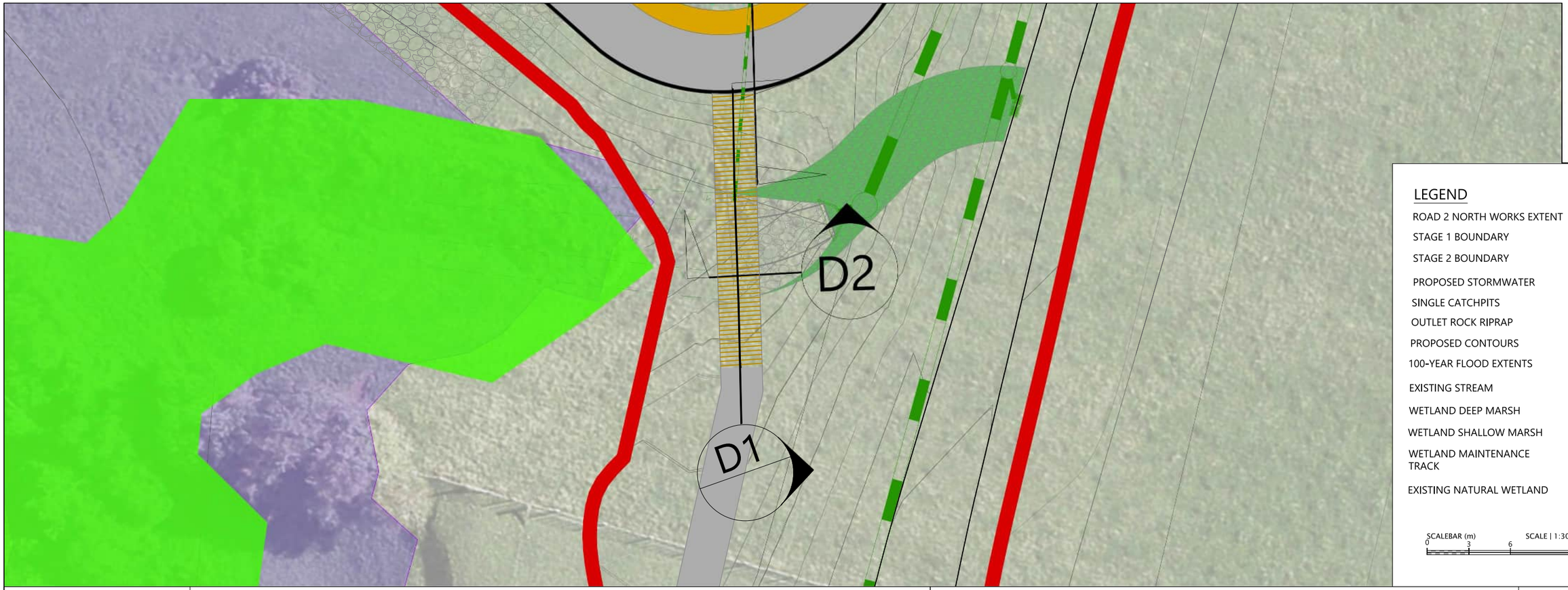


WOODS
EST.1970

LEGEND

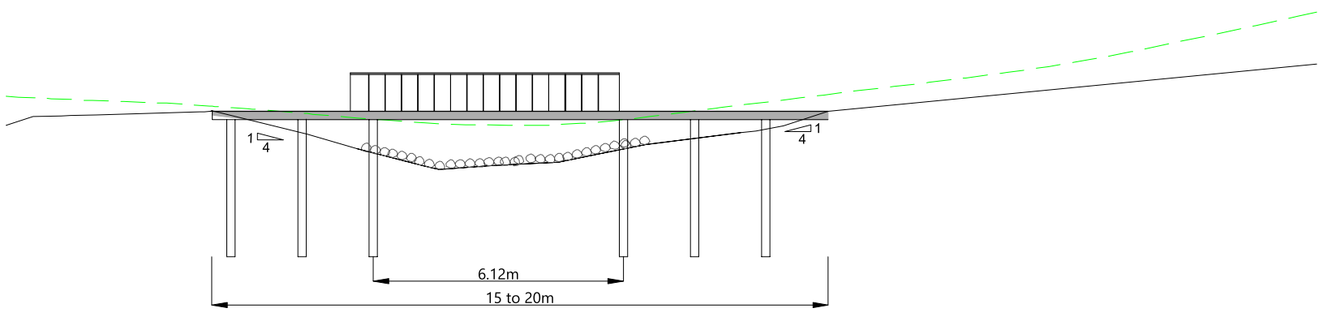
- ROAD 2 NORTH WORKS EXTENT
- STAGE 1 BOUNDARY
- STAGE 2 BOUNDARY
- PROPOSED STORMWATER
- SINGLE CATCHPITS — CP, DCP
- OUTLET ROCK RIPRAP
- PROPOSED CONTOURS
- 100-YEAR FLOOD EXTENTS
- EXISTING STREAM
- WETLAND DEEP MARSH
- WETLAND SHALLOW MARSH
- WETLAND MAINTENANCE TRACK
- EXISTING NATURAL WETLAND

SCALEBAR (m) 0 3 6 15 — SCALE | 1:300 @A3 | 1:150 @A1|

Plot Date: 7:57:03 pm,11 February 2025, JOANNEC

NOTE

1. TIMBER BOARDWALK IS TO BE DESIGNED IN ACCORDANCE WITH THE LOCAL PATH DESIGN GUIDE AND NZS:3604

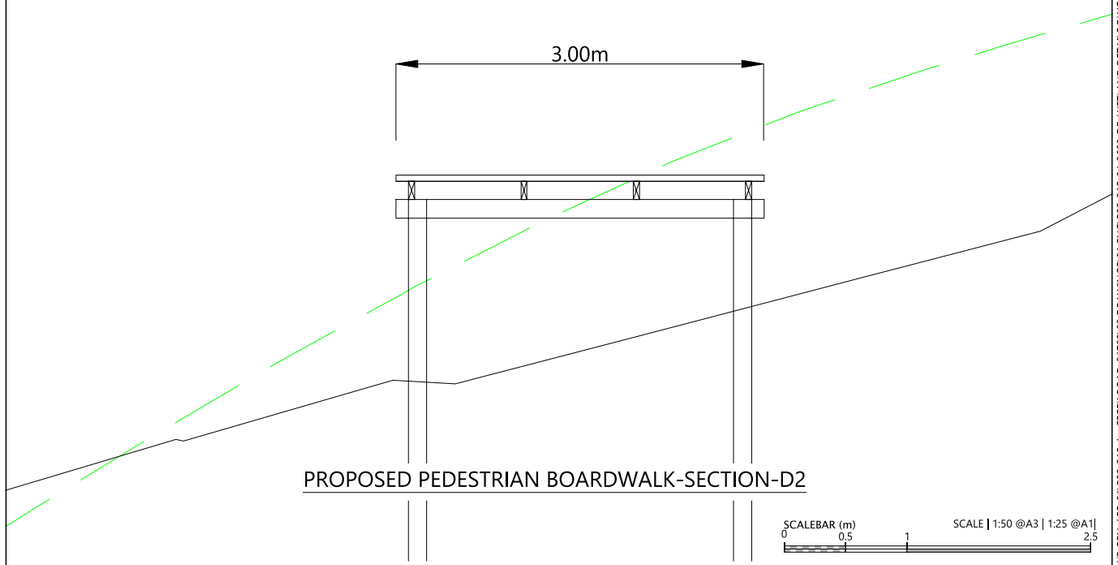


PROPOSED PEDESTRIAN BOARDWALK-SECTION-D1

SCALEBAR (m) 0 1.5 3.0 7.5 — SCALE | 1:150 @A3 | 1:75 @A1|

LEGEND

- EXISTING SURFACE
- FINISHED SURFACE



PROPOSED PEDESTRIAN BOARDWALK-SECTION-D2

SCALEBAR (m) 0 0.5 1 2.5 — SCALE | 1:50 @A3 | 1:25 @A1|

REVISION DETAILS	INIT	DATE

DRAFT

DESIGNED	A
DRAWN	A
CHECKED	JI
APPROVED	G

BUILDING B, LEVEL 1
8 NUGENT ST, GRAFTON,
AUCKLAND 1023
+64 9 308 9229
WOODS.CO.NZ

Kiwi Property

DRURY CENTRE - ROAD 2 NORTH

WETLAND PROPOSED PEDESTRIAN BOARDWALK SECTION D

STATUS	FOR 85% DESIGN	REV
SCALE	AS SHOWN	-
COUNCIL	AUCKLAND COUNCIL	
DWG NO	P23-315-04-3605-DR	

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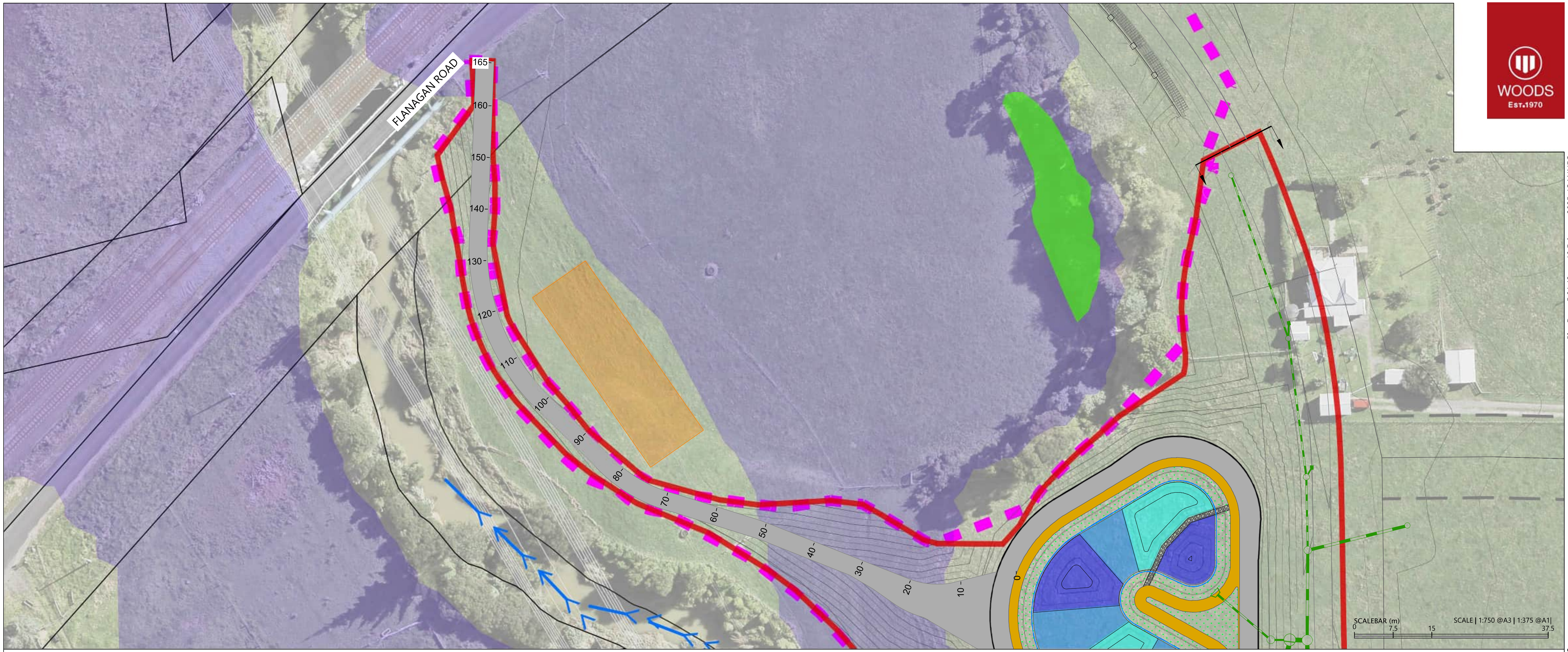

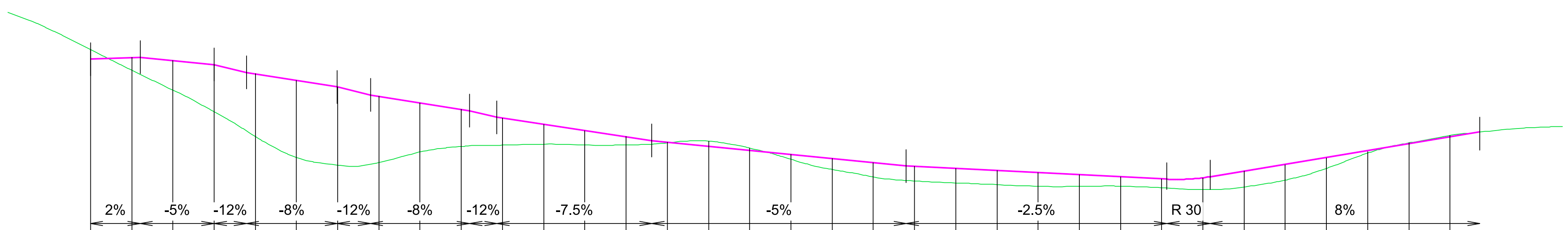

DATUM R.L. = 2.00

FINISHED SURFACE	13.20	13.30	13.12	12.87	12.32	11.92	11.51	10.95	10.55	10.15	9.62	9.25
CUT/FILL DEPTH	-0.59	0.77	1.79	2.85	3.80	4.66	4.74	4.02	2.97	2.24	1.63	1.20
EXISTING SURFACE	13.79	12.53	11.33	10.03	8.52	7.25	6.77	6.94	7.59	7.91	7.99	8.05
CHAINAGE	0.00	5.00	10.00	15.00	20.00	25.00	30.00	35.00	40.00	45.00	50.00	55.00

FINISHED SURFACE	8.87	8.50	8.17	7.92	7.67	7.42	7.17	6.92	6.70	6.57	6.45	6.32
CUT/FILL DEPTH	0.88	0.50	0.03	-0.32	-0.14	0.29	0.65	0.86	0.87	0.87	0.85	0.81
EXISTING SURFACE	8.00	8.00	8.14	8.24	7.81	7.13	6.52	6.06	5.82	5.70	5.59	5.51
CHAINAGE	60.00	65.00	70.00	75.00	80.00	85.00	90.00	95.00	100.00	105.00	110.00	115.00

FINISHED SURFACE	6.20	6.07	5.95	6.01	6.41	6.81	7.21	7.61	8.01	8.41
CUT/FILL DEPTH	0.70	0.57	0.53	0.72	0.96	0.94	0.62	0.10	-0.12	-0.17
EXISTING SURFACE	5.49	5.50	5.41	5.30	5.45	5.87	6.58	7.51	8.13	8.58
CHAINAGE	120.00	125.00	130.00	135.00	140.00	145.00	150.00	155.00	160.00	165.00

REVISION DETAILS		
DESIGNED	AC
DRAWN	AC
CHECKED	JLC
APPROVED	CD

DRAFT

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WOODS.CO.NZ

Kiwi Property

DRURY CENTRE - ROAD 2 NORTH

WETLAND MAINTENANCE ACCESS
LONG-SECTION DETAIL

N

STATUS	FOR 85% DESIGN	REV
SCALE	AS SHOWN	-
COUNCIL	AUCKLAND COUNCIL	
DWG NO	P23-315-04-3606-DR	

Plot Date: 5:01:42 pm,10 February 2025, JOANNEC
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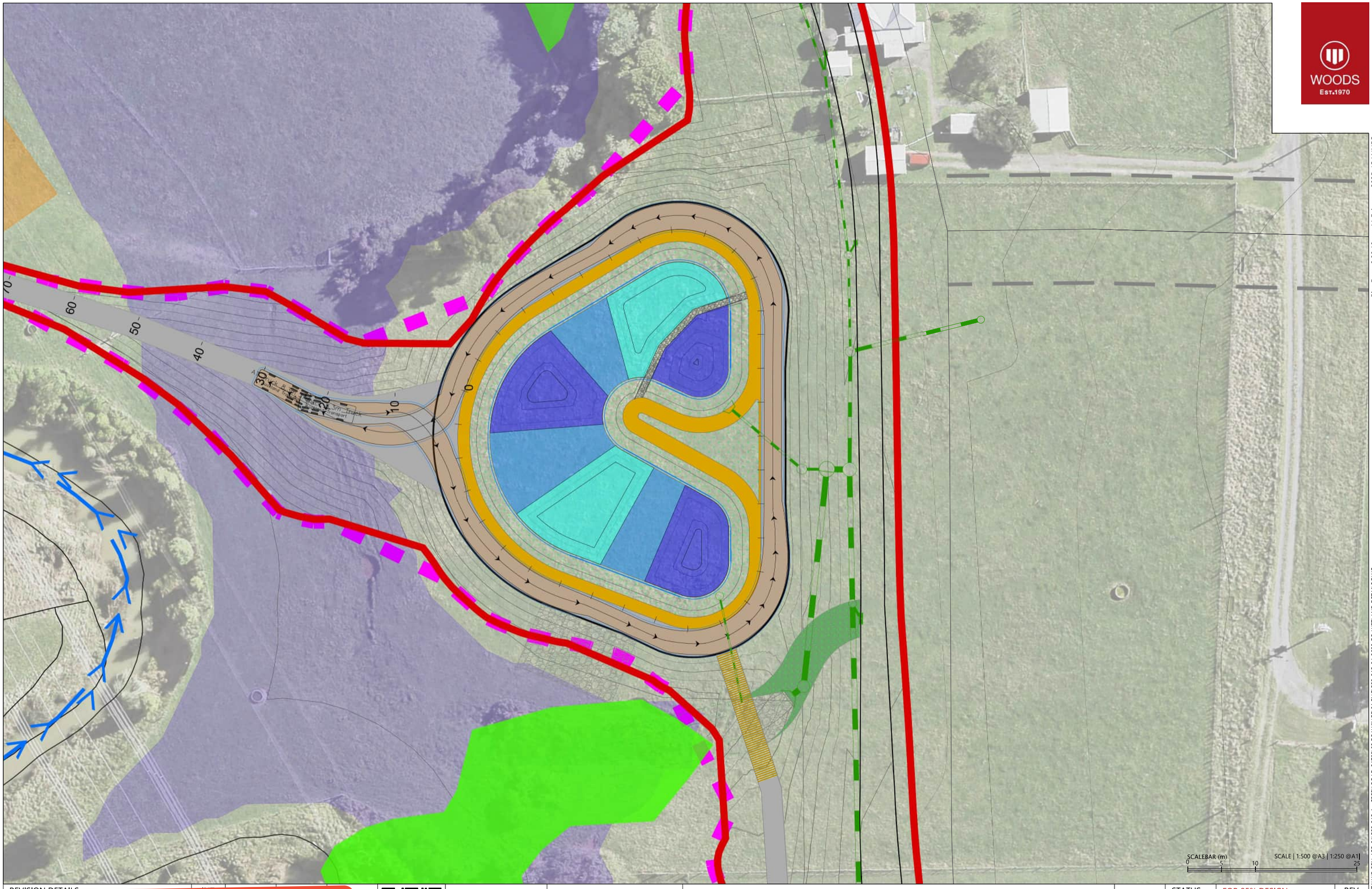

WOODS
Est.1970

Plot Date: 8:00:10 pm,11 February 2025, JOANNEC

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REVISION DETAILS				
1	FOR 50% DESIGN	AC	20/11/2024	DESIGNED
2	FOR 85% DESIGN	AC	11/2025	DRAWN
				CHECKED
				APPROVED

DRAFT

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WOODS.CO.NZ

Kiwi Property

DRURY CENTRE - ROAD 2 NORTH

WETLAND 2-2 MAINTENANCE VEHICLE TRACKING PLAN

N

STATUS	FOR 85% DESIGN	REV
SCALE	AS SHOWN	2
COUNCIL	AUCKLAND COUNCIL	
DWG NO	P23-315-04-3607-DR	

CMW Geosciences
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APPENDIX C
Previous Investigations/ Logs

0 15 30 60 90 120 150 Metres

CLIENT

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Kiwi Property

REV	DATE	REVISION DETAILS	APPROVED
A	31-03-21	GEOTECHNICAL INVESTIGATION LOCATIONS	J KUPEC

SCALE 1:2,000 | SIZE A3

DRAWN M DOONEY

DESIGNED J MUIRSON

REVIEWED -

FOR INFORMATION
NOT FOR CONSTRUCTION

APPROVED

PROJECT: KIWI PROPERTY GROUP LIMITED

TITLE: DRURY CENTRE PROJECT GEOTECHNICAL INVESTIGATION LOCATIONS GIS SHEET 2 OF 5

DOCUMENT: PROJECT No. 510611 – WBS 002 – TYPE FIG – DISC GG – NUMBER 0002 – REVISION A

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Tel: +64 9 520 6019
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Client: **Kiwi Properties Ltd**
Project: **Drury Development**
Location: **108 Flanagan Road, Drury**
Project Reference: **510611**

BH008

BOREHOLE INFORMATION
Method: Rotary Core Wireline
Equipment: Tracked Rig
Contractor: Perry Geotech

CO-ORDINATES: Mt Eden 2000
Easting: 416451.000m
Northing: 774474.000m
Reduced level: 8.000m (NZVD2016)

Date started: 15/12/2020
Date completed: 15/12/2020
Inclination: 90°
Azimuth: N/A

Logged by: BGW
Input by: BGW
Reviewed by: GO
Verified by: JM

Method	R.L. (m)	Length (m)	Graphic Log	Layer Code	Material Description	Weathering/USC	Testing	TCR (%)	SCR (%)	RQD (%)	Fracture Log (VWS WS MWS CS VCS ECS)	Stratigraphy Defect Description Additional Notes	Installation
HQ3	7	1		T	**0m:** SILT with minor clay, gravel and trace rootlets; brown. Very stiff, moist, low plasticity. Gravel is weathered, subangular, fine to medium sandstone.	ML							**0m: TAURANGA GROUP**	
				TAx	**0.2m:** CORE LOSS			13					
SPT	6	2		TAs	**1.5m:** Fine to medium SAND with some silt and trace clay; orange and light brown. Very loose, moist, non-plastic.	SM	1.5m: SPT 0// 0,0,0,0 N = 0	22					
HQ3					**1.85m to 2.15m:**...light brown, mottled orange.			100					
U54	5	3		TAx	**2.5m:** PUSH TUBE YET TO BE EXTRACTED			100					
SPT				TAc	**3m:** Sandy CLAY with some silt; light brown mottled orange. Firm, moist, high plasticity. Sand is fine to medium.	CH	3m: SPT 2// 1,2,1,1 N = 5	100					
HQ3	4	4			**3.6m to 3.68m:**...Iron iroxide staining. Some highly weathered, fine sandstone gravel.								
					3.68m: Silty CLAY with trace sand; light brown. Firm, moist, high plasticity. Sand is fine to medium	CH							
					3.85m: Silty CLAY; greyish green. Firm, moist, high plasticity.	CH							
				TAx	**3.9m:** CORE LOSS			57					
SPT	3	5		TAc	**4.5m:** Silty CLAY; greyish green. Stiff, moist, high plasticity.	CH	4.45m: IBHSV 76/21 kPa 4.5m: SPT 2// 1,1,1,1 N = 4	100					
								100					

REMARKS:
1) BH008 backfilled upon completion.

Water Level Readings:
Date Time | Hole Depth | Water Level
No water level recorded

Hand Shear Vane Serial No: DR4938 Correction Factor: 1.519

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BH008

BOREHOLE INFORMATION
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Equipment: Tracked Rig
Contractor: Perry Geotech

CO-ORDINATES: Mt Eden 2000
Easting: 416451.000m
Northing: 774474.000m
Reduced level: 8.000m (NZVD2016)

Date started: 15/12/2020
Date completed: 15/12/2020
Inclination: 90°
Azimuth: N/A

Logged by: BGW
Input by: BGW
Reviewed by: GO
Verified by: JM

Method	R.L. (m)	Length (m)	Graphic Log	Layer Code	Material Description	Weathering/USC	Testing	TCR (%)	SCR (%)	RQD (%)	Fracture Log (VWS WS MWS CS VCS ECS)	Stratigraphy Defect Description Additional Notes	Installation
HQ3	2	6		TAc	**4.5m:** Silty CLAY; greyish green. Stiff, moist, high plasticity.	CH							
				TAz	**5.1m:** Clayey SILT; grey. Firm, moist, high plasticity. Contains ancient shell impressions, approximately <20mm in size.	MH		100				
SPT				TAc	**5.85m:** Silty CLAY; grey. Very stiff, moist, highly plastic.	CH	5.95m: IBHSV UTP 6m: SPT 1// 1,1,1,1 N = 4						
HQ3	1	7		TAz	**6.15m:** Clayey SILT with trace organics; grey. Firm, moist, high plasticity. Organics are fibrous <10mm in size. Contains ancient shell impressions, approximately <20mm in size.	MH		100					
SPT	0	8					7.5m: SPT 1// 1,0,1,1 N = 3	93				7.92m to 7.95m: No recovery	
HQ3	-1	9						100					
SPT							8.95m: IBHSV UTP 9m: SPT 1// 1,1,1,1 N = 4	100					
HQ3	-2	10						100					

REMARKS:
1) BH008 backfilled upon completion.

Water Level Readings:
Date Time | Hole Depth | Water Level
No water level recorded

Hand Shear Vane Serial No: DR4938 Correction Factor: 1.519

Database File: 510611_V3.GPJ **Library file:** AURECON_AKL_20201012.GLB **Template:** AURECON_AKL_20170201.GDT **Report File:** AURECON DH LOG V3.9 0DP **Date Generated:** 8/03/2021

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Client: **Kiwi Properties Ltd**
Project: **Drury Development**
Location: **108 Flanagan Road, Drury**
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BH008

BOREHOLE INFORMATION
Method: Rotary Core Wireline
Equipment: Tracked Rig
Contractor: Perry Geotech

CO-ORDINATES: Mt Eden 2000
Easting: 416451.000m
Northing: 774474.000m
Reduced level: 8.000m (NZVD2016)

Date started: 15/12/2020
Date completed: 15/12/2020
Inclination: 90°
Azimuth: N/A

Logged by: BGW
Input by: BGW
Reviewed by: GO
Verified by: JM

Method	R.L. (m)	Length (m)	Graphic Log	Layer Code	Material Description	Weathering/USC	Testing	TCR (%)	SCR (%)	RQD (%)	Fracture Log (VWS WS MWS CS VCS ECS)	Stratigraphy Defect Description Additional Notes	Installation
HQ3				TAz	**6.15m:** Clayey SILT with trace organics; grey. Firm, moist, high plasticity. Organics are fibrous <10mm in size. Contains ancient shell impressions, approximately <20mm in size.	MH	10.45m: IBHSV UTP 10.5m: SPT 2// 0,0,0,1 N = 1	100					
SPT				TAx	**10.68m:** NO RECOVERY			40					
HQ3	-3	11		TAz	**10.95m:** Clayey SILT with trace organics; grey. Firm, moist, low plasticity. Organics are fibrous <10mm in size. Contains ancient shell impressions, approximately <20mm in size.			100					
HQ3	-4	12					12m: SPT 2// 1,0,1,1 N = 3 12m: IBHSV UTP	100					
SPT													
HQ3	-5	13			**13.1m:**...Trace unweathered, subangular, fine to medium volcaniclastic gravel.	MH		100					
SPT					**13.5m:**...Organics are fibrous and <50mm in length.		13.5m: SPT 1// 1,1,1,1 N = 4	100					
HQ3	-6	14						97					
	-7	15											

REMARKS:
1) BH008 backfilled upon completion.

Water Level Readings:
Date Time | Hole Depth | Water Level
No water level recorded

Hand Shear Vane Serial No: DR4938 Correction Factor: 1.519

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Location: **108 Flanagan Road, Drury**
Project Reference: **510611**

BH008

BOREHOLE INFORMATION
Method: Rotary Core Wireline
Equipment: Tracked Rig
Contractor: Perry Geotech

CO-ORDINATES: Mt Eden 2000
Easting: 416451.000m
Northing: 774474.000m
Reduced level: 8.000m (NZVD2016)

Date started: 15/12/2020
Date completed: 15/12/2020
Inclination: 90°
Azimuth: N/A

Logged by: BGW
Input by: BGW
Reviewed by: GO
Verified by: JM

Method	R.L. (m)	Length (m)	Graphic Log	Layer Code	Material Description	Weathering/USC	Testing	TCR (%)	SCR (%)	RQD (%)	Fracture Log (VWS WS MWS CS VCS ECS)	Stratigraphy Defect Description Additional Notes	Installation
SPT				TAc	**15m:** Silty CLAY with minor organics; greyish green mottled brown. Firm, moist, high plasticity. Organics are fibrous and <50mm in length.	CH	15m: SPT 2// 1,0,1,1 N = 3	100				14.97m to 15m: No recovery	
HQ3	-8	16		TAz	**15.75m:** Clayey SILT with trace organics; grey. Firm, moist, high plasticity. Organics are fibrous, <10mm in size. Contains ancient shell impressions, approximately <20mm in size.	MH							
				TAp	**15.9m:** Fibrous PEAT; brown. Firm, moist. **15.96m to 15.99m:**...Silty Sand inclusion	PT		100					
					16.25m: Amorphous PEAT; brown. Very stiff, moist, low plasticity. **16.3m to 16.33m:**...Pumiceous SILT	PT	16.3m: IBHSV 128/24 kPa						
SPT				TAo	**16.4m:** Organic CLAY with trace sand; brown. Firm, moist, high plasticity. Sand is fine to medium.	OH	16.5m: SPT 2// 1,1,1,1 N = 4	100					
HQ3	-9	17											
				TAp	**17.5m:** Fibrous PEAT; brown. Firm, moist.	PT		100					
				TAz	**17.57m:** Sandy clayey SILT with minor organics; brown. Very stiff, moist, low plasticity. Sand is fine to medium. Organics are fibrous, <40mm in length.	ML							
					17.66m: Clayey, silty SAND with some organics; light green, banded brown. Loose, moist. Organics are fibrous, <40mm in length.	SC	18m: SPT 3// 2,1,1,1 N = 5	82				18.37m to 18.45m: No recovery	
SPT				TAs									
HQ3	-10	18		TAc	**18.49m:** Silty CLAY with trace sand and organics; brown and green. Firm, moist, high plasticity. Sand is fine to medium.	CH		100					
				TAs	**18.75m:** Pumiceous SAND with some silt and minor organics; brownish grey. Loose, moist. Sand is fine to medium. Organics are fibrous and <30mm in length.	SM							
SPT	-11	19					19.5m: SPT 2// 2,2,2,1 N = 7	100					
					19.72m: Fine to medium SAND with minor silt; green. Loose, moist, homogeneous. Sand is predominantly mica and quartz.	SM							
	-12	20						100					

REMARKS:
1) BH008 backfilled upon completion.

Hand Shear Vane Serial No: DR4938 Correction Factor: 1.519

Water Level Readings:
Date Time | Hole Depth | Water Level
No water level recorded

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Client: **Kiwi Properties Ltd**
Project: **Drury Development**
Location: **108 Flanagan Road, Drury**
Project Reference: **510611**

BH008

BOREHOLE INFORMATION
Method: Rotary Core Wireline
Equipment: Tracked Rig
Contractor: Perry Geotech

CO-ORDINATES: Mt Eden 2000
Easting: 416451.000m
Northing: 774474.000m
Reduced level: 8.000m (NZVD2016)

Date started: 15/12/2020
Date completed: 15/12/2020
Inclination: 90°
Azimuth: N/A

Logged by: BGW
Input by: BGW
Reviewed by: GO
Verified by: JM

Method	R.L. (m)	Length (m)	Graphic Log	Layer Code	Material Description	Weathering/USC	Testing	TCR (%)	SCR (%)	RQD (%)	Fracture Log (VWS WS MWS CS VCS ECS)	Stratigraphy Defect Description Additional Notes	Installation
HQ3	-13	21		TAs	**19.72m:** Fine to medium SAND with minor silt; green. Loose, moist, homogeneous. Sand is predominantly mica and quartz. **20.54m to 20.68m:**...Very thin, undulating laminae, <1mm, with minor specks of weathered pumice.	SM		100					
SPT							21m: SPT 5// 1,2,2,2 N = 7	100					
HQ3	-14	22		TAs	**21.5m:** Fine to medium SAND with minor silt; green. Very dense, moist, moderately cemented, homogeneous. Sand is predominantly mica and quartz.	SM		100					
SPT							22.5m: SPT 23// 50 for 20mm N = 50+	100					
HQ3	-15	23			**22.3m:** Fine to medium SAND with minor silt; greyish green. Very dense, moist, uncemented, homogeneous. Sand is predominantly mica and quartz.	SM		85					
	-16	24		TAx	**23.8m:** CORE LOSS.								
SPT							24m: SPT 17// 31,19 for 25mm N = 50+	100					
HQ3	-17	25		TAs	**24m:** Fine to medium SAND with minor silt; green. Very dense, moist, uncemented. Indistinctly, laminated to very thinly, subhorizontally bedded. Sand is predominantly mica and quartz. **24.9m:** CORE LOSS	SM		52					
				TAx									

REMARKS:
1) BH008 backfilled upon completion.

Hand Shear Vane Serial No: DR4938 Correction Factor: 1.519

Water Level Readings:
Date Time | Hole Depth | Water Level
No water level recorded

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Client: **Kiwi Properties Ltd**
Project: **Drury Development**
Location: **108 Flanagan Road, Drury**
Project Reference: **510611**

BH008

BOREHOLE INFORMATION
Method: Rotary Core Wireline
Equipment: Tracked Rig
Contractor: Perry Geotech

CO-ORDINATES: Mt Eden 2000
Easting: 416451.000m
Northing: 774474.000m
Reduced level: 8.000m (NZVD2016)

Date started: 15/12/2020
Date completed: 15/12/2020
Inclination: 90°
Azimuth: N/A

Logged by: BGW
Input by: BGW
Reviewed by: GO
Verified by: JM

Method	R.L. (m)	Length (m)	Graphic Log	Layer Code	Material Description	Weathering/USC	Testing	TCR (%)	SCR (%)	RQD (%)	Fracture Log (VWS WS MWS CS VCS ECS)	Stratigraphy Defect Description Additional Notes	Installation
HQ3				TAx	**24.9m:** CORE LOSS			52					
SPT				TAs	**25.5m:** Fine to medium SAND with minor silt; green. Very dense, moist, uncemented. Indistinctly, laminated to very thinly, subhorizontally bedded. Contains minor, weathered, fine pumice. Sand is predominantly mica and quartz.	SM	25.5m: SPT 18// 12,38 for 30mm N = 50+	100					
					End of borehole at 25.76m (Target Depth)								

REMARKS:
1) BH008 backfilled upon completion.

Hand Shear Vane Serial No: DR4938 Correction Factor: 1.519

Water Level Readings:
Date Time | Hole Depth | Water Level
No water level recorded

Database File: 510611_V3.GPJ **Library file:** AURECON_AKL_20201012.GLB **Template:** AURECON_AKL_20170201.GDT **Report File:** AURECON DH LOG V3.9 0DP **Date Generated:** 8/03/2021

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Client: **Kiwi Properties Ltd**
Project: **Drury Development**
Location: **108 Flanagan Road, Drury**
Project Reference: **510611**

BH009

BOREHOLE INFORMATION
Method: Rotary Core Wireline
Equipment: Tracked Rig
Contractor: Perry Geotech

CO-ORDINATES: Mt Eden 2000
Easting: 416437.000m
Northing: 774505.000m
Reduced level: 8.000m (NZVD2016)

Date started: 16/12/2020
Date completed: 16/12/2020
Inclination: 90°
Azimuth: N/A

Logged by: BGW
Input by: BGW
Reviewed by: GO
Verified by: JM

Method	R.L. (m)	Length (m)	Graphic Log	Layer Code	Material Description	Weathering/USC	Testing	TCR (%)	SCR (%)	RQD (%)	Fracture Log (VWS WS MWS CS VCS ECS)	Stratigraphy Defect Description Additional Notes	Installation
HQ3				T	**0m:** SILT with minor clay, trace gravel and organics; brown. Very stiff, moist, low plasticity. Gravel is weathered, subangular, fine to medium sandstone. Organics are fibrous rootlets.	ML						**0m: TAURANGA GROUP**	
				TAc	**0.2m:** Silty CLAY with trace rootlets; yellowish brown, mottled grey. Very stiff, wet, high plasticity.	CH		60					
	7	1		TAx	**0.9m:** NO RECOVERY								
SPT							1.5m: SPT 0// 0,0,0,0 N = 0	0					
HQ3	6	2		TAz	**1.95m:** Clayey SILT with minor sand and trace gravel; grey speckled bluish grey. Very soft, moist, high plasticity. Gravel, fine, completely weathered basalt.	MH		100					
					2.55m to 2.77m:...Iron oxide staining on indistinct, gently inclined, laminated to very thin beds.								
	5	3		TAc	**2.8m:** Sandy CLAY with some silt; light brown mottled orange brown. Very stiff, moist, high plasticity. Sand is fine to medium.	CH	2.95m: IBHSV UTP 3m: SPT 3// 3,2,2,3 N = 10						
SPT								100					
HQ3				TAs	**3.55m:** Silty fine to medium SAND with trace gravel; orange brown mottled grey, speckled black. Loose, wet. Gravel is fine to medium, completely weathered sandstone.	SM							
	4	4						81					
				TAc	**4.1m:** Sandy CLAY with some silt; light brown mottled orange brown. Firm, moist, high plasticity. Sand is fine to medium.	CH							
				TAx	**4.3m:** CORE LOSS		4.3m: IBHSV 28 kPa						
SPT				TAc	**4.5m:** Silty CLAY with minor sand and trace organics; grey. Firm, moist, high plasticity. Sand is fine to medium. Organics are fibrous, <5mm in length.	CH	4.5m: SPT 2// 0,1,1,1 N = 3	100					
	3	5						100					

Box 1
Box 2

REMARKS:
1. Investigation collar is recorded to an accuracy of ±10.0 m horizontal and ±1.0 m vertical.
2. 1.0m galvanised steel upstand installed.

Water Level Readings:
Date Time | Hole Depth | Water Level
No water level recorded

Hand Shear Vane Serial No: DR4938 Correction Factor: 1.519

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Client: **Kiwi Properties Ltd**
Project: **Drury Development**
Location: **108 Flanagan Road, Drury**
Project Reference: **510611**

BH009

BOREHOLE INFORMATION
Method: Rotary Core Wireline
Equipment: Tracked Rig
Contractor: Perry Geotech

CO-ORDINATES: Mt Eden 2000
Easting: 416437.000m
Northing: 774505.000m
Reduced level: 8.000m (NZVD2016)

Date started: 16/12/2020
Date completed: 16/12/2020
Inclination: 90°
Azimuth: N/A

Logged by: BGW
Input by: BGW
Reviewed by: GO
Verified by: JM

Method	R.L. (m)	Length (m)	Graphic Log	Layer Code	Material Description	Weathering/USC	Testing	TCR (%)	SCR (%)	RQD (%)	Fracture Log (VWS WS MWS CS VCS ECS)	Stratigraphy Defect Description Additional Notes	Installation
HQ3	2	6		TAc	**4.5m:** Silty CLAY with minor sand and trace organics; grey. Firm, moist, high plasticity. Sand is fine to medium. Organics are fibrous, <5mm in length.	CH		100					
SPT					**5.9m:** Silty CLAY with some organics, gravel and trace sand; grey speckled light green. Firm, moist, high plasticity. Organics are fibrous, <20mm in length. Gravel is fine to medium, completely weathered, subrounded siltstone. Sand is fine to medium.	CH	5.95m: IBHSV 50/12 kPa 6m: SPT 1// 0,1,1,1 N = 3	100				
HQ3	1	7			**6.85m:** Clayey SILT with some gravel, trace sand and organics; grey speckled green. Firm, moist, high plasticity. Gravel is completely weathered, subrounded siltstone. Organics are fibrous, <25mm in length.			100					
U54	0	8						100					
SPT							8m: SPT 2// 1,1,1,1 N = 4	100					
HQ3	-1	9		TAz		MH		100					
SPT							8.95m: IBHSV 44/10 kPa 9m: SPT 2// 0,2,1,1 N = 4	100					
HQ3	-2	10						100					

REMARKS:
1. Investigation collar is recorded to an accuracy of ±10.0 m horizontal and ±1.0 m vertical.
2. 1.0m galvanised steel upstand installed.

Water Level Readings:
Date Time | Hole Depth | Water Level
No water level recorded

Hand Shear Vane Serial No: DR4938 Correction Factor: 1.519

Box 2
Box 3

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Method: Rotary Core Wireline
Equipment: Tracked Rig
Contractor: Perry Geotech

CO-ORDINATES: Mt Eden 2000
Easting: 416437.000m
Northing: 774505.000m
Reduced level: 8.000m (NZVD2016)

Date started: 16/12/2020
Date completed: 16/12/2020
Inclination: 90°
Azimuth: N/A

Logged by: BGW
Input by: BGW
Reviewed by: GO
Verified by: JM

Method	R.L. (m)	Length (m)	Graphic Log	Layer Code	Material Description	Weathering/USC	Testing	TCR (%)	SCR (%)	RQD (%)	Fracture Log (VWS WS MWS CS VCS ECS)	Stratigraphy Defect Description Additional Notes	Installation
HQ3				TAz	**6.85m:** Clayey SILT with some gravel, trace sand and organics; grey speckled green. Firm, moist, high plasticity. Gravel is completely weathered, subrounded siltstone. Organics are fibrous, <25mm in length.		10.45m: IBHSV 38/8 kPa 10.5m: SPT 1// 1,0,1,1 N = 3	100					
SPT								100					
	-3	11											
HQ3						MH		100					
	-4	12					11.95m: IBHSV 44/10 kPa 12m: SPT 1// 1,1,1,1 N = 4						
SPT								100					
					12.45m:...Greyish green, speckled brown.								
HQ3	-5	13		TAc	**12.85m:** Silty CLAY with trace organics; greyish green. Very stiff, moist, high plasticity. Organics are fibrous, <10mm in size.	CH		100					
SPT					**13.85m:**...brown		13.45m: IBHSV UTP 13.5m: SPT 2// 1,1,1,1 N = 4	100					
	-6	14			**13.94m:** Fine to medium SAND with minor silt; green. Loose, moist. Sand is predominantly mica and quartz.								
HQ3				TAs	**14.25m to 14.31m:**...Pumiceous fine to medium sand.	SM		100					
					14.6m: Fine to medium SAND with some silt and trace clay; light brown, speckled green. Loose, moist.	SM						14.6m: On reworking shows slight plasticity.	
					14.77m to 14.86m:...Clay								
	-7	15			**14.86m:** Pumiceous fine to medium SAND with minor silt; light grey, mottled green. Medium dense, moist, uncemented.	SM							

Box 3
Box 4

REMARKS:
1. Investigation collar is recorded to an accuracy of ±10.0 m horizontal and ±1.0 m vertical.
2. 1.0m galvanised steel upstand installed.

Water Level Readings:
Date Time | Hole Depth | Water Level
No water level recorded

Hand Shear Vane Serial No: DR4938 Correction Factor: 1.519

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BH009

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Method: Rotary Core Wireline
Equipment: Tracked Rig
Contractor: Perry Geotech

CO-ORDINATES: Mt Eden 2000
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Reduced level: 8.000m (NZVD2016)

Date started: 16/12/2020
Date completed: 16/12/2020
Inclination: 90°
Azimuth: N/A

Logged by: BGW
Input by: BGW
Reviewed by: GO
Verified by: JM

Method	R.L. (m)	Length (m)	Graphic Log	Layer Code	Material Description	Weathering/USC	Testing	TCR (%)	SCR (%)	RQD (%)	Fracture Log (VWS WS MWS CS VCS ECS)	Stratigraphy Defect Description Additional Notes	Installation
SPT						SM	15m: SPT 10// 7,5,6,7 N = 25	100					
HQ3	-8	16		TAs	**15.1m:** Fine to medium SAND with minor silt; green. Medium dense, moist, poorly cemented, homogeneous.			95					
SPT					**16.5m:**...Uncemented	SM	16.5m: SPT 6// 3,3,4,3 N = 13	82				16.45m to 16.5m: Core loss.	
HQ3	-9	17						100				16.87m to 16.95m: No recovery.	
SPT	-10	18					18m: SPT 5// 4,3,5,4 N = 16	67					
				TAx	**18.3m:** NO RECOVERY								
HQ3	-11	19		TAs	**18.45m:** Fine to medium SAND with minor silt; green. Medium dense, moist, uncemented, homogeneous.	SM		100					
SPT							19.5m: SPT 6// 3,5,4,4 N = 16	69					
				TAx	**19.81m:** NO RECOVERY								
	-12	20				SM		100					

REMARKS:
1. Investigation collar is recorded to an accuracy of ±10.0 m horizontal and ±1.0 m vertical.
2. 1.0m galvanised steel upstand installed.

Water Level Readings:
Date Time | Hole Depth | Water Level
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Hand Shear Vane Serial No: DR4938 Correction Factor: 1.519

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BH009

BOREHOLE INFORMATION
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Equipment: Tracked Rig
Contractor: Perry Geotech

CO-ORDINATES: Mt Eden 2000
Easting: 416437.000m
Northing: 774505.000m
Reduced level: 8.000m (NZVD2016)

Date started: 16/12/2020
Date completed: 16/12/2020
Inclination: 90°
Azimuth: N/A

Logged by: BGW
Input by: BGW
Reviewed by: GO
Verified by: JM

Method	R.L. (m)	Length (m)	Graphic Log	Layer Code	Material Description	Weathering/USC	Testing	TCR (%)	SCR (%)	RQD (%)	Fracture Log (VWS WS MWS CS VCS ECS)	Stratigraphy Defect Description Additional Notes	Installation
HQ3	-13	21		TAs	**19.95m:** Fine to medium SAND with minor silt; greyish green. Medium dense, moist, uncemented, homogeneous.	SM		100					
SPT					**21m:**...loose		21m: SPT 3// 2,1,2,1 N = 6	53					
				TAx	**21.24m:** NO RECOVERY								
HQ3	-14	22		TAs	**21.45m:** Fine to medium SAND with minor silt; greyish green. Medium dense, moist, uncemented, homogeneous. **21.6m:**...Green speckled yellow. Trace fine completely weathered pumice.	SM		100					
SPT							22.5m: SPT 8// 6,4,5,7 N = 22	80				22.86m to 22.95m: No recovery.	
HQ3	-15	23						100				23.55m to 24m: Core slipped out of barrel, redrilled.	
SPT	-16	24					24m: SPT 6// 5,3,3,7 N = 18	64					
HQ3	-17	25		TAx	**24.45m:** CORE LOSS			0					

Box 6
Box 7

REMARKS:
1. Investigation collar is recorded to an accuracy of ±10.0 m horizontal and ±1.0 m vertical.
2. 1.0m galvanised steel upstand installed.

Hand Shear Vane Serial No: DR4938 Correction Factor: 1.519

Water Level Readings:
Date Time | Hole Depth | Water Level
No water level recorded

Database File: 510611_V3.GPJ **Library file:** AURECON_AKL_20201012.GLB **Template:** AURECON_AKL_20170201.GDT **Report File:** AURECON DH LOG V3.9 0DP **Date Generated:** 12/03/2021

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Location: **108 Flanagan Road, Drury**
Project Reference: **510611**

BH009

BOREHOLE INFORMATION
Method: Rotary Core Wireline
Equipment: Tracked Rig
Contractor: Perry Geotech

CO-ORDINATES: Mt Eden 2000
Easting: 416437.000m
Northing: 774505.000m
Reduced level: 8.000m (NZVD2016)

Date started: 16/12/2020
Date completed: 16/12/2020
Inclination: 90°
Azimuth: N/A

Logged by: BGW
Input by: BGW
Reviewed by: GO
Verified by: JM

Method	R.L. (m)	Length (m)	Graphic Log	Layer Code	Material Description	Weathering/USC	Testing	TCR (%)	SCR (%)	RQD (%)	Fracture Log (VWS WS MWS CS VCS ECS)	Stratigraphy Defect Description Additional Notes	Installation
HQ3				TAx	**24.45m:** CORE LOSS			0					
SPT				TAs	**25.5m:** Fine to medium SAND with minor silt; greenish grey. Medium dense, moist, uncemented, homogeneous.	SM	25.5m: SPT 7// 2,7,5,9 N = 23	100					
HQ3	-18	26		TAz	**25.95m:** Sandy SILT; greenish grey. Medium dense, wet, non-plastic, dilatant.	ML		86					
				TAs	**26.15m:** Fine to medium SAND with minor silt; greenish grey. Medium dense, moist, uncemented, homogeneous.	SM							
	-19	27		TAx	**26.85m:** CORE LOSS								
SPT				TAs	**27m:** Fine to medium SAND with minor silt; greenish grey. Medium dense, moist, uncemented, homogeneous.	SM	27m: SPT 13// 3,9,7,9 N = 28	100					

End of borehole at 27.45m (Target Depth)

Box 7

REMARKS:
1. Investigation collar is recorded to an accuracy of ±10.0 m horizontal and ±1.0 m vertical.
2. 1.0m galvanised steel upstand installed.

Hand Shear Vane Serial No: DR4938 Correction Factor: 1.519

Water Level Readings:
Date Time | Hole Depth | Water Level
No water level recorded

Database File: 510611_V3.GPJ **Library file:** AURECON_AKL_20201012.GLB **Template:** AURECON_AKL_20170201.GDT **Report File:** AURECON DH LOG V3.9 0DP **Date Generated:** 12/03/2021

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Client: **Kiwi Properties Ltd**
Project: **Drury Development**
Location: **132 Flanagan Road, Drury**
Project Reference: **510611**

BH011

BOREHOLE INFORMATION
Method: Rotary Core Wireline
Equipment: Track Mounted Drill Rig
Contractor: Perry Geotech Ltd

CO-ORDINATES: Mt Eden 2000
Easting: 416476.000m
Northing: 774550.000m
Reduced level: 18.000m (NZVD2016)

Date started: 14/01/2021
Date completed: 15/01/2021
Inclination: 90°
Azimuth: N/A

Logged by: STH
Input by: STH
Reviewed by: GO
Verified by: JM

Method	R.L. (m)	Length (m)	Graphic Log	Layer Code	Material Description	Weathering/USC	Testing	TCR (%)	SCR (%)	RQD (%)	Fracture Log (VWS WS MWS CS VCS ECS)	Stratigraphy / Defect Description / Additional Notes	Installation
HQ3	17	1		T	**0m:** Silty SAND with some clay; dark brown. Firm, moist, high plasticity.	SM						**0m: TOPSOIL**	
					0.3m: Silty CLAY with minor sand; reddish orange brown. Firm, moist, high plasticity. [Completely weathered, reddish orange brown, moderately vesicular BASALT; Extremely weak].	CH		100				**0.3m: SOUTH AUCKLAND VOLCANIC FIELD**	
SPTC				VRb	**1m:** Silty fine to coarse GRAVEL and COBBLES with some clay; greyish red and black. Medium dense, moist, well graded. Gravel, sub-angular to angular, completely weathered to highly weathered, moderately vesicular, BASALT. Silt is low plasticity. [Completely weathered BASALT].	GM	1.5m: SPTC 20 for 15mm// N = 50+	N/A				1.5m: SPT hammer bouncing	
HQ3	16	2		VWb	**1.95m:** Moderately weathered; grey BASALT. Moderately strong.	MW							
					2.15m: Highly weathered, reddish brown, slightly vesicular BASALT; extremely weak. [Silty fine to coarse GRAVEL with minor sand; reddish brown. Medium dense, moist,well graded. Gravel, sub-angular to angular, highly weathered, slightly vesicular basalt].	HW		100	27	27		2.15m: Recovered as broken basalt	
					2.35m: Moderately weathered; grey BASALT. Moderately strong.	MW							
					2.55m: Highly weathered, reddish brown, slightly vesicular BASALT; extremely weak. [Fine to coarse GRAVEL with some silt and trace clay; reddish brown. Medium dense, dry].	HW						2.55m: Recovered as gravels and cobbles.	
SPTC	15	3					3m: SPTC 6// 4,5,6,8 N = 23	N/A					
HQ3	14	4		VRb	**3.2m:** Highly weathered, dark brown mottled orange, slightly vesicular BASALT; extremely weak. [Clayey silty fine to coarse GRAVEL; dark brown mottled orange. Medium dense, moist, well graded. Gravel, sub-angular to angular, highly weathered, slightly vesicular BASALT, extremely weak. Clay is high plasticity].	HW		100				
SPTC	13	5				GM	4.5m: SPTC 12// 8,11,15,15 N = 49	N/A					
								100					

Box 1
Box 2

REMARKS:
1. Investigation collar is recorded to an accuracy of ±10 m horizontal and ±1 m vertical.
2. 1.0m galvanised steel upstand installed.

Water Level Readings:
Date Time | Hole Depth | Water Level
(1) 15/01/21 00:00 | m | 7.1 m bgl

Hand Shear Vane Serial No: 359 Correction Factor: 1.503

Database File: 510611_V3.GPJ **Library file:** AURECON_AKL_20201012.GLB **Template:** AURECON_AKL_20170201.GDT **Report File:** AURECON DH LOG V3.9 0DP **Date Generated:** 8/03/2021

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Location: **132 Flanagan Road, Drury**
Project Reference: **510611**

BH011

BOREHOLE INFORMATION
Method: Rotary Core Wireline
Equipment: Track Mounted Drill Rig
Contractor: Perry Geotech Ltd

CO-ORDINATES: Mt Eden 2000
Easting: 416476.000m
Northing: 774550.000m
Reduced level: 18.000m (NZVD2016)

Date started: 14/01/2021
Date completed: 15/01/2021
Inclination: 90°
Azimuth: N/A

Logged by: STH
Input by: STH
Reviewed by: GO
Verified by: JM

Method	R.L. (m)	Length (m)	Graphic Log	Layer Code	Material Description	Weathering/USC	Testing	TCR (%)	SCR (%)	RQD (%)	Fracture Log (VWS WS MWS CS VCS ECS)	Stratigraphy / Defect Description / Additional Notes	Installation
HQ3	12	6		VRb	**4.95m:** Silty fine to medium Gravel; brown mottled yellow and black. Loose, saturated, poorly graded. Gravel, sub-angular to angular, completely weathered, moderately vesicular basalt, extremely weak. Silt is non-plastic. [Completely weathered BASALT].	GM							
					5.15m: Silty clayey fine to medium Gravel; brown mottled yellow and grey. Loose, moist, poorly graded. Gravel, sub-angular to angular, completely weathered, highly vesicular basalt, extremely weak. Silt and clay is high plasticity. [Completely weathered BASALT].	GM		100					
SPTC					**5.7m:** Clayey fine to medium GRAVEL with minor silt; brown mottled yellow and grey. Loose, moist, poorly graded. Gravel, sub-angular to angular, completely weathered, highly vesicular basalt, extremely weak. Clay is high plasticity. [Completely weathered BASALT]. **5.75m to 6m:**...Colour change, black mottled yellow and grey	GC	6m: SPTC 4// 2,2,2,2 N = 8	N/A					
HQ3	11	7						100					
					7.2m: Highly weathered, brownish orange mottled yellow, highly vesicular BASALT; extremely weak. [Clayey fine to coarse GRAVEL with minor silt; brownish orange mottled yellow. Loose; moist, well graded. Gravel, sub-angular to angular, completely weathered, highly vesicular basalt, extremely weak. Clay and silt is high plasticity].	HW							
SPT					**7.45m:** Clayey fine to medium GRAVEL; brown mottled orange and yellow. Loose, moist, poorly graded. Gravel, sub-angular to angular, completely weathered, moderately vesicular basalt, extremely weak. Clay is high plasticity. [Completely weathered BASALT].	GC	7.5m: SPT 3// 2,2,2,2 N = 8	100					
	10	8											
HQ3					**8.15m:** Silty fine to medium SAND with minor clay; light yellowish grey. Loose, moist. Silt and clay is low plasticity.	SM		100				**8.15m: TAURANGA GROUP**	
	9	9		TAs	**8.9m:** Silty fine to medium SAND with some clay; brownish yellow. Medium dense, moist. Silt and clay is low plasticity. **8.95m to 9.05m:**...Minor organics		9m: SPT 3// 2,2,3,3 N = 10						
SPT						SM		100					
HQ3								100					
	8	10											

REMARKS:
1. Investigation collar is recorded to an accuracy of ±10 m horizontal and ±1 m vertical.
2. 1.0m galvanised steel upstand installed.

Water Level Readings:
Date Time | Hole Depth | Water Level
(1) 15/01/21 00:00 | m | 7.1 m bgl

Hand Shear Vane Serial No: 359 Correction Factor: 1.503

Database File: 510611_V3.GPJ **Library file:** AURECON_AKL_20201012.GLB **Template:** AURECON_AKL_20170201.GDT **Report File:** AURECON DH LOG V3.9 0DP **Date Generated:** 8/03/2021

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BOREHOLE INFORMATION
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Contractor: Perry Geotech Ltd

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Northing: 774550.000m
Reduced level: 18.000m (NZVD2016)

Date started: 14/01/2021
Date completed: 15/01/2021
Inclination: 90°
Azimuth: N/A

Logged by: STH
Input by: STH
Reviewed by: GO
Verified by: JM

Method	R.L. (m)	Length (m)	Graphic Log	Layer Code	Material Description	Weathering/USC	Testing	TCR (%)	SCR (%)	RQD (%)	Fracture Log (VWS WS MWS CS VCS ECS)	Stratigraphy Defect Description Additional Notes	Installation
HQ3					**8.9m:** Silty fine to medium SAND with some clay; brownish yellow. Medium dense, moist. Silt and clay is low plasticity.	SM		100					
SPT							10.5m: SPT 5// 3,4,5,6 N = 18	100					
HQ3	7	11		TAs	**10.9m:** Fine to medium SAND with some silt and trace clay; Light brownish yellow. Medium dense, moist, uniformly graded. Silt and clay is low plasticity.			100					
SPT	6	12					12m: SPT 4// 3,4,4,4 N = 15	100					
HQ3	5	13				SP		100					
SPT	4	14					13.5m: SPT 6// 3,4,5,5 N = 17	100					
HQ3	3	15			**14.9m to 14.92m:**...Moderately cemented			100					

Box 4
Box 5

REMARKS:
1. Investigation collar is recorded to an accuracy of ±10 m horizontal and ±1 m vertical.
2. 1.0m galvanised steel upstand installed.

Water Level Readings:
Date Time | Hole Depth | Water Level
(1) 15/01/21 00:00 | m | 7.1 m bgl

Hand Shear Vane Serial No: 359 Correction Factor: 1.503

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Method: Rotary Core Wireline
Equipment: Track Mounted Drill Rig
Contractor: Perry Geotech Ltd

CO-ORDINATES: Mt Eden 2000
Easting: 416476.000m
Northing: 774550.000m
Reduced level: 18.000m (NZVD2016)

Date started: 14/01/2021
Date completed: 15/01/2021
Inclination: 90°
Azimuth: N/A

Logged by: STH
Input by: STH
Reviewed by: GO
Verified by: JM

Method	R.L. (m)	Length (m)	Graphic Log	Layer Code	Material Description	Weathering/USC	Testing	TCR (%)	SCR (%)	RQD (%)	Fracture Log (VWS WS MWS CS VCS ECS)	Stratigraphy Defect Description Additional Notes	Installation
SPT				TAz	**15m:** Silty CLAY with trace sand; grey. Very stiff, moist, high plasticity. Sand is fine to medium.	CH	15m: SPT 2// 1,1,1,1 N = 4 15m: IBHSV UTP	100					
HQ3	2	16						100					
				TAs	**16.15m:** Silty fine to medium SAND; greyish green. Medium dense, moist, well graded.	SM							
SPT				TAz	**16.35m:** SILT with minor clay; greyish green. Very stiff, moist, low plasticity.	ML	16.5m: SPT 2// 1,2,2,2 N = 7 16.5m: IBHSV UTP	100					
HQ3	1	17											
				TAc	**17.15m:** Silty CLAY; greyish green. Very stiff, moist, high plasticity.	CH							
					17.45m: SILT with minor clay; greyish green. Very stiff, moist, low plasticity.			100					
SPT	0	18					18m: SPT 2// 2,2,2,2 N = 8 18m: IBHSV UTP	100					
HQ3	-1	19		TAz		ML		100					
U54	-2	20					19.5m: IBHSV UTP	100					

Box 5
Box 6

REMARKS:
1. Investigation collar is recorded to an accuracy of ±10 m horizontal and ±1 m vertical.
2. 1.0m galvanised steel upstand installed.

Water Level Readings:
Date Time | Hole Depth | Water Level
(1) 15/01/21 00:00 | m | 7.1 m bgl

Hand Shear Vane Serial No: 359 Correction Factor: 1.503

aurecon
Level 4, 139 Carlton Gore Road
PO Box 9762, Newmarket
Auckland, New Zealand
Tel: +64 9 520 6019
www.aurecongroup.com

Client: **Kiwi Properties Ltd**
Project: **Drury Development**
Location: **132 Flanagan Road, Drury**
Project Reference: **510611**

BH011

BOREHOLE INFORMATION
Method: Rotary Core Wireline
Equipment: Track Mounted Drill Rig
Contractor: Perry Geotech Ltd

CO-ORDINATES: Mt Eden 2000
Easting: 416476.000m
Northing: 774550.000m
Reduced level: 18.000m (NZVD2016)

Date started: 14/01/2021
Date completed: 15/01/2021
Inclination: 90°
Azimuth: N/A

Logged by: STH
Input by: STH
Reviewed by: GO
Verified by: JM

Method	R.L. (m)	Length (m)	Graphic Log	Layer Code	Material Description	Weathering/USC	Testing	TCR (%)	SCR (%)	RQD (%)	Fracture Log (VWS WS MWS CS VCS ECS)	Stratigraphy Defect Description Additional Notes	Installation
SPT				TAz	**17.45m:** SILT with minor clay; greyish green. Very stiff, moist, low plasticity.	ML	20m: SPT 4// 3,3,3,3 N = 12	100					
HQ3	-3	21		TAx	**20.45m:** CORE LOSS			52				20.45m: Washed out sand	
SPT					**20.95m:** SILT with minor clay; greyish green. Very stiff, moist, low plasticity.		21m: SPT 4// 3,3,2,3 N = 11 21m: IBHSV UTP	100					
HQ3	-4	22				ML		100					
SPT					**22.6m:** SILT with some clay; greyish green. Very stiff, moist, high plasticity.	MH	22.5m: SPT 5// 3,3,3,3 N = 12	100					
HQ3	-5	23		TAz	**23.1m:** SILT with minor clay; greyish green. Very stiff, moist, low plasticity.		23.5m: IBHSV UTP	100					
SPT	-6	24				ML	24m: SPT 5// 3,3,3,4 N = 13	100					
HQ3	-7	25						100					

Box 7
Box 8

REMARKS:
1. Investigation collar is recorded to an accuracy of ±10 m horizontal and ±1 m vertical.
2. 1.0m galvanised steel upstand installed.

Water Level Readings:
Date Time | Hole Depth | Water Level
(1) 15/01/21 00:00 | m | 7.1 m bgl

Hand Shear Vane Serial No: 359 Correction Factor: 1.503

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BH011

BOREHOLE INFORMATION
Method: Rotary Core Wireline
Equipment: Track Mounted Drill Rig
Contractor: Perry Geotech Ltd

CO-ORDINATES: Mt Eden 2000
Easting: 416476.000m
Northing: 774550.000m
Reduced level: 18.000m (NZVD2016)

Date started: 14/01/2021
Date completed: 15/01/2021
Inclination: 90°
Azimuth: N/A

Logged by: STH
Input by: STH
Reviewed by: GO
Verified by: JM

Method	R.L. (m)	Length (m)	Graphic Log	Layer Code	Material Description	Weathering/USC	Testing	TCR (%)	SCR (%)	RQD (%)	Fracture Log (VWS WS MWS CS VCS ECS)	Stratigraphy Defect Description Additional Notes	Installation
HQ3				TAz	**23.1m:** SILT with minor clay; greyish green. Very stiff, moist, low plasticity.	ML	25m: IBHSV UTP	100					
SPT							25.5m: SPT 4// 2,2,3,3 N = 10	100					

Box 8

End of borehole at 25.95m (Target depth reached)

REMARKS:
1. Investigation collar is recorded to an accuracy of ±10 m horizontal and ±1 m vertical.
2. 1.0m galvanised steel upstand installed.

