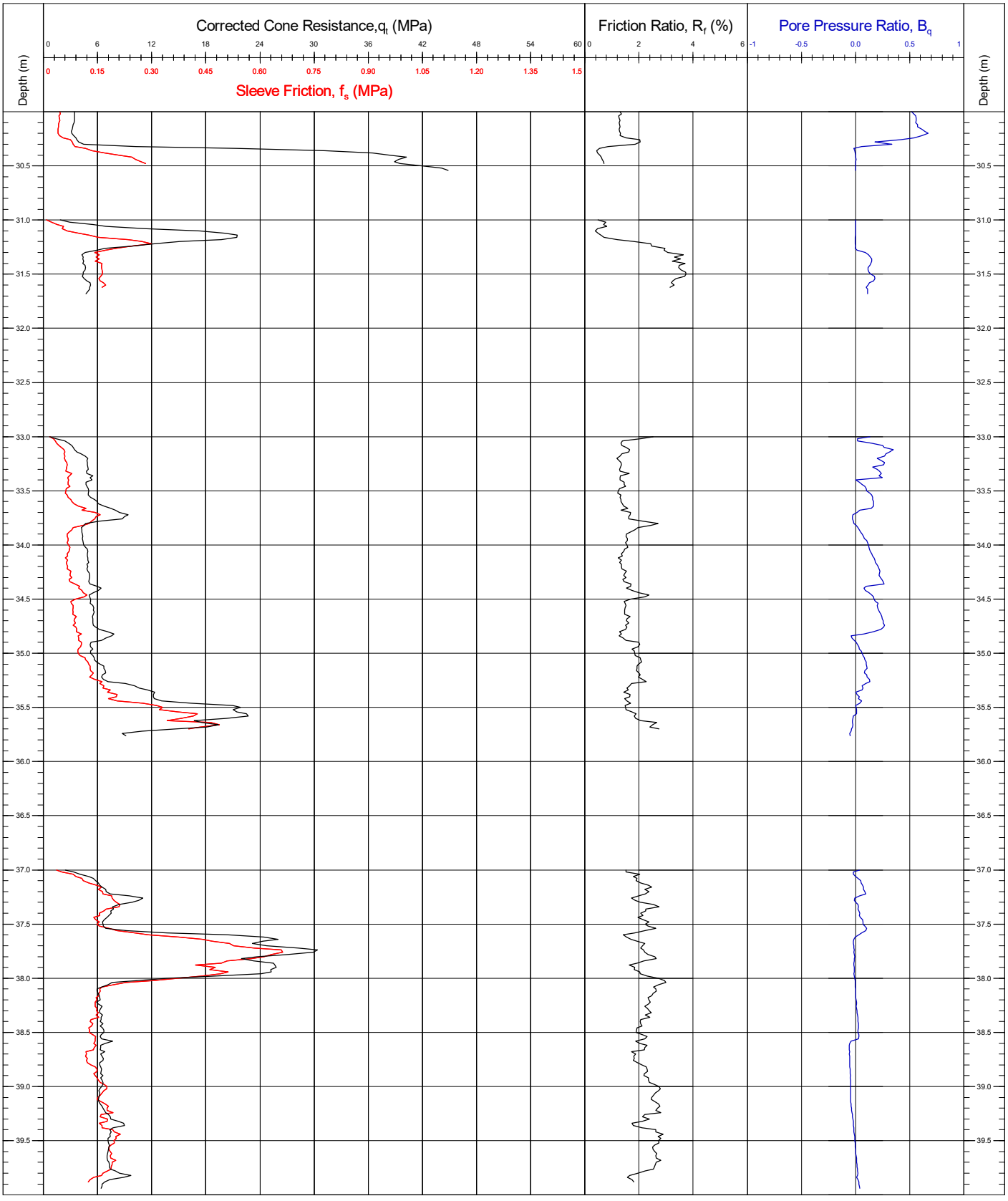


Area	**Kattegat Sea**	Coordinates	**674911.00E 6253674.20N**	CPT Number	**OSS2-BH**
Contract	**11596**	Latitude / Longitude			
Client Name/Ref	**Energinet Eltransmission A/S/384_20_ENE**	Water Depth (mMSL)	**29.96**		
Vessel	**MV Ocean Vantage**	Date of Test (Start/End)	**25/05/2021 to 27/05/2021**	Page: 2/6	
		Cone No.(size)/α Factor	**120825 (10cm^2) / 0.76**	QC Status	
		Base Inclination	**X = 0.0° / Y = 0.0°**	Preliminary / Draft / Final	
		CRS **ETRS89**		**JK/BC** (27/05/2021) / **DR** (10/06/2021) / **SMc** (10/11/2021)	

Comments: Borehole OSS2-BH was completed to a depth of 70.08m utilising API drilling~ Wison CPT and push sampling methods. P-S logging was performed from 65m to 4m below mudline.

Preliminary Investigation, Hesselø OWF

IN SITU CPTU TESTING - DERIVED PARAMETERS



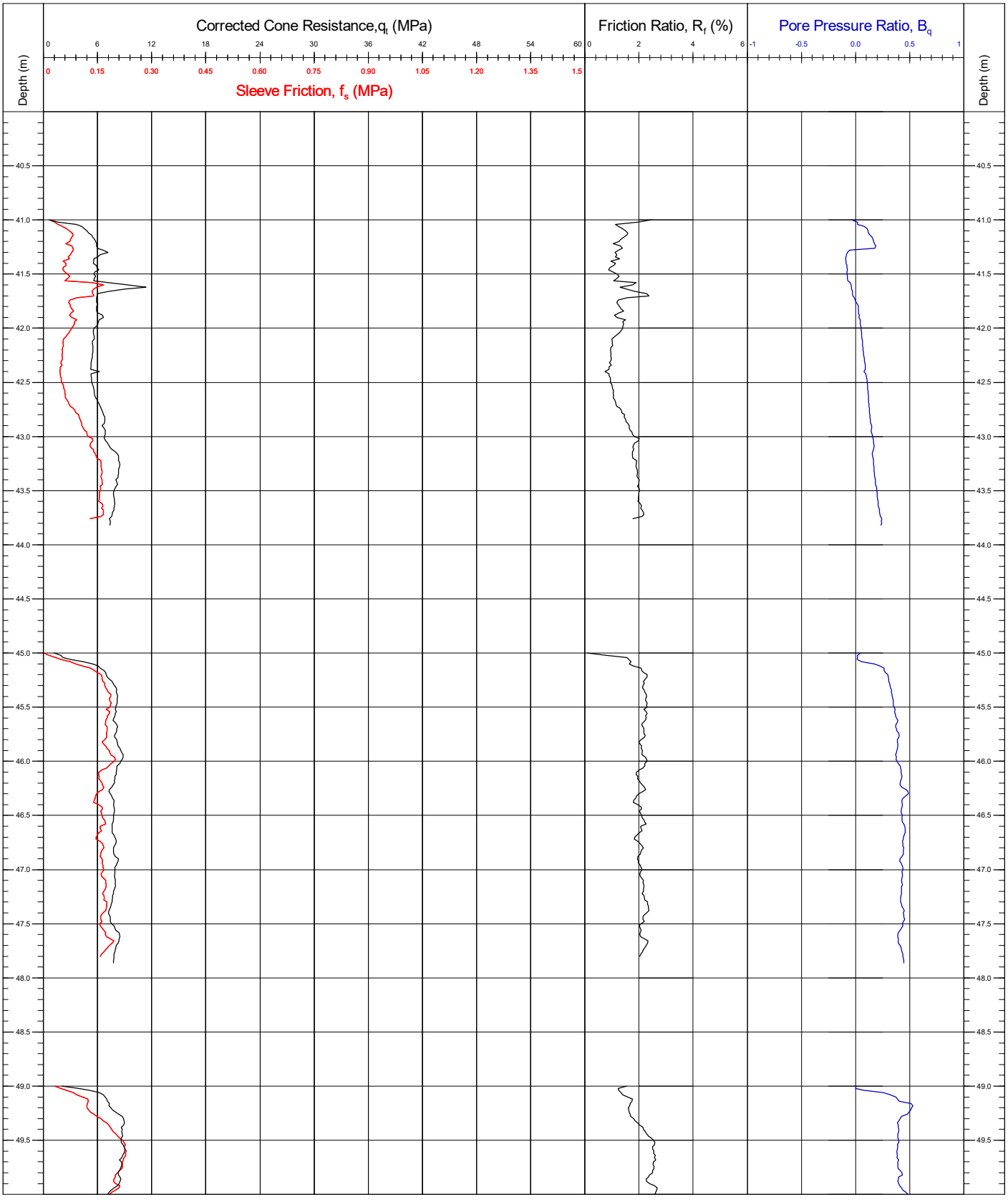
Area	**Kattegat Sea**	Coordinates	**674911.00E 6253674.20N**	CPT Number	**OSS2-BH**
Contract	**11596**	Latitude / Longitude			
Client Name/Ref	**Energinet Eltransmission A/S/384_20_ENE**	Water Depth (mMSL)	**29.96**		
Vessel	**MV Ocean Vantage**	Date of Test (Start/End)	**25/05/2021 to 27/05/2021**	Page: 3/6	
		Cone No.(size)/α Factor	**120825 (10cm^2) / 0.76**	QC Status	
		Base Inclination	**X = 0.0° / Y = 0.0°**	Preliminary: **JK/BC** (27/05/2021)	Draft: **DR** (10/06/2021)
		CRS **ETRS89**			Final: **SMc** (10/11/2021)

Comments: Borehole OSS2-BH was completed to a depth of 70.08m utilising API drilling~ Wison CPT and push sampling methods. P-S logging was performed from 65m to 4m below mudline.

Gardline

Preliminary Investigation, Hesselø OWF

IN SITU CPTU TESTING - DERIVED PARAMETERS



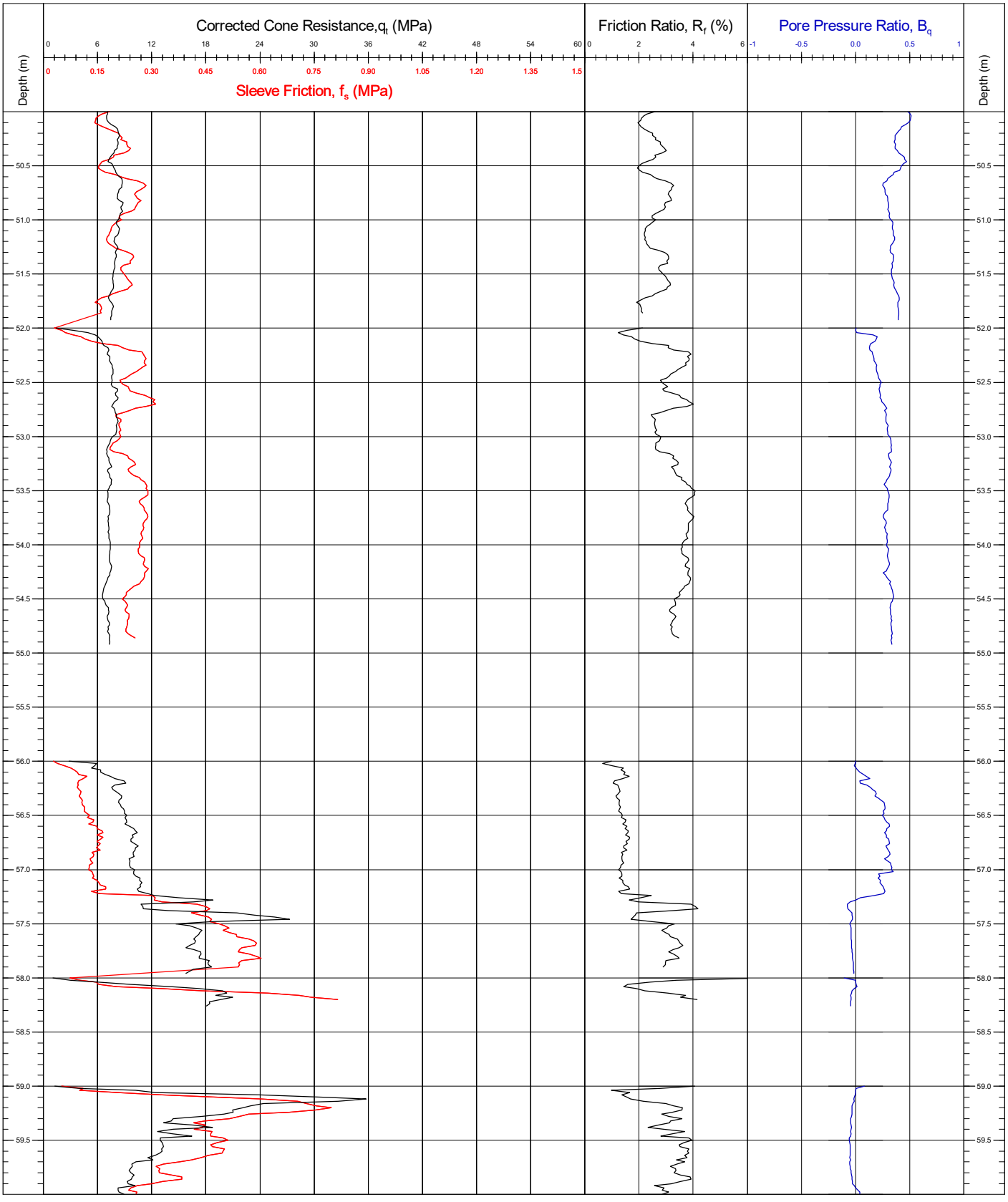
Area	**Kattegat Sea**	Coordinates	**674911.00E 6253674.20N**	CPT Number	
Contract	**11596**	Latitude / Longitude		**OSS2-BH**	
Client Name/Ref	**Energinet Eltransmission A/S/384_20_ENE**	Water Depth (mMSL)	**29.96**		
Vessel	**MV Ocean Vantage**	Date of Test (Start/End)	**25/05/2021 to 27/05/2021**	Page: 4/6	
		Cone No.(size)/α Factor	**120825 (10cm^2) / 0.76**	QC Status	
		Base Inclination	**X = 0.0° / Y = 0.0°**	Preliminary: **JK/BC** (27/05/2021)	Draft: **DR** (10/06/2021)
		CRS **ETRS89**			Final: **SMc** (10/11/2021)

Comments: Borehole OSS2-BH was completed to a depth of 70.08m utilising API drilling~ Wison CPT and push sampling methods. P-S logging was performed from 65m to 4m below mudline.

Gardline

Preliminary Investigation, Hesselø OWF

IN SITU CPTU TESTING - DERIVED PARAMETERS



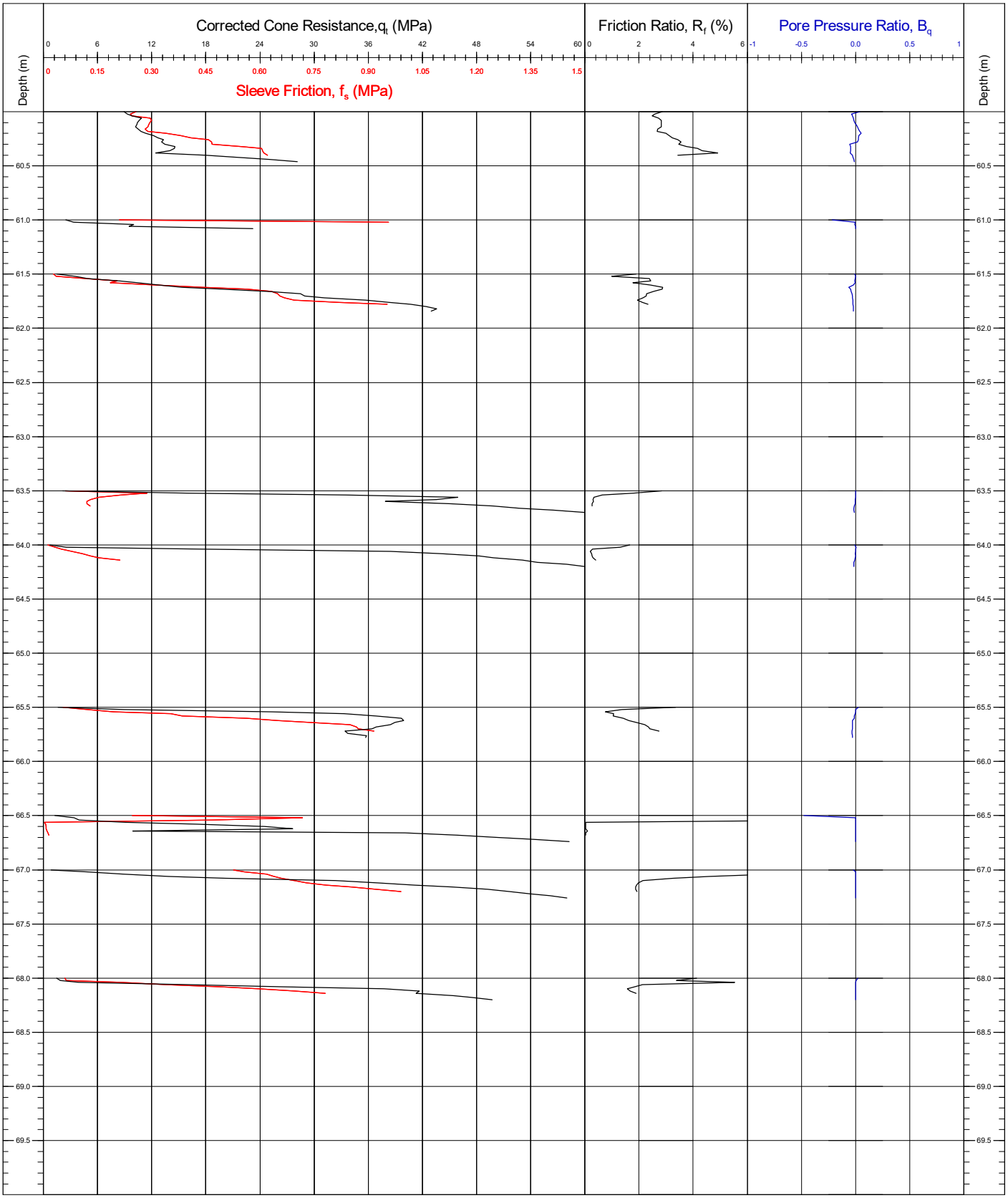
Area	**Kattegat Sea**	Coordinates	**674911.00E 6253674.20N**	CPT Number	**OSS2-BH**
Contract	**11596**	Latitude / Longitude			
Client Name/Ref	**Energinet Eltransmission A/S/384_20_ENE**	Water Depth (mMSL)	**29.96**		
Vessel	**MV Ocean Vantage**	Date of Test (Start/End)	**25/05/2021 to 27/05/2021**	Page: 5/6	
		Cone No.(size)/α Factor	**120825 (10cm^2) / 0.76**	QC Status	
		Base Inclination	**X = 0.0° / Y = 0.0°**	Preliminary: **JK/BC** (27/05/2021)	Draft: **DR** (10/06/2021) / Final: **SMc** (10/11/2021)
		CRS **ETRS89**			

Comments: Borehole OSS2-BH was completed to a depth of 70.08m utilising API drilling~ Wison CPT and push sampling methods. P-S logging was performed from 65m to 4m below mudline.

Gardline

Preliminary Investigation, Hesselø OWF

IN SITU CPTU TESTING - DERIVED PARAMETERS



Area	**Kattegat Sea**	Coordinates	**674911.00E 6253674.20N**	CPT Number	**OSS2-BH**
Contract	**11596**	Latitude / Longitude			
Client Name/Ref	**Energinet Eltransmission A/S/384_20_ENE**	Water Depth (mMSL)	**29.96**		
Vessel	**MV Ocean Vantage**	Date of Test (Start/End)	**25/05/2021 to 27/05/2021**	Page: 6/6	
		Cone No.(size)/α Factor	**120825 (10cm^2) / 0.76**	QC Status	
		Base Inclination	**X = 0.0° / Y = 0.0°**	Preliminary: **JK/BC (27/05/2021)**	Draft: **DR (10/06/2021)**
		CRS **ETRS89**			Final: **SMc (10/11/2021)**

Comments: Borehole OSS2-BH was completed to a depth of 70.08m utilising API drilling~ Wison CPT and push sampling methods. P-S logging was performed from 65m to 4m below mudline.

3.4 Seabed CPTU Reference Reading Logs

Gardline

Preliminary Investigation - Hesselø OWF
11596

ENERGINET

CPT Name	Cone Number	Cone Size (cm^2)	Alpha Factor	Zero on Deck			Zero Before Test			Zero After Test			Zero on Deck			Ending Test Comments
				q_c (MPa)	f_s (MPa)	U_2 (kPa)	q_c (MPa)	f_s (MPa)	U_2 (kPa)	q_c (MPa)	f_s (MPa)	U_2 (kPa)	q_c (MPa)	f_s (MPa)	U_2 (kPa)	
CB3a	120910	10	0.81	0.45	0.010	- 19.2	0.68	0.010	290.7	0.00	0.000	0.0	0.00	0.000	0.0	
CB4	130909	10	0.82	- 0.05	- 0.010	11.9	0.17	- 0.011	308.7	0.20	- 0.012	301.8	- 0.02	- 0.012	18.1	
CB5	130909	10	0.82	0.06	0.004	9.8	0.23	0.005	266.9	0.05	- 0.013	260.5	- 0.12	- 0.014	13.2	
CB5a	191114	10	0.76	0.22	0.006	35.8	0.42	0.006	301.6	0.51	0.004	333.4	0.26	0.005	48.4	
CB6	130206	10	0.77	0.32	0.010	11.0	0.51	0.010	259.7	0.46	0.003	259.1	0.29	0.006	10.1	
CB6a	130206	10	0.77	0.38	0.006	10.2	0.56	0.005	265.9	0.56	0.004	269.1	0.39	0.005	9.6	
CB7	181005	10	0.73	- 0.04	0.003	28.5	0.15	0.003	290.2	0.15	0.002	287.9	- 0.04	0.003	2.9	
CB7a	181005	10	0.73	- 0.04	0.003	2.7	0.16	0.003	283.1	0.18	0.002	287.9	- 0.04	0.003	5.5	
CB8	130206	10	0.77	0.36	0.009	13.5	0.60	0.011	321.0	0.56	0.008	322.6	0.33	0.008	12.7	
CB9	130909	10	0.82	- 0.02	- 0.007	10.1	0.18	- 0.008	312.7	0.17	- 0.011	316.4	- 0.07	- 0.009	12.8	
CB10	120910	10	0.81	0.40	0.007	- 22.7	0.67	0.008	316.7	0.65	0.007	318.3	0.39	0.007	- 18.1	
CB11	120829	10	0.80	0.22	0.008	25.0	0.48	0.009	325.5	0.31	0.008	321.7	0.07	0.008	17.3	
CB12	130909	10	0.82	- 0.03	- 0.007	7.8	0.17	- 0.009	308.1	0.18	- 0.012	311.0	- 0.05	- 0.010	16.6	
CB13	181004	10	0.81	0.03	0.001	33.0	0.16	0.002	315.2	0.18	- 0.002	320.5	0.00	- 0.001	33.4	
CB14	100976	10	0.78	- 0.05	0.001	27.6	0.16	0.004	333.7	- 0.30	0.254	320.5	- 0.44	0.252	19.6	
CPT3	130206	10	0.77	0.32	0.009	9.8	0.55	0.009	318.0	0.47	0.008	315.4	0.27	0.008	12.6	
CPT3a	181007	10	0.72	- 0.11	0.001	74.0	0.06	0.002	376.0	- 0.01	0.011	360.9	- 0.18	0.010	30.4	

CPTU CONE OFFSETS

Gardline

Preliminary Investigation - Hesselø OWF
11596

ENERGINET

CPT Name	Cone Number	Cone Size (cm^2)	Alpha Factor	Zero on Deck			Zero Before Test			Zero After Test			Zero on Deck			Ending Test Comments
				q_c (MPa)	f_s (MPa)	U_2 (kPa)	q_c (MPa)	f_s (MPa)	U_2 (kPa)	q_c (MPa)	f_s (MPa)	U_2 (kPa)	q_c (MPa)	f_s (MPa)	U_2 (kPa)	
CPT3b	181007	10	0.72	- 0.11	0.001	74.0	0.00	0.012	366.9	0.00	0.011	327.1	- 0.18	0.010	30.4	
CPT4	061040	10	0.76	0.27	0.002	11.3	0.52	0.003	324.5	0.40	- 0.180	333.6	0.16	- 0.179	22.0	
CPT6	191114	10	0.76	0.27	0.004	37.4	0.47	0.005	289.1	0.41	0.004	281.5	0.22	0.005	35.8	
CPT6a	120829	10	0.80	0.26	0.009	8.2	0.47	0.009	260.2	0.71	0.007	256.6	0.52	0.008	9.6	
CPT7	191114	10	0.76	0.25	0.072	38.1	0.48	0.005	310.0	0.48	0.003	298.5	0.27	0.067	36.4	
CPT8	081208	10	0.78	0.11	0.001	4.8	0.35	0.003	291.3	0.33	0.001	269.6	0.10	0.002	0.0	
CPT9	130206	10	0.77	0.37	0.008	11.7	0.65	0.009	331.3	0.54	0.006	325.4	0.29	0.006	11.4	
CPT10	100976	10	0.78	- 0.02	0.002	20.4	0.24	0.003	333.6	0.15	0.001	331.4	- 0.07	0.011	25.2	
CPT11	181004	10	0.81	- 0.07	0.002	42.5	0.11	0.003	320.4	0.12	0.000	312.9	- 0.06	0.002	43.6	
CPT11a	181004	10	0.81	- 0.05	0.001	42.3	0.13	0.001	319.8	0.19	- 0.003	271.6	0.00	0.000	24.8	
CPT12	181005	10	0.73	0.02	0.003	4.5	0.14	0.003	255.8	0.13	0.002	246.9	- 0.03	0.002	3.1	
CPT13	181009	10	0.86	0.08	0.000	- 66.7	0.28	0.001	241.4	0.29	- 0.004	153.8	0.10	- 0.004	- 131.8	
CPT14	130206	10	0.77	0.38	0.009	13.0	0.66	0.009	338.5	0.63	0.007	340.8	0.36	0.009	12.4	
CPT15	120910	10	0.81	0.49	0.011	- 18.4	0.68	0.013	255.5	0.65	0.009	249.8	0.45	0.009	- 16.7	
CPT16	181004	10	0.81	- 0.02	0.000	35.7	0.17	- 0.001	308.6	0.23	- 0.002	303.9	0.05	- 0.001	22.0	
CPT16a	130206	10	0.77	0.47	0.009	10.9	0.71	0.010	298.4	0.67	0.007	293.9	0.44	0.008	10.0	
CPT18	061040	10	0.76	0.34	0.002	11.6	0.60	0.002	341.9	0.31	0.001	336.9	0.31	0.001	8.9	

CPTU CONE OFFSETS

Gardline

Preliminary Investigation - Hesselø OWF
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ENERGINET

CPT Name	Cone Number	Cone Size (cm^2)	Alpha Factor	Zero on Deck			Zero Before Test			Zero After Test			Zero on Deck			Ending Test Comments
				q_c (MPa)	f_s (MPa)	U_2 (kPa)	q_c (MPa)	f_s (MPa)	U_2 (kPa)	q_c (MPa)	f_s (MPa)	U_2 (kPa)	q_c (MPa)	f_s (MPa)	U_2 (kPa)	
CPT20	120829	10	0.80	0.24	0.009	15.4	0.50	0.011	326.7	0.50	0.007	324.8	0.29	0.007	11.0	
CPT22	181004	10	0.81	0.03	0.000	24.8	0.19	0.001	323.1	0.27	- 0.004	312.9	0.05	- 0.002	27.5	
CPT23	191114	10	0.76	0.37	0.009	9.9	0.62	0.009	314.9	0.61	0.091	308.8	0.38	0.120	12.0	
CPT25	081208	10	0.78	0.17	0.005	- 8.4	0.42	0.005	290.4	- 0.22	0.970	303.2	- 0.42	0.092	- 1.9	
CPT25a	120829	10	0.80	0.40	0.008	6.7	0.65	0.009	305.7	0.50	0.008	315.2	0.25	0.008	6.9	
CPT25b	130206	10	0.77	0.45	0.007	35.3	0.68	0.007	318.4	0.73	0.004	333.8	0.49	0.004	11.0	
CPT26	191114	10	0.76	0.41	0.008	54.3	0.63	0.009	350.5	0.68	0.007	355.6	0.41	0.007	58.1	
OSS 1	100415	10	0.80	0.24	0.007	8.3	0.51	0.009	325.8	0.00	0.000	0.0	0.00	0.000	0.0	
OSS 1a	120910	10	0.81	0.39	0.008	- 20.3	0.65	0.008	300.4	0.64	0.007	318.6	0.40	0.007	- 20.7	
OSS 2	081208	10	0.78	0.11	0.003	4.4	0.34	0.004	283.1	0.35	0.001	280.5	0.11	0.001	4.5	
SCPT1	130104	10	0.77	0.10	0.000	9.2	0.35	0.003	311.0	0.35	- 0.001	319.9	0.09	- 0.001	10.1	
SCPT1a	130206	10	0.77	0.38	0.007	6.3	0.62	0.007	311.0	0.67	0.006	296.7	0.44	0.006	7.2	
SCPT2	130909	10	0.82	0.03	- 0.007	6.3	0.21	- 0.007	286.4	0.28	- 0.011	283.9	0.05	- 0.008	10.7	
SCPT5	191114	10	0.76	0.39	0.010	25.6	0.57	0.011	280.5	0.59	0.008	278.0	0.41	0.008	24.8	
SCPT17	081208	10	0.78	0.56	0.096	7.0	0.81	0.097	307.6	0.46	0.094	304.8	0.57	0.093	3.2	
SCPT19	130909	10	0.82	- 0.01	- 0.007	10.4	0.20	- 0.006	308.3	0.22	- 0.011	303.6	- 0.02	- 0.008	9.6	
SCPT21	120829	10	0.80	0.32	0.009	12.6	0.56	0.010	300.0	0.60	0.008	328.3	0.34	0.008	6.5	

CPTU CONE OFFSETS

Gardline

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ENERGINET

CPT Name	Cone Number	Cone Size (cm^2)	Alpha Factor	Zero on Deck			Zero Before Test			Zero After Test			Zero on Deck			Ending Test Comments
				q_c (MPa)	f_s (MPa)	U_2 (kPa)	q_c (MPa)	f_s (MPa)	U_2 (kPa)	q_c (MPa)	f_s (MPa)	U_2 (kPa)	q_c (MPa)	f_s (MPa)	U_2 (kPa)	
SCPT24	130206	10	0.77	0.49	0.008	8.5	0.75	0.008	305.2	0.47	0.009	311.5	0.21	0.007	10.4	

CPTU CONE OFFSETS

3.5 Seabed CPTU Measured Logs

Gardline

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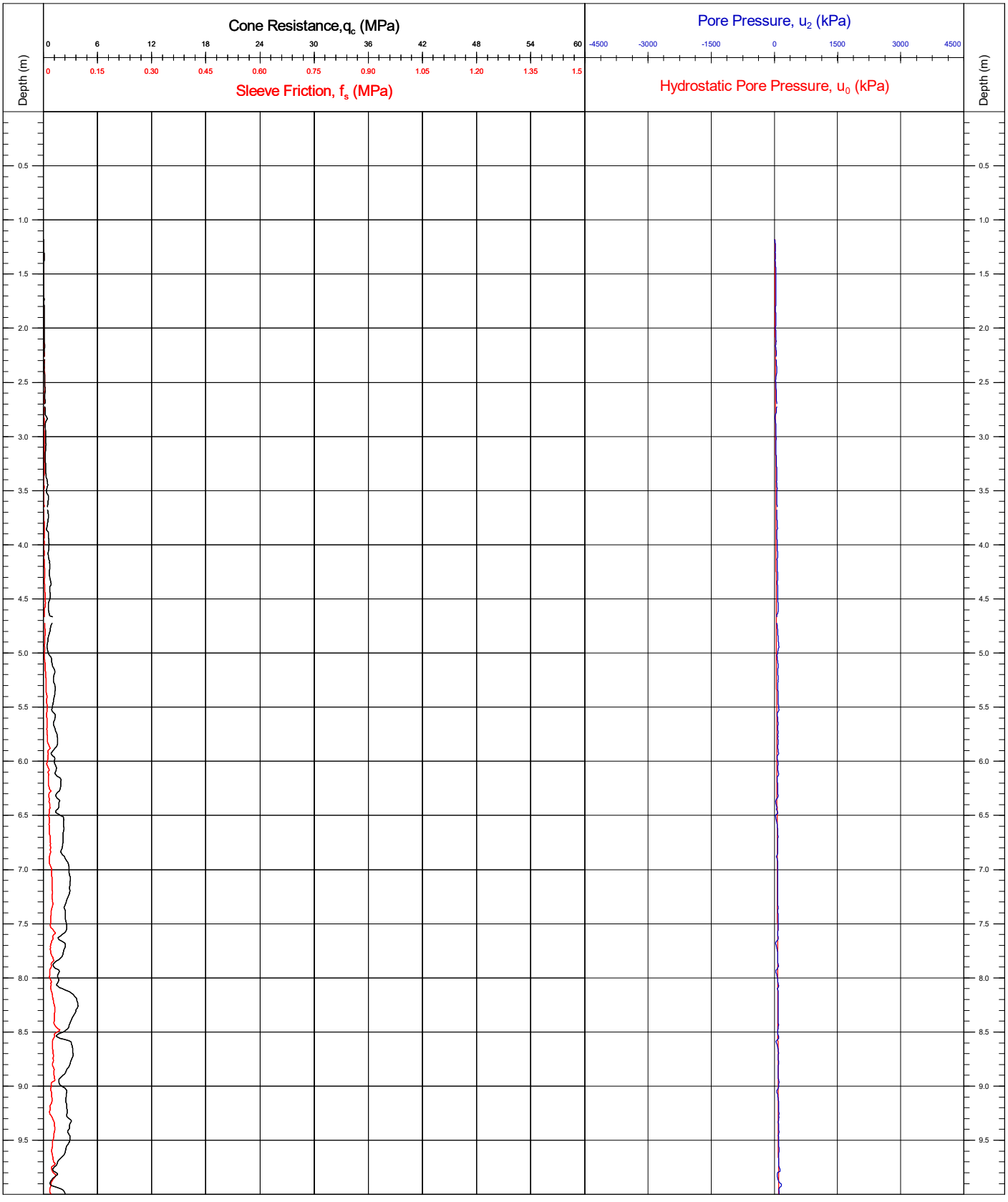
IN SITU CPTU TESTING - MEASURED PARAMETERS

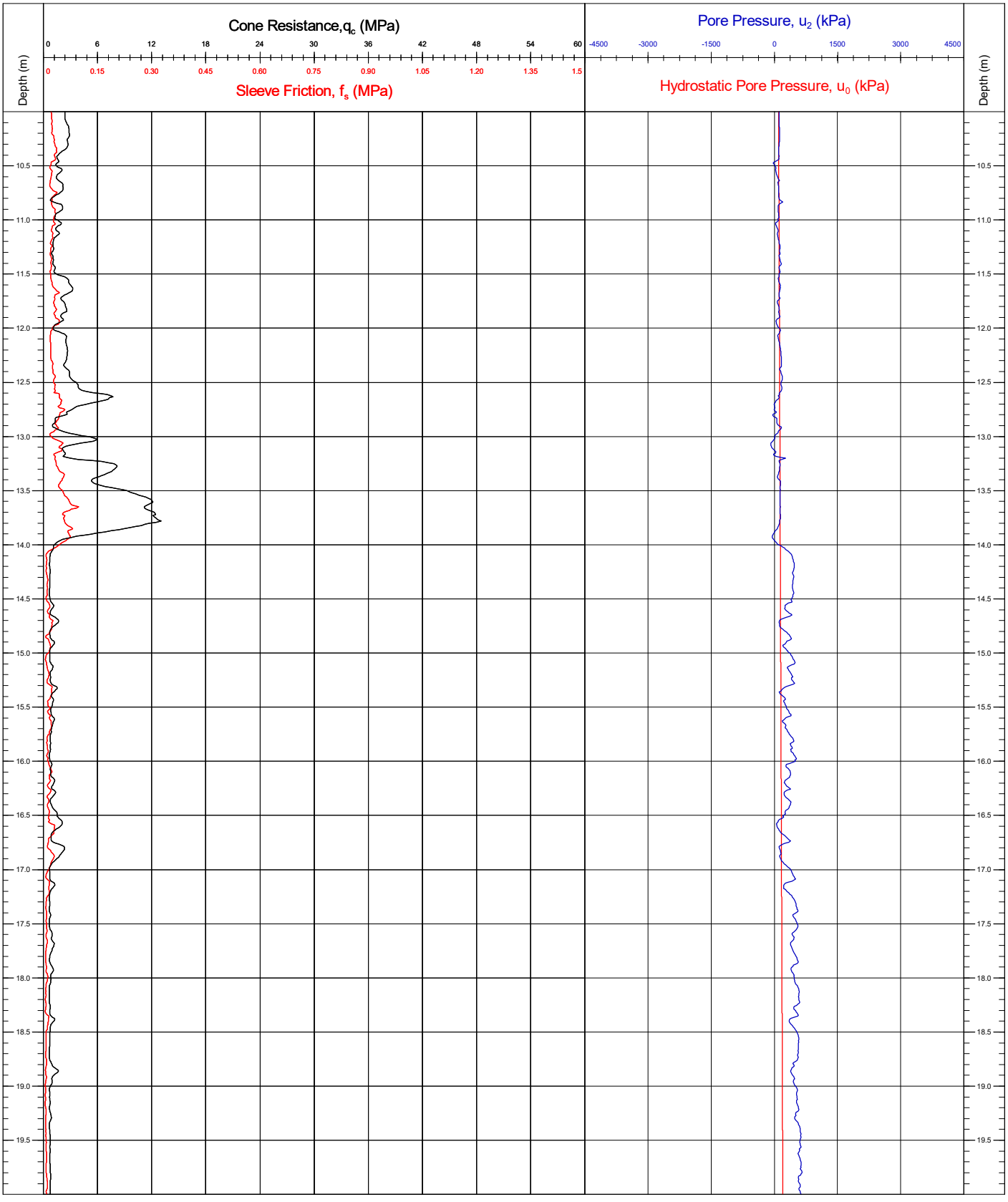


Area	**Kattegat Sea**	Coordinates	**673294.00E**	**6269807.20N**	CPT Number **CB3a**
Contract	**11596**	Latitude / Longitude			
Client Name/Ref	**Energinet Eltransmission A/S/384_20_ENE**	Water Depth (mMSL)	**31.84**		
Vessel	**MV Ocean Vantage**	Date of Test	**01/05/2021**		Page: 1/6
		Cone No.(size)/α Factor	**120910 (10cm^2) / 0.81**		QC Status
		Base Inclination	**X = 1.1° / Y = 1.0°**		Preliminary: **JK/BC** (01/05/2021); Draft: **DR** (25/06/2021); Final: **SMc** (10/11/2021)
		CRS	**ETRS89**		

Comments: Cone out of class. Continuous seabed CPT. Final depth 58m. Test terminated due to loss of communication with cone after snapping rods

Preliminary Investigation, Hesselø OWF

IN SITU CPTU TESTING - MEASURED PARAMETERS

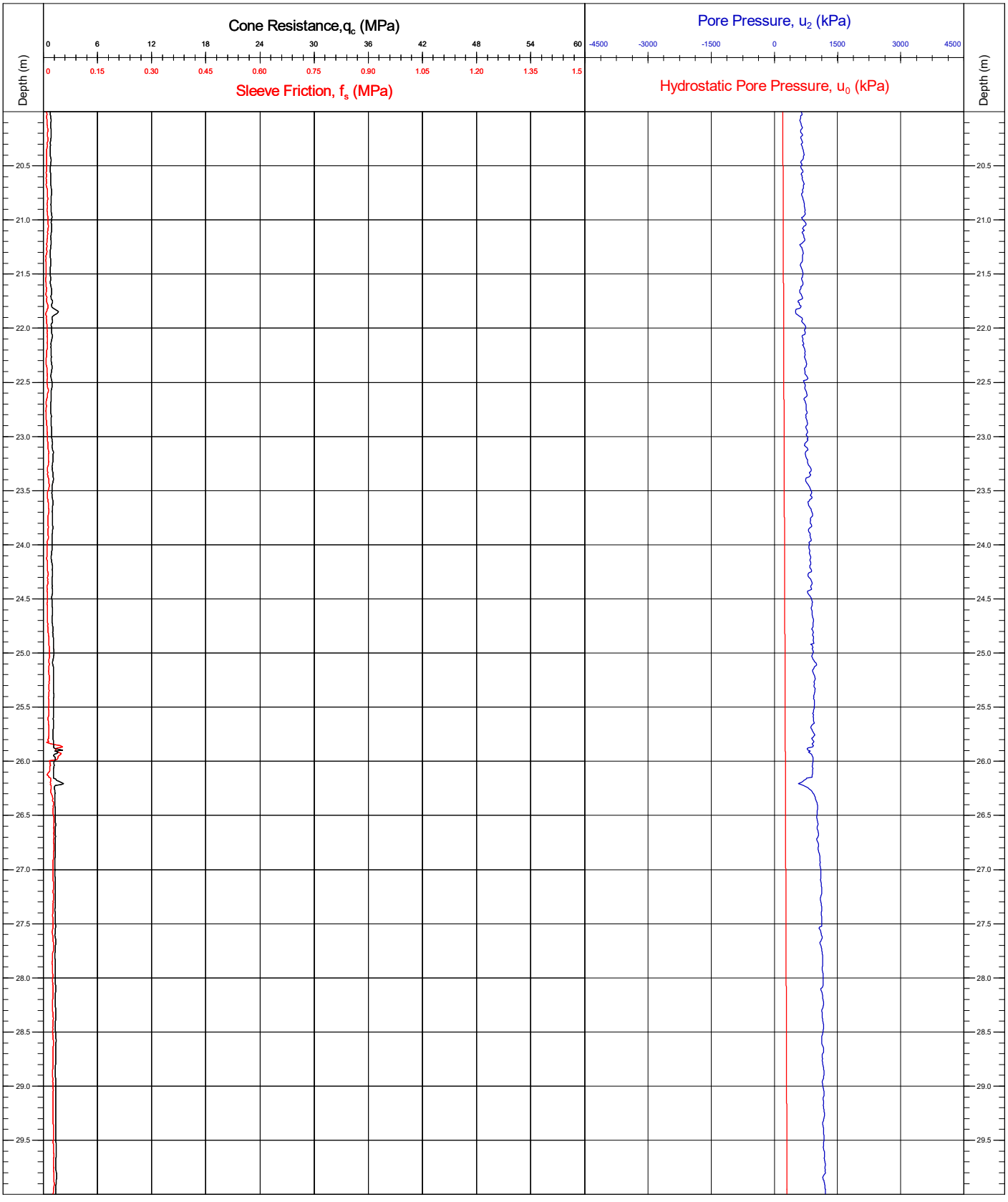


Area	**Kattegat Sea**	Coordinates	**673294.00E** **6269807.20N**	CPT Number	**CB3a**
Contract	**11596**	Latitude / Longitude			
Client Name/Ref	**Energinet Eltransmission A/S/384_20_ENE**	Water Depth (mMSL)	**31.84**		
Vessel	**MV Ocean Vantage**	Date of Test	**01/05/2021**	Page: 2/6	
		Cone No.(size)/α Factor	**120910 (10cm^2) / 0.81**	QC Status	
		Base Inclination	**X = 1.1° / Y = 1.0°**	Preliminary: **JK/BC** (01/05/2021)	Draft: **DR** (25/06/2021)	Final: **SMc** (10/11/2021)
		CRS **ETRS89**			

Comments: Cone out of class. Continuous seabed CPT. Final depth 58m. Test terminated due to loss of communication with cone after snapping rods

Preliminary Investigation, Hesselø OWF

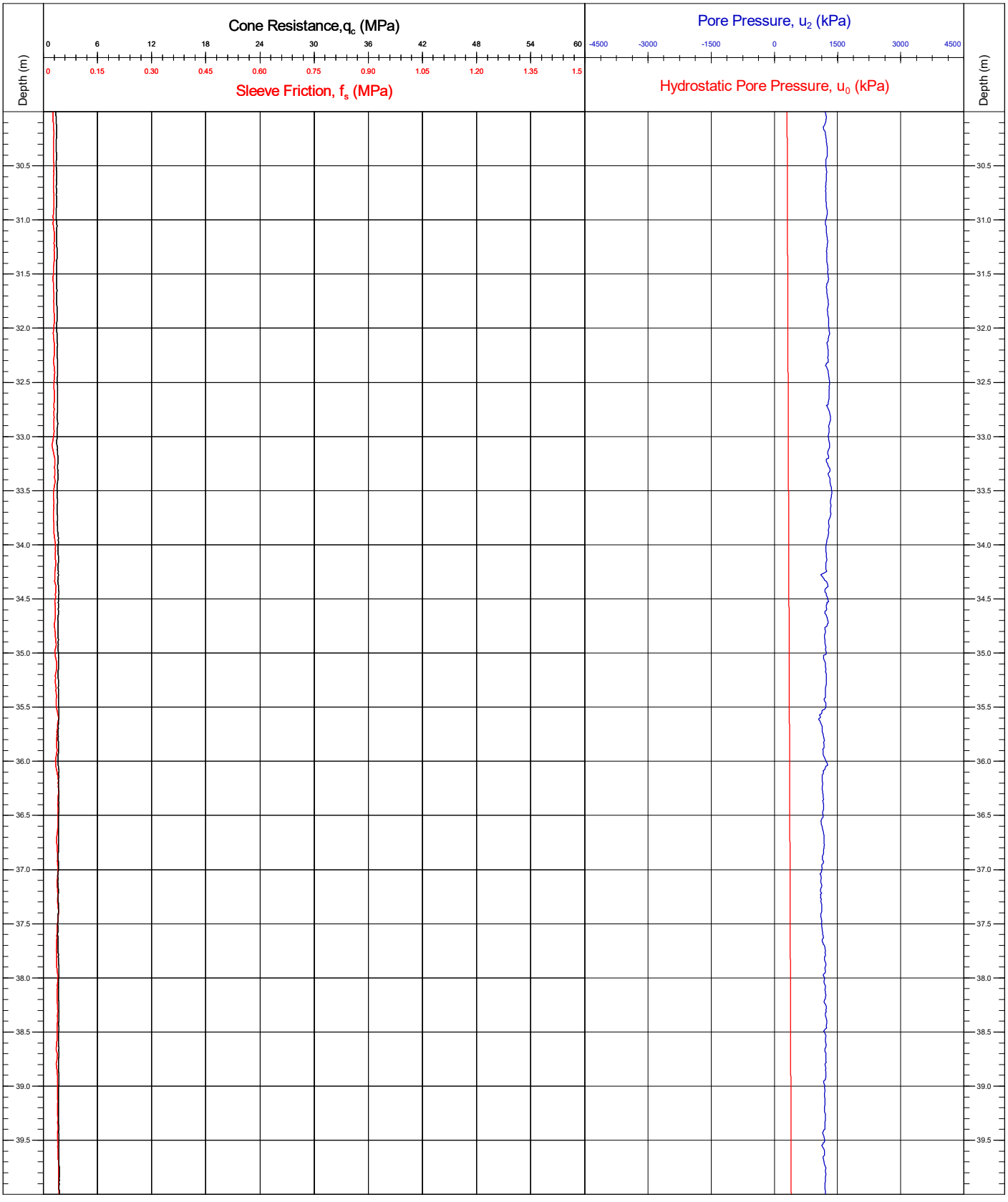
IN SITU CPTU TESTING - MEASURED PARAMETERS



Area	**Kattegat Sea**	Coordinates	**673294.00E**	**6269807.20N**	CPT Number
Contract	**11596**	Latitude / Longitude			**CB3a**
Client Name/Ref	**Energinet Eltransmission A/S/384_20_ENE**	Water Depth (mMSL)	**31.84**		
Vessel	**MV Ocean Vantage**	Date of Test	**01/05/2021**		Page: 3/6
Comments: Cone out of class. Continuous seabed CPT. Final depth 58m. Test terminated due to loss of communication with cone after snapping rods		Cone No.(size)/α Factor	**120910 (10cm^2) / 0.81**		QC Status
		Base Inclination	**X = 1.1° / Y = 1.0°**		Preliminary: **JK/BC** (01/05/2021) · Draft: **DR** (25/06/2021) · Final: **SMc** (10/11/2021)
		CRS	**ETRS89**		

Preliminary Investigation, Hesselø OWF

IN SITU CPTU TESTING - MEASURED PARAMETERS

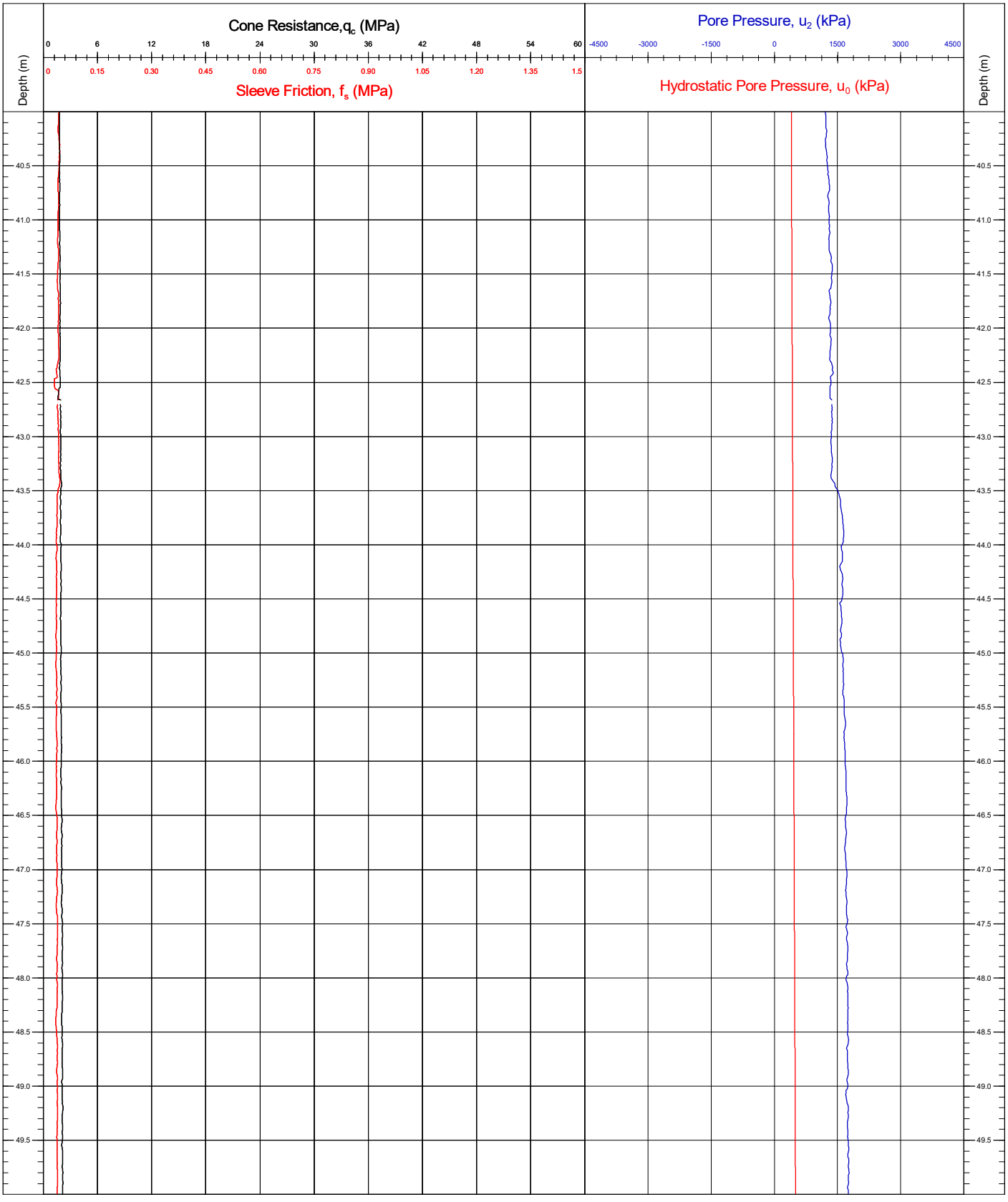


Area	**Kattegat Sea**	Coordinates	**673294.00E 6269807.20N**	CPT Number	**CB3a**
Contract	**11596**	Latitude / Longitude			
Client Name/Ref	**Energinet Eltransmission A/S/384_20_ENE**	Water Depth (mMSL)	**31.84**		
Vessel	**MV Ocean Vantage**	Date of Test	**01/05/2021**	Page: 4/6	
		Cone No.(size)/α Factor	**120910 (10cm^2) / 0.81**	QC Status	
		Base Inclination	**X = 1.1° / Y = 1.0°**	Preliminary: **JK/BC** (01/05/2021)	Draft: **DR** (25/06/2021)
		CRS **ETRS89**			Final: **SMc** (10/11/2021)

Comments: Cone out of class. Continuous seabed CPT. Final depth 58m. Test terminated due to loss of communication with cone after snapping rods

Preliminary Investigation, Hesselø OWF

IN SITU CPTU TESTING - MEASURED PARAMETERS

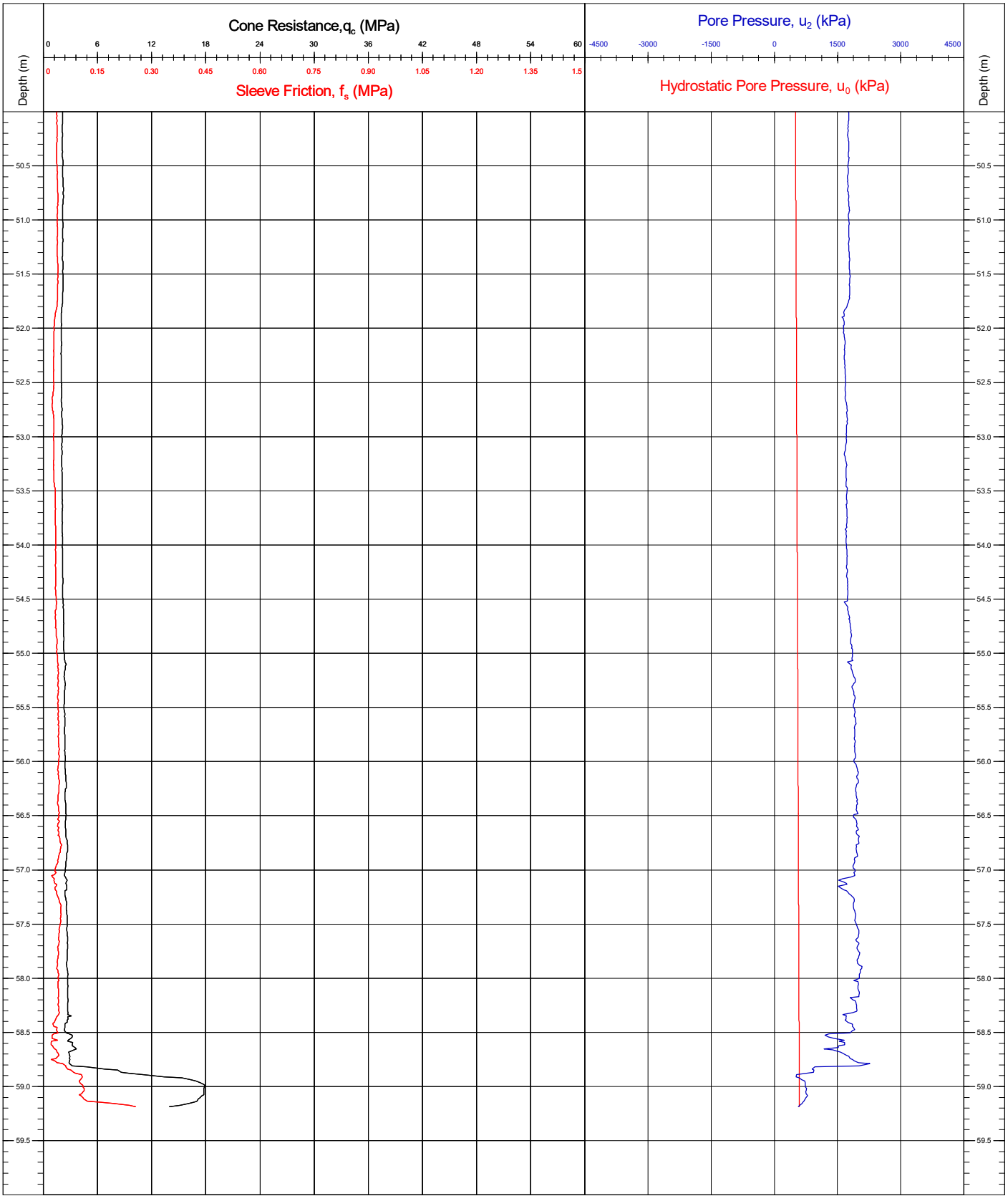


Area	**Kattegat Sea**	Coordinates	**673294.00E 6269807.20N**	CPT Number	**CB3a**
Contract	**11596**	Latitude / Longitude			
Client Name/Ref	**Energinet Eltransmission A/S/384_20_ENE**	Water Depth (mMSL)	**31.84**		
Vessel	**MV Ocean Vantage**	Date of Test	**01/05/2021**	Page: 5/6	
		Cone No.(size)/α Factor	**120910 (10cm^2) / 0.81**	QC Status	
		Base Inclination	**X = 1.1° / Y = 1.0°**	Preliminary: **JK/BC** (01/05/2021)	Draft: **DR** (25/06/2021)
		CRS **ETRS89**			Final: **SMc** (10/11/2021)

Comments: Cone out of class. Continuous seabed CPT. Final depth 58m. Test terminated due to loss of communication with cone after snapping rods

Preliminary Investigation, Hesselø OWF

IN SITU CPTU TESTING - MEASURED PARAMETERS

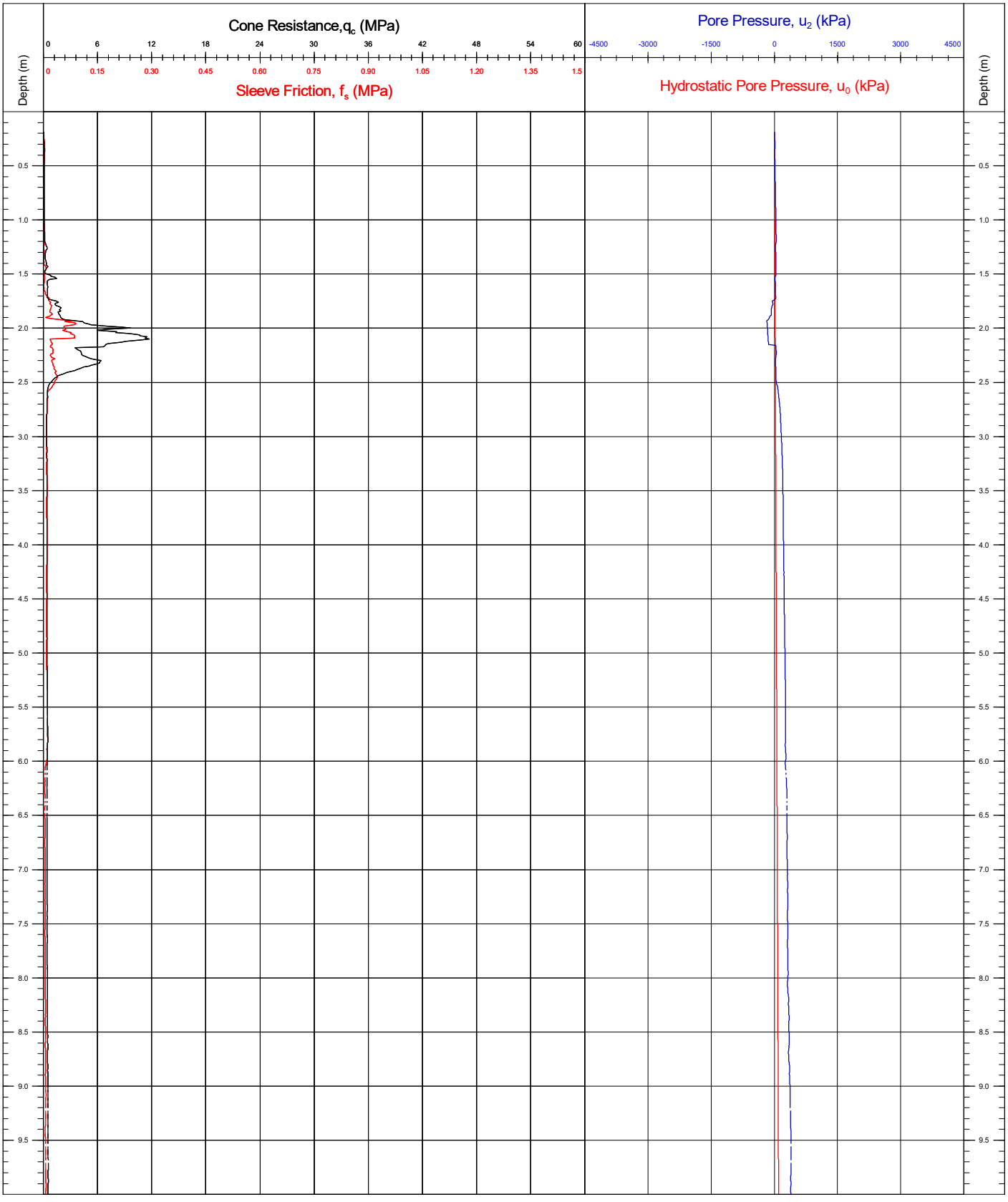


Area	**Kattegat Sea**	Coordinates	**673294.00E 6269807.20N**	CPT Number	**CB3a**
Contract	**11596**	Latitude / Longitude			
Client Name/Ref	**Energinet Eltransmission A/S/384_20_ENE**	Water Depth (mMSL)	**31.84**		
Vessel	**MV Ocean Vantage**	Date of Test	**01/05/2021**	Page: 6/6	
		Cone No.(size)/α Factor	**120910 (10cm^2) / 0.81**	QC Status	
		Base Inclination	**X = 1.1° / Y = 1.0°**	Preliminary: **JK/BC** (01/05/2021)	Draft: **DR** (25/06/2021)
		CRS **ETRS89**			Final: **SMc** (10/11/2021)

Comments: Cone out of class. Continuous seabed CPT. Final depth 58m. Test terminated due to loss of communication with cone after snapping rods

Preliminary Investigation, Hesselø OWF

IN SITU CPTU TESTING - MEASURED PARAMETERS

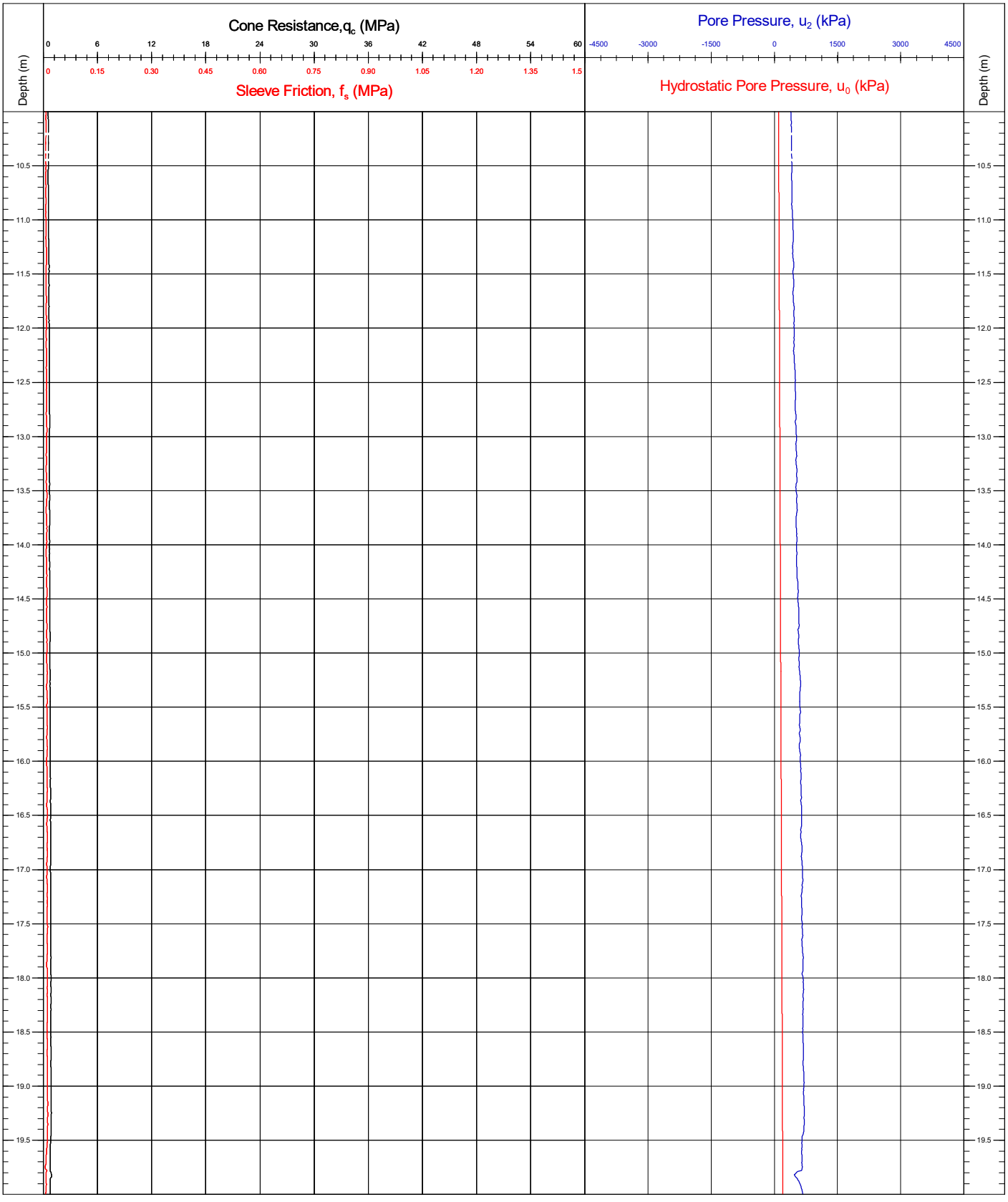


Area	**Kattegat Sea**	Coordinates	**675775.70E 6272685.70N**	CPT Number	**CB4**
Contract	**11596**	Latitude / Longitude			
Client Name/Ref	**Energinet Eltransmission A/S/384_20_ENE**	Water Depth (mMSL)	**30.94**		
Vessel	**MV Ocean Vantage**	Date of Test	**01/05/2021**	Page: 1/4	
		Cone No.(size)/α Factor	**130909 (10cm^2) / 0.82**	QC Status	
		Base Inclination	**X = 1.1° / Y = 0.9°**	Preliminary: **JK/BC** (01/05/2021)	Draft: **DR** (10/06/2021)
		CRS **ETRS89**			Final: **SMc** (10/11/2021)

Comments: Cone class 1. Continuous seabed CPT. Final depth 35.73m. Test terminated at operators discretion due to lack of rod support from mudline when pushing into dense material

Preliminary Investigation, Hesselø OWF

IN SITU CPTU TESTING - MEASURED PARAMETERS



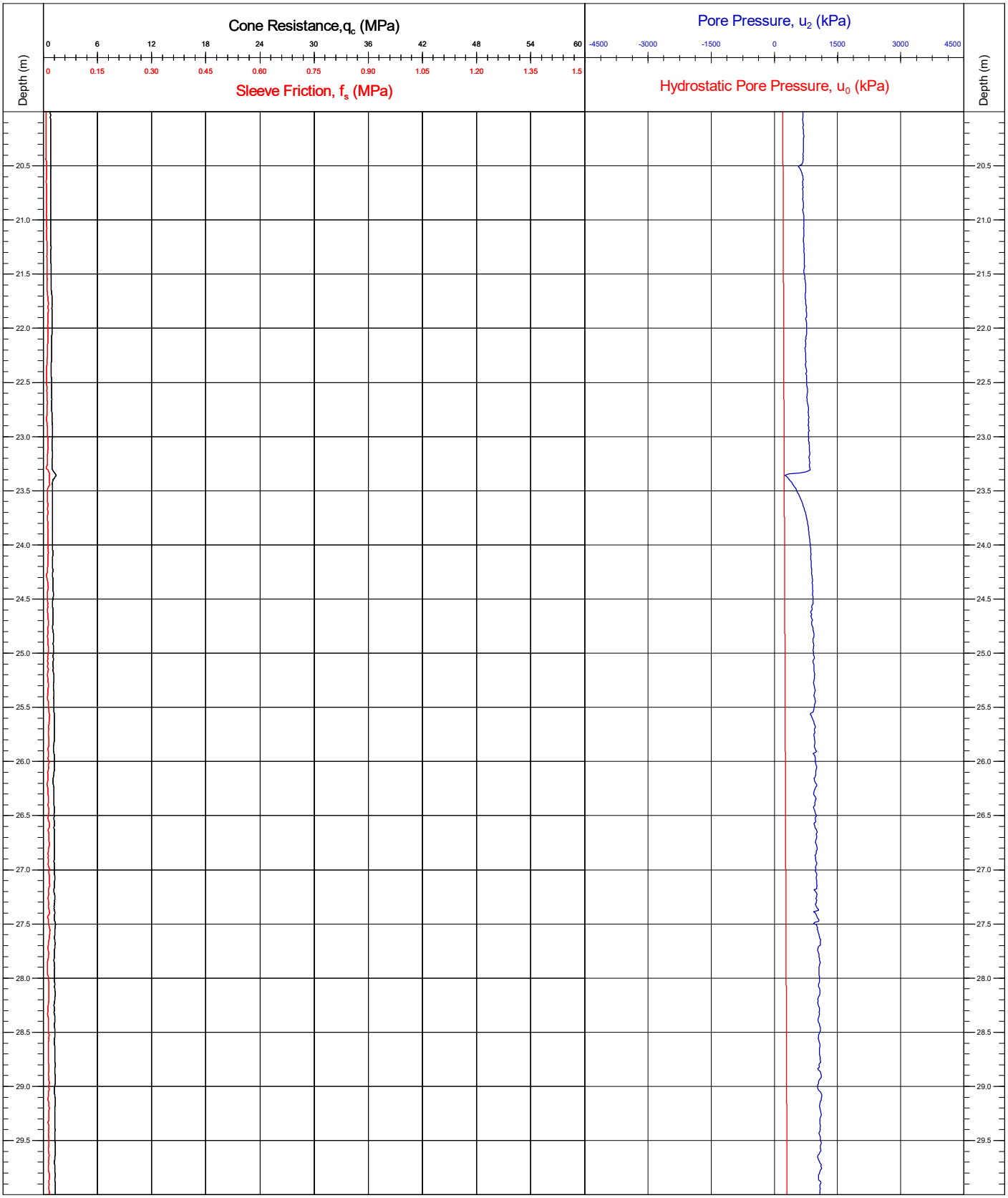
Area	**Kattegat Sea**	Coordinates	**675775.70E 6272685.70N**	CPT Number	**CB4**
Contract	**11596**	Latitude / Longitude			
Client Name/Ref	**Energinet Eltransmission A/S/384_20_ENE**	Water Depth (mMSL)	**30.94**		
Vessel	**MV Ocean Vantage**	Date of Test	**01/05/2021**	Page: 2/4	
		Cone No.(size)/α Factor	**130909 (10cm^2) / 0.82**	QC Status	
		Base Inclination	**X = 1.1° / Y = 0.9°**	Preliminary: **JK/BC** (01/05/2021)	Draft: **DR** (10/06/2021)
		CRS **ETRS89**			Final: **SMc** (10/11/2021)

Comments: Cone class 1. Continuous seabed CPT. Final depth 35.73m. Test terminated at operators discretion due to lack of rod support from mudline when pushing into dense material

Gardline

Preliminary Investigation, Hesselø OWF

IN SITU CPTU TESTING - MEASURED PARAMETERS

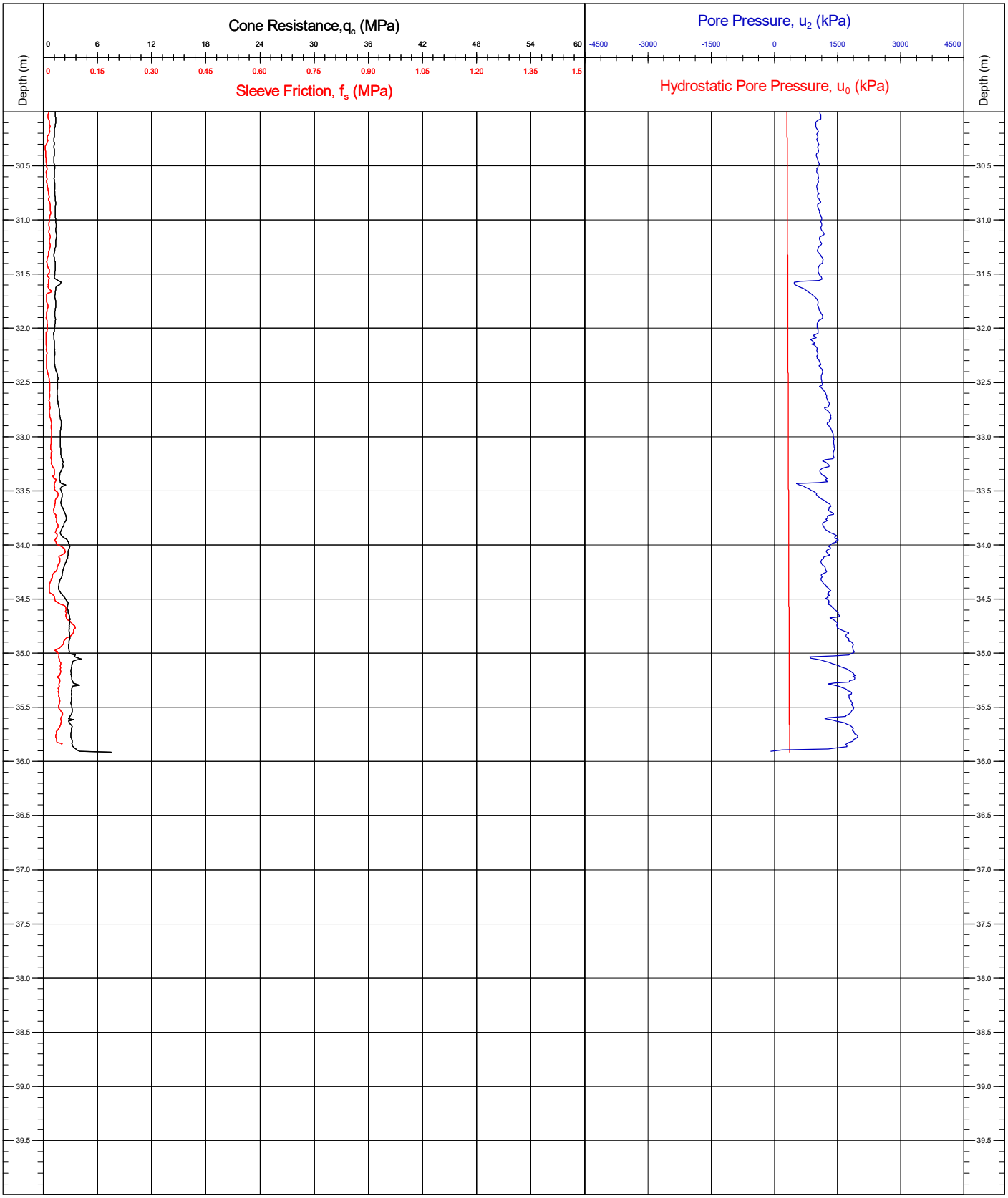


Area	**Kattegat Sea**	Coordinates	**675775.70E**	**6272685.70N**	CPT Number **CB4**
Contract	**11596**	Latitude / Longitude			
Client Name/Ref	**Energinet Eltransmission A/S/384_20_ENE**	Water Depth (mMSL)	**30.94**		
Vessel	**MV Ocean Vantage**	Date of Test	**01/05/2021**		Page: 3/4
		Cone No.(size)/α Factor	**130909 (10cm^2) / 0.82**		QC Status
		Base Inclination	**X = 1.1° / Y = 0.9°**		Preliminary: **JK/BC** (01/05/2021); Draft: **DR** (10/06/2021); Final: **SMc** (10/11/2021)
		CRS	**ETRS89**		

Comments: Cone class 1. Continuous seabed CPT. Final depth 35.73m. Test terminated at operators discretion due to lack of rod support from mudline when pushing into dense material

Preliminary Investigation, Hesselø OWF

IN SITU CPTU TESTING - MEASURED PARAMETERS

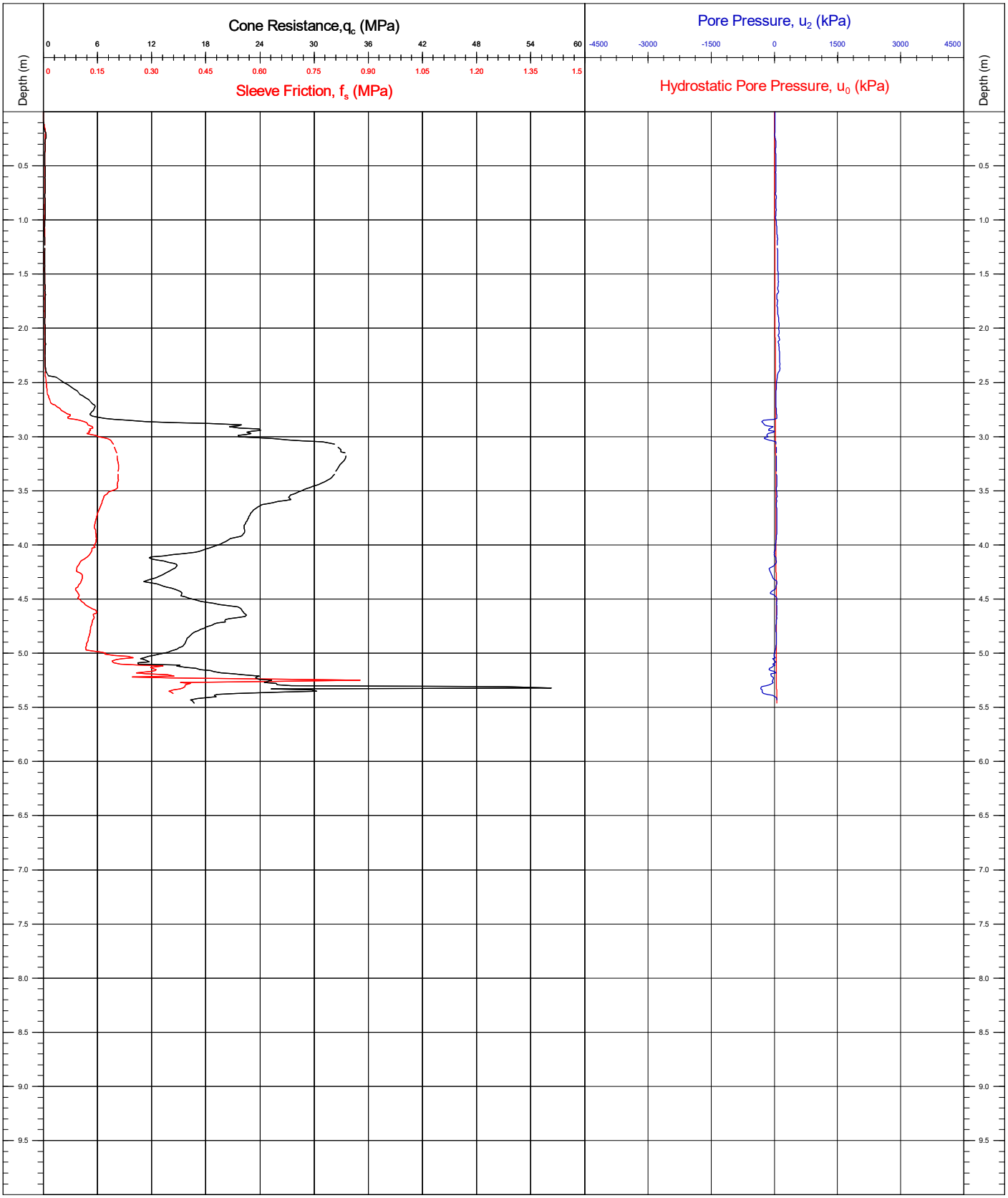


Area	**Kattegat Sea**	Coordinates	**675775.70E 6272685.70N**	CPT Number	**CB4**
Contract	**11596**	Latitude / Longitude			
Client Name/Ref	**Energinet Eltransmission A/S/384_20_ENE**	Water Depth (mMSL)	**30.94**		
Vessel	**MV Ocean Vantage**	Date of Test	**01/05/2021**	Page: 4/4	
		Cone No.(size)/α Factor	**130909 (10cm^2) / 0.82**	QC Status	
		Base Inclination	**X = 1.1° / Y = 0.9°**	Preliminary: **JK/BC** (01/05/2021)	Draft: **DR** (10/06/2021)
		CRS **ETRS89**			Final: **SMc** (10/11/2021)

Comments: Cone class 1. Continuous seabed CPT. Final depth 35.73m. Test terminated at operators discretion due to lack of rod support from mudline when pushing into dense material

Preliminary Investigation, Hesselø OWF

IN SITU CPTU TESTING - MEASURED PARAMETERS

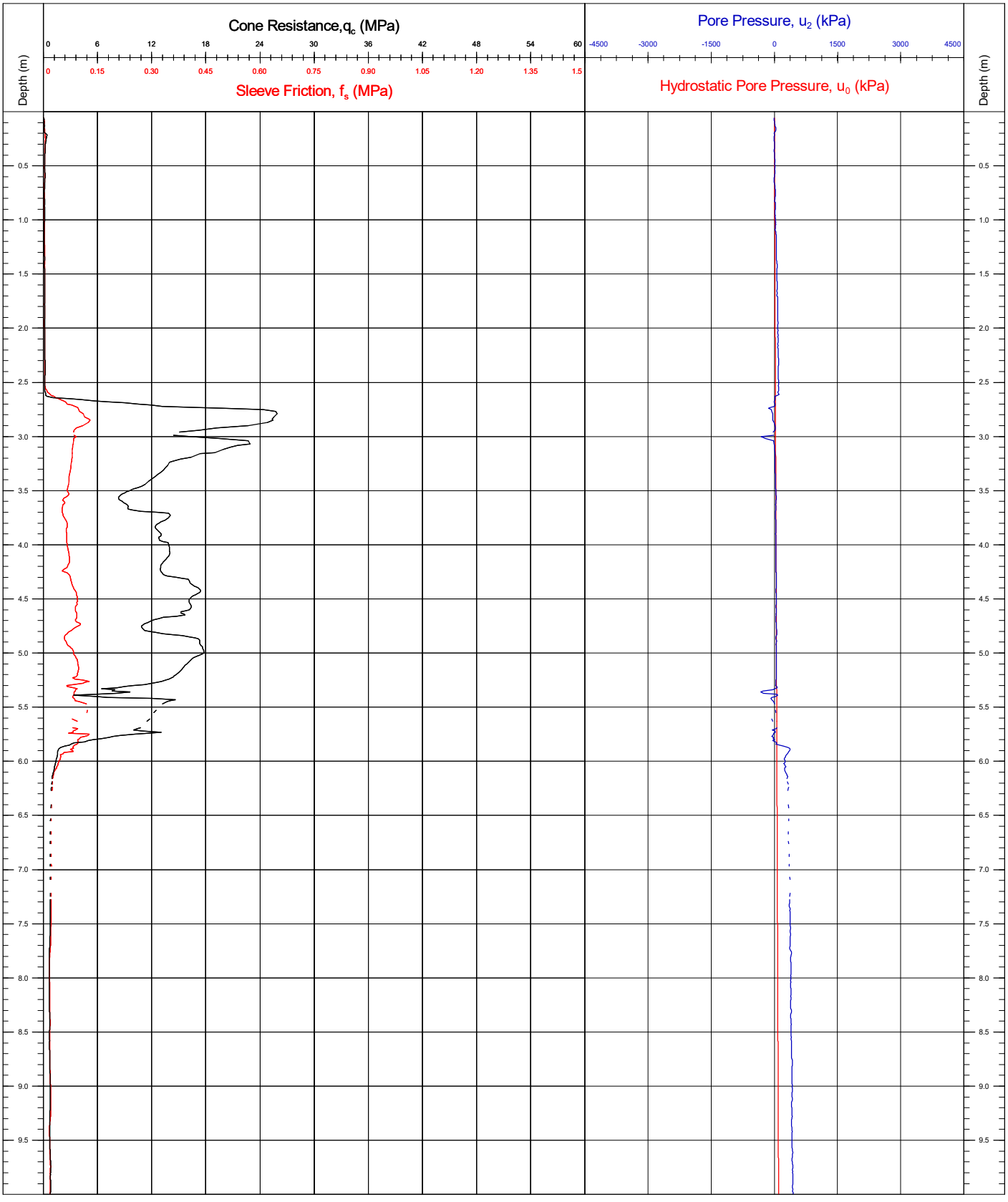


Area	**Kattegat Sea**	Coordinates	**671118.20E 6254697.40N**	CPT Number	**CB5**
Contract	**11596**	Latitude / Longitude			
Client Name/Ref	**Energinet Eltransmission A/S/384_20_ENE**	Water Depth (mMSL)	**27.39**		
Vessel	**MV Ocean Vantage**	Date of Test	**28/04/2021**	Page: 1/1	
		Cone No.(size)/α Factor	**130909 (10cm^2) / 0.82**	QC Status	
		Base Inclination	**X = 1.0° / Y = 1.0°**	Preliminary: **JK/BC (28/04/2021)**	Draft: **DR (10/06/2021)**	Final: **SMc (10/11/2021)**
		CRS **ETRS89**			

Comments: Cone class 3. Continuous seabed CPT. Final depth 5.46m. Test terminated at operators discretion due to high increase in sleeve friction and sudden increase in tip resistance~ poor lateral rod support in first 2m

Preliminary Investigation, Hesselø OWF

IN SITU CPTU TESTING - MEASURED PARAMETERS



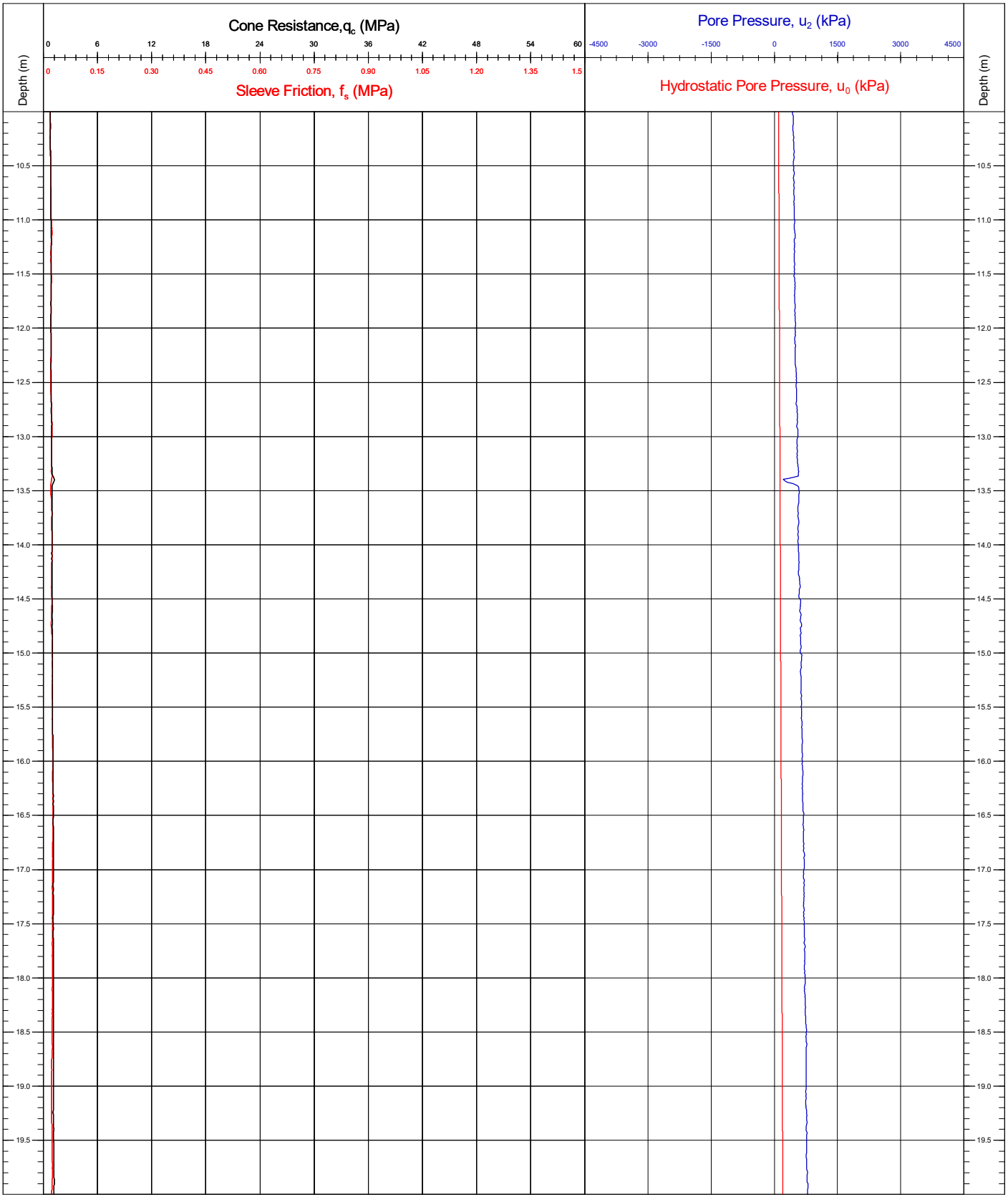
Area	**Kattegat Sea**	Coordinates	**671118.60E** **6254692.20N**	CPT Number	**CB5a**
Contract	**11596**	Latitude / Longitude			
Client Name/Ref	**Energinet Eltransmission A/S/384_20_ENE**	Water Depth (mMSL)	**27.38**		
Vessel	**MV Ocean Vantage**	Date of Test	**28/04/2021**	Page: 1/4	
		Cone No.(size)/α Factor	**191114 (10cm^2) / 0.76**	QC Status	
		Base Inclination	**X = 0.5° / Y = 0.0°**	Preliminary: **JK/BC** (28/04/2021)	Draft: **DR** (10/06/2021) / Final: **SMc** (10/11/2021)
		CRS **ETRS89**			

Comments: Cone class 2. Continuous seabed CPT. Final depth 37.28m. Test terminated due to a sudden increase in tip resistance and total force and a lack of lateral rod support throughout latter half of test

Gardline

Preliminary Investigation, Hesselø OWF

IN SITU CPTU TESTING - MEASURED PARAMETERS



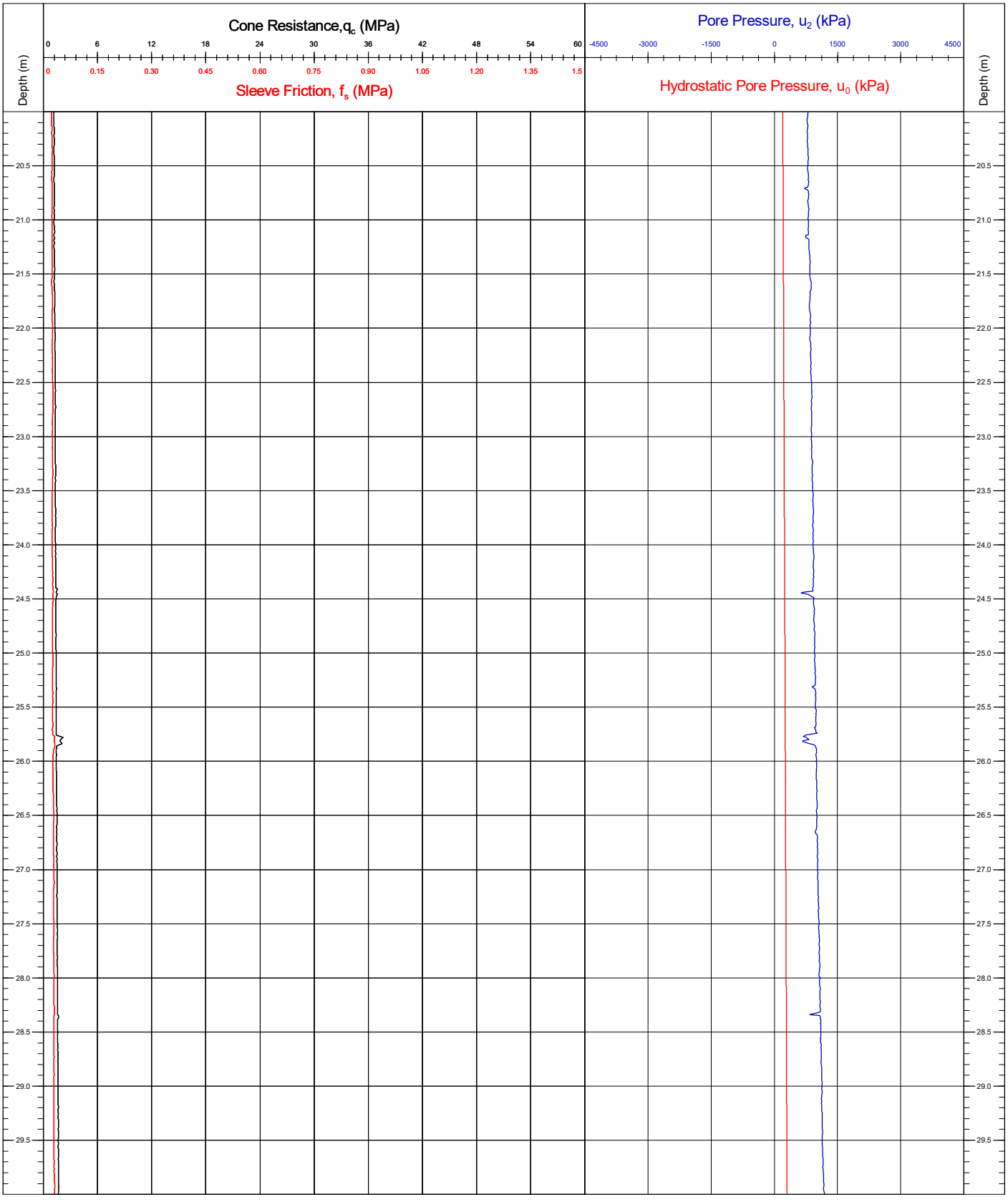
Area	**Kattegat Sea**	Coordinates	**671118.60E** **6254692.20N**	CPT Number	**CB5a**
Contract	**11596**	Latitude / Longitude			
Client Name/Ref	**Energinet Eltransmission A/S/384_20_ENE**	Water Depth (mMSL)	**27.38**		
Vessel	**MV Ocean Vantage**	Date of Test	**28/04/2021**	Page: 2/4	
		Cone No.(size)/α Factor	**191114 (10cm^2) / 0.76**	QC Status	
		Base Inclination	**X = 0.5° / Y = 0.0°**	Preliminary: **JK/BC** (28/04/2021)	Draft: **DR** (10/06/2021)
		CRS **ETRS89**			Final: **SMc** (10/11/2021)

Comments: Cone class 2. Continuous seabed CPT. Final depth 37.28m. Test terminated due to a sudden increase in tip resistance and total force and a lack of lateral rod support throughout latter half of test

Gardline

Preliminary Investigation, Hesselø OWF

IN SITU CPTU TESTING - MEASURED PARAMETERS

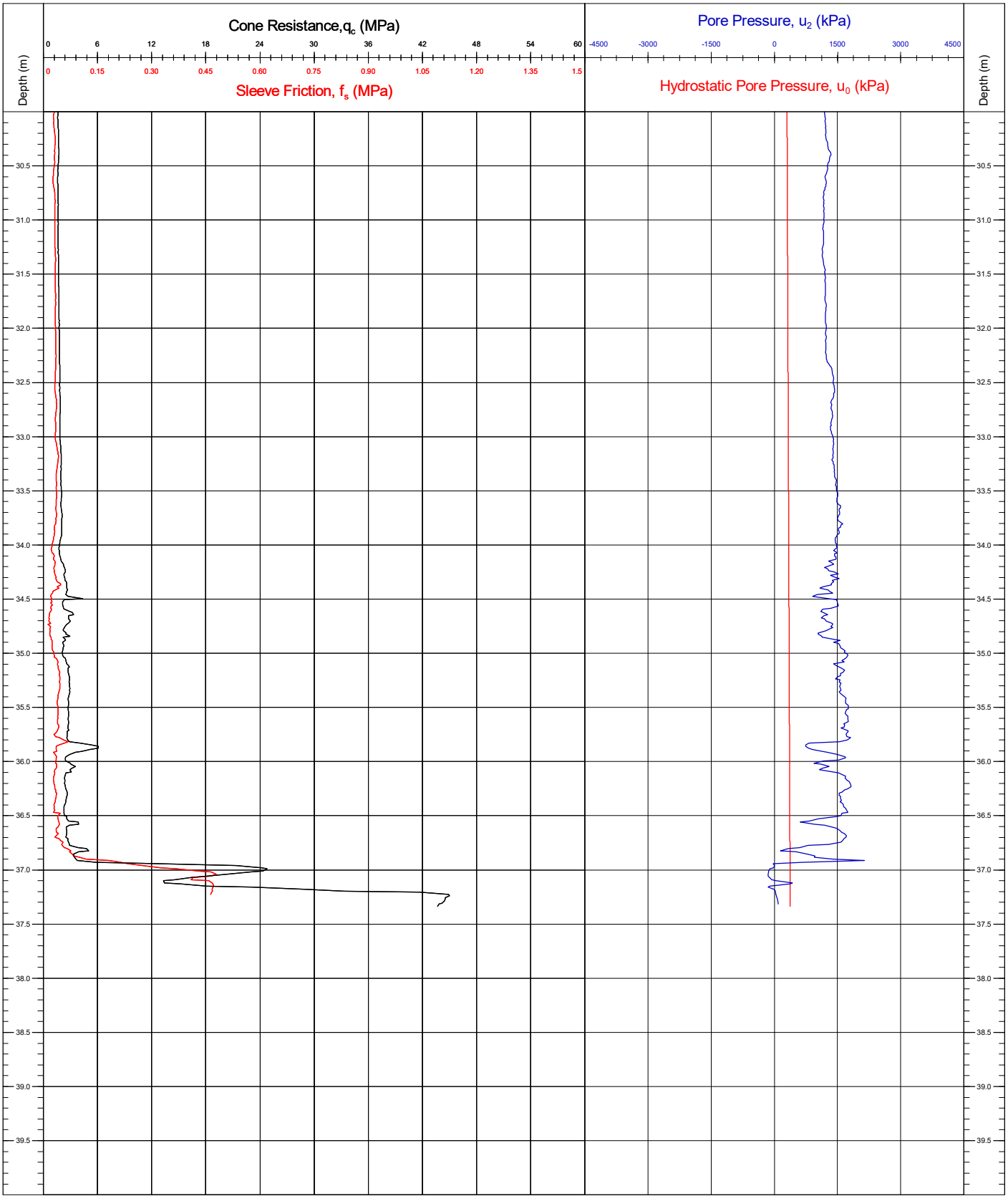


Area	**Kattegat Sea**	Coordinates	**671118.60E**	**6254692.20N**	CPT Number **CB5a**
Contract	**11596**	Latitude / Longitude			
Client Name/Ref	**Energinet Eltransmission A/S/384_20_ENE**	Water Depth (mMSL)	**27.38**		
Vessel	**MV Ocean Vantage**	Date of Test	**28/04/2021**		Page: 3/4
		Cone No.(size)/α Factor	**191114 (10cm^2) / 0.76**		QC Status
		Base Inclination	**X = 0.5° / Y = 0.0°**		Preliminary: **JK/BC** (28/04/2021); Draft: **DR** (10/06/2021); Final: **SMc** (10/11/2021)
		CRS	**ETRS89**		

Comments: Cone class 2. Continuous seabed CPT. Final depth 37.28m. Test terminated due to a sudden increase in tip resistance and total force and a lack of lateral rod support throughout latter half of test

Preliminary Investigation, Hesselø OWF

IN SITU CPTU TESTING - MEASURED PARAMETERS

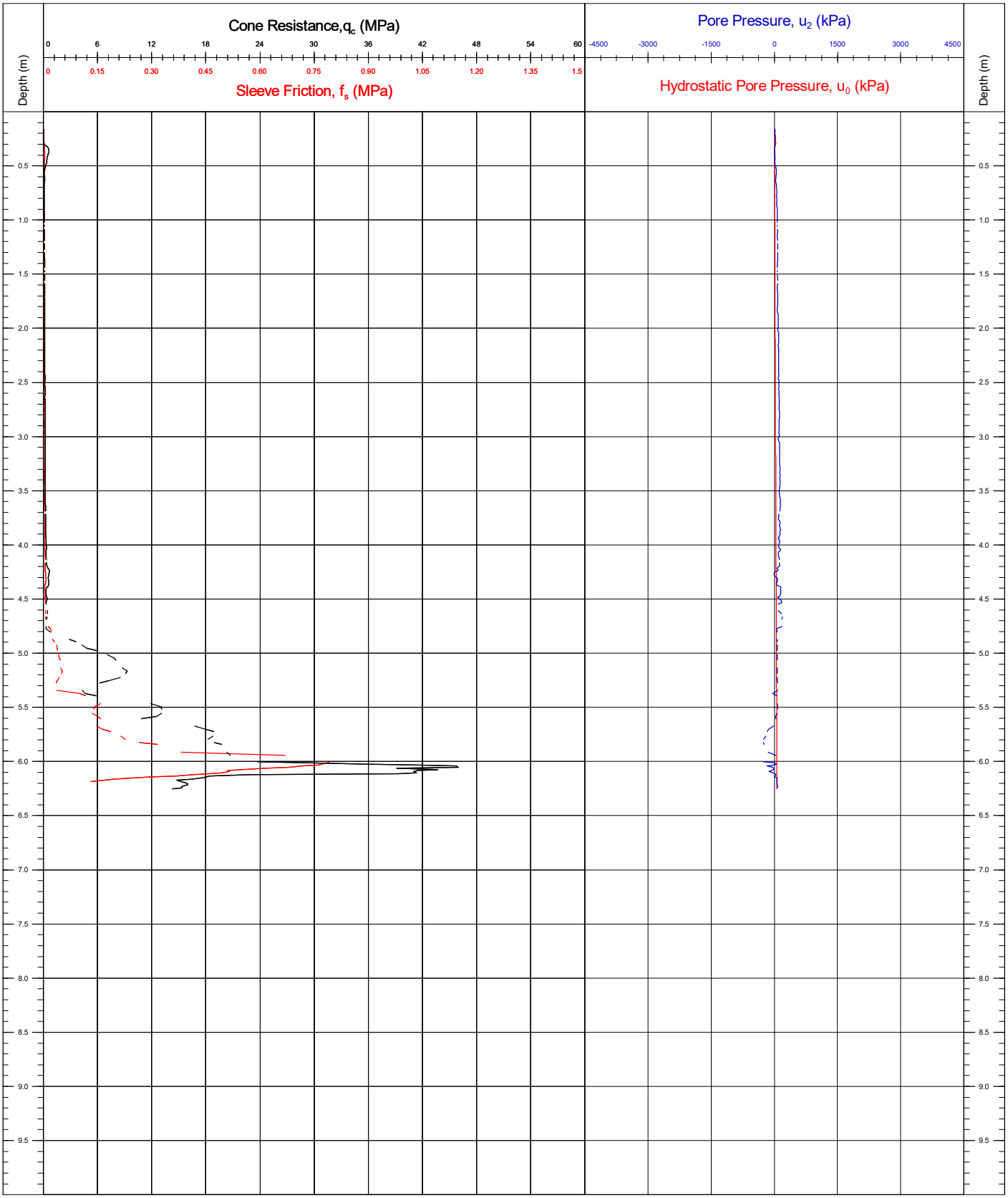


Area	**Kattegat Sea**	Coordinates	**671118.60E** **6254692.20N**	CPT Number	**CB5a**
Contract	**11596**	Latitude / Longitude			
Client Name/Ref	**Energinet Eltransmission A/S/384_20_ENE**	Water Depth (mMSL)	**27.38**		
Vessel	**MV Ocean Vantage**	Date of Test	**28/04/2021**	Page: 4/4	
		Cone No.(size)/α Factor	**191114 (10cm^2) / 0.76**	QC Status	
		Base Inclination	**X = 0.5° / Y = 0.0°**	Preliminary: **JK/BC** (28/04/2021)	Draft: **DR** (10/06/2021)
		CRS **ETRS89**			Final: **SMc** (10/11/2021)

Comments: Cone class 2. Continuous seabed CPT. Final depth 37.28m. Test terminated due to a sudden increase in tip resistance and total force and a lack of lateral rod support throughout latter half of test

Preliminary Investigation, Hesselø OWF

IN SITU CPTU TESTING - MEASURED PARAMETERS

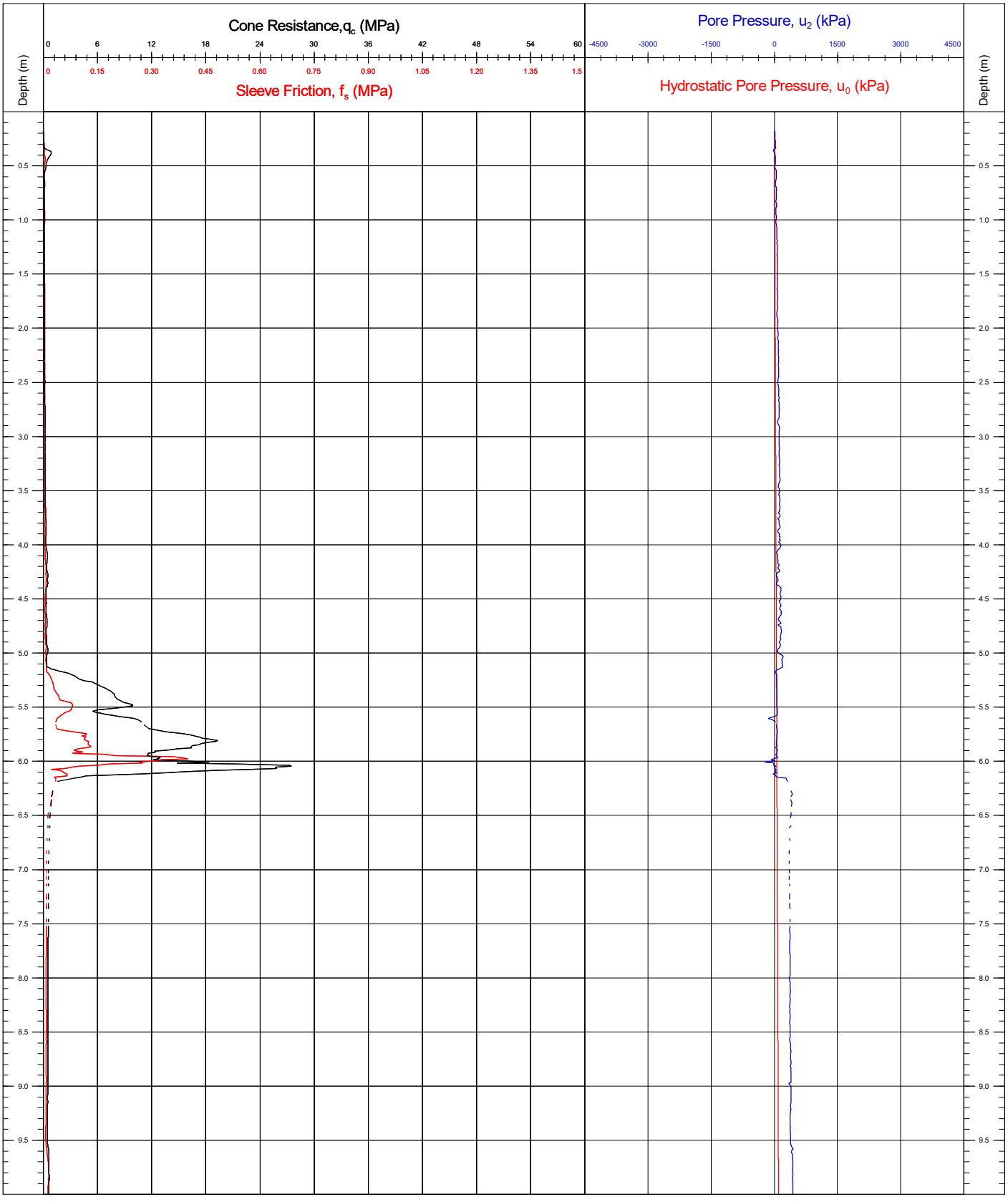


Area	**Kattegat Sea**	Coordinates	**668194.00E 6257998.40N**	CPT Number	**CB6**
Contract	**11596**	Latitude / Longitude			
Client Name/Ref	**Energinet Eltransmission A/S/384_20_ENE**	Water Depth (mMSL)	**26.74**		
Vessel	**MV Ocean Vantage**	Date of Test	**29/04/2021**	Page: 1/1	
		Cone No.(size)/α Factor	**130206 (10cm^2) / 0.77**	QC Status	
		Base Inclination	**X = 1.1° / Y = 1.0°**	Preliminary: **JK/BC** (29/04/2021)	Draft: **DR** (10/06/2021) / Final: **SMc** (10/11/2021)
		CRS **ETRS89**			

Comments: Cone class 1. Continuous seabed CPT. Final depth 6.10m. Test terminated at operators discretion due to sudden increase in inclination and tip resistance

Preliminary Investigation, Hesselø OWF

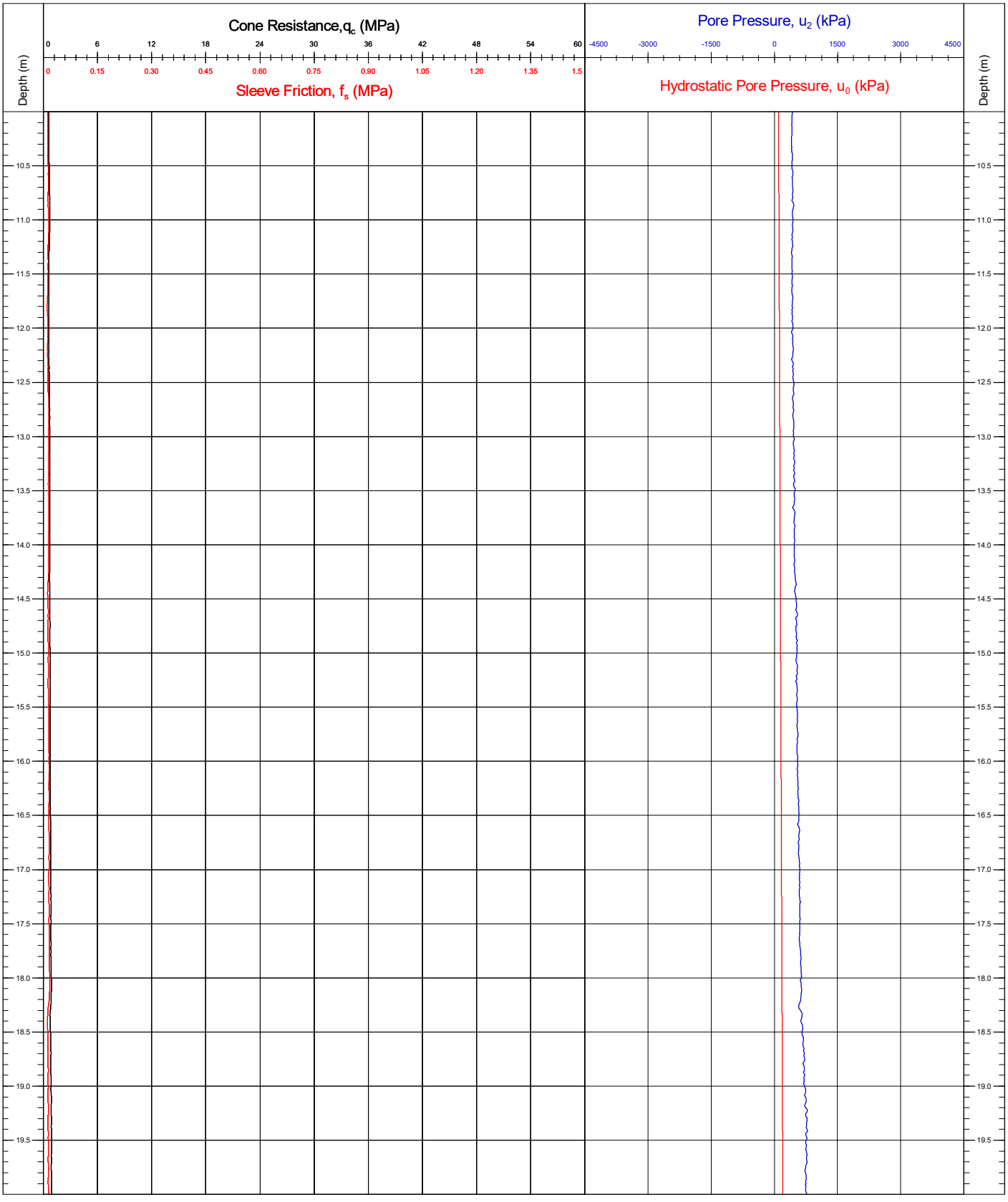
IN SITU CPTU TESTING - MEASURED PARAMETERS



Area	**Kattegat Sea**	Coordinates	**668194.30E 6257993.10N**	CPT Number	**CB6a**
Contract	**11596**	Latitude / Longitude			
Client Name/Ref	**Energinet Eltransmission A/S/384_20_ENE**	Water Depth (mMSL)	**26.75**		
Vessel	**MV Ocean Vantage**	Date of Test	**29/04/2021**	Page: 1/4	
Comments: Cone class 1. Continuous seabed CPT. Final depth 36.08 m. Test terminated at operators discretion due to high inclination (18 degrees)		Cone No.(size)/α Factor	**130206 (10cm^2) / 0.77**	QC Status	
		Base Inclination	**X = 1.1° / Y = 1.0°**	Preliminary: **JK/BC** (29/04/2021)	Draft: **DR** (10/06/2021) / Final: **SMc** (10/11/2021)
		CRS **ETRS89**			

Preliminary Investigation, Hesselø OWF

IN SITU CPTU TESTING - MEASURED PARAMETERS

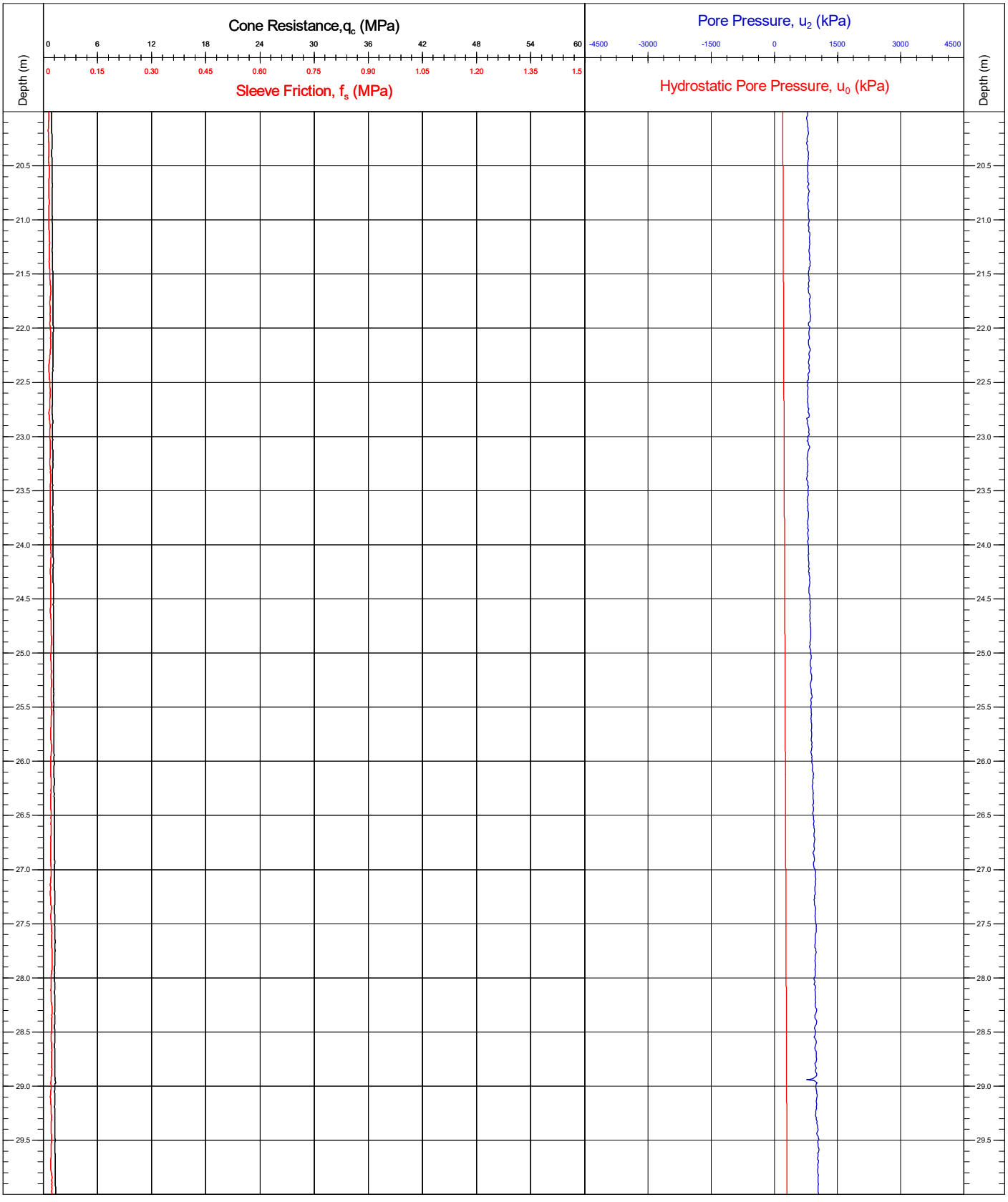


Area	**Kattegat Sea**	Coordinates	**668194.30E 6257993.10N**	CPT Number	**CB6a**
Contract	**11596**	Latitude / Longitude			
Client Name/Ref	**Energinet Eltransmission A/S/384_20_ENE**	Water Depth (mMSL)	**26.75**		
Vessel	**MV Ocean Vantage**	Date of Test	**29/04/2021**	Page: 2/4	
		Cone No.(size)/α Factor	**130206 (10cm^2) / 0.77**	QC Status	
		Base Inclination	**X = 1.1° / Y = 1.0°**	Preliminary: **JK/BC (29/04/2021)**	Draft: **DR (10/06/2021)**	Final: **SMc (10/11/2021)**
		CRS **ETRS89**			

Comments: Cone class 1. Continuous seabed CPT. Final depth 36.08 m. Test terminated at operators discretion due to high inclination (18 degrees)

Preliminary Investigation, Hesselø OWF

IN SITU CPTU TESTING - MEASURED PARAMETERS

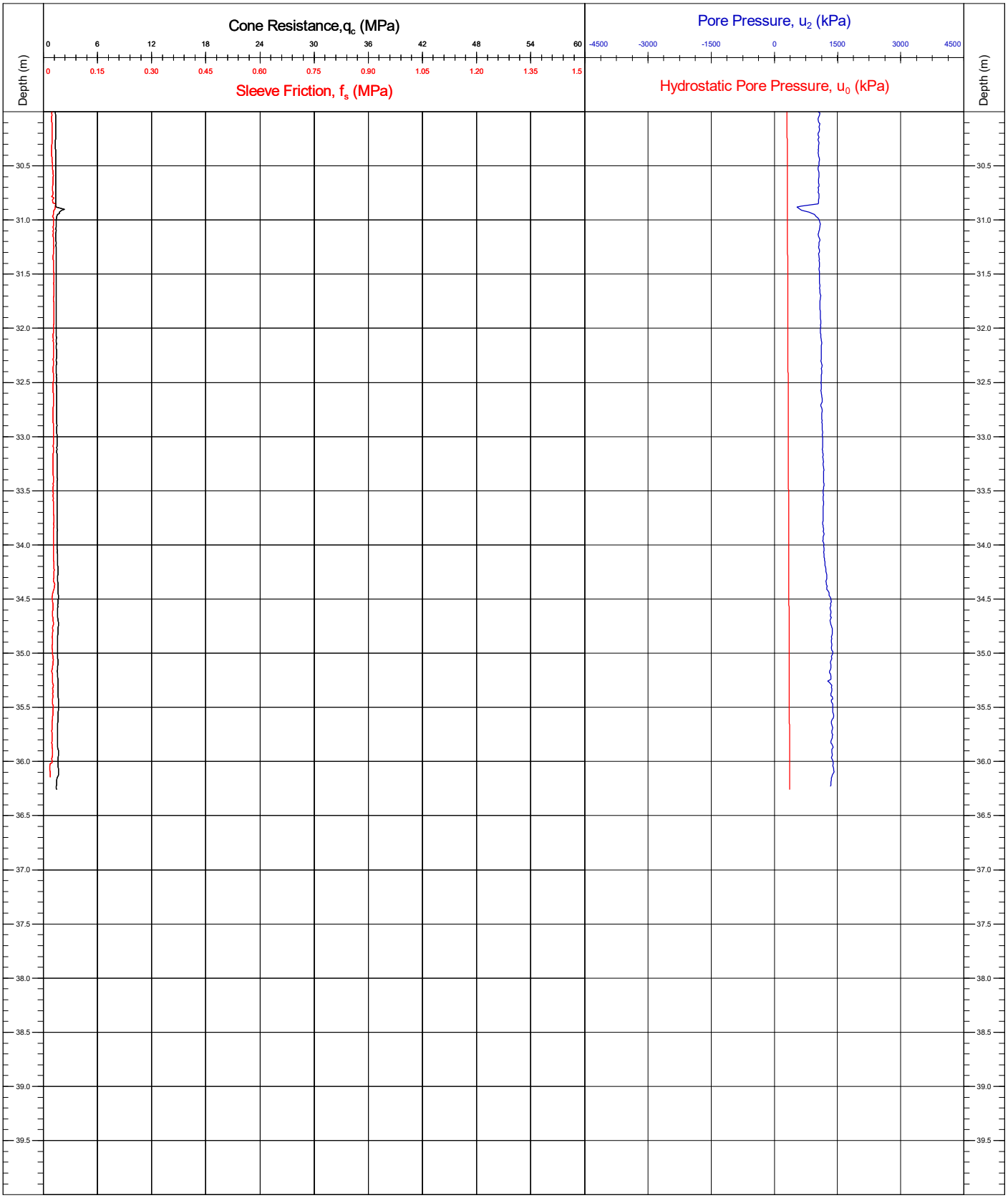


Area	**Kattegat Sea**	Coordinates	**668194.30E**	**6257993.10N**	CPT Number **CB6a**
Contract	**11596**	Latitude / Longitude			
Client Name/Ref	**Energinet Eltransmission A/S/384_20_ENE**	Water Depth (mMSL)	**26.75**		
Vessel	**MV Ocean Vantage**	Date of Test	**29/04/2021**		Page: 3/4
		Cone No.(size)/α Factor	**130206 (10cm^2) / 0.77**		QC Status
		Base Inclination	**X = 1.1° / Y = 1.0°**		Preliminary: **JK/BC (29/04/2021)** · Draft: **DR (10/06/2021)** · Final: **SMc (10/11/2021)**
		CRS	**ETRS89**		

Comments: Cone class 1. Continuous seabed CPT. Final depth 36.08 m. Test terminated at operators discretion due to high inclination (18 degrees)

Preliminary Investigation, Hesselø OWF

IN SITU CPTU TESTING - MEASURED PARAMETERS

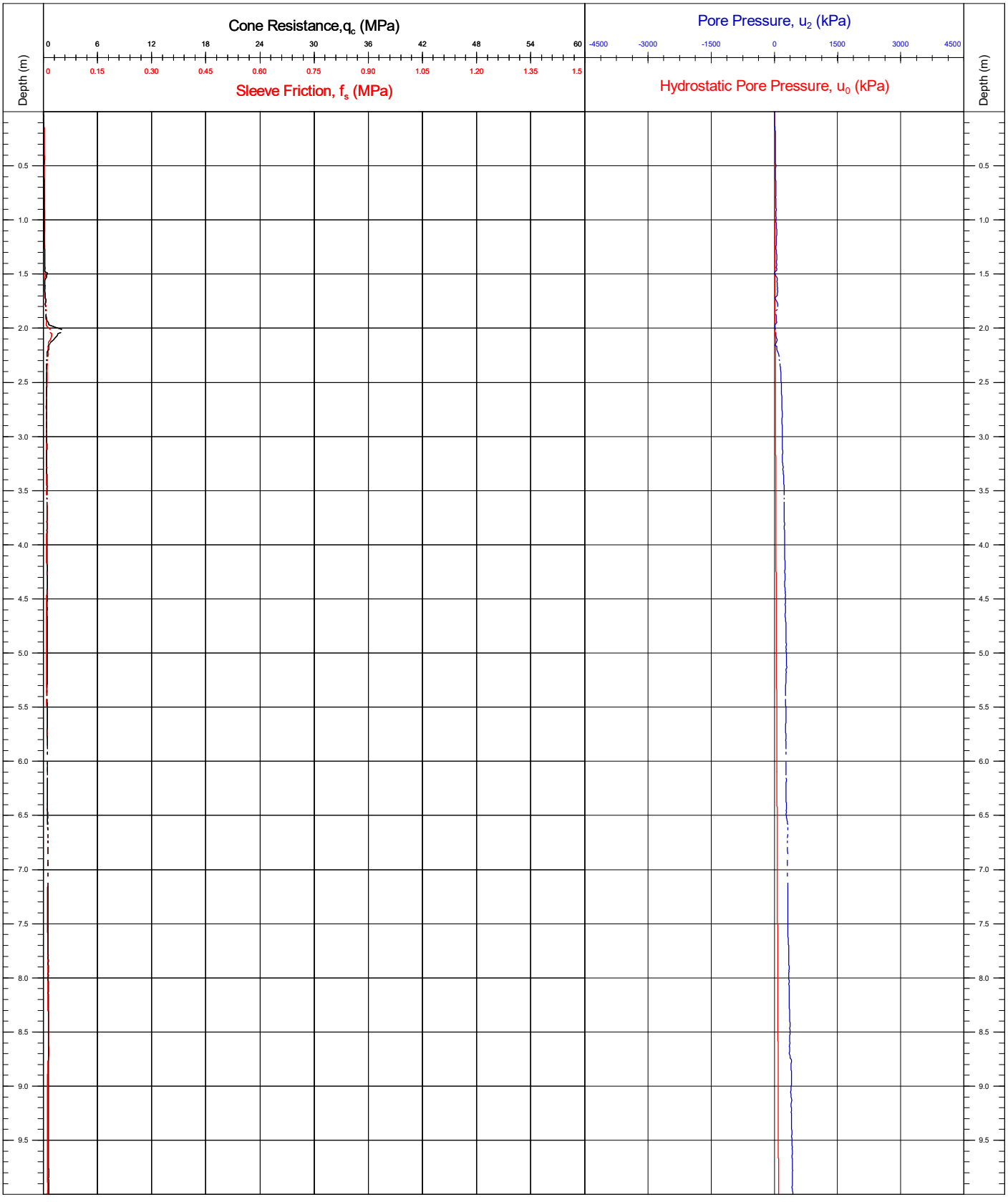


Area	**Kattegat Sea**	Coordinates	**668194.30E 6257993.10N**	CPT Number	**CB6a**
Contract	**11596**	Latitude / Longitude			
Client Name/Ref	**Energinet Eltransmission A/S/384_20_ENE**	Water Depth (mMSL)	**26.75**		
Vessel	**MV Ocean Vantage**	Date of Test	**29/04/2021**	Page: 4/4	
		Cone No.(size)/α Factor	**130206 (10cm^2) / 0.77**	QC Status	
		Base Inclination	**X = 1.1° / Y = 1.0°**	Preliminary: **JK/BC (29/04/2021)**	Draft: **DR (10/06/2021)**	Final: **SMc (10/11/2021)**
		CRS **ETRS89**			

Comments: Cone class 1. Continuous seabed CPT. Final depth 36.08 m. Test terminated at operators discretion due to high inclination (18 degrees)

Preliminary Investigation, Hesselø OWF

IN SITU CPTU TESTING - MEASURED PARAMETERS

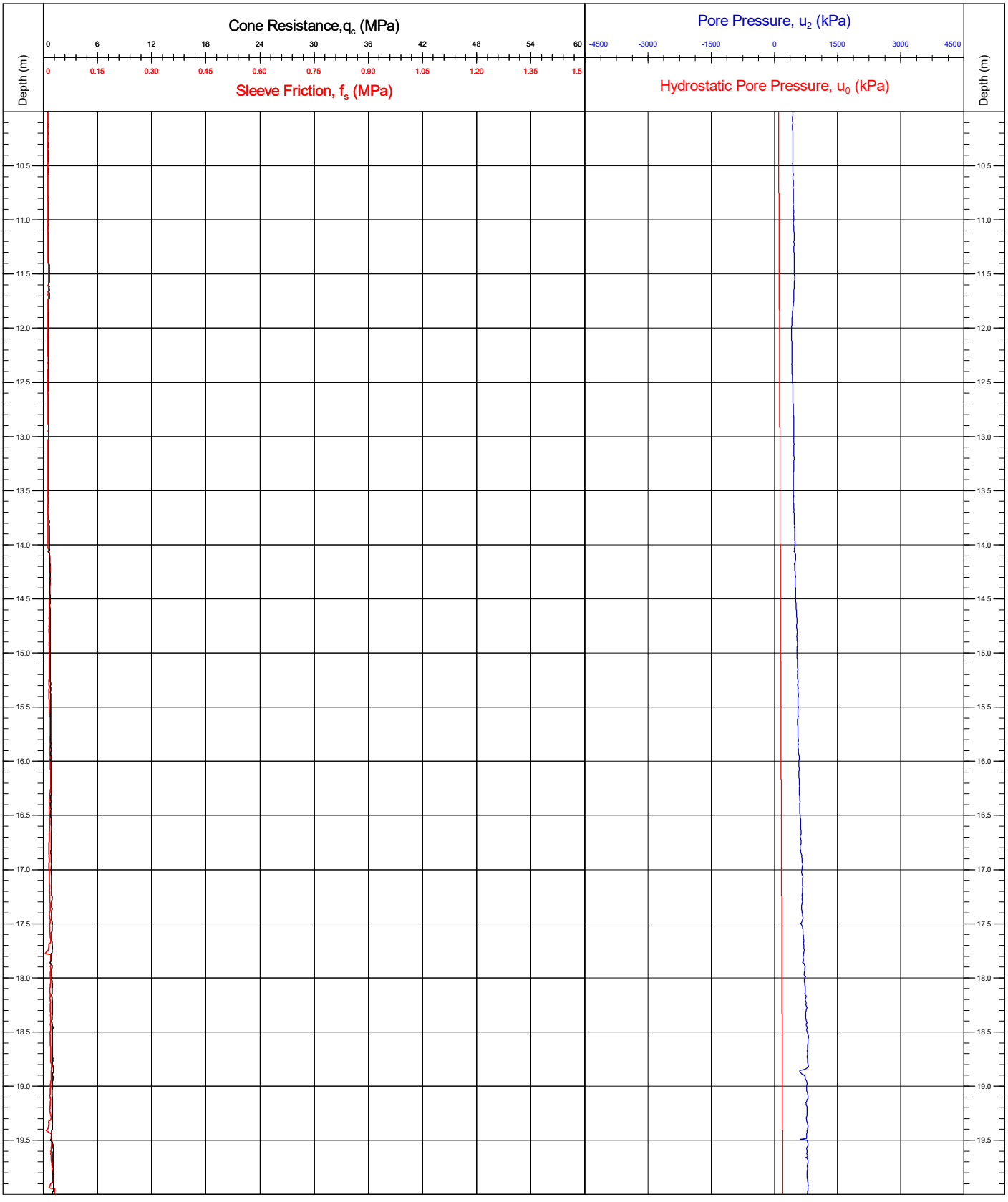


Area	**Kattegat Sea**	Coordinates	**673538.00E**	**6259621.30N**	CPT Number **CB7**
Contract	**11596**	Latitude / Longitude			
Client Name/Ref	**Energinet Eltransmission A/S/384_20_ENE**	Water Depth (mMSL)	**30.99**		Page: 1/3
Vessel	**MV Ocean Vantage**	Date of Test	**29/04/2021**		QC Status
		Cone No.(size)/α Factor	**181005 (10cm^2) / 0.73**		Preliminary: **JK/BC** (29/04/2021) · Draft: **DR** (10/06/2021) · Final: **SMc** (10/11/2021)
		Base Inclination	**X = 1.2° / Y = 0.7°**		
		CRS **ETRS89**			

Comments: Cone class 2. Continuous seabed CPT. Final depth 20.89m. Test terminated due to acquisition software crashing mid test losing communication with the cone

Preliminary Investigation, Hesselø OWF

IN SITU CPTU TESTING - MEASURED PARAMETERS

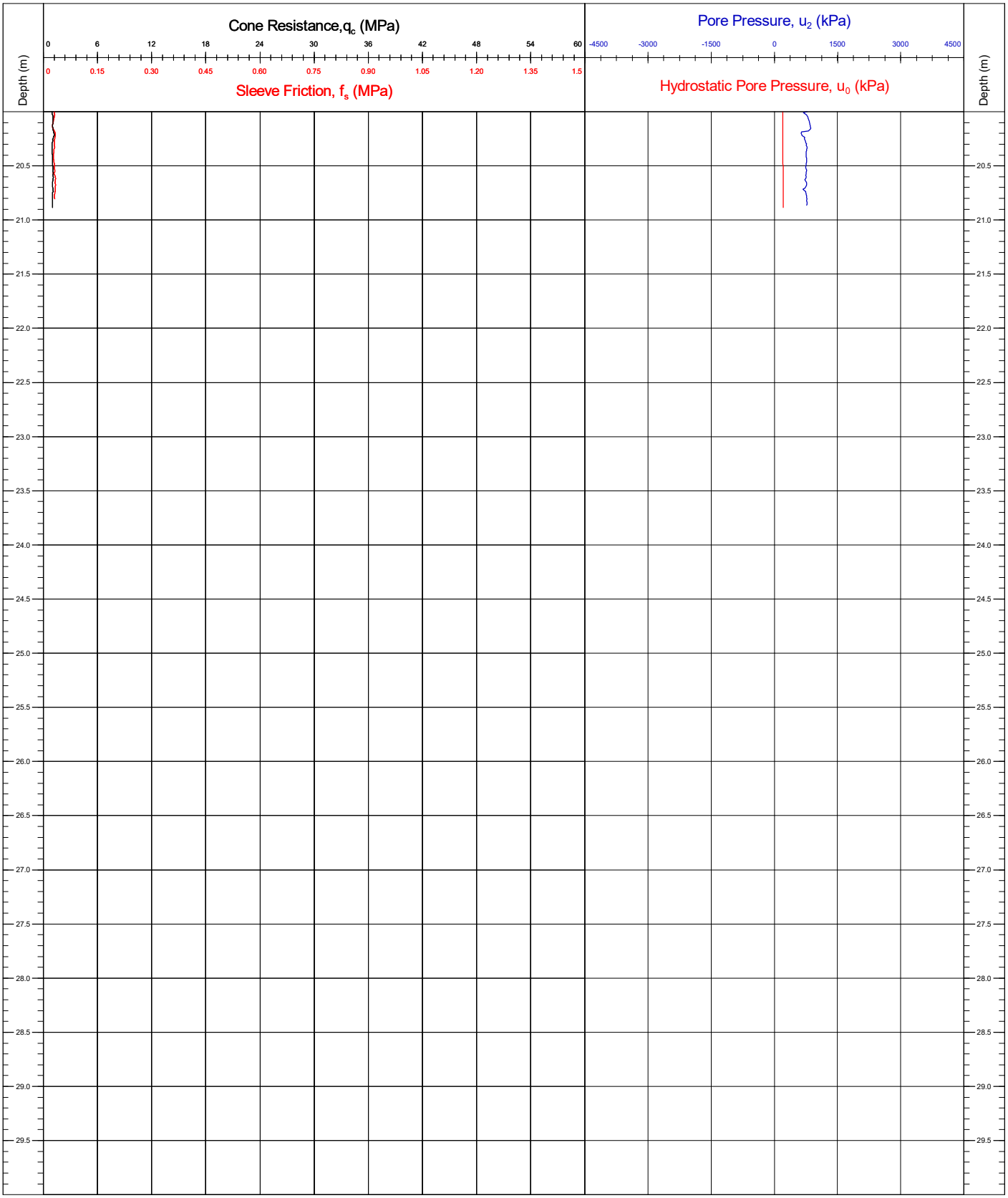


Area	**Kattegat Sea**	Coordinates	**673538.00E**	**6259621.30N**	CPT Number **CB7**
Contract	**11596**	Latitude / Longitude			
Client Name/Ref	**Energinet Eltransmission A/S/384_20_ENE**	Water Depth (mMSL)	**30.99**		
Vessel	**MV Ocean Vantage**	Date of Test	**29/04/2021**		Page: 2/3
		Cone No.(size)/α Factor	**181005 (10cm^2) / 0.73**		QC Status
		Base Inclination	**X = 1.2° / Y = 0.7°**		Preliminary: **JK/BC** (29/04/2021); Draft: **DR** (10/06/2021); Final: **SMc** (10/11/2021)
		CRS	**ETRS89**		

Comments: Cone class 2. Continuous seabed CPT. Final depth 20.89m. Test terminated due to acquisition software crashing mid test losing communication with the cone

Preliminary Investigation, Hesselø OWF

IN SITU CPTU TESTING - MEASURED PARAMETERS

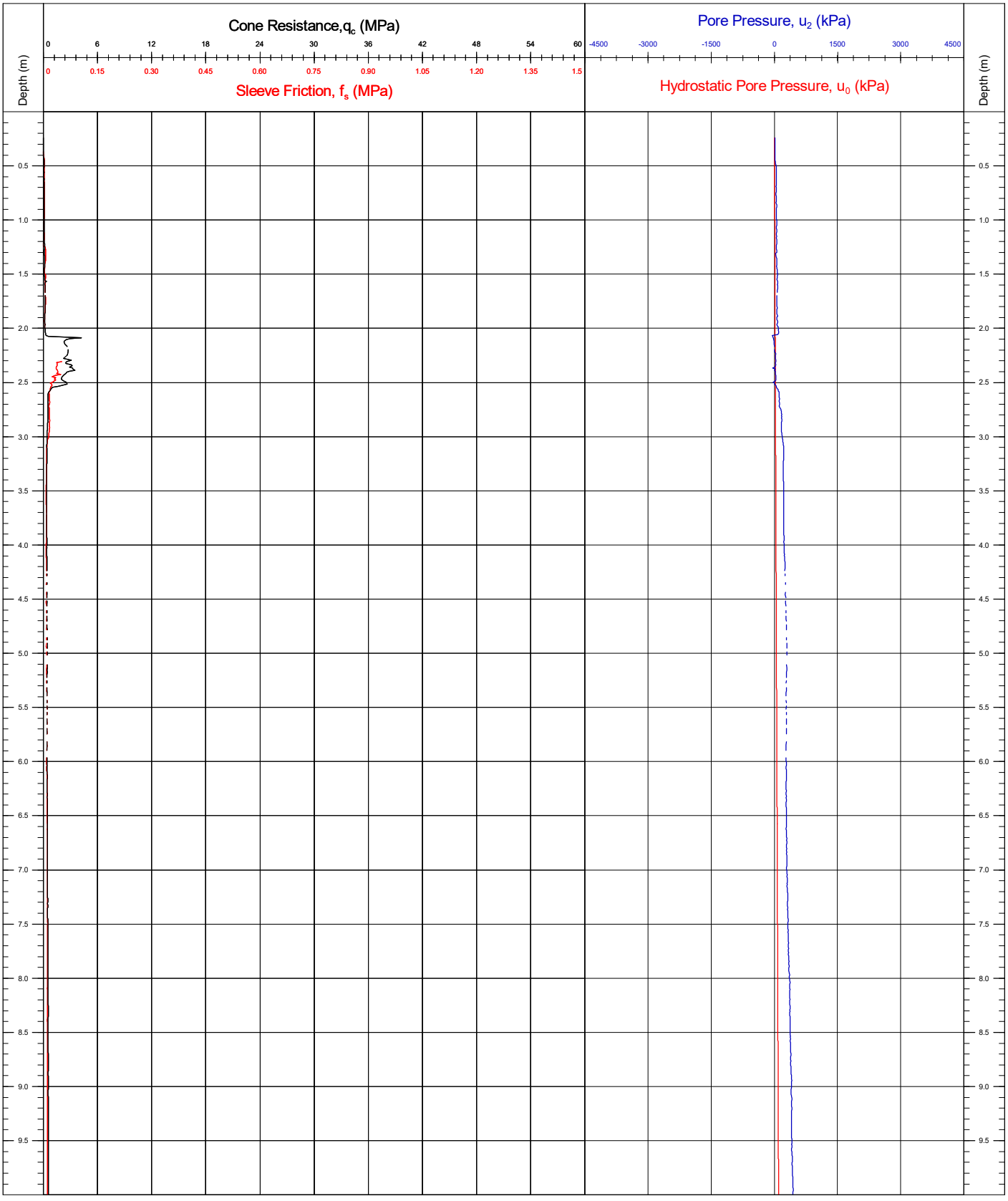


Area	**Kattegat Sea**	Coordinates	**673538.00E 6259621.30N**	CPT Number **CB7**
Contract	**11596**	Latitude / Longitude		
Client Name/Ref	**Energinet Eltransmission A/S/384_20_ENE**	Water Depth (mMSL)	**30.99**	
Vessel	**MV Ocean Vantage**	Date of Test	**29/04/2021**	Page: 3/3
		Cone No.(size)/α Factor	**181005 (10cm^2) / 0.73**	QC Status
		Base Inclination	**X = 1.2° / Y = 0.7°**	Preliminary: **JK/BC (29/04/2021)** · Draft: **DR (10/06/2021)** · Final: **SMc (10/11/2021)**
		CRS **ETRS89**		

Comments: Cone class 2. Continuous seabed CPT. Final depth 20.89m. Test terminated due to acquisition software crashing mid test losing communication with the cone

Preliminary Investigation, Hesselø OWF

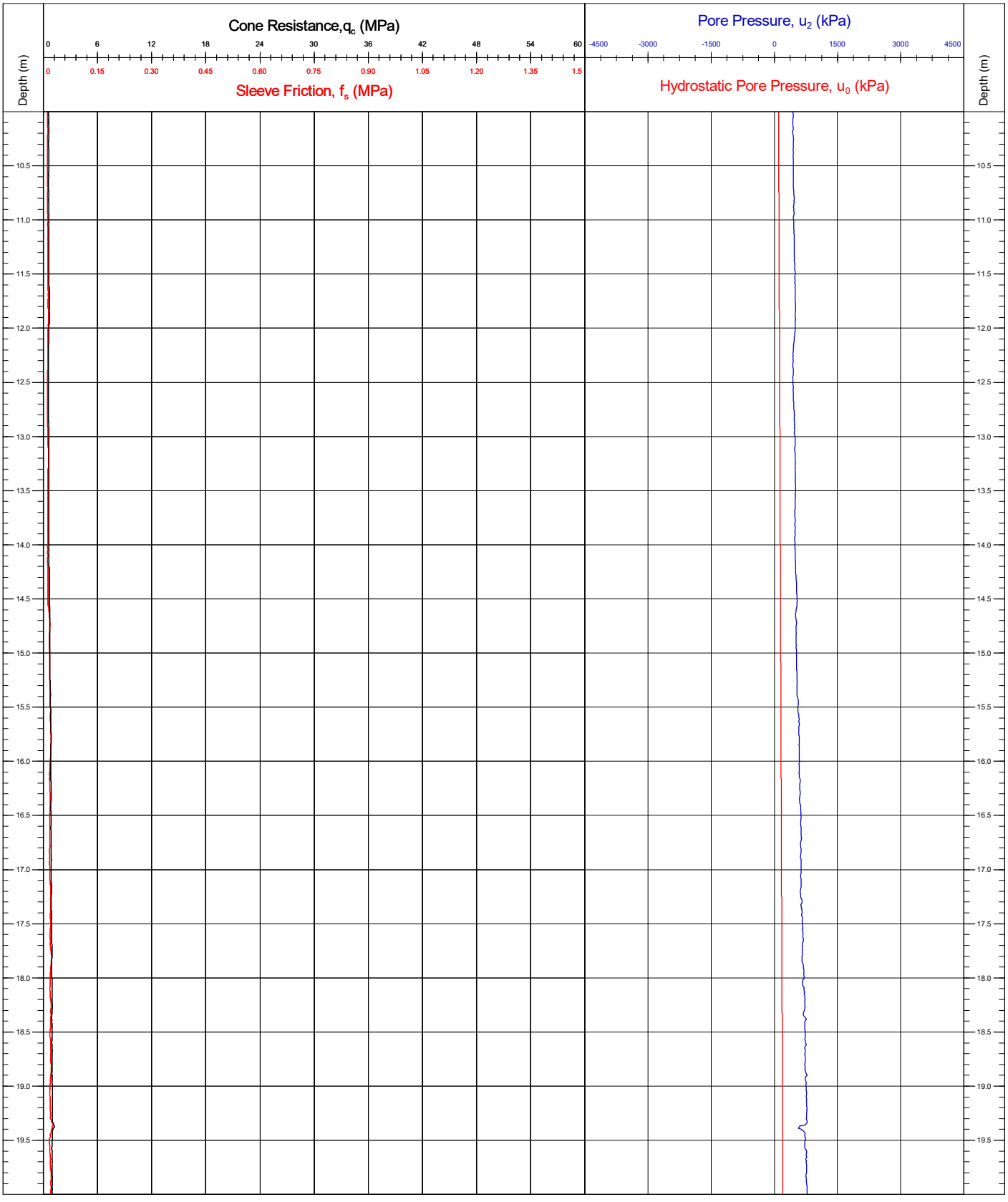
IN SITU CPTU TESTING - MEASURED PARAMETERS



Area	**Kattegat Sea**	Coordinates	**673538.50E 6259616.40N**	CPT Number	**CB7a**
Contract	**11596**	Latitude / Longitude			
Client Name/Ref	**Energinet Eltransmission A/S/384_20_ENE**	Water Depth (mMSL)	**31.08**		
Vessel	**MV Ocean Vantage**	Date of Test (Start/End)	**29/04/2021 to 30/04/2021**	Page: 1/4	
Comments: Cone class 1. Continuous seabed CPT. Bumpover location. Final depth 31.03m. Dissipation tests performed at 20m and 30m.Test terminated due to sleeve friction refusal		Cone No.(size)/α Factor	**181005 (10cm^2) / 0.73**	QC Status	
		Base Inclination	**X = 1.2° / Y = 0.8°**	Preliminary / Draft / Final	
		CRS **ETRS89**		**JK/BC** (30/04/2021) / **DR** (10/06/2021) / **SMc** (10/11/2021)	

Preliminary Investigation, Hesselø OWF

IN SITU CPTU TESTING - MEASURED PARAMETERS

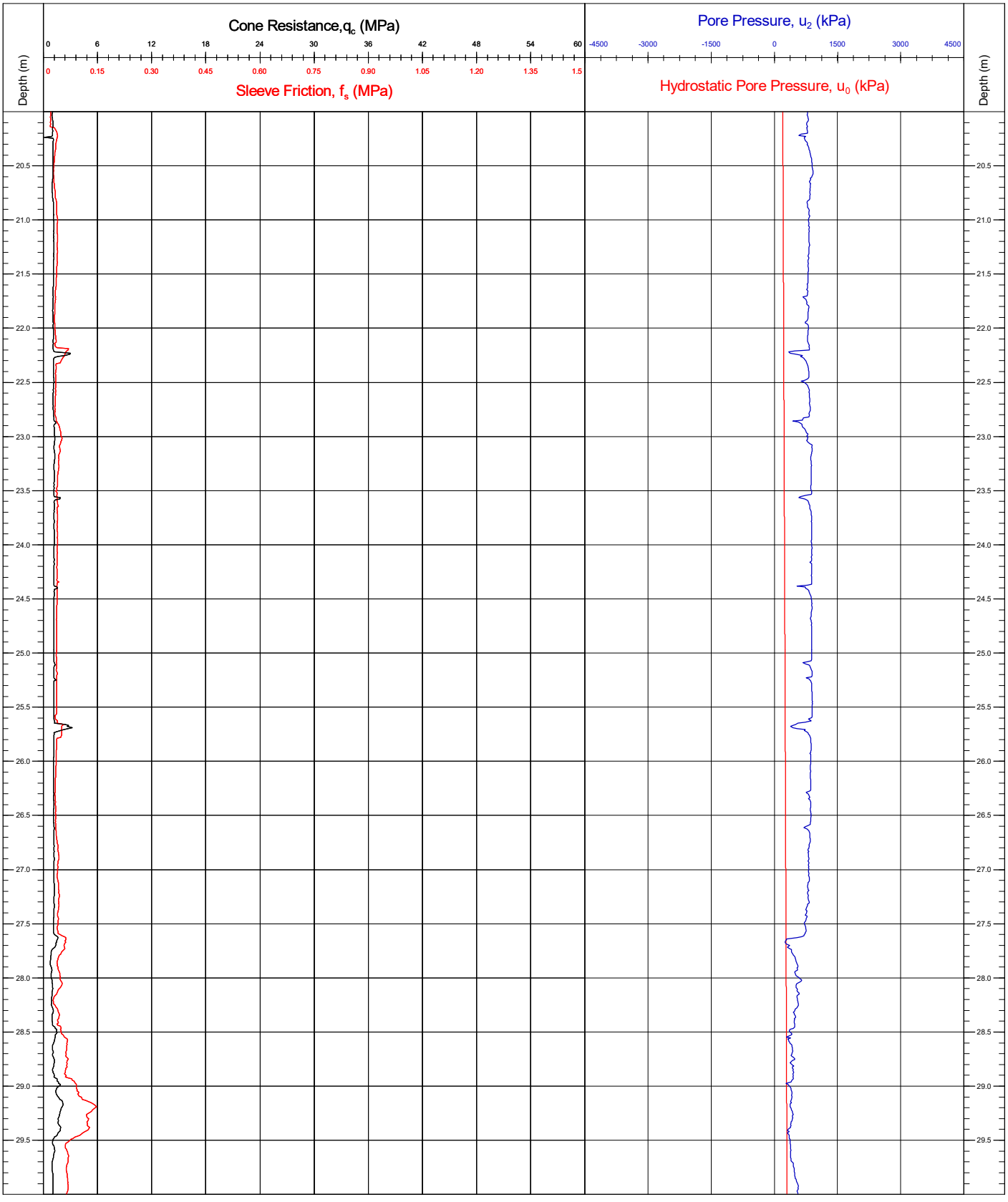


Area	**Kattegat Sea**	Coordinates	**673538.50E**	**6259616.40N**	CPT Number **CB7a**
Contract	**11596**	Latitude / Longitude			
Client Name/Ref	**Energinet Eltransmission A/S/384_20_ENE**	Water Depth (mMSL)	**31.08**		
Vessel	**MV Ocean Vantage**	Date of Test (Start/End)	**29/04/2021 to 30/04/2021**		Page: 2/4
Comments: Cone class 1. Continuous seabed CPT. Bumpover location. Final depth 31.03m. Dissipation tests performed at 20m and 30m.Test terminated due to sleeve friction refusal		Cone No.(size)/α Factor	**181005 (10cm^2) / 0.73**		QC Status
		Base Inclination	**X = 1.2° / Y = 0.8°**		Preliminary: **JK/BC** (30/04/2021) · Draft: **DR** (10/06/2021) · Final: **SMc** (10/11/2021)
		CRS **ETRS89**			

Gardline

Preliminary Investigation, Hesselø OWF

IN SITU CPTU TESTING - MEASURED PARAMETERS

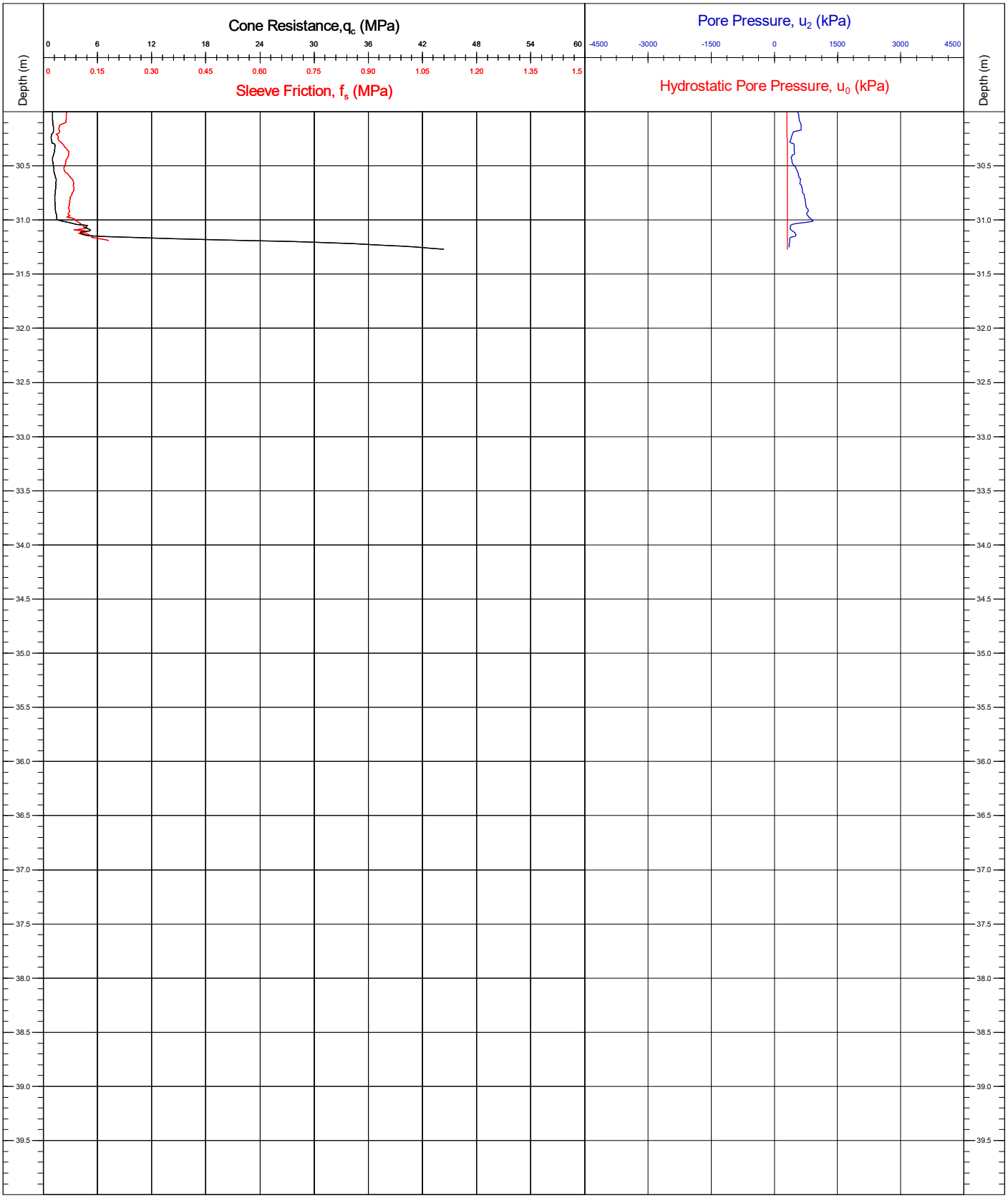


Area	**Kattegat Sea**	Coordinates	**673538.50E** **6259616.40N**	CPT Number	**CB7a**
Contract	**11596**	Latitude / Longitude			
Client Name/Ref	**Energinet Eltransmission A/S/384_20_ENE**	Water Depth (mMSL)	**31.08**		
Vessel	**MV Ocean Vantage**	Date of Test (Start/End)	**29/04/2021 to 30/04/2021**	Page: 3/4	
		Cone No.(size)/α Factor	**181005 (10cm^2) / 0.73**	QC Status	
		Base Inclination	**X = 1.2° / Y = 0.8°**	Preliminary: **JK/BC** (30/04/2021)	Draft: **DR** (10/06/2021)
		CRS **ETRS89**			Final: **SMc** (10/11/2021)

Comments: Cone class 1. Continuous seabed CPT. Bumpover location. Final depth 31.03m. Dissipation tests performed at 20m and 30m.Test terminated due to sleeve friction refusal

Preliminary Investigation, Hesselø OWF

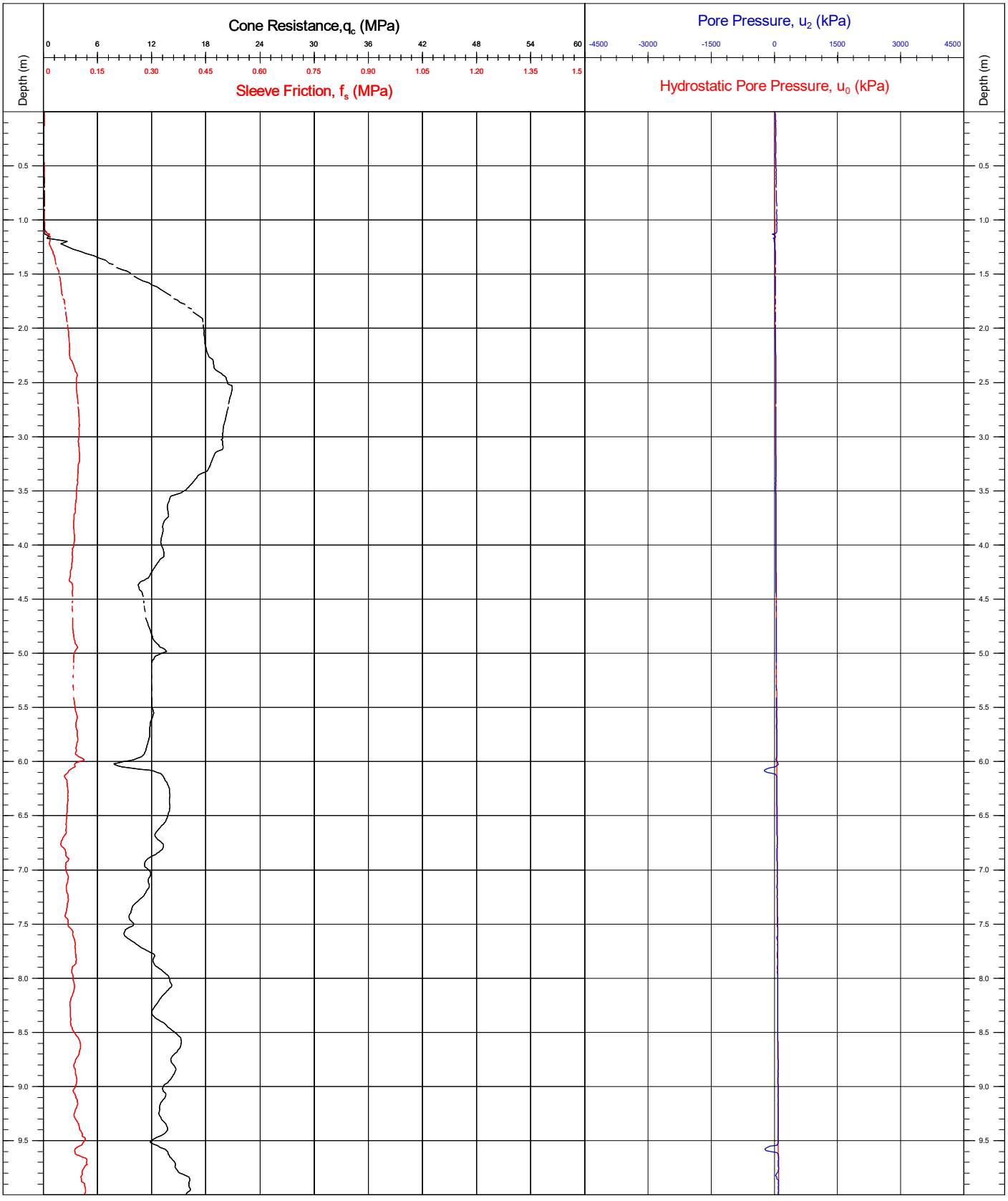
IN SITU CPTU TESTING - MEASURED PARAMETERS



Area	**Kattegat Sea**	Coordinates	**673538.50E 6259616.40N**	CPT Number	**CB7a**
Contract	**11596**	Latitude / Longitude			
Client Name/Ref	**Energinet Eltransmission A/S/384_20_ENE**	Water Depth (mMSL)	**31.08**		
Vessel	**MV Ocean Vantage**	Date of Test (Start/End)	**29/04/2021 to 30/04/2021**	Page: 4/4	
Comments: Cone class 1. Continuous seabed CPT. Bumpover location. Final depth 31.03m. Dissipation tests performed at 20m and 30m.Test terminated due to sleeve friction refusal		Cone No.(size)/α Factor	**181005 (10cm^2) / 0.73**	QC Status	
		Base Inclination	**X = 1.2° / Y = 0.8°**	Preliminary: **JK/BC (30/04/2021)**	Draft: **DR (10/06/2021)** Final: **SMc (10/11/2021)**
		CRS **ETRS89**			

Preliminary Investigation, Hesselø OWF

IN SITU CPTU TESTING - MEASURED PARAMETERS

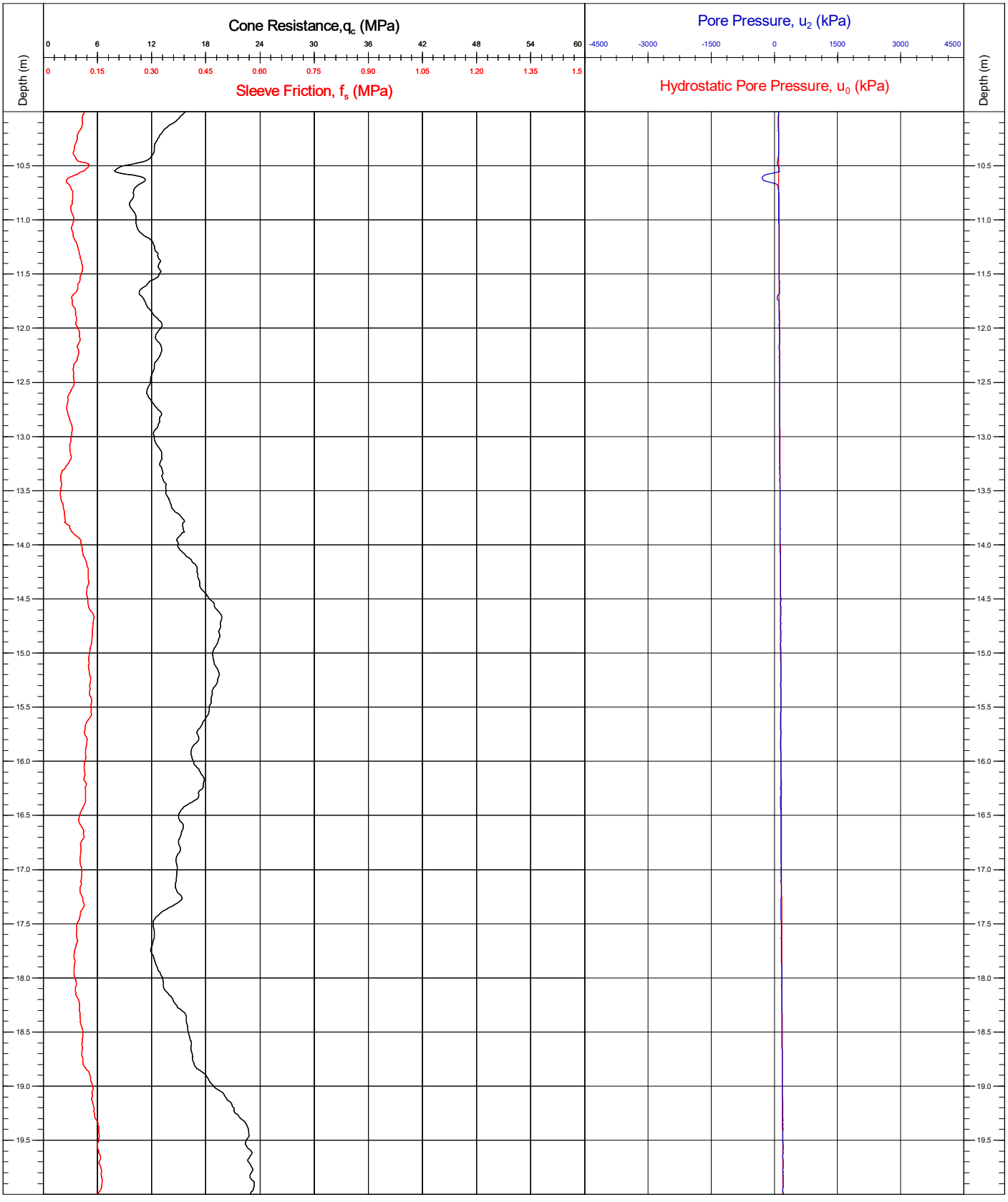


Area	**Kattegat Sea**	Coordinates	**679824.30E**	**6248908.70N**	CPT Number **CB8**
Contract	**11596**	Latitude / Longitude			
Client Name/Ref	**Energinet Eltransmission A/S/384_20_ENE**	Water Depth (mMSL)	**30.69**		
Vessel	**MV Ocean Vantage**	Date of Test	**27/04/2021**		Page: 1/3
		Cone No.(size)/α Factor	**130206 (10cm^2) / 0.77**		QC Status
		Base Inclination	**X = 0.1° / Y = 0.0°**		Preliminary: **JK/BC** (27/04/2021) · Draft: **DR** (10/06/2021) · Final: **SMc** (10/11/2021)
		CRS	**ETRS89**		

Comments: Cone Class1. Continuous seabed CPT. Final depth 24.61m. Test was terminated at operators discretion due to an increase in cone inclination to prevent damage to equipment.

Preliminary Investigation, Hesselø OWF

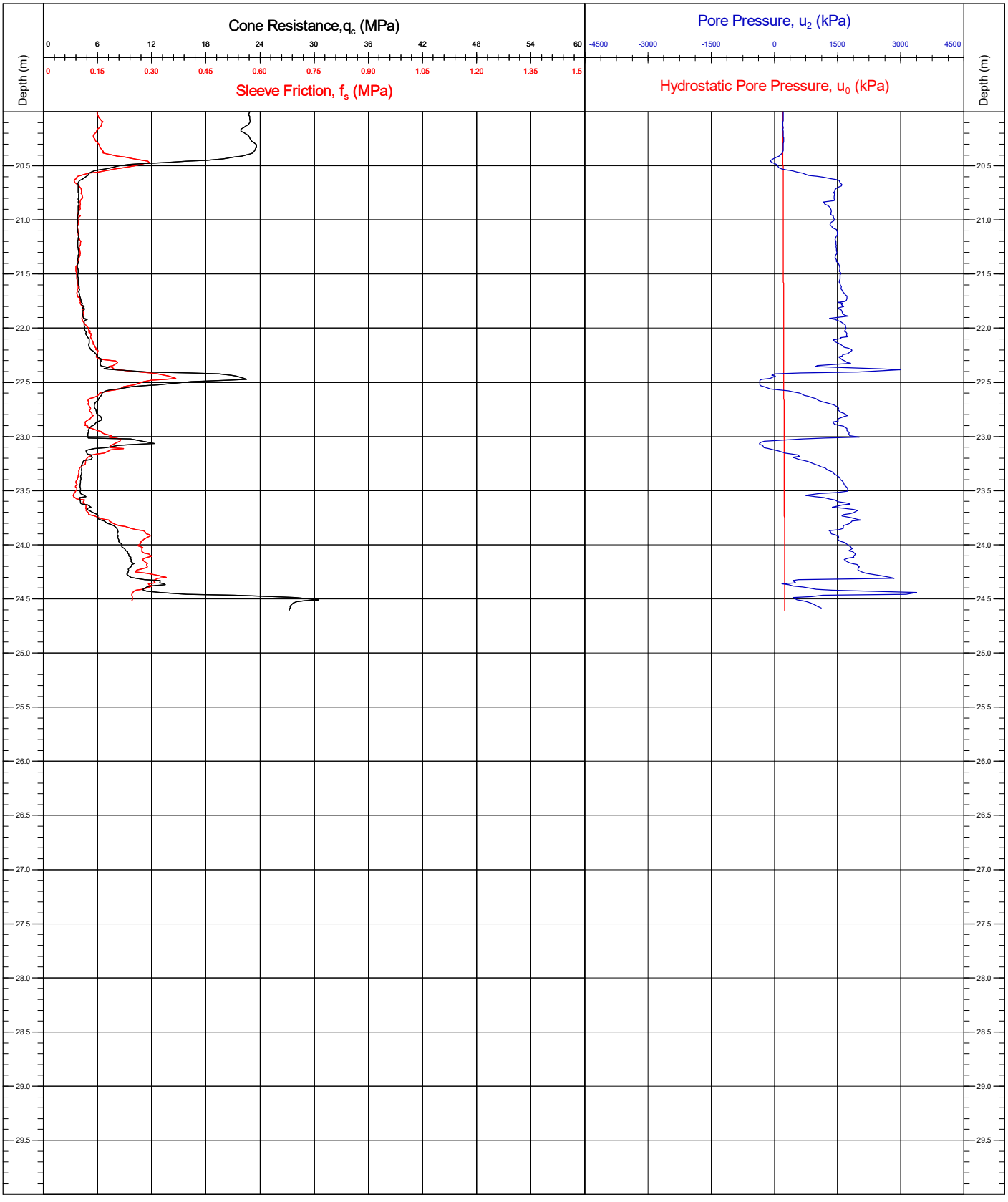
IN SITU CPTU TESTING - MEASURED PARAMETERS



Area	**Kattegat Sea**	Coordinates	**679824.30E**	**6248908.70N**	CPT Number **CB8**
Contract	**11596**	Latitude / Longitude			
Client Name/Ref	**Energinet Eltransmission A/S/384_20_ENE**	Water Depth (mMSL)	**30.69**		
Vessel	**MV Ocean Vantage**	Date of Test	**27/04/2021**		Page: 2/3
Comments: Cone Class1. Continuous seabed CPT. Final depth 24.61m. Test was terminated at operators discretion due to an increase in cone inclination to prevent damage to equipment.		Cone No.(size)/α Factor	**130206 (10cm^2) / 0.77**		QC Status
		Base Inclination	**X = 0.1° / Y = 0.0°**		Preliminary: **JK/BC** (27/04/2021) · Draft: **DR** (10/06/2021) · Final: **SMc** (10/11/2021)
		CRS	**ETRS89**		

Preliminary Investigation, Hesselø OWF

IN SITU CPTU TESTING - MEASURED PARAMETERS



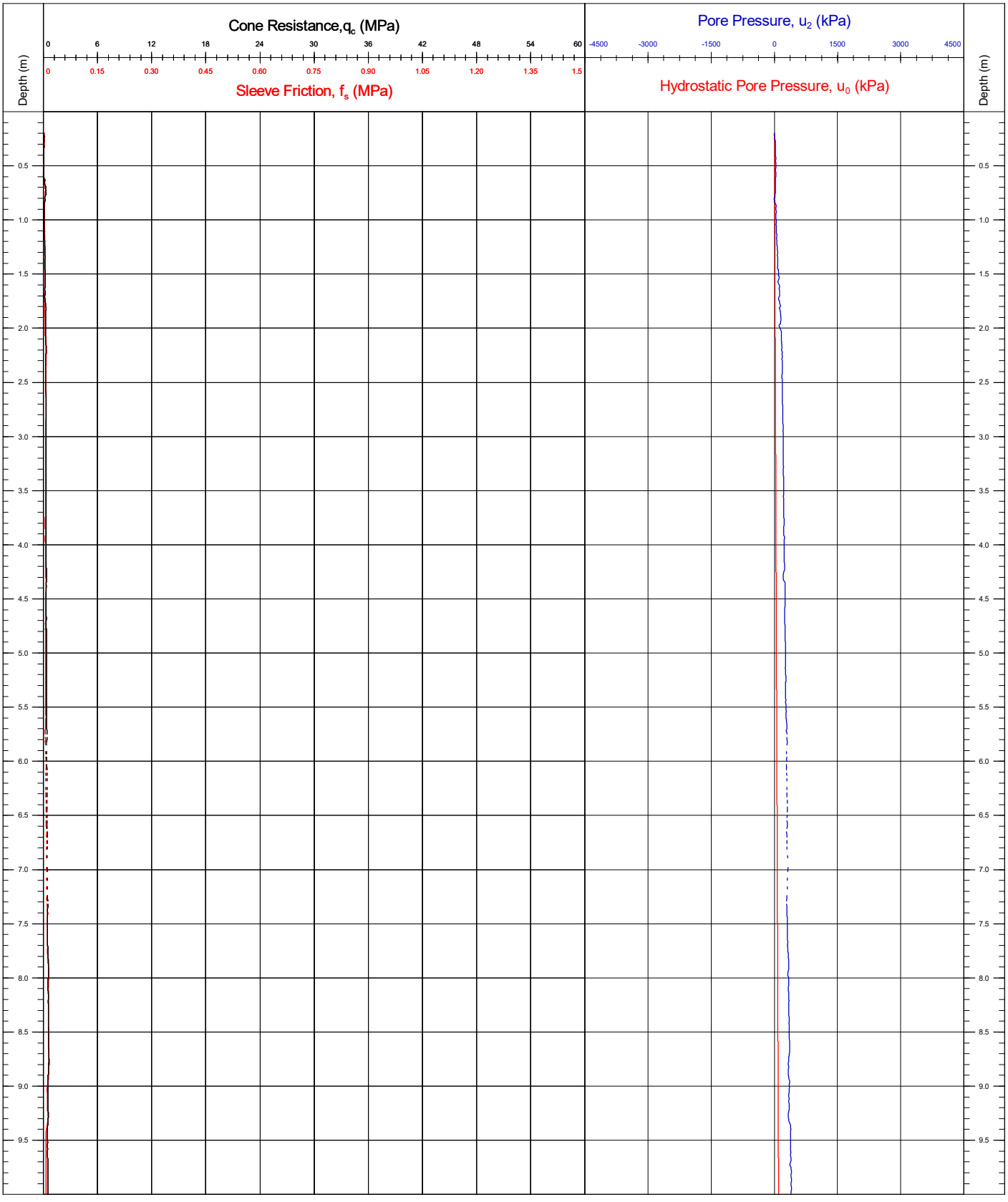
Area	**Kattegat Sea**	Coordinates	**679824.30E 6248908.70N**	CPT Number **CB8**
Contract	**11596**	Latitude / Longitude		
Client Name/Ref	**Energinet Eltransmission A/S/384_20_ENE**	Water Depth (mMSL)	**30.69**	
Vessel	**MV Ocean Vantage**	Date of Test	**27/04/2021**	Page: 3/3
		Cone No.(size)/α Factor	**130206 (10cm^2) / 0.77**	QC Status
		Base Inclination	**X = 0.1° / Y = 0.0°**	Preliminary: **JK/BC** (27/04/2021) · Draft: **DR** (10/06/2021) · Final: **SMc** (10/11/2021)
		CRS **ETRS89**		

Comments: Cone Class1. Continuous seabed CPT. Final depth 24.61m. Test was terminated at operators discretion due to an increase in cone inclination to prevent damage to equipment.

Gardline

Preliminary Investigation, Hesselø OWF

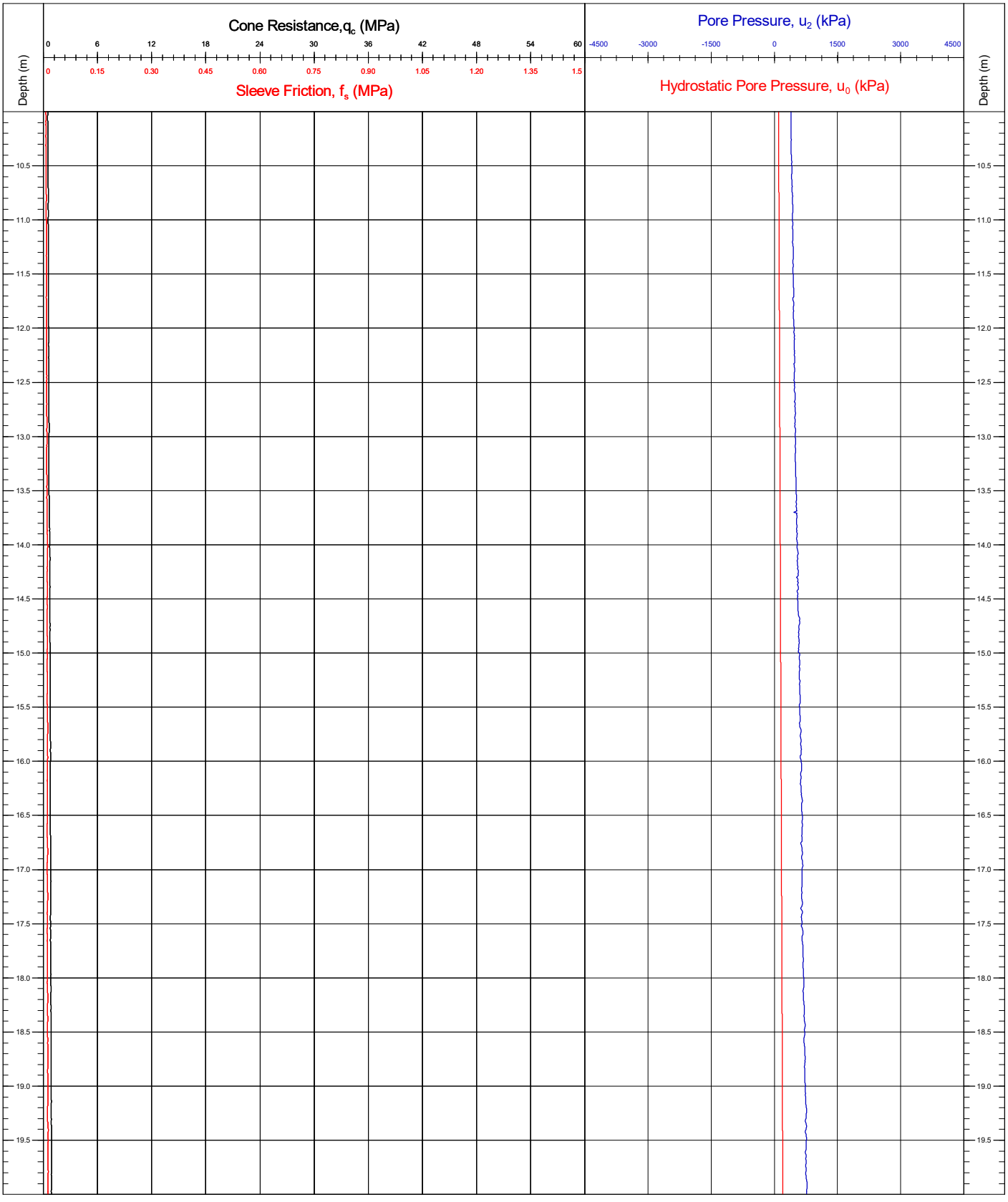
IN SITU CPTU TESTING - MEASURED PARAMETERS



Area	**Kattegat Sea**	Coordinates	**677390.60E**	**6276209.10N**	CPT Number **CB9**
Contract	**11596**	Latitude / Longitude			
Client Name/Ref	**Energinet Eltransmission A/S/384_20_ENE**	Water Depth (mMSL)	**30.93**		
Vessel	**MV Ocean Vantage**	Date of Test	**02/05/2021**		Page: 1/5
Comments: Cone class 2. Continuous seabed CPT. Final depth 41.67. Test terminated due to increasing cone inclination of 3 degrees within a metre		Cone No.(size)/α Factor	**130909 (10cm^2) / 0.82**		QC Status
		Base Inclination	**X = 1.1° / Y = 0.9°**		Preliminary: **JK/BC** (02/05/2021) · Draft: **DR** (10/06/2021) · Final: **SMc** (10/11/2021)
		CRS	**ETRS89**		

Preliminary Investigation, Hesselø OWF

IN SITU CPTU TESTING - MEASURED PARAMETERS

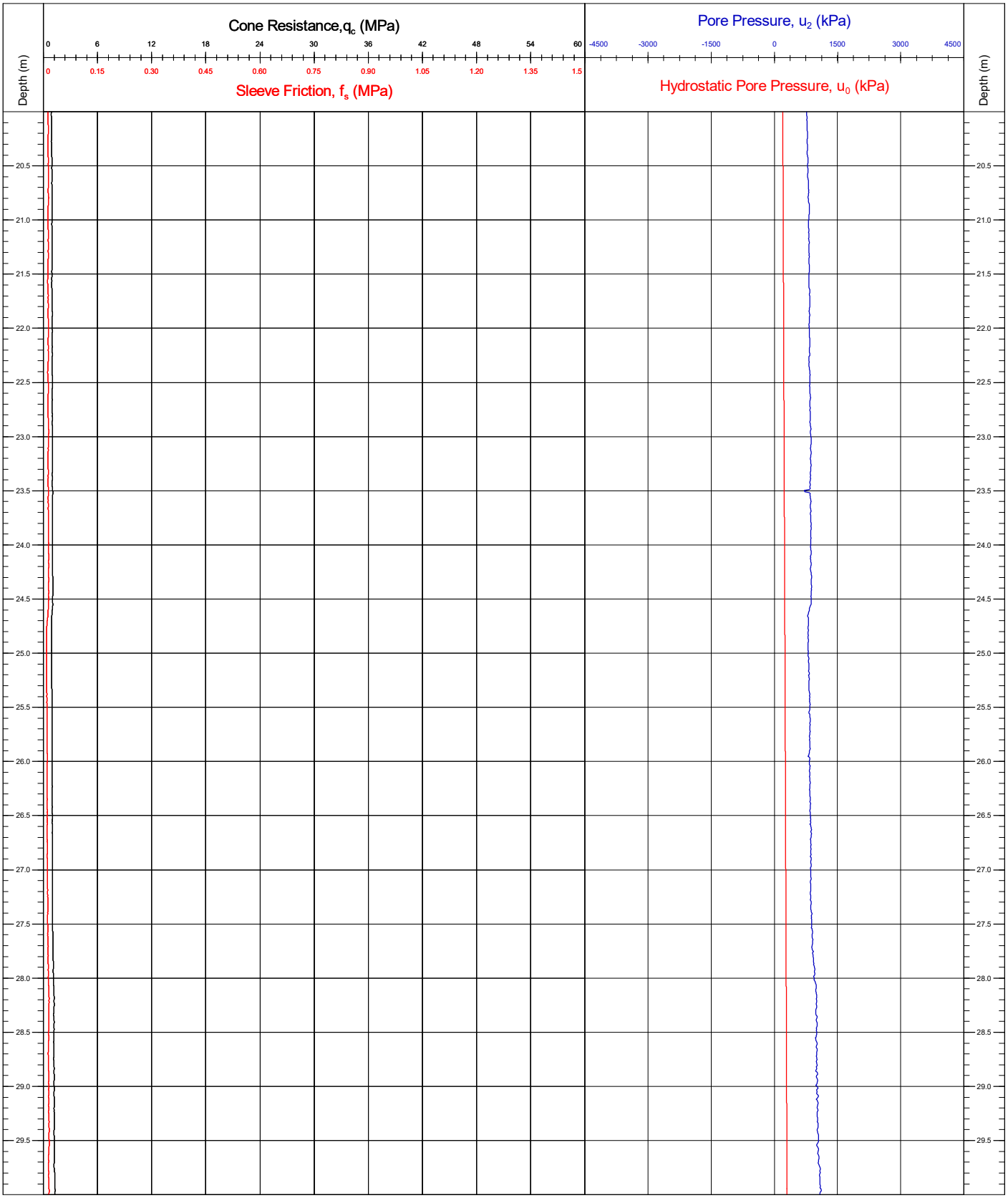


Area	**Kattegat Sea**	Coordinates	**677390.60E** **6276209.10N**	CPT Number	**CB9**
Contract	**11596**	Latitude / Longitude			
Client Name/Ref	**Energinet Eltransmission A/S/384_20_ENE**	Water Depth (mMSL)	**30.93**		
Vessel	**MV Ocean Vantage**	Date of Test	**02/05/2021**	Page: 2/5	
		Cone No.(size)/α Factor	**130909 (10cm^2) / 0.82**	QC Status	
		Base Inclination	**X = 1.1° / Y = 0.9°**	Preliminary: **JK/BC** (02/05/2021)	Draft: **DR** (10/06/2021)	Final: **SMc** (10/11/2021)
		CRS **ETRS89**			

Comments: Cone class 2. Continuous seabed CPT. Final depth 41.67. Test terminated due to increasing cone inclination of 3 degrees within a metre

Preliminary Investigation, Hesselø OWF

IN SITU CPTU TESTING - MEASURED PARAMETERS

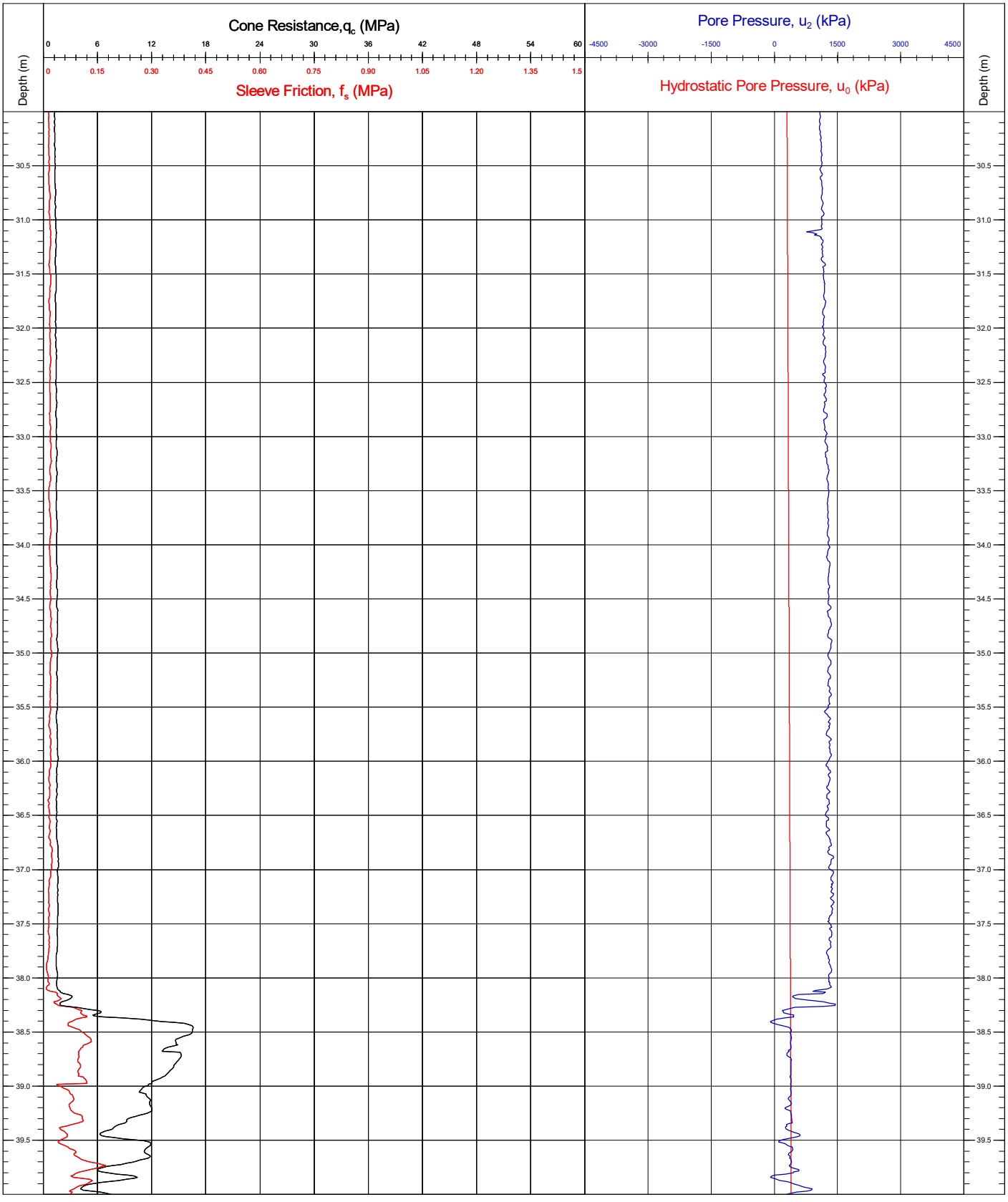


Area	**Kattegat Sea**	Coordinates	**677390.60E**	**6276209.10N**	CPT Number **CB9**
Contract	**11596**	Latitude / Longitude			
Client Name/Ref	**Energinet Eltransmission A/S/384_20_ENE**	Water Depth (mMSL)	**30.93**		
Vessel	**MV Ocean Vantage**	Date of Test	**02/05/2021**		Page: 3/5
		Cone No.(size)/α Factor	**130909 (10cm^2) / 0.82**		QC Status
		Base Inclination	**X = 1.1° / Y = 0.9°**		Preliminary: **JK/BC** (02/05/2021); Draft: **DR** (10/06/2021); Final: **SMc** (10/11/2021)
		CRS	**ETRS89**		

Comments: Cone class 2. Continuous seabed CPT. Final depth 41.67. Test terminated due to increasing cone inclination of 3 degrees within a metre

Preliminary Investigation, Hesselø OWF

IN SITU CPTU TESTING - MEASURED PARAMETERS

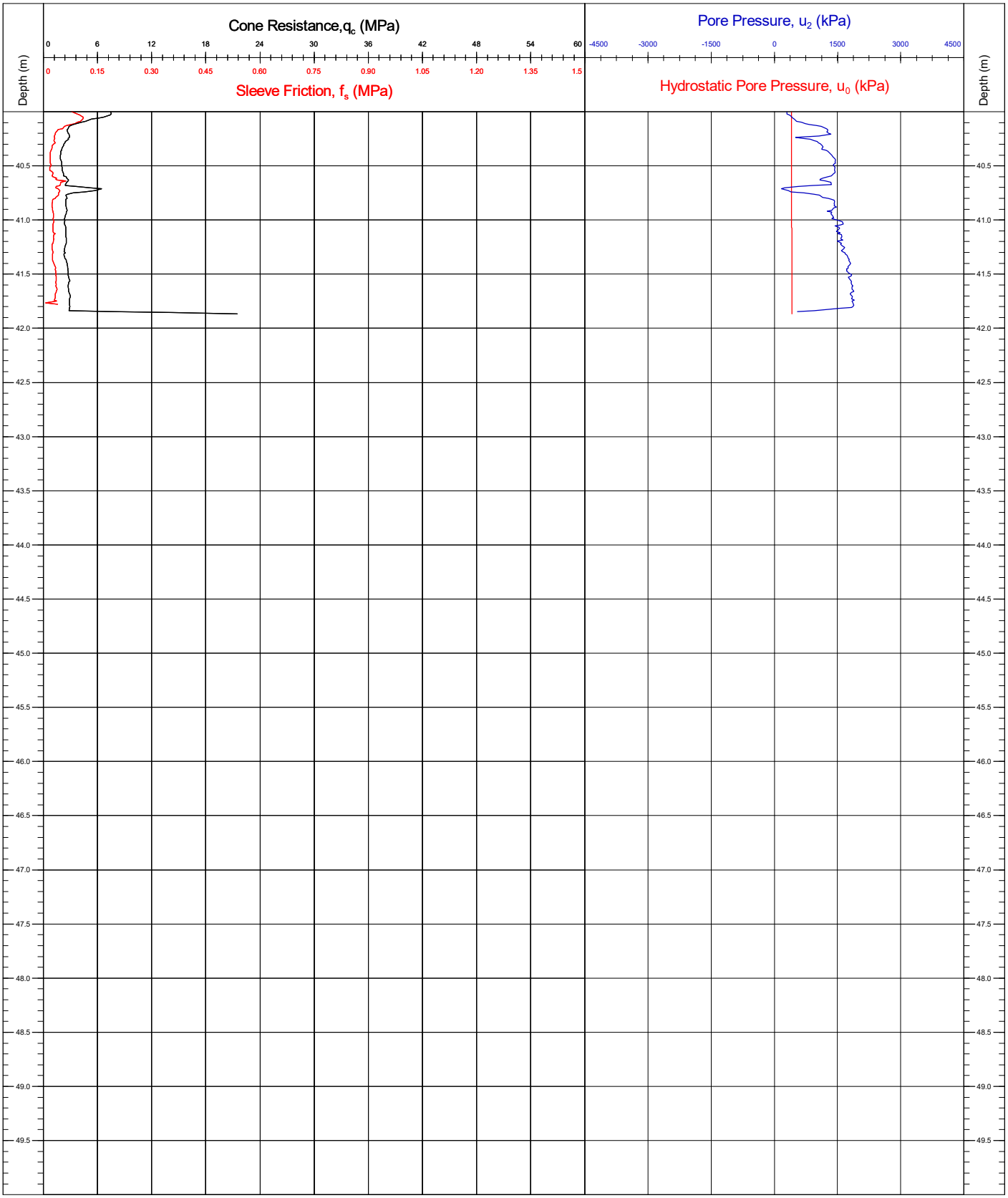


Area	**Kattegat Sea**	Coordinates	**677390.60E** **6276209.10N**	CPT Number	
Contract	**11596**	Latitude / Longitude		**CB9**	
Client Name/Ref	**Energinet Eltransmission A/S/384_20_ENE**	Water Depth (mMSL)	**30.93**		
Vessel	**MV Ocean Vantage**	Date of Test	**02/05/2021**	Page: 4/5	
		Cone No.(size)/α Factor	**130909 (10cm^2) / 0.82**	QC Status	
		Base Inclination	**X = 1.1° / Y = 0.9°**	Preliminary: **JK/BC** (02/05/2021)	Draft: **DR** (10/06/2021)
		CRS **ETRS89**			Final: **SMc** (10/11/2021)

Comments: Cone class 2. Continuous seabed CPT. Final depth 41.67. Test terminated due to increasing cone inclination of 3 degrees within a metre

Preliminary Investigation, Hesselø OWF

IN SITU CPTU TESTING - MEASURED PARAMETERS



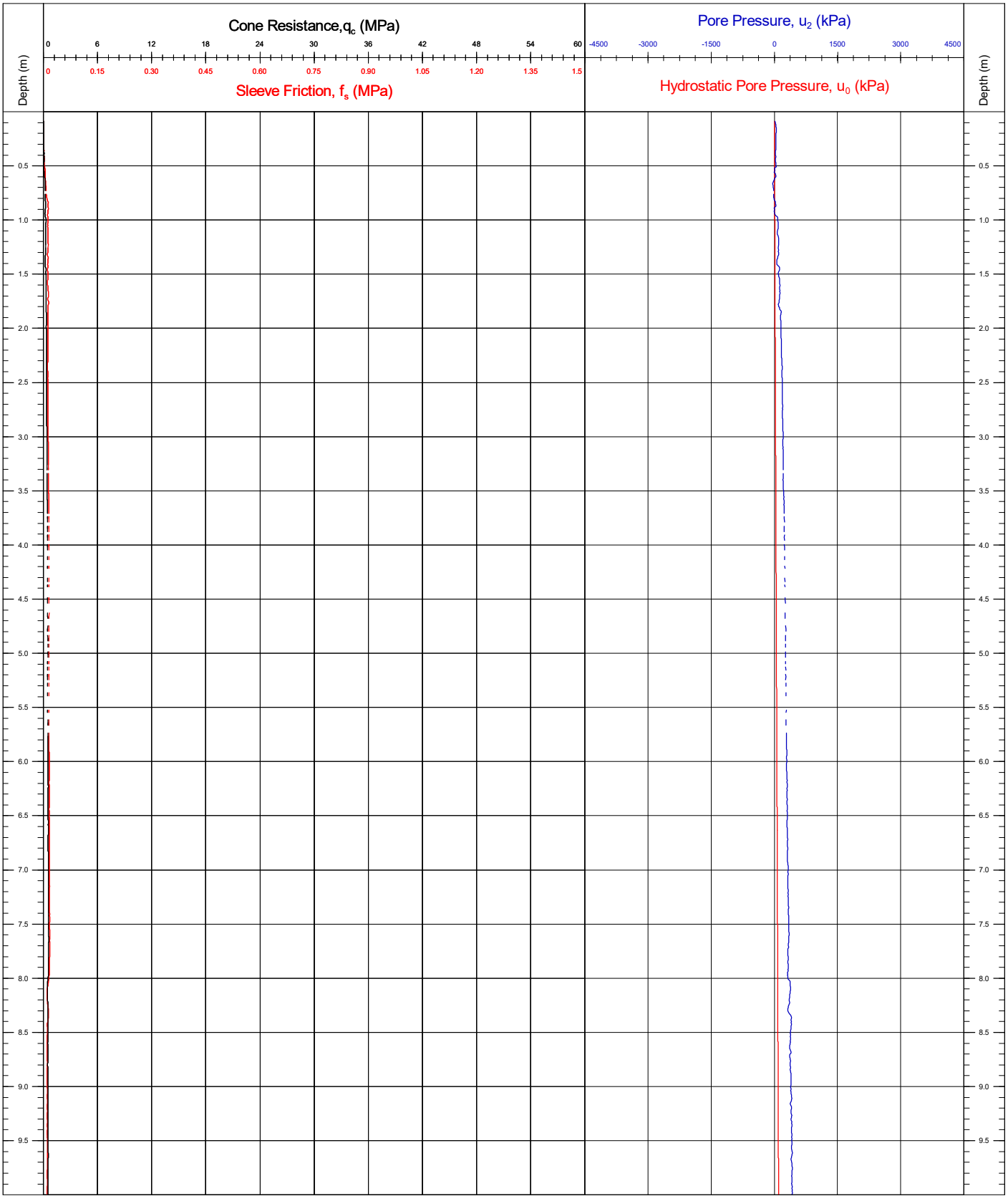
Area	**Kattegat Sea**	Coordinates	**677390.60E 6276209.10N**	CPT Number **CB9**
Contract	**11596**	Latitude / Longitude		
Client Name/Ref	**Energinet Eltransmission A/S/384_20_ENE**	Water Depth (mMSL)	**30.93**	
Vessel	**MV Ocean Vantage**	Date of Test	**02/05/2021**	Page: 5/5
		Cone No.(size)/α Factor	**130909 (10cm^2) / 0.82**	QC Status
		Base Inclination	**X = 1.1° / Y = 0.9°**	Preliminary: **JK/BC** (02/05/2021); Draft: **DR** (10/06/2021); Final: **SMc** (10/11/2021)
		CRS **ETRS89**		

Comments: Cone class 2. Continuous seabed CPT. Final depth 41.67. Test terminated due to increasing cone inclination of 3 degrees within a metre

Gardline

Preliminary Investigation, Hesselø OWF

IN SITU CPTU TESTING - MEASURED PARAMETERS



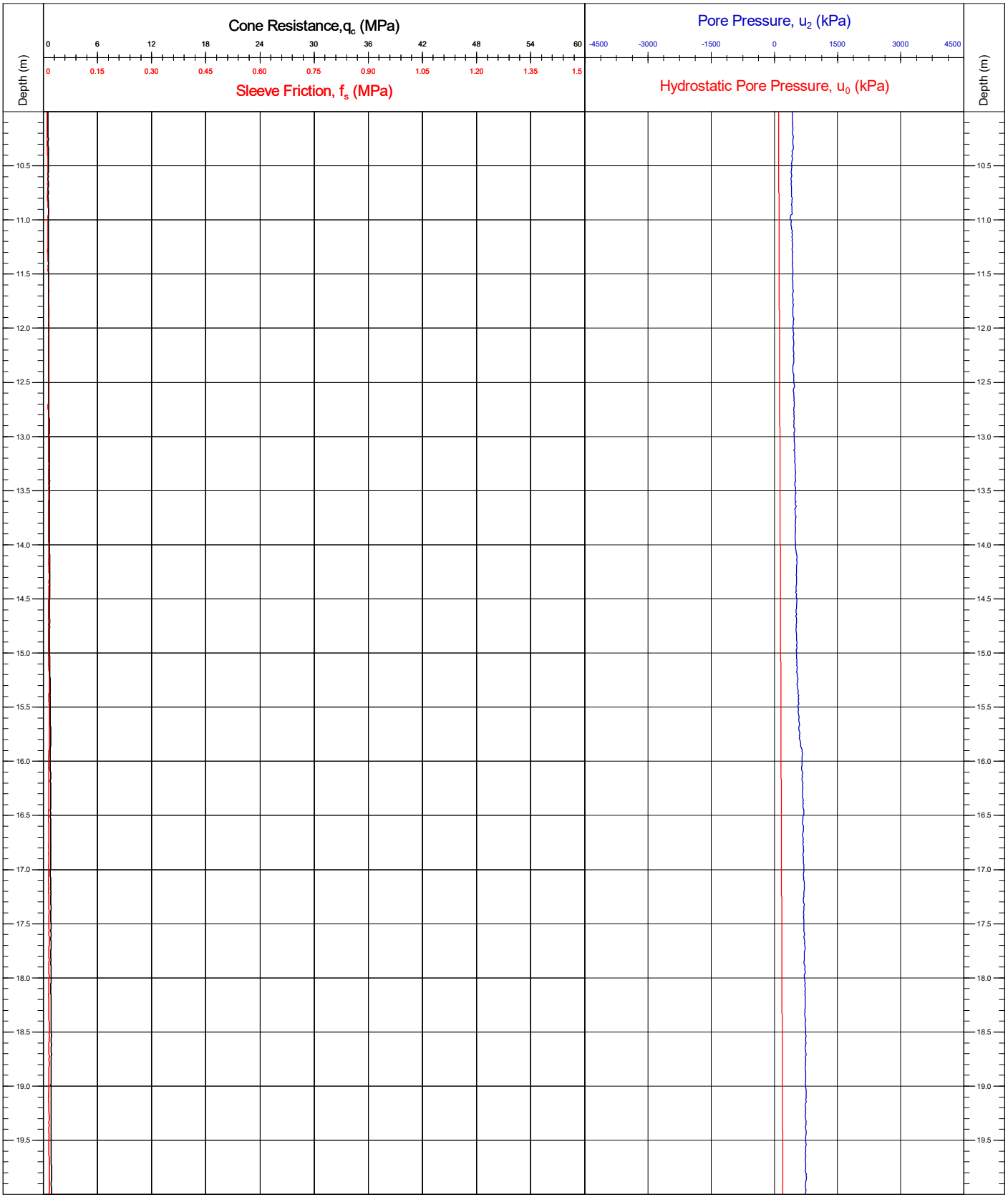
Area	**Kattegat Sea**	Coordinates	**678760.10E** **6261514.80N**	CPT Number	**CB10**
Contract	**11596**	Latitude / Longitude			
Client Name/Ref	**Energinet Eltransmission A/S/384_20_ENE**	Water Depth (mMSL)	**32.04**		
Vessel	**MV Ocean Vantage**	Date of Test	**26/04/2021**	Page: 1/3	
		Cone No.(size)/α Factor	**120910 (10cm^2) / 0.81**	QC Status	
		Base Inclination	**X = 0.1° / Y = 0.0°**	Preliminary / Draft / Final	
		CRS **ETRS89**		**JK/BC** (26/04/2021) / **DR** (10/06/2021) / **SMc** (10/11/2021)	

Comments: Cone Class1. Continuous seabed CPT. Final depth 28.90m. Test was terminated at operators discretion to avoid damage to equipment due to lack of lateral rod support from mudline

Gardline

Preliminary Investigation, Hesselø OWF

IN SITU CPTU TESTING - MEASURED PARAMETERS

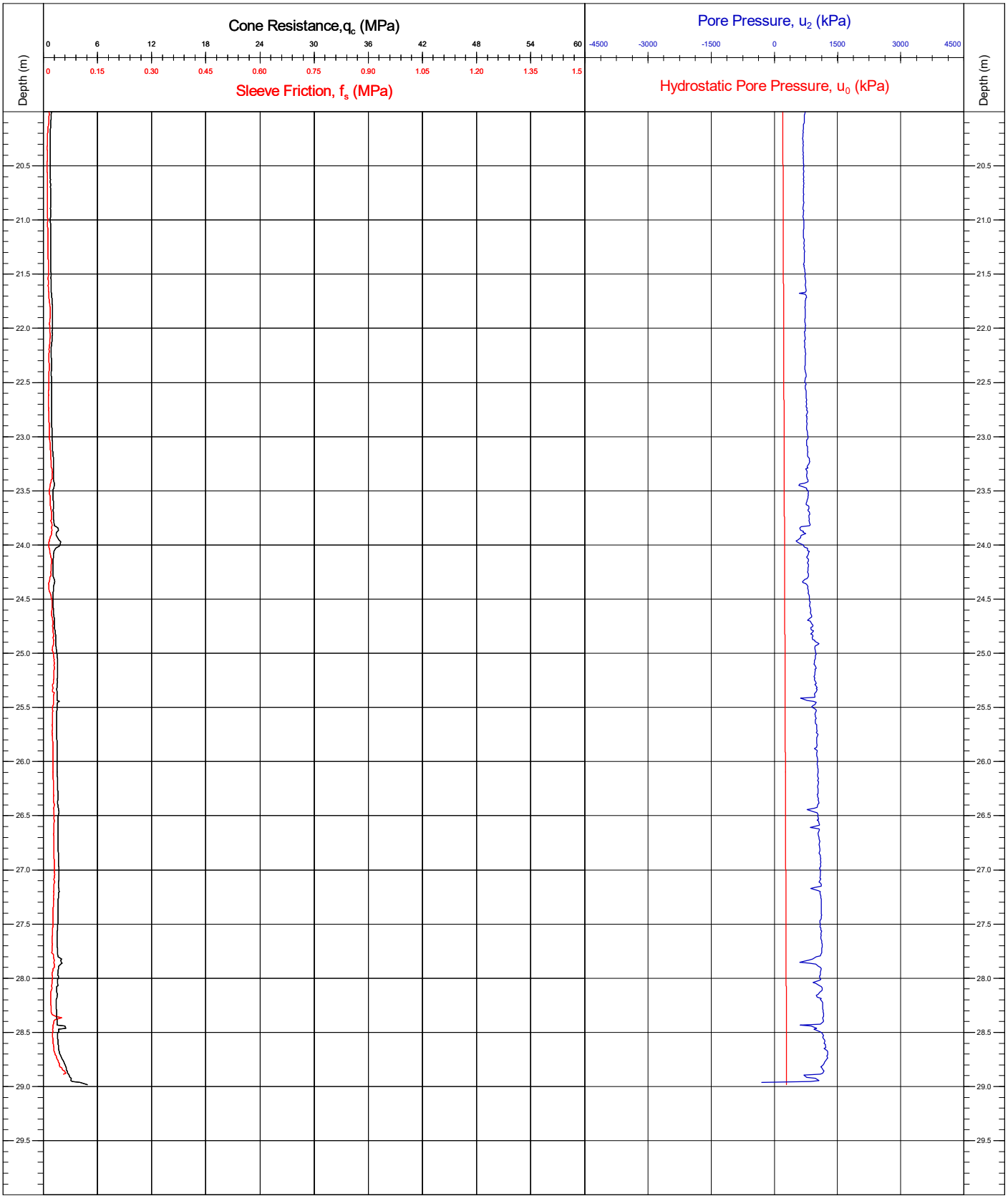


Area	**Kattegat Sea**	Coordinates	**678760.10E**	**6261514.80N**	CPT Number **CB10**
Contract	**11596**	Latitude / Longitude			
Client Name/Ref	**Energinet Eltransmission A/S/384_20_ENE**	Water Depth (mMSL)	**32.04**		
Vessel	**MV Ocean Vantage**	Date of Test	**26/04/2021**		Page: 2/3
		Cone No.(size)/α Factor	**120910 (10cm^2) / 0.81**		QC Status
		Base Inclination	**X = 0.1° / Y = 0.0°**		Preliminary: **JK/BC (26/04/2021)** · Draft: **DR (10/06/2021)** · Final: **SMc (10/11/2021)**
		CRS	**ETRS89**		

Comments: Cone Class1. Continuous seabed CPT. Final depth 28.90m. Test was terminated at operators discretion to avoid damage to equipment due to lack of lateral rod support from mudline

Preliminary Investigation, Hesselø OWF

IN SITU CPTU TESTING - MEASURED PARAMETERS

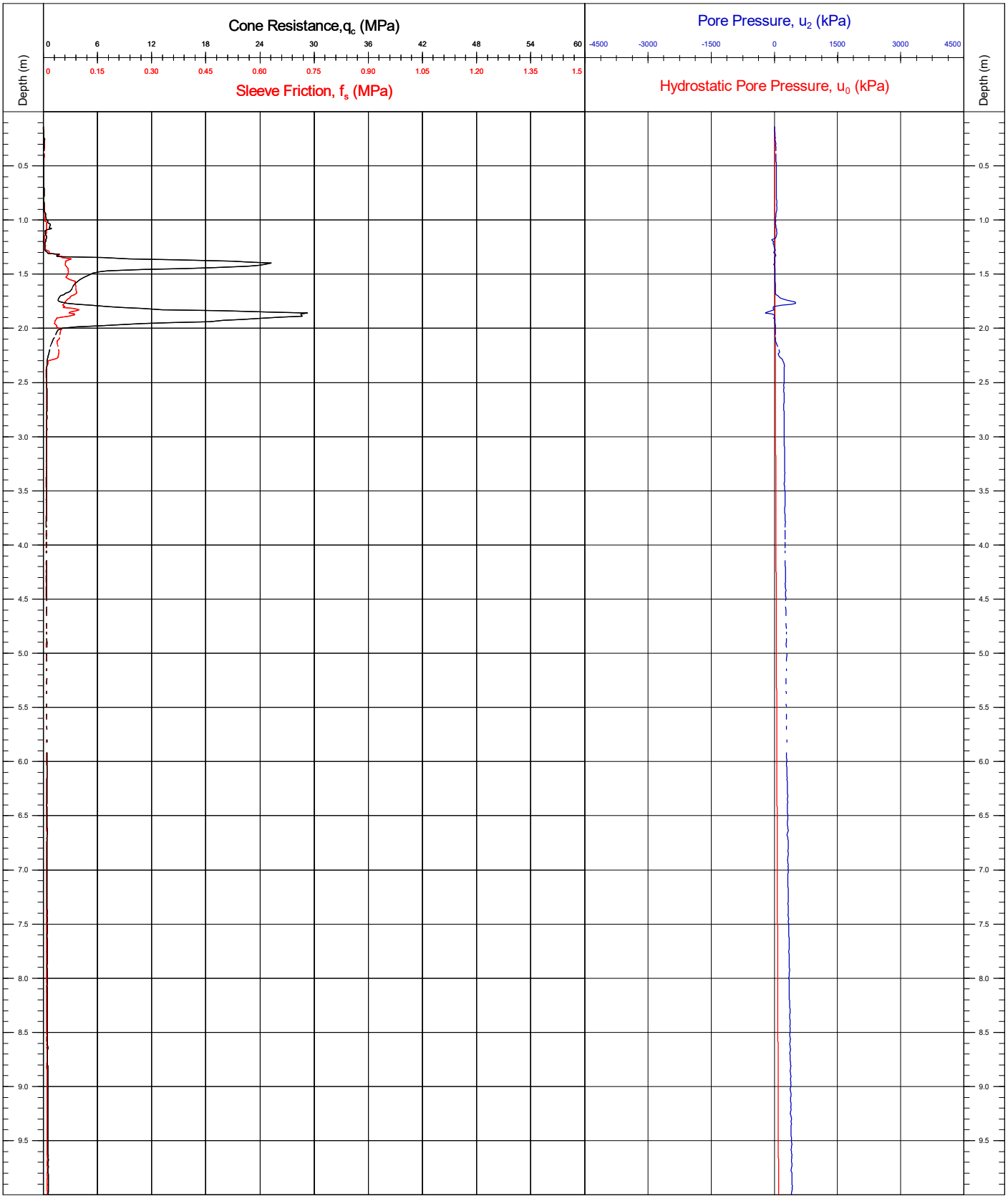


Area	**Kattegat Sea**	Coordinates	**678760.10E** **6261514.80N**	CPT Number	
Contract	**11596**	Latitude / Longitude		**CB10**	
Client Name/Ref	**Energinet Eltransmission A/S/384_20_ENE**	Water Depth (mMSL)	**32.04**		
Vessel	**MV Ocean Vantage**	Date of Test	**26/04/2021**	Page: 3/3	
		Cone No.(size)/α Factor	**120910 (10cm^2) / 0.81**	QC Status	
		Base Inclination	**X = 0.1° / Y = 0.0°**	Preliminary / Draft / Final	
		CRS **ETRS89**		**JK/BC** (26/04/2021) / **DR** (10/06/2021) / **SMc** (10/11/2021)	

Comments: Cone Class1. Continuous seabed CPT. Final depth 28.90m. Test was terminated at operators discretion to avoid damage to equipment due to lack of lateral rod support from mudline

Preliminary Investigation, Hesselø OWF

IN SITU CPTU TESTING - MEASURED PARAMETERS



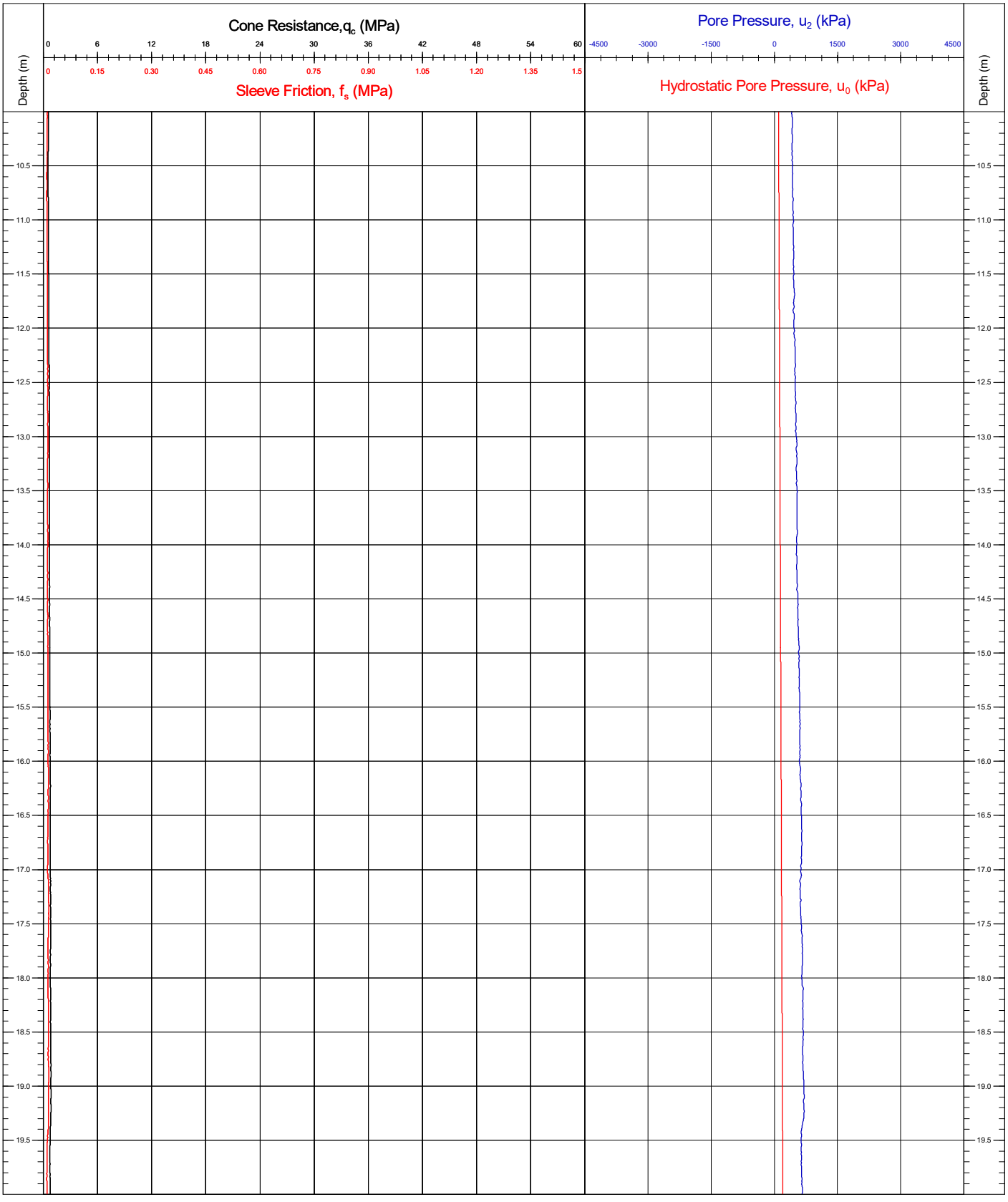
Area	**Kattegat Sea**	Coordinates	**678372.40E** **6256256.90N**	CPT Number	
Contract	**11596**	Latitude / Longitude		**CB11**	
Client Name/Ref	**Energinet Eltransmission A/S/384_20_ENE**	Water Depth (mMSL)	**31.40**		
Vessel	**MV Ocean Vantage**	Date of Test	**26/04/2021**	Page: 1/3	
		Cone No.(size)/α Factor	**120829 (10cm^2) / 0.8**	QC Status	
		Base Inclination	**X = 0.0° / Y = 0.0°**	Preliminary / Draft / Final	
		CRS **ETRS89**		**JK/BC** (29/04/2021) / **DR** (10/06/2021) / **SMc** (10/11/2021)	

Comments: Cone class 3. Continuous seabed CPT. Final depth 22.14m. Test terminated at operators discretion due to lack of lateral rod support from mudline and increasing cone inclination

Gardline

Preliminary Investigation, Hesselø OWF

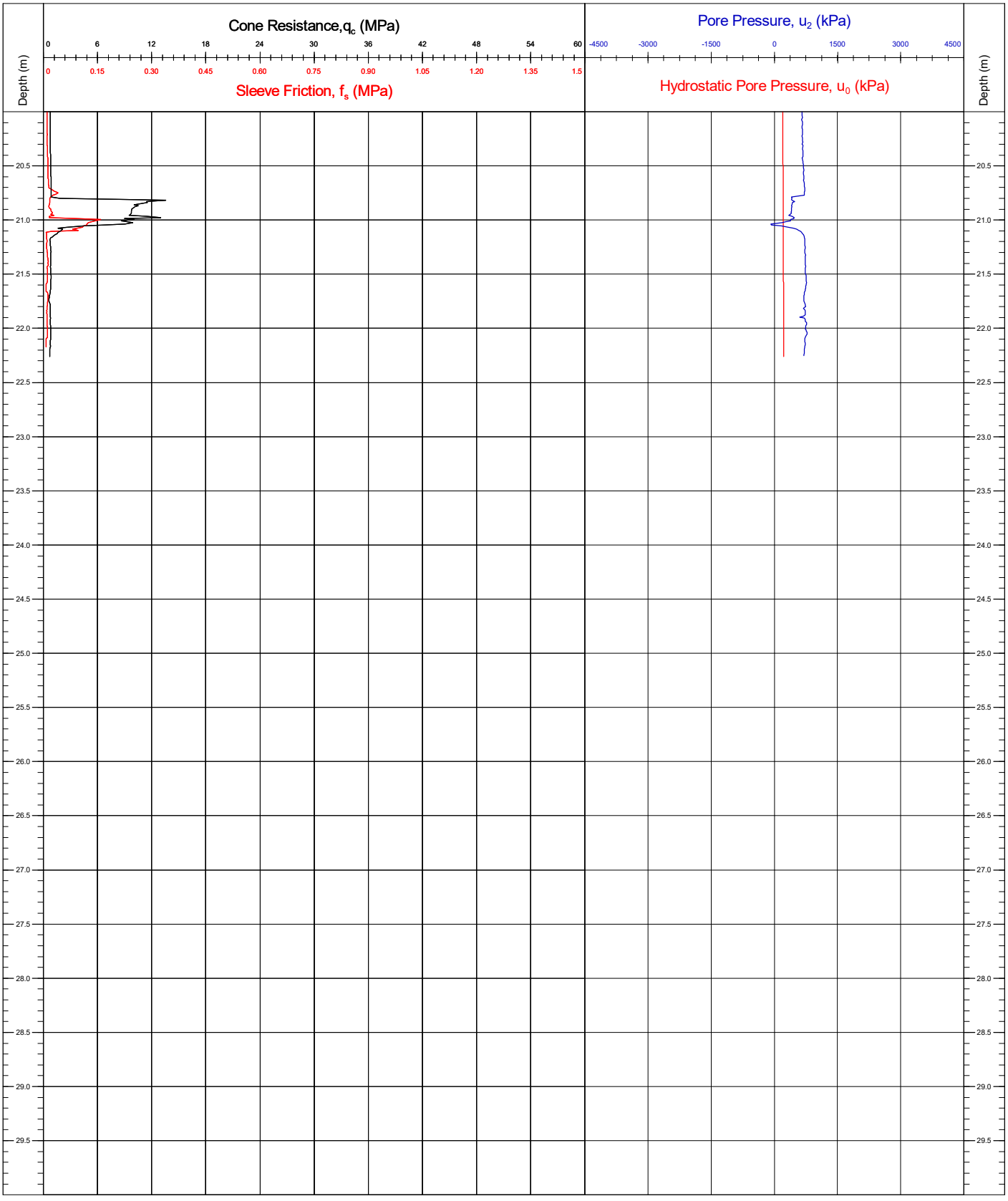
IN SITU CPTU TESTING - MEASURED PARAMETERS



Area	**Kattegat Sea**	Coordinates	**678372.40E**	**6256256.90N**	CPT Number **CB11**
Contract	**11596**	Latitude / Longitude			
Client Name/Ref	**Energinet Eltransmission A/S/384_20_ENE**	Water Depth (mMSL)	**31.40**		
Vessel	**MV Ocean Vantage**	Date of Test	**26/04/2021**		Page: 2/3
Comments: Cone class 3. Continuous seabed CPT. Final depth 22.14m. Test terminated at operators discretion due to lack of lateral rod support from mudline and increasing cone inclination		Cone No.(size)/α Factor	**120829 (10cm^2) / 0.8**		QC Status
		Base Inclination	**X = 0.0° / Y = 0.0°**		Preliminary: **JK/BC (29/04/2021)** · Draft: **DR (10/06/2021)** · Final: **SMc (10/11/2021)**
		CRS	**ETRS89**		

Preliminary Investigation, Hesselø OWF

IN SITU CPTU TESTING - MEASURED PARAMETERS

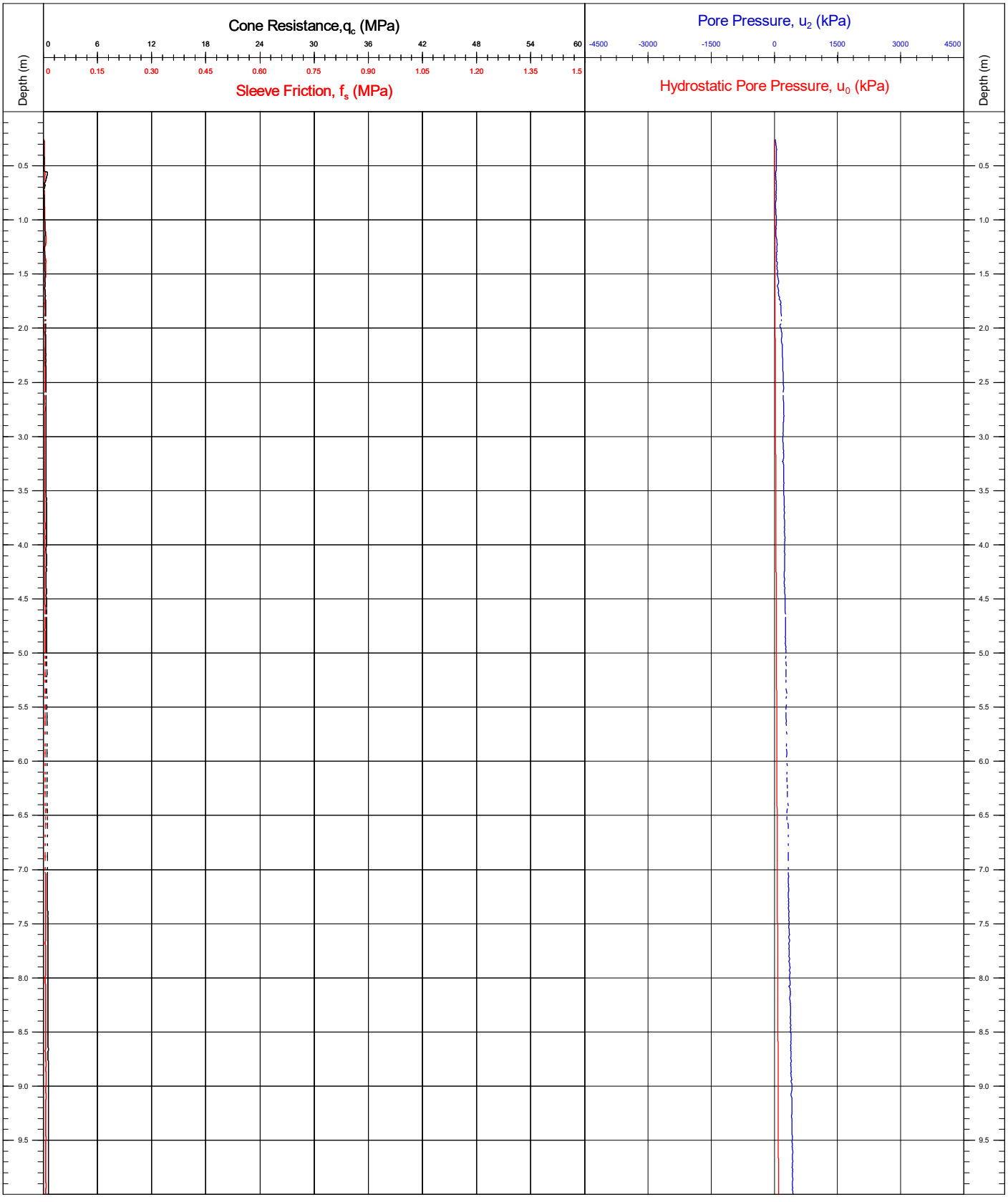


Area	**Kattegat Sea**	Coordinates	**678372.40E**	**6256256.90N**	CPT Number **CB11**
Contract	**11596**	Latitude / Longitude			
Client Name/Ref	**Energinet Eltransmission A/S/384_20_ENE**	Water Depth (mMSL)	**31.40**		
Vessel	**MV Ocean Vantage**	Date of Test	**26/04/2021**		Page: 3/3
		Cone No.(size)/α Factor	**120829 (10cm^2) / 0.8**		QC Status
		Base Inclination	**X = 0.0° / Y = 0.0°**		Preliminary: **JK/BC** (29/04/2021); Draft: **DR** (10/06/2021); Final: **SMc** (10/11/2021)
		CRS	**ETRS89**		

Comments: Cone class 3. Continuous seabed CPT. Final depth 22.14m. Test terminated at operators discretion due to lack of lateral rod support from mudline and increasing cone inclination

Preliminary Investigation, Hesselø OWF

IN SITU CPTU TESTING - MEASURED PARAMETERS

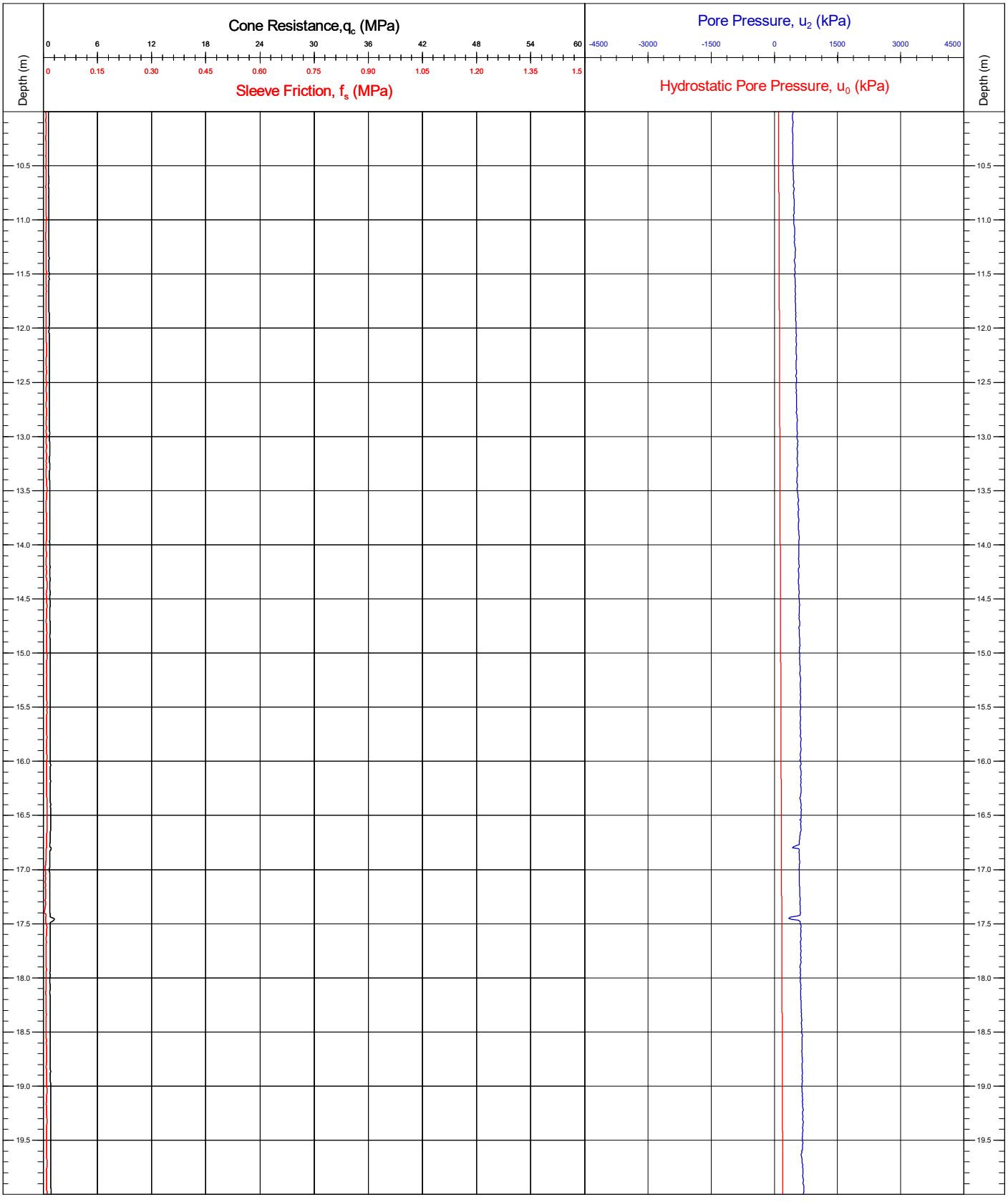


Area	**Kattegat Sea**	Coordinates	**677450.30E**	**6270633.50N**	CPT Number **CB12**
Contract	**11596**	Latitude / Longitude			
Client Name/Ref	**Energinet Eltransmission A/S/384_20_ENE**	Water Depth (mMSL)	**31.79**		
Vessel	**MV Ocean Vantage**	Date of Test	**01/05/2021**		Page: 1/4
		Cone No.(size)/α Factor	**130909 (10cm^2) / 0.82**		QC Status
		Base Inclination	**X = 1.2° / Y = 0.9°**		Preliminary: **JK/BC** (01/05/2021); Draft: **DR** (10/06/2021); Final: **SMc** (10/11/2021)
		CRS	**ETRS89**		

Comments: Cone class 1. Continuous seabed CPT. Final depth 34.82m. Test terminated at operators discretion due to high risk of rod bend

Preliminary Investigation, Hesselø OWF

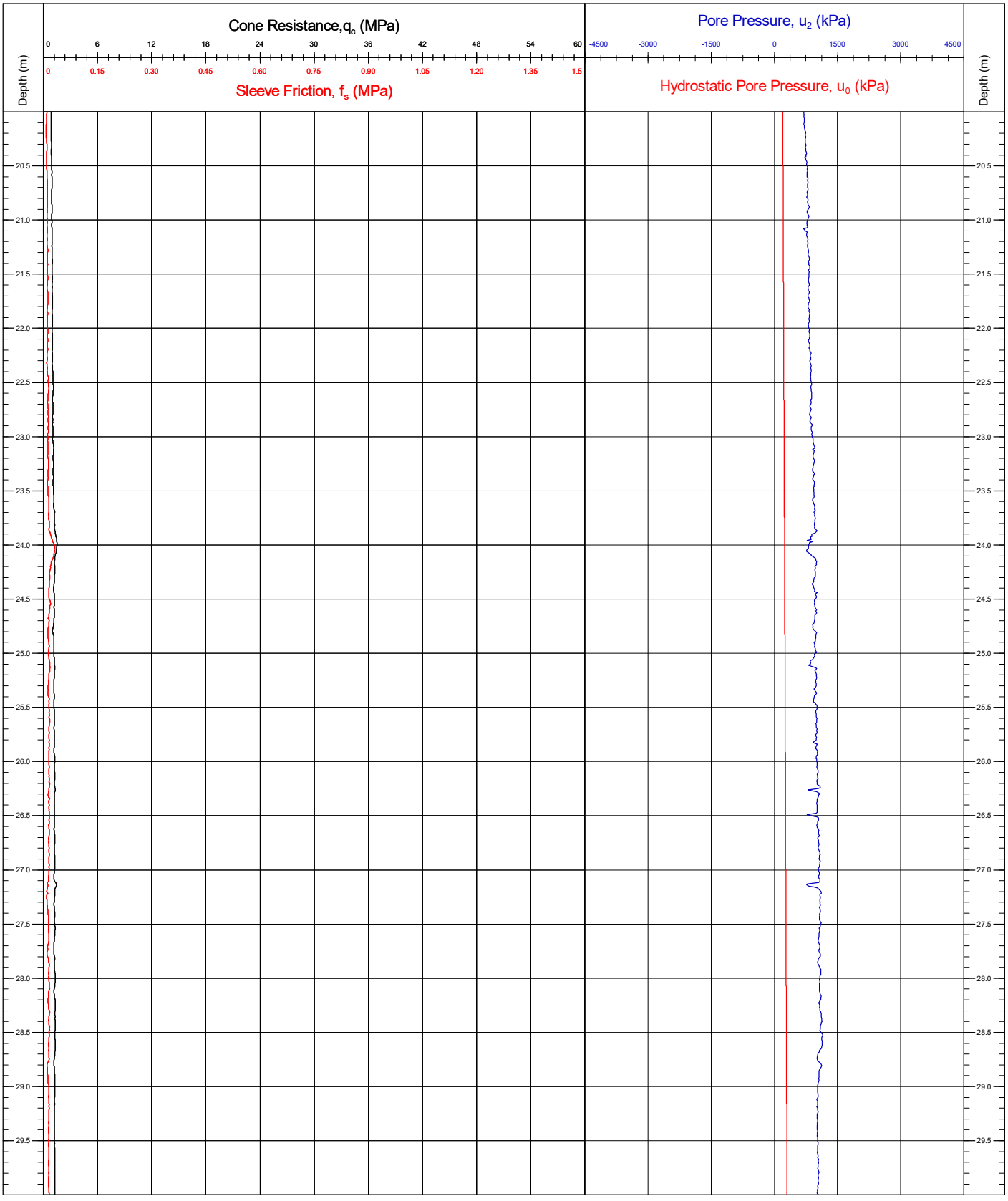
IN SITU CPTU TESTING - MEASURED PARAMETERS



Area	**Kattegat Sea**	Coordinates	**677450.30E**	**6270633.50N**	CPT Number **CB12**
Contract	**11596**	Latitude / Longitude			
Client Name/Ref	**Energinet Eltransmission A/S/384_20_ENE**	Water Depth (mMSL)	**31.79**		
Vessel	**MV Ocean Vantage**	Date of Test	**01/05/2021**		Page: 2/4
Comments: Cone class 1. Continuous seabed CPT. Final depth 34.82m. Test terminated at operators discretion due to high risk of rod bend		Cone No.(size)/α Factor	**130909 (10cm^2) / 0.82**		QC Status
		Base Inclination	**X = 1.2° / Y = 0.9°**		Preliminary: **JK/BC** (01/05/2021); Draft: **DR** (10/06/2021); Final: **SMc** (10/11/2021)
		CRS	**ETRS89**		

Preliminary Investigation, Hesselø OWF

IN SITU CPTU TESTING - MEASURED PARAMETERS

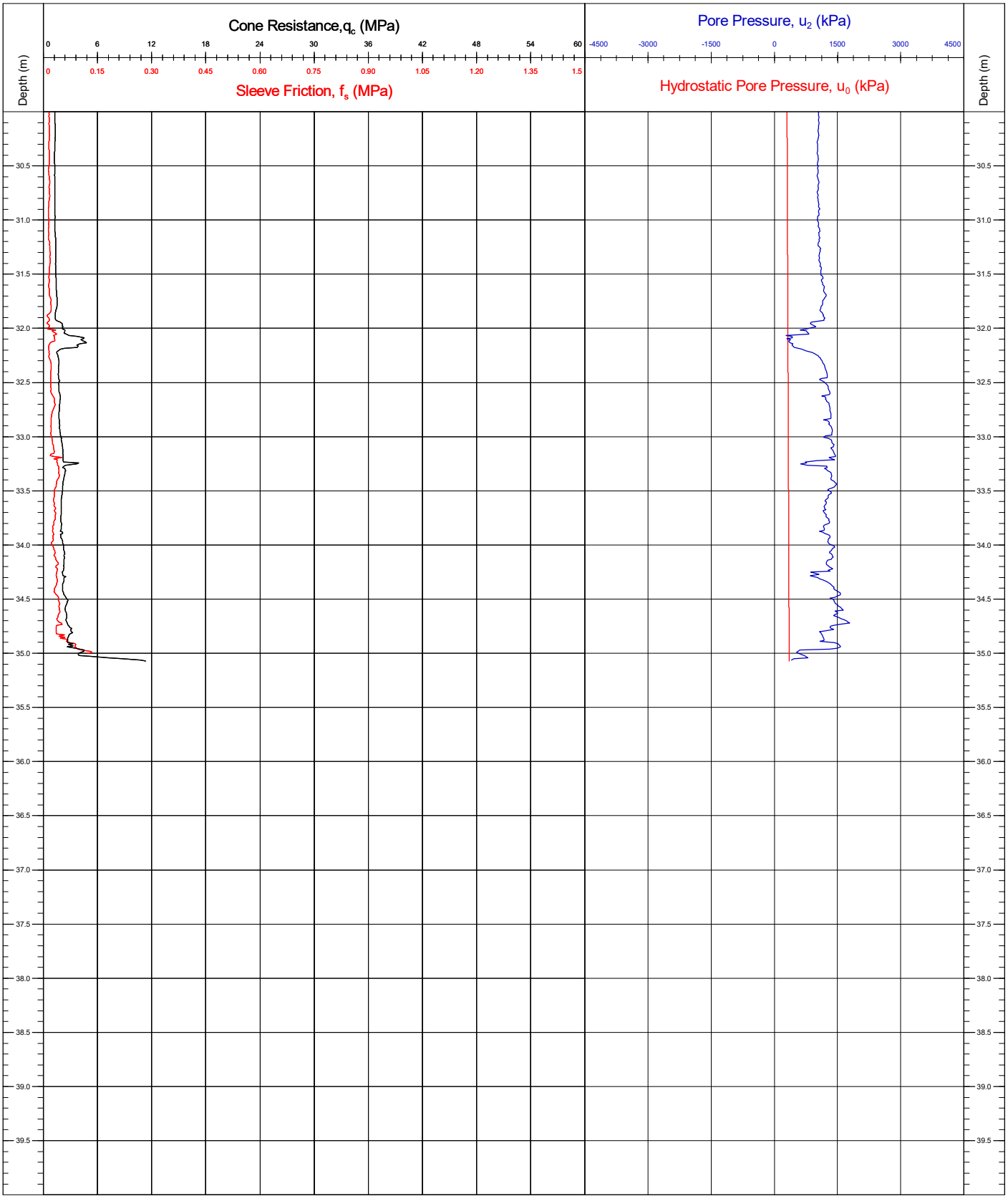


Area	**Kattegat Sea**	Coordinates	**677450.30E**	**6270633.50N**	CPT Number **CB12**
Contract	**11596**	Latitude / Longitude			
Client Name/Ref	**Energinet Eltransmission A/S/384_20_ENE**	Water Depth (mMSL)	**31.79**		
Vessel	**MV Ocean Vantage**	Date of Test	**01/05/2021**		Page: 3/4
		Cone No.(size)/α Factor	**130909 (10cm^2) / 0.82**		QC Status
		Base Inclination	**X = 1.2° / Y = 0.9°**		Preliminary: **JK/BC** (01/05/2021); Draft: **DR** (10/06/2021); Final: **SMc** (10/11/2021)
		CRS	**ETRS89**		

Comments: Cone class 1. Continuous seabed CPT. Final depth 34.82m. Test terminated at operators discretion due to high risk of rod bend

Preliminary Investigation, Hesselø OWF

IN SITU CPTU TESTING - MEASURED PARAMETERS



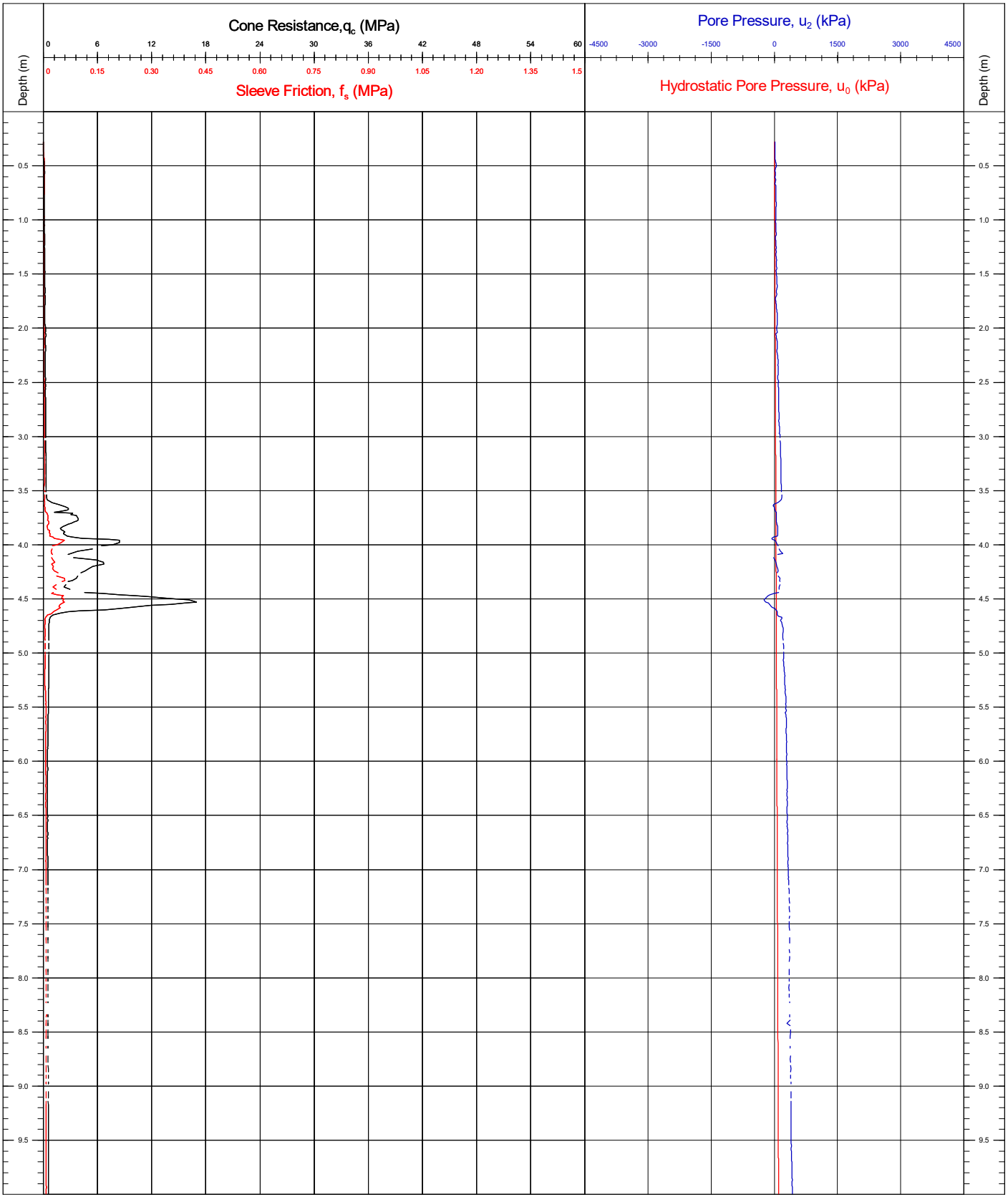
Area	**Kattegat Sea**	Coordinates	**677450.30E**	**6270633.50N**	CPT Number **CB12**
Contract	**11596**	Latitude / Longitude			
Client Name/Ref	**Energinet Eltransmission A/S/384_20_ENE**	Water Depth (mMSL)	**31.79**		
Vessel	**MV Ocean Vantage**	Date of Test	**01/05/2021**		Page: 4/4
		Cone No.(size)/α Factor	**130909 (10cm^2) / 0.82**		QC Status
		Base Inclination	**X = 1.2° / Y = 0.9°**		Preliminary: **JK/BC** (01/05/2021); Draft: **DR** (10/06/2021); Final: **SMc** (10/11/2021)
		CRS	**ETRS89**		

Comments: Cone class 1. Continuous seabed CPT. Final depth 34.82m. Test terminated at operators discretion due to high risk of rod bend

Gardline

Preliminary Investigation, Hesselø OWF

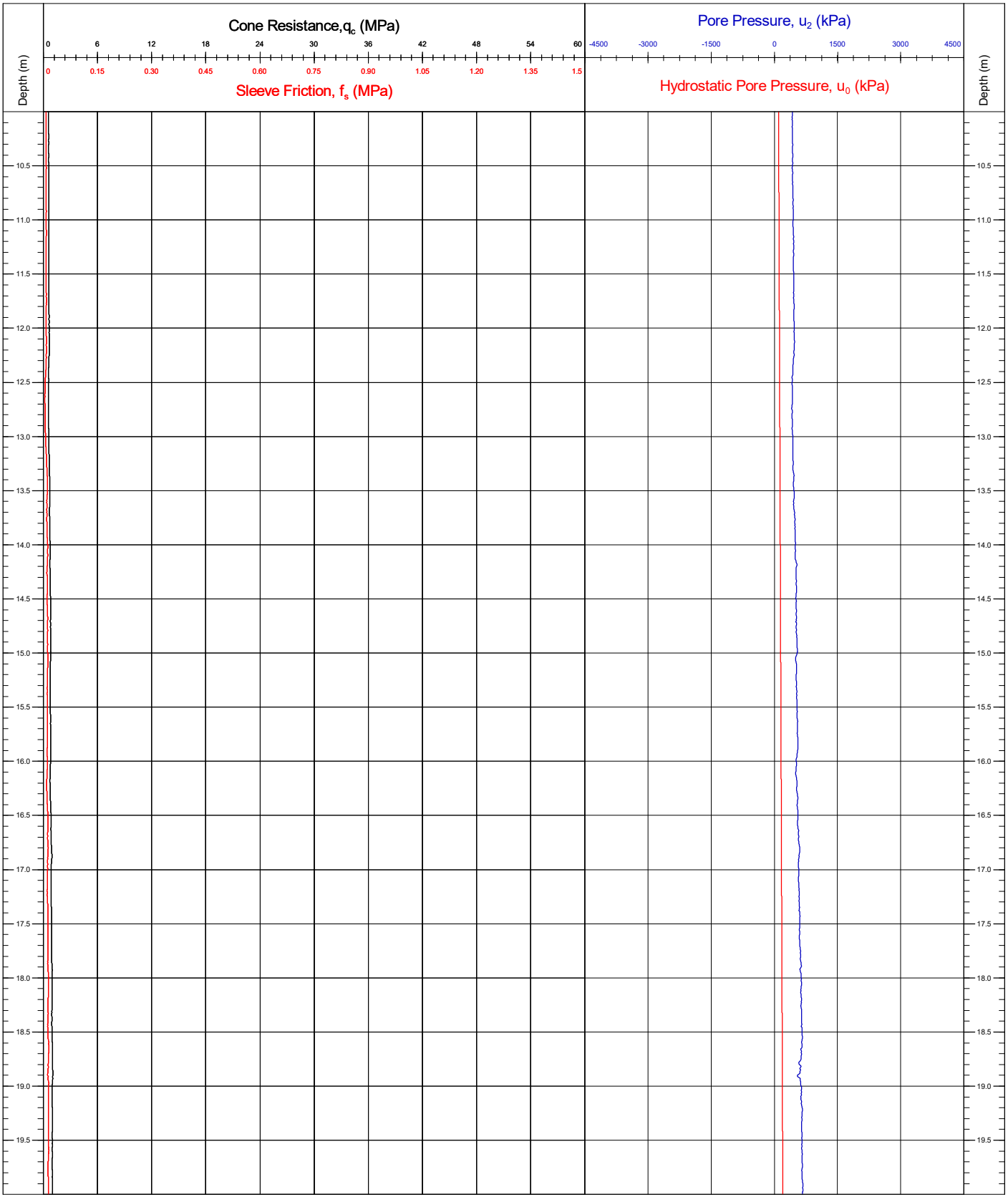
IN SITU CPTU TESTING - MEASURED PARAMETERS



Area	**Kattegat Sea**	Coordinates	**670639.50E 6262910.50N**	CPT Number	**CB13**
Contract	**11596**	Latitude / Longitude			
Client Name/Ref	**Energinet Eltransmission A/S/384_20_ENE**	Water Depth (mMSL)	**29.98**		
Vessel	**MV Ocean Vantage**	Date of Test	**30/04/2021**	Page: 1/4	
Comments: Cone class 1. Continuous seabed CPT. Final depth 33.83m. Test terminated at operators discretion due to high inclination and risk of rod bend		Cone No.(size)/α Factor	**181004 (10cm^2) / 0.81**	QC Status	
		Base Inclination	**X = 1.1° / Y = 1.0°**	Preliminary: **JK/BC** (30/04/2021)	Draft: **DR** (10/06/2021) / Final: **SMc** (10/11/2021)
		CRS **ETRS89**			

Preliminary Investigation, Hesselø OWF

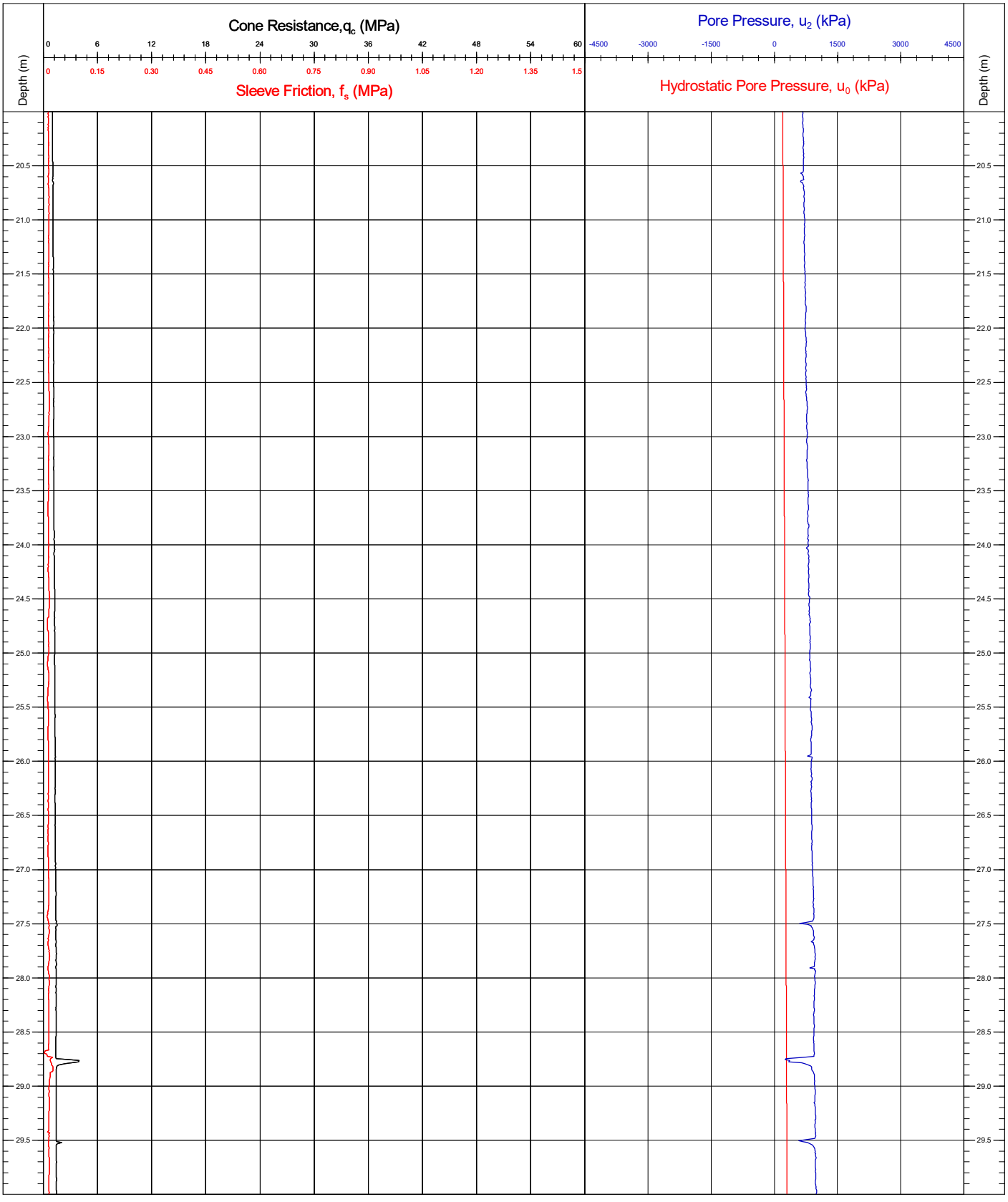
IN SITU CPTU TESTING - MEASURED PARAMETERS



Area	**Kattegat Sea**	Coordinates	**670639.50E**	**6262910.50N**	CPT Number **CB13**
Contract	**11596**	Latitude / Longitude			
Client Name/Ref	**Energinet Eltransmission A/S/384_20_ENE**	Water Depth (mMSL)	**29.98**		
Vessel	**MV Ocean Vantage**	Date of Test	**30/04/2021**		Page: 2/4
Comments: Cone class 1. Continuous seabed CPT. Final depth 33.83m. Test terminated at operators discretion due to high inclination and risk of rod bend		Cone No.(size)/α Factor	**181004 (10cm^2) / 0.81**		QC Status
		Base Inclination	**X = 1.1° / Y = 1.0°**		Preliminary: **JK/BC** (30/04/2021) · Draft: **DR** (10/06/2021) · Final: **SMc** (10/11/2021)
		CRS **ETRS89**			

