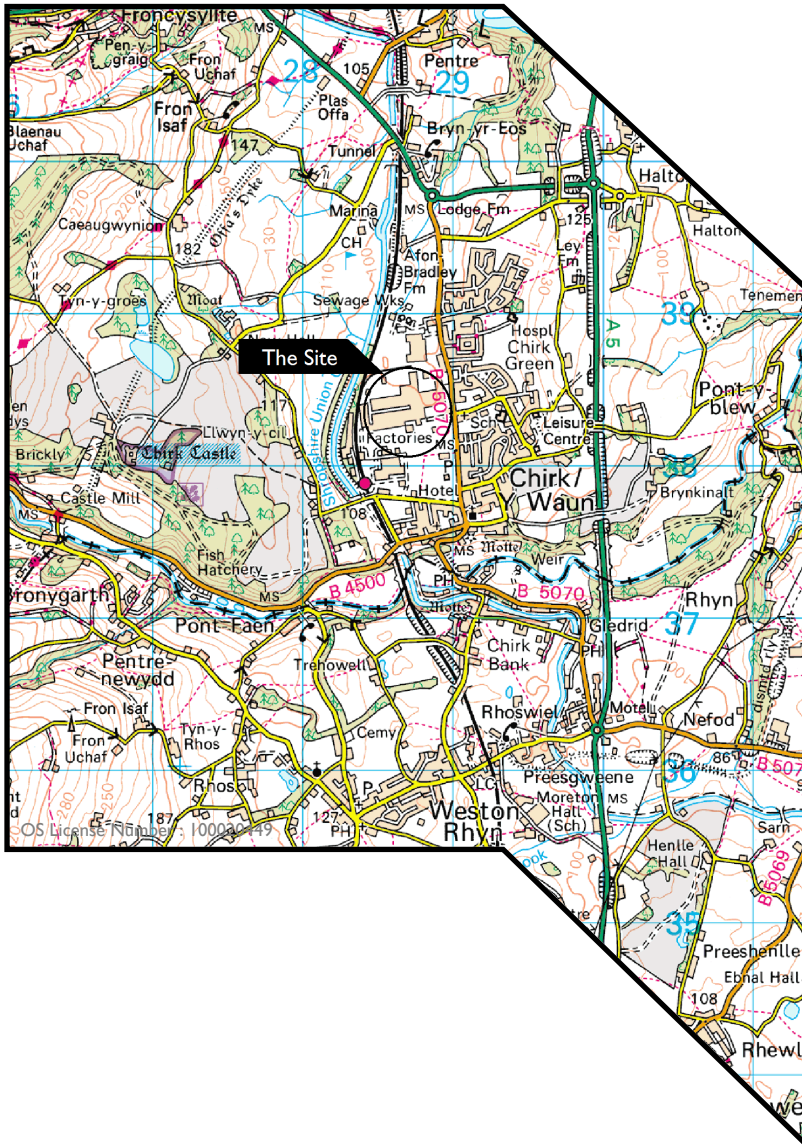


Ground Investigation



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KRONOSPAN RAW BOARD STORAGE

Factual Report

for
Kronospan Limited

Engineer : Ramboll UK Limited

Project Number PN214198

June 2021

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Ground Investigation
at

Factual Report

KRONOSPAN RAW BOARD STORAGE

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1.0 INTRODUCTION

A geotechnical and geo-environmental investigation was undertaken by Geotechnics Limited at the site of proposed development works within the Kronospan factory complex at Chirk, North Wales. The investigation was carried out to the instructions of the Engineer, Ramboll UK on behalf of the Client, Kronospan Limited. This report describes the work undertaken and presents the data obtained.

2.0 OBJECT AND SCOPE OF THE INVESTIGATION

The object of the investigation was to obtain information on the ground and groundwater conditions relating to the design of the proposed works within the limitations posed by trial hole numbers, locations, depths, methods adopted and the scope of approved in situ and laboratory testing. The investigation comprised concrete coring, cable percussion boreholes and dynamic sample boreholes, in situ and laboratory testing and reporting. A Factual Report was also commissioned.

3.0 PRESENTATION

A description of the site and a summary of the procedures followed during the investigation process are presented in Sections 4 to 6. The factual data so obtained are presented in Appendices 2 to 8 of this report. Attention is drawn to the General Notes and Investigation Procedures presented in Appendix 9 to aid an understanding of the procedures followed and the context in which the report should be read.

In addition, data in electronic format in accordance with "The Electronic Transfer of Geotechnical Data from Ground Investigations" published by the AGS (the AGS Format) are presented separately together with a copy of the report in electronic PDF format.

4.0 THE SITE

4.1 Location

The site is located within the Kronospan factory complex in Chirk, approximately 13km south-south west of Wrexham. The approximate Ordnance Survey National Grid Reference for the centre of the site is SJ 286 383 and an extract from the relevant 1:50,000 Scale O.S. Map is included as Appendix 1.

4.2 Description

The site lies within the Melamine Production Hall warehouse area of the Kronospan manufacturing complex. The site is roughly rectangular in shape with maximum dimensions of approximately 200m (east to west) and 80m (north to south). The site is level and comprises reinforced concrete slabs.

A exploratory hole was carried out outside of the main warehouse area, in the adjacent yard area.

The site is bounded to the west by railway lines. To the north, south and east lie further buildings and yard areas of the Kronospan complex.

4.3 Site Geology

The 1:50,000 scale map of Wrexham published by the British Geological Survey, Sheet 121 dated 1994, shows the site to be underlain by superficial drift deposits of Glacial Sand and Gravel, although Glacial Till is indicated close to the northern and eastern edges of the site. The underlying solid strata are indicated to comprise Carboniferous Productive Coal Measure rocks of the Bettisfield Formation (now part of the Pennine Lower Coal Measures Formation).

Made Ground is not noted on the geological map consulted, however a thickness of Made Ground would be expected given the industrial setting of the site.

4.4 Hydrogeology

The British Geological Survey GeolIndex website, <https://magic.defra.gov.uk/magicmap.aspx>, accessed on 30th April 2021, shows that the Pennine Lower Coal Measures Formation is classed as a Secondary A Aquifer.

The BGS GeolIndex website, <http://mapapps2.bgs.ac.uk/geoindex/home.html>, accessed on 30th April 2021, shows the Pennine Lower Coal Measures Formation to be a moderately productive aquifer with moderate yields.

5.0 PROCEDURE

5.1 Commissioning

The work was awarded following submission of a tender for work designed by the Engineer for ground investigation of the site in accordance with the Client's requirements.

5.2 General

The procedures followed in this site investigation are based on *BS 5930: 2015 – Code of Practice for Site Investigations* and *BS 10175:2011 - Investigation of Potentially Contaminated Sites*. The soils and rocks encountered have been described in accordance with BS5930:2015 and BS EN ISO 14688-1:2002+A1:2013 and BS EN ISO 14689-1:2003.

The Exploratory Hole locations were specified by the Engineer and their approximate positions are shown on the Exploratory Hole Location Plan in Appendix 8. The co-ordinates and levels shown on the Exploratory Hole Records were measured using a Leica Total Station GPS survey device. The depths quoted on the exploratory hole records are in metres below ground level.

Prior to the investigation, a survey was carried out by CMS Surveys Limited utilising Ground Penetrating Radar (GRP) to check for the presence of buried services at the proposed exploratory hole locations.

At each exploratory hole location an inspection pit was excavated using hand tools to a depth of 1.20m below ground level to check for the presence of underground services. Prior to and on completion of the excavation, the location was scanned using a cable avoidance tool (CAT). As concrete was present at ground level, across the site, 350mm diameter coring was used to advance the exploratory holes through

the concrete and facilitate the excavation of the inspection pits.

Aquifer protection measures were employed when advancing the Cable Percussion Boreholes in order to preclude the creation of a pathway for contamination to migrate down towards the underlying aquifer. These protection measures comprised using 250mm diameter casing and tools to drill to the base of the Made Ground, then by installing a 1m thick bentonite plug, prior to reducing to 200mm diameter casing and tools and re-commencing drilling.

5.3 Cable Percussion Boreholes

Three (3 No.) 250mm diameter boreholes (numbered HBW-BH101 to HBW-BH103) were sunk by Cable Percussion Tool techniques to depths ranging between 21.00m and 35.50m below ground level. The work was carried out between 23rd March and 16th April 2021.

Representative disturbed (D and B) and driven open-tube thin-walled (UT) samples of the soils encountered were obtained at regular intervals. Standard Penetration Tests (SPTs) were undertaken at the depths indicated on the borehole records in accordance with BS EN ISO 22476-3:2005+A1:2011 to obtain a measure of the engineering properties of the proved strata. In addition, Environmental Soil samples (ES) were recovered at the depths indicated on the Cable Percussion Borehole Records, presented in Appendix 2.

On encountering groundwater, boring operations were suspended for 20 minutes in order to record any rise in water level. Full details of groundwater observations are included on the Cable Percussion Borehole Records. It should be noted that the addition of water to the borehole as part of the drilling process may have masked the presence of groundwater in the borehole. Where water was added it has been noted on the Cable Percussion Borehole Records.

On completion, standpipes were installed in each of the Cable Percussion Boreholes (see Section 5.6).

5.4 Dynamic Sample Boreholes

Five (5 No.) Dynamic Sample Boreholes (numbered HBW-WS101 to HBW-WS105) were undertaken at the site to depths ranging between 6.00m and 6.45m below ground level. The work was carried out

between 23rd and 26th April 2021.

The Dynamic Samples were taken using the super-heavy Dynamic Probe apparatus which drives lined steel tubes into the ground in 1m lengths. Samples were retrieved in the plastic liners. The retrieved liners were split and the recovered soils described before being sub-sampled into ES, D and B samples as shown on the Dynamic Sample Borehole Records. The holes were cased and progress depends on the nature of the strata penetrated. Full details of the casing used are included on the Dynamic Sample Borehole Records. In Appendix 3.

Standard Penetration Tests (SPTs) were undertaken at the depths indicated on the borehole records in accordance with BS EN ISO 22476-3:2005+A1:2011 to obtain a measure of the engineering properties of the proved strata.

Groundwater observations are included on the Borehole Records where appropriate and any rise in water level was recorded over 20 minutes whilst drilling operations were suspended.

On completion, standpipes were installed in each of the Dynamic Sample Boreholes (see Section 5.6).

5.5 Photo Ionisation Detection (PID) Meter Readings

Photo Ionisation Detection (PID) tests were undertaken during the investigation by testing the headspace of the ES soil samples taken. The tests were carried out using a suitably calibrated Tiger PID Meter fitted with a 10.6eV UV lamp. The results of the PID tests are presented on the relevant borehole records with the readings reported as Volatile Organic Compounds (VOCs) recorded in parts per million.

5.6 Instrumentation and Monitoring

Long-term monitoring of the gas and groundwater levels was made possible by the installation of standpipes as follows:

Exploratory Hole/Standpipe diameter	Standpipe Slotted Pipe & Filter Zone (m)
HBW-BH101/ 33mm	3.00 to 5.00
HBW-BH101/ 50mm	29.00 to 34.00

HBW-BH102/ 33mm	3.00 to 4.00
HBW-BH102/ 50mm	12.70 to 14.00
HBW-BH103/ 50mm	18.00 to 21.00
HBW-WS101/ 33mm	1.00 to 3.15
HBW-WS102/ 33mm	1.00 to 3.00
HBW-WS103/ 33mm	1.00 to 4.00
HBW-WS104/ 33mm	1.00 to 5.50
HBW-WS105/ 33mm	4.00 to 6.45

Monitoring of the gas and groundwater levels at the site commenced on 27th April 2021 with three further visits on 07th, 14th and 21st May 2021.

On each of the monitoring visits a record of the groundwater level in the standpipes was obtained, as well as this wells were checked for the presence of Light Non-Aqueous Phase Liquids (LNAPLs) using an interface meter. On the first and second visit where water was recorded, samples were obtained (where possible) following the purging of water in the standpipe. In addition to the groundwater levels, the following parameters were measured and recorded in each standpipe using a GA5000 Gas Analyser:

- Concentrations (% Vol) of CH₄, O₂, CO₂, along with (% LEL) CH₄ and (ppm) H₂S, CO
- Flow Rate
- Barometric Pressure
- Air Temperature
- Light Non-Aqueous Phase Liquids (LNAPLs)

The results of the monitoring are presented in Appendix 4.

6.0 LABORATORY TESTING

6.1 Geotechnical

The laboratory testing schedule was specified by the Engineer. Unless otherwise stated, the tests were carried out at the laboratories of Professional Soils Laboratory Limited (UKAS Accredited Laboratory, Number 4043) and were undertaken in accordance with the appropriate Standards as indicated below and are detailed on the results sheets in Appendix 5 together with the test result as well as the test method and accreditation. Any descriptions, opinions

and interpretations are outside the scope of UKAS accreditation.

The tests undertaken can be summarised as follows:-

BS 1377:1990

Test No.		Test Description
Part 2		
3.2	17 No.	Moisture Content Determination
4.3 & 5.3	17 No.	Liquid and Plastic Limit Determination
9.2 & 9.3	17 No.	Mechanical Analysis - Sieving
9.4	17 No.	Mechanical Analysis - Sedimentation

Part 7

8	7 No.	Shear Strength Measurement - 100mm diameter (Single Stage) Quick Undrained Triaxial Compression Test
---	-------	--

The following testing was carried out at the laboratories of Derwentside Environmental Testing Services Limited (UKAS Accredited Laboratory, Number 2139).

BRE Special Digest I Suite

19 No.	Suites comprising:-
	Soluble Sulphate
	Acid Soluble Sulphate
	Total Sulphur
	Soluble Magnesium
	Ammonium
	Nitrate
	Chloride
	pH

6.2 Contamination

Selected samples of soil and groundwater were tested at the laboratories of Derwentside Environmental Testing Services Limited (UKAS Accredited Laboratory, Number 2139) for a number of determinands in order to check on potential site contamination. The determinands were selected by the Engineer and are detailed on the results sheets in Appendix 6 (Soil) and Appendix 7 (Groundwater) together with the test result as well as the test method, accreditation and detection limit.

Signed for and on behalf of Geotechnics Limited.

Prepared by:

Joshua Noble
BSc, FGS
Engineer

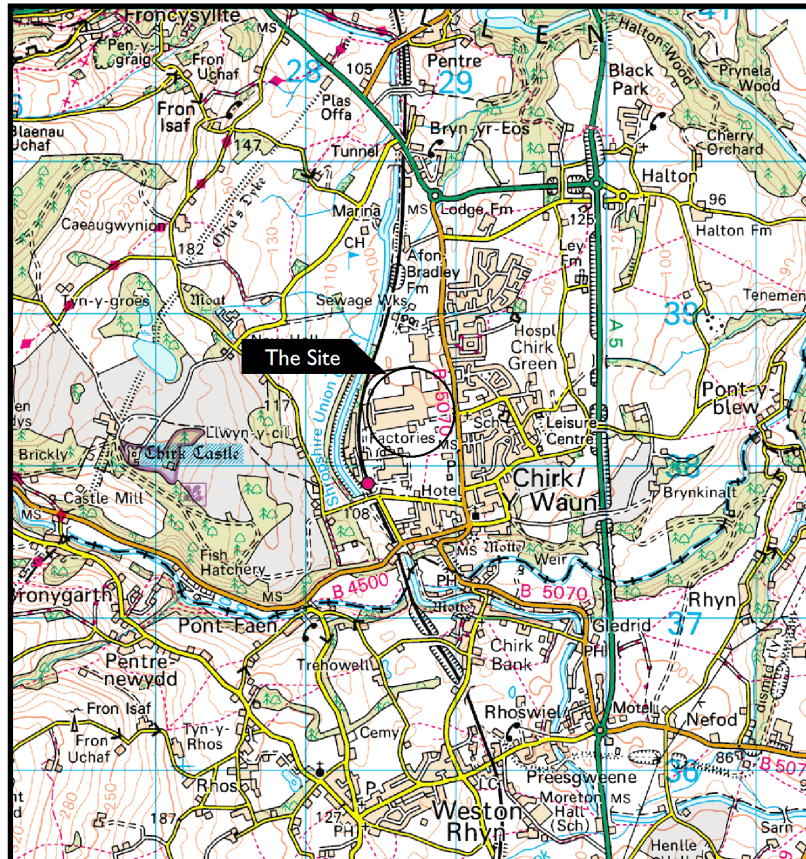
Reviewed by:

Aaron Field
BSc, MSc, FGS
Senior Engineer

APPENDIX I

Site Location Plan

SITE LOCATION PLAN



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Ground Investigation
at
KRONOSPAN RAW BOARD STORAGE
for
Kronospan Limited

GEOTECHNICS
geotechnical and geoenvironmental specialists

APPENDIX 2

Cable Percussion Borehole Records

BOREHOLE RECORD - Cable Percussion

Project KRONOSPAN RAW BOARD STORAGE				Engineer		RAMBOLL UK		Borehole		HBW-BH101				
								Project No		PN214198				
Client KRONOSPAN LIMITED				National Grid		328647.1 E		Ground Level				101.01 m OD		
				Coordinates		338374.6 N								
Sampling			Properties			Strata						Scale 1:50		
Depth		Sample Type	Depth Cased & (to Water)	Strength kPa	w %	SPT N	Description				Depth	Legend	Level m OD	
0.20- 0.60		B	(DRY)	PID=0.0ppm		C50/282	MADE GROUND: Grey concrete.				G.L.		101.01	
0.20		D					MADE GROUND: Greyish brown very sandy slightly clayey angular to subangular fine to coarse gravel of sandstone and concrete.				0.20		100.81	
0.20		ES												
0.20		D												
0.50		ES												
0.50		D					PID=0.0ppm	MADE GROUND: Brownish grey gravelly clayey fine to medium sand. Gravel is angular to subangular fine to coarse of mudstone, siltstone, sandstone and concrete. Below 1.20m, very dense.					0.60	100.41
0.50		ES												
0.60- 1.20		B												
1.00		D												
1.00		ES					PID=0.0ppm	Very stiff grey mottled brown slightly gravelly sandy CLAY. Gravel is subangular to subrounded fine to coarse of mudstone, siltstone and sandstone.					2.50	98.51
1.20- 1.65		B												
1.20- 1.63														
1.80		D												
2.00- 2.45		B	1.70 (DRY)	PID=0.0ppm	C50/178	Soft to firm locally laminated brown mottled grey slightly sandy CLAY.				2.70	98.31			
2.00		ES												
2.00- 2.33														
2.00														
3.00- 3.45		UT39	3.00 (DRY)	PID=0.0ppm	C30	Medium dense to dense greyish brown sandy slightly silty angular to subrounded fine to coarse GRAVEL of mudstone, siltstone and sandstone.				3.80	97.21			
3.00		D												
3.50														
3.50		D												
4.00- 4.45		B	3.00 (DRY)		C42	Below 4.80m, grey mottled brown.				5.40	95.61			
4.00- 4.45														
4.80		D												
5.00- 5.45		B												
5.00- 5.45			5.00 (3.60)			Below 5.00m, dense.								
6.00		D												
6.50- 6.95		#												
6.50- 6.95		B												
7.50		D	7.70 (4.50)			Soft to firm grey slightly sandy slightly gravelly silty CLAY.								
8.00- 8.45		UT31												
8.50		D												
9.00		D												
9.50- 9.95		B	9.20 (3.20)		S6	Between 9.50m and 9.95m, mottled brown.								
9.50- 9.95		D												
Boring			Progress			Groundwater								
Depth	Hole Dia	Technique	Crew	Depth of Hole	Depth Cased	Depth to Water	Date	Time	Depth Struck	Depth Cased	Rose to	in Mins	Depth Sealed	Remarks on Groundwater
0.20	0.35	Concrete Core	SMS	G.L.			31/03/21	08:00	3.50	3.00	2.80	20		Fast inflow, not sealed.
1.20	0.35	Inspection Pit	SL/JL	8.50	7.50	4.50	31/03/21	18:00						
8.50	0.25	Cable Percussion	SL/JL	8.50	7.50	5.30	06/04/21	08:00	29.50	28.50	15.20	20		
21.50	0.20	Cable Percussion	SL/JL	21.50	12.90	20.50	01/04/21	18:00						
35.00	0.15	Cable Percussion	SL/JL	21.50	20.50	13.20	07/04/21	08:00						
Remarks ES sample = 1x 1L plastic tub, 2x 258ml amber jars and 1x 60ml glass jar.														
Water was added to assist boring between 3.50m and 34.00m.														
Drilling suspended between at 3.45m depth due to observed ground gas exiting the borehole.														
Measured ground gas concentrations of 12% Oxygen and 4ppm Carbon Monoxide. Drilling resumed once monitoring was completed.														
A 33mm standpipe was installed to 5.00m with a geowrapped slotted section from 3.00m to 5.00m with flush lockable protective cover and a 50mm standpipe was installed to 34.00m with a geowrapped slotted section from 29.00m to 34.00m with flush lockable protective cover.														
All dimensions are in metres.														
Logged in accordance with BS5930:2015 + A1:2020														
Logged by WH														
Figure 1 of 4														
19/07/2021														

BOREHOLE RECORD - Cable Percussion

Project **KRONOSPAN RAW BOARD STORAGE** Engineer **RAMBOLL UK** Borehole Project No **HBW-BH101**
 Client **KRONOSPAN LIMITED** National Grid Coordinates **328647.1 E 338374.6 N** Ground Level **101.01 m OD**

Sampling			Properties			Strata					Scale 1:50				
Depth	Sample Type	Depth Cased & (to Water)	Strength kPa	w %	SPT N	Description					Depth	Legend	Level m OD		
10.50	D												83.01		
11.00-11.45 11.00-11.45	B UT41	10.70 (2.70)													
11.50-11.95 11.50-11.95	B UT43	11.50 (3.20)													
12.00-12.45 12.00-12.45	# B	12.00 (3.90)		S6											
13.00	D														
13.50-13.95	UT49	13.50 (4.70)													
14.00	D														
14.50	D														
15.00-15.45 15.00-15.45	B D	15.00 (3.80)		S8											
16.00	D														
16.50-16.95	UT60	16.50 (4.50)													
17.00	D														
17.50	D														
18.00-18.45 18.00-18.45 18.00-18.45	# B	18.00 (5.70)		S9	Loose greyish brown sandy slightly silty angular to subrounded fine to coarse GRAVEL of mudstone, siltstone and sandstone. Low cobble content.					18.00					
19.00	D					Below 19.50m, dense.									
19.50-19.95 19.50-19.95	B	19.50 (6.50)		C33											
Boring			Progress			Groundwater									
Depth	Hole Dia	Technique		Crew	Depth of Hole	Depth Cased	Depth to Water	Date	Time	Depth Struck	Depth Cased	Rose to	In Mins	Depth Sealed	Remarks on Groundwater
					32.50 35.00	32.50 34.50	15.20 20.20	08/04/21 08/04/21	08:00 18:00						
Remarks Backfill details from base of hole: bentonite seal up to 34.00m, gravel filter up to 29.00m, bentonite seal up to 5.00m, gravel filter up to 3.00m, bentonite seal up to 0.20m, concrete up to ground level. Chiselling: 1.20-2.40m for 150 minutes , slow drilling. and 20.30-21.00m for 95 minutes , slow drilling. and 22.90-23.20m for 45 minutes and 26.10-26.30m for 33 minutes and 34.00-34.50m for 65 minutes , slow drilling.. Symbols and abbreviations are explained on the accompanying key sheet. All dimensions are in metres. Logged in accordance with BS5930:2015 + A1:2020															
Logged by WH Figure 2 of 4 19/07/2021															

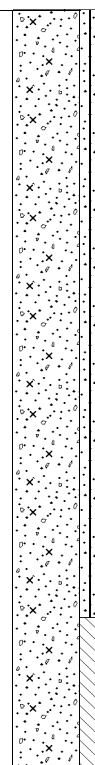
BOREHOLE RECORD - Cable Percussion

Project **KRONOSPAN RAW BOARD STORAGE** Engineer **RAMBOLL UK** Borehole Project No **HBW-BH101**
 Client **KRONOSPAN LIMITED** National Grid Coordinates **328647.1 E 338374.6 N** Ground Level **101.01 m OD**

Sampling			Properties			Strata			Scale 1:50								
Depth	Sample Type	Depth Cased & (to Water)	Strength kPa	w %	SPT N	Description	Depth	Legend	Level m OD								
20.10	D					Firm reddish brown slightly sandy gravelly CLAY with occasional laminae of sand. Gravel is subangular to subrounded fine to coarse of mudstone, siltstone and sandstone.	20.10		80.91								
20.50	D																
21.00-21.45	UT100	20.50 (12.50)															
21.50	D					Stiff reddish brown slightly sandy slightly gravelly CLAY. Gravel is angular to subrounded fine to coarse of mudstone, siltstone, sandstone and coal. At 21.50m, slightly gravelly, sandy. Some pockets (up to 50mm) of silt.	21.50		79.51								
22.00	D																
22.50-22.95	B					Between 22.50m and 22.60m, band of clayey fine sand.	22.60		78.41								
22.50-22.78	D	22.50 (18.60)			S50/126												
						Very stiff reddish brown slightly sandy slightly gravelly silty CLAY with occasional pockets (up to 20mm) of yellowish brown fine sand. Gravel is subangular to rounded fine to coarse of mudstone, siltstone, sandstone and coal.											
23.50	D																
24.00-24.45	UT100	24.00 (23.30)															
24.50	D																
25.00	D																
25.50-25.95	B																
25.50-25.95	D	25.50 (24.90)			S40												
26.50	D																
27.00-27.45	UT100	27.00 (26.40)															
27.50	D																
28.00	D																
28.50-28.90	#	28.50 (27.70)			S50/253	Very stiff reddish brown mottled brown and black slightly sandy silty CLAY with occasional laminae of brown silt.	28.20		72.81								
28.50-28.95	B																
						Very dense thinly laminated reddish brown slightly gravelly very silty fine to coarse SAND.											
29.50	D						29.50		71.51								
30.00-30.43	#	30.00 (15.50)			S50/275												
Boring					Progress					Groundwater							
Depth	Hole Dia	Technique		Crew	Depth of Hole	Depth Cased	Depth to Water	Date	Time	Depth Struck	Depth Cased	Rose to	In Mins	Depth Sealed	Remarks on Groundwater		
Remarks																Logged by WH	
Symbols and abbreviations are explained on the accompanying key sheet.																Figure 3 of 4	
All dimensions are in metres.																19/07/2021	
Logged in accordance with BS5930:2015 + A1:2020																	

BOREHOLE RECORD - Cable Percussion

Project **KRONOSPAN RAW BOARD STORAGE** Engineer **RAMBOLL UK** Borehole Project No **HBW-BH101**
 Client **KRONOSPAN LIMITED** National Grid Coordinates **328647.1 E 338374.6 N** Ground Level **101.01 m OD**

Sampling			Properties			Strata	Scale 1:50		
Depth	Sample Type	Depth Cased & (to Water)	Strength kPa	w %	SPT N	Description	Depth	Legend	Level m OD
30.00-30.45	B								66.01
31.00	D								
31.50-31.89	#	31.50 (16.60)		S50/242					
31.50-31.95	B								
32.50	D								
33.00-33.45	B								
33.00-33.41	D	33.00 (10.80)		S50/262					
34.00	D								
34.50-34.95	UT100	34.50 (20.20)							
35.00	D								
End of Borehole						35.00			

Boring				Progress					Groundwater					
Depth	Hole Dia	Technique	Crew	Depth of Hole	Depth Cased	Depth to Water	Date	Time	Depth Struck	Depth Cased	Rose to	in Mins	Depth Sealed	Remarks on Groundwater

Remarks	ES sample = 1x 1L plastic tub, 2x 258ml amber jars and 1x 60ml glass jar. Water was added to assist boring between 8.50m and 20.00m. Drilling suspended at 3.00m due to observed ground gas exiting the borehole. Measured ground gas concentrations of 19.4% Oxygen and 1ppm Carbon Monoxide. Drilling resumed once monitoring was completed. A 50mm standpipe was installed to 4.00m with a geowrapped slotted section from 3.00m to 4.00m with flush lockable protective cover and a 33mm standpipe was installed to 14.00m with a geowrapped slotted section from 12.70m to 14.00m with flush lockable protective cover. Logged in accordance with BS5930:2015 + A1:2020	Logged by WH Figure 1 of 3 19/07/2021
Symbols and abbreviations are explained on the accompanying key sheet. All dimensions are in metres.		

BOREHOLE RECORD - Cable Percussion

Project	KRONOSPAN RAW BOARD STORAGE	Engineer	RAMBOLL UK	Borehole Project No	HBW-BH102 PN214198
Client	KRONOSPAN LIMITED	National Grid Coordinates	328696.9 E 338396.7 N	Ground Level	101.00 m OD

Sampling			Properties			Strata	Scale 1:50		
Depth	Sample Type	Depth Cased & (to Water)	Strength kPa	w %	SPT N	Description	Depth	Legend	Level m OD
10.50	D								
11.00-11.45	B								
11.00-11.45	UT37	10.90 (3.70)							
11.50-11.95	B								
11.50-11.95	UT39	11.50 (2.00)							
12.00-12.45	#				S7				
12.00-12.45	B	12.00 (2.40)							
13.00	D					Medium dense greyish brown very gravelly very silty fine to coarse SAND. Gravel is angular to subangular fine to medium of mudstone, siltstone and sandstone.	12.70		88.30
13.50-13.95	#				S12				
13.50-13.95	B	13.50 (2.90)							
14.50	D					Medium dense brown gravelly silty fine to medium SAND. Gravel is subangular to subrounded fine to coarse of mudstone, siltstone and sandstone. Between 15.00m and 15.45m, slightly gravelly, slightly silty.	14.50		86.50
15.00-15.45	B				S20				
15.00-15.45	D	15.00 (2.80)							
16.00	D					Dense becoming very dense greyish brown very sandy slightly silty subrounded to rounded fine to coarse GRAVEL of mudstone, siltstone and sandstone. Medium cobble content.	16.00		85.00
16.50-16.95	#				S40				
16.50-16.95	B	16.50 (3.80)							
17.50	D								
18.00-18.40	#				S50/ 246				
18.00-18.45	B	18.00 (4.60)							
19.00	D								
19.50-19.59	#				S50/43				
19.50-19.59	B	19.50 (5.90)							

Boring				Progress					Groundwater					
Depth	Hole Dia	Technique	Crew	Depth of Hole	Depth Cased	Depth to Water	Date	Time	Depth Struck	Depth Cased	Rose to	in Mins	Depth Sealed	Remarks on Groundwater
				21.00 0.00	20.00	9.10	14/04/21 14/04/21	08:00 18:00						

Remarks  Backfill details from base of hole: bentonite seal up to 14.00m, gravel fill up to 12.70m, bentonite seal up to 4.00m, gravel fill up to 3.00m, bentonite seal up to 0.20m, concrete up to ground level.
Chiselling: 1.20-2.20m for 160 minutes and 19.00-2.00m for 130 minutes, slow progress. and 20.00-21.00m for 125 minutes.

Logged by WH

Figure 2 of 3
19/07/2021

Symbols and abbreviations are explained on the accompanying key sheet.

All dimensions are in metres. Logged in accordance with BS5930:2015 + A1:2020



BOREHOLE RECORD - Cable Percussion

Project **KRONOSPAN RAW BOARD STORAGE** Engineer **RAMBOLL UK** Borehole Project No **HBW-BH102**
 Client **KRONOSPAN LIMITED** National Grid Coordinates **328696.9 E** **338396.7 N** Ground Level **101.00 m OD**

Sampling			Properties			Strata			Scale 1:50		
Depth	Sample Type	Depth Cased & (to Water)	Strength kPa	w %	SPT N	Description	Depth	Legend	Level m OD		
20.50	D										
21.00	D					End of Borehole	21.00		80.00		

Boring				Progress					Groundwater					
Depth	Hole Dia	Technique	Crew	Depth of Hole	Depth Cased	Depth to Water	Date	Time	Depth Struck	Depth Cased	Rose to	in Mins	Depth Sealed	Remarks on Groundwater

BOREHOLE RECORD - Cable Percussion

Project	KRONOSPAN RAW BOARD STORAGE	Engineer	RAMBOLL UK	Borehole Project No	HBW-BH103 PN214198
Client	KRONOSPAN LIMITED	National Grid Coordinates	328739.1 E 338412.2 N	Ground Level	100.80 m OD

Sampling			Properties			Strata	Scale 1:50		
Depth	Sample Type	Depth Cased & (to Water)	Strength kPa	w %	SPT N	Description	Depth	Legend	Level m OD
0.00- 0.50	B					MADE GROUND: Grey concrete.	G.L.		100.80
0.20	D						0.25		100.55
0.20	ES		PID=0.0ppm			MADE GROUND: Brown very sandy silty angular to subangular fine to coarse gravel of mudstone, sandstone and limestone.			
0.50	B								
0.50	D		PID=0.1ppm			Below 1.20m, very dense.			
0.50	ES								
1.00	D		PID=0.1ppm						
1.00	ES								
1.20- 1.65	B	(DRY)			C50/220				
1.20- 1.57									
1.80	D					MADE GROUND: Medium dense greyish brown very silty medium to coarse sand and subangular medium to coarse gravel of mudstone, sandstone and limestone. Between 2.00m and 2.45m, locally grading to silty medium to coarse sand and angular to subangular fine to medium gravel.	1.80		99.00
2.00- 2.45	B								
2.00	ES	2.00 (DRY)	PID=0.0ppm		C50/233		2.50		98.30
2.00- 2.38									
2.80	D					Medium dense grey sandy slightly silty subrounded to rounded fine to medium GRAVEL of mudstone, sandstone, limestone and quartzite.			
3.00- 3.45	B				C12				
3.00	ES	3.00 (2.20)	PID=0.0ppm						
3.00- 3.45									
3.80	D					Firm brown slightly gravelly sandy CLAY. Gravel is subangular to subrounded fine to coarse of mudstone and sandstone.	3.60		97.20
4.00- 4.45	UT63	4.00 (2.50)				Grey slightly silty fine to medium SAND.	4.00		96.80
4.50	D						4.40		96.40
4.80	D					Medium dense grey very gravelly silty medium to coarse SAND. Gravel is subangular to rounded fine to coarse of mudstone, siltstone, sandstone and quartzite.			
5.00- 5.45	B	4.80 (3.30)			S16				
5.00- 5.45	D								
6.00	D					Soft to firm grey slightly sandy silty CLAY.	5.60		95.20
6.50- 6.95	UT36	6.30 (5.80)							
7.00	D								
7.50	D					Below 7.40m, occasional bands (up to 75mm) of fine to medium sand.			
8.00- 8.45	#	7.70 (5.30)			S10				
8.00- 8.45	B								
9.00	D								
9.50- 9.95	B	9.20 (4.80)							
9.50- 9.95	UT31								
10.00-10.45	#	10.00 (5.30)			S8				

Boring				Progress					Groundwater					
Depth	Hole Dia	Technique	Crew	Depth of Hole	Depth Cased	Depth to Water	Date	Time	Depth Struck	Depth Cased	Rose to	in Mins	Depth Sealed	Remarks on Groundwater
0.25	0.35	Concrete Core	SMS	G.L.			23/03/21	08:00	2.50	2.00	2.30	20		Fast inflow.
1.20	0.35	Inspection Pit	SL/JL	1.65	1.20	DRY	23/03/21	18:00	30.30	28.50	13.50	20		Fast inflow.
9.50	0.25	Cable Percussion	SL/JL	1.65	1.20	DRY	24/03/21	08:00						
21.00	0.20	Cable Percussion	SL/JL	8.00	7.70	5.80	24/03/21	18:00						
35.50	0.15	Cable Percussion	SL/JL	8.00	7.70	5.30	25/03/21	08:00						
				19.50	19.50	6.70	25/03/21	18:00						

Remarks	Inspection pit hand excavated to 1.20m depth and no services were found. ES sample = 1x 1L plastic tub, 2x 258ml amber jars and 1x 60ml glass jar. Water was added to assist boring between 2.50m and 19.50m. A 50mm standpipe was installed to 21.00m with a geowrapped slotted section from 18.00m to 21.00m with flush lockable protective cover. Backfill details from base of hole: bentonite seal up to 21.00m, gravel filter up to 18.00m, bentonite seal up to 0.20m, concrete up to ground level. Chiselling: 1.20-2.50m for 230 minutes, slow drilling. and 19.50-20.20m for 120 minutes,	Logged by EPS/JD Figure 1 of 4 19/07/2021 geotechnics
Symbols and abbreviations are explained on the accompanying key sheet. All dimensions are in metres. Logged in accordance with BS5930:2015 + A1:2020		

BOREHOLE RECORD - Cable Percussion

Project **KRONOSPAN RAW BOARD STORAGE** Engineer **RAMBOLL UK** Borehole Project No **HBW-BH103**
 Client **KRONOSPAN LIMITED** National Grid Coordinates **328739.1 E 338412.2 N** Ground Level **100.80 m OD**

Sampling			Properties			Strata			Scale 1:50		
Depth	Sample Type	Depth Cased & (to Water)	Strength kPa	w %	SPT N	Description	Depth	Legend	Level m OD		
10.00-10.45	B										
10.80	D										
11.00-11.45	B										
11.00-11.45	D	10.70 (4.30)			S8						
12.00	D										
12.50-12.95	UT47	12.00 (5.70)									
13.00	D										
13.50	D										
14.00-14.45	B										
14.00-14.45	D	13.70 (6.00)			S8						
15.00	D										
15.50-15.95	UT41	15.00 (7.70)									
16.00	D										
16.50	D										
17.00-17.45	B										
17.00-17.45	D	16.50 (4.80)			S9						
18.00	D										
18.50-18.95	UT100	18.00 (5.50)									
19.00	D										
19.50	D										
20.00-20.45	#	20.00 (9.70)			S35						

Boring				Progress					Groundwater					
Depth	Hole Dia	Technique	Crew	Depth of Hole	Depth Cased	Depth to Water	Date	Time	Depth Struck	Depth Cased	Rose to	in Mins	Depth Sealed	Remarks on Groundwater
				19.50	19.50	8.80	26/03/21	08:00						
				25.50	25.50	24.30	26/03/21	18:00						
				25.50	25.50	24.90	29/03/21	08:00						
				35.50	34.50	20.90	29/03/21	18:00						

Remarks **slow drilling. and 26.50-26.80m for 70 minutes and 34.30-34.70m for 60 minutes Slow drilling.**

Logged by **EPS/JD**

Figure **2 of 4**
19/07/2021

Symbols and abbreviations are explained on the accompanying key sheet.

All dimensions are in metres. Logged in accordance with BS5930:2015 + A1:2020

geotechnics

BOREHOLE RECORD - Cable Percussion

Project **KRONOSPAN RAW BOARD STORAGE** Engineer **RAMBOLL UK** Borehole Project No **HBW-BH103**
 Client **KRONOSPAN LIMITED** National Grid Coordinates **328739.1 E 338412.2 N** Ground Level **100.80 m OD**

Sampling			Properties			Strata			Scale 1:50		
Depth	Sample Type	Depth Cased & (to Water)	Strength kPa	w %	SPT N	Description	Depth	Legend	Level m OD		
20.00-20.45	B					Very stiff reddish brown slightly sandy slightly gravelly silty CLAY. Gravel is angular to subangular fine to coarse of mudstone, siltstone, sandstone and coal.	20.20		80.60		
21.00	D										
21.50-21.95	UT100	21.00 (11.50)									
22.00	D										
22.50	D										
23.00-23.45	B					Very stiff reddish brown slightly gravelly sandy CLAY. Gravel is angular to subrounded fine to coarse of mudstone, sandstone and siltstone.	25.50		75.30		
23.00-23.37	D	22.50 (18.00)			S50/218						
24.00	D										
24.50-24.95	UT100	24.00 (23.80)									
25.00	D										
26.00-26.45	B					Very stiff reddish brown slightly sandy slightly gravelly CLAY. Gravel is angular fine to coarse of coal.	27.00		73.80		
26.00-26.35	D	25.50 (24.90)			S50/203						
27.00	D										
27.50-27.95	UT100	27.00 (26.30)									
28.00	D										
28.50	D					Below 28.50m, very sandy. Between 28.50m and 29.00m, mottled grey.					
29.00-29.45	B					Below 29.00m, mottling absent.					
29.00-29.45	D	28.50 (28.30)			S50/295						
30.00	D										

Boring				Progress					Groundwater					
Depth	Hole Dia	Technique	Crew	Depth of Hole	Depth Cased	Depth to Water	Date	Time	Depth Struck	Depth Cased	Rose to	in Mins	Depth Sealed	Remarks on Groundwater

Remarks

Symbols and abbreviations are explained on the accompanying key sheet.