Hand Shear Vane Serial No: 359 Correction Factor: 1.503

Water Level Readings:
Date Time | Hole Depth | Water Level
(1) 15/01/21 00:00 | m | 7.1 m bgl

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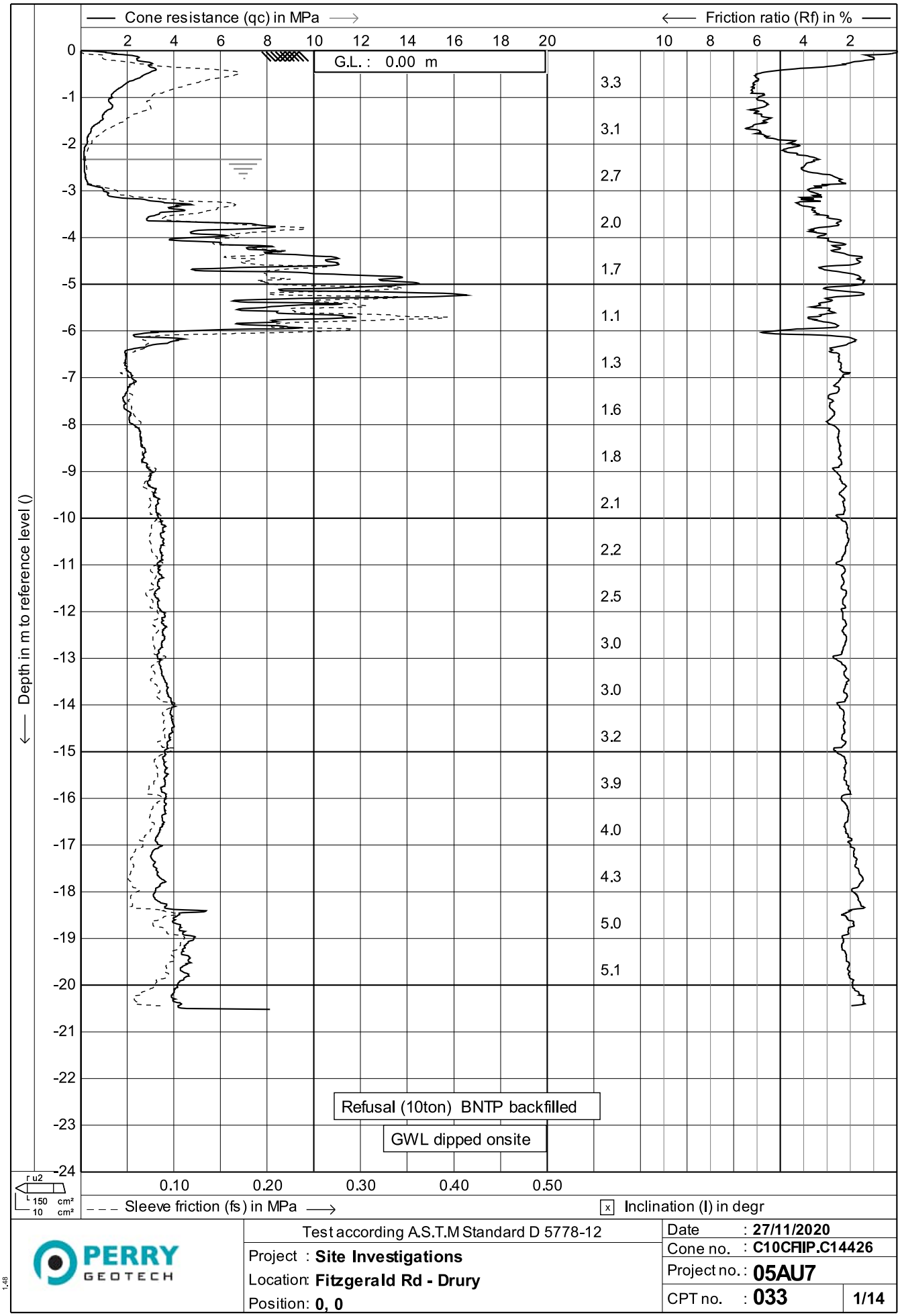


PERRY GEOTECH

Test according A.S.T.M Standard D 5778-12

Project : **Site Investigations**

Location: **Fitzgerald Rd - Drury**

Position: **0, 0**

Date : **27/11/2020**

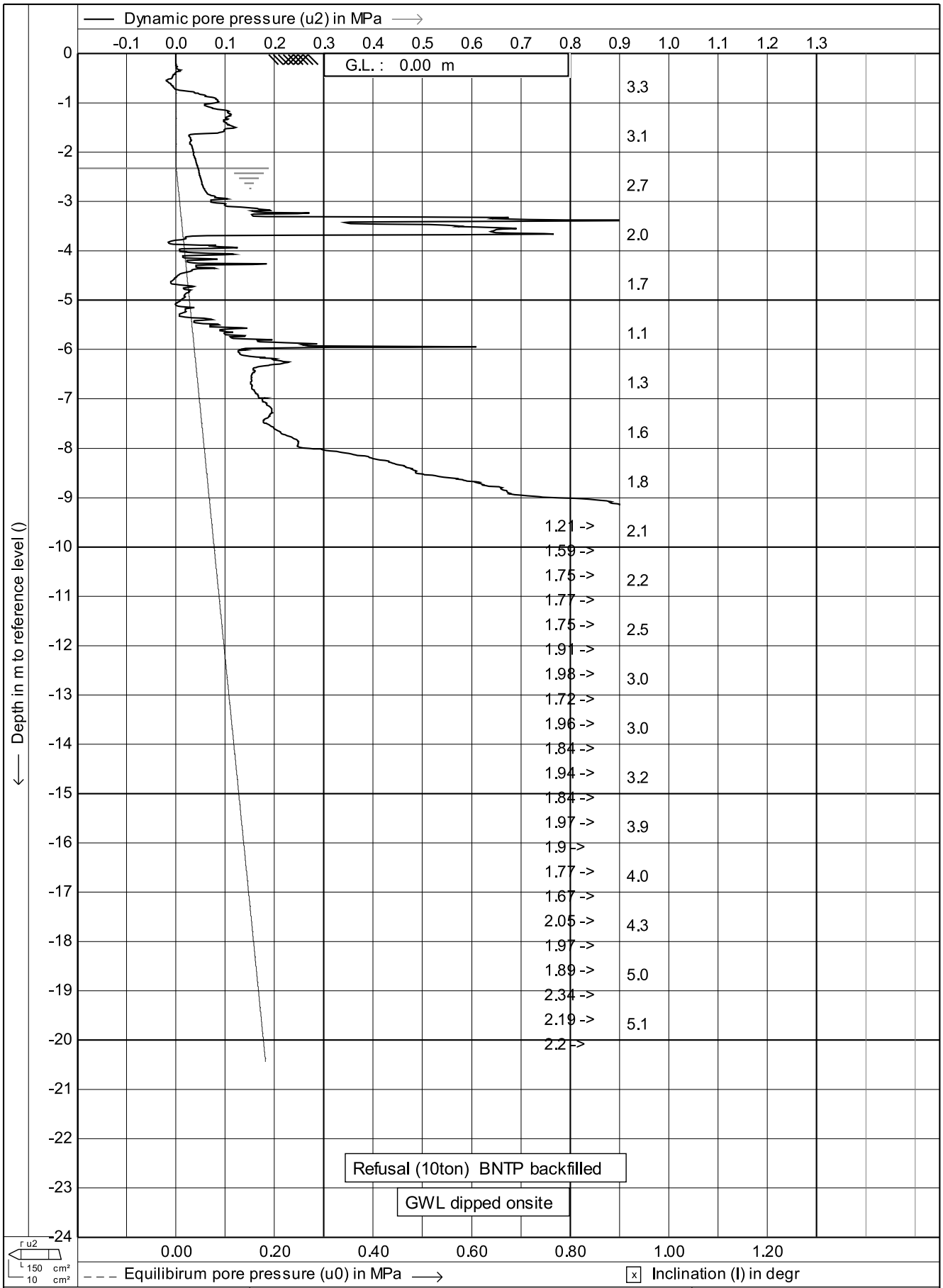
Cone no. : **C10CFIIP.C14426**

Project no. : **05AU7**

CPT no. : **033**

1/14

1.48



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Location: **Fitzgerald Rd - Drury**

Position: **0, 0**

Date : **27/11/2020**

Cone no. : **C10CFIIP.C14426**

Project no. : **05AU7**

CPT no. : **033**

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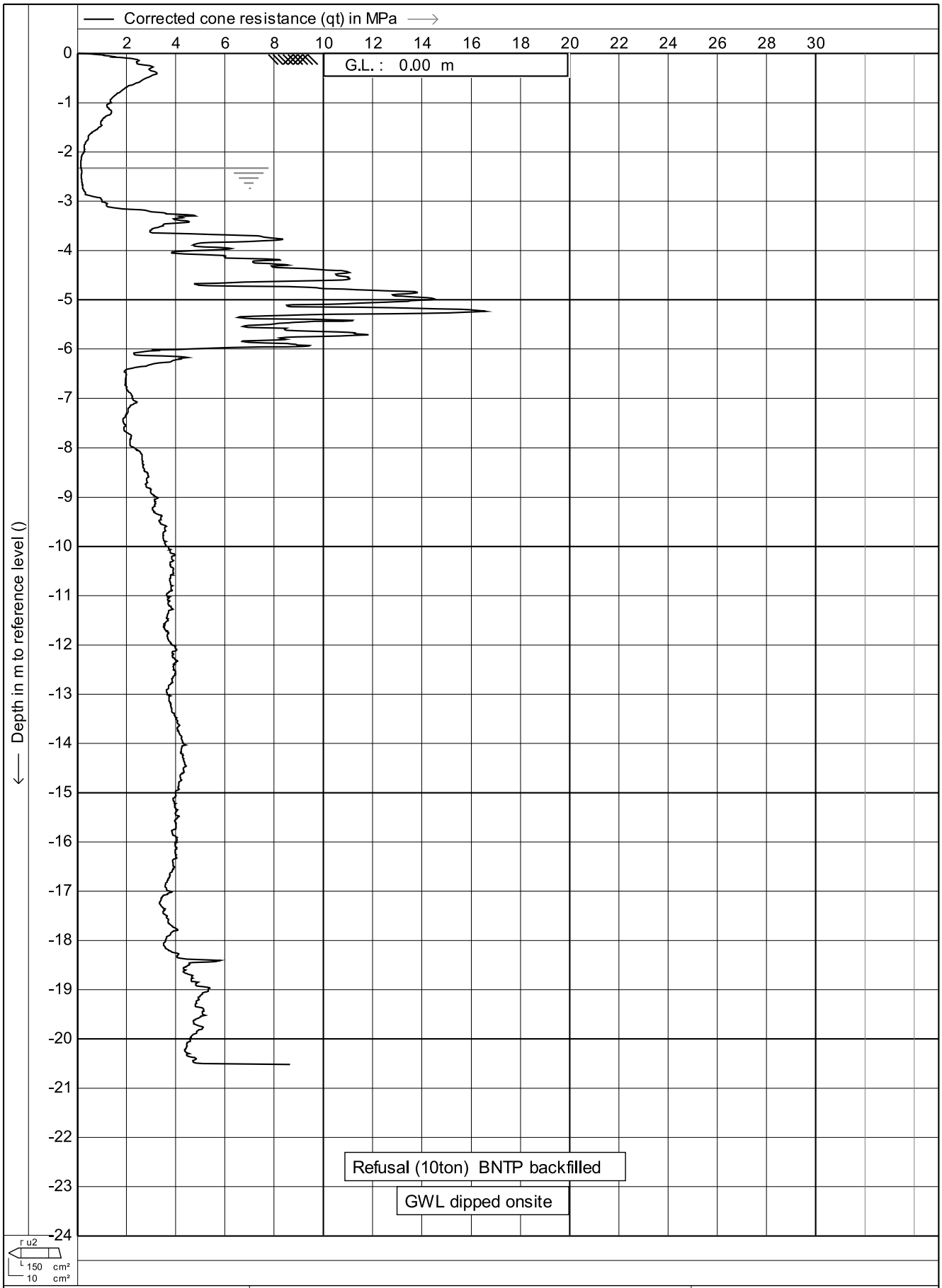

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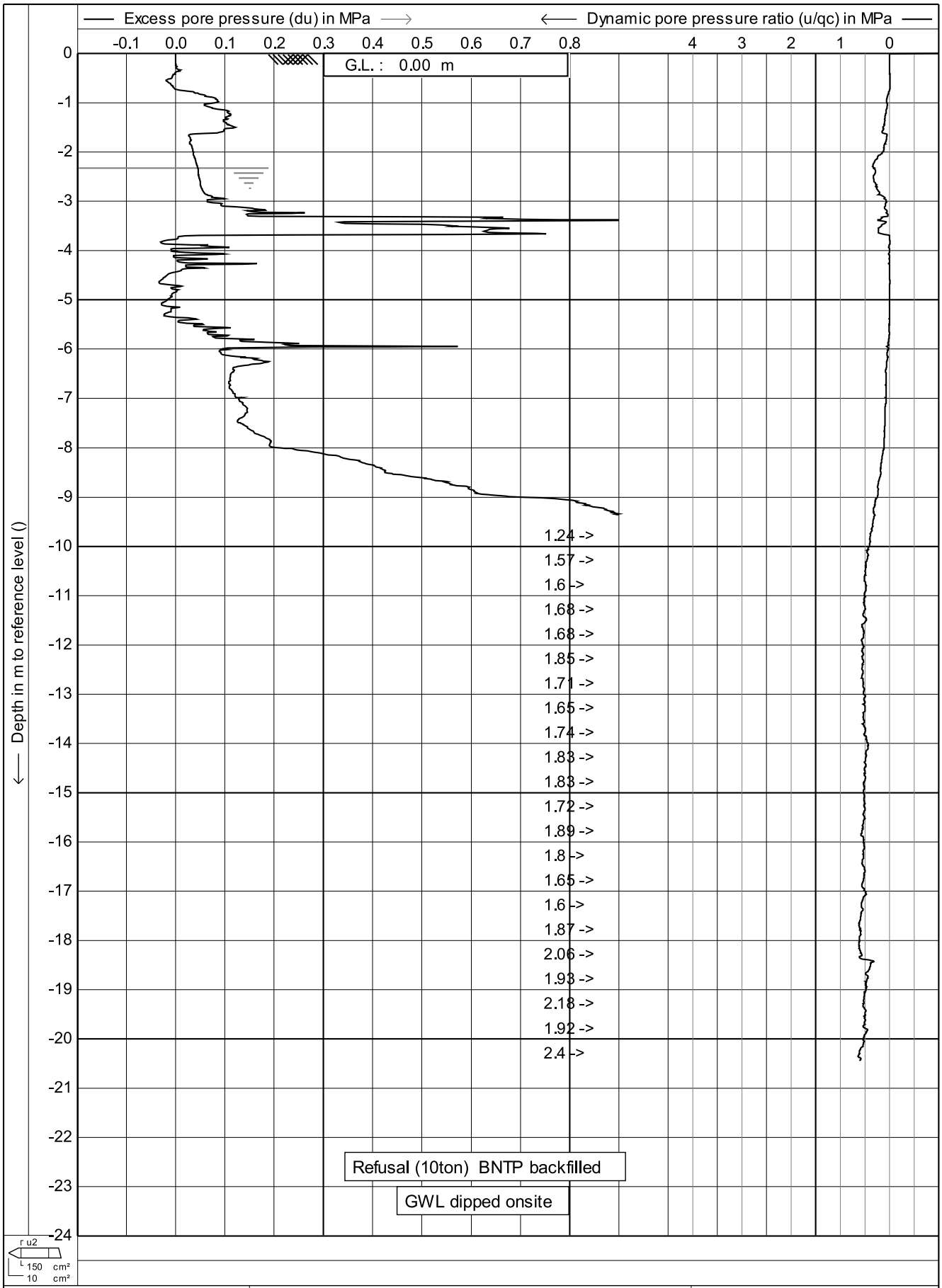

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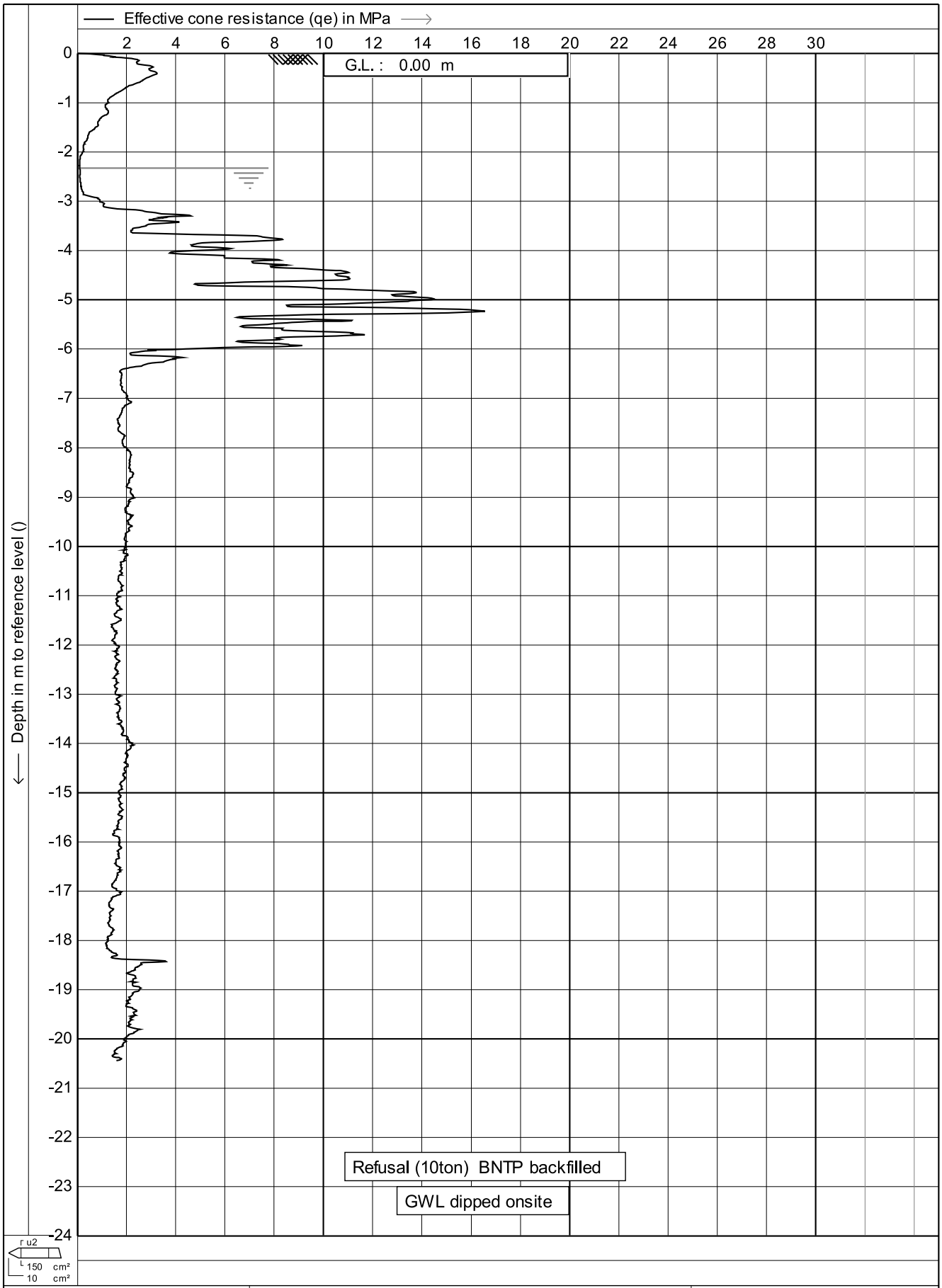

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Location: **Fitzgerald Rd - Drury**

Position: **0, 0**

Date : **27/11/2020**

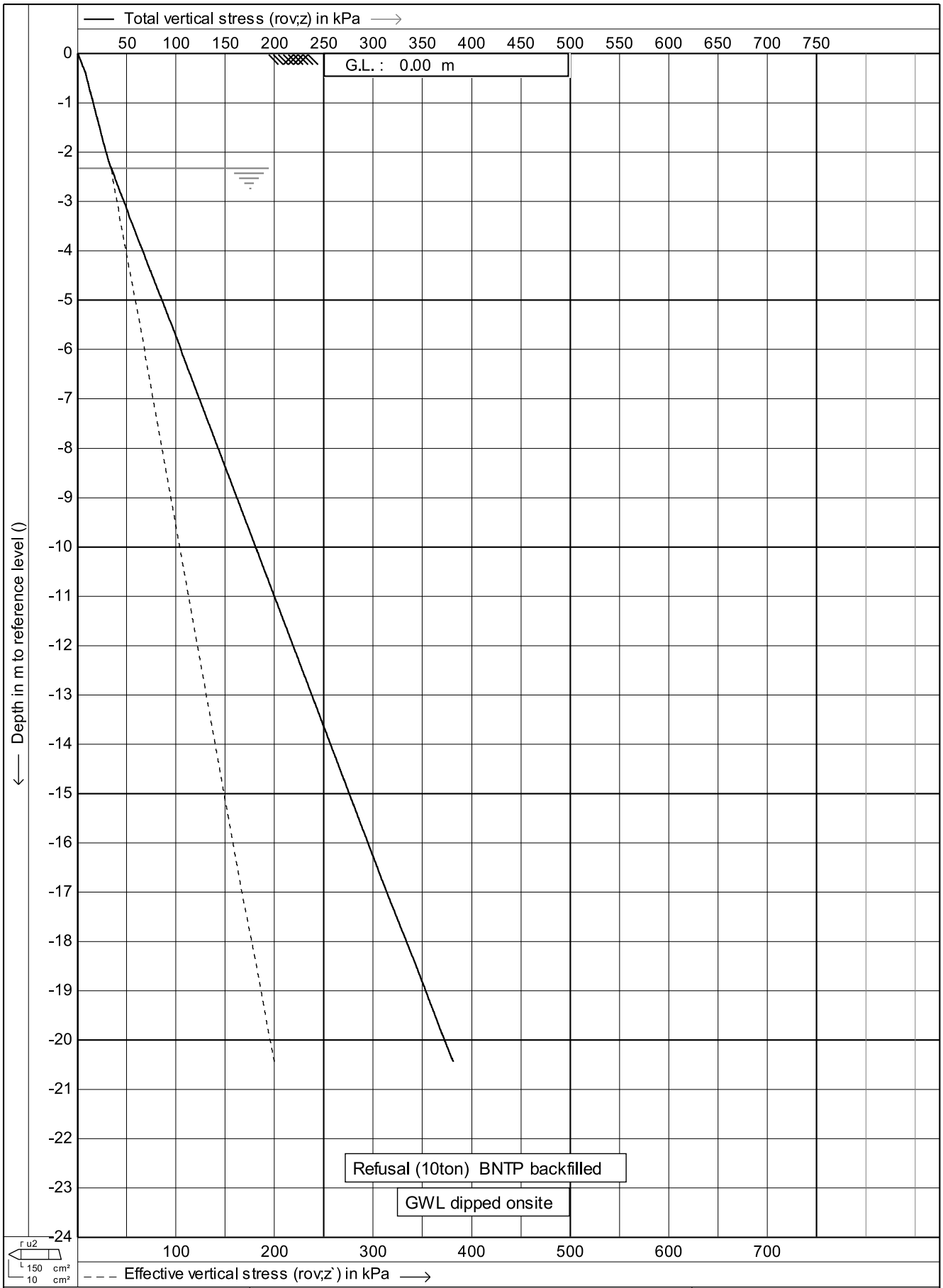
Cone no. : **C10CFIIP.C14426**

Project no. : **05AU7**

CPT no. : **033**

5/14

1.48



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CPT no. : **033**

6/14

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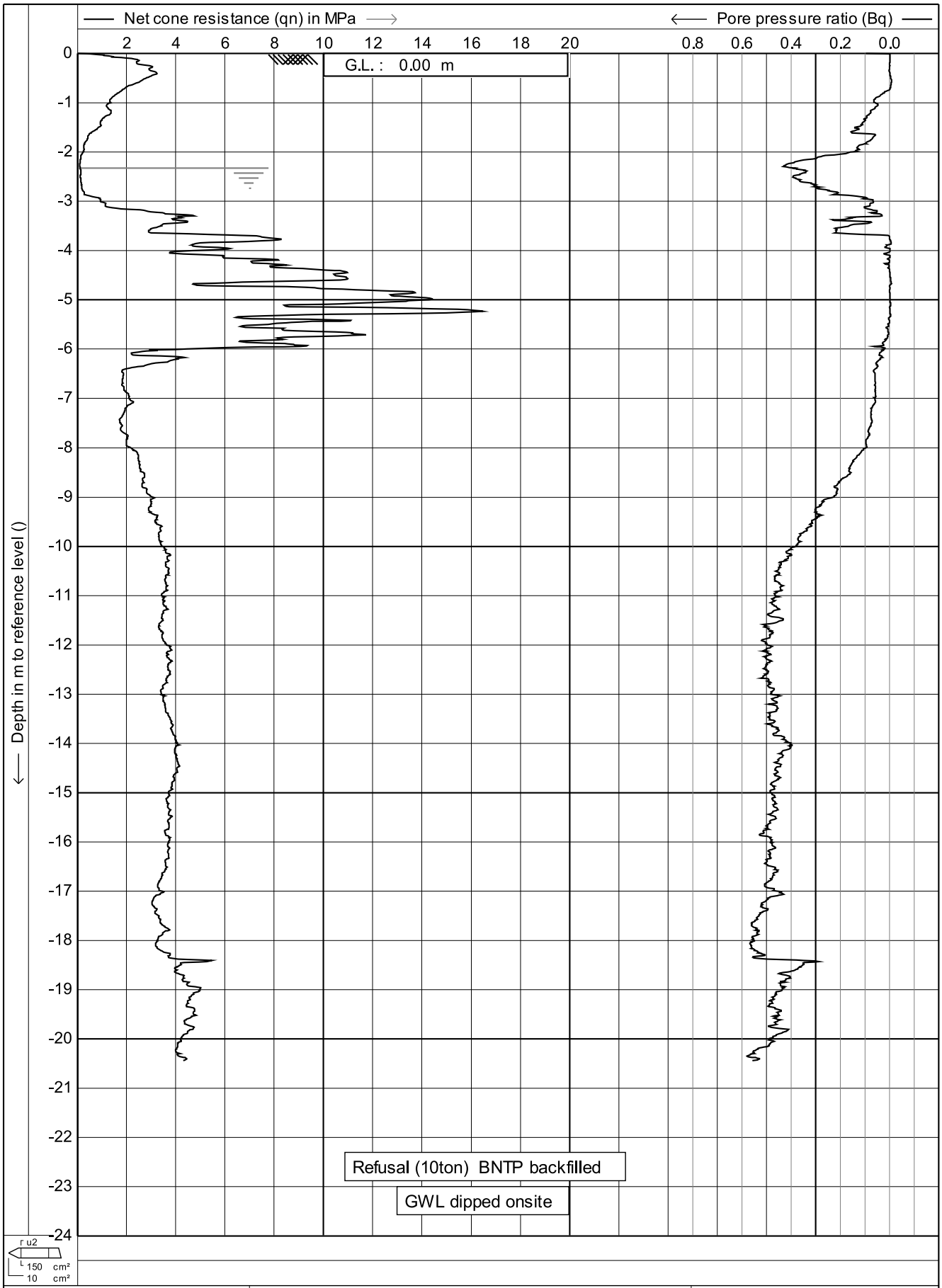

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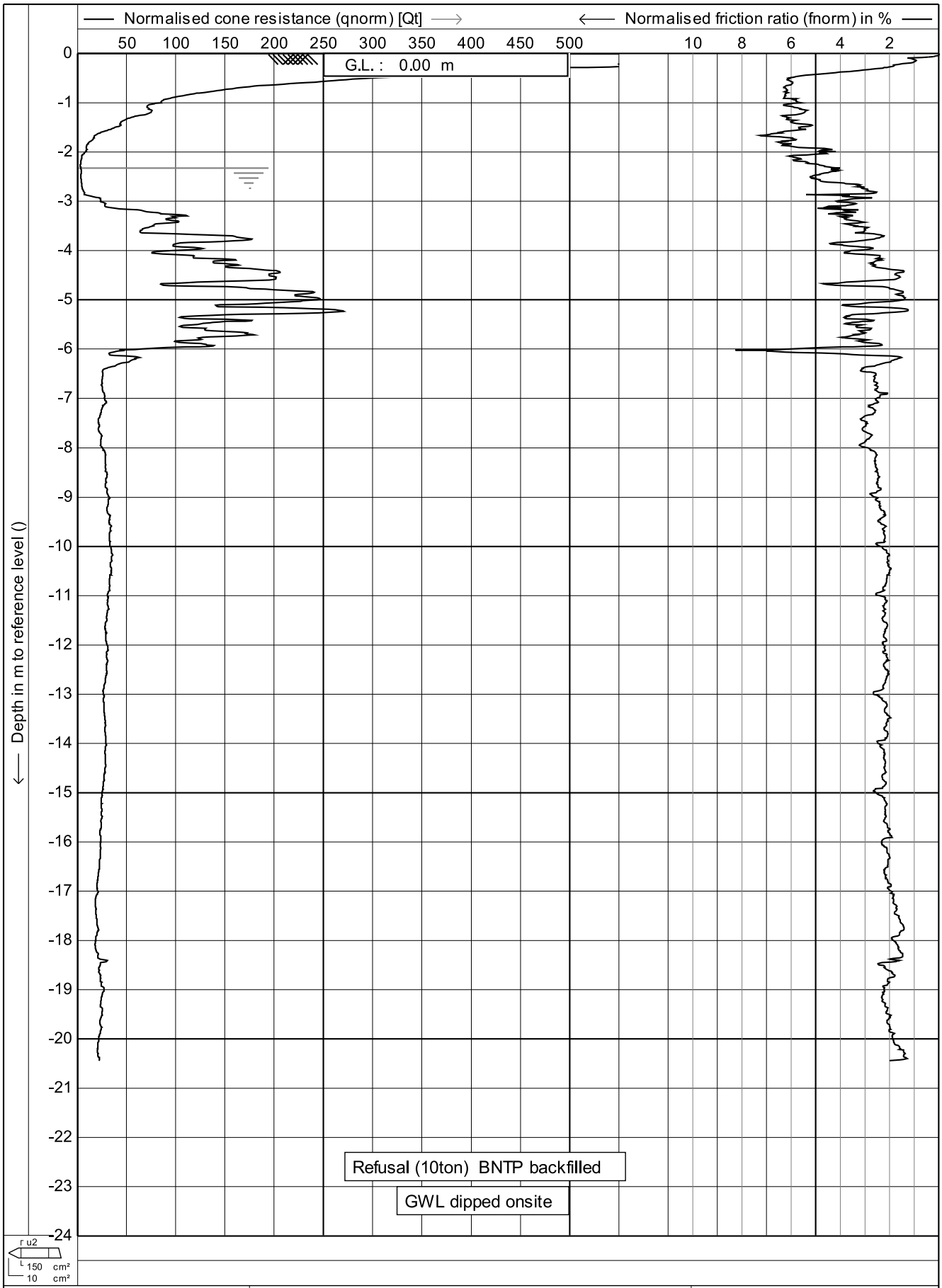

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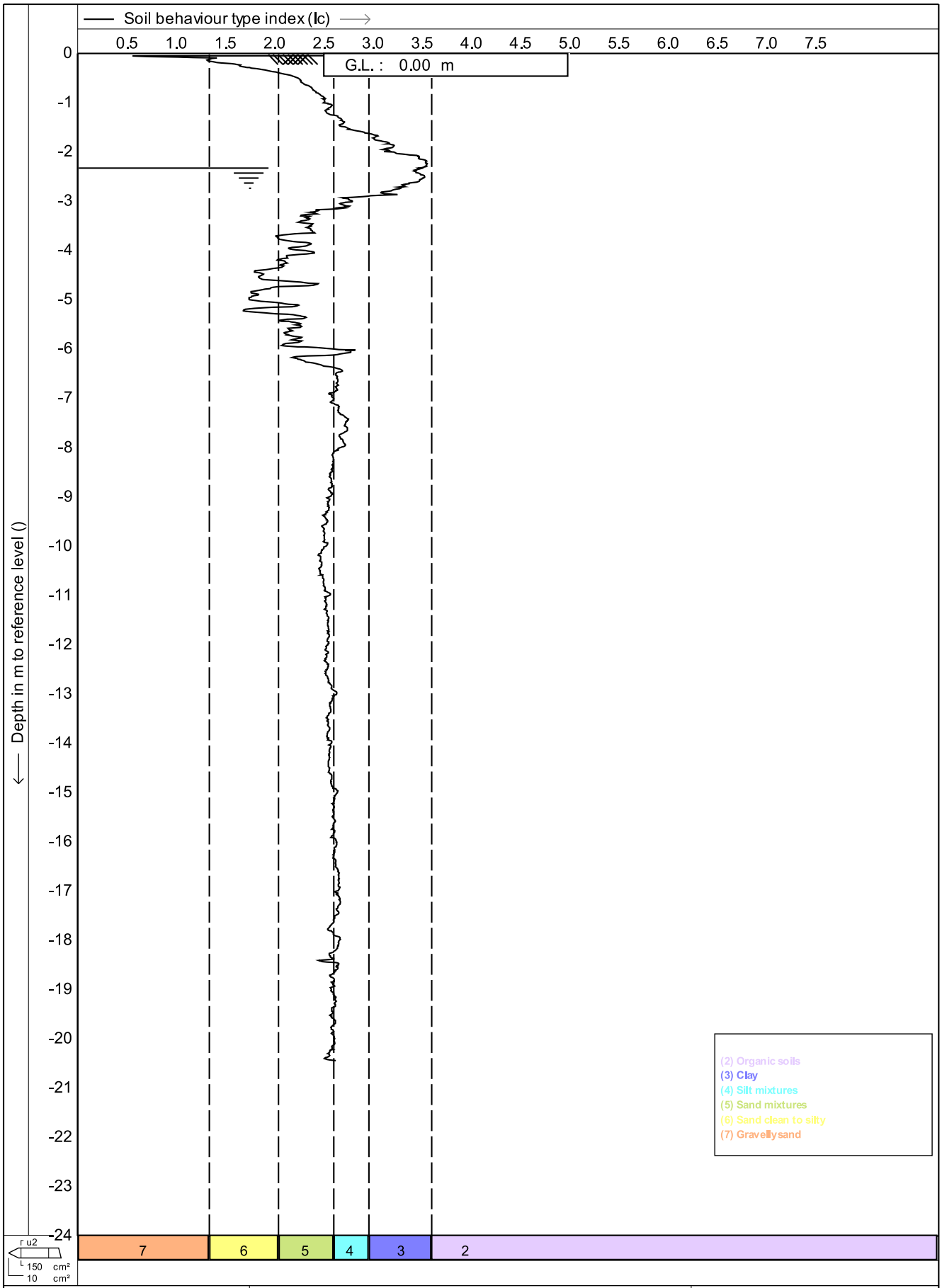
8/14

1.48



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9/14

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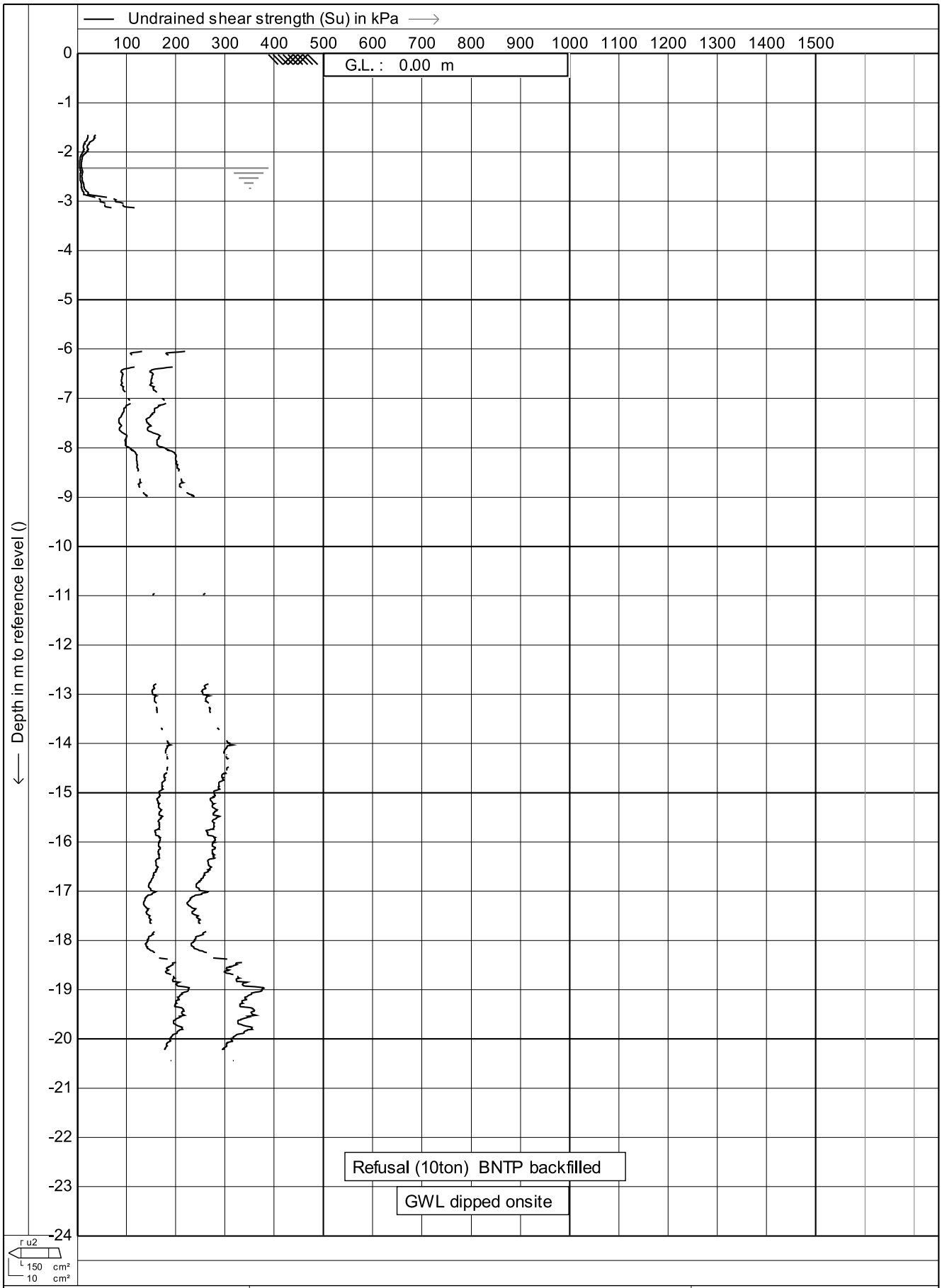

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10/14

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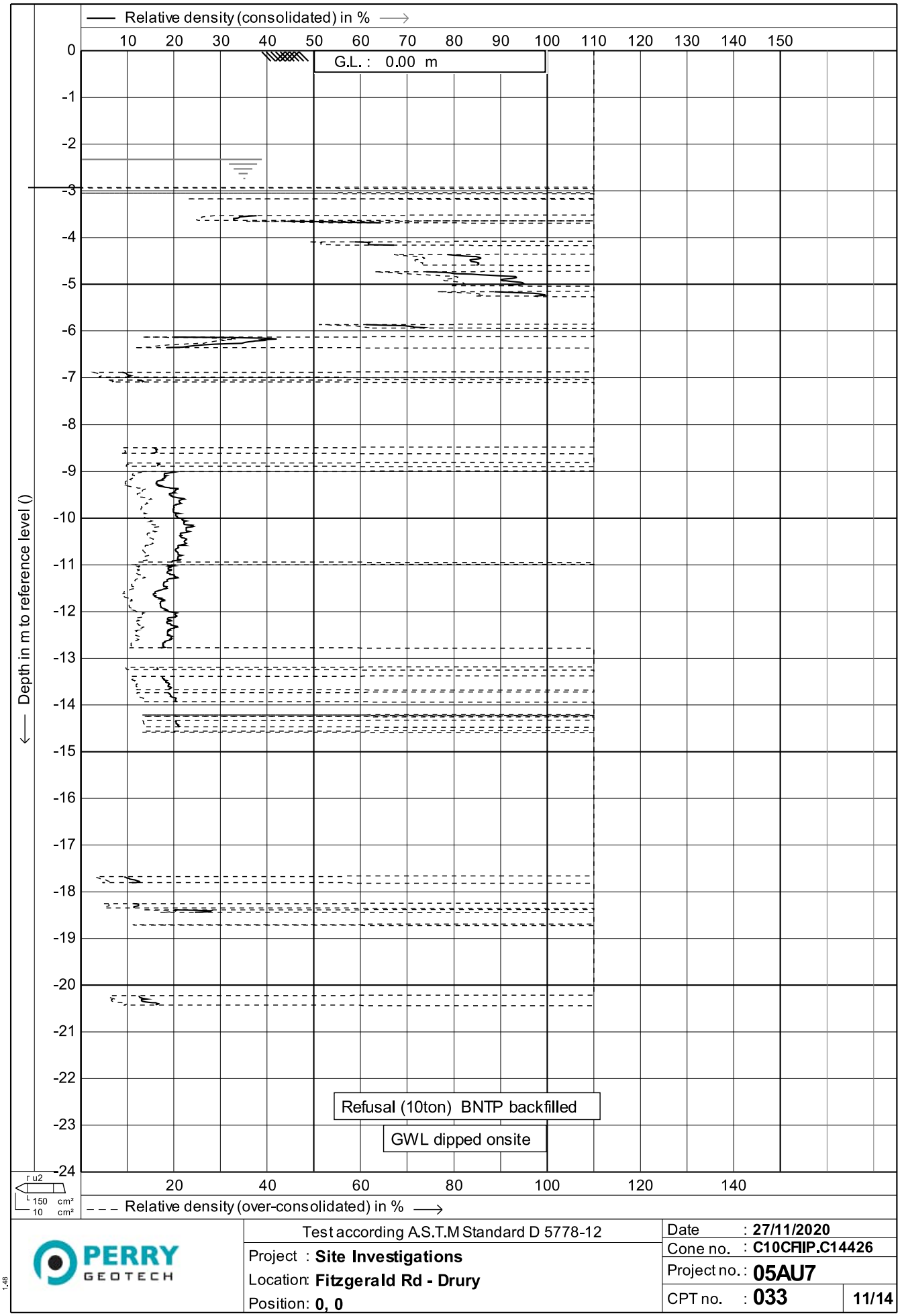

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11/14

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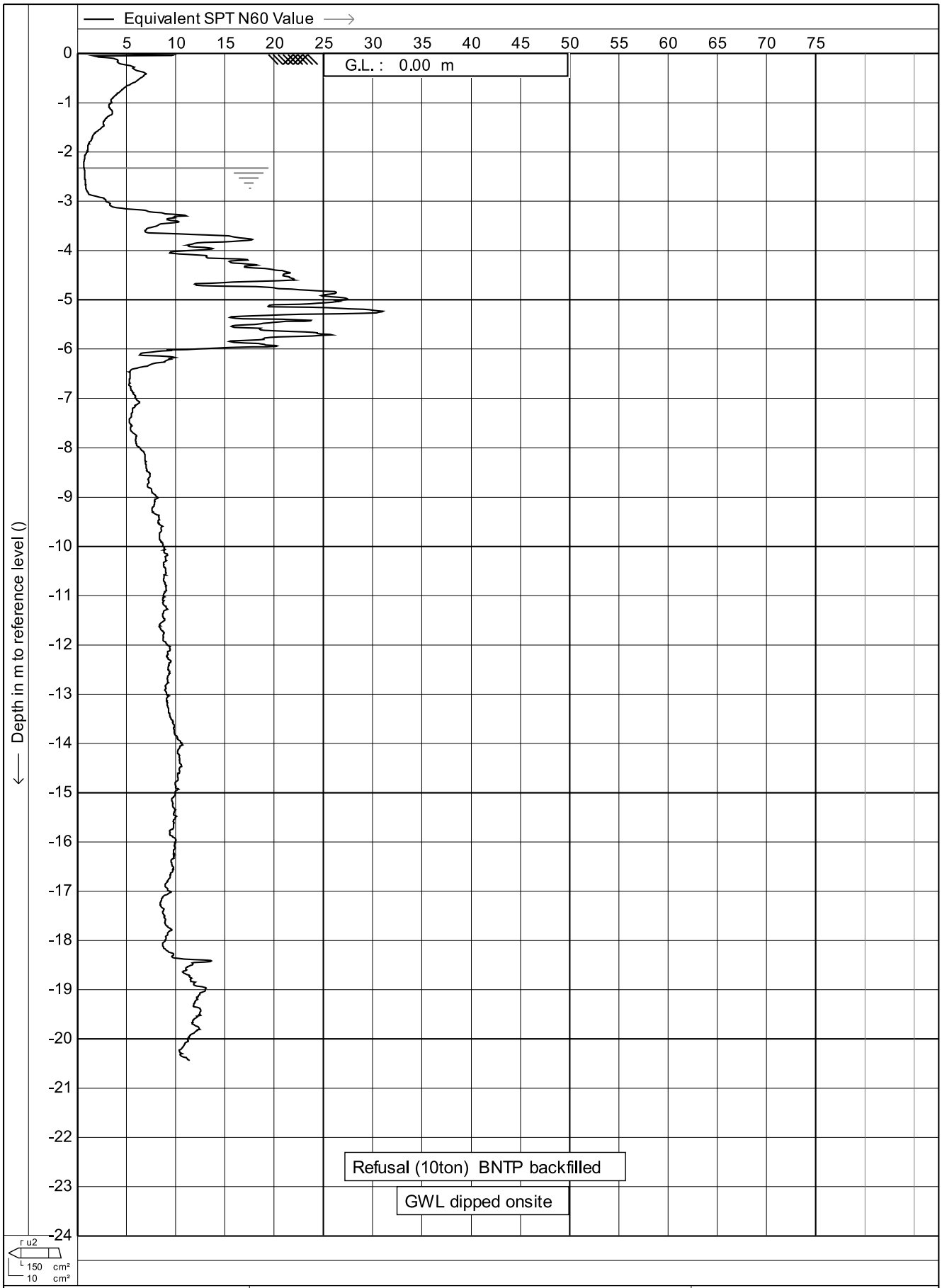

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12/14

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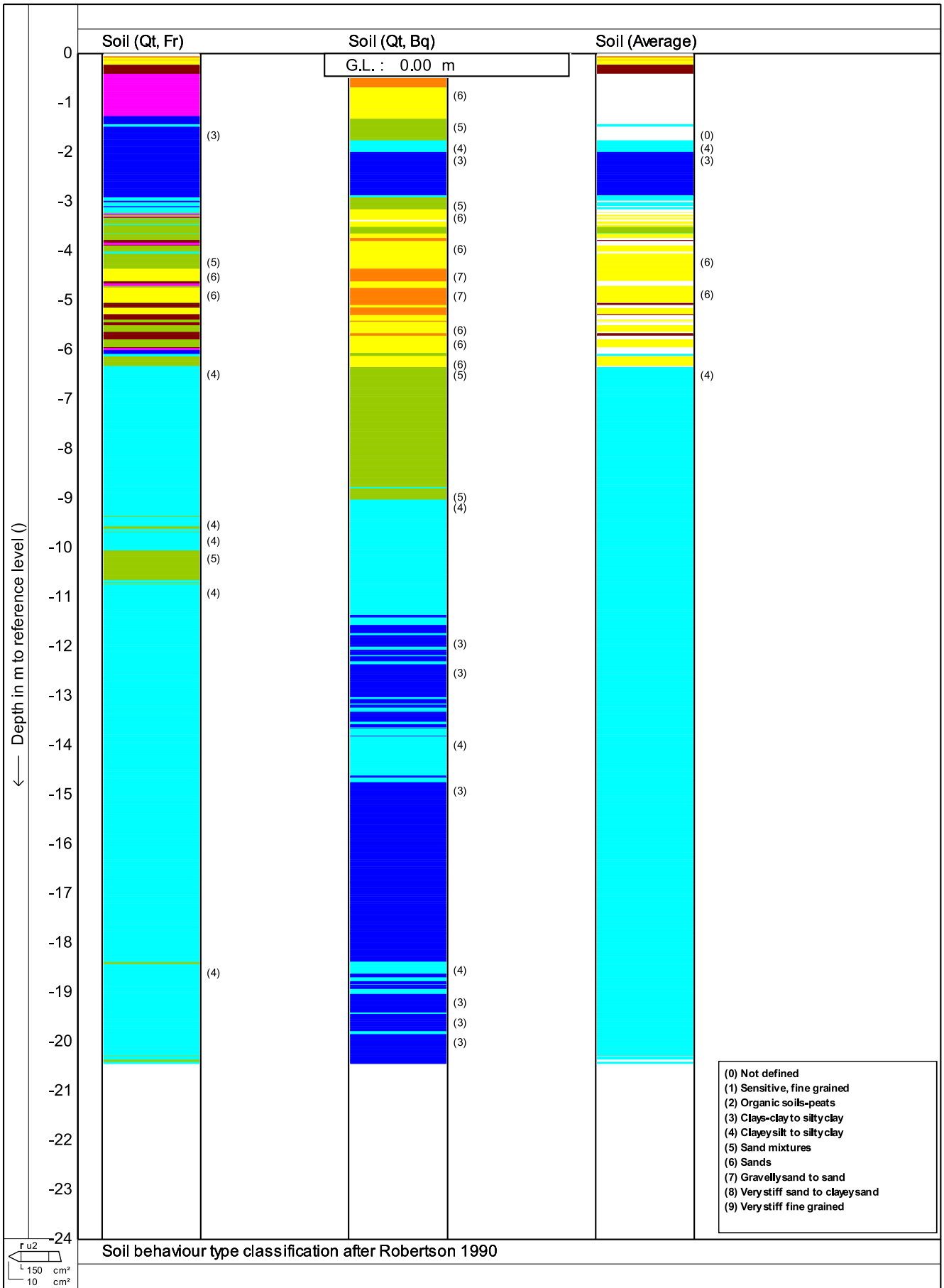

Soil behaviour type classification after Robertson 1990

PERRY GEOTECH

Test according A.S.T.M Standard D 5778-12

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Location: **Fitzgerald Rd - Drury**

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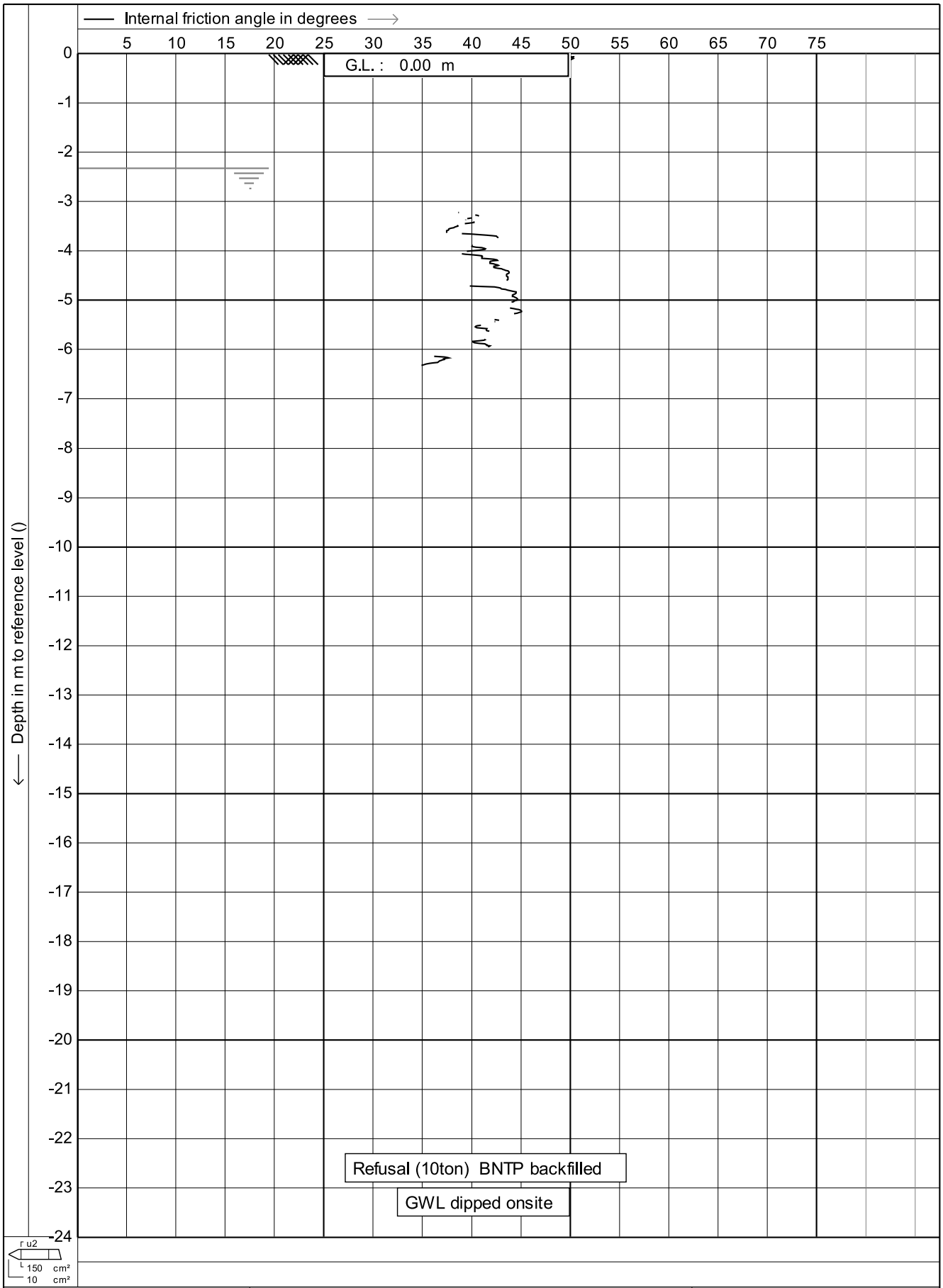

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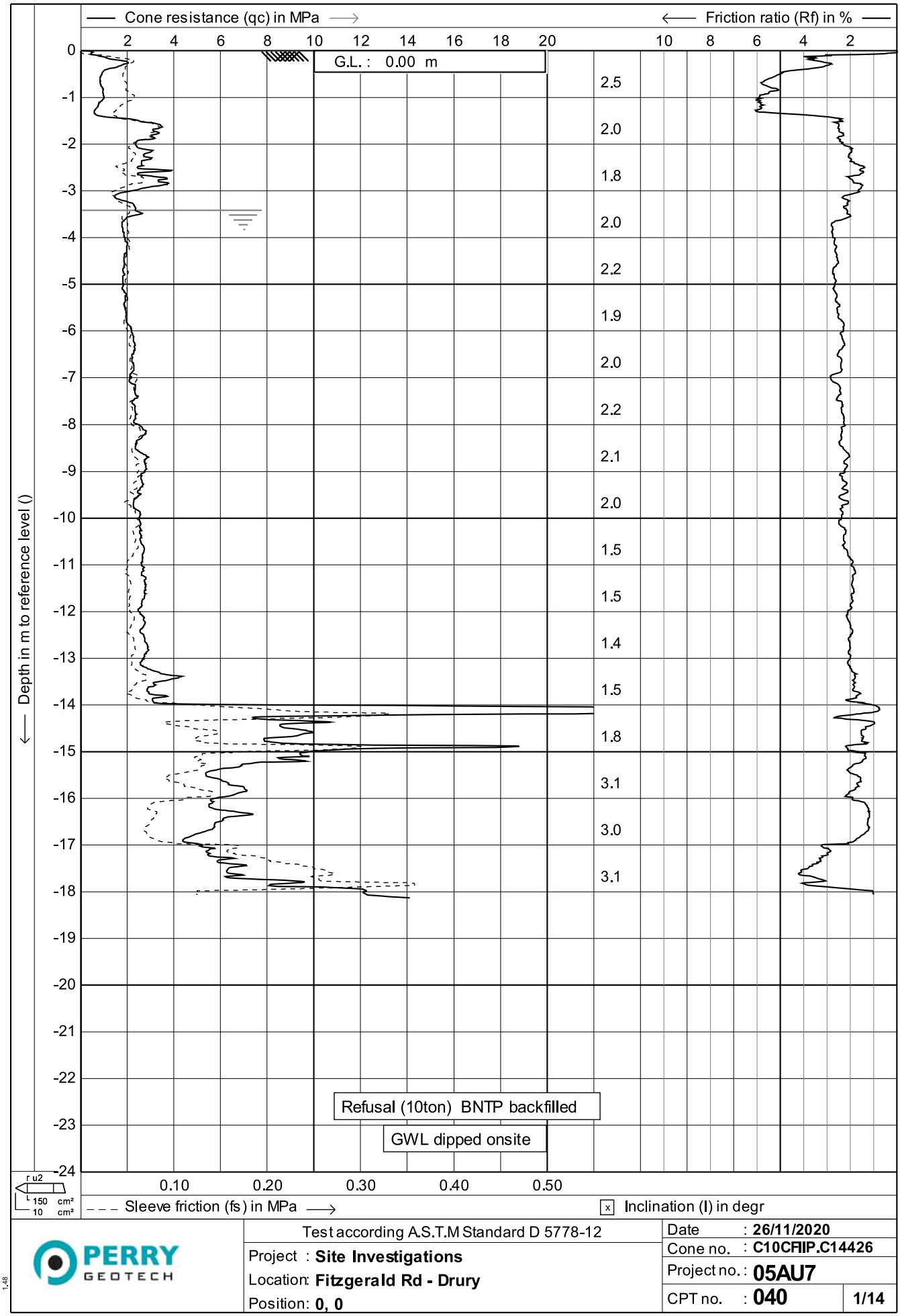

PERRY GEOTECH

Test according A.S.T.M Standard D 5778-12

Project : **Site Investigations**

Location: **Fitzgerald Rd - Drury**

Position: **0, 0**

Date : **26/11/2020**

Cone no. : **C10CFIIP.C14426**

Project no. : **05AU7**

CPT no. : **040**

1/14

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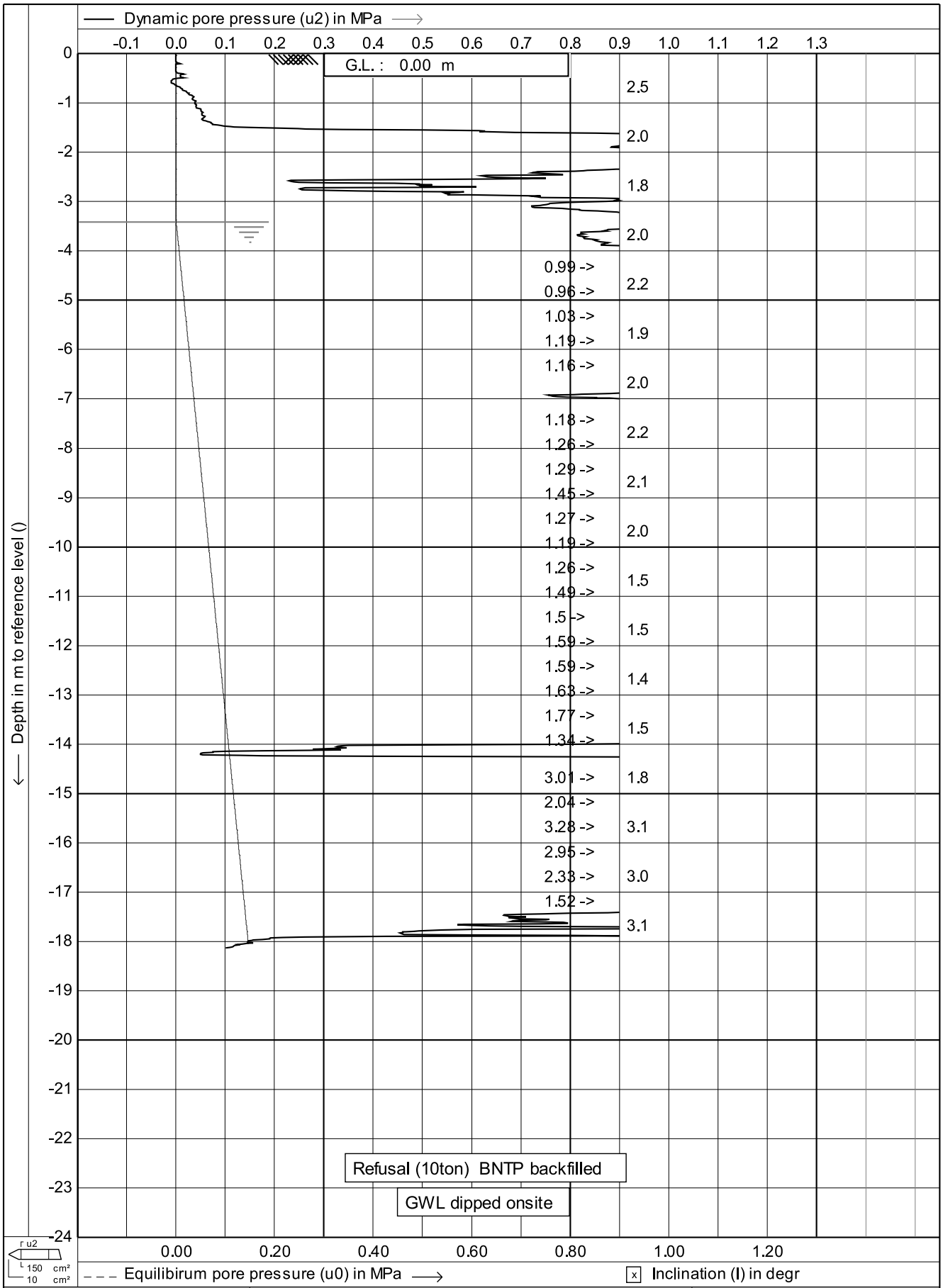

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Location: **Fitzgerald Rd - Drury**

Position: **0, 0**

Date : **26/11/2020**

Cone no. : **C10CFIIP.C14426**

Project no. : **05AU7**

CPT no. : **040**

2/14

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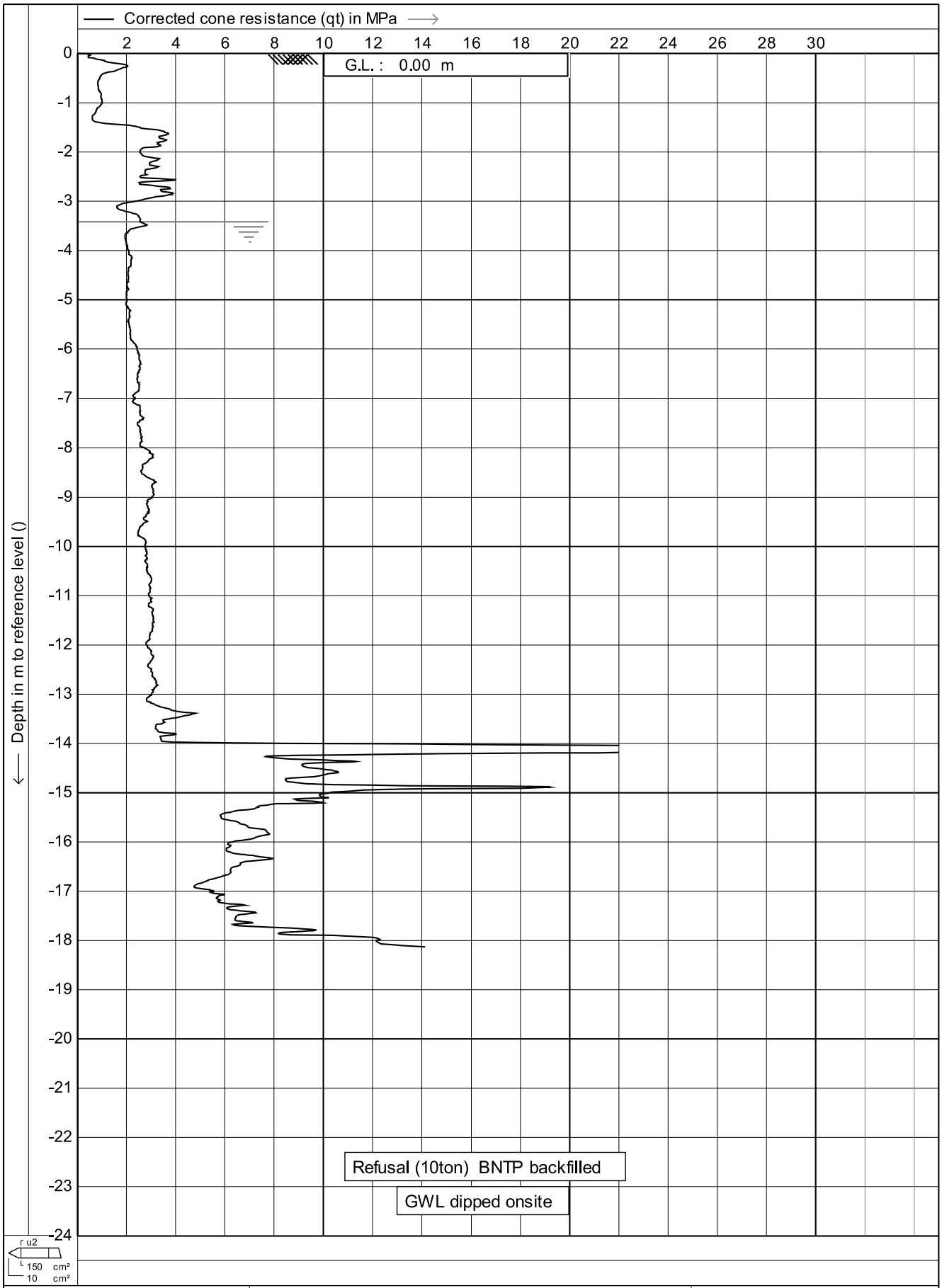

PERRY GEOTECH

Test according A.S.T.M Standard D 5778-12

Project : **Site Investigations**

Location: **Fitzgerald Rd - Drury**

Position: **0, 0**

Date : **26/11/2020**

Cone no. : **C10CFIIP.C14426**

Project no. : **05AU7**

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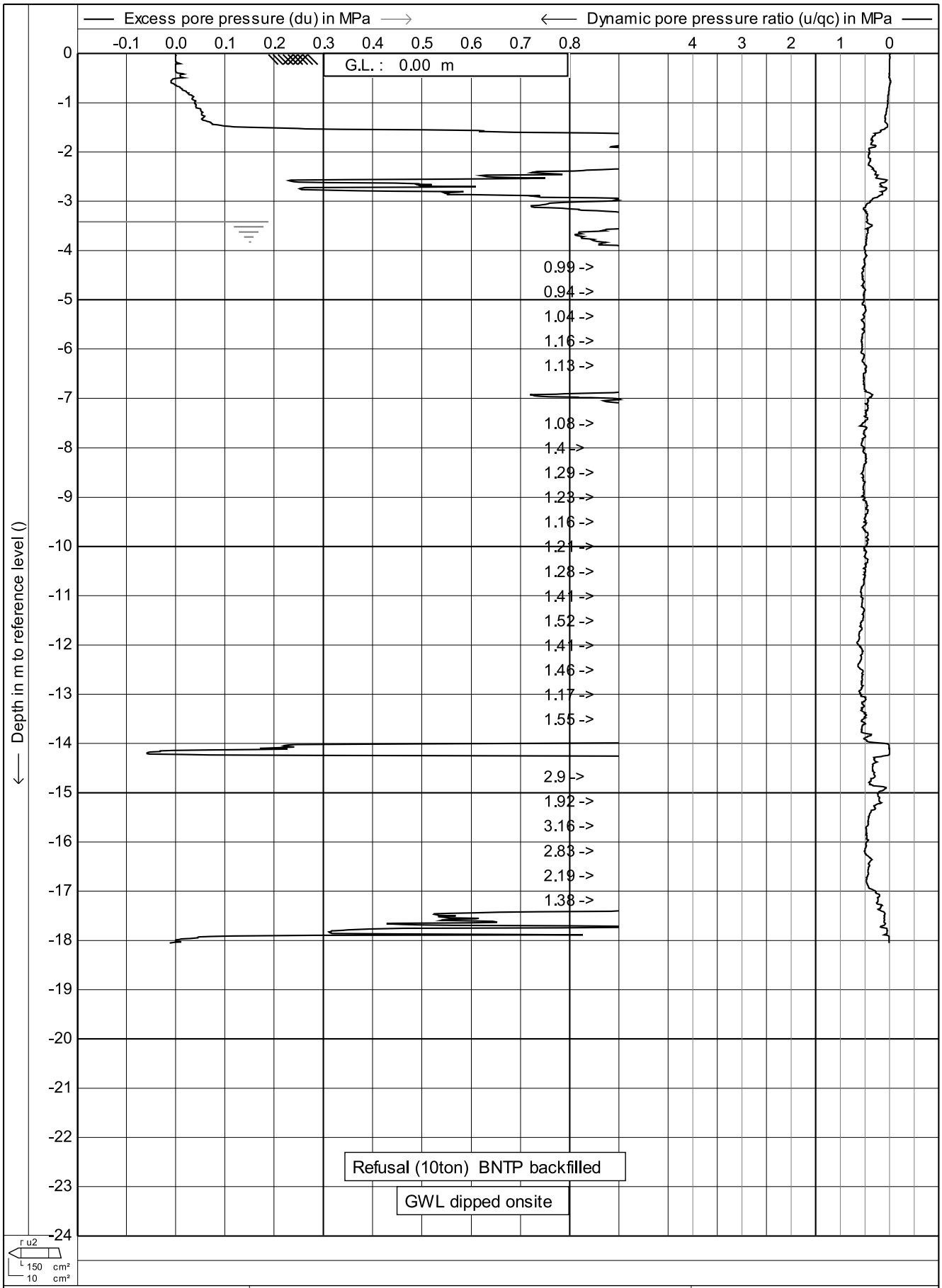

PERRY GEOTECH

Test according A.S.T.M Standard D 5778-12

Project : **Site Investigations**

Location: **Fitzgerald Rd - Drury**

Position: **0, 0**

Date : **26/11/2020**

Cone no. : **C10CFIIP.C14426**

Project no. : **05AU7**

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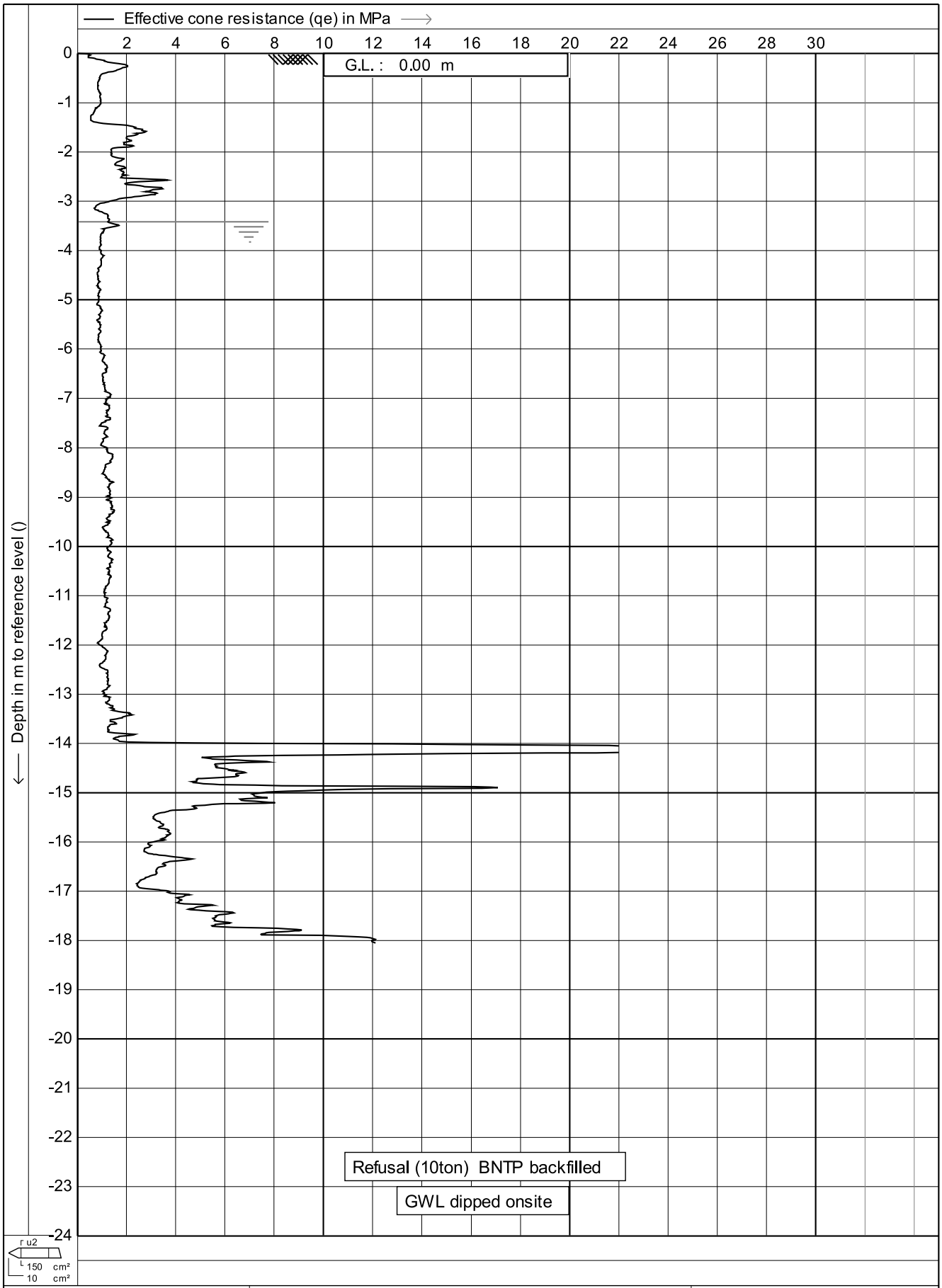

PERRY GEOTECH

Test according A.S.T.M Standard D 5778-12

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Location: **Fitzgerald Rd - Drury**

Position: **0, 0**

Date : **26/11/2020**

Cone no. : **C10CFIIP.C14426**

Project no. : **05AU7**

CPT no. : **040**

5/14

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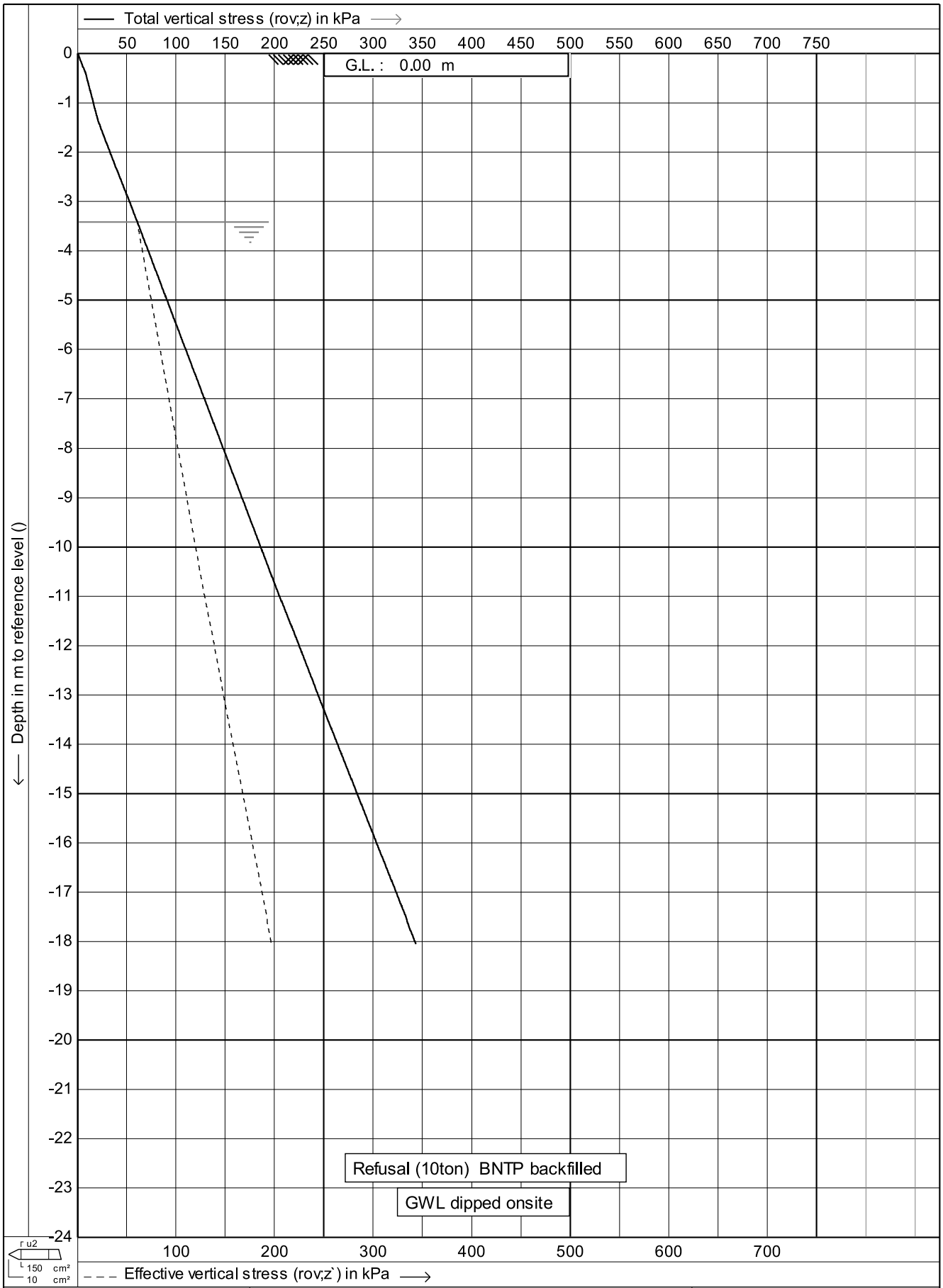

PERRY GEOTECH

Test according A.S.T.M Standard D 5778-12

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Location: **Fitzgerald Rd - Drury**

Position: **0, 0**

Date : **26/11/2020**

Cone no. : **C10CFIIP.C14426**

Project no. : **05AU7**

CPT no. : **040**

6/14

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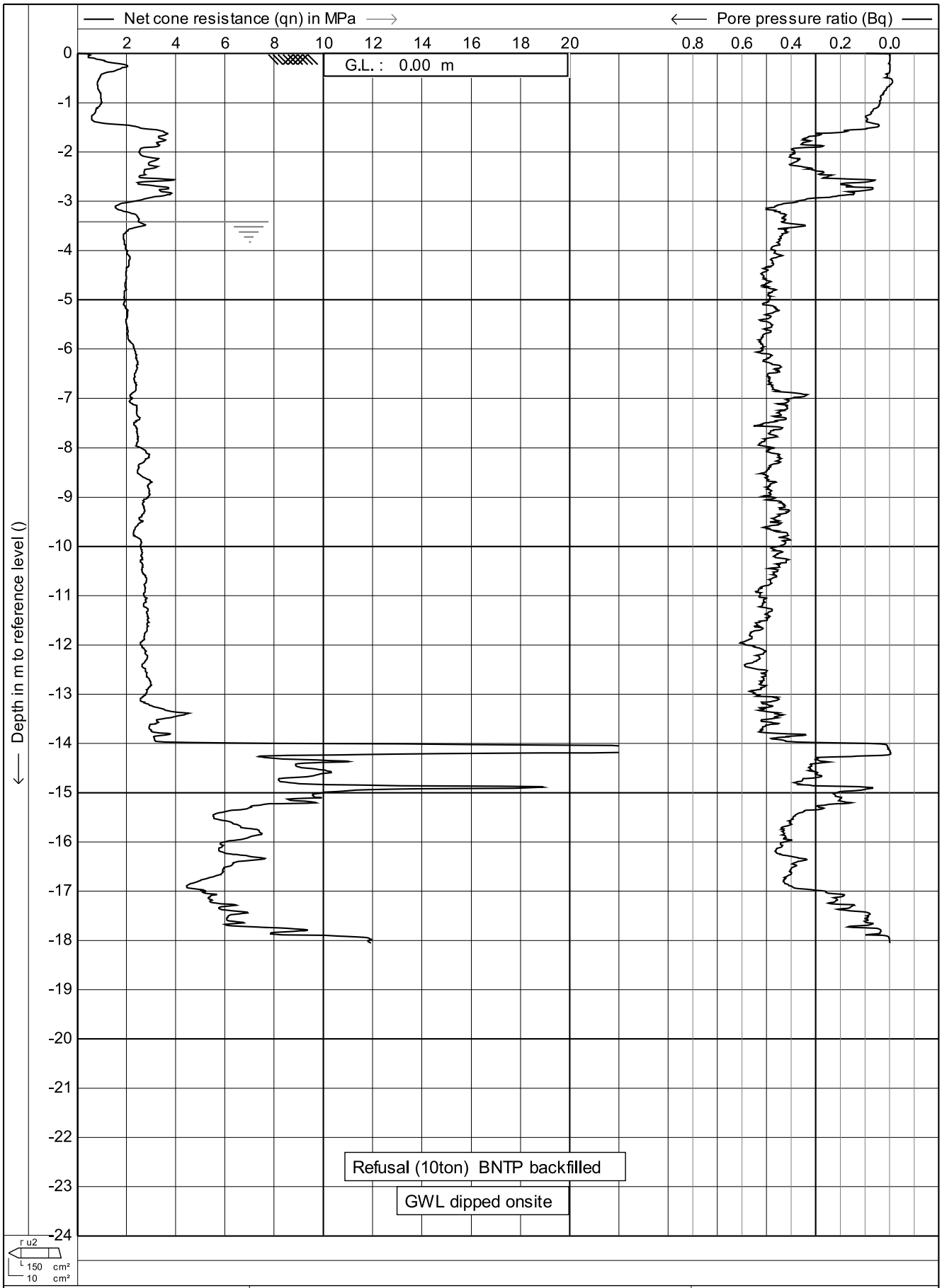

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7/14

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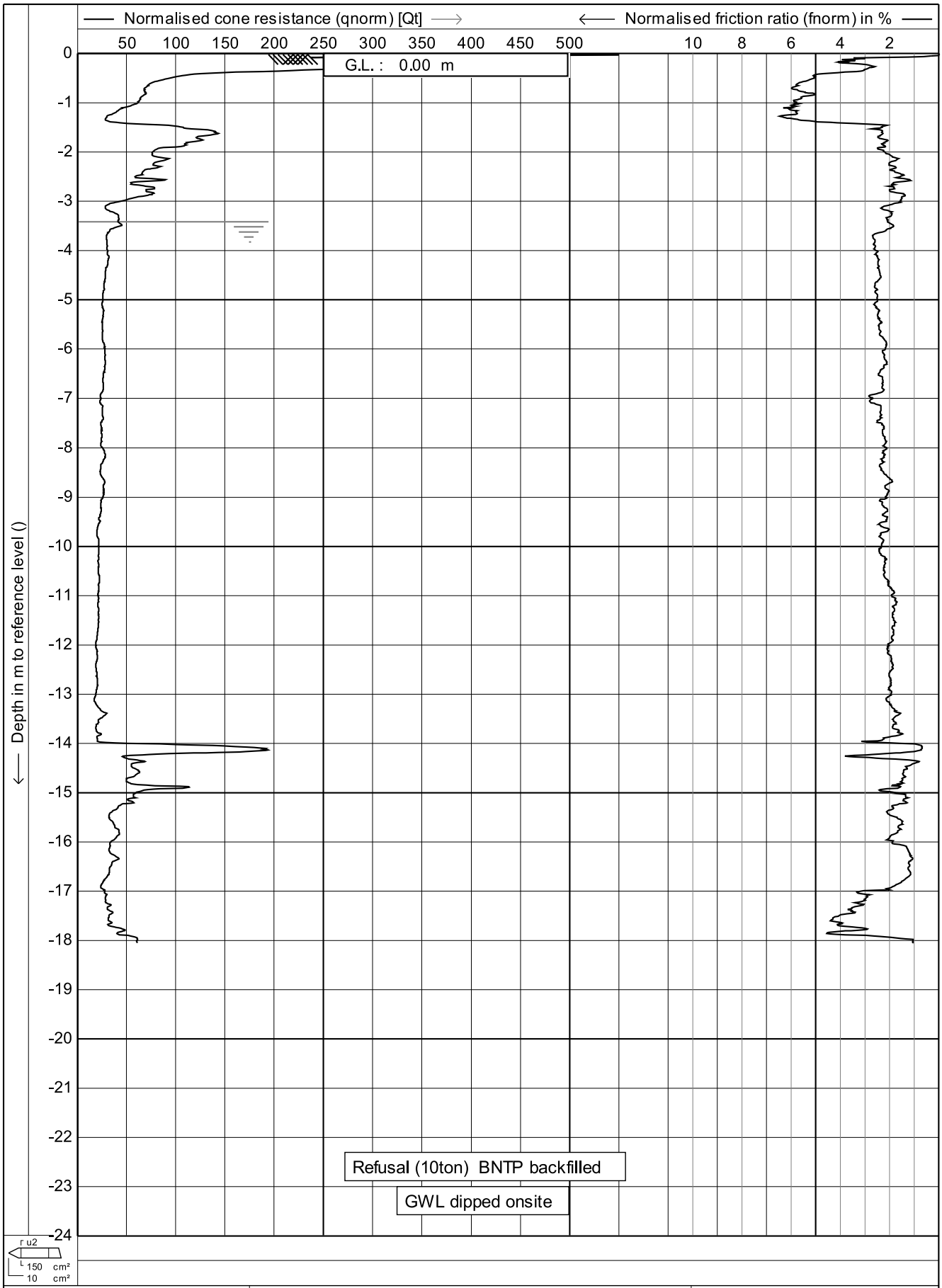