Preliminary Investigation, Hesselø OWF

IN SITU CPTU TESTING - MEASURED PARAMETERS



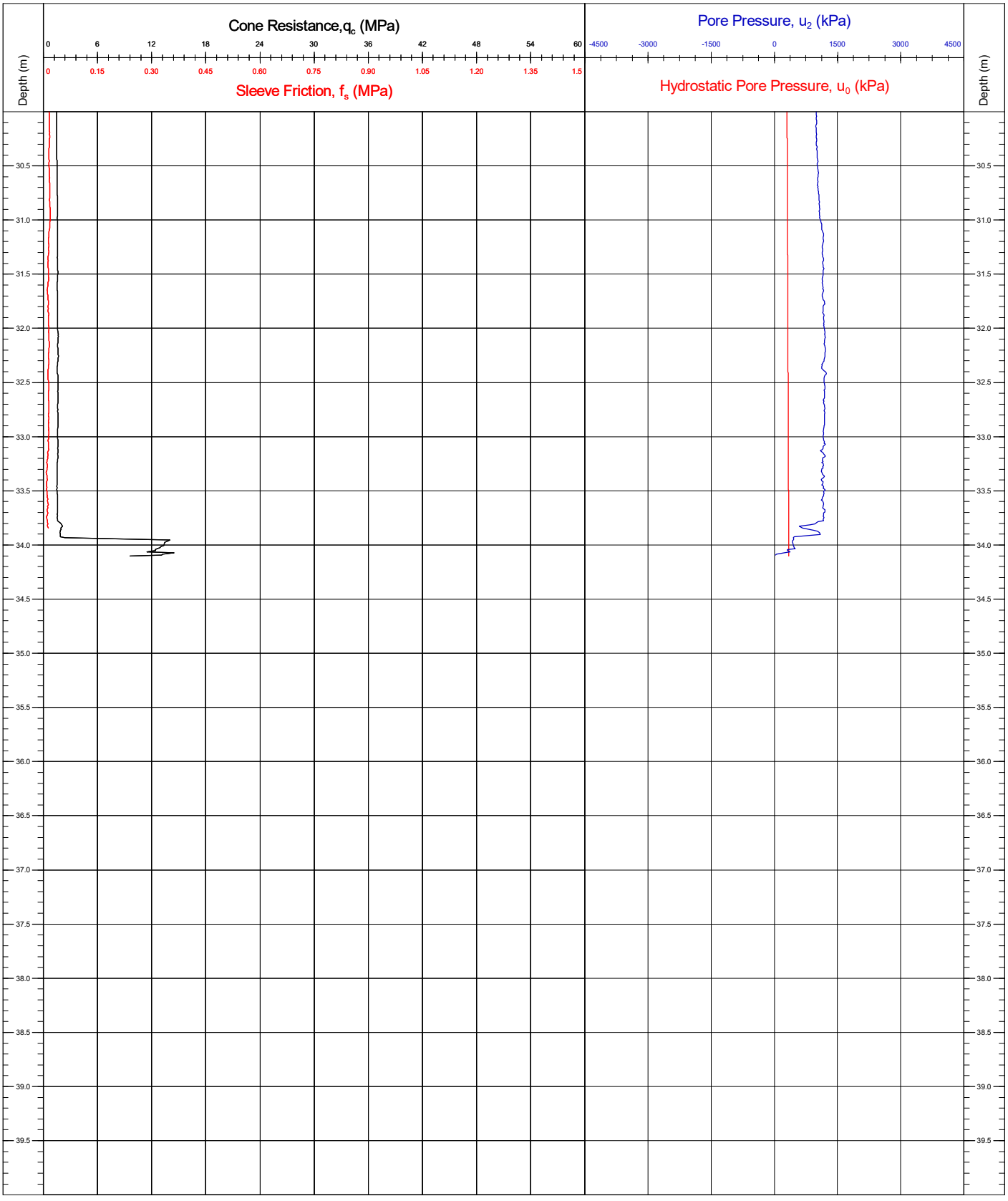
Area	**Kattegat Sea**	Coordinates	**670639.50E**	**6262910.50N**	CPT Number
Contract	**11596**	Latitude / Longitude			**CB13**
Client Name/Ref	**Energinet Eltransmission A/S/384_20_ENE**	Water Depth (mMSL)	**29.98**		
Vessel	**MV Ocean Vantage**	Date of Test	**30/04/2021**		Page: 3/4
		Cone No.(size)/α Factor	**181004 (10cm^2) / 0.81**		QC Status
		Base Inclination	**X = 1.1° / Y = 1.0°**		Preliminary: **JK/BC** (30/04/2021) · Draft: **DR** (10/06/2021) · Final: **SMc** (10/11/2021)
		CRS	**ETRS89**		

Comments: Cone class 1. Continuous seabed CPT. Final depth 33.83m. Test terminated at operators discretion due to high inclination and risk of rod bend

Gardline

Preliminary Investigation, Hesselø OWF

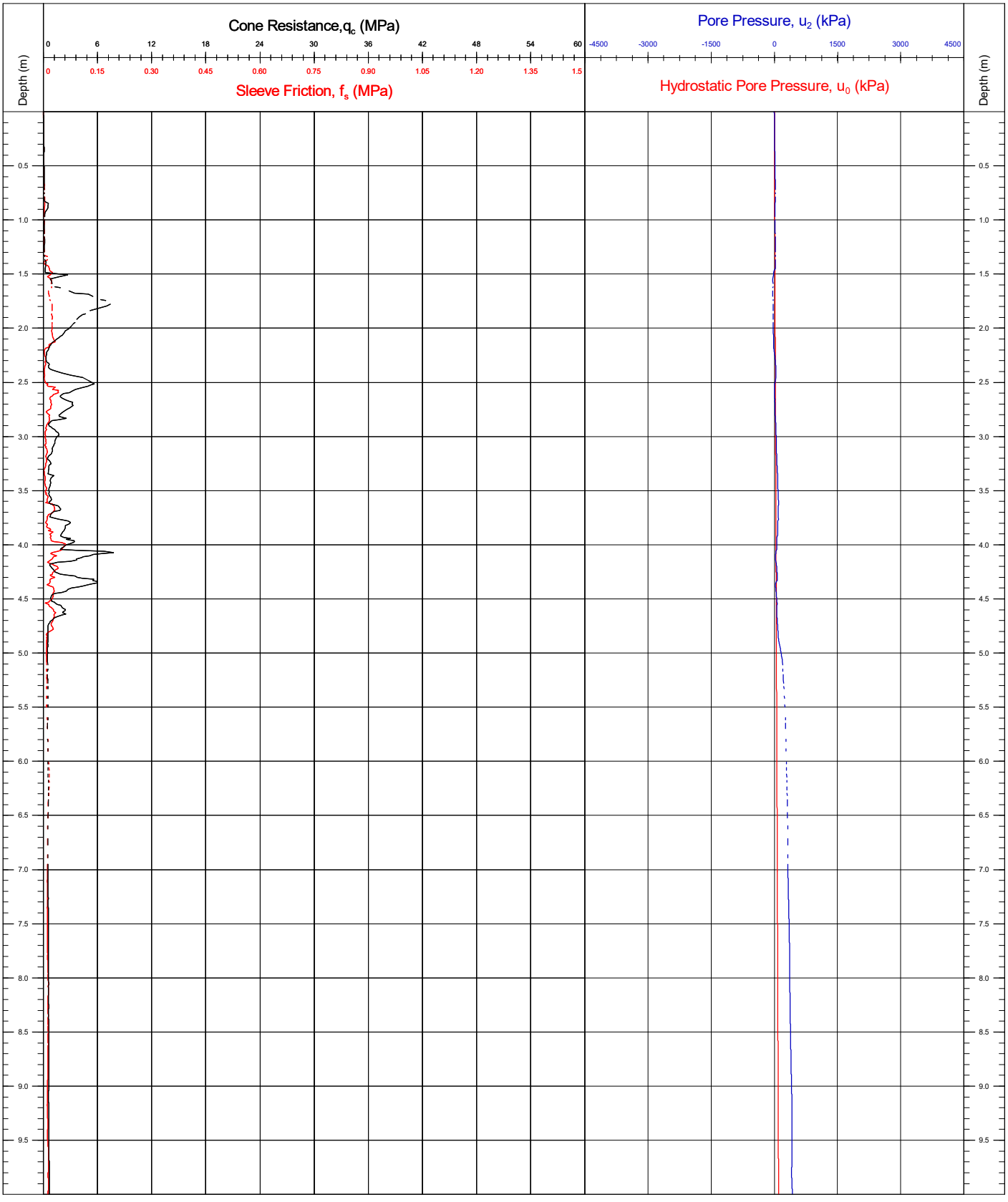
IN SITU CPTU TESTING - MEASURED PARAMETERS



Area	**Kattegat Sea**	Coordinates	**670639.50E 6262910.50N**	CPT Number	**CB13**
Contract	**11596**	Latitude / Longitude			
Client Name/Ref	**Energinet Eltransmission A/S/384_20_ENE**	Water Depth (mMSL)	**29.98**		
Vessel	**MV Ocean Vantage**	Date of Test	**30/04/2021**	Page: 4/4	
Comments: Cone class 1. Continuous seabed CPT. Final depth 33.83m. Test terminated at operators discretion due to high inclination and risk of rod bend		Cone No.(size)/α Factor	**181004 (10cm^2) / 0.81**	QC Status	
		Base Inclination	**X = 1.1° / Y = 1.0°**	Preliminary: **JK/BC** (30/04/2021)	Draft: **DR** (10/06/2021) / Final: **SMc** (10/11/2021)
		CRS **ETRS89**			

Preliminary Investigation, Hesselø OWF

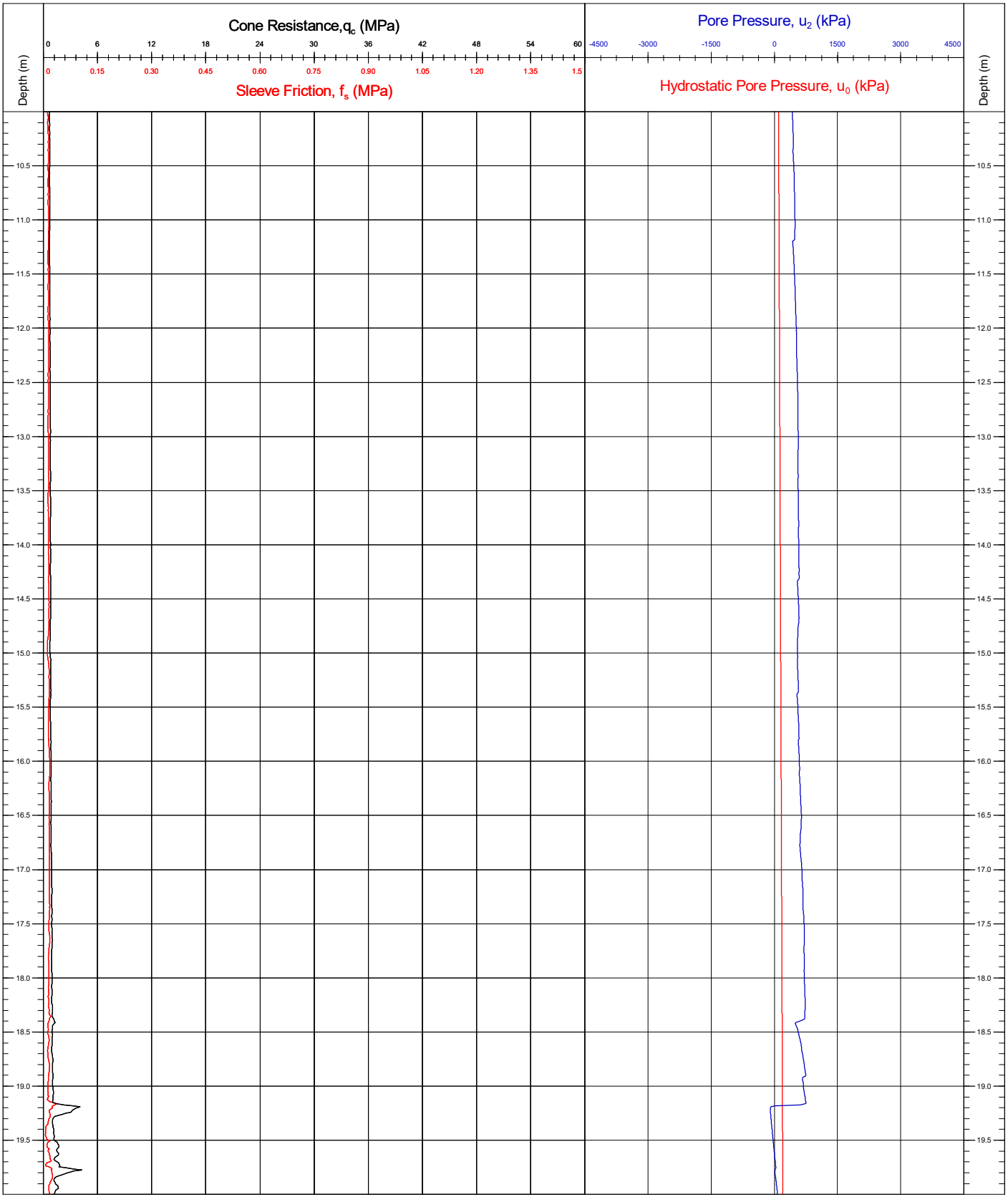
IN SITU CPTU TESTING - MEASURED PARAMETERS



Area	**Kattegat Sea**	Coordinates	**680529.90E** **6252844.10N**	CPT Number	**CB14**
Contract	**11596**	Latitude / Longitude			
Client Name/Ref	**Energinet Eltransmission A/S/384_20_ENE**	Water Depth (mMSL)	**31.63**		
Vessel	**MV Ocean Vantage**	Date of Test	**27/04/2021**	Page: 1/3	
Comments: Cone out of class. Continuous seabed CPT. Final depth 22.79m. Test terminated due to a sudden increase of more than 3 degrees of cone inclination		Cone No.(size)/α Factor	**100976 (10cm^2) / 0.78**	QC Status	
		Base Inclination	**X = 0.0° / Y = -0.1°**	Preliminary: **JK/BC** (27/04/2021)	Draft: **DR** (10/06/2021) / Final: **SMc** (10/11/2021)
		CRS **ETRS89**			

Preliminary Investigation, Hesselø OWF

IN SITU CPTU TESTING - MEASURED PARAMETERS

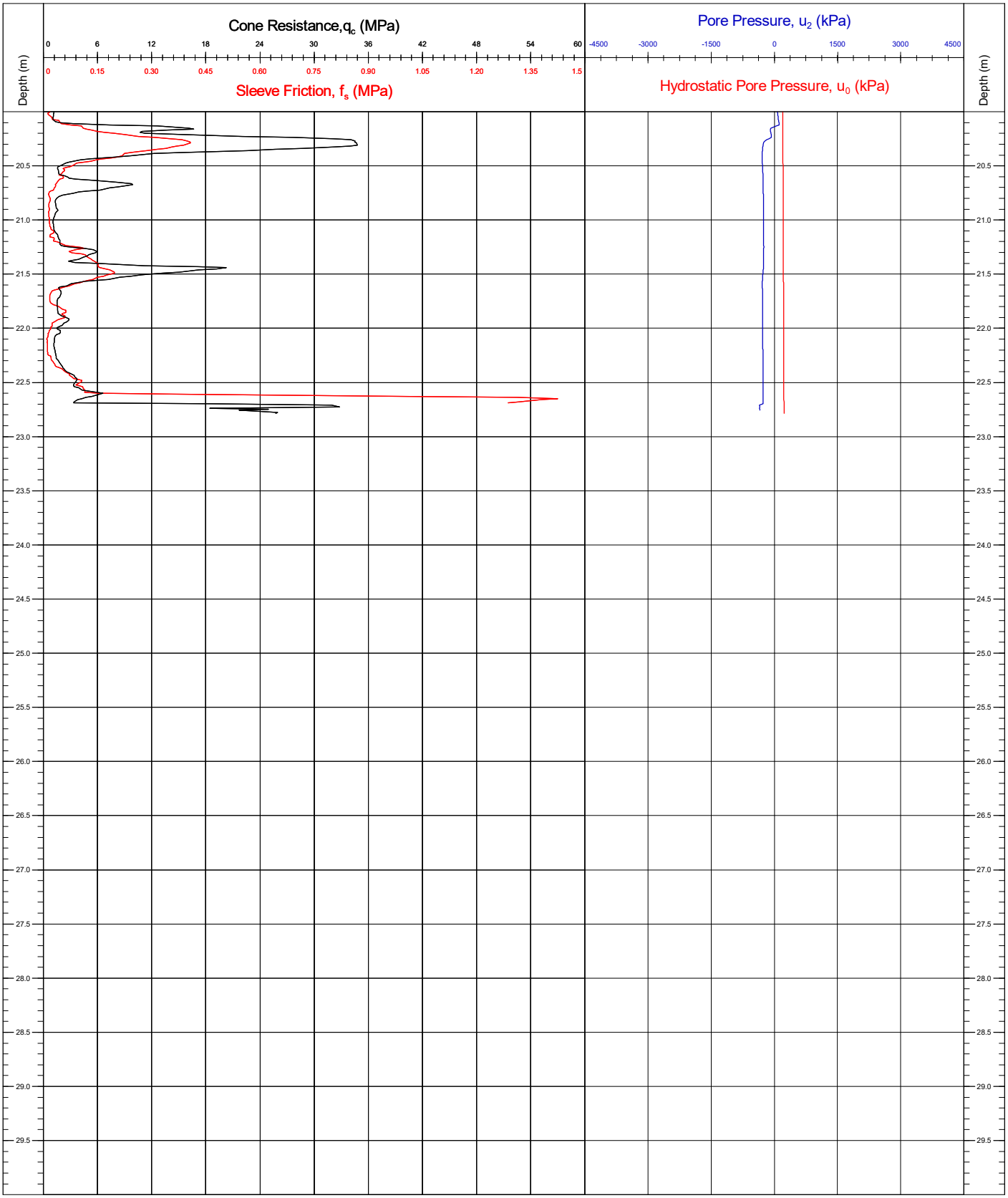


Area	**Kattegat Sea**	Coordinates	**680529.90E** **6252844.10N**	CPT Number	
Contract	**11596**	Latitude / Longitude		**CB14**	
Client Name/Ref	**Energinet Eltransmission A/S/384_20_ENE**	Water Depth (mMSL)	**31.63**		
Vessel	**MV Ocean Vantage**	Date of Test	**27/04/2021**	Page: 2/3	
		Cone No.(size)/α Factor	**100976 (10cm^2) / 0.78**	QC Status	
		Base Inclination	**X = 0.0° / Y = -0.1°**	Preliminary: **JK/BC** (27/04/2021)	Draft: **DR** (10/06/2021)
		CRS **ETRS89**			Final: **SMc** (10/11/2021)

Comments: Cone out of class. Continuous seabed CPT. Final depth 22.79m. Test terminated due to a sudden increase of more than 3 degrees of cone inclination

Preliminary Investigation, Hesselø OWF

IN SITU CPTU TESTING - MEASURED PARAMETERS

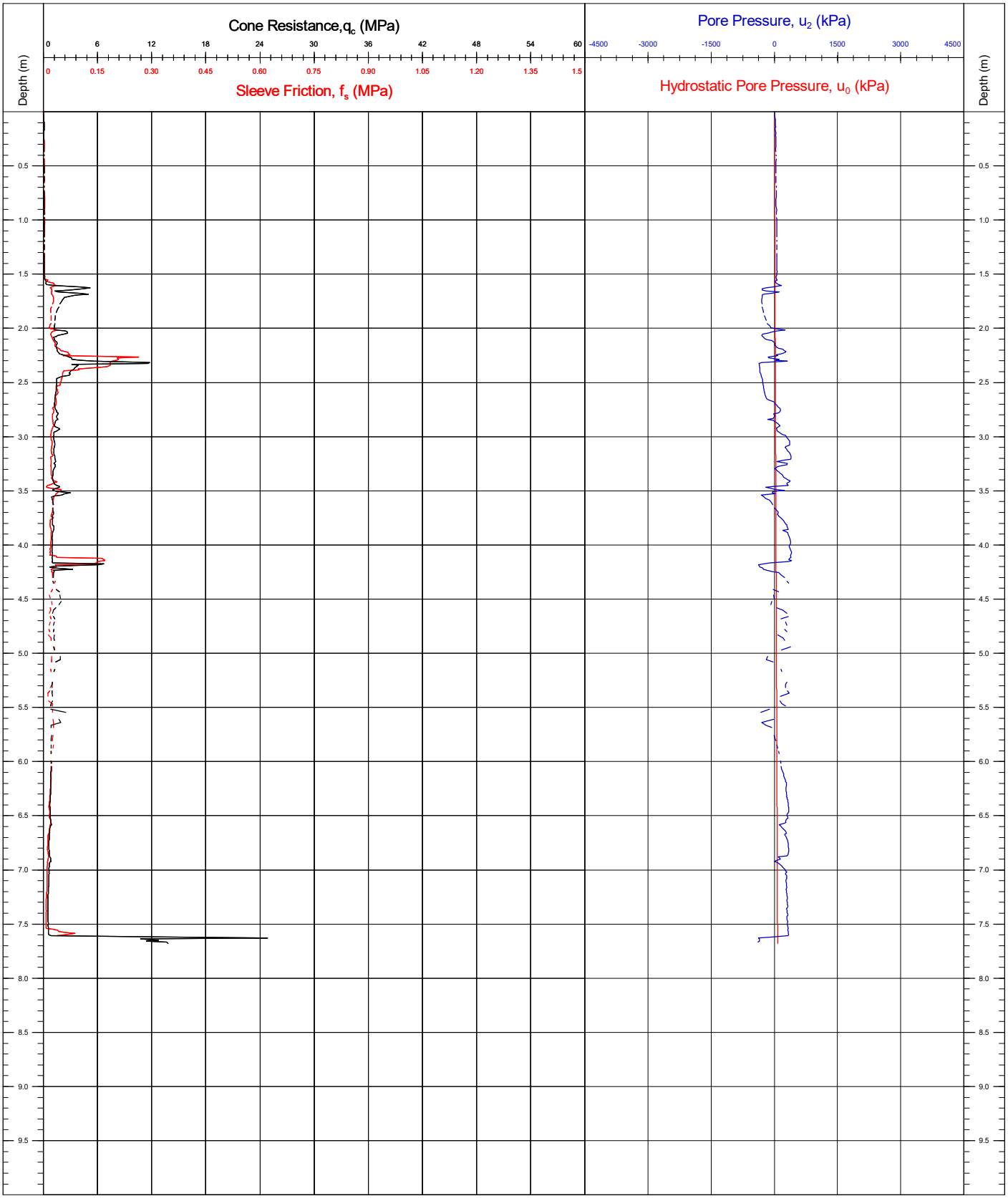


Area	**Kattegat Sea**	Coordinates	**680529.90E** **6252844.10N**	CPT Number	
Contract	**11596**	Latitude / Longitude		**CB14**	
Client Name/Ref	**Energinet Eltransmission A/S/384_20_ENE**	Water Depth (mMSL)	**31.63**		
Vessel	**MV Ocean Vantage**	Date of Test	**27/04/2021**	Page: 3/3	
		Cone No.(size)/α Factor	**100976 (10cm^2) / 0.78**	QC Status	
		Base Inclination	**X = 0.0° / Y = -0.1°**	Preliminary: **JK/BC** (27/04/2021)	Draft: **DR** (10/06/2021)
		CRS **ETRS89**			Final: **SMc** (10/11/2021)

Comments: Cone out of class. Continuous seabed CPT. Final depth 22.79m. Test terminated due to a sudden increase of more than 3 degrees of cone inclination

Preliminary Investigation, Hesselø OWF

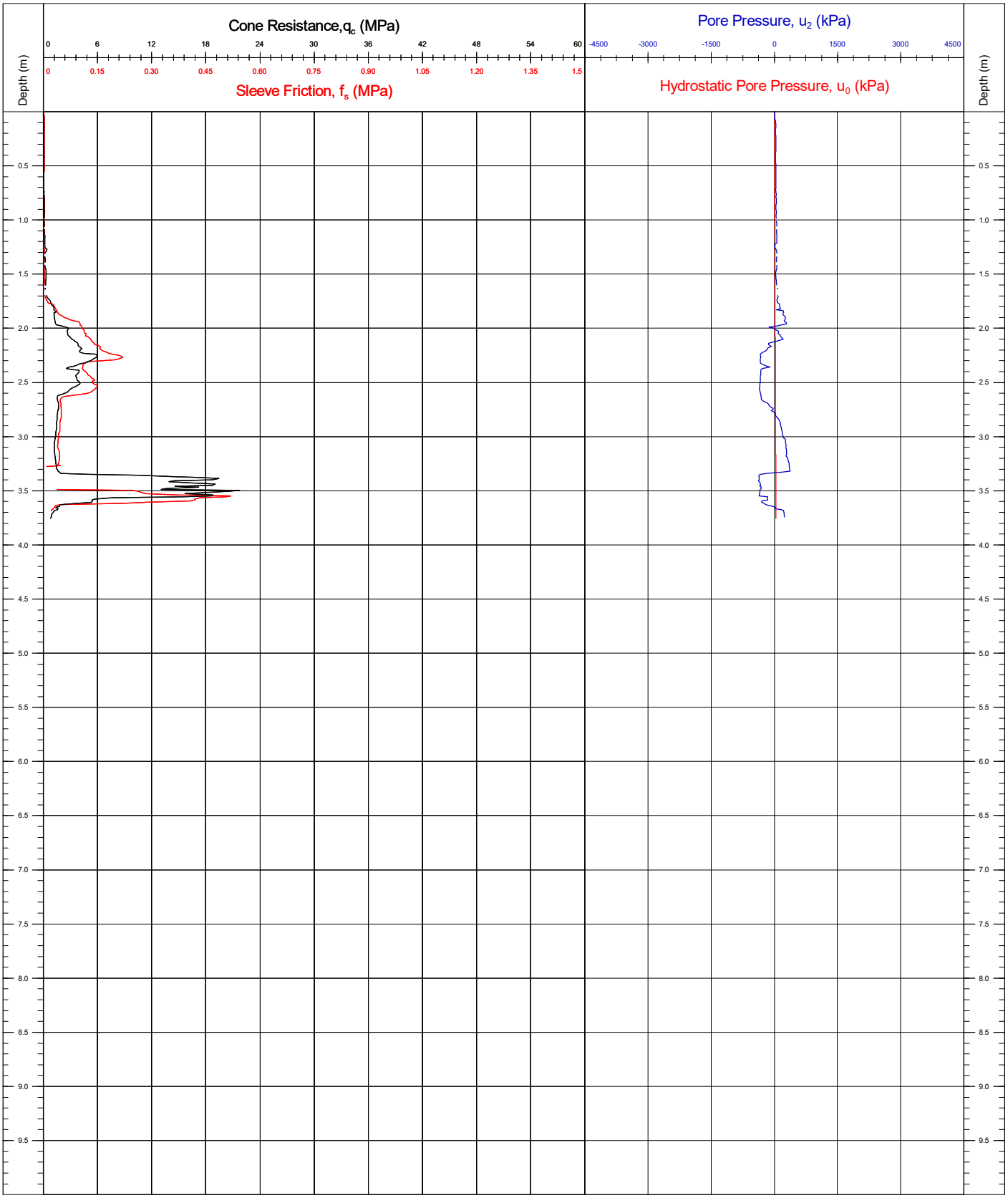
IN SITU CPTU TESTING - MEASURED PARAMETERS



Area	**Kattegat Sea**	Coordinates	**676134.10E** **6251059.50N**	CPT Number	**CPT3**
Contract	**11596**	Latitude / Longitude			
Client Name/Ref	**Energinet Eltransmission A/S/384_20_ENE**	Water Depth (mMSL)	**30.14**		
Vessel	**MV Ocean Vantage**	Date of Test	**27/04/2021**	Page: 1/1	
Comments: Cone class 2. Continuous seabed CPT. Final depth 7.68m. Test terminated due to a sudden increase of more than three degrees of cone inclination and increasing tip resistance		Cone No.(size)/α Factor	**130206 (10cm^2) / 0.77**	QC Status	
		Base Inclination	**X = 0.0° / Y = 0.0°**	Preliminary / Draft / Final	
		CRS **ETRS89**		**JK/BC** (27/04/2021) / **DR** (10/06/2021) / **SMc** (10/11/2021)	

Preliminary Investigation, Hesselø OWF

IN SITU CPTU TESTING - MEASURED PARAMETERS



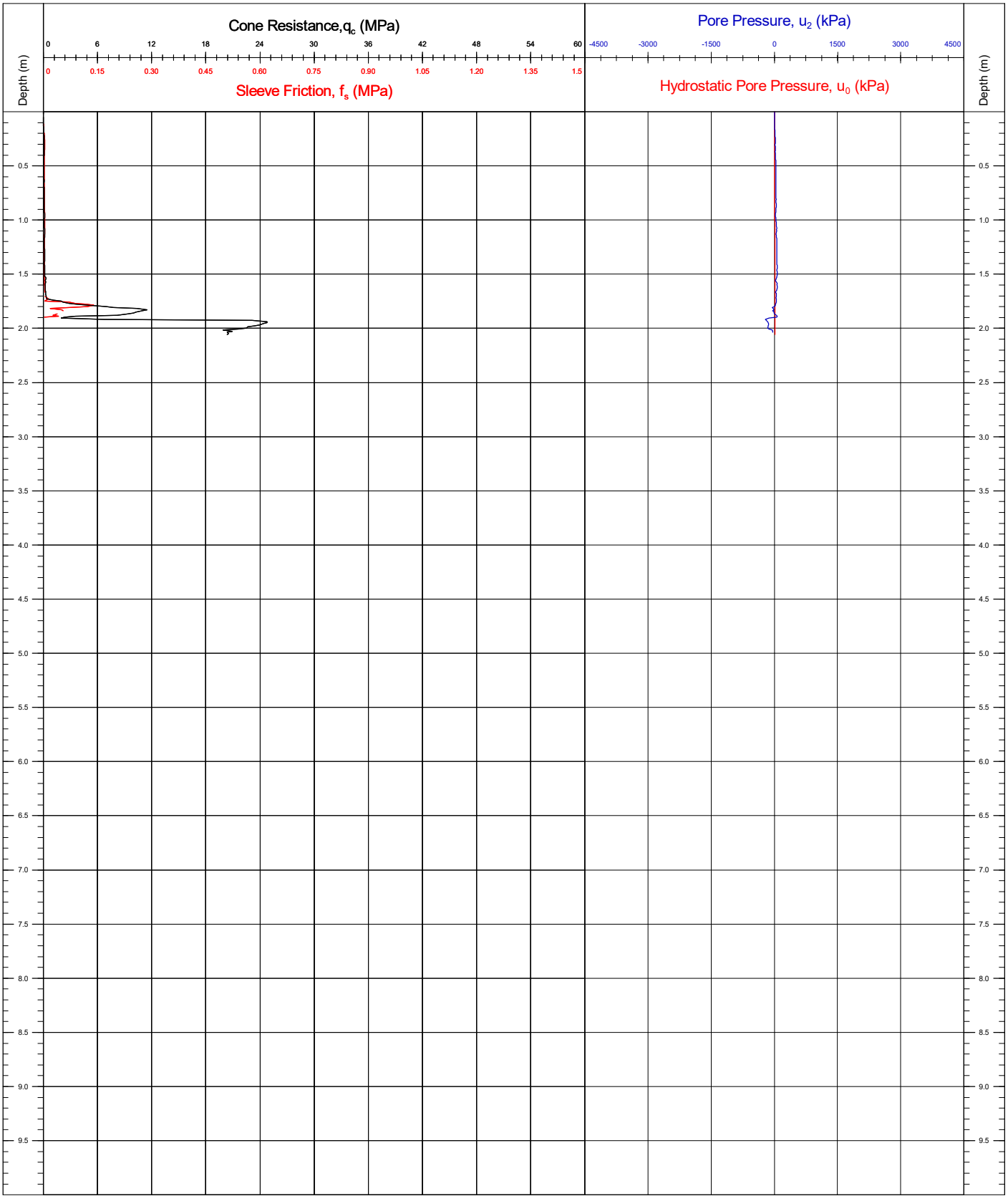
Area	**Kattegat Sea**	Coordinates	**676134.20E 6251054.30N**	CPT Number	**CPT3a**
Contract	**11596**	Latitude / Longitude			
Client Name/Ref	**Energinet Eltransmission A/S/384_20_ENE**	Water Depth (mMSL)	**30.17**		
Vessel	**MV Ocean Vantage**	Date of Test	**27/04/2021**	Page: 1/1	
		Cone No.(size)/α Factor	**181007 (10cm^2) / 0.72**	QC Status	
		Base Inclination	**X = 0.0° / Y = 0.0°**	Preliminary / Draft / Final	
		CRS **ETRS89**		**JK/BC** (27/04/2021) / **DR** (10/06/2021) / **SMc** (10/11/2021)	

Comments: Cone class 4. Bumpover location. Deck to deck offset readings are shared between 3a and 3b. Continuous seabed CPT. Final depth 3.55m. Test terminated due to a sudden increase of more than three degrees of cone inclination and increasing tip resistance

Gardline

Preliminary Investigation, Hesselø OWF

IN SITU CPTU TESTING - MEASURED PARAMETERS



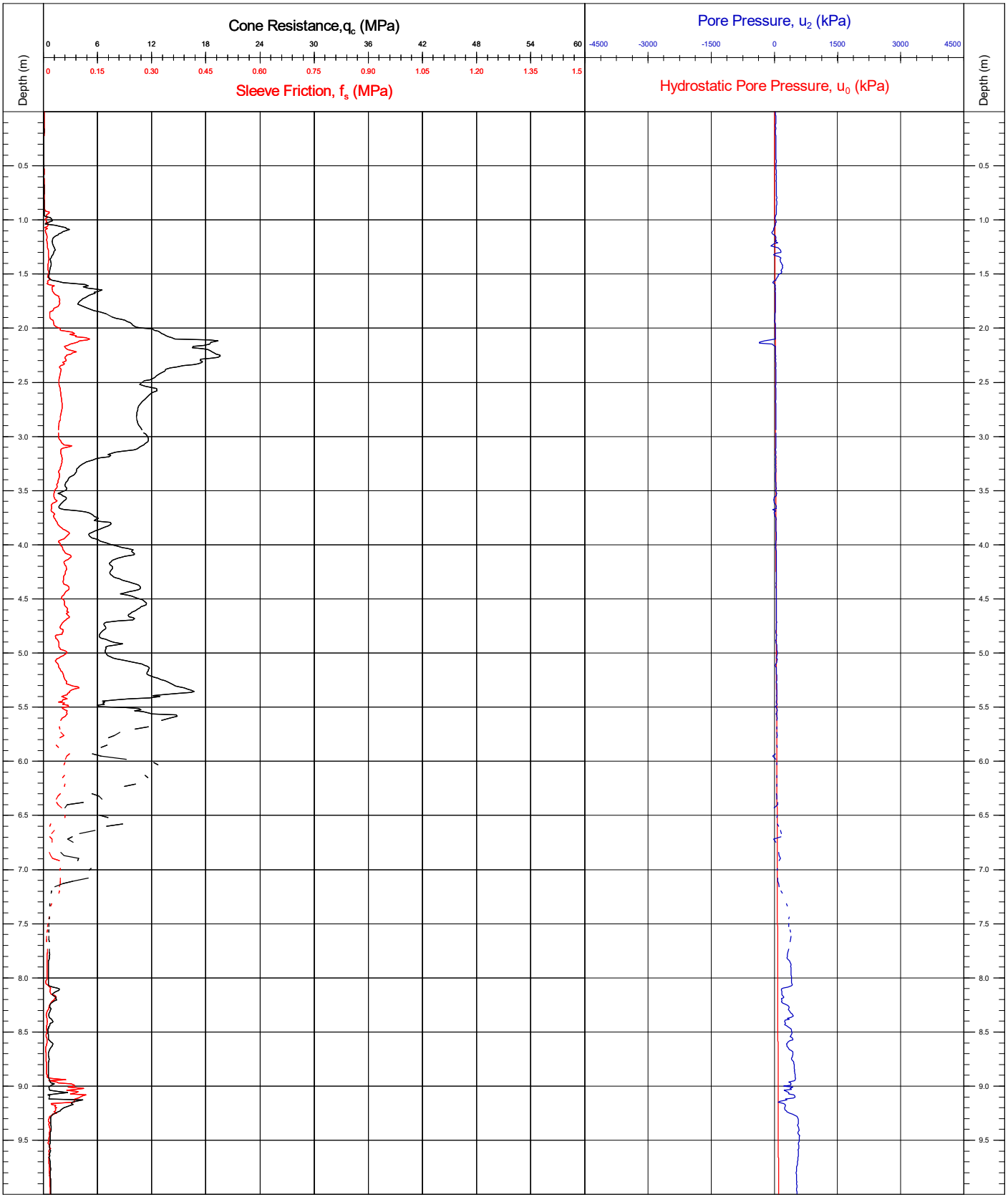
Area	**Kattegat Sea**	Coordinates	**676133.70E 6251066.70N**	CPT Number	**CPT3b**
Contract	**11596**	Latitude / Longitude			
Client Name/Ref	**Energinet Eltransmission A/S/384_20_ENE**	Water Depth (mMSL)	**30.15**		
Vessel	**MV Ocean Vantage**	Date of Test	**27/04/2021**	Page: 1/1	
		Cone No.(size)/α Factor	**181007 (10cm^2) / 0.72**	QC Status	
		Base Inclination	**X = 0.0° / Y = 0.0°**	Preliminary / Draft / Final	
		CRS **ETRS89**		**JK/BC** (27/04/2021) / **DR** (10/06/2021) / **SMc** (10/11/2021)	

Comments: Cone class 2. Continuous seabed CPT. Bumpover location. Final depth 1.96m. Deck to deck offsets are taken at a 5m reference level above seabed. Test terminated due to a sudden increase of more than three degrees of cone inclination and increasing tip resistance

Gardline

Preliminary Investigation, Hesselø OWF

IN SITU CPTU TESTING - MEASURED PARAMETERS

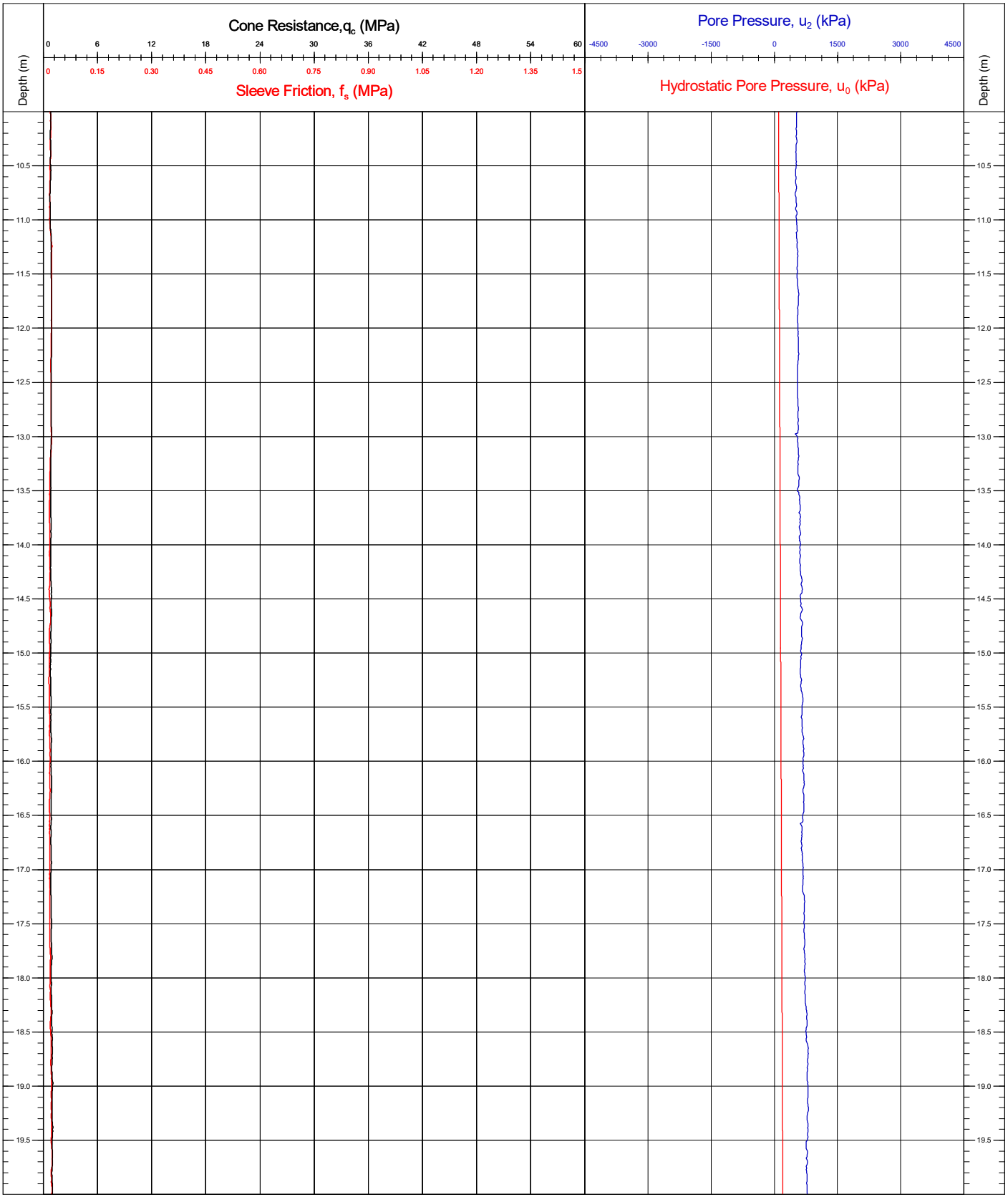


Area	**Kattegat Sea**	Coordinates	**679806.40E 6251702.40N**	CPT Number	**CPT4**
Contract	**11596**	Latitude / Longitude			
Client Name/Ref	**Energinet Eltransmission A/S/384_20_ENE**	Water Depth (mMSL)	**31.22**		
Vessel	**MV Ocean Vantage**	Date of Test	**27/04/2021**	Page: 1/4	
		Cone No.(size)/α Factor	**061040 (10cm^2) / 0.76**	QC Status	
		Base Inclination	**X = 0.0° / Y = 0.1°**	Preliminary: **JK/BC (27/04/2021)**	Draft: **DR (10/06/2021)**	Final: **SMc (10/11/2021)**
		CRS **ETRS89**			

Comments: Cone class 4. Continuous seabed CPT. Final depth 32.39m. Test was terminated at operators discretion due to increasing sleeve and to prevent damage to equipment

Preliminary Investigation, Hesselø OWF

IN SITU CPTU TESTING - MEASURED PARAMETERS

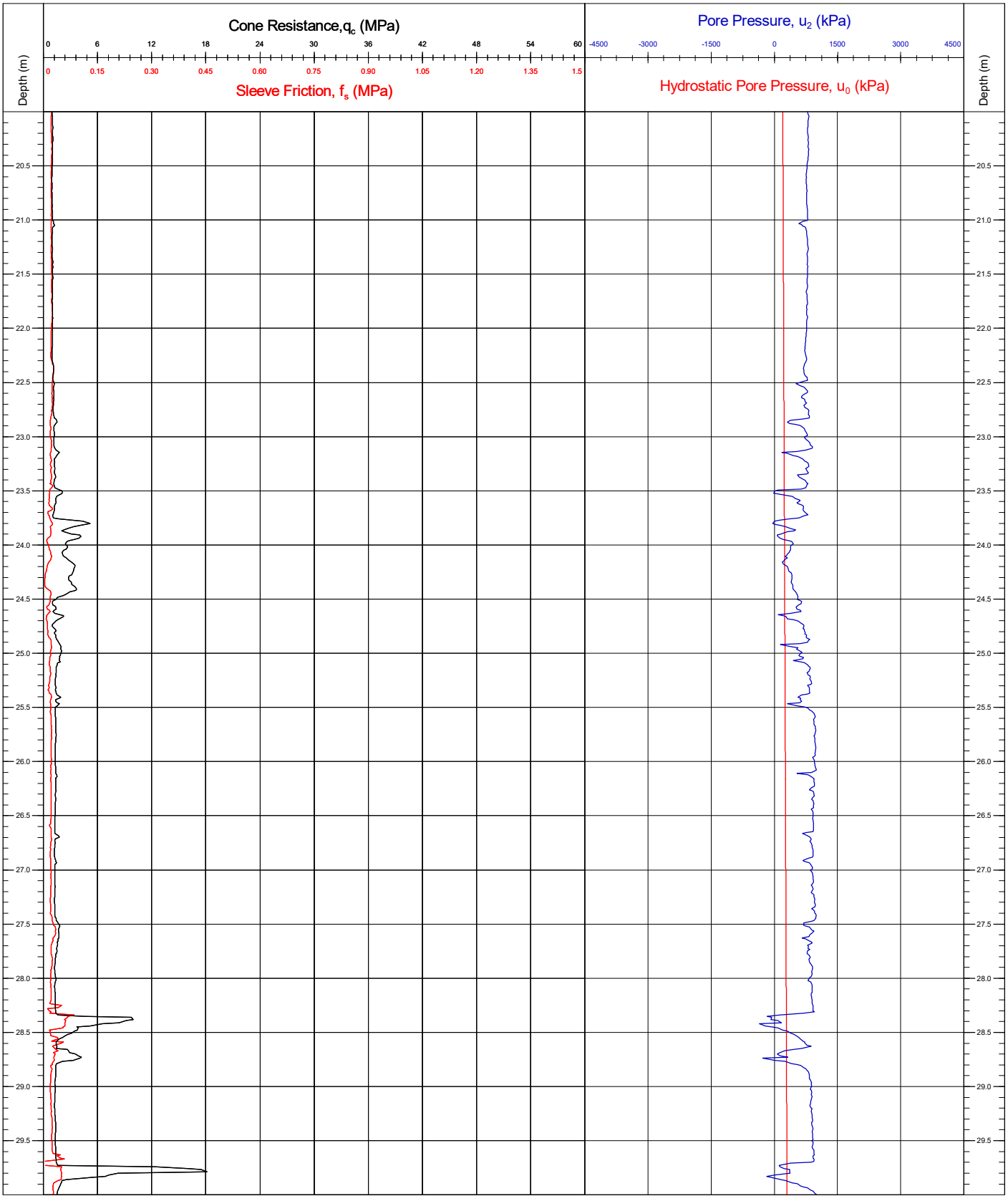


Area	**Kattegat Sea**	Coordinates	**679806.40E**	**6251702.40N**	CPT Number **CPT4**
Contract	**11596**	Latitude / Longitude			
Client Name/Ref	**Energinet Eltransmission A/S/384_20_ENE**	Water Depth (mMSL)	**31.22**		
Vessel	**MV Ocean Vantage**	Date of Test	**27/04/2021**		Page: 2/4
		Cone No.(size)/α Factor	**061040 (10cm^2) / 0.76**		QC Status
		Base Inclination	**X = 0.0° / Y = 0.1°**		Preliminary: **JK/BC (27/04/2021)** · Draft: **DR (10/06/2021)** · Final: **SMc (10/11/2021)**
		CRS	**ETRS89**		

Comments: Cone class 4. Continuous seabed CPT. Final depth 32.39m. Test was terminated at operators discretion due to increasing sleeve and to prevent damage to equipment

Preliminary Investigation, Hesselø OWF

IN SITU CPTU TESTING - MEASURED PARAMETERS

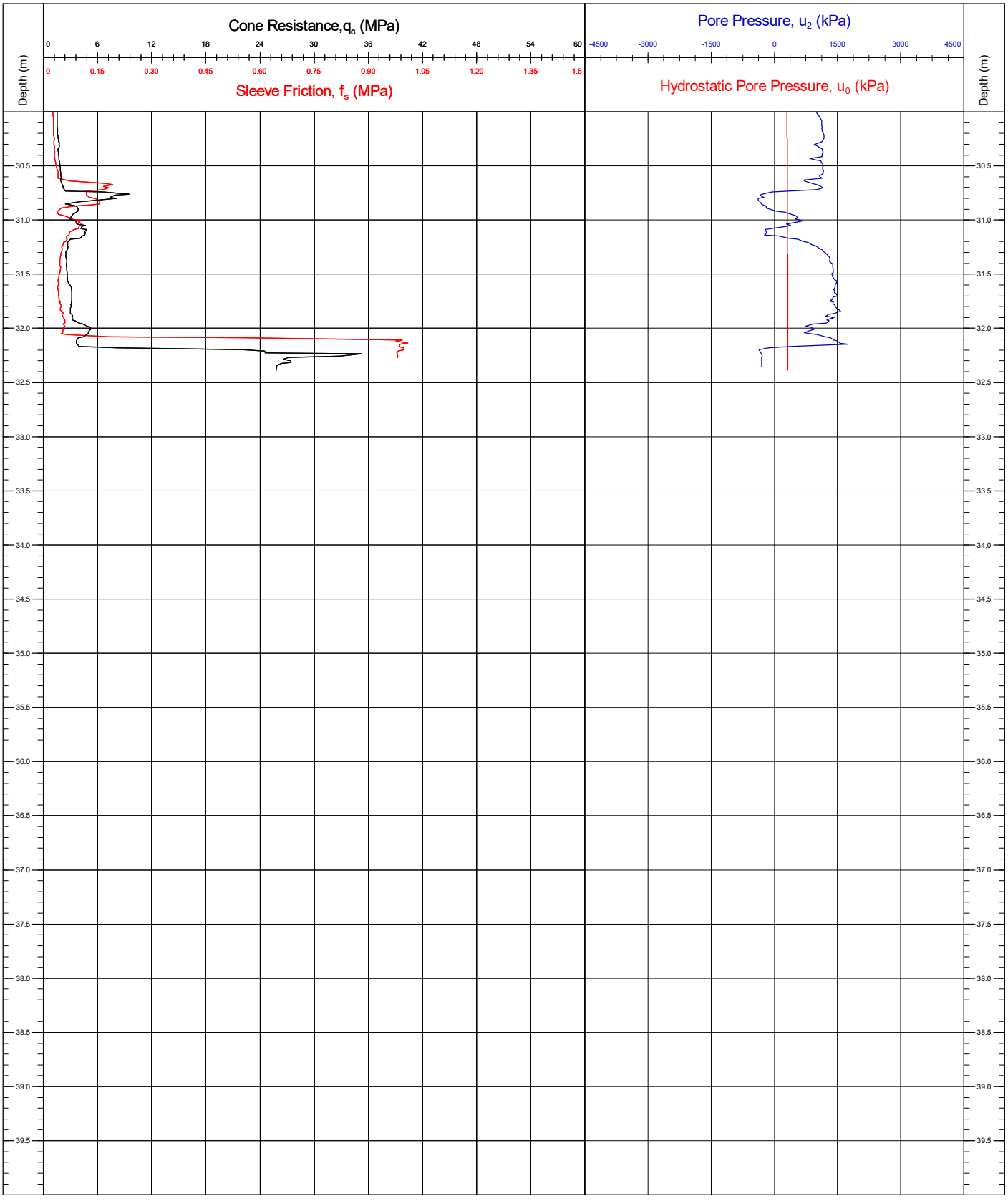


Area	**Kattegat Sea**	Coordinates	**679806.40E**	**6251702.40N**	CPT Number **CPT4**
Contract	**11596**	Latitude / Longitude			
Client Name/Ref	**Energinet Eltransmission A/S/384_20_ENE**	Water Depth (mMSL)	**31.22**		
Vessel	**MV Ocean Vantage**	Date of Test	**27/04/2021**		Page: 3/4
Comments: Cone class 4. Continuous seabed CPT. Final depth 32.39m. Test was terminated at operators discretion due to increasing sleeve and to prevent damage to equipment		Cone No.(size)/α Factor	**061040 (10cm^2) / 0.76**		QC Status
		Base Inclination	**X = 0.0° / Y = 0.1°**		Preliminary: **JK/BC** (27/04/2021) · Draft: **DR** (10/06/2021) · Final: **SMc** (10/11/2021)
		CRS	**ETRS89**		

Gardline

Preliminary Investigation, Hesselø OWF

IN SITU CPTU TESTING - MEASURED PARAMETERS

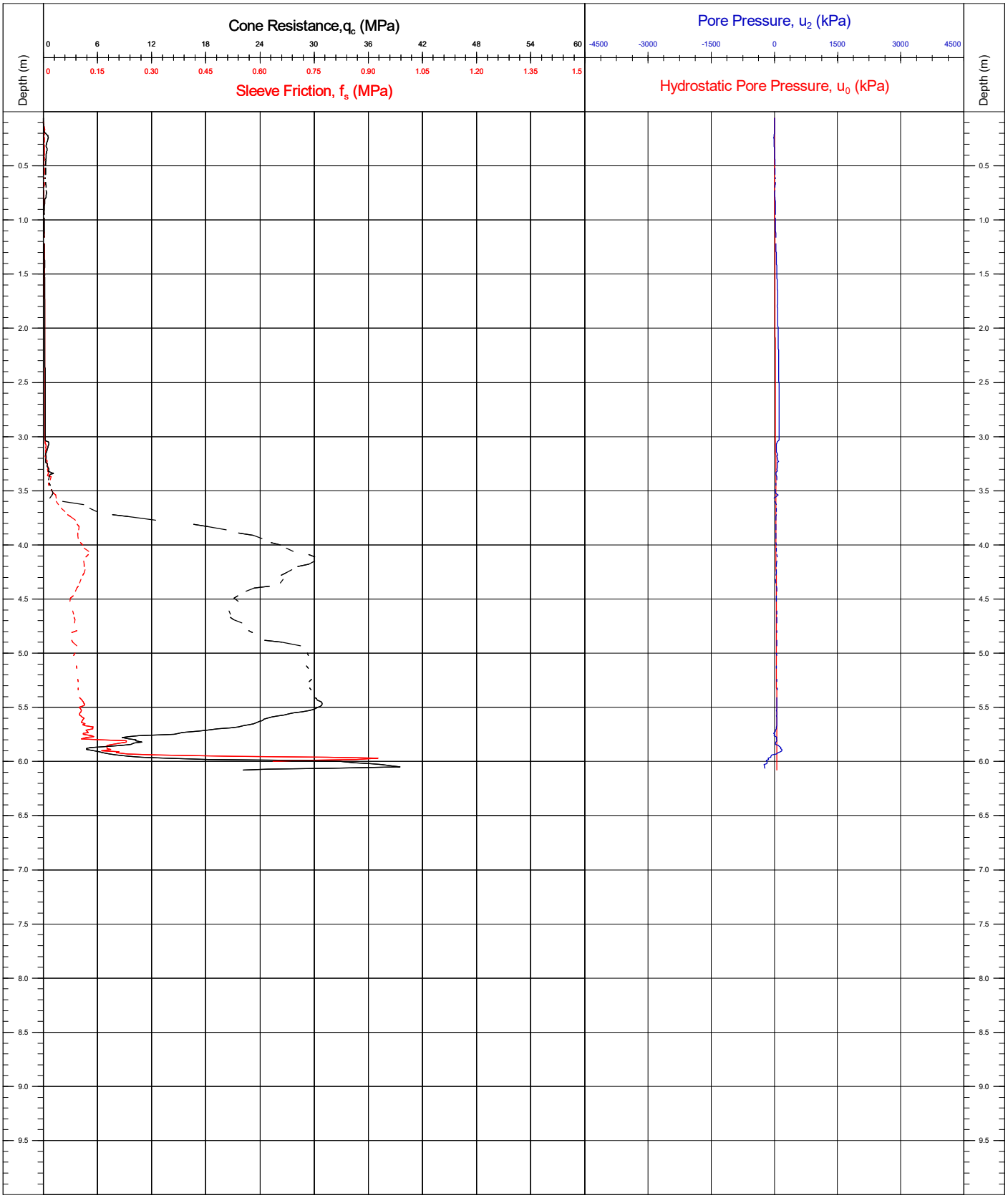


Area	**Kattegat Sea**	Coordinates	**679806.40E** **6251702.40N**	CPT Number	**CPT4**
Contract	**11596**	Latitude / Longitude			
Client Name/Ref	**Energinet Eltransmission A/S/384_20_ENE**	Water Depth (mMSL)	**31.22**		
Vessel	**MV Ocean Vantage**	Date of Test	**27/04/2021**	Page: 4/4	
		Cone No.(size)/α Factor	**061040 (10cm^2) / 0.76**	QC Status	
		Base Inclination	**X = 0.0° / Y = 0.1°**	Preliminary: **JK/BC** (27/04/2021)	Draft: **DR** (10/06/2021)
		CRS **ETRS89**			Final: **SMc** (10/11/2021)

Comments: Cone class 4. Continuous seabed CPT. Final depth 32.39m. Test was terminated at operators discretion due to increasing sleeve and to prevent damage to equipment

Preliminary Investigation, Hesselø OWF

IN SITU CPTU TESTING - MEASURED PARAMETERS

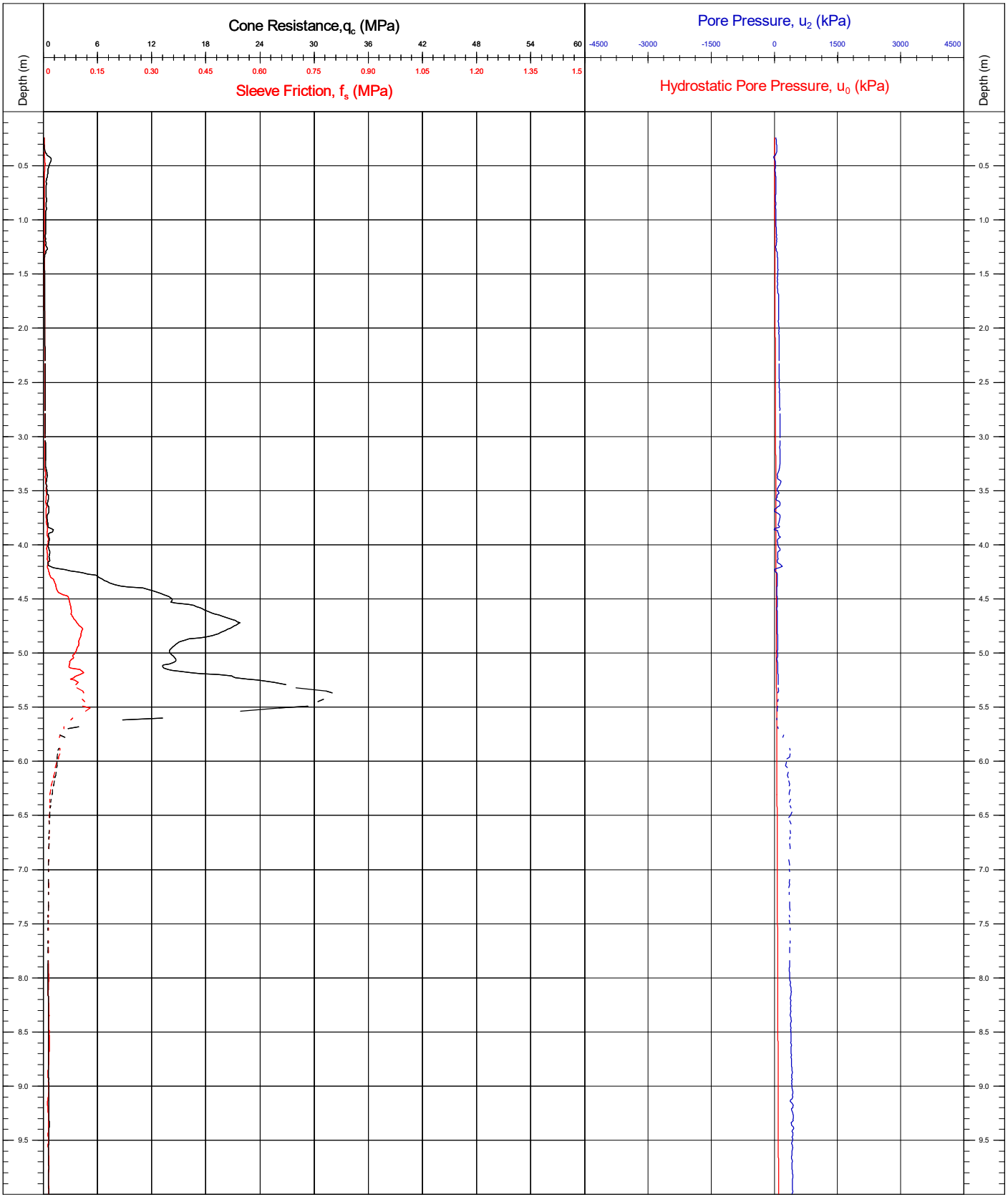


Area	**Kattegat Sea**	Coordinates	**668836.60E 6255857.70N**	CPT Number	**CPT6**
Contract	**11596**	Latitude / Longitude			
Client Name/Ref	**Energinet Eltransmission A/S/384_20_ENE**	Water Depth (mMSL)	**26.95**		
Vessel	**MV Ocean Vantage**	Date of Test	**29/04/2021**	Page: 1/1	
		Cone No.(size)/α Factor	**191114 (10cm^2) / 0.76**	QC Status	
		Base Inclination	**X = -0.3° / Y = 0.8°**	Preliminary: **JK/BC (29/04/2021)**	Draft: **DR (10/06/2021)**
		CRS **ETRS89**			Final: **SMc (10/11/2021)**

Comments: Cone class 2. Continuous seabed CPT. Final depth 6.06m. Test terminated at operators discretion due to sudden increase in sleeve friction and tip resistance

Preliminary Investigation, Hesselø OWF

IN SITU CPTU TESTING - MEASURED PARAMETERS

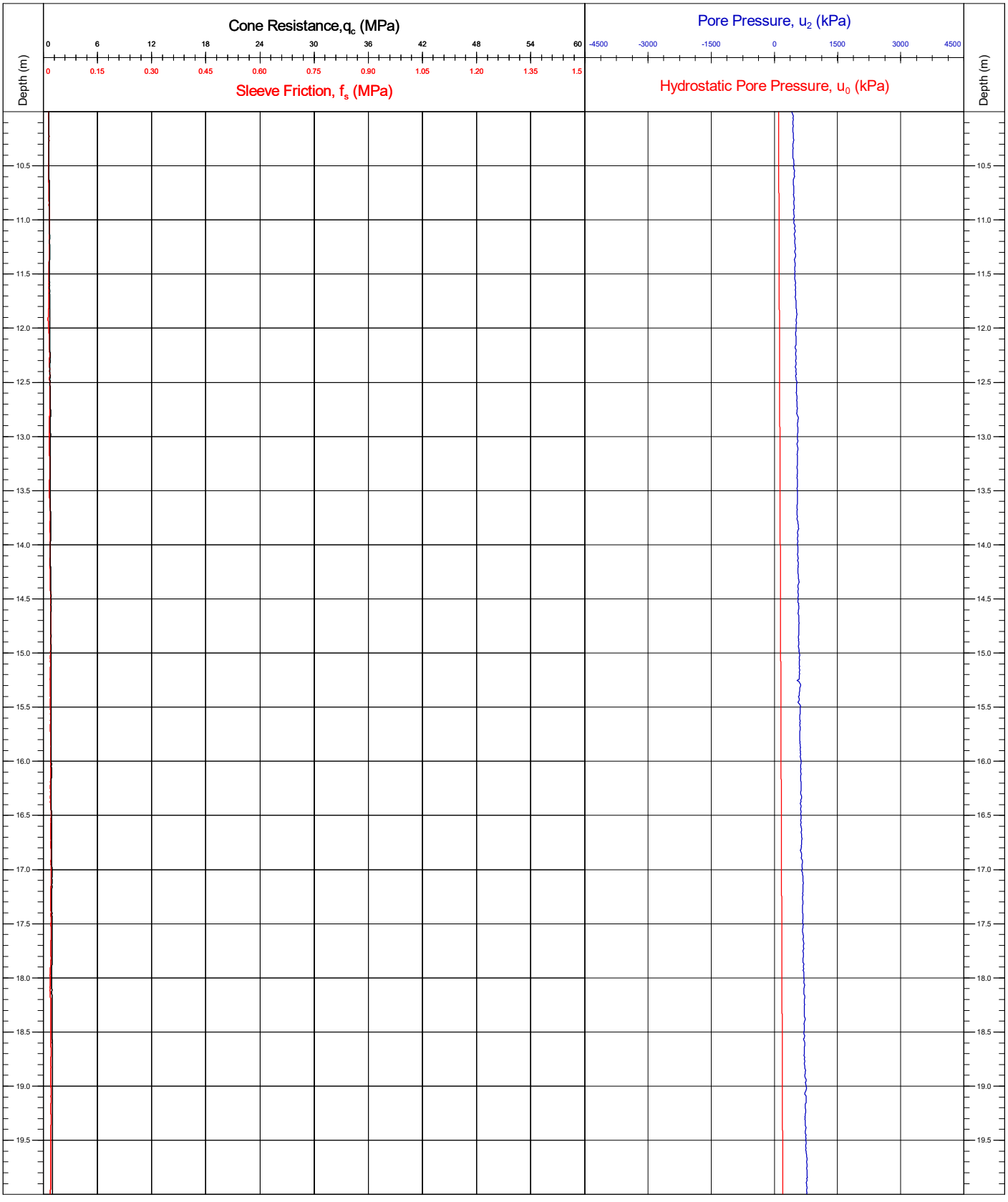


Area	**Kattegat Sea**	Coordinates	**668836.90E 6255852.50N**	CPT Number	**CPT6a**
Contract	**11596**	Latitude / Longitude			
Client Name/Ref	**Energinet Eltransmission A/S/384_20_ENE**	Water Depth (mMSL)	**26.93**		
Vessel	**MV Ocean Vantage**	Date of Test	**29/04/2021**	Page: 1/4	
		Cone No.(size)/α Factor	**120829 (10cm^2) / 0.8**	QC Status	
		Base Inclination	**X = 1.1° / Y = 1.0°**	Preliminary: **JK/BC** (29/04/2021)	Draft: **DR** (10/06/2021) / Final: **SMc** (10/11/2021)
		CRS **ETRS89**			

Comments: Cone class 4. Continuous seabed CPT. Final depth 36.80m. Test terminated at operators discretion due to increasing total load- tip resistance and lack of lateral rod support

Preliminary Investigation, Hesselø OWF

IN SITU CPTU TESTING - MEASURED PARAMETERS

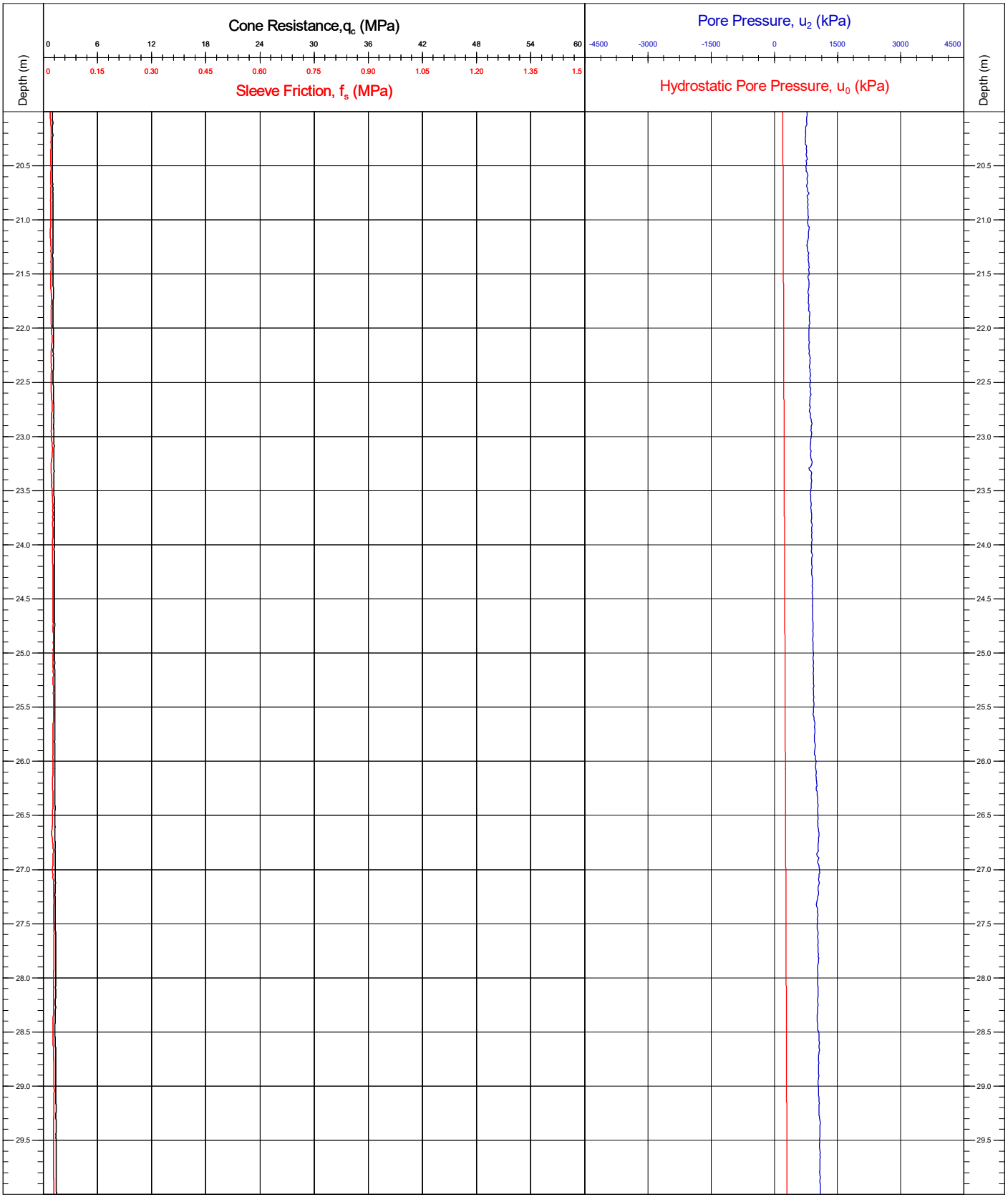


Area	**Kattegat Sea**	Coordinates	**668836.90E 6255852.50N**	CPT Number	**CPT6a**
Contract	**11596**	Latitude / Longitude			
Client Name/Ref	**Energinet Eltransmission A/S/384_20_ENE**	Water Depth (mMSL)	**26.93**		
Vessel	**MV Ocean Vantage**	Date of Test	**29/04/2021**	Page: 2/4	
		Cone No.(size)/α Factor	**120829 (10cm^2) / 0.8**	QC Status	
		Base Inclination	**X = 1.1° / Y = 1.0°**	Preliminary: **JK/BC (29/04/2021)**	Draft: **DR (10/06/2021)**
		CRS **ETRS89**			Final: **SMc (10/11/2021)**

Comments: Cone class 4. Continuous seabed CPT. Final depth 36.80m. Test terminated at operators discretion due to increasing total load- tip resistance and lack of lateral rod support

Preliminary Investigation, Hesselø OWF

IN SITU CPTU TESTING - MEASURED PARAMETERS

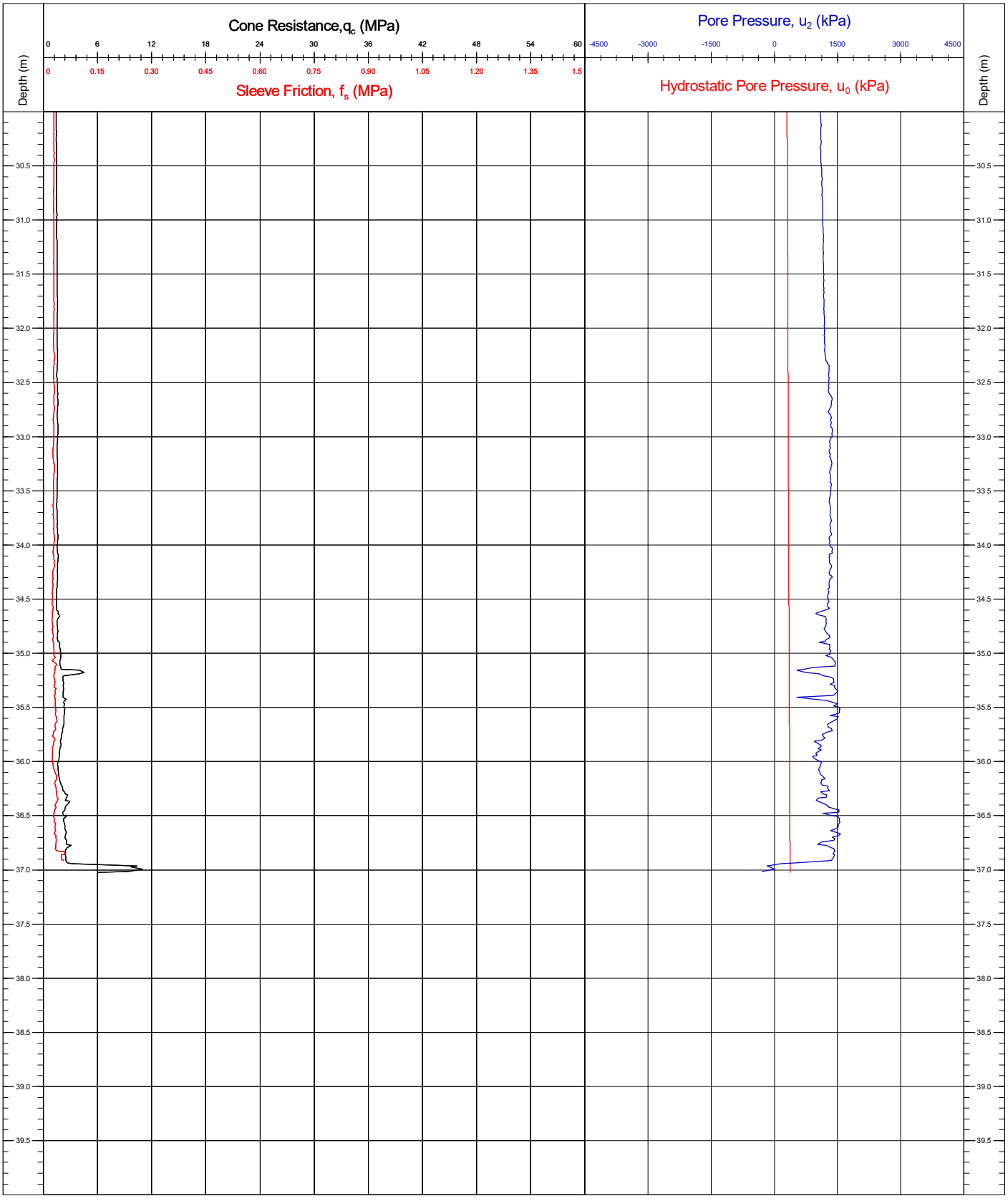


Area	**Kattegat Sea**	Coordinates	**668836.90E** **6255852.50N**	CPT Number	**CPT6a**
Contract	**11596**	Latitude / Longitude			
Client Name/Ref	**Energinet Eltransmission A/S/384_20_ENE**	Water Depth (mMSL)	**26.93**		
Vessel	**MV Ocean Vantage**	Date of Test	**29/04/2021**	Page: 3/4	
		Cone No.(size)/α Factor	**120829 (10cm^2) / 0.8**	QC Status	
		Base Inclination	**X = 1.1° / Y = 1.0°**	Preliminary: **JK/BC** (29/04/2021)	Draft: **DR** (10/06/2021)
		CRS **ETRS89**			Final: **SMc** (10/11/2021)

Comments: Cone class 4. Continuous seabed CPT. Final depth 36.80m. Test terminated at operators discretion due to increasing total load- tip resistance and lack of lateral rod support

Preliminary Investigation, Hesselø OWF

IN SITU CPTU TESTING - MEASURED PARAMETERS



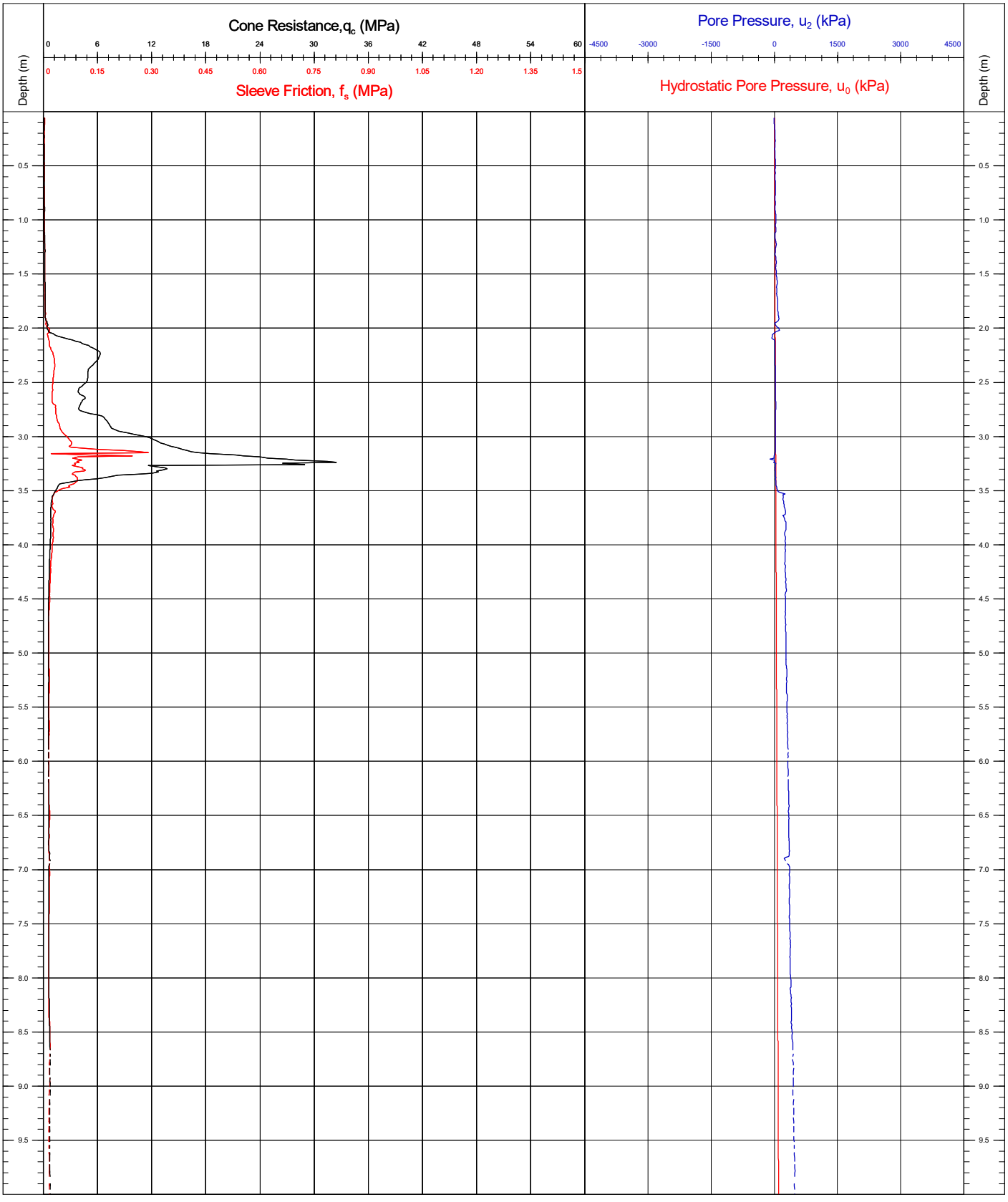
Area	**Kattegat Sea**	Coordinates	**668836.90E 6255852.50N**	CPT Number	**CPT6a**
Contract	**11596**	Latitude / Longitude			
Client Name/Ref	**Energinet Eltransmission A/S/384_20_ENE**	Water Depth (mMSL)	**26.93**		
Vessel	**MV Ocean Vantage**	Date of Test	**29/04/2021**	Page: 4/4	
		Cone No.(size)/α Factor	**120829 (10cm^2) / 0.8**	QC Status	
		Base Inclination	**X = 1.1° / Y = 1.0°**	Preliminary: **JK/BC** (29/04/2021)	Draft: **DR** (10/06/2021) / Final: **SMc** (10/11/2021)
		CRS **ETRS89**			

Comments: Cone class 4. Continuous seabed CPT. Final depth 36.80m. Test terminated at operators discretion due to increasing total load- tip resistance and lack of lateral rod support

Gardline

Preliminary Investigation, Hesselø OWF

IN SITU CPTU TESTING - MEASURED PARAMETERS

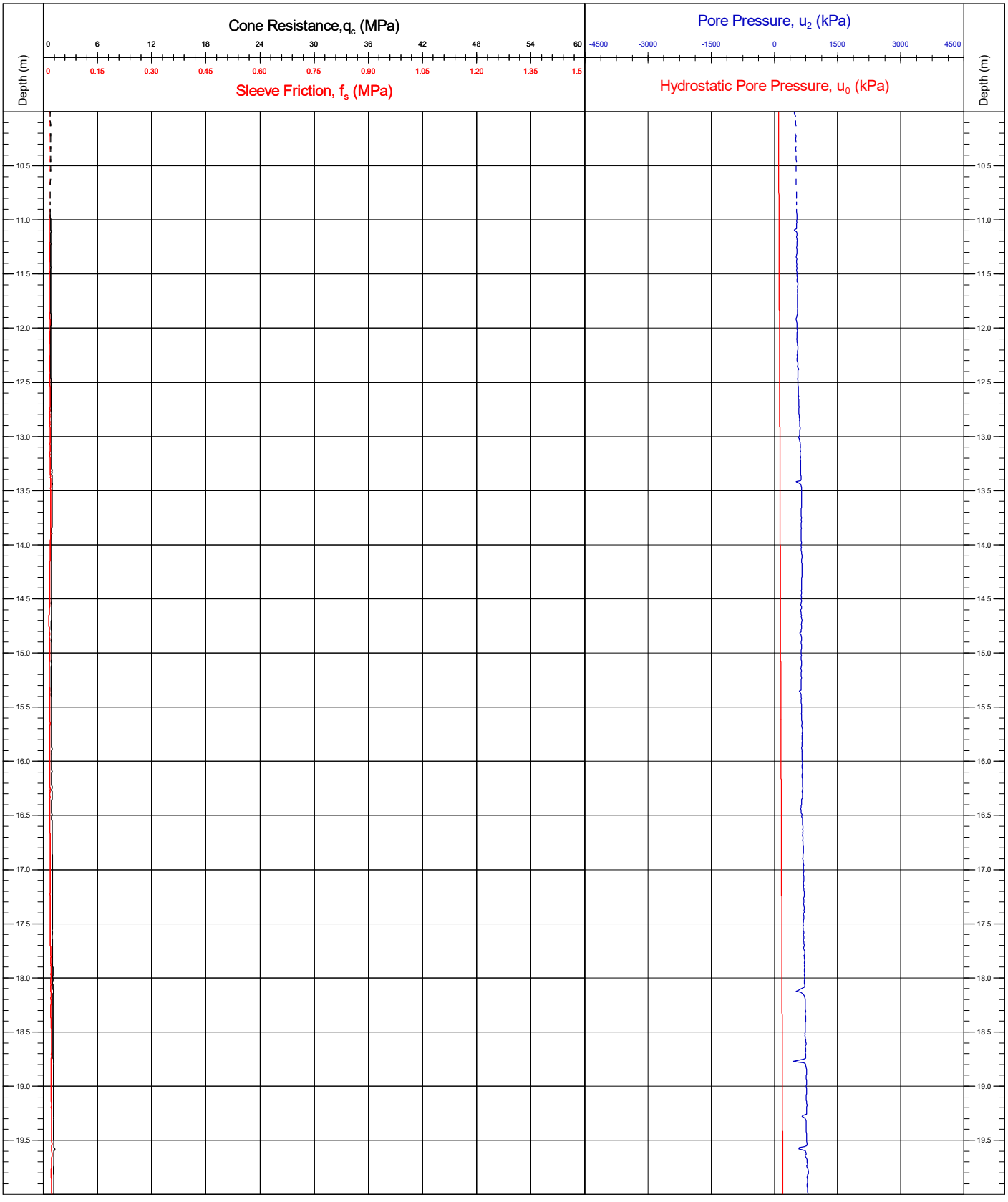


Area	**Kattegat Sea**	Coordinates	**671921.20E 6256092.00N**	CPT Number	**CPT7**
Contract	**11596**	Latitude / Longitude			
Client Name/Ref	**Energinet Eltransmission A/S/384_20_ENE**	Water Depth (mMSL)	**29.16**		
Vessel	**MV Ocean Vantage**	Date of Test	**29/04/2021**	Page: 1/4	
		Cone No.(size)/α Factor	**191114 (10cm^2) / 0.76**	QC Status	
		Base Inclination	**X = 0.0° / Y = 0.0°**	Preliminary: **JK/BC (29/04/2021)**	Draft: **DR (10/06/2021)**	Final: **SMc (10/11/2021)**
		CRS **ETRS89**			

Comments: Cone class 1. Continuous seabed CPT. Final depth 36.67m. Test terminated at operators discretion due to a sudden increase in tip resistance~ high total load and near maximum cone inclination of 11.59 degrees

Preliminary Investigation, Hesselø OWF

IN SITU CPTU TESTING - MEASURED PARAMETERS



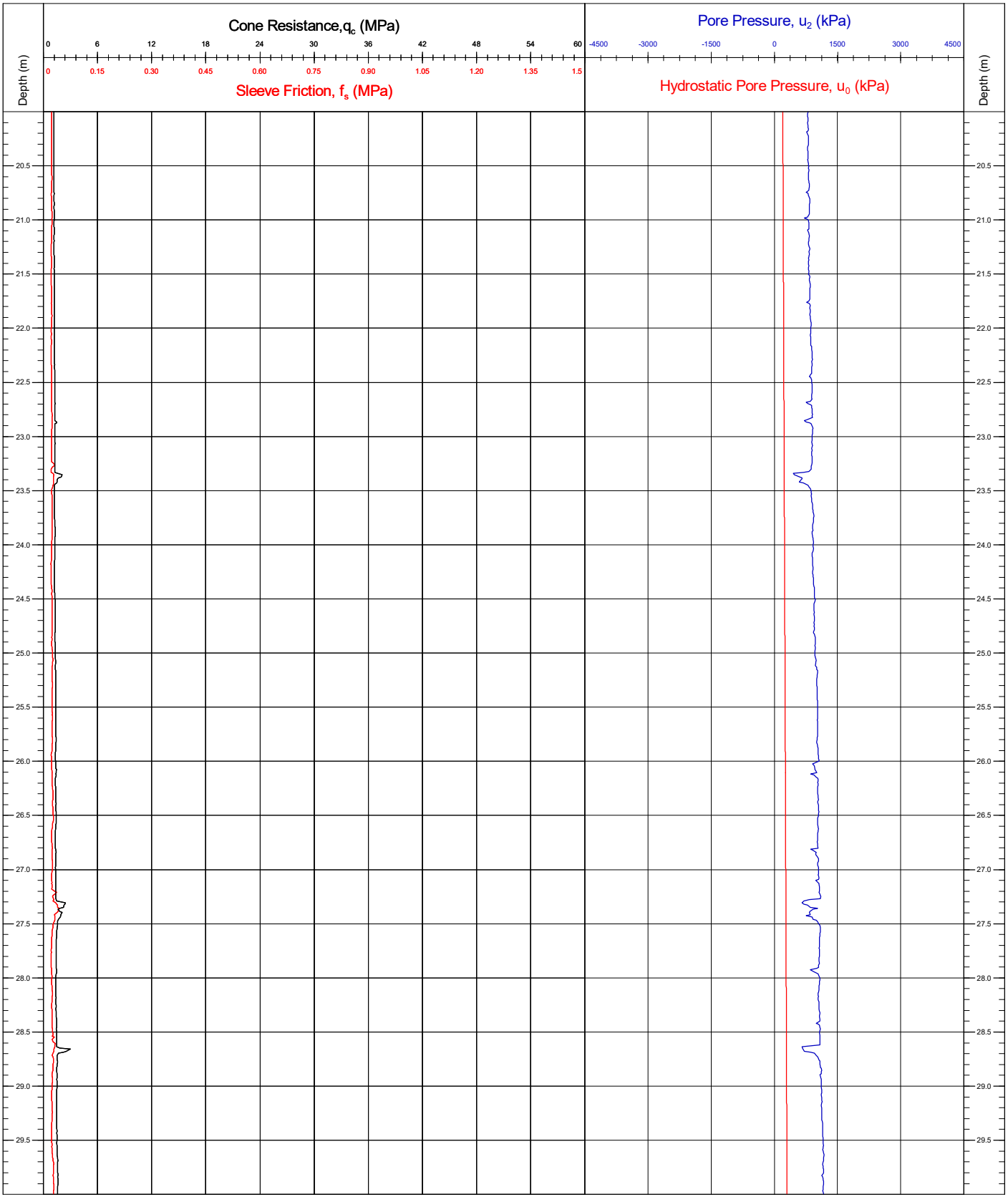
Area	**Kattegat Sea**	Coordinates	**671921.20E** **6256092.00N**	CPT Number	**CPT7**
Contract	**11596**	Latitude / Longitude			
Client Name/Ref	**Energinet Eltransmission A/S/384_20_ENE**	Water Depth (mMSL)	**29.16**		
Vessel	**MV Ocean Vantage**	Date of Test	**29/04/2021**	Page: 2/4	
		Cone No.(size)/α Factor	**191114 (10cm^2) / 0.76**	QC Status	
		Base Inclination	**X = 0.0° / Y = 0.0°**	Preliminary: **JK/BC** (29/04/2021)	Draft: **DR** (10/06/2021)
		CRS **ETRS89**			Final: **SMc** (10/11/2021)

Comments: Cone class 1. Continuous seabed CPT. Final depth 36.67m. Test terminated at operators discretion due to a sudden increase in tip resistance~ high total load and near maximum cone inclination of 11.59 degrees

Gardline

Preliminary Investigation, Hesselø OWF

IN SITU CPTU TESTING - MEASURED PARAMETERS

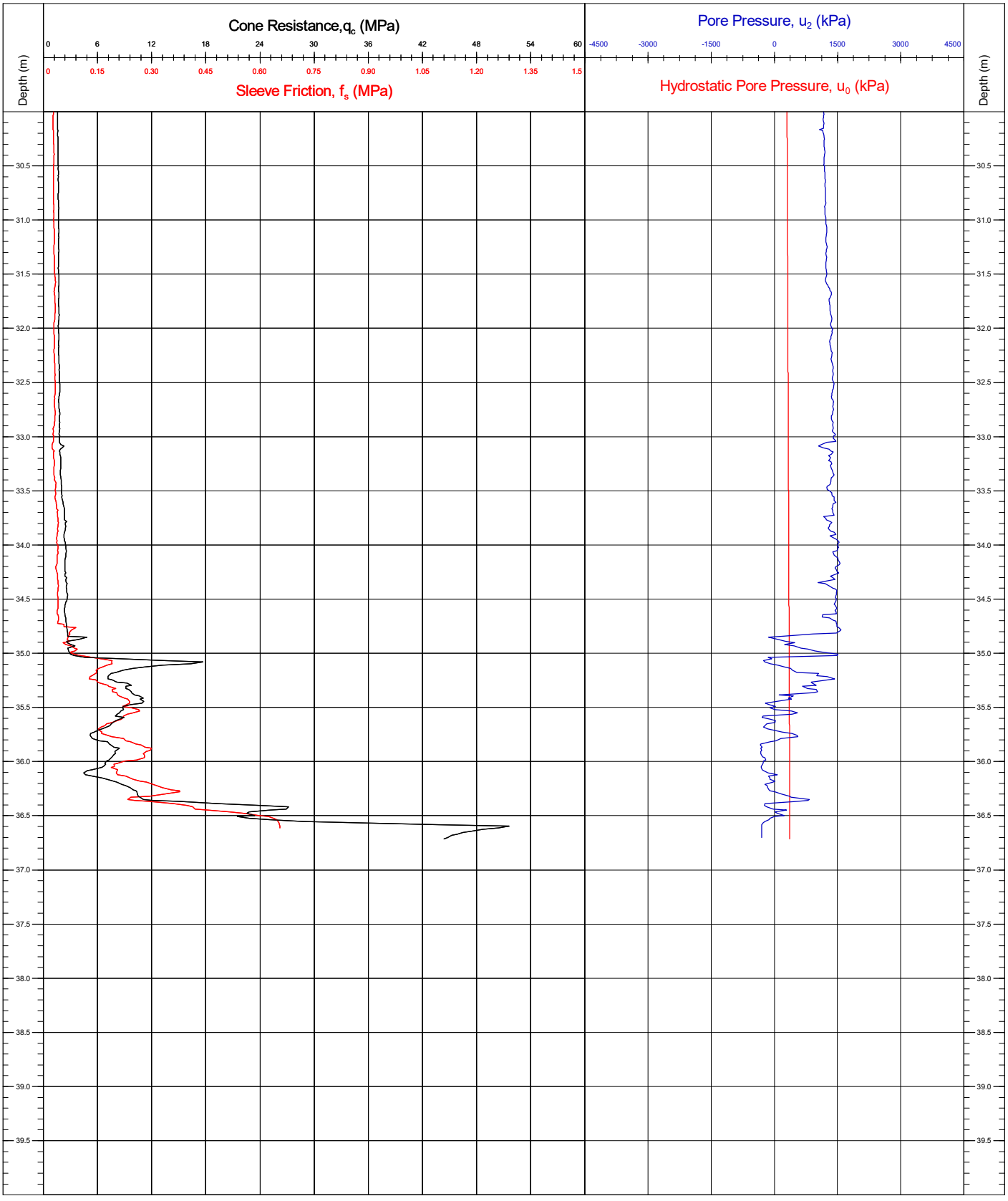


Area	**Kattegat Sea**	Coordinates	**671921.20E** **6256092.00N**	CPT Number	**CPT7**
Contract	**11596**	Latitude / Longitude			
Client Name/Ref	**Energinet Eltransmission A/S/384_20_ENE**	Water Depth (mMSL)	**29.16**		
Vessel	**MV Ocean Vantage**	Date of Test	**29/04/2021**	Page: 3/4	
		Cone No.(size)/α Factor	**191114 (10cm^2) / 0.76**	QC Status	
		Base Inclination	**X = 0.0° / Y = 0.0°**	Preliminary: **JK/BC** (29/04/2021)	Draft: **DR** (10/06/2021)
		CRS **ETRS89**			Final: **SMc** (10/11/2021)

Comments: Cone class 1. Continuous seabed CPT. Final depth 36.67m. Test terminated at operators discretion due to a sudden increase in tip resistance~ high total load and near maximum cone inclination of 11.59 degrees

Preliminary Investigation, Hesselø OWF

IN SITU CPTU TESTING - MEASURED PARAMETERS

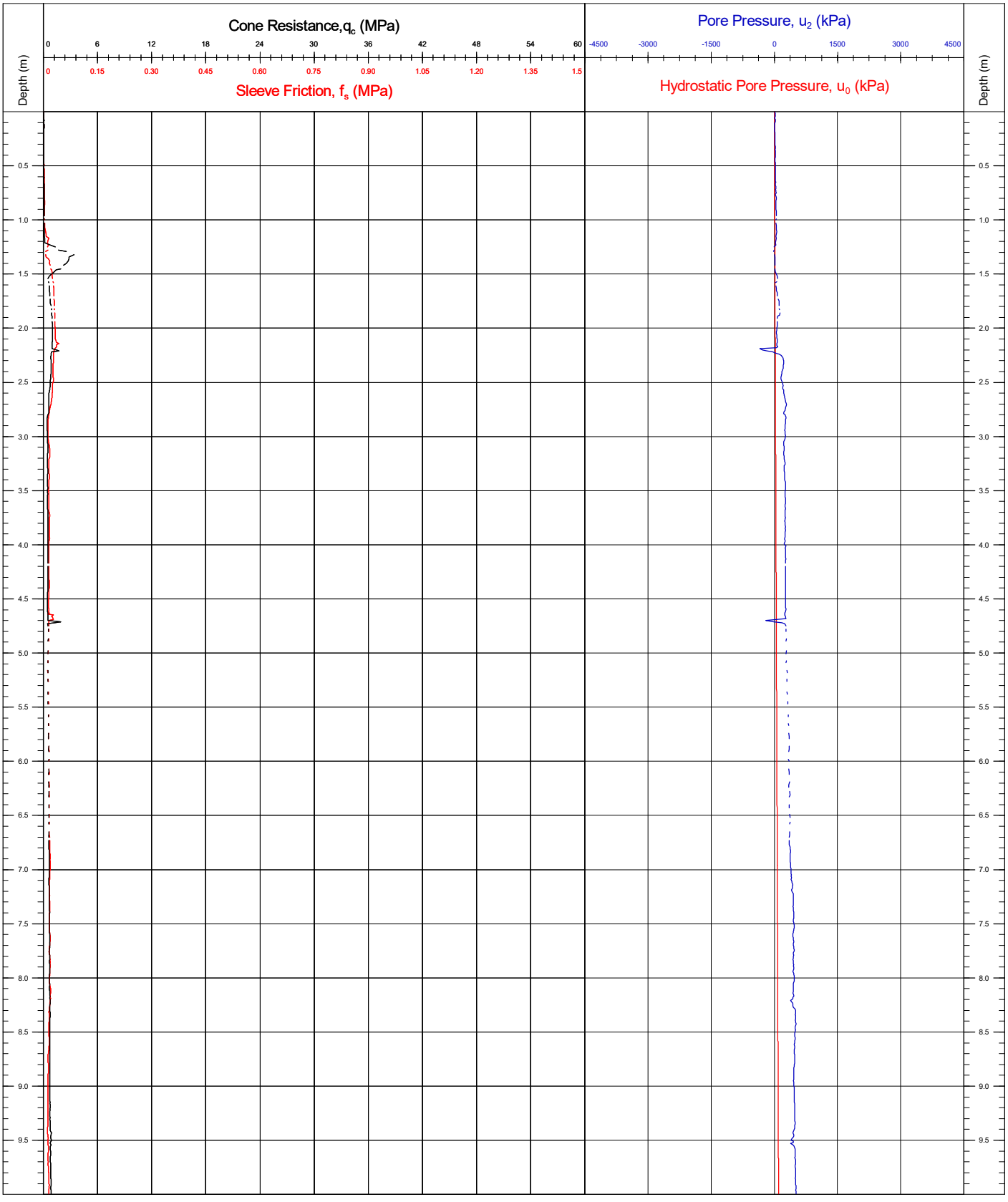


Area	**Kattegat Sea**	Coordinates	**671921.20E 6256092.00N**	CPT Number	**CPT7**
Contract	**11596**	Latitude / Longitude			
Client Name/Ref	**Energinet Eltransmission A/S/384_20_ENE**	Water Depth (mMSL)	**29.16**		
Vessel	**MV Ocean Vantage**	Date of Test	**29/04/2021**	Page: 4/4	
		Cone No.(size)/α Factor	**191114 (10cm^2) / 0.76**	QC Status	
		Base Inclination	**X = 0.0° / Y = 0.0°**	Preliminary: **JK/BC (29/04/2021)**	Draft: **DR (10/06/2021)**	Final: **SMc (10/11/2021)**
		CRS **ETRS89**			

Comments: Cone class 1. Continuous seabed CPT. Final depth 36.67m. Test terminated at operators discretion due to a sudden increase in tip resistance~ high total load and near maximum cone inclination of 11.59 degrees

Preliminary Investigation, Hesselø OWF

IN SITU CPTU TESTING - MEASURED PARAMETERS

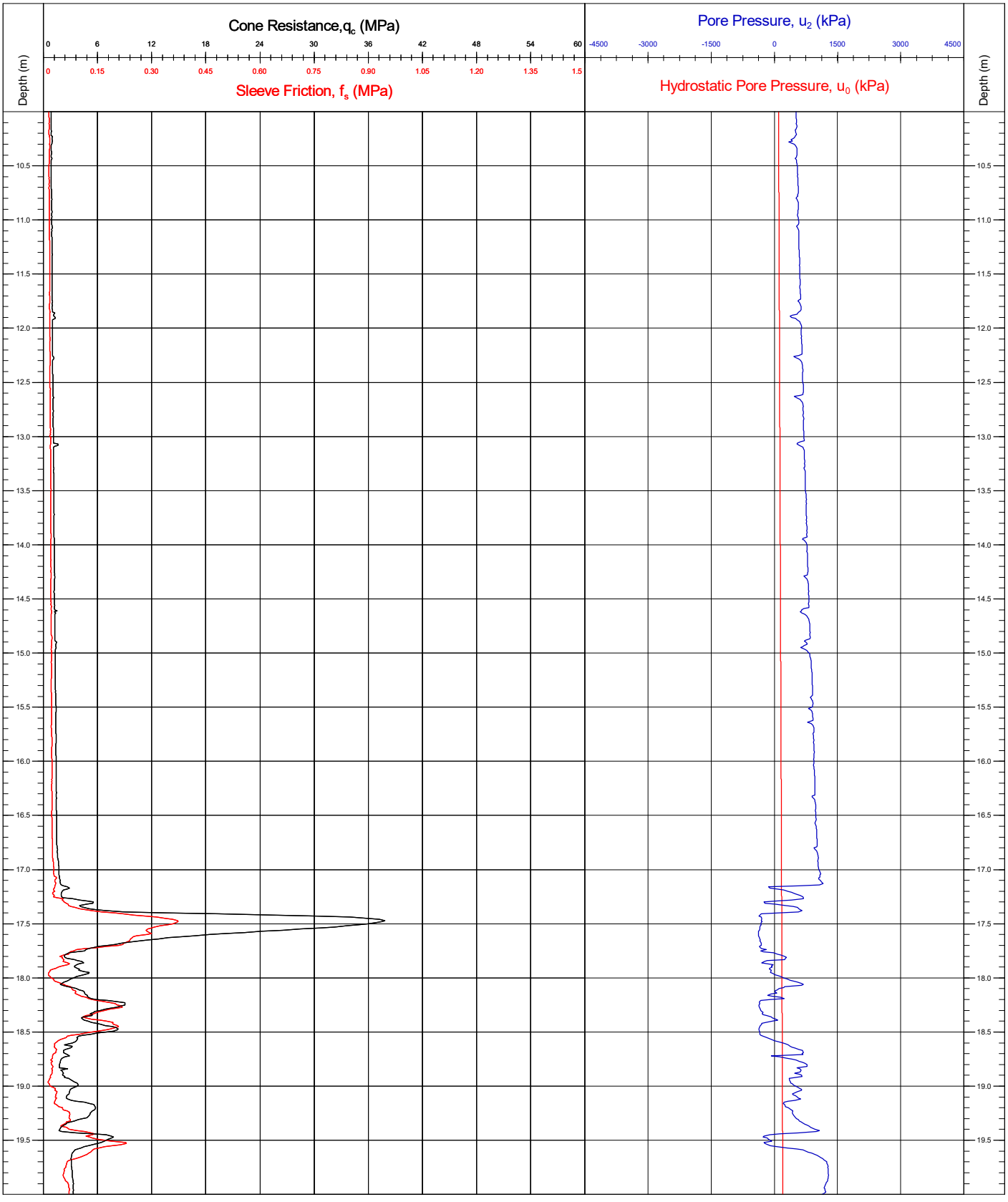


Area	**Kattegat Sea**	Coordinates	**674879.50E**	**6255586.40N**	CPT Number **CPT8**
Contract	**11596**	Latitude / Longitude			
Client Name/Ref	**Energinet Eltransmission A/S/384_20_ENE**	Water Depth (mMSL)	**30.62**		
Vessel	**MV Ocean Vantage**	Date of Test	**27/04/2021**		Page: 1/3
		Cone No.(size)/α Factor	**081208 (10cm^2) / 0.78**		QC Status
		Base Inclination	**X = 1.1° / Y = 1.0°**		Preliminary: **JK/BC** (27/04/2021) · Draft: **DR** (10/06/2021) · Final: **SMc** (10/11/2021)
		CRS	**ETRS89**		

Comments: Cone class 1. Continuous seabed CPT. Final depth 20.80m. Test was terminated at the operators discretion due to lack of lateral rod support from mudline~ resulting in a high risk of buckling rods when encountering very dense sands.

Preliminary Investigation, Hesselø OWF

IN SITU CPTU TESTING - MEASURED PARAMETERS

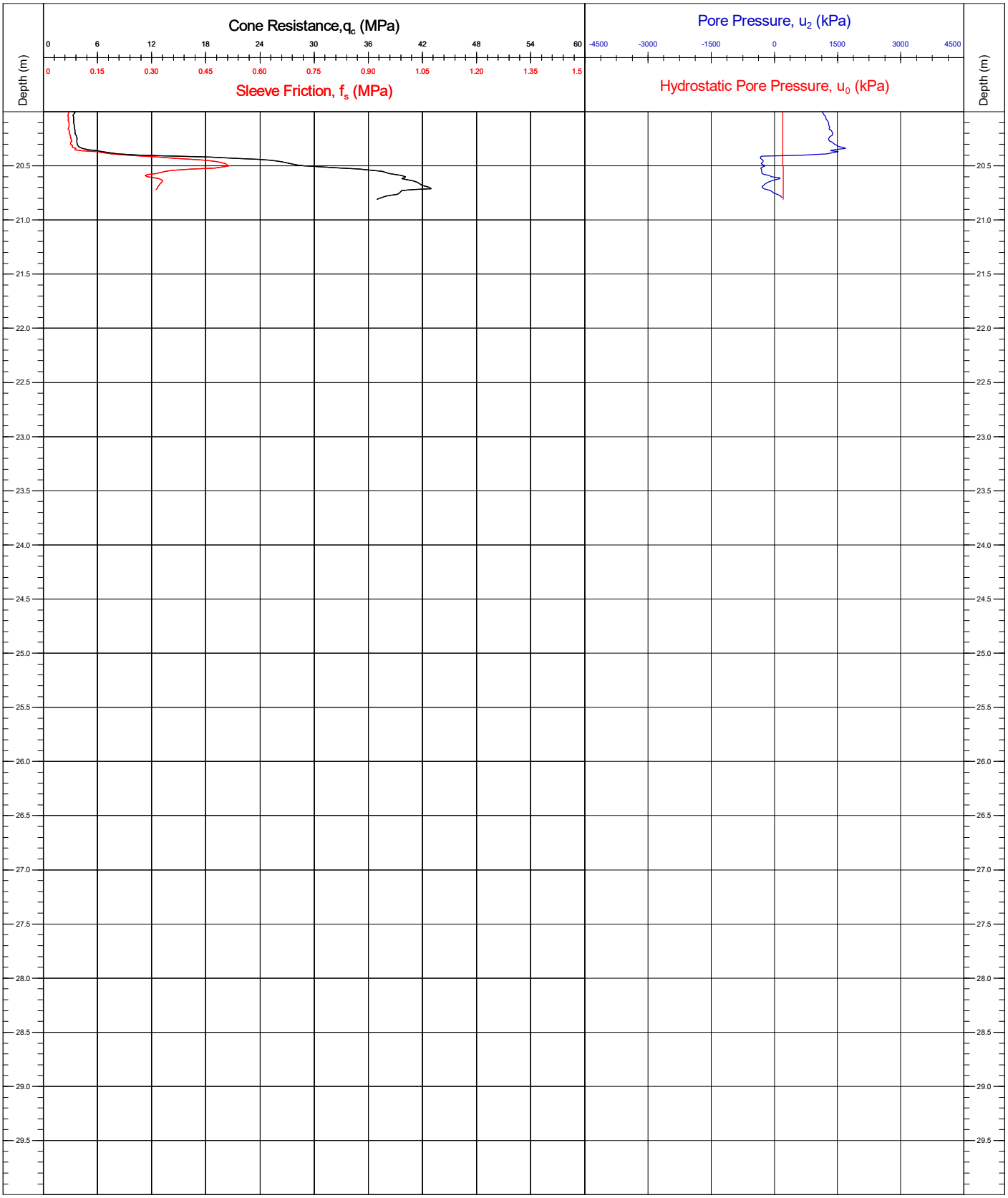


Area	**Kattegat Sea**	Coordinates	**674879.50E** **6255586.40N**	CPT Number	**CPT8**
Contract	**11596**	Latitude / Longitude			
Client Name/Ref	**Energinet Eltransmission A/S/384_20_ENE**	Water Depth (mMSL)	**30.62**		
Vessel	**MV Ocean Vantage**	Date of Test	**27/04/2021**	Page: 2/3	
		Cone No.(size)/α Factor	**081208 (10cm^2) / 0.78**	QC Status	
		Base Inclination	**X = 1.1° / Y = 1.0°**	Preliminary: **JK/BC** (27/04/2021)	Draft: **DR** (10/06/2021)
		CRS **ETRS89**			Final: **SMc** (10/11/2021)

Comments: Cone class 1. Continuous seabed CPT. Final depth 20.80m. Test was terminated at the operators discretion due to lack of lateral rod support from mudline~ resulting in a high risk of buckling rods when encountering very dense sands.

Preliminary Investigation, Hesselø OWF

IN SITU CPTU TESTING - MEASURED PARAMETERS

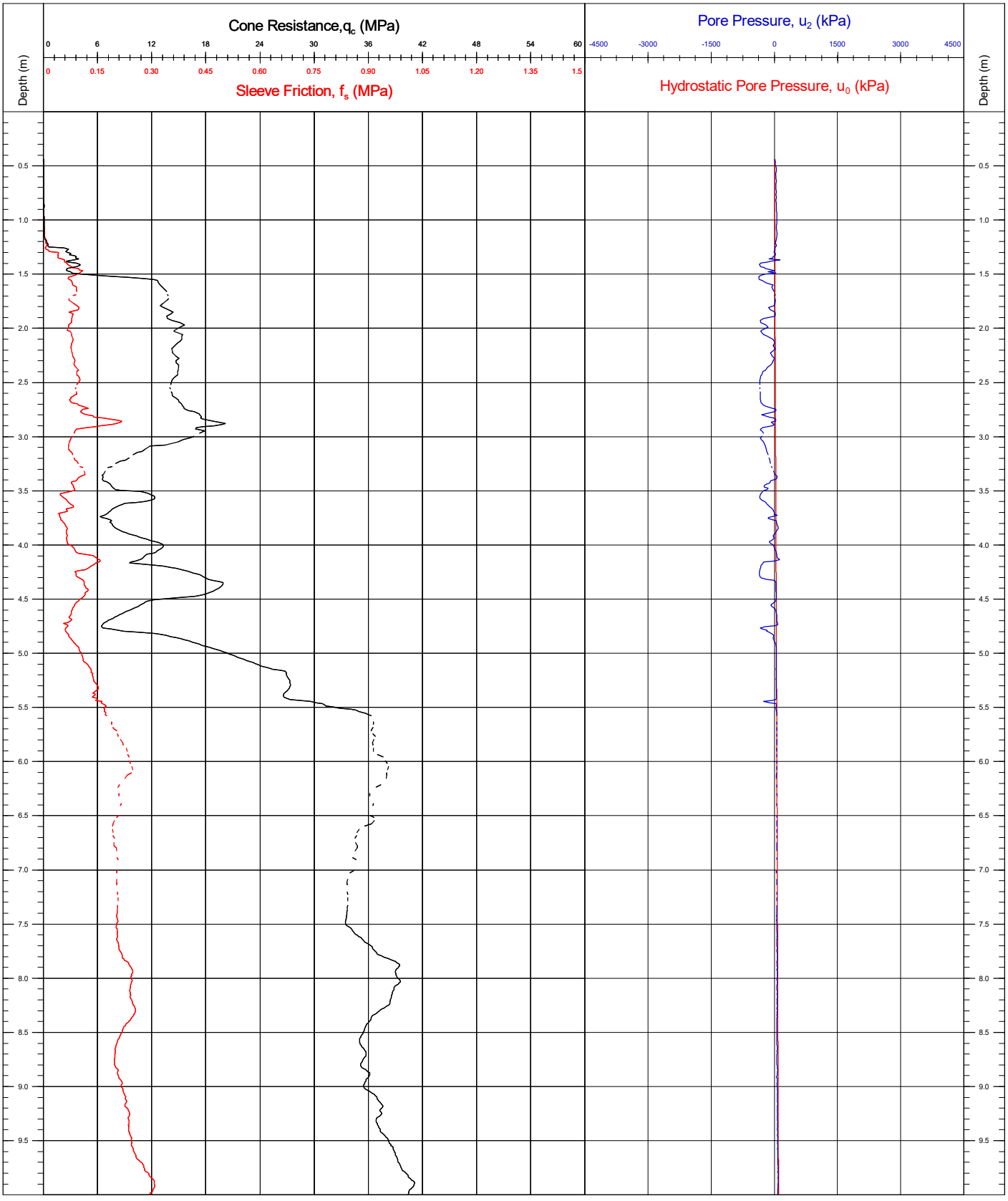


Area	**Kattegat Sea**	Coordinates	**674879.50E**	**6255586.40N**	CPT Number **CPT8**
Contract	**11596**	Latitude / Longitude			
Client Name/Ref	**Energinet Eltransmission A/S/384_20_ENE**	Water Depth (mMSL)	**30.62**		
Vessel	**MV Ocean Vantage**	Date of Test	**27/04/2021**		Page: 3/3
		Cone No.(size)/α Factor	**081208 (10cm^2) / 0.78**		QC Status
		Base Inclination	**X = 1.1° / Y = 1.0°**		Preliminary: **JK/BC** (27/04/2021); Draft: **DR** (10/06/2021); Final: **SMc** (10/11/2021)
		CRS	**ETRS89**		

Comments: Cone class 1. Continuous seabed CPT. Final depth 20.80m. Test was terminated at the operators discretion due to lack of lateral rod support from mudline~ resulting in a high risk of buckling rods when encountering very dense sands.

Preliminary Investigation, Hesselø OWF

IN SITU CPTU TESTING - MEASURED PARAMETERS



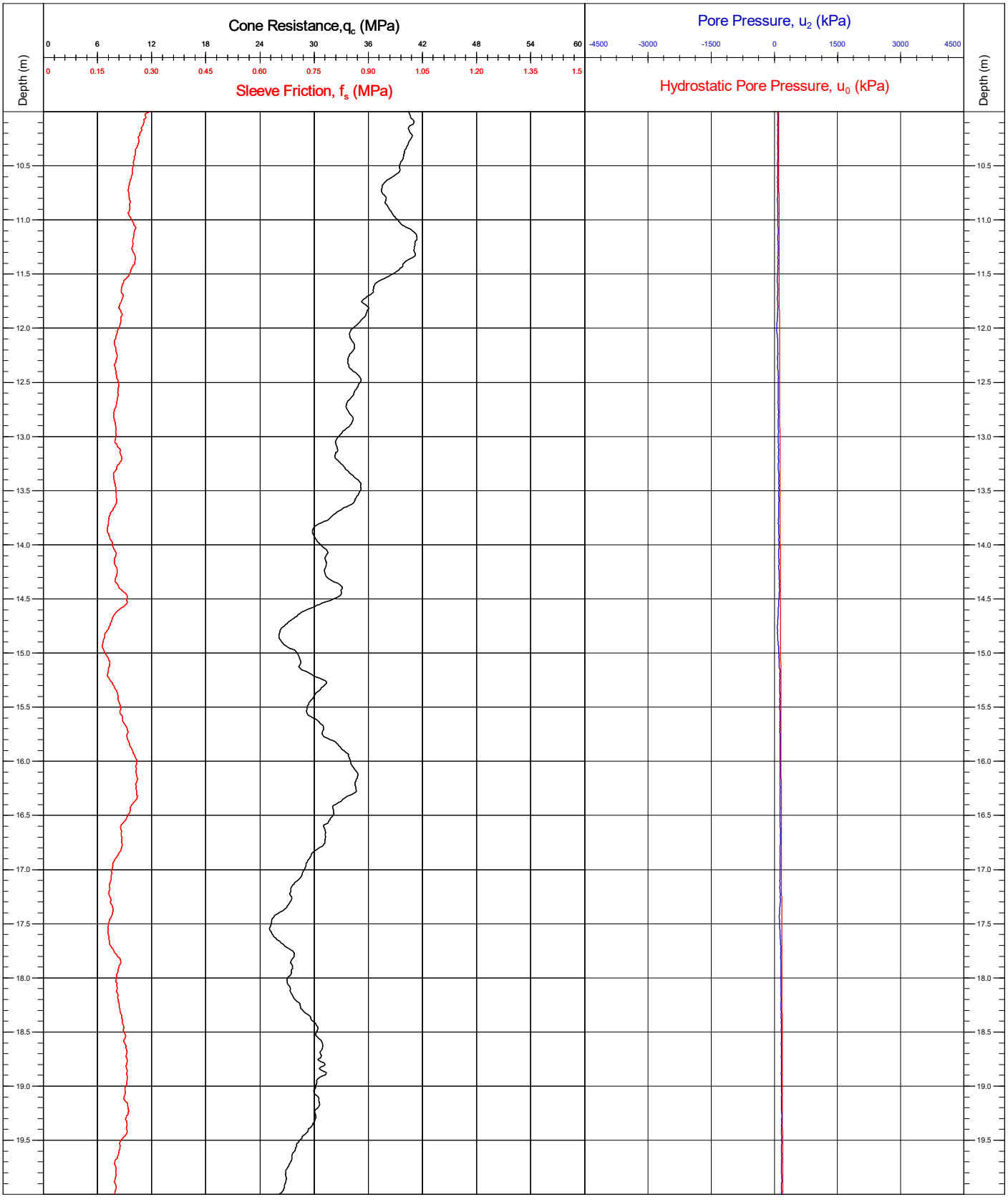
Area	**Kattegat Sea**	Coordinates	**676157.00E** **6257143.60N**	CPT Number	**CPT9**
Contract	**11596**	Latitude / Longitude			
Client Name/Ref	**Energinet Eltransmission A/S/384_20_ENE**	Water Depth (mMSL)	**31.54**		
Vessel	**MV Ocean Vantage**	Date of Test	**26/04/2021**	Page: 1/4	
		Cone No.(size)/α Factor	**130206 (10cm^2) / 0.77**	QC Status	
		Base Inclination	**X = 1.5° / Y = 2.6°**	Preliminary: **JK/BC** (26/04/2021)	Draft: **DR** (10/06/2021) / Final: **SMc** (10/11/2021)
		CRS **ETRS89**			

Comments: Cone Class 2. Continuous seabed CPT. Final depth 32.20m. Test was terminated due to increasing cone inclination~ SBF inclination and increasing total load.

Gardline

Preliminary Investigation, Hesselø OWF

IN SITU CPTU TESTING - MEASURED PARAMETERS



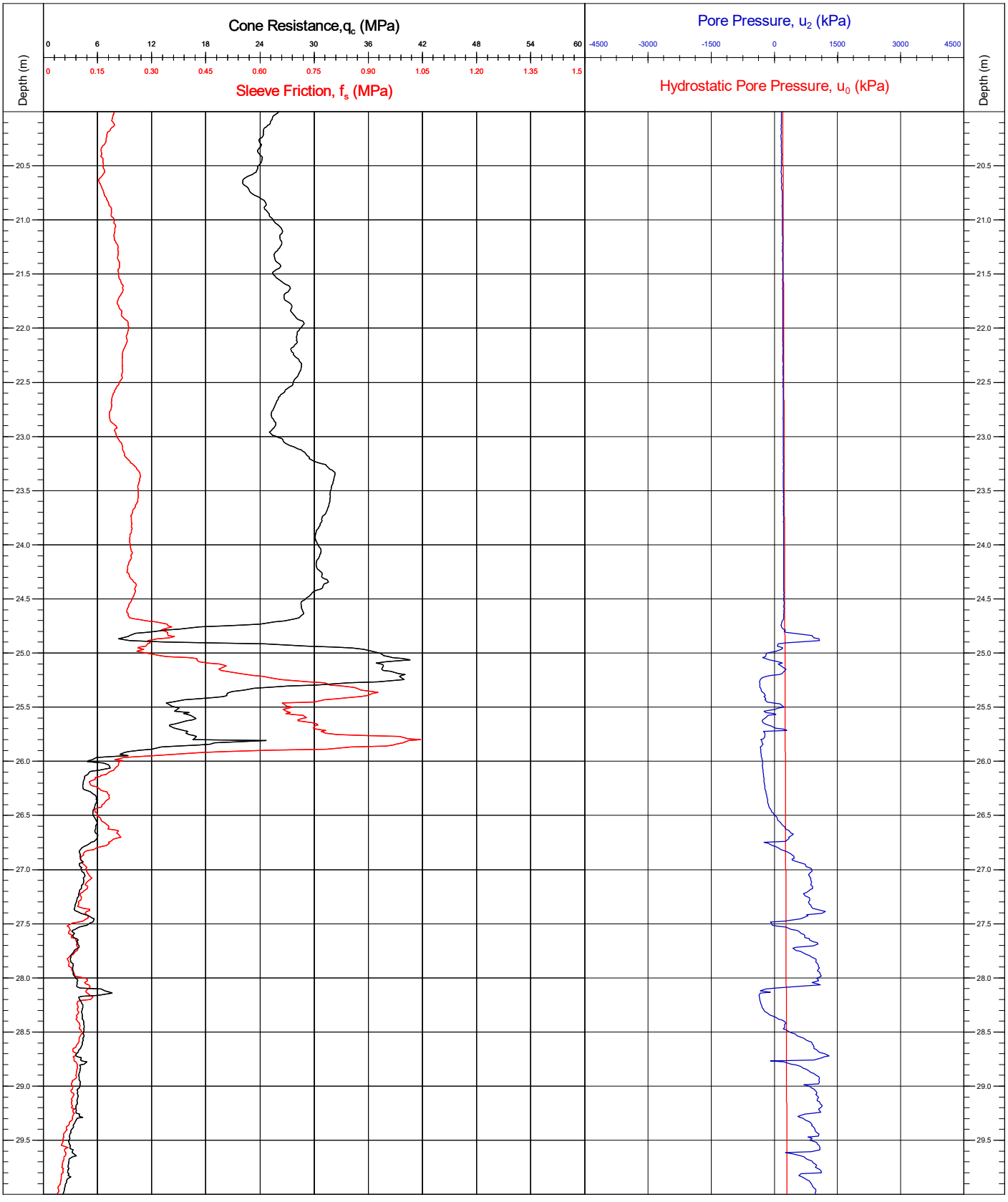
Area	**Kattegat Sea**	Coordinates	**676157.00E** **6257143.60N**	CPT Number	**CPT9**
Contract	**11596**	Latitude / Longitude			
Client Name/Ref	**Energinet Eltransmission A/S/384_20_ENE**	Water Depth (mMSL)	**31.54**		
Vessel	**MV Ocean Vantage**	Date of Test	**26/04/2021**	Page: 2/4	
		Cone No.(size)/α Factor	**130206 (10cm^2) / 0.77**	QC Status	
		Base Inclination	**X = 1.5° / Y = 2.6°**	Preliminary: **JK/BC (26/04/2021)**	Draft: **DR (10/06/2021)**
		CRS **ETRS89**			Final: **SMc (10/11/2021)**

Comments: Cone Class 2. Continuous seabed CPT. Final depth 32.20m. Test was terminated due to increasing cone inclination~ SBF inclination and increasing total load.

Gardline

Preliminary Investigation, Hesselø OWF

IN SITU CPTU TESTING - MEASURED PARAMETERS



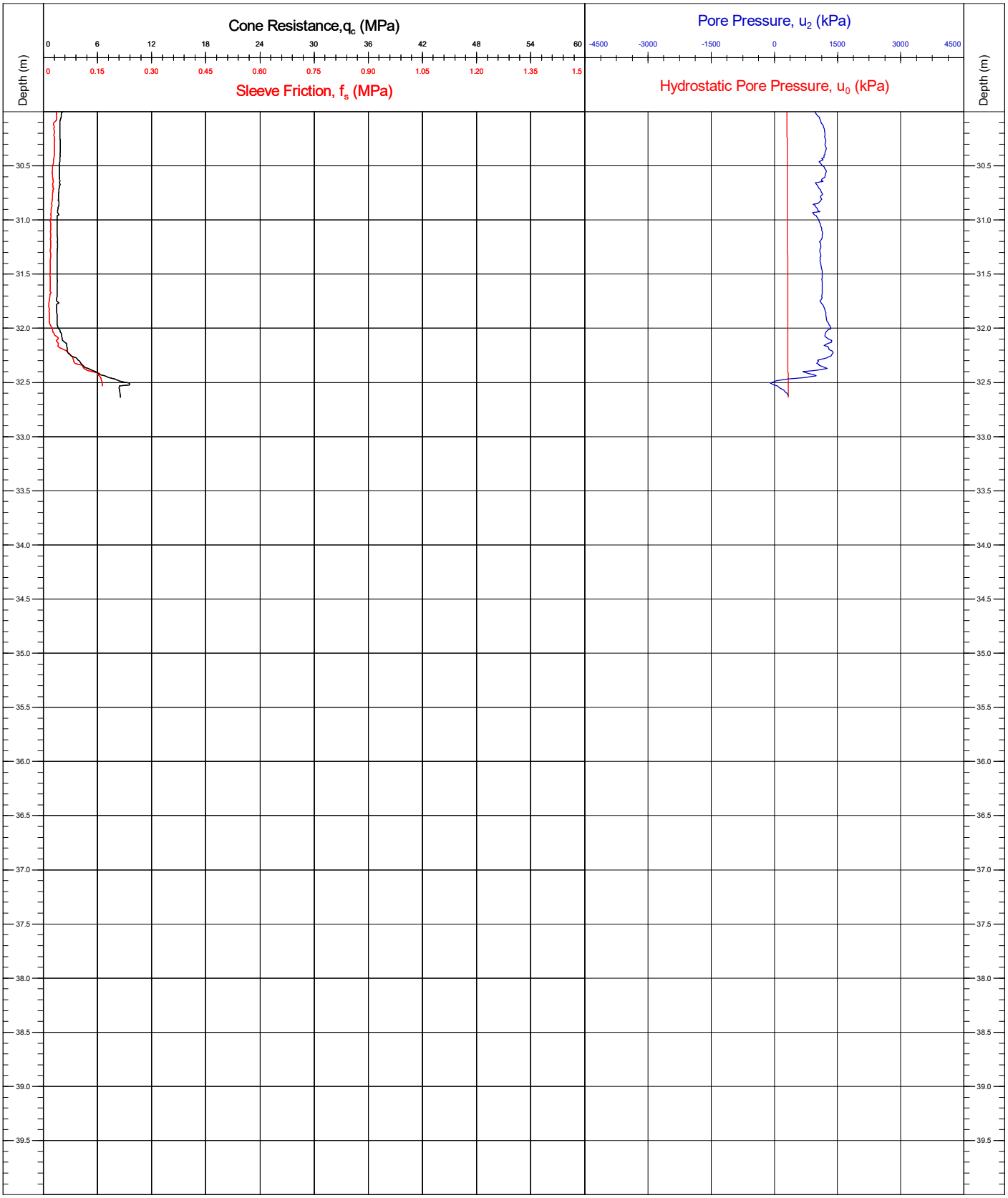
Area	**Kattegat Sea**	Coordinates	**676157.00E**	**6257143.60N**	CPT Number **CPT9**
Contract	**11596**	Latitude / Longitude			
Client Name/Ref	**Energinet Eltransmission A/S/384_20_ENE**	Water Depth (mMSL)	**31.54**		
Vessel	**MV Ocean Vantage**	Date of Test	**26/04/2021**		Page: 3/4
		Cone No.(size)/α Factor	**130206 (10cm^2) / 0.77**		QC Status
		Base Inclination	**X = 1.5° / Y = 2.6°**		Preliminary: **JK/BC** (26/04/2021); Draft: **DR** (10/06/2021); Final: **SMc** (10/11/2021)
		CRS	**ETRS89**		

Comments: Cone Class 2. Continuous seabed CPT. Final depth 32.20m. Test was terminated due to increasing cone inclination~ SBF inclination and increasing total load.

Gardline

Preliminary Investigation, Hesselø OWF

IN SITU CPTU TESTING - MEASURED PARAMETERS

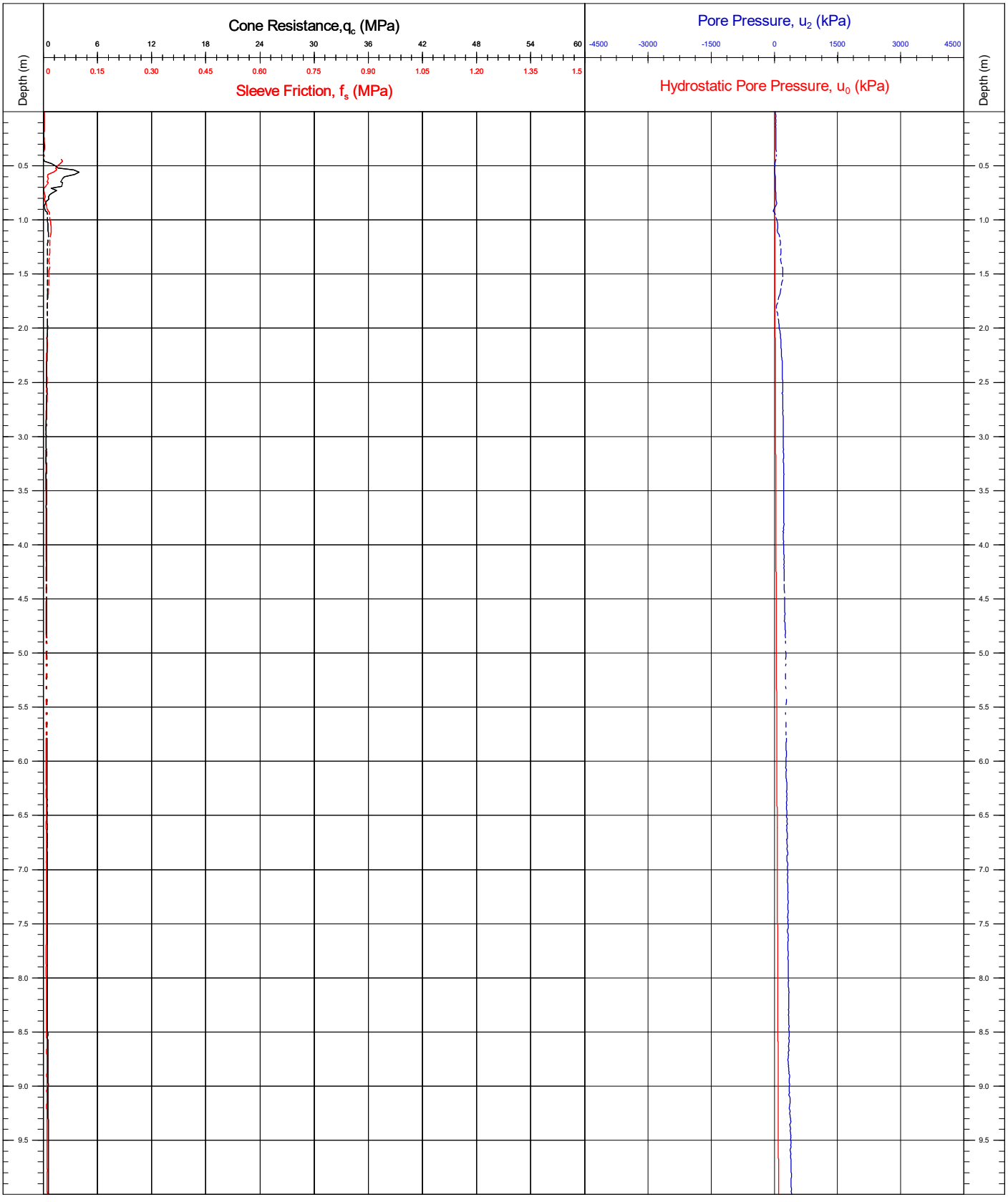


Area	**Kattegat Sea**	Coordinates	**676157.00E 6257143.60N**	CPT Number	**CPT9**
Contract	**11596**	Latitude / Longitude			
Client Name/Ref	**Energinet Eltransmission A/S/384_20_ENE**	Water Depth (mMSL)	**31.54**		
Vessel	**MV Ocean Vantage**	Date of Test	**26/04/2021**	Page: 4/4	
		Cone No.(size)/α Factor	**130206 (10cm^2) / 0.77**	QC Status	
		Base Inclination	**X = 1.5° / Y = 2.6°**	Preliminary: **JK/BC (26/04/2021)**	Draft: **DR (10/06/2021)**
		CRS **ETRS89**			Final: **SMc (10/11/2021)**

Comments: Cone Class 2. Continuous seabed CPT. Final depth 32.20m. Test was terminated due to increasing cone inclination~ SBF inclination and increasing total load.

Preliminary Investigation, Hesselø OWF

IN SITU CPTU TESTING - MEASURED PARAMETERS

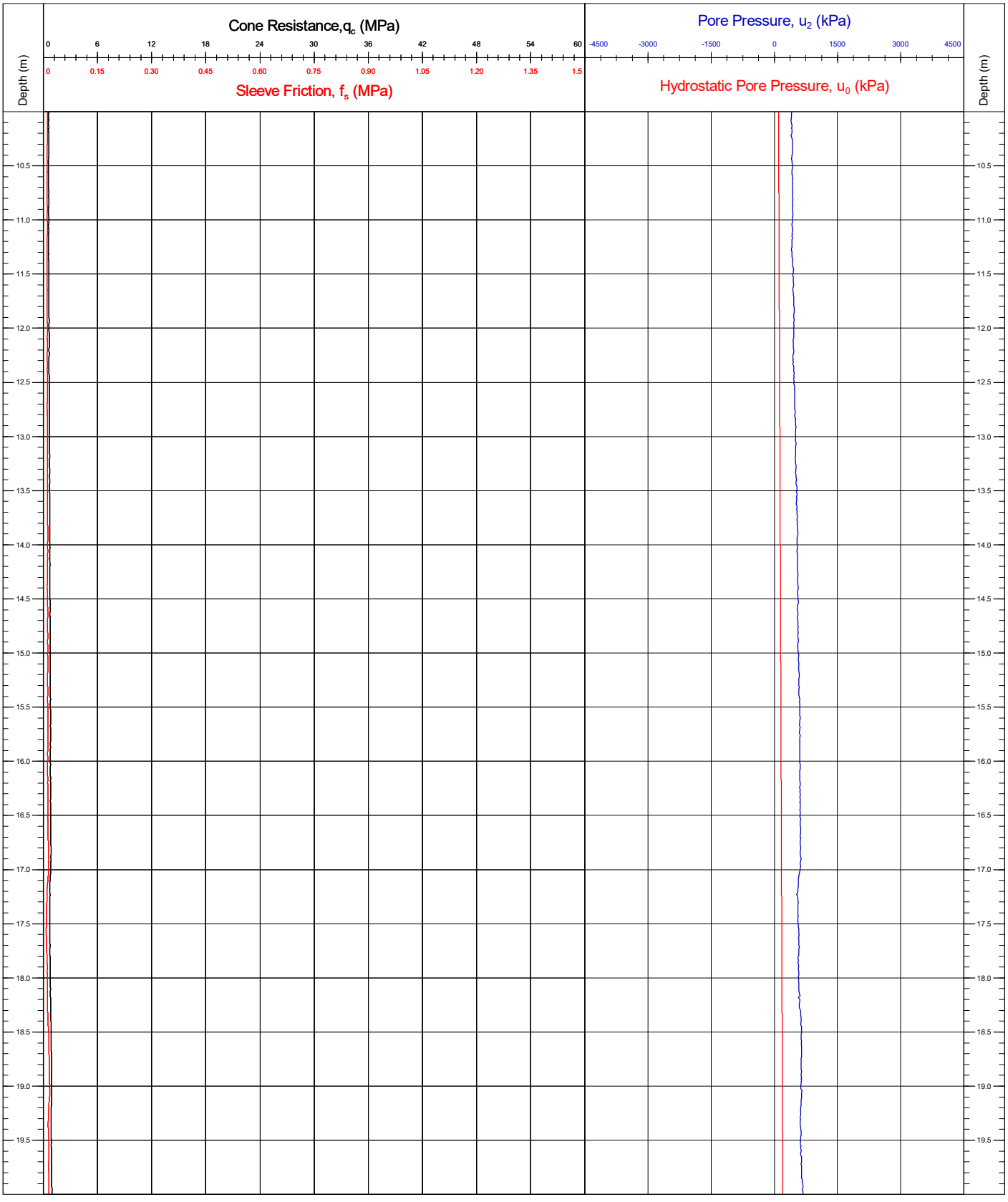


Area	**Kattegat Sea**	Coordinates	**678861.00E 6255157.80N**	CPT Number	**CPT10**
Contract	**11596**	Latitude / Longitude			
Client Name/Ref	**Energinet Eltransmission A/S/384_20_ENE**	Water Depth (mMSL)	**31.57**		
Vessel	**MV Ocean Vantage**	Date of Test	**26/04/2021**	Page: 1/4	
		Cone No.(size)/α Factor	**100976 (10cm^2) / 0.78**	QC Status	
		Base Inclination	**X = 0.0° / Y = -0.1°**	Preliminary: **JK/BC** (28/04/2021)	Draft: **DR** (10/06/2021)
		CRS **ETRS89**			Final: **SMc** (10/11/2021)

Comments: Cone class 2. Continuous seabed CPT. Final depth 37.29m. Test terminated due to increasing total force~ increasing cone inclination and a lack of lateral rod support from mudline

Preliminary Investigation, Hesselø OWF

IN SITU CPTU TESTING - MEASURED PARAMETERS

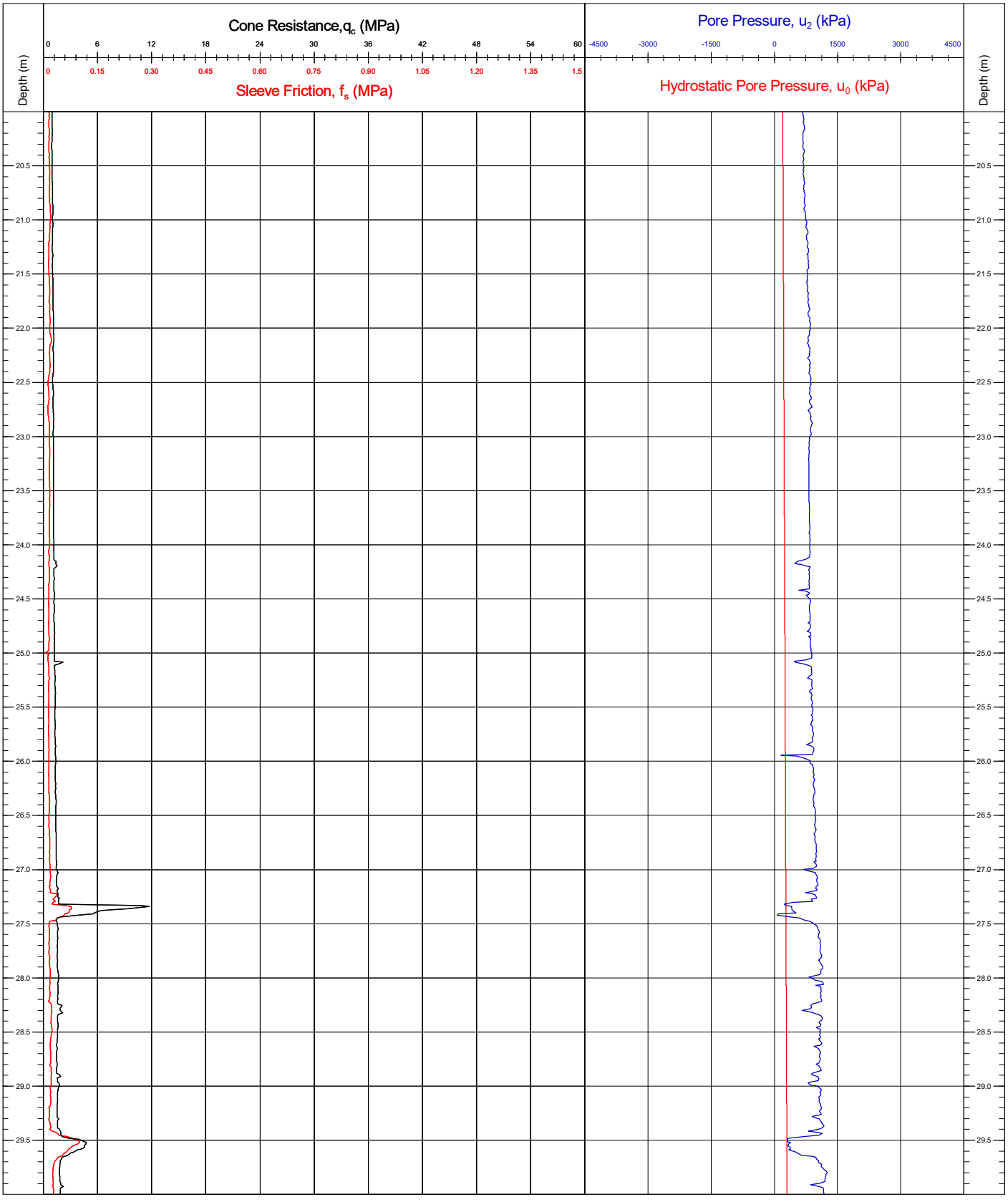


Area	**Kattegat Sea**	Coordinates	**678861.00E**	**6255157.80N**	CPT Number **CPT10**
Contract	**11596**	Latitude / Longitude			
Client Name/Ref	**Energinet Eltransmission A/S/384_20_ENE**	Water Depth (mMSL)	**31.57**		
Vessel	**MV Ocean Vantage**	Date of Test	**26/04/2021**		Page: 2/4
		Cone No.(size)/α Factor	**100976 (10cm^2) / 0.78**		QC Status
		Base Inclination	**X = 0.0° / Y = -0.1°**		Preliminary: **JK/BC** (28/04/2021); Draft: **DR** (10/06/2021); Final: **SMc** (10/11/2021)
		CRS	**ETRS89**		

Comments: Cone class 2. Continuous seabed CPT. Final depth 37.29m. Test terminated due to increasing total force~ increasing cone inclination and a lack of lateral rod support from mudline

Preliminary Investigation, Hesselø OWF

IN SITU CPTU TESTING - MEASURED PARAMETERS

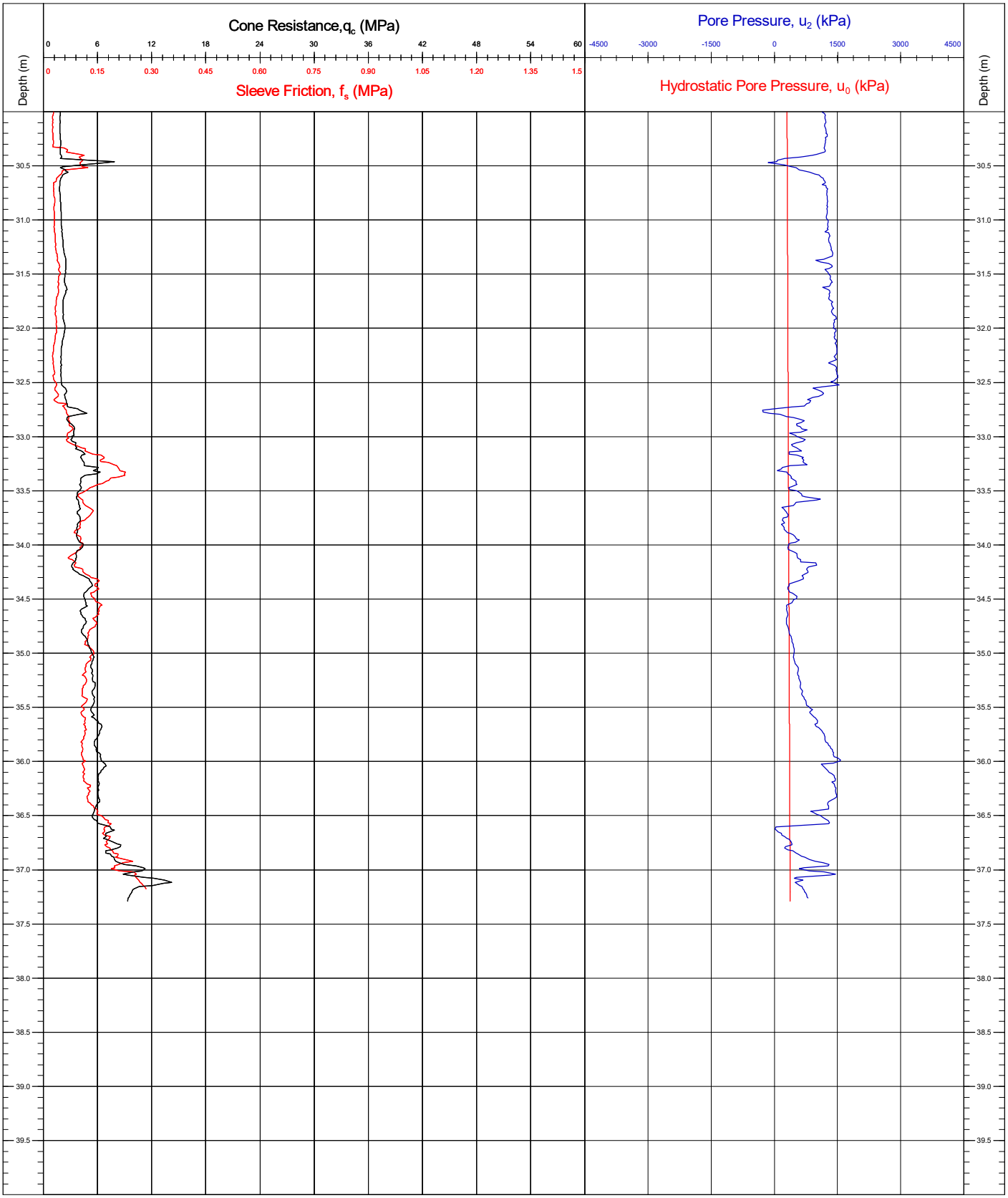


Area	**Kattegat Sea**	Coordinates	**678861.00E** **6255157.80N**	CPT Number	**CPT10**
Contract	**11596**	Latitude / Longitude			
Client Name/Ref	**Energinet Eltransmission A/S/384_20_ENE**	Water Depth (mMSL)	**31.57**		
Vessel	**MV Ocean Vantage**	Date of Test	**26/04/2021**	Page: 3/4	
		Cone No.(size)/α Factor	**100976 (10cm^2) / 0.78**	QC Status	
		Base Inclination	**X = 0.0° / Y = -0.1°**	Preliminary: **JK/BC** (28/04/2021)	Draft: **DR** (10/06/2021)
		CRS **ETRS89**			Final: **SMc** (10/11/2021)

Comments: Cone class 2. Continuous seabed CPT. Final depth 37.29m. Test terminated due to increasing total force~ increasing cone inclination and a lack of lateral rod support from mudline

Preliminary Investigation, Hesselø OWF

IN SITU CPTU TESTING - MEASURED PARAMETERS

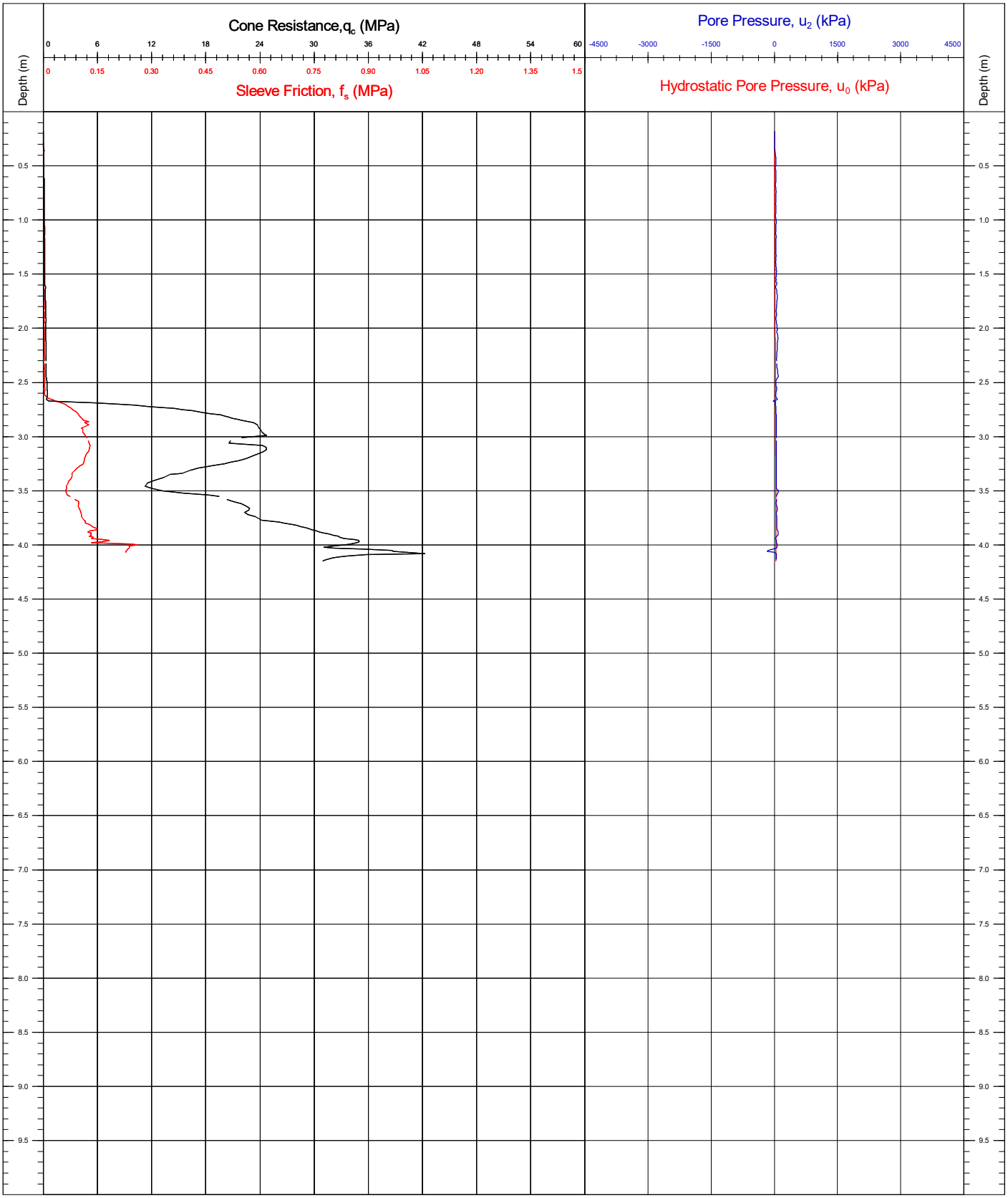


Area	**Kattegat Sea**	Coordinates	**678861.00E 6255157.80N**	CPT Number	**CPT10**
Contract	**11596**	Latitude / Longitude			
Client Name/Ref	**Energinet Eltransmission A/S/384_20_ENE**	Water Depth (mMSL)	**31.57**		
Vessel	**MV Ocean Vantage**	Date of Test	**26/04/2021**	Page: 4/4	
		Cone No.(size)/α Factor	**100976 (10cm^2) / 0.78**	QC Status	
		Base Inclination	**X = 0.0° / Y = -0.1°**	Preliminary: **JK/BC (28/04/2021)**	Draft: **DR (10/06/2021)**	Final: **SMc (10/11/2021)**
		CRS **ETRS89**			

Comments: Cone class 2. Continuous seabed CPT. Final depth 37.29m. Test terminated due to increasing total force~ increasing cone inclination and a lack of lateral rod support from mudline

Preliminary Investigation, Hesselø OWF

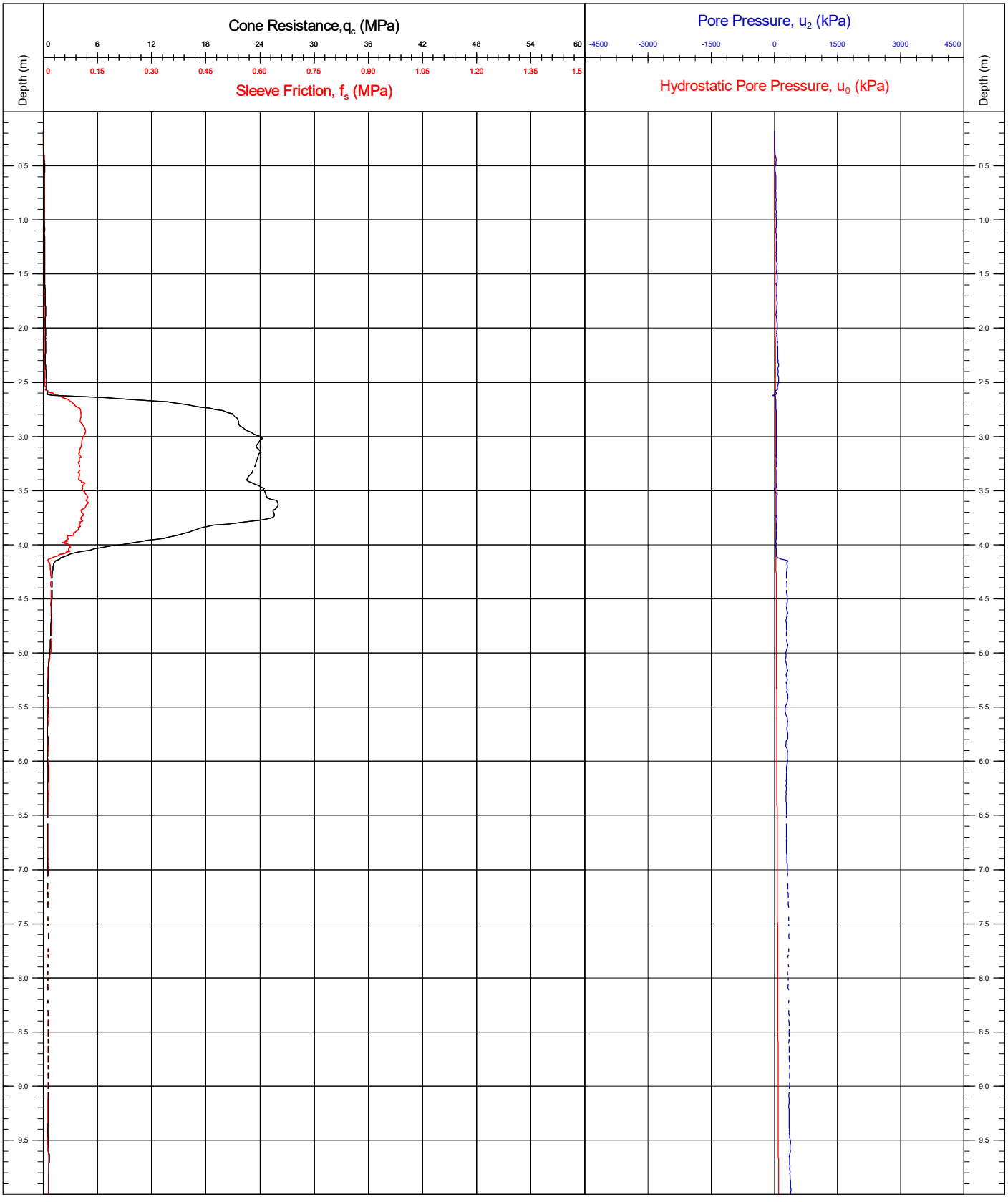
IN SITU CPTU TESTING - MEASURED PARAMETERS



Area	**Kattegat Sea**	Coordinates	**666385.90E 6259321.60N**	CPT Number	**CPT11**
Contract	**11596**	Latitude / Longitude			
Client Name/Ref	**Energinet Eltransmission A/S/384_20_ENE**	Water Depth (mMSL)	**28.78**		
Vessel	**MV Ocean Vantage**	Date of Test	**29/04/2021**	Page: 1/1	
Comments: Cone class 1. Continuous seabed CPT. Final depth 3.97m. Test terminated due to a maximum sleeve friction refusal.		Cone No.(size)/α Factor	**181004 (10cm^2) / 0.81**	QC Status	
		Base Inclination	**X = 1.1° / Y = 0.9°**	Preliminary: **JK/BC** (29/04/2021)	Draft: **DR** (10/06/2021)
		CRS **ETRS89**			Final: **SMc** (10/11/2021)

Preliminary Investigation, Hesselø OWF

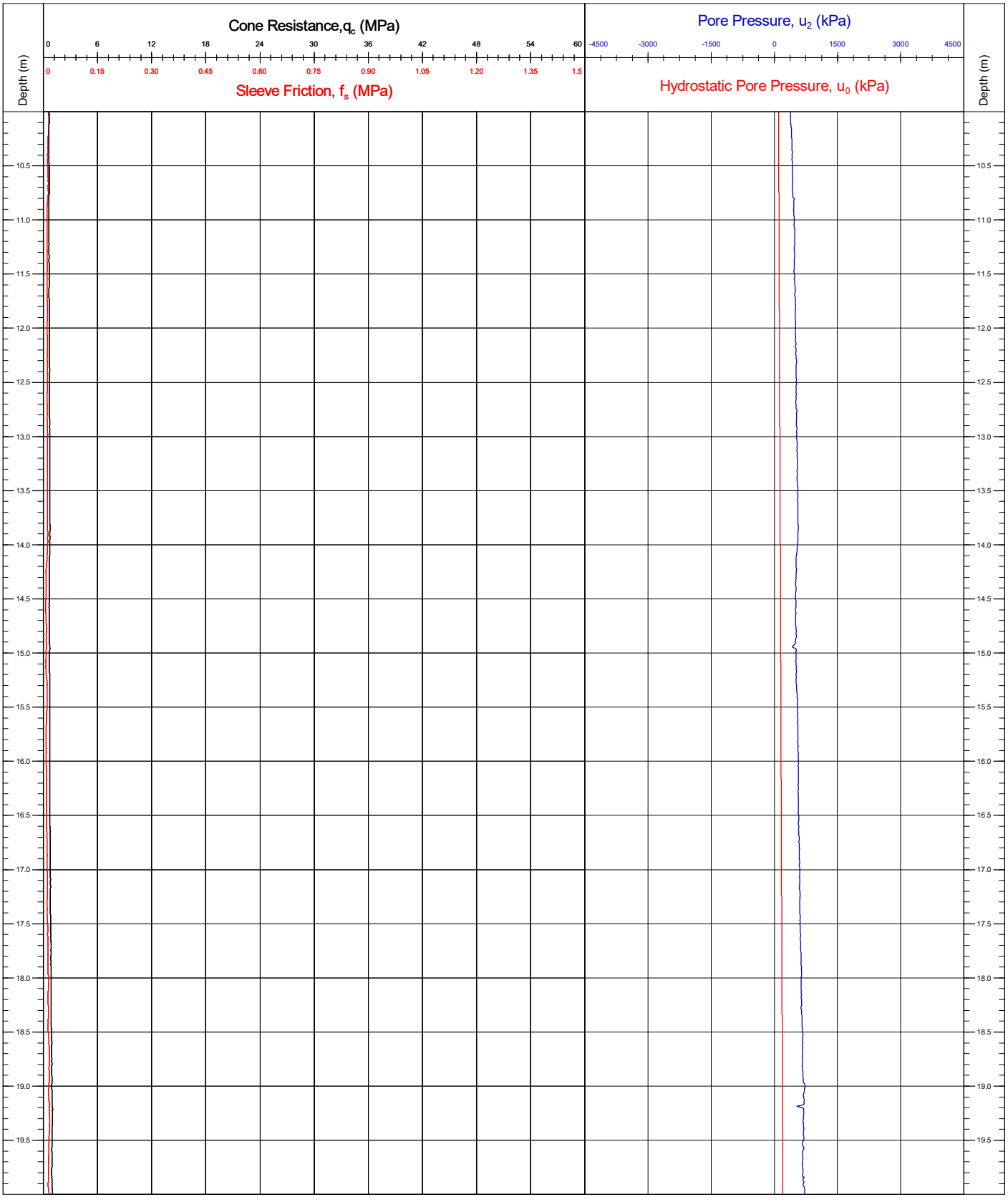
IN SITU CPTU TESTING - MEASURED PARAMETERS



Area	**Kattegat Sea**	Coordinates	**666386.20E** **6259316.50N**	CPT Number	**CPT11a**
Contract	**11596**	Latitude / Longitude			
Client Name/Ref	**Energinet Eltransmission A/S/384_20_ENE**	Water Depth (mMSL)	**28.74**		
Vessel	**MV Ocean Vantage**	Date of Test	**29/04/2021**	Page: 1/5	
Comments: Cone class 2. Continuous seabed CPT. Final depth 43.46m. Test terminated at operators discretion due to high inclination~ total load and risk of rod bend		Cone No.(size)/α Factor	**181004 (10cm^2) / 0.81**	QC Status	
		Base Inclination	**X = 1.1° / Y = 1.0°**	Preliminary / Draft / Final	
		CRS **ETRS89**		**JK/BC** (29/04/2021) / **DR** (10/06/2021) / **SMc** (10/11/2021)	

Preliminary Investigation, Hesselø OWF

IN SITU CPTU TESTING - MEASURED PARAMETERS

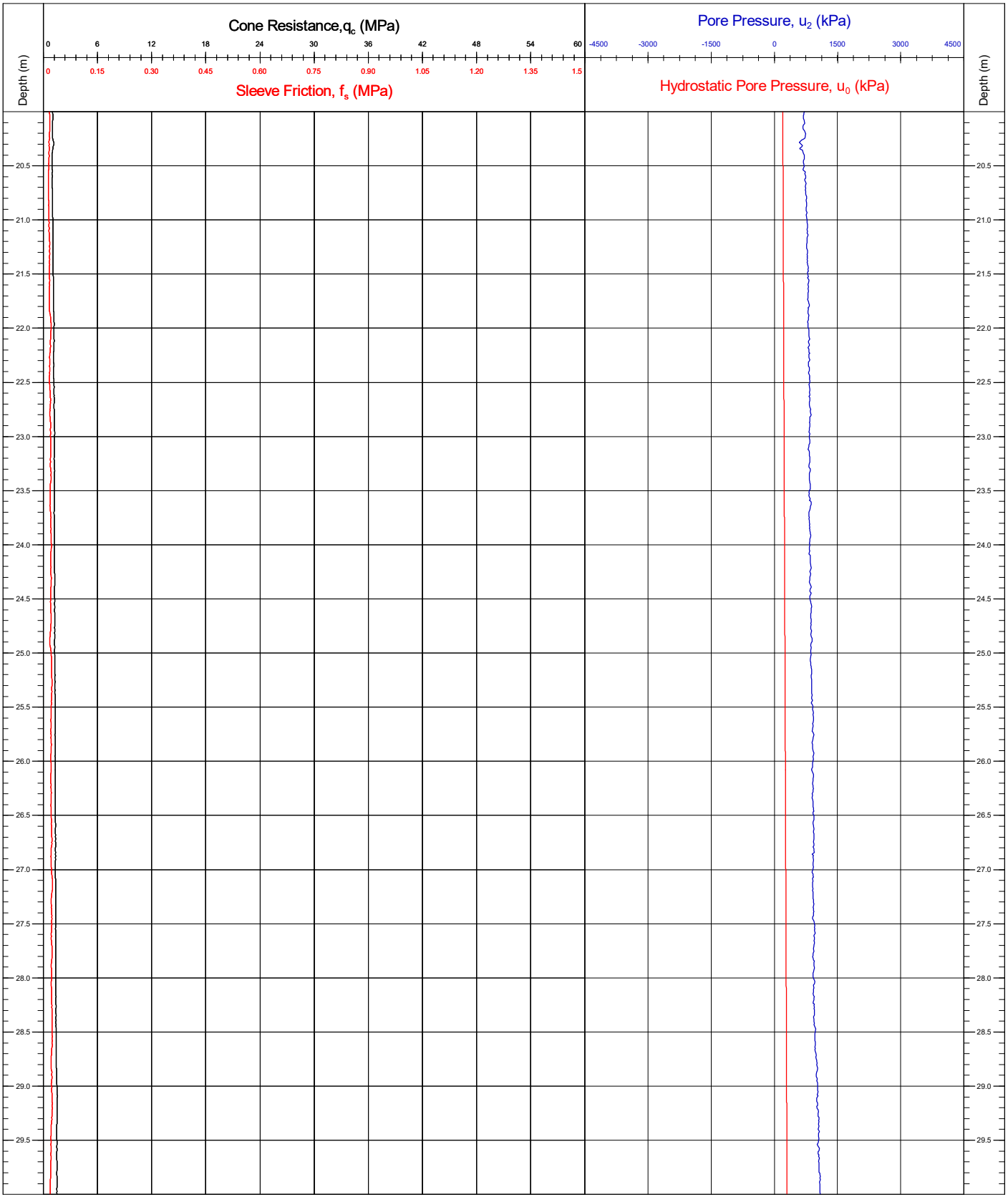


Area	**Kattegat Sea**	Coordinates	**666386.20E 6259316.50N**	CPT Number	**CPT11a**
Contract	**11596**	Latitude / Longitude			
Client Name/Ref	**Energinet Eltransmission A/S/384_20_ENE**	Water Depth (mMSL)	**28.74**		
Vessel	**MV Ocean Vantage**	Date of Test	**29/04/2021**	Page: 2/5	
		Cone No.(size)/α Factor	**181004 (10cm^2) / 0.81**	QC Status	
		Base Inclination	**X = 1.1° / Y = 1.0°**	Preliminary: **JK/BC (29/04/2021)**	Draft: **DR (10/06/2021)**
		CRS **ETRS89**			Final: **SMc (10/11/2021)**

Comments: Cone class 2. Continuous seabed CPT. Final depth 43.46m. Test terminated at operators discretion due to high inclination~ total load and risk of rod bend

Preliminary Investigation, Hesselø OWF

IN SITU CPTU TESTING - MEASURED PARAMETERS

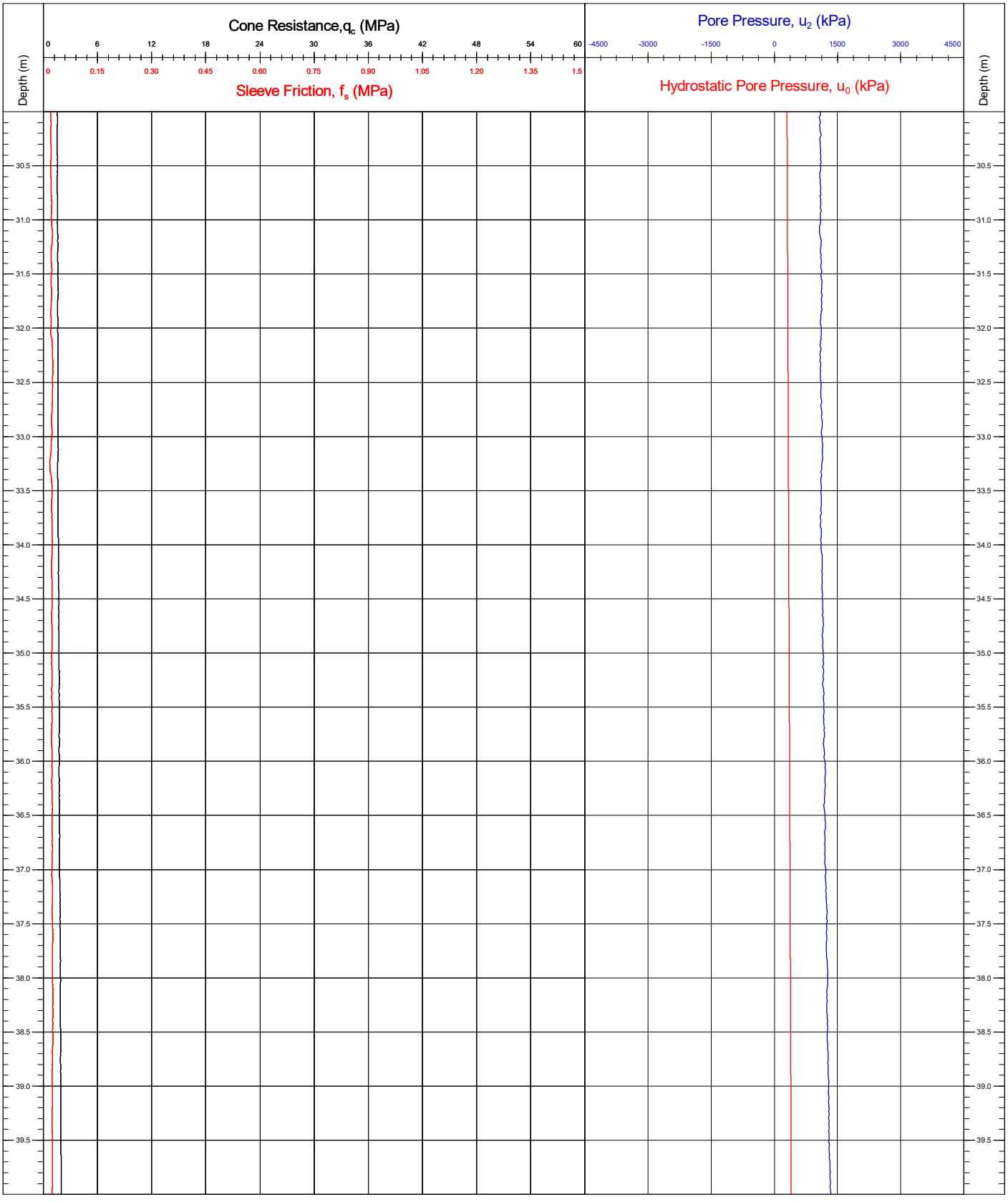


Area	**Kattegat Sea**	Coordinates	**666386.20E**	**6259316.50N**	CPT Number **CPT11a**
Contract	**11596**	Latitude / Longitude			
Client Name/Ref	**Energinet Eltransmission A/S/384_20_ENE**	Water Depth (mMSL)	**28.74**		
Vessel	**MV Ocean Vantage**	Date of Test	**29/04/2021**		Page: 3/5
		Cone No.(size)/α Factor	**181004 (10cm^2) / 0.81**		QC Status
		Base Inclination	**X = 1.1° / Y = 1.0°**		Preliminary: **JK/BC** (29/04/2021) · Draft: **DR** (10/06/2021) · Final: **SMc** (10/11/2021)
		CRS	**ETRS89**		

Comments: Cone class 2. Continuous seabed CPT. Final depth 43.46m. Test terminated at operators discretion due to high inclination~ total load and risk of rod bend

Preliminary Investigation, Hesselø OWF

IN SITU CPTU TESTING - MEASURED PARAMETERS

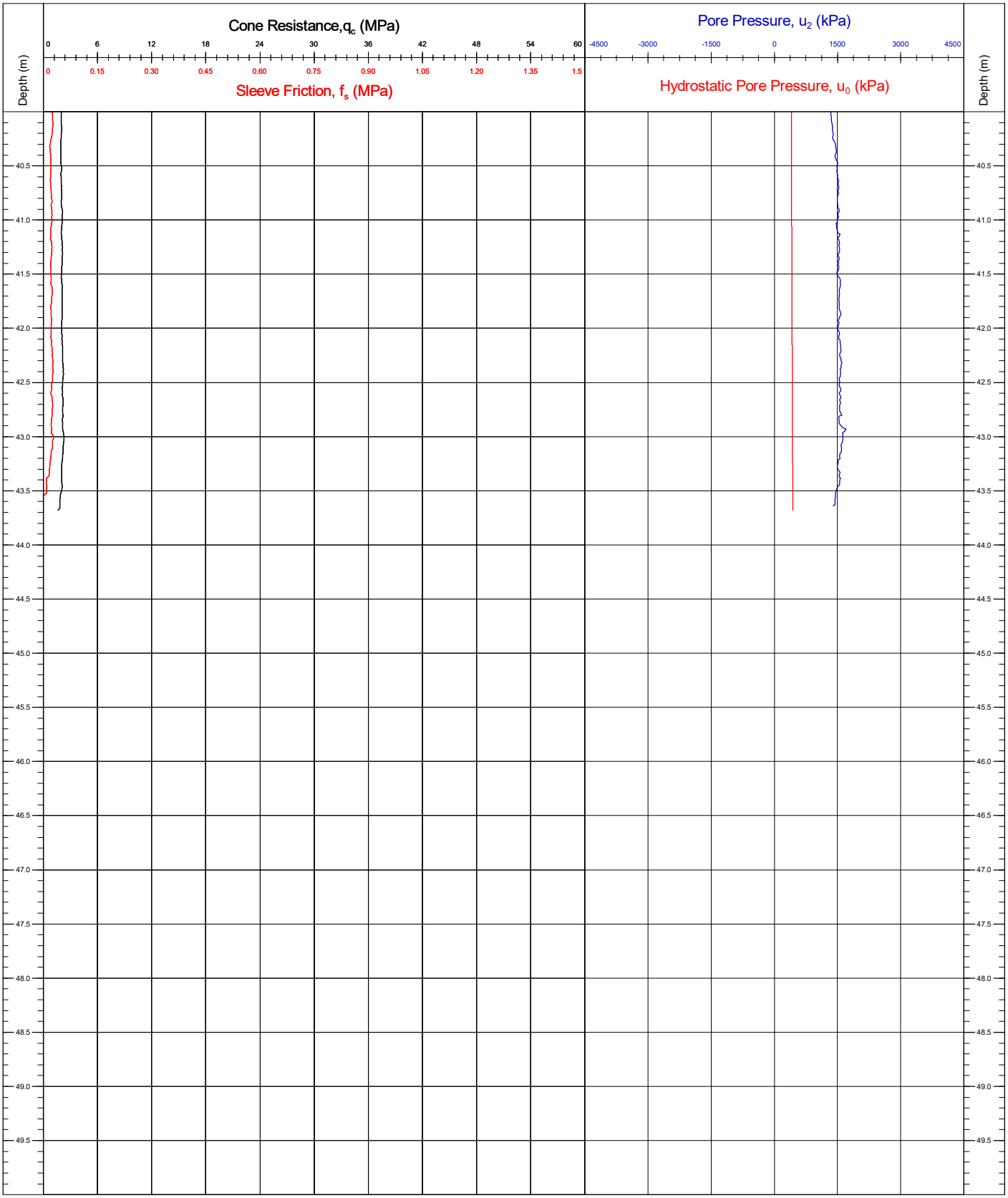


Area	**Kattegat Sea**	Coordinates	**666386.20E 6259316.50N**	CPT Number	**CPT11a**
Contract	**11596**	Latitude / Longitude			
Client Name/Ref	**Energinet Eltransmission A/S/384_20_ENE**	Water Depth (mMSL)	**28.74**		
Vessel	**MV Ocean Vantage**	Date of Test	**29/04/2021**	Page: 4/5	
		Cone No.(size)/α Factor	**181004 (10cm^2) / 0.81**	QC Status	
		Base Inclination	**X = 1.1° / Y = 1.0°**	Preliminary: **JK/BC (29/04/2021)**	Draft: **DR (10/06/2021)**
		CRS **ETRS89**			Final: **SMc (10/11/2021)**

Comments: Cone class 2. Continuous seabed CPT. Final depth 43.46m. Test terminated at operators discretion due to high inclination~ total load and risk of rod bend

Preliminary Investigation, Hesselø OWF

IN SITU CPTU TESTING - MEASURED PARAMETERS

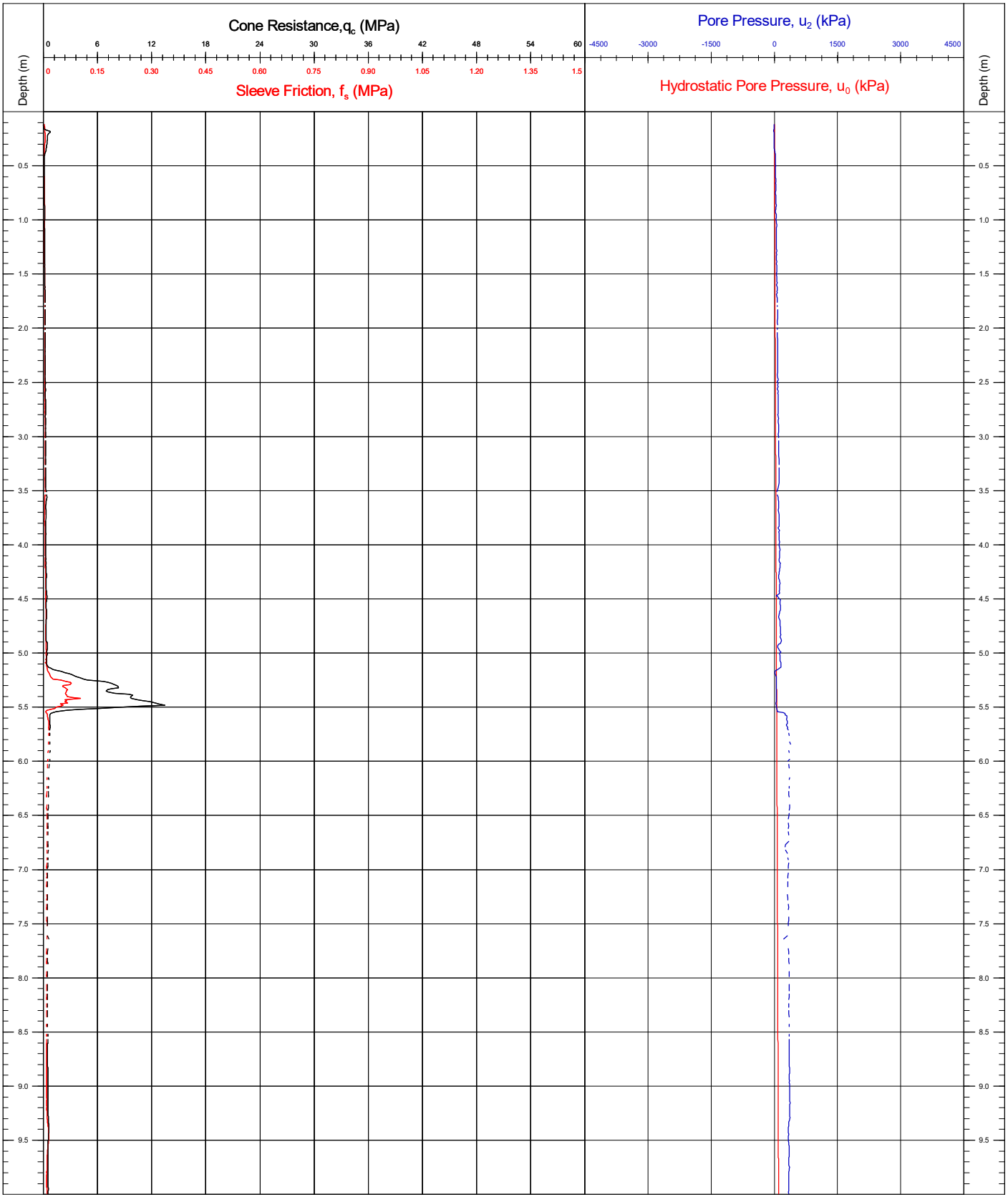


Area	**Kattegat Sea**	Coordinates	**666386.20E 6259316.50N**	CPT Number	**CPT11a**
Contract	**11596**	Latitude / Longitude			
Client Name/Ref	**Energinet Eltransmission A/S/384_20_ENE**	Water Depth (mMSL)	**28.74**		
Vessel	**MV Ocean Vantage**	Date of Test	**29/04/2021**	Page: 5/5	
		Cone No.(size)/α Factor	**181004 (10cm^2) / 0.81**	QC Status	
		Base Inclination	**X = 1.1° / Y = 1.0°**	Preliminary: **JK/BC (29/04/2021)**	Draft: **DR (10/06/2021)**
		CRS **ETRS89**			Final: **SMc (10/11/2021)**

Comments: Cone class 2. Continuous seabed CPT. Final depth 43.46m. Test terminated at operators discretion due to high inclination~ total load and risk of rod bend

Preliminary Investigation, Hesselø OWF

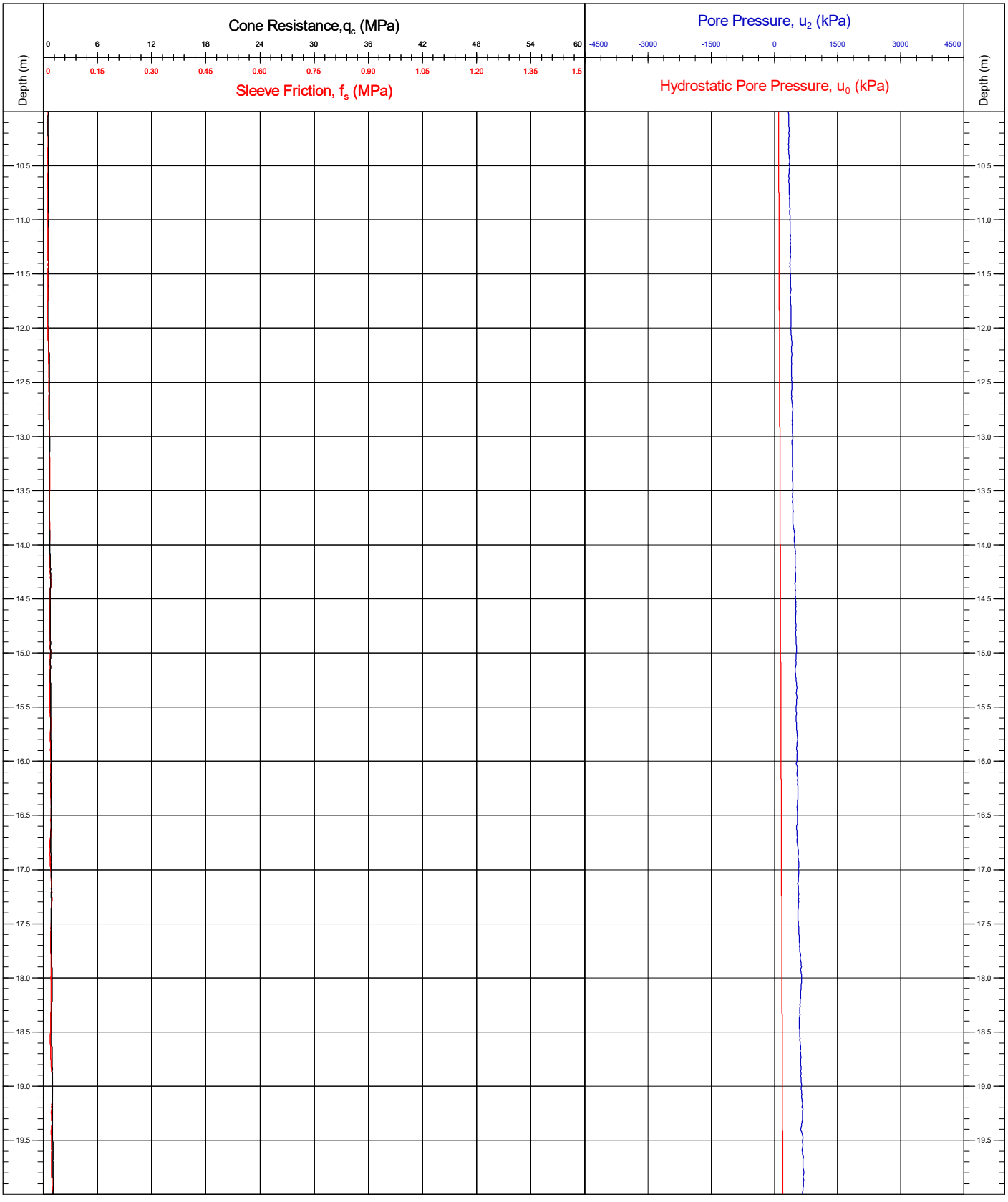
IN SITU CPTU TESTING - MEASURED PARAMETERS



Area	**Kattegat Sea**	Coordinates	**668527.90E 6259970.00N**	CPT Number	**CPT12**
Contract	**11596**	Latitude / Longitude			
Client Name/Ref	**Energinet Eltransmission A/S/384_20_ENE**	Water Depth (mMSL)	**26.08**		
Vessel	**MV Ocean Vantage**	Date of Test	**29/04/2021**	Page: 1/4	
Comments: Cone class 2. Continuous seabed CPT. Final depth 39.53m. Test terminated at operators discretion due to high inclination~ total load and risk of rod bend		Cone No.(size)/α Factor	**181005 (10cm^2) / 0.73**	QC Status	
		Base Inclination	**X = 1.2° / Y = 0.8°**	Preliminary: **JK/BC (29/04/2021)**	Draft: **DR (10/06/2021)**
		CRS **ETRS89**			Final: **SMc (10/11/2021)**

Preliminary Investigation, Hesselø OWF

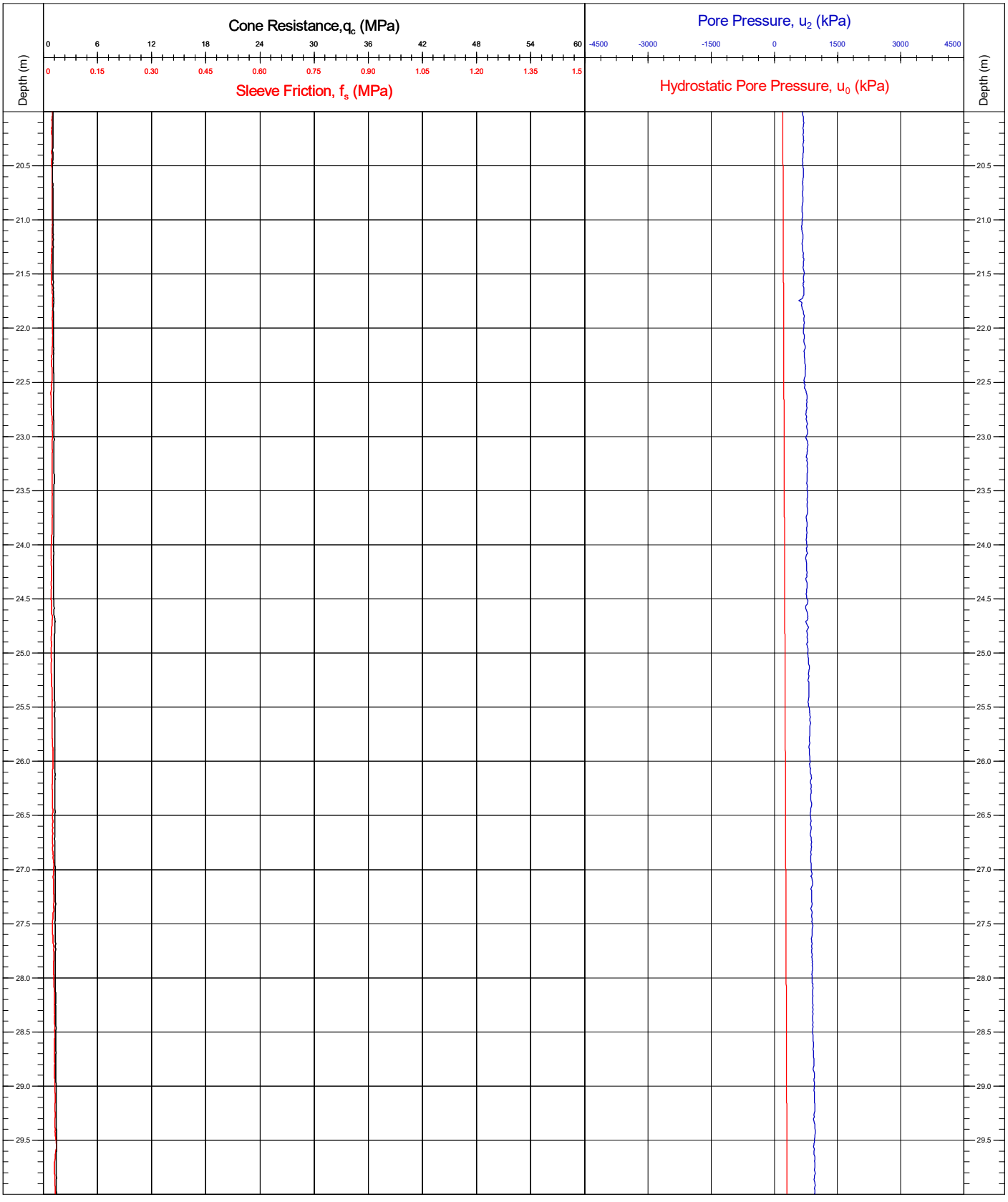
IN SITU CPTU TESTING - MEASURED PARAMETERS



Area	**Kattegat Sea**	Coordinates	**668527.90E**	**6259970.00N**	CPT Number **CPT12**
Contract	**11596**	Latitude / Longitude			
Client Name/Ref	**Energinet Eltransmission A/S/384_20_ENE**	Water Depth (mMSL)	**26.08**		
Vessel	**MV Ocean Vantage**	Date of Test	**29/04/2021**		Page: 2/4
Comments: Cone class 2. Continuous seabed CPT. Final depth 39.53m. Test terminated at operators discretion due to high inclination~ total load and risk of rod bend		Cone No.(size)/α Factor	**181005 (10cm^2) / 0.73**		QC Status
		Base Inclination	**X = 1.2° / Y = 0.8°**		Preliminary: **JK/BC** (29/04/2021) · Draft: **DR** (10/06/2021) · Final: **SMc** (10/11/2021)
		CRS **ETRS89**			

Preliminary Investigation, Hesselø OWF

IN SITU CPTU TESTING - MEASURED PARAMETERS

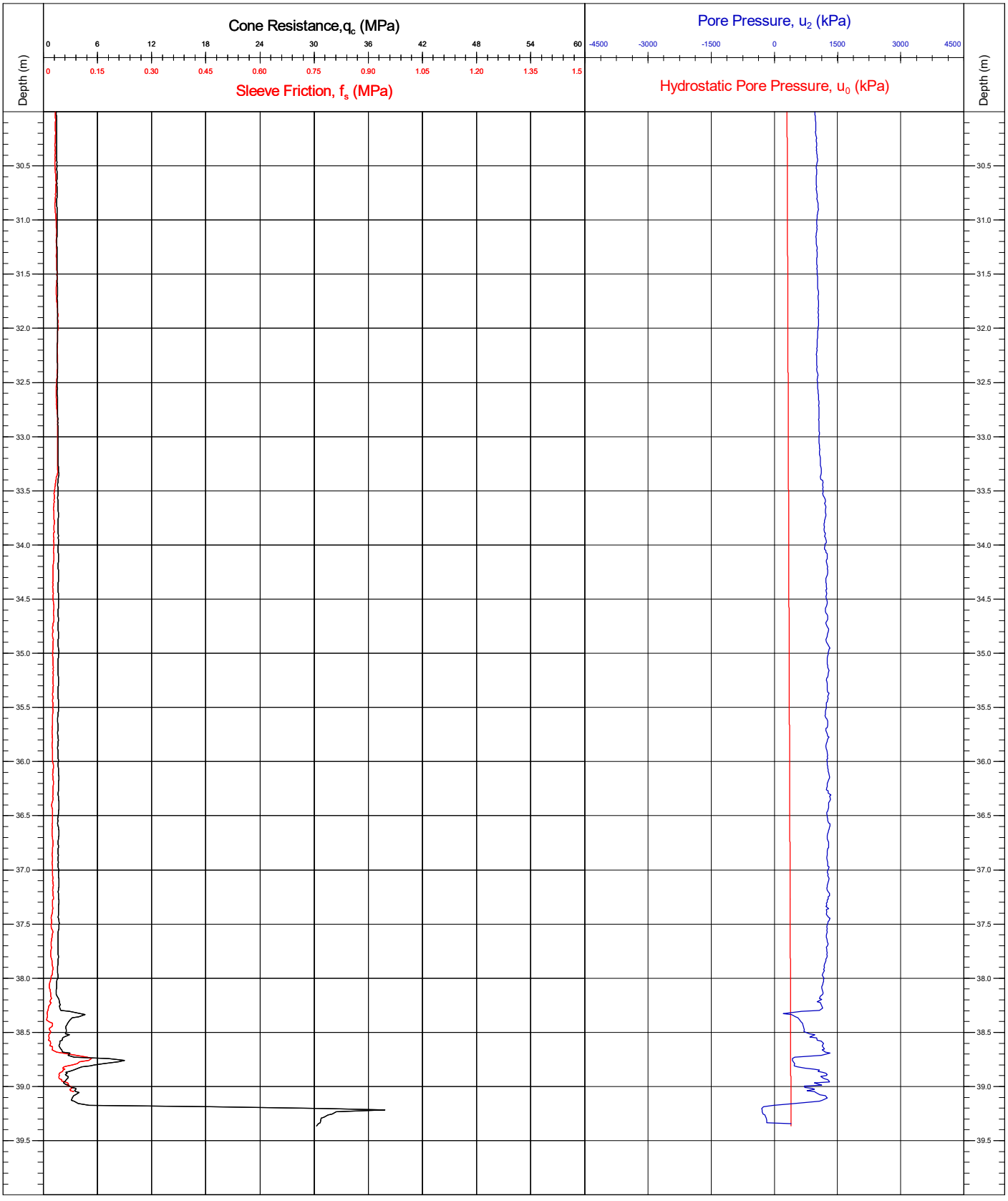


Area	**Kattegat Sea**	Coordinates	**668527.90E**	**6259970.00N**	CPT Number **CPT12**
Contract	**11596**	Latitude / Longitude			
Client Name/Ref	**Energinet Eltransmission A/S/384_20_ENE**	Water Depth (mMSL)	**26.08**		
Vessel	**MV Ocean Vantage**	Date of Test	**29/04/2021**		Page: 3/4
		Cone No.(size)/α Factor	**181005 (10cm^2) / 0.73**		QC Status
		Base Inclination	**X = 1.2° / Y = 0.8°**		Preliminary: **JK/BC** (29/04/2021) · Draft: **DR** (10/06/2021) · Final: **SMc** (10/11/2021)
		CRS	**ETRS89**		

Comments: Cone class 2. Continuous seabed CPT. Final depth 39.53m. Test terminated at operators discretion due to high inclination~ total load and risk of rod bend

Preliminary Investigation, Hesselø OWF

IN SITU CPTU TESTING - MEASURED PARAMETERS



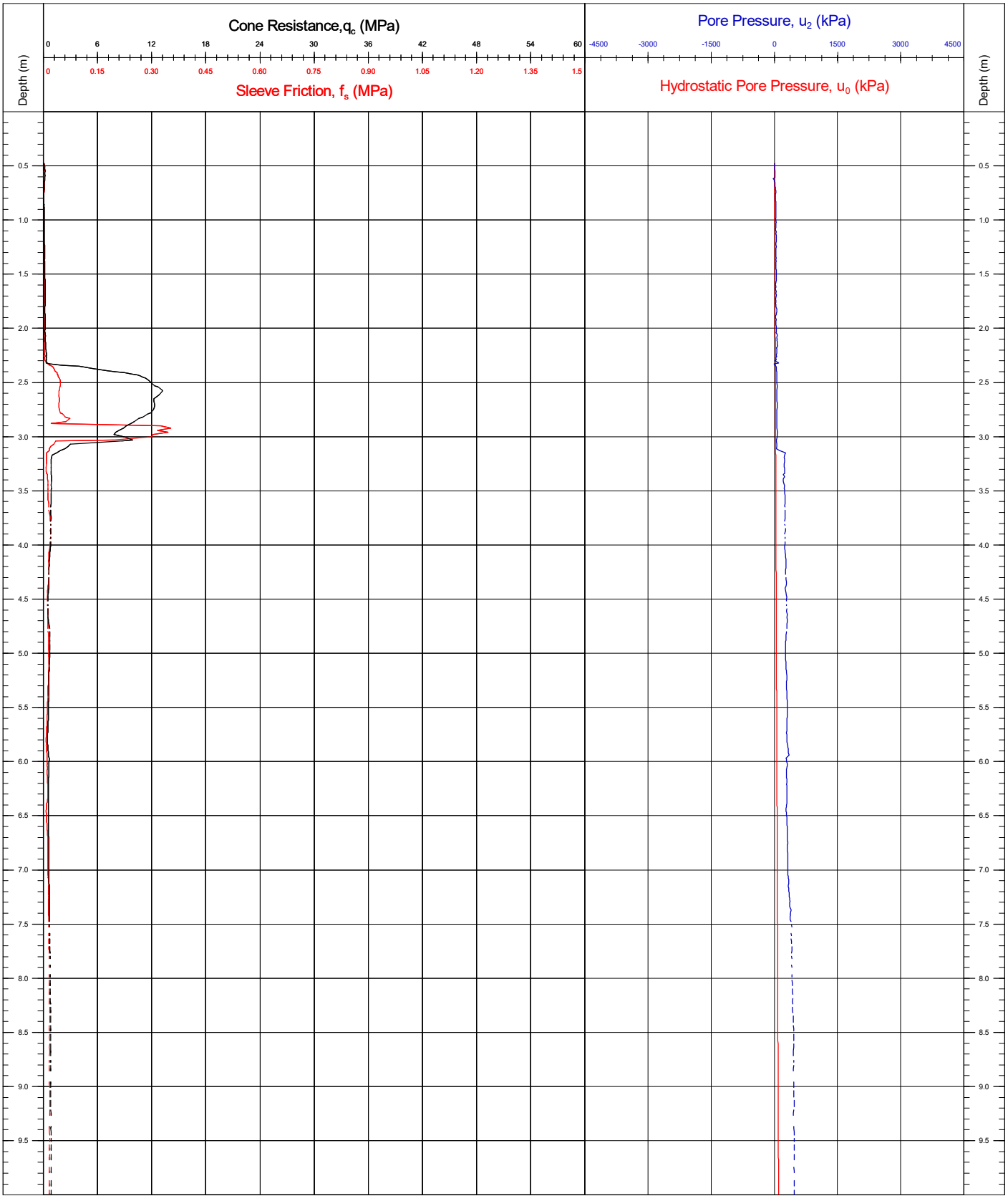
Area	**Kattegat Sea**	Coordinates	**668527.90E 6259970.00N**	CPT Number	**CPT12**
Contract	**11596**	Latitude / Longitude			
Client Name/Ref	**Energinet Eltransmission A/S/384_20_ENE**	Water Depth (mMSL)	**26.08**		
Vessel	**MV Ocean Vantage**	Date of Test	**29/04/2021**	Page: 4/4	
		Cone No.(size)/α Factor	**181005 (10cm^2) / 0.73**	QC Status	
		Base Inclination	**X = 1.2° / Y = 0.8°**	Preliminary: **JK/BC (29/04/2021)**	Draft: **DR (10/06/2021)**
		CRS **ETRS89**			Final: **SMc (10/11/2021)**

Comments: Cone class 2. Continuous seabed CPT. Final depth 39.53m. Test terminated at operators discretion due to high inclination~ total load and risk of rod bend

Gardline

Preliminary Investigation, Hesselø OWF

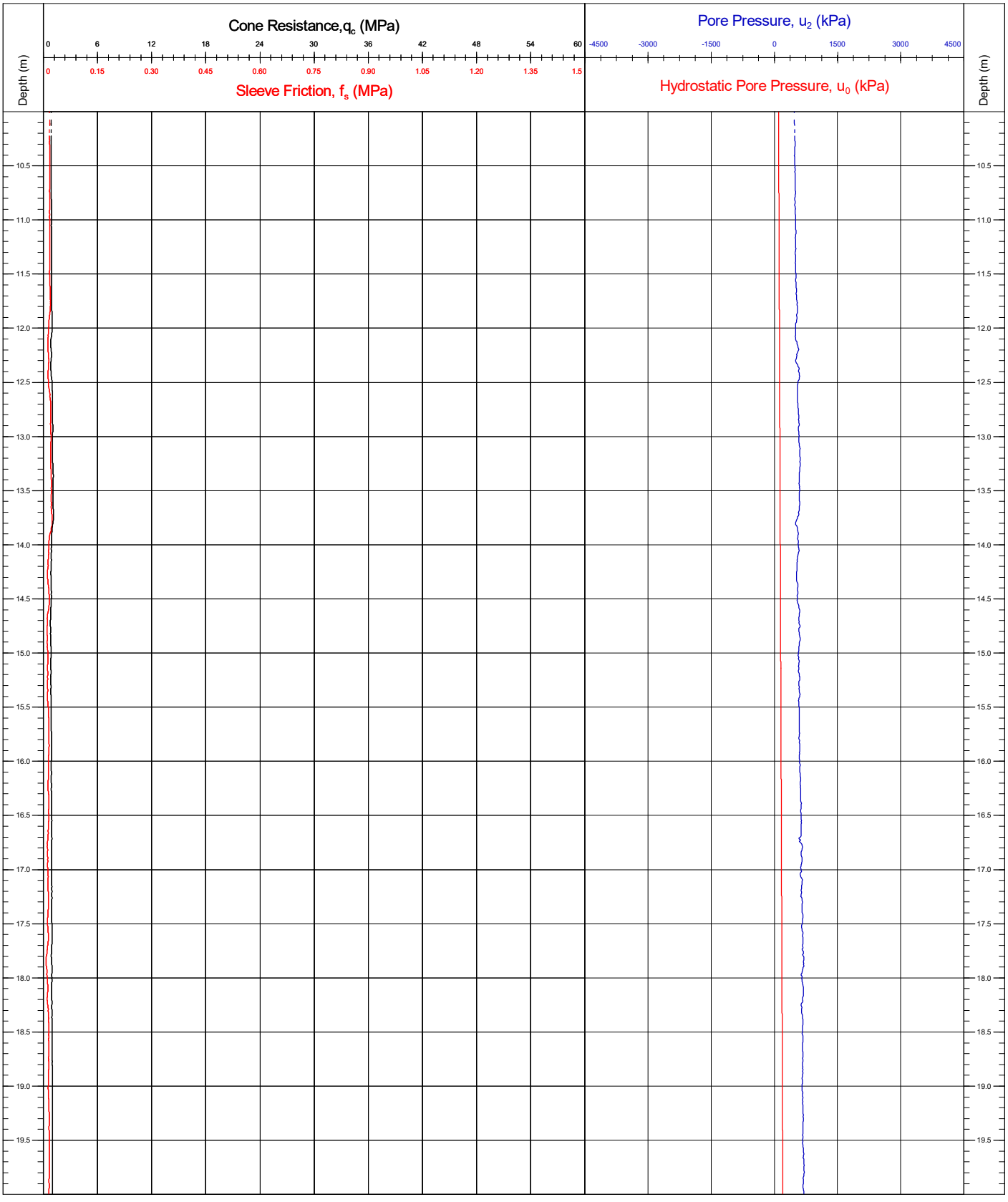
IN SITU CPTU TESTING - MEASURED PARAMETERS



Area	**Kattegat Sea**	Coordinates	**671351.30E 6258725.40N**	CPT Number	**CPT13**
Contract	**11596**	Latitude / Longitude			
Client Name/Ref	**Energinet Eltransmission A/S/384_20_ENE**	Water Depth (mMSL)	**29.34**		
Vessel	**MV Ocean Vantage**	Date of Test	**30/04/2021**	Page: 1/4	
Comments: Cone class 3. Continuous seabed CPT. Final depth 35.42m. Test terminated due to a maximum sleeve friction refusal.		Cone No.(size)/α Factor	**181009 (10cm^2) / 0.86**	QC Status	
		Base Inclination	**X = 1.2° / Y = 0.8°**	Preliminary: **JK/BC** (30/04/2021)	Draft: **DR** (10/06/2021)
		CRS **ETRS89**			Final: **SMc** (10/11/2021)

Preliminary Investigation, Hesselø OWF

IN SITU CPTU TESTING - MEASURED PARAMETERS

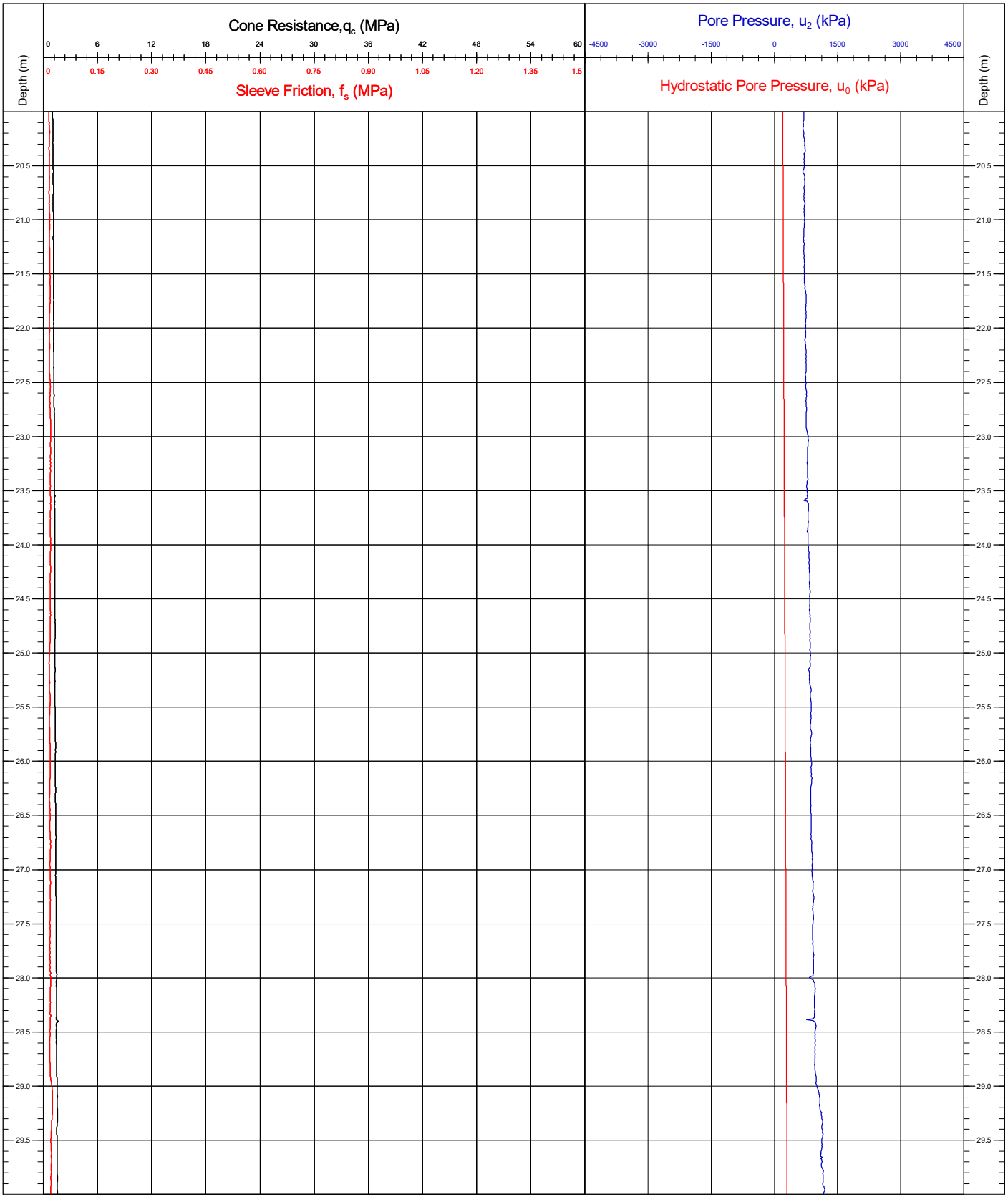


Area	**Kattegat Sea**	Coordinates	**671351.30E** **6258725.40N**	CPT Number	**CPT13**
Contract	**11596**	Latitude / Longitude			
Client Name/Ref	**Energinet Eltransmission A/S/384_20_ENE**	Water Depth (mMSL)	**29.34**		
Vessel	**MV Ocean Vantage**	Date of Test	**30/04/2021**	Page: 2/4	
		Cone No.(size)/α Factor	**181009 (10cm^2) / 0.86**	QC Status	
		Base Inclination	**X = 1.2° / Y = 0.8°**	Preliminary: **JK/BC** (30/04/2021)	Draft: **DR** (10/06/2021)
		CRS **ETRS89**			Final: **SMc** (10/11/2021)

Comments: Cone class 3. Continuous seabed CPT. Final depth 35.42m. Test terminated due to a maximum sleeve friction refusal.

Preliminary Investigation, Hesselø OWF

IN SITU CPTU TESTING - MEASURED PARAMETERS

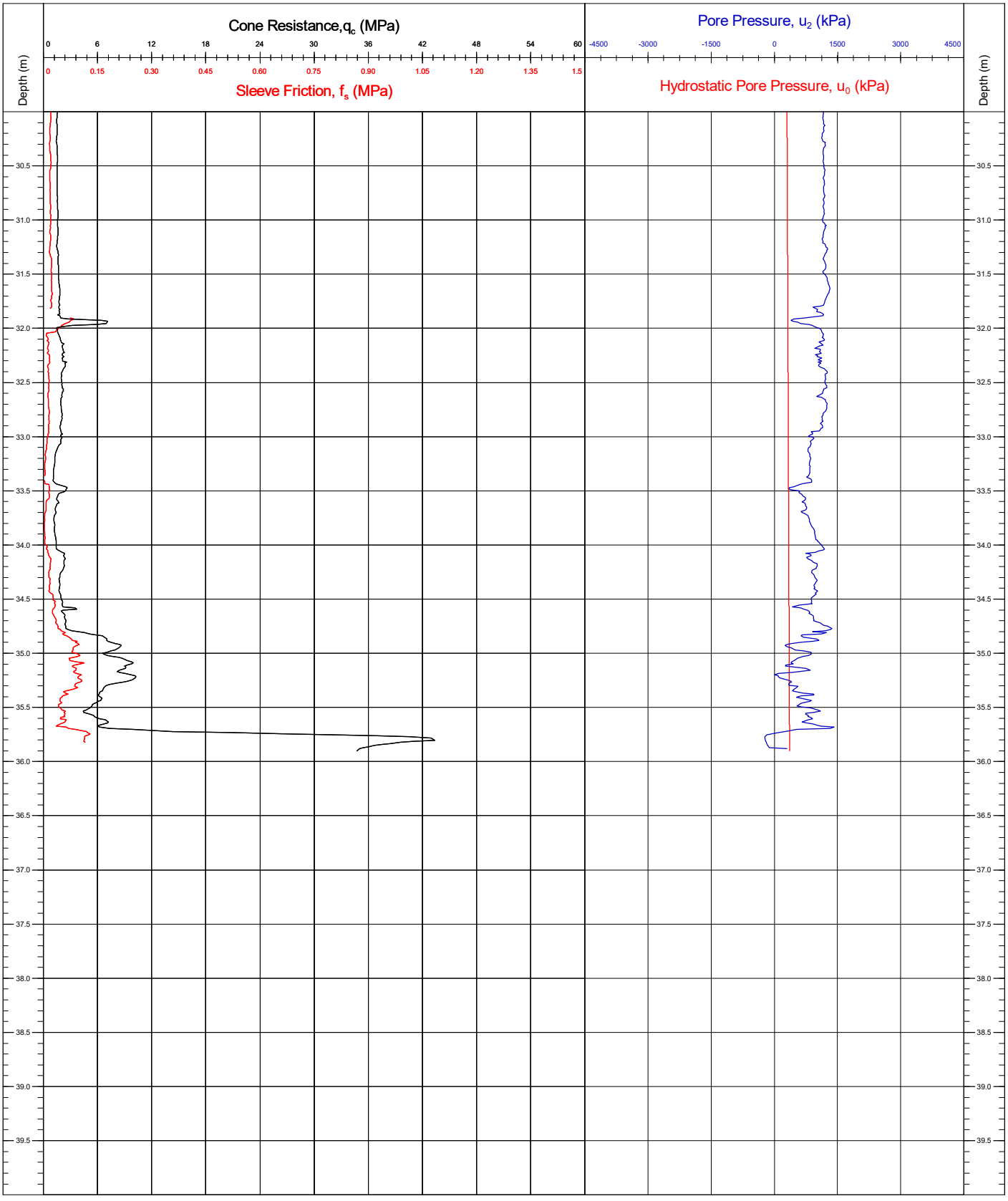


Area	**Kattegat Sea**	Coordinates	**671351.30E**	**6258725.40N**	CPT Number **CPT13**
Contract	**11596**	Latitude / Longitude			
Client Name/Ref	**Energinet Eltransmission A/S/384_20_ENE**	Water Depth (mMSL)	**29.34**		
Vessel	**MV Ocean Vantage**	Date of Test	**30/04/2021**		Page: 3/4
Comments: Cone class 3. Continuous seabed CPT. Final depth 35.42m. Test terminated due to a maximum sleeve friction refusal.		Cone No.(size)/α Factor	**181009 (10cm^2) / 0.86**		QC Status
		Base Inclination	**X = 1.2° / Y = 0.8°**		Preliminary: **JK/BC** (30/04/2021) · Draft: **DR** (10/06/2021) · Final: **SMc** (10/11/2021)
		CRS	**ETRS89**		

Gardline

Preliminary Investigation, Hesselø OWF

IN SITU CPTU TESTING - MEASURED PARAMETERS

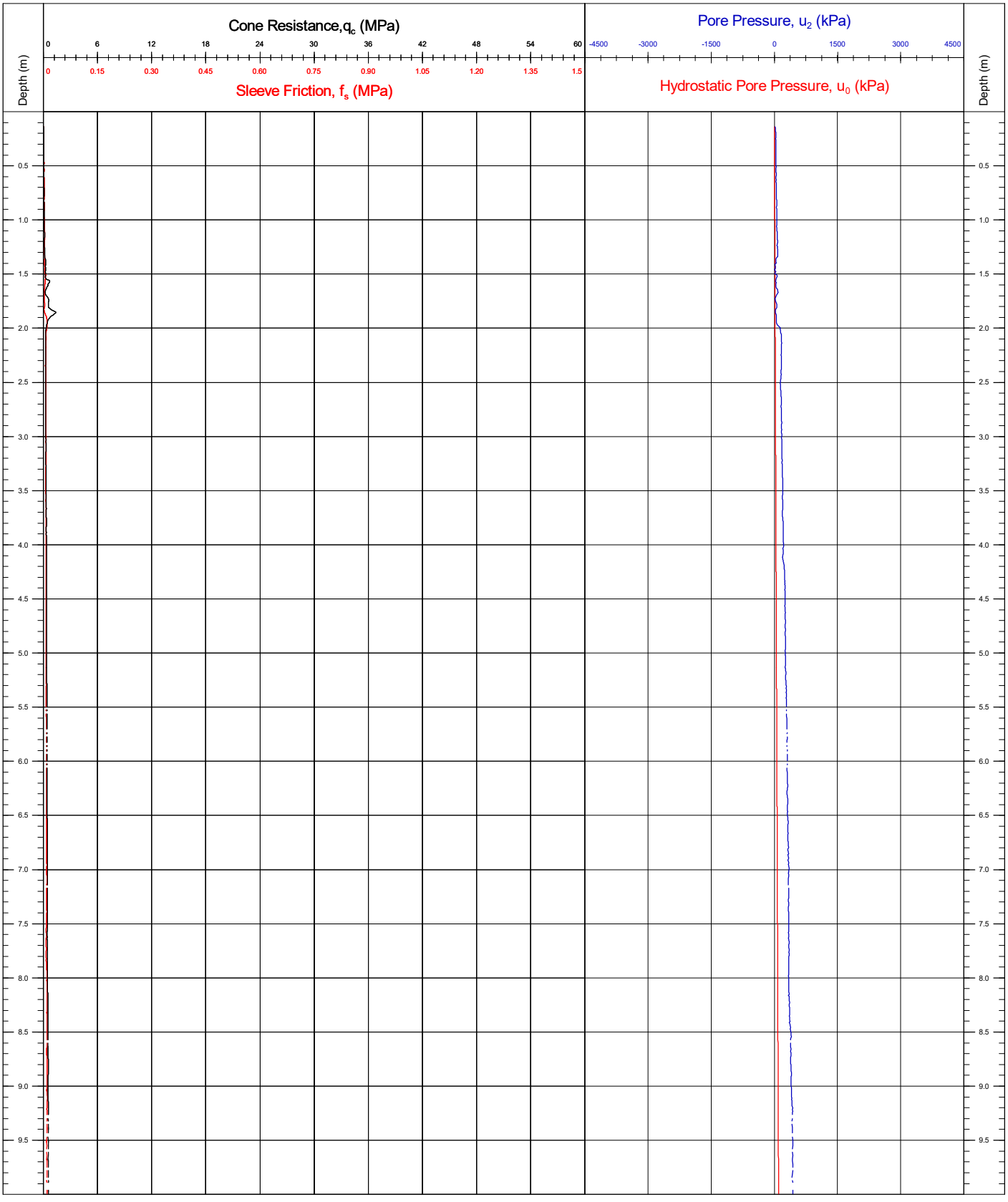


Area	**Kattegat Sea**	Coordinates	**671351.30E 6258725.40N**	CPT Number	**CPT13**
Contract	**11596**	Latitude / Longitude			
Client Name/Ref	**Energinet Eltransmission A/S/384_20_ENE**	Water Depth (mMSL)	**29.34**		
Vessel	**MV Ocean Vantage**	Date of Test	**30/04/2021**	Page: 4/4	
Comments: Cone class 3. Continuous seabed CPT. Final depth 35.42m. Test terminated due to a maximum sleeve friction refusal.		Cone No.(size)/α Factor	**181009 (10cm^2) / 0.86**	QC Status	
		Base Inclination	**X = 1.2° / Y = 0.8°**	Preliminary: **JK/BC** (30/04/2021)	Draft: **DR** (10/06/2021)
		CRS **ETRS89**			Final: **SMc** (10/11/2021)

Gardline

Preliminary Investigation, Hesselø OWF

IN SITU CPTU TESTING - MEASURED PARAMETERS

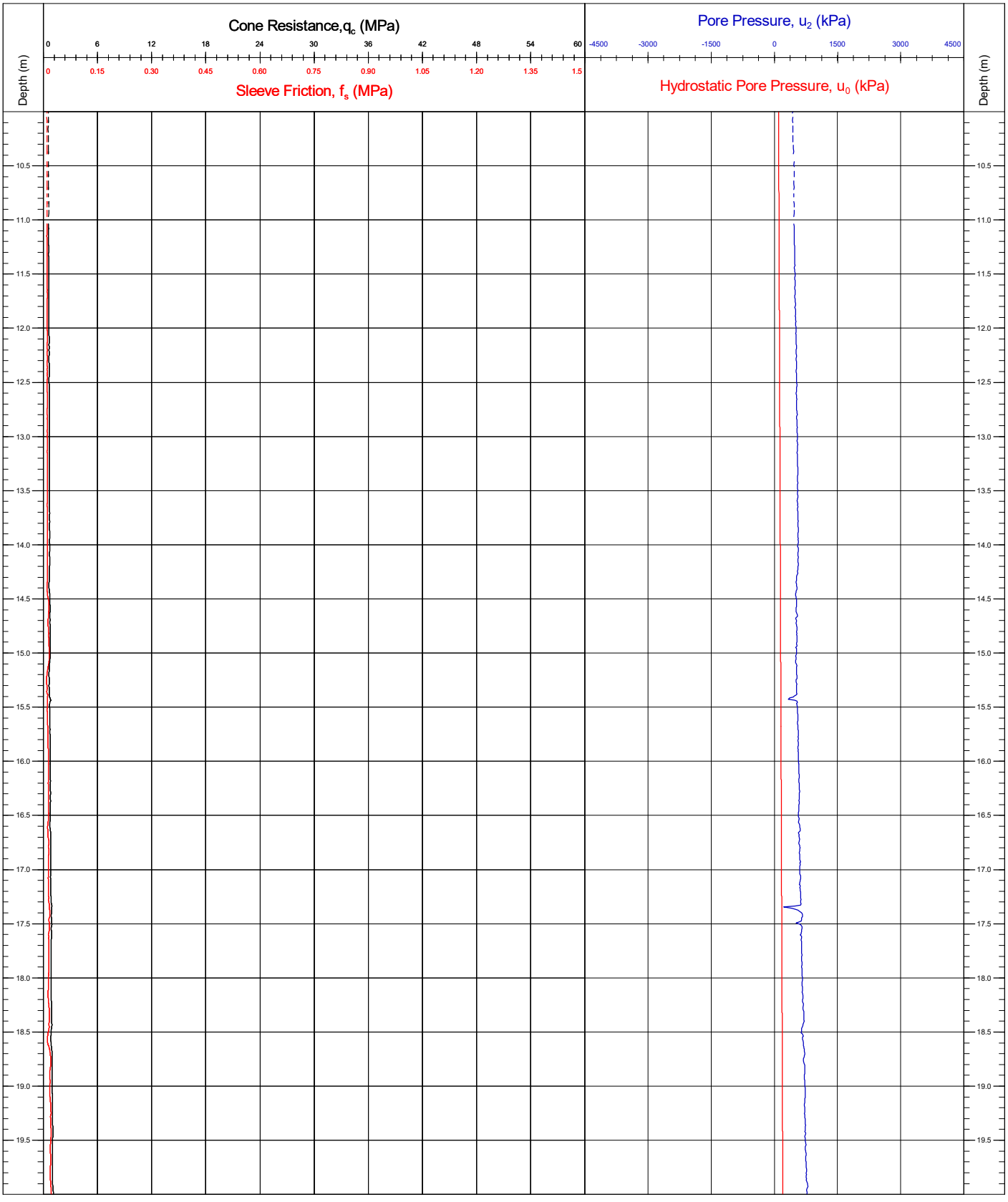


Area	**Kattegat Sea**	Coordinates	**676578.20E** **6259609.00N**	CPT Number	**CPT14**
Contract	**11596**	Latitude / Longitude			
Client Name/Ref	**Energinet Eltransmission A/S/384_20_ENE**	Water Depth (mMSL)	**32.28**		
Vessel	**MV Ocean Vantage**	Date of Test	**26/04/2021**	Page: 1/3	
		Cone No.(size)/α Factor	**130206 (10cm^2) / 0.77**	QC Status	
		Base Inclination	**X = -0.3° / Y = 1.8°**	Preliminary: **JK/BC** (26/04/2021)	Draft: **DR** (10/06/2021) / Final: **SMc** (10/11/2021)
		CRS **ETRS89**			

Comments: Cone Class 4. Continuous seabed CPT. Final depth 27.58m. Test was terminated at operators discretion due to lack of lateral rod support from mudline and increasing cone and SBF inclination

Preliminary Investigation, Hesselø OWF

IN SITU CPTU TESTING - MEASURED PARAMETERS

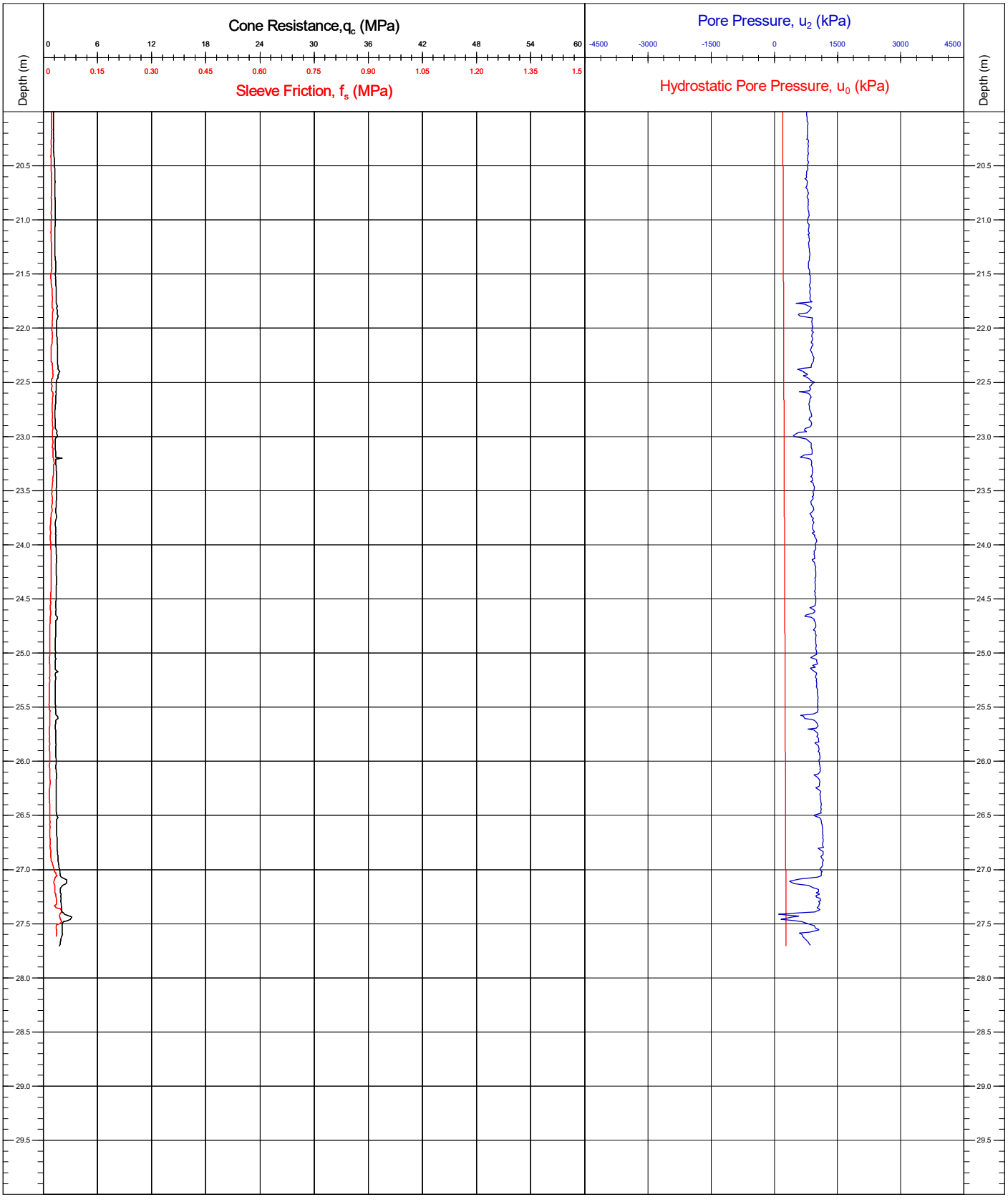


Area	**Kattegat Sea**	Coordinates	**676578.20E** **6259609.00N**	CPT Number	**CPT14**
Contract	**11596**	Latitude / Longitude			
Client Name/Ref	**Energinet Eltransmission A/S/384_20_ENE**	Water Depth (mMSL)	**32.28**		
Vessel	**MV Ocean Vantage**	Date of Test	**26/04/2021**	Page: 2/3	
		Cone No.(size)/α Factor	**130206 (10cm^2) / 0.77**	QC Status	
		Base Inclination	**X = -0.3° / Y = 1.8°**	Preliminary: **JK/BC** (26/04/2021)	Draft: **DR** (10/06/2021) / Final: **SMc** (10/11/2021)
		CRS **ETRS89**			

Comments: Cone Class 4. Continuous seabed CPT. Final depth 27.58m. Test was terminated at operators discretion due to lack of lateral rod support from mudline and increasing cone and SBF inclination

Preliminary Investigation, Hesselø OWF

IN SITU CPTU TESTING - MEASURED PARAMETERS

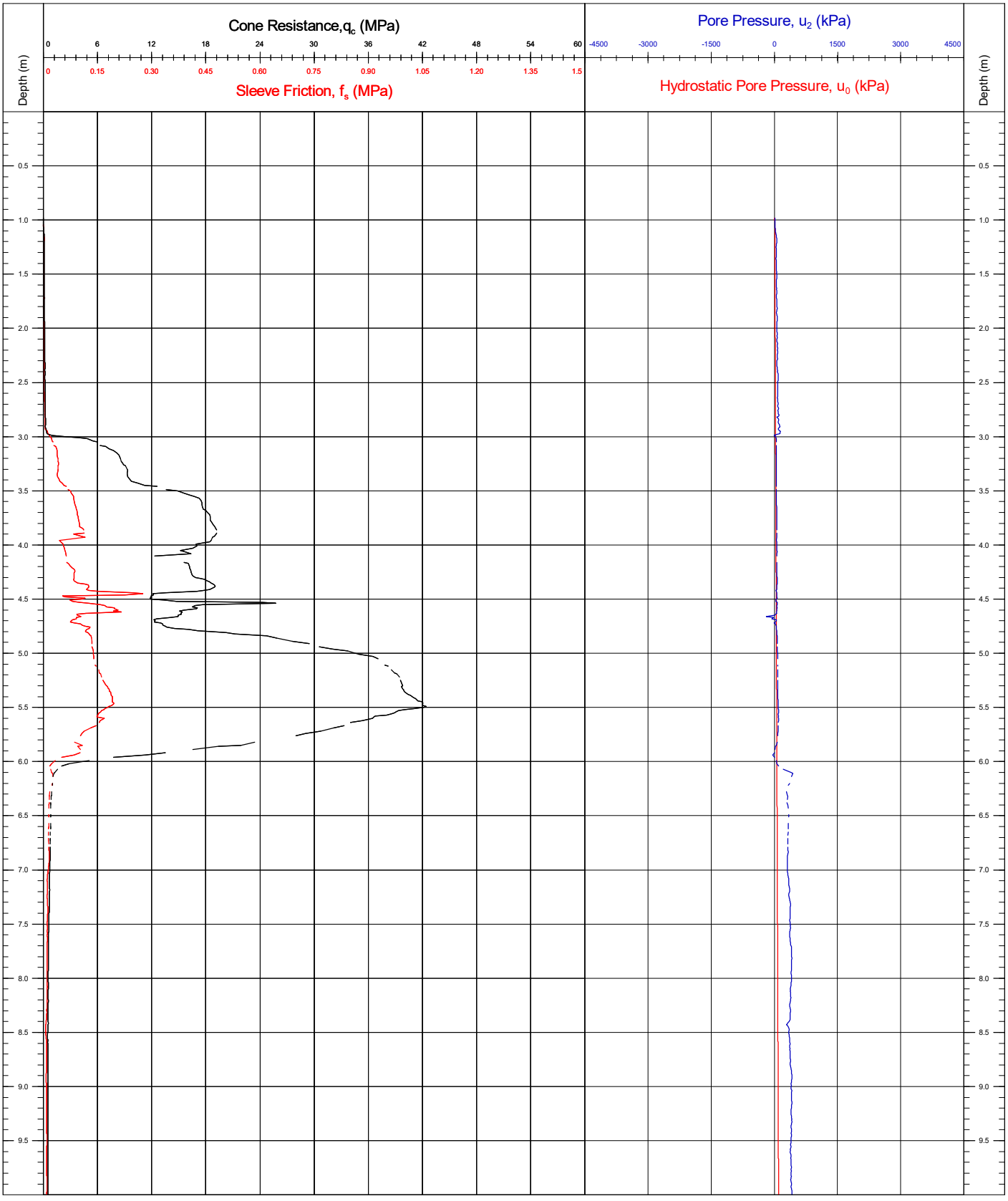


Area	**Kattegat Sea**	Coordinates	**676578.20E** **6259609.00N**	CPT Number	**CPT14**
Contract	**11596**	Latitude / Longitude			
Client Name/Ref	**Energinet Eltransmission A/S/384_20_ENE**	Water Depth (mMSL)	**32.28**		
Vessel	**MV Ocean Vantage**	Date of Test	**26/04/2021**	Page: 3/3	
		Cone No.(size)/α Factor	**130206 (10cm^2) / 0.77**	QC Status	
		Base Inclination	**X = -0.3° / Y = 1.8°**	Preliminary / Draft / Final	
		CRS **ETRS89**		**JK/BC** (26/04/2021) / **DR** (10/06/2021) / **SMc** (10/11/2021)	

Comments: Cone Class 4. Continuous seabed CPT. Final depth 27.58m. Test was terminated at operators discretion due to lack of lateral rod support from mudline and increasing cone and SBF inclination

Preliminary Investigation, Hesselø OWF

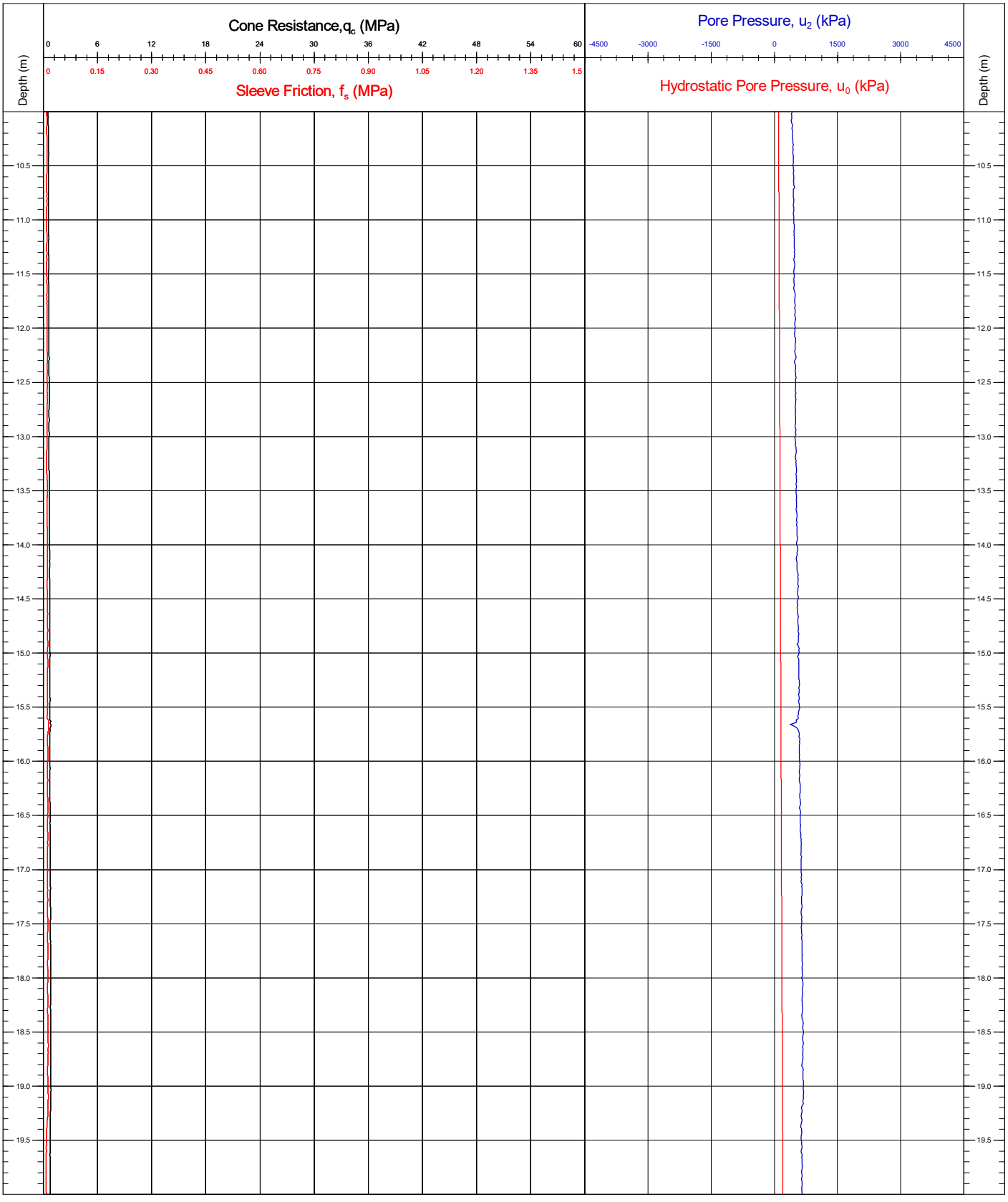
IN SITU CPTU TESTING - MEASURED PARAMETERS



Area	**Kattegat Sea**	Coordinates	**668001.60E 6262849.60N**	CPT Number	**CPT15**
Contract	**11596**	Latitude / Longitude			
Client Name/Ref	**Energinet Eltransmission A/S/384_20_ENE**	Water Depth (mMSL)	**29.01**		
Vessel	**MV Ocean Vantage**	Date of Test	**30/04/2021**	Page: 1/5	
Comments: Cone class 1. Continuous seabed CPT. Final depth 48.84m. Test terminated due to sleeve refusal		Cone No.(size)/α Factor	**120910 (10cm^2) / 0.81**	QC Status	
		Base Inclination	**X = 1.1° / Y = 0.8°**	Preliminary: **JK/BC** (01/05/2021)	Draft: **DR** (10/06/2021) / Final: **SMc** (10/11/2021)
		CRS **ETRS89**			

Preliminary Investigation, Hesselø OWF

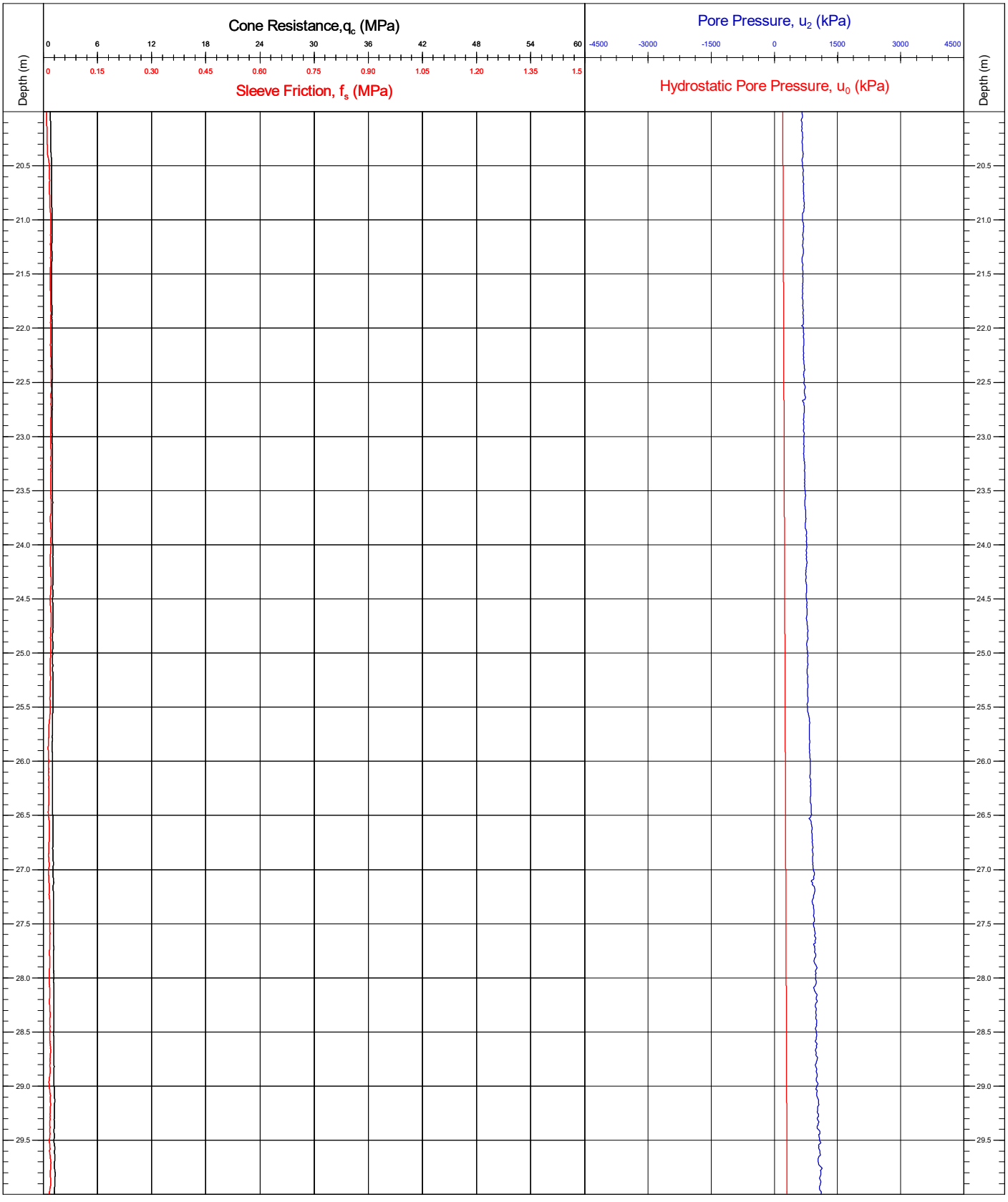
IN SITU CPTU TESTING - MEASURED PARAMETERS



Area	**Kattegat Sea**	Coordinates	**668001.60E 6262849.60N**	CPT Number	**CPT15**
Contract	**11596**	Latitude / Longitude			
Client Name/Ref	**Energinet Eltransmission A/S/384_20_ENE**	Water Depth (mMSL)	**29.01**		
Vessel	**MV Ocean Vantage**	Date of Test	**30/04/2021**	Page: 2/5	
Comments: Cone class 1. Continuous seabed CPT. Final depth 48.84m. Test terminated due to sleeve refusal		Cone No.(size)/α Factor	**120910 (10cm^2) / 0.81**	QC Status	
		Base Inclination	**X = 1.1° / Y = 0.8°**	Preliminary: **JK/BC** (01/05/2021)	Draft: **DR** (10/06/2021)
		CRS **ETRS89**			Final: **SMc** (10/11/2021)

Preliminary Investigation, Hesselø OWF

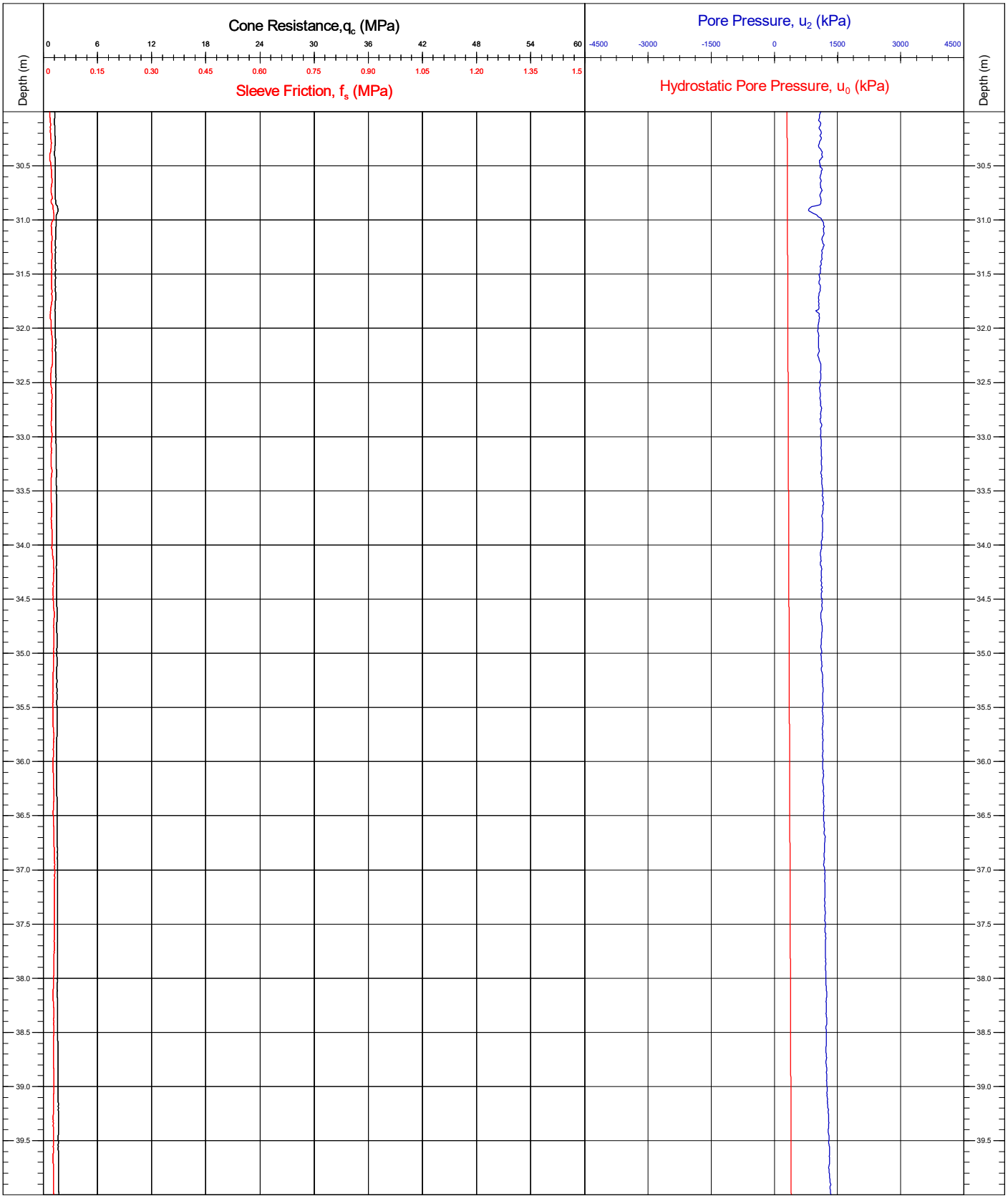
IN SITU CPTU TESTING - MEASURED PARAMETERS



Area	**Kattegat Sea**	Coordinates	**668001.60E 6262849.60N**	CPT Number	**CPT15**
Contract	**11596**	Latitude / Longitude			
Client Name/Ref	**Energinet Eltransmission A/S/384_20_ENE**	Water Depth (mMSL)	**29.01**		
Vessel	**MV Ocean Vantage**	Date of Test	**30/04/2021**	Page: 3/5	
Comments: Cone class 1. Continuous seabed CPT. Final depth 48.84m. Test terminated due to sleeve refusal		Cone No.(size)/α Factor	**120910 (10cm^2) / 0.81**	QC Status	
		Base Inclination	**X = 1.1° / Y = 0.8°**	Preliminary: **JK/BC** (01/05/2021)	Draft: **DR** (10/06/2021)
		CRS **ETRS89**			Final: **SMc** (10/11/2021)

Preliminary Investigation, Hesselø OWF

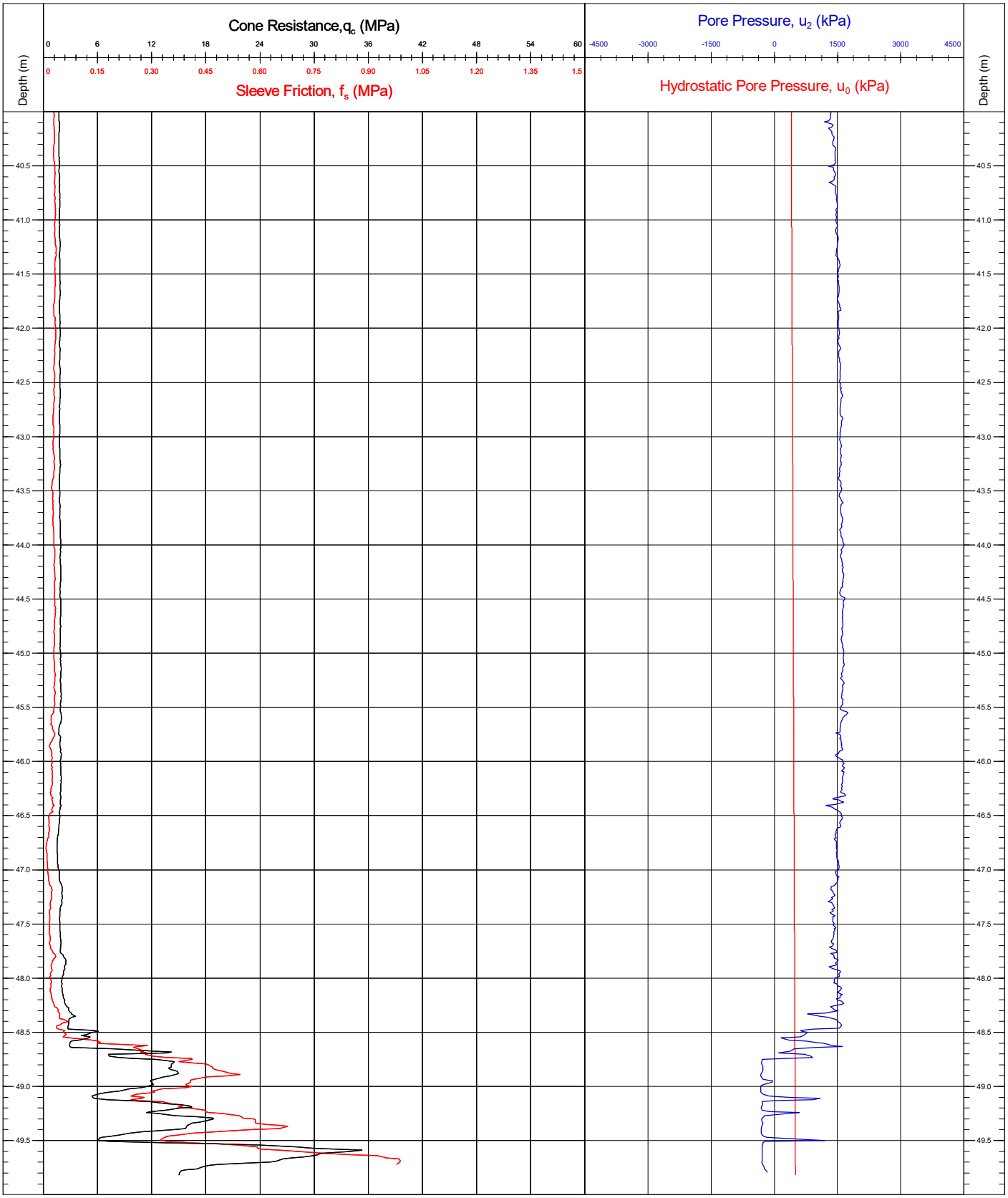
IN SITU CPTU TESTING - MEASURED PARAMETERS



Area	**Kattegat Sea**	Coordinates	**668001.60E 6262849.60N**	CPT Number	**CPT15**
Contract	**11596**	Latitude / Longitude			
Client Name/Ref	**Energinet Eltransmission A/S/384_20_ENE**	Water Depth (mMSL)	**29.01**		
Vessel	**MV Ocean Vantage**	Date of Test	**30/04/2021**	Page: 4/5	
Comments: Cone class 1. Continuous seabed CPT. Final depth 48.84m. Test terminated due to sleeve refusal		Cone No.(size)/α Factor	**120910 (10cm^2) / 0.81**	QC Status	
		Base Inclination	**X = 1.1° / Y = 0.8°**	Preliminary: **JK/BC** (01/05/2021)	Draft: **DR** (10/06/2021)
		CRS **ETRS89**			Final: **SMc** (10/11/2021)

Preliminary Investigation, Hesselø OWF

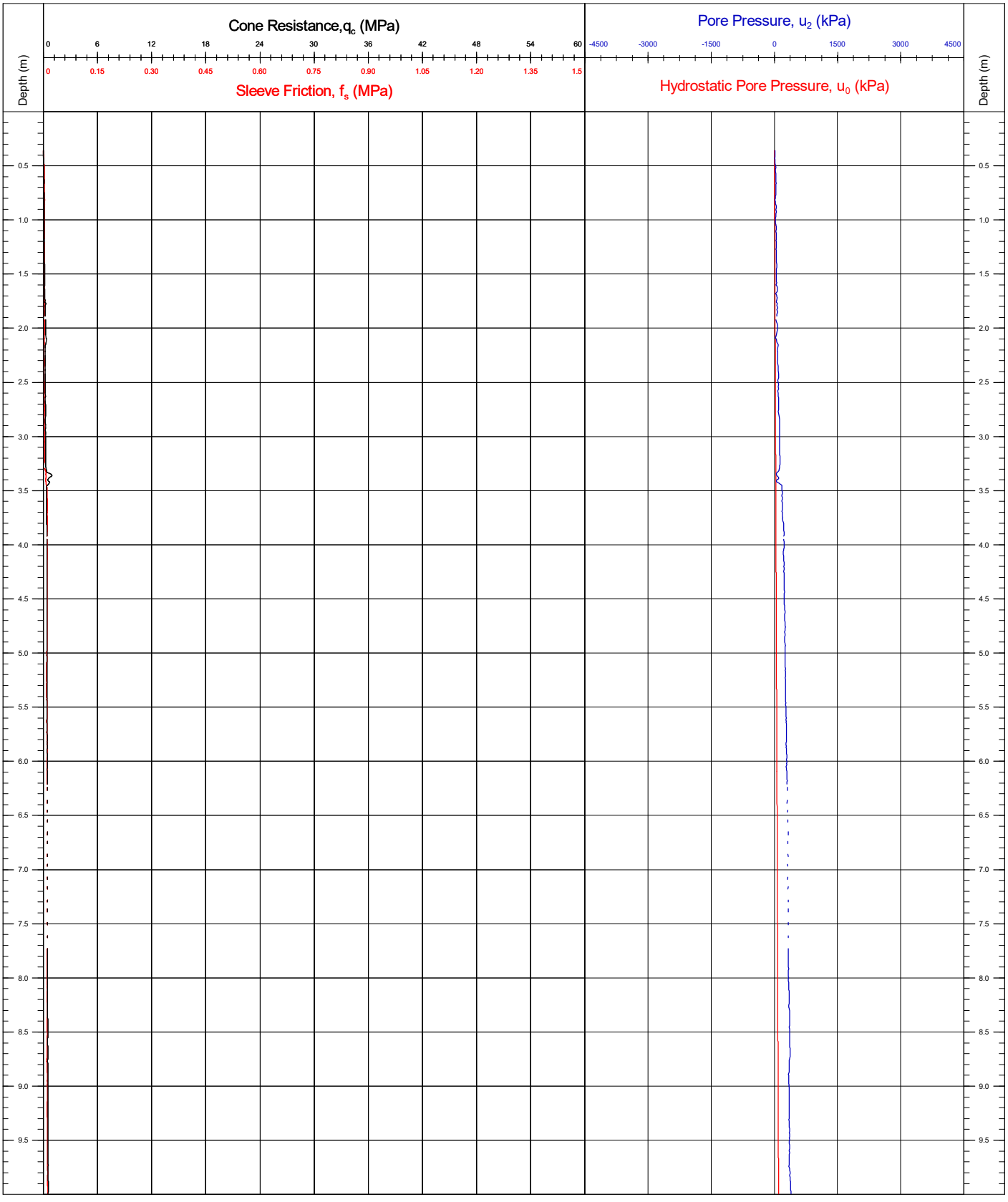
IN SITU CPTU TESTING - MEASURED PARAMETERS



Area	**Kattegat Sea**	Coordinates	**668001.60E 6262849.60N**	CPT Number	**CPT15**
Contract	**11596**	Latitude / Longitude			
Client Name/Ref	**Energinet Eltransmission A/S/384_20_ENE**	Water Depth (mMSL)	**29.01**		
Vessel	**MV Ocean Vantage**	Date of Test	**30/04/2021**	Page: 5/5	
Comments: Cone class 1. Continuous seabed CPT. Final depth 48.84m. Test terminated due to sleeve refusal		Cone No.(size)/α Factor	**120910 (10cm^2) / 0.81**	QC Status	
		Base Inclination	**X = 1.1° / Y = 0.8°**	Preliminary: **JK/BC** (01/05/2021)	Draft: **DR** (10/06/2021)
		CRS **ETRS89**			Final: **SMc** (10/11/2021)

Preliminary Investigation, Hesselø OWF

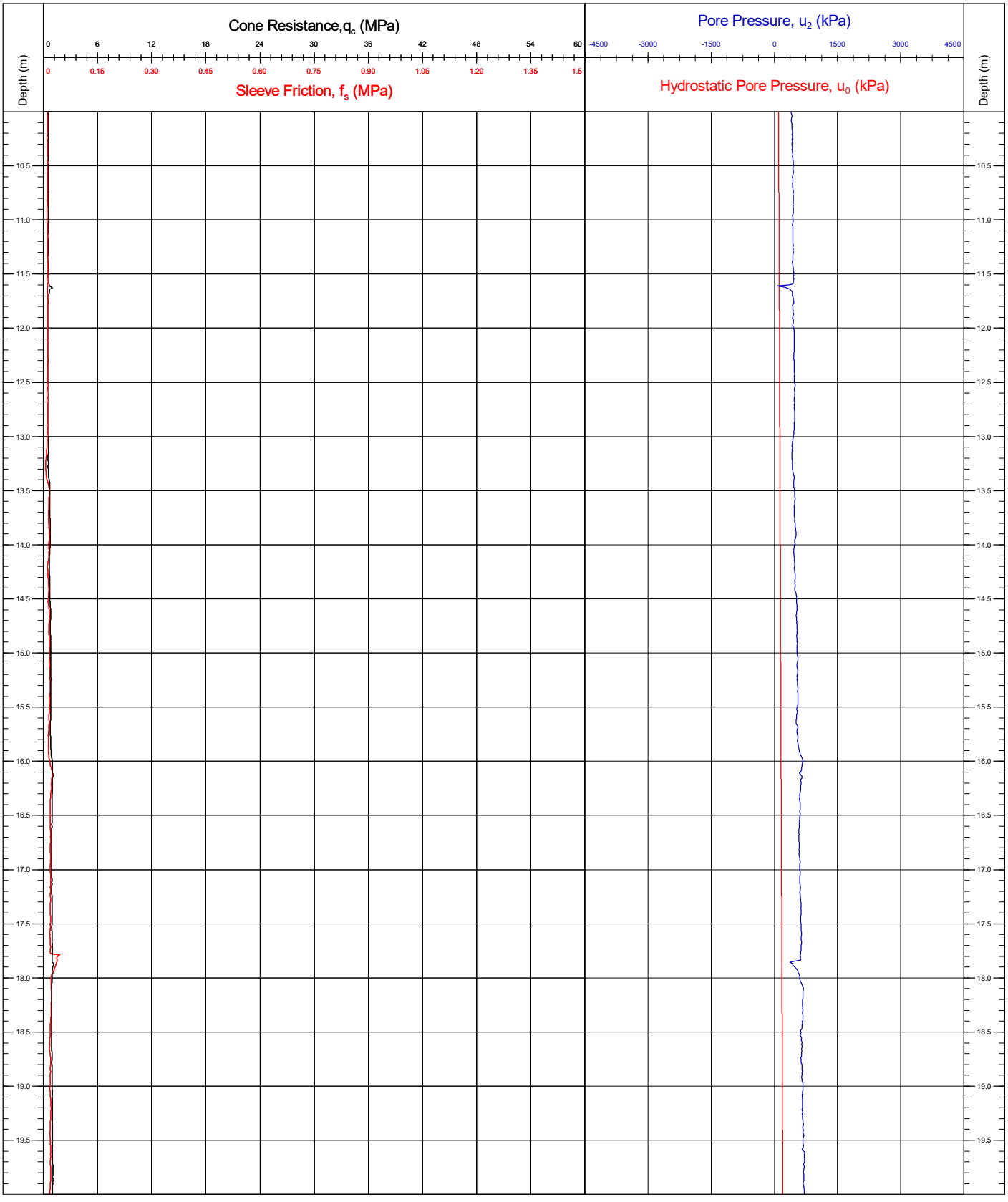
IN SITU CPTU TESTING - MEASURED PARAMETERS



Area	**Kattegat Sea**	Coordinates	**672157.80E**	**6263407.00N**	CPT Number **CPT16**
Contract	**11596**	Latitude / Longitude			
Client Name/Ref	**Energinet Eltransmission A/S/384_20_ENE**	Water Depth (mMSL)	**30.87**		
Vessel	**MV Ocean Vantage**	Date of Test	**30/04/2021**		Page: 1/3
Comments: Cone class 2. Continuous seabed CPT. Final depth 29.42m. Test terminated due to poor data quality after dissipation test.		Cone No.(size)/α Factor	**181004 (10cm^2) / 0.81**		QC Status
		Base Inclination	**X = 1.1° / Y = 1.0°**		Preliminary: **JK/BC** (30/04/2021) · Draft: **DR** (10/06/2021) · Final: **SMc** (10/11/2021)
		CRS	**ETRS89**		