All dimensions are in metres.

Logged in accordance with BS5930:2015 + A1:2020

Logged by **EPS/JD**

Figure **3 of 4**

19/07/2021

BOREHOLE RECORD - Cable Percussion

Project **KRONOSPAN RAW BOARD STORAGE** Engineer **RAMBOLL UK** Borehole Project No **HBW-BH103**
 Client **KRONOSPAN LIMITED** National Grid Coordinates **328739.1 E 338412.2 N** Ground Level **100.80 m OD**

Sampling			Properties			Strata		Scale 1:50		
Depth	Sample Type	Depth Cased & (to Water)	Strength kPa	w %	SPT N	Description	Depth	Legend	Level m OD	
30.30 30.50-30.95 30.50-30.94	D B D	30.00 (13.50)			S50/ 287	Very dense brown silty fine to coarse SAND.	30.30		70.50	
31.50	D									
32.00-32.45 32.00-32.40	B D	31.50 (14.30)		S50/ 247						
33.00	D									
33.50-33.95 33.50-33.95	B D	33.00 (15.20)		S50/ 295						
34.50	D									
35.00-35.45	UT100	34.50 (19.40)								
35.50	D					End of Borehole	35.50		65.30	

Boring				Progress					Groundwater					
Depth	Hole Dia	Technique	Crew	Depth of Hole	Depth Cased	Depth to Water	Date	Time	Depth Struck	Depth Cased	Rose to	in Mins	Depth Sealed	Remarks on Groundwater

Remarks

Symbols and abbreviations are explained on the accompanying key sheet.

All dimensions are in metres.

Logged in accordance with BS5930:2015 + A1:2020

Logged by **EPS/JD**

Figure **4 of 4**
19/07/2021

Fieldwork Results - SPT Results Summary

Project KRONOSPAN RAW BOARD STORAGE

Project No PN214198

Client Kronospan Limited

Hole	Depth m bgl	Level m OD	Type	SWP (mm)	Seating Drive		Test Drive				SPT 'N' Value	Uncorrected SPT 'N'					
					0-75 (mm)	75-150 (mm)	0-75 (mm)	75-150 (mm)	150-225 (mm)	225-300 (mm)		10	20	30	40	50	
HBW-BH101	1.20	99.81	C	-	7	12	15	19	16	-/57	50/282						>
HBW-BH101	2.00	99.01	C	-	9	14	17	22	11/28		50/178						>
HBW-BH101	4.00	97.01	C	-	2	3	5	7	8	10	30				*		
HBW-BH101	5.00	96.01	C	-	3	5	9	14	11	8	42					*	
HBW-BH101	6.50	94.51	S	-	1	-	1	1	1	2	5	*					
HBW-BH101	9.50	91.51	S	-	1	1	1	2	1	2	6	*					
HBW-BH101	12.00	89.01	S	-	1	1	1	1	2	2	6	*					
HBW-BH101	15.00	86.01	S	-	1	1	1	2	2	3	8	*					
HBW-BH101	18.00	83.01	S	-	1	1	1	2	3	3	9	*					
HBW-BH101	19.50	81.51	C	-	2	3	5	7	9	12	33				*		
HBW-BH101	22.50	78.51	S	-	6	17	28	22/51			50/126						>
HBW-BH101	25.50	75.51	S	-	3	5	7	8	11	14	40					*	
HBW-BH101	28.50	72.51	S	-	4	7	11	13	17	9/28	50/253						>
HBW-BH101	30.00	71.01	S	-	5	8	10	13	16	11/50	50/275						>
HBW-BH101	31.50	69.51	S	0	6	9	11	15	18	6/17	50/242						>
HBW-BH101	33.00	68.01	S	-	6	9	11	13	16	10/37	50/262						>
Driller			Steve Lowery				Remarks										
Hammer No.			AR2636														
Energy Ratio, Er (%)			60.00														
Calibration Date			11/01/2021														

-/- Blows/penetration (mm) after seating

-*/- Total blows/penetration (mm)

SWP Penetration under own weight (mm)

S - Standard Penetration Test (SPT)

C - SPT with cone

L - Split Spoon with liner used

GEOTECHNICS

Fieldwork Results - SPT Results Summary

Project KRONOSPAN RAW BOARD STORAGE

Project No PN214198

Client Kronospan Limited

Hole	Depth m bgl	Level m OD	Type	SWP (mm)	Seating Drive		Test Drive				SPT 'N' Value	Uncorrected SPT 'N'					
					0-75 (mm)	75-150 (mm)	0-75 (mm)	75-150 (mm)	150-225 (mm)	225-300 (mm)		10	20	30	40	50	
HBW-BH102	1.20	99.80	C	-	9	6	11	17	22/28		50/178						>
HBW-BH102	2.00	99.00	C	-	4	7	9	11	12	15	47						*
HBW-BH102	4.00	97.00	S	-	1	1	1	1	1	1	4	*					
HBW-BH102	5.00	96.00	S	-	1	1	2	2	2	2	8	*					
HBW-BH102	6.50	94.50	S	-	1	-	-	-	1	-	1	*					
HBW-BH102	9.50	91.50	S	-	1	1	1	1	2	2	6	*					
HBW-BH102	12.00	89.00	S	-	1	1	1	2	2	2	7	*					
HBW-BH102	13.50	87.50	S	-	2	3	3	2	3	4	12	*					
HBW-BH102	15.00	86.00	S	-	6	5	4	5	5	6	20		*				
HBW-BH102	16.50	84.50	S	-	3	5	7	9	11	13	40				*		
HBW-BH102	18.00	83.00	S	-	5	9	11	14	17	8/21	50/246						>
HBW-BH102	19.50	81.50	S	-	25/51		50/43				50/43						>
Driller			Steve Lowery				Remarks										
Hammer No.			AR2636														
Energy Ratio, Er (%)			60.00														
Calibration Date			11/01/2021														

-/- Blows/penetration (mm) after seating

-*/- Total blows/penetration (mm)

SWP Penetration under own weight (mm)

S - Standard Penetration Test (SPT)

C - SPT with cone

L - Split Spoon with liner used

GEOTECHNICS

Fieldwork Results - SPT Results Summary

Project KRONOSPAN RAW BOARD STORAGE

Project No PN214198

Client Kronospan Limited

Hole	Depth m bgl	Level m OD	Type	SWP (mm)	Seating Drive		Test Drive				SPT 'N' Value	Uncorrected SPT 'N'					
					0-75 (mm)	75-150 (mm)	0-75 (mm)	75-150 (mm)	150-225 (mm)	225-300 (mm)		10	20	30	40	50	
HBW-BH103	1.20	99.60	C	-	7	10	12	16	22/70		50/220						>
HBW-BH103	2.00	98.80	C	-	7	9	11	15	19	5/8	50/233						>
HBW-BH103	3.00	97.80	C	-	2	3	4	4	2	2	12	*					
HBW-BH103	5.00	95.80	S	-	2	3	3	4	4	5	16		*				
HBW-BH103	8.00	92.80	S	-	1	2	2	3	2	3	10	*					
HBW-BH103	10.00	90.80	S	-	1	1	2	1	2	3	8	*					
HBW-BH103	11.00	89.80	S	-	1	1	2	1	2	3	8	*					
HBW-BH103	14.00	86.80	S	-	2	2	2	2	2	2	8	*					
HBW-BH103	17.00	83.80	S	-	2	2	2	2	2	3	9	*					
HBW-BH103	20.00	80.80	S	-	5	7	11	7	8	9	35				*		
HBW-BH103	23.00	77.80	S	-	7	14	15	17	18/68		50/218						>
HBW-BH103	26.00	74.80	S	-	7	10	15	19	16/53		50/203						>
HBW-BH103	29.00	71.80	S	-	5	7	10	11	13	16/70	50/295						>
HBW-BH103	30.50	70.30	S	-	3	5	7	9	16	18/62	50/287						>
HBW-BH103	32.00	68.80	S	-	5	7	10	14	17	9/22	50/247						>
HBW-BH103	33.50	67.30	S	-	3	7	9	11	14	16/70	50/295						>
Driller			Steve Lowery				Remarks										
Hammer No.			AR2636														
Energy Ratio, Er (%)			60.00														
Calibration Date			11/01/2021														

-/- Blows/penetration (mm) after seating

-*/- Total blows/penetration (mm)

SWP Penetration under own weight (mm)

S - Standard Penetration Test (SPT)

C - SPT with cone

L - Split Spoon with liner used

GEOTECHNICS

SPT Hammer Energy Test Report

in accordance with BSEN ISO 22476-3:2005

ARCHWAY ENGINEERING (UK) LTD
AINLEYS INDUSTRIAL ESTATE
ELLAND
WEST YORKSHIRE
HX5 9JP

SPT Hammer Ref: AR2636
Test Date: 11/01/2021
Report Date: 11/01/2021
File Name: AR2636.spt
Test Operator: JL

Instrumented Rod Data

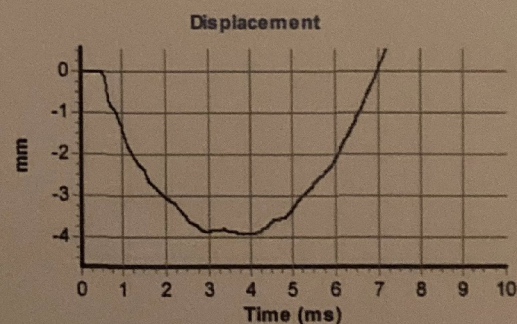
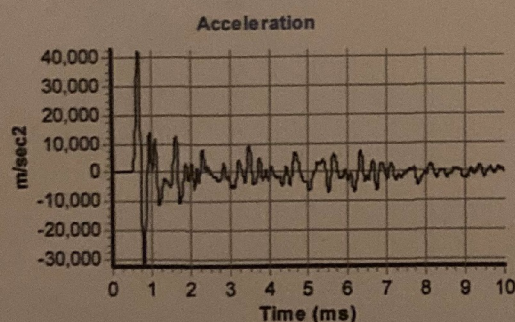
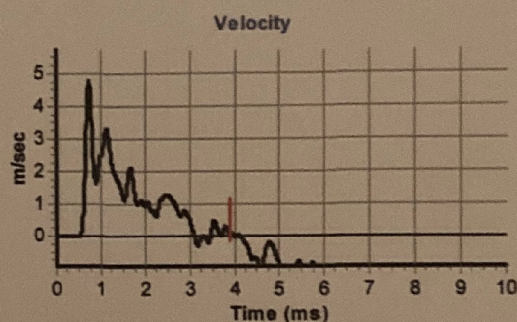
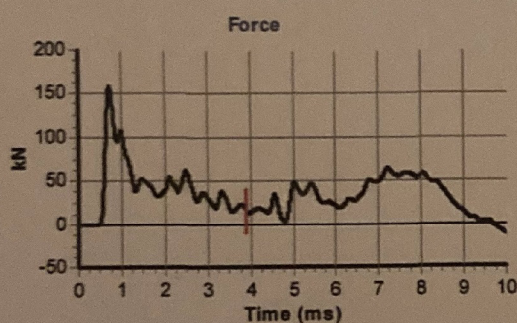
Diameter d_r (mm): 54
Wall Thickness t_r (mm): 6.3
Assumed Modulus E_a (GPa): 208
Accelerometer No.1: 7080
Accelerometer No.2: 11609

SPT Hammer Information

Hammer Mass m (kg): 63.5
Falling Height h (mm): 760
SPT String Length L (m): 10.0

Comments / Location

STEVE LOWRY DRILLING - 73779



Calculations

Area of Rod A (mm^2): 944
Theoretical Energy E_{theor} (J): 473
Measured Energy E_{meas} (J): 284

Energy Ratio E_r (%):

60

Signed: J.LOCK

Title: FITTER

The recommended calibration interval is 12 months

APPENDIX 3

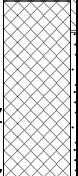
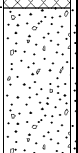
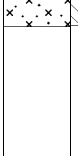
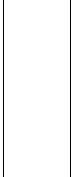
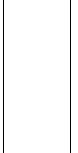
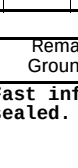
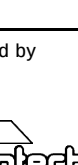
Dynamic Sample Borehole Records

Ground Level **101.01** m OD



BOREHOLE RECORD - Dynamic Sampler

Project **KRONOSPAN RAW BOARD STORAGE** Engineer **RAMBOLL UK** Borehole Project No **HBW-WS102**
 Client **KRONOSPAN LIMITED** National Grid Coordinates **328693.1 E 338409.5 N** Ground Level **101.00 m OD**

Sampling			Properties			Strata	Scale 1:50			
Depth		Sample Type	Depth Cased & (to Water)	Strength kPa	w %	SPT N	Description	Depth	Legend	Level m OD
							MADE GROUND: Grey concrete.	G.L.		101.00
0.28- 0.80	B						MADE GROUND: Brown sandy angular to subangular fine to coarse gravel of mudstone, sandstone and limestone. Low cobble content.	0.28		100.72
0.28	ES					PID=0.1ppm				
0.28							MADE GROUND: Grey very sandy slightly clayey angular to subangular fine to coarse gravel of mudstone, siltstone and sandstone. Low cobble content. Below 1.00m, slight hydrocarbon odour. Below 1.20m, dense.	0.80		100.20
0.30	D					PID=0.0ppm				
0.50	ES						Dense brown clayey medium to coarse SAND and subangular to subrounded fine to coarse GRAVEL of mudstone, siltstone and quartzite.			
0.50						PID=0.6ppm				
0.80- 1.20	B									
0.90	D					TR= 90%				
1.00	ES									
1.00						PID=0.5ppm				
1.20- 2.00	B									
1.20	D	1.20 (DRY)			S43	TR= 80%				
1.20- 1.65	B									
2.00- 3.00	D	2.00 (2.00)			S34	PID=0.5ppm				
2.00	ES									
2.00										
3.00- 3.45	D	3.00 (2.00)								
3.00	ES				S12	TR= NR%				
3.00						PID=1.9ppm				
4.00- 5.00	B					TR= 60%				
4.00- 5.00	D	4.00 (2.00)								
4.00- 4.45	D				S11					
4.50	D									
5.00- 5.45	D	5.00 (2.00)				TR= 60%				
5.05- 5.40	D									
5.00- 6.00					S10					
5.40- 5.70	D									
5.70- 6.00	D									
6.00- 6.45		6.00 (2.00)								
					S7					

Boring				Progress					Groundwater					
Depth	Hole Dia	Technique	Crew	Depth of Hole	Depth Cased	Depth to Water	Date	Time	Depth Struck	Depth Cased	Rose to	in Mins	Depth Sealed	Remarks on Groundwater
0.28	0.35	Concrete Core	SMS	G.L.			26/03/21	08:00	2.00		1.60	20		Fast inflow, not sealed.
1.20	0.35	Inspection Pit	JR/J	6.45	6.00	1.60	26/03/21	18:00						
6.45	0.10	Dynamic Sampler	JR/J											

Remarks **INS** Inspection pit hand excavated to 1.20m depth and no services were found.
AGS sample = 1x 1L plastic tub, 2x 258ml amber jars and 1x 60ml glass jar.
 A 33mm standpipe was installed to 3.00m with a geowrapped slotted section from 1.00m to 3.00m with flush lockable protective cover. Backfill details from base of hole: bentonite seal up to 3.00m, gravel filter up to 1.00m, bentonite seal up to 0.20m, concrete up to ground level.

Logged by **JD**
 Figure **1 of 1**
 19/07/2021

geotechnics

[illegible]

BOREHOLE RECORD - Dynamic Sampler

Project **KRONOSPAN RAW BOARD STORAGE** Engineer **RAMBOLL UK** Borehole Project No **HBW-WS104**
 Client **KRONOSPAN LIMITED** National Grid Coordinates **328764.5 E 338415.5 N** Ground Level **100.80 m OD**

Sampling			Properties			Strata			Scale 1:50		
Depth	Sample Type	Depth Cased & (to Water)	Strength kPa	w %	SPT N	Description	Depth	Legend	Level m OD		
0.25- 0.80	B					MADE GROUND: Grey reinforced concrete.	G.L.		100.80		
0.30	D						0.25		100.55		
0.30	ES		PID=0.0ppm			MADE GROUND: Brown very gravelly silty fine to medium sand. Gravel is angular to subangular fine to coarse of granite.					
0.80- 1.00	B						0.80		100.00		
0.90	D					MADE GROUND: Grey very gravelly slightly silty fine to medium sand. Gravel is angular to subangular fine to coarse of granite.	1.00		99.80		
0.90	ES		PID=0.0ppm								
1.00- 1.80	B		TR= 100%		S43	MADE GROUND: Stiff to very stiff grey mottled brown slightly gravelly sandy silty clay. Gravel is angular to subangular fine to coarse of granite and sandstone.					
1.20- 2.00	D	1.20 (DRY)									
1.20- 1.65	D		TR= 90%		S24						
1.80- 2.00	D		PID=0.0ppm								
1.80- 2.00	ES										
2.00- 3.00											
2.00- 2.45	D	2.00 (DRY)									
2.10- 2.80	B										
2.80- 3.00	D						2.80		98.00		
2.80- 3.00	ES		TR= 50%		S10	Loose dark grey mottled light grey very sandy clayey angular to subangular fine to medium gravel of mudstone and siltstone.					
3.00- 4.00	D	3.00 (2.90)	PID=0.0ppm								
3.50- 4.00	ES		PID=0.0ppm								
4.00- 4.45	D	4.00 (2.90)			S15	Below 4.00m, firm to stiff.					
4.00- 5.00	D		TR= 80%								
4.20- 4.50	D										
4.50- 5.00	ES										
5.00- 5.45	#	5.00 (2.90)			S15						
5.00- 6.00	D		TR= 70%								
5.30- 5.60	D										
5.60- 6.00	D										
						Stiff grey slightly sandy CLAY.	5.60		95.20		
						End of Borehole	6.00		94.80		

Boring				Progress					Groundwater				
Depth	Hole Dia	Technique	Crew	Depth of Hole	Depth Cased	Depth to Water	Date	Time	Depth Struck	Depth Cased	Rose to	In Mins	Depth Sealed
0.25	0.35	Concrete Core	SMS	G.L.			23/03/21	08:00	2.90				
1.20	0.35	Inspection Pit	JR/J	6.00		2.90	23/03/21	18:00					
6.00	0.10	Dynamic Sampler	JR/J										

Remarks **INS** Inspection pit hand excavated to 1.20m depth and no services were found.
AGS sample = 1x 1L plastic tub, 2x 258ml amber jars and 1x 60ml glass jar.
 A 33mm standpipe was installed to 5.50m with a geowrapped slotted section from 1.00m to 5.50m with flush lockable protective cover. Backfill details from base of hole: bentonite seal up to 5.50m, gravel filter up to 1.00m, bentonite seal up to 0.20m, concrete up to ground level.

Symbols and abbreviations are explained on the accompanying key sheet.

All dimensions are in metres.

Logged in accordance with BS5930:2015 + A1:2020

Logged by **EPS**
 Figure **1 of 1**
 19/07/2021

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Fieldwork Results - SPT Results Summary

Project KRONOSPAN RAW BOARD STORAGE

Project No PN214198

Client Kronospan Limited

Hole	Depth m bgl	Level m OD	Type	SWP (mm)	Seating Drive		Test Drive				SPT 'N' Value	Uncorrected SPT 'N'					
					0-75 (mm)	75-150 (mm)	0-75 (mm)	75-150 (mm)	150-225 (mm)	225-300 (mm)		10	20	30	40	50	
HBW-WS101	1.20	99.81	S	-	14	1	8	8	16	14	46					*	
HBW-WS101	2.00	99.01	S	-	6	5	4	3	4	3	14		*				
HBW-WS101	3.00	98.01	S	-	3	2	2	2	2	2	8	*					
HBW-WS101	4.00	97.01	S	-	5	6	6	4	5	6	21			*			
HBW-WS101	5.00	96.01	S	-	3	2	2	2	2	2	8	*					
HBW-WS101	6.00	95.01	S	-	3	2	2	2	2	2	8	*					
							Remarks										

-/- Blows/penetration (mm) after seating

-*/- Total blows/penetration (mm)

SWP Penetration under own weight (mm)

S - Standard Penetration Test (SPT)

C - SPT with cone

L - Split Spoon with liner used

GEOTECHNICS

Fieldwork Results - SPT Results Summary

Project KRONOSPAN RAW BOARD STORAGE

Project No PN214198

Client Kronospan Limited

Hole	Depth m bgl	Level m OD	Type	SWP (mm)	Seating Drive		Test Drive				SPT 'N' Value	Uncorrected SPT 'N'					
					0-75 (mm)	75-150 (mm)	0-75 (mm)	75-150 (mm)	150-225 (mm)	225-300 (mm)		10	20	30	40	50	
HBW-WS103	1.20	99.81	S	-	5	7	9	10	10	10	39				*		
HBW-WS103	2.00	99.01	S	-	6	7	7	6	6	7	26			*			
HBW-WS103	3.00	98.01	S	-	5	6	6	4	5	4	19		*				
HBW-WS103	4.00	97.01	S	-	3	2	2	2	2	3	9	*					
HBW-WS103	5.00	96.01	S	-	3	2	2	2	2	2	8	*					
HBW-WS103	6.00	95.01	S	-	3	2	2	2	2	3	9	*					
							Remarks										

-/- Blows/penetration (mm) after seating

-*/- Total blows/penetration (mm)

SWP Penetration under own weight (mm)

S - Standard Penetration Test (SPT)

C - SPT with cone

L - Split Spoon with liner used

GEOTECHNICS

Fieldwork Results - SPT Results Summary

Project KRONOSPAN RAW BOARD STORAGE

Project No PN214198

Client Kronospan Limited

Hole	Depth m bgl	Level m OD	Type	SWP (mm)	Seating Drive		Test Drive				SPT 'N' Value	Uncorrected SPT 'N'					
					0-75 (mm)	75-150 (mm)	0-75 (mm)	75-150 (mm)	150-225 (mm)	225-300 (mm)		10	20	30	40	50	
HBW-WS104	1.20	99.60	S	-	5	7	7	8	8	20	43					*	
HBW-WS104	2.00	98.80	S	-	3	4	4	6	7	7	24			*			
HBW-WS104	3.00	97.80	S	-	4	4	4	4	1	1	10		*				
HBW-WS104	4.00	96.80	S	-	3	3	4	3	3	5	15		*				
HBW-WS104	5.00	95.80	S	-	3	2	4	3	3	5	15		*				
							Remarks										

Fieldwork Results - SPT Results Summary

Project KRONOSPAN RAW BOARD STORAGE

Project No PN214198

Client Kronospan Limited

Hole	Depth m bgl	Level m OD	Type	SWP (mm)	Seating Drive		Test Drive				SPT 'N' Value	Uncorrected SPT 'N'				
					0-75 (mm)	75-150 (mm)	0-75 (mm)	75-150 (mm)	150-225 (mm)	225-300 (mm)		10	20	30	40	50
HBW-WS105	1.20	99.80	S	-	3	4	5	5	4	6	20		*			
HBW-WS105	2.00	99.00	S	-	3	3	4	5	4	4	17		*			
HBW-WS105	3.00	98.00	S	-	2	2	3	3	3	3	12		*			
HBW-WS105	4.00	97.00	S	-	1	1	2	2	3	3	10		*			
HBW-WS105	5.00	96.00	S	-	2	4	3	4	4	5	16		*			
HBW-WS105	6.00	95.00	S	-	2	2	3	2	2	3	10		*			
							Remarks									

-/- Blows/penetration (mm) after seating

-*/- Total blows/penetration (mm)

SWP Penetration under own weight (mm)

S - Standard Penetration Test (SPT)

C - SPT with cone

L - Split Spoon with liner used

GEOTECHNICS

SPT Hammer Energy Test Report

in accordance with BSEN ISO 22476-3:2005

ARCHWAY ENGINEERING (UK) LTD
AINLEYS INDUSTRIAL ESTATE
ELLAND
WEST YORKSHIRE
HX5 9JP

SPT Hammer Ref: DART478
Test Date: 29/10/2020
Report Date: 29/10/2020
File Name: DART478.spt
Test Operator: JL

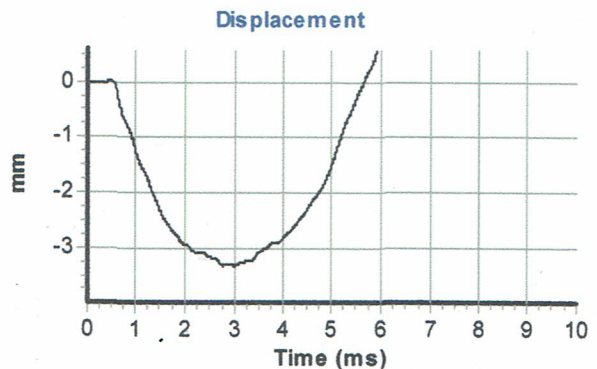
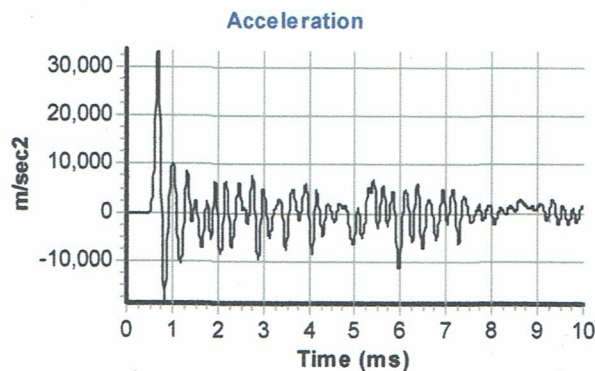
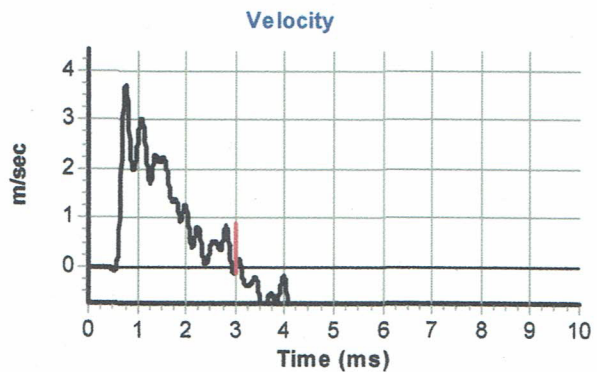
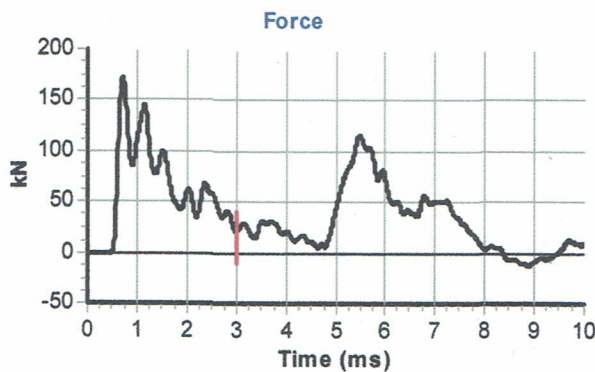
Instrumented Rod Data

Diameter d_r (mm): 54
Wall Thickness t_r (mm): 6.2
Assumed Modulus E_a (GPa): 210
Accelerometer No.1: 7080
Accelerometer No.2: 11609

SPT Hammer Information

Hammer Mass m (kg): 63.5
Falling Height h (mm): 760
SPT String Length L (m): 10.0

Comments / Location



Calculations

Area of Rod A (mm^2): 931
Theoretical Energy E_{theor} (J): 473
Measured Energy E_{meas} (J): 352

Energy Ratio E_r (%): **74**

Signed: S. HOWARTH
Title: FITTER

The recommended calibration interval is 12 months

APPENDIX 4

Monitoring Results

FIELDWORK – Water Level Monitoring

Project KRONOSPAN RAW BOARD STORAGE

Project No PN214198

Client Kronospan Limited

Sheet No 1

Borehole		HBW-BH101		HBW-BH101		HBW-BH102		HBW-BH102		HBW-BH103		HBW-WS101	
Instrument (dia. mm)		S (33mm)		S (50mm)		S (50mm)		S (33mm)		S (50mm)		S (33mm)	
Depth to Base (m)		5.00		34.00		4.00 (Note 1)		14.00		21.00 (Note 2)		3.15	
Filter Zone (m)		3.00-5.00		29.00-34.00		3.00-4.00		12.70-14.00		18.00-21.00		1.00-3.15	
Level		101.01 m OD		101.01 m OD		101.00 m OD		101.00 m OD		100.80 m OD		101.01 m OD	
Date	Time	Depth (m)	Level	Depth (m)	Level	Depth (m)	Level	Depth (m)	Level	Depth (m)	Level	Depth (m)	Level
27 Apr 2021		2.02	98.99	15.45	85.56	2.02	98.98	8.65	92.35			2.05	98.96
6 May 2021		2.10	98.91	15.10	85.91	2.07	98.93	8.74	92.26	8.75	92.05	2.28	98.73
14 May 2021		2.05	98.96	15.25	85.76	2.00	99.00	8.72	92.28	8.76	92.04	DRY	
19 May 2021		2.10	98.91	15.12	85.89	1.99	99.01	8.83	92.17			DRY	
3 Jun 2021						1.94	99.06	8.59	92.41				

Remarks Note 1 - 06/05/2021 - Oily sheen on groundwater.

Note 2 - 27/04/2021 - No access to borehole.

19/05/2021 - No access to borehole.

Symbols and abbreviations are explained on the accompanying key sheet.

All dimensions are in metres.

GEOTECHNICS
geotechnical and geoenvironmental specialists

FIELDWORK – Water Level Monitoring

Project KRONOSPAN RAW BOARD STORAGE

Project No PN214198

Client Kronospan Limited

Sheet No 2

Borehole		HBW-WS102		HBW-WS103		HBW-WS104		HBW-WS105					
Instrument (dia. mm)		S (33mm)		S (33mm)		S (33mm)		S (33mm)					
Depth to Base (m)		3.00 (Note 3)		4.00		5.50 (Note 4)		6.45					
Filter Zone (m)		1.00-3.00		1.00-4.00		1.00-5.50		4.00-6.45					
Level		101.00 m OD		101.01 m OD		100.80 m OD		101.00 m OD					
Date	Time	Depth (m)	Level	Depth (m)	Level	Depth (m)	Level	Depth (m)	Level	Depth (m)	Level	Depth (m)	Level
27 Apr 2021		2.22	98.78	DRY				2.04	98.96				
6 May 2021		2.25	98.75	DRY				2.02	98.98				
14 May 2021				DRY				2.00	99.00				
19 May 2021				DRY				1.98	99.02				

Remarks Note 3 - 06/05/2021 - Oily sheen on groundwater.

Symbols and abbreviations are explained on the accompanying key sheet.

All dimensions are in metres.

14/05/2021 - No access to borehole.

19/05/2021 - No access to borehole.

Note 4 - 27/04/2021 - No access to borehole.

06/05/2021 & 14/05/2021 - Unable to sample water due to blockage in pipe.

19/05/2021 - No access to borehole.

GEOTECHNICS
geotechnical and geoenvironmental specialists

FIELDWORK - Insitu Gas Monitoring - Instrument Record

Project KRONOSPAN RAW BOARD STORAGE

PN214198

HBW-BH101

(P1)

Client Kronospan Limited

1 (1 of 4)

Installation Details

Installation Type Standpipe

33mm

Depth to Base	5.00m
---------------	-------

Flush lockable protective cover

Filter Zone	3.00 - 5.00m
-------------	--------------

101.01 m OD

Date Installed 8 April 2021

[illegible]

Remarks



Form 003/1

FIELDWORK - Insitu Gas Monitoring - Instrument Record

Project KRONOSPAN RAW BOARD STORAGE

PN214198

HBW-BH101

(P1)

Client **Kronospan Limited**

1 (2 of 4)

Installation Details

Installation Type Standpipe

33mm

Depth to Base 5.00m

Flush lockable protective cover

Filter Zone 3.00 - 5.00m

101.01 m OD

Date Installed 8 April 2021

[illegible]

Remarks



Form 003/1

FIELDWORK - Insitu Gas Monitoring - Instrument Record

Project KRONOSPAN RAW BOARD STORAGE

PN214198

HBW - BH101

(P1)

Client Kronospan Limited

1 (3 of 4)

Installation Details

Installation Type Standpipe

33mm

Depth to Base 5.00m

Flush lockable protective cover

Filter Zone 3.00 - 5.00m

101.01 m OD

Date Installed 8 April 2021

[illegible]

Remarks



Form 003/1

FIELDWORK - Insitu Gas Monitoring - Instrument Record

Project KRONOSPAN RAW BOARD STORAGE

Project No

PN214198

Borehole

HBW-BH101

(P1)

Client Kronospan Limited

Sheet No.

1 (4 of 4)

Installation Details

Installation Type	Standpipe	Diameter	33mm
Depth to Base	5.00m	Cover Type	Flush lockable protective cover
Filter Zone	3.00 - 5.00m	Ground Level	101.01 m OD
Date Installed	8 April 2021		

Date	Time	Equipment Used	Monitored by	Remarks
		()	()	
27-Apr-2021		GA5000	JA	
6-May-2021		GA5000	JA	
14-May-2021		GA5000	JA	
19-May-2021		GA5000	JA	

Remarks

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FIELDWORK - Insitu Gas Monitoring - Instrument Record

Project KRONOSPAN RAW BOARD STORAGE

PN214198

HBW - BH101

(P2)

Client **Kronospan Limited**

1 (1 of 4)

Installation Details

Installation Type Standpipe

50mm

Depth to Base 34.00m

Flush lockable protective cover

Filter Zone 29.00 - 34.00m

101.01 m OD

Date Installed 8 April 2021

[illegible]

Remarks



Form 003/1

FIELDWORK - Insitu Gas Monitoring - Instrument Record

Project KRONOSPAN RAW BOARD STORAGE

PN214198

HBW-BH101

(P2)

Client **Kronospan Limited**

1 (2 of 4)

Installation Details

Installation Type Standpipe

50mm

Depth to Base 34.00m

Flush lockable protective cover

Filter Zone 29.00 - 34.00m

101.01 m OD

Date Installed 8 April 2021

[illegible]

Remarks



Form 003/1

FIELDWORK - Insitu Gas Monitoring - Instrument Record

Project KRONOSPAN RAW BOARD STORAGE

PN214198

HBW-BH101

(P2)

Client **Kronospan Limited**

1 (3 of 4)

Installation Details

Installation Type Standpipe

Depth to Base 34.00m

Filter Zone	29.00 - 34.00m
-------------	----------------

Date Installed 8 April 2021

50mm

Flush lockable protective cover

101.01 m OD

[illegible]

Remarks



Form 003/1

FIELDWORK - Insitu Gas Monitoring - Instrument Record

Project KRONOSPAN RAW BOARD STORAGE

Project No

PN214198

Borehole

HBW-BH101

(P2)

Client Kronospan Limited

Sheet No.

1 (4 of 4)

Installation Details

Installation Type	Standpipe	Diameter	50mm
Depth to Base	34.00m	Cover Type	Flush lockable protective cover
Filter Zone	29.00 - 34.00m	Ground Level	101.01 m OD
Date Installed	8 April 2021		

Date	Time	Equipment Used	Monitored by	Remarks
		()	()	
27-Apr-2021		GA5000	JA	
6-May-2021		GA5000	JA	
14-May-2021		GA5000	JA	
19-May-2021		GA5000	JA	

Remarks

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FIELDWORK - Insitu Gas Monitoring - Instrument Record

Project KRONOSPAN RAW BOARD STORAGE

PN214198

HBW-BH102

(P1)

Client **Kronospan Limited**

1 (1 of 4)

Installation Details

Installation Type Standpipe

50mm

Depth to Base 4.00m

Flush lockable protective cover

Filter Zone 3.00 - 4.00m

101.00 m OD

Date Installed 15 April 2021

[illegible]

Remarks 06/05/2021 - Oily sheen on groundwater.



Form 003/1

FIELDWORK - Insitu Gas Monitoring - Instrument Record

Project KRONOSPAN RAW BOARD STORAGE

PN214198

HBW - BH102

(P1)

Client **Kronospan Limited**

1 (2 of 4)

Installation Details

Installation Type Standpipe

50mm

Depth to Base 4.00m

Flush lockable protective cover

Filter Zone 3.00 - 4.00m

101.00 m OD

Date Installed 15 April 2021

[illegible]

Remarks 06/05/2021 - oily sheen on groundwater.



Form 003/1

FIELDWORK - Insitu Gas Monitoring - Instrument Record

Project KRONOSPAN RAW BOARD STORAGE

PN214198

HBW-BH102

(P1)

Client **Kronospan Limited**

1 (3 of 4)

Installation Details

Installation Type Standpipe

Depth to Base 4.00m

Filter Zone 3.00 - 4.00m

Date Installed 15 April 2021

50mm

Flush lockable protective cover

101.00 m OD

Date	Time	Flow Rate (Peak) (l/hr)	Flow Rate (Steady) (l/hr)	PID Reading (ppm)	PID Peak (ppm)	Wind ()	Cloud ()	Rain ()	Remarks
27-Apr-2021		-0.2	-0.2	3.5	3.6	Still	None	Dry	
6-May-2021		0.1	0.1	3.6	3.6	Still	None	Dry	
14-May-2021		1.9	1.8	3.5	3.5	Still	None	Dry	
19-May-2021		0.0	0.0	3.2	3.4	Still	None	Dry	
3-Jun-2021		1.8	1.4			Still	None	Dry	

Remarks 06/05/2021 - Oily sheen on groundwater.



Form 003/1

FIELDWORK - Insitu Gas Monitoring - Instrument Record

Project KRONOSPAN RAW BOARD STORAGE

Project No

PN214198

Borehole

HBW-BH102

(P1)

Client Kronospan Limited

Sheet No.

1 (4 of 4)

Installation Details

Installation Type Standpipe
Depth to Base 4.00m
Filter Zone 3.00 - 4.00m
Date Installed 15 April 2021

Diameter 50mm
Cover Type Flush lockable protective cover
Ground Level 101.00 m OD

Date	Time	Equipment Used	Monitored by	Remarks
		()	()	
27-Apr-2021		GA5000	JA	
6-May-2021		GA5000	JA	
14-May-2021		GA5000	JA	
19-May-2021		GA5000	JA	
3-Jun-2021		GA5000	JA, RW	

Remarks 06/05/2021 - Oily sheen on groundwater.

geotechnics

FIELDWORK - Insitu Gas Monitoring - Instrument Record

Project KRONOSPAN RAW BOARD STORAGE

PN214198

HBW-BH102

(P2)

Client **Kronospan Limited**

1 (2 of 4)

Installation Details

Installation Type Standpipe

33mm

Depth to Base 14.00m

Flush lockable protective cover

Filter Zone	12.70 - 14.00m
-------------	----------------

101.00 m OD

Date Installed 15 April 2021

[illegible]

Remarks



Form 003/1

FIELDWORK - Insitu Gas Monitoring - Instrument Record

Project KRONOSPAN RAW BOARD STORAGE

Project No

PN214198

Borehole

HBW-BH102

(P2)

Client Kronospan Limited

Sheet No.