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8/14

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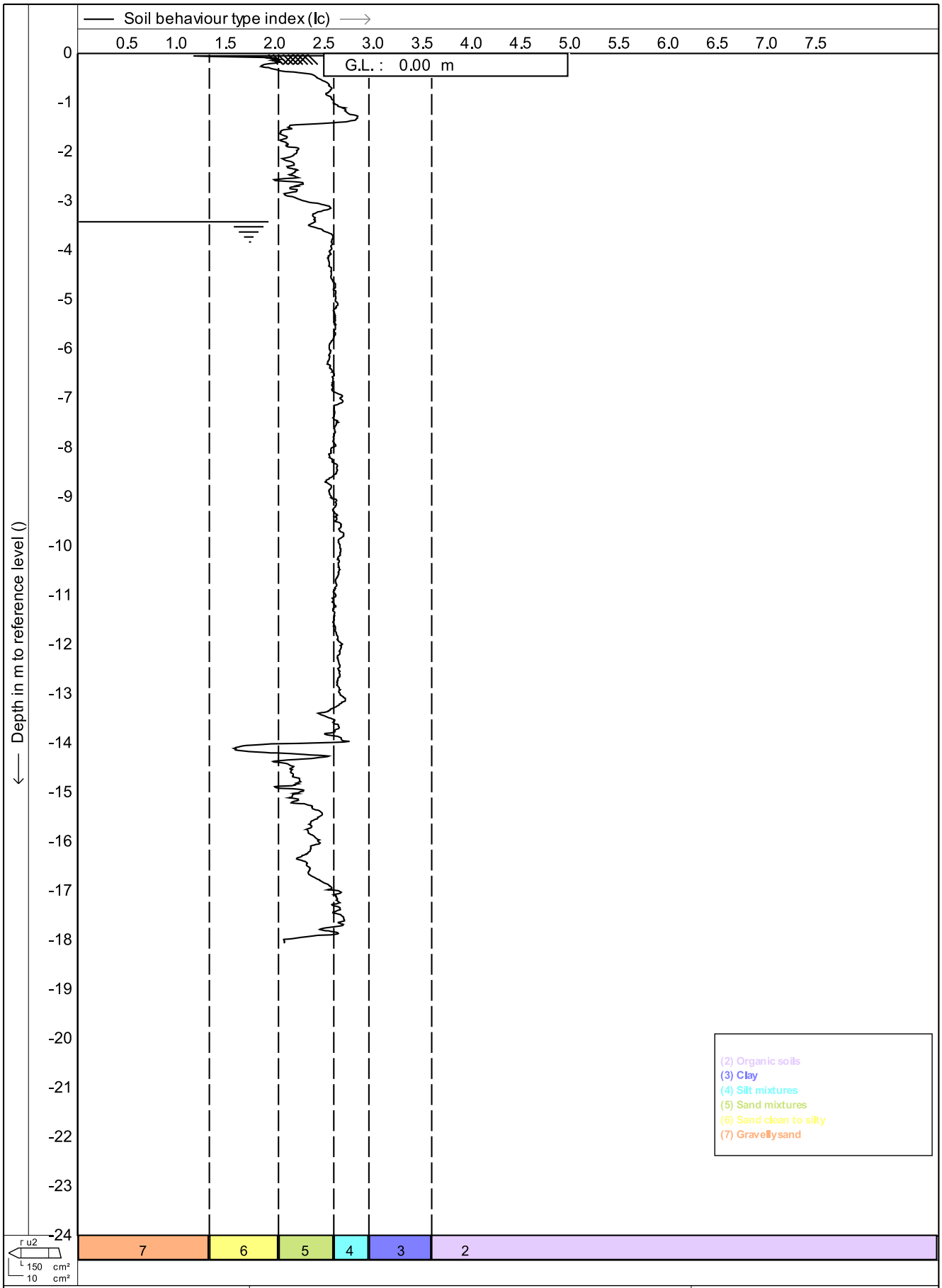

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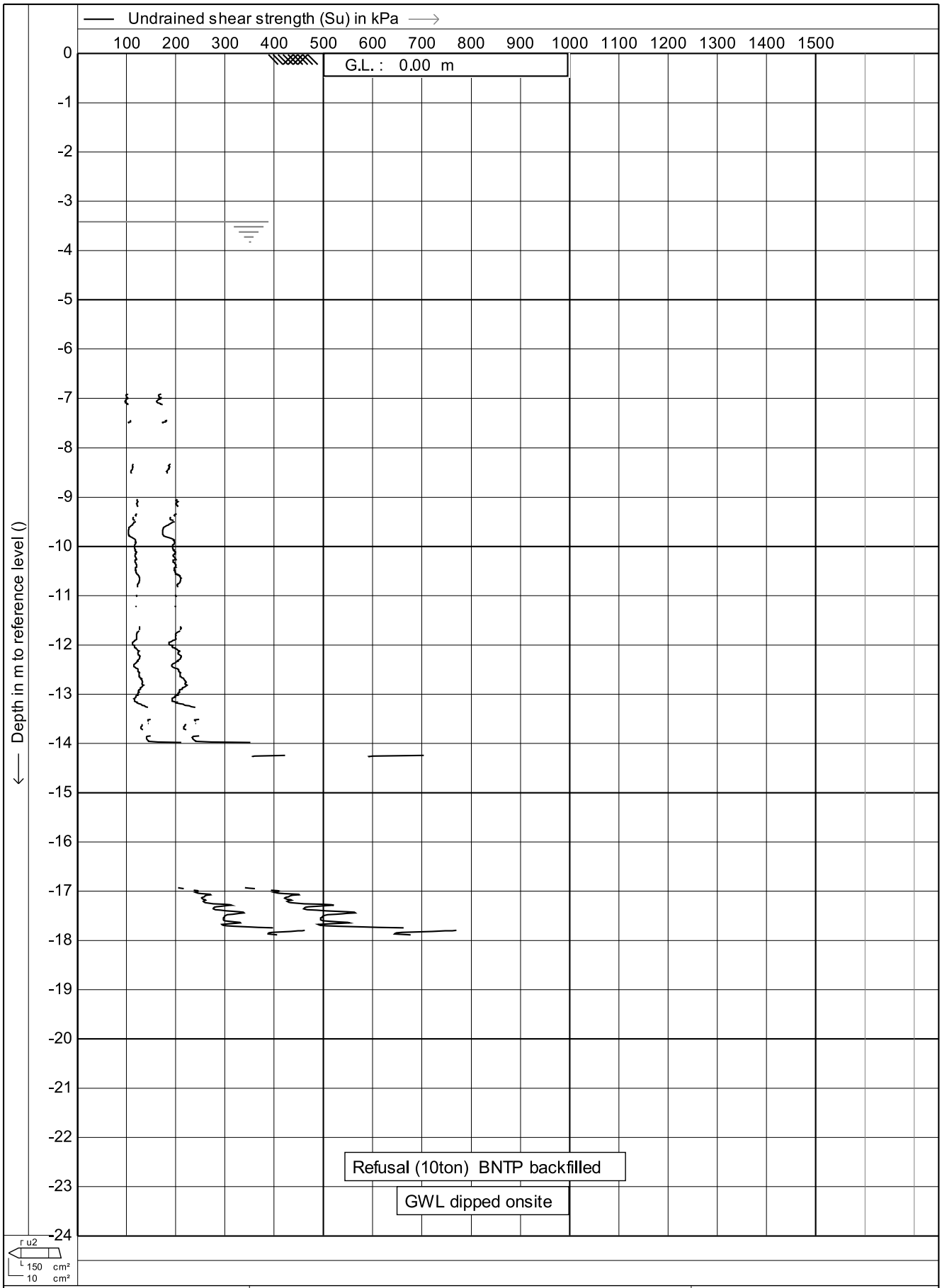
9/14

1.48



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Date : **26/11/2020**

Cone no. : **C10CFIIP.C14426**

Project no. : **05AU7**

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10/14

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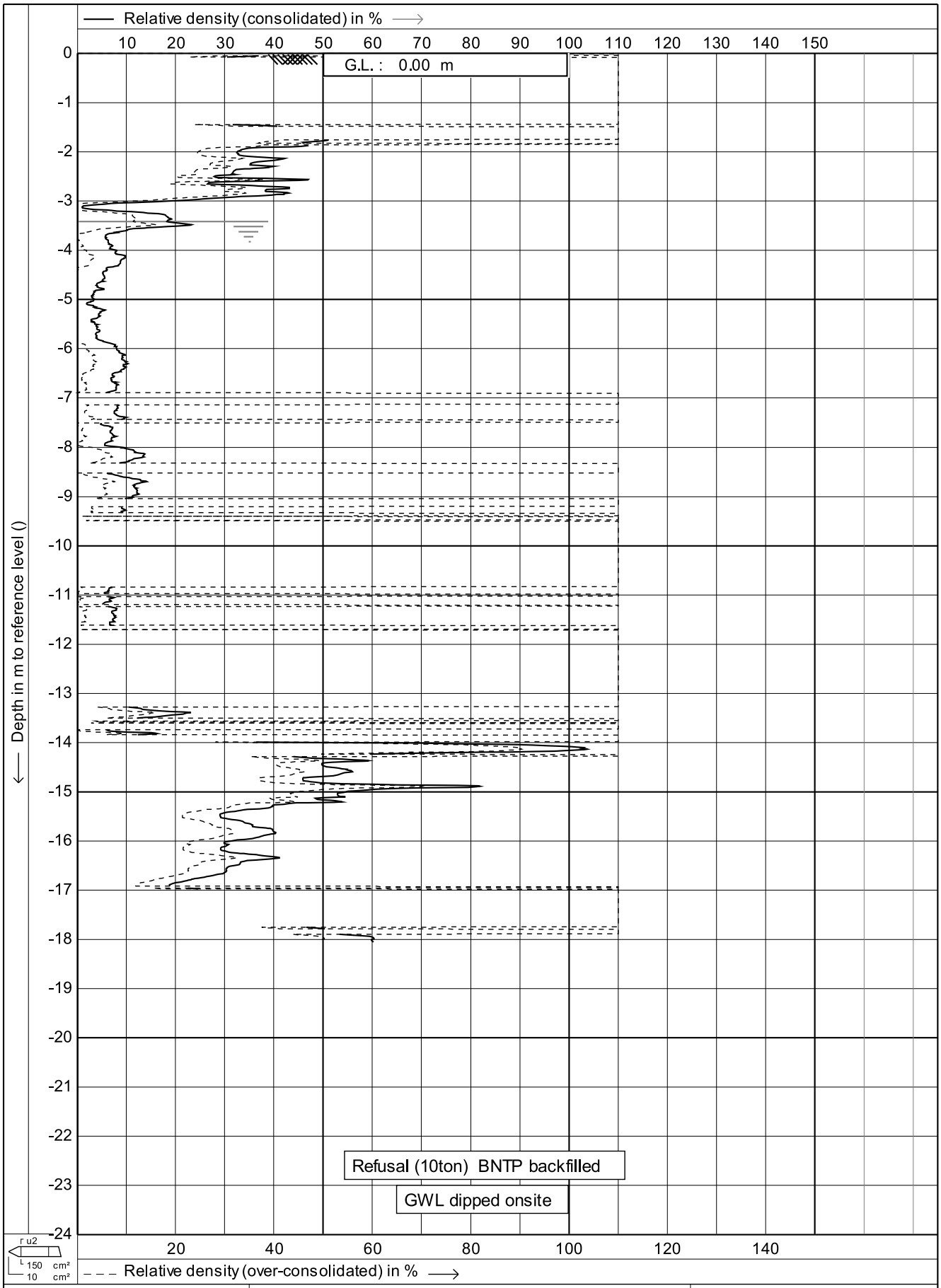

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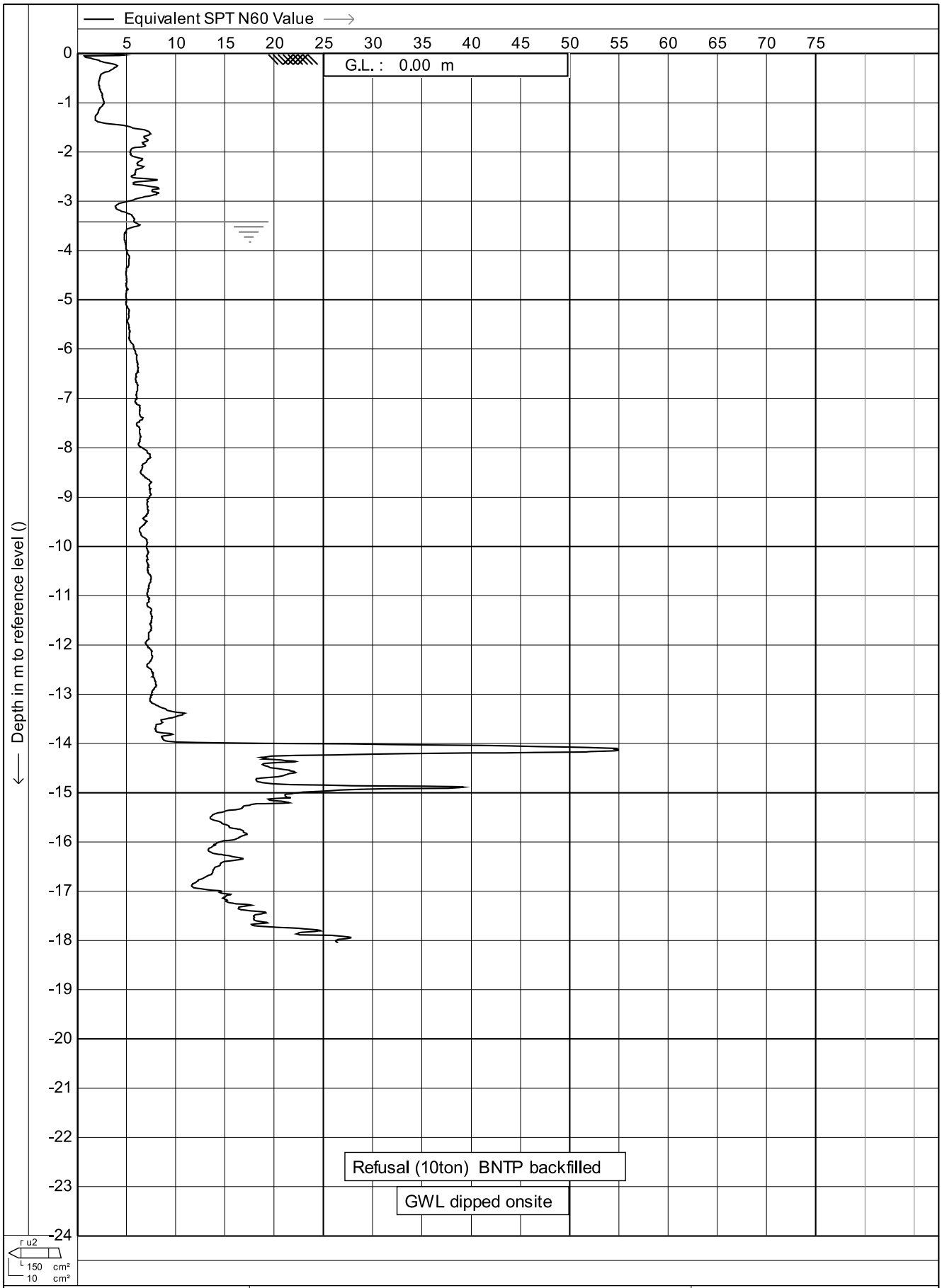
11/14

1.48



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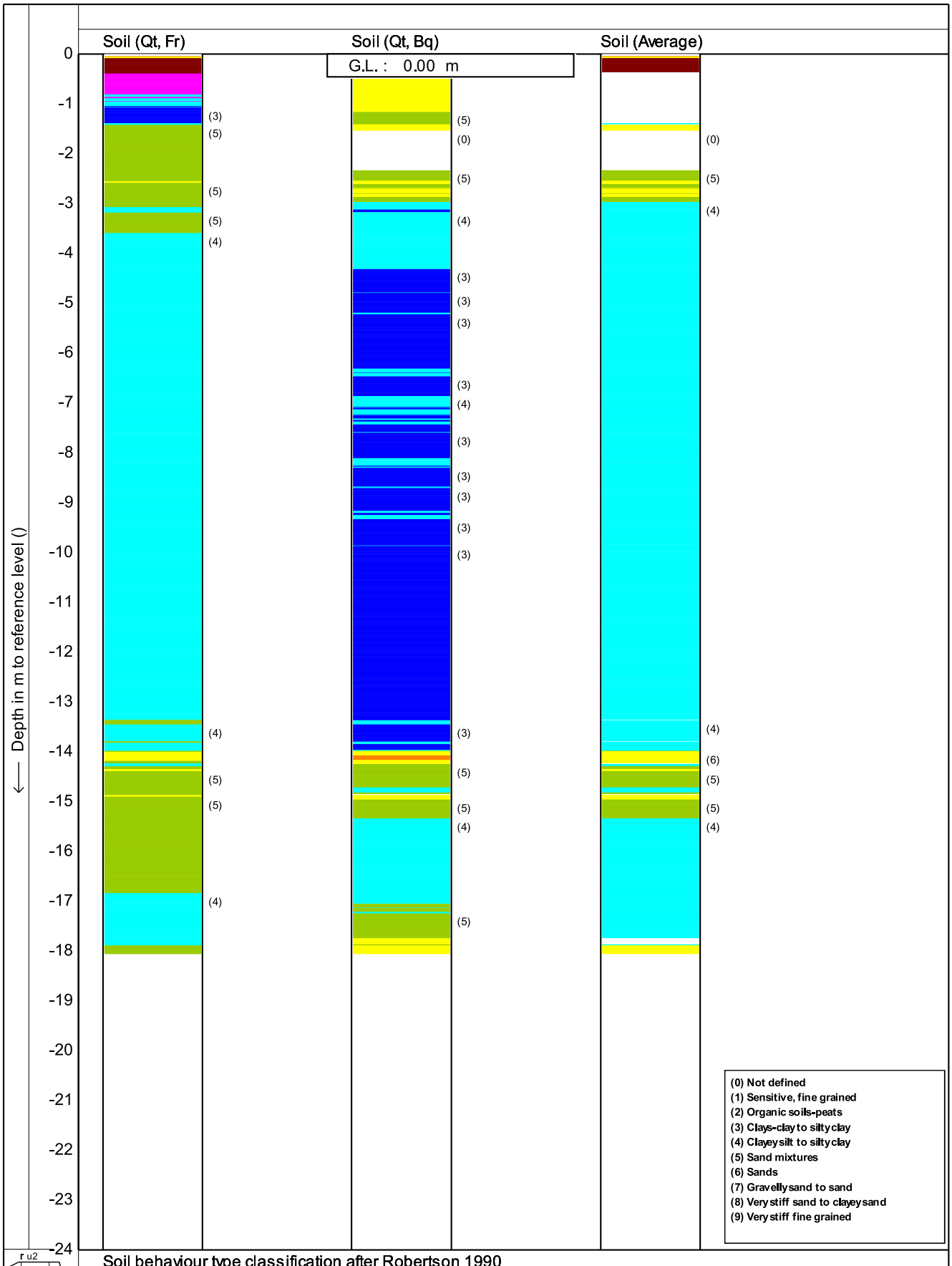
12/14

1.48



Soil behaviour type classification after Robertson 1990

r u2
150 cm²
10 cm²

PERRY GEOTECH

Test according A.S.T.M Standard D 5778-12

Project : **Site Investigations**

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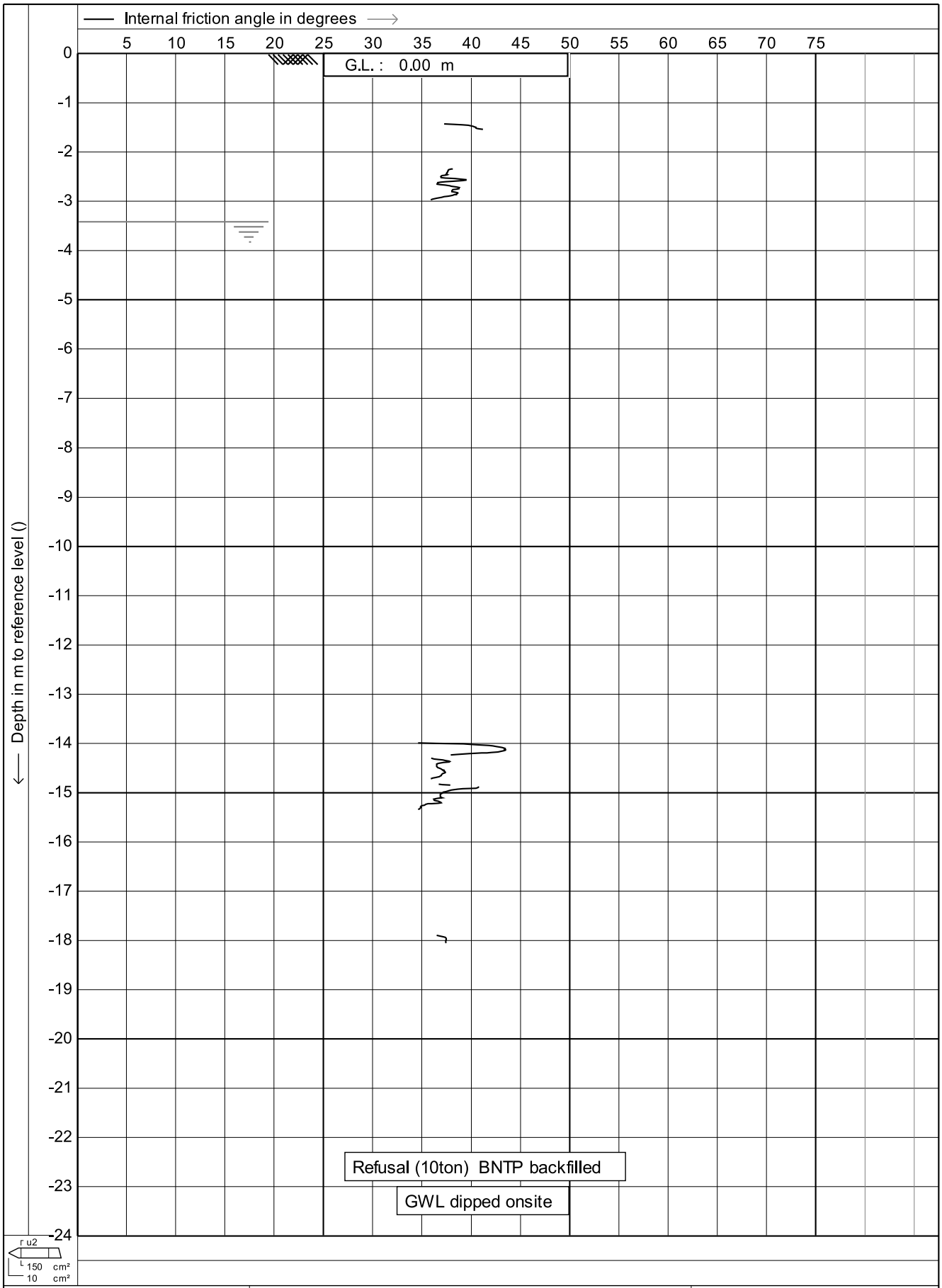
CPT no. : **040**

1.48



PERRY GEOTECH

Test according A.S.T.M Standard D 5778-12

Project : **Site Investigations**

Location: **Fitzgerald Rd - Drury**

Position: **0, 0**

Date : **26/11/2020**

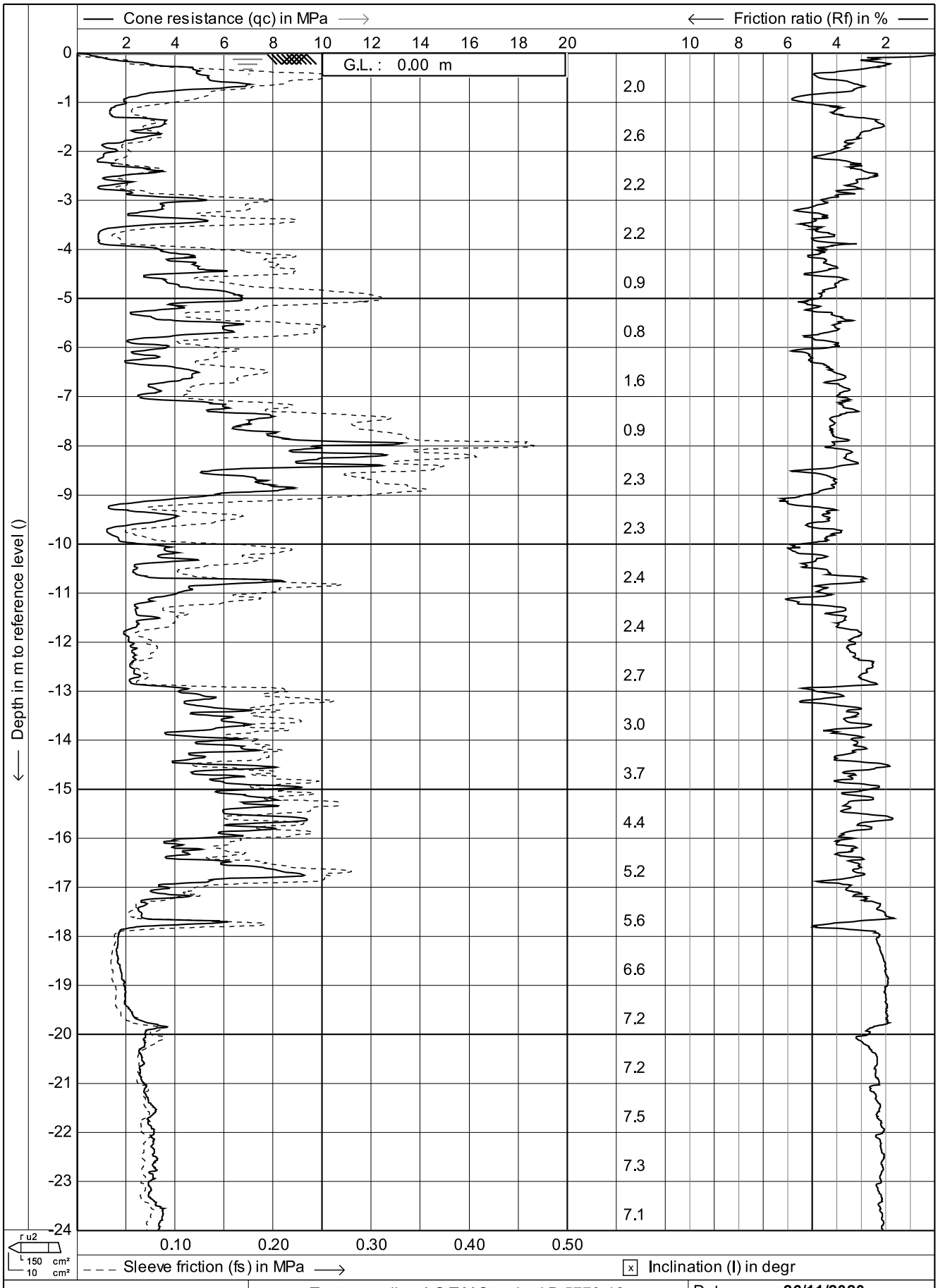
Cone no. : **C10CFIIP.C14426**

Project no. : **05AU7**

CPT no. : **040**

14/14

1.48



PERRY GEOTECH

Test according A.S.T.M Standard D 5778-12

Project : **Site Investigations**

Location: **Fitzgerald Rd - Drury**

Position: **0, 0**

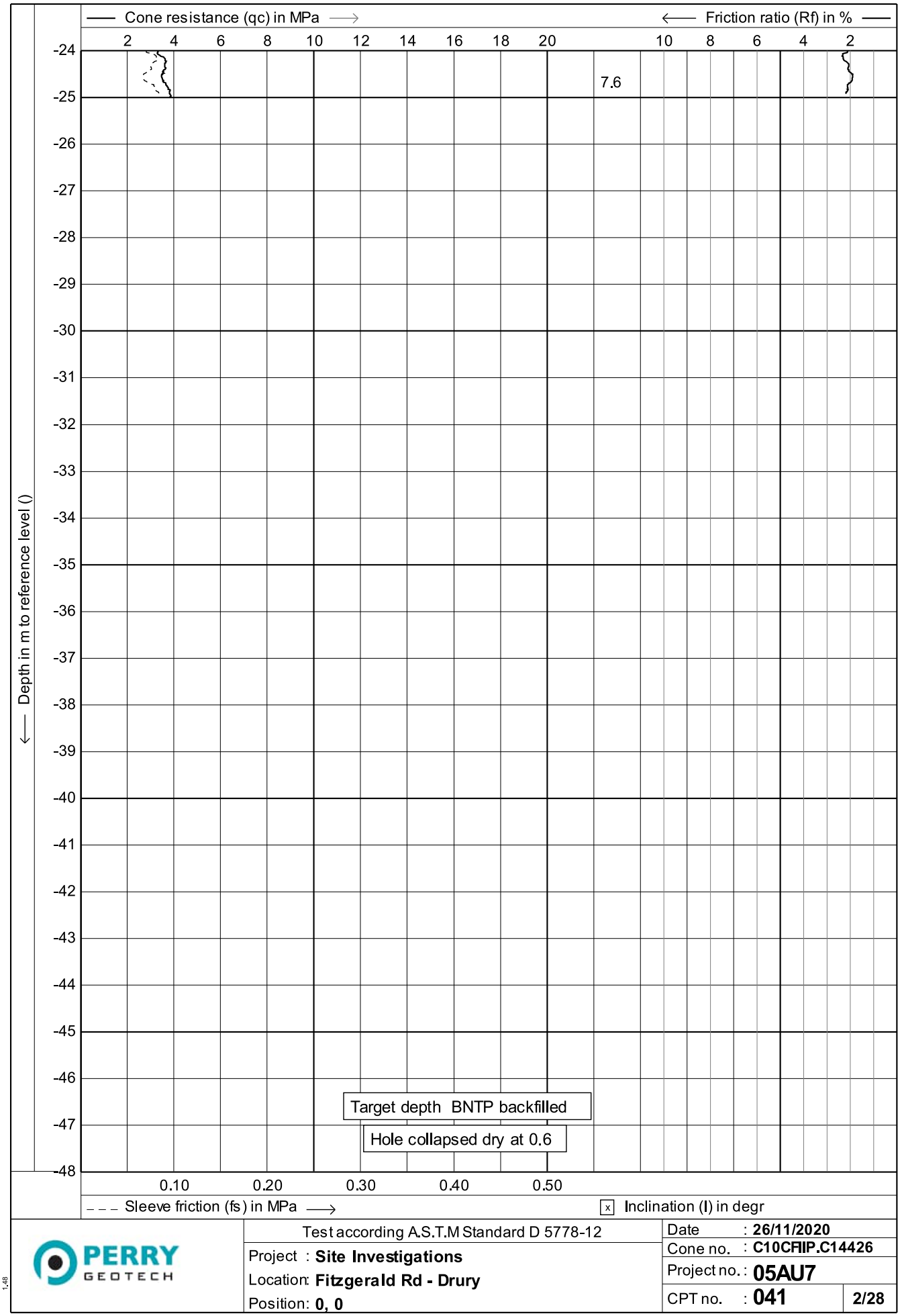
Date : **26/11/2020**

Cone no. : **C10CFIIP.C14426**

Project no. : **05AU7**

CPT no. : **041**

1.48



PERRY GEOTECH

Test according A.S.T.M Standard D 5778-12

Project : **Site Investigations**

Location: **Fitzgerald Rd - Drury**

Position: **0, 0**

Date : **26/11/2020**

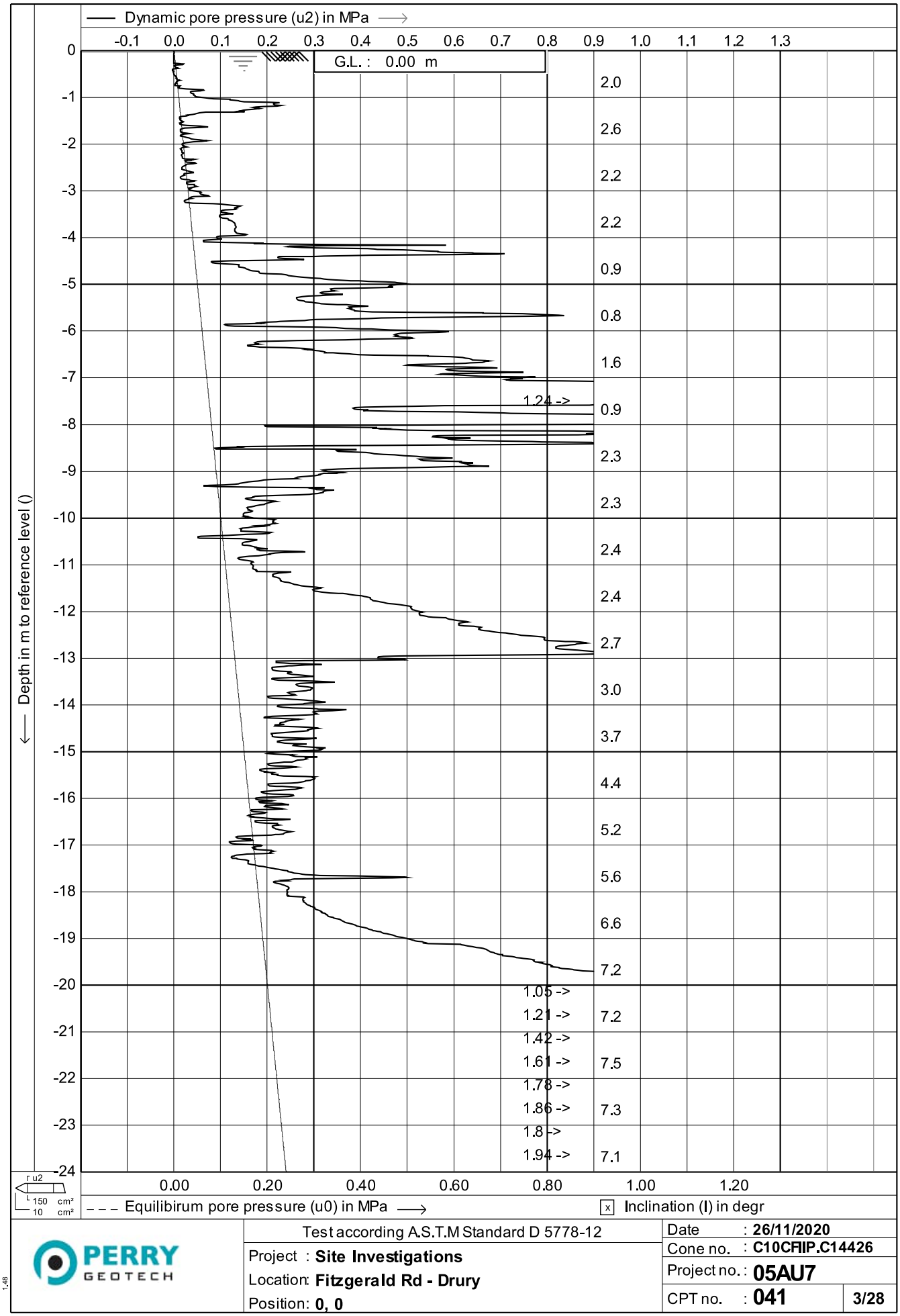
Cone no. : **C10CFIIP.C14426**

Project no. : **05AU7**

CPT no. : **041**

2/28

1.48



PERRY GEOTECH

Test according A.S.T.M Standard D 5778-12

Project : **Site Investigations**

Location: **Fitzgerald Rd - Drury**

Position: **0, 0**

Date : **26/11/2020**

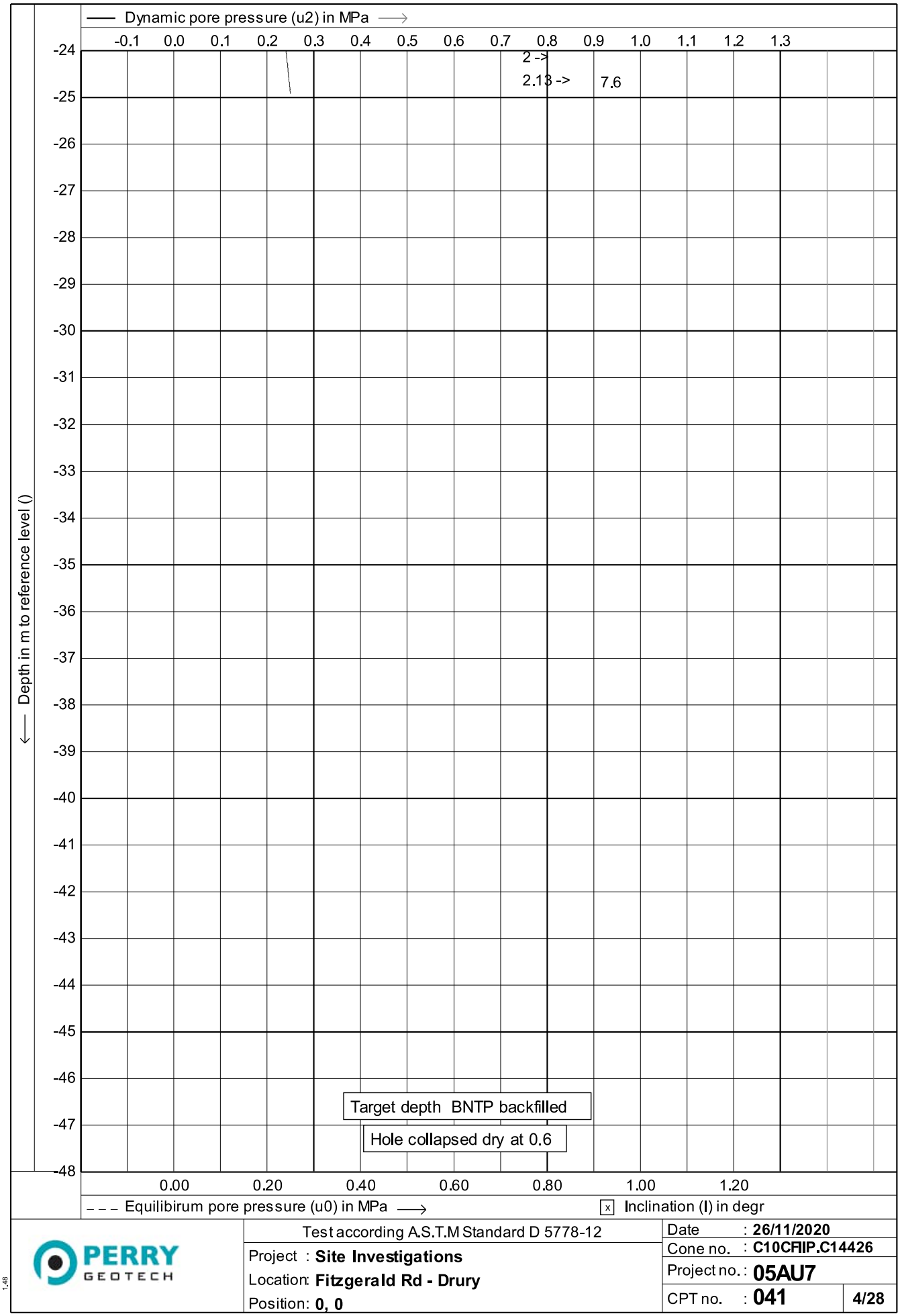
Cone no. : **C10CFIIP.C14426**

Project no. : **05AU7**

CPT no. : **041**

3/28

1.48



PERRY GEOTECH

Test according A.S.T.M Standard D 5778-12

Project : **Site Investigations**

Location: **Fitzgerald Rd - Drury**

Position: **0, 0**

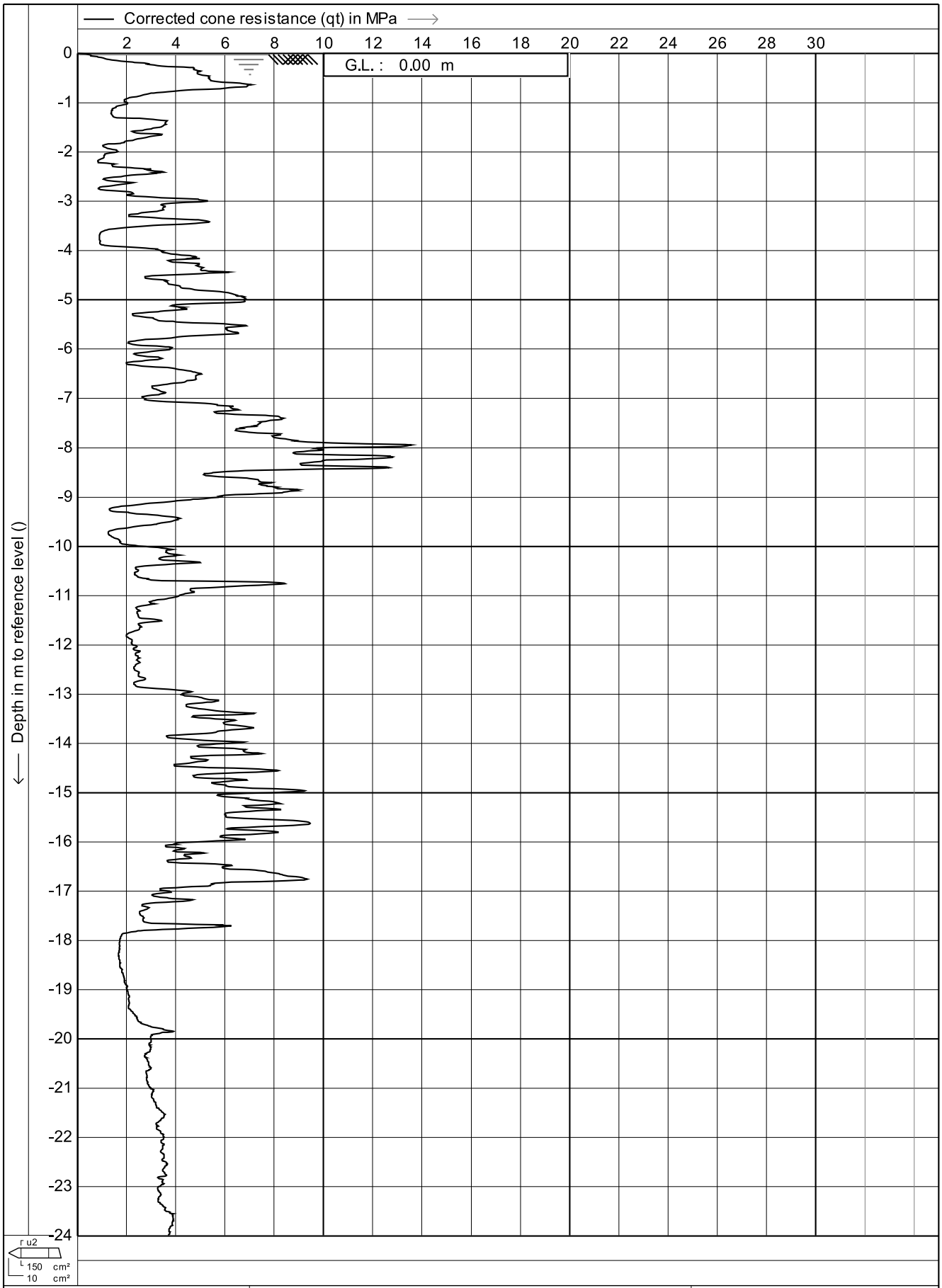
Date : **26/11/2020**

Cone no. : **C10CFIIP.C14426**

Project no. : **05AU7**

CPT no. : **041**

1.48



PERRY GEOTECH

Test according A.S.T.M Standard D 5778-12

Project : **Site Investigations**

Location: **Fitzgerald Rd - Drury**

Position: **0, 0**

Date : **26/11/2020**

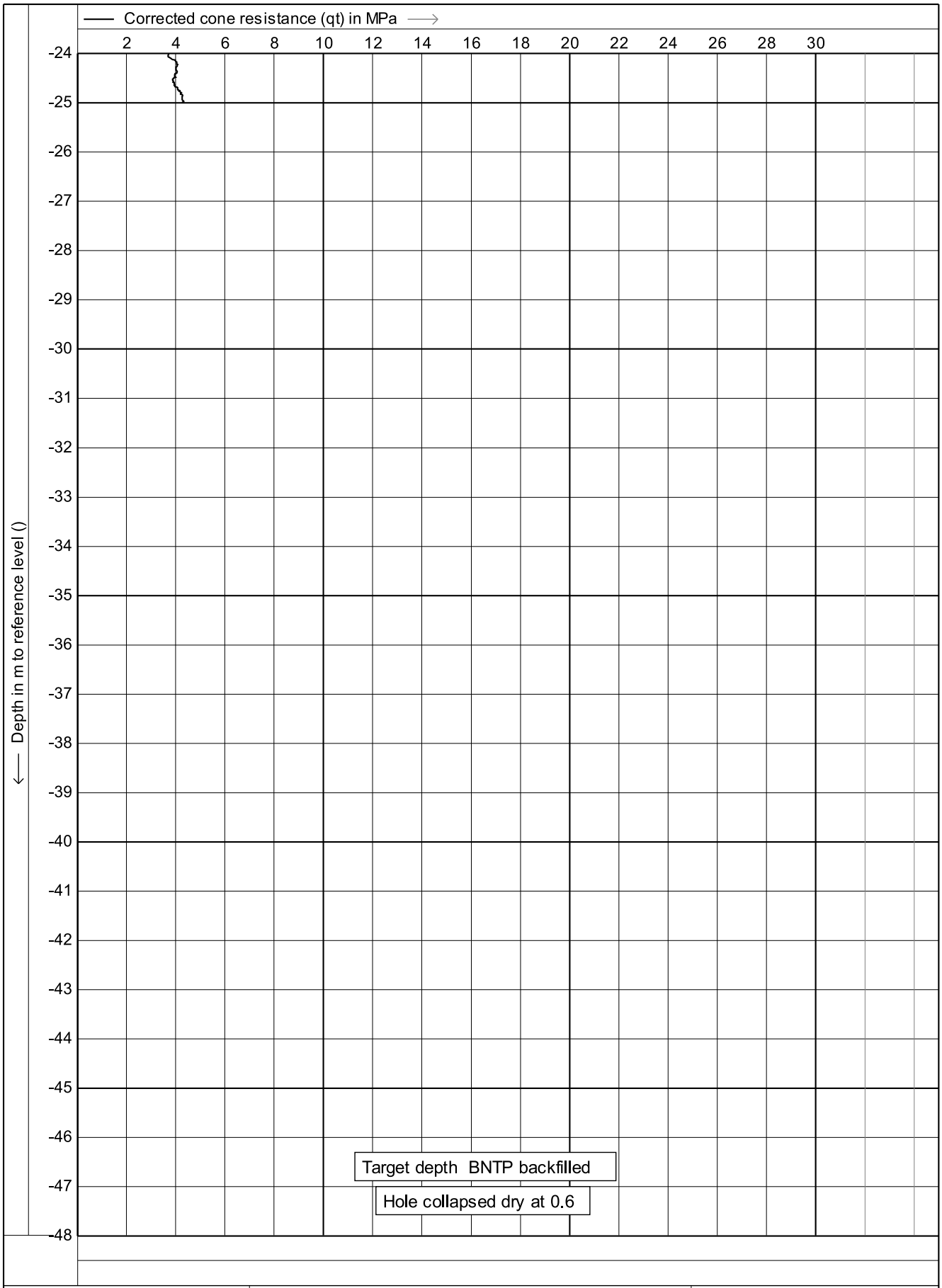
Cone no. : **C10CFIIP.C14426**

Project no. : **05AU7**

CPT no. : **041**

5/28

1.48



PERRY GEOTECH

Test according A.S.T.M Standard D 5778-12

Project : **Site Investigations**

Location: **Fitzgerald Rd - Drury**

Position: **0, 0**

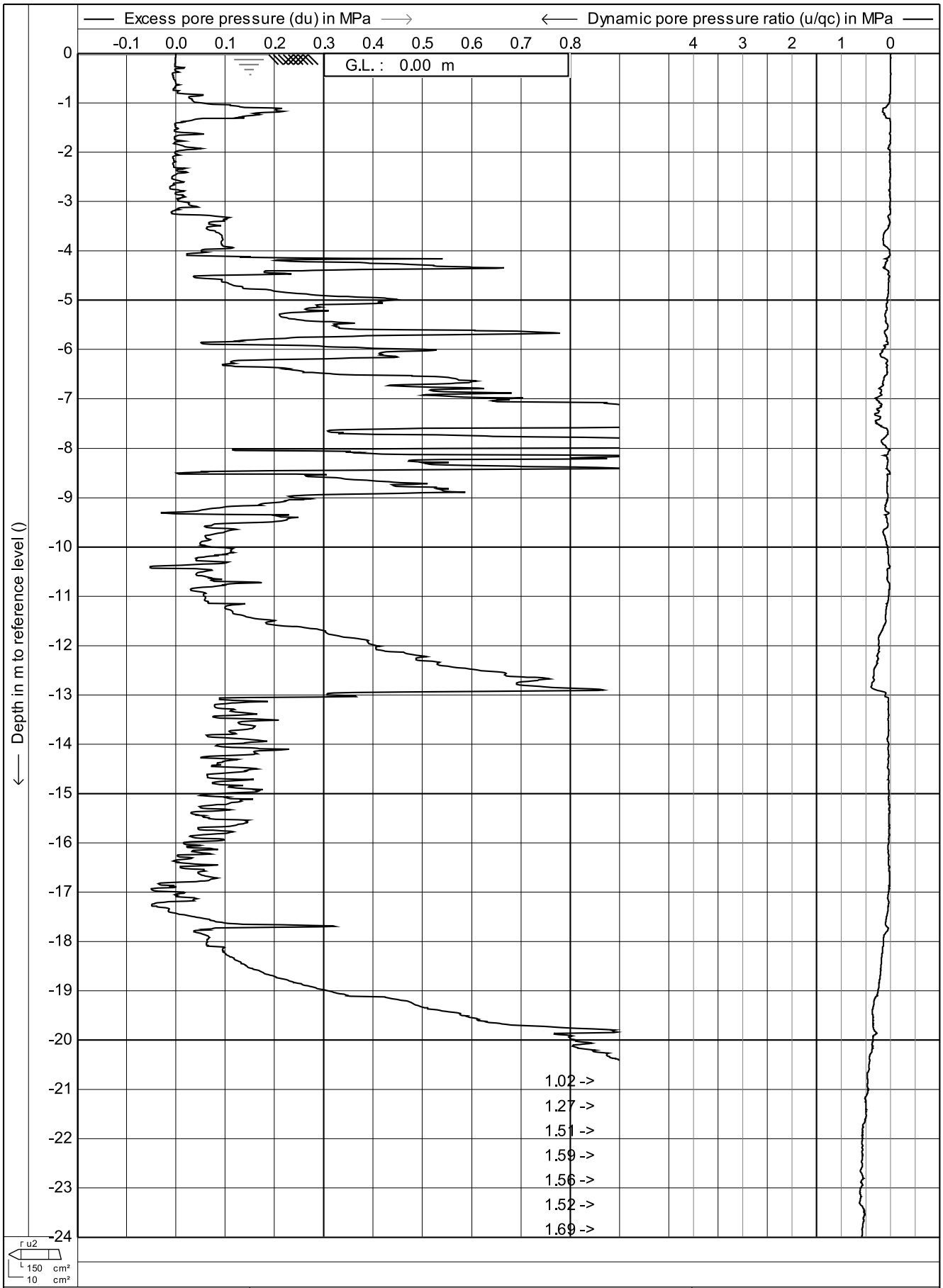
Date : **26/11/2020**

Cone no. : **C10CFIIP.C14426**

Project no. : **05AU7**

CPT no. : **041** **6/28**

1.48



PERRY GEOTECH

Test according A.S.T.M Standard D 5778-12

Project : **Site Investigations**

Location: **Fitzgerald Rd - Drury**

Position: **0, 0**

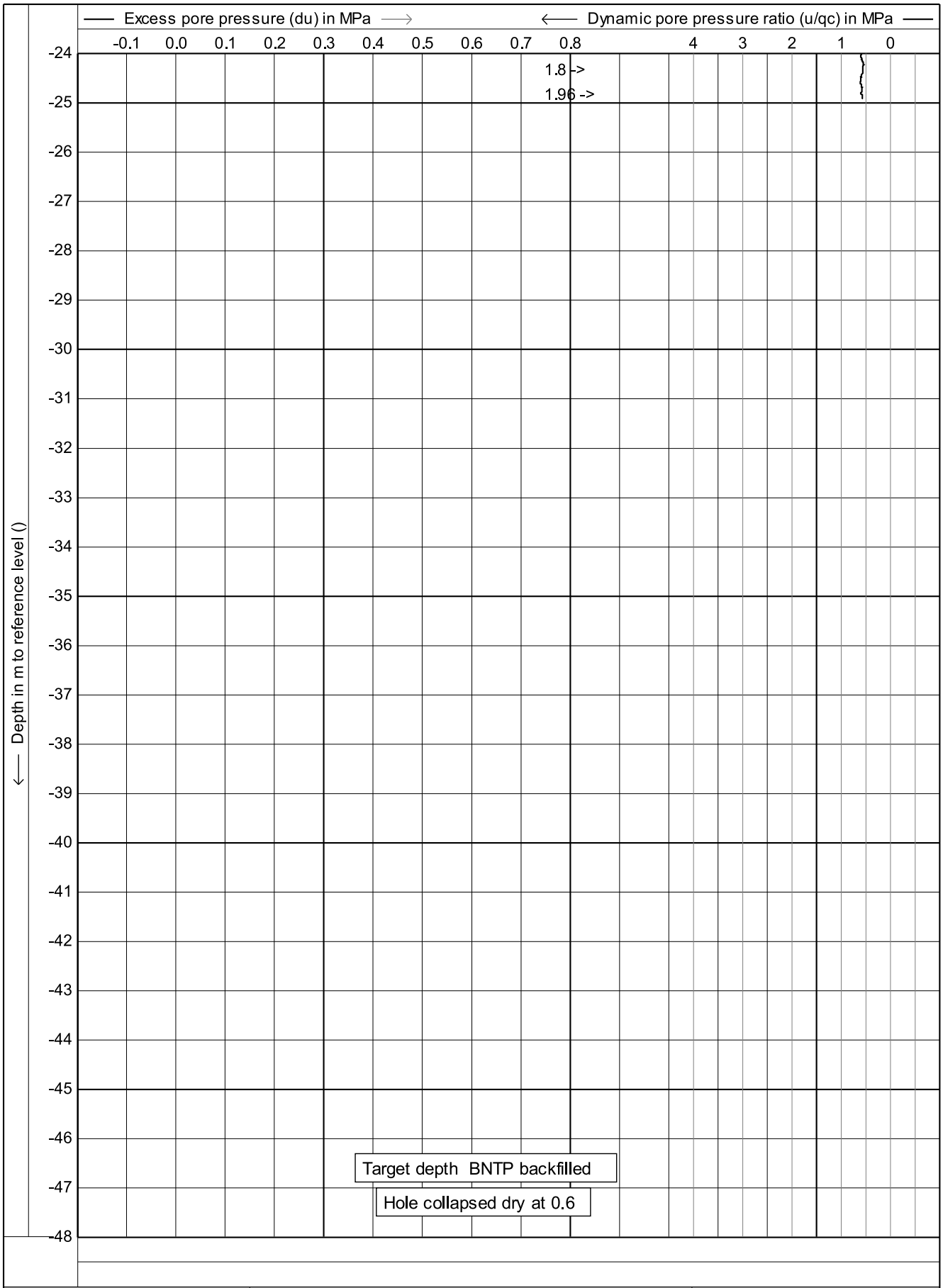
Date : **26/11/2020**

Cone no. : **C10CFIIP.C14426**

Project no. : **05AU7**

CPT no. : **041**

1.48



PERRY GEOTECH

Test according A.S.T.M Standard D 5778-12

Project : **Site Investigations**

Location: **Fitzgerald Rd - Drury**

Position: **0, 0**

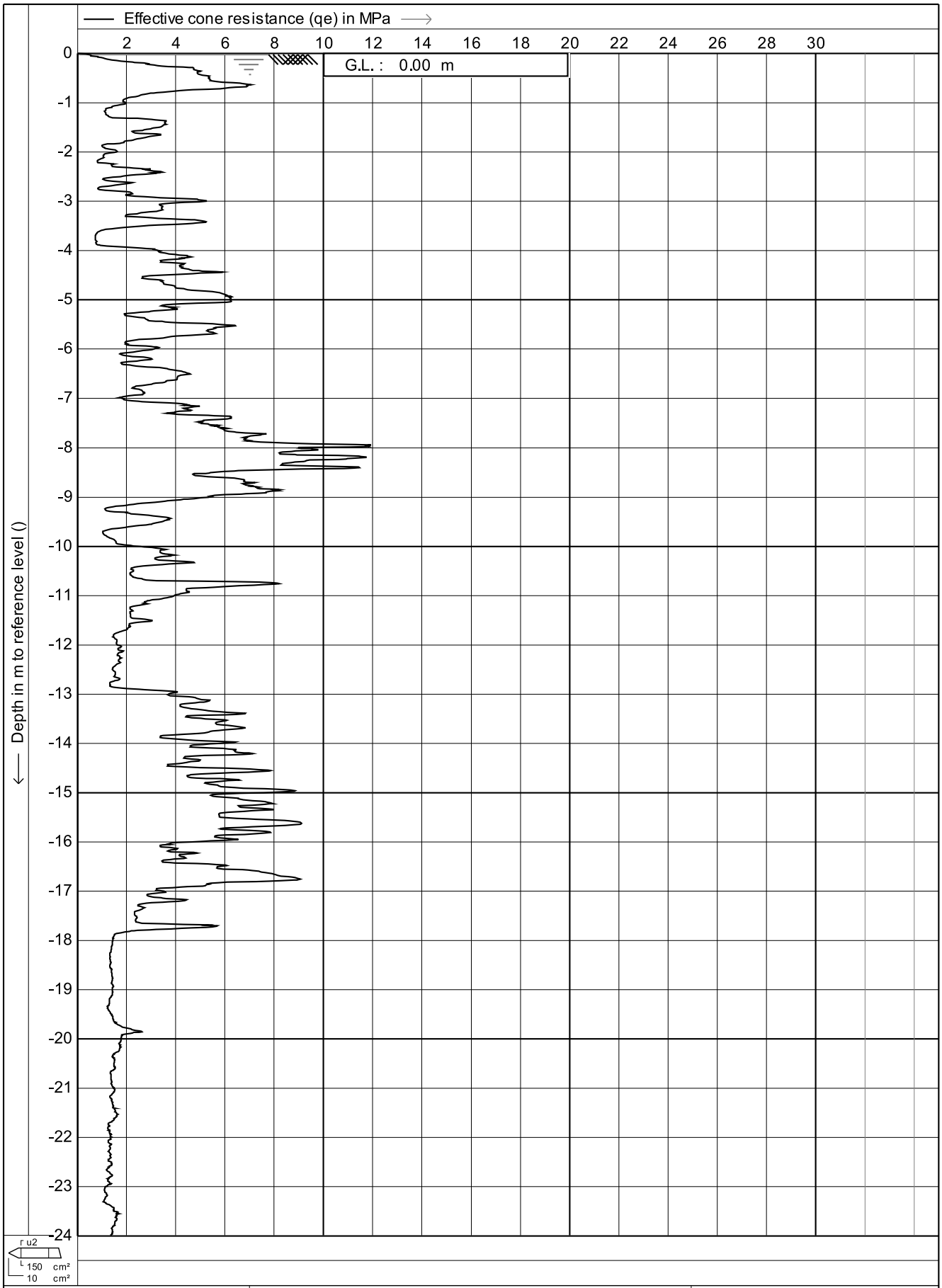
Date : **26/11/2020**

Cone no. : **C10CFIIP.C14426**

Project no. : **05AU7**

CPT no. : **041** **8/28**

1.48



PERRY GEOTECH

Test according A.S.T.M Standard D 5778-12

Project : **Site Investigations**

Location: **Fitzgerald Rd - Drury**

Position: **0, 0**

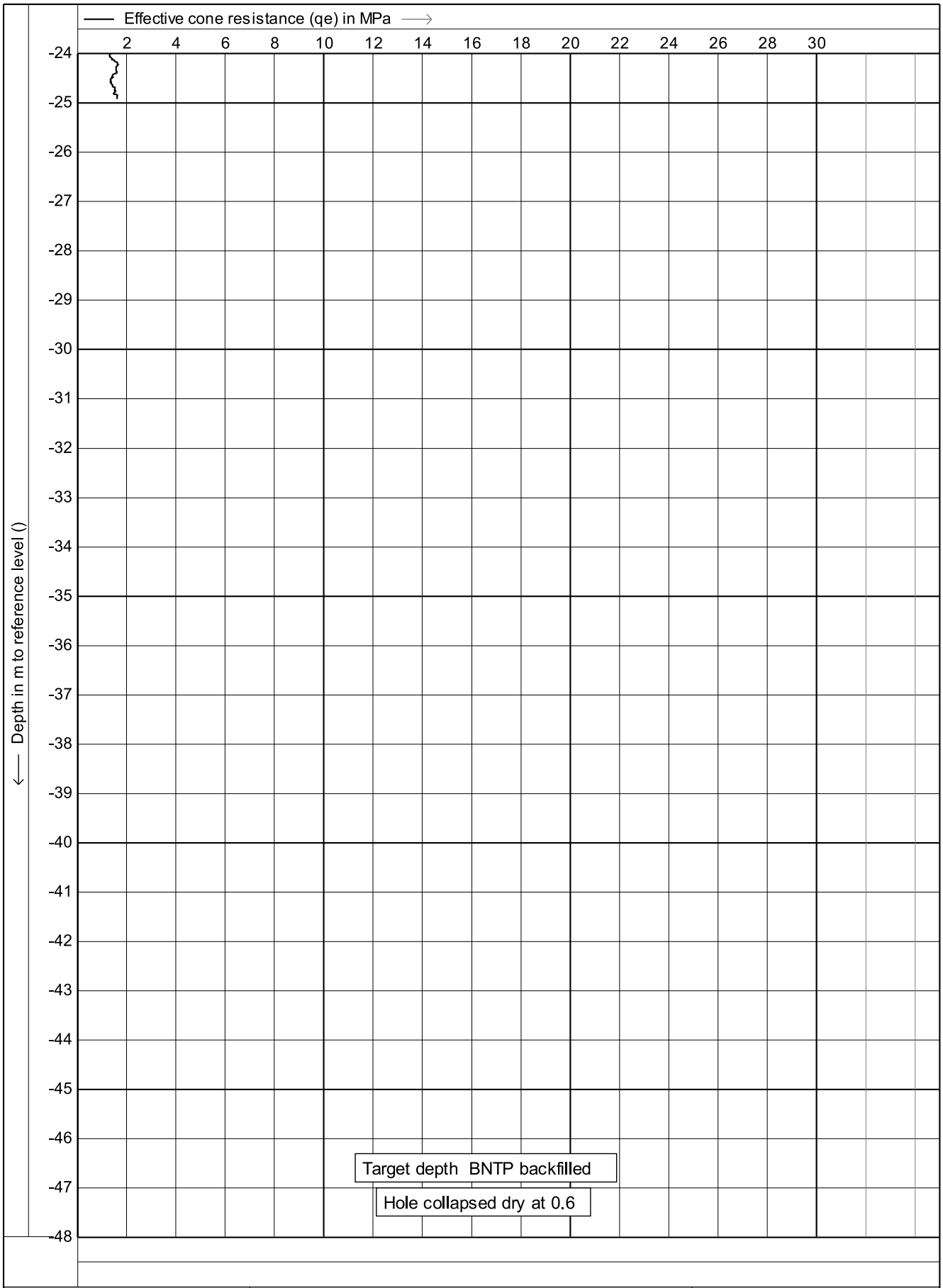
Date : **26/11/2020**

Cone no. : **C10CFIIP.C14426**

Project no. : **05AU7**

CPT no. : **041** **9/28**

1.48



PERRY GEOTECH

Test according A.S.T.M Standard D 5778-12

Project : **Site Investigations**

Location: **Fitzgerald Rd - Drury**

Position: **0, 0**

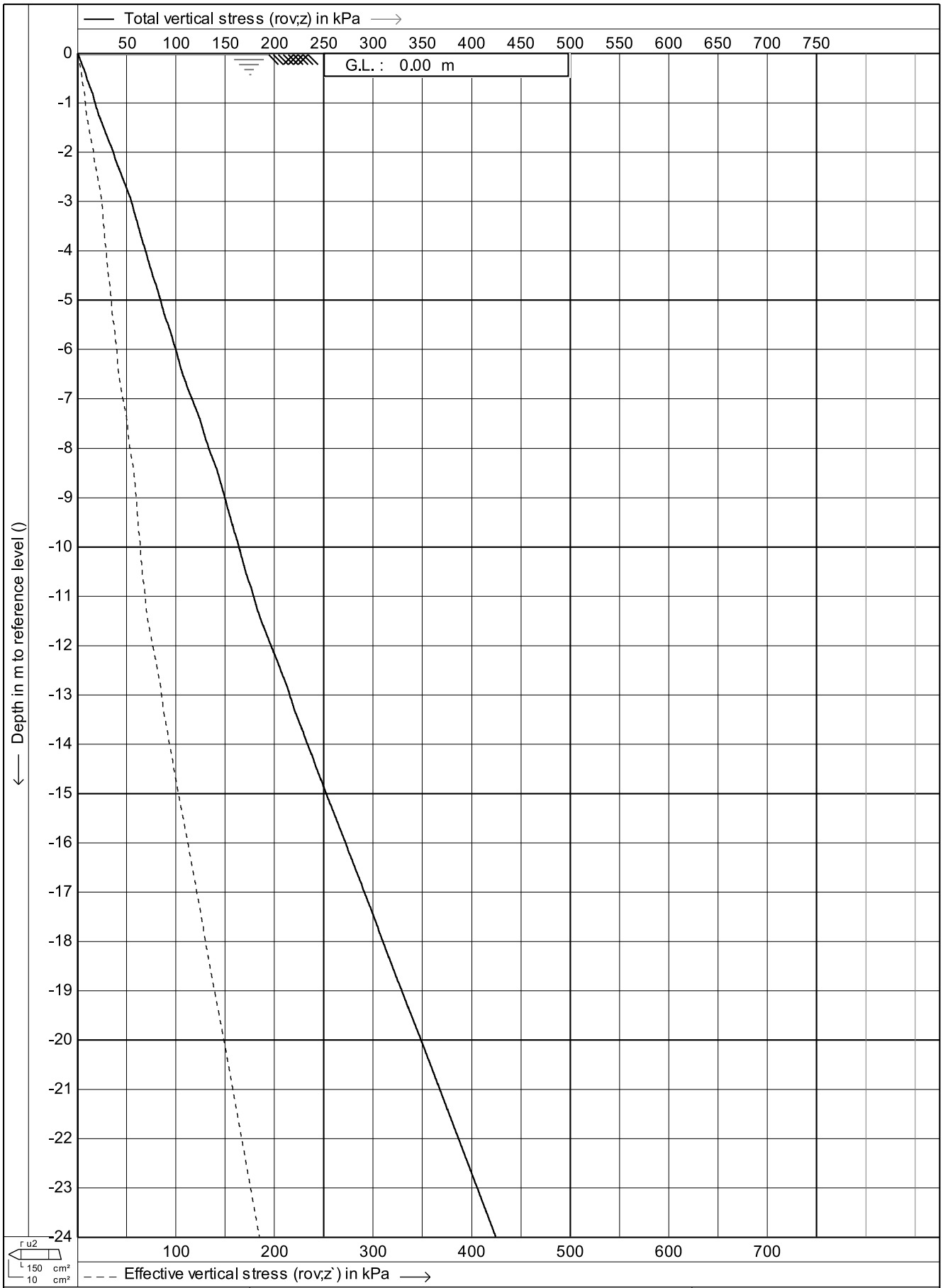
Date : **26/11/2020**

Cone no. : **C10CFIIP.C14426**

Project no. : **05AU7**

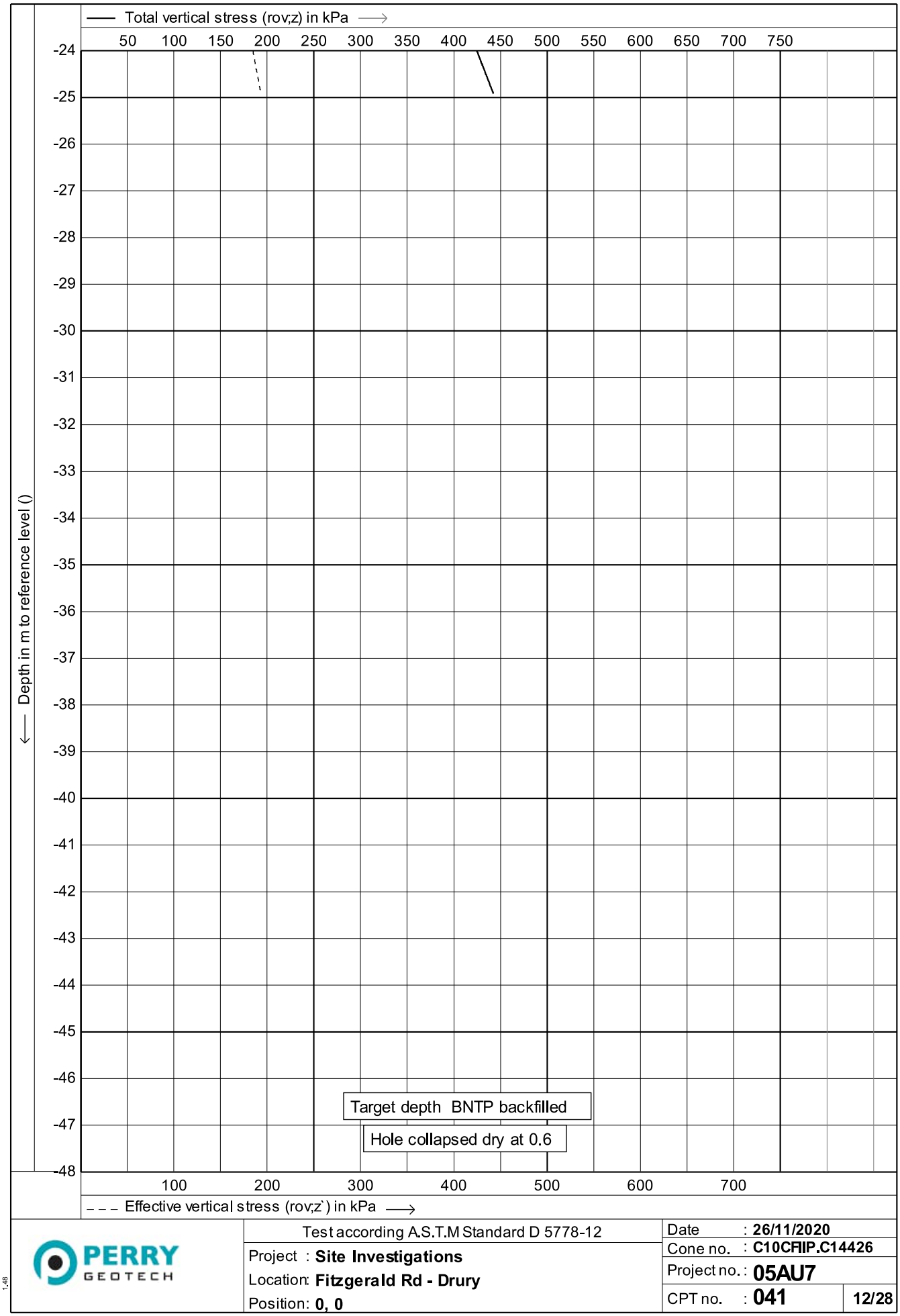
CPT no. : **041** **10/28**

1.48



PERRY GEOTECH	Test according A.S.T.M Standard D 5778-12	Date : **26/11/2020**	
	Project : **Site Investigations**	Cone no. : **C10CFIIP.C14426**	
	Location: **Fitzgerald Rd - Drury**	Project no. : **05AU7**	
	Position: **0, 0**	CPT no. : **041**	**11/28**

1.48



PERRY GEOTECH

Test according A.S.T.M Standard D 5778-12

Project : **Site Investigations**

Location: **Fitzgerald Rd - Drury**

Position: **0, 0**

Date : **26/11/2020**

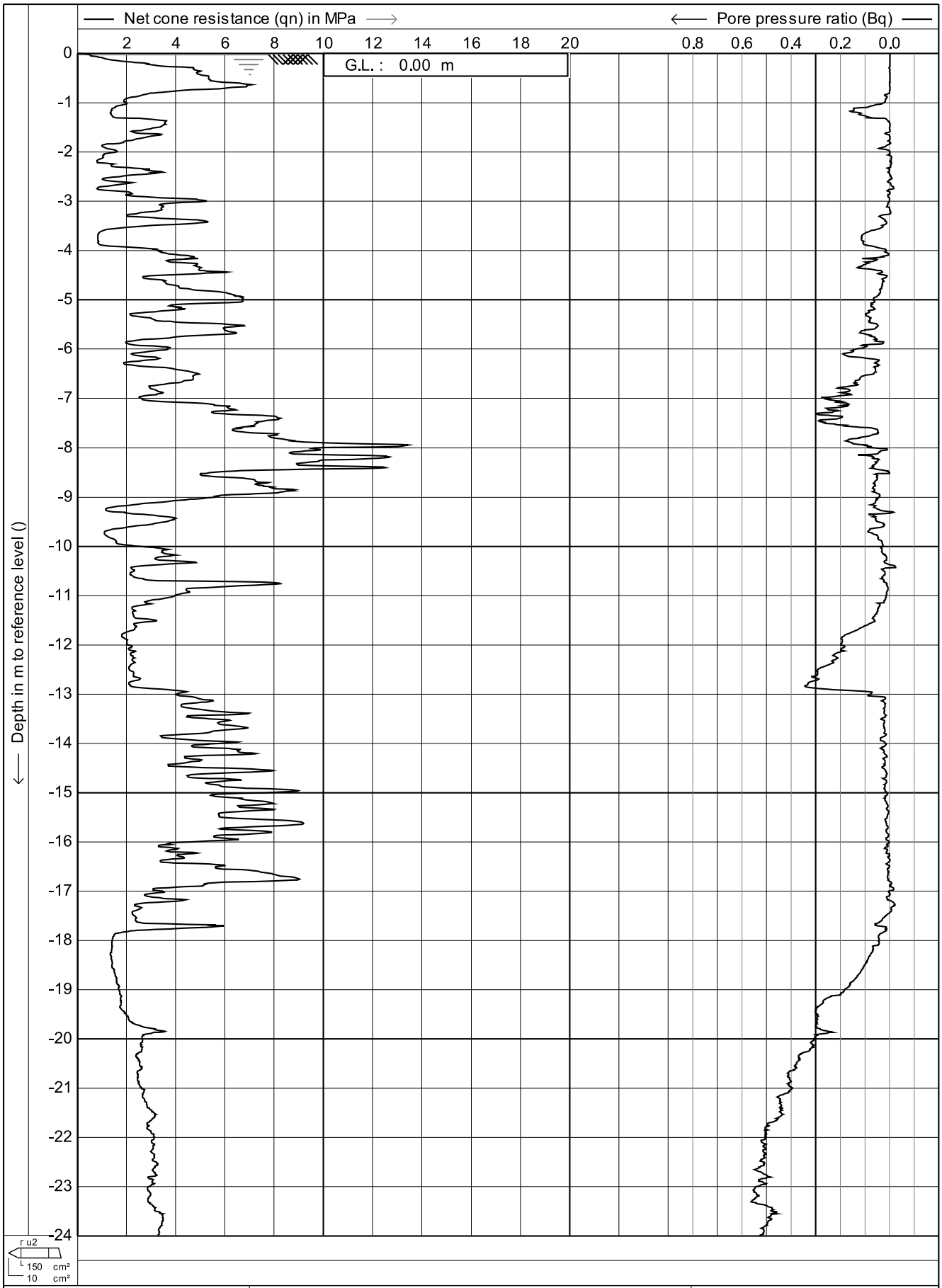
Cone no. : **C10CFIIP.C14426**

Project no. : **05AU7**

CPT no. : **041**

12/28

1.48



PERRY GEOTECH

Test according A.S.T.M Standard D 5778-12

Project : **Site Investigations**

Location: **Fitzgerald Rd - Drury**

Position: **0, 0**

Date : **26/11/2020**

Cone no. : **C10CFIIP.C14426**

Project no. : **05AU7**

CPT no. : **041**

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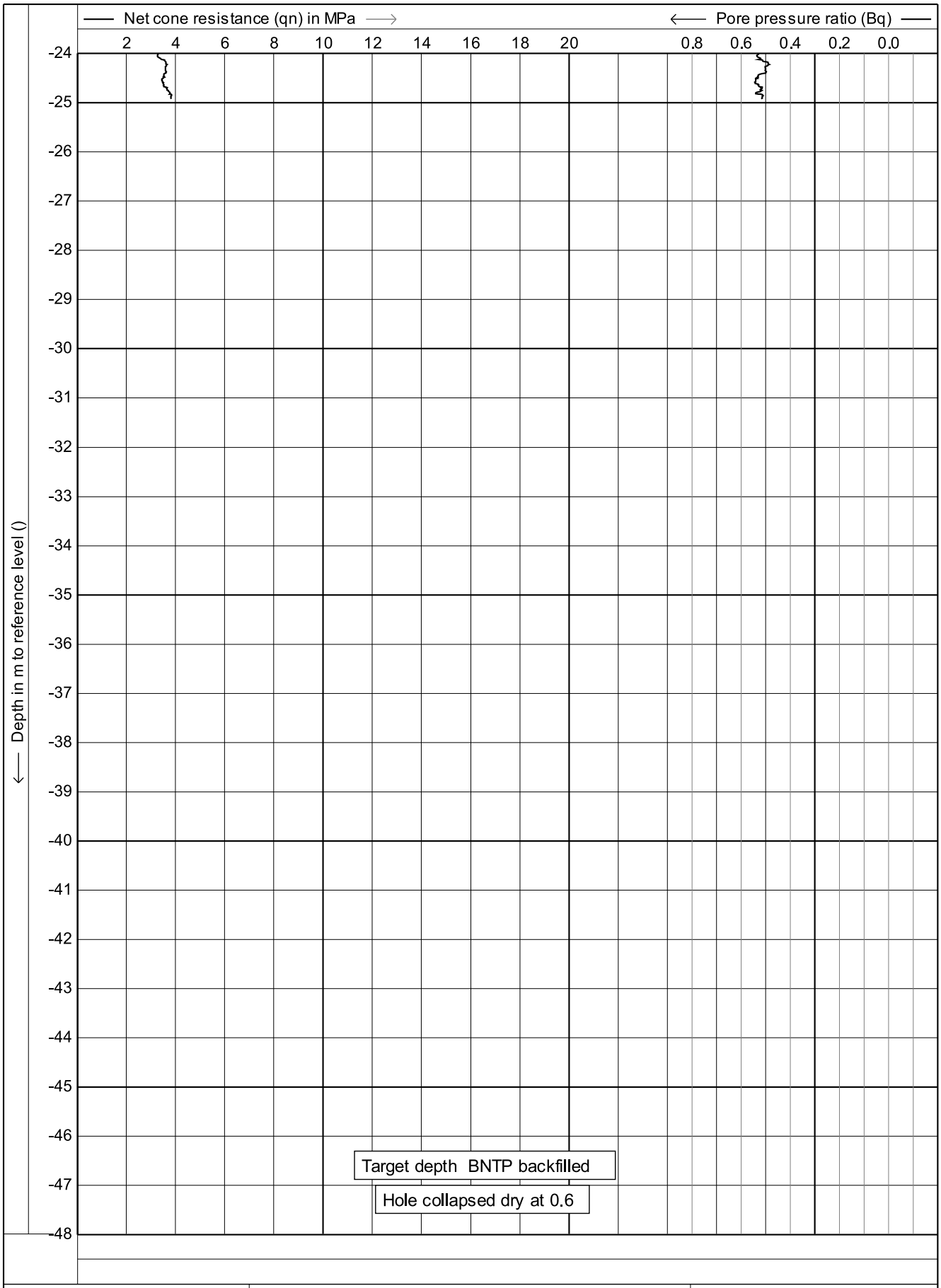
1.48