Preliminary Investigation, Hesselø OWF

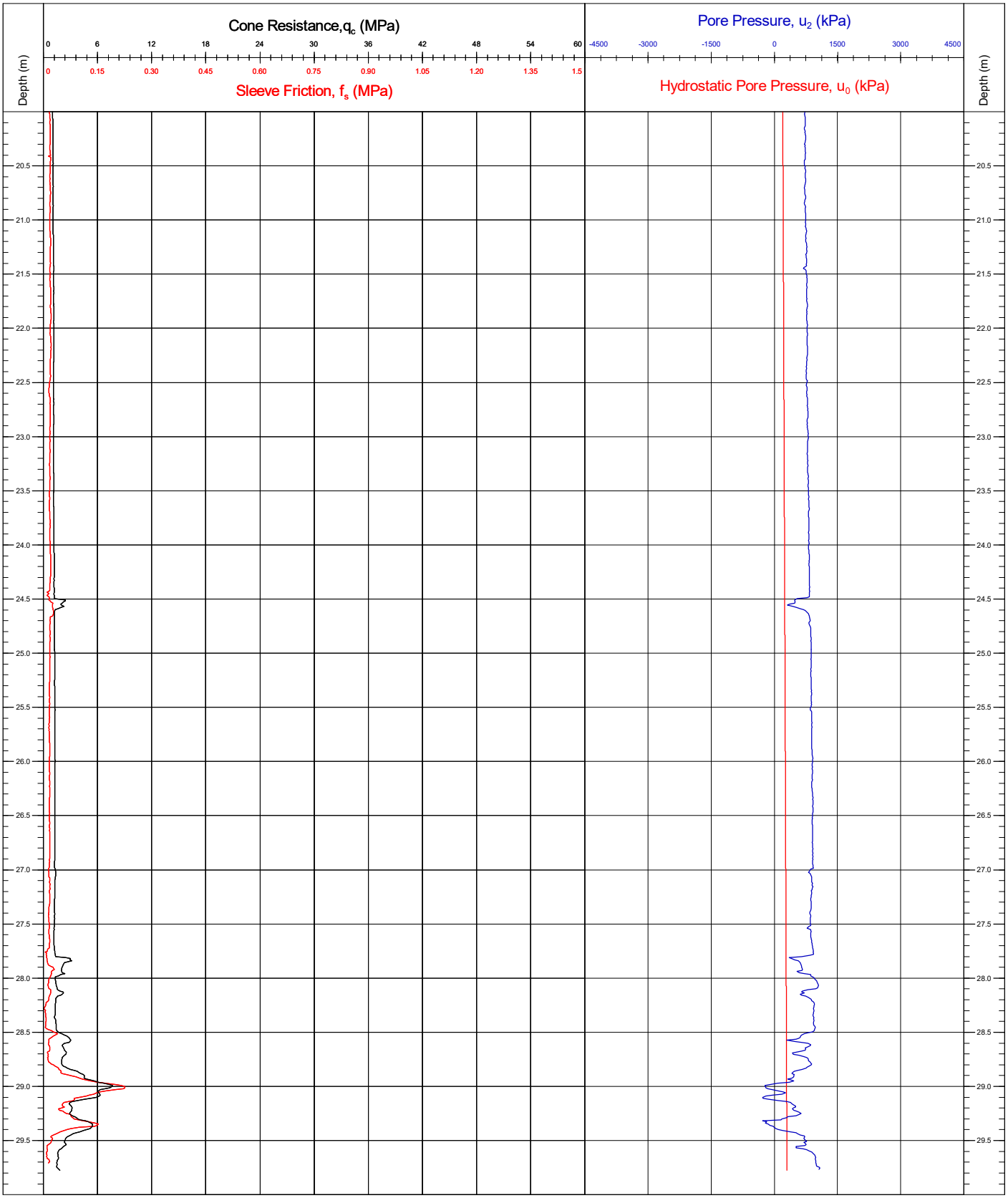
IN SITU CPTU TESTING - MEASURED PARAMETERS



Area	**Kattegat Sea**	Coordinates	**672157.80E**	**6263407.00N**	CPT Number **CPT16**
Contract	**11596**	Latitude / Longitude			
Client Name/Ref	**Energinet Eltransmission A/S/384_20_ENE**	Water Depth (mMSL)	**30.87**		
Vessel	**MV Ocean Vantage**	Date of Test	**30/04/2021**		Page: 2/3
Comments: Cone class 2. Continuous seabed CPT. Final depth 29.42m. Test terminated due to poor data quality after dissipation test.		Cone No.(size)/α Factor	**181004 (10cm^2) / 0.81**		QC Status
		Base Inclination	**X = 1.1° / Y = 1.0°**		Preliminary: **JK/BC** (30/04/2021) · Draft: **DR** (10/06/2021) · Final: **SMc** (10/11/2021)
		CRS	**ETRS89**		

Preliminary Investigation, Hesselø OWF

IN SITU CPTU TESTING - MEASURED PARAMETERS

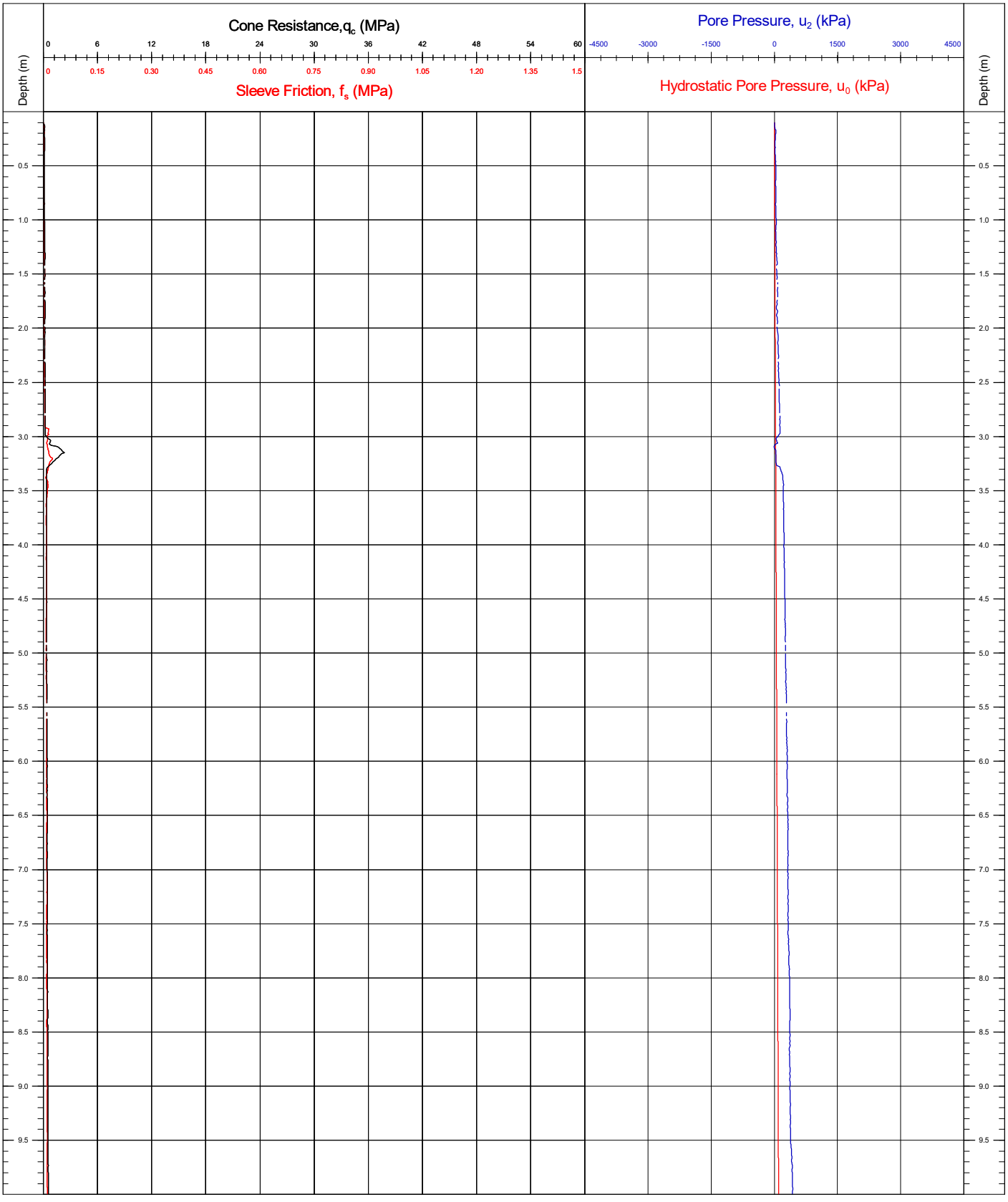


Area	**Kattegat Sea**	Coordinates	**672157.80E**	**6263407.00N**	CPT Number **CPT16**
Contract	**11596**	Latitude / Longitude			
Client Name/Ref	**Energinet Eltransmission A/S/384_20_ENE**	Water Depth (mMSL)	**30.87**		
Vessel	**MV Ocean Vantage**	Date of Test	**30/04/2021**		Page: 3/3
Comments: Cone class 2. Continuous seabed CPT. Final depth 29.42m. Test terminated due to poor data quality after dissipation test.		Cone No.(size)/α Factor	**181004 (10cm^2) / 0.81**		QC Status
		Base Inclination	**X = 1.1° / Y = 1.0°**		Preliminary: **JK/BC** (30/04/2021) · Draft: **DR** (10/06/2021) · Final: **SMc** (10/11/2021)
		CRS	**ETRS89**		

Gardline

Preliminary Investigation, Hesselø OWF

IN SITU CPTU TESTING - MEASURED PARAMETERS

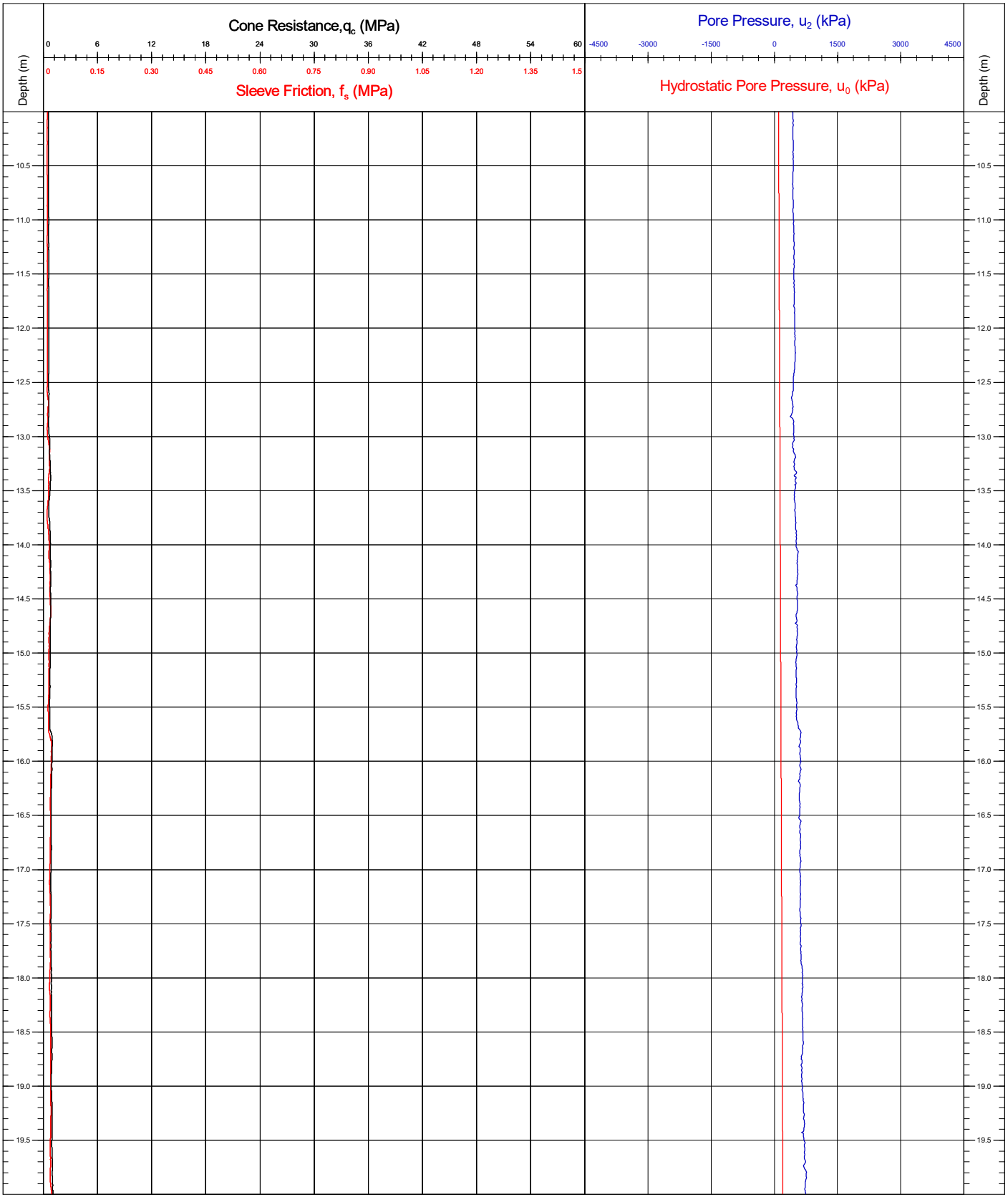


Area	**Kattegat Sea**	Coordinates	**672157.00E 6263401.90N**	CPT Number	**CPT16a**
Contract	**11596**	Latitude / Longitude			
Client Name/Ref	**Energinet Eltransmission A/S/384_20_ENE**	Water Depth (mMSL)	**30.74**		
Vessel	**MV Ocean Vantage**	Date of Test	**08/05/2021**	Page: 1/4	
		Cone No.(size)/α Factor	**130206 (10cm^2) / 0.77**	QC Status	
		Base Inclination	**X = 1.0° / Y = 1.0°**	Preliminary: **JK/BC (08/05/2021)**	Draft: **DR (10/06/2021)**	Final: **SMc (10/11/2021)**
		CRS **ETRS89**			

Comments: Cone class 1. Continuous seabed CPT. Final depth 33.34m. Test terminated at the operators discretion due to increasing total load~ lack of lateral rod support near mudline and total cone inclination reaching near critical

Preliminary Investigation, Hesselø OWF

IN SITU CPTU TESTING - MEASURED PARAMETERS



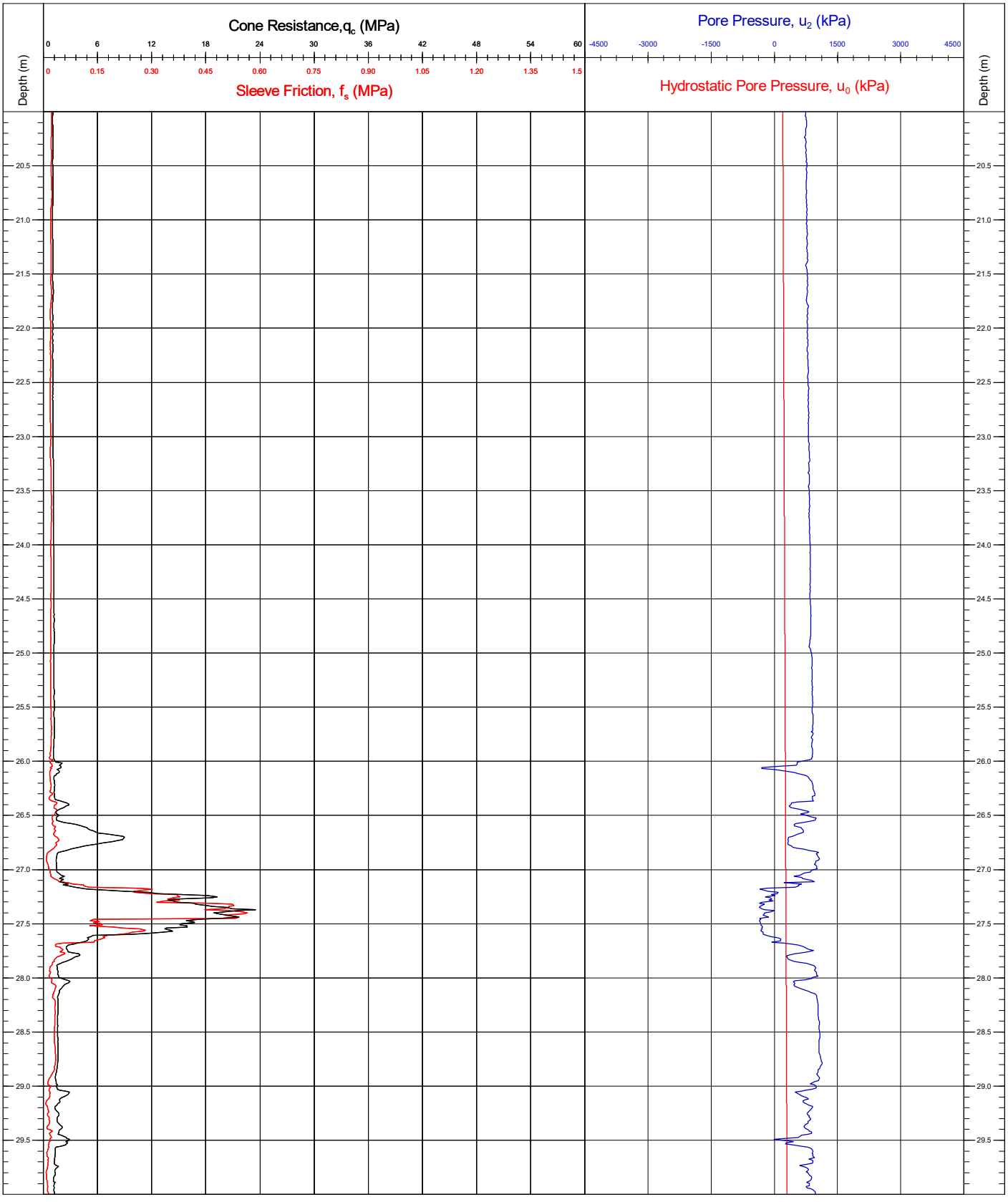
Area	**Kattegat Sea**	Coordinates	**672157.00E**	**6263401.90N**	CPT Number **CPT16a**
Contract	**11596**	Latitude / Longitude			
Client Name/Ref	**Energinet Eltransmission A/S/384_20_ENE**	Water Depth (mMSL)	**30.74**		
Vessel	**MV Ocean Vantage**	Date of Test	**08/05/2021**		Page: 2/4
		Cone No.(size)/α Factor	**130206 (10cm^2) / 0.77**		QC Status
		Base Inclination	**X = 1.0° / Y = 1.0°**		Preliminary: **JK/BC** (08/05/2021); Draft: **DR** (10/06/2021); Final: **SMc** (10/11/2021)
		CRS	**ETRS89**		

Comments: Cone class 1. Continuous seabed CPT. Final depth 33.34m. Test terminated at the operators discretion due to increasing total load~ lack of lateral rod support near mudline and total cone inclination reaching near critical

Gardline

Preliminary Investigation, Hesselø OWF

IN SITU CPTU TESTING - MEASURED PARAMETERS



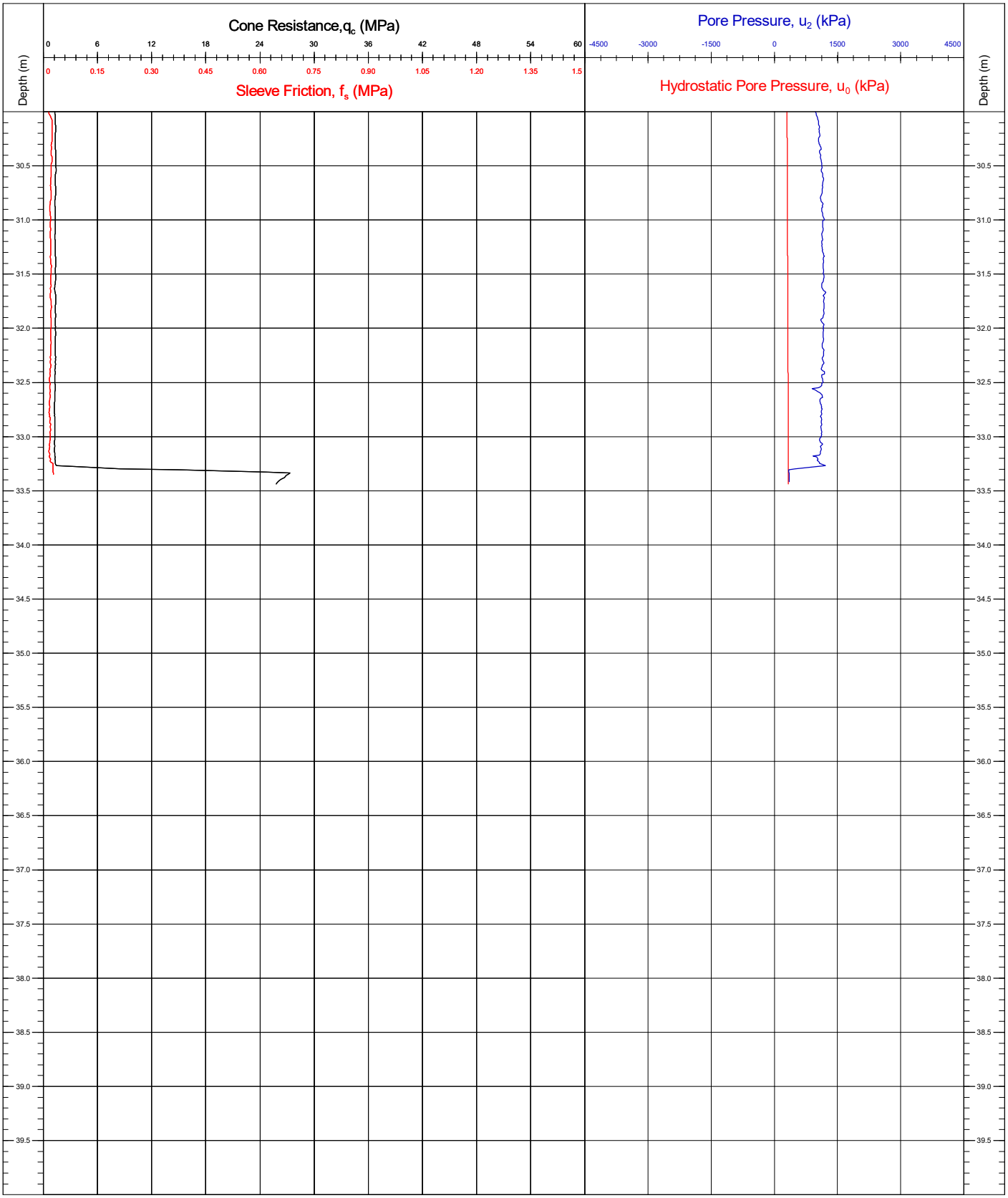
Area	**Kattegat Sea**	Coordinates	**672157.00E** **6263401.90N**	CPT Number	**CPT16a**
Contract	**11596**	Latitude / Longitude			
Client Name/Ref	**Energinet Eltransmission A/S/384_20_ENE**	Water Depth (mMSL)	**30.74**		
Vessel	**MV Ocean Vantage**	Date of Test	**08/05/2021**	Page: 3/4	
		Cone No.(size)/α Factor	**130206 (10cm^2) / 0.77**	QC Status	
		Base Inclination	**X = 1.0° / Y = 1.0°**	Preliminary: **JK/BC** (08/05/2021)	Draft: **DR** (10/06/2021)
		CRS **ETRS89**			Final: **SMc** (10/11/2021)

Comments: Cone class 1. Continuous seabed CPT. Final depth 33.34m. Test terminated at the operators discretion due to increasing total load~ lack of lateral rod support near mudline and total cone inclination reaching near critical

Gardline

Preliminary Investigation, Hesselø OWF

IN SITU CPTU TESTING - MEASURED PARAMETERS

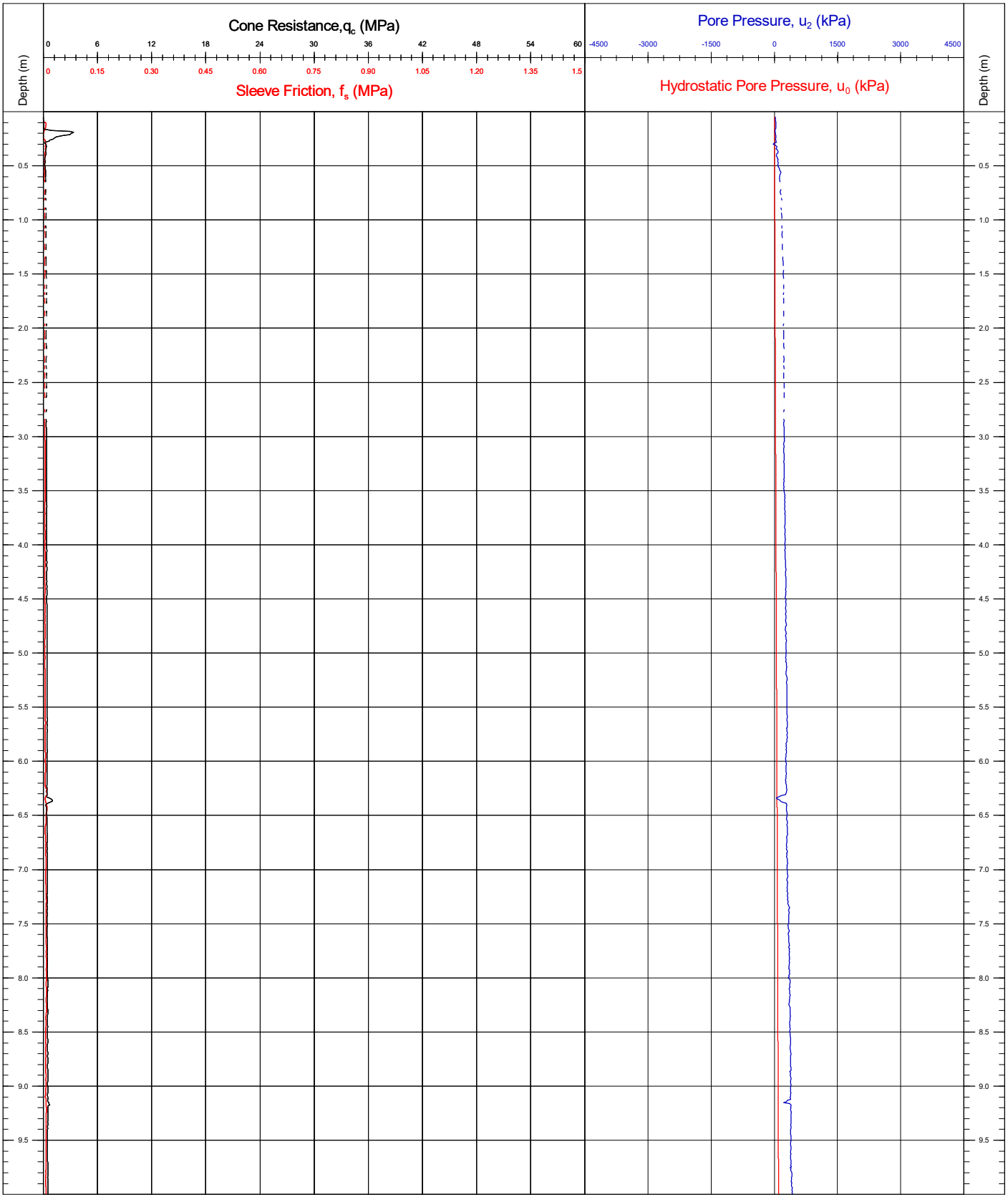


Area	**Kattegat Sea**	Coordinates	**672157.00E** **6263401.90N**	CPT Number	**CPT16a**
Contract	**11596**	Latitude / Longitude			
Client Name/Ref	**Energinet Eltransmission A/S/384_20_ENE**	Water Depth (mMSL)	**30.74**		
Vessel	**MV Ocean Vantage**	Date of Test	**08/05/2021**	Page: 4/4	
		Cone No.(size)/α Factor	**130206 (10cm^2) / 0.77**	QC Status	
		Base Inclination	**X = 1.0° / Y = 1.0°**	Preliminary: **JK/BC** (08/05/2021)	Draft: **DR** (10/06/2021)
		CRS **ETRS89**			Final: **SMc** (10/11/2021)

Comments: Cone class 1. Continuous seabed CPT. Final depth 33.34m. Test terminated at the operators discretion due to increasing total load~ lack of lateral rod support near mudline and total cone inclination reaching near critical

Preliminary Investigation, Hesselø OWF

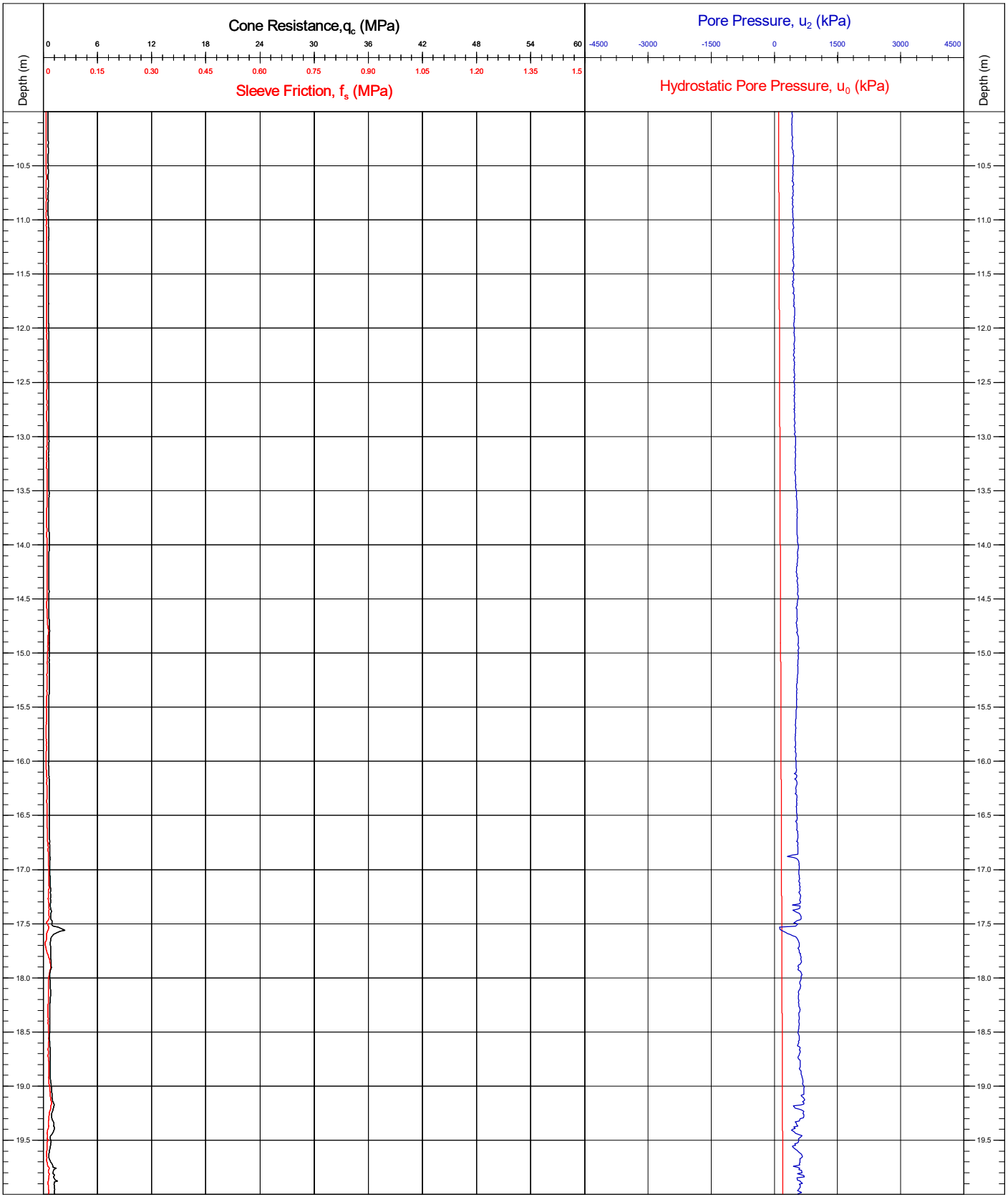
IN SITU CPTU TESTING - MEASURED PARAMETERS



Area	**Kattegat Sea**	Coordinates	**677169.50E**	**6263055.40N**	CPT Number **CPT18**
Contract	**11596**	Latitude / Longitude			
Client Name/Ref	**Energinet Eltransmission A/S/384_20_ENE**	Water Depth (mMSL)	**32.31**		
Vessel	**MV Ocean Vantage**	Date of Test	**25/04/2021**		Page: 1/4
Comments: Cone Class1. Continuous seabed CPT. Final depth 37.74m. Test terminated at operators discretion to avoid damage due to no lateral rod support from mudline		Cone No.(size)/α Factor	**061040 (10cm^2) / 0.76**		QC Status
		Base Inclination	**X = -2.0° / Y = 3.9°**		Preliminary: **JK/BC** (25/04/2021) · Draft: **DR** (10/06/2021) · Final: **SMc** (10/11/2021)
		CRS **ETRS89**			

Preliminary Investigation, Hesselø OWF

IN SITU CPTU TESTING - MEASURED PARAMETERS



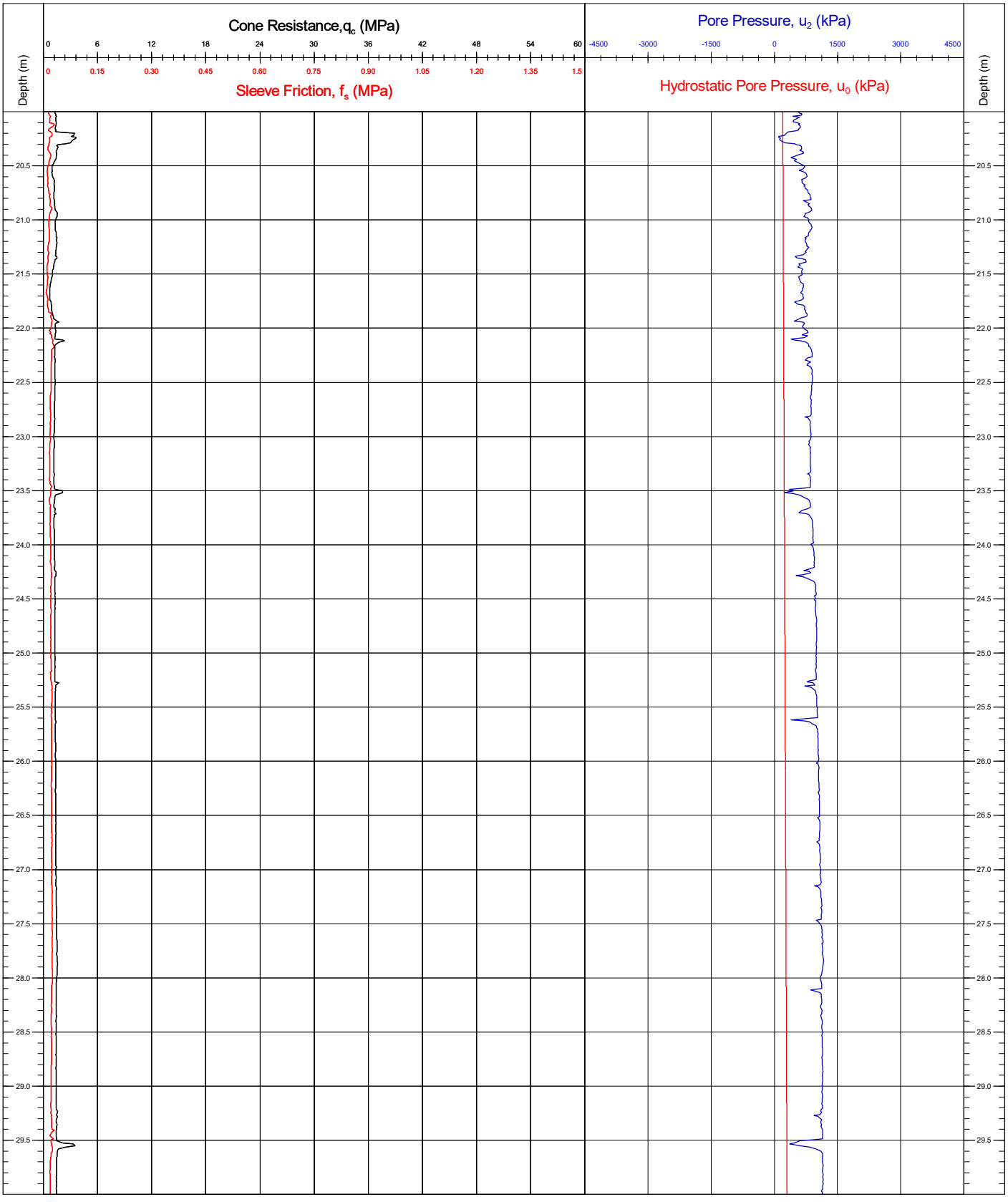
Area	**Kattegat Sea**	Coordinates	**677169.50E**	**6263055.40N**	CPT Number **CPT18**
Contract	**11596**	Latitude / Longitude			
Client Name/Ref	**Energinet Eltransmission A/S/384_20_ENE**	Water Depth (mMSL)	**32.31**		
Vessel	**MV Ocean Vantage**	Date of Test	**25/04/2021**		Page: 2/4
		Cone No.(size)/α Factor	**061040 (10cm^2) / 0.76**		QC Status
		Base Inclination	**X = -2.0° / Y = 3.9°**		Preliminary: **JK/BC (25/04/2021)** · Draft: **DR (10/06/2021)** · Final: **SMc (10/11/2021)**
		CRS	**ETRS89**		

Comments: Cone Class1. Continuous seabed CPT. Final depth 37.74m. Test terminated at operators discretion to avoid damage due to no lateral rod support from mudline

Gardline

Preliminary Investigation, Hesselø OWF

IN SITU CPTU TESTING - MEASURED PARAMETERS

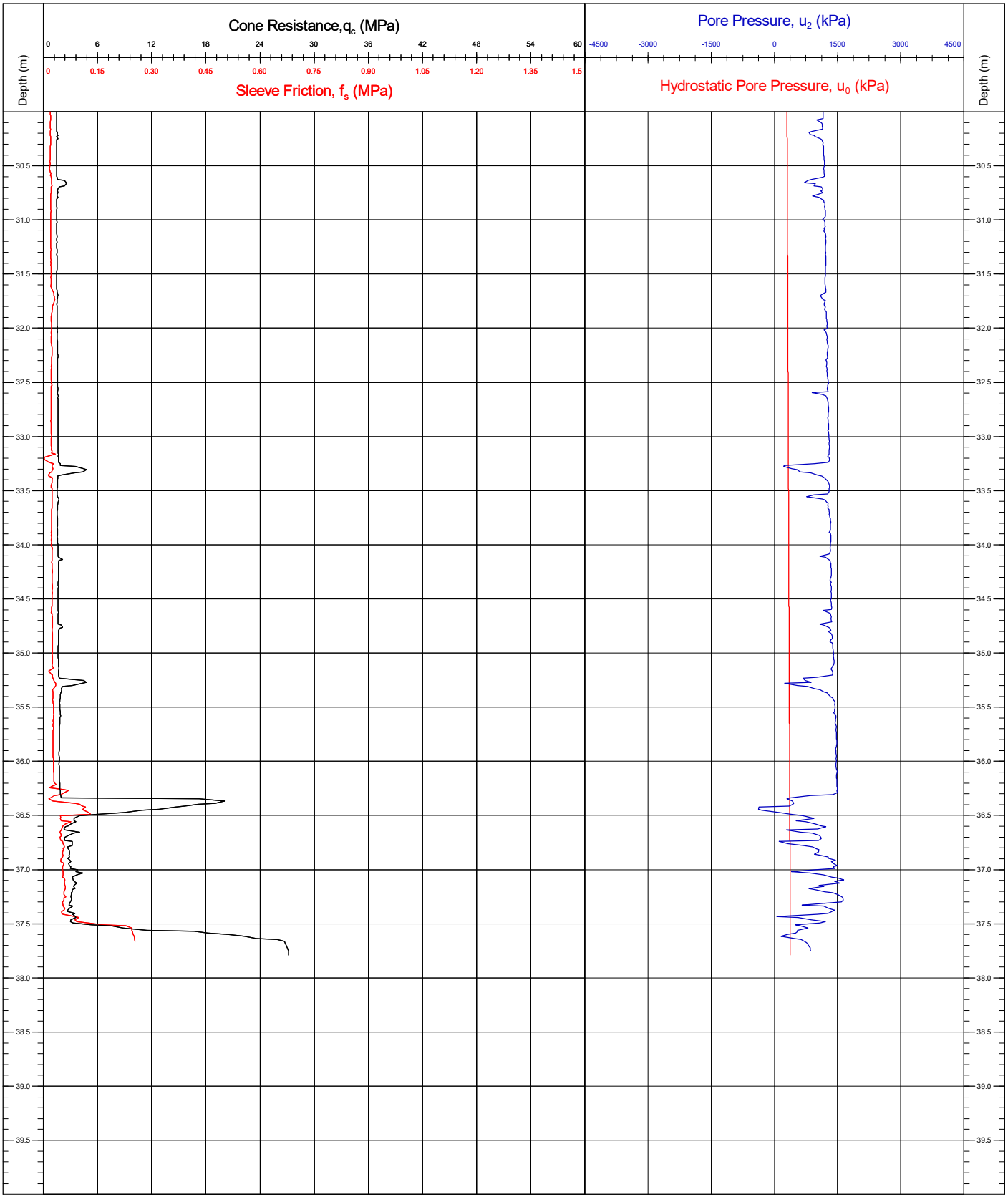


Area	**Kattegat Sea**	Coordinates	**677169.50E**	**6263055.40N**	CPT Number **CPT18**
Contract	**11596**	Latitude / Longitude			
Client Name/Ref	**Energinet Eltransmission A/S/384_20_ENE**	Water Depth (mMSL)	**32.31**		
Vessel	**MV Ocean Vantage**	Date of Test	**25/04/2021**		Page: 3/4
		Cone No.(size)/α Factor	**061040 (10cm^2) / 0.76**		QC Status
		Base Inclination	**X = -2.0° / Y = 3.9°**		Preliminary: **JK/BC** (25/04/2021) · Draft: **DR** (10/06/2021) · Final: **SMc** (10/11/2021)
		CRS	**ETRS89**		

Comments: Cone Class1. Continuous seabed CPT. Final depth 37.74m. Test terminated at operators discretion to avoid damage due to no lateral rod support from mudline

Preliminary Investigation, Hesselø OWF

IN SITU CPTU TESTING - MEASURED PARAMETERS

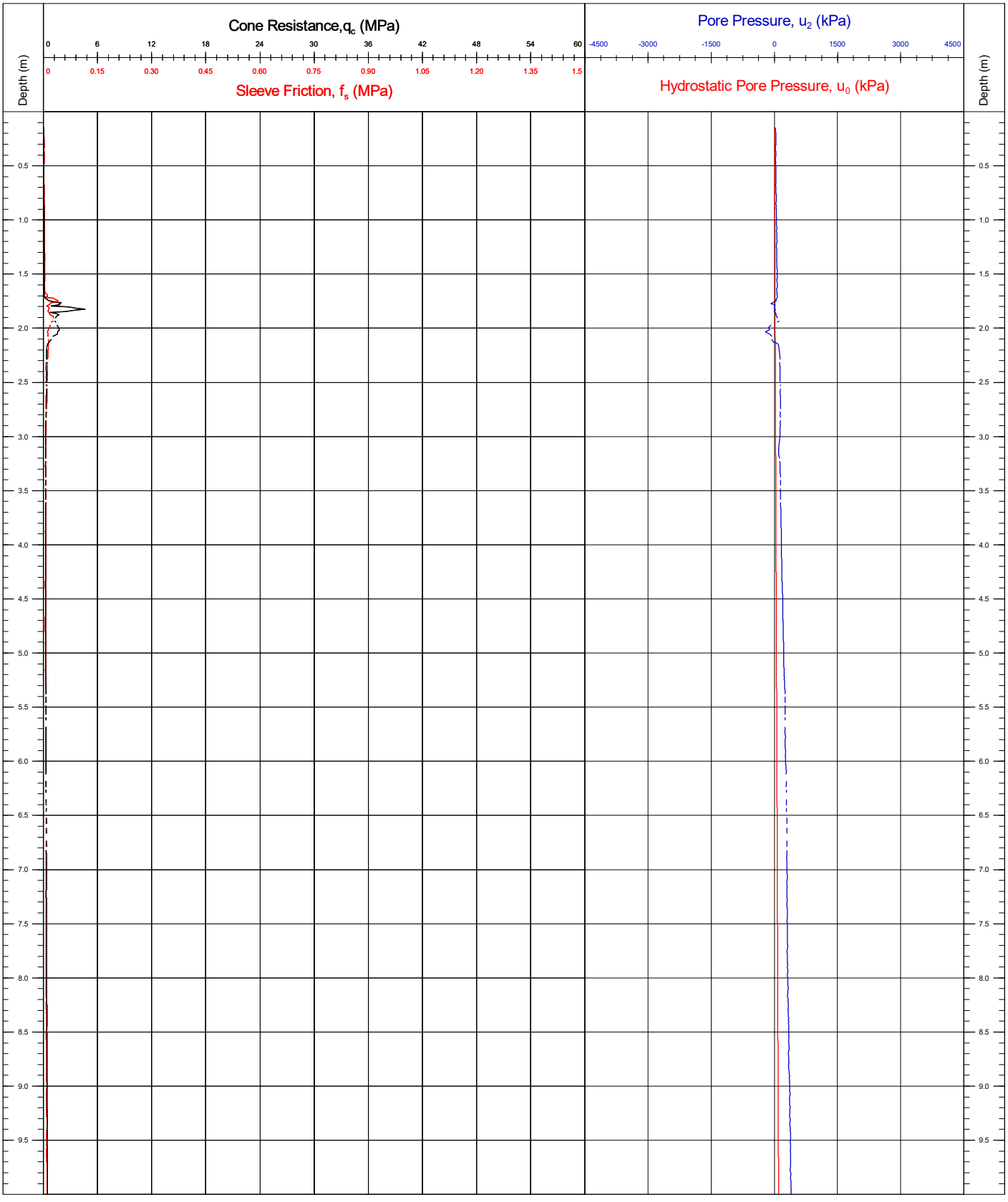


Area	**Kattegat Sea**	Coordinates	**677169.50E**	**6263055.40N**	CPT Number **CPT18**
Contract	**11596**	Latitude / Longitude			
Client Name/Ref	**Energinet Eltransmission A/S/384_20_ENE**	Water Depth (mMSL)	**32.31**		
Vessel	**MV Ocean Vantage**	Date of Test	**25/04/2021**		Page: 4/4
		Cone No.(size)/α Factor	**061040 (10cm^2) / 0.76**		QC Status
		Base Inclination	**X = -2.0° / Y = 3.9°**		Preliminary: **JK/BC** (25/04/2021) · Draft: **DR** (10/06/2021) · Final: **SMc** (10/11/2021)
		CRS	**ETRS89**		

Comments: Cone Class1. Continuous seabed CPT. Final depth 37.74m. Test terminated at operators discretion to avoid damage due to no lateral rod support from mudline

Preliminary Investigation, Hesselø OWF

IN SITU CPTU TESTING - MEASURED PARAMETERS

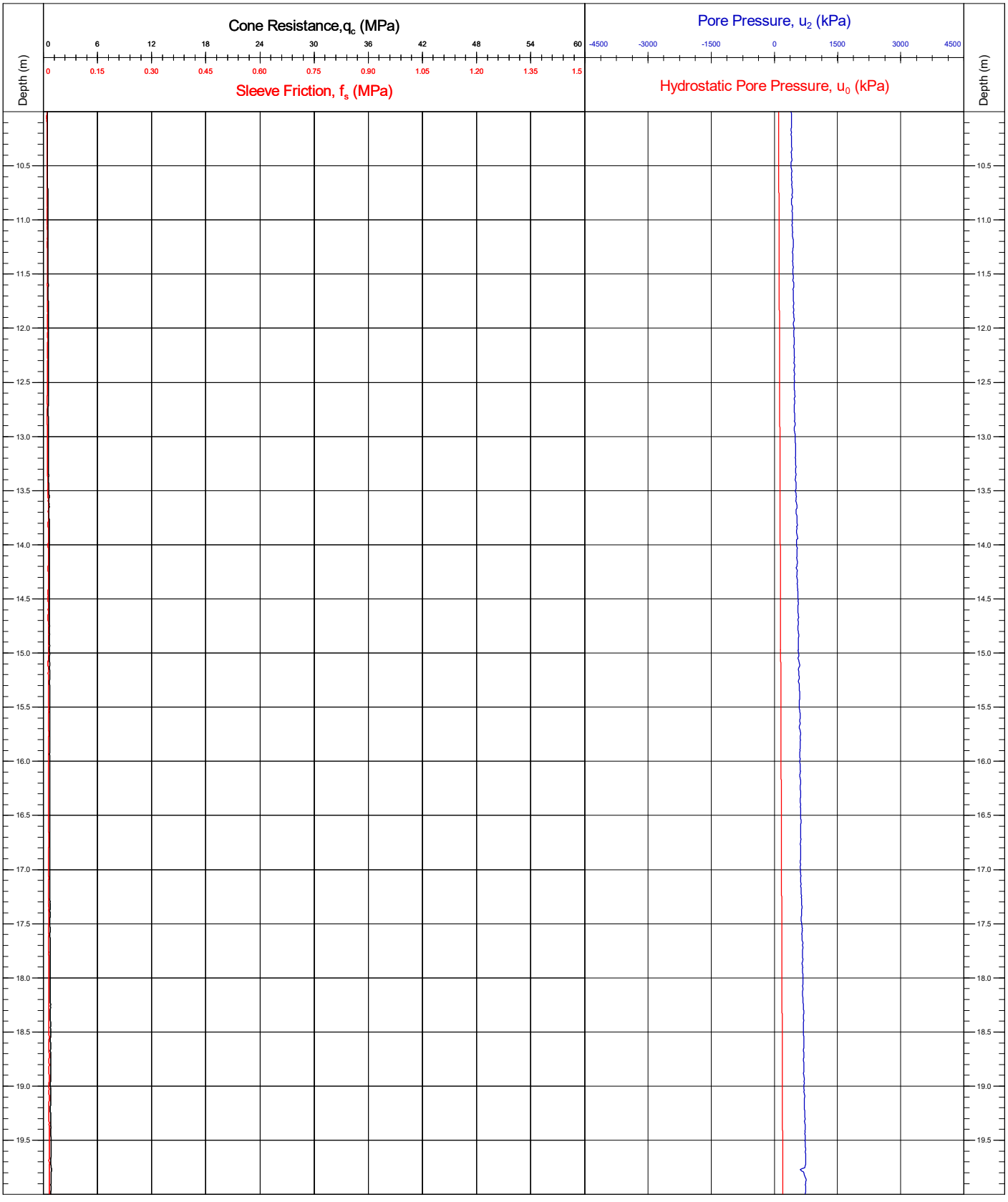


Area	**Kattegat Sea**	Coordinates	**673775.60E** **6266929.10N**	CPT Number	**CPT20**
Contract	**11596**	Latitude / Longitude			
Client Name/Ref	**Energinet Eltransmission A/S/384_20_ENE**	Water Depth (mMSL)	**31.51**		
Vessel	**MV Ocean Vantage**	Date of Test	**25/04/2021**	Page: 1/5	
Comments: Cone class 2. Continuous seabed CPT. Final depth 49.67m. Test terminated at operators discretion to avoid damage due to lack of lateral rod support from mudline and an increasing total load		Cone No.(size)/α Factor	**120829 (10cm^2) / 0.8**	QC Status	
		Base Inclination	**X = 0.1° / Y = -0.1°**	Preliminary / Draft / Final	
		CRS **ETRS89**		**JK/BC** (25/04/2021) / **DR** (10/06/2021) / **SMc** (10/11/2021)	

Gardline

Preliminary Investigation, Hesselø OWF

IN SITU CPTU TESTING - MEASURED PARAMETERS



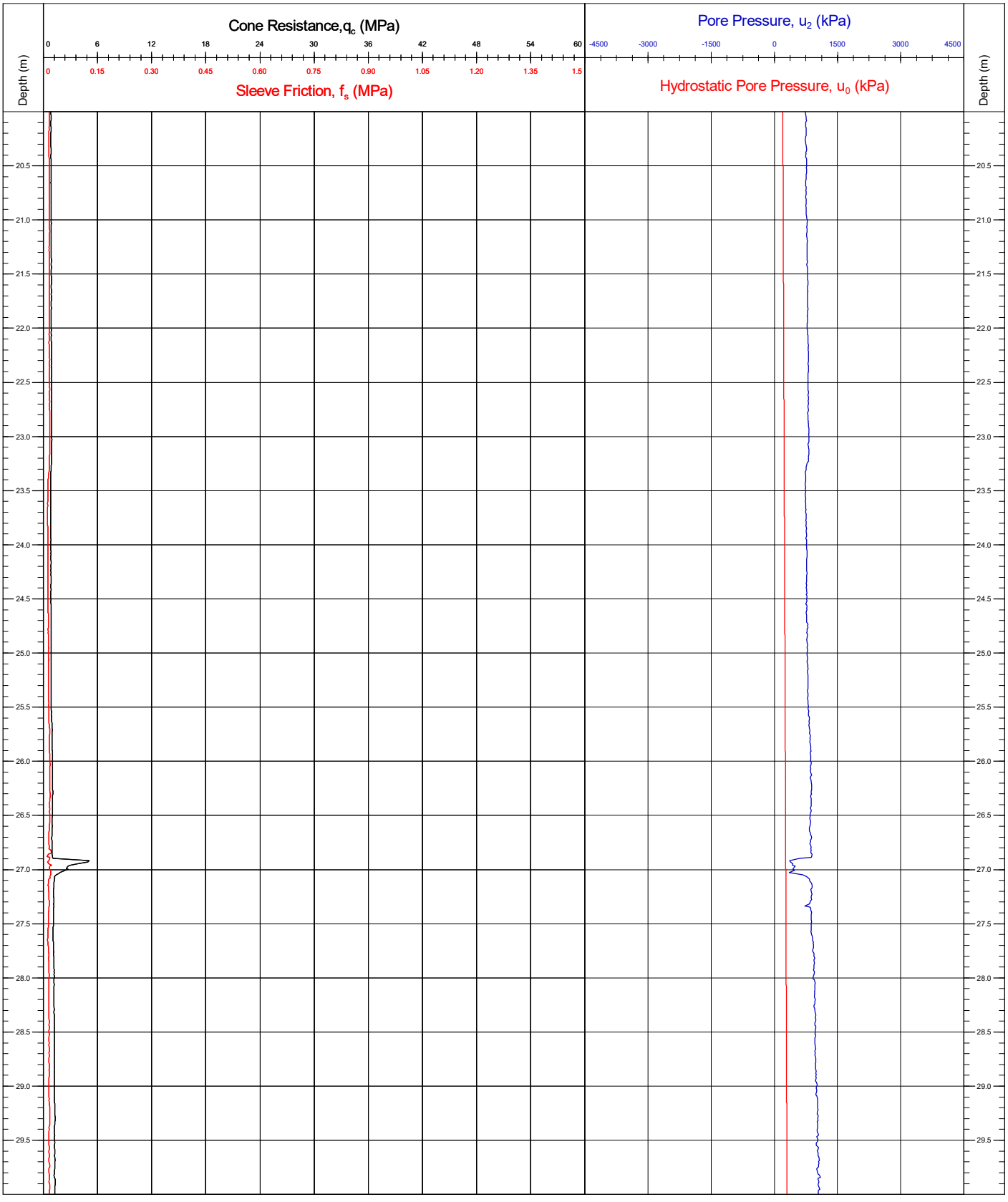
Area	**Kattegat Sea**	Coordinates	**673775.60E**	**6266929.10N**	CPT Number **CPT20**
Contract	**11596**	Latitude / Longitude			
Client Name/Ref	**Energinet Eltransmission A/S/384_20_ENE**	Water Depth (mMSL)	**31.51**		
Vessel	**MV Ocean Vantage**	Date of Test	**25/04/2021**		Page: 2/5
		Cone No.(size)/α Factor	**120829 (10cm^2) / 0.8**		QC Status
		Base Inclination	**X = 0.1° / Y = -0.1°**		Preliminary: **JK/BC** (25/04/2021) · Draft: **DR** (10/06/2021) · Final: **SMc** (10/11/2021)
		CRS	**ETRS89**		

Comments: Cone class 2. Continuous seabed CPT. Final depth 49.67m. Test terminated at operators discretion to avoid damage due to lack of lateral rod support from mudline and an increasing total load

Gardline

Preliminary Investigation, Hesselø OWF

IN SITU CPTU TESTING - MEASURED PARAMETERS



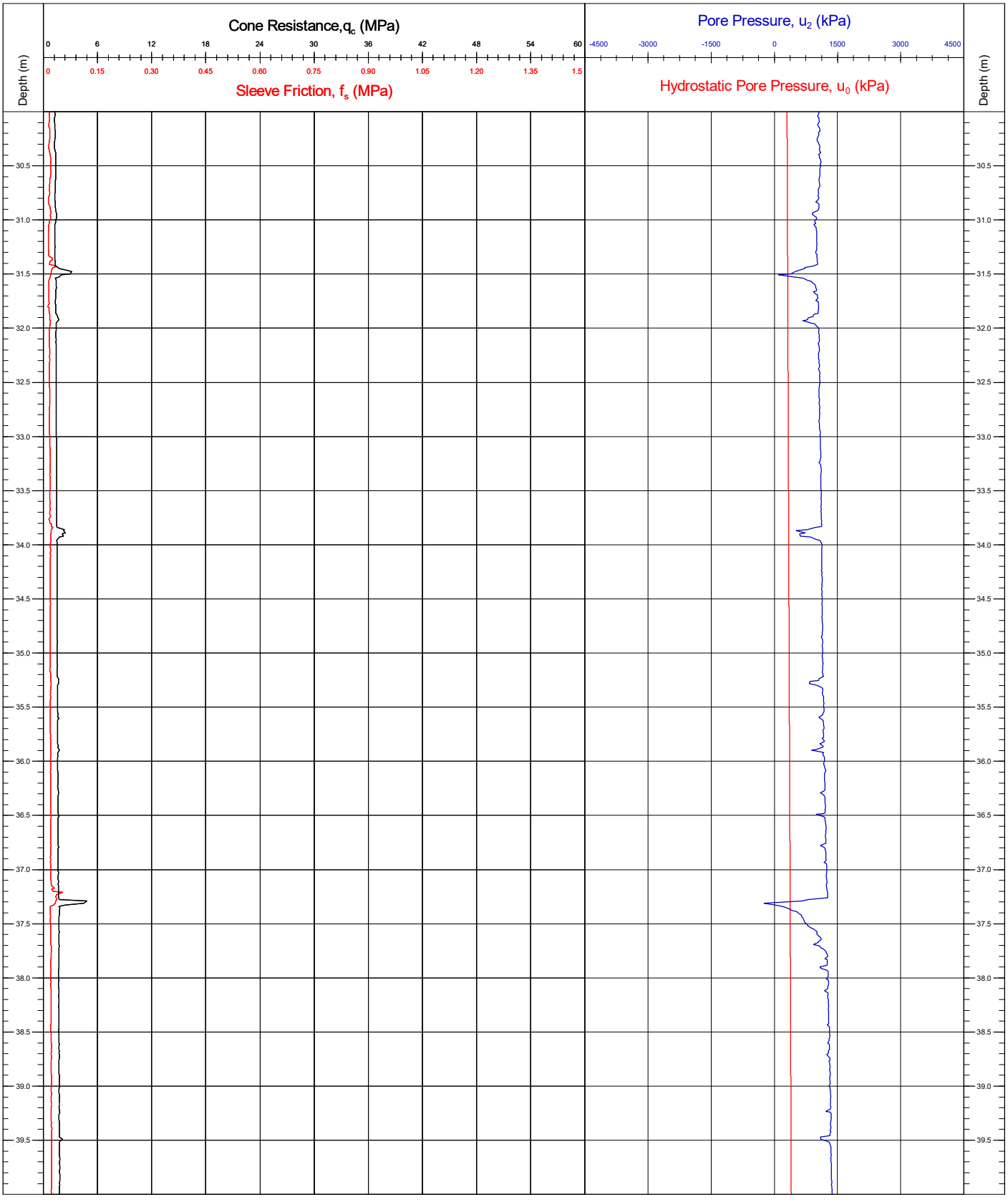
Area	**Kattegat Sea**	Coordinates	**673775.60E**	**6266929.10N**	CPT Number **CPT20**
Contract	**11596**	Latitude / Longitude			
Client Name/Ref	**Energinet Eltransmission A/S/384_20_ENE**	Water Depth (mMSL)	**31.51**		
Vessel	**MV Ocean Vantage**	Date of Test	**25/04/2021**		Page: 3/5
		Cone No.(size)/α Factor	**120829 (10cm^2) / 0.8**		QC Status
		Base Inclination	**X = 0.1° / Y = -0.1°**		Preliminary: **JK/BC (25/04/2021)** · Draft: **DR (10/06/2021)** · Final: **SMc (10/11/2021)**
		CRS	**ETRS89**		

Comments: Cone class 2. Continuous seabed CPT. Final depth 49.67m. Test terminated at operators discretion to avoid damage due to lack of lateral rod support from mudline and an increasing total load

Gardline

Preliminary Investigation, Hesselø OWF

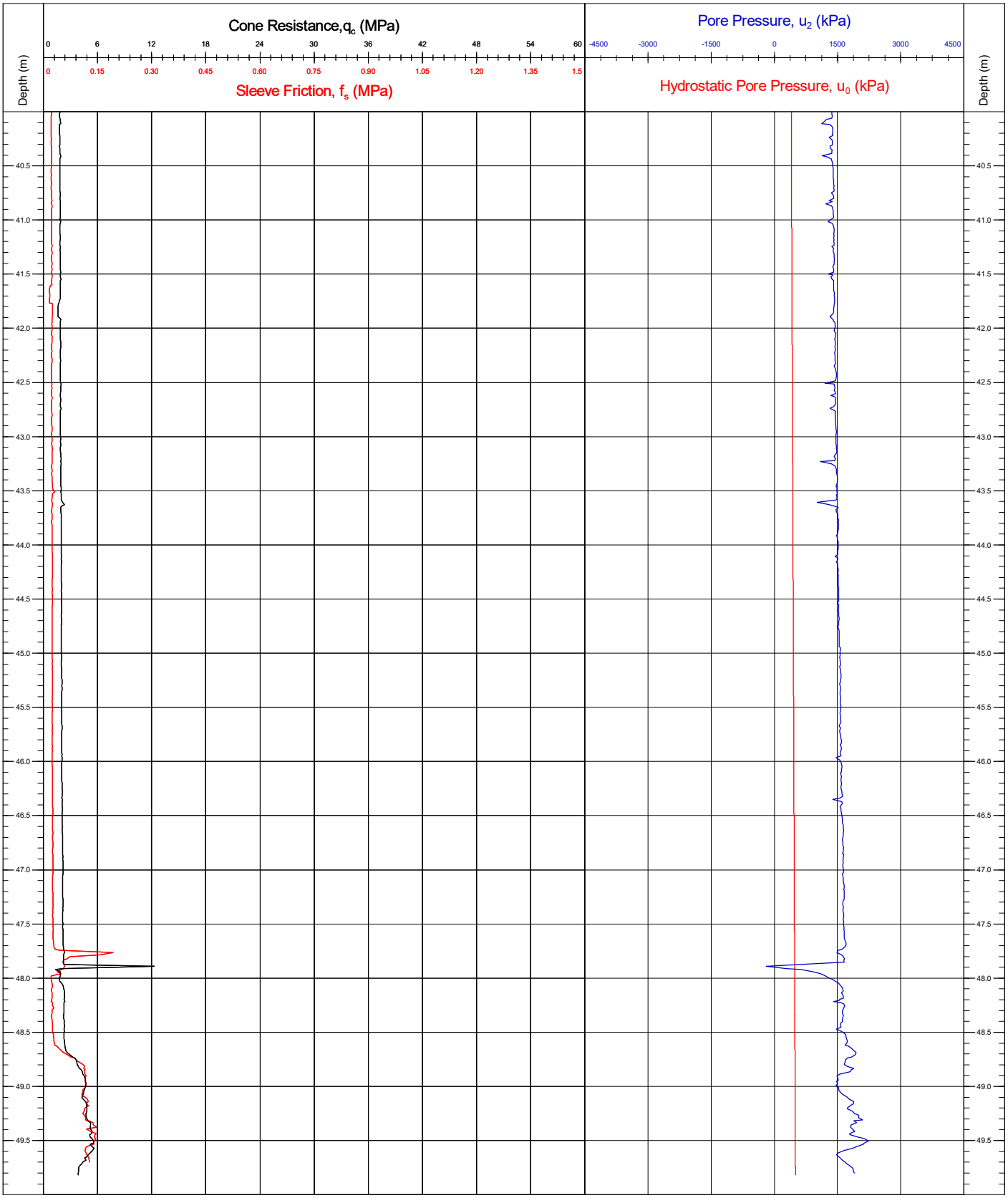
IN SITU CPTU TESTING - MEASURED PARAMETERS



Area	**Kattegat Sea**	Coordinates	**673775.60E**	**6266929.10N**	CPT Number **CPT20**
Contract	**11596**	Latitude / Longitude			
Client Name/Ref	**Energinet Eltransmission A/S/384_20_ENE**	Water Depth (mMSL)	**31.51**		
Vessel	**MV Ocean Vantage**	Date of Test	**25/04/2021**		Page: 4/5
Comments: Cone class 2. Continuous seabed CPT. Final depth 49.67m. Test terminated at operators discretion to avoid damage due to lack of lateral rod support from mudline and an increasing total load		Cone No.(size)/α Factor	**120829 (10cm^2) / 0.8**		QC Status
		Base Inclination	**X = 0.1° / Y = -0.1°**		Preliminary: **JK/BC** (25/04/2021) · Draft: **DR** (10/06/2021) · Final: **SMc** (10/11/2021)
		CRS **ETRS89**			

Preliminary Investigation, Hesselø OWF

IN SITU CPTU TESTING - MEASURED PARAMETERS

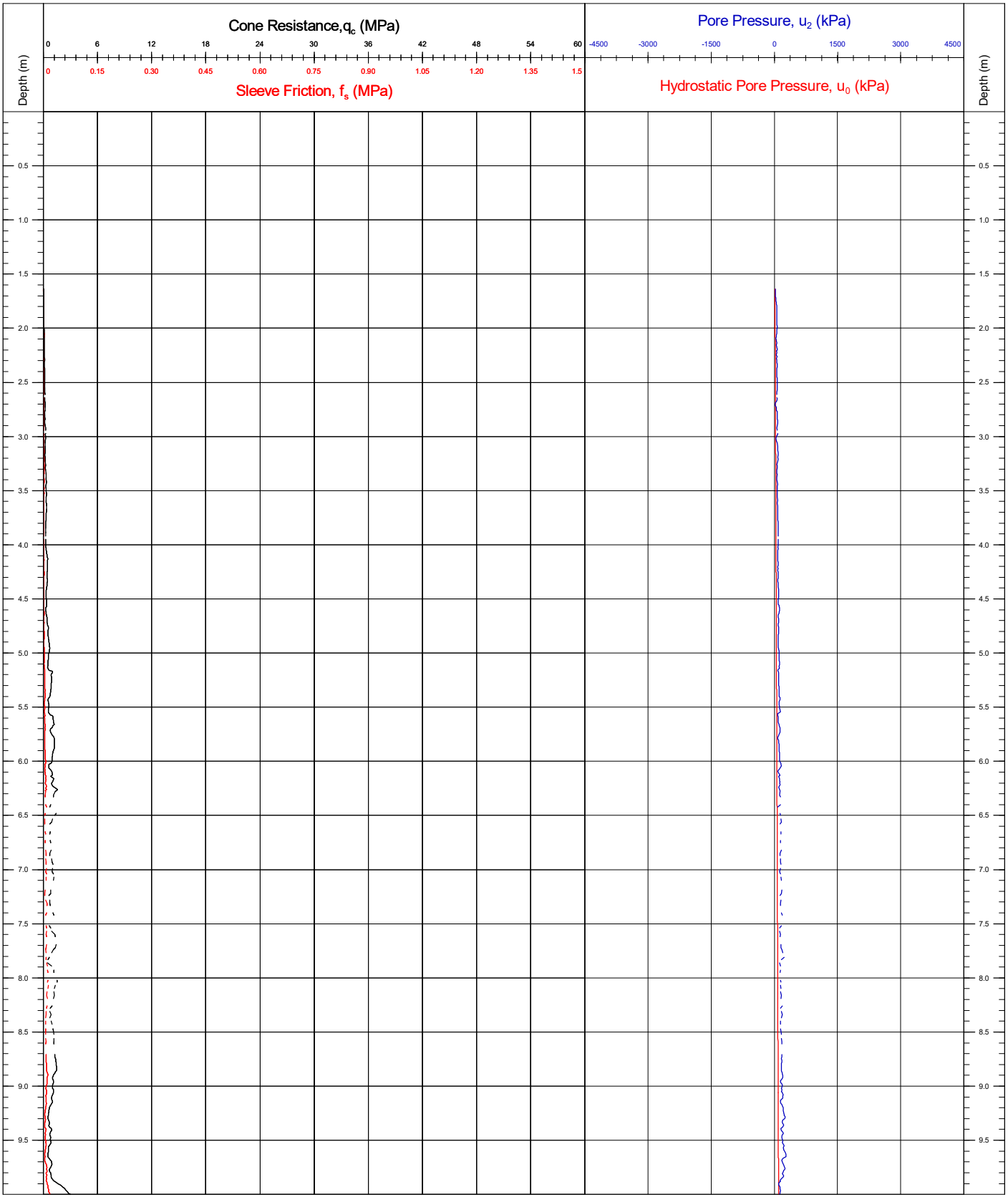


Area	**Kattegat Sea**	Coordinates	**673775.60E**	**6266929.10N**	CPT Number **CPT20**
Contract	**11596**	Latitude / Longitude			
Client Name/Ref	**Energinet Eltransmission A/S/384_20_ENE**	Water Depth (mMSL)	**31.51**		
Vessel	**MV Ocean Vantage**	Date of Test	**25/04/2021**		Page: 5/5
		Cone No.(size)/α Factor	**120829 (10cm^2) / 0.8**		QC Status
		Base Inclination	**X = 0.1° / Y = -0.1°**		Preliminary: **JK/BC** (25/04/2021) · Draft: **DR** (10/06/2021) · Final: **SMc** (10/11/2021)
		CRS	**ETRS89**		

Comments: Cone class 2. Continuous seabed CPT. Final depth 49.67m. Test terminated at operators discretion to avoid damage due to lack of lateral rod support from mudline and an increasing total load

Preliminary Investigation, Hesselø OWF

IN SITU CPTU TESTING - MEASURED PARAMETERS

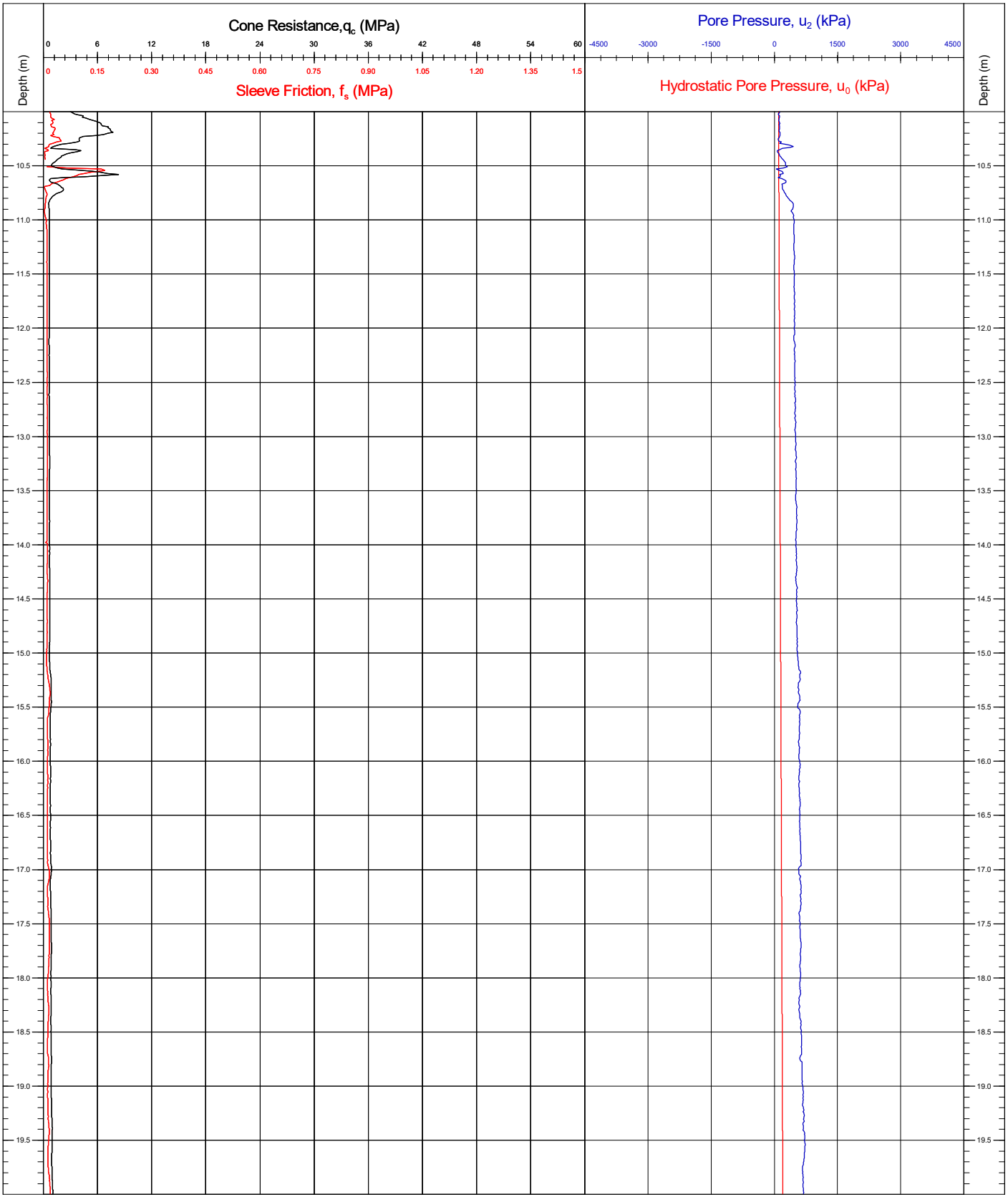


Area	**Kattegat Sea**	Coordinates	**674320.00E**	**6270140.20N**	CPT Number **CPT22**
Contract	**11596**	Latitude / Longitude			
Client Name/Ref	**Energinet Eltransmission A/S/384_20_ENE**	Water Depth (mMSL)	**31.36**		
Vessel	**MV Ocean Vantage**	Date of Test	**30/04/2021**		Page: 1/5
Comments: Cone class 1. Continuous seabed CPT. Final depth 44.45m. Test terminated due to increasing cone inclination reaching maximum cone inclination threshold of 12 degrees~ risk of rod bend and buckling rods		Cone No.(size)/α Factor	**181004 (10cm^2) / 0.81**		QC Status
		Base Inclination	**X = 1.2° / Y = 0.9°**		Preliminary: **JK/BC** (30/04/2021) · Draft: **DR** (10/06/2021) · Final: **SMc** (10/11/2021)
		CRS **ETRS89**			

Gardline

Preliminary Investigation, Hesselø OWF

IN SITU CPTU TESTING - MEASURED PARAMETERS

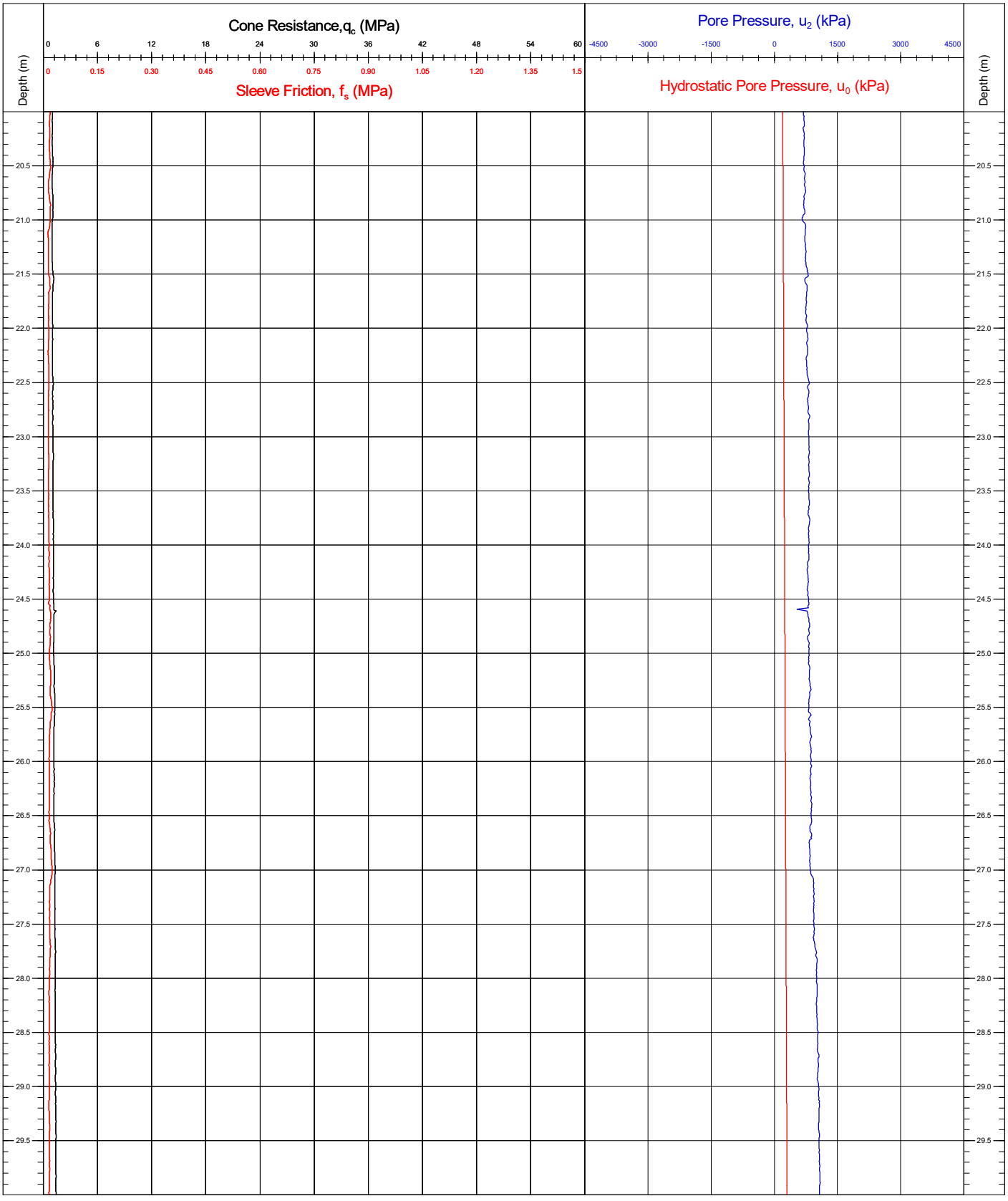


Area	**Kattegat Sea**	Coordinates	**674320.00E** **6270140.20N**	CPT Number	**CPT22**
Contract	**11596**	Latitude / Longitude			
Client Name/Ref	**Energinet Eltransmission A/S/384_20_ENE**	Water Depth (mMSL)	**31.36**		
Vessel	**MV Ocean Vantage**	Date of Test	**30/04/2021**	Page: 2/5	
		Cone No.(size)/α Factor	**181004 (10cm^2) / 0.81**	QC Status	
		Base Inclination	**X = 1.2° / Y = 0.9°**	Preliminary: **JK/BC** (30/04/2021)	Draft: **DR** (10/06/2021)
		CRS **ETRS89**			Final: **SMc** (10/11/2021)

Comments: Cone class 1. Continuous seabed CPT. Final depth 44.45m. Test terminated due to increasing cone inclination reaching maximum cone inclination threshold of 12 degrees~ risk of rod bend and buckling rods

Preliminary Investigation, Hesselø OWF

IN SITU CPTU TESTING - MEASURED PARAMETERS



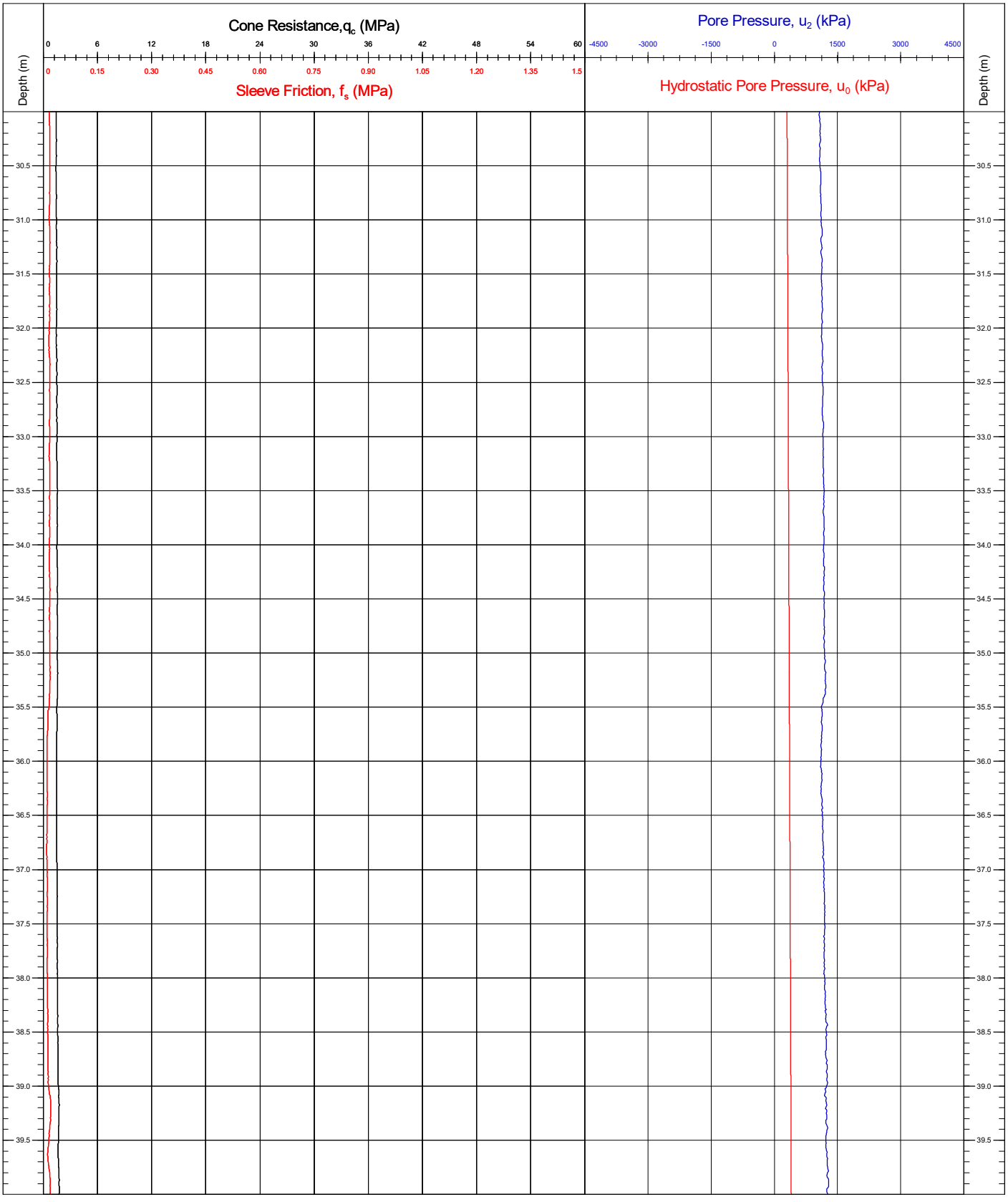
Area	**Kattegat Sea**	Coordinates	**674320.00E** **6270140.20N**	CPT Number	**CPT22**
Contract	**11596**	Latitude / Longitude			
Client Name/Ref	**Energinet Eltransmission A/S/384_20_ENE**	Water Depth (mMSL)	**31.36**		
Vessel	**MV Ocean Vantage**	Date of Test	**30/04/2021**	Page: 3/5	
		Cone No.(size)/α Factor	**181004 (10cm^2) / 0.81**	QC Status	
		Base Inclination	**X = 1.2° / Y = 0.9°**	Preliminary: **JK/BC** (30/04/2021)	Draft: **DR** (10/06/2021)
		CRS **ETRS89**			Final: **SMc** (10/11/2021)

Comments: Cone class 1. Continuous seabed CPT. Final depth 44.45m. Test terminated due to increasing cone inclination reaching maximum cone inclination threshold of 12 degrees~ risk of rod bend and buckling rods

Gardline

Preliminary Investigation, Hesselø OWF

IN SITU CPTU TESTING - MEASURED PARAMETERS

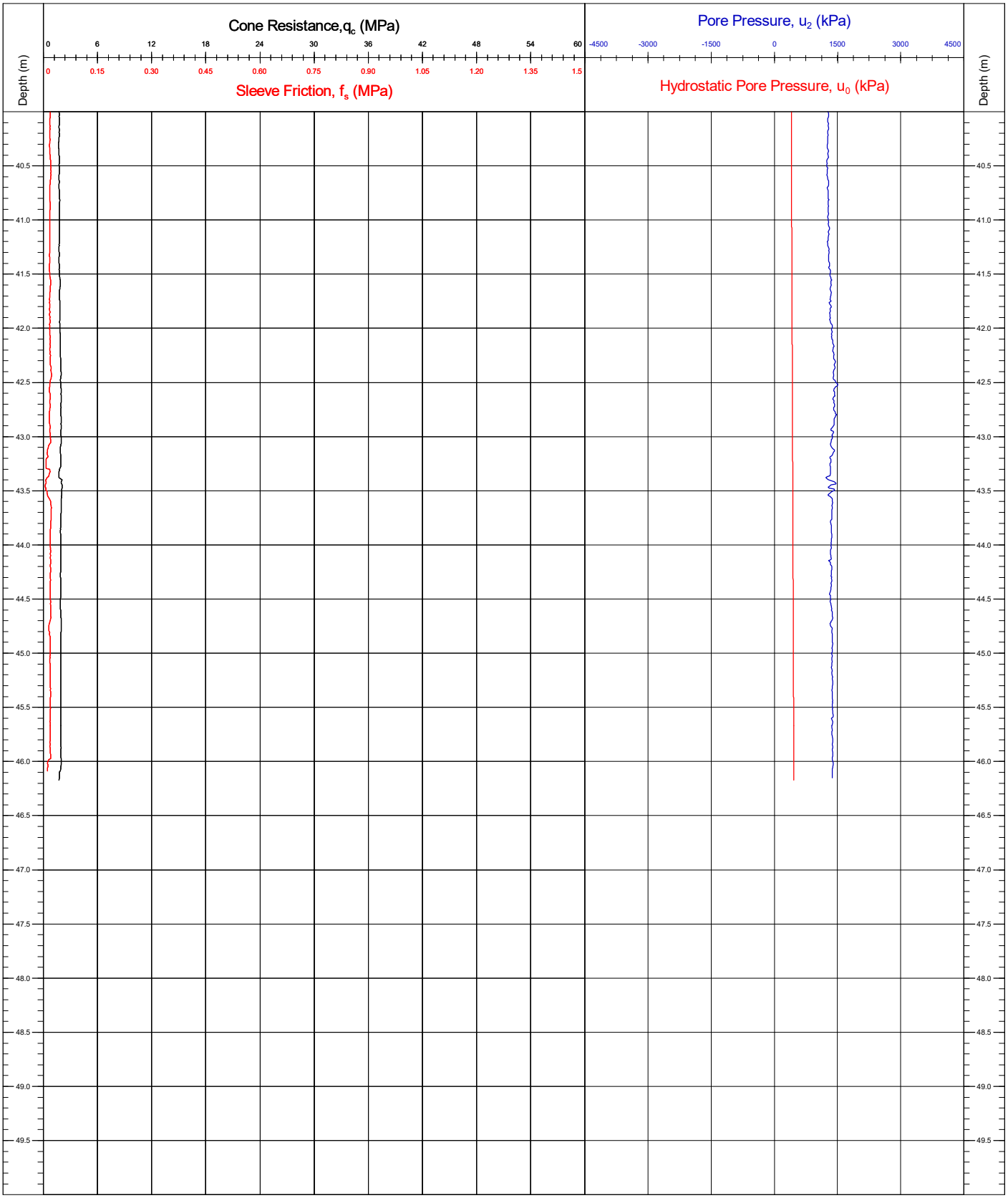


Area	**Kattegat Sea**	Coordinates	**674320.00E 6270140.20N**	CPT Number	**CPT22**
Contract	**11596**	Latitude / Longitude			
Client Name/Ref	**Energinet Eltransmission A/S/384_20_ENE**	Water Depth (mMSL)	**31.36**		
Vessel	**MV Ocean Vantage**	Date of Test	**30/04/2021**	Page: 4/5	
		Cone No.(size)/α Factor	**181004 (10cm^2) / 0.81**	QC Status	
		Base Inclination	**X = 1.2° / Y = 0.9°**	Preliminary: **JK/BC** (30/04/2021)	Draft: **DR** (10/06/2021) / Final: **SMc** (10/11/2021)
		CRS **ETRS89**			

Comments: Cone class 1. Continuous seabed CPT. Final depth 44.45m. Test terminated due to increasing cone inclination reaching maximum cone inclination threshold of 12 degrees~ risk of rod bend and buckling rods

Preliminary Investigation, Hesselø OWF

IN SITU CPTU TESTING - MEASURED PARAMETERS

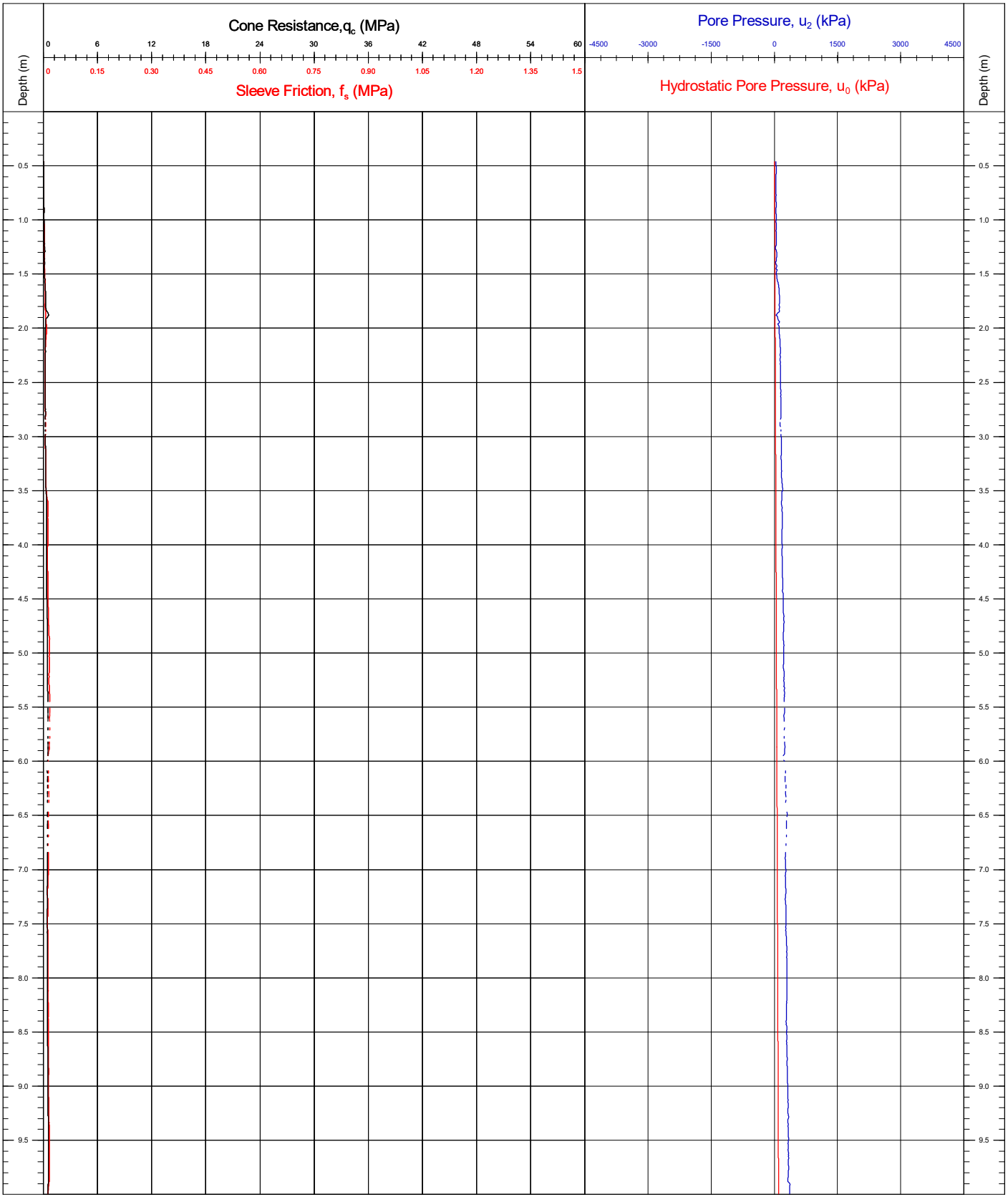


Area	**Kattegat Sea**	Coordinates	**674320.00E 6270140.20N**	CPT Number	**CPT22**
Contract	**11596**	Latitude / Longitude			
Client Name/Ref	**Energinet Eltransmission A/S/384_20_ENE**	Water Depth (mMSL)	**31.36**		
Vessel	**MV Ocean Vantage**	Date of Test	**30/04/2021**	Page: 5/5	
		Cone No.(size)/α Factor	**181004 (10cm^2) / 0.81**	QC Status	
		Base Inclination	**X = 1.2° / Y = 0.9°**	Preliminary: **JK/BC (30/04/2021)**	Draft: **DR (10/06/2021)**
		CRS **ETRS89**			Final: **SMc (10/11/2021)**

Comments: Cone class 1. Continuous seabed CPT. Final depth 44.45m. Test terminated due to increasing cone inclination reaching maximum cone inclination threshold of 12 degrees~ risk of rod bend and buckling rods

Preliminary Investigation, Hesselø OWF

IN SITU CPTU TESTING - MEASURED PARAMETERS

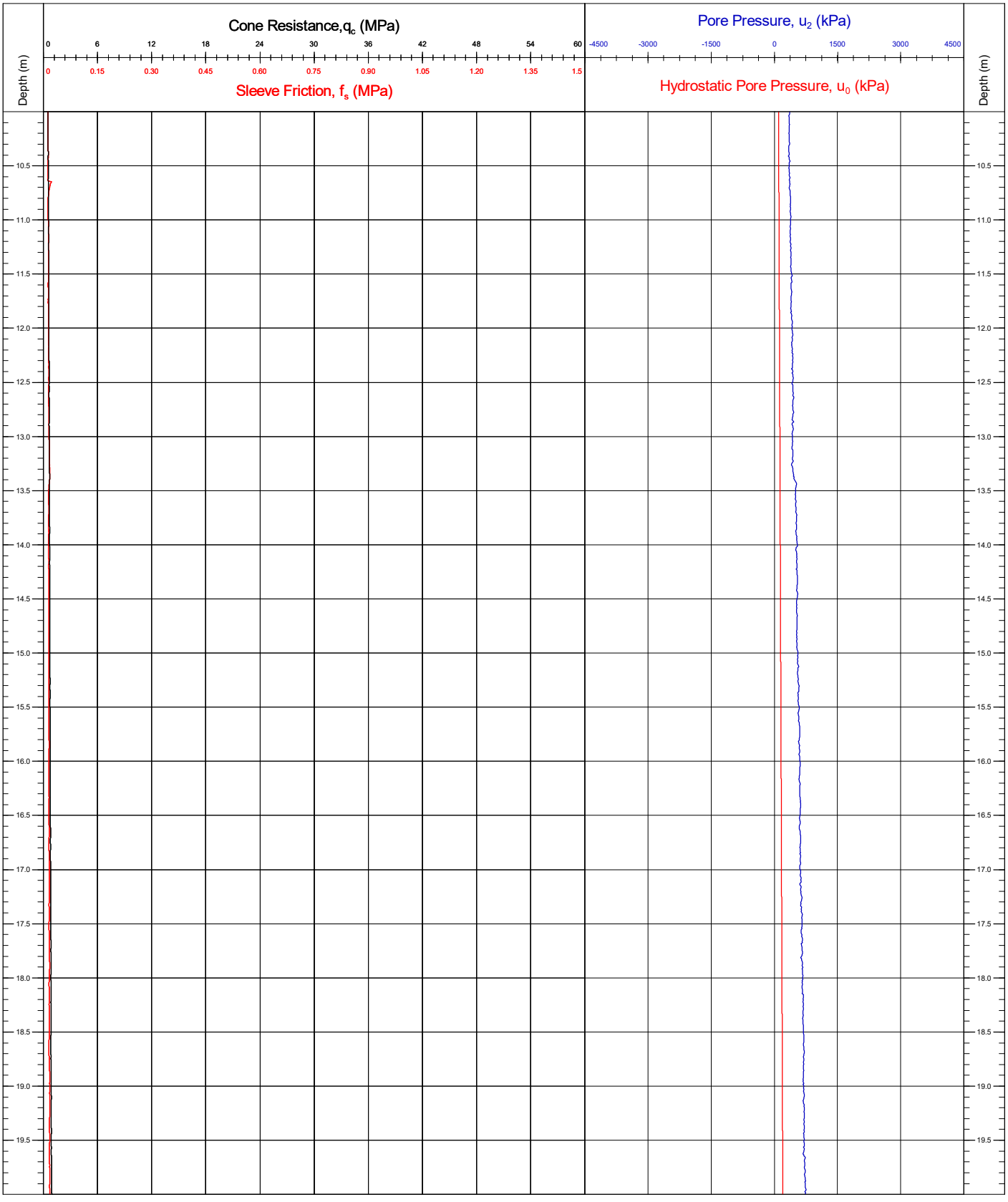


Area	**Kattegat Sea**	Coordinates	**676253.10E**	**6269555.30N**	CPT Number **CPT23**
Contract	**11596**	Latitude / Longitude			
Client Name/Ref	**Energinet Eltransmission A/S/384_20_ENE**	Water Depth (mMSL)	**31.55**		
Vessel	**MV Ocean Vantage**	Date of Test	**01/05/2021**		Page: 1/5
Comments: Out of Class. Continuous seabed CPT. Final depth 40.84m. Test terminated at operators discretion due to risk of rod bend		Cone No.(size)/α Factor	**191114 (10cm^2) / 0.76**		QC Status
		Base Inclination	**X = 1.2° / Y = 0.7°**		Preliminary: **JK/BC** (01/05/2021) · Draft: **DR** (10/06/2021) · Final: **SMc** (10/11/2021)
		CRS	**ETRS89**		

Gardline

Preliminary Investigation, Hesselø OWF

IN SITU CPTU TESTING - MEASURED PARAMETERS



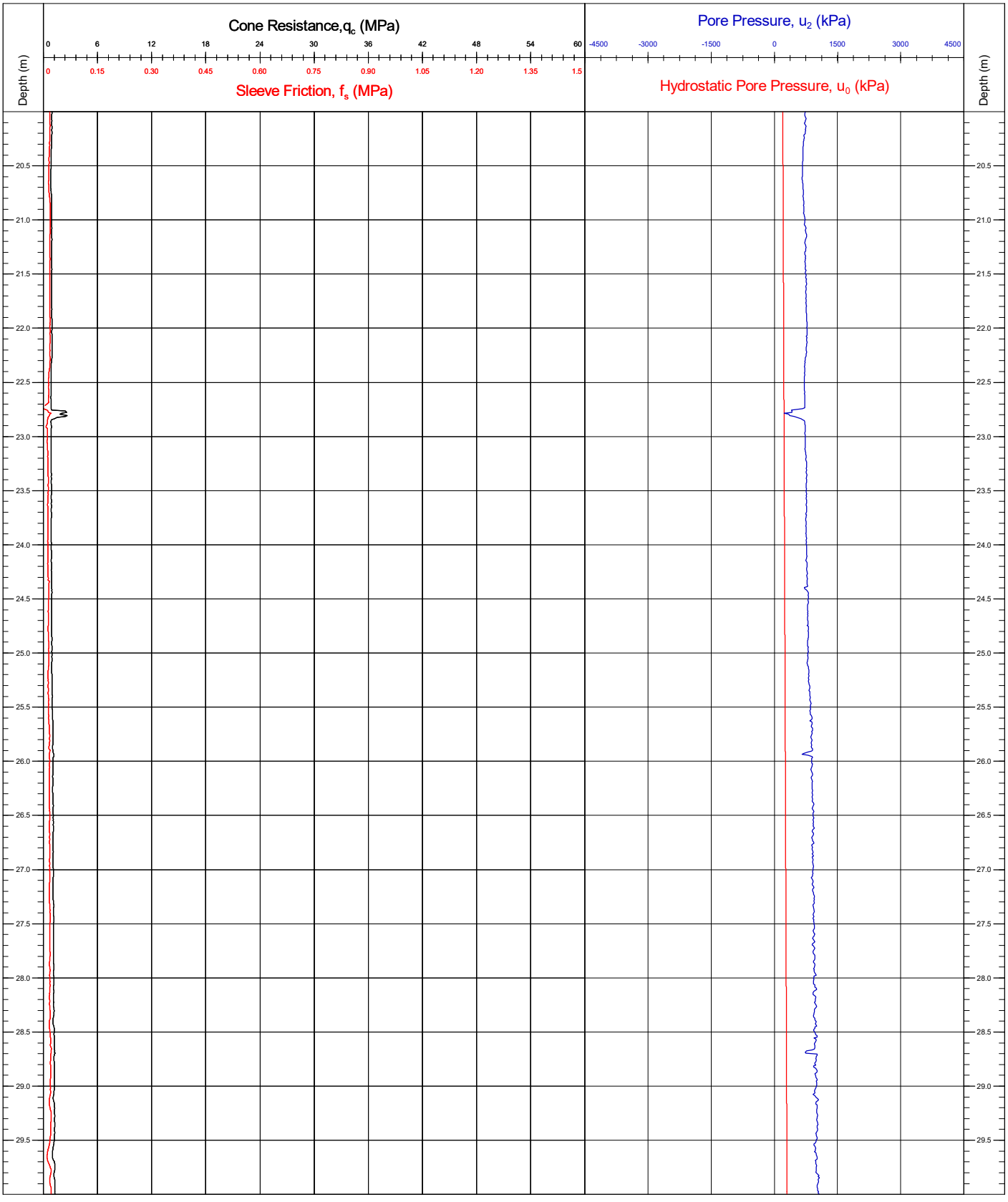
Area	**Kattegat Sea**	Coordinates	**676253.10E**	**6269555.30N**	CPT Number **CPT23**
Contract	**11596**	Latitude / Longitude			
Client Name/Ref	**Energinet Eltransmission A/S/384_20_ENE**	Water Depth (mMSL)	**31.55**		
Vessel	**MV Ocean Vantage**	Date of Test	**01/05/2021**		Page: 2/5
		Cone No.(size)/α Factor	**191114 (10cm^2) / 0.76**		QC Status
		Base Inclination	**X = 1.2° / Y = 0.7°**		Preliminary: **JK/BC** (01/05/2021) · Draft: **DR** (10/06/2021) · Final: **SMc** (10/11/2021)
		CRS	**ETRS89**		

Comments: Out of Class. Continuous seabed CPT. Final depth 40.84m. Test terminated at operators discretion due to risk of rod bend

Gardline

Preliminary Investigation, Hesselø OWF

IN SITU CPTU TESTING - MEASURED PARAMETERS

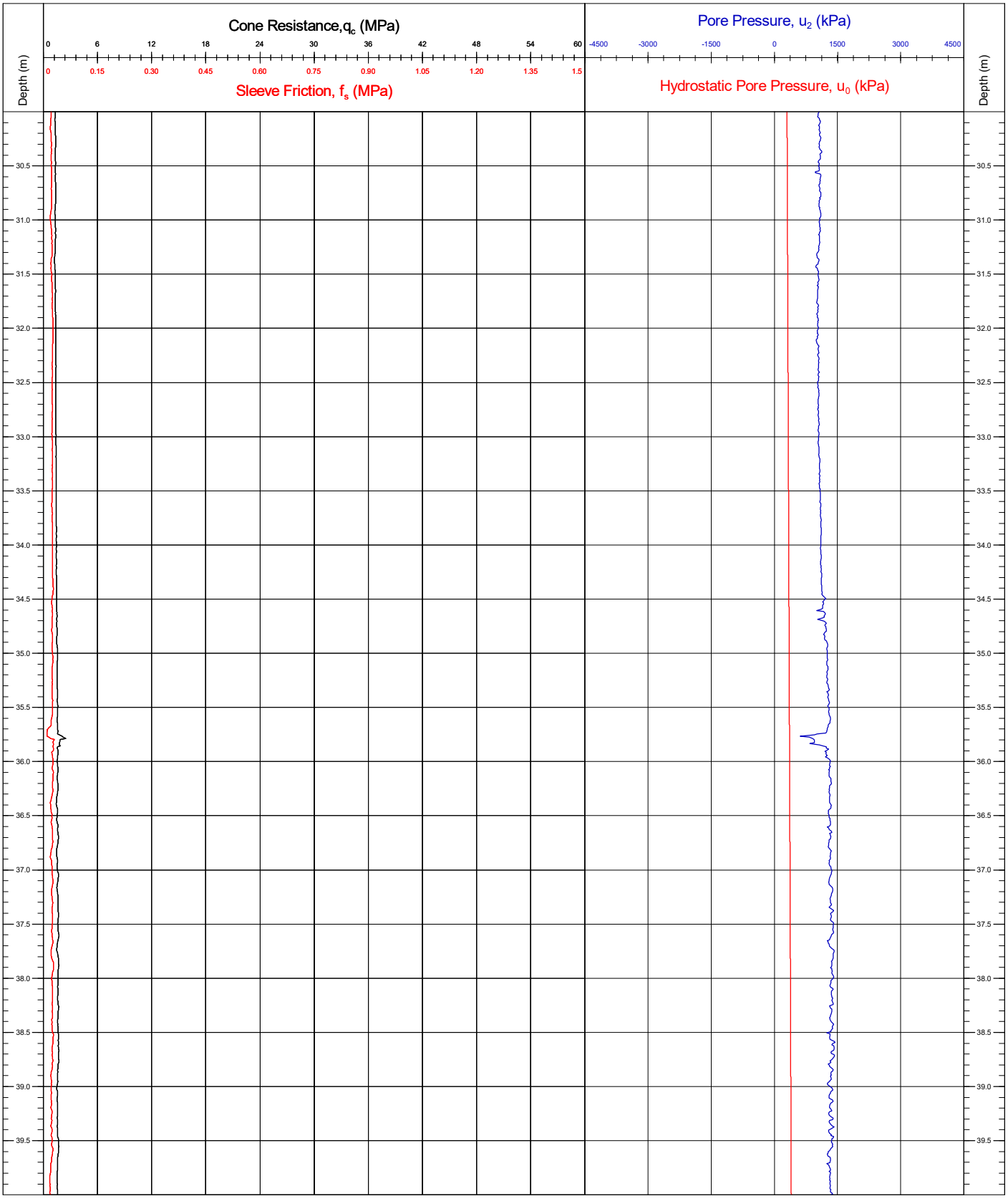


Area	**Kattegat Sea**	Coordinates	**676253.10E**	**6269555.30N**	CPT Number **CPT23**
Contract	**11596**	Latitude / Longitude			
Client Name/Ref	**Energinet Eltransmission A/S/384_20_ENE**	Water Depth (mMSL)	**31.55**		
Vessel	**MV Ocean Vantage**	Date of Test	**01/05/2021**		Page: 3/5
		Cone No.(size)/α Factor	**191114 (10cm^2) / 0.76**		QC Status
		Base Inclination	**X = 1.2° / Y = 0.7°**		Preliminary: **JK/BC** (01/05/2021); Draft: **DR** (10/06/2021); Final: **SMc** (10/11/2021)
		CRS	**ETRS89**		

Comments: Out of Class. Continuous seabed CPT. Final depth 40.84m. Test terminated at operators discretion due to risk of rod bend

Preliminary Investigation, Hesselø OWF

IN SITU CPTU TESTING - MEASURED PARAMETERS



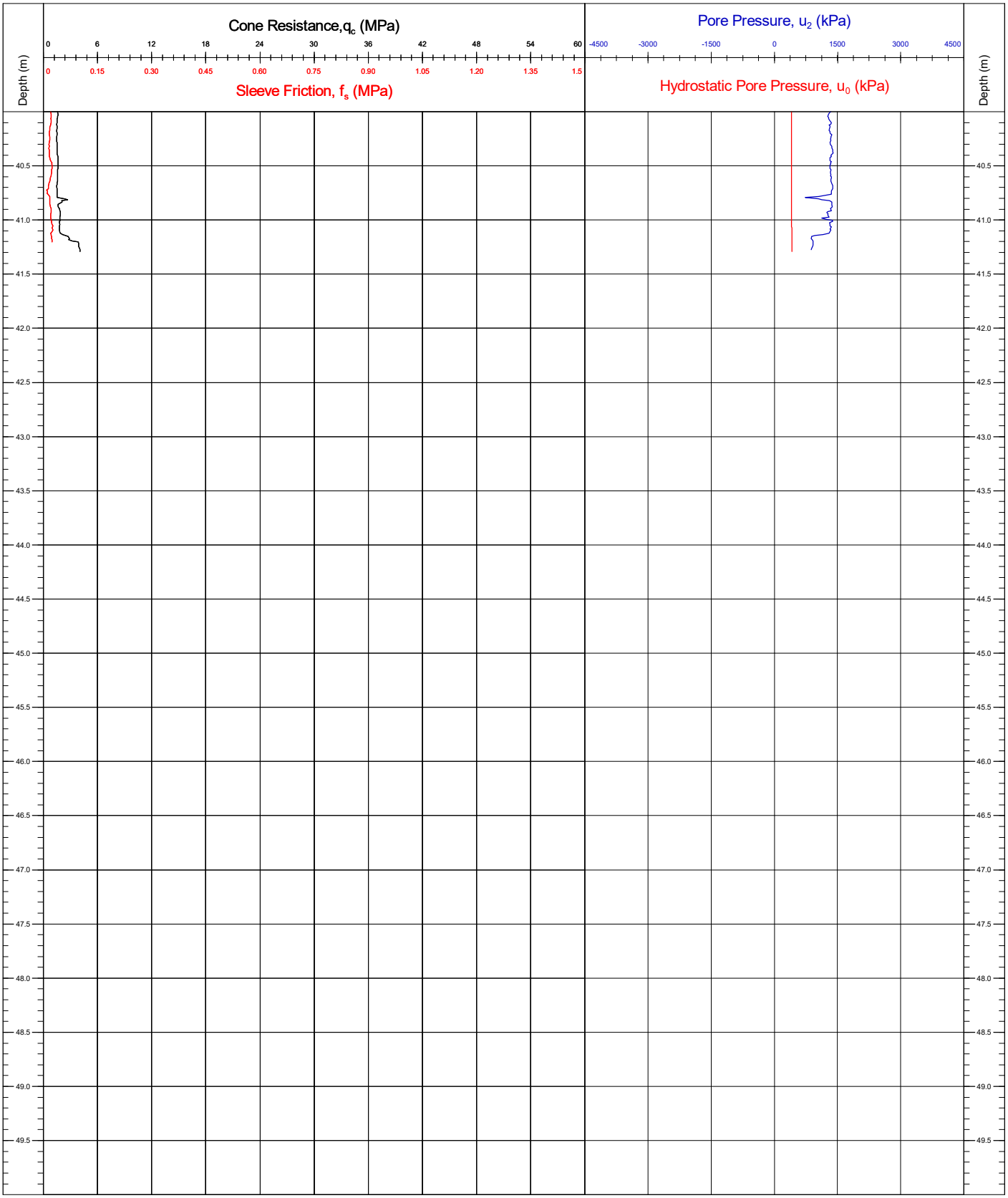
Area	**Kattegat Sea**	Coordinates	**676253.10E**	**6269555.30N**	CPT Number **CPT23**
Contract	**11596**	Latitude / Longitude			
Client Name/Ref	**Energinet Eltransmission A/S/384_20_ENE**	Water Depth (mMSL)	**31.55**		
Vessel	**MV Ocean Vantage**	Date of Test	**01/05/2021**		Page: 4/5
		Cone No.(size)/α Factor	**191114 (10cm^2) / 0.76**		QC Status
		Base Inclination	**X = 1.2° / Y = 0.7°**		Preliminary: **JK/BC** (01/05/2021); Draft: **DR** (10/06/2021); Final: **SMc** (10/11/2021)
		CRS	**ETRS89**		

Comments: Out of Class. Continuous seabed CPT. Final depth 40.84m. Test terminated at operators discretion due to risk of rod bend

Gardline

Preliminary Investigation, Hesselø OWF

IN SITU CPTU TESTING - MEASURED PARAMETERS

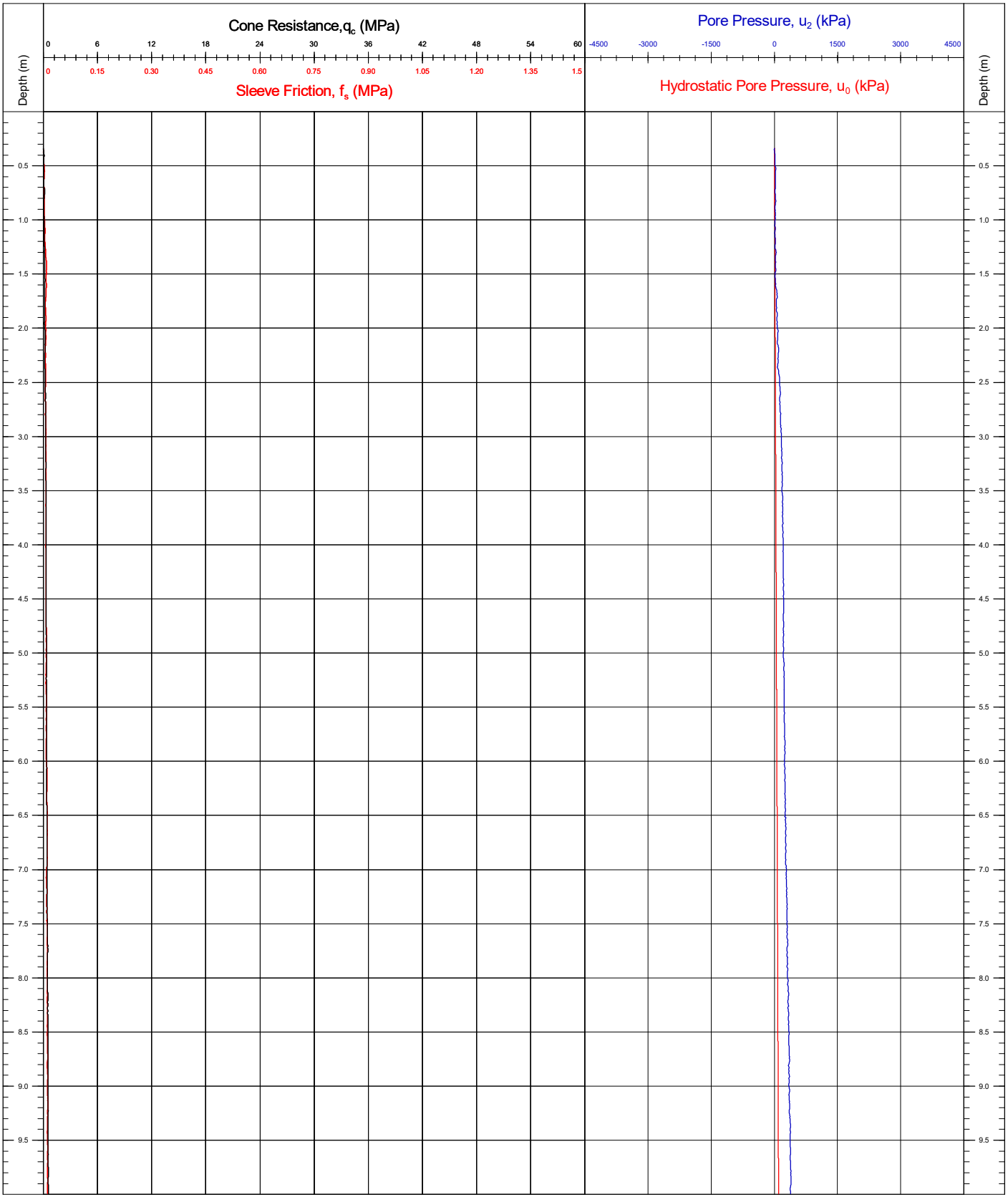


Area	**Kattegat Sea**	Coordinates	**676253.10E** **6269555.30N**	CPT Number	**CPT23**
Contract	**11596**	Latitude / Longitude			
Client Name/Ref	**Energinet Eltransmission A/S/384_20_ENE**	Water Depth (mMSL)	**31.55**		
Vessel	**MV Ocean Vantage**	Date of Test	**01/05/2021**	Page: 5/5	
		Cone No.(size)/α Factor	**191114 (10cm^2) / 0.76**	QC Status	
		Base Inclination	**X = 1.2° / Y = 0.7°**	Preliminary: **JK/BC** (01/05/2021)	Draft: **DR** (10/06/2021)
		CRS **ETRS89**			Final: **SMc** (10/11/2021)

Comments: Out of Class. Continuous seabed CPT. Final depth 40.84m. Test terminated at operators discretion due to risk of rod bend

Preliminary Investigation, Hesselø OWF

IN SITU CPTU TESTING - MEASURED PARAMETERS

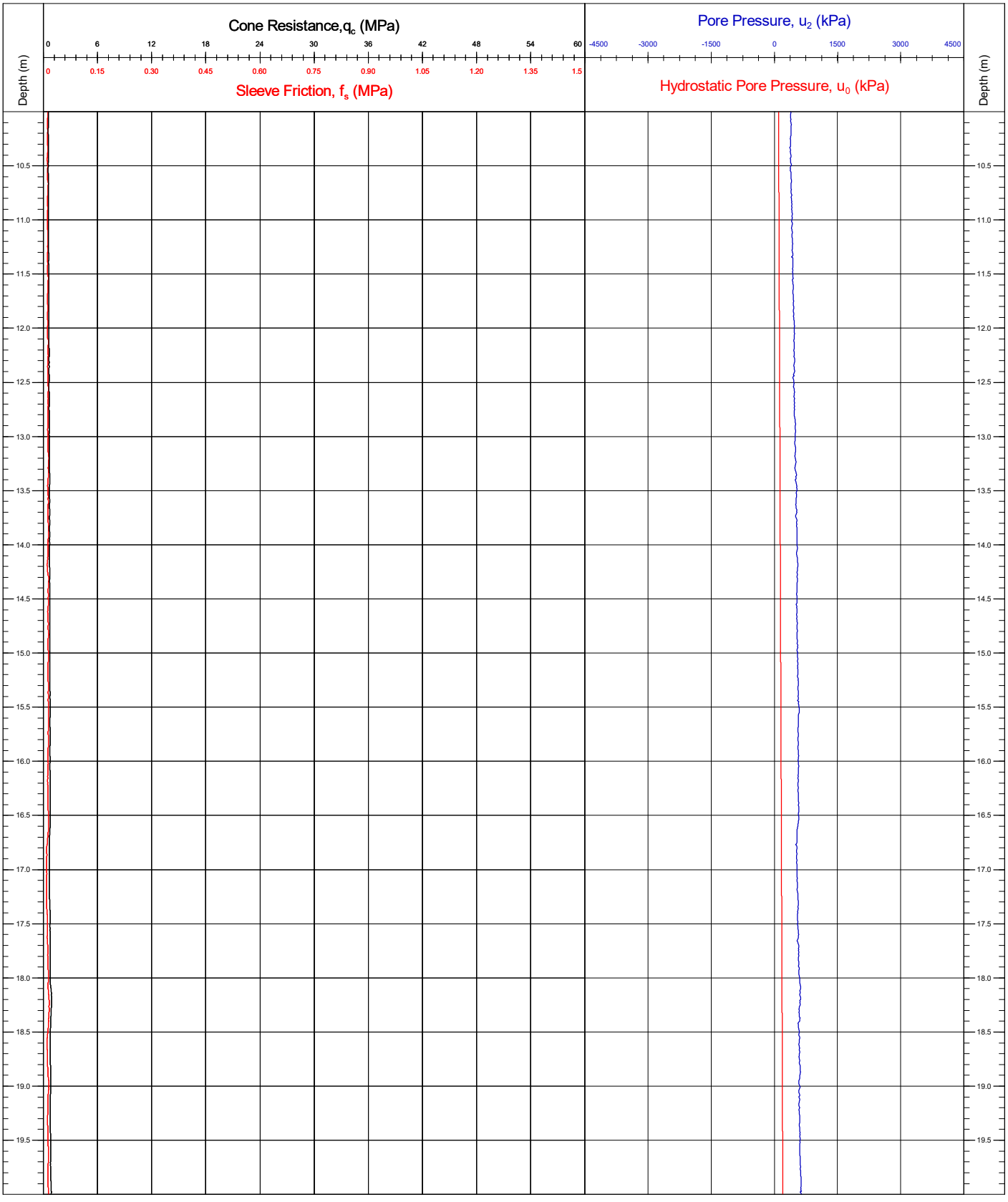


Area	**Kattegat Sea**	Coordinates	**676906.00E 6273504.90N**	CPT Number	**CPT25**
Contract	**11596**	Latitude / Longitude			
Client Name/Ref	**Energinet Eltransmission A/S/384_20_ENE**	Water Depth (mMSL)	**31.58**		
Vessel	**MV Ocean Vantage**	Date of Test	**01/05/2021**	Page: 1/4	
		Cone No.(size)/α Factor	**081208 (10cm^2) / 0.78**	QC Status	
		Base Inclination	**X = -0.1° / Y = 0.0°**	Preliminary: **JK/BC** (01/05/2021)	Draft: **DR** (10/06/2021) / Final: **SMc** (10/11/2021)
		CRS **ETRS89**			

Comments: Out of class. Continuous seabed CPT. Final depth 30.31m. Test terminated due to lost communication with the cone after attempting a dissipation test which crashed the Gardlog software

Preliminary Investigation, Hesselø OWF

IN SITU CPTU TESTING - MEASURED PARAMETERS



Area	**Kattegat Sea**
Contract	**11596**
Client Name/Ref	**Energinet Eltransmission A/S/384_20_ENE**
Vessel	**MV Ocean Vantage**

Comments: Out of class. Continuous seabed CPT. Final depth 30.31m. Test terminated due to lost communication with the cone after attempting a dissipation test which crashed the Gardlog software

Coordinates	**676906.00E 6273504.90N**
Latitude / Longitude	
Water Depth (mMSL)	**31.58**
Date of Test	**01/05/2021**
Cone No.(size)/α Factor	**081208 (10cm^2) / 0.78**
Base Inclination	**X = -0.1° / Y = 0.0°**
CRS **ETRS89**	

CPT Number

CPT25

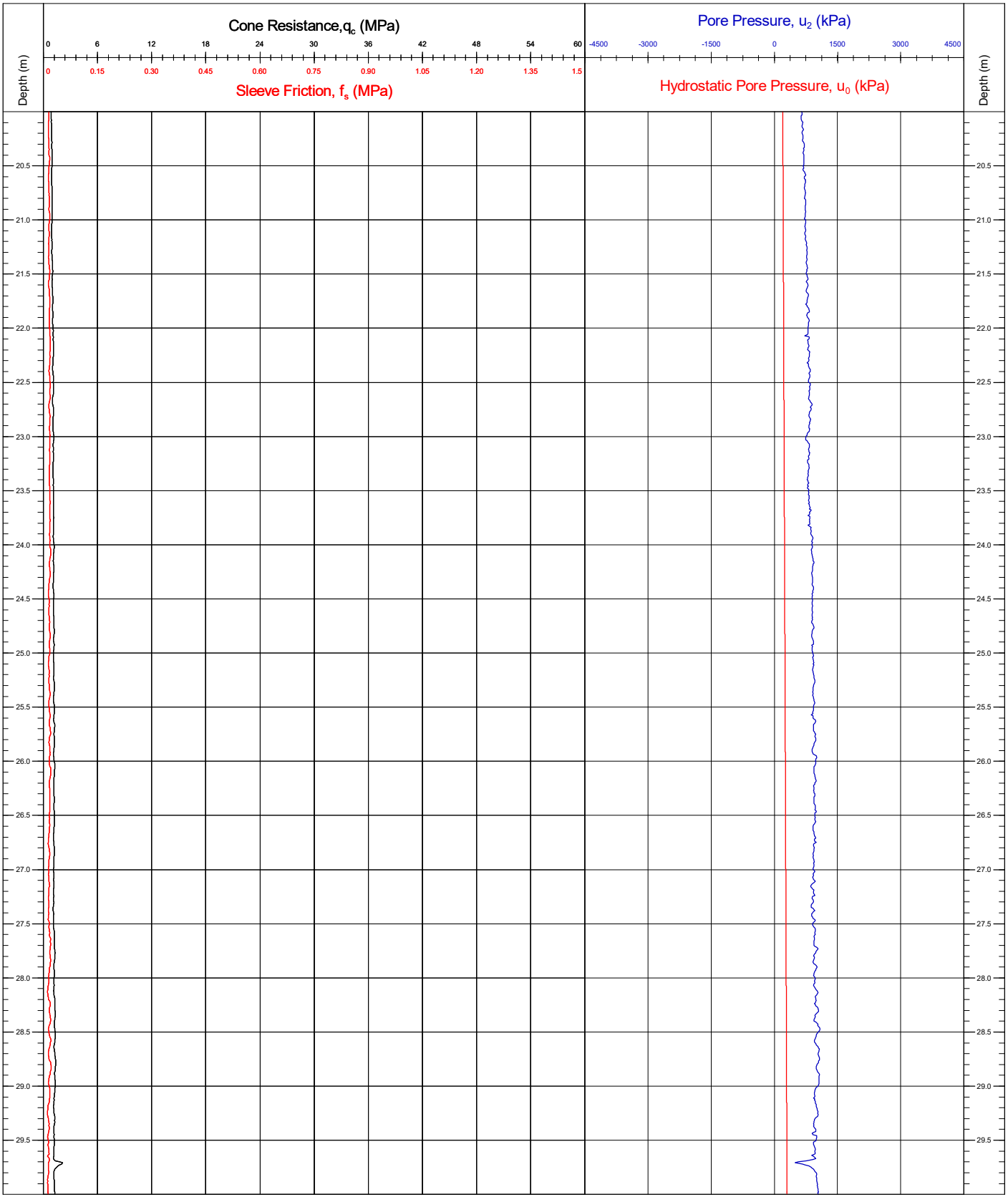
Page: 2/4

QC Status

Preliminary	Draft	Final
JK/BC (01/05/2021)	**DR** (10/06/2021)	**SMc** (10/11/2021)

Preliminary Investigation, Hesselø OWF

IN SITU CPTU TESTING - MEASURED PARAMETERS

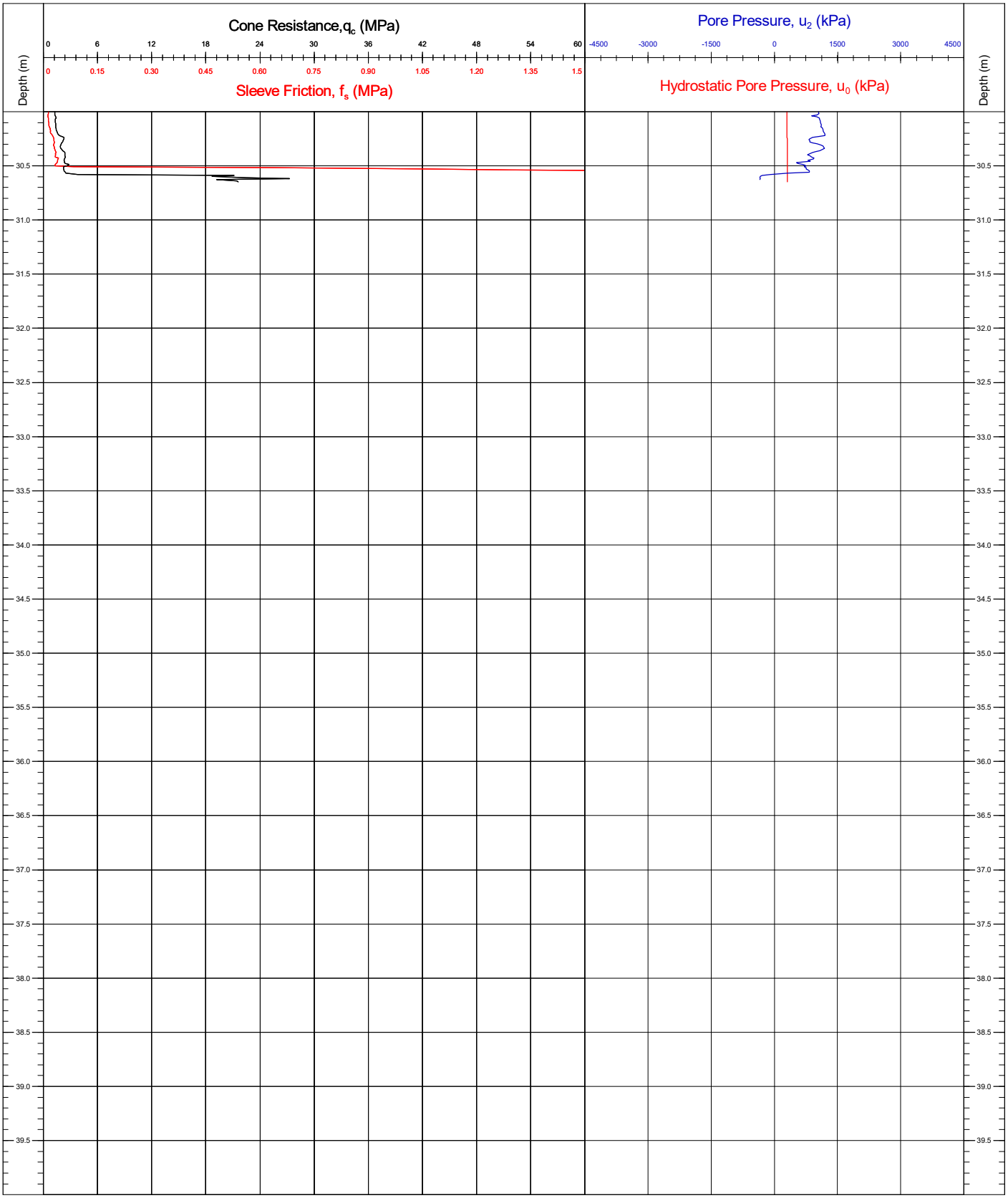


Area	**Kattegat Sea**	Coordinates	**676906.00E**	**6273504.90N**	CPT Number **CPT25**
Contract	**11596**	Latitude / Longitude			
Client Name/Ref	**Energinet Eltransmission A/S/384_20_ENE**	Water Depth (mMSL)	**31.58**		
Vessel	**MV Ocean Vantage**	Date of Test	**01/05/2021**		Page: 3/4
		Cone No.(size)/α Factor	**081208 (10cm^2) / 0.78**		QC Status
		Base Inclination	**X = -0.1° / Y = 0.0°**		Preliminary: **JK/BC** (01/05/2021); Draft: **DR** (10/06/2021); Final: **SMc** (10/11/2021)
		CRS	**ETRS89**		

Comments: Out of class. Continuous seabed CPT. Final depth 30.31m. Test terminated due to lost communication with the cone after attempting a dissipation test which crashed the Gardlog software

Preliminary Investigation, Hesselø OWF

IN SITU CPTU TESTING - MEASURED PARAMETERS

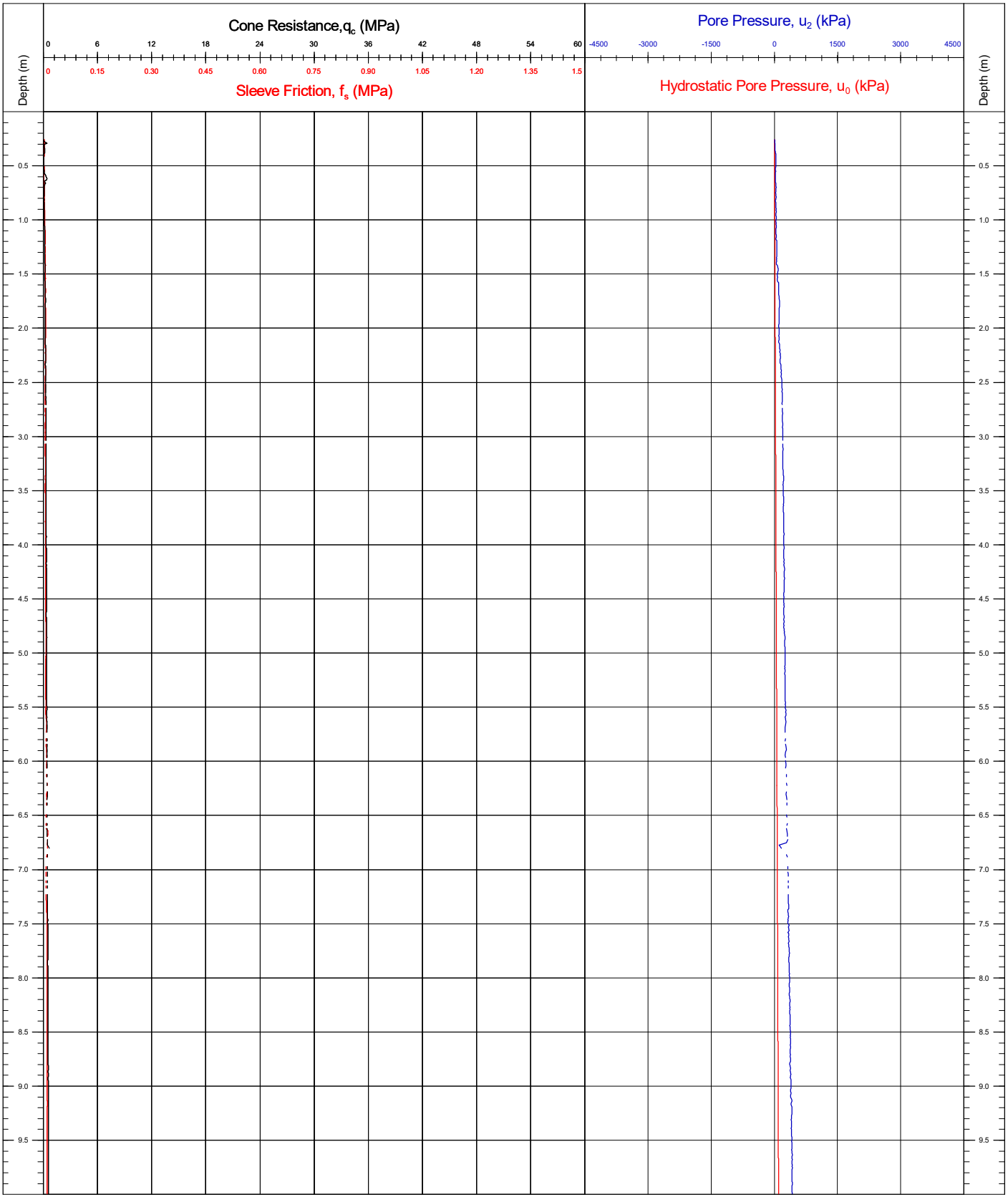


Area	**Kattegat Sea**	Coordinates	**676906.00E 6273504.90N**	CPT Number	**CPT25**
Contract	**11596**	Latitude / Longitude			
Client Name/Ref	**Energinet Eltransmission A/S/384_20_ENE**	Water Depth (mMSL)	**31.58**		
Vessel	**MV Ocean Vantage**	Date of Test	**01/05/2021**	Page: 4/4	
		Cone No.(size)/α Factor	**081208 (10cm^2) / 0.78**	QC Status	
		Base Inclination	**X = -0.1° / Y = 0.0°**	Preliminary: **JK/BC** (01/05/2021)	Draft: **DR** (10/06/2021)
		CRS **ETRS89**			Final: **SMc** (10/11/2021)

Comments: Out of class. Continuous seabed CPT. Final depth 30.31m. Test terminated due to lost communication with the cone after attempting a dissipation test which crashed the Gardlog software

Preliminary Investigation, Hesselø OWF

IN SITU CPTU TESTING - MEASURED PARAMETERS

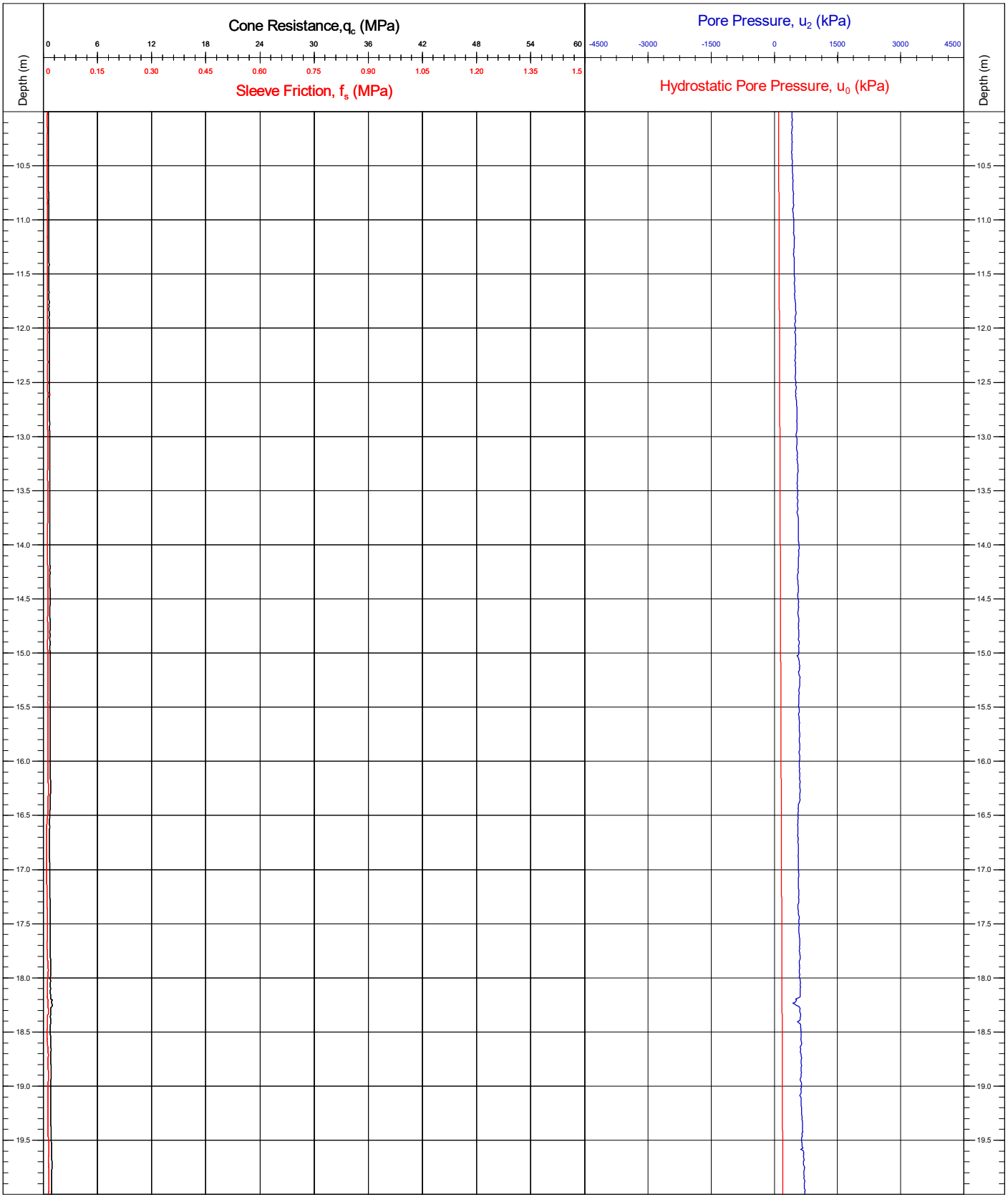


Area	**Kattegat Sea**	Coordinates	**676906.40E 6273499.90N**	CPT Number	**CPT25a**
Contract	**11596**	Latitude / Longitude			
Client Name/Ref	**Energinet Eltransmission A/S/384_20_ENE**	Water Depth (mMSL)	**31.63**		
Vessel	**MV Ocean Vantage**	Date of Test	**01/05/2021**	Page: 1/4	
		Cone No.(size)/α Factor	**120829 (10cm^2) / 0.8**	QC Status	
		Base Inclination	**X = 1.2° / Y = 0.5°**	Preliminary: **JK/BC** (01/05/2021)	Draft: **DR** (10/06/2021) / Final: **SMc** (10/11/2021)
		CRS **ETRS89**			

Comments: Cone class 3. Continuous seabed CPT. Final depth 30.11m. Test terminated due to lost communication with the cone after attempting a dissipation test which crashed the Gardlog software

Preliminary Investigation, Hesselø OWF

IN SITU CPTU TESTING - MEASURED PARAMETERS



Area	**Kattegat Sea**
Contract	**11596**
Client Name/Ref	**Energinet Eltransmission A/S/384_20_ENE**
Vessel	**MV Ocean Vantage**

Comments: Cone class 3. Continuous seabed CPT. Final depth 30.11m. Test terminated due to lost communication with the cone after attempting a dissipation test which crashed the Gardlog software

Coordinates	**676906.40E 6273499.90N**
Latitude / Longitude	
Water Depth (mMSL)	**31.63**
Date of Test	**01/05/2021**
Cone No.(size)/α Factor	**120829 (10cm^2) / 0.8**
Base Inclination	**X = 1.2° / Y = 0.5°**
CRS **ETRS89**	

CPT Number

CPT25a

Page: 2/4

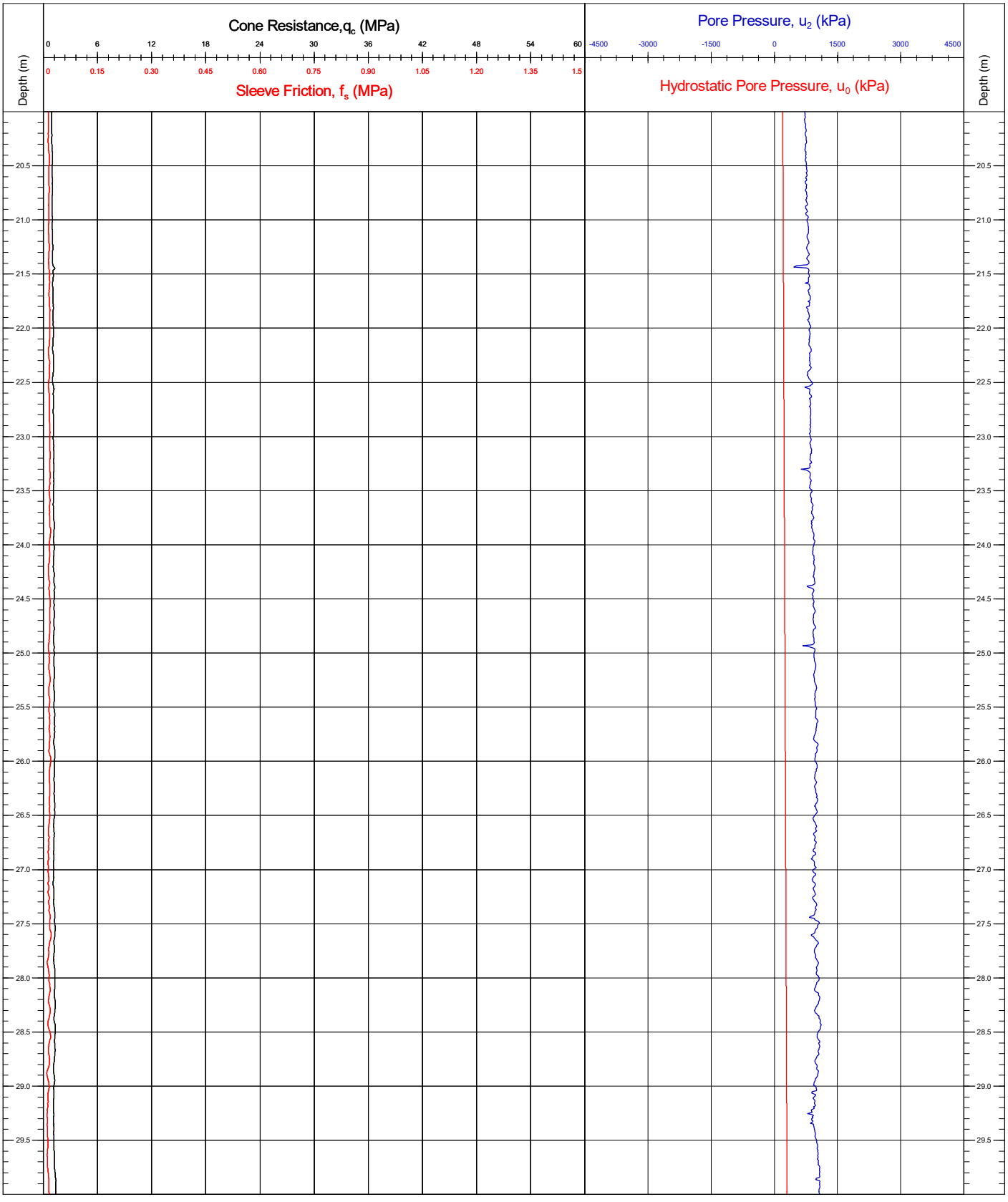
QC Status

Preliminary	Draft	Final
JK/BC (01/05/2021)	**DR** (10/06/2021)	**SMc** (10/11/2021)

Gardline

Preliminary Investigation, Hesselø OWF

IN SITU CPTU TESTING - MEASURED PARAMETERS

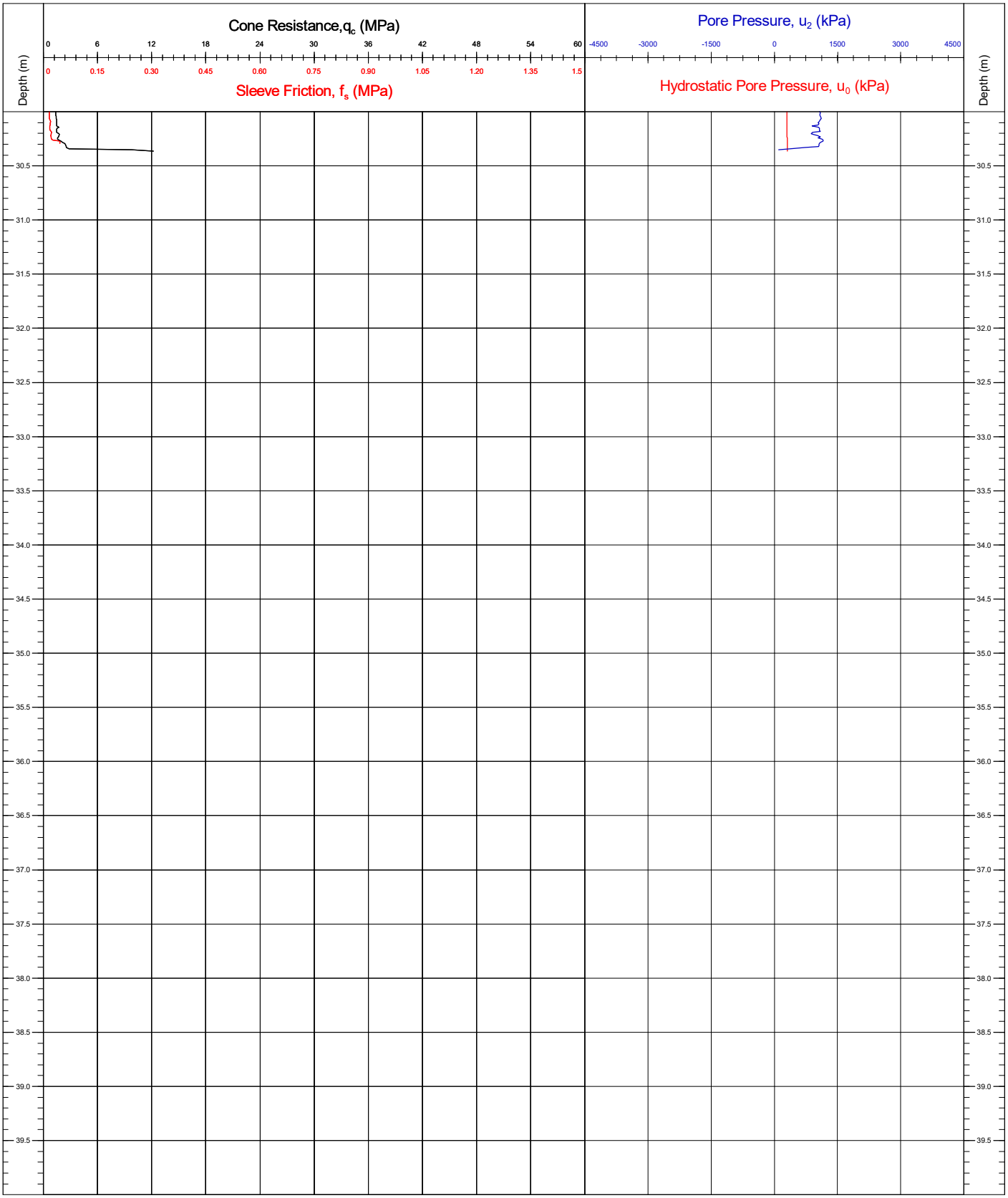


Area	**Kattegat Sea**	Coordinates	**676906.40E**	**6273499.90N**	CPT Number **CPT25a**
Contract	**11596**	Latitude / Longitude			
Client Name/Ref	**Energinet Eltransmission A/S/384_20_ENE**	Water Depth (mMSL)	**31.63**		
Vessel	**MV Ocean Vantage**	Date of Test	**01/05/2021**		Page: 3/4
		Cone No.(size)/α Factor	**120829 (10cm^2) / 0.8**		QC Status
		Base Inclination	**X = 1.2° / Y = 0.5°**		Preliminary: **JK/BC** (01/05/2021); Draft: **DR** (10/06/2021); Final: **SMc** (10/11/2021)
		CRS	**ETRS89**		

Comments: Cone class 3. Continuous seabed CPT. Final depth 30.11m. Test terminated due to lost communication with the cone after attempting a dissipation test which crashed the Gardlog software

Preliminary Investigation, Hesselø OWF

IN SITU CPTU TESTING - MEASURED PARAMETERS

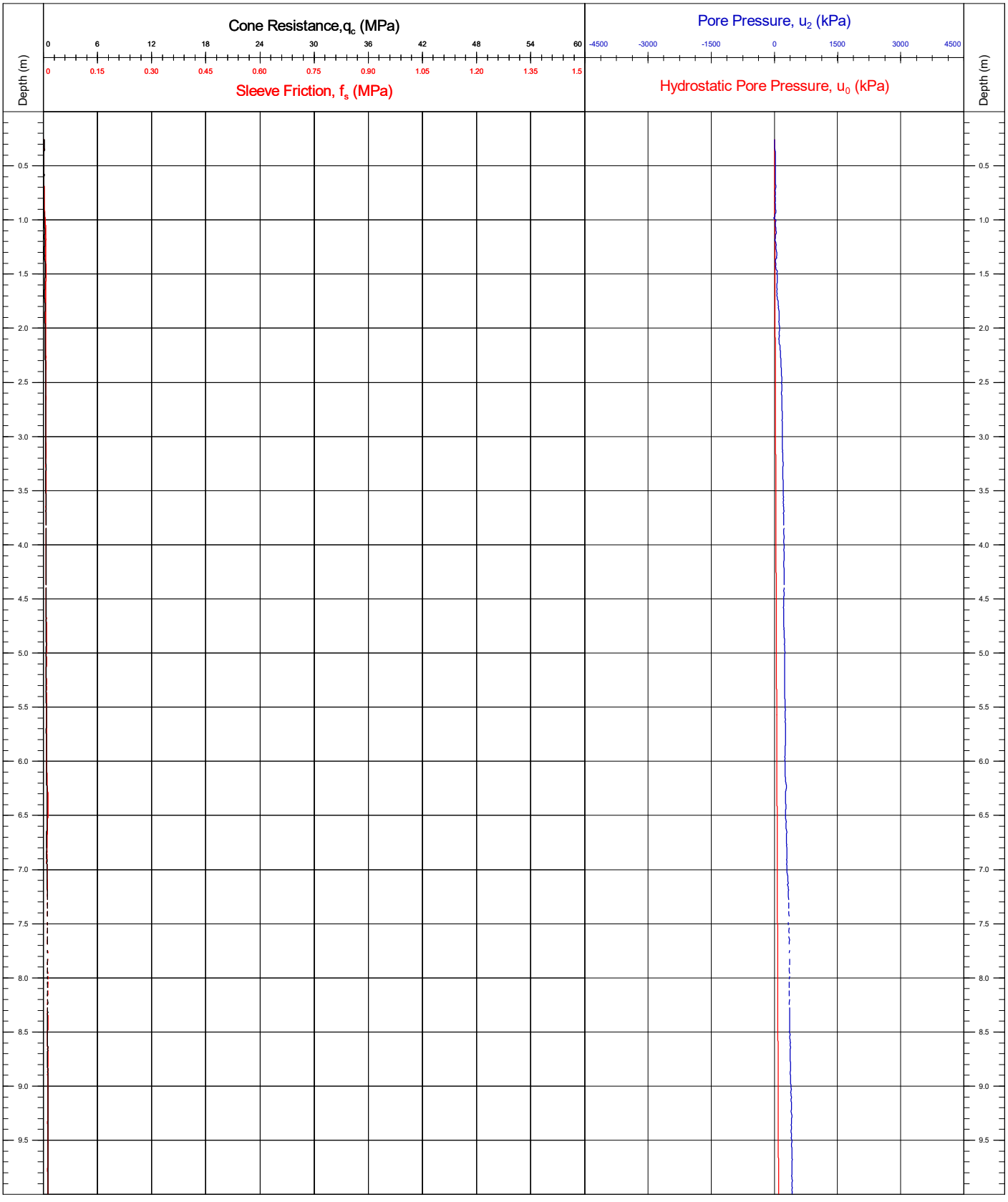


Area	**Kattegat Sea**	Coordinates	**676906.40E**	**6273499.90N**	CPT Number **CPT25a**
Contract	**11596**	Latitude / Longitude			
Client Name/Ref	**Energinet Eltransmission A/S/384_20_ENE**	Water Depth (mMSL)	**31.63**		
Vessel	**MV Ocean Vantage**	Date of Test	**01/05/2021**		Page: 4/4
		Cone No.(size)/α Factor	**120829 (10cm^2) / 0.8**		QC Status
		Base Inclination	**X = 1.2° / Y = 0.5°**		Preliminary: **JK/BC** (01/05/2021); Draft: **DR** (10/06/2021); Final: **SMc** (10/11/2021)
		CRS	**ETRS89**		

Comments: Cone class 3. Continuous seabed CPT. Final depth 30.11m. Test terminated due to lost communication with the cone after attempting a dissipation test which crashed the Gardlog software

Preliminary Investigation, Hesselø OWF

IN SITU CPTU TESTING - MEASURED PARAMETERS

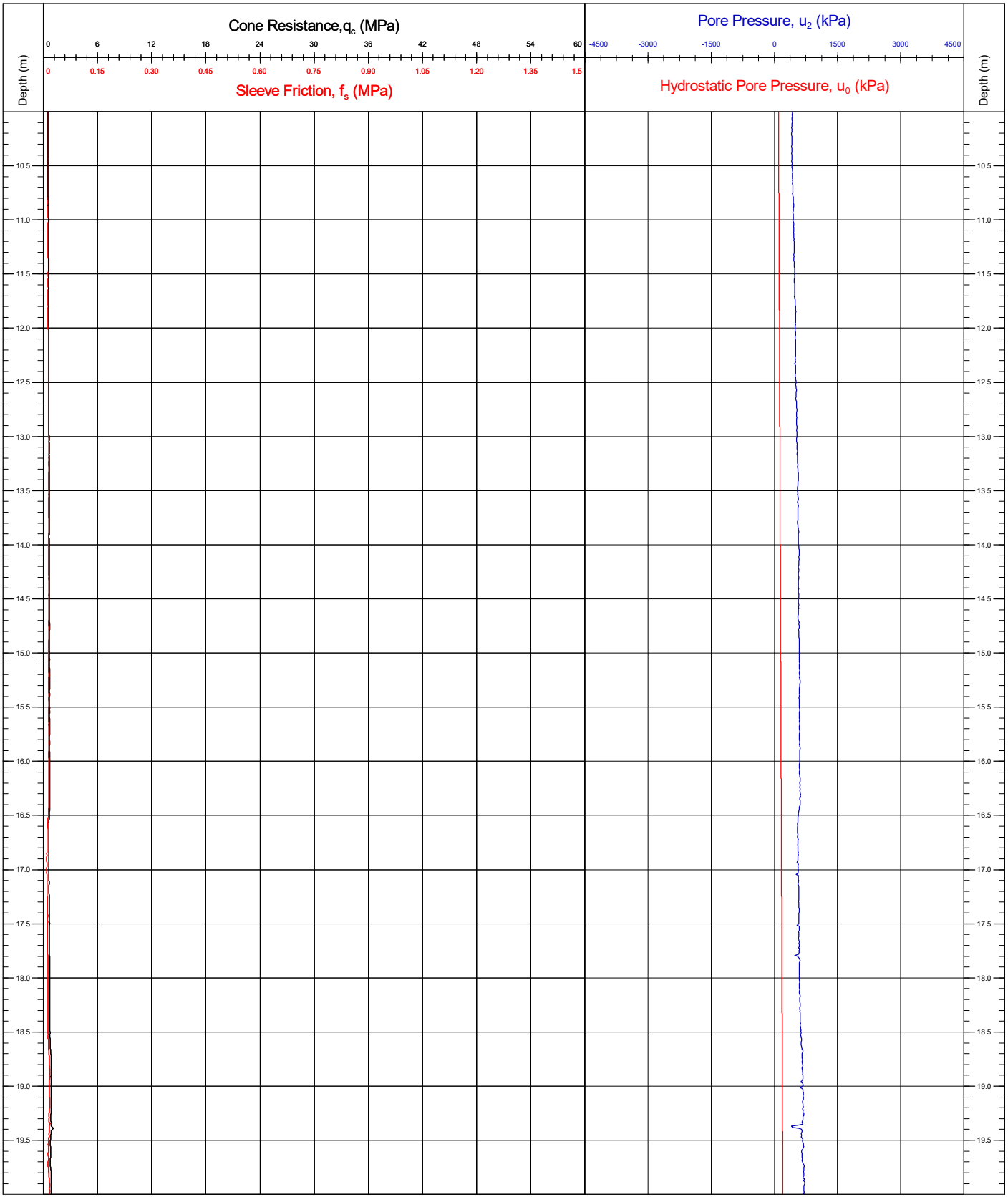


Area	**Kattegat Sea**	Coordinates	**676906.00E 6273510.10N**	CPT Number	**CPT25b**
Contract	**11596**	Latitude / Longitude			
Client Name/Ref	**Energinet Eltransmission A/S/384_20_ENE**	Water Depth (mMSL)	**31.57**		
Vessel	**MV Ocean Vantage**	Date of Test	**02/05/2021**	Page: 1/4	
		Cone No.(size)/α Factor	**130206 (10cm^2) / 0.77**	QC Status	
		Base Inclination	**X = 1.1° / Y = 0.9°**	Preliminary: **JK/BC** (02/05/2021)	Draft: **DR** (10/06/2021) / Final: **SMc** (10/11/2021)
		CRS **ETRS89**			

Comments: Cone class 1. Continuous seabed CPT. Final depth 30.86m. Test terminated at operators discretion due to increasing total load and lack of lateral rod support from mudline

Preliminary Investigation, Hesselø OWF

IN SITU CPTU TESTING - MEASURED PARAMETERS

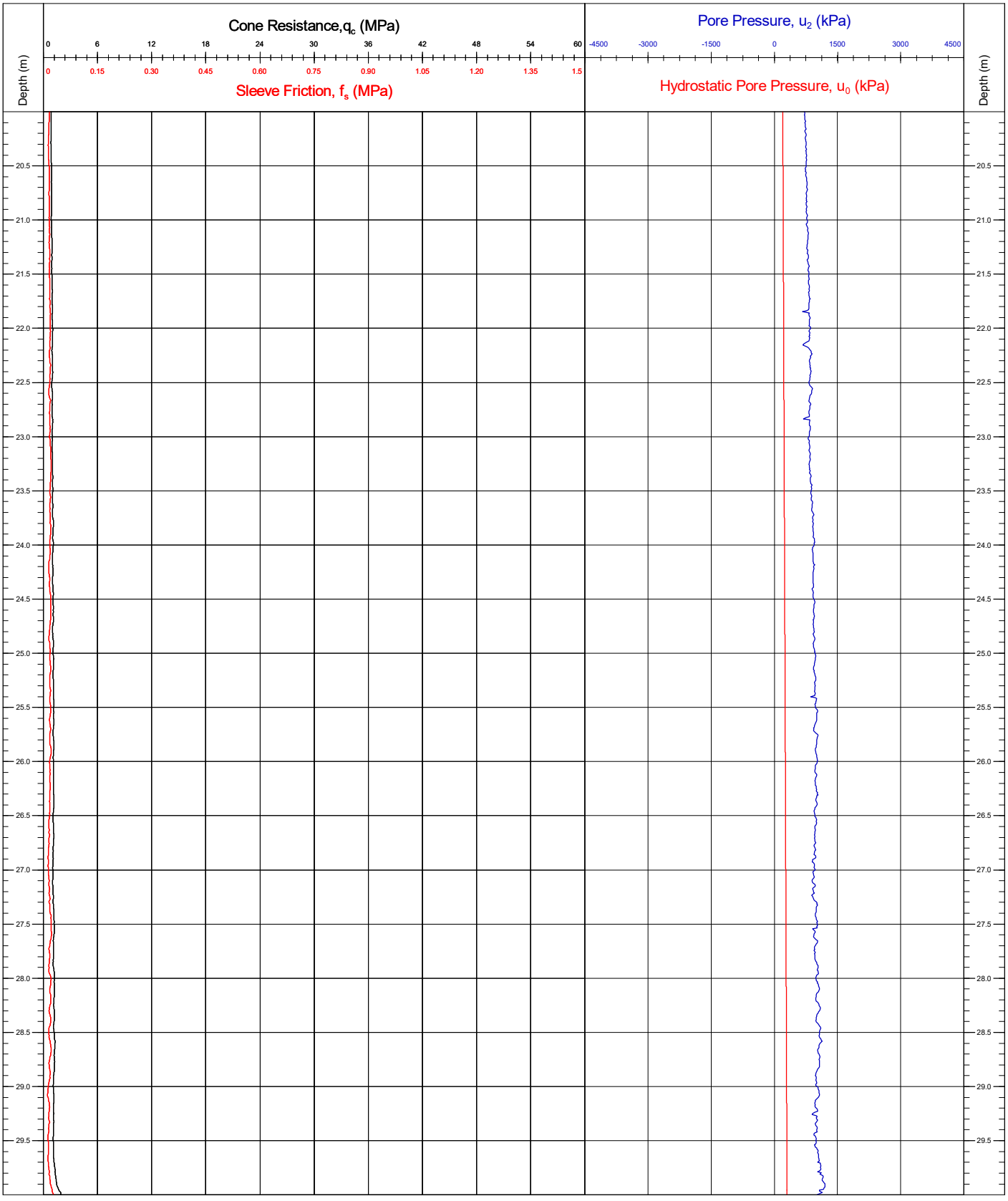


Area	**Kattegat Sea**	Coordinates	**676906.00E 6273510.10N**	CPT Number	**CPT25b**
Contract	**11596**	Latitude / Longitude			
Client Name/Ref	**Energinet Eltransmission A/S/384_20_ENE**	Water Depth (mMSL)	**31.57**		
Vessel	**MV Ocean Vantage**	Date of Test	**02/05/2021**	Page: 2/4	
		Cone No.(size)/α Factor	**130206 (10cm^2) / 0.77**	QC Status	
		Base Inclination	**X = 1.1° / Y = 0.9°**	Preliminary: **JK/BC** (02/05/2021)	Draft: **DR** (10/06/2021) / Final: **SMc** (10/11/2021)
		CRS **ETRS89**			

Comments: Cone class 1. Continuous seabed CPT. Final depth 30.86m. Test terminated at operators discretion due to increasing total load and lack of lateral rod support from mudline

Preliminary Investigation, Hesselø OWF

IN SITU CPTU TESTING - MEASURED PARAMETERS

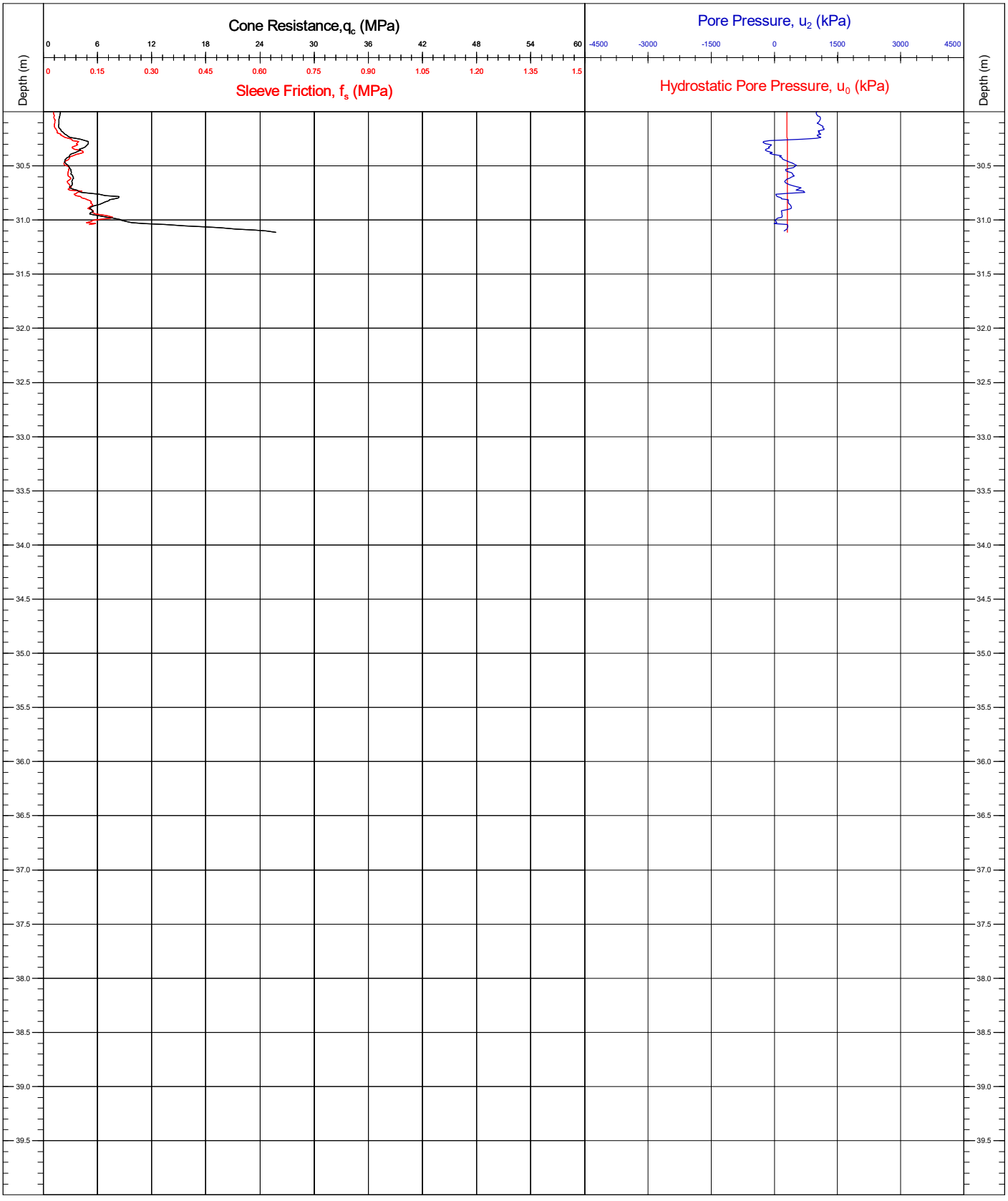


Area	**Kattegat Sea**	Coordinates	**676906.00E**	**6273510.10N**	CPT Number
Contract	**11596**	Latitude / Longitude			**CPT25b**
Client Name/Ref	**Energinet Eltransmission A/S/384_20_ENE**	Water Depth (mMSL)	**31.57**		
Vessel	**MV Ocean Vantage**	Date of Test	**02/05/2021**		Page: 3/4
		Cone No.(size)/α Factor	**130206 (10cm^2) / 0.77**		QC Status
		Base Inclination	**X = 1.1° / Y = 0.9°**		Preliminary: **JK/BC** (02/05/2021) · Draft: **DR** (10/06/2021) · Final: **SMc** (10/11/2021)
		CRS	**ETRS89**		

Comments: Cone class 1. Continuous seabed CPT. Final depth 30.86m. Test terminated at operators discretion due to increasing total load and lack of lateral rod support from mudline

Preliminary Investigation, Hesselø OWF

IN SITU CPTU TESTING - MEASURED PARAMETERS

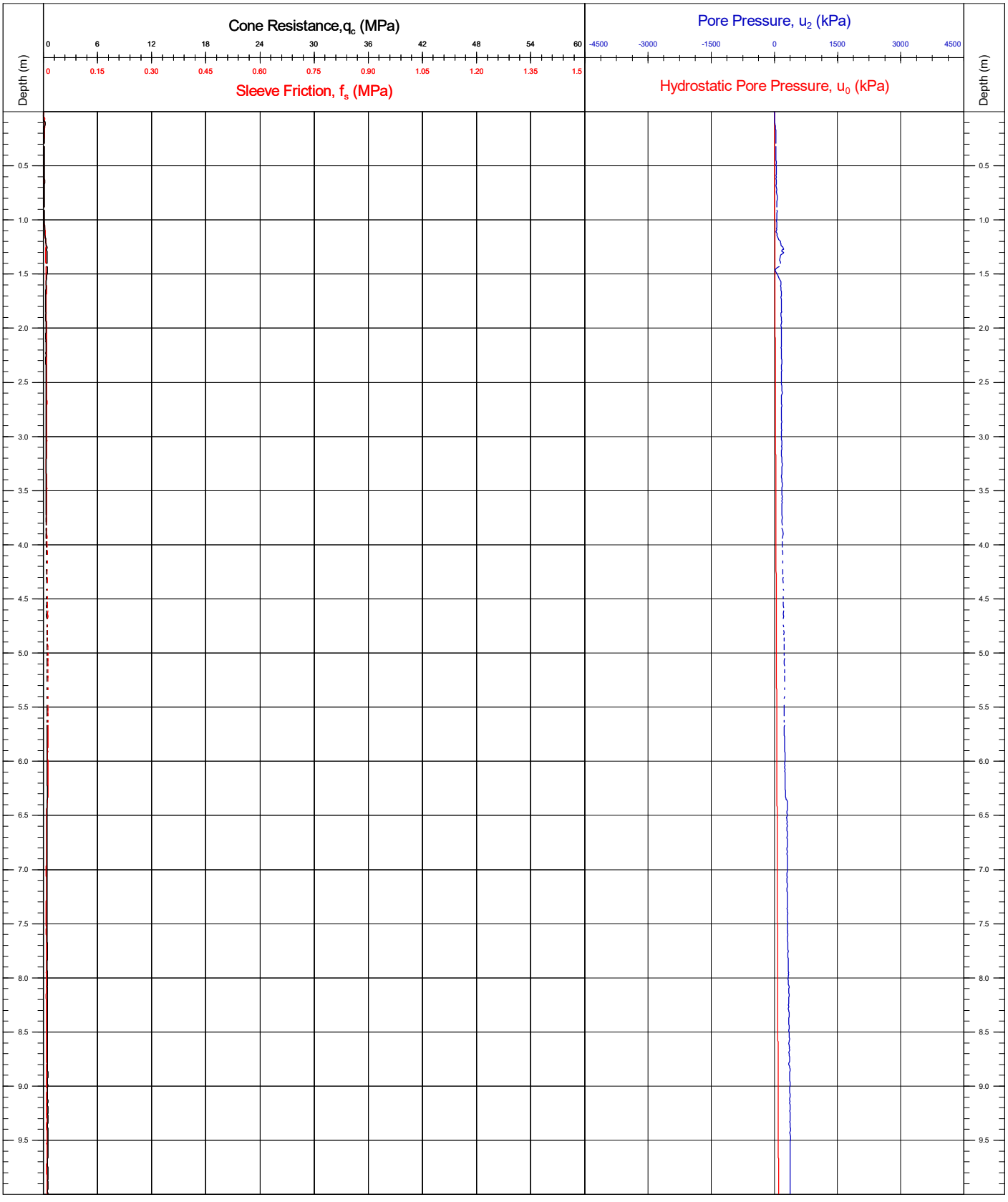


Area	**Kattegat Sea**	Coordinates	**676906.00E 6273510.10N**	CPT Number	**CPT25b**
Contract	**11596**	Latitude / Longitude			
Client Name/Ref	**Energinet Eltransmission A/S/384_20_ENE**	Water Depth (mMSL)	**31.57**		
Vessel	**MV Ocean Vantage**	Date of Test	**02/05/2021**	Page: 4/4	
		Cone No.(size)/α Factor	**130206 (10cm^2) / 0.77**	QC Status	
		Base Inclination	**X = 1.1° / Y = 0.9°**	Preliminary: **JK/BC** (02/05/2021)	Draft: **DR** (10/06/2021)	Final: **SMc** (10/11/2021)
		CRS **ETRS89**			

Comments: Cone class 1. Continuous seabed CPT. Final depth 30.86m. Test terminated at operators discretion due to increasing total load and lack of lateral rod support from mudline

Preliminary Investigation, Hesselø OWF

IN SITU CPTU TESTING - MEASURED PARAMETERS

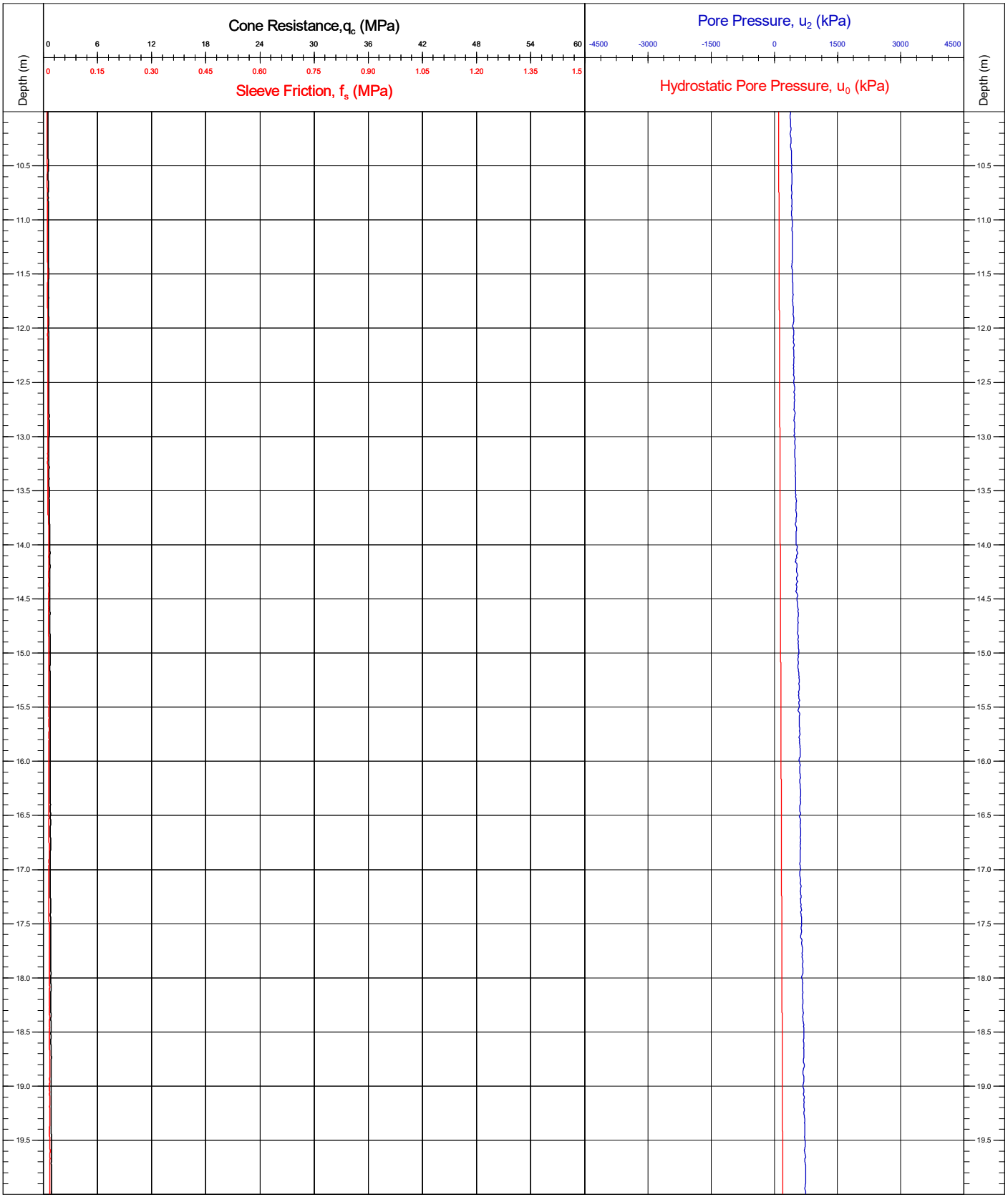


Area	**Kattegat Sea**	Coordinates	**676724.10E** **6276824.70N**	CPT Number	**CPT26**
Contract	**11596**	Latitude / Longitude			
Client Name/Ref	**Energinet Eltransmission A/S/384_20_ENE**	Water Depth (mMSL)	**30.88**		
Vessel	**MV Ocean Vantage**	Date of Test	**02/05/2021**	Page: 1/4	
		Cone No.(size)/α Factor	**191114 (10cm^2) / 0.76**	QC Status	
		Base Inclination	**X = 1.1° / Y = 1.0°**	Preliminary: **JK/BC** (02/05/2021)	Draft: **DR** (10/06/2021)
		CRS **ETRS89**			Final: **SMc** (10/11/2021)

Comments: Cone class 1. Continuous seabed CPT. Final depth 37.33m. Test terminated at operators discretion to avoid damage due to lack of lateral rod support and an increasing tip load

Preliminary Investigation, Hesselø OWF

IN SITU CPTU TESTING - MEASURED PARAMETERS

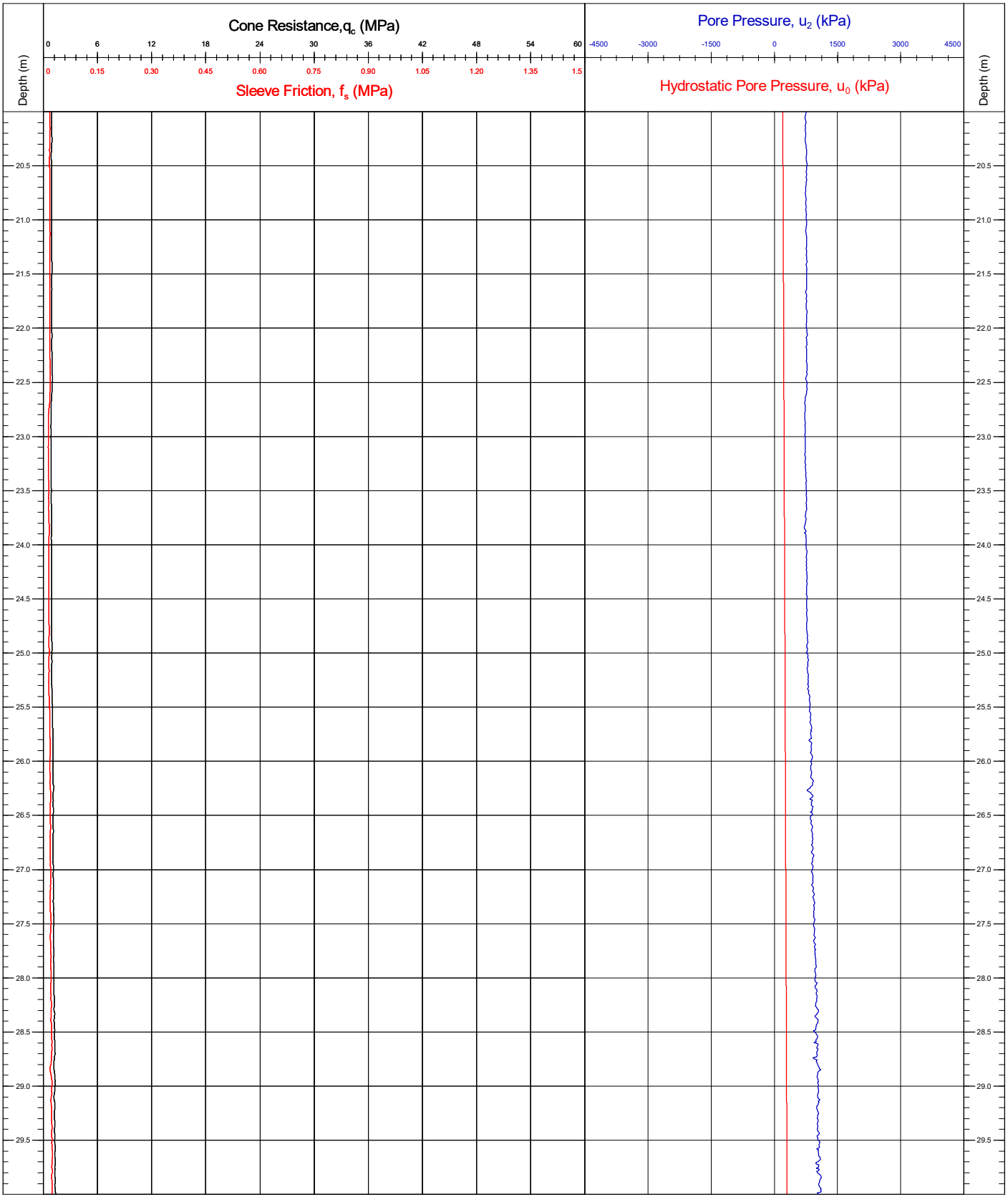


Area	**Kattegat Sea**	Coordinates	**676724.10E**	**6276824.70N**	CPT Number **CPT26**
Contract	**11596**	Latitude / Longitude			
Client Name/Ref	**Energinet Eltransmission A/S/384_20_ENE**	Water Depth (mMSL)	**30.88**		
Vessel	**MV Ocean Vantage**	Date of Test	**02/05/2021**		Page: 2/4
		Cone No.(size)/α Factor	**191114 (10cm^2) / 0.76**		QC Status
		Base Inclination	**X = 1.1° / Y = 1.0°**		Preliminary: **JK/BC** (02/05/2021); Draft: **DR** (10/06/2021); Final: **SMc** (10/11/2021)
		CRS	**ETRS89**		

Comments: Cone class 1. Continuous seabed CPT. Final depth 37.33m. Test terminated at operators discretion to avoid damage due to lack of lateral rod support and an increasing tip load

Preliminary Investigation, Hesselø OWF

IN SITU CPTU TESTING - MEASURED PARAMETERS

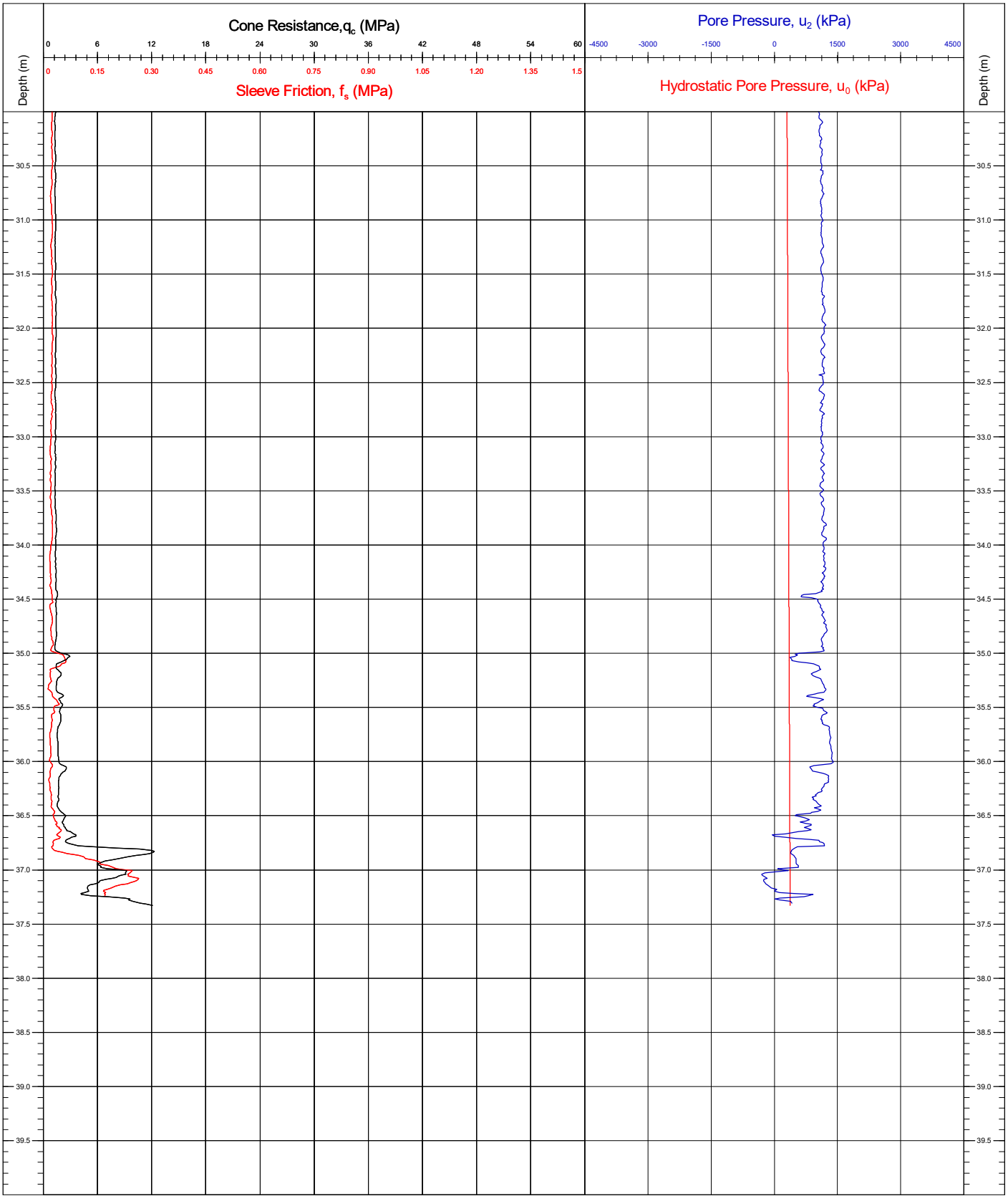


Area	**Kattegat Sea**	Coordinates	**676724.10E**	**6276824.70N**	CPT Number **CPT26**
Contract	**11596**	Latitude / Longitude			
Client Name/Ref	**Energinet Eltransmission A/S/384_20_ENE**	Water Depth (mMSL)	**30.88**		
Vessel	**MV Ocean Vantage**	Date of Test	**02/05/2021**		Page: 3/4
		Cone No.(size)/α Factor	**191114 (10cm^2) / 0.76**		QC Status
		Base Inclination	**X = 1.1° / Y = 1.0°**		Preliminary: **JK/BC** (02/05/2021); Draft: **DR** (10/06/2021); Final: **SMc** (10/11/2021)
		CRS	**ETRS89**		

Comments: Cone class 1. Continuous seabed CPT. Final depth 37.33m. Test terminated at operators discretion to avoid damage due to lack of lateral rod support and an increasing tip load

Preliminary Investigation, Hesselø OWF

IN SITU CPTU TESTING - MEASURED PARAMETERS

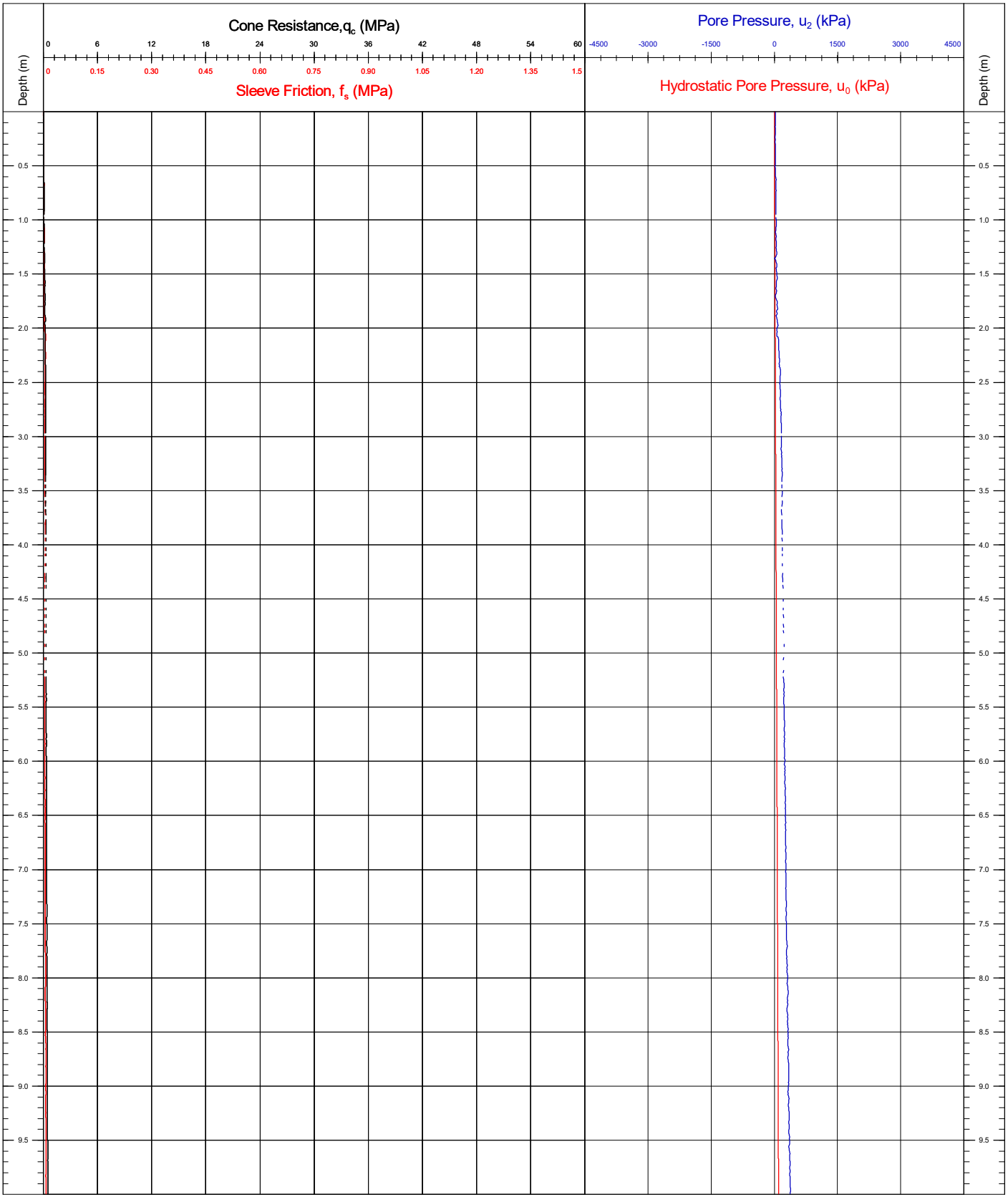


Area	**Kattegat Sea**	Coordinates	**676724.10E** **6276824.70N**	CPT Number	**CPT26**
Contract	**11596**	Latitude / Longitude			
Client Name/Ref	**Energinet Eltransmission A/S/384_20_ENE**	Water Depth (mMSL)	**30.88**		
Vessel	**MV Ocean Vantage**	Date of Test	**02/05/2021**	Page: 4/4	
		Cone No.(size)/α Factor	**191114 (10cm^2) / 0.76**	QC Status	
		Base Inclination	**X = 1.1° / Y = 1.0°**	Preliminary: **JK/BC** (02/05/2021)	Draft: **DR** (10/06/2021)
		CRS **ETRS89**			Final: **SMc** (10/11/2021)

Comments: Cone class 1. Continuous seabed CPT. Final depth 37.33m. Test terminated at operators discretion to avoid damage due to lack of lateral rod support and an increasing tip load

Preliminary Investigation, Hesselø OWF

IN SITU CPTU TESTING - MEASURED PARAMETERS

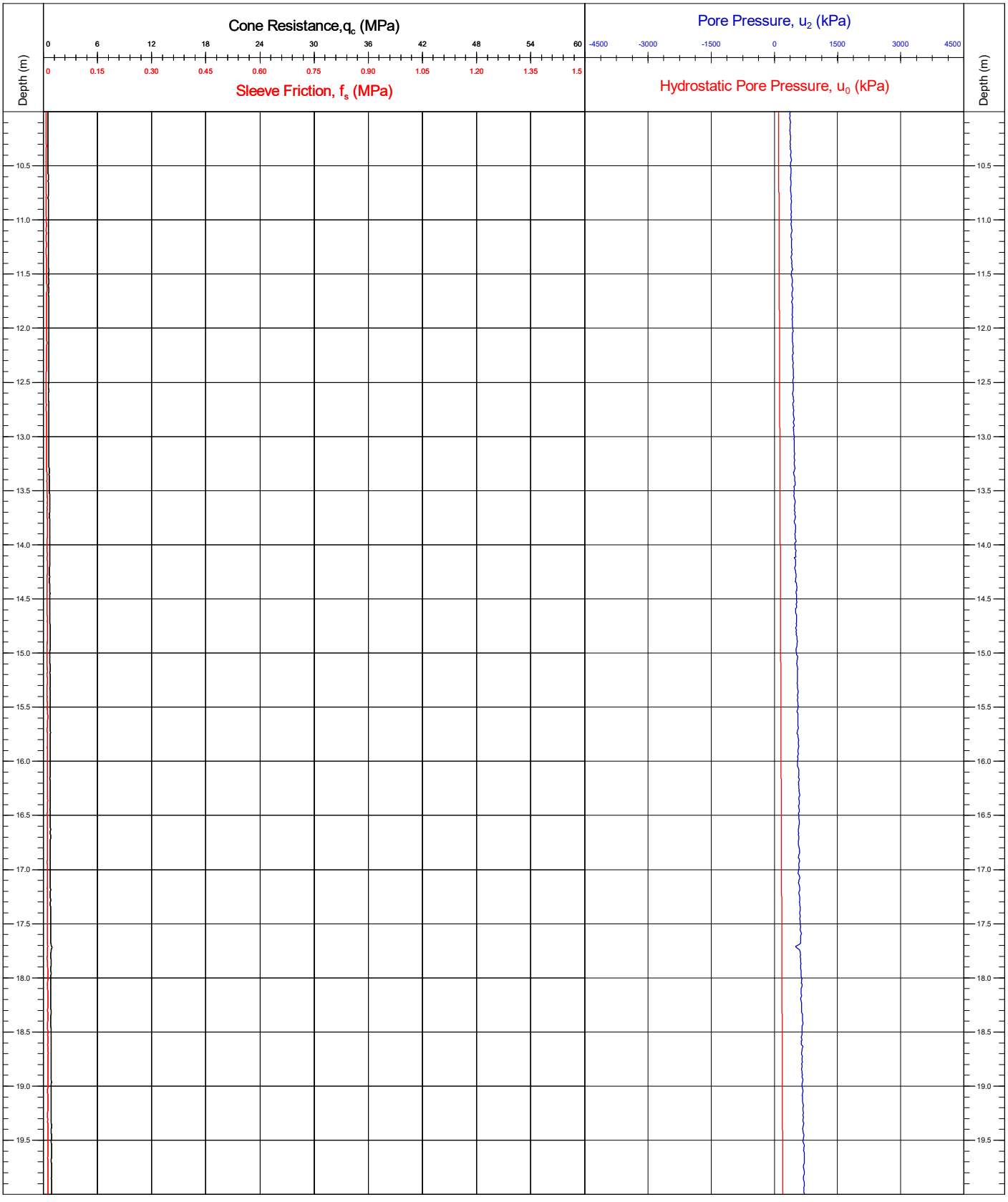


Area	**Kattegat Sea**	Coordinates	**674182.00E**	**6265896.30N**	CPT Number **OSS 1**
Contract	**11596**	Latitude / Longitude			
Client Name/Ref	**Energinet Eltransmission A/S/384_20_ENE**	Water Depth (mMSL)	**31.60**		
Vessel	**MV Ocean Vantage**	Date of Test	**25/04/2021**		Page: 1/5
Comments: OSS1 was completed to a depth of 47.95m~ at which point it was terminated due to loss of communication with the cone. Cone class 4		Cone No.(size)/α Factor	**100415 (10cm^2) / 0.8**		QC Status
		Base Inclination	**X = 0.0° / Y = 0.0°**		Preliminary: **JK/BC** (25/04/2021) · Draft: **DR** (10/06/2021) · Final: **SMc** (10/11/2021)
		CRS	**ETRS89**		

Gardline

Preliminary Investigation, Hesselø OWF

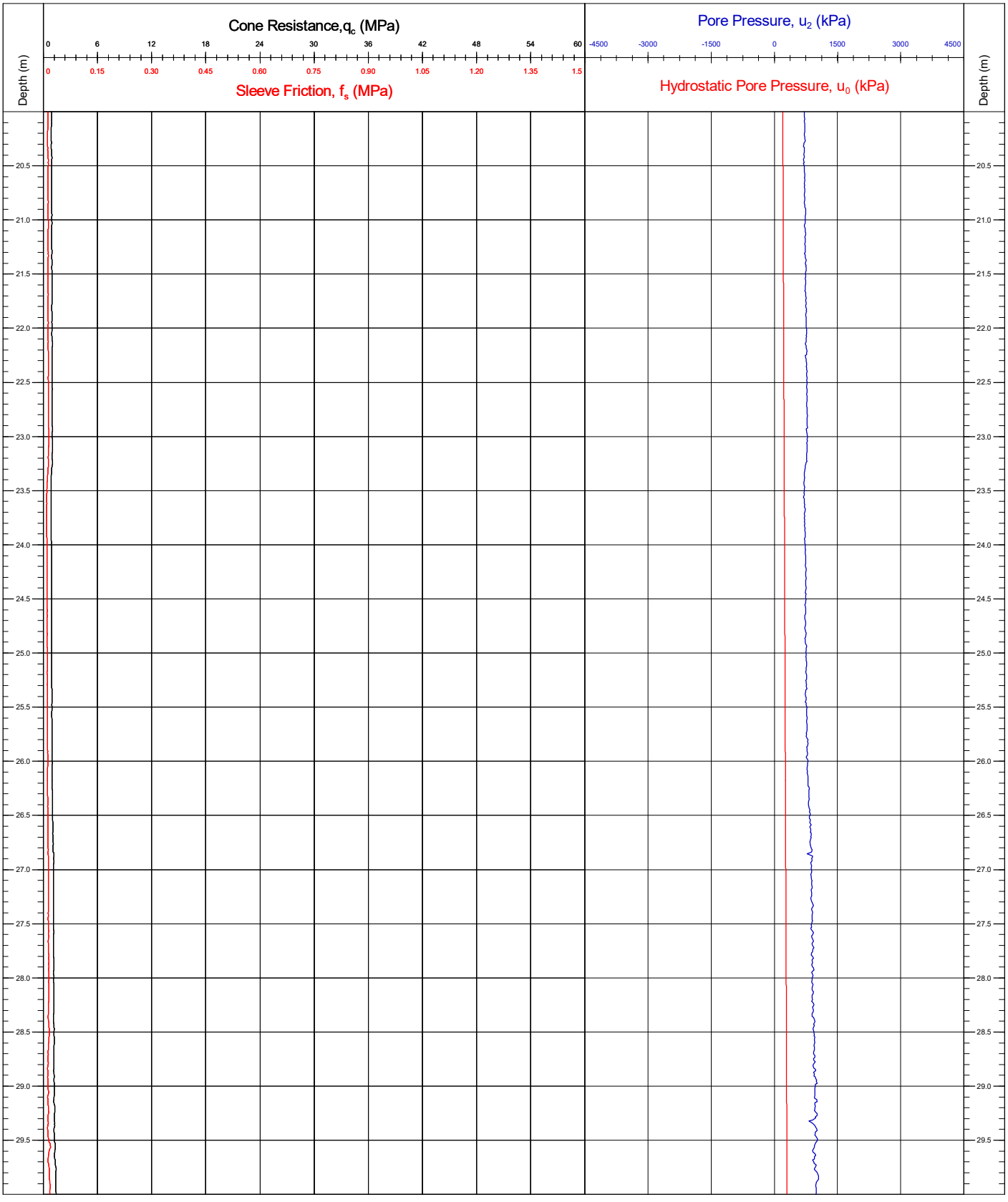
IN SITU CPTU TESTING - MEASURED PARAMETERS



Area	**Kattegat Sea**	Coordinates	**674182.00E**	**6265896.30N**	CPT Number **OSS 1**
Contract	**11596**	Latitude / Longitude			
Client Name/Ref	**Energinet Eltransmission A/S/384_20_ENE**	Water Depth (mMSL)	**31.60**		
Vessel	**MV Ocean Vantage**	Date of Test	**25/04/2021**		Page: 2/5
Comments: OSS1 was completed to a depth of 47.95m~ at which point it was terminated due to loss of communication with the cone. Cone class 4		Cone No.(size)/α Factor	**100415 (10cm^2) / 0.8**		QC Status
		Base Inclination	**X = 0.0° / Y = 0.0°**		Preliminary: **JK/BC** (25/04/2021) · Draft: **DR** (10/06/2021) · Final: **SMc** (10/11/2021)
		CRS	**ETRS89**		

Preliminary Investigation, Hesselø OWF

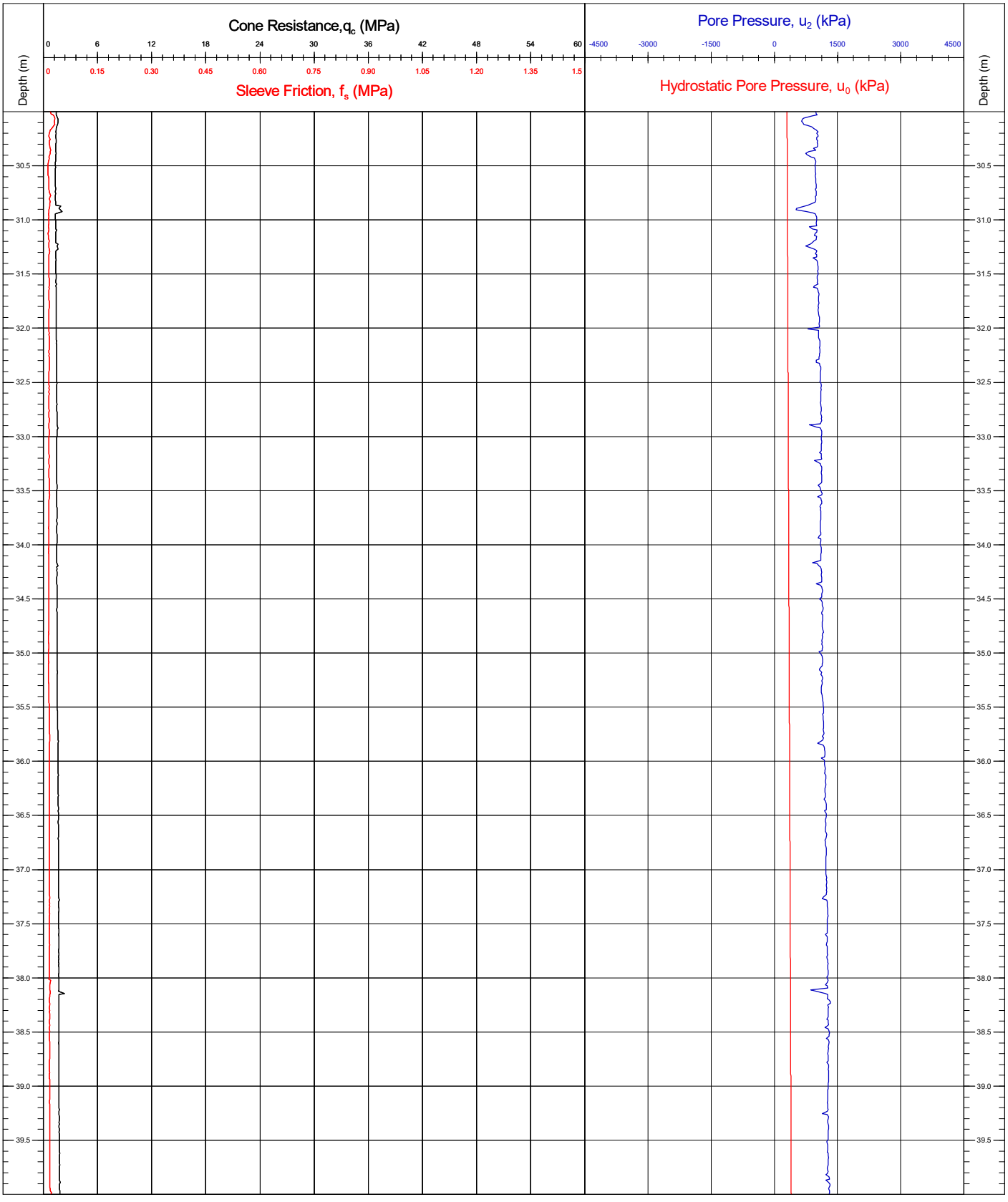
IN SITU CPTU TESTING - MEASURED PARAMETERS



Area	**Kattegat Sea**	Coordinates	**674182.00E**	**6265896.30N**	CPT Number **OSS 1**
Contract	**11596**	Latitude / Longitude			
Client Name/Ref	**Energinet Eltransmission A/S/384_20_ENE**	Water Depth (mMSL)	**31.60**		
Vessel	**MV Ocean Vantage**	Date of Test	**25/04/2021**		Page: 3/5
Comments: OSS1 was completed to a depth of 47.95m~ at which point it was terminated due to loss of communication with the cone. Cone class 4		Cone No.(size)/α Factor	**100415 (10cm^2) / 0.8**		QC Status
		Base Inclination	**X = 0.0° / Y = 0.0°**		Preliminary: **JK/BC** (25/04/2021) · Draft: **DR** (10/06/2021) · Final: **SMc** (10/11/2021)
		CRS	**ETRS89**		

Preliminary Investigation, Hesselø OWF

IN SITU CPTU TESTING - MEASURED PARAMETERS

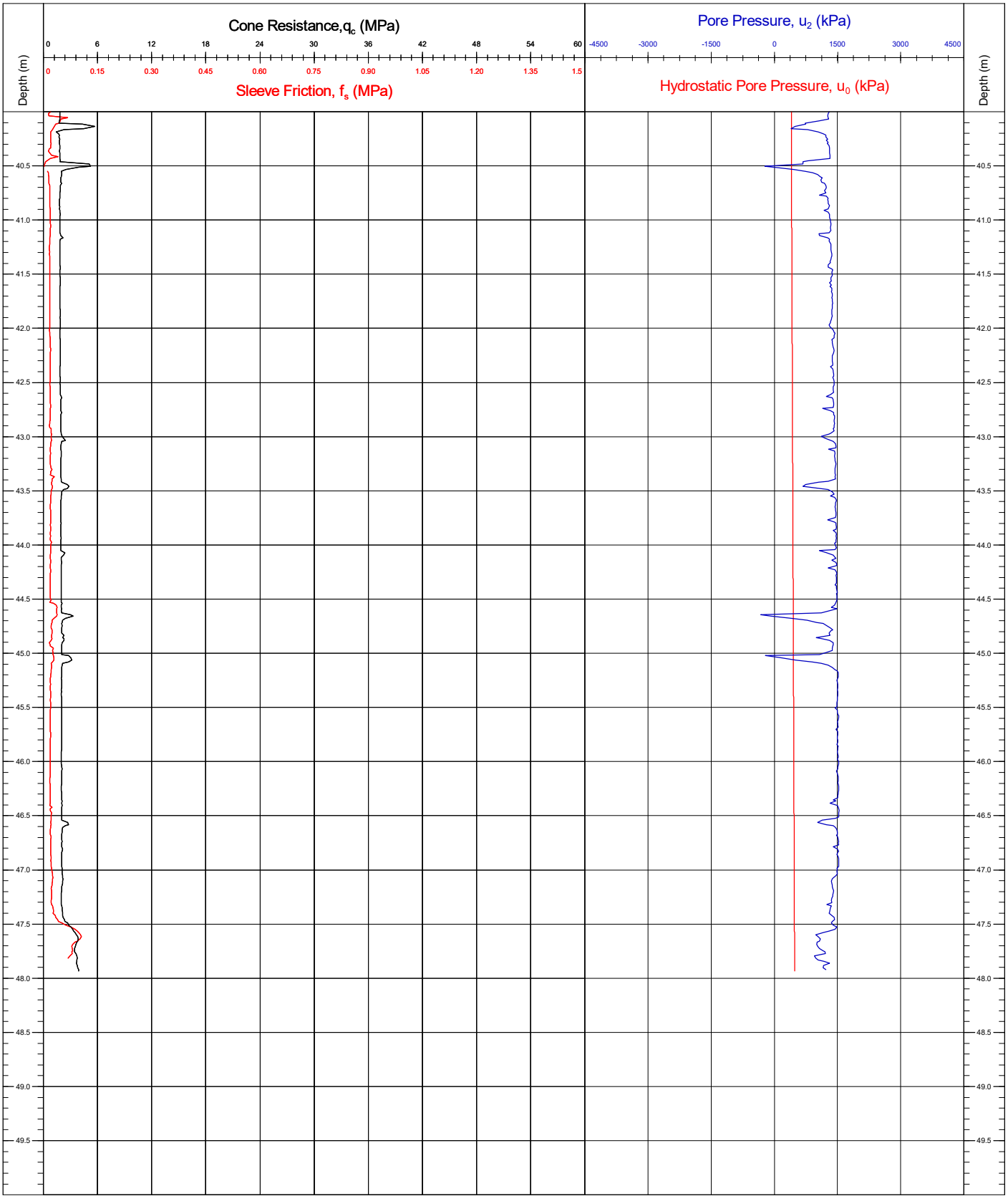


Area	**Kattegat Sea**	Coordinates	**674182.00E** **6265896.30N**	CPT Number	
Contract	**11596**	Latitude / Longitude		**OSS 1**	
Client Name/Ref	**Energinet Eltransmission A/S/384_20_ENE**	Water Depth (mMSL)	**31.60**		
Vessel	**MV Ocean Vantage**	Date of Test	**25/04/2021**	Page: 4/5	
		Cone No.(size)/α Factor	**100415 (10cm^2) / 0.8**	QC Status	
		Base Inclination	**X = 0.0° / Y = 0.0°**	Preliminary: **JK/BC** (25/04/2021)	Draft: **DR** (10/06/2021)
		CRS **ETRS89**			Final: **SMc** (10/11/2021)

Comments: OSS1 was completed to a depth of 47.95m~ at which point it was terminated due to loss of communication with the cone. Cone class 4

Preliminary Investigation, Hesselø OWF

IN SITU CPTU TESTING - MEASURED PARAMETERS

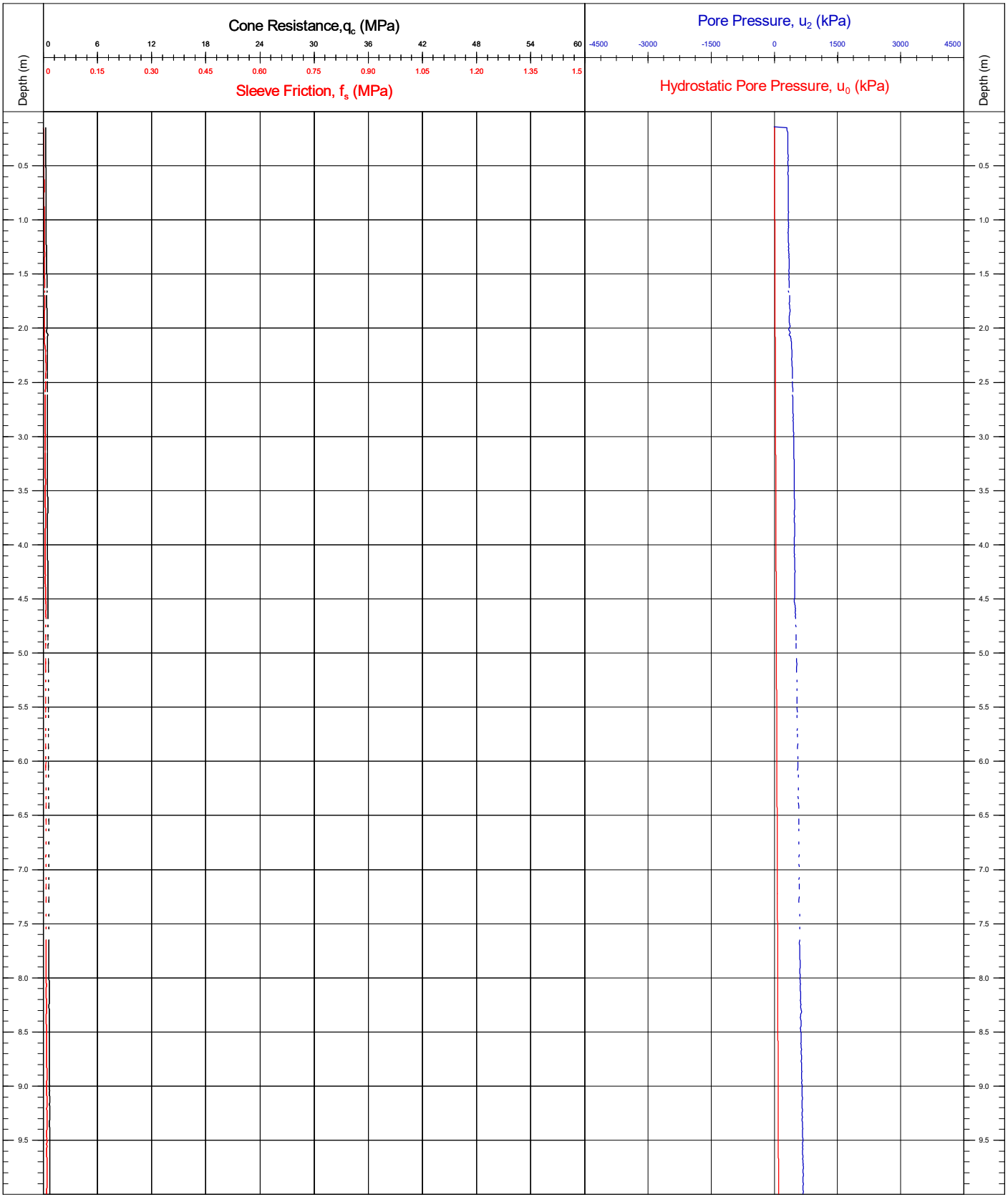


Area	**Kattegat Sea**	Coordinates	**674182.00E** **6265896.30N**	CPT Number	**OSS 1**
Contract	**11596**	Latitude / Longitude			
Client Name/Ref	**Energinet Eltransmission A/S/384_20_ENE**	Water Depth (mMSL)	**31.60**		
Vessel	**MV Ocean Vantage**	Date of Test	**25/04/2021**	Page: 5/5	
		Cone No.(size)/α Factor	**100415 (10cm^2) / 0.8**	QC Status	
		Base Inclination	**X = 0.0° / Y = 0.0°**	Preliminary / Draft / Final	
		CRS **ETRS89**		**JK/BC** (25/04/2021) / **DR** (10/06/2021) / **SMc** (10/11/2021)	

Comments: OSS1 was completed to a depth of 47.95m~ at which point it was terminated due to loss of communication with the cone. Cone class 4

Preliminary Investigation, Hesselø OWF

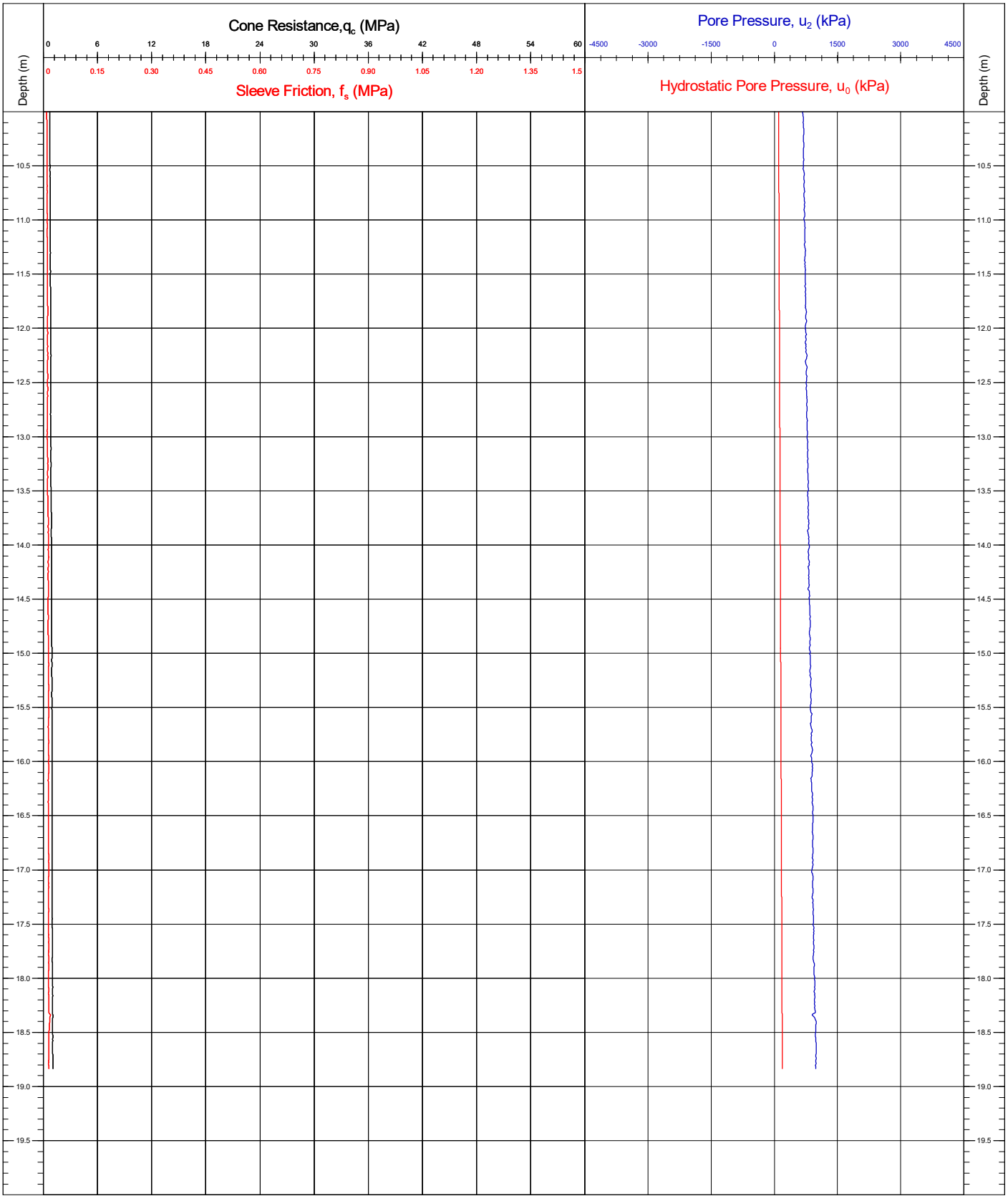
IN SITU CPTU TESTING - MEASURED PARAMETERS



Area	**Kattegat Sea**	Coordinates	**674182.40E** **6265890.90N**	CPT Number	**OSS 1a**
Contract	**11596**	Latitude / Longitude			
Client Name/Ref	**Energinet Eltransmission A/S/384_20_ENE**	Water Depth (mMSL)	**31.64**		
Vessel	**MV Ocean Vantage**	Date of Test	**25/04/2021**	Page: 1/2	
Comments: Cone class 1. Test terminated at operators discretion due to increasing cone inclination. Final depth 18.70m		Cone No.(size)/α Factor	**120910 (10cm^2) / 0.81**	QC Status	
		Base Inclination	**X = -0.6° / Y = 1.6°**	Preliminary: **JK/BC** (25/04/2021)	Draft: **DR** (10/06/2021)
		CRS **ETRS89**			Final: **SMc** (10/11/2021)

Preliminary Investigation, Hesselø OWF

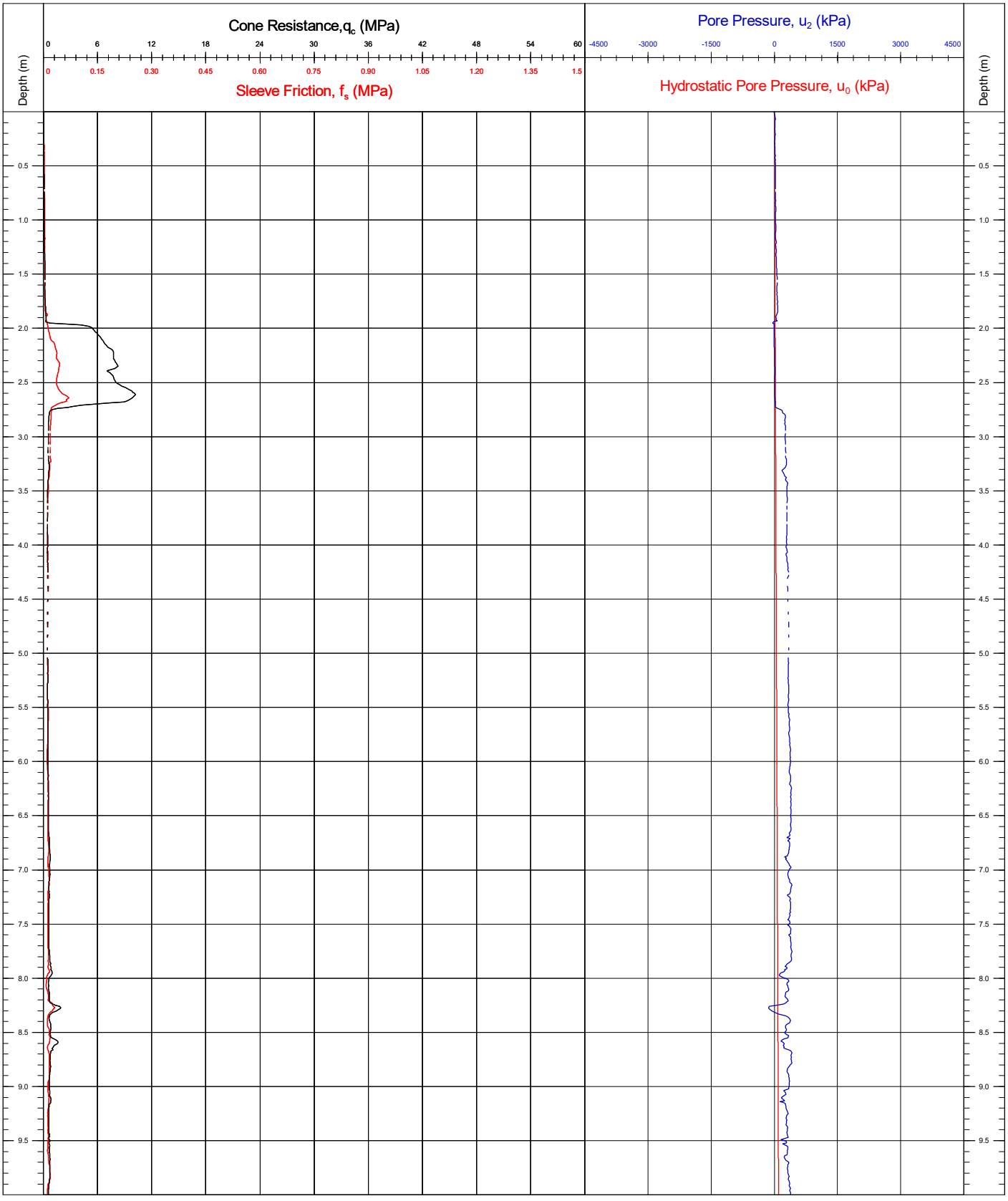
IN SITU CPTU TESTING - MEASURED PARAMETERS



Area	**Kattegat Sea**	Coordinates	**674182.40E**	**6265890.90N**	CPT Number **OSS 1a**
Contract	**11596**	Latitude / Longitude			
Client Name/Ref	**Energinet Eltransmission A/S/384_20_ENE**	Water Depth (mMSL)	**31.64**		
Vessel	**MV Ocean Vantage**	Date of Test	**25/04/2021**		Page: 2/2
Comments: Cone class 1. Test terminated at operators discretion due to increasing cone inclination. Final depth 18.70m		Cone No.(size)/α Factor	**120910 (10cm^2) / 0.81**		QC Status
		Base Inclination	**X = -0.6° / Y = 1.6°**		Preliminary: **JK/BC (25/04/2021)** · Draft: **DR (10/06/2021)** · Final: **SMc (10/11/2021)**
		CRS	**ETRS89**		

Preliminary Investigation, Hesselø OWF

IN SITU CPTU TESTING - MEASURED PARAMETERS

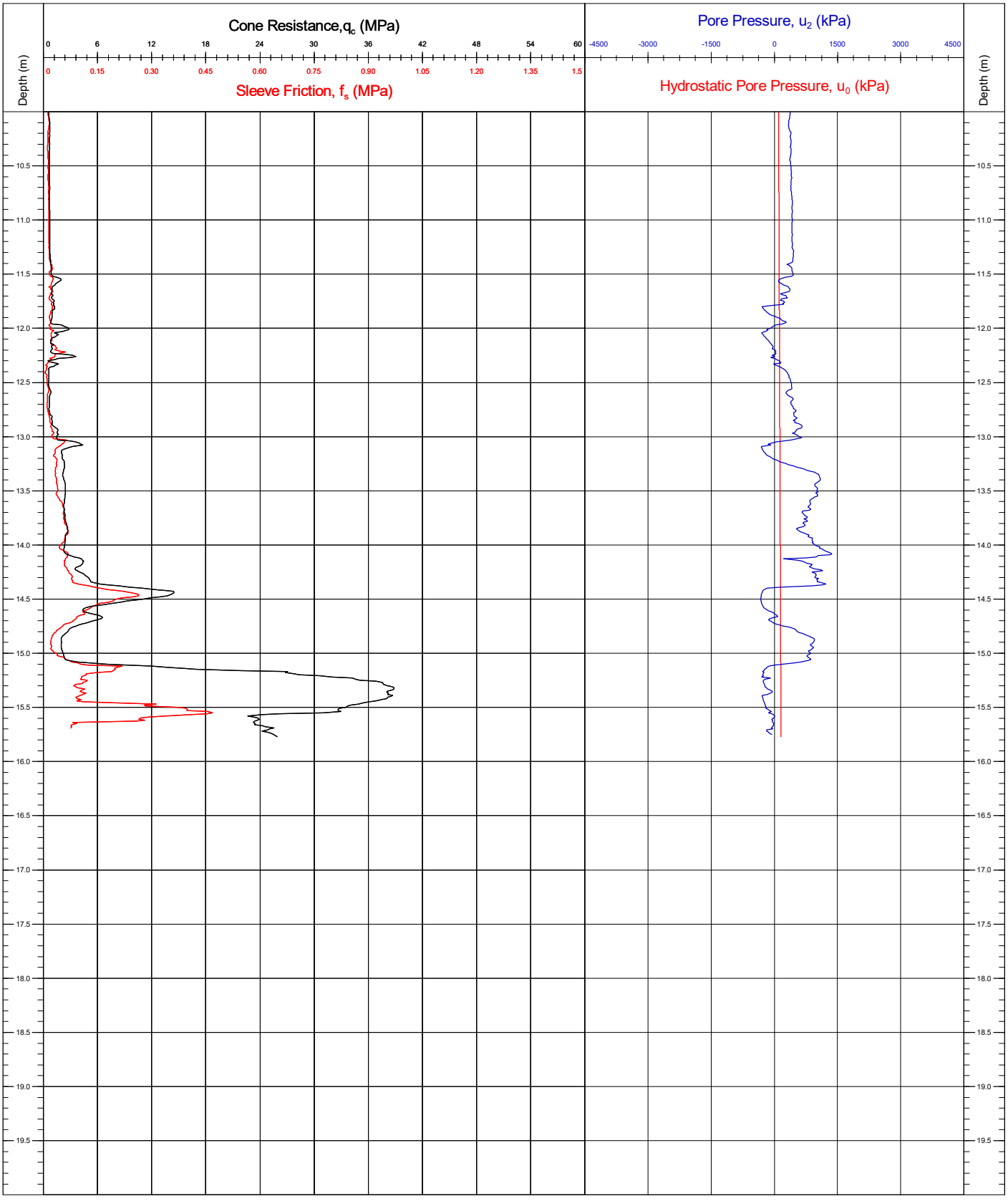


Area	**Kattegat Sea**	Coordinates	**674909.60E**	**6253669.90N**	CPT Number **OSS 2**
Contract	**11596**	Latitude / Longitude			
Client Name/Ref	**Energinet Eltransmission A/S/384_20_ENE**	Water Depth (mMSL)	**29.96**		
Vessel	**MV Ocean Vantage**	Date of Test	**27/04/2021**		Page: 1/2
		Cone No.(size)/α Factor	**081208 (10cm^2) / 0.78**		QC Status
		Base Inclination	**X = 1.0° / Y = 1.0°**		Preliminary: **JK/BC** (27/04/2021); Draft: **DR** (10/06/2021); Final: **SMc** (10/11/2021)
		CRS	**ETRS89**		

Comments: Cone class 1. Continuous seabed CPT. Final depth 15.84m. Test terminated at operators discretion due to a lack of lateral rod support from mudline– resulting in a high risk of buckling rods when encountering very dense sands

Preliminary Investigation, Hesselø OWF

IN SITU CPTU TESTING - MEASURED PARAMETERS

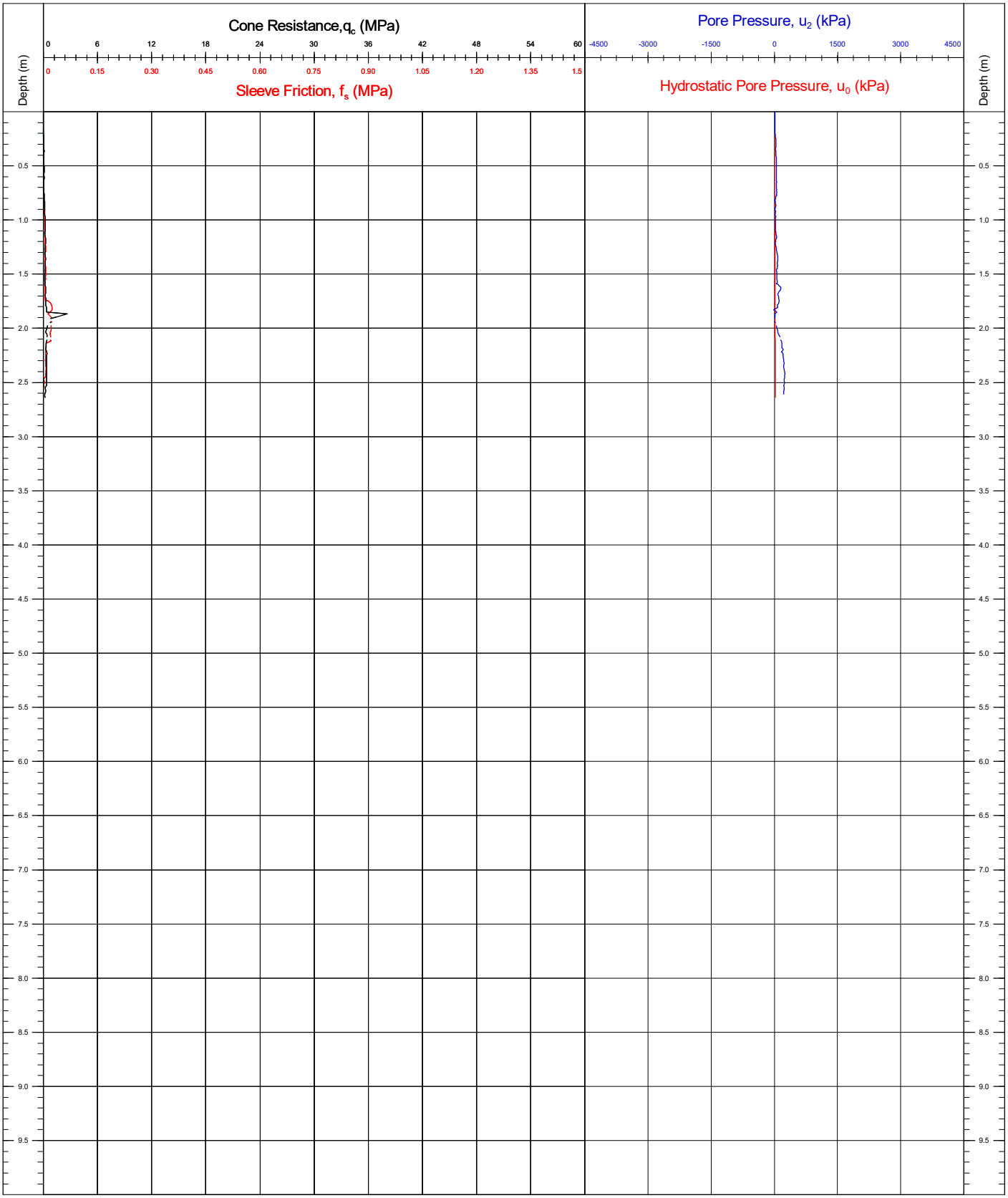


Area	**Kattegat Sea**	Coordinates	**674909.60E** **6253669.90N**	CPT Number	**OSS 2**
Contract	**11596**	Latitude / Longitude			
Client Name/Ref	**Energinet Eltransmission A/S/384_20_ENE**	Water Depth (mMSL)	**29.96**		
Vessel	**MV Ocean Vantage**	Date of Test	**27/04/2021**	Page: 2/2	
		Cone No.(size)/α Factor	**081208 (10cm^2) / 0.78**	QC Status	
		Base Inclination	**X = 1.0° / Y = 1.0°**	Preliminary: **JK/BC** (27/04/2021)	Draft: **DR** (10/06/2021) / Final: **SMc** (10/11/2021)
		CRS **ETRS89**			

Comments: Cone class 1. Continuous seabed CPT. Final depth 15.84m. Test terminated at operators discretion due to a lack of lateral rod support from mudline– resulting in a high risk of buckling rods when encountering very dense sands

Preliminary Investigation, Hesselø OWF

IN SITU CPTU TESTING - MEASURED PARAMETERS

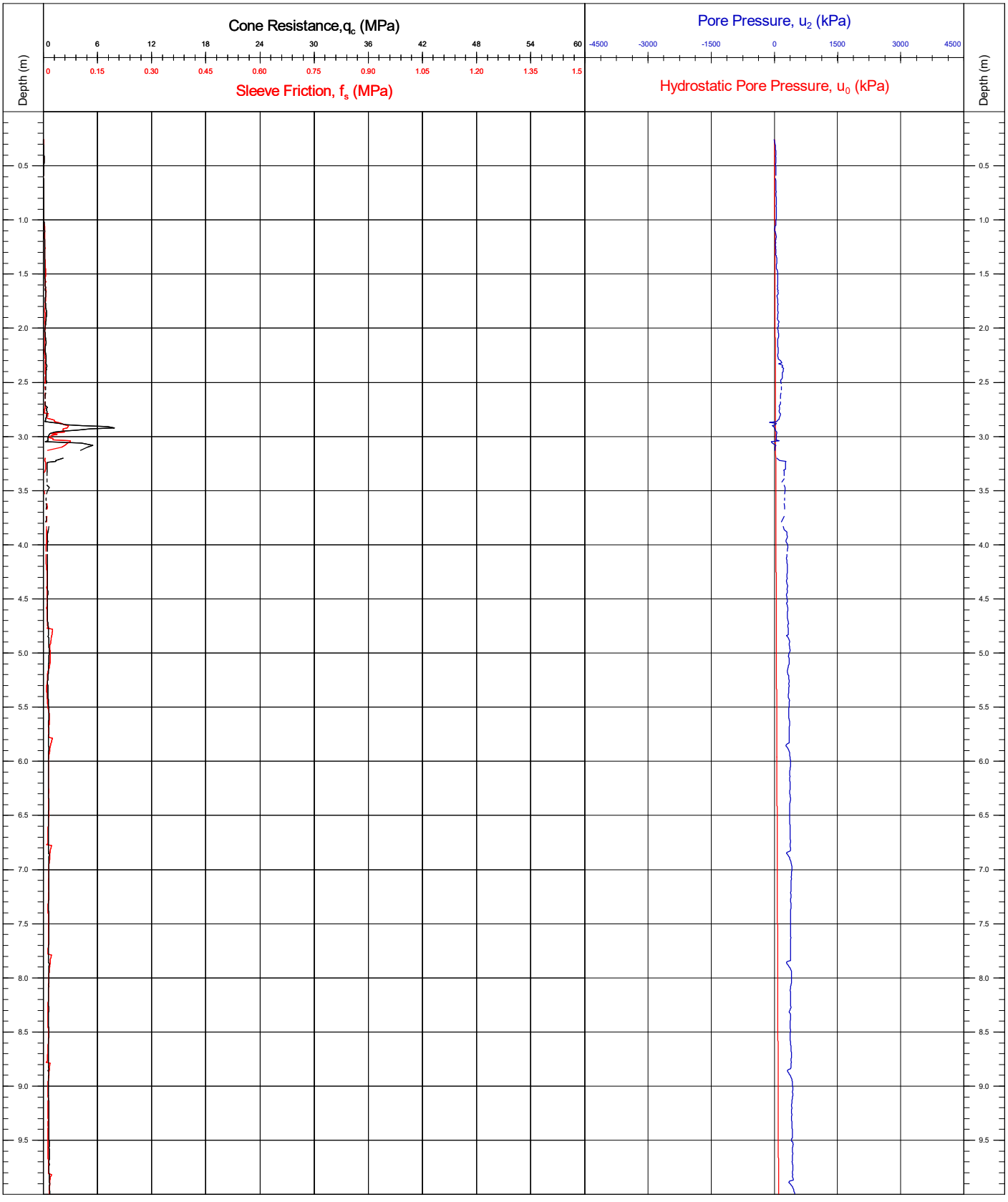


Area	**Kattegat Sea**	Coordinates	**681923.10E 6249312.90N**	CPT Number **SCPT1**
Contract	**11596**	Latitude / Longitude		
Client Name/Ref	**Energinet Eltransmission A/S/384_20_ENE**	Water Depth (mMSL)	**31.22**	
Vessel	**MV Ocean Vantage**	Date of Test	**28/04/2021**	Page: 1/1
		Cone No.(size)/α Factor	**130104 (10cm^2) / 0.77**	QC Status
		Base Inclination	**X = 1.1° / Y = 1.0°**	Preliminary: **JK/BC (28/04/2021)** · Draft: **DR (10/06/2021)** · Final: **SMc (10/11/2021)**
		CRS **ETRS89**		

Comments: Cone Class 1. Continous Seismic CPT.Final depth 2.64m. Test was terminated due to seismic source communication issue.

Preliminary Investigation, Hesselø OWF

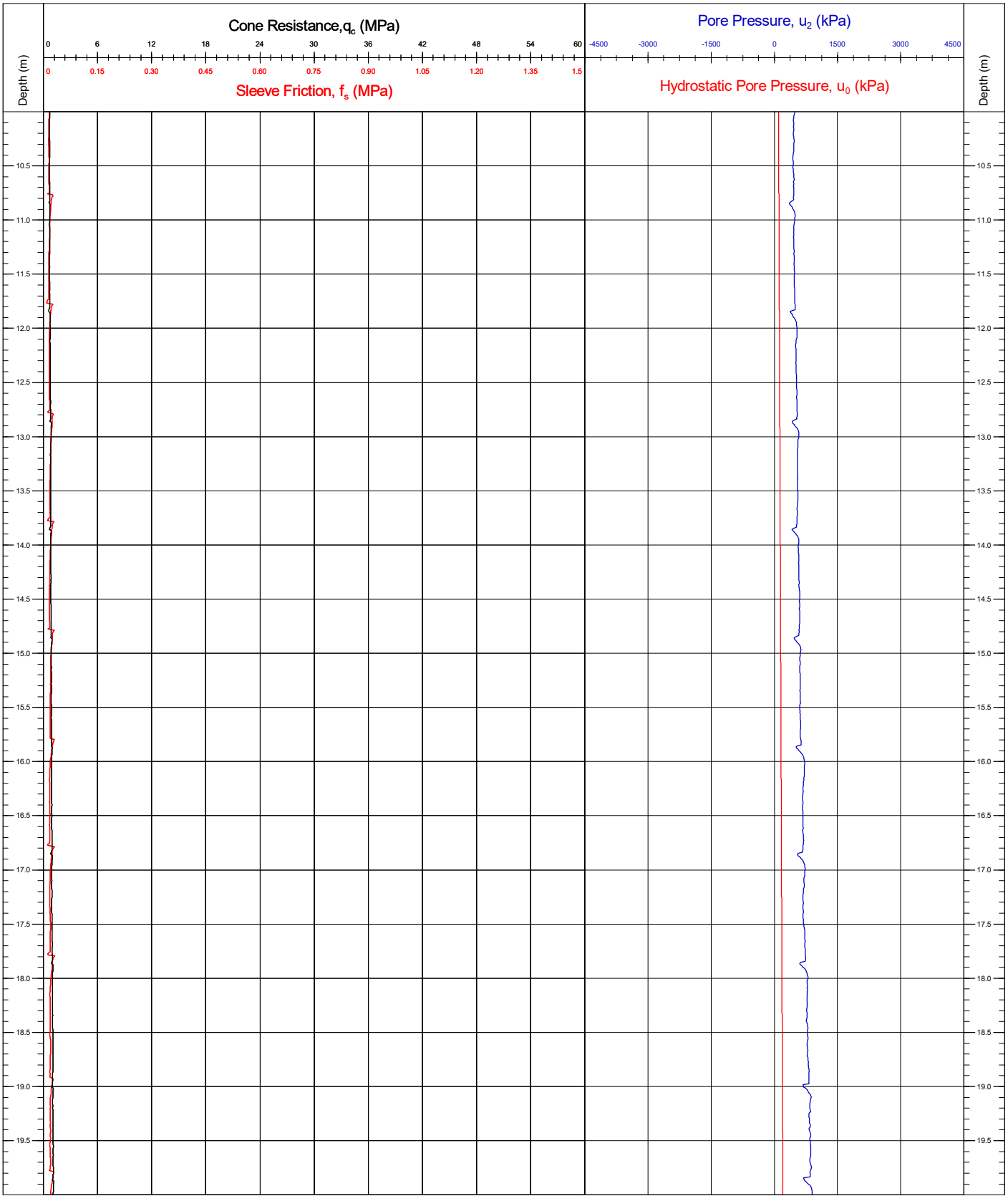
IN SITU CPTU TESTING - MEASURED PARAMETERS



Area	**Kattegat Sea**	Coordinates	**681923.40E**	**6249306.60N**	CPT Number **SCPT1a**
Contract	**11596**	Latitude / Longitude			
Client Name/Ref	**Energinet Eltransmission A/S/384_20_ENE**	Water Depth (mMSL)	**31.71**		
Vessel	**MV Ocean Vantage**	Date of Test	**05/05/2021**		Page: 1/4
Comments: Cone class 1. Continuous seismic seabed CPT. Final depth 37.55m. Test terminated at operators discretion due to increasing total force and lack of lateral rod support		Cone No.(size)/α Factor	**130206 (10cm^2) / 0.77**		QC Status
		Base Inclination	**X = 1.1° / Y = 1.0°**		Preliminary: **JK/BC** (06/05/2021) · Draft: **DR** (10/06/2021) · Final: **SMc** (10/11/2021)
		CRS	**ETRS89**		

Preliminary Investigation, Hesselø OWF

IN SITU CPTU TESTING - MEASURED PARAMETERS



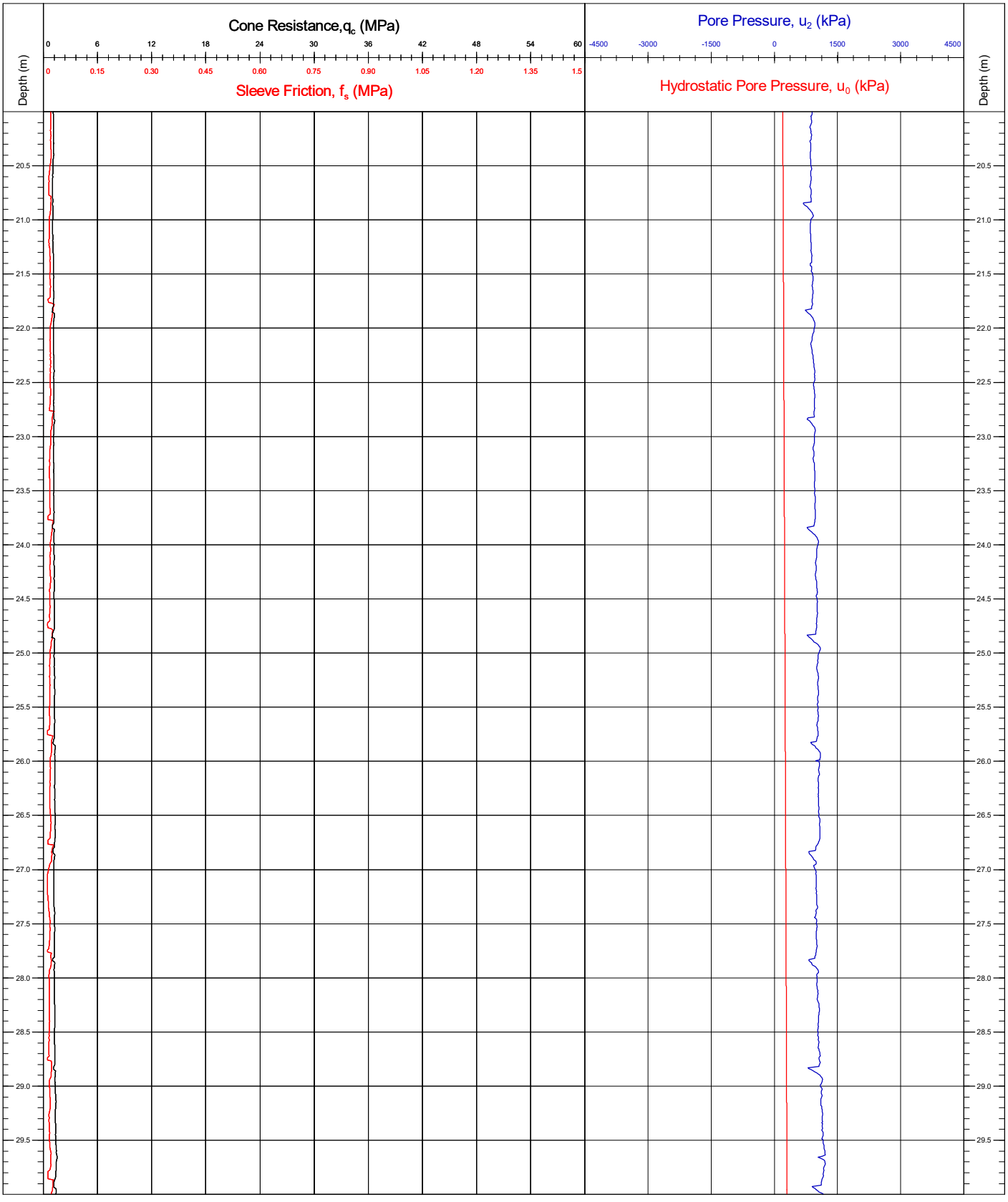
Area	**Kattegat Sea**	Coordinates	**681923.40E**	**6249306.60N**	CPT Number
Contract	**11596**	Latitude / Longitude			**SCPT1a**
Client Name/Ref	**Energinet Eltransmission A/S/384_20_ENE**	Water Depth (mMSL)	**31.71**		
Vessel	**MV Ocean Vantage**	Date of Test	**05/05/2021**		Page: 2/4
		Cone No.(size)/α Factor	**130206 (10cm^2) / 0.77**		QC Status
		Base Inclination	**X = 1.1° / Y = 1.0°**		Preliminary: **JK/BC** (06/05/2021) · Draft: **DR** (10/06/2021) · Final: **SMc** (10/11/2021)
		CRS	**ETRS89**		

Comments: Cone class 1. Continuous seismic seabed CPT. Final depth 37.55m. Test terminated at operators discretion due to increasing total force and lack of lateral rod support

Gardline

Preliminary Investigation, Hesselø OWF

IN SITU CPTU TESTING - MEASURED PARAMETERS



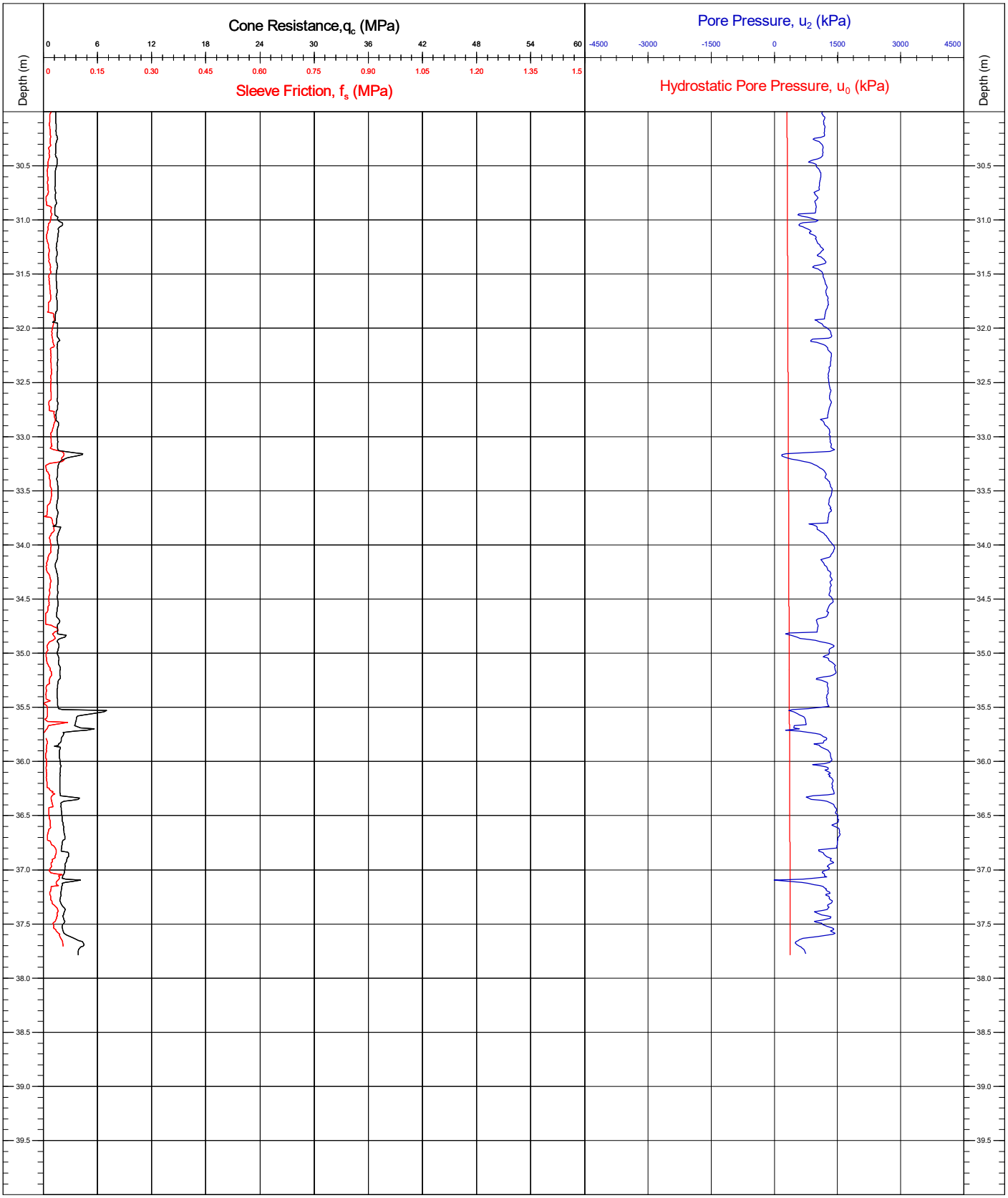
Area	**Kattegat Sea**	Coordinates	**681923.40E** **6249306.60N**	CPT Number	
Contract	**11596**	Latitude / Longitude		**SCPT1a**	
Client Name/Ref	**Energinet Eltransmission A/S/384_20_ENE**	Water Depth (mMSL)	**31.71**		
Vessel	**MV Ocean Vantage**	Date of Test	**05/05/2021**	Page: 3/4	
		Cone No.(size)/α Factor	**130206 (10cm^2) / 0.77**	QC Status	
		Base Inclination	**X = 1.1° / Y = 1.0°**	Preliminary / Draft / Final	
		CRS **ETRS89**		**JK/BC** (06/05/2021) / **DR** (10/06/2021) / **SMc** (10/11/2021)	

Comments: Cone class 1. Continuous seismic seabed CPT. Final depth 37.55m. Test terminated at operators discretion due to increasing total force and lack of lateral rod support

Gardline

Preliminary Investigation, Hesselø OWF

IN SITU CPTU TESTING - MEASURED PARAMETERS

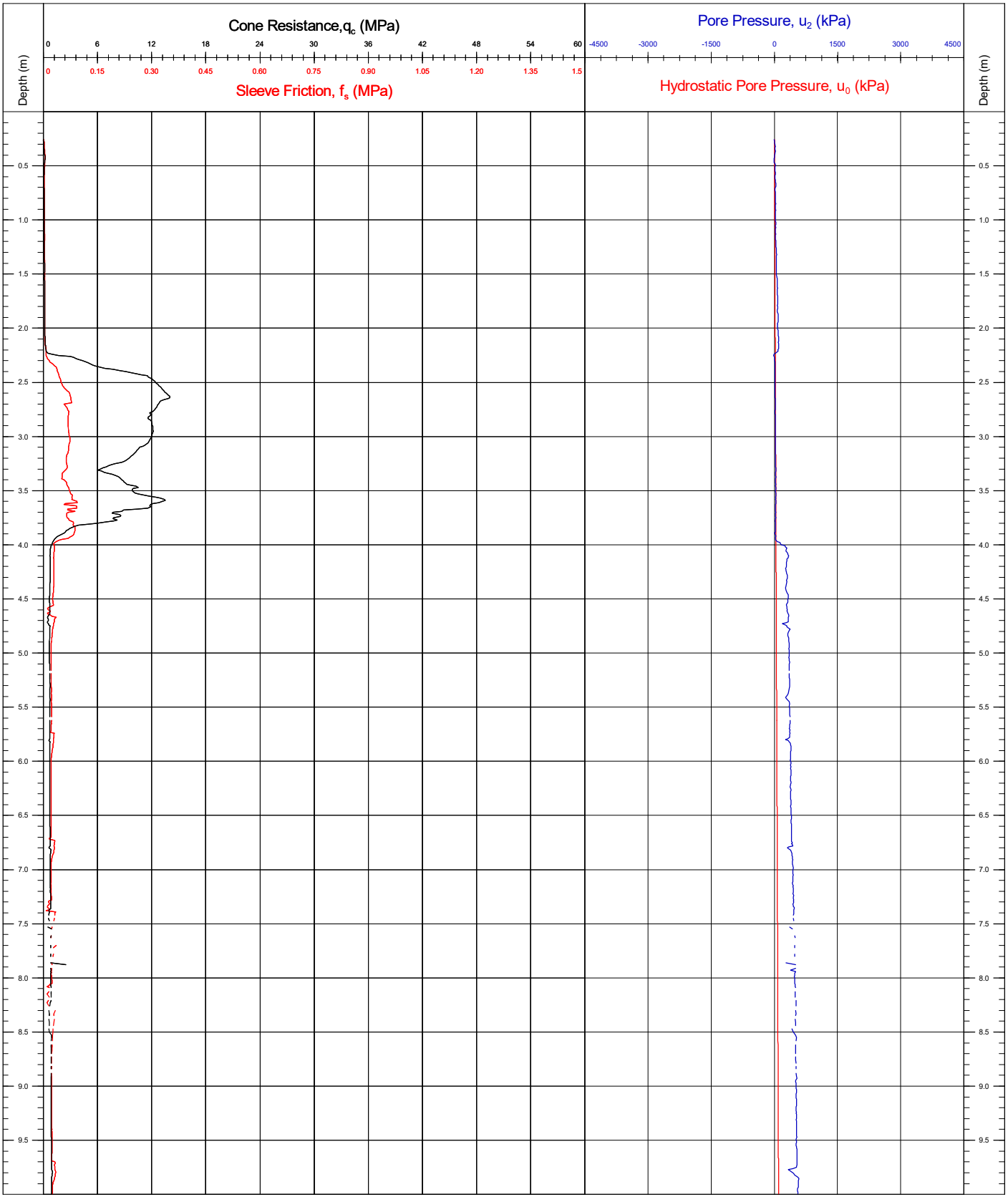


Area	**Kattegat Sea**	Coordinates	**681923.40E 6249306.60N**	CPT Number	**SCPT1a**
Contract	**11596**	Latitude / Longitude			
Client Name/Ref	**Energinet Eltransmission A/S/384_20_ENE**	Water Depth (mMSL)	**31.71**		
Vessel	**MV Ocean Vantage**	Date of Test	**05/05/2021**	Page: 4/4	
		Cone No.(size)/α Factor	**130206 (10cm^2) / 0.77**	QC Status	
		Base Inclination	**X = 1.1° / Y = 1.0°**	Preliminary: **JK/BC (06/05/2021)**	Draft: **DR (10/06/2021)**
		CRS **ETRS89**			Final: **SMc (10/11/2021)**

Comments: Cone class 1. Continuous seismic seabed CPT. Final depth 37.55m. Test terminated at operators discretion due to increasing total force and lack of lateral rod support

Preliminary Investigation, Hesselø OWF

IN SITU CPTU TESTING - MEASURED PARAMETERS

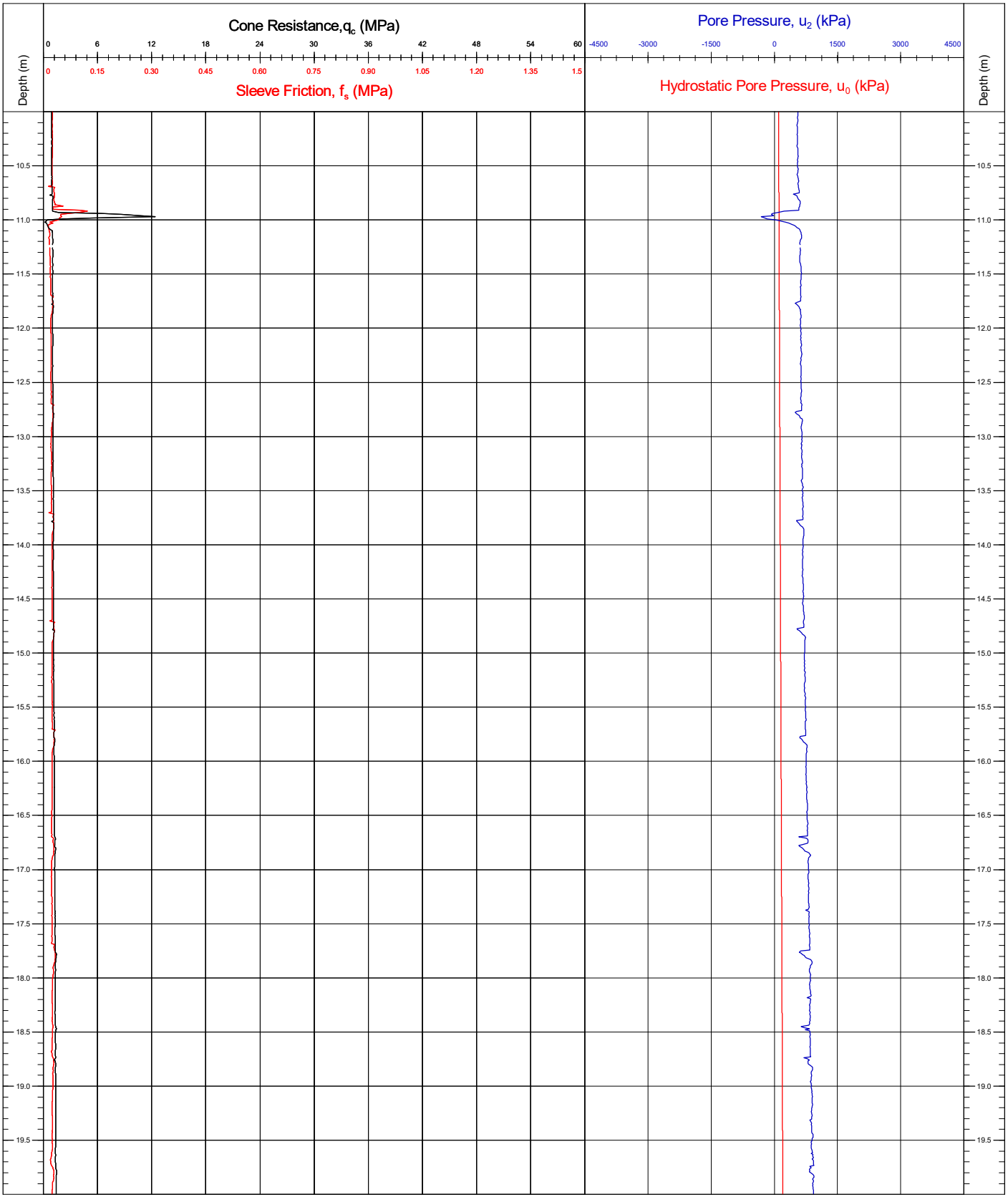


Area	**Kattegat Sea**	Coordinates	**673302.00E 6252306.80N**	CPT Number	**SCPT2**
Contract	**11596**	Latitude / Longitude			
Client Name/Ref	**Energinet Eltransmission A/S/384_20_ENE**	Water Depth (mMSL)	**28.80**		
Vessel	**MV Ocean Vantage**	Date of Test (Start/End)	**04/05/2021 to 05/05/2021**	Page: 1/3	
		Cone No.(size)/α Factor	**130909 (10cm^2) / 0.82**	QC Status	
		Base Inclination	**X = 1.2° / Y = 0.7°**	Preliminary: **JK/BC** (04/05/2021)	Draft: **DR** (10/06/2021) / Final: **SMc** (10/11/2021)
		CRS **ETRS89**			

Comments: Cone class 1. Continuous seismic seabed CPT. Final depth 26.25m. Test terminated at operators discretion due to cone inclination >12 degrees and lack of lateral rod support into hard ground.