1 (4 of 4)

Installation Details

Installation Type	Standpipe	Diameter	33mm
Depth to Base	14.00m	Cover Type	Flush lockable protective cover
Filter Zone	12.70 - 14.00m	Ground Level	101.00 m OD
Date Installed	15 April 2021		

Date	Time	Equipment Used	Monitored by	Remarks
		()	()	
27-Apr-2021		GA5000	JA	
6-May-2021		GA5000	JA	
14-May-2021		GA5000	JA	
19-May-2021		GA5000	JA	
3-Jun-2021		GA5000	JA, RW	

Remarks

geotechnics

FIELDWORK - Insitu Gas Monitoring - Instrument Record

Project KRONOSPAN RAW BOARD STORAGE

Project No PN214198
Borehole HBW-BH103
Sheet No. 1 (1 of 4)

Client **Kronospan Limited**

Installation Details

Installation Type	Standpipe	Diameter	50mm
Depth to Base	21.00m	Cover Type	Flush lockable protective cover
Filter Zone	18.00 - 21.00m	Ground Level	100.80 m OD
Date Installed	29 March 2021		

[illegible]

Remarks	27/04/2021 - No access to borehole. 19/05/2021 - No access to borehole.
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Form 003/1

FIELDWORK - Insitu Gas Monitoring - Instrument Record

Project KRONOSPAN RAW BOARD STORAGE

Project No PN214198
Borehole HBW-BH103
Sheet No. 1 (2 of 4)

Client **Kronospan Limited**

Installation Details

Installation Type	Standpipe	Diameter	50mm
Depth to Base	21.00m	Cover Type	Flush lockable protective cover
Filter Zone	18.00 - 21.00m	Ground Level	100.80 m OD
Date Installed	29 March 2021		

[illegible]

Remarks	27/04/2021 - No access to borehole. 19/05/2021 - No access to borehole.
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FIELDWORK - Insitu Gas Monitoring - Instrument Record

Project KRONOSPAN RAW BOARD STORAGE

Project No PN214198
Borehole HBW-BH103
Sheet No. 1 (3 of 4)

Client **Kronospan Limited**

Installation Details

Installation Type	Standpipe	Diameter	50mm
Depth to Base	21.00m	Cover Type	Flush lockable protective cover
Filter Zone	18.00 - 21.00m	Ground Level	100.80 m OD
Date Installed	29 March 2021		

[illegible]

Remarks	27/04/2021 - No access to borehole. 19/05/2021 - No access to borehole.
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FIELDWORK - Insitu Gas Monitoring - Instrument Record

Project KRONOSPAN RAW BOARD STORAGE

Project No PN214198
Borehole HBW-BH103
Sheet No. 1 (4 of 4)

Client **Kronospan Limited**

Installation Details

Installation Type	Standpipe	Diameter	50mm
Depth to Base	21.00m	Cover Type	Flush lockable protective cover
Filter Zone	18.00 - 21.00m	Ground Level	100.80 m OD
Date Installed	29 March 2021		

Date	Time	Equipment Used	Monitored by	Remarks
6-May-2021		GA5000	JA	
14-May-2021		GA5000	JA	

Remarks	27/04/2021 - No access to borehole. 19/05/2021 - No access to borehole.
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FIELDWORK - Insitu Gas Monitoring - Instrument Record

Project KRONOSPAN RAW BOARD STORAGE

Project No PN214198
Borehole HBW-WS101
Sheet No. 1 (2 of 4)

Client Kronospan Limited

Installation Details

Installation Type	standpipe	Diameter	33mm
Depth to Base	3.15m	Cover Type	Flush lockable protective cover
Filter Zone	1.00 - 3.15m	Ground Level	101.01 m OD
Date Installed	26 March 2021		

[illegible]

Remarks

FIELDWORK - Insitu Gas Monitoring - Instrument Record

Project KRONOSPAN RAW BOARD STORAGE

Project No PN214198
Borehole HBW-WS101
Sheet No. 1 (3 of 4)

Client **Kronospan Limited**

Installation Details

Installation Type	standpipe	Diameter	33mm
Depth to Base	3.15m	Cover Type	Flush lockable protective cover
Filter Zone	1.00 - 3.15m	Ground Level	101.01 m OD
Date Installed	26 March 2021		

Date	Time	Flow Rate (Peak) (l/hr)	Flow Rate (Steady) (l/hr)	PID Reading (ppm)	PID Peak (ppm)	Wind ()	Cloud ()	Rain ()	Remarks
27-Apr-2021		0.0	0.0	0.6	1.8	Still	None	Dry	
6-May-2021		0.0	0.0	0.4	2.7	Still	None	Dry	
14-May-2021		0.1	0.1	0.5	1.7	Still	None	Dry	
19-May-2021		0.0	0.0	0.6	1.4	Still	None	Dry	

Remarks

FIELDWORK - Insitu Gas Monitoring - Instrument Record

Project KRONOSPAN RAW BOARD STORAGE

Project No PN214198
Borehole HBW-WS101
Sheet No. 1 (4 of 4)

Client **Kronospan Limited**

Installation Details

Installation Type	standpipe	Diameter	33mm
Depth to Base	3.15m	Cover Type	Flush lockable protective cover
Filter Zone	1.00 - 3.15m	Ground Level	101.01 m OD
Date Installed	26 March 2021		

Date	Time	Equipment Used	Monitored by	Remarks
		0	0	
27-Apr-2021		GA5000	JA	
6-May-2021		GA5000	JA	
14-May-2021		GA5000	JA	
19-May-2021		GA5000	JA	

Remarks

FIELDWORK - Insitu Gas Monitoring - Instrument Record

Project KRONOSPAN RAW BOARD STORAGE

Project No PN214198
Borehole HBW-WS102
Sheet No. 1 (1 of 4)

Client **Kronospan Limited**

Installation Details

Installation Type	standpipe	Diameter	33mm
Depth to Base	3.00m	Cover Type	Flush lockable protective cover
Filter Zone	1.00 - 3.00m	Ground Level	101.00 m OD
Date Installed	26 March 2021		

[illegible]

Remarks	06/05/2021 - Oily sheen on groundwater. 14/05/2021 - No access to borehole. 19/05/2021 - No access to borehole.
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Form 003/1

FIELDWORK - Insitu Gas Monitoring - Instrument Record

Project KRONOSPAN RAW BOARD STORAGE

Project No PN214198
Borehole HBW-WS102
Sheet No. 1 (2 of 4)

Client Kronospan Limited

Installation Details

Installation Type	standpipe	Diameter	33mm
Depth to Base	3.00m	Cover Type	Flush lockable protective cover
Filter Zone	1.00 - 3.00m	Ground Level	101.00 m OD
Date Installed	26 March 2021		

[illegible]

Remarks	06/05/2021 - Oily sheen on groundwater. 14/05/2021 - No access to borehole. 19/05/2021 - No access to borehole.
---------	---



geotechnics

FIELDWORK - Insitu Gas Monitoring - Instrument Record

Project KRONOSPAN RAW BOARD STORAGE

Project No PN214198
Borehole HBW-WS102
Sheet No. 1 (3 of 4)

Client **Kronospan Limited**

Installation Details

Installation Type	standpipe	Diameter	33mm
Depth to Base	3.00m	Cover Type	Flush lockable protective cover
Filter Zone	1.00 - 3.00m	Ground Level	101.00 m OD
Date Installed	26 March 2021		

Date	Time	Flow Rate (Peak) (l/hr)	Flow Rate (Steady) (l/hr)	PID Reading (ppm)	PID Peak (ppm)	Wind ()	Cloud ()	Rain ()	Remarks
27-Apr-2021		0.0	0.0	1.1	1.1	Still	None	Dry	
6-May-2021		0.0	0.0	1.0	1.1	Still	None	Dry	

Remarks	06/05/2021 - Oily sheen on groundwater. 14/05/2021 - No access to borehole. 19/05/2021 - No access to borehole.
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FIELDWORK - Insitu Gas Monitoring - Instrument Record

Project KRONOSPAN RAW BOARD STORAGE

Project No PN214198
Borehole HBW-WS102
Sheet No. 1 (4 of 4)

Client **Kronospan Limited**

Installation Details

Installation Type	standpipe	Diameter	33mm
Depth to Base	3.00m	Cover Type	Flush lockable protective cover
Filter Zone	1.00 - 3.00m	Ground Level	101.00 m OD
Date Installed	26 March 2021		

Date	Time	Equipment Used	Monitored by	Remarks
27-Apr-2021		GA5000	JA	
6-May-2021		GA5000	JA	

Remarks	06/05/2021 - Oily sheen on groundwater. 14/05/2021 - No access to borehole. 19/05/2021 - No access to borehole.
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FIELDWORK - Insitu Gas Monitoring - Instrument Record

Project KRONOSPAN RAW BOARD STORAGE

Project No PN214198

Borehole HBW-WS103

Client **Kronospan Limited**

Sheet No. 1 (1 of 4)

Installation Details

Installation Type	Standpipe
Depth to Base	4.00m
Filter Zone	1.00 - 4.00m
Date Installed	25 March 2021

Diameter	33mm
Cover Type	Flush lockable protective cover
Ground Level	101.01 m OD

[illegible]

Remarks

FIELDWORK - Insitu Gas Monitoring - Instrument Record

Project KRONOSPAN RAW BOARD STORAGE

Project No PN214198
Borehole HBW-WS103
Sheet No. 1 (3 of 4)

Client **Kronospan Limited**

Installation Details

Installation Type	standpipe	Diameter	33mm
Depth to Base	4.00m	Cover Type	Flush lockable protective cover
Filter Zone	1.00 - 4.00m	Ground Level	101.01 m OD
Date Installed	25 March 2021		

[illegible]

Remarks

FIELDWORK - Insitu Gas Monitoring - Instrument Record

Project KRONOSPAN RAW BOARD STORAGE

Project No

PN214198

Borehole

HBW-WS103

Client Kronospan Limited

Sheet No.

1 (4 of 4)

Installation Details

Installation Type	Standpipe	Diameter	33mm
Depth to Base	4.00m	Cover Type	Flush lockable protective cover
Filter Zone	1.00 - 4.00m	Ground Level	101.01 m OD
Date Installed	25 March 2021		

Date	Time	Equipment Used	Monitored by	Remarks
		()	()	
27-Apr-2021		GA5000	JA	
6-May-2021		GA5000	JA	
14-May-2021		GA5000	JA	
19-May-2021			JA	

Remarks



FIELDWORK - Insitu Gas Monitoring - Instrument Record

Project KRONOSPAN RAW BOARD STORAGE

Project No PN214198
Borehole HBW-WS104
Sheet No. 1 (1 of 4)

Client Kronospan Limited

Installation Details

Installation Type	standpipe	Diameter	33mm
Depth to Base	5.50m	Cover Type	Flush lockable protective cover
Filter Zone	1.00 - 5.50m	Ground Level	100.80 m OD
Date Installed	25 March 2021		

Date	Time	Depth to Water (m bgl)	Current Hole Depth (m bgl)	Depth to Oil (LNAPL) (m bgl)	Water Sample Taken (Yes/No)	Methane (Peak) CH4 (% VOL)	Methane (Steady) CH4 (% VOL)	Carbon Dioxide (Peak) (% VOL)	Remarks
6-May-2021					No	0.0	0.0	2.5	
14-May-2021					No	0.0	0.0	2.3	

Remarks	27/04/2021 - No access to borehole. 06/05/2021 & 14/05/2021 - Unable to sample water due to blockage in pipe. 19/05/2021 - No access to borehole.
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FIELDWORK - Insitu Gas Monitoring - Instrument Record

Project KRONOSPAN RAW BOARD STORAGE

Project No PN214198
Borehole HBW-WS104
Sheet No. 1 (2 of 4)

Client **Kronospan Limited**

Installation Details

Installation Type	standpipe	Diameter	33mm
Depth to Base	5.50m	Cover Type	Flush lockable protective cover
Filter Zone	1.00 - 5.50m	Ground Level	100.80 m OD
Date Installed	25 March 2021		

[illegible]

Remarks	27/04/2021 - No access to borehole. 06/05/2021 & 14/05/2021 - Unable to sample water due to blockage in pipe. 19/05/2021 - No access to borehole.
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FIELDWORK - Insitu Gas Monitoring - Instrument Record

Project KRONOSPAN RAW BOARD STORAGE

Project No PN214198
Borehole HBW-WS104
Sheet No. 1 (3 of 4)

Client **Kronospan Limited**

Installation Details

Installation Type	standpipe	Diameter	33mm
Depth to Base	5.50m	Cover Type	Flush lockable protective cover
Filter Zone	1.00 - 5.50m	Ground Level	100.80 m OD
Date Installed	25 March 2021		

Date	Time	Flow Rate (Peak) (l/hr)	Flow Rate (Steady) (l/hr)	PID Reading (ppm)	PID Peak (ppm)	Wind ()	Cloud ()	Rain ()	Remarks
6-May-2021		0.0	0.0	0.6	2.0	Still	None	Dry	
14-May-2021		0.0	0.0	0.4	2.1	Still	None	Dry	

Remarks	27/04/2021 - No access to borehole. 06/05/2021 & 14/05/2021 - Unable to sample water due to blockage in pipe. 19/05/2021 - No access to borehole.
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FIELDWORK - Insitu Gas Monitoring - Instrument Record

Project KRONOSPAN RAW BOARD STORAGE

Project No PN214198
Borehole HBW-WS104
Sheet No. 1 (4 of 4)

Client **Kronospan Limited**

Installation Details

Installation Type	standpipe	Diameter	33mm
Depth to Base	5.50m	Cover Type	Flush lockable protective cover
Filter Zone	1.00 - 5.50m	Ground Level	100.80 m OD
Date Installed	25 March 2021		

Date	Time	Equipment Used	Monitored by	Remarks
6-May-2021		GA5000	JA	
14-May-2021		GA5000	JA	

Remarks	27/04/2021 - No access to borehole. 06/05/2021 & 14/05/2021 - Unable to sample water due to blockage in pipe. 19/05/2021 - No access to borehole.
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FIELDWORK - Insitu Gas Monitoring - Instrument Record

Project KRONOSPAN RAW BOARD STORAGE

Project No PN214198

Borehole HBW-WS105

Client **Kronospan Limited**

Sheet No. 1 (1 of 4)

Installation Details

Installation Type	standpipe	Diameter	33mm
Depth to Base	6.45m	Cover Type	Upright lockable protective cover
Filter Zone	4.00 - 6.45m	Ground Level	101.00 m OD
Date Installed	25 March 2021		

[illegible]

Remarks

FIELDWORK - Insitu Gas Monitoring - Instrument Record

Project KRONOSPAN RAW BOARD STORAGE

Project No PN214198

Borehole HBW-WS105

Client **Kronospan Limited**

Sheet No. 1 (2 of 4)

Installation Details

Installation Type	standpipe	Diameter	33mm
Depth to Base	6.45m	Cover Type	Upright lockable protective cover
Filter Zone	4.00 - 6.45m	Ground Level	101.00 m OD
Date Installed	25 March 2021		

[illegible]

Remarks

FIELDWORK - Insitu Gas Monitoring - Instrument Record

Project KRONOSPAN RAW BOARD STORAGE

Project No PN214198
Borehole HBW-WS105
Sheet No. 1 (3 of 4)

Client Kronospan Limited

Installation Details

Installation Type	standpipe	Diameter	33mm
Depth to Base	6.45m	Cover Type	Upright lockable protective cover
Filter Zone	4.00 - 6.45m	Ground Level	101.00 m OD
Date Installed	25 March 2021		

Date	Time	Flow Rate (Peak) (l/hr)	Flow Rate (Steady) (l/hr)	PID Reading (ppm)	PID Peak (ppm)	Wind ()	Cloud ()	Rain ()	Remarks
27-Apr-2021		0.0	0.0	0.4	1.5	Still	None	Dry	
6-May-2021		-4.5	-3.9	0.4	0.6	Still	None	Dry	
14-May-2021		0.0	0.0	0.4	0.8	Still	None	Dry	
19-May-2021		0.0	0.0	0.4	0.4	Still	None	Dry	

Remarks

FIELDWORK - Insitu Gas Monitoring - Instrument Record

Project KRONOSPAN RAW BOARD STORAGE

Project No PN214198
Borehole HBW-WS105
Sheet No. 1 (4 of 4)

Client Kronospan Limited

Installation Details

Installation Type	standpipe	Diameter	33mm
Depth to Base	6.45m	Cover Type	Upright lockable protective cover
Filter Zone	4.00 - 6.45m	Ground Level	101.00 m OD
Date Installed	25 March 2021		

Date	Time	Equipment Used	Monitored by	Remarks
		0	0	
27-Apr-2021		GA5000	JA	
6-May-2021		GA5000	JA	
14-May-2021		GA5000	JA	
19-May-2021		GA5000	JA	

Remarks

APPENDIX 5

Laboratory Test Results - Geotechnical



LABORATORY REPORT



4043

Contract Number: PSL21/3246

Report Date: 07 May 2021
Client's Reference: PN214198
Client Name: Geotechnics
203 Torrington Avenue
Tile Hill
Coventry
CV4 9UT

For the attention of: Joshua Noble

Contract Title: Kronospan High Bay Warehouse
Date Received: 21/4/2021
Date Commenced: 21/4/2021
Date Completed: 7/5/2021

Notes: Opinions and Interpretations are outside the UKAS Accreditation

A copy of the Laboratory Schedule of accredited tests as issued by UKAS is attached to this report. This certificate is issued in accordance with the accreditation requirements of the United Kingdom Accreditation Service. The results reported herein relate only to the material supplied to the laboratory. This certificate shall not be reproduced other than in full, without the prior written approval of the laboratory.

Checked and Approved Signatories:

A Watkins
(Director)

R Berriman
(Quality Manager)

S Royle
(Laboratory Manager)

L Knight
(Assistant Laboratory Manager)


S Eyre
(Senior Technician)

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Page 1 of

SUMMARY OF LABORATORY SOIL DESCRIPTIONS

Hole Number	Sample Type	Top Depth m	Base Depth m	Description of Sample
HBW-BH101	ES	0.50		MADE GROUND: Brownish grey very sandy slightly clayey fine to coarse gravel.
HBW-BH101	UT	3.00	3.45	Soft to firm low strength brown mottled grey slightly sandy CLAY.
HBW-BH101	B	4.00	4.45	Greyish brown sandy slightly silty fine to coarse GRAVEL.
HBW-BH101	UT	11.00	11.45	Firm low strength brown slightly sandy slightly gravelly silty CLAY.
HBW-BH101	B	19.50	19.95	Greyish brown sandy slightly silty fine to coarse GRAVEL.
HBW-BH101	UT	24.00	24.45	Very stiff very high strength reddish brown slightly sandy slightly gravelly silty CLAY.
HBW-BH101	B	28.50	28.95	Very stiff reddish brown mottled brown and black slightly sandy silty CLAY.
HBW-BH101	B	33.00	33.45	Reddish brown slightly gravelly very silty fine to coarse SAND.
HBW-BH102	B	0.60	1.20	MADE GROUND: Greyish brown sandy clayey fine to coarse gravel.
HBW-BH102	B	2.00	2.45	MADE GROUND: Greyish brown very sandy clayey fine to coarse gravel.
HBW-BH102	UT	3.00	3.45	Very stiff greyish brown slightly gravelly sandy CLAY.
HBW-BH102	UT	8.00	8.45	Stiff to very stiff medium strength grey slightly sandy silty CLAY.
HBW-BH102	B	13.50	13.95	Greyish brown very gravelly very silty fine to coarse SAND.
HBW-BH102	B	16.50	16.95	Greyish brown very sandy slightly silty fine to coarse GRAVEL with a medium cobble content.
HBW-BH102	B	19.50	19.95	Greyish brown very sandy slightly silty fine to coarse GRAVEL.
HBW-BH103	B	0.50		MADE GROUND: Brown very sandy silty fine to coarse gravel.
HBW-BH103	B	2.00	2.45	MADE GROUND: Greyish brown very silty medium to coarse sand and fine to medium gravel.
HBW-BH103	B	3.00	3.45	Grey sandy slightly silty fine to medium GRAVEL.
HBW-BH103	B	5.00	5.45	Grey very gravelly silty medium to coarse SAND.



4043



Kronospan High Bay Warehouse

Contract No:

PSL21/3246

Client Ref:

PN214198

SUMMARY OF LABORATORY SOIL DESCRIPTIONS

Hole Number	Sample Type	Top Depth m	Base Depth m	Description of Sample
HBW-BH103	UT	9.50	9.95	Soft to firm low strength grey slightly sandy silty CLAY.
HBW-BH103	UT	15.50	15.95	Soft to firm low strength grey slightly sandy silty CLAY.
HBW-BH103	B	20.00	20.45	Very stiff reddish brown slightly sandy slightly gravelly silty CLAY.
HBW-BH103	UT	21.50	21.95	Very stiff very high strength brown slightly sandy slightly gravelly silty CLAY.
HBW-BH103	UT	24.50	24.95	Very stiff very high strength reddish brown slightly gravelly sandy silty CLAY.
HBW-BH103	B	29.00	29.45	Very stiff reddish brown slightly sandy slightly gravelly CLAY.
HBW-BH103	B	33.50	33.95	Brown silty fine to coarse SAND.
HBW-WS101	B	0.55	1.20	MADE GROUND: Very stiff brownish grey slightly sandy slightly gravelly clay with pockets of gravel.
HBW-WS101	B	3.15	4.00	Firm brownish grey slightly sandy CLAY.
HBW-WS101	B	5.40	6.00	Firm grey slightly sandy slightly gravelly clayey SILT.
HBW-WS102	B	0.80	1.20	MADE GROUND: Grey sandy slightly clayey fine to coarse gravel
HBW-WS102	B	2.00	3.00	Brown clayey medium to coarse SAND and fine to coarse GRAVEL.
HBW-WS102	B	4.00	5.00	Firm brown slightly sandy slightly gravelly silty CLAY.
HBW-WS103	B	0.55	1.20	MADE GROUND: Greyish brown very sandy very clayey fine to coarse gravel.
HBW-WS103	B	3.00	4.00	Grey very sandy clayey fine to medium GRAVEL.
HBW-WS103	B	5.00	6.00	Soft to firm grey slightly sandy CLAY.
HBW-WS104	B	1.00	1.80	MADE GROUND: Stiff to very stiff grey mottled brown slightly gravelly sandy silty clay.
HBW-WS104	D	2.80	3.00	Dark grey mottled light grey very sandy clayey fine to medium GRAVEL.
HBW-WS105	B	0.50	1.20	MADE GROUND: Greyish brown very sandy clayey fine to coarse gravel with a high cobble content.



4043

PSL

Professional Soils Laboratory

Kronospan High Bay Warehouse

Contract No:

PSL21/3246

Client Ref:

PN214198

SUMMARY OF LABORATORY SOIL DESCRIPTIONS

[illegible]

4043

PSL
Professional Soils Laboratory

Kronospan High Bay Warehouse

Contract No:

PSL21/3246

Client Ref:

PN214198

SUMMARY OF SOIL CLASSIFICATION TESTS

(BS1377 : PART 2 : 1990)

Hole Number	Sample Type	Top Depth m	Base Depth m	Moisture Content % Clause 3.2	Linear Shrinkage % Clause 6.5	Particle Density Mg/m ³ Clause 8.2	Liquid Limit % Clause 4.3/4	Plastic Limit % Clause 5.3	Plasticity Index % Clause 5.4	Passing .425mm %	Remarks
HBW-BH101	UT	3.00	3.45	29			44	24	20	100	Intermediate Plasticity CI
HBW-BH101	UT	11.00	11.45	20			32	18	14	92	Low Plasticity CL
HBW-BH101	UT	24.00	24.45	10			29	16	13	87	Low Plasticity CL
HBW-BH102	UT	3.00	3.45	15			34	17	17	93	Low Plasticity CL
HBW-BH102	UT	8.00	8.45	24			44	24	20	99	Intermediate Plasticity CI
HBW-BH103	UT	9.50	9.95	32			40	23	17	99	Intermediate Plasticity CI
HBW-BH103	UT	15.50	15.95	28			34	21	13	100	Low Plasticity CL
HBW-BH103	B	20.00	20.45	19			33	20	13	49	Low Plasticity CL
HBW-BH103	UT	21.50	21.95	19			38	22	16	95	Intermediate Plasticity CI
HBW-BH103	UT	24.50	24.95	13			37	20	17	82	Intermediate Plasticity CI
HBW-BH103	B	33.50	33.95	24				NP			
HBW-WS101	B	0.55	1.20	11			28	16	12	81	Low Plasticity CL
HBW-WS101	B	3.15	4.00	30			47	24	23	98	Intermediate Plasticity CI
HBW-WS103	B	0.55	1.20	11			29	17	12	32	Low Plasticity CL
HBW-WS103	B	5.00	6.00	27			33	17	16	96	Low Plasticity CL
HBW-WS104	B	1.00	1.80	10			26	16	10	27	Low Plasticity CL
HBW-WS104	D	2.80	3.00	9.8				NP			

SYMBOLS : NP : Non Plastic

* : Liquid Limit and Plastic Limit Wet Sieved.



PSL
Professional Soils Laboratory

Kronospan High Bay Warehouse

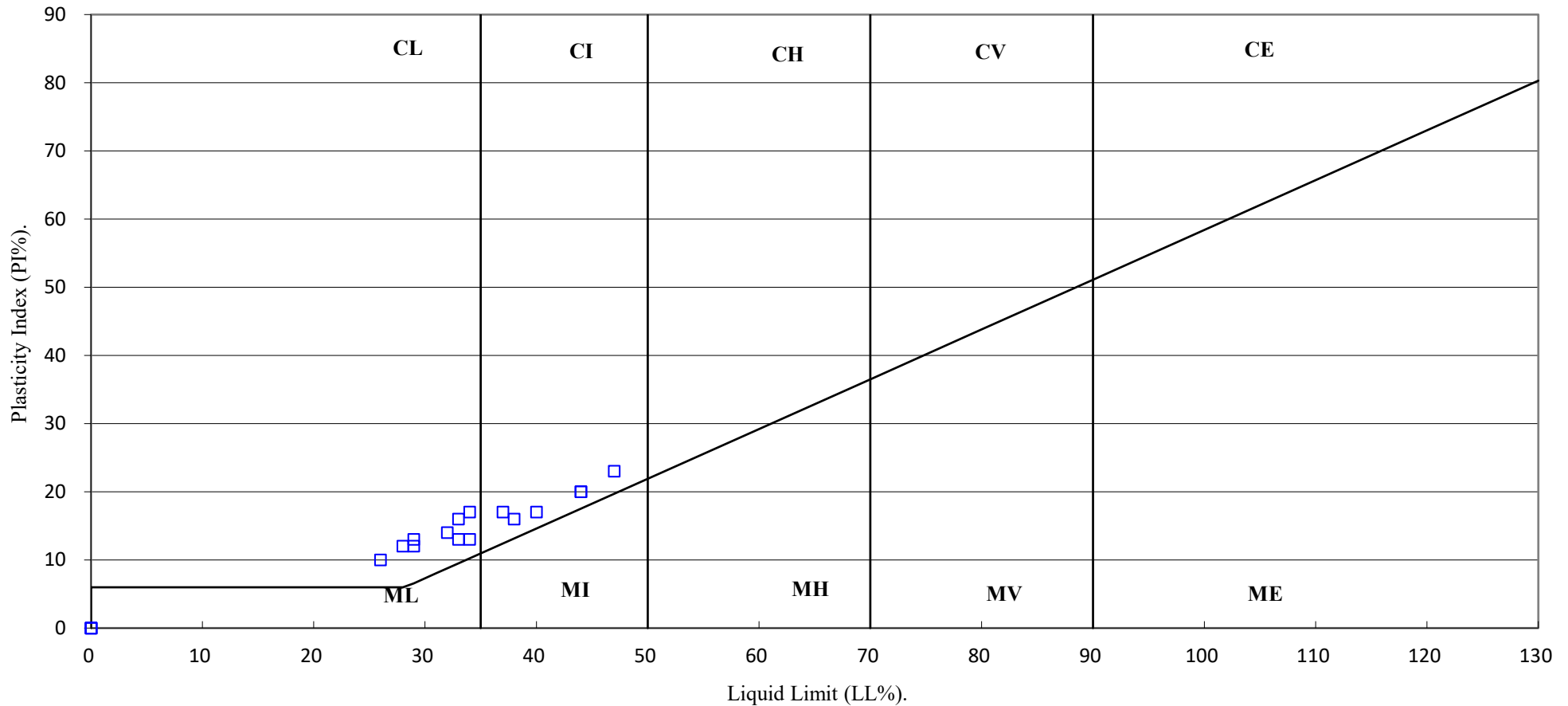
Contract No:

PSL21/3246

Client Ref:

PN214198

PLASTICITY CHART FOR CASAGRANDE CLASSIFICATION.



4043

PSL
Professional Soils Laboratory

Kronospan High Bay Warehouse

Contract No:

PSL21/3246

Client Ref:

PN214198

PARTICLE SIZE DISTRIBUTION TEST

BS1377 : Part 2 : 1990

Wet Sieve, Clause 9.2

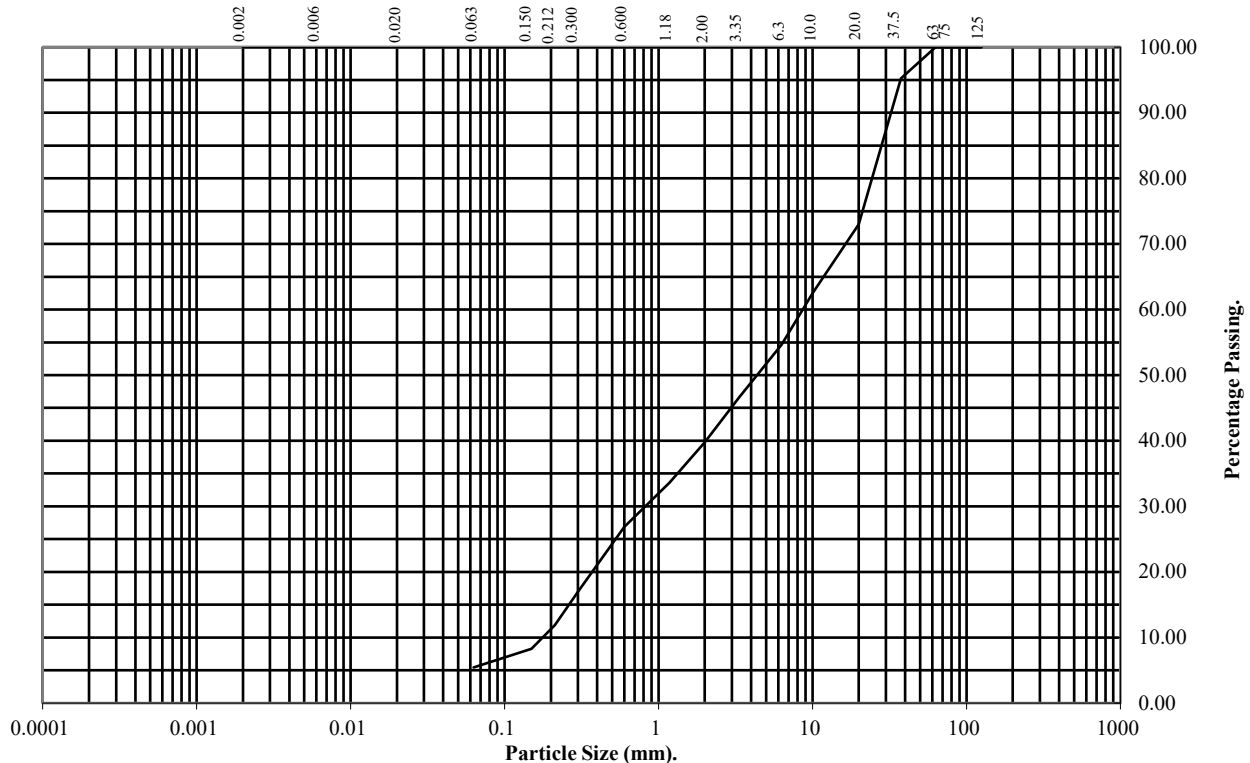
Hole Number: HBW-BH101

Top Depth (m): 0.50

Sample Number:

Base Depth(m):

Sample Type: ES



BS Test Sieve (mm)	Percentage Passing
125	100
75	100
63	100
37.5	95
20	73
10	62
6.3	55
3.35	47
2	40
1.18	34
0.6	27
0.3	17
0.212	12
0.15	8
0.063	5

Soil Fraction	Total Percentage
Cobbles	0
Gravel	60
Sand	35
Silt/Clay	5

Remarks:

See Summary of Soil Descriptions



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PARTICLE SIZE DISTRIBUTION TEST

BS1377 : Part 2 : 1990

Wet Sieve, Clause 9.2

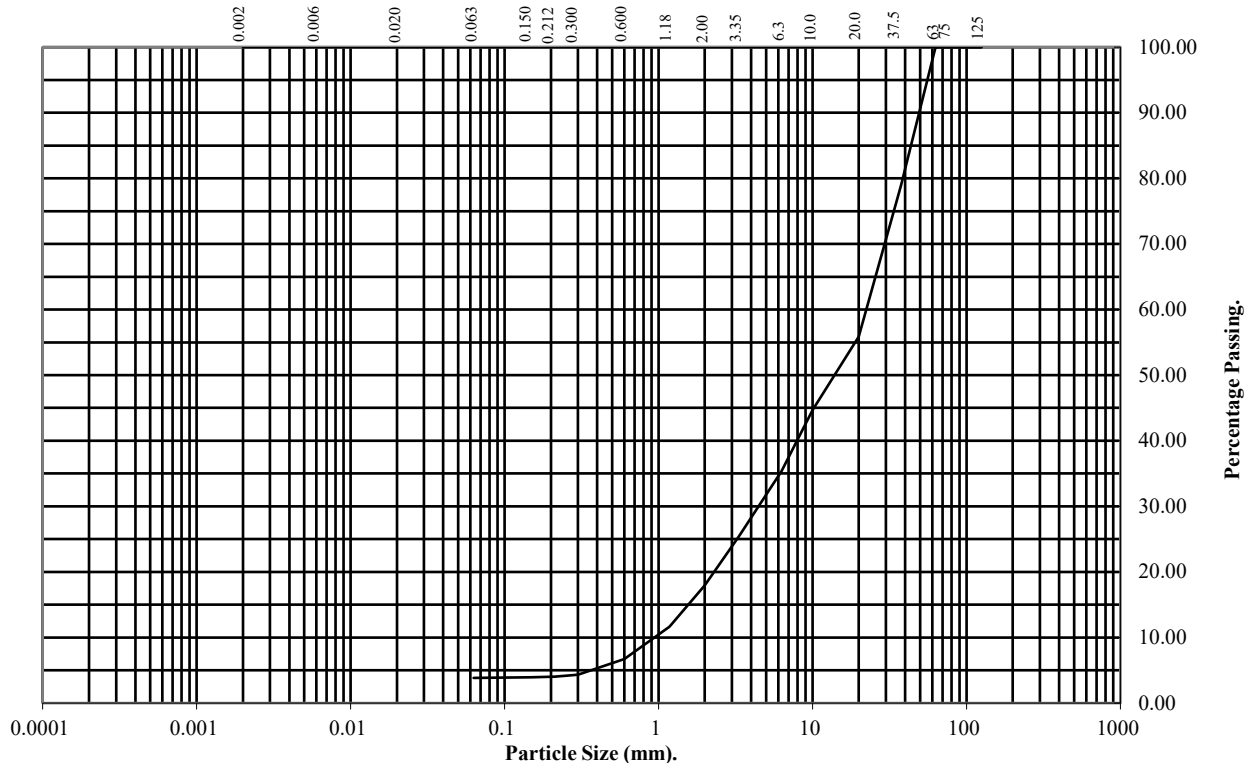
Hole Number: HBW-BH101

Top Depth (m): 4.00

Sample Number:

Base Depth(m): 4.45

Sample Type: B



BS Test Sieve (mm)	Percentage Passing
125	100
75	100
63	100
37.5	79
20	56
10	45
6.3	35
3.35	25
2	18
1.18	12
0.6	7
0.3	4
0.212	4
0.15	4
0.063	4

Soil Fraction	Total Percentage
Cobbles	0
Gravel	82
Sand	14
Silt/Clay	4

Remarks:

See Summary of Soil Descriptions



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PARTICLE SIZE DISTRIBUTION TEST

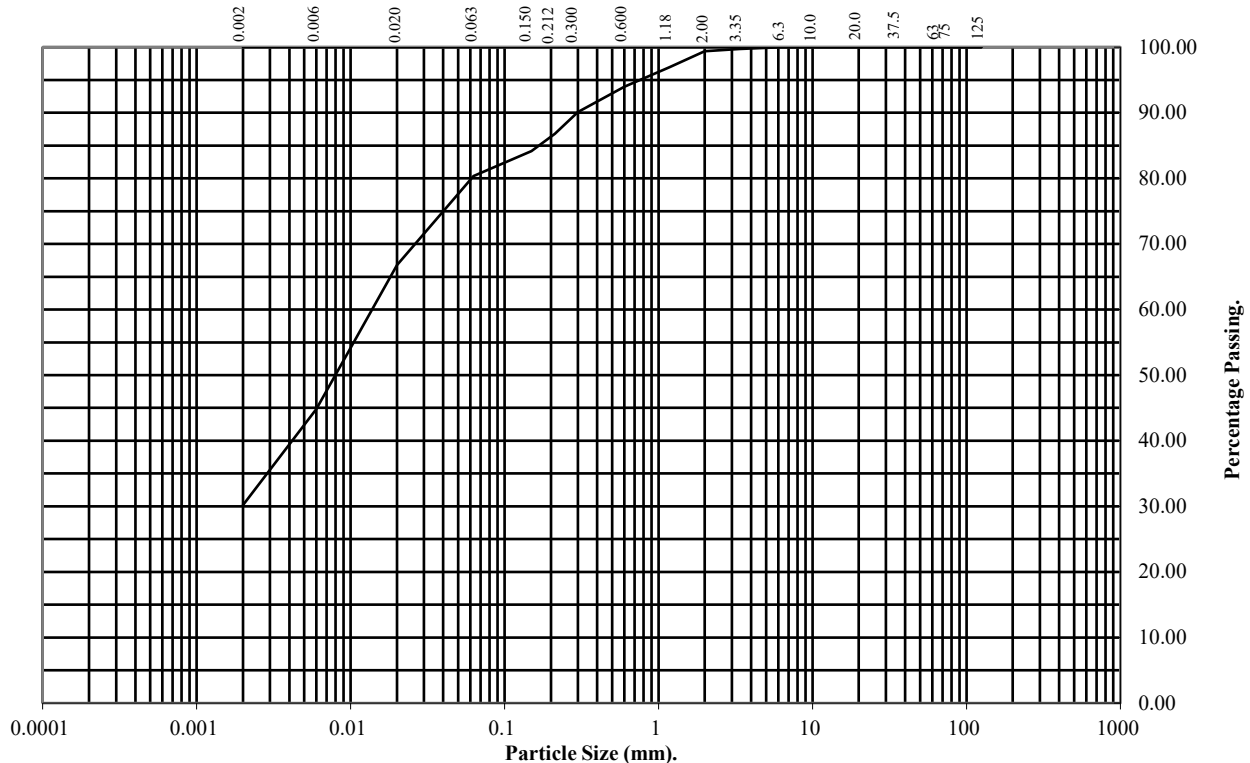
BS1377 : Part 2 : 1990

Wet Sieve & Pipette Analysis, Clause 9.2 & 9.4

Hole Number: HBW-BH101 Top Depth (m): 11.00

Sample Number: Base Depth(m): 11.45

Sample Type: UT

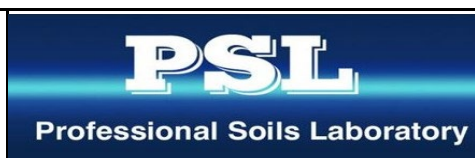


BS Test Sieve (mm)	Percentage Passing
125	100
75	100
63	100
37.5	100
20	100
10	100
6.3	100
3.35	100
2	99
1.18	97
0.6	94
0.3	90
0.212	87
0.15	84
0.063	80

Particle Diameter	Percentage Passing
0.02	67
0.006	45
0.002	30

Soil Fraction	Total Percentage
Cobbles	0
Gravel	1
Sand	19
Silt	50
Clay	30

Remarks:
See Summary of Soil Descriptions



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PARTICLE SIZE DISTRIBUTION TEST

