DRiLTECH

CONTRACT NO. GE/2022/08
GROUND INVESTIGATION – NEW TERRITORIES EAST

Task Order No. GE/2022/08.35
Agreement No. CE 26/2022 (EP),
Development of Integrated Waste Management Facilities
Phase 2 - Investigation, Design and Construction

FINAL FIELD WORK REPORT

Certified as Checked by

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Certified as Completed by

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Contractor's Representative

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November 2023

DRiLTECH

DrilTech Ground Engineering Limited

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CONTRACT DATA SUMMARY

Project Name & No. *Ground Investigation - New Territories East*	**Site Name** *Task Order No.: GE/2022/08.35* *Agreement No. CE 26/2022 (EP), Development of Integrated Waste Management Facilities Phase 2 - Investigation, Design and Construction*	**Date:** *07/Aug/23* to *16/Nov/23* **Official Only** **G.E.O. Data Bank No.**
G.I. Contractor *DrilTech Ground Engineering Limited*	**Client** *Geotechnical Engineering Office* *Civil Engineering and Development Department*	
Contract No. *GE/2022/08*	**Consulting Engineer** *Binnies Hong Kong Limited*	**File Ref.**

FIELD WORK SUMMARY

Drillhole:	**No.**	*4*	**Method:**	*Rotary Coring*		**Date:**	*07/Sep/23* to *25/Oct/23*	
Trial Pit:	**No.**	*Nil*	**Inspection Pit:**	**No.**	*Nil*			
Corehole:	**No.**	*Nil*	**Stripping:**	**No.**	*Nil*	**Probe:**	**No.**	*Nil*
Piezometer:	**No.**	*8*	**Standpipe:**	**No.**	*Nil*	**Piezometer Bucket:**	**No.**	*Nil*
Insitu Test:	**No.**	*54*	**Type:**	*Standard Penetration Test (38), Pressuremeter Test (8) and Response Test (8)*				
Geophysic:	**No.**	*4*	**Type:**	*Acoustic Borehole Televiewer Survey (4)*				

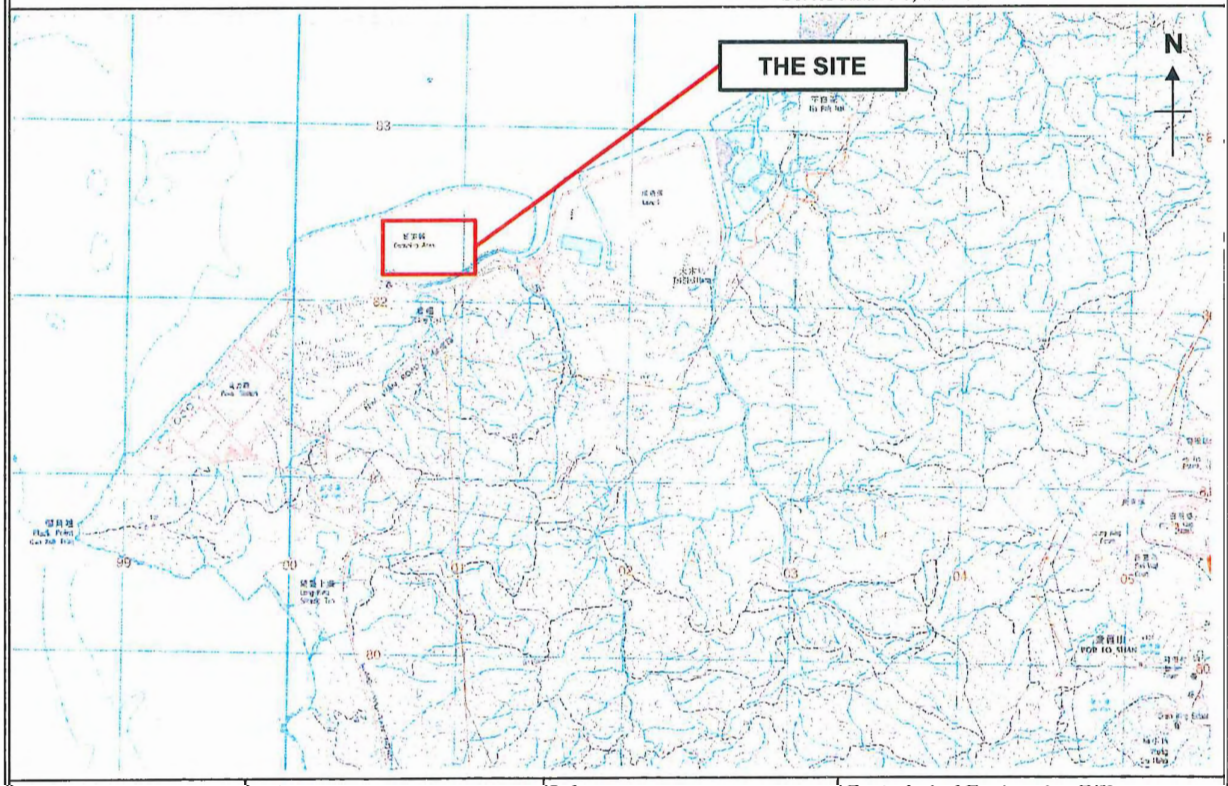
LABORATORY TESTING SUMMARY

No. of each type of test: Date: - to -

SOIL	Physical Properties	LL -	PL -	PSD -	MC -
		SG -		DD -	
	Strength Tests	CUS -		UU -	Shear Box -
	Compaction & CBR Tests	Stan...		Proctor -	CBR -
	Oedometer & Perm. Tests	Cv -	k -		
	Others	Split Mazier -			
ROCK		Pt Load -	UC -	Shear Box -	US Vel. -

NOT APPLICABLE

LOCATION PLAN Scale *N.T.S.* Derived from: *Survey & Mapping Office, Lands Department Series HM20C, Sheet 5*



	G. I.	Laboratory	Geotechnical Engineering Office
Contractor	*DrilTech Ground Engineering Ltd.*	---	CEDD CIVIL ENGINEERING AND DEVELOPMENT DEPARTMENT
Task Order No.:	*GE/2022/08.35*	---	

CONTRACT NO. GE/2022/08

GROUND INVESTIGATION – NEW TERRITORIES EAST

Task Order No. GE/2022/08.35

Agreement No. CE 26/2022 (EP),
Development of Integrated Waste Management Facilities Phase 2 -
Investigation, Design and Construction

FINAL FIELD WORK REPORT

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Drawing No. - D0900/08.35/GI/D001

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1 Introduction

On 5th August 2022, DRiLTECH Ground Engineering Limited was awarded a Contract from the Geotechnical Engineering Office, Civil Engineering and Development Department of the Government of Hong Kong Special Administrative Region to carry out ground investigation works at any location in Eastern New Territories, including all islands to the east of a line joining Lok Ma Chau and Ting Kau (including Tsing Yi but excluding Lamma Island), and may cover other areas in the territory of Hong Kong including outlying islands as assigned by the *Service Manager*.

This report presents the results of ground investigation works for Agreement No. CE26/2022(EP), Development of Integrated Waste Management Facilities Phase 2 - Investigation, Design and Construction, under Task Order No. GE/2022/08.35. The fieldwork was carried out in the period between 7th September 2023 and 25th October 2023 under the supervision of Binnies Hong Kong Limited.

2 Site Location

The exact location of the site is at Tsang Tsui. The investigation stations are bounded within the following co-ordinates:

- 809 840E, 831 209N
- 810 250E, 831 209N
- 810 250E, 831 133N
- 809 840E, 831 133N

The locations of the investigation stations are shown in Ground Investigation Plan with drawing no. D0900/08.35/GI/D001 and the coordinates and levels of all completed investigation stations are shown in the survey record of Table 1.

3 Geology

According to the 1:20,000 scale, Sheet 5 of HGM20 Series Solid and Superficial Geology Map published by the Geotechnical Engineering Office and the two memoirs: The Pre-Quaternary Geology of Hong Kong and The Quaternary Geology of Hong Kong published by the Geotechnical Engineering Office, the site may be underlain by bedrock of equigranular to inequigranular two-mica granite (Tsing Shan Granite, Lamma Suite) of Jurassic, Mesozoic.

3 Geology (Cont'd)

The findings of the ground investigation are generally in accordance with the geological map and memoirs. The results of investigation reveal that the site is composed of Superficial Deposits (Fill, Marine Deposit and Alluvium), Soil derived from Insitu Rock Weathering (Completely decomposed and Highly decomposed Granite) and the bedrock of Granite.

Detailed descriptions of each stratum were given in the logs presented in Appendix C.

The depth and thickness of each stratum encountered during drilling were given in Table 2.

4 Fieldwork

Fieldworks included sampling, field testing and field installation in four (4) drillholes (BH1 to BH4) with associated in-situ testing were carried out at locations shown in the Ground Investigation Plan with Drawing No. D0900/08.35/GI/D001 as specified in the Task Order.

4.1 Drillhole

The fieldworks at the drillholes (BH1 to BH4) were carried out using the hydraulic rotary drilling rig with water as flushing medium. SW, PW and HW sized casings equipped with tungsten carbide cutting shoes were used to advance the holes. The drillholes were terminated at specified depths.

Undisturbed Mazier samples were taken in soil generally at 2.00m intervals at specified depths by using a modified Mazier triple tube retractable core barrel, which was fitted with a detachable 74mm I.D., 1000mm long clear ABS plastic liner. A retractable cutting shoe projecting from the tungsten carbide core bit was used to penetrate the materials being sampled and to protect the sample from being disturbed by the drilling fluid.

The recovered samples were sealed with metal foil disc and wax and protected with rubber caps at both ends. Small disturbed samples were retrieved from the cutting shoes and were kept in airtight jars as jar samples.

Where rock materials were encountered, rock core samples were taken using T2-120 and T2-101 double tubes core barrels.

Inspection pits at drillhole location were manually excavated by hand tools to specified depths prior to drilling commencement to ensure that the investigation works would not damage underground utilities.

4.1 Drillhole (Cont'd)

The disturbed and undisturbed samples and rock core samples are reported at relevant depths in the Drillhole Record sheets in Appendix C. Record photographs of the jar samples and core samples are included in Appendix D.

4.2 Field Test

4.2.1 Standard Penetration Test

Standard penetration tests with liner samples were carried out at specified depths. The tests were conducted according to BS1377 (1990 Part 9 Method 3.3) with modifications suggested in Geoguide 2 and the Contract Specification.

The numbers of blows to drive a standard split spoon sampler for the first 150mm penetration (seating drive) in 75mm increments and those for each 75mm penetration for the subsequent 300mm penetration were recorded. The 'N' value was taken as the sum of numbers of blows for the last 300mm penetration. Where the full penetration for seating drive was not achieved after 50 blows, the number of blows and the penetration achieved was recorded. During the test, the water level in the drillhole was maintained at or above the observed ground water level. Disturbed samples were retrieved from the cutting shoes as jar samples.

Liner samples were taken with the SPTs by including a liner sample tube in the split barrel sampler in each test.

The depths of tests and the 'N' values are presented in the Drillhole Record sheets in Appendix C.

4.2.2 Pressuremeter Test

Eight (8) pressuremeter tests were carried out in all drillholes at specified sections, using a Menard (G-Am) type equipment. The test pockets were formed by penetrating a Fugro sampler.

The pressuremeter test results including test data and graphic plots are presented in Appendix E.

4.2.3 Digital Acoustic Borehole Televiewer Survey

Four (4) acoustic borehole televiewer surveys were carried out in all drillholes at depths as instructed. The acoustic imaging equipment consists of a centralized sonde, with a rotating transducer and receiver orientated by a magnetometer and inclinometer capable of working in fluid filled holes. The sonde uses a focused ultrasound beam, measured in travel time and amplitude, to scan the borehole wall producing a full 360-degree image. The features azimuth and dip angle are derived by digital cross-referencing of the orientation data. The Travel Time and Amplitude, Joints Interpretation and Stereographic Plots Records are presented in Appendix F.

4.3 Field Installation

4.3.1 Piezometer

Eight (8) piezometers of Casagrande type were installed with 25mm I.D. PVC riser pipes in all drillholes at specified depths. The piezometer tip was surrounded by clean sand of grading between 210 and 1,200 microns and was sealed with bentonite pellets to form response zone of specified length.

Response tests were carried out on all piezometers after completion of installation. The details of installations and the response test results are included in Appendix G and a summary of installation is presented in Table 3.

Readings of water levels in all piezometers were taken daily for 7 working days following the completion of response test. The results are presented in Appendix H.

5 Rock and Soil Description

The rocks and soils encountered in the investigation have generally been described according to the Geoguide 3, Guide to Rock and Soil Description, except for the following terms, which are used for the secondary constituents other than clay, silt and sand, in composition of common ground:

- "with occasional" for less than 5%;
- "with some" for between 5% and 20%; and
- "with much or many" for greater than 20%.

5 Rock and Soil Decription (Cont'd)

The classification and definitions of the descriptive terms are presented in Appendix A.

The delineation of various strata was primarily based on examination of disturbed samples and core samples recovered from the drillholes. The results are presented in Appendix C in form of Drillhole Record, which have been finalized by incorporating comments provided by Binnies Hong Kong Limited.

The legends used in these records are summarized in Appendix B.

6 Surveying

The locations of investigation stations were surveyed using the theodolite and the results are related to the Hong Kong Grid System. The co-ordinates and levels of these investigation stations are presented on the relevant records and are summarized in Table 1.

7 Digital Data Record

The data of the ground investigation works are also provided in an electronic format. The format complies with the 4th edition of the Association of Geotechnical and Geoenvironmental Specialists (AGS) Publication 'Electronic Transfer of Geotechnical and Geoenvironmental Data'.

The final field work report was also created in Acrobat format and stored together with AGS on a CD-ROM in Appendix I.

8 References

1. Geotechnical Engineering Office, Geological Map of Hong Kong HGM20, Sheet 5, (1:20,000) (1988, Edition I)
2. Geotechnical Engineering Office (2000), The Pre-Quaternary Geology of Hong Kong
3. Geotechnical Engineering Office (2000), The Quaternary Geology of Hong Kong
4. Geotechnical Engineering Office, (E-version, 2017), Guide to Rock and Soil Descriptions (Geoguide 3)

8 References (Cont'd)

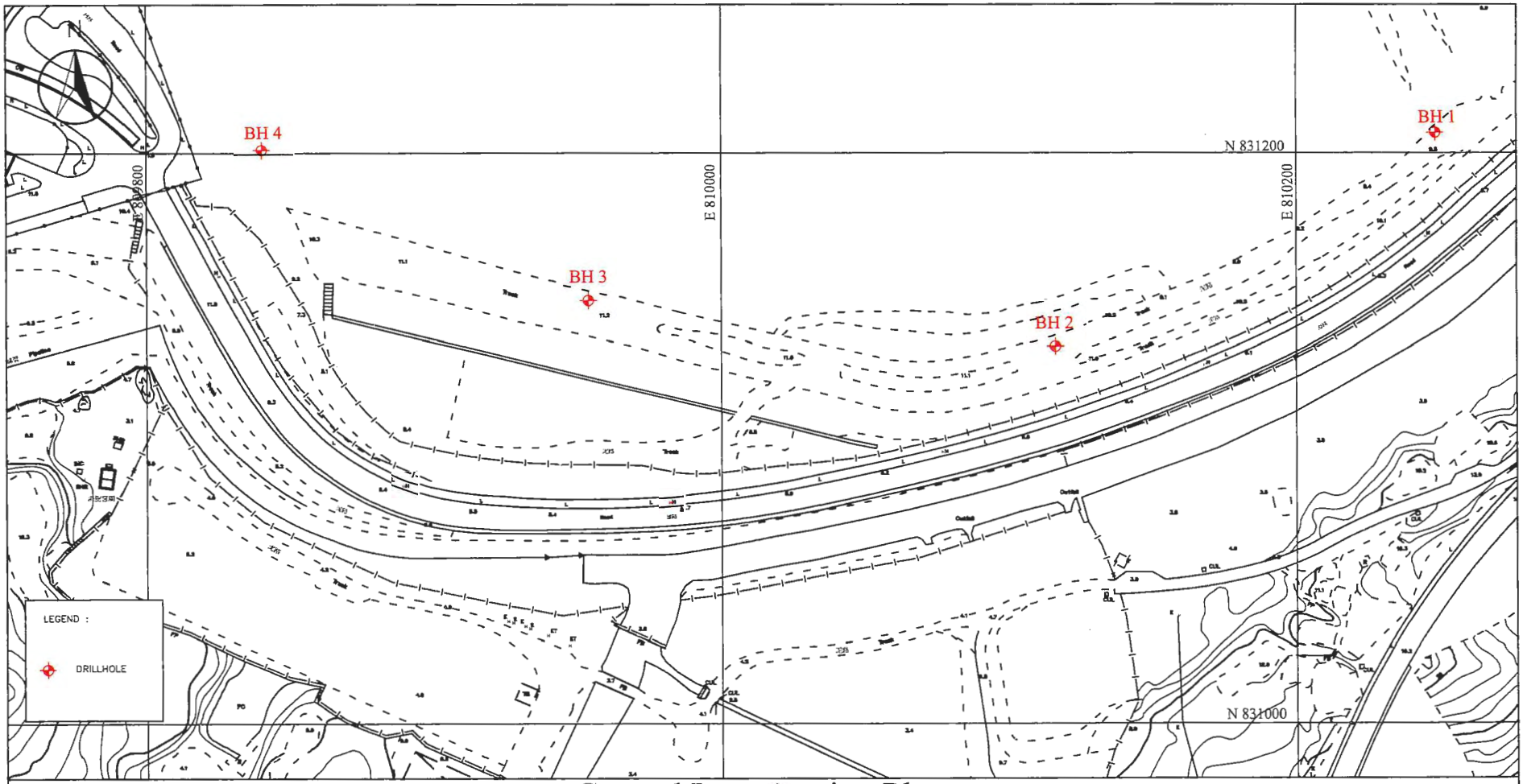
5. Geotechnical Engineering Office, (E-version, 2017), Guide to Site Investigation (Geoguide 2)

6. Association of Geotechnical and Geoenvironmental Specialists (2017), Electronic Transfer of Geotechnical and Geoenvironmental Data, 4th edition

7. BS5930:1981, the "Code of Practice for Site Investigation"

Ground Investigation Plan

(Drawing No. D0900/08.35/GI/D001)



Ground Investigation Plan

CEDD Contract No. GE/2022/08
Ground Investigation - New Territories East
Task Order No. GE/2022/08.35
Agreement No. CE 26/2022 (EP), Development of Intergrated Waste Management Facilities Phase 2
- Investigation, Design and Construction

Drawing No. :
D0900/08.35/GI/D001

Date : November 2023

Scale 1 : 2000

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Tables

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Contract No. GE/2022/08
Ground Investigation - New Territories East

Task Order No. GE/2022/08.35

Agreement No. CE 26/2022 (EP),
Development of Integrated Waste Management Facilities Phase 2
- Investigation, Design and Construction

Final Field Work Report

Table 1 - Survey Record

Station No.	Ground Level / Reference Level (mPD)	Easting	Northing	Remark
BH 1	+10.55	810249.27	831208.46	Drillhole
BH 2	+10.64	810117.34	831133.48	Drillhole
BH 3	+10.96	809954.56	831149.31	Drillhole
BH 4	+11.12	809840.93	831201.56	Drillhole

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- Investigation, Design and Construction

Final Field Work Report

Table 2 - Summary of Rock and Soil Strata in Drillhole

Drillhole No.	Ground Level / Reference Level (mPD)	Fill		Marine Deposit		Alluvium		Grade V to Grade IV Rock		Grade III or better Rock Top Level (mPD)	Rock Type	End of Hole (mPD)	Remark
		Bottom Level (mPD)	Thickness (m)	Bottom Level (mPD)	Thickness (m)	Bottom Level (mPD)	Thickness (m)	Level (mPD)	Thickness (m)				
BH 1	+10.55	-6.25	16.80	-	-	-	-	-6.25 to -21.43 '#'	15.18	-21.43	Medium to coarse grained GRANITE	-26.66	-
BH 2	+10.64	-7.86	18.50	-	-	-	-	-7.86 to -26.20 '#'	18.34	-26.20	Medium to coarse grained GRANITE	-31.27	-
BH 3	+10.96	-0.59	11.55	-3.59	3.00	-9.79	6.20	-9.79 to -29.24 '#'	19.45	-29.24	Medium to coarse grained GRANITE	-34.46	-
BH 4	+11.12	-3.18	14.30	-	-	-	-	-3.18 to -8.99 '#'	5.81	-8.99	Medium to coarse grained GRANITE	-14.39	-

Remarks: 1. Where stratum descriptions straddle two decomposition grades, the most decomposed grade is reported in the above table.

2. '#' Corestone was found in the stratum of Grade V to Grade IV rock.

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Final Field Work Report

Table 3 - Summary of Field Testing and Field Installation

Station No.	Type of Test	Test Zone / Test Depth (m bgl)	Type of Installation	Installation Tip / End Depth (m bgl)	Response Zone (m bgl)	Halcrow Bucket Installation Detail		Remark
						Depth (m bgl)	Spacing (m)	
BH 1	PMT	7.55 to 8.55 & 20.80 to 21.80	Piezometer	12.00	11.20 to 12.50	-	-	-
	BHTV	31.60 to 36.70	Piezometer	20.00	19.20 to 20.50	-	-	-
BH 2	PMT	8.25 to 9.25 & 10.35 to 11.35	Piezometer	5.00	4.20 to 5.50	-	-	-
	BHTV	36.60 to 41.20	Piezometer	25.00	24.20 to 25.50	-	-	-
BH 3	PMT	9.45 to 10.45 & 11.55 to 12.55	Piezometer	15.00	14.20 to 15.50	-	-	-
	BHTV	40.10 to 45.27	Piezometer	25.00	24.20 to 25.50	-	-	-
BH 4	PMT	4.00 to 5.00 & 6.10 to 7.10	Piezometer	10.00	9.20 to 10.50	-	-	-
	BHTV	20.20 to 25.36	Piezometer	15.00	14.20 to 15.50	-	-	-

Notes:

BHTV	- Digital Acoustic Borehole Televiewer Survey	IPS	- Impression Packer Survey	SRT	- In-situ Density Test
CHPT	- Constant Head Permeability Test	OPTV	- Optical Borehole Televiewer Survey	VST	- Vane Shear Test
FHPT	- Falling Head Permeability Test	PMT	- Pressuremeter Test	WAT	- Water Absorption Test
GCOP	- Dynamic Probing Test	RHPT	- Rising Head Permeability Test		

Appendix A

Checklists for Rock and Soil Description

CHECKLIST FOR ROCK DESCRIPTION

GEOTECHNICAL ENGINEERING OFFICE, HKSAR

1. STRENGTH

Term	Identification
Extremely weak	Easily crumbled by hand; indented deeply by thumbnail.
Very weak	Crumbled with difficulty; scratched easily by thumbnail; peeled easily by pocket knife.
Weak	Broken into pieces by hand; scratched by thumbnail; peeled by pocket knife; deep indentations (to 5 mm) by point of geological pick; hand-held specimen easily broken by single light hammer blow.
Moderately weak	Broken with difficulty in two hands; scratched with difficulty by thumbnail; difficult to peel but easily scratched by pocket knife; shallow indentations easily made by point of pick; hand-held specimen usually broken by single light hammer blow.
Moderately strong	Scratched by pocket knife; shallow indentations made by firm blow with point of pick; hand-held specimen usually broken by single firm hammer blow. Point load strength (PLS) 0.5 - 2 MPa.
Strong	Firm blows with point of pick cause only superficial surface damage; hand-held specimen requires more than one firm hammer blow to break. PLS 2 - 4 MPa.
Very strong	Many hammer blows required to break specimen. PLS 4 - 8 MPa.
Extremely strong	Specimen only chipped by hammer blows. PLS > 8 MPa.

2. COLOUR

Parameter	Terms
Value	Light, Dark
Chroma	Pinkish, Reddish, Yellowish, Orangish, Brownish, Greenish, Bluish, Purplish, Greyish
Hue	Pink, Red, Yellow, Orange, Brown, Green, Blue, Purple, White, Grey, Black

For uniform colour distribution, choose a hue, supplemented by a value and/or chroma if necessary.

For non-uniform distribution, repeat this procedure using one of the following descriptors: spotted, mottled, dappled, streaked, striped (e.g. light pinkish grey spotted with black).

State whether sample was wet or dry when described.

3. TEXTURE/FABRIC

Texture Terms (Applicable Mainly to Igneous Rocks)
Equigranular, Inequigranular, Megacrystic, Porphyritic, Crystalline, Cryptocrystalline, Aphanitic

Fabric
Describe preferred orientation of grains/crystals where apparent.

Describe intensity, spacing, continuity and any preferred orientation of microfractures where apparent.

4. MATERIAL WEATHERING/ALTERATION

Decomposition Term	Grade Symbol	Typical Characteristics
Residual Soil	VI	Original rock texture completely destroyed; can be crumbled by hand and finger pressure into constituent grains.
Completely Decomposed	V	Original rock texture preserved; can be crumbled by hand and finger pressure into constituent grains; easily indented by point of geological pick; slakes in water; completely discoloured compared with fresh rock.
Highly Decomposed	IV	Can be broken by hand into smaller pieces; makes a dull sound when struck by hammer; not easily indented by point of pick; does not slake in water; completely discoloured compared with fresh rock.
Moderately Decomposed	III	Cannot usually be broken by hand; easily broken by hammer; makes a dull or slight ringing sound when struck by hammer; completely stained throughout.
Slightly Decomposed	II	Not broken easily by hammer; makes a ringing sound when struck by hammer; fresh rock colours generally retained but stained near joint surfaces.
Fresh Rock	I	Not broken easily by hammer; makes a ringing sound when struck by hammer; no visible signs of decomposition (i.e. no discolouration).

This classification is applicable to igneous and volcanic rocks and other rocks of equivalent strength in fresh state.

Disintegration
Describe small-scale cracking and fracturing caused by mechanical weathering, where apparent.

Alteration
Describe state of alteration (e.g. mineralised, kaolinised) where apparent.

5. ROCK NAME (Including Grain Size)

Igneous	:	Coarse- (6-20 mm), Medium- (2-6 mm) & Fine- (0.06-2 mm) grained GRANITE; GRANODIORITE. Very Fine-grained (< 0.06 mm) RHYOLITE; BASALT. (Common types only, see Geoguide 3 for others).
Pyroclastic	:	PYROCLASTIC BRECCIA (> 60 mm), Lapilli TUFF (2-60 mm), Coarse ash TUFF (0.06-2 mm), Fine ash TUFF (< 0.06 mm).
Metamorphic	:	Foliated - SCHIST (> 0.06 mm), PHYLLITE (< 0.06 mm). Non-foliated - MARBLE, QUARTZITE, FAULT BRECCIA.
Sedimentary	:	CONGLOMERATE, BRECCIA (> 2 mm), SANDSTONE (0.06-2 mm), MUDSTONE (< 0.06 mm) = SILTSTONE (0.002-0.06 mm) + CLAYSTONE (< 0.002 mm). (Common types only).

If rock name cannot be identified, describe grain size quantitatively, including textural term where appropriate.

6. STRUCTURE

Structural Term	Rock Type
Bedded, Laminated, Massive	Sedimentary
Massive, Flow-banded	Igneous, Pyroclastic
Foliated, Banded, Cleaved	Metamorphic

Spacing of Planar Structures
Very thick (> 2 m), Thick (0.6-2 m), Medium (200-600 mm),
Thin (60-200 mm), Very thin (20-60 mm),
Thickly-laminated (Sedimentary) (6-20 mm) or Narrow (Igneous, Metamorphic) (6-20 mm),
Thinly-laminated (Sedimentary) (< 6 mm) or Very narrow (Igneous, Metamorphic) (< 6 mm).

Examples: Thickly-bedded SANDSTONE. Narrowly flow-banded RHYOLITE.

7. DISCONTINUITIES

Nature (Type of Discontinuity)

Fault zone	Cleavage	Fissure	Bedding
Fault	Schistocity	Tension crack	
Joint	Shear plane	Foliation	

Location and Orientation
Record location as co-ordinates or relative position along datum line, preferably on map or plan.

Record orientation as dip direction/dip in degrees (e.g. 032/55).

Spacing
Extremely widely-spaced (> 6 m), Very widely-spaced (2-6 m),
Widely-spaced (0.6-2 m), Medium-spaced (200-600 mm),
Closely-spaced (60-200 mm), Very closely-spaced (20-60 mm),
Extremely closely-spaced (< 20 mm).

In exposures, supplement spacing with description of rock block shape where possible. Descriptors: Blocky, Tabular, Columnar, Polyhedral.

Persistence (Areal extent or size of a discontinuity within a plane)
Measured maximum persistence dimension should be used where possible (e.g. the discontinuity trace length on the surfaces of rock exposures). For general descriptions of different discontinuity sets, relative terms should be used.

Roughness
Waviness (large-scale): Estimate/measure wavelength and amplitude in metres.
Unevenness (small-scale), use one term from the following:

Rough stepped	Smooth stepped	Slickensided stepped
Rough undulating	Smooth undulating	Slickensided undulating
Rough planar	Smooth planar	Slickensided planar

Aperture Size
Wide (> 200 mm), Moderately wide (60-200 mm), Moderately narrow (20-60 mm), Narrow (6-20 m), Very narrow (2-6 mm), Extremely narrow (> 0-2 mm), Tight (zero).

Infilling (Nature)

Clean	Surface staining	Decomposed/ disintegrated rock
Non-cohesive soil	Cohesive soil	Quartz
Calcite	Manganese	Kaolin
Other (Specify)		

Give full description of infill materials/minerals where appropriate.

Seepage
Dry Damp/wet Seepage present (estimate quantity in 1/sec or 1/min)

Fracture State
In borehole cores, measure the following: Total Core Recovery (TCR), Solid Core Recovery (SCR), Rock Quality Designation (RQD), Fracture Index (FI). See Geoguide 3 for definitions.

8. MASS WEATHERING

Term	Zone Symbol	Typical Characteristics
Residual Soil	RS	**Residual soil derived from insitu weathering; mass structure and material texture/fabric completely destroyed: 100% soil**
Partially Weathered Rock	PW	**Less than 30% rock**
	0/30	**Soil retains original mass structure and material texture/fabric (i.e. saprolite)**
		Rock content does not affect shear behaviour of mass, but relict discontinuities in soil may do so.
		Rock content may be significant for investigation and construction.
	PW	**30% to 50%** rock
	30/50	Both rock content and relict discontinuities may affect shear behaviour of mass.
	PW	**50% to 90% rock**
	50/90	Interlocked structure.
	PW	**Greater than 90% rock**
	90/100	Small amount of the material converted to soil along discontinuities.
Unweathered Rock	UW	**100% rock**
		May show slight discolouration along discontinuities.

9. ADDITIONAL GEOLOGICAL INFORMATION

Record geological formation name if known. Avoid conjecture. Refer to HKGS maps & memoirs for further information.

NOTES:

1. Rock material description normally includes: strength, colour, texture/fabric, material weathering/alteration and ROCK NAME.
2. Rock mass description normally includes: strength, colour, structure, mass weathering , ROCK NAME, discontinuities and additional geological information. Can be supplemented with more detailed information on texture/fabric and material weathering/alteration of different materials within the mass where necessary.

CHECKLIST FOR SOIL DESCRIPTION

GEOTECHNICAL ENGINEERING OFFICE, HKSAR

1. STRENGTH (Compactness & Consistency)

Soil Type	Term	Identification
Very Coarse (COBBLES & BOULDERS)	Loose	By inspection of voids and particle packing in the field.
	Dense	
Coarse (SANDS & GRAVELS)	Very loose	SPT 'N' value 0-4.
	Loose	SPT 4-10; can be excavated with spade; 50 mm peg easily driven.
	Medium dense	SPT 10-30.
	Dense	SPT 30-50; requires pick for excavation; 50 mm peg hard to drive.
	Very dense	SPT > 50.
Fine (CLAYS & SILTS)	Very soft	Undrained shear strength (USS) < 20 kPa; exudes between fingers when squeezed in hand.
	Soft	USS 20-40 kPa; moulded by light finger pressure.
	Firm	USS 40-75 kPa; can be moulded by strong finger pressure.
	Stiff	USS 75-150 kPa; cannot be moulded by fingers; can be indented by thumb.
	Very stiff or hard	USS > 150 kPa; can be indented by thumbnail.
Organic (ORGANIC CLAYS, SILTS SANDS & PEATS)	Compact	Fibres already compressed together.
	Spongy	Very compressible and open structure.
	Plastic	Can be moulded in hand and smears fingers.

Terms applicable only to transported soils. For soils derived from insitu rock weathering, record actual values of quantitative tests (e.g. SPT 'N' value) as part of the description, where appropriate.

2. COLOUR

Parameter	Terms
Value	Light, Dark
Chroma	Pinkish, Reddish, Yellowish, Orangish, Brownish, Greenish, Bluish, Purplish, Greyish
Hue	Pink, Red, Yellow, Orange, Brown, Green, Blue, Purple, White, Grey, Black

For uniform colour distribution, choose a hue, supplemented by a value and/or chroma if necessary.

For non-uniform distribution, repeat this procedure using one of the following descriptors: spotted, mottled, dappled, streaked, striped (e.g. light yellowish brown mottled with red).

State whether sample was wet or dry when described.

3. PARTICLE SHAPE & COMPOSITION

Characteristic	Terms
Form	Equidimensional, Flat, Elongate, Flat & Elongate
Angularity	Angular, Subangular, Subrounded, Rounded
Surface Texture	Smooth, Rough, Glassy, Honeycombed, Pitted, Striated

Describe composition of coarse particles where appropriate. Gravel and larger particles are usually rock fragments (e.g. granite, tuff); sand particles are usually individual minerals (e.g. quartz, feldspar).

4. STRUCTURE

Soil Type	Term	Identification
Coarse & Fine	Homogenous	Deposit consists essentially of one type.
	Interstratified (Interbedded or Interlaminated)	Alternating layers of varying types or with bands or lenses of other materials.
Coarse	Heterogenous	A mixture of types.
Fine	Fissured	Breaks into polyhedral fragments along fissures.
	Intact	No fissures.
Organic	Fibrous	Plant remains recognizable & retain some strength.
	Amorphous	No recognizable plant remains.

Describe spacing of bedding planes, fissures, shell bands, etc using the spacing terms given in items 6 & 7 for rock description (see other side).

Above terms applicable only to transported soils. For soils derived from insitu rock weathering, describe relict structures in accordance with item 6 of rock description (see other side).

5. WEATHERING

Soils Derived from Insitu Weathering of Rocks

There are two main types: saprolites (rock texture/structure retained) and residual soils (rock texture/structure completely destroyed). Describe state of weathering in accordance with items 4 & 8 for rock description (see other side).

Sedimentary (Transported) Soils

Coarse soils: Describe overall discolouration of soil and degree of decomposition of gravel and larger particles (see item 4, other side). Also note any signs of disintegration of large particles where apparent.

Fine Soils: Describe overall discolouration of soil where apparent.

6. SOIL NAME

A. Basic Soil Types

Soil Type		Particle Sizes (mm)	Identification
BOULDERS	--	> 200	Only seen complete in pits or exposures.
COBBLES	--	60 - 200	Often difficult to recover from boreholes.
GRAVELS	Coarse	20 - 60	Easily visible to naked eye; particle shape and grading can be described.
	Medium	6 - 20	Well-graded: wide range of grain sizes.
	Fine	2 - 6	Poorly-graded: not well-graded (split further into uniform or gap-graded).
SANDS	Coarse	0.6 - 2	Visible to naked eye; very little or no cohesion; grading can be described.
	Medium	0.2 - 0.6	May be well-graded or poorly-graded (uniform or gap-graded) as for gravel.
	Fine	0.06 - 0.2	
SILTS	Coarse	0.02 - 0.06	Only coarse silt barely visible to naked eye; exhibits little plasticity and marked dilatancy; slightly granular or silky to the touch. Disintegrates in water; lumps dry quickly; possesses cohesion but can be powdered easily between fingers.
	Medium	0.006 - 0.02	
	Fine	0.002 - 0.006	
CLAYS	--	< 0.002	Dry lumps can be broken by hand but not powdered between the fingers. Disintegrates in water more slowly than silt; smooth to the touch; exhibits plasticity but no dilatancy; sticks to the fingers and dries slowly; shrinks appreciably on drying, usually showing cracks. These properties more noticeable with increasing plasticity.
ORGANIC CLAYS, SILTS OR SANDS	--	varies	Contains much organic vegetable matter; often has a noticeable smell and changes colour on oxidation.
PEATS	--	varies	Predominantly plant remains; usually dark brown or black in colour, often with distinctive smell; low bulk density.

B. Composite Soil Types (Mixtures of Basic Types)

Principal Soil Type	Terminology Sequence	Term for Secondary Constituent	% of Secondary Constituent
Very coarse (BOULDERS & COBBLES) (> 50% of soil > 60 mm)	Secondary constituents (finer material) ▲ after principal	With a little	< 5
		With some	5 - 20
		With much	20 - 50
Coarse (GRAVELS & SANDS) (> 65% gravel & sand sizes)	Secondary constituents before principal (excluding cobbles & boulders) +	Slightly (silty, clayey or silty/clayey) ✱	< 5
		- (silty, clayey or silty/clayey) ✱	5 - 15
		Very (silty, clayey or silty/clayey) ✱ AND/OR	15 - 35
		Slightly (gravelly or sandy) ✱	< 5
		- (gravelly or sandy) ✱	5 - 20
		Very (gravelly or sandy) ✱	20 - 50
Fine (SILTS & CLAYS) (> 35% silt & clay sizes)	Secondary constituents before principal (excluding cobbles & boulders) +	Slightly (gravelly or sandy or both) ✱	< 35
		- (gravelly or sandy) ✱	35 - 65

▲ Full name of finer material should be given (see examples below).

✱ Secondary soil type as appropriate; use 'silty/clayey' when a distinction cannot be made between the two.

\+ If cobbles or boulders are also present in a coarse or fine soil, this can be indicated by using one of the following terms relating to the very coarse fraction after the principal: 'with occasional' (< 5), 'with some' (5-20), 'with many' (20-50), where figures in brackets are % very coarse material expressed as a fraction of the whole soil (see examples below).

Examples: Slightly silty/clayey, sandy GRAVEL. Slightly gravelly, sandy SILT. Very gravelly SAND. Sandy GRAVEL with occasional boulders. BOULDERS with much finer material (silty/clayey, very sandy gravel).

For fine soils, plasticity terms should also be described where possible, viz: 'non-plastic' (generally silts), 'intermediate plasticity' (lean clays), 'high plasticity' (fat clays).

7. DISCONTINUITIES

Full description of discontinuities, where necessary, should be made using the methods and terms given in item 7 for rock description (see other side).

8. ADDITIONAL GEOLOGICAL INFORMATION

Record geological name which indicates geological origin or soil type (e.g. Alluvium, Colluvium, Marine sand etc.). Refer to HKGS maps & memoirs for further information.

NOTES:

1. Mass characteristics of soils (i.e. structure, weathering, discontinuities) can only be described satisfactorily in undisturbed field exposures or large undisturbed samples.
2. For full descriptions of soils derived from insitu rock weathering:
   (a) saprolites - describe as rocks, supplemented by soil strength and soil name terms in brackets,
   (b) residual soils - describe as soils, supplemented by name of parent rock where apparent from field evidence.

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List of Material Names for the Legend Graphics on the Logging Records

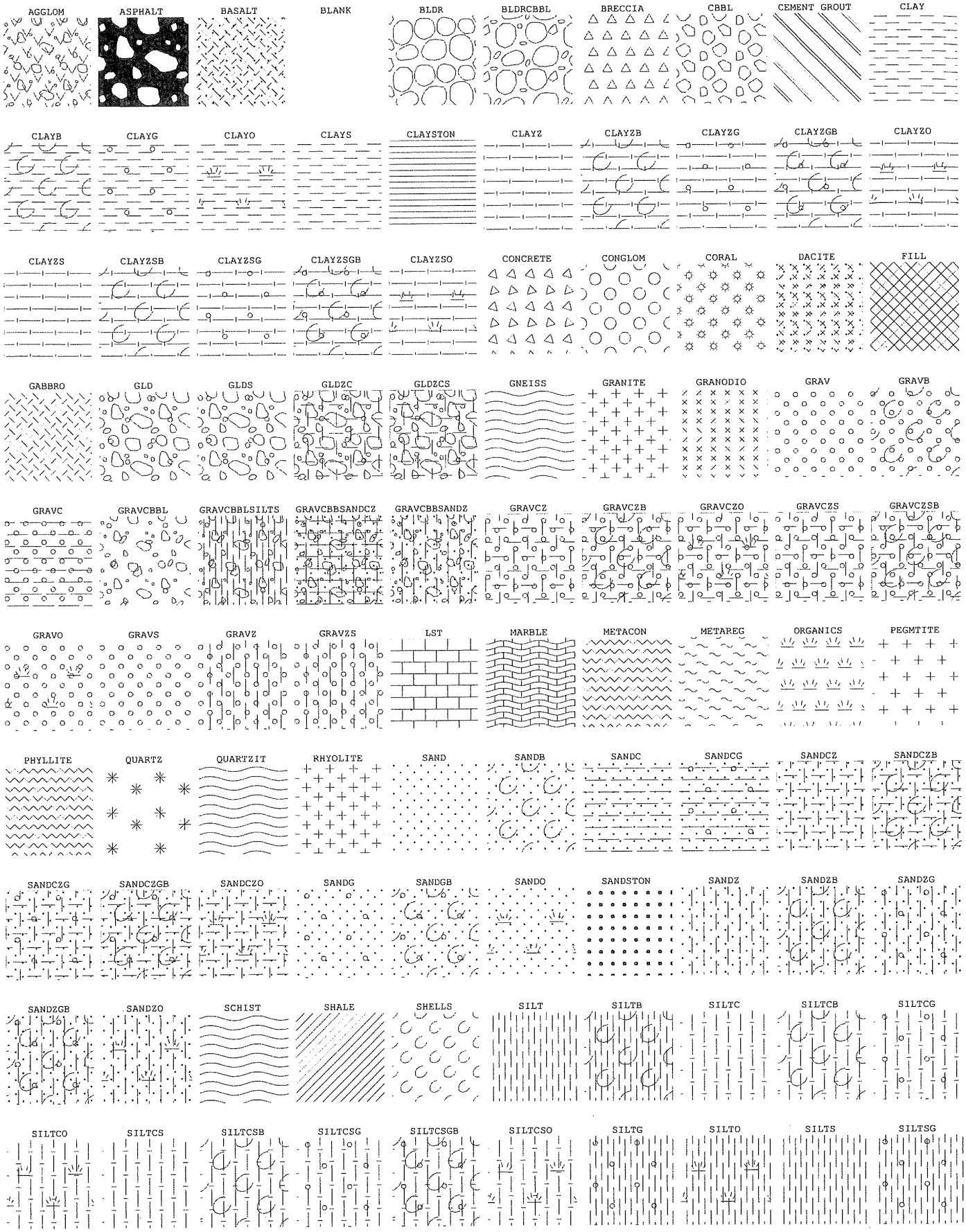
Name	Description
AGGLOM	PYROCLASTIC BRECCIA
ASPHALT	ASPHALT
BASALT	BASALT
BLANK	NO RECOVERY
BLDR	BOULDER
BLDRCBBL	BOULDER and COBBLE
BRECCIA	SEDIMENTARY BRECCIA
CBBL	COBBLE
CEMENT GROUT	CEMENT GROUT
CLAY	CLAY
CLAYB	CLAY with shell
CLAYG	Gravelly CLAY
CLAYO	CLAY with peat
CLAYS	Sandy CLAY
CLAYSTON	CLAYSTONE / MUDSTONE
CLAYZ	Silty CLAY
CLAYZB	Silty CLAY with shell
CLAYZG	Silty CLAY with gravel
CLAYZGB	Silty CLAY with gravel and shell
CLAYZO	Silty CLAY with peat
CLAYZS	Sandy silty CLAY
CLAYZSB	Sandy silty CLAY with shell
CLAYZSG	Sandy silty CLAY with gravel
CLAYZSGB	Sandy silty CLAY with gravel and shell
CLAYZSO	Sandy silty CLAY with peat
CONCRETE	CONCRETE
CONGLOM	CONGLOMERATE
CORAL	CORAL
DACITE	DACITE / LATITE / ANDESITE / TRACHYTE / TRACHYANDESITE
FILL	FILL (made ground)
GABBRO	GABBRO / LAMPROPHYRE
GLD	GRAVEL, COBBLE and BOULDER
GLDS	GRAVEL, COBBLE and BOULDER with sand
GLDZC	GRAVEL, COBBLE and BOULDER with silt and clay
GLDZCS	GRAVEL, COBBLE and BOULDER with sand, silt and clay
GNEISS	GNEISS
GRANITE	GRANITE
GRANODIO	GRANODIORITE / SYENITE / MONZONITE
GRAV	GRAVEL
GRAVB	GRAVEL with shell
GRAVC	Clayey GRAVEL
GRAVCBBL	GRAVEL and COBBLE
GRAVCBBLSILTS	GRAVEL & COBBLE in sandy silt
GRAVCBBSANDCZ	GRAVEL & COBBLE in clayey silty sand
GRAVCBBSANDZ	GRAVEL & COBBLE in silty sand
GRAVCZ	Silty clayey GRAVEL
GRAVCZB	Silty clayey GRAVEL with shell
GRAVCZO	Silty clayey GRAVEL with peat
GRAVCZS	Sandy silty clayey GRAVEL
GRAVCZSB	Sandy silty clayey GRAVEL with shell
GRAVO	GRAVEL with peat
GRAVS	Sandy GRAVEL
GRAVZ	Silty GRAVEL
GRAVZS	Sandy silty GRAVEL
LST	LIMESTONE

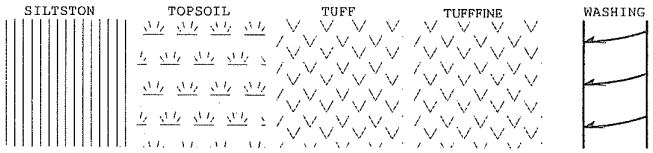
List of Material Names for the Legend Graphics on the Logging Records

Name	Description
MARBLE	MARBLE
METACON	METAMORPHIC ROCK - Contact
METAREG	METAMORPHIC ROCK - Regional
ORGANICS	PEAT
PEGMTITE	PEGMATITE, Coarse-grained GRANITE
PHYLLITE	PHYLLITE / MYLONITE
QUARTZ	QUARTZ
QUARTZIT	QUARTZITE
RHYOLITE	RHYOLITE
SAND	SAND
SANDB	SAND with shell
SANDC	Clayey SAND
SANDCG	Clayey SAND with gravel
SANDCZ	Silty, clayey SAND
SANDCZB	Silty, clayey SAND with shell
SANDCZG	Silty, clayey SAND with gravel
SANDCZGB	Silty, clayey SAND with gravel and shell
SANDCZO	Silty, clayey SAND with peat
SANDG	Gravelly SAND
SANDGB	Gravelly SAND with shell
SANDO	SAND with peat
SANDSTON	SANDSTONE
SANDZ	Silty SAND
SANDZB	Silty SAND with shell
SANDZG	Silty SAND with gravel
SANDZGB	Silty SAND with gravel and shell
SANDZO	Silty SAND with peat
SCHIST	SCHIST
SHALE	SHALE
SHELLS	SHELL
SILT	SILT
SILTB	SILT with shell
SILTC	Clayey SILT
SILTCB	Clayey SILT with shell
SILTCG	Clayey SILT with gravel
SILTCO	Clayey SILT with peat
SILTCS	Sandy Clayey SILT
SILTCSB	Sandy Clayey SILT with shell
SILTCSG	Sandy Clayey SILT with gravel
SILTCSGB	Sandy Clayey SILT with gravel and shell
SILTCSO	Sandy Clayey SILT with peat
SILTG	Gravelly SILT
SILTO	SILT with peat
SILTS	Sandy SILT
SILTSG	Gravelly sandy SILT
SILTSTON	SILTSTONE
TOPSOIL	TOPSOIL
TUFF	Coarse ash TUFF, Lapilli TUFF
TUFFFINE	Fine ash TUFF
WASHING	WASH BORING

Appendix B

Legends for Use on Drillhole Records


AGGLOM
ASPHALT
BASALT
BLANK
BLDR
BLDRCBBL
BRECCIA
CBBL
CEMENT GROUT
CLAY
CLAYB
CLAYG
CLAYO
CLAYS
CLAYSTON
CLAYZ
CLAYZB
CLAYZG
CLAYZGB
CLAYZO
CLAYZS
CLAYZSB
CLAYZSG
CLAYZSGB
CLAYZSO
CONCRETE
CONGLOM
CORAL
DACITE
FILL
GABBRO
GLD
GLDS
GLDZC
GLDZCS
GNEISS
GRANITE
GRANODIO
GRAV
GRAVB
GRAVC
GRAVCBBL
GRAVCBBLSILTS
GRAVCBBSANDCZ
GRAVCBBSANDZ
GRAVCZ
GRAVCZB
GRAVCZO
GRAVCZS
GRAVCZSB
GRAVO
GRAVS
GRAVZ
GRAVZS
LST
MARBLE
METACON
METAREG
ORGANICS
PEGMTITE
PHYLLITE
QUARTZ
QUARTZIT
RHYOLITE
SAND
SANDB
SANDC
SANDCG
SANDCZ
SANDCZB
SANDCZG
SANDCZGB
SANDCZO
SANDG
SANDGB
SANDO
SANDSTON
SANDZ
SANDZB
SANDZG
SANDZGB
SANDZO
SCHIST
SHALE
SHELLS
SILT
SILTB
SILTC
SILTCB
SILTCG
SILTCO
SILTCS
SILTCSB
SILTCSG
SILTCSGB
SILTCSO
SILTG
SILTO
SILTS
SILTSG


SILTSTON
TOPSOIL
TUFF
TUFFFINE
WASHING

Appendix C

Drillhole Records

DRiLTECH

DRILLHOLE RECORD

CONTRACT NO. **GE/2022/08**

HOLE NO. **BH 1**

SHEET **1** of **4**

PROJECT **Ground Investigation - New Territories East, Agreement No. CE 26/2022 (EP), Development of Integrated Waste Management Facilities Phase 2 - Investigation, Design and Construction**

METHOD **ROTARY**	CO-ORDINATES E **810249.27** N **831208.46**	TASK ORDER NO.	**GE/2022/08.35**
MACHINE **SD52**		DATE	**07.09.2023** to **15.09.2023**
FLUSHING MEDIUM **WATER**	ORIENTATION **VERTICAL**	GROUND LEVEL	**+10.55** mPD

Drilling Progress	Casing Size	Water Level (m) Shift Start/ End	Water Return%	TCR%	SCR%	RQD%	Fracture Index	Tests	Samples	Reduced Level	Depth (m)	Legend	Grade	Description
07.09.2023	SW								1 INSPECTION PIT 0.00 0.45	+10.55	0.00			Greyish brown (10YR 5/2), clayey SILT with much angular to subangular fine to coarse gravel. (FILL)
									1.00	+9.55	1.00			Grey, angular to subangular, COBBLE sized concrete fragments. (FILL)
			60	60					T2-120 2 1.50	+9.05	1.50			Very stiff, grey (7.5YR 6/1), slightly clayey SILT. (FILL)
			60	90					3 2.50 2.60 4 2.70 5 3.00					
		0.60 at 1800						2,3 3,4,5,5 N=17						
07.09.2023 09.09.2023		Dry at 0800								+7.10	3.45			
			0	44					T2-120 6 4.00	+6.55	4.00			Grey (10YR 6/1), angular to subangular, coarse GRAVEL and much cobble of rock fragments and with some concrete and brick fragments. (FILL)
			0	93					7 5.00 5.10 8 5.20 9 5.50					Very stiff, grey (7.5YR 6/1), slightly clayey SILT. (FILL)
								3,5 5,7,10,9 N=31						
									6.00	+4.55	6.00			
			0	0					10 7.00 7.10	+3.45	7.10			Medium dense, grey (7.5YR 5/1), slightly silty fine to coarse SAND with much subangular fine to coarse gravel. (FILL)
09.09.2023		3.61 at 1800												
11.09.2023		4.55 at 0800						2,3 4,3,9,11 N=27	11 7.20 12 7.50					Very stiff, grey (7.5YR 6/1), slightly clayey SILT. (FILL)
11.09.2023 12.09.2023		5.00 at 0800												
	SW 9.00m								13 8.50 14 8.60					
	PW		0	100					15 9.60 9.70 16 9.80					
								4,9 4,2,4,6 N=16		+0.55	10.00			

SMALL DISTURBED SAMPLE
LARGE DISTURBED SAMPLE
U76 SAMPLE
PISTON SAMPLE (76mm)
MAZIER SAMPLE
SPT LINER SAMPLE
WATER SAMPLE
U100 SAMPLE
STANDARD PENETRATION TEST
IN-SITU VANE SHEAR TEST
PACKER TEST
PERMEABILITY TEST
PRESSUREMETER TEST
BOREHOLE TELEVIEWER
PIEZOMETER TIP
STANDPIPE TIP

LOGGED **C. Chan**
DATE **28.09.2023**
CHECKED **R. Chu**
DATE **29.09.2023**

REMARKS
1. An inspection pit was excavated to 0.50m by hand tools.
2. Pressuremeter tests were carried out at sections from 7.55m to 8.55m and from 20.80m to 21.80m.
3. Acoustic borehole televiewer survey was carried out from 31.60m to 36.70m.
4. Piezometers were installed with tips at 12.00m and 20.00m.

DRiLTECH

DRILLHOLE RECORD

CONTRACT NO. **GE/2022/08**

HOLE NO. **BH 1**

SHEET **2** of **4**

PROJECT **Ground Investigation - New Territories East, Agreement No. CE 26/2022 (EP), Development of Integrated Waste Management Facilities Phase 2 - Investigation, Design and Construction**

METHOD **ROTARY**	CO-ORDINATES E **810249.27** N **831208.46**	TASK ORDER NO. **GE/2022/08.35**
MACHINE **SD52**		DATE **07.09.2023** to **15.09.2023**
FLUSHING MEDIUM **WATER**	ORIENTATION **VERTICAL**	GROUND LEVEL **+10.55** mPD

Drilling Progress	Casing Size	Water Level (m) Shift Start/ End	Water Return%	TCR%	SCR%	RQD%	Fracture Index	Tests	Samples	Reduced Level	Depth (m)	Legend	Grade	Description
									17 10.10					As sheet 1 of 4.
									18 10.60					
11			70	75					19 11.60	-1.15	11.70			
									20 11.70					Medium dense, greyish brown (10YR 5/2), very silty fine to coarse SAND with much subangular to subrounded fine to coarse gravel and cobble and with occasional shell fragments. (FILL)
12			70	85					21 12.70 12.80	-2.25	12.80			
								2,2 4,3,4,10 N=21	22 12.90 23 13.20					Medium dense, greyish brown (10YR 5/2), very silty fine to coarse SAND. (FILL)
13									24 13.70	-3.15	13.70			
														Dense, pale brown (10YR 6/3), clayey silty fine to coarse SAND with much subangular fine to medium gravel and with occasional shell fragments. (FILL)
14			70	54					25 14.70 26 14.80	-4.25	14.80			
														Dense, brownish yellow (10YR 7/8), clayey silty fine to coarse SAND with some subangular fine to medium gravel. (FILL)
15			70	100					27 15.80 15.90	-5.35	15.90			
12.09.2023		3.59 at 1800												
13.09.2023		3.70 at 0800						2,4 6,8,10,13 N=37	28 16.30					Dense, brownish yellow (10YR 7/8) mottled pale brown, slightly silty fine to coarse SAND with much subangular fine to coarse gravel. (FILL)
										-6.25	16.80			
17			80	100					29 16.80				V	Extremely weak, pink (5YR 8/4) spotted brownish yellow and grey, completely decomposed, medium to coarse grained GRANITE. (Clayey silty fine to coarse SAND with much angular fine to medium gravel)
									30 17.80 17.90					
18								2,5 8,12,20,24 N=64	31 18.00 32 18.30					
									33 18.80					
19			80	100										
									34 19.80 19.90	-9.45	20.00			
20								2,6						

SMALL DISTURBED SAMPLE
LARGE DISTURBED SAMPLE
U76 SAMPLE
PISTON SAMPLE (76mm)
MAZIER SAMPLE
SPT LINER SAMPLE
WATER SAMPLE
U100 SAMPLE
STANDARD PENETRATION TEST
IN-SITU VANE SHEAR TEST
PACKER TEST
PERMEABILITY TEST
PRESSUREMETER TEST
BOREHOLE TELEVIEWER
PIEZOMETER TIP
STANDPIPE TIP

LOGGED **C. Chan**
DATE **28.09.2023**
CHECKED **R. Chu**
DATE **29.09.2023**

REMARKS

DRiLTECH

DRILLHOLE RECORD

CONTRACT NO. **GE/2022/08**

HOLE NO. **BH 1**

SHEET **3** of **4**

PROJECT **Ground Investigation - New Territories East, Agreement No. CE 26/2022 (EP), Development of Integrated Waste Management Facilities Phase 2 - Investigation, Design and Construction**

METHOD **ROTARY**	CO-ORDINATES E **810249.27** N **831208.46**	TASK ORDER NO.	**GE/2022/08.35**
MACHINE **SD52**		DATE	**07.09.2023** to **15.09.2023**
FLUSHING MEDIUM **WATER**	ORIENTATION **VERTICAL**	GROUND LEVEL	**+10.55** mPD

Drilling Progress	Casing Size	Water Level (m) Shift Start/ End	Water Return%	TCR%	SCR%	RQD%	Fracture Index	Tests	Samples	Reduced Level	Depth (m)	Legend	Grade	Description
								10,18,25,27 N=80	35 20.00 36 20.30				V	As sheet 2 of 4.
	PW 20.80m HW													
21														
22			80	83					37 21.75 38 21.80					
23								3,6 10,12,12,20 N=54	39 22.80 22.90 40 23.00 41 23.30					
24			80	100					42 23.80					
13.06.2023 14.06.2023		4.99 at 1800 6.50 at 0800							43 24.80 24.90 44 25.00 45 25.30					
26			80	88				6,15 20,25,25,29 N=99	46 25.80 47 26.80	-16.35	26.90			
27								25,25/10mm 100/25mm 100blS/25mm	48 26.90		27.25		IV	Weak, pink (5YR 8/4) spotted brownish yellow and grey, highly decomposed, medium to coarse grained GRANITE. (Angular, slightly sandy fine to coarse GRAVEL and some cobble of highly decomposed granite fragments)
			80	95	57	50	NI 8.5		27.25 T2-101	-16.83	27.38		III	
28			80	80					49 27.85	-17.30	27.85		V	Moderately strong, pink spotted brownish yellow and grey, moderately decomposed, medium to coarse grained GRANITE. (CORESTONE)
									50 28.85 51 28.95 52 29.22					Extremely weak, pink (5YR 8/4) spotted brownish yellow and grey, completely decomposed, medium to coarse grained GRANITE. (Clayey silty fine to coarse SAND with much angular fine to medium gravel)
29								9,18 20,40,40/20mm 100blS/170mm						
30									53 29.85	-19.45	30.00			

- SMALL DISTURBED SAMPLE
- LARGE DISTURBED SAMPLE
- U76 SAMPLE
- PISTON SAMPLE (76mm)
- MAZIER SAMPLE
- SPT LINER SAMPLE
- WATER SAMPLE
- U100 SAMPLE
- STANDARD PENETRATION TEST
- IN-SITU VANE SHEAR TEST
- PACKER TEST
- PERMEABILITY TEST
- PRESSUREMETER TEST
- BOREHOLE TELEVIEWER
- PIEZOMETER TIP
- STANDPIPE TIP

LOGGED **C. Chan**

DATE **28.09.2023**

CHECKED **R. Chu**

DATE **29.09.2023**

REMARKS

DRILLHOLE RECORD

DRiLTECH

CONTRACT NO. **GE/2022/08**

HOLE NO. **BH 1**

SHEET **4** of **4**

PROJECT **Ground Investigation - New Territories East, Agreement No. CE 26/2022 (EP), Development of Integrated Waste Management Facilities Phase 2 - Investigation, Design and Construction**

METHOD **ROTARY**	CO-ORDINATES E **810249.27** N **831208.46**	TASK ORDER NO. **GE/2022/08.35**	
MACHINE **SD52**		DATE **07.09.2023** to **15.09.2023**	
FLUSHING MEDIUM **WATER**	ORIENTATION **VERTICAL**	GROUND LEVEL **+10.55** mPD	

Drilling Progress	Casing Size	Water Level (m) Shift Start/ End	Water Return%	TCR%	SCR%	RQD%	Fracture Index	Tests	Samples	Reduced Level	Depth (m)	Legend	Grade	Description
			80	39									V	As sheet 3 of 4.
14.09.2023		5.99 at 1800							54 30.85	-20.40	30.95			
15.09.2023		8.50 at 0800	70	100					55 30.95				IV	Weak, pink (5YR 8/4) spotted brownish yellow and grey, highly decomposed, medium to coarse grained GRANITE. (Angular, clayey silty sandy fine to coarse GRAVEL and some cobble of highly decomposed granite fragments)
	HW 31.63m								56 31.39					
							NI		31.63	-21.11	31.63		III	
32							>20			-21.43	31.66 31.98		III	Moderately weak to moderately strong, pink spotted brownish yellow and grey, moderately decomposed, medium to coarse grained GRANITE. Joints are very closely to closely spaced, rough planar, iron oxide stained, dipping at 10° to 20°, 20° to 30° and 65° to 75°.
			70	100	82	71	4.7		T2-101					
33									32.99		33.25			
							>20				33.42			Moderately strong to strong, pink spotted grey, moderately decomposed, medium to coarse grained GRANITE. Joints are closely to medium spaced, occasionally very closely spaced, rough planar, iron and manganese oxide stained, calcite and occasionally chlorite coated, dipping at 10° to 20°, 35° to 45° and 60° to 70°.
34			70	99	78	74	6.5		T2-101					
									34.54		34.34			
							8.1							
35											35.08			
			70	100	66	57	1.4		T2-101					
36									36.03					
											36.56			
			70	93	83	82	>20		T2-101		36.68			
37							1.9							
15.09.2023		4.59 at 1800								-26.66	37.21			
														End of hole at 37.21 m.
38														
39														
40														

- SMALL DISTURBED SAMPLE
- LARGE DISTURBED SAMPLE
- U76 SAMPLE
- PISTON SAMPLE (76mm)
- MAZIER SAMPLE
- SPT LINER SAMPLE
- WATER SAMPLE
- U100 SAMPLE
- STANDARD PENETRATION TEST
- IN-SITU VANE SHEAR TEST
- PACKER TEST
- PERMEABILITY TEST
- PRESSUREMETER TEST
- BOREHOLE TELEVIEWER
- PIEZOMETER TIP
- STANDPIPE TIP

LOGGED **C. Chan**

DATE **28.09.2023**

CHECKED **R. Chu**

DATE **29.09.2023**

REMARKS

DRiLTECH

DRILLHOLE RECORD

CONTRACT NO. **GE/2022/08**

HOLE NO. **BH 2**

SHEET 1 of 5

PROJECT **Ground Investigation - New Territories East, Agreement No. CE 26/2022 (EP), Development of Integrated Waste Management Facilities Phase 2 - Investigation, Design and Construction**

METHOD	**ROTARY**	CO-ORDINATES E **810117.34** N **831133.48**	TASK ORDER NO. **GE/2022/08.35**
MACHINE	**SD52**		DATE **19.09.2023** to **25.09.2023**
FLUSHING MEDIUM	**WATER**	ORIENTATION **VERTICAL**	GROUND LEVEL **+10.64** mPD

Drilling Progress	Casing Size	Water Level (m) Shift Start/ End	Water Return%	TCR%	SCR%	RQD%	Fracture Index	Tests	Samples	Reduced Level	Depth (m)	Legend	Grade	Description
19.09.2023	SW								0.00	+10.64	0.00			Stiff to very stiff, grey (7.5YR 6/1), slightly clayey SILT of pulverized fuel ash. (FILL)
									1 0.45 INSPECTION PIT					
1									2 0.95					
									3 1.45					
									4 1.50					
2			80	60										
									5 2.50					
									2.60					
								2,2 2,6,10,12 N=30	6 2.70					
3									7 3.00					
									3.45	+7.19	3.45			Grey (10YR 6/1), angular, coarse GRAVEL and some cobble of rock fragments and with occasional concrete fragments. (FILL)
			80	43					T2-120					
4									4.15					
			80	42					T2-120					
5									5.10					
			80	36					T2-120					
									5.60	+5.04	5.60			Very stiff, grey (7.5YR 6/1), slightly clayey SILT of pulverized fuel ash. (FILL)
6			80	0										
		0.69 at 1800							8 6.60					
19.09.2023									6.70					
20.09.2023		4.30 at 0800												
7			80	0										
									9 7.70					
									7.80					
8								2,2 3,5,6,6 N=20	10 7.90					
									11 8.20					
9	SW 9.25m													
	PW								12 9.20 9.25					
10			80	0						+0.64	10.00			

- SMALL DISTURBED SAMPLE
- LARGE DISTURBED SAMPLE
- U76 SAMPLE
- PISTON SAMPLE (76mm)
- MAZIER SAMPLE
- SPT LINER SAMPLE
- WATER SAMPLE
- U100 SAMPLE
- STANDARD PENETRATION TEST
- IN-SITU VANE SHEAR TEST
- PACKER TEST
- PERMEABILITY TEST
- PRESSUREMETER TEST
- BOREHOLE TELEVIEWER
- PIEZOMETER TIP
- STANDPIPE TIP

LOGGED **C. Chan**

DATE **14.10.2023**

CHECKED **R. Chu**

DATE **18.10.2023**

REMARKS

1. An inspection pit was excavated to 1.50m by hand tools.
2. Pressuremeter tests were carried out at sections from 8.25m to 9.25m and from 10.35m to 11.35m.
3. Acoustic borehole televiewer survey was carried out from 36.60m to 41.20m.
4. Piezometers were installed with tips at 5.00m and 25.00m respectively.