Preliminary Investigation, Hesselø OWF

IN SITU CPTU TESTING - MEASURED PARAMETERS

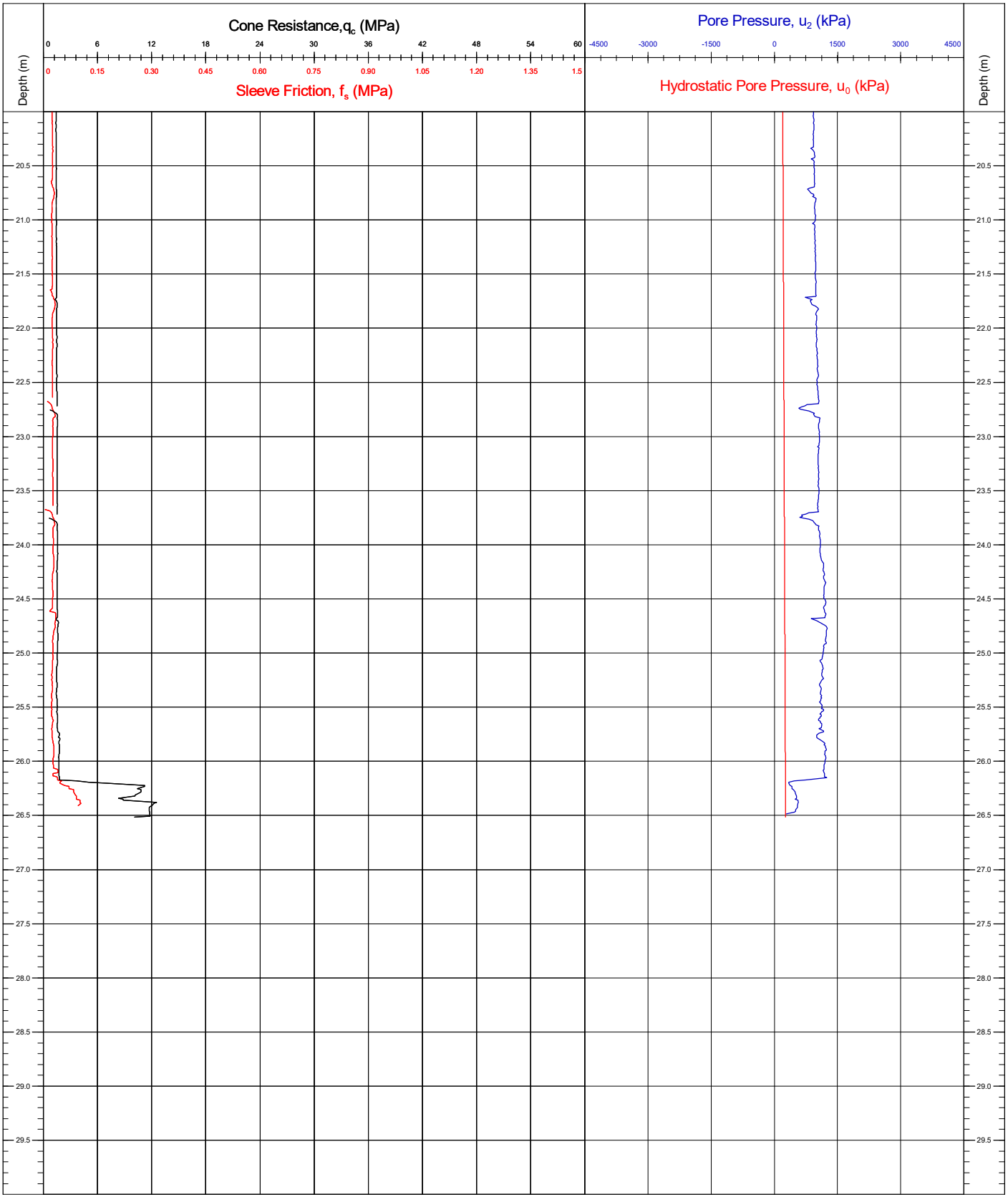


Area	**Kattegat Sea**	Coordinates	**673302.00E 6252306.80N**	CPT Number	**SCPT2**
Contract	**11596**	Latitude / Longitude			
Client Name/Ref	**Energinet Eltransmission A/S/384_20_ENE**	Water Depth (mMSL)	**28.80**		
Vessel	**MV Ocean Vantage**	Date of Test (Start/End)	**04/05/2021 to 05/05/2021**	Page: 2/3	
		Cone No.(size)/α Factor	**130909 (10cm^2) / 0.82**	QC Status	
		Base Inclination	**X = 1.2° / Y = 0.7°**	Preliminary: **JK/BC** (04/05/2021)	Draft: **DR** (10/06/2021)
		CRS **ETRS89**			Final: **SMc** (10/11/2021)

Comments: Cone class 1. Continuous seismic seabed CPT. Final depth 26.25m. Test terminated at operators discretion due to cone inclination >12 degrees and lack of lateral rod support into hard ground.

Preliminary Investigation, Hesselø OWF

IN SITU CPTU TESTING - MEASURED PARAMETERS

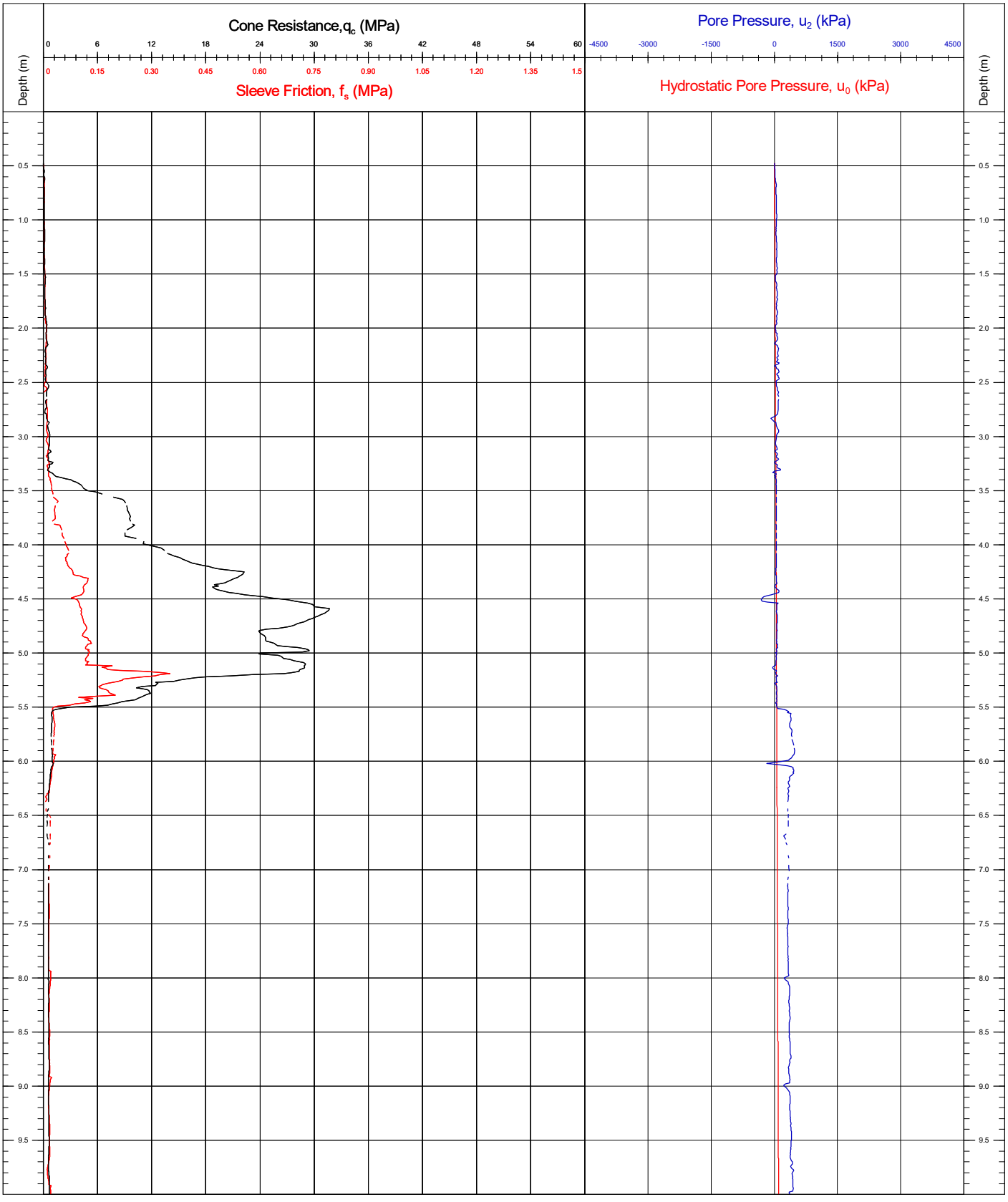


Area	**Kattegat Sea**	Coordinates	**673302.00E 6252306.80N**	CPT Number	**SCPT2**
Contract	**11596**	Latitude / Longitude			
Client Name/Ref	**Energinet Eltransmission A/S/384_20_ENE**	Water Depth (mMSL)	**28.80**		
Vessel	**MV Ocean Vantage**	Date of Test (Start/End)	**04/05/2021 to 05/05/2021**	Page: 3/3	
		Cone No.(size)/α Factor	**130909 (10cm^2) / 0.82**	QC Status	
		Base Inclination	**X = 1.2° / Y = 0.7°**	Preliminary: **JK/BC** (04/05/2021)	Draft: **DR** (10/06/2021)
		CRS **ETRS89**			Final: **SMc** (10/11/2021)

Comments: Cone class 1. Continuous seismic seabed CPT. Final depth 26.25m. Test terminated at operators discretion due to cone inclination >12 degrees and lack of lateral rod support into hard ground.

Preliminary Investigation, Hesselø OWF

IN SITU CPTU TESTING - MEASURED PARAMETERS

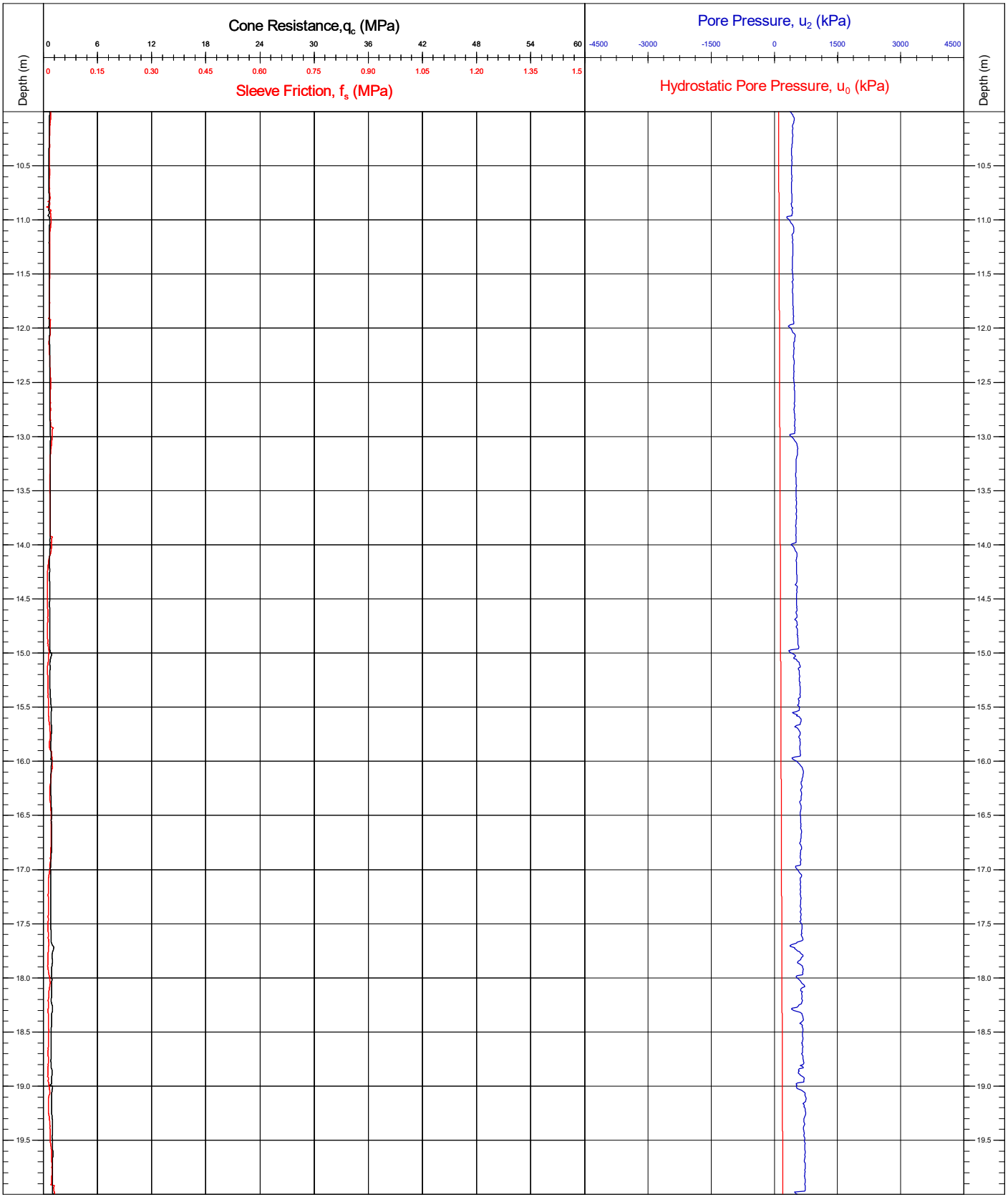


Area	**Kattegat Sea**	Coordinates	**665881.40E 6256363.10N**	CPT Number	**SCPT5**
Contract	**11596**	Latitude / Longitude			
Client Name/Ref	**Energinet Eltransmission A/S/384_20_ENE**	Water Depth (mMSL)	**27.69**		
Vessel	**MV Ocean Vantage**	Date of Test (Start/End)	**06/05/2021 to 07/05/2021**	Page: 1/4	
		Cone No.(size)/α Factor	**191114 (10cm^2) / 0.76**	QC Status	
		Base Inclination	**X = 1.1° / Y = 0.9°**	Preliminary: **JK/BC (07/05/2021)**	Draft: **DR (10/06/2021)**
		CRS **ETRS89**			Final: **SMc (10/11/2021)**

Comments: Cone class 1. Continuous seismic seabed CPT. Final depth 29.74m. Test terminated at operators discretion due increasing total load and a lack of lateral rod support from mudline

Preliminary Investigation, Hesselø OWF

IN SITU CPTU TESTING - MEASURED PARAMETERS



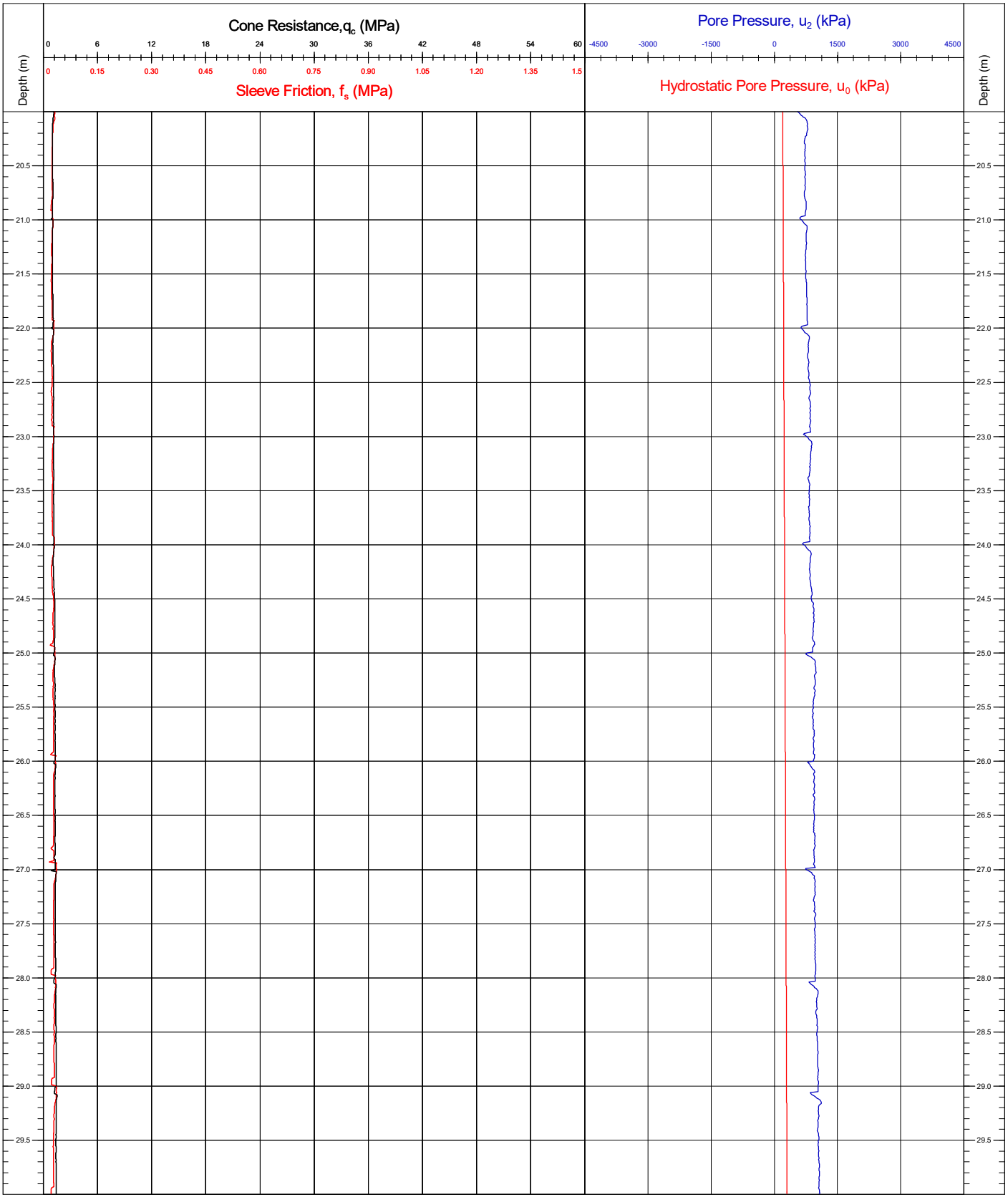
Area	**Kattegat Sea**	Coordinates	**665881.40E 6256363.10N**	CPT Number	**SCPT5**
Contract	**11596**	Latitude / Longitude			
Client Name/Ref	**Energinet Eltransmission A/S/384_20_ENE**	Water Depth (mMSL)	**27.69**		
Vessel	**MV Ocean Vantage**	Date of Test (Start/End)	**06/05/2021 to 07/05/2021**	Page: 2/4	
		Cone No.(size)/α Factor	**191114 (10cm^2) / 0.76**	QC Status	
		Base Inclination	**X = 1.1° / Y = 0.9°**	Preliminary: **JK/BC (07/05/2021)**	Draft: **DR (10/06/2021)** Final: **SMc (10/11/2021)**
		CRS **ETRS89**			

Comments: Cone class 1. Continuous seismic seabed CPT. Final depth 29.74m. Test terminated at operators discretion due increasing total load and a lack of lateral rod support from mudline

Gardline

Preliminary Investigation, Hesselø OWF

IN SITU CPTU TESTING - MEASURED PARAMETERS



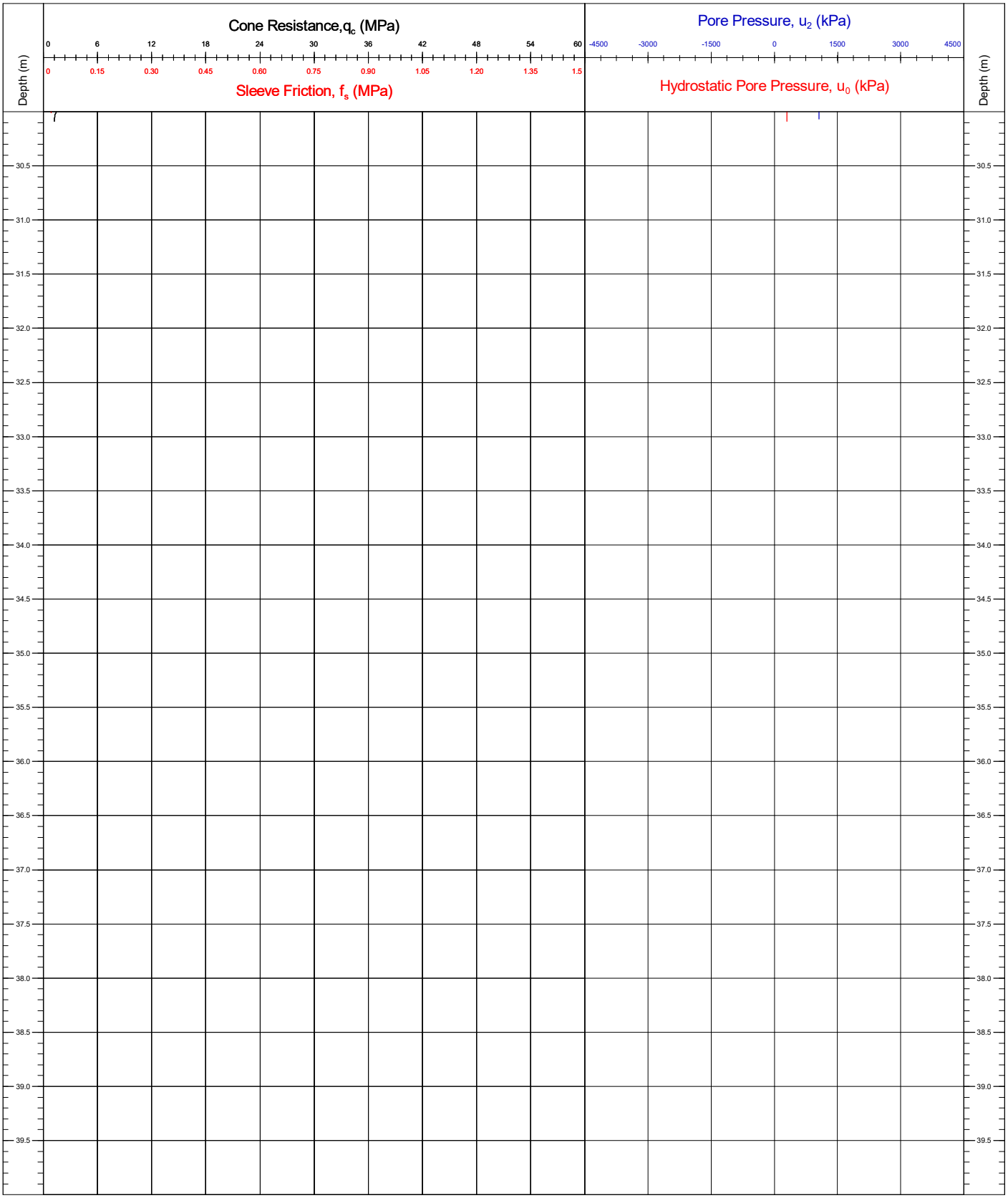
Area	**Kattegat Sea**	Coordinates	**665881.40E** **6256363.10N**	CPT Number	**SCPT5**
Contract	**11596**	Latitude / Longitude			
Client Name/Ref	**Energinet Eltransmission A/S/384_20_ENE**	Water Depth (mMSL)	**27.69**		
Vessel	**MV Ocean Vantage**	Date of Test (Start/End)	**06/05/2021 to 07/05/2021**	Page: 3/4	
		Cone No.(size)/α Factor	**191114 (10cm^2) / 0.76**	QC Status	
		Base Inclination	**X = 1.1° / Y = 0.9°**	Preliminary: **JK/BC** (07/05/2021)	Draft: **DR** (10/06/2021)
		CRS **ETRS89**			Final: **SMc** (10/11/2021)

Comments: Cone class 1. Continuous seismic seabed CPT. Final depth 29.74m. Test terminated at operators discretion due increasing total load and a lack of lateral rod support from mudline

Gardline

Preliminary Investigation, Hesselø OWF

IN SITU CPTU TESTING - MEASURED PARAMETERS

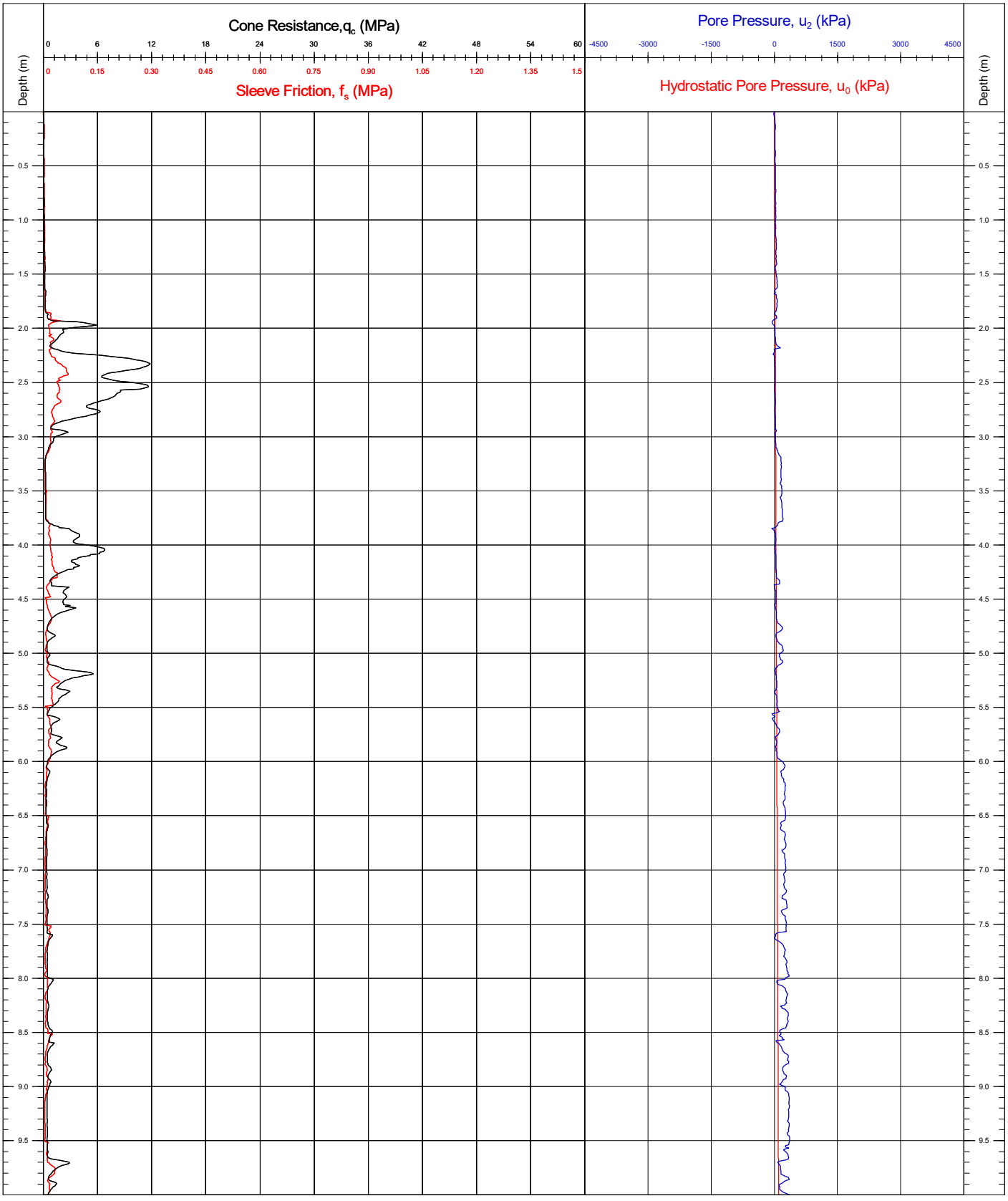


Area	**Kattegat Sea**	Coordinates	**665881.40E 6256363.10N**	CPT Number	**SCPT5**
Contract	**11596**	Latitude / Longitude			
Client Name/Ref	**Energinet Eltransmission A/S/384_20_ENE**	Water Depth (mMSL)	**27.69**		
Vessel	**MV Ocean Vantage**	Date of Test (Start/End)	**06/05/2021 to 07/05/2021**	Page: 4/4	
		Cone No.(size)/α Factor	**191114 (10cm^2) / 0.76**	QC Status	
		Base Inclination	**X = 1.1° / Y = 0.9°**	Preliminary: **JK/BC** (07/05/2021)	Draft: **DR** (10/06/2021) / Final: **SMc** (10/11/2021)
		CRS **ETRS89**			

Comments: Cone class 1. Continuous seismic seabed CPT. Final depth 29.74m. Test terminated at operators discretion due increasing total load and a lack of lateral rod support from mudline

Preliminary Investigation, Hesselø OWF

IN SITU CPTU TESTING - MEASURED PARAMETERS

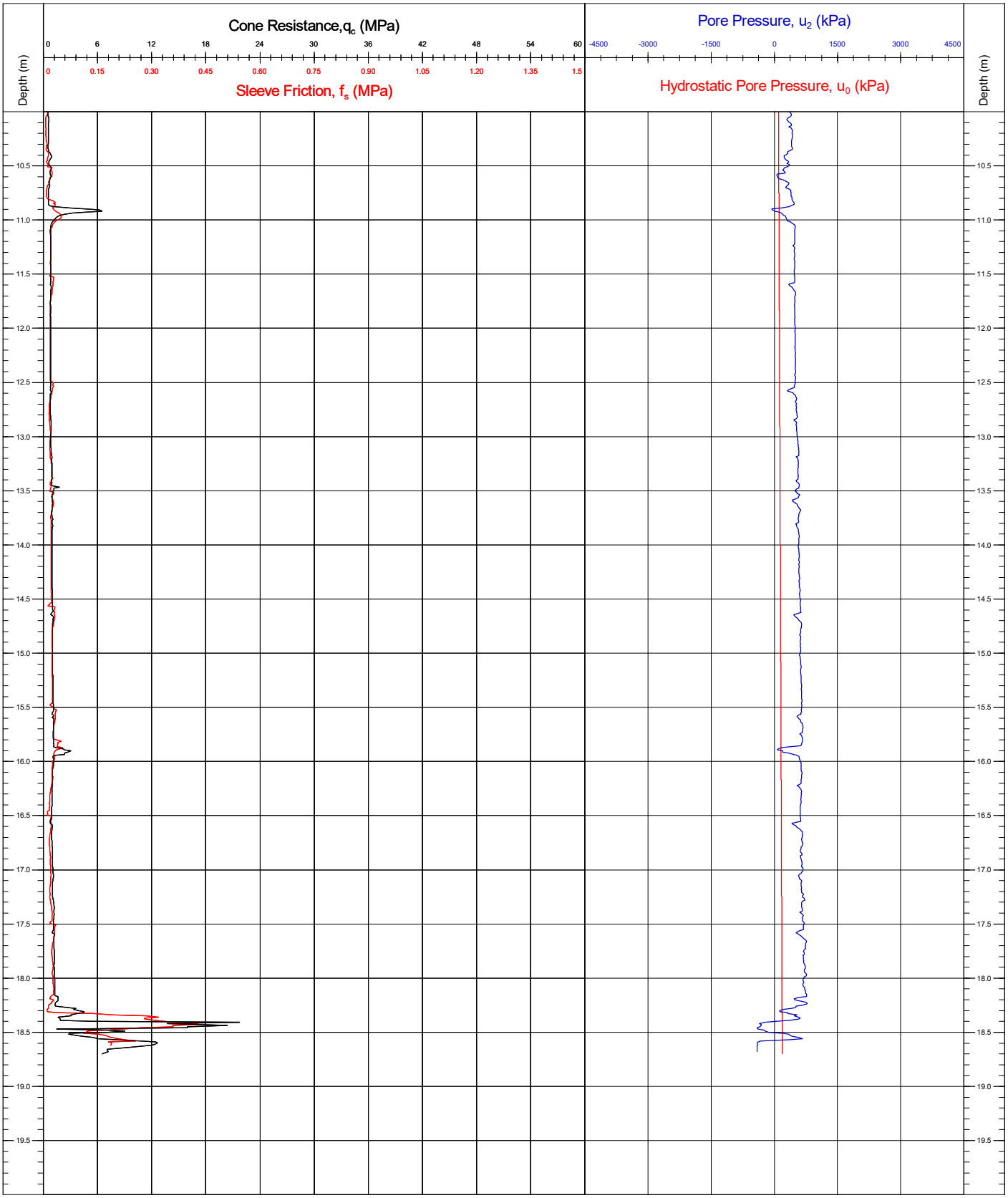


Area	**Kattegat Sea**	Coordinates	**675126.20E** **6262391.10N**	CPT Number	**SCPT17**
Contract	**11596**	Latitude / Longitude			
Client Name/Ref	**Energinet Eltransmission A/S/384_20_ENE**	Water Depth (mMSL)	**31.81**		
Vessel	**MV Ocean Vantage**	Date of Test	**07/05/2021**	Page: 1/2	
		Cone No.(size)/α Factor	**081208 (10cm^2) / 0.78**	QC Status	
		Base Inclination	**X = 1.1° / Y = 1.0°**	Preliminary: **JK/BC** (07/05/2021)	Draft: **DR** (10/06/2021)
		CRS **ETRS89**			Final: **SMc** (10/11/2021)

Comments: Cone class 1. Continuous seismic seabed CPT. Final depth 18.70m. Test terminated due to sudden inclination >3 degrees in less than 1 metre

Preliminary Investigation, Hesselø OWF

IN SITU CPTU TESTING - MEASURED PARAMETERS

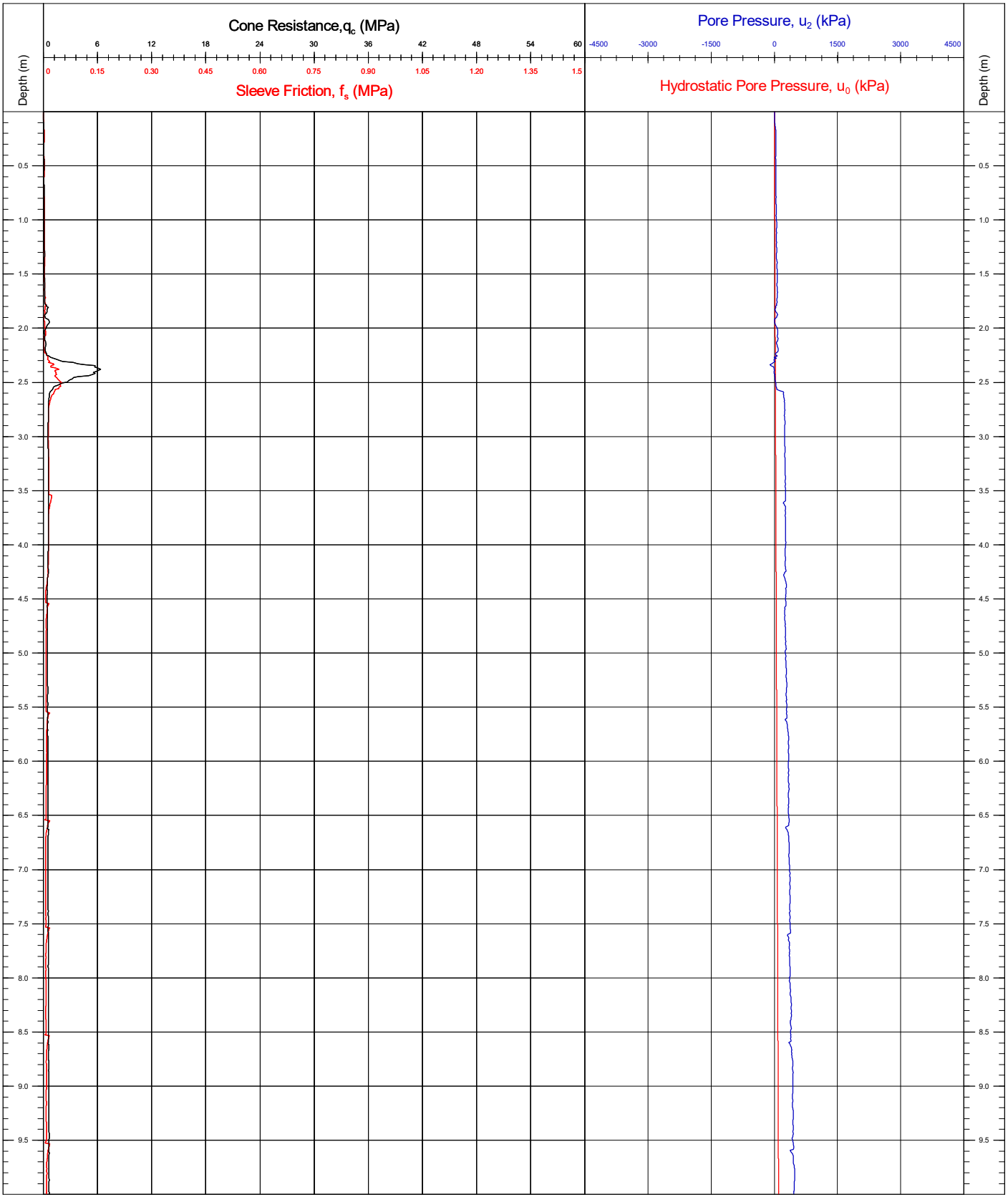


Area	**Kattegat Sea**	Coordinates	**675126.20E** **6262391.10N**	CPT Number	**SCPT17**
Contract	**11596**	Latitude / Longitude			
Client Name/Ref	**Energinet Eltransmission A/S/384_20_ENE**	Water Depth (mMSL)	**31.81**		
Vessel	**MV Ocean Vantage**	Date of Test	**07/05/2021**	Page: 2/2	
		Cone No.(size)/α Factor	**081208 (10cm^2) / 0.78**	QC Status	
		Base Inclination	**X = 1.1° / Y = 1.0°**	Preliminary: **JK/BC** (07/05/2021)	Draft: **DR** (10/06/2021)
		CRS **ETRS89**			Final: **SMc** (10/11/2021)

Comments: Cone class 1. Continuous seismic seabed CPT. Final depth 18.70m. Test terminated due to sudden inclination >3 degrees in less than 1 metre

Preliminary Investigation, Hesselø OWF

IN SITU CPTU TESTING - MEASURED PARAMETERS

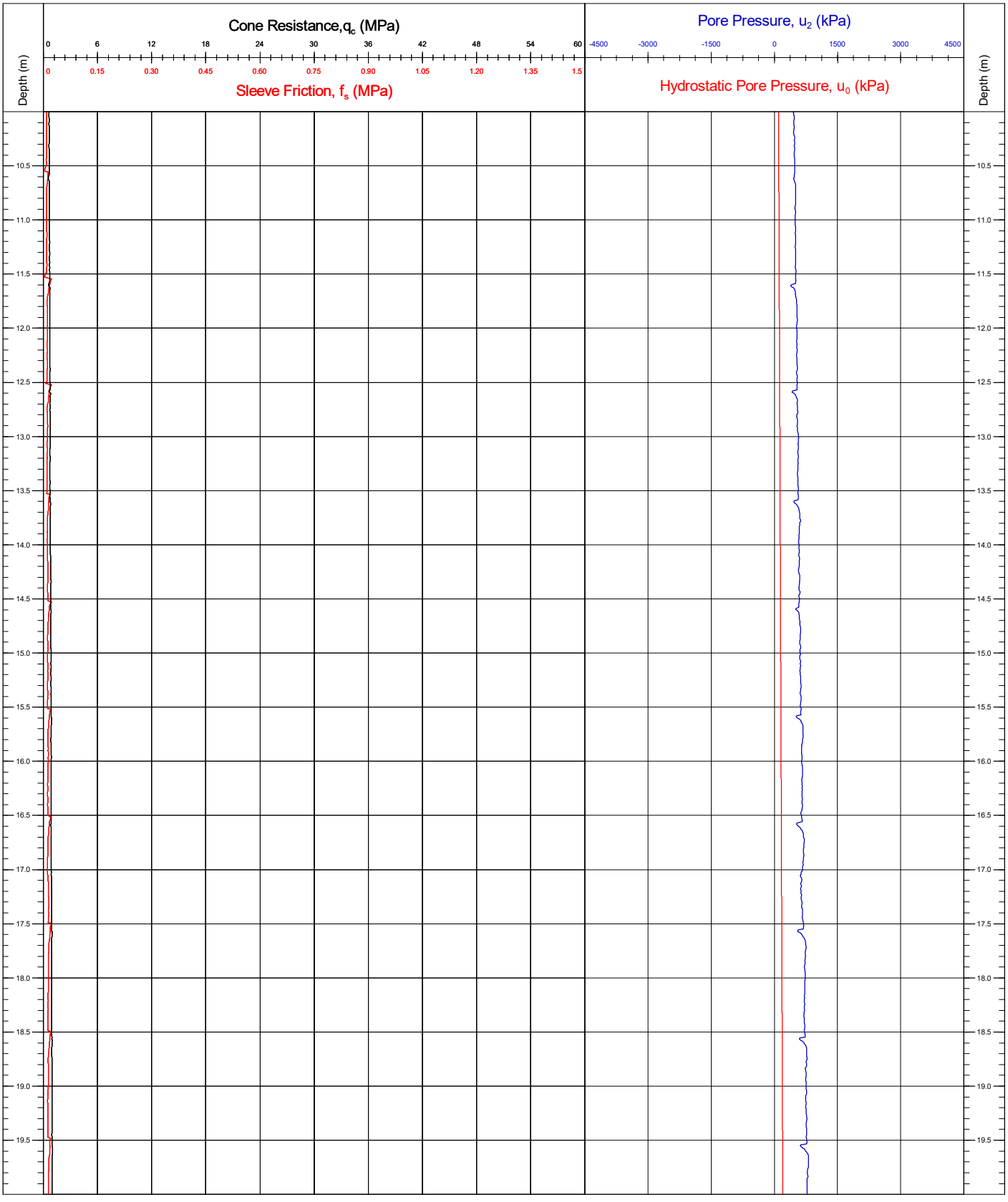


Area	**Kattegat Sea**	Coordinates	**670633.30E**	**6266454.10N**	CPT Number **SCPT19**
Contract	**11596**	Latitude / Longitude			
Client Name/Ref	**Energinet Eltransmission A/S/384_20_ENE**	Water Depth (mMSL)	**30.84**		
Vessel	**MV Ocean Vantage**	Date of Test	**07/05/2021**		Page: 1/3
		Cone No.(size)/α Factor	**130909 (10cm^2) / 0.82**		QC Status
		Base Inclination	**X = 1.1° / Y = 0.9°**		Preliminary: **JK/BC** (07/05/2021); Draft: **DR** (10/06/2021); Final: **SMc** (10/11/2021)
		CRS	**ETRS89**		

Comments: Cone class 1. Continuous seabed seismic CPT. Final depth 21.92m. Test terminated due to the maximum cone inclination of 12 degrees was reached

Preliminary Investigation, Hesselø OWF

IN SITU CPTU TESTING - MEASURED PARAMETERS

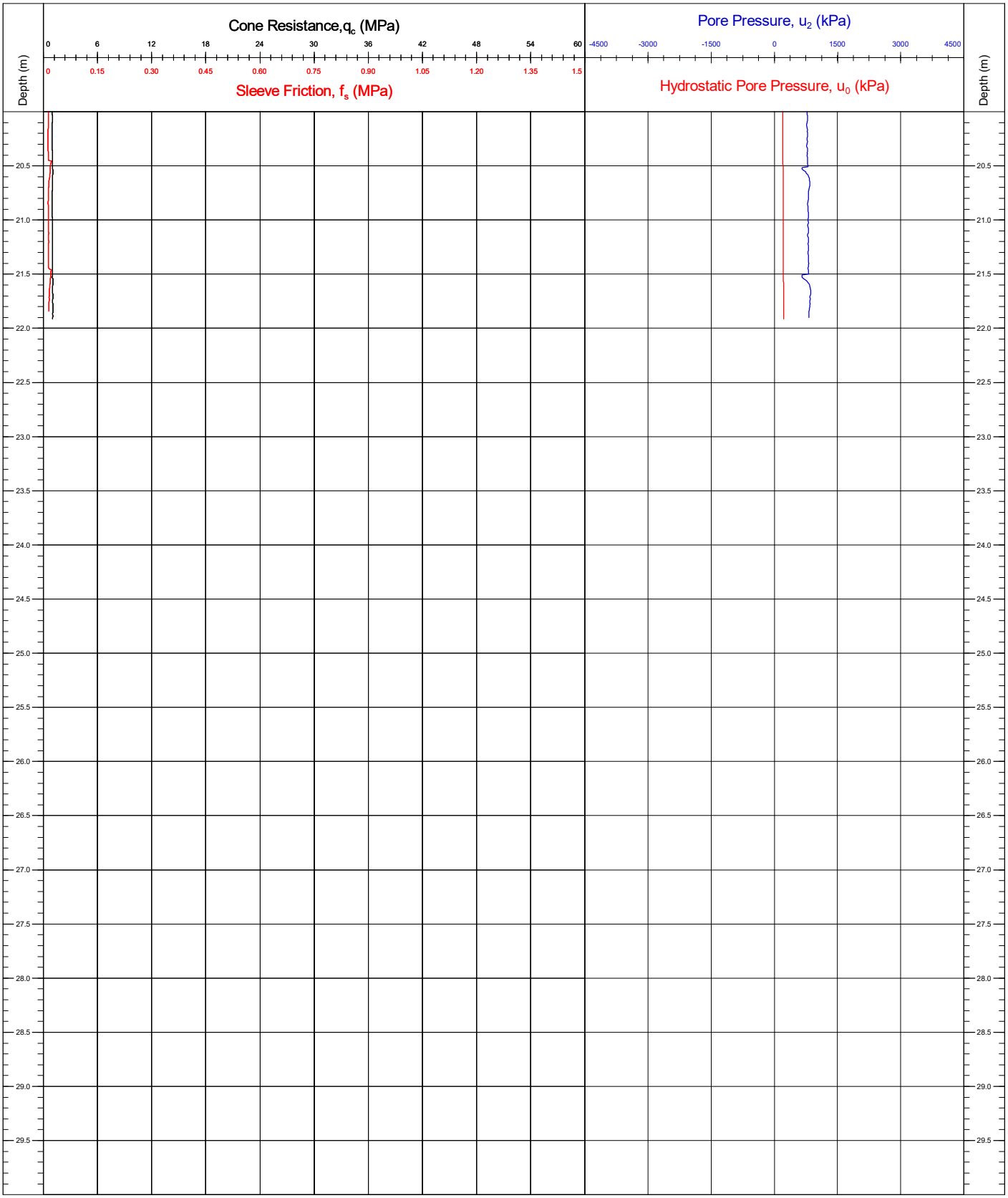


Area	**Kattegat Sea**	Coordinates	**670633.30E** **6266454.10N**	CPT Number	**SCPT19**
Contract	**11596**	Latitude / Longitude			
Client Name/Ref	**Energinet Eltransmission A/S/384_20_ENE**	Water Depth (mMSL)	**30.84**		
Vessel	**MV Ocean Vantage**	Date of Test	**07/05/2021**	Page: 2/3	
		Cone No.(size)/α Factor	**130909 (10cm^2) / 0.82**	QC Status	
		Base Inclination	**X = 1.1° / Y = 0.9°**	Preliminary: **JK/BC** (07/05/2021)	Draft: **DR** (10/06/2021)
		CRS **ETRS89**			Final: **SMc** (10/11/2021)

Comments: Cone class 1. Continuous seabed seismic CPT. Final depth 21.92m. Test terminated due to the maximum cone inclination of 12 degrees was reached

Preliminary Investigation, Hesselø OWF

IN SITU CPTU TESTING - MEASURED PARAMETERS

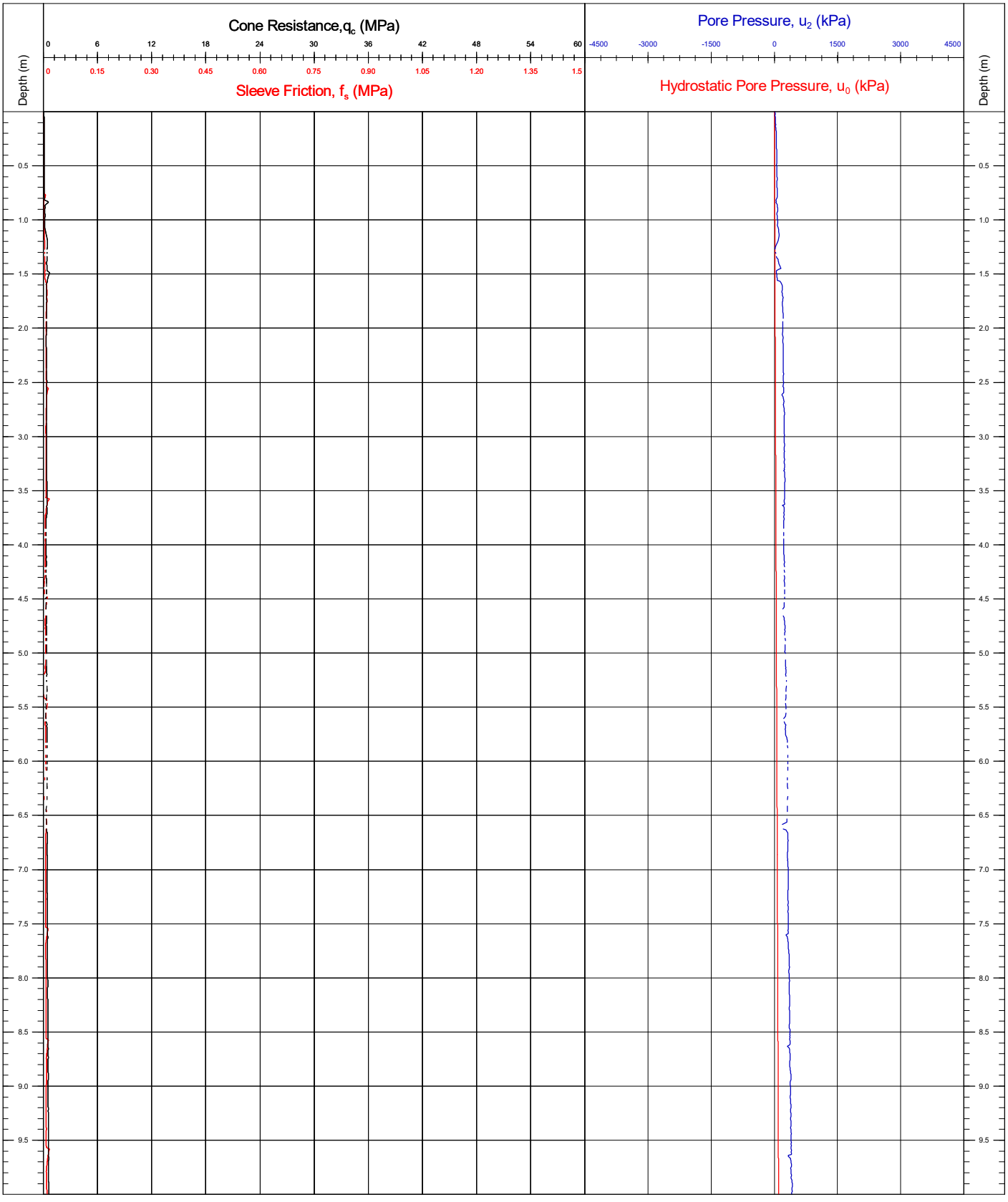


Area	**Kattegat Sea**	Coordinates	**670633.30E**	**6266454.10N**	CPT Number
Contract	**11596**	Latitude / Longitude			**SCPT19**
Client Name/Ref	**Energinet Eltransmission A/S/384_20_ENE**	Water Depth (mMSL)	**30.84**		
Vessel	**MV Ocean Vantage**	Date of Test	**07/05/2021**		Page: 3/3
		Cone No.(size)/α Factor	**130909 (10cm^2) / 0.82**		QC Status
		Base Inclination	**X = 1.1° / Y = 0.9°**		Preliminary: **JK/BC** (07/05/2021) · Draft: **DR** (10/06/2021) · Final: **SMc** (10/11/2021)
		CRS	**ETRS89**		

Comments: Cone class 1. Continuous seabed seismic CPT. Final depth 21.92m. Test terminated due to the maximum cone inclination of 12 degrees was reached

Preliminary Investigation, Hesselø OWF

IN SITU CPTU TESTING - MEASURED PARAMETERS

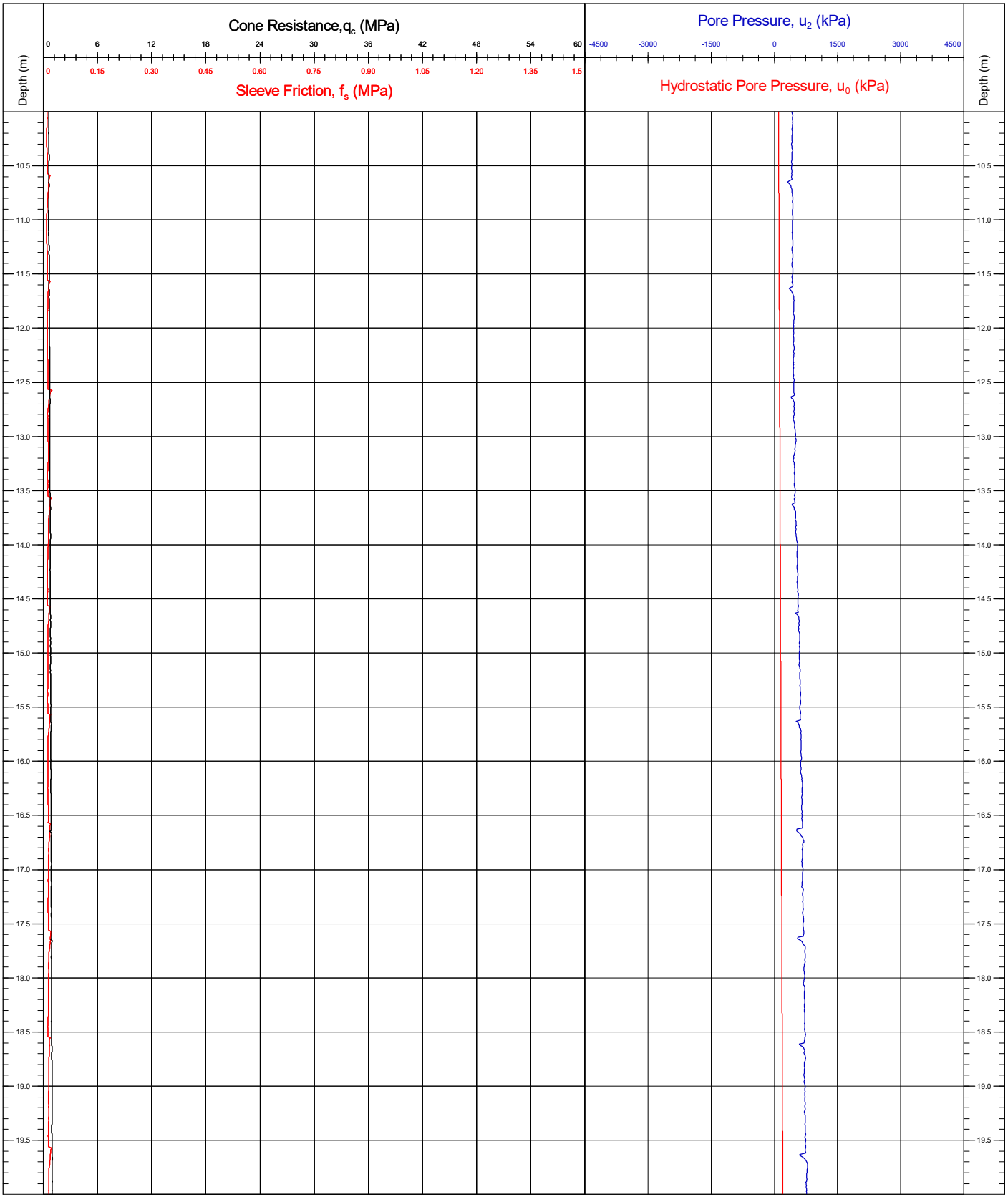


Area	**Kattegat Sea**	Coordinates	**677715.30E 6266260.70N**	CPT Number	**SCPT21**
Contract	**11596**	Latitude / Longitude			
Client Name/Ref	**Energinet Eltransmission A/S/384_20_ENE**	Water Depth (mMSL)	**32.48**		
Vessel	**MV Ocean Vantage**	Date of Test (Start/End)	**03/05/2021 to 04/05/2021**	Page: 1/4	
Comments: Cone class 1. Continuous seismic seabed CPT. Final depth 31.61m. Test terminated due to rising weather conditions.		Cone No.(size)/α Factor	**120829 (10cm^2) / 0.8**	QC Status	
		Base Inclination	**X = 1.1° / Y = 1.0°**	Preliminary / Draft / Final	
		CRS **ETRS89**		**JK/BC** (04/05/2021) / **DR** (10/06/2021) / **SMc** (10/11/2021)	

Gardline

Preliminary Investigation, Hesselø OWF

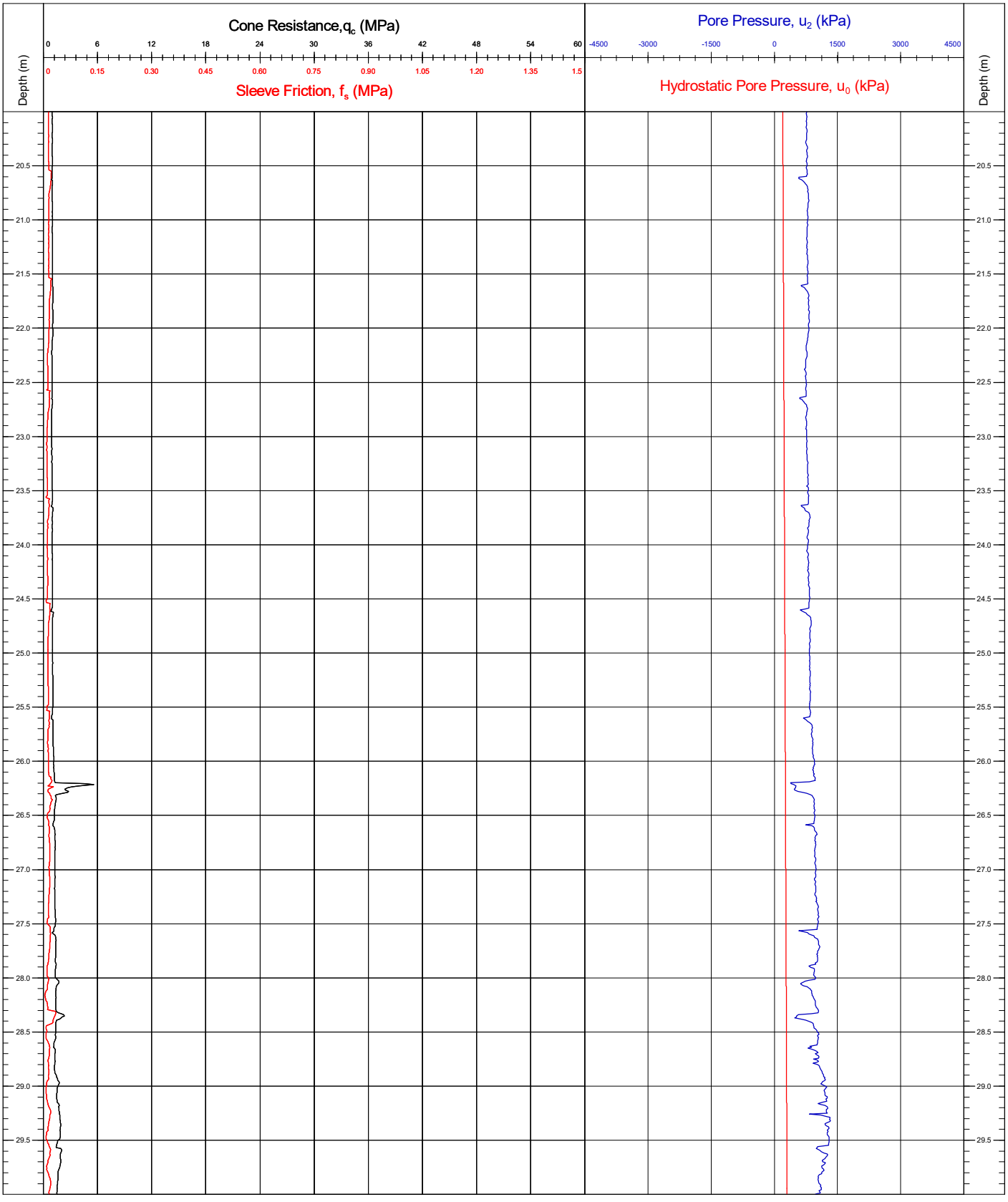
IN SITU CPTU TESTING - MEASURED PARAMETERS



Area	**Kattegat Sea**	Coordinates	**677715.30E** **6266260.70N**	CPT Number	
Contract	**11596**	Latitude / Longitude		**SCPT21**	
Client Name/Ref	**Energinet Eltransmission A/S/384_20_ENE**	Water Depth (mMSL)	**32.48**		
Vessel	**MV Ocean Vantage**	Date of Test (Start/End)	**03/05/2021 to 04/05/2021**	Page: 2/4	
Comments: Cone class 1. Continuous seismic seabed CPT. Final depth 31.61m. Test terminated due to rising weather conditions.		Cone No.(size)/α Factor	**120829 (10cm^2) / 0.8**	QC Status	
		Base Inclination	**X = 1.1° / Y = 1.0°**	Preliminary: **JK/BC** (04/05/2021)	Draft: **DR** (10/06/2021)
		CRS **ETRS89**			Final: **SMc** (10/11/2021)

Preliminary Investigation, Hesselø OWF

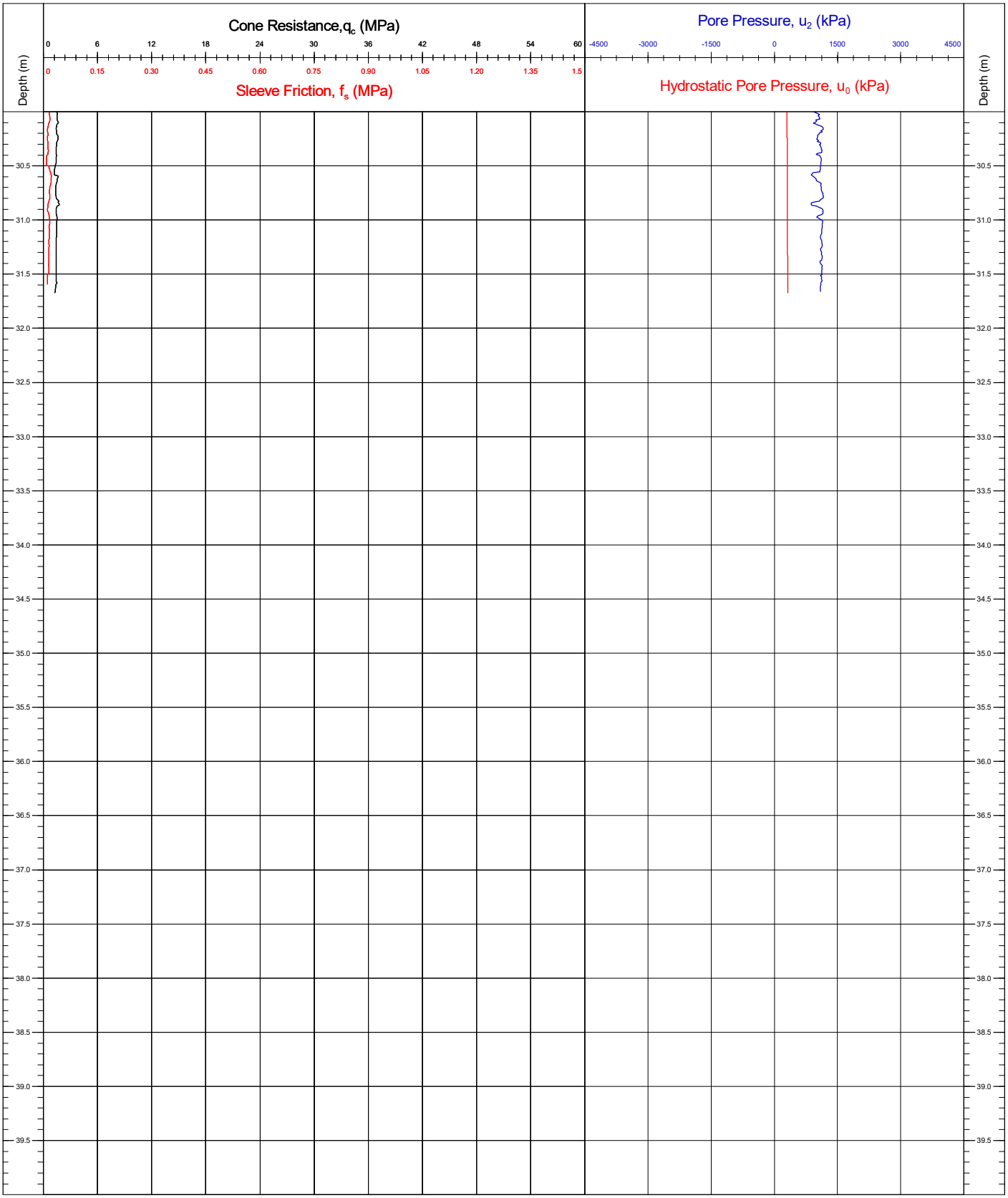
IN SITU CPTU TESTING - MEASURED PARAMETERS



Area	**Kattegat Sea**	Coordinates	**677715.30E 6266260.70N**	CPT Number	**SCPT21**
Contract	**11596**	Latitude / Longitude			
Client Name/Ref	**Energinet Eltransmission A/S/384_20_ENE**	Water Depth (mMSL)	**32.48**		
Vessel	**MV Ocean Vantage**	Date of Test (Start/End)	**03/05/2021 to 04/05/2021**	Page: 3/4	
Comments: Cone class 1. Continuous seismic seabed CPT. Final depth 31.61m. Test terminated due to rising weather conditions.		Cone No.(size)/α Factor	**120829 (10cm^2) / 0.8**	QC Status	
		Base Inclination	**X = 1.1° / Y = 1.0°**	Preliminary: **JK/BC** (04/05/2021)	Draft: **DR** (10/06/2021)
		CRS **ETRS89**			Final: **SMc** (10/11/2021)

Preliminary Investigation, Hesselø OWF

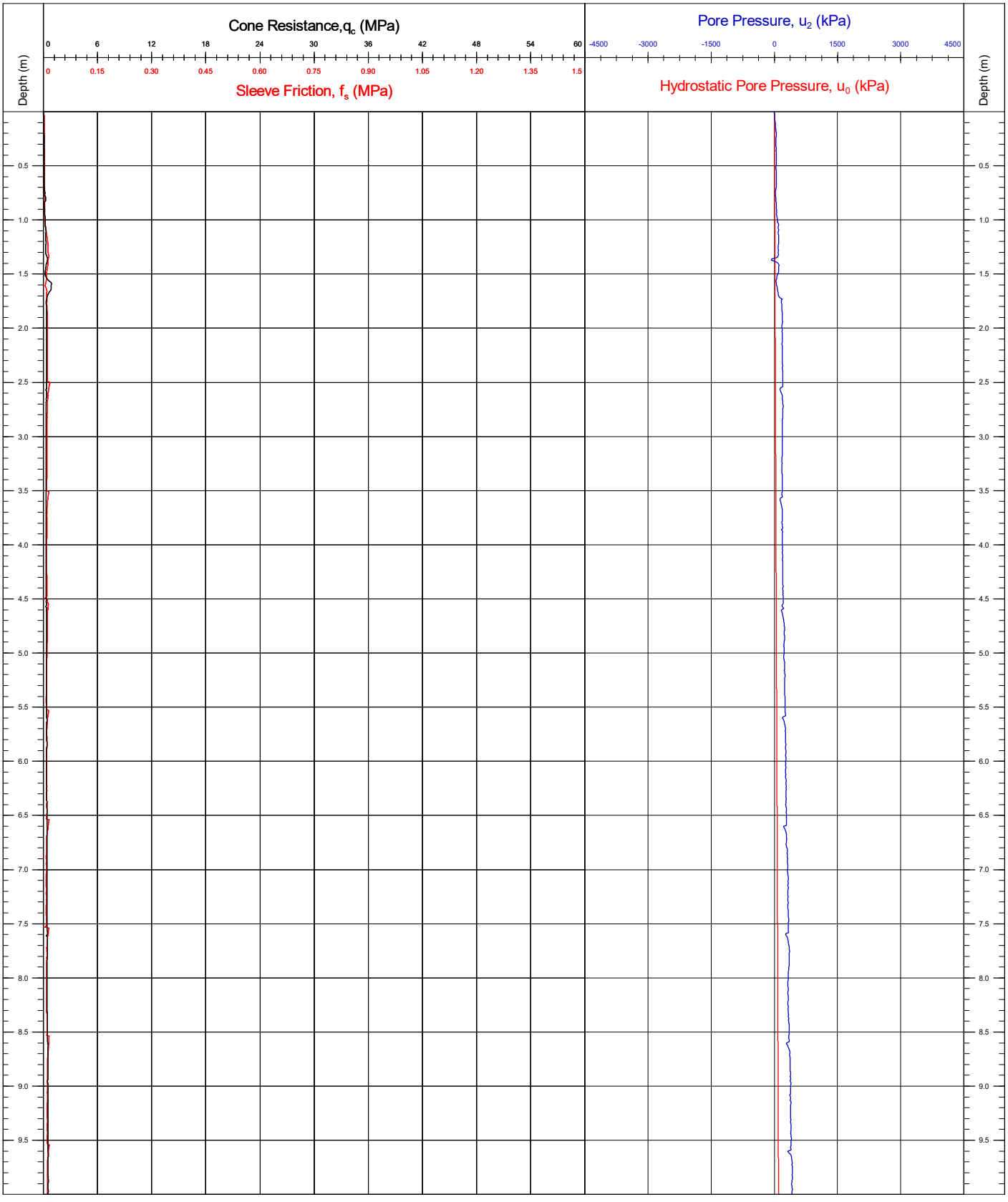
IN SITU CPTU TESTING - MEASURED PARAMETERS



Area	**Kattegat Sea**	Coordinates	**677715.30E 6266260.70N**	CPT Number	**SCPT21**
Contract	**11596**	Latitude / Longitude			
Client Name/Ref	**Energinet Eltransmission A/S/384_20_ENE**	Water Depth (mMSL)	**32.48**		
Vessel	**MV Ocean Vantage**	Date of Test (Start/End)	**03/05/2021 to 04/05/2021**	Page: 4/4	
Comments: Cone class 1. Continuous seismic seabed CPT. Final depth 31.61m. Test terminated due to rising weather conditions.		Cone No.(size)/α Factor	**120829 (10cm^2) / 0.8**	QC Status	
		Base Inclination	**X = 1.1° / Y = 1.0°**	Preliminary: **JK/BC** (04/05/2021)	Draft: **DR** (10/06/2021) / Final: **SMc** (10/11/2021)
		CRS **ETRS89**			

Preliminary Investigation, Hesselø OWF

IN SITU CPTU TESTING - MEASURED PARAMETERS

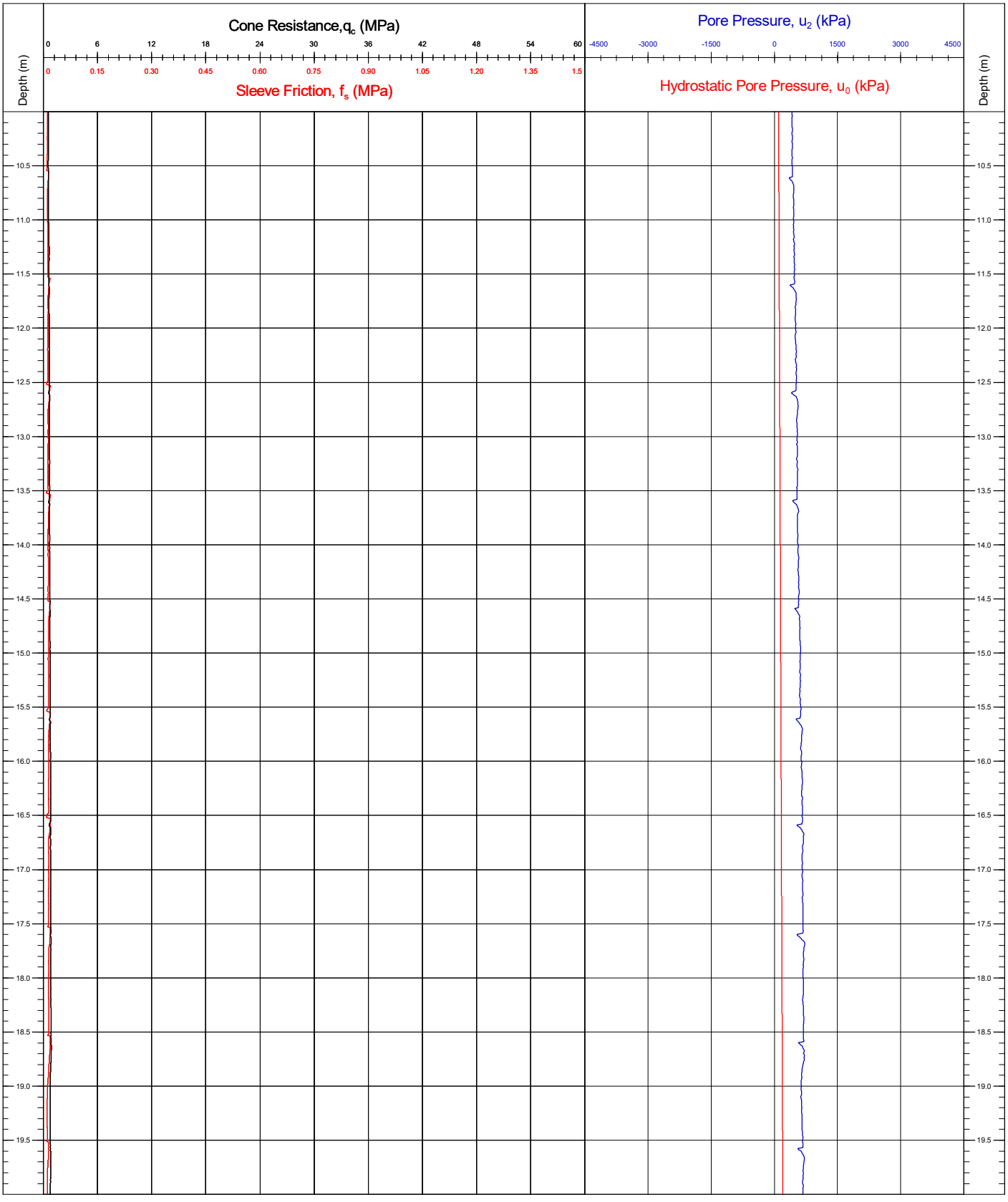


Area	**Kattegat Sea**	Coordinates	**676059.40E** **6274402.90N**	CPT Number	**SCPT24**
Contract	**11596**	Latitude / Longitude			
Client Name/Ref	**Energinet Eltransmission A/S/384_20_ENE**	Water Depth (mMSL)	**31.16**		
Vessel	**MV Ocean Vantage**	Date of Test	**03/05/2021**	Page: 1/4	
		Cone No.(size)/α Factor	**130206 (10cm^2) / 0.77**	QC Status	
		Base Inclination	**X = 1.2° / Y = 0.8°**	Preliminary: **JK/BC** (03/05/2021)	Draft: **DR** (10/06/2021) / Final: **SMc** (10/11/2021)
		CRS **ETRS89**			

Comments: Out of Class. Continuous seismic seabed CPT. Final depth 32.93m. Test terminated due sudden inclination change of 5 degrees in less than 1 metre- attempted to cycle but inclination was too high~ Please note the derived data has been removed where seismic testing was conducted.

Preliminary Investigation, Hesselø OWF

IN SITU CPTU TESTING - MEASURED PARAMETERS

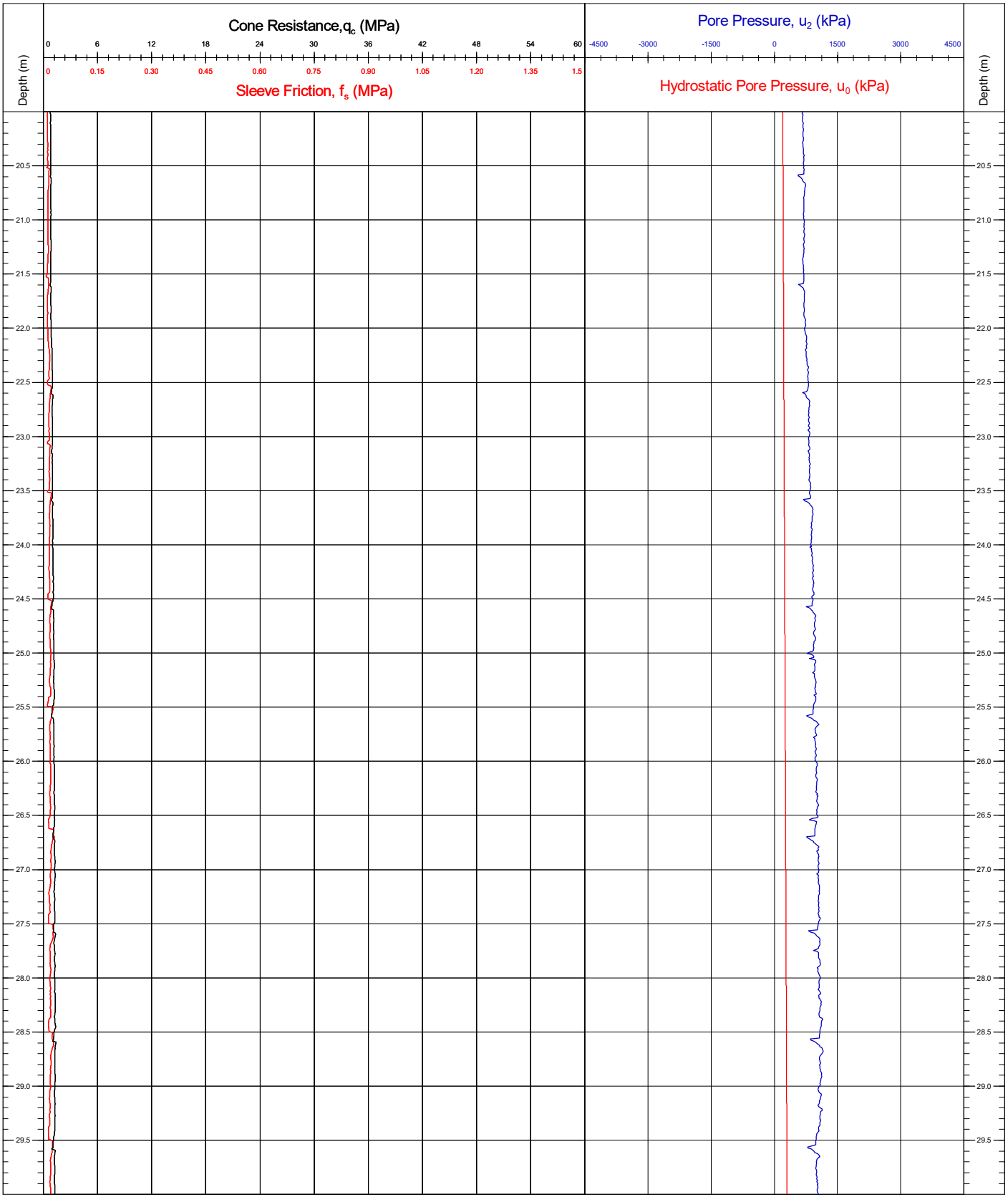


Area	**Kattegat Sea**	Coordinates	**676059.40E**	**6274402.90N**	CPT Number **SCPT24**
Contract	**11596**	Latitude / Longitude			
Client Name/Ref	**Energinet Eltransmission A/S/384_20_ENE**	Water Depth (mMSL)	**31.16**		
Vessel	**MV Ocean Vantage**	Date of Test	**03/05/2021**		Page: 2/4
		Cone No.(size)/α Factor	**130206 (10cm^2) / 0.77**		QC Status
		Base Inclination	**X = 1.2° / Y = 0.8°**		Preliminary: **JK/BC** (03/05/2021); Draft: **DR** (10/06/2021); Final: **SMc** (10/11/2021)
		CRS	**ETRS89**		

Comments: Out of Class. Continuous seismic seabed CPT. Final depth 32.93m. Test terminated due sudden inclination change of 5 degrees in less than 1 metre- attempted to cycle but inclination was too high~ Please note the derived data has been removed where seismic testing was conducted.

Preliminary Investigation, Hesselø OWF

IN SITU CPTU TESTING - MEASURED PARAMETERS

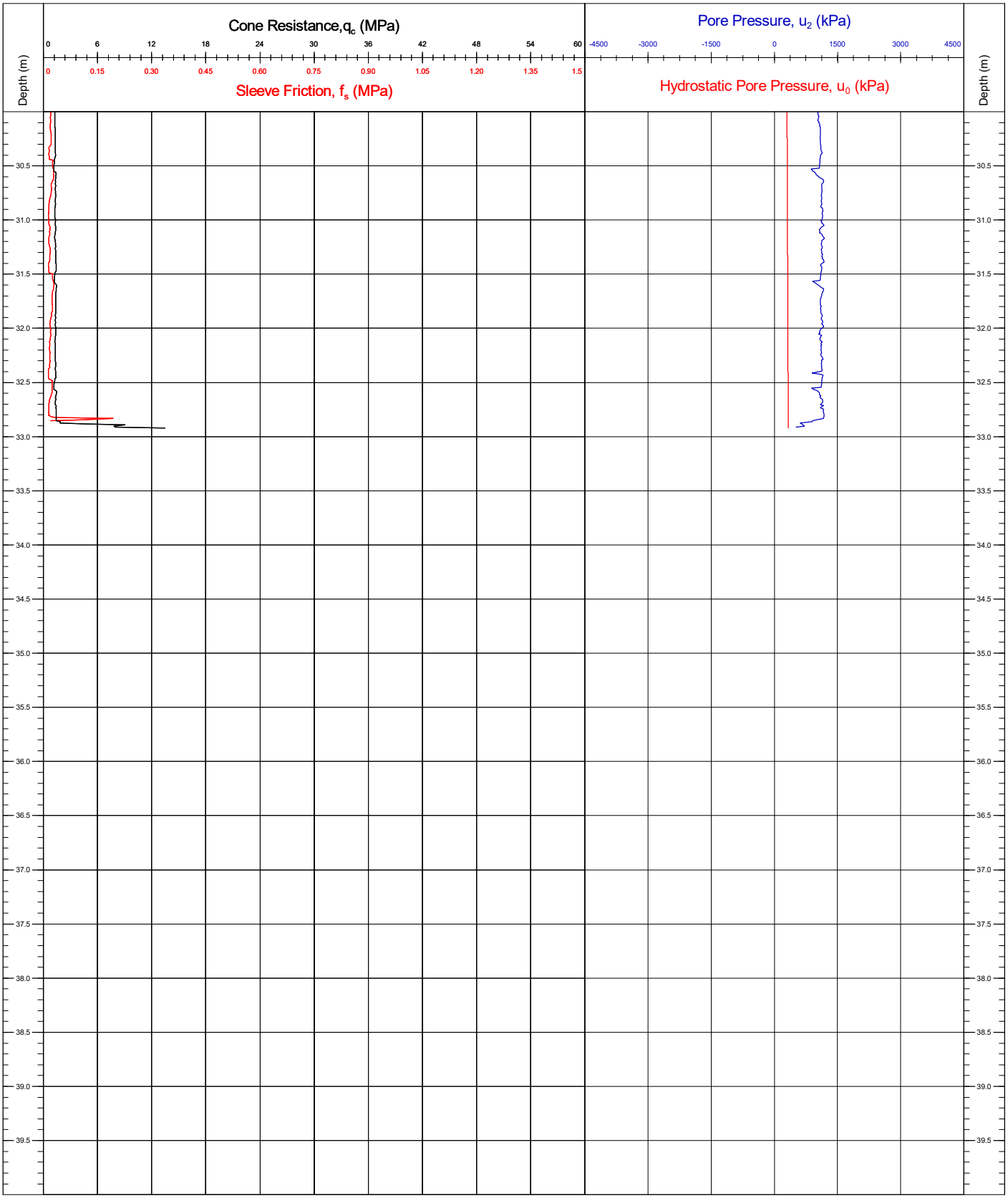


Area	**Kattegat Sea**	Coordinates	**676059.40E**	**6274402.90N**	CPT Number **SCPT24**
Contract	**11596**	Latitude / Longitude			
Client Name/Ref	**Energinet Eltransmission A/S/384_20_ENE**	Water Depth (mMSL)	**31.16**		
Vessel	**MV Ocean Vantage**	Date of Test	**03/05/2021**		Page: 3/4
		Cone No.(size)/α Factor	**130206 (10cm^2) / 0.77**		QC Status
		Base Inclination	**X = 1.2° / Y = 0.8°**		Preliminary: **JK/BC** (03/05/2021); Draft: **DR** (10/06/2021); Final: **SMc** (10/11/2021)
		CRS	**ETRS89**		

Comments: Out of Class. Continuous seismic seabed CPT. Final depth 32.93m. Test terminated due sudden inclination change of 5 degrees in less than 1 metre- attempted to cycle but inclination was too high~ Please note the derived data has been removed where seismic testing was conducted.

Preliminary Investigation, Hesselø OWF

IN SITU CPTU TESTING - MEASURED PARAMETERS



Area	**Kattegat Sea**	Coordinates	**676059.40E** **6274402.90N**	CPT Number	
Contract	**11596**	Latitude / Longitude		**SCPT24**	
Client Name/Ref	**Energinet Eltransmission A/S/384_20_ENE**	Water Depth (mMSL)	**31.16**		
Vessel	**MV Ocean Vantage**	Date of Test	**03/05/2021**	Page: 4/4	
		Cone No.(size)/α Factor	**130206 (10cm^2) / 0.77**	QC Status	
		Base Inclination	**X = 1.2° / Y = 0.8°**	Preliminary: **JK/BC** (03/05/2021)	Draft: **DR** (10/06/2021)
		CRS **ETRS89**			Final: **SMc** (10/11/2021)

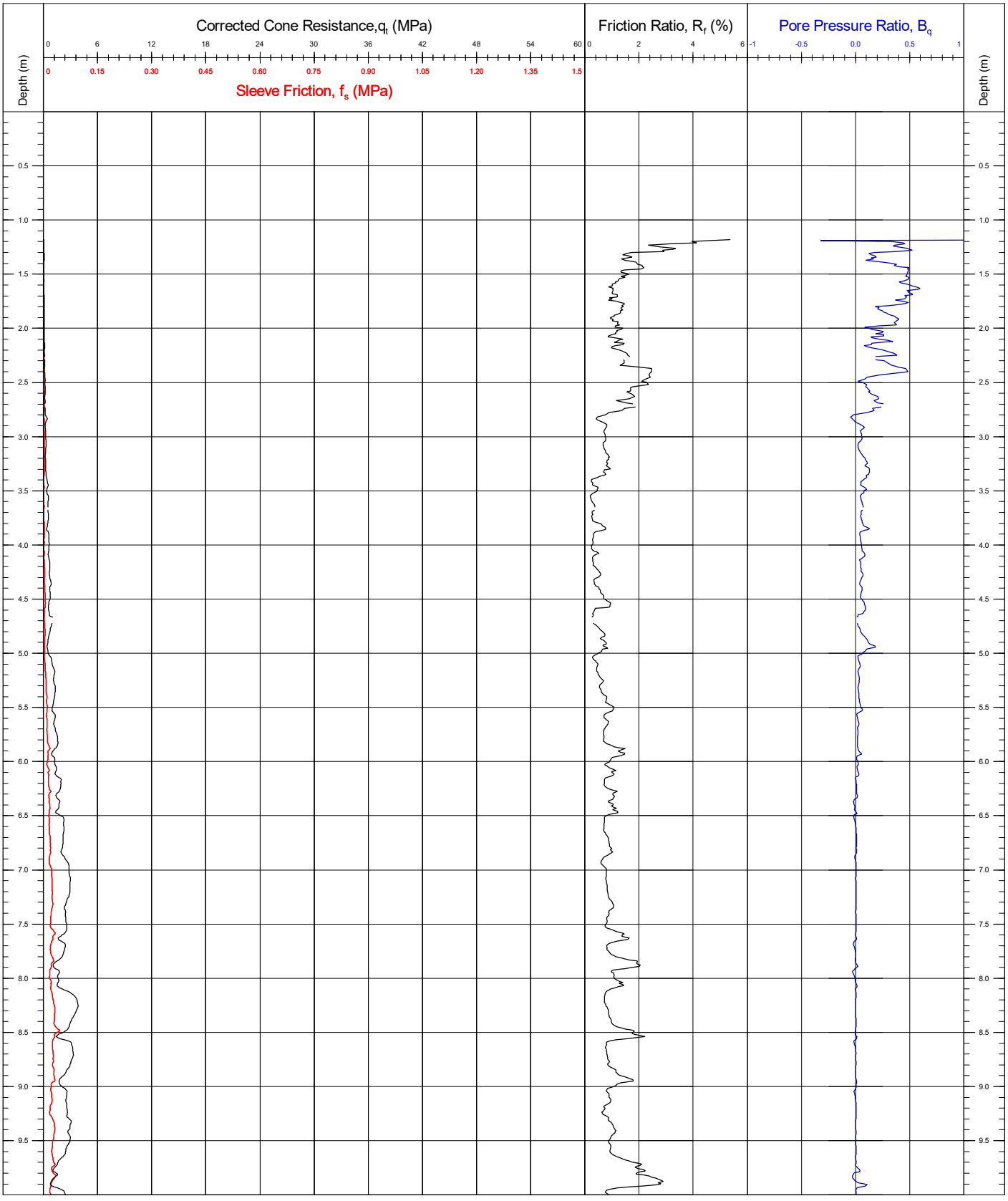
Comments: Out of Class. Continuous seismic seabed CPT. Final depth 32.93m. Test terminated due sudden inclination change of 5 degrees in less than 1 metre- attempted to cycle but inclination was too high~ Please note the derived data has been removed where seismic testing was conducted.

3.6 Seabed CPTU Derived Logs

Gardline

Preliminary Investigation, Hesselø OWF

IN SITU CPTU TESTING - DERIVED PARAMETERS

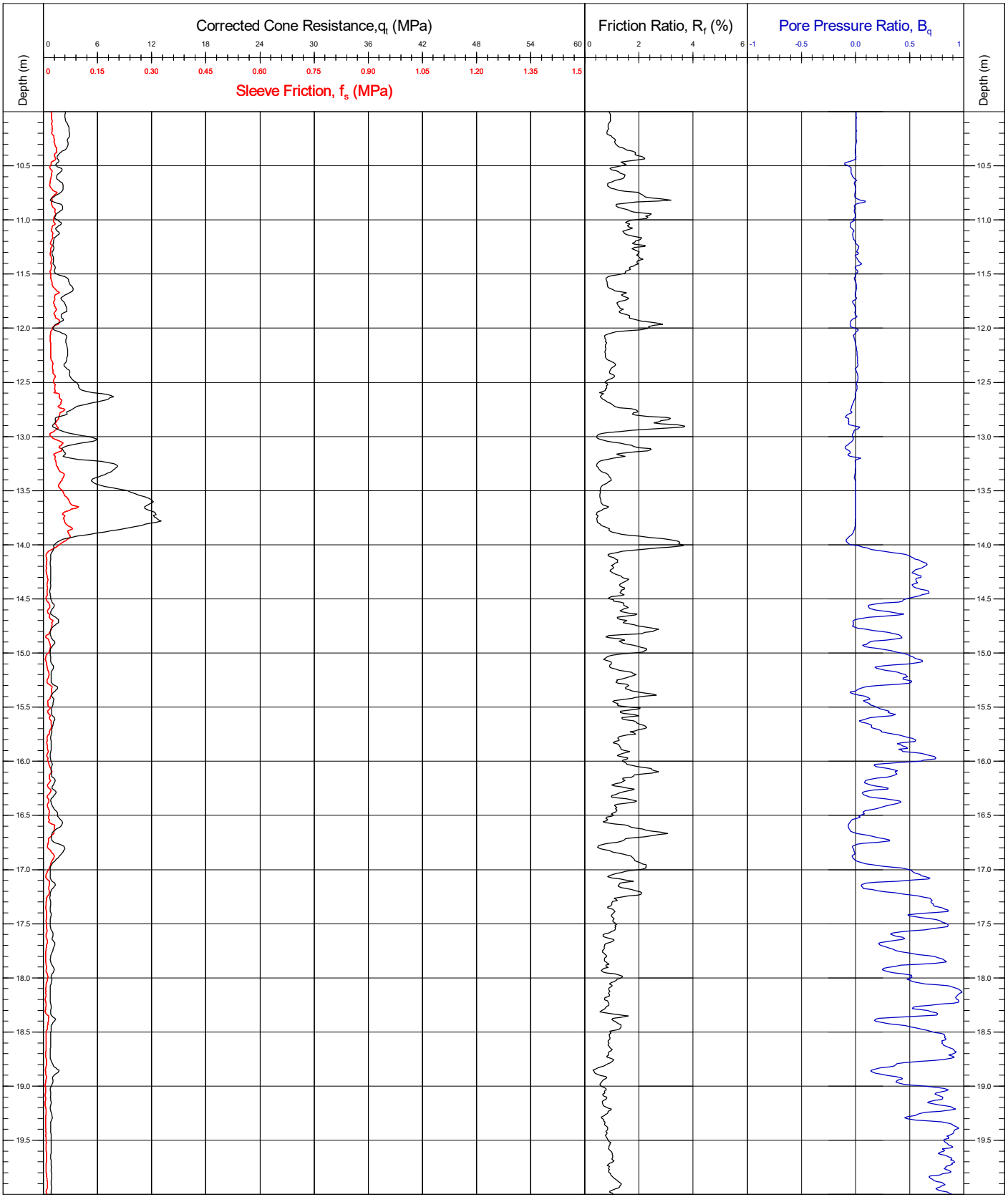


Area	**Kattegat Sea**	Coordinates	**673294.00E 6269807.20N**	CPT Number	**CB3a**
Contract	**11596**	Latitude / Longitude			
Client Name/Ref	**Energinet Eltransmission A/S/384_20_ENE**	Water Depth (mMSL)	**31.84**		
Vessel	**MV Ocean Vantage**	Date of Test	**01/05/2021**	Page: 1/6	
Comments: Cone out of class. Continuous seabed CPT. Final depth 58m. Test terminated due to loss of communication with cone after snapping rods		Cone No.(size)/α Factor	**120910 (10cm^2) / 0.81**	QC Status	
		Base Inclination	**X = 1.1° / Y = 1.0°**	Preliminary: **JK/BC** (01/05/2021)	Draft: **DR** (25/06/2021)
		CRS **ETRS89**			Final: **SMc** (10/11/2021)

Gardline

Preliminary Investigation, Hesselø OWF

IN SITU CPTU TESTING - DERIVED PARAMETERS

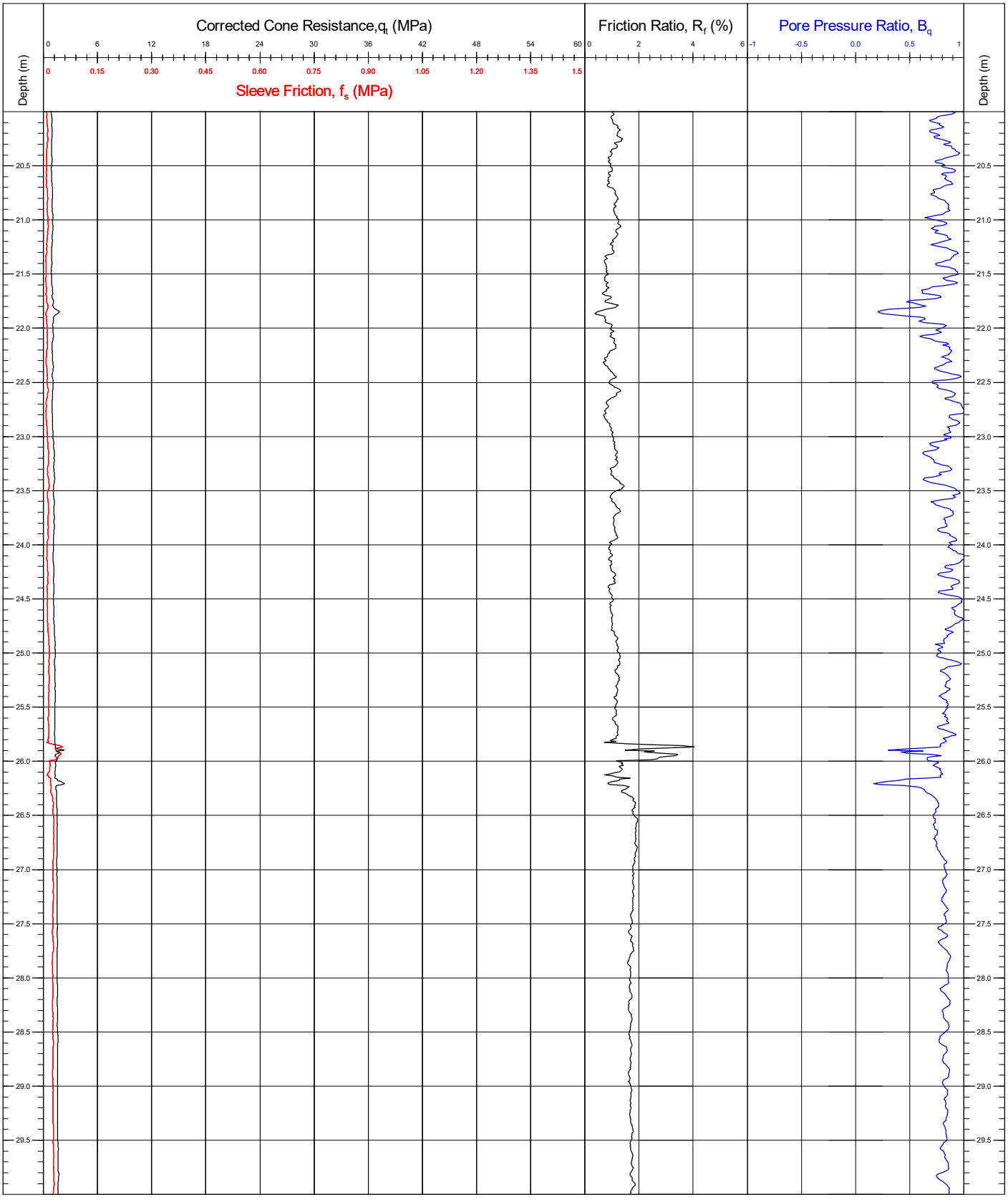


Area	**Kattegat Sea**	Coordinates	**673294.00E** **6269807.20N**	CPT Number	
Contract	**11596**	Latitude / Longitude		**CB3a**	
Client Name/Ref	**Energinet Eltransmission A/S/384_20_ENE**	Water Depth (mMSL)	**31.84**		
Vessel	**MV Ocean Vantage**	Date of Test	**01/05/2021**	Page: 2/6	
Comments: Cone out of class. Continuous seabed CPT. Final depth 58m. Test terminated due to loss of communication with cone after snapping rods		Cone No.(size)/α Factor	**120910 (10cm^2) / 0.81**	QC Status	
		Base Inclination	**X = 1.1° / Y = 1.0°**	Preliminary: **JK/BC** (01/05/2021)	Draft: **DR** (25/06/2021)
		CRS **ETRS89**			Final: **SMc** (10/11/2021)

Gardline

Preliminary Investigation, Hesselø OWF

IN SITU CPTU TESTING - DERIVED PARAMETERS

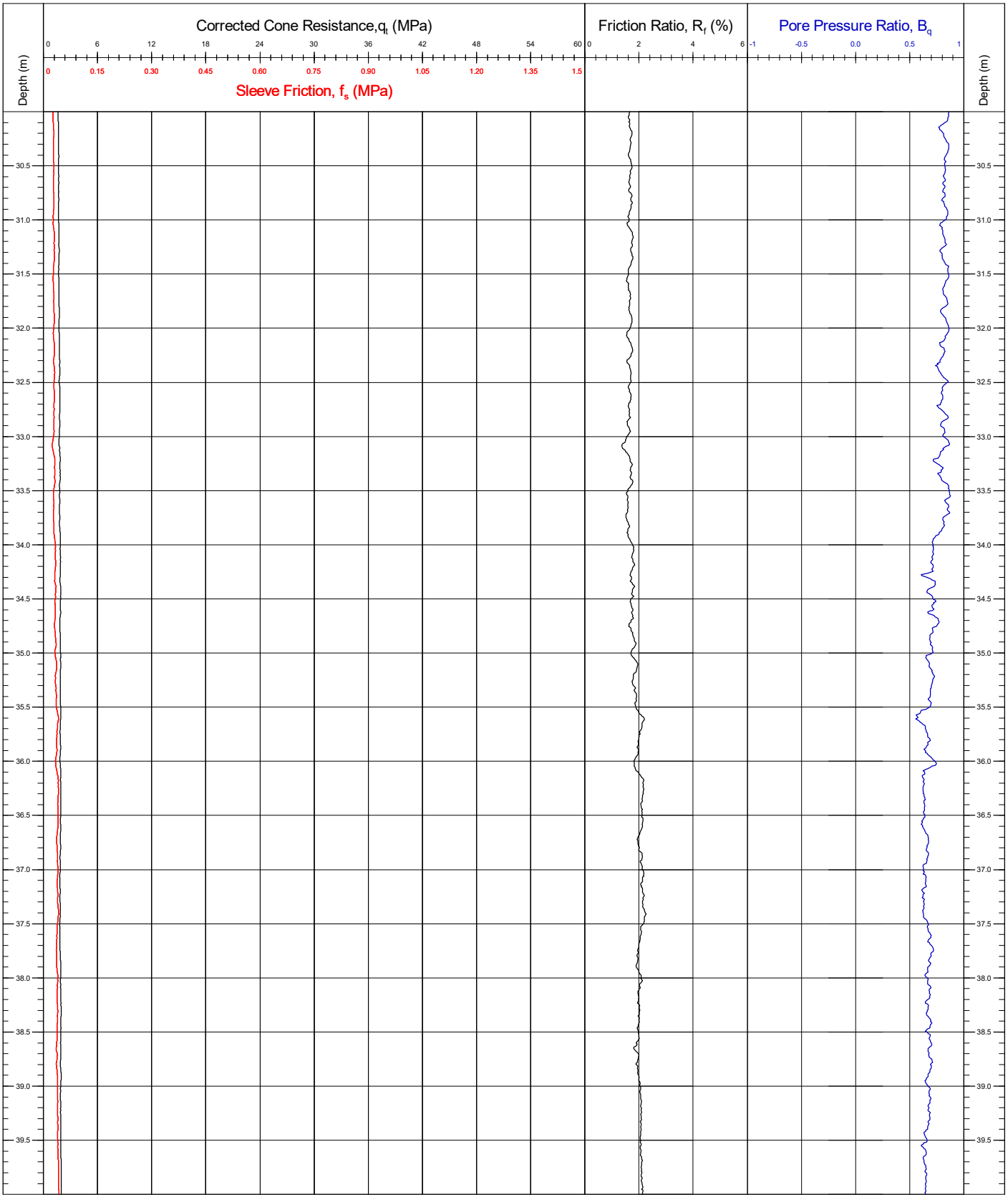


Area	**Kattegat Sea**	Coordinates	**673294.00E** **6269807.20N**	CPT Number	**CB3a**
Contract	**11596**	Latitude / Longitude			
Client Name/Ref	**Energinet Eltransmission A/S/384_20_ENE**	Water Depth (mMSL)	**31.84**		
Vessel	**MV Ocean Vantage**	Date of Test	**01/05/2021**	Page: 3/6	
Comments: Cone out of class. Continuous seabed CPT. Final depth 58m. Test terminated due to loss of communication with cone after snapping rods		Cone No.(size)/α Factor	**120910 (10cm^2) / 0.81**	QC Status	
		Base Inclination	**X = 1.1° / Y = 1.0°**	Preliminary: **JK/BC** (01/05/2021)	Draft: **DR** (25/06/2021)
		CRS **ETRS89**			Final: **SMc** (10/11/2021)

Gardline

Preliminary Investigation, Hesselø OWF

IN SITU CPTU TESTING - DERIVED PARAMETERS

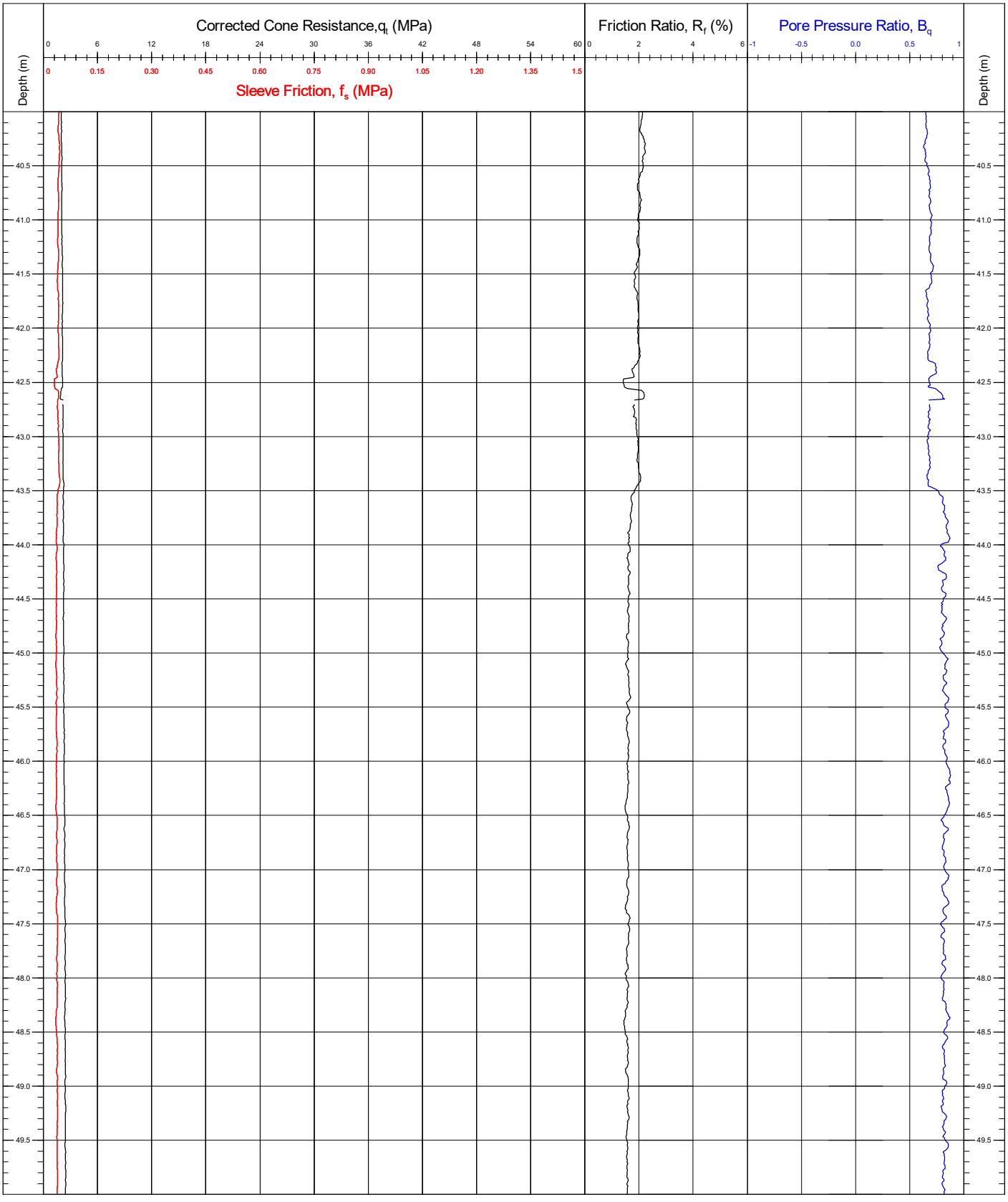


Area	**Kattegat Sea**	Coordinates	**673294.00E 6269807.20N**	CPT Number	**CB3a**
Contract	**11596**	Latitude / Longitude			
Client Name/Ref	**Energinet Eltransmission A/S/384_20_ENE**	Water Depth (mMSL)	**31.84**		
Vessel	**MV Ocean Vantage**	Date of Test	**01/05/2021**	Page: 4/6	
Comments: Cone out of class. Continuous seabed CPT. Final depth 58m. Test terminated due to loss of communication with cone after snapping rods		Cone No.(size)/α Factor	**120910 (10cm^2) / 0.81**	QC Status	
		Base Inclination	**X = 1.1° / Y = 1.0°**	Preliminary: **JK/BC** (01/05/2021)	Draft: **DR** (25/06/2021)
		CRS **ETRS89**			Final: **SMc** (10/11/2021)

Gardline

Preliminary Investigation, Hesselø OWF

IN SITU CPTU TESTING - DERIVED PARAMETERS

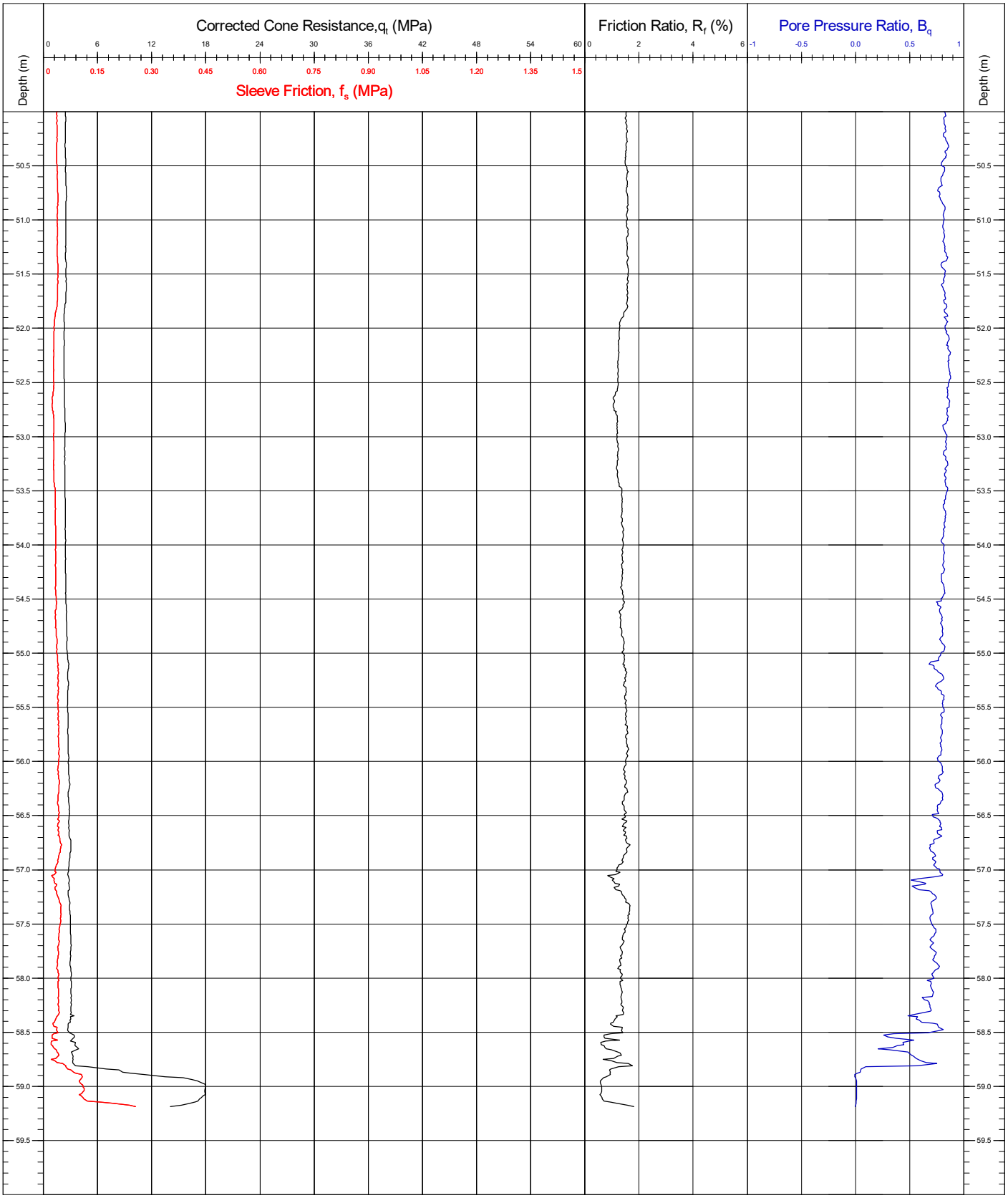


Area	**Kattegat Sea**	Coordinates	**673294.00E 6269807.20N**	CPT Number	**CB3a**
Contract	**11596**	Latitude / Longitude			
Client Name/Ref	**Energinet Eltransmission A/S/384_20_ENE**	Water Depth (mMSL)	**31.84**		
Vessel	**MV Ocean Vantage**	Date of Test	**01/05/2021**	Page: 5/6	
Comments: Cone out of class. Continuous seabed CPT. Final depth 58m. Test terminated due to loss of communication with cone after snapping rods		Cone No.(size)/α Factor	**120910 (10cm^2) / 0.81**	QC Status	
		Base Inclination	**X = 1.1° / Y = 1.0°**	Preliminary: **JK/BC (01/05/2021)**	Draft: **DR (25/06/2021)**
		CRS **ETRS89**			Final: **SMc (10/11/2021)**

Gardline

Preliminary Investigation, Hesselø OWF

IN SITU CPTU TESTING - DERIVED PARAMETERS



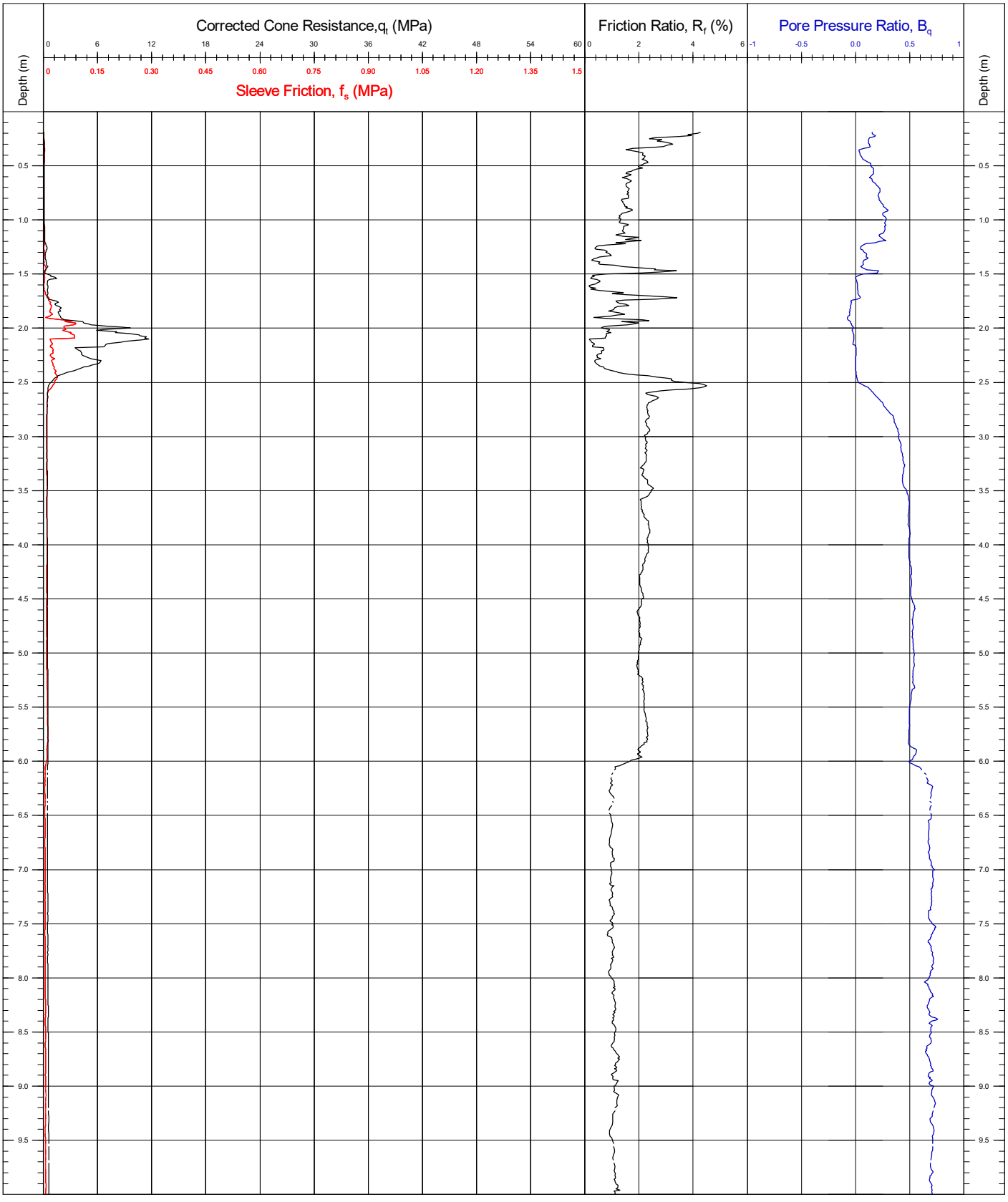
Area	**Kattegat Sea**	Coordinates	**673294.00E 6269807.20N**	CPT Number	**CB3a**
Contract	**11596**	Latitude / Longitude			
Client Name/Ref	**Energinet Eltransmission A/S/384_20_ENE**	Water Depth (mMSL)	**31.84**		
Vessel	**MV Ocean Vantage**	Date of Test	**01/05/2021**	Page: 6/6	
		Cone No.(size)/α Factor	**120910 (10cm^2) / 0.81**	QC Status	
		Base Inclination	**X = 1.1° / Y = 1.0°**	Preliminary: **JK/BC** (01/05/2021)	Draft: **DR** (25/06/2021)
		CRS **ETRS89**			Final: **SMc** (10/11/2021)

Comments: Cone out of class. Continuous seabed CPT. Final depth 58m. Test terminated due to loss of communication with cone after snapping rods

Gardline

Preliminary Investigation, Hesselø OWF

IN SITU CPTU TESTING - DERIVED PARAMETERS

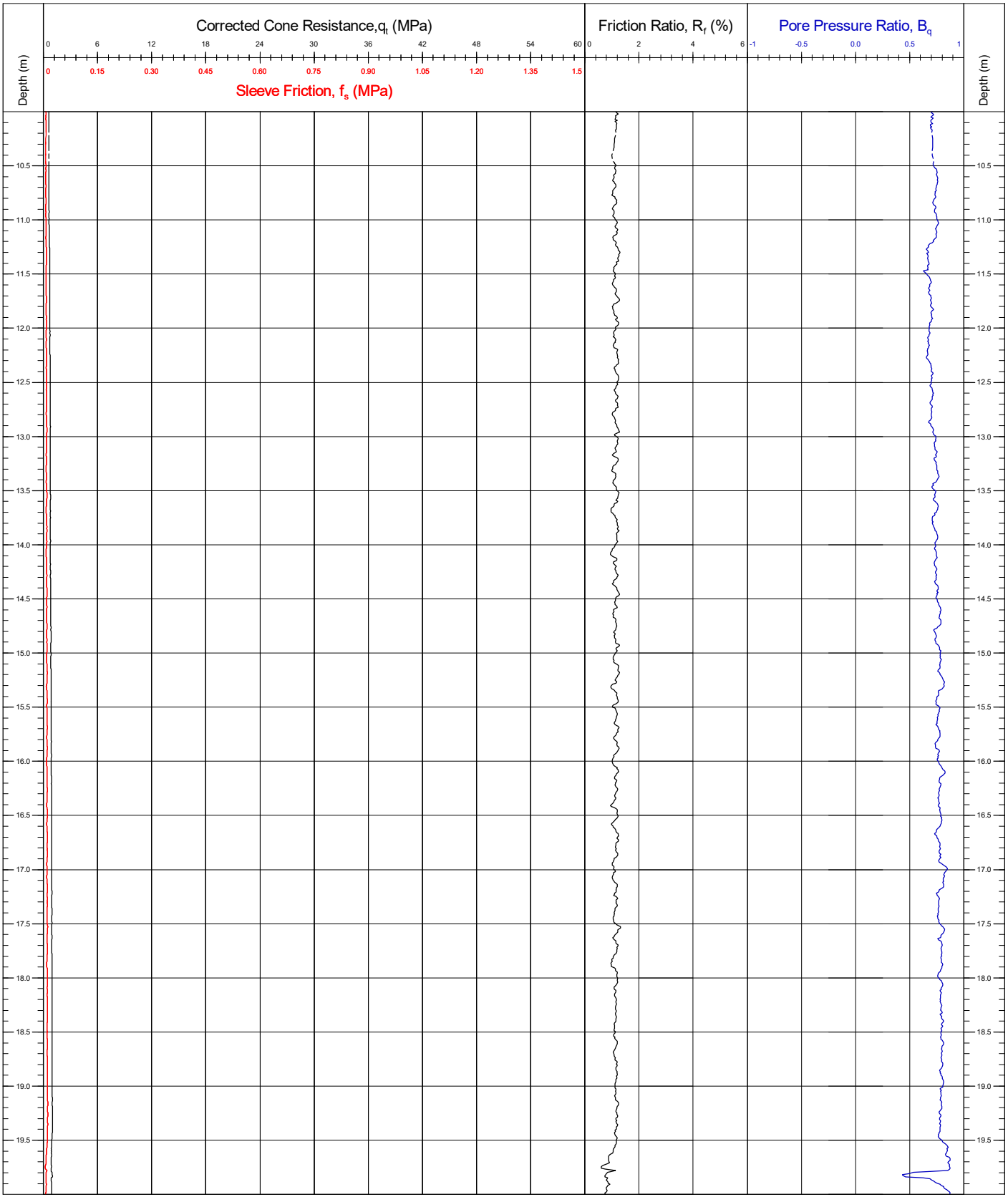


Area	**Kattegat Sea**	Coordinates	**675775.70E 6272685.70N**	CPT Number	**CB4**
Contract	**11596**	Latitude / Longitude			
Client Name/Ref	**Energinet Eltransmission A/S/384_20_ENE**	Water Depth (mMSL)	**30.94**		
Vessel	**MV Ocean Vantage**	Date of Test	**01/05/2021**	Page: 1/4	
Comments: Cone class 1. Continuous seabed CPT. Final depth 35.73m. Test terminated at operators discretion due to lack of rod support from mudline when pushing into dense material		Cone No.(size)/α Factor	**130909 (10cm^2) / 0.82**	QC Status	
		Base Inclination	**X = 1.1° / Y = 0.9°**	Preliminary / Draft / Final	
		CRS **ETRS89**		**JK/BC** (01/05/2021) / **DR** (10/06/2021) / **SMc** (10/11/2021)	

Gardline

Preliminary Investigation, Hesselø OWF

IN SITU CPTU TESTING - DERIVED PARAMETERS



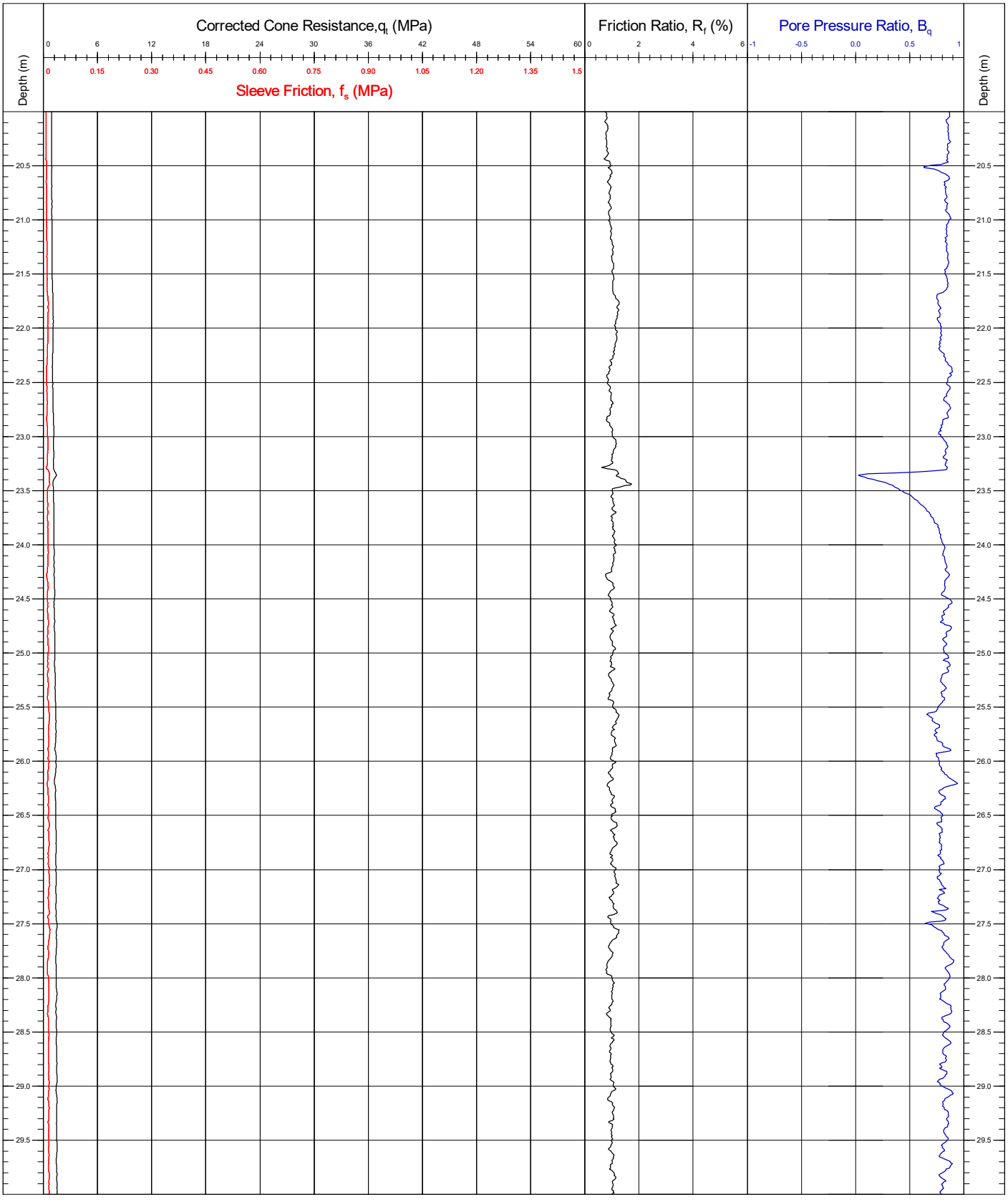
Area	**Kattegat Sea**	Coordinates	**675775.70E 6272685.70N**	CPT Number	**CB4**
Contract	**11596**	Latitude / Longitude			
Client Name/Ref	**Energinet Eltransmission A/S/384_20_ENE**	Water Depth (mMSL)	**30.94**		
Vessel	**MV Ocean Vantage**	Date of Test	**01/05/2021**	Page: 2/4	
		Cone No.(size)/α Factor	**130909 (10cm^2) / 0.82**	QC Status	
		Base Inclination	**X = 1.1° / Y = 0.9°**	Preliminary: **JK/BC** (01/05/2021)	Draft: **DR** (10/06/2021)
		CRS **ETRS89**			Final: **SMc** (10/11/2021)

Comments: Cone class 1. Continuous seabed CPT. Final depth 35.73m. Test terminated at operators discretion due to lack of rod support from mudline when pushing into dense material

Gardline

Preliminary Investigation, Hesselø OWF

IN SITU CPTU TESTING - DERIVED PARAMETERS



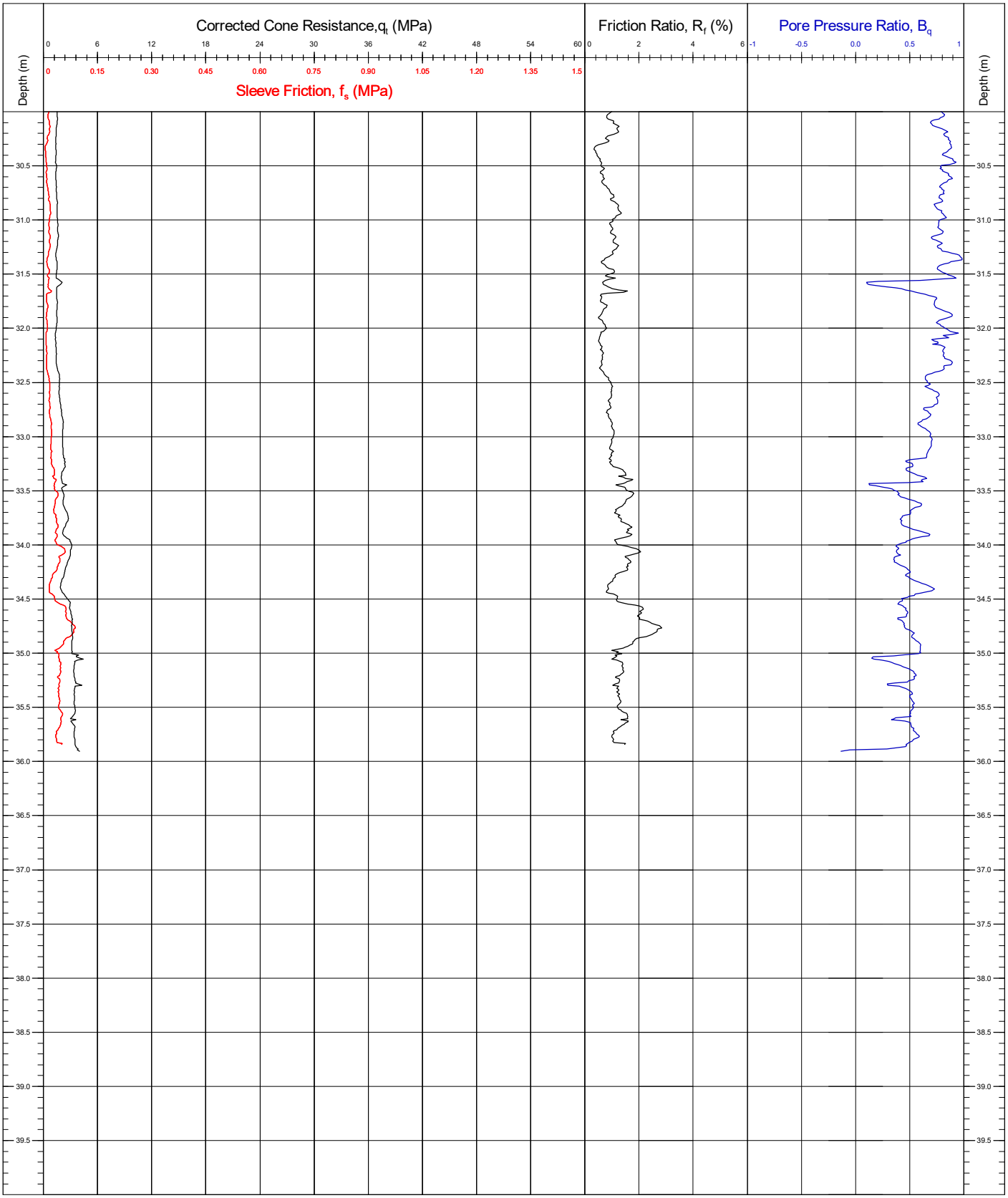
Area	**Kattegat Sea**	Coordinates	**675775.70E 6272685.70N**	CPT Number	**CB4**
Contract	**11596**	Latitude / Longitude			
Client Name/Ref	**Energinet Eltransmission A/S/384_20_ENE**	Water Depth (mMSL)	**30.94**		
Vessel	**MV Ocean Vantage**	Date of Test	**01/05/2021**	Page: 3/4	
		Cone No.(size)/α Factor	**130909 (10cm^2) / 0.82**	QC Status	
		Base Inclination	**X = 1.1° / Y = 0.9°**	Preliminary: **JK/BC** (01/05/2021)	Draft: **DR** (10/06/2021)
		CRS **ETRS89**			Final: **SMc** (10/11/2021)

Comments: Cone class 1. Continuous seabed CPT. Final depth 35.73m. Test terminated at operators discretion due to lack of rod support from mudline when pushing into dense material

Gardline

Preliminary Investigation, Hesselø OWF

IN SITU CPTU TESTING - DERIVED PARAMETERS



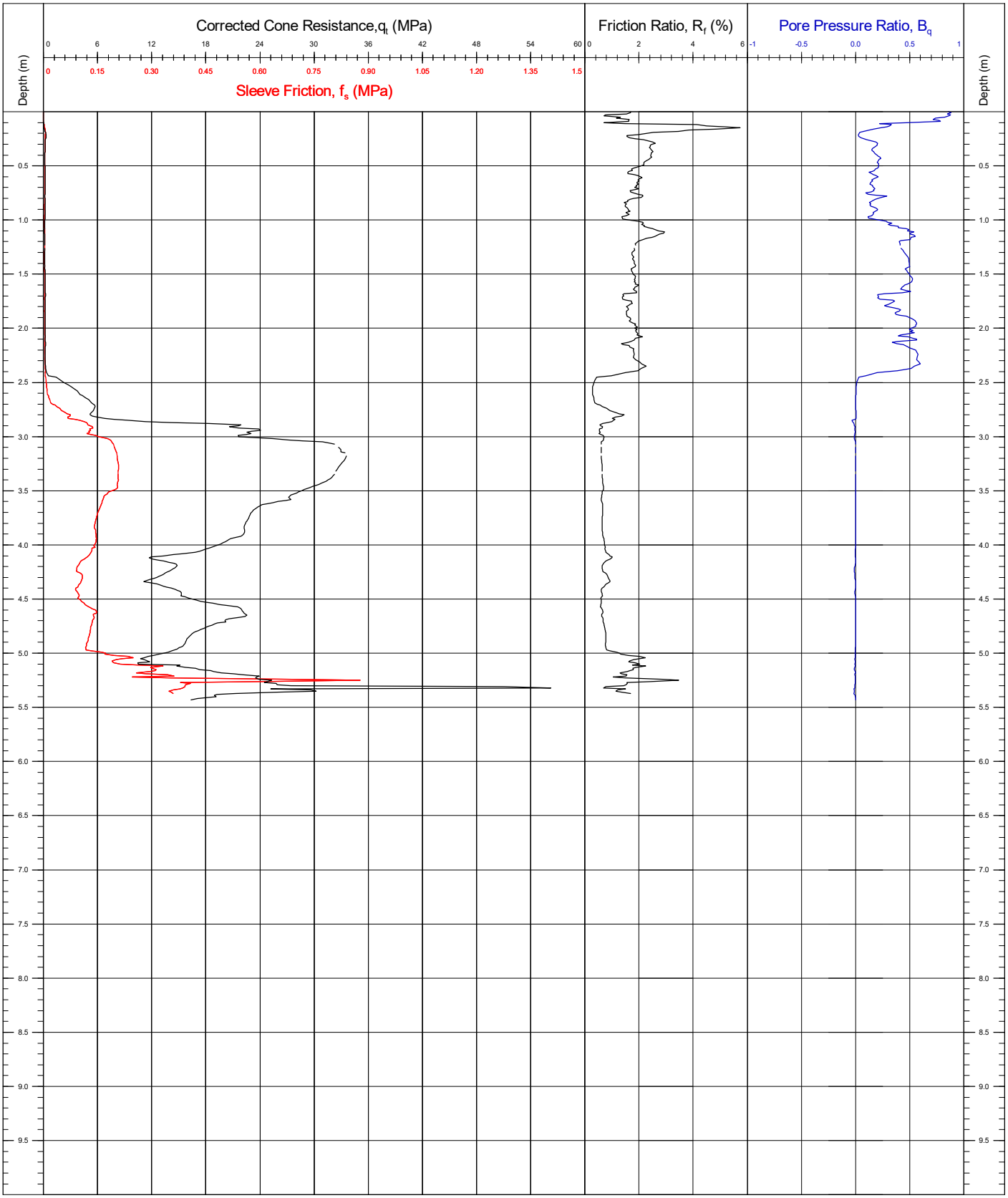
Area	**Kattegat Sea**	Coordinates	**675775.70E** **6272685.70N**	CPT Number	**CB4**
Contract	**11596**	Latitude / Longitude			
Client Name/Ref	**Energinet Eltransmission A/S/384_20_ENE**	Water Depth (mMSL)	**30.94**		
Vessel	**MV Ocean Vantage**	Date of Test	**01/05/2021**	Page: 4/4	
		Cone No.(size)/α Factor	**130909 (10cm^2) / 0.82**	QC Status	
		Base Inclination	**X = 1.1° / Y = 0.9°**	Preliminary: **JK/BC** (01/05/2021)	Draft: **DR** (10/06/2021)
		CRS **ETRS89**			Final: **SMc** (10/11/2021)

Comments: Cone class 1. Continuous seabed CPT. Final depth 35.73m. Test terminated at operators discretion due to lack of rod support from mudline when pushing into dense material

Gardline

Preliminary Investigation, Hesselø OWF

IN SITU CPTU TESTING - DERIVED PARAMETERS

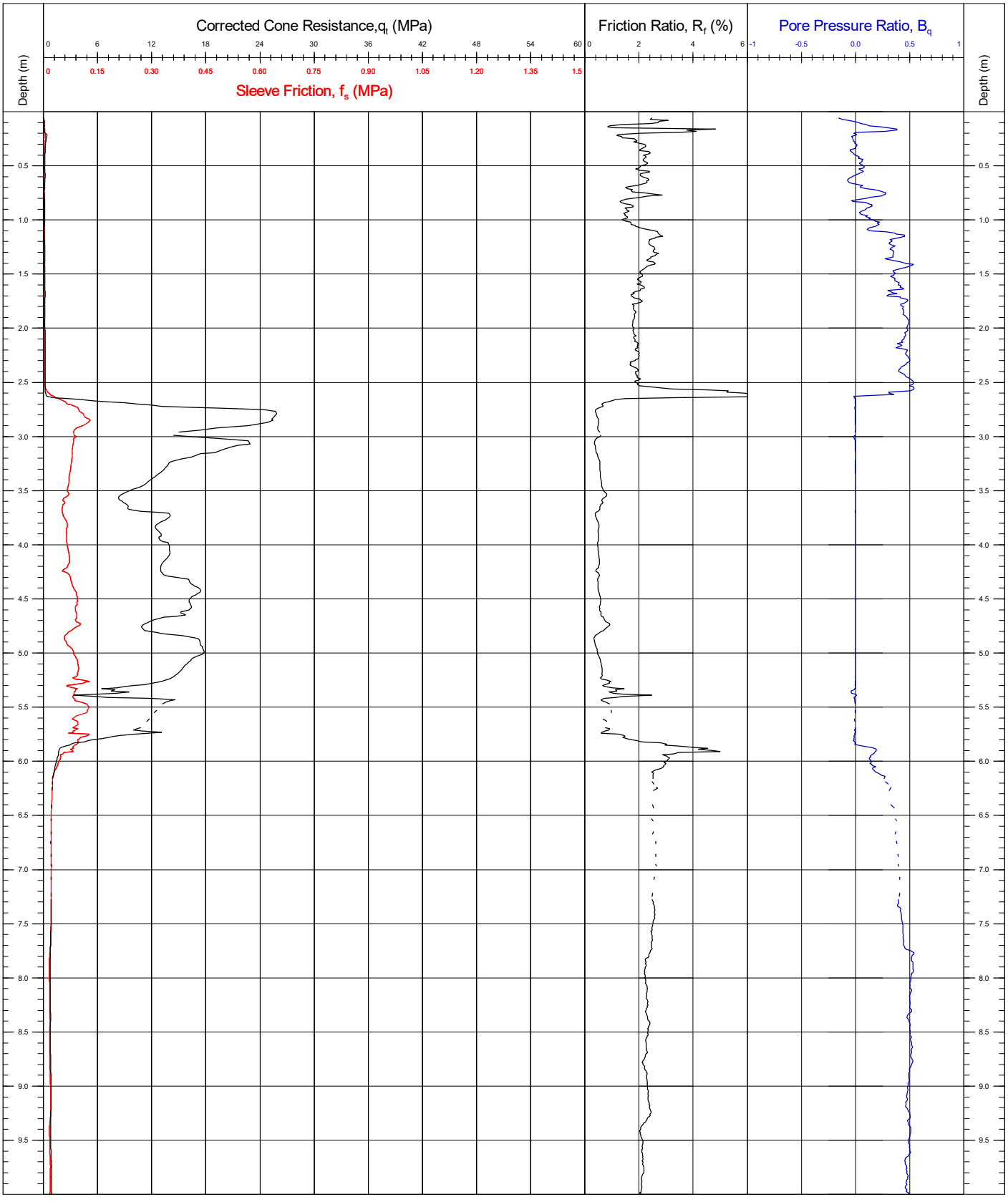


Area	**Kattegat Sea**	Coordinates	**671118.20E 6254697.40N**	CPT Number	**CB5**
Contract	**11596**	Latitude / Longitude			
Client Name/Ref	**Energinet Eltransmission A/S/384_20_ENE**	Water Depth (mMSL)	**27.39**		
Vessel	**MV Ocean Vantage**	Date of Test	**28/04/2021**	Page: 1/1	
Comments: Cone class 3. Continuous seabed CPT. Final depth 5.46m. Test terminated at operators discretion due to high increase in sleeve friction and sudden increase in tip resistance~ poor lateral rod support in first 2m		Cone No.(size)/α Factor	**130909 (10cm^2) / 0.82**	QC Status	
		Base Inclination	**X = 1.0° / Y = 1.0°**	Preliminary / Draft / Final	
		CRS **ETRS89**		**JK/BC** (28/04/2021) / **DR** (10/06/2021) / **SMc** (10/11/2021)	

Gardline

Preliminary Investigation, Hesselø OWF

IN SITU CPTU TESTING - DERIVED PARAMETERS

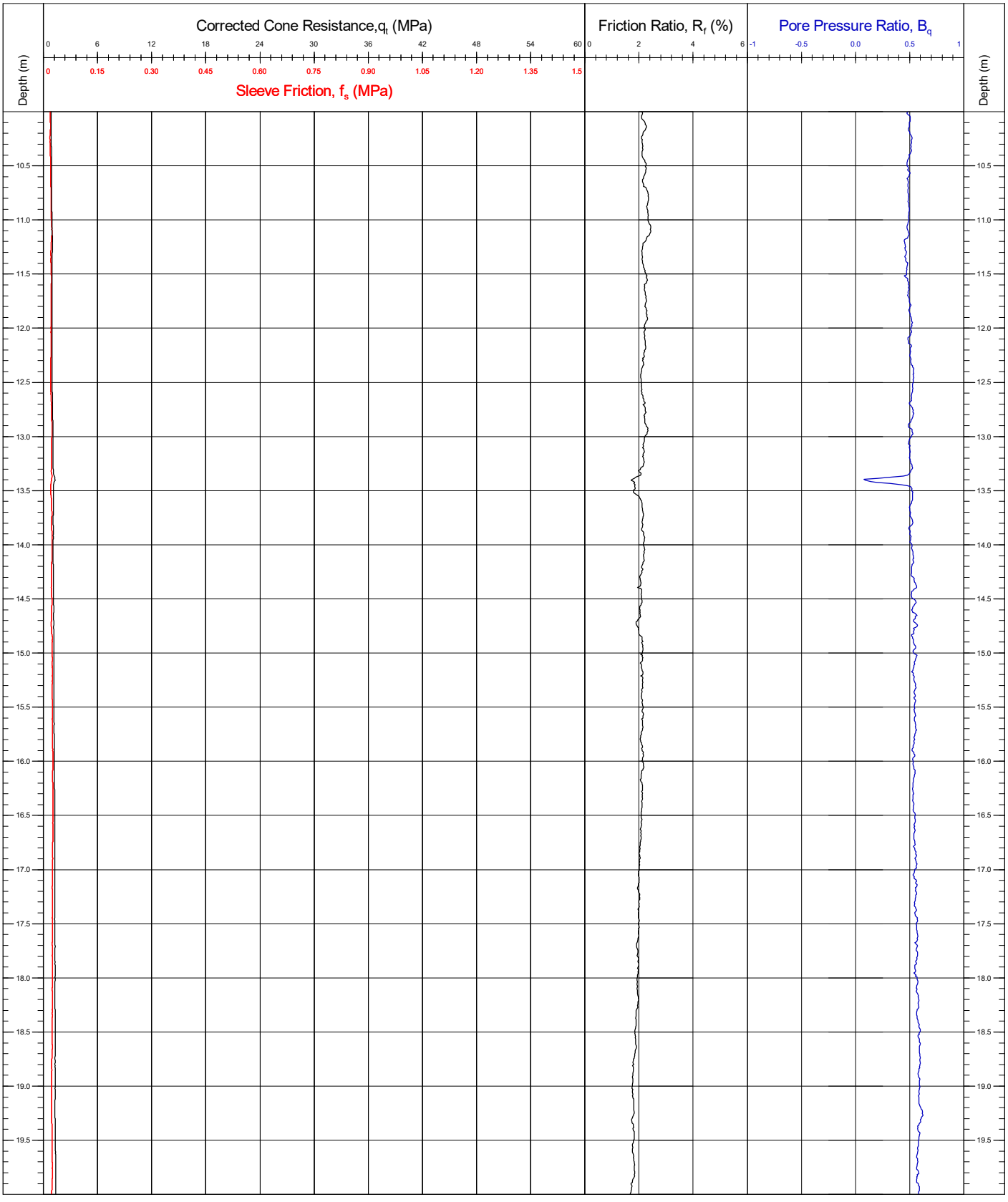


Area	**Kattegat Sea**	Coordinates	**671118.60E 6254692.20N**	CPT Number	**CB5a**
Contract	**11596**	Latitude / Longitude			
Client Name/Ref	**Energinet Eltransmission A/S/384_20_ENE**	Water Depth (mMSL)	**27.38**		
Vessel	**MV Ocean Vantage**	Date of Test	**28/04/2021**	Page: 1/4	
Comments: Cone class 2. Continuous seabed CPT. Final depth 37.28m. Test terminated due to a sudden increase in tip resistance and total force and a lack of lateral rod support throughout latter half of test		Cone No.(size)/α Factor	**191114 (10cm^2) / 0.76**	QC Status	
		Base Inclination	**X = 0.5° / Y = 0.0°**	Preliminary / Draft / Final	
		CRS **ETRS89**		**JK/BC** (28/04/2021) / **DR** (10/06/2021) / **SMc** (10/11/2021)	

Gardline

Preliminary Investigation, Hesselø OWF

IN SITU CPTU TESTING - DERIVED PARAMETERS



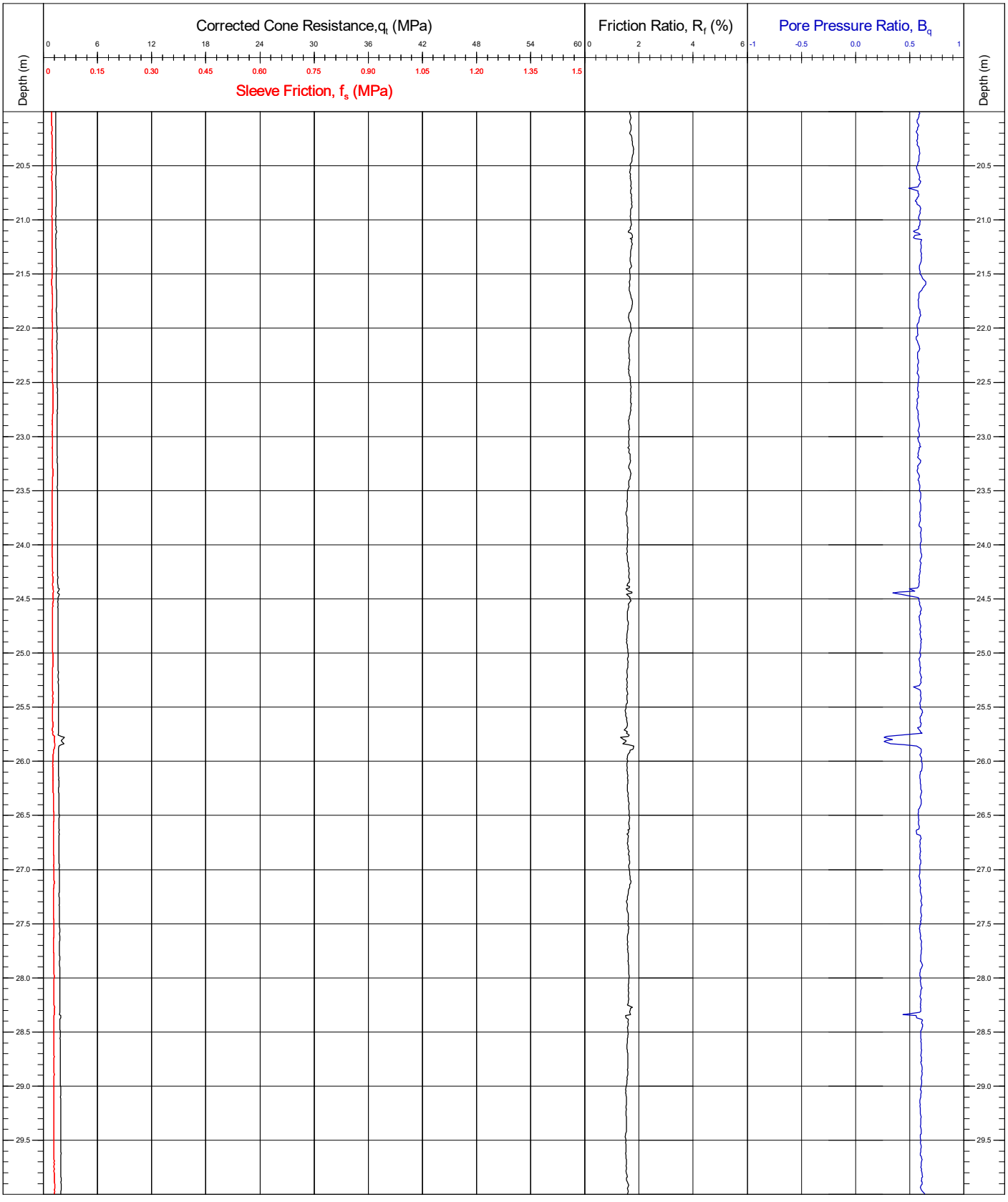
Area	**Kattegat Sea**	Coordinates	**671118.60E** **6254692.20N**	CPT Number	**CB5a**
Contract	**11596**	Latitude / Longitude			
Client Name/Ref	**Energinet Eltransmission A/S/384_20_ENE**	Water Depth (mMSL)	**27.38**		
Vessel	**MV Ocean Vantage**	Date of Test	**28/04/2021**	Page: 2/4	
		Cone No.(size)/α Factor	**191114 (10cm^2) / 0.76**	QC Status	
		Base Inclination	**X = 0.5° / Y = 0.0°**	Preliminary: **JK/BC** (28/04/2021)	Draft: **DR** (10/06/2021)
		CRS **ETRS89**			Final: **SMc** (10/11/2021)

Comments: Cone class 2. Continuous seabed CPT. Final depth 37.28m. Test terminated due to a sudden increase in tip resistance and total force and a lack of lateral rod support throughout latter half of test

Gardline

Preliminary Investigation, Hesselø OWF

IN SITU CPTU TESTING - DERIVED PARAMETERS



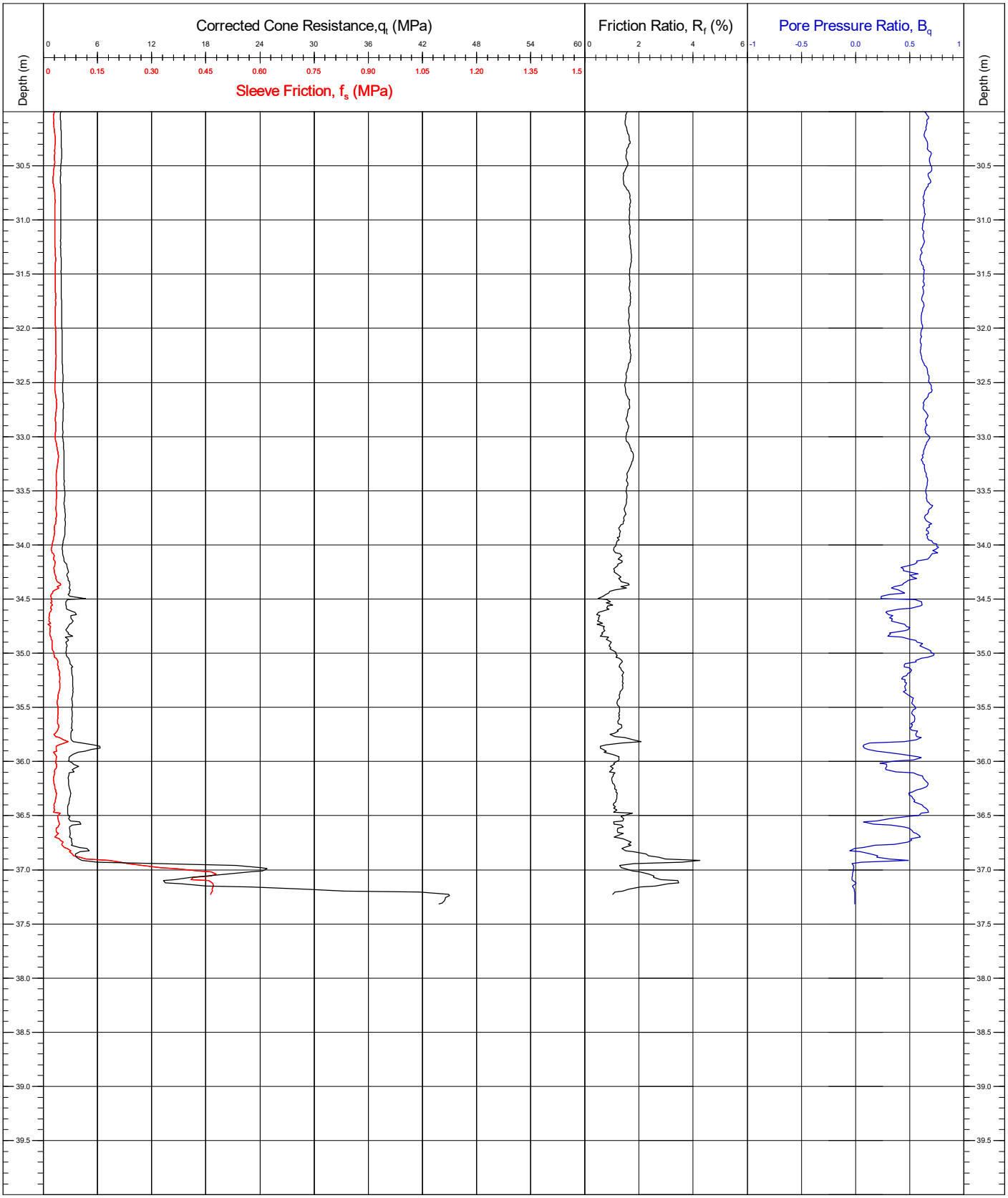
Area	**Kattegat Sea**	Coordinates	**671118.60E 6254692.20N**	CPT Number	**CB5a**
Contract	**11596**	Latitude / Longitude			
Client Name/Ref	**Energinet Eltransmission A/S/384_20_ENE**	Water Depth (mMSL)	**27.38**		
Vessel	**MV Ocean Vantage**	Date of Test	**28/04/2021**	Page: 3/4	
		Cone No.(size)/α Factor	**191114 (10cm^2) / 0.76**	QC Status	
		Base Inclination	**X = 0.5° / Y = 0.0°**	Preliminary: **JK/BC (28/04/2021)**	Draft: **DR (10/06/2021)**
		CRS **ETRS89**			Final: **SMc (10/11/2021)**

Comments: Cone class 2. Continuous seabed CPT. Final depth 37.28m. Test terminated due to a sudden increase in tip resistance and total force and a lack of lateral rod support throughout latter half of test

Gardline

Preliminary Investigation, Hesselø OWF

IN SITU CPTU TESTING - DERIVED PARAMETERS



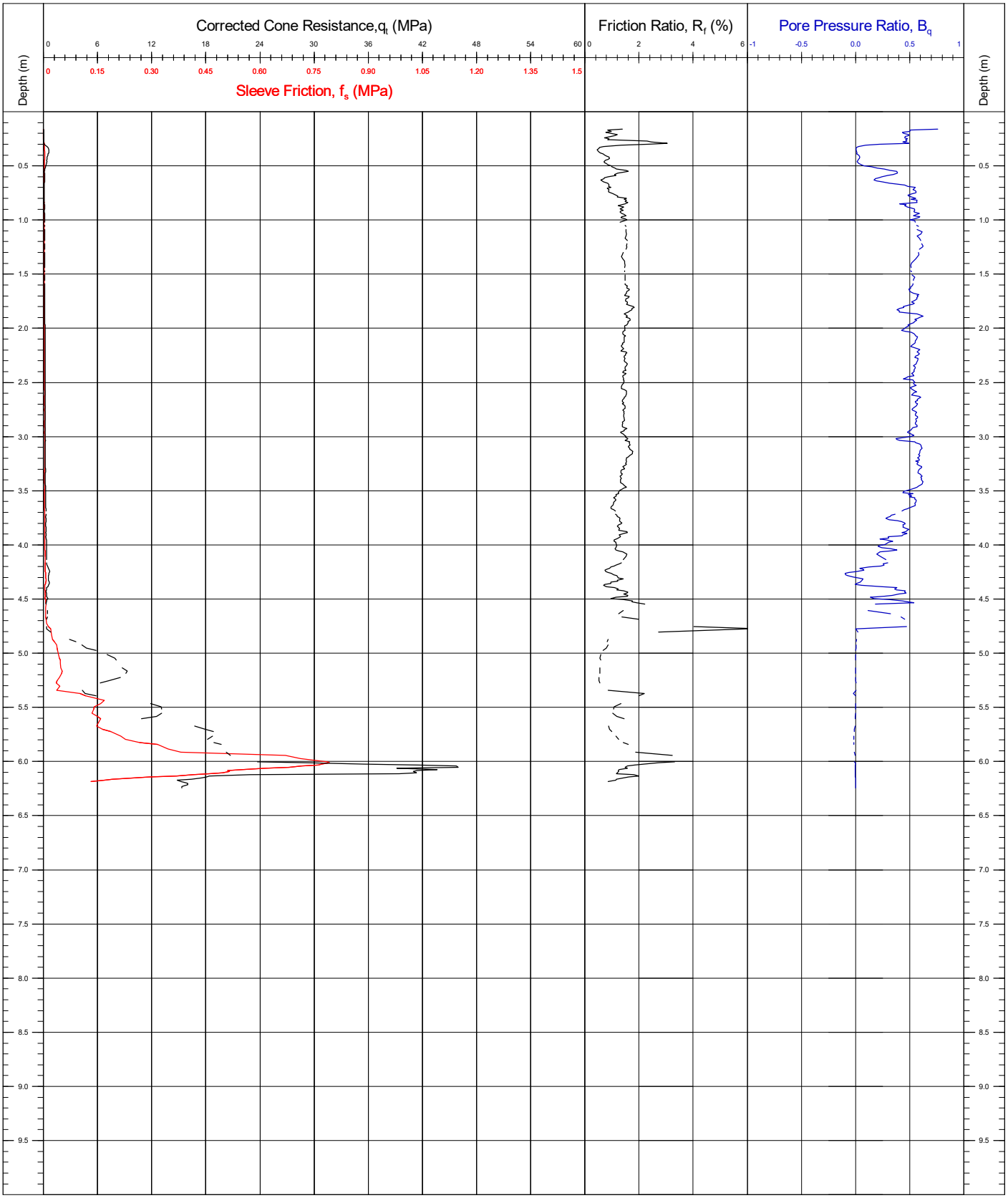
Area	**Kattegat Sea**	Coordinates	**671118.60E 6254692.20N**	CPT Number	**CB5a**
Contract	**11596**	Latitude / Longitude			
Client Name/Ref	**Energinet Eltransmission A/S/384_20_ENE**	Water Depth (mMSL)	**27.38**		
Vessel	**MV Ocean Vantage**	Date of Test	**28/04/2021**	Page: 4/4	
		Cone No.(size)/α Factor	**191114 (10cm^2) / 0.76**	QC Status	
		Base Inclination	**X = 0.5° / Y = 0.0°**	Preliminary: **JK/BC** (28/04/2021)	Draft: **DR** (10/06/2021)
		CRS **ETRS89**			Final: **SMc** (10/11/2021)

Comments: Cone class 2. Continuous seabed CPT. Final depth 37.28m. Test terminated due to a sudden increase in tip resistance and total force and a lack of lateral rod support throughout latter half of test

Gardline

Preliminary Investigation, Hesselø OWF

IN SITU CPTU TESTING - DERIVED PARAMETERS

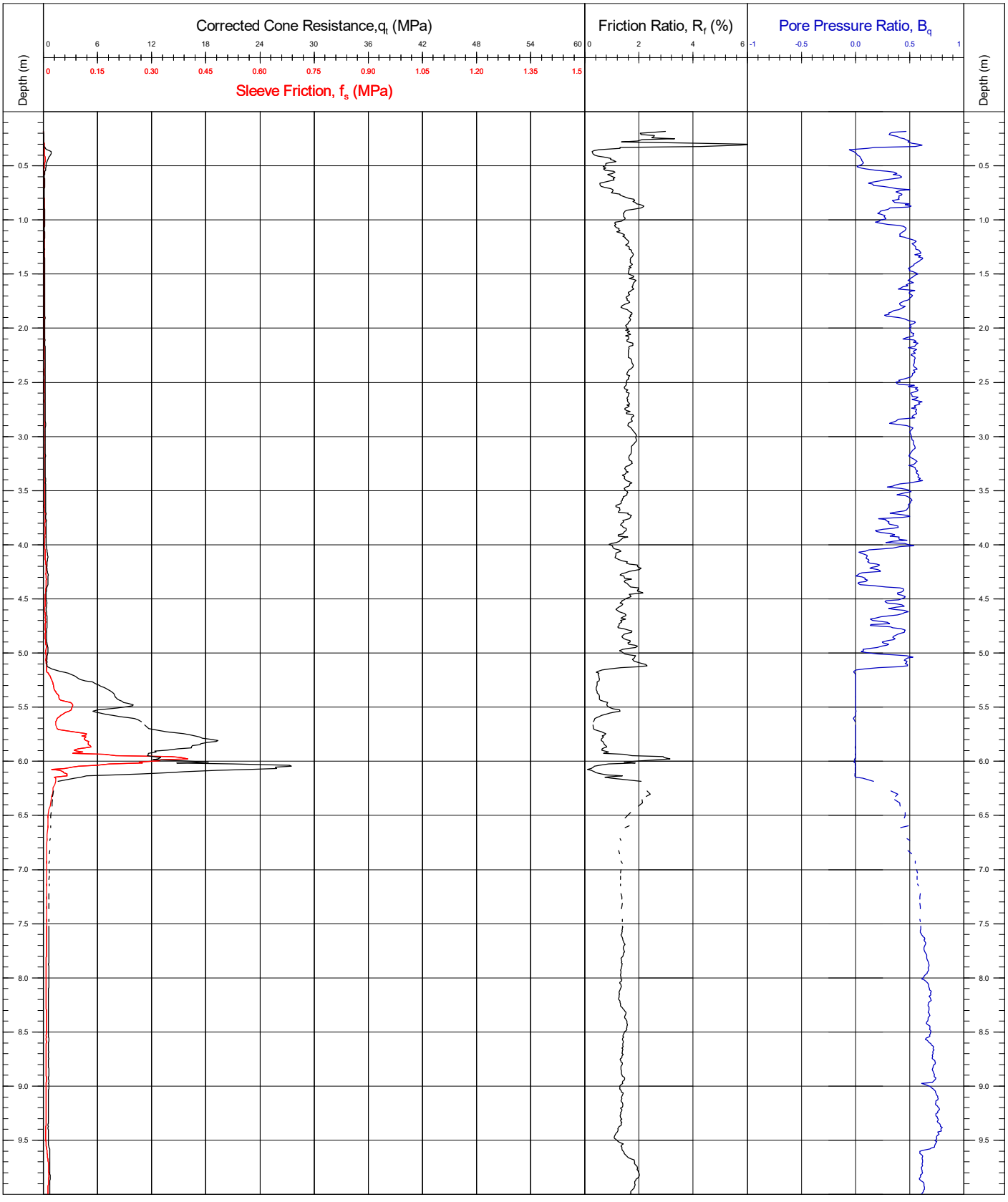


Area	**Kattegat Sea**	Coordinates	**668194.00E 6257998.40N**	CPT Number	**CB6**
Contract	**11596**	Latitude / Longitude			
Client Name/Ref	**Energinet Eltransmission A/S/384_20_ENE**	Water Depth (mMSL)	**26.74**		
Vessel	**MV Ocean Vantage**	Date of Test	**29/04/2021**	Page: 1/1	
Comments: Cone class 1. Continuous seabed CPT. Final depth 6.10m. Test terminated at operators discretion due to sudden increase in inclination and tip resistance		Cone No.(size)/α Factor	**130206 (10cm^2) / 0.77**	QC Status	
		Base Inclination	**X = 1.1° / Y = 1.0°**	Preliminary / Draft / Final	
		CRS **ETRS89**		**JK/BC** (29/04/2021) / **DR** (10/06/2021) / **SMc** (10/11/2021)	

Gardline

Preliminary Investigation, Hesselø OWF

IN SITU CPTU TESTING - DERIVED PARAMETERS

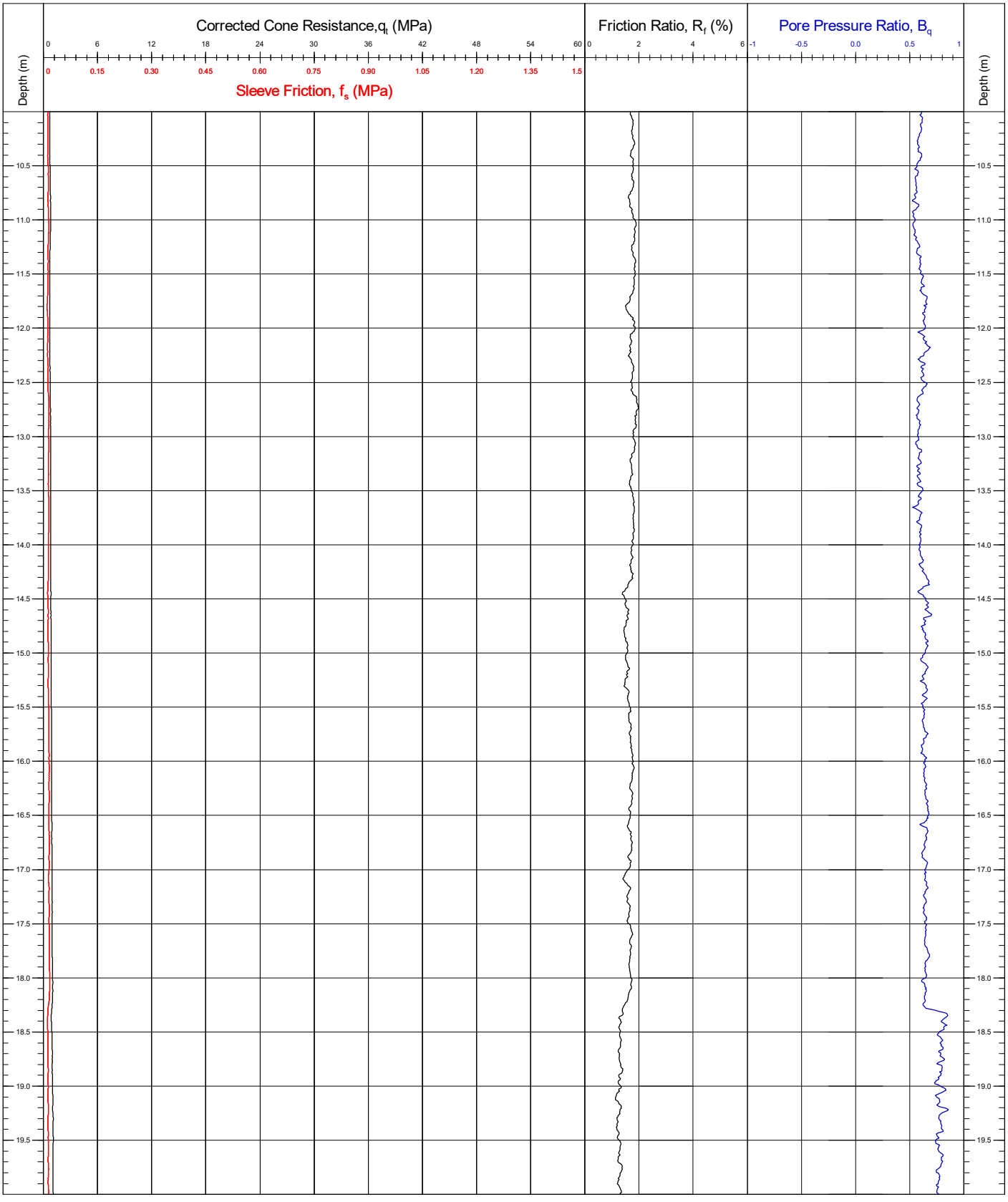


Area	**Kattegat Sea**	Coordinates	**668194.30E 6257993.10N**	CPT Number	**CB6a**
Contract	**11596**	Latitude / Longitude			
Client Name/Ref	**Energinet Eltransmission A/S/384_20_ENE**	Water Depth (mMSL)	**26.75**		
Vessel	**MV Ocean Vantage**	Date of Test	**29/04/2021**	Page: 1/4	
Comments: Cone class 1. Continuous seabed CPT. Final depth 36.08 m. Test terminated at operators discretion due to high inclination (18 degrees)		Cone No.(size)/α Factor	**130206 (10cm^2) / 0.77**	QC Status	
		Base Inclination	**X = 1.1° / Y = 1.0°**	Preliminary / Draft / Final	
		CRS **ETRS89**		**JK/BC (29/04/2021)** / **DR (10/06/2021)** / **SMc (10/11/2021)**	

Gardline

Preliminary Investigation, Hesselø OWF

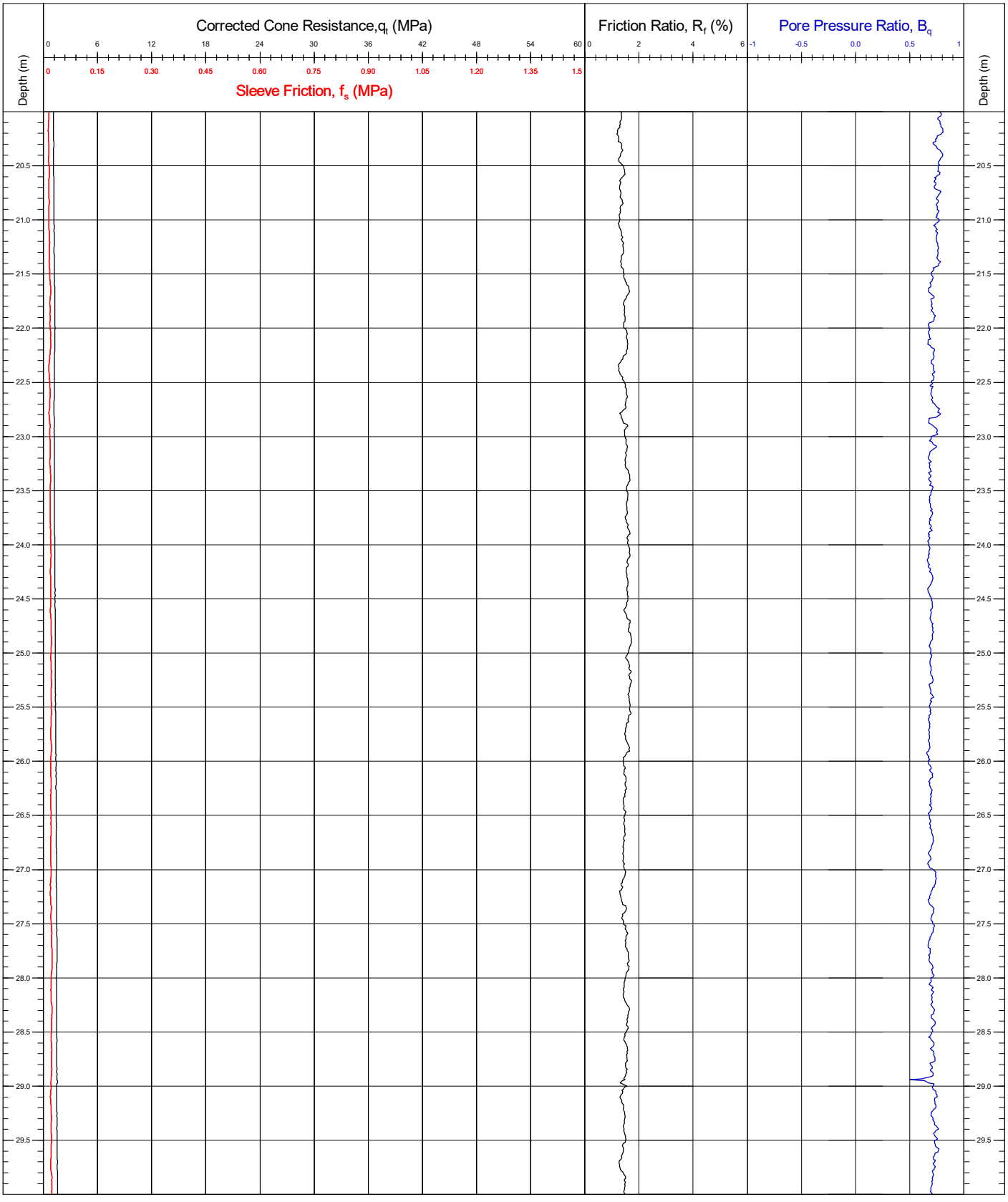
IN SITU CPTU TESTING - DERIVED PARAMETERS



Area	**Kattegat Sea**	Coordinates	**668194.30E 6257993.10N**	CPT Number	**CB6a**
Contract	**11596**	Latitude / Longitude			
Client Name/Ref	**Energinet Eltransmission A/S/384_20_ENE**	Water Depth (mMSL)	**26.75**		
Vessel	**MV Ocean Vantage**	Date of Test	**29/04/2021**	Page: 2/4	
Comments: Cone class 1. Continuous seabed CPT. Final depth 36.08 m. Test terminated at operators discretion due to high inclination (18 degrees)		Cone No.(size)/α Factor	**130206 (10cm^2) / 0.77**	QC Status	
		Base Inclination	**X = 1.1° / Y = 1.0°**	Preliminary / Draft / Final	
		CRS **ETRS89**		**JK/BC (29/04/2021)** / **DR (10/06/2021)** / **SMc (10/11/2021)**	

Preliminary Investigation, Hesselø OWF

IN SITU CPTU TESTING - DERIVED PARAMETERS



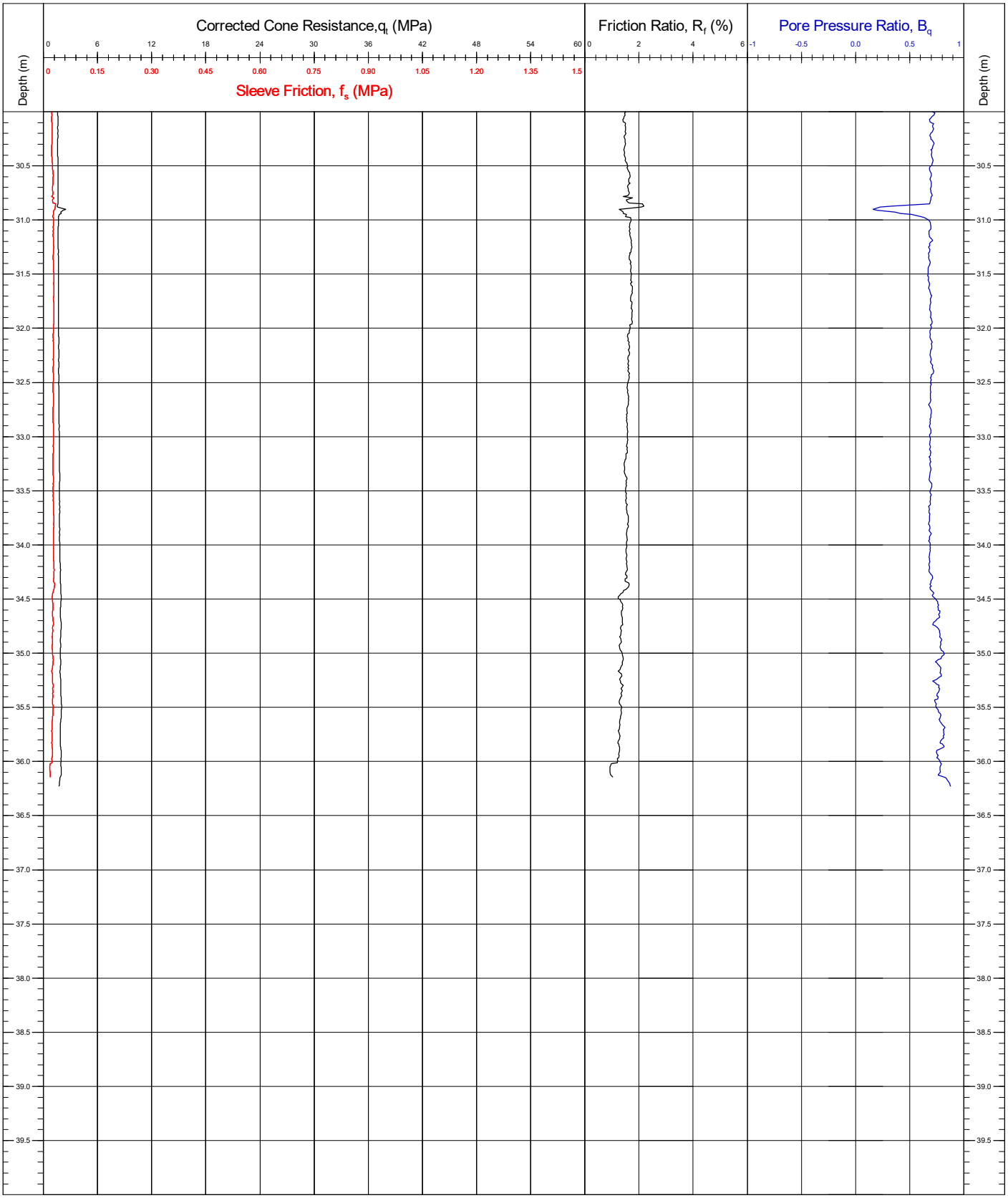
Area	**Kattegat Sea**	Coordinates	**668194.30E 6257993.10N**	CPT Number	**CB6a**
Contract	**11596**	Latitude / Longitude			
Client Name/Ref	**Energinet Eltransmission A/S/384_20_ENE**	Water Depth (mMSL)	**26.75**		
Vessel	**MV Ocean Vantage**	Date of Test	**29/04/2021**	Page: 3/4	
		Cone No.(size)/α Factor	**130206 (10cm^2) / 0.77**	QC Status	
		Base Inclination	**X = 1.1° / Y = 1.0°**	Preliminary / Draft / Final	
		CRS **ETRS89**		**JK/BC (29/04/2021)** / **DR (10/06/2021)** / **SMc (10/11/2021)**	

Comments: Cone class 1. Continuous seabed CPT. Final depth 36.08 m. Test terminated at operators discretion due to high inclination (18 degrees)

Gardline

Preliminary Investigation, Hesselø OWF

IN SITU CPTU TESTING - DERIVED PARAMETERS



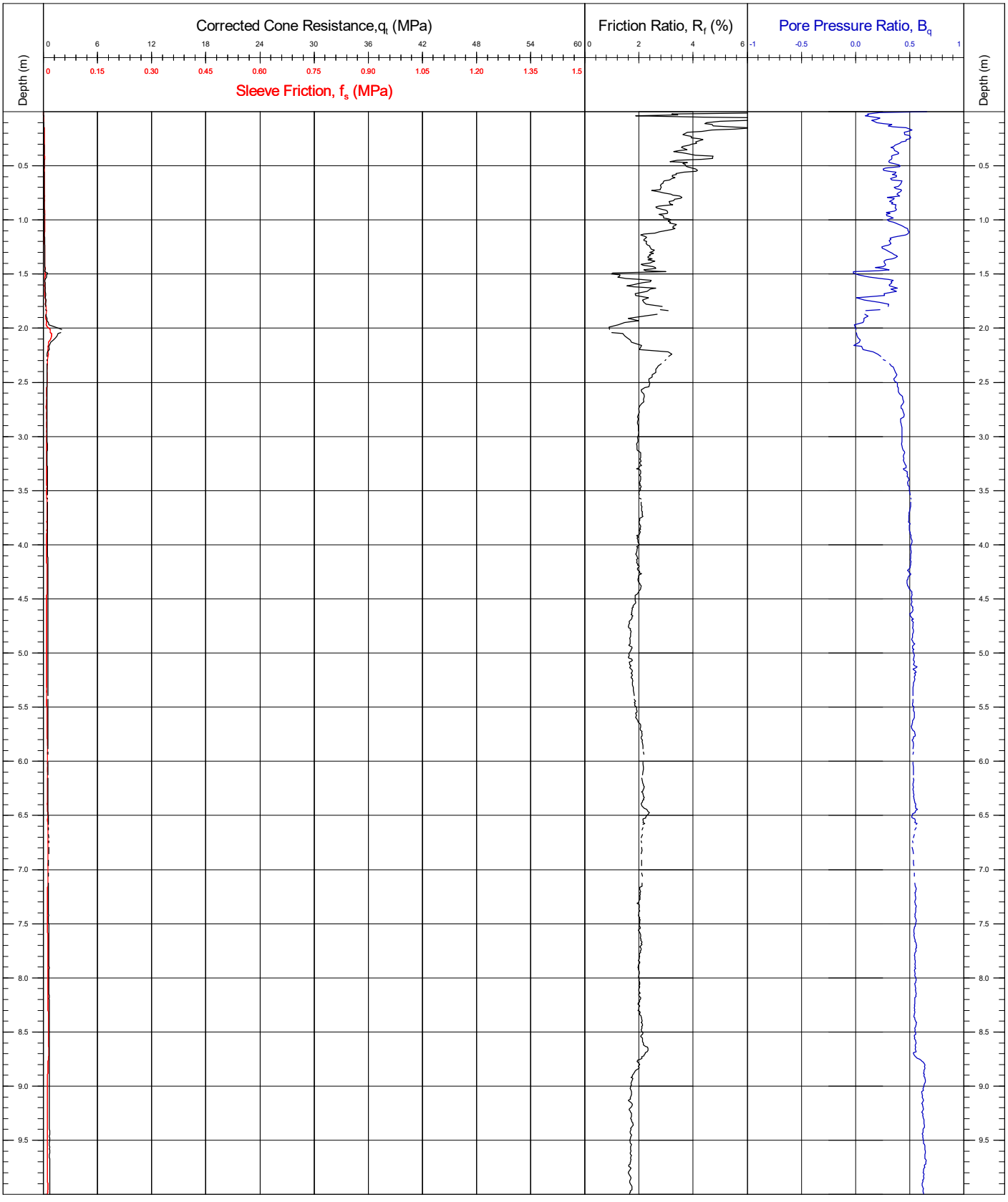
Area	**Kattegat Sea**	Coordinates	**668194.30E 6257993.10N**	CPT Number	**CB6a**
Contract	**11596**	Latitude / Longitude			
Client Name/Ref	**Energinet Eltransmission A/S/384_20_ENE**	Water Depth (mMSL)	**26.75**		
Vessel	**MV Ocean Vantage**	Date of Test	**29/04/2021**	Page: 4/4	
		Cone No.(size)/α Factor	**130206 (10cm^2) / 0.77**	QC Status	
		Base Inclination	**X = 1.1° / Y = 1.0°**	Preliminary: **JK/BC (29/04/2021)**	Draft: **DR (10/06/2021)** Final: **SMc (10/11/2021)**
		CRS **ETRS89**			

Comments: Cone class 1. Continuous seabed CPT. Final depth 36.08 m. Test terminated at operators discretion due to high inclination (18 degrees)

Gardline

Preliminary Investigation, Hesselø OWF

IN SITU CPTU TESTING - DERIVED PARAMETERS



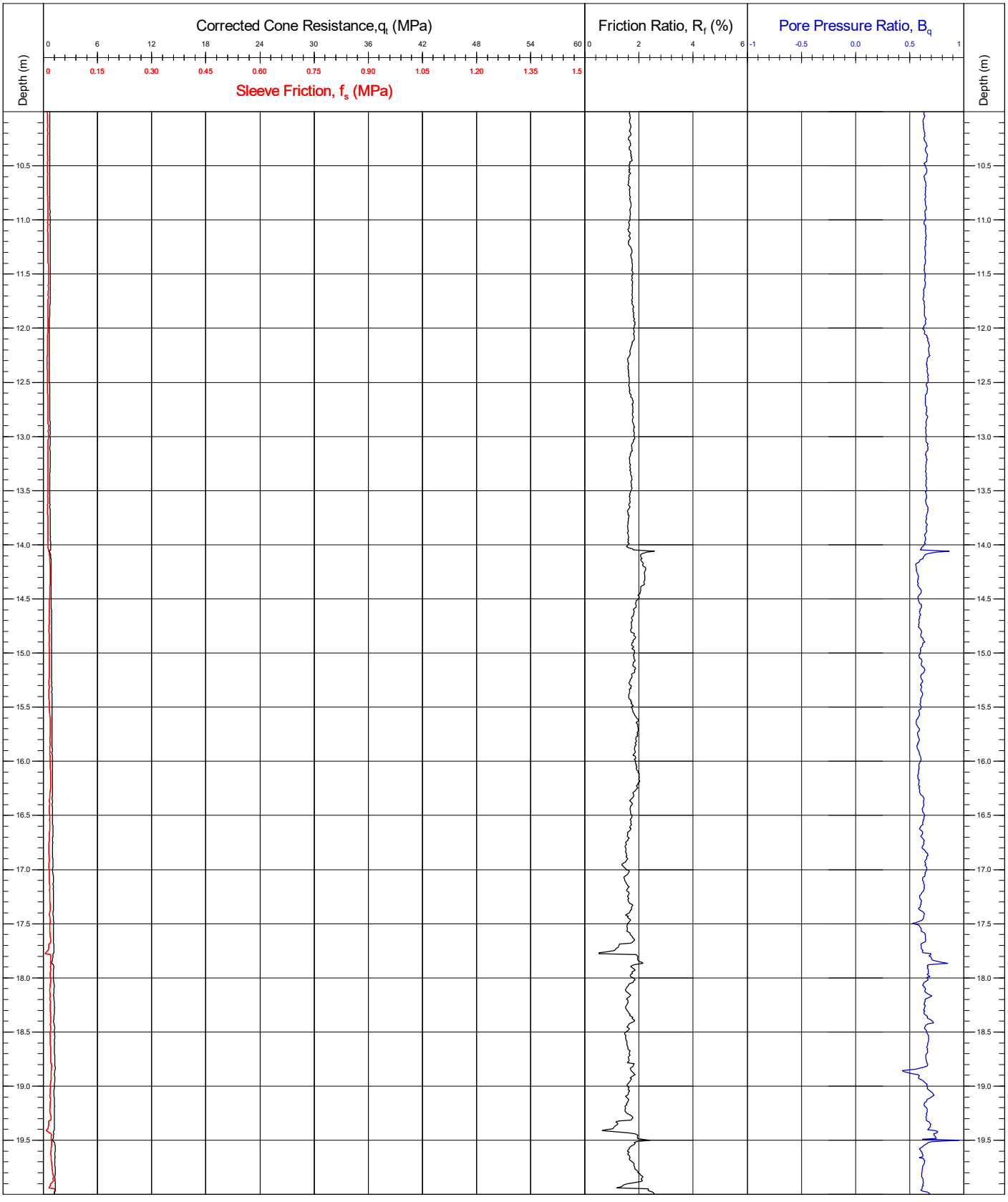
Area	**Kattegat Sea**	Coordinates	**673538.00E 6259621.30N**	CPT Number	**CB7**
Contract	**11596**	Latitude / Longitude			
Client Name/Ref	**Energinet Eltransmission A/S/384_20_ENE**	Water Depth (mMSL)	**30.99**		
Vessel	**MV Ocean Vantage**	Date of Test	**29/04/2021**	Page: 1/3	
		Cone No.(size)/α Factor	**181005 (10cm^2) / 0.73**	QC Status	
		Base Inclination	**X = 1.2° / Y = 0.7°**	Preliminary / Draft / Final	
		CRS **ETRS89**		**JK/BC** (29/04/2021) / **DR** (10/06/2021) / **SMc** (10/11/2021)	

Comments: Cone class 2. Continuous seabed CPT. Final depth 20.89m. Test terminated due to acquisition software crashing mid test losing communication with the cone

Gardline

Preliminary Investigation, Hesselø OWF

IN SITU CPTU TESTING - DERIVED PARAMETERS



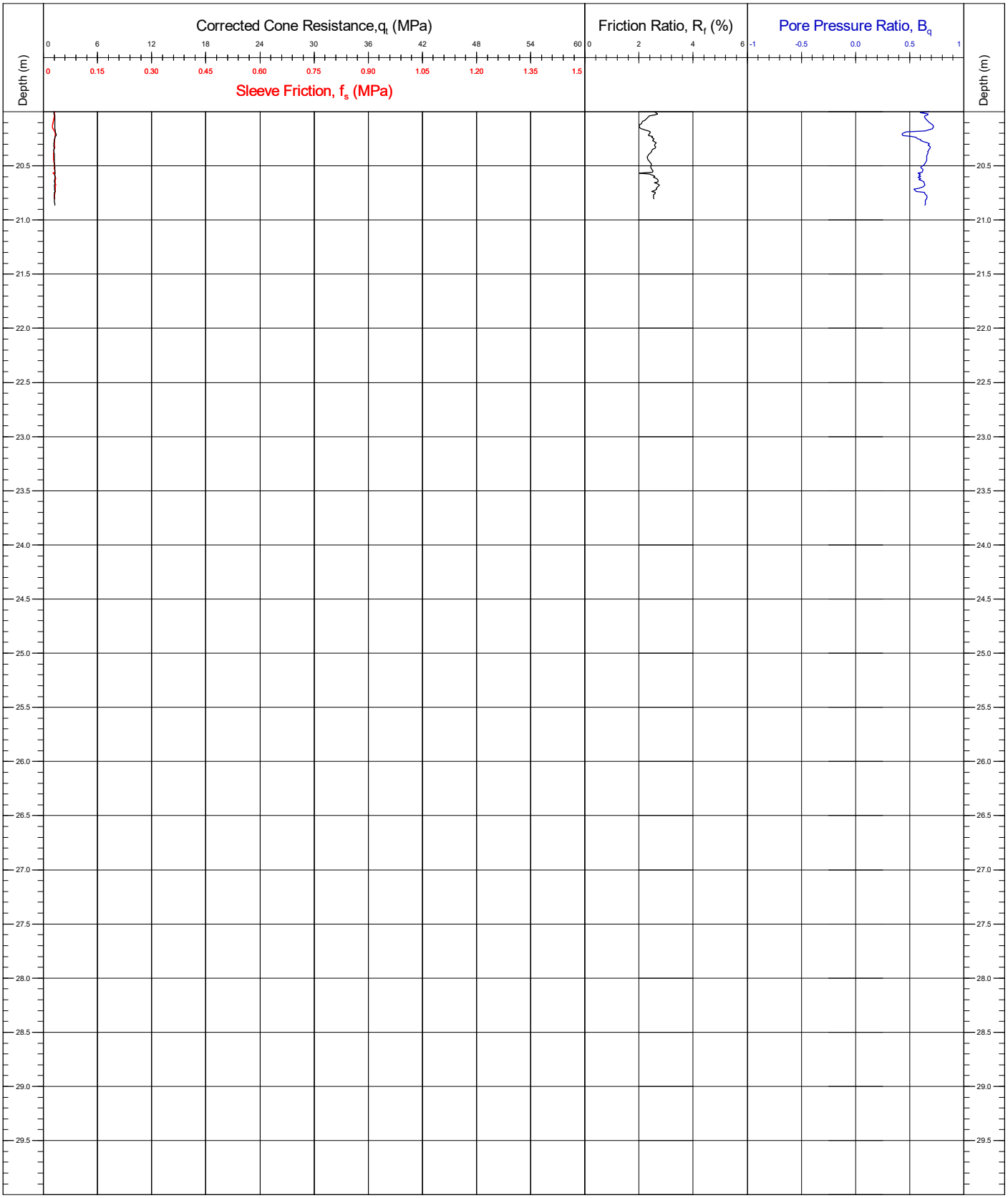
Area	**Kattegat Sea**	Coordinates	**673538.00E** **6259621.30N**	CPT Number	**CB7**
Contract	**11596**	Latitude / Longitude			
Client Name/Ref	**Energinet Eltransmission A/S/384_20_ENE**	Water Depth (mMSL)	**30.99**		
Vessel	**MV Ocean Vantage**	Date of Test	**29/04/2021**	Page: 2/3	
		Cone No.(size)/α Factor	**181005 (10cm^2) / 0.73**	QC Status	
		Base Inclination	**X = 1.2° / Y = 0.7°**	Preliminary / Draft / Final	
		CRS **ETRS89**		**JK/BC** (29/04/2021) / **DR** (10/06/2021) / **SMc** (10/11/2021)	

Comments: Cone class 2. Continuous seabed CPT. Final depth 20.89m. Test terminated due to acquisition software crashing mid test losing communication with the cone

Gardline

Preliminary Investigation, Hesselø OWF

IN SITU CPTU TESTING - DERIVED PARAMETERS



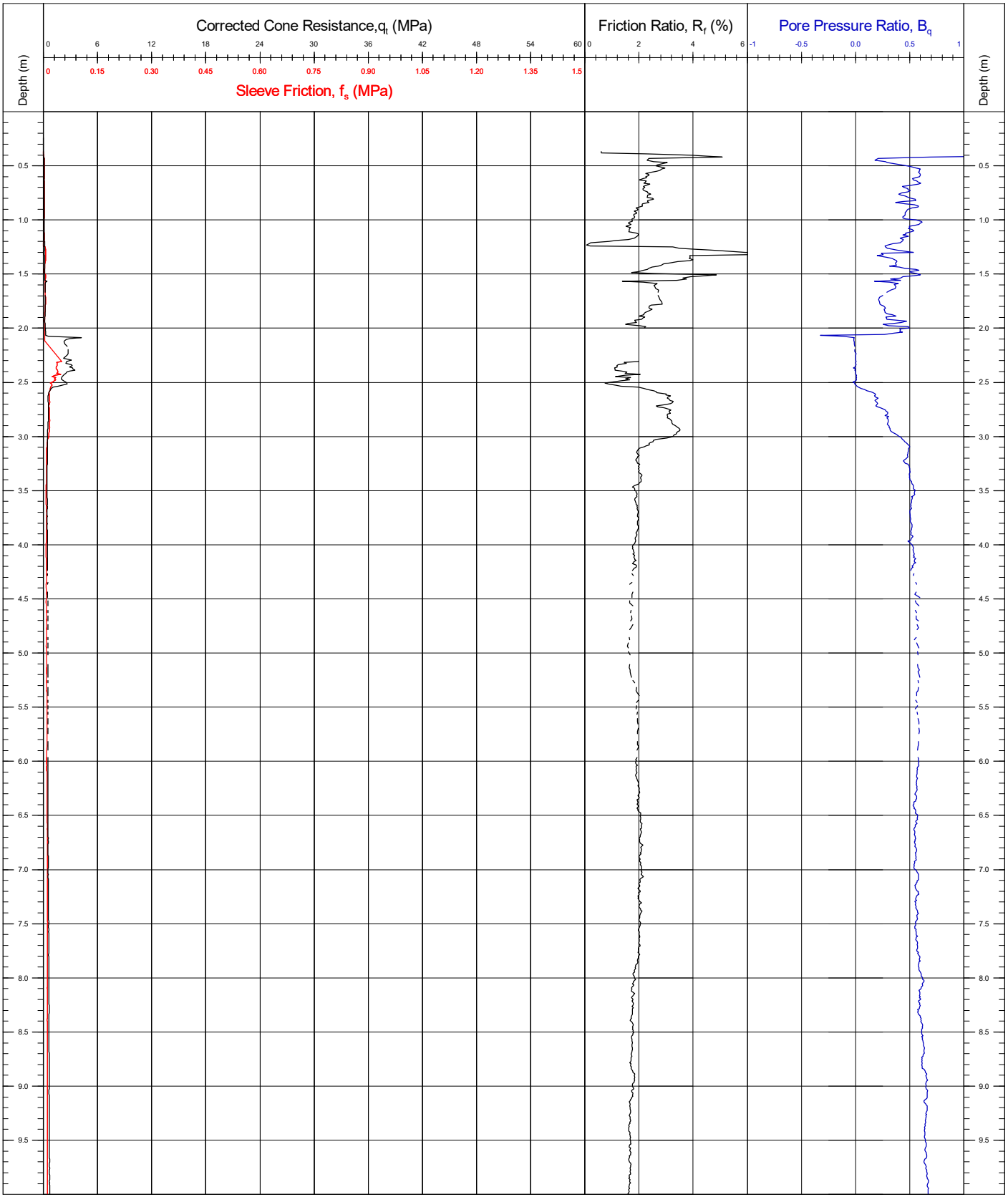
Area	**Kattegat Sea**	Coordinates	**673538.00E 6259621.30N**	CPT Number	**CB7**
Contract	**11596**	Latitude / Longitude			
Client Name/Ref	**Energinet Eltransmission A/S/384_20_ENE**	Water Depth (mMSL)	**30.99**		
Vessel	**MV Ocean Vantage**	Date of Test	**29/04/2021**	Page: 3/3	
		Cone No.(size)/α Factor	**181005 (10cm^2) / 0.73**	QC Status	
		Base Inclination	**X = 1.2° / Y = 0.7°**	Preliminary: **JK/BC (29/04/2021)**	Draft: **DR (10/06/2021)**
		CRS **ETRS89**			Final: **SMc (10/11/2021)**

Comments: Cone class 2. Continuous seabed CPT. Final depth 20.89m. Test terminated due to acquisition software crashing mid test losing communication with the cone

Gardline

Preliminary Investigation, Hesselø OWF

IN SITU CPTU TESTING - DERIVED PARAMETERS

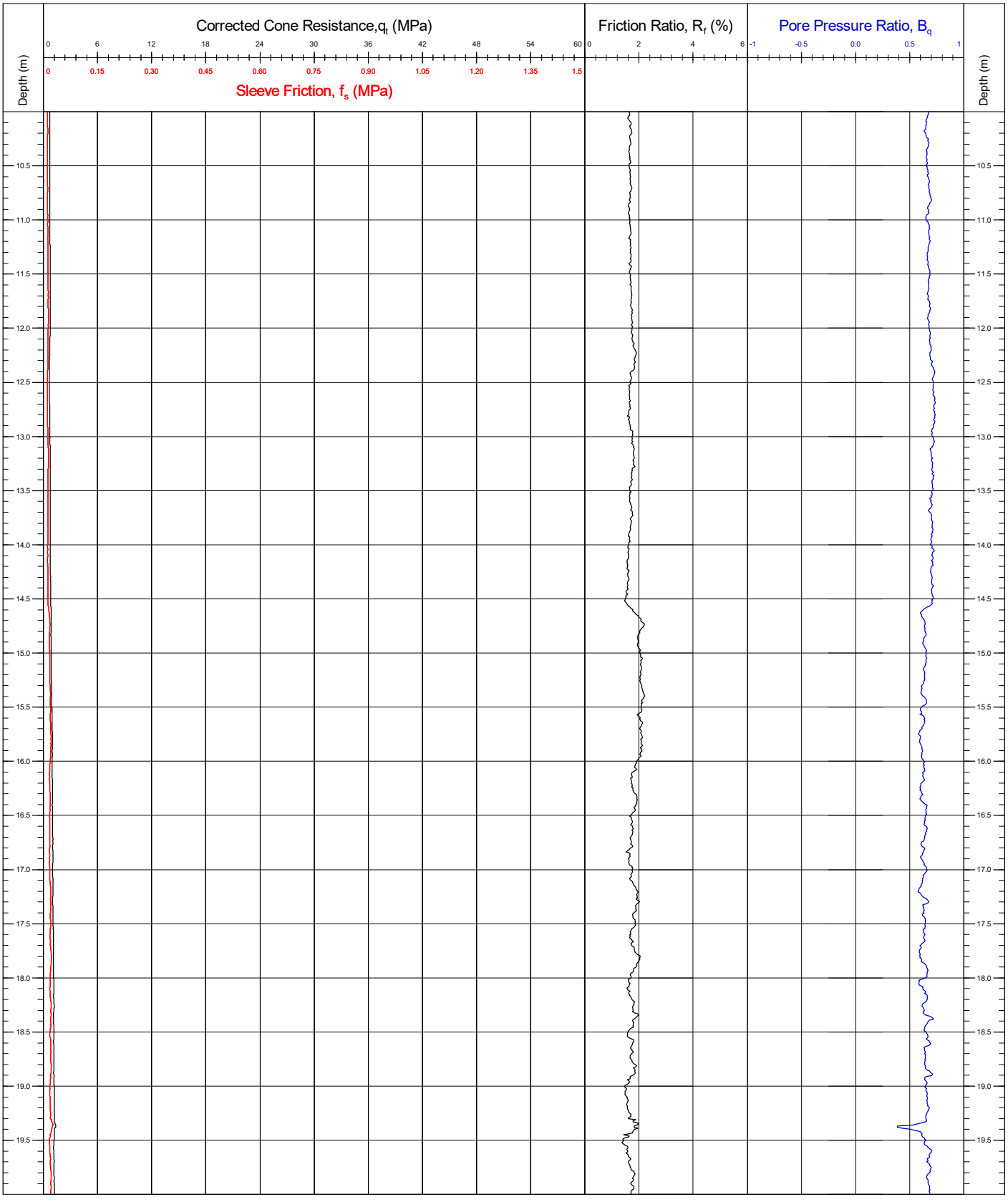


Area	**Kattegat Sea**	Coordinates	**673538.50E 6259616.40N**	CPT Number	**CB7a**
Contract	**11596**	Latitude / Longitude			
Client Name/Ref	**Energinet Eltransmission A/S/384_20_ENE**	Water Depth (mMSL)	**31.08**		
Vessel	**MV Ocean Vantage**	Date of Test (Start/End)	**29/04/2021 to 30/04/2021**	Page: 1/4	
Comments: Cone class 1. Continuous seabed CPT. Bumpover location. Final depth 31.03m. Dissipation tests performed at 20m and 30m.Test terminated due to sleeve friction refusal		Cone No.(size)/α Factor	**181005 (10cm^2) / 0.73**	QC Status	
		Base Inclination	**X = 1.2° / Y = 0.8°**	Preliminary / Draft / Final	
		CRS **ETRS89**		**JK/BC** (30/04/2021) / **DR** (10/06/2021) / **SMc** (10/11/2021)	

Gardline

Preliminary Investigation, Hesselø OWF

IN SITU CPTU TESTING - DERIVED PARAMETERS

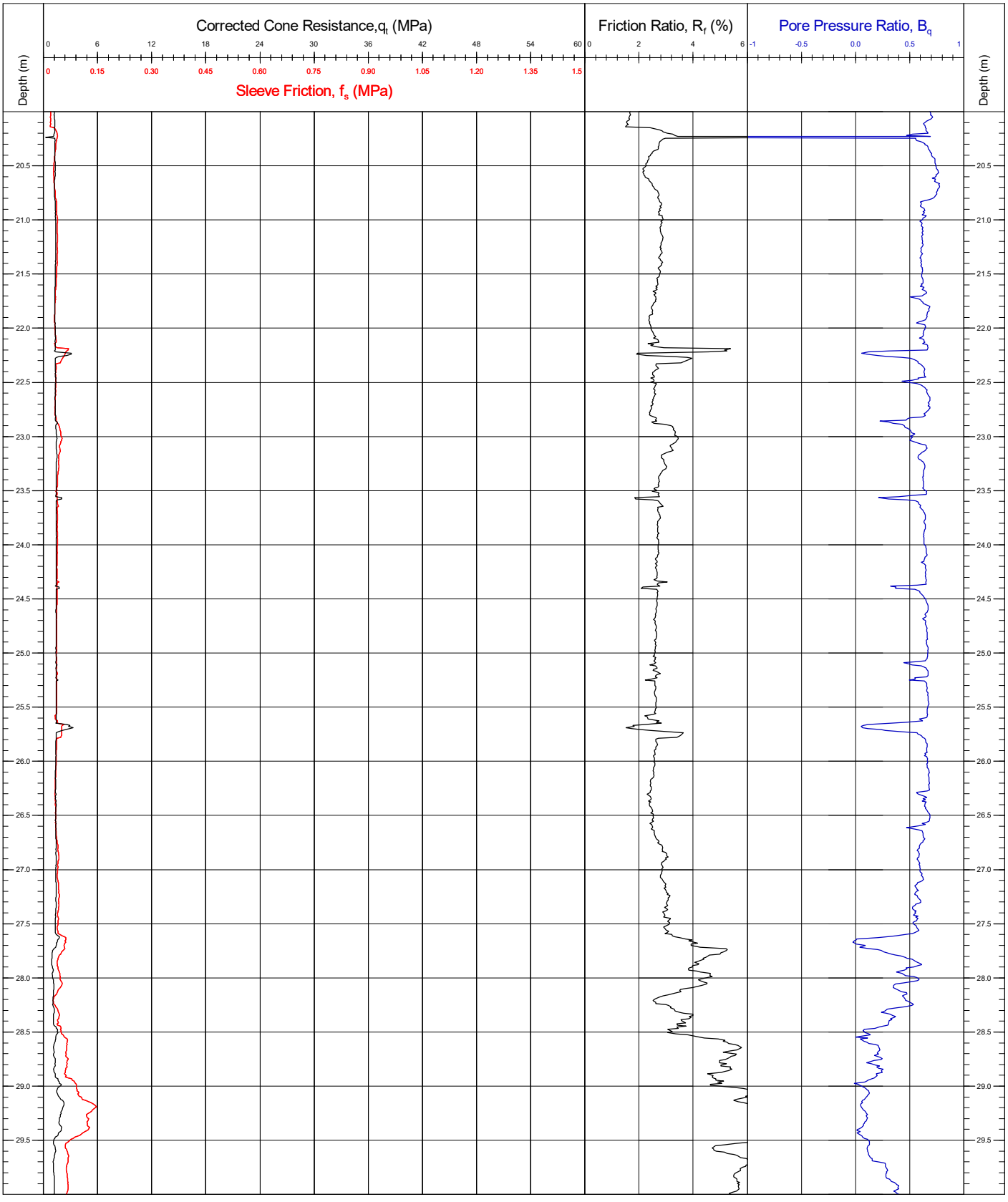


Area	**Kattegat Sea**	Coordinates	**673538.50E 6259616.40N**	CPT Number	**CB7a**
Contract	**11596**	Latitude / Longitude			
Client Name/Ref	**Energinet Eltransmission A/S/384_20_ENE**	Water Depth (mMSL)	**31.08**		
Vessel	**MV Ocean Vantage**	Date of Test (Start/End)	**29/04/2021 to 30/04/2021**	Page: 2/4	
Comments: Cone class 1. Continuous seabed CPT. Bumpover location. Final depth 31.03m. Dissipation tests performed at 20m and 30m.Test terminated due to sleeve friction refusal		Cone No.(size)/α Factor	**181005 (10cm^2) / 0.73**	QC Status	
		Base Inclination	**X = 1.2° / Y = 0.8°**	Preliminary / Draft / Final	
		CRS **ETRS89**		**JK/BC** (30/04/2021) / **DR** (10/06/2021) / **SMc** (10/11/2021)	

Gardline

Preliminary Investigation, Hesselø OWF

IN SITU CPTU TESTING - DERIVED PARAMETERS



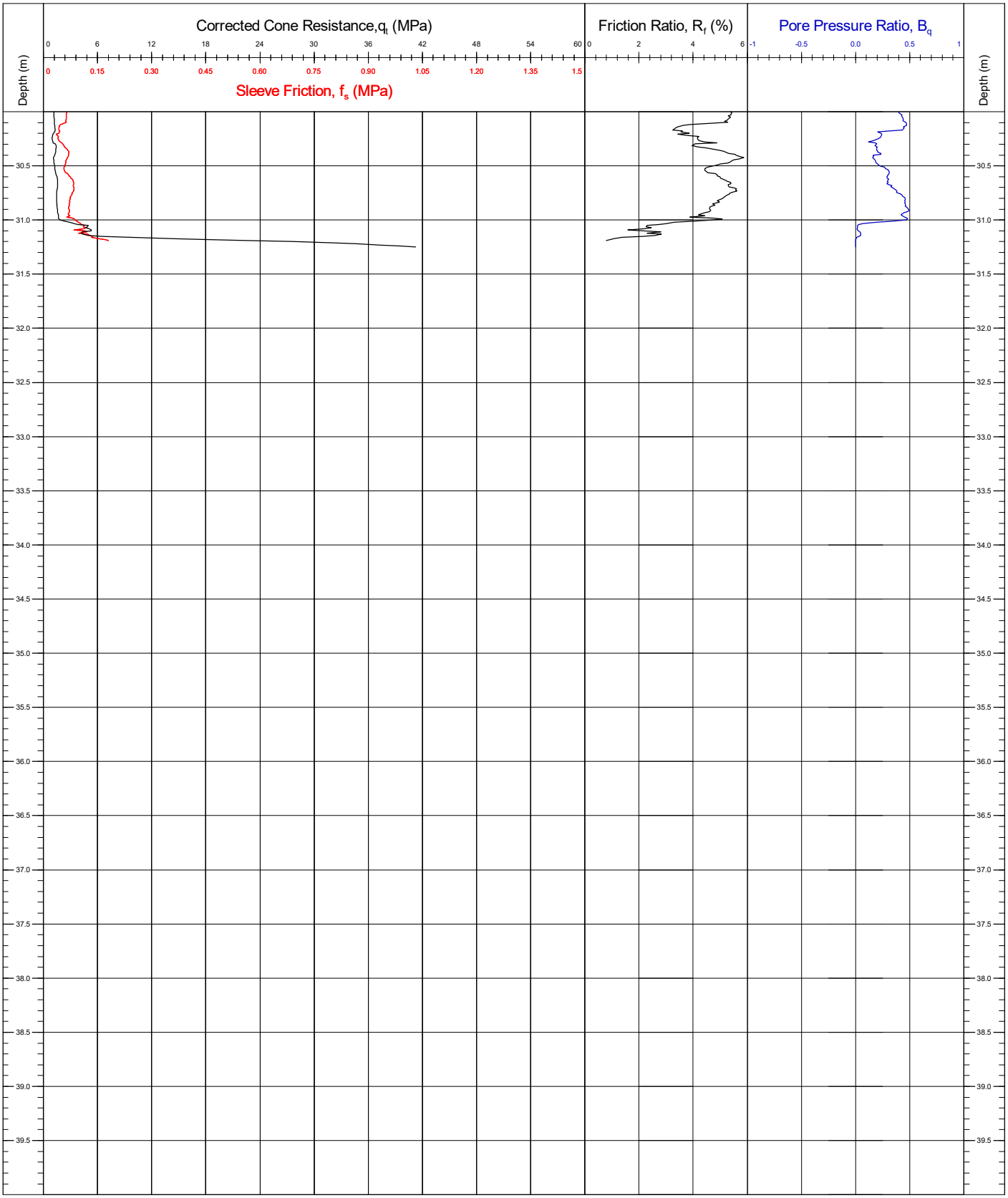
Area	**Kattegat Sea**	Coordinates	**673538.50E 6259616.40N**	CPT Number	**CB7a**
Contract	**11596**	Latitude / Longitude			
Client Name/Ref	**Energinet Eltransmission A/S/384_20_ENE**	Water Depth (mMSL)	**31.08**		
Vessel	**MV Ocean Vantage**	Date of Test (Start/End)	**29/04/2021 to 30/04/2021**	Page: 3/4	
		Cone No.(size)/α Factor	**181005 (10cm^2) / 0.73**	QC Status	
		Base Inclination	**X = 1.2° / Y = 0.8°**	Preliminary: **JK/BC** (30/04/2021)	Draft: **DR** (10/06/2021)
		CRS **ETRS89**			Final: **SMc** (10/11/2021)

Comments: Cone class 1. Continuous seabed CPT. Bumpover location. Final depth 31.03m. Dissipation tests performed at 20m and 30m.Test terminated due to sleeve friction refusal

Gardline

Preliminary Investigation, Hesselø OWF

IN SITU CPTU TESTING - DERIVED PARAMETERS

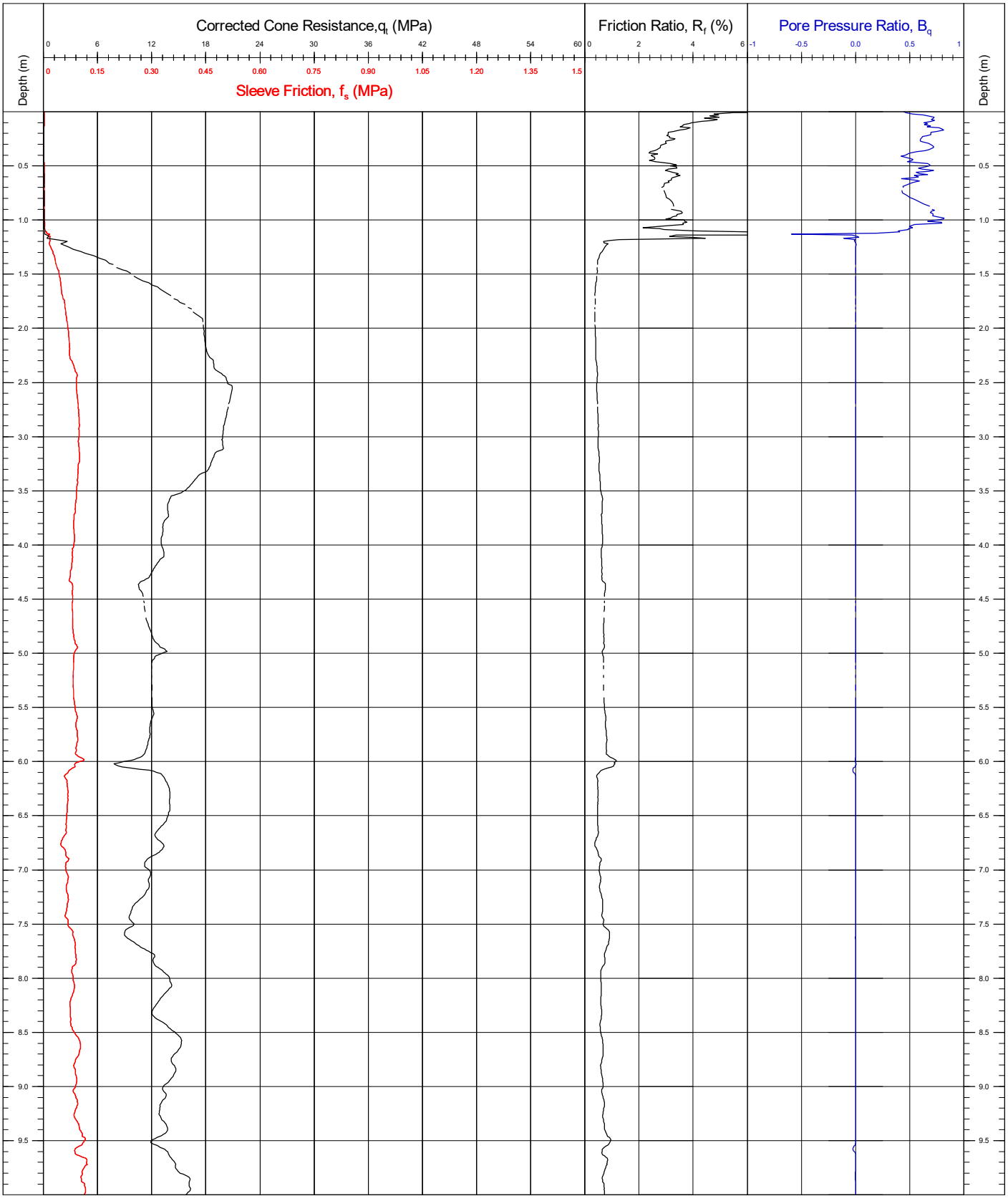


Area	**Kattegat Sea**	Coordinates	**673538.50E 6259616.40N**	CPT Number	**CB7a**
Contract	**11596**	Latitude / Longitude			
Client Name/Ref	**Energinet Eltransmission A/S/384_20_ENE**	Water Depth (mMSL)	**31.08**		
Vessel	**MV Ocean Vantage**	Date of Test (Start/End)	**29/04/2021 to 30/04/2021**	Page: 4/4	
Comments: Cone class 1. Continuous seabed CPT. Bumpover location. Final depth 31.03m. Dissipation tests performed at 20m and 30m.Test terminated due to sleeve friction refusal		Cone No.(size)/α Factor	**181005 (10cm^2) / 0.73**	QC Status	
		Base Inclination	**X = 1.2° / Y = 0.8°**	Preliminary: **JK/BC (30/04/2021)**	Draft: **DR (10/06/2021)**
		CRS **ETRS89**			Final: **SMc (10/11/2021)**

Gardline

Preliminary Investigation, Hesselø OWF

IN SITU CPTU TESTING - DERIVED PARAMETERS



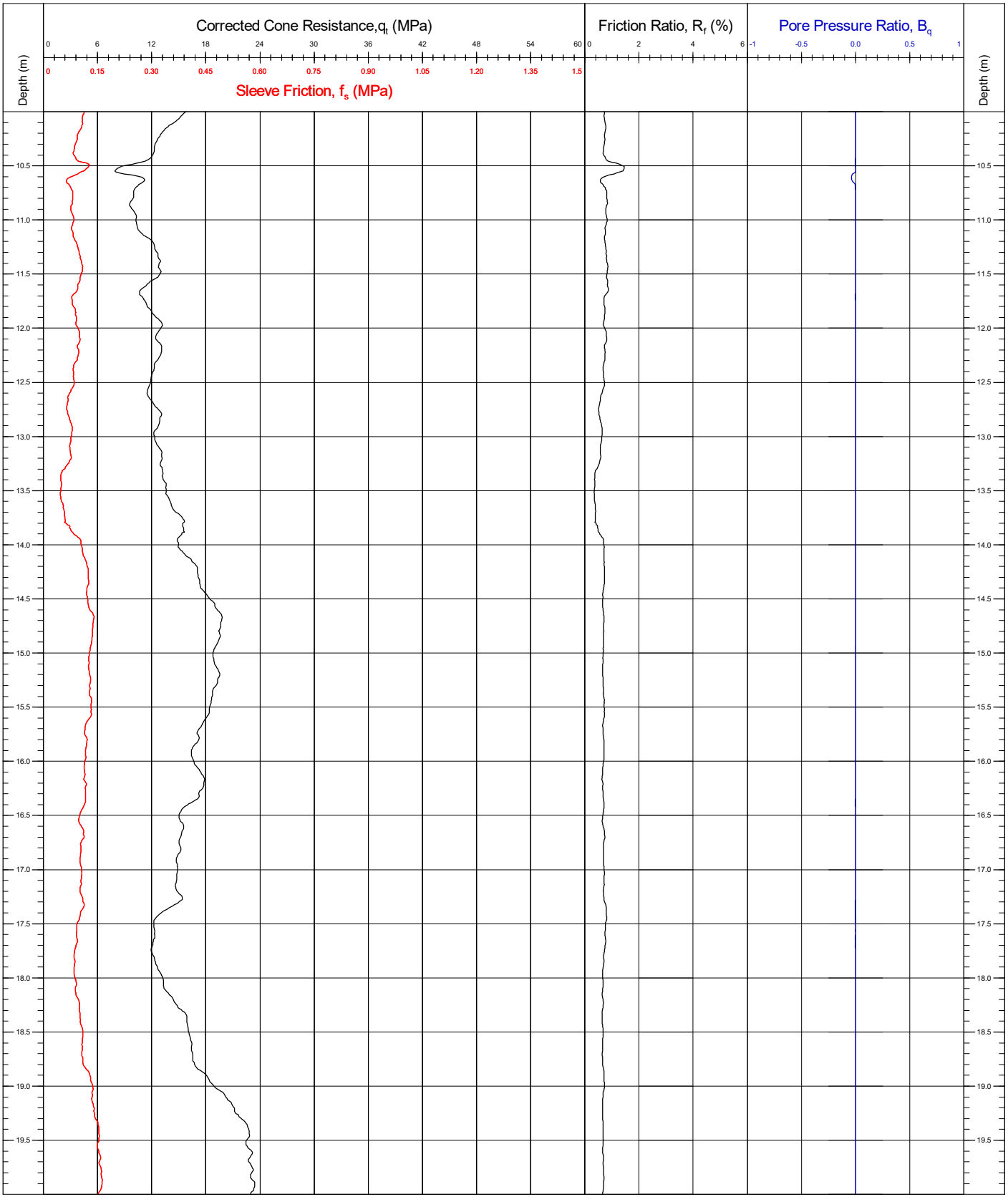
Area	**Kattegat Sea**	Coordinates	**679824.30E 6248908.70N**	CPT Number	**CB8**
Contract	**11596**	Latitude / Longitude			
Client Name/Ref	**Energinet Eltransmission A/S/384_20_ENE**	Water Depth (mMSL)	**30.69**		
Vessel	**MV Ocean Vantage**	Date of Test	**27/04/2021**	Page: 1/3	
		Cone No.(size)/α Factor	**130206 (10cm^2) / 0.77**	QC Status	
		Base Inclination	**X = 0.1° / Y = 0.0°**	Preliminary / Draft / Final	
		CRS **ETRS89**		**JK/BC** (27/04/2021) / **DR** (10/06/2021) / **SMc** (10/11/2021)	

Comments: Cone Class1. Continuous seabed CPT. Final depth 24.61m. Test was terminated at operators discretion due to an increase in cone inclination to prevent damage to equipment.

Gardline

Preliminary Investigation, Hesselø OWF

IN SITU CPTU TESTING - DERIVED PARAMETERS



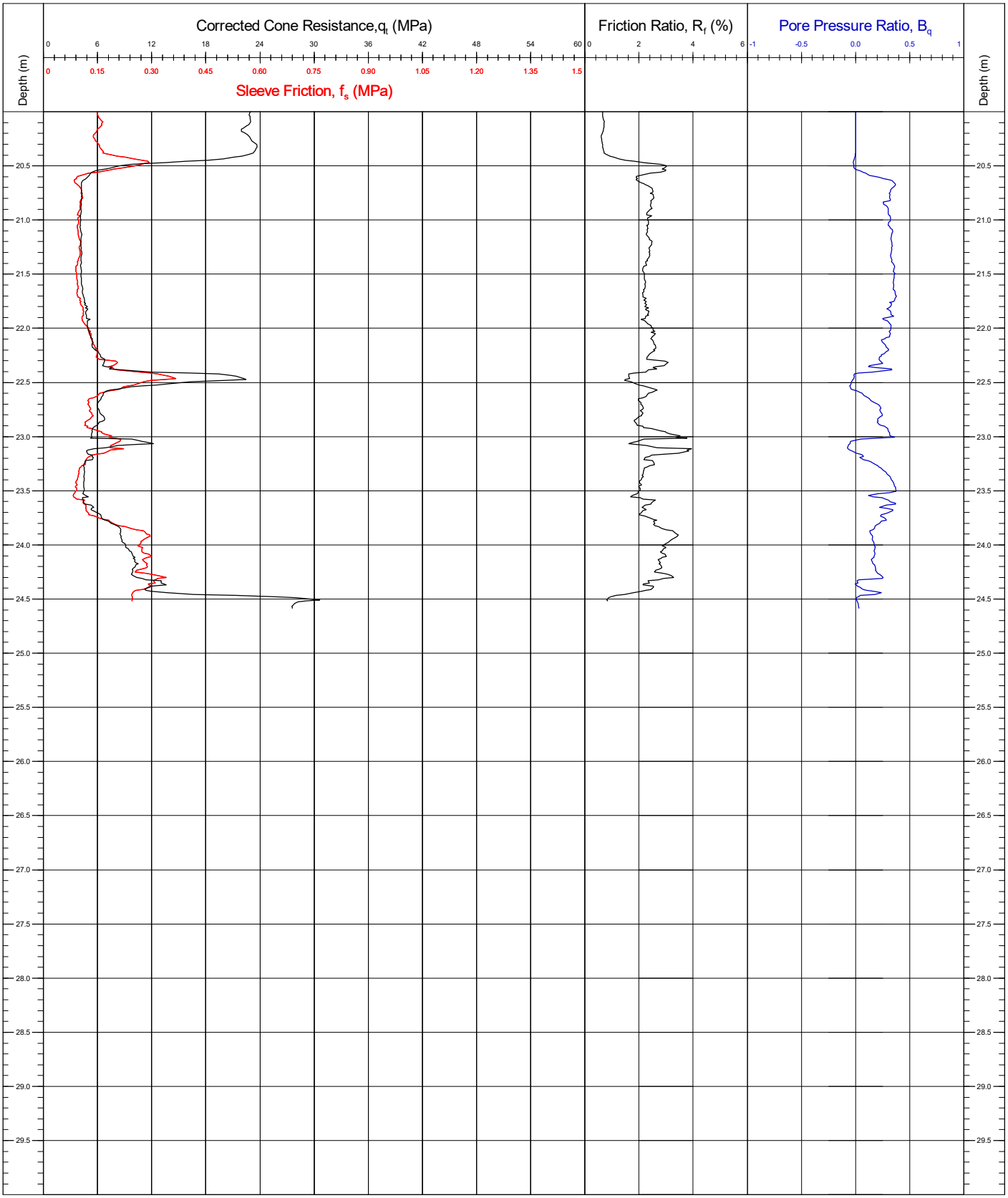
Area	**Kattegat Sea**	Coordinates	**679824.30E 6248908.70N**	CPT Number	**CB8**
Contract	**11596**	Latitude / Longitude			
Client Name/Ref	**Energinet Eltransmission A/S/384_20_ENE**	Water Depth (mMSL)	**30.69**		
Vessel	**MV Ocean Vantage**	Date of Test	**27/04/2021**	Page: 2/3	
		Cone No.(size)/α Factor	**130206 (10cm^2) / 0.77**	QC Status	
		Base Inclination	**X = 0.1° / Y = 0.0°**	Preliminary: **JK/BC** (27/04/2021)	Draft: **DR** (10/06/2021)
		CRS **ETRS89**			Final: **SMc** (10/11/2021)

Comments: Cone Class1. Continuous seabed CPT. Final depth 24.61m. Test was terminated at operators discretion due to an increase in cone inclination to prevent damage to equipment.

Gardline

Preliminary Investigation, Hesselø OWF

IN SITU CPTU TESTING - DERIVED PARAMETERS

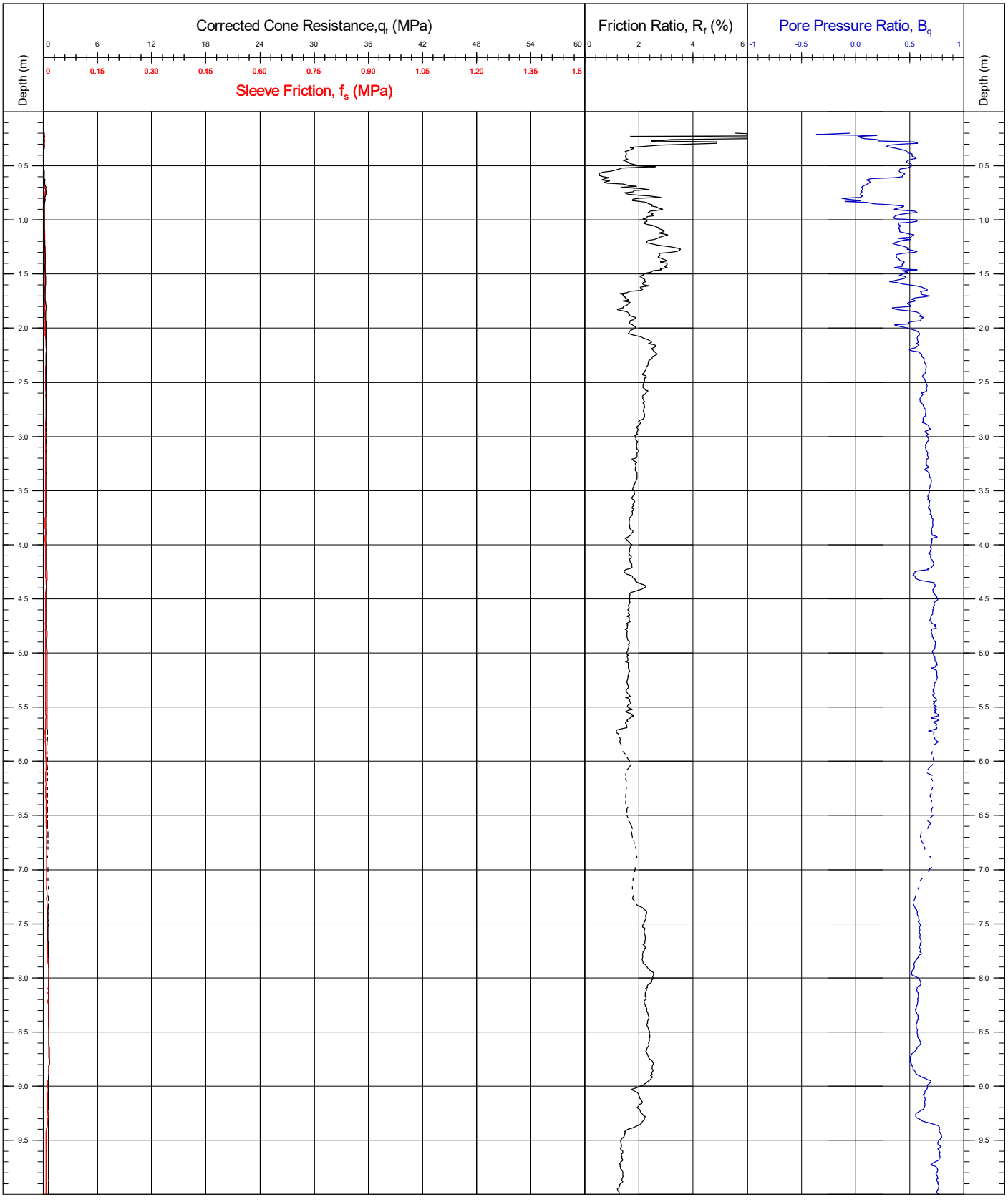


Area	**Kattegat Sea**	Coordinates	**679824.30E 6248908.70N**	CPT Number	**CB8**
Contract	**11596**	Latitude / Longitude			
Client Name/Ref	**Energinet Eltransmission A/S/384_20_ENE**	Water Depth (mMSL)	**30.69**		
Vessel	**MV Ocean Vantage**	Date of Test	**27/04/2021**	Page: 3/3	
		Cone No.(size)/α Factor	**130206 (10cm^2) / 0.77**	QC Status	
		Base Inclination	**X = 0.1° / Y = 0.0°**	Preliminary / Draft / Final	
		CRS **ETRS89**		**JK/BC** (27/04/2021) / **DR** (10/06/2021) / **SMc** (10/11/2021)	

Comments: Cone Class1. Continuous seabed CPT. Final depth 24.61m. Test was terminated at operators discretion due to an increase in cone inclination to prevent damage to equipment.