BS1377 : Part 2 : 1990

Wet Sieve, Clause 9.2

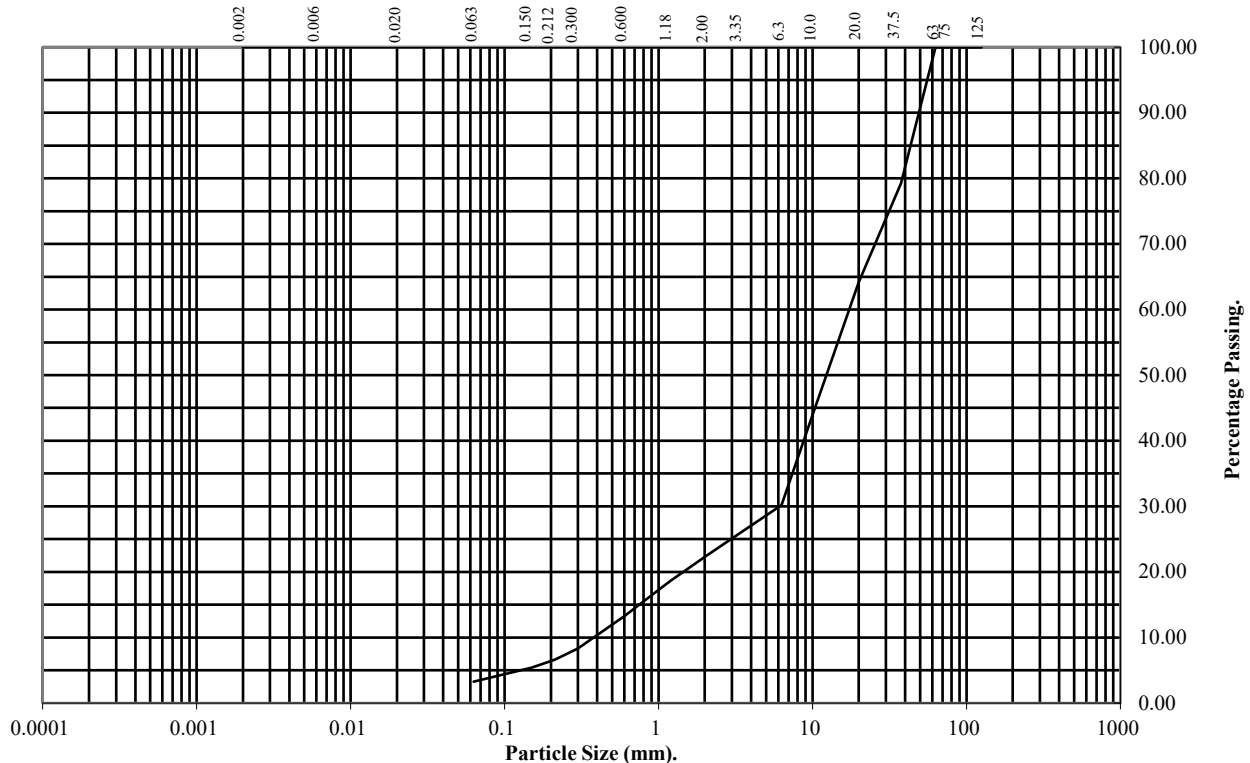
Hole Number: HBW-BH101

Top Depth (m): 19.50

Sample Number:

Base Depth(m): 19.95

Sample Type: B



BS Test Sieve (mm)	Percentage Passing
125	100
75	100
63	100
37.5	79
20	64
10	44
6.3	30
3.35	26
2	22
1.18	19
0.6	13
0.3	8
0.212	7
0.15	5
0.063	3

Soil Fraction	Total Percentage
Cobbles	0
Gravel	78
Sand	19
Silt/Clay	3

Remarks:

See Summary of Soil Descriptions



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PARTICLE SIZE DISTRIBUTION TEST

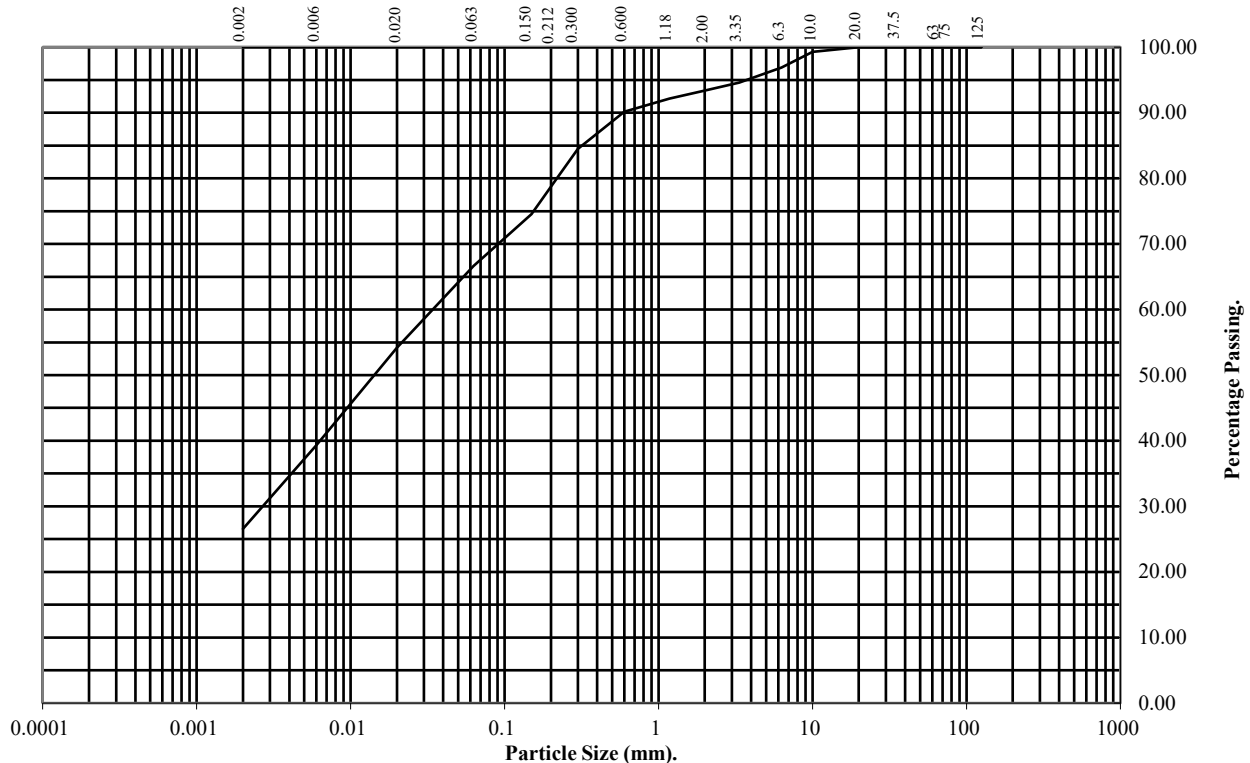
BS1377 : Part 2 : 1990

Wet Sieve & Pipette Analysis, Clause 9.2 & 9.4

Hole Number: HBW-BH101 Top Depth (m): 24.00

Sample Number: Base Depth(m): 24.45

Sample Type: UT

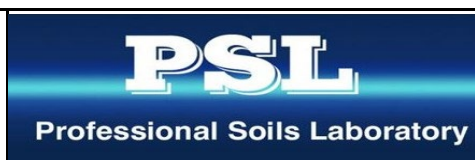


BS Test Sieve (mm)	Percentage Passing
125	100
75	100
63	100
37.5	100
20	100
10	99
6.3	97
3.35	95
2	93
1.18	92
0.6	90
0.3	84
0.212	80
0.15	75
0.063	67

Particle Diameter	Percentage Passing
0.02	54
0.006	39
0.002	27

Soil Fraction	Total Percentage
Cobbles	0
Gravel	7
Sand	26
Silt	40
Clay	27

Remarks:
See Summary of Soil Descriptions



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PARTICLE SIZE DISTRIBUTION TEST

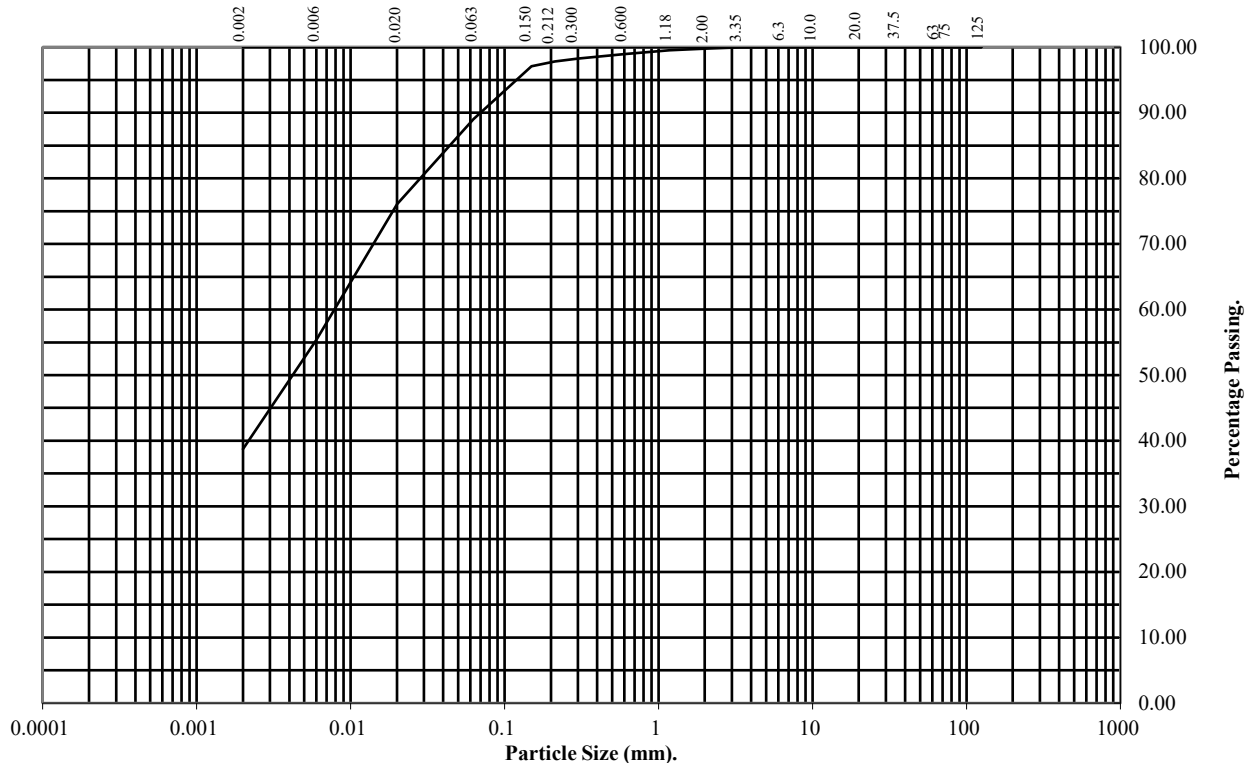
BS1377 : Part 2 : 1990

Wet Sieve & Pipette Analysis, Clause 9.2 & 9.4

Hole Number: HBW-BH101 Top Depth (m): 28.50

Sample Number: Base Depth(m): 28.95

Sample Type: B

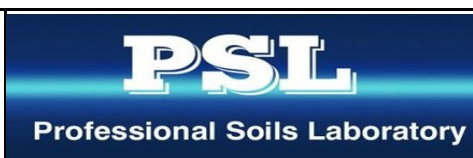


BS Test Sieve (mm)	Percentage Passing
125	100
75	100
63	100
37.5	100
20	100
10	100
6.3	100
3.35	100
2	100
1.18	100
0.6	99
0.3	98
0.212	98
0.15	97
0.063	89

Particle Diameter	Percentage Passing
0.02	76
0.006	55
0.002	39

Soil Fraction	Total Percentage
Cobbles	0
Gravel	0
Sand	11
Silt	50
Clay	39

Remarks:
See Summary of Soil Descriptions



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PARTICLE SIZE DISTRIBUTION TEST

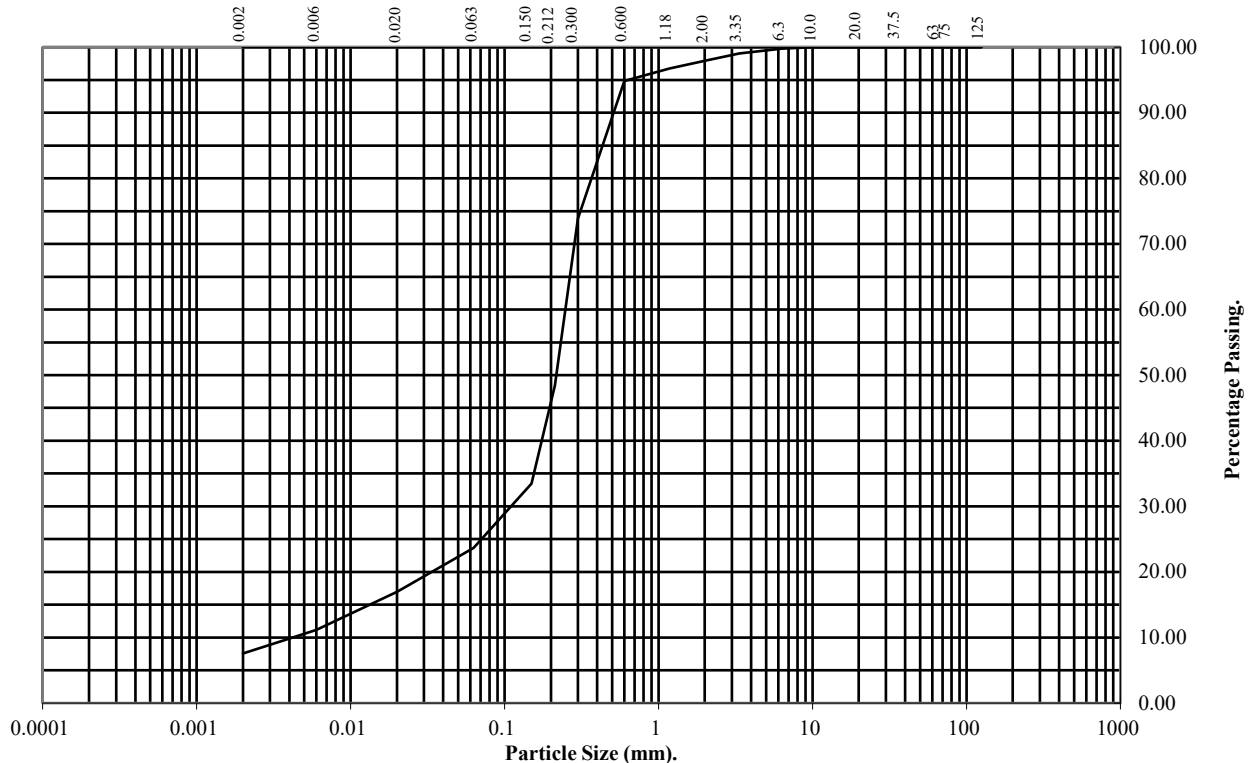
BS1377 : Part 2 : 1990

Wet Sieve & Pipette Analysis, Clause 9.2 & 9.4

Hole Number: HBW-BH101 Top Depth (m): 33.00

Sample Number: Base Depth(m): 33.45

Sample Type: B

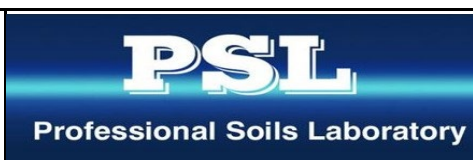


BS Test Sieve (mm)	Percentage Passing
125	100
75	100
63	100
37.5	100
20	100
10	100
6.3	100
3.35	99
2	98
1.18	97
0.6	95
0.3	74
0.212	48
0.15	33
0.063	24

Particle Diameter	Percentage Passing
0.02	17
0.006	11
0.002	8

Soil Fraction	Total Percentage
Cobbles	0
Gravel	2
Sand	74
Silt	16
Clay	8

Remarks:
See Summary of Soil Descriptions



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PARTICLE SIZE DISTRIBUTION TEST

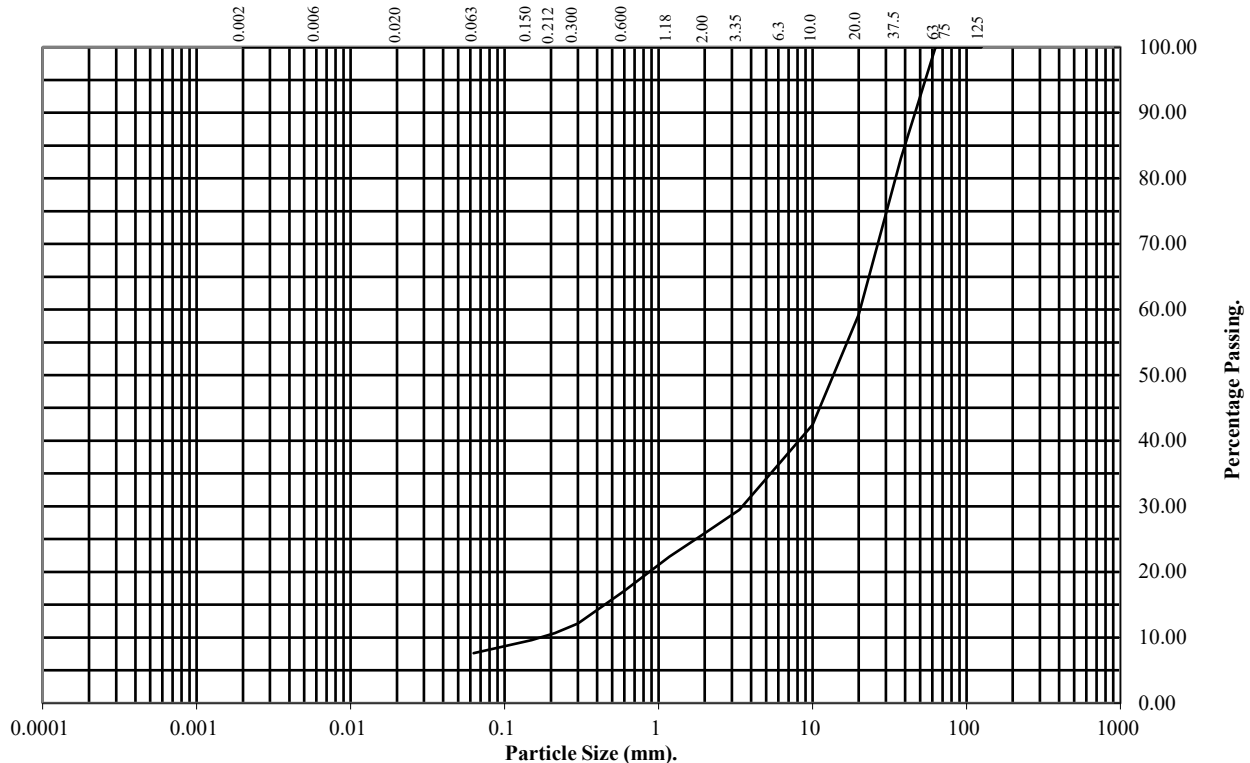
BS1377 : Part 2 : 1990

Wet Sieve, Clause 9.2

Hole Number: HBW-BH102 Top Depth (m): 0.60

Sample Number: Base Depth(m): 1.20

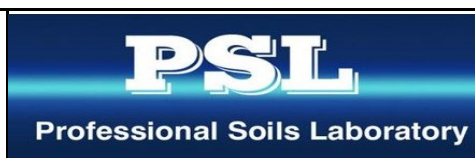
Sample Type: B



BS Test Sieve (mm)	Percentage Passing
125	100
75	100
63	100
37.5	83
20	59
10	42
6.3	37
3.35	29
2	26
1.18	22
0.6	17
0.3	12
0.212	11
0.15	10
0.063	8

Soil Fraction	Total Percentage
Cobbles	0
Gravel	74
Sand	18
Silt/Clay	8

Remarks:
See Summary of Soil Descriptions



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PARTICLE SIZE DISTRIBUTION TEST

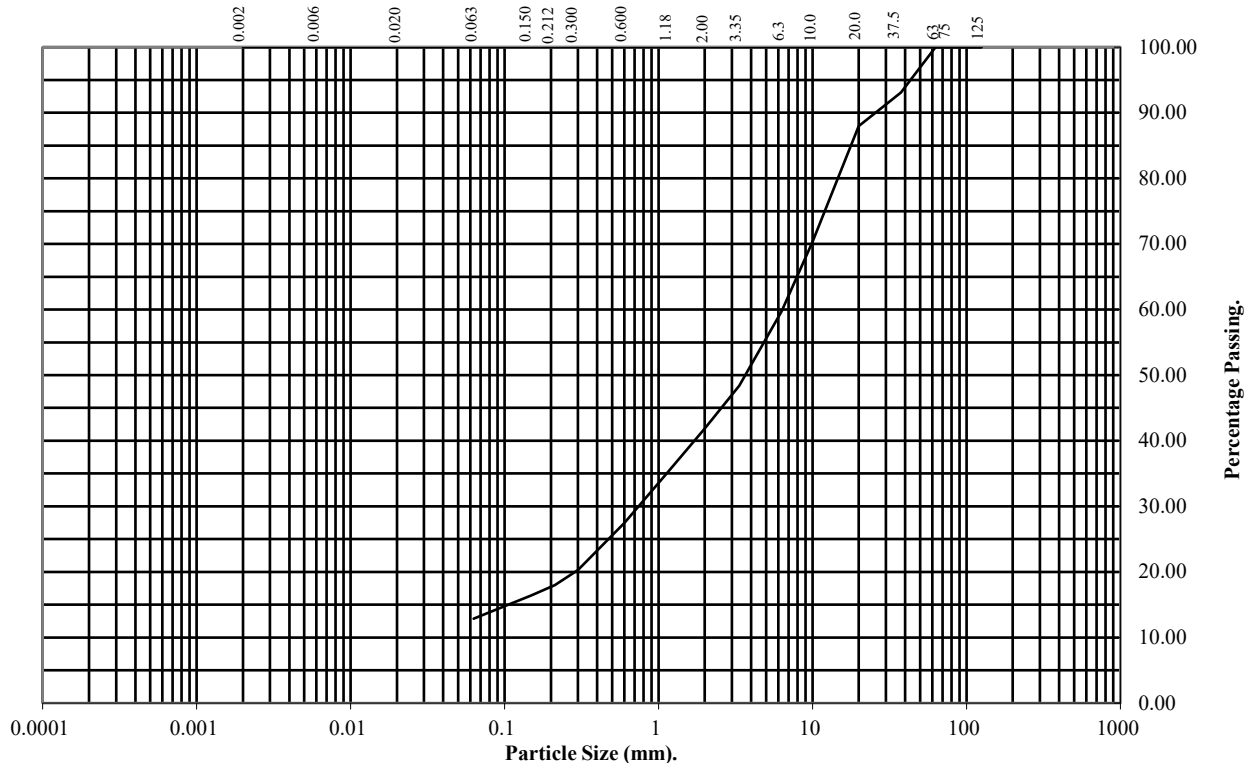
BS1377 : Part 2 : 1990

Wet Sieve, Clause 9.2

Hole Number: HBW-BH102 Top Depth (m): 2.00

Sample Number: Base Depth(m): 2.45

Sample Type: B



BS Test Sieve (mm)	Percentage Passing
125	100
75	100
63	100
37.5	93
20	88
10	70
6.3	60
3.35	48
2	42
1.18	35
0.6	27
0.3	20
0.212	18
0.15	16
0.063	13

Soil Fraction	Total Percentage
Cobbles	0
Gravel	58
Sand	29
Silt/Clay	13

Remarks:

See Summary of Soil Descriptions



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PARTICLE SIZE DISTRIBUTION TEST

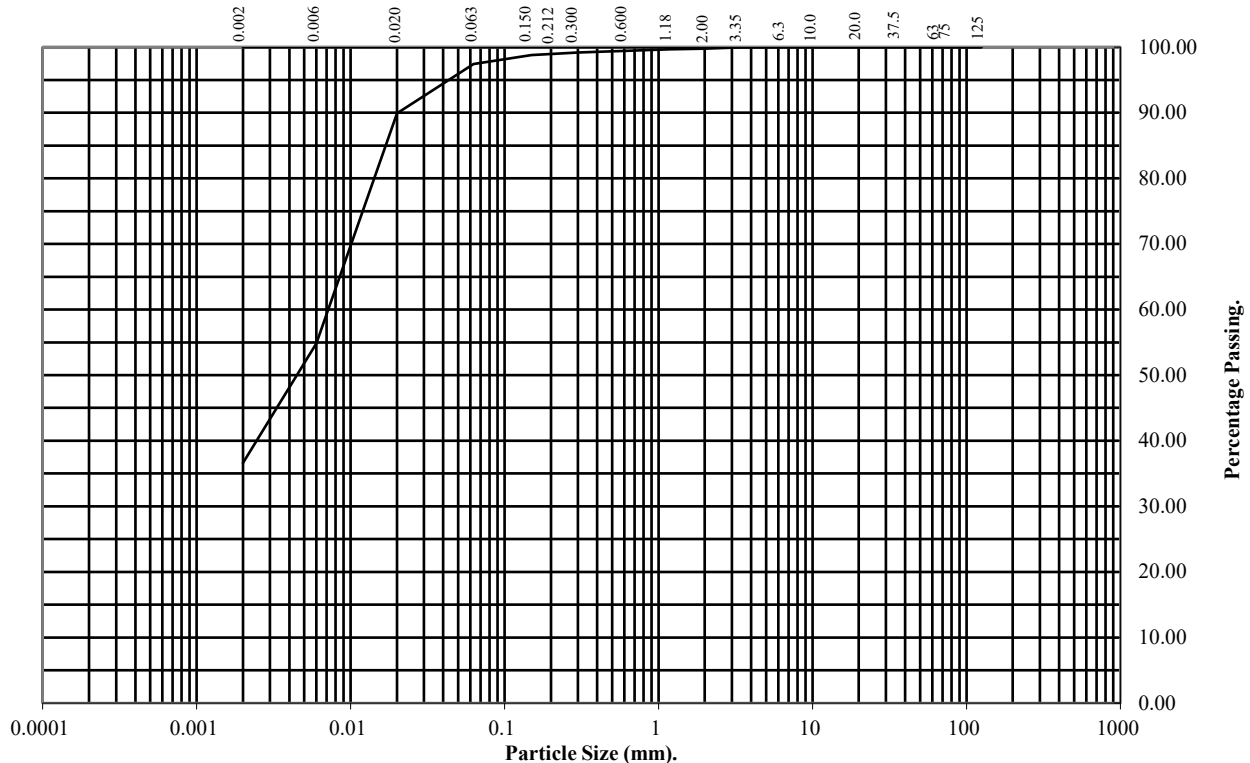
BS1377 : Part 2 : 1990

Wet Sieve & Pipette Analysis, Clause 9.2 & 9.4

Hole Number: HBW-BH102 Top Depth (m): 8.00

Sample Number: Base Depth(m): 8.45

Sample Type: UT

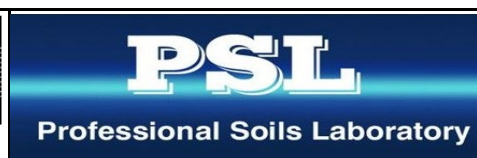


BS Test Sieve (mm)	Percentage Passing
125	100
75	100
63	100
37.5	100
20	100
10	100
6.3	100
3.35	100
2	100
1.18	100
0.6	99
0.3	99
0.212	99
0.15	99
0.063	97

Particle Diameter	Percentage Passing
0.02	90
0.006	55
0.002	37

Soil Fraction	Total Percentage
Cobbles	0
Gravel	0
Sand	3
Silt	60
Clay	37

Remarks:
See Summary of Soil Descriptions



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PARTICLE SIZE DISTRIBUTION TEST

BS1377 : Part 2 : 1990

Wet Sieve, Clause 9.2

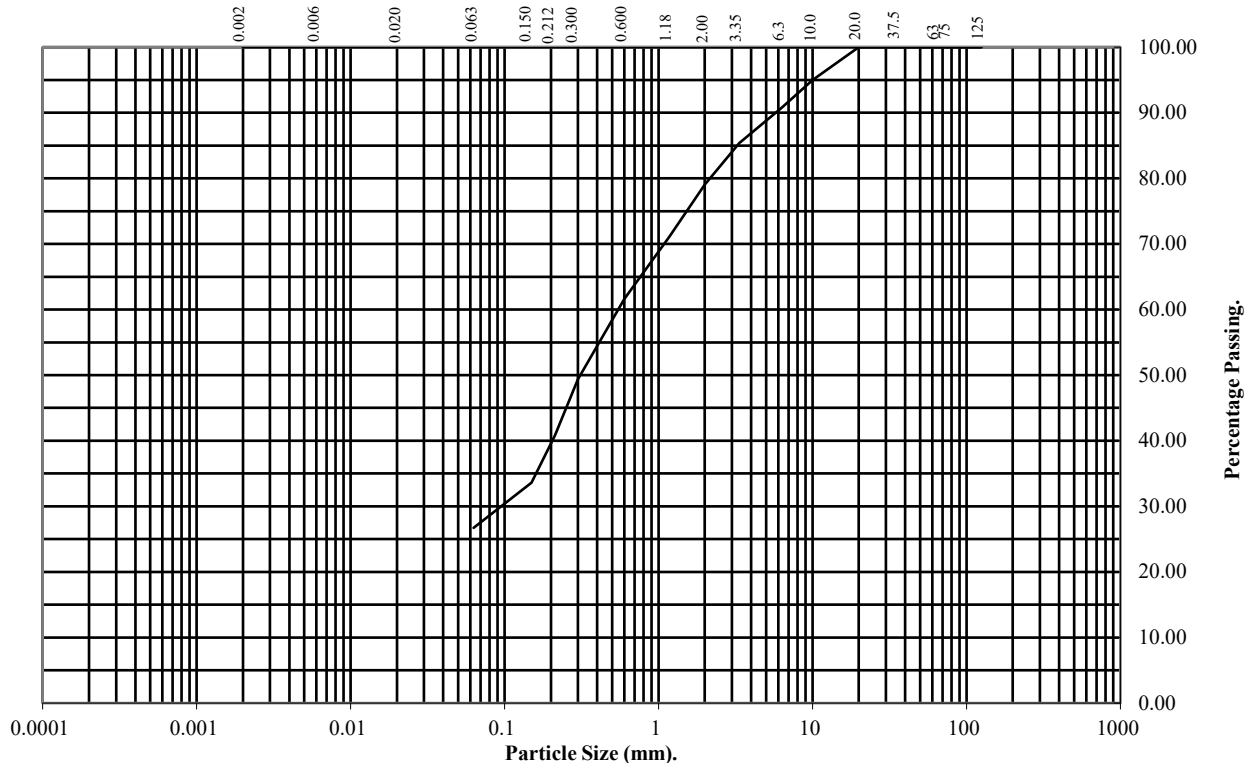
Hole Number: HBW-BH102

Top Depth (m): 13.50

Sample Number:

Base Depth(m): 13.95

Sample Type: B



BS Test Sieve (mm)	Percentage Passing
125	100
75	100
63	100
37.5	100
20	100
10	95
6.3	91
3.35	85
2	79
1.18	71
0.6	62
0.3	49
0.212	41
0.15	34
0.063	27

Soil Fraction	Total Percentage
Cobbles	0
Gravel	21
Sand	52
Silt/Clay	27

Remarks:

See Summary of Soil Descriptions



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PARTICLE SIZE DISTRIBUTION TEST

BS1377 : Part 2 : 1990

Wet Sieve, Clause 9.2

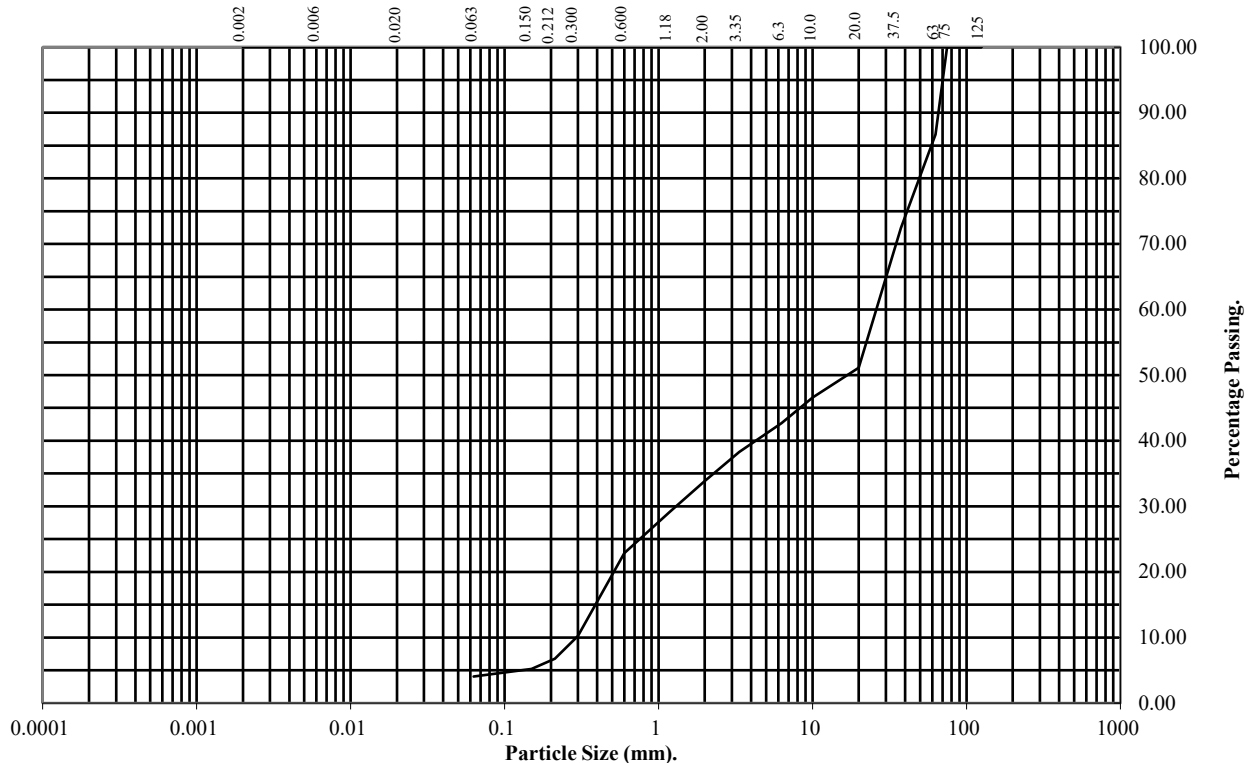
Hole Number: HBW-BH102

Top Depth (m): 16.50

Sample Number:

Base Depth(m): 16.95

Sample Type: B



BS Test Sieve (mm)	Percentage Passing
125	100
75	100
63	87
37.5	72
20	51
10	47
6.3	43
3.35	38
2	34
1.18	29
0.6	23
0.3	10
0.212	7
0.15	5
0.063	4

Soil Fraction	Total Percentage
Cobbles	13
Gravel	53
Sand	30
Silt/Clay	4

Remarks:

See Summary of Soil Descriptions



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PARTICLE SIZE DISTRIBUTION TEST

BS1377 : Part 2 : 1990

Wet Sieve, Clause 9.2

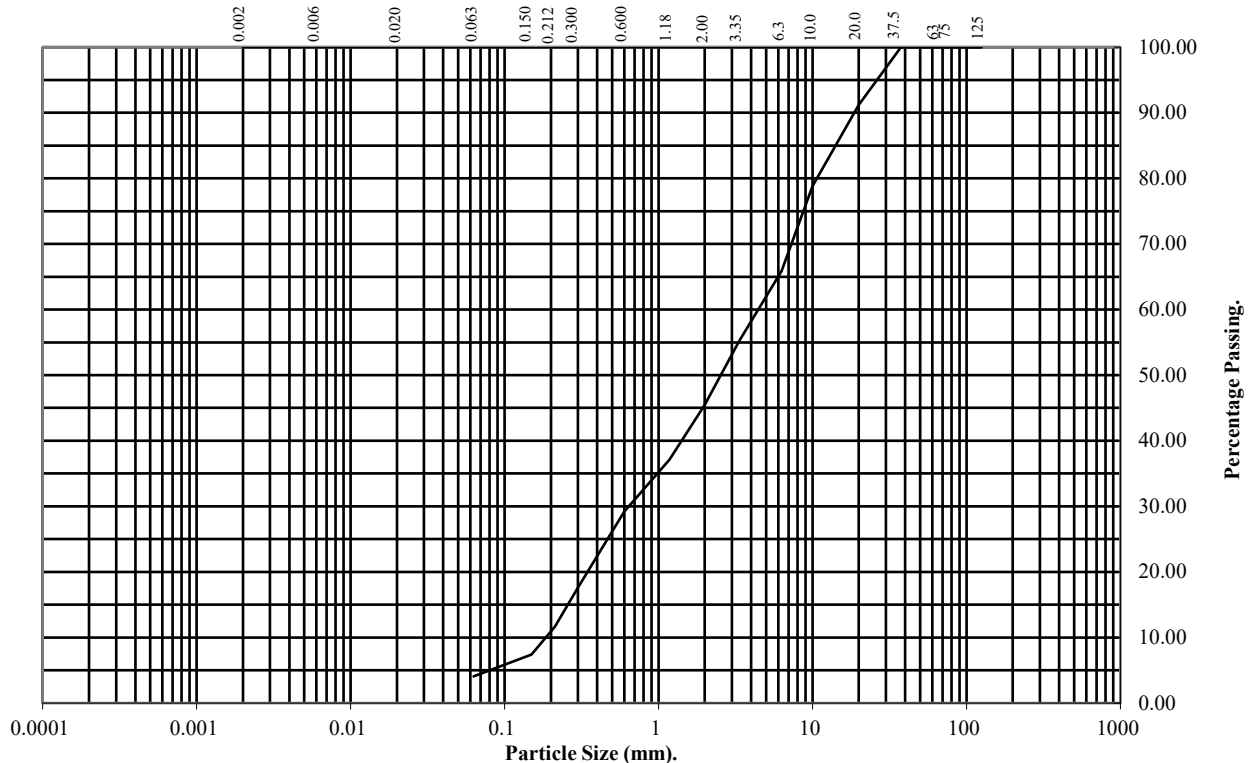
Hole Number: HBW-BH102

Top Depth (m): 19.50

Sample Number:

Base Depth(m): 19.95

Sample Type: B



BS Test Sieve (mm)	Percentage Passing
125	100
75	100
63	100
37.5	100
20	91
10	79
6.3	66
3.35	55
2	45
1.18	37
0.6	29
0.3	18
0.212	12
0.15	7
0.063	4

Soil Fraction	Total Percentage
Cobbles	0
Gravel	55
Sand	41
Silt/Clay	4

Remarks:

See Summary of Soil Descriptions



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BS1377 : Part 2 : 1990

Wet Sieve, Clause 9.2

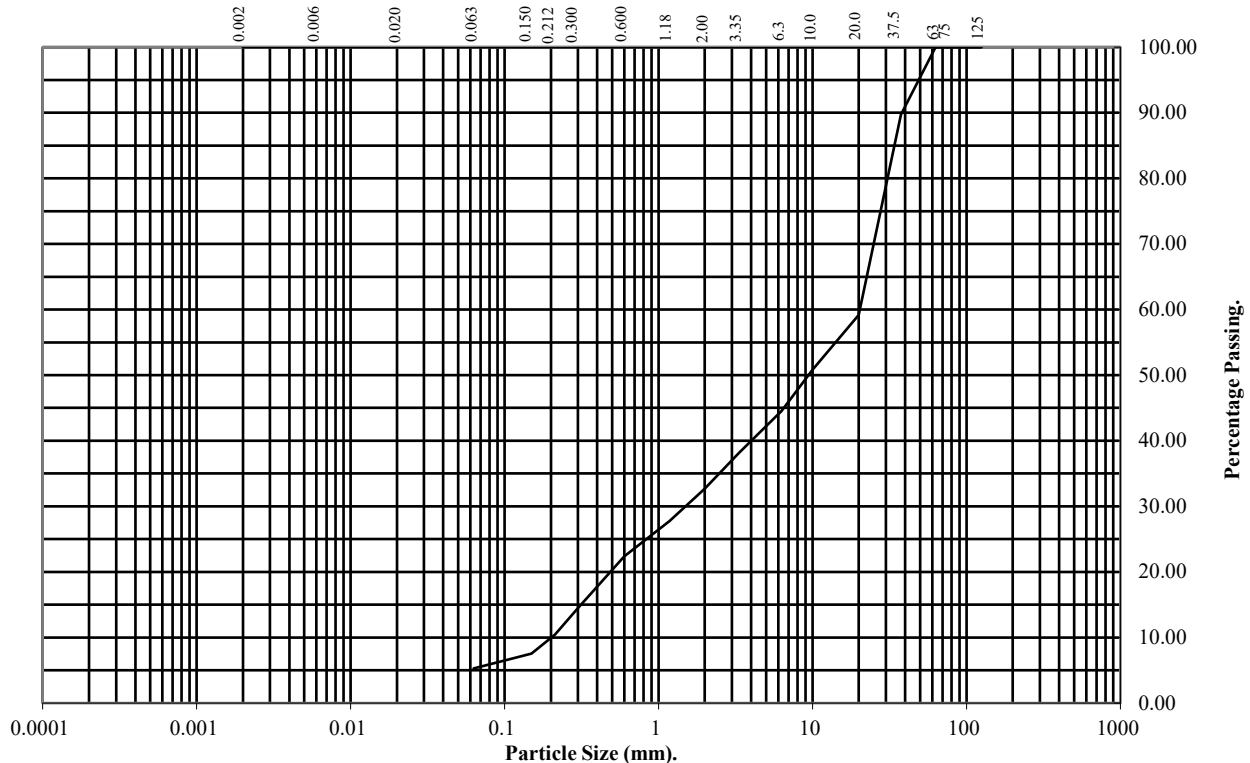
Hole Number: HBW-BH103

Top Depth (m): 0.50

Sample Number:

Base Depth(m):

Sample Type: B



BS Test Sieve (mm)	Percentage Passing
125	100
75	100
63	100
37.5	90
20	59
10	51
6.3	45
3.35	38
2	33
1.18	28
0.6	22
0.3	14
0.212	10
0.15	8
0.063	5

Soil Fraction	Total Percentage
Cobbles	0
Gravel	67
Sand	28
Silt/Clay	5

Remarks:

See Summary of Soil Descriptions



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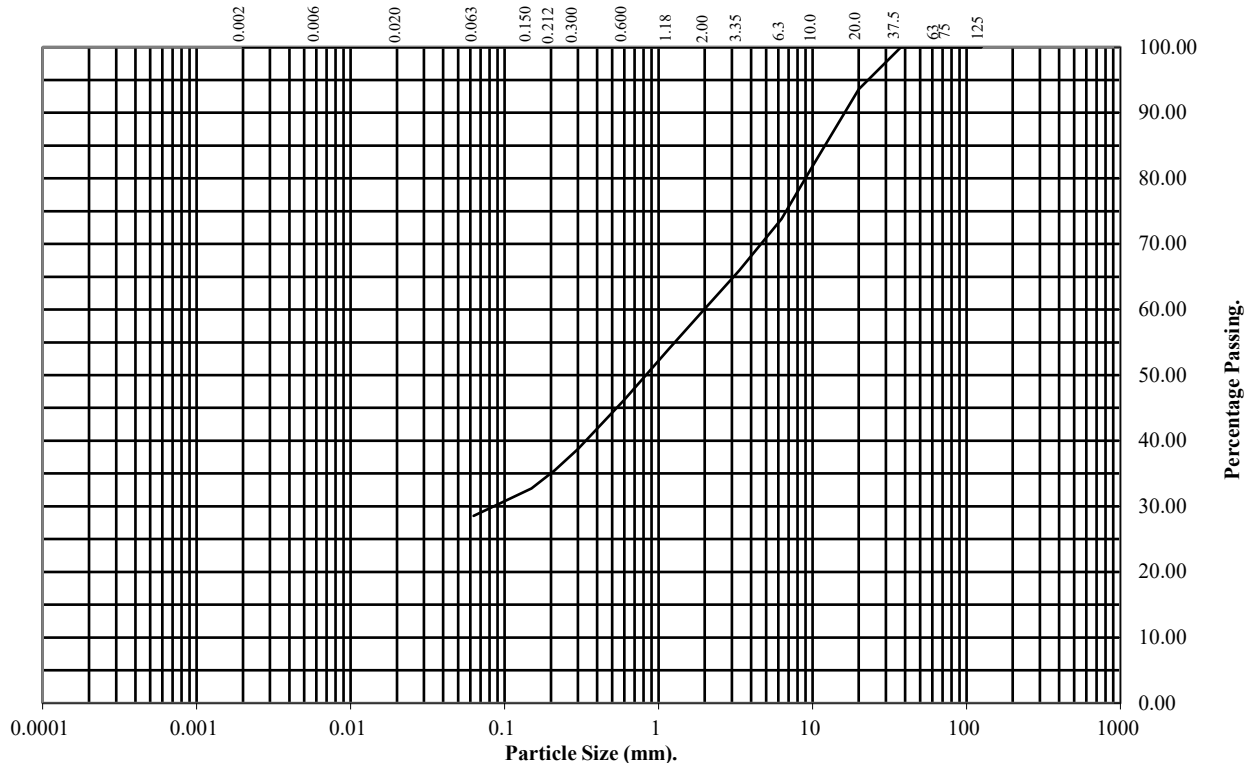
BS1377 : Part 2 : 1990

Wet Sieve, Clause 9.2

Hole Number: HBW-BH103 Top Depth (m): 2.00

Sample Number: Base Depth(m): 2.45

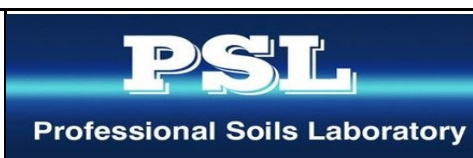
Sample Type: B



BS Test Sieve (mm)	Percentage Passing
125	100
75	100
63	100
37.5	100
20	94
10	82
6.3	74
3.35	66
2	60
1.18	54
0.6	46
0.3	39
0.212	35
0.15	33
0.063	29

Soil Fraction	Total Percentage
Cobbles	0
Gravel	40
Sand	31
Silt/Clay	29

Remarks:
See Summary of Soil Descriptions



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PARTICLE SIZE DISTRIBUTION TEST

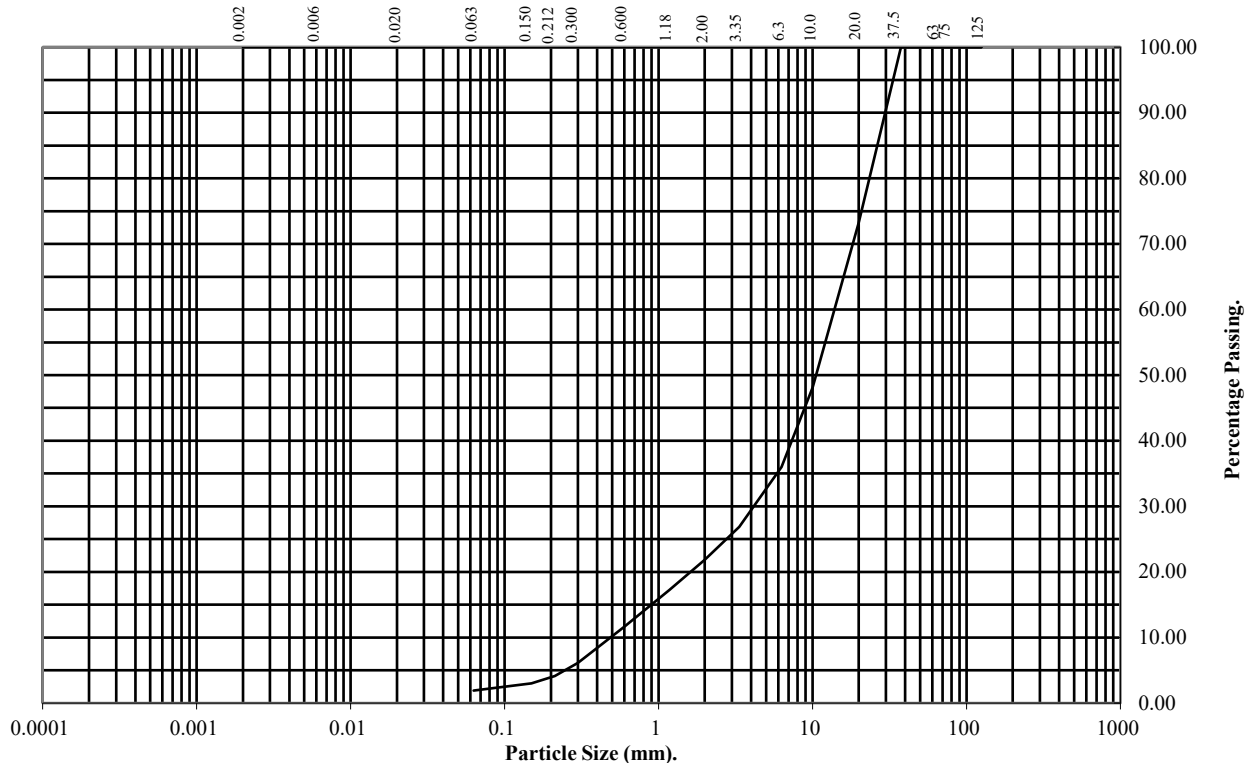
BS1377 : Part 2 : 1990

Wet Sieve, Clause 9.2

Hole Number: HBW-BH103 Top Depth (m): 3.00

Sample Number: Base Depth(m): 3.45

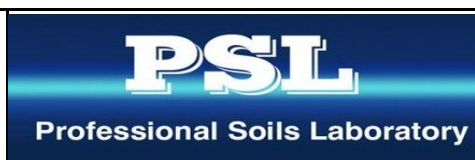
Sample Type: B



BS Test Sieve (mm)	Percentage Passing
125	100
75	100
63	100
37.5	100
20	73
10	48
6.3	36
3.35	27
2	22
1.18	17
0.6	12
0.3	6
0.212	4
0.15	3
0.063	2

Soil Fraction	Total Percentage
Cobbles	0
Gravel	78
Sand	20
Silt/Clay	2

Remarks:
See Summary of Soil Descriptions



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PARTICLE SIZE DISTRIBUTION TEST

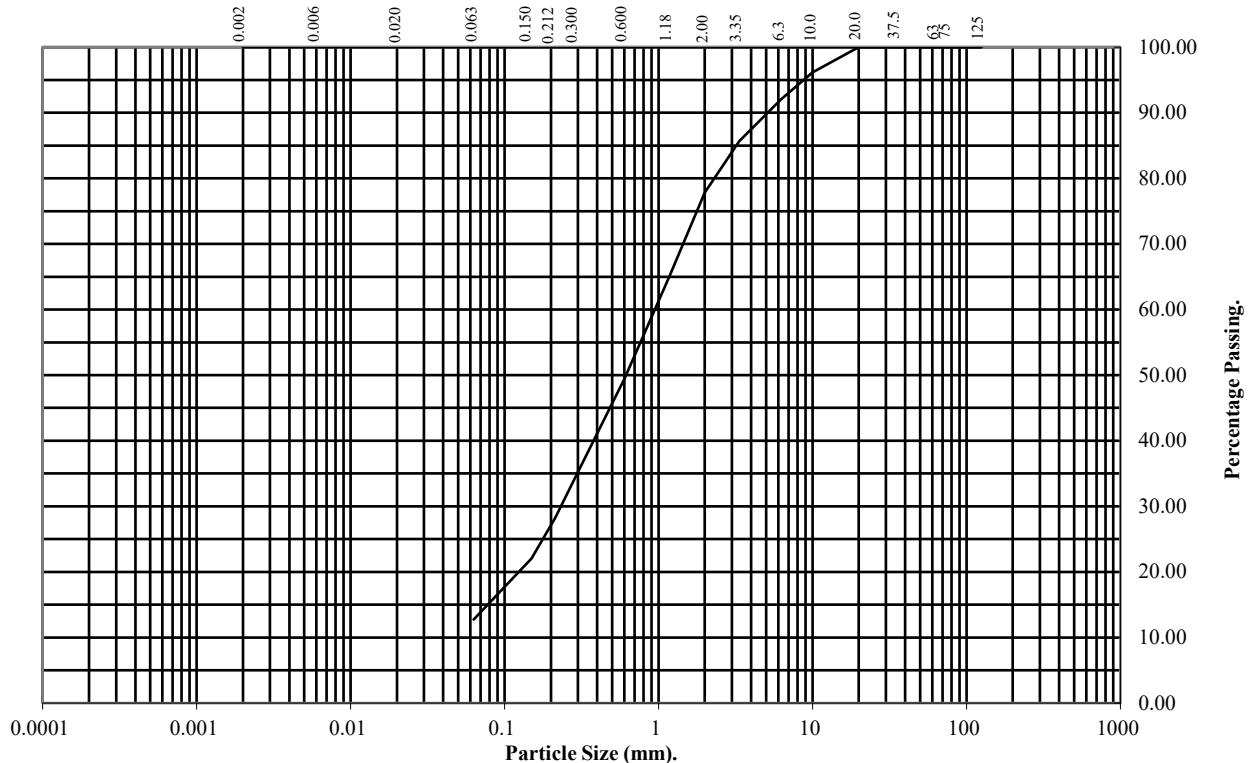
BS1377 : Part 2 : 1990

Wet Sieve, Clause 9.2

Hole Number: HBW-BH103 Top Depth (m): 5.00

Sample Number: Base Depth(m): 5.45

Sample Type: B



BS Test Sieve (mm)	Percentage Passing
125	100
75	100
63	100
37.5	100
20	100
10	96
6.3	92
3.35	86
2	78
1.18	65
0.6	49
0.3	35
0.212	28
0.15	22
0.063	13

Soil Fraction	Total Percentage
Cobbles	0
Gravel	22
Sand	65
Silt/Clay	13

Remarks:

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PARTICLE SIZE DISTRIBUTION TEST

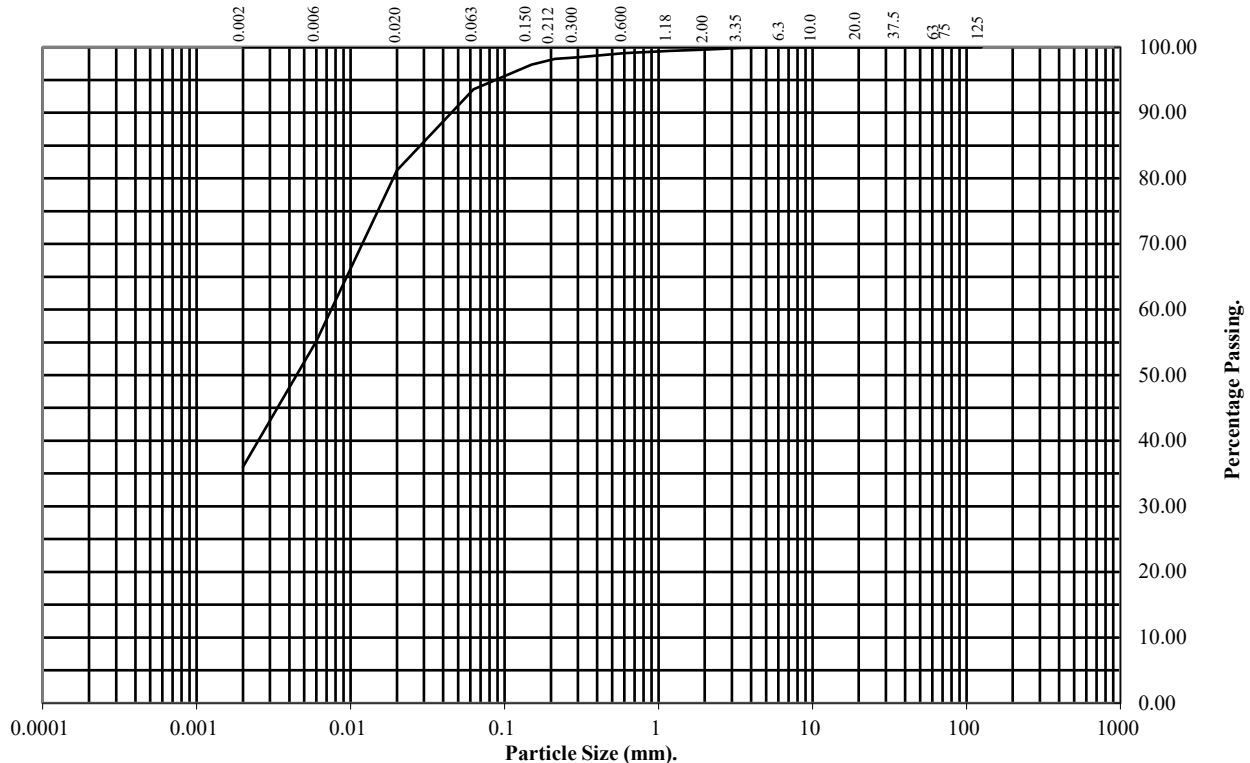
BS1377 : Part 2 : 1990

Wet Sieve & Pipette Analysis, Clause 9.2 & 9.4

Hole Number: HBW-BH103 Top Depth (m): 9.50

Sample Number: Base Depth(m): 9.95

Sample Type: UT

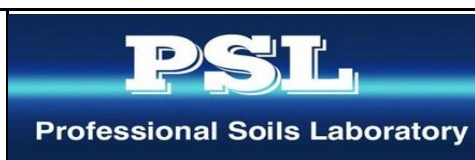


BS Test Sieve (mm)	Percentage Passing
125	100
75	100
63	100
37.5	100
20	100
10	100
6.3	100
3.35	100
2	100
1.18	99
0.6	99
0.3	98
0.212	98
0.15	97
0.063	94

Particle Diameter	Percentage Passing
0.02	81
0.006	55
0.002	36

Soil Fraction	Total Percentage
Cobbles	0
Gravel	0
Sand	6
Silt	58
Clay	36

Remarks:
See Summary of Soil Descriptions



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PARTICLE SIZE DISTRIBUTION TEST

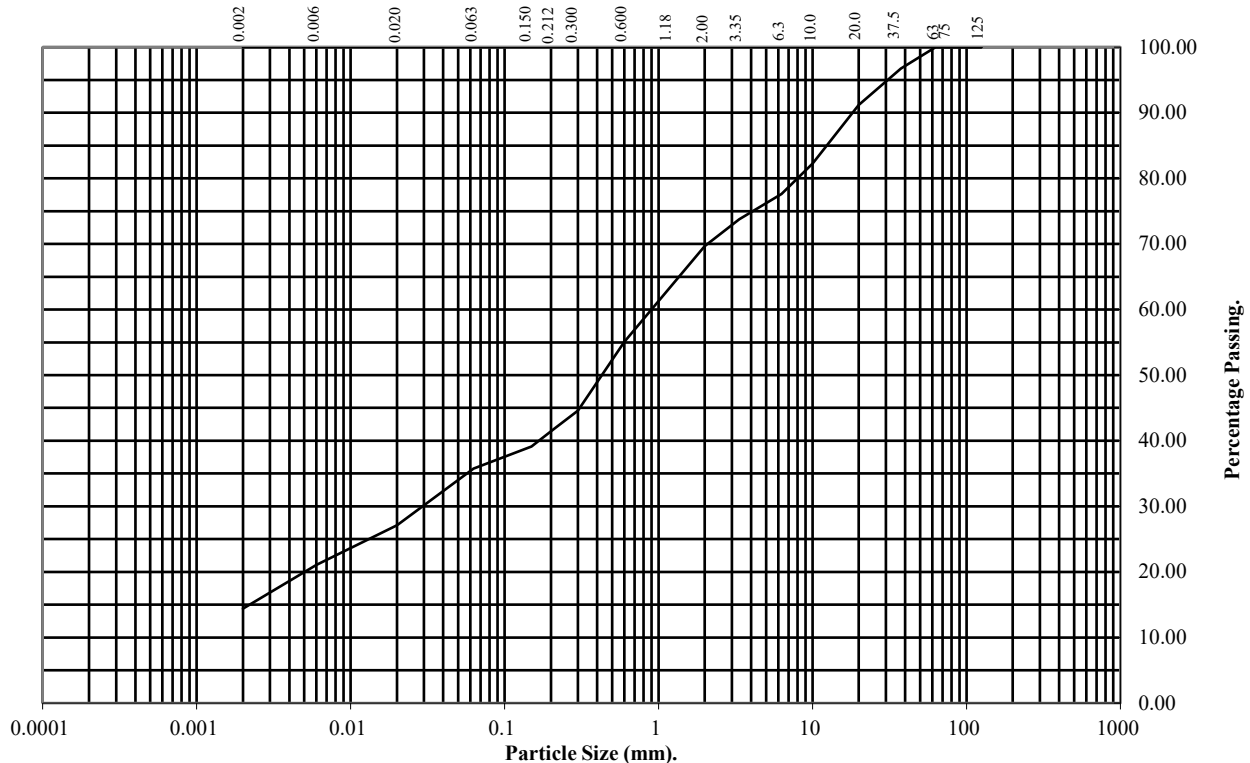
BS1377 : Part 2 : 1990

Wet Sieve & Pipette Analysis, Clause 9.2 & 9.4

Hole Number: HBW-BH103 Top Depth (m): 20.00

Sample Number: Base Depth(m): 20.45

Sample Type: B

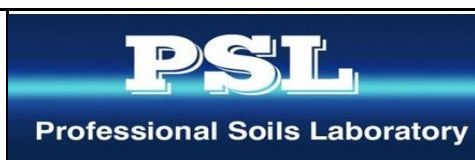


BS Test Sieve (mm)	Percentage Passing
125	100
75	100
63	100
37.5	97
20	91
10	82
6.3	78
3.35	74
2	70
1.18	63
0.6	55
0.3	45
0.212	42
0.15	39
0.063	36

Particle Diameter	Percentage Passing
0.02	27
0.006	21
0.002	14

Soil Fraction	Total Percentage
Cobbles	0
Gravel	30
Sand	34
Silt	22
Clay	14

Remarks:
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PARTICLE SIZE DISTRIBUTION TEST

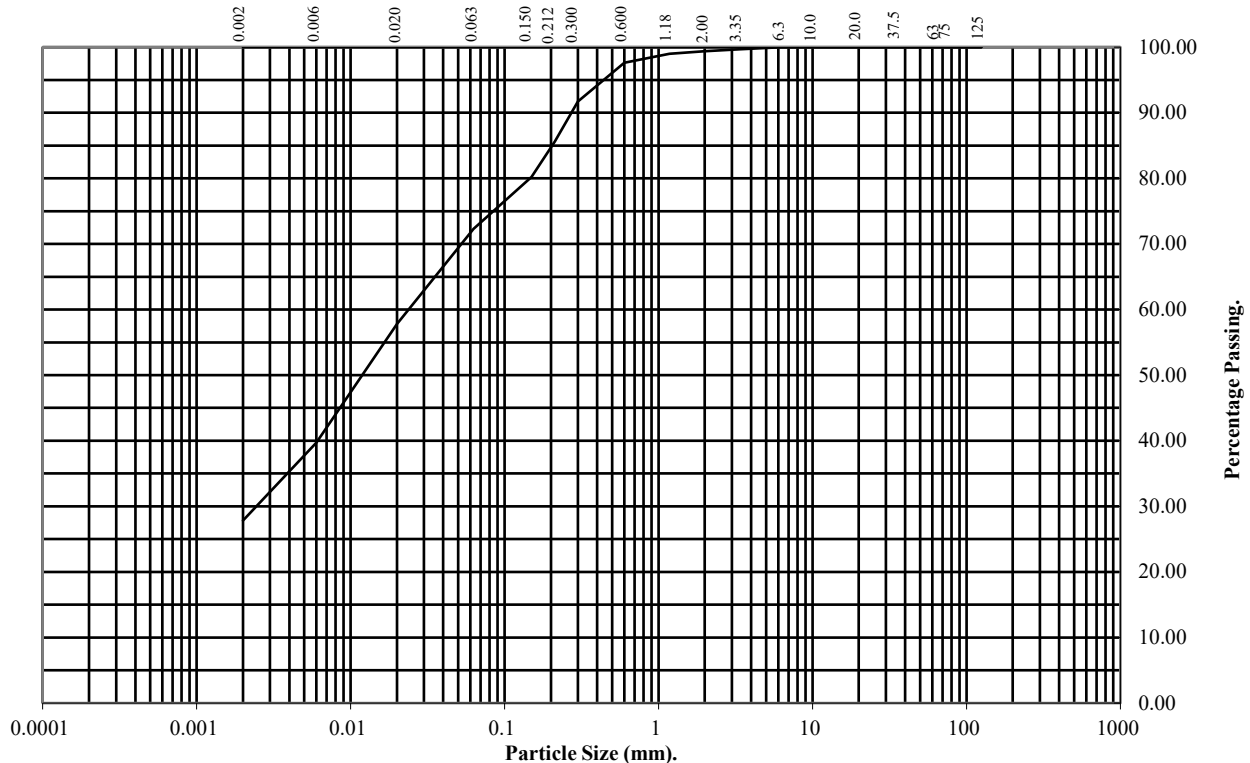
BS1377 : Part 2 : 1990

Wet Sieve & Pipette Analysis, Clause 9.2 & 9.4

Hole Number: HBW-BH103 Top Depth (m): 21.50

Sample Number: Base Depth(m): 21.95

Sample Type: UT

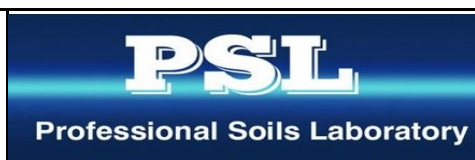


BS Test Sieve (mm)	Percentage Passing
125	100
75	100
63	100
37.5	100
20	100
10	100
6.3	100
3.35	100
2	99
1.18	99
0.6	98
0.3	92
0.212	86
0.15	80
0.063	72

Particle Diameter	Percentage Passing
0.02	58
0.006	40
0.002	28

Soil Fraction	Total Percentage
Cobbles	0
Gravel	1
Sand	27
Silt	44
Clay	28

Remarks:
See Summary of Soil Descriptions



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PARTICLE SIZE DISTRIBUTION TEST

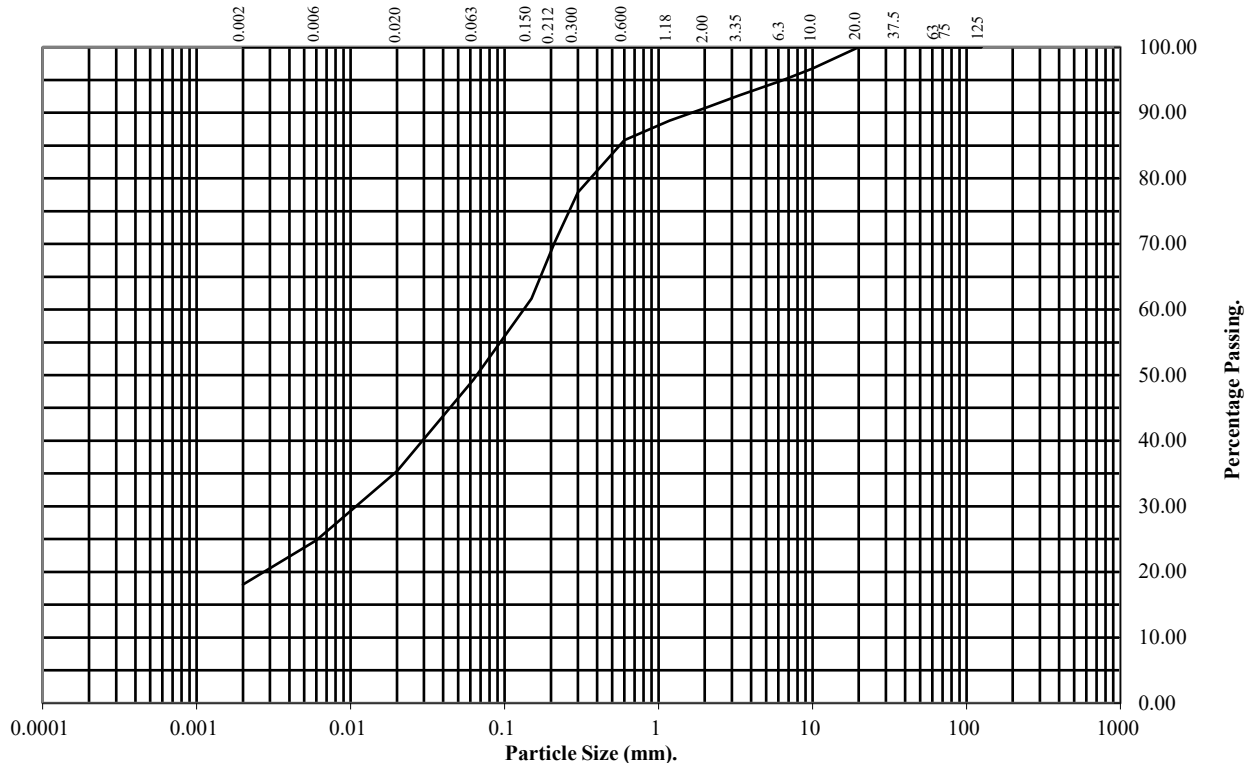
BS1377 : Part 2 : 1990

Wet Sieve & Pipette Analysis, Clause 9.2 & 9.4

Hole Number: HBW-BH103 Top Depth (m): 24.50

Sample Number: Base Depth(m): 24.95

Sample Type: UT

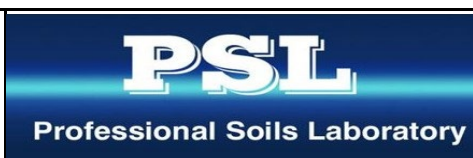


BS Test Sieve (mm)	Percentage Passing
125	100
75	100
63	100
37.5	100
20	100
10	97
6.3	95
3.35	93
2	91
1.18	89
0.6	86
0.3	78
0.212	70
0.15	62
0.063	49

Particle Diameter	Percentage Passing
0.02	35
0.006	25
0.002	18

Soil Fraction	Total Percentage
Cobbles	0
Gravel	9
Sand	42
Silt	31
Clay	18

Remarks:
See Summary of Soil Descriptions



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PARTICLE SIZE DISTRIBUTION TEST

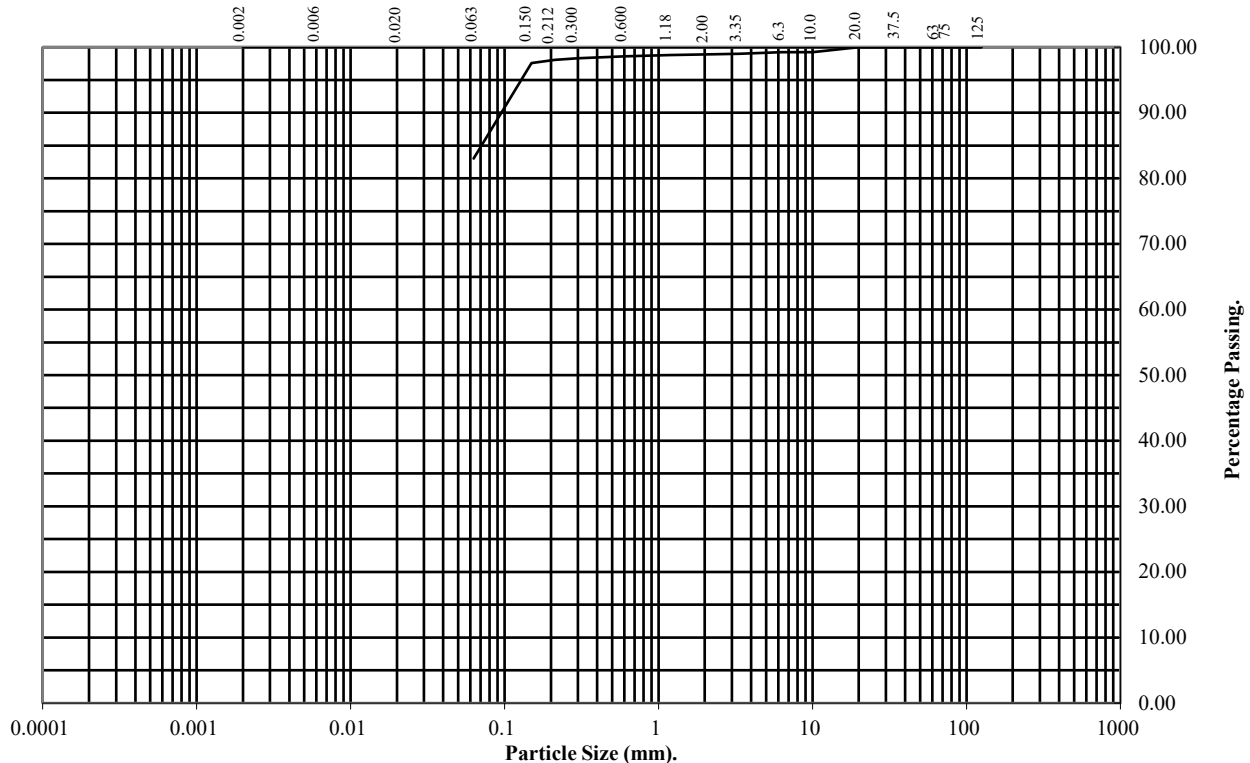
BS1377 : Part 2 : 1990

Wet Sieve, Clause 9.2

Hole Number: HBW-BH103 Top Depth (m): 29.00

Sample Number: Base Depth(m): 29.45

Sample Type: B



BS Test Sieve (mm)	Percentage Passing
125	100
75	100
63	100
37.5	100
20	100
10	99
6.3	99
3.35	99
2	99
1.18	99
0.6	99
0.3	98
0.212	98
0.15	98
0.063	83

Soil Fraction	Total Percentage
Cobbles	0
Gravel	1
Sand	16
Silt/Clay	83

Remarks:

See Summary of Soil Descriptions



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PARTICLE SIZE DISTRIBUTION TEST

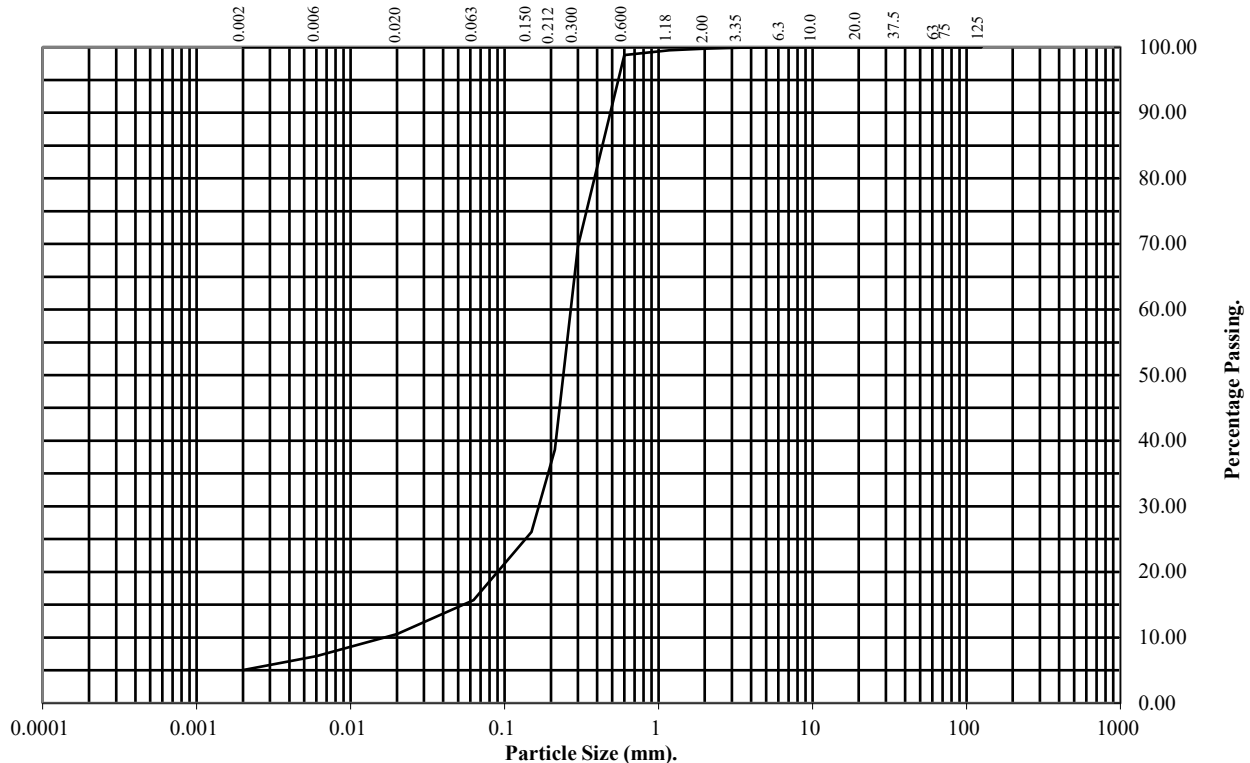
BS1377 : Part 2 : 1990

Wet Sieve & Pipette Analysis, Clause 9.2 & 9.4

Hole Number: HBW-BH103 Top Depth (m): 33.50

Sample Number: Base Depth(m): 33.95

Sample Type: B

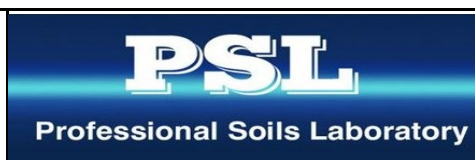


BS Test Sieve (mm)	Percentage Passing
125	100
75	100
63	100
37.5	100
20	100
10	100
6.3	100
3.35	100
2	100
1.18	100
0.6	99
0.3	70
0.212	39
0.15	26
0.063	16

Particle Diameter	Percentage Passing
0.02	11
0.006	7
0.002	5

Soil Fraction	Total Percentage
Cobbles	0
Gravel	0
Sand	84
Silt	11
Clay	5

Remarks:
See Summary of Soil Descriptions



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PARTICLE SIZE DISTRIBUTION TEST

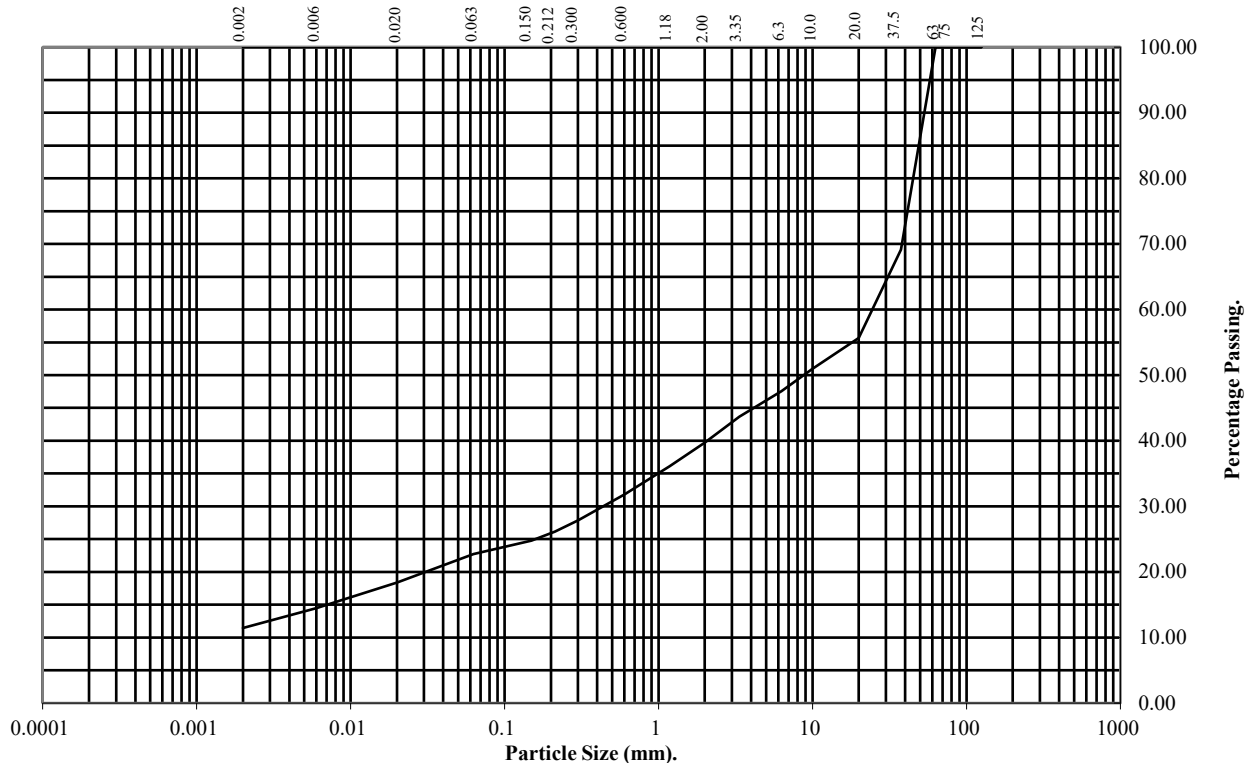
BS1377 : Part 2 : 1990

Wet Sieve & Pipette Analysis, Clause 9.2 & 9.4

Hole Number: HBW-WS101 Top Depth (m): 0.55

Sample Number: Base Depth(m): 1.20

Sample Type: B

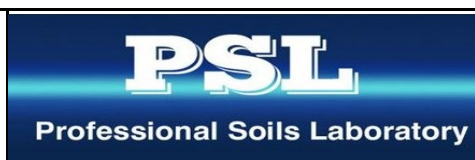


BS Test Sieve (mm)	Percentage Passing
125	100
75	100
63	100
37.5	69
20	56
10	51
6.3	48
3.35	44
2	40
1.18	36
0.6	32
0.3	28
0.212	26
0.15	25
0.063	23