DRiLTECH

DRILLHOLE RECORD

CONTRACT NO. **GE/2022/08**

HOLE NO. **BH 2**

SHEET **2** of **5**

PROJECT **Ground Investigation - New Territories East, Agreement No. CE 26/2022 (EP), Development of Integrated Waste Management Facilities Phase 2 - Investigation, Design and Construction**

METHOD	**ROTARY**	CO-ORDINATES E **810117.34** N **831133.48**	TASK ORDER NO. **GE/2022/08.35**
MACHINE	**SD52**		DATE **19.09.2023** to **25.09.2023**
FLUSHING MEDIUM	**WATER**	ORIENTATION **VERTICAL**	GROUND LEVEL **+10.64** mPD

Drilling Progress	Casing Size	Water Level (m) Shift Start/ End	Water Return%	TCR%	SCR%	RQD%	Fracture Index	Tests	Samples	Reduced Level	Depth (m)	Legend	Grade	Description
11									13 10.25					As sheet 1 of 5.
									14 11.30	-0.71	11.35			
									15 11.40					Stiff, grey (7.5YR 6/1), slightly clayey sandy SILT of pulverized fuel ash with some subangular fine to coarse gravel of rock fragments and with occasional shell fragments. (FILL)
12			80	100										
20.09.2023		4.09 at 1800							16 12.40	-1.86	12.50			
21.09.2023		4.00 at 0800						2,2 1,3,4,4 N=12	17 12.60					Stiff, grey (7.5YR 6/1), slightly clayey SILT of pulverized fuel ash. (FILL)
13									18 12.90					
									19 13.40	-2.76	13.40			Stiff, greyish brown (10YR 5/2), slightly clayey sandy SILT of pulverized fuel ash with some subangular fine to coarse gravel of rock fragments and with some shell fragments. (FILL)
14			80	92										
								3,2 4,6,9,13 N=32	20 14.40					
									21 14.50 14.60					
15									22 14.90					
									23 15.40					
16			80	100										
									24 16.40 16.50	-5.86	16.50			
								5,8 8,11,10,15 N=44	25 16.60					Dense, grey (7.5YR 6/1), slightly clayey silty fine to coarse SAND with much subangular fine to medium gravel of rock fragments and with some shell fragments. (FILL)
17									26 16.90					
									27 17.40	-6.76	17.40			Stiff, white (5Y 8/1), clayey SILT with much subangular fine to medium gravel. (FILL)
18			80	44										
									28 18.40	-7.86	18.50			
									29 18.50				V	Extremely weak, pink (7.5YR 8/4) spotted brownish yellow and grey, completely decomposed, medium to coarse grained GRANITE. (Clayey silty fine to coarse SAND with much angular fine to medium gravel)
19			80	100										
								2,2 3,3,6,14 N=26	30 19.50 19.60					
20									31 19.70	-9.36	20.00			

- SMALL DISTURBED SAMPLE
- LARGE DISTURBED SAMPLE
- U76 SAMPLE
- PISTON SAMPLE (76mm)
- MAZIER SAMPLE
- SPT LINER SAMPLE
- WATER SAMPLE
- U100 SAMPLE
- STANDARD PENETRATION TEST
- IN-SITU VANE SHEAR TEST
- PACKER TEST
- PERMEABILITY TEST
- PRESSUREMETER TEST
- BOREHOLE TELEVIEWER
- PIEZOMETER TIP
- STANDPIPE TIP

LOGGED **C. Chan**

DATE **14.10.2023**

CHECKED **R. Chu**

DATE **18.10.2023**

REMARKS

DRiLTECH

DRILLHOLE RECORD

CONTRACT NO. **GE/2022/08**

HOLE NO. **BH 2**

SHEET **3** of **5**

PROJECT Ground Investigation - New Territories East, Agreement No. CE 26/2022 (EP), Development of Integrated Waste Management Facilities Phase 2 - Investigation, Design and Construction

METHOD	**ROTARY**	CO-ORDINATES E **810117.34** N **831133.48**	TASK ORDER NO. **GE/2022/08.35**
MACHINE	**SD52**		DATE **19.09.2023** to **25.09.2023**
FLUSHING MEDIUM	**WATER**	ORIENTATION **VERTICAL**	GROUND LEVEL **+10.64** mPD

Drilling Progress	Casing Size	Water Level (m) Shift Start/ End	Water Return%	TCR%	SCR%	RQD%	Fracture Index	Tests	Samples	Reduced Level	Depth (m)	Legend	Grade	Description
21			80	100				7,11 14,14,20,25 N=73	32 20.00 33 20.50 34 21.50 21.60 35 21.70 36 22.00				V	As sheet 2 of 5.
22									37 22.50					
23		5.40 at 1800	80	90					38 23.50 23.60 39 23.70 40 24.00					
21.09.2023 22.09.2023 24		6.40 at 0800						10,10 12,13,13,21 N=59	41 24.50					
25	PW 25.50m HW		90	95				5,10 25,25,50/70mm 100blS/220mm	42 25.50 25.60 43 25.62 44 25.92					
26									45 26.50					
27			90	100				2,4 8,25,25,35 N=93	46 27.50 27.60 47 27.70 48 28.00					
28									49 28.50					
29		7.60 at 1800	90	57					50 29.50 29.60	-19.36	30.00			
22.09.2023 23.09.2023 30		5.40 at 0800												

- SMALL DISTURBED SAMPLE
- LARGE DISTURBED SAMPLE
- U76 SAMPLE
- PISTON SAMPLE (76mm)
- MAZIER SAMPLE
- SPT LINER SAMPLE
- WATER SAMPLE
- U100 SAMPLE
- STANDARD PENETRATION TEST
- IN-SITU VANE SHEAR TEST
- PACKER TEST
- PERMEABILITY TEST
- PRESSUREMETER TEST
- BOREHOLE TELEVIEWER
- PIEZOMETER TIP
- STANDPIPE TIP

LOGGED **C. Chan**

DATE **14.10.2023**

CHECKED **R. Chu**

DATE **18.10.2023**

REMARKS

DRiLTECH

DRILLHOLE RECORD

CONTRACT NO. **GE/2022/08**

HOLE NO. **BH 2**

SHEET **4** of **5**

PROJECT **Ground Investigation - New Territories East, Agreement No. CE 26/2022 (EP), Development of Integrated Waste Management Facilities Phase 2 - Investigation, Design and Construction**

METHOD **ROTARY**	CO-ORDINATES E **810117.34** N **831133.48**	TASK ORDER NO.	**GE/2022/08.35**
MACHINE **SD52**		DATE	**19.09.2023** to **25.09.2023**
FLUSHING MEDIUM **WATER**	ORIENTATION **VERTICAL**	GROUND LEVEL	**+10.64** mPD

Drilling Progress	Casing Size	Water Level (m) Shift Start/ End	Water Return%	TCR%	SCR%	RQD%	Fracture Index	Tests	Samples	Reduced Level	Depth (m)	Legend	Grade	Description
			90	0									V	As sheet 3 of 5.
31								4,3 4,4,5,20 N=33	51 30.60–30.70 52 31.10					
										-20.96	31.60		IV	Weak, brownish yellow (10YR 6/6) mottled pink and grey, highly decomposed, medium to coarse grained GRANITE. (Angular, clayey silty sandy fine to coarse GRAVEL of highly decomposed granite fragments)
32			90	0					31.60 53 32.50 32.60	-21.96	32.60			
							11.8			-22.30	32.94		III	Moderately strong, pink spotted light grey, brownish yellow and dark grey, moderately decomposed, medium to coarse grained GRANITE. (CORESTONE) From 32.60m to 32.94m and 35.16m to 35.44m: Moderately weak to moderately strong. From 32.94m to 33.07m and 34.68m to 34.86m: Weak and highly decomposed. (Angular, slightly clayey silty sandy gravelly COBBLE of highly decomposed granite fragments) From 34.86m to 35.16m: No recovery, assumed to be completely decomposed GRANITE.
33							NI			-22.43	33.07		IV	
			90	100	84	71			T2-101				III	
34							5.0		34.06					
			90	78	56	51	NI		T2-101	-24.04	34.68		IV	
							NR			-24.22	34.86		V	
35							7.1			-24.52	35.16		III	
									54 35.44	-24.80	35.44		V	Extremely weak, pink (7.5YR 8/4) spotted brownish yellow and grey, completely decomposed, medium to coarse grained GRANITE. (Clayey silty fine to coarse SAND with much angular fine to medium gravel)
36			90	36			>20							
	HW 36.71m		90	0			NI		55 36.44–36.54 56 36.61–36.71	-25.90	36.54		IV	Weak, pink (7.5YR 8/4) spotted brownish yellow and grey, highly decomposed, medium to coarse grained GRANITE. (Angular, fine to coarse GRAVEL and some cobble of highly decomposed granite fragments)
							>20			-26.07	36.71		III	
37										-26.20	36.84		III	
			90	100	85	72	1.2		T2-101		36.92			Moderately weak, pink spotted brownish yellow and grey, moderately decomposed, medium to coarse grained GRANITE. Joints are very closely to closely spaced, rough planar, iron oxide stained, dipping at 10° to 20° and 20° to 30°.
38		5.10 at 1800							38.13		38.13			
23.09.2023											38.35			
25.09.2023		5.90 at 0800					>20			-27.87	38.51		II	
			90	100	74	74			T2-101					Moderately strong to strong, pink spotted grey, moderately decomposed, medium to coarse grained GRANITE. Joints are closely to medium spaced, occasionally very closely spaced, rough planar, iron and manganese oxide stained, calcite coated, dipping at 10° to 20°, 50° to 60° and 65° to 75°.
39							5.1							
									39.66	-29.10	39.74		III	
40									T2-101	-29.36	39.92 40.00			From 38.51m to 39.74m and 40.72m to 41.91m:

SMALL DISTURBED SAMPLE
LARGE DISTURBED SAMPLE
U76 SAMPLE
PISTON SAMPLE (76mm)
MAZIER SAMPLE
SPT LINER SAMPLE
WATER SAMPLE
U100 SAMPLE
STANDARD PENETRATION TEST
IN-SITU VANE SHEAR TEST
PACKER TEST
PERMEABILITY TEST
PRESSUREMETER TEST
BOREHOLE TELEVIEWER
PIEZOMETER TIP
STANDPIPE TIP

LOGGED **C. Chan**
DATE **14.10.2023**
CHECKED **R. Chu**
DATE **18.10.2023**

REMARKS

DRiLTECH

DRILLHOLE RECORD

CONTRACT NO. **GE/2022/08**

HOLE NO. **BH 2**

SHEET **5** of **5**

PROJECT **Ground Investigation - New Territories East, Agreement No. CE 26/2022 (EP), Development of Integrated Waste Management Facilities Phase 2 - Investigation, Design and Construction**

METHOD **ROTARY**	CO-ORDINATES E **810117.34** N **831133.48**	TASK ORDER NO. **GE/2022/08.35**
MACHINE **SD52**		DATE **19.09.2023** to **25.09.2023**
FLUSHING MEDIUM **WATER**	ORIENTATION **VERTICAL**	GROUND LEVEL **+10.64** mPD

Drilling Progress	Casing Size	Water Level (m) Shift Start/ End	Water Return%	TCR%	SCR%	RQD%	Fracture Index	Tests	Samples	Reduced Level	Depth (m)	Legend	Grade	Description
41			90	100	92	92	1.8		T2-101	-30.08	40.72		III	Strong and slightly decomposed.
							>20		41.04		41.02		II	
			90	100	92	89	2.7		T2-101		41.16			
25.09.2023		5.70 at 1300								-31.27	41.91			End of hole at 41.91 m.
42														
43														
44														
45														
46														
47														
48														
49														
50														

- SMALL DISTURBED SAMPLE
- LARGE DISTURBED SAMPLE
- U76 SAMPLE
- PISTON SAMPLE (76mm)
- MAZIER SAMPLE
- SPT LINER SAMPLE
- WATER SAMPLE
- U100 SAMPLE
- STANDARD PENETRATION TEST
- IN-SITU VANE SHEAR TEST
- PACKER TEST
- PERMEABILITY TEST
- PRESSUREMETER TEST
- BOREHOLE TELEVIEWER
- PIEZOMETER TIP
- STANDPIPE TIP

LOGGED **C. Chan**

DATE **14.10.2023**

CHECKED **R. Chu**

DATE **18.10.2023**

REMARKS

DRiLTECH

DRILLHOLE RECORD

CONTRACT NO. **GE/2022/08**

HOLE NO. **BH 3**

SHEET **1** of **5**

PROJECT **Ground Investigation - New Territories East, Agreement No. CE 26/2022 (EP), Development of Integrated Waste Management Facilities Phase 2 - Investigation, Design and Construction**

METHOD	**ROTARY**	CO-ORDINATES E **809954.56** N **831149.31**	TASK ORDER NO. **GE/2022/08.35**
MACHINE	**SD52**		DATE **27.09.2023** to **05.10.2023**
FLUSHING MEDIUM	**WATER**	ORIENTATION **VERTICAL**	GROUND LEVEL **+10.96** mPD

Drilling Progress	Casing Size	Water Level (m) Shift Start/ End	Water Return%	TCR%	SCR%	RQD%	Fracture Index	Tests	Samples	Reduced Level	Depth (m)	Legend	Grade	Description
27.09.2023	SW								0.00	+10.96	0.00			Stiff to very stiff, grey (7.5YR 6/1), slightly sandy clayey SILT of pulverized fuel ash. (FILL)
									1 0.45					
									ASPHALTIC PAT 2 0.95					
1									3 1.45					
									4 1.50					
			80	88										
2									5 2.50					
									2.60					
								2,3 3,6,6,10 N=25	6 2.70					
3									7 3.00					
			80	100					8 3.50					
4	SW 4.03m								9 3.93	+6.93	4.03			
	PW								4.03					Pink (5YR 8/3), angular to subangular, COBBLE and much coarse gravel of rock fragments. (FILL)
			80	43					T2-120					
									10 4.80	+6.16	4.80			
5														Very stiff, grey (5Y 5/1), slightly sandy clayey SILT of pulverized fuel ash with much angular to subangular fine to coarse gravel. (FILL)
			80	100										
									11 5.80					
6								4,7 8,6,8,13 N=35	5.90					
									12 6.00					
		0.60 at 1800							13 6.30					
27.09.2023														
28.09.2023		4.10 at 0800												
									6.80					
7			80	0										
									14 7.80	+3.06	7.90			
8									15 7.90					Very stiff, grey (5Y 5/1), slightly sandy clayey SILT of pulverized fuel ash. (FILL)
			80	100										
									16 8.90					
9									9.00					
								2,2 3,3,5,6 N=17	17 9.10					
									18 9.40					
10										+0.96	10.00			

SMALL DISTURBED SAMPLE
LARGE DISTURBED SAMPLE
U76 SAMPLE
PISTON SAMPLE (76mm)
MAZIER SAMPLE
SPT LINER SAMPLE
WATER SAMPLE
U100 SAMPLE
STANDARD PENETRATION TEST
IN-SITU VANE SHEAR TEST
PACKER TEST
PERMEABILITY TEST
PRESSUREMETER TEST
BOREHOLE TELEVIEWER
PIEZOMETER TIP
STANDPIPE TIP

LOGGED **C. Chan**
DATE **25.10.2023**
CHECKED **R. Chu**
DATE **30.10.2023**

REMARKS
1. An inspection pit was excavated to 1.50m by hand tools.
2. Pressuremeter tests were carried out at sections from 9.45m to 10.45m and from 11.55m to 12.55m.
3. Acoustic borehole televiewer survey was carried out from 40.10m to 45.27m.
4. Piezometers were installed with tips at 15.00m and 25.00m respectively.

DRiLTECH

DRILLHOLE RECORD

CONTRACT NO. **GE/2022/08**

HOLE NO. **BH 3**

SHEET **2** of **5**

PROJECT **Ground Investigation - New Territories East, Agreement No. CE 26/2022 (EP), Development of Integrated Waste Management Facilities Phase 2 - Investigation, Design and Construction**

METHOD	**ROTARY**	CO-ORDINATES E **809954.56** N **831149.31**	TASK ORDER NO. **GE/2022/08.35**
MACHINE	**SD52**		DATE **27.09.2023** to **05.10.2023**
FLUSHING MEDIUM	**WATER**	ORIENTATION **VERTICAL**	GROUND LEVEL **+10.96** mPD

Drilling Progress	Casing Size	Water Level (m) Shift Start/ End	Water Return%	TCR%	SCR%	RQD%	Fracture Index	Tests	Samples	Reduced Level	Depth (m)	Legend	Grade	Description
														As sheet 1 of 5.
11			80	100					19 10.40 20 10.45 21 11.45	-0.59	11.55			
12									22 12.50	-1.59	12.55			Stiff, greenish grey (5GY 6/1), slightly sandy clayey SILT with some shell fragments. (MARINE DEPOSIT)
13			80	100					23 12.55 24 13.55	-2.69	13.65			Stiff, greenish grey (5GY 6/1), slightly sandy clayey SILT with some subangular fine to medium gravel and with some shell fragments. (MARINE DEPOSIT)
14								2,2 2,3,3,3 N=11	25 13.75 26 14.05	-3.59	14.55			Very stiff, light olive grey (5Y 6/2), clayey sandy SILT with some angular to subangular fine gravel and with much shell fragments. (MARINE DEPOSIT)
15			80	100					27 14.55 28 15.55 29 15.75 30 16.05					Medium dense, grey (2.5Y 6/1), clayey silty fine to coarse SAND with much angular to subangular fine to medium gravel. (ALLUVIUM)
16 26.09.2023 29.09.2023		3.90 at 1800 5.05 at 0800						2,5 4,3,3,6 N=16						
17			80	0					16.55 31 17.55	-6.69	17.65			
18			80	0					17.65 32 18.65 18.75					Medium dense, light grey (2.5Y 7/1), subangular, sandy fine to medium GRAVEL of quartz and rock fragments. (ALLUVIUM)
19								2,3 4,7,6,7 N=24	33 19.15					
20									34 19.65	-8.69	19.65			Stiff, reddish yellow (7.5YR 8/6), silty sandy CLAY with much subangular fine to medium gravel.

- SMALL DISTURBED SAMPLE
- LARGE DISTURBED SAMPLE
- U76 SAMPLE
- PISTON SAMPLE (76mm)
- MAZIER SAMPLE
- SPT LINER SAMPLE
- WATER SAMPLE
- U100 SAMPLE
- STANDARD PENETRATION TEST
- IN-SITU VANE SHEAR TEST
- PACKER TEST
- PERMEABILITY TEST
- PRESSUREMETER TEST
- BOREHOLE TELEVIEWER
- PIEZOMETER TIP
- STANDPIPE TIP

LOGGED **C. Chan**

DATE **25.10.2023**

CHECKED **R. Chu**

DATE **30.10.2023**

REMARKS

DRiLTECH

DRILLHOLE RECORD

CONTRACT NO. **GE/2022/08**

HOLE NO. **BH 3**

SHEET **3** of **5**

PROJECT **Ground Investigation - New Territories East, Agreement No. CE 26/2022 (EP), Development of Integrated Waste Management Facilities Phase 2 - Investigation, Design and Construction**

METHOD **ROTARY**	CO-ORDINATES E **809954.56** N **831149.31**	TASK ORDER NO. **GE/2022/08.35**
MACHINE **SD52**		DATE **27.09.2023** to **05.10.2023**
FLUSHING MEDIUM **WATER**	ORIENTATION **VERTICAL**	GROUND LEVEL **+10.96** mPD

Drilling Progress	Casing Size	Water Level (m) Shift Start/ End	Water Return%	TCR%	SCR%	RQD%	Fracture Index	Tests	Samples	Reduced Level	Depth (m)	Legend	Grade	Description
			80	90										(ALLUVIUM)
21								3,5 35,45,20/55mm 100blS/205mm	35 20.65 36 20.76 37 21.06	-9.79	20.75		V	Extremely weak, white (2.5Y 8/1) and yellow (2.5Y 8/6) mottled pink and light grey, completely decomposed, medium to coarse grained GRANITE. (Very stiff, clayey sandy SILT with much angular fine to medium gravel)
	PW 21.65m													
22	HW		80	80					38 21.65					
23								4,7 11,30,59/75mm 100blS/225mm	39 22.65 40 22.76 41 23.08					
24			80	65					42 23.65					
29.09.2023		4.98 at 1800							43 24.65					
03.10.2023		6.70 at 0800							44 24.75					
25			90	57					45 25.75 46 25.85 47 26.02					
26								18,32/65mm 100/75mm 100blS/75mm						
									48 26.75	-15.79	26.75		IV	Weak, light grey (2.5Y 7/1) and yellow (2.5Y 8/6), highly decomposed, medium to coarse grained GRANITE. (Angular, fine to coarse GRAVEL of highly decomposed granite fragments)
27			90	95										
									49 27.75 50 27.85	-16.69	27.85		IV	
28								50/25mm 100/10mm 100blS/10mm	28.16	-17.30	28.16 28.28		III	Weak to moderately weak, pink (5YR 8/3) spotted light grey, highly decomposed, medium to coarse GRANITE. (Angular, slightly sandy fine to medium GRAVEL and occasional cobble of highly decomposed granite fragments)
							NI				28.60			
							5.6				28.94			
29			90	100	59	47	>20		T2-101					Moderately weak to moderately strong, pink dappled light grey and white, moderately decomposed, medium to coarse grained GRANITE. Joints are closely to medium spaced, occasionally very closely spaced, rough planar and rough stepped, iron oxide stained, kaolin infilled (<2mm), dipping at 0° to 10°, 10° to 20°, 40° to 50° and 65° to
									29.66 T2-101	-19.04	30.00			
30							6.0							

SMALL DISTURBED SAMPLE
LARGE DISTURBED SAMPLE
U76 SAMPLE
PISTON SAMPLE (78mm)
MAZIER SAMPLE
SPT LINER SAMPLE
WATER SAMPLE
U100 SAMPLE
STANDARD PENETRATION TEST
IN-SITU VANE SHEAR TEST
PACKER TEST
PERMEABILITY TEST
PRESSUREMETER TEST
BOREHOLE TELEVIEWER
PIEZOMETER TIP
STANDPIPE TIP

LOGGED **C. Chan**
DATE **25.10.2023**
CHECKED **R. Chu**
DATE **30.10.2023**

REMARKS

DRILTECH

DRILLHOLE RECORD

CONTRACT NO. **GE/2022/08**

HOLE NO. **BH 3**

SHEET **4** of **5**

PROJECT **Ground Investigation - New Territories East, Agreement No. CE 26/2022 (EP), Development of Integrated Waste Management Facilities Phase 2 - Investigation, Design and Construction**

METHOD	**ROTARY**	CO-ORDINATES E **809954.56** N **831149.31**	TASK ORDER NO. **GE/2022/08.35**
MACHINE	**SD52**		DATE **27.09.2023** to **05.10.2023**
FLUSHING MEDIUM	**WATER**	ORIENTATION **VERTICAL**	GROUND LEVEL **+10.96** mPD

Drilling Progress	Casing Size	Water Level (m) Shift Start/ End	Water Return%	TCR%	SCR%	RQD%	Fracture Index	Tests	Samples	Reduced Level	Depth (m)	Legend	Grade	Description
													III	75°.
			90	100	70	57	>20		T2-101	-19.70	30.44 / 30.66		IV	From 28.26m to 30.38m: With a dyke of quartzphyric RHYOLITE.
							NI			-19.94	30.90		III	From 30.66m to 30.90m, 32.80m to 33.20m, 33.36m to 33.72m and 35.69m to 35.82m: Weak to moderately weak and highly decomposed. (Angular, fine to coarse GRAVEL and some cobble of highly decomposed granite fragments)
31									31.11					
			90	100	18	0			T2-101					From 31.11m to 31.40m, 33.20m to 34.30m and 34.43m to 35.00m: Foliated.
									31.90					
32														From 31.30m to 31.40m: With a dyke of APLITE.
			90	100	47	28			T2-101	-21.64	32.80			From 31.40m to 31.90m and 32.30m to 32.64m: With some dykes of BASALT.
33							NI			-22.24	33.20		IV	
							>20			-22.40	33.36		III	From 31.90m to 32.30m: With a dyke of MYLONITE.
			90	100	79	50	NI		33.36	-22.76	33.72		IV	From 34.14m to 34.16m: FAULT BRECCIA with a thickness <20mm. (Stiff, brownish yellow (10YR 6/6), sandy SILT with much angular fine to medium gravel)
03.10.2023		4.90 at 1800							T2-101					
04.10.2023		6.54 at 0800	90	96	76	38	10.8		33.88				III	From 35.11m to 35.39m: No recovery, assumed to be completely decomposed GRANITE.
									T2-101					
									34.37					
35			90	79	54	51			T2-101	-24.15	35.11			
							NR			-24.43	35.39		V	
							6.7			-24.73	35.69		III	
							NI		35.69	-24.86	35.82		IV	
													III	Moderately weak to moderately strong, whitish pink dappled light grey, microfractured, moderately decomposed, medium to coarse grained GRANITE. Joints are closely to medium spaced, rough planar and rough stepped, iron oxide stained, kaolin coated, dipping at 5° to 15°, 15° to 25°, 55° to 65° and 65° to 75°.
36			90	100	66	56	7.8		T2-101					
									36.77					
37											37.10			From 36.67m to 38.13m: Moderately strong to strong.
			90	100	87	83	2.9		T2-101					
38											38.13			From 37.90m to 37.96m: With a dyke of PEGMATITE.
									38.27					
			90	100	99	68	8.6		T2-101					
39														
04.10.2023	HW 39.72m	5.03 at 1800							39.72					
05.10.2023		6.63 at 0800							T2-101	-29.04	40.00			
40														

- SMALL DISTURBED SAMPLE
- LARGE DISTURBED SAMPLE
- U76 SAMPLE
- PISTON SAMPLE (76mm)
- MAZIER SAMPLE
- SPT LINER SAMPLE
- WATER SAMPLE
- U100 SAMPLE
- STANDARD PENETRATION TEST
- IN-SITU VANE SHEAR TEST
- PACKER TEST
- PERMEABILITY TEST
- PRESSUREMETER TEST
- BOREHOLE TELEVIEWER
- PIEZOMETER TIP
- STANDPIPE TIP

LOGGED **C. Chan**

DATE **25.10.2023**

CHECKED **R. Chu**

DATE **30.10.2023**

REMARKS

DRiLTECH

DRILLHOLE RECORD

CONTRACT NO. **GE/2022/08**

HOLE NO. **BH 3**

SHEET **5** of **5**

PROJECT **Ground Investigation - New Territories East, Agreement No. CE 26/2022 (EP), Development of Integrated Waste Management Facilities Phase 2 - Investigation, Design and Construction**

METHOD **ROTARY**	CO-ORDINATES E **809954.56** N **831149.31**	TASK ORDER NO. **GE/2022/08.35**
MACHINE **SD52**		DATE **27.09.2023** to **05.10.2023**
FLUSHING MEDIUM **WATER**	ORIENTATION **VERTICAL**	GROUND LEVEL **+10.96** mPD

Drilling Progress	Casing Size	Water Level (m) Shift Start/ End	Water Return%	TCR%	SCR%	RQD%	Fracture Index	Tests	Samples	Reduced Level	Depth (m)	Legend	Grade	Description
													III	As sheet 4 of 5.
			90	96	66	61			T2-101	-29.24	40.20		III	Strong, pink mottled light grey, spotted green, slightly decomposed, chloritised, medium to coarse grained GRANITE. Joints are closely to medium spaced, rough planar and rough undulating, iron oxide stained, chlorite coated and calcite infilled (<2mm), dipping at 10° to 20°, 20° to 30°, 55° to 65° and 65° to 75°.
41										-29.74	40.40			
									41.12		40.70		II	
			90	100	90	90			T2-101	-30.39	41.35		III	From 40.20m to 40.70m, 41.35m to 42.52m and 42.82m to 42.92m: Moderately strong to strong and moderately decomposed.
42							3.2							
									42.57	-31.56	42.52		II	From 43.10m to 43.75m: Foliated.
										-31.86	42.82			
43			90	100	90	90			T2-101	-31.96	42.92		III II	
											43.89			
44									44.04					
			90	100	80	70	6.5		T2-101					
45														
05.10.2023		7.03 at 1800								-34.46	45.42			
														End of hole at 45.42 m.
46														
47														
48														
49														
50														

- SMALL DISTURBED SAMPLE
- LARGE DISTURBED SAMPLE
- U76 SAMPLE
- PISTON SAMPLE (76mm)
- MAZIER SAMPLE
- SPT LINER SAMPLE
- WATER SAMPLE
- U100 SAMPLE
- STANDARD PENETRATION TEST
- IN-SITU VANE SHEAR TEST
- PACKER TEST
- PERMEABILITY TEST
- PRESSUREMETER TEST
- BOREHOLE TELEVIEWER
- PIEZOMETER TIP
- STANDPIPE TIP

LOGGED **C. Chan**

DATE **25.10.2023**

CHECKED **R. Chu**

DATE **30.10.2023**

REMARKS

DRiLTECH

DRILLHOLE RECORD

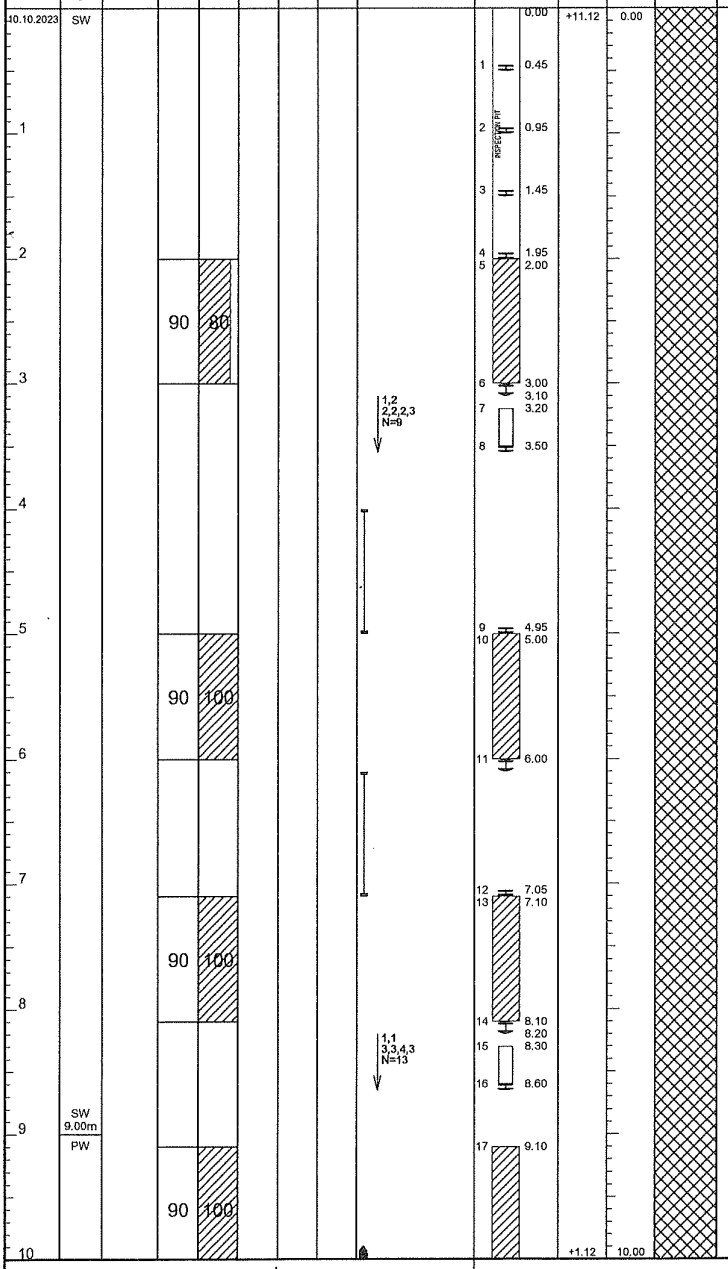
CONTRACT NO. **GE/2022/08**

HOLE NO. **BH 4**

SHEET **1** of **3**

PROJECT **Ground Investigation - New Territories East, Agreement No. CE 26/2022 (EP), Development of Integrated Waste Management Facilities Phase 2 - Investigation, Design and Construction**

METHOD	**ROTARY**	CO-ORDINATES E **809840.93** N **831201.56**	TASK ORDER NO. **GE/2022/08.35**
MACHINE	**SD52**		DATE **10.10.2023** to **12.10.2023**
FLUSHING MEDIUM	**WATER**	ORIENTATION **VERTICAL**	GROUND LEVEL **+11.12** mPD



Description

Stiff, grey (7.5YR 6/1), slightly clayey SILT of pulverized fuel ash. (FILL)

- SMALL DISTURBED SAMPLE
- LARGE DISTURBED SAMPLE
- U76 SAMPLE
- PISTON SAMPLE (76mm)
- MAZIER SAMPLE
- SPT LINER SAMPLE
- WATER SAMPLE
- U100 SAMPLE
- STANDARD PENETRATION TEST
- IN-SITU VANE SHEAR TEST
- PACKER TEST
- PERMEABILITY TEST
- PRESSUREMETER TEST
- BOREHOLE TELEVIEWER
- PIEZOMETER TIP
- STANDPIPE TIP

LOGGED **C. Chan**

DATE **25.10.2023**

CHECKED **R. Chu**

DATE **26.10.2023**

REMARKS

1. An inspection pit was excavated to 2.00m by hand tools.
2. Pressuremeter tests were carried out at sections from 4.00m to 5.00m and from 6.10m to 7.10m.
3. Acoustic borehole televiewer survey was carried out from 20.20m to 25.36m.
4. Piezometers were installed with tips at 10.00m and 15.00m respectively.

DRILTECH

DRILLHOLE RECORD

CONTRACT NO. **GE/2022/08**

HOLE NO. **BH 4**

SHEET **2** of **3**

PROJECT **Ground Investigation - New Territories East, Agreement No. CE 26/2022 (EP), Development of Integrated Waste Management Facilities Phase 2 - Investigation, Design and Construction**

METHOD	**ROTARY**	CO-ORDINATES E **809840.93** N **831201.56**	TASK ORDER NO. **GE/2022/08.35**
MACHINE	**SD52**		DATE **10.10.2023** to **12.10.2023**
FLUSHING MEDIUM	**WATER**	ORIENTATION **VERTICAL**	GROUND LEVEL **+11.12** mPD

Drilling Progress	Casing Size	Water Level (m) Shift Start/ End	Water Return%	TCR%	SCR%	RQD%	Fracture Index	Tests	Samples	Reduced Level	Depth (m)	Legend	Grade	Description
								1,1 3,3,3,4 N=13	18 10.10 10.20 19 10.30 20 10.60					As sheet 1 of 3.
11									21 11.10					
			90	100					22 12.10 12.20	-1.08	12.20			
12								1,1 3,3,4,4 N=14	23 12.30 24 12.60					Stiff, grey (5GY 5/1) mottled brownish yellow, clayey SILT with occasional shell fragments. (FILL)
13									25 13.10	-1.98	13.10			
			90	100					26 13.68	-2.66	13.78			Stiff, grey (5GY 5/1), slightly sandy clayey SILT with much angular to subangular fine to coarse gravel and with some shell fragments. (FILL)
14									13.78 T2-120					
		5.80 at 1800	90	33						-3.18	14.30			Grey (10YR 6/1), angular to subangular, COBBLE of rock fragments. (FILL)
10.10.2023 11.10.2023		6.50 at 0800							14.30				V	Extremely weak, white (10YR 8/1) dappled reddish yellow and grey, completely decomposed, medium to coarse grained GRANITE. (Very stiff, clayey sandy SILT with much angular fine to medium gravel)
15			80	0					27 15.30 15.40					
16			80	0										
									28 16.40 16.50	-5.38	16.50		IV	Weak, light grey (5Y 7/1) mottled white and very pale brown, highly decomposed, medium to coarse grained GRANITE. (Angular, fine to medium GRAVEL of highly decomposed granite fragments)
17	PW 17.08m HW							2,2 5,6,6,7 N=24	29 16.90 17.08 T2-101	-5.96	17.08		II	Strong to very strong, light grey dappled white, spotted dark grey, slightly decomposed, medium to coarse grained GRANITE. (CORESTONE)
			80	100	100	100			17.60	-6.57	17.69		III	
18							3.1			-6.85	17.97		II	From 17.69m to 17.97m and 18.49m to 19.02m: Moderately strong to strong and moderately decomposed.
			80	94	88	82			T2-101	-7.37	18.49		III	From 18.90m to 19.02m: Microfractured.
19									19.02	-7.90	19.02		IV	Weak, yellow (10YR 7/8), highly decomposed, medium to coarse grained GRANITE. (Angular, slightly sandy fine to coarse GRAVEL of highly decomposed granite fragments)
			80	0										
20	HW									-8.88	20.00			

- SMALL DISTURBED SAMPLE
- LARGE DISTURBED SAMPLE
- U76 SAMPLE
- PISTON SAMPLE (76mm)
- MAZIER SAMPLE
- SPT LINER SAMPLE
- WATER SAMPLE
- U100 SAMPLE
- STANDARD PENETRATION TEST
- IN-SITU VANE SHEAR TEST
- PACKER TEST
- PERMEABILITY TEST
- PRESSUREMETER TEST
- BOREHOLE TELEVIEWER
- PIEZOMETER TIP
- STANDPIPE TIP

LOGGED **C. Chan**

DATE **25.10.2023**

CHECKED **R. Chu**

DATE **26.10.2023**

REMARKS

DRiLTECH

DRILLHOLE RECORD

CONTRACT NO. **GE/2022/08**

HOLE NO. **BH 4**

SHEET **3** of **3**

PROJECT **Ground Investigation - New Territories East, Agreement No. CE 26/2022 (EP), Development of Integrated Waste Management Facilities Phase 2 - Investigation, Design and Construction**

METHOD **ROTARY**	CO-ORDINATES E **809840.93** N **831201.56**	TASK ORDER NO. **GE/2022/08.35**
MACHINE **SD52**		DATE **10.10.2023** to **12.10.2023**
FLUSHING MEDIUM **WATER**	ORIENTATION **VERTICAL**	GROUND LEVEL **+11.12** mPD

Drilling Progress	Casing Size	Water Level (m) Shift Start/ End	Water Return%	TCR%	SCR%	RQD%	Fracture Index	Tests	Samples	Reduced Level	Depth (m)	Legend	Grade	Description
	20.11m								30 20.01 20.11	-8.99 -9.09	20.11 20.21		IV III	As sheet 2 of 3.
21		5.19 at 1800	80	100	95	82			T2-101	-9.52	20.64		II III	Moderately strong to strong, light yellowish brown mottled white and dark brown, moderately decomposed, medium to coarse grained GRANITE. Joints are closely to medium spaced, rough planar and rough undulating, iron and manganese oxide stained, kaolin coated, dipping at 0° to 10°, 15° to 25°, 35° to 45° and 65° to 75°.
11.10.2023									21.25					
12.10.2023		6.59 at 0800					4.7							
22			80	100	100	97			T2-101	-11.14	22.26		II	From 20.21m to 20.64m and 22.26m to 22.37m: Strong to very strong and slightly decomposed.
										-11.25	22.37		III	
									22.57	-11.75	22.87			
23			80	100	100	100			T2-101	-12.01 -12.14	23.13 23.26		II III II	Strong to very strong, light grey, slightly decomposed, medium to coarse grained GRANITE. Joints are widely spaced, occasionally closely spaced, rough planar and rough undulating, iron and manganese oxide stained, chlorite coated, dipping at 15° to 25° and 60° to 70°.
24							1.1		24.01					From 23.13m to 23.26m: Moderately strong to strong and moderately decomposed.
25			80	100	100	96			T2-101					
12.10.2023		4.90 at 1800								-14.39	25.51			
26														End of hole at 25.51 m.
27														
28														
29														
30														

- SMALL DISTURBED SAMPLE
- LARGE DISTURBED SAMPLE
- U76 SAMPLE
- PISTON SAMPLE (76mm)
- MAZIER SAMPLE
- SPT LINER SAMPLE
- WATER SAMPLE
- U100 SAMPLE
- STANDARD PENETRATION TEST
- IN-SITU VANE SHEAR TEST
- PACKER TEST
- PERMEABILITY TEST
- PRESSUREMETER TEST
- BOREHOLE TELEVIEWER
- PIEZOMETER TIP
- STANDPIPE TIP

LOGGED **C. Chan**

DATE **25.10.2023**

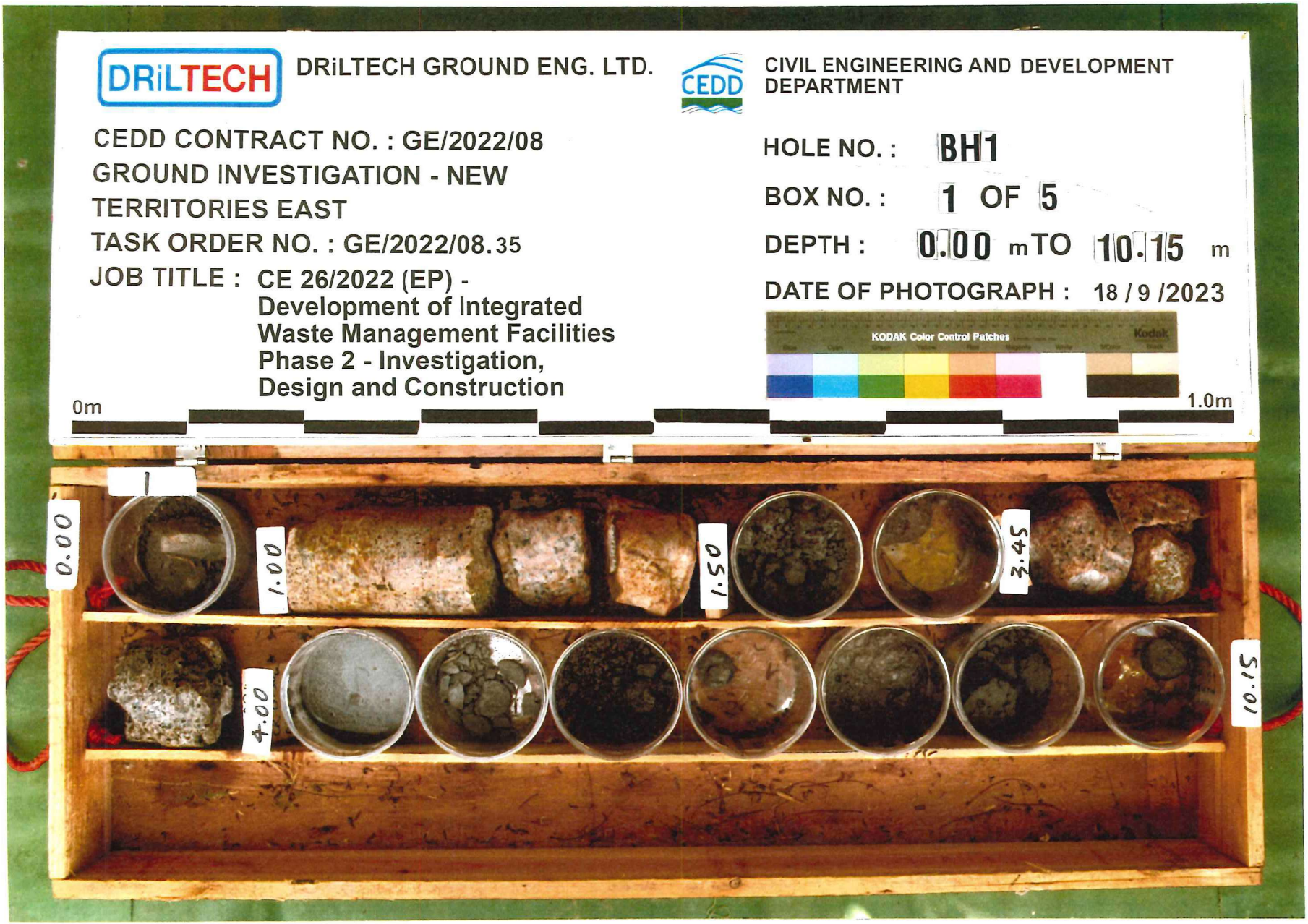
CHECKED **R. Chu**

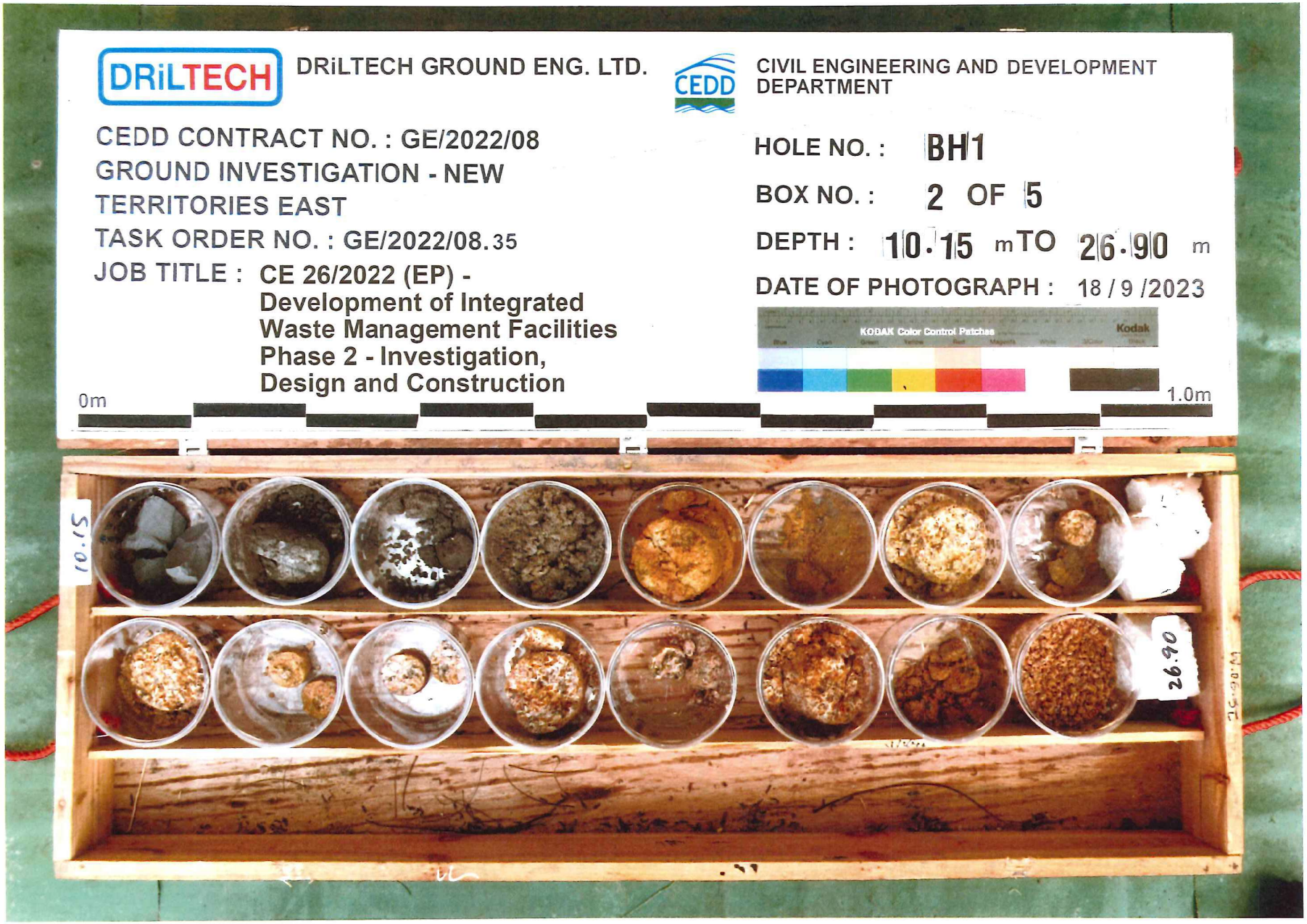
DATE **26.10.2023**

REMARKS

Appendix D

Core Box Photographs of Drillhole


DRiLTECH
DRiLTECH GROUND ENG. LTD.
CEDD
CIVIL ENGINEERING AND DEVELOPMENT DEPARTMENT
CEDD CONTRACT NO. : GE/2022/08
GROUND INVESTIGATION - NEW TERRITORIES EAST
TASK ORDER NO. : GE/2022/08.35
JOB TITLE : CE 26/2022 (EP) - Development of Integrated Waste Management Facilities Phase 2 - Investigation, Design and Construction
HOLE NO. : BH1
BOX NO. : 1 OF 5
DEPTH : 0.00 m TO 10.15 m
DATE OF PHOTOGRAPH : 18 / 9 /2023
KODAK Color Control Patches
0m
1.0m
0.00
1.00
1.50
3.45
4.00
10.15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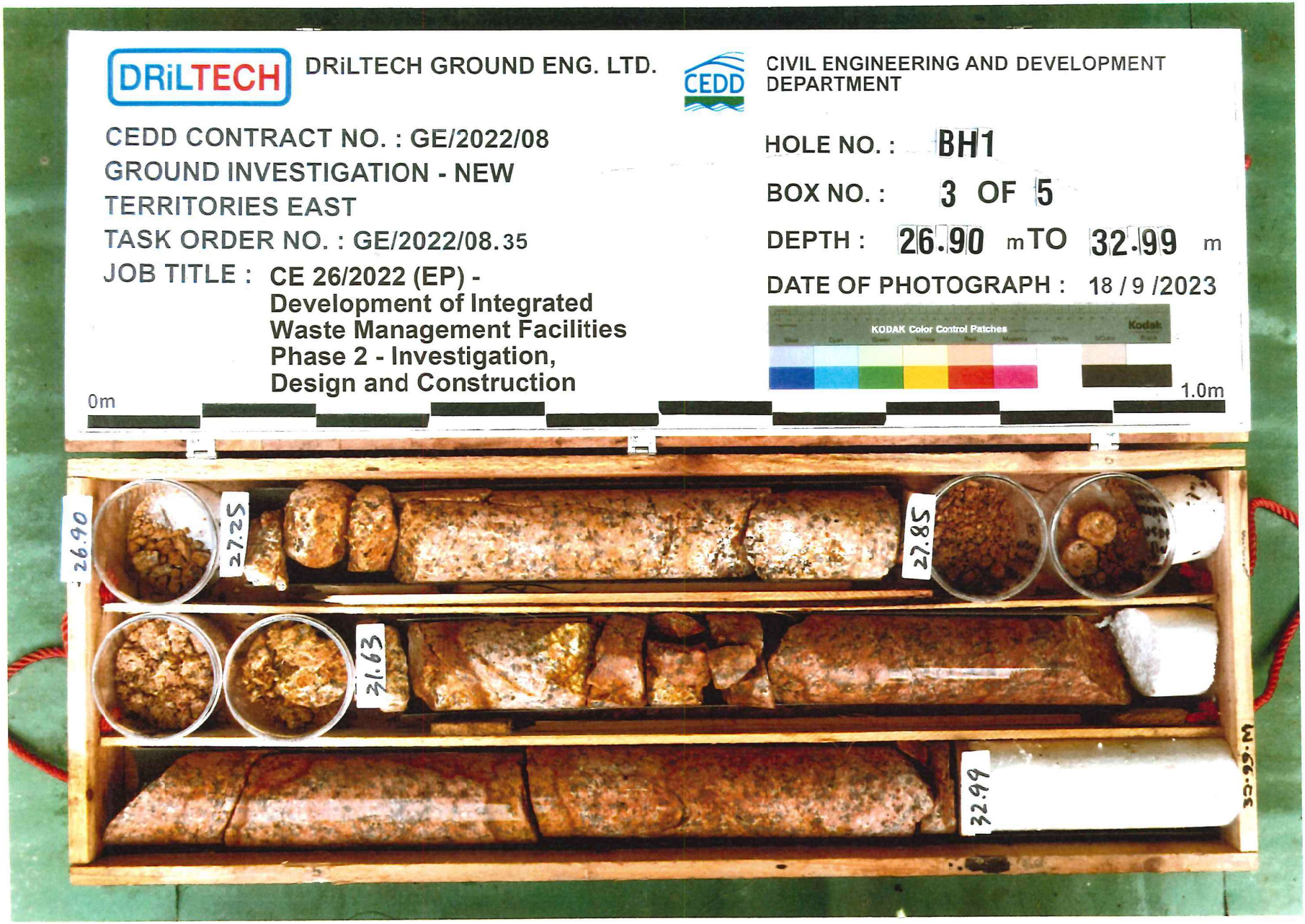
DRiLTECH GROUND ENG. LTD.
CEDD
CIVIL ENGINEERING AND DEVELOPMENT DEPARTMENT
CEDD CONTRACT NO. : GE/2022/08
GROUND INVESTIGATION - NEW TERRITORIES EAST
TASK ORDER NO. : GE/2022/08.35
JOB TITLE : CE 26/2022 (EP) - Development of Integrated Waste Management Facilities Phase 2 - Investigation, Design and Construction
HOLE NO. : BH1
BOX NO. : 2 OF 5
DEPTH : 10.15 m TO 26.90 m
DATE OF PHOTOGRAPH : 18 / 9 /2023
KODAK Color Control Patches
Kodak
0m
1.0m
10.15
26.90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CIVIL ENGINEERING AND DEVELOPMENT DEPARTMENT
CEDD CONTRACT NO. : GE/2022/08
GROUND INVESTIGATION - NEW TERRITORIES EAST
TASK ORDER NO. : GE/2022/08.35
JOB TITLE : CE 26/2022 (EP) - Development of Integrated Waste Management Facilities Phase 2 - Investigation, Design and Construction
HOLE NO. : BH1
BOX NO. : 3 OF 5
DEPTH : 26.90 m TO 32.99 m
DATE OF PHOTOGRAPH : 18 / 9 /2023
KODAK Color Control Patches
0m
1.0m
26.90
27.25
27.85
31.63
32.99

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CIVIL ENGINEERING AND DEVELOPMENT DEPARTMENT

CEDD CONTRACT NO. : GE/2022/08
GROUND INVESTIGATION - NEW TERRITORIES EAST
TASK ORDER NO. : GE/2022/08.35
JOB TITLE : CE 26/2022 (EP) - Development of Integrated Waste Management Facilities Phase 2 - Investigation, Design and Construction

HOLE NO. : BH1
BOX NO. : 4 OF 5
DEPTH : 32.99 m TO (35.66) m
DATE OF PHOTOGRAPH : 18 / 9 /2023

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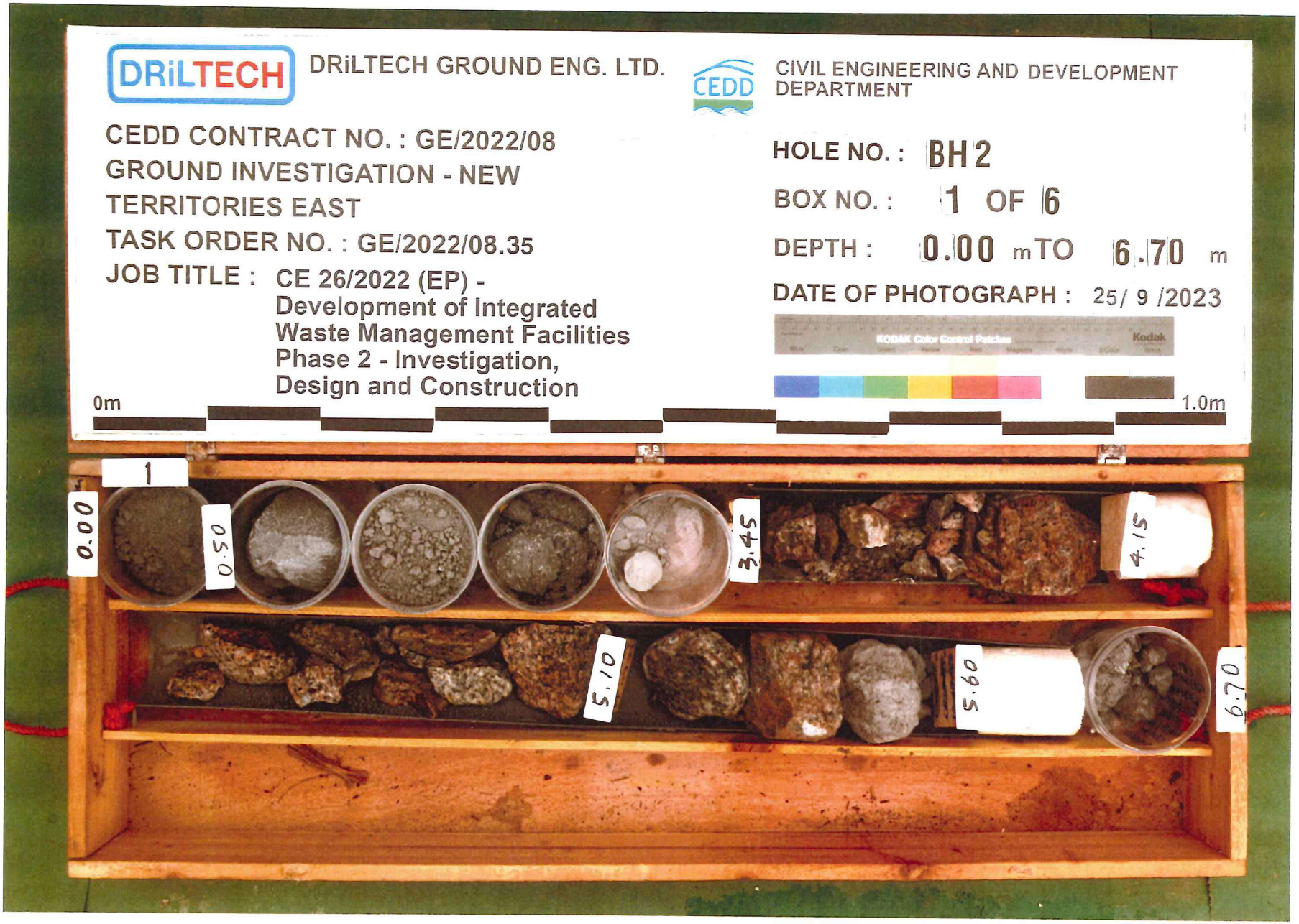
CEDD CONTRACT NO. : GE/2022/08
GROUND INVESTIGATION - NEW TERRITORIES EAST
TASK ORDER NO. : GE/2022/08.35
JOB TITLE : CE 26/2022 (EP) - Development of Integrated Waste Management Facilities Phase 2 - Investigation, Design and Construction