Preliminary Investigation, Hesselø OWF

IN SITU CPTU TESTING - DERIVED PARAMETERS



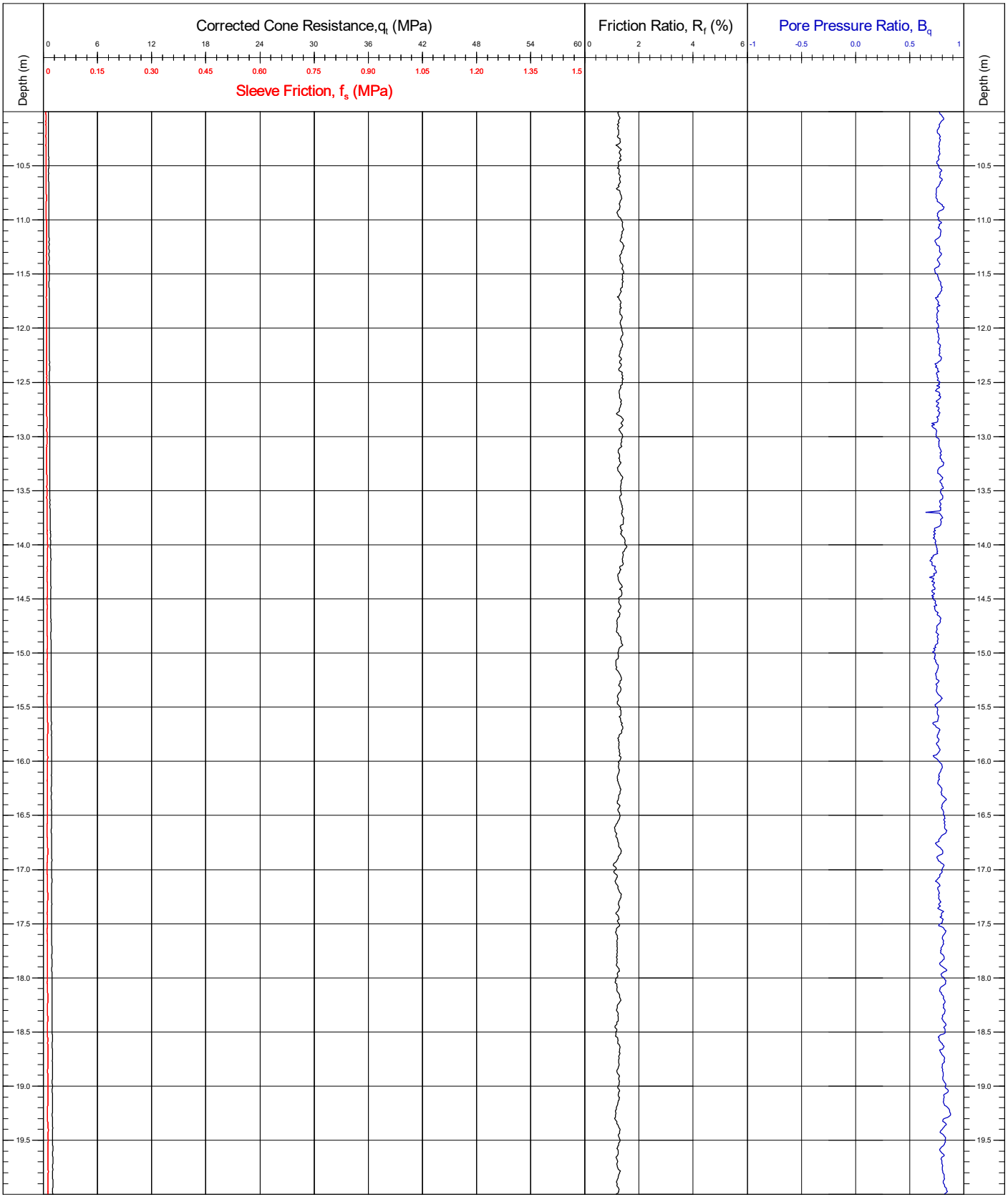
Area	**Kattegat Sea**	Coordinates	**677390.60E 6276209.10N**	CPT Number	**CB9**
Contract	**11596**	Latitude / Longitude			
Client Name/Ref	**Energinet Eltransmission A/S/384_20_ENE**	Water Depth (mMSL)	**30.93**		
Vessel	**MV Ocean Vantage**	Date of Test	**02/05/2021**	Page: 1/5	
		Cone No.(size)/α Factor	**130909 (10cm^2) / 0.82**	QC Status	
		Base Inclination	**X = 1.1° / Y = 0.9°**	Preliminary / Draft / Final	
		CRS **ETRS89**		**JK/BC** (02/05/2021) / **DR** (10/06/2021) / **SMc** (10/11/2021)	

Comments: Cone class 2. Continuous seabed CPT. Final depth 41.67. Test terminated due to increasing cone inclination of 3 degrees within a metre

Gardline

Preliminary Investigation, Hesselø OWF

IN SITU CPTU TESTING - DERIVED PARAMETERS



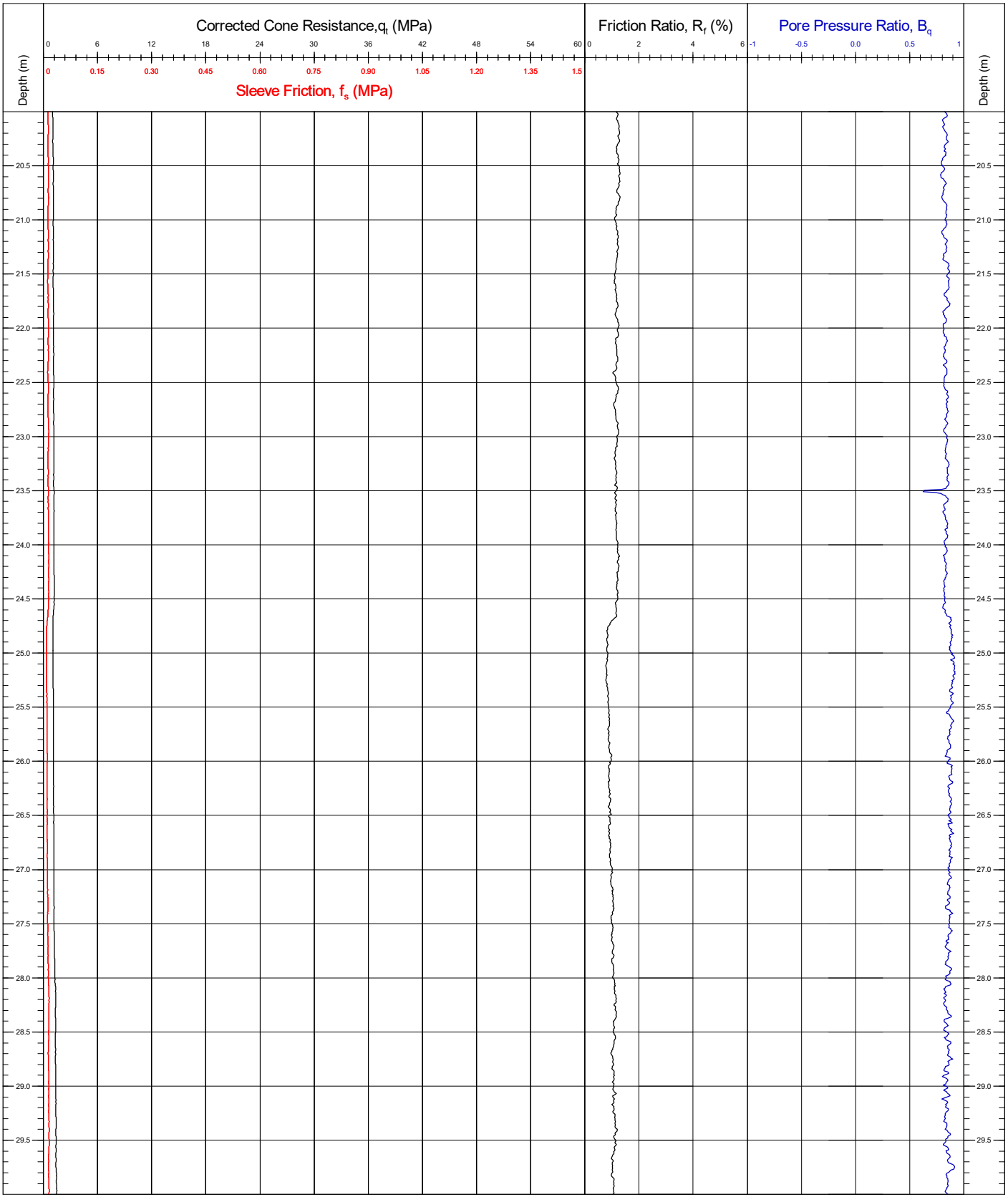
Area	**Kattegat Sea**	Coordinates	**677390.60E**	**6276209.10N**	CPT Number **CB9**
Contract	**11596**	Latitude / Longitude			
Client Name/Ref	**Energinet Eltransmission A/S/384_20_ENE**	Water Depth (mMSL)	**30.93**		
Vessel	**MV Ocean Vantage**	Date of Test	**02/05/2021**		Page: 2/5
		Cone No.(size)/α Factor	**130909 (10cm^2) / 0.82**		QC Status
		Base Inclination	**X = 1.1° / Y = 0.9°**		Preliminary: **JK/BC** (02/05/2021); Draft: **DR** (10/06/2021); Final: **SMc** (10/11/2021)
		CRS **ETRS89**			

Comments: Cone class 2. Continuous seabed CPT. Final depth 41.67. Test terminated due to increasing cone inclination of 3 degrees within a metre

Gardline

Preliminary Investigation, Hesselø OWF

IN SITU CPTU TESTING - DERIVED PARAMETERS



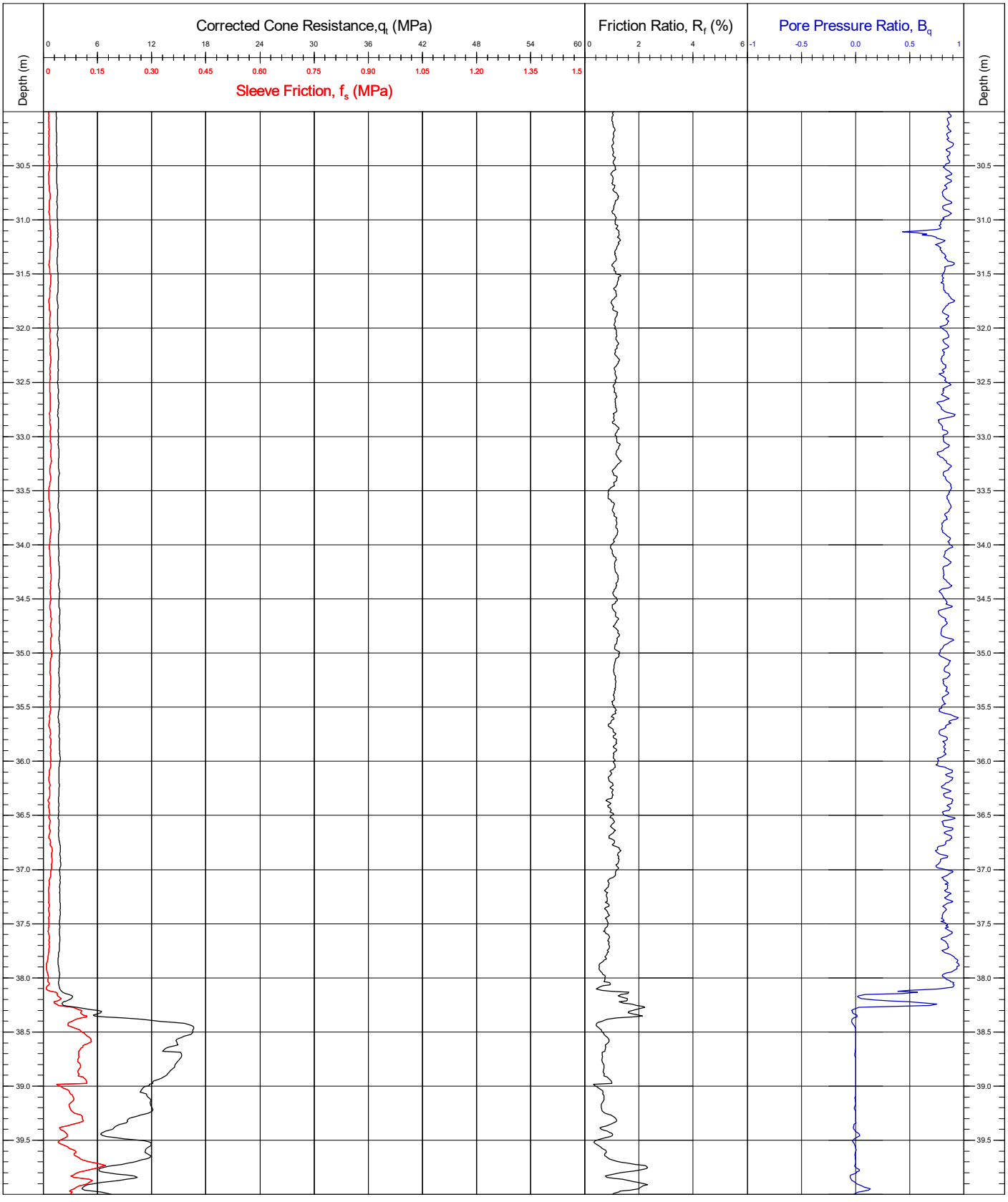
Area	**Kattegat Sea**	Coordinates	**677390.60E**	**6276209.10N**	CPT Number **CB9**
Contract	**11596**	Latitude / Longitude			
Client Name/Ref	**Energinet Eltransmission A/S/384_20_ENE**	Water Depth (mMSL)	**30.93**		Page: 3/5
Vessel	**MV Ocean Vantage**	Date of Test	**02/05/2021**		QC Status
		Cone No.(size)/α Factor	**130909 (10cm^2) / 0.82**		Preliminary: **JK/BC** (02/05/2021) · Draft: **DR** (10/06/2021) · Final: **SMc** (10/11/2021)
		Base Inclination	**X = 1.1° / Y = 0.9°**		
		CRS **ETRS89**			

Comments: Cone class 2. Continuous seabed CPT. Final depth 41.67. Test terminated due to increasing cone inclination of 3 degrees within a metre

Gardline

Preliminary Investigation, Hesselø OWF

IN SITU CPTU TESTING - DERIVED PARAMETERS



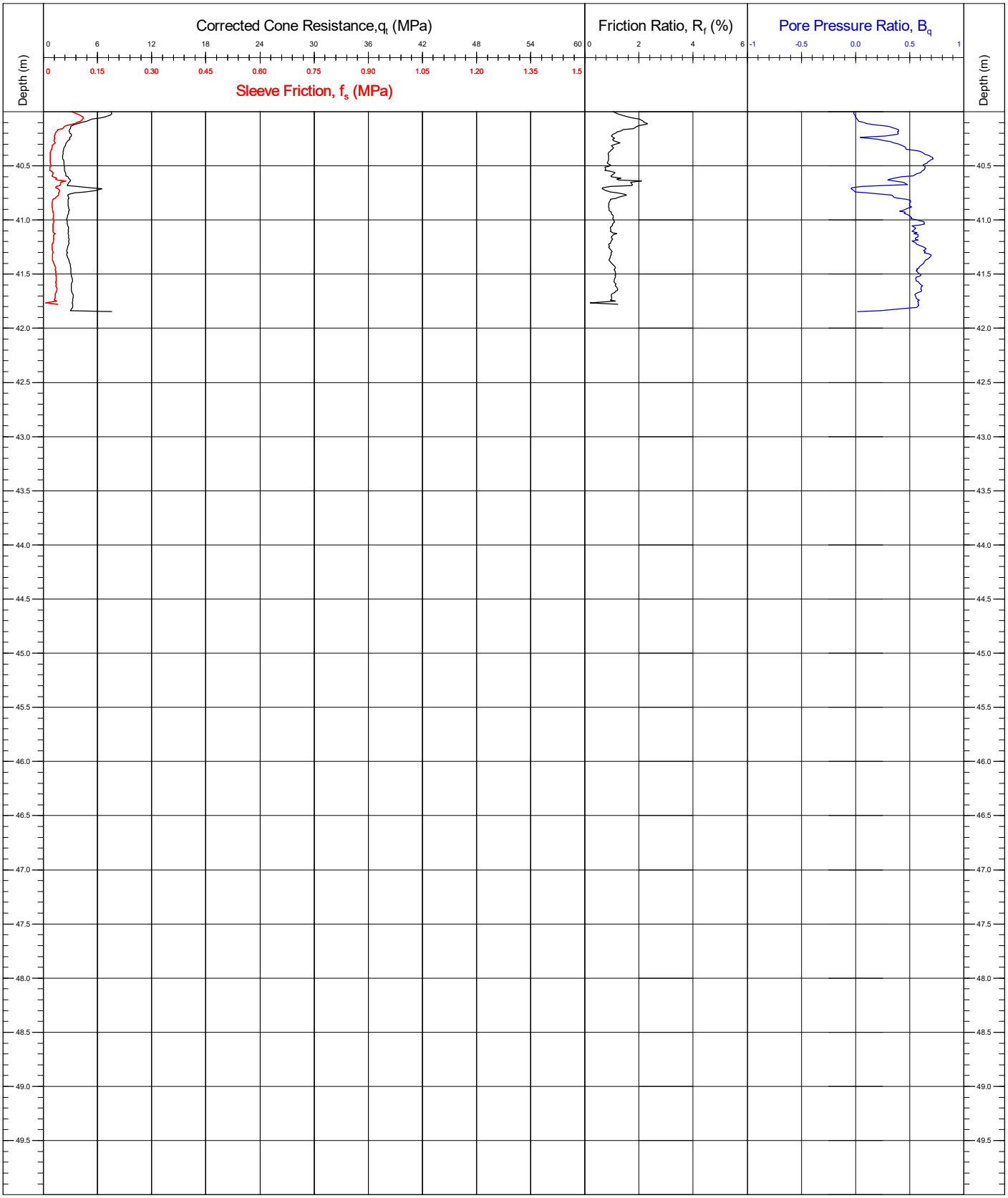
Area	**Kattegat Sea**	Coordinates	**677390.60E** **6276209.10N**	CPT Number	**CB9**
Contract	**11596**	Latitude / Longitude			
Client Name/Ref	**Energinet Eltransmission A/S/384_20_ENE**	Water Depth (mMSL)	**30.93**		
Vessel	**MV Ocean Vantage**	Date of Test	**02/05/2021**	Page: 4/5	
		Cone No.(size)/α Factor	**130909 (10cm^2) / 0.82**	QC Status	
		Base Inclination	**X = 1.1° / Y = 0.9°**	Preliminary: **JK/BC** (02/05/2021)	Draft: **DR** (10/06/2021)
		CRS **ETRS89**			Final: **SMc** (10/11/2021)

Comments: Cone class 2. Continuous seabed CPT. Final depth 41.67. Test terminated due to increasing cone inclination of 3 degrees within a metre

Gardline

Preliminary Investigation, Hesselø OWF

IN SITU CPTU TESTING - DERIVED PARAMETERS



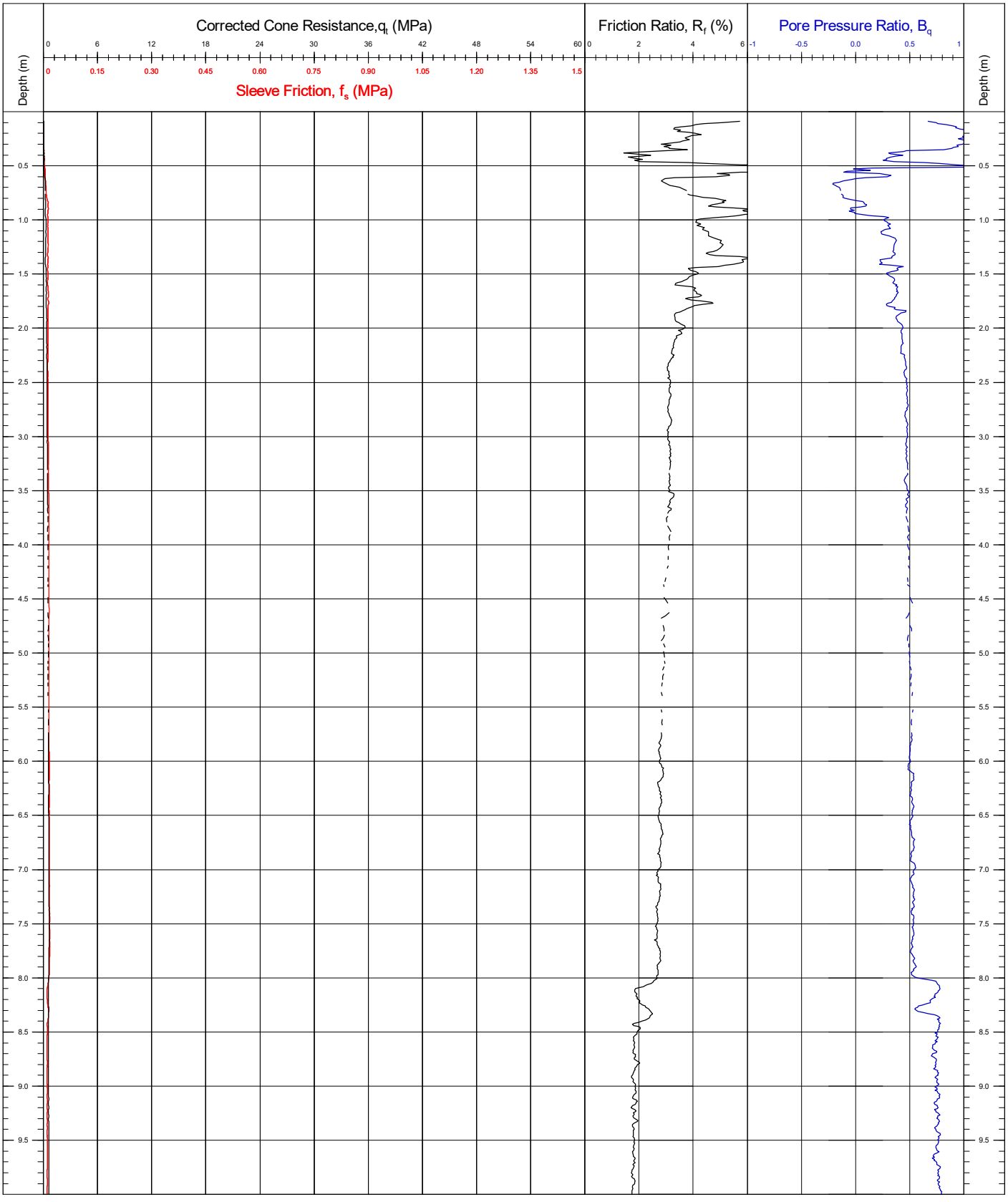
Area	**Kattegat Sea**	Coordinates	**677390.60E 6276209.10N**	CPT Number	**CB9**
Contract	**11596**	Latitude / Longitude			
Client Name/Ref	**Energinet Eltransmission A/S/384_20_ENE**	Water Depth (mMSL)	**30.93**		
Vessel	**MV Ocean Vantage**	Date of Test	**02/05/2021**	Page: 5/5	
		Cone No.(size)/α Factor	**130909 (10cm^2) / 0.82**	QC Status	
		Base Inclination	**X = 1.1° / Y = 0.9°**	Preliminary: **JK/BC** (02/05/2021)	Draft: **DR** (10/06/2021)
		CRS **ETRS89**			Final: **SMc** (10/11/2021)

Comments: Cone class 2. Continuous seabed CPT. Final depth 41.67. Test terminated due to increasing cone inclination of 3 degrees within a metre

Gardline

Preliminary Investigation, Hesselø OWF

IN SITU CPTU TESTING - DERIVED PARAMETERS

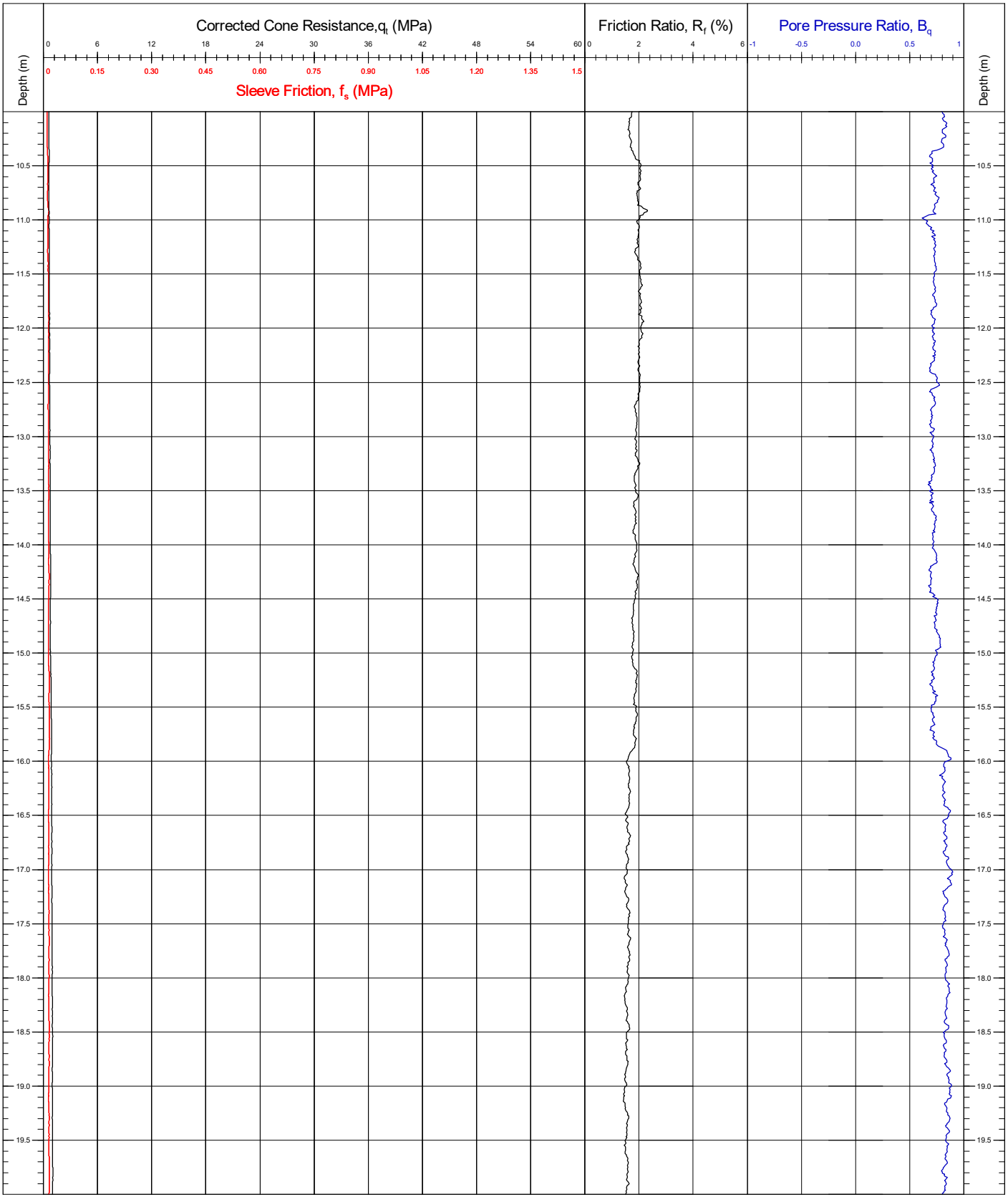


Area	**Kattegat Sea**	Coordinates	**678760.10E 6261514.80N**	CPT Number	**CB10**
Contract	**11596**	Latitude / Longitude			
Client Name/Ref	**Energinet Eltransmission A/S/384_20_ENE**	Water Depth (mMSL)	**32.04**		
Vessel	**MV Ocean Vantage**	Date of Test	**26/04/2021**	Page: 1/3	
Comments: Cone Class1. Continuous seabed CPT. Final depth 28.90m. Test was terminated at operators discretion to avoid damage to equipment due to lack of lateral rod support from mudline		Cone No.(size)/α Factor	**120910 (10cm^2) / 0.81**	QC Status	
		Base Inclination	**X = 0.1° / Y = 0.0°**	Preliminary: **JK/BC (26/04/2021)**	Draft: **DR (10/06/2021)**
		CRS **ETRS89**			Final: **SMc (10/11/2021)**

Gardline

Preliminary Investigation, Hesselø OWF

IN SITU CPTU TESTING - DERIVED PARAMETERS



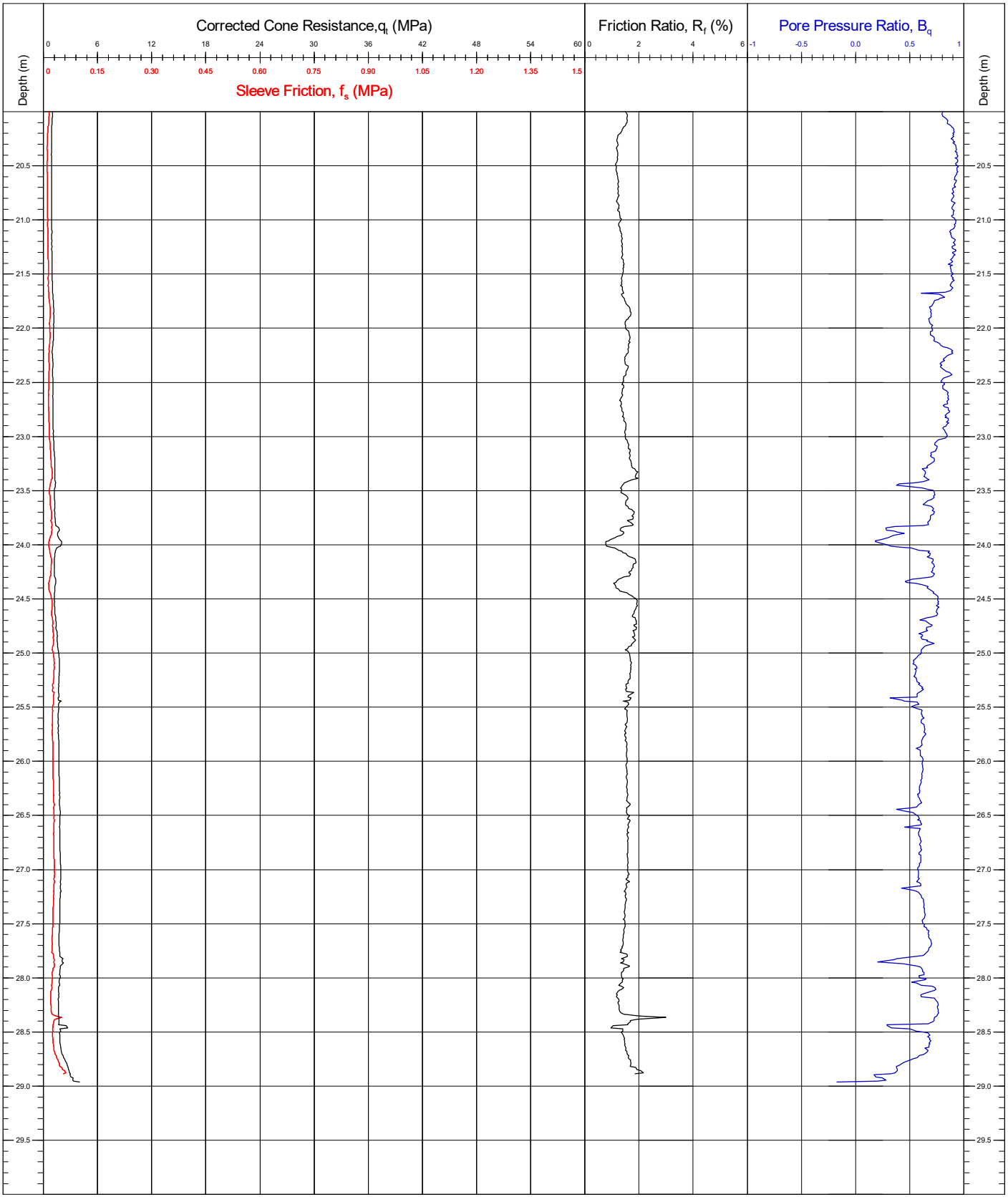
Area	**Kattegat Sea**	Coordinates	**678760.10E 6261514.80N**	CPT Number	**CB10**
Contract	**11596**	Latitude / Longitude			
Client Name/Ref	**Energinet Eltransmission A/S/384_20_ENE**	Water Depth (mMSL)	**32.04**		
Vessel	**MV Ocean Vantage**	Date of Test	**26/04/2021**	Page: 2/3	
		Cone No.(size)/α Factor	**120910 (10cm^2) / 0.81**	QC Status	
		Base Inclination	**X = 0.1° / Y = 0.0°**	Preliminary: **JK/BC (26/04/2021)**	Draft: **DR (10/06/2021)**
		CRS **ETRS89**			Final: **SMc (10/11/2021)**

Comments: Cone Class1. Continuous seabed CPT. Final depth 28.90m. Test was terminated at operators discretion to avoid damage to equipment due to lack of lateral rod support from mudline

Gardline

Preliminary Investigation, Hesselø OWF

IN SITU CPTU TESTING - DERIVED PARAMETERS



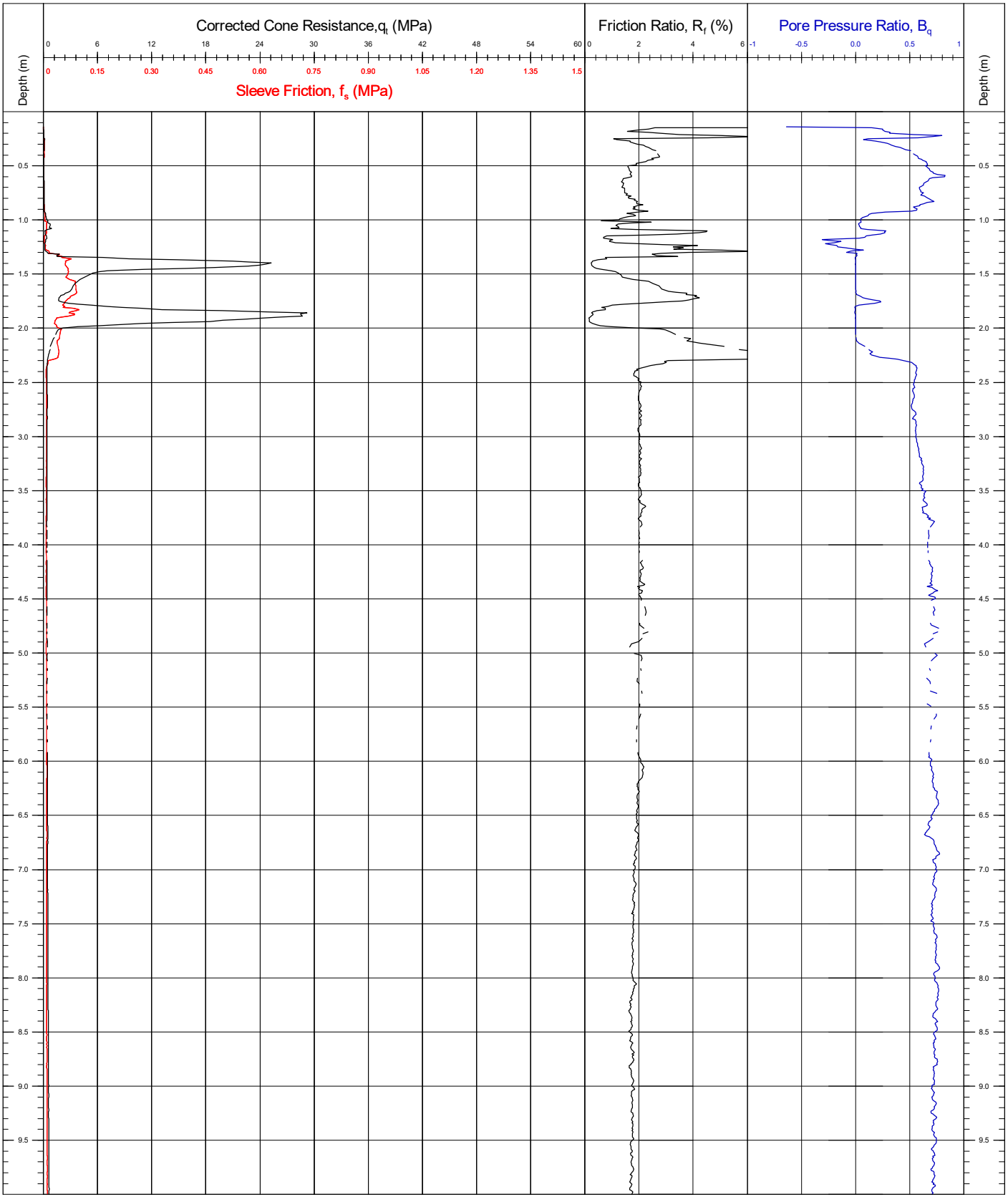
Area	**Kattegat Sea**	Coordinates	**678760.10E**	**6261514.80N**	CPT Number **CB10**
Contract	**11596**	Latitude / Longitude			
Client Name/Ref	**Energinet Eltransmission A/S/384_20_ENE**	Water Depth (mMSL)	**32.04**		
Vessel	**MV Ocean Vantage**	Date of Test	**26/04/2021**		Page: 3/3
		Cone No.(size)/α Factor	**120910 (10cm^2) / 0.81**		QC Status
		Base Inclination	**X = 0.1° / Y = 0.0°**		Preliminary: **JK/BC** (26/04/2021) · Draft: **DR** (10/06/2021) · Final: **SMc** (10/11/2021)
		CRS	**ETRS89**		

Comments: Cone Class1. Continuous seabed CPT. Final depth 28.90m. Test was terminated at operators discretion to avoid damage to equipment due to lack of lateral rod support from mudline

Gardline

Preliminary Investigation, Hesselø OWF

IN SITU CPTU TESTING - DERIVED PARAMETERS



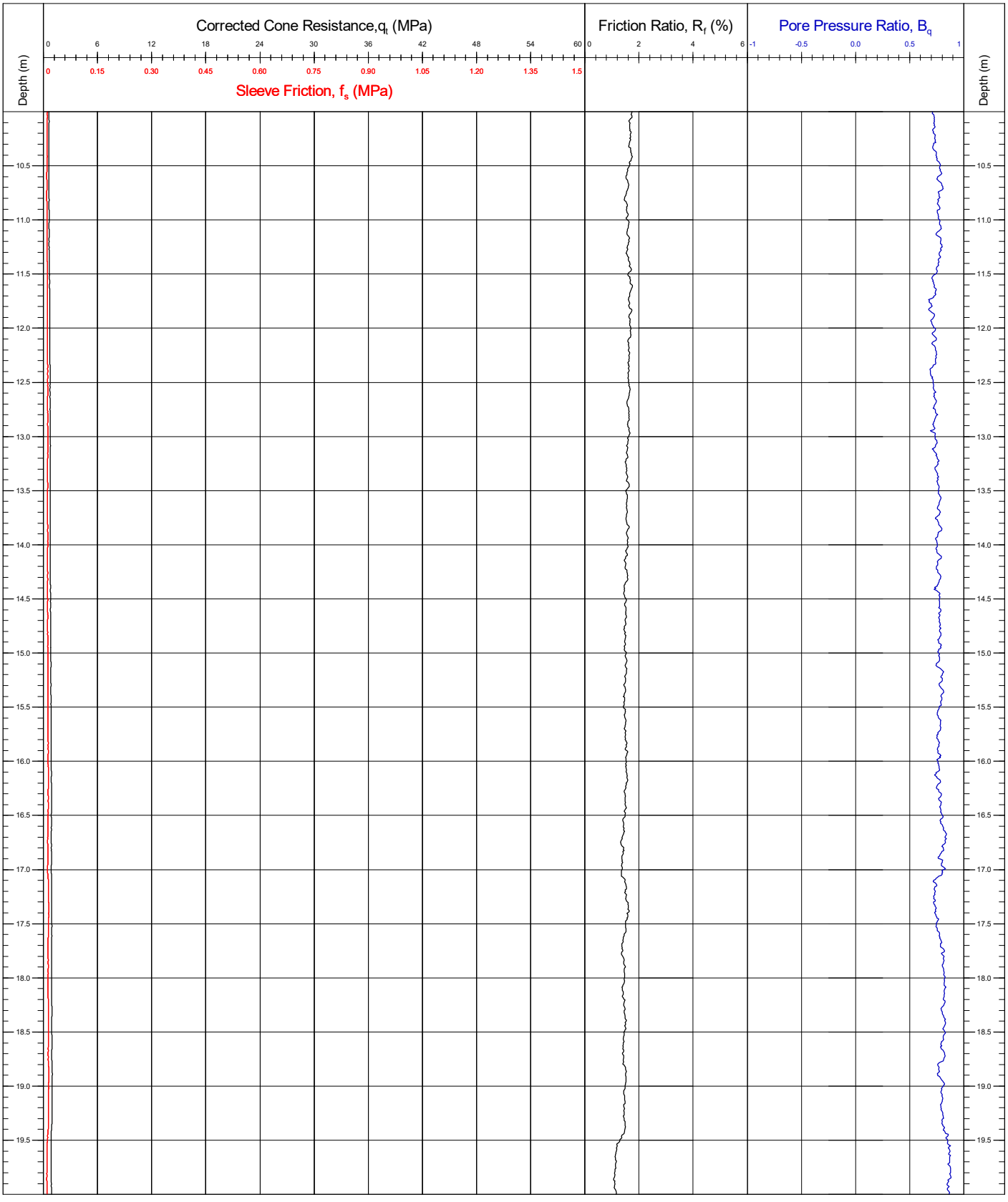
Area	**Kattegat Sea**	Coordinates	**678372.40E 6256256.90N**	CPT Number	**CB11**
Contract	**11596**	Latitude / Longitude			
Client Name/Ref	**Energinet Eltransmission A/S/384_20_ENE**	Water Depth (mMSL)	**31.40**		
Vessel	**MV Ocean Vantage**	Date of Test	**26/04/2021**	Page: 1/3	
		Cone No.(size)/α Factor	**120829 (10cm^2) / 0.8**	QC Status	
		Base Inclination	**X = 0.0° / Y = 0.0°**	Preliminary / Draft / Final	
		CRS **ETRS89**		**JK/BC** (29/04/2021) / **DR** (10/06/2021) / **SMc** (10/11/2021)	

Comments: Cone class 3. Continuous seabed CPT. Final depth 22.14m. Test terminated at operators discretion due to lack of lateral rod support from mudline and increasing cone inclination

Gardline

Preliminary Investigation, Hesselø OWF

IN SITU CPTU TESTING - DERIVED PARAMETERS



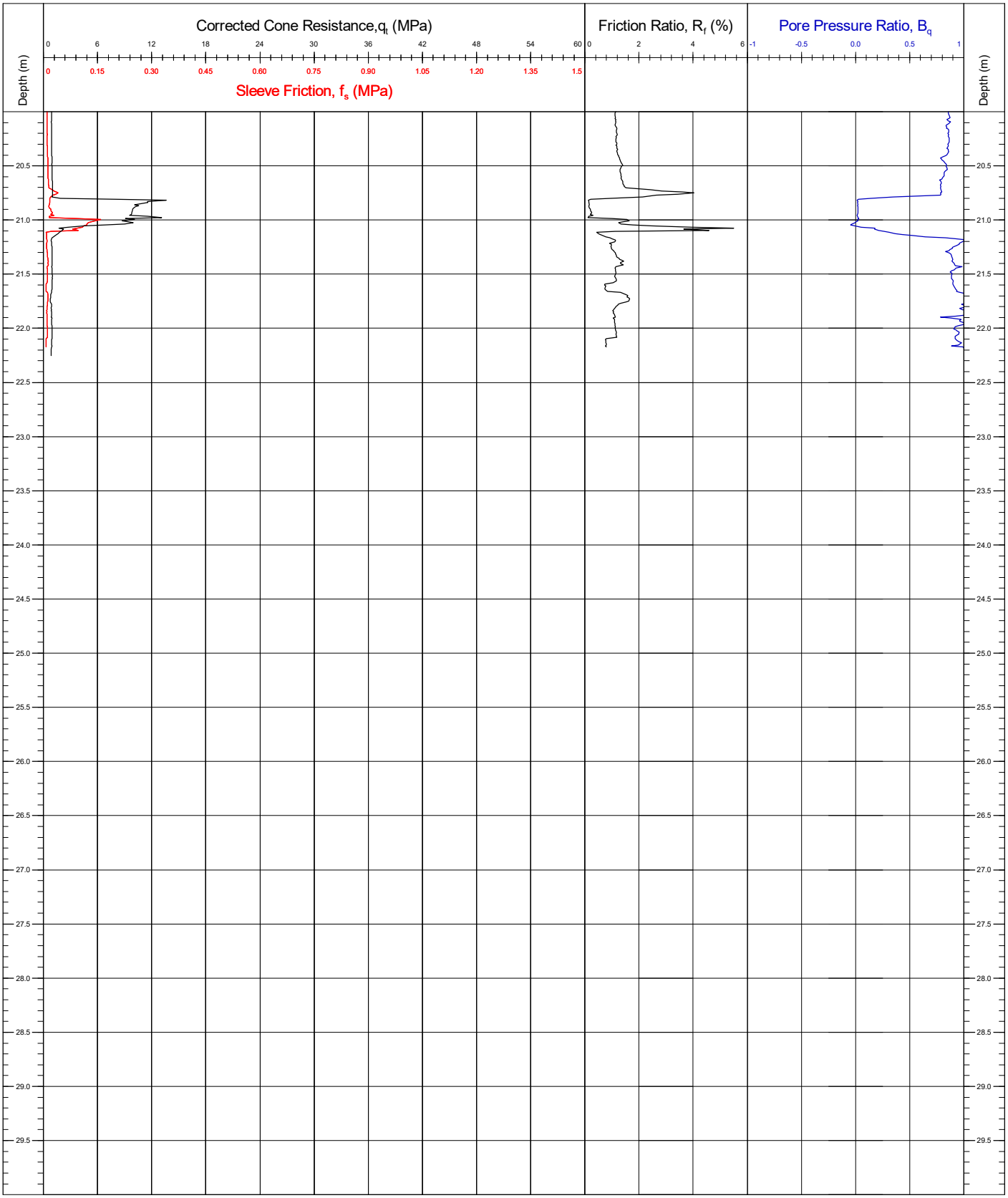
Area	**Kattegat Sea**	Coordinates	**678372.40E**	**6256256.90N**	CPT Number **CB11**
Contract	**11596**	Latitude / Longitude			
Client Name/Ref	**Energinet Eltransmission A/S/384_20_ENE**	Water Depth (mMSL)	**31.40**		
Vessel	**MV Ocean Vantage**	Date of Test	**26/04/2021**		Page: 2/3
		Cone No.(size)/α Factor	**120829 (10cm^2) / 0.8**		QC Status
		Base Inclination	**X = 0.0° / Y = 0.0°**		Preliminary: **JK/BC** (29/04/2021); Draft: **DR** (10/06/2021); Final: **SMc** (10/11/2021)
		CRS **ETRS89**			

Comments: Cone class 3. Continuous seabed CPT. Final depth 22.14m. Test terminated at operators discretion due to lack of lateral rod support from mudline and increasing cone inclination

Gardline

Preliminary Investigation, Hesselø OWF

IN SITU CPTU TESTING - DERIVED PARAMETERS



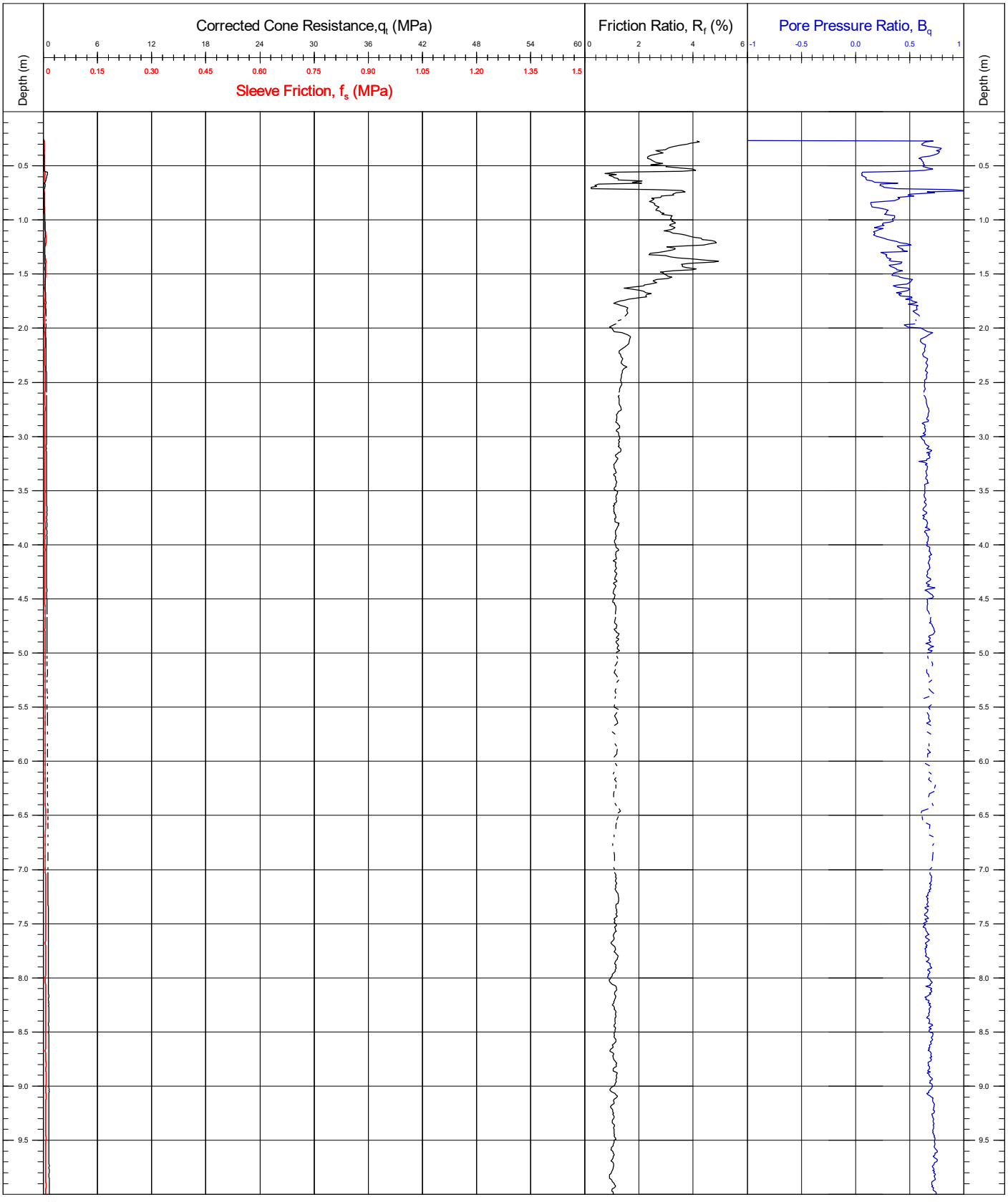
Area	**Kattegat Sea**	Coordinates	**678372.40E**	**6256256.90N**	CPT Number **CB11**
Contract	**11596**	Latitude / Longitude			
Client Name/Ref	**Energinet Eltransmission A/S/384_20_ENE**	Water Depth (mMSL)	**31.40**		
Vessel	**MV Ocean Vantage**	Date of Test	**26/04/2021**		Page: 3/3
		Cone No.(size)/α Factor	**120829 (10cm^2) / 0.8**		QC Status
		Base Inclination	**X = 0.0° / Y = 0.0°**		Preliminary: **JK/BC** (29/04/2021); Draft: **DR** (10/06/2021); Final: **SMc** (10/11/2021)
		CRS	**ETRS89**		

Comments: Cone class 3. Continuous seabed CPT. Final depth 22.14m. Test terminated at operators discretion due to lack of lateral rod support from mudline and increasing cone inclination

Gardline

Preliminary Investigation, Hesselø OWF

IN SITU CPTU TESTING - DERIVED PARAMETERS



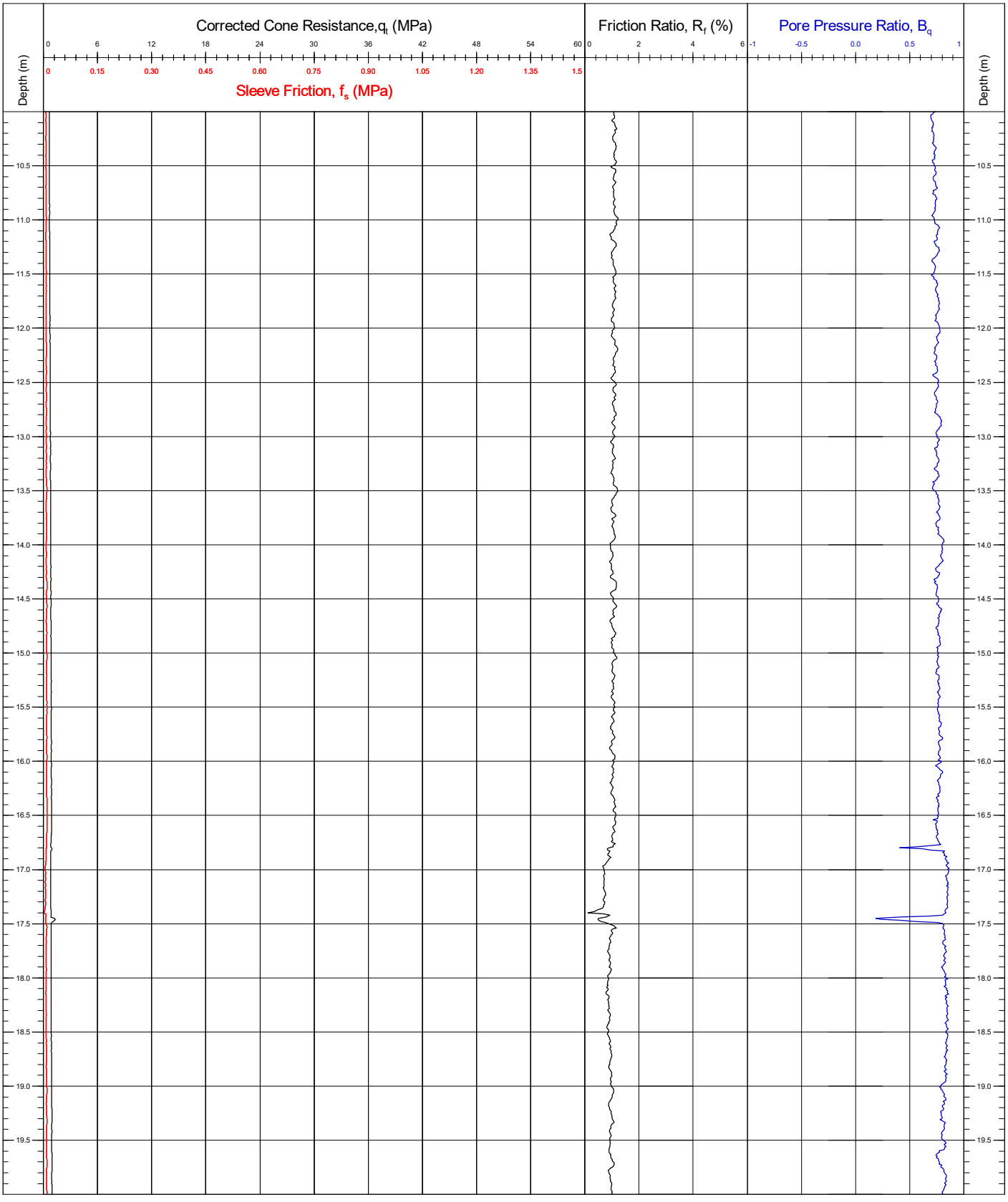
Area	**Kattegat Sea**	Coordinates	**677450.30E** **6270633.50N**	CPT Number	**CB12**
Contract	**11596**	Latitude / Longitude			
Client Name/Ref	**Energinet Eltransmission A/S/384_20_ENE**	Water Depth (mMSL)	**31.79**		
Vessel	**MV Ocean Vantage**	Date of Test	**01/05/2021**	Page: 1/4	
		Cone No.(size)/α Factor	**130909 (10cm^2) / 0.82**	QC Status	
		Base Inclination	**X = 1.2° / Y = 0.9°**	Preliminary / Draft / Final	
		CRS **ETRS89**		**JK/BC** (01/05/2021) / **DR** (10/06/2021) / **SMc** (10/11/2021)	

Comments: Cone class 1. Continuous seabed CPT. Final depth 34.82m. Test terminated at operators discretion due to high risk of rod bend

Gardline

Preliminary Investigation, Hesselø OWF

IN SITU CPTU TESTING - DERIVED PARAMETERS

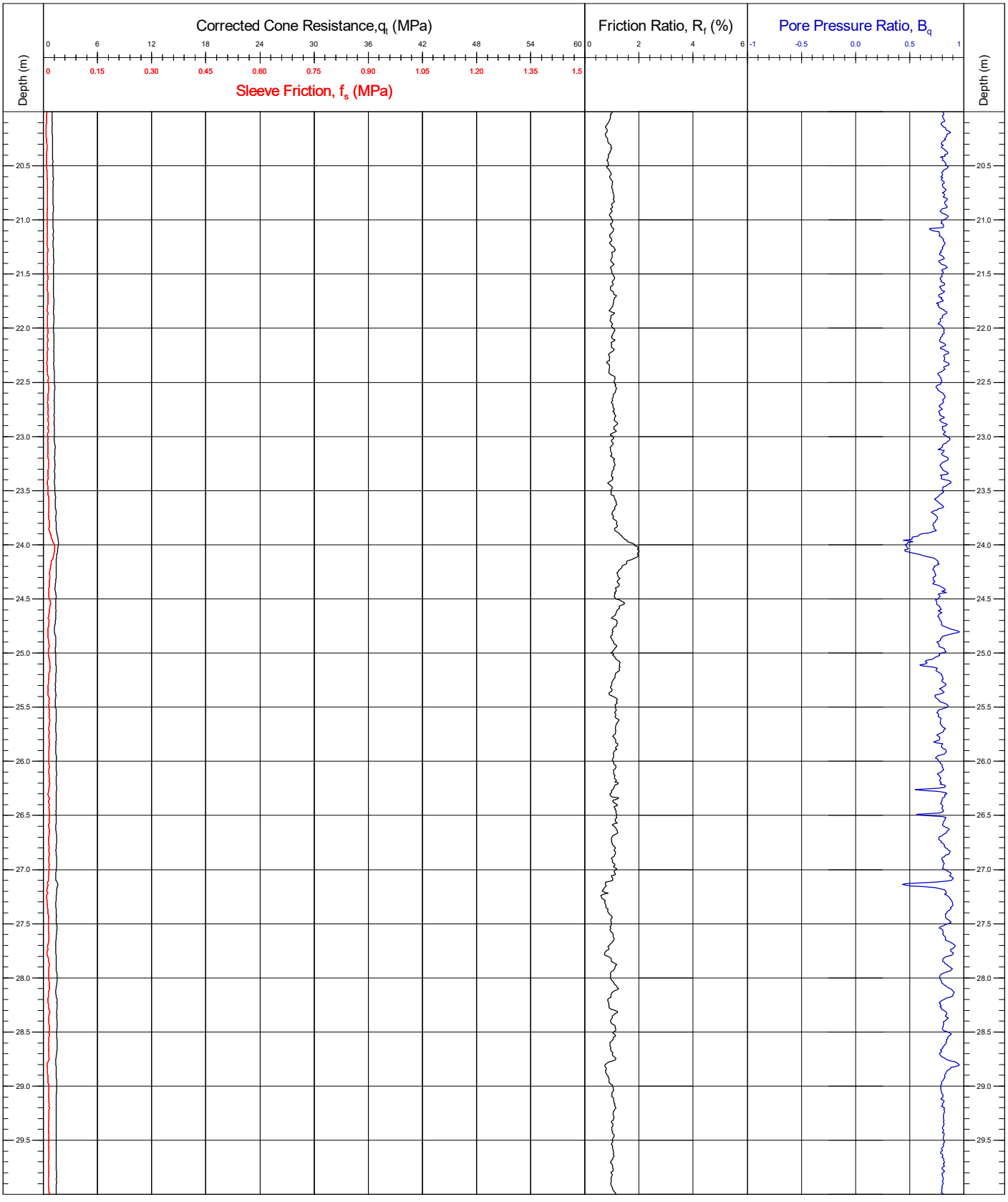


Area	**Kattegat Sea**	Coordinates	**677450.30E** **6270633.50N**	CPT Number	**CB12**
Contract	**11596**	Latitude / Longitude			
Client Name/Ref	**Energinet Eltransmission A/S/384_20_ENE**	Water Depth (mMSL)	**31.79**		
Vessel	**MV Ocean Vantage**	Date of Test	**01/05/2021**	Page: 2/4	
		Cone No.(size)/α Factor	**130909 (10cm^2) / 0.82**	QC Status	
		Base Inclination	**X = 1.2° / Y = 0.9°**	Preliminary: **JK/BC** (01/05/2021)	Draft: **DR** (10/06/2021)
		CRS **ETRS89**			Final: **SMc** (10/11/2021)

Comments: Cone class 1. Continuous seabed CPT. Final depth 34.82m. Test terminated at operators discretion due to high risk of rod bend

Preliminary Investigation, Hesselø OWF

IN SITU CPTU TESTING - DERIVED PARAMETERS



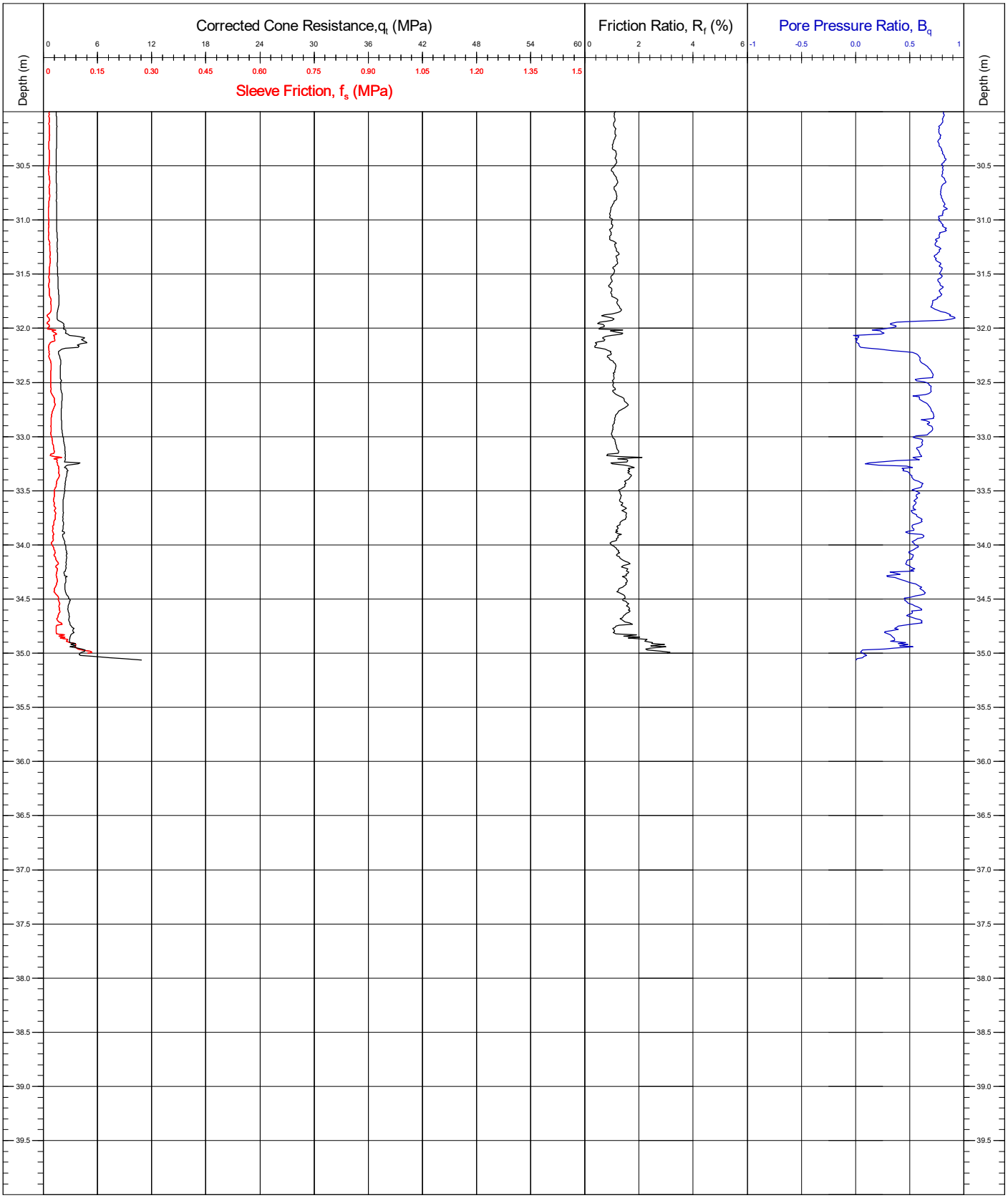
Area	**Kattegat Sea**	Coordinates	**677450.30E**	**6270633.50N**	CPT Number **CB12**
Contract	**11596**	Latitude / Longitude			
Client Name/Ref	**Energinet Eltransmission A/S/384_20_ENE**	Water Depth (mMSL)	**31.79**		
Vessel	**MV Ocean Vantage**	Date of Test	**01/05/2021**		Page: 3/4
		Cone No.(size)/α Factor	**130909 (10cm^2) / 0.82**		QC Status
		Base Inclination	**X = 1.2° / Y = 0.9°**		Preliminary: **JK/BC** (01/05/2021); Draft: **DR** (10/06/2021); Final: **SMc** (10/11/2021)
		CRS	**ETRS89**		

Comments: Cone class 1. Continuous seabed CPT. Final depth 34.82m. Test terminated at operators discretion due to high risk of rod bend

Gardline

Preliminary Investigation, Hesselø OWF

IN SITU CPTU TESTING - DERIVED PARAMETERS



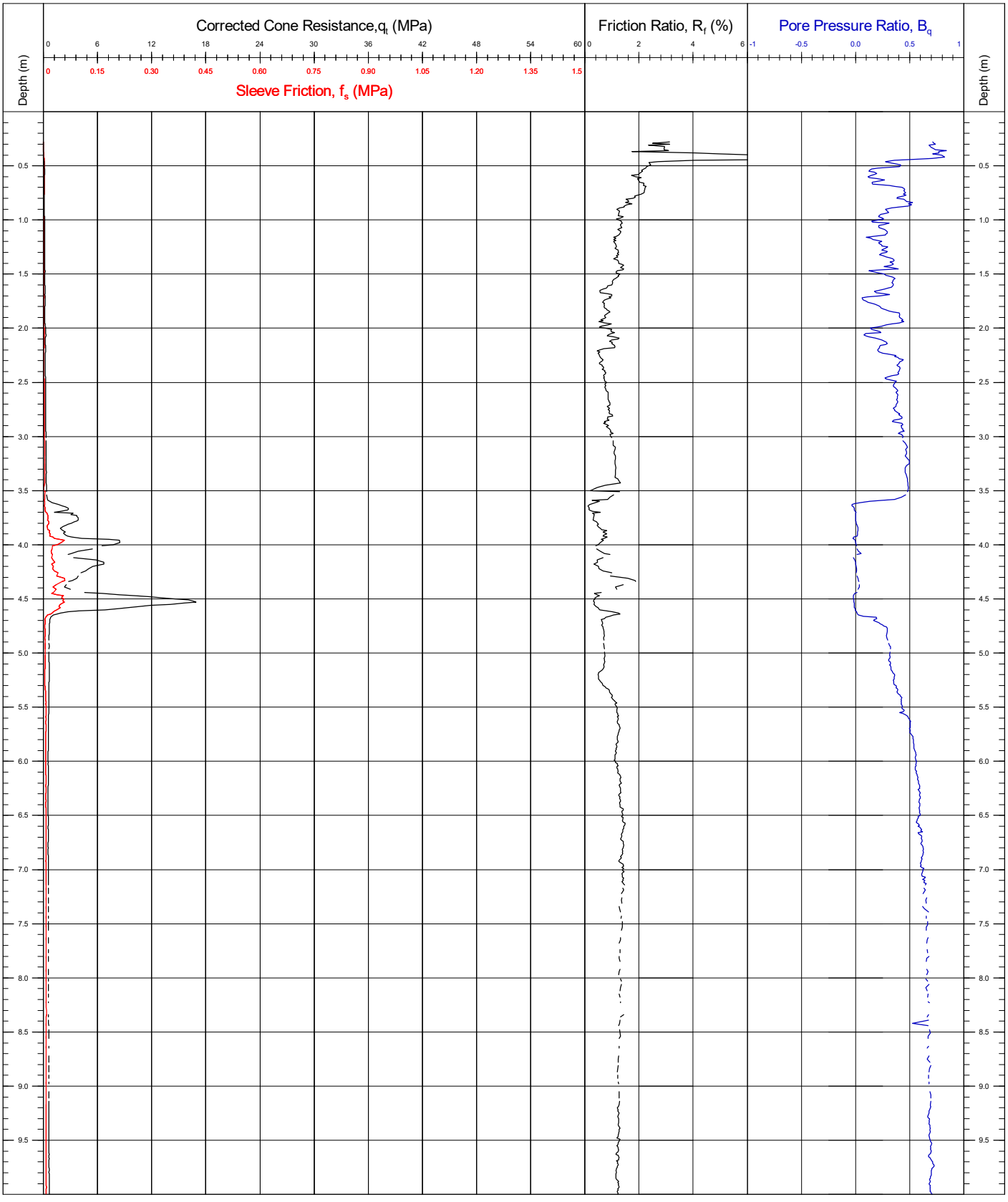
Area	**Kattegat Sea**	Coordinates	**677450.30E**	**6270633.50N**	CPT Number **CB12**
Contract	**11596**	Latitude / Longitude			
Client Name/Ref	**Energinet Eltransmission A/S/384_20_ENE**	Water Depth (mMSL)	**31.79**		
Vessel	**MV Ocean Vantage**	Date of Test	**01/05/2021**		Page: 4/4
		Cone No.(size)/α Factor	**130909 (10cm^2) / 0.82**		QC Status
		Base Inclination	**X = 1.2° / Y = 0.9°**		Preliminary: **JK/BC** (01/05/2021); Draft: **DR** (10/06/2021); Final: **SMc** (10/11/2021)
		CRS **ETRS89**			

Comments: Cone class 1. Continuous seabed CPT. Final depth 34.82m. Test terminated at operators discretion due to high risk of rod bend

Gardline

Preliminary Investigation, Hesselø OWF

IN SITU CPTU TESTING - DERIVED PARAMETERS

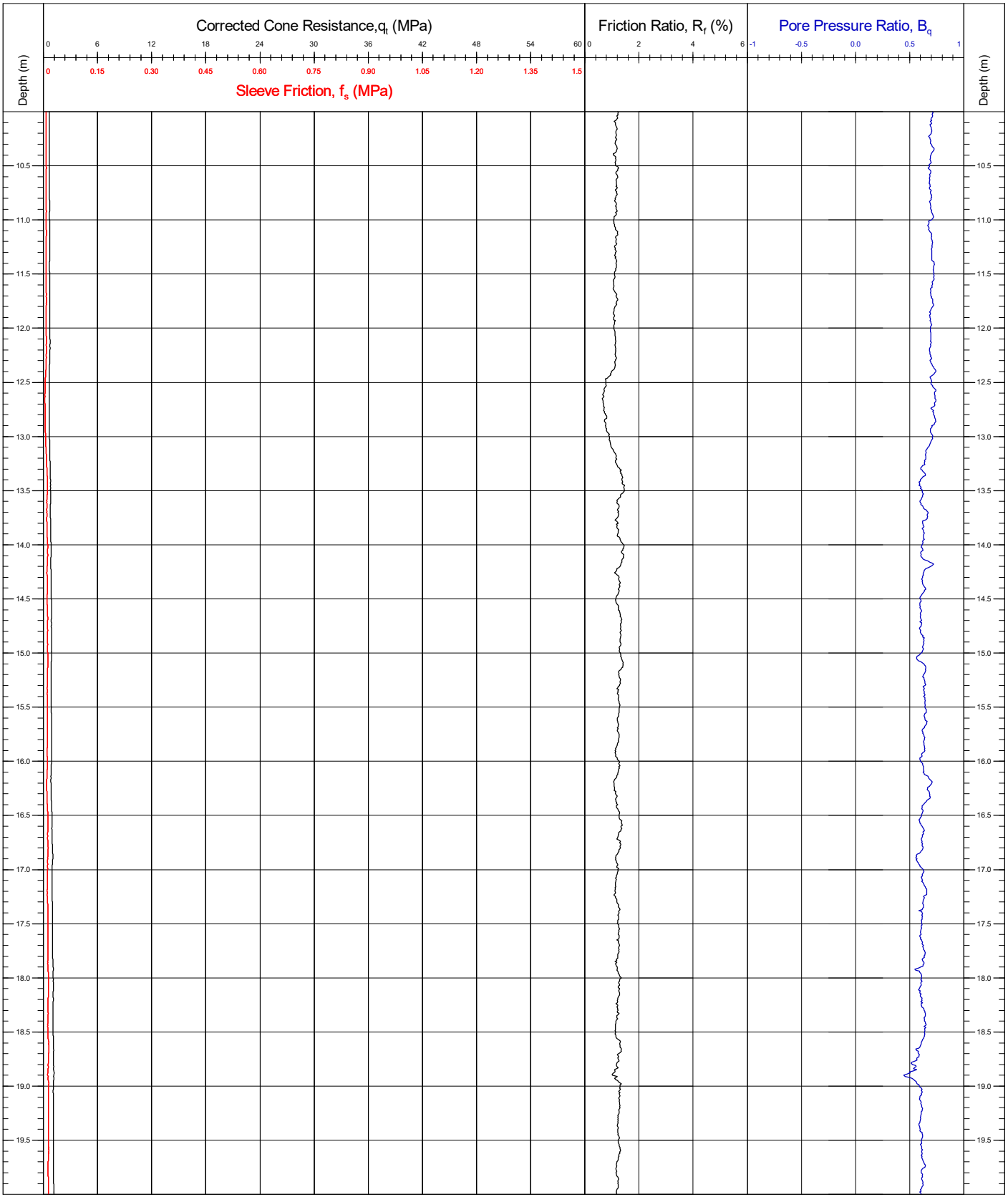


Area	**Kattegat Sea**	Coordinates	**670639.50E 6262910.50N**	CPT Number	**CB13**
Contract	**11596**	Latitude / Longitude			
Client Name/Ref	**Energinet Eltransmission A/S/384_20_ENE**	Water Depth (mMSL)	**29.98**		
Vessel	**MV Ocean Vantage**	Date of Test	**30/04/2021**	Page: 1/4	
Comments: Cone class 1. Continuous seabed CPT. Final depth 33.83m. Test terminated at operators discretion due to high inclination and risk of rod bend		Cone No.(size)/α Factor	**181004 (10cm^2) / 0.81**	QC Status	
		Base Inclination	**X = 1.1° / Y = 1.0°**	Preliminary: **JK/BC** (30/04/2021)	Draft: **DR** (10/06/2021) / Final: **SMc** (10/11/2021)
		CRS **ETRS89**			

Gardline

Preliminary Investigation, Hesselø OWF

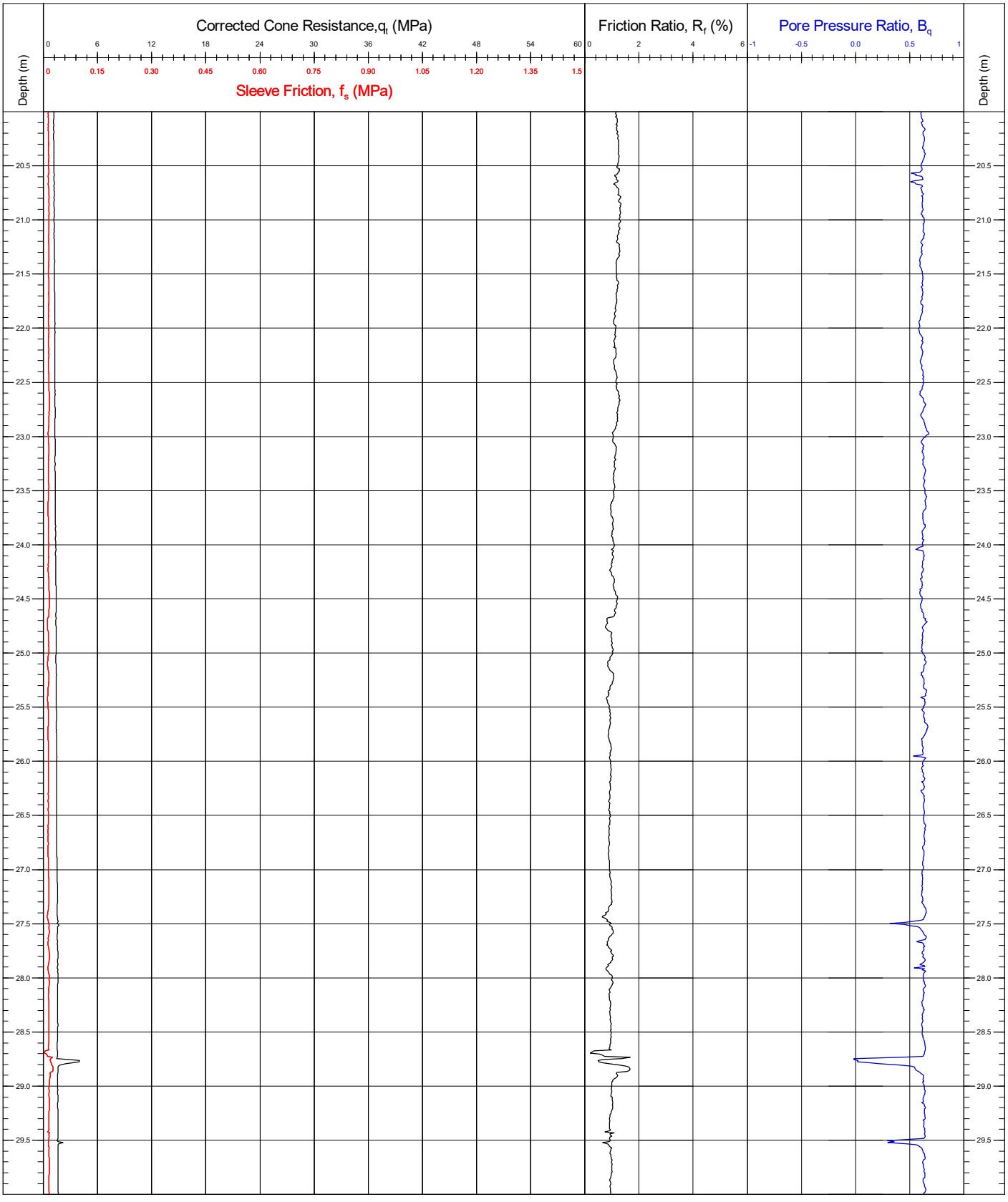
IN SITU CPTU TESTING - DERIVED PARAMETERS



Area	**Kattegat Sea**	Coordinates	**670639.50E** **6262910.50N**	CPT Number	
Contract	**11596**	Latitude / Longitude		**CB13**	
Client Name/Ref	**Energinet Eltransmission A/S/384_20_ENE**	Water Depth (mMSL)	**29.98**	Page: 2/4	
Vessel	**MV Ocean Vantage**	Date of Test	**30/04/2021**	QC Status	
Comments: Cone class 1. Continuous seabed CPT. Final depth 33.83m. Test terminated at operators discretion due to high inclination and risk of rod bend		Cone No.(size)/α Factor	**181004 (10cm^2) / 0.81**	Preliminary / Draft / Final	
		Base Inclination	**X = 1.1° / Y = 1.0°**	**JK/BC** (30/04/2021) / **DR** (10/06/2021) / **SMc** (10/11/2021)	
		CRS **ETRS89**			

Preliminary Investigation, Hesselø OWF

IN SITU CPTU TESTING - DERIVED PARAMETERS

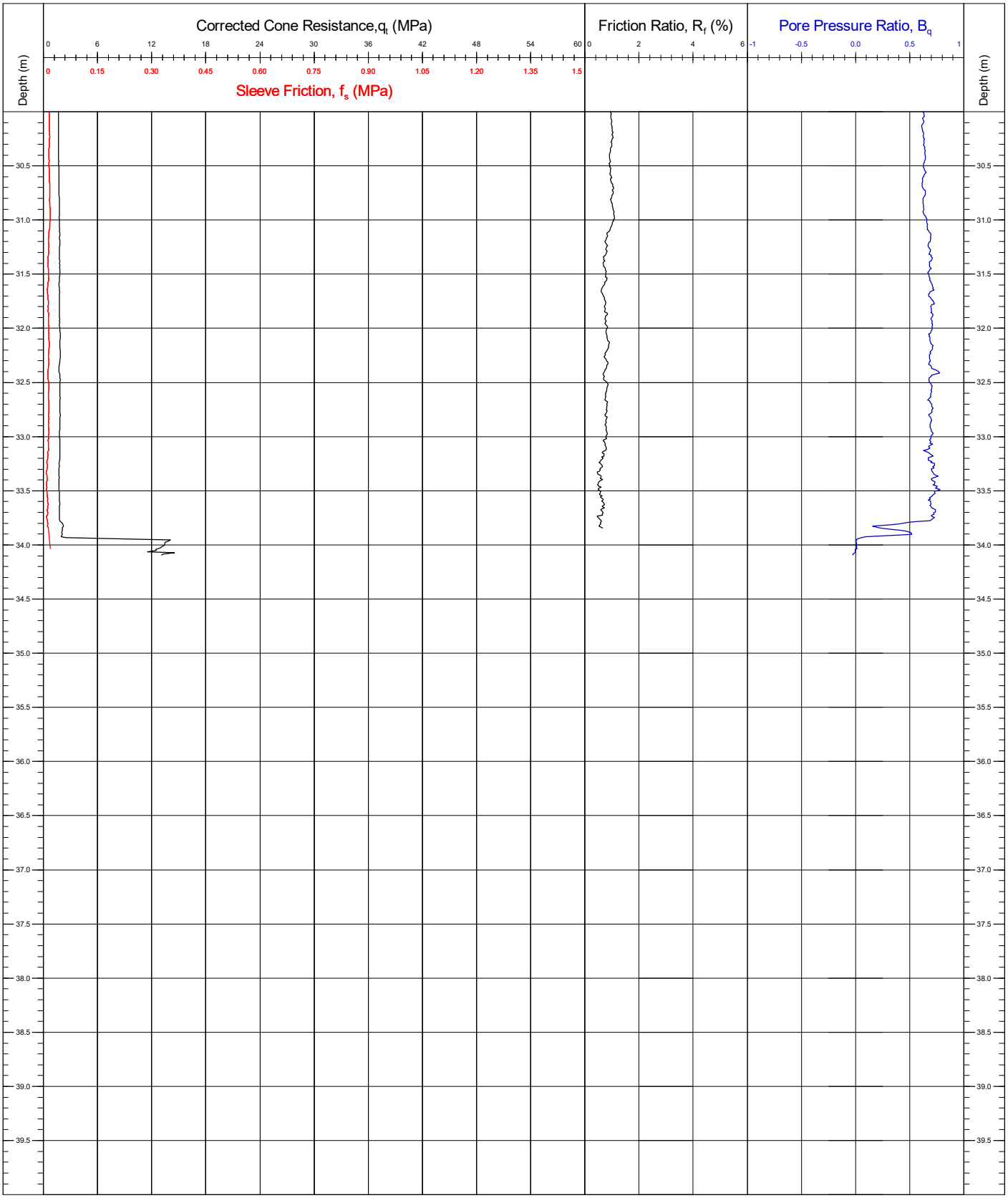


Area	**Kattegat Sea**	Coordinates	**670639.50E 6262910.50N**	CPT Number	**CB13**
Contract	**11596**	Latitude / Longitude			
Client Name/Ref	**Energinet Eltransmission A/S/384_20_ENE**	Water Depth (mMSL)	**29.98**		
Vessel	**MV Ocean Vantage**	Date of Test	**30/04/2021**	Page: 3/4	
Comments: Cone class 1. Continuous seabed CPT. Final depth 33.83m. Test terminated at operators discretion due to high inclination and risk of rod bend		Cone No.(size)/α Factor	**181004 (10cm^2) / 0.81**	QC Status	
		Base Inclination	**X = 1.1° / Y = 1.0°**	Preliminary: **JK/BC** (30/04/2021)	Draft: **DR** (10/06/2021)
		CRS **ETRS89**			Final: **SMc** (10/11/2021)

Gardline

Preliminary Investigation, Hesselø OWF

IN SITU CPTU TESTING - DERIVED PARAMETERS

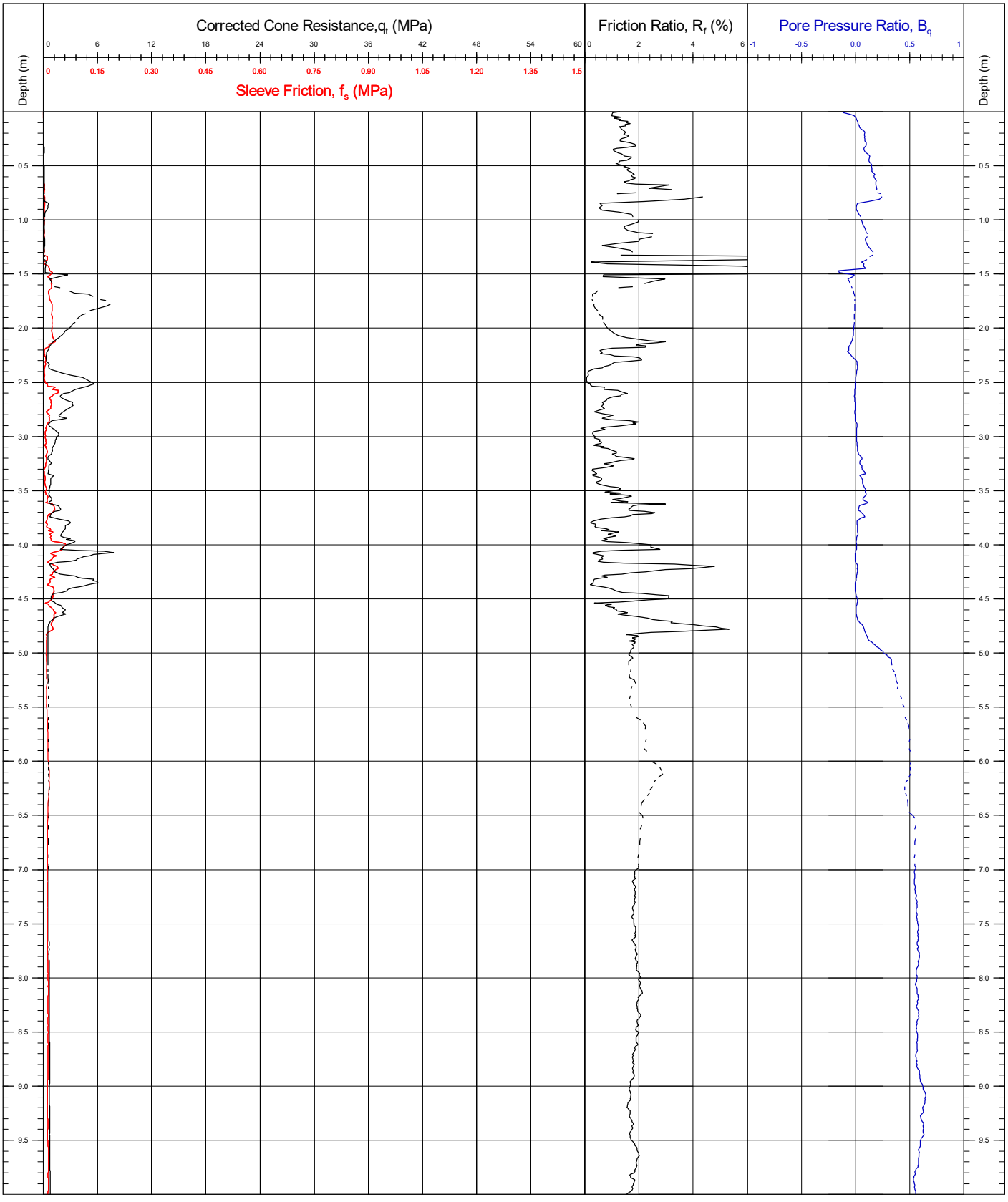


Area	**Kattegat Sea**	Coordinates	**670639.50E 6262910.50N**	CPT Number	**CB13**
Contract	**11596**	Latitude / Longitude			
Client Name/Ref	**Energinet Eltransmission A/S/384_20_ENE**	Water Depth (mMSL)	**29.98**		
Vessel	**MV Ocean Vantage**	Date of Test	**30/04/2021**	Page: 4/4	
Comments: Cone class 1. Continuous seabed CPT. Final depth 33.83m. Test terminated at operators discretion due to high inclination and risk of rod bend		Cone No.(size)/α Factor	**181004 (10cm^2) / 0.81**	QC Status	
		Base Inclination	**X = 1.1° / Y = 1.0°**	Preliminary: **JK/BC** (30/04/2021)	Draft: **DR** (10/06/2021)
		CRS **ETRS89**			Final: **SMc** (10/11/2021)

Gardline

Preliminary Investigation, Hesselø OWF

IN SITU CPTU TESTING - DERIVED PARAMETERS

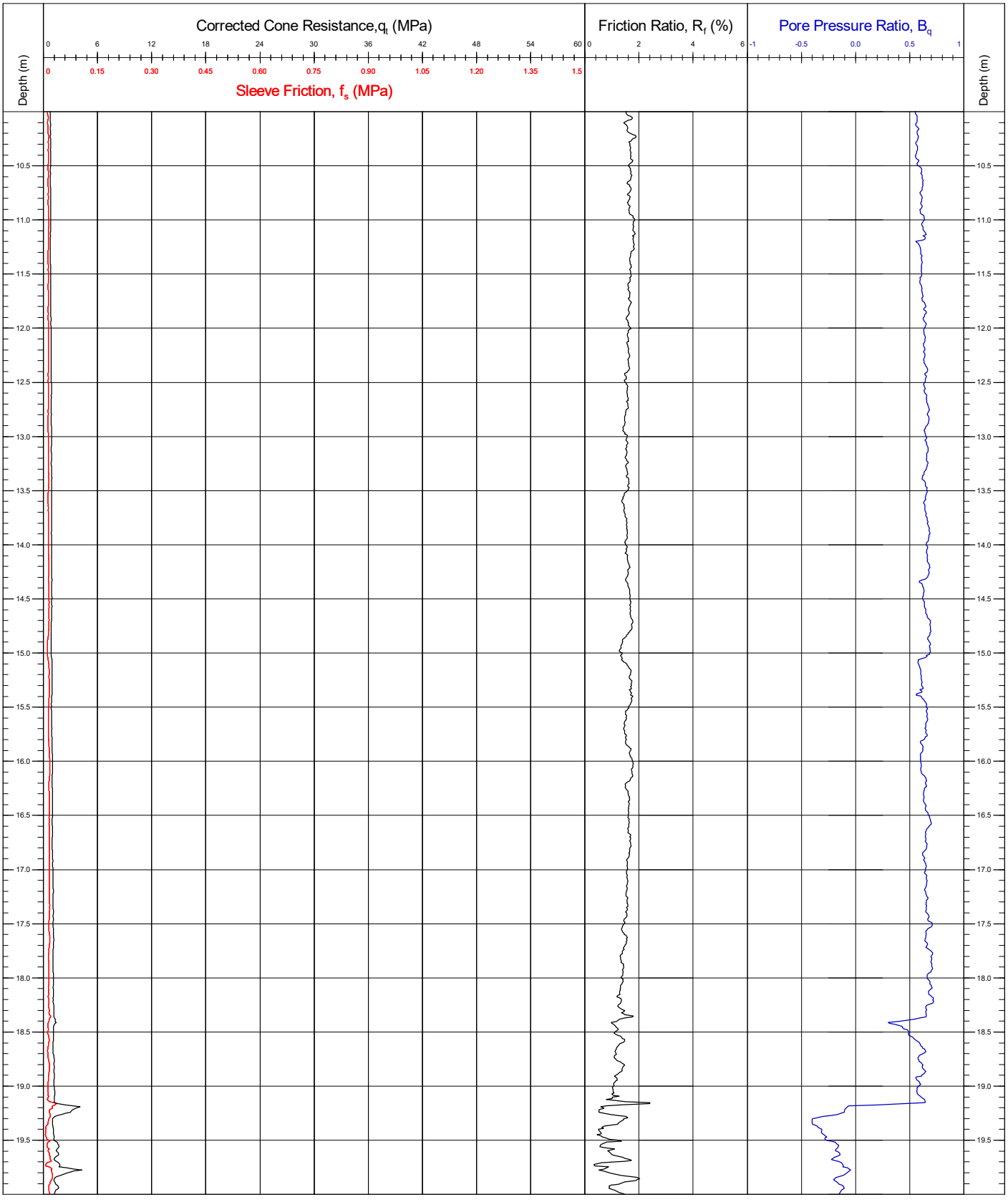


Area	**Kattegat Sea**	Coordinates	**680529.90E 6252844.10N**	CPT Number	**CB14**
Contract	**11596**	Latitude / Longitude			
Client Name/Ref	**Energinet Eltransmission A/S/384_20_ENE**	Water Depth (mMSL)	**31.63**		
Vessel	**MV Ocean Vantage**	Date of Test	**27/04/2021**	Page: 1/3	
Comments: Cone out of class. Continuous seabed CPT. Final depth 22.79m. Test terminated due to a sudden increase of more than 3 degrees of cone inclination		Cone No.(size)/α Factor	**100976 (10cm^2) / 0.78**	QC Status	
		Base Inclination	**X = 0.0° / Y = -0.1°**	Preliminary / Draft / Final	
		CRS **ETRS89**		**JK/BC** (27/04/2021) / **DR** (10/06/2021) / **SMc** (10/11/2021)	

Gardline

Preliminary Investigation, Hesselø OWF

IN SITU CPTU TESTING - DERIVED PARAMETERS

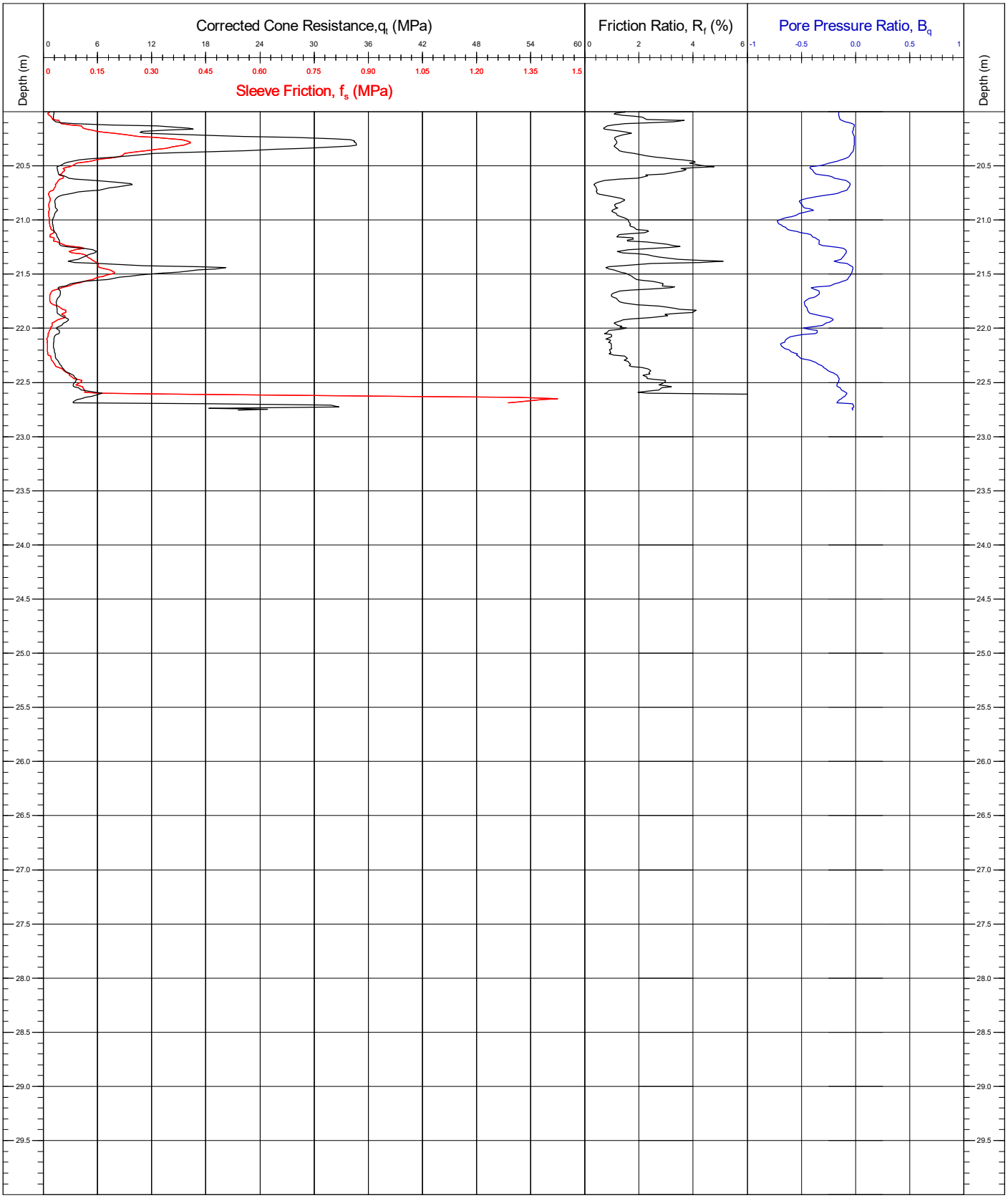


Area	**Kattegat Sea**	Coordinates	**680529.90E 6252844.10N**	CPT Number	**CB14**
Contract	**11596**	Latitude / Longitude			
Client Name/Ref	**Energinet Eltransmission A/S/384_20_ENE**	Water Depth (mMSL)	**31.63**		
Vessel	**MV Ocean Vantage**	Date of Test	**27/04/2021**	Page: 2/3	
Comments: Cone out of class. Continuous seabed CPT. Final depth 22.79m. Test terminated due to a sudden increase of more than 3 degrees of cone inclination		Cone No.(size)/α Factor	**100976 (10cm^2) / 0.78**	QC Status	
		Base Inclination	**X = 0.0° / Y = -0.1°**	Preliminary: **JK/BC (27/04/2021)**	Draft: **DR (10/06/2021)**
		CRS **ETRS89**			Final: **SMc (10/11/2021)**

Gardline

Preliminary Investigation, Hesselø OWF

IN SITU CPTU TESTING - DERIVED PARAMETERS

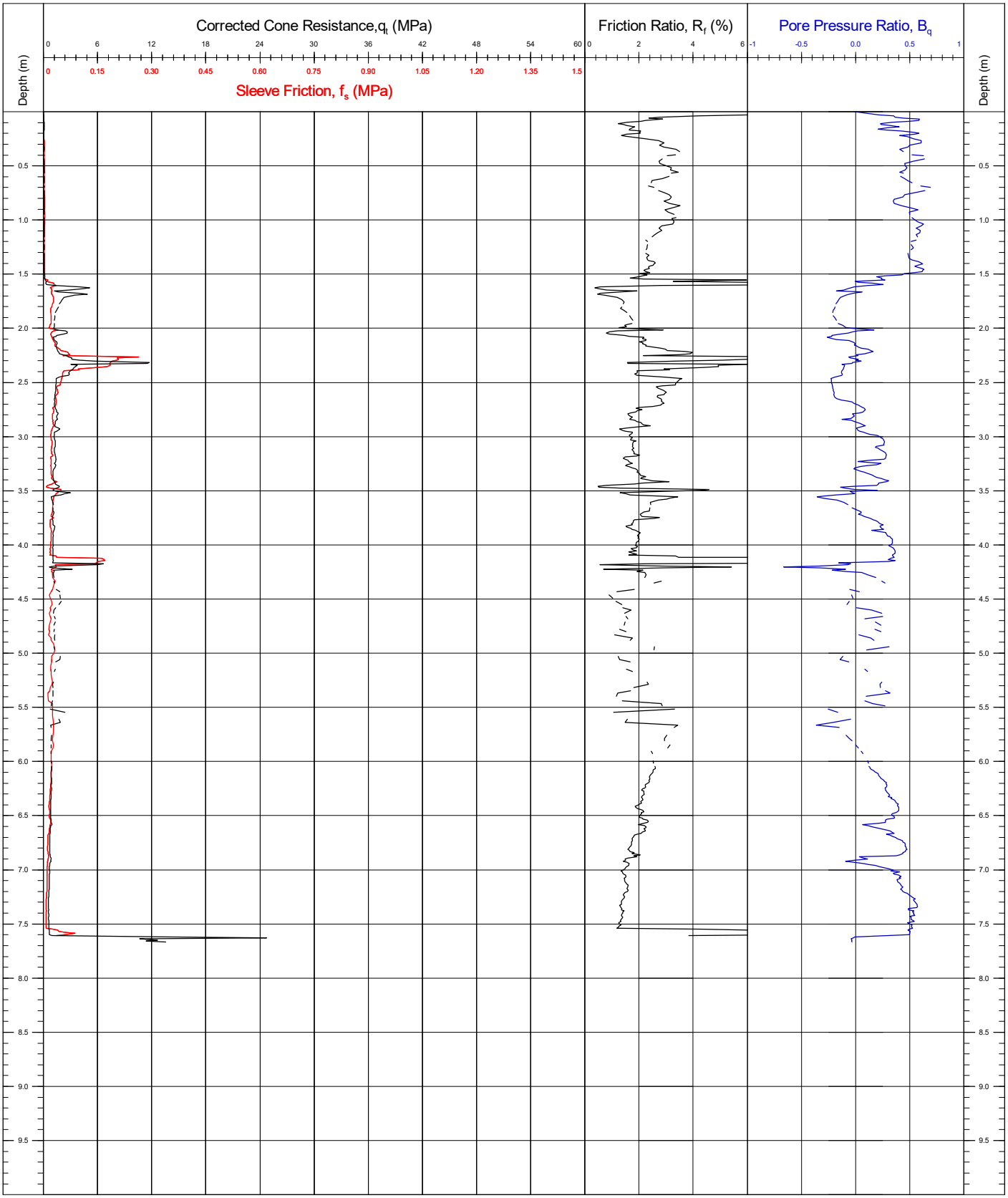


Area	**Kattegat Sea**	Coordinates	**680529.90E 6252844.10N**	CPT Number	**CB14**
Contract	**11596**	Latitude / Longitude			
Client Name/Ref	**Energinet Eltransmission A/S/384_20_ENE**	Water Depth (mMSL)	**31.63**		
Vessel	**MV Ocean Vantage**	Date of Test	**27/04/2021**	Page: 3/3	
Comments: Cone out of class. Continuous seabed CPT. Final depth 22.79m. Test terminated due to a sudden increase of more than 3 degrees of cone inclination		Cone No.(size)/α Factor	**100976 (10cm^2) / 0.78**	QC Status	
		Base Inclination	**X = 0.0° / Y = -0.1°**	Preliminary / Draft / Final	
		CRS **ETRS89**		**JK/BC** (27/04/2021) / **DR** (10/06/2021) / **SMc** (10/11/2021)	

Gardline

Preliminary Investigation, Hesselø OWF

IN SITU CPTU TESTING - DERIVED PARAMETERS

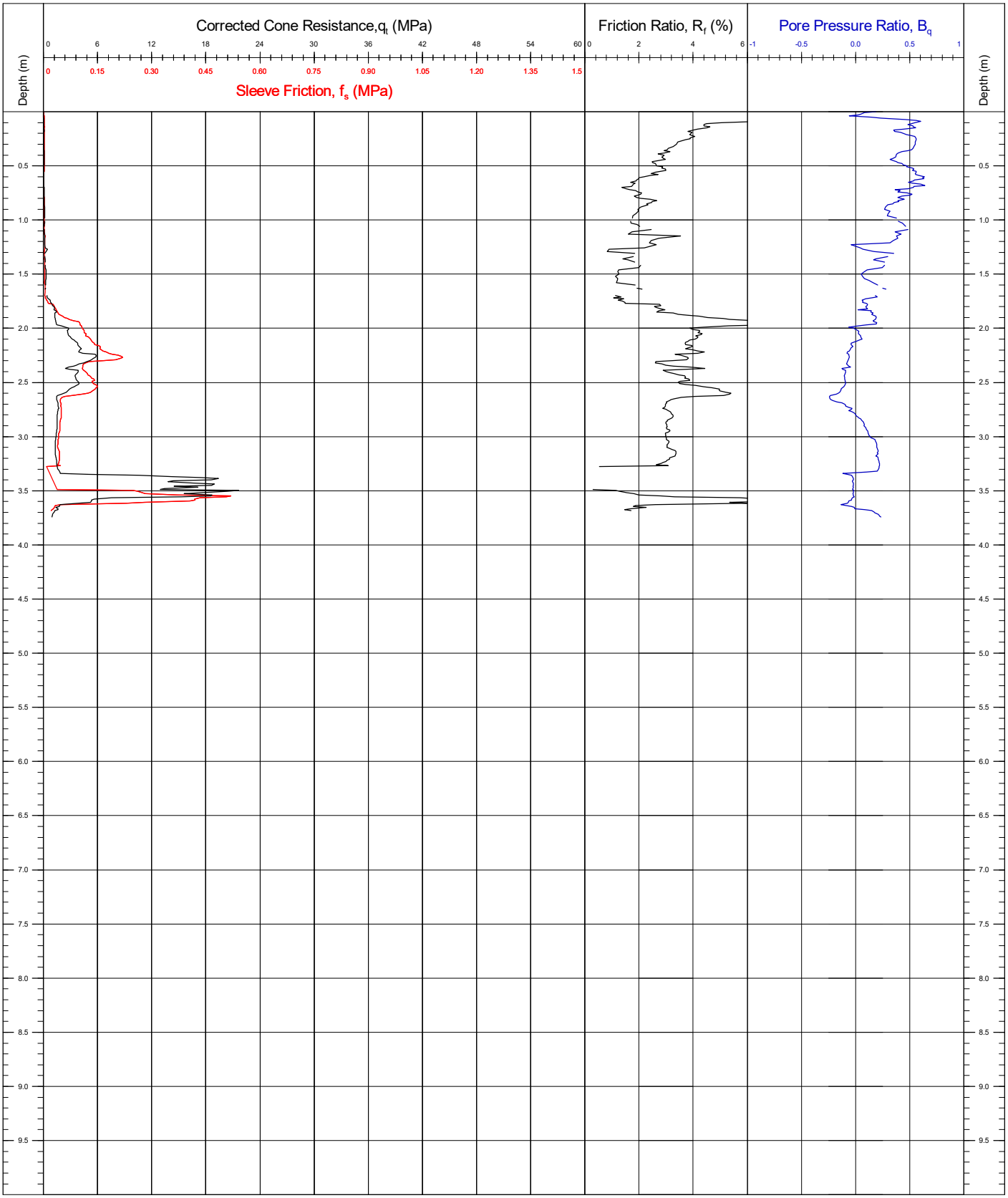


Area	**Kattegat Sea**	Coordinates	**676134.10E 6251059.50N**	CPT Number	**CPT3**
Contract	**11596**	Latitude / Longitude			
Client Name/Ref	**Energinet Eltransmission A/S/384_20_ENE**	Water Depth (mMSL)	**30.14**		
Vessel	**MV Ocean Vantage**	Date of Test	**27/04/2021**	Page: 1/1	
Comments: Cone class 2. Continuous seabed CPT. Final depth 7.68m. Test terminated due to a sudden increase of more than three degrees of cone inclination and increasing tip resistance		Cone No.(size)/α Factor	**130206 (10cm^2) / 0.77**	QC Status	
		Base Inclination	**X = 0.0° / Y = 0.0°**	Preliminary / Draft / Final	
		CRS **ETRS89**		**JK/BC** (27/04/2021) / **DR** (10/06/2021) / **SMc** (10/11/2021)	

Gardline

Preliminary Investigation, Hesselø OWF

IN SITU CPTU TESTING - DERIVED PARAMETERS



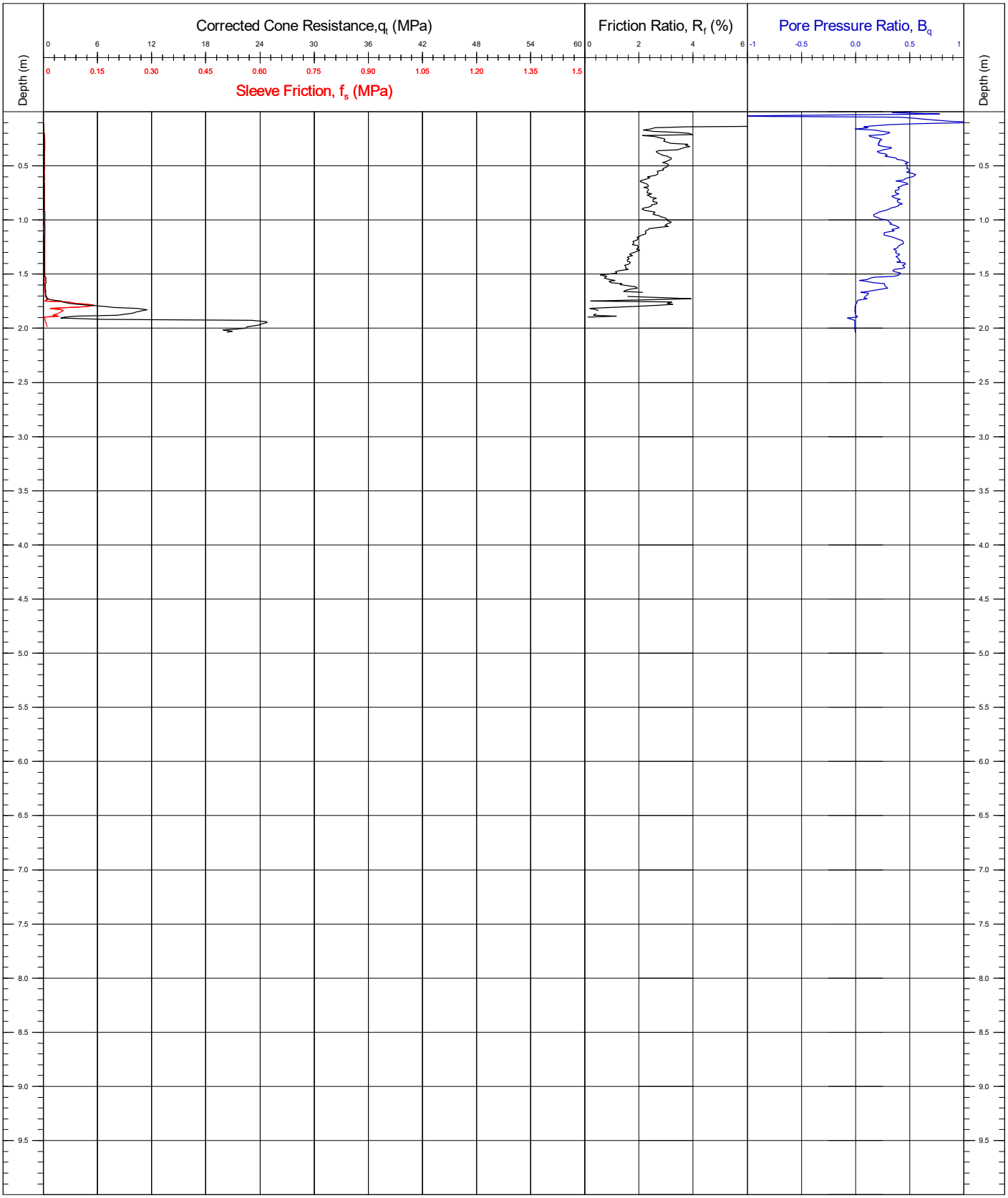
Area	**Kattegat Sea**	Coordinates	**676134.20E 6251054.30N**	CPT Number	**CPT3a**
Contract	**11596**	Latitude / Longitude			
Client Name/Ref	**Energinet Eltransmission A/S/384_20_ENE**	Water Depth (mMSL)	**30.17**		
Vessel	**MV Ocean Vantage**	Date of Test	**27/04/2021**	Page: 1/1	
		Cone No.(size)/α Factor	**181007 (10cm^2) / 0.72**	QC Status	
		Base Inclination	**X = 0.0° / Y = 0.0°**	Preliminary / Draft / Final	
		CRS **ETRS89**		**JK/BC** (27/04/2021) / **DR** (10/06/2021) / **SMc** (10/11/2021)	

Comments: Cone class 4. Bumpover location. Deck to deck offset readings are shared between 3a and 3b. Continuous seabed CPT. Final depth 3.55m. Test terminated due to a sudden increase of more than three degrees of cone inclination and increasing tip resistance

Gardline

Preliminary Investigation, Hesselø OWF

IN SITU CPTU TESTING - DERIVED PARAMETERS



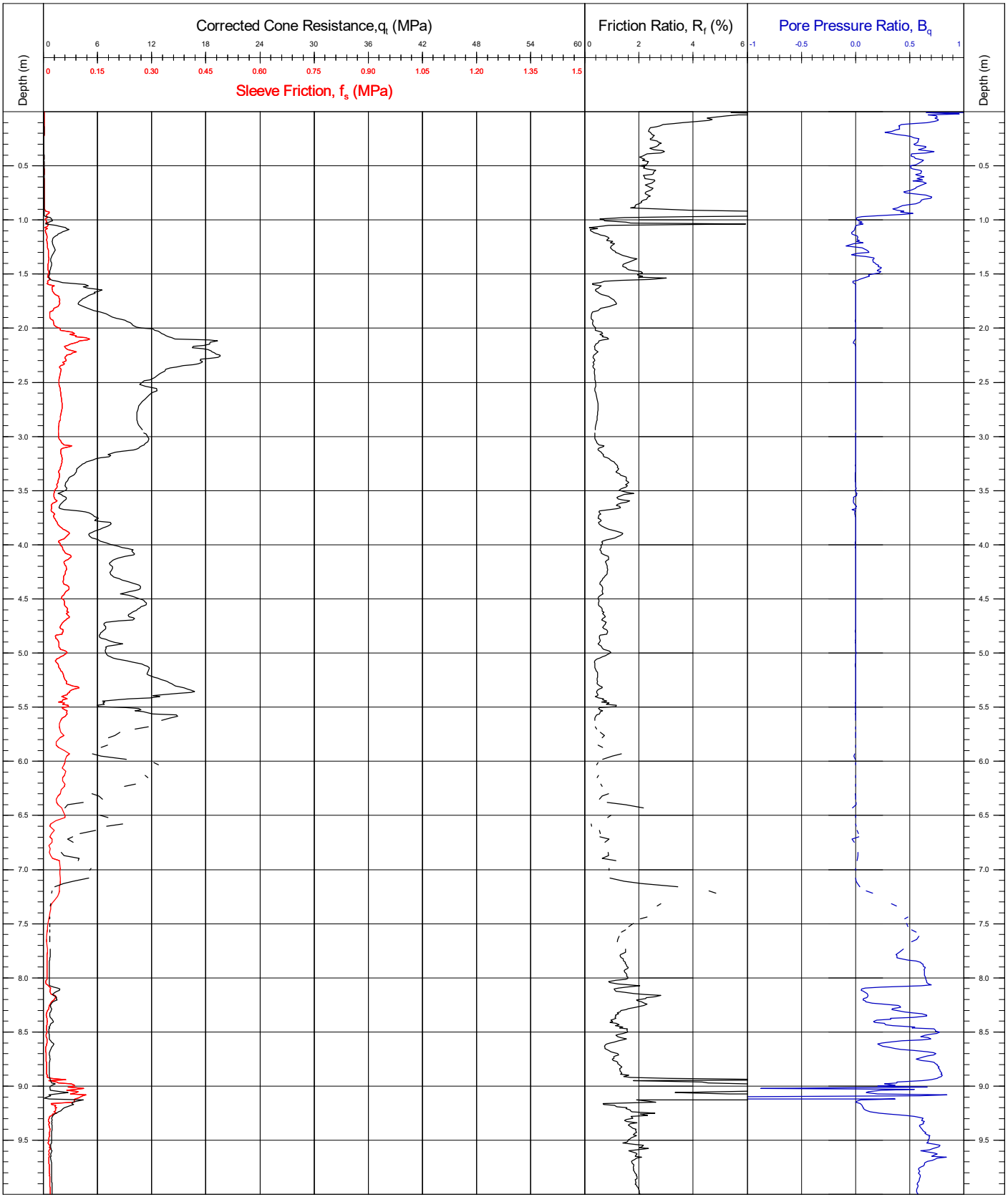
Area	**Kattegat Sea**	Coordinates	**676133.70E 6251066.70N**	CPT Number	**CPT3b**
Contract	**11596**	Latitude / Longitude			
Client Name/Ref	**Energinet Eltransmission A/S/384_20_ENE**	Water Depth (mMSL)	**30.15**		
Vessel	**MV Ocean Vantage**	Date of Test	**27/04/2021**	Page: 1/1	
		Cone No.(size)/α Factor	**181007 (10cm^2) / 0.72**	QC Status	
		Base Inclination	**X = 0.0° / Y = 0.0°**	Preliminary / Draft / Final	
		CRS **ETRS89**		**JK/BC** (27/04/2021) / **DR** (10/06/2021) / **SMc** (10/11/2021)	

Comments: Cone class 2. Continuous seabed CPT. Bumpover location. Final depth 1.96m. Deck to deck offsets are taken at a 5m reference level above seabed. Test terminated due to a sudden increase of more than three degrees of cone inclination and increasing tip resistance

Gardline

Preliminary Investigation, Hesselø OWF

IN SITU CPTU TESTING - DERIVED PARAMETERS

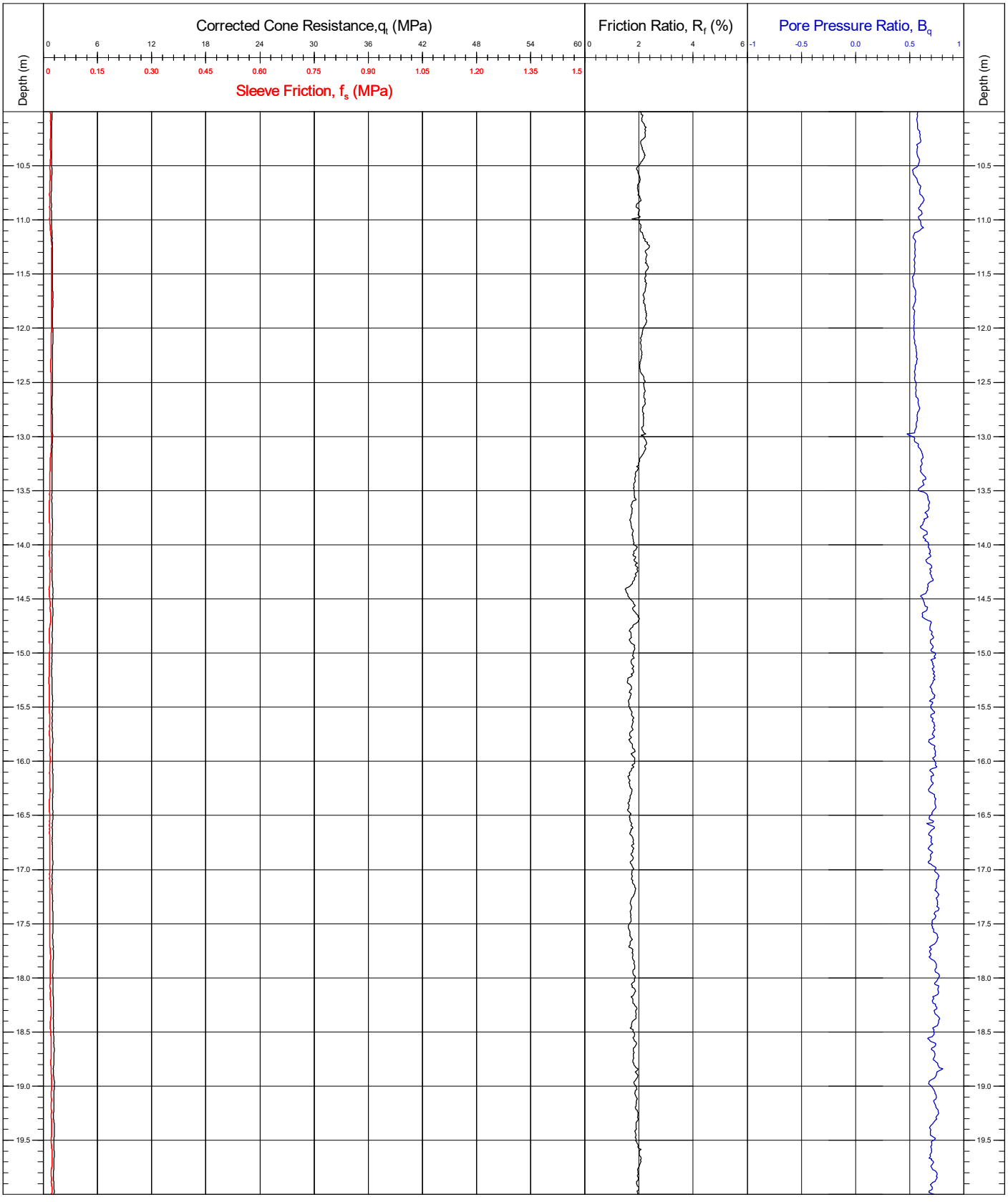


Area	**Kattegat Sea**	Coordinates	**679806.40E 6251702.40N**	CPT Number	**CPT4**
Contract	**11596**	Latitude / Longitude			
Client Name/Ref	**Energinet Eltransmission A/S/384_20_ENE**	Water Depth (mMSL)	**31.22**		
Vessel	**MV Ocean Vantage**	Date of Test	**27/04/2021**	Page: 1/4	
Comments: Cone class 4. Continuous seabed CPT. Final depth 32.39m. Test was terminated at operators discretion due to increasing sleeve and to prevent damage to equipment		Cone No.(size)/α Factor	**061040 (10cm^2) / 0.76**	QC Status	
		Base Inclination	**X = 0.0° / Y = 0.1°**	Preliminary: **JK/BC** (27/04/2021)	Draft: **DR** (10/06/2021) / Final: **SMc** (10/11/2021)
		CRS **ETRS89**			

Gardline

Preliminary Investigation, Hesselø OWF

IN SITU CPTU TESTING - DERIVED PARAMETERS

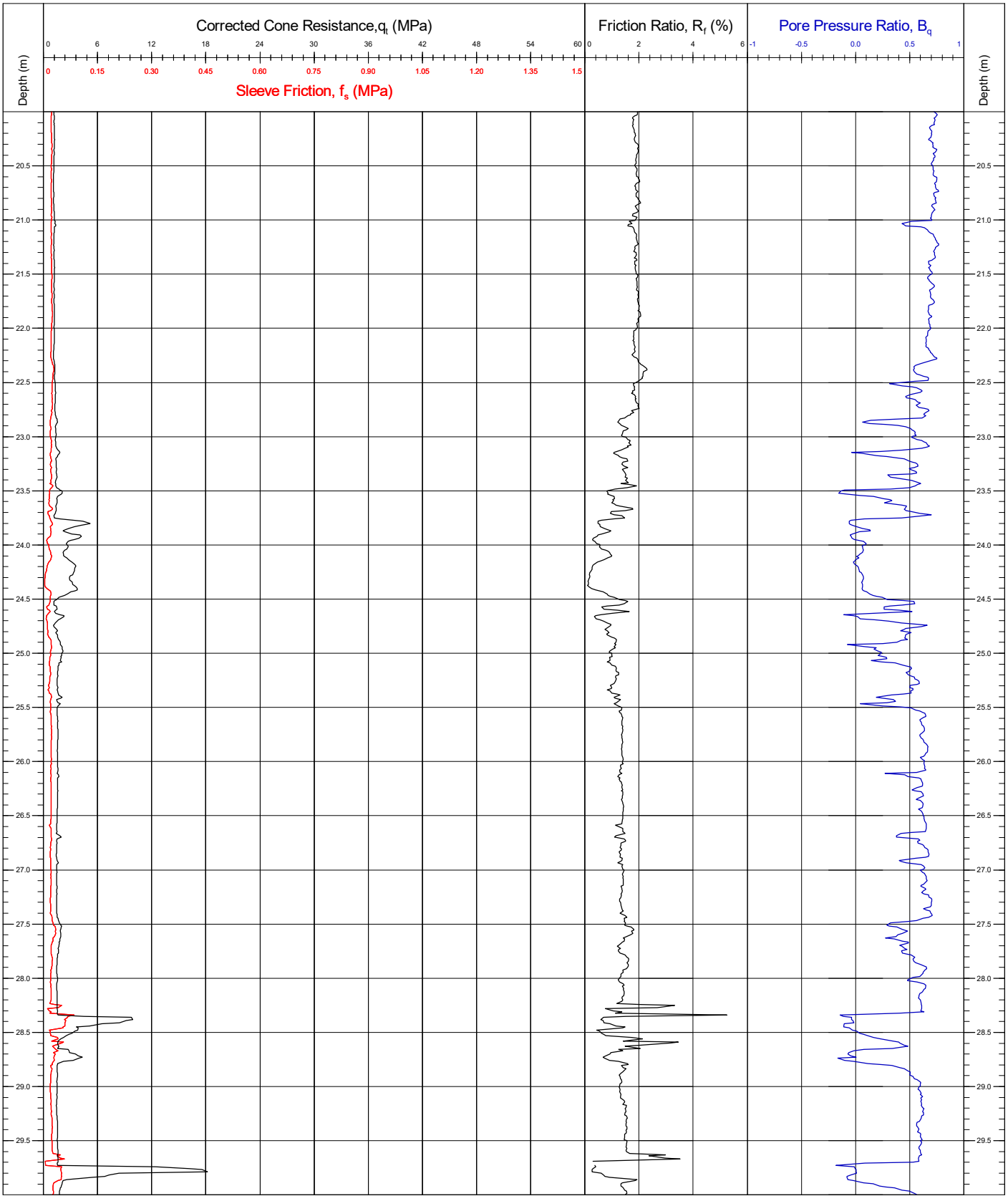


Area	**Kattegat Sea**	Coordinates	**679806.40E 6251702.40N**	CPT Number	**CPT4**
Contract	**11596**	Latitude / Longitude			
Client Name/Ref	**Energinet Eltransmission A/S/384_20_ENE**	Water Depth (mMSL)	**31.22**		
Vessel	**MV Ocean Vantage**	Date of Test	**27/04/2021**	Page: 2/4	
Comments: Cone class 4. Continuous seabed CPT. Final depth 32.39m. Test was terminated at operators discretion due to increasing sleeve and to prevent damage to equipment		Cone No.(size)/α Factor	**061040 (10cm^2) / 0.76**	QC Status	
		Base Inclination	**X = 0.0° / Y = 0.1°**	Preliminary / Draft / Final	
		CRS **ETRS89**		**JK/BC (27/04/2021)** / **DR (10/06/2021)** / **SMc (10/11/2021)**	

Gardline

Preliminary Investigation, Hesselø OWF

IN SITU CPTU TESTING - DERIVED PARAMETERS



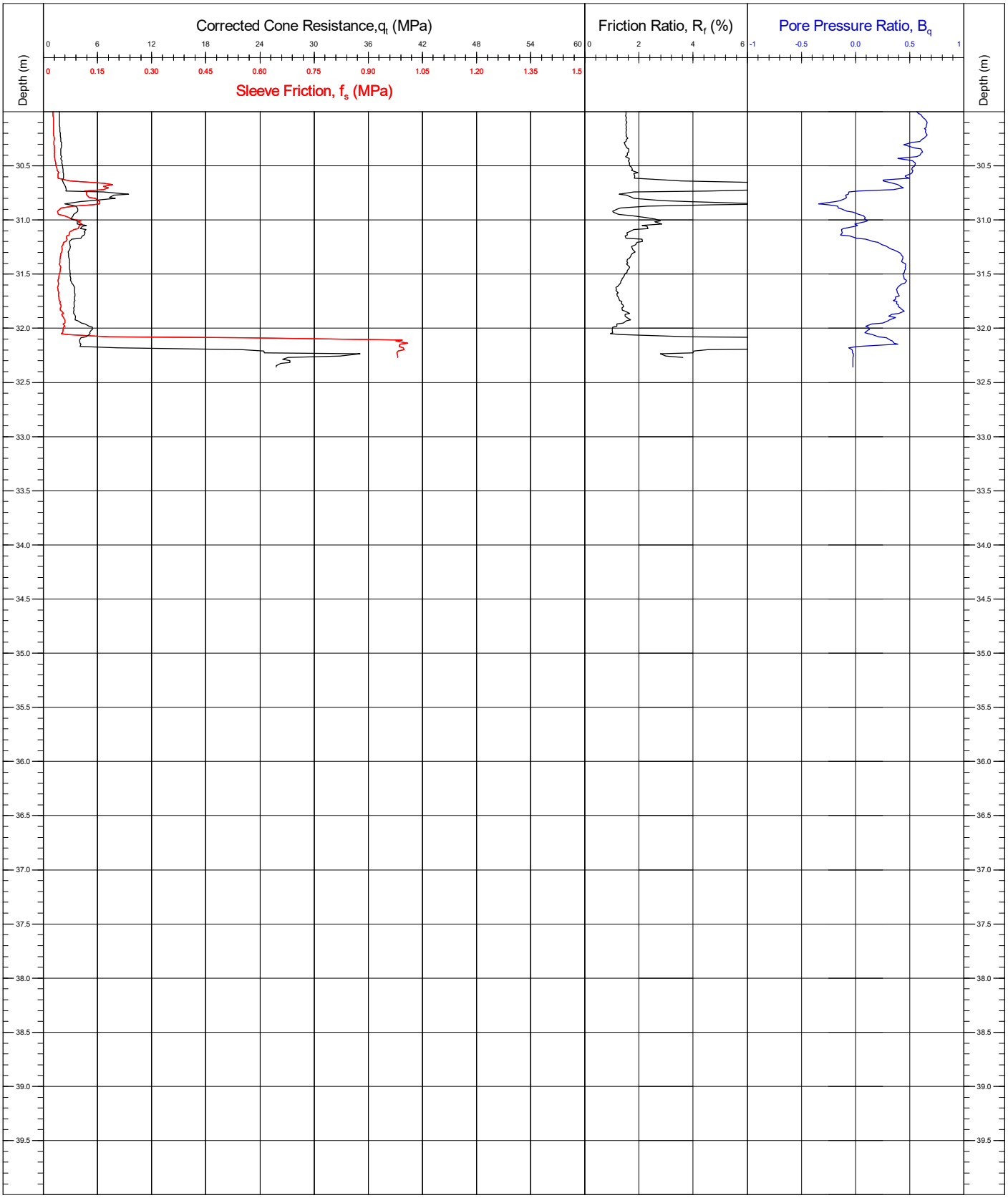
Area	**Kattegat Sea**	Coordinates	**679806.40E** **6251702.40N**	CPT Number	**CPT4**
Contract	**11596**	Latitude / Longitude			
Client Name/Ref	**Energinet Eltransmission A/S/384_20_ENE**	Water Depth (mMSL)	**31.22**		
Vessel	**MV Ocean Vantage**	Date of Test	**27/04/2021**	Page: 3/4	
		Cone No.(size)/α Factor	**061040 (10cm^2) / 0.76**	QC Status	
		Base Inclination	**X = 0.0° / Y = 0.1°**	Preliminary / Draft / Final	
		CRS **ETRS89**		**JK/BC** (27/04/2021) / **DR** (10/06/2021) / **SMc** (10/11/2021)	

Comments: Cone class 4. Continuous seabed CPT. Final depth 32.39m. Test was terminated at operators discretion due to increasing sleeve and to prevent damage to equipment

Gardline

Preliminary Investigation, Hesselø OWF

IN SITU CPTU TESTING - DERIVED PARAMETERS



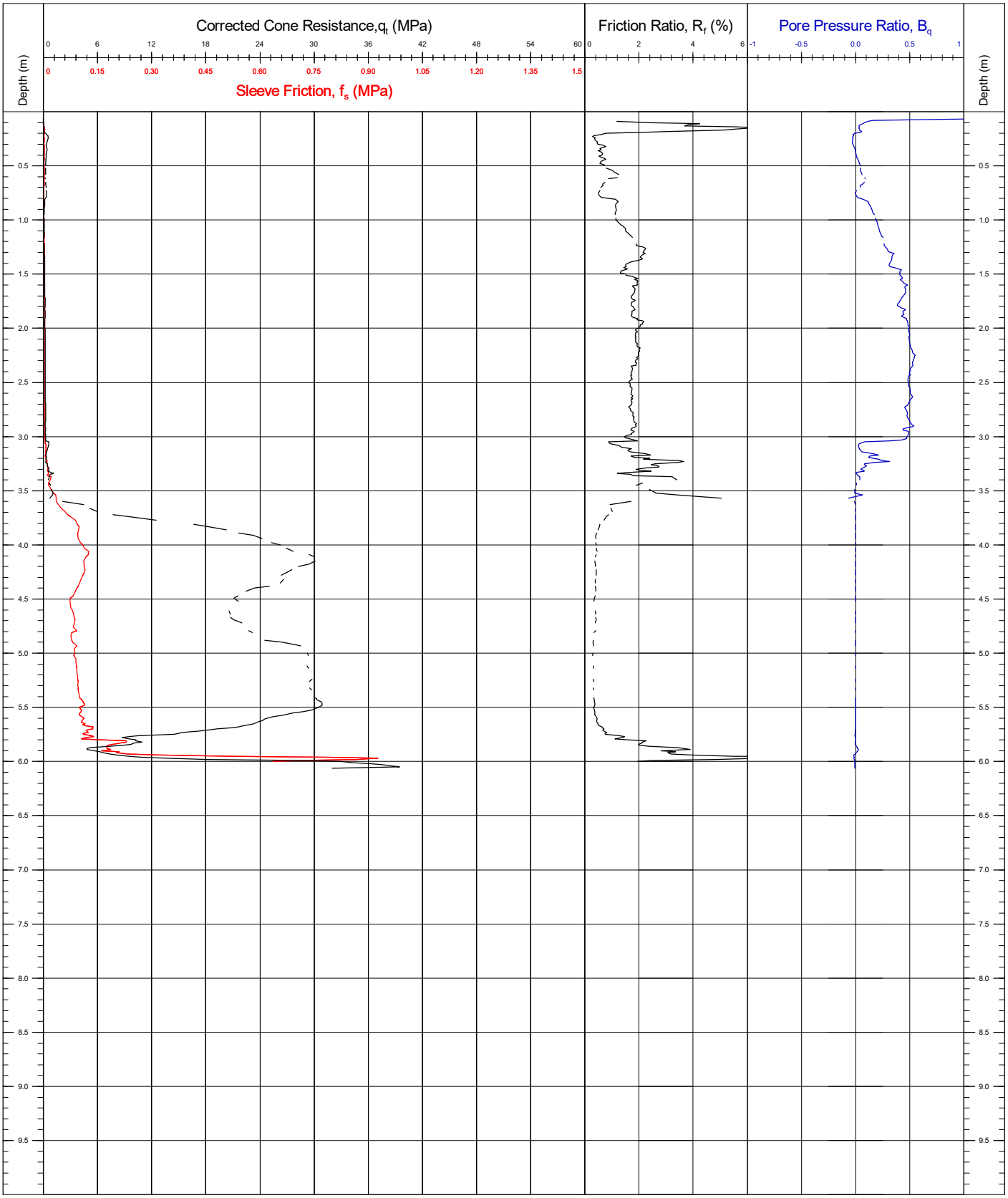
Area	**Kattegat Sea**	Coordinates	**679806.40E**	**6251702.40N**	CPT Number **CPT4**
Contract	**11596**	Latitude / Longitude			
Client Name/Ref	**Energinet Eltransmission A/S/384_20_ENE**	Water Depth (mMSL)	**31.22**		Page: 4/4
Vessel	**MV Ocean Vantage**	Date of Test	**27/04/2021**		QC Status
		Cone No.(size)/α Factor	**061040 (10cm^2) / 0.76**		Preliminary: **JK/BC** (27/04/2021) · Draft: **DR** (10/06/2021) · Final: **SMc** (10/11/2021)
		Base Inclination	**X = 0.0° / Y = 0.1°**		
		CRS **ETRS89**			

Comments: Cone class 4. Continuous seabed CPT. Final depth 32.39m. Test was terminated at operators discretion due to increasing sleeve and to prevent damage to equipment

Gardline

Preliminary Investigation, Hesselø OWF

IN SITU CPTU TESTING - DERIVED PARAMETERS

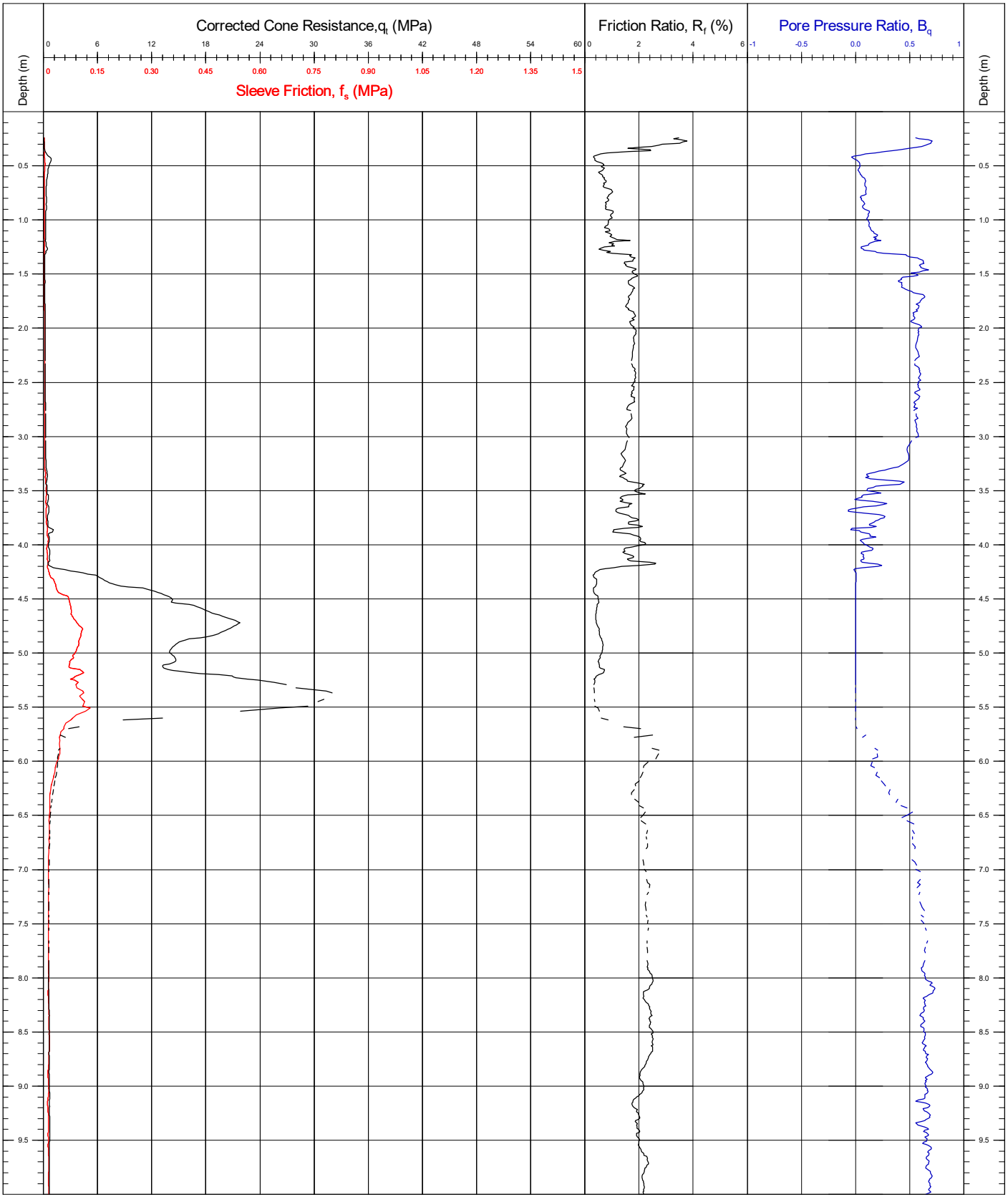


Area	**Kattegat Sea**	Coordinates	**668836.60E 6255857.70N**	CPT Number	**CPT6**
Contract	**11596**	Latitude / Longitude			
Client Name/Ref	**Energinet Eltransmission A/S/384_20_ENE**	Water Depth (mMSL)	**26.95**		
Vessel	**MV Ocean Vantage**	Date of Test	**29/04/2021**	Page: 1/1	
Comments: Cone class 2. Continuous seabed CPT. Final depth 6.06m. Test terminated at operators discretion due to sudden increase in sleeve friction and tip resistance		Cone No.(size)/α Factor	**191114 (10cm^2) / 0.76**	QC Status	
		Base Inclination	**X = -0.3° / Y = 0.8°**	Preliminary: **JK/BC** (29/04/2021)	Draft: **DR** (10/06/2021) / Final: **SMc** (10/11/2021)
		CRS **ETRS89**			

Gardline

Preliminary Investigation, Hesselø OWF

IN SITU CPTU TESTING - DERIVED PARAMETERS

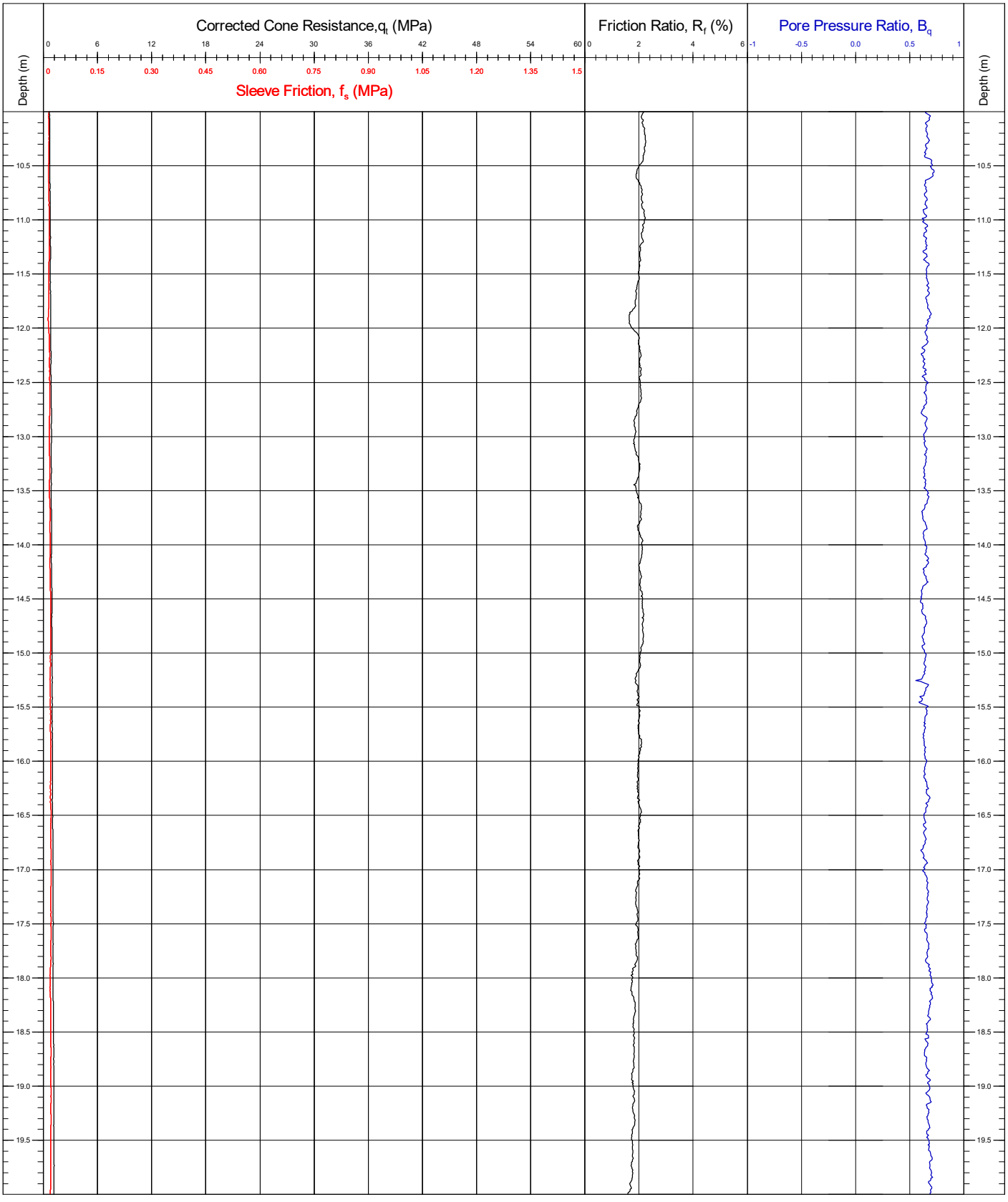


Area	**Kattegat Sea**	Coordinates	**668836.90E 6255852.50N**	CPT Number	**CPT6a**
Contract	**11596**	Latitude / Longitude			
Client Name/Ref	**Energinet Eltransmission A/S/384_20_ENE**	Water Depth (mMSL)	**26.93**		
Vessel	**MV Ocean Vantage**	Date of Test	**29/04/2021**	Page: 1/4	
Comments: Cone class 4. Continuous seabed CPT. Final depth 36.80m. Test terminated at operators discretion due to increasing total load~ tip resistance and lack of lateral rod support		Cone No.(size)/α Factor	**120829 (10cm^2) / 0.8**	QC Status	
		Base Inclination	**X = 1.1° / Y = 1.0°**	Preliminary: **JK/BC** (29/04/2021)	Draft: **DR** (10/06/2021) / Final: **SMc** (10/11/2021)
		CRS **ETRS89**			

Gardline

Preliminary Investigation, Hesselø OWF

IN SITU CPTU TESTING - DERIVED PARAMETERS

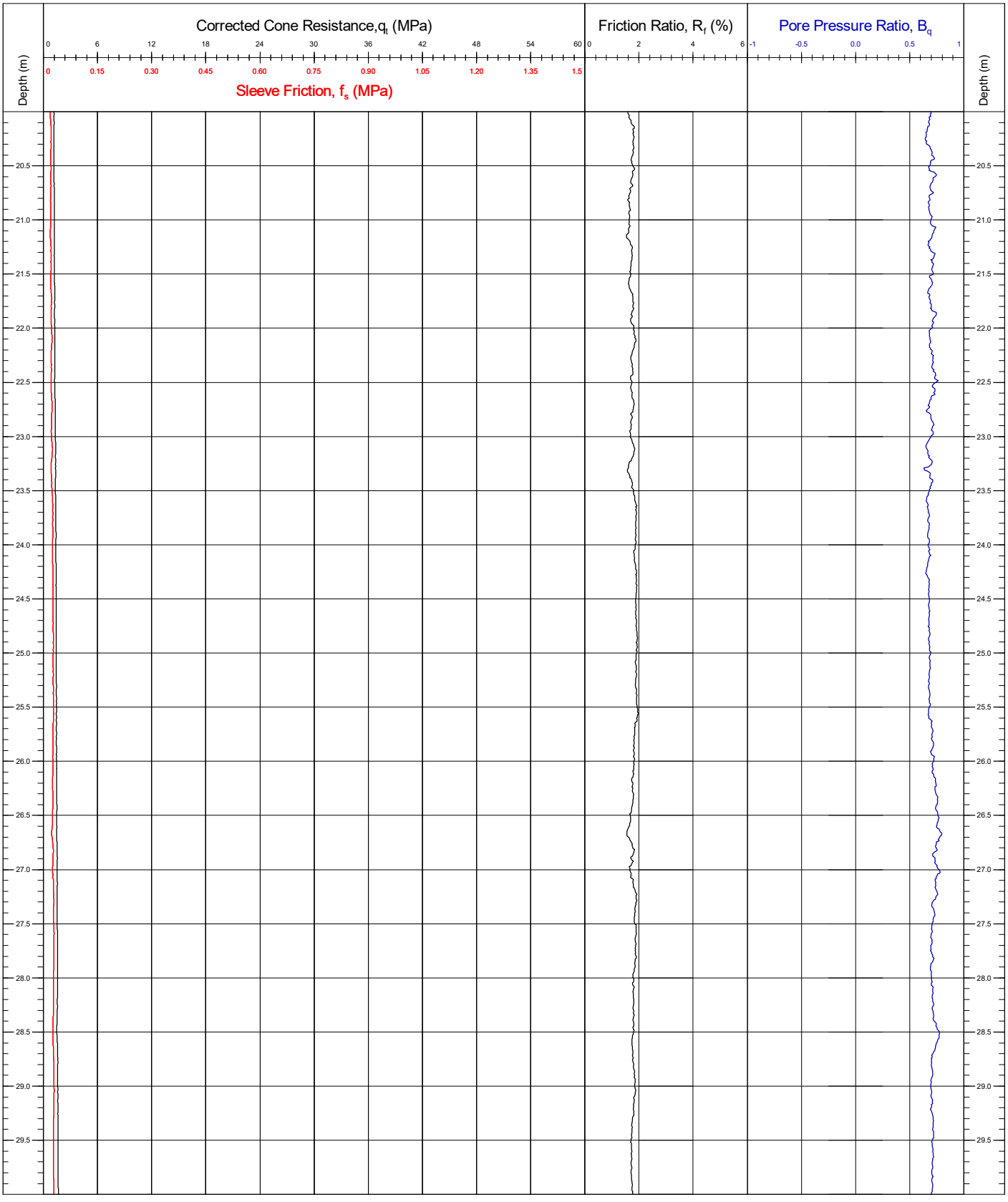


Area	**Kattegat Sea**	Coordinates	**668836.90E 6255852.50N**	CPT Number	**CPT6a**
Contract	**11596**	Latitude / Longitude			
Client Name/Ref	**Energinet Eltransmission A/S/384_20_ENE**	Water Depth (mMSL)	**26.93**		
Vessel	**MV Ocean Vantage**	Date of Test	**29/04/2021**	Page: 2/4	
		Cone No.(size)/α Factor	**120829 (10cm^2) / 0.8**	QC Status	
		Base Inclination	**X = 1.1° / Y = 1.0°**	Preliminary: **JK/BC (29/04/2021)**	Draft: **DR (10/06/2021)**
		CRS **ETRS89**			Final: **SMc (10/11/2021)**

Comments: Cone class 4. Continuous seabed CPT. Final depth 36.80m. Test terminated at operators discretion due to increasing total load~ tip resistance and lack of lateral rod support

Preliminary Investigation, Hesselø OWF

IN SITU CPTU TESTING - DERIVED PARAMETERS



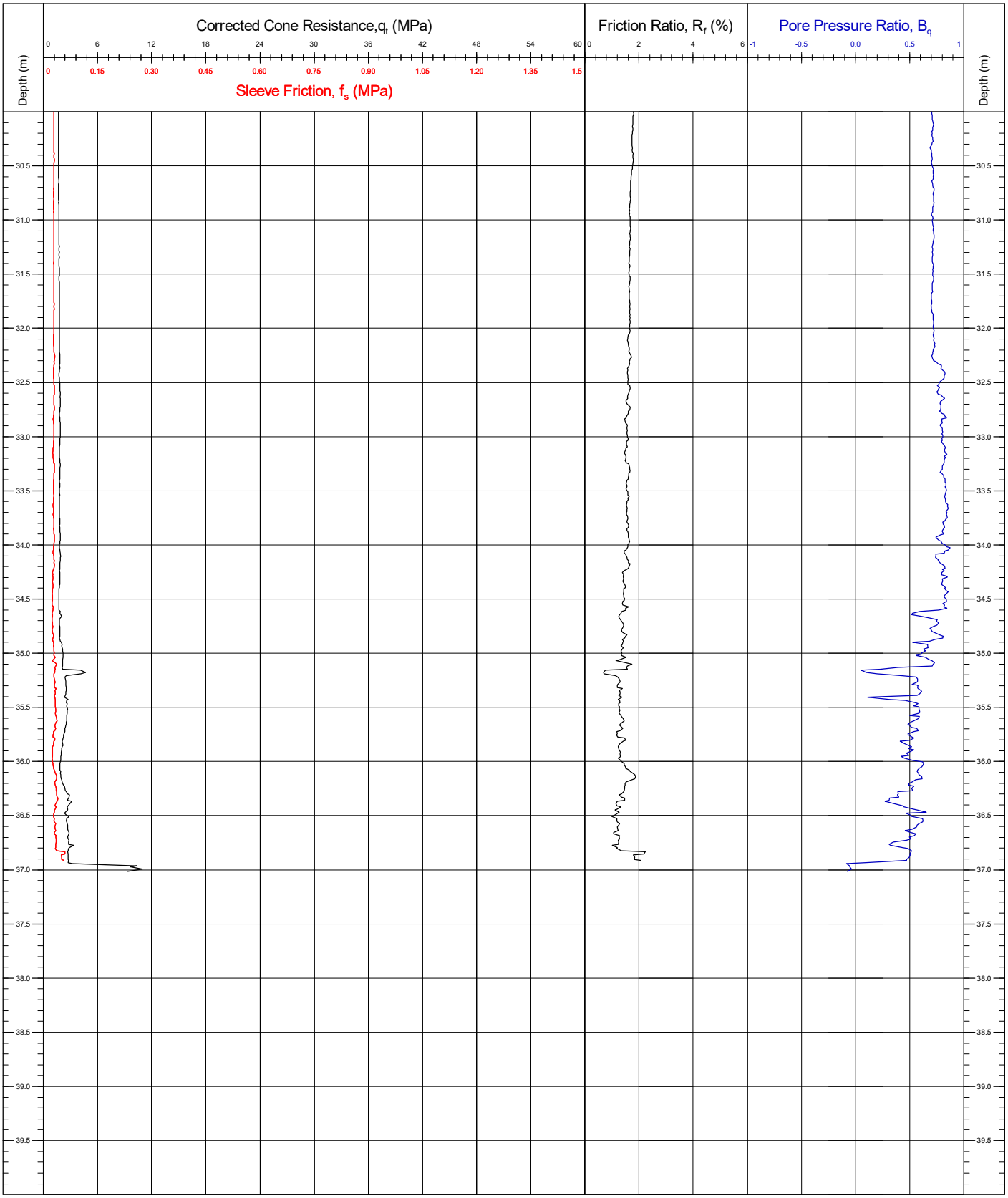
Area	**Kattegat Sea**	Coordinates	**668836.90E 6255852.50N**	CPT Number	**CPT6a**
Contract	**11596**	Latitude / Longitude			
Client Name/Ref	**Energinet Eltransmission A/S/384_20_ENE**	Water Depth (mMSL)	**26.93**		
Vessel	**MV Ocean Vantage**	Date of Test	**29/04/2021**	Page: 3/4	
		Cone No.(size)/α Factor	**120829 (10cm^2) / 0.8**	QC Status	
		Base Inclination	**X = 1.1° / Y = 1.0°**	Preliminary: **JK/BC (29/04/2021)**	Draft: **DR (10/06/2021)**
		CRS **ETRS89**			Final: **SMc (10/11/2021)**

Comments: Cone class 4. Continuous seabed CPT. Final depth 36.80m. Test terminated at operators discretion due to increasing total load~ tip resistance and lack of lateral rod support

Gardline

Preliminary Investigation, Hesselø OWF

IN SITU CPTU TESTING - DERIVED PARAMETERS

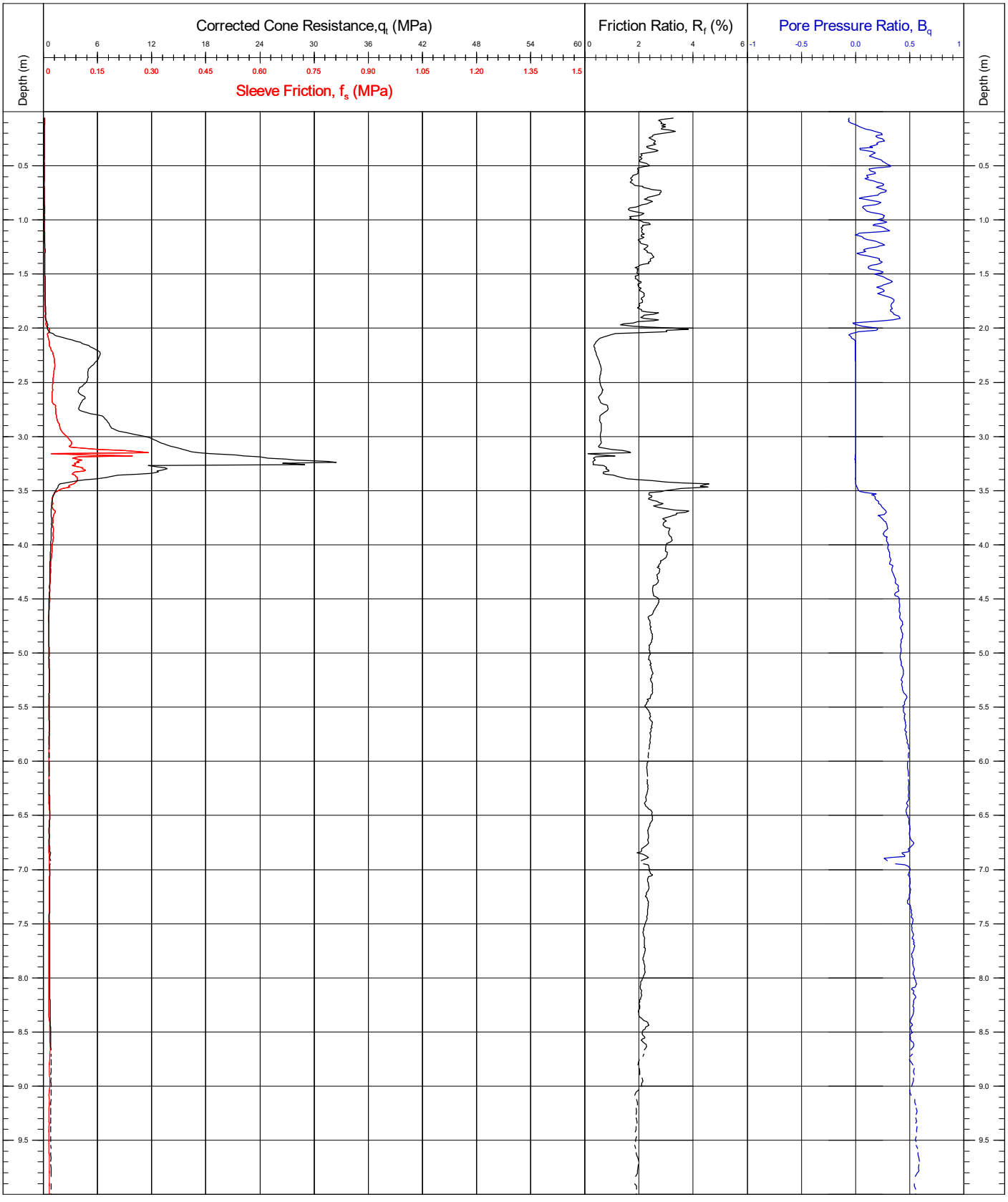


Area	**Kattegat Sea**	Coordinates	**668836.90E 6255852.50N**	CPT Number	**CPT6a**
Contract	**11596**	Latitude / Longitude			
Client Name/Ref	**Energinet Eltransmission A/S/384_20_ENE**	Water Depth (mMSL)	**26.93**		
Vessel	**MV Ocean Vantage**	Date of Test	**29/04/2021**	Page: 4/4	
Comments: Cone class 4. Continuous seabed CPT. Final depth 36.80m. Test terminated at operators discretion due to increasing total load~ tip resistance and lack of lateral rod support		Cone No.(size)/α Factor	**120829 (10cm^2) / 0.8**	QC Status	
		Base Inclination	**X = 1.1° / Y = 1.0°**	Preliminary: **JK/BC** (29/04/2021)	Draft: **DR** (10/06/2021) / Final: **SMc** (10/11/2021)
		CRS **ETRS89**			

Gardline

Preliminary Investigation, Hesselø OWF

IN SITU CPTU TESTING - DERIVED PARAMETERS

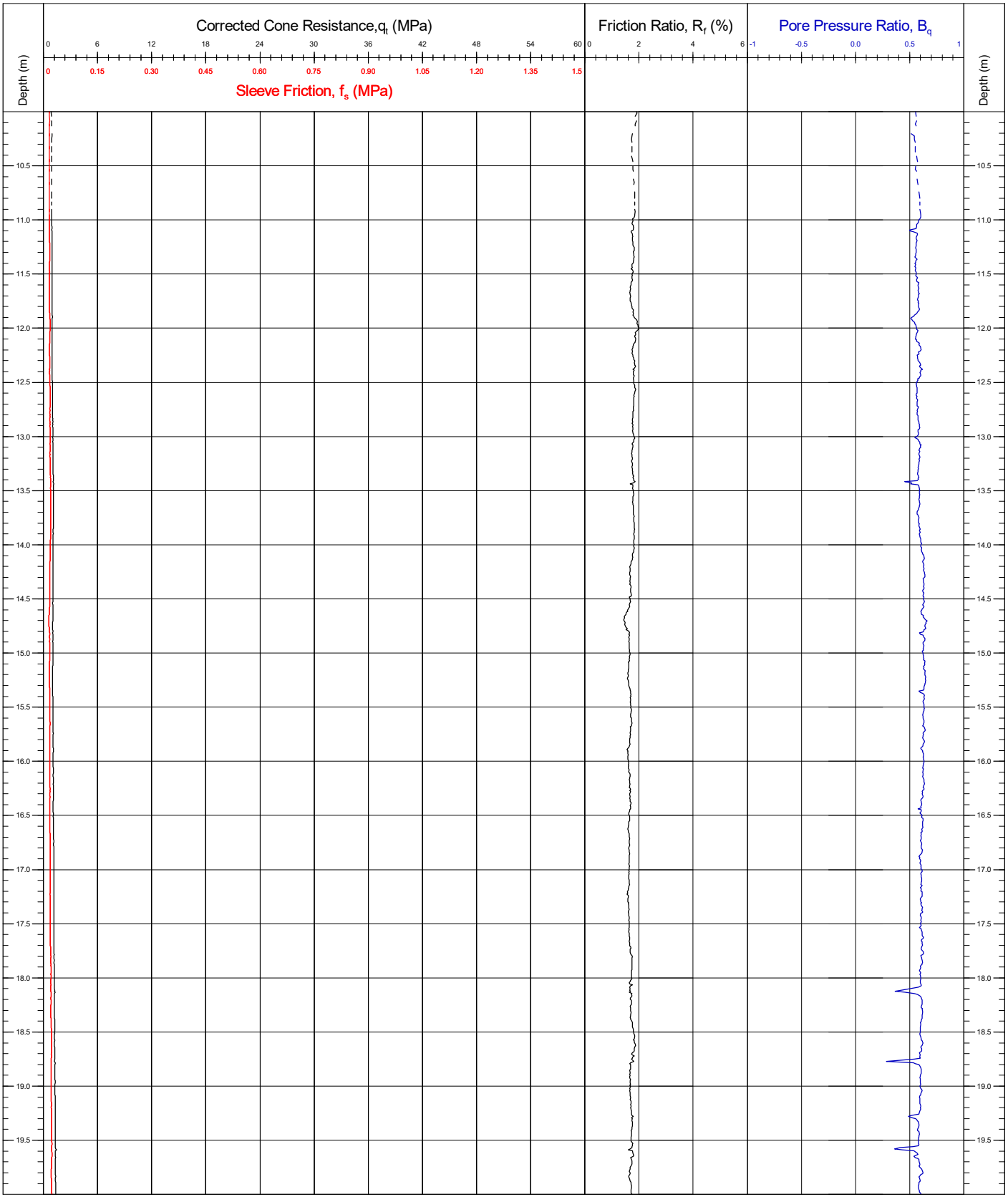


Area	**Kattegat Sea**	Coordinates	**671921.20E 6256092.00N**	CPT Number	**CPT7**
Contract	**11596**	Latitude / Longitude			
Client Name/Ref	**Energinet Eltransmission A/S/384_20_ENE**	Water Depth (mMSL)	**29.16**		
Vessel	**MV Ocean Vantage**	Date of Test	**29/04/2021**	Page: 1/4	
Comments: Cone class 1. Continuous seabed CPT. Final depth 36.67m. Test terminated at operators discretion due to a sudden increase in tip resistance~ high total load and near maximum cone inclination of 11.59 degrees		Cone No.(size)/α Factor	**191114 (10cm^2) / 0.76**	QC Status	
		Base Inclination	**X = 0.0° / Y = 0.0°**	Preliminary / Draft / Final	
		CRS **ETRS89**		**JK/BC** (29/04/2021) / **DR** (10/06/2021) / **SMc** (10/11/2021)	

Gardline

Preliminary Investigation, Hesselø OWF

IN SITU CPTU TESTING - DERIVED PARAMETERS



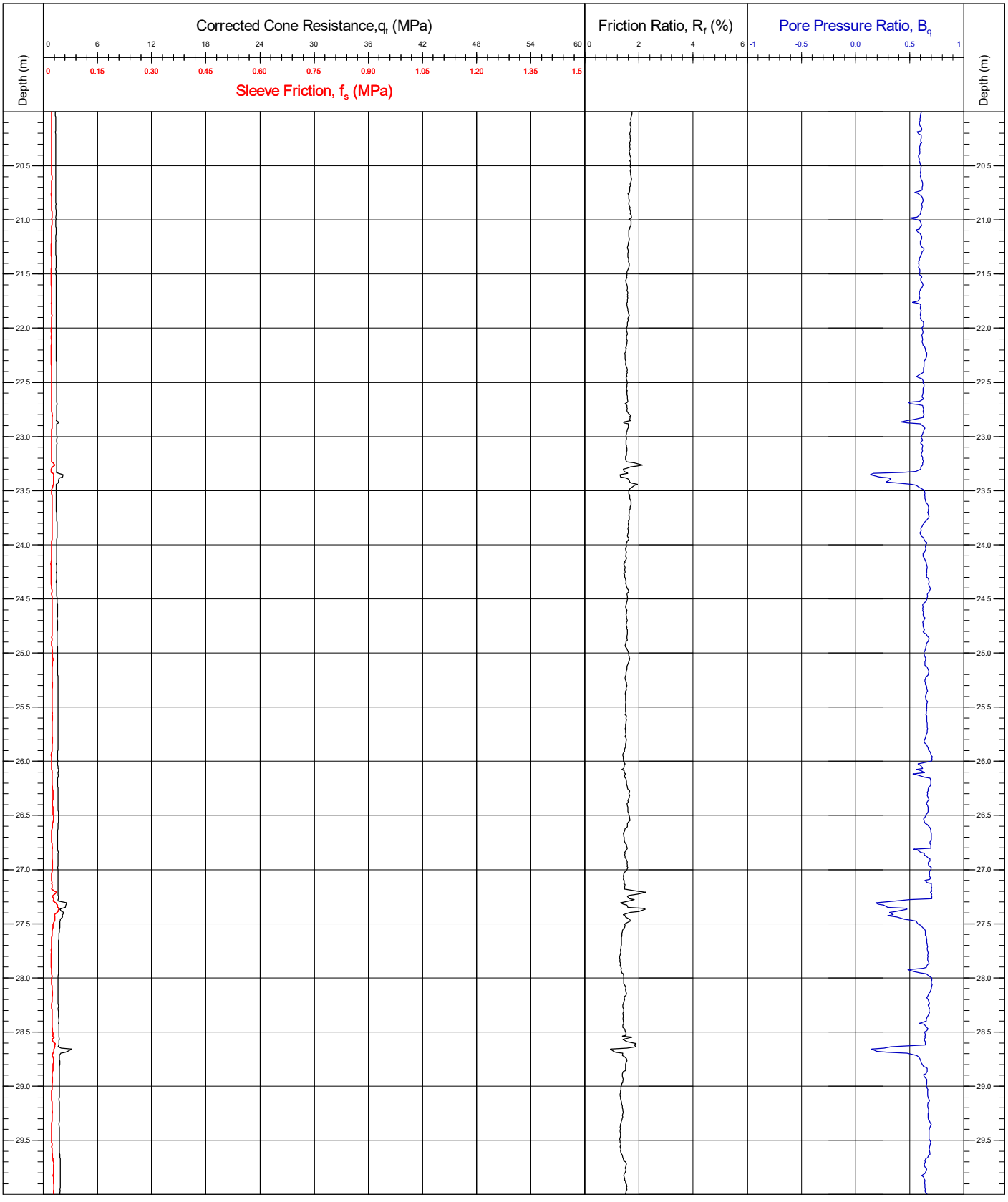
Area	**Kattegat Sea**	Coordinates	**671921.20E** **6256092.00N**	CPT Number	**CPT7**
Contract	**11596**	Latitude / Longitude			
Client Name/Ref	**Energinet Eltransmission A/S/384_20_ENE**	Water Depth (mMSL)	**29.16**		
Vessel	**MV Ocean Vantage**	Date of Test	**29/04/2021**	Page: 2/4	
		Cone No.(size)/α Factor	**191114 (10cm^2) / 0.76**	QC Status	
		Base Inclination	**X = 0.0° / Y = 0.0°**	Preliminary: **JK/BC** (29/04/2021)	Draft: **DR** (10/06/2021)
		CRS **ETRS89**			Final: **SMc** (10/11/2021)

Comments: Cone class 1. Continuous seabed CPT. Final depth 36.67m. Test terminated at operators discretion due to a sudden increase in tip resistance~ high total load and near maximum cone inclination of 11.59 degrees

Gardline

Preliminary Investigation, Hesselø OWF

IN SITU CPTU TESTING - DERIVED PARAMETERS



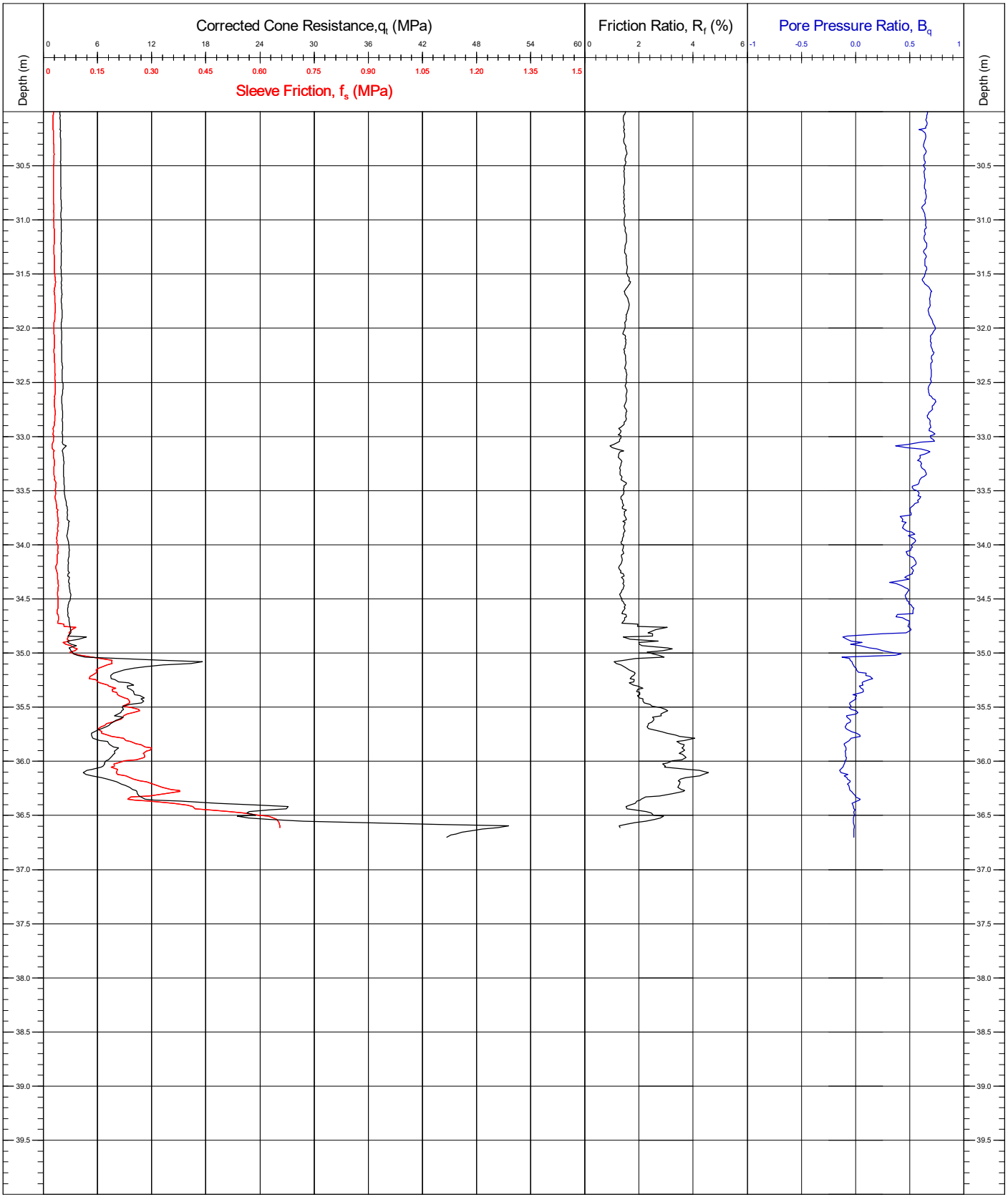
Area	**Kattegat Sea**	Coordinates	**671921.20E 6256092.00N**	CPT Number	**CPT7**
Contract	**11596**	Latitude / Longitude			
Client Name/Ref	**Energinet Eltransmission A/S/384_20_ENE**	Water Depth (mMSL)	**29.16**		
Vessel	**MV Ocean Vantage**	Date of Test	**29/04/2021**	Page: 3/4	
		Cone No.(size)/α Factor	**191114 (10cm^2) / 0.76**	QC Status	
		Base Inclination	**X = 0.0° / Y = 0.0°**	Preliminary: **JK/BC** (29/04/2021)	Draft: **DR** (10/06/2021)
		CRS **ETRS89**			Final: **SMc** (10/11/2021)

Comments: Cone class 1. Continuous seabed CPT. Final depth 36.67m. Test terminated at operators discretion due to a sudden increase in tip resistance~ high total load and near maximum cone inclination of 11.59 degrees

Gardline

Preliminary Investigation, Hesselø OWF

IN SITU CPTU TESTING - DERIVED PARAMETERS



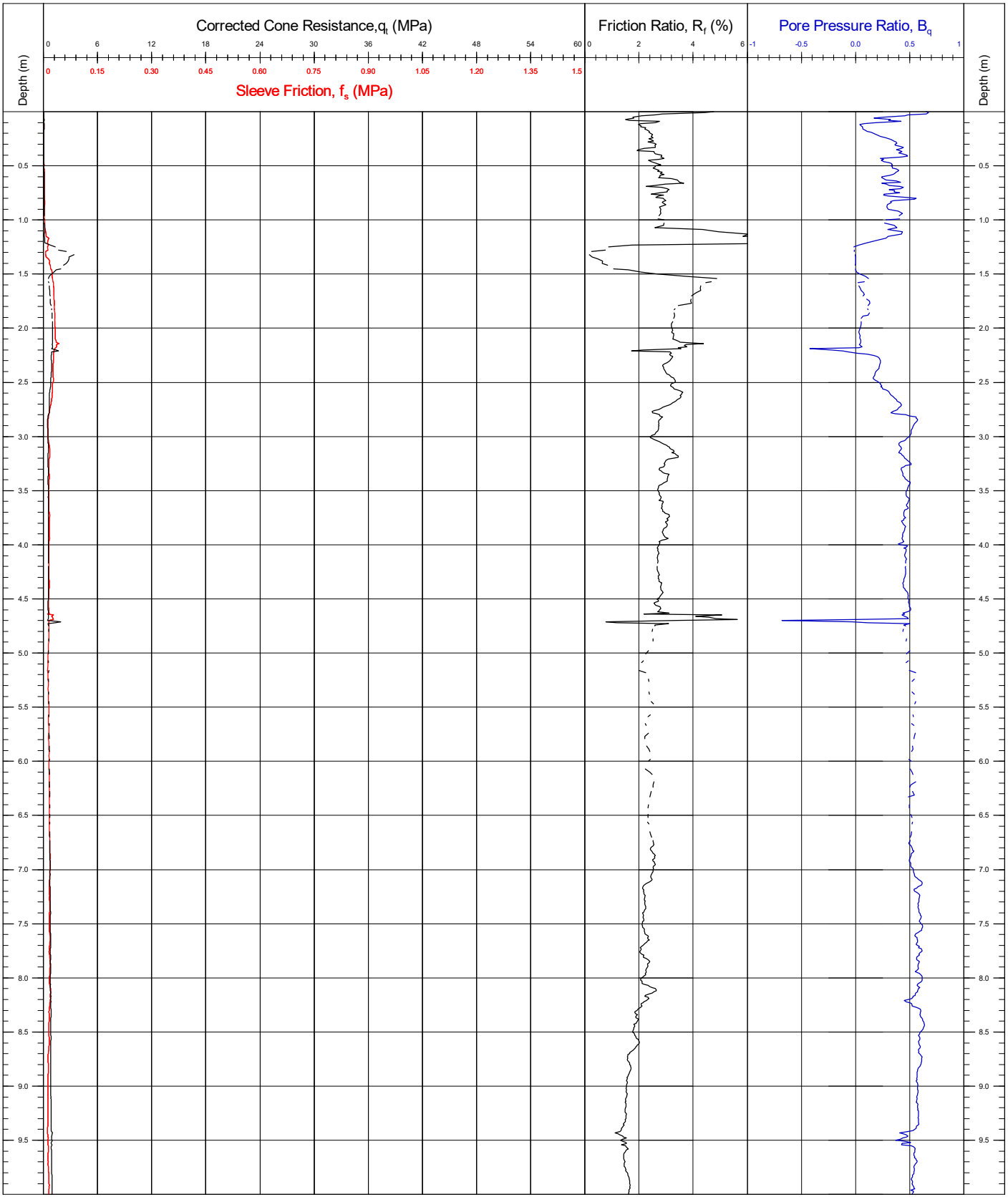
Area	**Kattegat Sea**	Coordinates	**671921.20E 6256092.00N**	CPT Number	**CPT7**
Contract	**11596**	Latitude / Longitude			
Client Name/Ref	**Energinet Eltransmission A/S/384_20_ENE**	Water Depth (mMSL)	**29.16**		
Vessel	**MV Ocean Vantage**	Date of Test	**29/04/2021**	Page: 4/4	
		Cone No.(size)/α Factor	**191114 (10cm^2) / 0.76**	QC Status	
		Base Inclination	**X = 0.0° / Y = 0.0°**	Preliminary: **JK/BC** (29/04/2021)	Draft: **DR** (10/06/2021) / Final: **SMc** (10/11/2021)
		CRS **ETRS89**			

Comments: Cone class 1. Continuous seabed CPT. Final depth 36.67m. Test terminated at operators discretion due to a sudden increase in tip resistance~ high total load and near maximum cone inclination of 11.59 degrees

Gardline

Preliminary Investigation, Hesselø OWF

IN SITU CPTU TESTING - DERIVED PARAMETERS



Area	**Kattegat Sea**	Coordinates	**674879.50E 6255586.40N**	CPT Number	**CPT8**
Contract	**11596**	Latitude / Longitude			
Client Name/Ref	**Energinet Eltransmission A/S/384_20_ENE**	Water Depth (mMSL)	**30.62**		
Vessel	**MV Ocean Vantage**	Date of Test	**27/04/2021**	Page: 1/3	
		Cone No.(size)/α Factor	**081208 (10cm^2) / 0.78**	QC Status	
		Base Inclination	**X = 1.1° / Y = 1.0°**	Preliminary / Draft / Final	
		CRS **ETRS89**		**JK/BC** (27/04/2021) / **DR** (10/06/2021) / **SMc** (10/11/2021)	

Comments: Cone class 1. Continuous seabed CPT. Final depth 20.80m. Test was terminated at the operators discretion due to lack of lateral rod support from mudline~ resulting in a high risk of buckling rods when encountering very dense sands.

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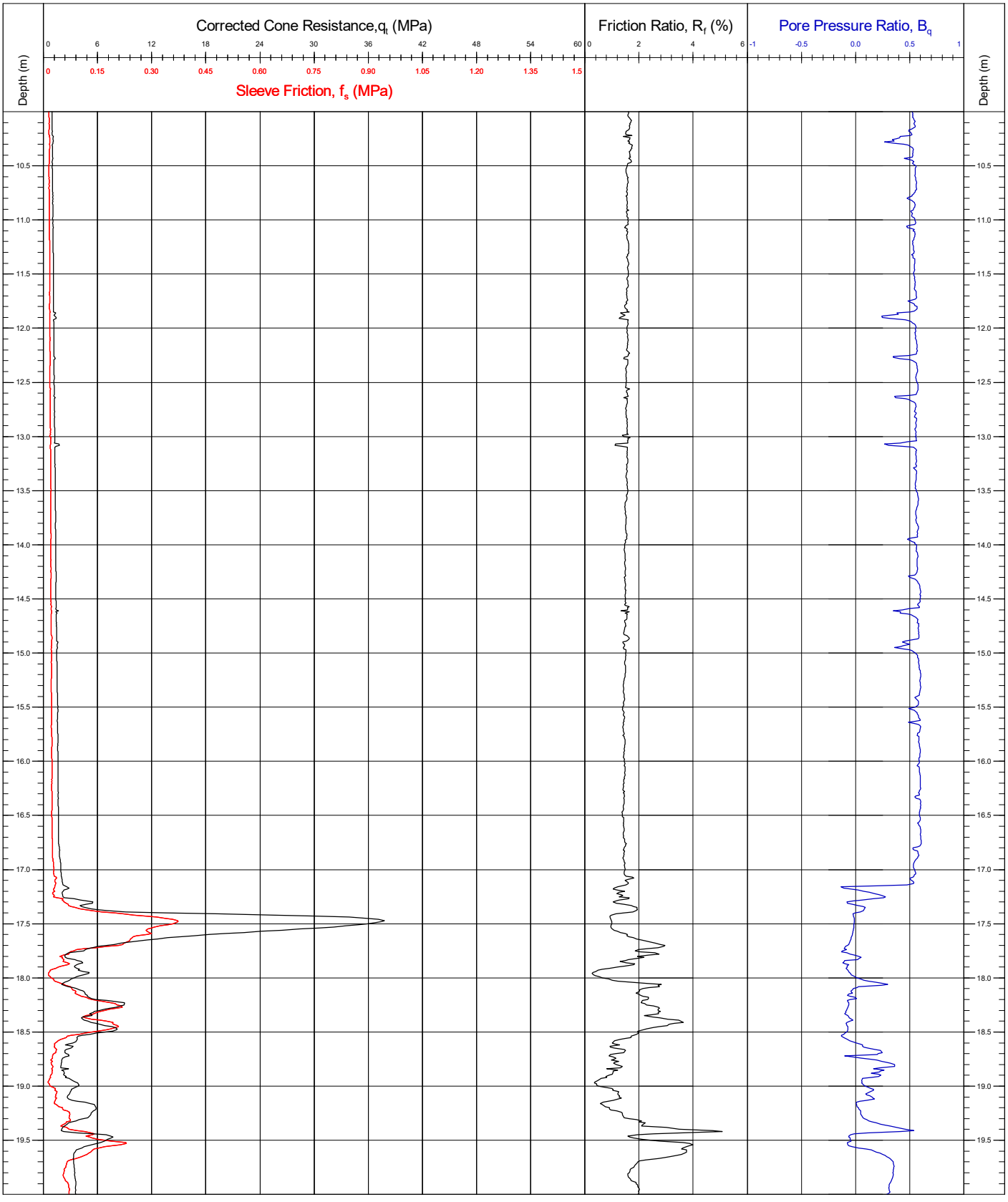
IN SITU CPTU TESTING - DERIVED PARAMETERS

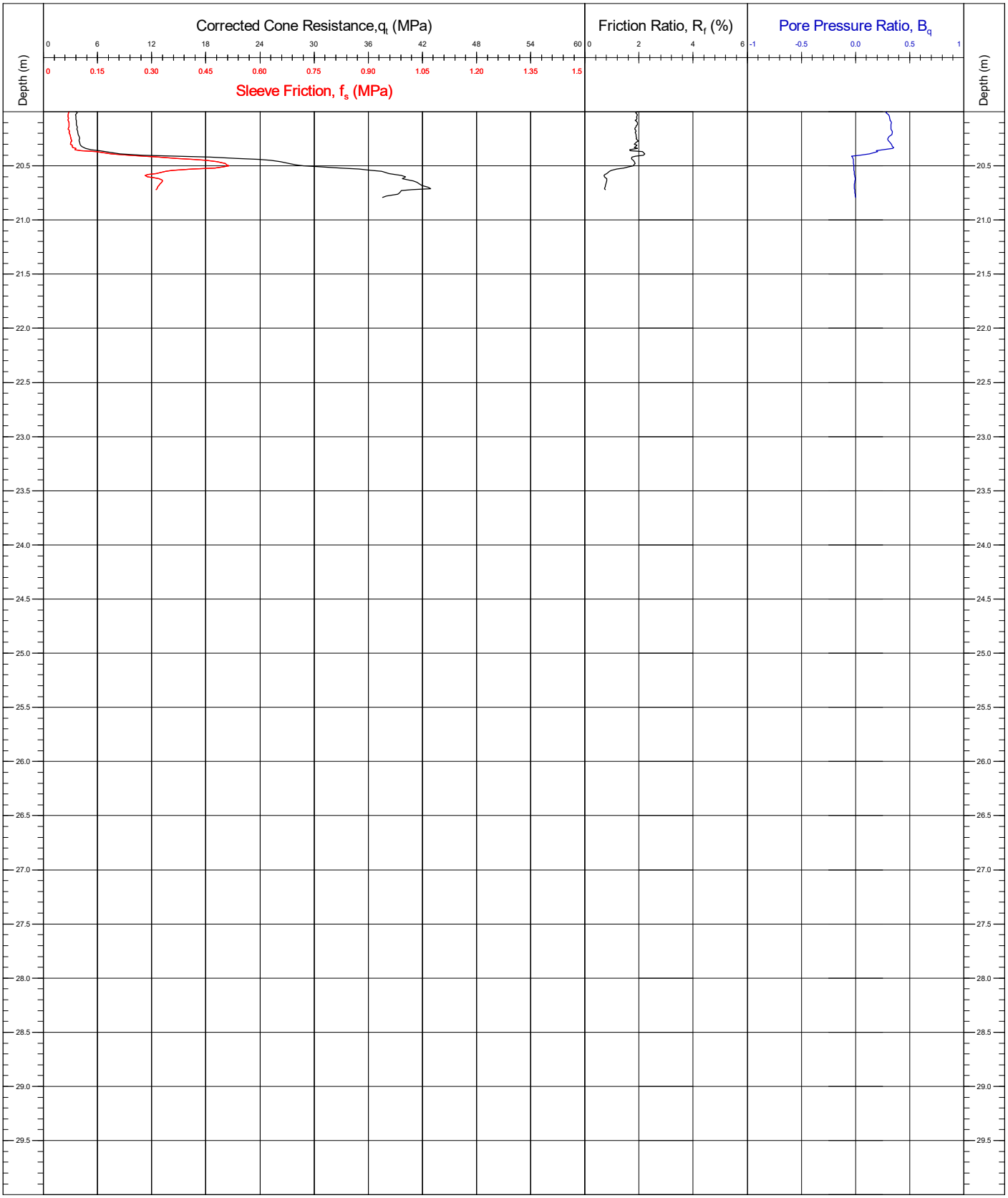


Area	**Kattegat Sea**	Coordinates	**674879.50E 6255586.40N**	CPT Number	**CPT8**
Contract	**11596**	Latitude / Longitude			
Client Name/Ref	**Energinet Eltransmission A/S/384_20_ENE**	Water Depth (mMSL)	**30.62**		
Vessel	**MV Ocean Vantage**	Date of Test	**27/04/2021**	Page: 2/3	
		Cone No.(size)/α Factor	**081208 (10cm^2) / 0.78**	QC Status	
		Base Inclination	**X = 1.1° / Y = 1.0°**	Preliminary: **JK/BC** (27/04/2021)	Draft: **DR** (10/06/2021)
		CRS **ETRS89**			Final: **SMc** (10/11/2021)

Comments: Cone class 1. Continuous seabed CPT. Final depth 20.80m. Test was terminated at the operators discretion due to lack of lateral rod support from mudline~ resulting in a high risk of buckling rods when encountering very dense sands.

Preliminary Investigation, Hesselø OWF

IN SITU CPTU TESTING - DERIVED PARAMETERS



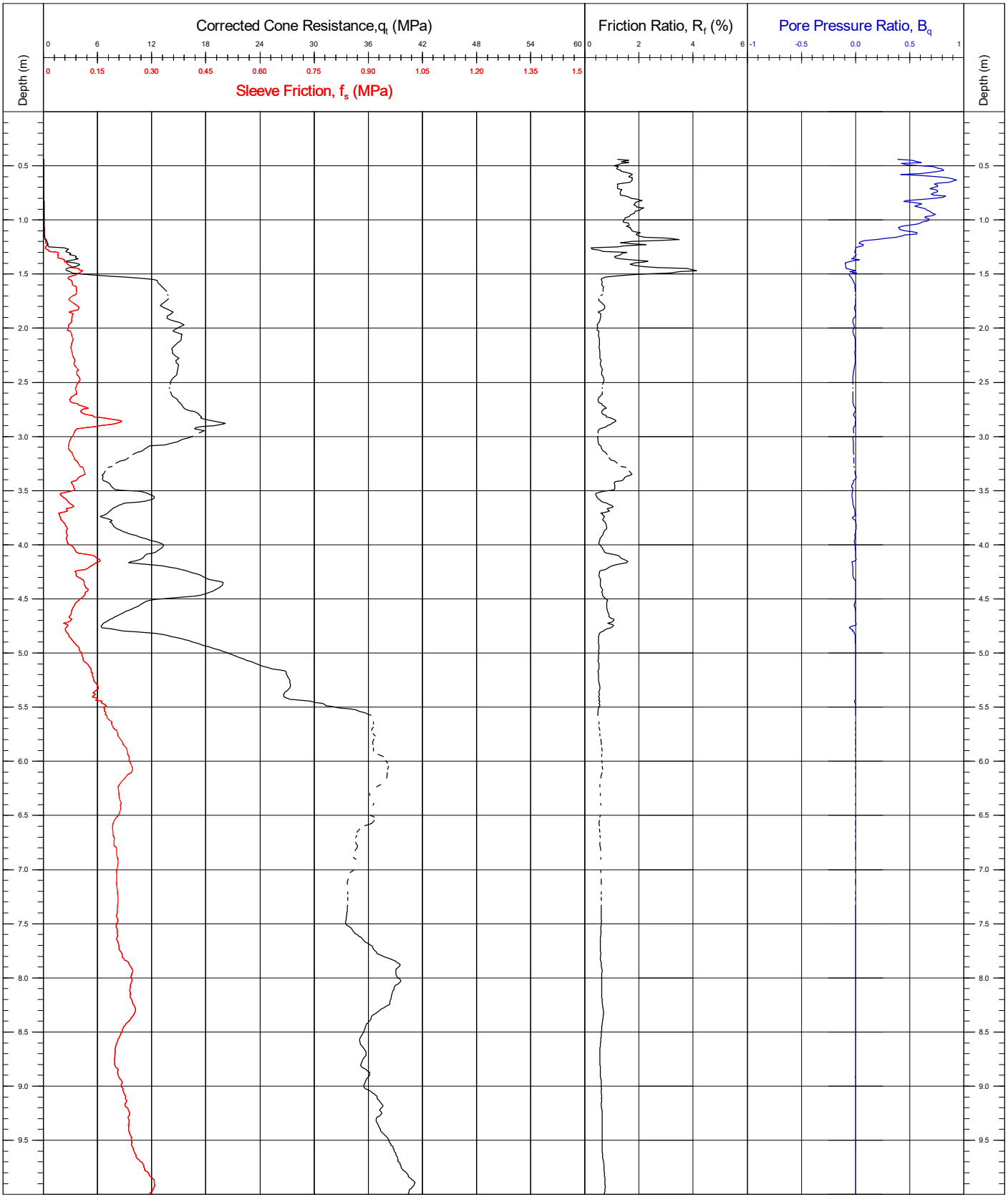
Area	**Kattegat Sea**	Coordinates	**674879.50E 6255586.40N**	CPT Number	**CPT8**
Contract	**11596**	Latitude / Longitude			
Client Name/Ref	**Energinet Eltransmission A/S/384_20_ENE**	Water Depth (mMSL)	**30.62**		
Vessel	**MV Ocean Vantage**	Date of Test	**27/04/2021**	Page: 3/3	
		Cone No.(size)/α Factor	**081208 (10cm^2) / 0.78**	QC Status	
		Base Inclination	**X = 1.1° / Y = 1.0°**	Preliminary / Draft / Final	
		CRS **ETRS89**		**JK/BC** (27/04/2021) / **DR** (10/06/2021) / **SMc** (10/11/2021)	

Comments: Cone class 1. Continuous seabed CPT. Final depth 20.80m. Test was terminated at the operators discretion due to lack of lateral rod support from mudline~ resulting in a high risk of buckling rods when encountering very dense sands.

Gardline

Preliminary Investigation, Hesselø OWF

IN SITU CPTU TESTING - DERIVED PARAMETERS

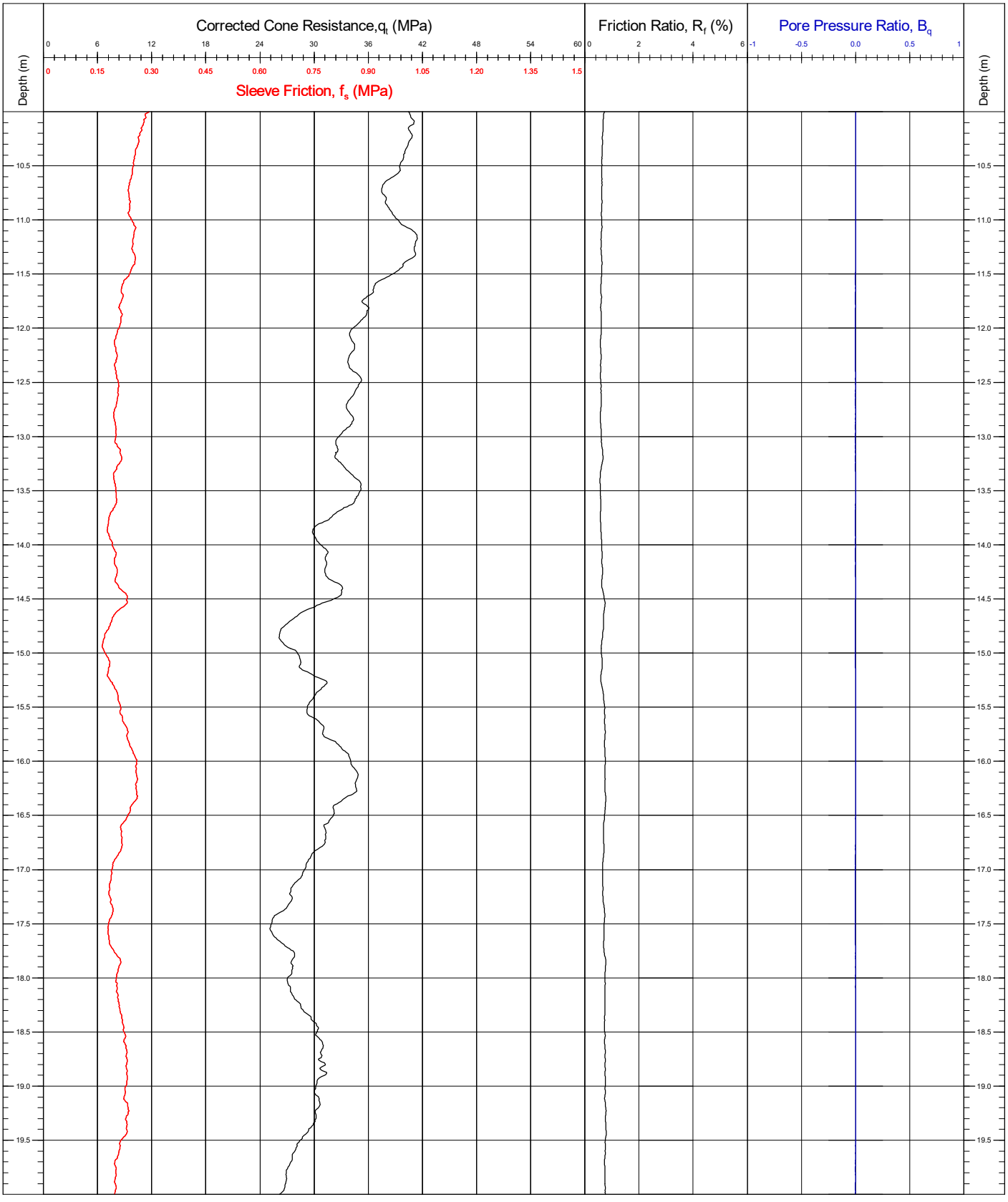


Area	**Kattegat Sea**	Coordinates	**676157.00E 6257143.60N**	CPT Number	**CPT9**
Contract	**11596**	Latitude / Longitude			
Client Name/Ref	**Energinet Eltransmission A/S/384_20_ENE**	Water Depth (mMSL)	**31.54**		
Vessel	**MV Ocean Vantage**	Date of Test	**26/04/2021**	Page: 1/4	
Comments: Cone Class 2. Continuous seabed CPT. Final depth 32.20m. Test was terminated due to increasing cone inclination~ SBF inclination and increasing total load.		Cone No.(size)/α Factor	**130206 (10cm^2) / 0.77**	QC Status	
		Base Inclination	**X = 1.5° / Y = 2.6°**	Preliminary: **JK/BC** (26/04/2021)	Draft: **DR** (10/06/2021)
		CRS **ETRS89**			Final: **SMc** (10/11/2021)

Gardline

Preliminary Investigation, Hesselø OWF

IN SITU CPTU TESTING - DERIVED PARAMETERS



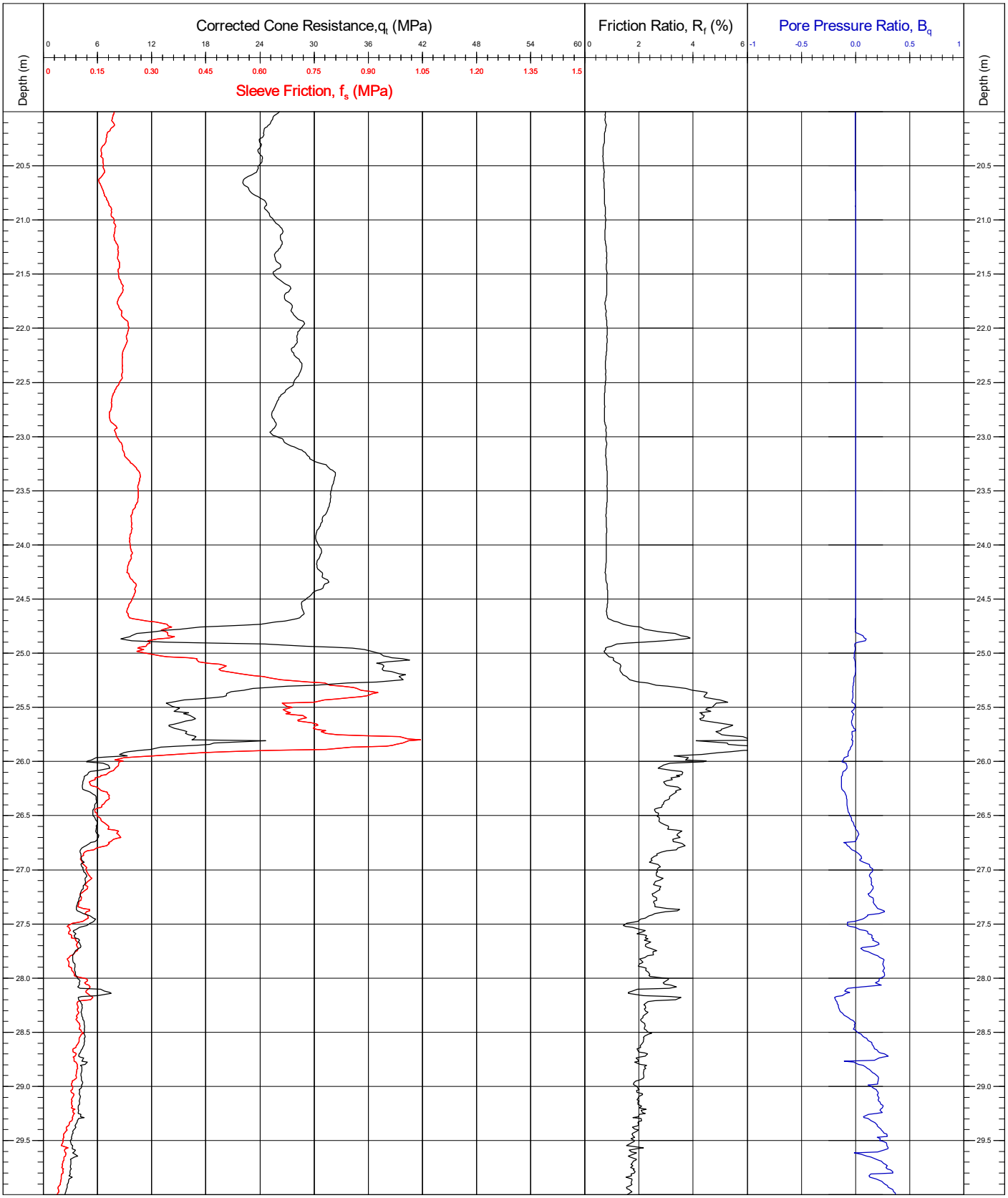
Area	**Kattegat Sea**	Coordinates	**676157.00E 6257143.60N**	CPT Number	**CPT9**
Contract	**11596**	Latitude / Longitude			
Client Name/Ref	**Energinet Eltransmission A/S/384_20_ENE**	Water Depth (mMSL)	**31.54**		
Vessel	**MV Ocean Vantage**	Date of Test	**26/04/2021**	Page: 2/4	
		Cone No.(size)/α Factor	**130206 (10cm^2) / 0.77**	QC Status	
		Base Inclination	**X = 1.5° / Y = 2.6°**	Preliminary: **JK/BC** (26/04/2021)	Draft: **DR** (10/06/2021)
		CRS **ETRS89**			Final: **SMc** (10/11/2021)

Comments: Cone Class 2. Continuous seabed CPT. Final depth 32.20m. Test was terminated due to increasing cone inclination~ SBF inclination and increasing total load.

Gardline

Preliminary Investigation, Hesselø OWF

IN SITU CPTU TESTING - DERIVED PARAMETERS



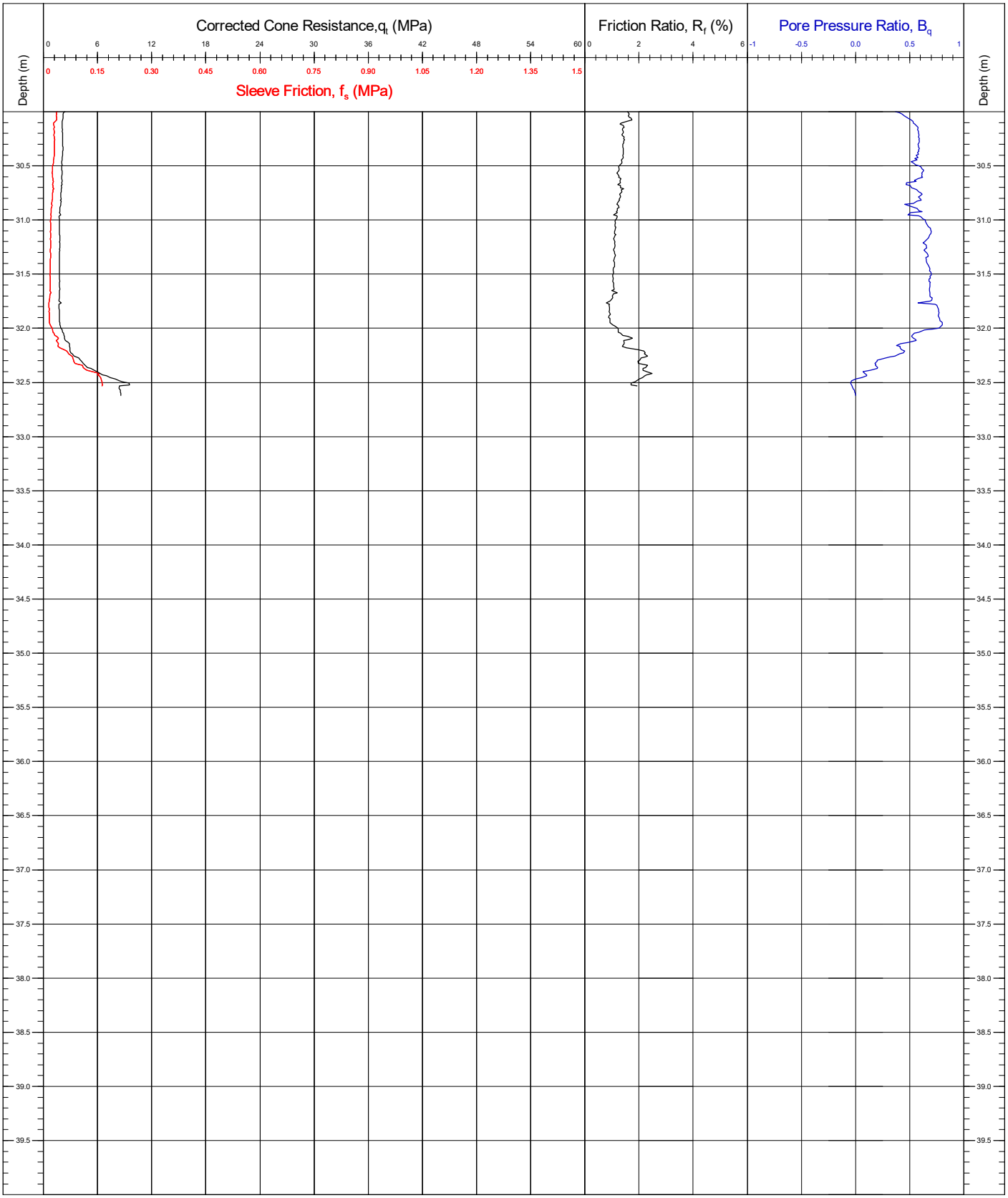
Area	**Kattegat Sea**	Coordinates	**676157.00E 6257143.60N**	CPT Number	**CPT9**
Contract	**11596**	Latitude / Longitude			
Client Name/Ref	**Energinet Eltransmission A/S/384_20_ENE**	Water Depth (mMSL)	**31.54**		
Vessel	**MV Ocean Vantage**	Date of Test	**26/04/2021**	Page: 3/4	
		Cone No.(size)/α Factor	**130206 (10cm^2) / 0.77**	QC Status	
		Base Inclination	**X = 1.5° / Y = 2.6°**	Preliminary: **JK/BC** (26/04/2021)	Draft: **DR** (10/06/2021) / Final: **SMc** (10/11/2021)
		CRS **ETRS89**			

Comments: Cone Class 2. Continuous seabed CPT. Final depth 32.20m. Test was terminated due to increasing cone inclination~ SBF inclination and increasing total load.

Gardline

Preliminary Investigation, Hesselø OWF

IN SITU CPTU TESTING - DERIVED PARAMETERS

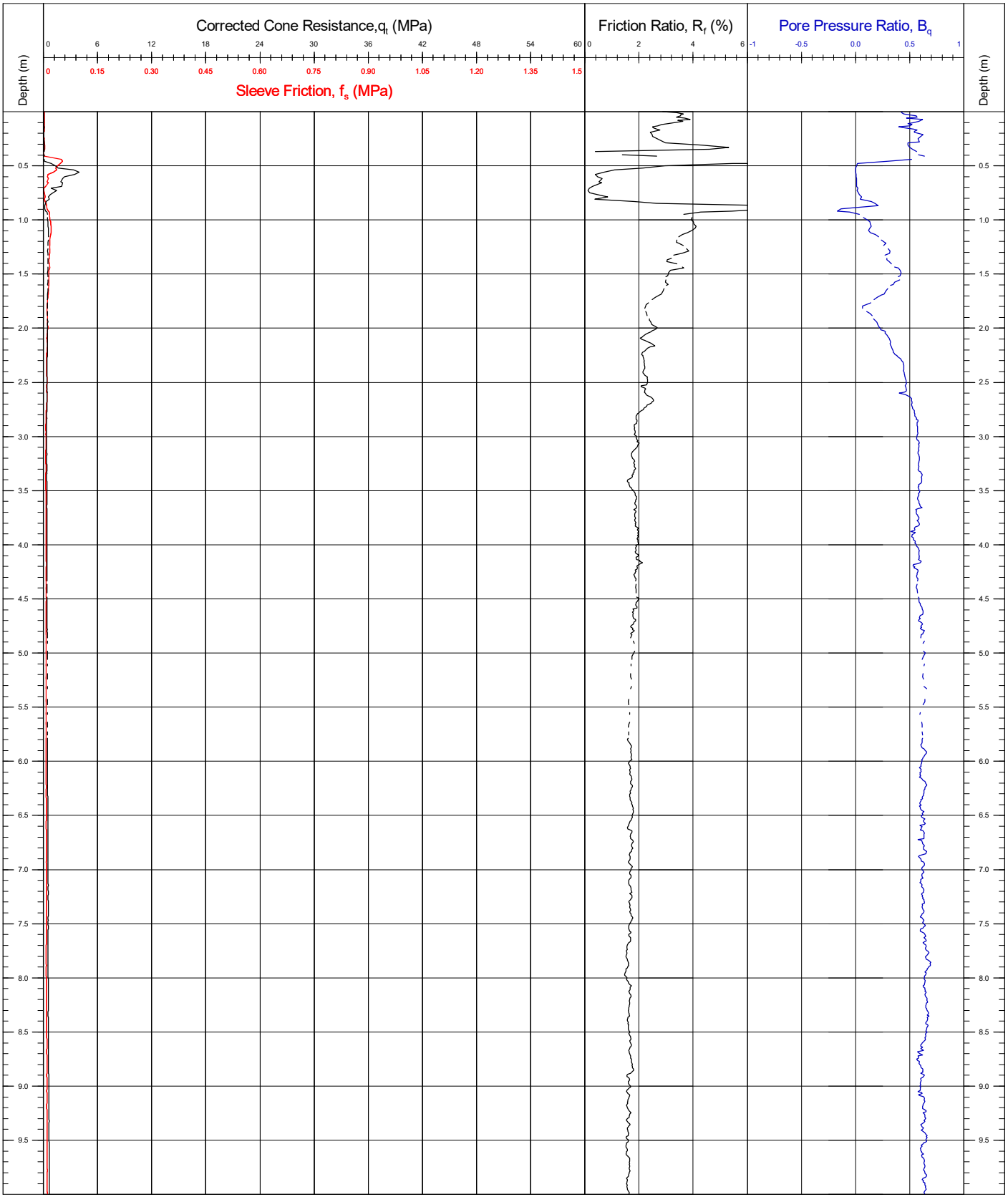


Area	**Kattegat Sea**	Coordinates	**676157.00E 6257143.60N**	CPT Number	**CPT9**
Contract	**11596**	Latitude / Longitude			
Client Name/Ref	**Energinet Eltransmission A/S/384_20_ENE**	Water Depth (mMSL)	**31.54**		
Vessel	**MV Ocean Vantage**	Date of Test	**26/04/2021**	Page: 4/4	
Comments: Cone Class 2. Continuous seabed CPT. Final depth 32.20m. Test was terminated due to increasing cone inclination~ SBF inclination and increasing total load.		Cone No.(size)/α Factor	**130206 (10cm^2) / 0.77**	QC Status	
		Base Inclination	**X = 1.5° / Y = 2.6°**	Preliminary / Draft / Final	
		CRS **ETRS89**		**JK/BC (26/04/2021)** / **DR (10/06/2021)** / **SMc (10/11/2021)**	

Gardline

Preliminary Investigation, Hesselø OWF

IN SITU CPTU TESTING - DERIVED PARAMETERS

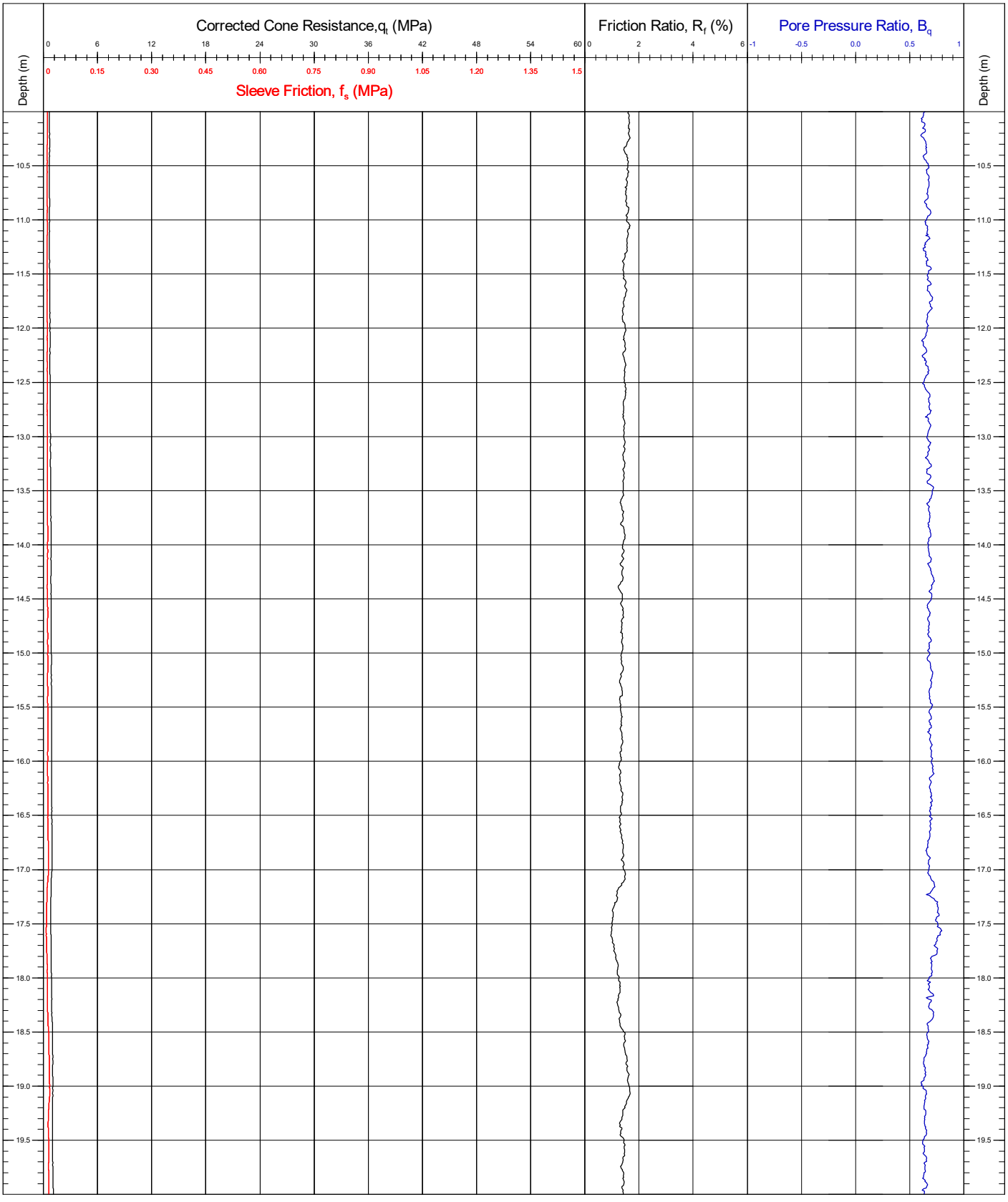


Area	**Kattegat Sea**	Coordinates	**678861.00E 6255157.80N**	CPT Number	**CPT10**
Contract	**11596**	Latitude / Longitude			
Client Name/Ref	**Energinet Eltransmission A/S/384_20_ENE**	Water Depth (mMSL)	**31.57**		
Vessel	**MV Ocean Vantage**	Date of Test	**26/04/2021**	Page: 1/4	
Comments: Cone class 2. Continuous seabed CPT. Final depth 37.29m. Test terminated due to increasing total force~ increasing cone inclination and a lack of lateral rod support from mudline		Cone No.(size)/α Factor	**100976 (10cm^2) / 0.78**	QC Status	
		Base Inclination	**X = 0.0° / Y = -0.1°**	Preliminary / Draft / Final	
		CRS **ETRS89**		**JK/BC** (28/04/2021) / **DR** (10/06/2021) / **SMc** (10/11/2021)	

Gardline

Preliminary Investigation, Hesselø OWF

IN SITU CPTU TESTING - DERIVED PARAMETERS



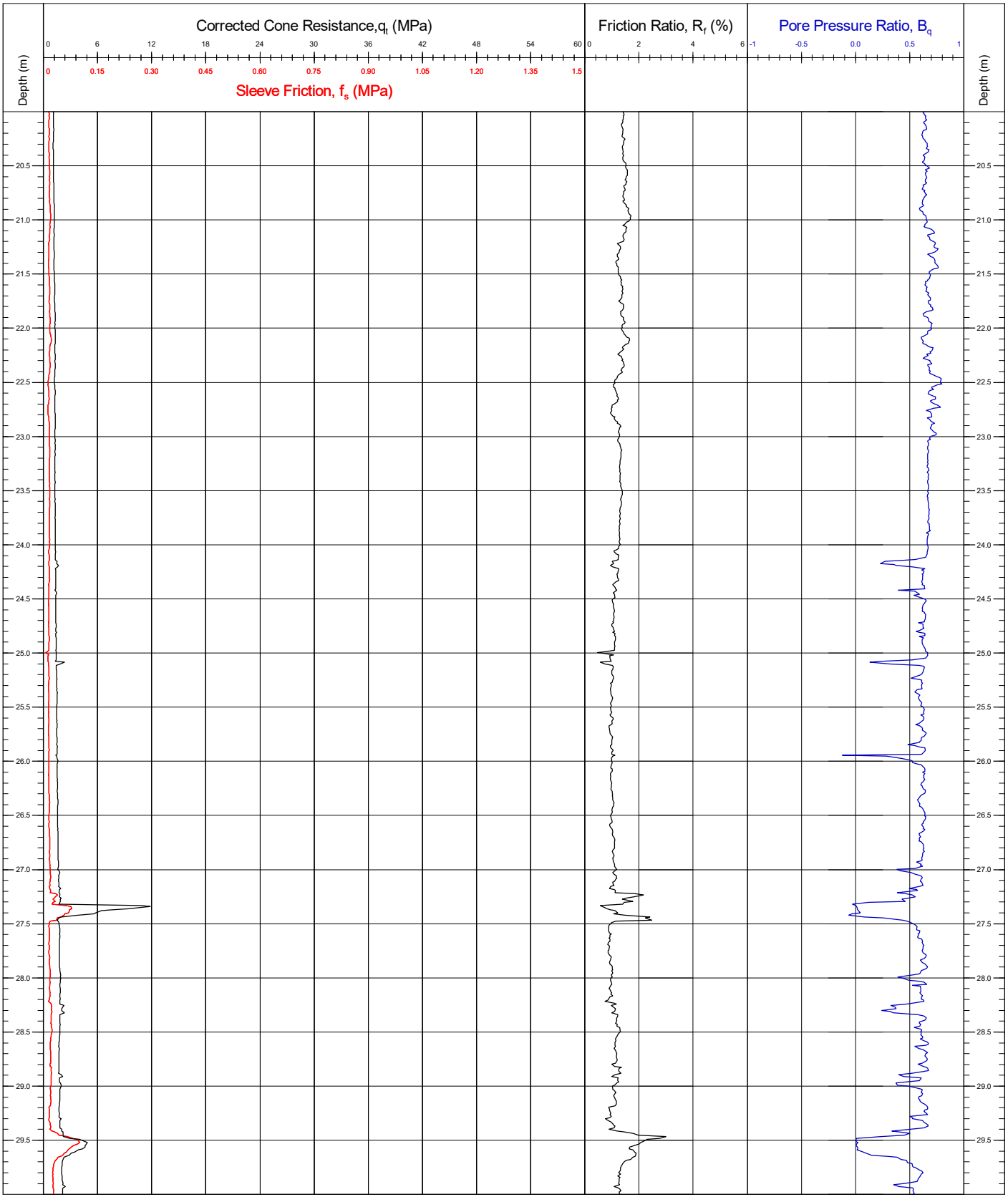
Area	**Kattegat Sea**	Coordinates	**678861.00E**	**6255157.80N**	CPT Number **CPT10**
Contract	**11596**	Latitude / Longitude			
Client Name/Ref	**Energinet Eltransmission A/S/384_20_ENE**	Water Depth (mMSL)	**31.57**		
Vessel	**MV Ocean Vantage**	Date of Test	**26/04/2021**		Page: 2/4
		Cone No.(size)/α Factor	**100976 (10cm^2) / 0.78**		QC Status
		Base Inclination	**X = 0.0° / Y = -0.1°**		Preliminary: **JK/BC (28/04/2021)** · Draft: **DR (10/06/2021)** · Final: **SMc (10/11/2021)**
		CRS	**ETRS89**		

Comments: Cone class 2. Continuous seabed CPT. Final depth 37.29m. Test terminated due to increasing total force~ increasing cone inclination and a lack of lateral rod support from mudline

Gardline

Preliminary Investigation, Hesselø OWF

IN SITU CPTU TESTING - DERIVED PARAMETERS



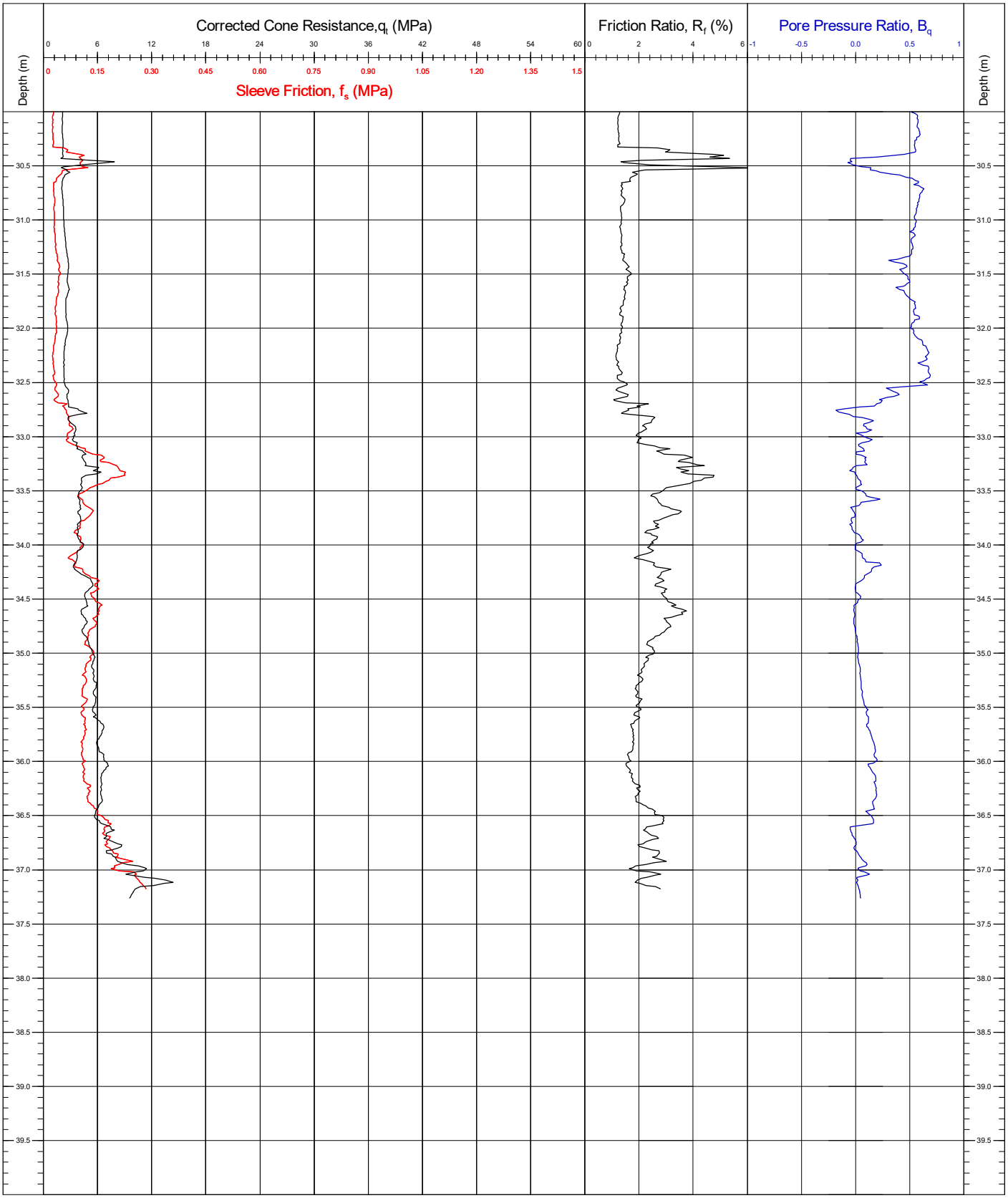
Area	**Kattegat Sea**	Coordinates	**678861.00E 6255157.80N**	CPT Number	**CPT10**
Contract	**11596**	Latitude / Longitude			
Client Name/Ref	**Energinet Eltransmission A/S/384_20_ENE**	Water Depth (mMSL)	**31.57**		
Vessel	**MV Ocean Vantage**	Date of Test	**26/04/2021**	Page: 3/4	
		Cone No.(size)/α Factor	**100976 (10cm^2) / 0.78**	QC Status	
		Base Inclination	**X = 0.0° / Y = -0.1°**	Preliminary / Draft / Final	
		CRS **ETRS89**		**JK/BC** (28/04/2021) / **DR** (10/06/2021) / **SMc** (10/11/2021)	

Comments: Cone class 2. Continuous seabed CPT. Final depth 37.29m. Test terminated due to increasing total force~ increasing cone inclination and a lack of lateral rod support from mudline

Gardline

Preliminary Investigation, Hesselø OWF

IN SITU CPTU TESTING - DERIVED PARAMETERS



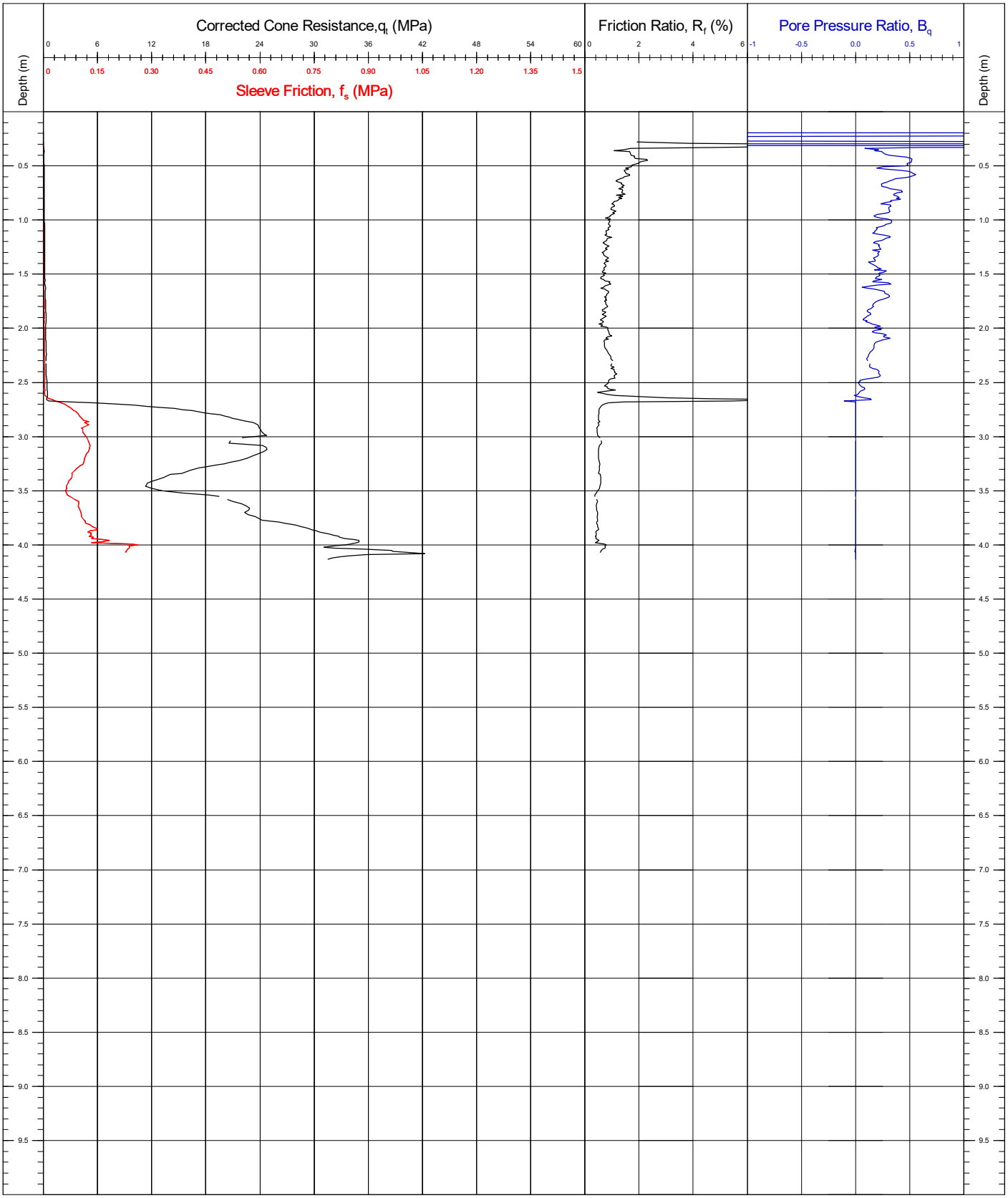
Area	**Kattegat Sea**	Coordinates	**678861.00E 6255157.80N**	CPT Number	**CPT10**
Contract	**11596**	Latitude / Longitude			
Client Name/Ref	**Energinet Eltransmission A/S/384_20_ENE**	Water Depth (mMSL)	**31.57**		
Vessel	**MV Ocean Vantage**	Date of Test	**26/04/2021**	Page: 4/4	
		Cone No.(size)/α Factor	**100976 (10cm^2) / 0.78**	QC Status	
		Base Inclination	**X = 0.0° / Y = -0.1°**	Preliminary / Draft / Final	
		CRS **ETRS89**		**JK/BC** (28/04/2021) / **DR** (10/06/2021) / **SMc** (10/11/2021)	

Comments: Cone class 2. Continuous seabed CPT. Final depth 37.29m. Test terminated due to increasing total force~ increasing cone inclination and a lack of lateral rod support from mudline

Gardline

Preliminary Investigation, Hesselø OWF

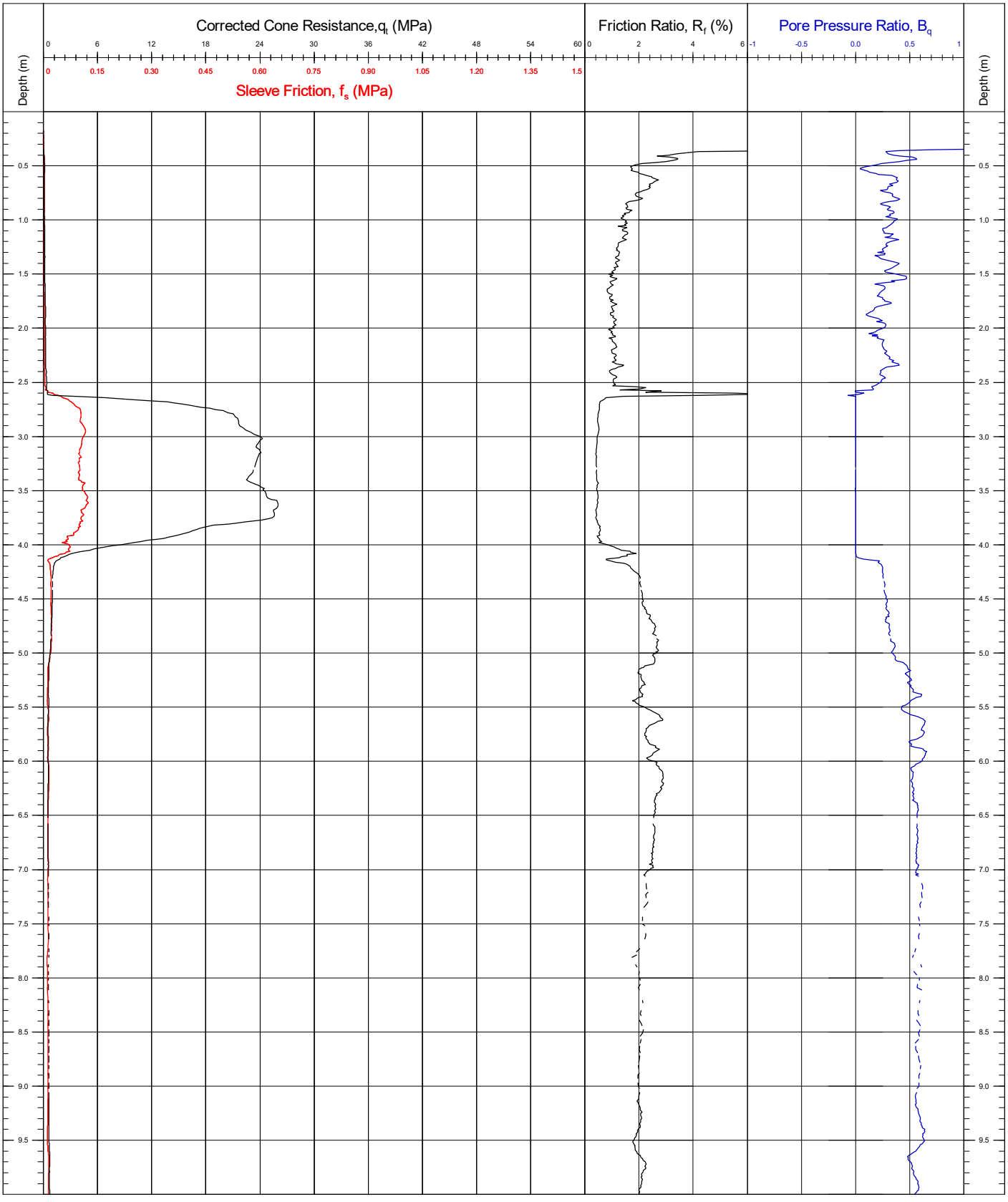
IN SITU CPTU TESTING - DERIVED PARAMETERS



Area	**Kattegat Sea**	Coordinates	**666385.90E 6259321.60N**	CPT Number	**CPT11**
Contract	**11596**	Latitude / Longitude			
Client Name/Ref	**Energinet Eltransmission A/S/384_20_ENE**	Water Depth (mMSL)	**28.78**		
Vessel	**MV Ocean Vantage**	Date of Test	**29/04/2021**	Page: 1/1	
Comments: Cone class 1. Continuous seabed CPT. Final depth 3.97m. Test terminated due to a maximum sleeve friction refusal.		Cone No.(size)/α Factor	**181004 (10cm^2) / 0.81**	QC Status	
		Base Inclination	**X = 1.1° / Y = 0.9°**	Preliminary: **JK/BC** (29/04/2021)	Draft: **DR** (10/06/2021)
		CRS **ETRS89**			Final: **SMc** (10/11/2021)

Preliminary Investigation, Hesselø OWF

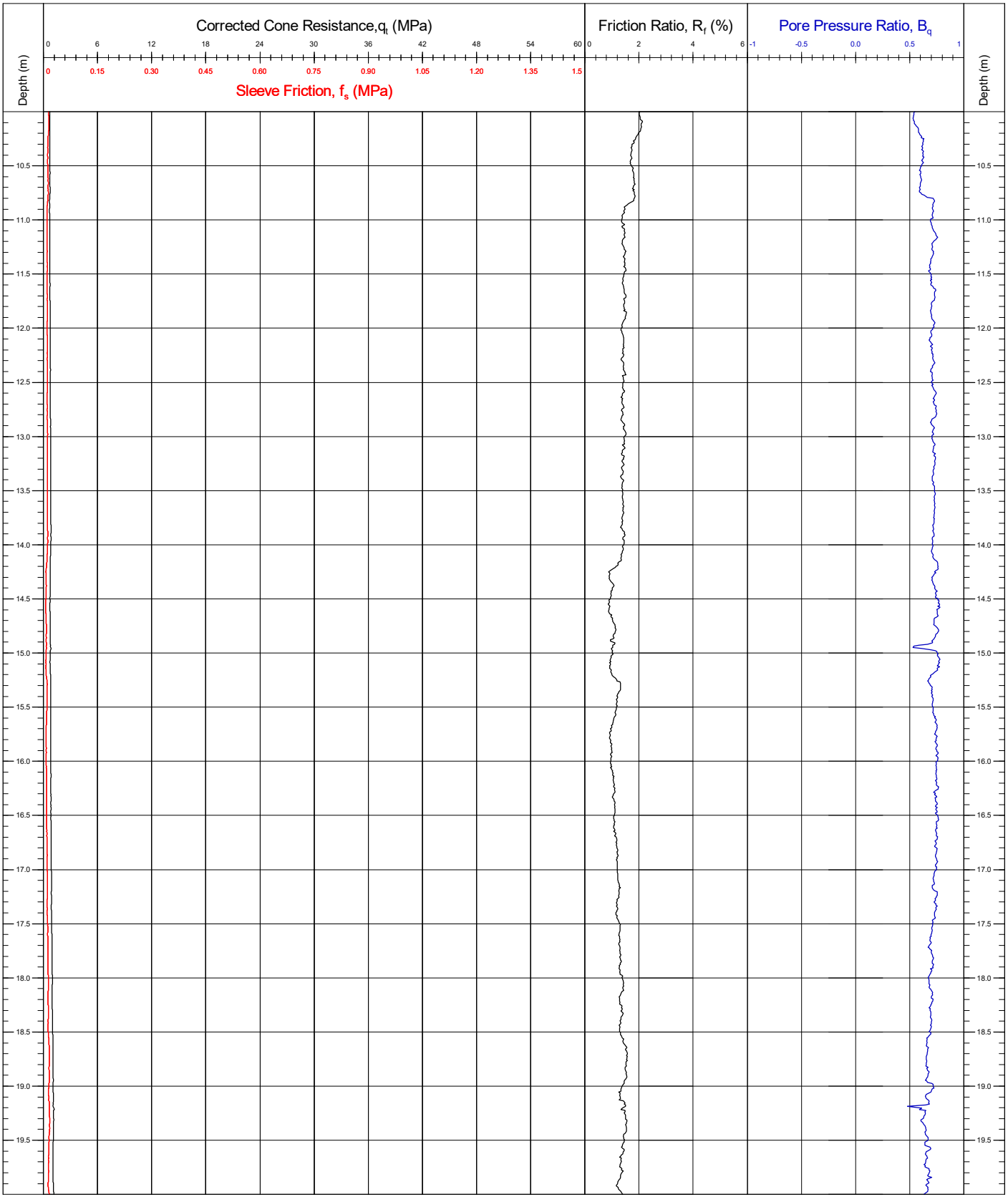
IN SITU CPTU TESTING - DERIVED PARAMETERS



Area	**Kattegat Sea**	Coordinates	**666386.20E 6259316.50N**	CPT Number	**CPT11a**
Contract	**11596**	Latitude / Longitude			
Client Name/Ref	**Energinet Eltransmission A/S/384_20_ENE**	Water Depth (mMSL)	**28.74**		
Vessel	**MV Ocean Vantage**	Date of Test	**29/04/2021**	Page: 1/5	
Comments: Cone class 2. Continuous seabed CPT. Final depth 43.46m. Test terminated at operators discretion due to high inclination~ total load and risk of rod bend		Cone No.(size)/α Factor	**181004 (10cm^2) / 0.81**	QC Status	
		Base Inclination	**X = 1.1° / Y = 1.0°**	Preliminary / Draft / Final	
		CRS **ETRS89**		**JK/BC** (29/04/2021) / **DR** (10/06/2021) / **SMc** (10/11/2021)	

Preliminary Investigation, Hesselø OWF

IN SITU CPTU TESTING - DERIVED PARAMETERS



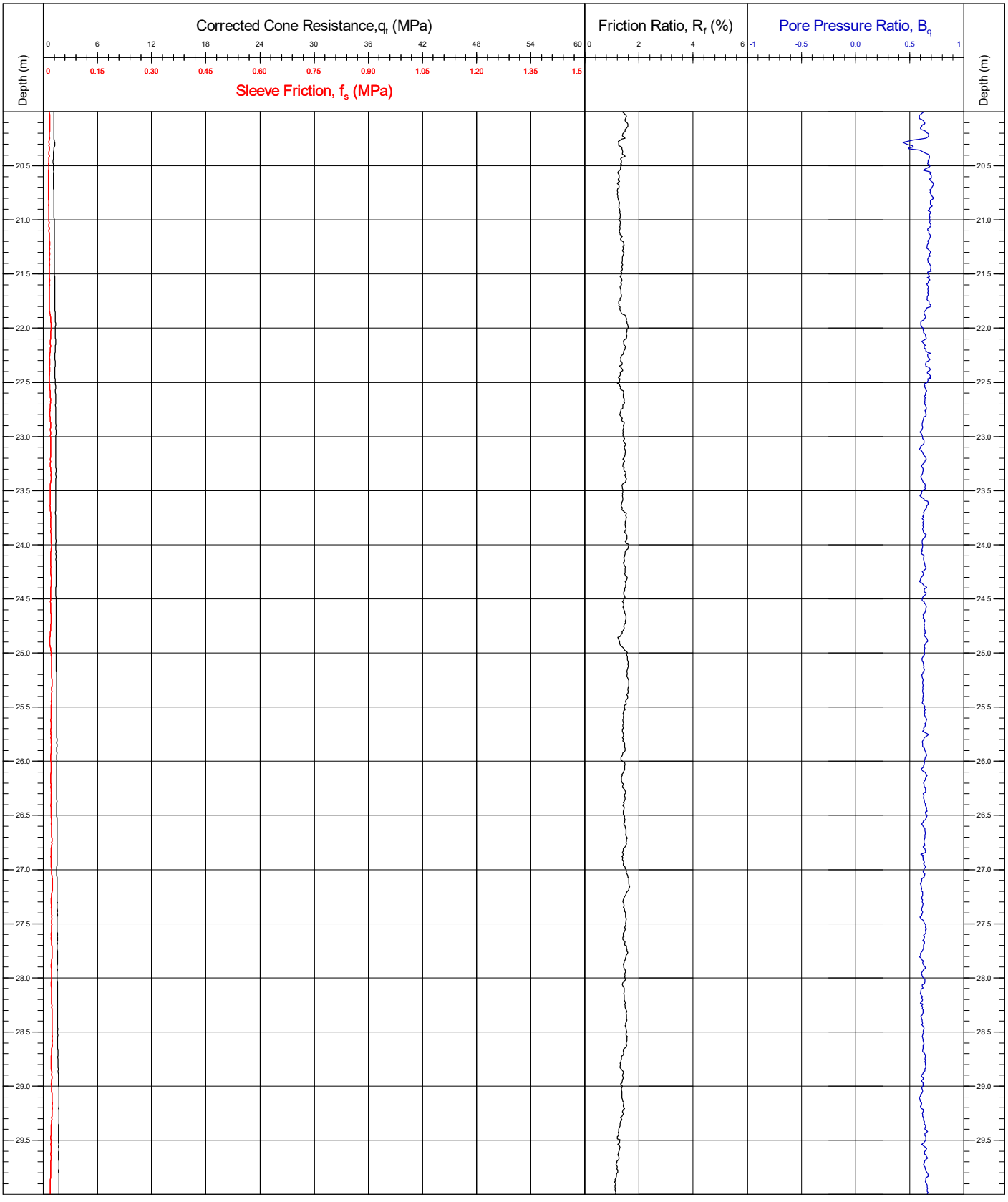
Area	**Kattegat Sea**	Coordinates	**666386.20E 6259316.50N**	CPT Number	**CPT11a**
Contract	**11596**	Latitude / Longitude			
Client Name/Ref	**Energinet Eltransmission A/S/384_20_ENE**	Water Depth (mMSL)	**28.74**		
Vessel	**MV Ocean Vantage**	Date of Test	**29/04/2021**	Page: 2/5	
		Cone No.(size)/α Factor	**181004 (10cm^2) / 0.81**	QC Status	
		Base Inclination	**X = 1.1° / Y = 1.0°**	Preliminary / Draft / Final	
		CRS **ETRS89**		**JK/BC** (29/04/2021) / **DR** (10/06/2021) / **SMc** (10/11/2021)	

Comments: Cone class 2. Continuous seabed CPT. Final depth 43.46m. Test terminated at operators discretion due to high inclination~ total load and risk of rod bend

Gardline

Preliminary Investigation, Hesselø OWF

IN SITU CPTU TESTING - DERIVED PARAMETERS

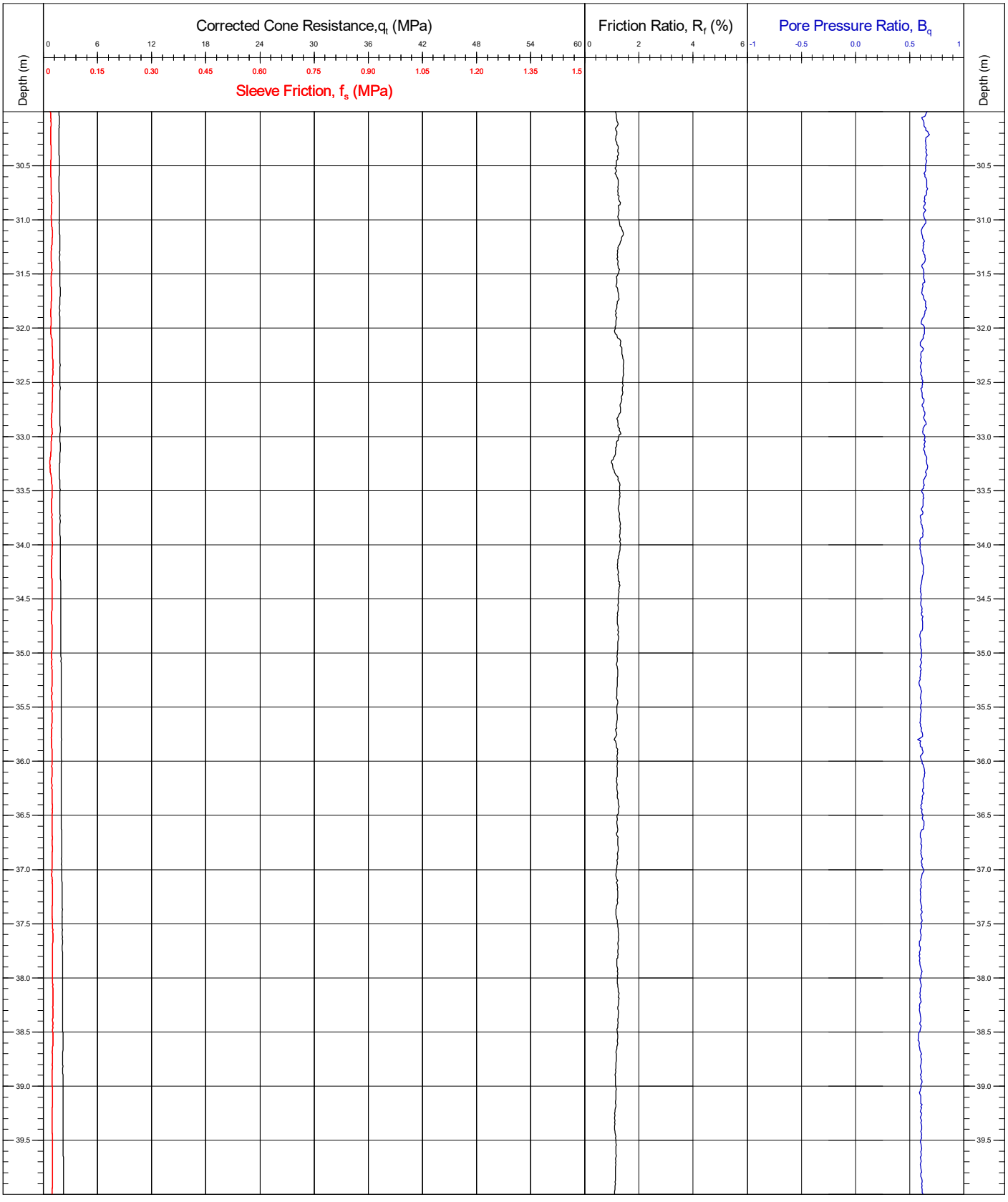


Area	**Kattegat Sea**	Coordinates	**666386.20E 6259316.50N**	CPT Number	**CPT11a**
Contract	**11596**	Latitude / Longitude			
Client Name/Ref	**Energinet Eltransmission A/S/384_20_ENE**	Water Depth (mMSL)	**28.74**		
Vessel	**MV Ocean Vantage**	Date of Test	**29/04/2021**	Page: 3/5	
Comments: Cone class 2. Continuous seabed CPT. Final depth 43.46m. Test terminated at operators discretion due to high inclination~ total load and risk of rod bend		Cone No.(size)/α Factor	**181004 (10cm^2) / 0.81**	QC Status	
		Base Inclination	**X = 1.1° / Y = 1.0°**	Preliminary / Draft / Final	
		CRS **ETRS89**		**JK/BC (29/04/2021)** / **DR (10/06/2021)** / **SMc (10/11/2021)**	

Gardline

Preliminary Investigation, Hesselø OWF

IN SITU CPTU TESTING - DERIVED PARAMETERS



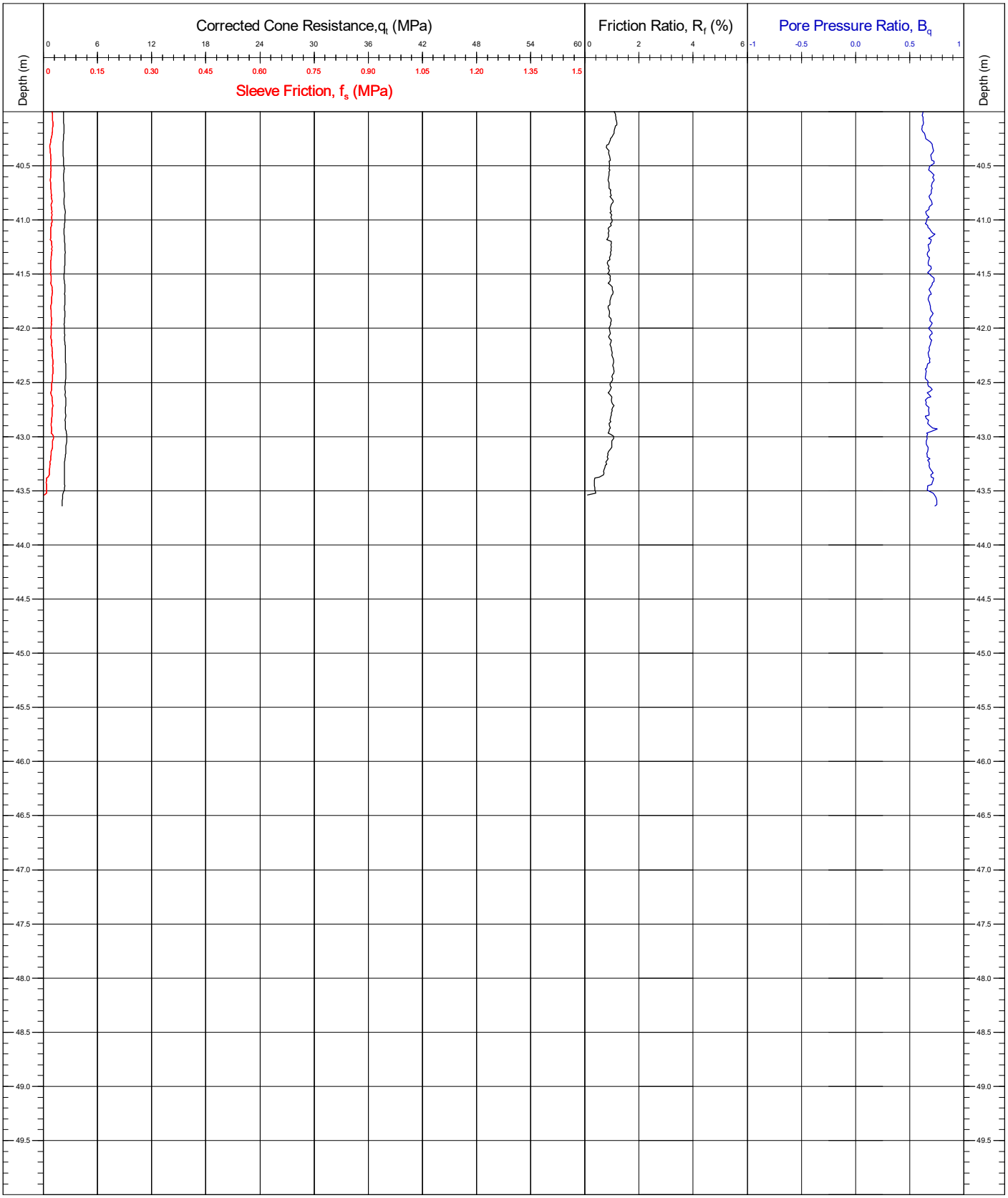
Area	**Kattegat Sea**	Coordinates	**666386.20E 6259316.50N**	CPT Number	**CPT11a**
Contract	**11596**	Latitude / Longitude			
Client Name/Ref	**Energinet Eltransmission A/S/384_20_ENE**	Water Depth (mMSL)	**28.74**		
Vessel	**MV Ocean Vantage**	Date of Test	**29/04/2021**	Page: 4/5	
		Cone No.(size)/α Factor	**181004 (10cm^2) / 0.81**	QC Status	
		Base Inclination	**X = 1.1° / Y = 1.0°**	Preliminary / Draft / Final	
		CRS **ETRS89**		**JK/BC** (29/04/2021) / **DR** (10/06/2021) / **SMc** (10/11/2021)	

Comments: Cone class 2. Continuous seabed CPT. Final depth 43.46m. Test terminated at operators discretion due to high inclination~ total load and risk of rod bend

Gardline

Preliminary Investigation, Hesselø OWF

IN SITU CPTU TESTING - DERIVED PARAMETERS

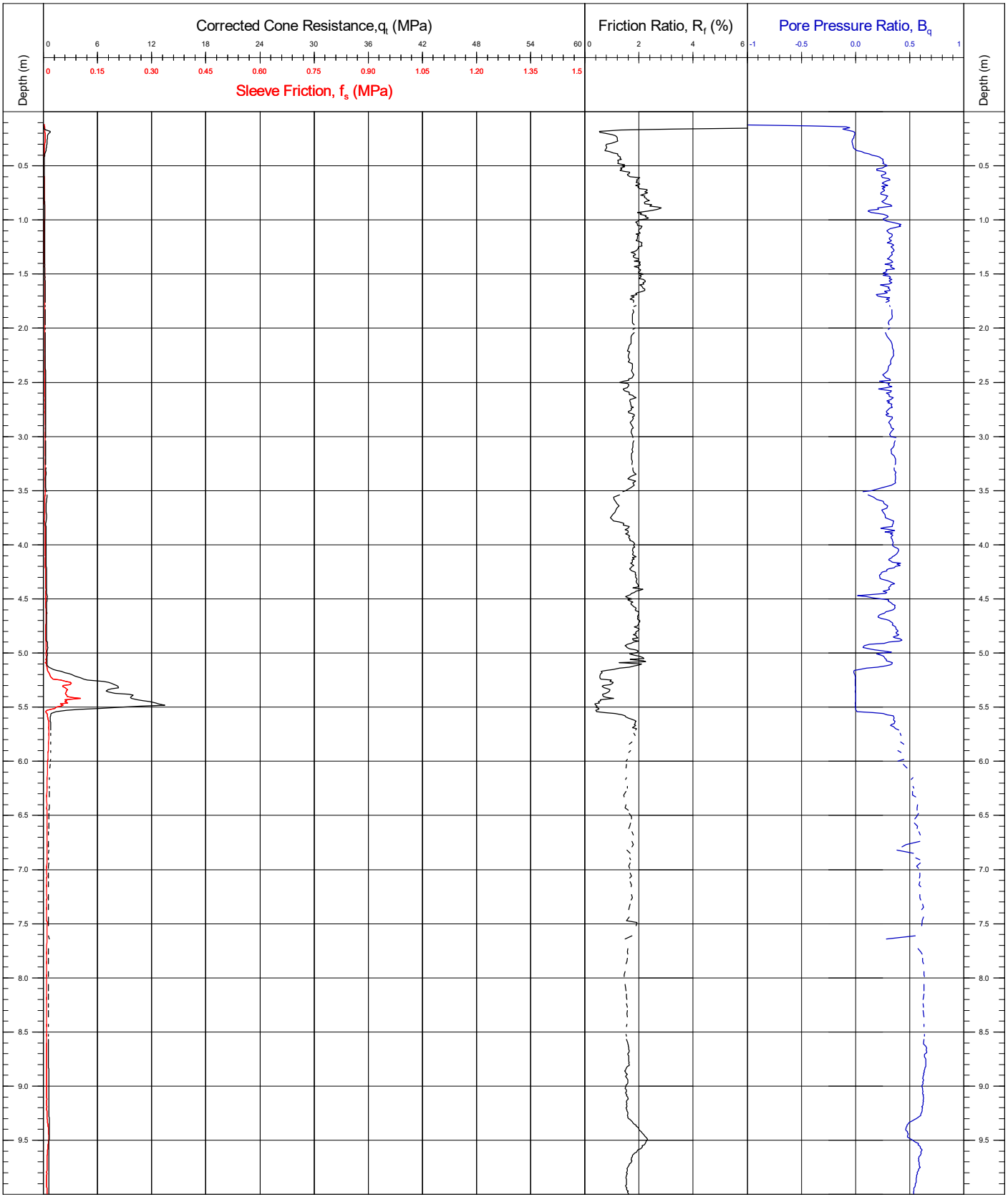


Area	**Kattegat Sea**	Coordinates	**666386.20E 6259316.50N**	CPT Number	**CPT11a**
Contract	**11596**	Latitude / Longitude			
Client Name/Ref	**Energinet Eltransmission A/S/384_20_ENE**	Water Depth (mMSL)	**28.74**		
Vessel	**MV Ocean Vantage**	Date of Test	**29/04/2021**	Page: 5/5	
		Cone No.(size)/α Factor	**181004 (10cm^2) / 0.81**	QC Status	
		Base Inclination	**X = 1.1° / Y = 1.0°**	Preliminary / Draft / Final	
		CRS **ETRS89**		**JK/BC** (29/04/2021) / **DR** (10/06/2021) / **SMc** (10/11/2021)	

Comments: Cone class 2. Continuous seabed CPT. Final depth 43.46m. Test terminated at operators discretion due to high inclination~ total load and risk of rod bend

Preliminary Investigation, Hesselø OWF

IN SITU CPTU TESTING - DERIVED PARAMETERS

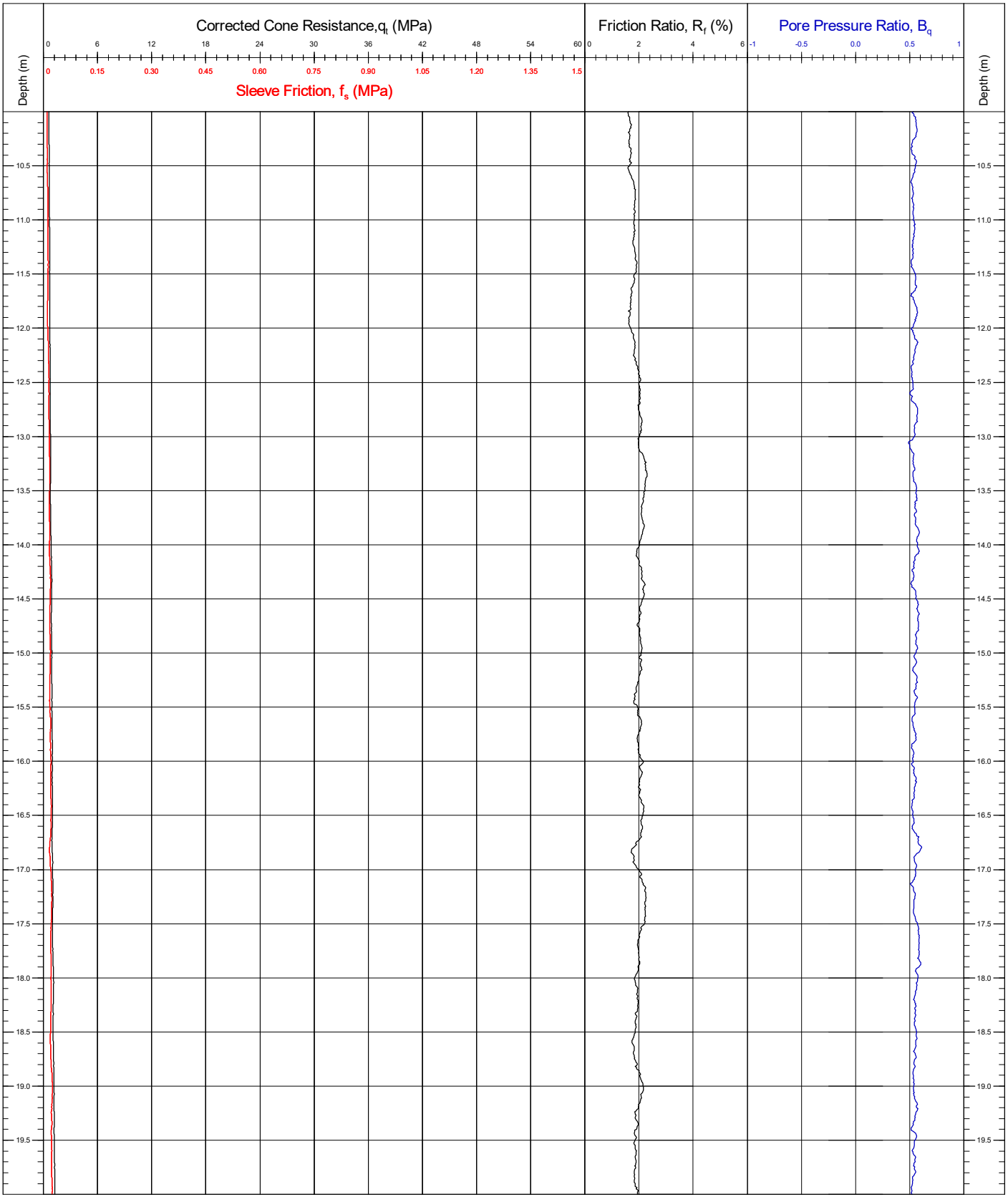


Area	**Kattegat Sea**	Coordinates	**668527.90E 6259970.00N**	CPT Number	**CPT12**
Contract	**11596**	Latitude / Longitude			
Client Name/Ref	**Energinet Eltransmission A/S/384_20_ENE**	Water Depth (mMSL)	**26.08**		
Vessel	**MV Ocean Vantage**	Date of Test	**29/04/2021**	Page: 1/4	
Comments: Cone class 2. Continuous seabed CPT. Final depth 39.53m. Test terminated at operators discretion due to high inclination~ total load and risk of rod bend		Cone No.(size)/α Factor	**181005 (10cm^2) / 0.73**	QC Status	
		Base Inclination	**X = 1.2° / Y = 0.8°**	Preliminary: **JK/BC (29/04/2021)**	Draft: **DR (10/06/2021)** Final: **SMc (10/11/2021)**
		CRS **ETRS89**			

Gardline

Preliminary Investigation, Hesselø OWF

IN SITU CPTU TESTING - DERIVED PARAMETERS

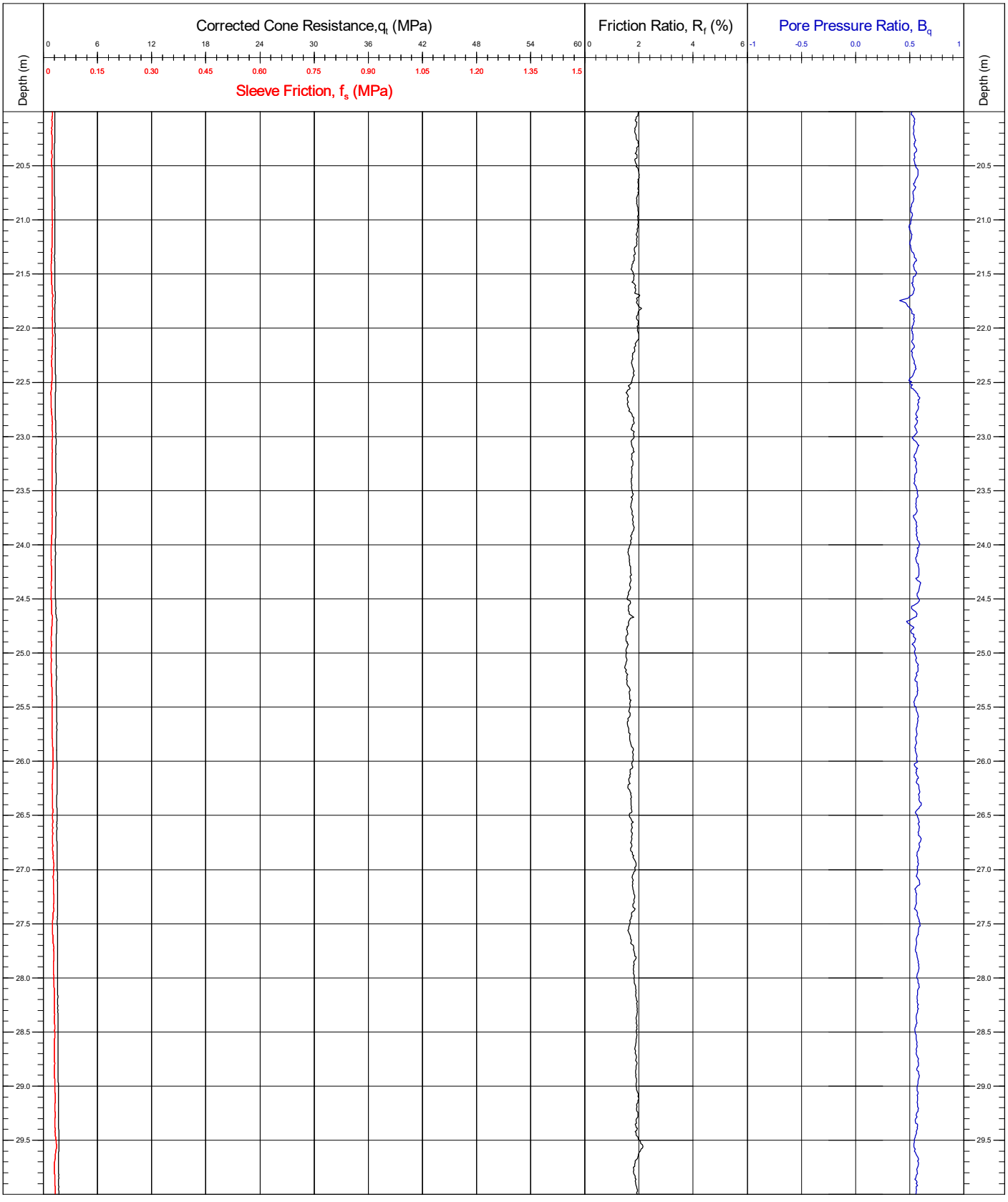


Area	**Kattegat Sea**	Coordinates	**668527.90E 6259970.00N**	CPT Number	**CPT12**
Contract	**11596**	Latitude / Longitude			
Client Name/Ref	**Energinet Eltransmission A/S/384_20_ENE**	Water Depth (mMSL)	**26.08**		
Vessel	**MV Ocean Vantage**	Date of Test	**29/04/2021**	Page: 2/4	
Comments: Cone class 2. Continuous seabed CPT. Final depth 39.53m. Test terminated at operators discretion due to high inclination– total load and risk of rod bend		Cone No.(size)/α Factor	**181005 (10cm^2) / 0.73**	QC Status	
		Base Inclination	**X = 1.2° / Y = 0.8°**	Preliminary: **JK/BC (29/04/2021)**	Draft: **DR (10/06/2021)**
		CRS **ETRS89**			Final: **SMc (10/11/2021)**

Gardline

Preliminary Investigation, Hesselø OWF

IN SITU CPTU TESTING - DERIVED PARAMETERS



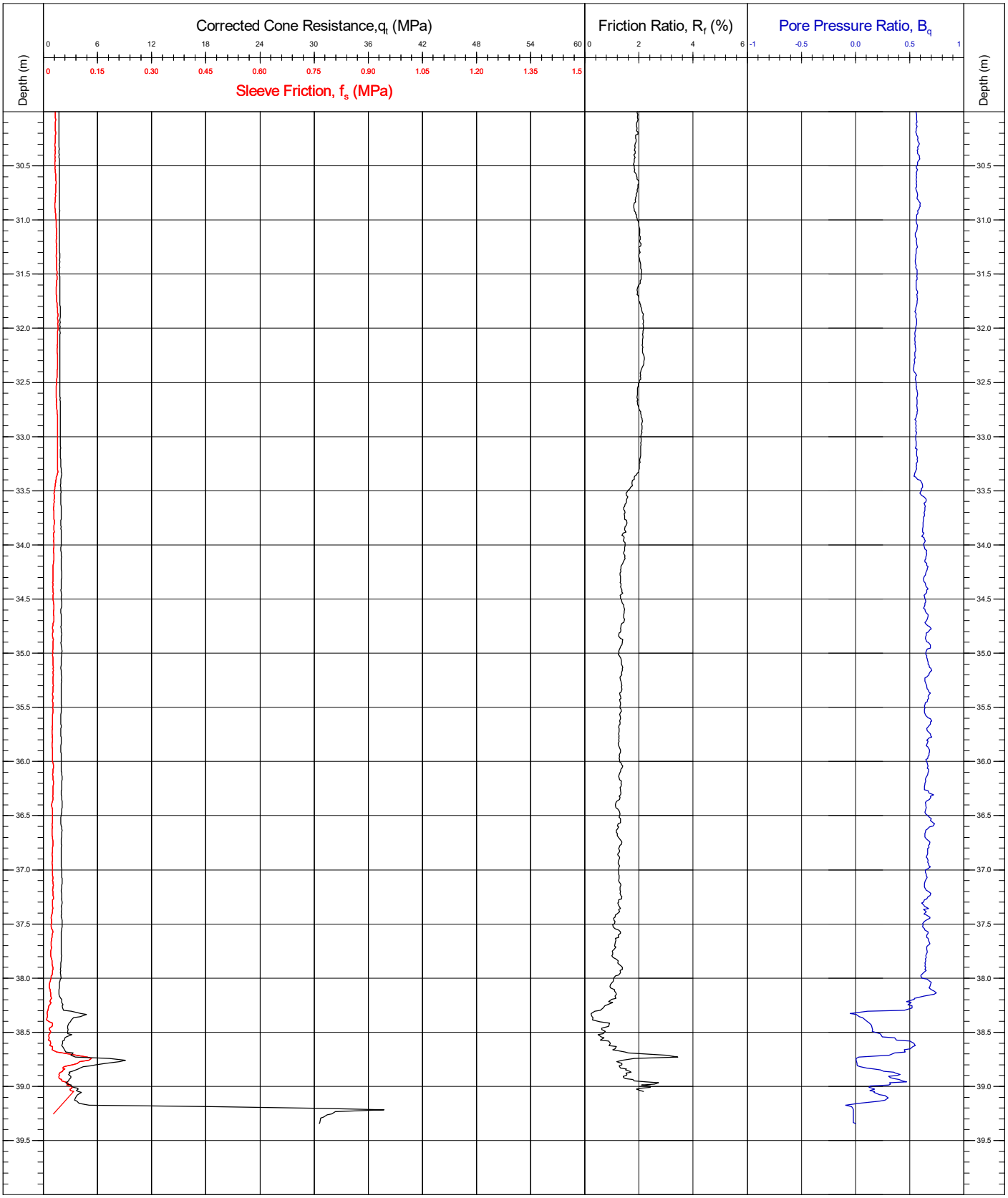
Area	**Kattegat Sea**	Coordinates	**668527.90E 6259970.00N**	CPT Number	**CPT12**
Contract	**11596**	Latitude / Longitude			
Client Name/Ref	**Energinet Eltransmission A/S/384_20_ENE**	Water Depth (mMSL)	**26.08**		
Vessel	**MV Ocean Vantage**	Date of Test	**29/04/2021**	Page: 3/4	
		Cone No.(size)/α Factor	**181005 (10cm^2) / 0.73**	QC Status	
		Base Inclination	**X = 1.2° / Y = 0.8°**	Preliminary: **JK/BC** (29/04/2021)	Draft: **DR** (10/06/2021)
		CRS **ETRS89**			Final: **SMc** (10/11/2021)

Comments: Cone class 2. Continuous seabed CPT. Final depth 39.53m. Test terminated at operators discretion due to high inclination~ total load and risk of rod bend

Gardline

Preliminary Investigation, Hesselø OWF

IN SITU CPTU TESTING - DERIVED PARAMETERS

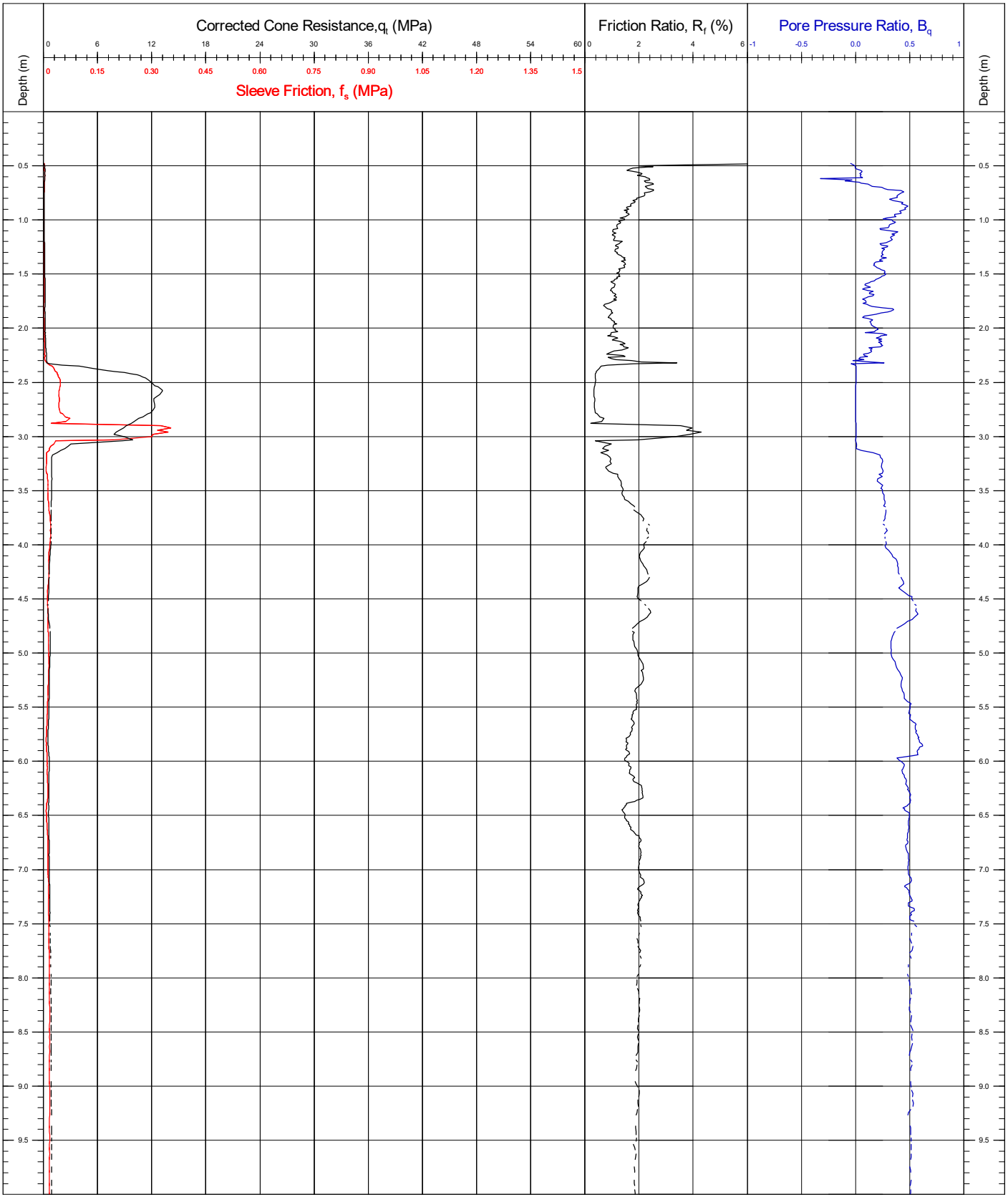


Area	**Kattegat Sea**	Coordinates	**668527.90E 6259970.00N**	CPT Number	**CPT12**
Contract	**11596**	Latitude / Longitude			
Client Name/Ref	**Energinet Eltransmission A/S/384_20_ENE**	Water Depth (mMSL)	**26.08**		
Vessel	**MV Ocean Vantage**	Date of Test	**29/04/2021**	Page: 4/4	
Comments: Cone class 2. Continuous seabed CPT. Final depth 39.53m. Test terminated at operators discretion due to high inclination– total load and risk of rod bend		Cone No.(size)/α Factor	**181005 (10cm^2) / 0.73**	QC Status	
		Base Inclination	**X = 1.2° / Y = 0.8°**	Preliminary: **JK/BC** (29/04/2021)	Draft: **DR** (10/06/2021)
		CRS **ETRS89**			Final: **SMc** (10/11/2021)

Gardline

Preliminary Investigation, Hesselø OWF

IN SITU CPTU TESTING - DERIVED PARAMETERS

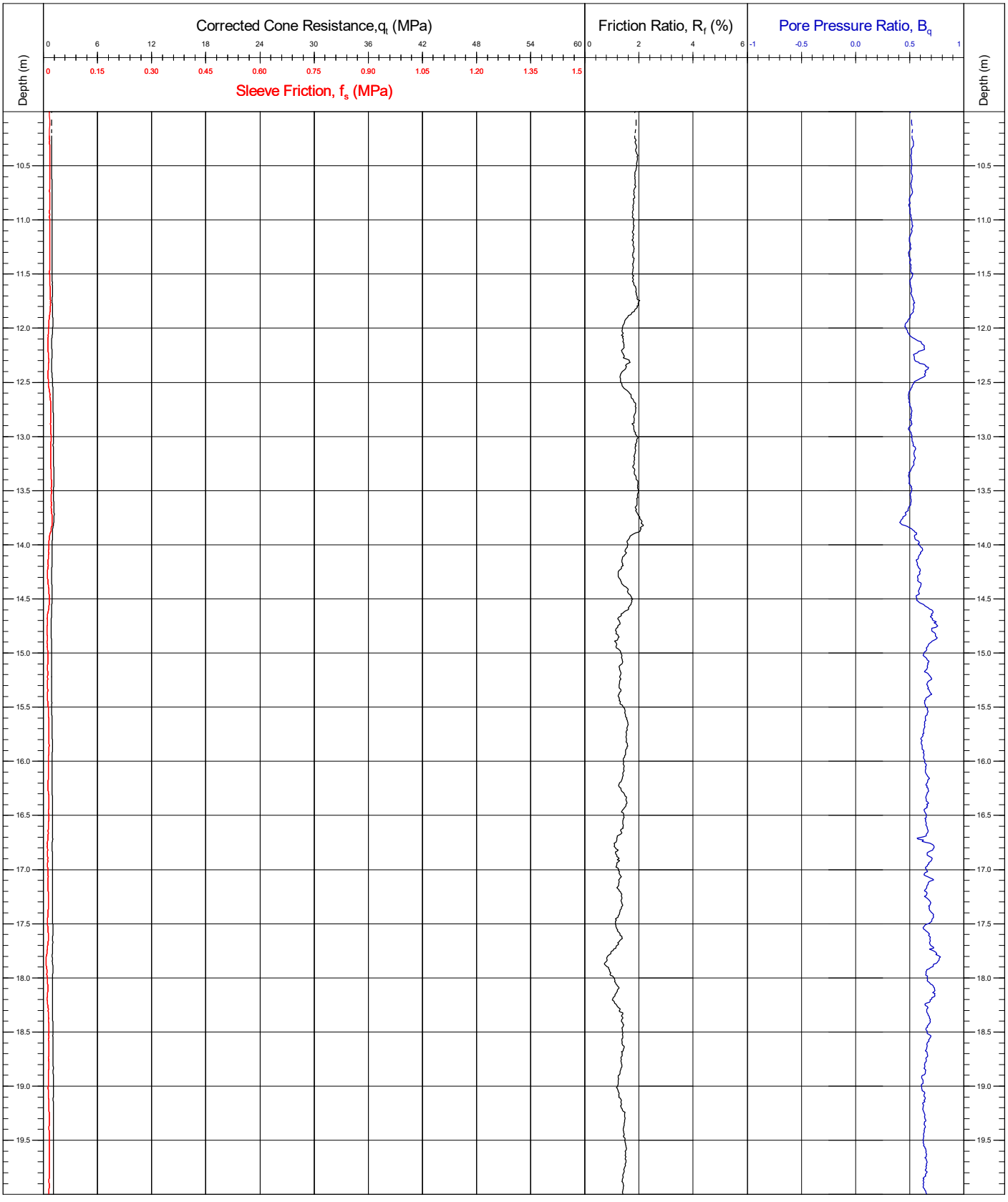


Area	**Kattegat Sea**	Coordinates	**671351.30E 6258725.40N**	CPT Number	**CPT13**
Contract	**11596**	Latitude / Longitude			
Client Name/Ref	**Energinet Eltransmission A/S/384_20_ENE**	Water Depth (mMSL)	**29.34**		
Vessel	**MV Ocean Vantage**	Date of Test	**30/04/2021**	Page: 1/4	
Comments: Cone class 3. Continuous seabed CPT. Final depth 35.42m. Test terminated due to a maximum sleeve friction refusal.		Cone No.(size)/α Factor	**181009 (10cm^2) / 0.86**	QC Status	
		Base Inclination	**X = 1.2° / Y = 0.8°**	Preliminary: **JK/BC** (30/04/2021)	Draft: **DR** (10/06/2021)
		CRS **ETRS89**			Final: **SMc** (10/11/2021)

Gardline

Preliminary Investigation, Hesselø OWF

IN SITU CPTU TESTING - DERIVED PARAMETERS



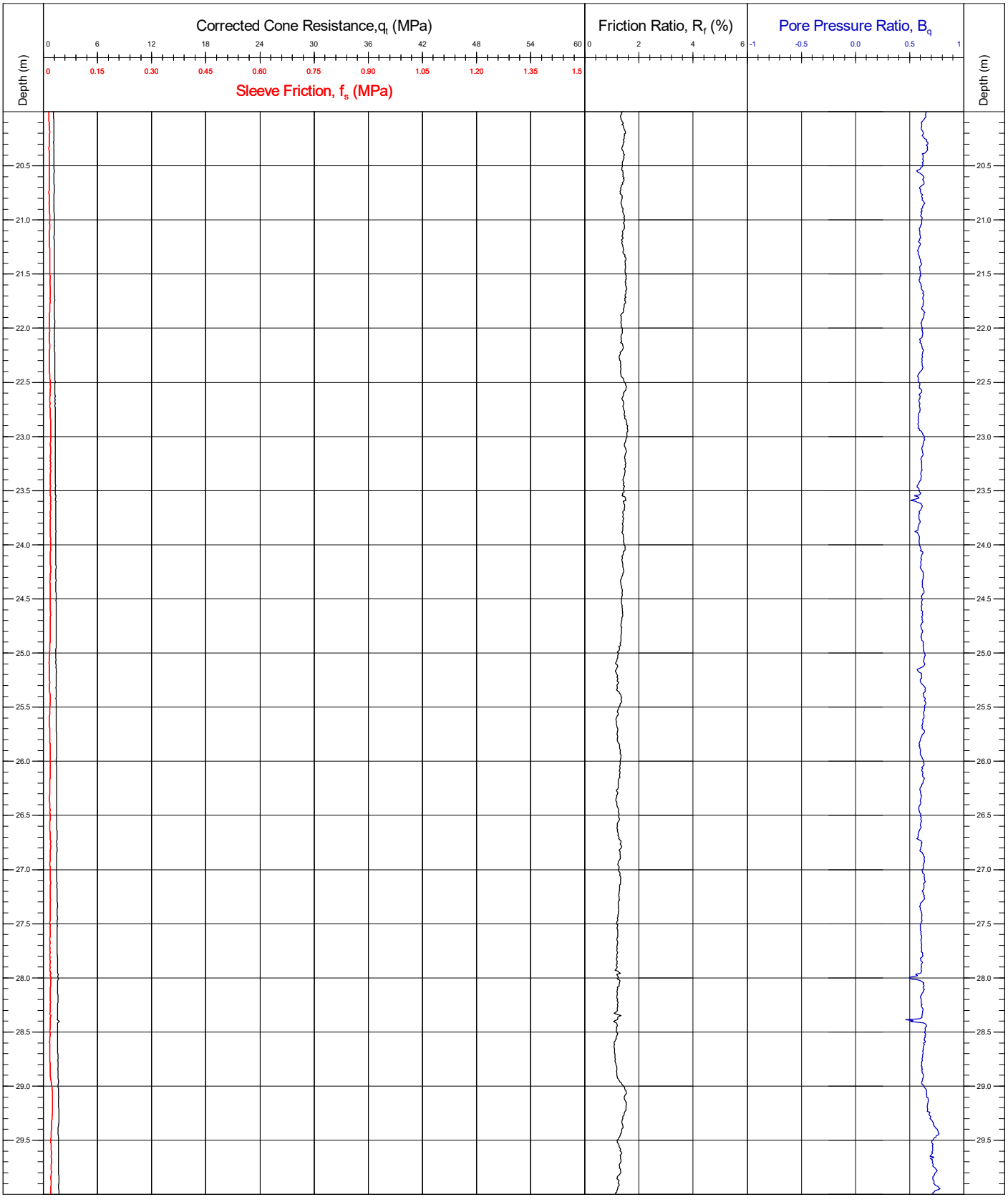
Area	**Kattegat Sea**	Coordinates	**671351.30E 6258725.40N**	CPT Number	**CPT13**
Contract	**11596**	Latitude / Longitude			
Client Name/Ref	**Energinet Eltransmission A/S/384_20_ENE**	Water Depth (mMSL)	**29.34**		
Vessel	**MV Ocean Vantage**	Date of Test	**30/04/2021**	Page: 2/4	
		Cone No.(size)/α Factor	**181009 (10cm^2) / 0.86**	QC Status	
		Base Inclination	**X = 1.2° / Y = 0.8°**	Preliminary / Draft / Final	
		CRS **ETRS89**		**JK/BC** (30/04/2021) / **DR** (10/06/2021) / **SMc** (10/11/2021)	

Comments: Cone class 3. Continuous seabed CPT. Final depth 35.42m. Test terminated due to a maximum sleeve friction refusal.