PERRY GEOTECH

Test according A.S.T.M Standard D 5778-12

Project : **Site Investigations**

Location: **Fitzgerald Rd - Drury**

Position: **0, 0**

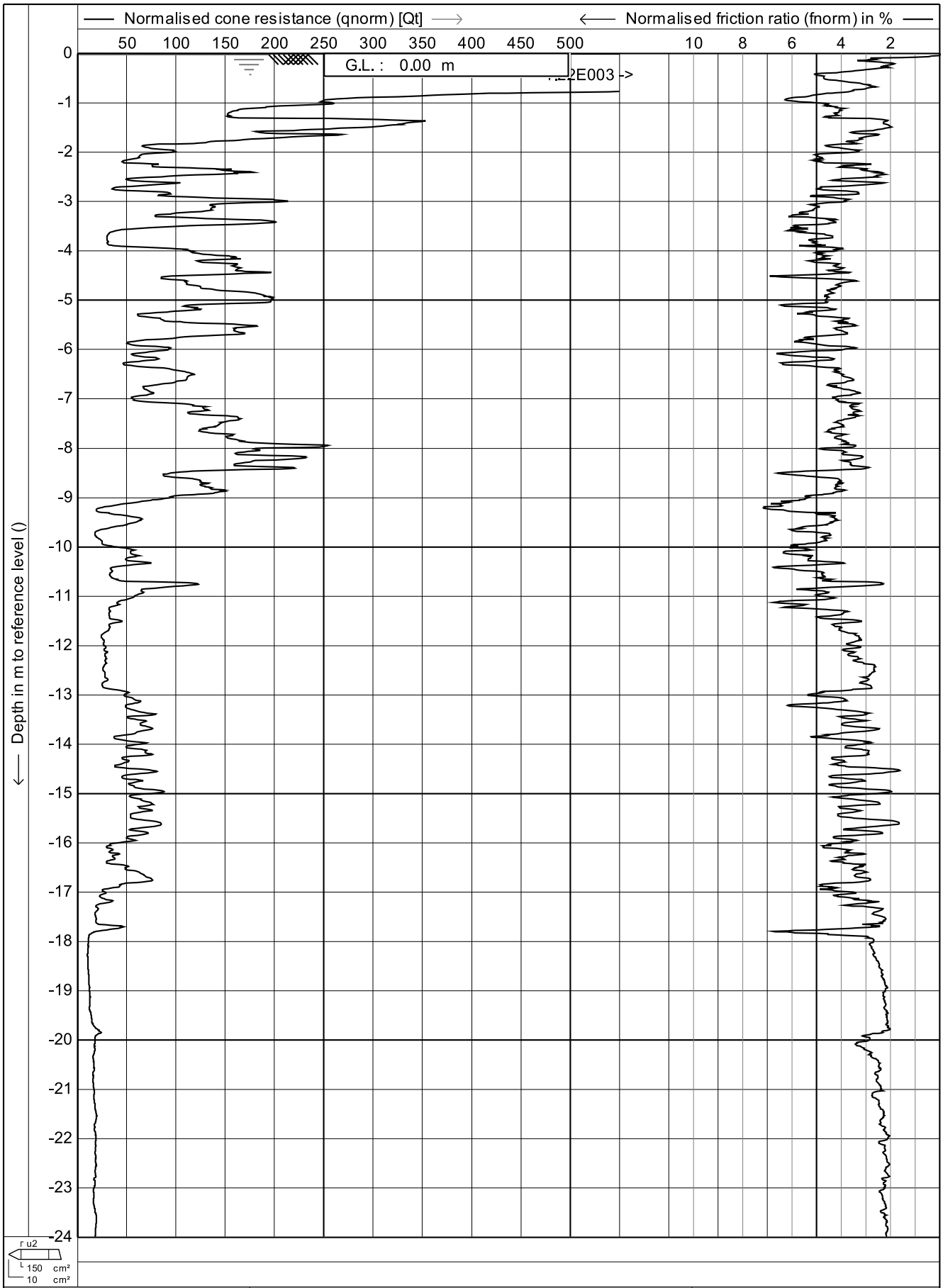
Date : **26/11/2020**

Cone no. : **C10CFIIP.C14426**

Project no. : **05AU7**

CPT no. : **041**

1.48



PERRY GEOTECH

Test according A.S.T.M Standard D 5778-12

Project : **Site Investigations**

Location: **Fitzgerald Rd - Drury**

Position: **0, 0**

Date : **26/11/2020**

Cone no. : **C10CFIIP.C14426**

Project no. : **05AU7**

CPT no. : **041**

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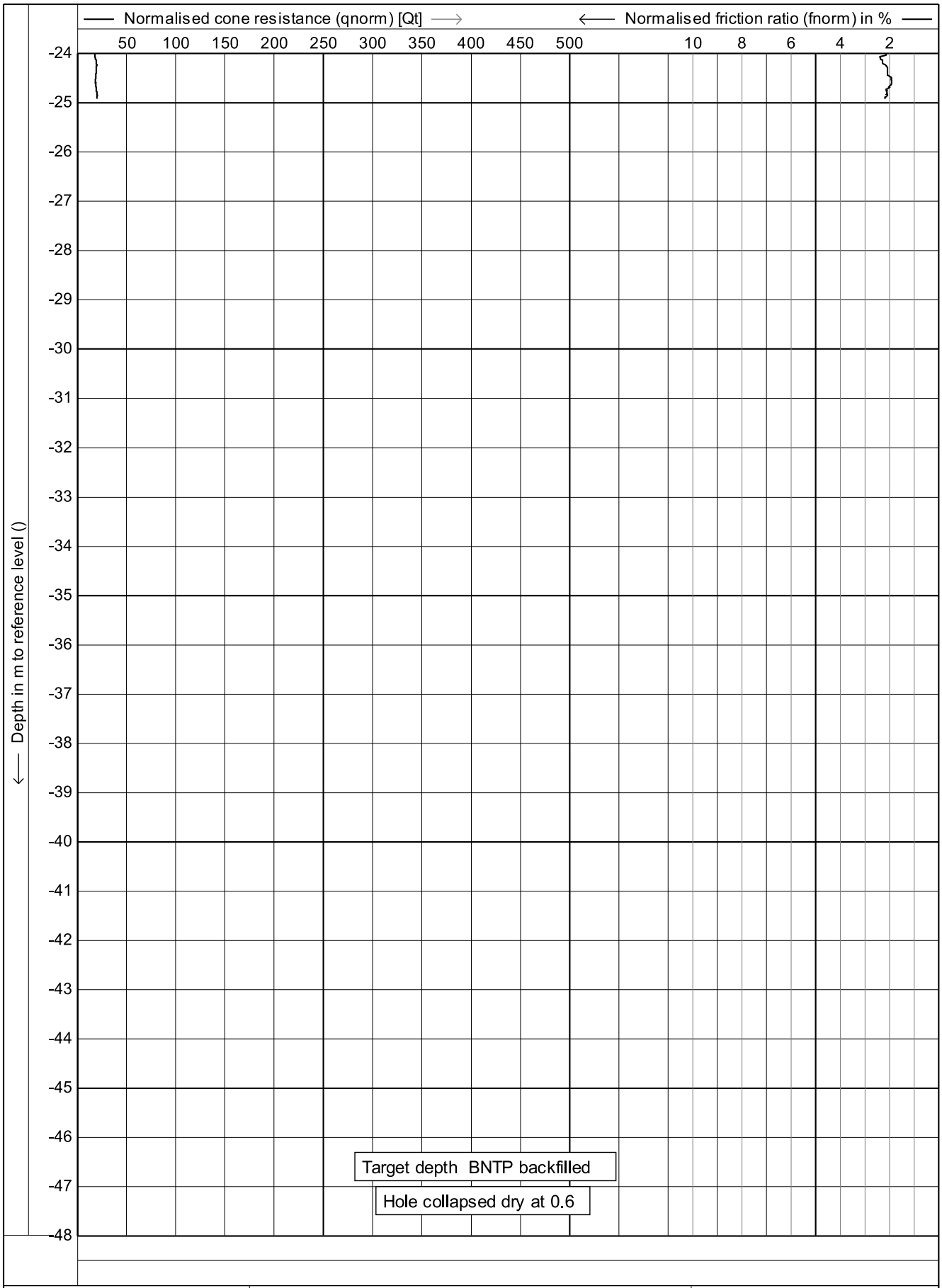
1.48



PERRY GEOTECH

Test according A.S.T.M Standard D 5778-12

Project : **Site Investigations**

Location: **Fitzgerald Rd - Drury**

Position: **0, 0**

Date : **26/11/2020**

Cone no. : **C10CFIIP.C14426**

Project no. : **05AU7**

CPT no. : **041**

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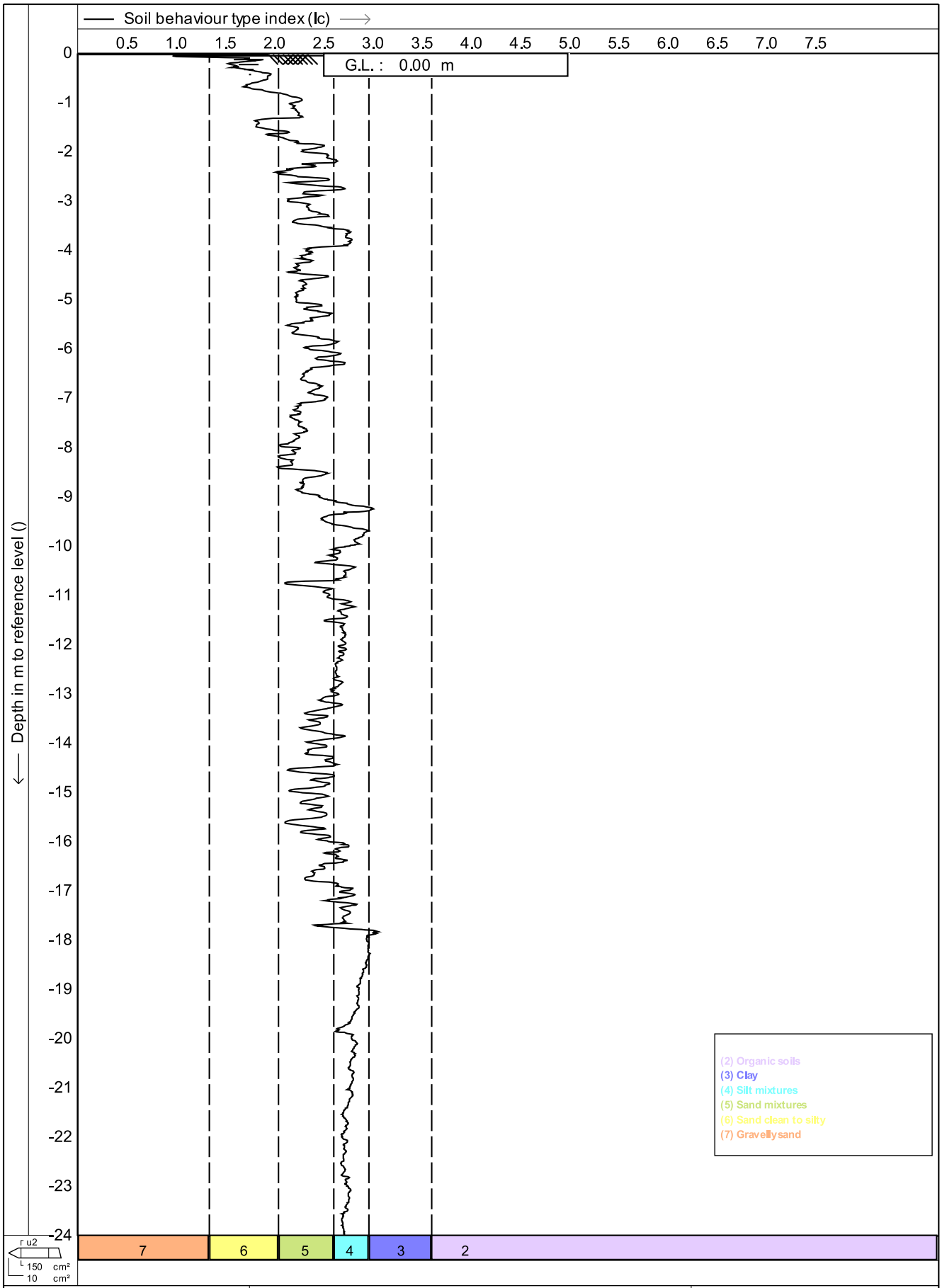
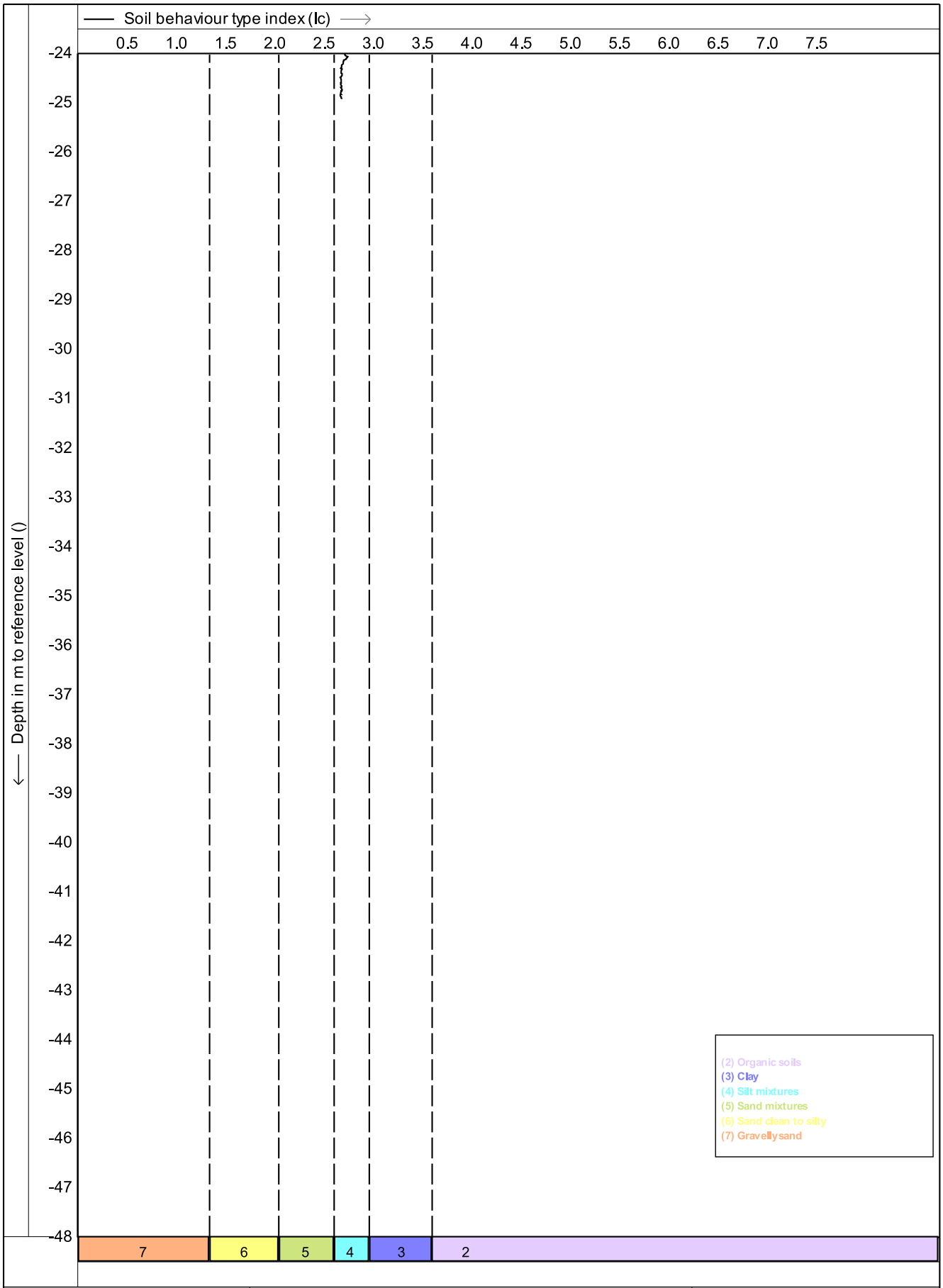
1.48



PERRY GEOTECH	Test according A.S.T.M Standard D 5778-12	Date : **26/11/2020**
	Project : **Site Investigations**	Cone no. : **C10CFIIP.C14426**
	Location: **Fitzgerald Rd - Drury**	Project no. : **05AU7**
	Position: **0, 0**	CPT no. : **041** **17/28**

1.48



PERRY GEOTECH

Test according A.S.T.M Standard D 5778-12

Project : **Site Investigations**

Location: **Fitzgerald Rd - Drury**

Position: **0, 0**

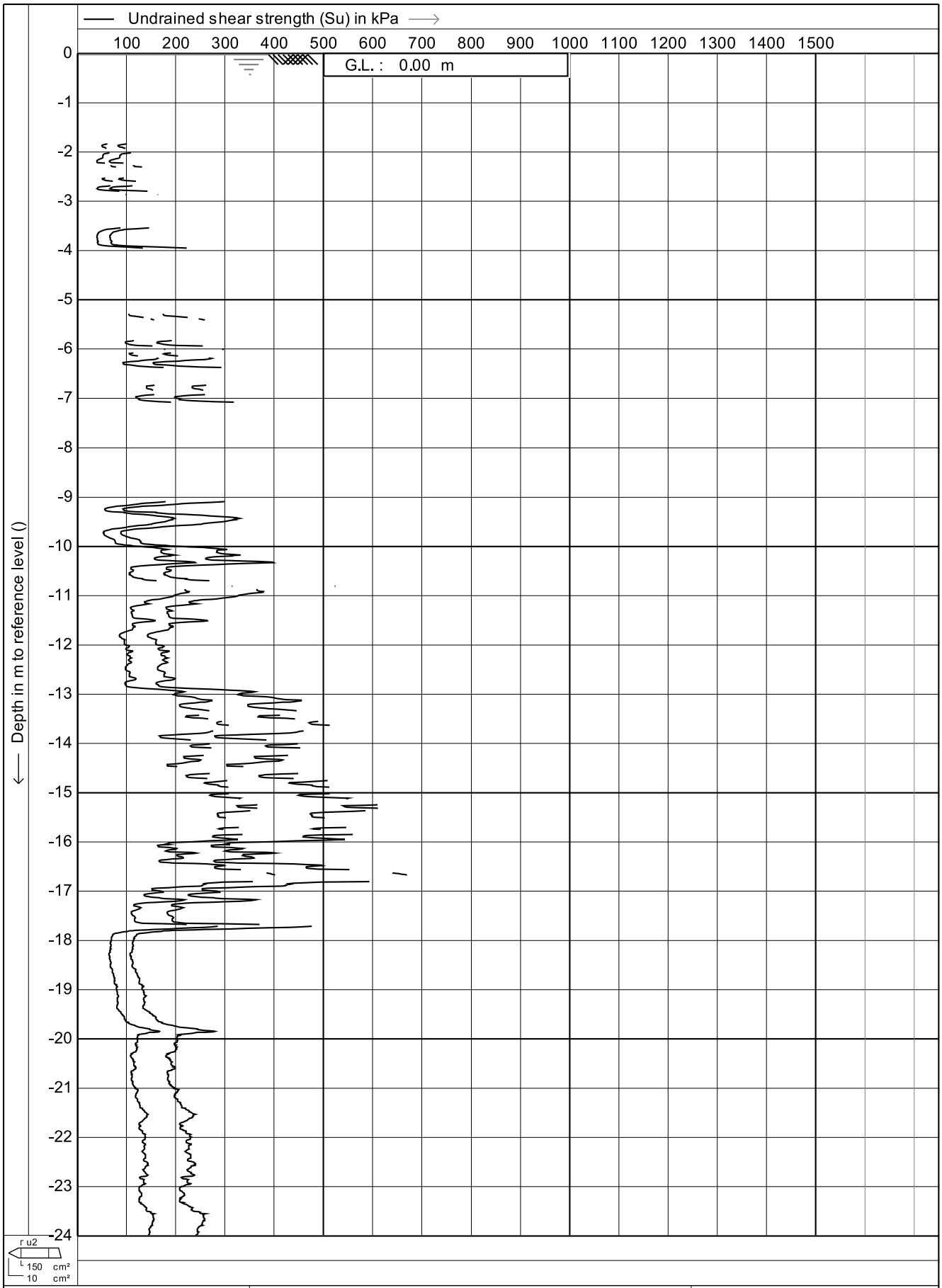
Date : **26/11/2020**

Cone no. : **C10CFIIP.C14426**

Project no. : **05AU7**

CPT no. : **041**

1.48



PERRY GEOTECH

Test according A.S.T.M Standard D 5778-12

Project : **Site Investigations**

Location: **Fitzgerald Rd - Drury**

Position: **0, 0**

Date : **26/11/2020**

Cone no. : **C10CFIIP.C14426**

Project no. : **05AU7**

CPT no. : **041**

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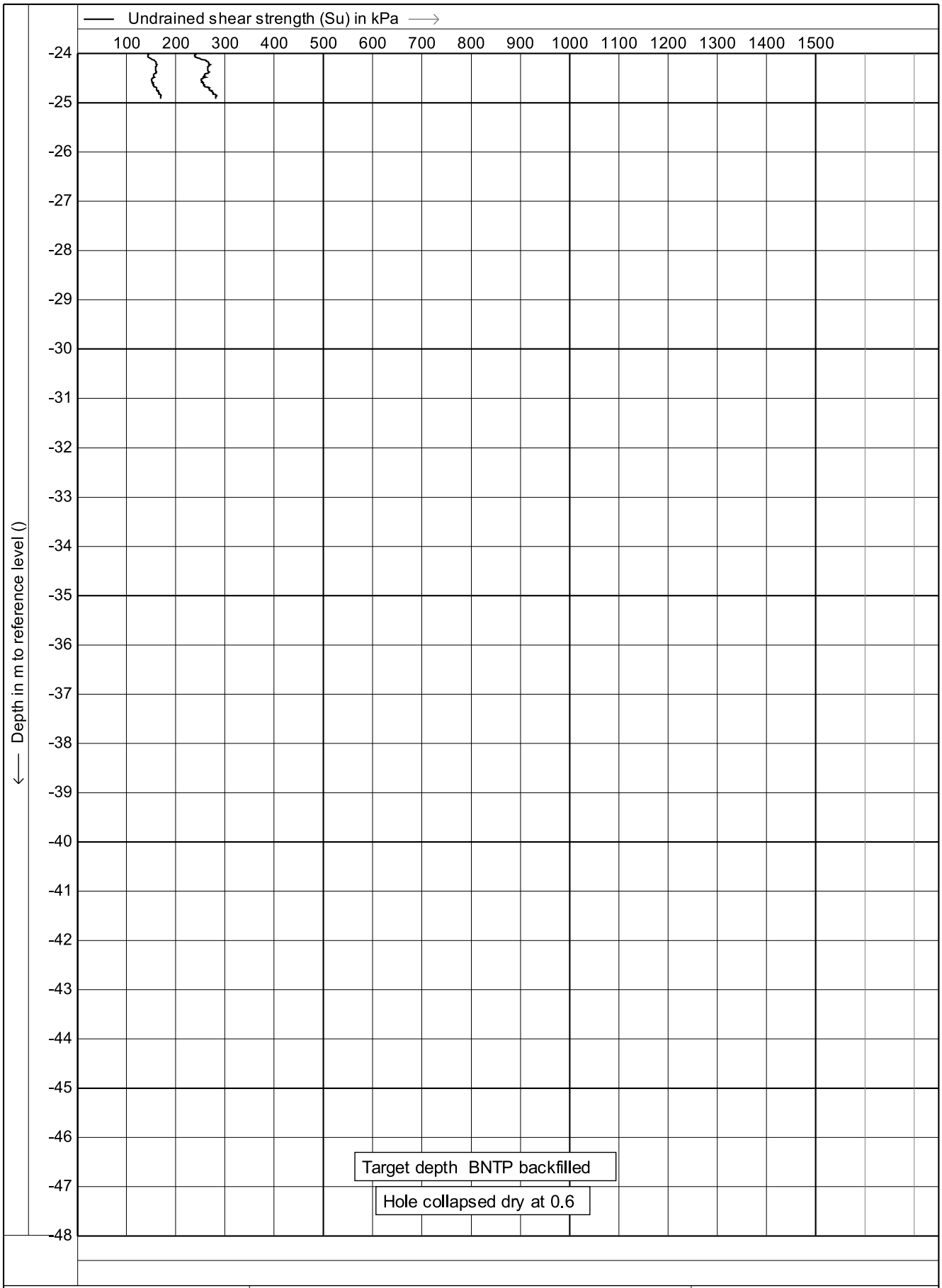
1.48



PERRY GEOTECH

Test according A.S.T.M Standard D 5778-12

Project : **Site Investigations**

Location: **Fitzgerald Rd - Drury**

Position: **0, 0**

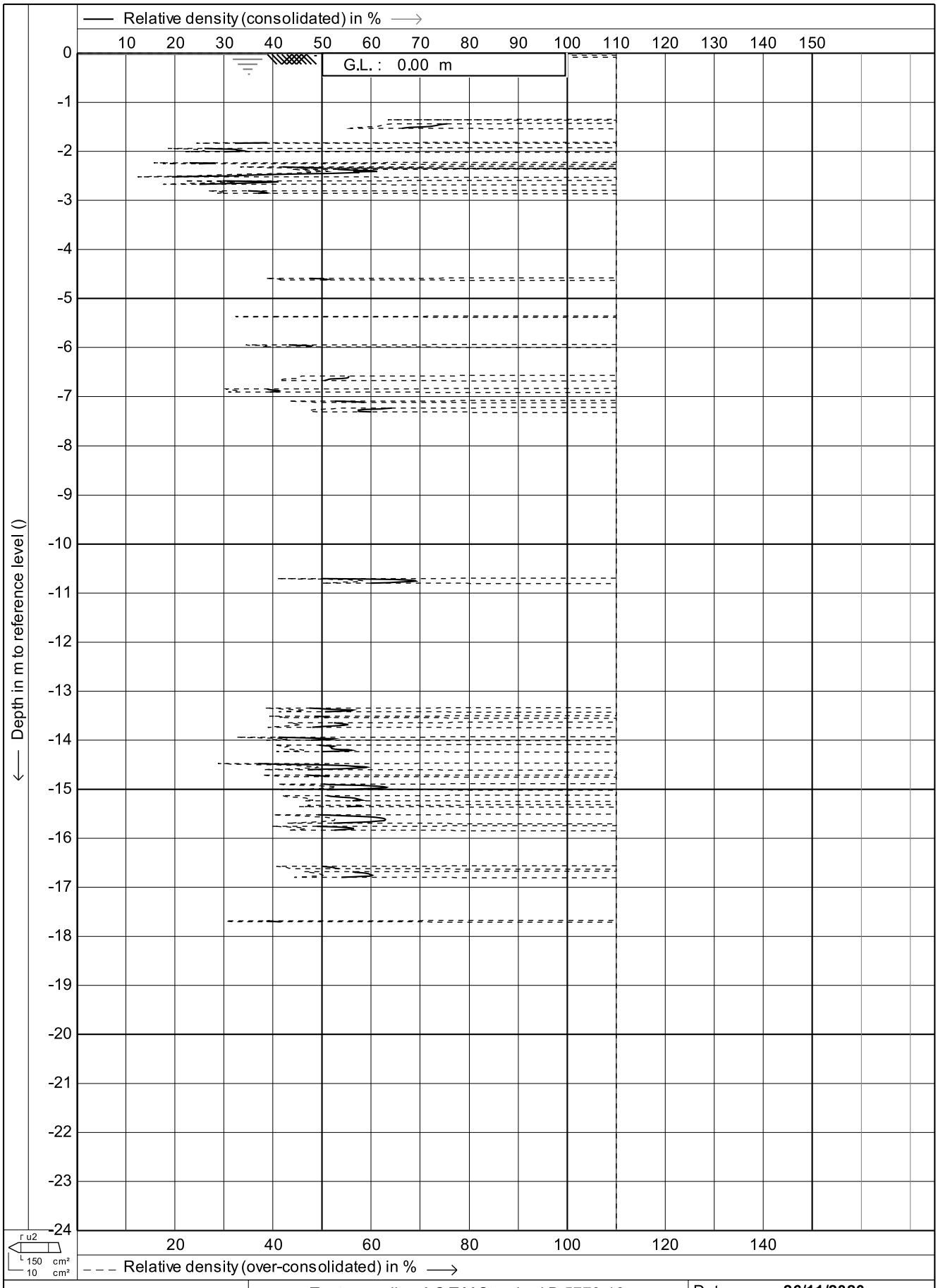
Date : **26/11/2020**

Cone no. : **C10CFIIP.C14426**

Project no. : **05AU7**

CPT no. : **041** **20/28**

1.48



PERRY GEOTECH

Test according A.S.T.M Standard D 5778-12

Project : **Site Investigations**

Location: **Fitzgerald Rd - Drury**

Position: **0, 0**

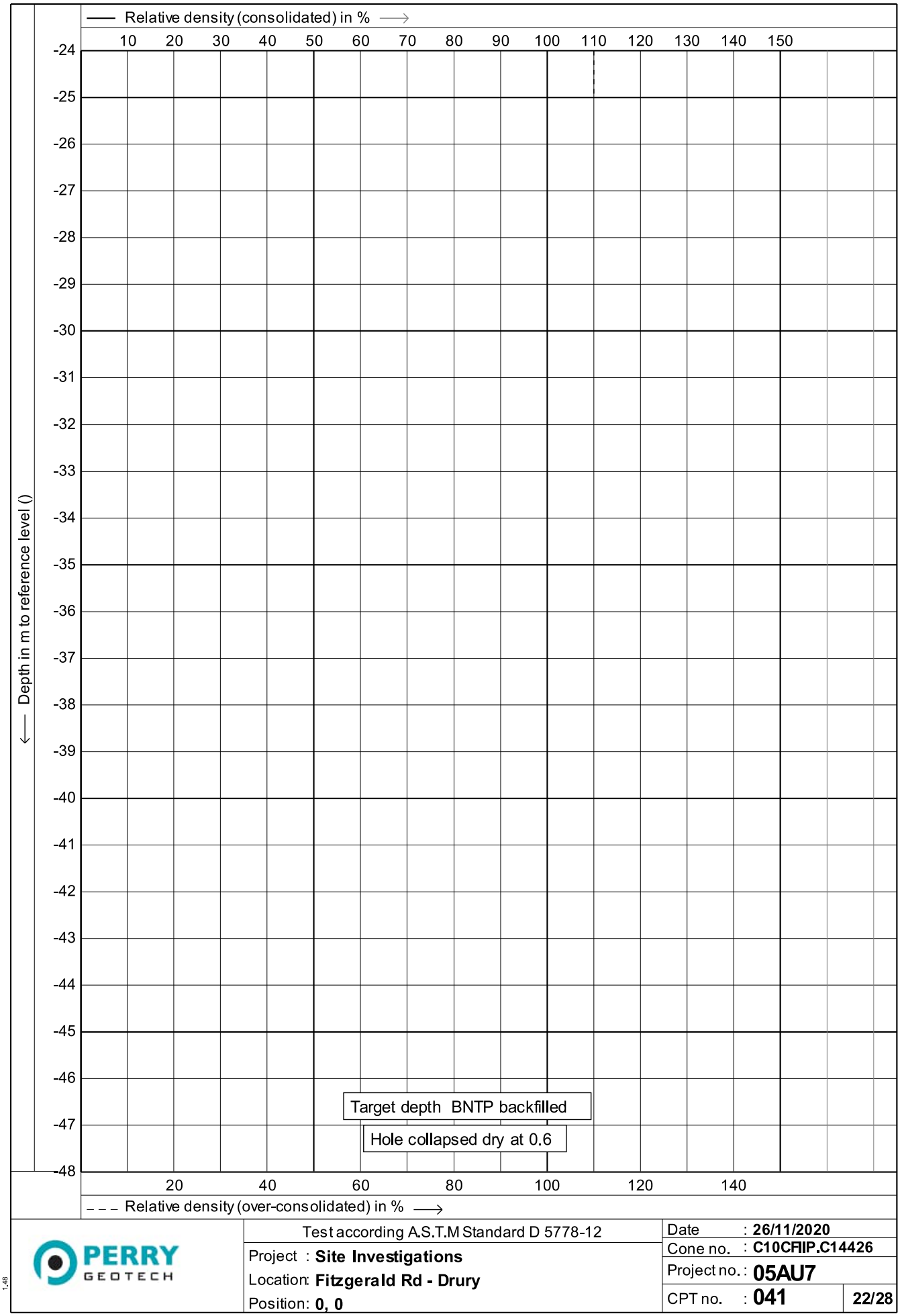
Date : **26/11/2020**

Cone no. : **C10CFIIP.C14426**

Project no. : **05AU7**

CPT no. : **041**

1.48



PERRY GEOTECH

Test according A.S.T.M Standard D 5778-12

Project : **Site Investigations**

Location: **Fitzgerald Rd - Drury**

Position: **0, 0**

Date : **26/11/2020**

Cone no. : **C10CFIIP.C14426**

Project no. : **05AU7**

CPT no. : **041**

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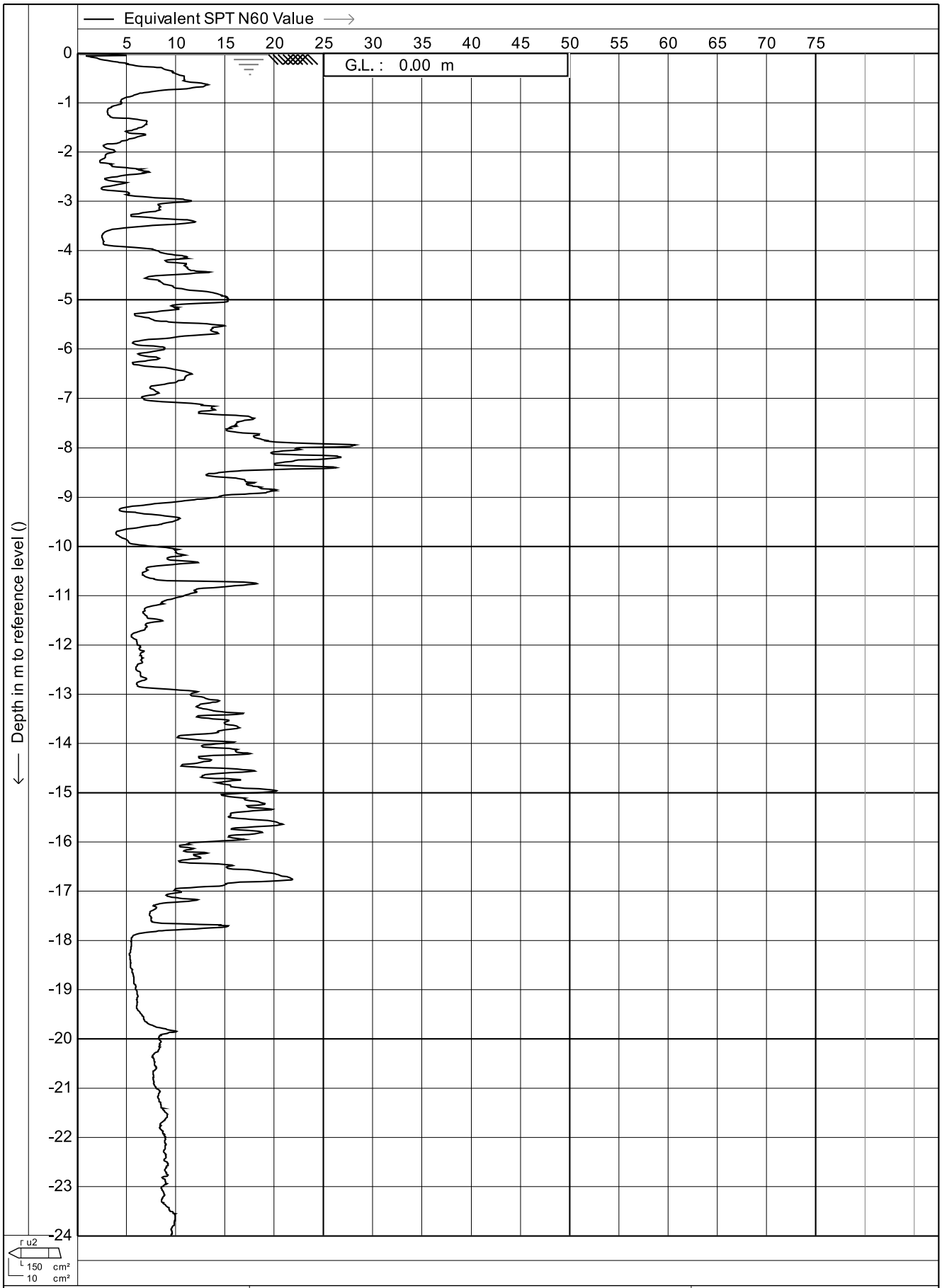
1.48



PERRY GEOTECH

Test according A.S.T.M Standard D 5778-12

Project : **Site Investigations**

Location: **Fitzgerald Rd - Drury**

Position: **0, 0**

Date : **26/11/2020**

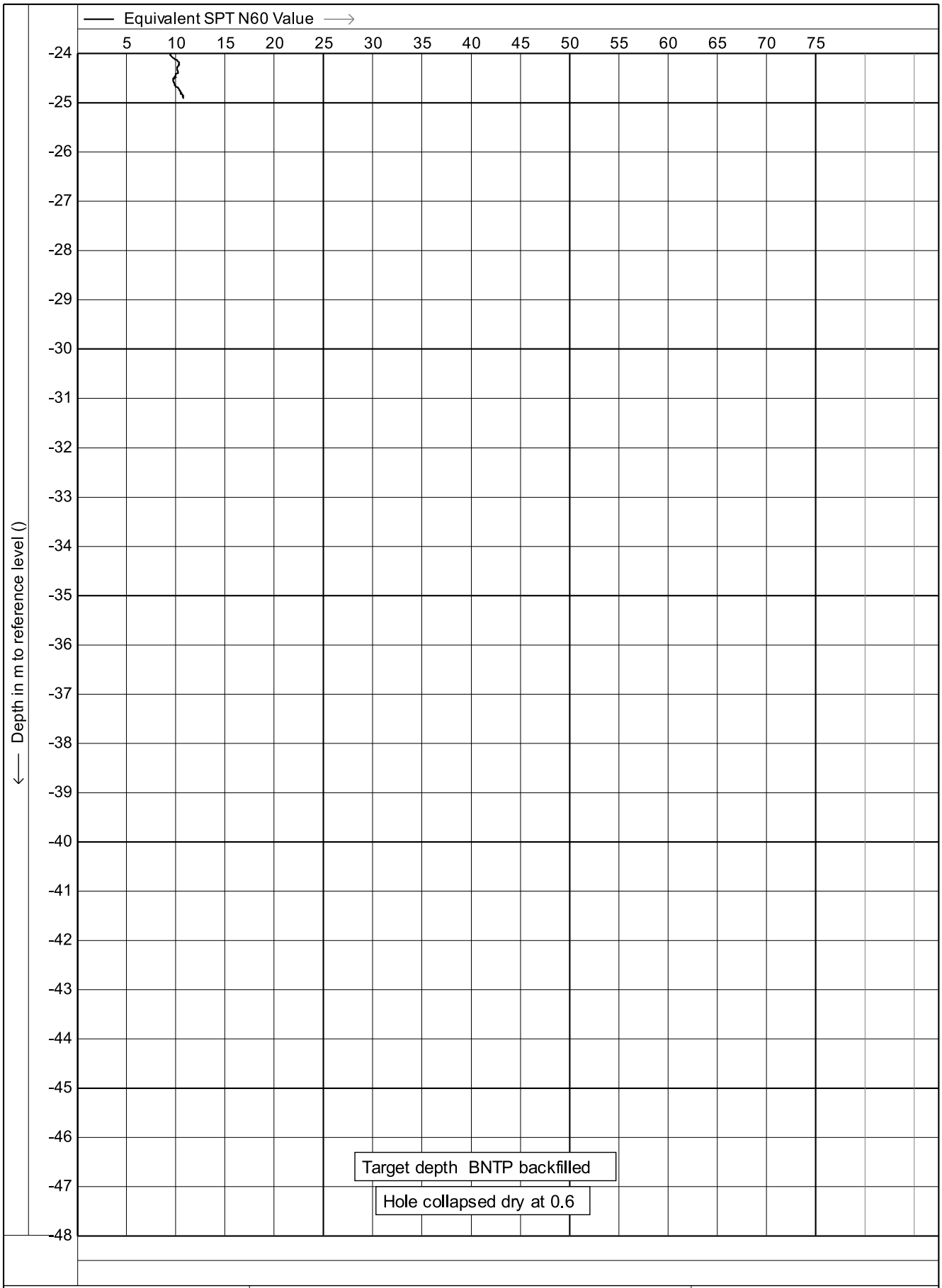
Cone no. : **C10CFIIP.C14426**

Project no. : **05AU7**

CPT no. : **041**

23/28

1.48



PERRY GEOTECH

Test according A.S.T.M Standard D 5778-12

Project : **Site Investigations**

Location: **Fitzgerald Rd - Drury**

Position: **0, 0**

Date : **26/11/2020**

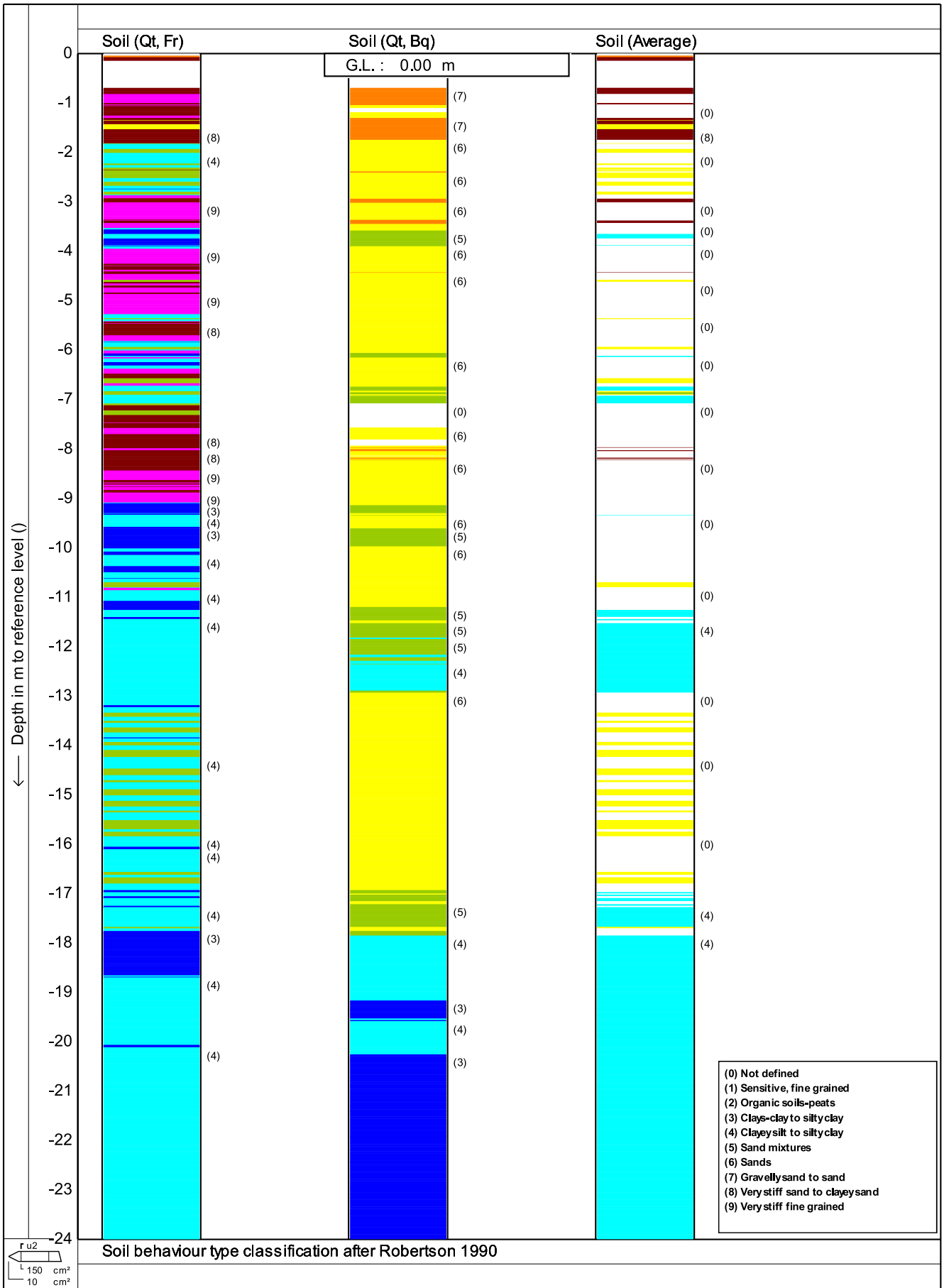
Cone no. : **C10CFIIP.C14426**

Project no. : **05AU7**

CPT no. : **041**

24/28

1.48



Soil behaviour type classification after Robertson 1990

PERRY GEOTECH

Test according A.S.T.M Standard D 5778-12

Project : **Site Investigations**

Location: **Fitzgerald Rd - Drury**

Position: **0, 0**

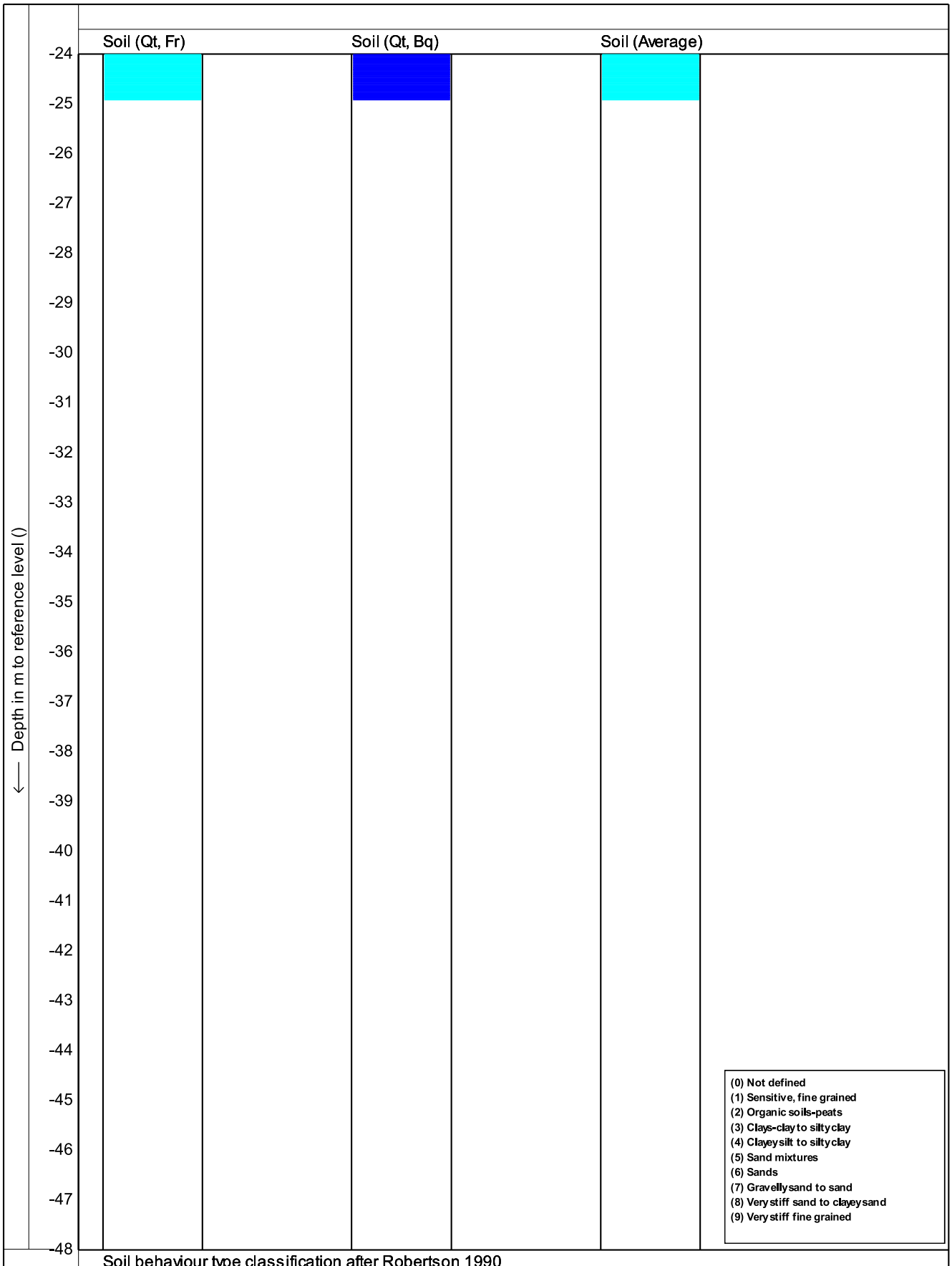
Date : **26/11/2020**

Cone no. : **C10CFIIP.C14426**

Project no. : **05AU7**

CPT no. : **041**

1.48



Soil behaviour type classification after Robertson 1990

PERRY GEOTECH

Test according A.S.T.M Standard D 5778-12

Project : **Site Investigations**

Location: **Fitzgerald Rd - Drury**

Position: **0, 0**

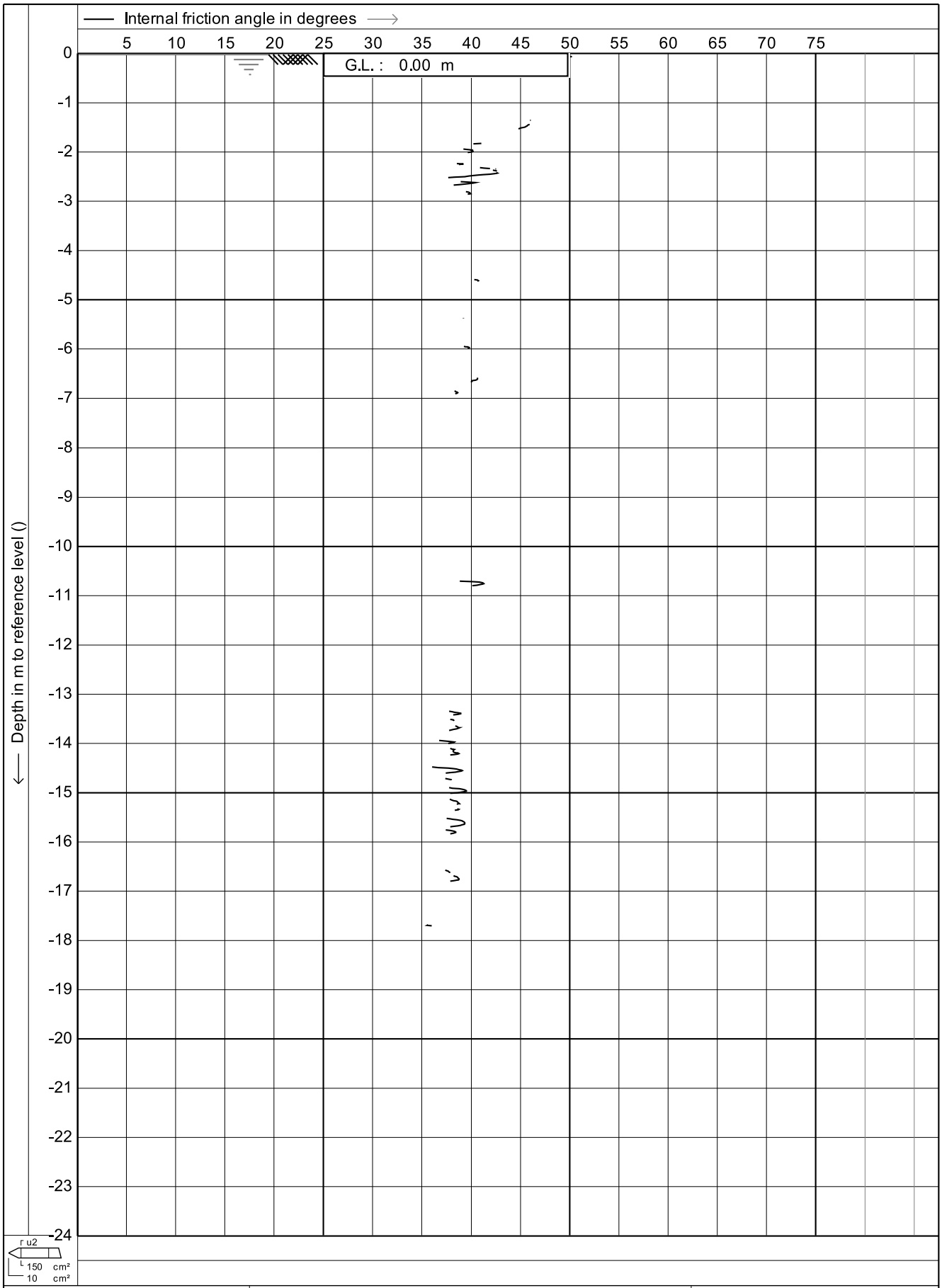
Date : **26/11/2020**

Cone no. : **C10CFIIP.C14426**

Project no. : **05AU7**

CPT no. : **041**

1.48



PERRY GEOTECH

Test according A.S.T.M Standard D 5778-12

Project : **Site Investigations**

Location: **Fitzgerald Rd - Drury**

Position: **0, 0**

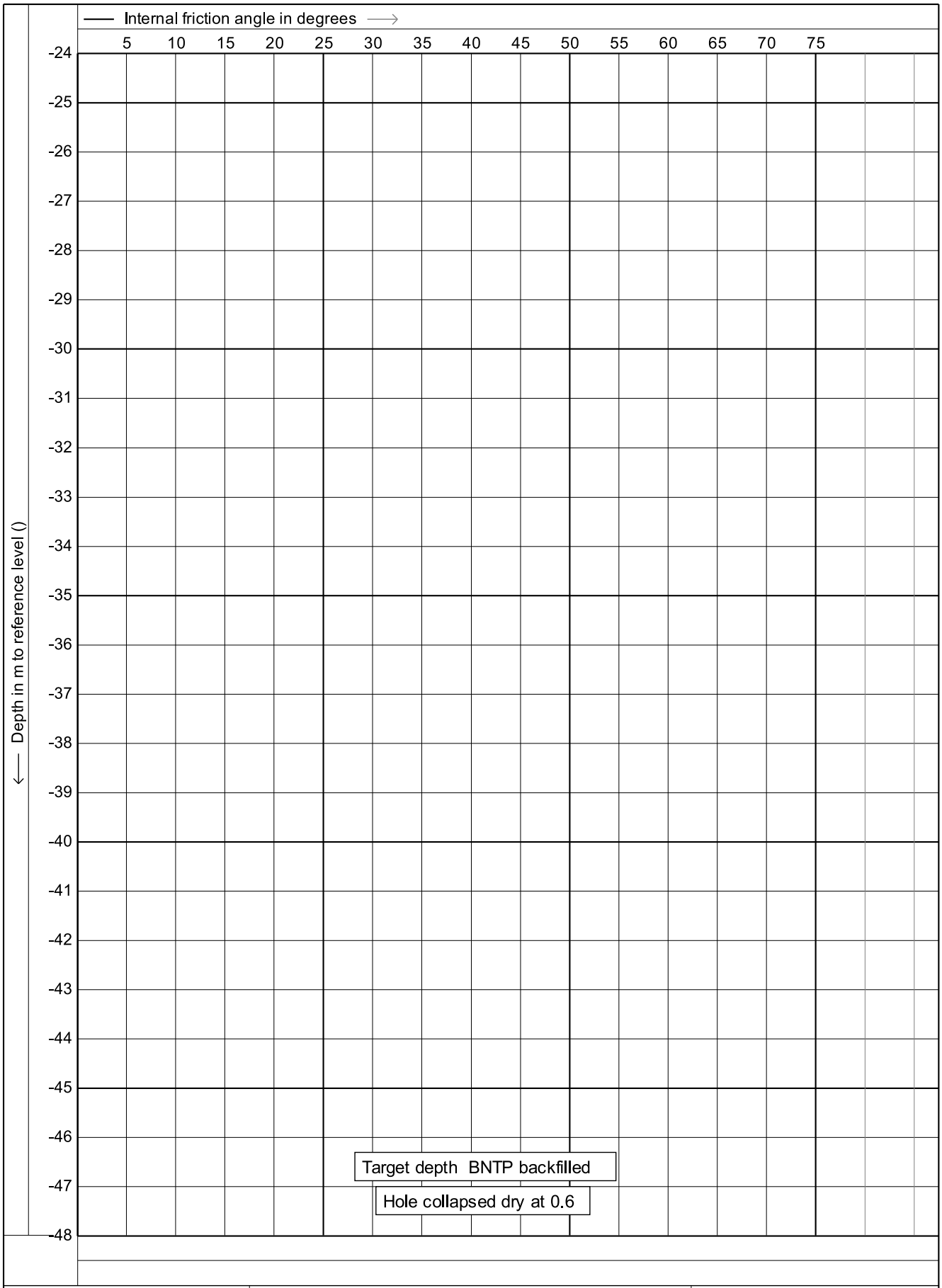
Date : **26/11/2020**

Cone no. : **C10CFIIP.C14426**

Project no. : **05AU7**

CPT no. : **041**

1.48



PERRY GEOTECH

Test according A.S.T.M Standard D 5778-12

Project : **Site Investigations**

Location: **Fitzgerald Rd - Drury**

Position: **0, 0**

Date : **26/11/2020**

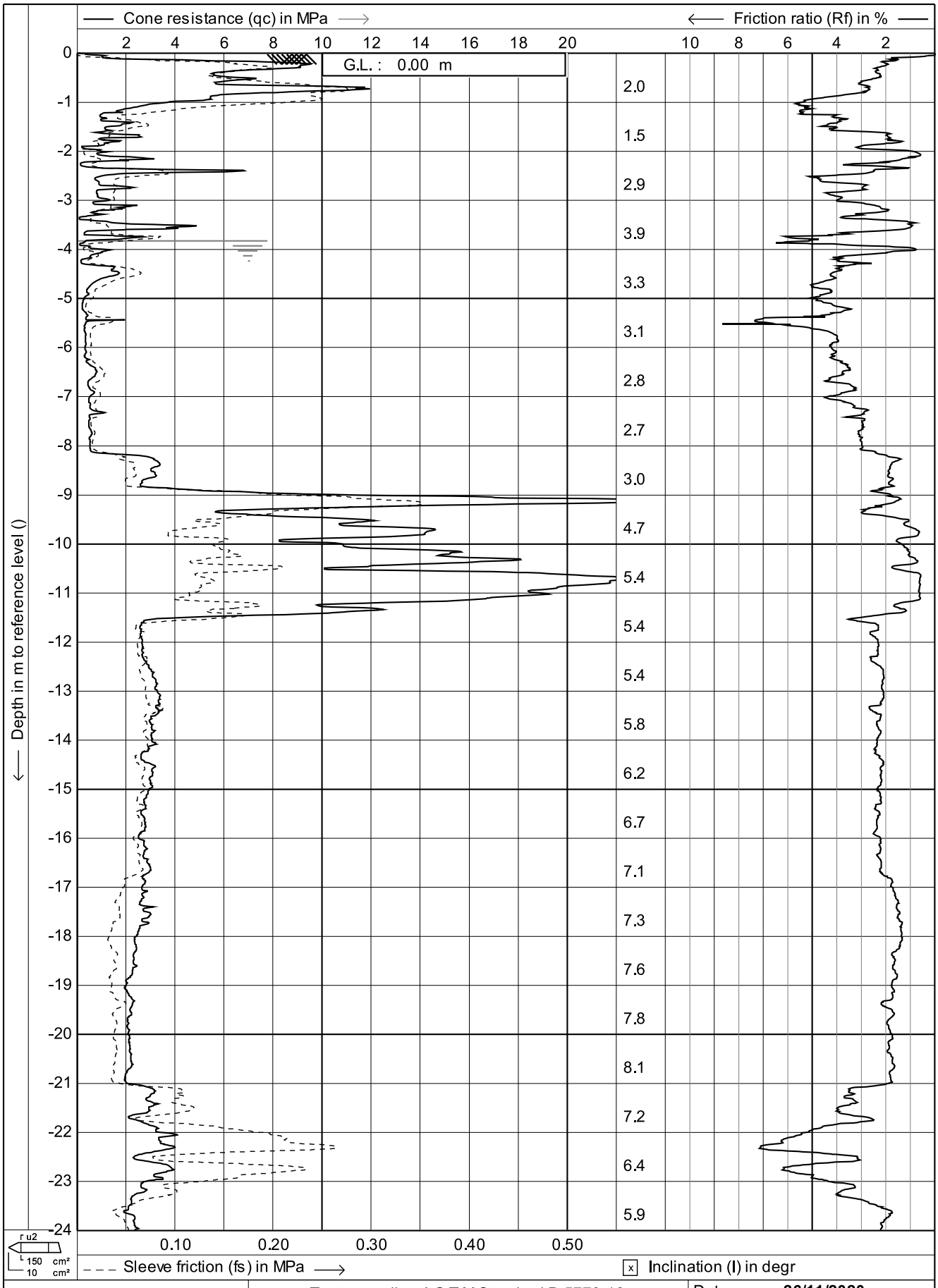
Cone no. : **C10CFIIP.C14426**

Project no. : **05AU7**

CPT no. : **041**

28/28

1.48



PERRY GEOTECH

Test according A.S.T.M Standard D 5778-12

Project : **Site Investigations**

Location: **Fitzgerald Rd - Drury**

Position: **0, 0**

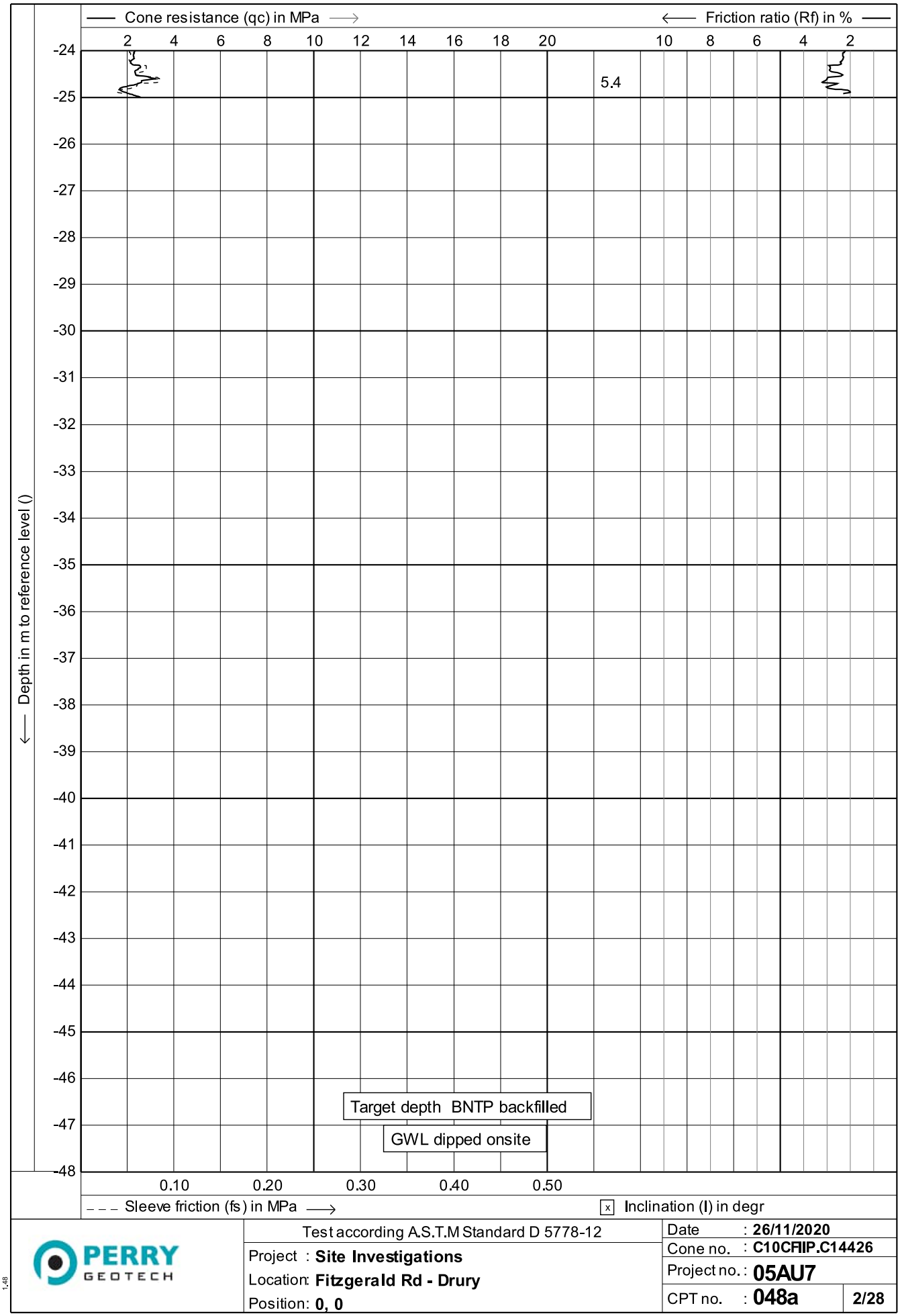
Date : **26/11/2020**

Cone no. : **C10CFIIP.C14426**

Project no. : **05AU7**

CPT no. : **048a**

1.48



PERRY GEOTECH

Test according A.S.T.M Standard D 5778-12

Project : **Site Investigations**

Location: **Fitzgerald Rd - Drury**

Position: **0, 0**

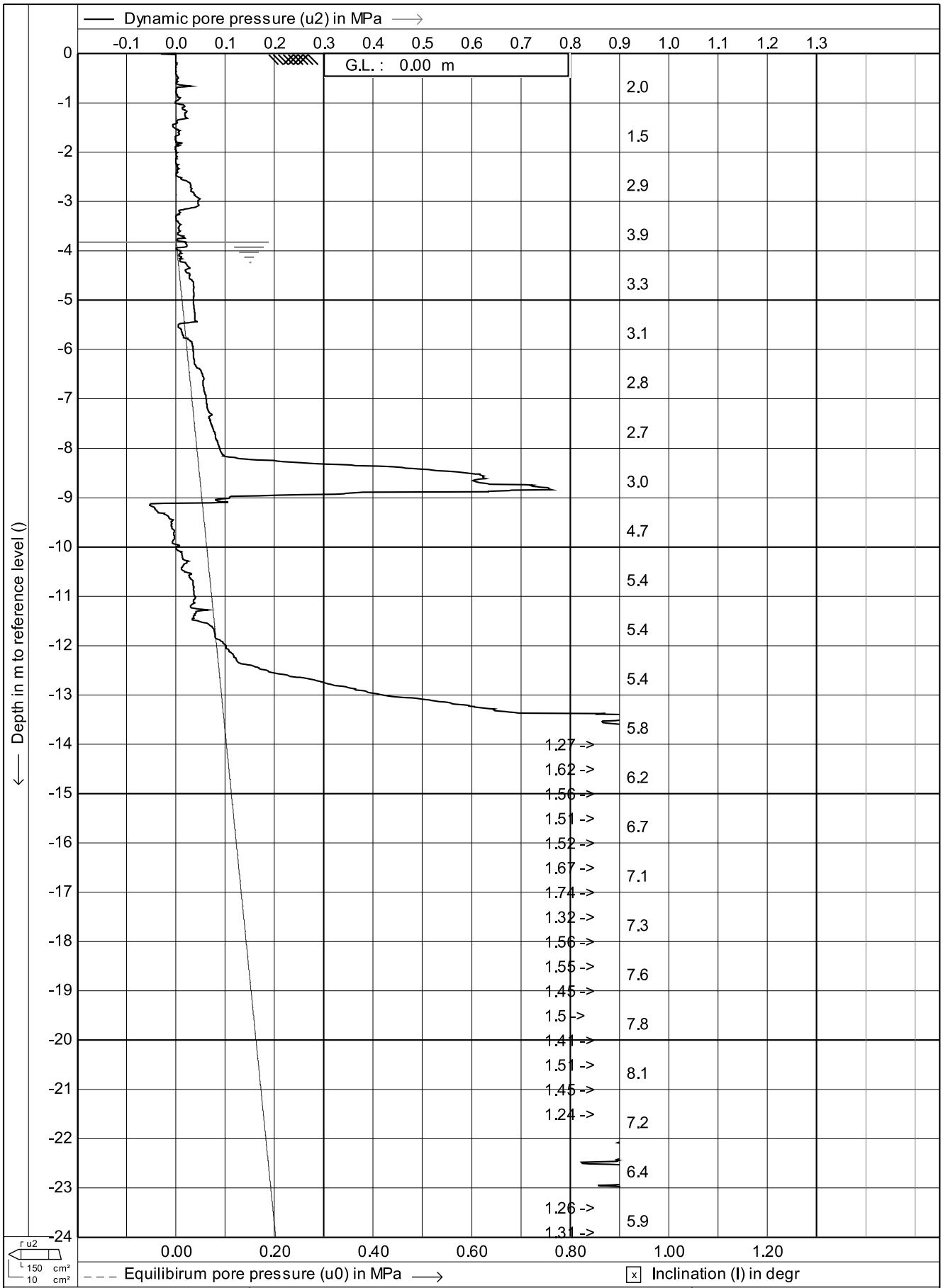
Date : **26/11/2020**

Cone no. : **C10CFIIP.C14426**

Project no. : **05AU7**

CPT no. : **048a**

1.48



PERRY GEOTECH

Test according A.S.T.M Standard D 5778-12

Project : **Site Investigations**

Location: **Fitzgerald Rd - Drury**

Position: **0, 0**

Date : **26/11/2020**

Cone no. : **C10CFIIP.C14426**

Project no. : **05AU7**

CPT no. : **048a**

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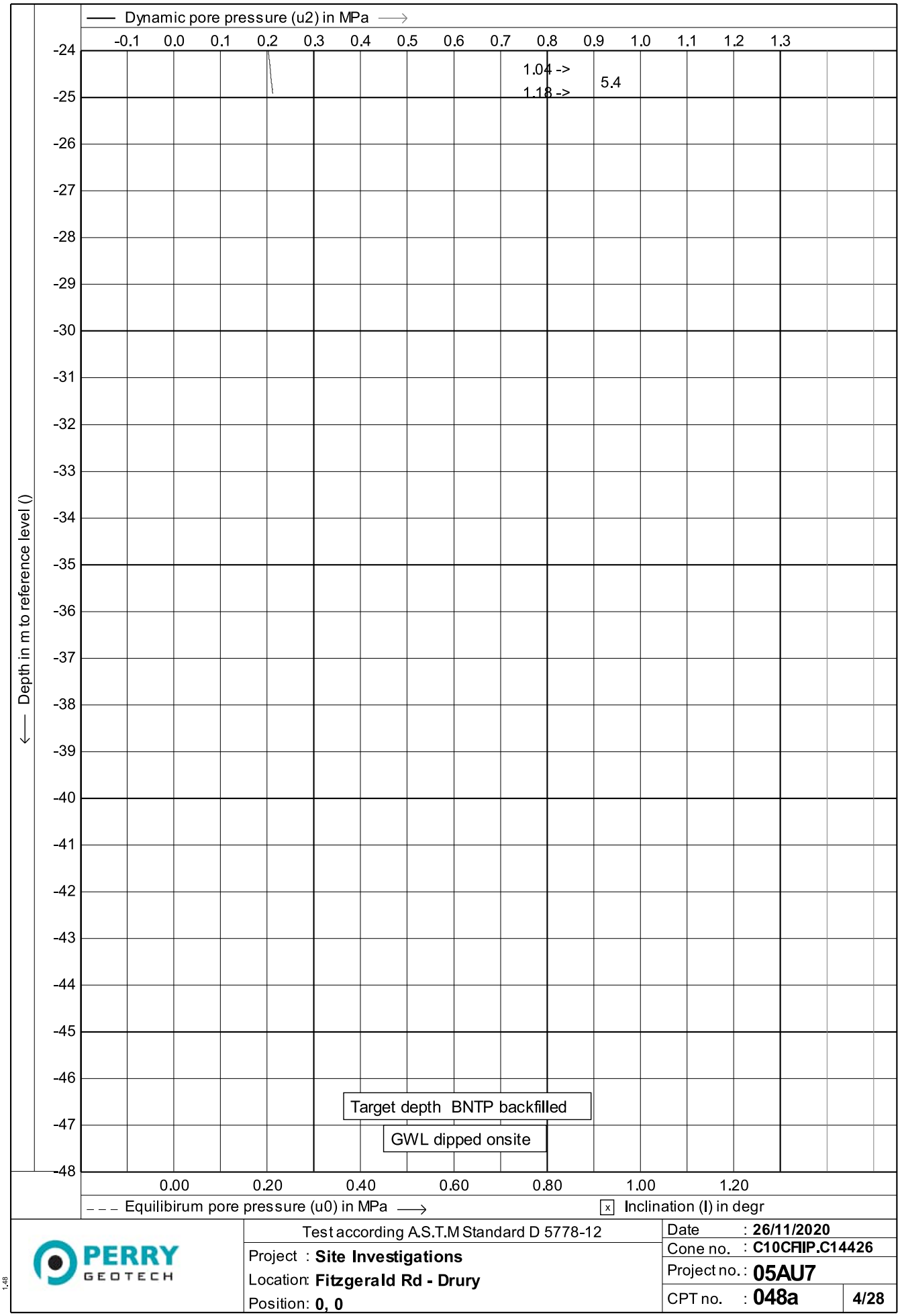
1.48