HOLE NO. : BH1
BOX NO. : 5 OF 5
DEPTH : (35.66) m TO 37.21 m
DATE OF PHOTOGRAPH : 18 / 9 /2023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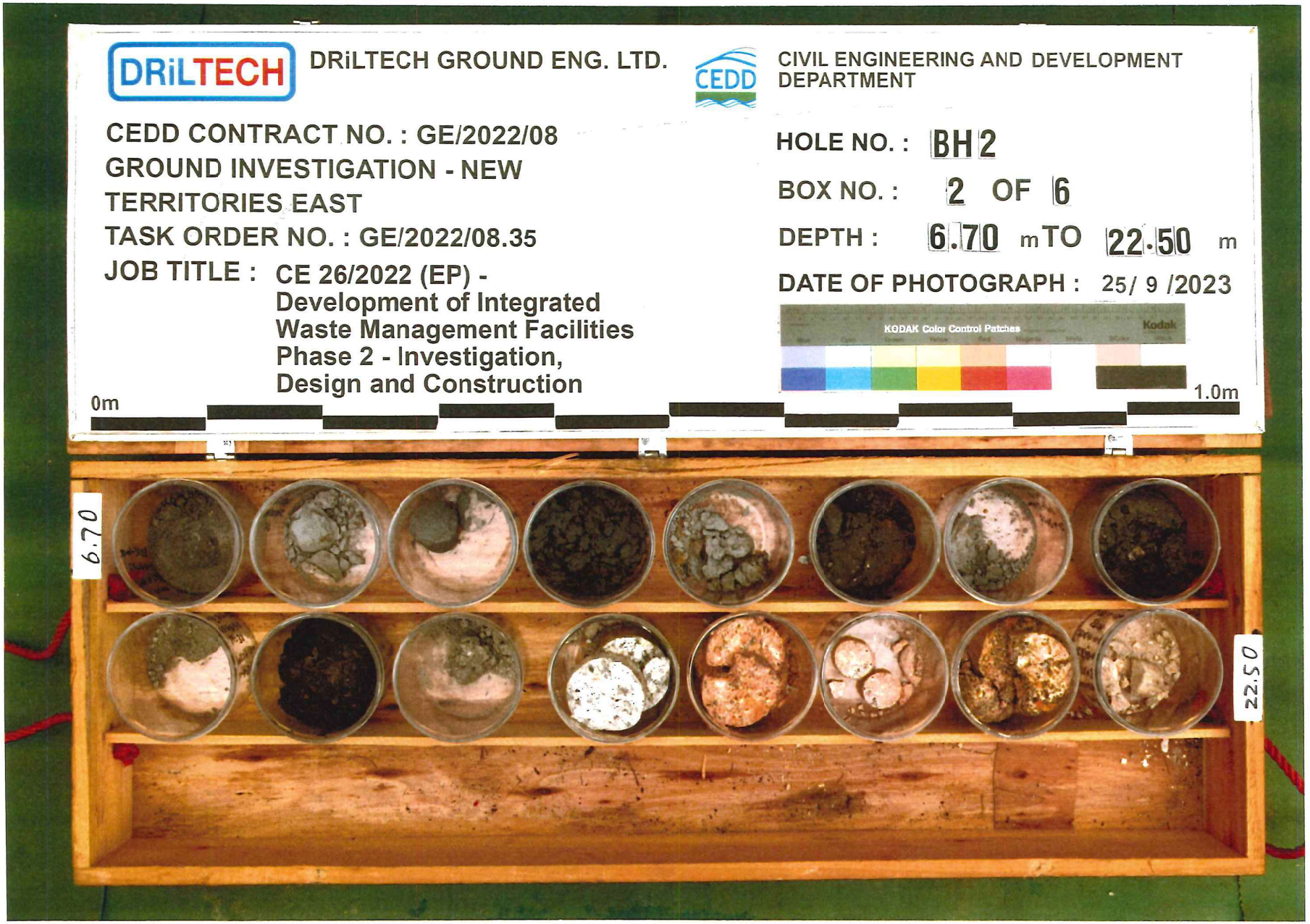
CEDD
CIVIL ENGINEERING AND DEVELOPMENT DEPARTMENT
CEDD CONTRACT NO. : GE/2022/08
GROUND INVESTIGATION - NEW TERRITORIES EAST
TASK ORDER NO. : GE/2022/08.35
JOB TITLE : CE 26/2022 (EP) - Development of Integrated Waste Management Facilities Phase 2 - Investigation, Design and Construction
HOLE NO. : BH2
BOX NO. : 1 OF 6
DEPTH : 0.00 m TO 6.70 m
DATE OF PHOTOGRAPH : 25/ 9 /2023
0m
1.0m
1
0.00
0.50
3.45
4.15
5.10
5.60
6.70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CEDD
CIVIL ENGINEERING AND DEVELOPMENT DEPARTMENT
CEDD CONTRACT NO. : GE/2022/08
GROUND INVESTIGATION - NEW TERRITORIES EAST
TASK ORDER NO. : GE/2022/08.35
JOB TITLE : CE 26/2022 (EP) - Development of Integrated Waste Management Facilities Phase 2 - Investigation, Design and Construction
HOLE NO. : BH2
BOX NO. : 2 OF 6
DEPTH : 6.70 m TO 22.50 m
DATE OF PHOTOGRAPH : 25/ 9 /2023
KODAK Color Control Patches
Kodak
0m
1.0m
6.70
22.50


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DRiLTECH GROUND ENG. LTD.
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CIVIL ENGINEERING AND DEVELOPMENT DEPARTMENT
CEDD CONTRACT NO. : GE/2022/08
GROUND INVESTIGATION - NEW TERRITORIES EAST
TASK ORDER NO. : GE/2022/08.35
JOB TITLE : CE 26/2022 (EP) - Development of Integrated Waste Management Facilities Phase 2 - Investigation, Design and Construction
HOLE NO. : BH2
BOX NO. : 3 OF 6
DEPTH : 22.50 m TO 34.06 m
DATE OF PHOTOGRAPH : 25/ 9 /2023
KODAK Color Control Patches
Kodak
0m
1.0m
22.50
32.60
34.06


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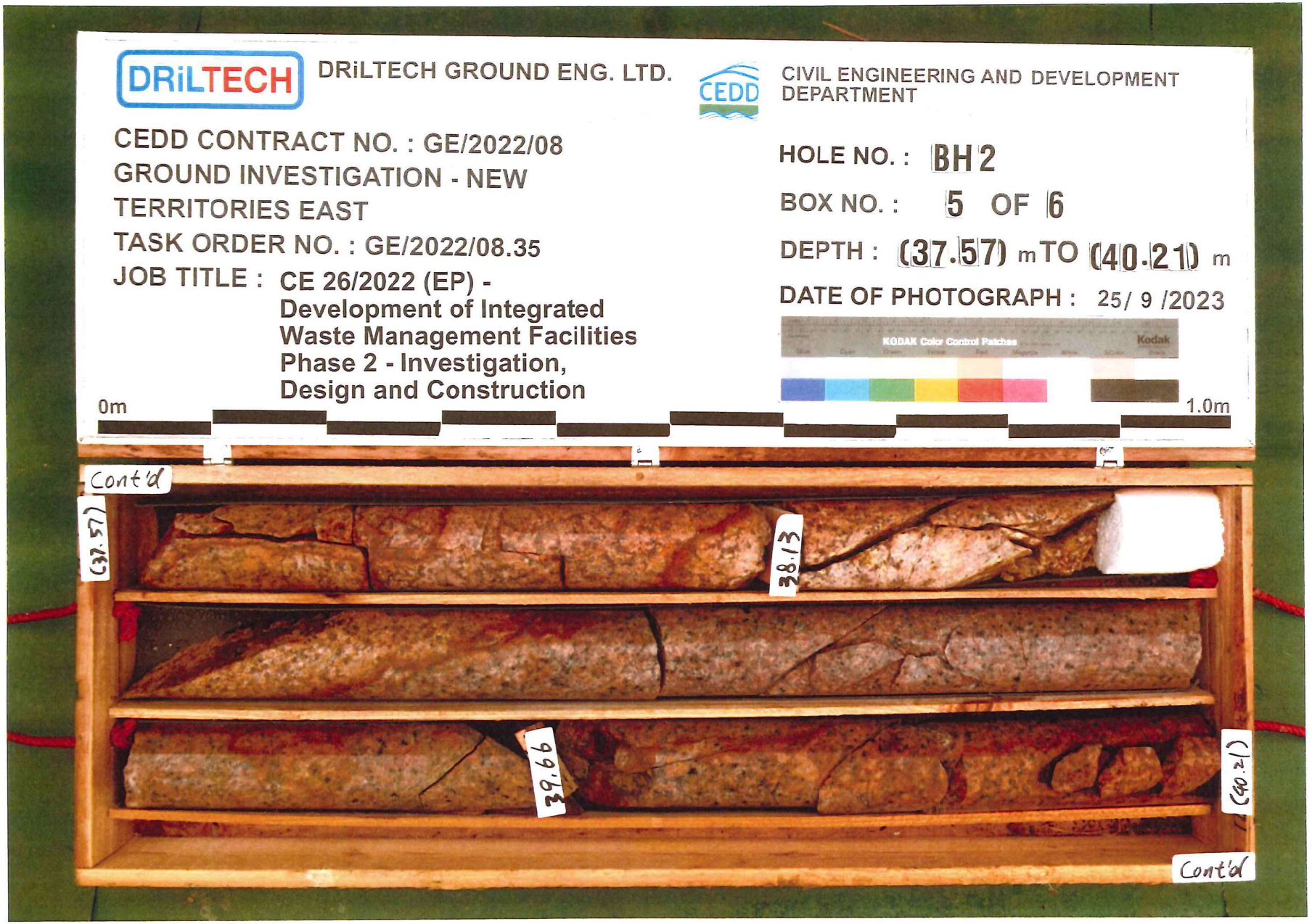
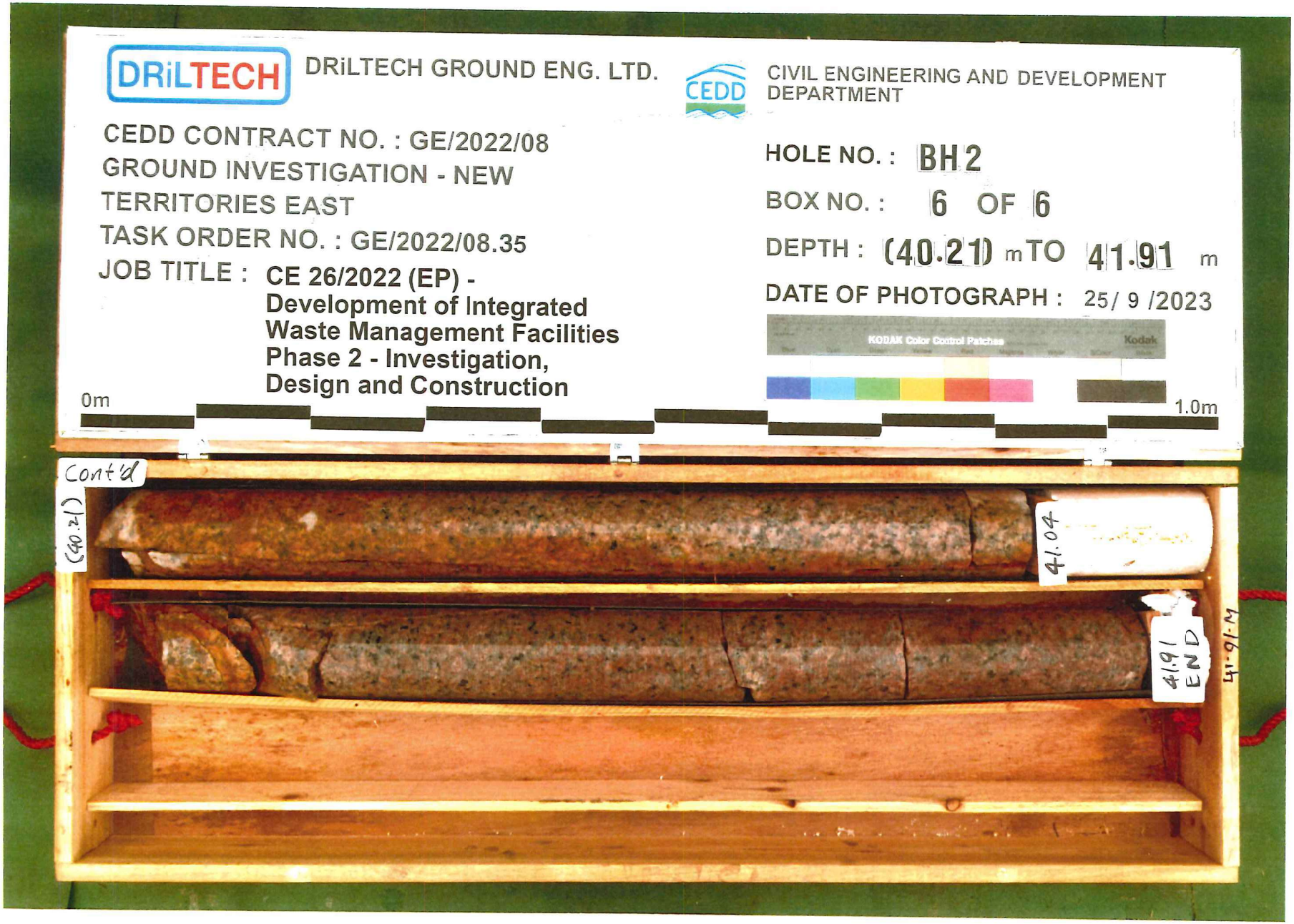
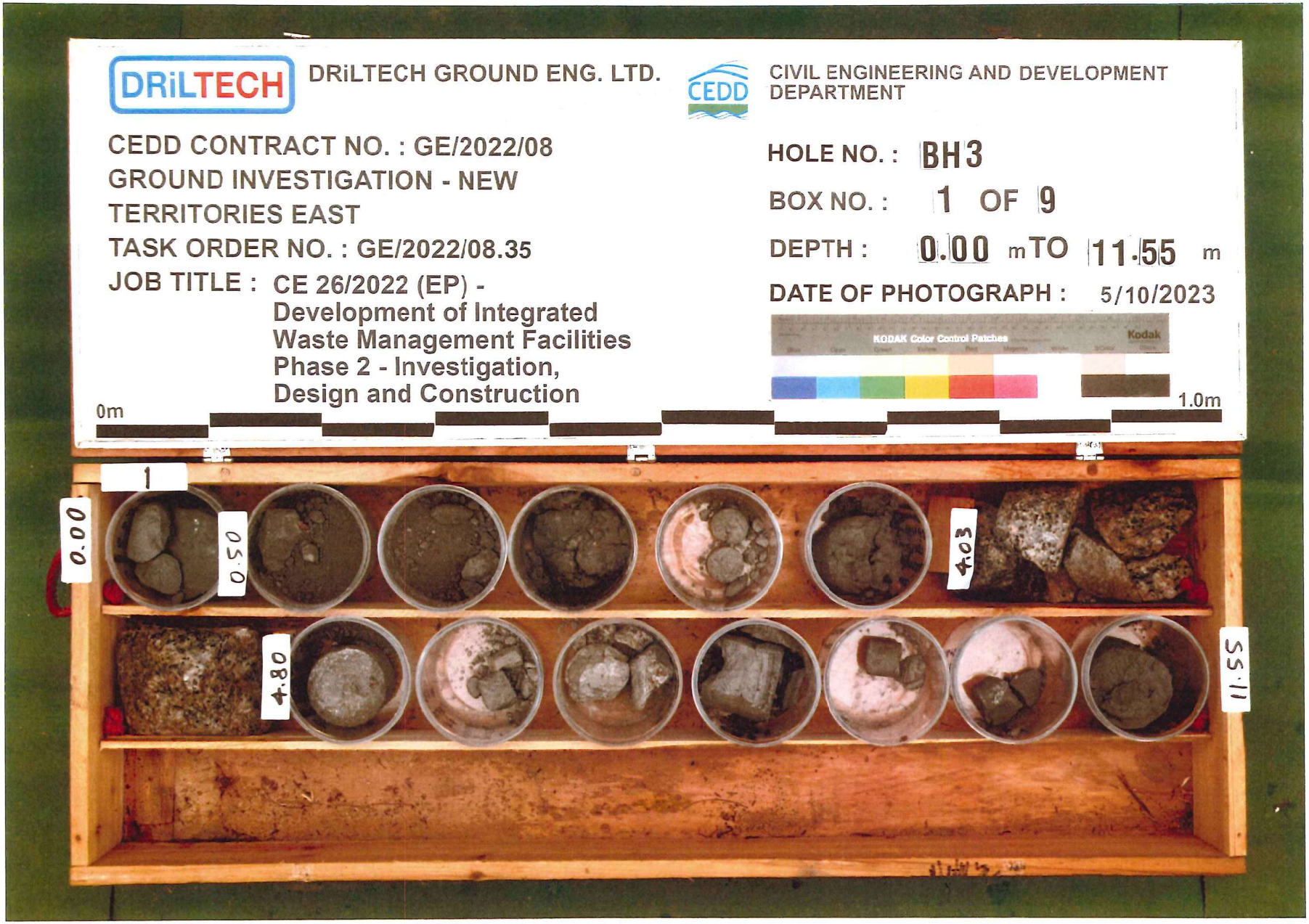
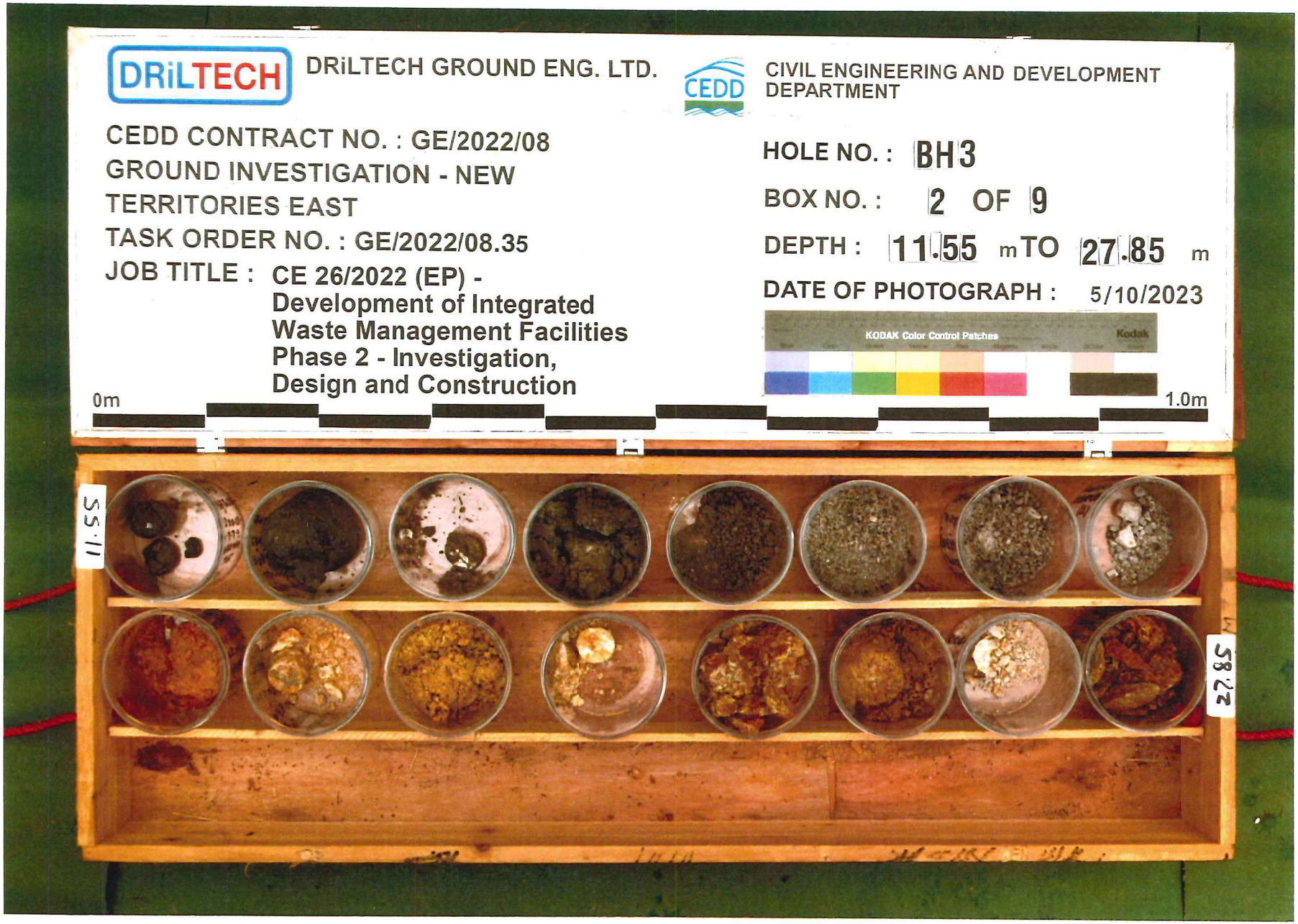
DRiLTECH GROUND ENG. LTD.
CEDD
CIVIL ENGINEERING AND DEVELOPMENT DEPARTMENT
CEDD CONTRACT NO. : GE/2022/08
GROUND INVESTIGATION - NEW TERRITORIES EAST
TASK ORDER NO. : GE/2022/08.35
JOB TITLE : CE 26/2022 (EP) - Development of Integrated Waste Management Facilities Phase 2 - Investigation, Design and Construction
HOLE NO. : BH 2
BOX NO. : 4 OF 6
DEPTH : 34.06 m TO (37.57) m
DATE OF PHOTOGRAPH : 25/ 9 /2023
KODAK Color Control Patches
Kodak
0m
1.0m
34.06
NR
34.86~35.16
35.44
36.71
(37.57)
(37.57m)
Cont'd


DRiLTECH
DRiLTECH GROUND ENG. LTD.
CEDD
CIVIL ENGINEERING AND DEVELOPMENT DEPARTMENT
CEDD CONTRACT NO. : GE/2022/08
GROUND INVESTIGATION - NEW TERRITORIES EAST
TASK ORDER NO. : GE/2022/08.35
JOB TITLE : CE 26/2022 (EP) - Development of Integrated Waste Management Facilities Phase 2 - Investigation, Design and Construction
HOLE NO. : BH2
BOX NO. : 5 OF 6
DEPTH : (37.57) m TO (40.21) m
DATE OF PHOTOGRAPH : 25/ 9 /2023
KODAK Color Control Patches
Kodak
0m
1.0m
Cont'd
(37.57)
38.13
39.66
(40.21)
Cont'd


DRiLTECH
DRiLTECH GROUND ENG. LTD.
CEDD
CIVIL ENGINEERING AND DEVELOPMENT DEPARTMENT
CEDD CONTRACT NO. : GE/2022/08
GROUND INVESTIGATION - NEW TERRITORIES EAST
TASK ORDER NO. : GE/2022/08.35
JOB TITLE : CE 26/2022 (EP) - Development of Integrated Waste Management Facilities Phase 2 - Investigation, Design and Construction
HOLE NO. : BH2
BOX NO. : 6 OF 6
DEPTH : (40.21) m TO 41.91 m
DATE OF PHOTOGRAPH : 25/ 9 /2023
KODAK Color Control Patches
Kodak
0m
1.0m
Cont'd
(40.21)
41.04
41.91 END
41.91 M


DRiLTECH
DRiLTECH GROUND ENG. LTD.
CEDD
CIVIL ENGINEERING AND DEVELOPMENT DEPARTMENT
CEDD CONTRACT NO. : GE/2022/08
GROUND INVESTIGATION - NEW TERRITORIES EAST
TASK ORDER NO. : GE/2022/08.35
JOB TITLE : CE 26/2022 (EP) - Development of Integrated Waste Management Facilities Phase 2 - Investigation, Design and Construction
HOLE NO. : BH3
BOX NO. : 1 OF 9
DEPTH : 0.00 m TO 11.55 m
DATE OF PHOTOGRAPH : 5/10/2023
KODAK Color Control Patches
Kodak
0m
1.0m
1
0.00
0.50
4.03
4.80
11.55


DRiLTECH
DRiLTECH GROUND ENG. LTD.
CEDD
CIVIL ENGINEERING AND DEVELOPMENT DEPARTMENT
CEDD CONTRACT NO. : GE/2022/08
GROUND INVESTIGATION - NEW TERRITORIES EAST
TASK ORDER NO. : GE/2022/08.35
JOB TITLE : CE 26/2022 (EP) - Development of Integrated Waste Management Facilities Phase 2 - Investigation, Design and Construction
HOLE NO. : BH3
BOX NO. : 2 OF 9
DEPTH : 11.55 m TO 27.85 m
DATE OF PHOTOGRAPH : 5/10/2023
KODAK Color Control Patches
Kodak
0m
1.0m
SS 11
SS 22

DRiLTECH GROUND ENG. LTD.

CIVIL ENGINEERING AND DEVELOPMENT DEPARTMENT

CEDD CONTRACT NO. : GE/2022/08
GROUND INVESTIGATION - NEW TERRITORIES EAST
TASK ORDER NO. : GE/2022/08.35
JOB TITLE : CE 26/2022 (EP) - Development of Integrated Waste Management Facilities Phase 2 - Investigation, Design and Construction

HOLE NO. : BH3
BOX NO. : 3 OF 9
DEPTH : 27.85 m TO (30.66) m
DATE OF PHOTOGRAPH : 5/10/2023


DRiLTECH
DRiLTECH GROUND ENG. LTD.
CEDD
CIVIL ENGINEERING AND DEVELOPMENT DEPARTMENT
CEDD CONTRACT NO. : GE/2022/08
GROUND INVESTIGATION - NEW TERRITORIES EAST
TASK ORDER NO. : GE/2022/08.35
JOB TITLE : CE 26/2022 (EP) - Development of Integrated Waste Management Facilities Phase 2 - Investigation, Design and Construction
HOLE NO. : BH3
BOX NO. : 4 OF 9
DEPTH : (30.66) m TO (33.10) m
DATE OF PHOTOGRAPH : 5/10/2023
KODAK Color Control Patches
Kodak
0m
1.0m
Cont'd
(30.66)
31.11
31.90
(33.10)
Cont'd


DRiLTECH
DRiLTECH GROUND ENG. LTD.
CEDD
CIVIL ENGINEERING AND DEVELOPMENT DEPARTMENT
CEDD CONTRACT NO. : GE/2022/08
GROUND INVESTIGATION - NEW TERRITORIES EAST
TASK ORDER NO. : GE/2022/08.35
JOB TITLE : CE 26/2022 (EP) - Development of Integrated Waste Management Facilities Phase 2 - Investigation, Design and Construction
HOLE NO. : BH3
BOX NO. : 5 OF 9
DEPTH : (33.10) m TO 35.69 m
DATE OF PHOTOGRAPH : 5/10/2023
KODAK Color Control Patches
Kodak
0m
1.0m
Cont'd
(33.10)
33.36
34.37
33.88
NR
35.11 ~ 35.39
35.69


DRiLTECH
DRiLTECH GROUND ENG. LTD.
CEDD
CIVIL ENGINEERING AND DEVELOPMENT DEPARTMENT
CEDD CONTRACT NO. : GE/2022/08
GROUND INVESTIGATION - NEW TERRITORIES EAST
TASK ORDER NO. : GE/2022/08.35
JOB TITLE : CE 26/2022 (EP) - Development of Integrated Waste Management Facilities Phase 2 - Investigation, Design and Construction
HOLE NO. : BH3
BOX NO. : 6 OF 9
DEPTH : 35.69 m TO 38.27 m
DATE OF PHOTOGRAPH : 5/10/2023
KODAK Color Control Patches
Kodak
0m
1.0m
35.69
36.77
38.27


DRiLTECH
DRiLTECH GROUND ENG. LTD.
CEDD
CIVIL ENGINEERING AND DEVELOPMENT DEPARTMENT
CEDD CONTRACT NO. : GE/2022/08
GROUND INVESTIGATION - NEW TERRITORIES EAST
TASK ORDER NO. : GE/2022/08.35
JOB TITLE : CE 26/2022 (EP) - Development of Integrated Waste Management Facilities Phase 2 - Investigation, Design and Construction
HOLE NO. : BH3
BOX NO. : 7 OF 9
DEPTH : 38.27 m TO (40.92) m
DATE OF PHOTOGRAPH : 5/10/2023
KODAK Color Control Patches
Kodak
0m
1.0m
38.27
39.72
(40.92)
Cont'd


DRiLTECH
DRiLTECH GROUND ENG. LTD.
CEDD
CIVIL ENGINEERING AND DEVELOPMENT DEPARTMENT
CEDD CONTRACT NO. : GE/2022/08
GROUND INVESTIGATION - NEW TERRITORIES EAST
TASK ORDER NO. : GE/2022/08.35
JOB TITLE : CE 26/2022 (EP) - Development of Integrated Waste Management Facilities Phase 2 - Investigation, Design and Construction
HOLE NO. : BH3
BOX NO. : 8 OF 9
DEPTH : (40.92) m TO (43.32) m
DATE OF PHOTOGRAPH : 5/10/2023
KODAK Color Control Patches
Kodak
0m
1.0m
Cont'd
(40.92)
41.12
42.57
(43.32)
Cont'd


DRiLTECH
DRiLTECH GROUND ENG. LTD.
CEDD
CIVIL ENGINEERING AND DEVELOPMENT DEPARTMENT
CEDD CONTRACT NO. : GE/2022/08
GROUND INVESTIGATION - NEW TERRITORIES EAST
TASK ORDER NO. : GE/2022/08.35
JOB TITLE : CE 26/2022 (EP) - Development of Integrated Waste Management Facilities Phase 2 - Investigation, Design and Construction
HOLE NO. : BH3
BOX NO. : 9 OF 9
DEPTH : (43.32) m TO 45.42 m
DATE OF PHOTOGRAPH : 5/10/2023
KODAK Color Control Patches
Kodak
0m
1.0m
Cont'd
(43.32)
44.04
45.42
END


DRiLTECH
DRiLTECH GROUND ENG. LTD.
CEDD
CIVIL ENGINEERING AND DEVELOPMENT DEPARTMENT
CEDD CONTRACT NO. : GE/2022/08
GROUND INVESTIGATION - NEW TERRITORIES EAST
TASK ORDER NO. : GE/2022/08.35
JOB TITLE : CE 26/2022 (EP) - Development of Integrated Waste Management Facilities Phase 2 - Investigation, Design and Construction
HOLE NO. : BH4
BOX NO. : 1 OF 4
DEPTH : 0.00 m TO 13.78 m
DATE OF PHOTOGRAPH : 17/10/2023
KODAK Color Control Patches
Kodak
0m
1.0m
1
0.00
05.0
13.78


DRiLTECH
DRiLTECH GROUND ENG. LTD.
CEDD
CIVIL ENGINEERING AND DEVELOPMENT DEPARTMENT
CEDD CONTRACT NO. : GE/2022/08
GROUND INVESTIGATION - NEW TERRITORIES EAST
TASK ORDER NO. : GE/2022/08.35
JOB TITLE : CE 26/2022 (EP) - Development of Integrated Waste Management Facilities Phase 2 - Investigation, Design and Construction
HOLE NO. : BH4
BOX NO. : 2 OF 4
DEPTH : 13.78 m TO 19.02 m
DATE OF PHOTOGRAPH : 17/10/2023
KODAK Color Control Patches
Kodak
0m
1.0m
13.78
14.30
17.08
17.60
19.02
19.02 M

DRiLTECH GROUND ENG. LTD.

CIVIL ENGINEERING AND DEVELOPMENT DEPARTMENT

CEDD CONTRACT NO. : GE/2022/08
GROUND INVESTIGATION - NEW TERRITORIES EAST
TASK ORDER NO. : GE/2022/08.35
JOB TITLE : CE 26/2022 (EP) - Development of Integrated Waste Management Facilities Phase 2 - Investigation, Design and Construction

HOLE NO. : BH4
BOX NO. : 3 OF 4
DEPTH : 19.02 m TO (22.71) m
DATE OF PHOTOGRAPH : 17/10/2023


DRiLTECH
DRiLTECH GROUND ENG. LTD.
CEDD
CIVIL ENGINEERING AND DEVELOPMENT DEPARTMENT
CEDD CONTRACT NO. : GE/2022/08
GROUND INVESTIGATION - NEW TERRITORIES EAST
TASK ORDER NO. : GE/2022/08.35
JOB TITLE : CE 26/2022 (EP) - Development of Integrated Waste Management Facilities Phase 2 - Investigation, Design and Construction
HOLE NO. : BH4
BOX NO. : 4 OF 4
DEPTH : (22.71) m TO 25.51 m
DATE OF PHOTOGRAPH : 17/10/2023
KODAK Color Control Patches
Kodak
0m
1.0m
Cont'd
(22.71)
24.01
25.51
END

Appendix E

Pressuremeter Test Results

FT Laboratories Ltd
科達測檢試驗所有限公司

HOKLAS 071
TEST CAL

Reference No.: (J12D0301)

Job No.: (51566080)

Pressuremeter Test at

Contract No. : GE/2022/08 Ground Investigation - New Territories East

Contract No. : GE/2022/08

Borehole No.: BH1

Test Zone : 7.55m-8.55m

Lot No. DD77 Section 1552 S.Ass 1RP, Ng Chow South Road, Ping Che, Fanling, N.T.
P.O. Box 830, Fanling Post Office, Fanling, N.T.
Tel: (852) 2758 4861 Fax: (852) 2758 8962
http://www.ft.com.hk

PART I

HOKLAS Test Report

FT Laboratories Ltd.
科達測檢試驗所有限公司

HOKLAS 071
TEST CAL

PRESSUREMETER TEST REPORT

Test Reference No.	:	**51566080 - J12D0301**
Laboratory	:	FT Laboratories Ltd.
Address	:	Lot No. DD77 Section 1552 S.Ass 1RP, Ng Chow South Road, Ping Che, Fanling, N.T.
Telephone	:	(852) 2758 4861
Facsimile	:	(852) 2758 8962
Client	:	Driltech Ground Engineering Ltd.
Address	:	Blocks A & B, 8/F., Hong Kong Spinners Industrial Building Phase 6, 481-483 Castle Peak Road, Kowloon, Hong Kong
Contract No	:	GE/2022/08
Project Title	:	Contract No. : GE/2022/08 Ground Investigation - New Territories East
Test Method	:	ASTM D 4719-00 Standard Test Method for Prebored Pressuremeter Testing in Soils.
Date of order received	:	9-Sep-23
Date of test conducted	:	12-Sep-23
Location of Test	:	Sha Tin
Test Results	:	The test results are detailed in the subsequent page(s) (The values given in this Test Report only relate to the unit-under-test and the values measured at the time of the test.)

Test performed and Reported by

NG Yat Hong

Report Certified by

□ HO Tak Cho, Eric (Technical Manager)

□ WONG Chun Hing (Asst. Operation Manager)

(HOKLAS Approved Signatory)

Date : 19/9/23

Notes:

(1) The results shown in this report were determined by this laboratory in accordance with its terms of accreditation.

(2) This report shall not be reproduced, except in full, without the written approval of FT Laboratories Ltd.

FT Laboratories Ltd

Pressuremeter Test

Project	:	Contract No. : GE/2022/08 Ground Investigation - New Territories East
Site Location	:	Sha Tin
Client	:	Driltech Ground Engineering Ltd.
Contractor	:	N/A
Sub-Contractor	:	N/A
Test Date	:	12-Sep-23
Weather	:	Fine
Operator	:	NG Yat Hong

* **Drillhole information**

Hole No.	:	BH1	
Test Depth below ground level	:	7.55m-8.55m	
Drilling tool diameter	:	63mm	
Drilling tool	:	Drilling Rig	
Drilling Fluid	:	Water	
Soil Description	:	N/A	
GWL Measured Below Ground Level	:	N/A	m

Pressuremeter Setting

Gauge no.	:	FT/INS/4.1 FT/INS/4.2 FT/INS/4.3	
Probe no.	:	FT/INS/4.7	
Probe Diameter	:	58mm	
Probe Calibration Date	:	17-Aug-23	
Gauge height	:	1 m AGL	
Pocket length	:	1000mm	
Type of protective sheath	:	Rubber	
Type of inner membrane	:	Rubber	
Initial Volume (Vo)	:	520	cm^3

Calibration and Correction Factors

Volume Correction	:	0.4	cm^3/bar
Gauge Correction Factor	:	1	
Gauge Height	:	1	m
GWL Measured Below Ground Level	:	N/A	m
Pressure Difference between Guard cells & Central cells	:	-0.195	bar

* Information provided by customer.

FT Laboratories Ltd

SUMMARY OF PRESSUREMETER TEST RESULTS

Project : Contract No. : GE/2022/08 Ground Investigation - New Territories East

Site Location : Sha Tin
Client : Driltech Ground Engineering Ltd.
Contractor : N/A
Sub-Contractor : N/A
Test Date : 12-Sep-23

Limit Pressure : 1.30 MPa

Drillhole No.	Test Depth (m)	Volume Range (cm^3) (Initial)		Shear Modulus (MPa)	Pressuremeter Modulus (MPa)
		(V_0)	(V_1)		
		64.80	154.40		
		Pressure Range (Bar) (Initial)			
		(P_0)	(P_1)		
BH1	7.55m-8.55m	0.84	4.59	2.64	7.01

Remarks : N/A

FT Laboratories Ltd

Project : Contract No. : GE/2022/08 Ground Investigation - New Territories East

Site Location : Sha Tin

Client : Driltech Ground Engineering Ltd.

Contractor : N/A

Sub-Contractor : N/A

Test Date : 12-Sep-23

Hole No. : BH1

Test Depth below ground level : 7.55m-8.55m

Field Data Summary

Gauge Pressure	Volume Change cm^3				
KPa($\times 10^2$)	15s	30s	60s	90	120s
0.0	0	0	0	0	0
0.25	39	46	52	54	55
0.50	60	62	63	64	65
1.00	72	73	76	78	79
1.50	88	90	91	92	93
2.0	98	100	102	104	105
3.0	122	125	128	129	130
4.0	147	149	153	155	156
5.0	176	180	185	187	189
6.0	203	206	211	213	215
7.0	232	236	241	243	245
8.0	265	271	279	282	284
9.0	312	324	351	360	368
10.0	390	421	456	471	482
11.0	509	544	586	631	678

PART II

This part of report contain opinion of the laboratory
and
is not covered under the HOKLAS accreditation

FT Laboratories Ltd

Project : Contract No. : GE/2022/08 Ground Investigation - New Territories East

Site Location : Sha Tin
Client : Driltech Ground Engineering Ltd.
Contractor : N/A
Sub-Contractor : N/A
Test Date : 12-Sep-23
Hole No. : BH1
Test Depth below ground level 7.55m-8.55m

Gauge Pressure	Time	Meas'd Vol.	Vol. at 120s	Creep Volume	Volume Correction	Corrected Volume	Probe Correction	Corrected Pressure	Corrected Volume Ratio
KPa($\times 10^2$)	(s)	(cm^3)	(cm^3)	(cm^3)	(cm^3)	(cm^3)	KPa($\times 10^2$)	KPa($\times 10^2$)	
0	0	0	0	0	0	0	0.00	0.00	0.000
	15	39							
	30	46							
	60	52							
	90	54							
0.25	120	55	55	9	0.10	54.90	0.11	0.56	0.096
	15	60							
	30	62							
	60	63							
	90	64							
0.5	120	65	65	3	0.20	64.80	0.14	0.84	0.111
	15	72							
	30	73							
	60	76							
	90	78							
1	120	79	79	6	0.40	78.60	0.18	1.38	0.132
	15	88							
	30	90							
	60	91							
	90	92							
1.5	120	93	93	3	0.60	92.40	0.22	1.91	0.152
	15	98							
	30	100							
	60	102							
	90	104							
2	120	105	105	5	0.80	104.20	0.25	2.45	0.168
	15	122							
	30	125							
	60	128							
	90	129							
3	120	130	130	5	1.20	128.80	0.32	3.52	0.200
	15	147							
	30	149							
	60	153							
	90	155							
4	120	156	156	7	1.60	154.40	0.39	4.59	0.231
	15	176							
	30	180							
	60	185							
	90	187							
5	120	189	189	9	2.00	187.00	0.48	5.68	0.267

FT Laboratories Ltd

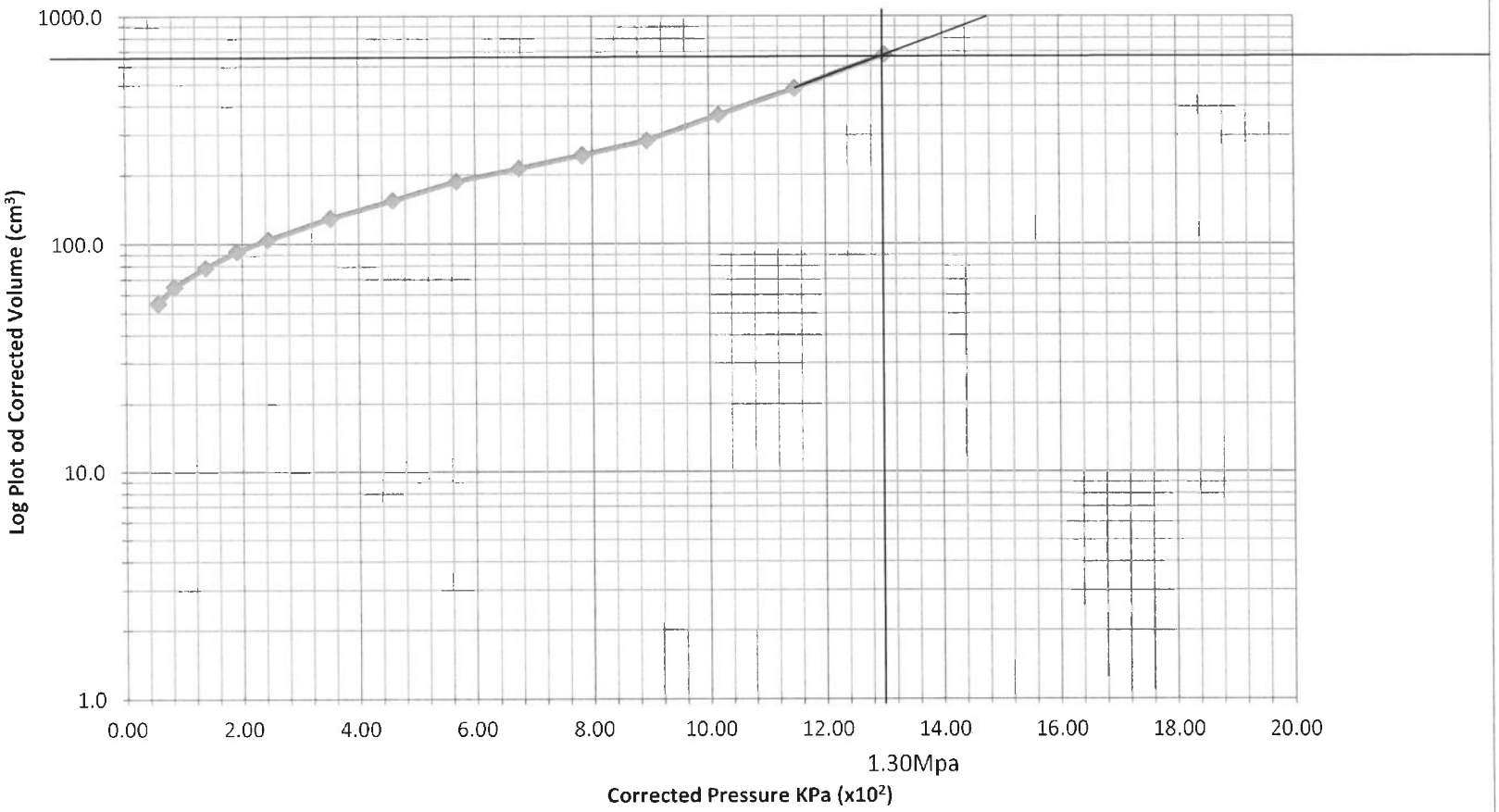
Project : Contract No. : GE/2022/08 Ground Investigation - New Territories East

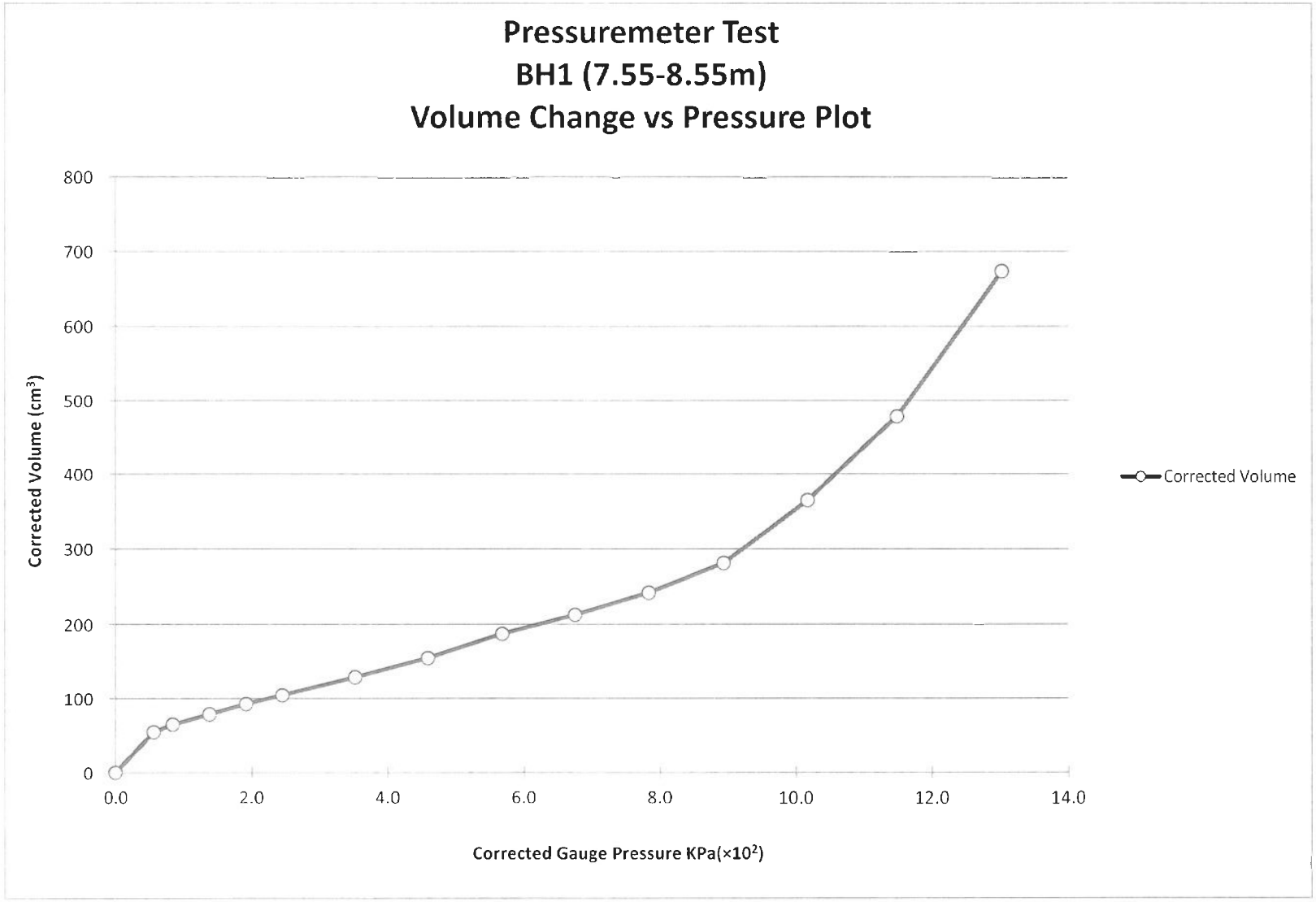
Site Location : Sha Tin
Client : Driltech Ground Engineering Ltd.
Contractor : N/A
Sub-Contractor : N/A
Test Date : 12-Sep-23
Hole No. : BH1
Test Depth below ground level 7.55m-8.55m

Gauge Pressure	Time	Meas'd Vol.	Vol. at 120s	Creep Volume	Volume Correction	Corrected Volume	Probe Correction	Corrected Pressure	Corrected Volume Ratio
KPa($\times 10^2$)	(s)	(cm^3)	(cm^3)	(cm^3)	(cm^3)	(cm^3)	KPa($\times 10^2$)	KPa($\times 10^2$)	
	0	203							
	30	206							
	60	211							
	90	213							
6	120	215	215	9	2.40	212.60	0.55	6.75	0.293
	0	232							
	30	236							
	60	241							
	90	243							
7	120	245	245	9	2.80	242.20	0.64	7.83	0.320
	15	265							
	30	271							
	60	279							
	90	282							
8	120	284	284	13	3.20	280.80	0.74	8.94	0.353
	15	312							
	30	324							
	60	351							
	90	360							
9	120	368	368	44	3.60	364.40	0.98	10.17	0.414
	15	390							
	30	421							
	60	456							
	90	471							
10	120	482	482	61	4.00	478.00	1.29	11.48	0.481
	15	509							
	30	544							
	60	586							
	90	631							
11	120	678	678	134	4.40	673.60	1.83	13.02	0.566

Comment : N/A

Pressuremeter Test
BH1 (7.55-8.55m)
Limit Pressure




Pressuremeter Test
BH1 (7.55-8.55m)
Volume Change vs Pressure Plot
800
700
600
500
400
300
200
100
0
Corrected Volume (cm³)
0.0
2.0
4.0
6.0
8.0
10.0
12.0
14.0
Corrected Gauge Pressure KPa(×10²)
Corrected Volume

Appendix A:
Calibration Certificate

FT Laboratories Ltd

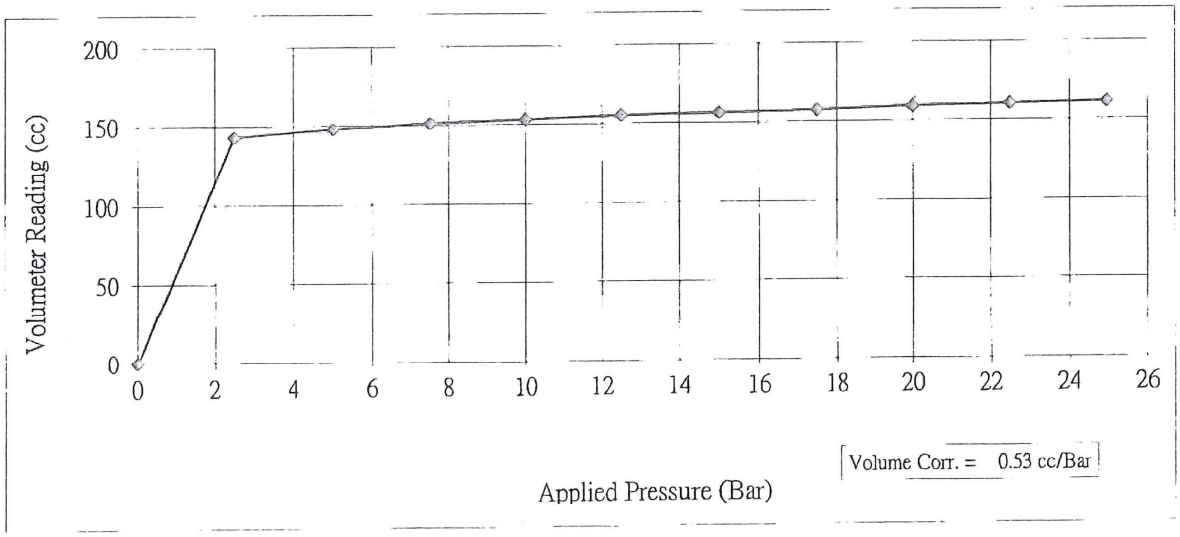
Volume Losses Calibration Record

Item Calibrated	Name / Description :	Pressuremeter Control Unit	Pressuremeter Test Probe	50m Twin High Pressure Leads	Pressure Gauges	Pressure Gauges	Pressure Gauges
	Ept. No :	INS/4	INS/4.7	INS/4.12	INS/4.1	INS/4.2	INS/4.3
	Manufacturer :	Apageo Segelm S.A.	Apageo Segelm S.A.	Apageo Segelm S.A.	Blondelle S.A.	Blondelle S.A.	Blondelle S.A.

Date of Calibration : 17-Aug-23

Calibration Procedure : The pressuremeter probe was pressurised in small increments and allowed to inflate under atmospheric conditions. Volume change was recorded against pressure. The pressure correction at a certain volume change represents the interia of probe.

Applied Pressure (Bar)	0.0	2.5	5.0	7.5	10.0	12.5	15.0
Volumeter Reading after 1-min holding (cc)	0	143	148	151	153	155	156
Applied Pressure (Bar)	17.5	20.0	22.5	25.0			
Volumeter Reading after 1-min holding (cc)	157	159	160	161			



Calibrated By : Ng Yat Hong

Date : 17-Aug-23

Certified By : WONG Chun Hing

Date : 17-Aug-23

FT Laboratories Ltd

Pressure Losses Calibration Record

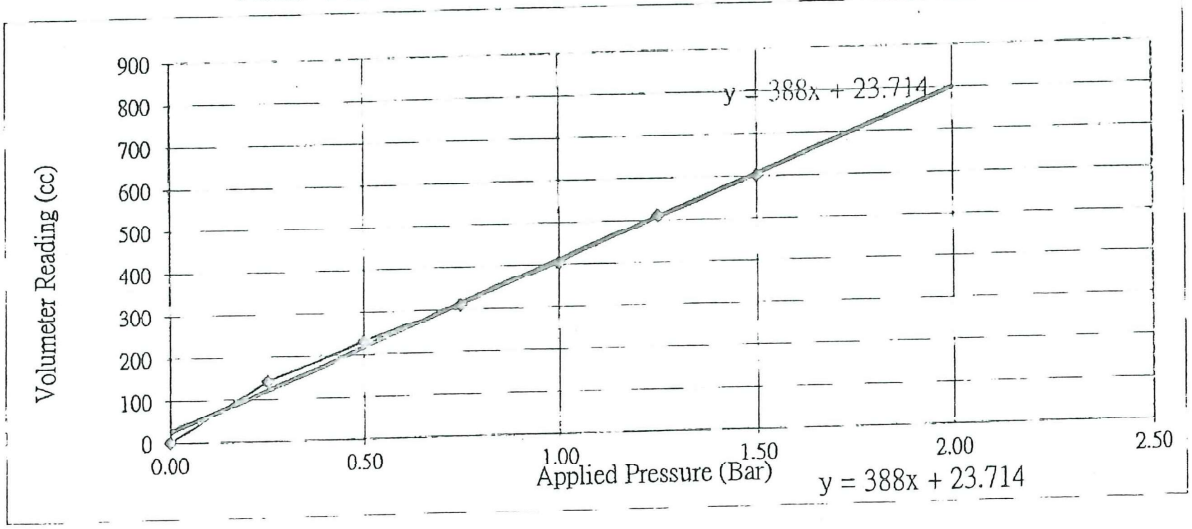
Item Calibrated	Name / Description :	Pressuremeter Control Unit	Pressuremeter Test Probe	50m Twin High Pressure Leads	Pressure Gauges	Pressure Gauges	Pressure Gauges
	Ept. No :	INS/4	INS/4.7	INS/4.12	INS/4.1	INS/4.2	INS/4.3
	Manufacturer :	Apageo Segelm S.A.	Apageo Segelm S.A.	Apageo Segelm S.A.	Blondelle S.A.	Blondelle S.A.	Blondelle S.A.

Date of Calibration : 17-Aug-23

Calibration Procedure : The pressuremeter probe was pressurised in small increments and allowed to inflate under atmospheric conditions. Volume change was recorded against pressure. The pressure correction at a certain volume change represents the interia of probe.

Applied Pressure	(Bar)	0.00	0.25	0.50	0.75	1.00	1.25	1.50
Volumeter Reading after 1-min holding	(cc)	0	143	231	311	405	511	602
Applied Pressure	(Bar)	1.75	2.00	2.25	2.50	2.75		
Volumeter Reading after 1-min holding	(cc)							

Notes Test should be terminated when Volumeter Reading over 700cc.



Calibrated By : Ng Yat Hong

Date : 17-Aug-23

Certified By : WONG Chun Hing

Date : 17-Aug-23

Appendix B: Location Plan

Not provided by customer

FT Laboratories Ltd
科達測檢試驗所有限公司

HOKLAS 071
TEST CAL

Reference No.: (J13D1501)

Job No.: (51566080)

Pressuremeter Test at

Contract No. : GE/2022/08 Ground Investigation - New Territories East

Contract No. : GE/2022/08

Borehole No.: BH1

Test Zone : 20.80m-21.80m

Lot No. DD77 Section 1552 S.Ass 1RP, Ng Chow South Road, Ping Che, Fanling, N.T.
P.O. Box 830, Fanling Post Office, Fanling, N.T.
Tel: (852) 2758 4861 Fax: (852) 2758 8962
http://www.ft.com.hk

PART I

HOKLAS Test Report

FT Laboratories Ltd.
科達測檢試驗所有限公司

HOKLAS 071
TEST CAL

PRESSUREMETER TEST REPORT

Test Reference No.	:	**51566080 - J13D1501**
Laboratory	:	FT Laboratories Ltd.
Address	:	Lot No. DD77 Section 1552 S.Ass 1RP, Ng Chow South Road, Ping Che, Fanling, N.T.
Telephone	:	(852) 2758 4861
Facsimile	:	(852) 2758 8962
Client	:	Driltech Ground Engineering Ltd.
Address	:	Blocks A & B, 8/F., Hong Kong Spinners Industrial Building Phase 6, 481-483 Castle Peak Road, Kowloon, Hong Kong
Contract No	:	GE/2022/08
Project Title	:	Contract No. : GE/2022/08 Ground Investigation - New Territories East
Test Method	:	ASTM D 4719-00 Standard Test Method for Prebored Pressuremeter Testing in Soils.
Date of order received	:	9-Sep-23
Date of test conducted	:	13-Sep-23
Location of Test	:	Sha Tin
Test Results	:	The test results are detailed in the subsequent page(s) (The values given in this Test Report only relate to the unit-under-test and the values measured at the time of the test.)

Test performed and Reported by

NG Yat Hong

Report Certified by

□ HO Tak Cho, Eric (Technical Manager)

□ WONG Chun Hing (Asst. Operation Manager)

(HOKLAS Approved Signatory)

Date : 19/9/23

Notes:

(1) The results shown in this report were determined by this laboratory in accordance with its terms of accreditation.

(2) This report shall not be reproduced, except in full, without the written approval of FT Laboratories Ltd.

FT Laboratories Ltd

Pressuremeter Test

Project	:	Contract No. : GE/2022/08 Ground Investigation - New Territories East
Site Location	:	Sha Tin
Client	:	Driltech Ground Engineering Ltd.
Contractor	:	N/A
Sub-Contractor	:	N/A
Test Date	:	13-Sep-23
Weather	:	Fine
Operator	:	NG Yat Hong

* **Drillhole information**

Hole No.	:	BH1	
Test Depth below ground level	:	20.80m-21.80m	
Drilling tool diameter	:	63mm	
Drilling tool	:	Drilling Rig	
Drilling Fluid	:	Water	
Soil Description	:	N/A	
GWL Measured Below Ground Level	:	N/A	m

Pressuremeter Setting

Gauge no.	:	FT/INS/4.1 FT/INS/4.2 FT/INS/4.3	
Probe no.	:	FT/INS/4.7	
Probe Diameter	:	58mm	
Probe Calibration Date	:	17-Aug-23	
Gauge height	:	1 m AGL	
Pocket length	:	1000mm	
Type of protective sheath	:	Rubber	
Type of inner membrane	:	Rubber	
Initial Volume (Vo)	:	520	cm^3

Calibration and Correction Factors

Volume Correction	:	0.4	cm^3/bar
Gauge Correction Factor	:	1	
Gauge Height	:	1	m
GWL Measured Below Ground Level	:	N/A	m
Pressure Difference between Guard cells & Central cells	:	1.13	bar

* Information provided by customer.

FT Laboratories Ltd

SUMMARY OF PRESSUREMETER TEST RESULTS

Project : Contract No. : GE/2022/08 Ground Investigation - New Territories East

Site Location : Sha Tin
Client : Driltech Ground Engineering Ltd.
Contractor : N/A
Sub-Contractor : N/A
Test Date : 13-Sep-23

Limit Pressure : 2.35 MPa

Drillhole No.	Test Depth (m)	Volume Range (cm^3) (Initial)		Shear Modulus (MPa)	Pressuremeter Modulus (MPa)
		(V_0)	(V_1)		
		113.80	152.20		
		Pressure Range (Bar) (Initial)			
		(P_0)	(P_1)		
BH1	20.80m-21.80m	2.15	6.26	6.99	18.59

Remarks : N/A

FT Laboratories Ltd

Project : Contract No. : GE/2022/08 Ground Investigation - New Territories East

Site Location : Sha Tin

Client : Driltech Ground Engineering Ltd.