Gardline

Preliminary Investigation, Hesselø OWF

IN SITU CPTU TESTING - DERIVED PARAMETERS

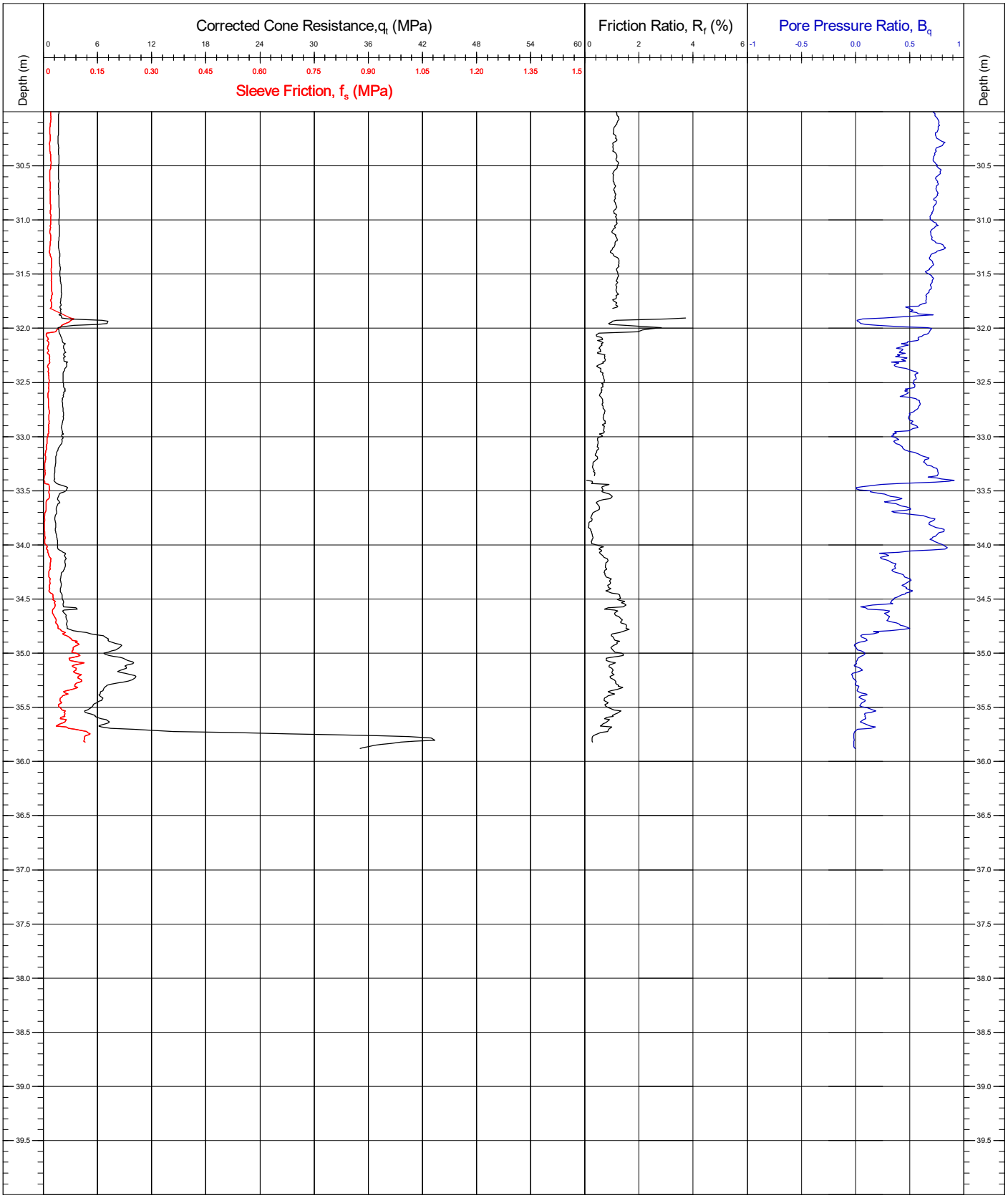


Area	**Kattegat Sea**	Coordinates	**671351.30E 6258725.40N**	CPT Number	**CPT13**
Contract	**11596**	Latitude / Longitude			
Client Name/Ref	**Energinet Eltransmission A/S/384_20_ENE**	Water Depth (mMSL)	**29.34**		
Vessel	**MV Ocean Vantage**	Date of Test	**30/04/2021**	Page: 3/4	
Comments: Cone class 3. Continuous seabed CPT. Final depth 35.42m. Test terminated due to a maximum sleeve friction refusal.		Cone No.(size)/α Factor	**181009 (10cm^2) / 0.86**	QC Status	
		Base Inclination	**X = 1.2° / Y = 0.8°**	Preliminary: **JK/BC** (30/04/2021)	Draft: **DR** (10/06/2021)
		CRS **ETRS89**			Final: **SMc** (10/11/2021)

Gardline

Preliminary Investigation, Hesselø OWF

IN SITU CPTU TESTING - DERIVED PARAMETERS

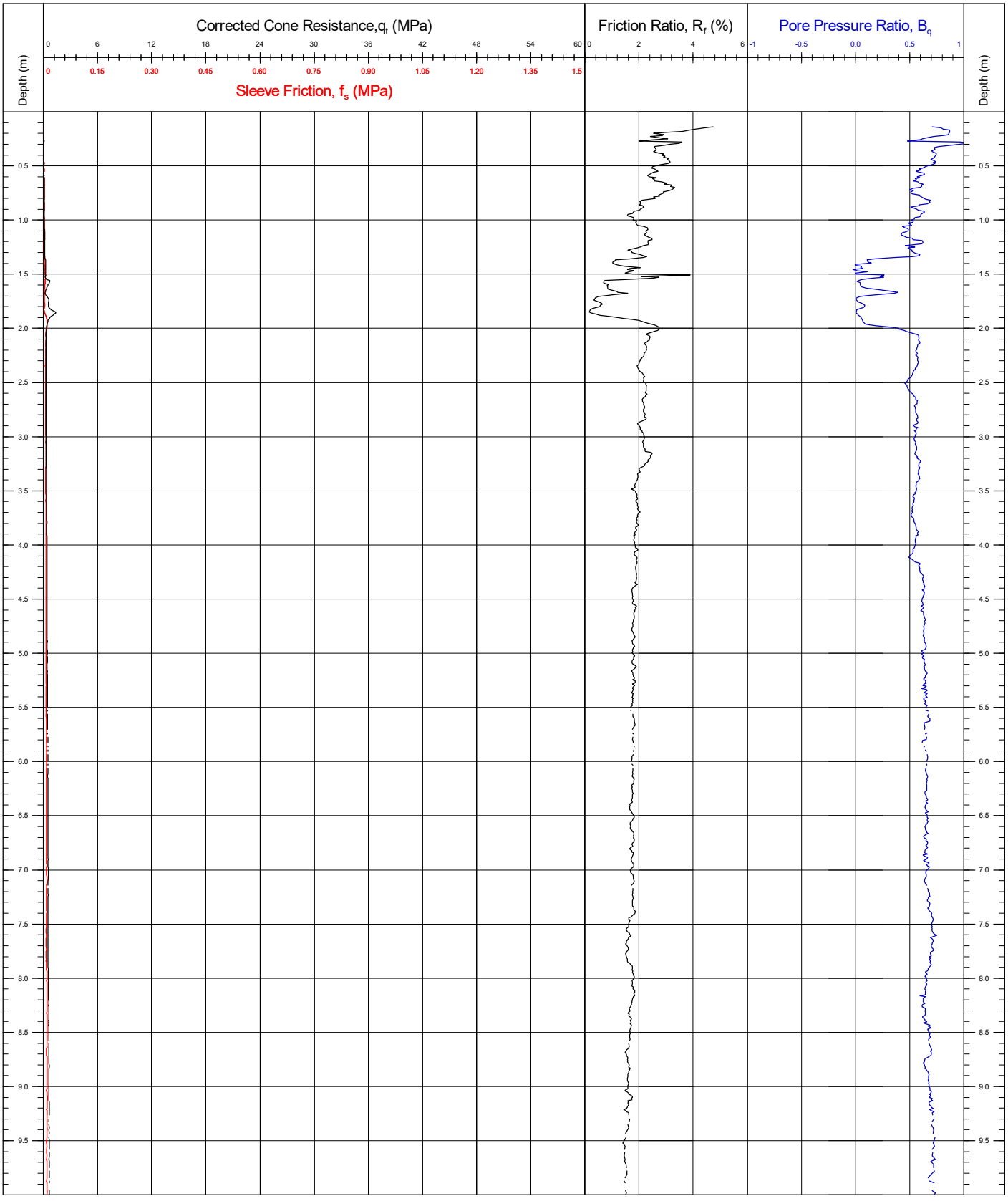


Area	**Kattegat Sea**	Coordinates	**671351.30E 6258725.40N**	CPT Number	**CPT13**
Contract	**11596**	Latitude / Longitude			
Client Name/Ref	**Energinet Eltransmission A/S/384_20_ENE**	Water Depth (mMSL)	**29.34**		
Vessel	**MV Ocean Vantage**	Date of Test	**30/04/2021**	Page: 4/4	
		Cone No.(size)/α Factor	**181009 (10cm^2) / 0.86**	QC Status	
		Base Inclination	**X = 1.2° / Y = 0.8°**	Preliminary: **JK/BC** (30/04/2021)	Draft: **DR** (10/06/2021)
		CRS **ETRS89**			Final: **SMc** (10/11/2021)

Comments: Cone class 3. Continuous seabed CPT. Final depth 35.42m. Test terminated due to a maximum sleeve friction refusal.

Preliminary Investigation, Hesselø OWF

IN SITU CPTU TESTING - DERIVED PARAMETERS



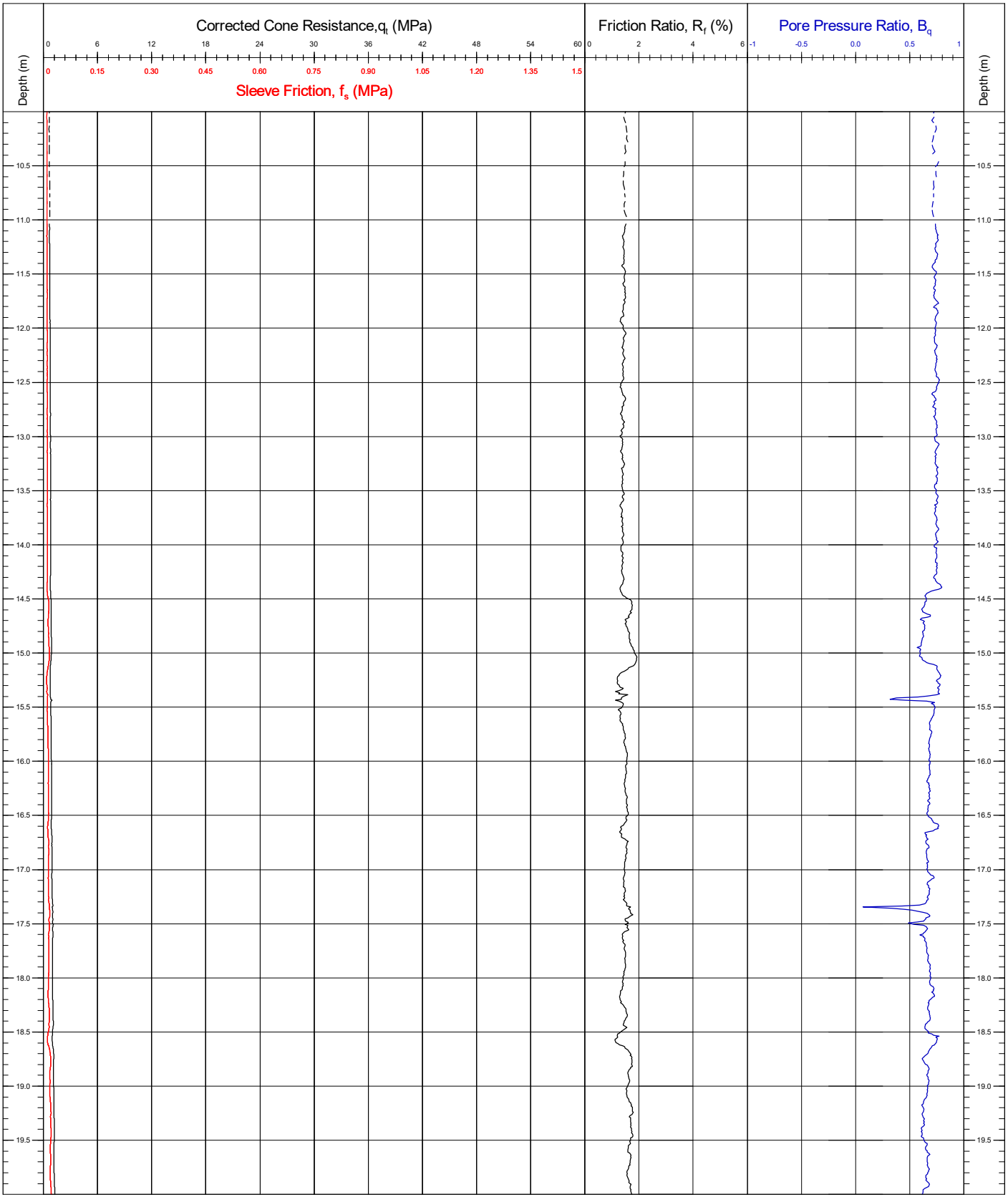
Area	**Kattegat Sea**	Coordinates	**676578.20E 6259609.00N**	CPT Number	**CPT14**
Contract	**11596**	Latitude / Longitude			
Client Name/Ref	**Energinet Eltransmission A/S/384_20_ENE**	Water Depth (mMSL)	**32.28**		
Vessel	**MV Ocean Vantage**	Date of Test	**26/04/2021**	Page: 1/3	
		Cone No.(size)/α Factor	**130206 (10cm^2) / 0.77**	QC Status	
		Base Inclination	**X = -0.3° / Y = 1.8°**	Preliminary / Draft / Final	
		CRS **ETRS89**		**JK/BC** (26/04/2021) / **DR** (10/06/2021) / **SMc** (10/11/2021)	

Comments: Cone Class 4. Continuous seabed CPT. Final depth 27.58m. Test was terminated at operators discretion due to lack of lateral rod support from mudline and increasing cone and SBF inclination

Gardline

Preliminary Investigation, Hesselø OWF

IN SITU CPTU TESTING - DERIVED PARAMETERS



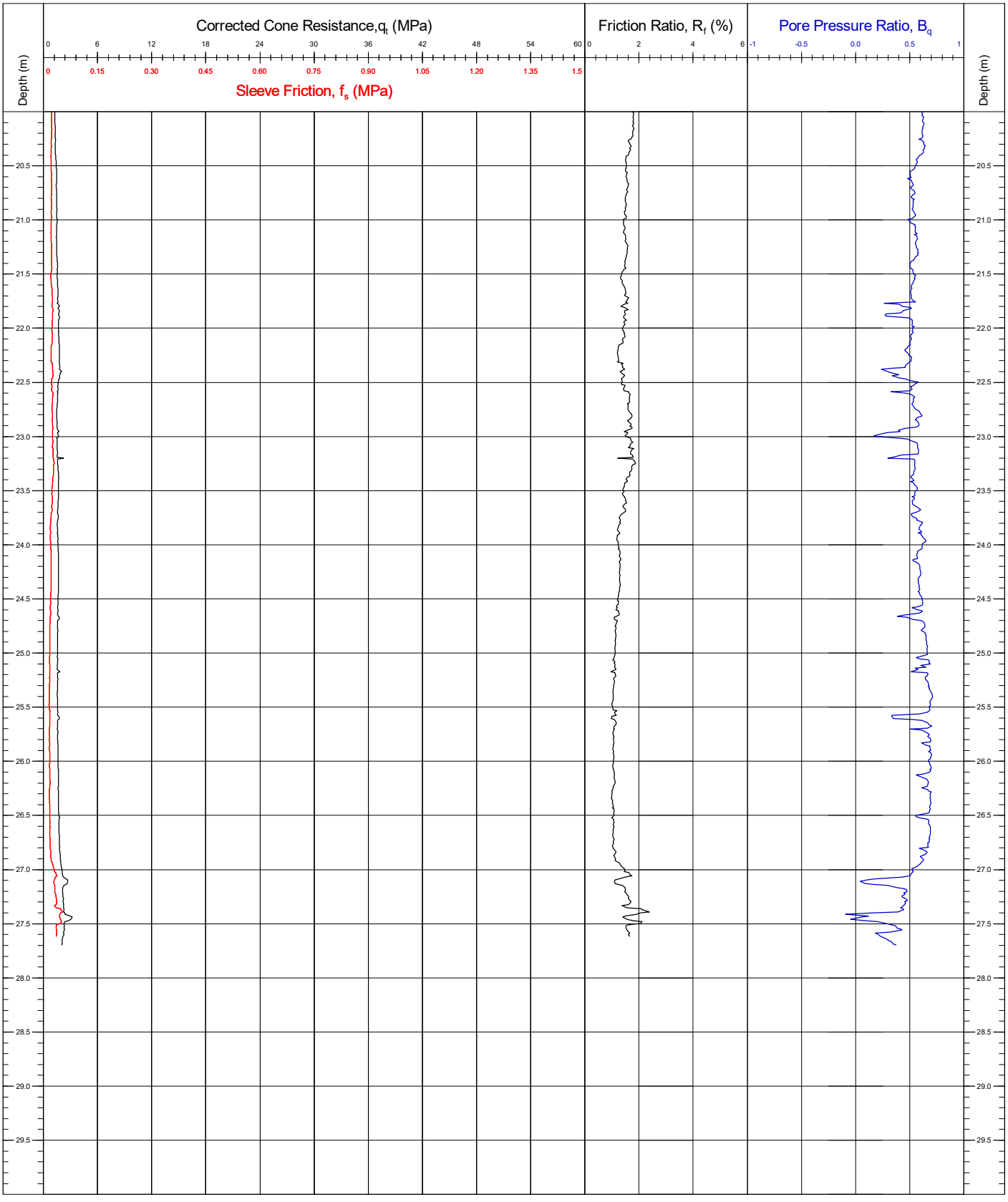
Area	**Kattegat Sea**	Coordinates	**676578.20E 6259609.00N**	CPT Number	**CPT14**
Contract	**11596**	Latitude / Longitude			
Client Name/Ref	**Energinet Eltransmission A/S/384_20_ENE**	Water Depth (mMSL)	**32.28**		
Vessel	**MV Ocean Vantage**	Date of Test	**26/04/2021**	Page: 2/3	
		Cone No.(size)/α Factor	**130206 (10cm^2) / 0.77**	QC Status	
		Base Inclination	**X = -0.3° / Y = 1.8°**	Preliminary: **JK/BC (26/04/2021)**	Draft: **DR (10/06/2021)**
		CRS **ETRS89**			Final: **SMc (10/11/2021)**

Comments: Cone Class 4. Continuous seabed CPT. Final depth 27.58m. Test was terminated at operators discretion due to lack of lateral rod support from mudline and increasing cone and SBF inclination

Gardline

Preliminary Investigation, Hesselø OWF

IN SITU CPTU TESTING - DERIVED PARAMETERS



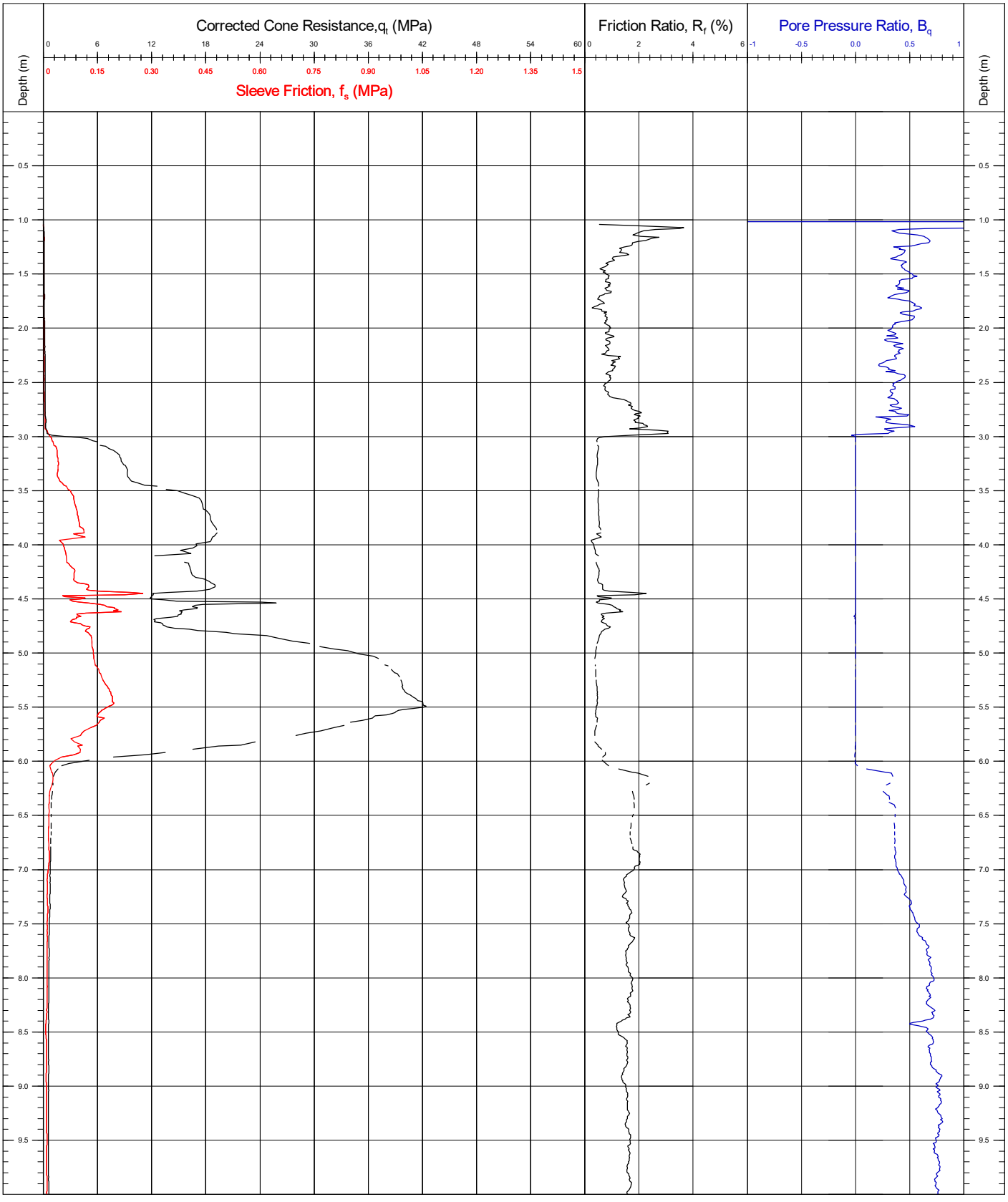
Area	**Kattegat Sea**	Coordinates	**676578.20E 6259609.00N**	CPT Number	**CPT14**
Contract	**11596**	Latitude / Longitude			
Client Name/Ref	**Energinet Eltransmission A/S/384_20_ENE**	Water Depth (mMSL)	**32.28**		
Vessel	**MV Ocean Vantage**	Date of Test	**26/04/2021**	Page: 3/3	
		Cone No.(size)/α Factor	**130206 (10cm^2) / 0.77**	QC Status	
		Base Inclination	**X = -0.3° / Y = 1.8°**	Preliminary / Draft / Final	
		CRS **ETRS89**		**JK/BC (26/04/2021)** / **DR (10/06/2021)** / **SMc (10/11/2021)**	

Comments: Cone Class 4. Continuous seabed CPT. Final depth 27.58m. Test was terminated at operators discretion due to lack of lateral rod support from mudline and increasing cone and SBF inclination

Gardline

Preliminary Investigation, Hesselø OWF

IN SITU CPTU TESTING - DERIVED PARAMETERS

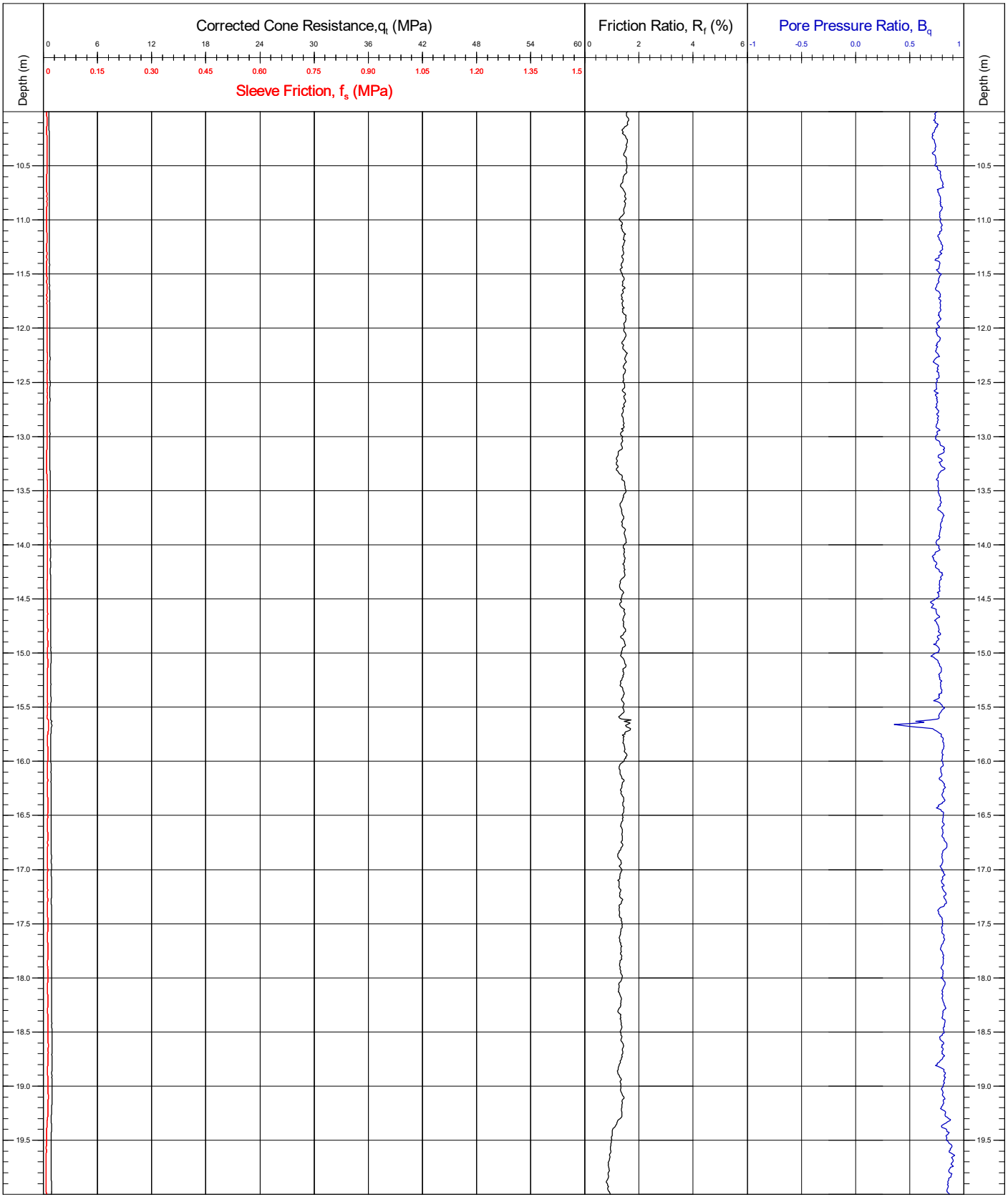


Area	**Kattegat Sea**	Coordinates	**668001.60E 6262849.60N**	CPT Number	**CPT15**
Contract	**11596**	Latitude / Longitude			
Client Name/Ref	**Energinet Eltransmission A/S/384_20_ENE**	Water Depth (mMSL)	**29.01**		
Vessel	**MV Ocean Vantage**	Date of Test	**30/04/2021**	Page: 1/5	
Comments: Cone class 1. Continuous seabed CPT. Final depth 48.84m. Test terminated due to sleeve refusal		Cone No.(size)/α Factor	**120910 (10cm^2) / 0.81**	QC Status	
		Base Inclination	**X = 1.1° / Y = 0.8°**	Preliminary / Draft / Final	
		CRS **ETRS89**		**JK/BC** (01/05/2021) / **DR** (10/06/2021) / **SMc** (10/11/2021)	

Gardline

Preliminary Investigation, Hesselø OWF

IN SITU CPTU TESTING - DERIVED PARAMETERS

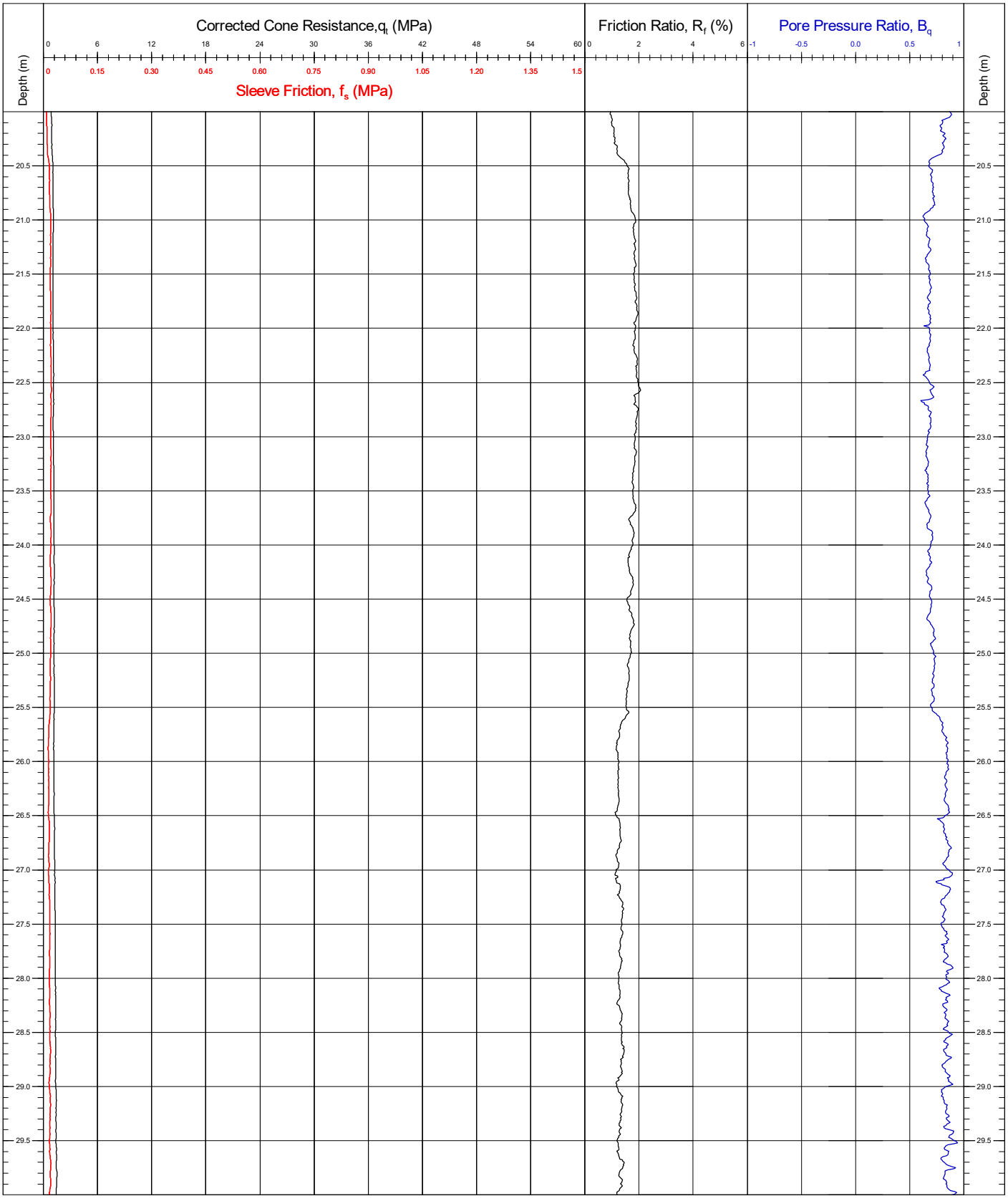


Area	**Kattegat Sea**	Coordinates	**668001.60E 6262849.60N**	CPT Number	**CPT15**
Contract	**11596**	Latitude / Longitude			
Client Name/Ref	**Energinet Eltransmission A/S/384_20_ENE**	Water Depth (mMSL)	**29.01**		
Vessel	**MV Ocean Vantage**	Date of Test	**30/04/2021**	Page: 2/5	
Comments: Cone class 1. Continuous seabed CPT. Final depth 48.84m. Test terminated due to sleeve refusal		Cone No.(size)/α Factor	**120910 (10cm^2) / 0.81**	QC Status	
		Base Inclination	**X = 1.1° / Y = 0.8°**	Preliminary / Draft / Final	
		CRS **ETRS89**		**JK/BC** (01/05/2021) / **DR** (10/06/2021) / **SMc** (10/11/2021)	

Gardline

Preliminary Investigation, Hesselø OWF

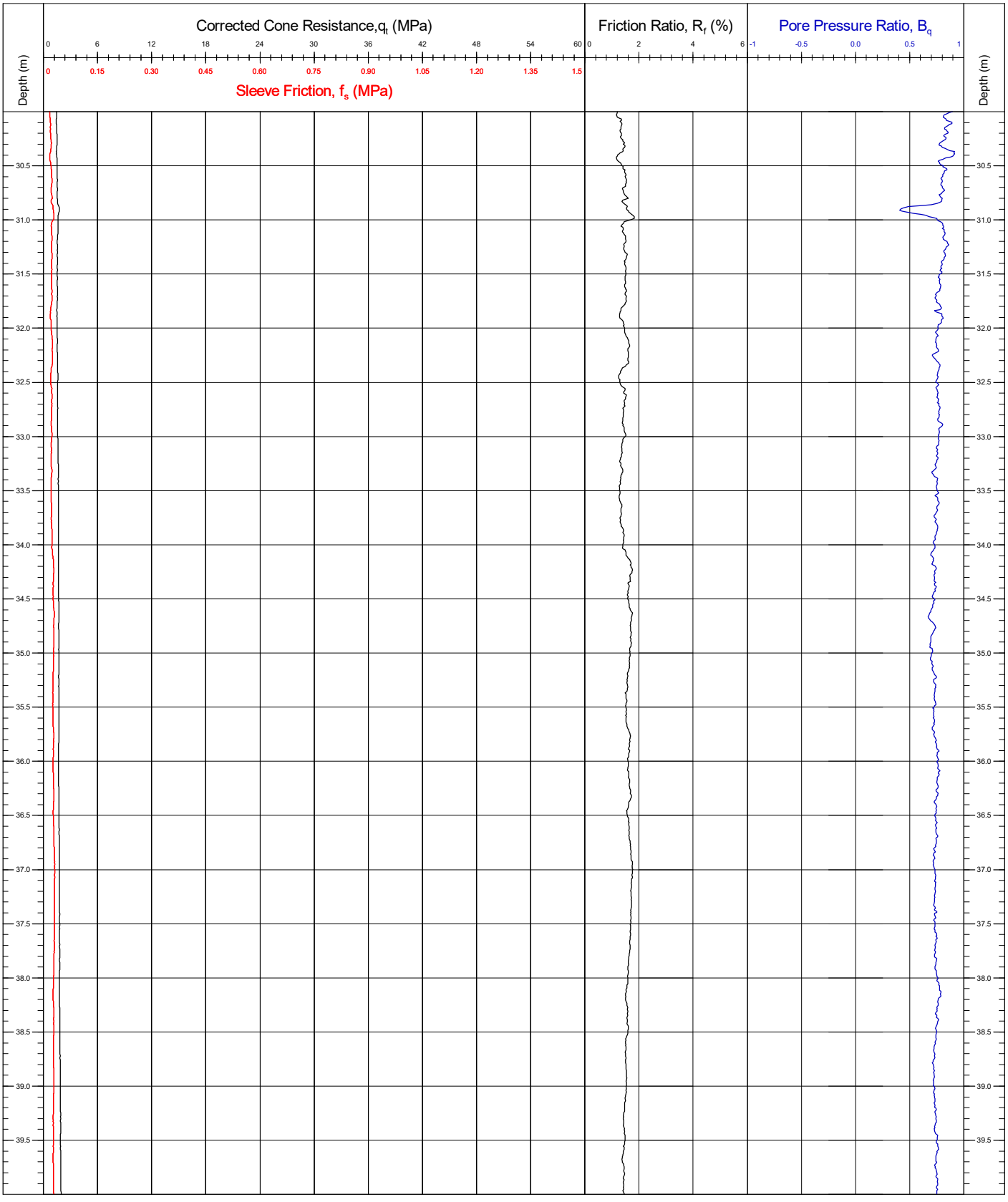
IN SITU CPTU TESTING - DERIVED PARAMETERS



Area	**Kattegat Sea**	Coordinates	**668001.60E 6262849.60N**	CPT Number	**CPT15**
Contract	**11596**	Latitude / Longitude			
Client Name/Ref	**Energinet Eltransmission A/S/384_20_ENE**	Water Depth (mMSL)	**29.01**		
Vessel	**MV Ocean Vantage**	Date of Test	**30/04/2021**	Page: 3/5	
Comments: Cone class 1. Continuous seabed CPT. Final depth 48.84m. Test terminated due to sleeve refusal		Cone No.(size)/α Factor	**120910 (10cm^2) / 0.81**	QC Status	
		Base Inclination	**X = 1.1° / Y = 0.8°**	Preliminary: **JK/BC** (01/05/2021)	Draft: **DR** (10/06/2021)
		CRS **ETRS89**			Final: **SMc** (10/11/2021)

Preliminary Investigation, Hesselø OWF

IN SITU CPTU TESTING - DERIVED PARAMETERS

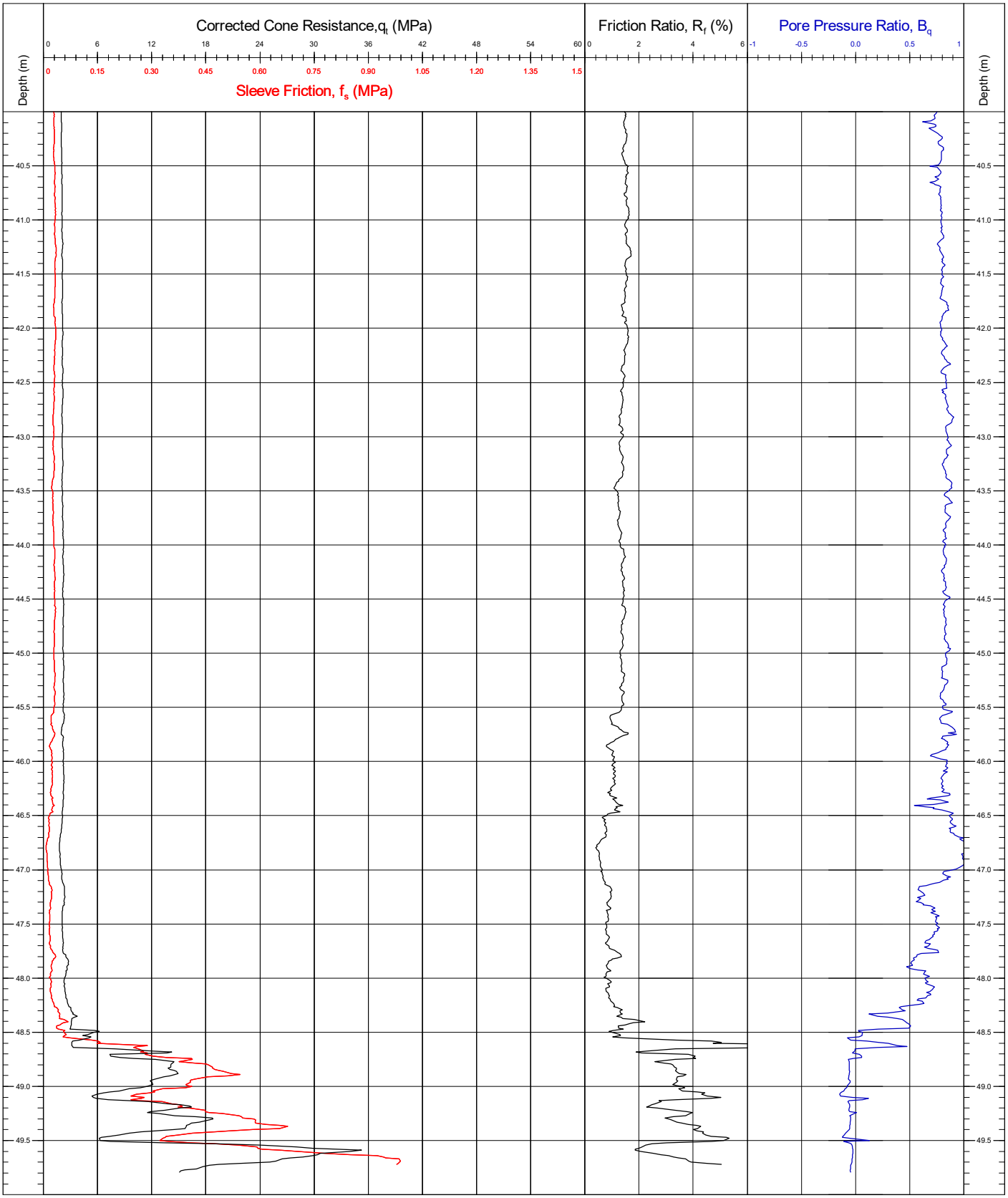


Area	**Kattegat Sea**	Coordinates	**668001.60E 6262849.60N**	CPT Number	**CPT15**
Contract	**11596**	Latitude / Longitude			
Client Name/Ref	**Energinet Eltransmission A/S/384_20_ENE**	Water Depth (mMSL)	**29.01**		
Vessel	**MV Ocean Vantage**	Date of Test	**30/04/2021**	Page: 4/5	
Comments: Cone class 1. Continuous seabed CPT. Final depth 48.84m. Test terminated due to sleeve refusal		Cone No.(size)/α Factor	**120910 (10cm^2) / 0.81**	QC Status	
		Base Inclination	**X = 1.1° / Y = 0.8°**	Preliminary / Draft / Final	
		CRS **ETRS89**		**JK/BC** (01/05/2021) / **DR** (10/06/2021) / **SMc** (10/11/2021)	

Gardline

Preliminary Investigation, Hesselø OWF

IN SITU CPTU TESTING - DERIVED PARAMETERS

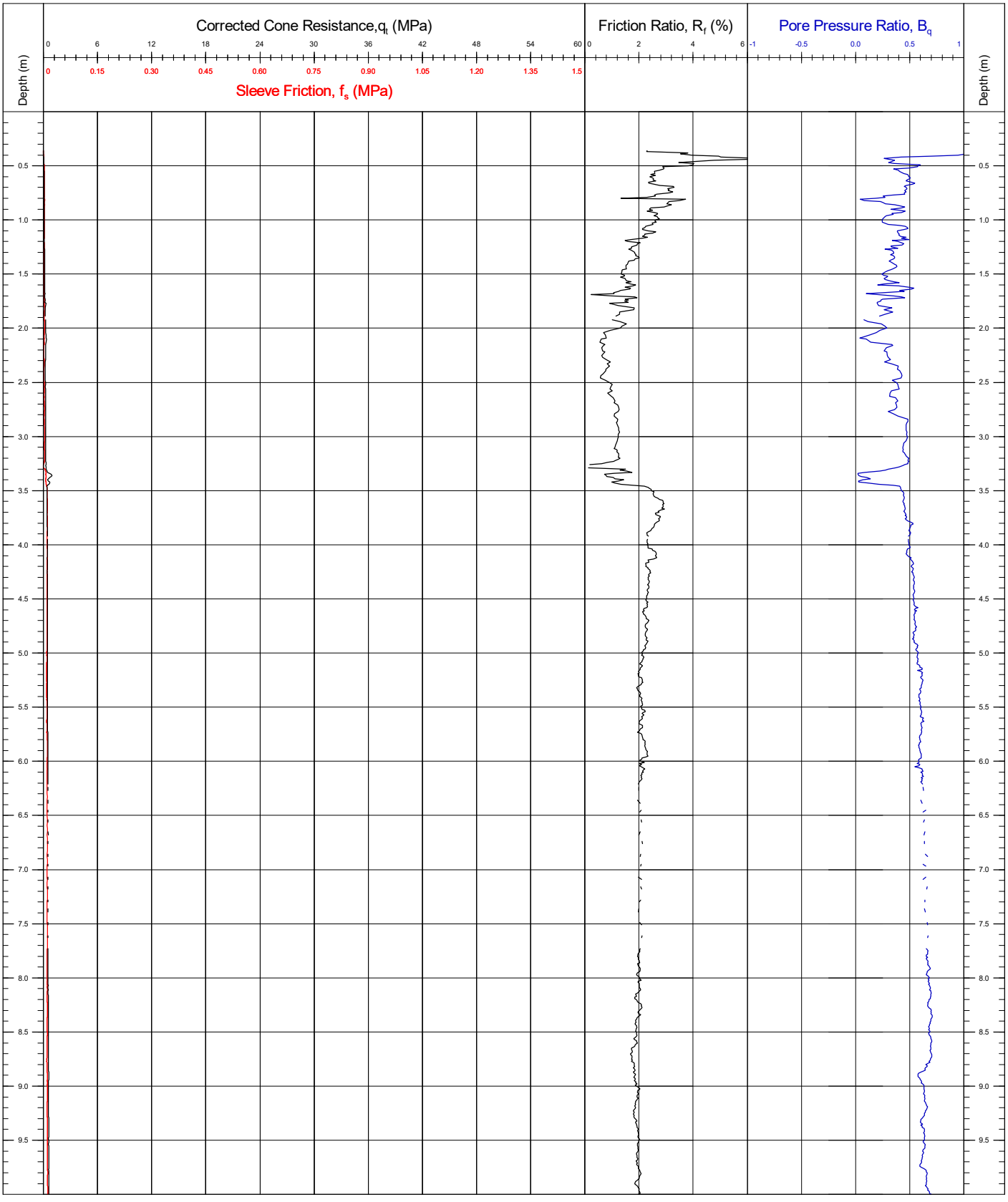


Area	**Kattegat Sea**	Coordinates	**668001.60E 6262849.60N**	CPT Number	**CPT15**
Contract	**11596**	Latitude / Longitude			
Client Name/Ref	**Energinet Eltransmission A/S/384_20_ENE**	Water Depth (mMSL)	**29.01**		
Vessel	**MV Ocean Vantage**	Date of Test	**30/04/2021**	Page: 5/5	
Comments: Cone class 1. Continuous seabed CPT. Final depth 48.84m. Test terminated due to sleeve refusal		Cone No.(size)/α Factor	**120910 (10cm^2) / 0.81**	QC Status	
		Base Inclination	**X = 1.1° / Y = 0.8°**	Preliminary / Draft / Final	
		CRS **ETRS89**		**JK/BC** (01/05/2021) / **DR** (10/06/2021) / **SMc** (10/11/2021)	

Gardline

Preliminary Investigation, Hesselø OWF

IN SITU CPTU TESTING - DERIVED PARAMETERS

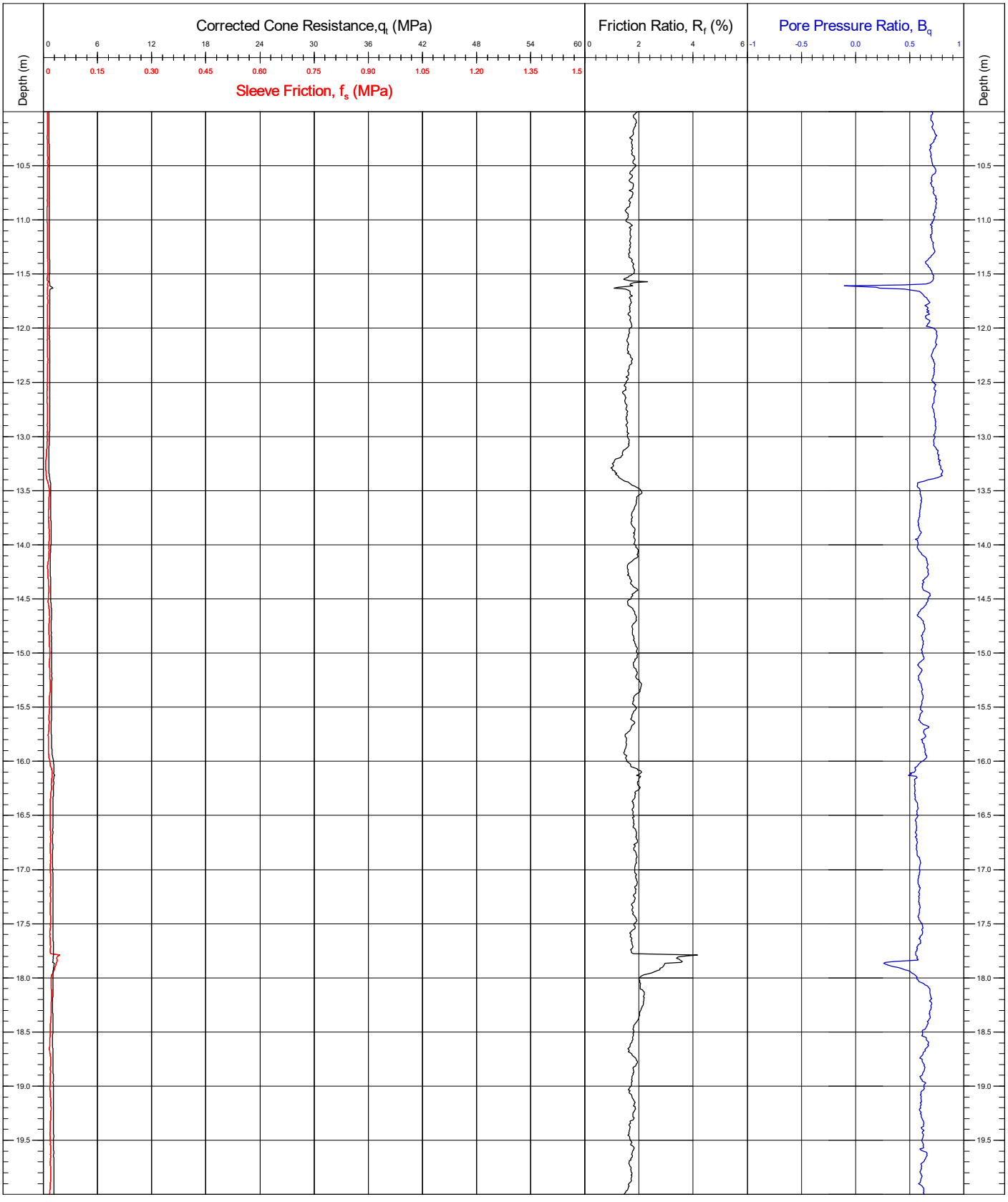


Area	**Kattegat Sea**	Coordinates	**672157.80E** **6263407.00N**	CPT Number	**CPT16**
Contract	**11596**	Latitude / Longitude			
Client Name/Ref	**Energinet Eltransmission A/S/384_20_ENE**	Water Depth (mMSL)	**30.87**		
Vessel	**MV Ocean Vantage**	Date of Test	**30/04/2021**	Page: 1/3	
Comments: Cone class 2. Continuous seabed CPT. Final depth 29.42m. Test terminated due to poor data quality after dissipation test.		Cone No.(size)/α Factor	**181004 (10cm^2) / 0.81**	QC Status	
		Base Inclination	**X = 1.1° / Y = 1.0°**	Preliminary: **JK/BC** (30/04/2021)	Draft: **DR** (10/06/2021)
		CRS **ETRS89**			Final: **SMc** (10/11/2021)

Gardline

Preliminary Investigation, Hesselø OWF

IN SITU CPTU TESTING - DERIVED PARAMETERS



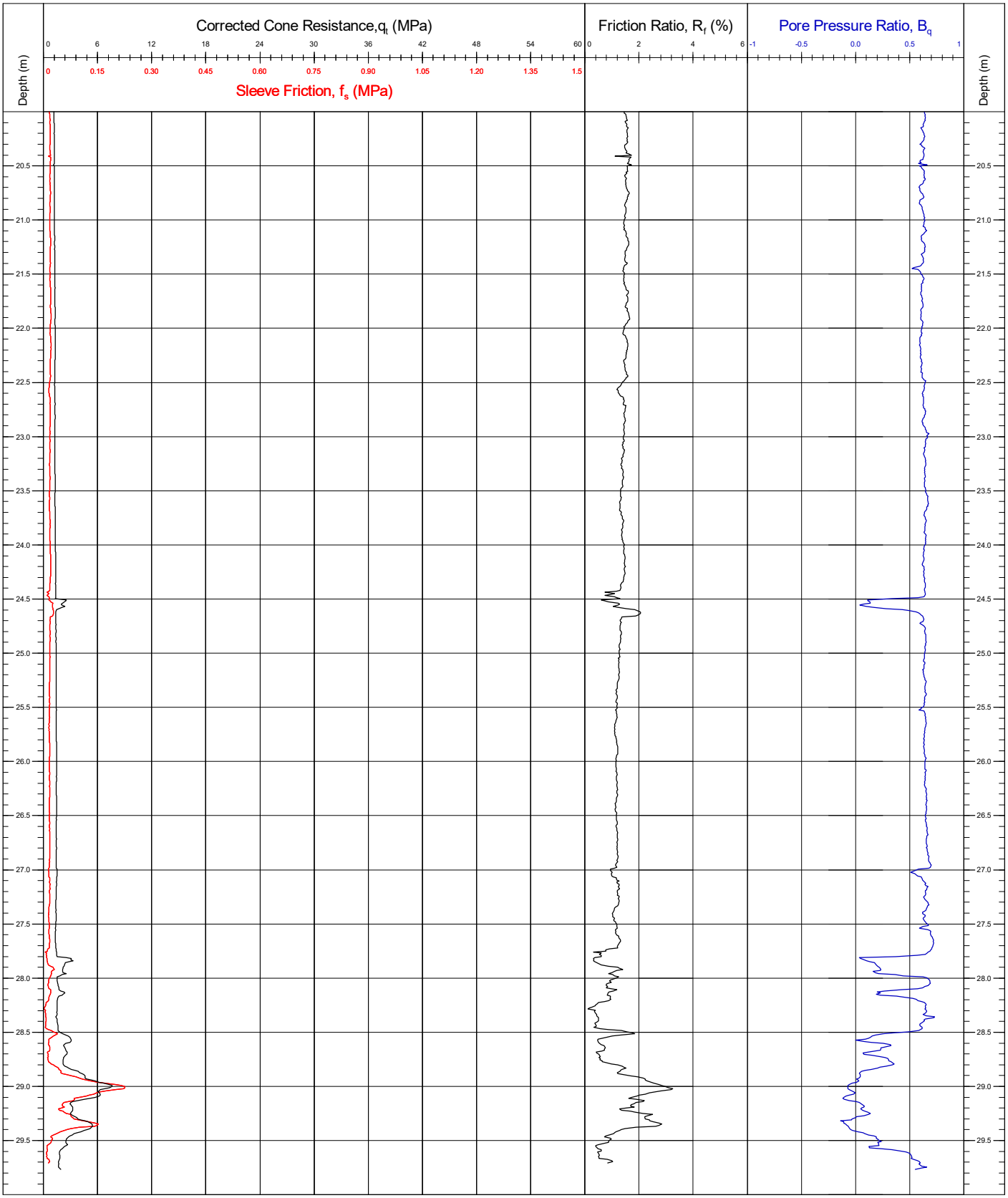
Area	**Kattegat Sea**	Coordinates	**672157.80E**	**6263407.00N**	CPT Number **CPT16**
Contract	**11596**	Latitude / Longitude			
Client Name/Ref	**Energinet Eltransmission A/S/384_20_ENE**	Water Depth (mMSL)	**30.87**		
Vessel	**MV Ocean Vantage**	Date of Test	**30/04/2021**		Page: 2/3
		Cone No.(size)/α Factor	**181004 (10cm^2) / 0.81**		QC Status
		Base Inclination	**X = 1.1° / Y = 1.0°**		Preliminary: **JK/BC** (30/04/2021); Draft: **DR** (10/06/2021); Final: **SMc** (10/11/2021)
		CRS	**ETRS89**		

Comments: Cone class 2. Continuous seabed CPT. Final depth 29.42m. Test terminated due to poor data quality after dissipation test.

Gardline

Preliminary Investigation, Hesselø OWF

IN SITU CPTU TESTING - DERIVED PARAMETERS



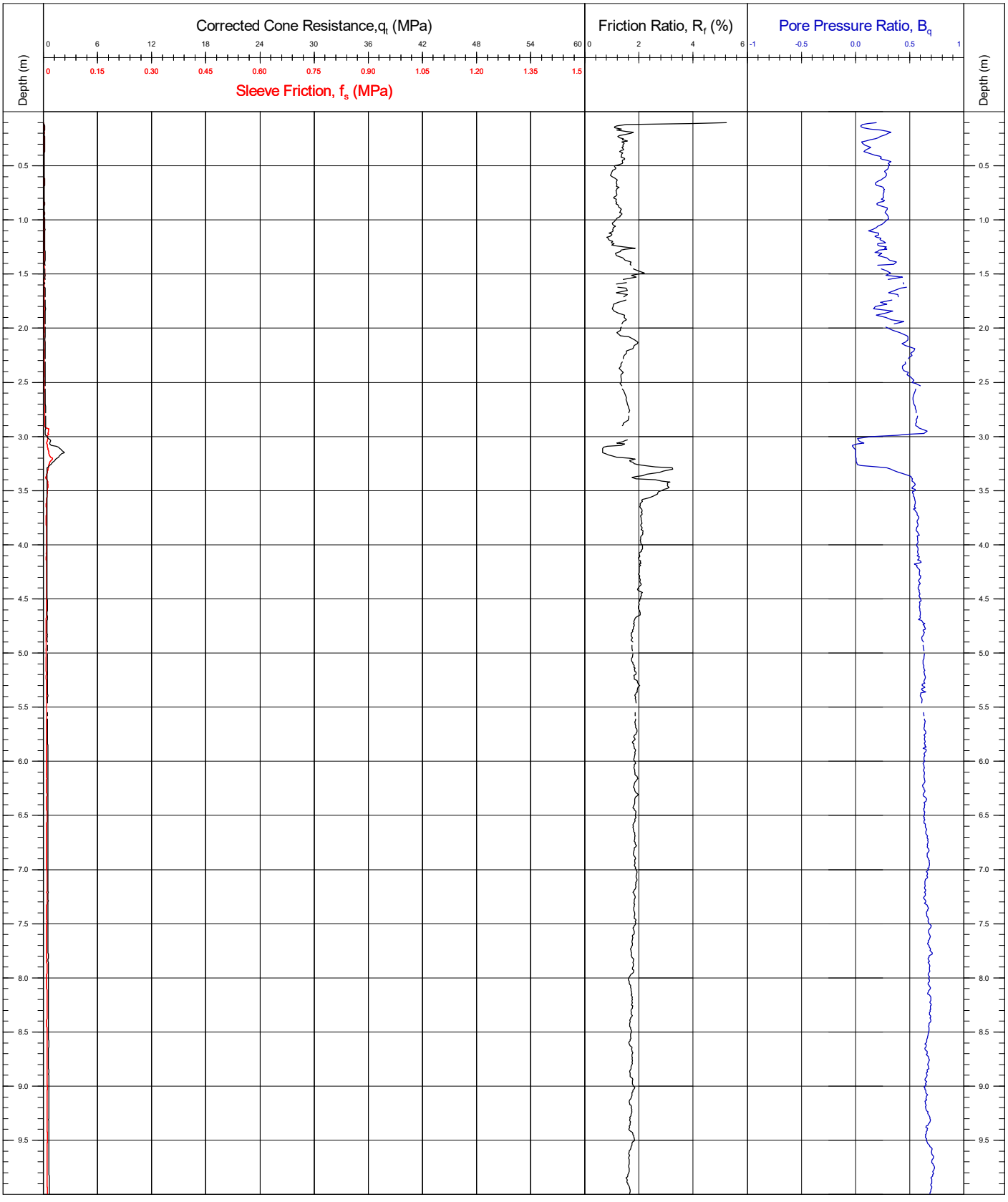
Area	**Kattegat Sea**	Coordinates	**672157.80E**	**6263407.00N**	CPT Number **CPT16**
Contract	**11596**	Latitude / Longitude			
Client Name/Ref	**Energinet Eltransmission A/S/384_20_ENE**	Water Depth (mMSL)	**30.87**		
Vessel	**MV Ocean Vantage**	Date of Test	**30/04/2021**		Page: 3/3
		Cone No.(size)/α Factor	**181004 (10cm^2) / 0.81**		QC Status
		Base Inclination	**X = 1.1° / Y = 1.0°**		Preliminary: **JK/BC** (30/04/2021); Draft: **DR** (10/06/2021); Final: **SMc** (10/11/2021)
		CRS	**ETRS89**		

Comments: Cone class 2. Continuous seabed CPT. Final depth 29.42m. Test terminated due to poor data quality after dissipation test.

Gardline

Preliminary Investigation, Hesselø OWF

IN SITU CPTU TESTING - DERIVED PARAMETERS

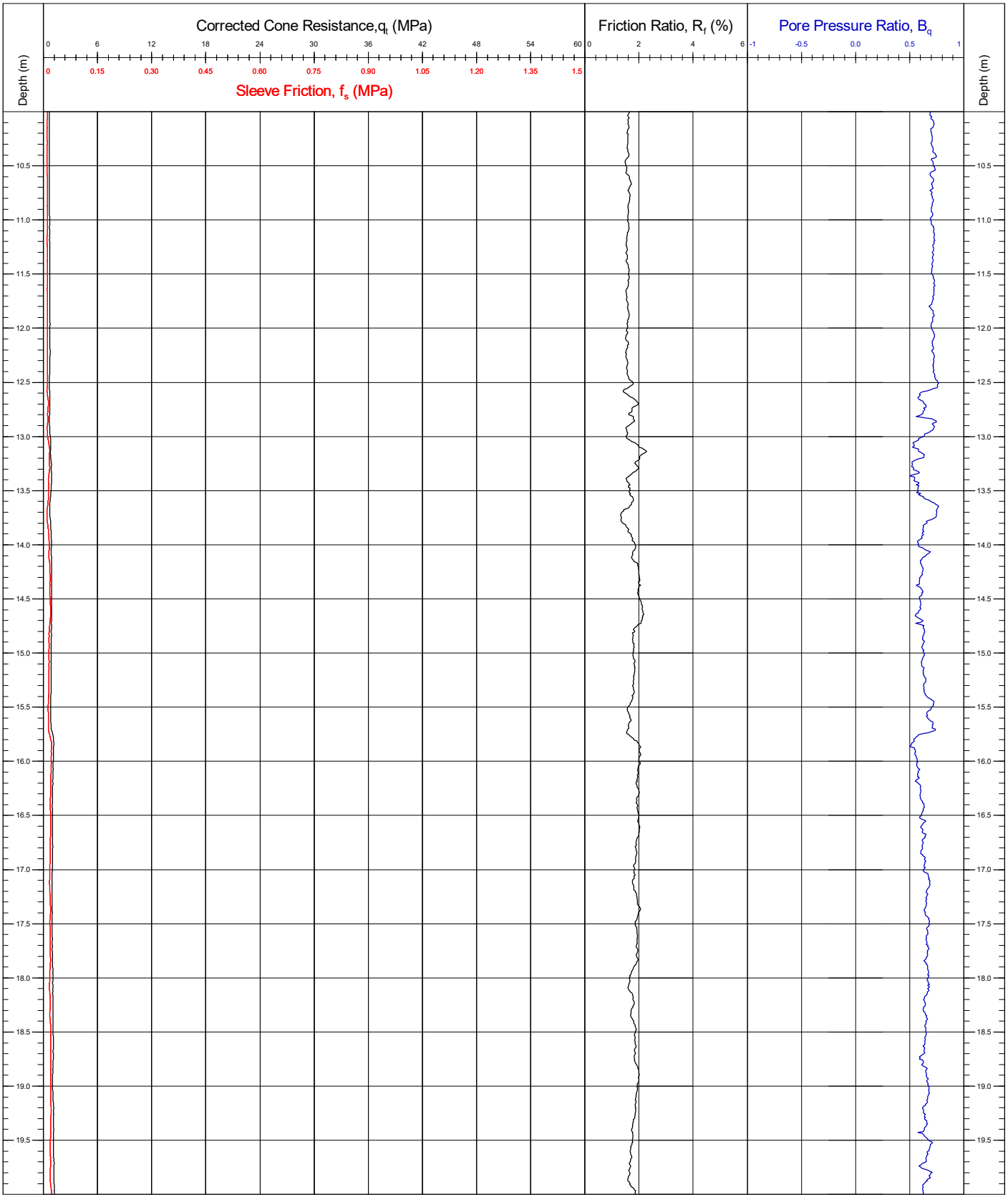


Area	**Kattegat Sea**	Coordinates	**672157.00E 6263401.90N**	CPT Number	**CPT16a**
Contract	**11596**	Latitude / Longitude			
Client Name/Ref	**Energinet Eltransmission A/S/384_20_ENE**	Water Depth (mMSL)	**30.74**		
Vessel	**MV Ocean Vantage**	Date of Test	**08/05/2021**	Page: 1/4	
		Cone No.(size)/α Factor	**130206 (10cm^2) / 0.77**	QC Status	
		Base Inclination	**X = 1.0° / Y = 1.0°**	Preliminary / Draft / Final	
		CRS **ETRS89**		**JK/BC** (08/05/2021) / **DR** (10/06/2021) / **SMc** (10/11/2021)	

Comments: Cone class 1. Continuous seabed CPT. Final depth 33.34m. Test terminated at the operators discretion due to increasing total load~ lack of lateral rod support near mudline and total cone inclination reaching near critical

Preliminary Investigation, Hesselø OWF

IN SITU CPTU TESTING - DERIVED PARAMETERS



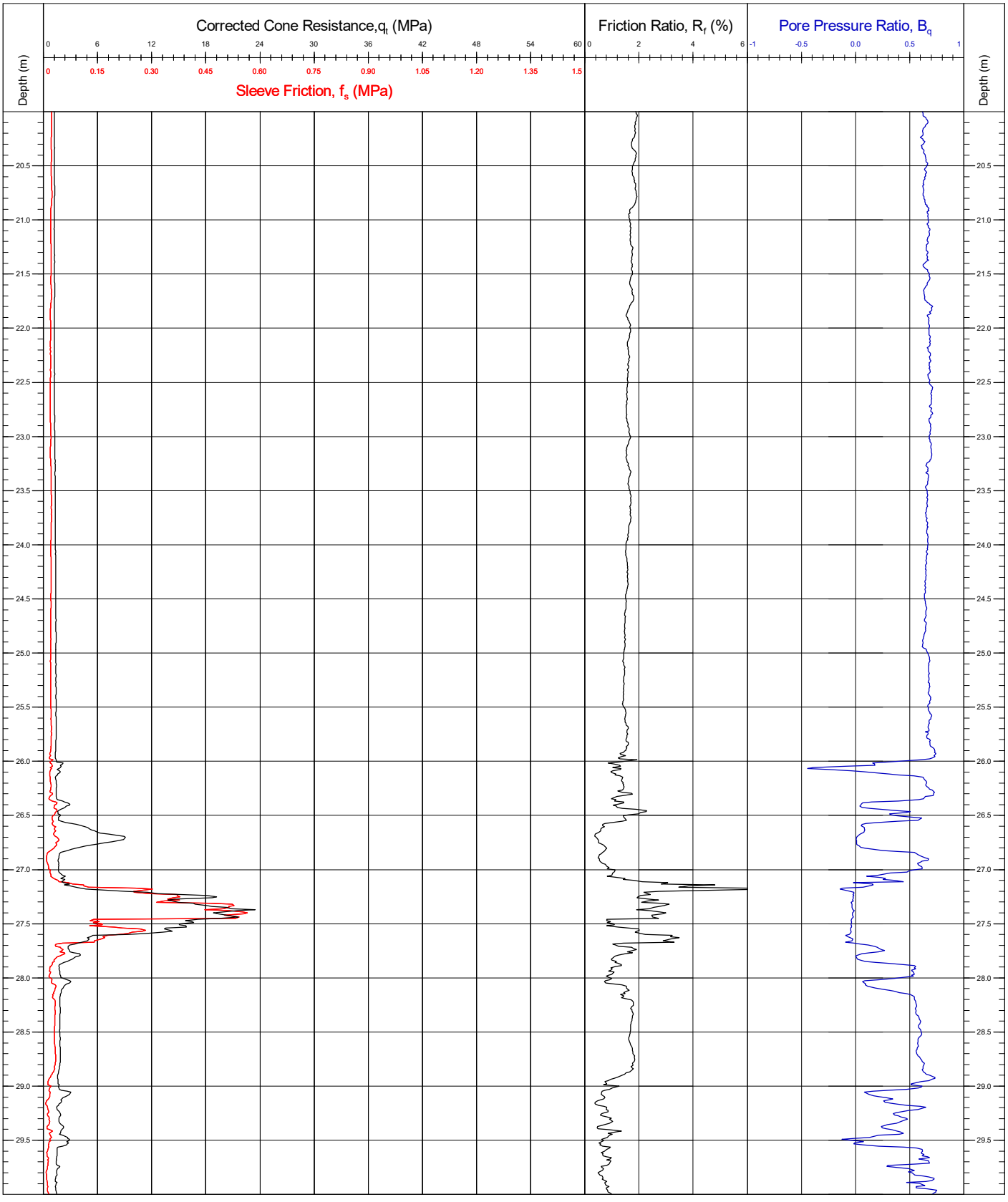
Area	**Kattegat Sea**	Coordinates	**672157.00E 6263401.90N**	CPT Number	**CPT16a**
Contract	**11596**	Latitude / Longitude			
Client Name/Ref	**Energinet Eltransmission A/S/384_20_ENE**	Water Depth (mMSL)	**30.74**		
Vessel	**MV Ocean Vantage**	Date of Test	**08/05/2021**	Page: 2/4	
		Cone No.(size)/α Factor	**130206 (10cm^2) / 0.77**	QC Status	
		Base Inclination	**X = 1.0° / Y = 1.0°**	Preliminary: **JK/BC (08/05/2021)**	Draft: **DR (10/06/2021)**
		CRS **ETRS89**			Final: **SMc (10/11/2021)**

Comments: Cone class 1. Continuous seabed CPT. Final depth 33.34m. Test terminated at the operators discretion due to increasing total load~ lack of lateral rod support near mudline and total cone inclination reaching near critical

Gardline

Preliminary Investigation, Hesselø OWF

IN SITU CPTU TESTING - DERIVED PARAMETERS

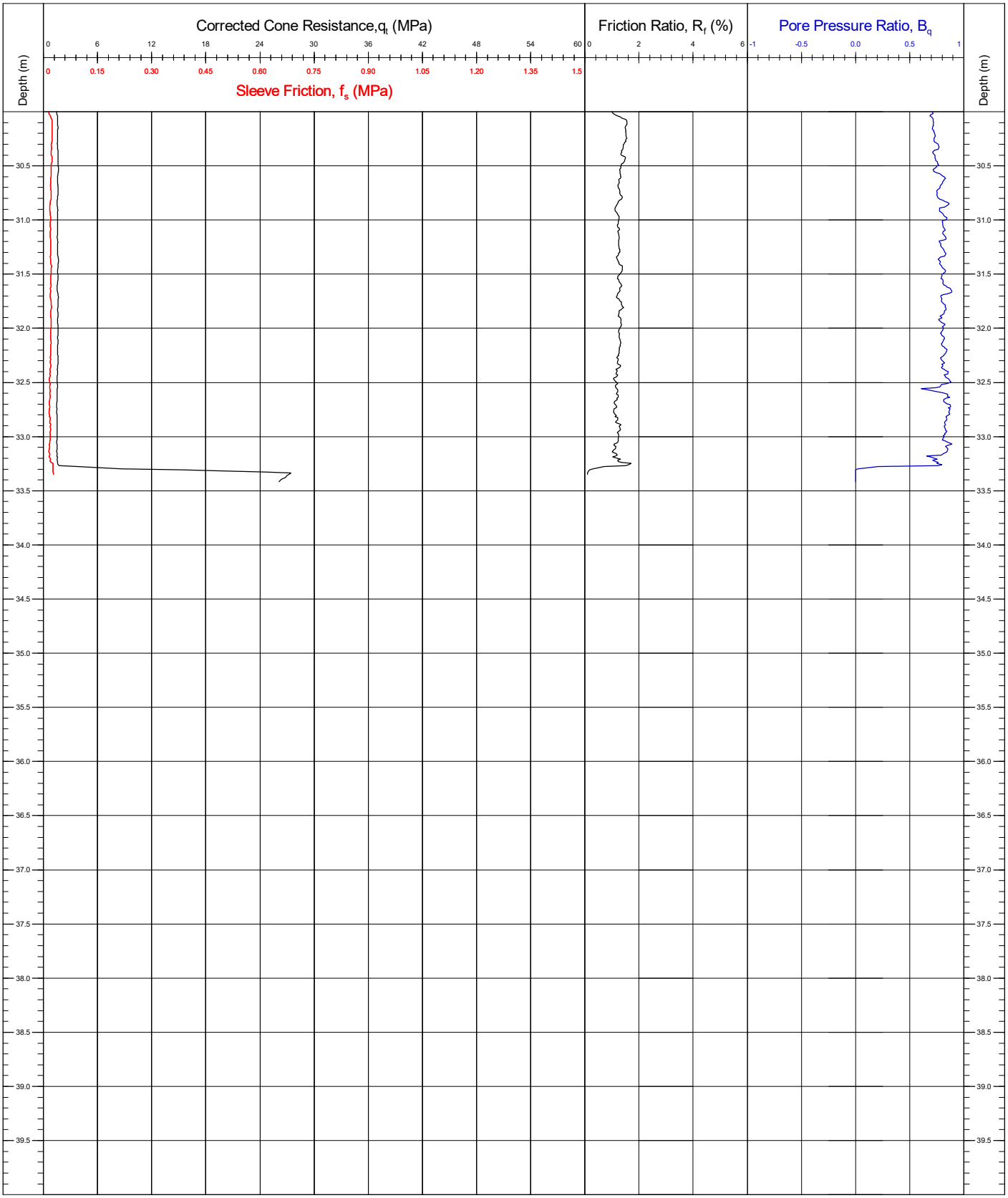


Area	**Kattegat Sea**	Coordinates	**672157.00E 6263401.90N**	CPT Number	**CPT16a**
Contract	**11596**	Latitude / Longitude			
Client Name/Ref	**Energinet Eltransmission A/S/384_20_ENE**	Water Depth (mMSL)	**30.74**		
Vessel	**MV Ocean Vantage**	Date of Test	**08/05/2021**	Page: 3/4	
		Cone No.(size)/α Factor	**130206 (10cm^2) / 0.77**	QC Status	
		Base Inclination	**X = 1.0° / Y = 1.0°**	Preliminary: **JK/BC** (08/05/2021)	Draft: **DR** (10/06/2021)
		CRS **ETRS89**			Final: **SMc** (10/11/2021)

Comments: Cone class 1. Continuous seabed CPT. Final depth 33.34m. Test terminated at the operators discretion due to increasing total load~ lack of lateral rod support near mudline and total cone inclination reaching near critical

Preliminary Investigation, Hesselø OWF

IN SITU CPTU TESTING - DERIVED PARAMETERS

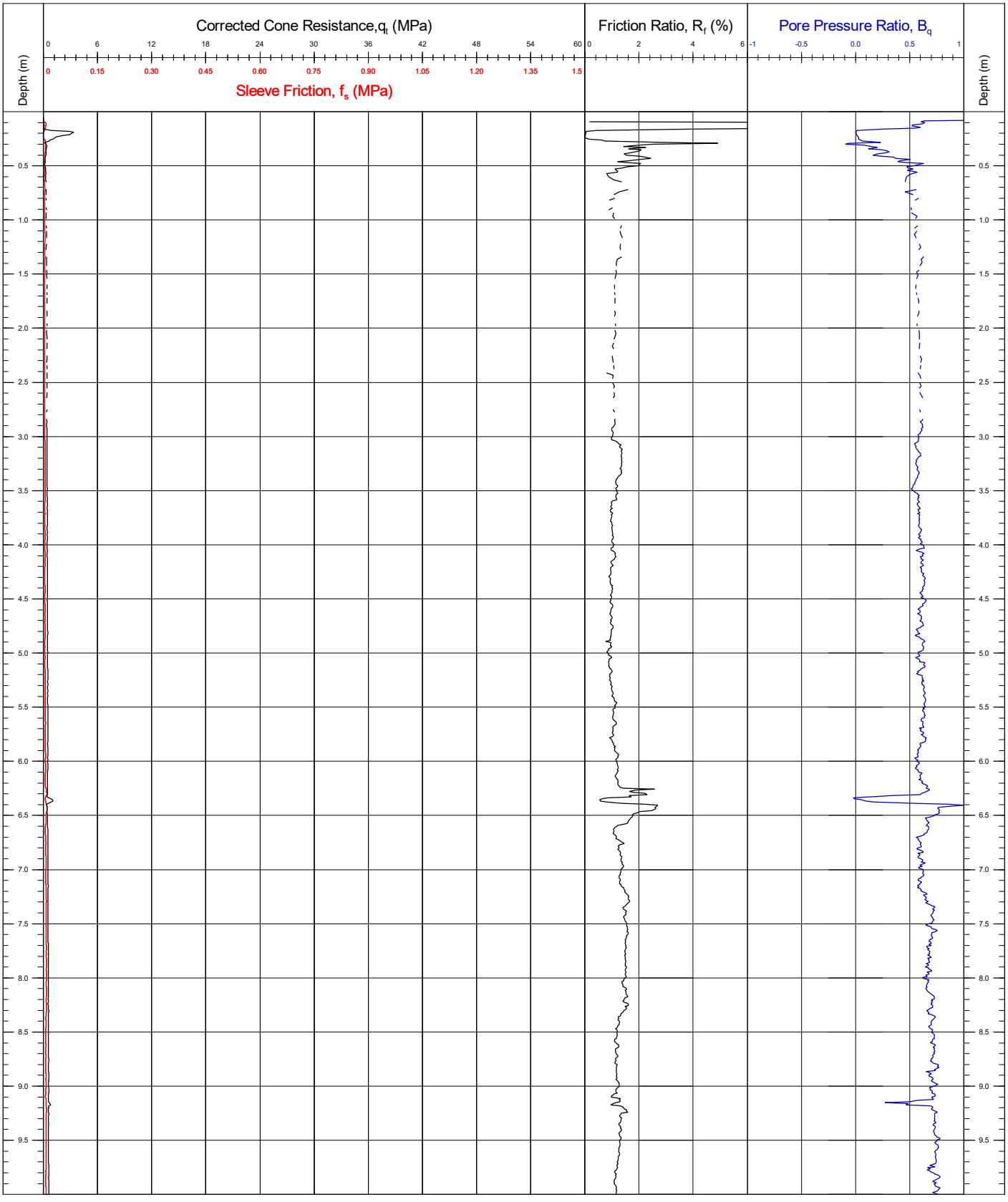


Area	**Kattegat Sea**	Coordinates	**672157.00E 6263401.90N**	CPT Number	**CPT16a**
Contract	**11596**	Latitude / Longitude			
Client Name/Ref	**Energinet Eltransmission A/S/384_20_ENE**	Water Depth (mMSL)	**30.74**		
Vessel	**MV Ocean Vantage**	Date of Test	**08/05/2021**	Page: 4/4	
		Cone No.(size)/α Factor	**130206 (10cm^2) / 0.77**	QC Status	
		Base Inclination	**X = 1.0° / Y = 1.0°**	Preliminary: **JK/BC (08/05/2021)**	Draft: **DR (10/06/2021)**
		CRS **ETRS89**			Final: **SMc (10/11/2021)**

Comments: Cone class 1. Continuous seabed CPT. Final depth 33.34m. Test terminated at the operators discretion due to increasing total load~ lack of lateral rod support near mudline and total cone inclination reaching near critical

Preliminary Investigation, Hesselø OWF

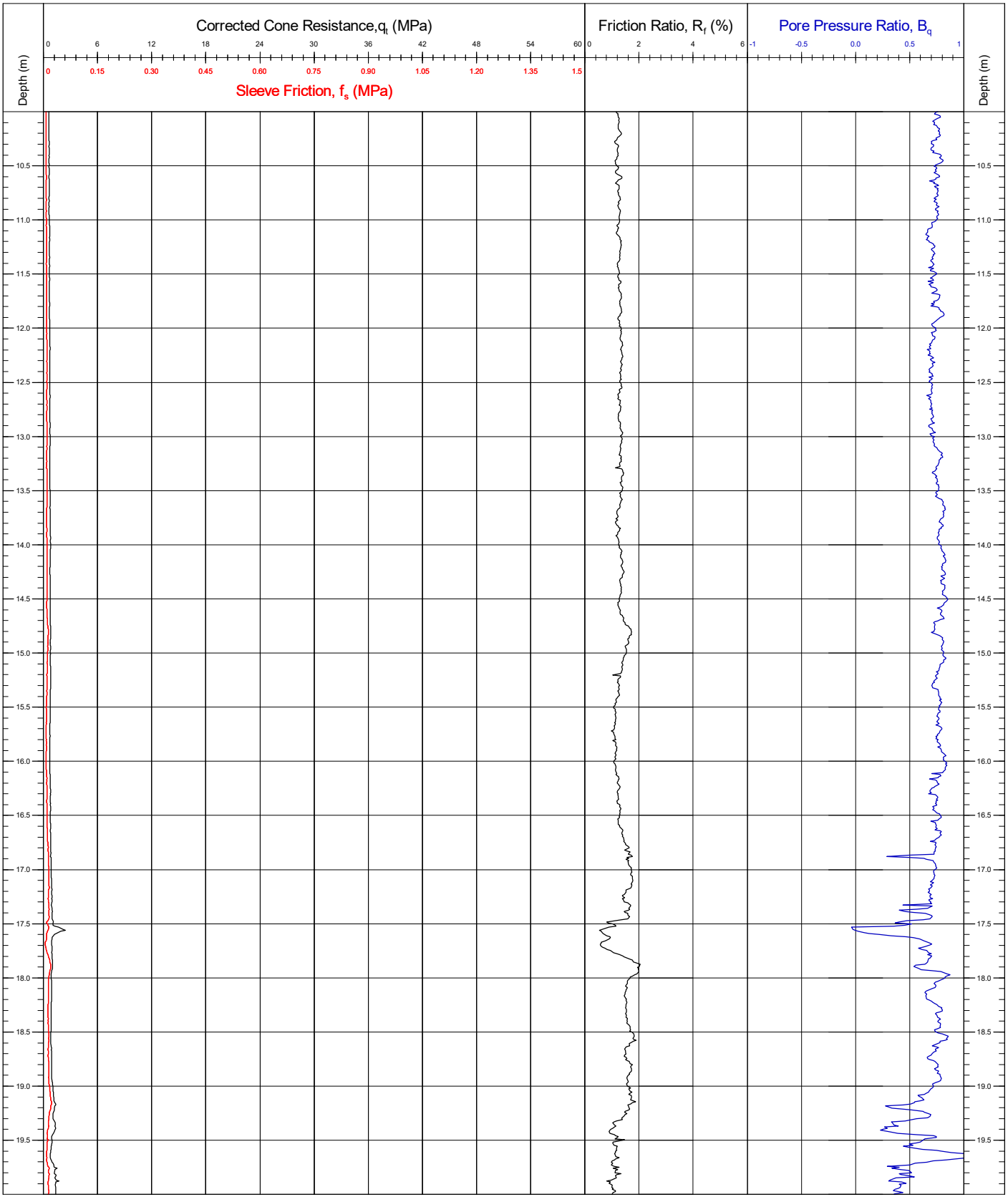
IN SITU CPTU TESTING - DERIVED PARAMETERS



Area	**Kattegat Sea**	Coordinates	**677169.50E 6263055.40N**	CPT Number	**CPT18**
Contract	**11596**	Latitude / Longitude			
Client Name/Ref	**Energinet Eltransmission A/S/384_20_ENE**	Water Depth (mMSL)	**32.31**		
Vessel	**MV Ocean Vantage**	Date of Test	**25/04/2021**	Page: 1/4	
Comments: Cone Class1. Continuous seabed CPT. Final depth 37.74m. Test terminated at operators discretion to avoid damage due to no lateral rod support from mudline		Cone No.(size)/α Factor	**061040 (10cm^2) / 0.76**	QC Status	
		Base Inclination	**X = -2.0° / Y = 3.9°**	Preliminary / Draft / Final	
		CRS **ETRS89**		**JK/BC (25/04/2021)** / **DR (10/06/2021)** / **SMc (10/11/2021)**	

Preliminary Investigation, Hesselø OWF

IN SITU CPTU TESTING - DERIVED PARAMETERS



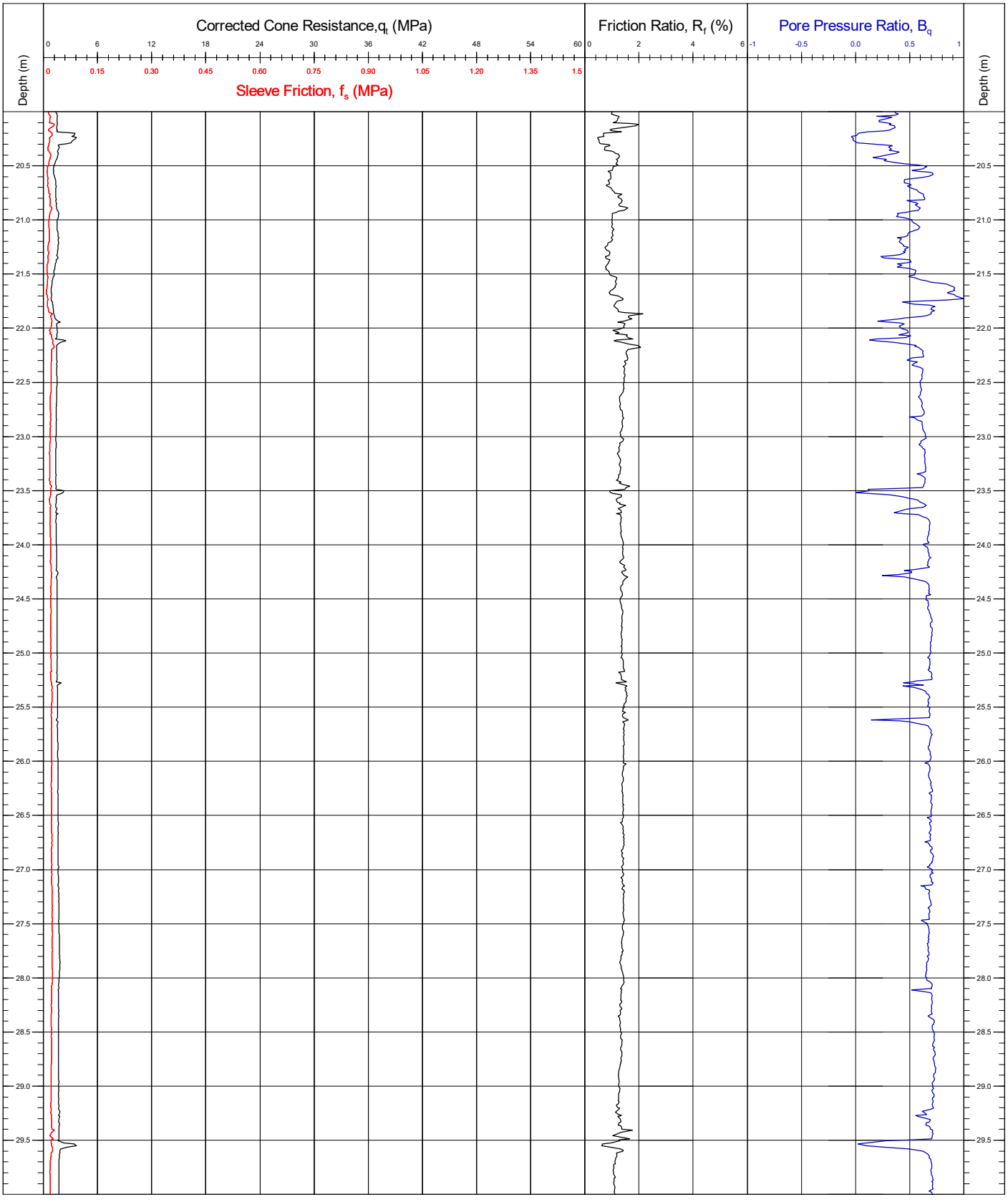
Area	**Kattegat Sea**	Coordinates	**677169.50E**	**6263055.40N**	CPT Number **CPT18**
Contract	**11596**	Latitude / Longitude			
Client Name/Ref	**Energinet Eltransmission A/S/384_20_ENE**	Water Depth (mMSL)	**32.31**		
Vessel	**MV Ocean Vantage**	Date of Test	**25/04/2021**		Page: 2/4
		Cone No.(size)/α Factor	**061040 (10cm^2) / 0.76**		QC Status
		Base Inclination	**X = -2.0° / Y = 3.9°**		Preliminary: **JK/BC** (25/04/2021) · Draft: **DR** (10/06/2021) · Final: **SMc** (10/11/2021)
		CRS	**ETRS89**		

Comments: Cone Class1. Continuous seabed CPT. Final depth 37.74m. Test terminated at operators discretion to avoid damage due to no lateral rod support from mudline

Gardline

Preliminary Investigation, Hesselø OWF

IN SITU CPTU TESTING - DERIVED PARAMETERS



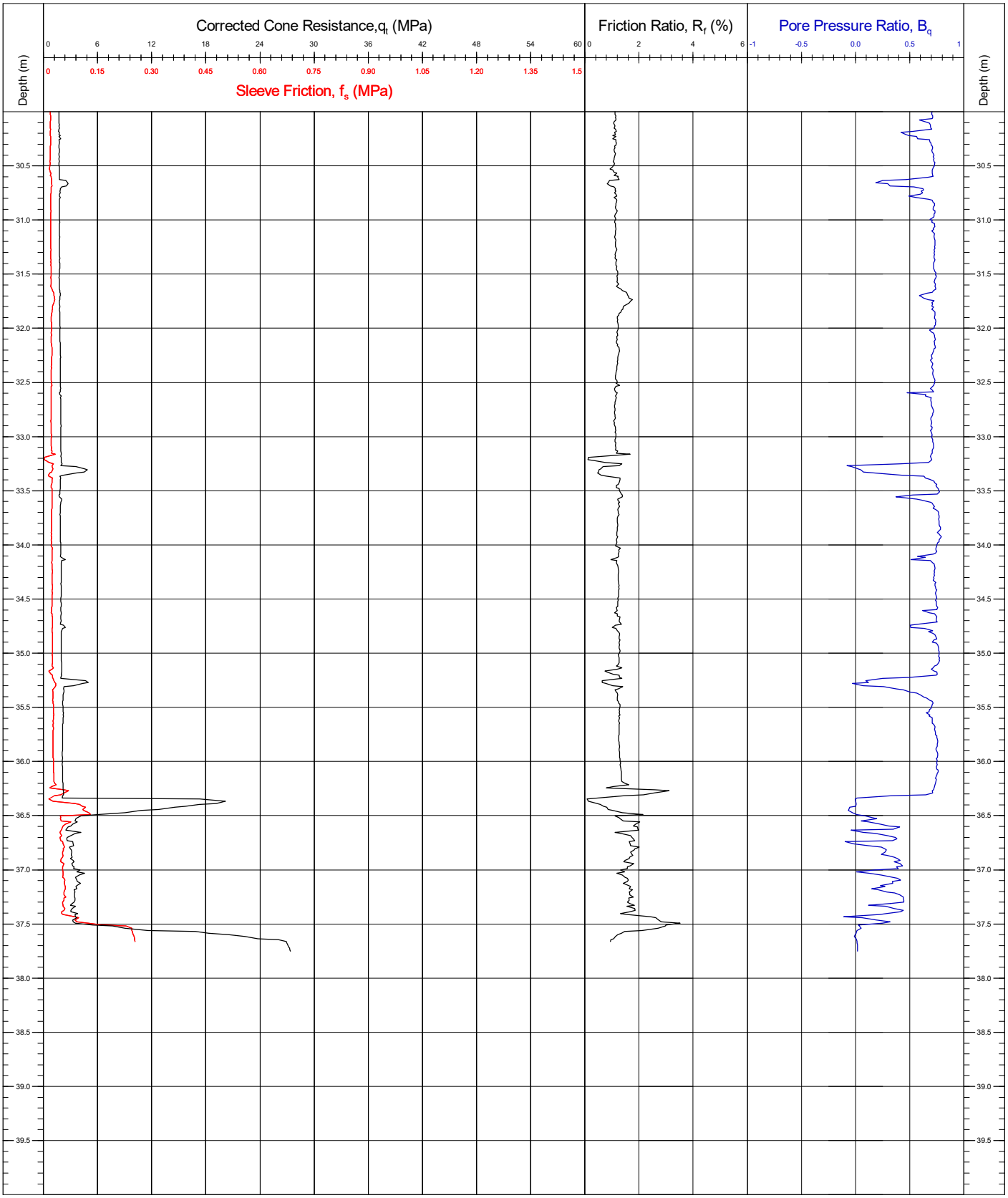
Area	**Kattegat Sea**	Coordinates	**677169.50E**	**6263055.40N**	CPT Number **CPT18**
Contract	**11596**	Latitude / Longitude			
Client Name/Ref	**Energinet Eltransmission A/S/384_20_ENE**	Water Depth (mMSL)	**32.31**		
Vessel	**MV Ocean Vantage**	Date of Test	**25/04/2021**		Page: 3/4
		Cone No.(size)/α Factor	**061040 (10cm^2) / 0.76**		QC Status
		Base Inclination	**X = -2.0° / Y = 3.9°**		Preliminary: **JK/BC** (25/04/2021); Draft: **DR** (10/06/2021); Final: **SMc** (10/11/2021)
		CRS	**ETRS89**		

Comments: Cone Class1. Continuous seabed CPT. Final depth 37.74m. Test terminated at operators discretion to avoid damage due to no lateral rod support from mudline

Gardline

Preliminary Investigation, Hesselø OWF

IN SITU CPTU TESTING - DERIVED PARAMETERS

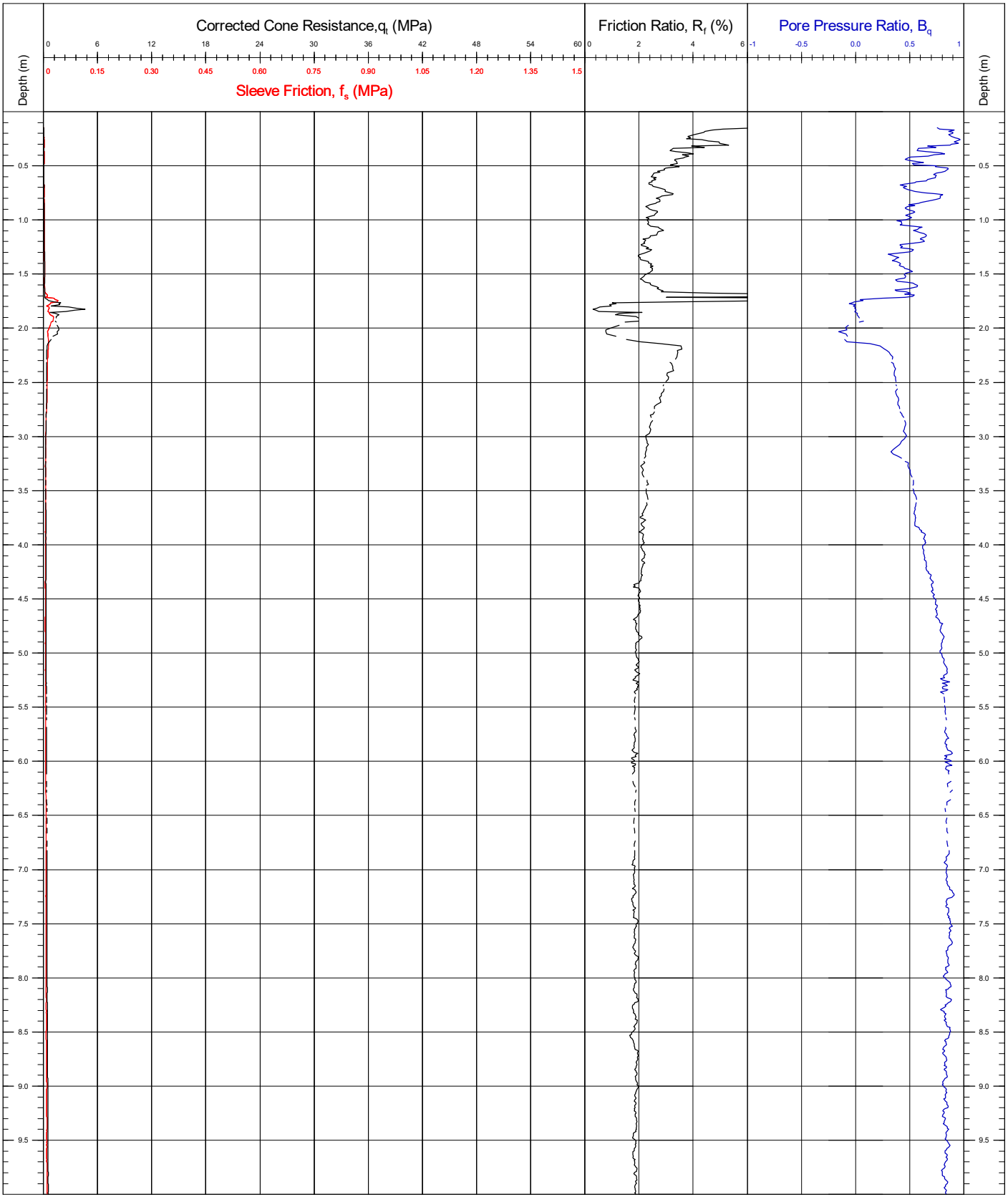


Area	**Kattegat Sea**	Coordinates	**677169.50E** **6263055.40N**	CPT Number	**CPT18**
Contract	**11596**	Latitude / Longitude			
Client Name/Ref	**Energinet Eltransmission A/S/384_20_ENE**	Water Depth (mMSL)	**32.31**		
Vessel	**MV Ocean Vantage**	Date of Test	**25/04/2021**	Page: 4/4	
Comments: Cone Class1. Continuous seabed CPT. Final depth 37.74m. Test terminated at operators discretion to avoid damage due to no lateral rod support from mudline		Cone No.(size)/α Factor	**061040 (10cm^2) / 0.76**	QC Status	
		Base Inclination	**X = -2.0° / Y = 3.9°**	Preliminary / Draft / Final	
		CRS **ETRS89**		**JK/BC** (25/04/2021) / **DR** (10/06/2021) / **SMc** (10/11/2021)	

Gardline

Preliminary Investigation, Hesselø OWF

IN SITU CPTU TESTING - DERIVED PARAMETERS

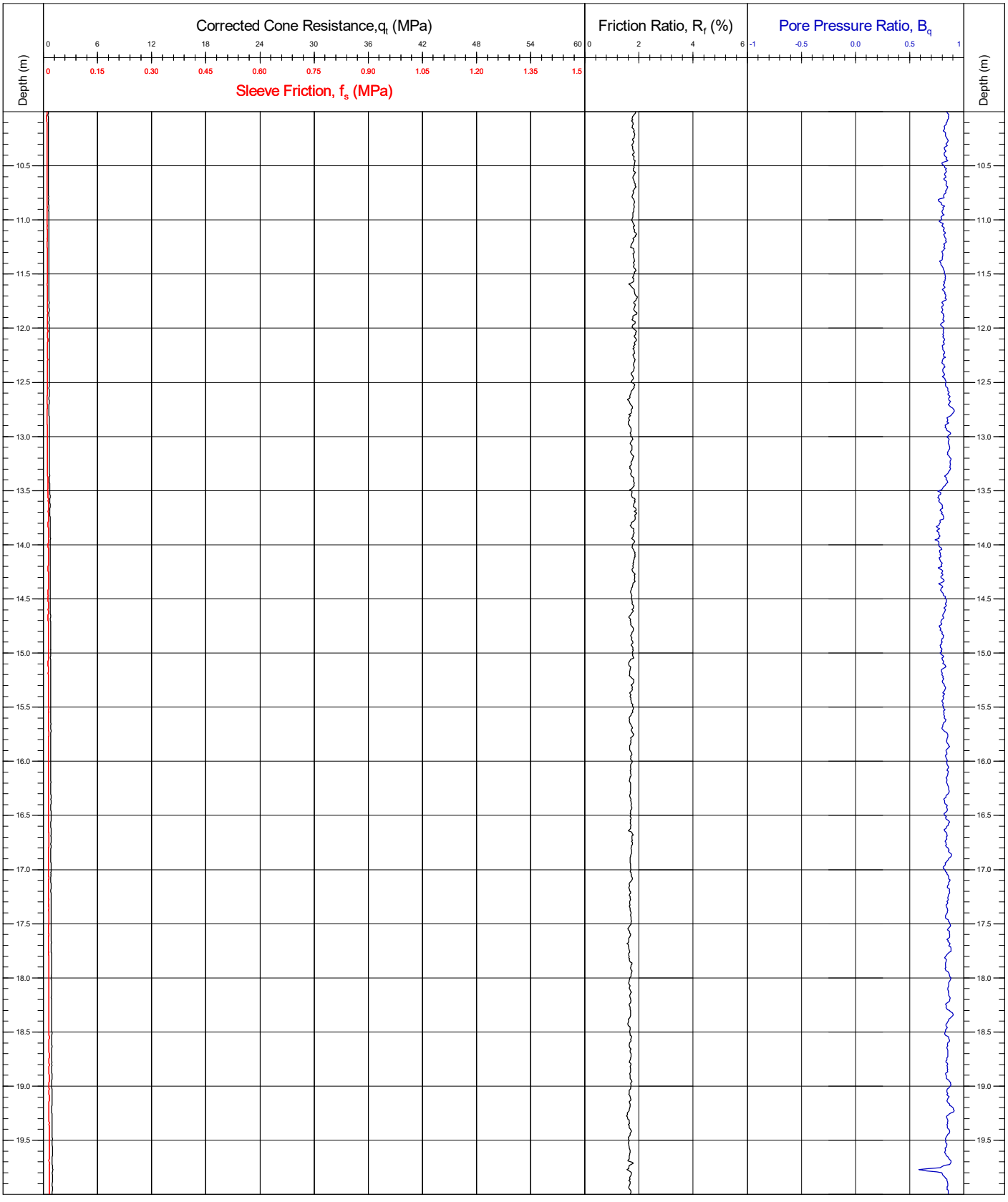


Area	**Kattegat Sea**	Coordinates	**673775.60E 6266929.10N**	CPT Number	**CPT20**
Contract	**11596**	Latitude / Longitude			
Client Name/Ref	**Energinet Eltransmission A/S/384_20_ENE**	Water Depth (mMSL)	**31.51**		
Vessel	**MV Ocean Vantage**	Date of Test	**25/04/2021**	Page: 1/5	
Comments: Cone class 2. Continuous seabed CPT. Final depth 49.67m. Test terminated at operators discretion to avoid damage due to lack of lateral rod support from mudline and an increasing total load		Cone No.(size)/α Factor	**120829 (10cm^2) / 0.8**	QC Status	
		Base Inclination	**X = 0.1° / Y = -0.1°**	Preliminary / Draft / Final	
		CRS **ETRS89**		**JK/BC** (25/04/2021) / **DR** (10/06/2021) / **SMc** (10/11/2021)	

Gardline

Preliminary Investigation, Hesselø OWF

IN SITU CPTU TESTING - DERIVED PARAMETERS



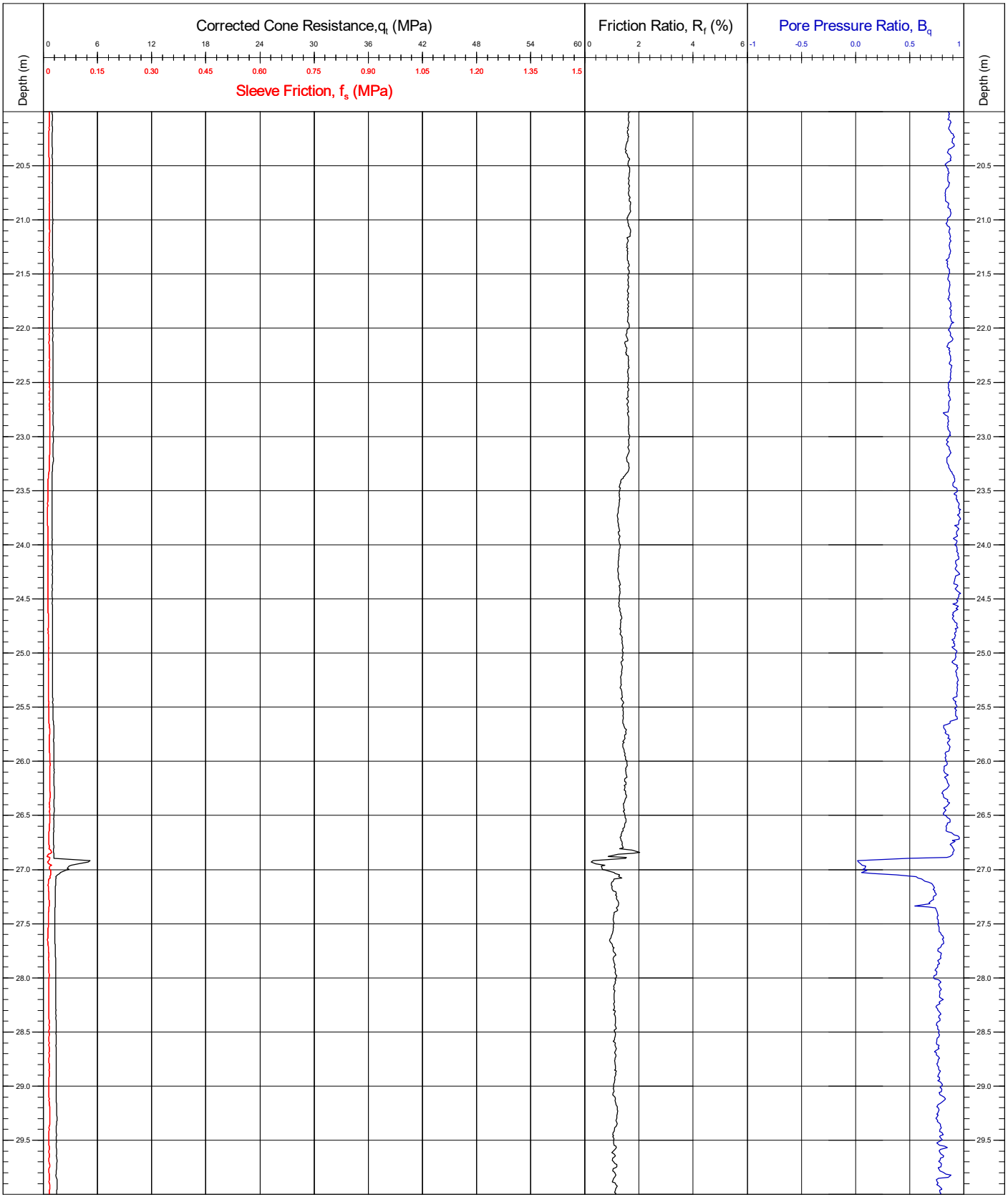
Area	**Kattegat Sea**	Coordinates	**673775.60E 6266929.10N**	CPT Number	**CPT20**
Contract	**11596**	Latitude / Longitude			
Client Name/Ref	**Energinet Eltransmission A/S/384_20_ENE**	Water Depth (mMSL)	**31.51**		
Vessel	**MV Ocean Vantage**	Date of Test	**25/04/2021**	Page: 2/5	
		Cone No.(size)/α Factor	**120829 (10cm^2) / 0.8**	QC Status	
		Base Inclination	**X = 0.1° / Y = -0.1°**	Preliminary / Draft / Final	
		CRS **ETRS89**		**JK/BC (25/04/2021)** / **DR (10/06/2021)** / **SMc (10/11/2021)**	

Comments: Cone class 2. Continuous seabed CPT. Final depth 49.67m. Test terminated at operators discretion to avoid damage due to lack of lateral rod support from mudline and an increasing total load

Gardline

Preliminary Investigation, Hesselø OWF

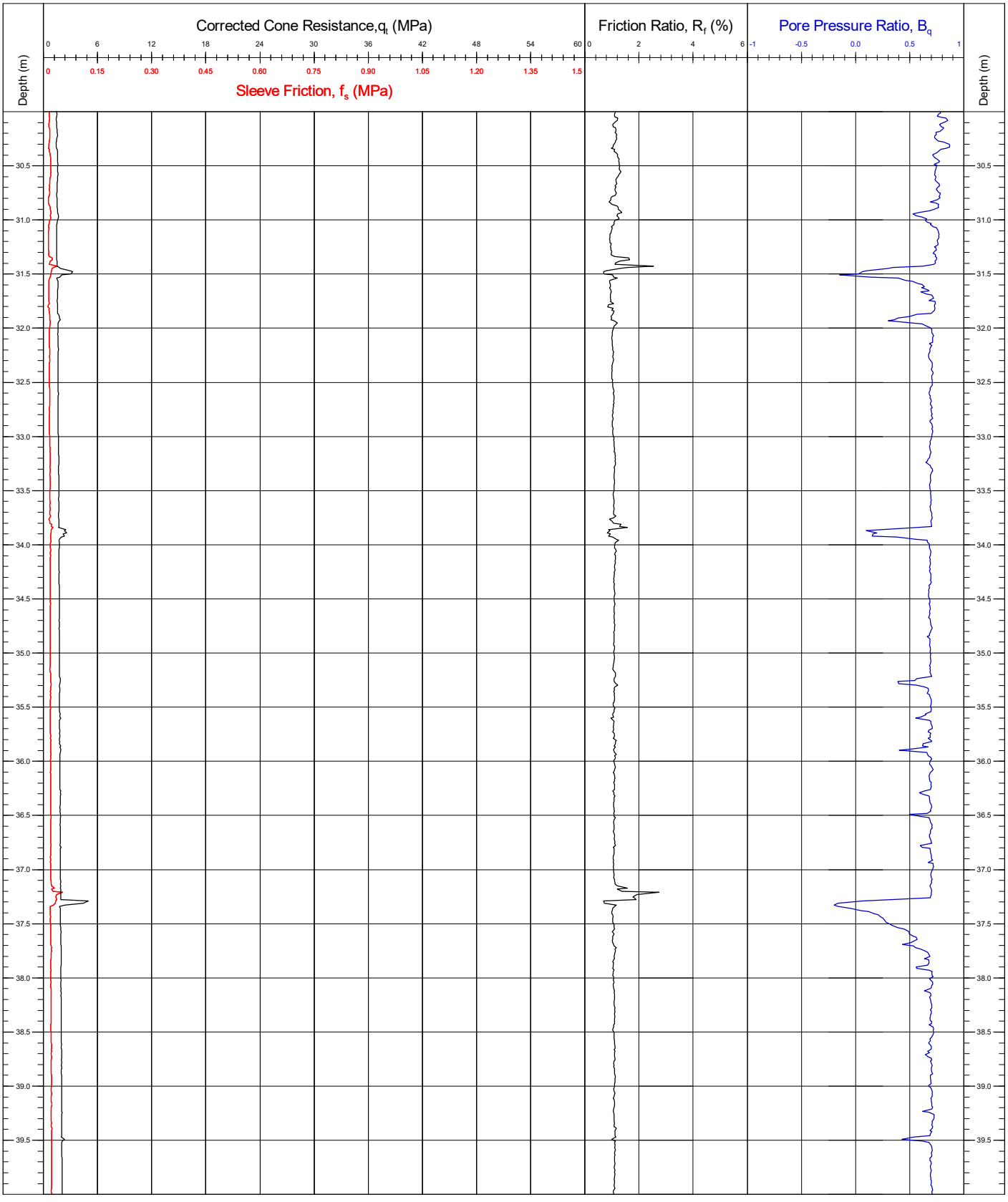
IN SITU CPTU TESTING - DERIVED PARAMETERS



Area	**Kattegat Sea**	Coordinates	**673775.60E**	**6266929.10N**	CPT Number **CPT20**
Contract	**11596**	Latitude / Longitude			
Client Name/Ref	**Energinet Eltransmission A/S/384_20_ENE**	Water Depth (mMSL)	**31.51**		
Vessel	**MV Ocean Vantage**	Date of Test	**25/04/2021**		Page: 3/5
Comments: Cone class 2. Continuous seabed CPT. Final depth 49.67m. Test terminated at operators discretion to avoid damage due to lack of lateral rod support from mudline and an increasing total load		Cone No.(size)/α Factor	**120829 (10cm^2) / 0.8**		QC Status
		Base Inclination	**X = 0.1° / Y = -0.1°**		Preliminary: **JK/BC** (25/04/2021) · Draft: **DR** (10/06/2021) · Final: **SMc** (10/11/2021)
		CRS	**ETRS89**		

Preliminary Investigation, Hesselø OWF

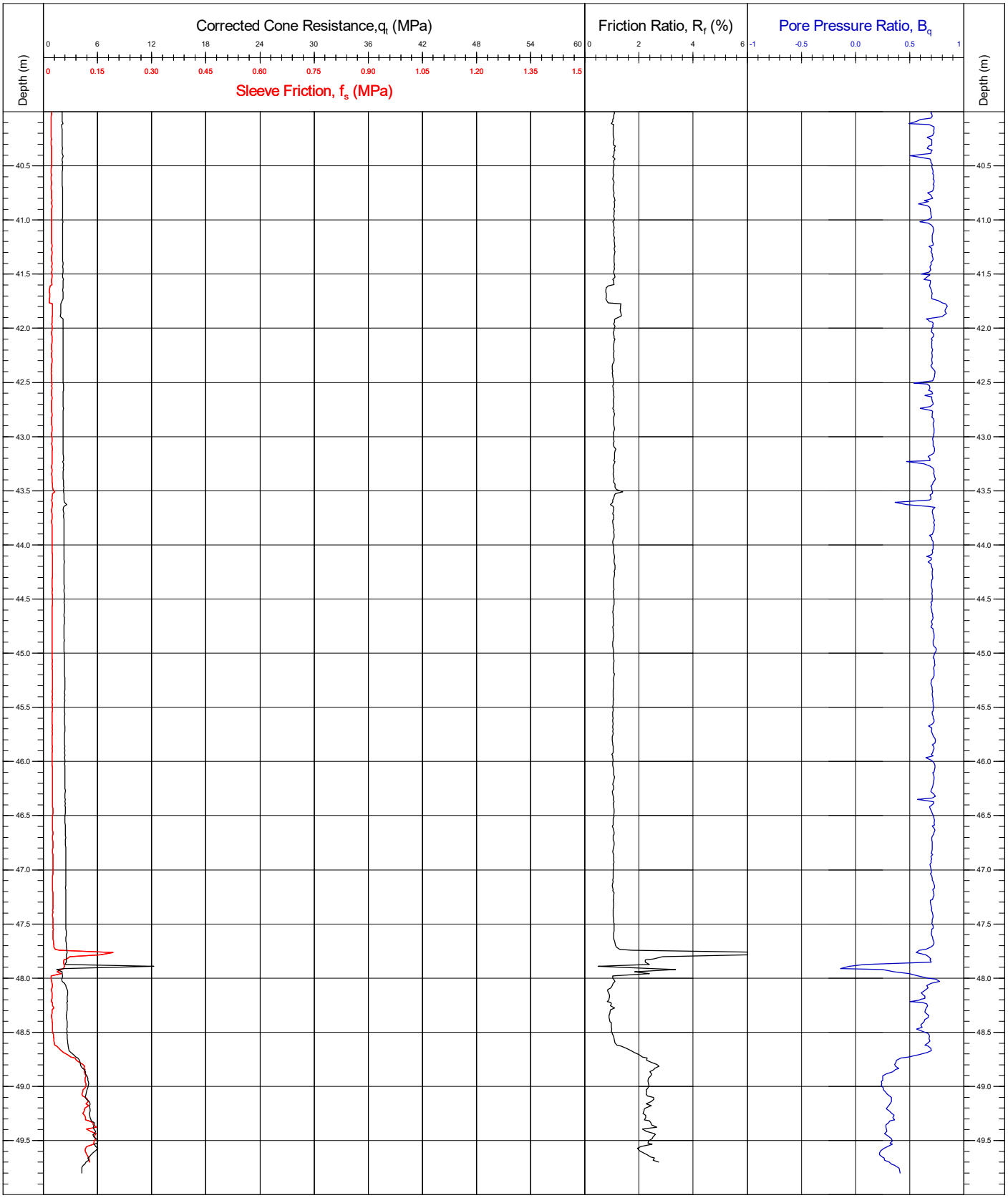
IN SITU CPTU TESTING - DERIVED PARAMETERS



Area	**Kattegat Sea**	Coordinates	**673775.60E** **6266929.10N**	CPT Number	**CPT20**
Contract	**11596**	Latitude / Longitude			
Client Name/Ref	**Energinet Eltransmission A/S/384_20_ENE**	Water Depth (mMSL)	**31.51**		
Vessel	**MV Ocean Vantage**	Date of Test	**25/04/2021**	Page: 4/5	
Comments: Cone class 2. Continuous seabed CPT. Final depth 49.67m. Test terminated at operators discretion to avoid damage due to lack of lateral rod support from mudline and an increasing total load		Cone No.(size)/α Factor	**120829 (10cm^2) / 0.8**	QC Status	
		Base Inclination	**X = 0.1° / Y = -0.1°**	Preliminary / Draft / Final	
		CRS **ETRS89**		**JK/BC** (25/04/2021) / **DR** (10/06/2021) / **SMc** (10/11/2021)	

Preliminary Investigation, Hesselø OWF

IN SITU CPTU TESTING - DERIVED PARAMETERS



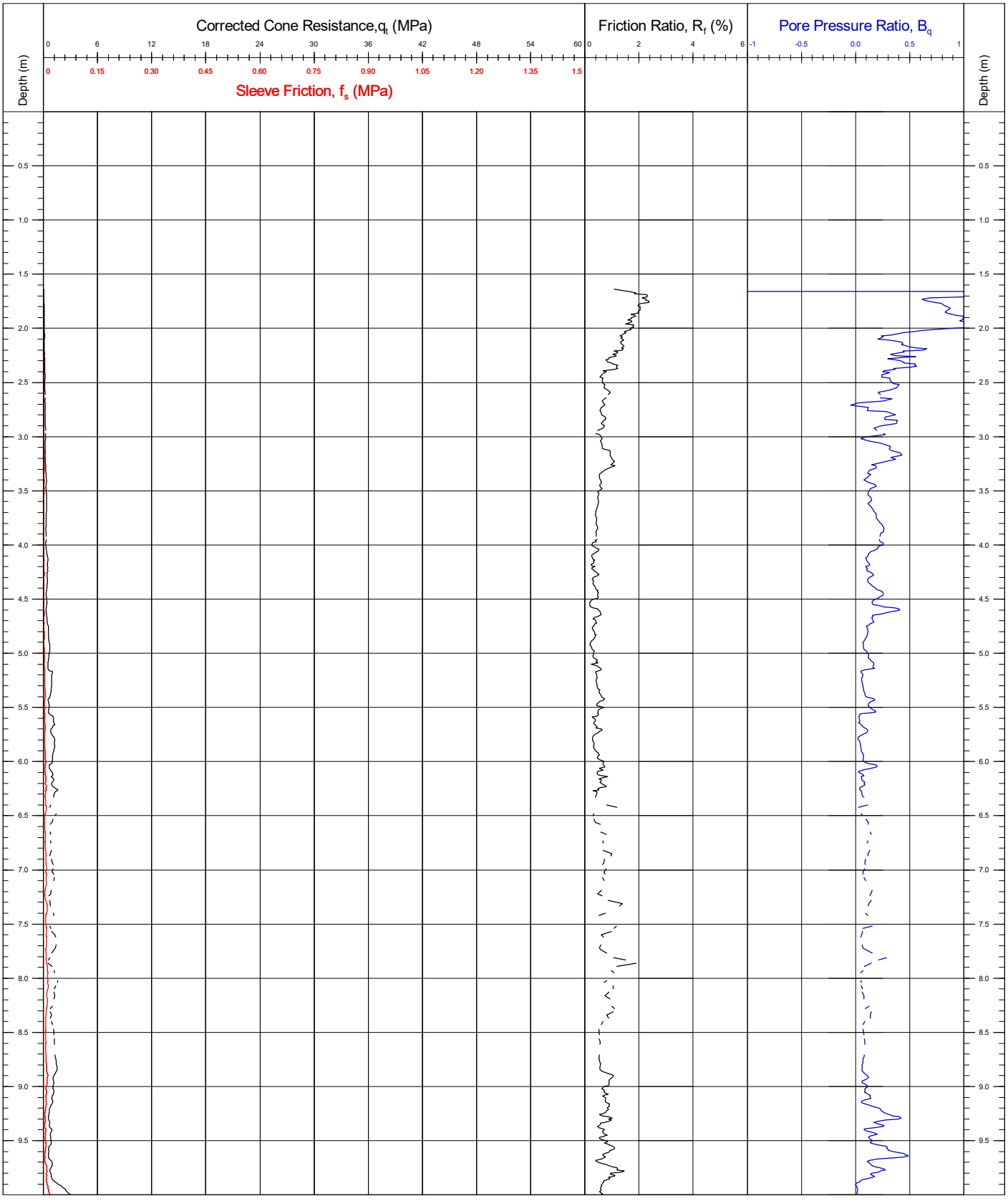
Area	**Kattegat Sea**	Coordinates	**673775.60E** **6266929.10N**	CPT Number	**CPT20**
Contract	**11596**	Latitude / Longitude			
Client Name/Ref	**Energinet Eltransmission A/S/384_20_ENE**	Water Depth (mMSL)	**31.51**		
Vessel	**MV Ocean Vantage**	Date of Test	**25/04/2021**	Page: 5/5	
		Cone No.(size)/α Factor	**120829 (10cm^2) / 0.8**	QC Status	
		Base Inclination	**X = 0.1° / Y = -0.1°**	Preliminary / Draft / Final	
		CRS **ETRS89**		**JK/BC** (25/04/2021) / **DR** (10/06/2021) / **SMc** (10/11/2021)	

Comments: Cone class 2. Continuous seabed CPT. Final depth 49.67m. Test terminated at operators discretion to avoid damage due to lack of lateral rod support from mudline and an increasing total load

Gardline

Preliminary Investigation, Hesselø OWF

IN SITU CPTU TESTING - DERIVED PARAMETERS

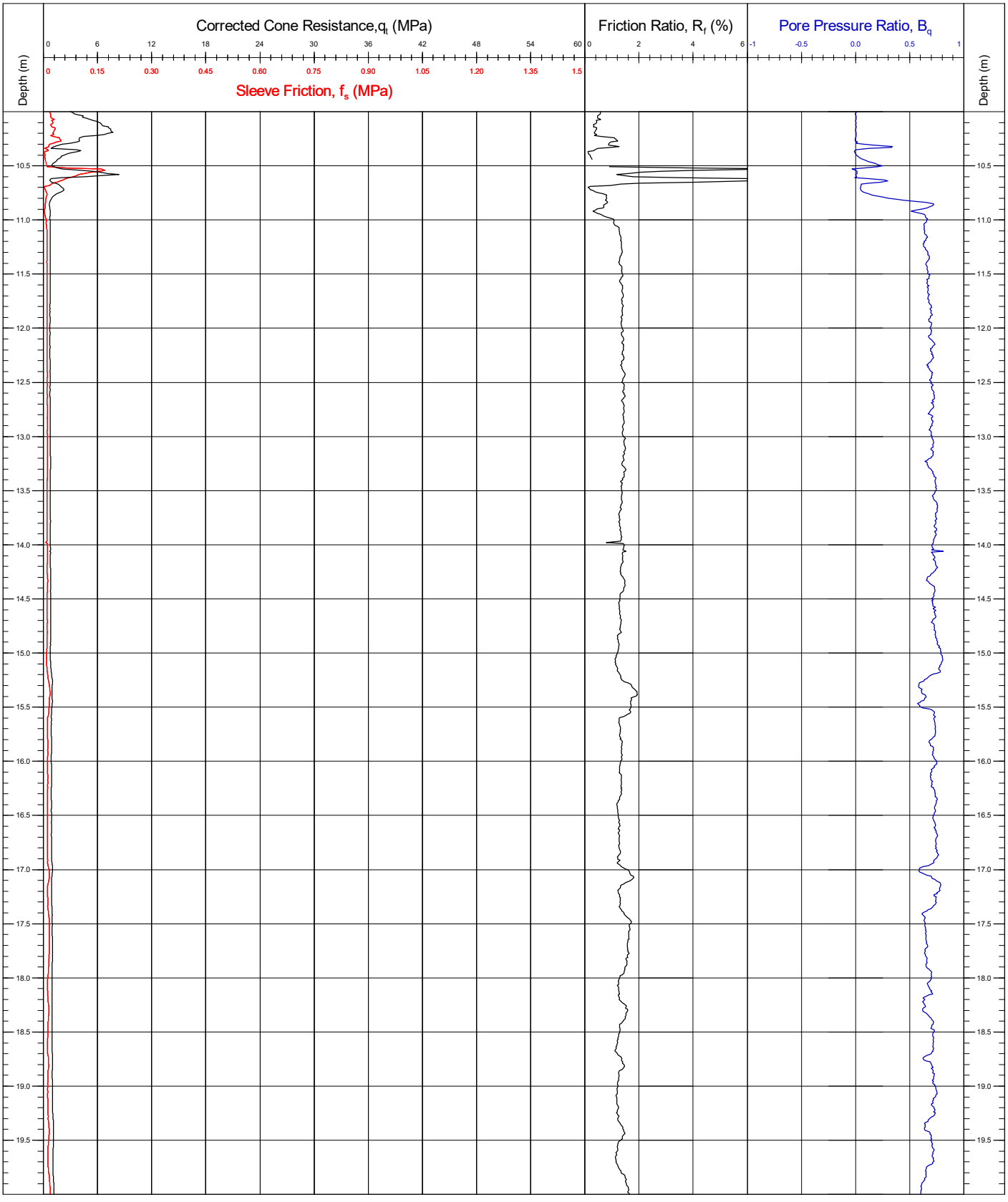


Area	**Kattegat Sea**	Coordinates	**674320.00E 6270140.20N**	CPT Number	**CPT22**
Contract	**11596**	Latitude / Longitude			
Client Name/Ref	**Energinet Eltransmission A/S/384_20_ENE**	Water Depth (mMSL)	**31.36**		
Vessel	**MV Ocean Vantage**	Date of Test	**30/04/2021**	Page: 1/5	
Comments: Cone class 1. Continuous seabed CPT. Final depth 44.45m. Test terminated due to increasing cone inclination reaching maximum cone inclination threshold of 12 degrees~ risk of rod bend and buckling rods		Cone No.(size)/α Factor	**181004 (10cm^2) / 0.81**	QC Status	
		Base Inclination	**X = 1.2° / Y = 0.9°**	Preliminary: **JK/BC** (30/04/2021)	Draft: **DR** (10/06/2021)
		CRS **ETRS89**			Final: **SMc** (10/11/2021)

Gardline

Preliminary Investigation, Hesselø OWF

IN SITU CPTU TESTING - DERIVED PARAMETERS



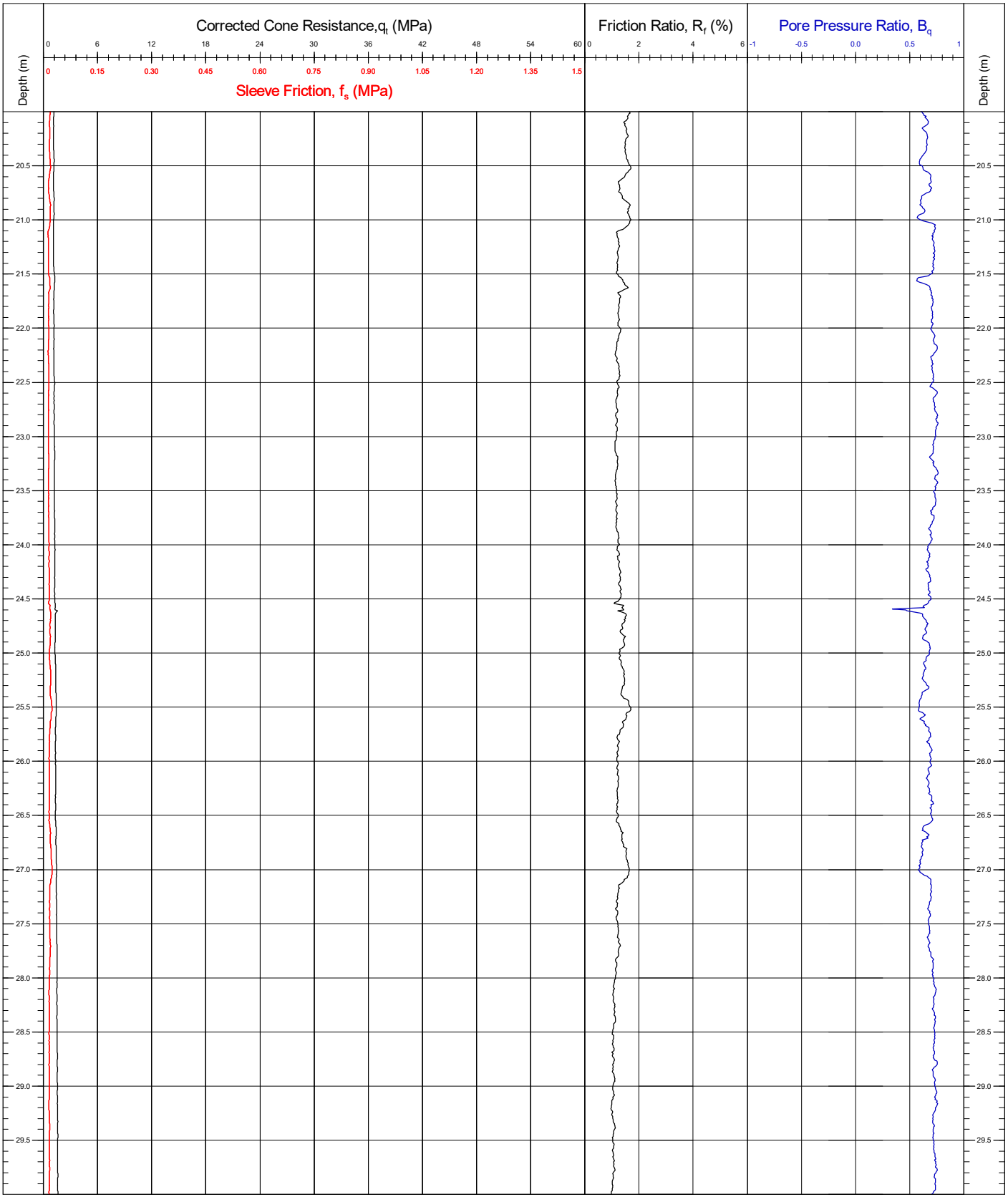
Area	**Kattegat Sea**	Coordinates	**674320.00E 6270140.20N**	CPT Number	**CPT22**
Contract	**11596**	Latitude / Longitude			
Client Name/Ref	**Energinet Eltransmission A/S/384_20_ENE**	Water Depth (mMSL)	**31.36**		
Vessel	**MV Ocean Vantage**	Date of Test	**30/04/2021**	Page: 2/5	
		Cone No.(size)/α Factor	**181004 (10cm^2) / 0.81**	QC Status	
		Base Inclination	**X = 1.2° / Y = 0.9°**	Preliminary / Draft / Final	
		CRS **ETRS89**		**JK/BC** (30/04/2021) / **DR** (10/06/2021) / **SMc** (10/11/2021)	

Comments: Cone class 1. Continuous seabed CPT. Final depth 44.45m. Test terminated due to increasing cone inclination reaching maximum cone inclination threshold of 12 degrees~ risk of rod bend and buckling rods

Gardline

Preliminary Investigation, Hesselø OWF

IN SITU CPTU TESTING - DERIVED PARAMETERS

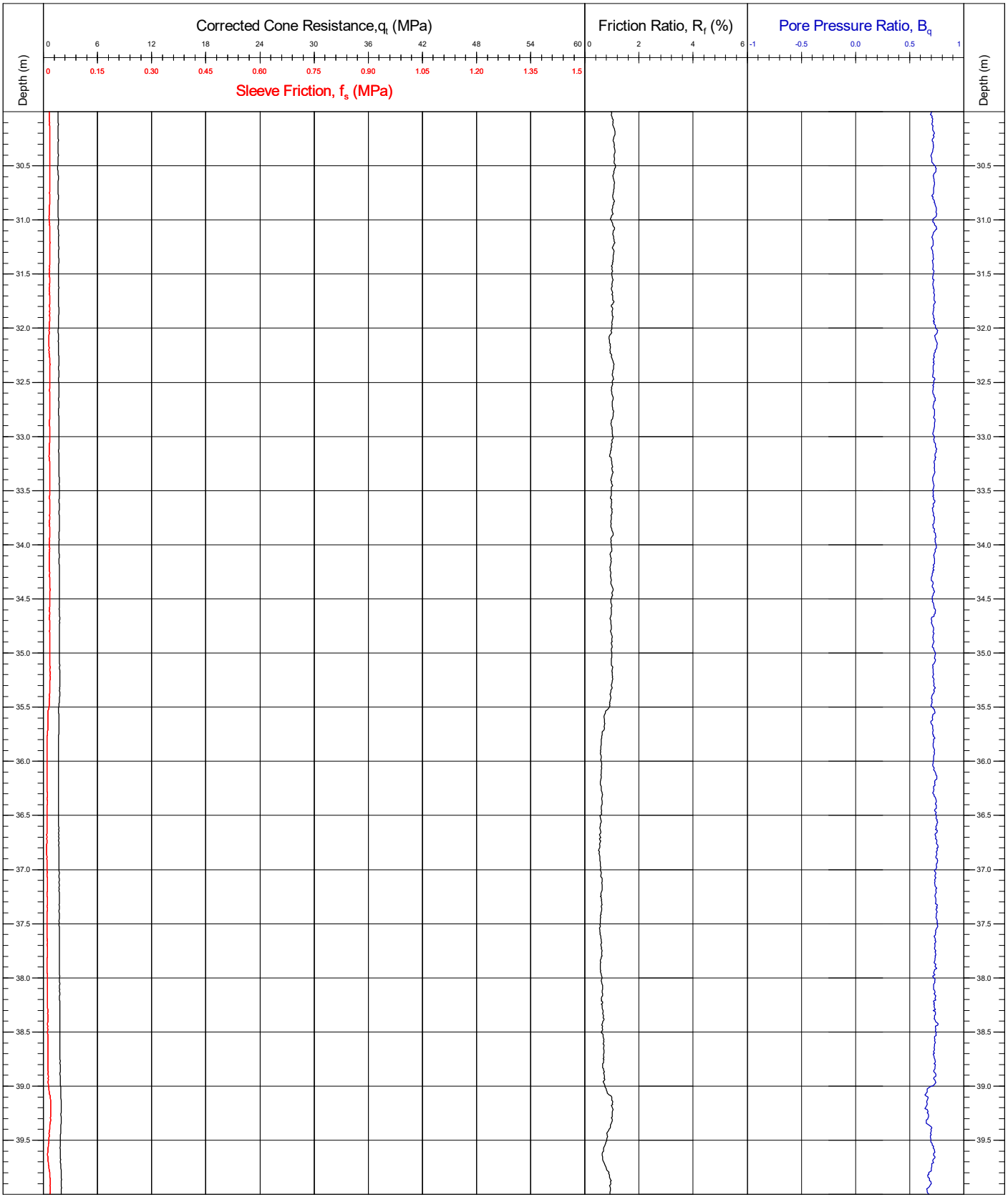


Area	**Kattegat Sea**	Coordinates	**674320.00E 6270140.20N**	CPT Number	**CPT22**
Contract	**11596**	Latitude / Longitude			
Client Name/Ref	**Energinet Eltransmission A/S/384_20_ENE**	Water Depth (mMSL)	**31.36**		
Vessel	**MV Ocean Vantage**	Date of Test	**30/04/2021**	Page: 3/5	
Comments: Cone class 1. Continuous seabed CPT. Final depth 44.45m. Test terminated due to increasing cone inclination reaching maximum cone inclination threshold of 12 degrees~ risk of rod bend and buckling rods		Cone No.(size)/α Factor	**181004 (10cm^2) / 0.81**	QC Status	
		Base Inclination	**X = 1.2° / Y = 0.9°**	Preliminary: **JK/BC** (30/04/2021)	Draft: **DR** (10/06/2021)
		CRS **ETRS89**			Final: **SMc** (10/11/2021)

Gardline

Preliminary Investigation, Hesselø OWF

IN SITU CPTU TESTING - DERIVED PARAMETERS



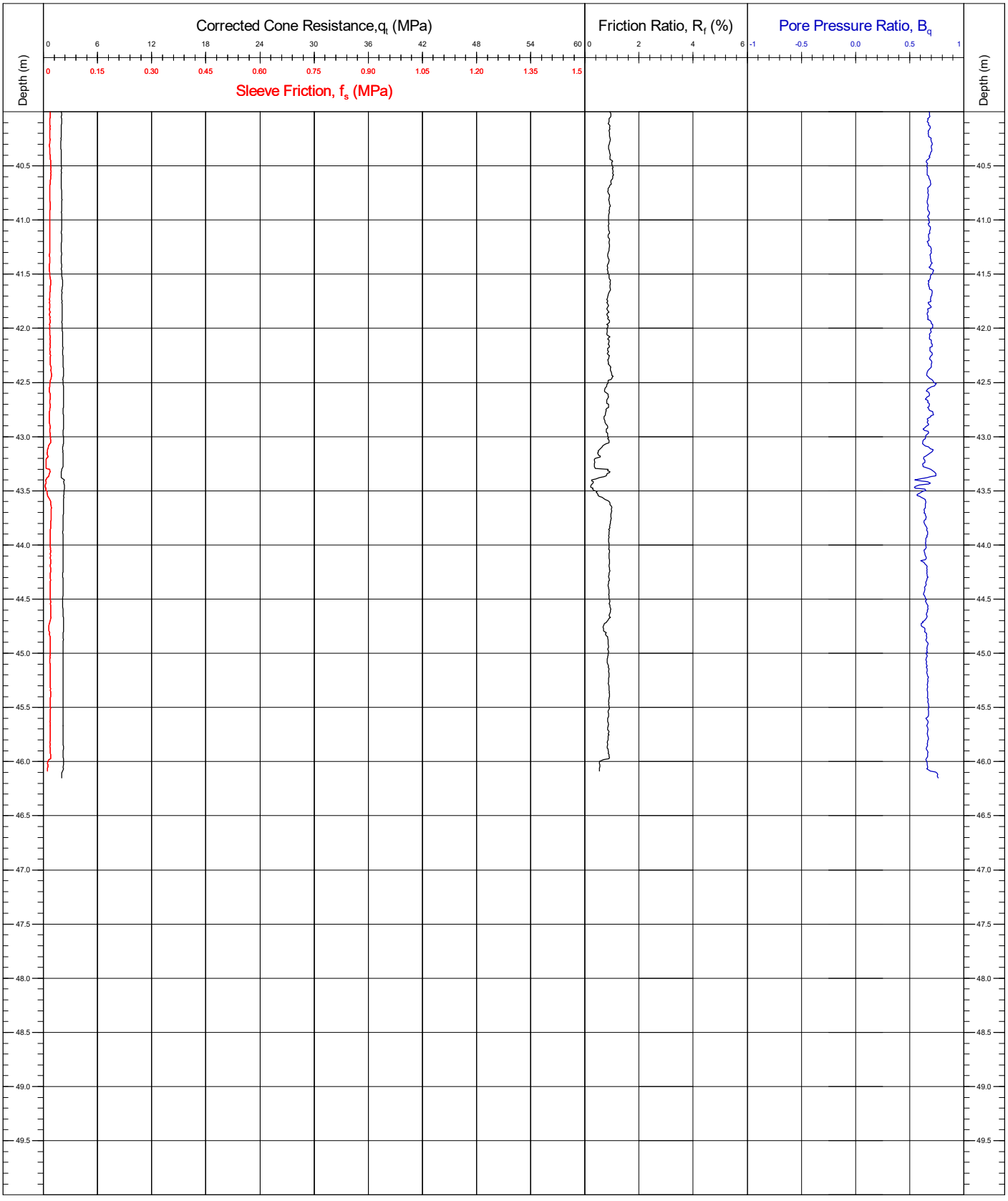
Area	**Kattegat Sea**	Coordinates	**674320.00E** **6270140.20N**	CPT Number	**CPT22**
Contract	**11596**	Latitude / Longitude			
Client Name/Ref	**Energinet Eltransmission A/S/384_20_ENE**	Water Depth (mMSL)	**31.36**		
Vessel	**MV Ocean Vantage**	Date of Test	**30/04/2021**	Page: 4/5	
		Cone No.(size)/α Factor	**181004 (10cm^2) / 0.81**	QC Status	
		Base Inclination	**X = 1.2° / Y = 0.9°**	Preliminary / Draft / Final	
		CRS **ETRS89**		**JK/BC** (30/04/2021) / **DR** (10/06/2021) / **SMc** (10/11/2021)	

Comments: Cone class 1. Continuous seabed CPT. Final depth 44.45m. Test terminated due to increasing cone inclination reaching maximum cone inclination threshold of 12 degrees~ risk of rod bend and buckling rods

Gardline

Preliminary Investigation, Hesselø OWF

IN SITU CPTU TESTING - DERIVED PARAMETERS

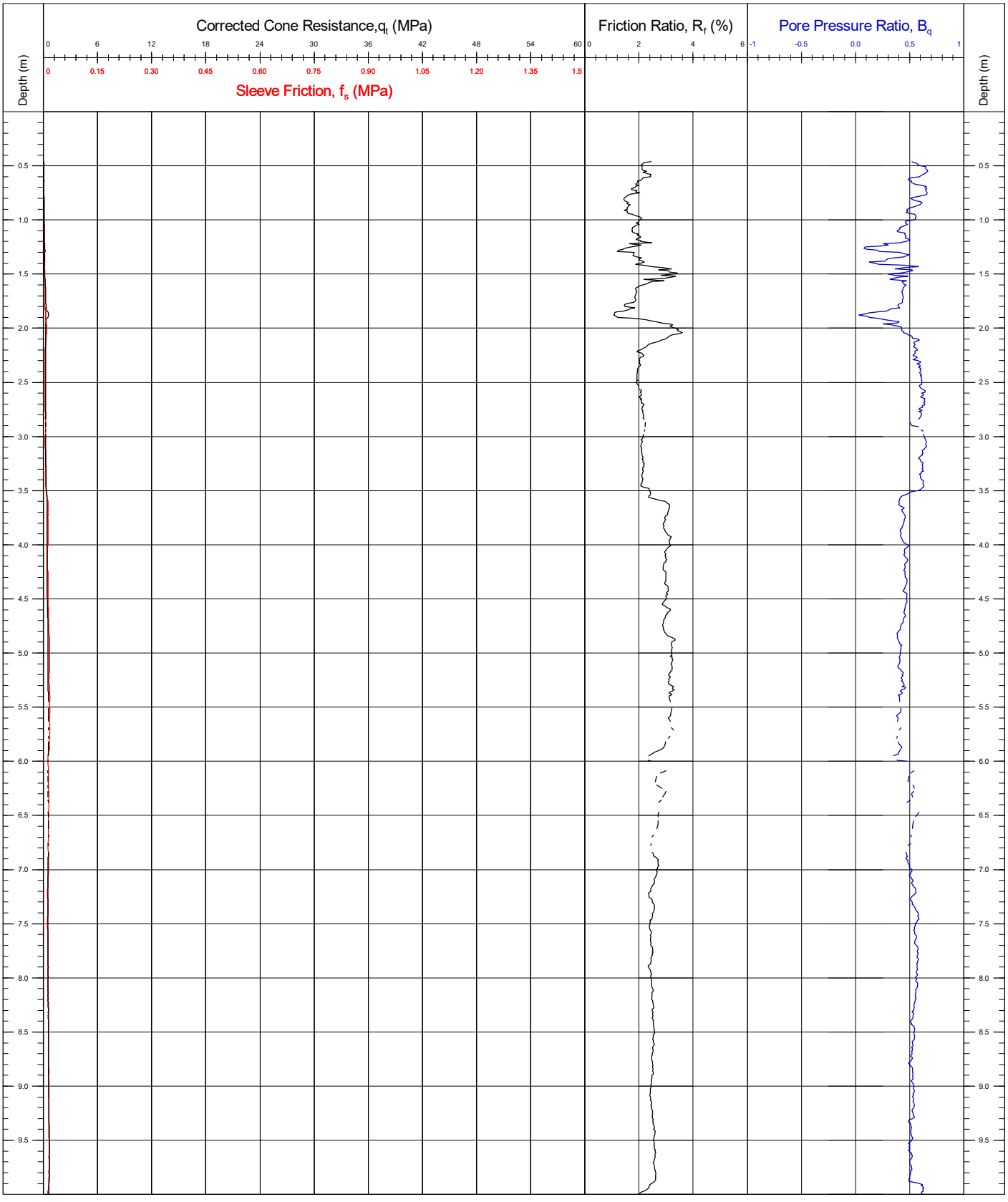


Area	**Kattegat Sea**	Coordinates	**674320.00E 6270140.20N**	CPT Number	**CPT22**
Contract	**11596**	Latitude / Longitude			
Client Name/Ref	**Energinet Eltransmission A/S/384_20_ENE**	Water Depth (mMSL)	**31.36**		
Vessel	**MV Ocean Vantage**	Date of Test	**30/04/2021**	Page: 5/5	
		Cone No.(size)/α Factor	**181004 (10cm^2) / 0.81**	QC Status	
		Base Inclination	**X = 1.2° / Y = 0.9°**	Preliminary: **JK/BC** (30/04/2021)	Draft: **DR** (10/06/2021)
		CRS **ETRS89**			Final: **SMc** (10/11/2021)

Comments: Cone class 1. Continuous seabed CPT. Final depth 44.45m. Test terminated due to increasing cone inclination reaching maximum cone inclination threshold of 12 degrees~ risk of rod bend and buckling rods

Preliminary Investigation, Hesselø OWF

IN SITU CPTU TESTING - DERIVED PARAMETERS

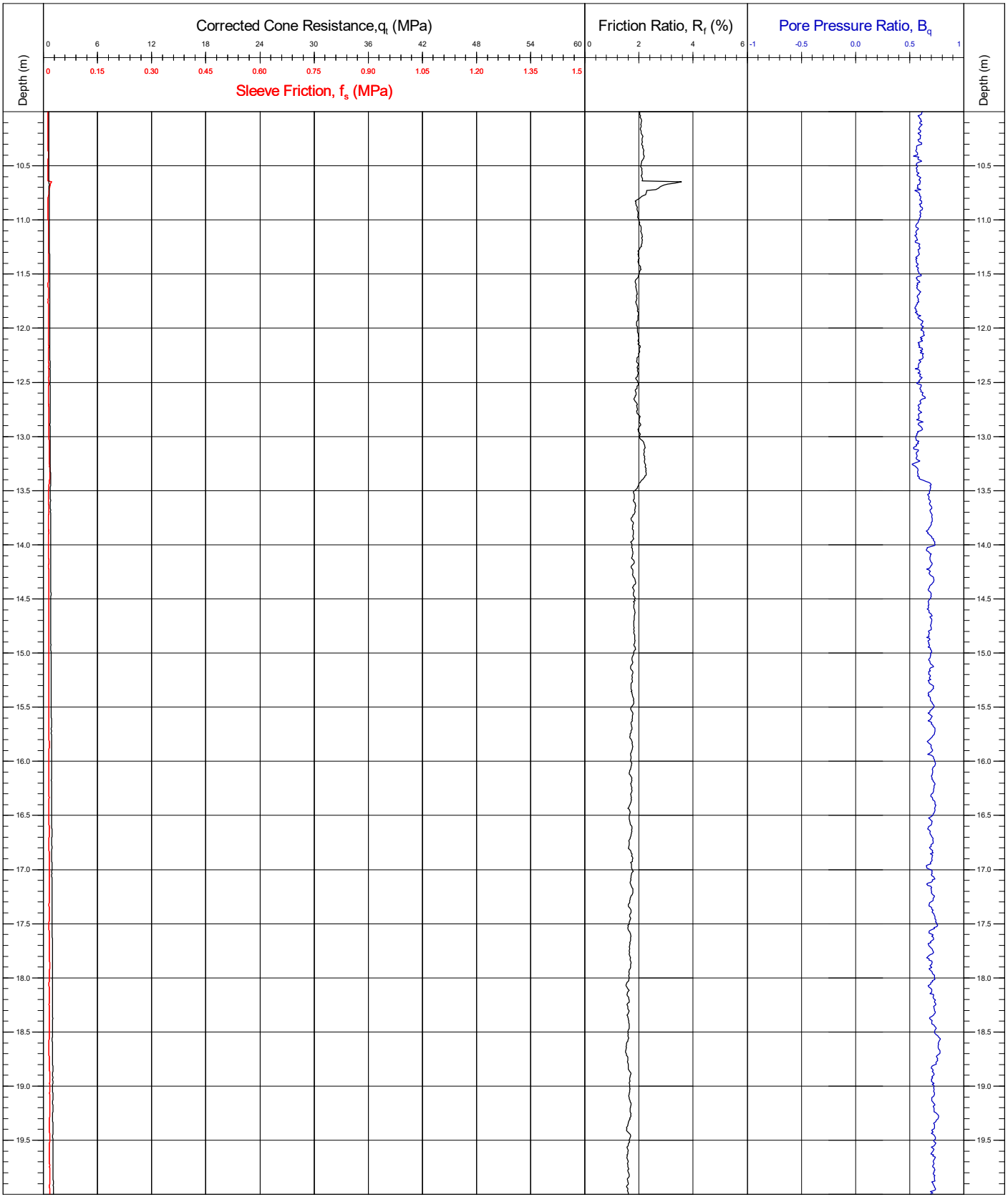


Area	**Kattegat Sea**	Coordinates	**676253.10E**	**6269555.30N**	CPT Number **CPT23**
Contract	**11596**	Latitude / Longitude			
Client Name/Ref	**Energinet Eltransmission A/S/384_20_ENE**	Water Depth (mMSL)	**31.55**		
Vessel	**MV Ocean Vantage**	Date of Test	**01/05/2021**		Page: 1/5
Comments: Out of Class. Continuous seabed CPT. Final depth 40.84m. Test terminated at operators discretion due to risk of rod bend		Cone No.(size)/α Factor	**191114 (10cm^2) / 0.76**		QC Status
		Base Inclination	**X = 1.2° / Y = 0.7°**		Preliminary: **JK/BC** (01/05/2021) · Draft: **DR** (10/06/2021) · Final: **SMc** (10/11/2021)
		CRS **ETRS89**			

Gardline

Preliminary Investigation, Hesselø OWF

IN SITU CPTU TESTING - DERIVED PARAMETERS



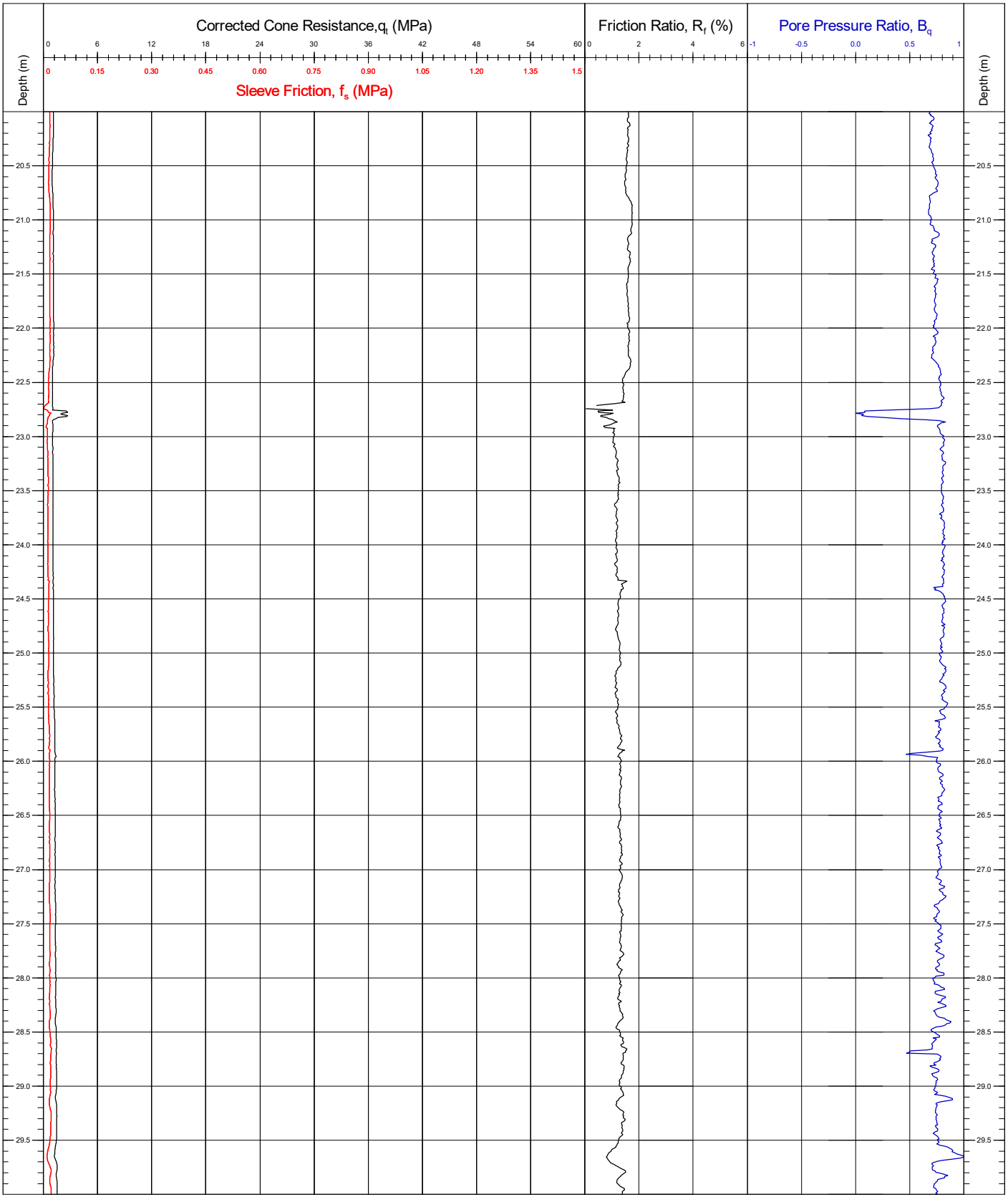
Area	**Kattegat Sea**	Coordinates	**676253.10E**	**6269555.30N**	CPT Number **CPT23**
Contract	**11596**	Latitude / Longitude			
Client Name/Ref	**Energinet Eltransmission A/S/384_20_ENE**	Water Depth (mMSL)	**31.55**		
Vessel	**MV Ocean Vantage**	Date of Test	**01/05/2021**		Page: 2/5
		Cone No.(size)/α Factor	**191114 (10cm^2) / 0.76**		QC Status
		Base Inclination	**X = 1.2° / Y = 0.7°**		Preliminary: **JK/BC** (01/05/2021); Draft: **DR** (10/06/2021); Final: **SMc** (10/11/2021)
		CRS **ETRS89**			

Comments: Out of Class. Continuous seabed CPT. Final depth 40.84m. Test terminated at operators discretion due to risk of rod bend

Gardline

Preliminary Investigation, Hesselø OWF

IN SITU CPTU TESTING - DERIVED PARAMETERS

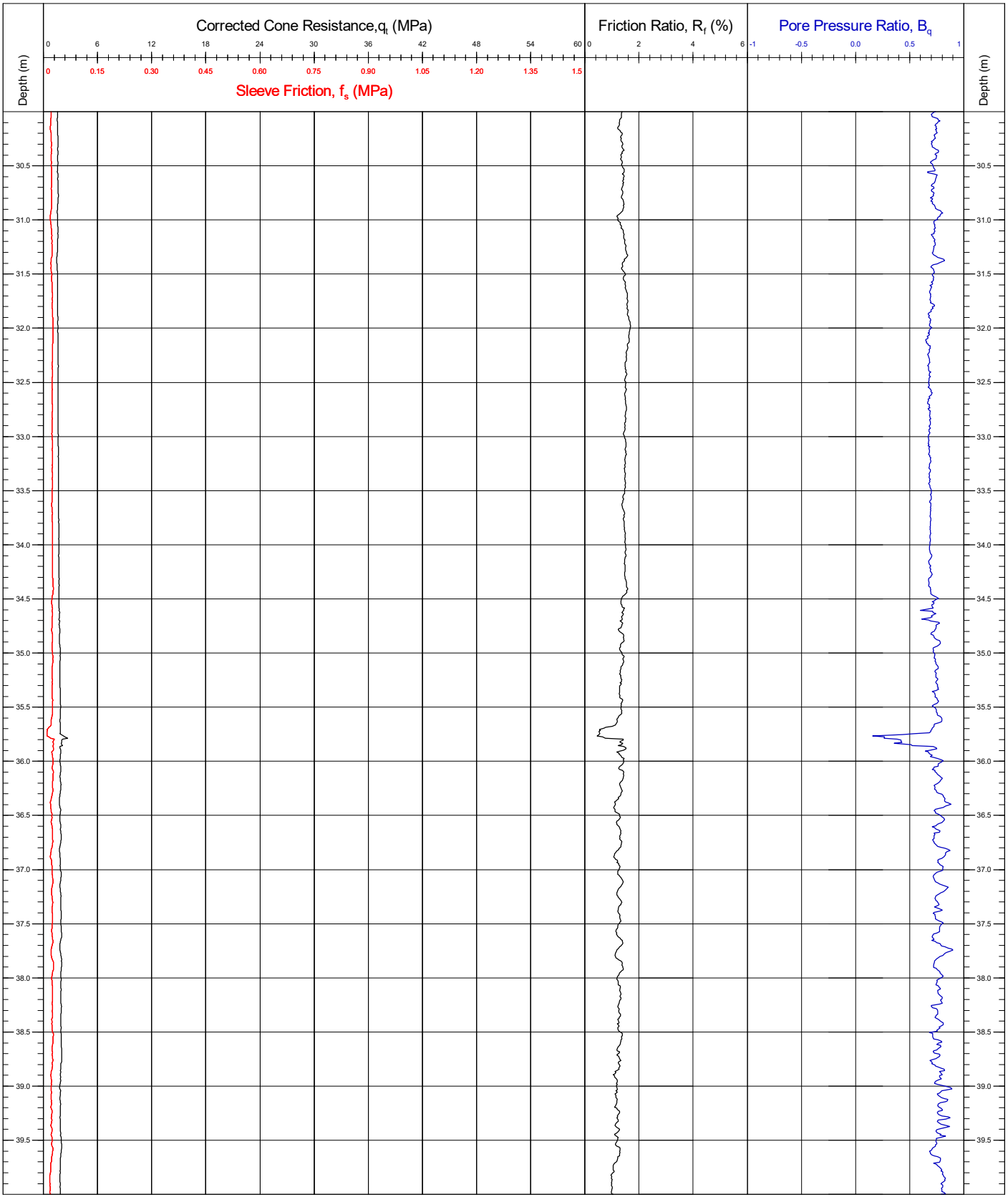


Area	**Kattegat Sea**	Coordinates	**676253.10E**	**6269555.30N**	CPT Number **CPT23**
Contract	**11596**	Latitude / Longitude			
Client Name/Ref	**Energinet Eltransmission A/S/384_20_ENE**	Water Depth (mMSL)	**31.55**		
Vessel	**MV Ocean Vantage**	Date of Test	**01/05/2021**		Page: 3/5
Comments: Out of Class. Continuous seabed CPT. Final depth 40.84m. Test terminated at operators discretion due to risk of rod bend		Cone No.(size)/α Factor	**191114 (10cm^2) / 0.76**		QC Status
		Base Inclination	**X = 1.2° / Y = 0.7°**		Preliminary: **JK/BC** (01/05/2021) · Draft: **DR** (10/06/2021) · Final: **SMc** (10/11/2021)
		CRS	**ETRS89**		

Gardline

Preliminary Investigation, Hesselø OWF

IN SITU CPTU TESTING - DERIVED PARAMETERS



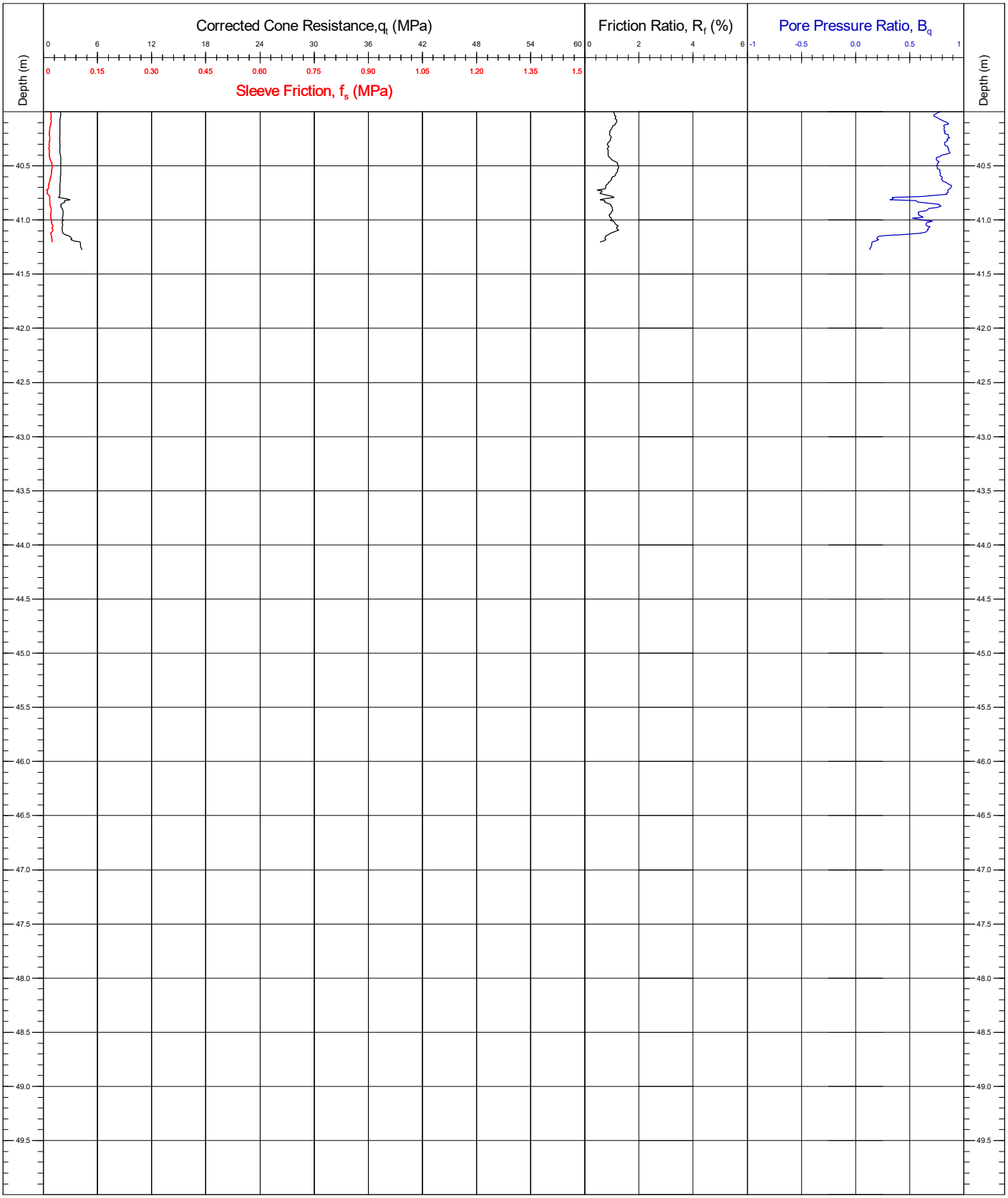
Area	**Kattegat Sea**	Coordinates	**676253.10E**	**6269555.30N**	CPT Number **CPT23**
Contract	**11596**	Latitude / Longitude			
Client Name/Ref	**Energinet Eltransmission A/S/384_20_ENE**	Water Depth (mMSL)	**31.55**		
Vessel	**MV Ocean Vantage**	Date of Test	**01/05/2021**		Page: 4/5
		Cone No.(size)/α Factor	**191114 (10cm^2) / 0.76**		QC Status
		Base Inclination	**X = 1.2° / Y = 0.7°**		Preliminary: **JK/BC** (01/05/2021); Draft: **DR** (10/06/2021); Final: **SMc** (10/11/2021)
		CRS **ETRS89**			

Comments: Out of Class. Continuous seabed CPT. Final depth 40.84m. Test terminated at operators discretion due to risk of rod bend

Gardline

Preliminary Investigation, Hesselø OWF

IN SITU CPTU TESTING - DERIVED PARAMETERS



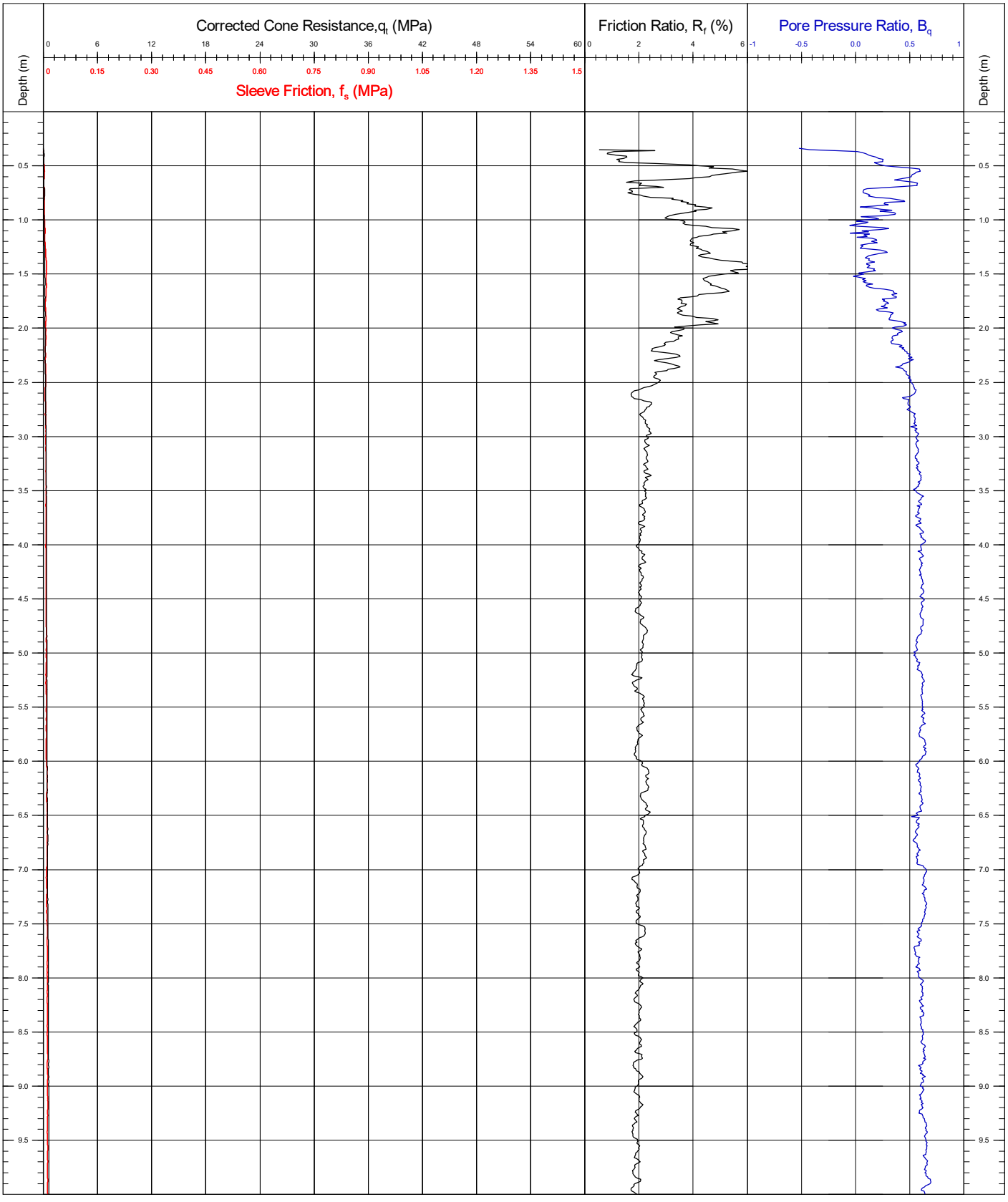
Area	**Kattegat Sea**	Coordinates	**676253.10E**	**6269555.30N**	CPT Number **CPT23**
Contract	**11596**	Latitude / Longitude			
Client Name/Ref	**Energinet Eltransmission A/S/384_20_ENE**	Water Depth (mMSL)	**31.55**		
Vessel	**MV Ocean Vantage**	Date of Test	**01/05/2021**		Page: 5/5
		Cone No.(size)/α Factor	**191114 (10cm^2) / 0.76**		QC Status
		Base Inclination	**X = 1.2° / Y = 0.7°**		Preliminary: **JK/BC** (01/05/2021); Draft: **DR** (10/06/2021); Final: **SMc** (10/11/2021)
		CRS	**ETRS89**		

Comments: Out of Class. Continuous seabed CPT. Final depth 40.84m. Test terminated at operators discretion due to risk of rod bend

Gardline

Preliminary Investigation, Hesselø OWF

IN SITU CPTU TESTING - DERIVED PARAMETERS



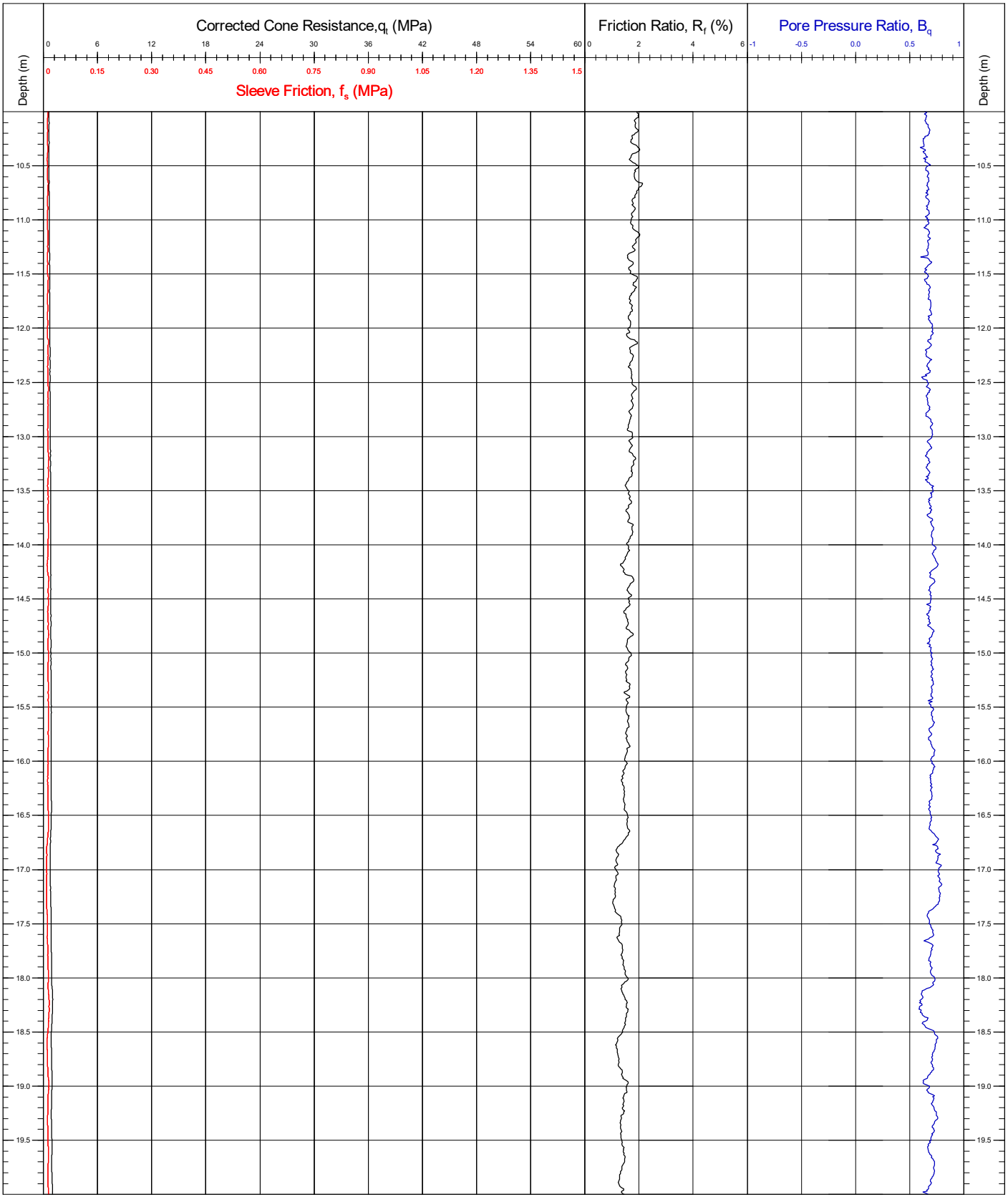
Area	**Kattegat Sea**	Coordinates	**676906.00E 6273504.90N**	CPT Number	**CPT25**
Contract	**11596**	Latitude / Longitude			
Client Name/Ref	**Energinet Eltransmission A/S/384_20_ENE**	Water Depth (mMSL)	**31.58**		
Vessel	**MV Ocean Vantage**	Date of Test	**01/05/2021**	Page: 1/4	
		Cone No.(size)/α Factor	**081208 (10cm^2) / 0.78**	QC Status	
		Base Inclination	**X = -0.1° / Y = 0.0°**	Preliminary / Draft / Final	
		CRS **ETRS89**		**JK/BC** (01/05/2021) / **DR** (10/06/2021) / **SMc** (10/11/2021)	

Comments: Out of class. Continuous seabed CPT. Final depth 30.31m. Test terminated due to lost communication with the cone after attempting a dissipation test which crashed the Gardlog software

Gardline

Preliminary Investigation, Hesselø OWF

IN SITU CPTU TESTING - DERIVED PARAMETERS



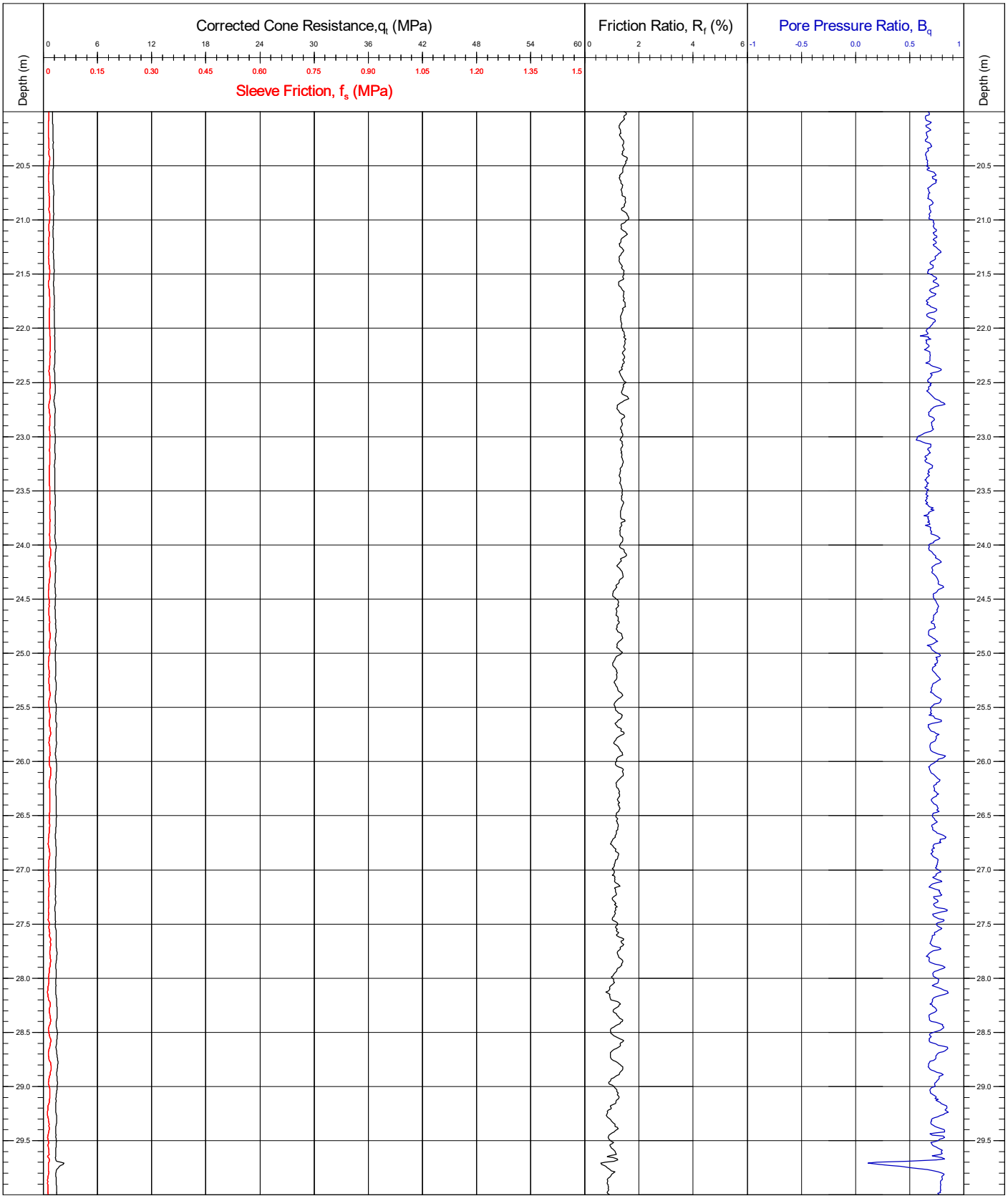
Area	**Kattegat Sea**	Coordinates	**676906.00E 6273504.90N**	CPT Number	**CPT25**
Contract	**11596**	Latitude / Longitude			
Client Name/Ref	**Energinet Eltransmission A/S/384_20_ENE**	Water Depth (mMSL)	**31.58**		
Vessel	**MV Ocean Vantage**	Date of Test	**01/05/2021**	Page: 2/4	
		Cone No.(size)/α Factor	**081208 (10cm^2) / 0.78**	QC Status	
		Base Inclination	**X = -0.1° / Y = 0.0°**	Preliminary / Draft / Final	
		CRS **ETRS89**		**JK/BC** (01/05/2021) / **DR** (10/06/2021) / **SMc** (10/11/2021)	

Comments: Out of class. Continuous seabed CPT. Final depth 30.31m. Test terminated due to lost communication with the cone after attempting a dissipation test which crashed the Gardlog software

Gardline

Preliminary Investigation, Hesselø OWF

IN SITU CPTU TESTING - DERIVED PARAMETERS



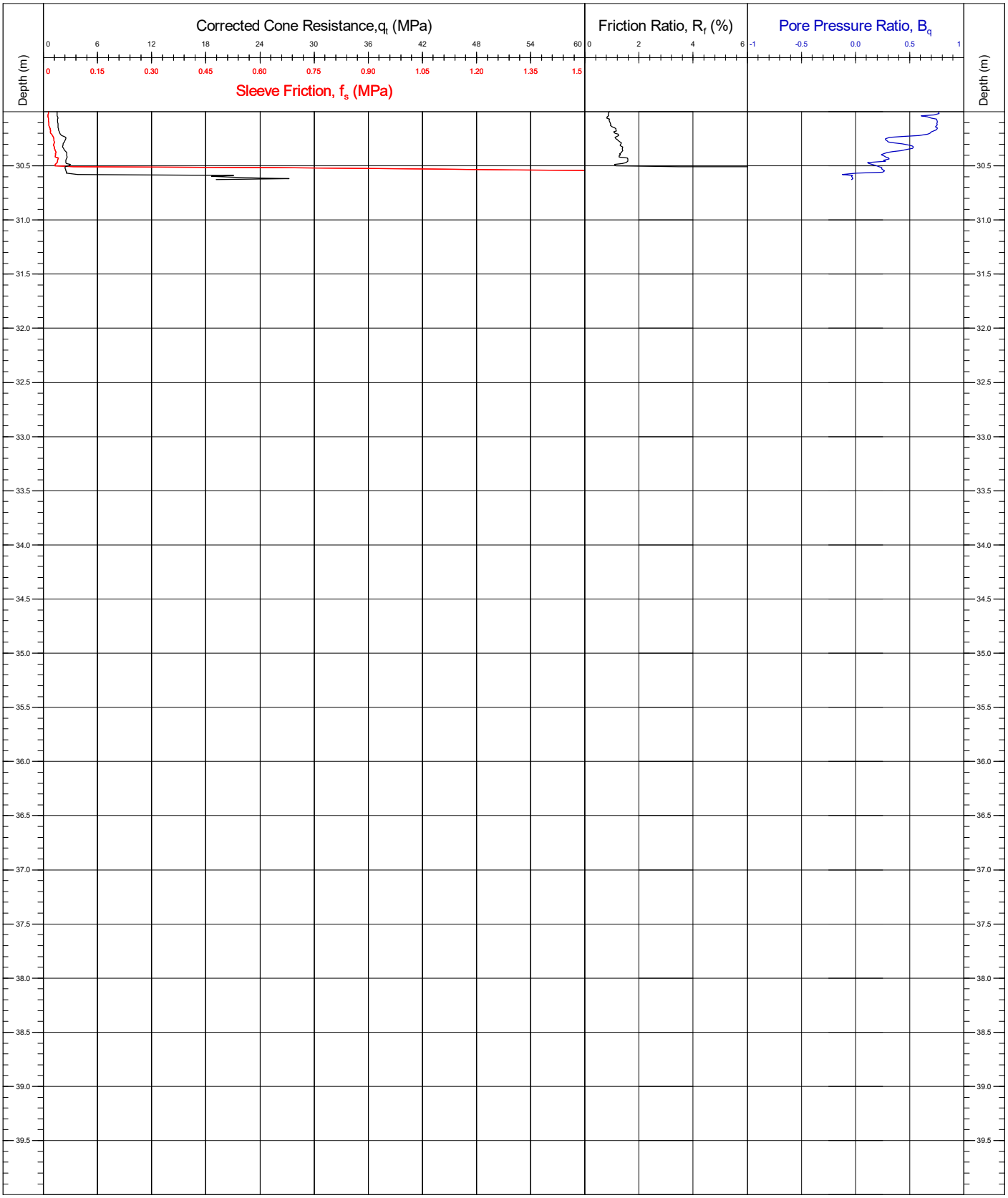
Area	**Kattegat Sea**	Coordinates	**676906.00E 6273504.90N**	CPT Number	**CPT25**
Contract	**11596**	Latitude / Longitude			
Client Name/Ref	**Energinet Eltransmission A/S/384_20_ENE**	Water Depth (mMSL)	**31.58**		
Vessel	**MV Ocean Vantage**	Date of Test	**01/05/2021**	Page: 3/4	
		Cone No.(size)/α Factor	**081208 (10cm^2) / 0.78**	QC Status	
		Base Inclination	**X = -0.1° / Y = 0.0°**	Preliminary / Draft / Final	
		CRS **ETRS89**		**JK/BC** (01/05/2021) / **DR** (10/06/2021) / **SMc** (10/11/2021)	

Comments: Out of class. Continuous seabed CPT. Final depth 30.31m. Test terminated due to lost communication with the cone after attempting a dissipation test which crashed the Gardlog software

Gardline

Preliminary Investigation, Hesselø OWF

IN SITU CPTU TESTING - DERIVED PARAMETERS

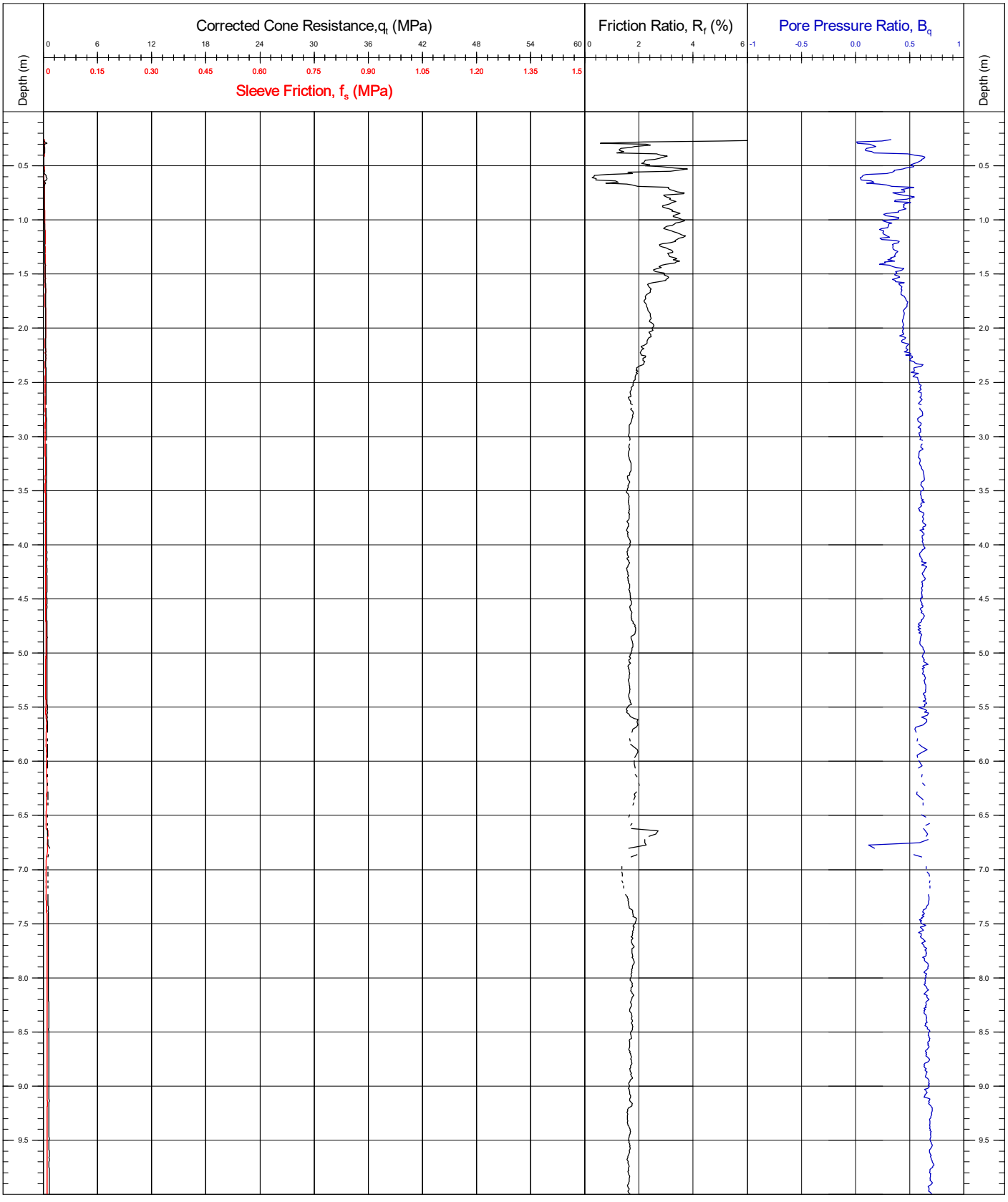


Area	**Kattegat Sea**	Coordinates	**676906.00E** **6273504.90N**	CPT Number	**CPT25**
Contract	**11596**	Latitude / Longitude			
Client Name/Ref	**Energinet Eltransmission A/S/384_20_ENE**	Water Depth (mMSL)	**31.58**		
Vessel	**MV Ocean Vantage**	Date of Test	**01/05/2021**	Page: 4/4	
		Cone No.(size)/α Factor	**081208 (10cm^2) / 0.78**	QC Status	
		Base Inclination	**X = -0.1° / Y = 0.0°**	Preliminary: **JK/BC** (01/05/2021)	Draft: **DR** (10/06/2021)
		CRS **ETRS89**			Final: **SMc** (10/11/2021)

Comments: Out of class. Continuous seabed CPT. Final depth 30.31m. Test terminated due to lost communication with the cone after attempting a dissipation test which crashed the Gardlog software

Preliminary Investigation, Hesselø OWF

IN SITU CPTU TESTING - DERIVED PARAMETERS



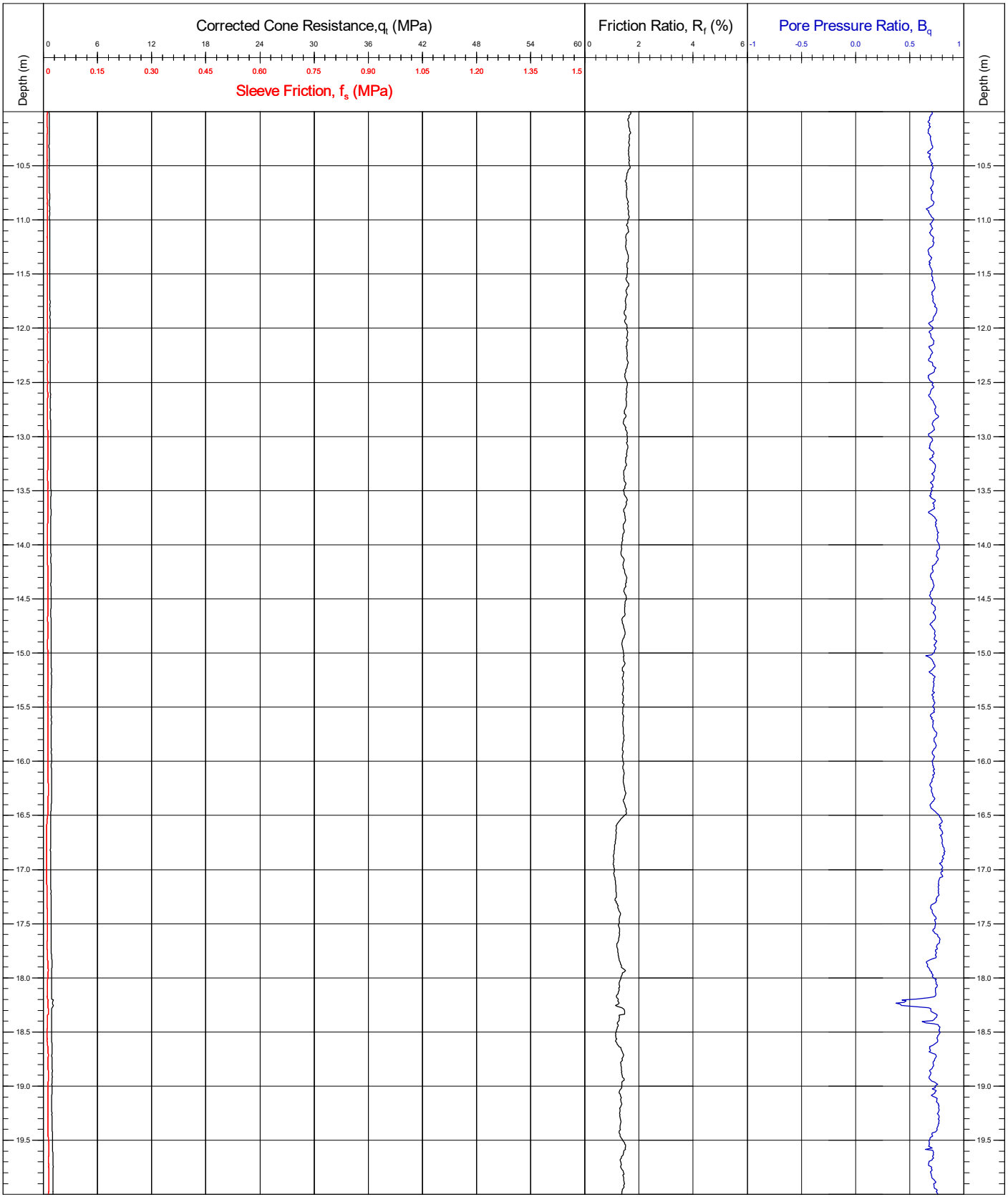
Area	**Kattegat Sea**	Coordinates	**676906.40E 6273499.90N**	CPT Number	**CPT25a**
Contract	**11596**	Latitude / Longitude			
Client Name/Ref	**Energinet Eltransmission A/S/384_20_ENE**	Water Depth (mMSL)	**31.63**		
Vessel	**MV Ocean Vantage**	Date of Test	**01/05/2021**	Page: 1/4	
		Cone No.(size)/α Factor	**120829 (10cm^2) / 0.8**	QC Status	
		Base Inclination	**X = 1.2° / Y = 0.5°**	Preliminary / Draft / Final	
		CRS **ETRS89**		**JK/BC** (01/05/2021) / **DR** (10/06/2021) / **SMc** (10/11/2021)	

Comments: Cone class 3. Continuous seabed CPT. Final depth 30.11m. Test terminated due to lost communication with the cone after attempting a dissipation test which crashed the Gardlog software

Gardline

Preliminary Investigation, Hesselø OWF

IN SITU CPTU TESTING - DERIVED PARAMETERS

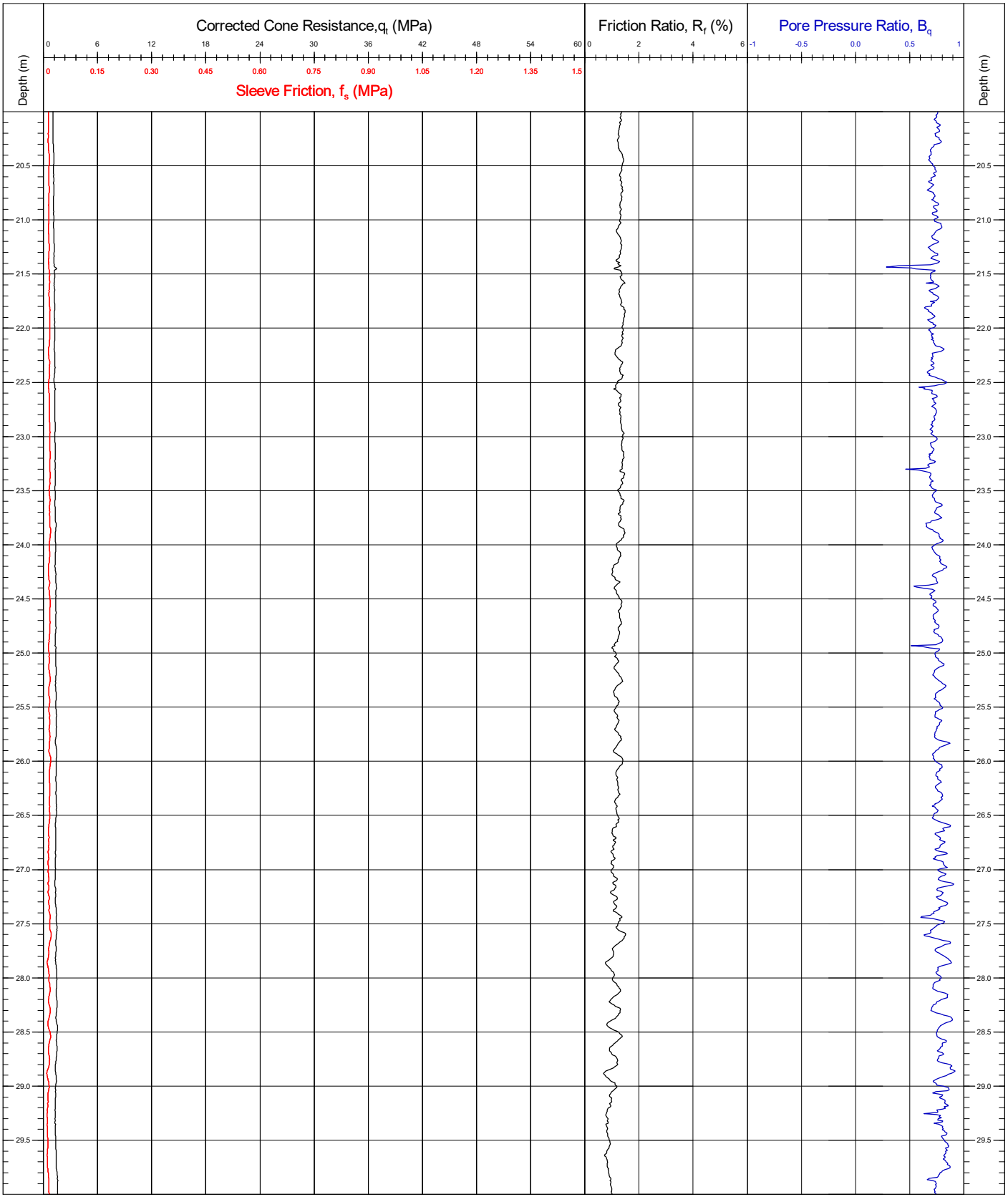


Area	**Kattegat Sea**	Coordinates	**676906.40E**	**6273499.90N**	CPT Number **CPT25a**
Contract	**11596**	Latitude / Longitude			
Client Name/Ref	**Energinet Eltransmission A/S/384_20_ENE**	Water Depth (mMSL)	**31.63**		
Vessel	**MV Ocean Vantage**	Date of Test	**01/05/2021**		Page: 2/4
		Cone No.(size)/α Factor	**120829 (10cm^2) / 0.8**		QC Status
		Base Inclination	**X = 1.2° / Y = 0.5°**		Preliminary: **JK/BC** (01/05/2021); Draft: **DR** (10/06/2021); Final: **SMc** (10/11/2021)
		CRS **ETRS89**			

Comments: Cone class 3. Continuous seabed CPT. Final depth 30.11m. Test terminated due to lost communication with the cone after attempting a dissipation test which crashed the Gardlog software

Preliminary Investigation, Hesselø OWF

IN SITU CPTU TESTING - DERIVED PARAMETERS



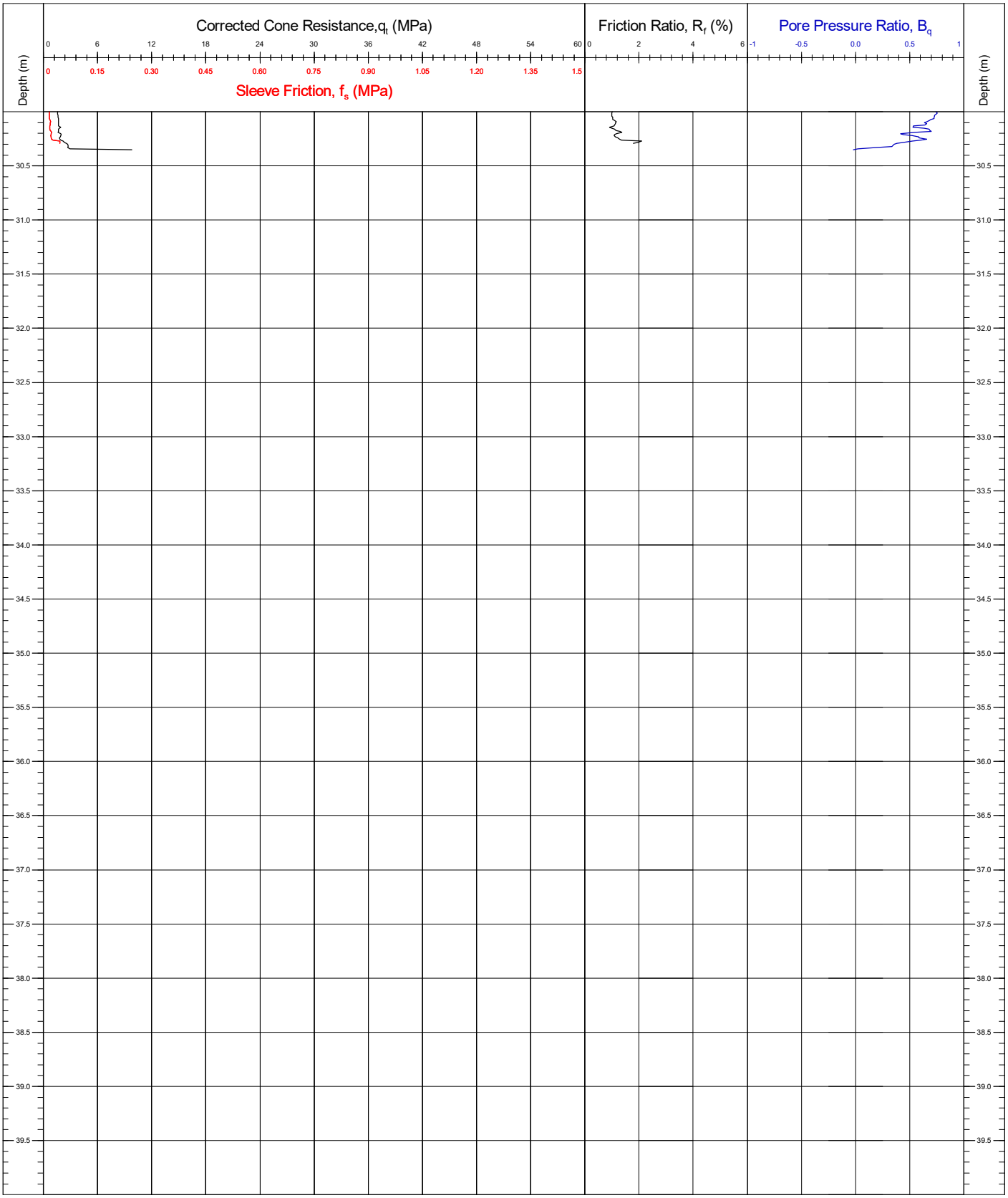
Area	**Kattegat Sea**	Coordinates	**676906.40E**	**6273499.90N**	CPT Number **CPT25a**
Contract	**11596**	Latitude / Longitude			
Client Name/Ref	**Energinet Eltransmission A/S/384_20_ENE**	Water Depth (mMSL)	**31.63**		
Vessel	**MV Ocean Vantage**	Date of Test	**01/05/2021**		Page: 3/4
		Cone No.(size)/α Factor	**120829 (10cm^2) / 0.8**		QC Status
		Base Inclination	**X = 1.2° / Y = 0.5°**		Preliminary: **JK/BC** (01/05/2021); Draft: **DR** (10/06/2021); Final: **SMc** (10/11/2021)
		CRS **ETRS89**			

Comments: Cone class 3. Continuous seabed CPT. Final depth 30.11m. Test terminated due to lost communication with the cone after attempting a dissipation test which crashed the Gardlog software

Gardline

Preliminary Investigation, Hesselø OWF

IN SITU CPTU TESTING - DERIVED PARAMETERS



Area	**Kattegat Sea**
Contract	**11596**
Client Name/Ref	**Energinet Eltransmission A/S/384_20_ENE**
Vessel	**MV Ocean Vantage**

Comments: Cone class 3. Continuous seabed CPT. Final depth 30.11m. Test terminated due to lost communication with the cone after attempting a dissipation test which crashed the Gardlog software

Coordinates	**676906.40E 6273499.90N**
Latitude / Longitude	
Water Depth (mMSL)	**31.63**
Date of Test	**01/05/2021**
Cone No.(size)/α Factor	**120829 (10cm^2) / 0.8**
Base Inclination	**X = 1.2° / Y = 0.5°**
CRS **ETRS89**	

CPT Number

CPT25a

Page: 4/4

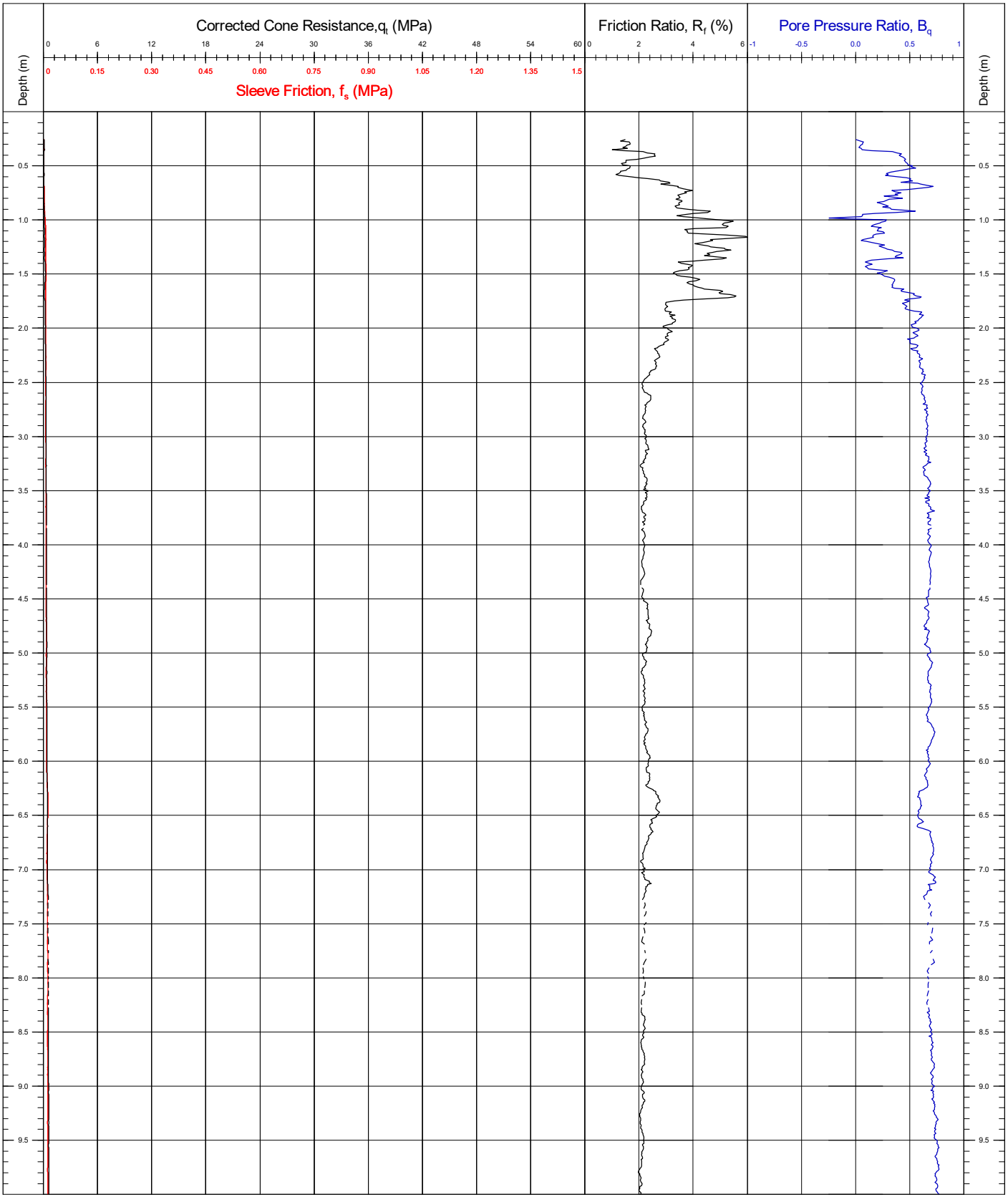
QC Status

Preliminary	Draft	Final
JK/BC (01/05/2021)	**DR** (10/06/2021)	**SMc** (10/11/2021)

Gardline

Preliminary Investigation, Hesselø OWF

IN SITU CPTU TESTING - DERIVED PARAMETERS



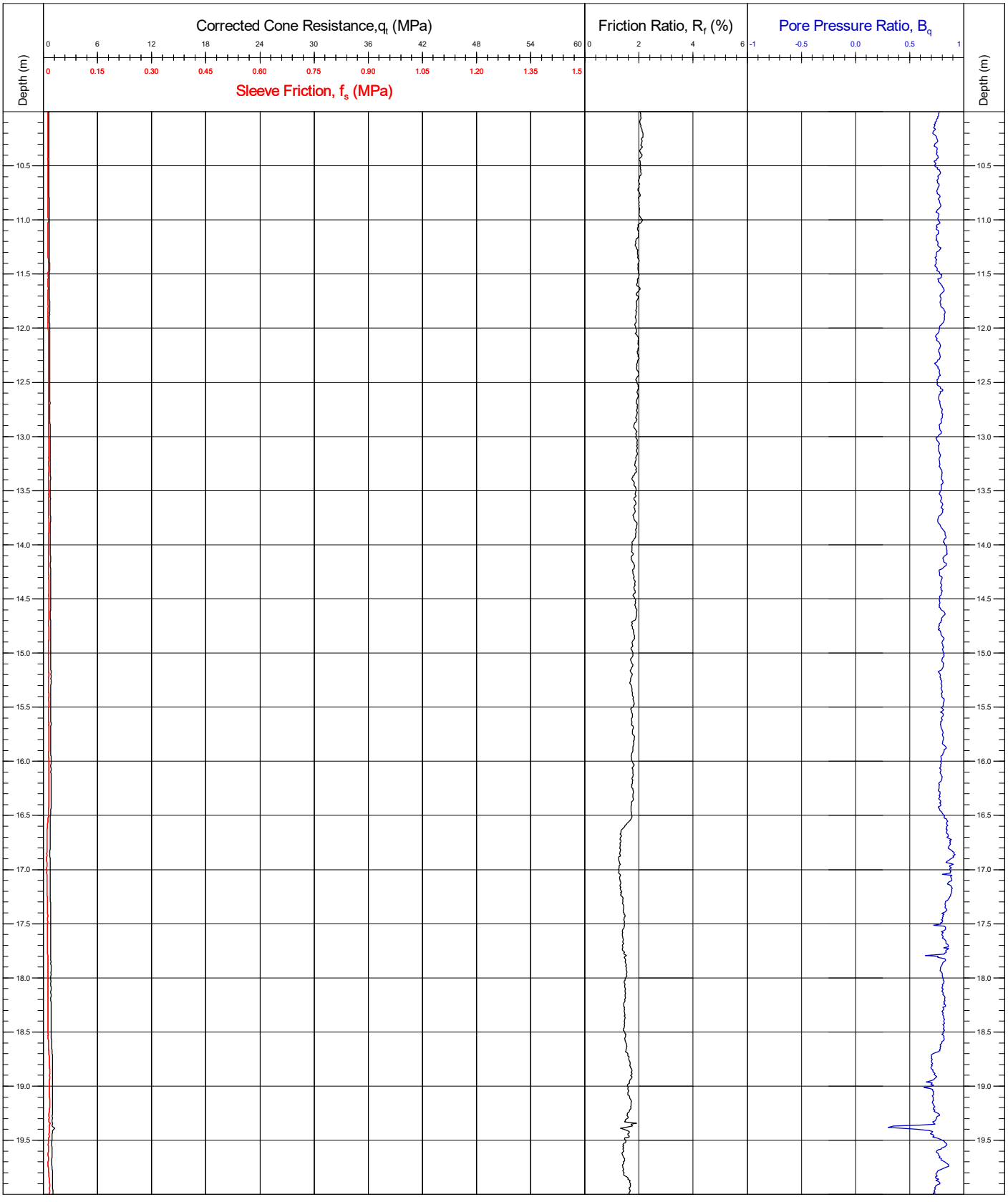
Area	**Kattegat Sea**	Coordinates	**676906.00E 6273510.10N**	CPT Number	**CPT25b**
Contract	**11596**	Latitude / Longitude			
Client Name/Ref	**Energinet Eltransmission A/S/384_20_ENE**	Water Depth (mMSL)	**31.57**		
Vessel	**MV Ocean Vantage**	Date of Test	**02/05/2021**	Page: 1/4	
		Cone No.(size)/α Factor	**130206 (10cm^2) / 0.77**	QC Status	
		Base Inclination	**X = 1.1° / Y = 0.9°**	Preliminary / Draft / Final	
		CRS **ETRS89**		**JK/BC** (02/05/2021) / **DR** (10/06/2021) / **SMc** (10/11/2021)	

Comments: Cone class 1. Continuous seabed CPT. Final depth 30.86m. Test terminated at operators discretion due to increasing total load and lack of lateral rod support from mudline

Gardline

Preliminary Investigation, Hesselø OWF

IN SITU CPTU TESTING - DERIVED PARAMETERS

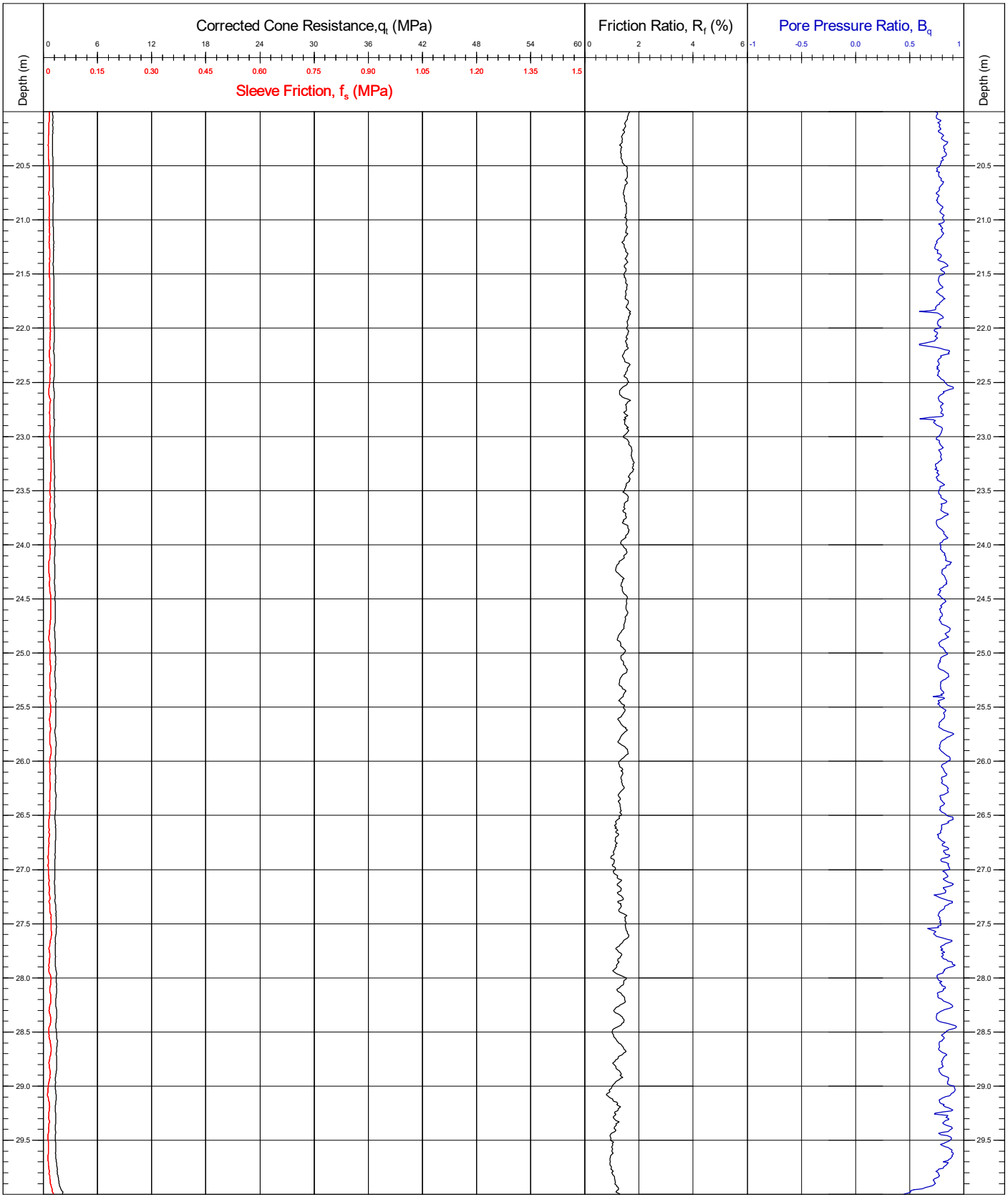


Area	**Kattegat Sea**	Coordinates	**676906.00E 6273510.10N**	CPT Number	**CPT25b**
Contract	**11596**	Latitude / Longitude			
Client Name/Ref	**Energinet Eltransmission A/S/384_20_ENE**	Water Depth (mMSL)	**31.57**		
Vessel	**MV Ocean Vantage**	Date of Test	**02/05/2021**	Page: 2/4	
		Cone No.(size)/α Factor	**130206 (10cm^2) / 0.77**	QC Status	
		Base Inclination	**X = 1.1° / Y = 0.9°**	Preliminary / Draft / Final	
		CRS **ETRS89**		**JK/BC** (02/05/2021) / **DR** (10/06/2021) / **SMc** (10/11/2021)	

Comments: Cone class 1. Continuous seabed CPT. Final depth 30.86m. Test terminated at operators discretion due to increasing total load and lack of lateral rod support from mudline

Preliminary Investigation, Hesselø OWF

IN SITU CPTU TESTING - DERIVED PARAMETERS

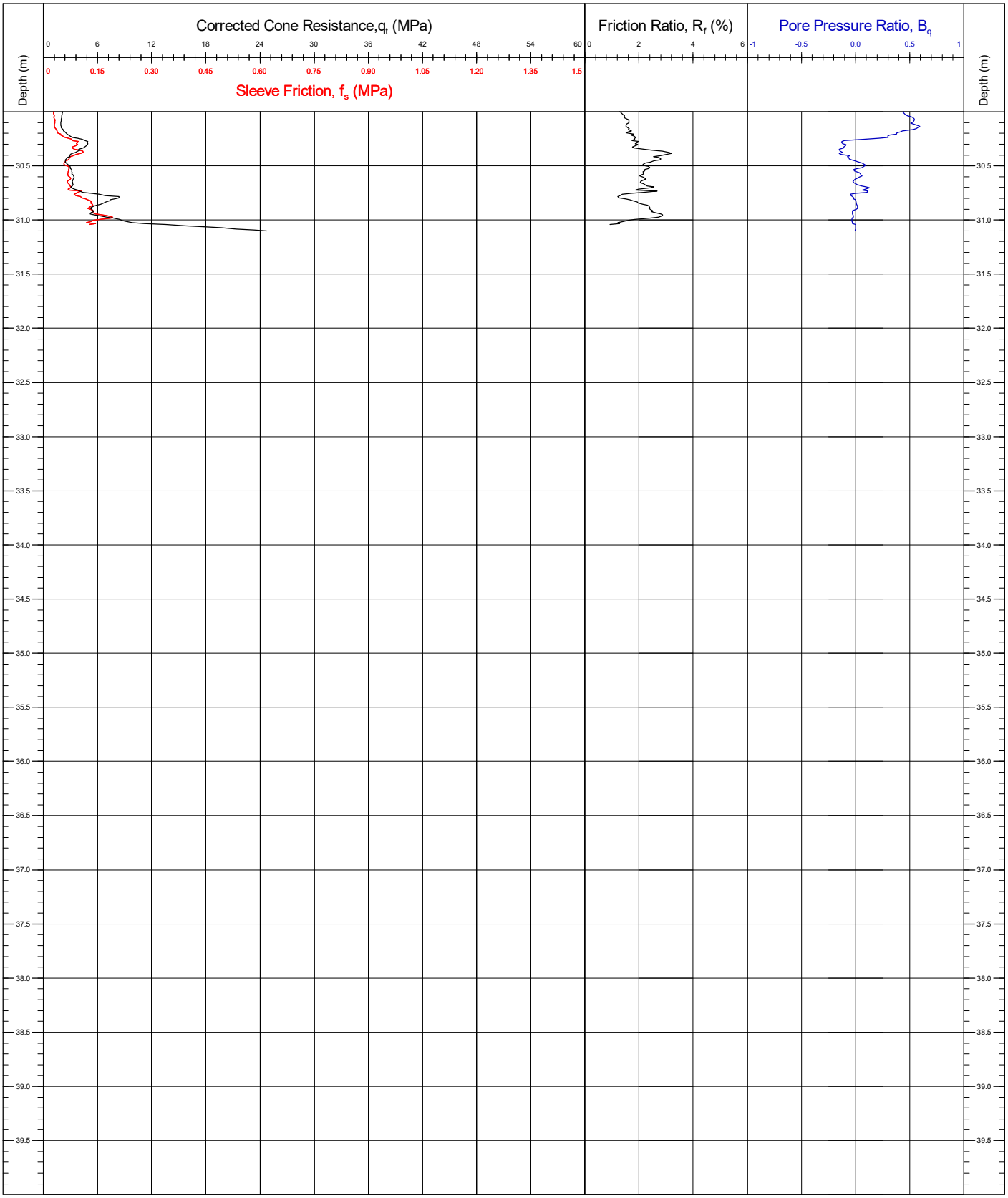


Area	**Kattegat Sea**	Coordinates	**676906.00E 6273510.10N**	CPT Number	**CPT25b**
Contract	**11596**	Latitude / Longitude			
Client Name/Ref	**Energinet Eltransmission A/S/384_20_ENE**	Water Depth (mMSL)	**31.57**		
Vessel	**MV Ocean Vantage**	Date of Test	**02/05/2021**	Page: 3/4	
		Cone No.(size)/α Factor	**130206 (10cm^2) / 0.77**	QC Status	
		Base Inclination	**X = 1.1° / Y = 0.9°**	Preliminary / Draft / Final	
		CRS **ETRS89**		**JK/BC** (02/05/2021) / **DR** (10/06/2021) / **SMc** (10/11/2021)	

Comments: Cone class 1. Continuous seabed CPT. Final depth 30.86m. Test terminated at operators discretion due to increasing total load and lack of lateral rod support from mudline

Preliminary Investigation, Hesselø OWF

IN SITU CPTU TESTING - DERIVED PARAMETERS



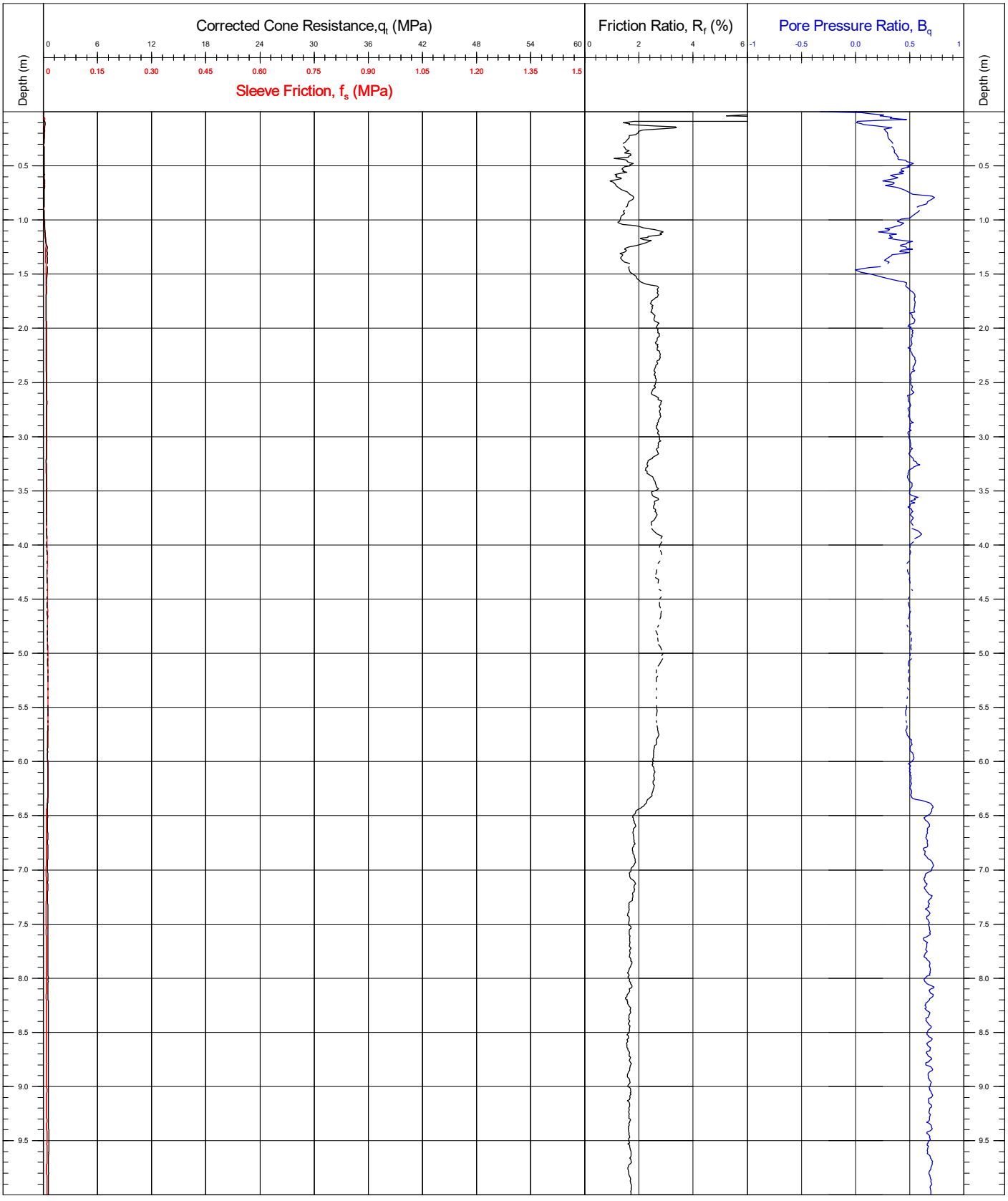
Area	**Kattegat Sea**	Coordinates	**676906.00E 6273510.10N**	CPT Number	**CPT25b**
Contract	**11596**	Latitude / Longitude			
Client Name/Ref	**Energinet Eltransmission A/S/384_20_ENE**	Water Depth (mMSL)	**31.57**		
Vessel	**MV Ocean Vantage**	Date of Test	**02/05/2021**	Page: 4/4	
		Cone No.(size)/α Factor	**130206 (10cm^2) / 0.77**	QC Status	
		Base Inclination	**X = 1.1° / Y = 0.9°**	Preliminary: **JK/BC** (02/05/2021)	Draft: **DR** (10/06/2021)
		CRS **ETRS89**			Final: **SMc** (10/11/2021)

Comments: Cone class 1. Continuous seabed CPT. Final depth 30.86m. Test terminated at operators discretion due to increasing total load and lack of lateral rod support from mudline

Gardline

Preliminary Investigation, Hesselø OWF

IN SITU CPTU TESTING - DERIVED PARAMETERS



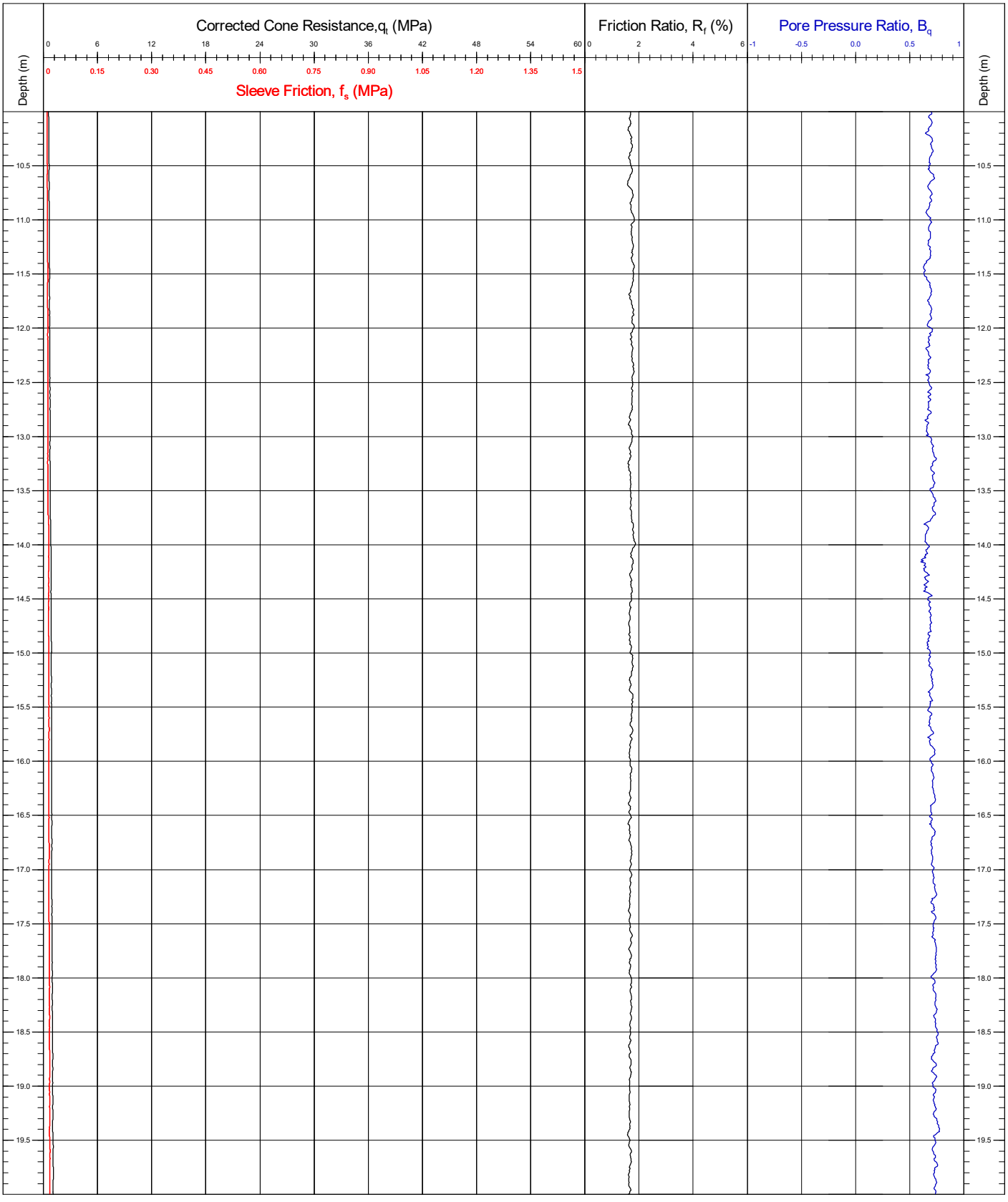
Area	**Kattegat Sea**	Coordinates	**676724.10E 6276824.70N**	CPT Number	**CPT26**
Contract	**11596**	Latitude / Longitude			
Client Name/Ref	**Energinet Eltransmission A/S/384_20_ENE**	Water Depth (mMSL)	**30.88**		
Vessel	**MV Ocean Vantage**	Date of Test	**02/05/2021**	Page: 1/4	
		Cone No.(size)/α Factor	**191114 (10cm^2) / 0.76**	QC Status	
		Base Inclination	**X = 1.1° / Y = 1.0°**	Preliminary / Draft / Final	
		CRS **ETRS89**		**JK/BC** (02/05/2021) / **DR** (10/06/2021) / **SMc** (10/11/2021)	

Comments: Cone class 1. Continuous seabed CPT. Final depth 37.33m. Test terminated at operators discretion to avoid damage due to lack of lateral rod support and an increasing tip load

Gardline

Preliminary Investigation, Hesselø OWF

IN SITU CPTU TESTING - DERIVED PARAMETERS



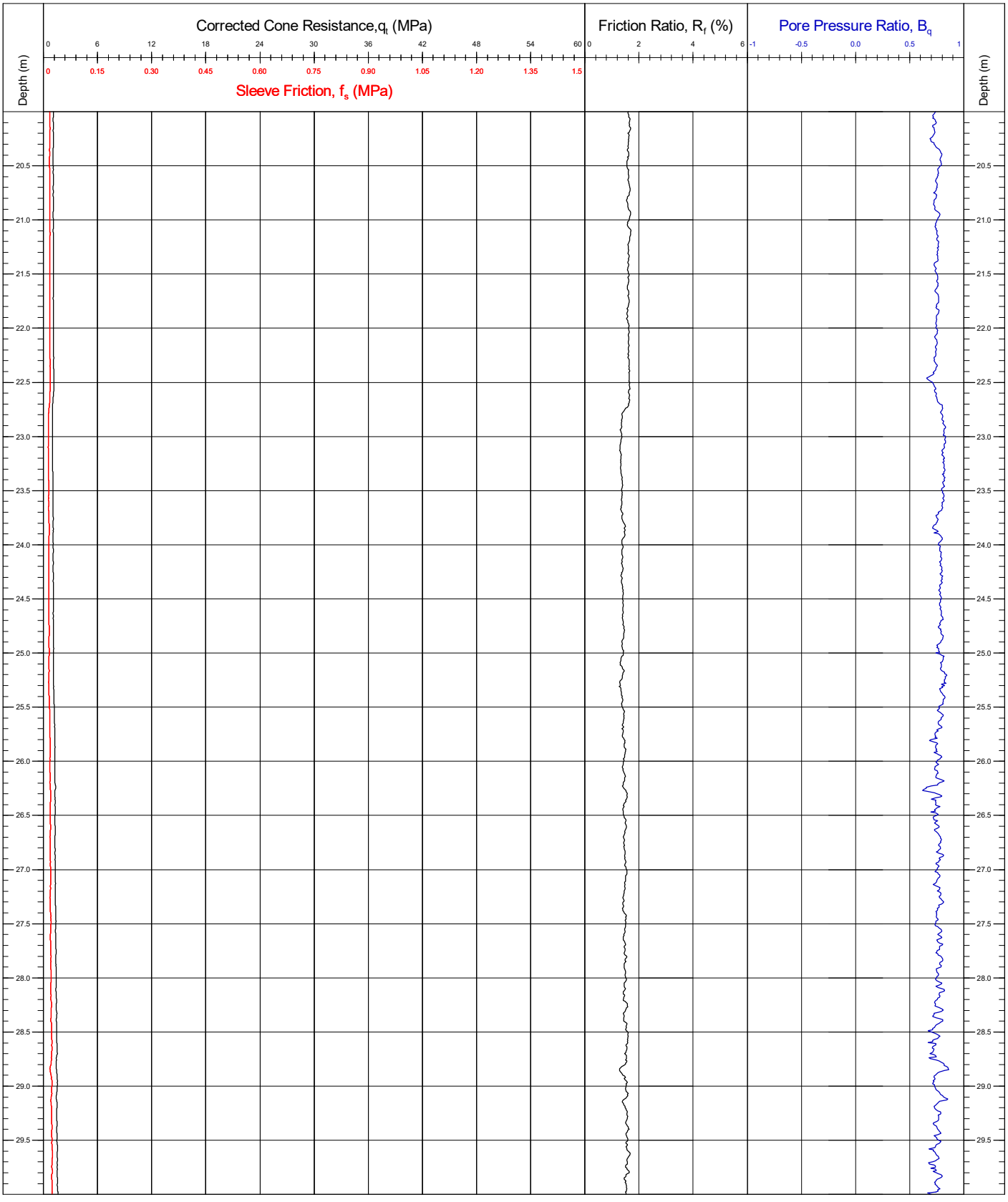
Area	**Kattegat Sea**	Coordinates	**676724.10E**	**6276824.70N**	CPT Number **CPT26**
Contract	**11596**	Latitude / Longitude			
Client Name/Ref	**Energinet Eltransmission A/S/384_20_ENE**	Water Depth (mMSL)	**30.88**		
Vessel	**MV Ocean Vantage**	Date of Test	**02/05/2021**		Page: 2/4
		Cone No.(size)/α Factor	**191114 (10cm^2) / 0.76**		QC Status
		Base Inclination	**X = 1.1° / Y = 1.0°**		Preliminary: **JK/BC** (02/05/2021); Draft: **DR** (10/06/2021); Final: **SMc** (10/11/2021)
		CRS	**ETRS89**		

Comments: Cone class 1. Continuous seabed CPT. Final depth 37.33m. Test terminated at operators discretion to avoid damage due to lack of lateral rod support and an increasing tip load

Gardline

Preliminary Investigation, Hesselø OWF

IN SITU CPTU TESTING - DERIVED PARAMETERS



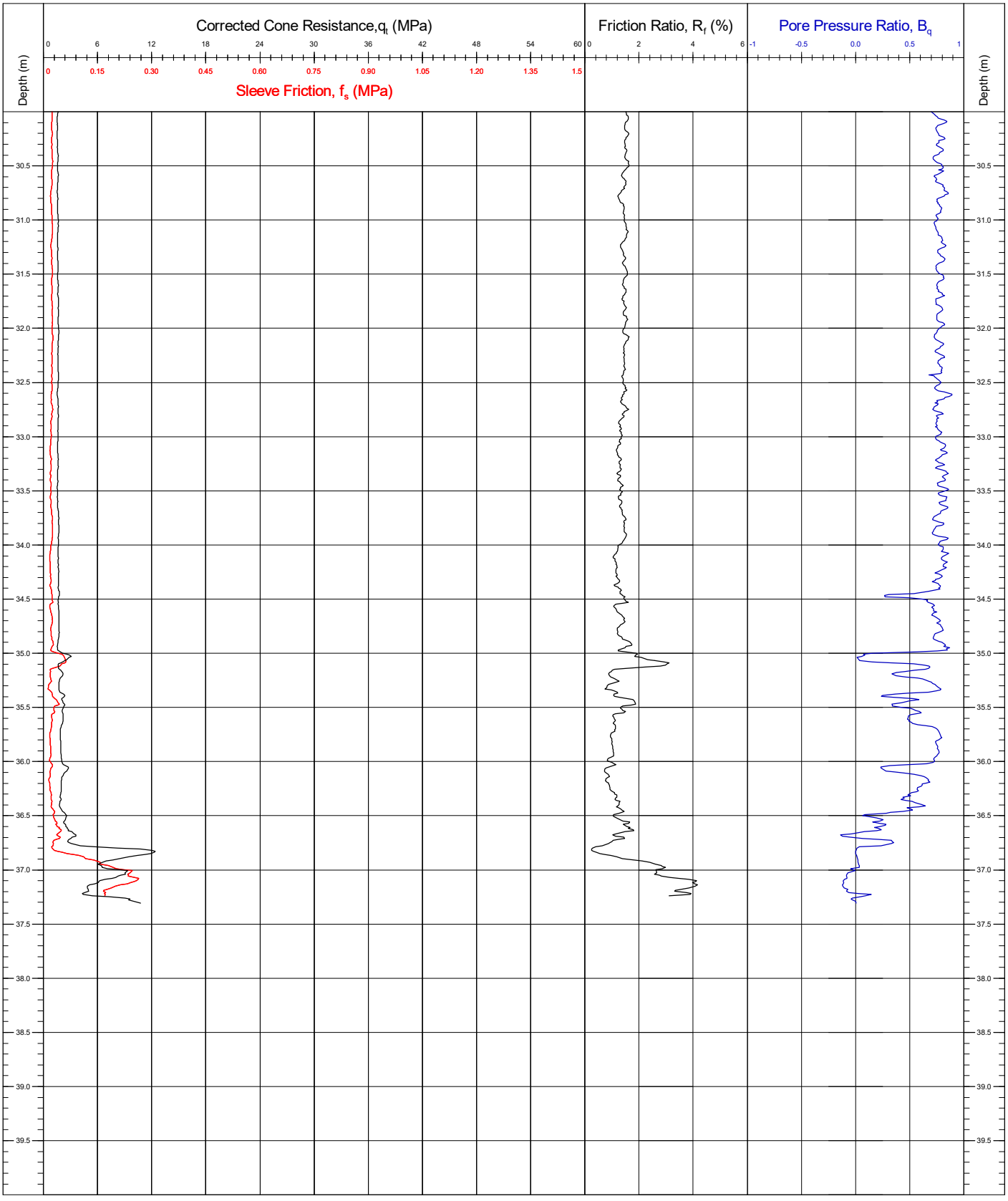
Area	**Kattegat Sea**	Coordinates	**676724.10E**	**6276824.70N**	CPT Number **CPT26**
Contract	**11596**	Latitude / Longitude			
Client Name/Ref	**Energinet Eltransmission A/S/384_20_ENE**	Water Depth (mMSL)	**30.88**		Page: 3/4
Vessel	**MV Ocean Vantage**	Date of Test	**02/05/2021**		QC Status
		Cone No.(size)/α Factor	**191114 (10cm^2) / 0.76**		Preliminary: **JK/BC** (02/05/2021) · Draft: **DR** (10/06/2021) · Final: **SMc** (10/11/2021)
		Base Inclination	**X = 1.1° / Y = 1.0°**		
		CRS **ETRS89**			

Comments: Cone class 1. Continuous seabed CPT. Final depth 37.33m. Test terminated at operators discretion to avoid damage due to lack of lateral rod support and an increasing tip load