Particle Diameter	Percentage Passing
0.02	18
0.006	14
0.002	11

Soil Fraction	Total Percentage
Cobbles	0
Gravel	60
Sand	17
Silt	12
Clay	11

Remarks:
See Summary of Soil Descriptions



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PARTICLE SIZE DISTRIBUTION TEST

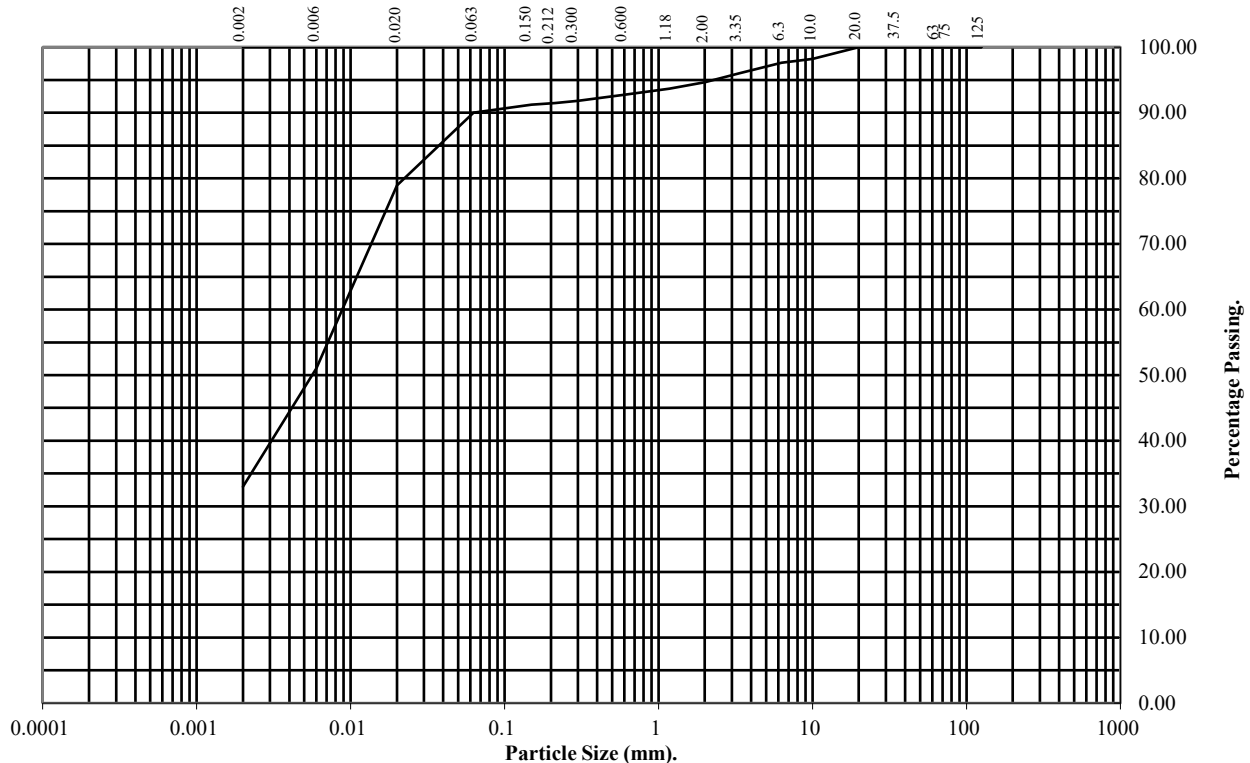
BS1377 : Part 2 : 1990

Wet Sieve & Pipette Analysis, Clause 9.2 & 9.4

Hole Number: HBW-WS101 Top Depth (m): 5.40

Sample Number: Base Depth(m): 6.00

Sample Type: B

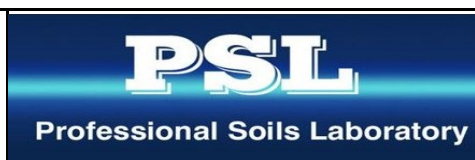


BS Test Sieve (mm)	Percentage Passing
125	100
75	100
63	100
37.5	100
20	100
10	98
6.3	98
3.35	96
2	95
1.18	94
0.6	93
0.3	92
0.212	92
0.15	91
0.063	90

Particle Diameter	Percentage Passing
0.02	79
0.006	51
0.002	33

Soil Fraction	Total Percentage
Cobbles	0
Gravel	5
Sand	5
Silt	57
Clay	33

Remarks:
See Summary of Soil Descriptions



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PARTICLE SIZE DISTRIBUTION TEST

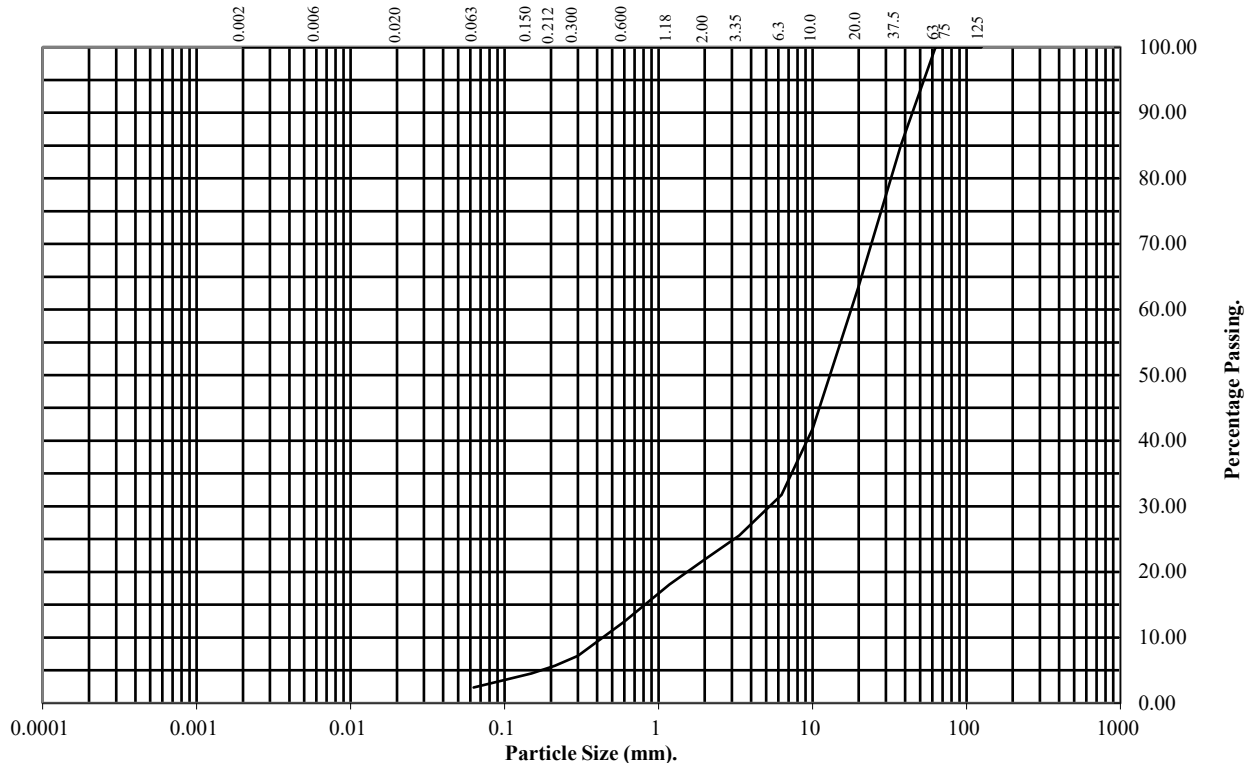
BS1377 : Part 2 : 1990

Wet Sieve, Clause 9.2

Hole Number: HBW-WS102 Top Depth (m): 0.80

Sample Number: Base Depth(m): 1.20

Sample Type: B



BS Test Sieve (mm)	Percentage Passing
125	100
75	100
63	100
37.5	85
20	64
10	42
6.3	32
3.35	26
2	22
1.18	18
0.6	12
0.3	7
0.212	6
0.15	5
0.063	2

Soil Fraction	Total Percentage
Cobbles	0
Gravel	78
Sand	20
Silt/Clay	2

Remarks:

See Summary of Soil Descriptions



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PARTICLE SIZE DISTRIBUTION TEST

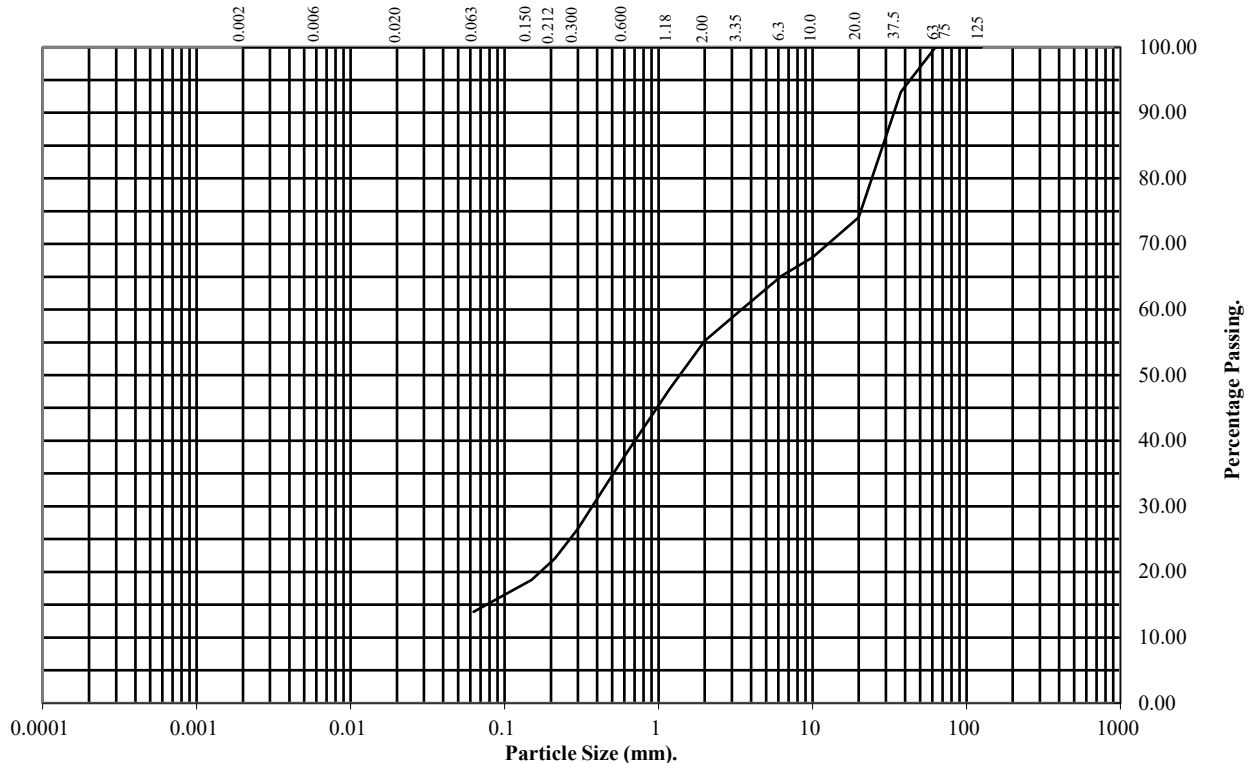
BS1377 : Part 2 : 1990

Wet Sieve, Clause 9.2

Hole Number: HBW-WS102 Top Depth (m): 2.00

Sample Number: Base Depth(m): 3.00

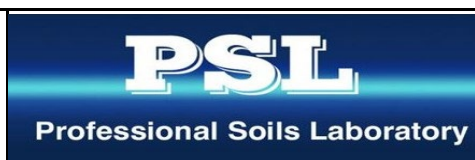
Sample Type: B



BS Test Sieve (mm)	Percentage Passing
125	100
75	100
63	100
37.5	93
20	74
10	68
6.3	65
3.35	60
2	55
1.18	48
0.6	38
0.3	27
0.212	22
0.15	19
0.063	14

Soil Fraction	Total Percentage
Cobbles	0
Gravel	45
Sand	41
Silt/Clay	14

Remarks:
See Summary of Soil Descriptions



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PARTICLE SIZE DISTRIBUTION TEST

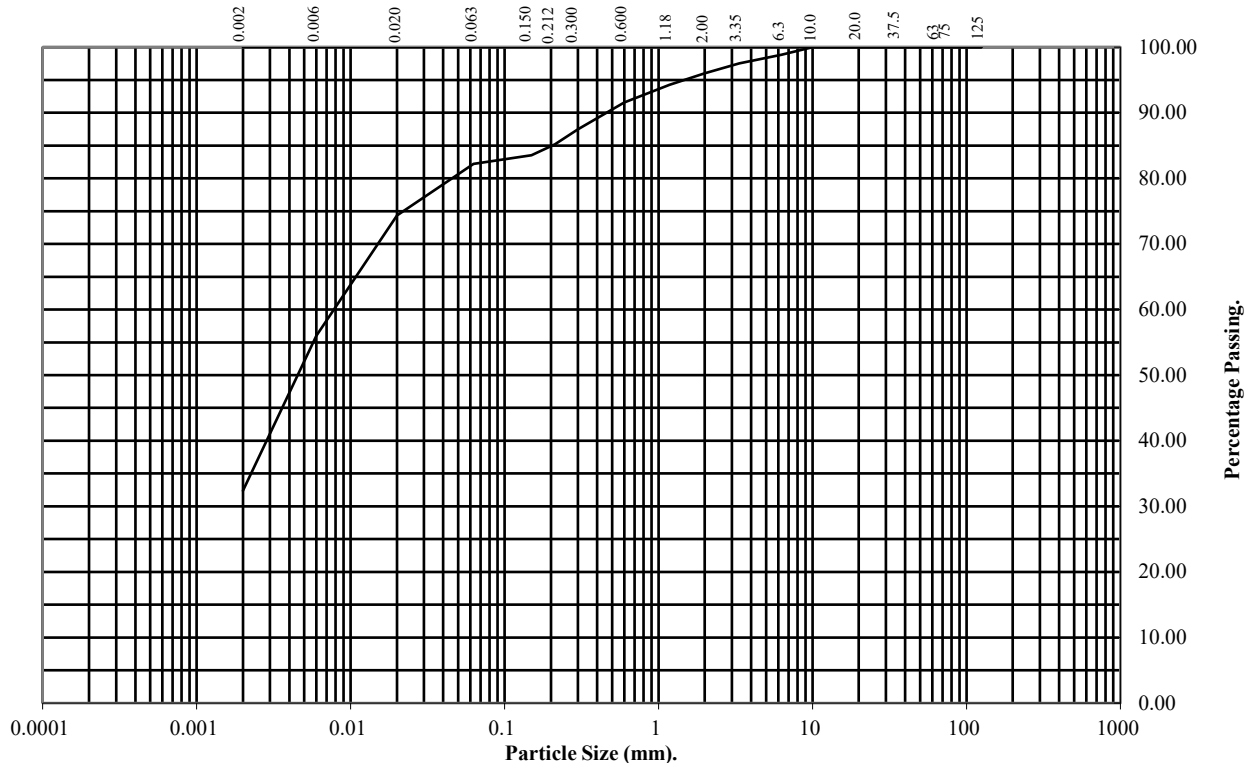
BS1377 : Part 2 : 1990

Wet Sieve & Pipette Analysis, Clause 9.2 & 9.4

Hole Number: HBW-WS102 Top Depth (m): 4.00

Sample Number: Base Depth(m): 5.00

Sample Type: B



BS Test Sieve (mm)	Percentage Passing
125	100
75	100
63	100
37.5	100
20	100
10	100
6.3	99
3.35	98
2	96
1.18	94
0.6	92
0.3	87
0.212	85
0.15	84
0.063	82

Particle Diameter	Percentage Passing
0.02	74
0.006	56
0.002	32

Soil Fraction	Total Percentage
Cobbles	0
Gravel	4
Sand	14
Silt	50
Clay	32

Remarks:

See Summary of Soil Descriptions



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PARTICLE SIZE DISTRIBUTION TEST

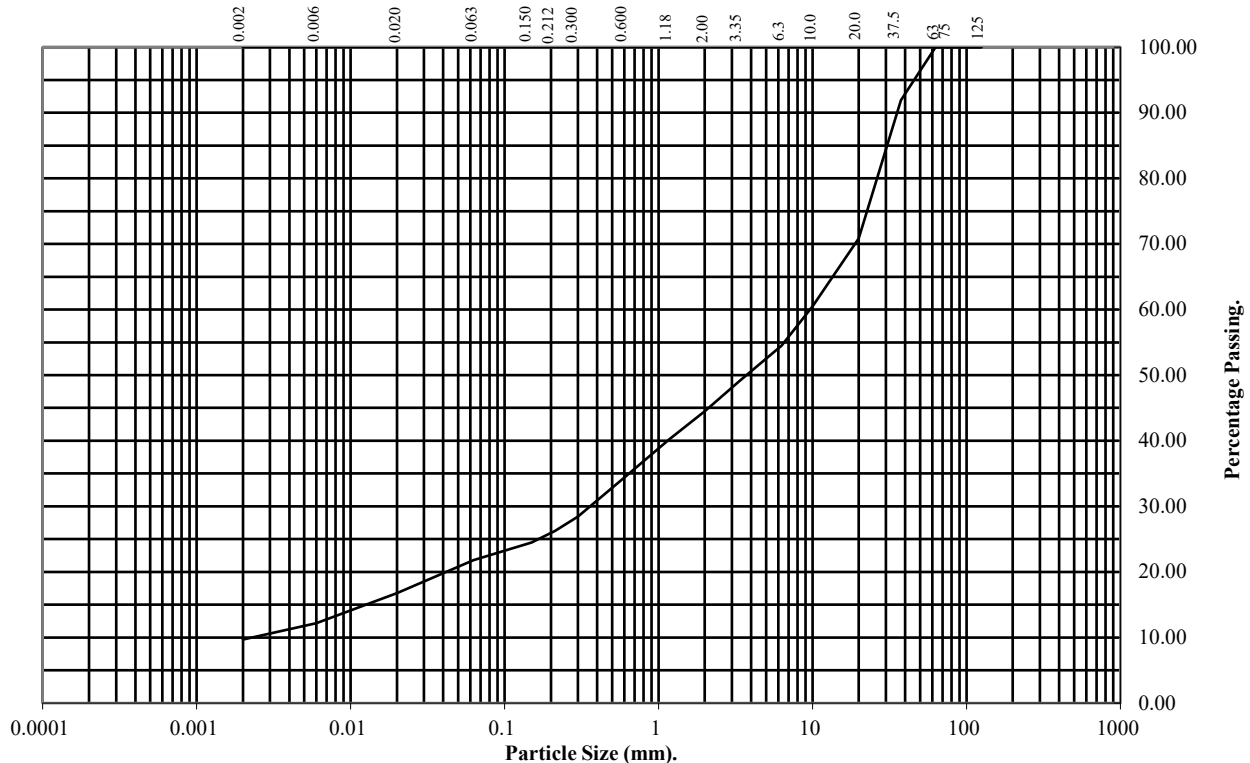
BS1377 : Part 2 : 1990

Wet Sieve & Pipette Analysis, Clause 9.2 & 9.4

Hole Number: HBW-WS103 Top Depth (m): 0.55

Sample Number: Base Depth(m): 1.20

Sample Type: B

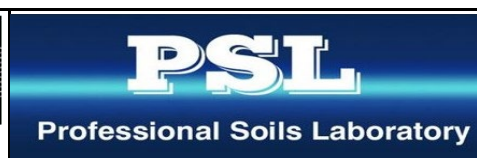


BS Test Sieve (mm)	Percentage Passing
125	100
75	100
63	100
37.5	92
20	71
10	60
6.3	54
3.35	49
2	44
1.18	40
0.6	34
0.3	28
0.212	26
0.15	25
0.063	22

Particle Diameter	Percentage Passing
0.02	17
0.006	12
0.002	10

Soil Fraction	Total Percentage
Cobbles	0
Gravel	56
Sand	22
Silt	12
Clay	10

Remarks:
See Summary of Soil Descriptions



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PARTICLE SIZE DISTRIBUTION TEST

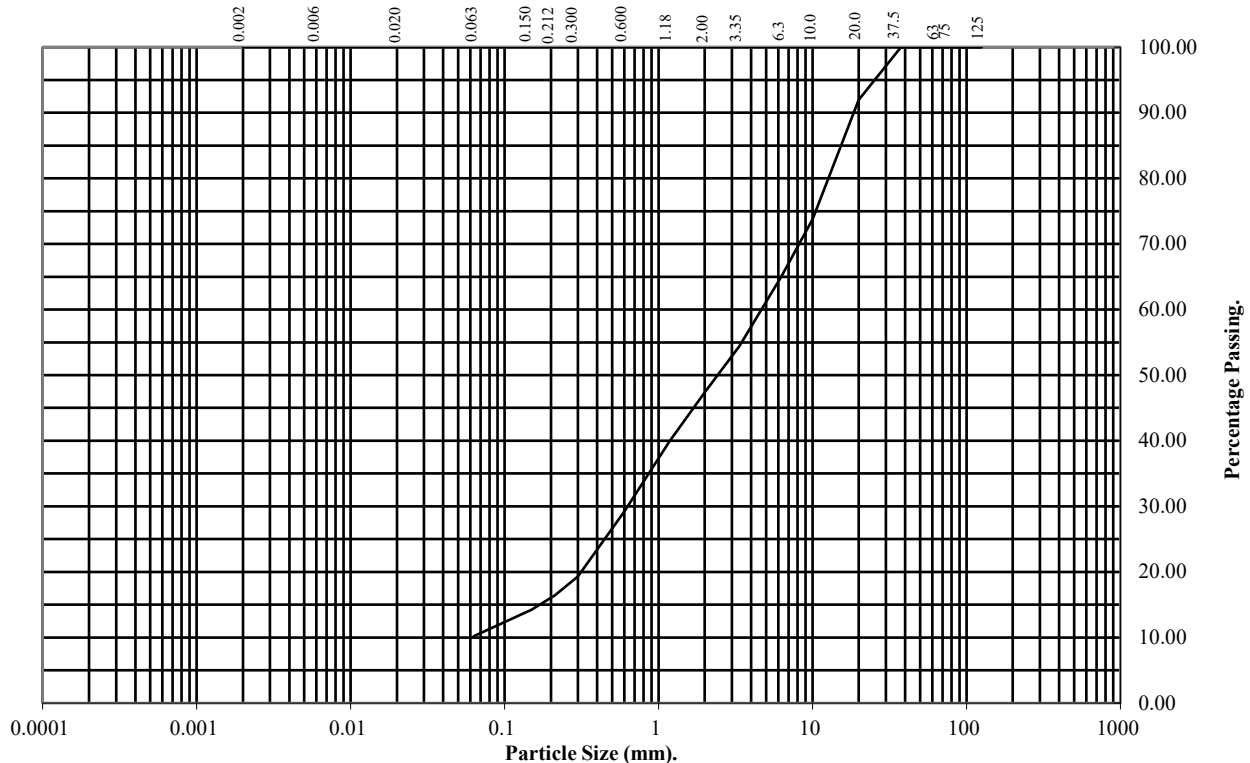
BS1377 : Part 2 : 1990

Wet Sieve, Clause 9.2

Hole Number: HBW-WS103 Top Depth (m): 3.00

Sample Number: Base Depth(m): 4.00

Sample Type: B



BS Test Sieve (mm)	Percentage Passing
125	100
75	100
63	100
37.5	100
20	92
10	74
6.3	65
3.35	54
2	47
1.18	40
0.6	29
0.3	19
0.212	16
0.15	14
0.063	10

Soil Fraction	Total Percentage
Cobbles	0
Gravel	53
Sand	37
Silt/Clay	10

Remarks:

See Summary of Soil Descriptions



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PARTICLE SIZE DISTRIBUTION TEST

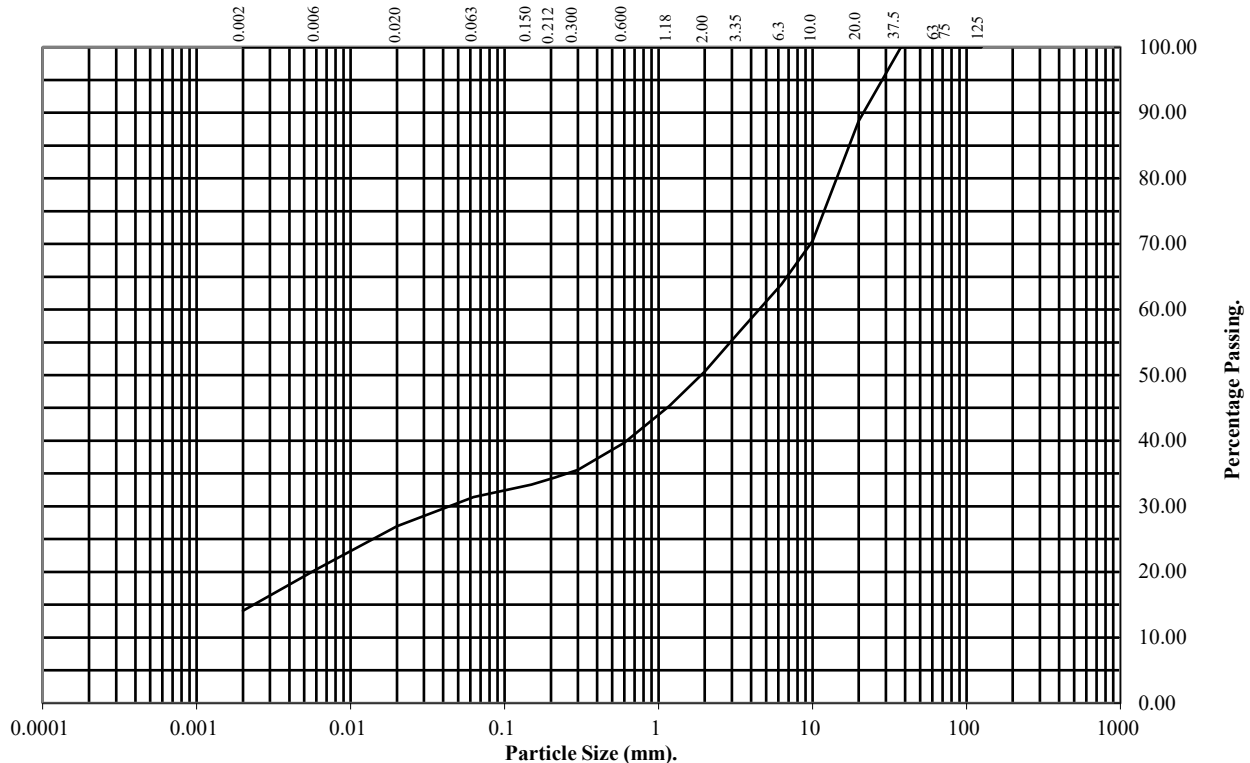
BS1377 : Part 2 : 1990

Wet Sieve & Pipette Analysis, Clause 9.2 & 9.4

Hole Number: HBW-WS104 Top Depth (m): 1.00

Sample Number: Base Depth(m): 1.80

Sample Type: B

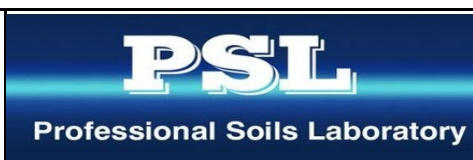


BS Test Sieve (mm)	Percentage Passing
125	100
75	100
63	100
37.5	100
20	89
10	70
6.3	64
3.35	57
2	51
1.18	45
0.6	40
0.3	36
0.212	34
0.15	33
0.063	31

Particle Diameter	Percentage Passing
0.02	27
0.006	20
0.002	14

Soil Fraction	Total Percentage
Cobbles	0
Gravel	49
Sand	20
Silt	17
Clay	14

Remarks:
See Summary of Soil Descriptions



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PARTICLE SIZE DISTRIBUTION TEST

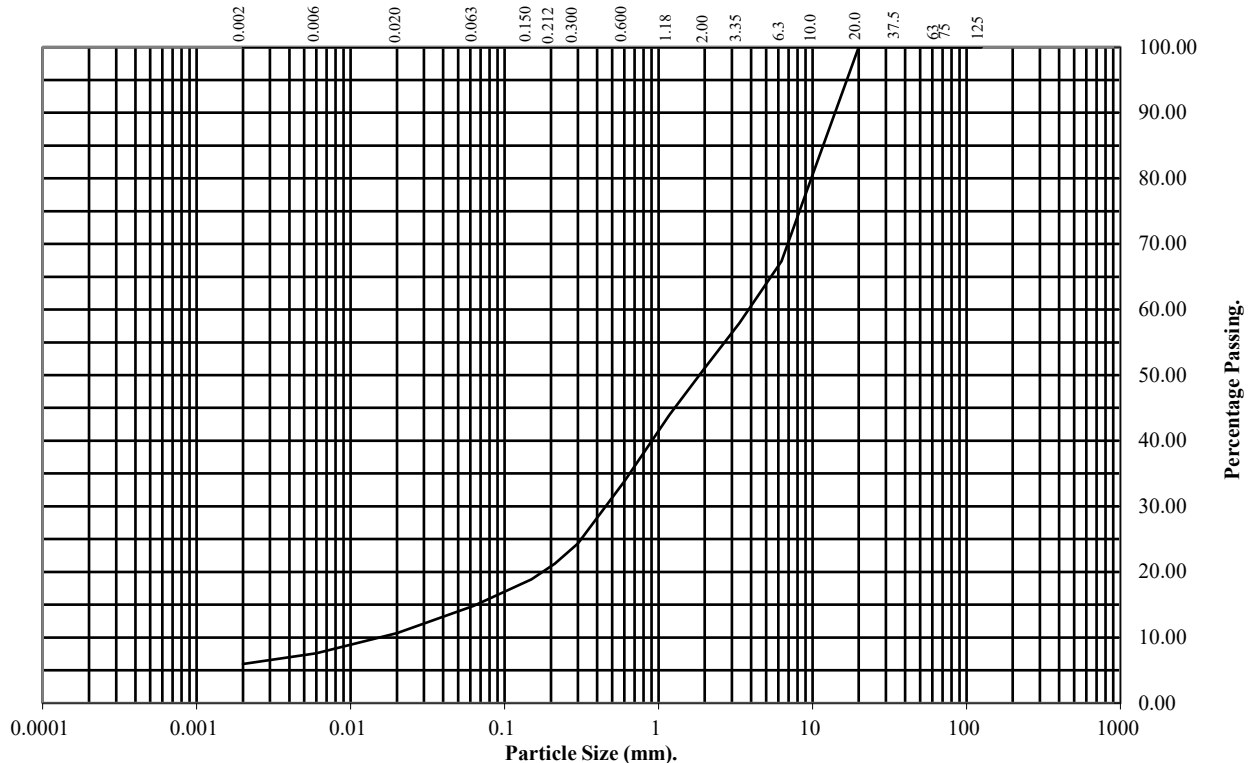
BS1377 : Part 2 : 1990

Wet Sieve & Pipette Analysis, Clause 9.2 & 9.4

Hole Number: HBW-WS104 Top Depth (m): 2.80

Sample Number: Base Depth(m): 3.00

Sample Type: D

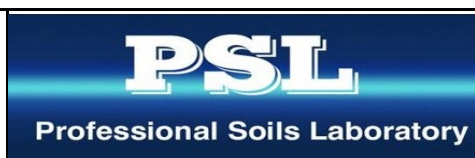


BS Test Sieve (mm)	Percentage Passing
125	100
75	100
63	100
37.5	100
20	100
10	81
6.3	67
3.35	58
2	51
1.18	44
0.6	34
0.3	24
0.212	21
0.15	19
0.063	15

Particle Diameter	Percentage Passing
0.02	11
0.006	8
0.002	6

Soil Fraction	Total Percentage
Cobbles	0
Gravel	49
Sand	36
Silt	9
Clay	6

Remarks:
See Summary of Soil Descriptions



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PARTICLE SIZE DISTRIBUTION TEST

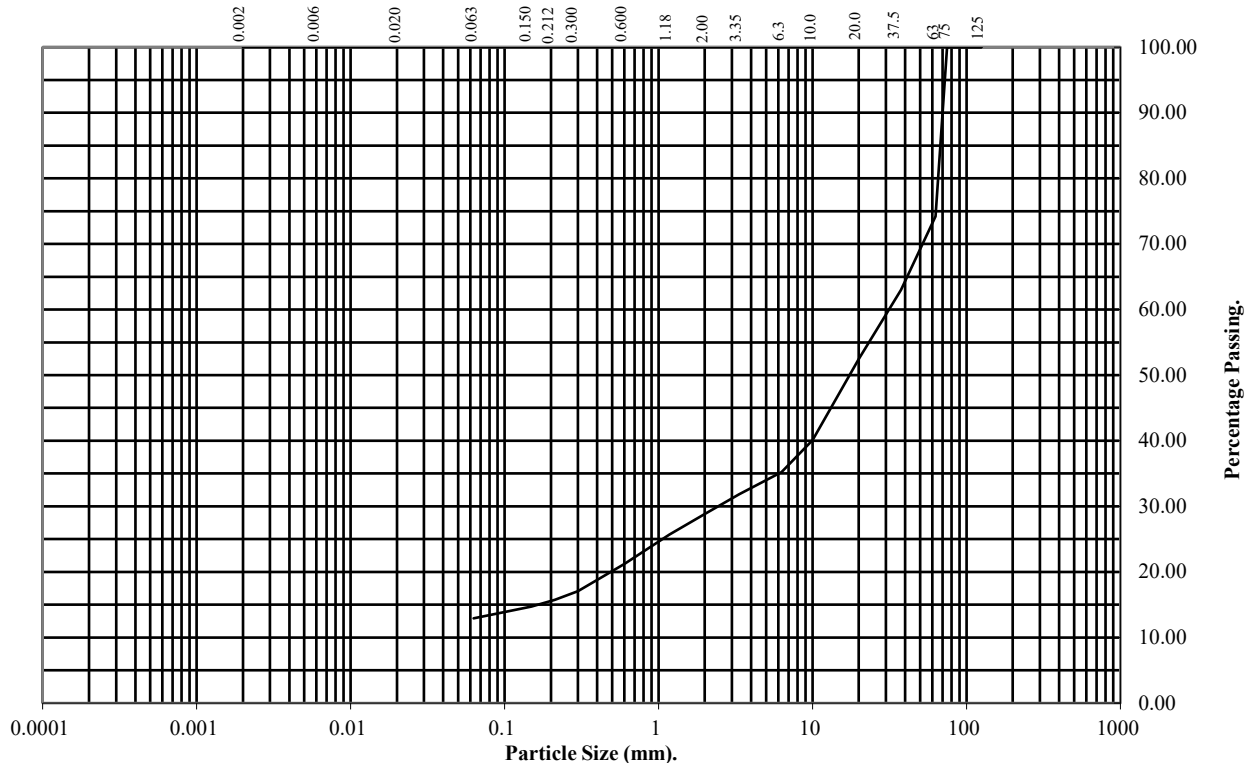
BS1377 : Part 2 : 1990

Wet Sieve, Clause 9.2

Hole Number: HBW-WS105 Top Depth (m): 0.50

Sample Number: Base Depth(m): 1.20

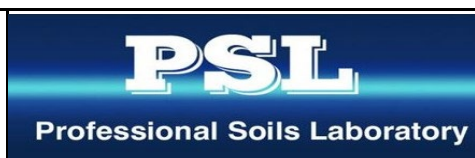
Sample Type: B



BS Test Sieve (mm)	Percentage Passing
125	100
75	100
63	74
37.5	63
20	52
10	40
6.3	35
3.35	32
2	29
1.18	26
0.6	21
0.3	17
0.212	16
0.15	15
0.063	13

Soil Fraction	Total Percentage
Cobbles	26
Gravel	45
Sand	16
Silt/Clay	13

Remarks:
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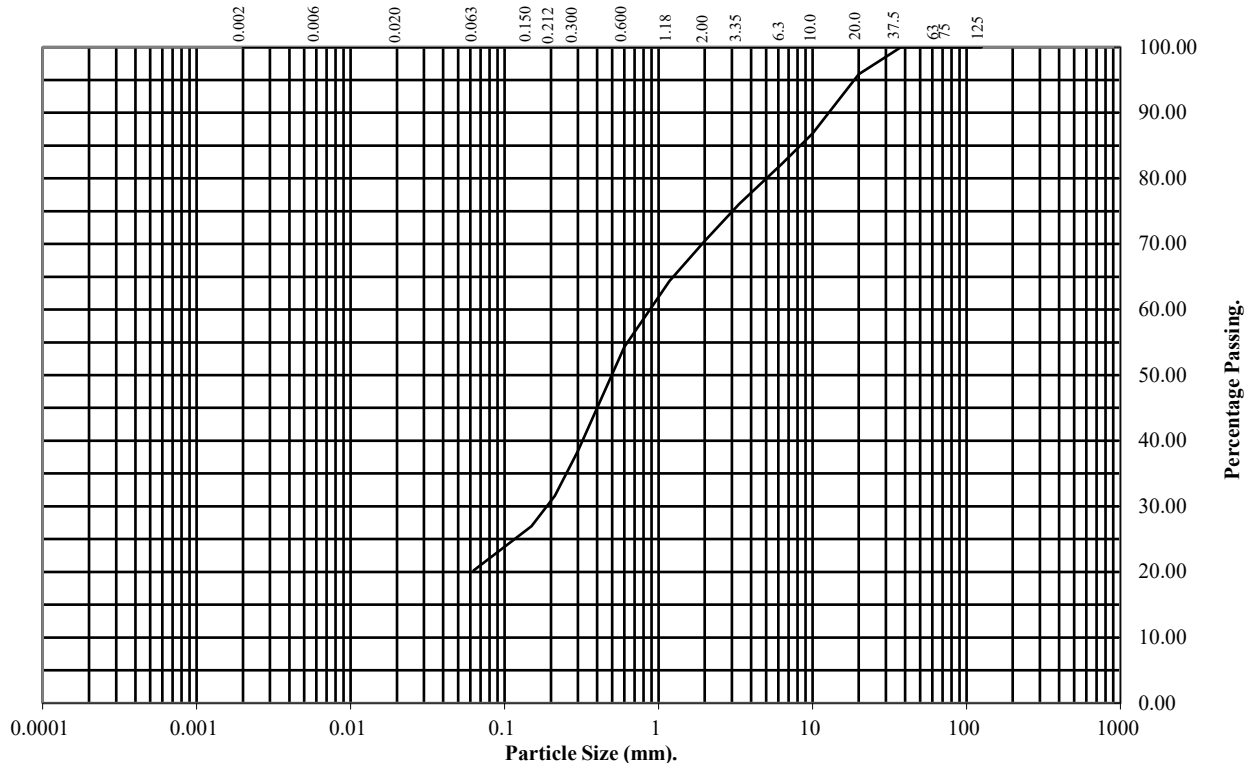
BS1377 : Part 2 : 1990