Contractor : N/A

Sub-Contractor : N/A

Test Date : 13-Sep-23

Hole No. : BH1

Test Depth below ground level : 20.80m-21.80m

Field Data Summary

Gauge Pressure	Volume Change cm^3				
KPa($\times 10^2$)	15s	30s	60s	90	120s
0.0	0	0	0	0	0
0.25	39	52	58	61	63
0.50	67	69	71	72	73
1.00	76	78	81	83	84
1.50	87	89	90	91	92
2.0	96	97	99	100	101
3.0	109	111	113	114	115
4.0	122	123	124	125	126
5.0	132	133	134	135	136
6.0	141	142	143	144	145
7.0	149	151	152	154	155
8.0	159	160	161	162	163
9.0	167	168	169	170	171
10.0	175	176	177	178	179
12.0	194	196	197	198	199
14.0	217	220	223	224	225
16.0	250	258	266	269	273
18.0	303	317	334	340	346
20.0	372	402	433	447	456
22.0	484	509	548	592	656

PART II

This part of report contain opinion of the laboratory
and
is not covered under the HOKLAS accreditation

FT Laboratories Ltd

Project : Contract No. : GE/2022/08 Ground Investigation - New Territories East

Site Location : Sha Tin
Client : Driltech Ground Engineering Ltd.
Contractor : N/A
Sub-Contractor : N/A
Test Date : 13-Sep-23
Hole No. : BH1
Test Depth below ground level 20.80m-21.80m

Gauge Pressure	Time	Meas'd Vol.	Vol. at 120s	Creep Volume	Volume Correction	Corrected Volume	Probe Correction	Corrected Pressure	Corrected Volume Ratio
KPa(×10²)	(s)	(cm³)	(cm³)	(cm³)	(cm³)	(cm³)	KPa(×10²)	KPa(×10²)	
0	0	0	0	0	0	0	0.00	0.00	0.000
	15	39							
	30	52							
	60	58							
	90	61							
0.25	120	63	63	11	0.10	62.90	0.14	-0.74	0.108
	15	67							
	30	69							
	60	71							
	90	72							
0.5	120	73	73	4	0.20	72.80	0.16	-0.47	0.123
	15	76							
	30	78							
	60	81							
	90	83							
1	120	84	84	6	0.40	83.60	0.19	0.06	0.139
	15	87							
	30	89							
	60	90							
	90	91							
1.5	120	92	92	3	0.60	91.40	0.22	0.59	0.150
	15	96							
	30	97							
	60	99							
	90	100							
2	120	101	101	4	0.80	100.20	0.24	1.11	0.163
	15	109							
	30	111							
	60	113							
	90	114							
3	120	115	115	4	1.20	113.80	0.28	2.15	0.181
	15	122							
	30	123							
	60	124							
	90	125							
4	120	126	126	3	1.60	124.40	0.31	3.18	0.195
	15	132							
	30	133							
	60	134							
	90	135							
5	120	136	136	3	2.00	134.00	0.34	4.21	0.207
	0	141							
	30	142							
	60	143							
	90	144							
6	120	145	145	3	2.40	142.60	0.36	5.23	0.218
	0	149							
	30	151							
	60	152							
	90	154							
7	120	155	155	4	2.80	152.20	0.39	6.26	0.230

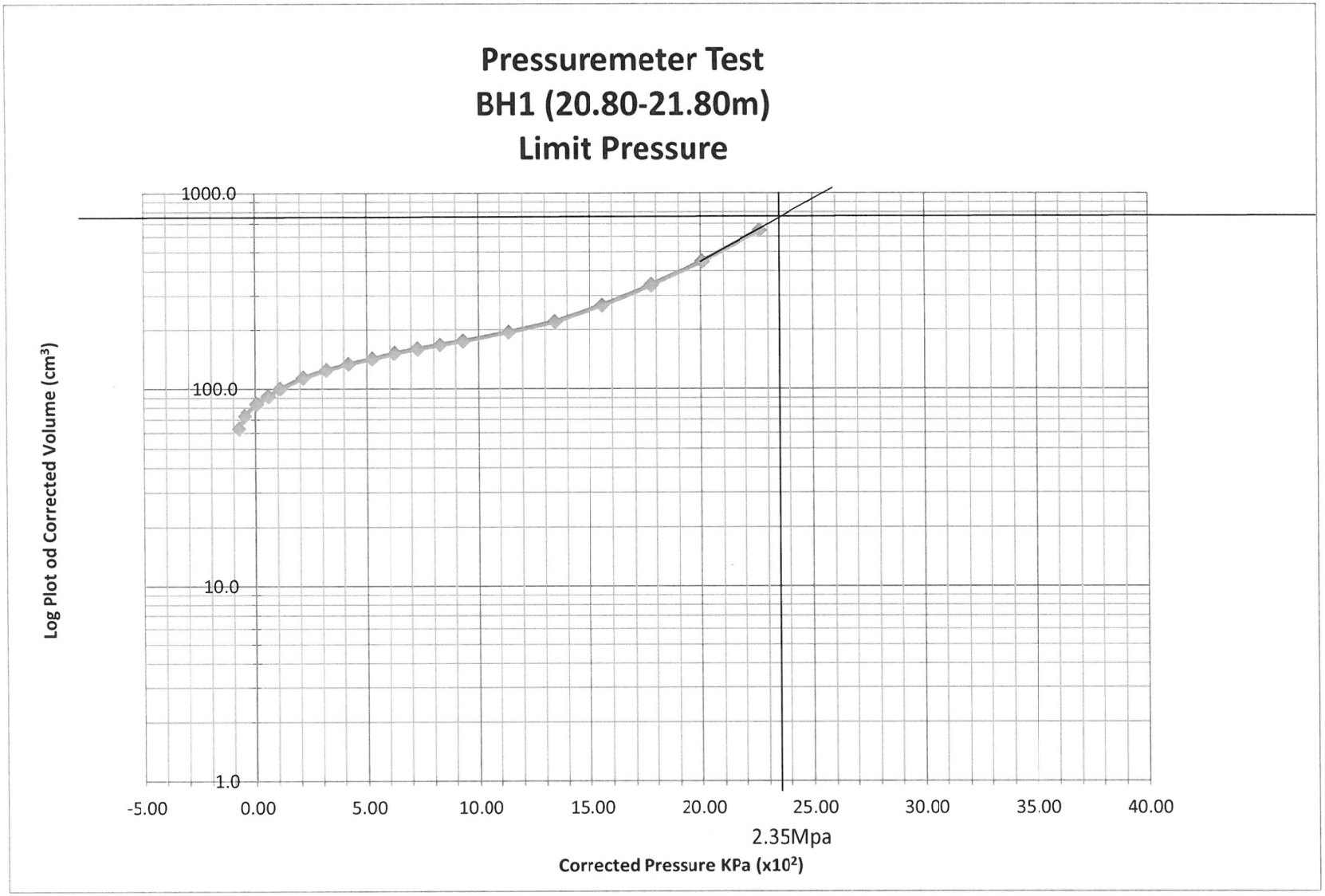
FT Laboratories Ltd

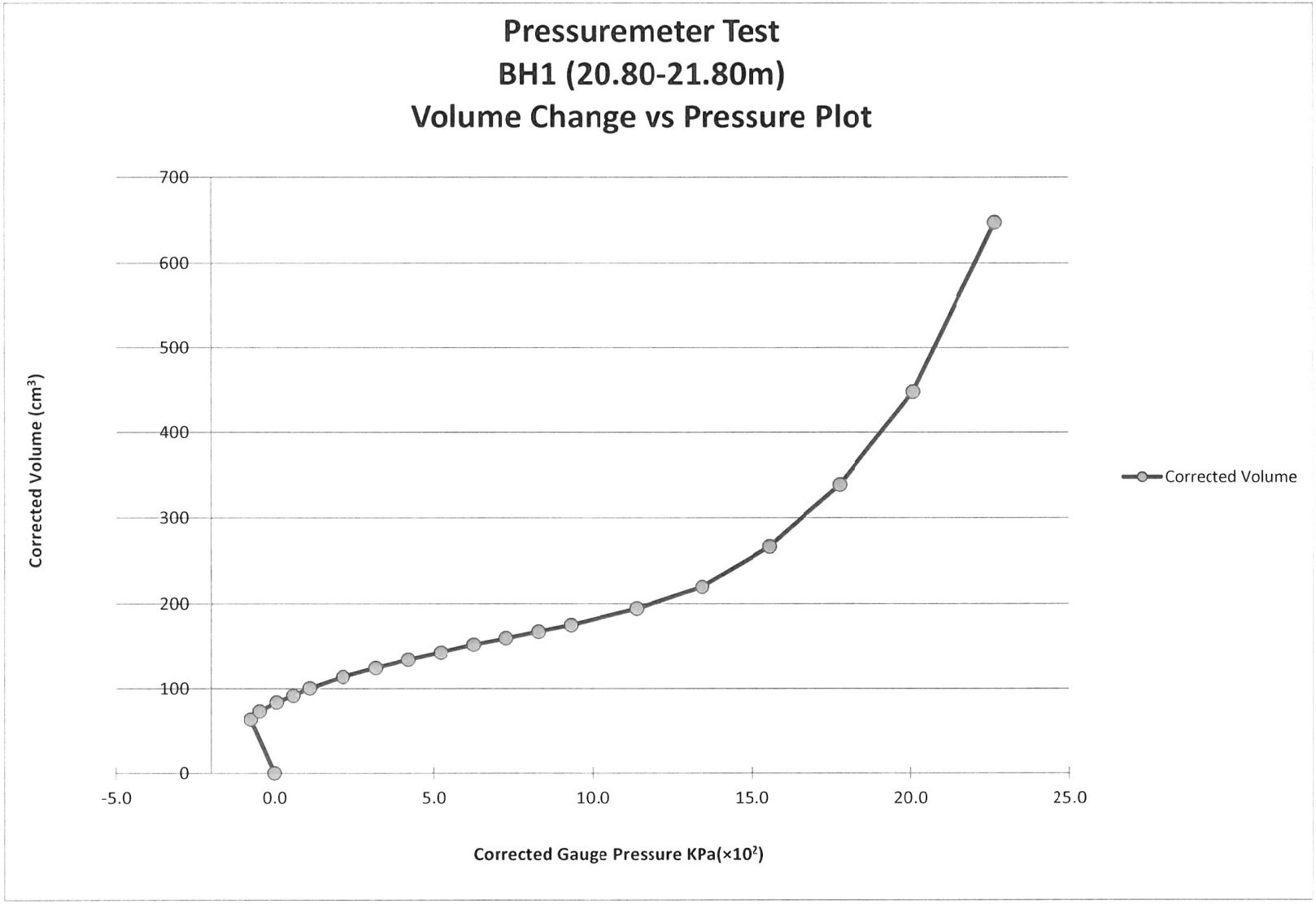
Project : Contract No. : GE/2022/08 Ground Investigation - New Territories East

Site Location : Sha Tin
Client : Driltech Ground Engineering Ltd.
Contractor : N/A
Sub-Contractor : N/A
Test Date : 13-Sep-23
Hole No. : BH1
Test Depth below ground level 20.80m-21.80m

Gauge Pressure	Time	Meas'd Vol.	Vol. at 120s	Creep Volume	Volume Correction	Corrected Volume	Probe Correction	Corrected Pressure	Corrected Volume Ratio
KPa(×10^2)	(s)	(cm^3)	(cm^3)	(cm^3)	(cm^3)	(cm^3)	KPa(×10^2)	KPa(×10^2)	
	15	159							
	30	160							
	60	161							
	90	162							
8	120	163	163	3	3.20	159.80	0.41	7.28	0.239
	15	167							
	30	168							
	60	169							
	90	170							
9	120	171	171	3	3.60	167.40	0.43	8.30	0.247
	15	175							
	30	176							
	60	177							
	90	178							
10	120	179	179	3	4.00	175.00	0.46	9.33	0.256
	15	194							
	30	196							
	60	197							
	90	198							
12	120	199	199	3	4.80	194.20	0.51	11.38	0.277
	15	217							
	30	220							
	60	223							
	90	224							
14	120	225	225	5	5.60	219.40	0.58	13.45	0.302
	15	250							
	30	258							
	60	266							
	90	269							
16	120	273	273	15	6.40	266.60	0.71	15.58	0.344
	15	303							
	30	317							
	60	334							
	90	340							
18	120	346	346	29	7.20	338.80	0.91	17.78	0.400
	15	372							
	30	402							
	60	433							
	90	447							
20	120	456	456	54	8.00	448.00	1.22	20.09	0.467
	15	484							
	30	509							
	60	548							
	90	592							
22	120	656	656	147	8.80	647.20	1.77	22.64	0.558

Comment : N/A


Pressuremeter Test
BH1 (20.80-21.80m)
Limit Pressure
1000.0
100.0
10.0
1.0
Log Plot od Corrected Volume (cm³)
-5.00
0.00
5.00
10.00
15.00
20.00
25.00
30.00
35.00
40.00
2.35Mpa
Corrected Pressure KPa (x10²)


Pressuremeter Test
BH1 (20.80-21.80m)
Volume Change vs Pressure Plot
Corrected Volume (cm³)
700
600
500
400
300
200
100
0
-5.0
0.0
5.0
10.0
15.0
20.0
25.0
Corrected Gauge Pressure KPa(×10²)
Corrected Volume

Appendix A:
Calibration Certificate

FT Laboratories Ltd

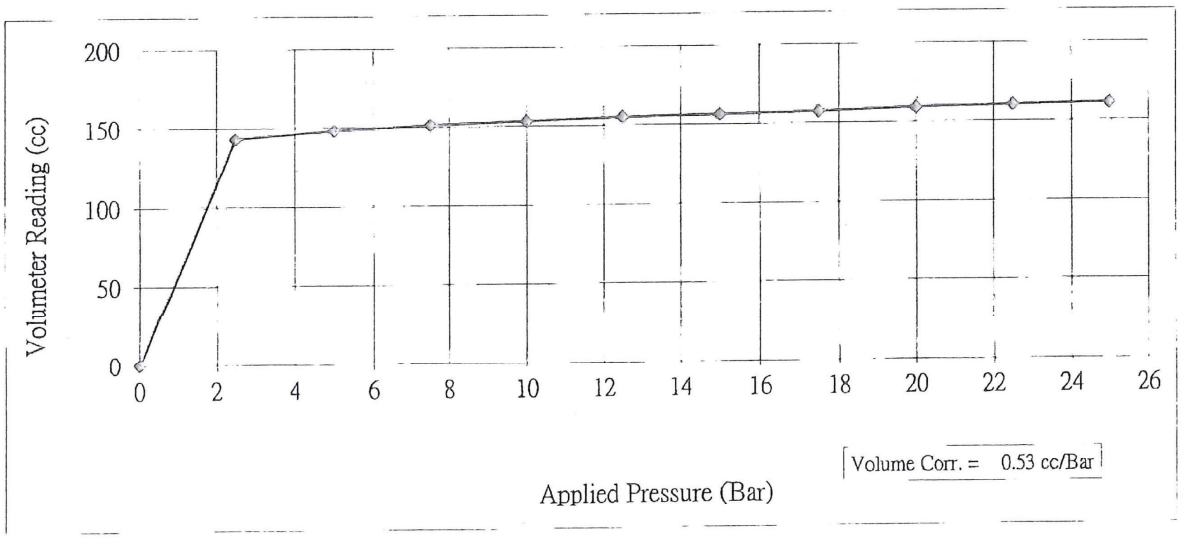
Volume Losses Calibration Record

Item Calibrated	Name / Description :	Pressuremeter Control Unit	Pressuremeter Test Probe	50m Twin High Pressure Leads	Pressure Gauges	Pressure Gauges	Pressure Gauges
	Ept. No :	INS/4	INS/4.7	INS/4.12	INS/4.1	INS/4.2	INS/4.3
	Manufacturer :	Apageo Segelm S.A.	Apageo Segelm S.A.	Apageo Segelm S.A.	Blondelle S.A.	Blondelle S.A.	Blondelle S.A.

Date of Calibration : 17-Aug-23

Calibration Procedure : The pressuremeter probe was pressurised in small increments and allowed to inflate under atmospheric conditions. Volume change was recorded against pressure. The pressure correction at a certain volume change represents the interia of probe.

Applied Pressure (Bar)	0.0	2.5	5.0	7.5	10.0	12.5	15.0
Volumeter Reading after 1-min holding (cc)	0	143	148	151	153	155	156
Applied Pressure (Bar)	17.5	20.0	22.5	25.0			
Volumeter Reading after 1-min holding (cc)	157	159	160	161			



Calibrated By : Ng Yat Hong

Date : 17-Aug-23

Certified By : WONG Chun Hing

Date : 17-Aug-23

FT Laboratories Ltd

Pressure Losses Calibration Record

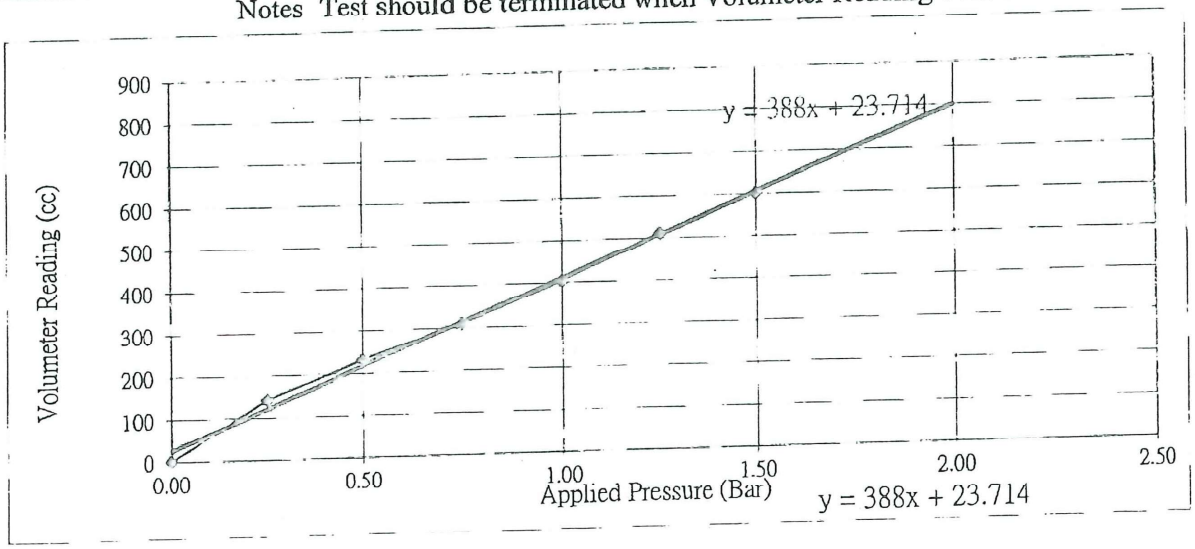
Item Calibrated	Name / Description :	Pressuremeter Control Unit	Pressuremeter Test Probe	50m Twin High Pressure Leads	Pressure Gauges	Pressure Gauges	Pressure Gauges
	Ept. No :	INS/4	INS/4.7	INS/4.12	INS/4.1	INS/4.2	INS/4.3
	Manufacturer :	Apageo Segelm S.A.	Apageo Segelm S.A.	Apageo Segelm S.A.	Blondelle S.A.	Blondelle S.A.	Blondelle S.A.

Date of Calibration : 17-Aug-23

Calibration Procedure : The pressuremeter probe was pressurised in small increments and allowed to inflate under atmospheric conditions. Volume change was recorded against pressure. The pressure correction at a certain volume change represents the interia of probe.

Applied Pressure	(Bar)	0.00	0.25	0.50	0.75	1.00	1.25	1.50
Volumeter Reading after 1-min holding	(cc)	0	143	231	311	405	511	602
Applied Pressure	(Bar)	1.75	2.00	2.25	2.50	2.75		
Volumeter Reading after 1-min holding	(cc)							

Notes Test should be terminated when Volumeter Reading over 700cc.



Calibrated By : Ng Yat Hong

Date : 17-Aug-23

Certified By : WONG Chun Hing

Date : 17-Aug-23

Appendix B: Location Plan

Not provided by customer

FT Laboratories Ltd
科達測檢試驗所有限公司

HOKLAS 071
TEST CAL

Reference No.: (J20D0501)

Job No.: (51566080)

Pressuremeter Test at

Contract No. : GE/2022/08 Ground Investigation - New Territories East

Contract No. : GE/2022/08

Borehole No.: BH2

Test Zone : 8.25m-9.25m

Lot No. DD77 Section 1552 S.Ass 1RP, Ng Chow South Road, Ping Che, Fanling, N.T.
P.O. Box 830, Fanling Post Office, Fanling, N.T.
Tel: (852) 2758 4861 Fax: (852) 2758 8962
http://www.ft.com.hk

PART I

HOKLAS Test Report

FT Laboratories Ltd.
科達測檢試驗所有限公司

HOKLAS 071
TEST CAL

PRESSUREMETER TEST REPORT

Test Reference No.	:	**51566080 - J20D0501**
Laboratory	:	FT Laboratories Ltd.
Address	:	Lot No. DD77 Section 1552 S.Ass 1RP, Ng Chow South Road, Ping Che, Fanling, N.T.
Telephone	:	(852) 2758 4861
Facsimile	:	(852) 2758 8962
Client	:	Driltech Ground Engineering Ltd.
Address	:	Blocks A & B, 8/F., Hong Kong Spinners Industrial Building Phase 6, 481-483 Castle Peak Road, Kowloon, Hong Kong
Contract No	:	GE/2022/08
Project Title	:	Contract No. : GE/2022/08 Ground Investigation - New Territories East
Test Method	:	ASTM D 4719-00 Standard Test Method for Prebored Pressuremeter Testing in Soils.
Date of order received	:	18-Sep-23
Date of test conducted	:	20-Sep-23
Location of Test	:	Lung Kwu Tan
Test Results	:	The test results are detailed in the subsequent page(s) (The values given in this Test Report only relate to the unit-under-test and the values measured at the time of the test.)

Test performed and Reported by

KWONG Chun Leung

Report Certified by

☐ HO Tak Cho, Eric (Technical Manager)

☑ WONG Chun Hing (Asst. Operation Manager)

(HOKLAS Approved Signatory)

Date : 5/10/2023

Notes:

(1) The results shown in this report were determined by this laboratory in accordance with its terms of accreditation.

(2) This report shall not be reproduced, except in full, without the written approval of FT Laboratories Ltd.

FT Laboratories Ltd

Pressuremeter Test

Project	:	Contract No. : GE/2022/08 Ground Investigation - New Territories East	
Site Location	:	Lung Kwu Tan	
Client	:	Driltech Ground Engineering Ltd.	
Contractor	:	N/A	
Sub-Contractor	:	N/A	
Test Date	:	20-Sep-23	
Weather	:	Fine	
Operator	:	KWONG Chun Leung	

* **Drillhole information**

Hole No.	:	BH2	
Test Depth below ground level	:	8.25m-9.25m	
Drilling tool diameter	:	63mm	
Drilling tool	:	Drilling Rig	
Drilling Fluid	:	Water	
Soil Description	:	N/A	
GWL Measured Below Ground Level	:	N/A	m

Pressuremeter Setting

Gauge no.	:	FT/INS/4.1 FT/INS/4.2 FT/INS/4.3	
Probe no.	:	FT/INS/4.7	
Probe Diameter	:	58mm	
Probe Calibration Date	:	17-Aug-23	
Gauge height	:	1 m AGL	
Pocket length	:	1000mm	
Type of protective sheath	:	Rubber	
Type of inner membrane	:	Rubber	
Initial Volume (Vo)	:	520	cm^3

Calibration and Correction Factors

Volume Correction	:	0.53	cm^3/bar
Gauge Correction Factor	:	1	
Gauge Height	:	1	m
GWL Measured Below Ground Level	:	N/A	m
Pressure Difference between Guard cells & Central cells	:	-0.125	bar

* Information provided by customer.

FT Laboratories Ltd

SUMMARY OF PRESSUREMETER TEST RESULTS

Project : Contract No. : GE/2022/08 Ground Investigation - New Territories East

Site Location : Lung Kwu Tan
Client : Driltech Ground Engineering Ltd.
Contractor : N/A
Sub-Contractor : N/A
Test Date : 20-Sep-23

Limit Pressure : 1.26 MPa

Drillhole No.	Test Depth (m)	Volume Range (cm^3) (Initial)		Shear Modulus (MPa)	Pressuremeter Modulus (MPa)
		(V_0)	(V_1)		
		98.47	189.35		
		Pressure Range (Bar) (Initial)			
		(P_0)	(P_1)		
BH2	8.25m-9.25m	1.32	5.56	3.10	8.24

Remarks : N/A

FT Laboratories Ltd

Project : Contract No. : GE/2022/08 Ground Investigation - New Territories East

Site Location : Lung Kwu Tan
Client : Driltech Ground Engineering Ltd.
Contractor : N/A
Sub-Contractor : N/A
Test Date : 20-Sep-23
Hole No. : BH2
Test Depth below ground level : 8.25m-9.25m

Field Data Summary

Gauge Pressure	Volume Change cm^3				
KPa($\times 10^2$)	15s	30s	60s	90	120s
0.0	0	0	0	0	0
0.25	40	56	68	73	75
0.50	76	77	78	79	80
1.00	92	96	98	98	99
1.50	104	106	108	109	110
2.00	115	117	118	119	119
2.50	123	125	127	128	129
3.00	134	136	138	139	140
4.00	157	161	164	165	167
5.00	185	186	188	190	192
6.00	208	215	224	228	232
7.00	250	263	278	286	291
8.00	316	330	350	355	360
9.00	393	420	454	466	472
10.00	517	540	566	590	619

PART II

This part of report contain opinion of the laboratory
and
is not covered under the HOKLAS accreditation

FT Laboratories Ltd

Project : Contract No. : GE/2022/08 Ground Investigation - New Territories East

Site Location : Lung Kwu Tan
Client : Driltech Ground Engineering Ltd.
Contractor : N/A
Sub-Contractor : N/A
Test Date : 20-Sep-23
Hole No. : BH2
Test Depth below ground level 8.25m-9.25m

Gauge Pressure	Time	Meas'd Vol.	Vol. at 120s	Creep Volume	Volume Correction	Corrected Volume	Probe Correction	Corrected Pressure	Corrected Volume Ratio
KPa($\times 10^2$)	(s)	(cm^3)	(cm^3)	(cm^3)	(cm^3)	(cm^3)	KPa($\times 10^2$)	KPa($\times 10^2$)	
0	0	0	0	0	0	0	0.00	0.00	0.000
	15	40							
	30	56							
	60	68							
	90	73							
0.25	120	75	75	19	0.13	74.87	0.13	0.51	0.126
	15	76							
	30	77							
	60	78							
	90	79							
0.5	120	80	80	3	0.27	79.74	0.15	0.77	0.133
	15	92							
	30	96							
	60	98							
	90	98							
1	120	99	99	3	0.53	98.47	0.19	1.32	0.160
	15	104							
	30	106							
	60	108							
	90	109							
1.5	120	110	110	4	0.80	109.21	0.22	1.85	0.175
	15	115							
	30	117							
	60	118							
	90	119							
2	120	119	119	2	1.06	117.94	0.25	2.37	0.186
	15	123							
	30	125							
	60	127							
	90	128							
2.5	120	129	129	4	1.33	127.68	0.27	2.90	0.199
	15	134							
	30	136							
	60	138							
	90	139							
3	120	140	140	4	1.59	138.41	0.30	3.42	0.212
	15	157							
	30	161							
	60	164							
	90	165							
4	120	167	167	6	2.12	164.88	0.37	4.49	0.243

FT Laboratories Ltd

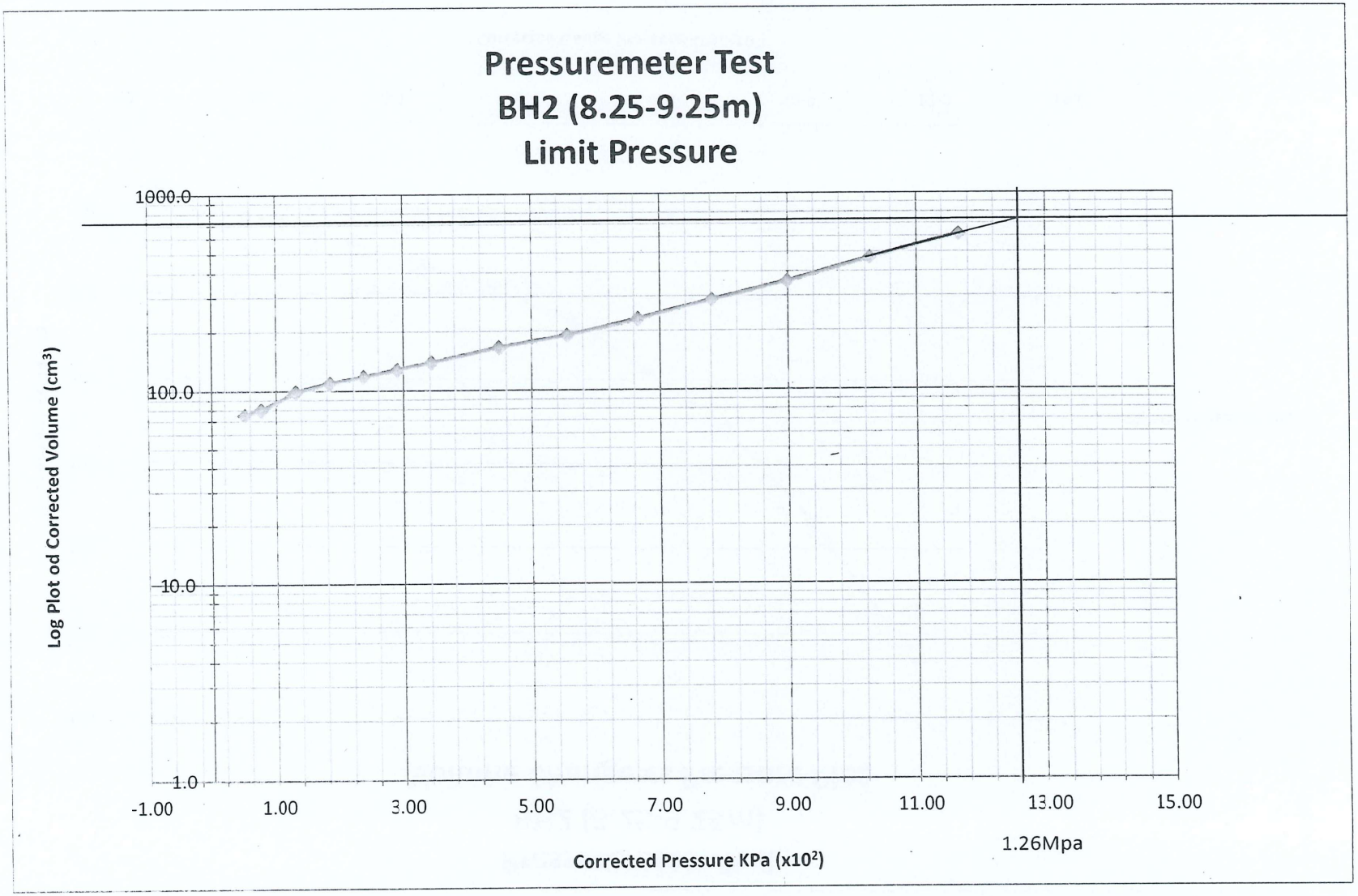
Project : Contract No. : GE/2022/08 Ground Investigation - New Territories East

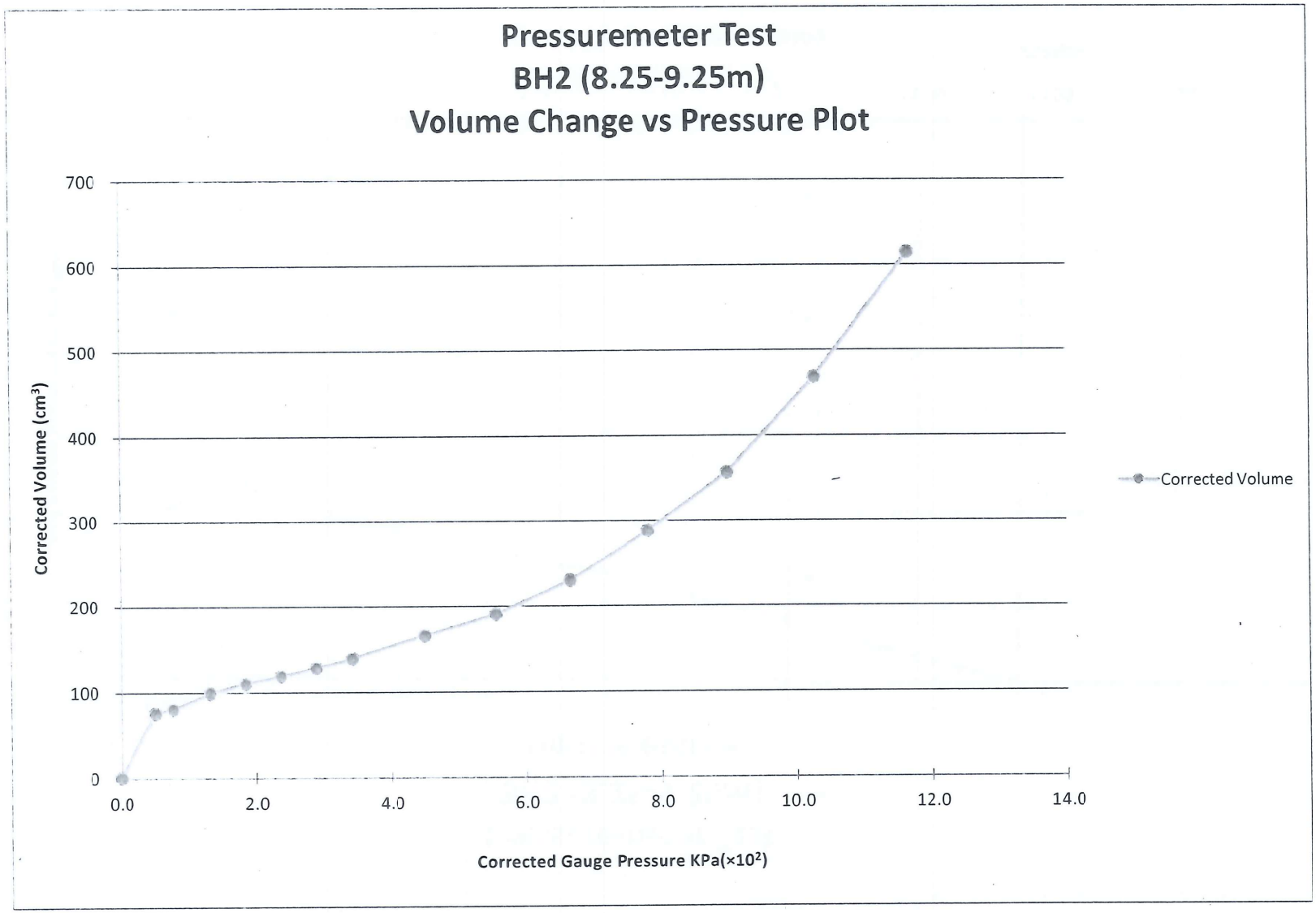
Site Location : Lung Kwu Tan
Client : Driltech Ground Engineering Ltd.
Contractor : N/A
Sub-Contractor : N/A
Test Date : 20-Sep-23
Hole No. : BH2
Test Depth below ground level 8.25m-9.25m

Gauge Pressure	Time	Meas'd Vol.	Vol. at 120s	Creep Volume	Volume Correction	Corrected Volume	Probe Correction	Corrected Pressure	Corrected Volume Ratio
KPa($\times 10^2$)	(s)	(cm^3)	(cm^3)	(cm^3)	(cm^3)	(cm^3)	KPa($\times 10^2$)	KPa($\times 10^2$)	
	0	185							
	30	186							
	60	188							
	90	190							
5	120	192	192	6	2.65	189.35	0.43	5.56	0.270
	0	208							
	30	215							
	60	224							
	90	228							
6	120	232	232	17	3.18	228.82	0.54	6.66	0.309
	15	250							
	30	263							
	60	278							
	90	286							
7	120	291	291	28	3.71	287.29	0.69	7.81	0.359
	15	316							
	30	330							
	60	350							
	90	355							
8	120	360	360	30	4.24	355.76	0.87	8.99	0.409
	15	393							
	30	420							
	60	454							
	90	466							
9	120	472	472	52	4.77	467.23	1.16	10.28	0.476
	15	517							
	30	540							
	60	566							
	90	590							
10	120	619	619	79	5.30	613.70	1.53	11.66	0.543

Comment : N/A

Pressuremeter Test
BH2 (8.25-9.25m)
Limit Pressure




Pressuremeter Test
BH2 (8.25-9.25m)
Volume Change vs Pressure Plot
Corrected Volume (cm³)
700
600
500
400
300
200
100
0
0.0
2.0
4.0
6.0
8.0
10.0
12.0
14.0
Corrected Gauge Pressure KPa(×10²)
Corrected Volume

Appendix A:

Calibration Certificate

FT Laboratories Ltd

Pressure Losses Calibration Record

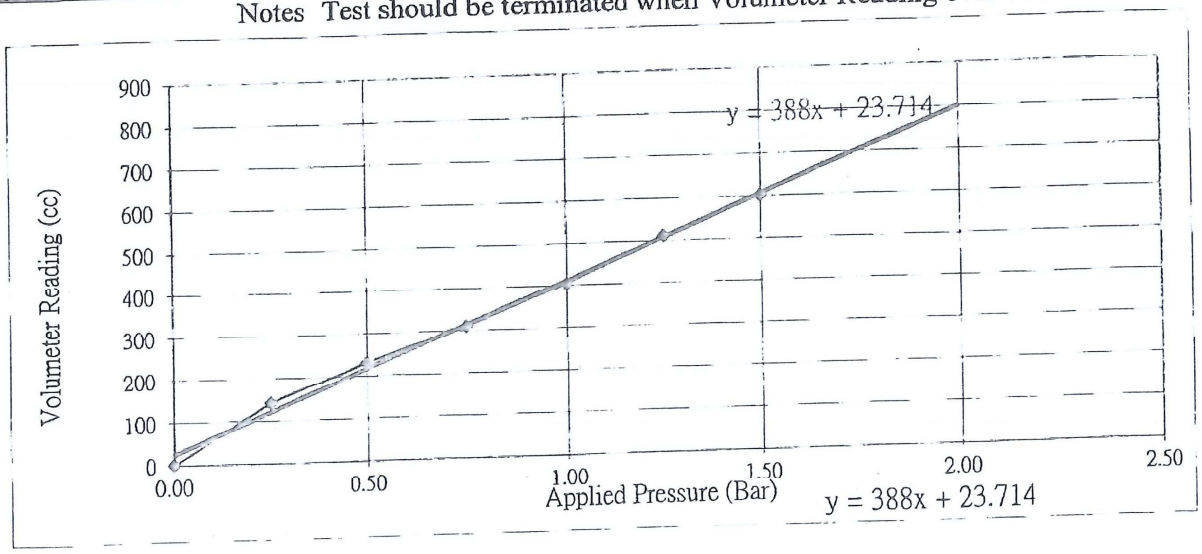
Item Calibrated	Name / Description :	Pressuremeter Control Unit	Pressuremeter Test Probe	50m Twin High Pressure Leads	Pressure Gauges	Pressure Gauges	Pressure Gauges
	Ept. No :	INS/4	INS/4.7	INS/4.12	INS/4.1	INS/4.2	INS/4.3
	Manufacturer :	Apageo Segelm S.A.	Apageo Segelm S.A.	Apageo Segelm S.A.	Blondelle S.A.	Blondelle S.A.	Blondelle S.A.

Date of Calibration : 17-Aug-23

Calibration Procedure : The pressuremeter probe was pressurised in small increments and allowed to inflate under atmospheric conditions. Volume change was recorded against pressure. The pressure correction at a certain volume change represents the interia of probe.

Applied Pressure (Bar)	0.00	0.25	0.50	0.75	1.00	1.25	1.50
Volumeter Reading after 1-min holding (cc)	0	143	231	311	405	511	602
Applied Pressure (Bar)	1.75	2.00	2.25	2.50	2.75		
Volumeter Reading after 1-min holding (cc)							

Notes Test should be terminated when Volumeter Reading over 700cc.



Calibrated By : Ng Yat Hong

Date : 17-Aug-23

Certified By : WONG Chun Hing

Date : 17-Aug-23

FT Laboratories Ltd

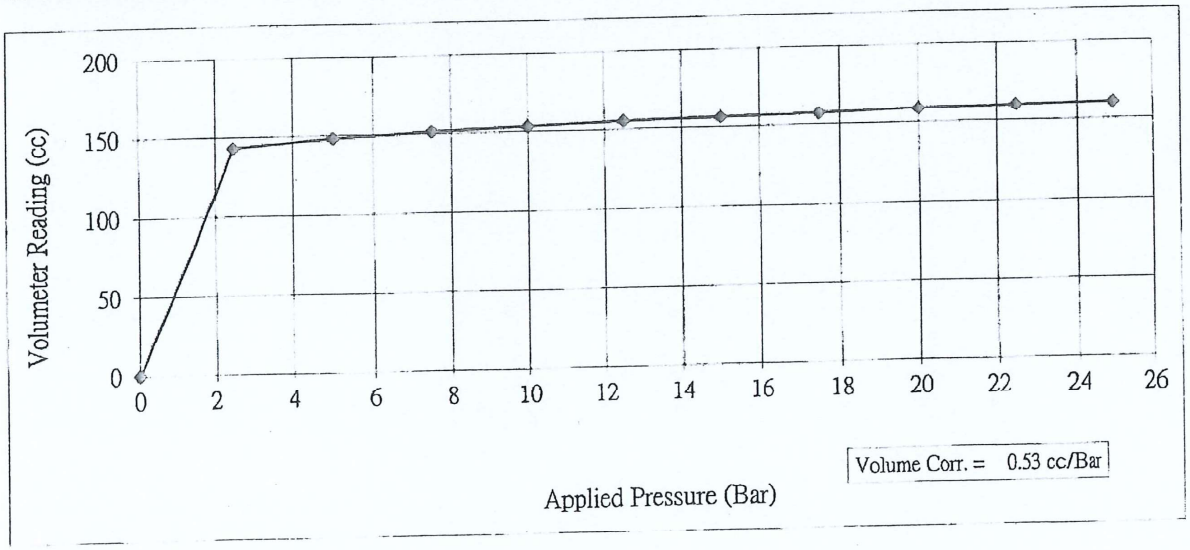
Volume Losses Calibration Record

Item Calibrated	Name / Description :	Pressuremeter Control Unit	Pressuremeter Test Probe	50m Twin High Pressure Leads	Pressure Gauges	Pressure Gauges	Pressure Gauges
	Ept. No :	INS/4	INS/4.7	INS/4.12	INS/4.1	INS/4.2	INS/4.3
	Manufacturer :	Apageo Segelm S.A.	Apageo Segelm S.A.	Apageo Segelm S.A.	Blondelle S.A.	Blondelle S.A.	Blondelle S.A.

Date of Calibration : 17-Aug-23

Calibration Procedure : The pressuremeter probe was pressurised in small increments and allowed to inflate under atmospheric conditions. Volume change was recorded against pressure. The pressure correction at a certain volume change represents the interia of probe.

Applied Pressure (Bar)	0.0	2.5	5.0	7.5	10.0	12.5	15.0
Volumeter Reading after 1-min holding (cc)	0	143	148	151	153	155	156
Applied Pressure (Bar)	17.5	20.0	22.5	25.0			
Volumeter Reading after 1-min holding (cc)	157	159	160	161			



Calibrated By : Ng Yat Hong

Date : 17-Aug-23

Certified By : WONG Chun Hing

Date : 17-Aug-23

Appendix B: Location Plan

Not provided by customer

FT Laboratories Ltd
科達測檢試驗所有限公司

HOKLAS 071
TEST CAL

Reference No.: (J20D0502)

Job No.: (51566080)

Pressuremeter Test at

Contract No. : GE/2022/08 Ground Investigation - New Territories East

Contract No. : GE/2022/08

Borehole No.: BH2

Test Zone : 10.35m-11.45m

Lot No. DD77 Section 1552 S.Ass 1RP, Ng Chow South Road, Ping Che, Fanling, N.T.
P.O. Box 830, Fanling Post Office, Fanling, N.T.
Tel: (852) 2758 4861 Fax: (852) 2758 8962
http://www.ft.com.hk

PART I

HOKLAS Test Report

FT Laboratories Ltd.
科達測檢試驗所有限公司

HOKLAS 071
TEST CAL

PRESSUREMETER TEST REPORT

Test Reference No.	:	**51566080 - J20D0502**
Laboratory	:	FT Laboratories Ltd.
Address	:	Lot No. DD77 Section 1552 S.Ass 1RP, Ng Chow South Road, Ping Che, Fanling, N.T.
Telephone	:	(852) 2758 4861
Facsimile	:	(852) 2758 8962
Client	:	Driltech Ground Engineering Ltd.
Address	:	Blocks A & B, 8/F., Hong Kong Spinners Industrial Building Phase 6, 481-483 Castle Peak Road, Kowloon, Hong Kong
Contract No	:	GE/2022/08
Project Title	:	Contract No. : GE/2022/08 Ground Investigation - New Territories East
Test Method	:	ASTM D 4719-00 Standard Test Method for Prebored Pressuremeter Testing in Soils.
Date of order received	:	18-Sep-23
Date of test conducted	:	20-Sep-23
Location of Test	:	Lung Kwu Tan
Test Results	:	The test results are detailed in the subsequent page(s) (The values given in this Test Report only relate to the unit-under-test and the values measured at the time of the test.)

Test performed and Reported by

KWONG Chun Leung

Report Certified by

□ HO Tak Cho, Eric (Technical Manager)

☑ WONG Chun Hing (Asst. Operation Manager)

(HOKLAS Approved Signatory)

Date : 5/10/2023

Notes:

(1) The results shown in this report were determined by this laboratory in accordance with its terms of accreditation.

(2) This report shall not be reproduced, except in full, without the written approval of FT Laboratories Ltd.

FT Laboratories Ltd

Pressuremeter Test

Project	:	Contract No. : GE/2022/08 Ground Investigation - New Territories East	
Site Location	:	Lung Kwu Tan	
Client	:	Driltech Ground Engineering Ltd.	
Contractor	:	N/A	
Sub-Contractor	:	N/A	
Test Date	:	20-Sep-23	
Weather	:	Fine	
Operator	:	KWONG Chun Leung	

* **Drillhole information**

Hole No.	:	BH2	
Test Depth below ground level	:	10.35m-11.45m	
Drilling tool diameter	:	63mm	
Drilling tool	:	Drilling Rig	
Drilling Fluid	:	Water	
Soil Description	:	N/A	
GWL Measured Below Ground Level	:	N/A	m

Pressuremeter Setting

Gauge no.	:	FT/INS/4.1 FT/INS/4.2 FT/INS/4.3	
Probe no.	:	FT/INS/4.7	
Probe Diameter	:	58mm	
Probe Calibration Date	:	17-Aug-23	
Gauge height	:	1 m AGL	
Pocket length	:	1000mm	
Type of protective sheath	:	Rubber	
Type of inner membrane	:	Rubber	
Initial Volume (Vo)	:	520	cm^3

Calibration and Correction Factors

Volume Correction	:	0.53	cm^3/bar
Gauge Correction Factor	:	1	
Gauge Height	:	1	m
GWL Measured Below Ground Level	:	N/A	m
Pressure Difference between Guard cells & Central cells	:	0.09	bar

* Information provided by customer.

FT Laboratories Ltd

SUMMARY OF PRESSUREMETER TEST RESULTS

Project : Contract No. : GE/2022/08 Ground Investigation - New Territories East

Site Location : Lung Kwu Tan
Client : Driltech Ground Engineering Ltd.
Contractor : N/A
Sub-Contractor : N/A
Test Date : 20-Sep-23

Limit Pressure : 0.82 MPa

Drillhole No.	Test Depth (m)	Volume Range (cm^3) (Initial)		Shear Modulus (MPa)	Pressuremeter Modulus (MPa)
		(V_0)	(V_1)		
		24.74	63.94		
		Pressure Range (Bar) (Initial)			
		(P_0)	(P_1)		
BH2	10.35m-11.45m	0.41	2.02	2.32	6.17

Remarks : N/A

FT Laboratories Ltd

Project : Contract No. : GE/2022/08 Ground Investigation - New Territories East

Site Location : Lung Kwu Tan

Client : Driltech Ground Engineering Ltd.

Contractor : N/A

Sub-Contractor : N/A

Test Date : 20-Sep-23

Hole No. : BH2

Test Depth below ground level : 10.35m-11.45m

Field Data Summary

Gauge Pressure	Volume Change cm^3				
KPa($\times 10^2$)	15s	30s	60s	90	120s
0.0	0	0	0	0	0
0.25	18	19	20	20	20
0.50	22	23	24	25	25
1.00	32	34	35	36	36
1.50	46	48	49	50	50
2.00	60	62	63	64	65
3.00	89	96	105	107	109
4.00	129	139	150	155	159
5.00	194	220	245	255	263
6.00	295	331	374	406	425
7.00	461	499	548	582	604

PART II

This part of report contain opinion of the laboratory
and
is not covered under the HOKLAS accreditation

FT Laboratories Ltd

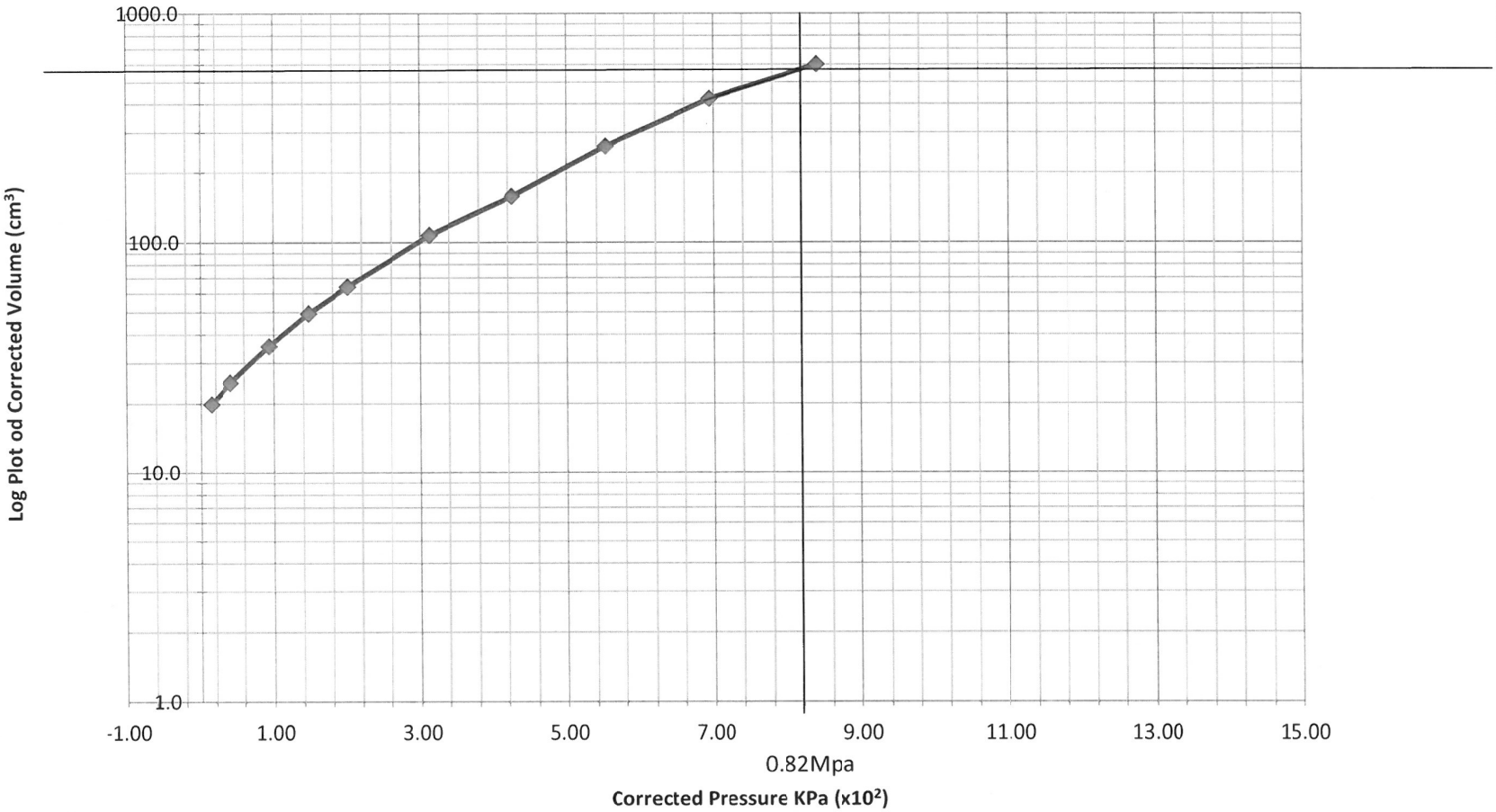
Project : Contract No. : GE/2022/08 Ground Investigation - New Territories East

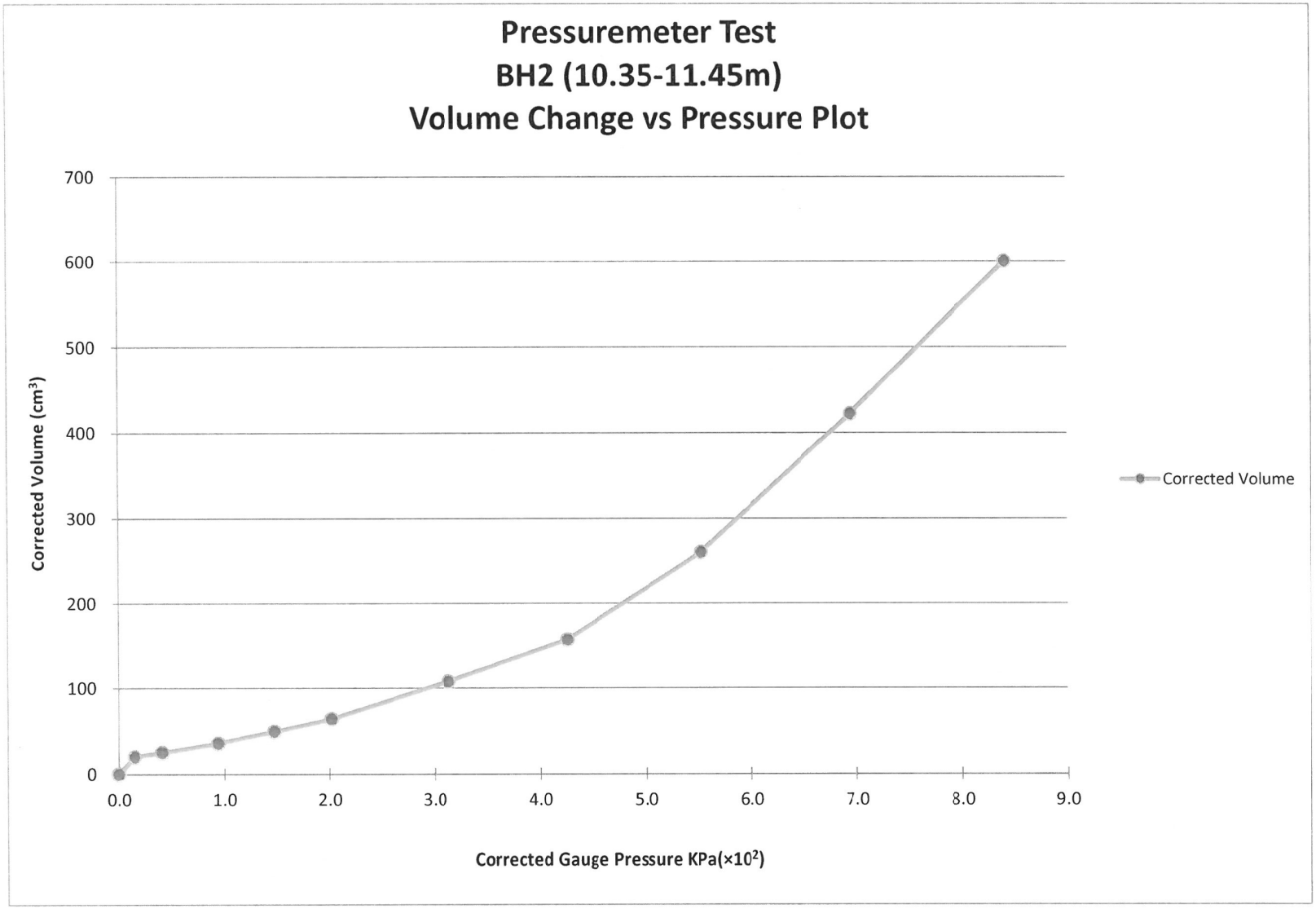
Site Location : Lung Kwu Tan
Client : Driltech Ground Engineering Ltd.
Contractor : N/A
Sub-Contractor : N/A
Test Date : 20-Sep-23
Hole No. : BH2
Test Depth below ground level : 10.35m-11.45m

Gauge Pressure	Time	Meas'd Vol.	Vol. at 120s	Creep Volume	Volume Correction	Corrected Volume	Probe Correction	Corrected Pressure	Corrected Volume Ratio
KPa(×10²)	(s)	(cm^3)	(cm^3)	(cm^3)	(cm^3)	(cm^3)	KPa(×10²)	KPa(×10²)	
0	0	0	0	0	0	0	0.00	0.00	0.000
	15	18							
	30	19							
	60	20							
	90	20							
0.25	120	20	20	1	0.13	19.87	(0.01)	0.15	0.037
	15	22							
	30	23							
	60	24							
	90	25							
0.5	120	25	25	2	0.27	24.74	0.00	0.41	0.046
	15	32							
	30	34							
	60	35							
	90	36							
1	120	36	36	2	0.53	35.47	0.03	0.94	0.065
	15	46							
	30	48							
	60	49							
	90	50							
1.5	120	50	50	2	0.80	49.21	0.07	1.48	0.088
	15	60							
	30	62							
	60	63							
	90	64							
2	120	65	65	3	1.06	63.94	0.11	2.02	0.111
	15	89							
	30	96							
	60	105							
	90	107							
3	120	109	109	13	1.59	107.41	0.22	3.13	0.173
	15	129							
	30	139							
	60	150							
	90	155							
4	120	159	159	20	2.12	156.88	0.35	4.26	0.234
	15	194							
	30	220							
	60	245							
	90	255							
5	120	263	263	43	2.65	260.35	0.62	5.53	0.336
	0	295							
	30	331							
	60	374							
	90	406							
6	120	425	425	94	3.18	421.82	1.03	6.94	0.450
	0	461							
	30	499							
	60	548							
	90	582							
7	120	604	604	105	3.71	600.29	1.50	8.41	0.537

Comment : N/A

Pressuremeter Test
BH2 (10.35-11.45m)
Limit Pressure




Pressuremeter Test
BH2 (10.35-11.45m)
Volume Change vs Pressure Plot
Corrected Volume (cm³)
700
600
500
400
300
200
100
0
0.0
1.0
2.0
3.0
4.0
5.0
6.0
7.0
8.0
9.0
Corrected Gauge Pressure KPa(×10²)
Corrected Volume

Appendix A:

Calibration Certificate

FT Laboratories Ltd

Pressure Losses Calibration Record

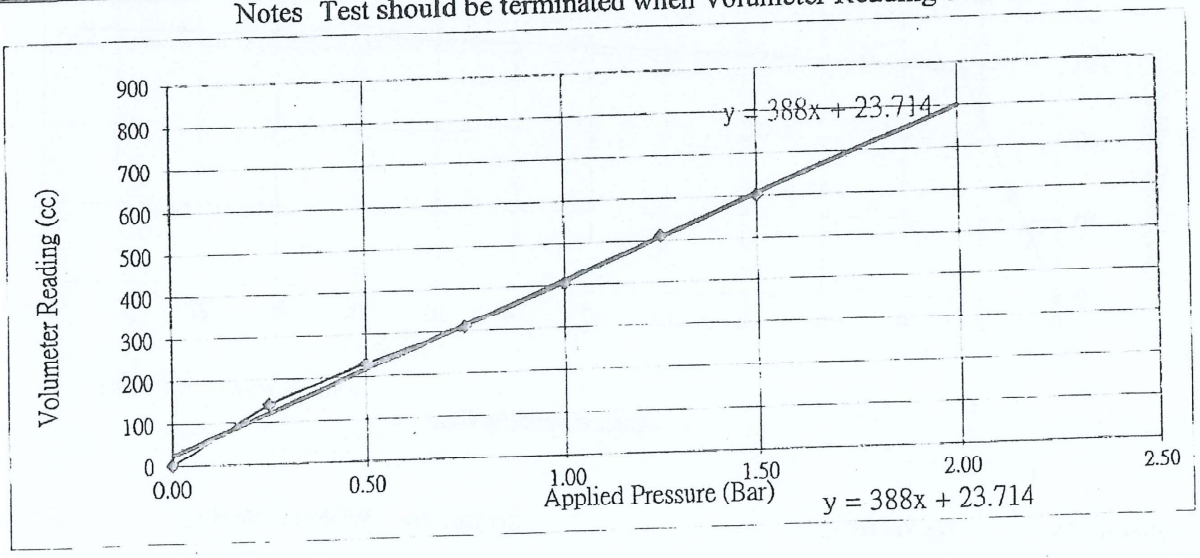
Item Calibrated	Name / Description :	Pressuremeter Control Unit	Pressuremeter Test Probe	50m Twin High Pressure Leads	Pressure Gauges	Pressure Gauges	Pressure Gauges
	Ept. No :	INS/4	INS/4.7	INS/4.12	INS/4.1	INS/4.2	INS/4.3
	Manufacturer :	Apageo Segelm S.A.	Apageo Segelm S.A.	Apageo Segelm S.A.	Blondelle S.A.	Blondelle S.A.	Blondelle S.A.

Date of Calibration : 17-Aug-23

Calibration Procedure : The pressuremeter probe was pressurised in small increments and allowed to inflate under atmospheric conditions. Volume change was recorded against pressure. The pressure correction at a certain volume change represents the interia of probe.

Applied Pressure	(Bar)	0.00	0.25	0.50	0.75	1.00	1.25	1.50
Volumeter Reading after 1-min holding	(cc)	0	143	231	311	405	511	602
Applied Pressure	(Bar)	1.75	2.00	2.25	2.50	2.75		
Volumeter Reading after 1-min holding	(cc)							

Notes Test should be terminated when Volumeter Reading over 700cc.



Calibrated By : Ng Yat Hong

Date : 17-Aug-23

Certified By : WONG Chun Hing

Date : 17-Aug-23

FT Laboratories Ltd

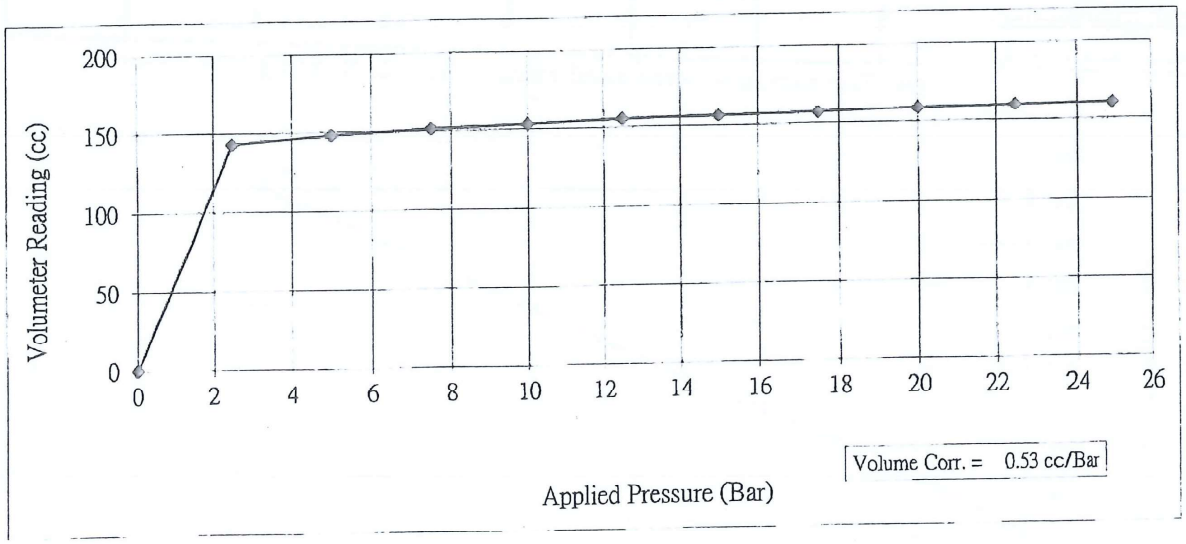
Volume Losses Calibration Record

Item Calibrated	Name / Description :	Pressuremeter Control Unit	Pressuremeter Test Probe	50m Twin High Pressure Leads	Pressure Gauges	Pressure Gauges	Pressure Gauges
	Ept. No :	INS/4	INS/4.7	INS/4.12	INS/4.1	INS/4.2	INS/4.3
	Manufacturer :	Apageo Segelm S.A.	Apageo Segelm S.A.	Apageo Segelm S.A.	Blondelle S.A.	Blondelle S.A.	Blondelle S.A.