PERRY GEOTECH

Test according A.S.T.M Standard D 5778-12

Project : **Site Investigations**

Location: **Fitzgerald Rd - Drury**

Position: **0, 0**

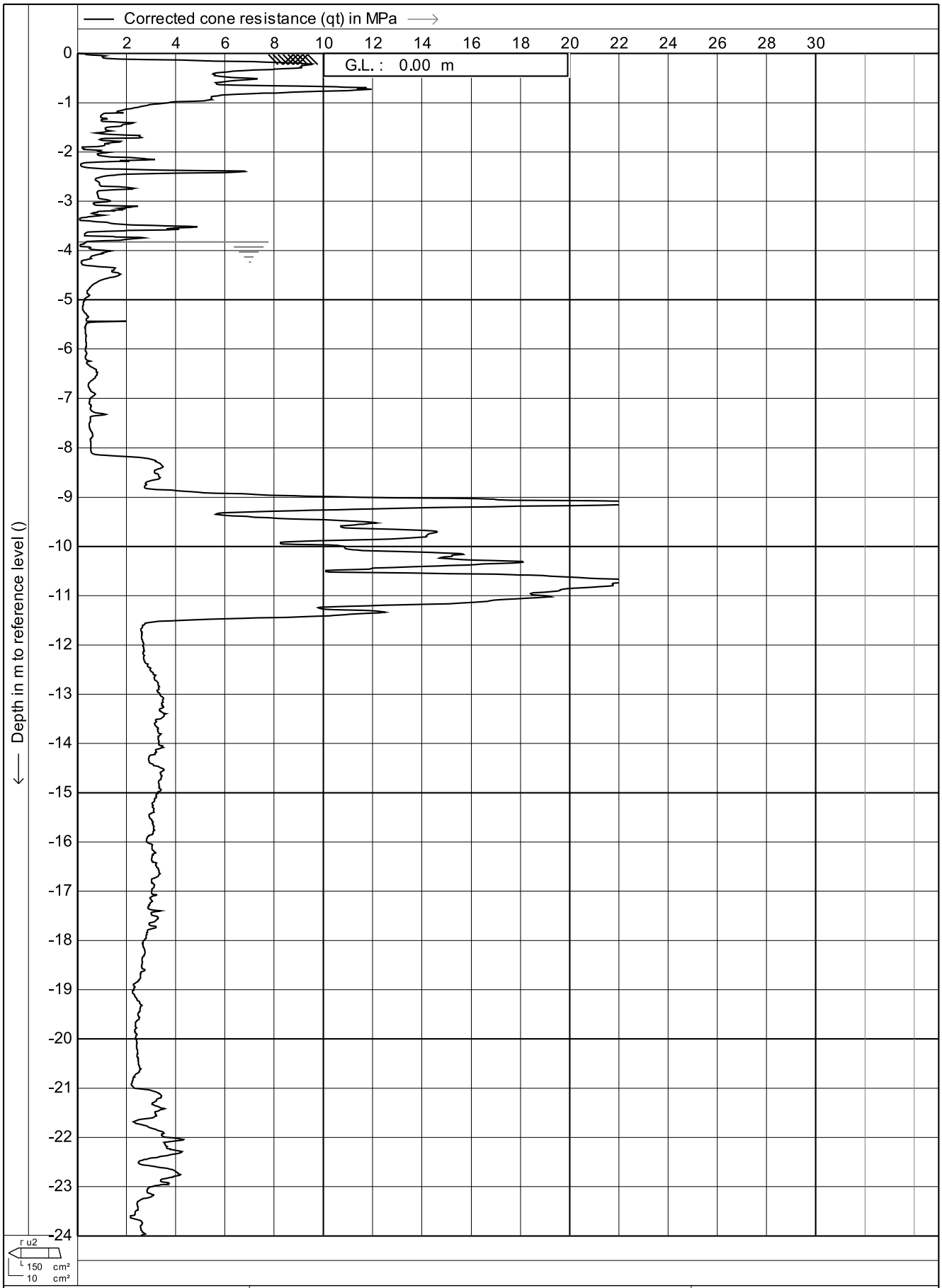
Date : **26/11/2020**

Cone no. : **C10CFIIP.C14426**

Project no. : **05AU7**

CPT no. : **048a** **4/28**

1.48



PERRY GEOTECH

Test according A.S.T.M Standard D 5778-12

Project : **Site Investigations**

Location: **Fitzgerald Rd - Drury**

Position: **0, 0**

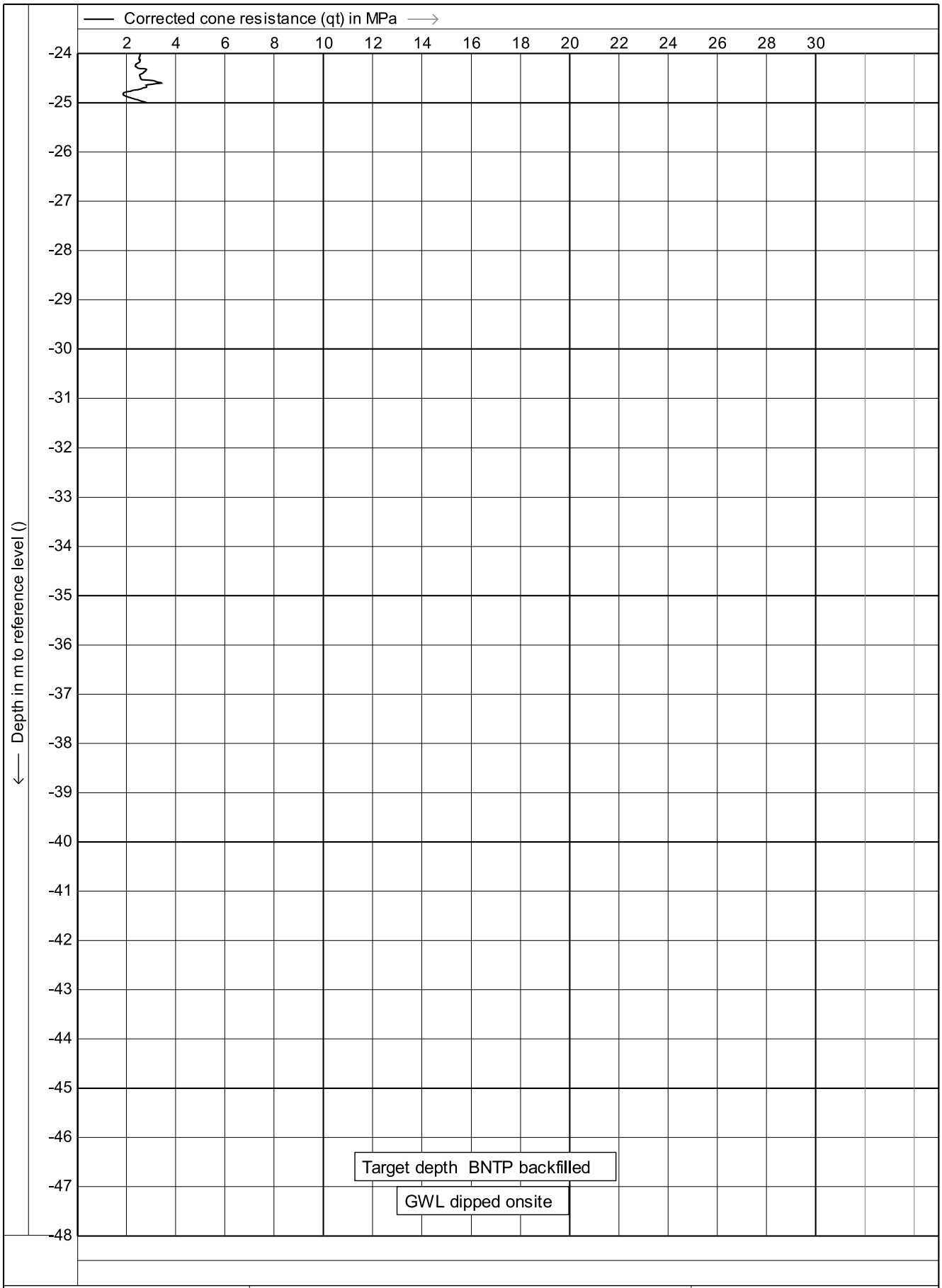
Date : **26/11/2020**

Cone no. : **C10CFIIP.C14426**

Project no. : **05AU7**

CPT no. : **048a**

1.48



PERRY GEOTECH

Test according A.S.T.M Standard D 5778-12

Project : **Site Investigations**

Location: **Fitzgerald Rd - Drury**

Position: **0, 0**

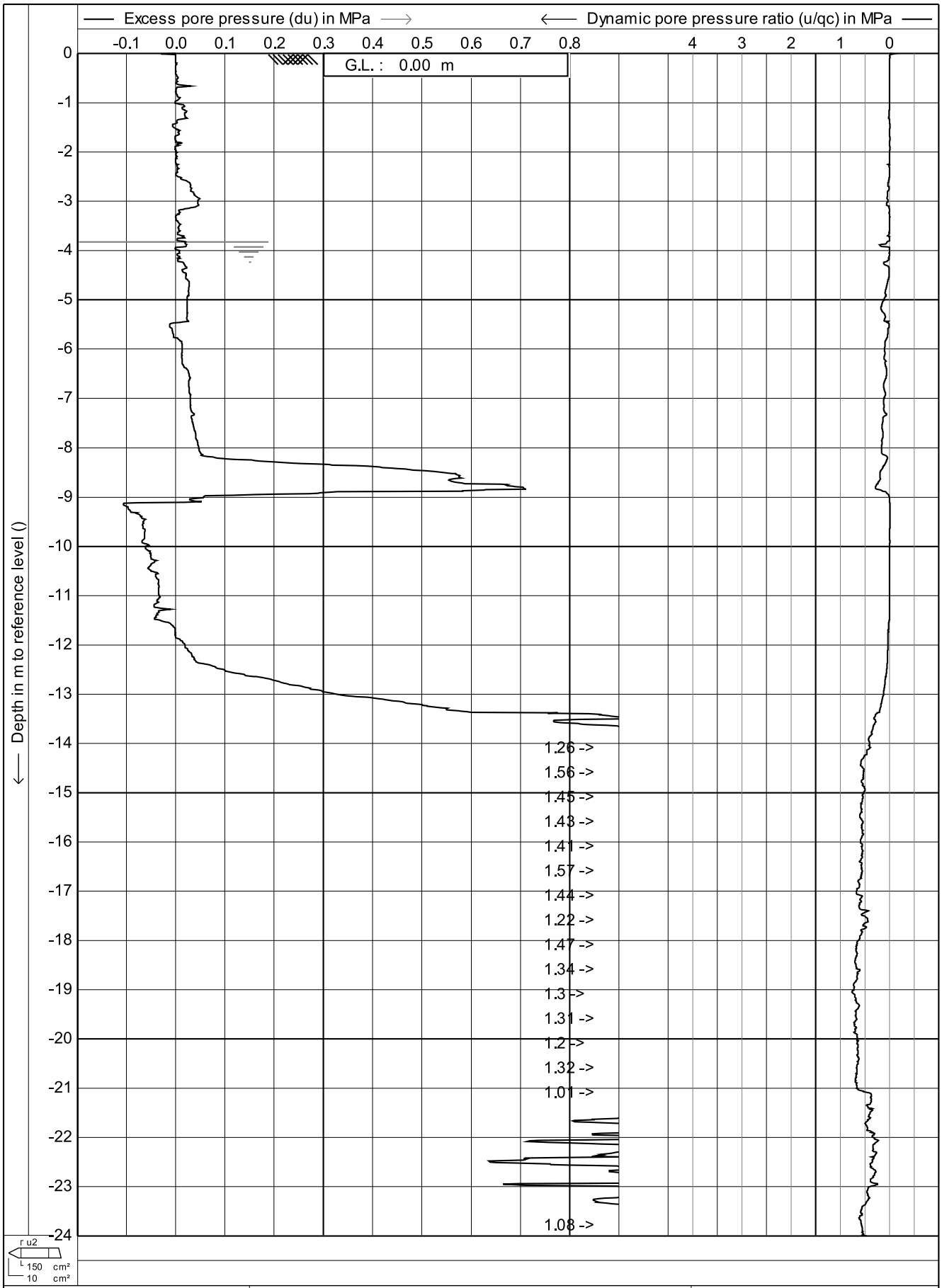
Date : **26/11/2020**

Cone no. : **C10CFIIP.C14426**

Project no. : **05AU7**

CPT no. : **048a** **6/28**

1.48



PERRY GEOTECH

Test according A.S.T.M Standard D 5778-12

Project : **Site Investigations**

Location: **Fitzgerald Rd - Drury**

Position: **0, 0**

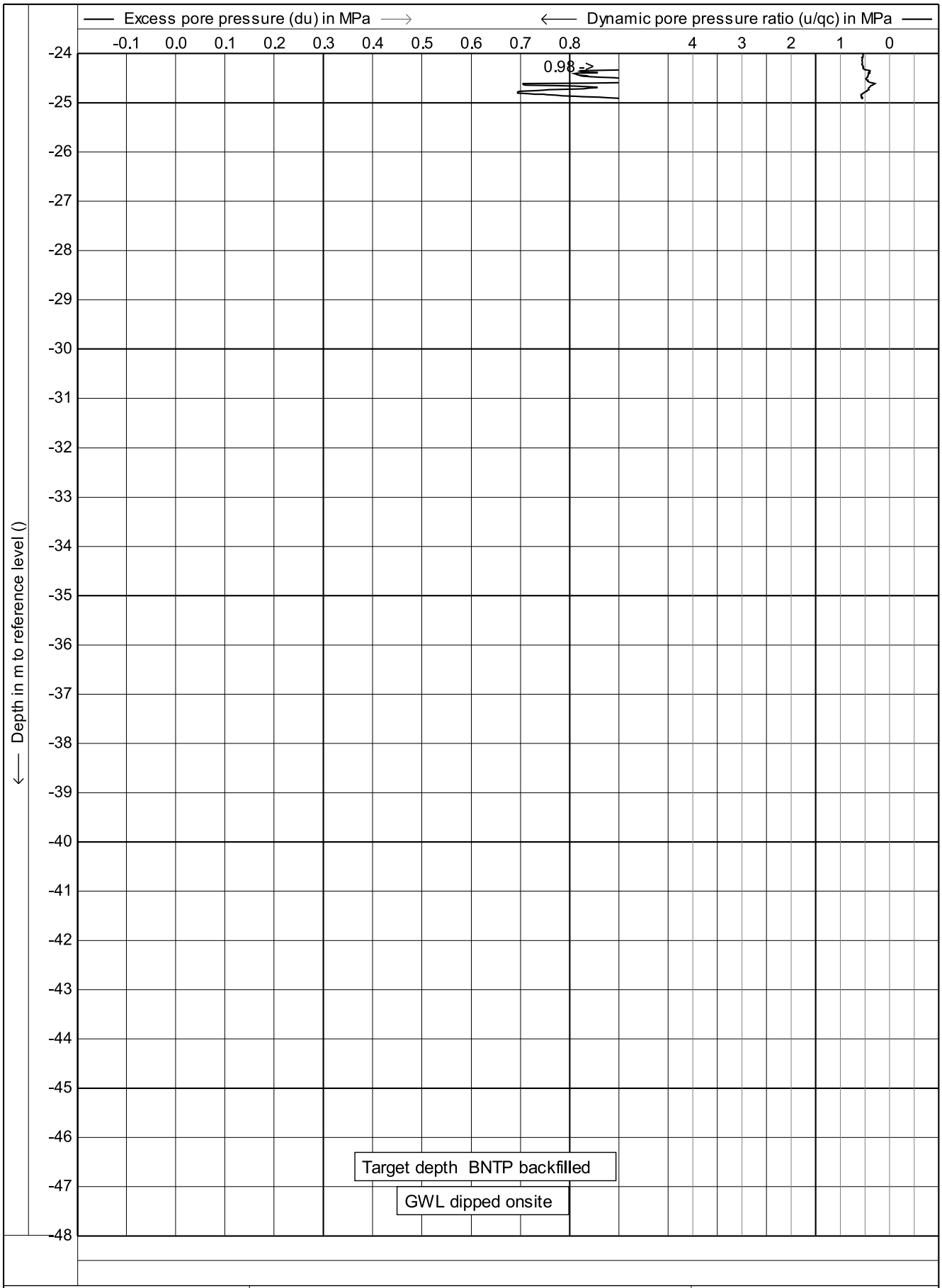
Date : **26/11/2020**

Cone no. : **C10CFIIP.C14426**

Project no. : **05AU7**

CPT no. : **048a** **7/28**

1.48



PERRY GEOTECH

Test according A.S.T.M Standard D 5778-12

Project : **Site Investigations**

Location: **Fitzgerald Rd - Drury**

Position: **0, 0**

Date : **26/11/2020**

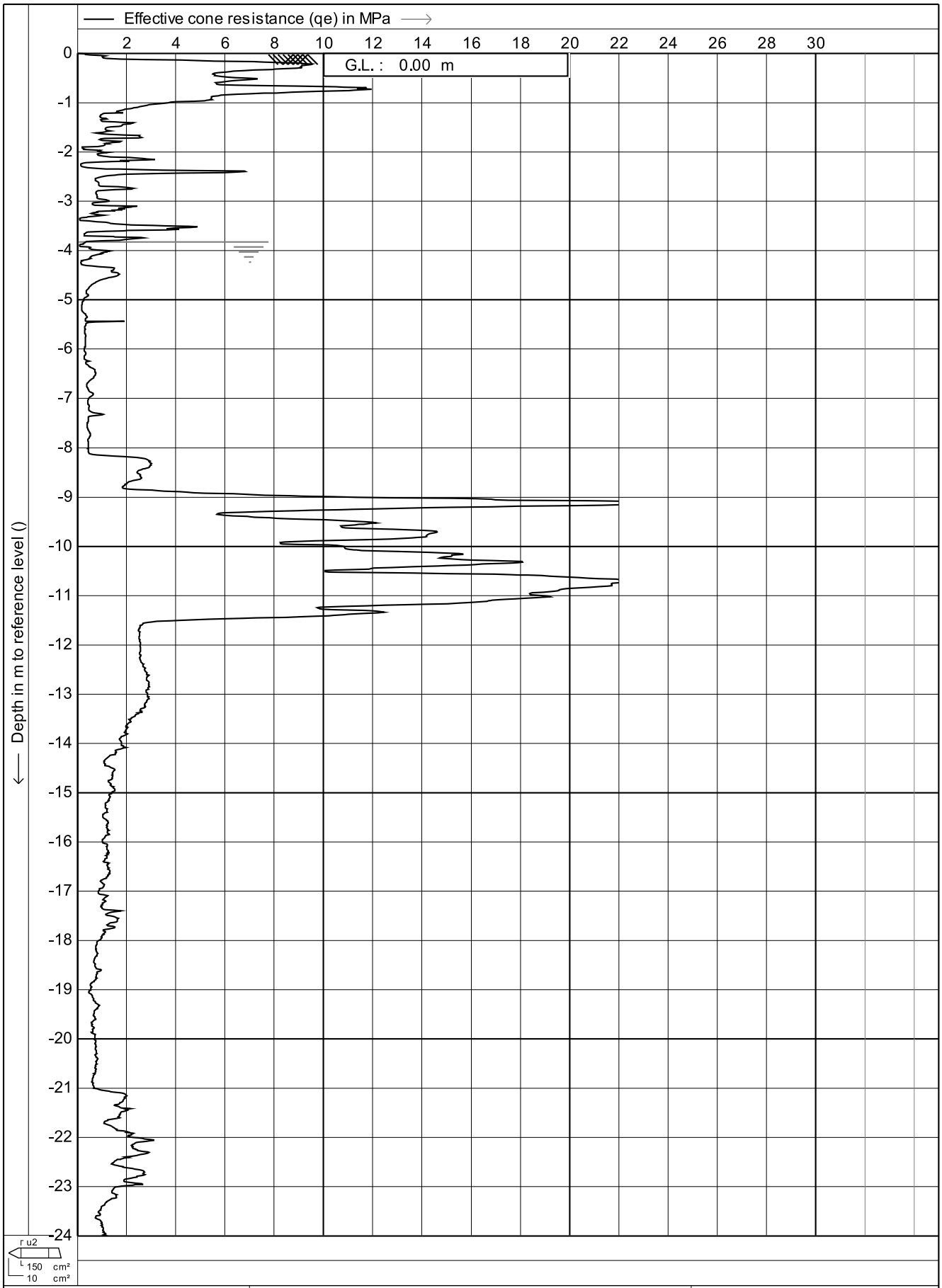
Cone no. : **C10CFIIP.C14426**

Project no. : **05AU7**

CPT no. : **048a**

8/28

1.48



PERRY GEOTECH

Test according A.S.T.M Standard D 5778-12

Project : **Site Investigations**

Location: **Fitzgerald Rd - Drury**

Position: **0, 0**

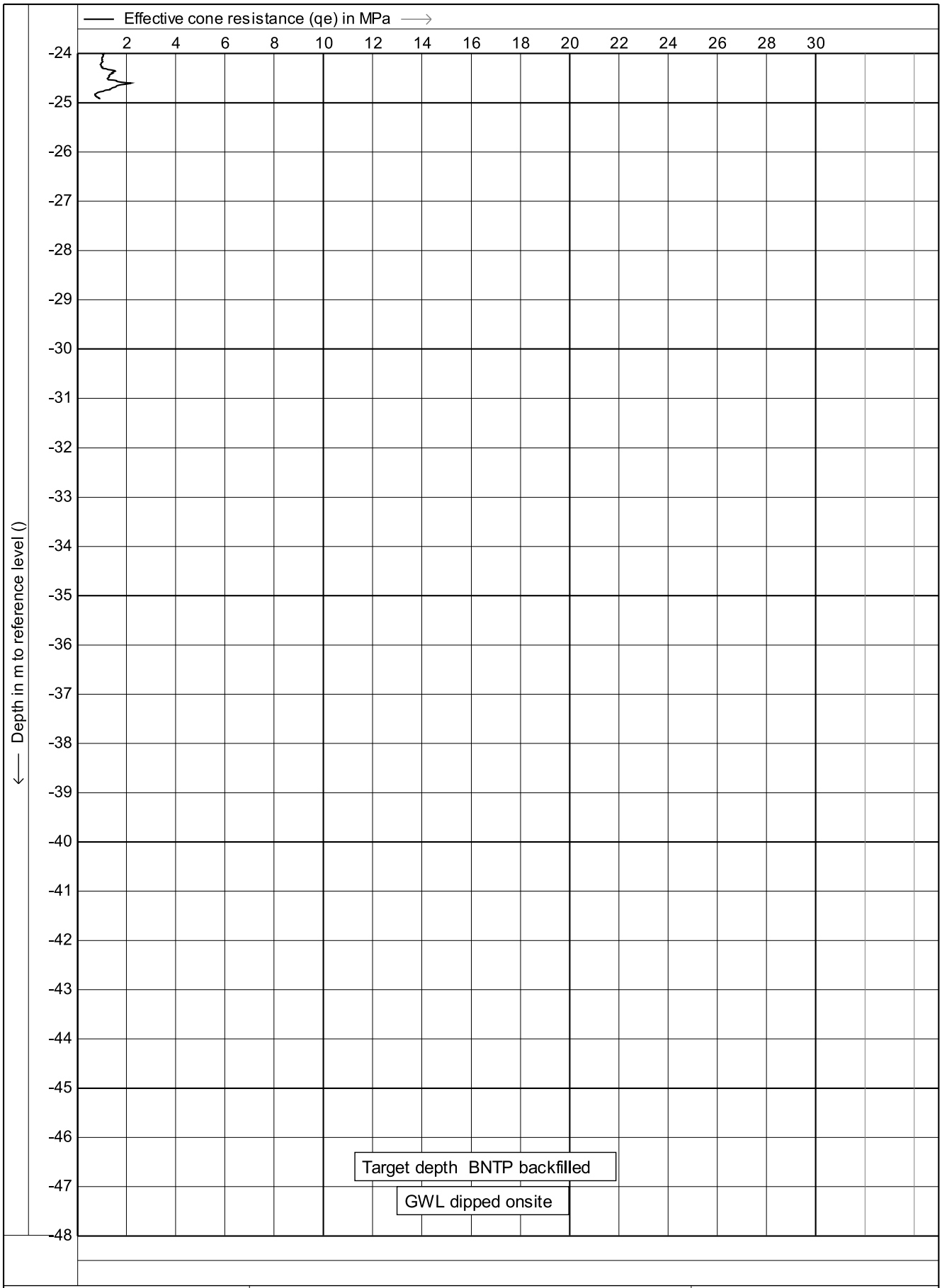
Date : **26/11/2020**

Cone no. : **C10CFIIP.C14426**

Project no. : **05AU7**

CPT no. : **048a** **9/28**

1.48



PERRY GEOTECH

Test according A.S.T.M Standard D 5778-12

Project : **Site Investigations**

Location: **Fitzgerald Rd - Drury**

Position: **0, 0**

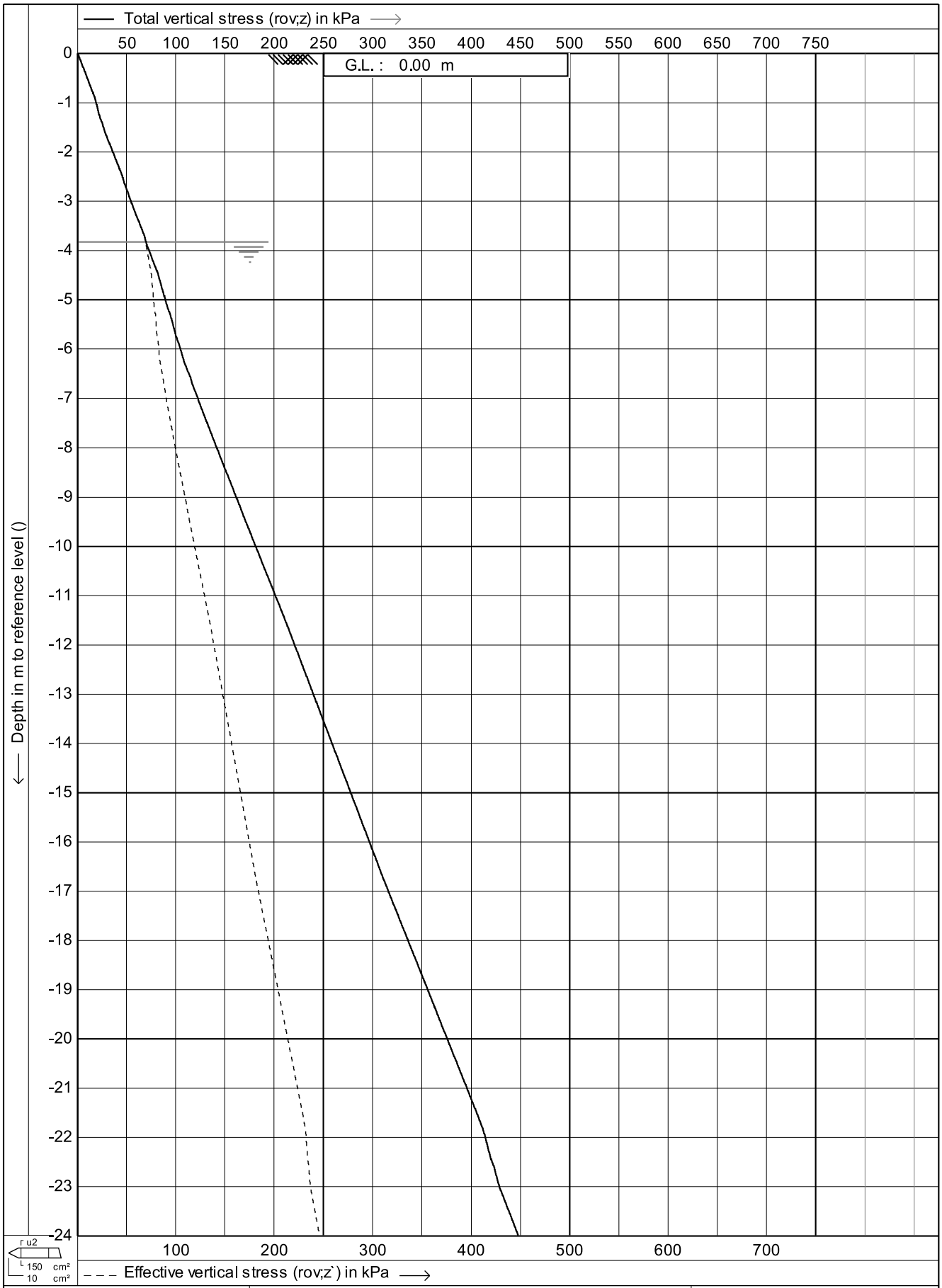
Date : **26/11/2020**

Cone no. : **C10CFIIP.C14426**

Project no. : **05AU7**

CPT no. : **048a** **10/28**

1.48



PERRY GEOTECH

Test according A.S.T.M Standard D 5778-12

Project : **Site Investigations**

Location: **Fitzgerald Rd - Drury**

Position: **0, 0**

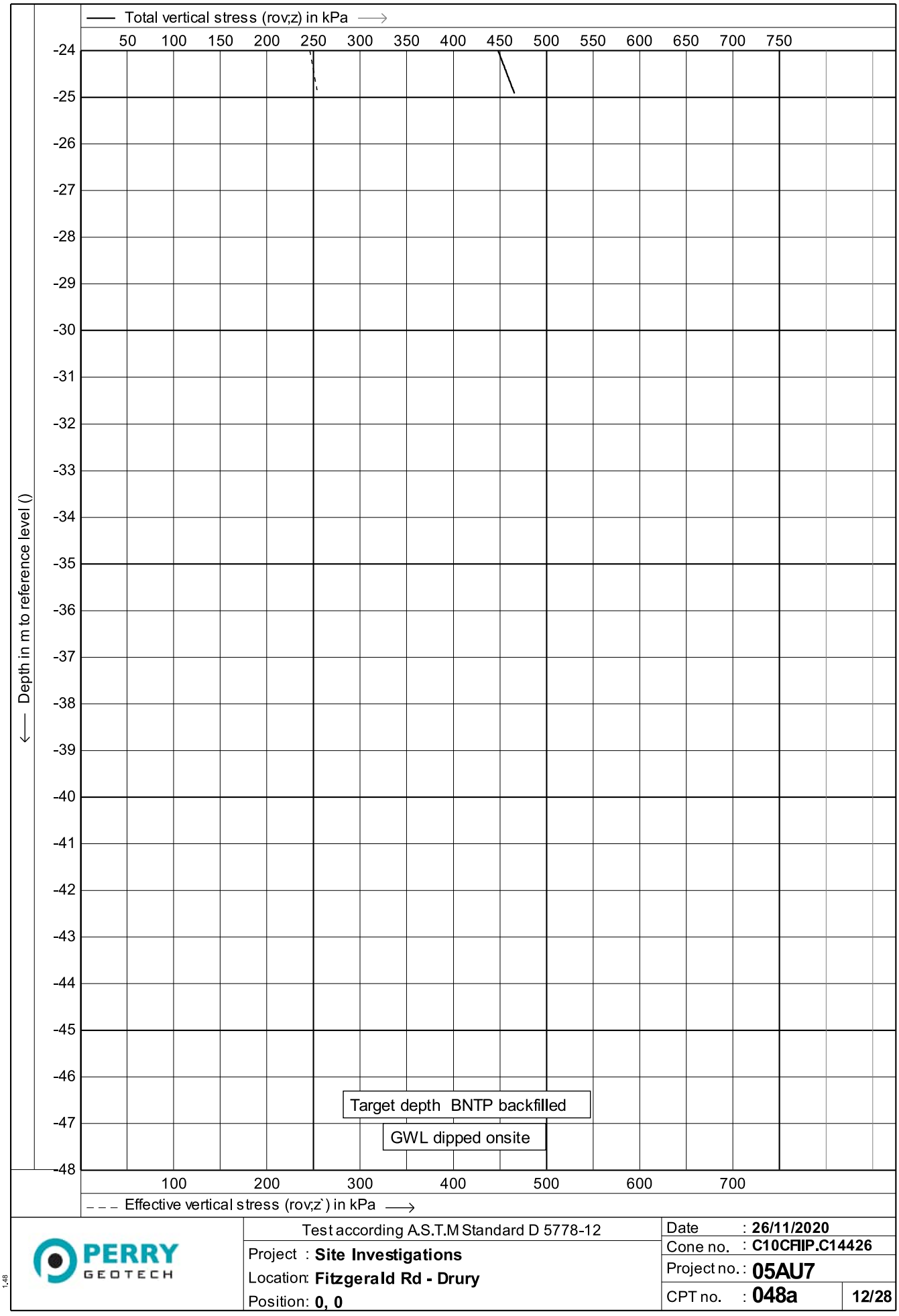
Date : **26/11/2020**

Cone no. : **C10CFIIP.C14426**

Project no. : **05AU7**

CPT no. : **048a** **11/28**

1.48



PERRY GEOTECH

Test according A.S.T.M Standard D 5778-12

Project : **Site Investigations**

Location: **Fitzgerald Rd - Drury**

Position: **0, 0**

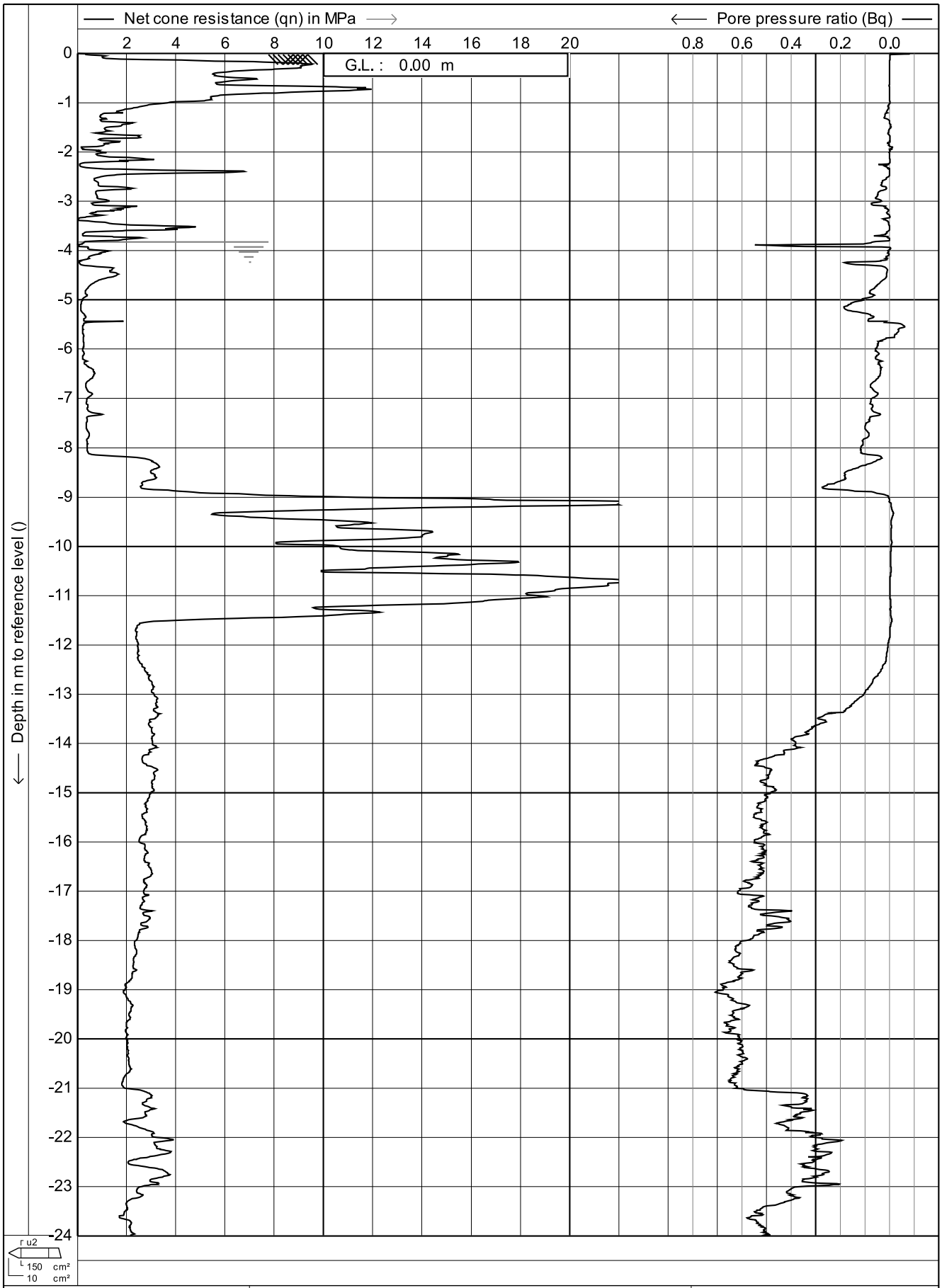
Date : **26/11/2020**

Cone no. : **C10CFIIP.C14426**

Project no. : **05AU7**

CPT no. : **048a**

1.48



PERRY GEOTECH

Test according A.S.T.M Standard D 5778-12

Project : **Site Investigations**

Location: **Fitzgerald Rd - Drury**

Position: **0, 0**

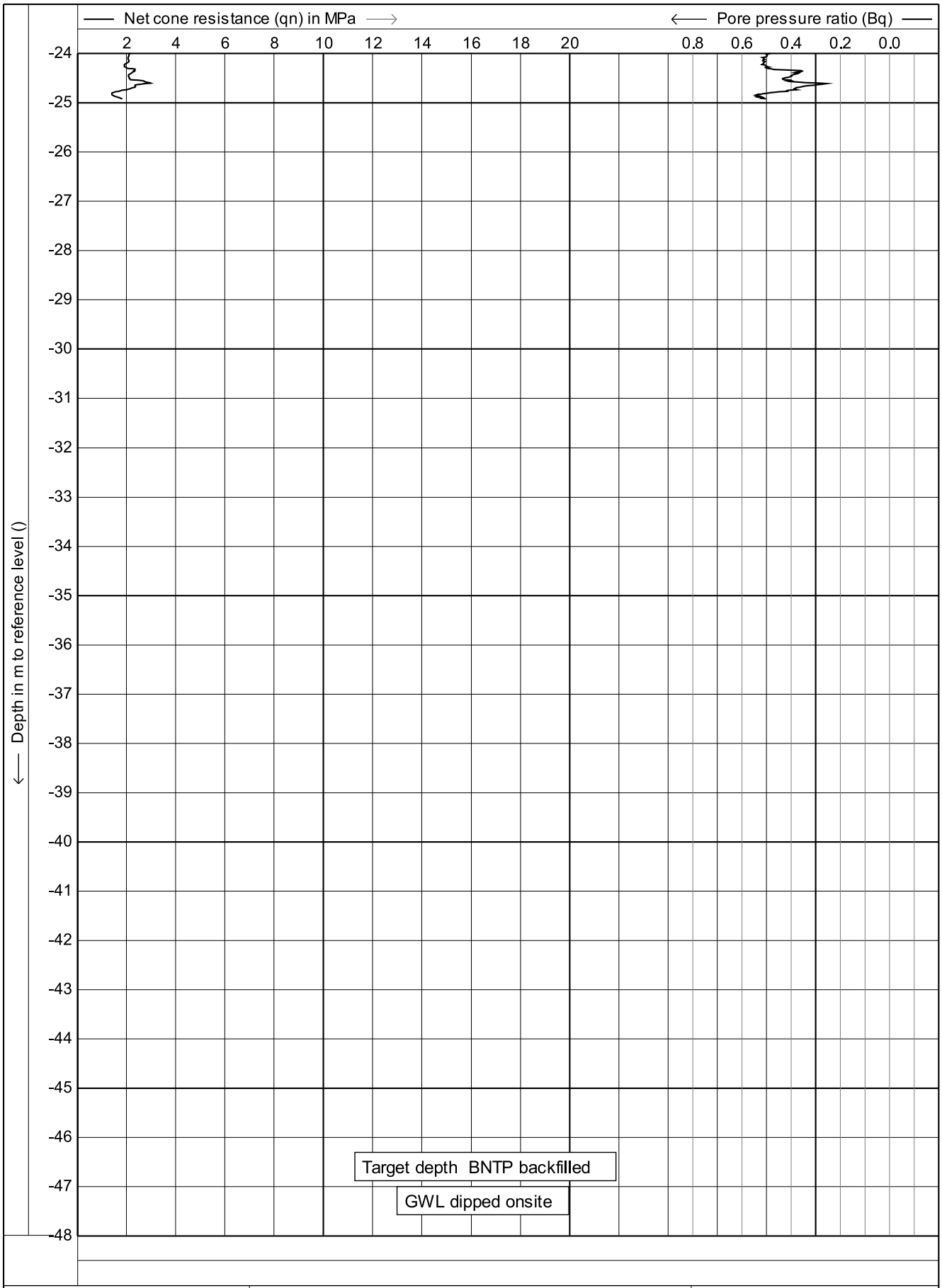
Date : **26/11/2020**

Cone no. : **C10CFIIP.C14426**

Project no. : **05AU7**

CPT no. : **048a**

1.48



PERRY GEOTECH

Test according A.S.T.M Standard D 5778-12

Project : **Site Investigations**

Location: **Fitzgerald Rd - Drury**

Position: **0, 0**

Date : **26/11/2020**

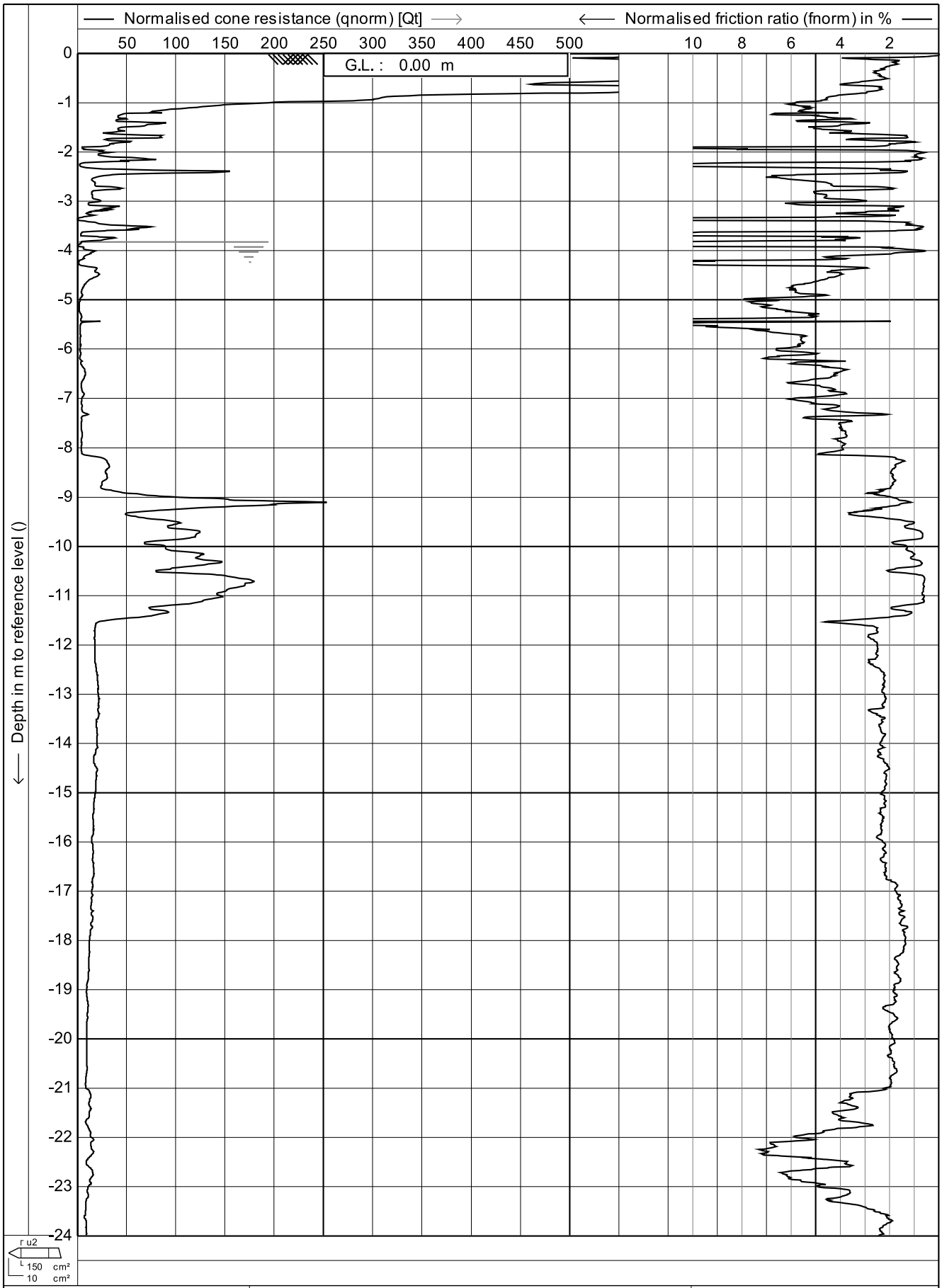
Cone no. : **C10CFIIP.C14426**

Project no. : **05AU7**

CPT no. : **048a**

14/28

1.48



PERRY GEOTECH

Test according A.S.T.M Standard D 5778-12

Project : **Site Investigations**

Location: **Fitzgerald Rd - Drury**

Position: **0, 0**

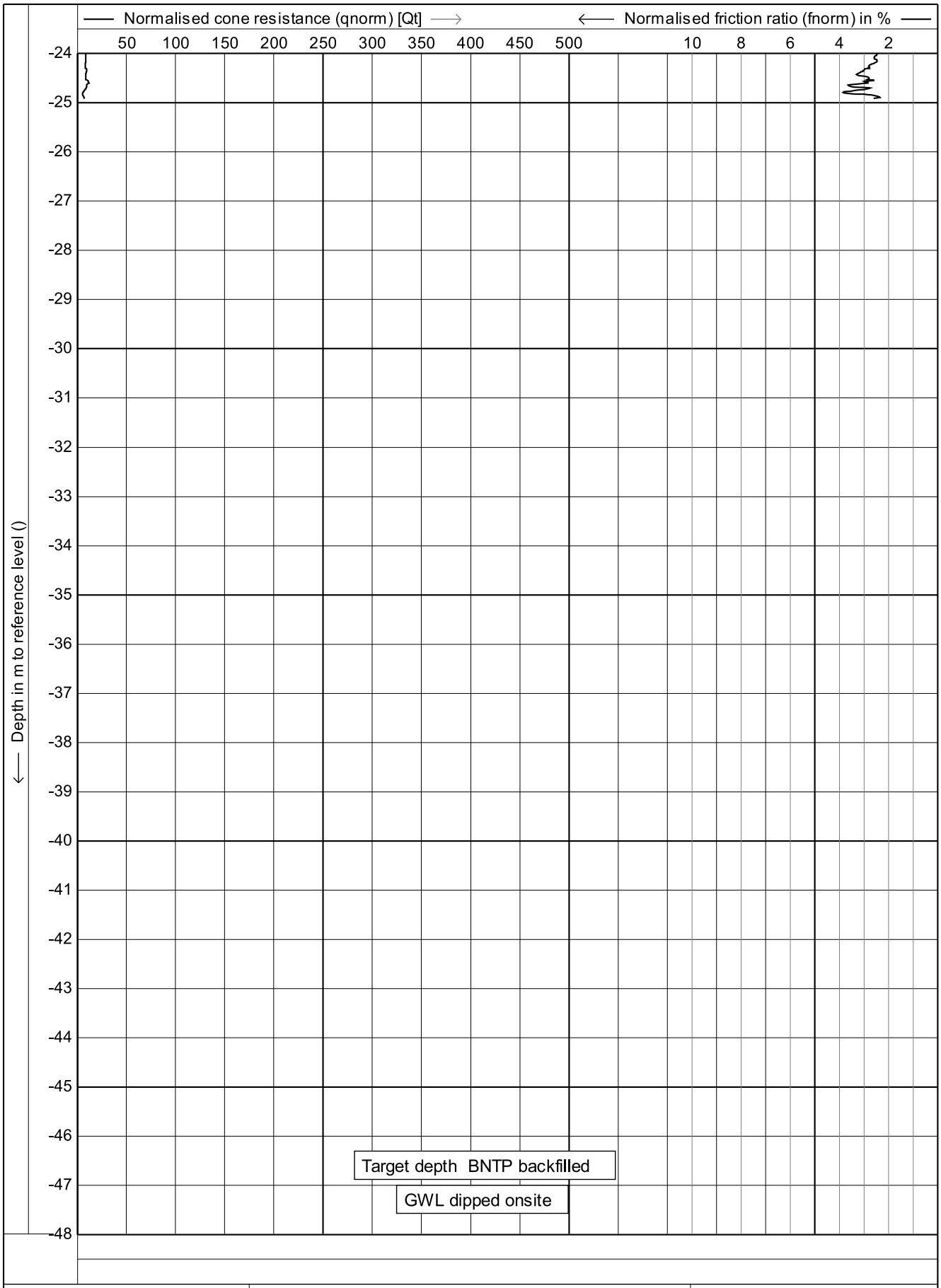
Date : **26/11/2020**

Cone no. : **C10CFIIP.C14426**

Project no. : **05AU7**

CPT no. : **048a**

1.48



PERRY GEOTECH

Test according A.S.T.M Standard D 5778-12

Project : **Site Investigations**

Location: **Fitzgerald Rd - Drury**

Position: **0, 0**

Date : **26/11/2020**

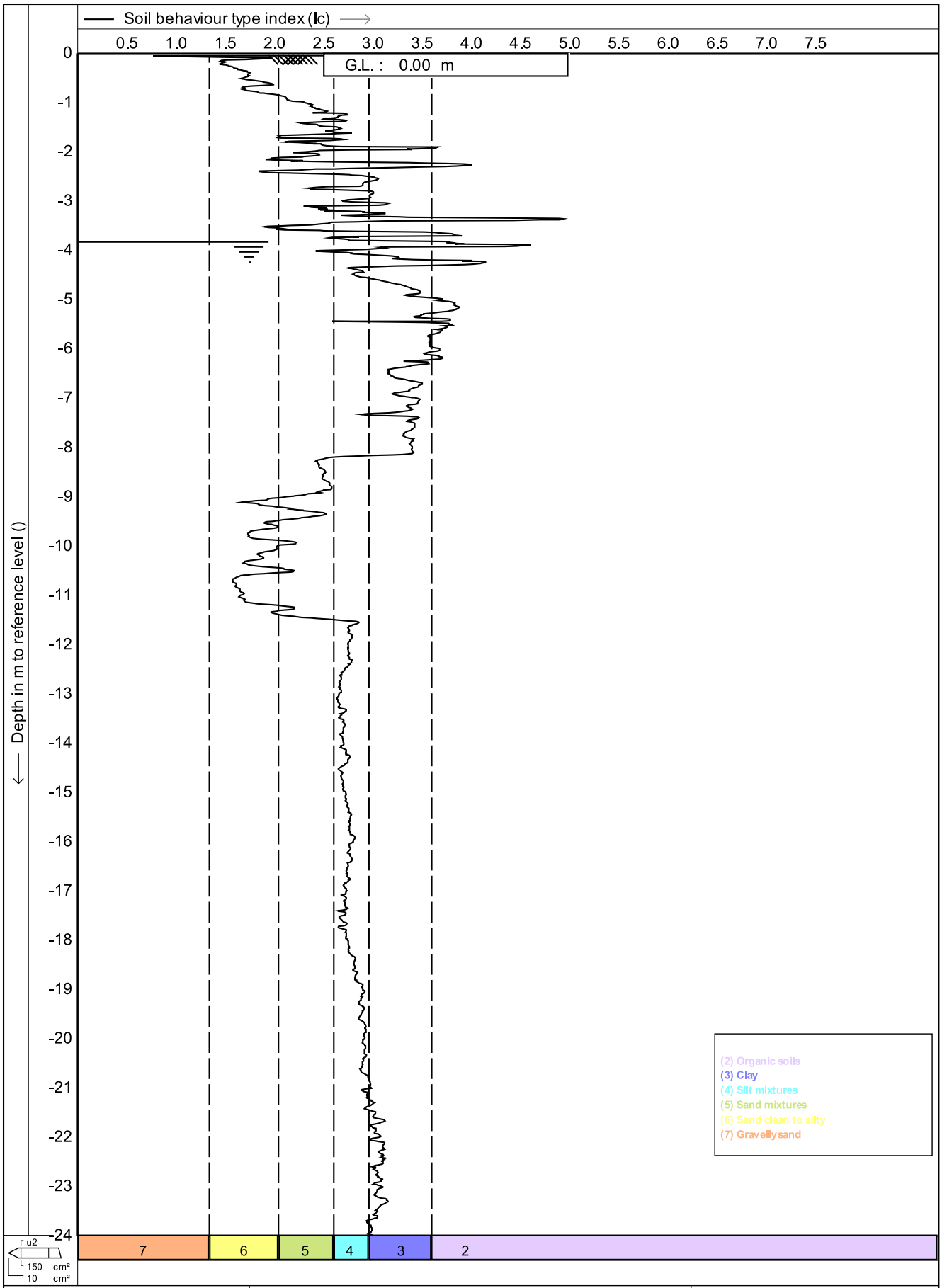
Cone no. : **C10CFIIP.C14426**

Project no. : **05AU7**

CPT no. : **048a**

16/28

1.48



PERRY GEOTECH

Test according A.S.T.M Standard D 5778-12

Project : **Site Investigations**

Location: **Fitzgerald Rd - Drury**

Position: **0, 0**

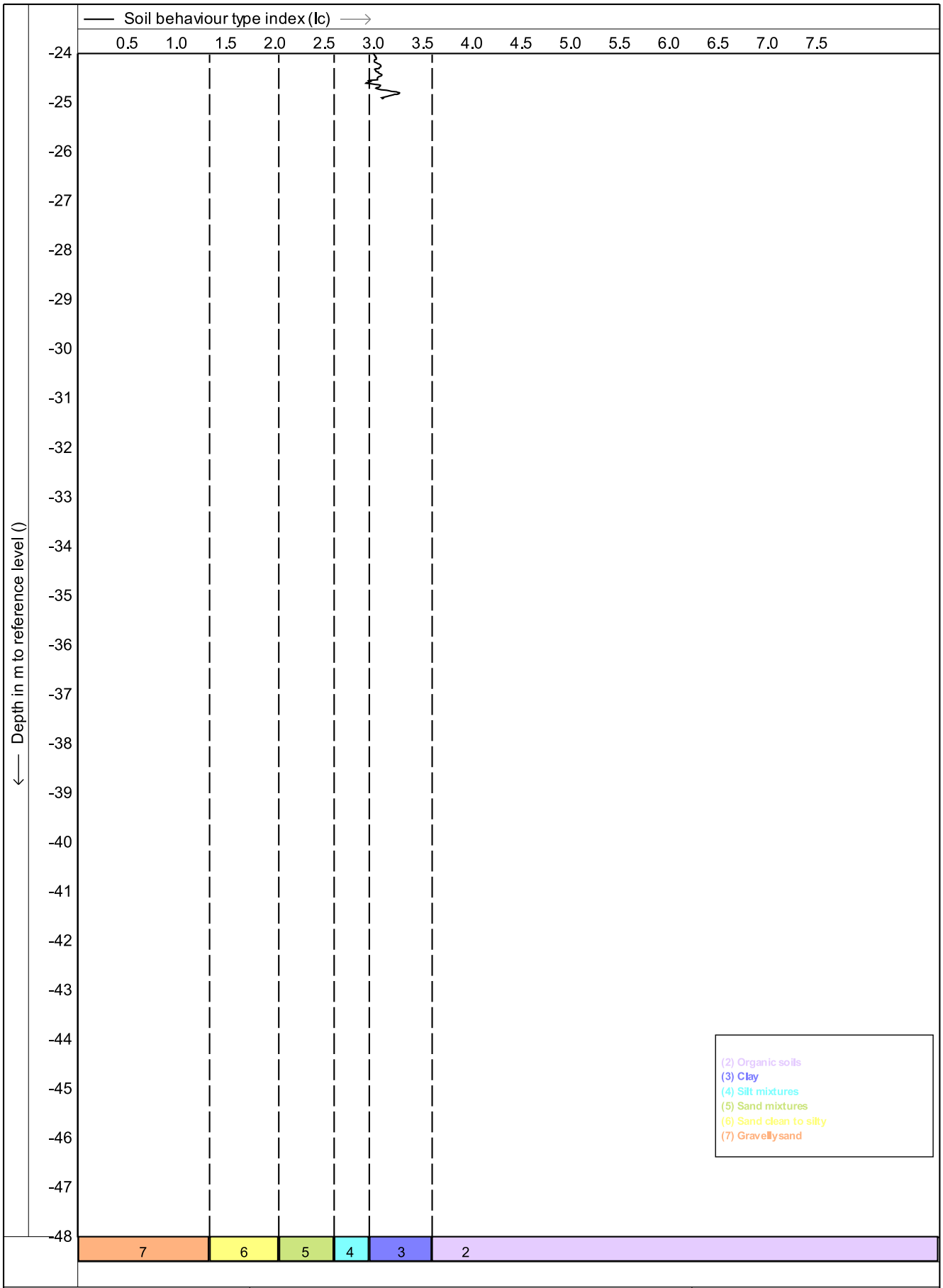
Date : **26/11/2020**

Cone no. : **C10CFIIP.C14426**

Project no. : **05AU7**

CPT no. : **048a**

1.48



PERRY GEOTECH

Test according A.S.T.M Standard D 5778-12

Project : **Site Investigations**

Location: **Fitzgerald Rd - Drury**

Position: **0, 0**

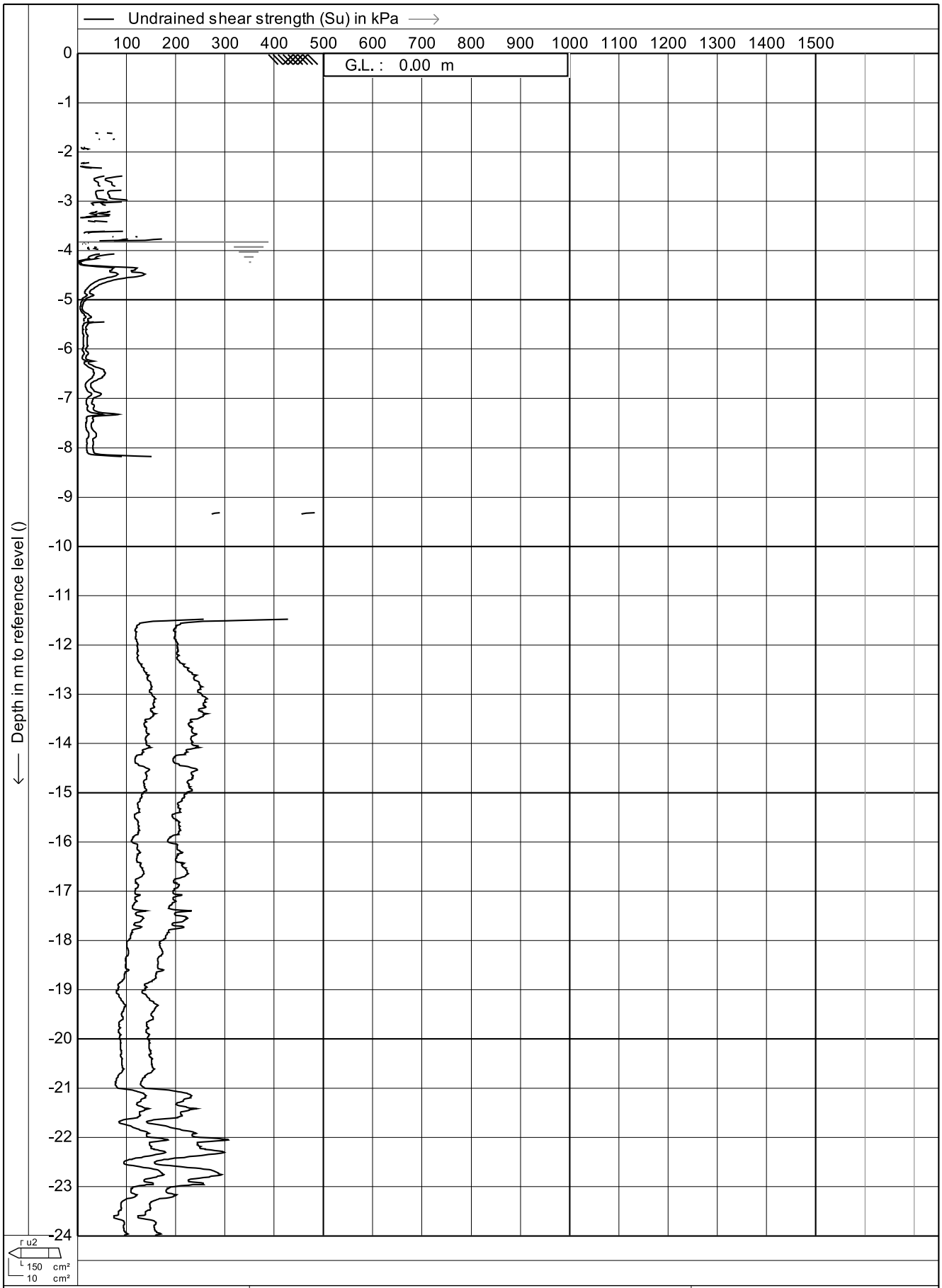
Date : **26/11/2020**

Cone no. : **C10CFIIP.C14426**

Project no. : **05AU7**

CPT no. : **048a**

1.48



PERRY GEOTECH

Test according A.S.T.M Standard D 5778-12

Project : **Site Investigations**

Location: **Fitzgerald Rd - Drury**

Position: **0, 0**

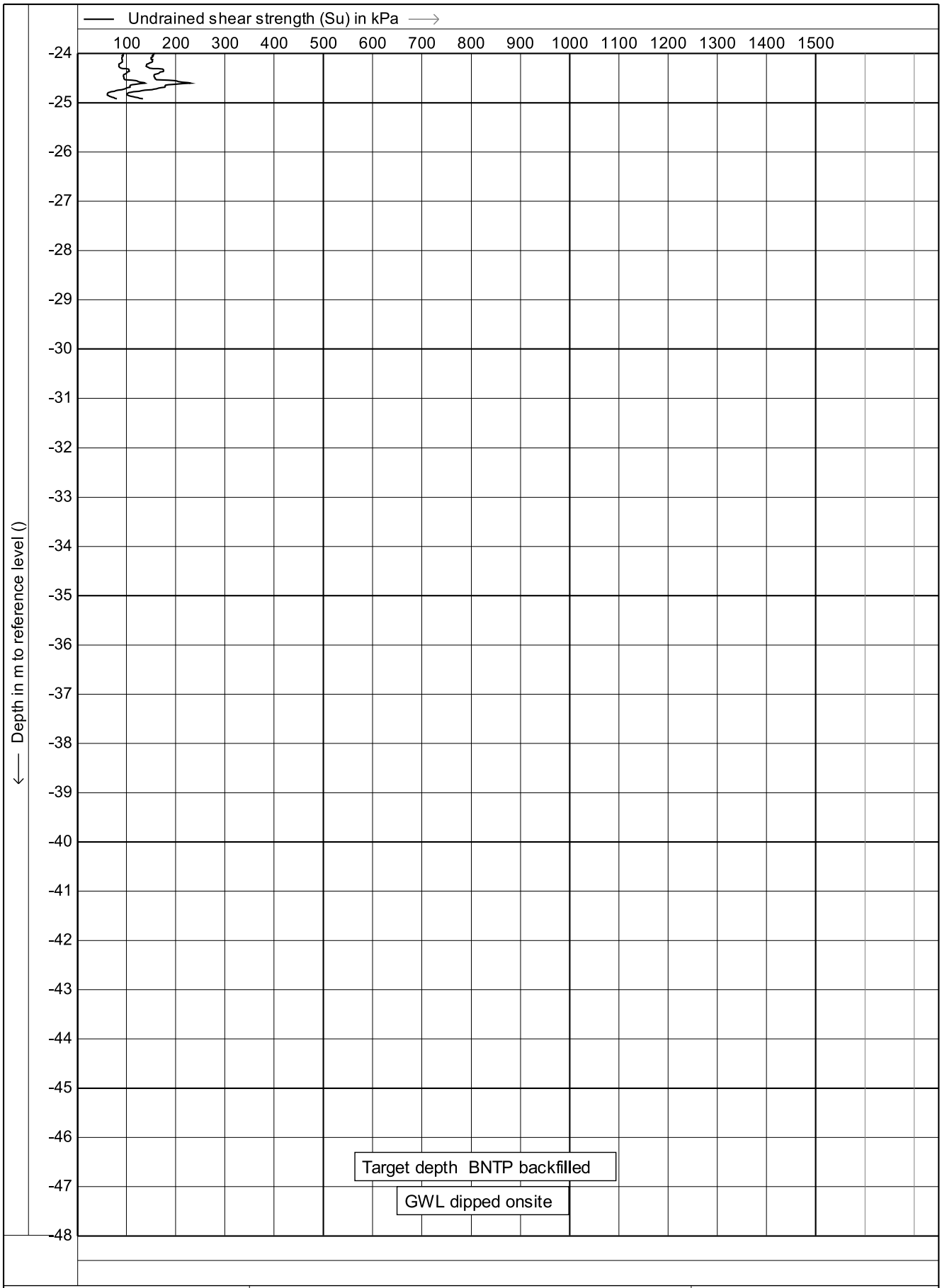
Date : **26/11/2020**

Cone no. : **C10CFIIP.C14426**

Project no. : **05AU7**

CPT no. : **048a**

1.48



PERRY GEOTECH

Test according A.S.T.M Standard D 5778-12

Project : **Site Investigations**

Location: **Fitzgerald Rd - Drury**

Position: **0, 0**

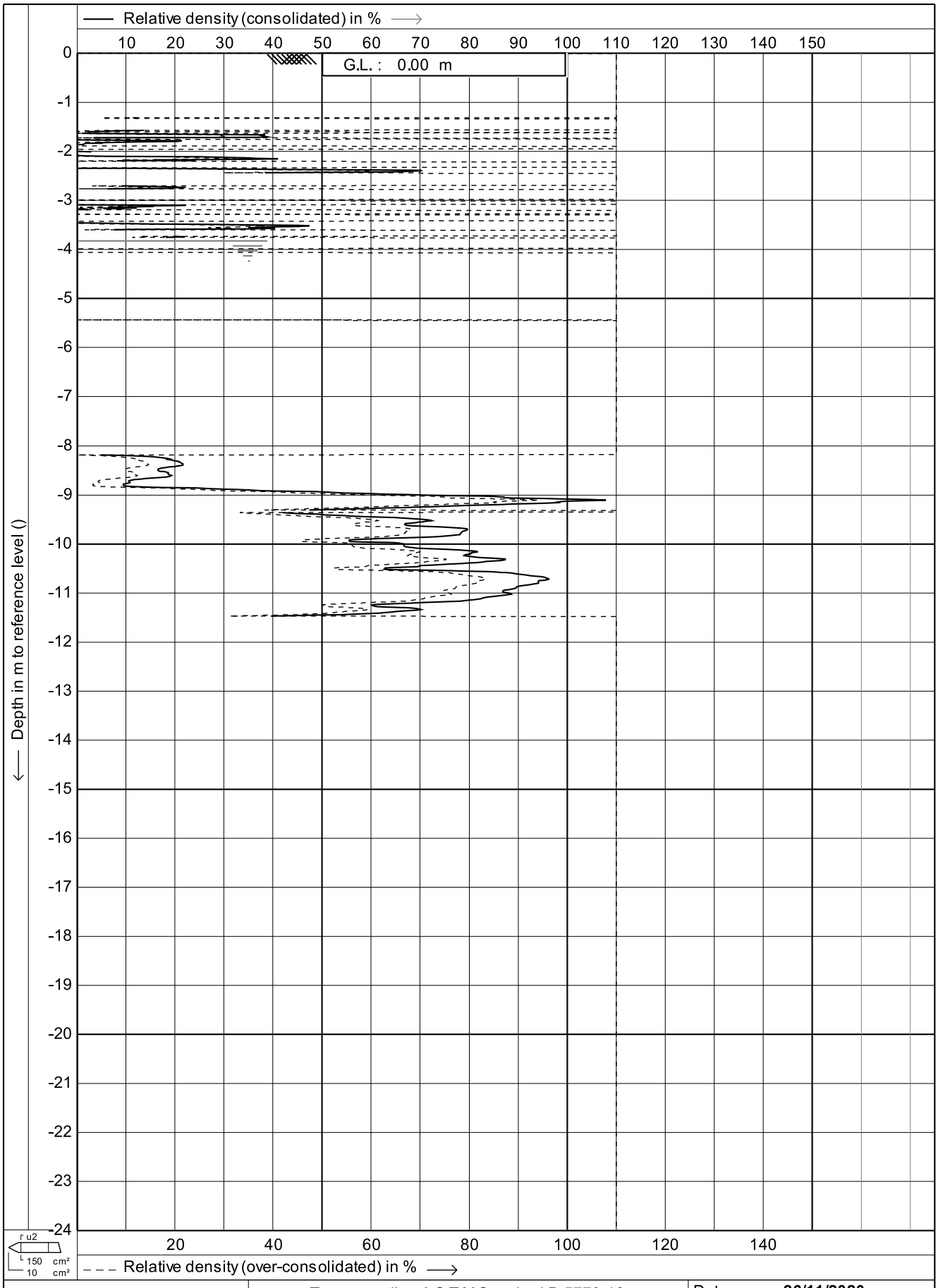
Date : **26/11/2020**

Cone no. : **C10CFIIP.C14426**

Project no. : **05AU7**

CPT no. : **048a** **20/28**

1.48



PERRY GEOTECH

Test according A.S.T.M Standard D 5778-12

Project : **Site Investigations**

Location: **Fitzgerald Rd - Drury**

Position: **0, 0**

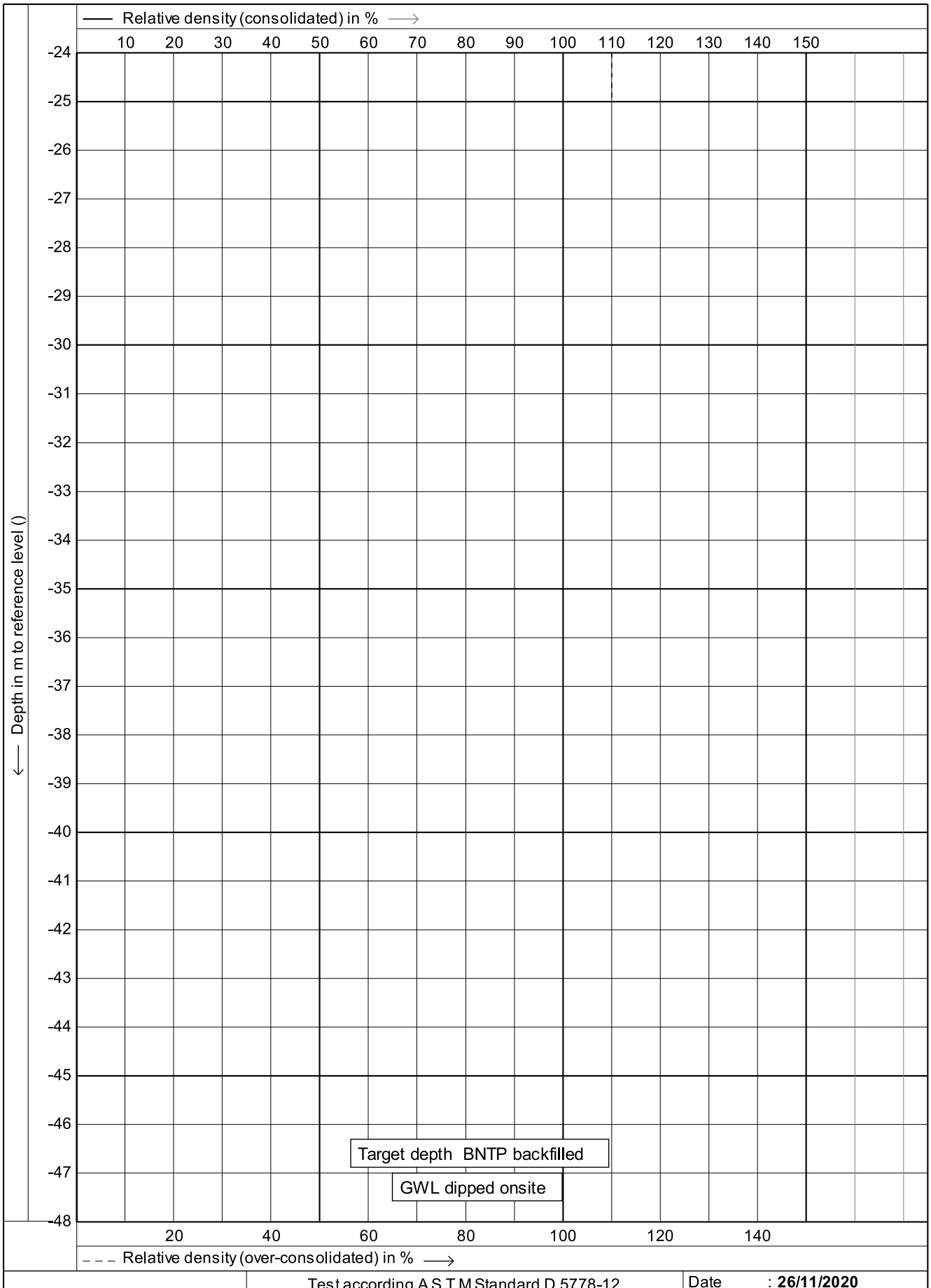
Date : **26/11/2020**

Cone no. : **C10CFIIP.C14426**

Project no. : **05AU7**

CPT no. : **048a**

1.48



PERRY GEOTECH

Test according A.S.T.M Standard D 5778-12

Project : **Site Investigations**

Location: **Fitzgerald Rd - Drury**

Position: **0, 0**

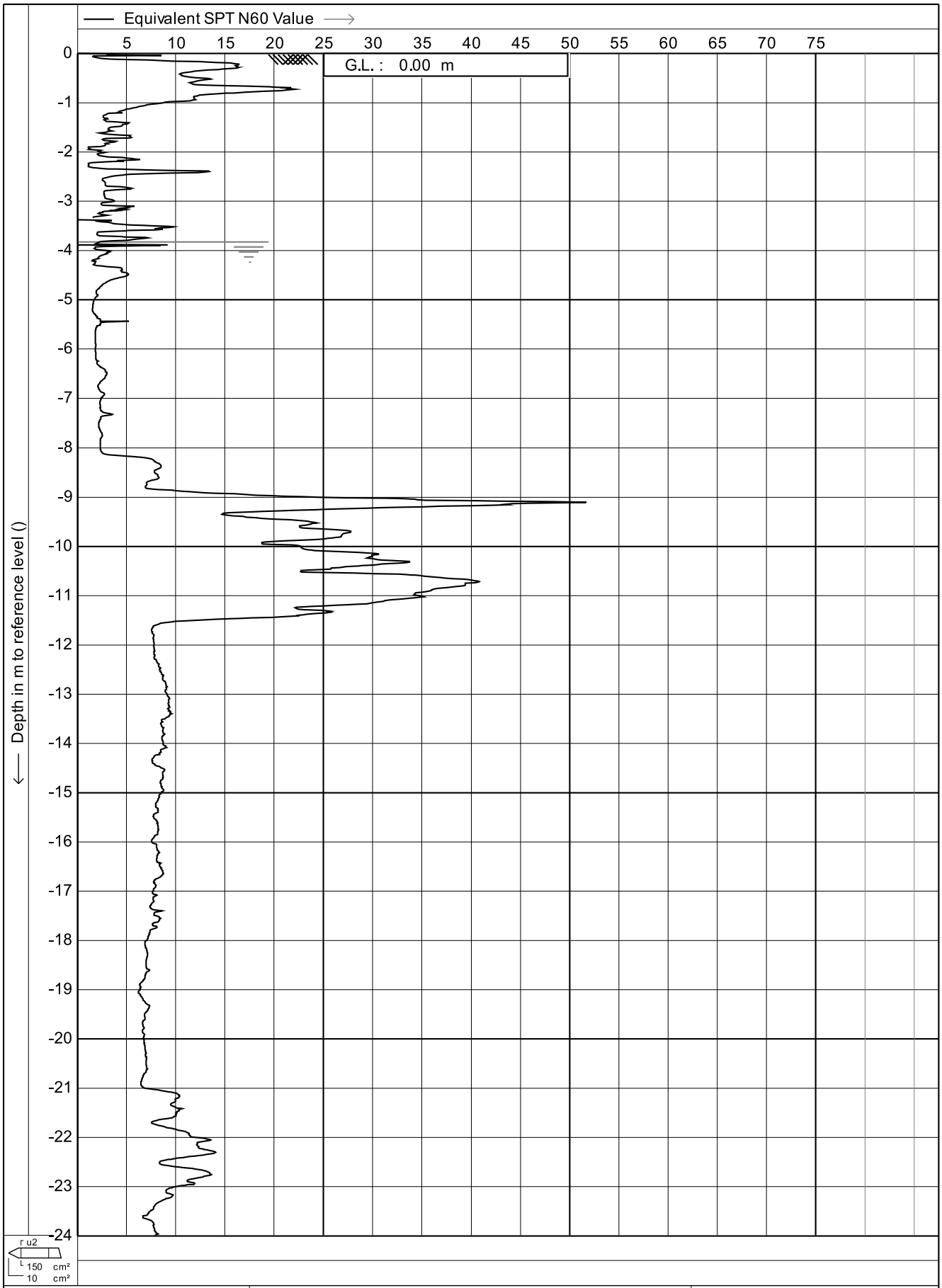
Date : **26/11/2020**

Cone no. : **C10CFIIP.C14426**

Project no. : **05AU7**

CPT no. : **048a**

1.48



PERRY GEOTECH

Test according A.S.T.M Standard D 5778-12

Project : **Site Investigations**

Location: **Fitzgerald Rd - Drury**

Position: **0, 0**

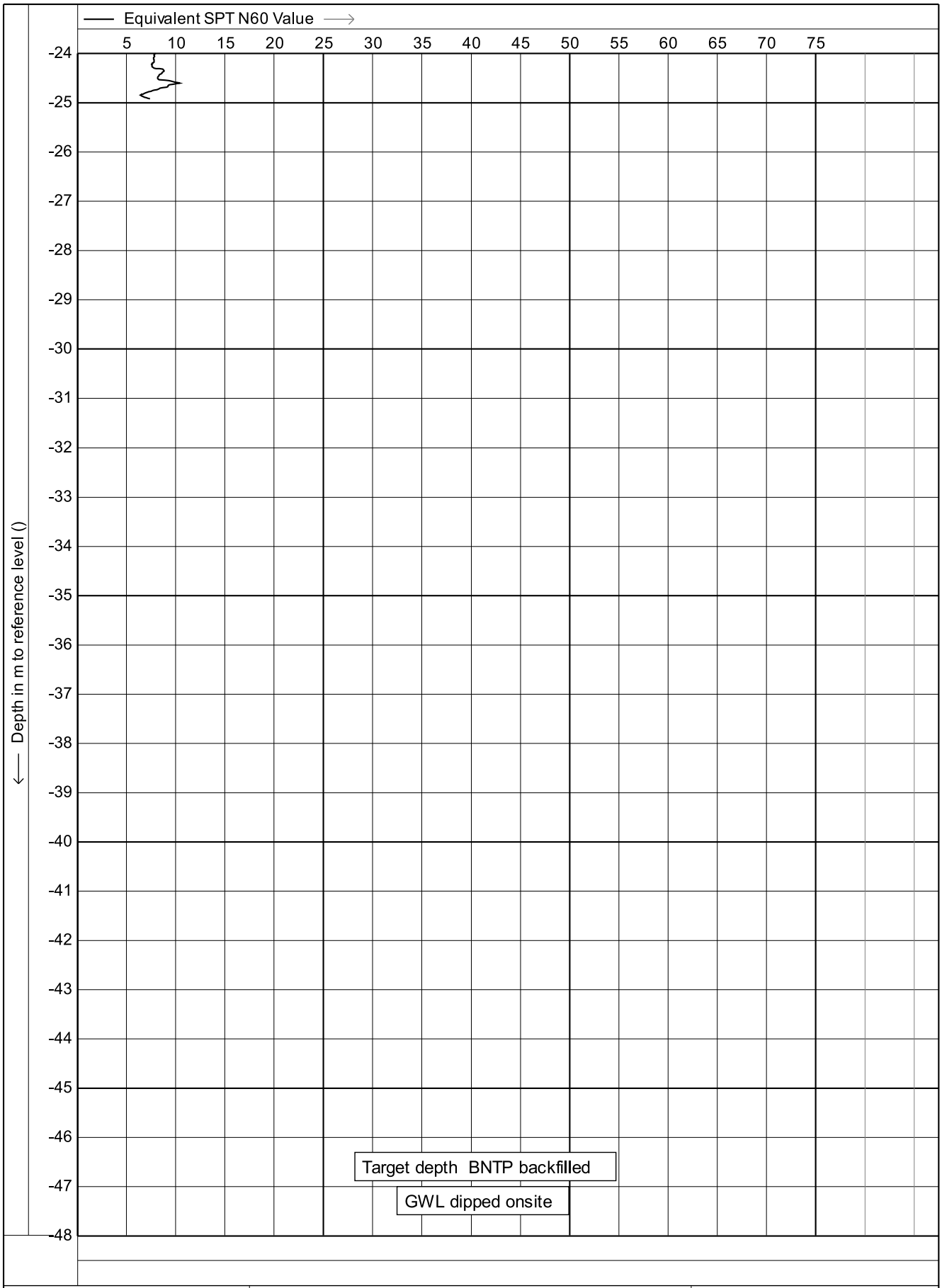
Date : **26/11/2020**

Cone no. : **C10CFIIP.C14426**

Project no. : **05AU7**

CPT no. : **048a**

1.48



PERRY GEOTECH

Test according A.S.T.M Standard D 5778-12

Project : **Site Investigations**

Location: **Fitzgerald Rd - Drury**

Position: **0, 0**

Date : **26/11/2020**

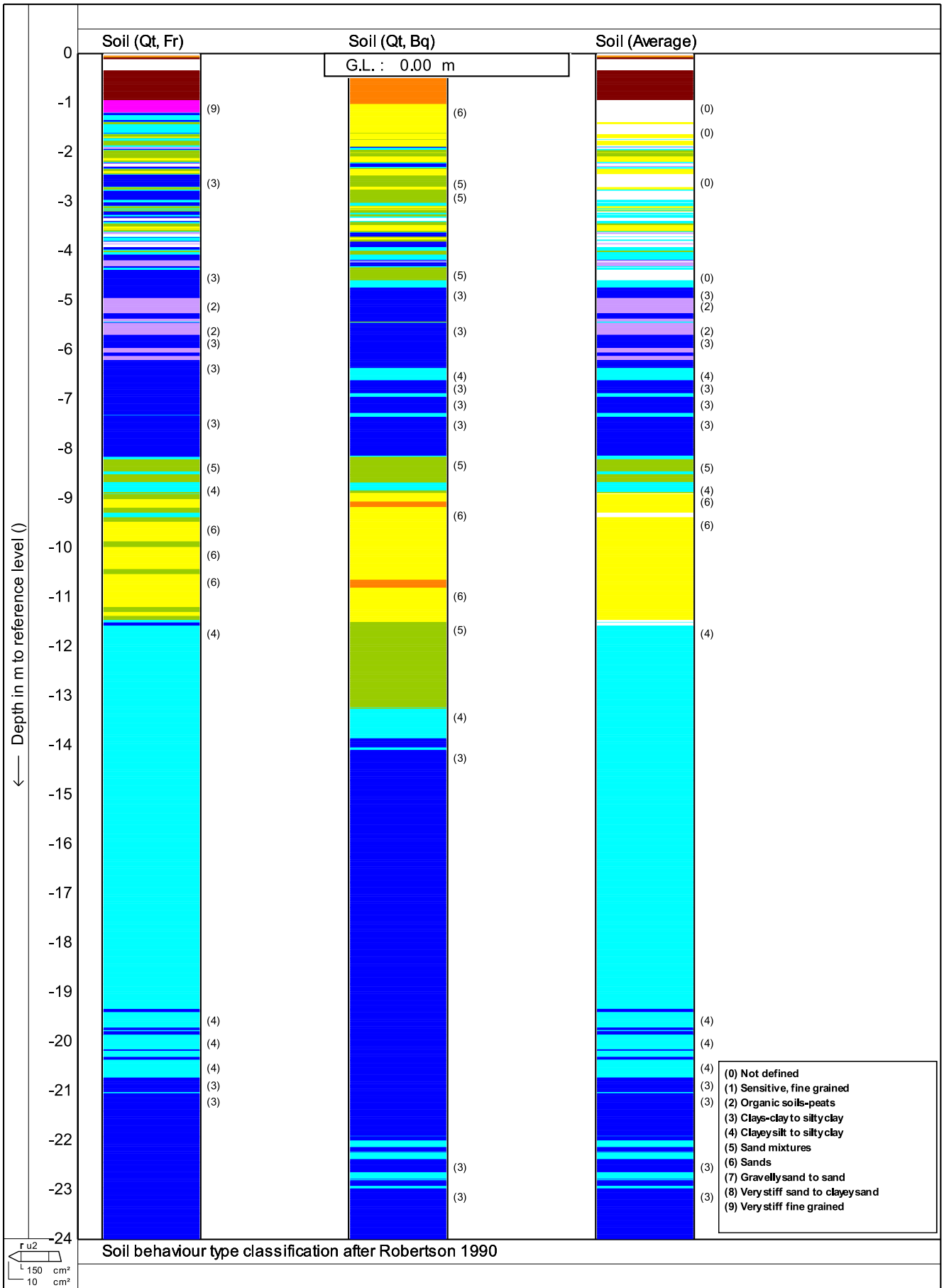
Cone no. : **C10CFIIP.C14426**

Project no. : **05AU7**

CPT no. : **048a**

24/28

1.48



PERRY GEOTECH

Test according A.S.T.M Standard D 5778-12

Project : **Site Investigations**

Location: **Fitzgerald Rd - Drury**

Position: **0, 0**

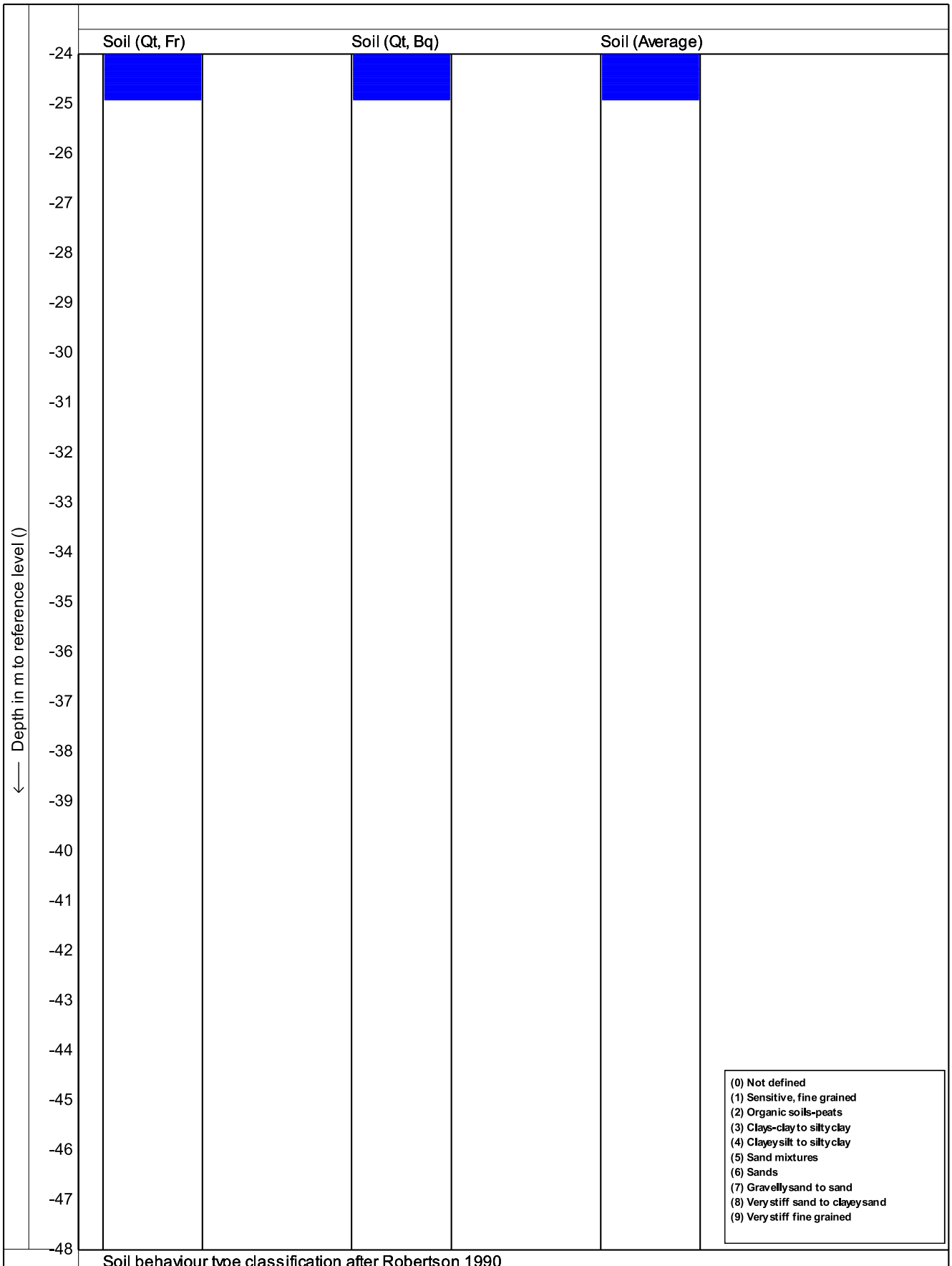
Date : **26/11/2020**