Wet Sieve, Clause 9.2

Hole Number: HBW-WS105 Top Depth (m): 3.00

Sample Number: Base Depth(m): 4.00

Sample Type: B



BS Test Sieve (mm)	Percentage Passing
125	100
75	100
63	100
37.5	100
20	96
10	87
6.3	82
3.35	76
2	70
1.18	64
0.6	54
0.3	38
0.212	32
0.15	27
0.063	20

Soil Fraction	Total Percentage
Cobbles	0
Gravel	30
Sand	50
Silt/Clay	20

Remarks:

See Summary of Soil Descriptions



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UNDRAINED SHEAR STRENGTH IN TRIAXIAL COMPRESSION

WITHOUT MEASUREMENT OF PORE PRESSURE

BS1377 : Part7 : 1990: Clause 8

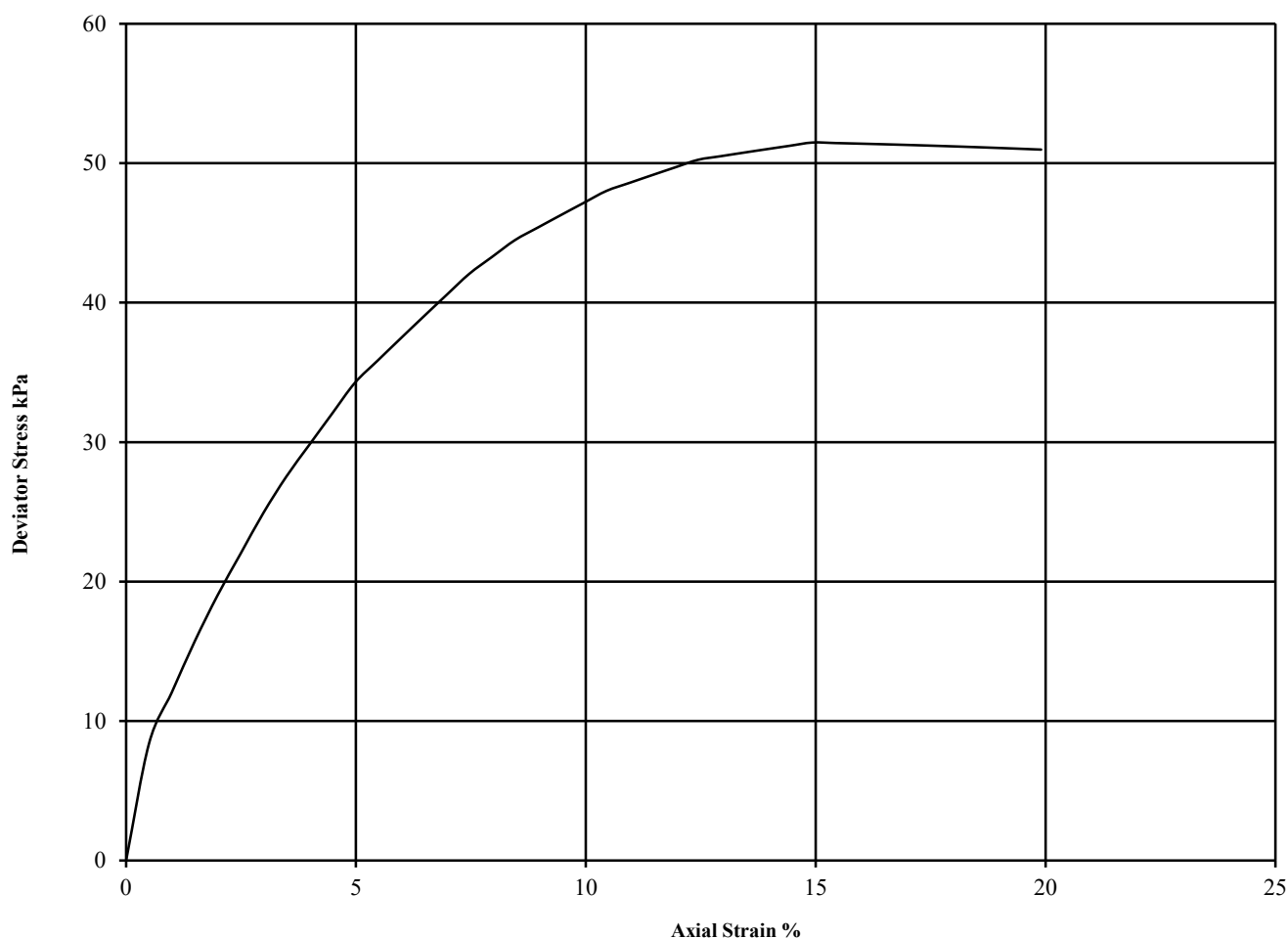
Hole Number: HBW-BH101

Top Depth (m): 3.00

Sample Number:

Base Depth (m): 3.45

Sample Type UT



Diameter (mm):		103	Height (mm):		207	Test:	UU Single Stage		Remarks:
Specimen	Moisture Content (%)	Bulk Density (Mg/m3)	Dry Density (Mg/m3)	Cell Pressure (kPa)	Corr. Max. Deviator Stress (kPa)	Shear Strength Cu (kPa)	Failure Strain (%)	Mode of Failure	Undisturbed Sample Sample taken from top of tube Rate of strain = 2 %/min Latex Membrane used 0.2 mm thick, Correction applied 0.34 See summary of soil descriptions
				θ_3	$(\theta_1 - \theta_3)_f$	$\frac{1}{2}(\theta_1 - \theta_3)_f$			
1	29	1.96	1.51	60	51	26	14.9	Plastic	



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Client Ref:

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UNDRAINED SHEAR STRENGTH IN TRIAXIAL COMPRESSION

WITHOUT MEASUREMENT OF PORE PRESSURE

BS1377 : Part7 : 1990: Clause 8

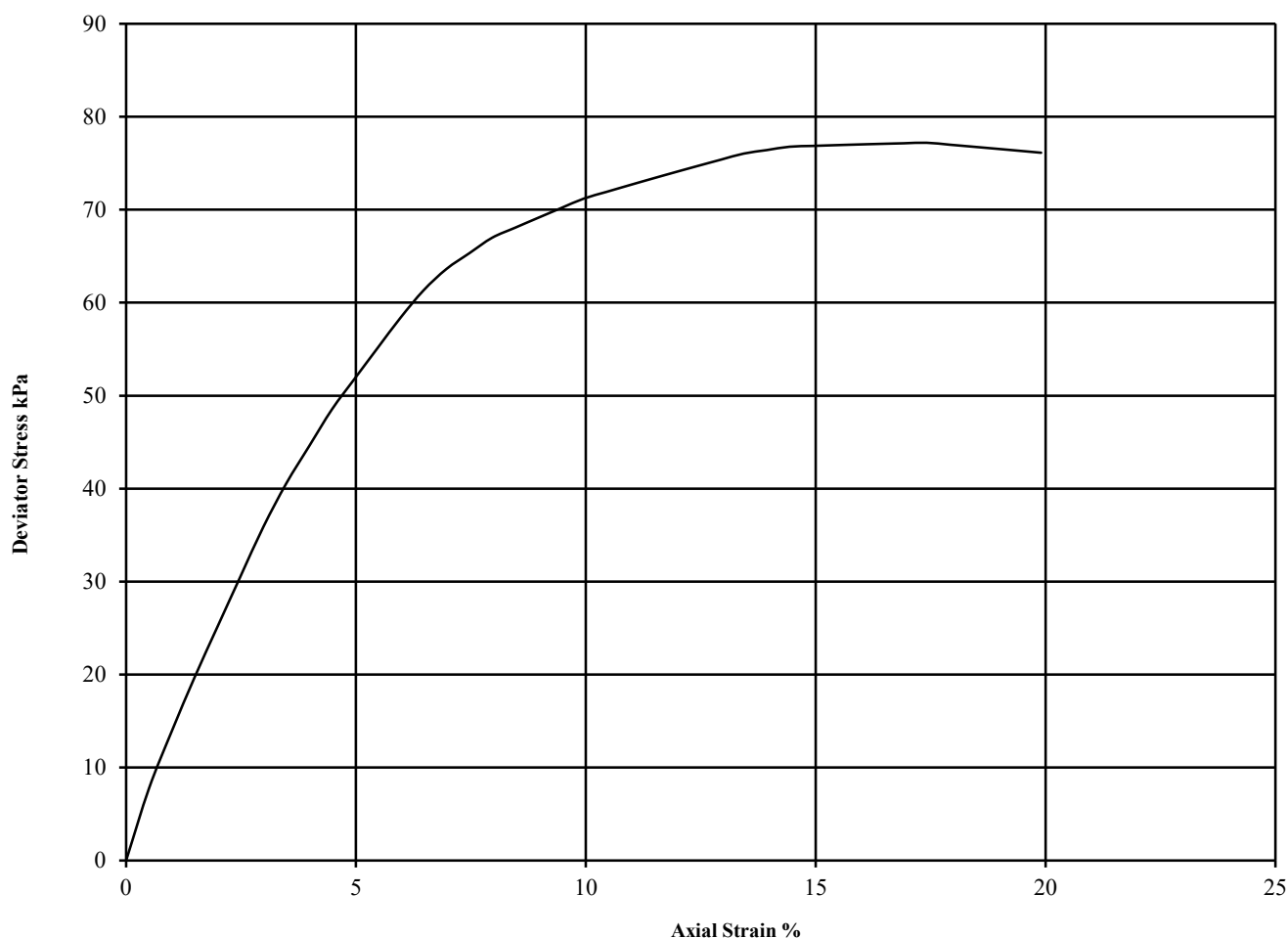
Hole Number: HBW-BH101

Top Depth (m): 11.00

Sample Number:

Base Depth (m): 11.45

Sample Type UT



Diameter (mm):		103	Height (mm):		207	Test:	UU Single Stage		Remarks:
Specimen	Moisture Content (%)	Bulk Density (Mg/m ³)	Dry Density (Mg/m ³)	Cell Pressure (kPa)	Corr. Max. Deviator Stress (kPa)	Shear Strength Cu (kPa)	Failure Strain (%)	Mode of Failure	Undisturbed Sample Sample taken from top of tube Rate of strain = 2 %/min Latex Membrane used 0.2 mm thick, Correction applied 0.34 See summary of soil descriptions
				θ_3	$(\theta_1 - \theta_3)_f$	$\frac{1}{2}(\theta_1 - \theta_3)_f$			
1	20	1.94	1.62	220	77	39	17.4	Plastic	



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UNDRAINED SHEAR STRENGTH IN TRIAXIAL COMPRESSION

WITHOUT MEASUREMENT OF PORE PRESSURE

BS1377 : Part7 : 1990: Clause 8

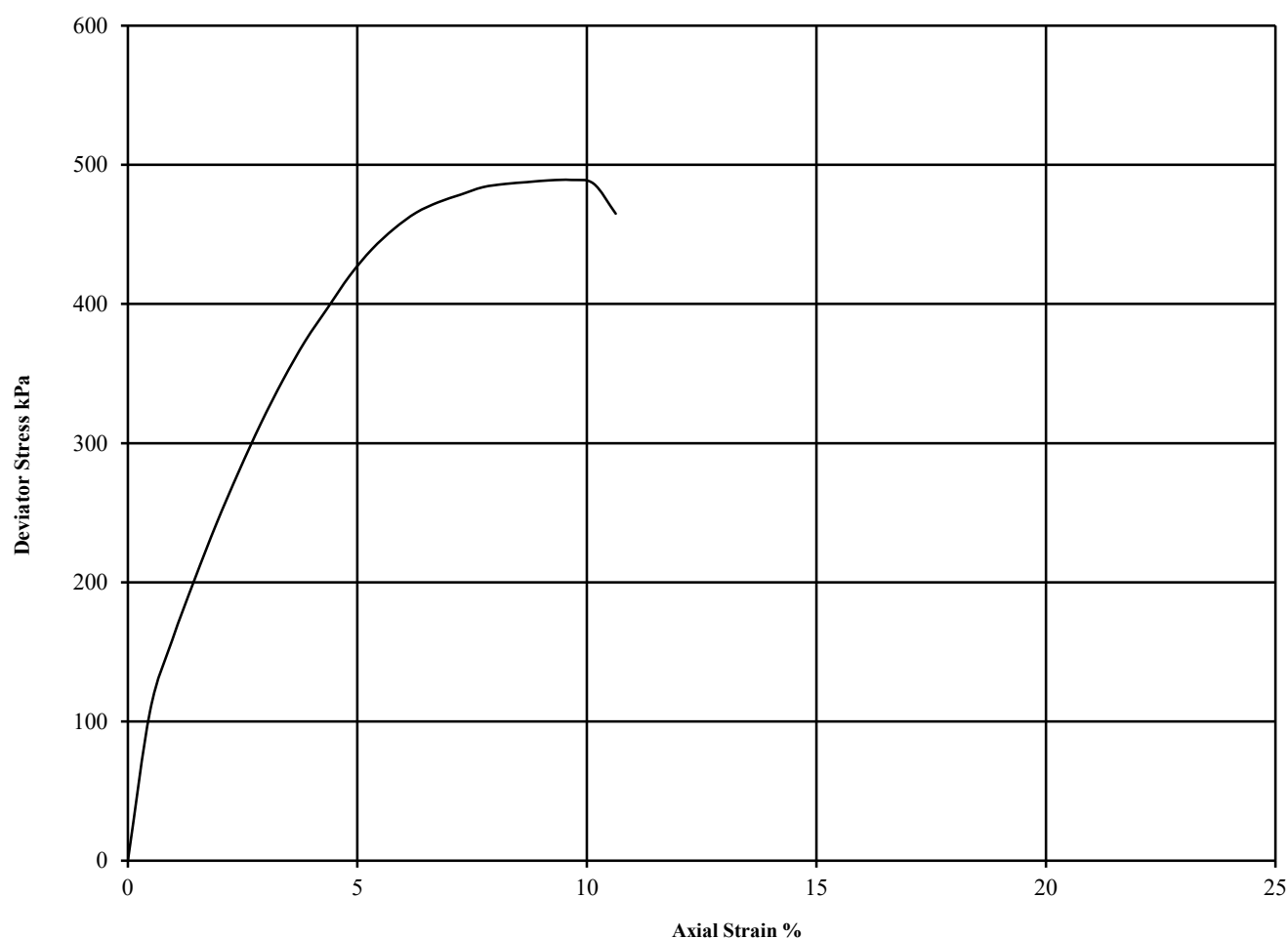
Hole Number: HBW-BH101

Top Depth (m): 24.00

Sample Number:

Base Depth (m): 24.45

Sample Type UT



Diameter (mm):		100	Height (mm):		207	Test:	UU Single Stage		Remarks:
Specimen	Moisture Content (%)	Bulk Density (Mg/m ³)	Dry Density (Mg/m ³)	Cell Pressure (kPa)	Corr. Max. Deviator Stress (kPa)	Shear Strength Cu (kPa)	Failure Strain (%)	Mode of Failure	Undisturbed Sample Sample taken from top of tube Rate of strain = 2 %/min Latex Membrane used 0.2 mm thick, Correction applied 0.36 See summary of soil descriptions
				θ_3	$(\theta_1 - \theta_3)_f$	$\frac{1}{2}(\theta_1 - \theta_3)_f$			
1	10	2.14	1.94	480	489	245	9.7	Brittle	



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UNDRAINED SHEAR STRENGTH IN TRIAXIAL COMPRESSION

WITHOUT MEASUREMENT OF PORE PRESSURE

BS1377 : Part7 : 1990: Clause 8

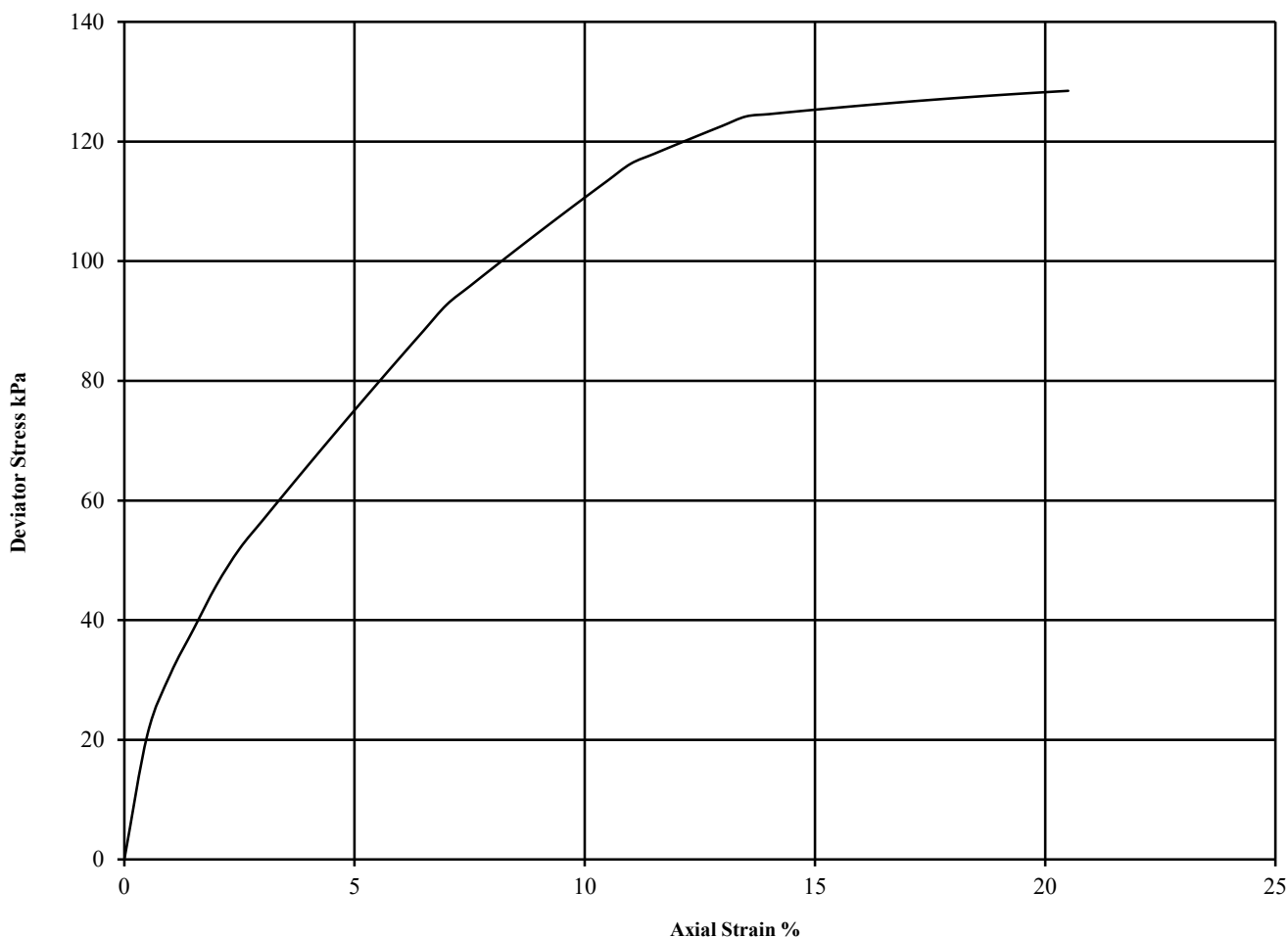
Hole Number: HBW-BH102

Top Depth (m): 8.00

Sample Number:

Base Depth (m): 8.45

Sample Type UT



Diameter (mm):		38		Height (mm):		76	Test:	UU Single Stage		Remarks:
Specimen	Moisture Content (%)	Bulk Density (Mg/m3)	Dry Density (Mg/m3)	Cell Pressure (kPa)	Corr. Max. Deviator Stress (kPa)	Shear Strength Cu (kPa)	Failure Strain (%)	Mode of Failure	Undisturbed Sample Sample taken from top of tube Rate of strain = 2 %/min Latex Membrane used 0.2 mm thick, Correction applied 0.68 38mm due to insufficient material	
				θ_3	$(\theta_1 - \theta_3)_f$	$\frac{1}{2}(\theta_1 - \theta_3)_f$				
1	24	2.07	1.66	160	128	64	20.5	Plastic		



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UNDRAINED SHEAR STRENGTH IN TRIAXIAL COMPRESSION

WITHOUT MEASUREMENT OF PORE PRESSURE

BS1377 : Part7 : 1990: Clause 8

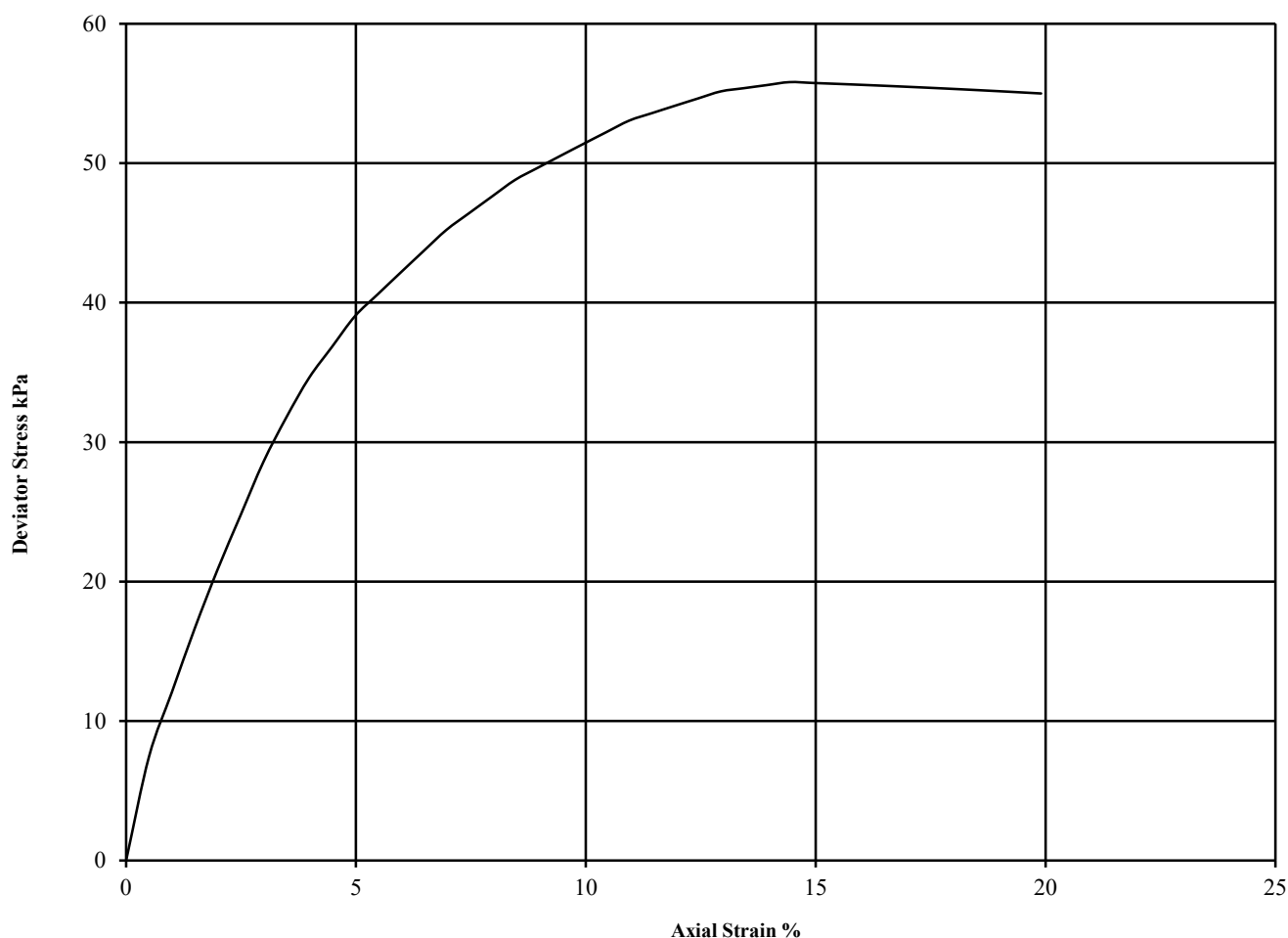
Hole Number: HBW-BH103

Top Depth (m): 9.50

Sample Number:

Base Depth (m): 9.95

Sample Type UT



Diameter (mm):		103		Height (mm):		207	Test:	UU Single Stage		Remarks:
Specimen	Moisture Content (%)	Bulk Density (Mg/m ³)	Dry Density (Mg/m ³)	Cell Pressure (kPa)	Corr. Max. Deviator Stress (kPa)	Shear Strength Cu (kPa)	Failure Strain (%)	Mode of Failure	Undisturbed Sample Sample taken from top of tube Rate of strain = 2 %/min Latex Membrane used 0.2 mm thick, Correction applied 0.34 See summary of soil descriptions	
				θ_3	$(\theta_1 - \theta_3)_f$	$\frac{1}{2}(\theta_1 - \theta_3)_f$				
1	32	1.92	1.46	200	56	28	14.4	Plastic		



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WITHOUT MEASUREMENT OF PORE PRESSURE

BS1377 : Part7 : 1990: Clause 8

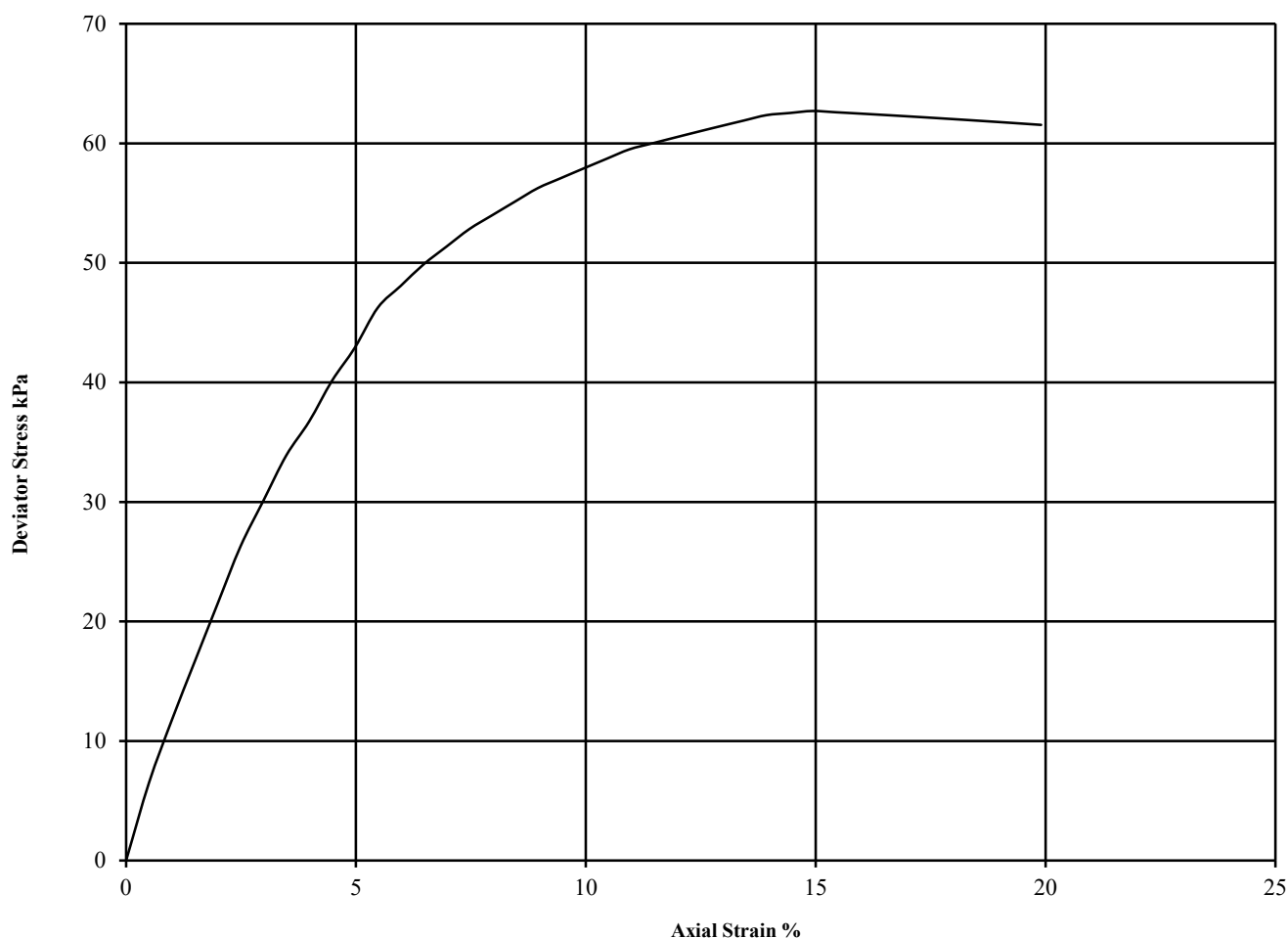
Hole Number: HBW-BH103

Top Depth (m): 15.50

Sample Number:

Base Depth (m): 15.95

Sample Type UT



Diameter (mm):		103	Height (mm):		207	Test:	UU Single Stage		Remarks:
Specimen	Moisture Content (%)	Bulk Density (Mg/m ³)	Dry Density (Mg/m ³)	Cell Pressure (kPa)	Corr. Max. Deviator Stress (kPa)	Shear Strength Cu (kPa)	Failure Strain (%)	Mode of Failure	Undisturbed Sample Sample taken from top of tube Rate of strain = 2 %/min Latex Membrane used 0.2 mm thick, Correction applied 0.34 See summary of soil descriptions
				θ_3	$(\theta_1 - \theta_3)_f$	$\frac{1}{2}(\theta_1 - \theta_3)_f$			
1	28	1.98	1.55	300	63	31	14.9	Plastic	



4043

PSL

Professional Soils Laboratory

Kronospan High Bay Warehouse

Contract No:

PSL21/3246

Client Ref:

PN214198

UNDRAINED SHEAR STRENGTH IN TRIAXIAL COMPRESSION

WITHOUT MEASUREMENT OF PORE PRESSURE

BS1377 : Part7 : 1990: Clause 8

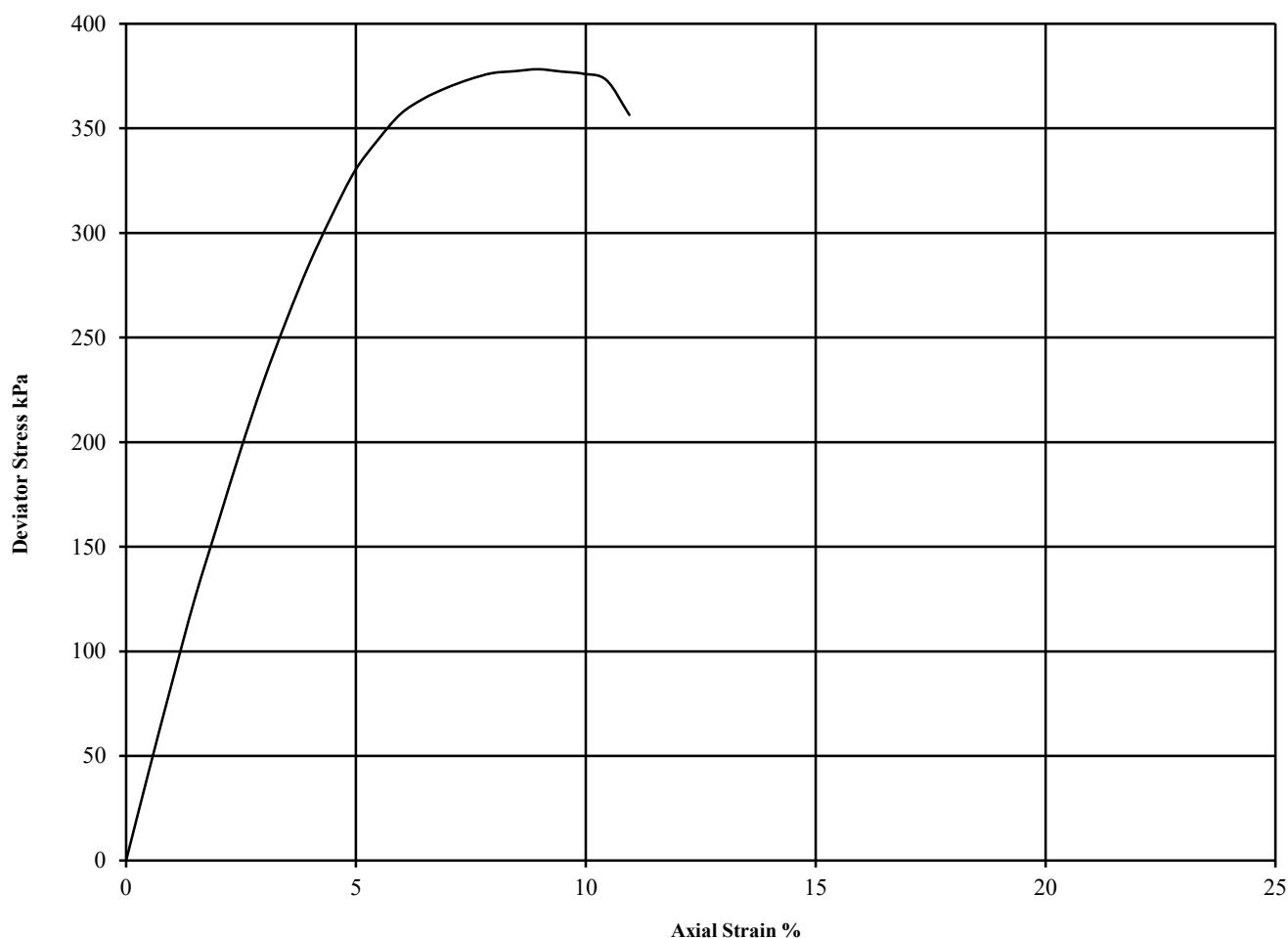
Hole Number: HBW-BH103

Top Depth (m): 21.50

Sample Number:

Base Depth (m): 21.95

Sample Type UT



Diameter (mm):		103	Height (mm):		207	Test:	UU Single Stage		Remarks:
Specimen	Moisture Content (%)	Bulk Density (Mg/m3)	Dry Density (Mg/m3)	Cell Pressure (kPa)	Corr. Max. Deviator Stress (kPa)	Shear Strength Cu (kPa)	Failure Strain (%)	Mode of Failure	Undisturbed Sample Sample taken from top of tube Rate of strain = 2 %/min Latex Membrane used 0.2 mm thick, Correction applied 0.35 See summary of soil descriptions
				θ_3	$(\theta_1 - \theta_3)_f$	$\frac{1}{2}(\theta_1 - \theta_3)_f$			
1	19	2.09	1.76	430	378	189	9.0	Brittle	



4043

PSL
Professional Soils Laboratory

Kronospan High Bay Warehouse

Contract No:

PSL21/3246

Client Ref:

PN214198



DETS

Certificate of Analysis

Certificate Number 21-09439

Issued: 13-May-21

Client Professional Soils Laboratory Ltd
5/7 Hexthorpe Road
Hexthorpe
DN4 0AR

Our Reference 21-09439

Client Reference PSL21/3246

Order No (not supplied)

Contract Title High Bay Warehouse

Description 19 Soil samples.

Date Received 06-May-21

Date Started 06-May-21

Date Completed 13-May-21

Test Procedures Identified by prefix DETSn (details on request).

Notes Opinions and interpretations are outside the laboratory's scope of ISO 17025 accreditation. This certificate is issued in accordance with the accreditation requirements of the United Kingdom Accreditation Service. The results reported herein relate only to the material supplied to the laboratory. This certificate shall not be reproduced except in full, without the prior written approval of the laboratory.