Date of Calibration : 17-Aug-23

Calibration Procedure : The pressuremeter probe was pressurised in small increments and allowed to inflate under atmospheric conditions. Volume change was recorded against pressure. The pressure correction at a certain volume change represents the interia of probe.

Applied Pressure (Bar)	0.0	2.5	5.0	7.5	10.0	12.5	15.0
Volumeter Reading after 1-min holding (cc)	0	143	148	151	153	155	156
Applied Pressure (Bar)	17.5	20.0	22.5	25.0			
Volumeter Reading after 1-min holding (cc)	157	159	160	161			



Calibrated By : Ng Yat Hong

Date : 17-Aug-23

Certified By : WONG Chun Hing

Date : 17-Aug-23

Appendix B: Location Plan

Not provided by customer

FT Laboratories Ltd
科達測檢試驗所有限公司

HOKLAS 071
TEST CAL

Reference No.: (J28D0801)

Job No.: (51566080)

Pressuremeter Test at

Contract No. : GE/2022/08 Ground Investigation - New Territories East

Contract No. : GE/2022/08

Borehole No.: BH3

Test Zone : 9.45m-10.45m

Lot No. DD77 Section 1552 S.Ass 1RP, Ng Chow South Road, Ping Che, Fanling, N.T.
P.O. Box 830, Fanling Post Office, Fanling, N.T.
Tel: (852) 2758 4861 Fax: (852) 2758 8962
http://www.ft.com.hk

PART I

HOKLAS Test Report

FT Laboratories Ltd.
科達測檢試驗所有限公司

HOKLAS 071
TEST CAL

PRESSUREMETER TEST REPORT

Test Reference No.	:	**51566080 - J28D0801**
Laboratory	:	FT Laboratories Ltd.
Address	:	Lot No. DD77 Section 1552 S.Ass 1RP, Ng Chow South Road, Ping Che, Fanling, N.T.
Telephone	:	(852) 2758 4861
Facsimile	:	(852) 2758 8962
Client	:	Driltech Ground Engineering Ltd.
Address	:	Blocks A & B, 8/F., Hong Kong Spinners Industrial Building Phase 6, 481-483 Castle Peak Road, Kowloon, Hong Kong
Contract No	:	GE/2022/08
Project Title	:	Contract No. : GE/2022/08 Ground Investigation - New Territories East
Test Method	:	ASTM D 4719-00 Standard Test Method for Prebored Pressuremeter Testing in Soils.
Date of order received	:	26-Sep-23
Date of test conducted	:	28-Sep-23
Location of Test	:	Lung Kwu Tan
Test Results	:	The test results are detailed in the subsequent page(s) (The values given in this Test Report only relate to the unit-under-test and the values measured at the time of the test.)

Test performed and Reported by

NG Yat Hong

Report Certified by

☐ HO Tak Cho, Eric (Technical Manager)

☑ WONG Chun Hing (Asst. Operation Manager)

(HOKLAS Approved Signatory)

Date : 3/10/2023

Notes:

(1) The results shown in this report were determined by this laboratory in accordance with its terms of accreditation.

(2) This report shall not be reproduced, except in full, without the written approval of FT Laboratories Ltd.

FT Laboratories Ltd

Pressuremeter Test

Project	:	Contract No. : GE/2022/08 Ground Investigation - New Territories East	
Site Location	:	Lung Kwu Tan	
Client	:	Driltech Ground Engineering Ltd.	
Contractor	:	N/A	
Sub-Contractor	:	N/A	
Test Date	:	28-Sep-23	
Weather	:	Fine	
Operator	:	NG Yat Hong	

* **Drillhole information**

Hole No.	:	BH3	
Test Depth below ground level	:	9.45m-10.45m	
Drilling tool diameter	:	63mm	
Drilling tool	:	Drilling Rig	
Drilling Fluid	:	Water	
Soil Description	:	N/A	
GWL Measured Below Ground Level	:	N/A	m

Pressuremeter Setting

Gauge no.	:	FT/INS/4.1 FT/INS/4.2 FT/INS/4.3	
Probe no.	:	FT/INS/4.7	
Probe Diameter	:	58mm	
Probe Calibration Date	:	17-Aug-23	
Gauge height	:	1 m AGL	
Pocket length	:	1000mm	
Type of protective sheath	:	Rubber	
Type of inner membrane	:	Rubber	
Initial Volume (Vo)	:	520	cm^3

Calibration and Correction Factors

Volume Correction	:	0.4	cm^3/bar
Gauge Correction Factor	:	1	
Gauge Height	:	1	m
GWL Measured Below Ground Level	:	N/A	m
Pressure Difference between Guard cells & Central cells	:	-0.005	bar

* Information provided by customer.

FT Laboratories Ltd

SUMMARY OF PRESSUREMETER TEST RESULTS

Project : Contract No. : GE/2022/08 Ground Investigation - New Territories East

Site Location : Lung Kwu Tan
Client : Driltech Ground Engineering Ltd.
Contractor : N/A
Sub-Contractor : N/A
Test Date : 28-Sep-23

Limit Pressure : 0.74 MPa

Drillhole No.	Test Depth (m)	Volume Range (cm^3) (Initial)		Shear Modulus (MPa)	Pressuremeter Modulus (MPa)
		(V_0)	(V_1)		
		42.80	73.40		
		Pressure Range (Bar) (Initial)			
		(P_0)	(P_1)		
BH3	9.45m-10.45m	0.59	1.67	2.04	5.43

Remarks : N/A

FT Laboratories Ltd

Project : Contract No. : GE/2022/08 Ground Investigation - New Territories East

Site Location : Lung Kwu Tan

Client : Driltech Ground Engineering Ltd.

Contractor : N/A

Sub-Contractor : N/A

Test Date : 28-Sep-23

Hole No. : BH3

Test Depth below ground level : 9.45m-10.45m

Field Data Summary

Gauge Pressure	Volume Change cm^3				
KPa($\times 10^2$)	15s	30s	60s	90	120s
0.0	0	0	0	0	0
0.25	27	32	34	34	35
0.50	39	40	41	42	43
1.00	52	54	57	58	59
1.50	68	70	72	73	74
2.00	84	87	94	97	99
3.00	123	132	149	165	172
4.00	201	219	247	266	279
5.00	320	344	393	438	474
6.00	537	562	604	645	686

PART II

This part of report contain opinion of the laboratory
and
is not covered under the HOKLAS accreditation

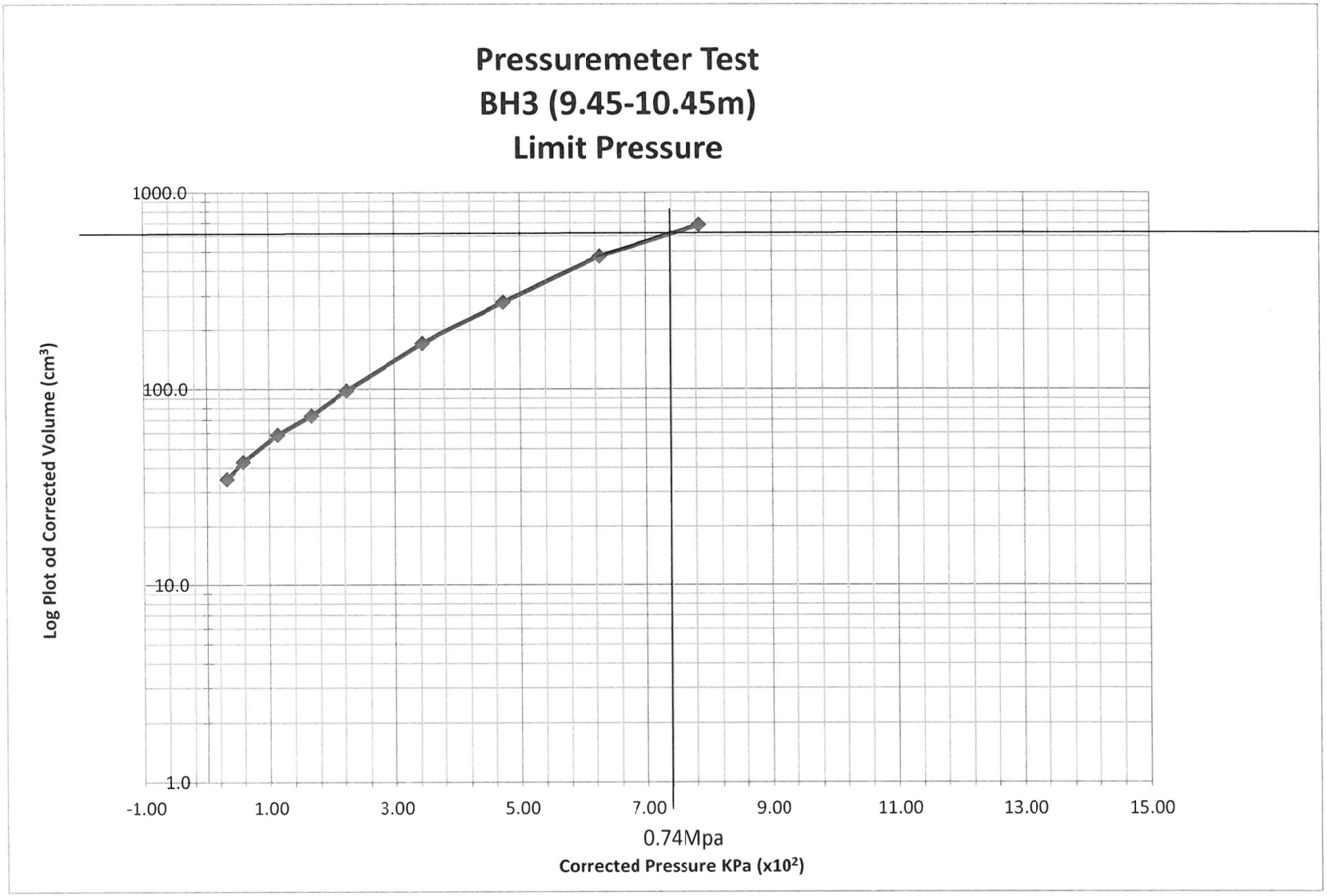
FT Laboratories Ltd

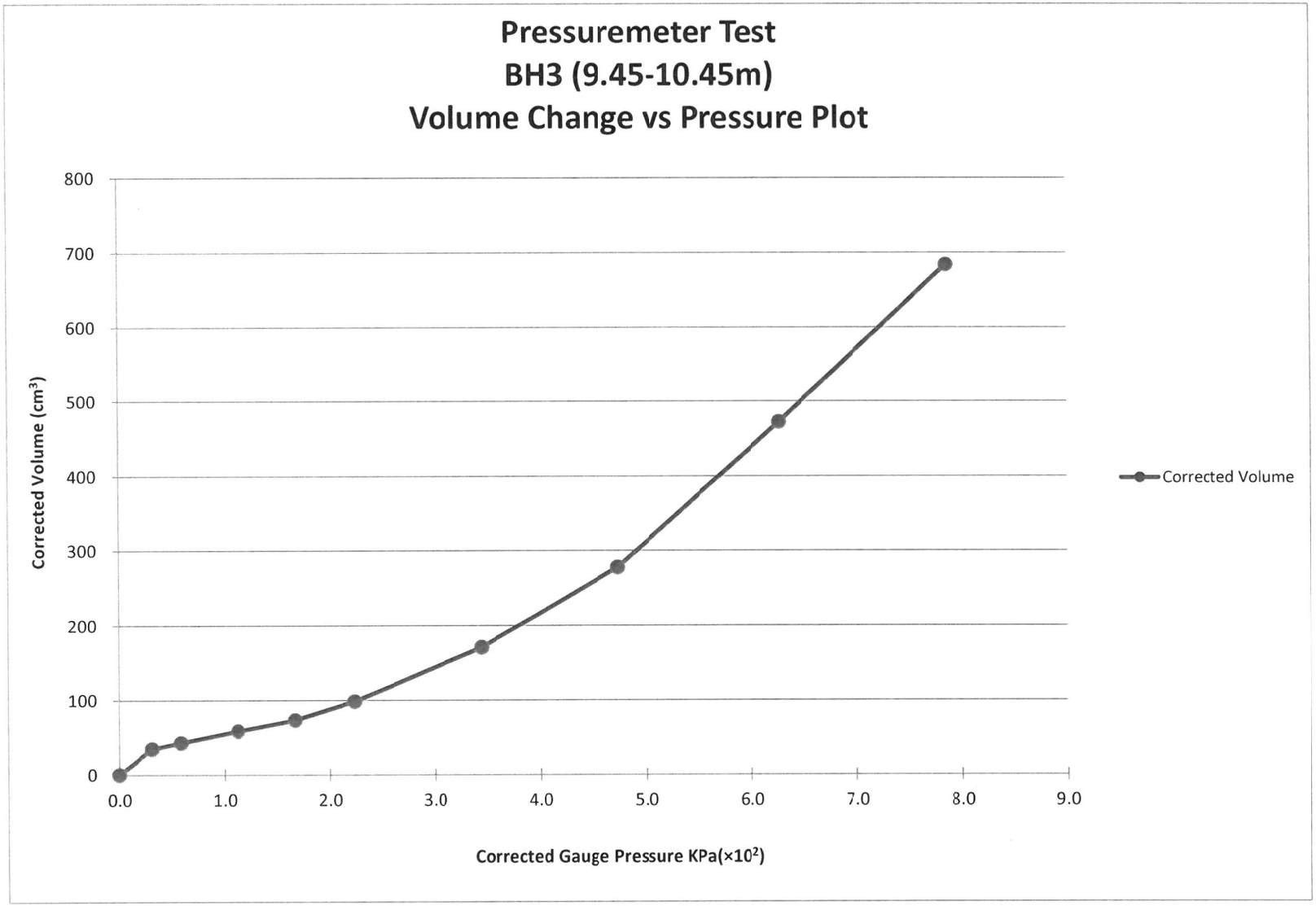
Project : Contract No. : GE/2022/08 Ground Investigation - New Territories East

Site Location : Lung Kwu Tan
Client : Driltech Ground Engineering Ltd.
Contractor : N/A
Sub-Contractor : N/A
Test Date : 28-Sep-23
Hole No. : BH3
Test Depth below ground level 9.45m-10.45m

Gauge Pressure	Time	Meas'd Vol.	Vol. at 120s	Creep Volume	Volume Correction	Corrected Volume	Probe Correction	Corrected Pressure	Corrected Volume Ratio
KPa(×10²)	(s)	(cm³)	(cm³)	(cm³)	(cm³)	(cm³)	KPa(×10²)	KPa(×10²)	
0	0	0	0	0	0	0	0.00	0.00	0.000
	15	27							
	30	32							
	60	34							
	90	34							
0.25	120	35	35	3	0.10	34.90	0.06	0.31	0.063
	15	39							
	30	40							
	60	41							
	90	42							
0.5	120	43	43	3	0.20	42.80	0.08	0.59	0.076
	15	52							
	30	54							
	60	57							
	90	58							
1	120	59	59	5	0.40	58.60	0.13	1.13	0.102
	15	68							
	30	70							
	60	72							
	90	73							
1.5	120	74	74	4	0.60	73.40	0.17	1.67	0.125
	15	84							
	30	87							
	60	94							
	90	97							
2	120	99	99	12	0.80	98.20	0.24	2.24	0.160
	15	123							
	30	132							
	60	149							
	90	165							
3	120	172	172	40	1.20	170.80	0.44	3.44	0.249
	15	201							
	30	219							
	60	247							
	90	266							
4	120	279	279	60	1.60	277.40	0.73	4.74	0.349
	15	320							
	30	344							
	60	393							
	90	438							
5	120	474	474	130	2.00	472.00	1.27	6.27	0.477
	0	537							
	30	562							
	60	604							
	90	645							
6	120	686	686	124	2.40	683.60	1.85	7.86	0.569

Comment : N/A


Pressuremeter Test
BH3 (9.45-10.45m)
Limit Pressure
1000.0
100.0
10.0
1.0
Log Plot od Corrected Volume (cm³)
-1.00
1.00
3.00
5.00
7.00
9.00
11.00
13.00
15.00
0.74Mpa
Corrected Pressure KPa (x10²)


Pressuremeter Test
BH3 (9.45-10.45m)
Volume Change vs Pressure Plot
800
700
600
500
400
300
200
100
0
Corrected Volume (cm³)
0.0
1.0
2.0
3.0
4.0
5.0
6.0
7.0
8.0
9.0
Corrected Gauge Pressure KPa(×10²)
Corrected Volume

Appendix A:

Calibration Certificate

FT Laboratories Ltd

Pressure Losses Calibration Record

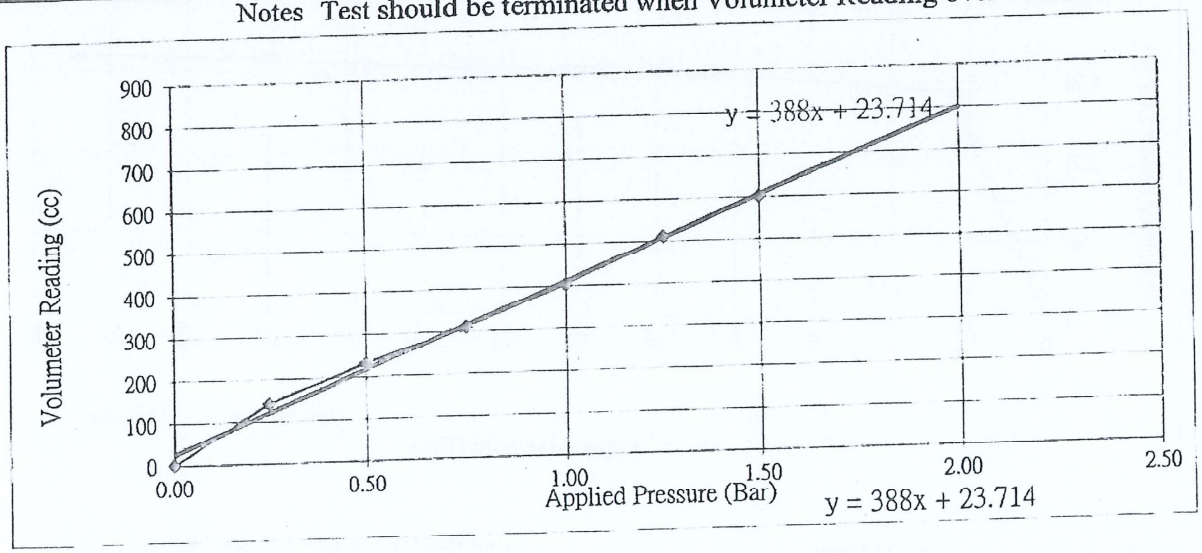
Item Calibrated	Name / Description :	Pressuremeter Control Unit	Pressuremeter Test Probe	50m Twin High Pressure Leads	Pressure Gauges	Pressure Gauges	Pressure Gauges
	Ept. No :	INS/4	INS/4.7	INS/4.12	INS/4.1	INS/4.2	INS/4.3
	Manufacturer :	Apageo Segelm S.A.	Apageo Segelm S.A.	Apageo Segelm S.A.	Blondelle S.A.	Blondelle S.A.	Blondelle S.A.

Date of Calibration : 17-Aug-23

Calibration Procedure : The pressuremeter probe was pressurised in small increments and allowed to inflate under atmospheric conditions. Volume change was recorded against pressure. The pressure correction at a certain volume change represents the interia of probe.

Applied Pressure	(Bar)	0.00	0.25	0.50	0.75	1.00	1.25	1.50
Volumeter Reading after 1-min holding	(cc)	0	143	231	311	405	511	602
Applied Pressure	(Bar)	1.75	2.00	2.25	2.50	2.75		
Volumeter Reading after 1-min holding	(cc)							

Notes Test should be terminated when Volumeter Reading over 700cc.



Calibrated By : Ng Yat Hong

Date : 17-Aug-23

Certified By : WONG Chun Hing

Date : 17-Aug-23

FT Laboratories Ltd

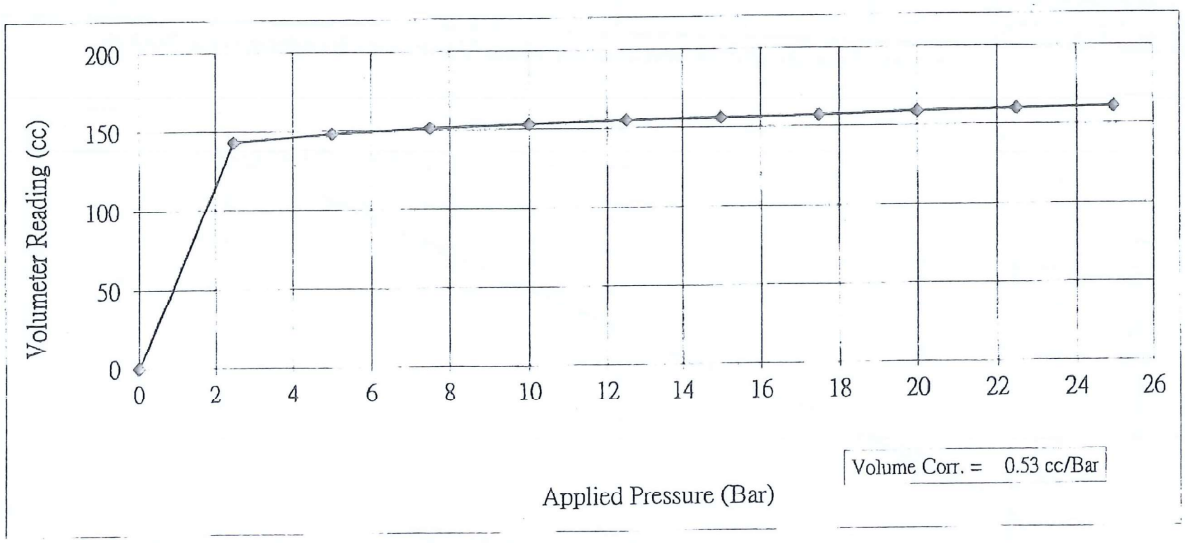
Volume Losses Calibration Record

Item Calibrated	Name / Description :	Pressuremeter Control Unit	Pressuremeter Test Probe	50m Twin High Pressure Leads	Pressure Gauges	Pressure Gauges	Pressure Gauges
	Ept. No :	INS/4	INS/4.7	INS/4.12	INS/4.1	INS/4.2	INS/4.3
	Manufacturer :	Apageo Segelm S.A.	Apageo Segelm S.A.	Apageo Segelm S.A.	Blondelle S.A.	Blondelle S.A.	Blondelle S.A.

Date of Calibration : 17-Aug-23

Calibration Procedure : The pressuremeter probe was pressurised in small increments and allowed to inflate under atmospheric conditions. Volume change was recorded against pressure. The pressure correction at a certain volume change represents the interia of probe.

Applied Pressure (Bar)	0.0	2.5	5.0	7.5	10.0	12.5	15.0
Volumeter Reading after 1-min holding (cc)	0	143	148	151	153	155	156
Applied Pressure (Bar)	17.5	20.0	22.5	25.0			
Volumeter Reading after 1-min holding (cc)	157	159	160	161			



Calibrated By : Ng Yat Hong

Date : 17-Aug-23

Certified By : WONG Chun Hing

Date : 17-Aug-23

Appendix B: Location Plan

Not provided by customer

FT Laboratories Ltd
科達測檢試驗所有限公司

HOKLAS 071
TEST CAL

Reference No.: (J28D0802)

Job No.: (51566080)

Pressuremeter Test at

Contract No. : GE/2022/08 Ground Investigation - New Territories East

Contract No. : GE/2022/08

Borehole No.: BH3

Test Zone : 11.55m-12.55m

Lot No. DD77 Section 1552 S.Ass 1RP, Ng Chow South Road, Ping Che, Fanling, N.T.
P.O. Box 830, Fanling Post Office, Fanling, N.T.
Tel: (852) 2758 4861 Fax: (852) 2758 8962
http://www.ft.com.hk

PART I

HOKLAS Test Report

FT Laboratories Ltd.
科達測檢試驗所有限公司

HOKLAS 071
TEST CAL

PRESSUREMETER TEST REPORT

Test Reference No.	:	**51566080 - J28D0802**
Laboratory	:	FT Laboratories Ltd.
Address	:	Lot No. DD77 Section 1552 S.Ass 1RP, Ng Chow South Road, Ping Che, Fanling, N.T.
Telephone	:	(852) 2758 4861
Facsimile	:	(852) 2758 8962
Client	:	Driltech Ground Engineering Ltd.
Address	:	Blocks A & B, 8/F., Hong Kong Spinners Industrial Building Phase 6, 481-483 Castle Peak Road, Kowloon, Hong Kong
Contract No	:	GE/2022/08
Project Title	:	Contract No. : GE/2022/08 Ground Investigation - New Territories East
Test Method	:	ASTM D 4719-00 Standard Test Method for Prebored Pressuremeter Testing in Soils.
Date of order received	:	26-Sep-23
Date of test conducted	:	28-Sep-23
Location of Test	:	Lung Kwu Tan
Test Results	:	The test results are detailed in the subsequent page(s) (The values given in this Test Report only relate to the unit-under-test and the values measured at the time of the test.)

Test performed and Reported by

NG Yat Hong

Report Certified by

☐ HO Tak Cho, Eric (Technical Manager)

☑ WONG Chun Hing (Asst. Operation Manager)

(HOKLAS Approved Signatory)

Date : 3/10/2023

Notes:

(1) The results shown in this report were determined by this laboratory in accordance with its terms of accreditation.

(2) This report shall not be reproduced, except in full, without the written approval of FT Laboratories Ltd.

FT Laboratories Ltd

Pressuremeter Test

Project	:	Contract No. : GE/2022/08 Ground Investigation - New Territories East
Site Location	:	Lung Kwu Tan
Client	:	Driltech Ground Engineering Ltd.
Contractor	:	N/A
Sub-Contractor	:	N/A
Test Date	:	28-Sep-23
Weather	:	Fine
Operator	:	NG Yat Hong

* **Drillhole information**

Hole No.	:	BH3	
Test Depth below ground level	:	11.55m-12.55m	
Drilling tool diameter	:	63mm	
Drilling tool	:	Drilling Rig	
Drilling Fluid	:	Water	
Soil Description	:	N/A	
GWL Measured Below Ground Level	:	N/A	m

Pressuremeter Setting

Gauge no.	:	FT/INS/4.1 FT/INS/4.2 FT/INS/4.3	
Probe no.	:	FT/INS/4.7	
Probe Diameter	:	58mm	
Probe Calibration Date	:	17-Aug-23	
Gauge height	:	1 m AGL	
Pocket length	:	1000mm	
Type of protective sheath	:	Rubber	
Type of inner membrane	:	Rubber	
Initial Volume (Vo)	:	520	cm^3

Calibration and Correction Factors

Volume Correction	:	0.4	cm^3/bar
Gauge Correction Factor	:	1	
Gauge Height	:	1	m
GWL Measured Below Ground Level	:	N/A	m
Pressure Difference between Guard cells & Central cells	:	0.205	bar

* Information provided by customer.

FT Laboratories Ltd

SUMMARY OF PRESSUREMETER TEST RESULTS

Project : Contract No. : GE/2022/08 Ground Investigation - New Territories East

Site Location : Lung Kwu Tan
Client : Driltech Ground Engineering Ltd.
Contractor : N/A
Sub-Contractor : N/A
Test Date : 28-Sep-23

Limit Pressure : 0.50 MPa

Drillhole No.	Test Depth (m)	Volume Range (cm^3) (Initial)		Shear Modulus (MPa)	Pressuremeter Modulus (MPa)
		(V_0)	(V_1)		
		65.80	166.40		
		Pressure Range (Bar) (Initial)			
		(P_0)	(P_1)		
BH3	11.55m-12.55m	0.44	1.72	0.81	2.15

Remarks : N/A

FT Laboratories Ltd

Project : Contract No. : GE/2022/08 Ground Investigation - New Territories East

Site Location : Lung Kwu Tan
Client : Driltech Ground Engineering Ltd.
Contractor : N/A
Sub-Contractor : N/A
Test Date : 28-Sep-23
Hole No. : BH3
Test Depth below ground level : 11.55m-12.55m

Field Data Summary

Gauge Pressure	Volume Change cm^3				
KPa($\times 10^2$)	15s	30s	60s	90	120s
0.0	0	0	0	0	0
0.25	23	31	39	46	48
0.50	59	62	63	65	66
1.00	89	96	106	112	116
1.50	141	149	155	160	167
2.00	196	209	226	242	256
2.50	291	309	334	356	385
3.00	424	459	497	523	550
3.50	594	626	663	695	695

PART II

This part of report contain opinion of the laboratory
and
is not covered under the HOKLAS accreditation

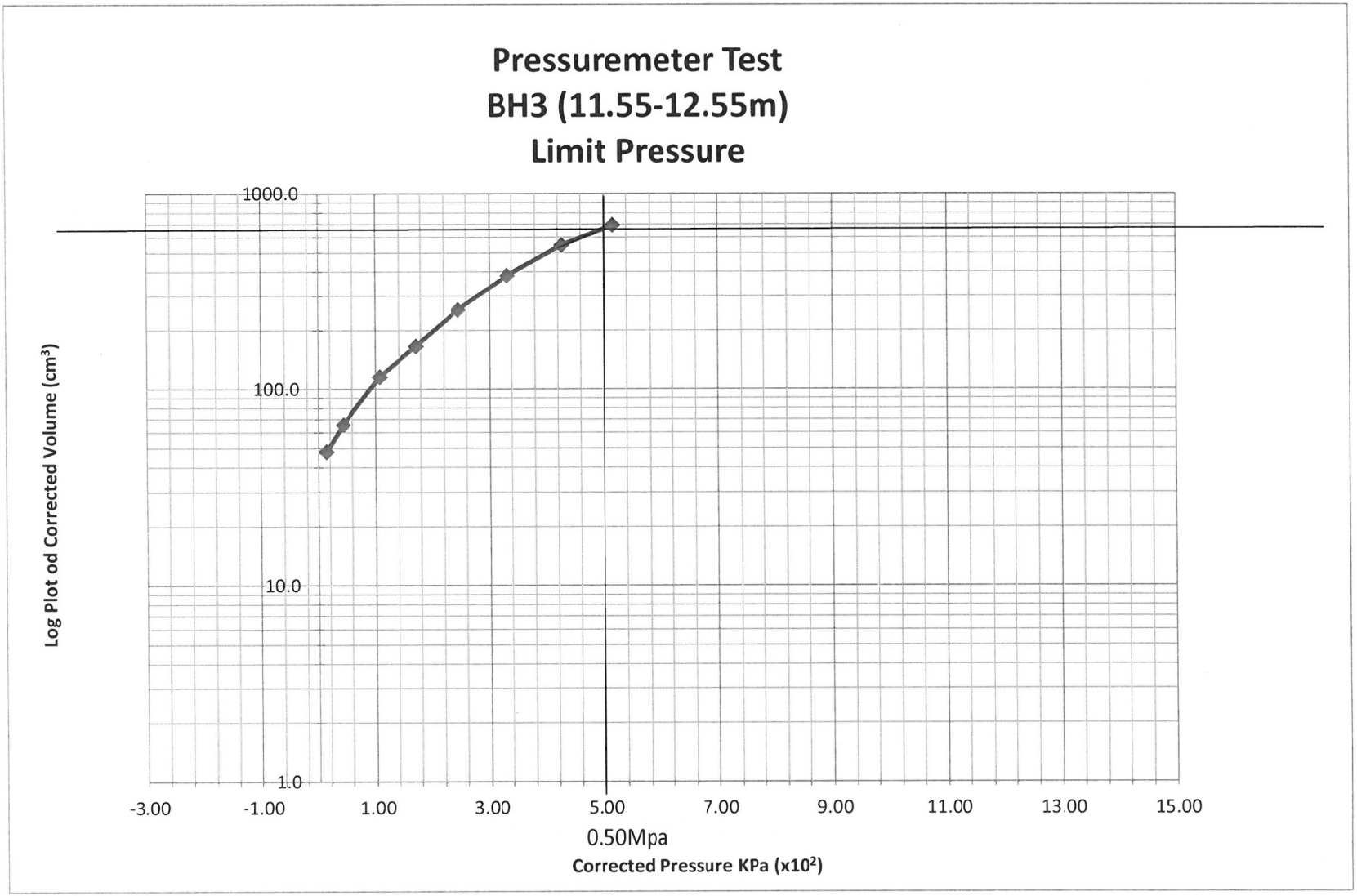
FT Laboratories Ltd

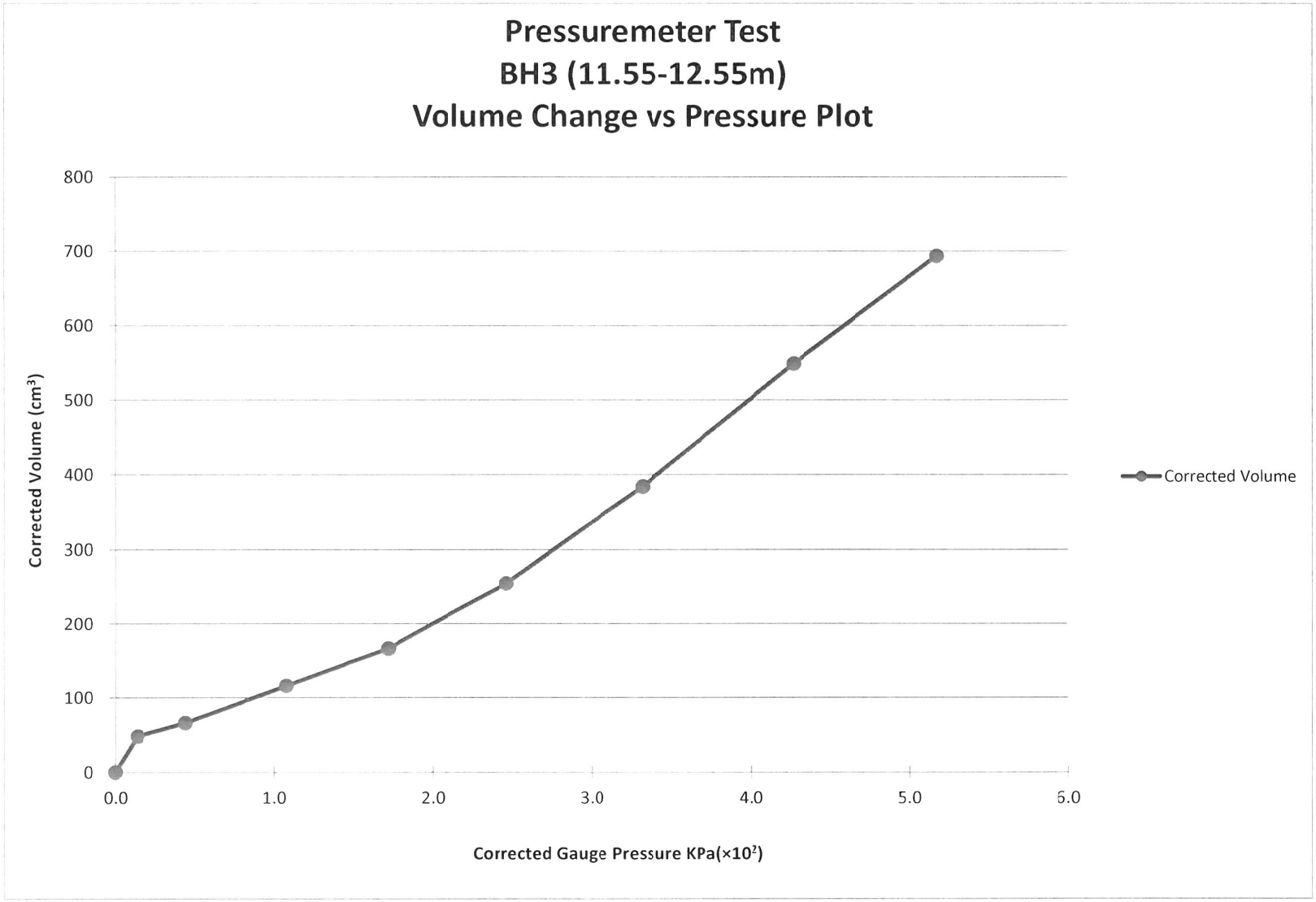
Project : Contract No. : GE/2022/08 Ground Investigation - New Territories East

Site Location : Lung Kwu Tan
Client : Driltech Ground Engineering Ltd.
Contractor : N/A
Sub-Contractor : N/A
Test Date : 28-Sep-23
Hole No. : BH3
Test Depth below ground level 11.55m-12.55m

Gauge Pressure	Time	Meas'd Vol.	Vol. at 120s	Creep Volume	Volume Correction	Corrected Volume	Probe Correction	Corrected Pressure	Corrected Volume Ratio
KPa(×10²)	(s)	(cm^3)	(cm^3)	(cm^3)	(cm^3)	(cm^3)	KPa(×10²)	KPa(×10²)	
0	0	0	0	0	0	0	0.00	0.00	0.000
	15	23							
	30	31							
	60	39							
	90	46							
0.25	120	48	48	17	0.10	47.90	0.10	0.14	0.085
	15	59							
	30	62							
	60	63							
	90	65							
0.5	120	66	66	4	0.20	65.80	0.14	0.44	0.113
	15	89							
	30	96							
	60	106							
	90	112							
1	120	116	116	20	0.40	115.60	0.28	1.08	0.182
	15	141							
	30	149							
	60	155							
	90	160							
1.5	120	167	167	18	0.60	166.40	0.42	1.72	0.243
	15	196							
	30	209							
	60	226							
	90	242							
2	120	256	256	47	0.80	255.20	0.67	2.46	0.330
	15	291							
	30	309							
	60	334							
	90	356							
2.5	120	385	385	76	1.00	384.00	1.02	3.32	0.425
	15	424							
	30	459							
	60	497							
	90	523							
3	120	550	550	91	1.20	548.80	1.48	4.27	0.514
	15	594							
	30	626							
	60	663							
	90	695							
3.5	120	695	695	69	1.40	693.60	1.87	5.17	0.572

Comment : N/A


Pressuremeter Test
BH3 (11.55-12.55m)
Limit Pressure
1000.0
100.0
10.0
1.0
Log Plot od Corrected Volume (cm³)
-3.00
-1.00
1.00
3.00
5.00
7.00
9.00
11.00
13.00
15.00
0.50Mpa
Corrected Pressure KPa (x10²)


Pressuremeter Test
BH3 (11.55-12.55m)
Volume Change vs Pressure Plot
800
700
600
500
400
300
200
100
0
Corrected Volume (cm³)
0.0
1.0
2.0
3.0
4.0
5.0
6.0
Corrected Gauge Pressure KPa(×10²)
Corrected Volume

Appendix A:

Calibration Certificate

FT Laboratories Ltd

Pressure Losses Calibration Record

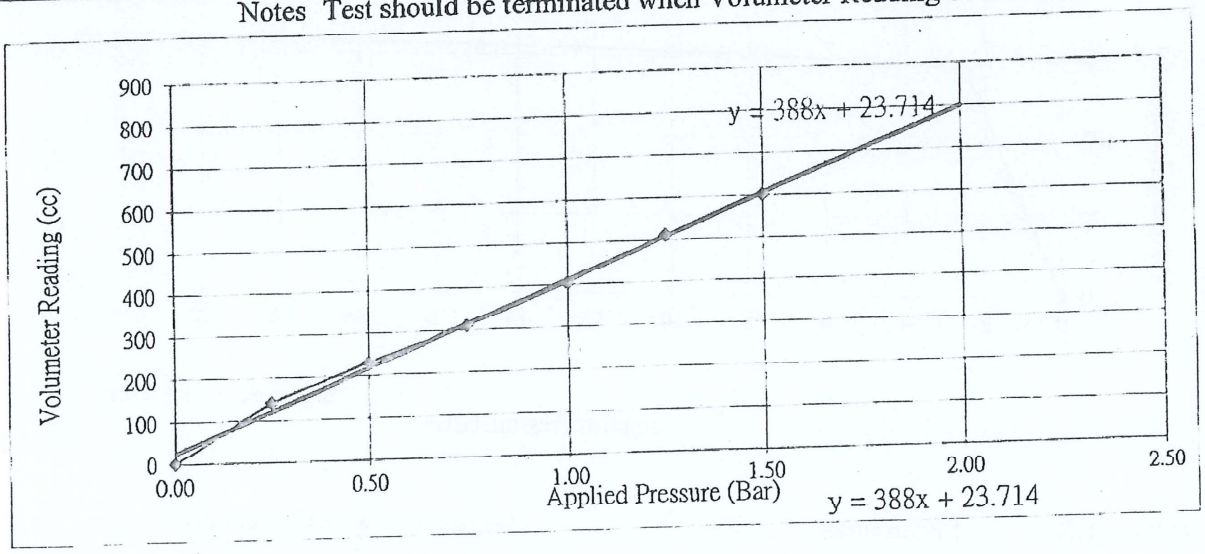
Item Calibrated	Name / Description :	Pressuremeter Control Unit	Pressuremeter Test Probe	50m Twin High Pressure Leads	Pressure Gauges	Pressure Gauges	Pressure Gauges
	Ept. No :	INS/4	INS/4.7	INS/4.12	INS/4.1	INS/4.2	INS/4.3
	Manufacturer :	Apageo Segelm S.A.	Apageo Segelm S.A.	Apageo Segelm S.A.	Blondelle S.A.	Blondelle S.A.	Blondelle S.A.

Date of Calibration : 17-Aug-23

Calibration Procedure : The pressuremeter probe was pressurised in small increments and allowed to inflate under atmospheric conditions. Volume change was recorded against pressure. The pressure correction at a certain volume change represents the interia of probe.

Applied Pressure	(Bar)	0.00	0.25	0.50	0.75	1.00	1.25	1.50
Volumeter Reading after 1-min holding	(cc)	0	143	231	311	405	511	602
Applied Pressure	(Bar)	1.75	2.00	2.25	2.50	2.75		
Volumeter Reading after 1-min holding	(cc)							

Notes Test should be terminated when Volumeter Reading over 700cc.



Calibrated By : Ng Yat Hong

Date : 17-Aug-23

Certified By : WONG Chun Hing

Date : 17-Aug-23

FT Laboratories Ltd

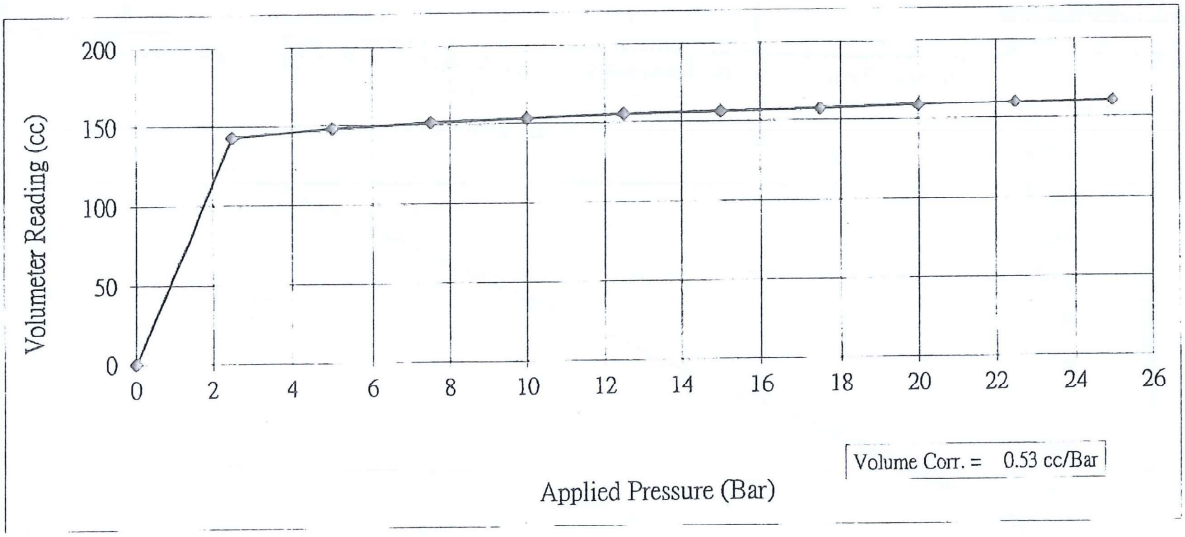
Volume Losses Calibration Record

Item Calibrated	Name / Description :	Pressuremeter Control Unit	Pressuremeter Test Probe	50m Twin High Pressure Leads	Pressure Gauges	Pressure Gauges	Pressure Gauges
	Ept. No :	INS/4	INS/4.7	INS/4.12	INS/4.1	INS/4.2	INS/4.3
	Manufacturer :	Apageo Segelm S.A.	Apageo Segelm S.A.	Apageo Segelm S.A.	Blondelle S.A.	Blondelle S.A.	Blondelle S.A.

Date of Calibration : 17-Aug-23

Calibration Procedure : The pressuremeter probe was pressurised in small increments and allowed to inflate under atmospheric conditions. Volume change was recorded against pressure. The pressure correction at a certain volume change represents the interia of probe.

Applied Pressure (Bar)	0.0	2.5	5.0	7.5	10.0	12.5	15.0
Volumeter Reading after 1-min holding (cc)	0	143	148	151	153	155	156
Applied Pressure (Bar)	17.5	20.0	22.5	25.0			
Volumeter Reading after 1-min holding (cc)	157	159	160	161			



Calibrated By : Ng Yat Hong

Date : 17-Aug-23

Certified By : WONG Chun Hing

Date : 17-Aug-23

Appendix B: Location Plan

Not provided by customer

FT Laboratories Ltd
科達測檢試驗所有限公司

HOKLAS 071
TEST CAL

Reference No.: (K10D0401)

Job No.: (51566080)

Pressuremeter Test at

Contract No. : GE/2022/08 Ground Investigation - New Territories East

Contract No. : GE/2022/08

Borehole No.: BH4

Test Zone : 4.00m-5.00m

Lot No. DD77 Section 1552 S.Ass 1RP, Ng Chow South Road, Ping Che, Fanling, N.T.
P.O. Box 830, Fanling Post Office, Fanling, N.T.
Tel: (852) 2758 4861 Fax: (852) 2758 8962
http://www.ft.com.hk

PART I

HOKLAS Test Report

FT Laboratories Ltd.
科達測檢試驗所有限公司

HOKLAS 071
TEST CAL

PRESSUREMETER TEST REPORT

Test Reference No.	:	**51566080 - K10D0401**
Laboratory	:	FT Laboratories Ltd.
Address	:	Lot No. DD77 Section 1552 S.Ass 1RP, Ng Chow South Road, Ping Che, Fanling, N.T.
Telephone	:	(852) 2758 4861
Facsimile	:	(852) 2758 8962
Client	:	Driltech Ground Engineering Ltd.
Address	:	Blocks A & B, 8/F., Hong Kong Spinners Industrial Building Phase 6, 481-483 Castle Peak Road, Kowloon, Hong Kong
Contract No	:	GE/2022/08
Project Title	:	Contract No. : GE/2022/08 Ground Investigation - New Territories East
Test Method	:	ASTM D 4719-00 Standard Test Method for Prebored Pressuremeter Testing in Soils.
Date of order received	:	9-Oct-23
Date of test conducted	:	10-Oct-23
Location of Test	:	Lung Kwu Tan
Test Results	:	The test results are detailed in the subsequent page(s) (The values given in this Test Report only relate to the unit-under-test and the values measured at the time of the test.)

Test performed and Reported by

NG Yat Hong

Report Certified by

☐ HO Tak Cho, Eric (~~Technical Manager~~)

☑ WONG Chun Hing (Asst. Operation Manager)

(HOKLAS Approved Signatory)

Date : 17/10/2023

Notes:

(1) The results shown in this report were determined by this laboratory in accordance with its terms of accreditation.

(2) This report shall not be reproduced, except in full, without the written approval of FT Laboratories Ltd.

FT Laboratories Ltd

Pressuremeter Test

Project	:	Contract No. : GE/2022/08 Ground Investigation - New Territories East	
Site Location	:	Lung Kwu Tan	
Client	:	Driltech Ground Engineering Ltd.	
Contractor	:	N/A	
Sub-Contractor	:	N/A	
Test Date	:	10-Oct-23	
Weather	:	Fine	
Operator	:	NG Yat Hong	

* **Drillhole information**

Hole No.	:	BH4	
Test Depth below ground level	:	4.00m-5.00m	
Drilling tool diameter	:	63mm	
Drilling tool	:	Drilling Rig	
Drilling Fluid	:	Water	
Soil Description	:	N/A	
GWL Measured Below Ground Level	:	N/A	m

Pressuremeter Setting

Gauge no.	:	FT/INS/4.1 FT/INS/4.2 FT/INS/4.3	
Probe no.	:	FT/INS/4.7	
Probe Diameter	:	58mm	
Probe Calibration Date	:	17-Aug-23	
Gauge height	:	1 m AGL	
Pocket length	:	1000mm	
Type of protective sheath	:	Rubber	
Type of inner membrane	:	Rubber	
Initial Volume (Vo)	:	520	cm^3

Calibration and Correction Factors

Volume Correction	:	0.4	cm^3/bar
Gauge Correction Factor	:	1	
Gauge Height	:	1	m
GWL Measured Below Ground Level	:	N/A	m
Pressure Difference between Guard cells & Central cells	:	-0.55	bar

* Information provided by customer.

FT Laboratories Ltd

SUMMARY OF PRESSUREMETER TEST RESULTS

Project : Contract No. : GE/2022/08 Ground Investigation - New Territories East

Site Location : Lung Kwu Tan
Client : Driltech Ground Engineering Ltd.
Contractor : N/A
Sub-Contractor : N/A
Test Date : 10-Oct-23

Limit Pressure : 0.77 MPa

Drillhole No.	Test Depth (m)	Volume Range (cm^3) (Initial)		Shear Modulus (MPa)	Pressuremeter Modulus (MPa)
		(V_0)	(V_1)		
		67.90	196.00		
		Pressure Range (Bar) (Initial)			
		(P_0)	(P_1)		
BH4	4.00m-5.00m	0.96	3.56	1.32	3.52

Remarks : N/A

FT Laboratories Ltd

Project : Contract No. : GE/2022/08 Ground Investigation - New Territories East

Site Location : Lung Kwu Tan
Client : Driltech Ground Engineering Ltd.
Contractor : N/A
Sub-Contractor : N/A
Test Date : 10-Oct-23
Hole No. : BH4
Test Depth below ground level : 4.00m-5.00m

Field Data Summary

Gauge Pressure	Volume Change cm^3				
KPa($\times 10^2$)	15s	30s	60s	90	120s
0.0	0	0	0	0	0
0.25	42	56	63	66	68
0.50	74	77	78	79	80
1.00	97	100	104	106	107
1.50	121	126	128	130	131
2.00	147	153	162	167	170
2.50	182	186	192	195	197
3.00	212	222	233	237	242
3.50	259	170	282	286	290
4.00	307	321	343	351	358
4.5	370	385	403	420	426
5.0	448	469	477	486	490
5.5	517	548	586	632	688

PART II

This part of report contain opinion of the laboratory
and
is not covered under the HOKLAS accreditation

FT Laboratories Ltd

Project : Contract No. : GE/2022/08 Ground Investigation - New Territories East

Site Location : Lung Kwu Tan
Client : Driltech Ground Engineering Ltd.
Contractor : N/A
Sub-Contractor : N/A
Test Date : 10-Oct-23
Hole No. : BH4
Test Depth below ground level 4.00m-5.00m

Gauge Pressure	Time	Meas'd Vol.	Vol. at 120s	Creep Volume	Volume Correction	Corrected Volume	Probe Correction	Corrected Pressure	Corrected Volume Ratio
KPa($\times 10^2$)	(s)	(cm^3)	(cm^3)	(cm^3)	(cm^3)	(cm^3)	KPa($\times 10^2$)	KPa($\times 10^2$)	
0	0	0	0	0	0	0	0.00	0.00	0.000
	15	42							
	30	56							
	60	63							
	90	66							
0.25	120	68	68	12	0.10	67.90	0.15	0.95	0.116
	15	74							
	30	77							
	60	78							
	90	79							
0.5	120	80	80	3	0.20	79.80	0.18	1.23	0.133
	15	97							
	30	100							
	60	104							
	90	106							
1	120	107	107	7	0.40	106.60	0.26	1.81	0.171
	15	121							
	30	126							
	60	128							
	90	130							
1.5	120	131	131	5	0.60	130.40	0.32	2.37	0.201
	15	147							
	30	153							
	60	162							
	90	167							
2	120	170	170	17	0.80	169.20	0.43	2.98	0.246
	15	182							
	30	186							
	60	192							
	90	195							
2.5	120	197	197	11	1.00	196.00	0.51	3.56	0.275
	15	212							
	30	222							
	60	233							
	90	237							
3	120	242	242	20	1.20	240.80	0.63	4.18	0.318

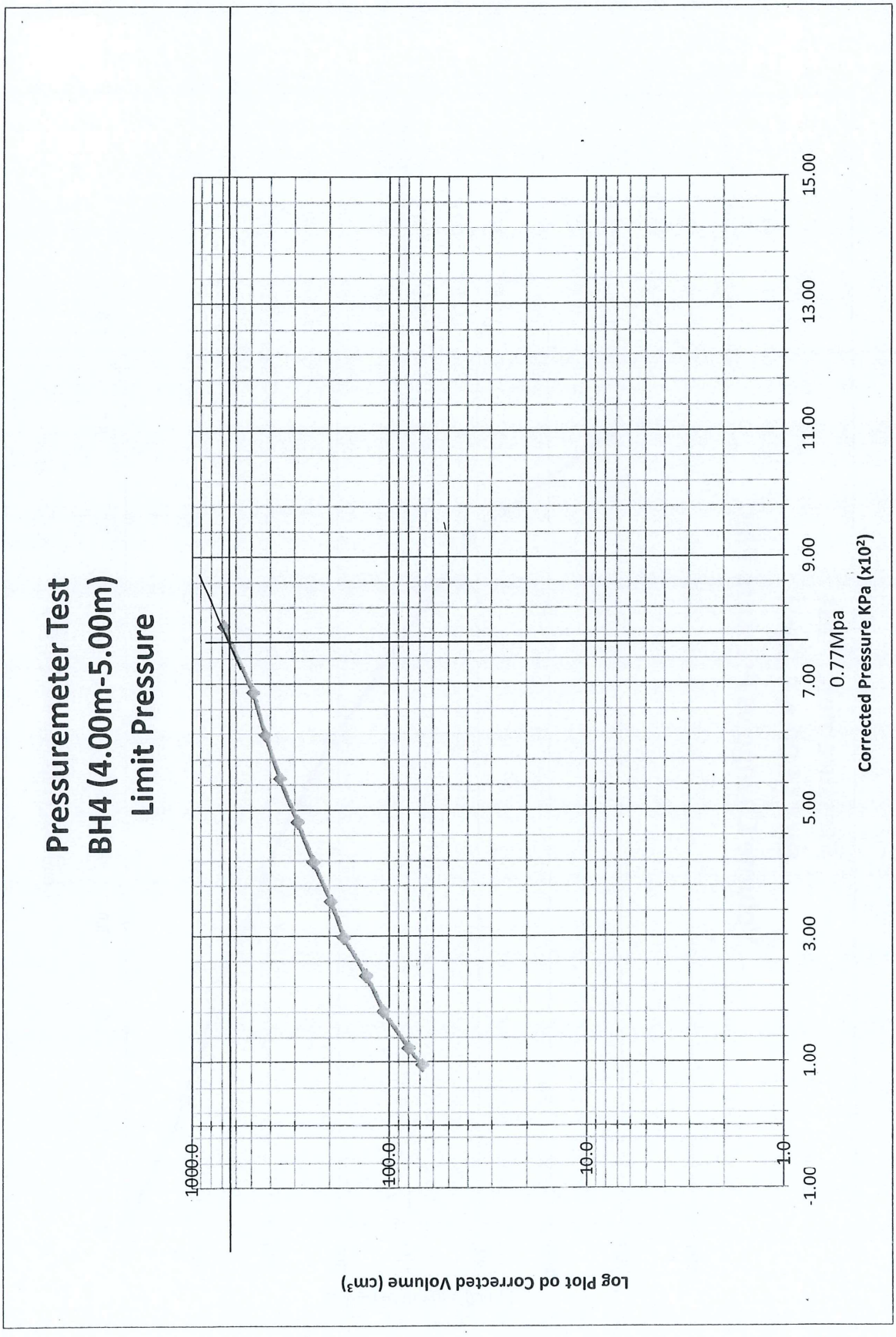
FT Laboratories Ltd

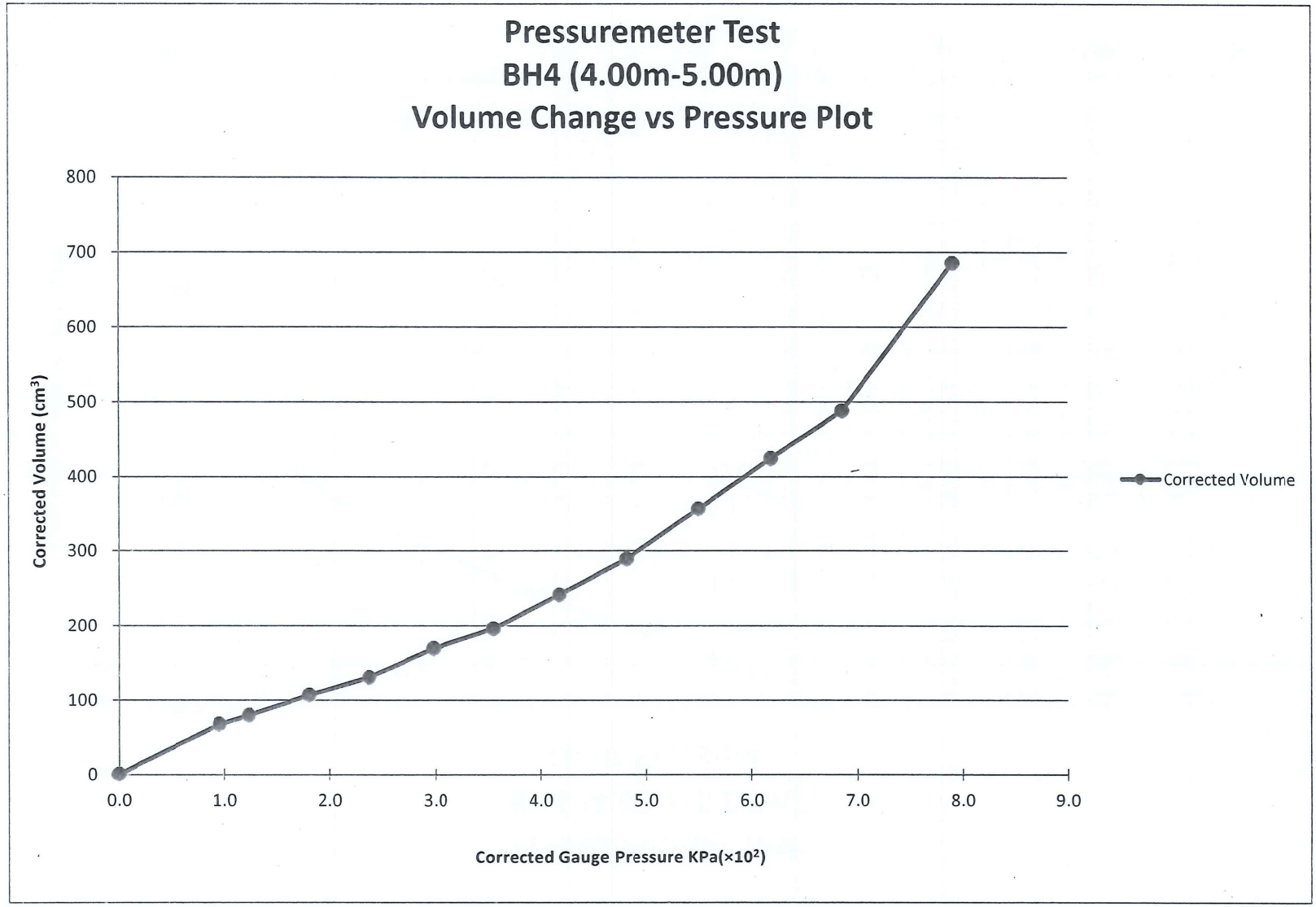
Project : Contract No. : GE/2022/08 Ground Investigation - New Territories East

Site Location : Lung Kwu Tan
Client : Driltech Ground Engineering Ltd.
Contractor : N/A
Sub-Contractor : N/A
Test Date : 10-Oct-23
Hole No. : BH4
Test Depth below ground level 4.00m-5.00m

Gauge Pressure	Time	Meas'd Vol.	Vol. at 120s	Creep Volume	Volume Correction	Corrected Volume	Probe Correction	Corrected Pressure	Corrected Volume Ratio
KPa(×10²)	(s)	(cm³)	(cm³)	(cm³)	(cm³)	(cm³)	KPa(×10²)	KPa(×10²)	
	15	259							
	30	170							
	60	282							
	90	286							
3.5	120	290	290	120	1.40	288.60	0.76	4.81	0.358
	0	307							
	30	321							
	60	343							
	90	351							
4	120	358	358	37	1.60	356.40	0.95	5.50	0.408
	0	370							
	30	385							
	60	403							
	90	420							
4.5	120	426	426	41	1.80	424.20	1.13	6.18	0.450
	15	448							
	30	469							
	60	477							
	90	486							
5	120	490	490	21	2.00	488.00	1.31	6.86	0.485
	15	517							
	30	548							
	60	586							
	90	632							
5.5	120	688	688	140	2.20	685.80	1.86	7.91	0.570

Comment : N/A


Pressuremeter Test
BH4 (4.00m-5.00m)
Limit Pressure
Log Plot od Corrected Volume (cm³)
1000.0
100.0
10.0
1.0
-1.00
1.00
3.00
5.00
7.00
9.00
11.00
13.00
15.00
0.77Mpa
Corrected Pressure KPa (x10²)


Pressuremeter Test
BH4 (4.00m-5.00m)
Volume Change vs Pressure Plot
Corrected Volume (cm³)
800
700
600
500
400
300
200
100
0
0.0
1.0
2.0
3.0
4.0
5.0
6.0
7.0
8.0
9.0
Corrected Gauge Pressure KPa(×10²)
Corrected Volume

Appendix A:
Calibration Certificate

FT Laboratories Ltd

Pressure Losses Calibration Record

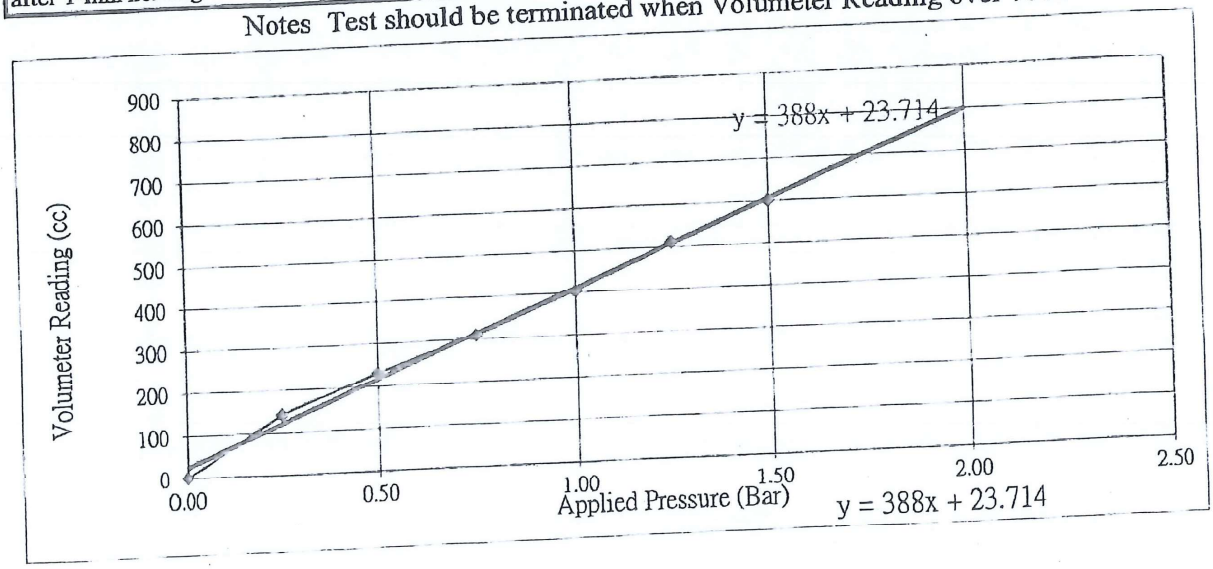
Item Calibrated	Name / Description :	Pressuremeter Control Unit	Pressuremeter Test Probe	50m Twin High Pressure Leads	Pressure Gauges	Pressure Gauges	Pressure Gauges
	Ept. No :	INS/4	INS/4.7	INS/4.12	INS/4.1	INS/4.2	INS/4.3
	Manufacturer :	Apageo Segelm S.A.	Apageo Segelm S.A.	Apageo Segelm S.A.	Blondelle S.A.	Blondelle S.A.	Blondelle S.A.