Cone no. : **C10CFIIP.C14426**

Project no. : **05AU7**

CPT no. : **048a**

1.48



Soil behaviour type classification after Robertson 1990

PERRY GEOTECH

Test according A.S.T.M Standard D 5778-12

Project : **Site Investigations**

Location: **Fitzgerald Rd - Drury**

Position: **0, 0**

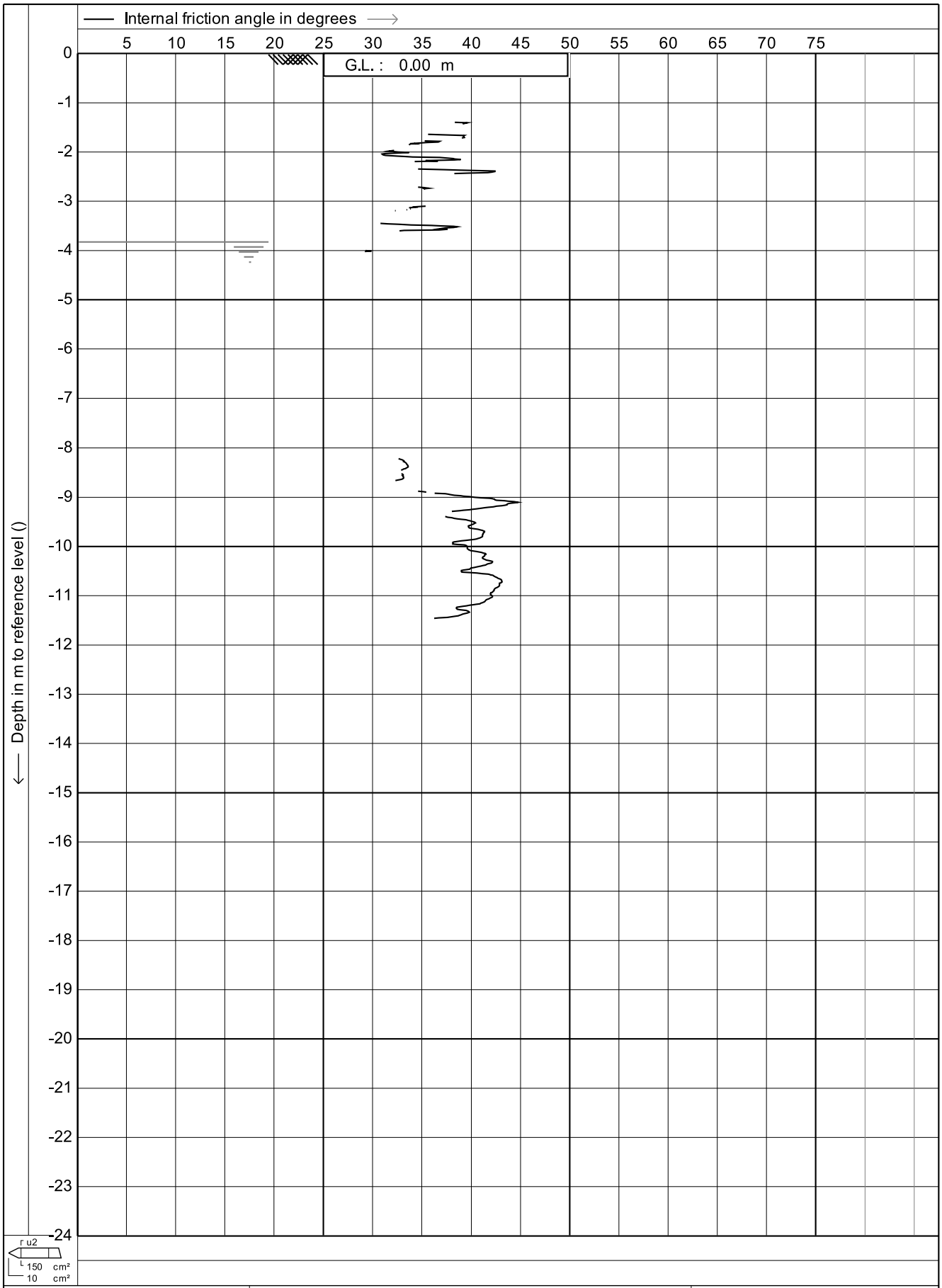
Date : **26/11/2020**

Cone no. : **C10CFIIP.C14426**

Project no. : **05AU7**

CPT no. : **048a**

1.48



PERRY GEOTECH

Test according A.S.T.M Standard D 5778-12

Project : **Site Investigations**

Location: **Fitzgerald Rd - Drury**

Position: **0, 0**

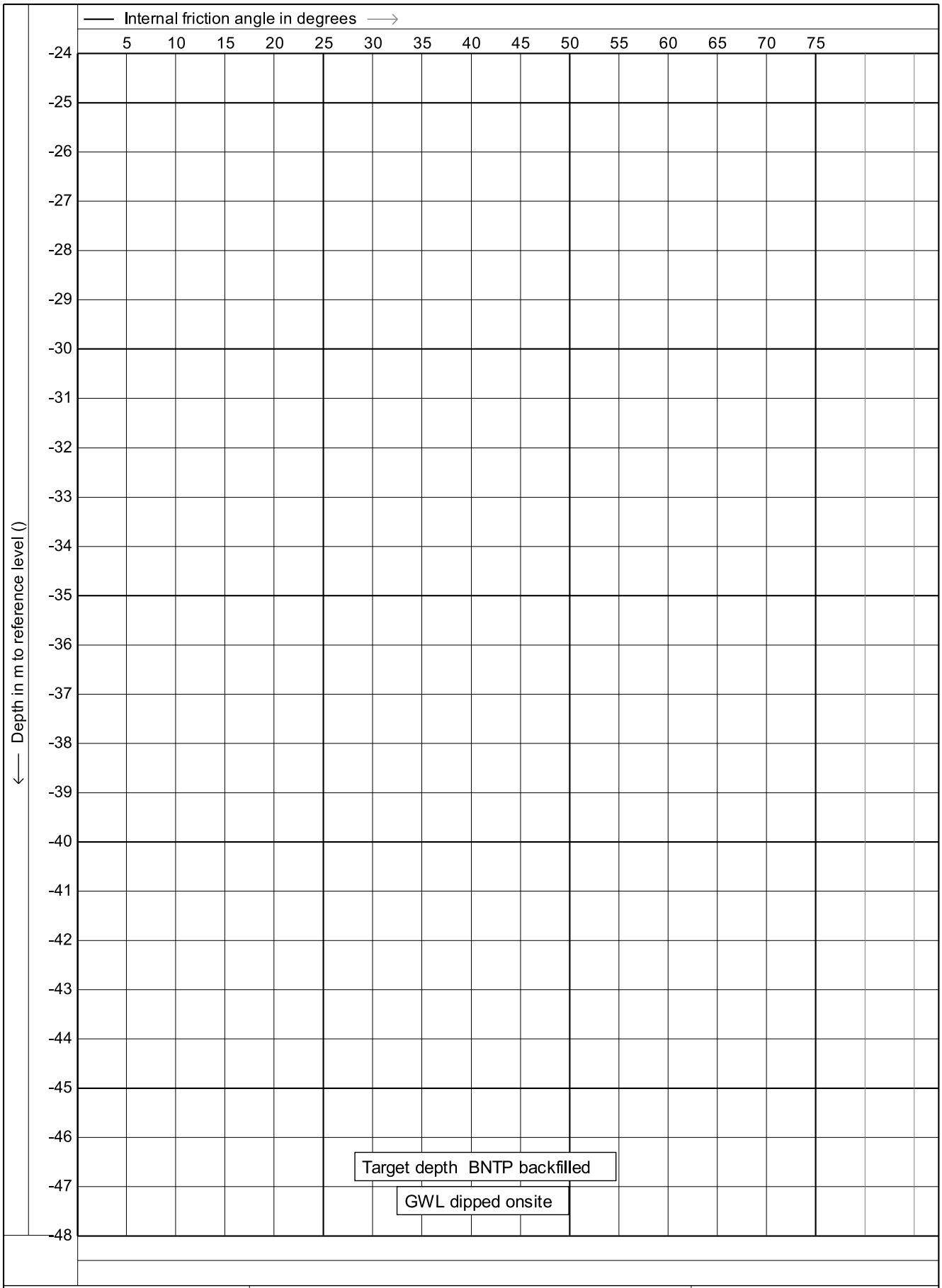
Date : **26/11/2020**

Cone no. : **C10CFIIP.C14426**

Project no. : **05AU7**

CPT no. : **048a**

1.48



PERRY GEOTECH

Test according A.S.T.M Standard D 5778-12

Project : **Site Investigations**

Location: **Fitzgerald Rd - Drury**

Position: **0, 0**

Date : **26/11/2020**

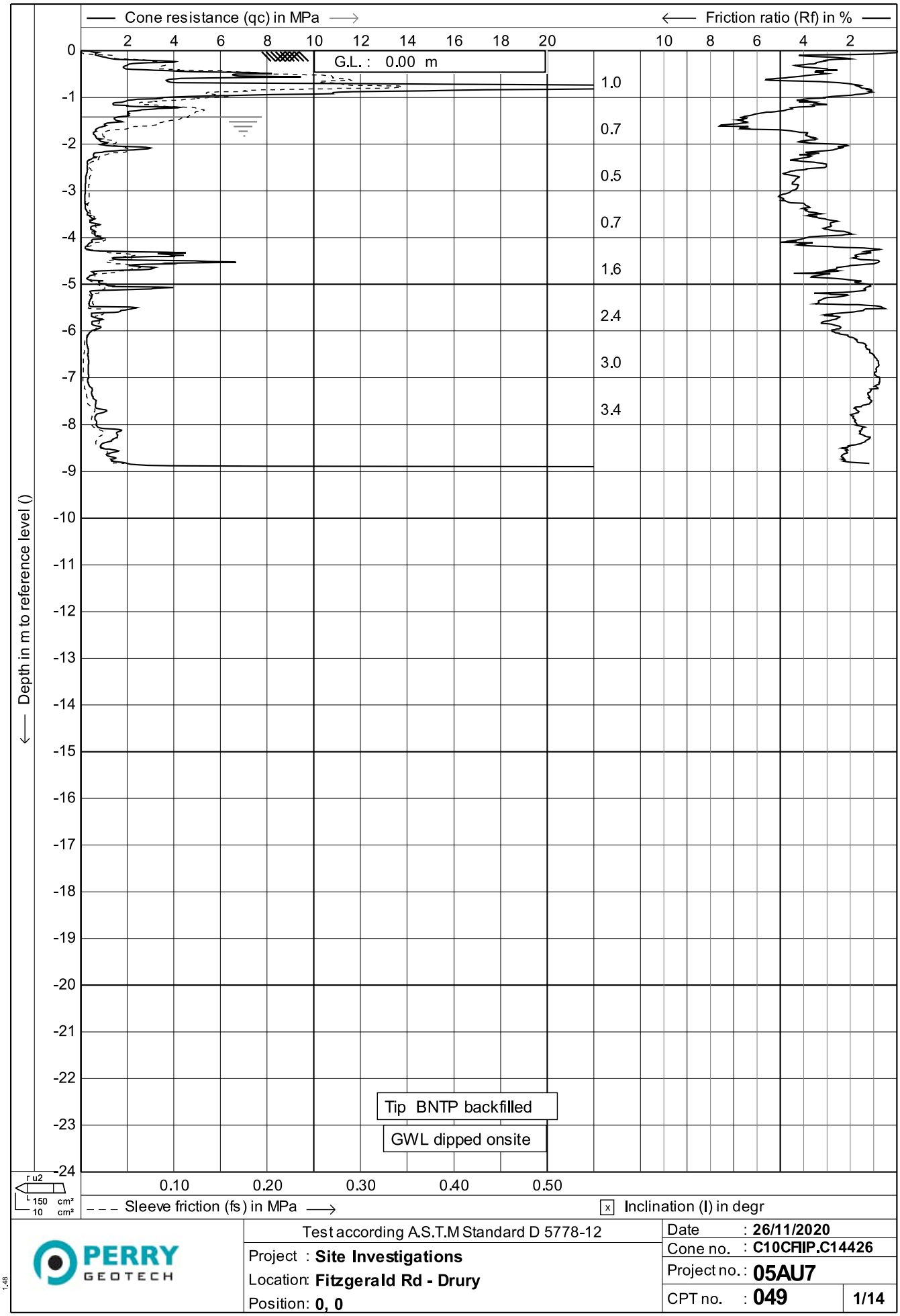
Cone no. : **C10CFIIP.C14426**

Project no. : **05AU7**

CPT no. : **048a**

28/28

1.48



PERRY GEOTECH

Test according A.S.T.M Standard D 5778-12

Project : **Site Investigations**

Location: **Fitzgerald Rd - Drury**

Position: **0, 0**

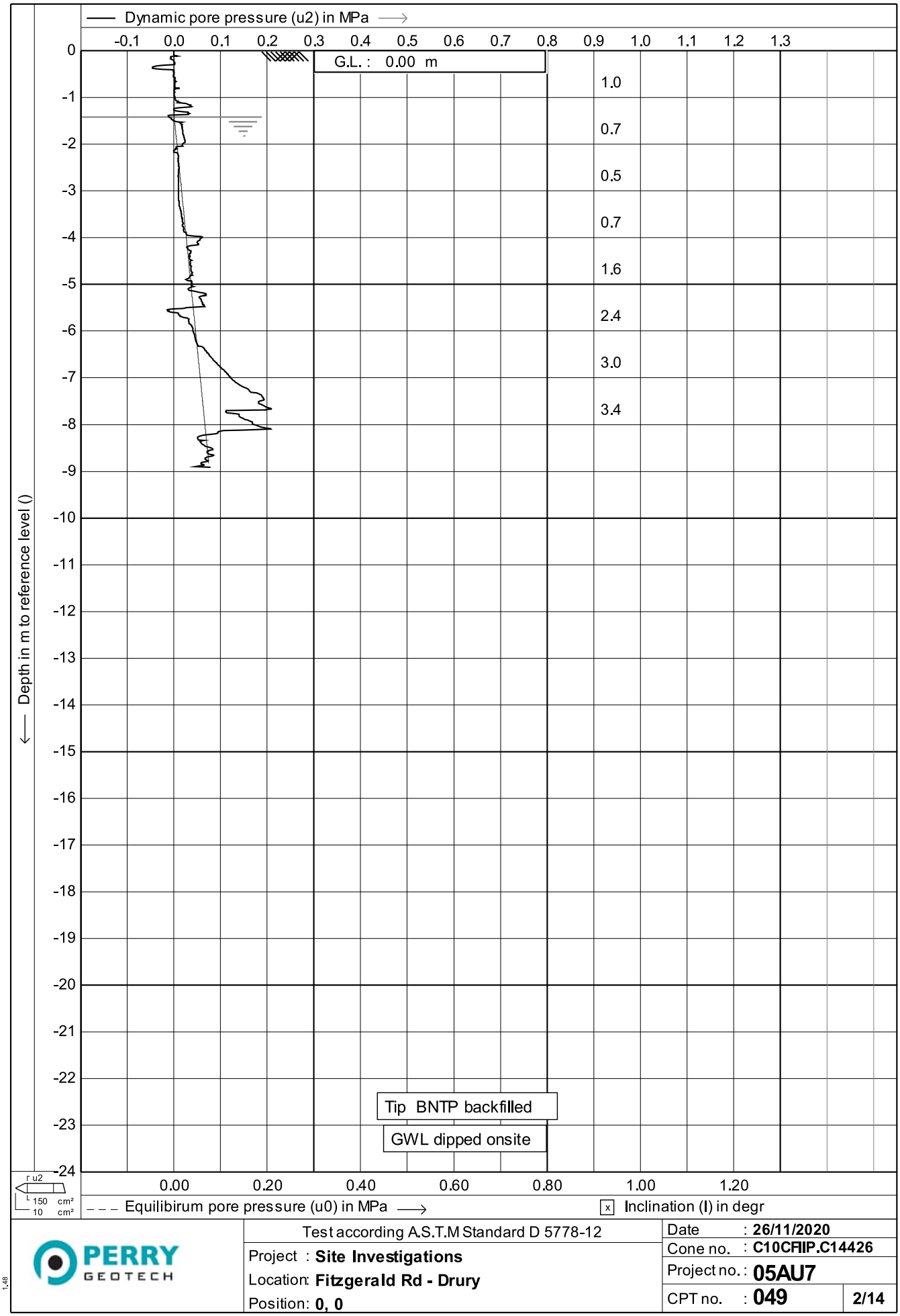
Date : **26/11/2020**

Cone no. : **C10CFIIP.C14426**

Project no. : **05AU7**

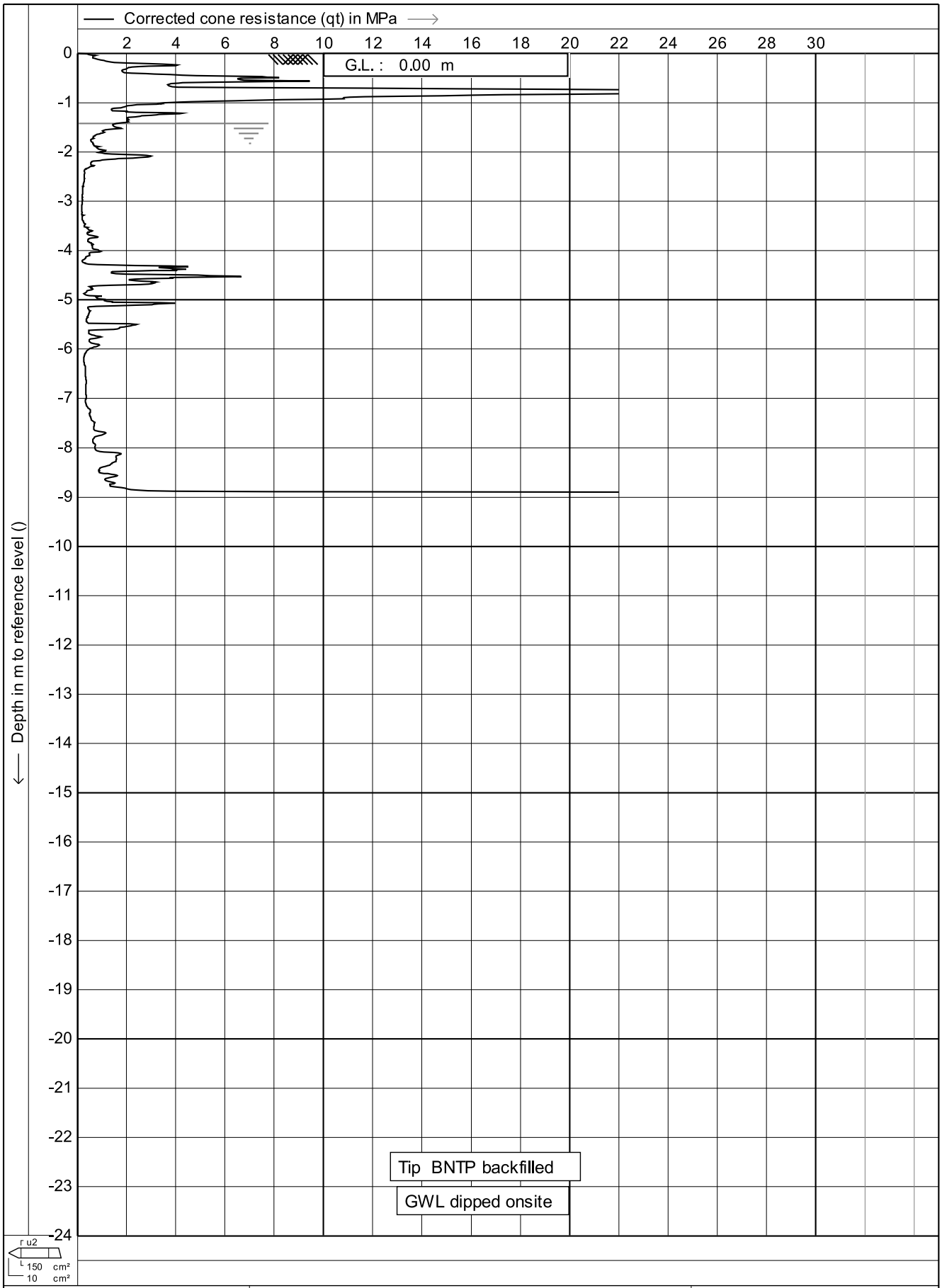
CPT no. : **049** **1/14**

1.48



PERRY GEOTECH	Test according A.S.T.M Standard D 5778-12	Date : **26/11/2020**
	Project : **Site Investigations**	Cone no. : **C10CFIIP.C14426**
	Location: **Fitzgerald Rd - Drury**	Project no. : **05AU7**
	Position: **0, 0**	CPT no. : **049** **2/14**

1.48



PERRY GEOTECH

Test according A.S.T.M Standard D 5778-12

Project : **Site Investigations**

Location: **Fitzgerald Rd - Drury**

Position: **0, 0**

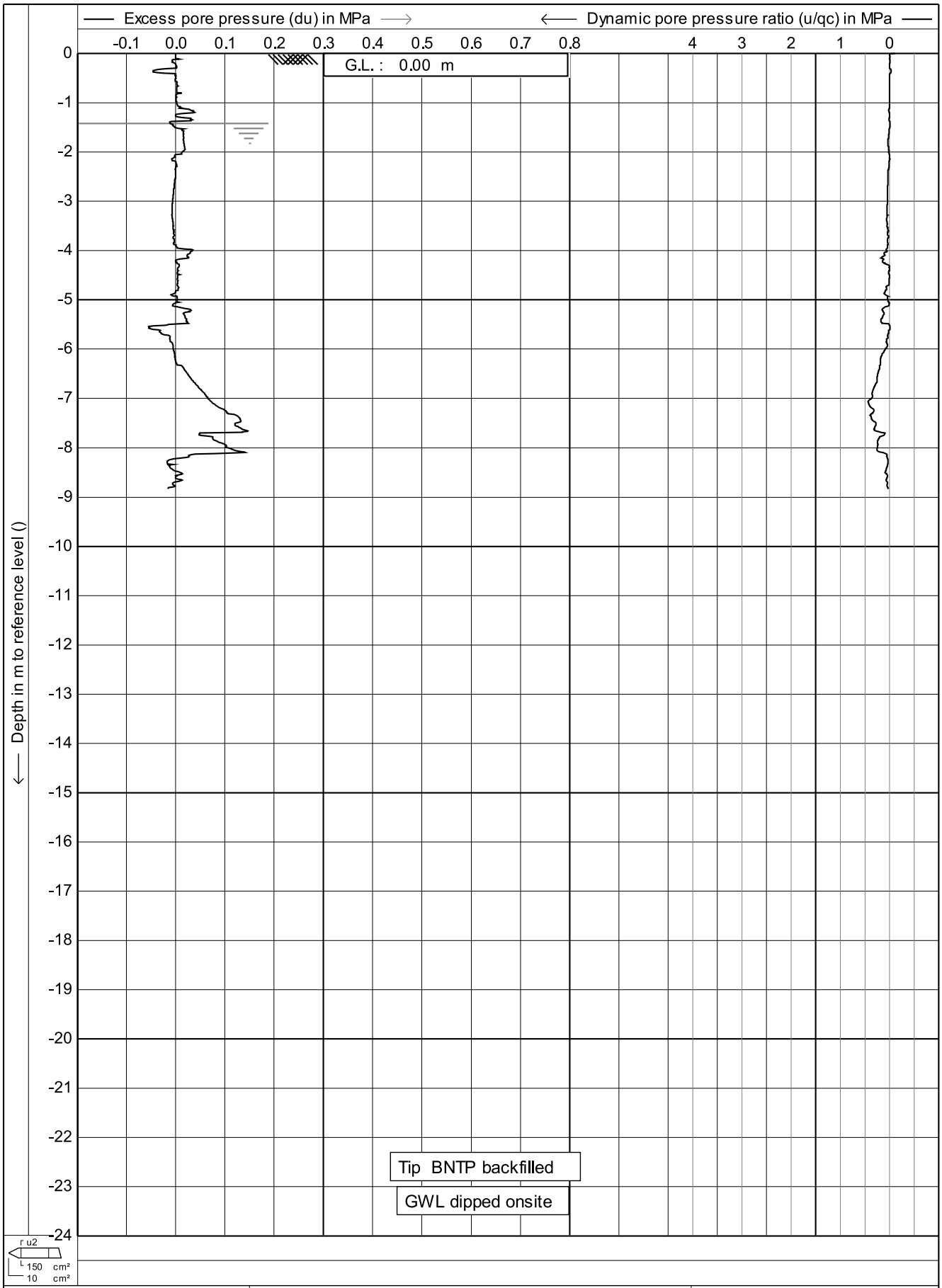
Date : **26/11/2020**

Cone no. : **C10CFIIP.C14426**

Project no. : **05AU7**

CPT no. : **049**

1.48



PERRY GEOTECH

Test according A.S.T.M Standard D 5778-12

Project : **Site Investigations**

Location: **Fitzgerald Rd - Drury**

Position: **0, 0**

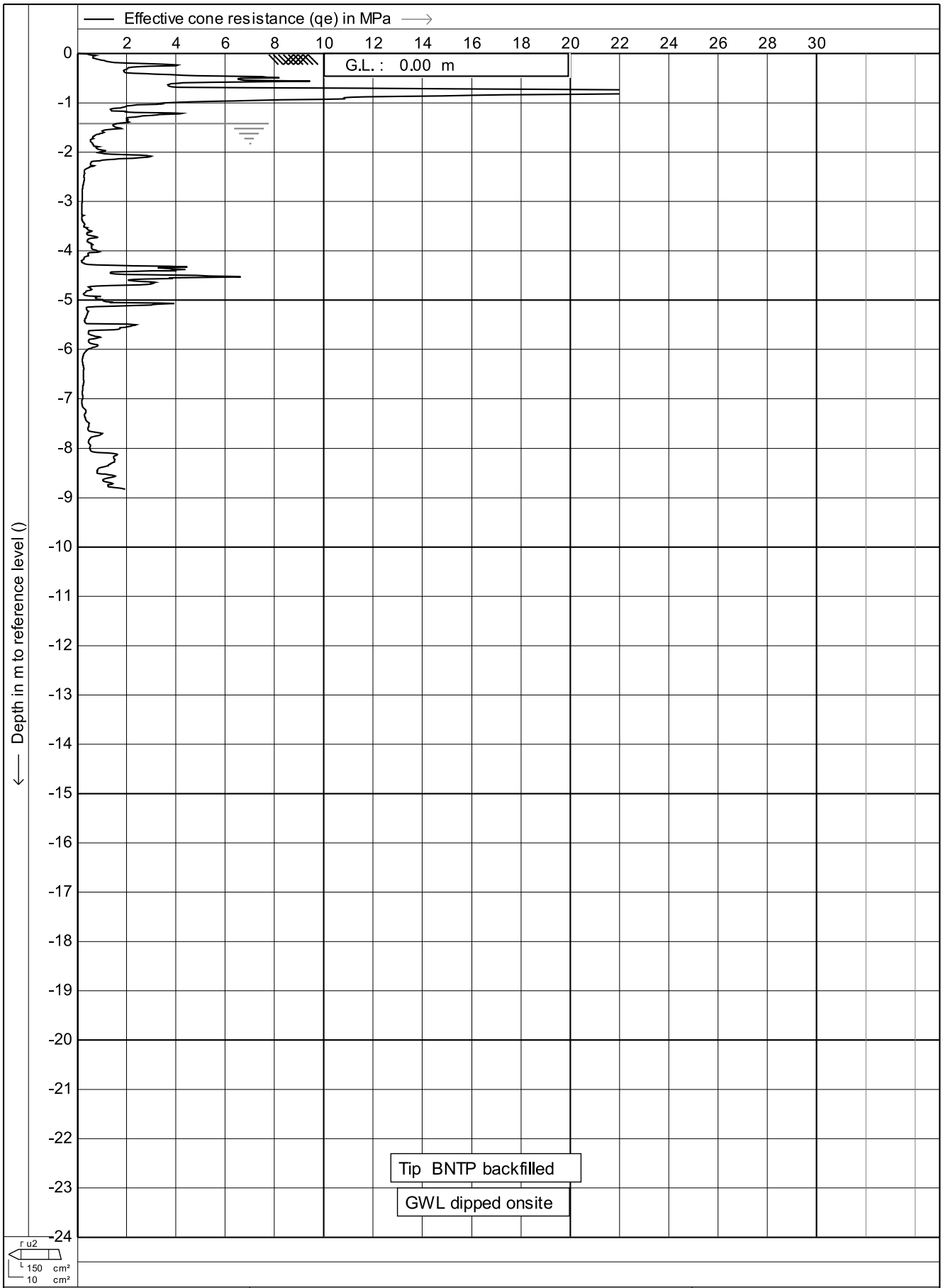
Date : **26/11/2020**

Cone no. : **C10CFIIP.C14426**

Project no. : **05AU7**

CPT no. : **049** **4/14**

1.48



PERRY GEOTECH

Test according A.S.T.M Standard D 5778-12

Project : **Site Investigations**

Location: **Fitzgerald Rd - Drury**

Position: **0, 0**

Date : **26/11/2020**

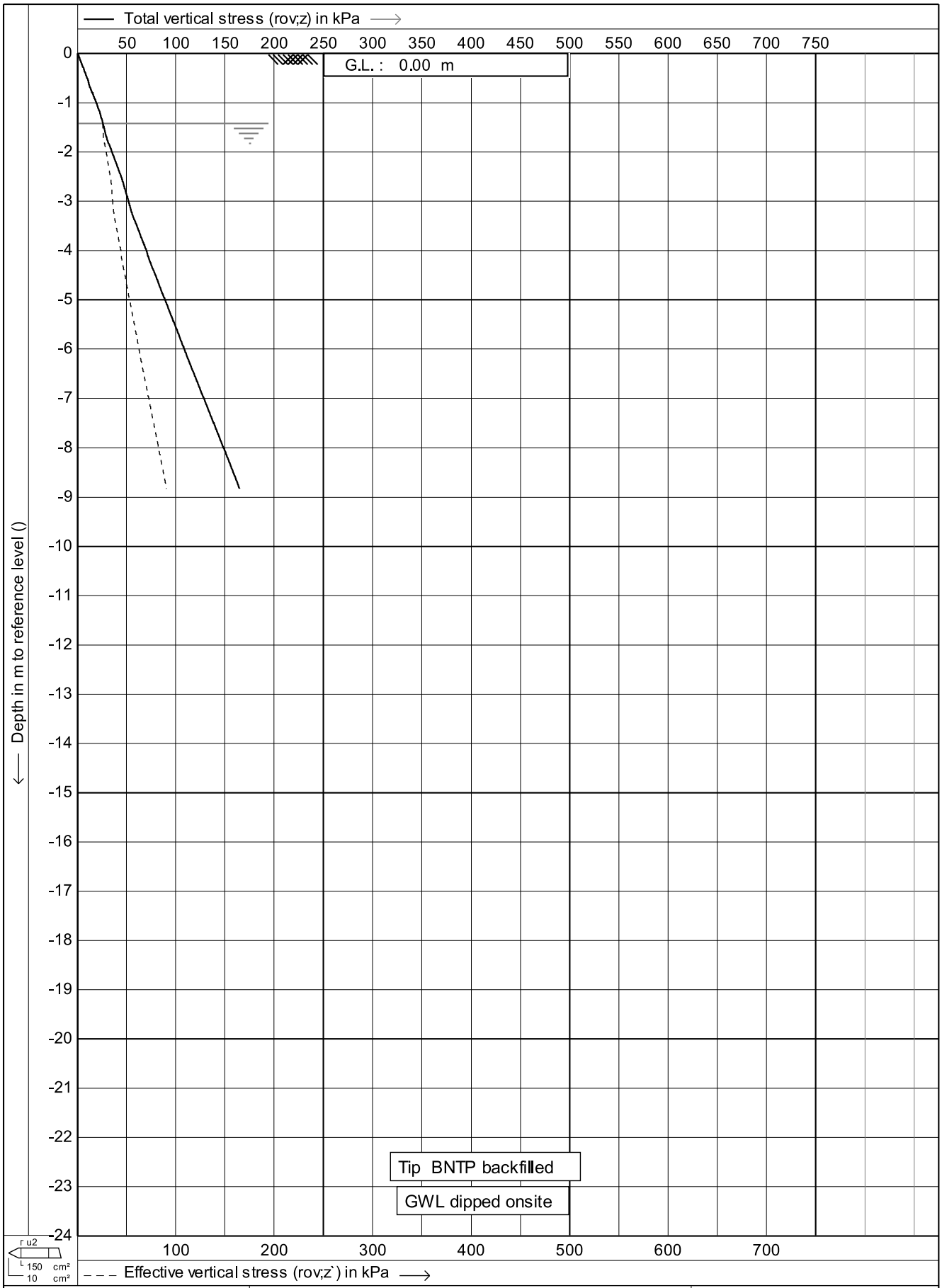
Cone no. : **C10CFIIP.C14426**

Project no. : **05AU7**

CPT no. : **049**

5/14

1.48



PERRY GEOTECH

Test according A.S.T.M Standard D 5778-12

Project : **Site Investigations**

Location: **Fitzgerald Rd - Drury**

Position: **0, 0**

Date : **26/11/2020**

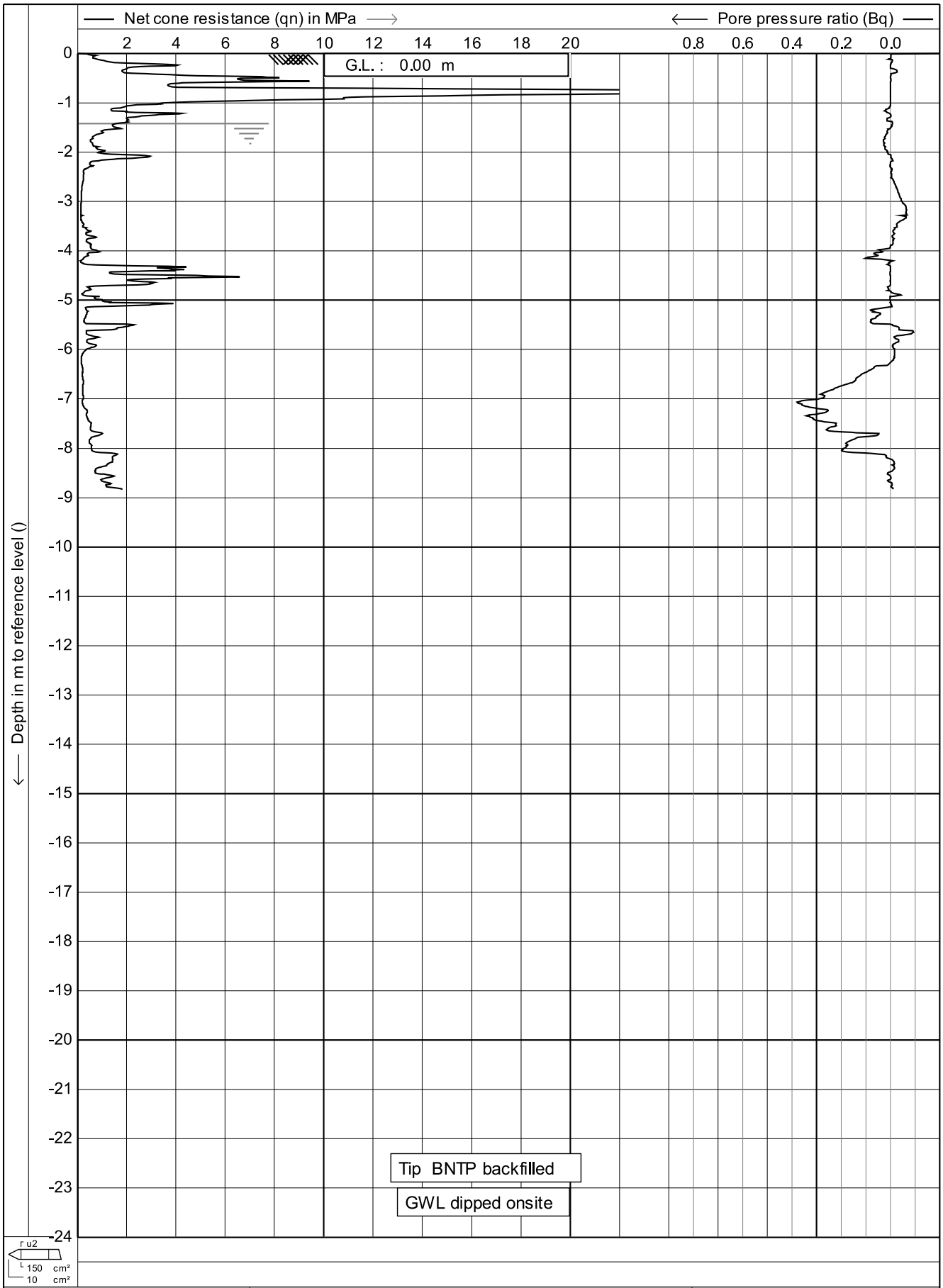
Cone no. : **C10CFIIP.C14426**

Project no. : **05AU7**

CPT no. : **049**

6/14

1.48



PERRY GEOTECH

Test according A.S.T.M Standard D 5778-12

Project : **Site Investigations**

Location: **Fitzgerald Rd - Drury**

Position: **0, 0**

Date : **26/11/2020**

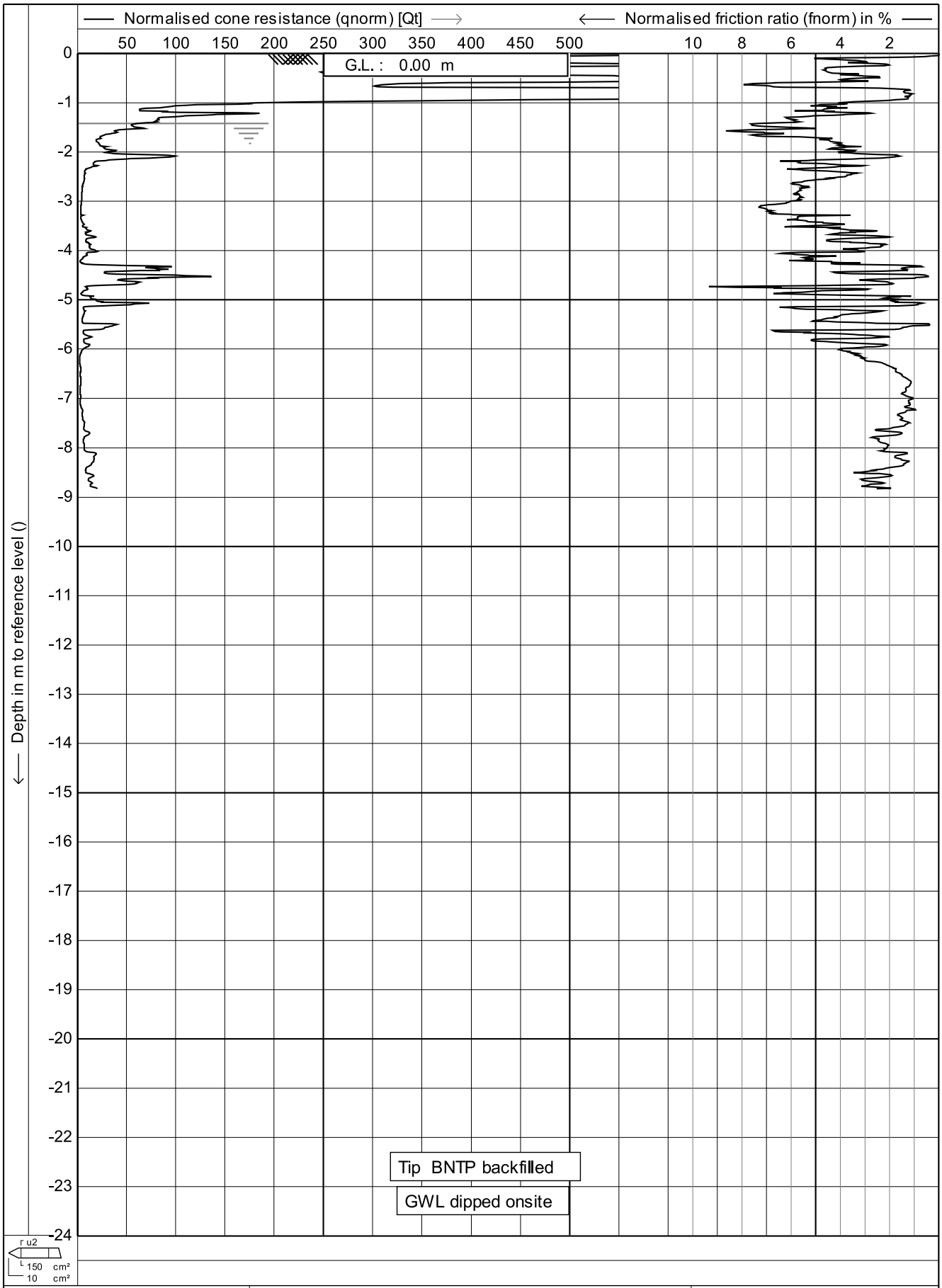
Cone no. : **C10CFIIP.C14426**

Project no. : **05AU7**

CPT no. : **049**

7/14

1.48



PERRY GEOTECH

Test according A.S.T.M Standard D 5778-12

Project : **Site Investigations**

Location: **Fitzgerald Rd - Drury**

Position: **0, 0**

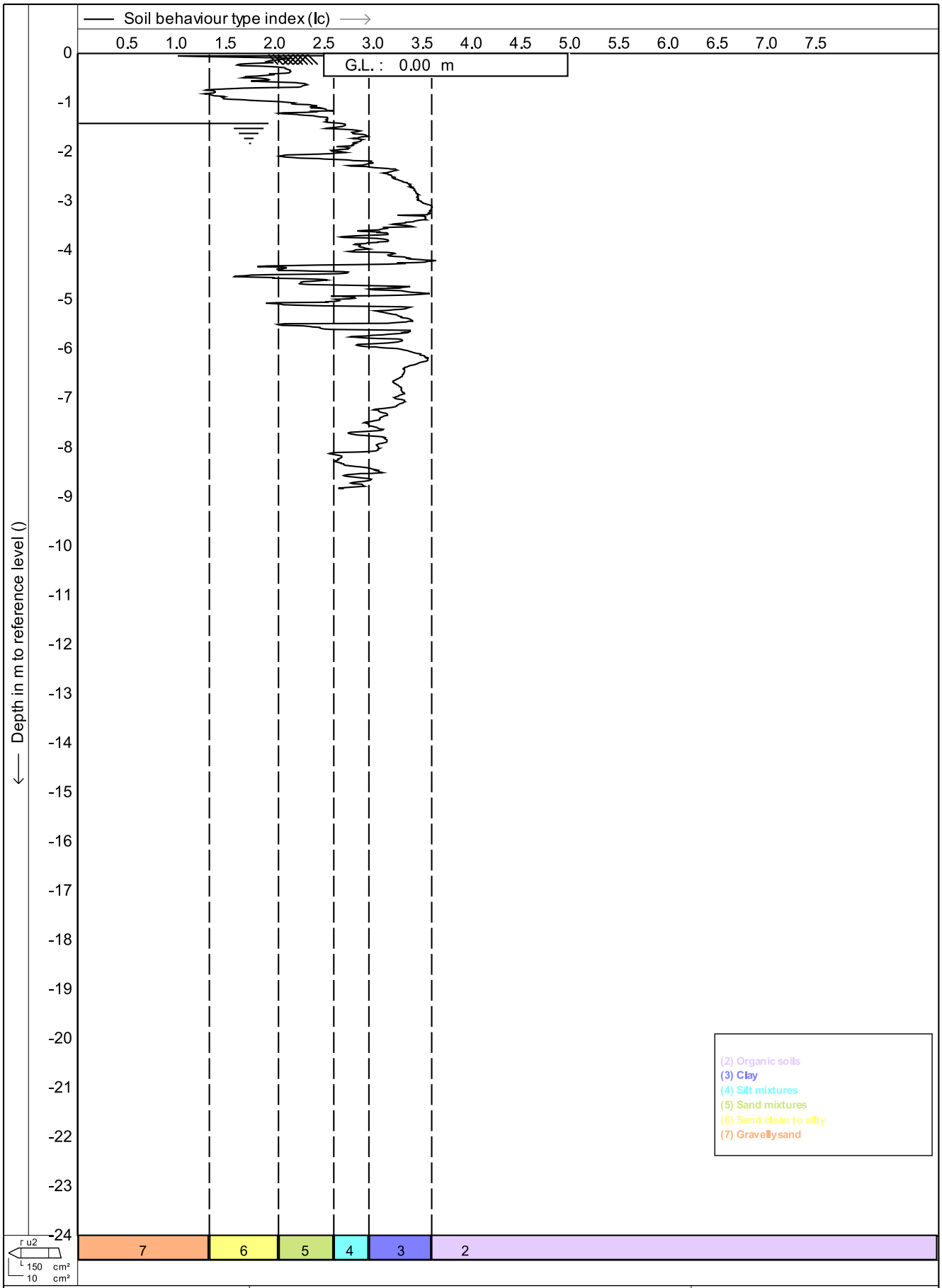
Date : **26/11/2020**

Cone no. : **C10CFIIP.C14426**

Project no. : **05AU7**

CPT no. : **049** **8/14**

1.48



PERRY GEOTECH

Test according A.S.T.M Standard D 5778-12

Project : **Site Investigations**

Location: **Fitzgerald Rd - Drury**

Position: **0, 0**

Date : **26/11/2020**

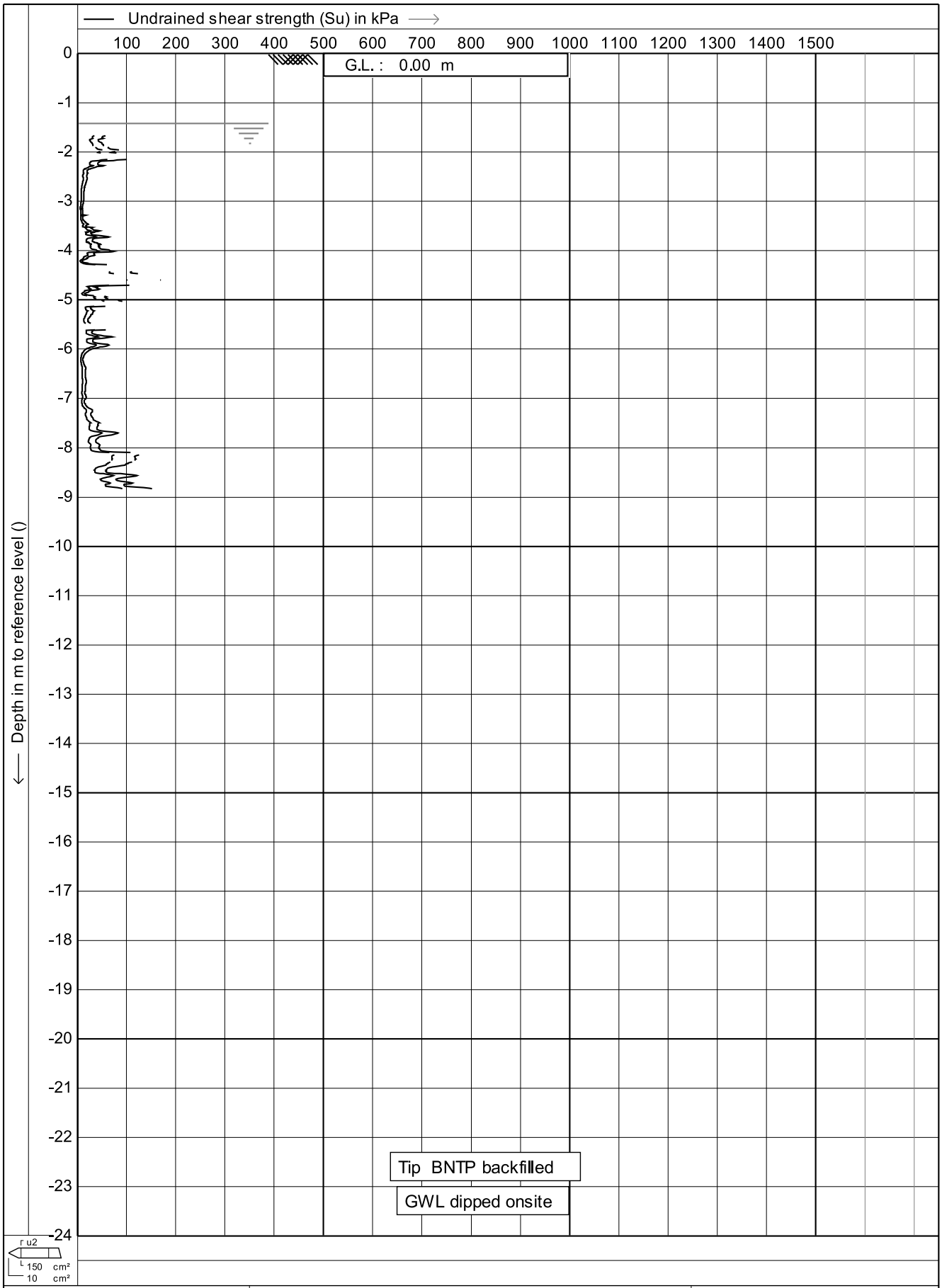
Cone no. : **C10CFIIP.C14426**

Project no. : **05AU7**

CPT no. : **049**

9/14

1.48



PERRY GEOTECH

Test according A.S.T.M Standard D 5778-12

Project : **Site Investigations**

Location: **Fitzgerald Rd - Drury**

Position: **0, 0**

Date : **26/11/2020**

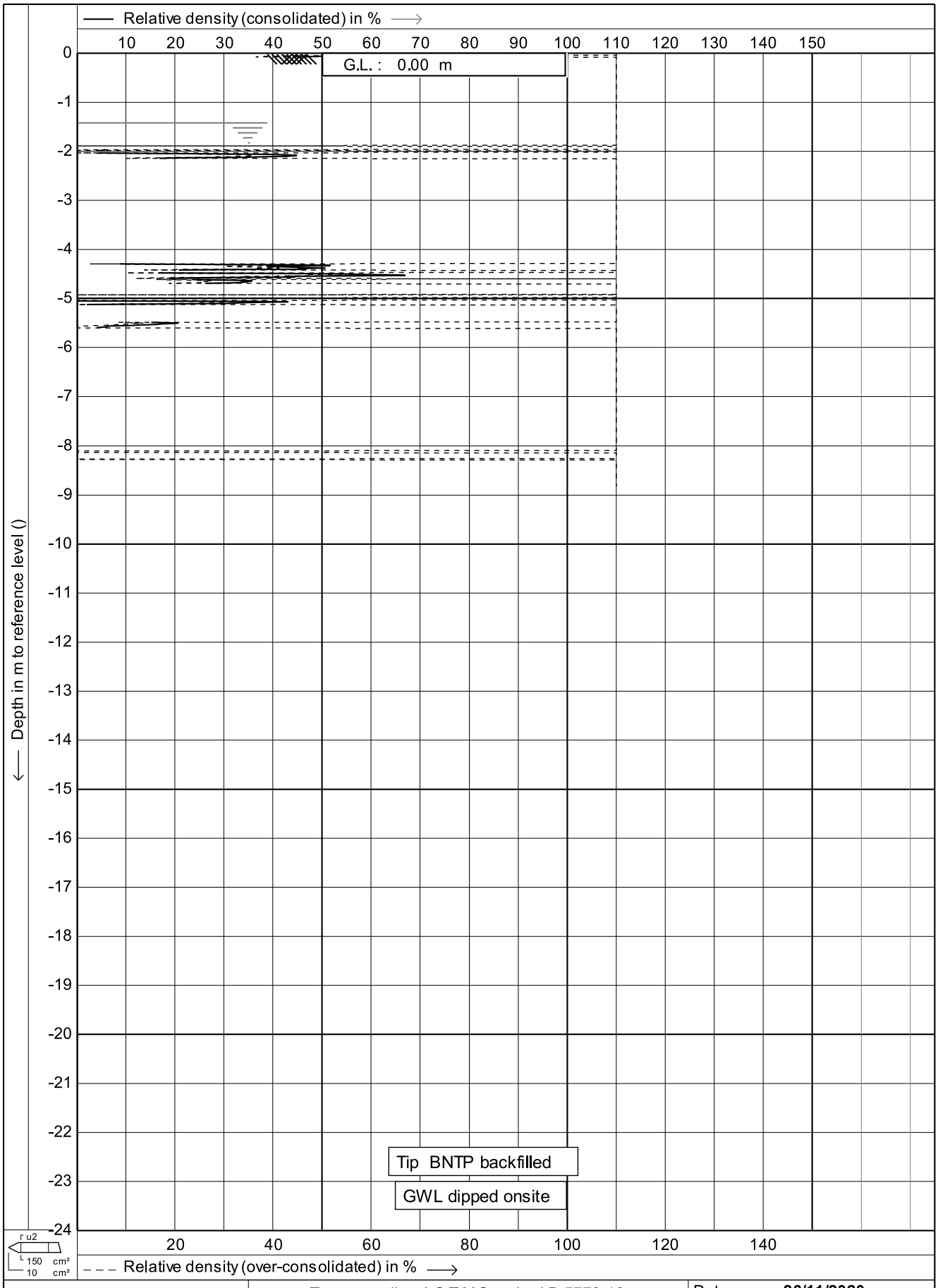
Cone no. : **C10CFIIP.C14426**

Project no. : **05AU7**

CPT no. : **049**

10/14

1.48



PERRY GEOTECH

Test according A.S.T.M Standard D 5778-12

Project : **Site Investigations**

Location: **Fitzgerald Rd - Drury**

Position: **0, 0**

Date : **26/11/2020**

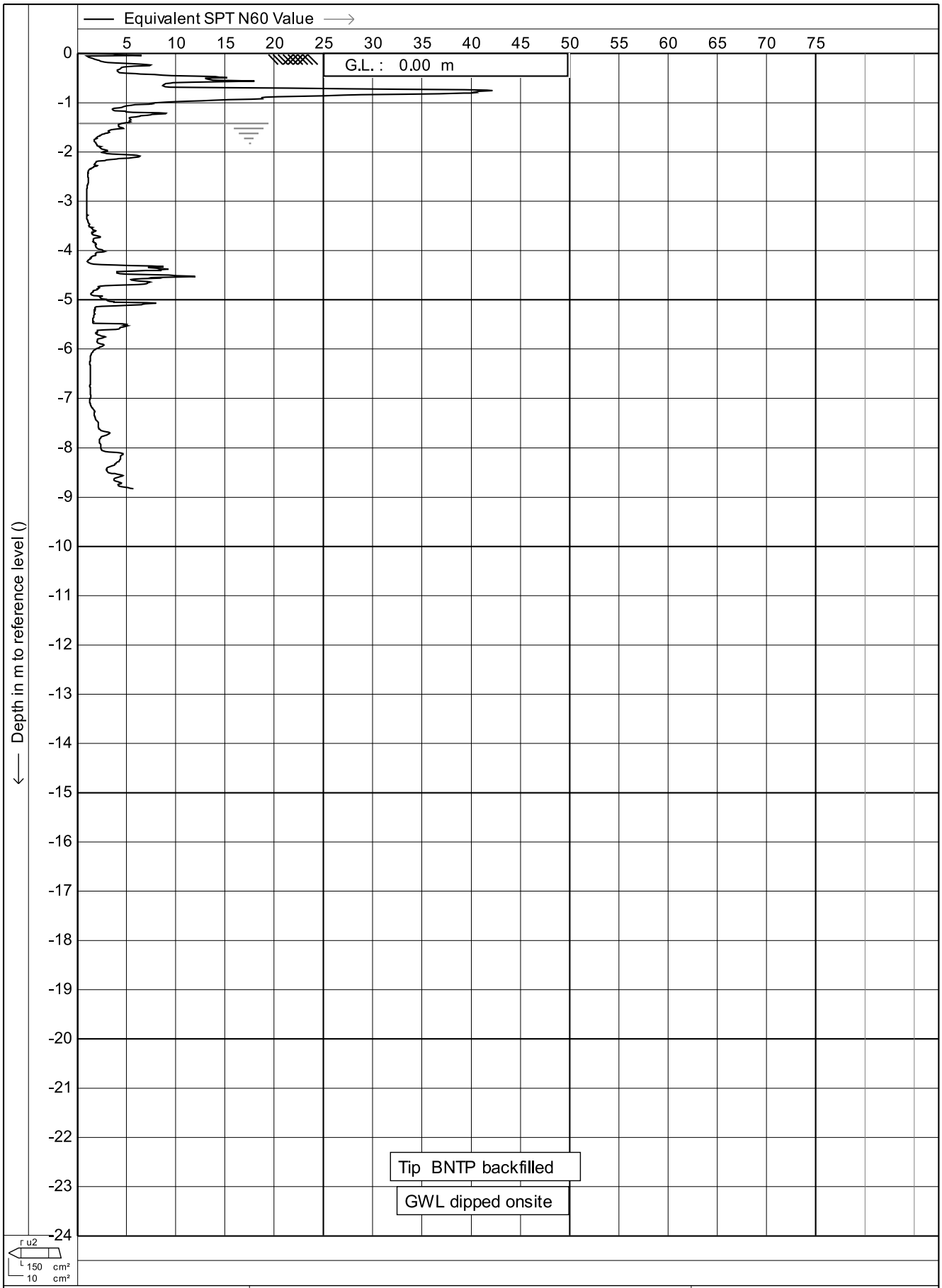
Cone no. : **C10CFIIP.C14426**

Project no. : **05AU7**

CPT no. : **049**

11/14

1.48



PERRY GEOTECH

Test according A.S.T.M Standard D 5778-12

Project : **Site Investigations**

Location: **Fitzgerald Rd - Drury**

Position: **0, 0**

Date : **26/11/2020**

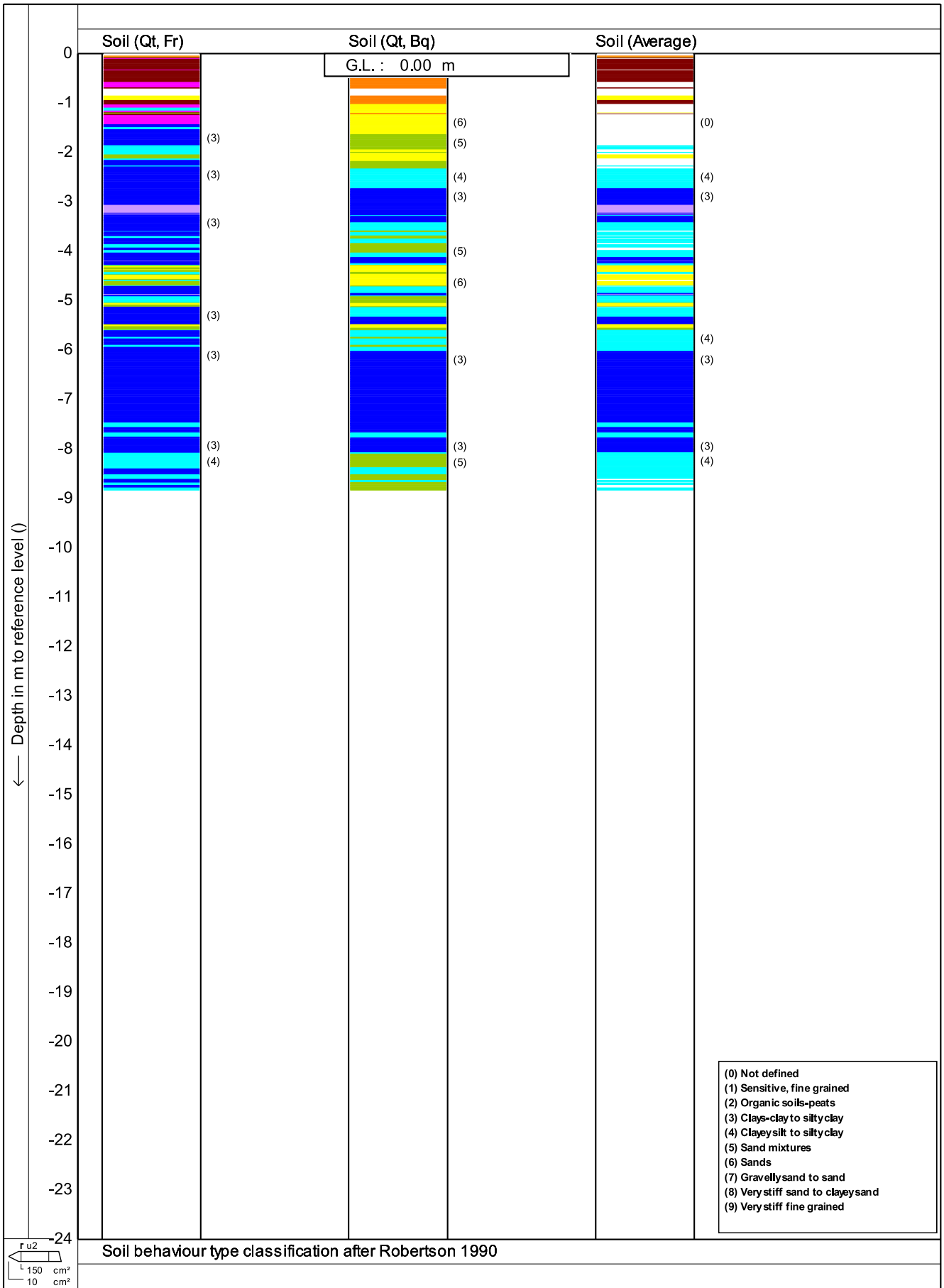
Cone no. : **C10CFIIP.C14426**

Project no. : **05AU7**

CPT no. : **049**

12/14

1.48



PERRY GEOTECH

Test according A.S.T.M Standard D 5778-12

Project : **Site Investigations**

Location: **Fitzgerald Rd - Drury**

Position: **0, 0**

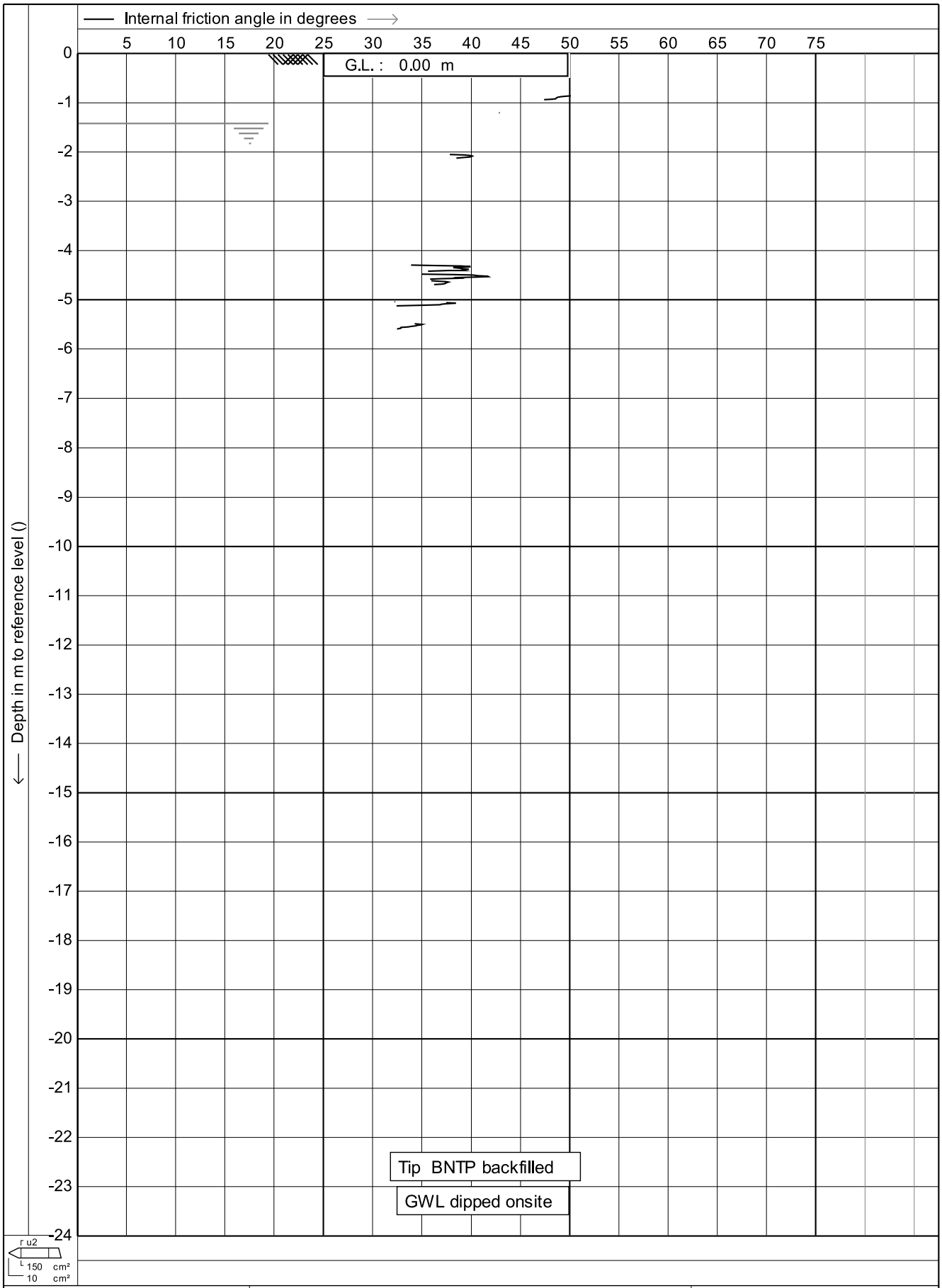
Date : **26/11/2020**

Cone no. : **C10CFIIP.C14426**

Project no. : **05AU7**

CPT no. : **049**

1.48



PERRY GEOTECH

Test according A.S.T.M Standard D 5778-12

Project : **Site Investigations**

Location: **Fitzgerald Rd - Drury**

Position: **0, 0**

Date : **26/11/2020**

Cone no. : **C10CFIIP.C14426**

Project no. : **05AU7**

CPT no. : **049**

14/14

1.48

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Client: **Kiwi Properties Ltd**
Project: **Drury Development**
Location: **132 Flanagan Road, Drury**
Project Reference: **510611**

HA007

Sheet **1** of **1**

DRILLING INFORMATION	**CO-ORDINATES: Mt Eden 2000**		
Method: Hand Auger	Easting: 416465m	Date started: 15/01/2021	Logged by: WBM
Equipment: 50mm Auger	Northing: 774645m	Date completed: 15/01/2021	Input by: WBM
Contractor: Aurecon	Ground Level: 10.000m (NZVD2016)	Inclination: 90°	Reviewed by GO
		Orientation: N/A	Verified by: JM

Depth (m)	Graphic Log	Soil Description	Testing	Scala Penetrometer Test (Blows/100mm) 3 6 9 12 15 18 21 24 27	Additional Observations	R.L. (m)
		0m: Silty CLAY with trace sand; brown. Soft to firm, dry, high plasticity. Sand is fine.			**0m: TOPSOIL**	
		0.35m: CLAY with some silt; brownish orange, speckled black. Very stiff, moist, high plasticity.	0.5m: ISHSV 122/52 kPa		**0.35m: SOUTH AUCKLAND VOLCANIC FIELD**	
1		**0.8m:** Silty CLAY with trace sand; orange brown. Very stiff, moist, high plasticity. Sand is fine.	1m: ISHSV 213+/- kPa			9
			1.5m: ISHSV 167/94 kPa			
2			2m: ISHSV 129/97 kPa			8
			2.5m: ISHSV UTP			
3		Hand Auger terminated at 3m (Target Depth Reached)	3m: ISHSV UTP			7
4						6

REMARKS:
1. Investigation collar is recorded to an accuracy of ±10 m horizontal and ±1 m vertical.