Gardline

Preliminary Investigation, Hesselø OWF

IN SITU CPTU TESTING - DERIVED PARAMETERS



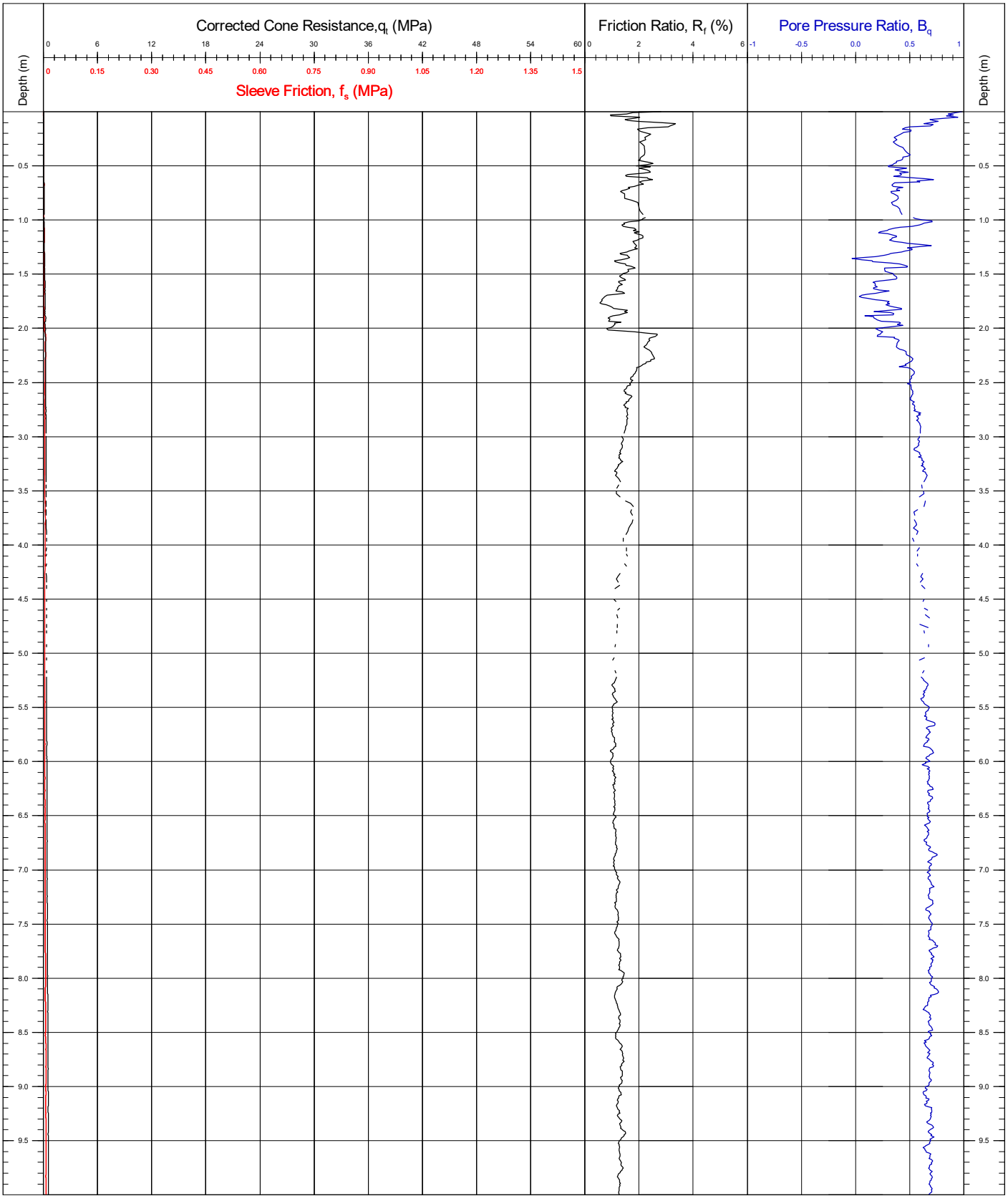
Area	**Kattegat Sea**	Coordinates	**676724.10E 6276824.70N**	CPT Number	**CPT26**
Contract	**11596**	Latitude / Longitude			
Client Name/Ref	**Energinet Eltransmission A/S/384_20_ENE**	Water Depth (mMSL)	**30.88**		
Vessel	**MV Ocean Vantage**	Date of Test	**02/05/2021**	Page: 4/4	
		Cone No.(size)/α Factor	**191114 (10cm^2) / 0.76**	QC Status	
		Base Inclination	**X = 1.1° / Y = 1.0°**	Preliminary / Draft / Final	
		CRS **ETRS89**		**JK/BC** (02/05/2021) / **DR** (10/06/2021) / **SMc** (10/11/2021)	

Comments: Cone class 1. Continuous seabed CPT. Final depth 37.33m. Test terminated at operators discretion to avoid damage due to lack of lateral rod support and an increasing tip load

Gardline

Preliminary Investigation, Hesselø OWF

IN SITU CPTU TESTING - DERIVED PARAMETERS

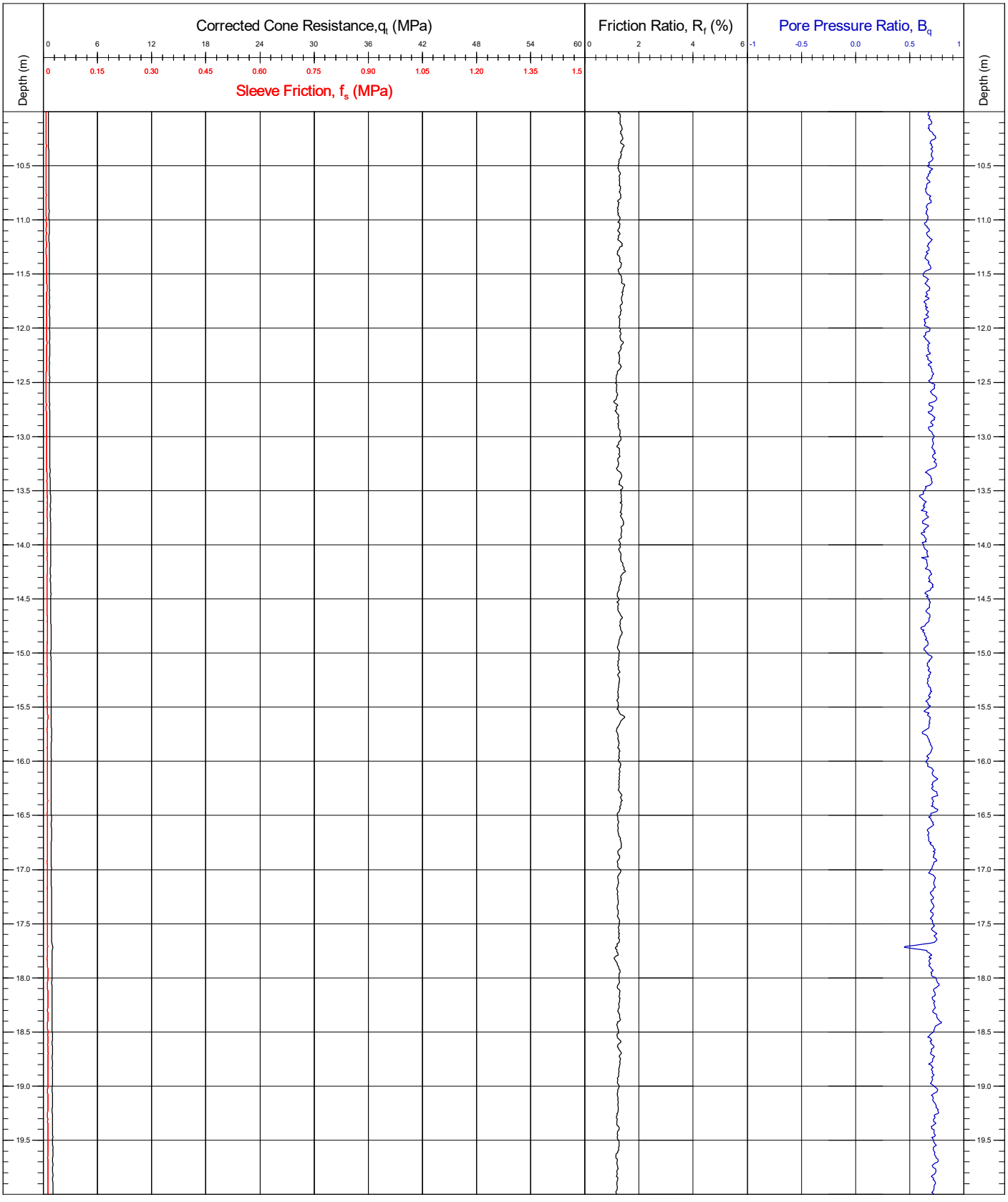


Area	**Kattegat Sea**	Coordinates	**674182.00E 6265896.30N**	CPT Number	**OSS 1**
Contract	**11596**	Latitude / Longitude			
Client Name/Ref	**Energinet Eltransmission A/S/384_20_ENE**	Water Depth (mMSL)	**31.60**		
Vessel	**MV Ocean Vantage**	Date of Test	**25/04/2021**	Page: 1/5	
Comments: OSS1 was completed to a depth of 47.95m~ at which point it was terminated due to loss of communication with the cone. Cone class 4		Cone No.(size)/α Factor	**100415 (10cm^2) / 0.8**	QC Status	
		Base Inclination	**X = 0.0° / Y = 0.0°**	Preliminary / Draft / Final	
		CRS **ETRS89**		**JK/BC** (25/04/2021) / **DR** (10/06/2021) / **SMc** (10/11/2021)	

Gardline

Preliminary Investigation, Hesselø OWF

IN SITU CPTU TESTING - DERIVED PARAMETERS



Area	**Kattegat Sea**
Contract	**11596**
Client Name/Ref	**Energinet Eltransmission A/S/384_20_ENE**
Vessel	**MV Ocean Vantage**

Comments: OSS1 was completed to a depth of 47.95m~ at which point it was terminated due to loss of communication with the cone. Cone class 4

Coordinates	**674182.00E 6265896.30N**
Latitude / Longitude	
Water Depth (mMSL)	**31.60**
Date of Test	**25/04/2021**
Cone No.(size)/α Factor	**100415 (10cm^2) / 0.8**
Base Inclination	**X = 0.0° / Y = 0.0°**
CRS	**ETRS89**

CPT Number

OSS 1

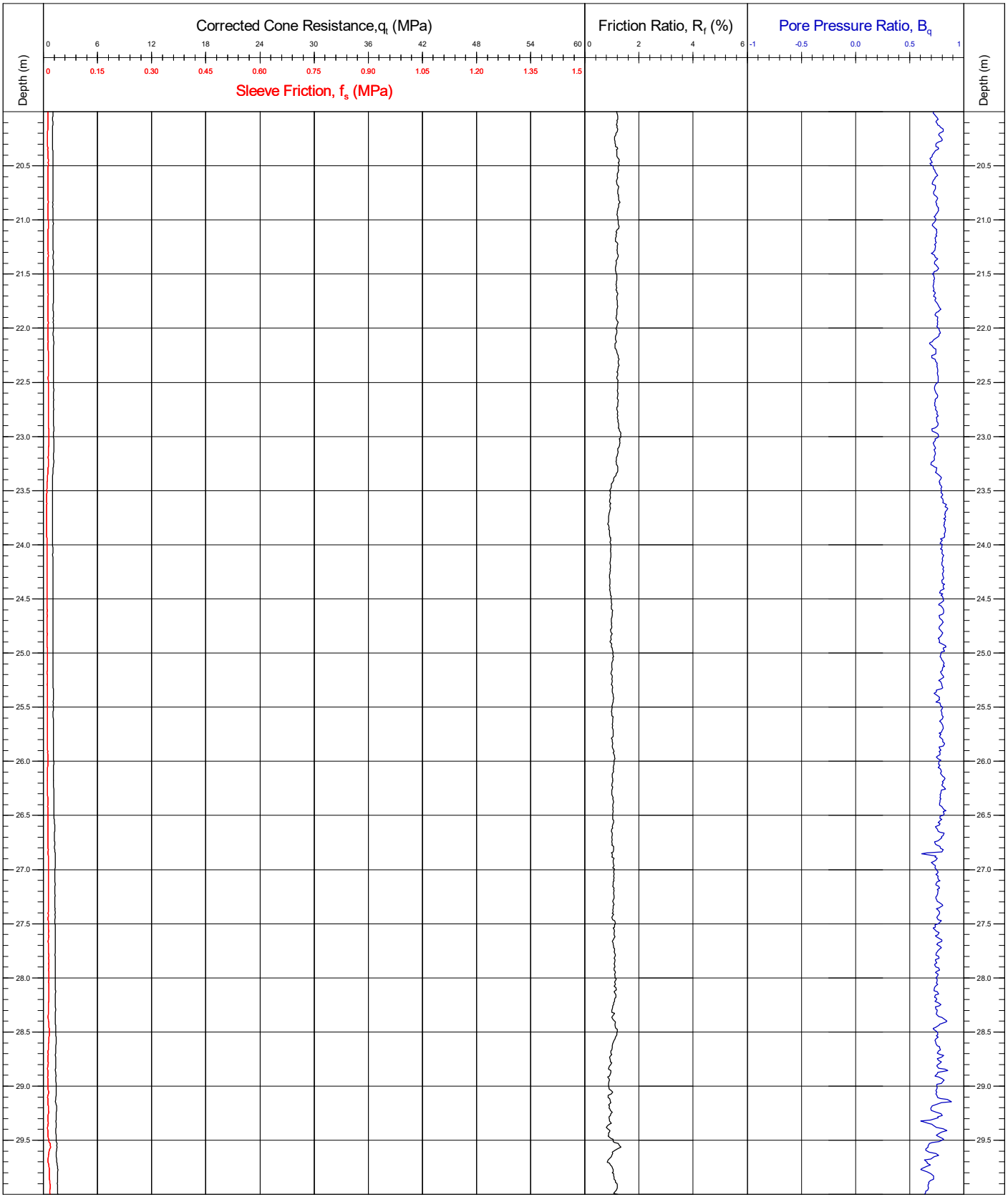
QC Status

Preliminary	Draft	Final
JK/BC (25/04/2021)	**DR** (10/06/2021)	**SMc** (10/11/2021)

Gardline

Preliminary Investigation, Hesselø OWF

IN SITU CPTU TESTING - DERIVED PARAMETERS



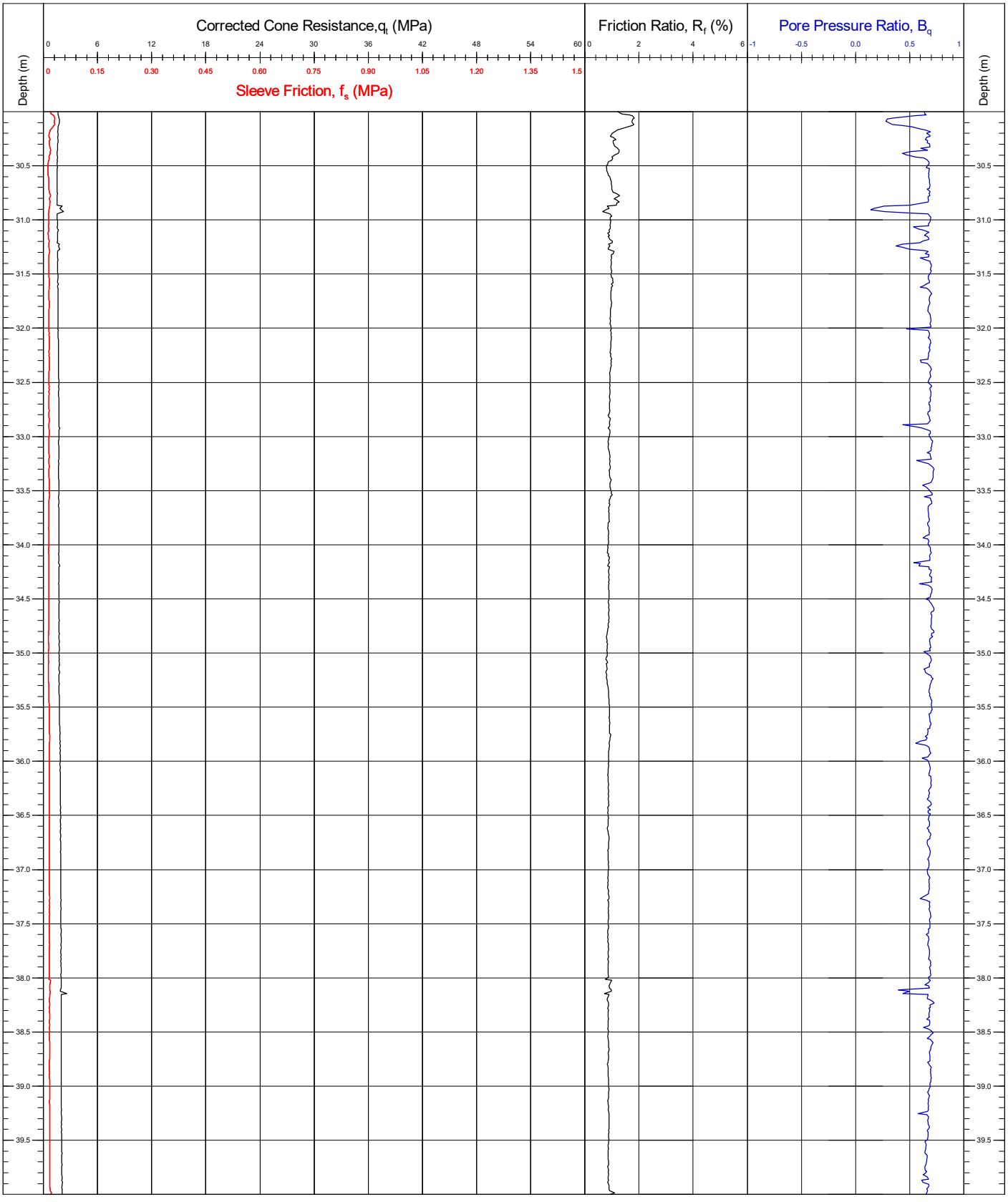
Area	**Kattegat Sea**	Coordinates	**674182.00E** **6265896.30N**	CPT Number	**OSS 1**
Contract	**11596**	Latitude / Longitude			
Client Name/Ref	**Energinet Eltransmission A/S/384_20_ENE**	Water Depth (mMSL)	**31.60**		
Vessel	**MV Ocean Vantage**	Date of Test	**25/04/2021**	Page: 3/5	
		Cone No.(size)/α Factor	**100415 (10cm^2) / 0.8**	QC Status	
		Base Inclination	**X = 0.0° / Y = 0.0°**	Preliminary / Draft / Final	
		CRS **ETRS89**		**JK/BC** (25/04/2021) / **DR** (10/06/2021) / **SMc** (10/11/2021)	

Comments: OSS1 was completed to a depth of 47.95m~ at which point it was terminated due to loss of communication with the cone. Cone class 4

Gardline

Preliminary Investigation, Hesselø OWF

IN SITU CPTU TESTING - DERIVED PARAMETERS

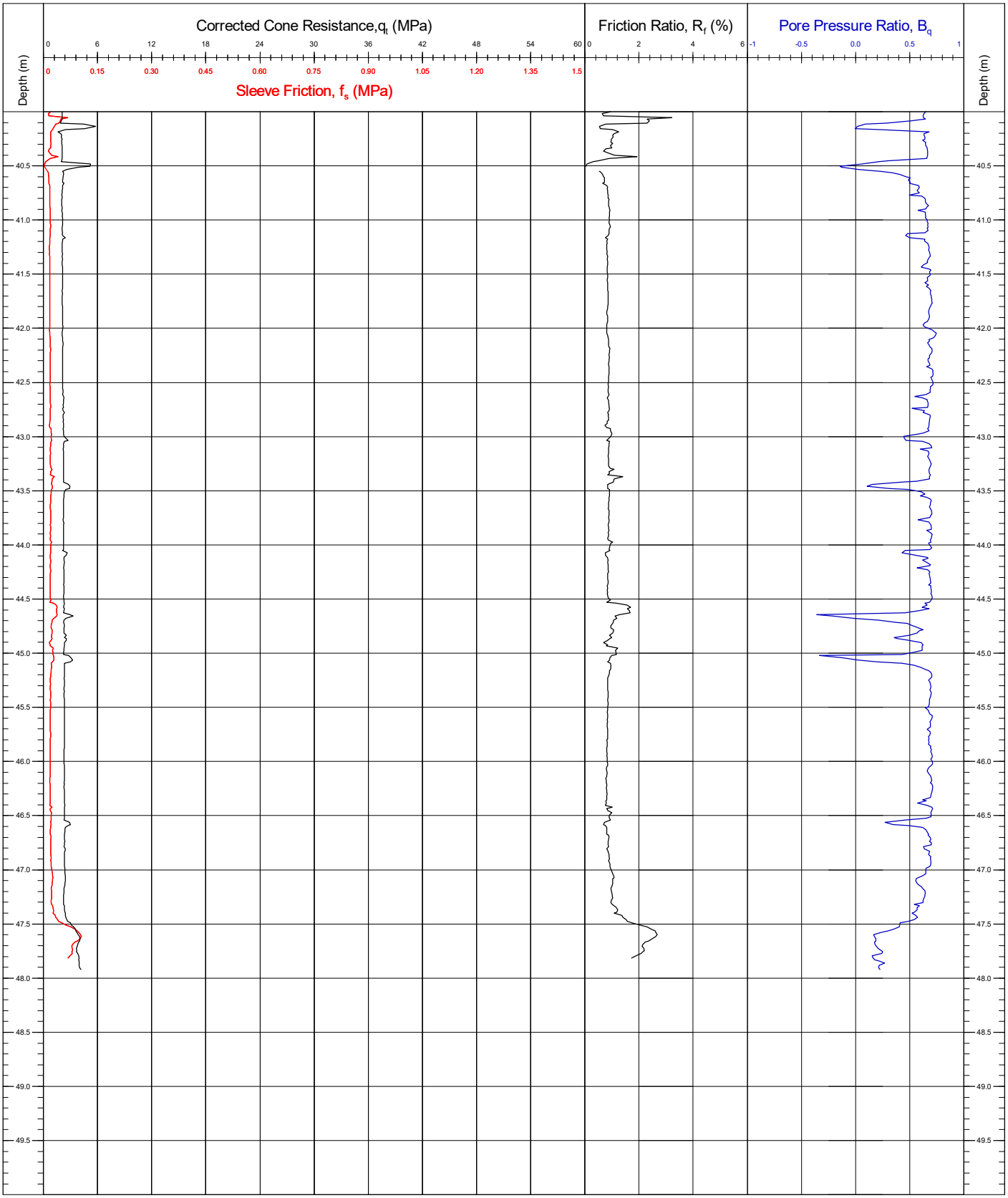


Area	**Kattegat Sea**	Coordinates	**674182.00E**	**6265896.30N**	CPT Number
Contract	**11596**	Latitude / Longitude			**OSS 1**
Client Name/Ref	**Energinet Eltransmission A/S/384_20_ENE**	Water Depth (mMSL)	**31.60**		
Vessel	**MV Ocean Vantage**	Date of Test	**25/04/2021**		Page: 4/5
		Cone No.(size)/α Factor	**100415 (10cm^2) / 0.8**		QC Status
		Base Inclination	**X = 0.0° / Y = 0.0°**		Preliminary: **JK/BC** (25/04/2021) · Draft: **DR** (10/06/2021) · Final: **SMc** (10/11/2021)
		CRS	**ETRS89**		

Comments: OSS1 was completed to a depth of 47.95m~ at which point it was terminated due to loss of communication with the cone. Cone class 4

Preliminary Investigation, Hesselø OWF

IN SITU CPTU TESTING - DERIVED PARAMETERS

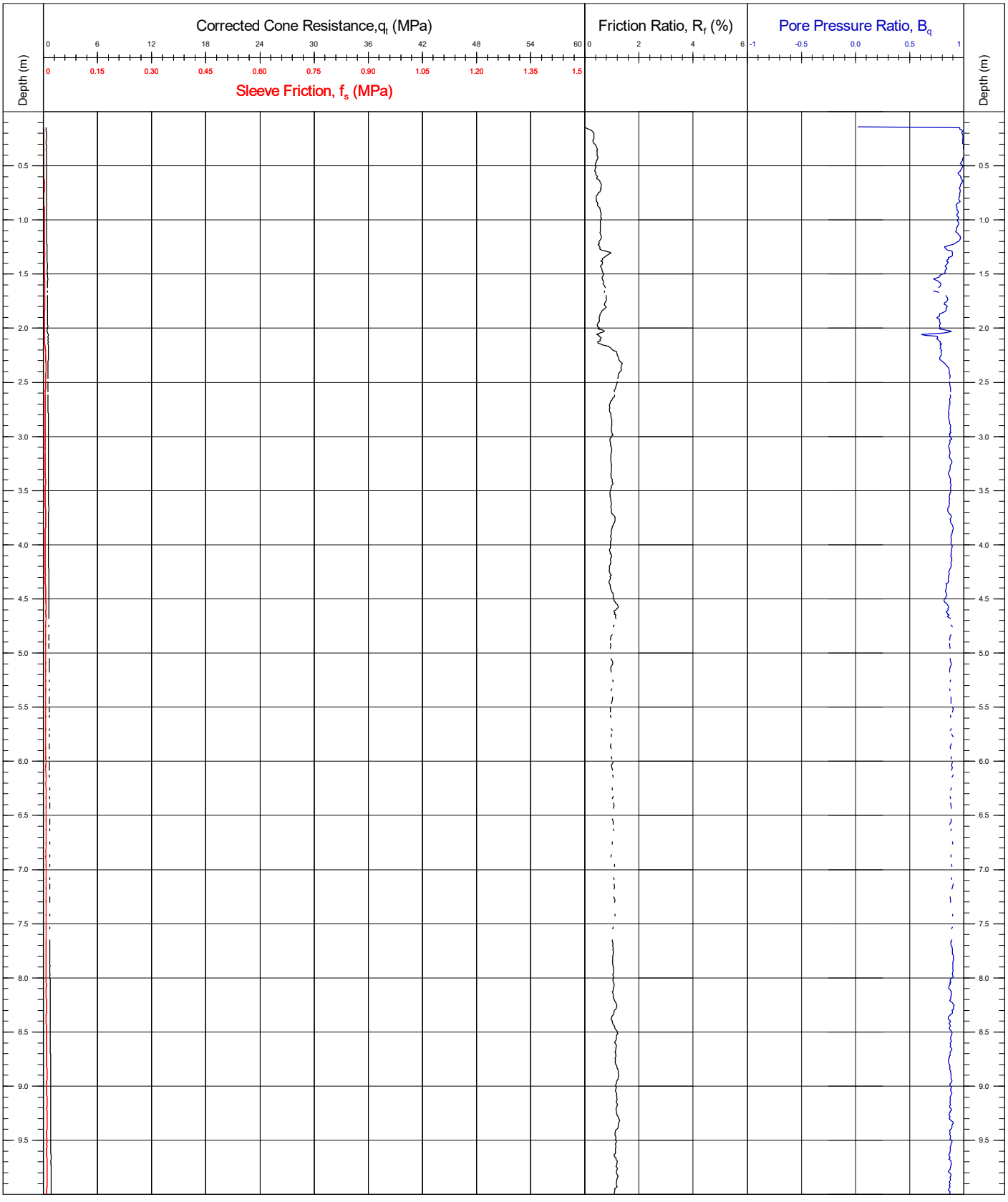


Area	**Kattegat Sea**	Coordinates	**674182.00E 6265896.30N**	CPT Number	**OSS 1**
Contract	**11596**	Latitude / Longitude			
Client Name/Ref	**Energinet Eltransmission A/S/384_20_ENE**	Water Depth (mMSL)	**31.60**		
Vessel	**MV Ocean Vantage**	Date of Test	**25/04/2021**	Page: 5/5	
		Cone No.(size)/α Factor	**100415 (10cm^2) / 0.8**	QC Status	
		Base Inclination	**X = 0.0° / Y = 0.0°**	Preliminary / Draft / Final	
		CRS **ETRS89**		**JK/BC (25/04/2021)** / **DR (10/06/2021)** / **SMc (10/11/2021)**	

Comments: OSS1 was completed to a depth of 47.95m~ at which point it was terminated due to loss of communication with the cone. Cone class 4

Preliminary Investigation, Hesselø OWF

IN SITU CPTU TESTING - DERIVED PARAMETERS

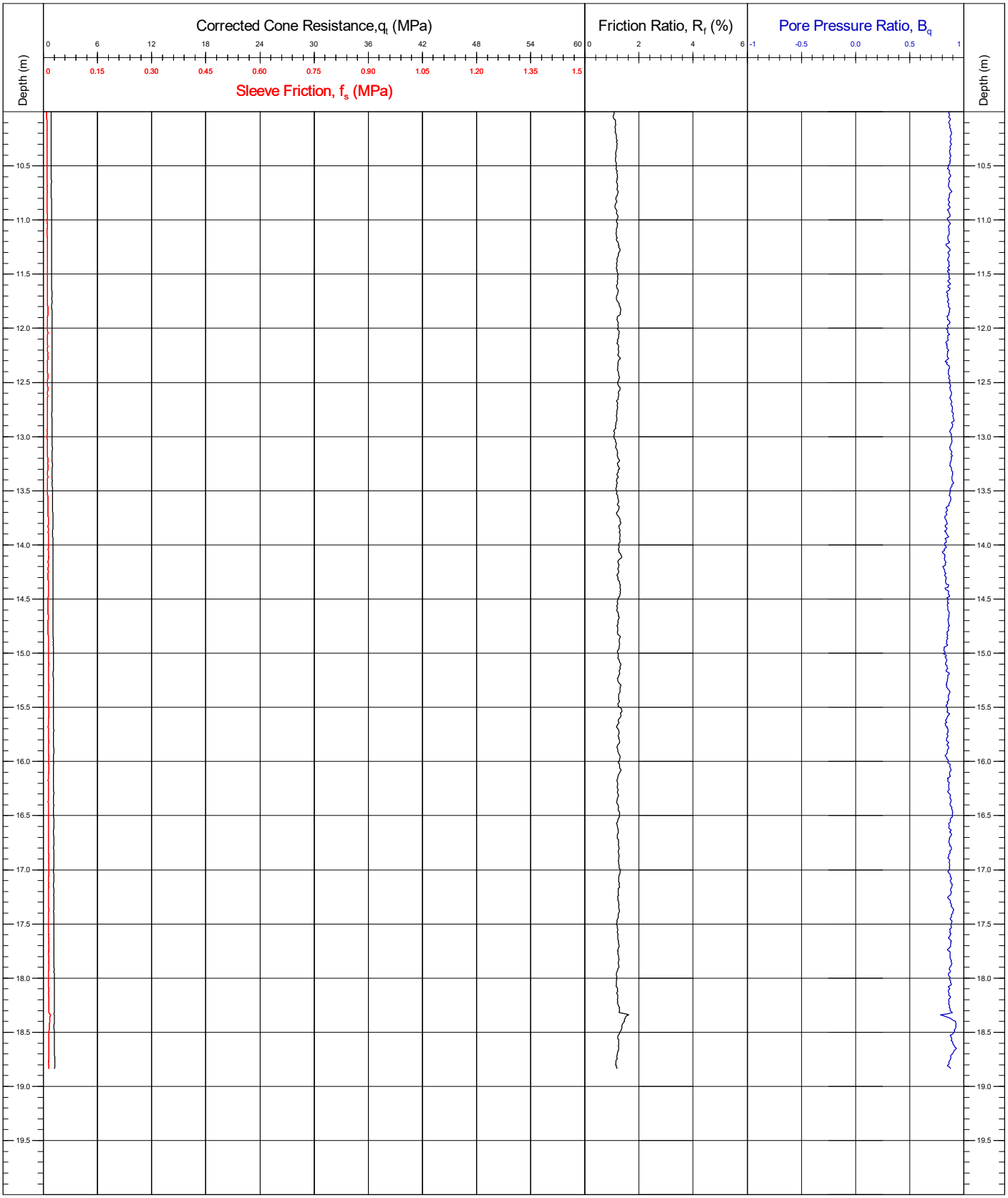


Area	**Kattegat Sea**	Coordinates	**674182.40E** **6265890.90N**	CPT Number	
Contract	**11596**	Latitude / Longitude		**OSS 1a**	
Client Name/Ref	**Energinet Eltransmission A/S/384_20_ENE**	Water Depth (mMSL)	**31.64**		
Vessel	**MV Ocean Vantage**	Date of Test	**25/04/2021**	Page: 1/2	
Comments: Cone class 1. Test terminated at operators discretion due to increasing cone inclination. Final depth 18.70m		Cone No.(size)/α Factor	**120910 (10cm^2) / 0.81**	QC Status	
		Base Inclination	**X = -0.6° / Y = 1.6°**	Preliminary / Draft / Final	
		CRS **ETRS89**		**JK/BC** (25/04/2021) / **DR** (10/06/2021) / **SMc** (10/11/2021)	

Gardline

Preliminary Investigation, Hesselø OWF

IN SITU CPTU TESTING - DERIVED PARAMETERS

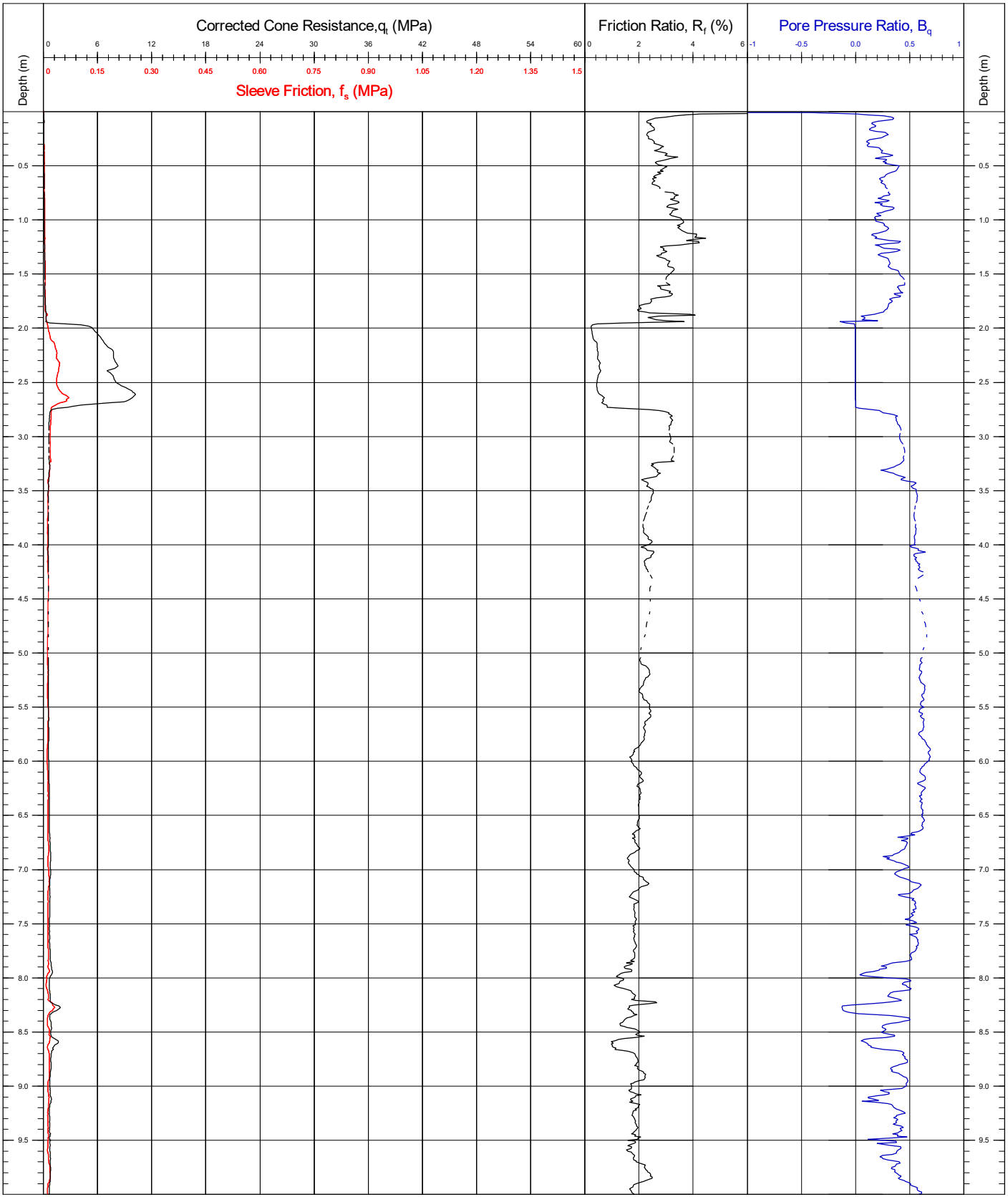


Area	**Kattegat Sea**	Coordinates	**674182.40E** **6265890.90N**	CPT Number	
Contract	**11596**	Latitude / Longitude		**OSS 1a**	
Client Name/Ref	**Energinet Eltransmission A/S/384_20_ENE**	Water Depth (mMSL)	**31.64**		
Vessel	**MV Ocean Vantage**	Date of Test	**25/04/2021**	Page: 2/2	
Comments: Cone class 1. Test terminated at operators discretion due to increasing cone inclination. Final depth 18.70m		Cone No.(size)/α Factor	**120910 (10cm^2) / 0.81**	QC Status	
		Base Inclination	**X = -0.6° / Y = 1.6°**	Preliminary: **JK/BC** (25/04/2021)	Draft: **DR** (10/06/2021)
		CRS **ETRS89**			Final: **SMc** (10/11/2021)

Gardline

Preliminary Investigation, Hesselø OWF

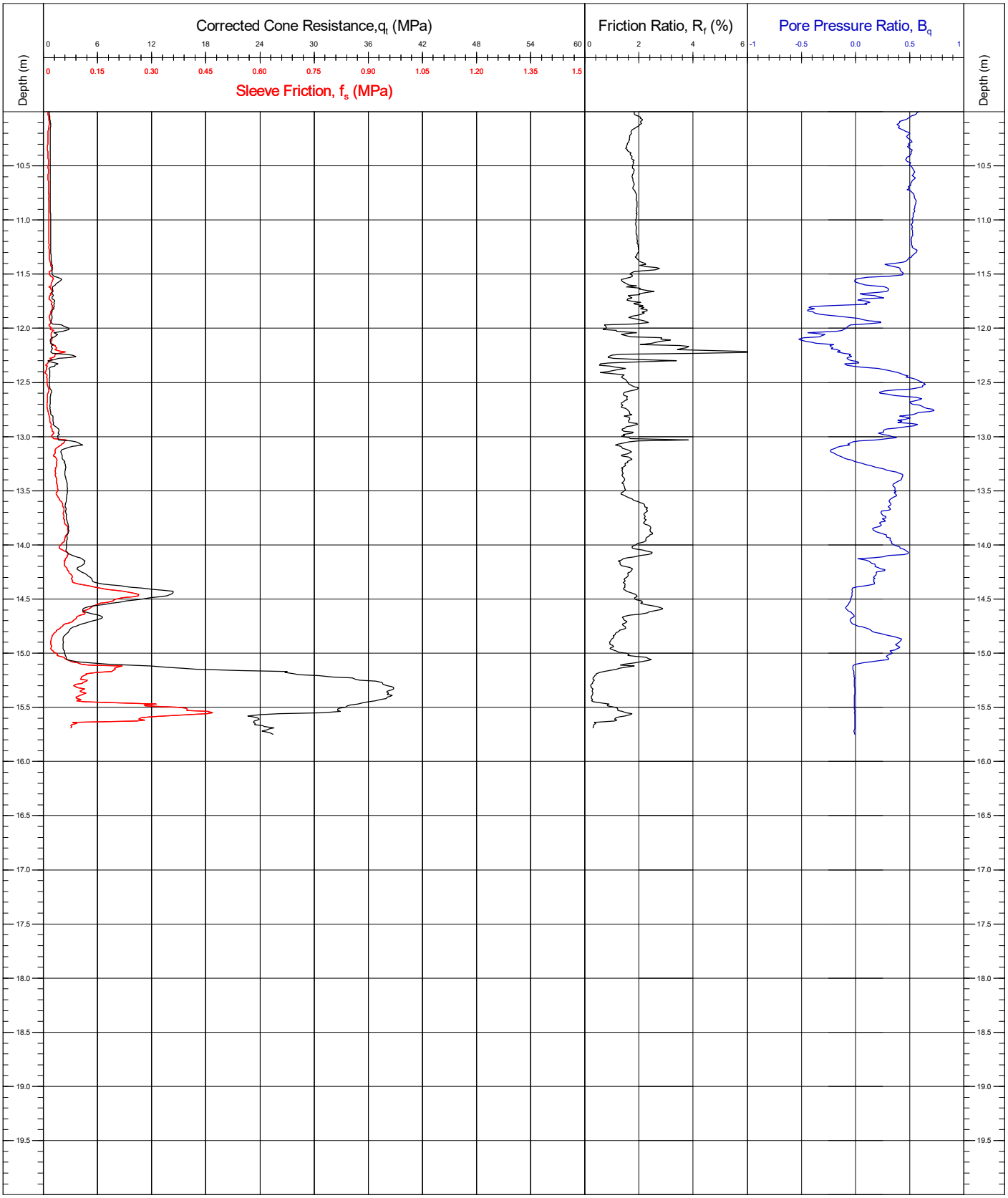
IN SITU CPTU TESTING - DERIVED PARAMETERS



Area	**Kattegat Sea**	Coordinates	**674909.60E 6253669.90N**	CPT Number	**OSS 2**
Contract	**11596**	Latitude / Longitude			
Client Name/Ref	**Energinet Eltransmission A/S/384_20_ENE**	Water Depth (mMSL)	**29.96**		
Vessel	**MV Ocean Vantage**	Date of Test	**27/04/2021**	Page: 1/2	
Comments: Cone class 1. Continuous seabed CPT. Final depth 15.84m. Test terminated at operators discretion due to a lack of lateral rod support from mudline– resulting in a high risk of buckling rods when encountering very dense sands		Cone No.(size)/α Factor	**081208 (10cm^2) / 0.78**	QC Status	
		Base Inclination	**X = 1.0° / Y = 1.0°**	Preliminary: **JK/BC** (27/04/2021)	Draft: **DR** (10/06/2021) / Final: **SMc** (10/11/2021)
		CRS **ETRS89**			

Preliminary Investigation, Hesselø OWF

IN SITU CPTU TESTING - DERIVED PARAMETERS



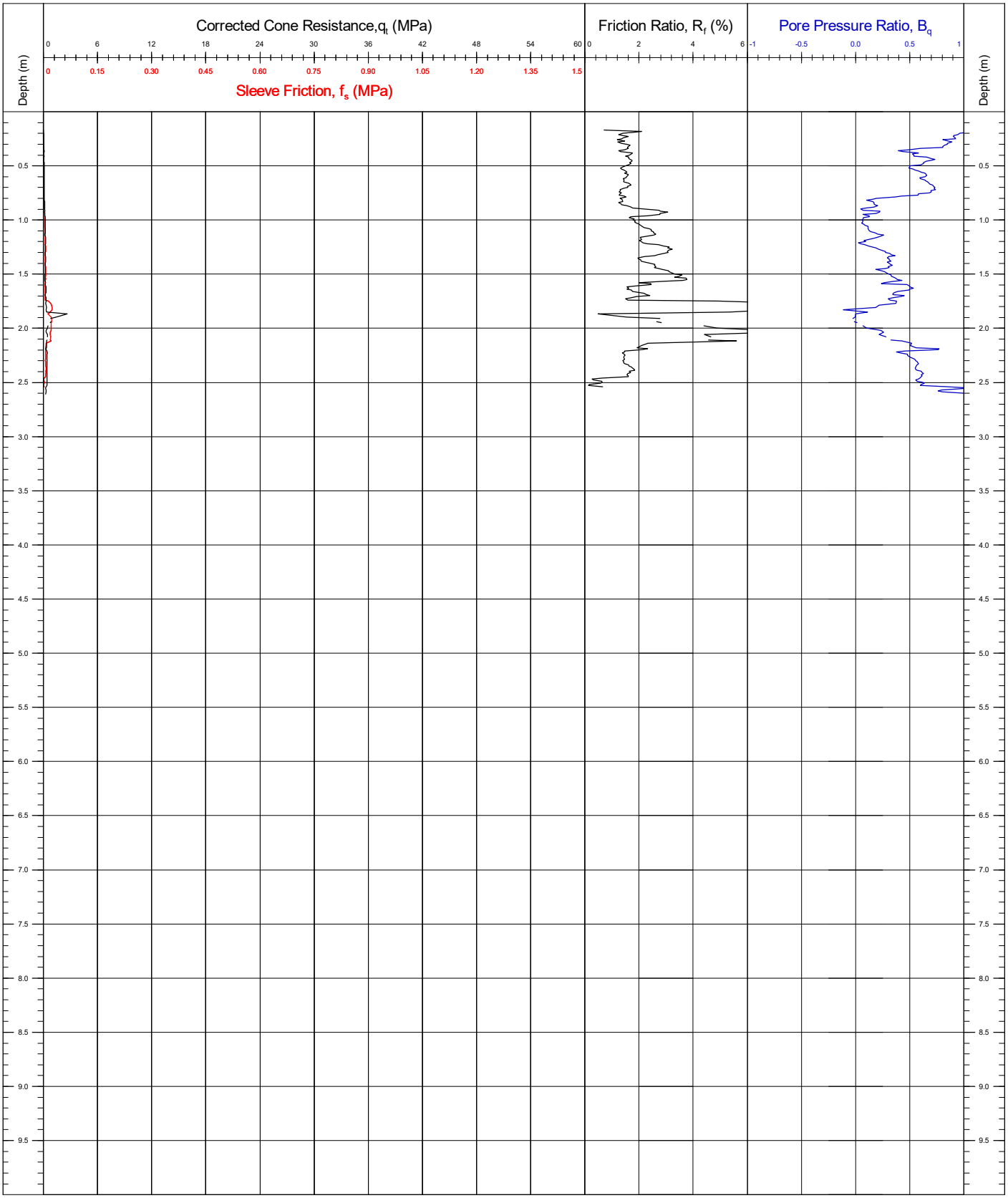
Area	**Kattegat Sea**	Coordinates	**674909.60E 6253669.90N**	CPT Number	**OSS 2**
Contract	**11596**	Latitude / Longitude			
Client Name/Ref	**Energinet Eltransmission A/S/384_20_ENE**	Water Depth (mMSL)	**29.96**		
Vessel	**MV Ocean Vantage**	Date of Test	**27/04/2021**	Page: 2/2	
		Cone No.(size)/α Factor	**081208 (10cm^2) / 0.78**	QC Status	
		Base Inclination	**X = 1.0° / Y = 1.0°**	Preliminary: **JK/BC** (27/04/2021)	Draft: **DR** (10/06/2021)
		CRS **ETRS89**			Final: **SMc** (10/11/2021)

Comments: Cone class 1. Continuous seabed CPT. Final depth 15.84m. Test terminated at operators discretion due to a lack of lateral rod support from mudline– resulting in a high risk of buckling rods when encountering very dense sands

Gardline

Preliminary Investigation, Hesselø OWF

IN SITU CPTU TESTING - DERIVED PARAMETERS

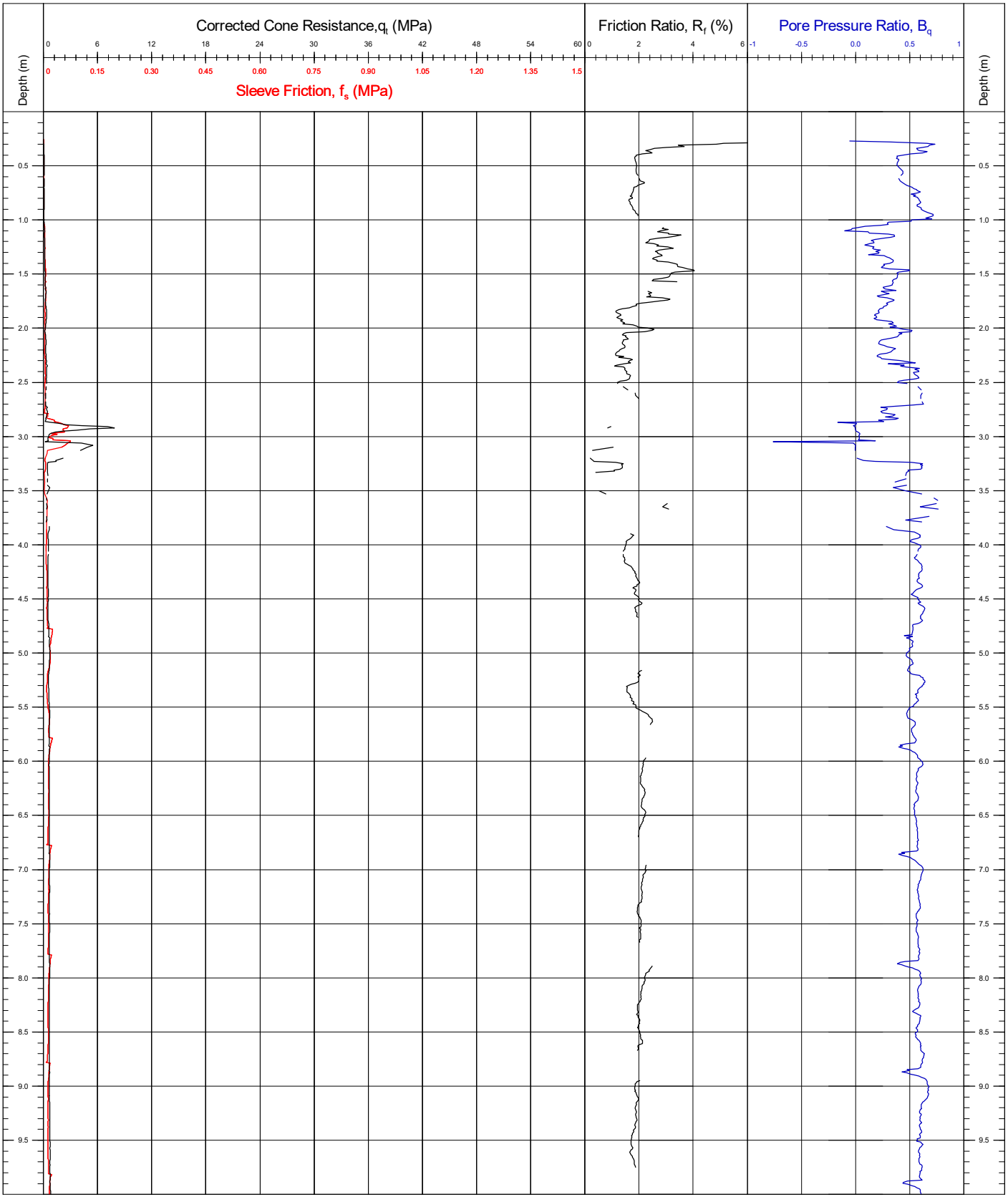


Area	**Kattegat Sea**	Coordinates	**681923.10E 6249312.90N**	CPT Number	**SCPT1**
Contract	**11596**	Latitude / Longitude			
Client Name/Ref	**Energinet Eltransmission A/S/384_20_ENE**	Water Depth (mMSL)	**31.22**		
Vessel	**MV Ocean Vantage**	Date of Test	**28/04/2021**	Page: 1/1	
Comments: Cone Class 1. Continous Seismic CPT.Final depth 2.64m. Test was terminated due to seismic source communication issue.		Cone No.(size)/α Factor	**130104 (10cm^2) / 0.77**	QC Status	
		Base Inclination	**X = 1.1° / Y = 1.0°**	Preliminary / Draft / Final	
		CRS **ETRS89**		**JK/BC** (28/04/2021) / **DR** (10/06/2021) / **SMc** (10/11/2021)	

Gardline

Preliminary Investigation, Hesselø OWF

IN SITU CPTU TESTING - DERIVED PARAMETERS



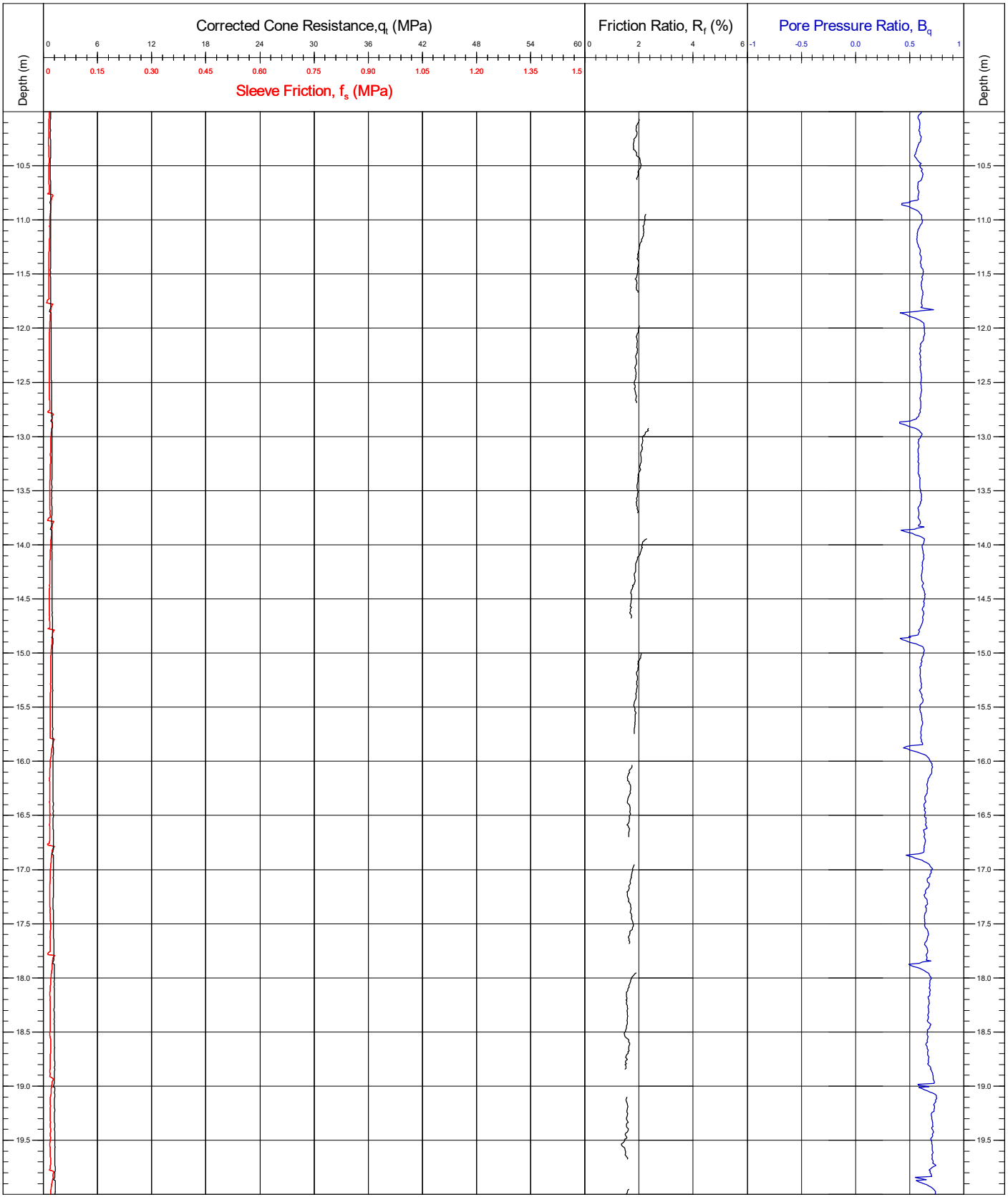
Area	**Kattegat Sea**	Coordinates	**681923.40E 6249306.60N**	CPT Number	**SCPT1a**
Contract	**11596**	Latitude / Longitude			
Client Name/Ref	**Energinet Eltransmission A/S/384_20_ENE**	Water Depth (mMSL)	**31.71**		
Vessel	**MV Ocean Vantage**	Date of Test	**05/05/2021**	Page: 1/4	
		Cone No.(size)/α Factor	**130206 (10cm^2) / 0.77**	QC Status	
		Base Inclination	**X = 1.1° / Y = 1.0°**	Preliminary / Draft / Final	
		CRS **ETRS89**		**JK/BC** (06/05/2021) / **DR** (10/06/2021) / **SMc** (10/11/2021)	

Comments: Cone class 1. Continuous seismic seabed CPT. Final depth 37.55m. Test terminated at operators discretion due to increasing total force and lack of lateral rod support

Gardline

Preliminary Investigation, Hesselø OWF

IN SITU CPTU TESTING - DERIVED PARAMETERS



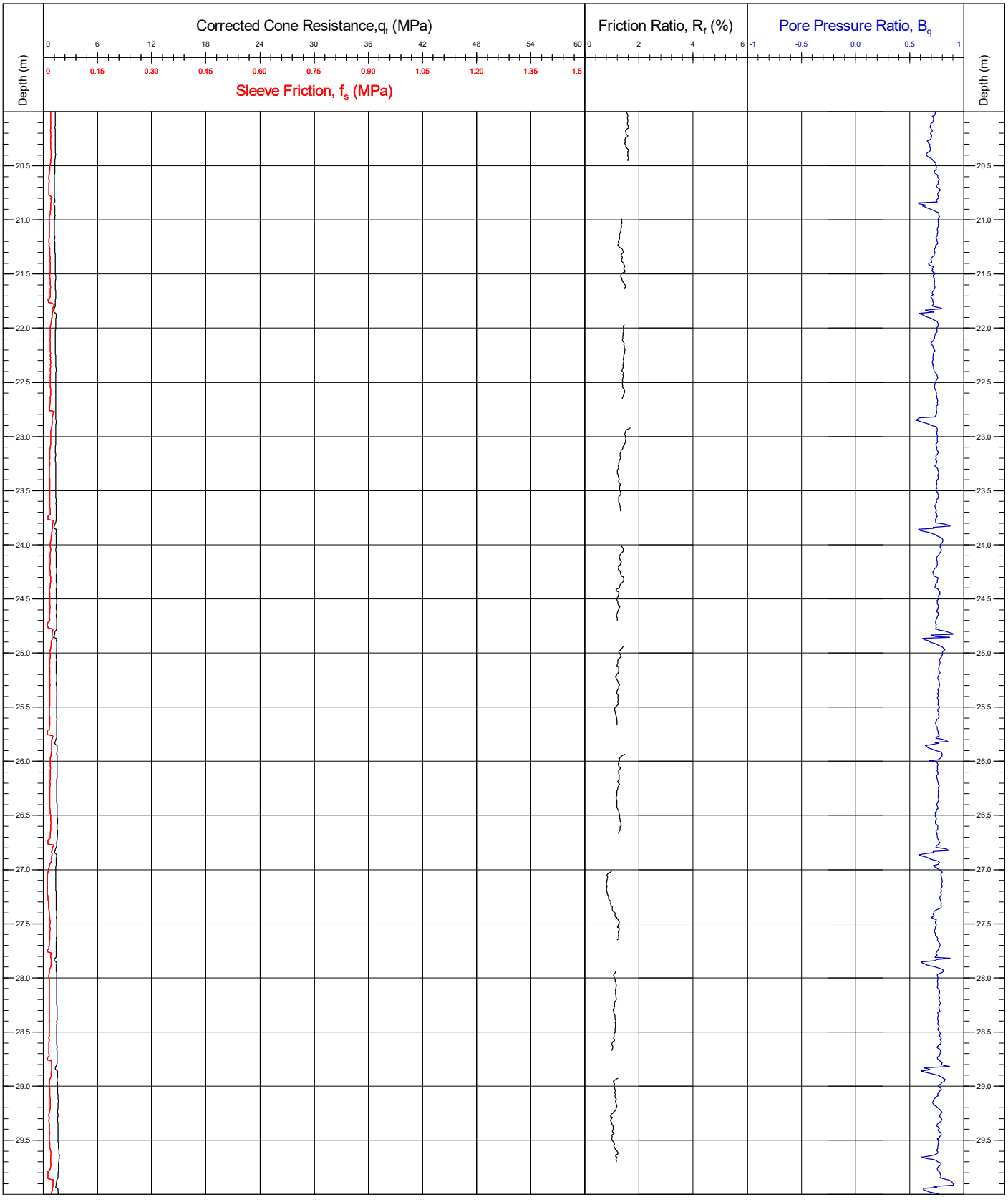
Area	**Kattegat Sea**	Coordinates	**681923.40E** **6249306.60N**	CPT Number	
Contract	**11596**	Latitude / Longitude		**SCPT1a**	
Client Name/Ref	**Energinet Eltransmission A/S/384_20_ENE**	Water Depth (mMSL)	**31.71**		
Vessel	**MV Ocean Vantage**	Date of Test	**05/05/2021**	Page: 2/4	
		Cone No.(size)/α Factor	**130206 (10cm^2) / 0.77**	QC Status	
		Base Inclination	**X = 1.1° / Y = 1.0°**	Preliminary / Draft / Final	
		CRS **ETRS89**		**JK/BC** (06/05/2021) / **DR** (10/06/2021) / **SMc** (10/11/2021)	

Comments: Cone class 1. Continuous seismic seabed CPT. Final depth 37.55m. Test terminated at operators discretion due to increasing total force and lack of lateral rod support

Gardline

Preliminary Investigation, Hesselø OWF

IN SITU CPTU TESTING - DERIVED PARAMETERS



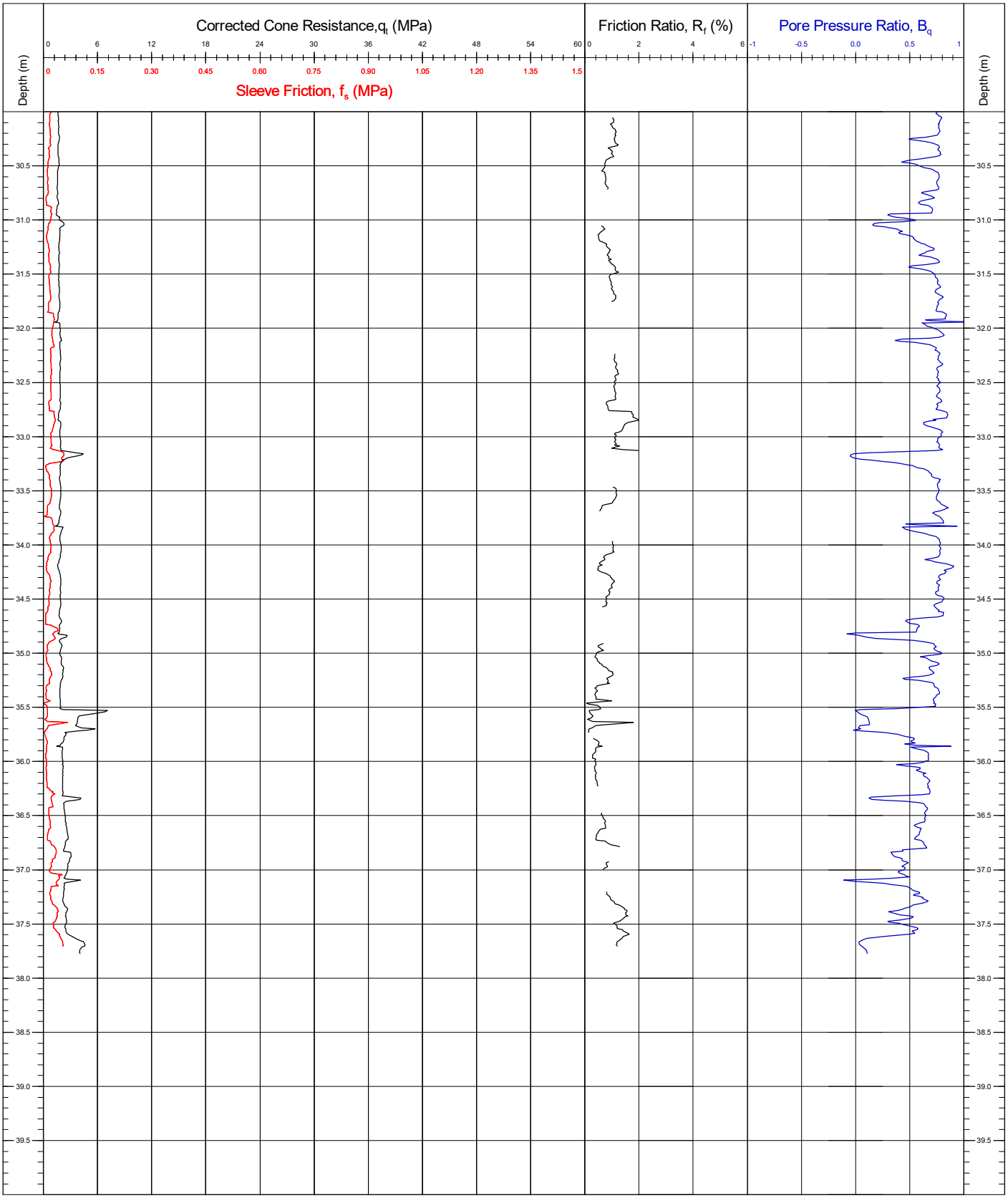
Area	**Kattegat Sea**	Coordinates	**681923.40E 6249306.60N**	CPT Number	**SCPT1a**
Contract	**11596**	Latitude / Longitude			
Client Name/Ref	**Energinet Eltransmission A/S/384_20_ENE**	Water Depth (mMSL)	**31.71**		
Vessel	**MV Ocean Vantage**	Date of Test	**05/05/2021**	Page: 3/4	
		Cone No.(size)/α Factor	**130206 (10cm^2) / 0.77**	QC Status	
		Base Inclination	**X = 1.1° / Y = 1.0°**	Preliminary / Draft / Final	
		CRS **ETRS89**		**JK/BC** (06/05/2021) / **DR** (10/06/2021) / **SMc** (10/11/2021)	

Comments: Cone class 1. Continuous seismic seabed CPT. Final depth 37.55m. Test terminated at operators discretion due to increasing total force and lack of lateral rod support

Gardline

Preliminary Investigation, Hesselø OWF

IN SITU CPTU TESTING - DERIVED PARAMETERS



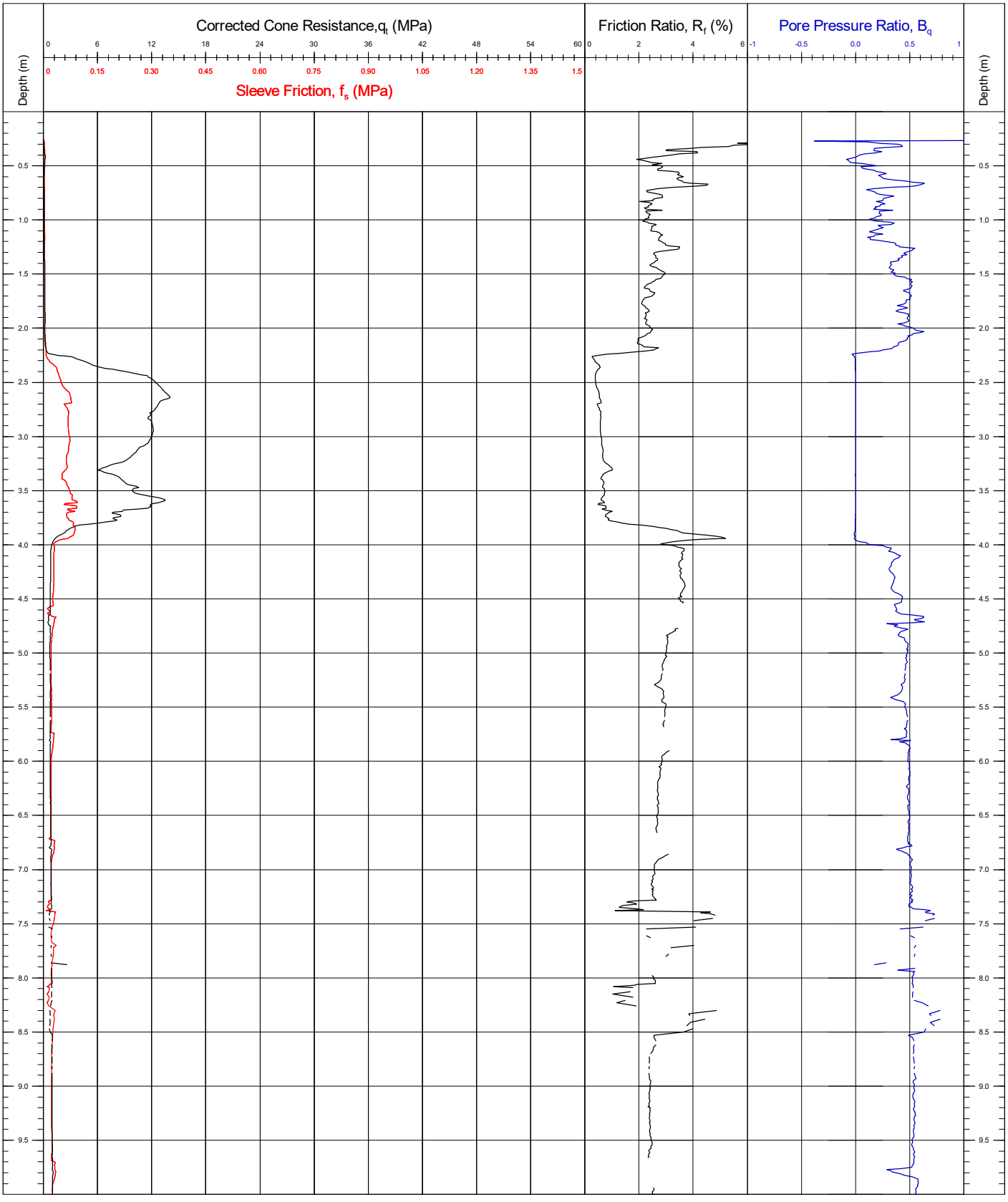
Area	**Kattegat Sea**	Coordinates	**681923.40E 6249306.60N**	CPT Number	**SCPT1a**
Contract	**11596**	Latitude / Longitude			
Client Name/Ref	**Energinet Eltransmission A/S/384_20_ENE**	Water Depth (mMSL)	**31.71**		
Vessel	**MV Ocean Vantage**	Date of Test	**05/05/2021**	Page: 4/4	
		Cone No.(size)/α Factor	**130206 (10cm^2) / 0.77**	QC Status	
		Base Inclination	**X = 1.1° / Y = 1.0°**	Preliminary / Draft / Final	
		CRS **ETRS89**		**JK/BC** (06/05/2021) / **DR** (10/06/2021) / **SMc** (10/11/2021)	

Comments: Cone class 1. Continuous seismic seabed CPT. Final depth 37.55m. Test terminated at operators discretion due to increasing total force and lack of lateral rod support

Gardline

Preliminary Investigation, Hesselø OWF

IN SITU CPTU TESTING - DERIVED PARAMETERS

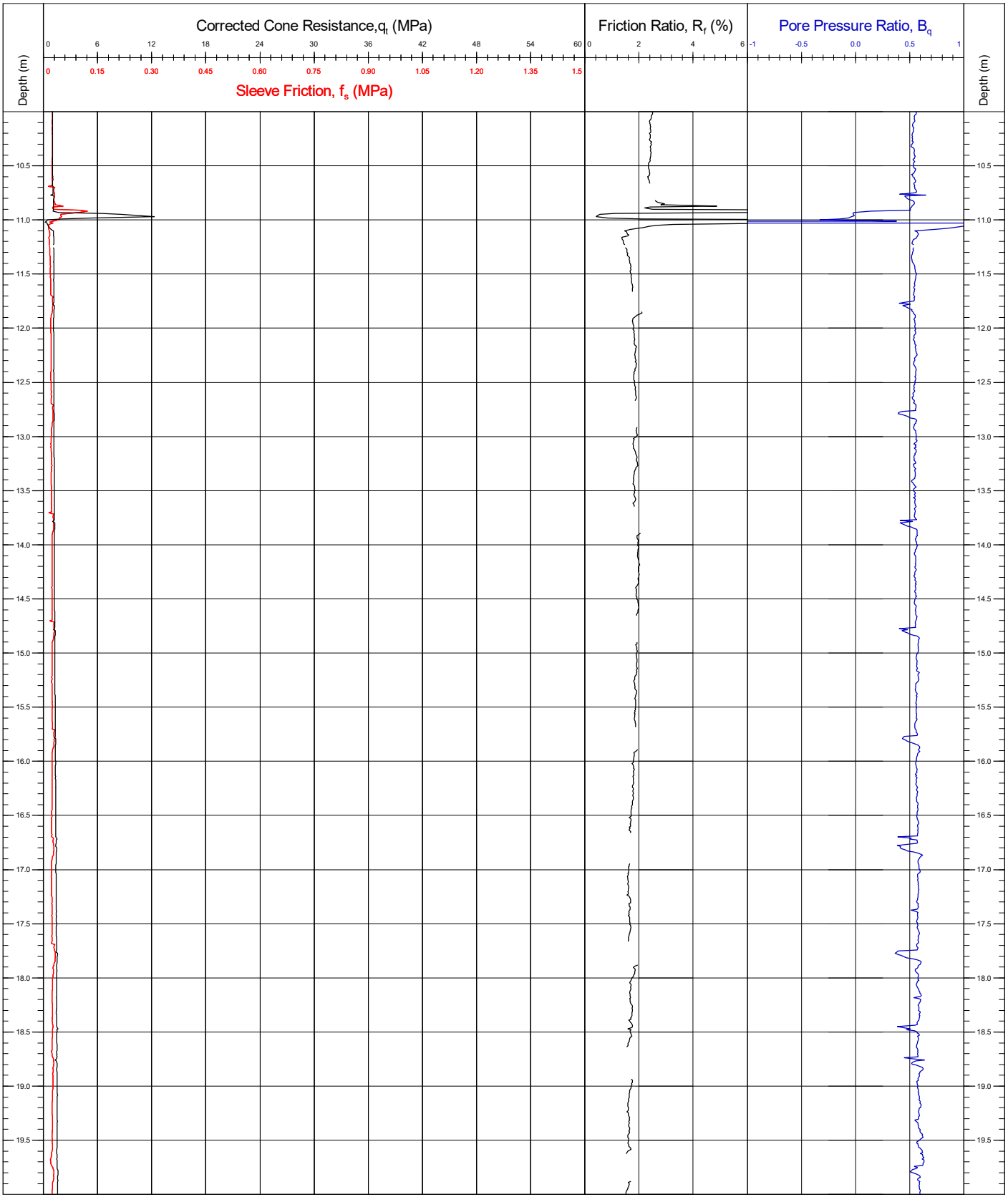


Area	**Kattegat Sea**	Coordinates	**673302.00E 6252306.80N**	CPT Number	**SCPT2**
Contract	**11596**	Latitude / Longitude			
Client Name/Ref	**Energinet Eltransmission A/S/384_20_ENE**	Water Depth (mMSL)	**28.80**		
Vessel	**MV Ocean Vantage**	Date of Test (Start/End)	**04/05/2021 to 05/05/2021**	Page: 1/3	
Comments: Cone class 1. Continuous seismic seabed CPT. Final depth 26.25m. Test terminated at operators discretion due to cone inclination >12 degrees and lack of lateral rod support into hard ground.		Cone No.(size)/α Factor	**130909 (10cm^2) / 0.82**	QC Status	
		Base Inclination	**X = 1.2° / Y = 0.7°**	Preliminary / Draft / Final	
		CRS **ETRS89**		**JK/BC** (04/05/2021) / **DR** (10/06/2021) / **SMc** (10/11/2021)	

Gardline

Preliminary Investigation, Hesselø OWF

IN SITU CPTU TESTING - DERIVED PARAMETERS



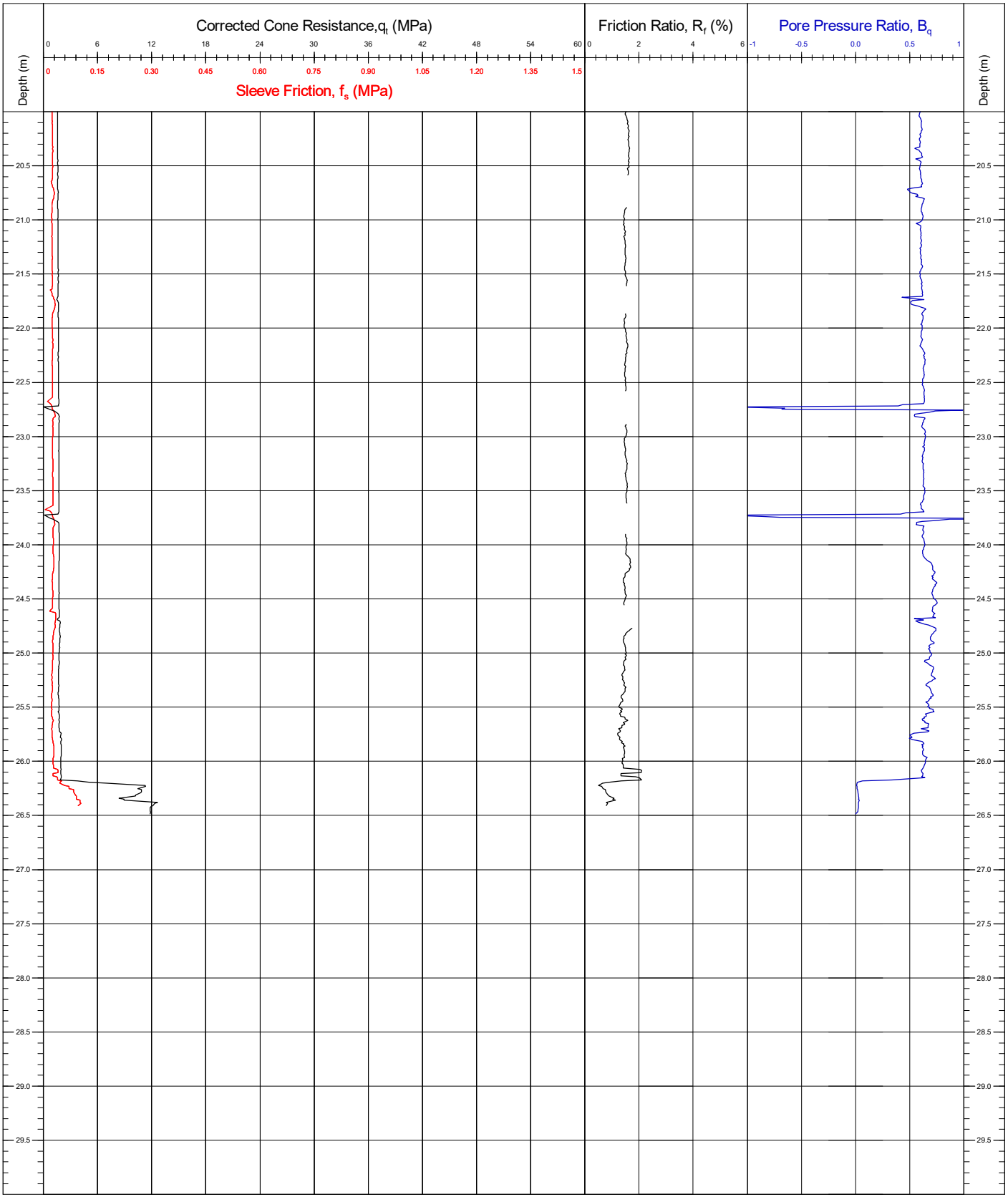
Area	**Kattegat Sea**	Coordinates	**673302.00E 6252306.80N**	CPT Number	**SCPT2**
Contract	**11596**	Latitude / Longitude			
Client Name/Ref	**Energinet Eltransmission A/S/384_20_ENE**	Water Depth (mMSL)	**28.80**		
Vessel	**MV Ocean Vantage**	Date of Test (Start/End)	**04/05/2021 to 05/05/2021**	Page: 2/3	
		Cone No.(size)/α Factor	**130909 (10cm^2) / 0.82**	QC Status	
		Base Inclination	**X = 1.2° / Y = 0.7°**	Preliminary: **JK/BC (04/05/2021)**	Draft: **DR (10/06/2021)**
		CRS **ETRS89**			Final: **SMc (10/11/2021)**

Comments: Cone class 1. Continuous seismic seabed CPT. Final depth 26.25m. Test terminated at operators discretion due to cone inclination >12 degrees and lack of lateral rod support into hard ground.

Gardline

Preliminary Investigation, Hesselø OWF

IN SITU CPTU TESTING - DERIVED PARAMETERS



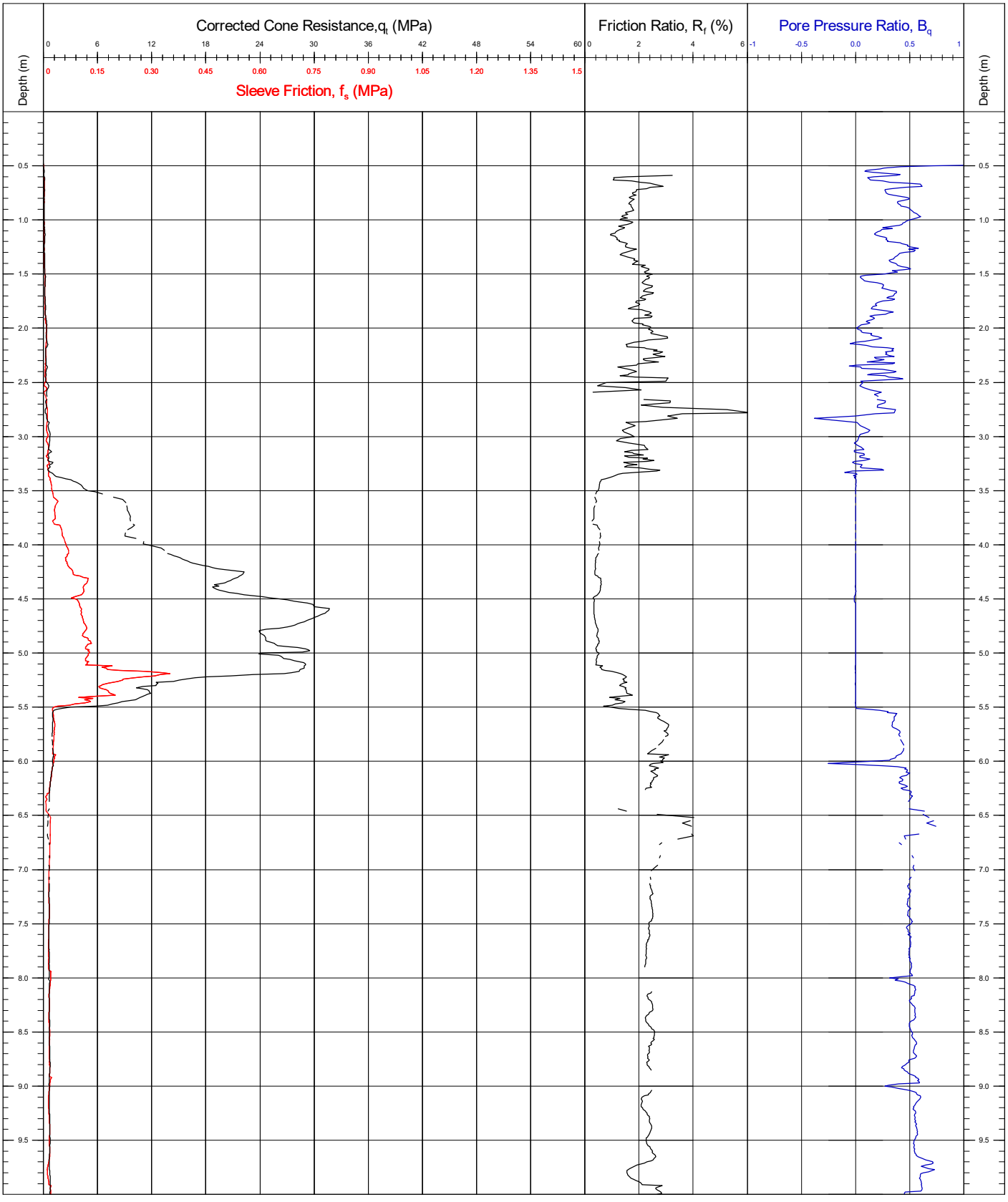
Area	**Kattegat Sea**	Coordinates	**673302.00E 6252306.80N**	CPT Number	**SCPT2**
Contract	**11596**	Latitude / Longitude			
Client Name/Ref	**Energinet Eltransmission A/S/384_20_ENE**	Water Depth (mMSL)	**28.80**		
Vessel	**MV Ocean Vantage**	Date of Test (Start/End)	**04/05/2021 to 05/05/2021**	Page: 3/3	
		Cone No.(size)/α Factor	**130909 (10cm^2) / 0.82**	QC Status	
		Base Inclination	**X = 1.2° / Y = 0.7°**	Preliminary: **JK/BC** (04/05/2021)	Draft: **DR** (10/06/2021)
		CRS **ETRS89**			Final: **SMc** (10/11/2021)

Comments: Cone class 1. Continuous seismic seabed CPT. Final depth 26.25m. Test terminated at operators discretion due to cone inclination >12 degrees and lack of lateral rod support into hard ground.

Gardline

Preliminary Investigation, Hesselø OWF

IN SITU CPTU TESTING - DERIVED PARAMETERS

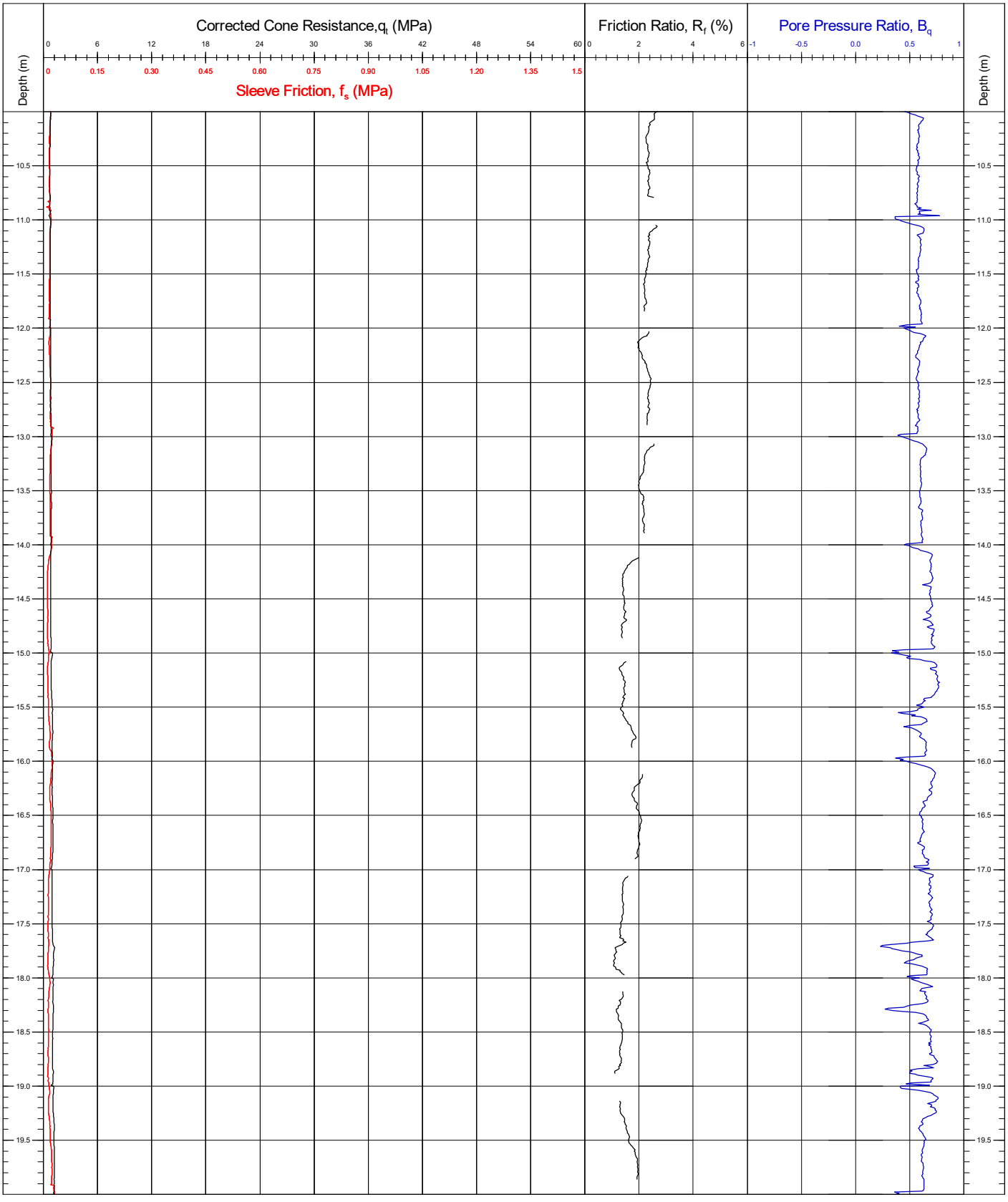


Area	**Kattegat Sea**	Coordinates	**665881.40E 6256363.10N**	CPT Number	**SCPT5**
Contract	**11596**	Latitude / Longitude			
Client Name/Ref	**Energinet Eltransmission A/S/384_20_ENE**	Water Depth (mMSL)	**27.69**		
Vessel	**MV Ocean Vantage**	Date of Test (Start/End)	**06/05/2021 to 07/05/2021**	Page: 1/4	
Comments: Cone class 1. Continuous seismic seabed CPT. Final depth 29.74m. Test terminated at operators discretion due increasing total load and a lack of lateral rod support from mudline		Cone No.(size)/α Factor	**191114 (10cm^2) / 0.76**	QC Status	
		Base Inclination	**X = 1.1° / Y = 0.9°**	Preliminary: **JK/BC** (07/05/2021)	Draft: **DR** (10/06/2021)
		CRS **ETRS89**			Final: **SMc** (10/11/2021)

Gardline

Preliminary Investigation, Hesselø OWF

IN SITU CPTU TESTING - DERIVED PARAMETERS



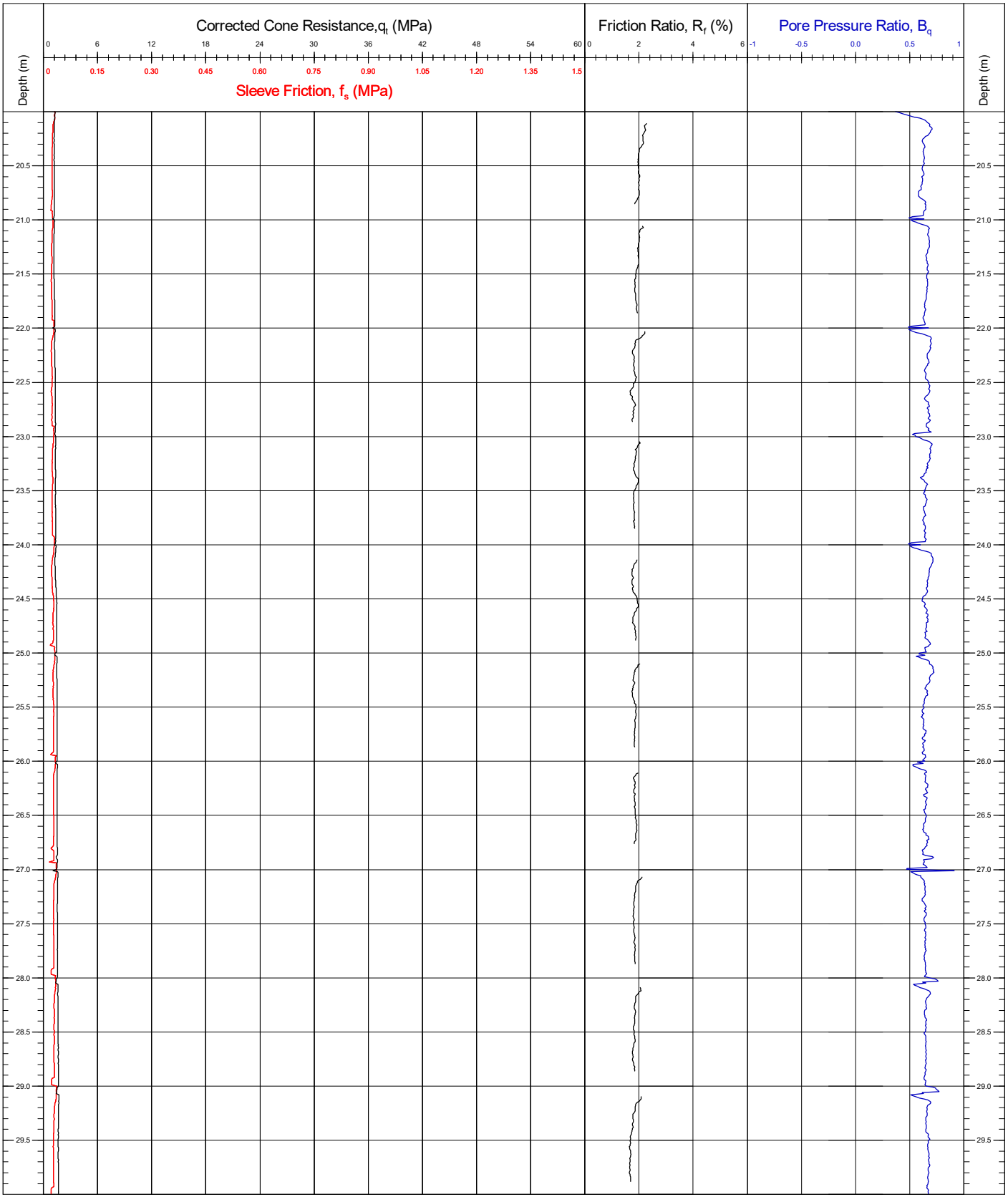
Area	**Kattegat Sea**	Coordinates	**665881.40E 6256363.10N**	CPT Number	**SCPT5**
Contract	**11596**	Latitude / Longitude			
Client Name/Ref	**Energinet Eltransmission A/S/384_20_ENE**	Water Depth (mMSL)	**27.69**		
Vessel	**MV Ocean Vantage**	Date of Test (Start/End)	**06/05/2021 to 07/05/2021**	Page: 2/4	
		Cone No.(size)/α Factor	**191114 (10cm^2) / 0.76**	QC Status	
		Base Inclination	**X = 1.1° / Y = 0.9°**	Preliminary: **JK/BC** (07/05/2021)	Draft: **DR** (10/06/2021)
		CRS **ETRS89**			Final: **SMc** (10/11/2021)

Comments: Cone class 1. Continuous seismic seabed CPT. Final depth 29.74m. Test terminated at operators discretion due increasing total load and a lack of lateral rod support from mudline

Gardline

Preliminary Investigation, Hesselø OWF

IN SITU CPTU TESTING - DERIVED PARAMETERS



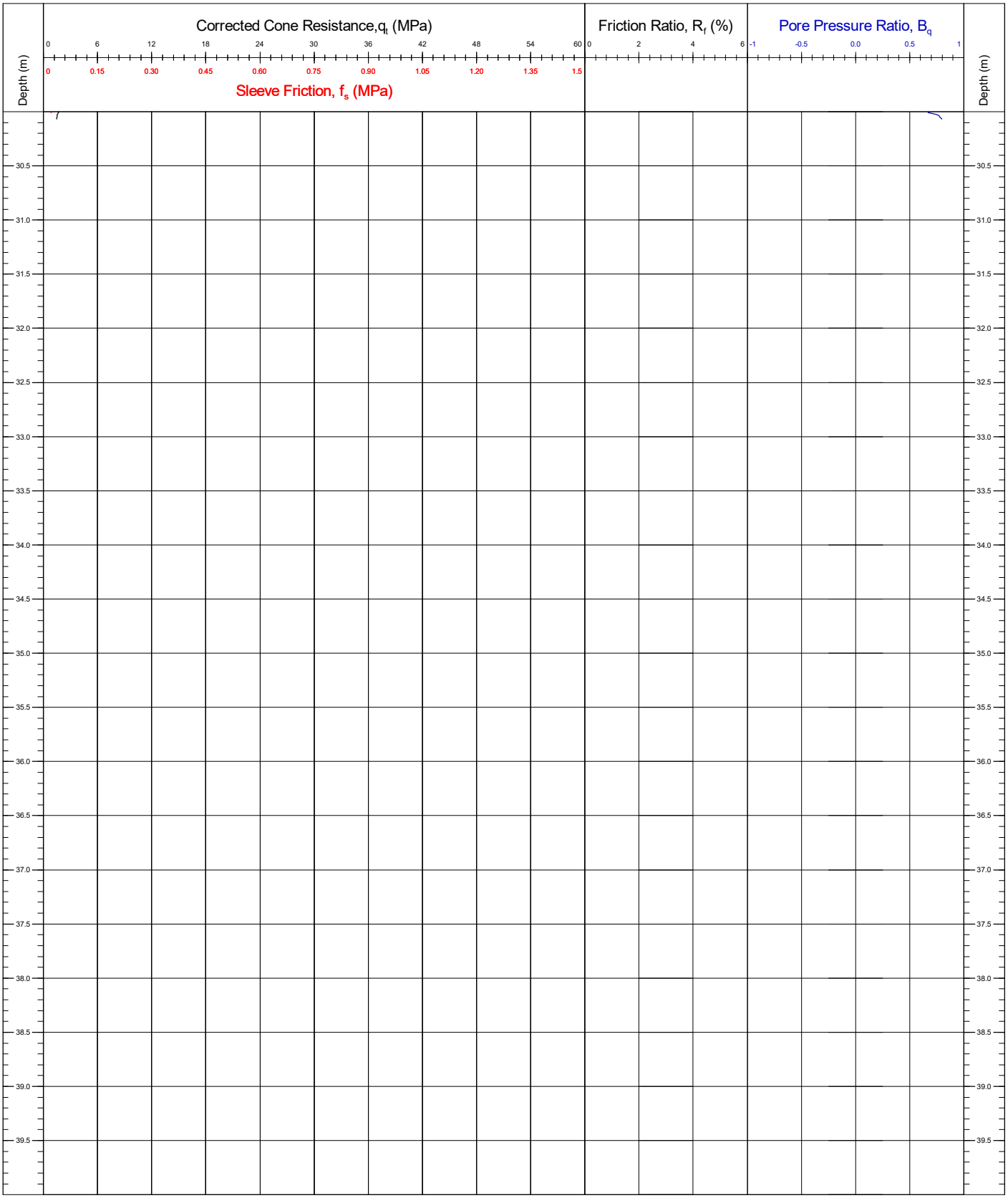
Area	**Kattegat Sea**	Coordinates	**665881.40E 6256363.10N**	CPT Number	**SCPT5**
Contract	**11596**	Latitude / Longitude			
Client Name/Ref	**Energinet Eltransmission A/S/384_20_ENE**	Water Depth (mMSL)	**27.69**		
Vessel	**MV Ocean Vantage**	Date of Test (Start/End)	**06/05/2021 to 07/05/2021**	Page: 3/4	
		Cone No.(size)/α Factor	**191114 (10cm^2) / 0.76**	QC Status	
		Base Inclination	**X = 1.1° / Y = 0.9°**	Preliminary: **JK/BC** (07/05/2021)	Draft: **DR** (10/06/2021)
		CRS **ETRS89**			Final: **SMc** (10/11/2021)

Comments: Cone class 1. Continuous seismic seabed CPT. Final depth 29.74m. Test terminated at operators discretion due increasing total load and a lack of lateral rod support from mudline

Gardline

Preliminary Investigation, Hesselø OWF

IN SITU CPTU TESTING - DERIVED PARAMETERS



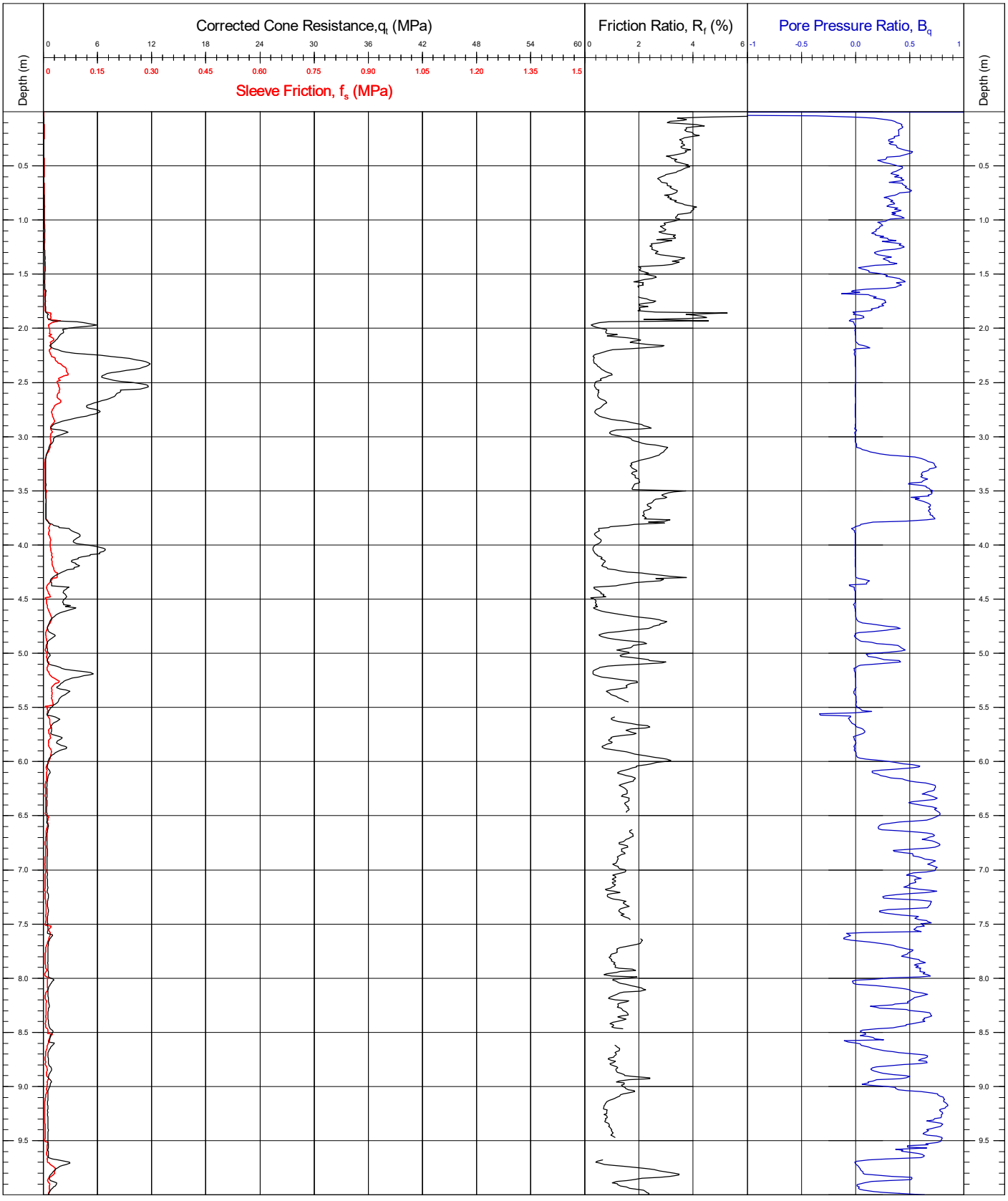
Area	**Kattegat Sea**	Coordinates	**665881.40E 6256363.10N**	CPT Number	**SCPT5**
Contract	**11596**	Latitude / Longitude			
Client Name/Ref	**Energinet Eltransmission A/S/384_20_ENE**	Water Depth (mMSL)	**27.69**		
Vessel	**MV Ocean Vantage**	Date of Test (Start/End)	**06/05/2021 to 07/05/2021**	Page: 4/4	
		Cone No.(size)/α Factor	**191114 (10cm^2) / 0.76**	QC Status	
		Base Inclination	**X = 1.1° / Y = 0.9°**	Preliminary: **JK/BC** (07/05/2021)	Draft: **DR** (10/06/2021)
		CRS **ETRS89**			Final: **SMc** (10/11/2021)

Comments: Cone class 1. Continuous seismic seabed CPT. Final depth 29.74m. Test terminated at operators discretion due increasing total load and a lack of lateral rod support from mudline

Gardline

Preliminary Investigation, Hesselø OWF

IN SITU CPTU TESTING - DERIVED PARAMETERS



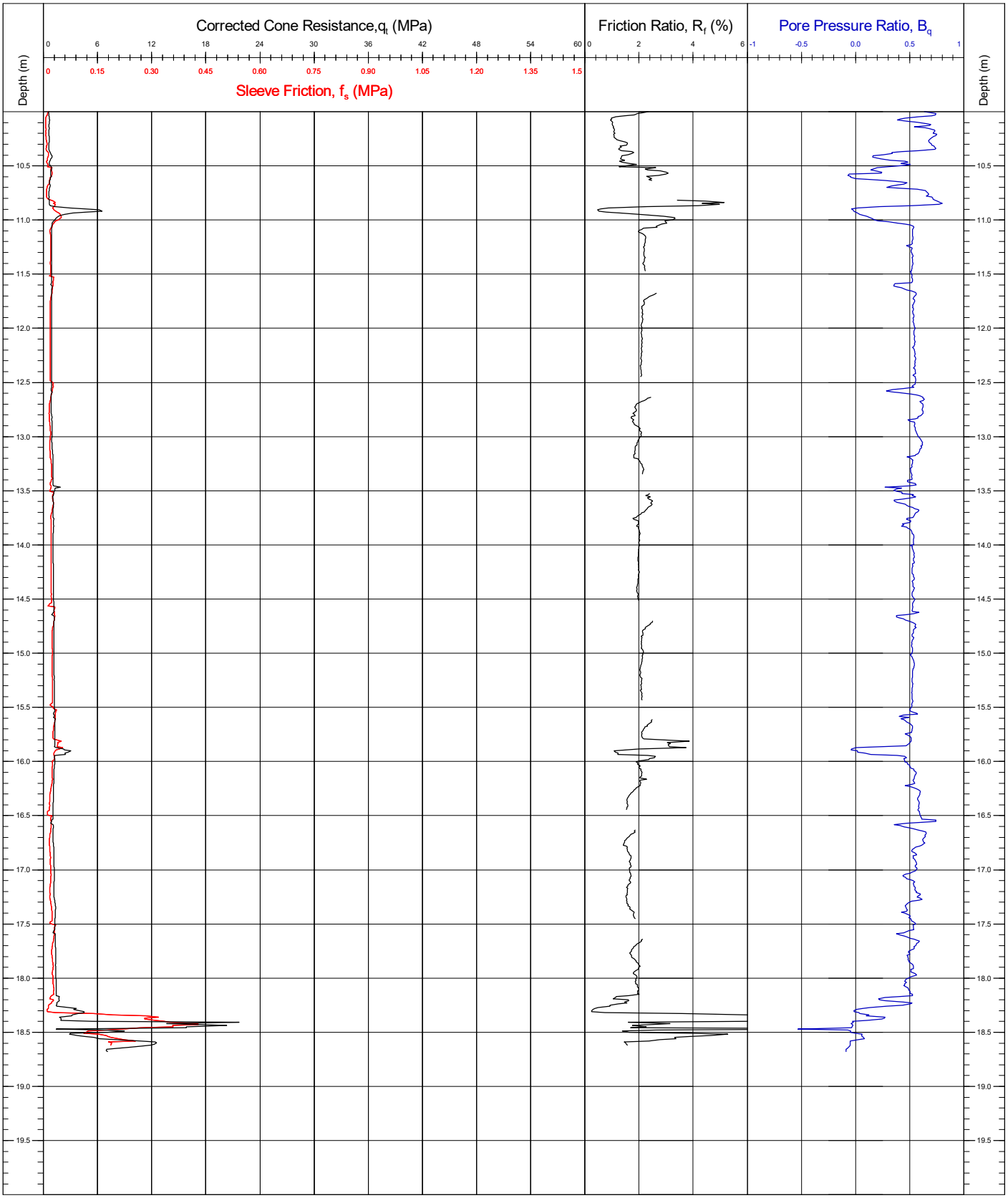
Area	**Kattegat Sea**	Coordinates	**675126.20E 6262391.10N**	CPT Number	**SCPT17**
Contract	**11596**	Latitude / Longitude			
Client Name/Ref	**Energinet Eltransmission A/S/384_20_ENE**	Water Depth (mMSL)	**31.81**		
Vessel	**MV Ocean Vantage**	Date of Test	**07/05/2021**	Page: 1/2	
		Cone No.(size)/α Factor	**081208 (10cm^2) / 0.78**	QC Status	
		Base Inclination	**X = 1.1° / Y = 1.0°**	Preliminary / Draft / Final	
		CRS **ETRS89**		**JK/BC** (07/05/2021) / **DR** (10/06/2021) / **SMc** (10/11/2021)	

Comments: Cone class 1. Continuous seismic seabed CPT. Final depth 18.70m. Test terminated due to sudden inclination >3 degrees in less than 1 metre

Gardline

Preliminary Investigation, Hesselø OWF

IN SITU CPTU TESTING - DERIVED PARAMETERS



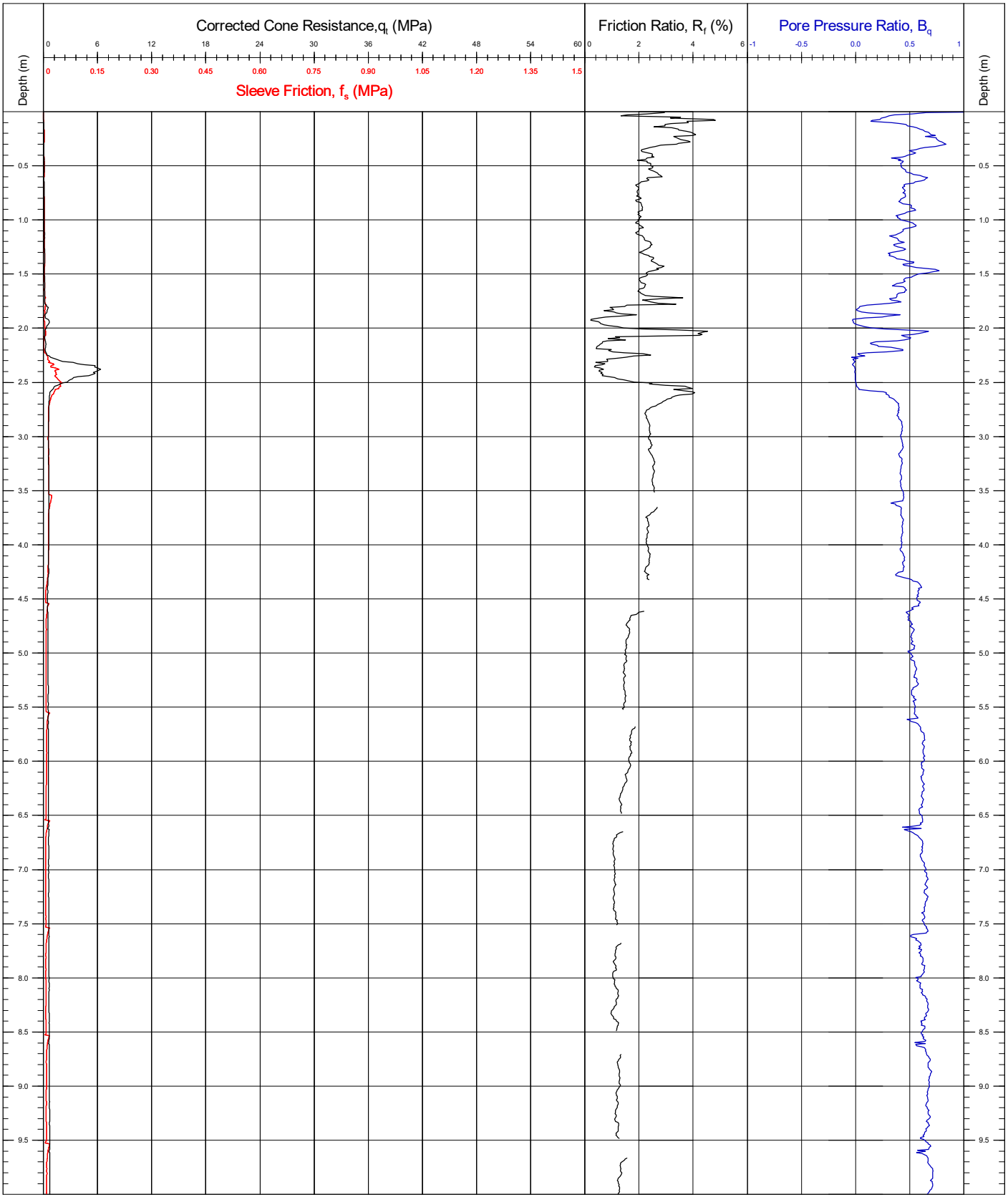
Area	**Kattegat Sea**	Coordinates	**675126.20E 6262391.10N**	CPT Number	**SCPT17**
Contract	**11596**	Latitude / Longitude			
Client Name/Ref	**Energinet Eltransmission A/S/384_20_ENE**	Water Depth (mMSL)	**31.81**		
Vessel	**MV Ocean Vantage**	Date of Test	**07/05/2021**	Page: 2/2	
		Cone No.(size)/α Factor	**081208 (10cm^2) / 0.78**	QC Status	
		Base Inclination	**X = 1.1° / Y = 1.0°**	Preliminary: **JK/BC** (07/05/2021)	Draft: **DR** (10/06/2021)
		CRS **ETRS89**			Final: **SMc** (10/11/2021)

Comments: Cone class 1. Continuous seismic seabed CPT. Final depth 18.70m. Test terminated due to sudden inclination >3 degrees in less than 1 metre

Gardline

Preliminary Investigation, Hesselø OWF

IN SITU CPTU TESTING - DERIVED PARAMETERS



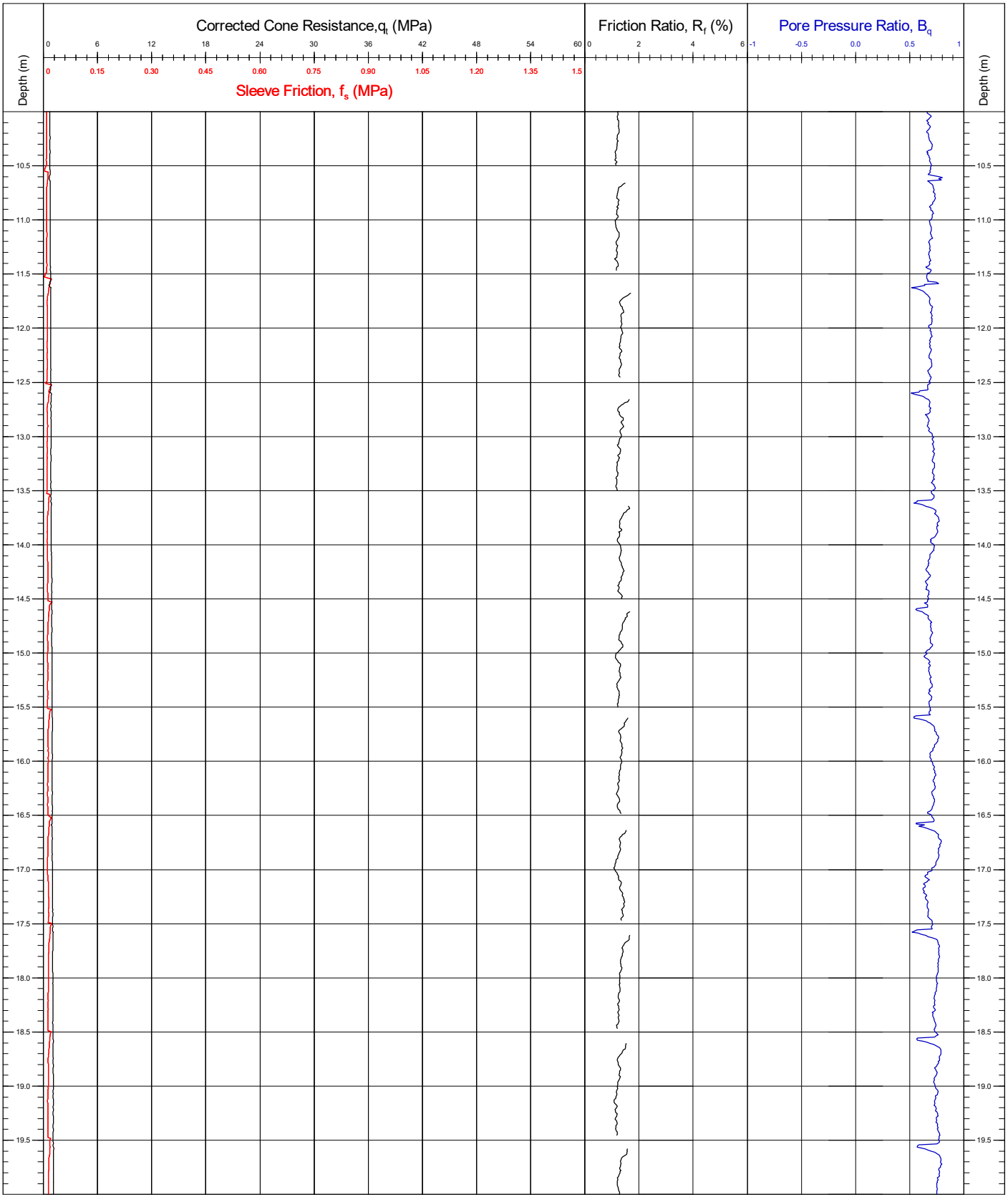
Area	**Kattegat Sea**	Coordinates	**670633.30E 6266454.10N**	CPT Number	**SCPT19**
Contract	**11596**	Latitude / Longitude			
Client Name/Ref	**Energinet Eltransmission A/S/384_20_ENE**	Water Depth (mMSL)	**30.84**		
Vessel	**MV Ocean Vantage**	Date of Test	**07/05/2021**	Page: 1/3	
		Cone No.(size)/α Factor	**130909 (10cm^2) / 0.82**	QC Status	
		Base Inclination	**X = 1.1° / Y = 0.9°**	Preliminary: **JK/BC** (07/05/2021)	Draft: **DR** (10/06/2021)
		CRS **ETRS89**			Final: **SMc** (10/11/2021)

Comments: Cone class 1. Continuous seabed seismic CPT. Final depth 21.92m. Test terminated due to the maximum cone inclination of 12 degrees was reached

Gardline

Preliminary Investigation, Hesselø OWF

IN SITU CPTU TESTING - DERIVED PARAMETERS



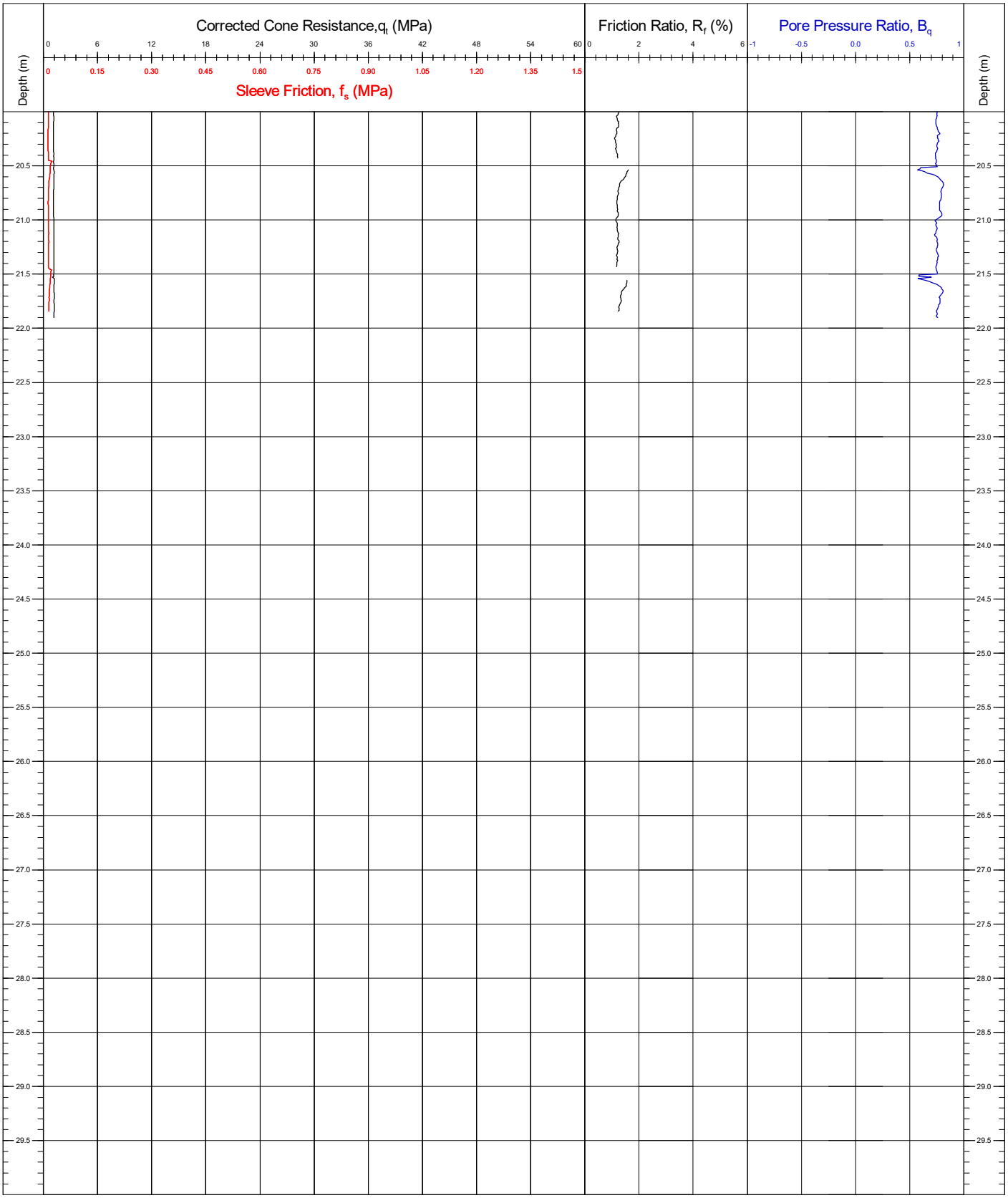
Area	**Kattegat Sea**	Coordinates	**670633.30E 6266454.10N**	CPT Number	**SCPT19**
Contract	**11596**	Latitude / Longitude			
Client Name/Ref	**Energinet Eltransmission A/S/384_20_ENE**	Water Depth (mMSL)	**30.84**		
Vessel	**MV Ocean Vantage**	Date of Test	**07/05/2021**	Page: 2/3	
		Cone No.(size)/α Factor	**130909 (10cm^2) / 0.82**	QC Status	
		Base Inclination	**X = 1.1° / Y = 0.9°**	Preliminary / Draft / Final	
		CRS **ETRS89**		**JK/BC** (07/05/2021) / **DR** (10/06/2021) / **SMc** (10/11/2021)	

Comments: Cone class 1. Continuous seabed seismic CPT. Final depth 21.92m. Test terminated due to the maximum cone inclination of 12 degrees was reached

Gardline

Preliminary Investigation, Hesselø OWF

IN SITU CPTU TESTING - DERIVED PARAMETERS



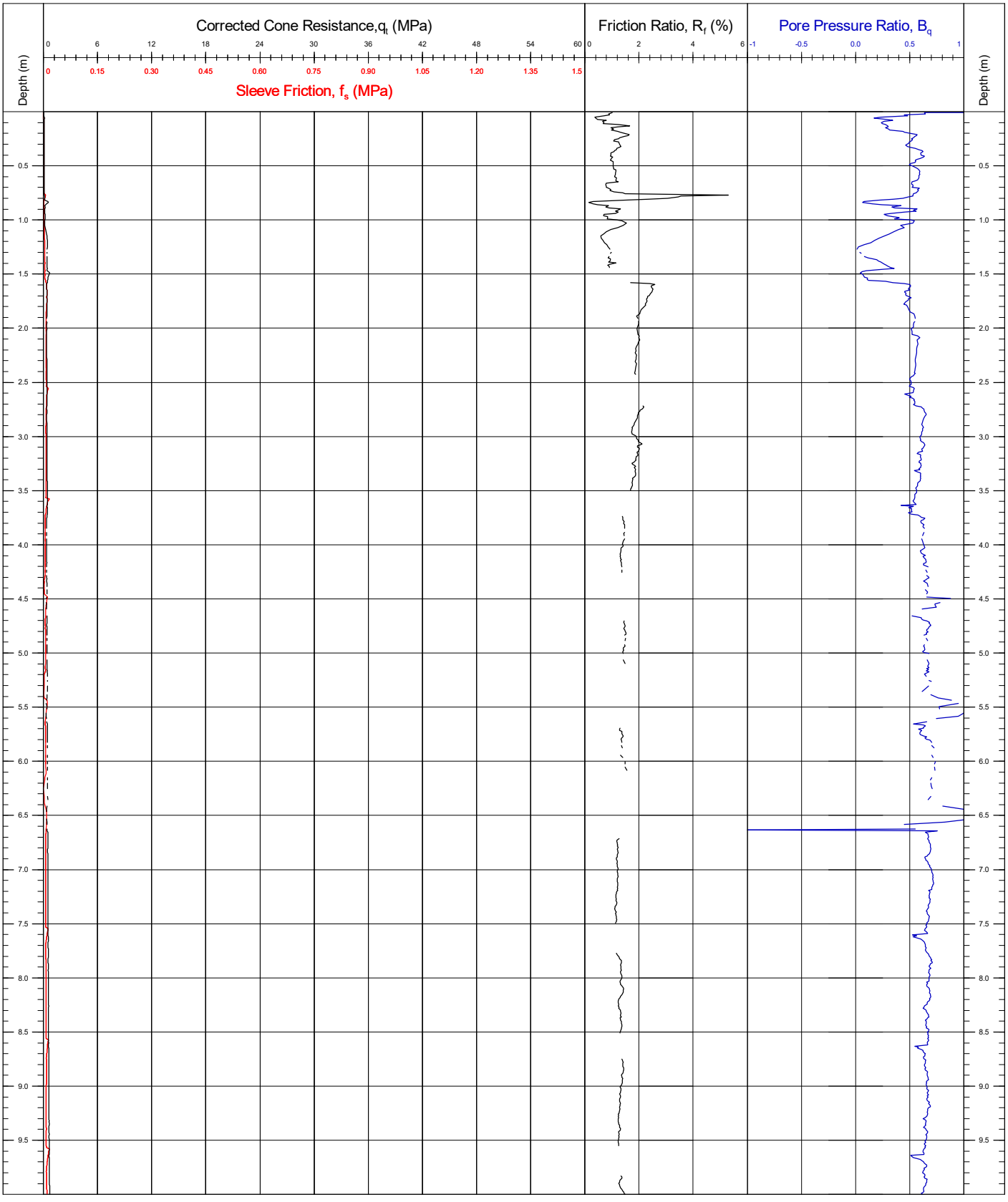
Area	**Kattegat Sea**	Coordinates	**670633.30E 6266454.10N**	CPT Number	**SCPT19**
Contract	**11596**	Latitude / Longitude			
Client Name/Ref	**Energinet Eltransmission A/S/384_20_ENE**	Water Depth (mMSL)	**30.84**		
Vessel	**MV Ocean Vantage**	Date of Test	**07/05/2021**	Page: 3/3	
		Cone No.(size)/α Factor	**130909 (10cm^2) / 0.82**	QC Status	
		Base Inclination	**X = 1.1° / Y = 0.9°**	Preliminary: **JK/BC** (07/05/2021)	Draft: **DR** (10/06/2021)
		CRS **ETRS89**			Final: **SMc** (10/11/2021)

Comments: Cone class 1. Continuous seabed seismic CPT. Final depth 21.92m. Test terminated due to the maximum cone inclination of 12 degrees was reached

Gardline

Preliminary Investigation, Hesselø OWF

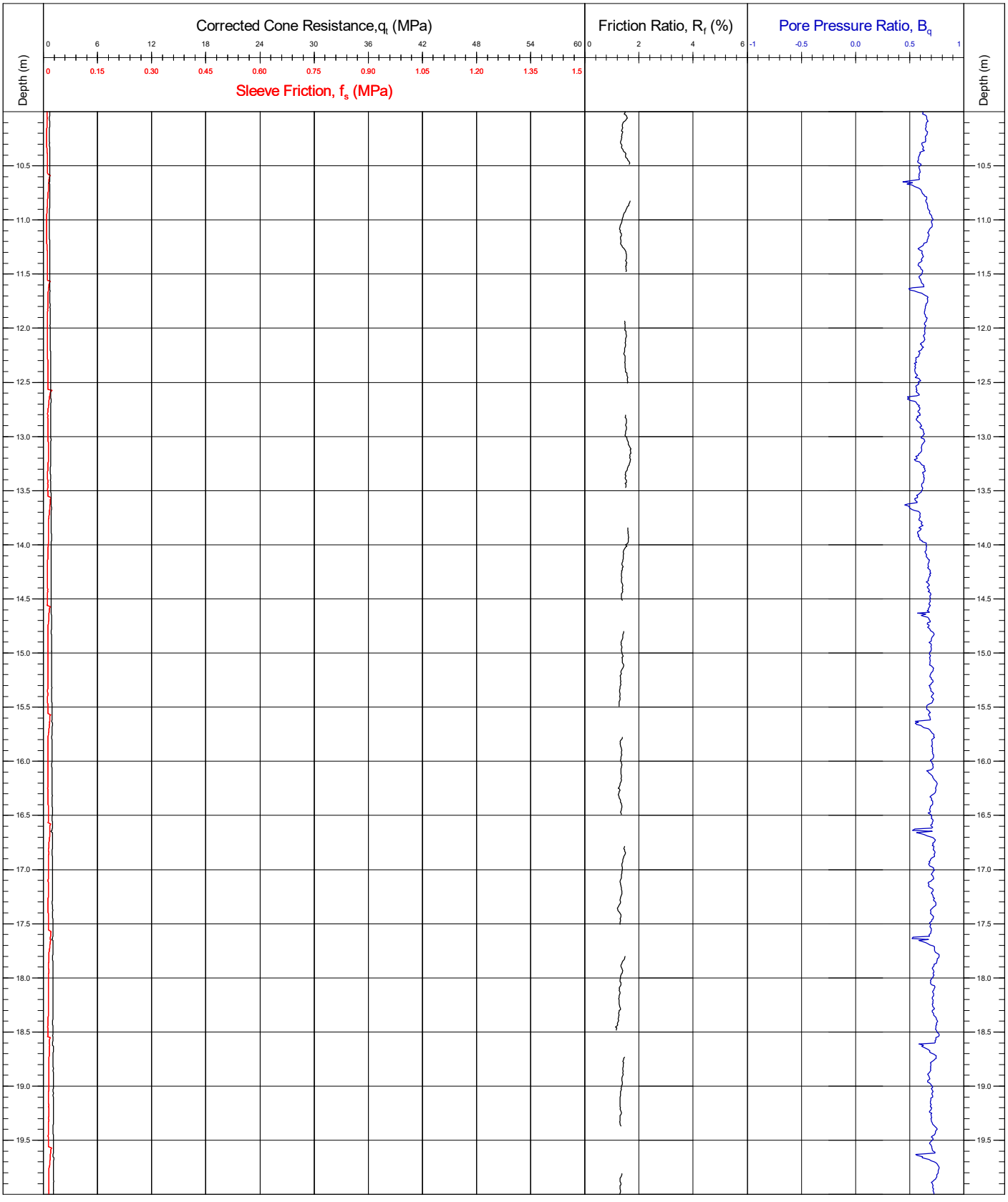
IN SITU CPTU TESTING - DERIVED PARAMETERS



Area	**Kattegat Sea**	Coordinates	**677715.30E 6266260.70N**	CPT Number	
Contract	**11596**	Latitude / Longitude		**SCPT21**	
Client Name/Ref	**Energinet Eltransmission A/S/384_20_ENE**	Water Depth (mMSL)	**32.48**		
Vessel	**MV Ocean Vantage**	Date of Test (Start/End)	**03/05/2021 to 04/05/2021**	Page: 1/4	
Comments: Cone class 1. Continuous seismic seabed CPT. Final depth 31.61m. Test terminated due to rising weather conditions.		Cone No.(size)/α Factor	**120829 (10cm^2) / 0.8**	QC Status	
		Base Inclination	**X = 1.1° / Y = 1.0°**	Preliminary: **JK/BC** (04/05/2021)	Draft: **DR** (10/06/2021)
		CRS **ETRS89**			Final: **SMc** (10/11/2021)

Preliminary Investigation, Hesselø OWF

IN SITU CPTU TESTING - DERIVED PARAMETERS

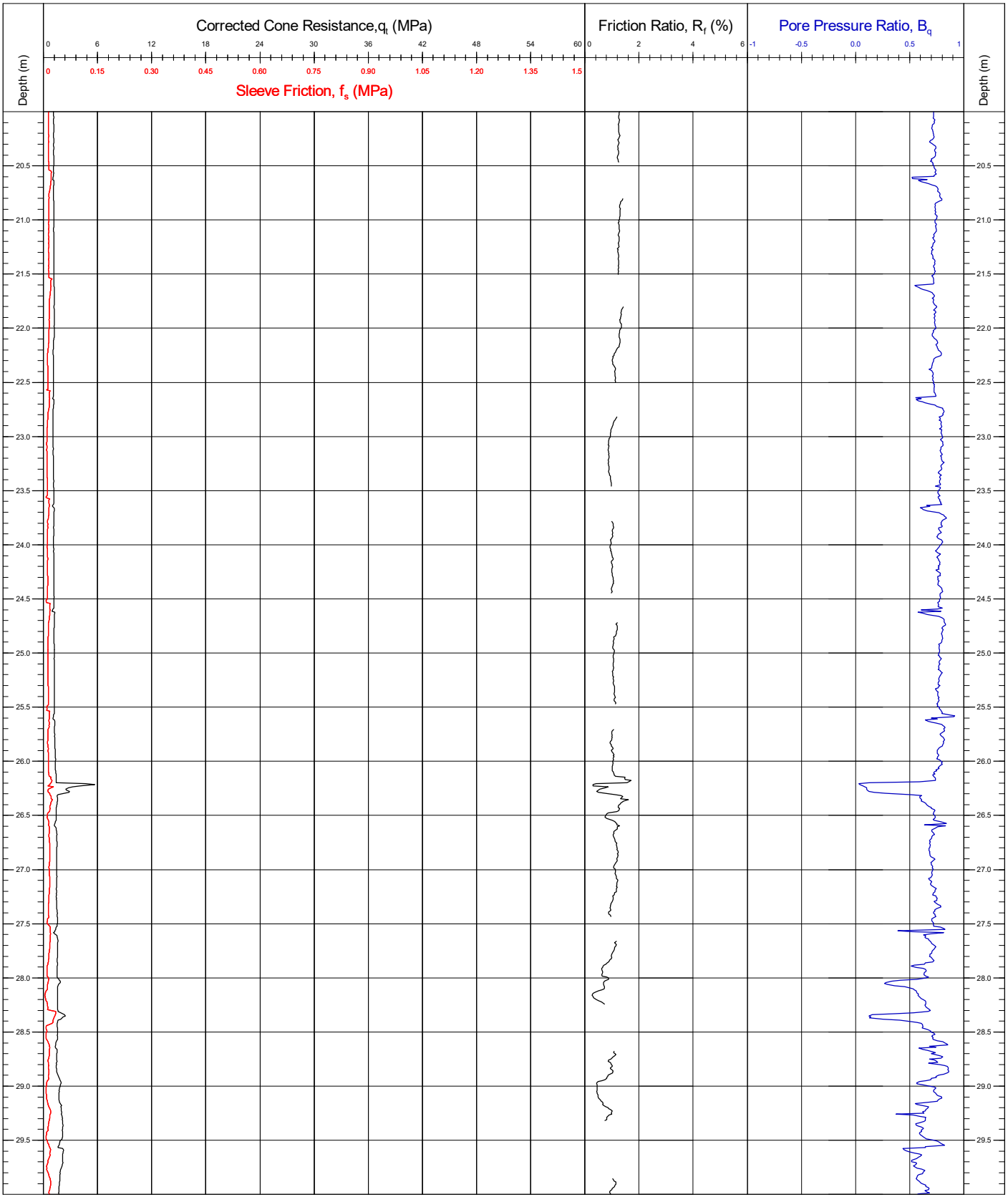


Area	**Kattegat Sea**	Coordinates	**677715.30E 6266260.70N**	CPT Number	**SCPT21**
Contract	**11596**	Latitude / Longitude			
Client Name/Ref	**Energinet Eltransmission A/S/384_20_ENE**	Water Depth (mMSL)	**32.48**		
Vessel	**MV Ocean Vantage**	Date of Test (Start/End)	**03/05/2021 to 04/05/2021**	Page: 2/4	
Comments: Cone class 1. Continuous seismic seabed CPT. Final depth 31.61m. Test terminated due to rising weather conditions.		Cone No.(size)/α Factor	**120829 (10cm^2) / 0.8**	QC Status	
		Base Inclination	**X = 1.1° / Y = 1.0°**	Preliminary: **JK/BC** (04/05/2021)	Draft: **DR** (10/06/2021)
		CRS **ETRS89**			Final: **SMc** (10/11/2021)

Gardline

Preliminary Investigation, Hesselø OWF

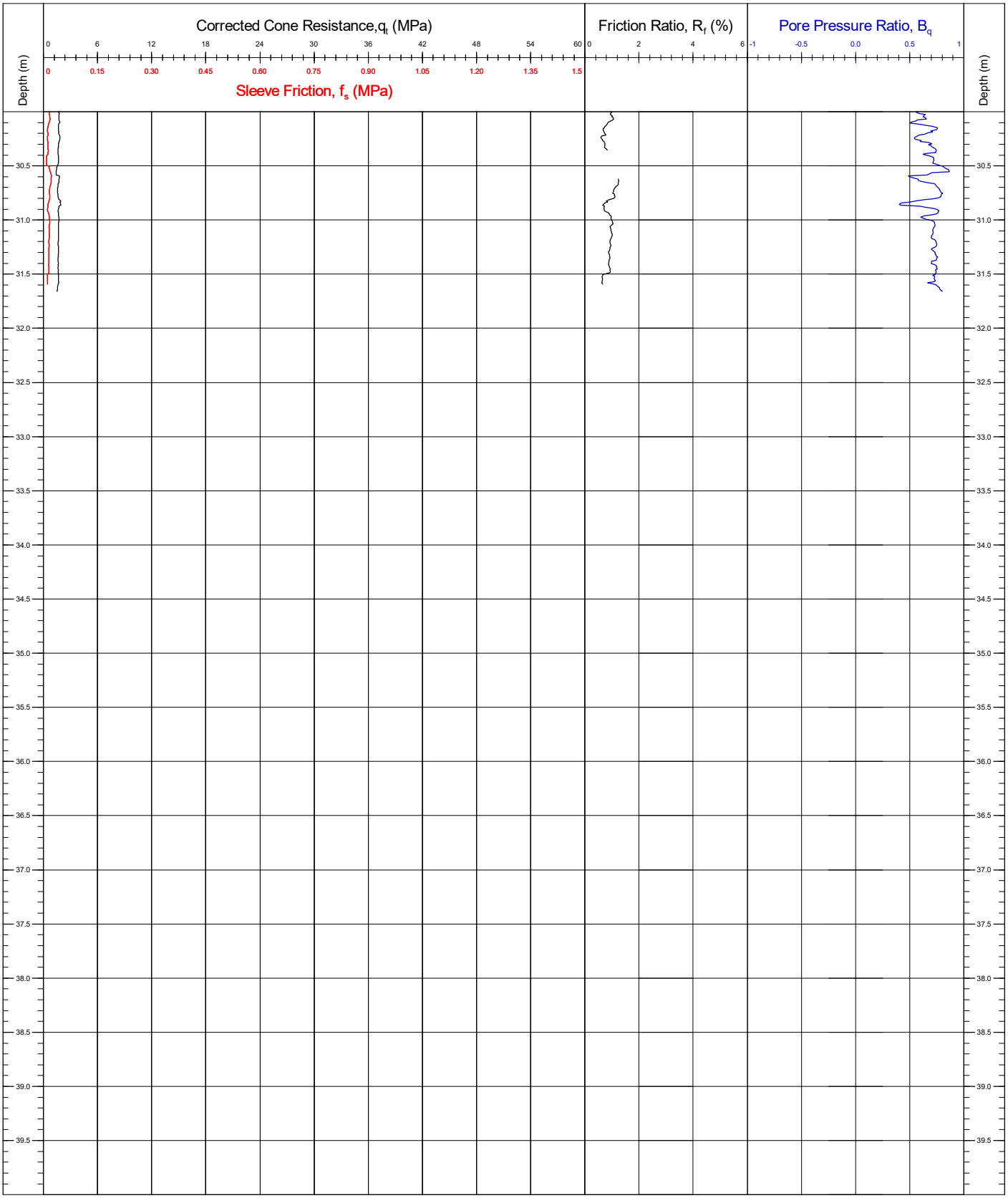
IN SITU CPTU TESTING - DERIVED PARAMETERS



Area	**Kattegat Sea**	Coordinates	**677715.30E 6266260.70N**	CPT Number	**SCPT21**
Contract	**11596**	Latitude / Longitude			
Client Name/Ref	**Energinet Eltransmission A/S/384_20_ENE**	Water Depth (mMSL)	**32.48**		
Vessel	**MV Ocean Vantage**	Date of Test (Start/End)	**03/05/2021 to 04/05/2021**	Page: 3/4	
Comments: Cone class 1. Continuous seismic seabed CPT. Final depth 31.61m. Test terminated due to rising weather conditions.		Cone No.(size)/α Factor	**120829 (10cm^2) / 0.8**	QC Status	
		Base Inclination	**X = 1.1° / Y = 1.0°**	Preliminary: **JK/BC** (04/05/2021)	Draft: **DR** (10/06/2021)
		CRS **ETRS89**			Final: **SMc** (10/11/2021)

Preliminary Investigation, Hesselø OWF

IN SITU CPTU TESTING - DERIVED PARAMETERS

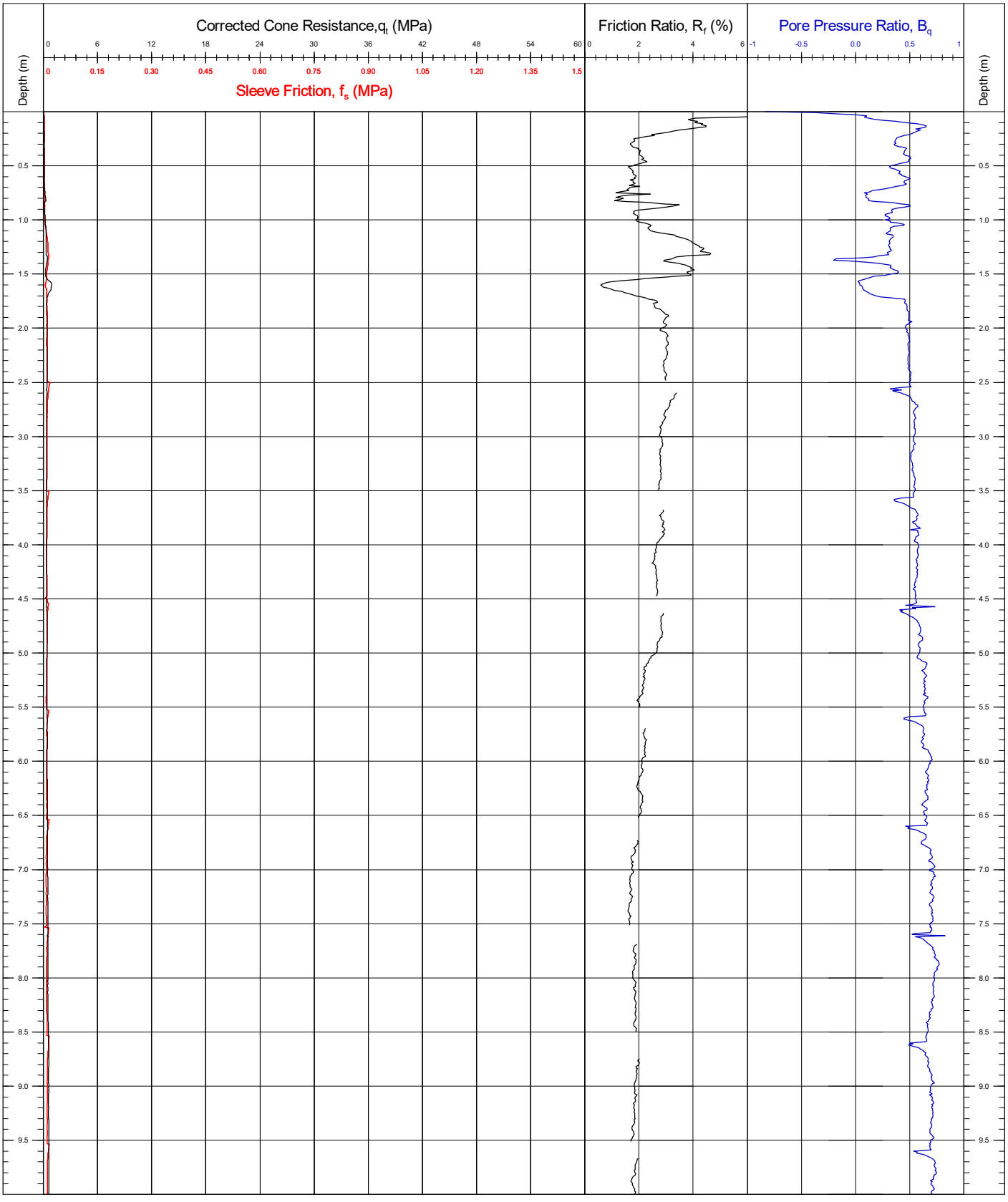


Area	**Kattegat Sea**	Coordinates	**677715.30E** **6266260.70N**	CPT Number	
Contract	**11596**	Latitude / Longitude		**SCPT21**	
Client Name/Ref	**Energinet Eltransmission A/S/384_20_ENE**	Water Depth (mMSL)	**32.48**		
Vessel	**MV Ocean Vantage**	Date of Test (Start/End)	**03/05/2021 to 04/05/2021**	Page: 4/4	
Comments: Cone class 1. Continuous seismic seabed CPT. Final depth 31.61m. Test terminated due to rising weather conditions.		Cone No.(size)/α Factor	**120829 (10cm^2) / 0.8**	QC Status	
		Base Inclination	**X = 1.1° / Y = 1.0°**	Preliminary: **JK/BC** (04/05/2021)	Draft: **DR** (10/06/2021)
		CRS **ETRS89**			Final: **SMc** (10/11/2021)

Gardline

Preliminary Investigation, Hesselø OWF

IN SITU CPTU TESTING - DERIVED PARAMETERS



Area	**Kattegat Sea**	Coordinates	**676059.40E 6274402.90N**	CPT Number	**SCPT24**
Contract	**11596**	Latitude / Longitude			
Client Name/Ref	**Energinet Eltransmission A/S/384_20_ENE**	Water Depth (mMSL)	**31.16**		
Vessel	**MV Ocean Vantage**	Date of Test	**03/05/2021**	Page: 1/4	
		Cone No.(size)/α Factor	**130206 (10cm^2) / 0.77**	QC Status	
		Base Inclination	**X = 1.2° / Y = 0.8°**	Preliminary: **JK/BC** (03/05/2021)	Draft: **DR** (10/06/2021)
		CRS **ETRS89**			Final: **SMc** (10/11/2021)

Comments: Out of Class. Continuous seismic seabed CPT. Final depth 32.93m. Test terminated due sudden inclination change of 5 degrees in less than 1 metre- attempted to cycle but inclination was too high~ Please note the derived data has been removed where seismic testing was conducted.

Gardline

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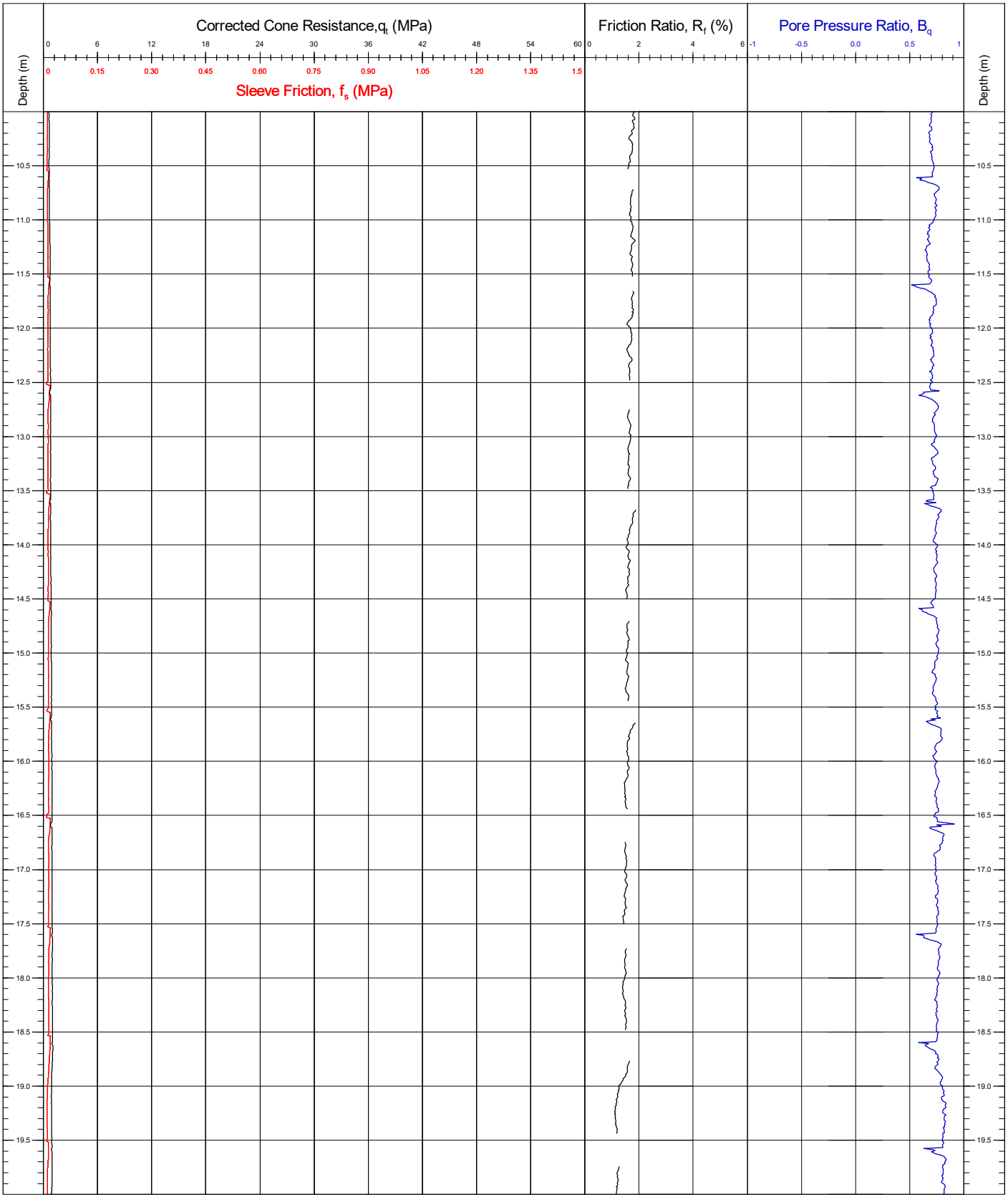
IN SITU CPTU TESTING - DERIVED PARAMETERS



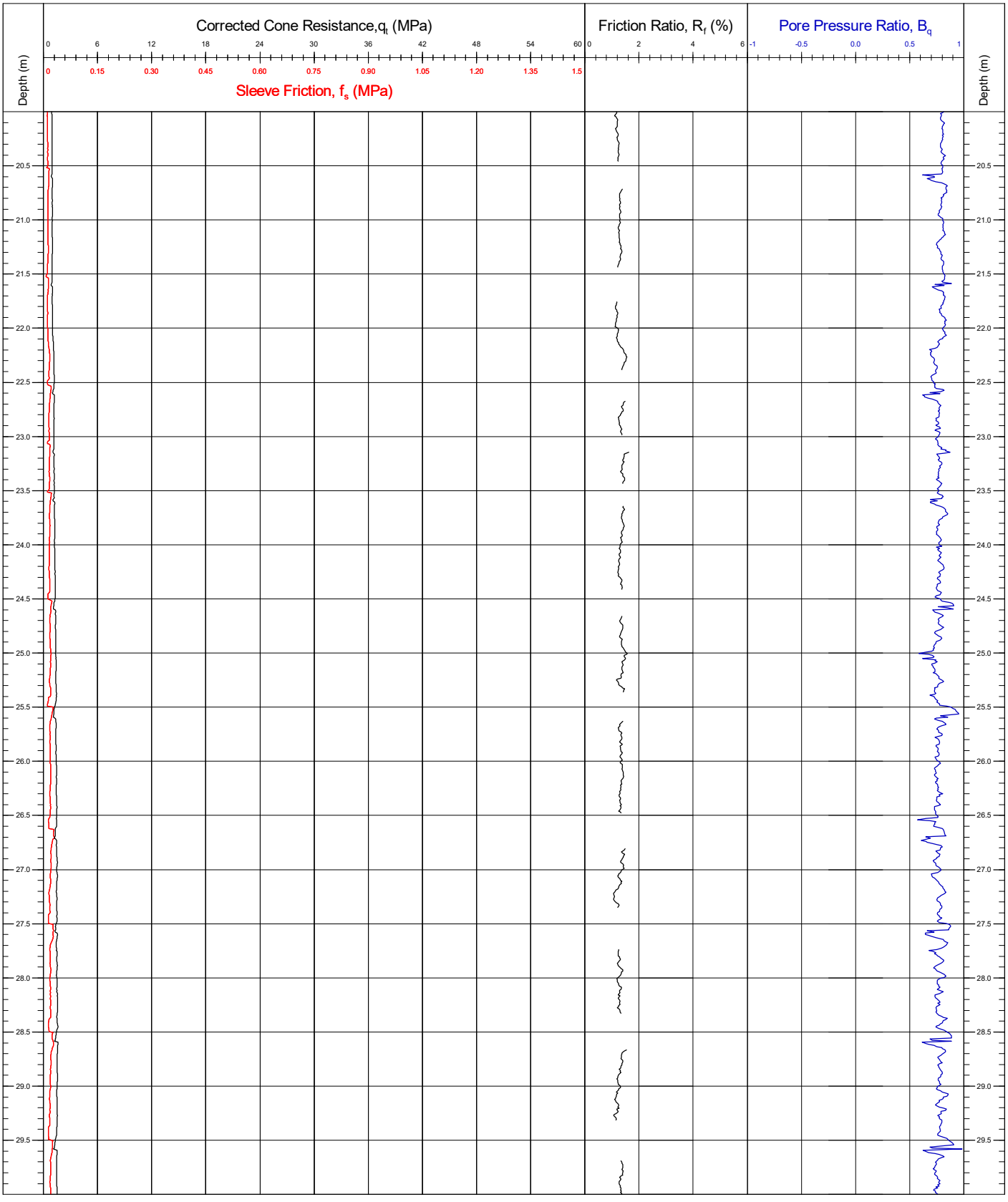
Area	**Kattegat Sea**	Coordinates	**676059.40E 6274402.90N**	CPT Number	**SCPT24**
Contract	**11596**	Latitude / Longitude			
Client Name/Ref	**Energinet Eltransmission A/S/384_20_ENE**	Water Depth (mMSL)	**31.16**		
Vessel	**MV Ocean Vantage**	Date of Test	**03/05/2021**	Page: 2/4	
		Cone No.(size)/α Factor	**130206 (10cm^2) / 0.77**	QC Status	
		Base Inclination	**X = 1.2° / Y = 0.8°**	Preliminary / Draft / Final	
		CRS **ETRS89**		**JK/BC** (03/05/2021) / **DR** (10/06/2021) / **SMc** (10/11/2021)	

Comments: Out of Class. Continuous seismic seabed CPT. Final depth 32.93m. Test terminated due sudden inclination change of 5 degrees in less than 1 metre- attempted to cycle but inclination was too high~ Please note the derived data has been removed where seismic testing was conducted.

Gardline

Preliminary Investigation, Hesselø OWF

IN SITU CPTU TESTING - DERIVED PARAMETERS



Area	**Kattegat Sea**	Coordinates	**676059.40E**	**6274402.90N**	CPT Number **SCPT24**
Contract	**11596**	Latitude / Longitude			
Client Name/Ref	**Energinet Eltransmission A/S/384_20_ENE**	Water Depth (mMSL)	**31.16**		
Vessel	**MV Ocean Vantage**	Date of Test	**03/05/2021**		Page: 3/4
		Cone No.(size)/α Factor	**130206 (10cm^2) / 0.77**		QC Status
		Base Inclination	**X = 1.2° / Y = 0.8°**		Preliminary: **JK/BC** (03/05/2021); Draft: **DR** (10/06/2021); Final: **SMc** (10/11/2021)
		CRS **ETRS89**			

Comments: Out of Class. Continuous seismic seabed CPT. Final depth 32.93m. Test terminated due sudden inclination change of 5 degrees in less than 1 metre- attempted to cycle but inclination was too high~ Please note the derived data has been removed where seismic testing was conducted.

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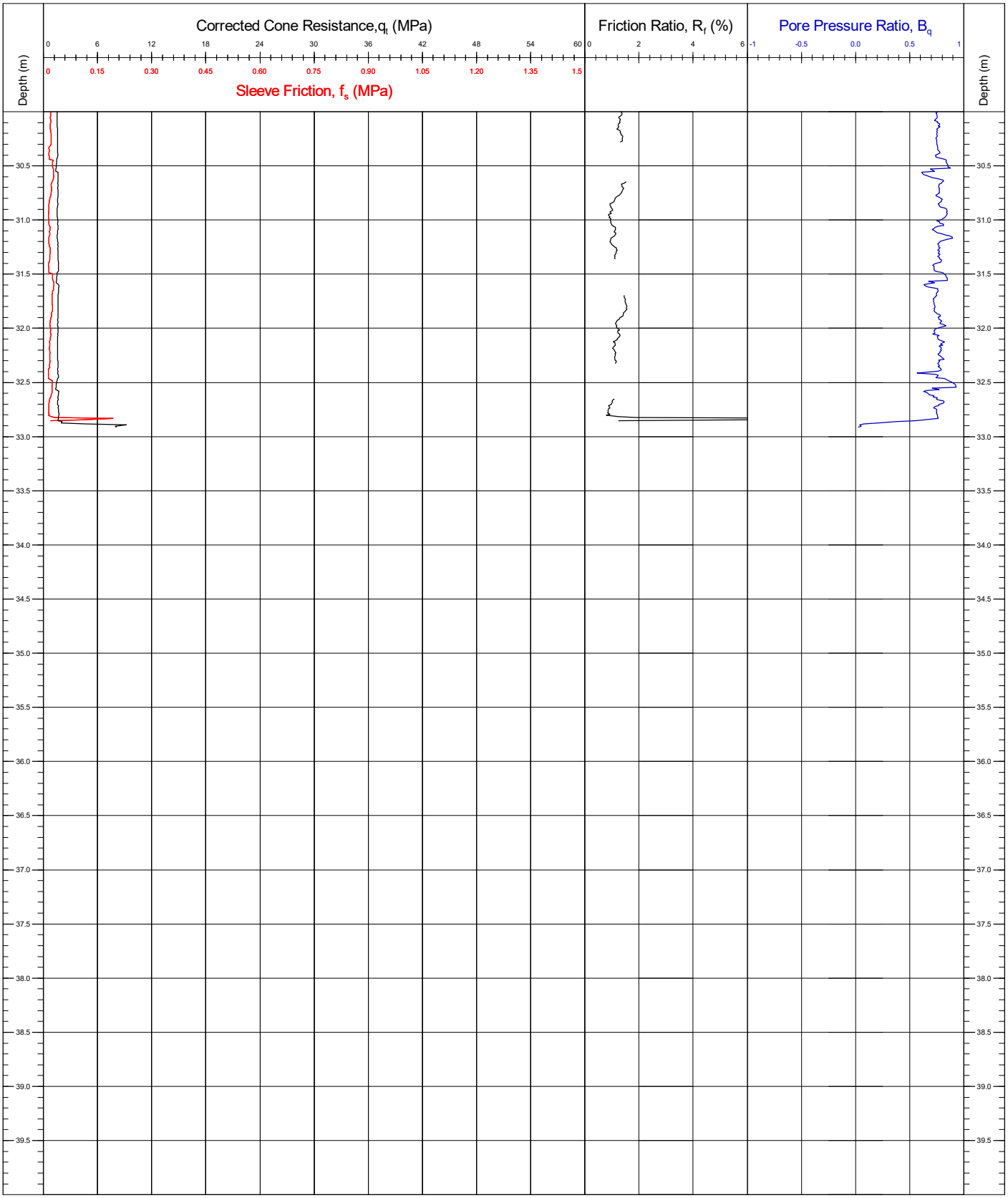
IN SITU CPTU TESTING - DERIVED PARAMETERS



Area	**Kattegat Sea**	Coordinates	**676059.40E 6274402.90N**	CPT Number	**SCPT24**
Contract	**11596**	Latitude / Longitude			
Client Name/Ref	**Energinet Eltransmission A/S/384_20_ENE**	Water Depth (mMSL)	**31.16**		
Vessel	**MV Ocean Vantage**	Date of Test	**03/05/2021**	Page: 4/4	
		Cone No.(size)/α Factor	**130206 (10cm^2) / 0.77**	QC Status	
		Base Inclination	**X = 1.2° / Y = 0.8°**	Preliminary / Draft / Final	
		CRS **ETRS89**		**JK/BC** (03/05/2021) / **DR** (10/06/2021) / **SMc** (10/11/2021)	

Comments: Out of Class. Continuous seismic seabed CPT. Final depth 32.93m. Test terminated due sudden inclination change of 5 degrees in less than 1 metre- attempted to cycle but inclination was too high~ Please note the derived data has been removed where seismic testing was conducted.

APPENDIX 4– N_{kt} ASSESSMENT

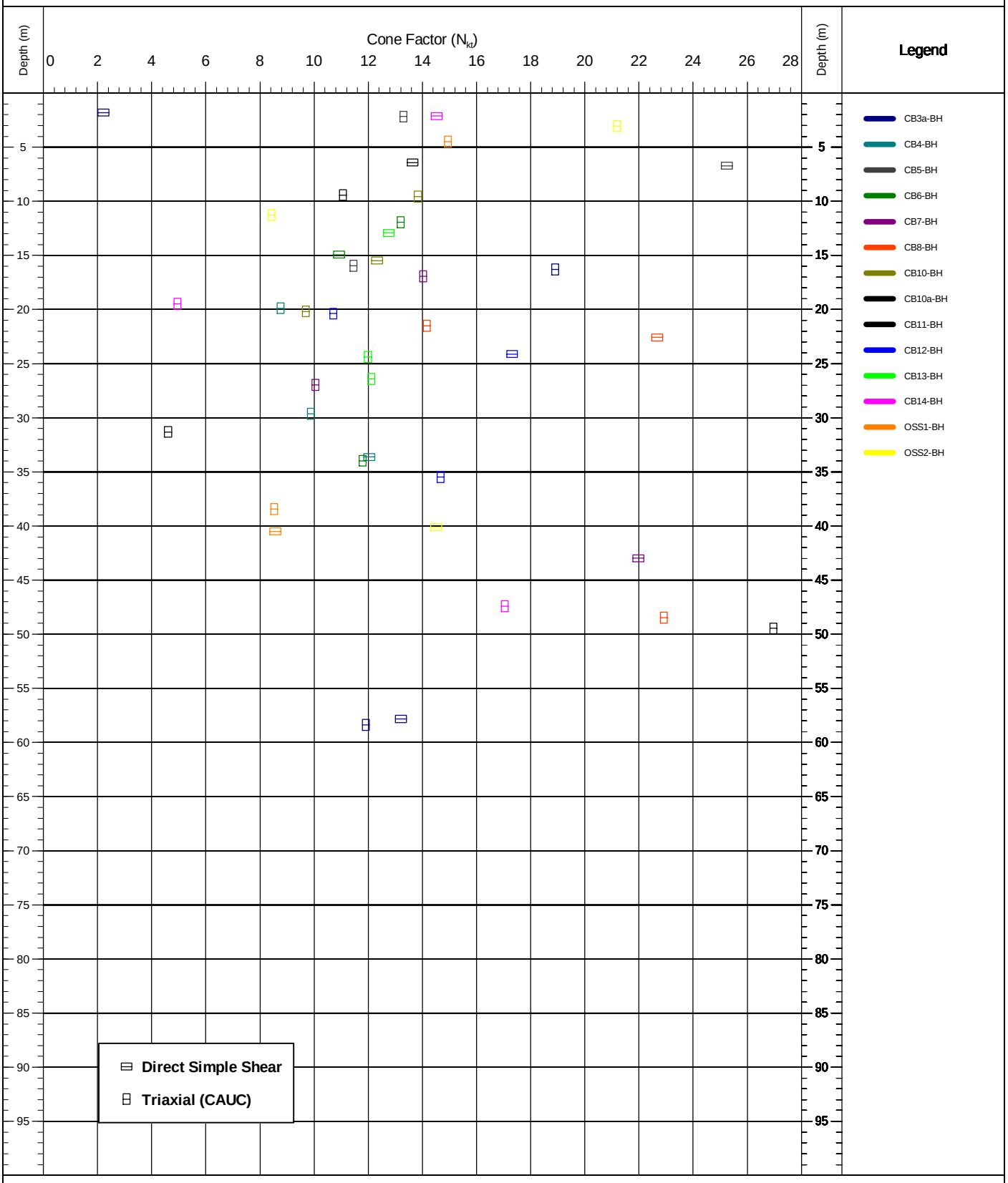
4.1 N_{kt} Plot

4.2 N_{kt} Value Distribution from DSS

4.3 N_{kt} Value Distribution from CAUc

4.1 N_{kt} Plot

Preliminary Investigation, Hesselø OWF
CONE FACTOR, N_{kt}



Area	**Kattegat Sea**
Contract	**11596**
Client Name/Ref	**Energinet Eltransmission A/S/ 384_20_ENE**
Vessel	**MV Ocean Vantage**
CRS	**ETRS89**

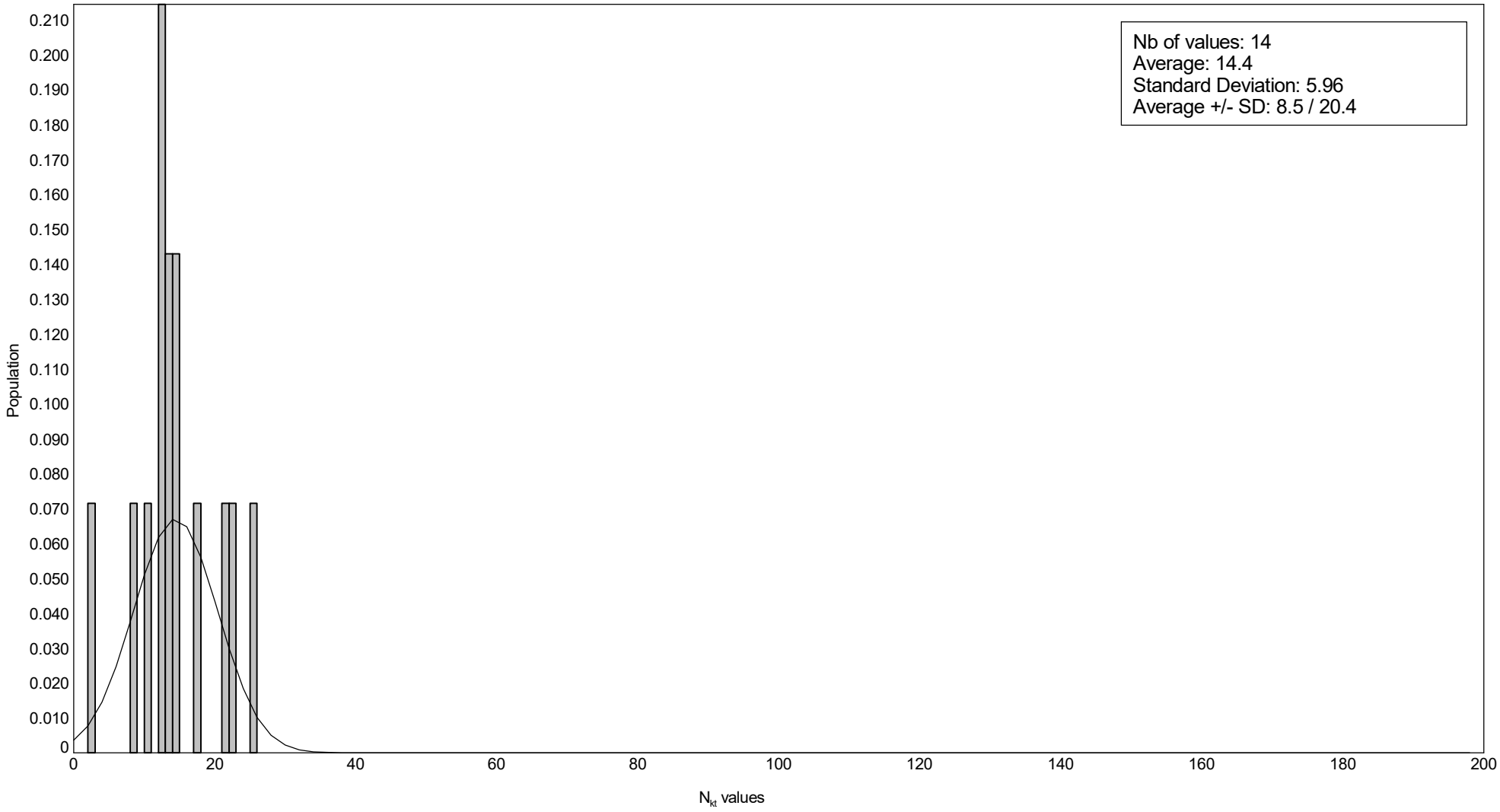
Comments:

QC Status		
Preliminary	Draft	Final
DR 28/07/2021	**DR** 28/07/2021	**SMc** 10/11/2021

4.2 N_{kt} Value Distribution from DSS

Preliminary Investigation, Hesselø OWF

NKT VALUES DISTRIBUTION DSS TESTING



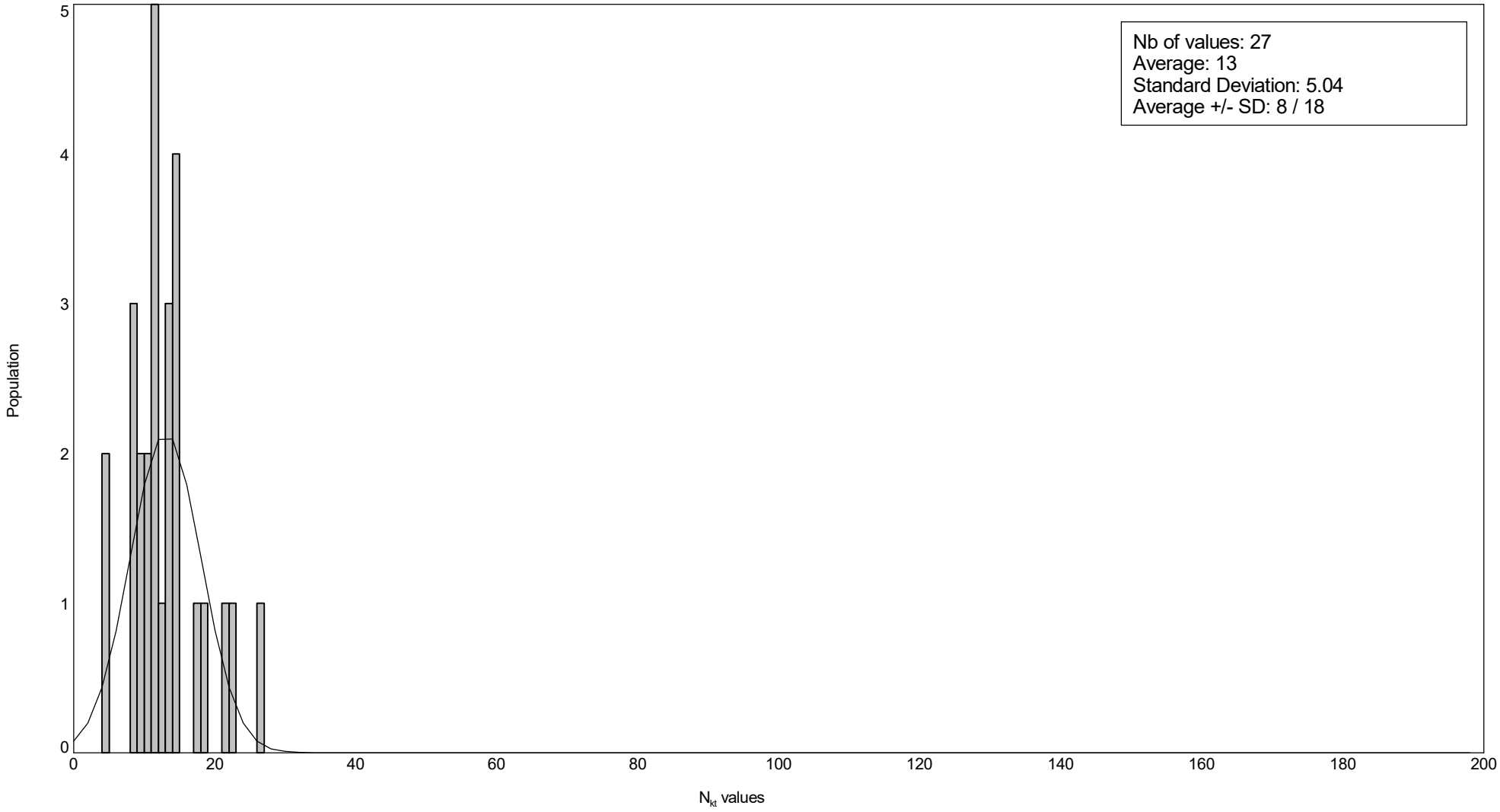
Contract No.	11596		Comment:
Client Name	Energinet Eltransmission A/S		
Location	Kattegat Sea		

QC Status		
Preliminary	Draft	Final
DR (28/07/2021)	()	()

4.3 N_{kt} Value Distribution from CAUc

Preliminary Investigation, Hesselø OWF

NKT VALUES DISTRIBUTION FROM CAUC TESTING



Contract No.	11596		Comment:	QC Status		
Client Name	Energinet Eltransmission A/S			Preliminary	Draft	Final
Location	Kattegat Sea			**DR** (28/07/2021)	()	()

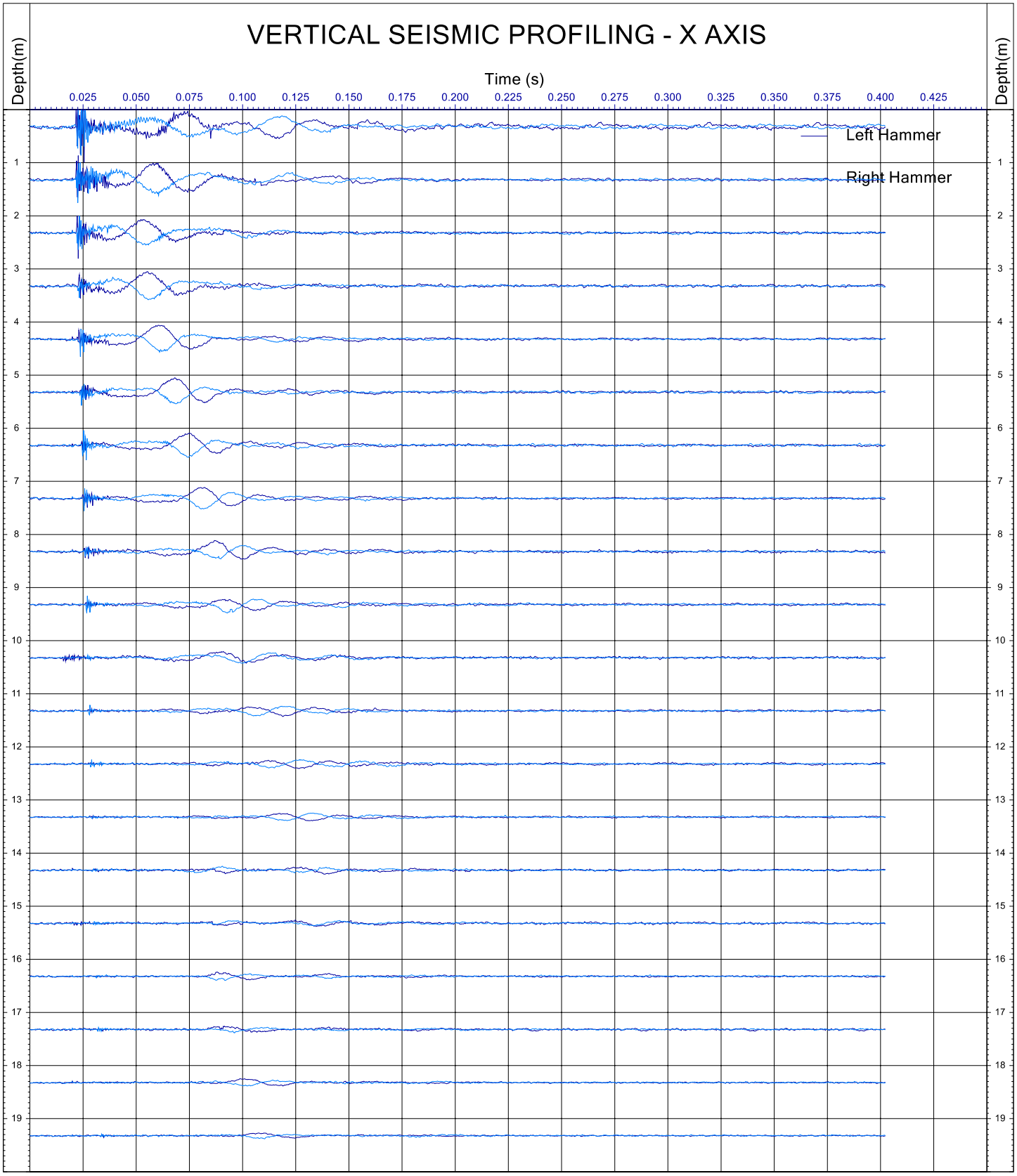
APPENDIX 5– SCPTU DATA

5.1 SCPTU S-Wave Traces
5.2 SCPTU P-Wave Traces
5.3 SCPTU S-Wave Velocity Profiles
5.4 SCPTU Log Plots

5.1 SCPTU S-Wave Traces

Preliminary Investigation, Hesselø OWF

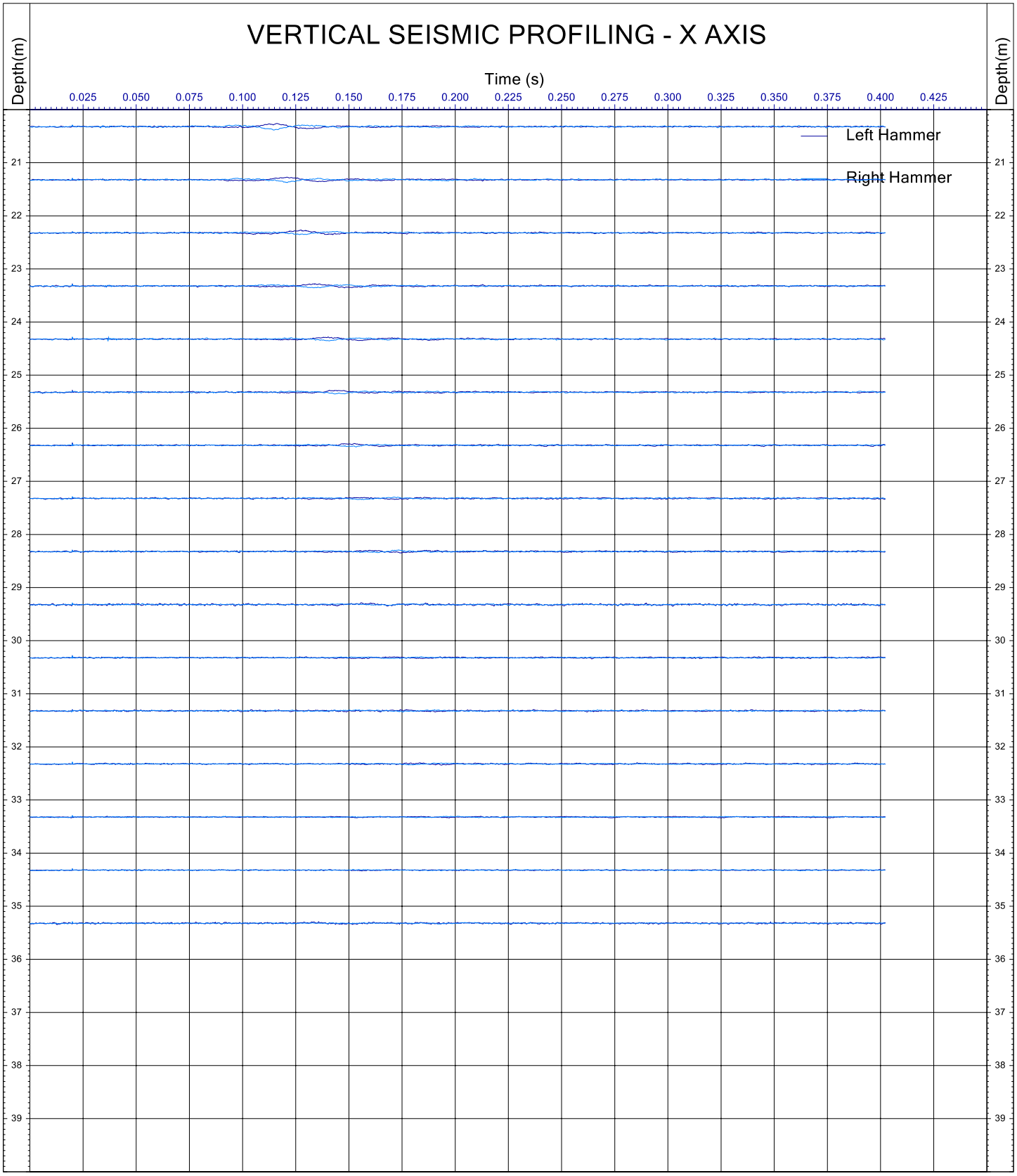
SCPTU TESTING



Area	Kattegat Sea	Coordinates (E, N)	681923.4 - 6249306.6	Location	
Contract	11596	Water Depth	31.710 (mMSL)	SCPT1a	
Client Name	Energinet Eltransmission A/S	Date of Test	05/05/2021		
Vessel	MV Ocean Vantage	Cone No. / α Factor	130206 / 0.77	QC Status	
Comments	Cone class 1. Continuous seismic seabed CPT. Final depth 37.55m. Test terminated at operators discretion due to increasing total force and lack of lateral rod support	Base Inclination	1.5	Preliminary	Draft / Final
		CRS	ETRS 1989 UTM Zone 32N	JK/BC 06/05/2021	DR 10/06/2021 / 10/06/2021

Preliminary Investigation, Hesselø OWF

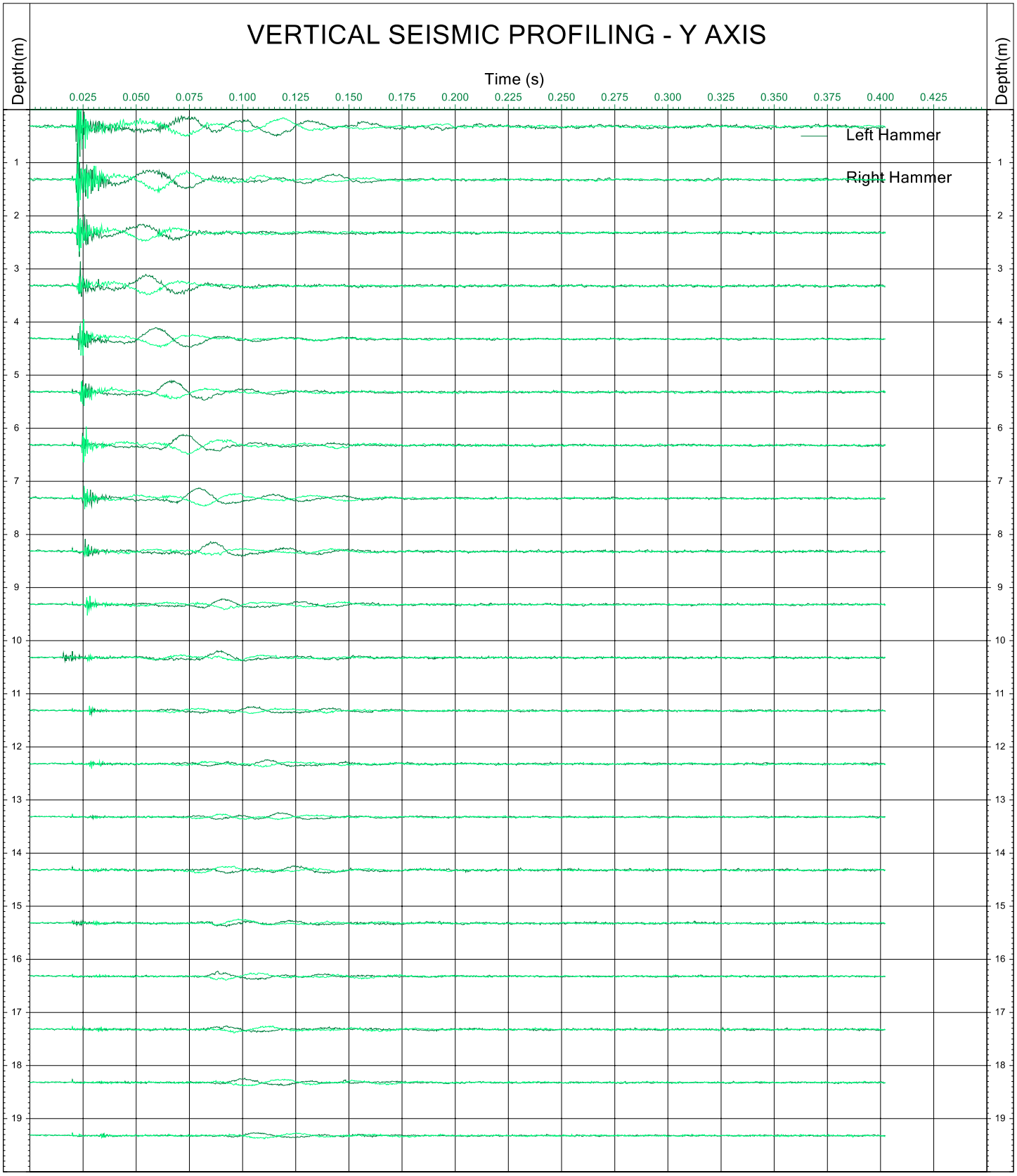
SCPTU TESTING



Area	Kattegat Sea	Coordinates (E, N)	681923.4 - 6249306.6	Location	
Contract	11596	Water Depth	31.710 (mMSL)	SCPT1a	
Client Name	Energinet Eltransmission A/S	Date of Test	05/05/2021		
Vessel	MV Ocean Vantage	Cone No. / α Factor	130206 / 0.77	QC Status	
Comments	Cone class 1. Continuous seismic seabed CPT. Final depth 37.55m. Test terminated at operators discretion due to increasing total force and lack of lateral rod support	Base Inclination	1.5	Preliminary	Draft / Final
		CRS	ETRS 1989 UTM Zone 32N	JK/BC 06/05/2021	DR 10/06/2021 / 10/06/2021

Preliminary Investigation, Hesselø OWF

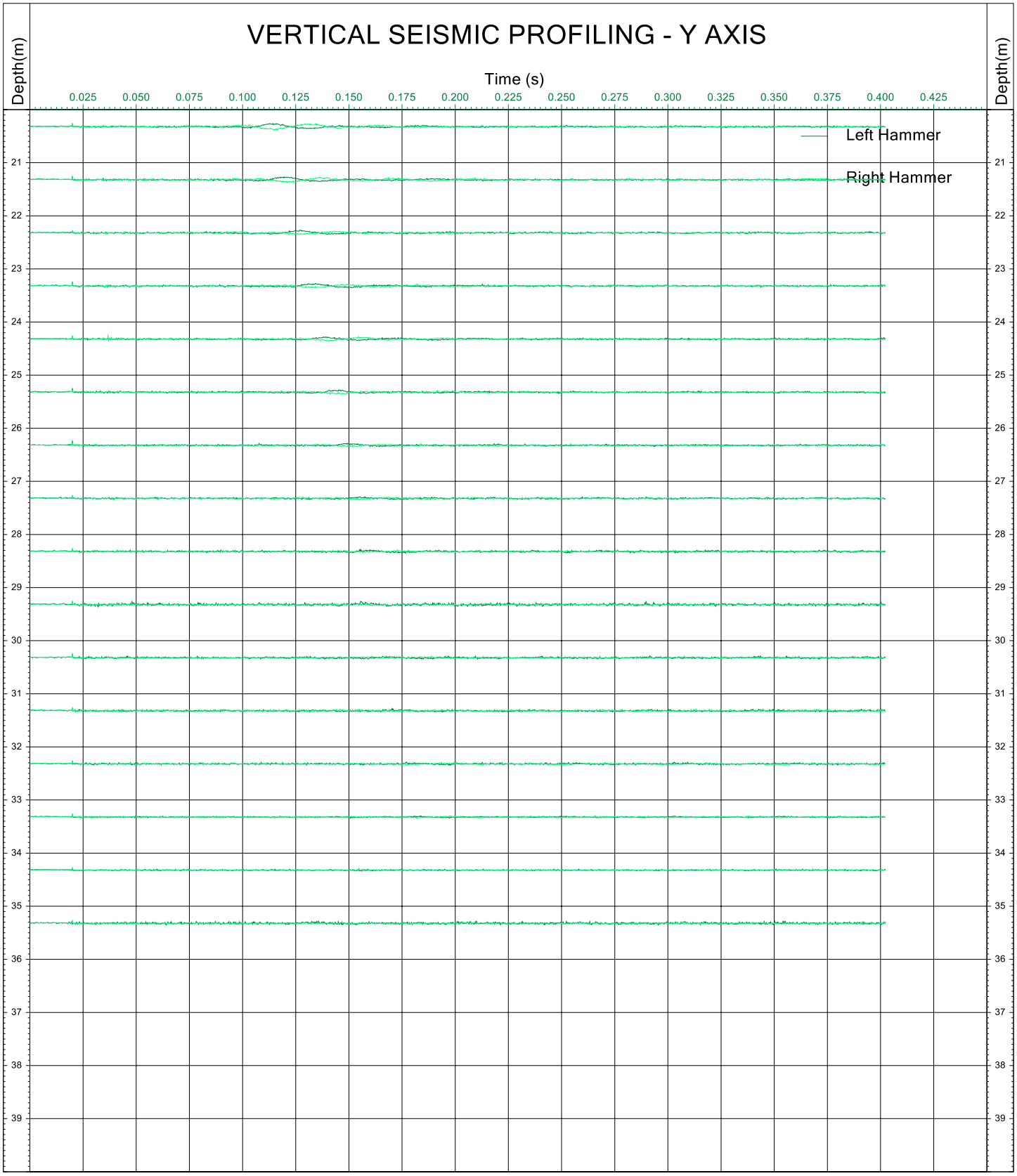
SCPTU TESTING



Area	Kattegat Sea	Coordinates (E, N)	681923.4 - 6249306.6	Location	
Contract	11596	Water Depth	31.710 (mMSL)	SCPT1a	
Client Name	Energinet Eltransmission A/S	Date of Test	05/05/2021		
Vessel	MV Ocean Vantage	Cone No. / α Factor	130206 / 0.77	QC Status	
Comments	Cone class 1. Continuous seismic seabed CPT. Final depth 37.55m. Test terminated at operators discretion due to increasing total force and lack of lateral rod support	Base Inclination	1.5	Preliminary	Draft / Final
		CRS	ETRS 1989 UTM Zone 32N	JK/BC 06/05/2021	DR 10/06/2021 / 10/06/2021

Preliminary Investigation, Hesselø OWF

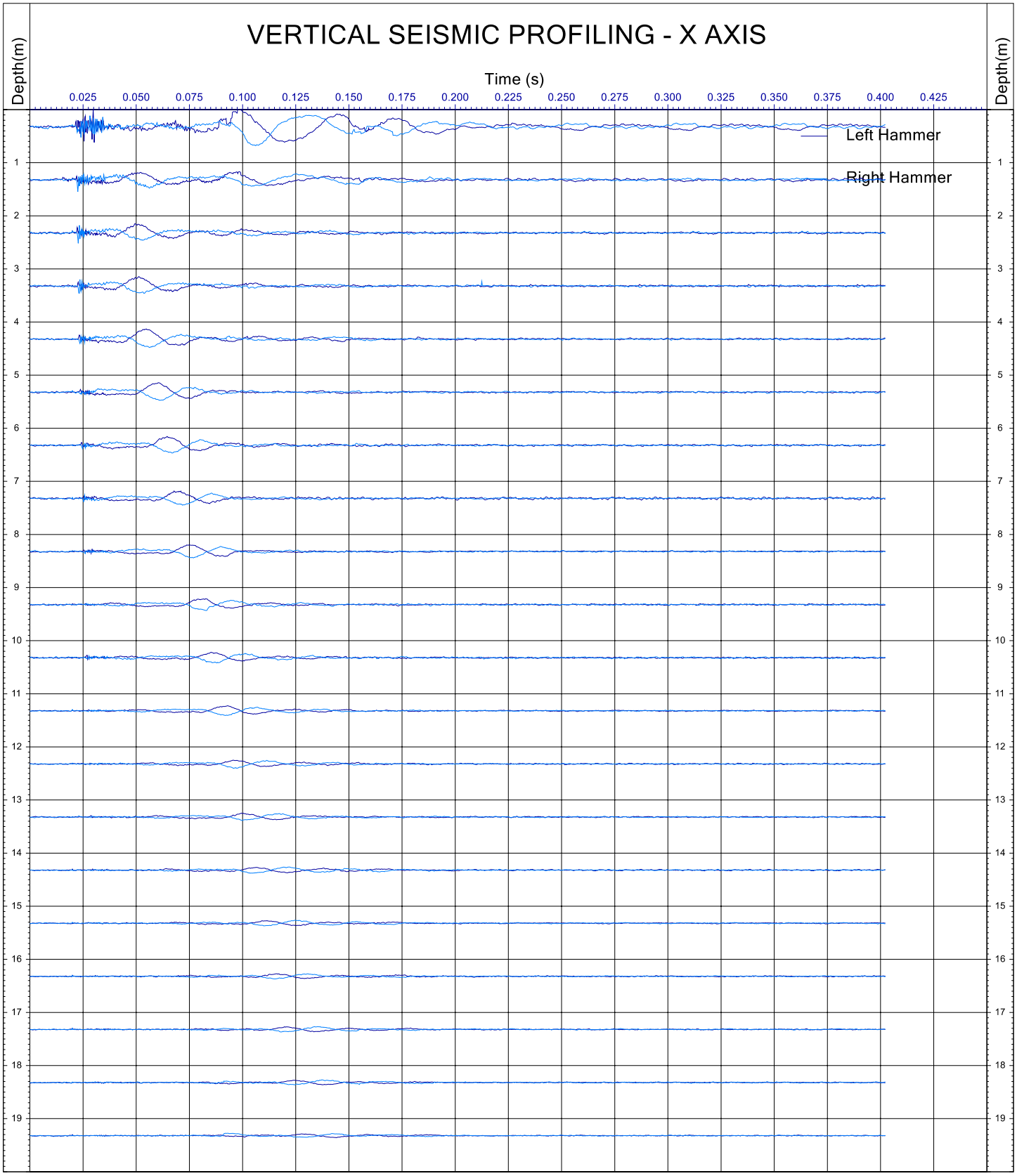
SCPTU TESTING



Area	Kattegat Sea	Coordinates (E, N)	681923.4 - 6249306.6	Location	
Contract	11596	Water Depth	31.710 (mMSL)	SCPT1a	
Client Name	Energinet Eltransmission A/S	Date of Test	05/05/2021		
Vessel	MV Ocean Vantage	Cone No. / α Factor	130206 / 0.77	QC Status	
Comments	Cone class 1. Continuous seismic seabed CPT. Final depth 37.55m. Test terminated at operators discretion due to increasing total force and lack of lateral rod support	Base Inclination	1.5	Preliminary	Draft / Final
		CRS	ETRS 1989 UTM Zone 32N	JK/BC 06/05/2021	DR 10/06/2021 / 10/06/2021

Preliminary Investigation, Hesselø OWF

SCPTU TESTING

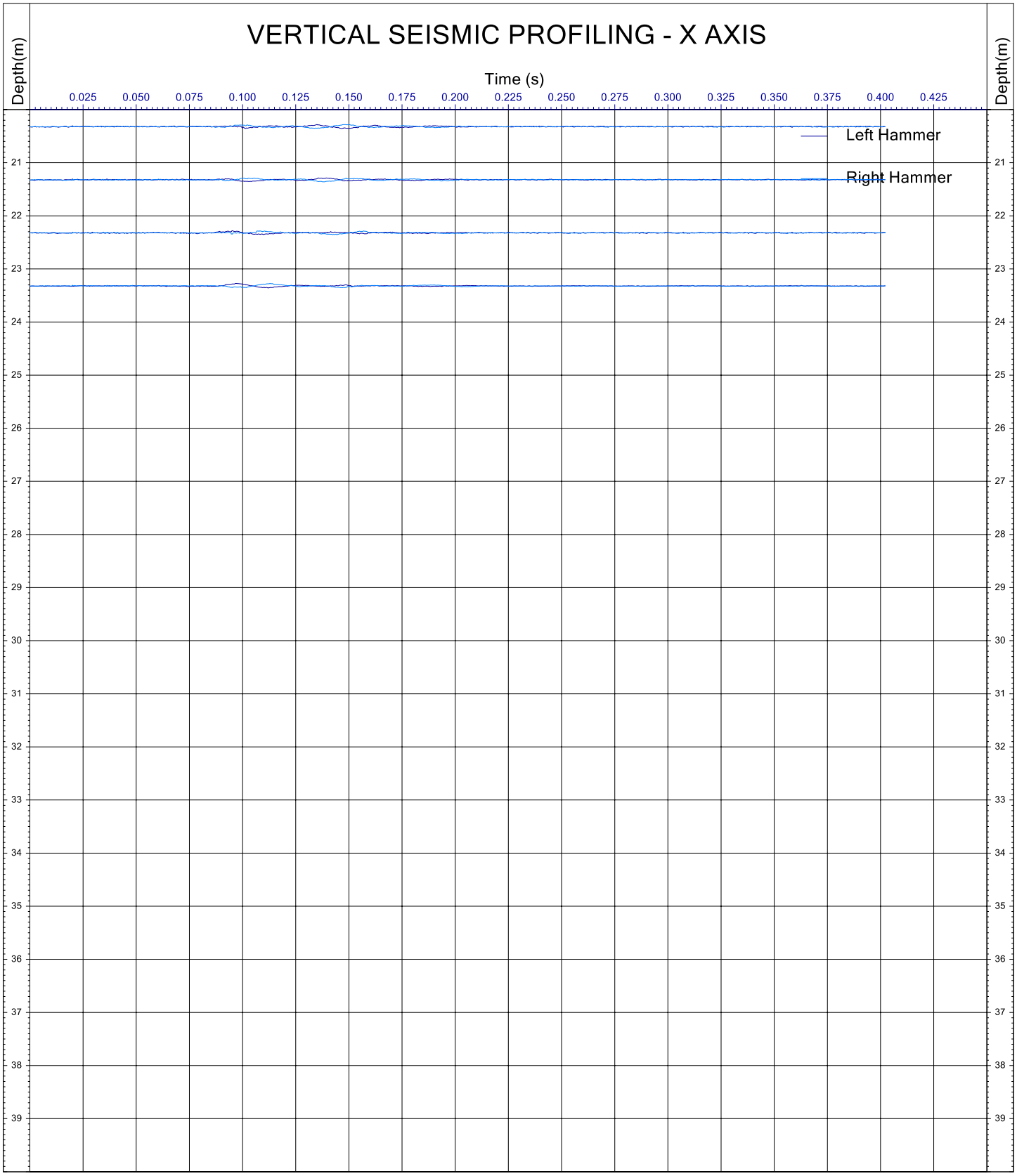


Area	Kattegat Sea	Coordinates (E, N)	673302.0 - 6252306.8	Location	
Contract	11596	Water Depth	28.800 (mMSL)	SCPT2	
Client Name	Energinet Eltransmission A/S	Date of Test	04/05/2021		
Vessel	MV Ocean Vantage	Cone No. / α Factor	130909 / 0.82	QC Status	
Comments	Cone class 1. Continuous seismic seabed CPT. Final depth 26.25m. Test terminated at operators discretion due to cone inclination >12 degrees and lack of lateral rod support into hard ground.	Base Inclination	1.4	Preliminary	Draft / Final
		CRS	ETRS 1989 UTM Zone 32N	JK/BC 04/05/2021	DR 10/06/2021 / 10/06/2021

Preliminary Investigation, Hesselø OWF

SCPTU TESTING

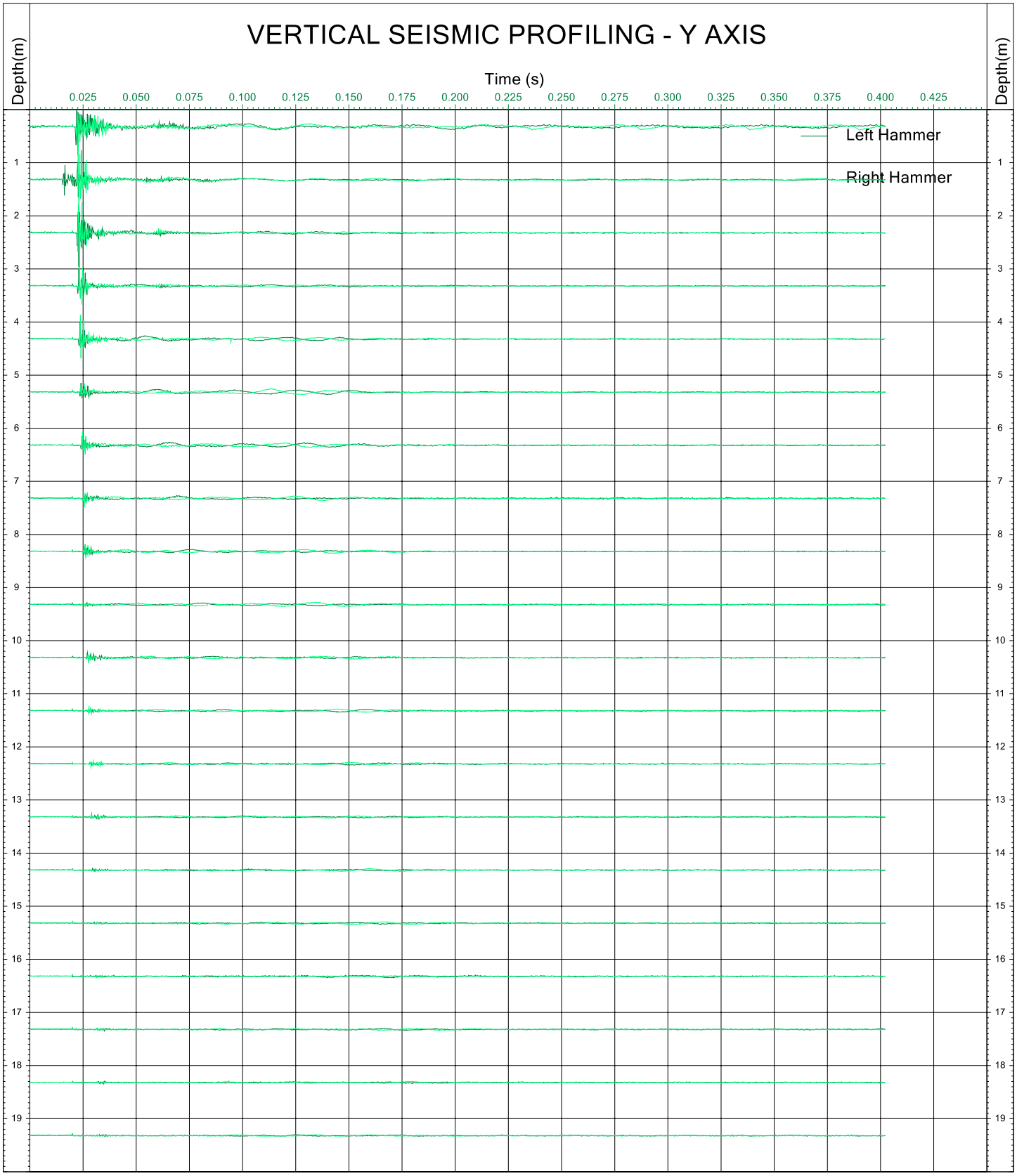
VERTICAL SEISMIC PROFILING - X AXIS



Area	Kattegat Sea	Coordinates (E, N)	673302.0 - 6252306.8	Location	
Contract	11596	Water Depth	28.800 (mMSL)	SCPT2	
Client Name	Energinet Eltransmission A/S	Date of Test	04/05/2021		
Vessel	MV Ocean Vantage	Cone No. / α Factor	130909 / 0.82	QC Status	
Comments	Cone class 1. Continuous seismic seabed CPT. Final depth 26.25m. Test terminated at operators discretion due to cone inclination >12 degrees and lack of lateral rod support into hard ground.	Base Inclination	1.4	Preliminary	Draft / Final
		CRS	ETRS 1989 UTM Zone 32N	JK/BC 04/05/2021	DR 10/06/2021 / 10/06/2021

Preliminary Investigation, Hesselø OWF

SCPTU TESTING

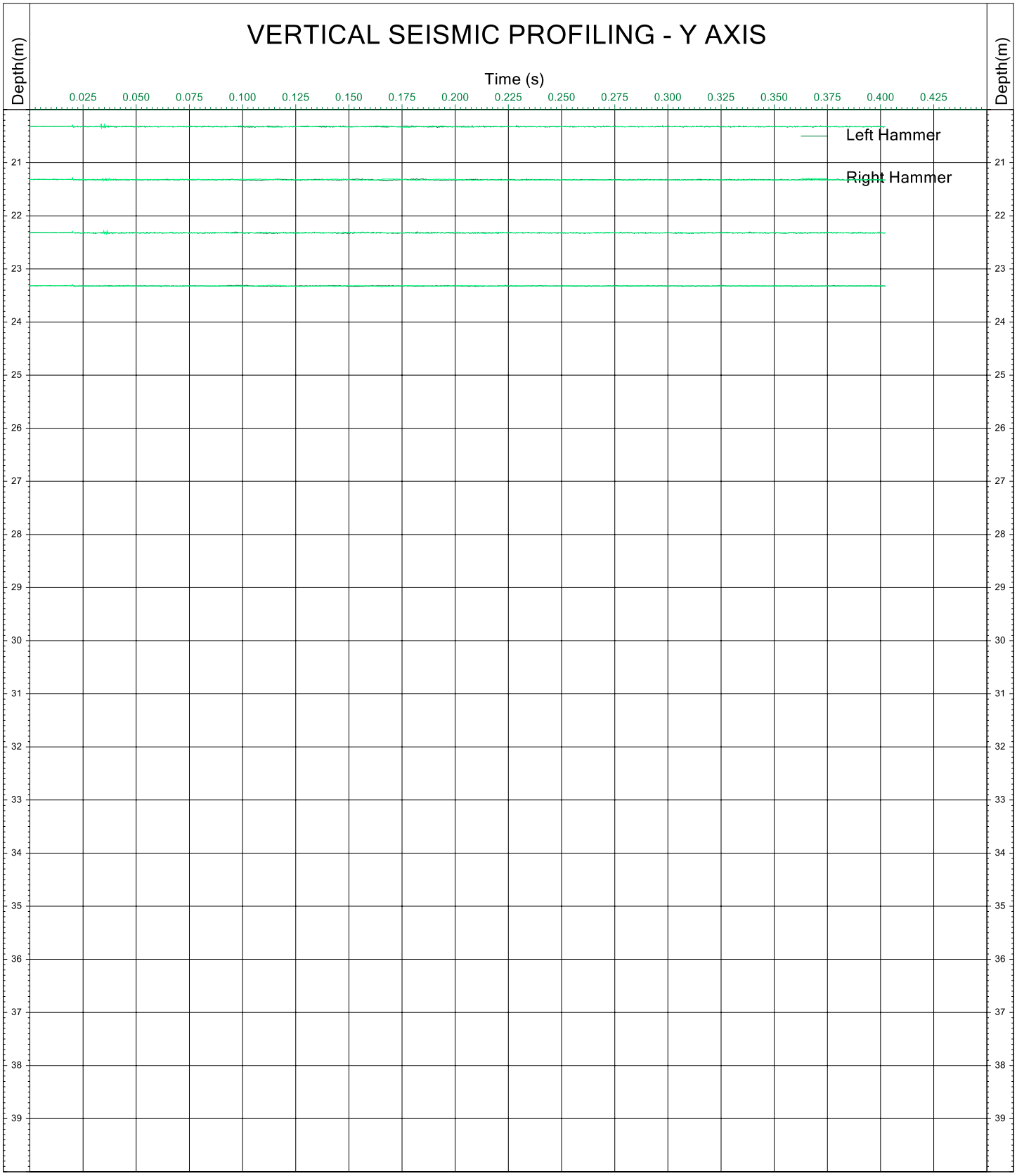


Area	Kattegat Sea	Coordinates (E, N)	673302.0 - 6252306.8	Location	
Contract	11596	Water Depth	28.800 (mMSL)	SCPT2	
Client Name	Energinet Eltransmission A/S	Date of Test	04/05/2021		
Vessel	MV Ocean Vantage	Cone No. / α Factor	130909 / 0.82	QC Status	
Comments	Cone class 1. Continuous seismic seabed CPT. Final depth 26.25m. Test terminated at operators discretion due to cone inclination >12 degrees and lack of lateral rod support into hard ground.	Base Inclination	1.4	Preliminary	Draft / Final
		CRS	ETRS 1989 UTM Zone 32N	JK/BC 04/05/2021	DR 10/06/2021 / 10/06/2021

Preliminary Investigation, Hesselø OWF

SCPTU TESTING

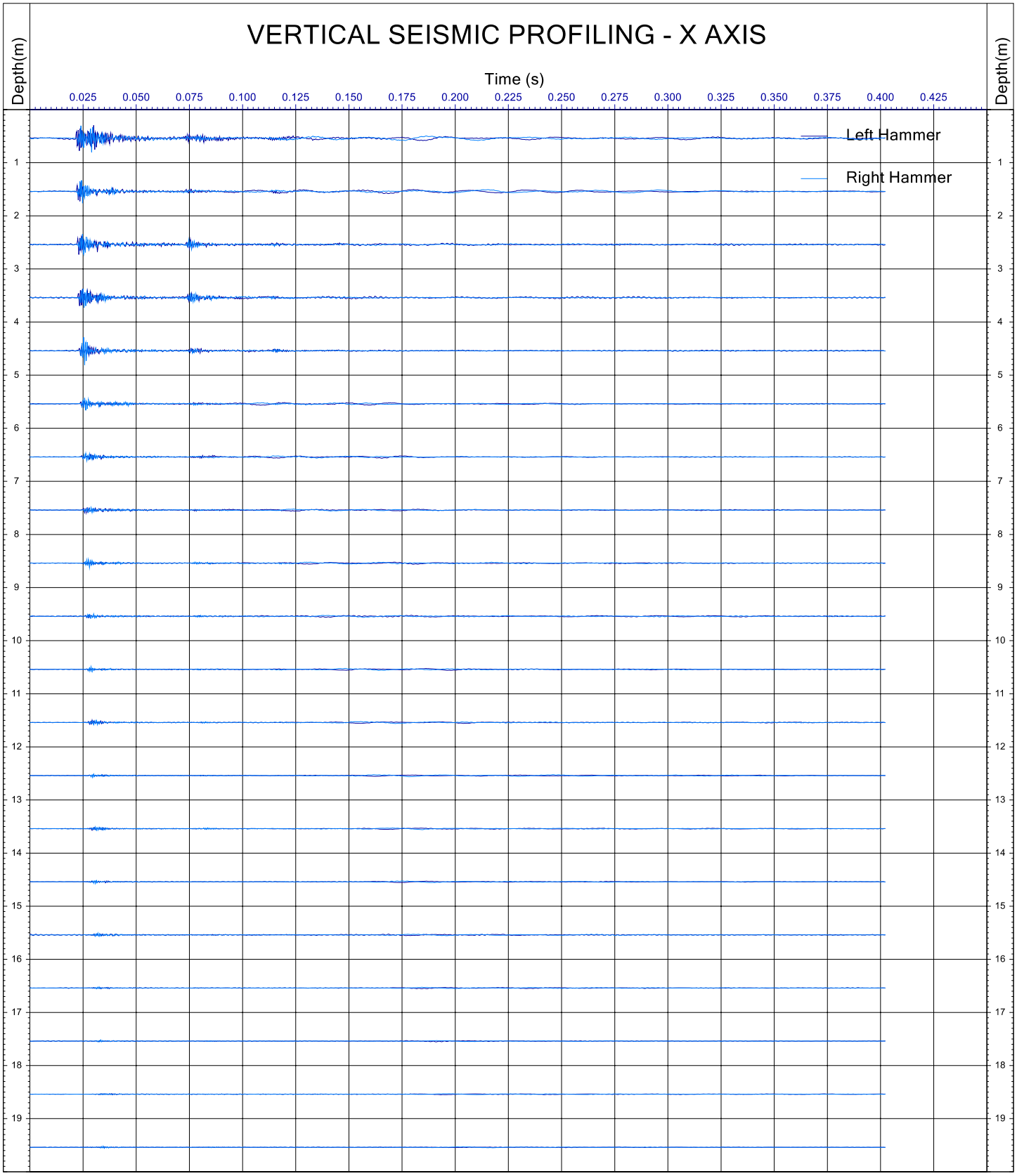
VERTICAL SEISMIC PROFILING - Y AXIS



Area	Kattegat Sea	Coordinates (E, N)	673302.0 - 6252306.8	Location		
Contract	11596	Water Depth	28.800 (mMSL)	SCPT2		
Client Name	Energinet Eltransmission A/S	Date of Test	04/05/2021			
Vessel	MV Ocean Vantage	Cone No. / α Factor	130909 / 0.82	QC Status		
Comments	Cone class 1. Continuous seismic seabed CPT. Final depth 26.25m. Test terminated at operators discretion due to cone inclination >12 degrees and lack of lateral rod support into hard ground.	Base Inclination	1.4	Preliminary	Draft	Final
		CRS	ETRS 1989 UTM Zone 32N	JK/BC 04/05/2021	DR 10/06/2021	10/06/2021

Preliminary Investigation, Hesselø OWF

SCPTU TESTING



Area	Kattegat Sea	Coordinates (E, N)	665881.4 - 6256363.1	Location	
Contract	11596	Water Depth	27.690 (mMSL)	SCPT5	
Client Name	Energinet Eltransmission A/S	Date of Test	06/05/2021		
Vessel	MV Ocean Vantage	Cone No. / α Factor	191114 / 0.76	QC Status	
Comments	Cone class 1. Continuous seismic seabed CPT. Final depth 29.74m. Test terminated at operators discretion due increasing total load and a lack of lateral rod support from mudline	Base Inclination	1.4	Preliminary	Draft / Final
		CRS	ETRS 1989 UTM Zone 32N	JK/BC 07/05/2021	DR 10/06/2021 / 10/06/2021

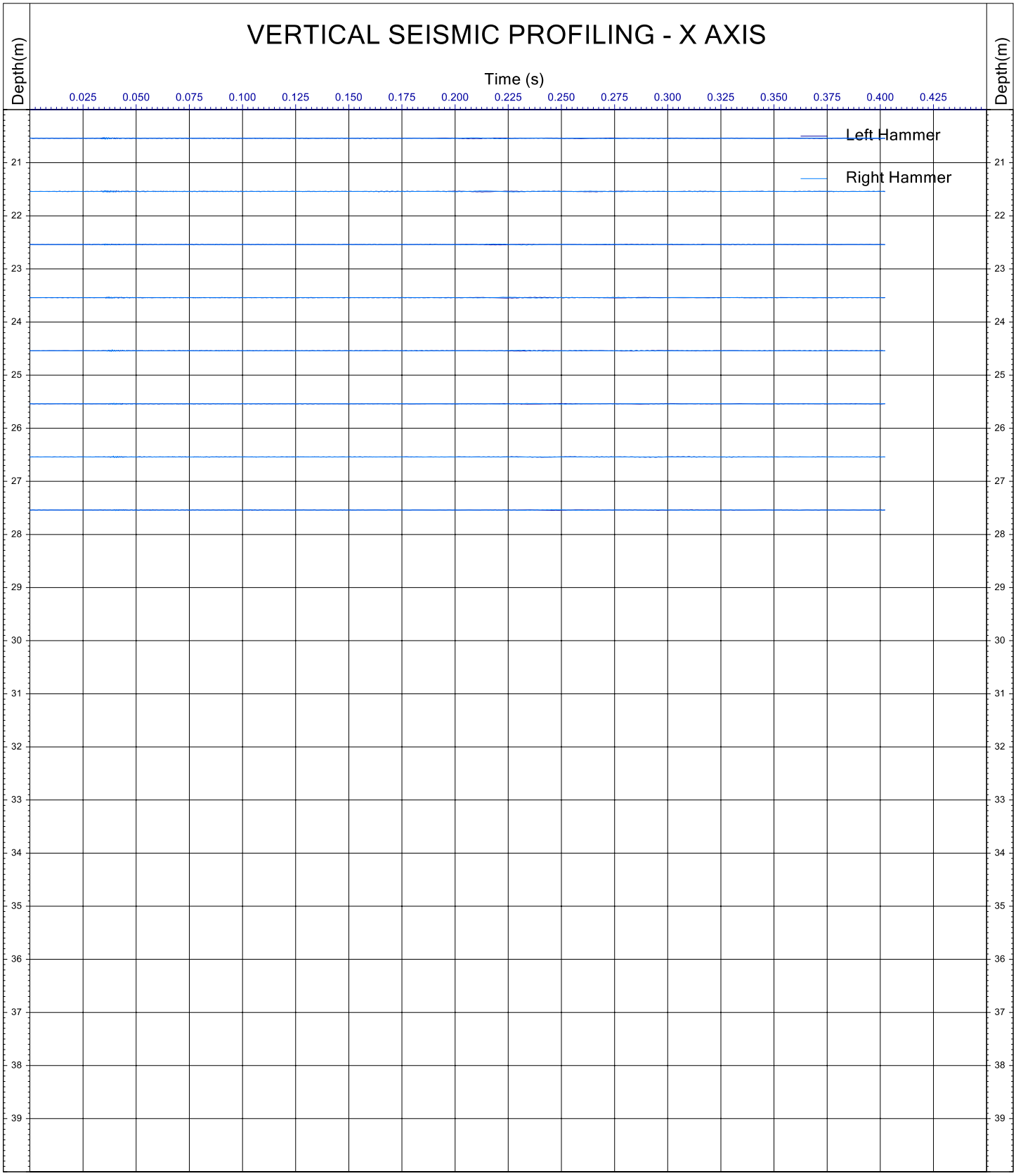
Gardline

Preliminary Investigation, Hesselø OWF

SCPTU TESTING

ENERGINET

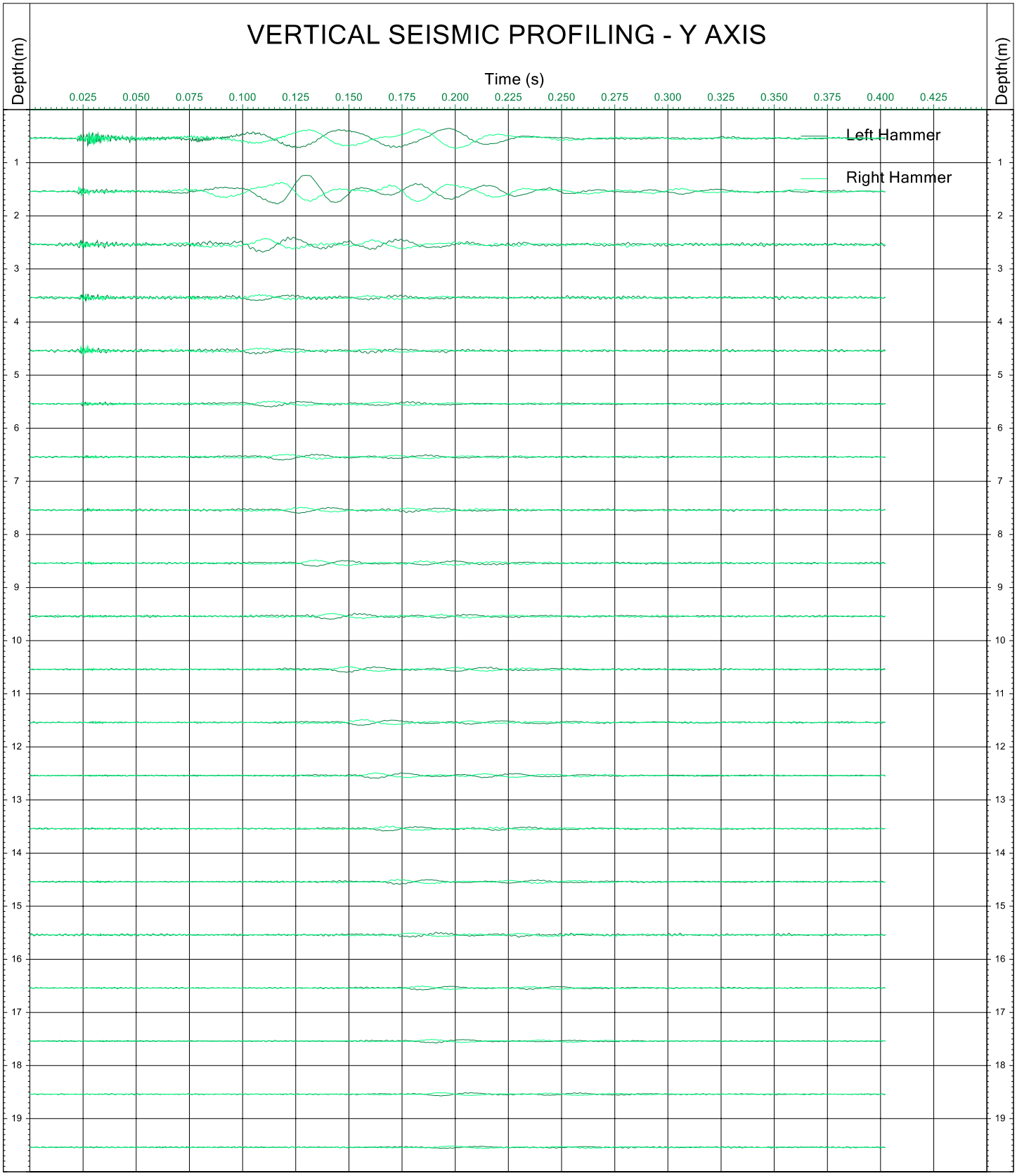
VERTICAL SEISMIC PROFILING - X AXIS



Area	Kattegat Sea	Coordinates (E, N)	665881.4 - 6256363.1	Location	
Contract	11596	Water Depth	27.690 (mMSL)	SCPT5	
Client Name	Energinet Eltransmission A/S	Date of Test	06/05/2021		
Vessel	MV Ocean Vantage	Cone No. / α Factor	191114 / 0.76	QC Status	
Comments	Cone class 1. Continuous seismic seabed CPT. Final depth 29.74m. Test terminated at operators discretion due increasing total load and a lack of lateral rod support from mudline	Base Inclination	1.4	Preliminary	Draft / Final
		CRS	ETRS 1989 UTM Zone 32N	JK/BC 07/05/2021	DR 10/06/2021 / 10/06/2021

Preliminary Investigation, Hesselø OWF

SCPTU TESTING

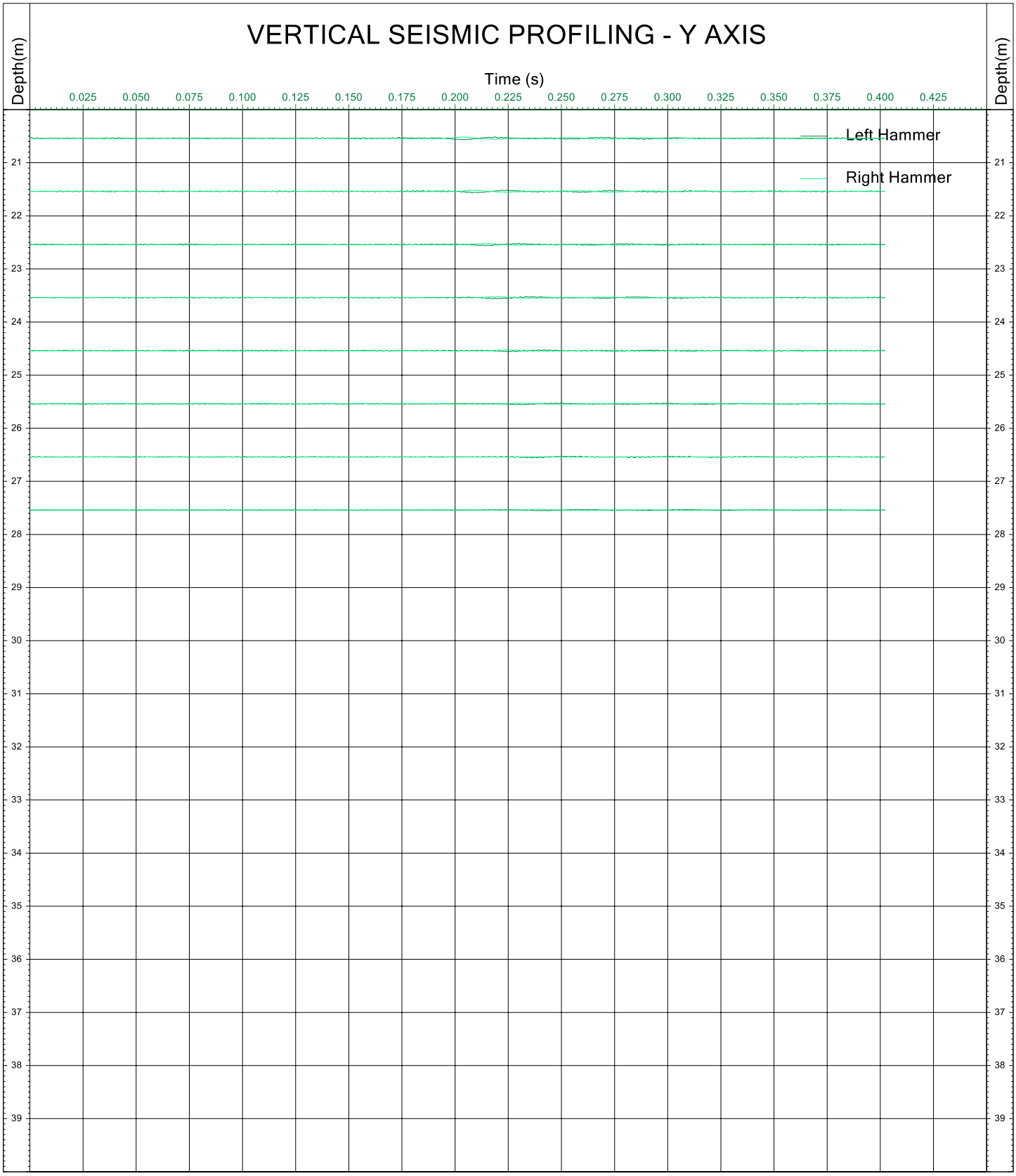


Area	Kattegat Sea	Coordinates (E, N)	665881.4 - 6256363.1	Location	
Contract	11596	Water Depth	27.690 (mMSL)	SCPT5	
Client Name	Energinet Eltransmission A/S	Date of Test	06/05/2021		
Vessel	MV Ocean Vantage	Cone No. / α Factor	191114 / 0.76	QC Status	
Comments	Cone class 1. Continuous seismic seabed CPT. Final depth 29.74m. Test terminated at operators discretion due increasing total load and a lack of lateral rod support from mudline	Base Inclination	1.4	Preliminary	Draft / Final
		CRS	ETRS 1989 UTM Zone 32N	JK/BC 07/05/2021	DR 10/06/2021 / 10/06/2021

Preliminary Investigation, Hesselø OWF

SCPTU TESTING

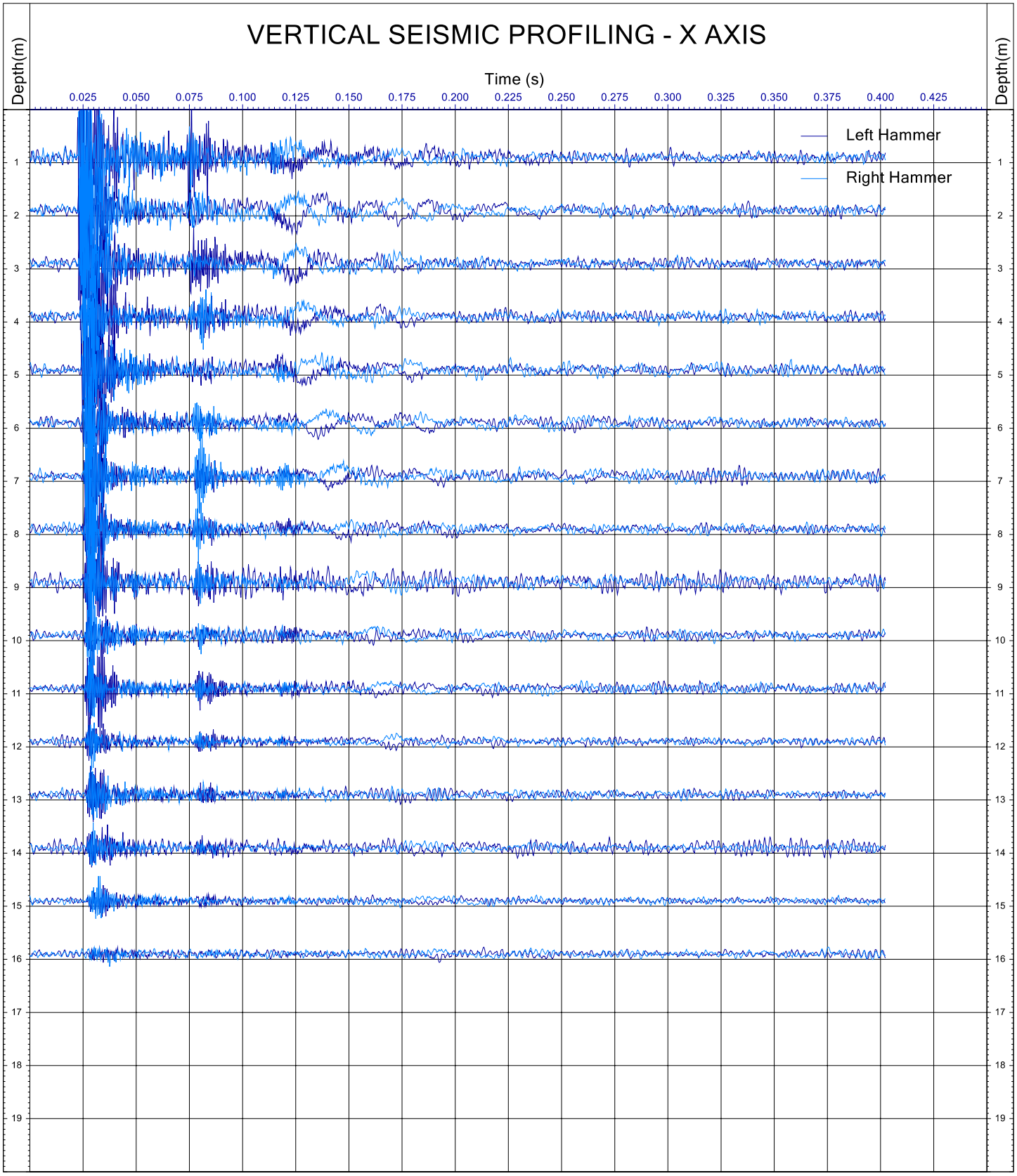
VERTICAL SEISMIC PROFILING - Y AXIS



Area	Kattegat Sea	Coordinates (E, N)	665881.4 - 6256363.1	Location	
Contract	11596	Water Depth	27.690 (mMSL)	SCPT5	
Client Name	Energinet Eltransmission A/S	Date of Test	06/05/2021		
Vessel	MV Ocean Vantage	Cone No. / α Factor	191114 / 0.76	QC Status	
Comments	Cone class 1. Continuous seismic seabed CPT. Final depth 29.74m. Test terminated at operators discretion due increasing total load and a lack of lateral rod support from mudline	Base Inclination	1.4	Preliminary	Draft / Final
		CRS	ETRS 1989 UTM Zone 32N	JK/BC 07/05/2021	DR 10/06/2021 / 10/06/2021

Preliminary Investigation, Hesselø OWF

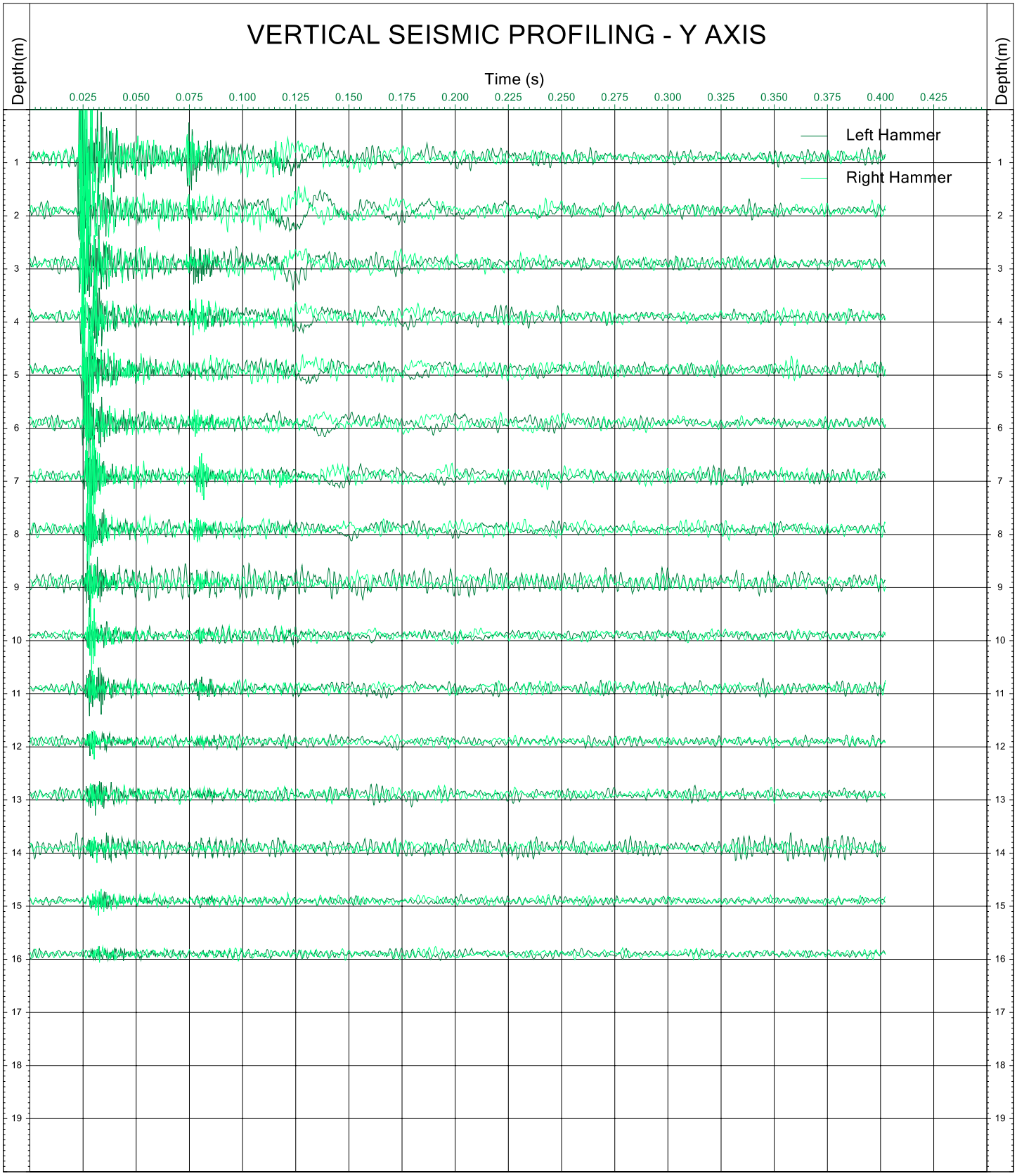
SCPTU TESTING



Area	Kattegat Sea	Coordinates (E, N)	675126.2 - 6262391.1	Location	
Contract	11596	Water Depth	31.810 (mMSL)	SCPT17	
Client Name	Energinet Eltransmission A/S	Date of Test	07/05/2021		
Vessel	MV Ocean Vantage	Cone No. / α Factor	081208 / 0.78	QC Status	
Comments	Cone class 1. Continuous seismic seabed CPT. Final depth 18.70m. Test terminated due to sudden inclination >3 degrees in less than 1 metre	Base Inclination	1.5	Preliminary	Draft / Final
		CRS	ETRS 1989 UTM Zone 32N	JK/BC 07/05/2021	DR 10/06/2021 / 10/06/2021

Preliminary Investigation, Hesselø OWF

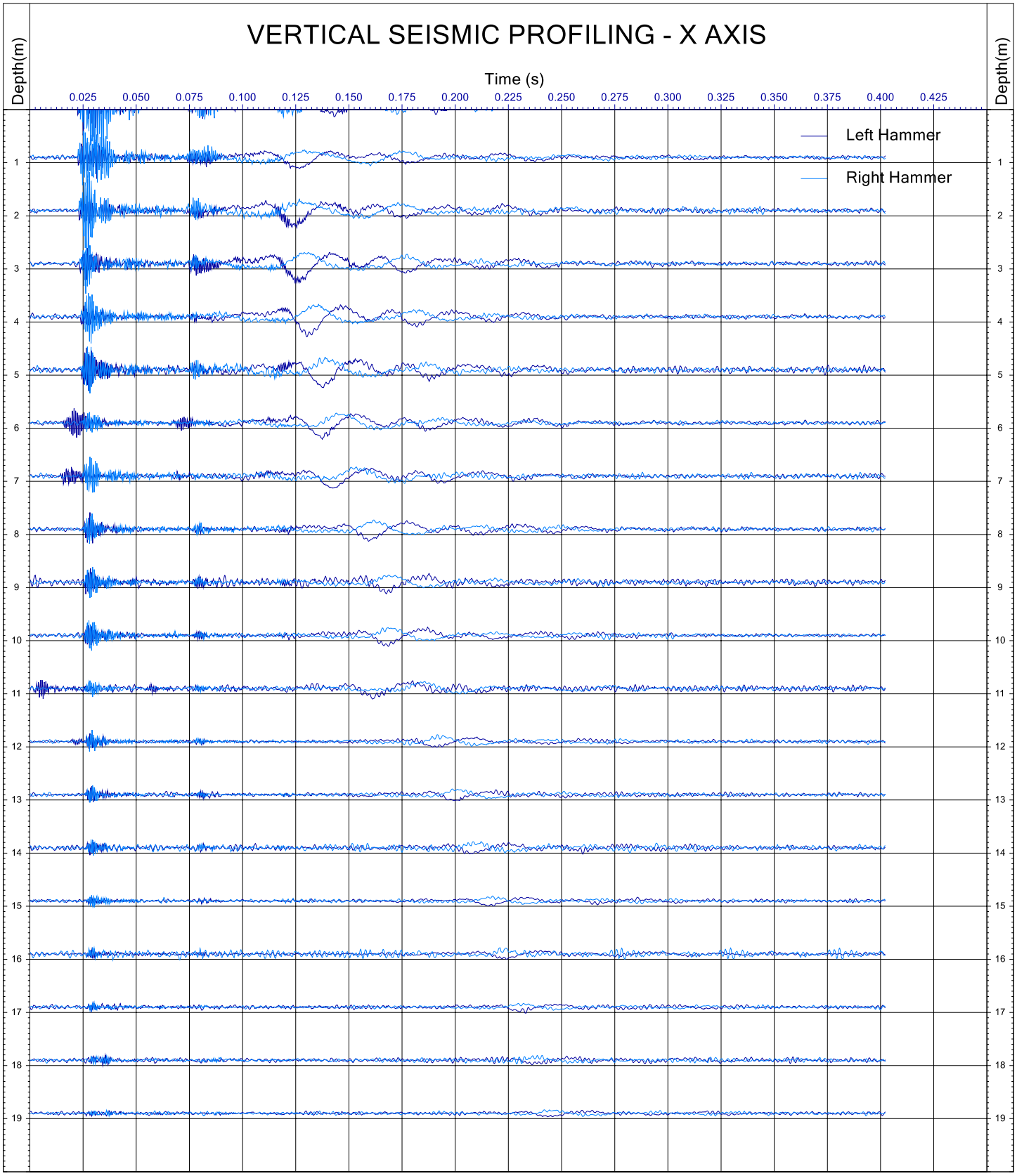
SCPTU TESTING



Area	Kattegat Sea	Coordinates (E, N)	675126.2 - 6262391.1	Location
Contract	11596	Water Depth	31.810 (mMSL)	SCPT17
Client Name	Energinet Eltransmission A/S	Date of Test	07/05/2021	
Vessel	MV Ocean Vantage	Cone No. / α Factor	081208 / 0.78	QC Status
Comments	Cone class 1. Continuous seismic seabed CPT. Final depth 18.70m. Test terminated due to sudden inclination >3 degrees in less than 1 metre	Base Inclination	1.5	Preliminary: JK/BC 07/05/2021 / Draft: DR 10/06/2021 / Final: 10/06/2021
		CRS	ETRS 1989 UTM Zone 32N	

Preliminary Investigation, Hesselø OWF

SCPTU TESTING



Area	Kattegat Sea	Coordinates (E, N)	670633.3 - 6266454.1	Location	
Contract	11596	Water Depth	30.840 (mMSL)	SCPT19	
Client Name	Energinet Eltransmission A/S	Date of Test	07/05/2021		
Vessel	MV Ocean Vantage	Cone No. / α Factor	130909 / 0.82	QC Status	
Comments	Cone class 1. Continuous seabed seismic CPT. Final depth 21.92m. Test terminated due to the maximum cone inclination of 12 degrees was reached	Base Inclination	1.4	Preliminary	Draft / Final
		CRS	ETRS 1989 UTM Zone 32N	JK/BC 07/05/2021	DR 10/06/2021 / 10/06/2021

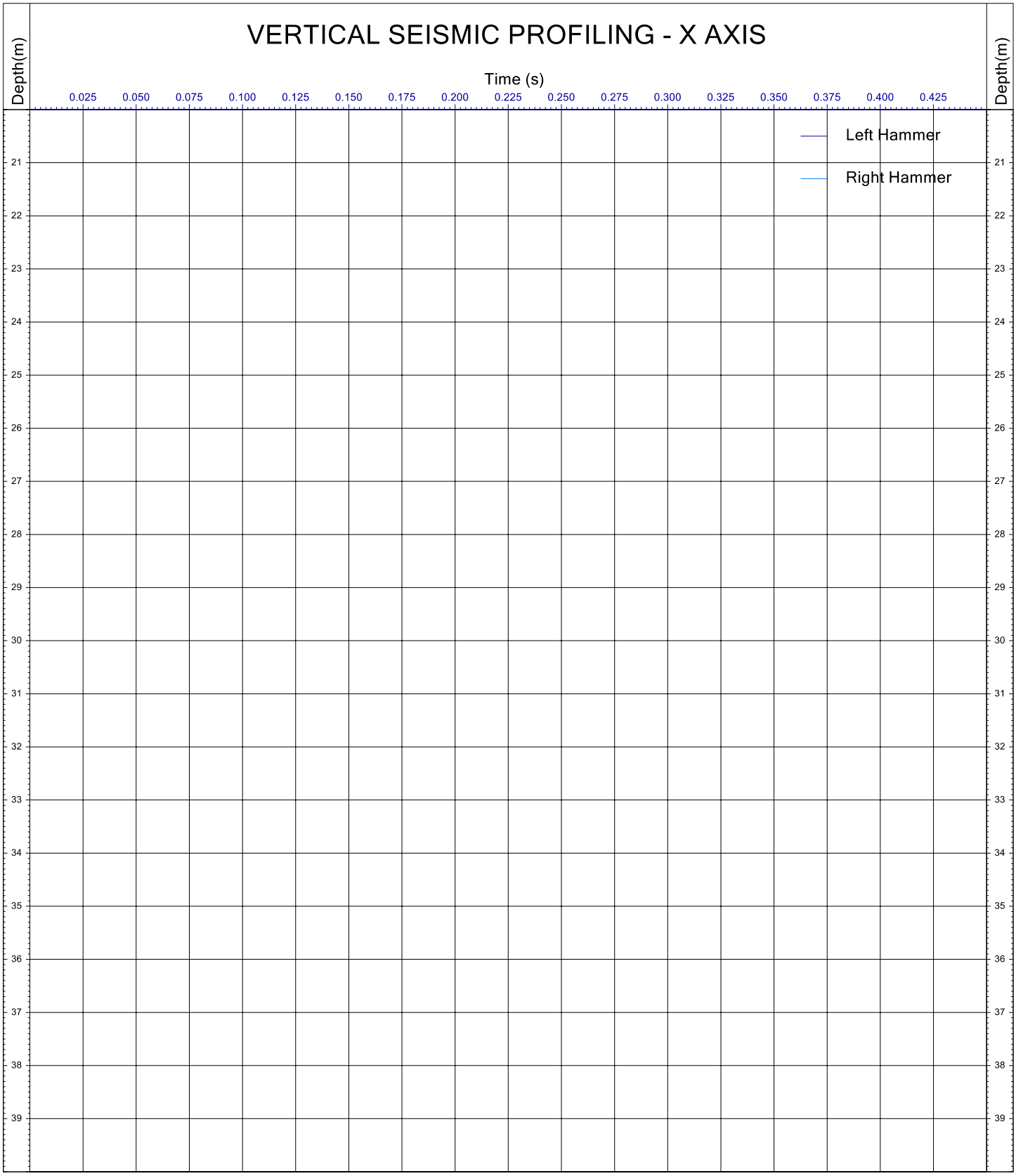
Gardline

Preliminary Investigation, Hesselø OWF

SCPTU TESTING

ENERGINET

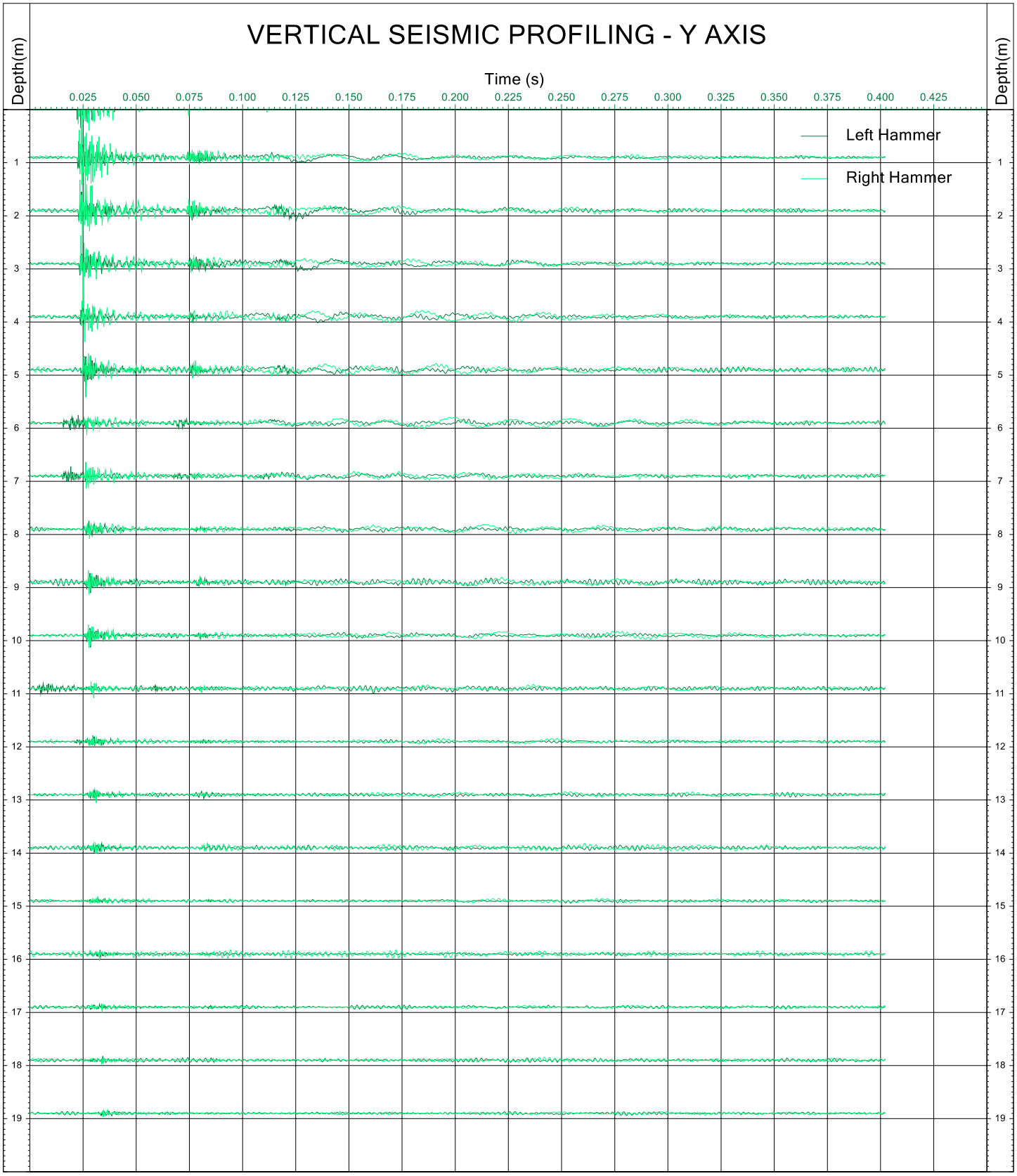
VERTICAL SEISMIC PROFILING - X AXIS



Area	Kattegat Sea	Coordinates (E, N)	670633.3 - 6266454.1	Location		
Contract	11596	Water Depth	30.840 (mMSL)	SCPT19		
Client Name	Energinet Eltransmission A/S	Date of Test	07/05/2021			
Vessel	MV Ocean Vantage	Cone No. / α Factor	130909 / 0.82	QC Status		
Comments	Cone class 1. Continuous seabed seismic CPT. Final depth 21.92m. Test terminated due to the maximum cone inclination of 12 degrees was reached	Base Inclination	1.4	Preliminary	Draft	Final
		CRS	ETRS 1989 UTM Zone 32N	JK/BC 07/05/2021	DR 10/06/2021	10/06/2021

Preliminary Investigation, Hesselø OWF

SCPTU TESTING



Area	Kattegat Sea	Coordinates (E, N)	670633.3 - 6266454.1	Location	
Contract	11596	Water Depth	30.840 (mMSL)	SCPT19	
Client Name	Energinet Eltransmission A/S	Date of Test	07/05/2021		
Vessel	MV Ocean Vantage	Cone No. / α Factor	130909 / 0.82	QC Status	
Comments	Cone class 1. Continuous seabed seismic CPT. Final depth 21.92m. Test terminated due to the maximum cone inclination of 12 degrees was reached	Base Inclination	1.4	Preliminary	Draft / Final
		CRS	ETRS 1989 UTM Zone 32N	JK/BC 07/05/2021	DR 10/06/2021 / 10/06/2021

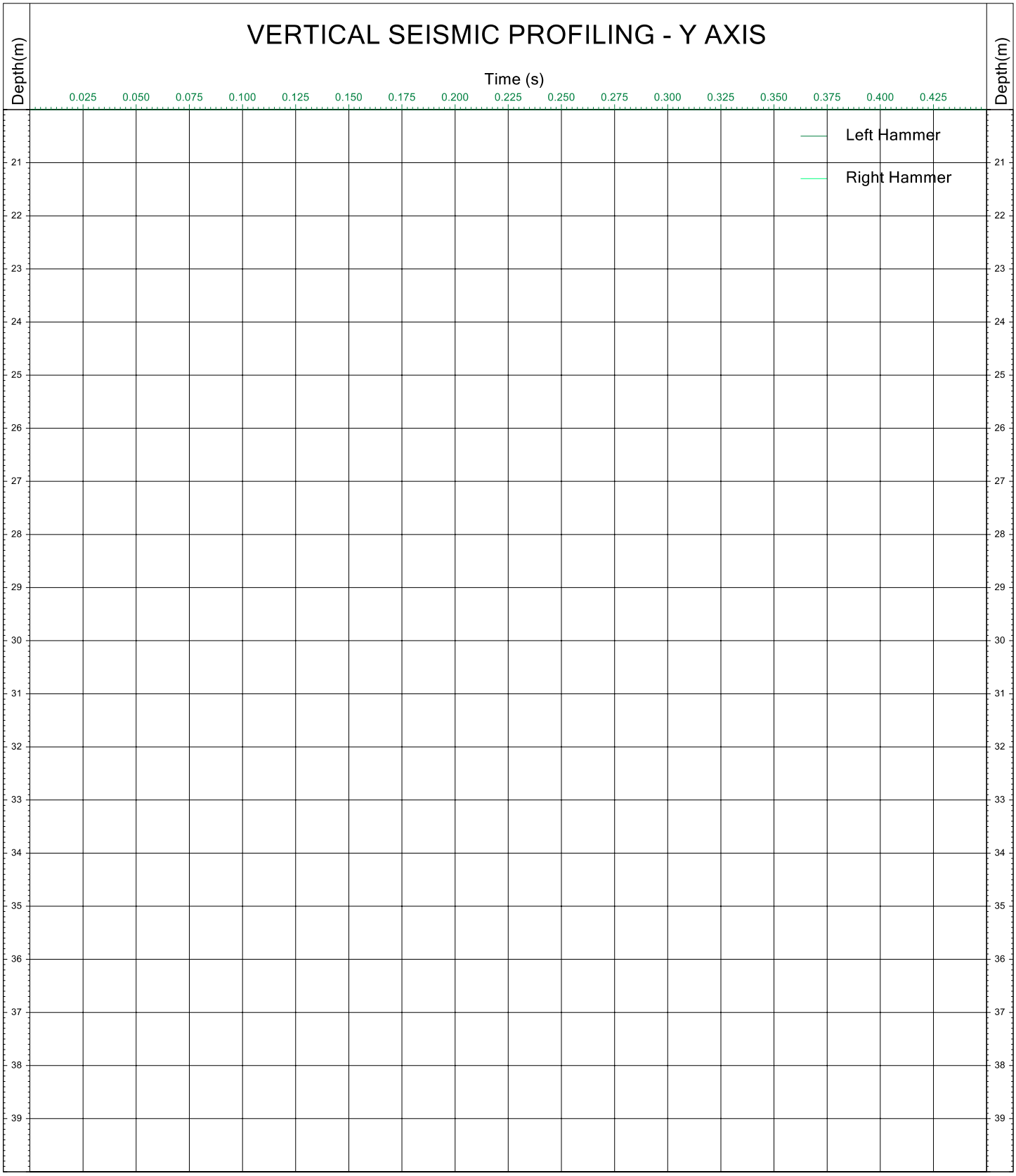
Gardline

Preliminary Investigation, Hesselø OWF

SCPTU TESTING

ENERGINET

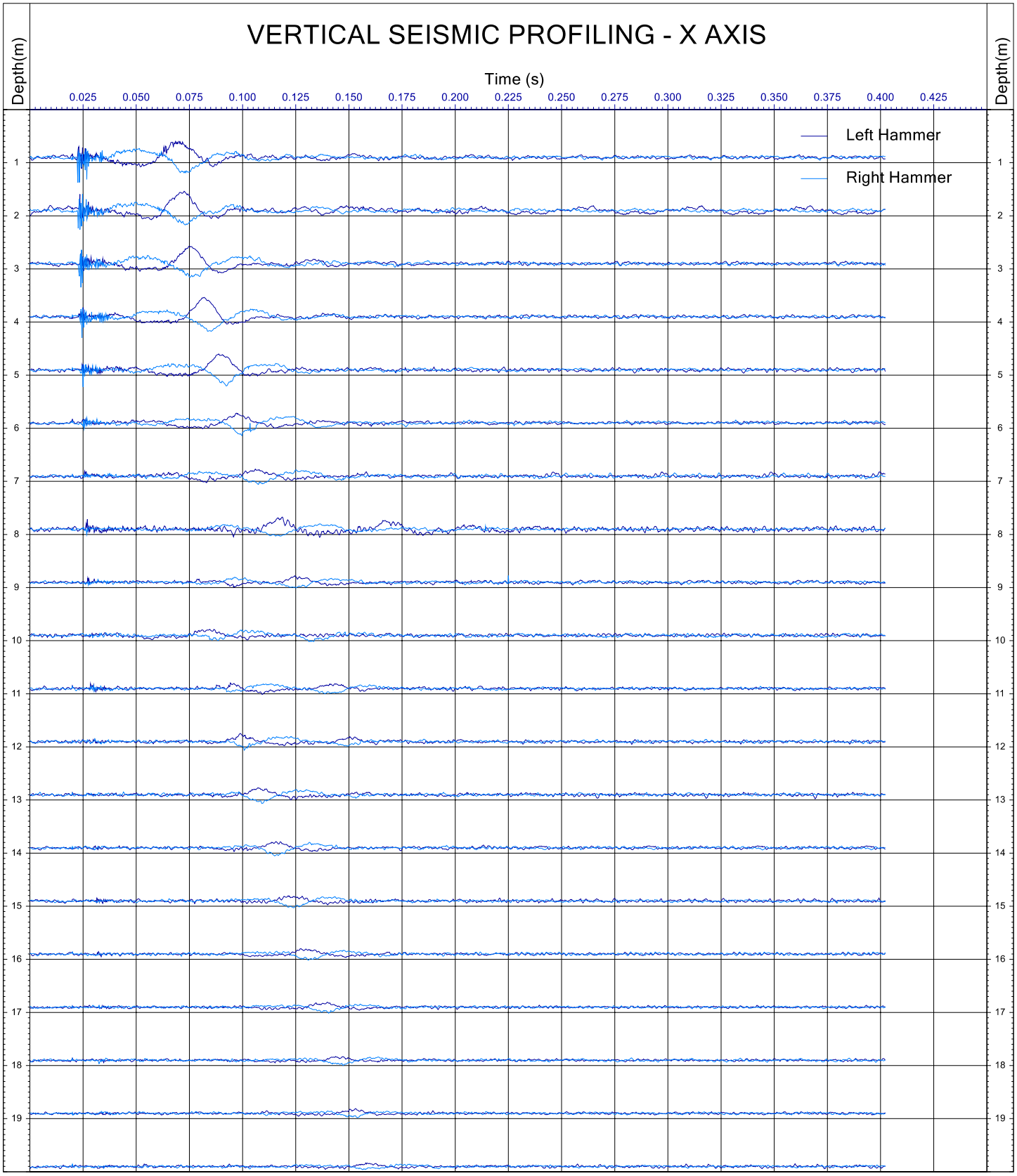
VERTICAL SEISMIC PROFILING - Y AXIS



Area	Kattegat Sea	Coordinates (E, N)	670633.3 - 6266454.1	Location		
Contract	11596	Water Depth	30.840 (mMSL)	SCPT19		
Client Name	Energinet Eltransmission A/S	Date of Test	07/05/2021			
Vessel	MV Ocean Vantage	Cone No. / α Factor	130909 / 0.82	QC Status		
Comments	Cone class 1. Continuous seabed seismic CPT. Final depth 21.92m. Test terminated due to the maximum cone inclination of 12 degrees was reached	Base Inclination	1.4	Preliminary	Draft	Final
		CRS	ETRS 1989 UTM Zone 32N	JK/BC 07/05/2021	DR 10/06/2021	10/06/2021