Date of Calibration : 17-Aug-23

Calibration Procedure : The pressuremeter probe was pressurised in small increments and allowed to inflate under atmospheric conditions. Volume change was recorded against pressure. The pressure correction at a certain volume change represents the interia of probe.

Applied Pressure	(Bar)	0.00	0.25	0.50	0.75	1.00	1.25	1.50
Volumeter Reading after 1-min holding	(cc)	0	143	231	311	405	511	602
Applied Pressure	(Bar)	1.75	2.00	2.25	2.50	2.75		
Volumeter Reading after 1-min holding	(cc)							

Notes Test should be terminated when Volumeter Reading over 700cc.



Calibrated By : Ng Yat Hong

Date : 17-Aug-23

Certified By : WONG Chun Hing

Date : 17-Aug-23

FT Laboratories Ltd

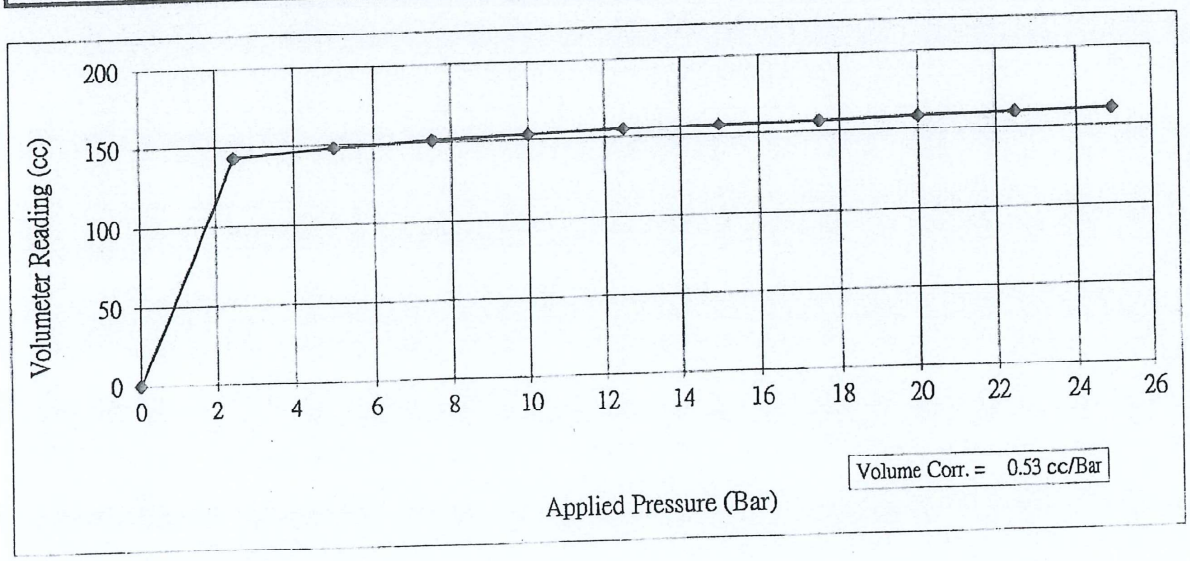
Volume Losses Calibration Record

Item Calibrated	Name / Description :	Pressuremeter Control Unit	Pressuremeter Test Probe	50m Twin High Pressure Leads	Pressure Gauges	Pressure Gauges	Pressure Gauges
	Ept. No :	INS/4	INS/4.7	INS/4.12	INS/4.1	INS/4.2	INS/4.3
	Manufacturer :	Apageo Segelm S.A.	Apageo Segelm S.A.	Apageo Segelm S.A.	Blondelle S.A.	Blondelle S.A.	Blondelle S.A.

Date of Calibration : 17-Aug-23

Calibration Procedure : The pressuremeter probe was pressurised in small increments and allowed to inflate under atmospheric conditions. Volume change was recorded against pressure. The pressure correction at a certain volume change represents the interia of probe.

Applied Pressure (Bar)	0.0	2.5	5.0	7.5	10.0	12.5	15.0
Volumeter Reading after 1-min holding (cc)	0	143	148	151	153	155	156
Applied Pressure (Bar)	17.5	20.0	22.5	25.0			
Volumeter Reading after 1-min holding (cc)	157	159	160	161			



Calibrated By : Ng Yat Hong

Date : 17-Aug-23

Certified By : WONG Chun Hing

Date : 17-Aug-23

Appendix B: Location Plan

Not provided by customer

FT Laboratories Ltd
科達測檢試驗所有限公司

HOKLAS 071
TEST CAL

Reference No.: (K10D0402)

Job No.: (51566080)

Pressuremeter Test at

Contract No. : GE/2022/08 Ground Investigation - New Territories East

Contract No. : GE/2022/08

Borehole No.: BH4

Test Zone : 6.10m-7.10m

Lot No. DD77 Section 1552 S.Ass 1RP, Ng Chow South Road, Ping Che, Fanling, N.T.
P.O. Box 830, Fanling Post Office, Fanling, N.T.
Tel: (852) 2758 4861 Fax: (852) 2758 8962
http://www.ft.com.hk

FT Laboratories Ltd.
科達測檢試驗所有限公司

HOKLAS 071
TEST CAL

PRESSUREMETER TEST REPORT

Test Reference No.	:	**51566080 - K10D0402**
Laboratory	:	FT Laboratories Ltd.
Address	:	Lot No. DD77 Section 1552 S.Ass 1RP, Ng Chow South Road, Ping Che, Fanling, N.T.
Telephone	:	(852) 2758 4861
Facsimile	:	(852) 2758 8962
Client	:	Driltech Ground Engineering Ltd.
Address	:	Blocks A & B, 8/F., Hong Kong Spinners Industrial Building Phase 6, 481-483 Castle Peak Road, Kowloon, Hong Kong
Contract No	:	GE/2022/08
Project Title	:	Contract No. : GE/2022/08 Ground Investigation - New Territories East
Test Method	:	ASTM D 4719-00 Standard Test Method for Prebored Pressuremeter Testing in Soils.
Date of order received	:	9-Oct-23
Date of test conducted	:	10-Oct-23
Location of Test	:	Lung Kwu Tan
Test Results	:	The test results are detailed in the subsequent page(s) (The values given in this Test Report only relate to the unit-under-test and the values measured at the time of the test.)

Test performed and Reported by

NG Yat Hong

Report Certified by

☐ HO Tak Cho, Eric (Technical Manager)

☑ WONG Chun Hing (Asst. Operation Manager)

(HOKLAS Approved Signatory)

Date : 17/10/2023

Notes:

(1) The results shown in this report were determined by this laboratory in accordance with its terms of accreditation.

(2) This report shall not be reproduced, except in full, without the written approval of FT Laboratories Ltd.

FT Laboratories Ltd

Pressuremeter Test

Project	:	Contract No. : GE/2022/08 Ground Investigation - New Territories East	
Site Location	:	Lung Kwu Tan	
Client	:	Driltech Ground Engineering Ltd.	
Contractor	:	N/A	
Sub-Contractor	:	N/A	
Test Date	:	10-Oct-23	
Weather	:	Fine	
Operator	:	NG Yat Hong	

* **Drillhole information**

Hole No.	:	BH4	
Test Depth below ground level	:	6.10m-7.10m	
Drilling tool diameter	:	63mm	
Drilling tool	:	Drilling Rig	
Drilling Fluid	:	Water	
Soil Description	:	N/A	
GWL Measured Below Ground Level	:	N/A	m

Pressuremeter Setting

Gauge no.	:	FT/INS/4.1 FT/INS/4.2 FT/INS/4.3	
Probe no.	:	FT/INS/4.7	
Probe Diameter	:	58mm	
Probe Calibration Date	:	17-Aug-23	
Gauge height	:	1 m AGL	
Pocket length	:	1000mm	
Type of protective sheath	:	Rubber	
Type of inner membrane	:	Rubber	
Initial Volume (Vo)	:	520	cm^3

Calibration and Correction Factors

Volume Correction	:	0.4	cm^3/bar
Gauge Correction Factor	:	1	
Gauge Height	:	1	m
GWL Measured Below Ground Level	:	N/A	m
Pressure Difference between Guard cells & Central cells	:	-0.34	bar

* Information provided by customer.

FT Laboratories Ltd
SUMMARY OF PRESSUREMETER TEST RESULTS

Project : Contract No. : GE/2022/08 Ground Investigation - New Territories East

Site Location : Lung Kwu Tan
Client : Driltech Ground Engineering Ltd.
Contractor : N/A
Sub-Contractor : N/A
Test Date : 10-Oct-23

Limit Pressure : 1.00 MPa

Drillhole No.	Test Depth (m)	Volume Range (cm^3) (Initial)		Shear Modulus (MPa)	Pressuremeter Modulus (MPa)
		(V_0)	(V_1)		
		65.20	140.00		
		Pressure Range (Bar) (Initial)			
		(P_0)	(P_1)		
BH4	6.10m-7.10m	2.48	5.69	2.67	7.11

Remarks : N/A

FT Laboratories Ltd

Project : Contract No. : GE/2022/08 Ground Investigation - New Territories East

Site Location : Lung Kwu Tan
Client : Driltech Ground Engineering Ltd.
Contractor : N/A
Sub-Contractor : N/A
Test Date : 10-Oct-23
Hole No. : BH4
Test Depth below ground level : 6.10m-7.10m

Field Data Summary

Gauge Pressure	Volume Change cm^3				
KPa($\times 10^2$)	15s	30s	60s	90	120s
0.0	0	0	0	0	0
0.25	31	34	35	36	37
0.50	42	43	43	44	45
1.0	49	52	53	54	55
2.0	61	63	64	65	66
3.0	77	81	84	86	87
4.0	97	101	104	106	108
5.0	122	130	137	140	142
6.0	171	186	208	222	235
7.0	255	291	350	396	434
8.0	477	506	559	612	677

PART II

This part of report contain opinion of the laboratory
and
is not covered under the HOKLAS accreditation

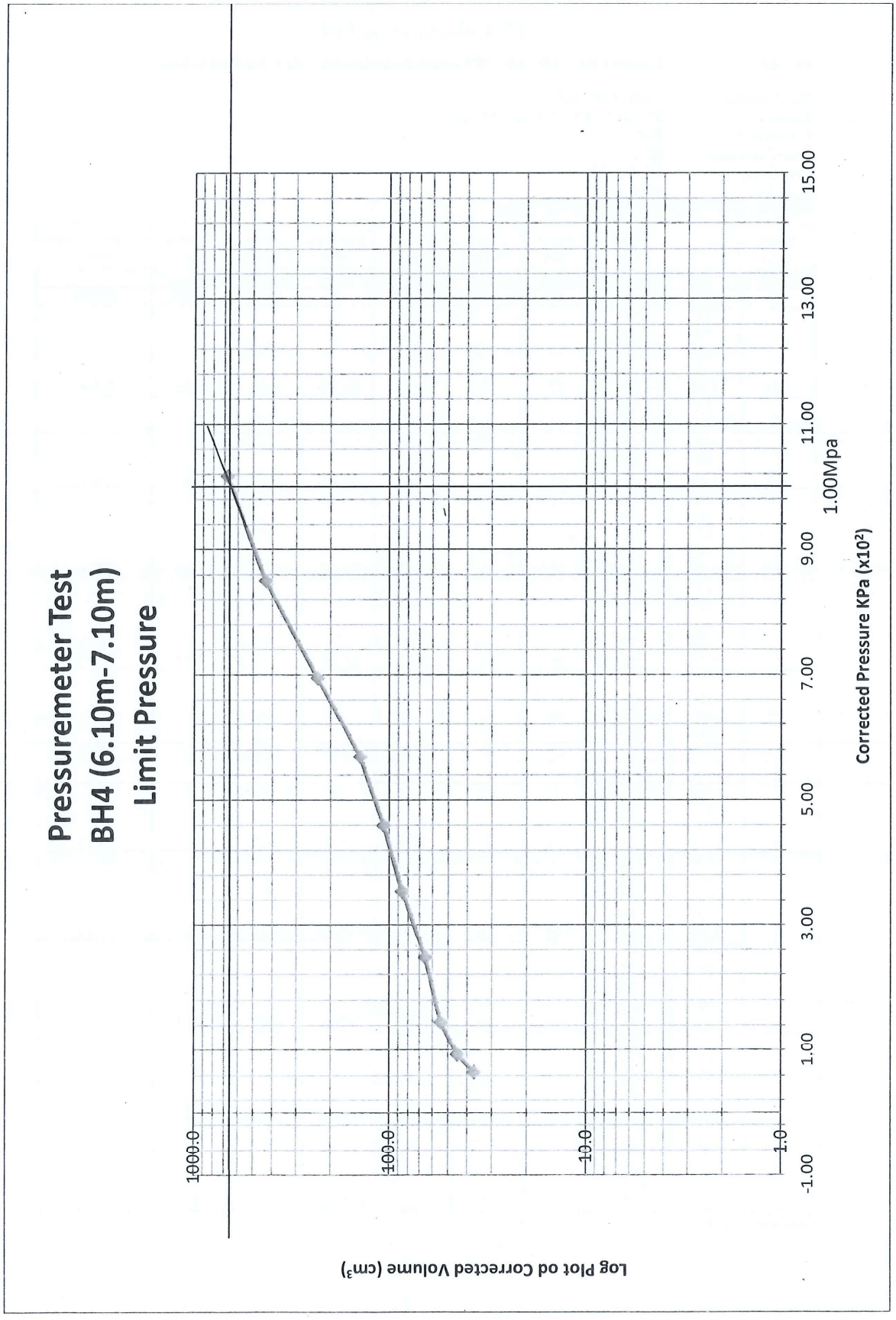
FT Laboratories Ltd

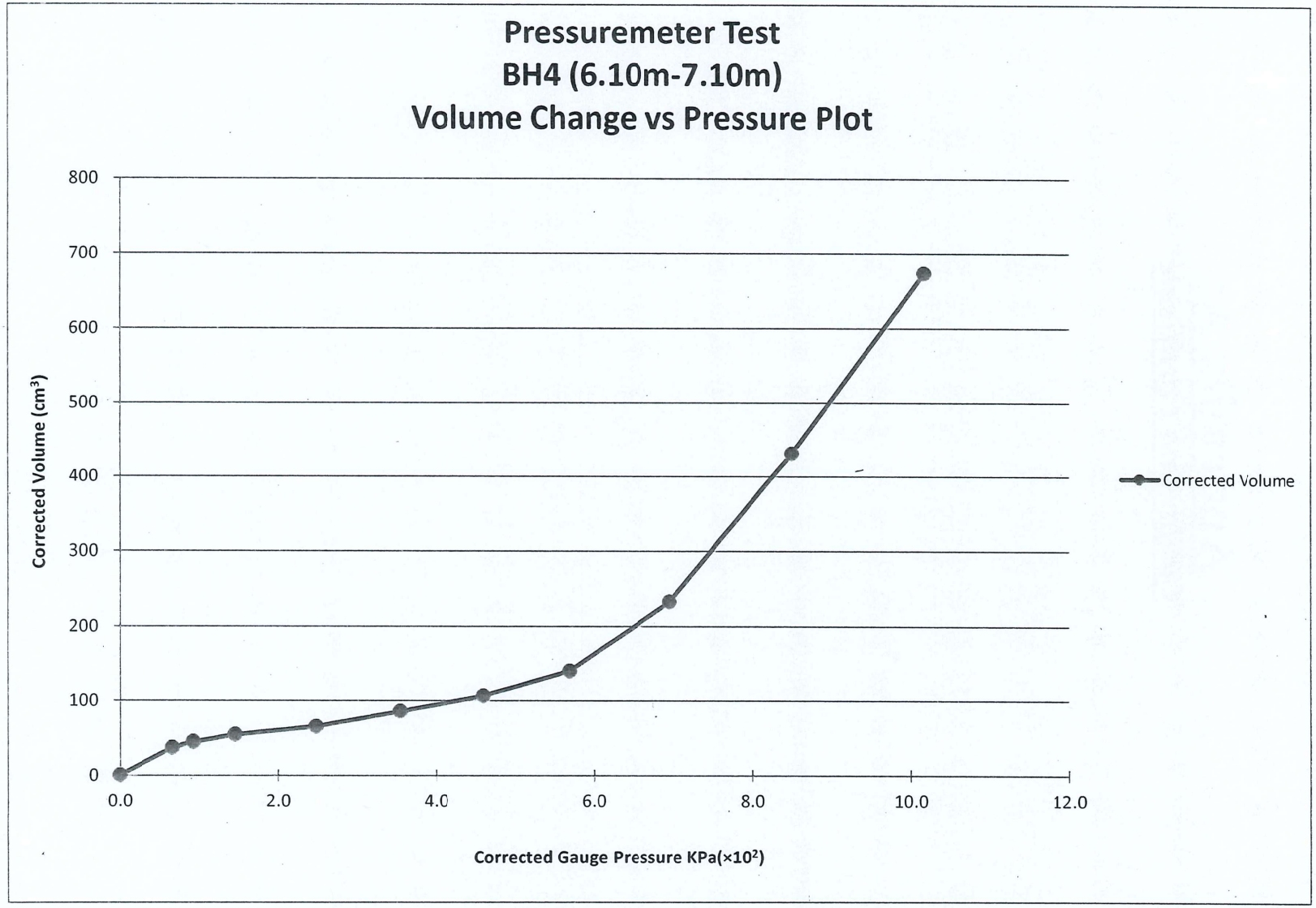
Project : Contract No. : GE/2022/08 Ground Investigation - New Territories East

Site Location : Lung Kwu Tan
Client : Driltech Ground Engineering Ltd.
Contractor : N/A
Sub-Contractor : N/A
Test Date : 10-Oct-23
Hole No. : BH4
Test Depth below ground level 6.10m-7.10m

Gauge Pressure	Time	Meas'd Vol.	Vol. at 120s	Creep Volume	Volume Correction	Corrected Volume	Probe Correction	Corrected Pressure	Corrected Volume Ratio
KPa(×10^2)	(s)	(cm^3)	(cm^3)	(cm^3)	(cm^3)	(cm^3)	KPa(×10^2)	KPa(×10^2)	
0	0	0	0	0	0	0	0.00	0.00	0.000
	15	31							
	30	34							
	60	35							
	90	36							
0.25	120	37	37	3	0.10	36.90	0.06	0.65	0.066
	15	42							
	30	43							
	60	43							
	90	44							
0.5	120	45	45	2	0.20	44.80	0.09	0.93	0.080
	15	49							
	30	52							
	60	53							
	90	54							
1	120	55	55	3	0.40	54.60	0.11	1.45	0.096
	15	61							
	30	63							
	60	64							
	90	65							
2	120	66	66	3	0.80	65.20	0.14	2.48	0.113
	15	77							
	30	81							
	60	84							
	90	86							
3	120	87	87	6	1.20	85.80	0.20	3.54	0.143
	15	97							
	30	101							
	60	104							
	90	106							
4	120	108	108	7	1.60	106.40	0.26	4.60	0.172
	15	122							
	30	130							
	60	137							
	90	140							
5	120	142	142	12	2.00	140.00	0.35	5.69	0.215
	15	171							
	30	186							
	60	208							
	90	222							
6	120	235	235	49	2.40	232.60	0.61	6.95	0.311
	0	255							
	30	291							
	60	350							
	90	396							
7	120	434	434	143	2.80	431.20	1.16	8.50	0.455
	0	477							
	30	506							
	60	559							
	90	612							
8	120	677	677	171	3.20	673.80	1.83	10.17	0.566

Comment : N/A


Pressuremeter Test
BH4 (6.10m-7.10m)
Limit Pressure
Log Plot od Corrected Volume (cm³)
1000.0
100.0
10.0
1.0
-1.00
1.00
3.00
5.00
7.00
9.00
11.00
13.00
15.00
1.00Mpa
Corrected Pressure KPa (x10²)


Pressuremeter Test
BH4 (6.10m-7.10m)
Volume Change vs Pressure Plot
Corrected Volume (cm³)
800
700
600
500
400
300
200
100
0
0.0
2.0
4.0
6.0
8.0
10.0
12.0
Corrected Gauge Pressure KPa(×10²)
Corrected Volume

Appendix A:
Calibration Certificate

FT Laboratories Ltd

Pressure Losses Calibration Record

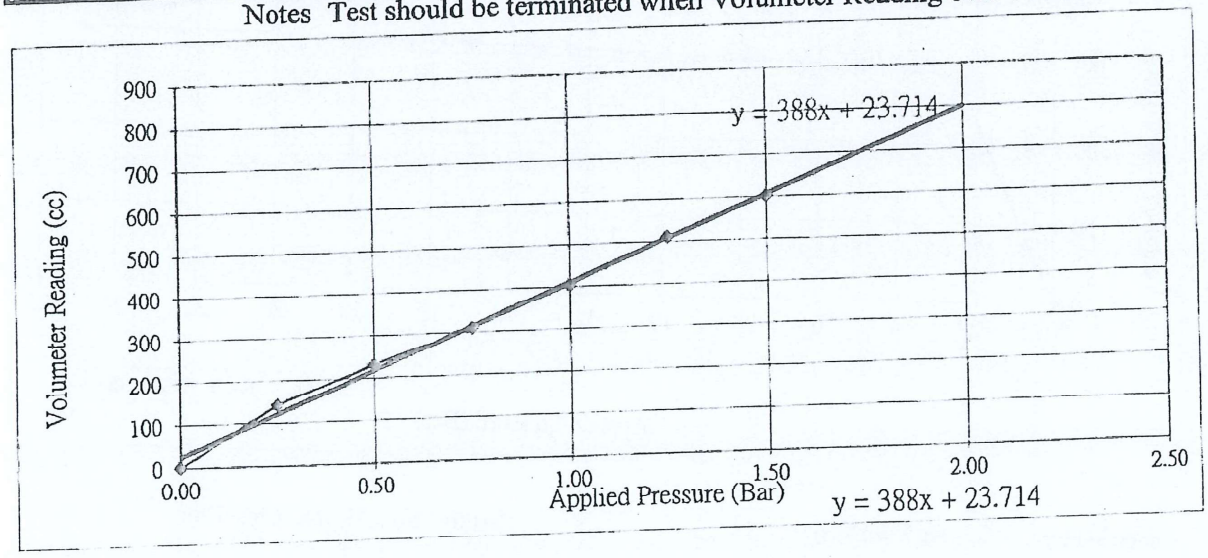
Item Calibrated	Name / Description :	Pressuremeter Control Unit	Pressuremeter Test Probe	50m Twin High Pressure Leads	Pressure Gauges	Pressure Gauges	Pressure Gauges
	Ept. No :	INS/4	INS/4.7	INS/4.12	INS/4.1	INS/4.2	INS/4.3
	Manufacturer :	Apageo Segelm S.A.	Apageo Segelm S.A.	Apageo Segelm S.A.	Blondelle S.A.	Blondelle S.A.	Blondelle S.A.

Date of Calibration : 17-Aug-23

Calibration Procedure : The pressuremeter probe was pressurised in small increments and allowed to inflate under atmospheric conditions. Volume change was recorded against pressure. The pressure correction at a certain volume change represents the interia of probe.

Applied Pressure	(Bar)	0.00	0.25	0.50	0.75	1.00	1.25	1.50
Volumeter Reading after 1-min holding	(cc)	0	143	231	311	405	511	602
Applied Pressure	(Bar)	1.75	2.00	2.25	2.50	2.75		
Volumeter Reading after 1-min holding	(cc)							

Notes Test should be terminated when Volumeter Reading over 700cc.



Calibrated By : Ng Yat Hong

Date : 17-Aug-23

Certified By : WONG Chun Hing

Date : 17-Aug-23

FT Laboratories Ltd

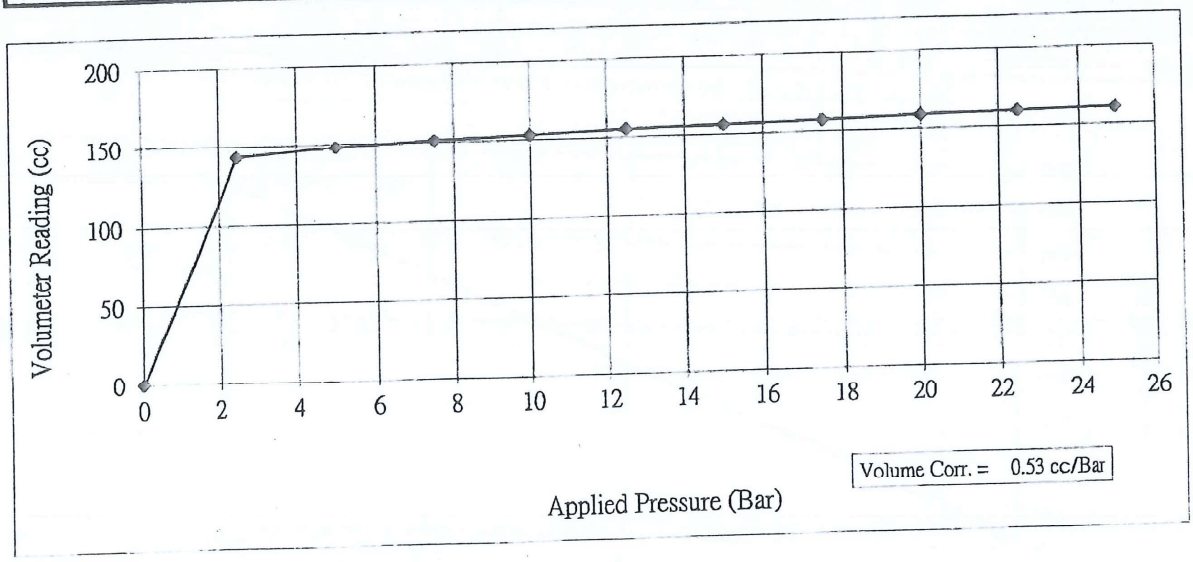
Volume Losses Calibration Record

Item Calibrated	Name / Description :	Pressuremeter Control Unit	Pressuremeter Test Probe	50m Twin High Pressure Leads	Pressure Gauges	Pressure Gauges	Pressure Gauges
	Ept. No :	INS/4	INS/4.7	INS/4.12	INS/4.1	INS/4.2	INS/4.3
	Manufacturer :	Apageo Segelm S.A.	Apageo Segelm S.A.	Apageo Segelm S.A.	Blondelle S.A.	Blondelle S.A.	Blondelle S.A.

Date of Calibration : 17-Aug-23

Calibration Procedure : The pressuremeter probe was pressurised in small increments and allowed to inflate under atmospheric conditions. Volume change was recorded against pressure. The pressure correction at a certain volume change represents the interia of probe.

Applied Pressure (Bar)	0.0	2.5	5.0	7.5	10.0	12.5	15.0
Volumeter Reading after 1-min holding (cc)	0	143	148	151	153	155	156
Applied Pressure (Bar)	17.5	20.0	22.5	25.0			
Volumeter Reading after 1-min holding (cc)	157	159	160	161			



Calibrated By : Ng Yat Hong

Date : 17-Aug-23

Certified By : WONG Chun Hing

Date : 17-Aug-23

Appendix B: Location Plan

Not provided by customer

Appendix F

Digital Acoustic Borehole Televiewer Survey Records (Travel Time and Amplitude, Joints Interpretation and Stereographic Plots Records)

DRiLTECH

BHTV DATA PROCESSING
RGLDIP vsn 6.2
AMPLITUDE/TRAVEL-TIME LOG

31 Oct 2023

Task Order No. GE/2022/08.35

Borehole: BH 1

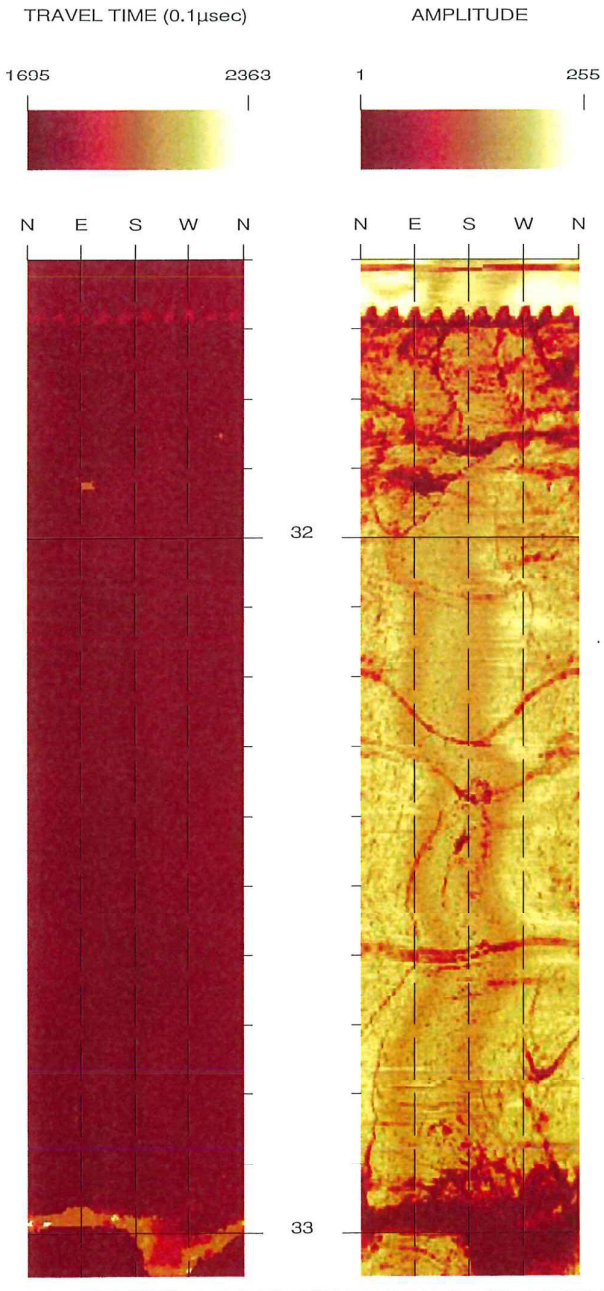
Test Date: 16 Sep 2023

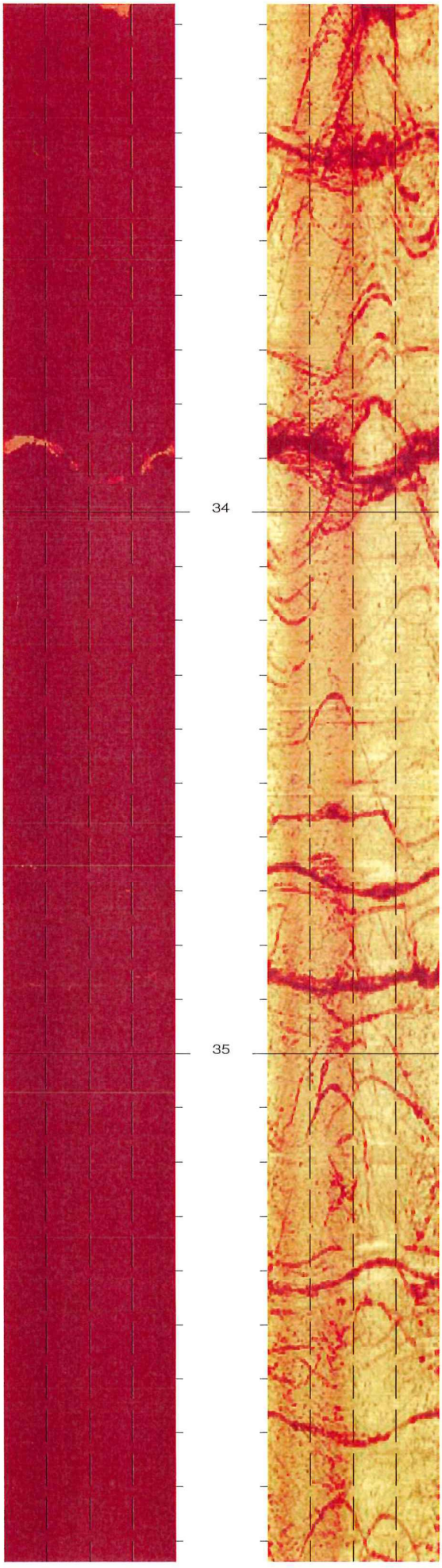
top of borehole.....
East: 810249.27
North: 831208.46
Elev: +10.55mPD

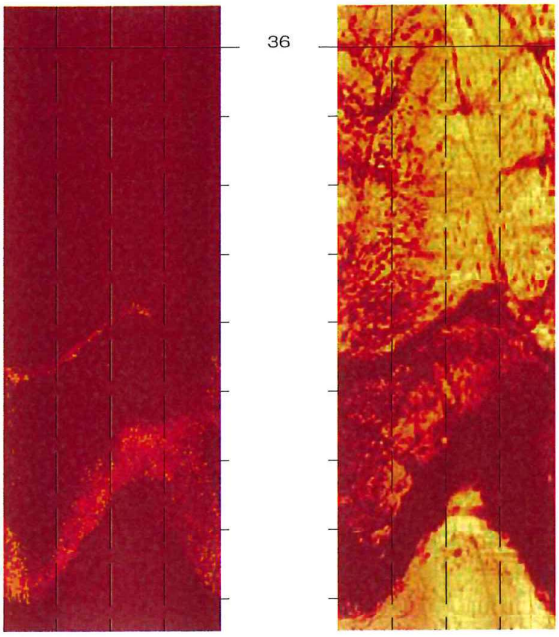
North ref. is magnetic
Depth units are metres
Vertical scale: 1/10
Horiz scale = vert scale

Zone from 36.700 to 31.600m
Format BHTV-NESWN

Borehole diam: 10.100cm
data intervals.....
azimuth: 2.000deg
depth: 0.002m




34
35


36

DRiLTECH

BHTV DATA PROCESSING
RGLDIP vsn 6.2
INTERPRETED BHTV DIPS LOG

31 Oct 2023

Task Order No. GE/2022/08.35

Borehole: BH 1

Test Date: 16 Sep 2023

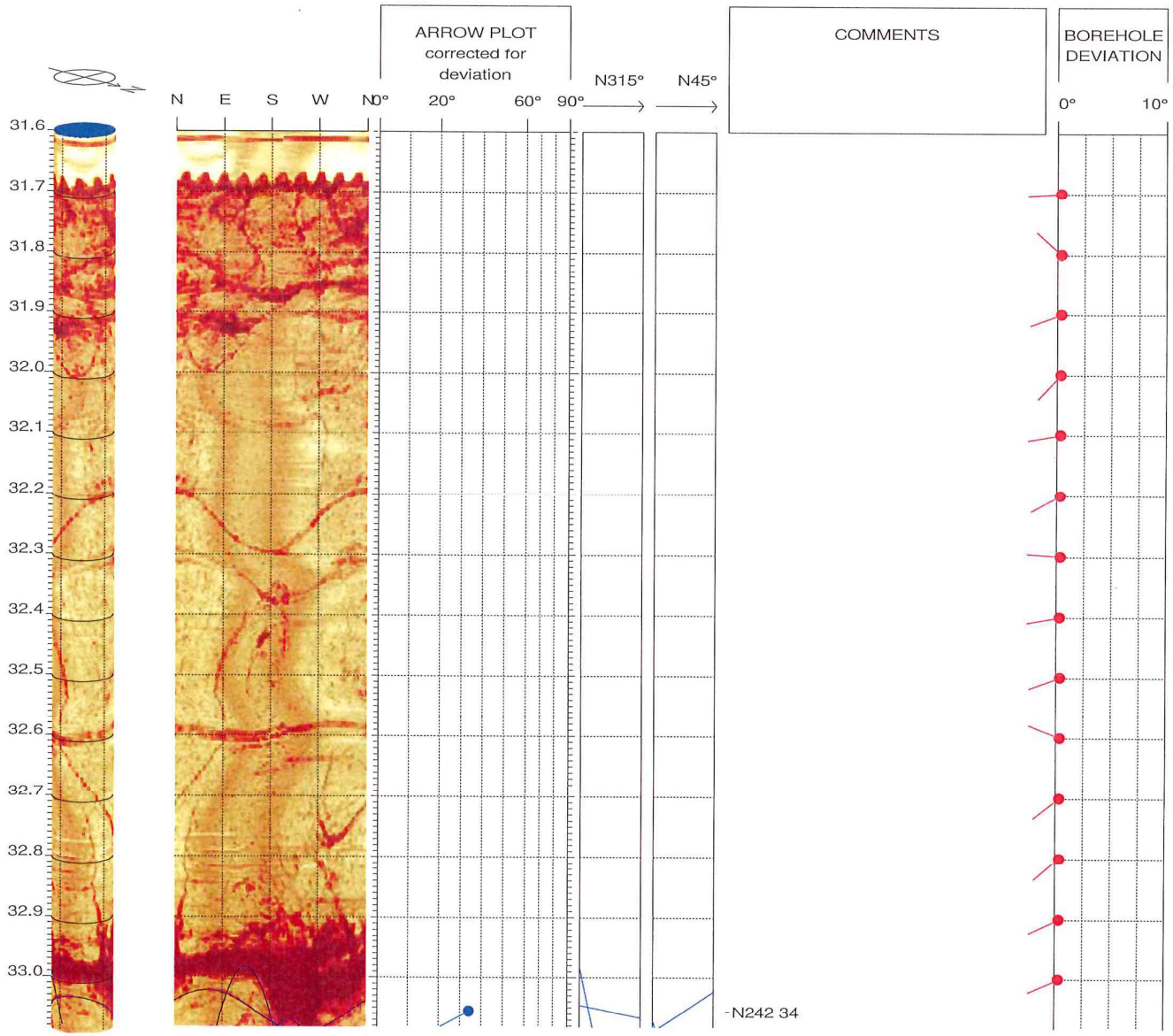
top of borehole.....
East: 810249.27
North: 831208.46
Elev: +10.55mPD

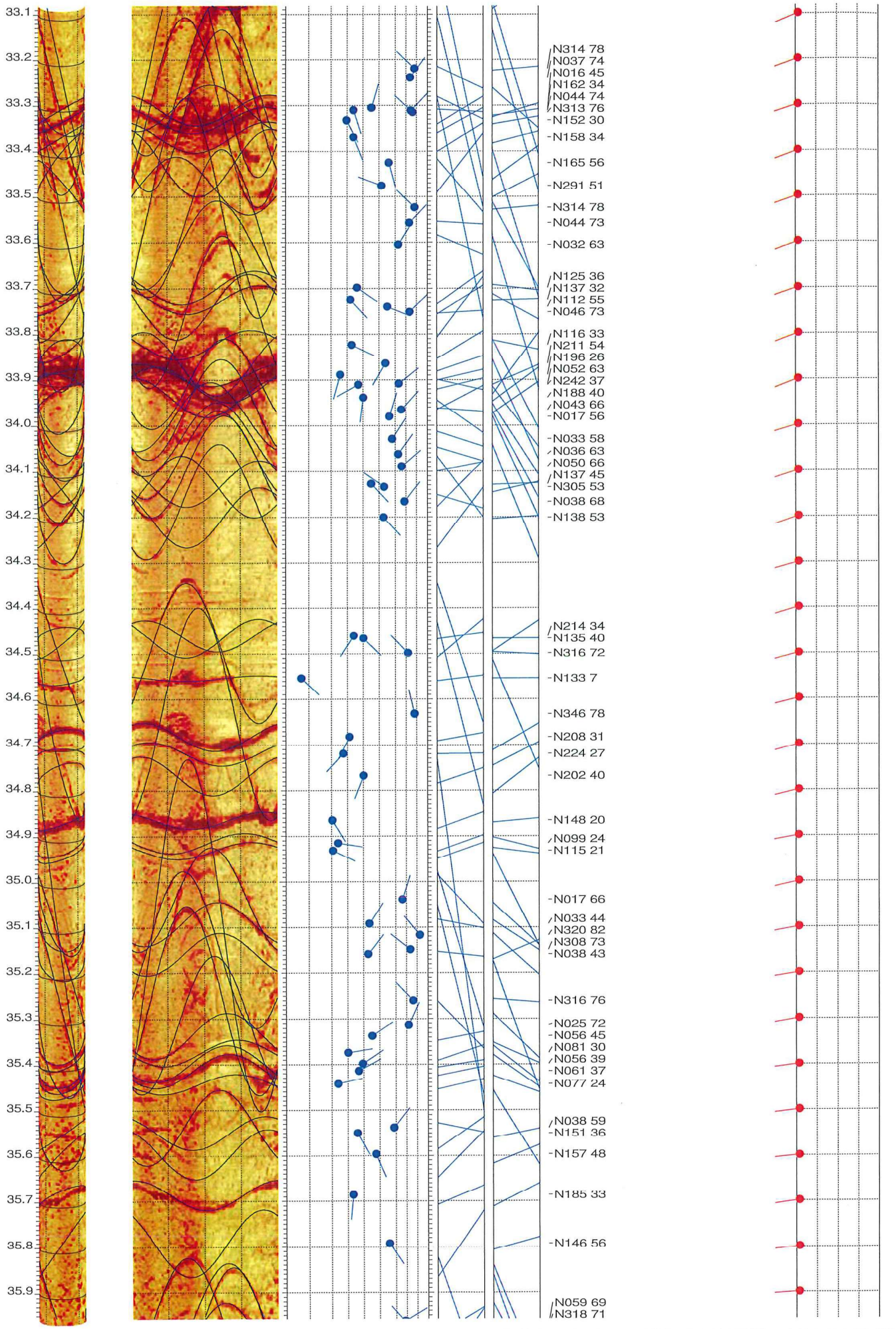
North ref. is magnetic
Depth units are metres
Vertical scale: 1/10
Horiz scale = 1.00x Vert scale

Zone from 36.700 to 31.600m
Format: BHTV-NESWN

Borehole diam: 10.100cm
Vertical = borehole-axis
Image: Amplitude

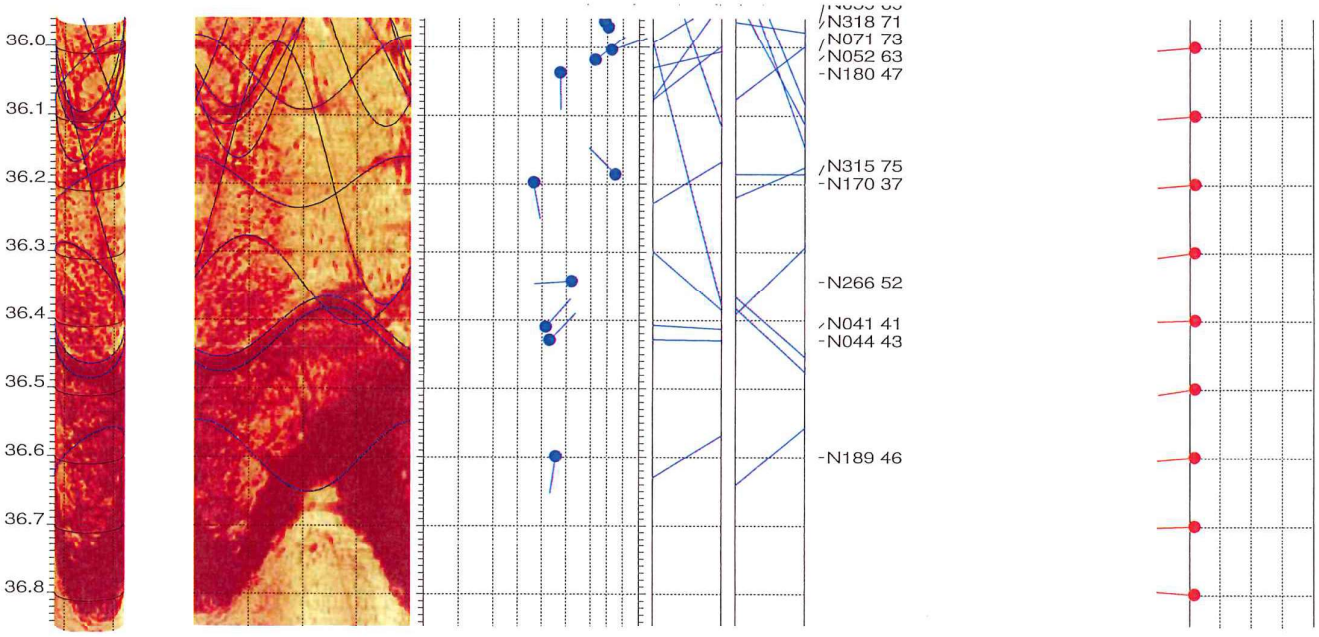
Stratigraphic dips
Non-stratigraphic dips
Identified units





BH 1

35.958 to 33.082m


36.0
36.1
36.2
36.3
36.4
36.5
36.6
36.7
36.8
N318 71
N071 73
N052 63
N180 47
N315 75
N170 37
N266 52
N041 41
N044 43
N189 46

RGLDIPv6.2 BHTV results

K = 0: Stratigraphic dips
K = 2: Non-stratigraphic dips

borehole BH 1
zone from 36.700 to 31.600 m
North ref is magnetic
Dip format: Dip-azimuth and Dip
31 Oct 2023

	Depth	Azimuth	Dip	1-P0/100	n	Q	K	Upper Depth	Lower Depth	Well Diam	Well deviation Azimuth	Dev	Thickness
1	36.600	N189	45.6	1.000	3	A	2	36.548	36.652	0.101	265.09	0.38	0.0000
2	36.430	N044	43.0	1.000	3	A	2	36.384	36.477	0.101	268.28	0.38	0.0000
3	36.411	N041	41.5	1.000	3	A	2	36.367	36.455	0.101	268.00	0.39	0.0000
4	36.343	N266	52.1	1.000	3	A	2	36.277	36.409	0.101	264.00	0.39	0.0000
5	36.199	N170	36.5	1.000	3	A	2	36.161	36.236	0.101	264.66	0.41	0.0000
6	36.187	N315	75.1	1.000	3	A	2	35.994	36.380	0.101	264.00	0.40	0.0000
7	36.038	N180	47.4	1.000	3	A	2	35.983	36.093	0.101	265.24	0.39	0.0000
8	36.019	N052	62.6	1.000	3	A	2	35.923	36.116	0.101	266.00	0.39	0.0000
9	36.005	N071	72.8	1.000	3	A	2	35.846	36.165	0.101	264.00	0.39	0.0000
10	35.971	N318	70.8	1.000	3	A	2	35.824	36.118	0.101	261.26	0.40	0.0000
11	35.963	N059	68.7	1.000	3	A	2	35.836	36.090	0.101	262.00	0.39	0.0000
12	35.793	N146	55.9	1.000	3	A	2	35.719	35.867	0.101	267.79	0.36	0.0000
13	35.687	N185	33.4	1.000	3	A	2	35.653	35.720	0.101	262.42	0.36	0.0000
14	35.597	N157	47.6	1.000	3	A	2	35.542	35.652	0.101	260.15	0.39	0.0000
15	35.551	N151	36.2	1.000	3	A	2	35.514	35.587	0.101	265.00	0.38	0.0000
16	35.539	N038	58.8	1.000	3	A	2	35.456	35.621	0.101	268.00	0.37	0.0000
17	35.443	N077	23.9	1.000	3	A	2	35.422	35.465	0.101	262.00	0.39	0.0000
18	35.415	N061	36.9	1.000	3	A	2	35.377	35.452	0.101	263.72	0.37	0.0000
19	35.399	N056	39.4	1.000	3	A	2	35.358	35.440	0.101	262.00	0.36	0.0000
20	35.375	N081	30.2	1.000	3	A	2	35.346	35.404	0.101	261.00	0.37	0.0000
21	35.338	N056	45.3	1.000	3	A	2	35.287	35.388	0.101	262.00	0.37	0.0000
22	35.314	N025	71.8	1.000	3	A	2	35.163	35.466	0.101	260.66	0.38	0.0000
23	35.261	N316	76.1	1.000	3	A	2	35.053	35.468	0.101	260.84	0.37	0.0000
24	35.159	N038	43.0	1.000	3	A	2	35.113	35.206	0.101	258.57	0.35	0.0000
25	35.149	N308	73.4	1.000	3	A	2	34.977	35.321	0.101	256.24	0.35	0.0000
26	35.118	N320	82.4	1.000	3	A	2	34.732	35.504	0.101	258.13	0.35	0.0000
27	35.093	N033	43.6	1.000	3	A	2	35.045	35.140	0.101	258.18	0.34	0.0000
28	35.039	N017	66.3	1.000	3	A	2	34.925	35.153	0.101	257.16	0.35	0.0000
29	34.932	N115	20.8	1.000	3	A	2	34.913	34.951	0.101	256.00	0.32	0.0000
30	34.916	N099	24.0	1.000	3	A	2	34.894	34.938	0.101	256.00	0.32	0.0000
31	34.866	N148	20.5	1.000	3	A	2	34.848	34.885	0.101	256.00	0.33	0.0000
32	34.768	N202	40.2	1.000	3	A	2	34.725	34.811	0.101	254.00	0.34	0.0000
33	34.720	N224	27.4	1.000	3	A	2	34.694	34.747	0.101	254.00	0.34	0.0000
34	34.683	N208	31.4	1.000	3	A	2	34.652	34.714	0.101	255.00	0.33	0.0000
35	34.633	N346	77.8	1.000	3	A	2	34.400	34.866	0.101	256.25	0.37	0.0000
36	34.554	N133	6.8	1.000	3	A	2	34.548	34.560	0.101	253.88	0.37	0.0000
37	34.499	N316	71.6	1.000	3	A	2	34.345	34.653	0.101	255.00	0.36	0.0000
38	34.467	N135	40.1	1.000	3	A	2	34.425	34.509	0.101	256.11	0.35	0.0000
39	34.461	N214	34.1	1.000	3	A	2	34.427	34.496	0.101	254.00	0.34	0.0000
40	34.202	N138	52.7	1.000	3	A	2	34.136	34.268	0.101	251.00	0.34	0.0000
41	34.167	N038	68.4	1.000	3	A	2	34.041	34.292	0.101	251.35	0.34	0.0000
42	34.135	N305	53.0	1.000	3	A	2	34.067	34.202	0.101	253.00	0.33	0.0000
43	34.128	N137	45.0	1.000	3	A	2	34.078	34.178	0.101	253.00	0.33	0.0000
44	34.090	N050	66.0	1.000	3	A	2	33.979	34.202	0.101	253.00	0.33	0.0000
45	34.064	N036	62.6	1.000	3	A	2	33.967	34.160	0.101	253.14	0.33	0.0000
46	34.030	N033	58.1	1.000	3	A	2	33.950	34.110	0.101	252.00	0.33	0.0000
47	33.981	N017	56.3	1.000	3	A	2	33.906	34.057	0.101	252.00	0.30	0.0000
48	33.966	N043	65.6	1.000	3	A	2	33.856	34.076	0.101	249.54	0.29	0.0000
49	33.939	N188	40.1	1.000	3	A	2	33.896	33.982	0.101	252.00	0.32	0.0000
50	33.911	N242	37.0	1.000	3	A	2	33.873	33.950	0.101	249.80	0.33	0.0000
51	33.909	N052	63.2	1.000	3	A	2	33.811	34.008	0.101	249.32	0.32	0.0000
52	33.890	N196	25.6	1.000	3	A	2	33.865	33.914	0.101	250.00	0.31	0.0000
53	33.865	N211	53.8	1.000	3	A	2	33.796	33.935	0.101	252.00	0.31	0.0000
54	33.824	N116	32.9	1.000	3	A	2	33.792	33.856	0.101	250.00	0.31	0.0000
55	33.752	N046	73.4	1.000	3	A	2	33.586	33.918	0.101	249.00	0.32	0.0000
56	33.741	N112	55.1	1.000	3	A	2	33.669	33.812	0.101	250.00	0.32	0.0000
57	33.725	N137	32.0	1.000	3	A	2	33.694	33.757	0.101	253.00	0.33	0.0000
58	33.699	N125	36.2	1.000	3	A	2	33.662	33.736	0.101	251.00	0.30	0.0000
59	33.606	N032	62.6	1.000	3	A	2	33.509	33.702	0.101	249.00	0.31	0.0000
60	33.558	N044	72.9	1.000	3	A	2	33.396	33.720	0.101	249.00	0.30	0.0000
61	33.525	N314	78.0	1.000	3	A	2	33.284	33.765	0.101	248.71	0.30	0.0000
62	33.476	N291	51.4	1.000	3	A	2	33.413	33.540	0.101	251.21	0.28	0.0000
63	33.426	N165	55.9	1.000	3	A	2	33.351	33.501	0.101	248.60	0.30	0.0000
64	33.370	N158	34.0	1.000	3	A	2	33.336	33.404	0.101	251.00	0.30	0.0000

65	33.333	N152	29.6	1.000	3	A	2	33.304	33.361	0.101	249.00	0.28	0.0000
66	33.315	N313	76.2	1.000	3	A	2	33.107	33.524	0.101	255.00	0.27	0.0000
67	33.312	N044	74.3	1.000	3	A	2	33.135	33.489	0.101	255.00	0.27	0.0000
68	33.311	N162	33.9	1.000	3	A	2	33.277	33.345	0.101	255.00	0.27	0.0000
69	33.306	N016	45.2	1.000	3	A	2	33.255	33.357	0.101	253.44	0.28	0.0000
70	33.240	N037	73.7	1.000	3	A	2	33.070	33.410	0.101	250.08	0.28	0.0000
71	33.220	N314	77.9	1.000	3	A	2	32.983	33.457	0.101	250.94	0.28	0.0000
72	33.056	N242	34.1	1.000	3	A	2	33.021	33.091	0.101	246.99	0.31	0.0000

Remarks: The Magnetic Declination in 2023 at Lion Rock of Hong Kong is 3°18' west of True North.