Water Level Readings:
Date Time | Hole Depth | Water Level
No water level recorded

HSV Serial No: DR4938 Correction Factor: 1.519

Database File: 510611_V3.GPJ **Library file:** AURECON_AKL_20201012.GLB **Template:** AURECON_AKL_20130722.GDT **Report File:** AURECON HA LOG WITH SCALA 1.0 **Date Generated:** 29/03/2021

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www.aurecongroup.com

Client: **Kiwi Properties Ltd**
Project: **Drury Development**
Location: **132 Flanagan Road, Drury**
Project Reference: **510611**

HA009

Sheet **1** of **1**

DRILLING INFORMATION	**CO-ORDINATES: Mt Eden 2000**		
Method: Hand Auger	Easting: 416352m	Date started: 18/01/2021	Logged by: WBM
Equipment: 50mm Auger	Northing: 774619m	Date completed: 18/01/2021	Input by: WBM
Contractor: Aurecon	Ground Level: 6.000m (NZVD2016)	Inclination: 90°	Reviewed by GO
		Orientation: N/A	Verified by: JM

Depth (m)	Graphic Log	Soil Description	Testing	Scala Penetrometer Test (Blows/100mm) 3 6 9 12 15 18 21 24 27	Additional Observations	R.L. (m)
		0m: Clayey SILT; brown. Firm, dry, high plasticity.			**0m: TOPSOIL**	
		0.05m: CLAY with minor silt; brownish orange, mottled dark brown. Very stiff, moist, high plasticity.			**0.05m: FILL**	
		0.2m: CLAY with some gravel and minor silt; orange brown. Very stiff, moist, high plasticity. Gravel is fine to medium, sub-rounded, slightly vesicular basalt.				
		Hand Auger terminated at 0.4m (Effective Refusal)	0.5m: ISHSV UTP		0.4m: Scala bouncing.	
1						5
2						4
3						3
4						2

REMARKS:
1. Effective refusal at 0.4m for both hand auger and scala penetrometer.
2. Investigation collar is recorded to an accuracy of ±10 m horizontal and ±1 m vertical.

Water Level Readings:
Date Time | Hole Depth | Water Level
No water level recorded

HSV Serial No: DR4938 Correction Factor: 1.519

Database File: 510611_V3.GPJ **Library file:** AURECON_AKL_20201012.GLB **Template:** AURECON_AKL_20130722.GDT **Report File:** AURECON HA LOG WITH SCALA 1.0 **Date Generated:** 29/03/2021

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www.aurecongroup.com

Client: **Kiwi Properties Ltd**
Project: **Drury Development**
Location: **132 Flanagan Road, Drury**
Project Reference: **510611**

HA010

Sheet **1** of **1**

DRILLING INFORMATION	**CO-ORDINATES: Mt Eden 2000**		
Method: Hand Auger	Easting: 416408m	Date started: 18/01/2021	Logged by: WBM
Equipment: 50mm Auger	Northing: 774537m	Date completed: 18/01/2021	Input by: WBM
Contractor: Aurecon	Ground Level: 8.000m (NZVD2016)	Inclination: 90°	Reviewed by GO
		Orientation: N/A	Verified by: JM

Depth (m)	Graphic Log	Soil Description	Testing	Scala Penetrometer Test (Blows/100mm) 3 6 9 12 15 18 21 24 27	Additional Observations	R.L. (m)
		0m: Clayey SILT; brown. Soft, dry, high plasticity.			**0m: TOPSOIL**	
		0.25m: CLAY with some silt; light brown. Very stiff, moist, high plasticity.	0.5m: ISHSV 197/37 kPa		**0.25m: TAURANGA GROUP**	
1		**0.6m:** Silty CLAY; light orange brown. Very stiff, moist, high plasticity.	1m: ISHSV 213+/- kPa			7
			1.5m: ISHSV 177/68 kPa			
2		**1.6m:** CLAY with minor silt; brownish orange. Very stiff, moist, high plasticity.	2m: ISHSV 161/91 kPa			6
		2.15m to 3m:...Greyish brown.	2.5m: ISHSV 199/109 kPa			
3		Hand Auger terminated at 3m (Target Depth Reached)	3m: ISHSV 185/126 kPa			5
4						4

REMARKS:
1. Investigation collar is recorded to an accuracy of ±10 m horizontal and ±1 m vertical.

Water Level Readings:
Date Time | Hole Depth | Water Level
No water level recorded

HSV Serial No: DR4938 Correction Factor: 1.519

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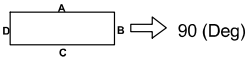
Client: **Kiwi Properties Ltd**
Project: **Drury Development**
Location: **132 Flanagan Road, Drury**
Project Reference: **510611**

TP026

TRIAL PIT INFORMATION
Excavated by: LCS Ltd
Excavator type: 13t Excavator
Date started: 10/12/2020
Date completed: 10/12/2020

CO-ORDINATES: **Mt Eden 2000**
Easting: 416480m
Northing: 774510m
Ground level: 13.00m (NZVD2016)

DIMENSIONS AND ORIENTATION
Width: 2m
Length: 3m


Logged by: STH
Input by: STH
Checked by: GO
Verified by: JM

Depth (m)	Graphic Log	Layer Code	Soil Description	Testing	Additional Observations	R.L. (m)
		T	**0m:** SILT with some clay, organics and trace sand; dark brown. Very stiff, dry, non-plastic. Organics, rootlets.		**0m: TOPSOIL**	
			0.3m: Clayey SILT; dark brown. Very stiff, moist, low plasticity.		**0.3m: SOUTH AUCKLAND VOLCANIC FIELD**	
		VRb	**0.5m:** Silty fine to coarse GRAVEL with minor cobbles; brownish red. Moist. Gravel and cobbles are sub-angular, highly weathered to completely weathered, brownish red, moderately vesicular, basalt. [Completely weathered BASALT].	0.5m: ISHSV 161/33 kPa		
1				1m: ISHSV UTP		12
			1.3m to 1.6m:...Amorphous organics			
				1.5m: ISHSV UTP		
2				2m: ISHSV 164/43 kPa		11
3						10
			Terminated at 3m (Target depth reached)			
4						9

REMARKS:
1. Investigation collar is recorded to an accuracy of ±10 m horizontal and ±1 m vertical.
2. TP026 backfilled upon completion.

Water Level Readings:
Date Time | Hole Depth | Water Level
No water level recorded

HSV Serial No: DR4938 Correction Factor: 1.519

Database File: 510611_V3.GPJ **Library file:** AURECON_AKL_20201012.GLB **Template:** AURECON_AKL_20130722.GDT **Report File:** AURECON TP LOG 1.0 **Date Generated:** 10/03/2021

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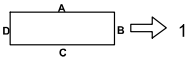
www.aurecongroup.com

Client: **Kiwi Properties Ltd**
Project: **Drury Development**
Location: **114 Flanagan Road, Drury**
Project Reference: **510611**

TP028

TRIAL PIT INFORMATION
Excavated by: LCS Ltd
Excavator type: 13t Excavator
Date started: 10/12/2020
Date completed: 10/12/2020

CO-ORDINATES: **Mt Eden 2000**
Easting: 416477m
Northing: 774604m
Ground level: 10.00m (NZVD2016)

DIMENSIONS AND ORIENTATION
Width: 2m
Length: 3m


Logged by: STH
Input by: STH
Checked by: GO
Verified by: JM

Depth (m)	Graphic Log	Layer Code	Soil Description	Testing	Additional Observations	R.L. (m)
		T	**0m:** SILT with some clay, organics and trace sand; brownish black. Very stiff, dry, non-plastic. Organics, rootlets. Sand, fine to medium.		**0m: TOPSOIL**	
		VRb	**0.25m:** Clayey SILT; dark brown. Very stiff, moist, high plasticity.	0.5m: ISHSV 188/30 kPa	**0.25m: SOUTH AUCKLAND VOLCANIC FIELD**	
1		VWb	**0.65m:** Highly weathered, brownish red, moderately vesicular BASALT; extremely weak. [Silty fine to coarse GRAVEL with minor cobbles; brownish red, loosely packed].	1m: ISHSV 197/46 kPa		9
2				1.5m: ISHSV 143/27 kPa		
				2m: ISHSV 179/36 kPa		8
3			**2.8m:** Moderately weathered, black, moderately vesicular BASALT; very weak.		2.8m: Small amount of recovery from bottom of the test pit, not enough for photo of lithology.	
			Terminated at 3m (Target depth reached)			7
4						6

REMARKS:
1. Investigation collar is recorded to an accuracy of ±10 m horizontal and ±1 m vertical.
2. TP028 backfilled upon completion.

Water Level Readings:
Date Time | Hole Depth | Water Level
No water level recorded

HSV Serial No: DR4938 Correction Factor: 1.519

Database File: 510611_V3.GPJ **Library file:** AURECON_AKL_20201012.GLB **Template:** AURECON_AKL_20130722.GDT **Report File:** AURECON TP LOG 1.0 **Date Generated:** 10/03/2021

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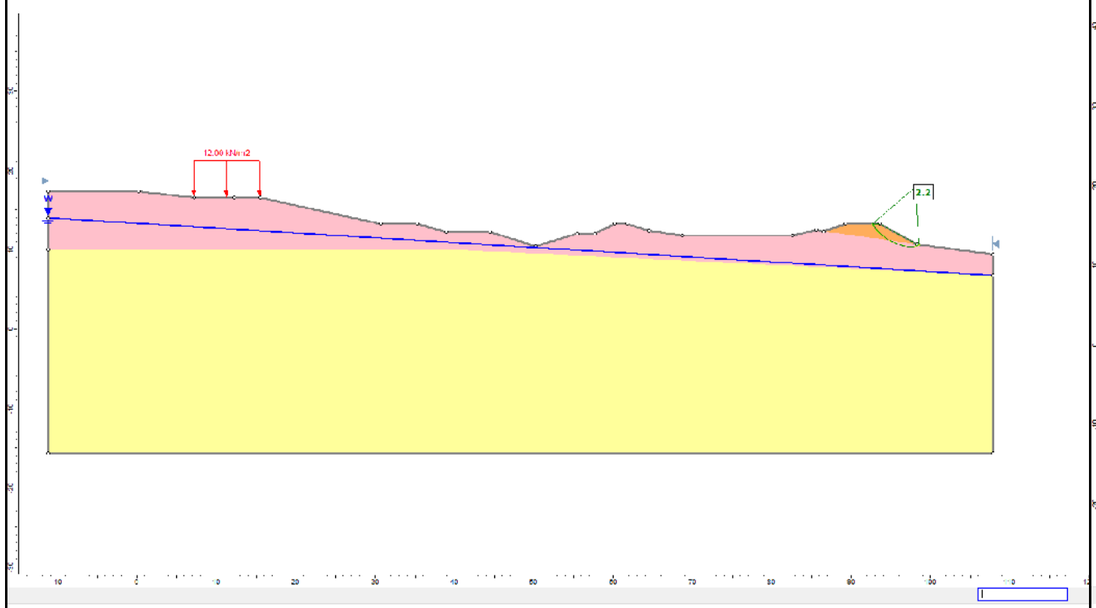
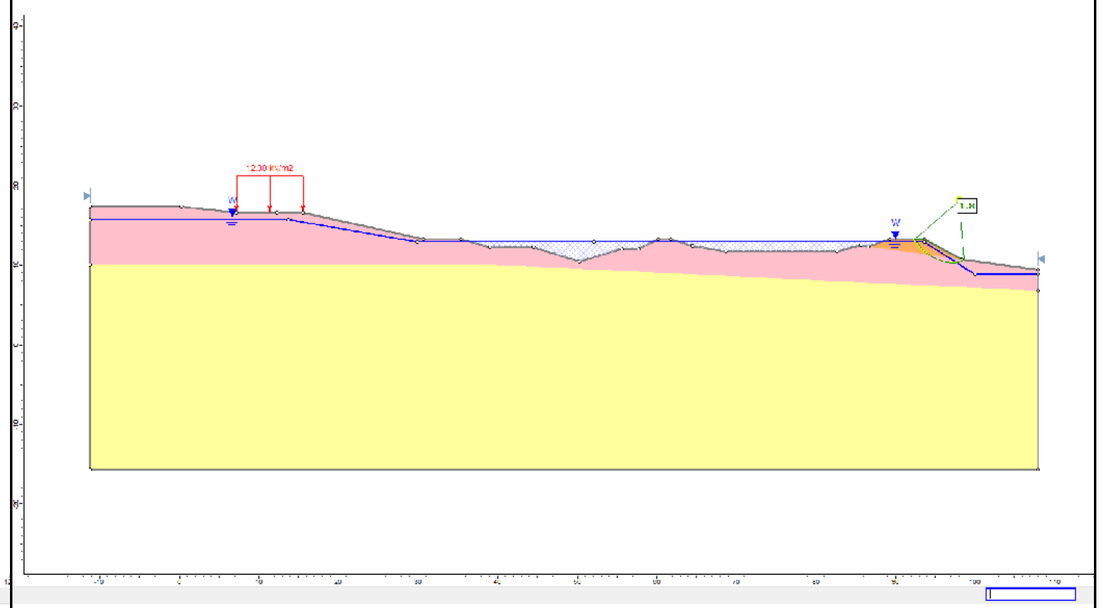
APPENDIX D
Slope Stability Analysis

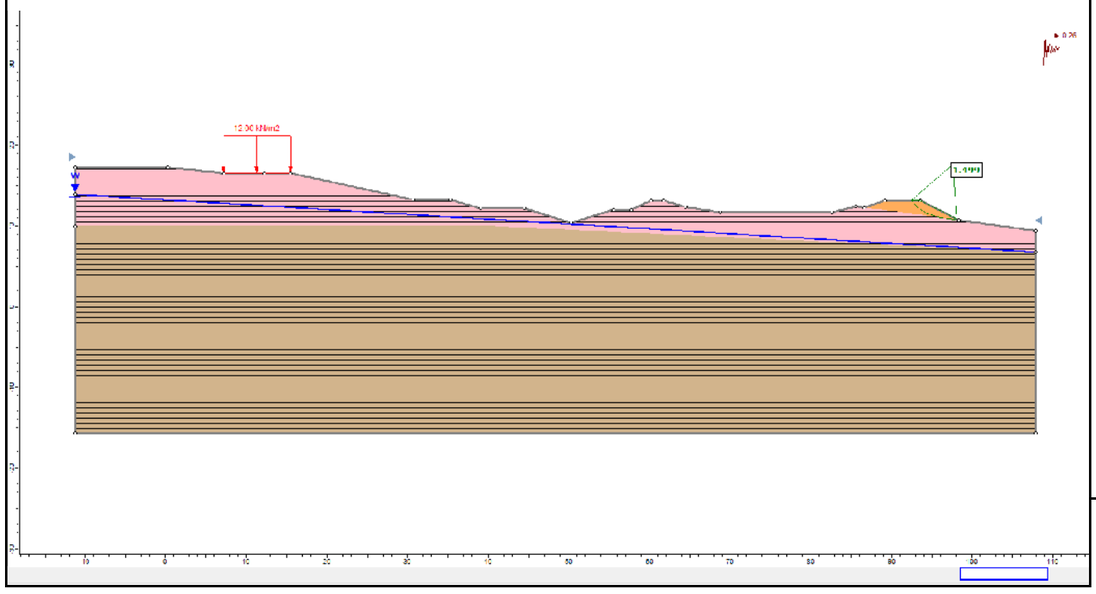
Existing Profile - Normal Groundwater Conditions.



Existing Profile - Worst Case Groundwater Conditions.



Existing Profile - DCLS Seismic Event.



Parameters

Material Name	Color	Unit Weight (kN/m3)	Strength Type	Cohesion (kPa)	Phi (°)
DR SAVF Residual Soil		17	Mohr-Coulomb	5	28
Engineered Fill-Clay		18	Mohr-Coulomb	5	30
DR Tauranga Group Soil c=5 f=26		17	Mohr-Coulomb	5	26

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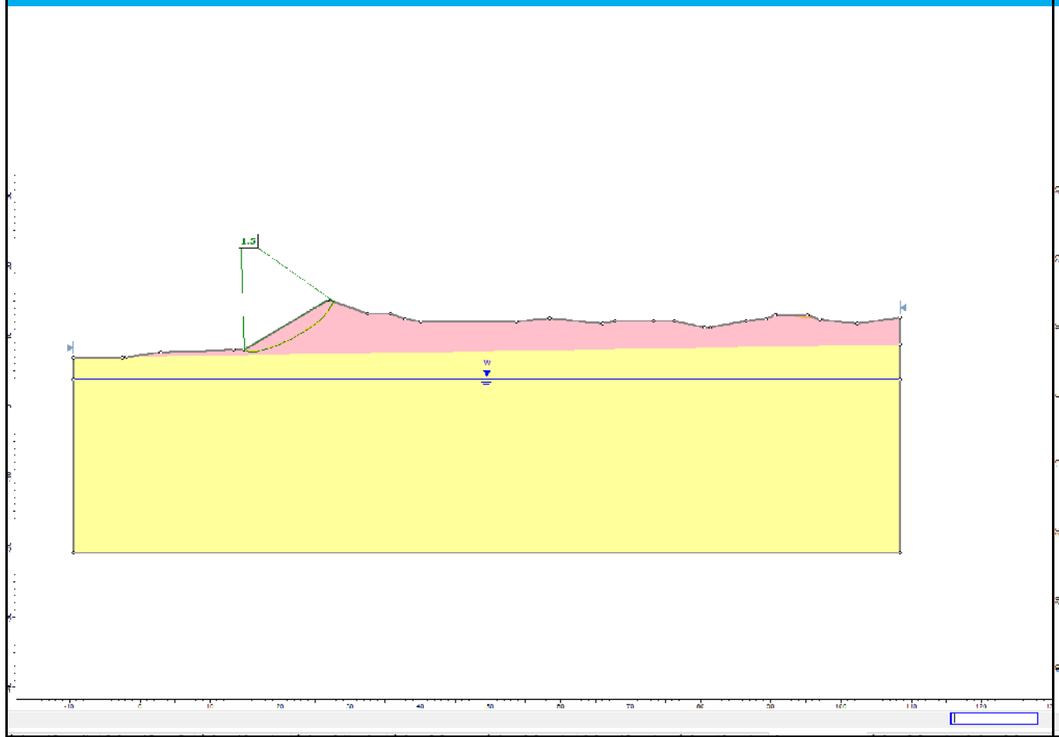
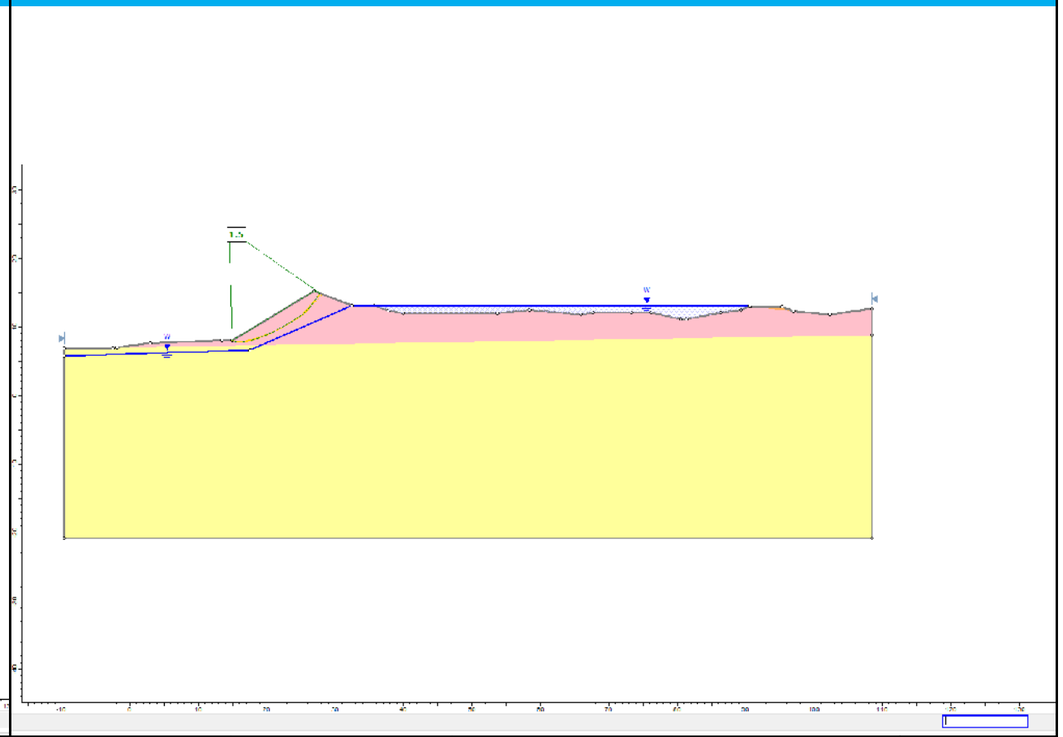
Project	Drury Central	*Analysis*	Cuckoo	*Project No.*	AKS2023-0072
Title	Section 1 - Proposed	*Date*	15/02/2025	*Drawing*	STAB01

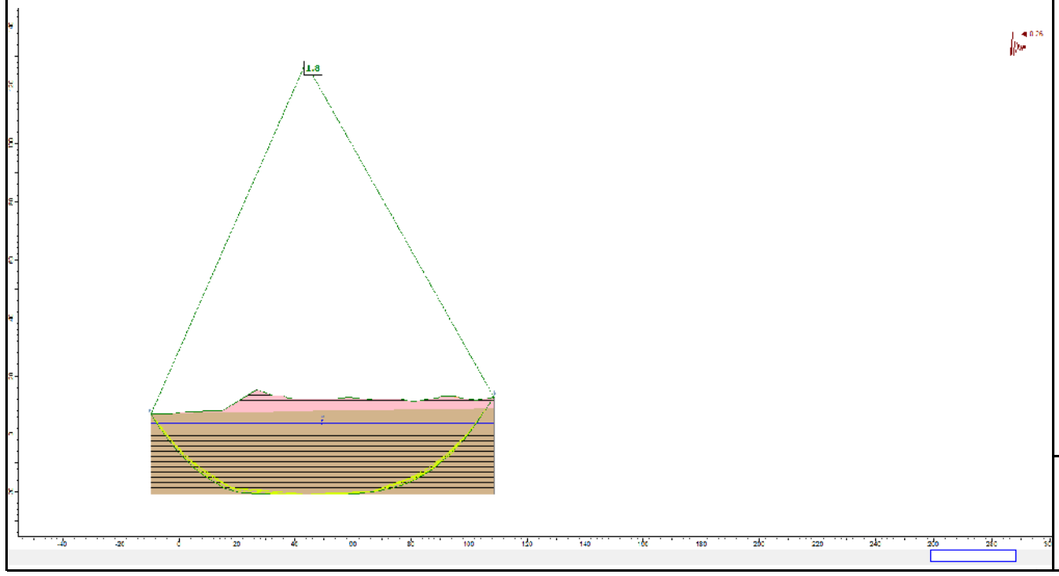
Existing Profile - Normal Groundwater Conditions. Failures Filtered to lowest 10 FoS



Existing Profile - Worst Case Groundwater Conditions.



Existing Profile - DCLS Seismic Event. Failures Filtered to lowest 10 FoS



Parameters

Material Name	Color	Unit Weight (kN/m3)	Strength Type	Cohesion (kPa)	Phi (°)
DR SAVF Residual Soil		17	Mohr-Coulomb	5	28
Engineered Fill-Clay		18	Mohr-Coulomb	5	30
DR Tauranga Group Soil c=5 f=26		17	Mohr-Coulomb	5	26

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Project Drury Central	*Analysis* Cuckoo	*Project No.* AKS2023-0072
Title Section 2 - Proposed	*Date* 15/02/2025	*Drawing* STAB 02

APPENDIX G

Stage 1 Subdivision Report

26 February 2025 Document Ref: AKS2023-0072AT | Rev 1

Kiwi Property Holdings No.2 Limited c/- Woods
6 Nugent Street
Newmarket, Auckland

Attention: Colin Dryland

RE: GEOTECHNICAL REVIEW
133 FITZGERALD ROAD, DRURY

1.0 INTRODUCTION

CMW has been engaged by Kiwi Property Holdings No.2 Limited to undertake a review of plans (Consent number: BUN60490224, LUC60414878, SUB60414913), which depict the subdivision of several superlots created as Stage 1 of the Drury Central development into individual residential lots. Aurecon has monitored the underlying earthworks of the subject Stage 1 superlots and CMW have produced a Geotechnical Completion Report (GCR) following the completion of the bulk earthworks.

This report summarises the recommendations of that GCR in respect to the residential subdivision.

2.0 REFERENCES

2.1 Geotechnical Completion Report

- Geotechnical Completion Report for the Drury Stage 1 earthworks dated 2 July 2024 AKS2023-0072AJ Rev 1. Produced by CMW Geosciences.

The GCR can be found in Appendix B.

2.2 Supplied Drawings

- Drawings of the proposed subdivision supplied by Woods dated February 2025 and referenced P24-646-01-2000-2004.
- These drawings show the subdivision of existing superlots Lot 10 - 22 which results in the formation 292 new residential lots, 13 jointly owned access lots (JOALS) and footpaths.
- It is understood that no additional earthworks are to be carried out on the lots.

These drawings can be found in Appendix A.

3.0 GEOTECHNICAL COMPLETION REPORT REVIEW

The following section summarises the CMW Geosciences Geotechnical Completion Report (GCR) prepared for Stage 1 of the development. This document provides engineered fill certification in accordance with NZS4431:1986 for fills suitable for development as per NZS 3604, subject to any restrictions in the GCR.

The following key clauses / restrictions from the statement of professional opinion include:

- 4 (a) The completed earthworks take into account land slope and foundation stability considerations on the building platform areas.
- 4(b) A geotechnical ultimate bearing capacity of 300 kPa may be assumed for shallow foundation design on the building platforms of Lots 10 to 22 inclusive.
- 4(c) The site (seismic) subsoil class for each lot has been assessed in accordance with NZS1170.5:2004 Clause 3.1.3 from borelogs that included measurements of geotechnical properties. Our assessment is that lots 10 to 22 are Class C- shallow soil.
- 4 (d) An AS2870 expansive soil class of H1 has been assumed for all lots.

In addition, the GCR also summarises key geohazards as below.

- Liquefaction- The liquefaction risk for the lots on this development has been assessed as low.
- Uncertified Temporary Filling- At the time of completing this GCR all Residential Lots have environmental clean water diversion control bunds constructed on the perimeter of the Lots. For Lots 12 to 14, temporary staging for topsoil screening had been taking place with a number of topsoil stockpiles present on the Lots.
- Fill Induced Settlement- The majority of the filling on this stage of the development was placed between December 2023 and February 2024. A series of settlement markers was installed in areas of deeper fill at its completion and have been periodically monitored for both horizontal and vertical movements. Horizontal changes have been noted to be within the survey accuracy limits, while vertical movements are depicting seasonal shrink/ swell variations as anticipated. The results show show a plateauing of readings, on the basis of the relatively minor magnitude of fill depths on this site, together with the elapsed time since it was placed, it is considered that remaining post-construction settlements will be within NZS3604 limits.

4.0 RECOMMENDATIONS AND FURTHER WORK

Given that there are no additional fills to be placed on the subject lots, it can be expected that these will be suitable for residential development in respect to NZS3604 provided the following recommendations are carried out:

- All unsuitable stockpiles must be removed. The subgrade must then be inspected and checked by shallow boreholes to ensure this has not softened over time due to the presence of the stockpile.
- Expansive soil class testing for the GCR was carried out in respect to large superlot development, and therefore was limited in its scope. Additional expansive soil testing should be carried out at a greater frequency given the number of individual lots present.

Following completion of the works a GCR should be completed describing the further works completed and providing a statement of professional opinion for the newly created lots.

5.0 LIMITATIONS

Additional important information regarding the use of your CMW report is provided in the '*Using your CMW Report*' document attached to this report.

This report has been prepared for use by Kiwi Property Holdings No.2 Limited, Auckland Council and their professional advisers in relation to the Drury Centre Stage 2 project in accordance with the scope, proposed uses and limitations described in the report. Should you have further questions relating to the use of your report please do not hesitate to contact us.

Where a party other than Kiwi Property Holdings No.2 Limited seeks to rely upon or otherwise use this report, the consent of CMW should be sought prior to any such use. CMW can then advise whether the report and its contents are suitable for the intended use by the other party.

For and on behalf of CMW Geosciences

Prepared by:

Tasneem Khan
Geotechnical Engineer

Reviewed and authorised by:

Chris Ritchie
Principal Engineering Geologist, PEngGeol

Distribution: 1 electronic copy to Kiwi Property Holdings No.2 Limited c/- Woods via email
Original held at CMW Geosciences

USING YOUR CMW GEOTECHNICAL REPORT

Geotechnical reporting relies on interpretation of facts and collected information using experience, professional judgement, and opinion. As such it generally has a level of uncertainty attached to it, which is often far less exact than other engineering design disciplines. The notes below provide general advice on what can be reasonably expected from your report and the inherent limitations of a geotechnical report.

Preparation of your report

Your geotechnical report has been written for your use on your project. The contents of your report may not meet the needs of others who may have different objectives or requirements. The report has been prepared using generally accepted Geotechnical Engineering and Engineering Geology practices and procedures. The opinions and conclusions reached in your report are made in accordance with these accepted principles. Specific items of geotechnical or geological importance are highlighted in the report.

In producing your report, we have relied on the information which is referenced or summarised in the report. If further information becomes available or the nature of your project changes, then the findings in this report may no longer be appropriate. In such cases the report must be reviewed, and any necessary changes must be made by us.

Your geotechnical report is based on your project's requirements

Your geotechnical report has been developed based on your specific project requirements and only applies to the site in this report. Project requirements could include the type of works being undertaken; project locality, size and configuration; the location of any structures on or around the site; the presence of underground utilities; proposed design methodology; the duration or design life of the works; and construction method and/or sequencing.

The information or advice in your geotechnical report should not be applied to any other project given the intrinsic differences between different projects and site locations. Similarly geotechnical information, data and conclusions from other sites and projects may not be relevant or appropriate for your project.

Interpretation of geotechnical data

Site investigations identify subsurface conditions at discrete locations. Additional geotechnical information (e.g. literature and external data source review, laboratory testing etc) are interpreted by Geologists or Engineers to provide an opinion about a site specific ground models, their likely impact on the proposed development and recommended actions. Actual conditions may differ from those inferred to exist due to the variability of geological environments. The actual interface between materials may be far more gradual or abrupt than assumed based on the facts obtained. Nothing can be done to change the actual site conditions which exist, but steps can be taken to reduce the impact of unexpected conditions. Interpretation of factual data can be influenced by design and/or construction methods. Where these methods change review of the interpretation in the report may be required.

Subsurface conditions can change

Subsurface conditions are created by natural processes and then can be altered anthropically or over time. For example, groundwater levels can vary with time or activities adjacent to your site, fill may be placed on a site, or the consistency of near surface conditions might be susceptible to seasonal changes. The report is based on conditions which existed at the time of investigation. It is important to confirm whether conditions may have changed, particularly when large periods of time have elapsed since the investigations were performed.

Interpretation and use by other design professionals

Costly problems can occur when other design professionals develop their plans based on misinterpretations of a geotechnical report. To help avoid misinterpretations, it is important to retain the assistance of CMW to work with other project design professionals who are affected by the contents of your report. CMW staff can explain the report implications to design professionals and then review design plans and specifications to see that they have correctly incorporated the findings of this report.

Your report's recommendations require confirmation during construction

Your report is based on site conditions as revealed through selective point sampling. Engineering judgement is then applied to assess how indicative of actual conditions throughout an area the point sampling might be. Any assumptions made cannot be substantiated until construction is complete. For this reason, you should retain geotechnical services throughout the construction stage, to identify variances from previous assumption, conduct additional tests if required and recommend solutions to problems encountered on site.

A Geotechnical Engineer, who is fully familiar with the site and the background information, can assess whether the report's recommendations remain valid and whether changes should be considered as the project develops. An unfamiliar party using this report increases the risk that the report will be misinterpreted.

Environmental matters are not covered

Unless specifically discussed in your report environmental matters are not covered by a CMW Geotechnical Report. Environmental matters might include the level of contaminants present of the site covered by this report, potential uses or treatment of contaminated materials or the disposal of contaminated materials. These matters can be complex and are often governed by specific legislation.

The personnel, equipment, and techniques used to perform an environmental study can differ significantly from those used in this report. For that reason, our report does not provide environmental recommendations. Unanticipated subsurface environmental problems can have large consequences for your site. If you have not obtained your own environmental information about the project site, ask your CMW contact about how to find environmental risk-management guidance.

CMW Geosciences
Great People | Practical Solutions

APPENDIX A
DEVELOPMENT PLANS

SEE SHEET 2001

SEE SHEET 2002

SEE SHEET 2003

SEE SHEET 2004

FITZGERALD ROAD

FITZGERALD ROAD

BROOKFIELD ROAD

ROAD 1

ROAD 9

ROAD 10

ROAD 21

ROAD 22

ROAD 23

ROAD 25

PEDESTRIAN LINK A

PEDESTRIAN LINK B

JOAL 500

JOAL 501

JOAL 502

JOAL 503

JOAL 504

JOAL 505

JOAL 506

JOAL 507

JOAL 508

JOAL 509

JOAL 510

JOAL 511

JOAL 512

LEGEND:

- STAGE 1 BOUNDARY
- PROPOSED JOAL
- PROPOSED BERM
- PROPOSED FOOTPATH
- COUNTIES POWER TRANSFORMERS — RMU

NOTES

1. ALL WORK AND MATERIALS TO COMPLY WITH AUCKLAND COUNCIL STANDARDS. ANY AMBIGUITY BETWEEN DRAWINGS AND COUNCIL STANDARDS TO BE REPORTED TO THE ENGINEER FOR CLARIFICATION.
2. KERB & CHANNEL AND KERB & NIB ARE TO BE SLIPFORM VERTICAL AS SHOWN ON DRAWING P24-646-2200 UNLESS OTHERWISE SHOWN.
3. FOOTPATHS TO BE CONSTRUCTED AS PER DETAILS ON TYPICAL CROSS SECTION DRAWINGS P24-646-2200.
4. PRAM CROSSINGS TO BE CONSTRUCTED AS PER AUCKLAND COUNCIL STANDARD, AUCKLAND TRANSPORT DESIGN MANUAL AND RTS 14
6. VEHICLE CROSSINGS ARE TO BE CONSTRUCTED IN ACCORDANCE WITH AUCKLAND COUNCIL STANDARD WITH ONE LAYER OF 665 MESH CENTRALLY PLACED.
7. ALL LANE MARKING AND ROAD SIGNAGE IS TO BE CONSTRUCTED AS PER NEW ZEALAND TRANSPORT AGENCY MANUAL OF SIGNS AND MARKINGS.
8. ALL SUBSOIL DRAINAGE TO BE LAID AT A MIN 0.5% GRADE.
9. ALL PRAM CROSSINGS HAVE 5% GRADIENT, AS PER AT TRANSPORT DESIGN MANUAL (TDM).
10. SUBSOIL DRAIN TO BE CONNECTED INTO THE UPSTREAM MANHOLE AND CAPPED OFF WITH SCREWCAP FOR FUTURE MAINTENANCE.

REVISION DETAILS		INT	DATE
1	FOR RESOURCE CONSENT	AR	14/02/2025

SURVEYED	BJ
DESIGNED	AR
DRAWN	AR
CHECKED	TH
APPROVED	CD

BUILDING B, LEVEL 1
8 NUGENT ST, GRAFTON,
AUCKLAND 1023
+64 9 308 9229
WOODS.CO.NZ

Kiwi Property

DRURY CENTRE SUPERLOTS

OVERALL ROADING LAYOUT PLAN

STATUS	RESOURCE CONSENT
SCALE	1:1000 @ A3
COUNCIL	AUCKLAND COUNCIL
DWG NO	P24-646-01-2000
REV	1

Plot Date: 4:54:07 pm,21 February 2025, ANUJC
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LEGEND:

- STAGE 1 BOUNDARY
- PROPOSED JOAL
- PROPOSED BERM
- PROPOSED FOOTPATH
- COUNTIES POWER TRANSFORMERS — RMU

NOTES:

1. REFER TO SHEET 2000 FOR NOTES

REVISION DETAILS		INT	DATE	SURVEYED	BJ
1	FOR RESOURCE CONSENT	AR	14/02/2025	DESIGNED	AR
				DRAWN	AR
				CHECKED	TH
				APPROVED	CD

BUILDING B, LEVEL 1
8 NUGENT ST, GRAFTON,
AUCKLAND 1023
+64 9 308 9229
WOODS.CO.NZ

Kiwi Property

DRURY CENTRE SUPERLOTS

ROADING LAYOUT PLAN
SHEET 1 OF 4

STATUS	RESOURCE CONSENT	REV
SCALE	1:750 @ A3	1
COUNCIL	AUCKLAND COUNCIL	
DWG NO	P24-646-01-2001	

FITZGERALD ROAD

ROAD 9

ROAD 21

ROAD 22

ROAD 22

PEDESTRIAN LINK B

PEDESTRIAN LINK A

JOAL 508

JOAL 509

JOAL 507

JOAL 510

JOAL 512

1801 1802 1803 1804 1805 1806 1807 1808 1809 1810 1811 1812 1813 1814 1815 1816 1817 1818 1819 1820 1821 1822 1823

1901 1902 1903 1904 1905 1906 1907 1908 1909 1910 1911 1912 1913 1914 1915 1916 1917 1918 1919 1920 1921 1922 1923 1924 1925 1926 1927 1928 1929

1701 1702 1703 1704 1705 1706 1707 1708 1710 1711 1712 1713 1714 1715 1716 1717 1718 1719 1720

2001 2002 2003 2004 2005 2006 2007 2008 2009

2201 2202 2203 2204 2205 2206 2207 2208 2209 2210 2211 2212 2213 2214 2226 2227 2228

1603 1606 2106 2113

LEGEND:

- STAGE 1 BOUNDARY
- PROPOSED JOAL
- PROPOSED BERM
- PROPOSED FOOTPATH
- COUNTIES POWER TRANSFORMERS — RMU

NOTES:

1. REFER TO SHEET 2000 FOR NOTES

Plot Date: 4:54:08 pm,21 February 2025, ANUJC

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REVISION DETAILS		INT	DATE
1	FOR RESOURCE CONSENT	AR	14/02/2025

SURVEYED	BJ
DESIGNED	AR
DRAWN	AR
CHECKED	TH
APPROVED	CD

BUILDING B, LEVEL 1
8 NUGENT ST, GRAFTON,
AUCKLAND 1023
+64 9 308 9229
WOODS.CO.NZ

Kiwi Property

DRURY CENTRE SUPERLOTS

ROADING LAYOUT PLAN
SHEET 2 OF 4

STATUS	RESOURCE CONSENT
SCALE	1:750 @ A3
COUNCIL	AUCKLAND COUNCIL
DWG NO	P24-646-01-2002
REV	1

LEGEND:

- STAGE 1 BOUNDARY
- PROPOSED JOAL
- PROPOSED BERM
- PROPOSED FOOTPATH
- COUNTIES POWER TRANSFORMERS — RMU

NOTES:

1. REFER TO SHEET 2000 FOR NOTES

REVISION DETAILS		INT	DATE		
1	FOR RESOURCE CONSENT	AR	14/02/2025	SURVEYED	BJ
				DESIGNED	AR
				DRAWN	AR
				CHECKED	TH
				APPROVED	CD

BUILDING B, LEVEL 1
8 NUGENT ST, GRAFTON,
AUCKLAND 1023
+64 9 308 9229
WOODS.CO.NZ

Kiwi Property

DRURY CENTRE SUPERLOTS

ROADING LAYOUT PLAN
SHEET 3 OF 4

STATUS	RESOURCE CONSENT	REV
SCALE	1:750 @ A3	1
COUNCIL	AUCKLAND COUNCIL	
DWG NO	P24-646-01-2003	

REVISION DETAILS		INT	DATE	SURVEYED	BJ
1	FOR RESOURCE CONSENT	AR	14/02/2025	DESIGNED	AR
				DRAWN	AR
				CHECKED	TH
				APPROVED	CD

BUILDING B, LEVEL 1
8 NUGENT ST, GRAFTON,
AUCKLAND 1023
+64 9 308 9229
WOODS.CO.NZ

Kiwi Property

DRURY CENTRE SUPERLOTS

ROADING LAYOUT PLAN
SHEET 4 OF 4

STATUS	RESOURCE CONSENT	REV
SCALE	1:750 @ A3	1
COUNCIL	AUCKLAND COUNCIL	
DWG NO	P24-646-01-2004	

Plot Date: 4:54:09 pm,21 February 2025, ANUJC

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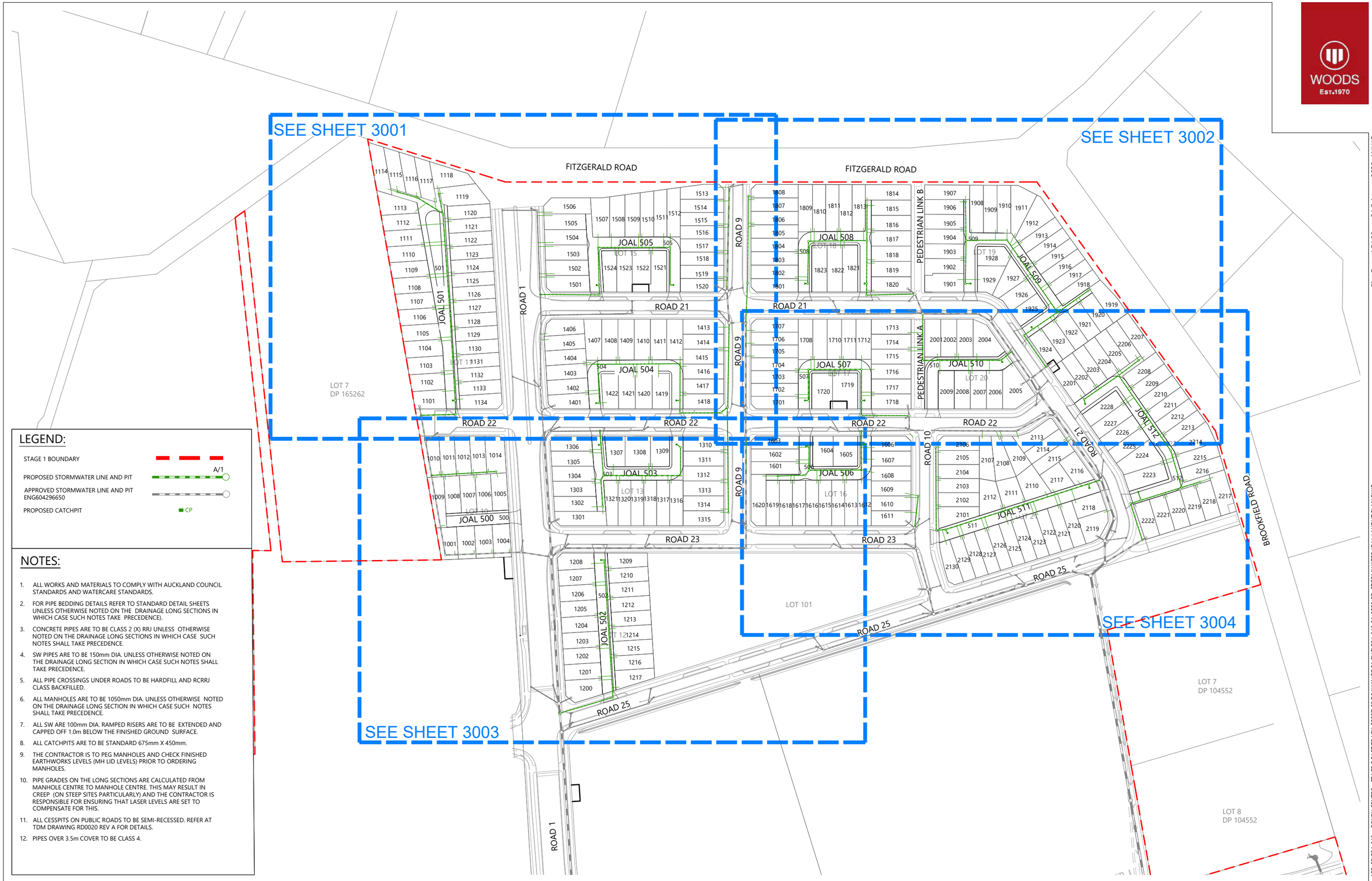

LEGEND:

- STAGE 1 BOUNDARY
- PROPOSED STORMWATER LINE AND PIT — A/1
- APPROVED STORMWATER LINE AND PIT ENG604296650
- PROPOSED CATCHPIT — CP

NOTES:

1. ALL WORKS AND MATERIALS TO COMPLY WITH AUCKLAND COUNCIL STANDARDS AND WATERCARE STANDARDS.
2. FOR PIPE BEDDING DETAILS REFER TO STANDARD DETAIL SHEETS UNLESS OTHERWISE NOTED ON THE DRAINAGE LONG SECTIONS IN WHICH CASE SUCH NOTES TAKE PRECEDENCE).
3. CONCRETE PIPES ARE TO BE CLASS 2 (X) RRJ UNLESS OTHERWISE NOTED ON THE DRAINAGE LONG SECTIONS IN WHICH CASE SUCH NOTES SHALL TAKE PRECEDENCE.
4. SW PIPES ARE TO BE 150mm DIA. UNLESS OTHERWISE NOTED ON THE DRAINAGE LONG SECTION IN WHICH CASE SUCH NOTES SHALL TAKE PRECEDENCE.
5. ALL PIPE CROSSINGS UNDER ROADS TO BE HARDFILL AND RCRRJ CLASS BACKFILLED.
6. ALL MANHOLES ARE TO BE 1050mm DIA. UNLESS OTHERWISE NOTED ON THE DRAINAGE LONG SECTION IN WHICH CASE SUCH NOTES SHALL TAKE PRECEDENCE.
7. ALL SW ARE 100mm DIA. RAMPED RISERS ARE TO BE EXTENDED AND CAPPED OFF 1.0m BELOW THE FINISHED GROUND SURFACE.
8. ALL CATCHPITS ARE TO BE STANDARD 675mm X 450mm.
9. THE CONTRACTOR IS TO PEG MANHOLES AND CHECK FINISHED EARTHWORKS LEVELS (MH LID LEVELS) PRIOR TO ORDERING MANHOLES.
10. PIPE GRADES ON THE LONG SECTIONS ARE CALCULATED FROM MANHOLE CENTRE TO MANHOLE CENTRE. THIS MAY RESULT IN CREEP (ON STEEP SITES PARTICULARLY) AND THE CONTRACTOR IS RESPONSIBLE FOR ENSURING THAT LASER LEVELS ARE SET TO COMPENSATE FOR THIS.
11. ALL CESSPITS ON PUBLIC ROADS TO BE SEMI-RECESSED. REFER AT TDM DRAWING RD0020 REV A FOR DETAILS.
12. PIPES OVER 3.5m COVER TO BE CLASS 4.

REVISION DETAILS		INT	DATE	SURVEYED	BJ
1	FOR RESOURCE CONSENT	AR	14/02/2025	DESIGNED	AR
				DRAWN	AR
				CHECKED	TH
				APPROVED	CD

BUILDING B, LEVEL 1
8 NUGENT ST, GRAFTON,
AUCKLAND 1023
+64 9 308 9229
WOODS.CO.NZ

Kiwi Property

DRURY CENTRE SUPERLOTS

OVERALL STORMWATER LAYOUT PLAN

STATUS	ISSUED FOR RC
SCALE	1:1000 @ A3
COUNCIL	AUCKLAND COUNCIL
DWG NO	P24-646-01-3000
REV	1

Plot Date: 4:54:09 pm,21 February 2025, ANUJC
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LEGEND:

- STAGE 1 BOUNDARY
- PROPOSED STORMWATER LINE AND PIT — A/1
- APPROVED STORMWATER LINE AND PIT ENG604296650
- PROPOSED CATCHPIT — CP

NOTES:

1. REFER TO SHEET 3000 FOR NOTES

REVISION DETAILS		INT	DATE	SURVEYED	BJ
1	FOR RESOURCE CONSENT	AR	14/02/2025	DESIGNED	AR
				DRAWN	AR
				CHECKED	TH
				APPROVED	CD

BUILDING B, LEVEL 1
8 NUGENT ST, GRAFTON,
AUCKLAND 1023
+64 9 308 9229
WOODS.CO.NZ

Kiwi Property

DRURY CENTRE SUPERLOTS

STORMWATER LAYOUT PLAN
SHEET 1 OF 4

STATUS	ISSUED FOR RC	REV
SCALE	1:750 @ A3	1
COUNCIL	AUCKLAND COUNCIL	
DWG NO	P24-646-01-3001	

Plot Date: 4:54:09 pm,21 February 2025, ANUJC

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LEGEND:

- STAGE 1 BOUNDARY
- PROPOSED STORMWATER LINE AND PIT (A/1)
- APPROVED STORMWATER LINE AND PIT ENG604296650
- PROPOSED CATCHPIT (CP)

NOTES:

1. REFER TO SHEET 3000 FOR NOTES

WOODS Est.1970

REVISION DETAILS	INT	DATE		
1 FOR RESOURCE CONSENT	AR	14/02/2025	SURVEYED	BJ
			DESIGNED	AR
			DRAWN	AR
			CHECKED	TH
			APPROVED	CD

BUILDING B, LEVEL 1
8 NUGENT ST, GRAFTON,
AUCKLAND 1023
+64 9 308 9229
WOODS.CO.NZ

Kiwi Property

DRURY CENTRE SUPERLOTS

STORMWATER LAYOUT PLAN
SHEET 2 OF 4

STATUS	ISSUED FOR RC	REV
SCALE	1:750 @ A3	1
COUNCIL	AUCKLAND COUNCIL	
DWG NO	P24-646-01-3002	

Plot Date: 4:54:10 pm,21 February 2025, ANUJC

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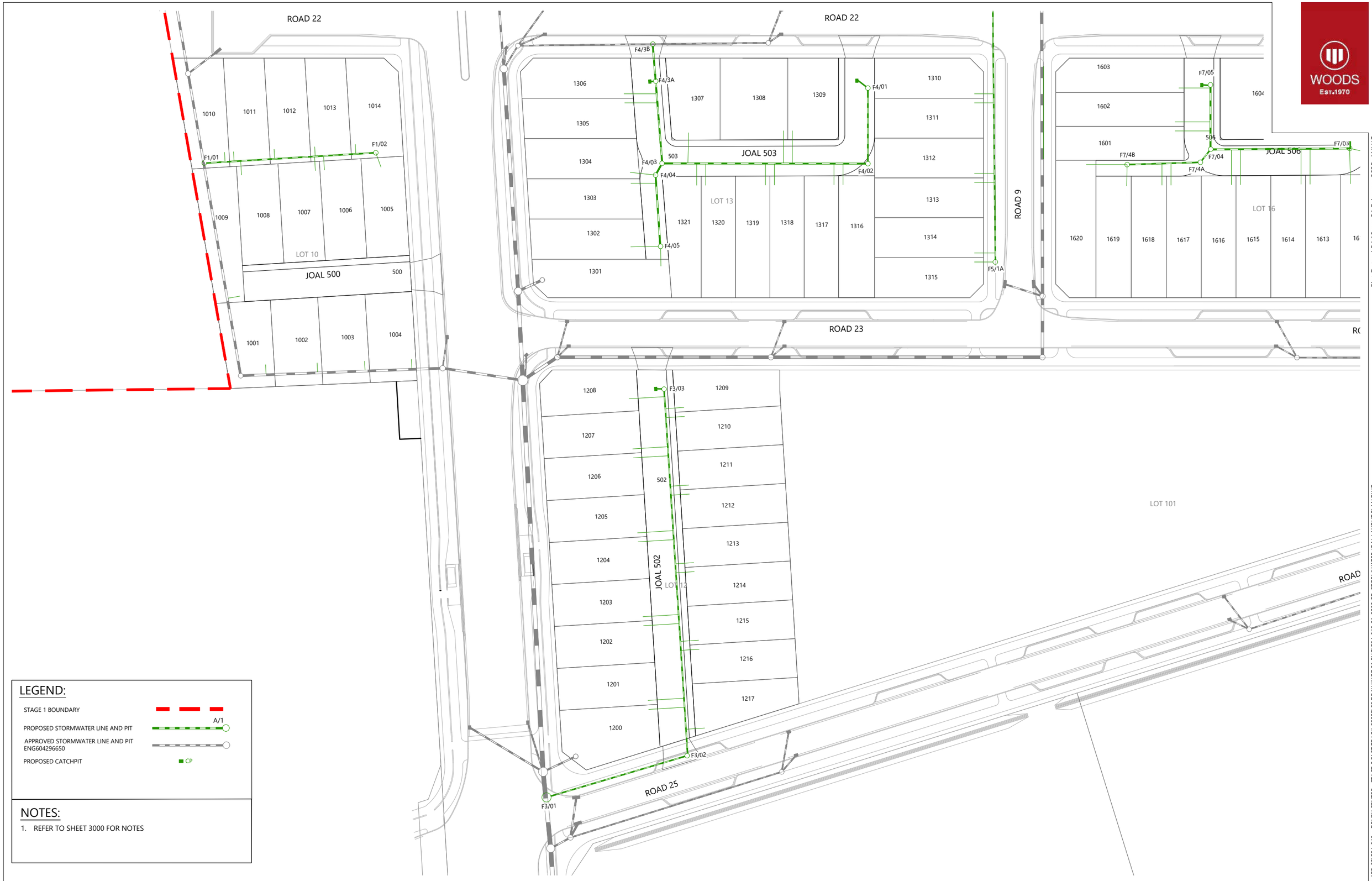

LEGEND:

STAGE 1 BOUNDARY	
PROPOSED STORMWATER LINE AND PIT	A/1
APPROVED STORMWATER LINE AND PIT ENG604296650	
PROPOSED CATCHPIT	CP

NOTES:

1. REFER TO SHEET 3000 FOR NOTES

REVISION DETAILS		INT	DATE	SURVEYED	BJ
1	FOR RESOURCE CONSENT	AR	14/02/2025	DESIGNED	AR
				DRAWN	AR
				CHECKED	TH
				APPROVED	CD

BUILDING B, LEVEL 1
8 NUGENT ST, GRAFTON,
AUCKLAND 1023
+64 9 308 9229
WOODS.CO.NZ

Kiwi Property

DRURY CENTRE SUPERLOTS

STORMWATER LAYOUT PLAN
SHEET 3 OF 4

STATUS	ISSUED FOR RC	REV	
SCALE	1:750 @ A3		1
COUNCIL	AUCKLAND COUNCIL		
DWG NO	P24-646-01-3003		

Plot Date: 4:54:10 pm,21 February 2025, ANUJC

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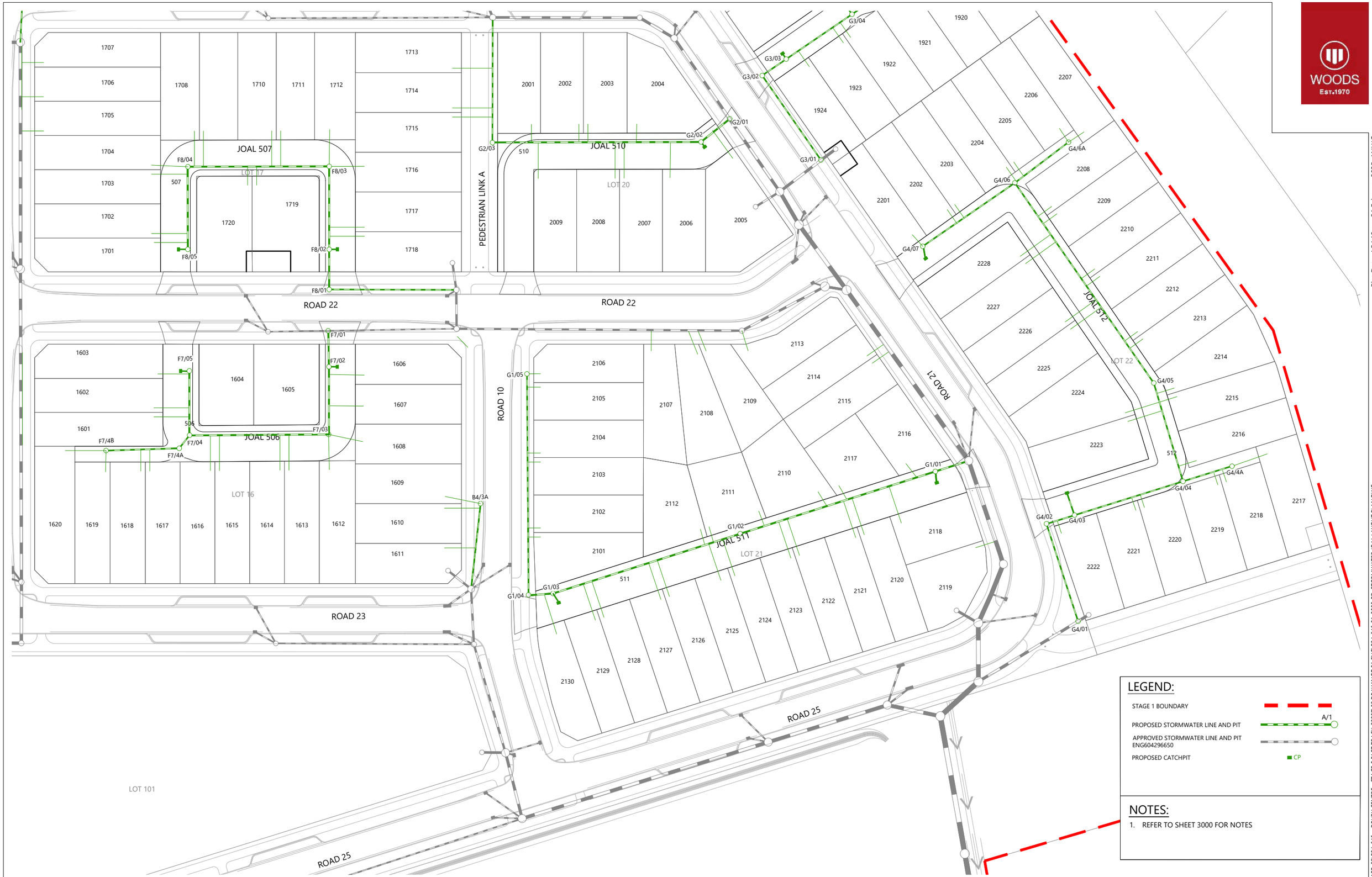

LEGEND:

- STAGE 1 BOUNDARY
- PROPOSED STORMWATER LINE AND PIT — A/1
- APPROVED STORMWATER LINE AND PIT ENG604296650
- PROPOSED CATCHPIT — CP

NOTES:

1. REFER TO SHEET 3000 FOR NOTES

REVISION DETAILS		INT	DATE	SURVEYED	BJ
1	FOR RESOURCE CONSENT	AR	14/02/2025	DESIGNED	AR
				DRAWN	AR
				CHECKED	TH
				APPROVED	CD

BUILDING B, LEVEL 1
8 NUGENT ST, GRAFTON,
AUCKLAND 1023
+64 9 308 9229
WOODS.CO.NZ

Kiwi Property

DRURY CENTRE SUPERLOTS

STORMWATER LAYOUT PLAN
SHEET 4 OF 4

STATUS	ISSUED FOR RC
SCALE	1:750 @ A3
COUNCIL	AUCKLAND COUNCIL
DWG NO	P24-646-01-3004
REV	1

Plot Date: 4:54:13 pm,21 February 2025, ANUJC

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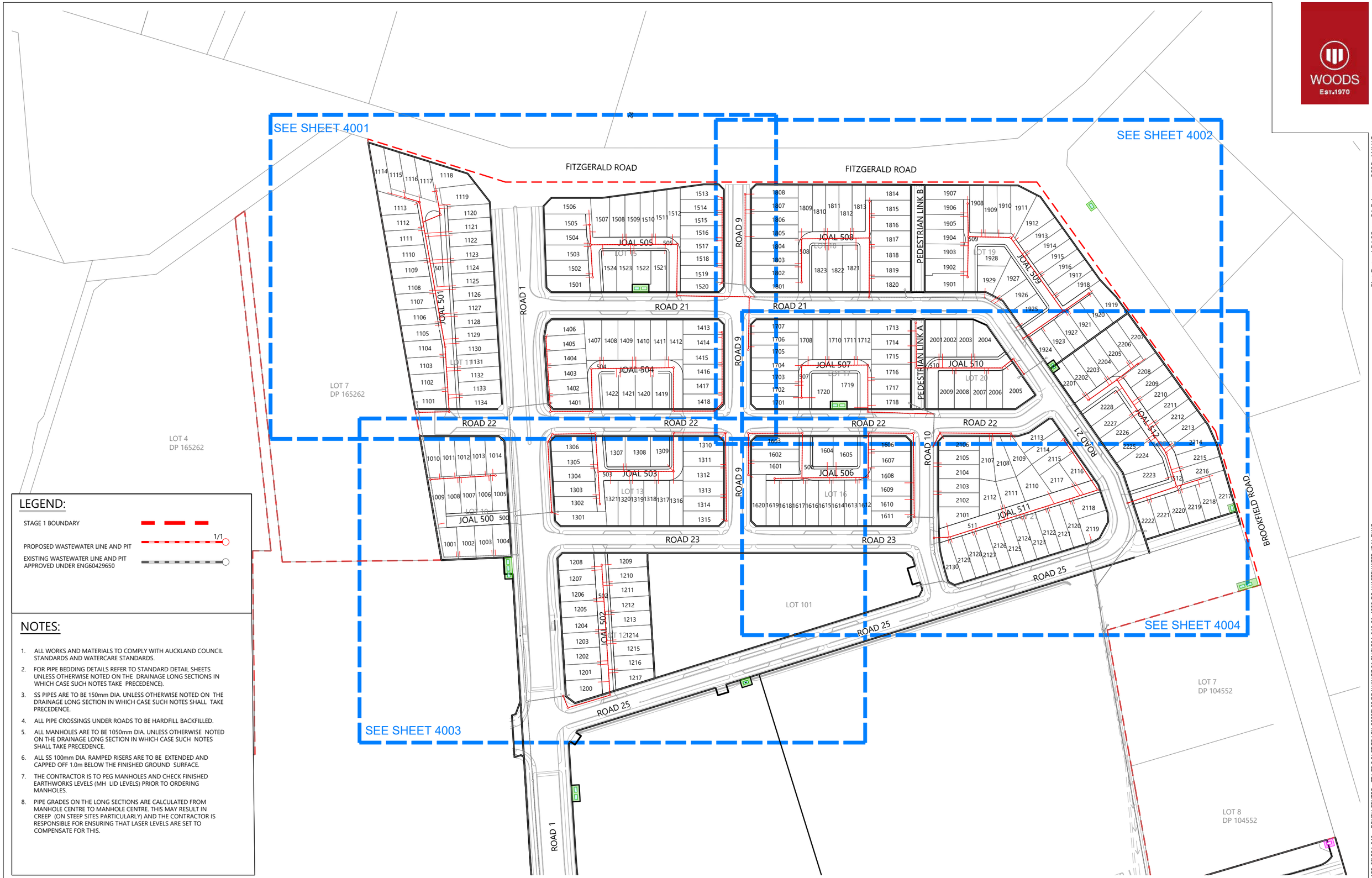

LEGEND:

- STAGE 1 BOUNDARY
- PROPOSED WASTEWATER LINE AND PIT 1/1
- EXISTING WASTEWATER LINE AND PIT APPROVED UNDER ENG60429650

NOTES:

1. ALL WORKS AND MATERIALS TO COMPLY WITH AUCKLAND COUNCIL STANDARDS AND WATERCARE STANDARDS.
2. FOR PIPE BEDDING DETAILS REFER TO STANDARD DETAIL SHEETS UNLESS OTHERWISE NOTED ON THE DRAINAGE LONG SECTIONS IN WHICH CASE SUCH NOTES TAKE PRECEDENCE).
3. SS PIPES ARE TO BE 150mm DIA. UNLESS OTHERWISE NOTED ON THE DRAINAGE LONG SECTION IN WHICH CASE SUCH NOTES SHALL TAKE PRECEDENCE.
4. ALL PIPE CROSSINGS UNDER ROADS TO BE HARDFILL BACKFILLED.
5. ALL MANHOLES ARE TO BE 1050mm DIA. UNLESS OTHERWISE NOTED ON THE DRAINAGE LONG SECTION IN WHICH CASE SUCH NOTES SHALL TAKE PRECEDENCE.
6. ALL SS 100mm DIA. RAMPED RISERS ARE TO BE EXTENDED AND CAPPED OFF 1.0m BELOW THE FINISHED GROUND SURFACE.
7. THE CONTRACTOR IS TO PEG MANHOLES AND CHECK FINISHED EARTHWORKS LEVELS (MH LID LEVELS) PRIOR TO ORDERING MANHOLES.
8. PIPE GRADES ON THE LONG SECTIONS ARE CALCULATED FROM MANHOLE CENTRE TO MANHOLE CENTRE. THIS MAY RESULT IN CREEP (ON STEEP SITES PARTICULARLY) AND THE CONTRACTOR IS RESPONSIBLE FOR ENSURING THAT LASER LEVELS ARE SET TO COMPENSATE FOR THIS.