Preliminary Investigation, Hesselø OWF

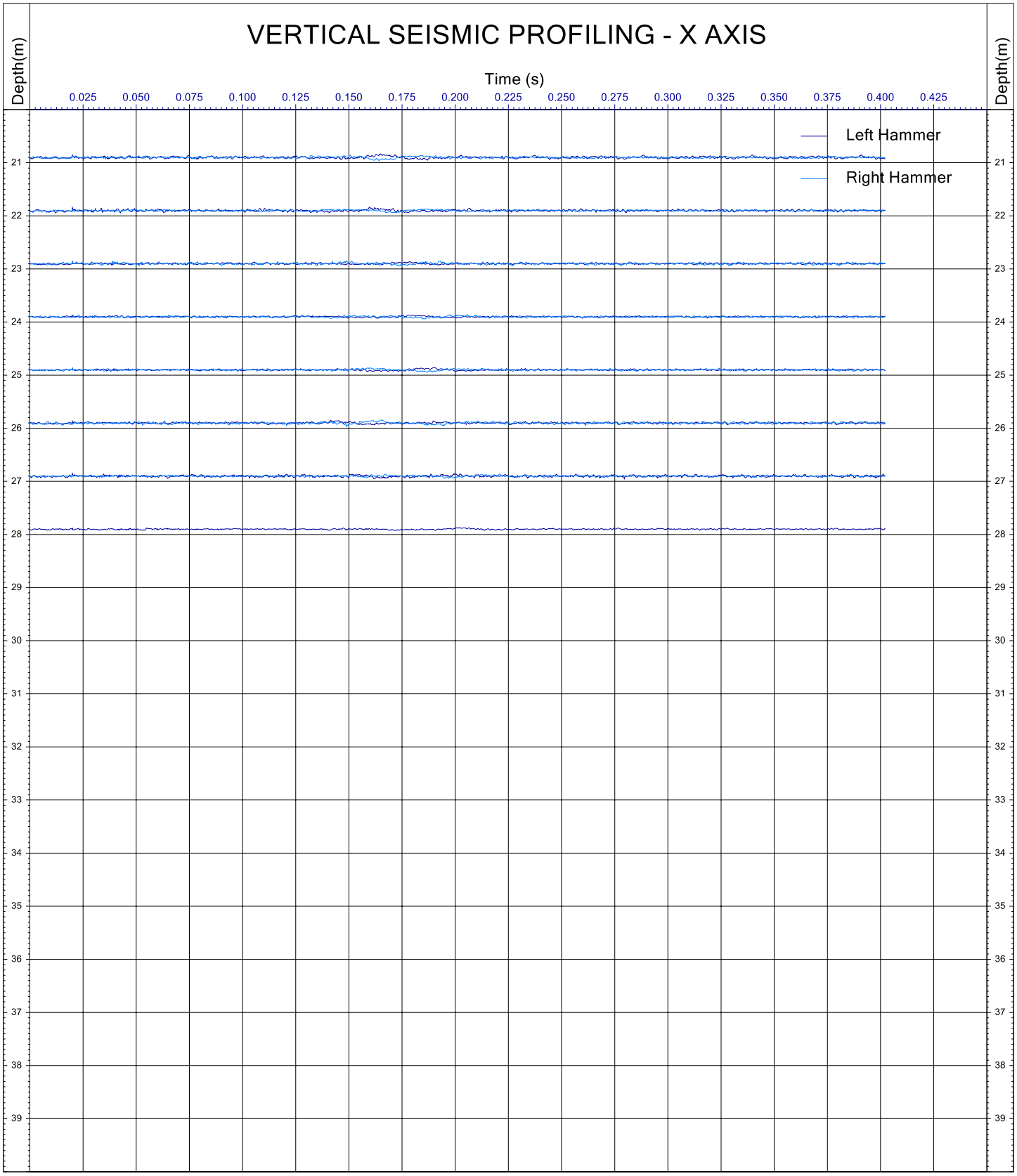
SCPTU TESTING



Area	Kattegat Sea	Coordinates (E, N)	677715.3 - 6266260.7	Location		
Contract	11596	Water Depth	32.480 (mMSL)	SCPT21		
Client Name	Energinet Eltransmission A/S	Date of Test	03/05/2021			
Vessel	MV Ocean Vantage	Cone No. / α Factor	120829 / 0.80	QC Status		
Comments	Cone class 1. Continuous seismic seabed CPT. Final depth 31.61m. Test terminated due to rising weather conditions.	Base Inclination	1.5	Preliminary	Draft	Final
		CRS	ETRS 1989 UTM Zone 32N	JK/BC 04/05/2021	DR 10/06/2021	10/06/2021

Preliminary Investigation, Hesselø OWF

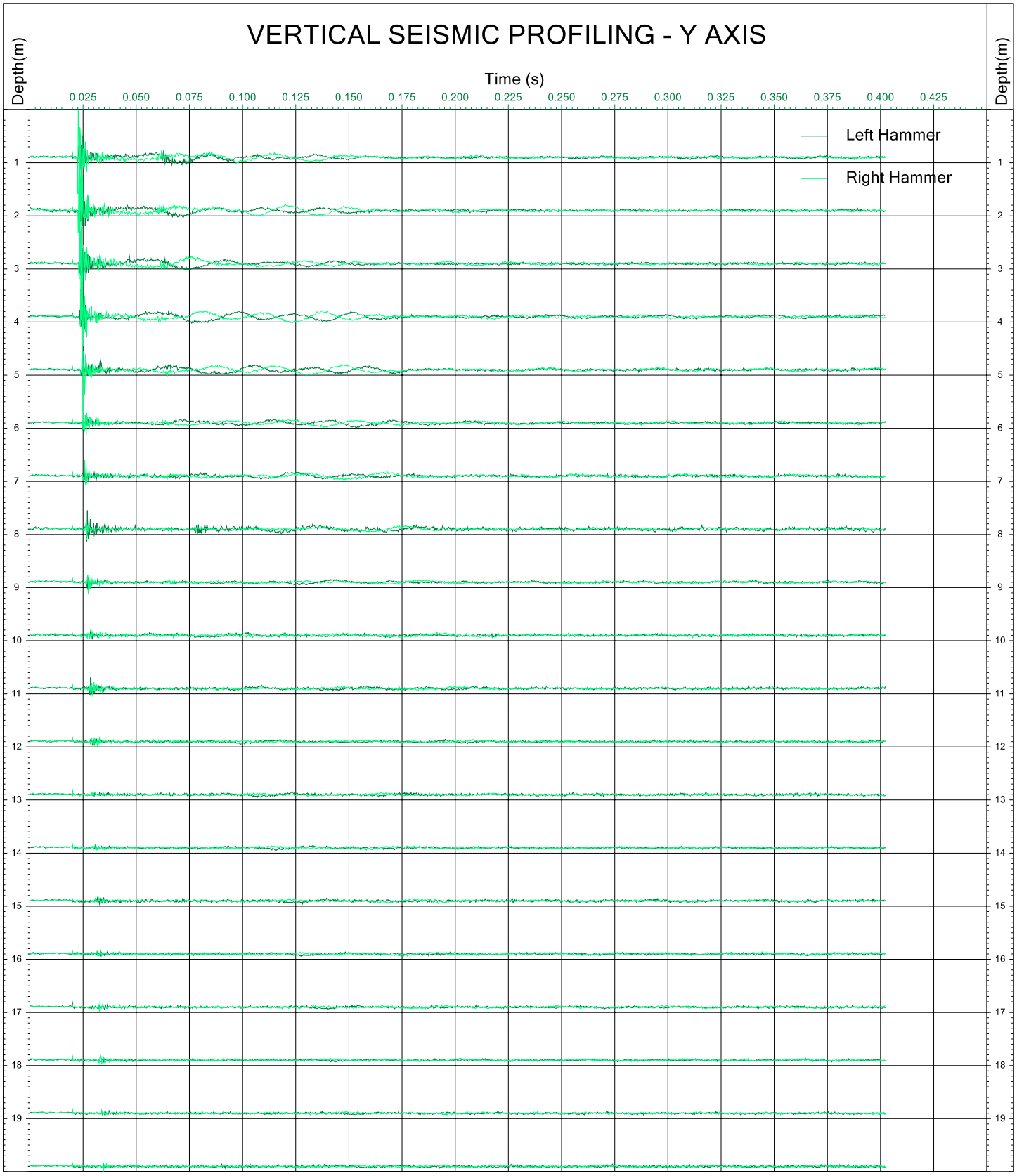
SCPTU TESTING



Area	Kattegat Sea	Coordinates (E, N)	677715.3 - 6266260.7	Location	
Contract	11596	Water Depth	32.480 (mMSL)	SCPT21	
Client Name	Energinet Eltransmission A/S	Date of Test	03/05/2021		
Vessel	MV Ocean Vantage	Cone No. / α Factor	120829 / 0.80	QC Status	
Comments	Cone class 1. Continuous seismic seabed CPT. Final depth 31.61m. Test terminated due to rising weather conditions.	Base Inclination	1.5	Preliminary	Draft / Final
		CRS	ETRS 1989 UTM Zone 32N	JK/BC 04/05/2021	DR 10/06/2021 / 10/06/2021

Preliminary Investigation, Hesselø OWF

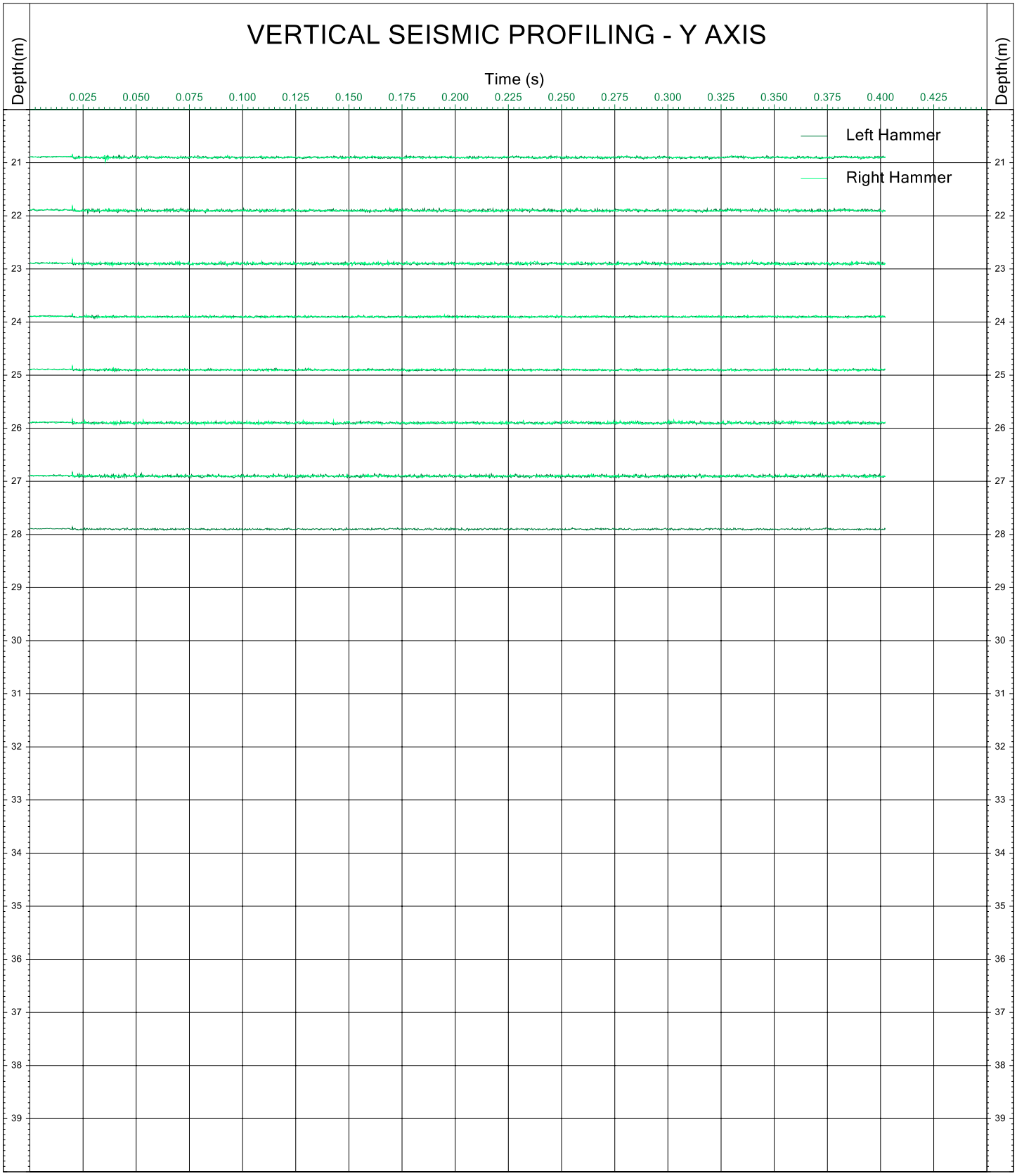
SCPTU TESTING



Area	Kattegat Sea	Coordinates (E, N)	677715.3 - 6266260.7	Location	
Contract	11596	Water Depth	32.480 (mMSL)	SCPT21	
Client Name	Energinet Eltransmission A/S	Date of Test	03/05/2021		
Vessel	MV Ocean Vantage	Cone No. / α Factor	120829 / 0.80	QC Status	
Comments	Cone class 1. Continuous seismic seabed CPT. Final depth 31.61m. Test terminated due to rising weather conditions.	Base Inclination	1.5	Preliminary	Draft / Final
		CRS	ETRS 1989 UTM Zone 32N	JK/BC 04/05/2021	DR 10/06/2021 / 10/06/2021

Preliminary Investigation, Hesselø OWF

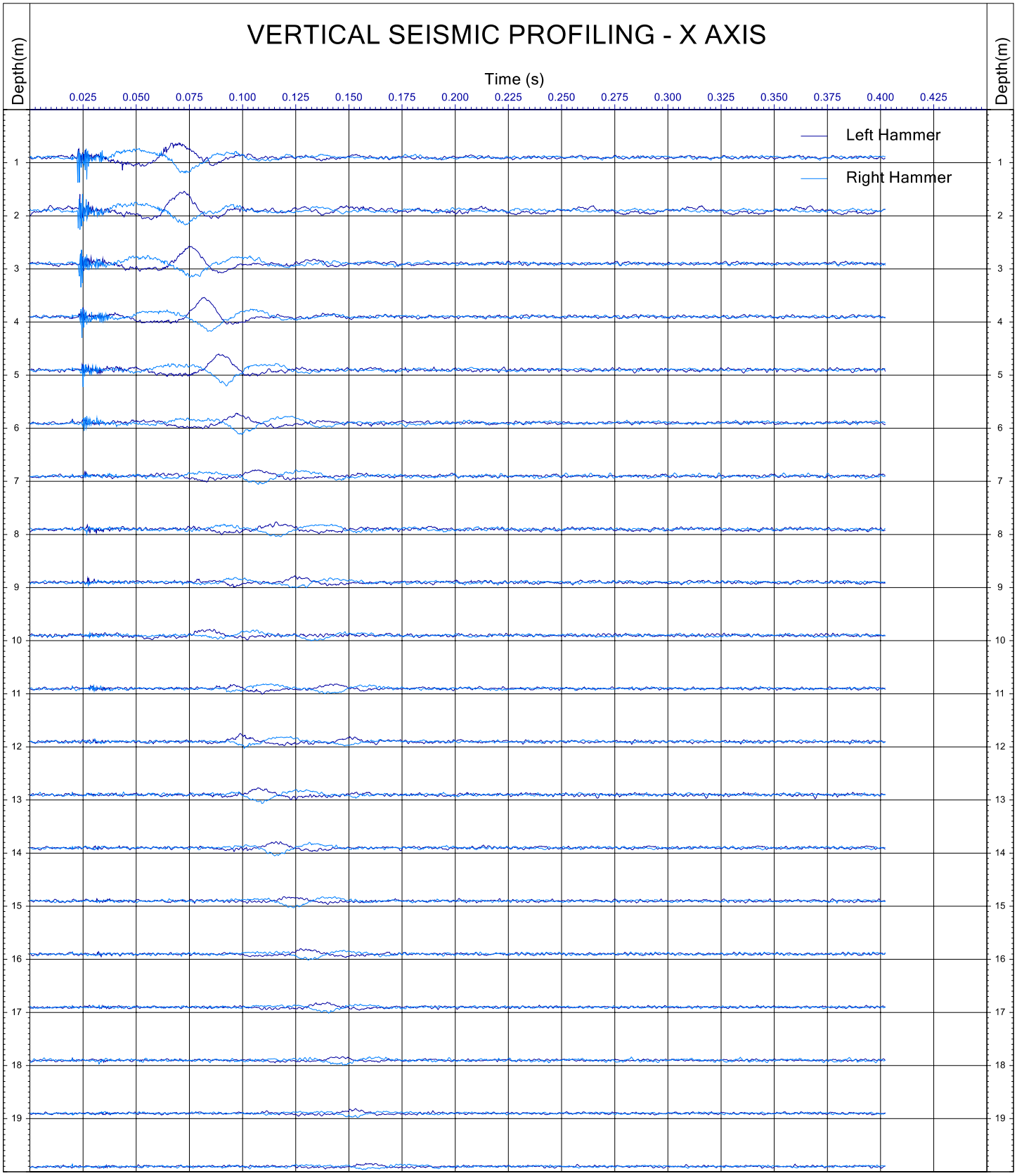
SCPTU TESTING



Area	Kattegat Sea	Coordinates (E, N)	677715.3 - 6266260.7	Location	
Contract	11596	Water Depth	32.480 (mMSL)	SCPT21	
Client Name	Energinet Eltransmission A/S	Date of Test	03/05/2021		
Vessel	MV Ocean Vantage	Cone No. / α Factor	120829 / 0.80	QC Status	
Comments	Cone class 1. Continuous seismic seabed CPT. Final depth 31.61m. Test terminated due to rising weather conditions.	Base Inclination	1.5	Preliminary	Draft / Final
		CRS	ETRS 1989 UTM Zone 32N	JK/BC 04/05/2021	DR 10/06/2021 / 10/06/2021

Preliminary Investigation, Hesselø OWF

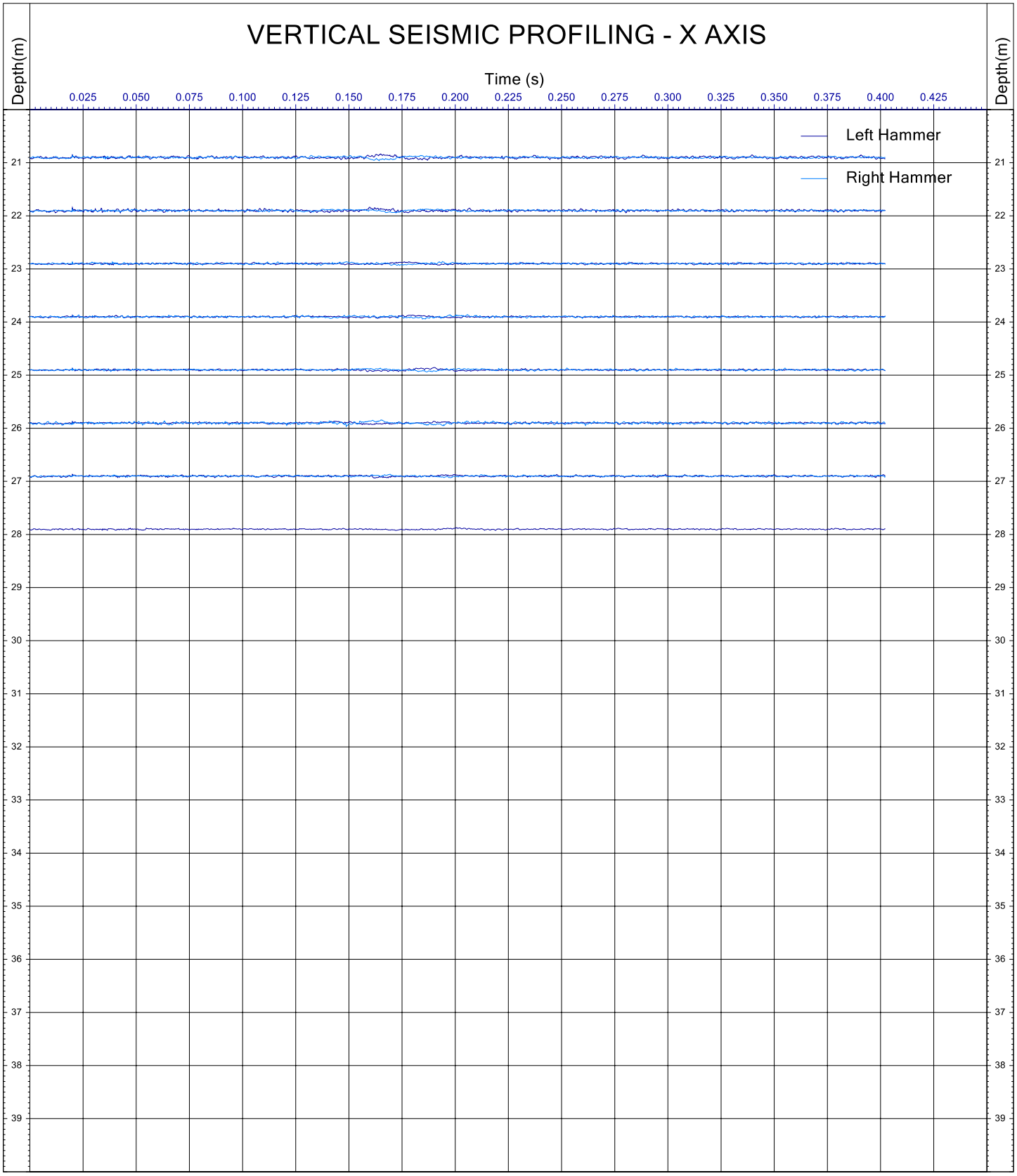
SCPTU TESTING



Area	Kattegat Sea	Coordinates (E, N)	676059.4 - 6274402.9	Location		
Contract	11596	Water Depth	31.160 (mMSL)	SCPT24		
Client Name	Energinet Eltransmission A/S	Date of Test	03/05/2021			
Vessel	MV Ocean Vantage	Cone No. / α Factor	130206 / 0.77	QC Status		
Comments	Out of Class. Continuous seismic seabed CPT. Final depth 32.93m. Test terminated due sudden inclination change of 5 degrees in less than 1 metre-attempted to cycle but inclination was too high, Please note the derived data has been removed where seismic testing was conducted.	Base Inclination	1.4	Preliminary	Draft	Final
		CRS	ETRS 1989 UTM Zone 32N	JK/BC 03/05/2021	DR 10/06/2021	10/06/2021

Preliminary Investigation, Hesselø OWF

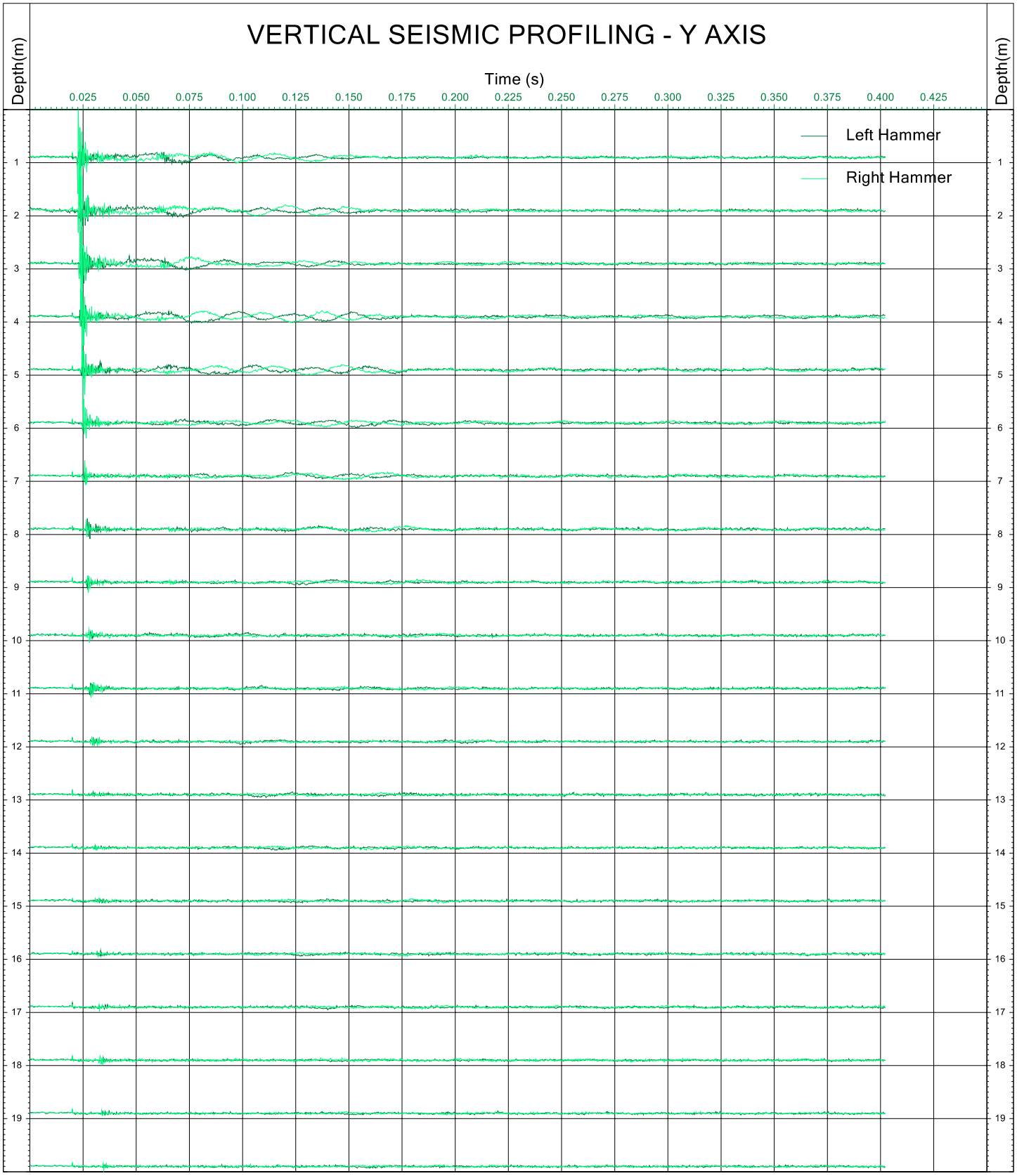
SCPTU TESTING



Area	Kattegat Sea	Coordinates (E, N)	676059.4 - 6274402.9	Location		
Contract	11596	Water Depth	31.160 (mMSL)	SCPT24		
Client Name	Energinet Eltransmission A/S	Date of Test	03/05/2021			
Vessel	MV Ocean Vantage	Cone No. / α Factor	130206 / 0.77	QC Status		
Comments	Out of Class. Continuous seismic seabed CPT. Final depth 32.93m. Test terminated due sudden inclination change of 5 degrees in less than 1 metre-attempted to cycle but inclination was too high, Please note the derived data has been removed where seismic testing was conducted.	Base Inclination	1.4	Preliminary	Draft	Final
		CRS	ETRS 1989 UTM Zone 32N	JK/BC 03/05/2021	DR 10/06/2021	10/06/2021

Preliminary Investigation, Hesselø OWF

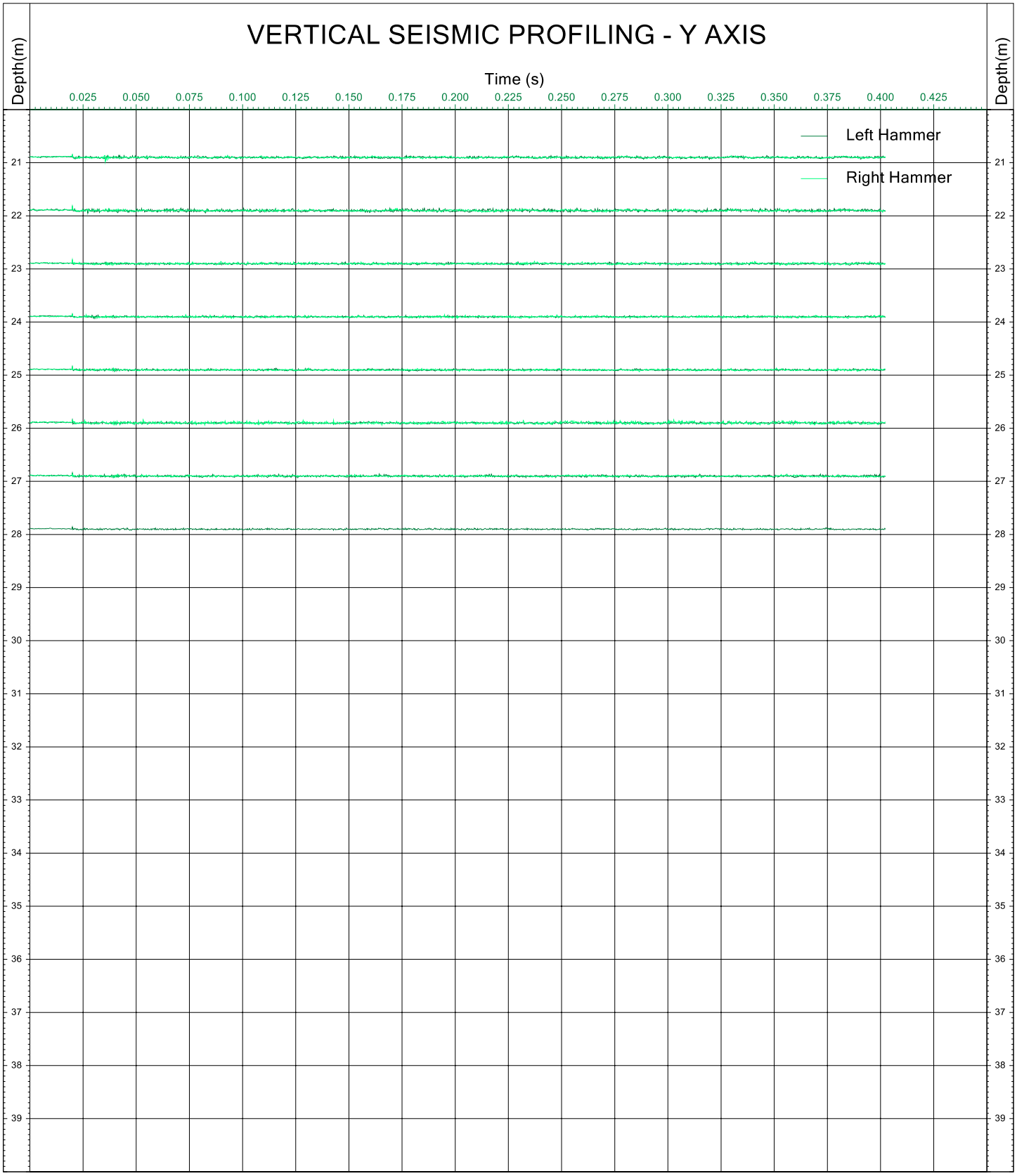
SCPTU TESTING



Area	Kattegat Sea	Coordinates (E, N)	676059.4 - 6274402.9	Location	
Contract	11596	Water Depth	31.160 (mMSL)	SCPT24	
Client Name	Energinet Eltransmission A/S	Date of Test	03/05/2021		
Vessel	MV Ocean Vantage	Cone No. / α Factor	130206 / 0.77	QC Status	
Comments	Out of Class. Continuous seismic seabed CPT. Final depth 32.93m. Test terminated due sudden inclination change of 5 degrees in less than 1 metre-attempted to cycle but inclination was too high, Please note the derived data has been removed where seismic testing was conducted.	Base Inclination	1.4	Preliminary	Draft / Final
		CRS	ETRS 1989 UTM Zone 32N	JK/BC 03/05/2021	DR 10/06/2021 / 10/06/2021

Preliminary Investigation, Hesselø OWF

SCPTU TESTING

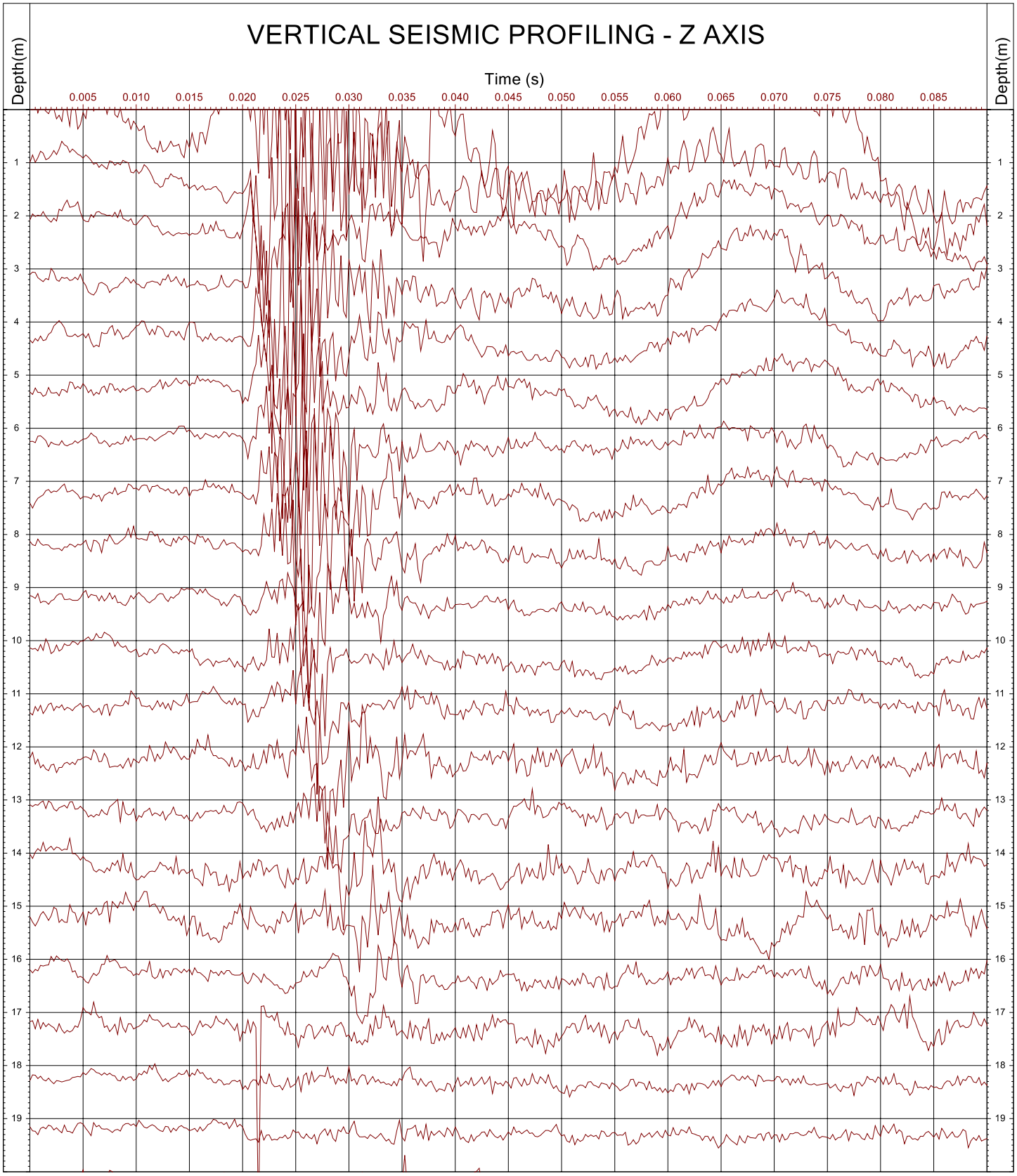


Area	Kattegat Sea	Coordinates (E, N)	676059.4 - 6274402.9	Location	
Contract	11596	Water Depth	31.160 (mMSL)	SCPT24	
Client Name	Energinet Eltransmission A/S	Date of Test	03/05/2021		
Vessel	MV Ocean Vantage	Cone No. / α Factor	130206 / 0.77	QC Status	
Comments	Out of Class. Continuous seismic seabed CPT. Final depth 32.93m. Test terminated due sudden inclination change of 5 degrees in less than 1 metre-attempted to cycle but inclination was too high, Please note the derived data has been removed where seismic testing was conducted.	Base Inclination	1.4	Preliminary	Draft / Final
		CRS	ETRS 1989 UTM Zone 32N	JK/BC 03/05/2021	DR 10/06/2021 / 10/06/2021

5.2 SCPTU P-Wave Traces

Preliminary Investigation, Hesselø OWF

SCPTU TESTING



Area	Kattegat Sea	Coordinates (E, N)	681923.4 - 6249306.6	Location		
Contract	11596	Water Depth	31.710 (mMSL)	SCPT1a		
Client Name	Energinet Eltransmission A/S	Date of Test	05/05/2021			
Vessel	MV Ocean Vantage	Cone No. / α Factor	130206 / 0.77	QC Status		
Comments	Cone class 1. Continuous seismic seabed CPT. Final depth 37.55m. Test terminated at operators discretion due to increasing total force and lack of lateral rod support	Base Inclination	1.5	Preliminary	Draft	Final
		CRS	ETRS 1989 UTM Zone 32N	JK/BC 06/05/2021	DR 10/06/2021	10/06/2021

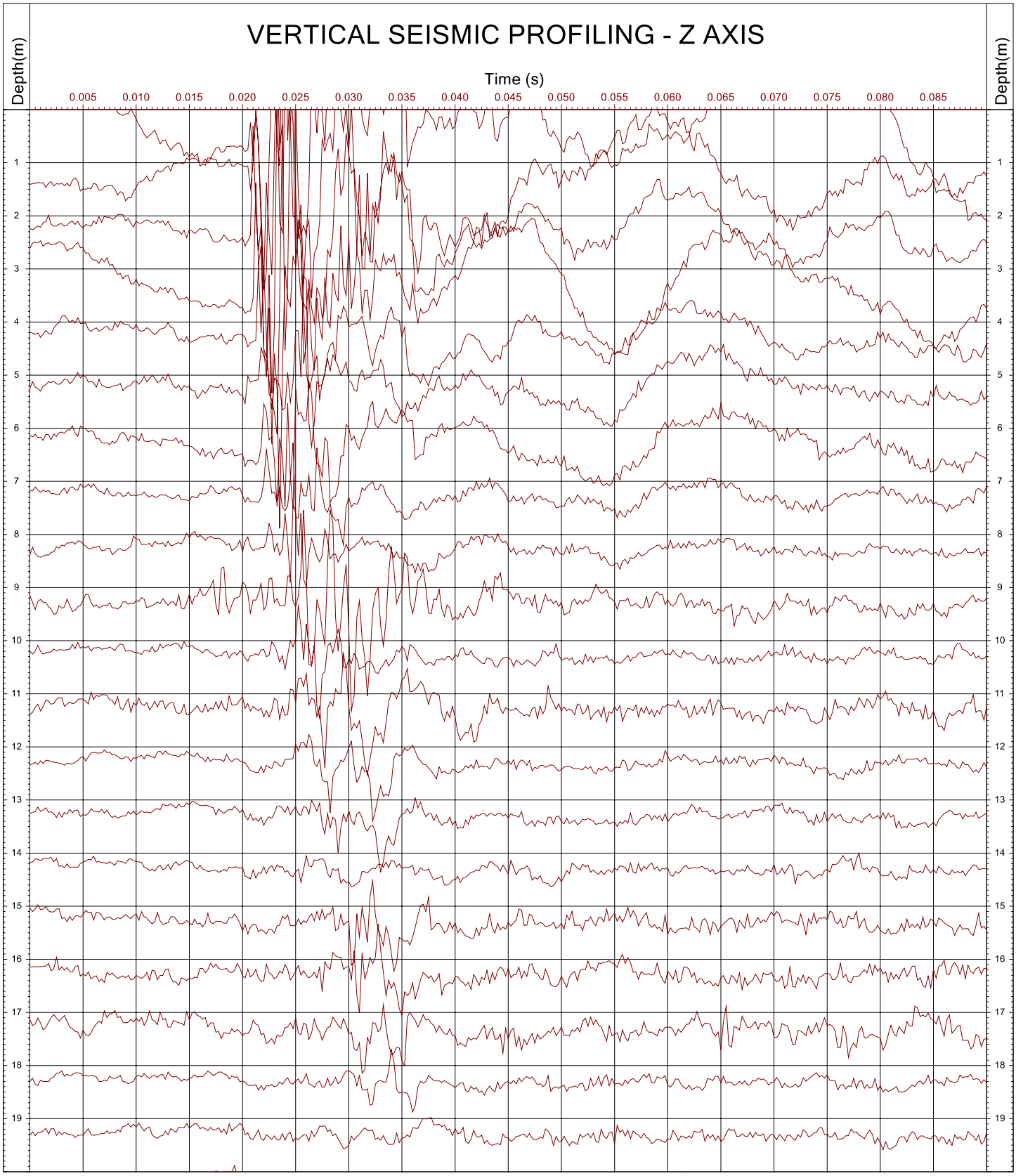
Preliminary Investigation, Hesselø OWF

SCPTU TESTING

Area	Kattegat Sea	Coordinates (E, N)	681923.4 - 6249306.6	Location	
Contract	11596	Water Depth	31.710 (mMSL)	SCPT1a	
Client Name	Energinet Eltransmission A/S	Date of Test	05/05/2021		
Vessel	MV Ocean Vantage	Cone No. / α Factor	130206 / 0.77	QC Status	
Comments	Cone class 1. Continuous seismic seabed CPT. Final depth 37.55m. Test terminated at operators discretion due to increasing total force and lack of lateral rod support	Base Inclination	1.5	Preliminary	Draft / Final
		CRS	ETRS 1989 UTM Zone 32N	JK/BC 06/05/2021	DR 10/06/2021 / 10/06/2021

Preliminary Investigation, Hesselø OWF

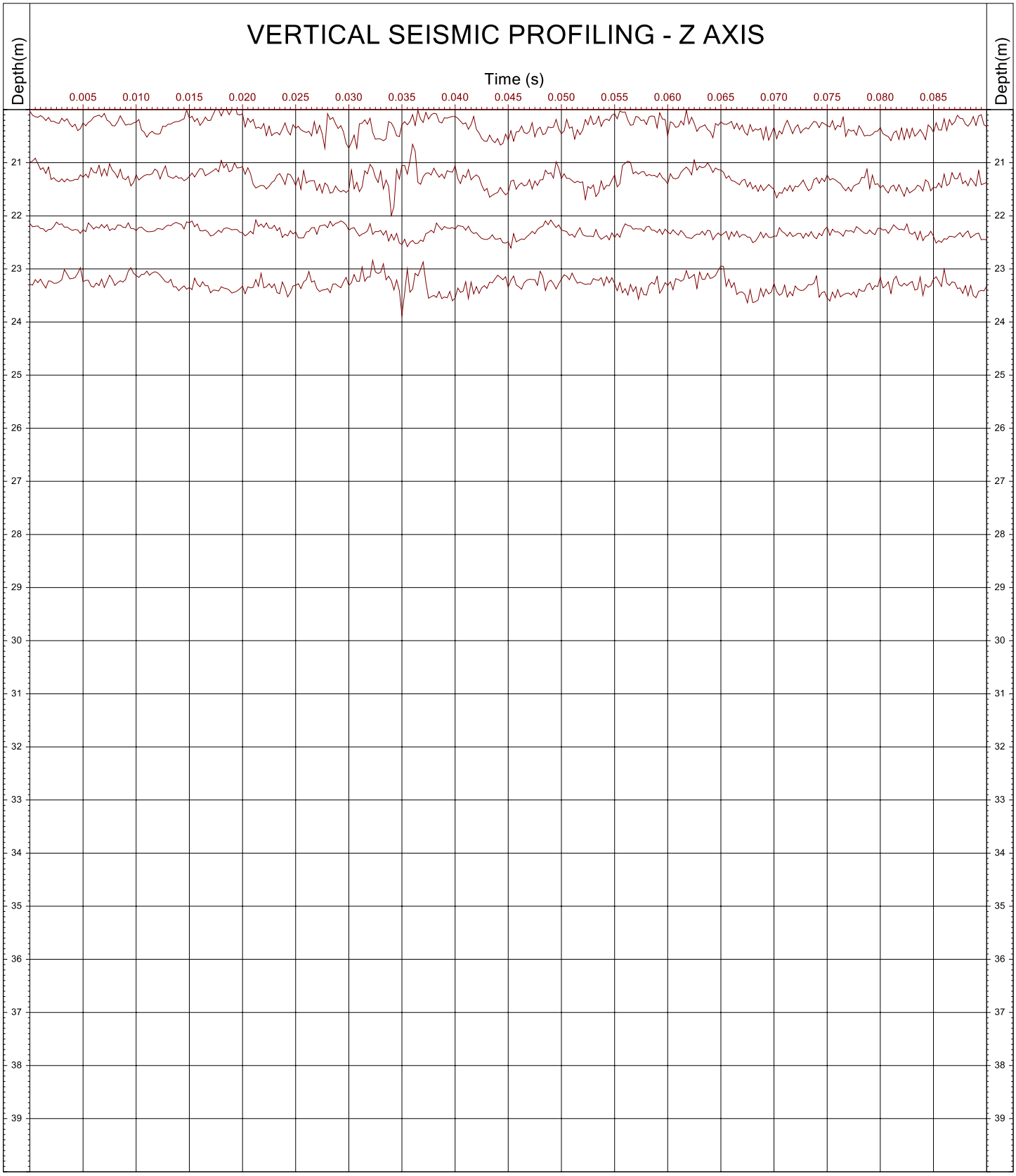
SCPTU TESTING



Area	Kattegat Sea	Coordinates (E, N)	673302.0 - 6252306.8	Location		
Contract	11596	Water Depth	28.800 (mMSL)	SCPT2		
Client Name	Energinet Eltransmission A/S	Date of Test	04/05/2021			
Vessel	MV Ocean Vantage	Cone No. / α Factor	130909 / 0.82	QC Status		
Comments	Cone class 1. Continuous seismic seabed CPT. Final depth 26.25m. Test terminated at operators discretion due to cone inclination >12 degrees and lack of lateral rod support into hard ground.	Base Inclination	1.4	Preliminary	Draft	Final
		CRS	ETRS 1989 UTM Zone 32N	JK/BC 04/05/2021	DR 10/06/2021	10/06/2021

Preliminary Investigation, Hesselø OWF

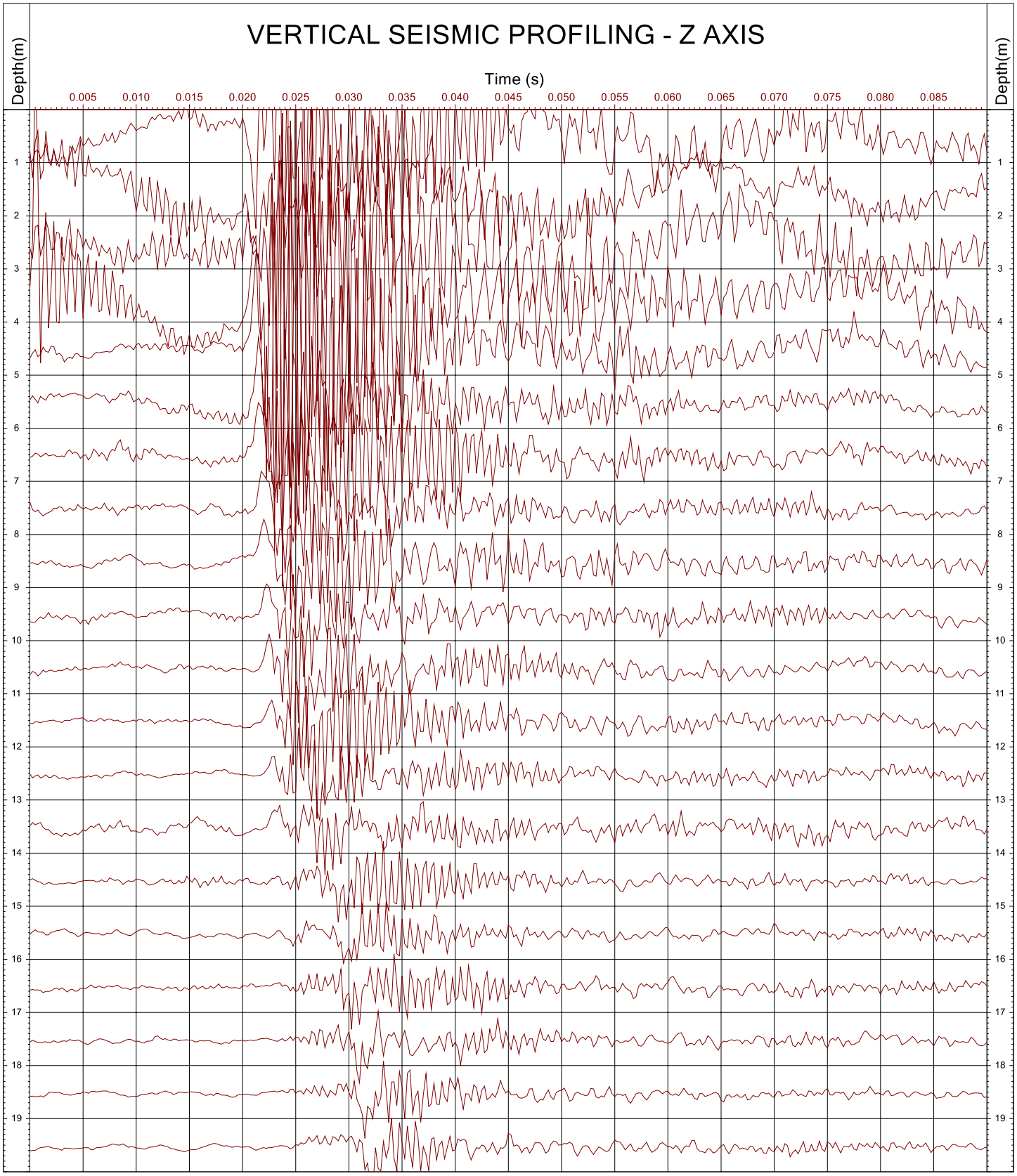
SCPTU TESTING



Area	Kattegat Sea	Coordinates (E, N)	673302.0 - 6252306.8	Location		
Contract	11596	Water Depth	28.800 (mMSL)	SCPT2		
Client Name	Energinet Eltransmission A/S	Date of Test	04/05/2021			
Vessel	MV Ocean Vantage	Cone No. / α Factor	130909 / 0.82	QC Status		
Comments	Cone class 1. Continuous seismic seabed CPT. Final depth 26.25m. Test terminated at operators discretion due to cone inclination >12 degrees and lack of lateral rod support into hard ground.	Base Inclination	1.4	Preliminary	Draft	Final
		CRS	ETRS 1989 UTM Zone 32N	JK/BC 04/05/2021	DR 10/06/2021	10/06/2021

Preliminary Investigation, Hesselø OWF

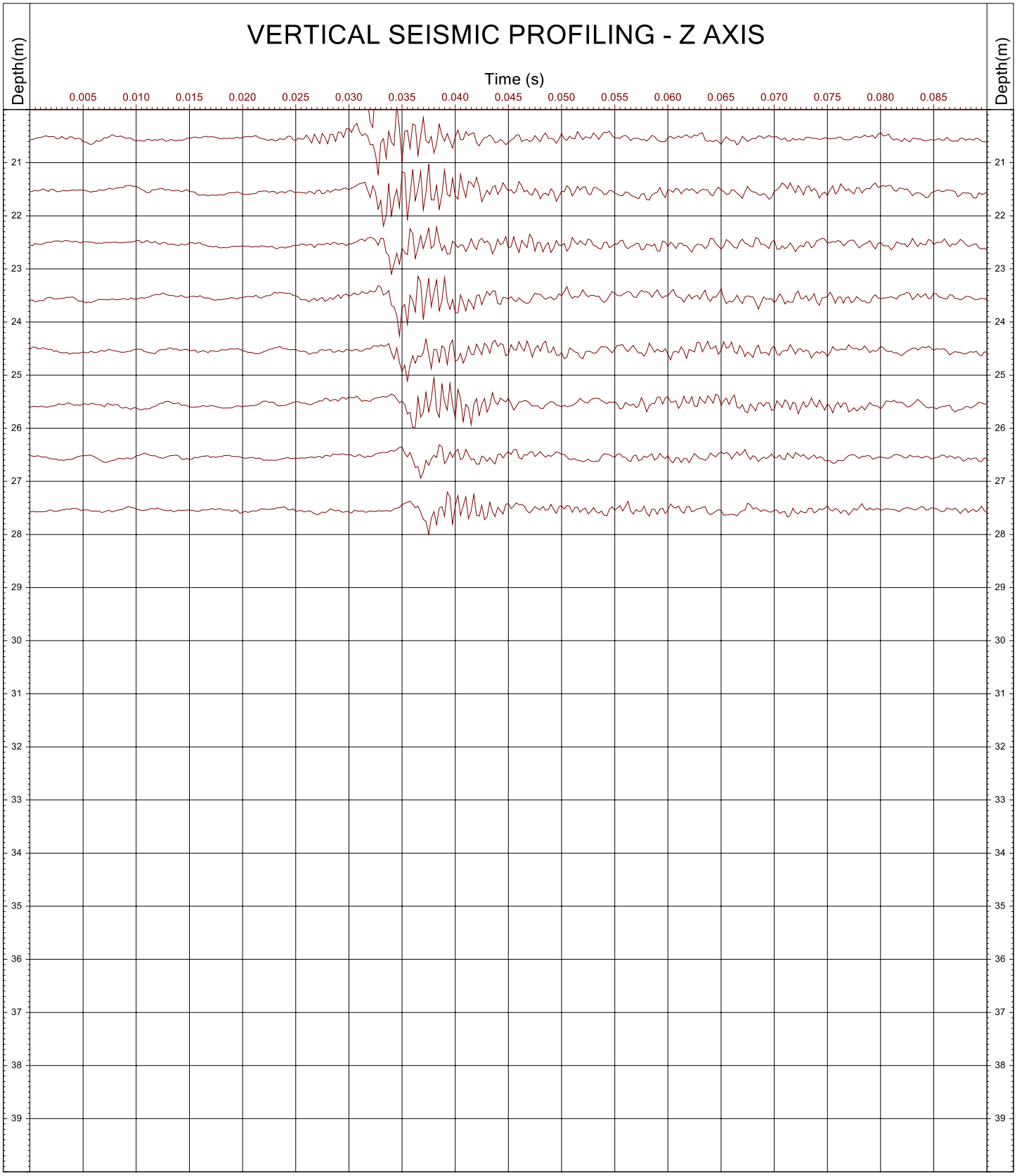
SCPTU TESTING



Area	Kattegat Sea	Coordinates (E, N)	665881.4 - 6256363.1	Location		
Contract	11596	Water Depth	27.690 (mMSL)	SCPT5		
Client Name	Energinet Eltransmission A/S	Date of Test	06/05/2021			
Vessel	MV Ocean Vantage	Cone No. / α Factor	191114 / 0.76	QC Status		
Comments	Cone class 1. Continuous seismic seabed CPT. Final depth 29.74m. Test terminated at operators discretion due increasing total load and a lack of lateral rod support from mudline	Base Inclination	1.4	Preliminary	Draft	Final
		CRS	ETRS 1989 UTM Zone 32N	JK/BC 07/05/2021	DR 10/06/2021	10/06/2021

Preliminary Investigation, Hesselø OWF

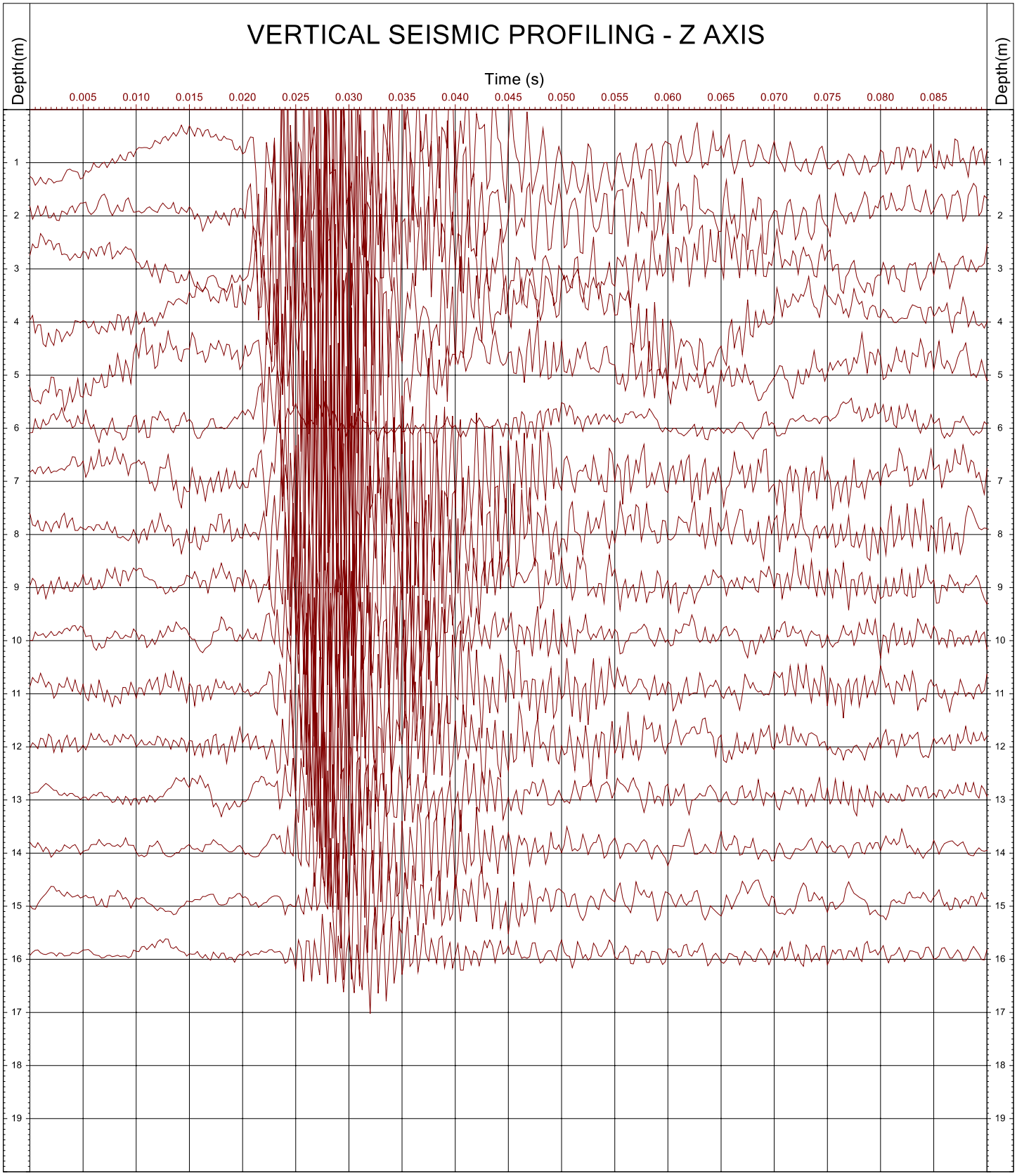
SCPTU TESTING



Area	Kattegat Sea	Coordinates (E, N)	665881.4 - 6256363.1	Location	
Contract	11596	Water Depth	27.690 (mMSL)	SCPT5	
Client Name	Energinet Eltransmission A/S	Date of Test	06/05/2021		
Vessel	MV Ocean Vantage	Cone No. / α Factor	191114 / 0.76	QC Status	
Comments	Cone class 1. Continuous seismic seabed CPT. Final depth 29.74m. Test terminated at operators discretion due increasing total load and a lack of lateral rod support from mudline	Base Inclination	1.4	Preliminary	Draft / Final
		CRS	ETRS 1989 UTM Zone 32N	JK/BC 07/05/2021	DR 10/06/2021 / 10/06/2021

Preliminary Investigation, Hesselø OWF

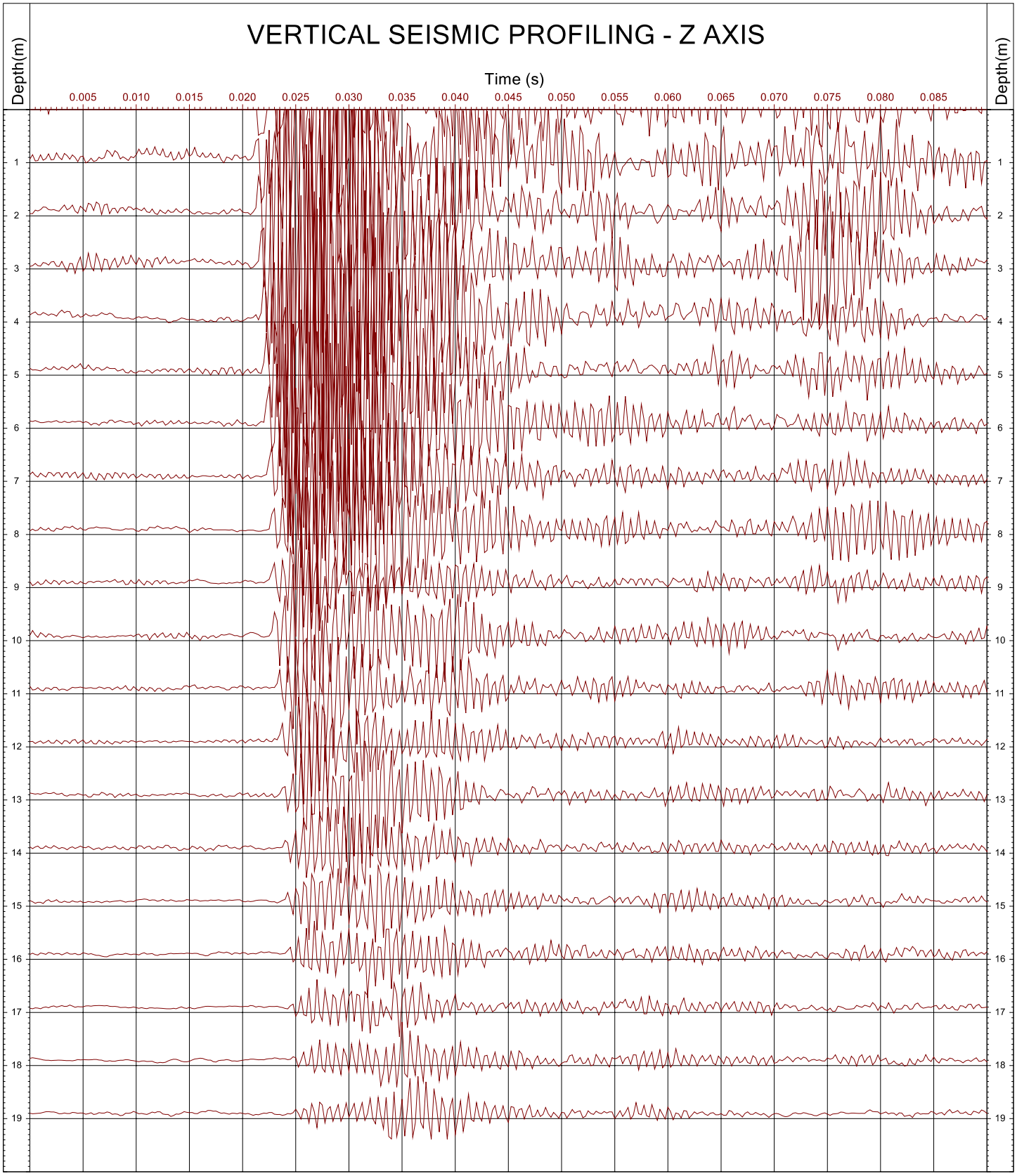
SCPTU TESTING



Area	Kattegat Sea	Coordinates (E, N)	675126.2 - 6262391.1	Location		
Contract	11596	Water Depth	31.810 (mMSL)	SCPT17		
Client Name	Energinet Eltransmission A/S	Date of Test	07/05/2021			
Vessel	MV Ocean Vantage	Cone No. / α Factor	081208 / 0.78	QC Status		
Comments	Cone class 1. Continuous seismic seabed CPT. Final depth 18.70m. Test terminated due to sudden inclination >3 degrees in less than 1 metre	Base Inclination	1.5	Preliminary	Draft	Final
		CRS	ETRS 1989 UTM Zone 32N	JK/BC 07/05/2021	DR 10/06/2021	10/06/2021

Preliminary Investigation, Hesselø OWF

SCPTU TESTING



Area	Kattegat Sea	Coordinates (E, N)	670633.3 - 6266454.1	Location	
Contract	11596	Water Depth	30.840 (mMSL)	SCPT19	
Client Name	Energinet Eltransmission A/S	Date of Test	07/05/2021		
Vessel	MV Ocean Vantage	Cone No. / α Factor	130909 / 0.82	QC Status	
Comments	Cone class 1. Continuous seabed seismic CPT. Final depth 21.92m. Test terminated due to the maximum cone inclination of 12 degrees was reached	Base Inclination	1.4	Preliminary	Draft / Final
		CRS	ETRS 1989 UTM Zone 32N	JK/BC 07/05/2021	DR 10/06/2021 / 10/06/2021

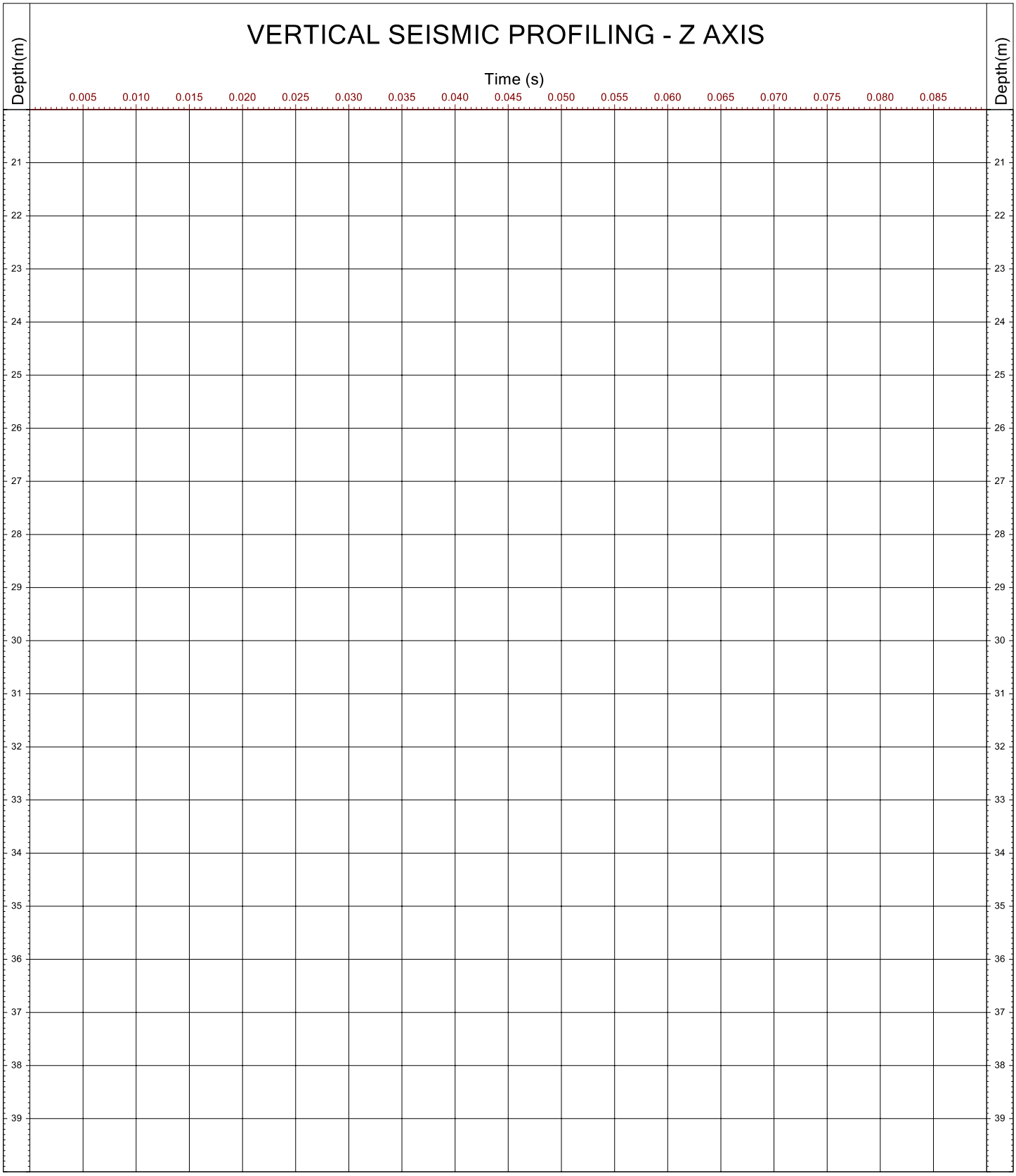
Gardline

Preliminary Investigation, Hesselø OWF

SCPTU TESTING

ENERGINET

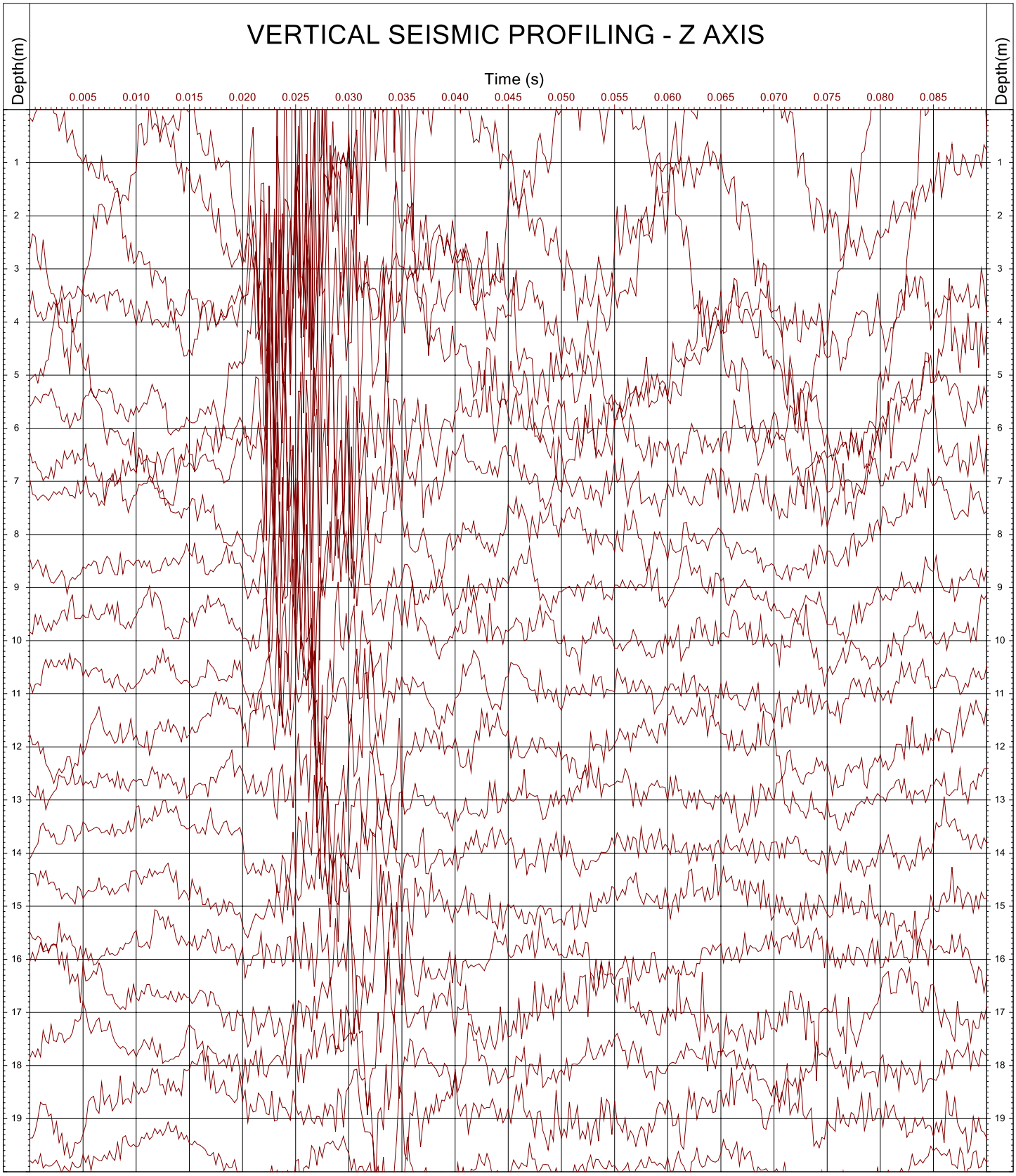
VERTICAL SEISMIC PROFILING - Z AXIS



Area	Kattegat Sea	Coordinates (E, N)	670633.3 - 6266454.1	Location		
Contract	11596	Water Depth	30.840 (mMSL)	SCPT19		
Client Name	Energinet Eltransmission A/S	Date of Test	07/05/2021			
Vessel	MV Ocean Vantage	Cone No. / α Factor	130909 / 0.82	QC Status		
Comments	Cone class 1. Continuous seabed seismic CPT. Final depth 21.92m. Test terminated due to the maximum cone inclination of 12 degrees was reached	Base Inclination	1.4	Preliminary	Draft	Final
		CRS	ETRS 1989 UTM Zone 32N	JK/BC 07/05/2021	DR 10/06/2021	10/06/2021

Preliminary Investigation, Hesselø OWF

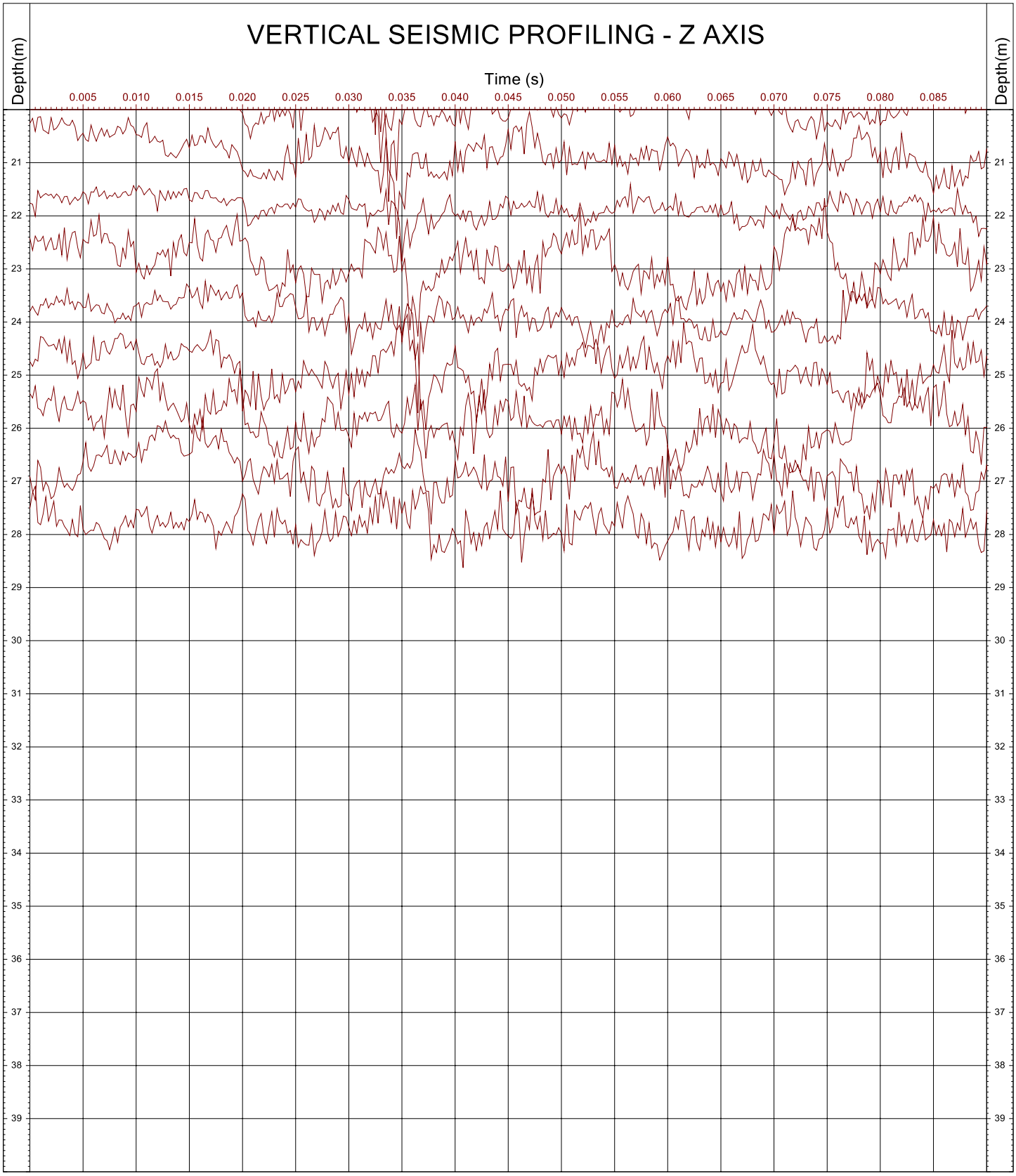
SCPTU TESTING



Area	Kattegat Sea	Coordinates (E, N)	677715.3 - 6266260.7	Location		
Contract	11596	Water Depth	32.480 (mMSL)	SCPT21		
Client Name	Energinet Eltransmission A/S	Date of Test	03/05/2021			
Vessel	MV Ocean Vantage	Cone No. / α Factor	120829 / 0.80	QC Status		
Comments	Cone class 1. Continuous seismic seabed CPT. Final depth 31.61m. Test terminated due to rising weather conditions.	Base Inclination	1.5	Preliminary	Draft	Final
		CRS	ETRS 1989 UTM Zone 32N	JK/BC 04/05/2021	DR 10/06/2021	10/06/2021

Preliminary Investigation, Hesselø OWF

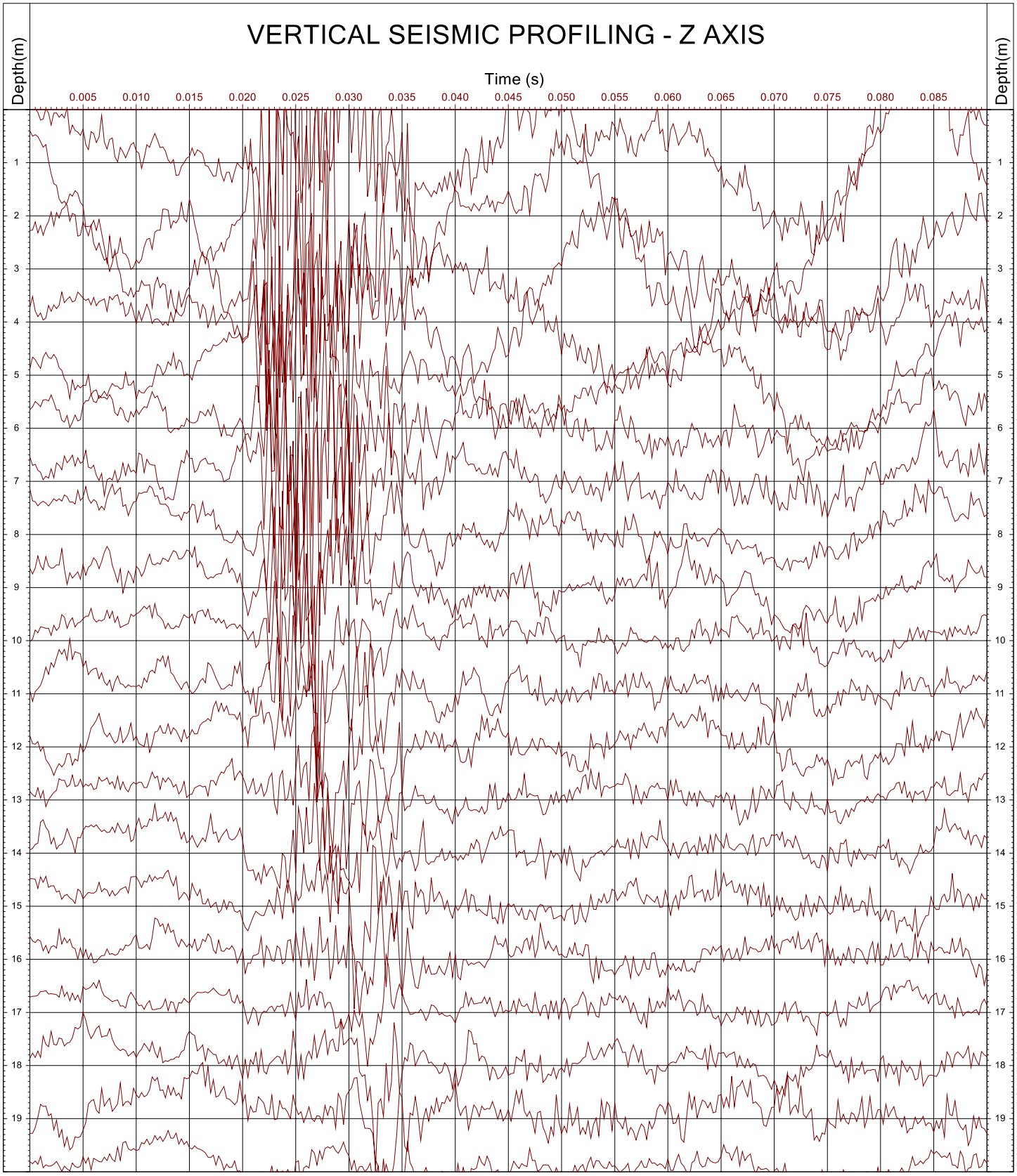
SCPTU TESTING



Area	Kattegat Sea	Coordinates (E, N)	677715.3 - 6266260.7	Location	
Contract	11596	Water Depth	32.480 (mMSL)	SCPT21	
Client Name	Energinet Eltransmission A/S	Date of Test	03/05/2021		
Vessel	MV Ocean Vantage	Cone No. / α Factor	120829 / 0.80	QC Status	
Comments	Cone class 1. Continuous seismic seabed CPT. Final depth 31.61m. Test terminated due to rising weather conditions.	Base Inclination	1.5	Preliminary: JK/BC 04/05/2021	Draft: DR 10/06/2021 / Final: 10/06/2021
		CRS	ETRS 1989 UTM Zone 32N		

Preliminary Investigation, Hesselø OWF

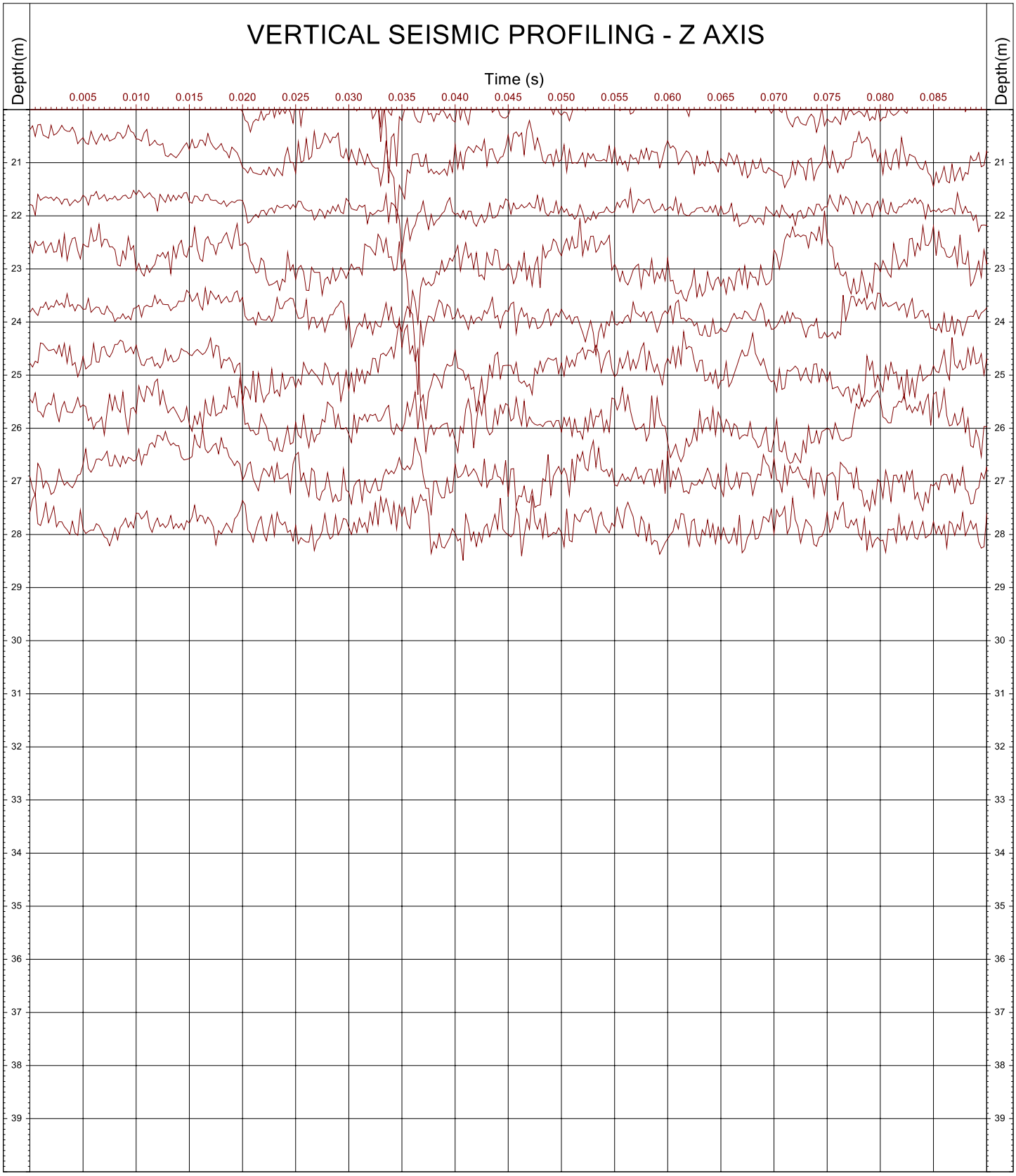
SCPTU TESTING



Area	Kattegat Sea	Coordinates (E, N)	676059.4 - 6274402.9	Location
Contract	11596	Water Depth	31.160 (mMSL)	SCPT24
Client Name	Energinet Eltransmission A/S	Date of Test	03/05/2021	
Vessel	MV Ocean Vantage	Cone No. / α Factor	130206 / 0.77	QC Status
Comments	Out of Class. Continuous seismic seabed CPT. Final depth 32.93m. Test terminated due sudden inclination change of 5 degrees in less than 1 metre-attempted to cycle but inclination was too high, Please note the derived data has been removed where seismic testing was conducted.	Base Inclination	1.4	Preliminary / Draft / Final
		CRS	ETRS 1989 UTM Zone 32N	JK/BC 03/05/2021 / DR 10/06/2021 / 10/06/2021

Preliminary Investigation, Hesselø OWF

SCPTU TESTING

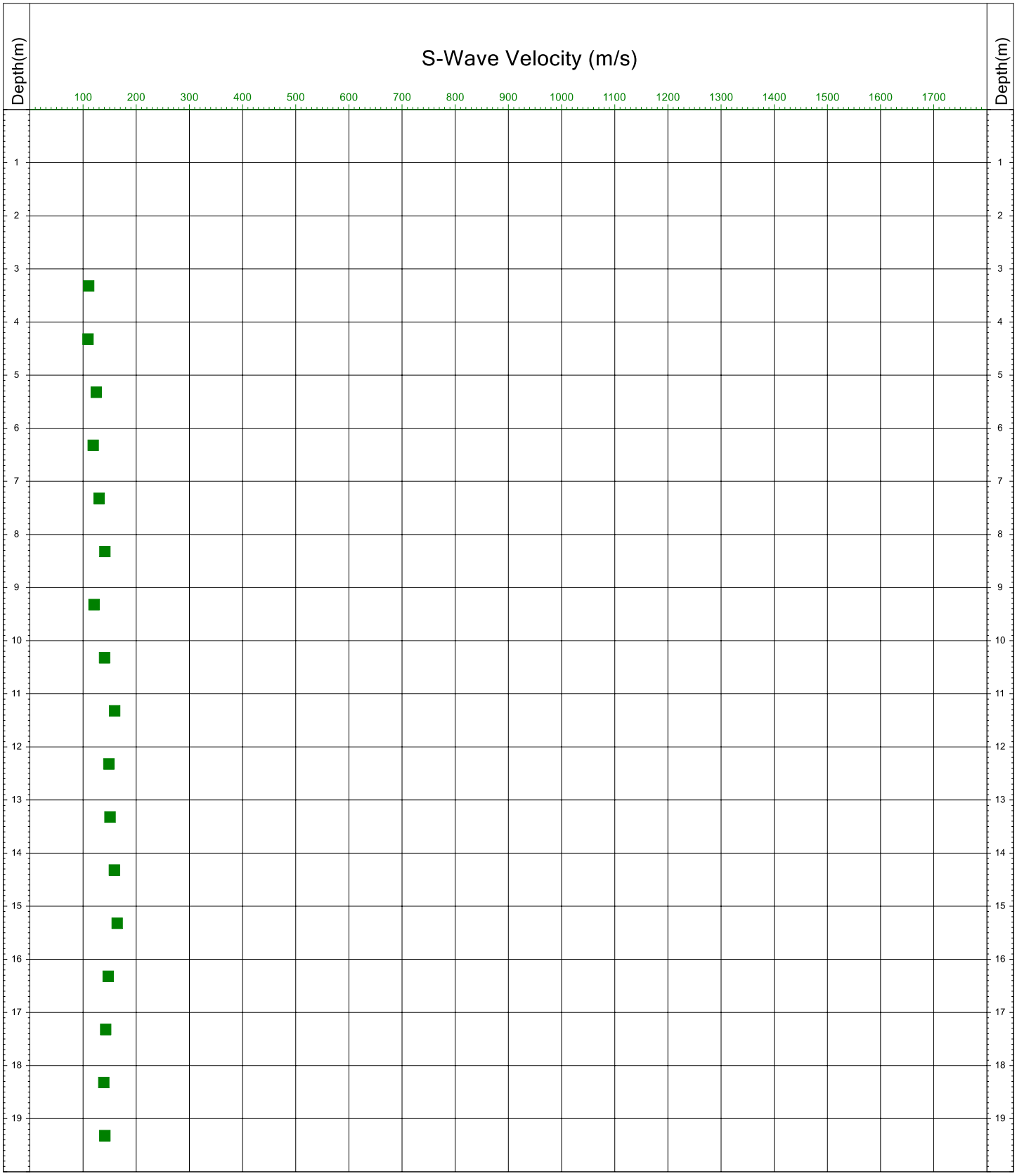


Area	Kattegat Sea	Coordinates (E, N)	676059.4 - 6274402.9	Location		
Contract	11596	Water Depth	31.160 (mMSL)	SCPT24		
Client Name	Energinet Eltransmission A/S	Date of Test	03/05/2021			
Vessel	MV Ocean Vantage	Cone No. / α Factor	130206 / 0.77	QC Status		
Comments	Out of Class. Continuous seismic seabed CPT. Final depth 32.93m. Test terminated due sudden inclination change of 5 degrees in less than 1 metre-attempted to cycle but inclination was too high, Please note the derived data has been removed where seismic testing was conducted.	Base Inclination	1.4	Preliminary	Draft	Final
		CRS	ETRS 1989 UTM Zone 32N	JK/BC 03/05/2021	DR 10/06/2021	10/06/2021

5.3 SCPTU S-Wave Velocity Profiles

Preliminary Investigation, Hesselø OWF

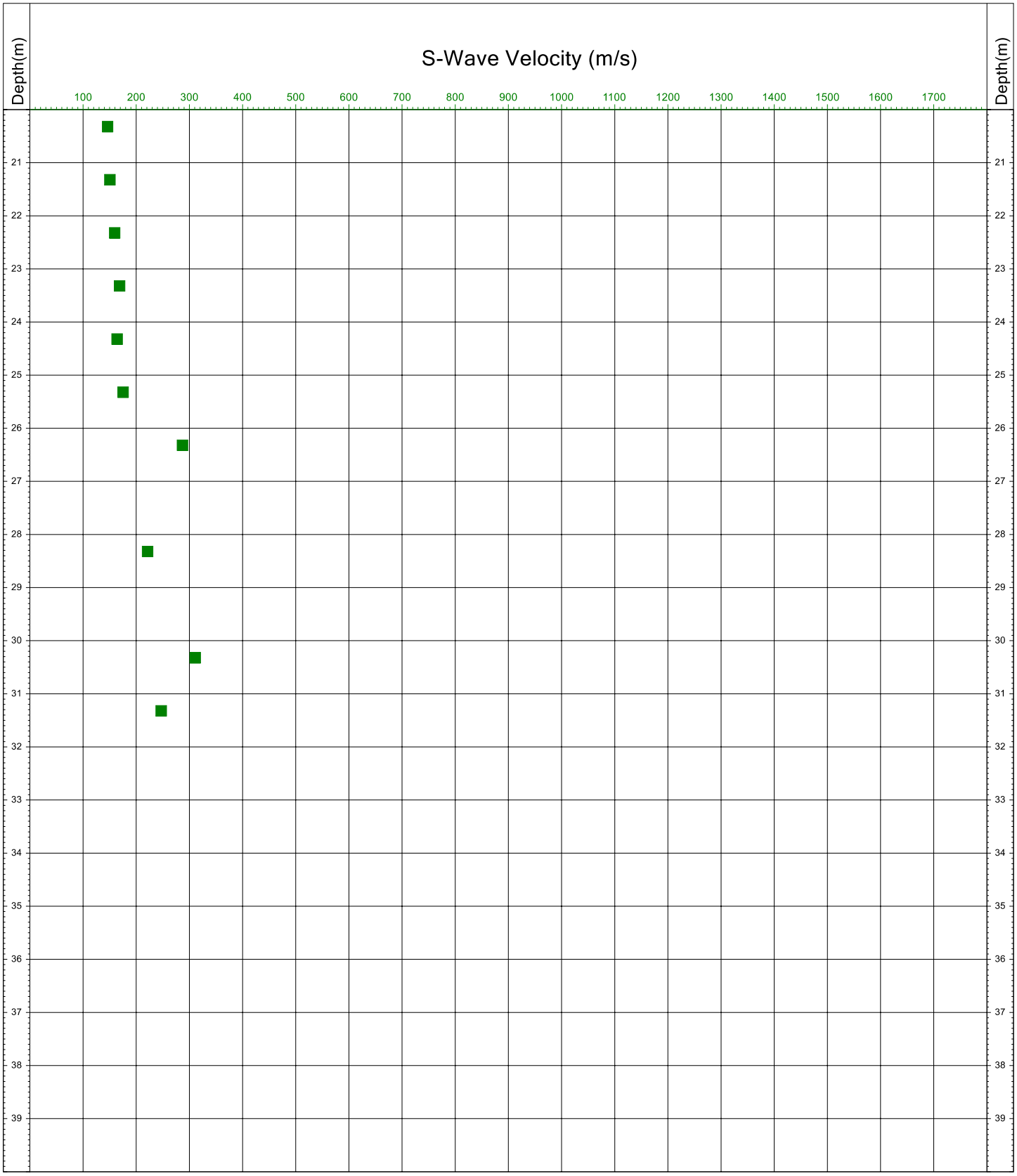
SCPTU TESTING - SHEAR WAVES



Area	Kattegat Sea	Coordinates (E, N)	681923.4 - 6249306.6	Location	
Contract	11596	Water Depth	31.710 (mMSL)	SCPT1a	
Client Name	Energinet Eltransmission A/S	Date of Test	05/05/2021		
Vessel	MV Ocean Vantage	Cone No. / α Factor	130206 / 0.77	QC Status	
Comments	Cone class 1. Continuous seismic seabed CPT. Final depth 37.55m. Test terminated at operators discretion due to increasing total force and lack of lateral rod support	Base Inclination	1.5	Preliminary	Draft / Final
		CRS	ETRS 1989 UTM Zone 32N	JK/BC 06/05/2021	DR 10/06/2021 / 10/06/2021

Preliminary Investigation, Hesselø OWF

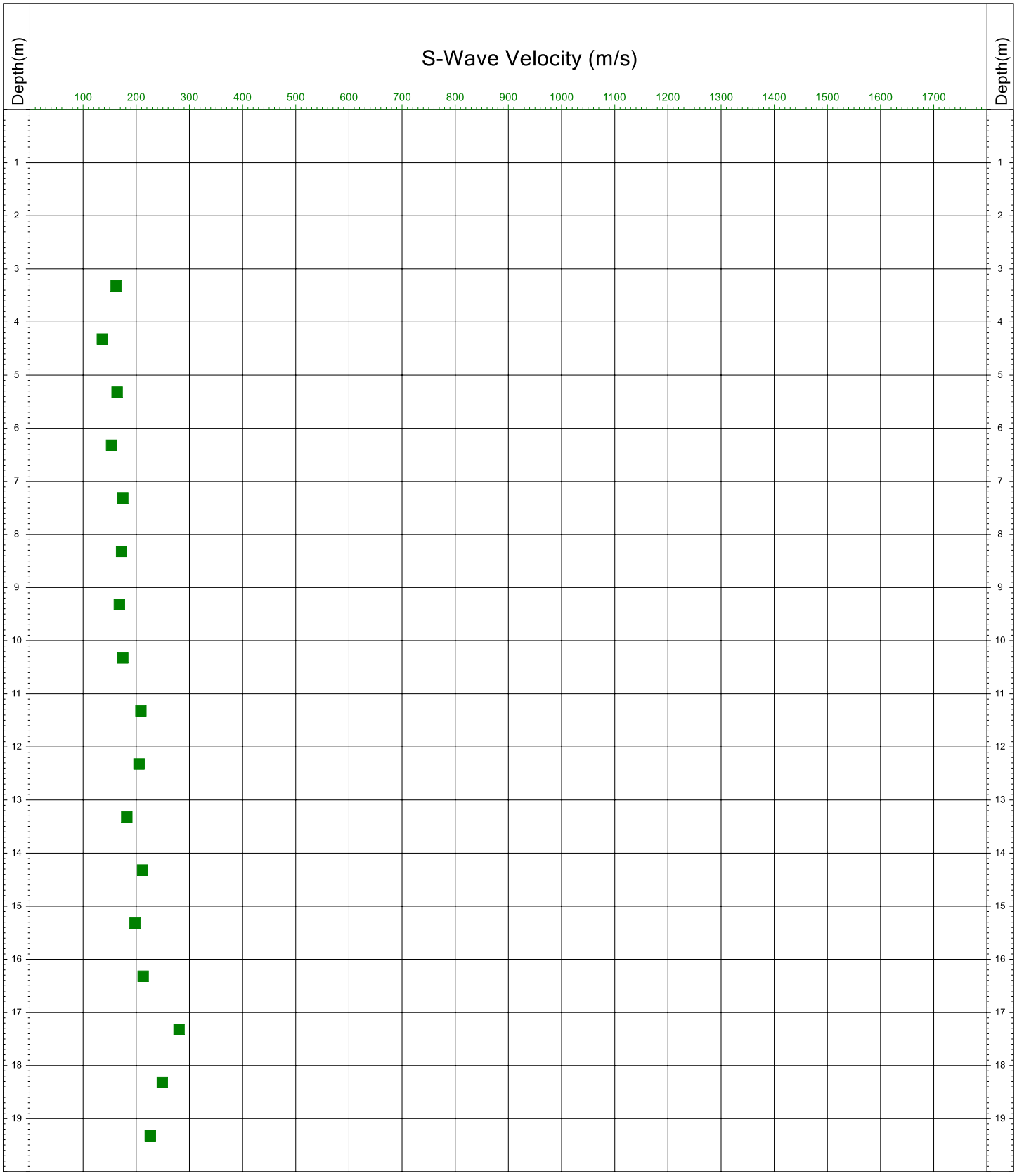
SCPTU TESTING - SHEAR WAVES



Area	Kattegat Sea	Coordinates (E, N)	681923.4 - 6249306.6	Location		
Contract	11596	Water Depth	31.710 (mMSL)	SCPT1a		
Client Name	Energinet Eltransmission A/S	Date of Test	05/05/2021			
Vessel	MV Ocean Vantage	Cone No. / α Factor	130206 / 0.77	QC Status		
Comments	Cone class 1. Continuous seismic seabed CPT. Final depth 37.55m. Test terminated at operators discretion due to increasing total force and lack of lateral rod support	Base Inclination	1.5	Preliminary	Draft	Final
		CRS	ETRS 1989 UTM Zone 32N	JK/BC 06/05/2021	DR 10/06/2021	10/06/2021

Preliminary Investigation, Hesselø OWF

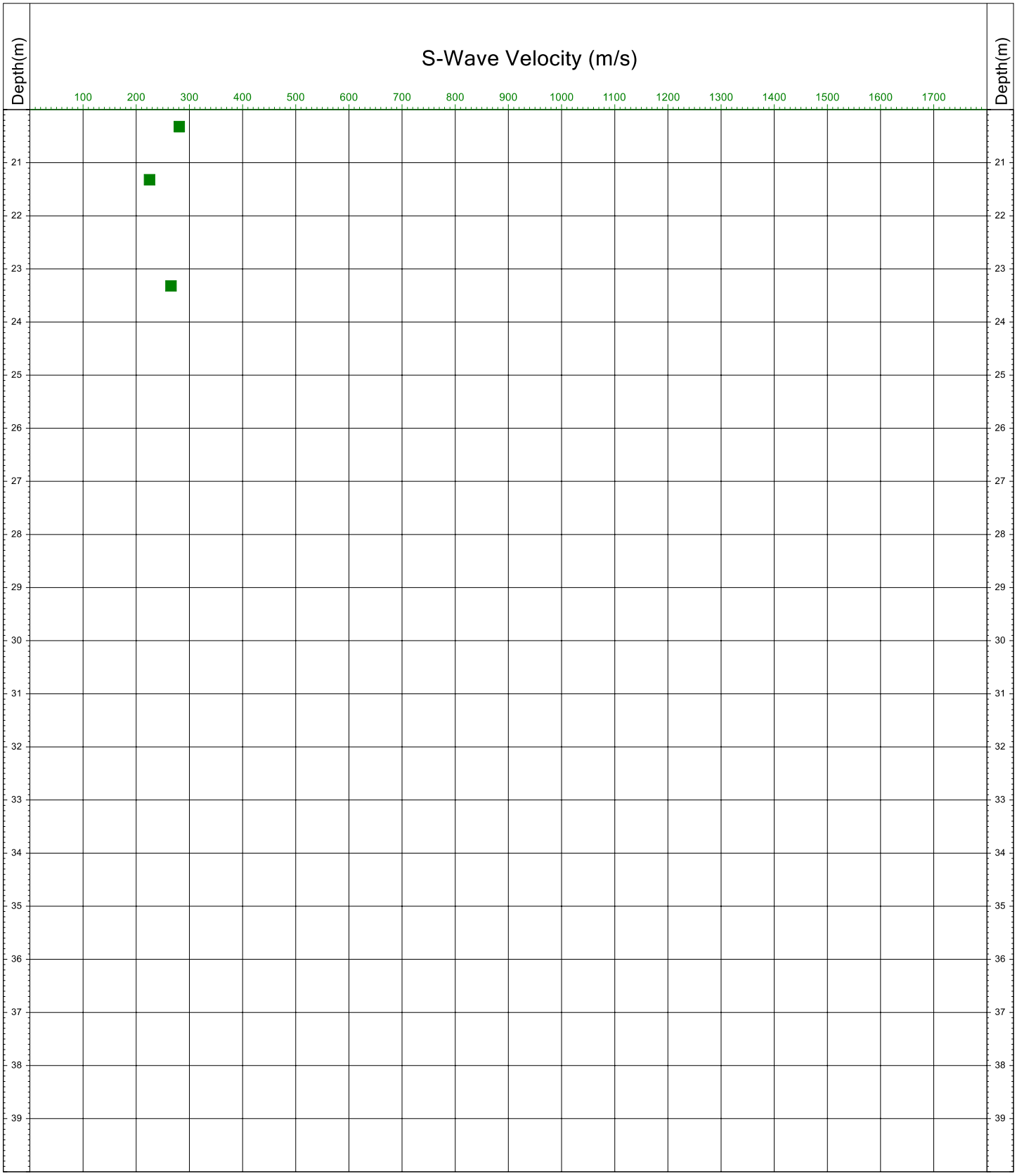
SCPTU TESTING - SHEAR WAVES



Area	Kattegat Sea	Coordinates (E, N)	673302.0 - 6252306.8	Location	
Contract	11596	Water Depth	28.800 (mMSL)	SCPT2	
Client Name	Energinet Eltransmission A/S	Date of Test	04/05/2021		
Vessel	MV Ocean Vantage	Cone No. / α Factor	130909 / 0.82	QC Status	
Comments	Cone class 1. Continuous seismic seabed CPT. Final depth 26.25m. Test terminated at operators discretion due to cone inclination >12 degrees and lack of lateral rod support into hard ground.	Base Inclination	1.4	Preliminary	Draft / Final
		CRS	ETRS 1989 UTM Zone 32N	JK/BC 04/05/2021	DR 10/06/2021 / 10/06/2021

Preliminary Investigation, Hesselø OWF

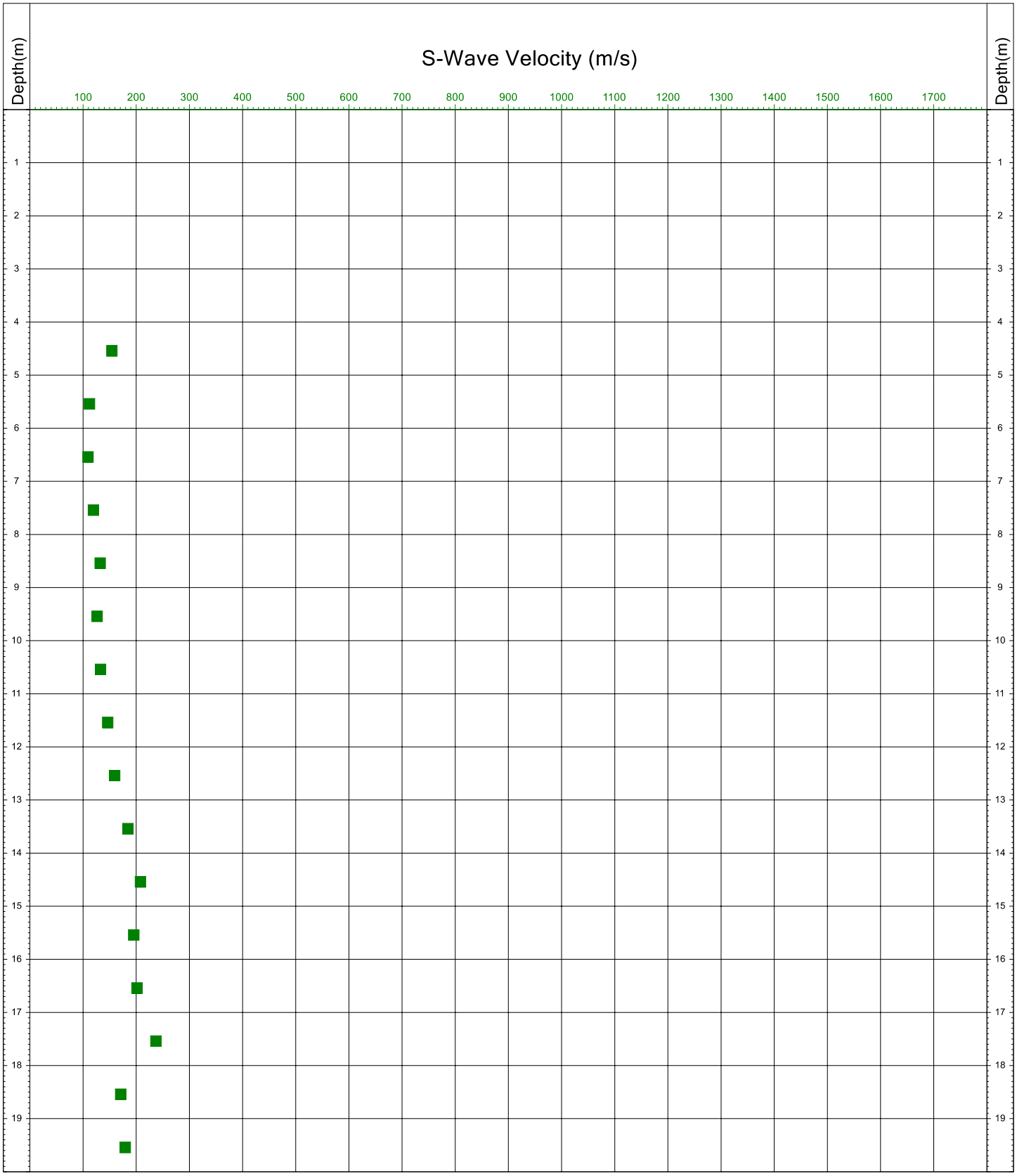
SCPTU TESTING - SHEAR WAVES



Area	Kattegat Sea	Coordinates (E, N)	673302.0 - 6252306.8	Location		
Contract	11596	Water Depth	28.800 (mMSL)	SCPT2		
Client Name	Energinet Eltransmission A/S	Date of Test	04/05/2021			
Vessel	MV Ocean Vantage	Cone No. / α Factor	130909 / 0.82	QC Status		
Comments	Cone class 1. Continuous seismic seabed CPT. Final depth 26.25m. Test terminated at operators discretion due to cone inclination >12 degrees and lack of lateral rod support into hard ground.	Base Inclination	1.4	Preliminary	Draft	Final
		CRS	ETRS 1989 UTM Zone 32N	JK/BC 04/05/2021	DR 10/06/2021	10/06/2021

Preliminary Investigation, Hesselø OWF

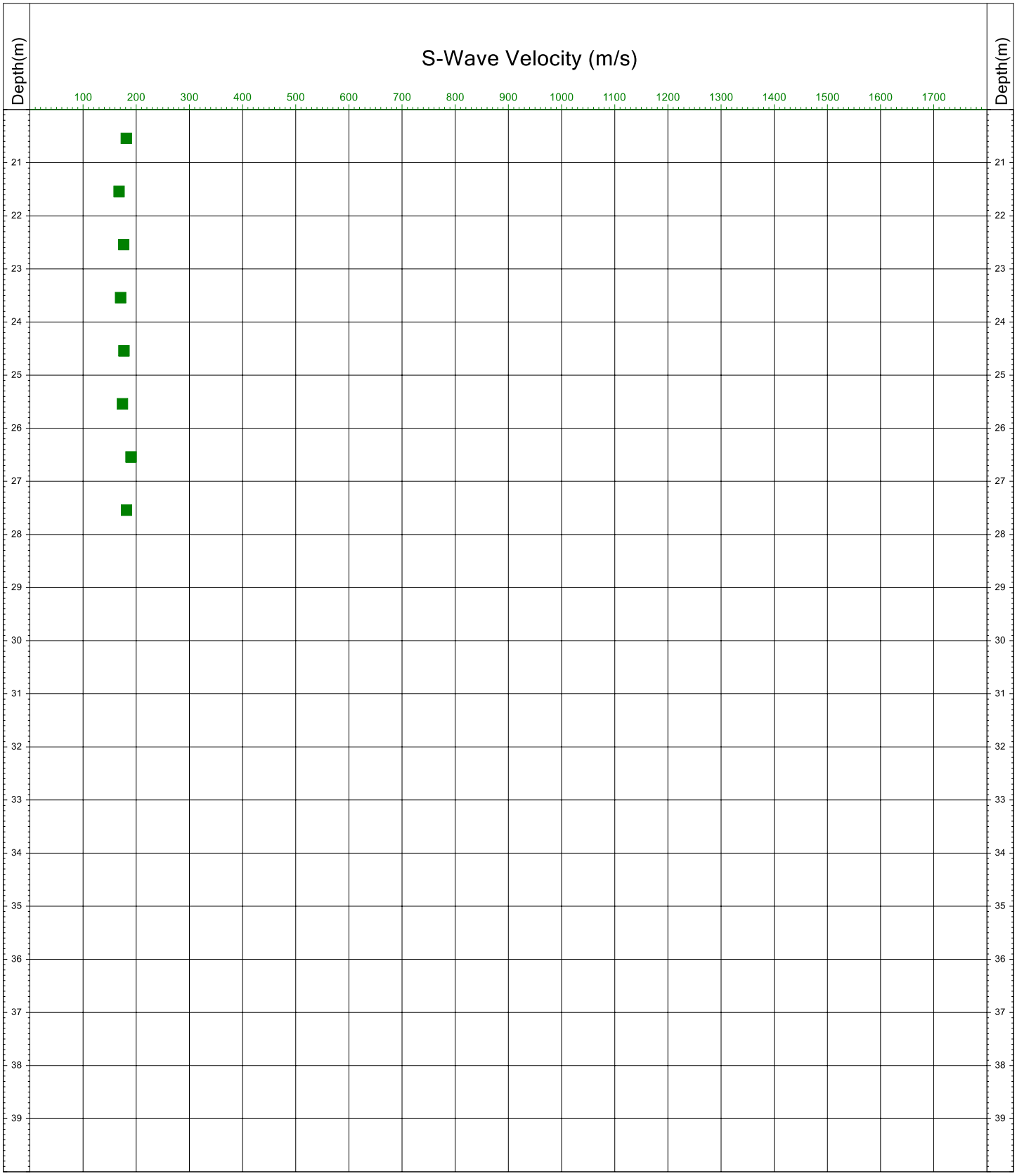
SCPTU TESTING - SHEAR WAVES



Area	Kattegat Sea	Coordinates (E, N)	665881.4 - 6256363.1	Location		
Contract	11596	Water Depth	27.690 (mMSL)	SCPT5		
Client Name	Energinet Eltransmission A/S	Date of Test	06/05/2021			
Vessel	MV Ocean Vantage	Cone No. / α Factor	191114 / 0.76	QC Status		
Comments	Cone class 1. Continuous seismic seabed CPT. Final depth 29.74m. Test terminated at operators discretion due increasing total load and a lack of lateral rod support from mudline	Base Inclination	1.4	Preliminary	Draft	Final
		CRS	ETRS 1989 UTM Zone 32N	JK/BC 07/05/2021	DR 10/06/2021	10/06/2021

Preliminary Investigation, Hesselø OWF

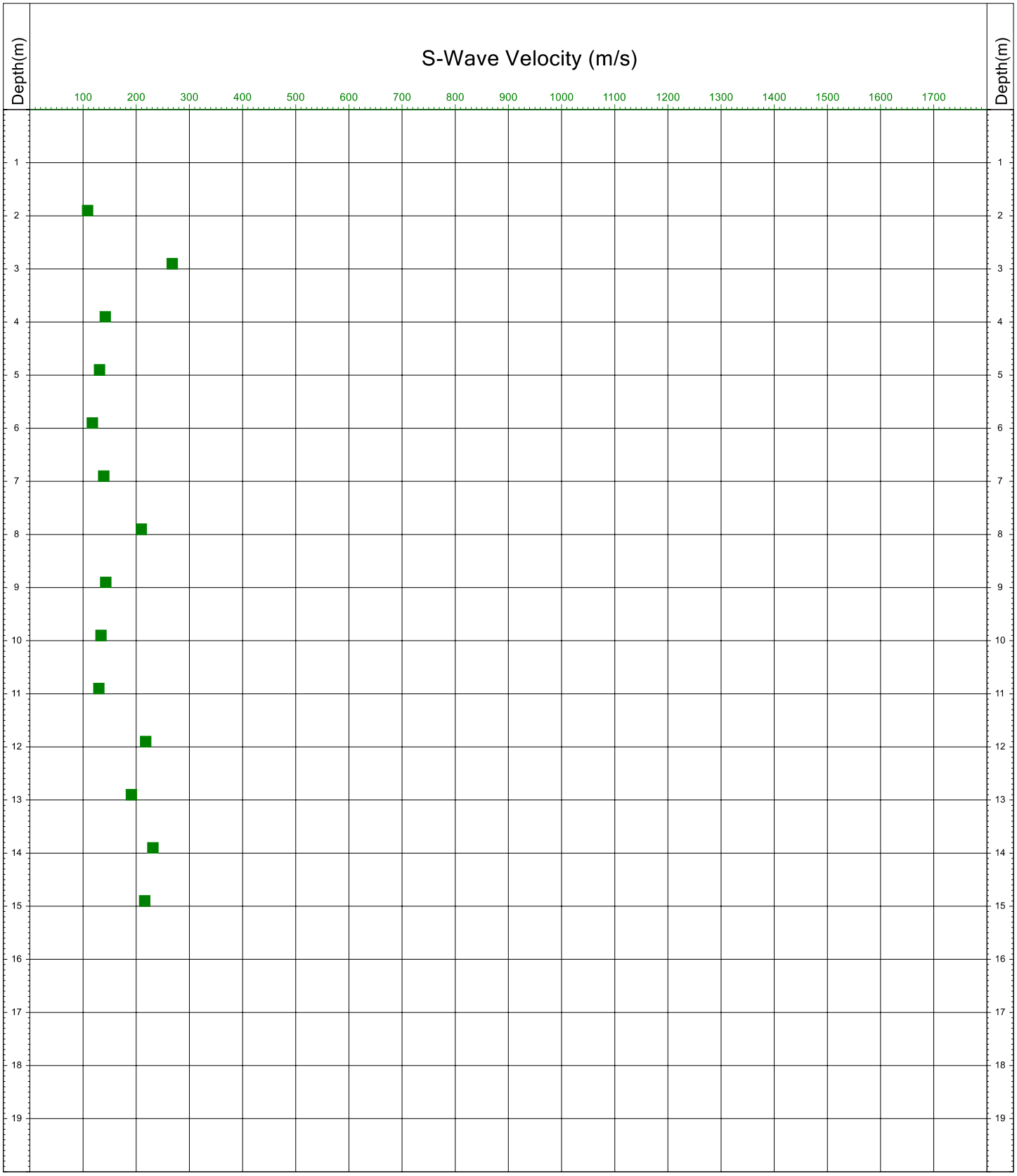
SCPTU TESTING - SHEAR WAVES



Area	Kattegat Sea	Coordinates (E, N)	665881.4 - 6256363.1	Location			
Contract	11596	Water Depth	27.690 (mMSL)	SCPT5			
Client Name	Energinet Eltransmission A/S	Date of Test	06/05/2021				
Vessel	MV Ocean Vantage	Cone No. / α Factor	191114 / 0.76	QC Status			
Comments	Cone class 1. Continuous seismic seabed CPT. Final depth 29.74m. Test terminated at operators discretion due increasing total load and a lack of lateral rod support from mudline	Base Inclination	1.4	Preliminary	Draft	Final	
		CRS	ETRS 1989 UTM Zone 32N	JK/BC 07/05/2021	DR 10/06/2021	10/06/2021	

Preliminary Investigation, Hesselø OWF

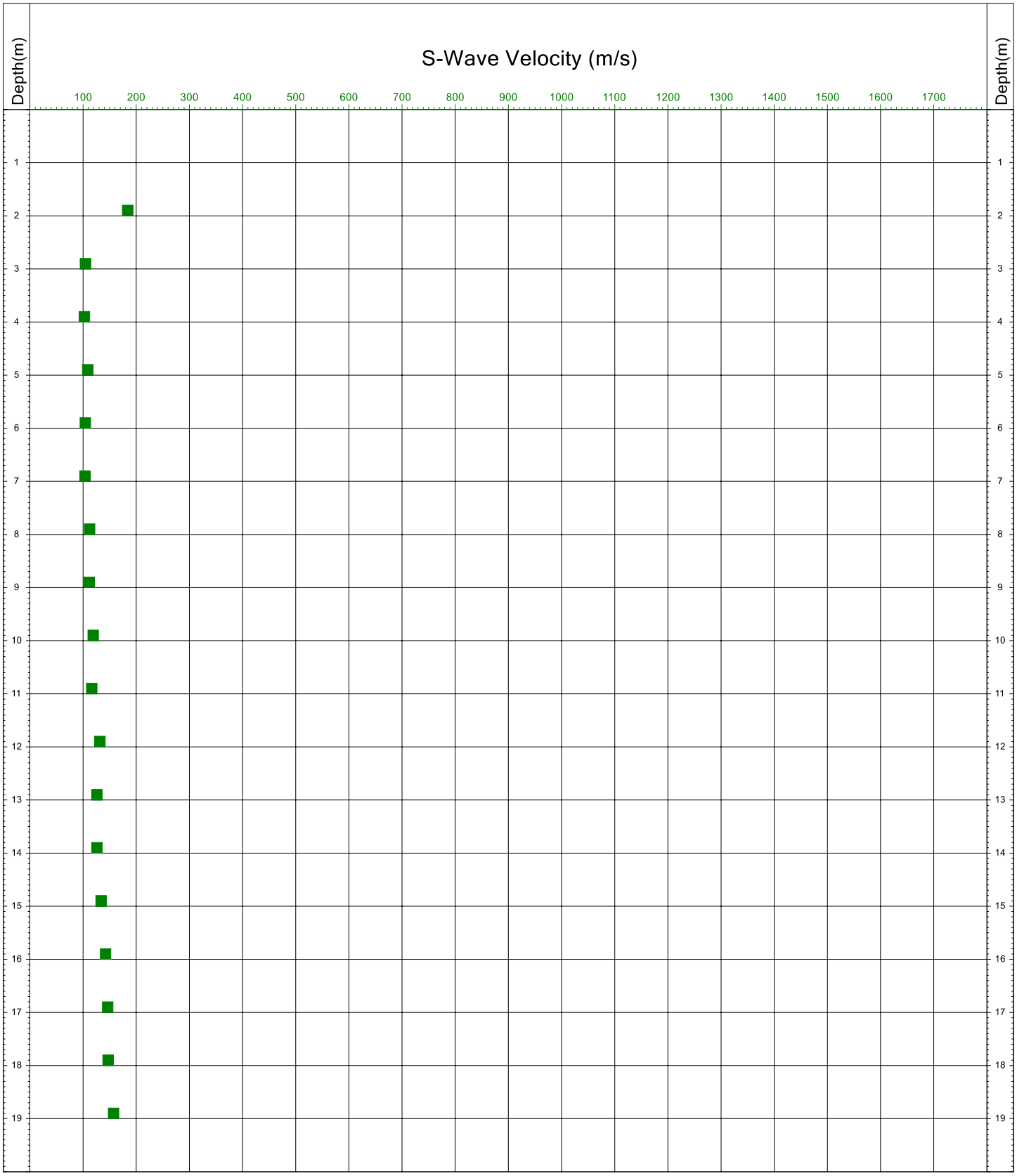
SCPTU TESTING - SHEAR WAVES



Area	Kattegat Sea	Coordinates (E, N)	675126.2 - 6262391.1	Location	
Contract	11596	Water Depth	31.810 (mMSL)	SCPT17	
Client Name	Energinet Eltransmission A/S	Date of Test	07/05/2021		
Vessel	MV Ocean Vantage	Cone No. / α Factor	081208 / 0.78	QC Status	
Comments	Cone class 1. Continuous seismic seabed CPT. Final depth 18.70m. Test terminated due to sudden inclination >3 degrees in less than 1 metre	Base Inclination	1.5	Preliminary	Draft / Final
		CRS	ETRS 1989 UTM Zone 32N	JK/BC 07/05/2021	DR 10/06/2021 / 10/06/2021

Preliminary Investigation, Hesselø OWF

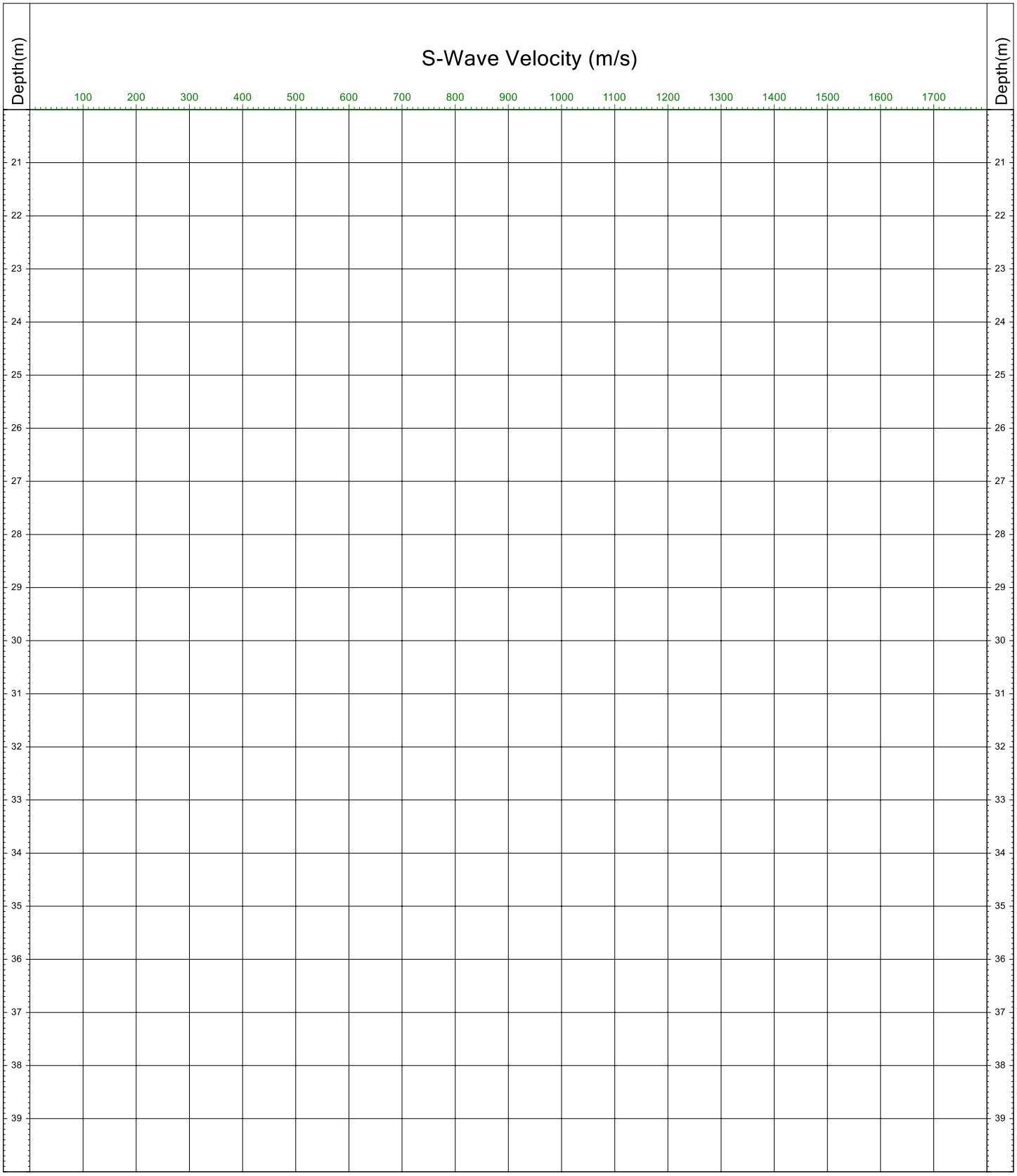
SCPTU TESTING - SHEAR WAVES



Area	Kattegat Sea	Coordinates (E, N)	670633.3 - 6266454.1	Location		
Contract	11596	Water Depth	30.840 (mMSL)	SCPT19		
Client Name	Energinet Eltransmission A/S	Date of Test	07/05/2021			
Vessel	MV Ocean Vantage	Cone No. / α Factor	130909 / 0.82	QC Status		
Comments	Cone class 1. Continuous seabed seismic CPT. Final depth 21.92m. Test terminated due to the maximum cone inclination of 12 degrees was reached	Base Inclination	1.4	Preliminary	Draft	Final
		CRS	ETRS 1989 UTM Zone 32N	JK/BC 07/05/2021	DR 10/06/2021	10/06/2021

Preliminary Investigation, Hesselø OWF

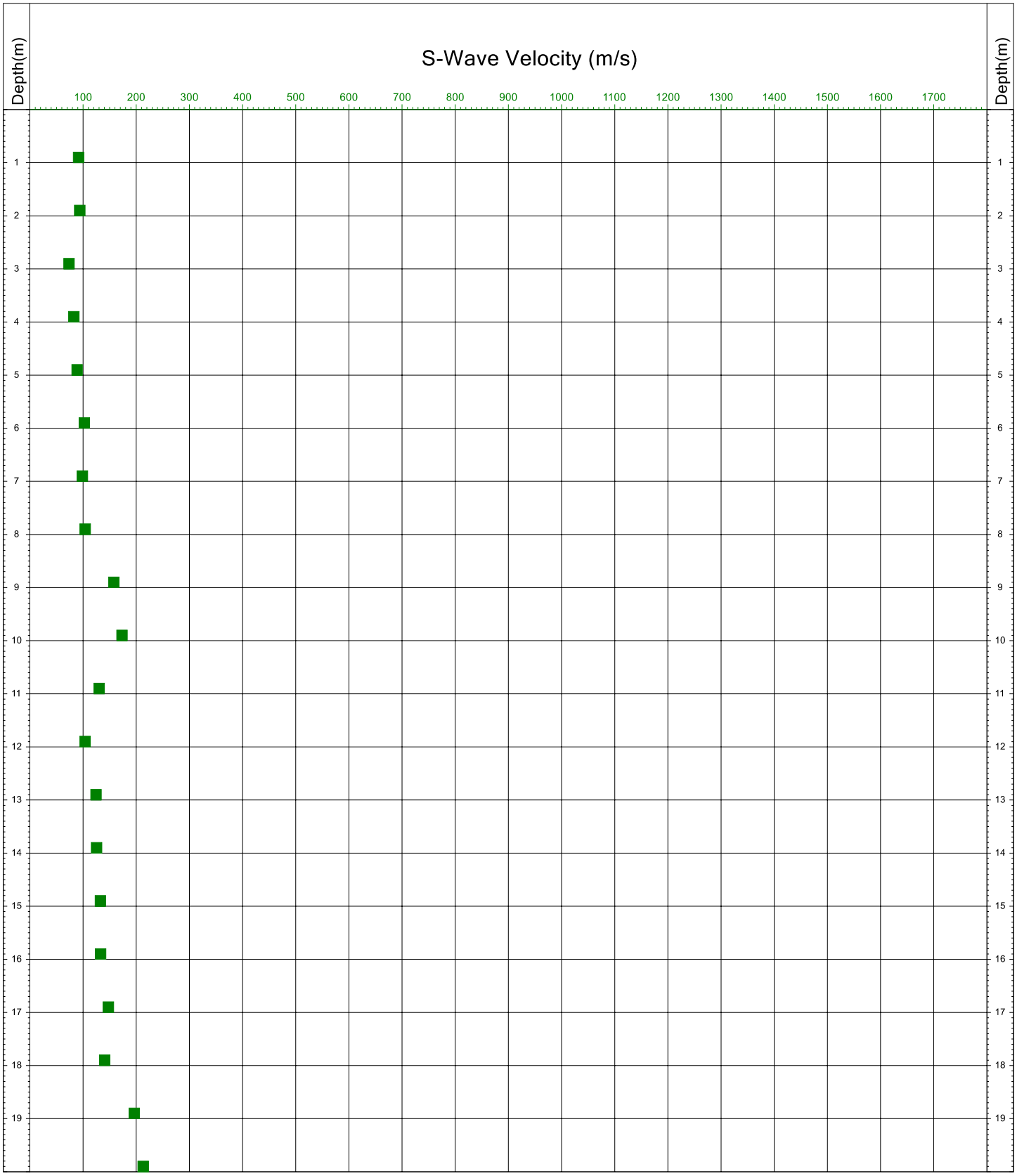
SCPTU TESTING - SHEAR WAVES



Area	Kattegat Sea	Coordinates (E, N)	670633.3 - 6266454.1	Location		
Contract	11596	Water Depth	30.840 (mMSL)	SCPT19		
Client Name	Energinet Eltransmission A/S	Date of Test	07/05/2021			
Vessel	MV Ocean Vantage	Cone No. / α Factor	130909 / 0.82	QC Status		
Comments	Cone class 1. Continuous seabed seismic CPT. Final depth 21.92m. Test terminated due to the maximum cone inclination of 12 degrees was reached	Base Inclination	1.4	Preliminary	Draft	Final
		CRS	ETRS 1989 UTM Zone 32N	JK/BC 07/05/2021	DR 10/06/2021	10/06/2021

Preliminary Investigation, Hesselø OWF

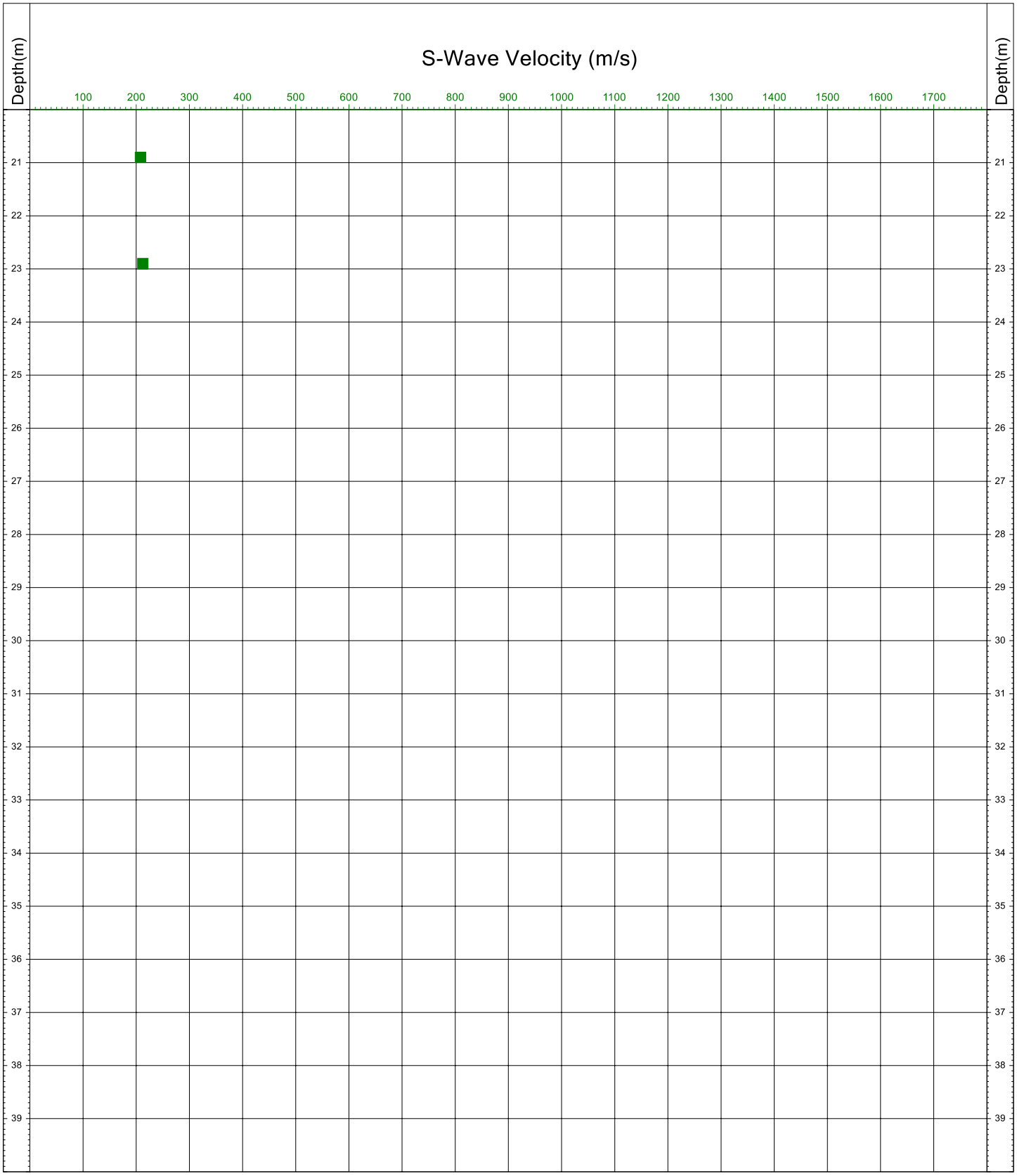
SCPTU TESTING - SHEAR WAVES



Area	Kattegat Sea	Coordinates (E, N)	677715.3 - 6266260.7	Location		
Contract	11596	Water Depth	32.480 (mMSL)	SCPT21		
Client Name	Energinet Eltransmission A/S	Date of Test	03/05/2021			
Vessel	MV Ocean Vantage	Cone No. / α Factor	120829 / 0.80	QC Status		
Comments	Cone class 1. Continuous seismic seabed CPT. Final depth 31.61m. Test terminated due to rising weather conditions.	Base Inclination	1.5	Preliminary	Draft	Final
		CRS	ETRS 1989 UTM Zone 32N	JK/BC 04/05/2021	DR 10/06/2021	10/06/2021

Preliminary Investigation, Hesselø OWF

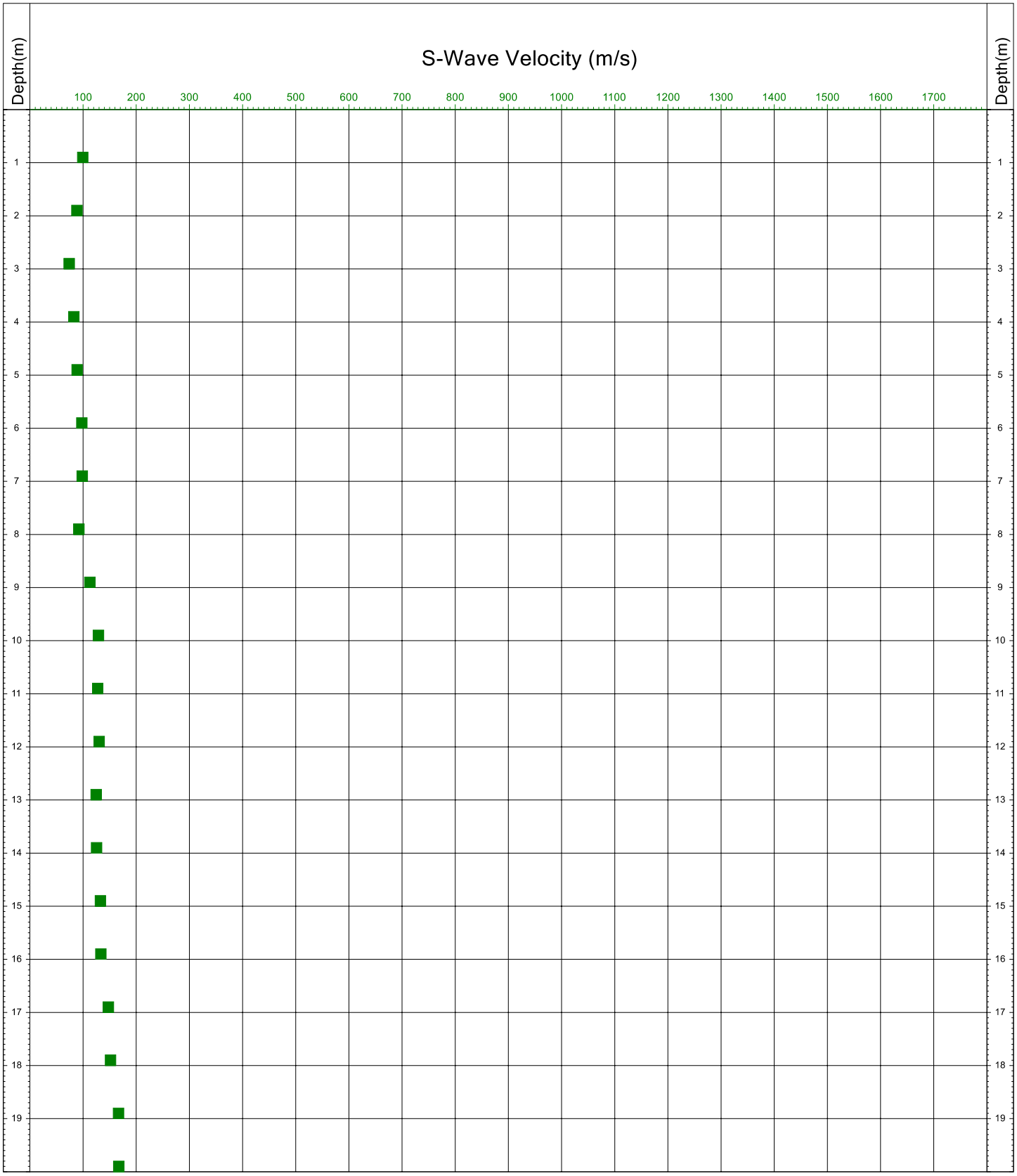
SCPTU TESTING - SHEAR WAVES



Area	Kattegat Sea	Coordinates (E, N)	677715.3 - 6266260.7	Location			
Contract	11596	Water Depth	32.480 (mMSL)	SCPT21			
Client Name	Energinet Eltransmission A/S	Date of Test	03/05/2021				
Vessel	MV Ocean Vantage	Cone No. / α Factor	120829 / 0.80	QC Status			
Comments	Cone class 1. Continuous seismic seabed CPT. Final depth 31.61m. Test terminated due to rising weather conditions.	Base Inclination	1.5	Preliminary	Draft	Final	
		CRS	ETRS 1989 UTM Zone 32N	JK/BC 04/05/2021	DR 10/06/2021	10/06/2021	

Preliminary Investigation, Hesselø OWF

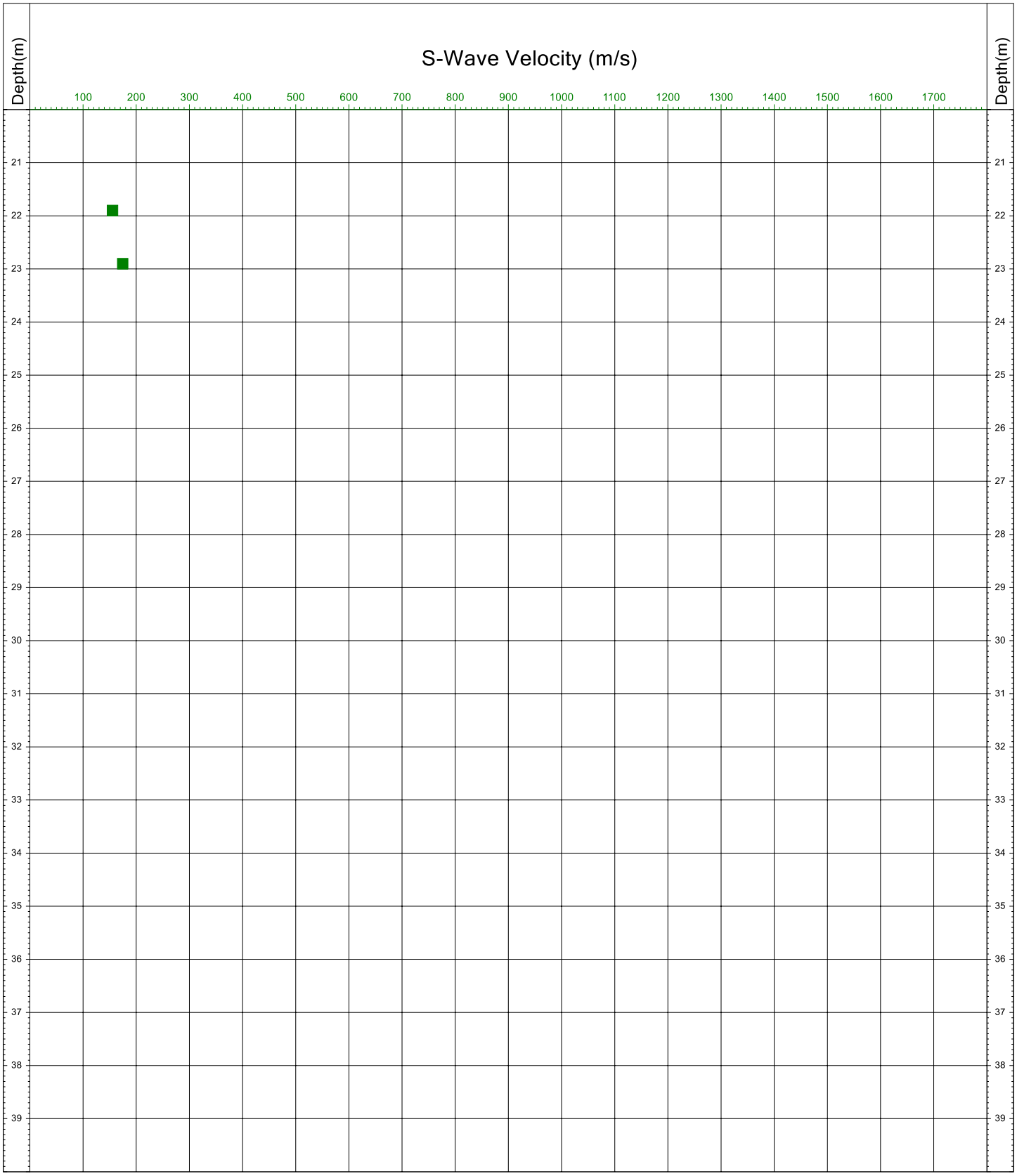
SCPTU TESTING - SHEAR WAVES



Area	Kattegat Sea	Coordinates (E, N)	676059.4 - 6274402.9	Location		
Contract	11596	Water Depth	31.160 (mMSL)	SCPT24		
Client Name	Energinet Eltransmission A/S	Date of Test	03/05/2021			
Vessel	MV Ocean Vantage	Cone No. / α Factor	130206 / 0.77	QC Status		
Comments	Out of Class. Continuous seismic seabed CPT. Final depth 32.93m. Test terminated due sudden inclination change of 5 degrees in less than 1 metre-attempted to cycle but inclination was too high, Please note the derived data has been removed where seismic testing was conducted.	Base Inclination	1.4	Preliminary	Draft	Final
		CRS	ETRS 1989 UTM Zone 32N	JK/BC 03/05/2021	DR 10/06/2021	10/06/2021

Preliminary Investigation, Hesselø OWF

SCPTU TESTING - SHEAR WAVES



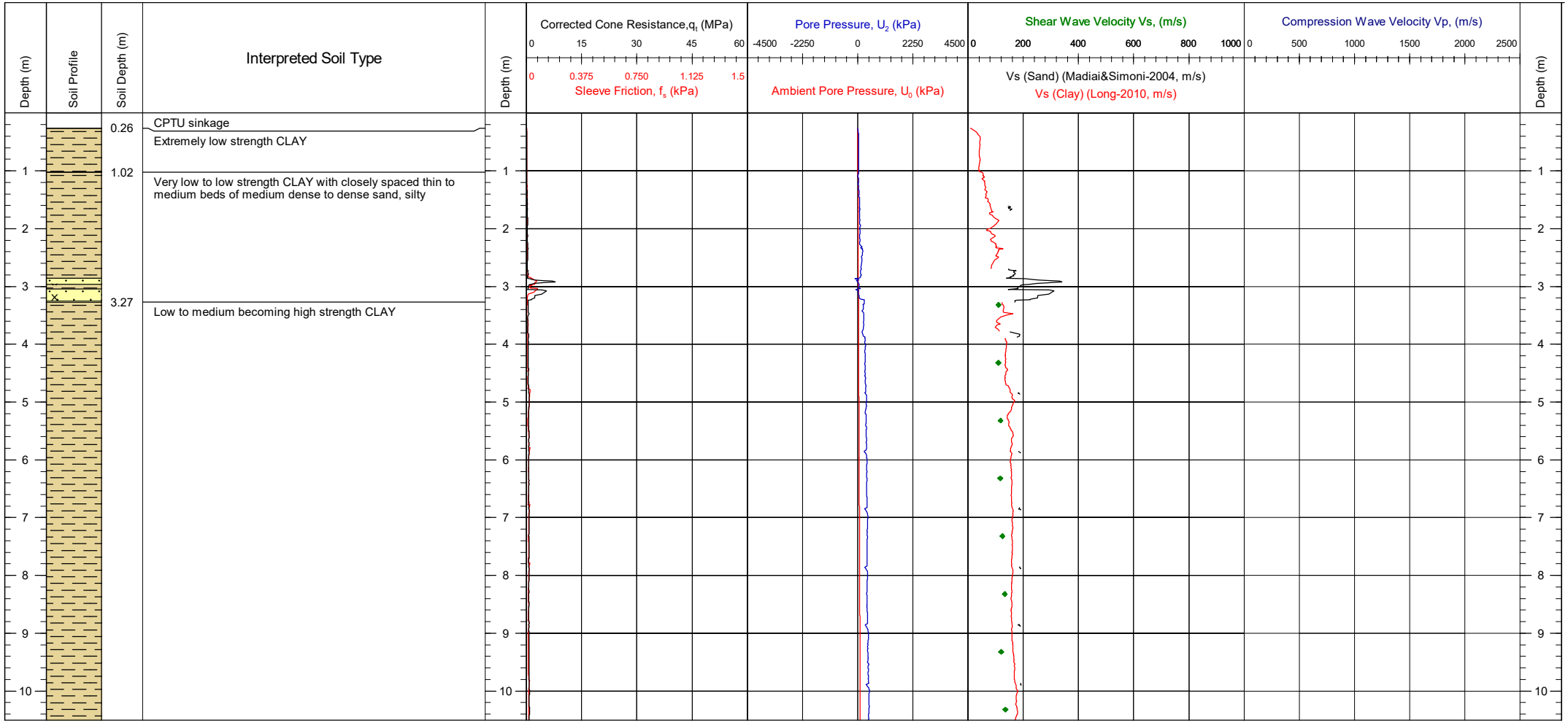
Area	Kattegat Sea	Coordinates (E, N)	676059.4 - 6274402.9	Location		
Contract	11596	Water Depth	31.160 (mMSL)	SCPT24		
Client Name	Energinet Eltransmission A/S	Date of Test	03/05/2021			
Vessel	MV Ocean Vantage	Cone No. / α Factor	130206 / 0.77	QC Status		
Comments	Out of Class. Continuous seismic seabed CPT. Final depth 32.93m. Test terminated due sudden inclination change of 5 degrees in less than 1 metre-attempted to cycle but inclination was too high, Please note the derived data has been removed where seismic testing was conducted.	Base Inclination	1.4	Preliminary	Draft	Final
		CRS	ETRS 1989 UTM Zone 32N	JK/BC 03/05/2021	DR 10/06/2021	10/06/2021

5.4 SCPTU Log Plots

Gardline

Preliminary Investigation, Hesselø OWF

IN SITU SCPTU TESTING



Area	**Kattegat Sea**	Coordinates	**681923.4E 6249306.6N**	CRS: **ETRS89**	QC Status
Contract	**11596**	Water Depth (mMSL)	**31.7**	**Comments:** Cone class 1. Continuous seismic seabed CPT. Final depth 37.55m. Test terminated at operators discretion due to increasing total force and lack of lateral rod support	Preliminary: **JK/BC (06/05/2021)** · Draft: **DR (10/06/2021)** · Final: **SMc (10/11/2021)**
Client Name/Ref	**Energinet Eltransmission A/S/384_20_ENE**	Date of Test	**05/05/2021**		Assumed Unit Weight: 20 - 16 kN/m³
Vessel	**MV Ocean Vantage**	Cone No.(type)/α Factor	**130206 (10cm²) / 0.77**		K_p: 0.5 - 2.0
CPT Unit	**20 kN Sea bed CPT**	Base Inclination	**X = 1.1° / Y = 1.0°**		N_{KT}: 15 - 20
					N_{KT}: 12.5 - 16.5

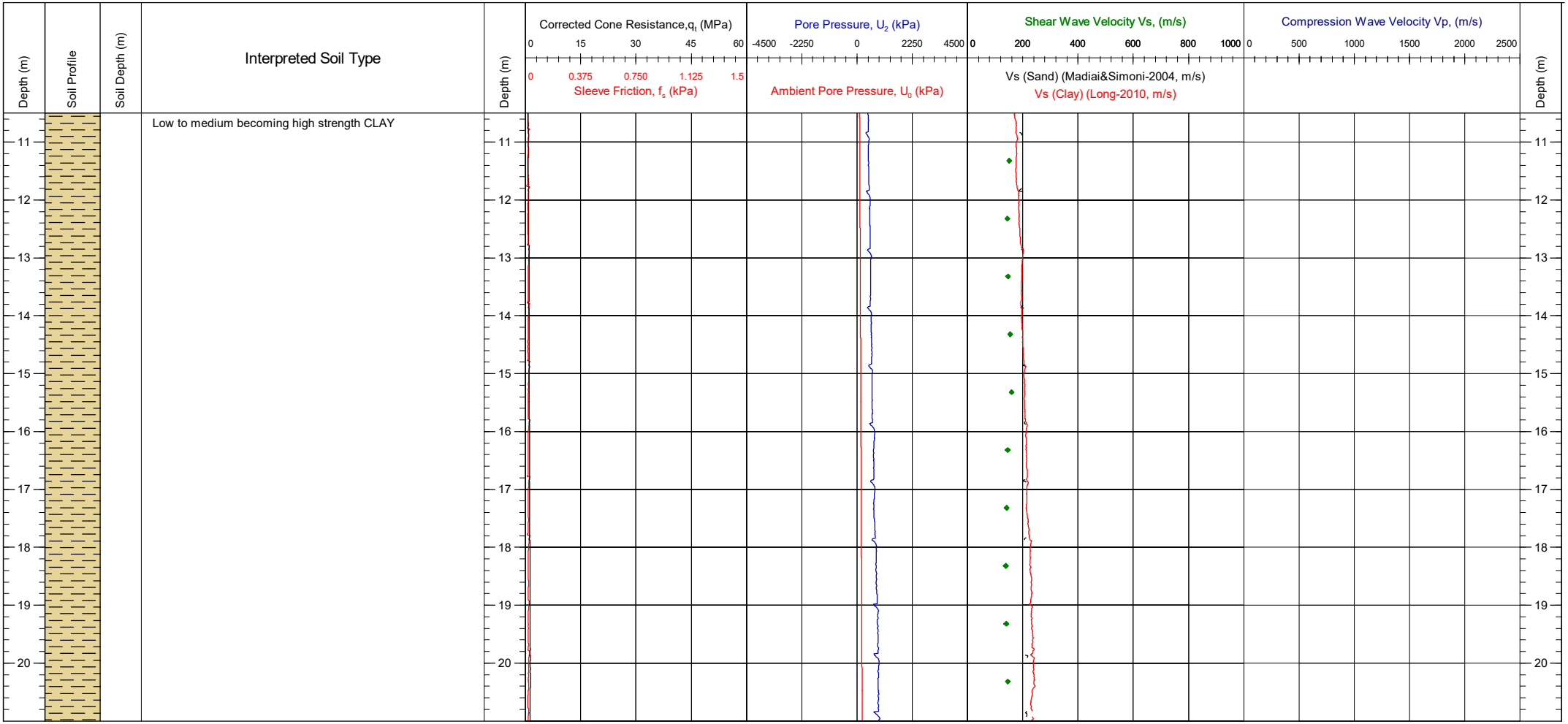
CPT Name: **SCPT1a**

Filename - CPT1b.csv

Gardline

Preliminary Investigation, Hesselø OWF

IN SITU SCPTU TESTING



Area	**Kattegat Sea**	Coordinates	**681923.4E 6249306.6N**	CRS: **ETRS89**	QC Status
Contract	**11596**	Water Depth (mMSL)	**31.7**	**Comments:** Cone class 1. Continuous seismic seabed CPT. Final depth 37.55m. Test terminated at operators discretion due to increasing total force and lack of lateral rod support	Preliminary: **JK/BC (06/05/2021)** · Draft: **DR (10/06/2021)** · Final: **SMc (10/11/2021)**
Client Name/Ref	**Energinet Eltransmission A/S/384_20_ENE**	Date of Test	**05/05/2021**		Assumed Unit Weight: 20 - 16 kN/m³
Vessel	**MV Ocean Vantage**	Cone No.(type)/α Factor	**130206 (10cm²) / 0.77**		K_0: 0.5 - 2.0
CPT Unit	**20 kN Sea bed CPT**	Base Inclination	**X = 1.1° / Y = 1.0°**		N_{KT}: 15 - 20
					N_{KT}: 12.5 - 16.5

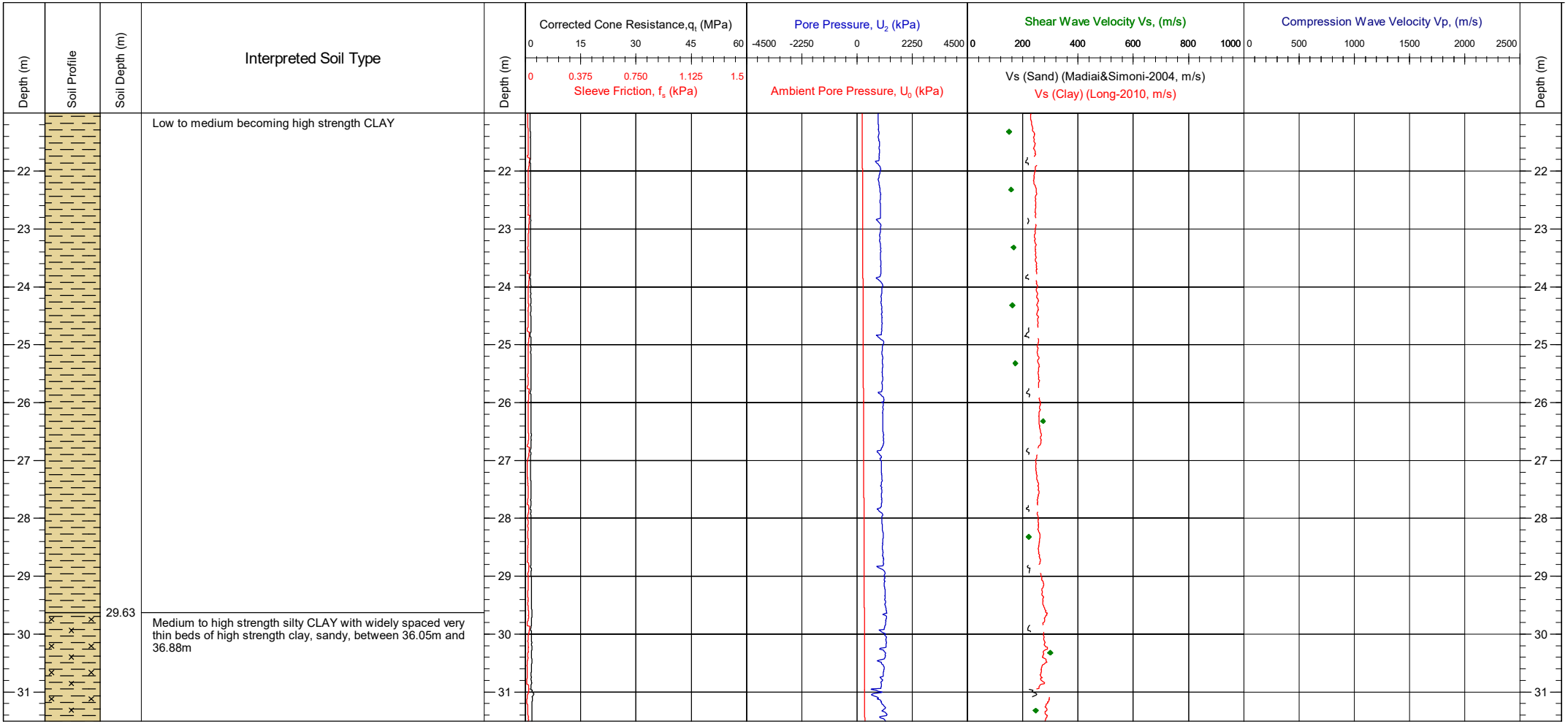
CPT Name: **SCPT1a**

Filename - CPT1b.csv

Gardline

Preliminary Investigation, Hesselø OWF

IN SITU SCPTU TESTING



Area	**Kattegat Sea**	Coordinates	**681923.4E 6249306.6N**	CRS: **ETRS89**	QC Status
Contract	**11596**	Water Depth (mMSL)	**31.7**	**Comments:** Cone class 1. Continuous seismic seabed CPT. Final depth 37.55m. Test terminated at operators discretion due to increasing total force and lack of lateral rod support	Preliminary: **JK/BC (06/05/2021)** · Draft: **DR (10/06/2021)** · Final: **SMc (10/11/2021)**
Client Name/Ref	**Energinet Eltransmission A/S/384_20_ENE**	Date of Test	**05/05/2021**		Assumed Unit Weight: 20 - 16 kN/m³
Vessel	**MV Ocean Vantage**	Cone No.(type)/α Factor	**130206 (10cm²) / 0.77**		K_0: 0.5 - 2.0
CPT Unit	**20 kN Sea bed CPT**	Base Inclination	**X = 1.1° / Y = 1.0°**		N_{KT}: 15 - 20
					N_{KT}: 12.5 - 16.5

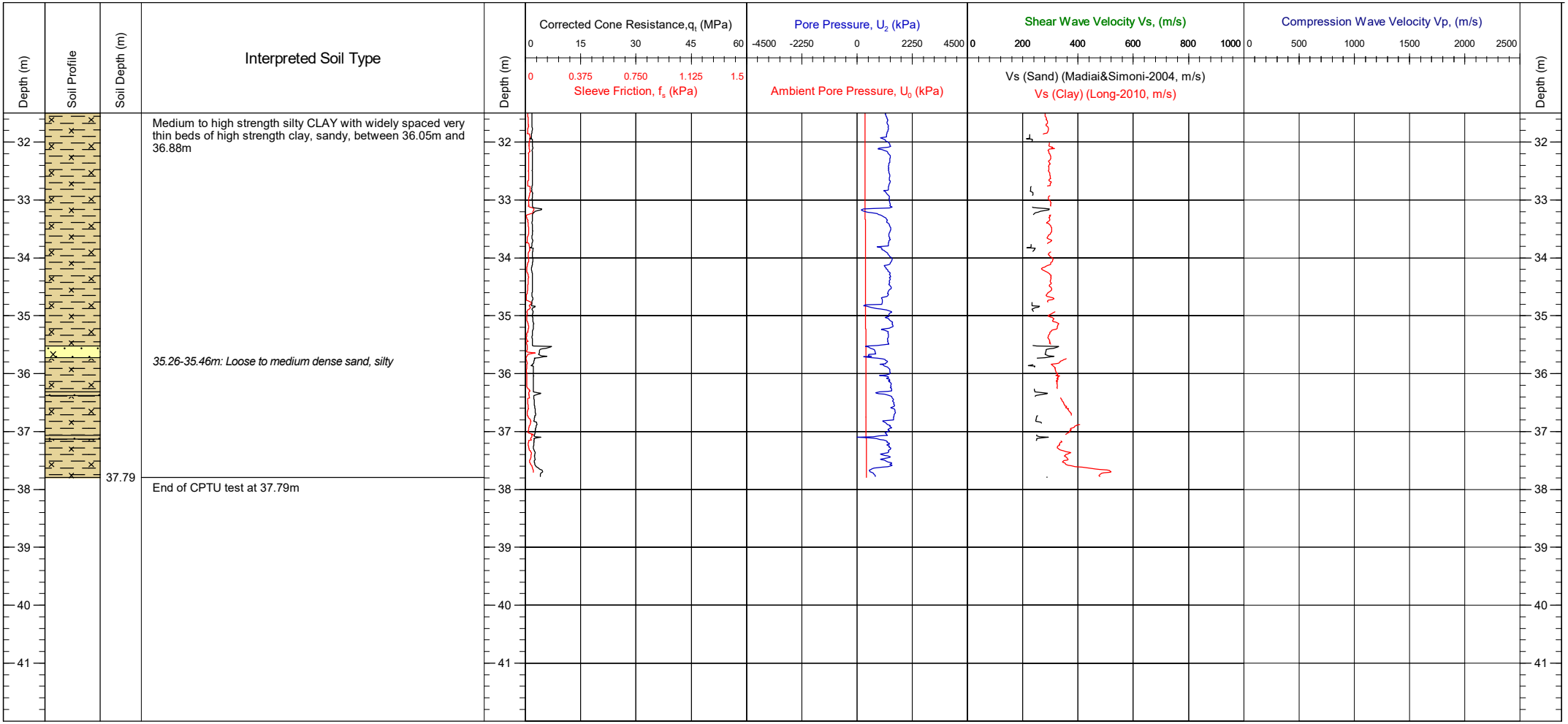
CPT Name: **SCPT1a**

Filename - CPT1b.csv

Gardline

Preliminary Investigation, Hesselø OWF

IN SITU SCPTU TESTING

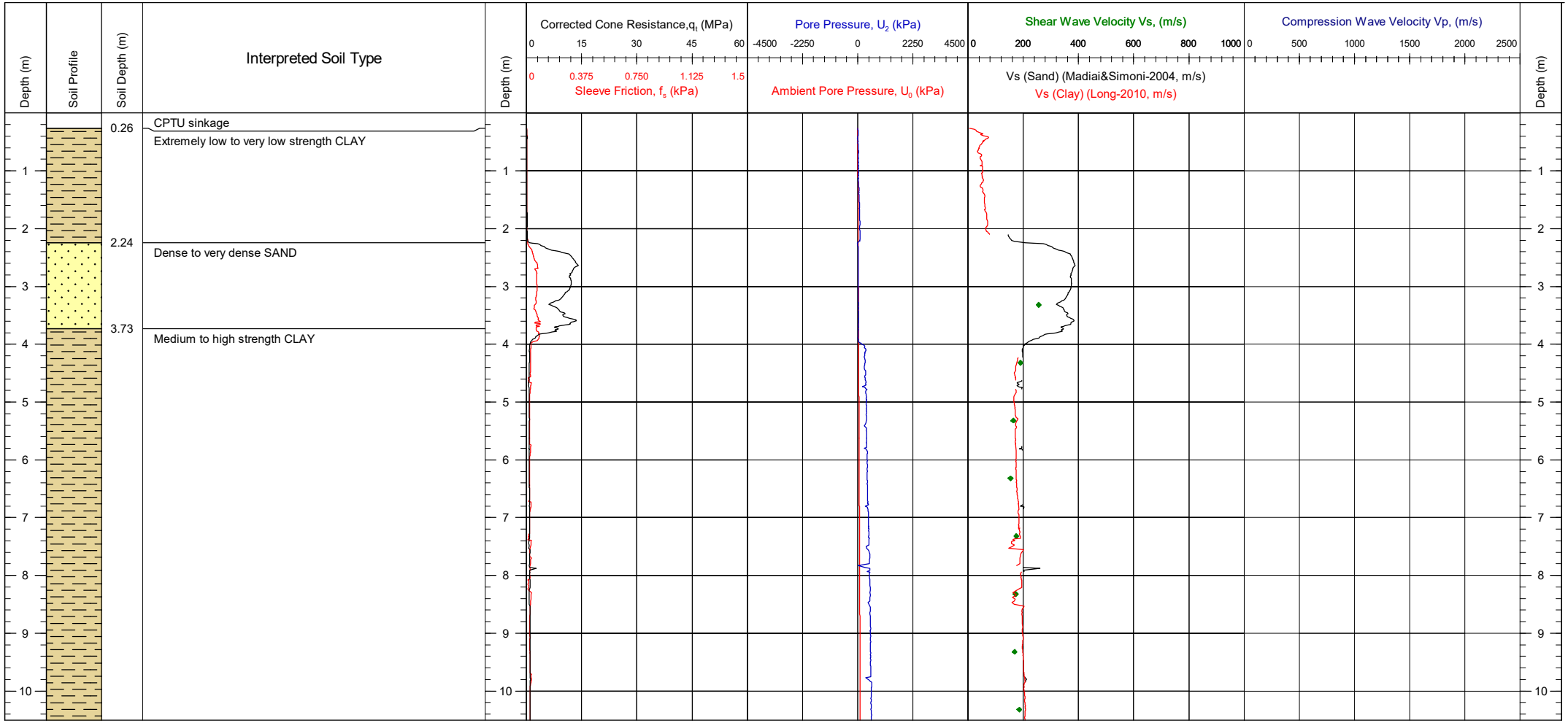


Area	**Kattegat Sea**	Coordinates	**681923.4E 6249306.6N**	CRS: **ETRS89**	QC Status	CPT Name
Contract	**11596**	Water Depth (mMSL)	**31.7**	**Comments:** Cone class 1. Continuous seismic seabed CPT. Final depth 37.55m. Test terminated at operators discretion due to increasing total force and lack of lateral rod support	Preliminary: **JK/BC (06/05/2021)** · Draft: **DR (10/06/2021)** · Final: **SMc (10/11/2021)**	**SCPT1a**
Client Name/Ref	**Energinet Eltransmission A/S/384_20_ENE**	Date of Test	**05/05/2021**		Assumed Unit Weight: 20 - 16 kN/m³	
Vessel	**MV Ocean Vantage**	Cone No.(type)/α Factor	**130206 (10cm²) / 0.77**		K_0: 0.5 - 2.0	
CPT Unit	**20 kN Sea bed CPT**	Base Inclination	**X = 1.1° / Y = 1.0°**		N_{KT}: 15 - 20	Filename - CPT1b.csv
					N_{KT}: 12.5 - 16.5	

Gardline

Preliminary Investigation, Hesselø OWF

IN SITU SCPTU TESTING

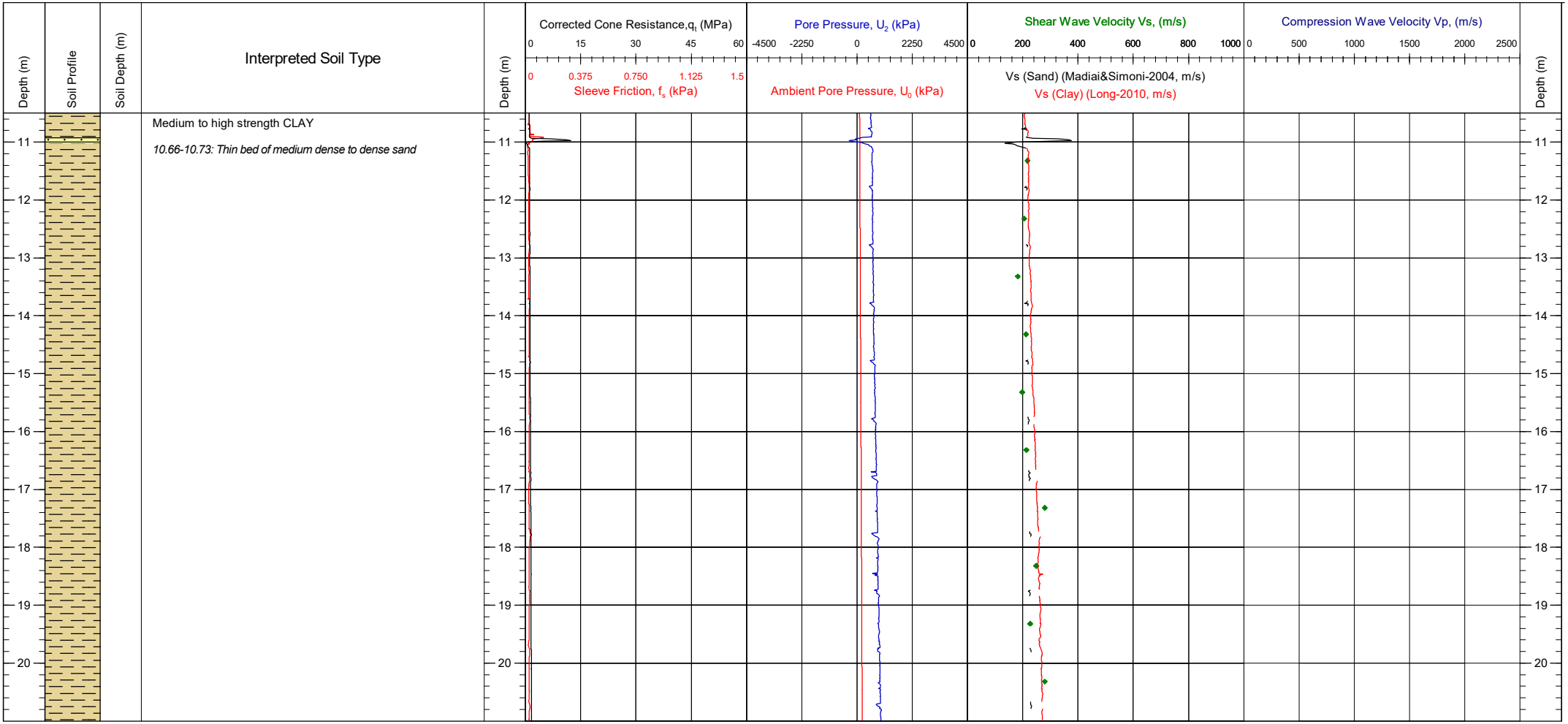


Area	**Kattegat Sea**	Coordinates	**673302.0E 6252306.8N**	CRS: **ETRS89**	QC Status
Contract	**11596**	Water Depth (mMSL)	**28.8**	**Comments:** Cone class 1. Continuous seismic seabed CPT. Final depth 26.25m. Test terminated at operators discretion due to cone inclination >12 degrees and lack of lateral rod support into hard ground.	Preliminary: **JK/BC** (04/05/2021); Draft: **DR** (10/06/2021); Final: **SMc** (10/11/2021)
Client Name/Ref	**Energinet Eltransmission A/S/384_20_ENE**	Date of Test	**04/05/2021**		Assumed Unit Weight: 20 - 16 kN/m³ K_c: 0.5 - 2.0 N_{KT}: 15 - 20 N_{KT}: 12.5 - 16.5
Vessel	**MV Ocean Vantage**	Cone No.(type)/α Factor	**130909 (10cm²) / 0.82**		CPT Name: **SCPT2**
CPT Unit	**20 kN Sea bed CPT**	Base Inclination	**X = 1.2° / Y = 0.7°**		Filename - CPT2a.csv

Gardline

Preliminary Investigation, Hesselø OWF

IN SITU SCPTU TESTING



Area	**Kattegat Sea**	Coordinates	**673302.0E 6252306.8N**	CRS: **ETRS89**	QC Status
Contract	**11596**	Water Depth (mMSL)	**28.8**	**Comments:** Cone class 1. Continuous seismic seabed CPT. Final depth 26.25m. Test terminated at operators discretion due to cone inclination >12 degrees and lack of lateral rod support into hard ground.	Preliminary: **JK/BC (04/05/2021)** · Draft: **DR (10/06/2021)** · Final: **SMc (10/11/2021)**
Client Name/Ref	**Energinet Eltransmission A/S/384_20_ENE**	Date of Test	**04/05/2021**		Assumed Unit Weight: 20 - 16 kN/m³
Vessel	**MV Ocean Vantage**	Cone No.(type)/α Factor	**130909 (10cm²) / 0.82**		K_p: 0.5 - 2.0
CPT Unit	**20 kN Sea bed CPT**	Base Inclination	**X = 1.2° / Y = 0.7°**		N_{KT}: 15 - 20
					N_{KT}: 12.5 - 16.5

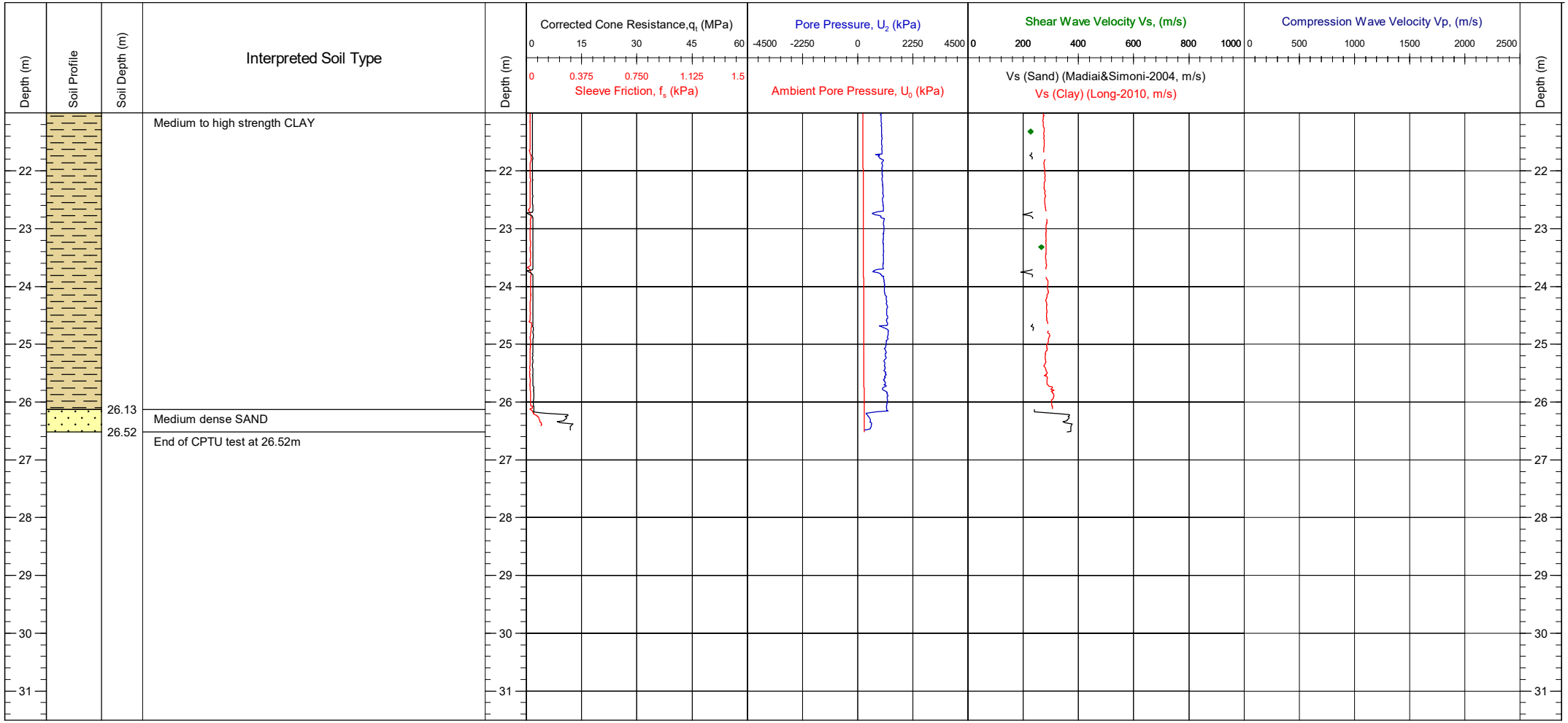
CPT Name: **SCPT2**

Filename - CPT2a.csv

Gardline

Preliminary Investigation, Hesselø OWF

IN SITU SCPTU TESTING

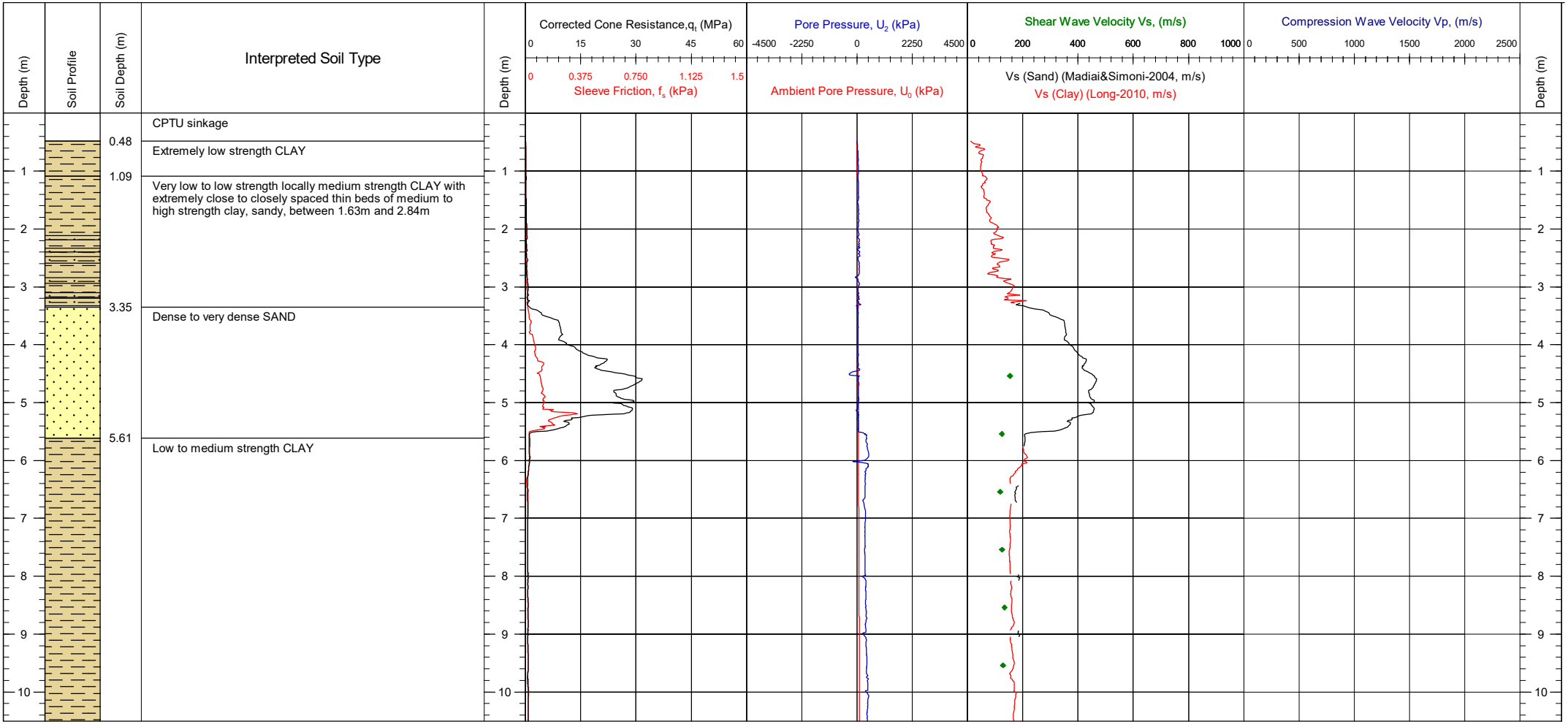


Area	**Kattegat Sea**	Coordinates	**673302.0E 6252306.8N**	CRS: **ETRS89**	QC Status	CPT Name
Contract	**11596**	Water Depth (mMSL)	**28.8**	**Comments:** Cone class 1. Continuous seismic seabed CPT. Final depth 26.25m. Test terminated at operators discretion due to cone inclination >12 degrees and lack of lateral rod support into hard ground.	Preliminary: **JK/BC (04/05/2021)** Draft: **DR (10/06/2021)** Final: **SMc (10/11/2021)**	**SCPT2**
Client Name/Ref	**Energinet Eltransmission A/S/384_20_ENE**	Date of Test	**04/05/2021**		Assumed Unit Weight: 20 - 16 kN/m³ K_p: 0.5 - 2.0 N_{KT}: 15 - 20 N_{KT}: 12.5 - 16.5	
Vessel	**MV Ocean Vantage**	Cone No.(type)/α Factor	**130909 (10cm²) / 0.82**			
CPT Unit	**20 kN Sea bed CPT**	Base Inclination	**X = 1.2° / Y = 0.7°**			Filename - CPT2a.csv

Gardline

Preliminary Investigation, Hesselø OWF

IN SITU SCPTU TESTING

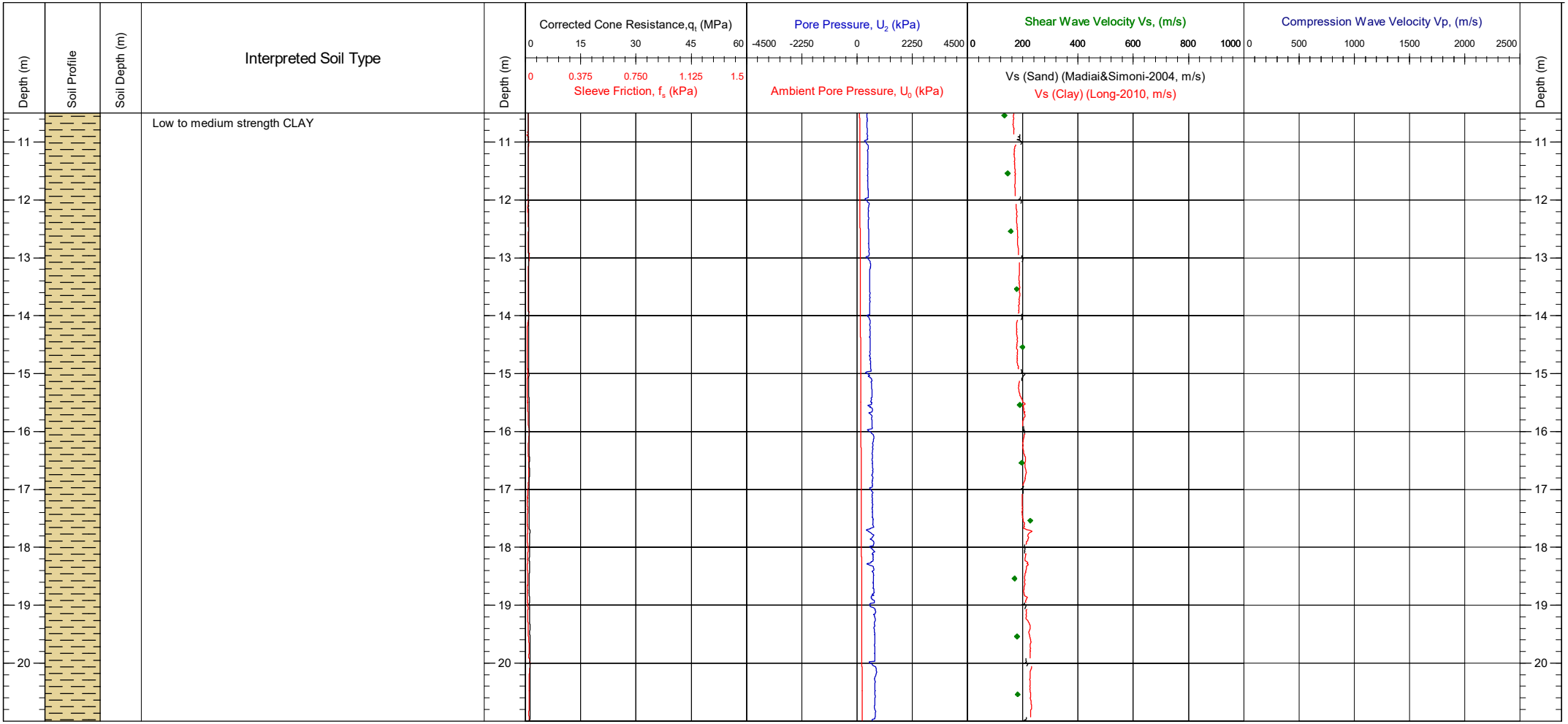


Area	**Kattegat Sea**	Coordinates	**665881.4E 6256363.1N**	CRS: **ETRS89**	QC Status	CPT Name
Contract	**11596**	Water Depth (mMSL)	**27.7**	**Comments:** Cone class 1. Continuous seismic seabed CPT. Final depth 29.74m. Test terminated at operators discretion due increasing total load and a lack of lateral rod support from mudline	Preliminary: **JK/BC** (07/05/2021) · Draft: **DR** (10/06/2021) · Final: **SMc** (10/11/2021)	**SCPT5**
Client Name/Ref	**Energinet Eltransmission A/S/384_20_ENE**	Date of Test	**06/05/2021**		Assumed Unit Weight: 20 - 16 kN/m³	
Vessel	**MV Ocean Vantage**	Cone No.(type)/α Factor	**191114 (10cm²) / 0.76**		K_0: 0.5 - 2.0 · N_{KT}: 15 - 20 · N_{KT}: 12.5 - 16.5	
CPT Unit	**20 kN Sea bed CPT**	Base Inclination	**X = 1.1° / Y = 0.9°**			Filename - S-CPT_5.csv

Gardline

Preliminary Investigation, Hesselø OWF

IN SITU SCPTU TESTING

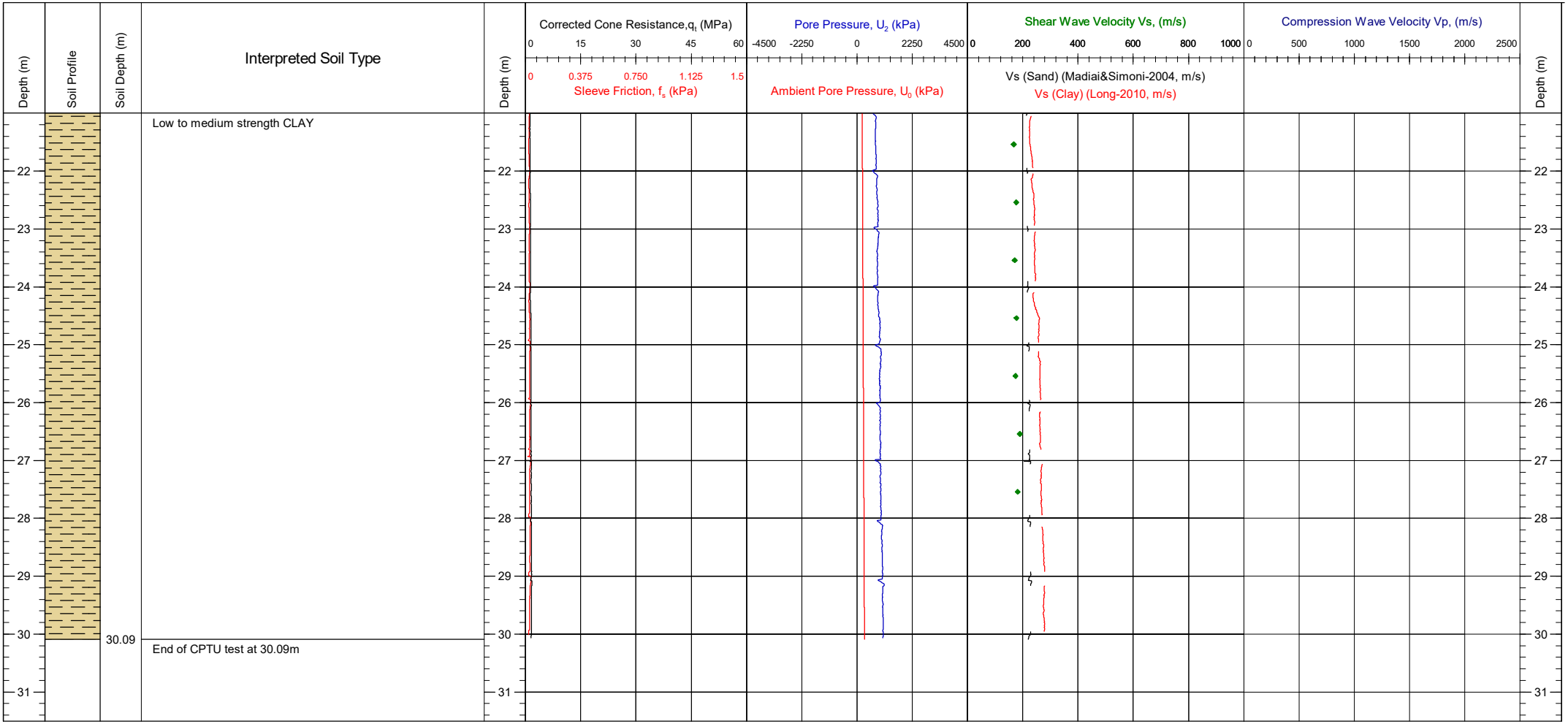


Area	**Kattegat Sea**	Coordinates	**665881.4E 6256363.1N**	CRS: **ETRS89**	QC Status	CPT Name
Contract	**11596**	Water Depth (mMSL)	**27.7**	**Comments:** Cone class 1. Continuous seismic seabed CPT. Final depth 29.74m. Test terminated at operators discretion due increasing total load and a lack of lateral rod support from mudline	Preliminary: **JK/BC** (07/05/2021) · Draft: **DR** (10/06/2021) · Final: **SMc** (10/11/2021)	**SCPT5**
Client Name/Ref	**Energinet Eltransmission A/S/384_20_ENE**	Date of Test	**06/05/2021**		Assumed Unit Weight: 20 - 16 kN/m³	
Vessel	**MV Ocean Vantage**	Cone No.(type)/α Factor	**191114 (10cm²) / 0.76**		K_0: 0.5 - 2.0	
CPT Unit	**20 kN Sea bed CPT**	Base Inclination	**X = 1.1° / Y = 0.9°**		N_{KT}: 15 - 20	Filename - S-CPT_5.csv
					N_{KT}: 12.5 - 16.5	

Gardline

Preliminary Investigation, Hesselø OWF

IN SITU SCPTU TESTING

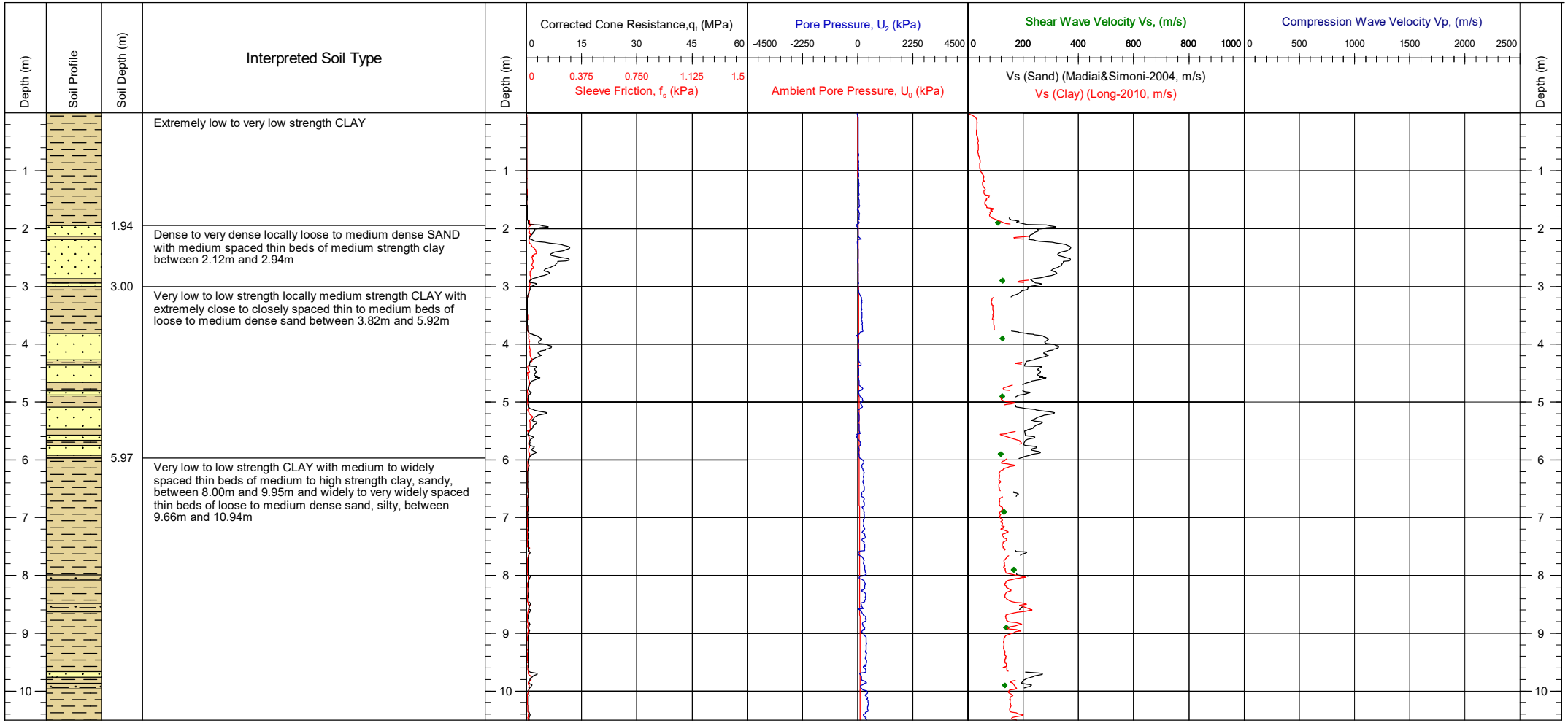


Area	**Kattegat Sea**	Coordinates	**665881.4E 6256363.1N**	CRS: **ETRS89**	QC Status	CPT Name
Contract	**11596**	Water Depth (mMSL)	**27.7**	**Comments:** Cone class 1. Continuous seismic seabed CPT. Final depth 29.74m. Test terminated at operators discretion due increasing total load and a lack of lateral rod support from mudline	Preliminary: **JK/BC** (07/05/2021) · Draft: **DR** (10/06/2021) · Final: **SMc** (10/11/2021)	**SCPT5**
Client Name/Ref	**Energinet Eltransmission A/S/384_20_ENE**	Date of Test	**06/05/2021**		Assumed Unit Weight: 20 - 16 kN/m³	
Vessel	**MV Ocean Vantage**	Cone No.(type)/α Factor	**191114 (10cm²) / 0.76**		K_0: 0.5 - 2.0	
CPT Unit	**20 kN Sea bed CPT**	Base Inclination	**X = 1.1° / Y = 0.9°**		N_{KT}: 15 - 20	Filename - S-CPT_5.csv
					N_{KT}: 12.5 - 16.5	

Gardline

Preliminary Investigation, Hesselø OWF

IN SITU SCPTU TESTING

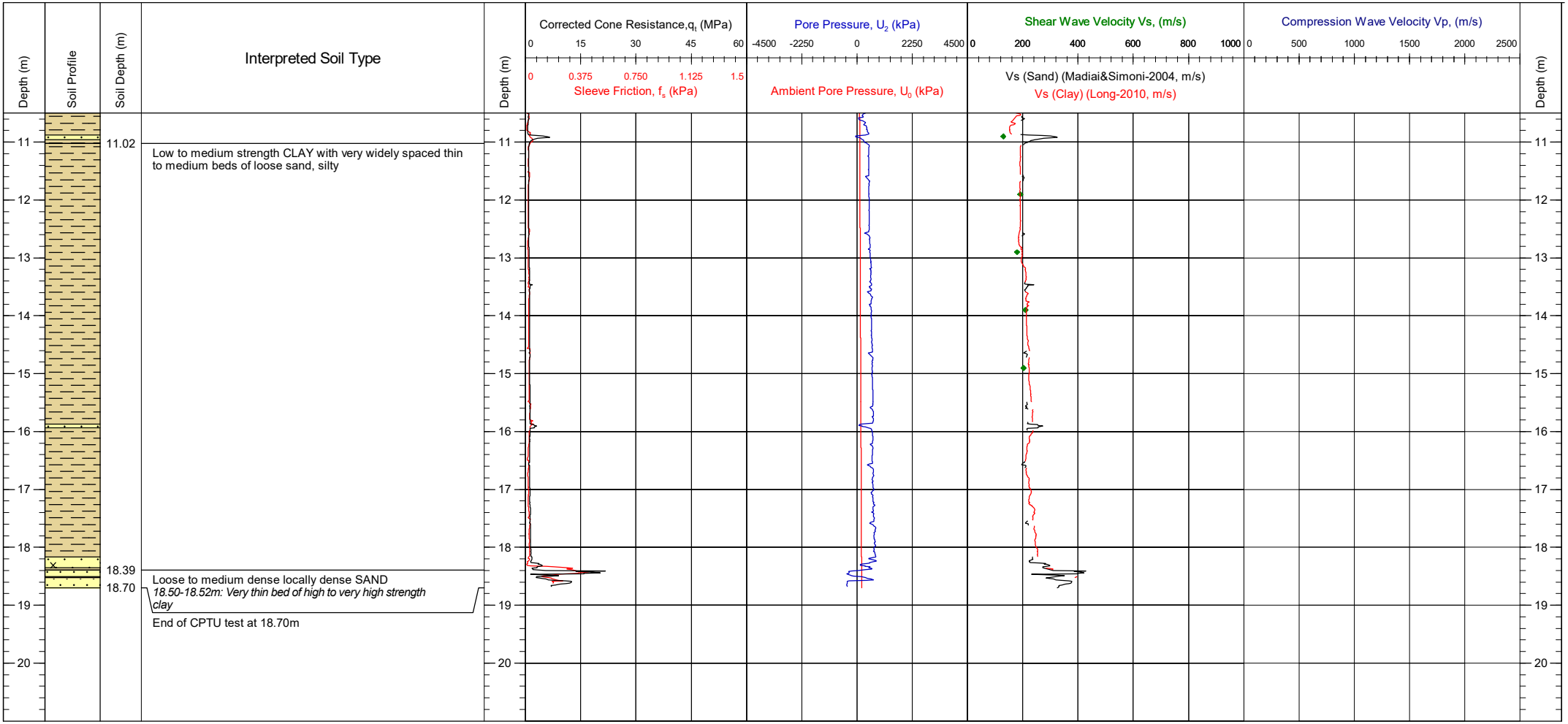


Area	**Kattegat Sea**	Coordinates	**675126.2E 6262391.1N**	CRS: **ETRS89**	QC Status	CPT Name
Contract	**11596**	Water Depth (mMSL)	**31.8**	**Comments:** Cone class 1. Continuous seismic seabed CPT. Final depth 18.70m. Test terminated due to sudden inclination >3 degrees in less than 1 metre	Preliminary: **JK/BC** (07/05/2021) · Draft: **DR** (10/06/2021) · Final: **SMc** (10/11/2021)	**SCPT17**
Client Name/Ref	**Energinet Eltransmission A/S/384_20_ENE**	Date of Test	**07/05/2021**		Assumed Unit Weight: 20 - 16 kN/m³	
Vessel	**MV Ocean Vantage**	Cone No.(type)/α Factor	**081208 (10cm²) / 0.78**		K_0: 0.5 - 2.0 · N_{KT}: 15 - 20 · N_{KT}: 12.5 - 16.5	
CPT Unit	**20 kN Sea bed CPT**	Base Inclination	**X = 1.1° / Y = 1.0°**			Filename - S_CPT_17.csv

Gardline

Preliminary Investigation, Hesselø OWF

IN SITU SCPTU TESTING



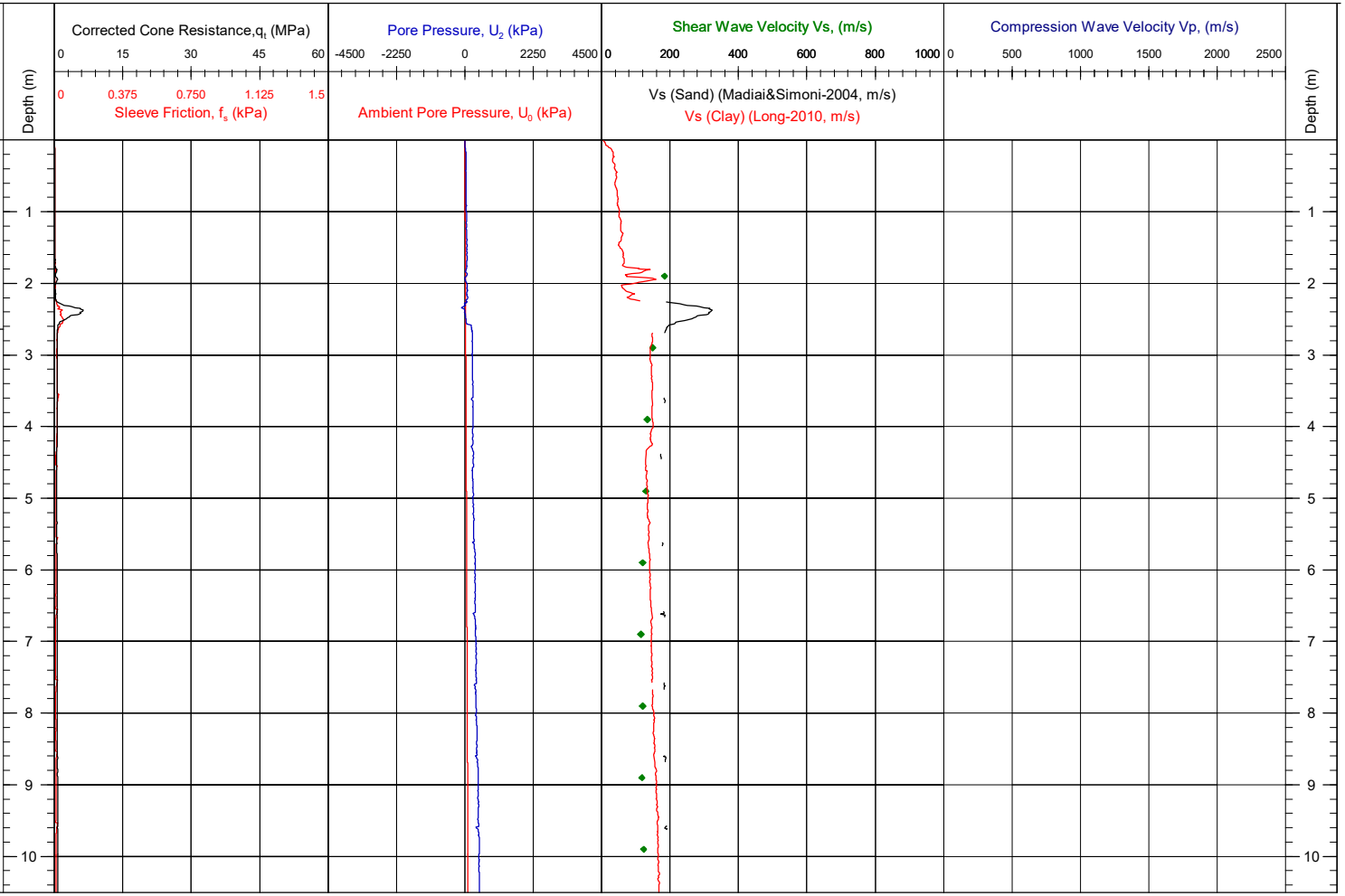
Area	**Kattegat Sea**	Coordinates	**675126.2E 6262391.1N**	CRS: **ETRS89**	QC Status	CPT Name
Contract	**11596**	Water Depth (mMSL)	**31.8**	**Comments:** Cone class 1. Continuous seismic seabed CPT. Final depth 18.70m. Test terminated due to sudden inclination >3 degrees in less than 1 metre	Preliminary: **JK/BC** (07/05/2021); Draft: **DR** (10/06/2021); Final: **SMc** (10/11/2021)	**SCPT17**
Client Name/Ref	**Energinet Eltransmission A/S/384_20_ENE**	Date of Test	**07/05/2021**		Assumed Unit Weight: 20 - 16 kN/m³ K_p: 0.5 - 2.0 N_{KT}: 15 - 20 N_{KT}: 12.5 - 16.5	
Vessel	**MV Ocean Vantage**	Cone No.(type)/α Factor	**081208 (10cm²) / 0.78**			
CPT Unit	**20 kN Sea bed CPT**	Base Inclination	**X = 1.1° / Y = 1.0°**			Filename - S_CPT_17.csv

Gardline

Preliminary Investigation, Hesselø OWF

IN SITU SCPTU TESTING

Depth (m)	Soil Profile	Soil Depth (m)	Interpreted Soil Type
			Extremely low to very low strength CLAY with closely spaced very thin beds of low to medium strength clay, sandy, between 1.78m and 1.98m
		2.64	*2.26-2.48m: Medium bed of medium dense to dense sand*
			Low to medium strength CLAY



Area	**Kattegat Sea**	Coordinates	**670633.3E 6266454.1N**	CRS: **ETRS89**	QC Status
Contract	**11596**	Water Depth (mMSL)	**30.8**	**Comments:** Cone class 1. Continuous seabed seismic CPT. Final depth 21.92m. Test terminated due to the maximum cone inclination of 12 degrees was reached	Preliminary: **JK/BC** (07/05/2021); Draft: **DR** (10/06/2021); Final: **SMc** (10/11/2021)
Client Name/Ref	**Energinet Eltransmission A/S/384_20_ENE**	Date of Test	**07/05/2021**		Assumed Unit Weight: 20 - 16 kN/m³
Vessel	**MV Ocean Vantage**	Cone No.(type)/α Factor	**130909 (10cm²) / 0.82**		K_p: 0.5 - 2.0 N_{kt}: 15 - 20 N_{kt}: 12.5 - 16.5
CPT Unit	**20 kN Sea bed CPT**	Base Inclination	**X = 1.1° / Y = 0.9°**		

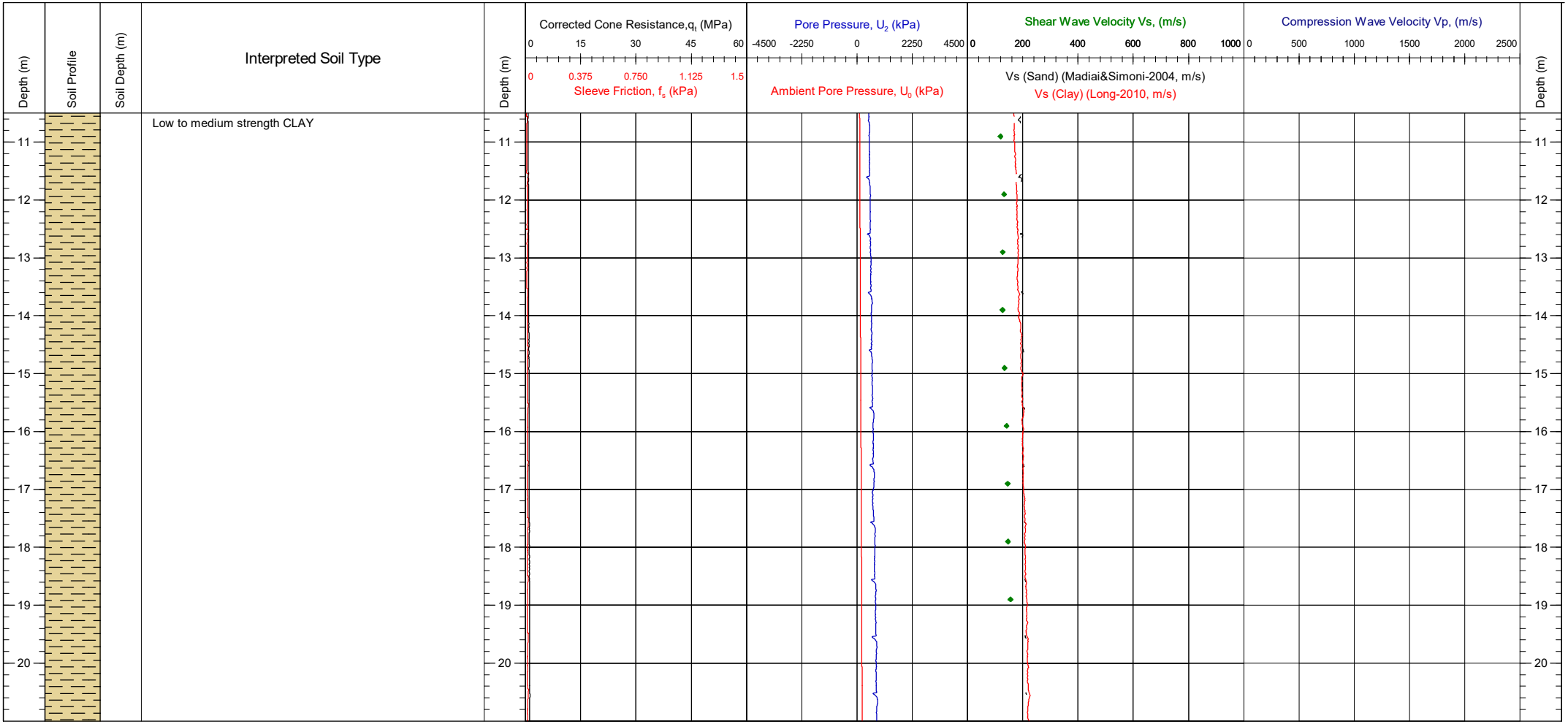
CPT Name: **SCPT19**

Filename - S-CPT-19.csv

Gardline

Preliminary Investigation, Hesselø OWF

IN SITU SCPTU TESTING

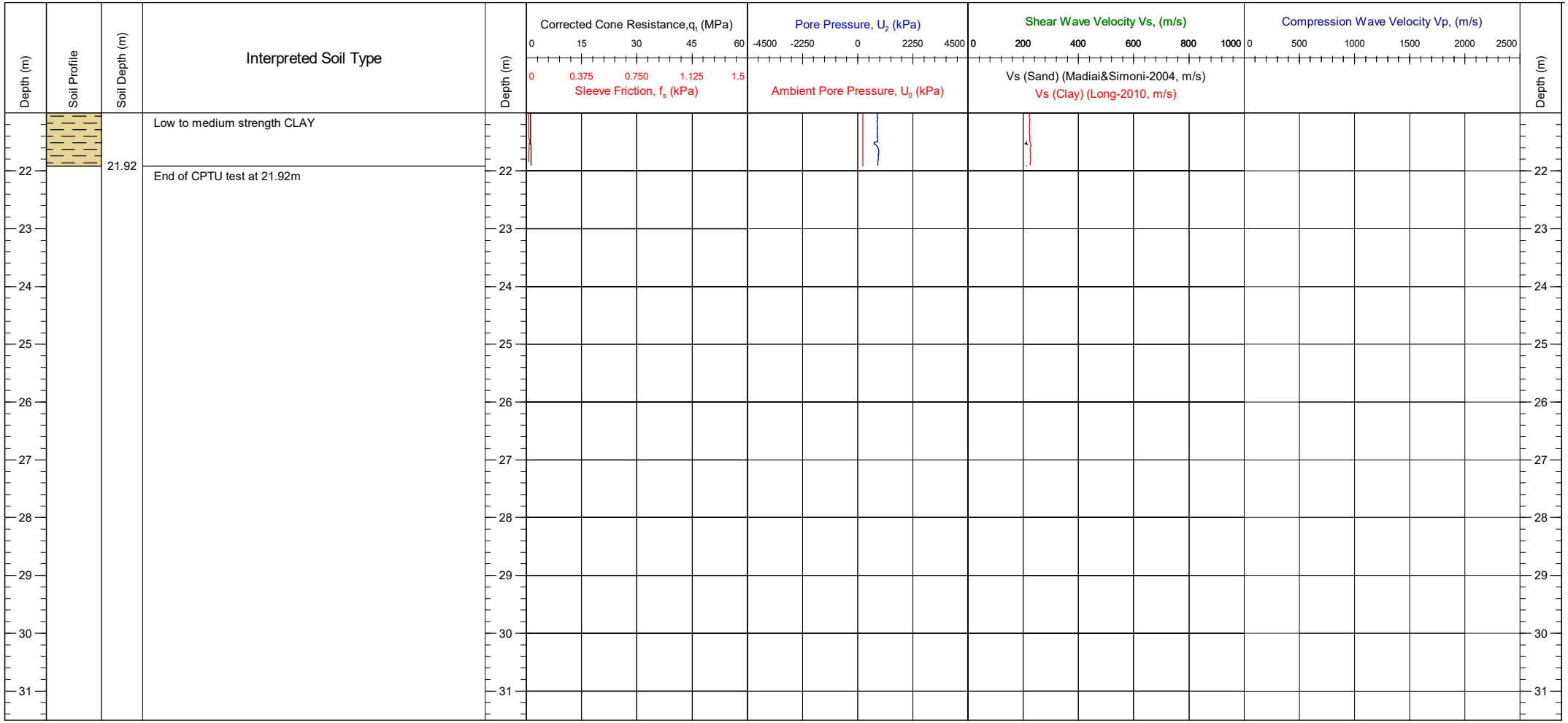


Area	**Kattegat Sea**	Coordinates	**670633.3E 6266454.1N**	CRS: **ETRS89**	QC Status	CPT Name
Contract	**11596**	Water Depth (mMSL)	**30.8**	**Comments:** Cone class 1. Continuous seabed seismic CPT. Final depth 21.92m. Test terminated due to the maximum cone inclination of 12 degrees was reached	Preliminary: **JK/BC** (07/05/2021) · Draft: **DR** (10/06/2021) · Final: **SMc** (10/11/2021)	**SCPT19**
Client Name/Ref	**Energinet Eltransmission A/S/384_20_ENE**	Date of Test	**07/05/2021**		Assumed Unit Weight: 20 - 16 kN/m³	
Vessel	**MV Ocean Vantage**	Cone No.(type)/α Factor	**130909 (10cm²) / 0.82**		K_p: 0.5 - 2.0 · N_{KT}: 15 - 20 · N_{KT}: 12.5 - 16.5	
CPT Unit	**20 kN Sea bed CPT**	Base Inclination	**X = 1.1° / Y = 0.9°**			Filename - S-CPT-19.csv

Gardline

Preliminary Investigation, Hesselø OWF

IN SITU SCPTU TESTING

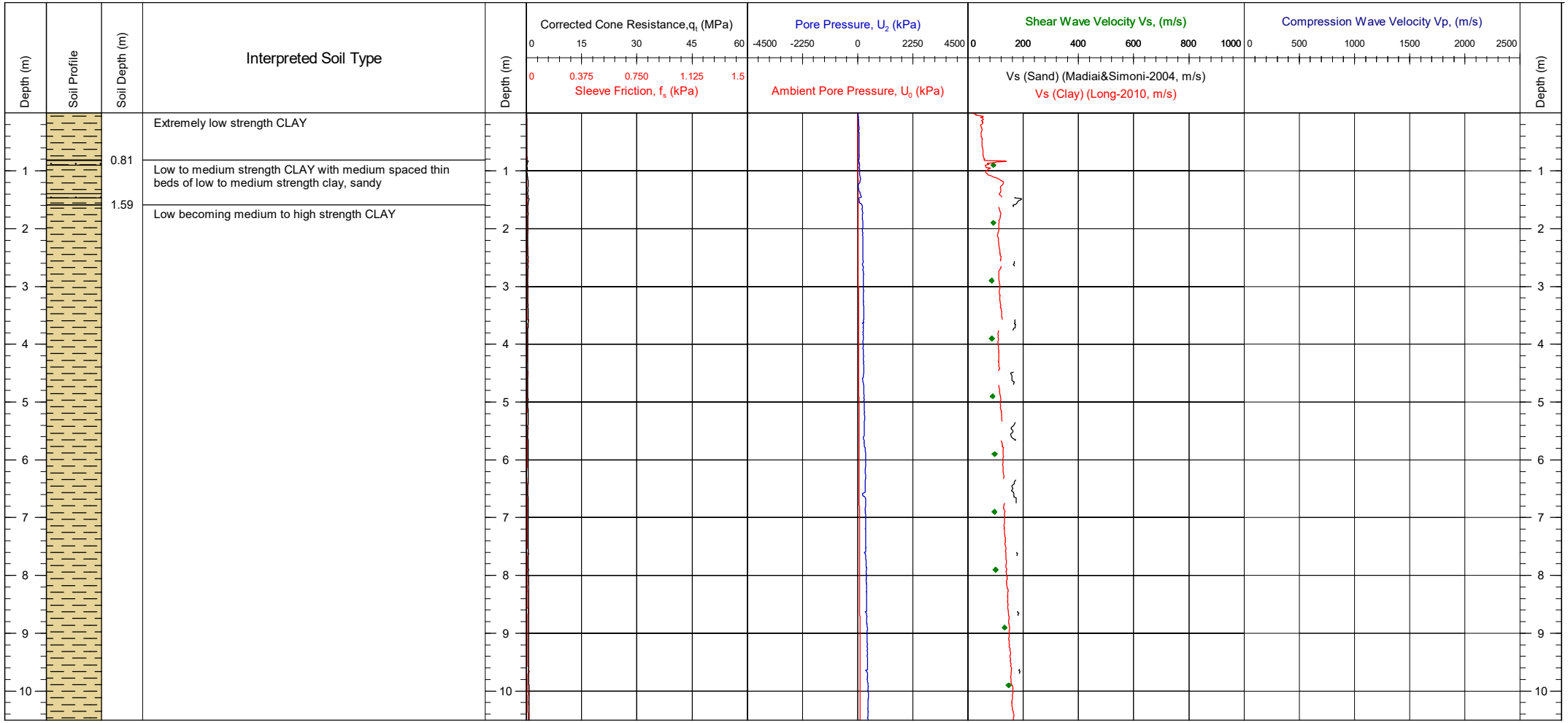


Area	**Kattegat Sea**	Coordinates	**670633.3E 6266454.1N**	CRS: **ETRS89**	QC Status	CPT Name
Contract	**11596**	Water Depth (mMSL)	**30.8**	**Comments:** Cone class 1. Continuous seabed seismic CPT. Final depth 21.92m. Test terminated due to the maximum cone inclination of 12 degrees was reached	Preliminary: **JK/BC** (07/05/2021) · Draft: **DR** (10/06/2021) · Final: **SMc** (10/11/2021)	**SCPT19**
Client Name/Ref	**Energinet Eltransmission A/S/384_20_ENE**	Date of Test	**07/05/2021**		Assumed Unit Weight: 20 - 16 kN/m³	
Vessel	**MV Ocean Vantage**	Cone No.(type)/α Factor	**130909 (10cm²) / 0.82**		K_0: 0.5 - 2.0 N_{KT}: 15 - 20 N_{KT}: 12.5 - 16.5	
CPT Unit	**20 kN Sea bed CPT**	Base Inclination	**X = 1.1° / Y = 0.9°**			Filename - S-CPT-19.csv

Gardline

Preliminary Investigation, Hesselø OWF

IN SITU SCPTU TESTING

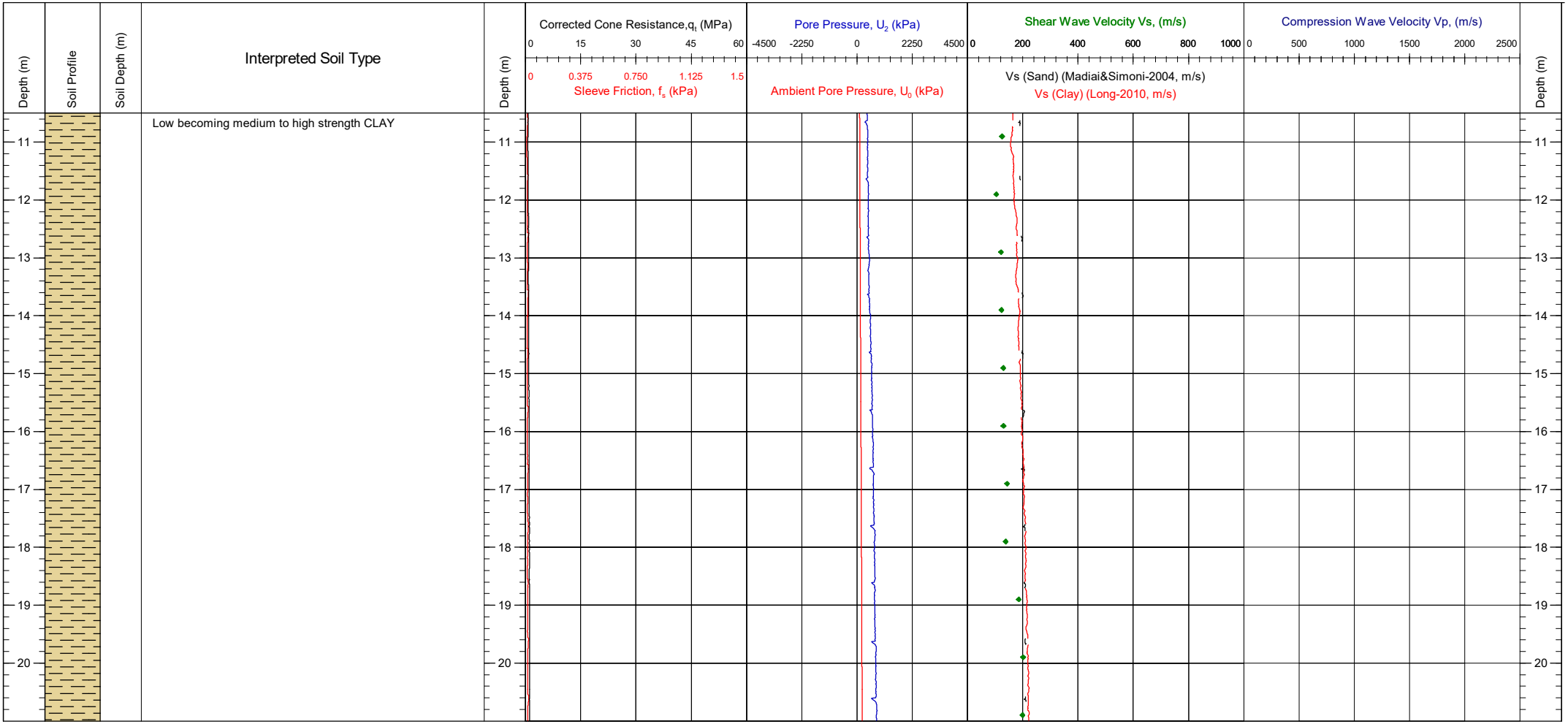


Area	**Kattegat Sea**	Coordinates	**677715.3E 6266260.7N**	CRS: **ETRS89**	QC Status	CPT Name
Contract	**11596**	Water Depth (mMSL)	**32.5**	**Comments:** Cone class 1. Continuous seismic seabed CPT. Final depth 31.61m. Test terminated due to rising weather conditions.	Preliminary: **JK/BC** (04/05/2021); Draft: **DR** (10/06/2021); Final: **SMc** (10/11/2021)	**SCPT21**
Client Name/Ref	**Energinet Eltransmission A/S/384_20_ENE**	Date of Test	**03/05/2021**			
Vessel	**MV Ocean Vantage**	Cone No.(type)/α Factor	**120829 (10cm^2) / 0.80**		Assumed Unit Weight: 20 - 16 kN/m^3 K_0: 0.5 - 2.0 N_{KT}: 15 - 20 N_{KT}: 12.5 - 16.5	
CPT Unit	**20 kN Sea bed CPT**	Base Inclination	**X = 1.1° / Y = 1.0°**			Filename - S-CPT-21.csv

Gardline

Preliminary Investigation, Hesselø OWF

IN SITU SCPTU TESTING

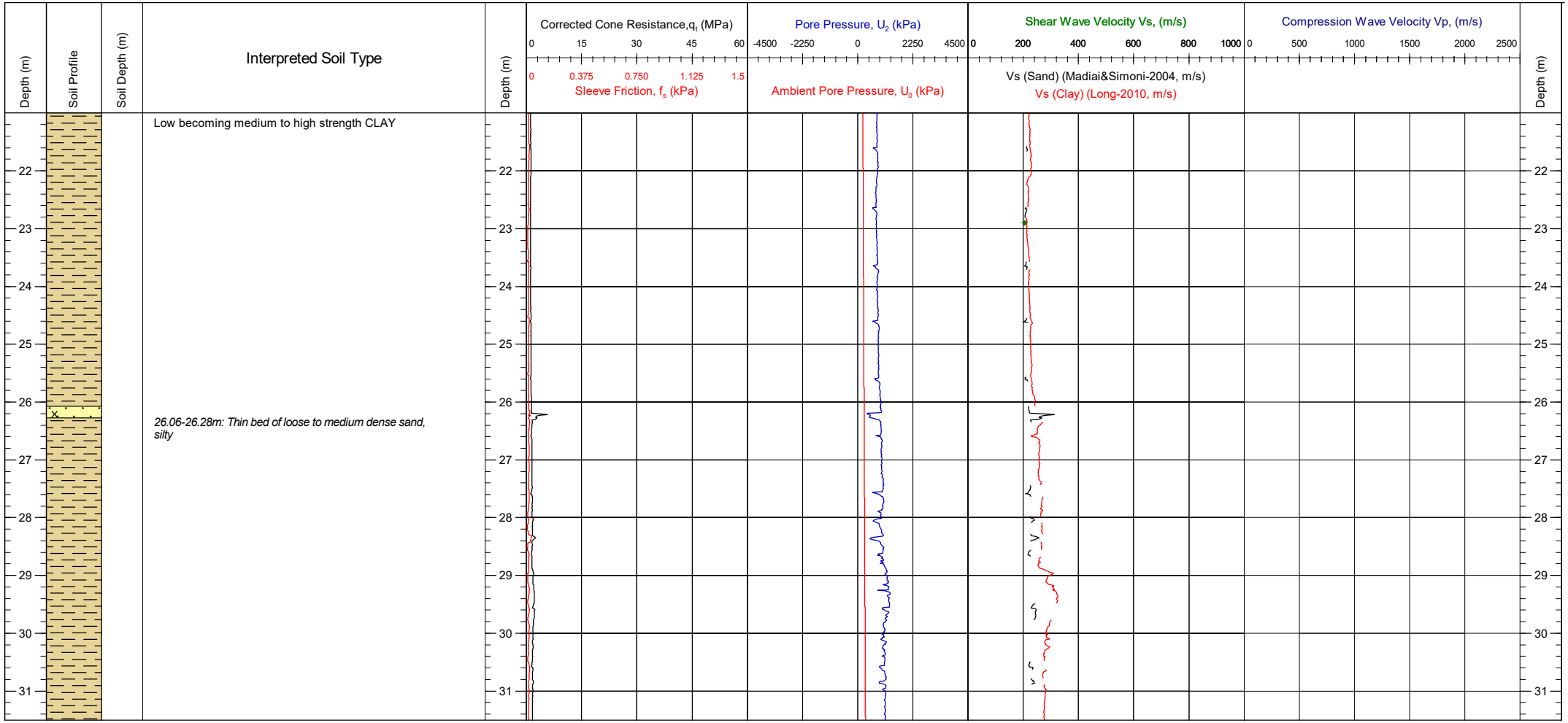


Area	**Kattegat Sea**	Coordinates	**677715.3E 6266260.7N**	CRS: **ETRS89**	QC Status	CPT Name
Contract	**11596**	Water Depth (mMSL)	**32.5**	**Comments:** Cone class 1. Continuous seismic seabed CPT. Final depth 31.61m. Test terminated due to rising weather conditions.	Preliminary: **JK/BC (04/05/2021)** Draft: **DR (10/06/2021)** Final: **SMc (10/11/2021)**	**SCPT21**
Client Name/Ref	**Energinet Eltransmission A/S/384_20_ENE**	Date of Test	**03/05/2021**		Assumed Unit Weight: 20 - 16 kN/m³	
Vessel	**MV Ocean Vantage**	Cone No.(type)/α Factor	**120829 (10cm²) / 0.80**		K_c: 0.5 - 2.0 N_{kt}: 15 - 20 N_{Qt}: 12.5 - 16.5	
CPT Unit	**20 kN Sea bed CPT**	Base Inclination	**X = 1.1° / Y = 1.0°**			Filename - S-CPT-21.csv

Gardline

Preliminary Investigation, Hesselø OWF

IN SITU SCPTU TESTING

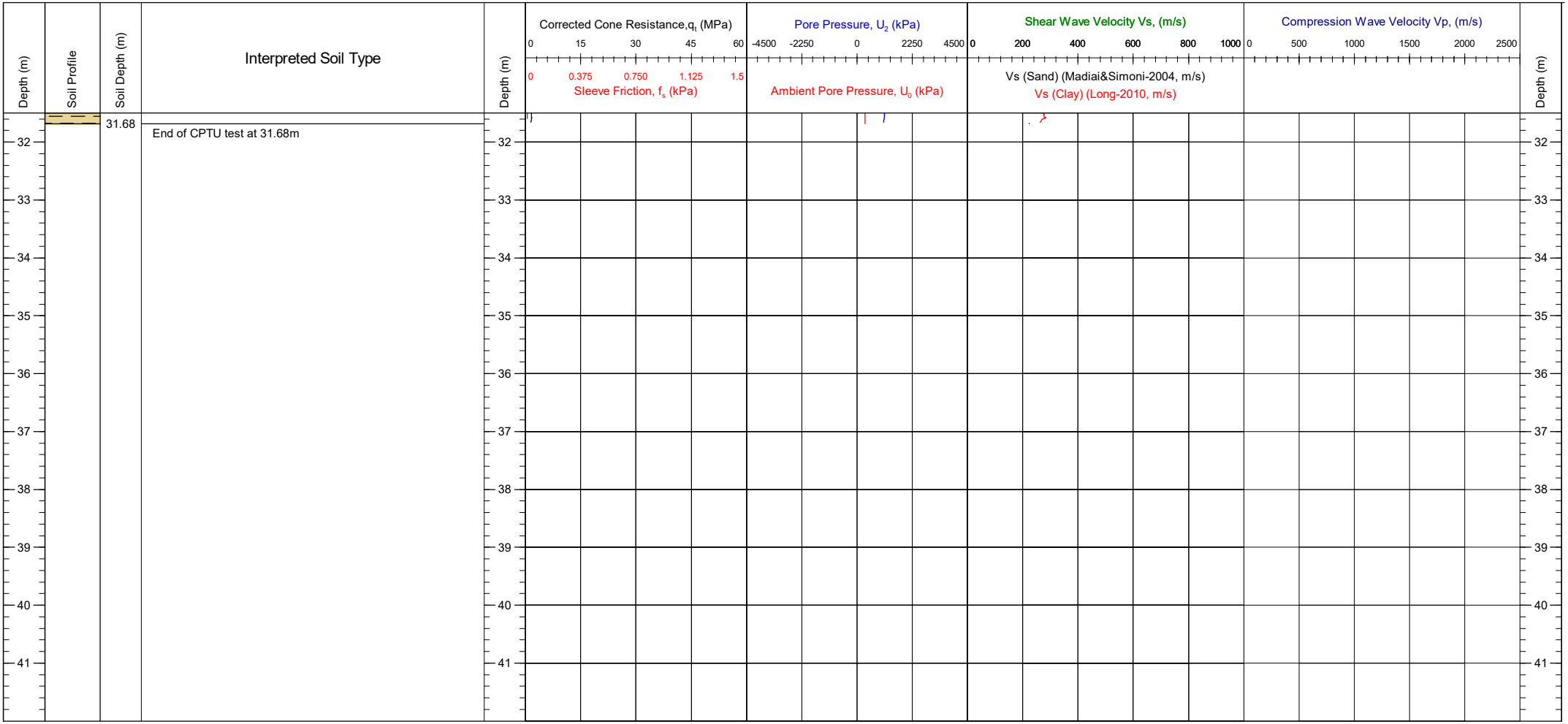


Area	**Kattegat Sea**	Coordinates	**677715.3E 6266260.7N**	CRS: **ETRS89**	QC Status
Contract	**11596**	Water Depth (mMSL)	**32.5**	**Comments:** Cone class 1. Continuous seismic seabed CPT. Final depth 31.61m. Test terminated due to rising weather conditions.	Preliminary: **JK/BC** (04/05/2021); Draft: **DR** (10/06/2021); Final: **SMc** (10/11/2021)
Client Name/Ref	**Energinet Eltransmission A/S/384_20_ENE**	Date of Test	**03/05/2021**		Assumed Unit Weight: 20 - 16 kN/m³ K_c: 0.5 - 2.0 N_{kt}: 15 - 20 N_{kt}: 12.5 - 16.5
Vessel	**MV Ocean Vantage**	Cone No.(type)/α Factor	**120829 (10cm²) / 0.80**		CPT Name: **SCPT21**
CPT Unit	**20 kN Sea bed CPT**	Base Inclination	**X = 1.1° / Y = 1.0°**		Filename - S-CPT-21.csv

Gardline

Preliminary Investigation, Hesselø OWF

IN SITU SCPTU TESTING

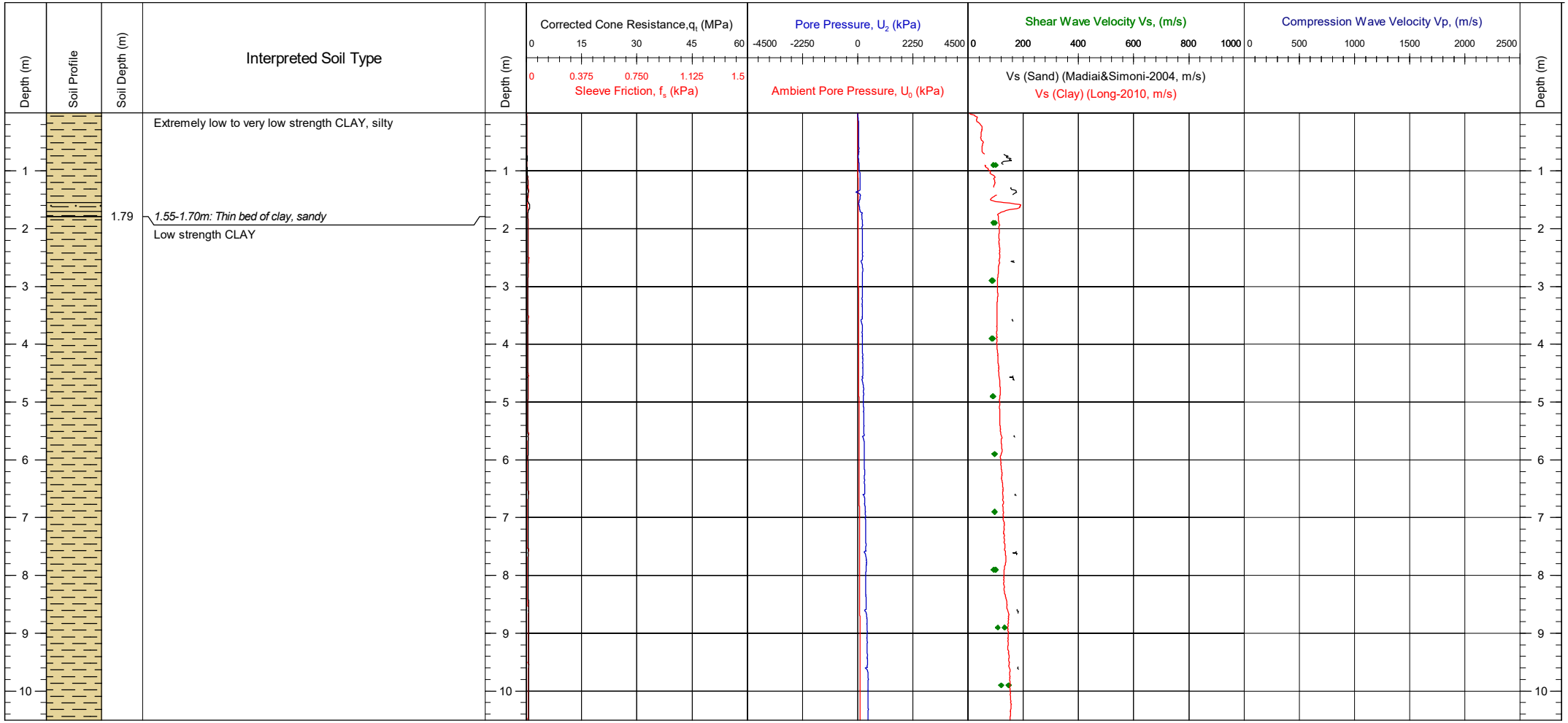


Area	**Kattegat Sea**	Coordinates	**677715.3E 6266260.7N**	CRS: **ETRS89**	QC Status	CPT Name
Contract	**11596**	Water Depth (mMSL)	**32.5**	**Comments:** Cone class 1. Continuous seismic seabed CPT. Final depth 31.61m. Test terminated due to rising weather conditions.	Preliminary: **JK/BC (04/05/2021)** Draft: **DR (10/06/2021)** Final: **SMc (10/11/2021)**	**SCPT21**
Client Name/Ref	**Energinet Eltransmission A/S/384_20_ENE**	Date of Test	**03/05/2021**		Assumed Unit Weight: 20 - 16 kN/m³	
Vessel	**MV Ocean Vantage**	Cone No.(type)/α Factor	**120829 (10cm²) / 0.80**		K_0: 0.5 - 2.0 N_{KT}: 15 - 20 N_{KT}: 12.5 - 16.5	
CPT Unit	**20 kN Sea bed CPT**	Base Inclination	**X = 1.1° / Y = 1.0°**			Filename - S-CPT-21.csv

Gardline

Preliminary Investigation, Hesselø OWF

IN SITU SCPTU TESTING

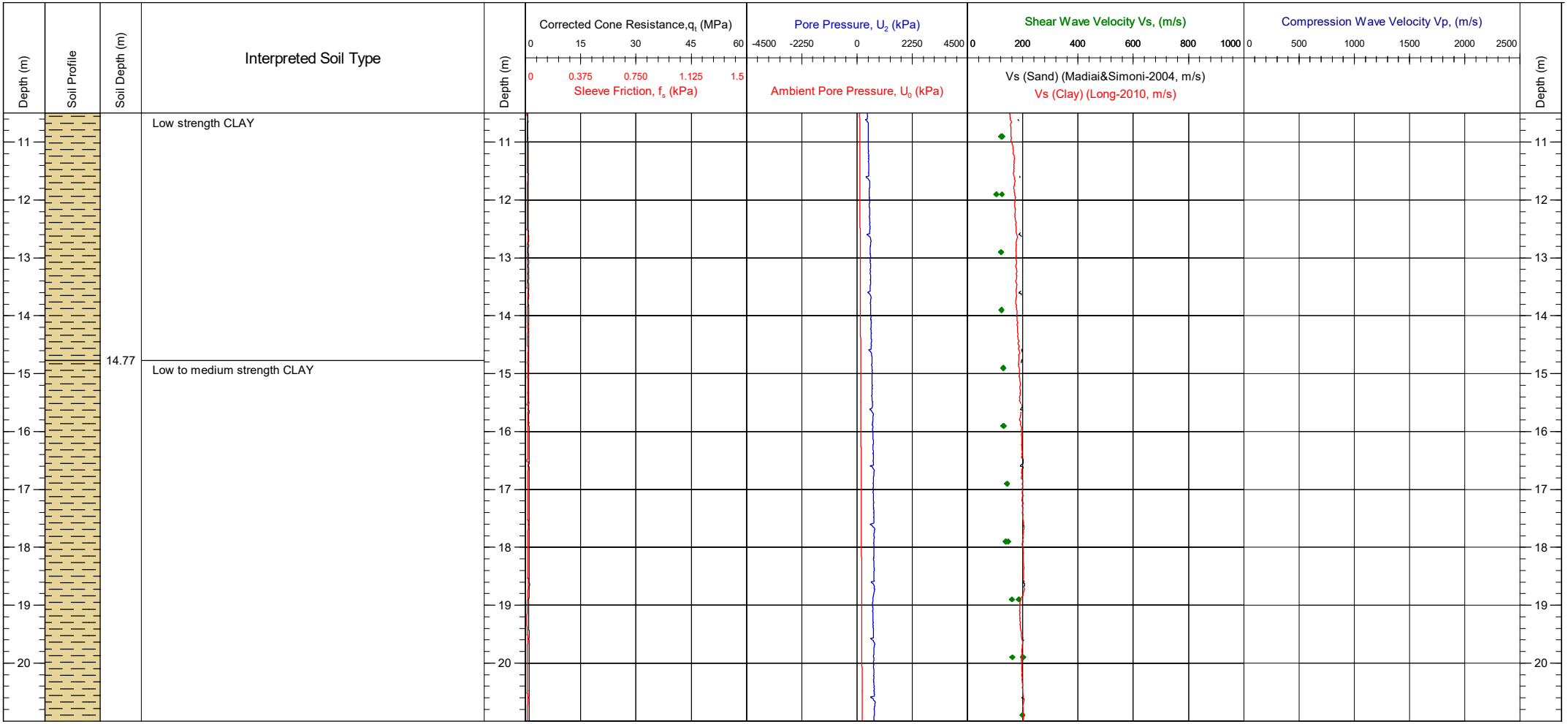


Area	**Kattegat Sea**	Coordinates	**676059.4E 6274402.9N**	CRS: **ETRS89**	QC Status	CPT Name
Contract	**11596**	Water Depth (mMSL)	**31.2**	**Comments:** Out of Class. Continuous seismic seabed CPT. Final depth 32.93m. Test terminated due sudden inclination change of 5 degrees in less than 1 metre-attempted to cycle but inclination was too high~ Please note the derived data has been removed where seismic testing was conducted.	Preliminary: **JK/BC** (03/05/2021) · Draft: **DR** (10/06/2021) · Final: **SMc** (10/11/2021)	**SCPT24**
Client Name/Ref	**Energinet Eltransmission A/S/384_20_ENE**	Date of Test	**03/05/2021**		Assumed Unit Weight: 20 - 16 kN/m³ K_c: 0.5 - 2.0 N_{KT}: 15 - 20 N_{KT}: 12.5 - 16.5	
Vessel	**MV Ocean Vantage**	Cone No.(type)/α Factor	**130206 (10cm²) / 0.77**			
CPT Unit	**20 kN Sea bed CPT**	Base Inclination	**X = 1.2° / Y = 0.8°**			Filename - CPT24a.csv

Gardline

Preliminary Investigation, Hesselø OWF

IN SITU SCPTU TESTING

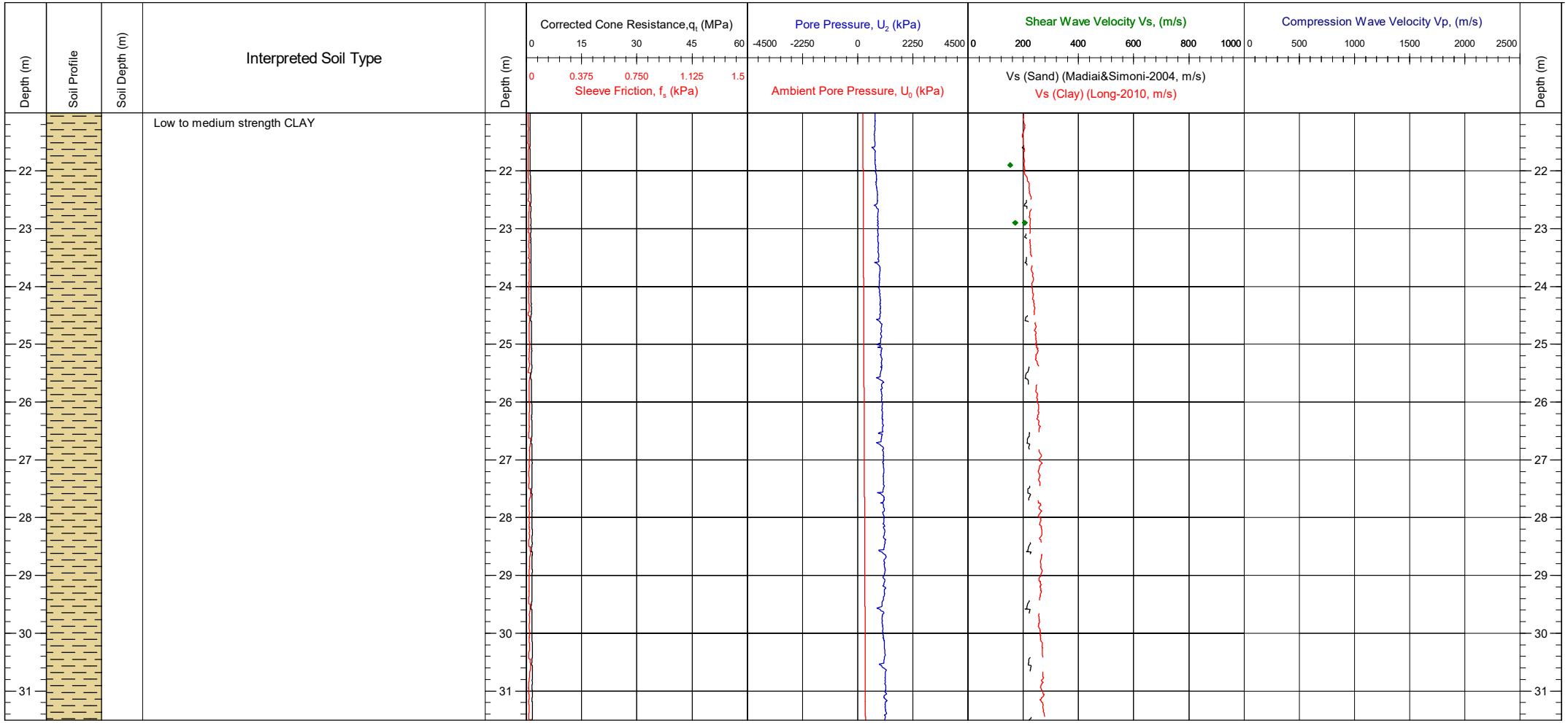


Area	**Kattegat Sea**	Coordinates	**676059.4E 6274402.9N**	CRS: **ETRS89**	QC Status	CPT Name
Contract	**11596**	Water Depth (mMSL)	**31.2**	**Comments:** Out of Class. Continuous seismic seabed CPT. Final depth 32.93m. Test terminated due sudden inclination change of 5 degrees in less than 1 metre-attempted to cycle but inclination was too high~ Please note the derived data has been removed where seismic testing was conducted.	Preliminary: **JK/BC (03/05/2021)** Draft: **DR (10/06/2021)** Final: **SMc (10/11/2021)**	**SCPT24**
Client Name/Ref	**Energinet Eltransmission A/S/384_20_ENE**	Date of Test	**03/05/2021**		Assumed Unit Weight: 20 - 16 kN/m³	
Vessel	**MV Ocean Vantage**	Cone No.(type)/α Factor	**130206 (10cm²) / 0.77**		K_p: 0.5 - 2.0 N_{KT}: 15 - 20 N_{KT}: 12.5 - 16.5	
CPT Unit	**20 kN Sea bed CPT**	Base Inclination	**X = 1.2° / Y = 0.8°**			Filename - CPT24a.csv

Gardline

Preliminary Investigation, Hesselø OWF

IN SITU SCPTU TESTING



Area	**Kattegat Sea**	Coordinates	**676059.4E 6274402.9N**	CRS: **ETRS89**	QC Status
Contract	**11596**	Water Depth (mMSL)	**31.2**	**Comments:** Out of Class. Continuous seismic seabed CPT. Final depth 32.93m. Test terminated due sudden inclination change of 5 degrees in less than 1 metre-attempted to cycle but inclination was too high~ Please note the derived data has been removed where seismic testing was conducted.	Preliminary: **JK/BC (03/05/2021)** · Draft: **DR (10/06/2021)** · Final: **SMc (10/11/2021)**
Client Name/Ref	**Energinet Eltransmission A/S/384_20_ENE**	Date of Test	**03/05/2021**		Assumed Unit Weight: 20 - 16 kN/m³
Vessel	**MV Ocean Vantage**	Cone No.(type)/α Factor	**130206 (10cm²) / 0.77**		K_c: 0.5 - 2.0
CPT Unit	**20 kN Sea bed CPT**	Base Inclination	**X = 1.2° / Y = 0.8°**		N_{KT}: 15 - 20
					N_{KT}: 12.5 - 16.5

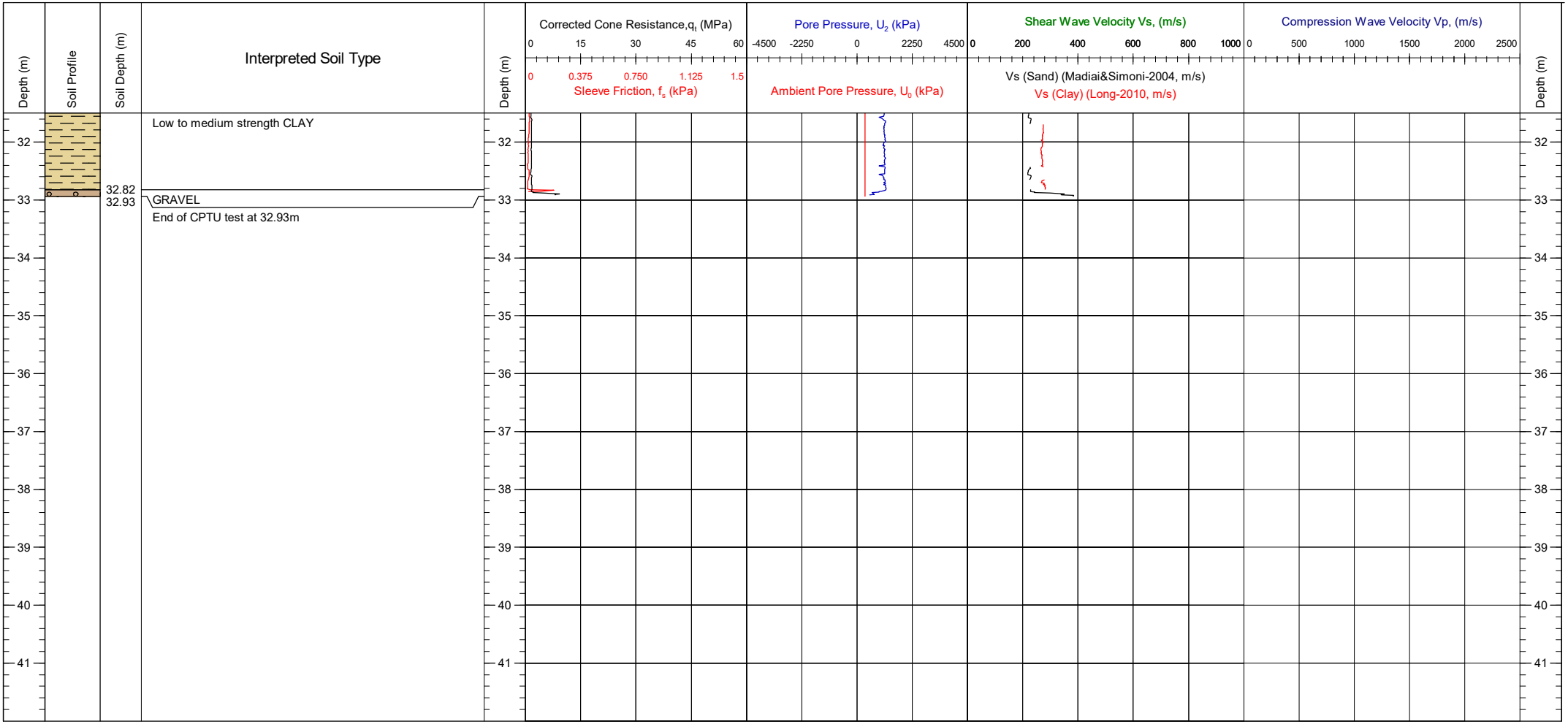
CPT Name: **SCPT24**

Filename - CPT24a.csv

Gardline

Preliminary Investigation, Hesselø OWF

IN SITU SCPTU TESTING



Area	**Kattegat Sea**	Coordinates	**676059.4E 6274402.9N**	CRS: **ETRS89**	QC Status	CPT Name
Contract	**11596**	Water Depth (mMSL)	**31.2**	**Comments:** Out of Class. Continuous seismic seabed CPT. Final depth 32.93m. Test terminated due sudden inclination change of 5 degrees in less than 1 metre-attempted to cycle but inclination was too high~ Please note the derived data has been removed where seismic testing was conducted.	Preliminary: **JK/BC (03/05/2021)** Draft: **DR (10/06/2021)** Final: **SMc (10/11/2021)**	**SCPT24**
Client Name/Ref	**Energinet Eltransmission A/S/384_20_ENE**	Date of Test	**03/05/2021**		Assumed Unit Weight: 20 - 16 kN/m³	
Vessel	**MV Ocean Vantage**	Cone No.(type)/α Factor	**130206 (10cm²) / 0.77**		K_p: 0.5 - 2.0 N_{kt}: 15 - 20 N_{kt}: 12.5 - 16.5	
CPT Unit	**20 kN Sea bed CPT**	Base Inclination	**X = 1.2° / Y = 0.8°**			Filename - CPT24a.csv