DRILTECH

DIP DATA INTERPRETATION
RGLDIP vsn 6.2
FRACTURE ANALYSIS LOG

31 Oct 2023

Task Order No. GE/2022/08.35

Borehole: BH 1

Test Date: 16 Sep 2023

top of borehole.....
East: 810249.27
North: 831208.46
Elev: +10.55mPD

North ref: magnetic
Depth units are metres
Vertical scale: 1/100

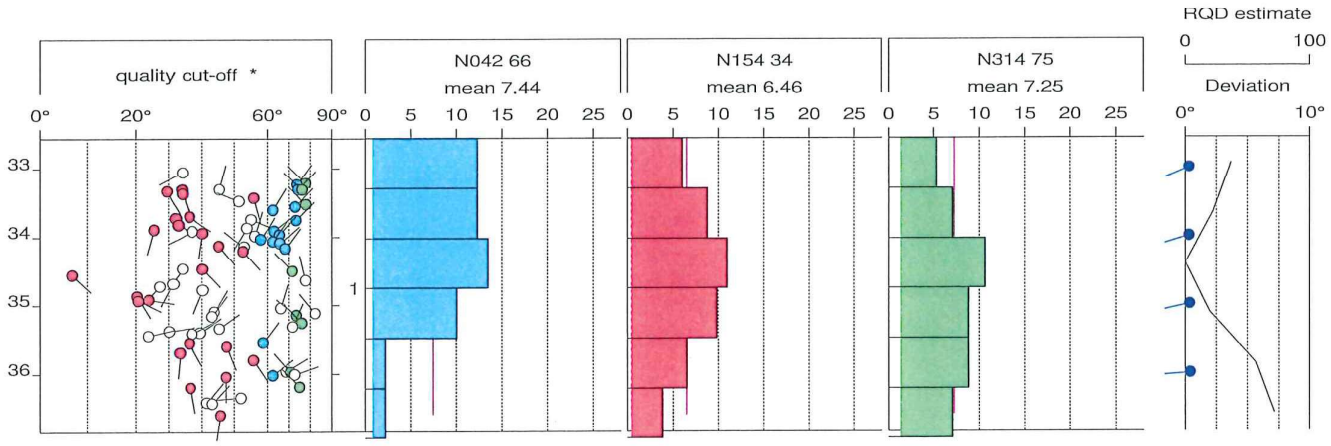
Zone from 36.847 to 32.556m
Mean dip format: dip-azimuth and dip
Frequency histogram parameters:

measurement distance 0.000m
step distance 0.000m

Interpretation 1

Dip data sets .....
BHTV dips

open symbols not used in mean-dip/zone-axis calculation



DRiLTECH

DIP DATA INTERPRETATION
RGLDIP vsn 6.2
FRACTURE ANALYSIS STEREOGRAMS

31 Oct 2023

Task Order No. GE/2022/08.35

Borehole: BH 1

Test Date: 16 Sep 2023

top of borehole.....
East: 810249.27
North: 831208.46
Elev: +10.55mPD

North ref: magnetic
Depth units are metres

Zone from 36.847 to 32.556m
Mean dip format: dip-azimuth and dip

Interpretation 1

Dip data sets .....
BHTV dips

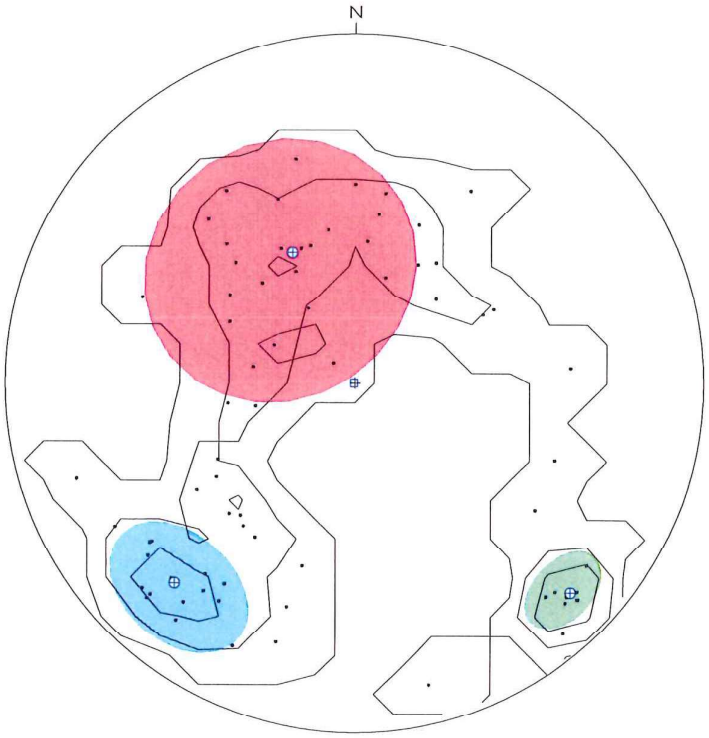
BH 1
Zone 0. 32.556 - 36.847m
Deviation 0.30 N257.20

dipdata sets.....
BHTV dips

	mean dip	n	f
N042 66	N042 66	13	7.44
N154 34	N154 34	23	6.46
N314 75	N314 75	8	7.25

intersections

	N042 66	N154 34	N314 75
N042 66		29 N118	63 N012
N154 34	29 N118		11 N227
N314 75	63 N012	11 N227	



⊕ mean dip
□ well axis

equal-area lower-hemisphere 0-90
contour-levels 1,3,6,

RGLDIPv6.2 DIP DATA INTERPRETATION: FRACTURE ANALYSIS

borehole BH 1
zone from 32.000 to 36.000 m
North ref is magnetic
31 Oct 2023

Data is classed into 1 types
3 BHTV_dips

Quality cut-off level: *

Mean well deviation: 0.3°deg to N257.2°

3 small-circles defined

	SEARCH AREA azim	pl	cone	MEAN DIP azimuth	dip	n	f
1	220.7°	23.0°	15.2°	312°	66°	13	7.44
2	326.0°	57.0°	31.5°	64°	34°	23	6.46
3	134.6°	16.9°	8.6°	224°	75°	8	7.25

Total number of data = 44
Number of data unaccounted for = 28

ZONE No.	DEVIATION Dev	Azim	DEPTHS m TOP	BASE	No. DATA	MEAN DIPS and FREQUENCIES Azi	Dip	n	f	Azi	Dip	n	f	Azi	Dip	n	f	Azi	Dip	n	f
1	0.3	257.2	32.57	36.85	72	312	66	13	7.44	64	34	23	6.46	224	75	8	7.25	0	0	0	0.00	0	0	0	0.00

DRiLTECH

BHTV DATA PROCESSING
RGLDIP vsn 6.2
AMPLITUDE/TRAVEL-TIME LOG

31 Oct 2023

Task Order No. GE/2022/08.35

Borehole: BH 2

Test Date: 25 Sep 2023

top of borehole.....
East: 810117.34
North: 831133.48
Elev: +10.64mPD

North ref. is magnetic
Depth units are metres
Vertical scale: 1/10
Horiz scale = vert scale

Zone from 41.200 to 36.600m
Format BHTV-NESWN

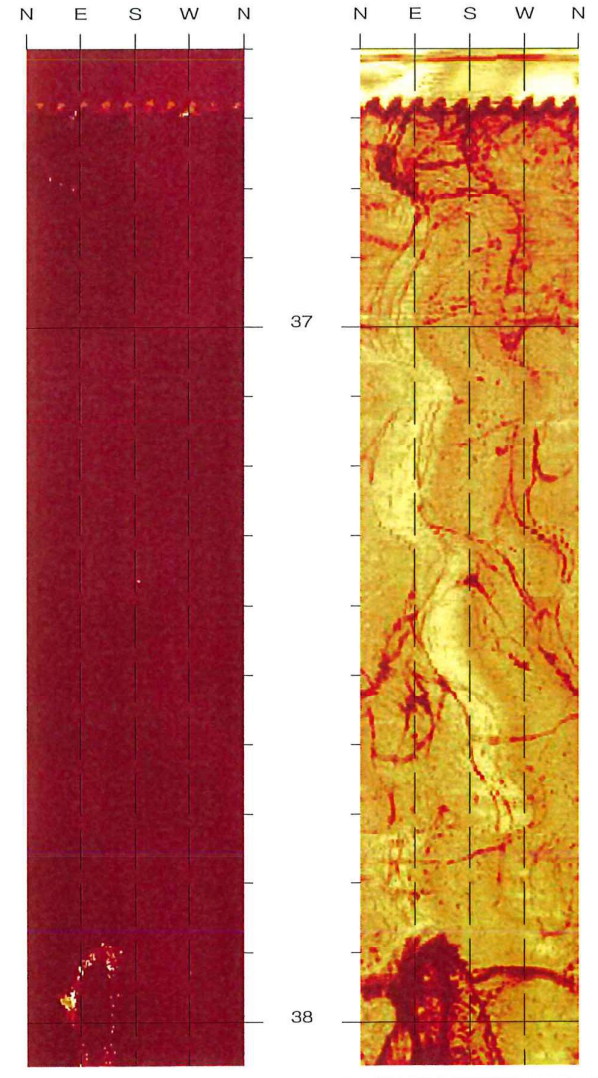
Borehole diam: 10.100cm
data intervals.....
azimuth: 2.000deg
depth: 0.001m

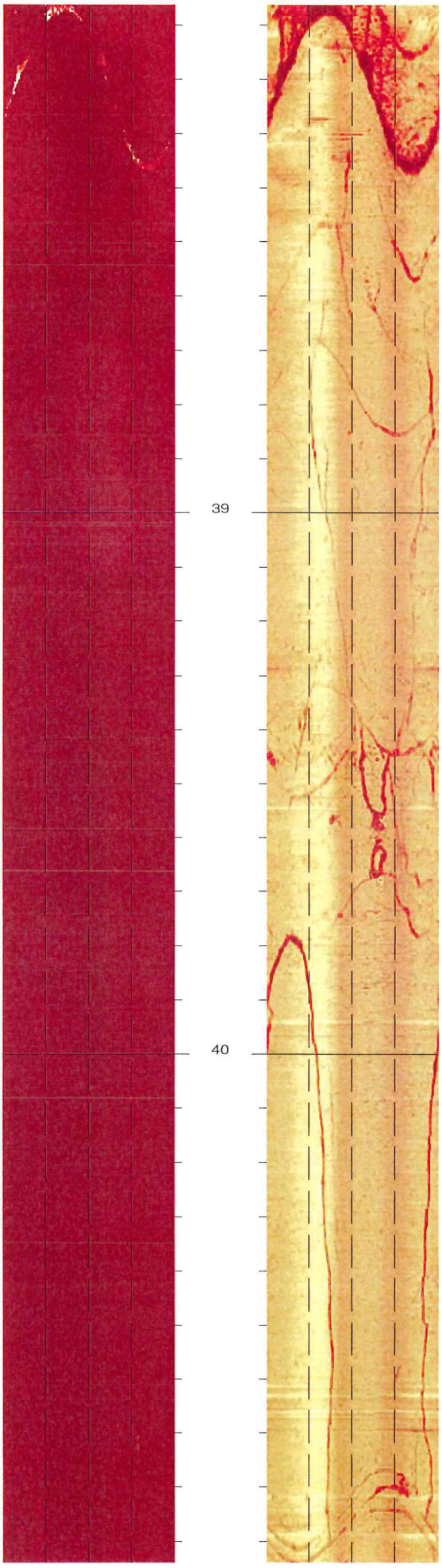
TRAVEL TIME (0.1µsec)

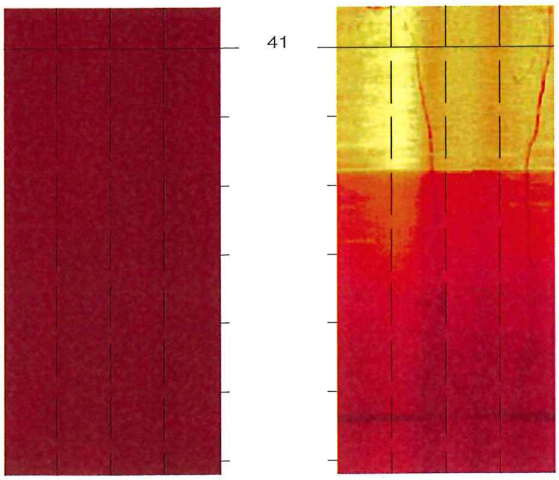
1725 2054

AMPLITUDE

1 255




39
40


41

DRiLTECH

BHTV DATA PROCESSING
RGLDIP vsn 6.2
INTERPRETED BHTV DIPS LOG

31 Oct 2023

Task Order No. GE/2022/08.35

Borehole: BH 2

Test Date: 25 Sep 2023

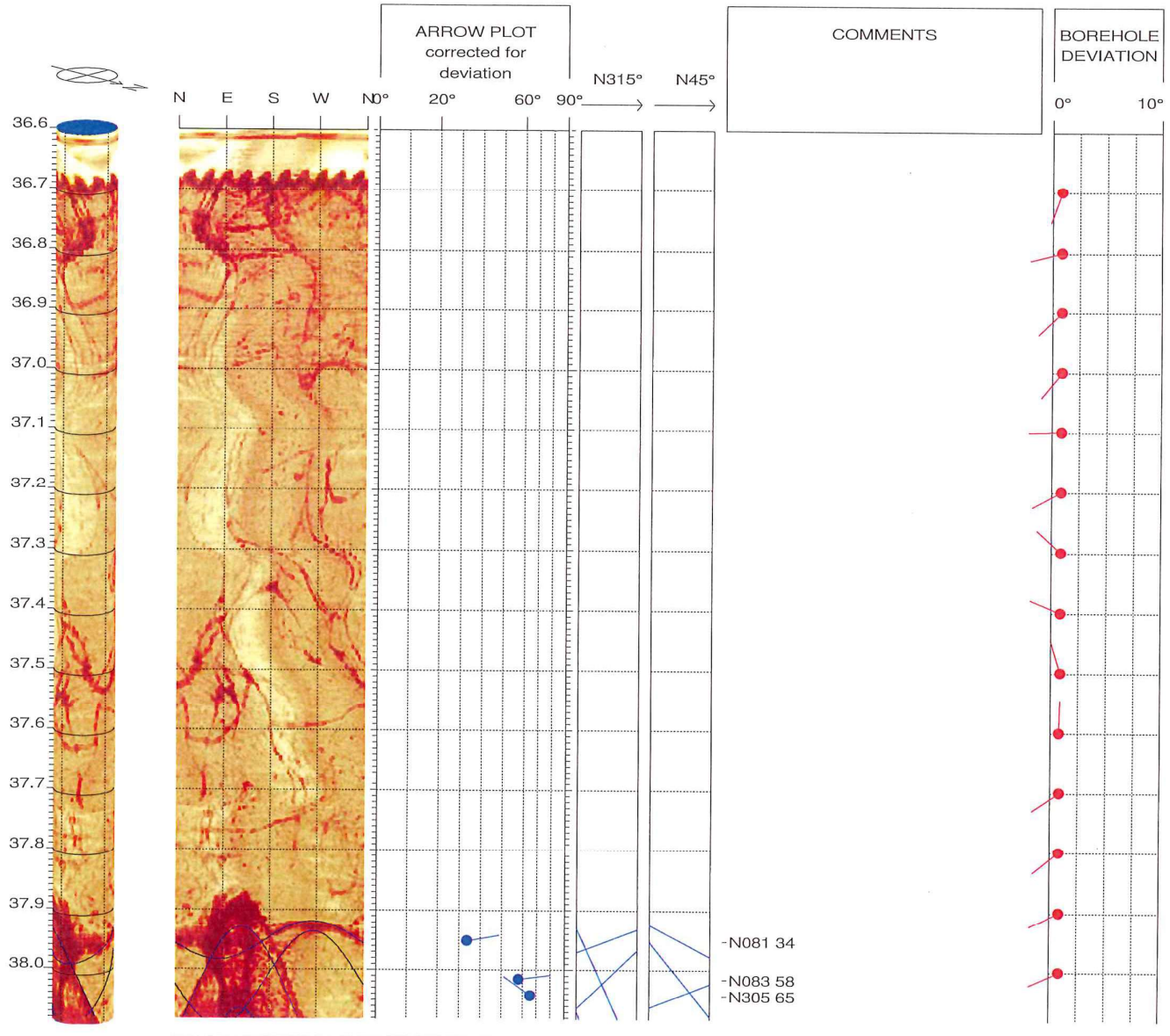
top of borehole.....
East: 810117.34
North: 831133.48
Elev: +10.64mPD

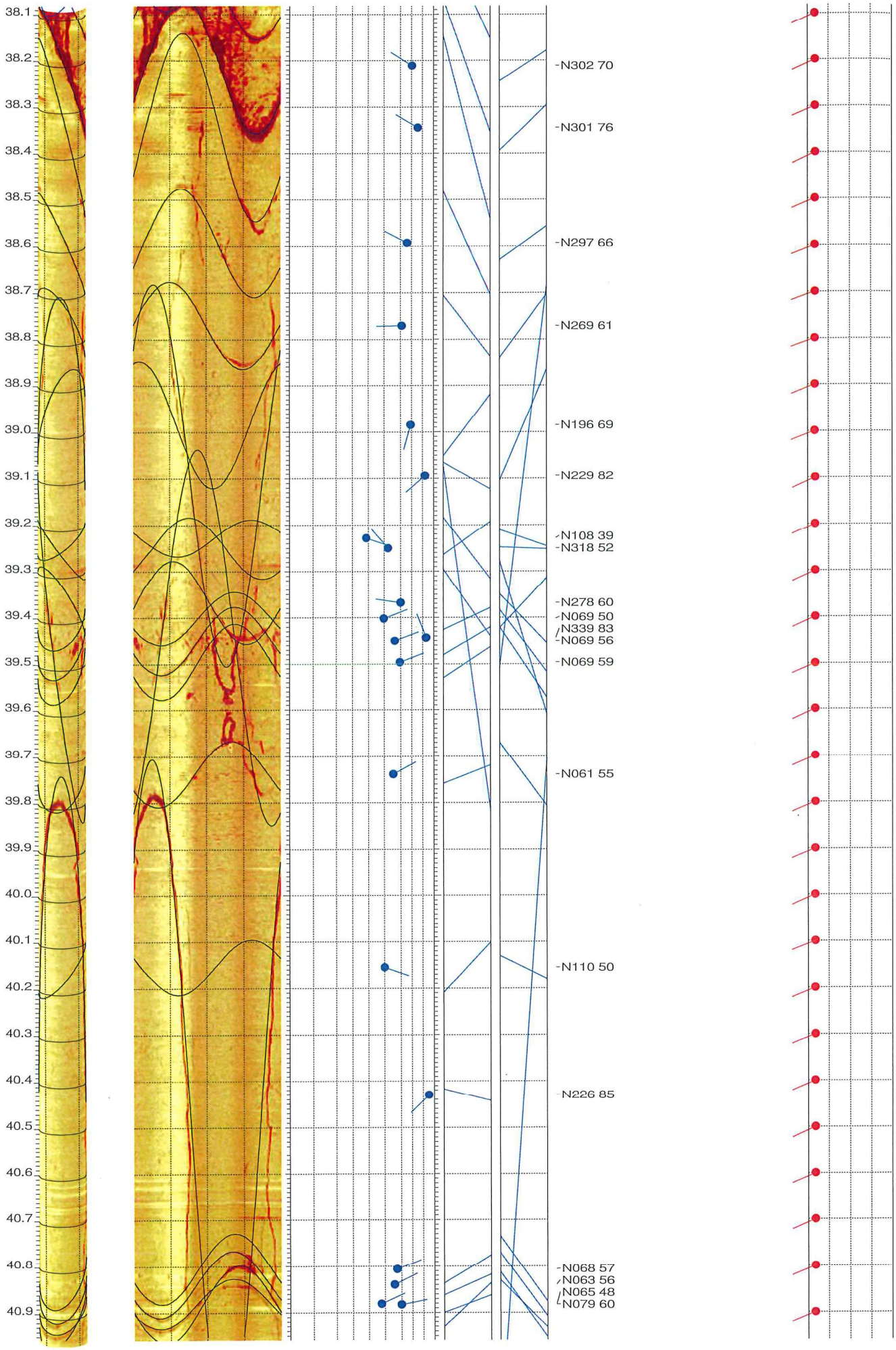
North ref. is magnetic
Depth units are metres
Vertical scale: 1/10
Horiz scale = 1.00x Vert scale

Zone from 41.200 to 36.600m
Format: BHTV-NESWN

Borehole diam: 10.100cm
Vertical = borehole-axis
Image: Amplitude

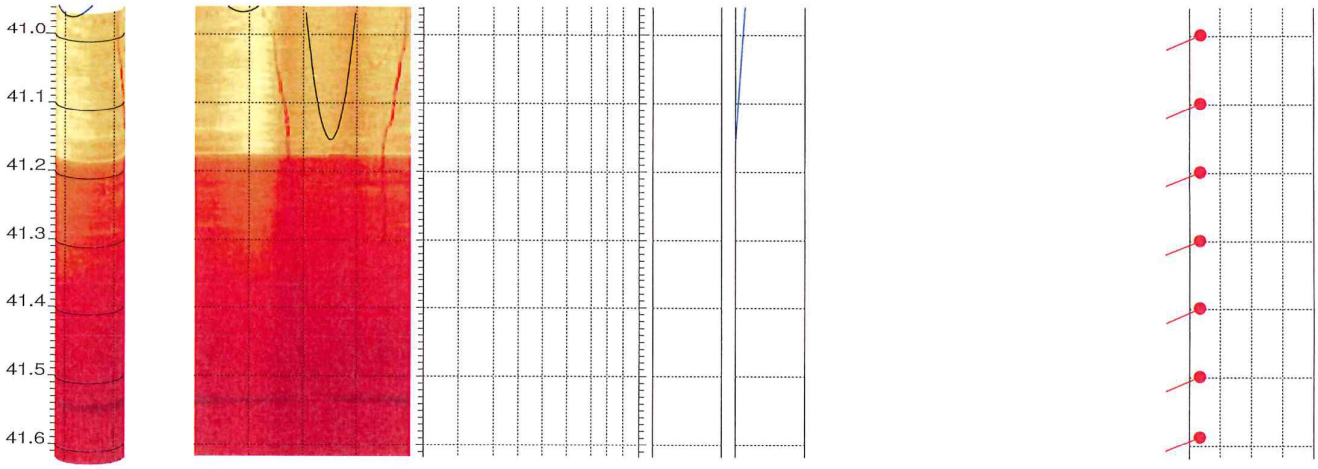
Stratigraphic dips
Non-stratigraphic dips
Identified units





BH 2

40.959 to 38.082m


41.0
41.1
41.2
41.3
41.4
41.5
41.6

RGLDIPv6.2 BHTV results

K = 0: Stratigraphic dips
K = 2: Non-stratigraphic dips

borehole BH 2
zone from 41.200 to 36.600 m
North ref is magnetic
Dip format: Dip-azimuth and Dip
31 Oct 2023

	Depth	Azimuth	Dip	1-P0/100	n	Q	K	Upper Depth	Lower Depth	Well Diam	Well deviation Azimuth	Well deviation Dev	Thickness
1	40.883	N079	60.0	1.000	3	A	2	40.798	40.967	0.101	247.64	0.84	0.0000
2	40.881	N065	47.8	1.000	3	A	2	40.827	40.935	0.101	248.00	0.84	0.0000
3	40.840	N063	55.8	1.000	3	A	2	40.768	40.912	0.101	245.92	0.86	0.0000
4	40.806	N068	57.4	1.000	3	A	2	40.730	40.883	0.101	247.00	0.84	0.0000
5	40.431	N226	85.2	1.000	3	A	2	39.706	41.155	0.101	246.00	0.85	0.0000
6	40.155	N110	50.1	1.000	3	A	2	40.096	40.214	0.101	246.00	0.84	0.0000
7	39.739	N061	55.5	1.000	3	A	2	39.668	39.810	0.101	246.00	0.88	0.0000
8	39.497	N069	59.5	1.000	3	A	2	39.414	39.579	0.101	246.00	0.87	0.0000
9	39.451	N069	56.4	1.000	3	A	2	39.377	39.524	0.101	246.00	0.84	0.0000
10	39.444	N339	83.0	1.000	3	A	2	39.038	39.850	0.101	245.00	0.85	0.0000
11	39.402	N069	49.7	1.000	3	A	2	39.345	39.460	0.101	244.00	0.86	0.0000
12	39.368	N278	60.0	1.000	3	A	2	39.278	39.458	0.101	244.00	0.87	0.0000
13	39.251	N318	52.4	1.000	3	A	2	39.184	39.317	0.101	246.00	0.85	0.0000
14	39.229	N108	38.7	1.000	3	A	2	39.189	39.268	0.101	246.00	0.86	0.0000
15	39.094	N229	82.2	1.000	3	A	2	38.682	39.506	0.101	245.00	0.89	0.0000
16	38.985	N196	69.2	1.000	3	A	2	38.849	39.122	0.101	248.00	0.82	0.0000
17	38.771	N269	61.1	1.000	3	A	2	38.677	38.866	0.101	248.00	0.83	0.0000
18	38.594	N297	66.0	1.000	3	A	2	38.477	38.710	0.101	248.00	0.84	0.0000
19	38.345	N301	75.5	1.000	3	A	2	38.142	38.548	0.101	245.00	0.88	0.0000
20	38.212	N302	70.5	1.000	3	A	2	38.065	38.358	0.101	245.00	0.90	0.0000
21	38.043	N305	65.5	1.000	3	A	2	37.930	38.155	0.101	245.00	0.85	0.0000
22	38.016	N083	58.1	1.000	3	A	2	37.937	38.094	0.101	246.00	0.85	0.0000
23	37.952	N081	33.8	1.000	3	A	2	37.919	37.984	0.101	243.00	0.85	0.0000

Remarks: The Magnetic Declination in 2023 at Lion Rock of Hong Kong is 3°18' west of True North.

DRiLTECH

DIP DATA INTERPRETATION
RGLDIP vsn 6.2
FRACTURE ANALYSIS LOG

31 Oct 2023

Task Order No. GE/2022/08.35

Borehole: BH 2

Test Date: 25 Sep 2023

top of borehole.....
East: 810117.34
North: 831133.48
Elev: +10.64mPD

North ref: magnetic
Depth units are metres
Vertical scale: 1/100

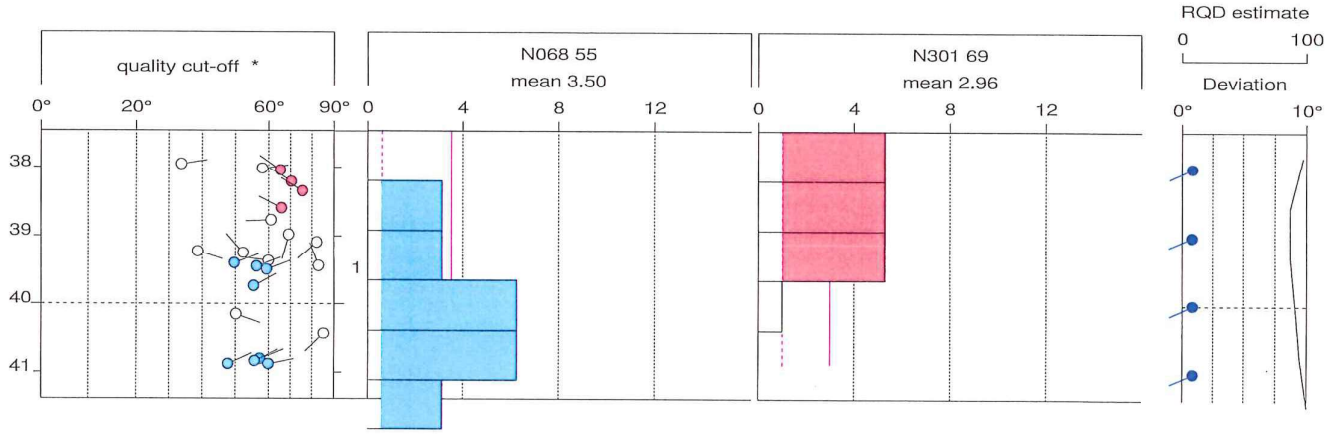
Zone from 41.383 to 37.452m
Mean dip format: dip-azimuth and dip
Frequency histogram parameters:

measurement distance 0.000m
step distance 0.000m

Interpretation 1

Dip data sets .....
BHTV dips

open symbols not used in mean-dip/zone-axis calculation



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DIP DATA INTERPRETATION
RGLDIP vsn 6.2
FRACTURE ANALYSIS STEREOGRAMS

31 Oct 2023

Task Order No. GE/2022/08.35

Borehole: BH 2

Test Date: 25 Sep 2023

top of borehole.....
East: 810117.34
North: 831133.48
Elev: +10.64mPD

North ref: magnetic
Depth units are metres

Zone from 41.383 to 37.452m
Mean dip format: dip-azimuth and dip

Interpretation 1

Dip data sets .....
BHTV dips

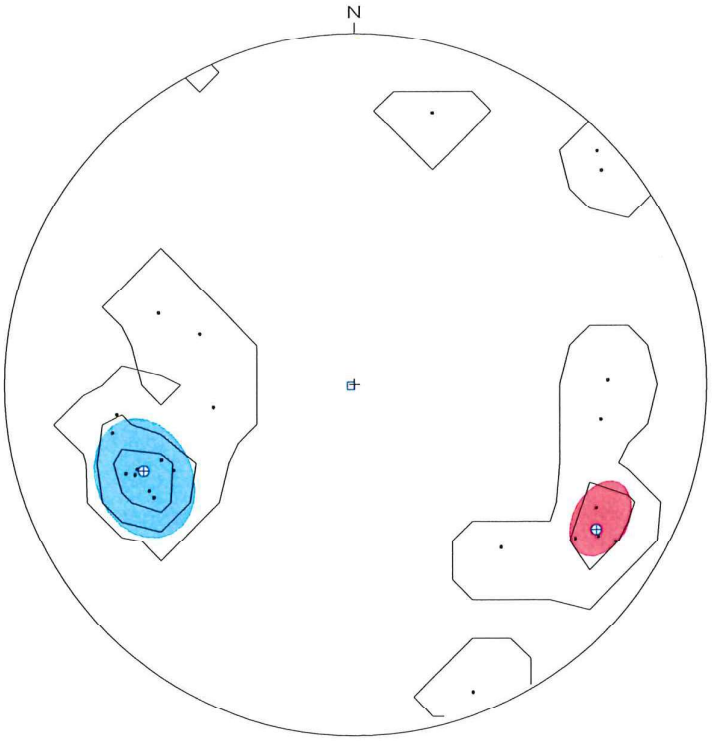
BH 2
Zone 0. 37.452 - 41.383m
Deviation 0.80 N248.60

dipdata sets.....
BHTV dips

	mean dip	n	f
N068 55	N068 55	8	3.50
N301 69	N301 69	4	2.96

intersections

	N068 55	N301 69
N068 55		39 N013
N301 69	39 N013	



⊕ mean dip
▫ well axis

equal-area lower-hemisphere 0-90
contour-levels 1,3,6,

RGLDIPv6.2 DIP DATA INTERPRETATION: FRACTURE ANALYSIS

borehole BH 2
zone from 37.000 to 41.000 m
North ref is magnetic
31 Oct 2023

Data is classed into 1 types
3 BHTV_dips

Quality cut-off level: *

Mean well deviation: 0.8°deg to N248.6°

2 small-circles defined

	SEARCH AREA			MEAN DIP			
	azim	pl	cone	azimuth	dip	n	f
1	246.3°	34.0°	12.7°	338°	55°	8	3.50
2	118.7°	21.3°	7.8°	211°	69°	4	2.96

Total number of data = 12
Number of data unaccounted for = 11

ZONE	DEVIATION		DEPTHS m		No.	MEAN DIPS and FREQUENCIES											
No.	Dev	Azim	TOP	BASE	DATA	Azi	Dip	n	f	Azi	Dip	n	f	Azi	Dip	n	f	Azi	Dip	n	f
1	0.8	248.6	37.46	41.38	23	338	55	8	3.50	211	69	4	2.96	0	0	0	0.00	0	0	0	0.00	0	0	0	0.00

DRiLTECH

BHTV DATA PROCESSING
RGLDIP vsn 6.2
AMPLITUDE/TRAVEL-TIME LOG

31 Oct 2023

Task Order No. GE/2022/08.35

Borehole: BH 3

Test Date: 05 Oct 2023

top of borehole.....
East: 809954.56
North: 831149.31
Elev: +10.96mPD

North ref. is magnetic
Depth units are metres
Vertical scale: 1/10
Horiz scale = vert scale

Zone from 45.270 to 40.100m
Format BHTV-NESWN

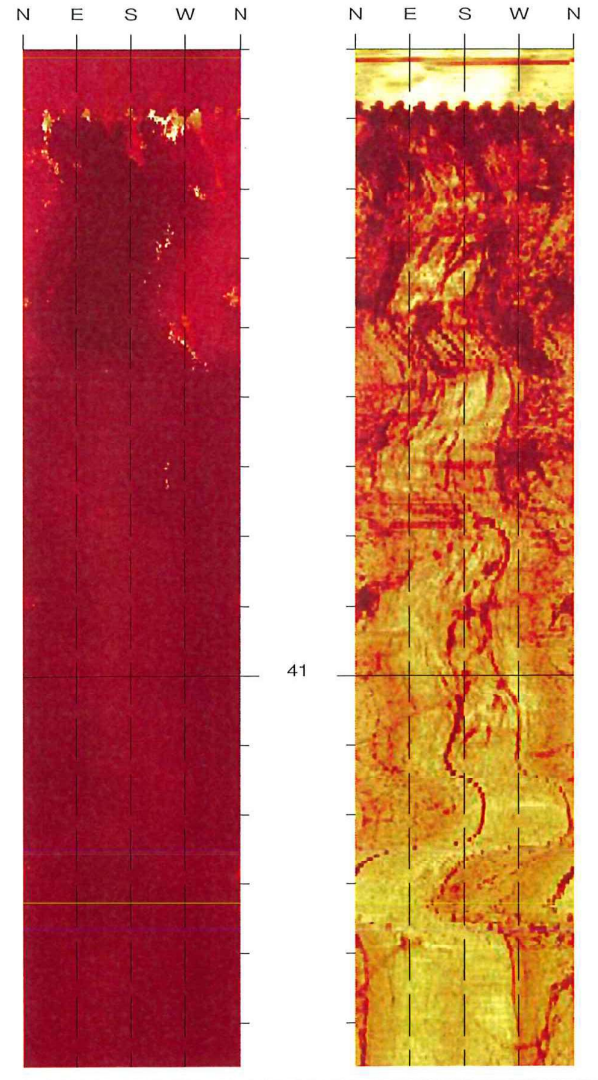
Borehole diam: 10.100cm
data intervals.....
azimuth: 2.000deg
depth: 0.002m

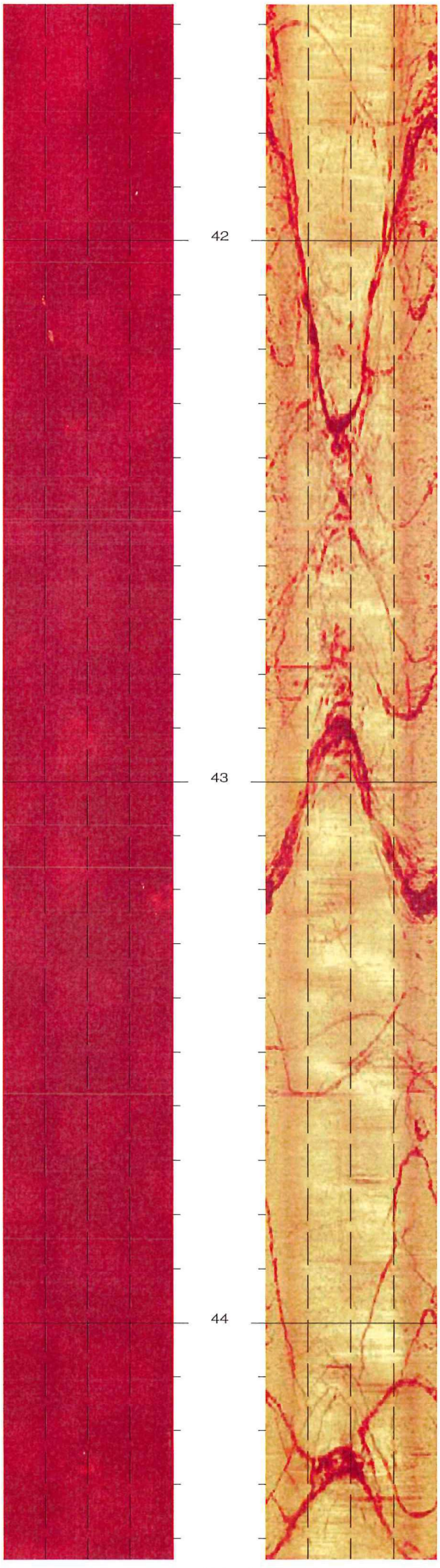
TRAVEL TIME (0.1µsec)

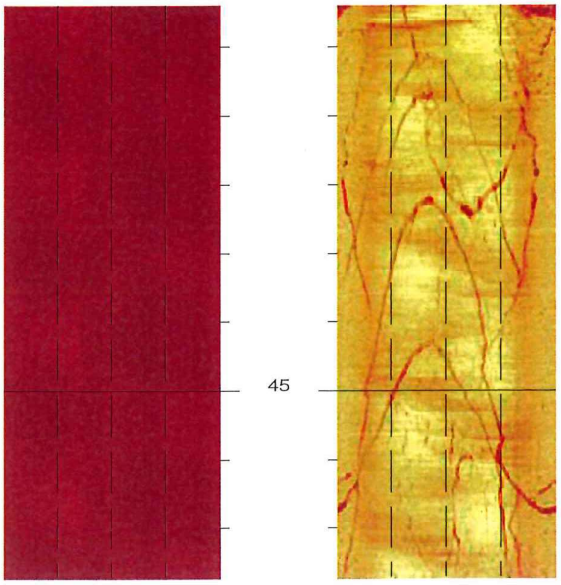
1698 2065

AMPLITUDE

2 255




42
43
44


45

DRiLTECH

BHTV DATA PROCESSING
RGLDIP vsn 6.2
INTERPRETED BHTV DIPS LOG

31 Oct 2023

Task Order No. GE/2022/08.35

Borehole: BH 3

Test Date: 05 Oct 2023

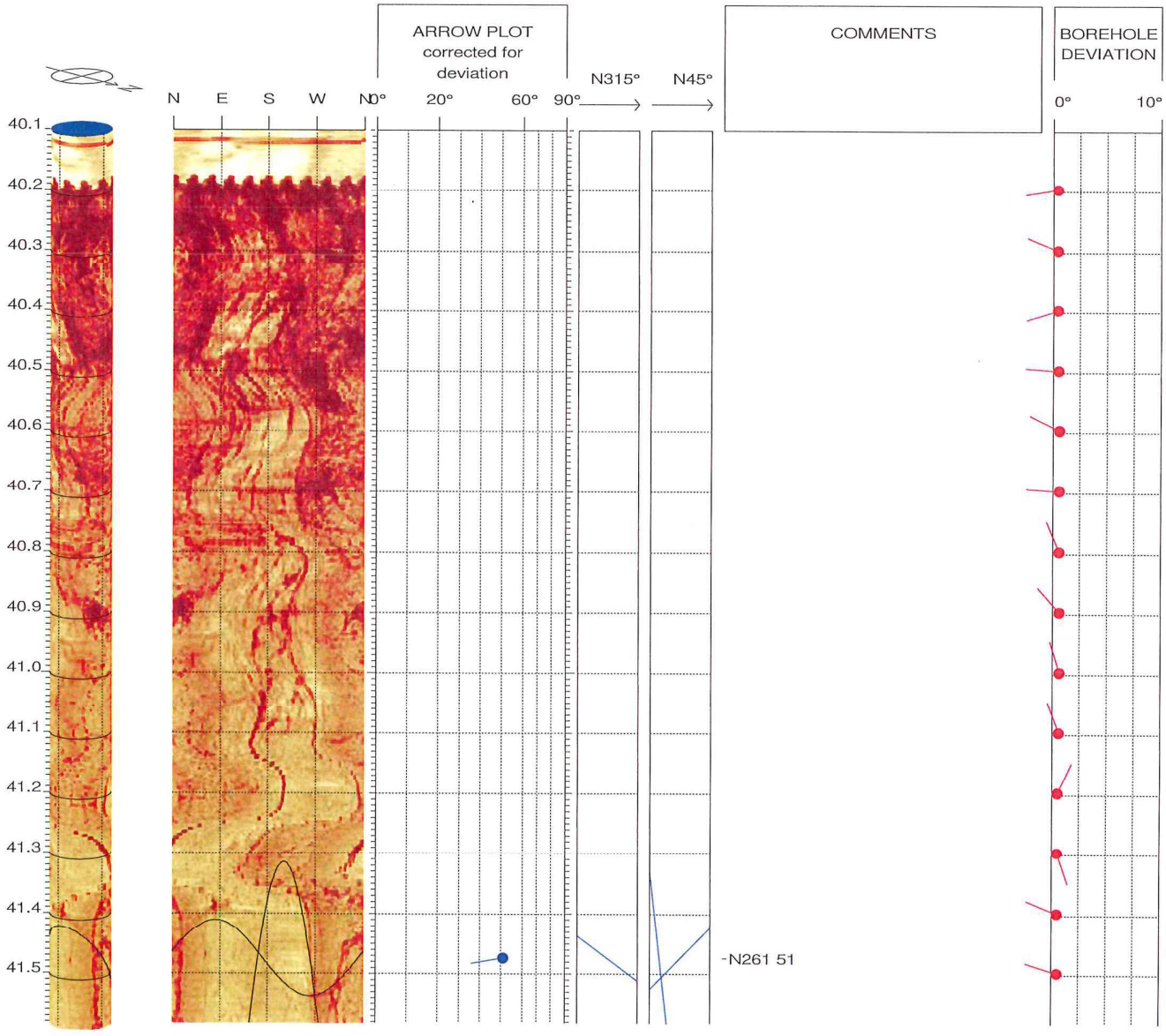
top of borehole.....
East: 809954.56
North: 831149.31
Elev: +10.96mPD

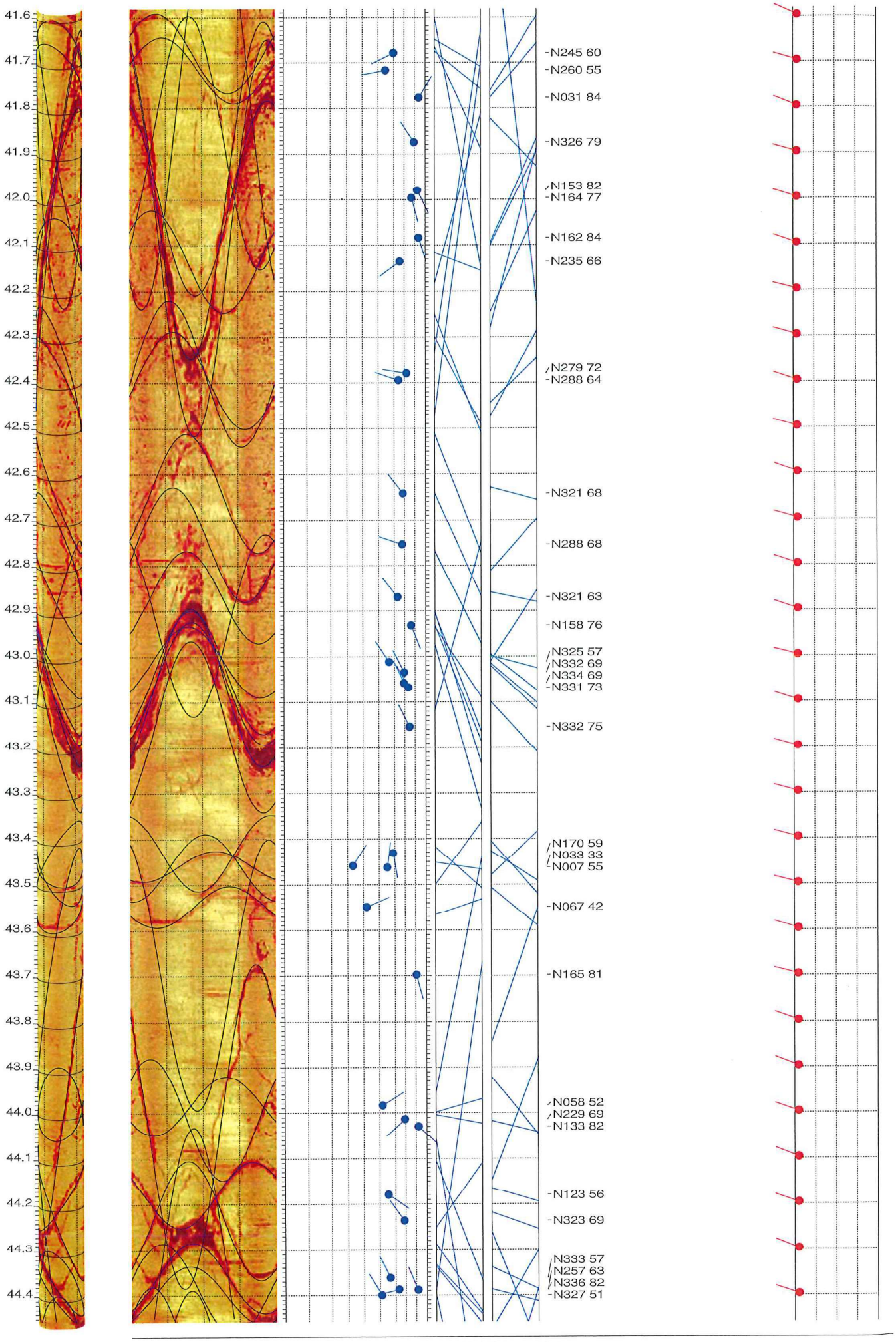
North ref. is magnetic
Depth units are metres
Vertical scale: 1/10
Horiz scale = 1.00x Vert scale

Zone from 45.270 to 40.100m
Format: BHTV-NESWN

Borehole diam: 10.100cm
Vertical = borehole-axis
Image: Amplitude

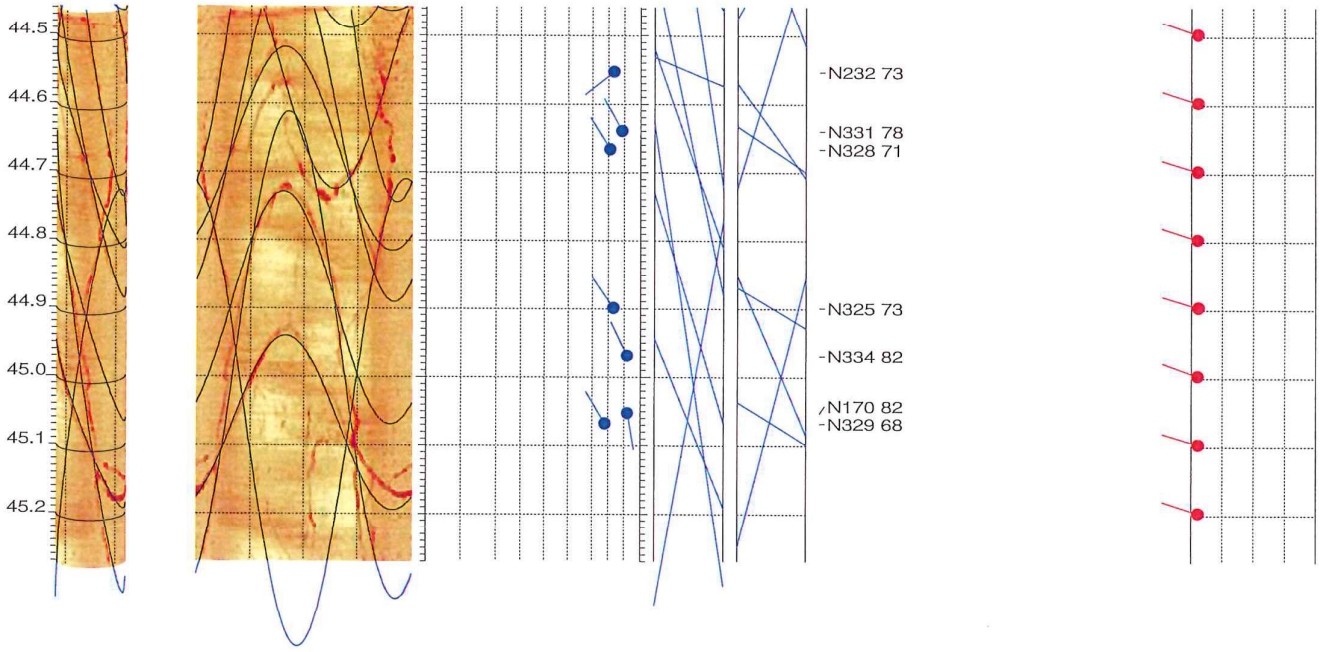
Stratigraphic dips
Non-stratigraphic dips
Identified units





BH 3

44.458 to 41.582m


44.5
44.6
44.7
44.8
44.9
45.0
45.1
45.2
-N232 73
-N331 78
-N328 71
-N325 73
-N334 82
-N170 82
-N329 68

RGLDIPv6.2 BHTV results

K = 0: Stratigraphic dips
K = 2: Non-stratigraphic dips

borehole BH 3
zone from 45.270 to 40.100 m
North ref is magnetic
Dip format: Dip-azimuth and Dip
31 Oct 2023

	Depth	Azimuth	Dip	1-P0/100	n	Q	K	Upper Depth	Lower Depth	Well Diam	Well deviation Azimuth	Dev	Thickness
1	45.068	N329	68.0	1.000	3	A	2	44.941	45.195	0.101	285.00	0.51	0.0000
2	45.053	N170	81.8	1.000	3	A	2	44.710	45.395	0.101	286.00	0.47	0.0000
3	44.969	N334	81.6	1.000	3	A	2	44.613	45.325	0.101	290.00	0.50	0.0000
4	44.900	N325	73.1	1.000	3	A	2	44.730	45.070	0.101	287.00	0.54	0.0000
5	44.667	N328	70.9	1.000	3	A	2	44.518	44.816	0.101	285.51	0.53	0.0000
6	44.640	N331	78.3	1.000	3	A	2	44.389	44.891	0.101	287.00	0.53	0.0000
7	44.554	N232	73.4	1.000	3	A	2	44.382	44.726	0.101	289.00	0.49	0.0000
8	44.400	N327	51.3	1.000	3	A	2	44.336	44.464	0.101	287.22	0.53	0.0000
9	44.389	N336	81.6	1.000	3	A	2	44.032	44.745	0.101	289.00	0.52	0.0000
10	44.388	N257	63.3	1.000	3	A	2	44.285	44.490	0.101	289.00	0.52	0.0000
11	44.362	N333	56.6	1.000	3	A	2	44.285	44.440	0.101	289.00	0.50	0.0000
12	44.236	N323	68.5	1.000	3	A	2	44.105	44.367	0.101	288.00	0.50	0.0000
13	44.180	N123	55.5	1.000	3	A	2	44.108	44.252	0.101	286.00	0.50	0.0000
14	44.030	N133	82.4	1.000	3	A	2	43.674	44.385	0.101	288.41	0.48	0.0000
15	44.014	N229	69.1	1.000	3	A	2	43.880	44.148	0.101	288.00	0.48	0.0000
16	43.984	N058	52.0	1.000	3	A	2	43.920	44.048	0.101	287.80	0.47	0.0000
17	43.698	N165	80.6	1.000	3	A	2	43.401	43.995	0.101	285.00	0.46	0.0000
18	43.549	N067	42.1	1.000	3	A	2	43.504	43.594	0.101	287.00	0.45	0.0000
19	43.463	N007	55.3	1.000	3	A	2	43.390	43.536	0.101	284.00	0.45	0.0000
20	43.460	N033	33.5	1.000	3	A	2	43.426	43.493	0.101	282.98	0.45	0.0000
21	43.432	N170	58.9	1.000	3	A	2	43.349	43.515	0.101	284.00	0.47	0.0000
22	43.154	N332	74.6	1.000	3	A	2	42.967	43.342	0.101	286.00	0.48	0.0000
23	43.069	N331	73.4	1.000	3	A	2	42.895	43.242	0.101	286.00	0.50	0.0000
24	43.059	N334	69.1	1.000	3	A	2	42.924	43.194	0.101	286.00	0.47	0.0000
25	43.035	N332	69.3	1.000	3	A	2	42.900	43.171	0.101	284.00	0.47	0.0000
26	43.012	N325	56.8	1.000	3	A	2	42.934	43.090	0.101	285.00	0.48	0.0000
27	42.932	N158	76.1	1.000	3	A	2	42.733	43.132	0.101	286.15	0.47	0.0000
28	42.870	N321	63.2	1.000	3	A	2	42.769	42.972	0.101	288.00	0.48	0.0000
29	42.755	N288	67.7	1.000	3	A	2	42.628	42.881	0.101	287.00	0.47	0.0000
30	42.643	N321	68.5	1.000	3	A	2	42.512	42.773	0.101	286.00	0.46	0.0000
31	42.395	N288	64.2	1.000	3	A	2	42.289	42.502	0.101	288.42	0.44	0.0000
32	42.380	N279	72.0	1.000	3	A	2	42.220	42.540	0.101	289.81	0.45	0.0000
33	42.136	N235	65.5	1.000	3	A	2	42.023	42.248	0.101	285.00	0.42	0.0000
34	42.084	N162	83.6	1.000	3	A	2	41.650	42.517	0.101	287.00	0.43	0.0000
35	41.997	N164	76.9	1.000	3	A	2	41.784	42.210	0.101	286.97	0.41	0.0000
36	41.980	N153	82.5	1.000	3	A	2	41.611	42.350	0.101	285.00	0.41	0.0000
37	41.875	N326	79.4	1.000	3	A	2	41.597	42.153	0.101	285.00	0.46	0.0000
38	41.777	N031	83.9	1.000	3	A	2	41.315	42.240	0.101	290.00	0.43	0.0000
39	41.717	N260	54.6	1.000	3	A	2	41.645	41.790	0.101	287.92	0.46	0.0000
40	41.680	N245	59.7	1.000	3	A	2	41.592	41.768	0.101	288.00	0.47	0.0000
41	41.474	N261	51.0	1.000	3	A	2	41.411	41.538	0.101	290.00	0.48	0.0000

Remarks: The Magnetic Declination in 2023 at Lion Rock of Hong Kong is 3°18' west of True North.

DRILTECH

DIP DATA INTERPRETATION
RGLDIP vsn 6.2
FRACTURE ANALYSIS LOG

31 Oct 2023

Task Order No. GE/2022/08.35

Borehole: BH 3

Test Date: 05 Oct 2023

top of borehole.....
East: 809954.56
North: 831149.31
Elev: +10.96mPD

North ref: magnetic
Depth units are metres
Vertical scale: 1/100

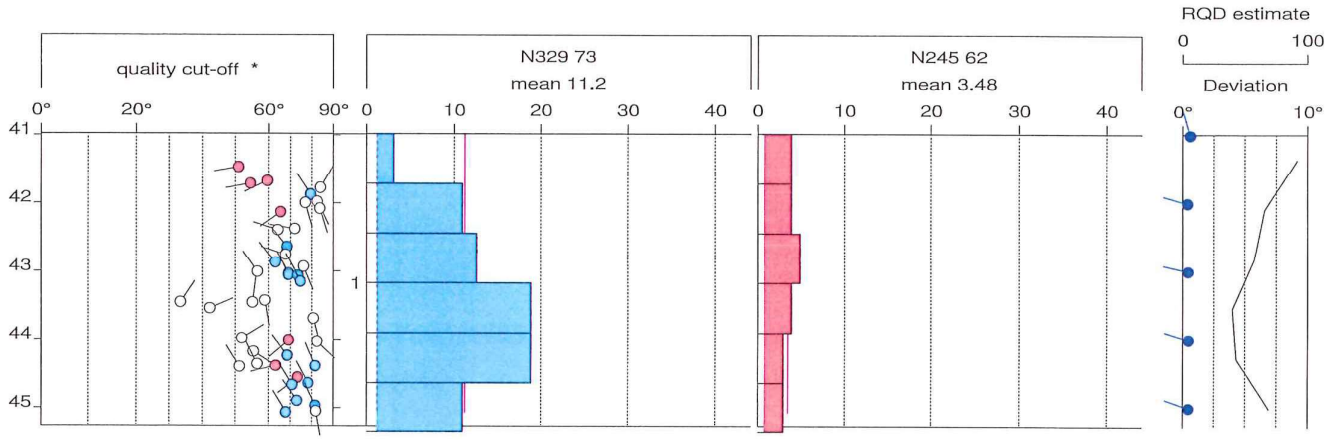
Zone from 45.278 to 40.974m
Mean dip format: dip-azimuth and dip
Frequency histogram parameters:

measurement distance 0.000m
step distance 0.000m

Interpretation 1

Dip data sets .....
BHTV dips

open symbols not used in mean-dip/zone-axis calculation



DRILTECH

DIP DATA INTERPRETATION
RGLDIP vsn 6.2
FRACTURE ANALYSIS STEREOGRAMS

31 Oct 2023

Task Order No. GE/2022/08.35

Borehole: BH 3

Test Date: 05 Oct 2023

top of borehole.....
East: 809954.56
North: 831149.31
Elev: +10.96mPD

North ref: magnetic
Depth units are metres

Zone from 45.278 to 40.974m
Mean dip format: dip-azimuth and dip

Interpretation 1

Dip data sets .....
BHTV dips

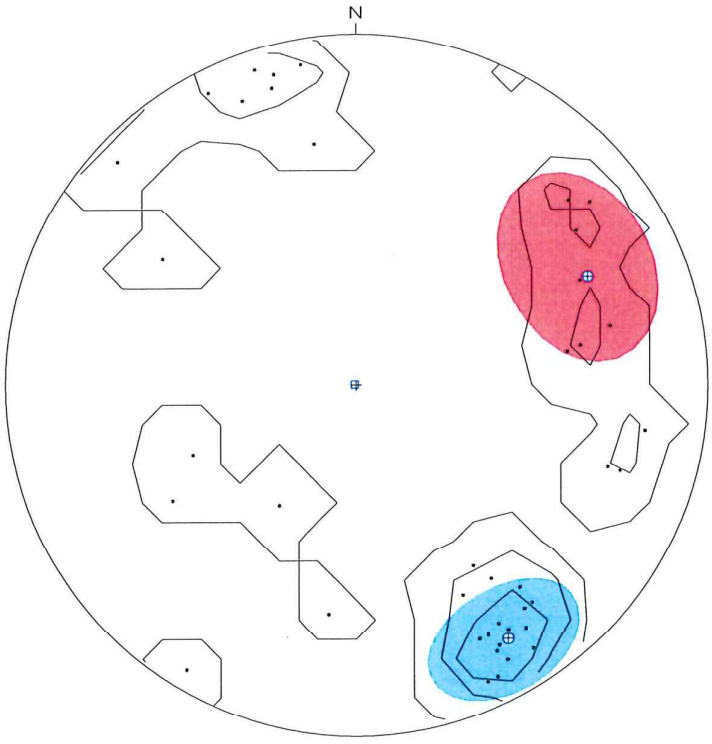
BH 3
Zone 0. 40.974 - 45.278m
Deviation 0.40 N289.60

dipdata sets.....
BHTV dips

	mean dip	n	f
N329 73	N329 73	14	11.22
N245 62	N245 62	7	3.48

intersections

	N329 73	N245 62
N329 73		60 N270
N245 62	60 N270	



mean dip
well axis

equal-area lower-hemisphere 0-90
contour-levels 1,3,6,

RGLDIPv6.2 DIP DATA INTERPRETATION: FRACTURE ANALYSIS

borehole BH 3
zone from 40.000 to 45.000 m
North ref is magnetic
31 Oct 2023

Data is classed into 1 types
3 BHTV_dips

Quality cut-off level: *

Mean well deviation: 0.4°deg to N289.6°

2 small-circles defined

	SEARCH AREA			MEAN DIP			
	azim	pl	cone	azimuth	dip	n	f
1	149.9°	16.4°	15.3°	239°	73°	14	11.22
2	62.0°	28.1°	19.9°	155°	62°	7	3.48

Total number of data = 21
Number of data unaccounted for = 20

ZONE No.	DEVIATION Dev	Azim	DEPTHS m TOP	BASE	No. DATA	MEAN DIPS and FREQUENCIES Azi	Dip	n	f	Azi	Dip	n	f	Azi	Dip	n	f	Azi	Dip	n	f
1	0.4	289.6	40.98	45.28	41	239	73	14	11.22	155	62	7	3.48	0	0	0	0.00	0	0	0	0.00	0	0	0	0.00

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BHTV DATA PROCESSING
RGLDIP vsn 6.2
AMPLITUDE/TRAVEL-TIME LOG

26 Oct 2023

Task Order No. GE/2022/08.35

Borehole: BH 4

Test Date: 14 Oct 2023

top of borehole.....
East: 809840.93
North: 831201.56
Elev: +11.12mPD

North ref. is magnetic
Depth units are metres
Vertical scale: 1/10
Horiz scale = vert scale

Zone from 20.200 to 25.360m
Format BHTV-NESWN

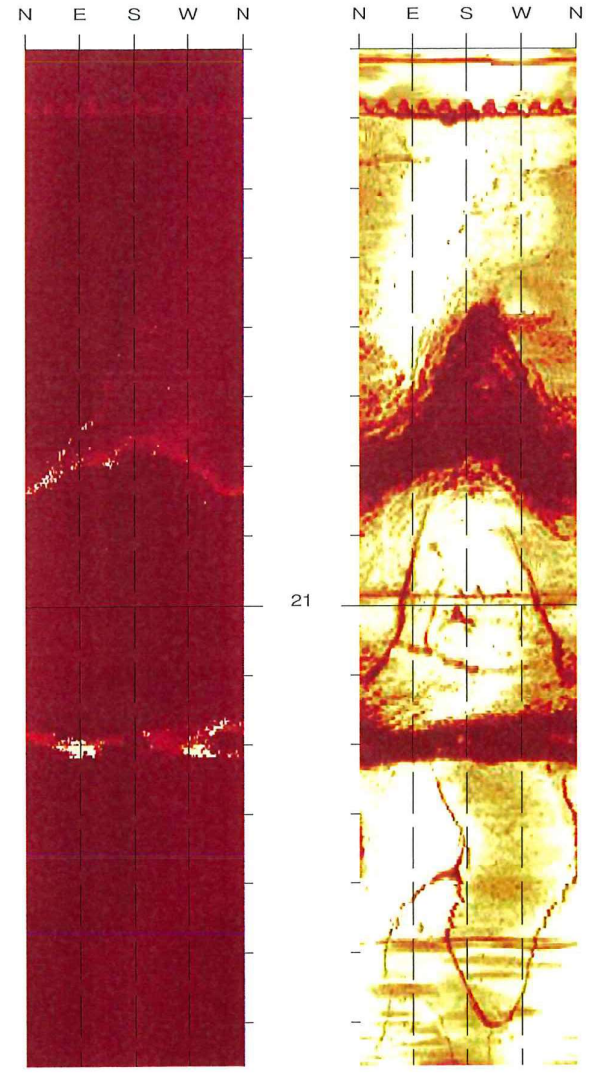
Borehole diam: 10.100cm
data intervals.....
azimuth: 2.000deg
depth: 0.002m

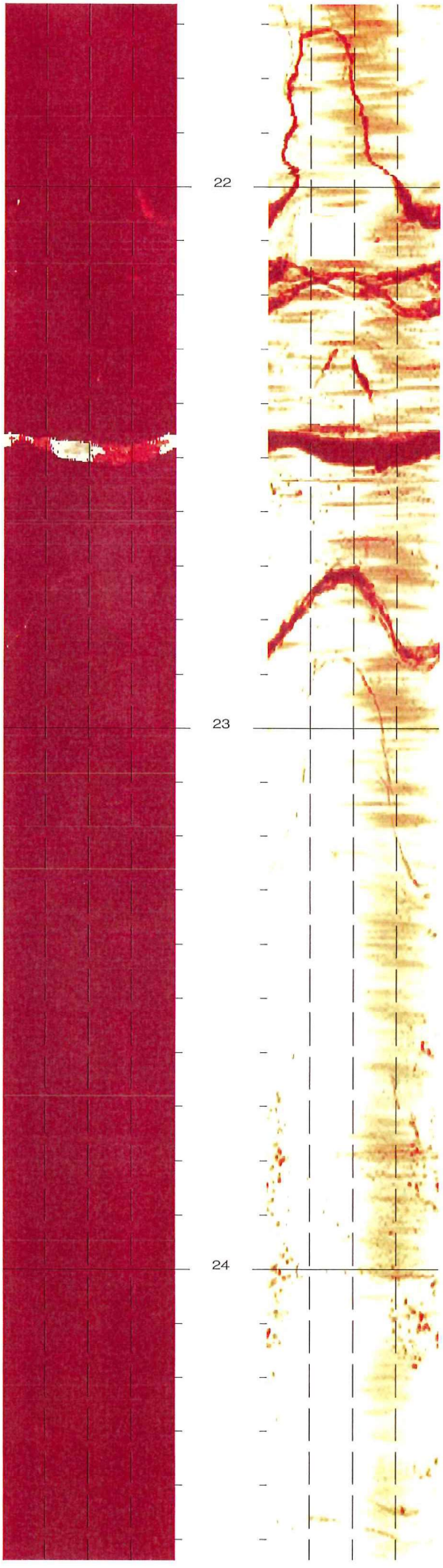
TRAVEL TIME (0.1µsec)

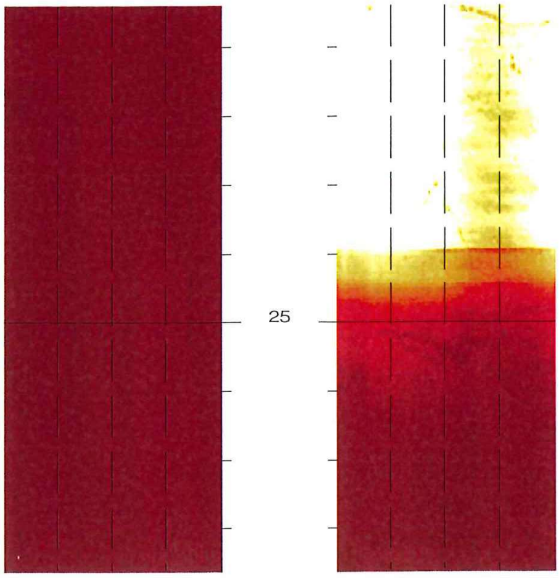
1664 2532

AMPLITUDE

2 256




22
23
24


25

DRiLTECH

BHTV DATA PROCESSING
RGLDIP vsn 6.2
INTERPRETED BHTV DIPS LOG

26 Oct 2023

Task Order No. GE/2022/08.35

Borehole: BH 4

Test Date: 14 Oct 2023

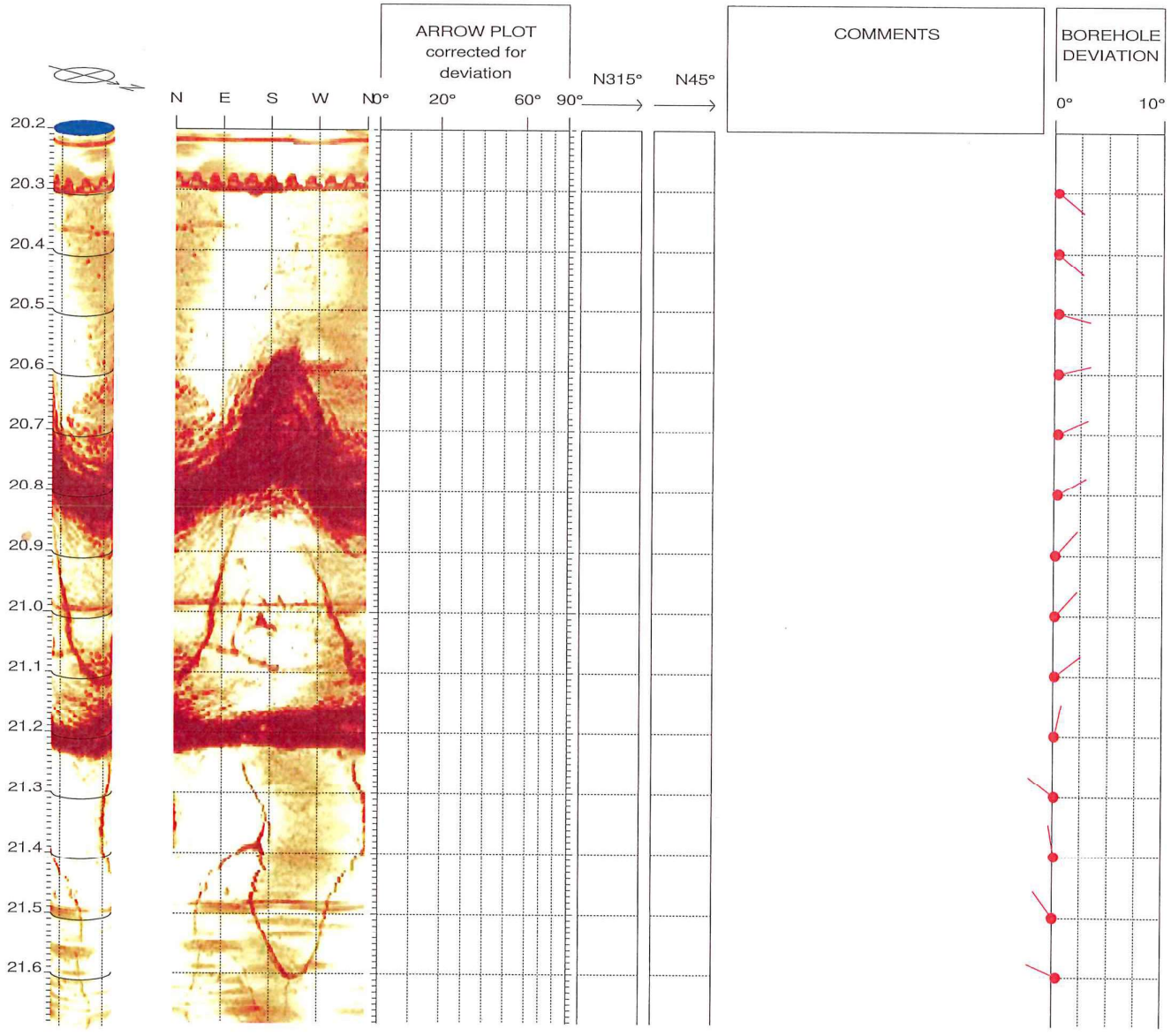
top of borehole.....
East: 809840.93
North: 831201.56
Elev: +11.12mPD