REVISION DETAILS		INT	DATE
1	FOR RESOURCE CONSENT	AR	14/02/2025

SURVEYED	BJ
DESIGNED	AR
DRAWN	AR
CHECKED	TH
APPROVED	CD

BUILDING B, LEVEL 1
8 NUGENT ST, GRAFTON,
AUCKLAND 1023
+64 9 308 9229
WOODS.CO.NZ

Kiwi Property

DRURY CENTRE SUPERLOTS

OVERALL WASTEWATER LAYOUT PLAN

STATUS	RESOURCE CONSENT
SCALE	1:1000 @ A3
COUNCIL	AUCKLAND COUNCIL
DWG NO	P24-646-01-4000
REV	1

Plot Date: 4:54:05 pm,21 February 2025, ANUJC
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LEGEND:

- STAGE 1 BOUNDARY
- PROPOSED WASTEWATER LINE AND PIT 1/1
- EXISTING WASTEWATER LINE AND PIT APPROVED UNDER ENG60429650

NOTES:

1. REFER TO SHEET 4000 FOR NOTES

REVISION DETAILS		INT	DATE	SURVEYED	BJ
1	FOR RESOURCE CONSENT	AR	14/02/2025	DESIGNED	AR
				DRAWN	AR
				CHECKED	TH
				APPROVED	CD

BUILDING B, LEVEL 1
8 NUGENT ST, GRAFTON,
AUCKLAND 1023
+64 9 308 9229
WOODS.CO.NZ

Kiwi Property

DRURY CENTRE SUPERLOTS

WASTEWATER LAYOUT PLAN
SHEET 1 OF 4

STATUS	RESOURCE CONSENT	REV
SCALE	1:750 @ A3	1
COUNCIL	AUCKLAND COUNCIL	
DWG NO	P24-646-01-4001	

Plot Date: 4:54:06 pm,21 February 2025, ANUJC

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LEGEND:

STAGE 1 BOUNDARY

PROPOSED WASTEWATER LINE AND PIT 1/1

EXISTING WASTEWATER LINE AND PIT APPROVED UNDER ENG60429650

NOTES:

1. REFER TO SHEET 4000 FOR NOTES

Plot Date: 4:54:06 pm,21 February 2025, ANUJC

File: C:\12DS\DATA\WP-AKL-APP-02\P24-646 - DRURY CENTRE - STAGE 2 FAST TRACK_22237\02 DRAWINGS\01 ENG\P24-646-01-4000-DR_WASTEWATER JOAL.DWG

REVISION DETAILS		INT	DATE		
1	FOR RESOURCE CONSENT	AR	14/02/2025	SURVEYED	BJ
				DESIGNED	AR
				DRAWN	AR
				CHECKED	TH
				APPROVED	CD

BUILDING B, LEVEL 1
8 NUGENT ST, GRAFTON,
AUCKLAND 1023
+64 9 308 9229
WOODS.CO.NZ

Kiwi Property

DRURY CENTRE SUPERLOTS

WASTEWATER LAYOUT PLAN
SHEET 2 OF 4

STATUS	RESOURCE CONSENT	REV
SCALE	1:750 @ A3	1
COUNCIL	AUCKLAND COUNCIL	
DWG NO	P24-646-01-4002	

LEGEND:

- STAGE 1 BOUNDARY
- PROPOSED WASTEWATER LINE AND PIT 1/1
- EXISTING WASTEWATER LINE AND PIT APPROVED UNDER ENG60429650

NOTES:

1. REFER TO SHEET 4000 FOR NOTES

REVISION DETAILS		INT	DATE
1	FOR RESOURCE CONSENT	AR	14/02/2025

SURVEYED	BJ
DESIGNED	AR
DRAWN	AR
CHECKED	TH
APPROVED	CD

BUILDING B, LEVEL 1
8 NUGENT ST, GRAFTON,
AUCKLAND 1023
+64 9 308 9229
WOODS.CO.NZ

Kiwi Property

DRURY CENTRE SUPERLOTS

WASTEWATER LAYOUT PLAN
SHEET 3 OF 4

STATUS	RESOURCE CONSENT
SCALE	1:750 @ A3
COUNCIL	AUCKLAND COUNCIL
DWG NO	P24-646-01-4003
REV	1

Plot Date: 4:54:07 pm,21 February 2025, ANUJC

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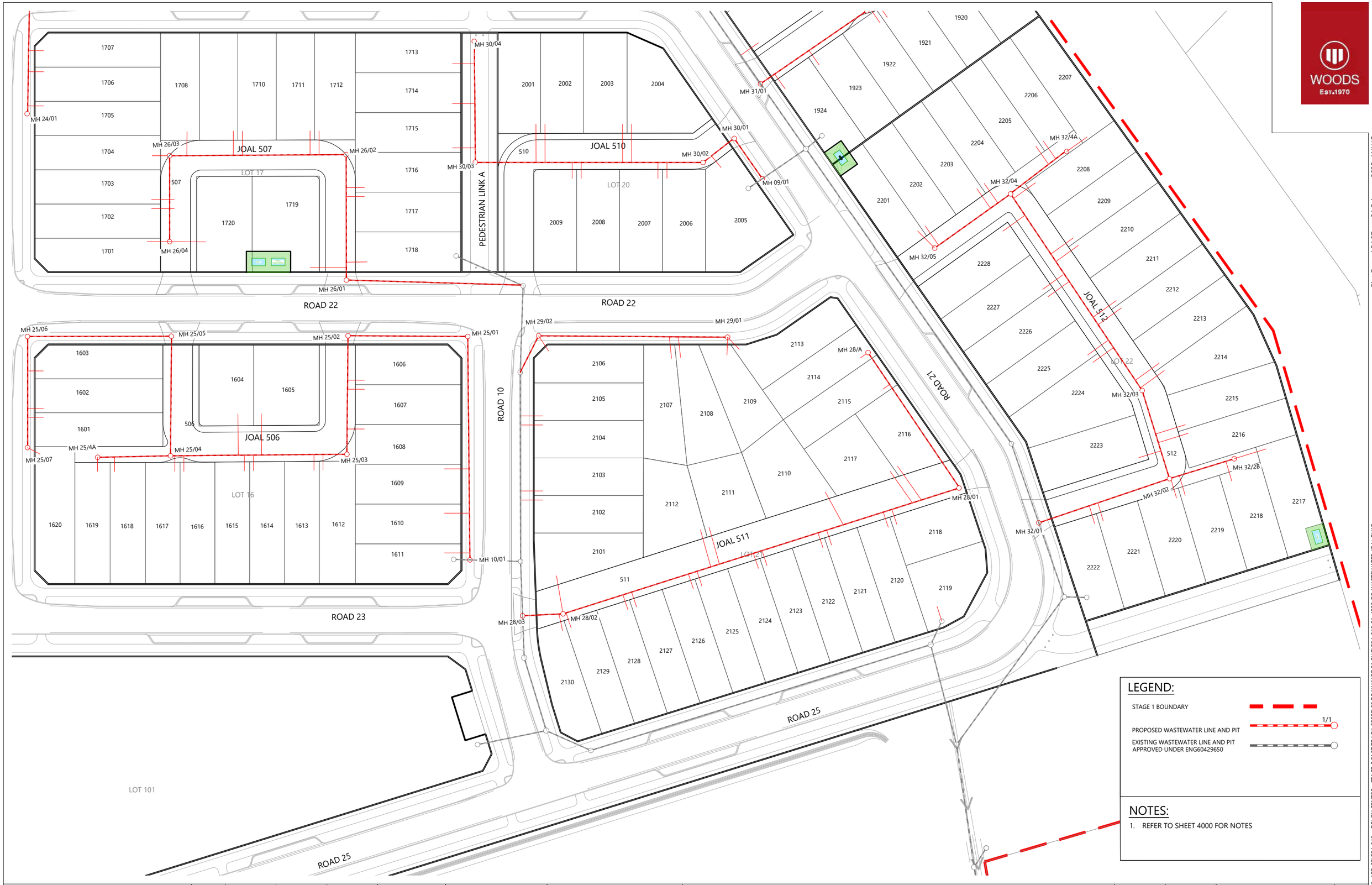

REVISION DETAILS		INT	DATE	SURVEYED	BJ
1	FOR RESOURCE CONSENT	AR	14/02/2025	DESIGNED	AR
				DRAWN	AR
				CHECKED	TH
				APPROVED	CD

BUILDING B, LEVEL 1
8 NUGENT ST, GRAFTON,
AUCKLAND 1023
+64 9 308 9229
WOODS.CO.NZ

Kiwi Property

DRURY CENTRE SUPERLOTS

WASTEWATER LAYOUT PLAN
SHEET 4 OF 4

STATUS	RESOURCE CONSENT	REV
SCALE	1:750 @ A3	1
COUNCIL	AUCKLAND COUNCIL	
DWG NO	P24-646-01-4004	

Plot Date: 4:54:07 pm,21 February 2025, ANUJC

File: C:\12DS\DATA\WP-AKL-APP-02\P24-646 - DRURY CENTRE - STAGE 2 FAST TRACK_22237\02 DRAWINGS\01 ENG\P24-646-01-4000-DR_WASTEWATER_JOAL.DWG

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APPENDIX B
GEOTECHNICAL COMPLETION REPORT

2 July 2024

DRURY CENTRE – STAGE 1 EARTHWORKS

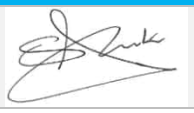
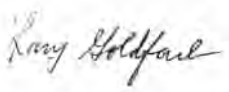
133 FITZGERALD ROAD, DRURY

GEOTECHNICAL COMPLETION REPORT

Kiwi Property Holdings No. 2 Limited

AKS2023-0072AJ Rev 1

AKS2023-0072AJ		
Date	Revision	Comments
01 May 2024	A	Initial draft for internal review
03 May 2024	B	Final draft for client review
13 May 2024	0	Issued to Client
2 July 2024	1	Issued to Client

	Name	Signature	Position
Prepared by	Shirantha Amarasekera		Associate Engineering Geologist
Reviewed by	Larry Goldfarb		Principal Geotechnical Engineer CMEngNZ, CPEng
Authorised by	Sam Gibb		Principal Geotechnical Engineer CMEngNZ, CPEng

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APPENDICES

1 INTRODUCTION

In accordance with our instructions, this Geotechnical Completion Report (GCR) has been prepared for Kiwi Property Holdings No. 2 Limited as part of the documentation to be submitted to Auckland Council following earthworks to form the residential lots for Stage 1 of the Drury Centre development.

This report covers the construction period from earthworks season 2021 and 2022 through to practical completion of the lots to March 2024. This report is intended to be used for certification purposes for the new lots (listed below):

- 13 new residential lots numbered Lot 10 to Lot 22;
- 6 new roads numbered Road 9, 10, 21 to 23 and 25;
- 1 reserve numbered Lot 101

Stage 1 of the Drury Centre Development is located off 133 Fitzgerald Road, Drury. As can be seen from the as-built plans Appendix C, 13 of the lots have been affected by filling as part of the earthworks operations to a maximum depth of approximately 8 metres.

Construction of this subdivision has been undertaken in general accordance with;

- Auckland Council's Resource Consent number BUN60390224 and Engineering Approval letter dated 13 April 2022
- NZS4431:1986 (consent predates 2022 update)
- Auckland Council's Code of Practice for Land Development and Subdivision, Chapter 2 - Earthworks and Geotechnical, Version 2.0, May 2023
- Aurecon consented drawing set referenced 510611-0100-DRG-CC-0000, dated 21 May 2021

- The following project related reports:

Project Documentation - ACCoP	
Report Type	Reference and/or Comments
Geotechnical Interpretative Report	Aurecon Geotechnical Interpretative Report – 510611-002-REP-GG-001.Rev5
Geotechnical Works Specification (earthworks)	Aurecon Standard Earthworks Specification – 510611 Drury Centre Earthworks Specification.Rev1
Geotechnical Supplementary Report	AKS2023-0071 AG Earthworks Practical Completion and Certification Lot 1 Rev 0

For the construction of these stages of the development, the following roles were fulfilled as defined in NZS 4431:1986 and the Ministry for the Environment Contaminated Land Management Guidelines:

- Earthworks Designer: Aurecon Ltd (2021 to 2023) & Woods Partners Ltd (2023 to 2024)
- Geotechnical Designer & Certifier: Aurecon Ltd (2021 to 2023) & CMW Geotechnical NZ Limited (2023 to 2024)
- Recognised Laboratory: Road Test
- Contractor: Ross Reid

As CMW has the role of earthfill Certifier this report has been prepared to cover that aspect of the project work.

1.1 Commercial Lot

At the time of writing this GCR, commercial lot (1) was still currently being finalised with the construction of reinforced earth retaining walls along the eastern property boundary and a segmental retaining wall on the property boundary with 105 Brookfield Road still to be completed. This area of the project and commercial lot will be addressed in a separate GCR upon completion of all retaining structure earthworks associated with commercial lot 1. CMW has completed an Earthworks Practical Completion and Certification for Lot 1, *AKS2023-0072AJ*, dated 2 July 2024 in which it confirms that all cut to fill earthworks associated to Lot 1 has been completed in accordance with the Earthworks Specification and has provided preliminary foundation design parameters for any future developments for the lot. Practical completion and certification for Lot 1 and the Earthworks Specification has been appended to this GCR for reference.

2 DESCRIPTION OF WORKS

The main bulk earthworks operations commenced between May 2022 and December 2023 by Ross Reid Contractors Ltd. This generally consisted of cutting into the existing land within Lots 10 to 19 and filling in within Lots 20 to 22.

The cut and fill Layout Plan in *Appendix* A shows that cuts of up to 5.5m and fills of up to 3.0m were required to achieve the necessary design levels for the proposed lots. All residential lots have been topsoiled and grassed.

The extent of Earthworks undertaken to date, and that covered by this GCR are shown on the Cut-Fill Surface, located in Appendix A.

Majority of the site works for the residential lots were carried out before CMW were engaged with only minor works carried out around Lot 19. The previous consultant, Aurecon who oversaw the earthworks certification

onsite till May 2023 have provided a Geotechnical Review Report of these works of which CMW have reviewed as part of this GCR.

During the course of the site works the Contractor has submitted all QA testing conducted by RoadTest of the engineered fill (NDM and shear vane testing), which were reviewed and certified by Aurecon and CMW have accepted. Further intrusive investigations comprising top-down hand auger testing were conducted on each residential lot to evaluate the bearing capacity of each lot. The hand augers are presented in *Appendix E* and *Appendix G* as part of the QA testing for the GCR.

3 GEOTECHNICAL QUALITY CONTROL

3.1 Site Observations

During the works, site visits were typically undertaken several times each week to assess compliance with NZS 4431 and project specific design recommendations and specifications.

Site visits were carried out to observe and confirm compliance relating to:

- Adequate topsoil stripping;
- Fill areas prior to the placement of fill materials to ascertain that all mullock, and soft inorganic subsoils had been removed;
- Placement and compaction of engineered fills.

4 QUALITY ASSURANCE TESTING

Quality assurance testing of materials was completed as required by the Geotechnical Works Specification presented in Aurecon's Earthworks Specification, 510611 Drury Centre Earthworks Spec Rev 1, 3 December 2021, presented in *Appendix D*. Test results are presented in Appendix E and Appendix G.

Cohesive Materials (Soil Fill and Soil/ Rock Blended Fill) Compaction Test Criteria for Engineered Filling						
Fill Type	Air Voids (1)		Vane Shear Strength (2)		Moisture Content (3)	Dry Density (3)
	Average	Maximum Single Value	Average	Minimum Single Value	Maximum	Minimum
Earth Fill	10%	12%	150 kPa	110 kPa	40%	1.3 t/m^3
Landscape Fill	TBC by Geotechnical Engineer of case-by-case basis					
(1) Air Voids Percentage (as defined in NZS 4402:1986) (2) Undrained Shear Strength (Measured by hand shear vane – calibrated using NZGS 2001 method) (3) Moisture content and minimum dry density non-compliance may be accepted on site by the Geotechnical Engineer on a case-by-case basis depending on the nature of the material and the other criteria results.						

While these tests showed on occasions that the contractor was struggling to achieve the required compaction standards with the prevailing site and soil conditions, to the best of our knowledge, all areas of fill were re-worked as necessary. Subsequent testing confirmed compliance with the specification.

5 EVALUATION OF COMPLETED EARTHWORKS

5.1 Liquefaction

The liquefaction risk for the lots on this development has been assessed as follows:

- Review of Aurecon's Geotechnical Interpretive Report and Auckland Council GIS maps confirms the damage category to be: Very Low Vulnerability
- In accordance with MBIE/NZGS guidance[1] the liquefaction susceptibility of the soils at this site was assessed with respect to geological age and compositional (soil fabric and density) criteria during initial investigations by Aurecon. Liquefaction assessment was described in the Geotechnical Interpretative Report referenced in Section 5.4 and found a very low risk.

Investigations and analysis by Aurecon were completed in accordance with the Guidance. As a result of that work, the earthworks carried out to date, particularly areas where there has been cut, the earthworks surface has remained within the South Auckland Volcanic Formation (SAVF) and therefore liquefaction is unlikely.

5.2 Land Stability and Erosion

The residential lots have been developed from cutting away a hill on an existing plateau landform to form an earthwork surface that is relatively flat to gently sloping to Fitzgerald Road, the western boundary. As such, the potential for unstable conditions for finished ground profile is negligeable and satisfy ultimate limit state design criteria. The soil parameters for stability analysis were selected from extensive investigation undertaken at the site and from experience in this terrain.

The subdivision scheme layout includes a series of batter slopes to form level terraces for building platforms. The batters include portions of the residential lots with maximum gradients of 1(v) in 3(h. We consider the conditions to be satisfactory for all building platform areas, and we are therefore satisfied that these areas are not subject to the natural stability hazards described in the Building Act.

Along Lot 19, the northwestern boundary (corner of Fitzgerald and Brookfield Road), the finished surface beneath the two roads has resulted in a cut slope varying in height from 1.0m to 2.0m. We consider this stability of the cut to be negligeable based on the soil conditions seen and experience with stability in this terrain. On all steep land, including on engineered batter slopes, surface stability can be compromised by indiscriminate disposal of stormwater onto the ground surface and/ or by removal of vegetation.

Building and landscape designers must ensure that all runoff from solid surfaces is directed into the stormwater system. It is also important that care is paid to the disposal of stormwater during construction so that concentrated discharges (e.g. from unconnected spouting) are not directed towards steep ground.

Depths of mulch and topsoil applied to sloping areas should be limited to less than 150mm to minimise the risks of saturation leading to localised slumping on batter face. Wherever practical on such land, and particularly on steep batters, existing vegetation and grass cover should be well maintained. Any vegetation cleared beyond the immediate area of building platforms for temporary construction purposes should be replanted or replaced as soon as possible. The roots of an established vegetation cover can serve to bind the surface soils while the foliage can reduce rain infiltration and soil saturation, resulting in better resistance to erosion and shallow slumping.

5.3 Uncertified Temporary Filling

At the time of completing this GCR all Residential Lots have environmental clean water diversion control bunds constructed on the perimeter of the Lots. For Lots 12 to 14, temporary staging for topsoil screening had been

[1] Earthquake Geotechnical Engineering Practice, Module 3: Identification, assessment and mitigation of liquefaction hazards", (November 2021)

taking place with a number of topsoil stockpiles present on the Lots. It is anticipated that all uncertified filling will be removed from the Lots prior to hand over to the residential builder and in such a case a certified Geotechnical Engineer will need to confirm Lots are cleared in accordance with the requirements of NZS 3604 and ACCoPs, and the anticipated final levels are met as shown in drawing P23-315-01-1100-EW, *Appendix C.*

The areas containing these deposits are covered by the Specific Design Zone (uncertified fill) check this is listed in SOPO and descriptions of the restrictions are contained in our Opinion on Suitability in *Appendix A*.

5.4 Fill Induced Settlement

The majority of the filling on this stage of the development was placed between December 2023 and February 2024. A series of settlement markers was installed in areas of deeper fill at its completion and have been periodically monitored for both horizontal and vertical movements. Horizontal changes have been noted to be within the survey accuracy limits, while vertical movements are depicting seasonal shrink/ swell variations as anticipated. Results of the monitoring are provided in *Appendix E* and generally show a plateauing of results.

On the basis of the relatively minor magnitude of fill depths on this site, together with the elapsed time since it was placed, we consider that remaining post-construction settlements will be within code limits.

5.5 Service Line Trenches

At the time of writing this GCR civil works, sanitary sewer and stormwater services have not been constructed including the service trenching required for installation of these services.

As is normal on all subdivisions, building developments involving foundations within a 45-degree zone of influence from pipe inverts will require engineering input. The Auckland Council drawing referenced SW22 provided in *Appendix B* extracted from Chapter 4 of the Auckland Council Code of Practice for Land development and Subdivision depicts their requirements for stormwater pipes. Details for water and wastewater pipes are available in the Watercare COP1 - General Requirements and Procedures. It is anticipated that the majority of lots will have service trenches within the lots. The resulting restrictions are presented in our Opinion on Suitability in *Appendix A.*

5.6 Groundwater

The extensive investigation carried out prior to any earthworks encountered groundwater within the basalt layer, at depths that would unlikely affect the bulk earthworks. This was confirmed in our observation records along with Aurecon's as groundwater was not encountered during the bulk earthworks.

Based on our work to date we anticipate groundwater levels remaining well below the depth of influence of anticipated earthworks and foundation works for NZS 3604 type dwellings.

5.7 Design of Shallow Foundations

5.7.1 Bearing Capacity

Once bulk earthworks and top-soiling of the building platforms had been completed, our staff drilled hand auger boreholes on platforms in natural ground to determine representative finished ground conditions and hence evaluate likely foundation options for future building development. Our assessments of bearing capacity for the design of shallow foundations on each building platform are contained in our Opinion on Suitability in *Appendix A.*

As detailed in our Opinion on Suitability, in general the residential lots have a bearing capacity of 300kPa. Under AS2870, the material is considered H1 due to shrinkage limit.

If higher geotechnical ultimate bearing capacities are required than have been specified, further specific site investigation and design of foundations should be carried out prior to Building Consent application.

5.7.2 Foundation Settlements

At the bearing pressures specified in *Appendix A* and subject to the design requirements for soil expansiveness provided below, differential settlement of shallow foundations for buildings designed in accordance with NZS 3604 (including the 600mm subfloor fill depth limit) should be within code limits.

5.7.3 Soil Expansiveness Classification

Seasonal soil moisture variations within most clay-rich soils typically result in the soil swelling during winter months and then shrinking during summer months. These seasonal movements can cause issues such as cracking of concrete floors, brittle cladding and masonry walls or distortion of building frames causing doors and windows to jam from differential settlement. The effects are further compounded by local influences that worsen differential movements. These may include growth of high demand trees and shrubs that cause localised soil drying or either leaking pipes or tree root removal, leading to localised wetting.

The potential effects need to be managed in a combination of appropriate:

- classification of the level of risk
- design of foundations
- management of soil moisture conditions by contractors during construction
- management of landscaping and plantings by homeowners throughout a building's lifetime

Testing on 4 samples was completed in accordance with the requirements of NZS 3604 and ACCoPs. All testing is currently being performed by Construction Science, a testing laboratory accredited by IANZ for the tests undertaken.

The purpose for the testing will confirm:

- The extent of the soils tested are expansive in terms of the NZS 3604 definition and whether therefore outside the definition of "good ground".
- The samples tested demonstrated a range of expansivity characteristics.

Results of our assessment of the maximum characteristic surface movement (ys) for each lot are contained in our Statement of Opinion on Suitability of Land in *Appendix A.*

5.7.4 Site (Seismic) Class

Our assessments of NZS 1170.5 site Class(es) is provided in our Opinion of Suitability and the Summary Table, both in *Appendix A*.

5.8 Topsoil Depths

Topsoil depths have been checked by the drilling of a borehole in the approximate centre of the building platform on each lot. The results are considered indicative for each lot, but may be subject to variations. Topsoil depths are between 100 and 400mm on these stages of the development.

Site specific findings are contained in our Opinion on Suitability Summary in *Appendix A*. It is possible that further levelling works have been undertaken since the investigations and accordingly, we strongly recommend that lot purchasers complete their own checks of topsoil depths.

5.9 Site Preparation During Construction

Foundation contractors need to be aware of the extreme damage potentially caused by expansive soils and the imperativeness of maintaining optimum moisture contents in all footing excavations and across building platform subgrades between the time of excavation and the pouring of concrete. Pouring foundations on dry, desiccated ground in summer months can lead to heaving and cracking, requiring extensive repairs or even

complete house re-builds. Similarly, where perimeter foundations have been treated but floor slabs have been poured on dry ground, infiltration of moisture via pipe bedding can lead to localised heave, uplift and significant slab damage.

Remedial actions that may be appropriate include combinations of platform protection with a hard fill layer, pouring of a blinding layer of concrete in footing bases and soaking of the building platform with sprinklers for an extended period.

5.10 Site Maintenance and Landscaping

Due to potential soil expansivity, landowners must be mindful of the potential impacts of planting or removal of high water demand plants. Where their roots may extend close to footings (i.e. within a lateral distance of 1.5 times the mature tree height), these actions can lead to significant settlement or heave damage.

For a comprehensive understanding of the potential effects of expansive soils, maintenance recommendations and vegetation management information, we strongly recommend that land owners obtain a copy of CSIRO publication BTF 18 (Foundation Maintenance and Footing Performance – A Homeowners Guide) that is available online.

6 CLOSURE

Additional important information regarding the use of your CMW report is provided in the '*Using your CMW Report*' document attached to this report.

This report has been prepared for use by Kiwi Property Holdings No. 2 Limited in relation to the Drury Centre – Stage 1 Earthworks 133 Fitzgerald Road, Drury project in accordance with the scope, proposed uses and limitations described in the report. Should you have further questions relating to the use of your report please do not hesitate to contact us.

Although regular site visits have been undertaken for observation, for providing guidance and instruction and for testing purposes, the geotechnical services scope did not include full time site presence. To this end, our Opinion on Suitability in *Appendix A* and our Suitability Statement in *Appendix B* also rely on the Contractors' work practices and assumes that when we have not been present to observe the work, it has been completed to high standards and in accordance with the drawings, instructions and consent conditions provided to them.

Similarly, we assume that all as-built information and other details provided to the Client and/ or CMW by other members of the project team are accurate and correct in all respects.

Where a party other than Kiwi Property Holdings No. 2 Limited seeks to rely upon or otherwise use this report, the consent of CMW should be sought prior to any such use. CMW can then advise whether the report and its contents are suitable for the intended use by the other party.

USING YOUR CMW GEOTECHNICAL REPORT

Geotechnical reporting relies on interpretation of facts and collected information using experience, professional judgement, and opinion. As such it generally has a level of uncertainty attached to it, which is often far less exact than other engineering design disciplines. The notes below provide general advice on what can be reasonably expected from your report and the inherent limitations of a geotechnical report.

Preparation of your report

Your geotechnical report has been written for your use on your project. The contents of your report may not meet the needs of others who may have different objectives or requirements. The report has been prepared using generally accepted Geotechnical Engineering and Engineering Geology practices and procedures. The opinions and conclusions reached in your report are made in accordance with these accepted principles. Specific items of geotechnical or geological importance are highlighted in the report.

In producing your report, we have relied on the information which is referenced or summarised in the report. If further information becomes available or the nature of your project changes, then the findings in this report may no longer be appropriate. In such cases the report must be reviewed, and any necessary changes must be made by us.

Your geotechnical report is based on your project's requirements

Your geotechnical report has been developed based on your specific project requirements and only applies to the site in this report. Project requirements could include the type of works being undertaken; project locality, size and configuration; the location of any structures on or around the site; the presence of underground utilities; proposed design methodology; the duration or design life of the works; and construction method and/or sequencing.

The information or advice in your geotechnical report should not be applied to any other project given the intrinsic differences between different projects and site locations. Similarly geotechnical information, data and conclusions from other sites and projects may not be relevant or appropriate for your project.

Interpretation of geotechnical data

Site investigations identify subsurface conditions at discrete locations. Additional geotechnical information (e.g. literature and external data source review, laboratory testing etc) are interpreted by Geologists or Engineers to provide an opinion about a site specific ground models, their likely impact on the proposed development and recommended actions. Actual conditions may differ from those inferred to exist due to the variability of geological environments. The actual interface between materials may be far more gradual or abrupt than assumed based on the facts obtained. Nothing can be done to change the actual site conditions which exist, but steps can be taken to reduce the impact of unexpected conditions. Interpretation of factual data can be influenced by design and/or construction methods. Where these methods change review of the interpretation in the report may be required.

Subsurface conditions can change

Subsurface conditions are created by natural processes and then can be altered anthropically or over time. For example, groundwater levels can vary with time or activities adjacent to your site, fill may be placed on a site, or the consistency of near surface conditions might be susceptible to seasonal changes. The report is based on conditions which existed at the time of investigation. It is important to confirm whether conditions may have changed, particularly when large periods of time have elapsed since the investigations were performed.

Interpretation and use by other design professionals

Costly problems can occur when other design professionals develop their plans based on misinterpretations of a geotechnical report. To help avoid misinterpretations, it is important to retain the assistance of CMW to work with other project design professionals who are affected by the contents of your report. CMW staff can explain the report implications to design professionals and then review design plans and specifications to see that they have correctly incorporated the findings of this report.

Your report's recommendations require confirmation during construction

Your report is based on site conditions as revealed through selective point sampling. Engineering judgement is then applied to assess how indicative of actual conditions throughout an area the point sampling might be. Any assumptions made cannot be substantiated until construction is complete. For this reason, you should retain geotechnical services throughout the construction stage, to identify variances from previous assumption, conduct additional tests if required and recommend solutions to problems encountered on site.

A Geotechnical Engineer, who is fully familiar with the site and the background information, can assess whether the report's recommendations remain valid and whether changes should be considered as the project develops. An unfamiliar party using this report increases the risk that the report will be misinterpreted.

Environmental Matters Are Not Covered

Unless specifically discussed in your report environmental matters are not covered by a CMW Geotechnical Report. Environmental matters might include the level of contaminants present of the site covered by this report, potential uses or treatment of contaminated materials or the disposal of contaminated materials. These matters can be complex and are often governed by specific legislation.

The personnel, equipment, and techniques used to perform an environmental study can differ significantly from those used in this report. For that reason, our report does not provide environmental recommendations. Unanticipated subsurface environmental problems can have large consequences for your site. If you have not obtained your own environmental information about the project site, ask your CMW contact about how to find environmental risk-management guidance.

APPENDIX A: STATEMENT OF PROFESSIONAL OPINION ON SUITABILITY OF LAND FOR BUILDING CONSTRUCTION

STATEMENT OF PROFESSIONAL OPINION ON SUITABILITY OF LAND FOR BUILDING CONSTRUCTION

Development: Stage 1 of the Drury Centre Development
Developer: Kiwi Property Holdings No. 2 Limited
Location: Drury

I, Larry Goldfarb, of CMW Geotechnical NZ Limited, Auckland, hereby confirm that:

1. As a Chartered Professional Engineer experienced in the field of geotechnical engineering, I am a Geo-professional as defined in clause 1.2.2 of NZS 4404:2010 and was retained by the Developer as the geo-professional on the above development.
2. The extent of preliminary investigations carried out to date are described in the Aurecon Geotechnical Interpretative Report referenced 510611-002-REP-GG-001.Rev5, dated 4 October 2022. The conclusions and recommendations of those documents have been re-evaluated in the preparation of this report. The extent of my inspections and those under my auspices during construction, and the results of all tests and/ or evaluations carried out are as described in my Geotechnical Completion Report dated 1 May 2024.
3. I have relied on the Earthworks QA and Certification by Aurecon provided in *Appendix B* that confirms that the earth fills shown in *Appendix C,* drawing number P23-315-01-1270-AB for Lots 12, 13 and 16 to 22 have been placed in compliance with the requirements of Auckland Council and my specification.

   Further to the above by Aurecon, my certification of the earth fills placed on this site for Lot 10, 11, 14 and 15 is contained in *Appendix B* and have been placed in general compliance with the requirements of Auckland Council and my specification.
4. In my professional opinion, not to be construed as a guarantee, I consider that:
   a. The completed earthworks take into account land slope and foundation stability considerations on the building platform areas.
   b. A geotechnical ultimate bearing capacity of 300 kPa may be assumed for shallow foundation design on the building platforms of Lots 10 to 22 inclusive.
   c. The site (seismic) subsoil class for each lot has been assessed in accordance with NZS1170.5:2004 Clause 3.1.3 from borelogs that included measurements of geotechnical properties. Our assessment is that lots 10 to 22 are Class C- shallow soil.
   d.

Assessment of Characteristic Surface Movements and Design Classes for NZS 3604 Compliant Buildings			
Lots	Assessed Maximum Characteristic Surface Movement (Ys) for 500 Year Design (mm)	Suitable NZBC B1/AS1 Expansivity Class for Design	Suitable AS2870-2015 Class for Design
10 to 22	67	H (highly)	H1
Notes: B1/AS1 design applies to a limited range of building sizes, shapes and materials within the scope of NZS3604 and applies only to floor design with strip footings. In all other cases, AS2870 design or specific design should be adopted.			

Prior to the introduction of the B1/AS1 design information in November 2019, minimum foundation depths recommended as appropriate by geotechnical consultants in Auckland for shallow footing design underAS2870 were typically of the order of 750mm for Class H1.

e. No building development should take place within the 45-degree zone of influence of stormwater or sewer line or manhole inverts unless endorsed by specific design and by construction inspections undertaken by a Chartered Professional Engineer experienced in geomechanics to ensure that lateral stability and differential settlement issues are addressed and that building loads are transferred beyond the influence of pipes and trench backfills. A copy of drawing SW22 extracted from Chapter 4 of the Auckland Council Code of Practice for Land development and Subdivision this document is provided in *Appendix B* for clarification. Details for water and wastewater pipes are available in the Watercare COP1 - General Requirements and Procedures.

f. On the basis of the earth fill certification and subject to the geotechnical limitations, restrictions and recommendations contained in clauses 4(a), 4(b), 4(c), 4(d) and 4(e) above:

- The filled and natural ground is generally suitable for buildings constructed in accordance with NZS 3604 and the requirements of either NZBC Clause B1/AS1 where appropriate, or AS2870 for the expansive soil class associated with the characteristic surface movement. Alternatively, a specific foundation and structural design may be undertaken by a Chartered Professional Engineer.
- Specific site investigations, design modifications and construction inspections should be carried out as necessary by a Chartered Professional Engineer, experienced in geomechanics, for all buildings exceeding these limitations, but in any event, we consider it prudent for all land owners to engage a Chartered Professional Engineer to undertake site specific investigation and foundation design with a view to optimising bearing capacities, design loads, earthworks and retaining walls.

5. Road subgrades have been formed with appropriate regard for slope stability and settlement risks.
6. Reserve areas have been formed with appropriate regard for slope stability and seepage risks.

The following table summarises the conditions on each of the residential lots.

For and on behalf of CMW Geosciences

Larry Goldfarb

Principal Geotechnical Engineer CMEngNZ, CPEng

Table 1: GCR Summary Table						
Condition	Geotechnical Ultimate Bearing Capacity (kPa)	NZS 1170.5 Site (seismic) Class	AS2870 Expansive Class	Service Lines Restrictions	Indicative Topsoil Depth (mm)	Specific Design Zone (uncertified fill)
GCR SOPO Clause	4(b)	4(c)	4(d)	4(e)		
Lot number						
10	300	C	H1	✓	400	✓
11	300	C	H1	✓	300	✓
12	300	C	H1	✓	-	✓
13	300	C	H1	✓	100	✓
14	300	C	H1	✓	-	✓
15	300	C	H1	✓	0	✓
16	300	C	H1	✓	150	✓
17	300	C	H1	✓	150	✓
18	300	C	H1	✓	150	✓
19	300	C	H1	✓	200	✓
20	300	C	H1	✓	150	✓
21	300	C	H1	✓	250	✓
22	300	C	H1	✓	300	✓

APPENDIX B: STATEMENT OF SUITABILITY OF ENGINEERED FILL FOR LIGHTWEIGHT STRUCTURES

STATEMENT OF SUITABILITY OF ENGINEERED FILLS FOR LIGHTWEIGHT STRUCTURES

To:	Auckland Council
Development:	Stages 1 of the Drury East Development
Land Title(s):	Lot 1, Lot 3, Lot 4 DP 57466, Lot 1 DP 101367 & Lot 1 DP 87159
Location:	133 Fitzgerald Road, Drury
Resource Consent Nos:	BUN60390224
Developer:	Kiwi Property Holdings No. 2 Limited
Geotechnical Designer:	Dr Jan Kupec of Aurecon
Certifier:	Larry Goldfarb of CMW Geotechnical NZ Limited

This Statement of Suitability is provided as an appendix to the CMW Geosciences Geotechnical Completion Report referenced in the page footer below, that also contains all as-built plans, inspection and test plan, geotechnical works specification, test results and test inspection records relevant to the work completed.

1. I, Larry Goldfarb, confirm that I am qualified as a certifier as defined in NZS4431:1986.
2. During this work, I was retained as certifier and I or my certifier's representative undertook inspections and testing as documented in the Geotechnical Completion Report.
3. I am satisfied that the engineered fill shown in the attached as-built survey was placed, compacted and tested in accordance with the attached specification and that all variations and non-compliances have been documented in the Geotechnical Completion report.
4. Based on the information available, I certify that, to the best of my knowledge, the intent of the geotechnical designer (as presented in the design, drawings and Geotechnical Works Specification) has been achieved.
5. The fill areas shown on the Wood Partners Ltd as-built cut and fill plan(s) attached are considered suitable for development as per NZS 3604 subject to any other restrictions described in the Geotechnical Completion Report by the Geotechnical Designer.
6. This certification does not remove the necessity for normal inspection and design of foundations as would be made in natural ground.

For and on behalf of CMW Geosciences

Larry Goldfarb

Principal Geotechnical Engineer CMEngNZ, CPEng

APPENDIX C: DRAWINGS

Title	Reference No.	Date	Revision
Overall AsBuilt Contour Plan – April Drone Surface	P23-315-01-1170-AB	02/05/24	1
Overall AsBuilt Cut Fill Plan – April Drone Surface	P23-315-01-1270-AB	02/05/24	1
Overral Proposed Contour Plan	P23-315-01-1100-EW	03/05/24	2
Hand Auger Locations	P23-315-01-9105-SK	03/04/24	1

NOTE

1. CONTOURS ARE AT 0.5m INTERVAL

LEGEND

STAGE 1 EXTENT

PROPOSED CONTOURS 25

LOT 2
DP 165262

LOT 4
DP 165262

LOT 7
DP 165262

LOT 200

LOT 10

LOT 11

LOT 12

LOT 13

LOT 14

LOT 15

FITZGERALD ROAD

LOT 101

LOT 16

LOT 17

LOT 18

LOT 19

LOT 20

LOT 21

LOT 22

LOT 1

LOT 7
DP 104552

LOT 8
DP 104552

LOT 201

BROOKFIELD ROAD

WOODS
EST.1970

Plot Date: 4:29:09 pm,3 May 2024, GLENNW

File: C:\12DSYNERGY\DATA\WP-PEN-APP-01\P23-315 - DRURY CENTRE_21429\02 DRAWINGS\02 ENG\P23-315-01-1100-EW_PROPOSED CONTOURS PLAN.DWG

REVISION DETAILS		INT	DATE	SURVEYED	
1	ISSUED FOR INFORMATION	NS	21/03/24	DESIGNED	NS
2	ISSUED FOR INFORMATION	GW	03/05/24	DRAWN	NS
				CHECKED	GW
				APPROVED	GW

BUILDING B, LEVEL 1
8 NUGENT ST, GRAFTON,
AUCKLAND 1023
+64 9 308 9229

WOODS.CO.NZ

Kiwi Property

DRURY CENTRE

OVERALL PROPOSED CONTOUR PLAN

N

STATUS	FOR INFORMATION	REV
SCALE	1:4000 @ A3	2
COUNCIL	AUCKLAND COUNCIL	
DWG NO	P23-315-01-1100-EW	

NOTES

1. CONTOURS ARE BASED OFF APRIL 2024 DRONE SURFACE PROVIDED BY THE CONTRACTOR RRCL.
2. MAJOR CONTOURS ARE AT 1.0m INTERVAL.
3. LEVELS SHOWN ARE IN TERMS OF AUCKLAND VERTICAL DATUM 1946.

LEGEND

- STAGE 1 EXTENT
- PROPOSED MAJOR CONTOURS (25)
- PROPOSED MINOR CONTOURS

LOT 2 DP 165262
LOT 4 DP 165262
LOT 7 DP 165262
LOT 200
LOT 10
ROAD 22
LOT 11
FITZGERALD ROAD
LOT 15
ROAD 21
LOT 14
ROAD 22
LOT 12
ROAD 23
LOT 13
ROAD 1
ROAD 25
ROAD 9
LOT 18
LOT 101
LOT 16
LOT 17
ROAD 10
LOT 20
LOT 19
LOT 1
LOT 21
ROAD 21
LOT 22
ROAD 2 (CREEK ROAD)
LOT 7 DP 104552
ROAD 3 (MAIN STREET SOUTH)
LOT 8 DP 104552
LOT 201
BROOKFIELD ROAD

Plot Date: 11:37:48 am,3 May 2024, NANDINIS

File: C:\12DSYNERGY\DATA\WP-PEN-APP-01\P23-315 - DRURY CENTRE_21429\02 DRAWINGS\02 ENG\P23-315-01-1170-AB_ASBUILT CONTOURS PLAN.DWG

REVISION DETAILS		INT	DATE	SURVEYED	
1	ISSUED FOR INFORMATION	NS	02/05/24	DESIGNED	NS
				DRAWN	NS
				CHECKED	GW
				APPROVED	GW

BUILDING B, LEVEL 1
8 NUGENT ST, GRAFTON,
AUCKLAND 1023
+64 9 308 9229
WOODS.CO.NZ

Kiwi Property

DRURY CENTRE

OVERALL ASBUILT CONTOUR PLAN
APRIL DRONE SURFACE

N

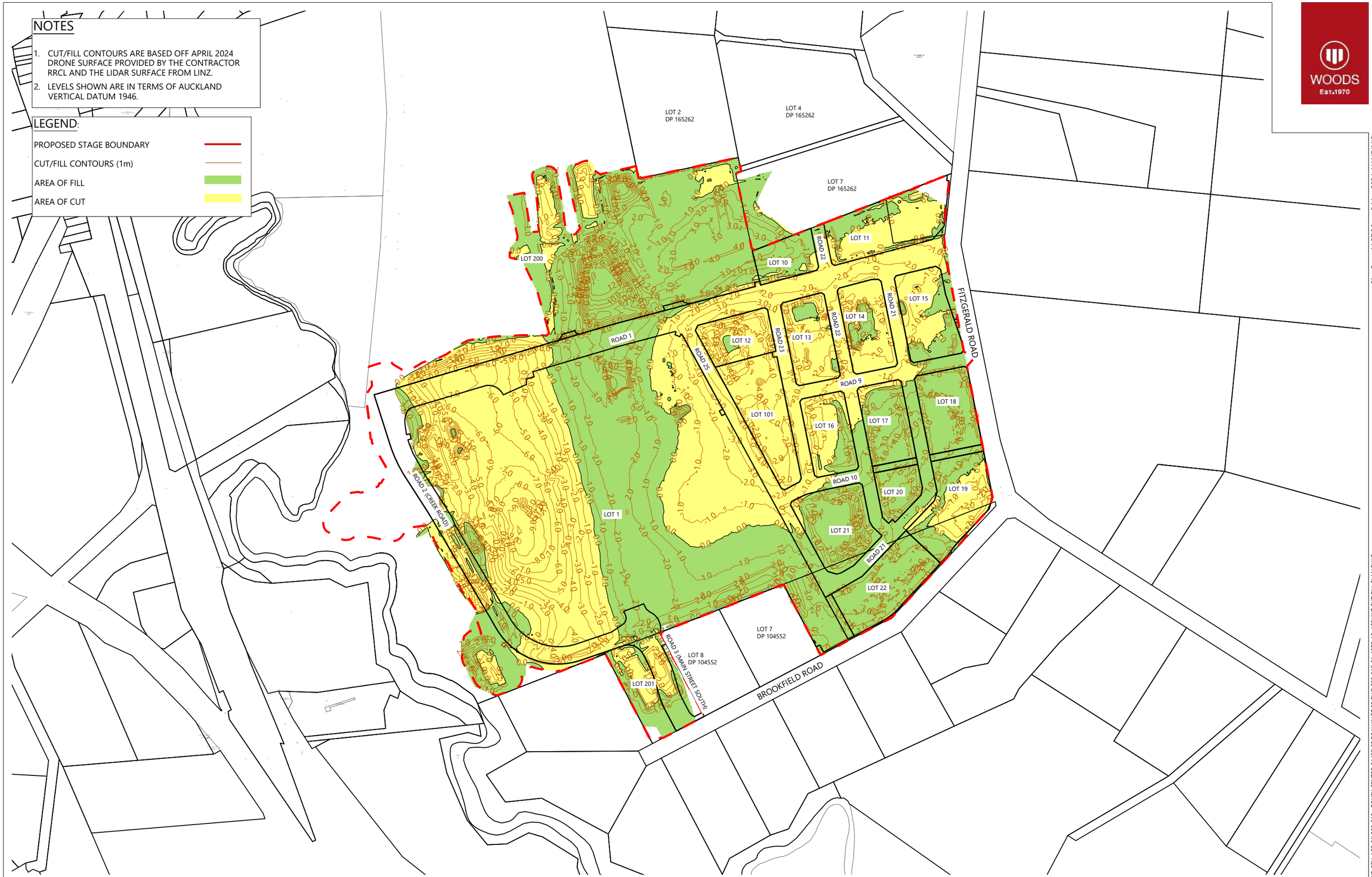
STATUS	FOR INFORMATION	REV
SCALE	1:4000 @ A3	1
COUNCIL	AUCKLAND COUNCIL	
DWG NO	P23-315-01-1170-AB	

NOTES

1. CUT/FILL CONTOURS ARE BASED OFF APRIL 2024 DRONE SURFACE PROVIDED BY THE CONTRACTOR RRCL AND THE LIDAR SURFACE FROM LINZ.
2. LEVELS SHOWN ARE IN TERMS OF AUCKLAND VERTICAL DATUM 1946.

LEGEND:

- PROPOSED STAGE BOUNDARY
- CUT/FILL CONTOURS (1m)
- AREA OF FILL
- AREA OF CUT



REVISION DETAILS		INT	DATE	SURVEYED	
1	ISSUED FOR INFORMATION	NS	02/05/24	DESIGNED	NS
				DRAWN	NS
				CHECKED	GW
				APPROVED	GW

BUILDING B, LEVEL 1
8 NUGENT ST, GRAFTON,
AUCKLAND 1023
+64 9 308 9229
WOODS.CO.NZ

Kiwi Property

DRURY CENTRE

OVERALL ASBUILT CUT FILL PLAN
APRIL DRONE SURFACE

N

STATUS	FOR INFORMATION	REV
SCALE	1:4000 @ A3	1
COUNCIL	AUCKLAND COUNCIL	
DWG NO	P23-315-01-1270-AB	

Plot Date: 11:37:36 am,3 May 2024, NANDINIS

File: C:\12DSYNERGY\DATA\WP-PEN-APP-01\P23 315 - DRURY CENTRE_21429\02 DRAWINGS\02 ENG\P23-315-01-1270-AB_ASBUILT CUT FILL PLAN.DWG

LEGEND:

- CMW COMPLETED HAND AUGERS
- AURECON COMPLETED HAND AUGERS

WOODS Est.1970

Plot Date: 2:28:50 pm,3 May 2024, NANDINIS

REVISION DETAILS		INT	DATE	SURVEYED	
1	ISSUED FOR INFORMATION	MK	11/04/2024	DESIGNED	MK
2	UPDATE HAND AUGER LOCATIONS	NS	03/05/2024	DRAWN	MK
				CHECKED	GW
				APPROVED	GW

BUILDING B, LEVEL 1
8 NUGENT ST, GRAFTON,
AUCKLAND 1023
+64 9 308 9229
WOODS.CO.NZ

Kiwi Property

DRURY CENTRE

HAND AUGER LOCATION

N

STATUS	ISSUED FOR INFORMATION	REV
SCALE	1:2500 @ A3	2
COUNCIL	AUCKLAND COUNCIL	
DWG NO	P23-315-01-9105-SK	

File: C:\12DSYNERGY\DATA\WP-PEN-APP-01\P23-315 - DRURY CENTRE_21429\02 DRAWINGS\02 ENG\P23-315-01-9105-SK_PROPOSED_HAND_AUGERS.DWG

APPENDIX D: AURECON EARTHWORKS QA AND CERTIFICATION

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2023-09-22

David Schwartfeger
Project Manager
Kiwi Property Group
PO Box 2071
Auckland 1140

Dear David

Re: Drury Centre Project – Earthworks QA and Certification up to May 2023 – Geotechnical Review, Our Ref 501611

1 Introduction

Aurecon New Zealand Ltd (Aurecon) was engaged by Kiwi Property Holdings No.2 Limited to provide earthworks compaction control and geotechnical earthworks certification for a residential and commercial development located at 133 Fitzgerald Road, Drury (herein referred to as the 'Project').

The works done at the Project through to May 2023 has included large scale earthworks over the southern part of the site, which have been undertaken during the later part of the 2021 to 2022 earthworks season and the 2022 to 2023 earthworks season. Earthworks are still ongoing; however, the Client has engaged other consultants and Aurecon will not be involved in the project going forward. Therefore, this letter has been prepared to provide an overview of the earthworks undertaken up to May 2023.

The earthworks design undertaken by Aurecon is presented in the approved resource consent drawings (Resource Consent BUN60390224) in Appendix A. The extent of earthworks covered by this letter, up to May 2023, is shown on the Ross Reid Contractors Ltd Cut Fill As-Built Surface Drawing in Appendix B.

The purpose of this letter is to detail the earthworks undertaken at the site and present the earth fill compaction results and confirm the suitability of the engineered fill including certification of the filling works conducted in the 2021/2022 and 2022/2023 earthworks seasons.

It is understood that this document will be superseded by a Geotechnical Completion Report (GCR) that will be prepared by others that meets the requirements of the Auckland Council Code of Practice for Land Development and Subdivision, NZS4431:1989[1], the consent conditions outlined in consent BUN60390224 and the stamped consented drawings, upon completion of the project.

2 Geotechnical Reports

In preparation of this letter, we have reviewed the following, previously issued documents, pertaining to the Earthworks aspects of the project:

- Aurecon Geotechnical Investigation Report (GIR*) Drury Centre Geotechnical Investigation Report*, Ref: 510611, Rev 5. Dated, 4 October 2022.

[1] *At the time of resource consenting the earthworks were designed in accordance with NZS4431:1989, which has since been superseded by NZS4431:2022.*

- Aurecon Report, *Section 7: Drury Centre Bulk Earthworks: Earthworks Specifications*, Ref: 510611, Revision 1, Dated 3 December 2021.
- Aurecon Letter *Drury Bulk Earthworks Stage 1 Separable Portion 1: Completion Certificate 2023– Geotechnical Review,* dated 15 May 2023.

A copy of the Practical completion letter and Earthworks Specifications are presented in Appendix C, for ease of reference.

3 Earthworks Operations

Erosion and sediment control works, and some minor filling commenced on the 11 April 2022 with the main bulk earthworks operations undertaken between May 2022 and 15 May 2023, by Ross Reid Contractors Ltd.

The proposed earthworks are presented on the approved set of resource consent Earthworks Drawings in Appendix A. The cut and fill Layout Plan shows that cuts of up to 9m and fills of up to 8m are required to achieve the necessary design levels of the proposed future lots. This has only been achieved in part at the time of writing this letter.

The extent of Earthworks undertaken to date, and that covered by this letter are shown on the Ross Reid Contractors Ltd, Cut Fill As-Built Surface, located in Appendix B.

3.1 Quantities

The quantities of cuts and fill placed during the 2022/2023 earthworks period, as part of the Stage 1 Earthworks, covered in this letter are presented in Table 1.

Table 1: Summary of the Stage 1 cut to fill quantities.

Item*	Quantity (m^3)**
Imported Fill (Certifiable)	165.2
Cut to Certified Fill (Excluding Top Loading)	243,573.36
Cut to certified Fill (Top Loading)	20,570.51
Stockpiled Organic Material for respreading or removal.	8,887.54
Unsuitable Material Removed from Site	6,425.76

**Excluding topsoil volumes*

***Quantities as per Ross Reid Progress Payment Schedule #12 – May 2023.*

The surface level achieved by the filling works outlined above is presented on the Ross Reid Contractors Ltd Cut Fill Surface Drawing Located in Appendix B.

4 Quality Assurance and Controls

4.1 Laboratory Testing

Laboratory testing was conducted on the site won and imported fill materials prior to their use. Testing was conducted by IANZ accredited facilities, and the results evaluated by an Aurecon Engineering Geologist, who provided confirmation of their suitability for use as bulk fill.

The requirements for laboratory testing and minimum testing frequencies, as defined in the Earthworks Specification, and are presented in Table 2.

Table 2: Source suitability testing

Test Type/Requirement	Test Method	Test Frequency
Standard Compaction with Air Voids	NZS 4402:1986, Test 4.1.1	3 tests per site-won fill material for each source location.
Water Content (In-situ)	NZS 4402:1986, Test 2.1	3 tests per site-won fill material for each source location.
Shear Strength	NZGS Guideline for Hand Held Shear Vane Test 2001	3 tests per site-won fill material for each source location, undertaken on a compacted mould sample, which shall be measured and reported for every point on each compaction curve.
Particle Size Distribution	NZS 4402:1986, Test 2.8.1	3 tests per site-won fill material for each source location.
Plasticity Index	NZS 4402:1986, Test 2.2, 2.3 & 2.4	3 tests per site-won fill material for each source location.

The results of the Laboratory testing received from the Contractor is presented in Appendix D.

4.2 Site Monitoring Inspections

During the earthworks season site monitoring inspections were undertaken on a regular basis by an Aurecon Engineer, to assess general compliance with NZS4431:1989 and the Earthworks Specification and monitoring schedule. The inspections included stripping of topsoil, removal of non-certified fill and the benching of the ground prior to the placement of fill.

During earthworks we observed the cut to fill material being placed and assessed its suitability for use as engineered fill prior, including proof rolling of subgrade for soft spots prior to fill placement, observing the fill being compacted and insitu testing of the fill.

Site Inspection Reports (SIR) are presented in Appendix E.

4.3 Quality Control Criteria

The quality control criteria were set out in Earthworks Specification, a summary of which is presented in Table 3. A copy of the full Earthworks Specification is included in Appendix C.

Table 3: Summary of testing requirements

Material	Criteria	Method
Earth fill	Top 1m 98% of Maximum Dry Density (MDD) Greater than 1m Depth 95% of Maximum Dry Density (MDD) All Moisture content +/- 2% of Optimum Moisture Content (OMC). <or=10% average air voids over 10 tests with a maximum of 12% for any individual test. Air voids to be	**Preferred** Beneath Roads Nuclear Density Meter (NDM) test at a rate of 1 test per 20m in each traffic lane All other earthworks areas Nuclear Density Meter (NDM) test at a rate of 1 test per 500m^3, or, a minimum of 1 test per 0.5m thickness of fill is being placed. Whichever is greater.

Material	Criteria	Method
	calculated based on laboratory solid density test. Vane shear strength. Minimum average of 150kPa for 10 tests. Minimum of 110kPa for any one test.	Each NDM test shall comprise 2 measurements using the same probe hole but orientated at 90 degrees to each other. Shear vane test at a rate of 2 tests per 500m^3, or, a minimum of 1 test per 0.5m thickness of fill is being placed. Whichever is greater. Undrained shear strength of the compacted soil at any test location shall be taken as the mean of a set of tests, comprising 3 tests undertaken within an area of 0.5m^2 of each other. **Alternative** New Zealand standard compaction test (NZS4402, Test 4.1.1).
Subgrade	CBR	Dynamic Cone Penetrometer test (NZS 4402, Test 6.5.2)
Subgrade	On-site inspection with Engineer	Proof roll on site - Two axle truck with twin tyres on rear axle, loaded to eight tonnes on the rear axle
Sub-base	Mean > 98% of Max. Dry Density (MDD) Min > 95% of MDD	**Preferred** <u>Roads</u> Nuclear Density Meter test at a rate of 1 test per 20m in each traffic lane <u>Building platforms or other hardstand areas</u> Nuclear Density Meter test at a rate of 1 test per 10m^2 **Alternative** MDD to be the greater of: New Zealand vibrating hammer compaction test (NZS4402, Test 4.1.3). Plateau Density Test on a test strip of approx. 50m and at an appropriate water content
Sub-base	CBR > 40%	Dynamic Cone Penetrometer test (NZS 4402, Test 6.5.2)
Base course	Mean > 98% of MDD Min > 95% of MDD	**Preferred** <u>Roads</u> Nuclear Density Meter test at a rate of 1 test per 20m in each traffic lane <u>Building platforms or other hardstand areas</u> Nuclear Density Meter test at a rate of 1 test per 100m^2 **Alternative** MDD to be the greater of: New Zealand vibrating hammer compaction test (NZS4402, Test 4.1.3). Plateau Density Test on a test strip of approx. 50m and at an appropriate water content

Material	Criteria	Method
Base course	95% of the deflections measured shall not exceed: • 0.8mm for Principal and Collector Streets • 1.0mm local streets • 1.3mm for short local streets and cul-de-sacs With no measurement exceeding 25% of the above for the particular category.	Benkelman Beam test

It is noted that as only bulk earthworks have been undertaken to date and the testing requirements which are relevant from the table are the first row – Earth Fill.

4.4 Quality Assurance Testing

In-situ density monitoring was carried out on the general fill areas, to check air voids, water content and undrained shear strengths (Su). Testing was conducted by an independent IANZ endorsed laboratory, engaged by the Contractor. Results of the Nuclear Densometer (NDM) and shear vane testing were submitted to Aurecon for review. Areas that did not meet the standard for engineered fill, set out in Table 2, were reworked and retested until they met the requirements.

The testing was evaluated holistically, with more importance that air voids, shear vane and NDM results pass, noting that moisture content is used by the Contractor to evaluate and optimise to reach the compaction requirements (moisture content provided as guideline).

Testing was conducted at or greater frequency than that recommended by NZS4431:1989, and the Earthworks Specification. The testing results are presented in Appendix E. It is understood that final as-builts will be provided at the completion of the earthworks in accordance with the Earthworks Specification.

4.4.1 Hand Augers

A series of top-down testing was conducted on the lots that had received Practical Completion as *Drury Bulk Earthworks Stage 1 Separable Portion 1: Completion Certificate 2023– Geotechnical Review* to evaluate the bearing capacity of each lot. The testing comprised the drilling of a series of hand augers at discrete locations across the lots. Due to works ceasing on the project the bearing capacity was not evaluated as part of this letter, it is understood that lot specific testing and evaluation will be conducted as part of the Geotechnical Completion Report, upon completion of the project.

The hand augers are presented as part of the QA Testing in Appendix E.

4.5 Settlement Monitoring Summary

As part of the site work, the Contractor installed and monitored settlement plates and pins. The locations of these are shown in Appendix F. Aurecon supervised and reviewed the settlement monitoring data received from the Contractor for the period covering 26 October 2022 to 28 June 2023. The processed data has been presented in Appendix F. We note the following about the settlement data to date.

- Observed settlement is generally similar to the calculated settlements.
- The settlement data over the past three months indicates a general plateauing of results.

- There is some variability in the readings due to the following reasons:
  - Survey accuracy.
  - Nature of the plastic soils (shrinkage and swelling depending on moisture levels)
  - Heaving of the material due to machinery working close by the pins and plates to achieve compaction.
  - Damage to the monitoring pins, for example the sudden drop in the reading for Plate 3 was due to the plate being bumped by a machine so the readings were reset following the incident.

At the time of writing, it is understood that settlement monitoring is ongoing and will be managed by a newly appointed Geotechnical Engineer to the project.

5 Summary

Based on the information provided by the Contractor, our site observations and testing we consider that the engineered fill placed across the site over the 2022/2023 Earthworks seasons meets the requirements for Engineered fill in accordance with NZS4431:1989.

6 Limitations

This Letter has been prepared in accordance with the brief provided to us, the contents of the letter are understood to be used as part of a Geotechnical Completion Report that will be prepared by a Client appointed third-party Geotechnical Engineer in the future, when the works are complete. The Certifying Engineer will still need to satisfy themselves as to the quality of the earthworks for land development and subdivision, Aurecon New Zealand Ltd accepts no liability for the use of the data, opinions and recommendations given in this letter by a third-party.

Subsurface conditions, such as groundwater levels, can change over time, as earthworks stabilise, and static groundwater conditions equilibrate. This should be borne in mind, particularly if this letter is referred to after a protracted delay. Additionally, as earthworks are still on-going, ground conditions are likely to change from the time of preparation of this letter, therefore it is recommended that the recommendations provided in the original geotechnical reports are revised in a Geotechnical Completion Report upon completion of the project.

Yours sincerely

Letter prepared by

David Bosse

Senior Engineering Geologist

Reviewed by:

James Muirson

Lead Engineering Geologist

Verified by:

Wilhelm Nel

Land Infrastructure Practise Lead.

Appendix A
Consented Drawings

Auckland Council

BUN60390224

Approved Resource Consent Plan

13/04/2022

DRAWING LIST

EARHTWORKS		
510611-0100-DRG-CC-0000	COVER SHEET	C
510611-0100-DRG-CC-0001	EXISTING SITE LAYOUT PLAN	B
510611-0100-DRG-CC-0002	CUT AND FILL LAYOUT PLAN	C
510611-0100-DRG-CC-0003	DESIGN CONTOUR LAYOUT PLAN	C
510611-0100-DRG-CC-0011	EROSION AND SEDIMENT CONTROL DETAIL - SHEET 1	B
510611-0100-DRG-CC-0012	EROSION AND SEDIMENT CONTROL DETAIL - SHEET 2	B
510611-0100-SKT-CC-0005	EROSION AND SEDIMENT CONTROL PLAN STARTING SEQUENCE - SHEET 1	B
510611-0100-SKT-CC-0006	EROSION AND SEDIMENT CONTROL PLAN SEQUENCING SECOND PHASE - SHEET 2	B
510611-0100-SKT-CC-0007	EROSION AND SEDIMENT CONTROL PLAN SEQUENCING FINAL PHASE - SHEET 3	B
510611-0100-SKT-CC-0008	EROSION AND SEDIMENT CONTROL PLAN CLOSE-UP AREAS	A
UTILITIES		
510611-0100-DRG-CC-0021	TRANSMISSION POWERLINE PLAN AND SECTIONS	C
510611-0100-DRG-UT-0030	EXISTING UTILITIES LAYOUT PLAN - SHEET 1	B

LOCALITY PLAN

ABN: 54 005 139 873

FOR CONSENT

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CLIENT: Kiwi Property

REV	DATE	REVISION DETAILS	APPROVED
C	2021-12-10	ISSUED FOR CONSENT: REVISED CONTENT	W.NEL
B	2021-10-29	ISSUED FOR CONSENT	W.NEL
A	2021-05-21	ISSUED FOR CONSENT	W.NEL

SCALE	AS SHOWN
SIZE	A1
DRAWN	D.SANTOS
DESIGNED	J.A.VORSTER
REVIEWED	J.A.VORSTER

FOR CONSENT
NOT FOR CONSTRUCTION

APPROVED
DATE 2021-12-10
W.NEL

PROJECT: KIWI PROPERTY - DRURY

TITLE: COVER SHEET

DRAWING No.: PROJECT No. 510611 – AREA 0100 – TYPE DRG – DISC CC – NUMBER 0000 – REV C

NOTE:

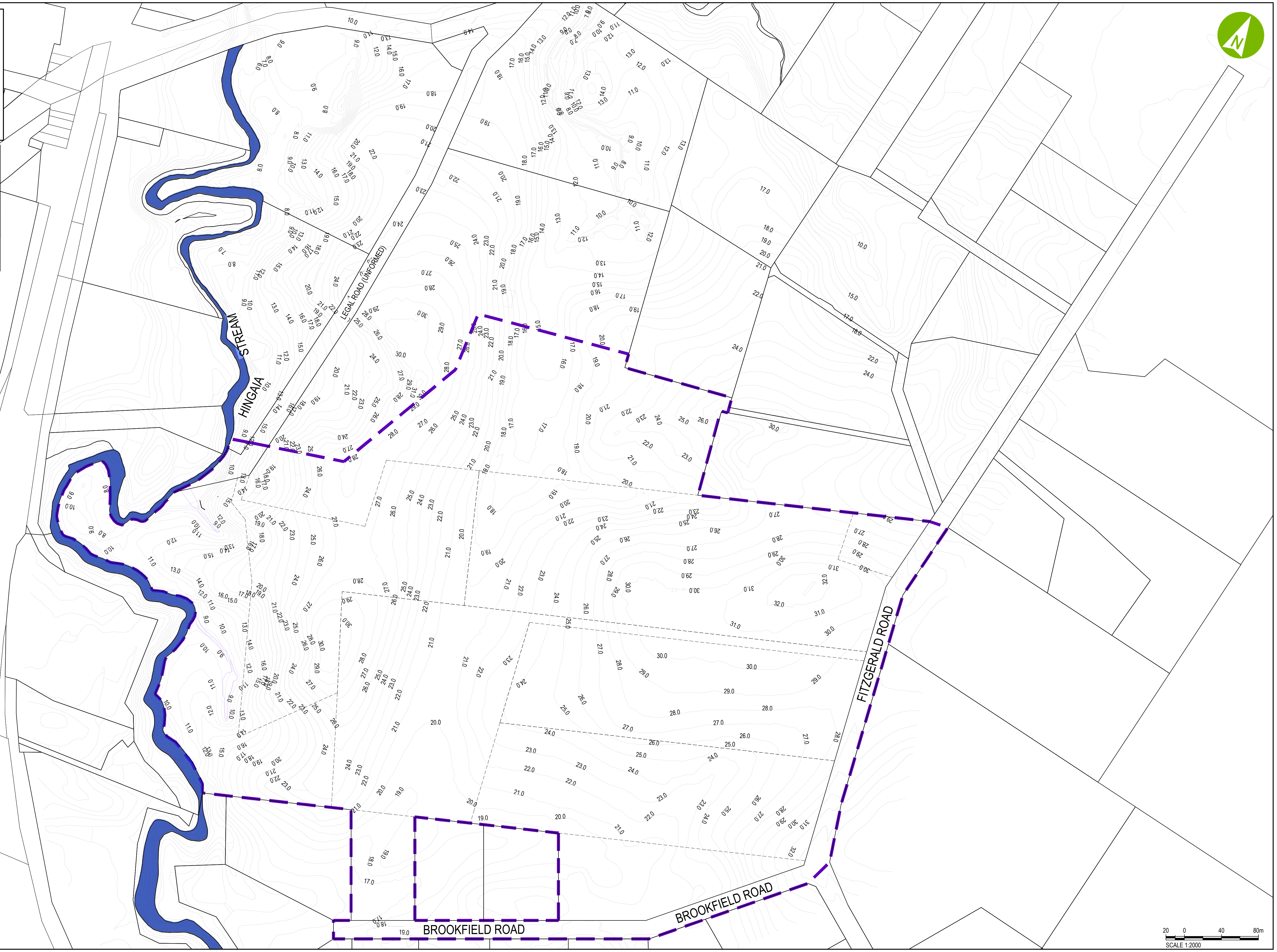
1. BOUNDARY POSITIONS, ROAD WIDTHS AND AREAS ARE INDICATIVE ONLY AND ARE SUBJECT TO SURVEY.
2. THIS PLAN HAS BEEN PREPARED FOR THE PURPOSE OF FIRST STAGE APPROVAL UNDER THE COVID RECOVERY (FAST TRACK CONSENTING) ACT 2020.
3. HORIZONTAL DATUM: NZGD2000 MOUNT EDEN.

AREAS:

DEVELOPMENT AREA = 261 870 m²

LEGEND

- CADASTRAL BOUNDARIES
- PROPOSED DEVELOPMENT BOUNDARY
- EXISTING COUNTOURS



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CLIENT

Kiwi Property

REV	DATE	REVISION DETAILS	APPROVED
A	21.05.21	ISSUED FOR CONSENT	W.NEL
B	29.10.21	ISSUED FOR CONSENT	W.NEL

SCALE	SIZE
AS SHOWN	A1

DRAWN: M.KAUR

DESIGNED: J.A.VORSTER

REVIEWED: W.NEL

FOR CONSENT
NOT FOR CONSTRUCTION

APPROVED: W.NEL DATE: 29.10.2021

PROJECT: KIWI PROPERTY - DRURY

TITLE: EXISTING SITE CONTOURS PLAN

DRAWING No.	PROJECT No.	WBS	TYPE	DISC	NUMBER	REV
	510611	0100	DRG	CC	0001	B

CUT AND FILL RANGES

FROM	TO	COLOUR
≤-9.5	-9.0	
-9.0	-8.5	
-8.5	-8.0	
-8.0	-7.5	
-7.5	-7.0	
-7.0	-6.5	
-6.5	-6.0	
-6.0	-5.5	
-5.5	-5.0	
-5.0	-4.5	
-4.5	-4.0	
-4.0	-3.5	
-3.5	-3.0	
-3.0	-2.5	
-2.5	-2.0	
-2.0	-1.5	
-1.5	-1.0	

-1.0	-0.5	
-0.5	0	
0	0.5	
0.5	1.0	
1.0	1.5	
1.5	2.0	
2.0	2.5	
2.5	3.0	
3.0	3.5	
3.5	4.0	
4.0	4.5	
4.5	5.0	
5.0	5.5	
5.5	6.0	
6.0	6.5	
6.5	7.0	
7.0	7.5	
7.5	8.0	
8.0	8.5	
8.5	≥9.0	

TABLE 1: OVERALL CUT AND FILL VOLUMES (m³)

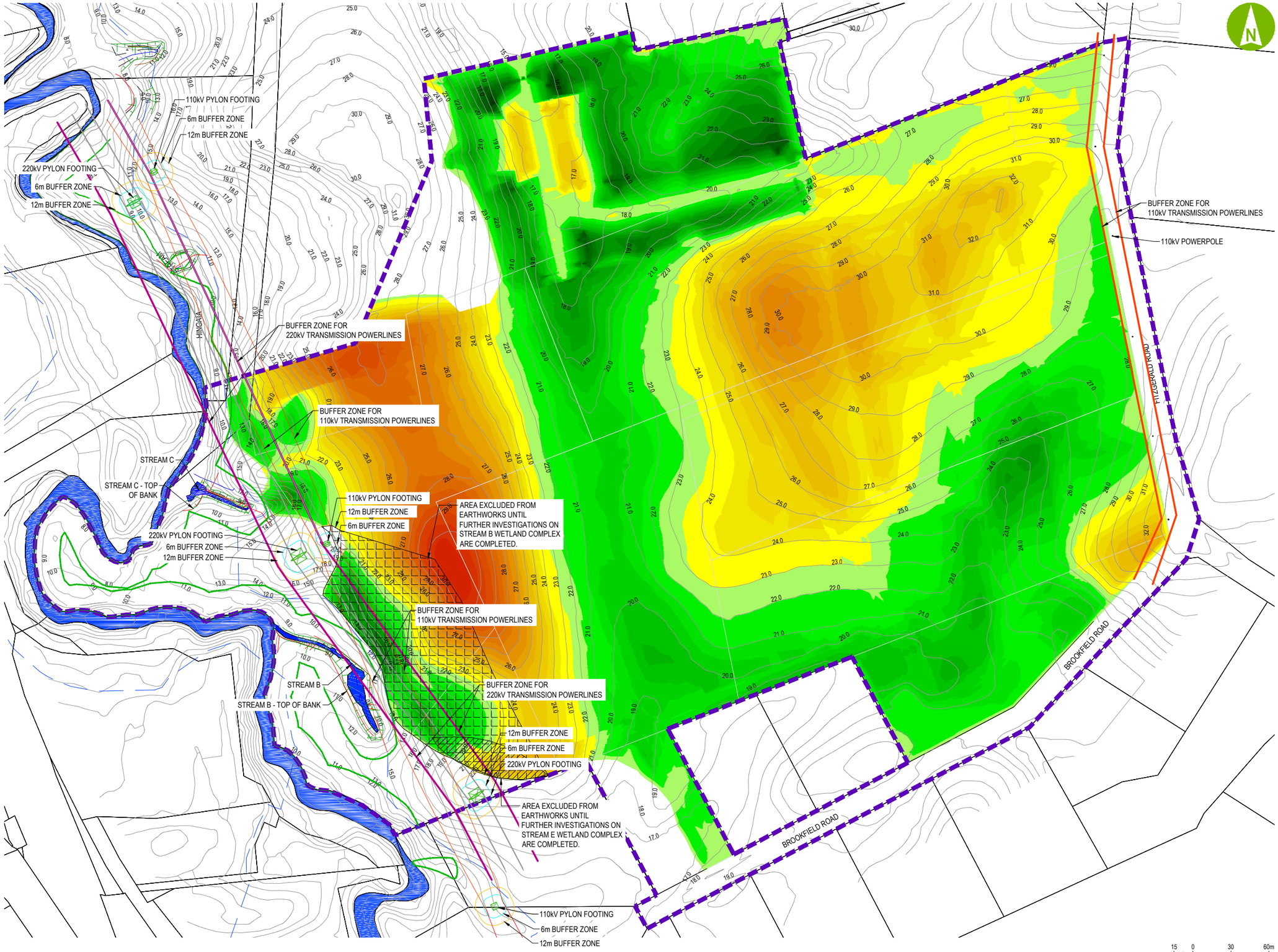
CUT	-331 100 m³
FILL	330 000 m³
BALANCE	-1 100 m³

TABLE 2: TOPSOIL VOLUME (m³)

67,000 m³

LEGEND

- CADASTRAL BOUNDARIES
- EXISTING REGISTRAR OF TITLE
- PROPOSED DEVELOPMENT BOUNDARY
- BUFFER ZONE FOR 110kV TRANSMISSION POWERLINES
- BUFFER ZONE FOR 220kV TRANSMISSION POWERLINES
- EXTENT OF WORKS
- 100 YEAR FLOOD LEVEL EXTENT



Office: AUBAU Filename:

Plot Date:

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CLIENT: Kiwi Property

REV	DATE	REVISION DETAILS	APPROVED
C	2021-12-10	STREAM B WETLAND AFFECTED AREA INCLUDED	W.NEL
B	2021-10-29	ISSUED FOR CONSENT	W.NEL
A	2021-05-21	ISSUED FOR CONSENT	W.NEL

SCALE	1:1500
SIZE	A1
DRAWN	D.SANTOS
DESIGNED	J.WARLICH-KOOLE
REVIEWED	J.A.VORSTER

FOR CONSENT
NOT FOR CONSTRUCTION

APPROVED
DATE
2021-12-10
W.NEL

PROJECT: KIWI PROPERTY - DRURY

TITLE: CUT AND FILL LAYOUT PLAN

DRAWING No.: PROJECT No. 510611 - AREA 0100 - TYPE DRG - DISC CC - NUMBER 0002 - REV C

LEGEND

- CADASTRAL BOUNDARIES
- PROPOSED DEVELOPMENT BOUNDARY
- PROPOSED MAJOR CONTOUR 5m INTERVALS
- PROPOSED MINOR CONTOUR 1m INTERVALS
- EXTENT OF WORKS
- 100 YEAR FLOOD LEVEL EXTENT

110kV PYLON FOOT

220kV PYLON FOOT

EXISTING 220kV TRANSMISSION POWERLINES

EXISTING 110kV TRANSMISSION POWERLINES

AREA EXCLUDED FROM EARTHWORKS UNTIL FURTHER INVESTIGATIONS ON STREAM B WETLAND COMPLEX ARE COMPLETED.

AREA EXCLUDED FROM EARTHWORKS UNTIL FURTHER INVESTIGATIONS ON BROOKFIELD STREAM/WETLAND COMPLEX ARE COMPLETED.

FITZGERALD ROAD

BROOKFIELD ROAD

SCALE 1:1500

NOTES

1. PROPOSED CONTOURS ARE DRAFT ONLY.

Plot Date: Office: AUKAU Filename:

aurecon
www.aurecongroup.com

CLIENT: Kiwi Property

REV	DATE	REVISION DETAILS	APPROVED
C	2021-12-10	STREAM B WETLAND AFFECTED AREA INCLUDED	W.NEL
B	2021-10-29	ISSUED FOR CONSENT	W.NEL
A	2021-05-21	ISSUED FOR CONSENT	W.NEL

SCALE	SIZE
1:1500	A1

DRAWN: D.SANTOS
DESIGNED: J.WARLICH-KOOLE
REVIEWED: J.A.VORSTER

FOR CONSENT
NOT FOR CONSTRUCTION

APPROVED
DATE
2021-12-10
W.NEL

PROJECT: KIWI PROPERTY - DRURY

TITLE: DESIGN CONTOUR LAYOUT PLAN

DRAWING No.: 510611 – 0100 – DRG – CC – 0003 – C

PROJECT No.	AREA	TYPE	DISC	NUMBER	REV
510611	0100	DRG	CC	0003	C