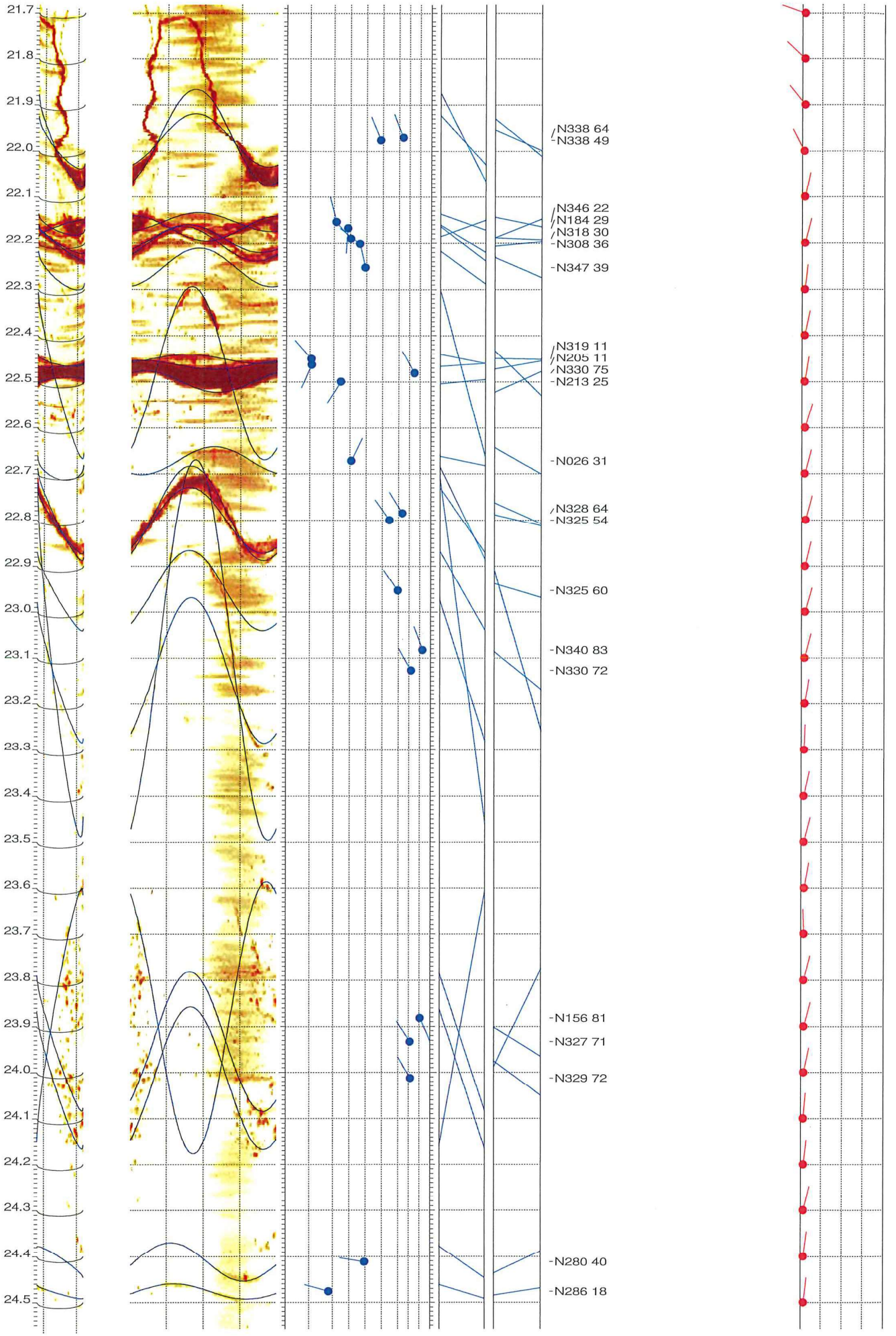
North ref. is magnetic
Depth units are metres
Vertical scale: 1/10
Horiz scale = 1.00x Vert scale

Zone from 20.200 to 25.360m
Format: BHTV-NESWN

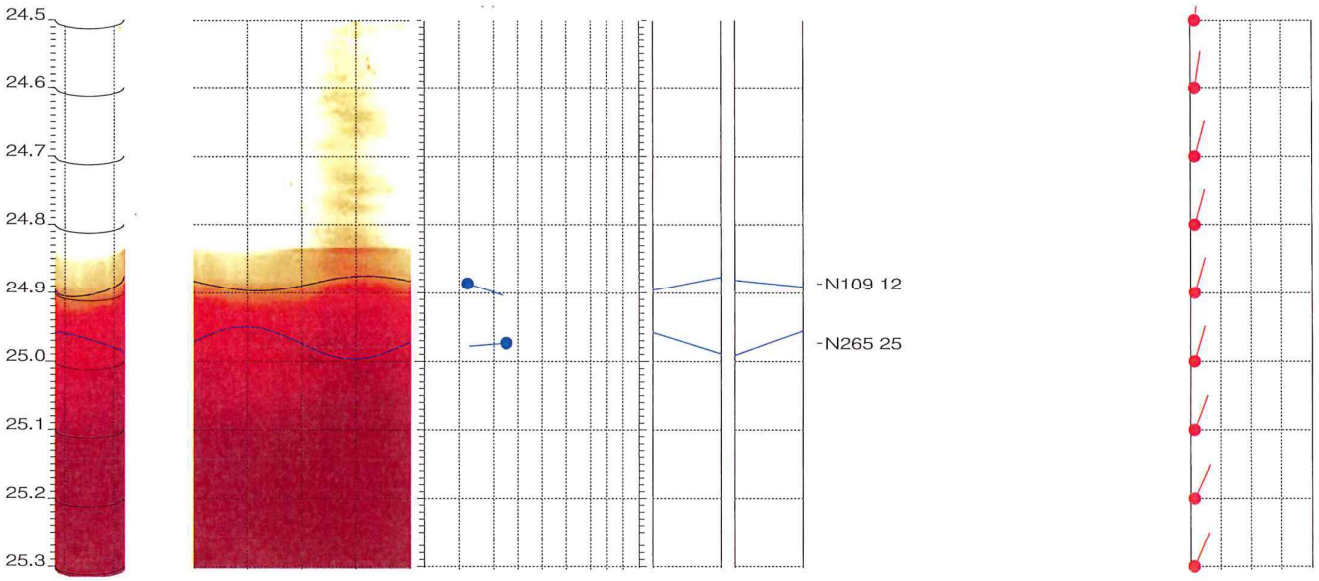
Borehole diam: 10.100cm
Vertical = borehole-axis
Image: Amplitude

Stratigraphic dips
Non-stratigraphic dips
Identified units





BH 4 24.558 to 21.682m


24.5
24.6
24.7
24.8
24.9
25.0
25.1
25.2
25.3
-N109 12
-N265 25

RGLDIPv6.2 BHTV results

K = 0: Stratigraphic dips
K = 2: Non-stratigraphic dips

borehole BH 4
zone from 20.200 to 25.360 m
North ref is magnetic
Dip format: Dip-azimuth and Dip
26 Oct 2023

	Depth	Azimuth	Dip	1-P0/100	n	Q	K	Upper Depth	Lower Depth	Well Diam	Well deviation Azimuth	Dev	Thickness
1	24.973	N265	25.2	1.000	3	A	2	24.950	24.997	0.101	17.00	0.35	0.0000
2	24.886	N109	12.5	1.000	3	A	2	24.875	24.897	0.101	15.00	0.36	0.0000
3	24.477	N286	18.4	1.000	3	A	2	24.460	24.493	0.101	5.25	0.34	0.0000
4	24.412	N280	39.6	1.000	3	A	2	24.370	24.454	0.101	7.00	0.35	0.0000
5	24.013	N329	71.7	1.000	3	A	2	23.857	24.168	0.101	12.00	0.37	0.0000
6	23.934	N327	71.4	1.000	3	A	2	23.782	24.086	0.101	13.00	0.38	0.0000
7	23.882	N156	80.6	1.000	3	A	2	23.587	24.177	0.101	15.31	0.36	0.0000
8	23.127	N330	72.0	1.000	3	A	2	22.969	23.286	0.101	13.38	0.40	0.0000
9	23.083	N340	82.7	1.000	3	A	2	22.669	23.497	0.101	14.08	0.41	0.0000
10	22.953	N325	59.7	1.000	3	A	2	22.866	23.041	0.101	15.00	0.41	0.0000
11	22.800	N325	54.4	1.000	3	A	2	22.729	22.872	0.101	15.77	0.48	0.0000
12	22.785	N328	63.5	1.000	3	A	2	22.683	22.888	0.101	13.86	0.36	0.0000
13	22.672	N026	31.0	1.000	3	A	2	22.641	22.703	0.101	16.00	0.41	0.0000
14	22.500	N213	24.6	1.000	3	A	2	22.477	22.523	0.101	9.97	0.34	0.0000
15	22.481	N330	74.7	1.000	3	A	2	22.294	22.669	0.101	10.00	0.36	0.0000
16	22.464	N205	10.8	1.000	3	A	2	22.454	22.473	0.101	1.17	0.46	0.0000
17	22.451	N319	10.6	1.000	3	A	2	22.441	22.461	0.101	17.82	0.32	0.0000
18	22.253	N347	39.3	1.000	3	A	2	22.211	22.294	0.101	9.74	0.35	0.0000
19	22.202	N308	36.0	1.000	3	A	2	22.165	22.238	0.101	16.57	0.37	0.0000
20	22.191	N318	30.4	1.000	3	A	2	22.161	22.220	0.101	16.24	0.36	0.0000
21	22.168	N184	28.6	1.000	3	A	2	22.141	22.195	0.101	18.02	0.36	0.0000
22	22.154	N346	21.6	1.000	3	A	2	22.134	22.175	0.101	17.76	0.36	0.0000
23	21.977	N338	48.6	1.000	3	A	2	21.919	22.035	0.101	323.87	0.33	0.0000
24	21.971	N338	63.8	1.000	3	A	2	21.866	22.076	0.101	326.22	0.40	0.0000

Remarks: The Magnetic Declination in 2023 at Lion Rock of Hong Kong is 3°18' west of True North.

DRiLTECH

DIP DATA INTERPRETATION
RGLDIP vsn 6.2
FRACTURE ANALYSIS LOG

26 Oct 2023

Task Order No. GE/2022/08.35

Borehole: BH 4

Test Date: 14 Oct 2023

top of borehole.....
East: 809840.93
North: 831201.56
Elev: +11.12mPD

North ref: magnetic
Depth units are metres
Vertical scale: 1/100

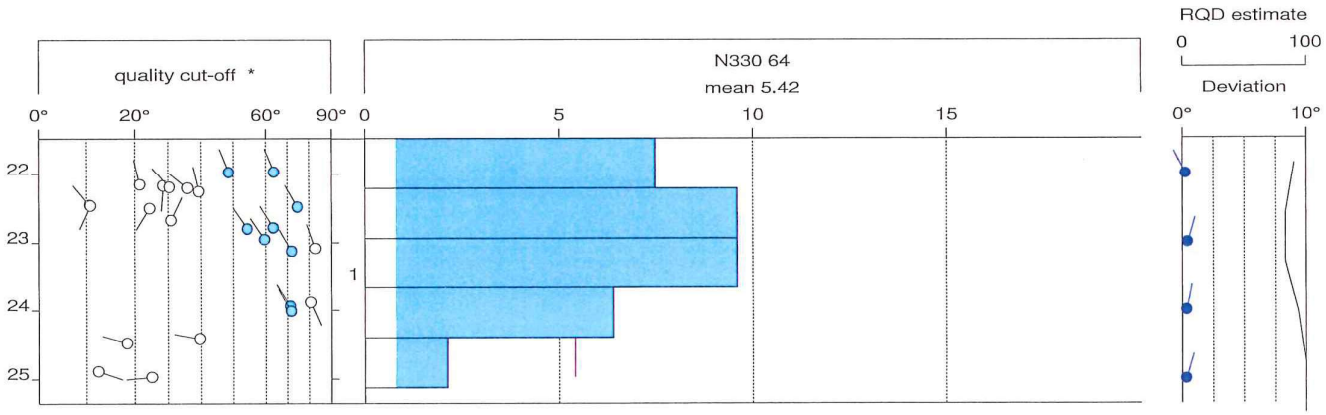
Zone from 25.361 to 21.471m
Mean dip format: dip-azimuth and dip
Frequency histogram parameters:

measurement distance 0.000m
step distance 0.000m

Interpretation 1

Dip data sets .....
BHTV dips

open symbols not used in mean-dip/zone-axis calculation



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DIP DATA INTERPRETATION
RGLDIP vsn 6.2
FRACTURE ANALYSIS STEREOGRAMS

26 Oct 2023

Task Order No. GE/2022/08.35

Borehole: BH 4

Test Date: 14 Oct 2023

top of borehole.....
East: 809840.93
North: 831201.56
Elev: +11.12mPD

North ref: magnetic
Depth units are metres

Zone from 25.361 to 21.471m
Mean dip format: dip-azimuth and dip

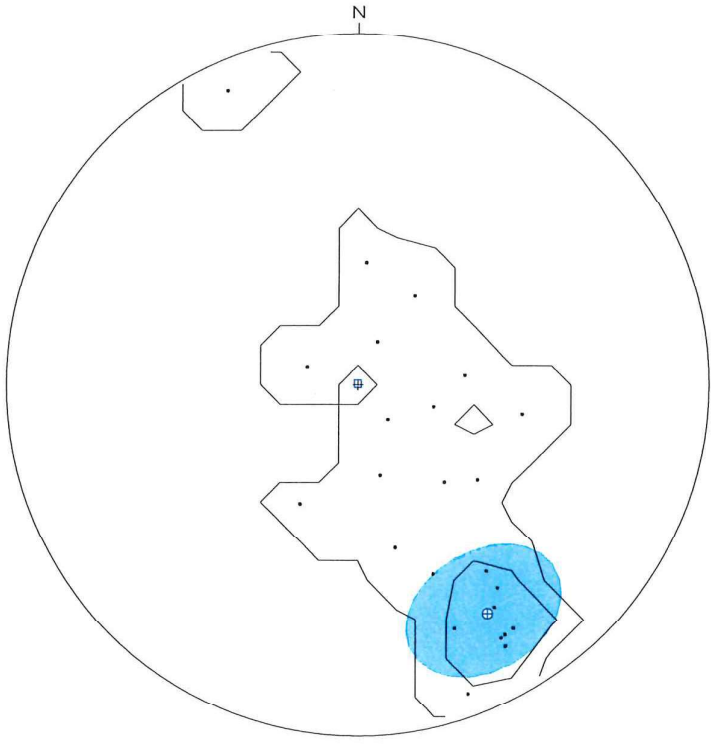
Interpretation 1

Dip data sets .....
BHTV dips

BH 4
Zone 0. 21.471 - 25.361m
Deviation 0.30 N 5.70

dipdata sets.....
BHTV dips

	mean dip	n	f
N330 64	N330 64	9	5.42



⊕ mean dip
□ well axis

equal-area lower-hemisphere 0-90
contour-levels 1,3,

RGLDIPv6.2 DIP DATA INTERPRETATION: FRACTURE ANALYSIS

borehole BH 4
zone from 21.000 to 25.000 m
North ref is magnetic
26 Oct 2023

Data is classed into 1 types
3 BHTV_dips

Quality cut-off level: *

Mean well deviation: 0.3°deg to N 5.7°

1 small-circles defined

	SEARCH AREA azim	pl	cone	MEAN DIP azimuth	dip	n	f
1	150.6°	26.3°	16.5°	240°	64°	9	5.42

Total number of data = 9
Number of data unaccounted for = 15

ZONE No.	DEVIATION Dev	Azim	DEPTHS m TOP	BASE	No. DATA	MEAN DIPS and FREQUENCIES Azi	Dip	n	f	Azi	Dip	n	f	Azi	Dip	n	f	Azi	Dip	n	f
1	0.3	5.7	21.48	25.36	24	240	64	9	5.42	0	0	0	0.00	0	0	0	0.00	0	0	0	0.00	0	0	0	0.00

Appendix G

Piezometer Detail and Response Test Record Sheets

DRiLTECH

DRILLHOLE PIEZOMETER DETAIL AND RESPONSE TEST RECORD SHEET

Drillhole No. : BH 1 (Upper)

Contract No. :	GE/2022/08	**Date of Installation :**	16-Sep-23
Task Order No. :	GE/2022/08.35	**Date of Test :**	20-Sep-23
Project :	Ground Investigation - New Territories East Agreement No. CE 26/2022 (EP), Development of Integrated Waste Management Facilities Phase 2 - Investigation, Design and Construction	**Ground Level :**	+10.55 mPD
		Co-ordinates :	E 810249.27 N 831208.46
Initial Water Level :	4.90 m below G.L.	**Piezometer Tip Level :**	-1.45 mPD
Tested / Supervised By :	M. Hui	**Checked By :**	R. Chu
Dip meter I.D. :	DT-010-053	**Checked Date :**	20-Sep-23

Time Elapsed (minutes)	Depth of Water from top of pipe (m)
0	0.00
0.25	0.00
0.50	0.01
0.75	0.01
1.00	0.02
1.50	0.02
2.00	0.02
3.00	0.03
4.00	0.05
5.00	0.05
6.00	0.06
7.00	0.06
8.00	0.06
9.00	0.08
10.00	0.09
15.00	0.13
20.00	0.18
25.00	0.21
30.00	0.34
45.00	0.45
60.00	0.53

Filter Material: Sand

Material Surrounding Response Zone:

From 11.20m to 12.50m: FILL (Slightly clayey SILT / Very silty fine to coarse SAND

Remarks :

Height above Ground Level

0.05 m

Depth below Ground Level

10.20 m

11.20 m

12.00 m

12.50 m

13.50 m

18.20 m

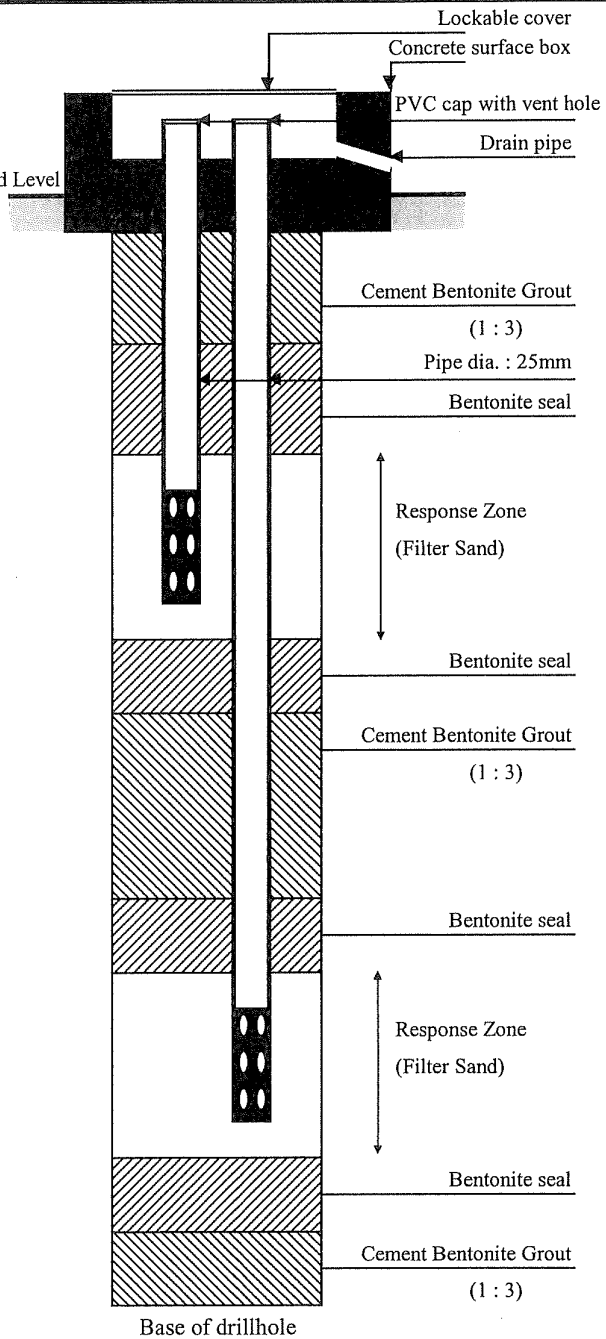
19.20 m

20.00 m

20.50 m

21.50 m

37.21 m



(N.T.S.)

DRiLTECH

DRILLHOLE PIEZOMETER DETAIL AND RESPONSE TEST RECORD SHEET

Drillhole No. : BH 1 (Lower)

Contract No. :	GE/2022/08	**Date of Installation :**	16-Sep-23
Task Order No. :	GE/2022/08.35	**Date of Test :**	20-Sep-23
Project :	Ground Investigation - New Territories East Agreement No. CE 26/2022 (EP), Development of Integrated Waste Management Facilities Phase 2 - Investigation, Design and Construction	**Ground Level :**	+10.55 mPD
		Co-ordinates :	E 810249.27 N 831208.46
Initial Water Level :	6.33 m below G.L.	**Piezometer Tip Level :**	-9.45 mPD
Tested / Supervised By :	M. Hui	**Checked By :**	R. Chu
Dip meter I.D. :	DT-010-053	**Checked Date :**	20-Sep-23

Time Elapsed (minutes)	Depth of Water from top of pipe (m)
0	0.00
0.25	0.00
0.50	0.00
0.75	0.01
1.00	0.01
1.50	0.01
2.00	0.02
3.00	0.02
4.00	0.04
5.00	0.04
6.00	0.04
7.00	0.05
8.00	0.05
9.00	0.05
10.00	0.05
15.00	0.08
20.00	0.10
25.00	0.13
30.00	0.15
45.00	0.20
60.00	0.25

Filter Material: Sand

Material Surrounding Response Zone:

From 19.20m to 20.50m: Grade V GRANITE (Clayey silty fine to coarse SAND)

Remarks :

Height above Ground Level

0.05 m

Depth below Ground Level

10.20 m

11.20 m

12.00 m

12.50 m

13.50 m

18.20 m

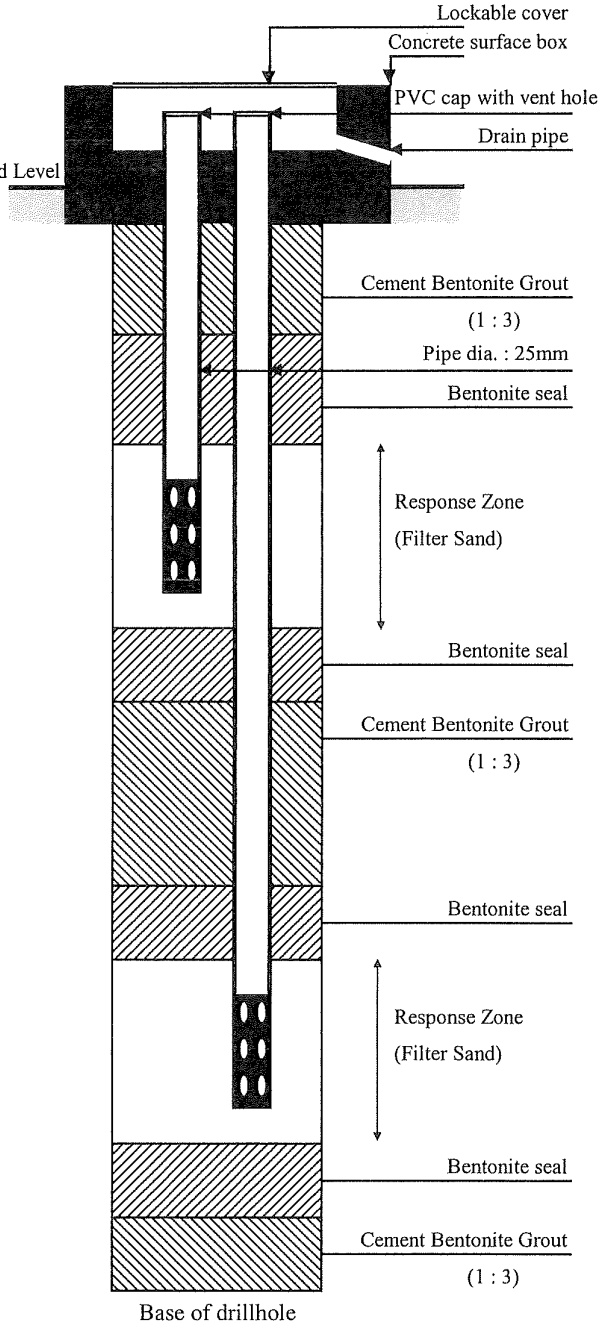
19.20 m

20.00 m

20.50 m

21.50 m

37.21 m



(N.T.S.)

DRiLTECH

DRILLHOLE PIEZOMETER DETAIL AND RESPONSE TEST RECORD SHEET

Drillhole No. : BH 2 (Upper)

Contract No. :	GE/2022/08	**Date of Installation :**	26-Sep-23
Task Order No. :	GE/2022/08.35	**Date of Test :**	28-Sep-23
Project :	Ground Investigation - New Territories East Agreement No. CE 26/2022 (EP), Development of Integrated Waste Management Facilities Phase 2 - Investigation, Design and Construction	**Ground Level :**	+10.64 mPD
		Co-ordinates :	E 810117.34 N 831133.48
Initial Water Level :	4.62 m below G.L.	**Piezometer Tip Level :**	+5.64 mPD
Tested / Supervised By :	M. Hui	**Checked By :**	R. Chu
Dip meter I.D. :	DT-010-053	**Checked Date :**	28-Sep-23

Time Elapsed (minutes)	Depth of Water from top of pipe (m)
0	0.00
0.25	0.56
0.50	0.92
0.75	1.28
1.00	1.57
1.50	1.75
2.00	2.05
3.00	2.53
4.00	2.90
5.00	3.19
6.00	3.42
7.00	3.59
8.00	3.74
9.00	3.86
10.00	3.96
15.00	4.25
20.00	4.44
25.00	4.61
30.00	4.74

Filter Material: Sand

Material Surrounding Response Zone:

From 4.20m to 5.50m: FILL (Coarse GRAVEL)

Remarks :

Height above Ground Level

0.12 m

Depth below Ground Level

3.20 m

4.20 m

5.00 m

5.50 m

6.50 m

23.20 m

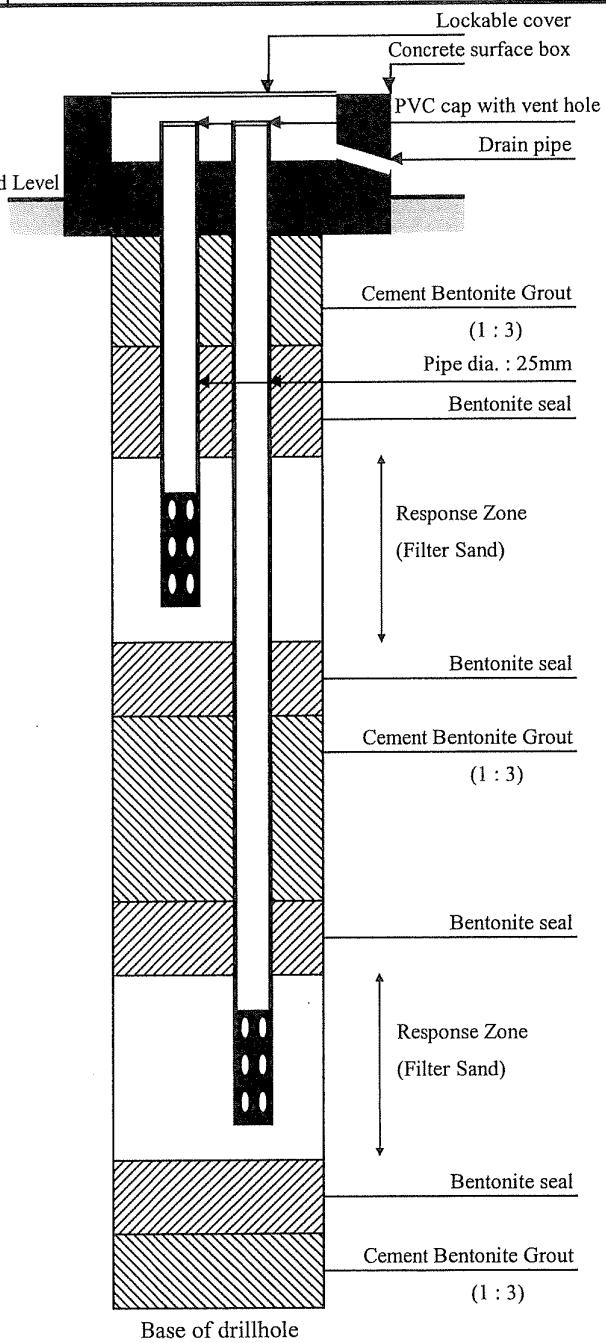
24.20 m

25.00 m

25.50 m

26.50 m

41.91 m



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DRiLTECH

DRILLHOLE PIEZOMETER DETAIL AND RESPONSE TEST RECORD SHEET

Drillhole No. : BH 2 (Lower)

Contract No. :	GE/2022/08	**Date of Installation :**	26-Sep-23
Task Order No. :	GE/2022/08.35	**Date of Test :**	28-Sep-23
Project :	Ground Investigation - New Territories East Agreement No. CE 26/2022 (EP), Development of Integrated Waste Management Facilities Phase 2 - Investigation, Design and Construction	**Ground Level :**	+10.64 mPD
		Co-ordinates :	E 810117.34 N 831133.48
Initial Water Level :	6.11 m below G.L.	**Piezometer Tip Level :**	-14.36 mPD
Tested / Supervised By :	M. Hui	**Checked By :**	R. Chu
Dip meter I.D. :	DT-010-053	**Checked Date :**	28-Sep-23

Time Elapsed (minutes)	Depth of Water from top of pipe (m)
0	0.00
0.25	0.38
0.50	0.49
0.75	0.59
1.00	0.65
1.50	1.12
2.00	1.40
3.00	1.85
4.00	2.29
5.00	2.71
6.00	3.03
7.00	3.33
8.00	3.62
9.00	3.80
10.00	4.06
15.00	4.85
20.00	5.40
25.00	6.02
30.00	6.19
45.00	6.23

Filter Material: Sand

Material Surrounding Response Zone:

From 24.20m to 25.50m: Grade V GRANITE (Clayey silty fine to coarse SAND)

Remarks :

Height above Ground Level

0.12 m

Depth below Ground Level

3.20 m

4.20 m

5.00 m

5.50 m

6.50 m

23.20 m

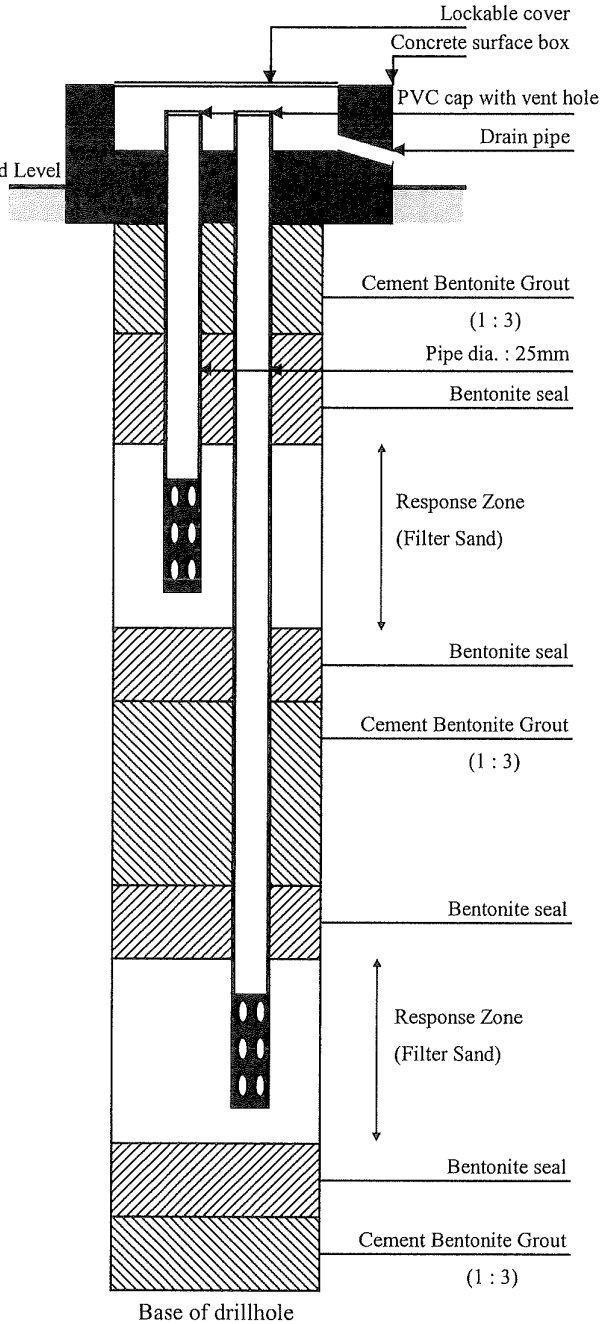
24.20 m

25.00 m

25.50 m

26.50 m

41.91 m



(N.T.S.)

DRiLTECH

DRILLHOLE PIEZOMETER DETAIL AND RESPONSE TEST RECORD SHEET

Drillhole No. : BH 3 (Upper)

Contract No. : GE/2022/08	**Date of Installation :** 6-Oct-23
Task Order No. : GE/2022/08.35	**Date of Test :** 9-Oct-23
Project : Ground Investigation - New Territories East Agreement No. CE 26/2022 (EP), Development of Integrated Waste Management Facilities Phase 2 - Investigation, Design and Construction	**Ground Level :** +10.96 mPD
	Co-ordinates : E 809954.56 N 831149.31
Initial Water Level : 6.31 m below G.L.	**Piezometer Tip Level :** -4.04 mPD
Tested / Supervised By : M. Hui	**Checked By :** R. Chu
Dip meter I.D. : DT-010-053	**Checked Date :** 9-Oct-23

Time Elapsed (minutes)	Depth of Water from top of pipe (m)
0	0.00
0.25	1.46
0.50	3.43
0.75	3.75
1.00	3.87
1.50	4.10
2.00	4.27
3.00	4.62
4.00	4.81
5.00	4.97
6.00	5.12
7.00	5.24
8.00	5.37
9.00	5.48
10.00	5.55
15.00	6.01
20.00	6.39

Filter Material: Sand

Material Surrounding Response Zone:

From 14.20m to 14.55m: MARINE DEPOSIT (Clayey sandy SILT)

From 14.55m to 15.50m: ALLUVIUM (Clayey silty fine to coarse SAND)

Remarks :

Height above Ground Level

0.08 m

Depth below Ground Level

13.20 m

14.20 m

15.00 m

15.50 m

16.50 m

23.20 m

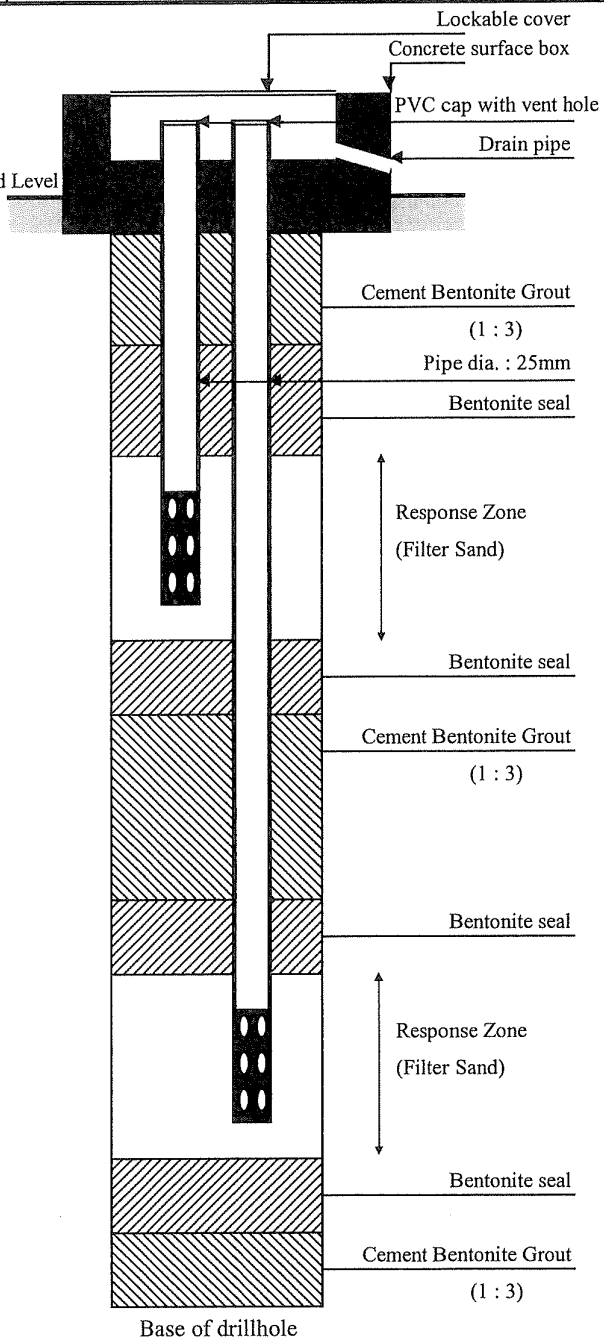
24.20 m

25.00 m

25.50 m

26.50 m

45.42 m



(N.T.S.)

DRiLTECH

DRILLHOLE PIEZOMETER DETAIL AND RESPONSE TEST RECORD SHEET

Drillhole No. : BH 3 (Lower)

Contract No. :	GE/2022/08	**Date of Installation :**	6-Oct-23
Task Order No. :	GE/2022/08.35	**Date of Test :**	9-Oct-23
Project :	Ground Investigation - New Territories East Agreement No. CE 26/2022 (EP), Development of Integrated Waste Management Facilities Phase 2 - Investigation, Design and Construction	**Ground Level :**	+10.96 mPD
		Co-ordinates :	E 809954.56 N 831149.31
Initial Water Level :	6.30 m below G.L.	**Piezometer Tip Level :**	-14.04 mPD
Tested / Supervised By :	M. Hui	**Checked By :**	R. Chu
Dip meter I.D. :	DT-010-053	**Checked Date :**	9-Oct-23

Time Elapsed (minutes)	Depth of Water from top of pipe (m)
0	0.00
0.25	0.26
0.50	0.52
0.75	0.84
1.00	0.87
1.50	1.29
2.00	1.69
3.00	2.30
4.00	2.84
5.00	3.31
6.00	3.72
7.00	4.08
8.00	4.38
9.00	4.61
10.00	4.90
15.00	6.30
20.00	6.38

Filter Material: Sand

Material Surrounding Response Zone:

From 24.20m to 25.50m: Grade V GRANITE (Clayey sandy SILT)

Remarks :

Height above Ground Level

0.08 m

Depth below Ground Level

13.20 m

14.20 m

15.00 m

15.50 m

16.50 m

23.20 m

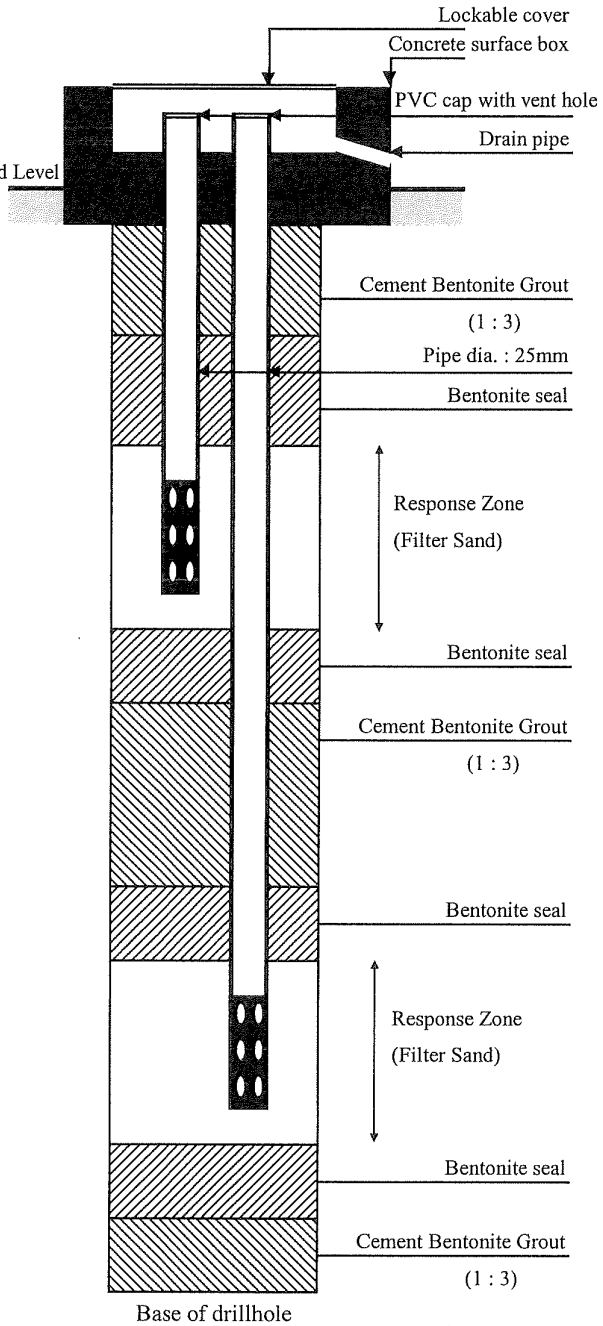
24.20 m

25.00 m

25.50 m

26.50 m

45.42 m



(N.T.S.)

DRiLTECH

DRILLHOLE PIEZOMETER DETAIL AND RESPONSE TEST RECORD SHEET

Drillhole No. : BH 4 (Upper)

Contract No. :	GE/2022/08	**Date of Installation :**	14-Oct-23
Task Order No. :	GE/2022/08.35	**Date of Test :**	16-Oct-23
Project :	Ground Investigation - New Territories East Agreement No. CE 26/2022 (EP), Development of Integrated Waste Management Facilities Phase 2 - Investigation, Design and Construction	**Ground Level :**	+11.12 mPD
		Co-ordinates :	E 809840.93 N 831201.56
Initial Water Level :	4.17 m below G.L.	**Piezometer Tip Level :**	+1.12 mPD
Tested / Supervised By :	M. Hui	**Checked By :**	R. Chu
Dip meter I.D. :	DT-010-053	**Checked Date :**	16-Oct-23

Time Elapsed (minutes)	Depth of Water from top of pipe (m)
0	0.00
0.25	0.84
0.50	1.40
0.75	1.96
1.00	2.35
1.50	2.62
2.00	2.83
3.00	3.38
4.00	3.71
5.00	3.92
6.00	4.00
7.00	4.10
8.00	4.13
9.00	4.18
10.00	4.20
15.00	4.24

Filter Material: Sand

Material Surrounding Response Zone:

From 9.20m to 10.50m: FILL (Slightly clayey SILT)

Remarks :

Height above Ground Level

0.07 m

Depth below Ground Level

8.20 m

9.20 m

10.00 m

10.50 m

11.50 m

13.20 m

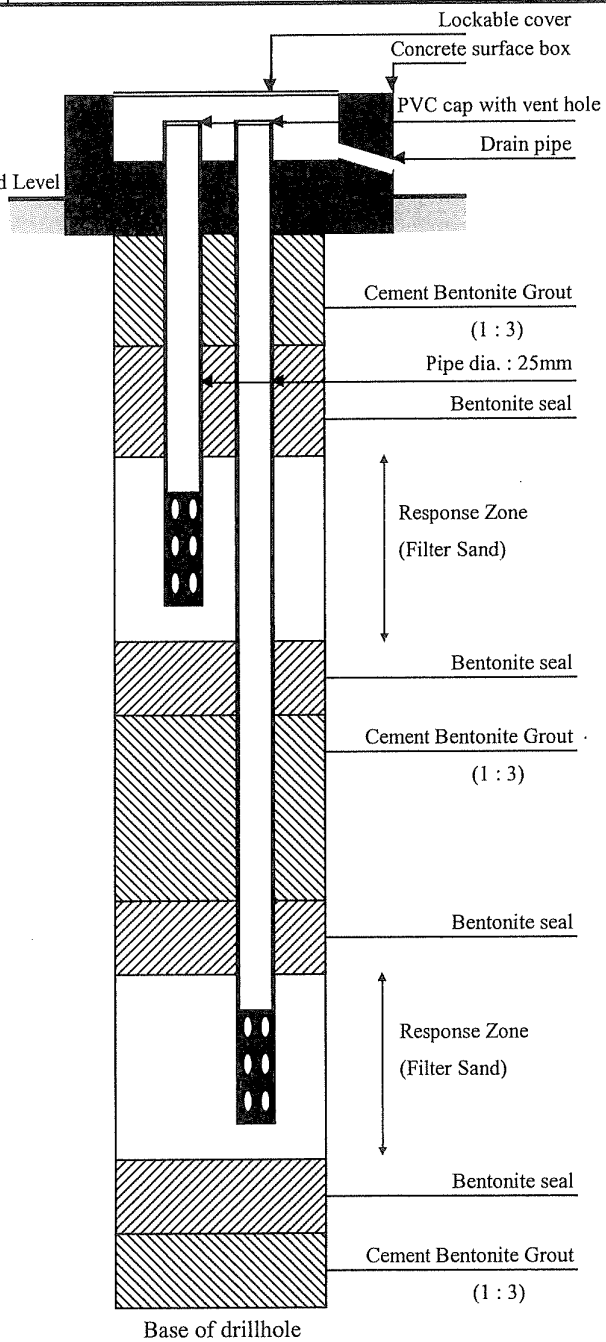
14.20 m

15.00 m

15.50 m

16.50 m

25.51 m



(N.T.S.)

DRiLTECH

DRILLHOLE PIEZOMETER DETAIL AND RESPONSE TEST RECORD SHEET

Drillhole No. : BH 4 (Lower)

Contract No. :	GE/2022/08	**Date of Installation :**	14-Oct-23
Task Order No. :	GE/2022/08.35	**Date of Test :**	16-Oct-23
Project :	Ground Investigation - New Territories East Agreement No. CE 26/2022 (EP), Development of Integrated Waste Management Facilities Phase 2 - Investigation, Design and Construction	**Ground Level :**	+11.12 mPD
		Co-ordinates :	E 809840.93 N 831201.56
Initial Water Level :	6.45 m below G.L.	**Piezometer Tip Level :**	-3.88 mPD
Tested / Supervised By :	M. Hui	**Checked By :**	R. Chu
Dip meter I.D. :	DT-010-053	**Checked Date :**	16-Oct-23

Time Elapsed (minutes)	Depth of Water from top of pipe (m)
0	0.00
0.25	0.95
0.50	1.56
0.75	2.37
1.00	3.08
1.50	3.44
2.00	4.09
3.00	4.59
4.00	4.94
5.00	5.15
6.00	5.34
7.00	5.42
8.00	5.57
9.00	5.63
10.00	5.72
15.00	6.00
20.00	6.29
25.00	6.52

Filter Material: Sand

Material Surrounding Response Zone:

From 14.20m to 14.30m: FILL (COBBLE)

From 14.30m to 15.50m: Grade V GRANITE (Clayey sandy SILT)

Remarks :

Height above Ground Level

0.07 m

Depth below Ground Level

8.20 m

9.20 m

10.00 m

10.50 m

11.50 m

13.20 m

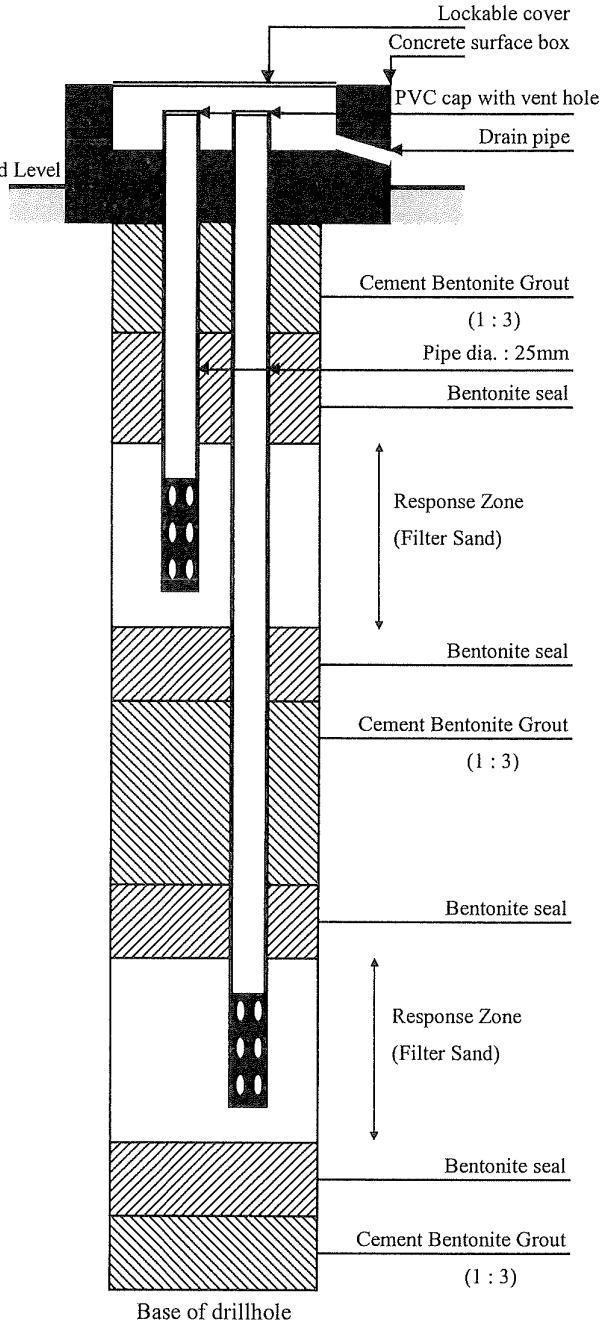
14.20 m

15.00 m

15.50 m

16.50 m

25.51 m



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Appendix H

Water Level Monitoring Records

DRiLTECH

WATER LEVEL MONITORING RECORD

Drillhole No.

BH 1 (Upper)

Contract No. :	**GE/2022/08**
Task Order No. :	**GE/2022/08.35**
Project :	**Ground Investigation - New Territories East Agreement No. CE 26/2022 (EP), Development of Integrated Waste Management Facilities Phase 2 - Investigation, Design and Construction**
Date of Installation :	**16-Sep-23**
Checked By :	**R. Chu**

Piezometer	
Co-ordinates :	
Easting	**810249.27**
Northing	**831208.46**
Ground Level :	**+10.55 mPD**
Depth :	**12.00 m**
Tip Level :	**-1.45 mPD**
Dip Meter I.D. :	**DT-010-053**
Measured By :	**M. Hui**

Date	Time	Ground Water Level		Weather
		Depth below Ground Level (m)	Reduced Level (mPD)	
21-Sep-23	13:15	1.26	+9.29	Fine
22-Sep-23	13:10	1.93	+8.62	Fine
23-Sep-23	12:05	2.62	+7.93	Fine
25-Sep-23	12:55	3.05	+7.50	Rainy
26-Sep-23	13:30	3.26	+7.29	Fine
27-Sep-23	12:50	3.41	+7.14	Fine
28-Sep-23	13:30	3.56	+6.99	Fine

Remarks :

DRiLTECH

WATER LEVEL MONITORING RECORD

Drillhole No. BH 1 (Lower)

Contract No. : GE/2022/08

Task Order No. : GE/2022/08.35

Project :

Ground Investigation - New Territories East
Agreement No. CE 26/2022 (EP),
Development of Integrated Waste Management Facilities Phase 2
- Investigation, Design and Construction

Date of Installation : 16-Sep-23

Checked By : R. Chu

Piezometer

Co-ordinates :

Easting	810249.27
Northing	831208.46
Ground Level :	+10.55 mPD
Depth :	20.00 m
Tip Level :	-9.45 mPD
Dip Meter I.D. :	DT-010-053
Measured By :	M. Hui

Date	Time	Ground Water Level		Weather
		Depth below Ground Level (m)	Reduced Level (mPD)	
21-Sep-23	13:20	4.61	+5.94	Fine
22-Sep-23	13:15	4.68	+5.87	Fine
23-Sep-23	12:10	4.75	+5.80	Fine
25-Sep-23	13:00	4.91	+5.64	Rainy
26-Sep-23	13:35	4.98	+5.57	Fine
27-Sep-23	12:55	5.06	+5.49	Fine
28-Sep-23	13:35	5.13	+5.42	Fine

Remarks :

DRiLTECH

WATER LEVEL MONITORING RECORD

Drillhole No.

BH 2 (Upper)

Contract No. : GE/2022/08

Task Order No. : GE/2022/08.35

Project :

Ground Investigation - New Territories East
Agreement No. CE 26/2022 (EP),
Development of Integrated Waste Management Facilities Phase 2
- Investigation, Design and Construction

Date of Installation : 26-Sep-23

Checked By : R. Chu

Piezometer

Co-ordinates :

Easting	810117.34
Northing	831133.48
Ground Level :	+10.64 mPD
Depth :	5.00 m
Tip Level :	+5.64 mPD
Dip Meter I.D. :	DT-010-053
Measured By :	M. Hui

Date	Time	Ground Water Level		Weather
		Depth below Ground Level (m)	Reduced Level (mPD)	
29-Sep-23	14:20	4.80	+5.84	Rainy
3-Oct-23	15:50	Dry	N/A	Fine
4-Oct-23	10:20	Dry	N/A	Fine
5-Oct-23	13:20	Dry	N/A	Fine
6-Oct-23	13:10	Dry	N/A	Fine
7-Oct-23	15:45	Dry	N/A	Rainy
9-Oct-23	15:05	Dry	N/A	Rainy

Remarks :

DRiLTECH

WATER LEVEL MONITORING RECORD

Drillhole No. BH 2 (Lower)

Contract No. : GE/2022/08

Task Order No. : GE/2022/08.35

Project :

Ground Investigation - New Territories East
Agreement No. CE 26/2022 (EP),
Development of Integrated Waste Management Facilities Phase 2
- Investigation, Design and Construction

Date of Installation : 26-Sep-23

Checked By : R. Chu

Piezometer Co-ordinates :

Easting	810117.34
Northing	831133.48
Ground Level :	+10.64 mPD
Depth :	25.00 m
Tip Level :	-14.36 mPD
Dip Meter I.D. :	DT-010-053
Measured By :	M. Hui

Date	Time	Ground Water Level		Weather
		Depth below Ground Level (m)	Reduced Level (mPD)	
29-Sep-23	14:25	6.23	+4.41	Rainy
3-Oct-23	15:55	6.33	+4.31	Fine
4-Oct-23	10:25	6.34	+4.30	Fine
5-Oct-23	13:25	6.38	+4.26	Fine
6-Oct-23	13:15	6.40	+4.24	Fine
7-Oct-23	15:50	6.42	+4.22	Rainy
9-Oct-23	15:10	6.45	+4.19	Rainy

Remarks :

DRiLTECH

WATER LEVEL MONITORING RECORD

Drillhole No.
BH 3 (Upper)

Contract No. :	**GE/2022/08**	**Piezometer**	
Task Order No. :	**GE/2022/08.35**	**Co-ordinates :**	
Project :		**Easting**	**809954.56**
Ground Investigation - New Territories East Agreement No. CE 26/2022 (EP), Development of Integrated Waste Management Facilities Phase 2 - Investigation, Design and Construction		**Northing**	**831149.31**
		Ground Level :	**+10.96 mPD**
		Depth :	**15.00 m**
		Tip Level :	**-4.04 mPD**
Date of Installation :	**6-Oct-23**	**Dip Meter I.D. :**	**DT-010-053**
Checked By :	**R. Chu**	**Measured By :**	**M. Hui**

Date	Time	Ground Water Level		Weather
		Depth below Ground Level (m)	Reduced Level (mPD)	
10-Oct-23	14:05	6.28	+4.68	Rainy
11-Oct-23	15:20	6.30	+4.66	Fine
12-Oct-23	11:35	6.33	+4.63	Fine
13-Oct-23	12:55	6.36	+4.60	Fine
14-Oct-23	13:25	6.40	+4.56	Fine
16-Oct-23	10:25	6.42	+4.54	Fine
17-Oct-23	14:30	6.45	+4.51	Fine

Remarks :

DRiLTECH

WATER LEVEL MONITORING RECORD

Drillhole No. BH 3 (Lower)

Contract No. : GE/2022/08

Task Order No. : GE/2022/08.35

Project :

Ground Investigation - New Territories East
Agreement No. CE 26/2022 (EP),
Development of Integrated Waste Management Facilities Phase 2
- Investigation, Design and Construction

Date of Installation : 6-Oct-23

Checked By : R. Chu

Piezometer

Co-ordinates :

Easting	809954.56
Northing	831149.31
Ground Level :	+10.96 mPD
Depth :	25.00 m
Tip Level :	-14.04 mPD
Dip Meter I.D. :	DT-010-053
Measured By :	M. Hui

Date	Time	Ground Water Level		Weather
		Depth below Ground Level (m)	Reduced Level (mPD)	
10-Oct-23	14:10	6.40	+4.56	Rainy
11-Oct-23	15:25	6.44	+4.52	Fine
12-Oct-23	11:40	6.49	+4.47	Fine
13-Oct-23	13:00	6.52	+4.44	Fine
14-Oct-23	13:30	6.55	+4.41	Fine
16-Oct-23	10:30	6.56	+4.40	Fine
17-Oct-23	14:35	6.59	+4.37	Fine

Remarks :

DRiLTECH

WATER LEVEL MONITORING RECORD

Drillhole No.

BH 4 (Upper)

Contract No. :	**GE/2022/08**	**Piezometer**	
Task Order No. :	**GE/2022/08.35**	**Co-ordinates :**	
Project :		**Easting**	**809840.93**
Ground Investigation - New Territories East Agreement No. CE 26/2022 (EP), Development of Integrated Waste Management Facilities Phase 2 - Investigation, Design and Construction		**Northing**	**831201.56**
		Ground Level :	**+11.12 mPD**
		Depth :	**10.00 m**
		Tip Level :	**+1.12 mPD**
Date of Installation :	**14-Oct-23**	**Dip Meter I.D. :**	**DT-010-053**
Checked By :	**R. Chu**	**Measured By :**	**M. Hui**

Date	Time	Ground Water Level		Weather
		Depth below Ground Level (m)	Reduced Level (mPD)	
17-Oct-23	14:50	4.21	+6.91	Fine
18-Oct-23	16:05	4.28	+6.84	Rainy
19-Oct-23	11:10	4.35	+6.77	Rainy
20-Oct-23	10:55	4.46	+6.66	Fine
21-Oct-23	9:20	4.53	+6.59	Fine
24-Oct-23	15:25	4.61	+6.51	Fine
25-Oct-23	14:05	4.67	+6.45	Fine

Remarks :

DRiLTECH

WATER LEVEL MONITORING RECORD

Drillhole No. BH 4 (Lower)

Contract No. : GE/2022/08

Task Order No. : GE/2022/08.35

Project :

Ground Investigation - New Territories East
Agreement No. CE 26/2022 (EP),
Development of Integrated Waste Management Facilities Phase 2
- Investigation, Design and Construction

Date of Installation : 14-Oct-23

Checked By : R. Chu

Piezometer Co-ordinates :

Easting	809840.93
Northing	831201.56
Ground Level :	+11.12 mPD
Depth :	15.00 m
Tip Level :	-3.88 mPD
Dip Meter I.D. :	DT-010-053
Measured By :	M. Hui

Date	Time	Ground Water Level		Weather
		Depth below Ground Level (m)	Reduced Level (mPD)	
17-Oct-23	14:55	6.48	+4.64	Fine
18-Oct-23	16:10	6.50	+4.62	Rainy
19-Oct-23	11:15	6.53	+4.59	Rainy
20-Oct-23	11:00	6.57	+4.55	Fine
21-Oct-23	9:25	6.60	+4.52	Fine
24-Oct-23	15:30	6.65	+4.47	Fine
25-Oct-23	14:10	6.69	+4.43	Fine

Remarks :

Appendix I

Digital Data Records (AGS and PDF in CD-ROM)

DRiLTECH

Media Index Record

Project Identification	**D0900**
Project Name	**Contract No. GE/2022/08** **Ground Investigation - New Territories East**
Task Order No.	**GE/2022/08.35**
Location	**Agreement No. CE 26/2022 (EP),** **Development of Integrated Waste Management Facilities Phase 2** **- Investigation, Design and Construction**
Client	**Geotechnical Engineering Office,** **Civil Engineering and Development Department**
From	**DrilTech Ground Engineering Limited**

Issue Sequence Number	**Date of Issue**	**Issued To**		**General Notes**
D0900_GE202208.35.00	16/Nov/23	Geotechnical Engineering Office, Civil Engineering and Development Department		
File / Folder Name	**Creation Date**	**Creation Time**	**File Size in Bytes**	**General Description of Data Transferred**
GE202208.35.ags	16/Nov/23	10:05	100KB	Digital Data in AGS Format for Final Field Work Report
GE202208.35.pdf	16/Nov/23	10:36	95,544KB	Digital Data in PDF Format for Final Field Work Report
Photographs_202208.35	16/Nov/23	10:15	97MB	Digital Data in JPG Format for Final Field Work Report
Individual Investigation Stations	16/Nov/23	11:32	13MB	Digital Data in PDF Format for Final Field Work Report

End of Report

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Directory of D:\


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 GE202208.35.ags                          99 KB   11/27/2023 08:55:16 AM      r
 GE202208.35.pdf                       88951 KB   12/12/2023 06:16:24 PM      r
 Individual Investigation Statio...    11493 KB   12/12/2023 06:25:14 PM      r
 Photographs_202208.35.7z              97262 KB   12/12/2023 06:25:26 PM      r


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Total 0 folder(s); 4 file(s)

Total files size: 198 MB; 197808 KB; 202555642 Bytes

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