Approved By



Adam Fenwick
Contracts Manager



Summary of Chemical Analysis Soil Samples

Our Ref 21-09439

Client Ref PSL21/3246

Contract Title High Bay Warehouse

Lab No	1842775	1842776	1842777	1842778	1842779	1842780	1842781	1842782	1842783	1842784
Sample ID	BH101	BH101	BH101	BH101	BH101	BH101	BH102	BH102	BH102	BH103
Depth	0.50	3.00-3.45	4.00-4.45	11.00-11.45	24.00-24.45	33.00-33.45	2.00-2.45	3.00-3.45	13.50-13.95	0.50
Other ID										
Sample Type	ES	UT	B	UT	UT	B	B	UT	B	B
Sampling Date	31/03/2021	31/03/2021	31/03/2021	31/03/2021	31/03/2021	31/03/2021	12/04/2021	12/04/2021	12/04/2021	24/03/2021
Sampling Time	n/s	n/s	n/s	n/s	n/s	n/s	n/s	n/s	n/s	n/s

Test	Method	LOD	Units										
Metals													
Magnesium Aqueous Extract	DETSC 2076*	10	mg/l	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10
Inorganics													
pH	DETSC 2008#		pH	8.6	7.8	8.6	8.2	8.6	8.0	7.7	8.0	8.4	8.0
Chloride Aqueous Extract	DETSC 2055	1	mg/l	14	26	2.9	2.8	9.1	8.1	2.3	3.6	3.3	4.5
Nitrate Aqueous Extract as NO3	DETSC 2055	1	mg/l	19	< 1.0	1.1	< 1.0	3.9	< 1.0	< 1.0	< 1.0	< 1.0	2.1
Sulphate Aqueous Extract as SO4	DETSC 2076#	10	mg/l	31	57	19	100	43	21	20	12	29	13
Sulphur as S, Total	DETSC 2320	0.01	%	0.02	0.09	< 0.01	0.24	0.05	0.18	0.01	< 0.01	0.17	0.01
Sulphate as SO4, Total	DETSC 2321#	0.01	%	0.05	0.04	0.02	0.08	0.04	0.05	0.03	0.02	0.04	0.03

Summary of Chemical Analysis Soil Samples

Our Ref 21-09439

Client Ref PSL21/3246

Contract Title High Bay Warehouse

Lab No	1842785	1842786	1842787	1842788	1842789	1842790	1842791	1842792	1842793
Sample ID	BH103	BH103	BH103	BH103	BH103	WS101	WS102	WS102	WS105
Depth	3.00-3.45	5.00-5.45	9.50-9.95	20.00-20.45	29.00-29.45	0.55-1.20	0.80-1.20	4.00-5.00	0.50-1.20
Other ID									
Sample Type	B	B	UT	B	B	B	B	B	B
Sampling Date	24/03/2021	24/03/2021	24/03/2021	24/03/2021	24/03/2021	26/03/2021	26/03/2021	26/03/2021	25/03/2021
Sampling Time	n/s	n/s	n/s	n/s	n/s	n/s	n/s	n/s	n/s

Test	Method	LOD	Units									
Metals												
Magnesium Aqueous Extract	DETSC 2076*	10	mg/l	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10
Inorganics												
pH	DETSC 2008#		pH	7.8	7.8	8.2	8.3	8.3	7.4	8.0	7.9	7.5
Chloride Aqueous Extract	DETSC 2055	1	mg/l	2.1	4.6	6.6	4.8	3.6	7.0	7.5	9.2	35
Nitrate Aqueous Extract as NO3	DETSC 2055	1	mg/l	3.5	< 1.0	< 1.0	< 1.0	< 1.0	4.2	< 1.0	< 1.0	1.4
Sulphate Aqueous Extract as SO4	DETSC 2076#	10	mg/l	< 10	17	94	35	26	32	29	94	42
Sulphur as S, Total	DETSC 2320	0.01	%	< 0.01	0.02	0.21	0.09	0.07	0.01	0.01	0.18	0.02
Sulphate as SO4, Total	DETSC 2321#	0.01	%	0.02	0.02	0.06	0.04	0.03	0.02	0.02	0.06	0.04

Information in Support of the Analytical Results

Our Ref 21-09439
 Client Ref PSL21/3246
 Contract High Bay Warehouse

Containers Received & Deviating Samples

Lab No	Sample ID	Date Sampled	Containers Received	Holding time exceeded for tests	Inappropriate container for tests
1842775	BH101 0.50 SOIL	31/03/21	PT 1L	Anions 2:1 (30 days), Total Sulphur ICP (7 days), Total Sulphate ICP (30 days), pH + Conductivity (7 days)	
1842776	BH101 3.00-3.45 SOIL	31/03/21	PT 500ml	Anions 2:1 (30 days), Total Sulphur ICP (7 days), Total Sulphate ICP (30 days), pH + Conductivity (7 days)	
1842777	BH101 4.00-4.45 SOIL	31/03/21	PT 500ml	Anions 2:1 (30 days), Total Sulphur ICP (7 days), Total Sulphate ICP (30 days), pH + Conductivity (7 days)	
1842778	BH101 11.00-11.45 SOIL	31/03/21	PT 500ml	Anions 2:1 (30 days), Total Sulphur ICP (7 days), Total Sulphate ICP (30 days), pH + Conductivity (7 days)	
1842779	BH101 24.00-24.45 SOIL	31/03/21	PT 500ml	Anions 2:1 (30 days), Total Sulphur ICP (7 days), Total Sulphate ICP (30 days), pH + Conductivity (7 days)	
1842780	BH101 33.00-33.45 SOIL	31/03/21	PT 500ml	Anions 2:1 (30 days), Total Sulphur ICP (7 days), Total Sulphate ICP (30 days), pH + Conductivity (7 days)	
1842781	BH102 2.00-2.45 SOIL	12/04/21	PT 500ml	Total Sulphur ICP (7 days), pH + Conductivity (7 days)	
1842782	BH102 3.00-3.45 SOIL	12/04/21	PT 500ml	Total Sulphur ICP (7 days), pH + Conductivity (7 days)	
1842783	BH102 13.50-13.95 SOIL	12/04/21	PT 500ml	Total Sulphur ICP (7 days), pH + Conductivity (7 days)	
1842784	BH103 0.50 SOIL	24/03/21	PT 500ml	Anions 2:1 (30 days), Total Sulphur ICP (7 days), Total Sulphate ICP (30 days), pH + Conductivity (7 days)	
1842785	BH103 3.00-3.45 SOIL	24/03/21	PT 500ml	Anions 2:1 (30 days), Total Sulphur ICP (7 days), Total Sulphate ICP (30 days), pH + Conductivity (7 days)	
1842786	BH103 5.00-5.45 SOIL	24/03/21	PT 500ml	Anions 2:1 (30 days), Total Sulphur ICP (7 days), Total Sulphate ICP (30 days), pH + Conductivity (7 days)	
1842787	BH103 9.50-9.95 SOIL	24/03/21	PT 500ml	Anions 2:1 (30 days), Total Sulphur ICP (7 days), Total Sulphate ICP (30 days), pH + Conductivity (7 days)	
1842788	BH103 20.00-20.45 SOIL	24/03/21	PT 500ml	Anions 2:1 (30 days), Total Sulphur ICP (7 days), Total Sulphate ICP (30 days), pH + Conductivity (7 days)	
1842789	BH103 29.00-29.45 SOIL	24/03/21	PT 500ml	Anions 2:1 (30 days), Total Sulphur ICP (7 days), Total Sulphate ICP (30 days), pH + Conductivity (7 days)	
1842790	WS101 0.55-1.20 SOIL	26/03/21	PT 500ml	Anions 2:1 (30 days), Total Sulphur ICP (7 days), Total Sulphate ICP (30 days), pH + Conductivity (7 days)	
1842791	WS102 0.80-1.20 SOIL	26/03/21	PT 500ml	Anions 2:1 (30 days), Total Sulphur ICP (7 days), Total Sulphate ICP (30 days), pH + Conductivity (7 days)	
1842792	WS102 4.00-5.00 SOIL	26/03/21	PT 500ml	Anions 2:1 (30 days), Total Sulphur ICP (7 days), Total Sulphate ICP (30 days), pH + Conductivity (7 days)	

Information in Support of the Analytical Results

Our Ref 21-09439
Client Ref PSL21/3246
Contract High Bay Warehouse

1842793	WS105 0.50-1.20 SOIL	25/03/21	PT 500ml	Anions 2:1 (30 days), Total Sulphur ICP (7 days), Total Sulphate ICP (30 days), pH + Conductivity (7 days)	
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Key: P-Plastic T-Tub

DETS cannot be held responsible for the integrity of samples received whereby the laboratory did not undertake the sampling. In this instance samples received may be deviating. Deviating Sample criteria are based on British and International standards and laboratory trials in conjunction with the UKAS note 'Guidance on Deviating Samples'. All samples received are listed above. However, those samples that have additional comments in relation to hold time, inappropriate containers etc are deviating due to the reasons stated. This means that the analysis is accredited where applicable, but results may be compromised due to sample deviations. If no sampled date (soils) or date+time (waters) has been supplied then samples are deviating. However, if you are able to supply a sampled date (and time for waters) this will prevent samples being reported as deviating where specific hold times are not exceeded and where the container supplied is suitable.

Soil Analysis Notes

Inorganic soil analysis was carried out on a dried sample, crushed to pass a 425µm sieve, in accordance with BS1377.

Organic soil analysis was carried out on an 'as received' sample. Organics results are corrected for moisture and expressed on a dry weight basis.

The Loss on Drying, used to express organics analysis on an air dried basis, is carried out at a temperature of 28°C +/-2°C.

Disposal

From the issue date of this test certificate, samples will be held for the following times prior to disposal :-

Soils - 1 month, Liquids - 2 weeks, Asbestos (test portion) - 6 months

End of Report



Professional Soils Laboratory

TEST AMENDMENT NOTICE

(Please tick boxes as appropriate)

From: Day Stringer

Date: S / S / 2021

To: Kronspan Limited

Laboratory Ref: PSLZ113246

Location: High Bay Warehouse

Contract Number:

☒ BH102 ☐ TP Sample Number

Depth (m): 3.00

Sample Type: ☐ U

☐ B

☐ D

☐ W

☐ P

☐ C

Test/s:

Q.U.T

The above sample cannot be tested for the following reasons:

☐ The Sample has not been received

☐ There is insufficient material for BS1377: 1990 testing

Maximum Grain Size (Minimum 10%):

Sample Mass (kg):

Required Mass (kg):

☐ Fine

☐ Medium

☐ Coarse

☐ The Sample has been previously tested.

☐ The Sample has been misplaced in the Laboratory.

☒ The Sample is unsuitable for testing because: Collapsed on extrusion due to brittle nature of specimen

Please advise action required:

☐ Perform original test on the following alternative Sample:

☐ BH ☐ TP

Sample Number:

Sample Type: ☐ U

☐ B

☐ D

☐ W

☐ P

☐ C

☐ Combine original Sample with the following sample:

☐ BH ☐ TP

Sample Number:

Sample Type: ☐ U

☐ B

☐ D

☐ W

☐ P

☐ C

☐ Perform the following alternative test/s on the original Sample

☐ Perform non-standard test on material available

☐ Take no further action.

Signed

.....

(Project Engineer)

Date

.....



Professional Soils Laboratory

TEST AMENDMENT NOTICE

(Please tick boxes as appropriate)

From: Jay Stanger

Date: 5 / 5 / 2021

Contract Number:

☒ BH 103 ☐ TP Sample Number

Sample Type: ☒ U ☐ B ☐ D ☐ W ☐ P ☐ C

Test/s:

To: Kronospan Limited

Laboratory Ref: PSL2113246

Location: High Bay Warehouse

Depth (m): 24.56

Q.U.T

The above sample cannot be tested for the following reasons:

☐ The Sample has not been received

☒ There is insufficient material for BS1377: 1990 testing

Maximum Grain Size (Minimum 10%):

Sample Mass (kg):

Required Mass (kg):

☐ Fine ☐ Medium ☐ Coarse

☐ The Sample has been previously tested.

☐ The Sample has been misplaced in the Laboratory.

☐ The Sample is unsuitable for testing because:

Please advise action required:

☐ Perform original test on the following alternative Sample:

☐ BH ☐ TP Sample Number: Depth (m):
Sample Type: ☐ U ☐ B ☐ D ☐ W ☐ P ☐ C

☐ Combine original Sample with the following sample:

☐ BH ☐ TP Sample Number: Depth (m):
Sample Type: ☐ U ☐ B ☐ D ☐ W ☐ P ☐ C

☐ Perform the following alternative test/s on the original Sample

☐ Perform non-standard test on material available

☐ Take no further action.

Signed Date
(Project Engineer)

APPENDIX 6

Laboratory Test Results - Contamination (Soil)



DETS

Certificate of Analysis

Certificate Number 21-06511

Issued: 29-Apr-21

Client Geotechnics LTD
203 Torrington Avenue
Tile Hill
Coventry
CV4 9AP

Our Reference 21-06511

Client Reference PN214198

Order No AUTH-ON29050

Contract Title Highbay Warehouse Kronospan

Description 3 Soil samples.

Date Received 26-Mar-21

Date Started 26-Mar-21

Date Completed 29-Apr-21

Test Procedures Identified by prefix DETSn (details on request).

Notes Opinions and interpretations are outside the laboratory's scope of ISO 17025 accreditation. This certificate is issued in accordance with the accreditation requirements of the United Kingdom Accreditation Service. The results reported herein relate only to the material supplied to the laboratory. This certificate shall not be reproduced except in full, without the prior written approval of the laboratory.

Approved By



Adam Fenwick
Contracts Manager



Summary of Chemical Analysis

Soil Samples

Our Ref 21-06511

Client Ref PN214198

Contract Title Highbay Warehouse Kronospan

Lab No	1823548	1823549	1823550
Sample ID	HBW-BH103	HBW-WS104	HBW-WS104
Depth	0.50	0.30	1.80-2.00
Other ID			
Sample Type	ES	ES	ES
Sampling Date	23/03/2021	23/03/2021	23/03/2021
Sampling Time	n/s	n/s	n/s

Test	Method	LOD	Units			
Metals						
Antimony	DETSC 2301*	1	mg/kg	1.6	< 1.0	1.5
Arsenic	DETSC 2301#	0.2	mg/kg	14	17	14
Barium	DETSC 2301#	1.5	mg/kg	33	8.0	33
Boron, Water Soluble	DETSC 2311#	0.2	mg/kg	< 0.2	< 0.2	0.2
Cadmium	DETSC 2301#	0.1	mg/kg	0.2	0.2	0.1
Chromium III	DETSC 2301*	0.15	mg/kg	33	3.6	29
Chromium, Hexavalent	DETSC 2204*	1	mg/kg	< 1.0	< 1.0	< 1.0
Copper	DETSC 2301#	0.2	mg/kg	33	79	30
Lead	DETSC 2301#	0.3	mg/kg	20	6.8	23
Mercury	DETSC 2325#	0.05	mg/kg	< 0.05	< 0.05	< 0.05
Nickel	DETSC 2301#	1	mg/kg	40	9.9	35
Selenium	DETSC 2301#	0.5	mg/kg	< 0.5	< 0.5	< 0.5
Vanadium	DETSC 2301#	0.8	mg/kg	28	7.4	33
Zinc	DETSC 2301#	1	mg/kg	94	39	100
Inorganics						
pH	DETSC 2008#		pH	7.8	9.5	7.7
Total Organic Carbon	DETSC 2084#	0.5	%	1.1	2.0	0.7
Formaldehyde	DETSC 2047*	0.2	mg/kg			< 0.2
Sulphate Aqueous Extract as SO4	DETSC 2076#	10	mg/l	25	35	11
Petroleum Hydrocarbons						
Aliphatic C5-C6	DETSC 3321*	0.01	mg/kg	< 0.01	< 0.01	< 0.01
Aliphatic C6-C8	DETSC 3321*	0.01	mg/kg	< 0.01	< 0.01	< 0.01
Aliphatic C8-C10	DETSC 3321*	0.01	mg/kg	< 0.01	< 0.01	< 0.01
Aliphatic C10-C12	DETSC 3072#	1.5	mg/kg	< 1.5	< 1.5	< 1.5
Aliphatic C12-C16	DETSC 3072#	1.2	mg/kg	< 1.2	< 1.2	< 1.2
Aliphatic C16-C21	DETSC 3072#	1.5	mg/kg	< 1.5	< 1.5	< 1.5
Aliphatic C21-C35	DETSC 3072#	3.4	mg/kg	< 3.4	< 3.4	< 3.4
Aliphatic C5-C35	DETSC 3072*	10	mg/kg	< 10	< 10	< 10
Aromatic C5-C7	DETSC 3321*	0.01	mg/kg	< 0.01	< 0.01	< 0.01
Aromatic C7-C8	DETSC 3321*	0.01	mg/kg	< 0.01	< 0.01	< 0.01
Aromatic C8-C10	DETSC 3321*	0.01	mg/kg	< 0.01	< 0.01	< 0.01
Aromatic C10-C12	DETSC 3072#	0.9	mg/kg	< 0.9	< 0.9	< 0.9
Aromatic C12-C16	DETSC 3072#	0.5	mg/kg	< 0.5	< 0.5	< 0.5
Aromatic C16-C21	DETSC 3072#	0.6	mg/kg	< 0.6	< 0.6	< 0.6
Aromatic C21-C35	DETSC 3072#	1.4	mg/kg	< 1.4	< 1.4	< 1.4
Aromatic C5-C35	DETSC 3072*	10	mg/kg	< 10	< 10	< 10
TPH Ali/Aro Total C5-C35	DETSC 3072*	10	mg/kg	< 10	< 10	< 10

Summary of Chemical Analysis

Soil Samples

Our Ref 21-06511

Client Ref PN214198

Contract Title Highbay Warehouse Kronospan

Lab No	1823548	1823549	1823550
Sample ID	HBW-BH103	HBW-WS104	HBW-WS104
Depth	0.50	0.30	1.80-2.00
Other ID			
Sample Type	ES	ES	ES
Sampling Date	23/03/2021	23/03/2021	23/03/2021
Sampling Time	n/s	n/s	n/s

Test	Method	LOD	Units			
PAHs						
Naphthalene	DETSC 3301	0.1	mg/kg	< 0.1	< 0.1	< 0.1
Acenaphthylene	DETSC 3301	0.1	mg/kg	< 0.1	< 0.1	< 0.1
Acenaphthene	DETSC 3301	0.1	mg/kg	< 0.1	< 0.1	< 0.1
Fluorene	DETSC 3301	0.1	mg/kg	< 0.1	< 0.1	< 0.1
Phenanthrene	DETSC 3301	0.1	mg/kg	< 0.1	< 0.1	< 0.1
Anthracene	DETSC 3301	0.1	mg/kg	< 0.1	< 0.1	< 0.1
Fluoranthene	DETSC 3301	0.1	mg/kg	< 0.1	< 0.1	< 0.1
Pyrene	DETSC 3301	0.1	mg/kg	< 0.1	< 0.1	< 0.1
Benzo(a)anthracene	DETSC 3301	0.1	mg/kg	< 0.1	< 0.1	< 0.1
Chrysene	DETSC 3301	0.1	mg/kg	< 0.1	< 0.1	< 0.1
Benzo(b)fluoranthene	DETSC 3301	0.1	mg/kg	< 0.1	< 0.1	< 0.1
Benzo(k)fluoranthene	DETSC 3301	0.1	mg/kg	< 0.1	< 0.1	< 0.1
Benzo(a)pyrene	DETSC 3301	0.1	mg/kg	< 0.1	< 0.1	< 0.1
Indeno(1,2,3-c,d)pyrene	DETSC 3301	0.1	mg/kg	< 0.1	< 0.1	< 0.1
Dibenzo(a,h)anthracene	DETSC 3301	0.1	mg/kg	< 0.1	< 0.1	< 0.1
Benzo(g,h,i)perylene	DETSC 3301	0.1	mg/kg	< 0.1	< 0.1	< 0.1
PAH Total	DETSC 3301	1.6	mg/kg	< 1.6	< 1.6	< 1.6

Summary of Chemical Analysis

Soil VOC/SVOC Samples

Our Ref 21-06511

Client Ref PN214198

Contract Title Highbay Warehouse Kronospan

Lab No	1823550
Sample ID	HBW-WS104
Depth	1.80-2.00
Other ID	
Sample Type	ES
Sampling Date	23/03/2021
Sampling Time	n/s

Test	Method	LOD	Units	
VOCs				
Vinyl Chloride	DETSC 3431	0.01	mg/kg	< 0.01
1,1 Dichloroethylene	DETSC 3431	0.01	mg/kg	< 0.01
Trans-1,2-dichloroethylene	DETSC 3431	0.01	mg/kg	< 0.01
1,1-dichloroethane	DETSC 3431	0.01	mg/kg	< 0.01
Cis-1,2-dichloroethylene	DETSC 3431	0.01	mg/kg	< 0.01
2,2-dichloropropane	DETSC 3431	0.01	mg/kg	< 0.01
Bromochloromethane	DETSC 3431	0.01	mg/kg	< 0.01
Chloroform	DETSC 3431	0.01	mg/kg	< 0.01
1,1,1-trichloroethane	DETSC 3431	0.01	mg/kg	< 0.01
1,1-dichloropropene	DETSC 3431	0.01	mg/kg	< 0.01
Carbon tetrachloride	DETSC 3431	0.01	mg/kg	< 0.01
Benzene	DETSC 3431	0.01	mg/kg	< 0.01
1,2-dichloroethane	DETSC 3431	0.01	mg/kg	< 0.01
Trichloroethylene	DETSC 3431	0.01	mg/kg	< 0.01
1,2-dichloropropane	DETSC 3431	0.01	mg/kg	< 0.01
Dibromomethane	DETSC 3431	0.01	mg/kg	< 0.01
Bromodichloromethane	DETSC 3431	0.01	mg/kg	< 0.01
cis-1,3-dichloropropene	DETSC 3431	0.01	mg/kg	< 0.01
Toluene	DETSC 3431	0.01	mg/kg	< 0.01
trans-1,3-dichloropropene	DETSC 3431	0.01	mg/kg	< 0.01
1,1,2-trichloroethane	DETSC 3431	0.01	mg/kg	< 0.01
Tetrachloroethylene	DETSC 3431	0.01	mg/kg	< 0.01
1,3-dichloropropane	DETSC 3431	0.01	mg/kg	< 0.01
Dibromochloromethane	DETSC 3431	0.01	mg/kg	< 0.01
1,2-dibromoethane	DETSC 3431	0.01	mg/kg	< 0.01
Chlorobenzene	DETSC 3431	0.01	mg/kg	< 0.01
1,1,1,2-tetrachloroethane	DETSC 3431	0.01	mg/kg	< 0.01
Ethylbenzene	DETSC 3431	0.01	mg/kg	< 0.01
m+p-Xylene	DETSC 3431	0.01	mg/kg	< 0.01
o-Xylene	DETSC 3431	0.01	mg/kg	< 0.01
Styrene	DETSC 3431*	0.01	mg/kg	< 0.01
Bromoform	DETSC 3431	0.01	mg/kg	< 0.01
Isopropylbenzene	DETSC 3431	0.01	mg/kg	< 0.01
Bromobenzene	DETSC 3431	0.01	mg/kg	< 0.01
1,2,3-trichloropropane	DETSC 3431	0.01	mg/kg	< 0.01
n-propylbenzene	DETSC 3431	0.01	mg/kg	< 0.01
2-chlorotoluene	DETSC 3431	0.01	mg/kg	< 0.01
1,3,5-trimethylbenzene	DETSC 3431	0.01	mg/kg	< 0.01
4-chlorotoluene	DETSC 3431	0.01	mg/kg	< 0.01
Tert-butylbenzene	DETSC 3431	0.01	mg/kg	< 0.01

Summary of Chemical Analysis

Soil VOC/SVOC Samples

Our Ref 21-06511

Client Ref PN214198

Contract Title Highbay Warehouse Kronospan

Lab No	1823550
Sample ID	HBW-WS104
Depth	1.80-2.00
Other ID	
Sample Type	ES
Sampling Date	23/03/2021
Sampling Time	n/s

Test	Method	LOD	Units	
1,2,4-trimethylbenzene	DETSC 3431	0.01	mg/kg	< 0.01
sec-butylbenzene	DETSC 3431	0.01	mg/kg	< 0.01
p-isopropyltoluene	DETSC 3431	0.01	mg/kg	< 0.01
1,3-dichlorobenzene	DETSC 3431	0.01	mg/kg	< 0.01
1,4-dichlorobenzene	DETSC 3431	0.01	mg/kg	< 0.01
n-butylbenzene	DETSC 3431	0.01	mg/kg	< 0.01
1,2-dichlorobenzene	DETSC 3431	0.01	mg/kg	< 0.01
1,2-dibromo-3-chloropropane	DETSC 3431	0.01	mg/kg	< 0.01
1,2,4-trichlorobenzene	DETSC 3431	0.01	mg/kg	< 0.01
Hexachlorobutadiene	DETSC 3431	0.01	mg/kg	< 0.01
1,2,3-trichlorobenzene	DETSC 3431	0.01	mg/kg	< 0.01
MTBE	DETSC 3431*	0.01	mg/kg	< 0.01
SVOCs				
Phenol	DETSC 3433	0.1	mg/kg	< 0.1
Aniline	DETSC 3433*	0.1	mg/kg	< 0.1
2-Chlorophenol	DETSC 3433	0.1	mg/kg	< 0.1
Benzyl Alcohol	DETSC 3433	0.1	mg/kg	< 0.1
2-Methylphenol	DETSC 3433	0.1	mg/kg	< 0.1
Bis(2-chloroisopropyl)ether	DETSC 3433	0.1	mg/kg	< 0.1
3&4-Methylphenol	DETSC 3433	0.1	mg/kg	< 0.1
2,4-Dimethylphenol	DETSC 3433	0.1	mg/kg	< 0.1
Bis-(dichloroethoxy)methane	DETSC 3433	0.1	mg/kg	< 0.1
2,4-Dichlorophenol	DETSC 3433	0.1	mg/kg	< 0.1
1,2,4-Trichlorobenzene	DETSC 3433	0.1	mg/kg	< 0.1
4-Chloro-3-methylphenol	DETSC 3433	0.1	mg/kg	< 0.1
2-Methylnaphthalene	DETSC 3433	0.1	mg/kg	< 0.1
Hexachlorocyclopentadiene	DETSC 3433*	0.1	mg/kg	< 0.1
2,4,6-Trichlorophenol	DETSC 3433	0.1	mg/kg	< 0.1
2,4,5-Trichlorophenol	DETSC 3433*	0.1	mg/kg	< 0.1
2-Chloronaphthalene	DETSC 3433	0.1	mg/kg	< 0.1
2-Nitroaniline	DETSC 3433*	0.1	mg/kg	< 0.1
2,4-Dinitrotoluene	DETSC 3433*	0.1	mg/kg	< 0.1
3-Nitroaniline	DETSC 3433*	0.1	mg/kg	< 0.1
4-Nitrophenol	DETSC 3433*	0.1	mg/kg	< 0.1
Dibenzofuran	DETSC 3433	0.1	mg/kg	< 0.1
2,6-Dinitrotoluene	DETSC 3433	0.1	mg/kg	< 0.1
2,3,4,6-Tetrachlorophenol	DETSC 3433*	0.1	mg/kg	< 0.1
Diethylphthalate	DETSC 3433	0.1	mg/kg	< 0.1
4-Chlorophenylphenylether	DETSC 3433*	0.1	mg/kg	< 0.1
4-Nitroaniline	DETSC 3433*	0.1	mg/kg	< 0.1

Summary of Chemical Analysis

Soil VOC/SVOC Samples

Our Ref 21-06511

Client Ref PN214198

Contract Title Highbay Warehouse Kronospan

Lab No	1823550
Sample ID	HBW-WS104
Depth	1.80-2.00
Other ID	
Sample Type	ES
Sampling Date	23/03/2021
Sampling Time	n/s

Test	Method	LOD	Units	
2-Methyl-4,6-Dinitrophenol	DETSC 3433*	0.1	mg/kg	< 0.1
Diphenylamine	DETSC 3433	0.1	mg/kg	< 0.1
4-Bromophenylphenylether	DETSC 3433	0.1	mg/kg	< 0.1
Hexachlorobenzene	DETSC 3433	0.1	mg/kg	< 0.1
Pentachlorophenol	DETSC 3433*	0.1	mg/kg	< 0.1
Di-n-butylphthalate	DETSC 3433	0.1	mg/kg	< 0.1
Butylbenzylphthalate	DETSC 3433*	0.1	mg/kg	< 0.1
Bis(2-ethylhexyl)phthalate	DETSC 3433	0.1	mg/kg	< 0.1
Di-n-octylphthalate	DETSC 3433*	0.1	mg/kg	< 0.1
1,4-Dinitrobenzene	DETSC 3433*	0.1	mg/kg	< 0.1
Dimethylphthalate	DETSC 3433	0.1	mg/kg	< 0.1
1,3-Dinitrobenzene	DETSC 3433*	0.1	mg/kg	< 0.1
1,2-Dinitrobenzene	DETSC 3433*	0.1	mg/kg	< 0.1
2,3,5,6-Tetrachlorophenol	DETSC 3433*	0.1	mg/kg	< 0.1
Azobenzene	DETSC 3433	0.1	mg/kg	< 0.1
Carbazole	DETSC 3433*	0.1	mg/kg	< 0.1
VOC TICs				
Blank (TIC)	DETSC 3431*		mg/kg	None

Summary of Asbestos Analysis

Soil Samples

Our Ref 21-06511

Client Ref PN214198

Contract Title Highbay Warehouse Kronospan

Lab No	Sample ID	Material Type	Result	Comment*	Analyst
1823548	HBW-BH103 0.50	SOIL	NAD	none	Darryl Fletcher
1823549	HBW-WS104 0.30	SOIL	NAD	none	Darryl Fletcher
1823550	HBW-WS104 1.80-2.00	SOIL	NAD	none	Darryl Fletcher

Crocidolite = Blue Asbestos, Amosite = Brown Asbestos, Chrysotile = White Asbestos. Anthophyllite, Actinolite and Tremolite are other forms of Asbestos. Samples are analysed by DETSC 1101 using polarised light microscopy in accordance with HSG248 and documented in-house methods. NAD = No Asbestos Detected. Where a sample is NAD, the result is based on analysis of at least 2 sub-samples and should be taken to mean 'no asbestos detected in sample'. Key: * - not included in laboratory scope of accreditation.

Information in Support of the Analytical Results

Our Ref 21-06511
 Client Ref PN214198
 Contract Highbay Warehouse Kronospan

Containers Received & Deviating Samples

Lab No	Sample ID	Date Sampled	Containers Received	Holding time exceeded for tests	Inappropriate container for tests
1823548	HBW-BH103 0.50 SOIL	23/03/21	GJ 60ml x2, PT 1L		
1823549	HBW-WS104 0.30 SOIL	23/03/21	GJ 250ml, GJ 60ml x2, PT 1L		
1823550	HBW-WS104 1.80-2.00 SOIL	23/03/21	GJ 250ml, GJ 60ml x2, PT 1L		

Key: G-Glass P-Plastic J-Jar T-Tub

DETS cannot be held responsible for the integrity of samples received whereby the laboratory did not undertake the sampling. In this instance samples received may be deviating. Deviating Sample criteria are based on British and International standards and laboratory trials in conjunction with the UKAS note 'Guidance on Deviating Samples'. All samples received are listed above. However, those samples that have additional comments in relation to hold time, inappropriate containers etc are deviating due to the reasons stated. This means that the analysis is accredited where applicable, but results may be compromised due to sample deviations. If no sampled date (soils) or date+time (waters) has been supplied then samples are deviating. However, if you are able to supply a sampled date (and time for waters) this will prevent samples being reported as deviating where specific hold times are not exceeded and where the container supplied is suitable.

Soil Analysis Notes

Inorganic soil analysis was carried out on a dried sample, crushed to pass a 425µm sieve, in accordance with BS1377.

Organic soil analysis was carried out on an 'as received' sample. Organics results are corrected for moisture and expressed on a dry weight basis.

The Loss on Drying, used to express organics analysis on an air dried basis, is carried out at a temperature of 28°C +/-2°C.

Disposal

From the issue date of this test certificate, samples will be held for the following times prior to disposal :-

Soils - 1 month, Liquids - 2 weeks, Asbestos (test portion) - 6 months

End of Report



DETS

Certificate of Analysis

Certificate Number 21-06584

Issued: 29-Apr-21

Client Geotechnics LTD
The Geotechnical Centre
Unit 1B Borders Ind. Park
River Lane
Saltney
Chester
CH4 8RJ

Our Reference 21-06584

Client Reference PN214198

Order No (not supplied)

Contract Title Highbay Warehouse Kronospan

Description One Soil sample.

Date Received 29-Mar-21

Date Started 29-Mar-21

Date Completed 29-Apr-21

Test Procedures Identified by prefix DETSn (details on request).

Notes Opinions and interpretations are outside the laboratory's scope of ISO 17025 accreditation. This certificate is issued in accordance with the accreditation requirements of the United Kingdom Accreditation Service. The results reported herein relate only to the material supplied to the laboratory. This certificate shall not be reproduced except in full, without the prior written approval of the laboratory.

Approved By



Adam Fenwick
Contracts Manager



2139

Summary of Chemical Analysis

Soil Samples

Our Ref 21-06584

Client Ref PN214198

Contract Title Highbay Warehouse Kronospan

Lab No	1824190
Sample ID	HBW-BH103
Depth	2.00
Other ID	
Sample Type	ES
Sampling Date	23/03/2021
Sampling Time	n/s

Test	Method	LOD	Units	
Metals				
Antimony	DETSC 2301*	1	mg/kg	< 1.0
Arsenic	DETSC 2301#	0.2	mg/kg	12
Barium	DETSC 2301#	1.5	mg/kg	26
Boron, Water Soluble	DETSC 2311#	0.2	mg/kg	29
Cadmium	DETSC 2301#	0.1	mg/kg	< 0.1
Chromium III	DETSC 2301*	0.15	mg/kg	23
Chromium, Hexavalent	DETSC 2204*	1	mg/kg	< 1.0
Copper	DETSC 2301#	0.2	mg/kg	25
Lead	DETSC 2301#	0.3	mg/kg	26
Mercury	DETSC 2325#	0.05	mg/kg	< 0.05
Nickel	DETSC 2301#	1	mg/kg	25
Selenium	DETSC 2301#	0.5	mg/kg	< 0.5
Vanadium	DETSC 2301#	0.8	mg/kg	21
Zinc	DETSC 2301#	1	mg/kg	71
Inorganics				
pH	DETSC 2008#		pH	8.2
Total Organic Carbon	DETSC 2002	0.1	%	< 0.1
Formaldehyde	DETSC 2047*	0.2	mg/kg	< 0.2
Sulphate Aqueous Extract as SO4	DETSC 2076#	10	mg/l	280
Petroleum Hydrocarbons				
Aliphatic C5-C6	DETSC 3321*	0.01	mg/kg	< 0.01
Aliphatic C6-C8	DETSC 3321*	0.01	mg/kg	< 0.01
Aliphatic C8-C10	DETSC 3321*	0.01	mg/kg	< 0.01
Aliphatic C10-C12	DETSC 3072#	1.5	mg/kg	< 1.5
Aliphatic C12-C16	DETSC 3072#	1.2	mg/kg	< 1.2
Aliphatic C16-C21	DETSC 3072#	1.5	mg/kg	< 1.5
Aliphatic C21-C35	DETSC 3072#	3.4	mg/kg	< 3.4
Aliphatic C5-C35	DETSC 3072*	10	mg/kg	< 10
Aromatic C5-C7	DETSC 3321*	0.01	mg/kg	< 0.01
Aromatic C7-C8	DETSC 3321*	0.01	mg/kg	< 0.01
Aromatic C8-C10	DETSC 3321*	0.01	mg/kg	< 0.01
Aromatic C10-C12	DETSC 3072#	0.9	mg/kg	< 0.9
Aromatic C12-C16	DETSC 3072#	0.5	mg/kg	< 0.5
Aromatic C16-C21	DETSC 3072#	0.6	mg/kg	< 0.6
Aromatic C21-C35	DETSC 3072#	1.4	mg/kg	< 1.4
Aromatic C5-C35	DETSC 3072*	10	mg/kg	< 10
TPH Ali/Aro Total C5-C35	DETSC 3072*	10	mg/kg	< 10

Summary of Chemical Analysis

Soil Samples

Our Ref 21-06584

Client Ref PN214198

Contract Title Highbay Warehouse Kronospan

Lab No	1824190
Sample ID	HBW-BH103
Depth	2.00
Other ID	
Sample Type	ES
Sampling Date	23/03/2021
Sampling Time	n/s

Test	Method	LOD	Units	
PAHs				
Naphthalene	DETSC 3301	0.1	mg/kg	< 0.1
Acenaphthylene	DETSC 3301	0.1	mg/kg	< 0.1
Acenaphthene	DETSC 3301	0.1	mg/kg	< 0.1
Fluorene	DETSC 3301	0.1	mg/kg	< 0.1
Phenanthrene	DETSC 3301	0.1	mg/kg	< 0.1
Anthracene	DETSC 3301	0.1	mg/kg	< 0.1
Fluoranthene	DETSC 3301	0.1	mg/kg	< 0.1
Pyrene	DETSC 3301	0.1	mg/kg	< 0.1
Benzo(a)anthracene	DETSC 3301	0.1	mg/kg	< 0.1
Chrysene	DETSC 3301	0.1	mg/kg	< 0.1
Benzo(b)fluoranthene	DETSC 3301	0.1	mg/kg	< 0.1
Benzo(k)fluoranthene	DETSC 3301	0.1	mg/kg	< 0.1
Benzo(a)pyrene	DETSC 3301	0.1	mg/kg	< 0.1
Indeno(1,2,3-c,d)pyrene	DETSC 3301	0.1	mg/kg	< 0.1
Dibenzo(a,h)anthracene	DETSC 3301	0.1	mg/kg	< 0.1
Benzo(g,h,i)perylene	DETSC 3301	0.1	mg/kg	< 0.1
PAH Total	DETSC 3301	1.6	mg/kg	< 1.6

Summary of Asbestos Analysis Soil Samples

Our Ref 21-06584

Client Ref PN214198

Contract Title Highbay Warehouse Kronospan

Lab No	Sample ID	Material Type	Result	Comment*	Analyst
1824190	HBW-BH103 2.00	SOIL	NAD	none	Colin Patrick

Crocidolite = Blue Asbestos, Amosite = Brown Asbestos, Chrysotile = White Asbestos. Anthophyllite, Actinolite and Tremolite are other forms of Asbestos. Samples are analysed by DETSC 1101 using polarised light microscopy in accordance with HSG248 and documented in-house methods. NAD = No Asbestos Detected. Where a sample is NAD, the result is based on analysis of at least 2 sub-samples and should be taken to mean 'no asbestos detected in sample'. Key: * - not included in laboratory scope of accreditation.

Information in Support of the Analytical Results

Our Ref 21-06584
 Client Ref PN214198
 Contract Highbay Warehouse Kronospan

Containers Received & Deviating Samples

Lab No	Sample ID	Date Sampled	Containers Received	Holding time exceeded for tests	Inappropriate container for tests
1824190	HBW-BH103 2.00 SOIL	23/03/21	GJ 250ml, GJ 60ml x2, PT 1L		
Key: G-Glass P-Plastic J-Jar T-Tub DETS cannot be held responsible for the integrity of samples received whereby the laboratory did not undertake the sampling. In this instance samples received may be deviating. Deviating Sample criteria are based on British and International standards and laboratory trials in conjunction with the UKAS note 'Guidance on Deviating Samples'. All samples received are listed above. However, those samples that have additional comments in relation to hold time, inappropriate containers etc are deviating due to the reasons stated. This means that the analysis is accredited where applicable, but results may be compromised due to sample deviations. If no sampled date (soils) or date+time (waters) has been supplied then samples are deviating. However, if you are able to supply a sampled date (and time for waters) this will prevent samples being reported as deviating where specific hold times are not exceeded and where the container supplied is suitable.					

Soil Analysis Notes

Inorganic soil analysis was carried out on a dried sample, crushed to pass a 425µm sieve, in accordance with BS1377.
Organic soil analysis was carried out on an 'as received' sample. Organics results are corrected for moisture and expressed on a dry weight basis.
The Loss on Drying, used to express organics analysis on an air dried basis, is carried out at a temperature of 28°C +/-2°C.

Disposal

From the issue date of this test certificate, samples will be held for the following times prior to disposal :- Soils - 1 month, Liquids - 2 weeks, Asbestos (test portion) - 6 months

End of Report



DETS

Certificate of Analysis

Certificate Number 21-06581

Issued: 29-Apr-21

Client Geotechnics LTD
The Geotechnical Centre
Unit 1B Borders Ind. Park
River Lane
Saltney
Chester
CH4 8RJ

Our Reference 21-06581

Client Reference PN214198

Order No ON29050

Contract Title Highbay Warehouse Kronospan

Description 5 Soil samples.

Date Received 29-Mar-21

Date Started 29-Mar-21

Date Completed 29-Apr-21

Test Procedures Identified by prefix DETSn (details on request).

Notes Opinions and interpretations are outside the laboratory's scope of ISO 17025 accreditation. This certificate is issued in accordance with the accreditation requirements of the United Kingdom Accreditation Service. The results reported herein relate only to the material supplied to the laboratory. This certificate shall not be reproduced except in full, without the prior written approval of the laboratory.

Approved By



Adam Fenwick
Contracts Manager



Summary of Chemical Analysis

Soil Samples

Our Ref 21-06581

Client Ref PN214198

Contract Title Highbay Warehouse Kronospan

Lab No	1824136	1824137	1824138
Sample ID	HBW-WS103	HBW-WS103	HBW-WS103
Depth	0.27-0.55	1.00	3.00
Other ID			
Sample Type	ES	ES	ES
Sampling Date	25/03/2021	25/03/2021	25/03/2021
Sampling Time	n/s	n/s	n/s

Test	Method	LOD	Units			
Metals						
Antimony	DETSC 2301*	1	mg/kg	< 1.0	1.0	1.1
Arsenic	DETSC 2301#	0.2	mg/kg	19	10	16
Barium	DETSC 2301#	1.5	mg/kg	14	43	39
Boron, Water Soluble	DETSC 2311#	0.2	mg/kg	5.3	1.6	1.7
Cadmium	DETSC 2301#	0.1	mg/kg	0.2	< 0.1	0.2
Chromium III	DETSC 2301*	0.15	mg/kg	4.2	26	27
Chromium, Hexavalent	DETSC 2204*	1	mg/kg	< 1.0	< 1.0	< 1.0
Copper	DETSC 2301#	0.2	mg/kg	78	16	40
Lead	DETSC 2301#	0.3	mg/kg	8.9	17	20
Mercury	DETSC 2325#	0.05	mg/kg	< 0.05	< 0.05	< 0.05
Nickel	DETSC 2301#	1	mg/kg	12	25	36
Selenium	DETSC 2301#	0.5	mg/kg	< 0.5	< 0.5	< 0.5
Vanadium	DETSC 2301#	0.8	mg/kg	7.1	31	25
Zinc	DETSC 2301#	1	mg/kg	34	83	91
Inorganics						
pH	DETSC 2008#		pH	9.2	7.8	8.0
Total Organic Carbon	DETSC 2002	0.1	%	0.1	0.8	0.1
Formaldehyde	DETSC 2047*	0.2	mg/kg		< 0.2	
Sulphate Aqueous Extract as SO4	DETSC 2076#	10	mg/l	45	16	10
Petroleum Hydrocarbons						
Aliphatic C5-C6	DETSC 3321*	0.01	mg/kg	< 0.01	< 0.01	< 0.01
Aliphatic C6-C8	DETSC 3321*	0.01	mg/kg	< 0.01	< 0.01	< 0.01
Aliphatic C8-C10	DETSC 3321*	0.01	mg/kg	< 0.01	< 0.01	< 0.01
Aliphatic C10-C12	DETSC 3072#	1.5	mg/kg	< 1.5	< 1.5	< 1.5
Aliphatic C12-C16	DETSC 3072#	1.2	mg/kg	< 1.2	< 1.2	< 1.2
Aliphatic C16-C21	DETSC 3072#	1.5	mg/kg	< 1.5	< 1.5	< 1.5
Aliphatic C21-C35	DETSC 3072#	3.4	mg/kg	< 3.4	< 3.4	< 3.4
Aliphatic C5-C35	DETSC 3072*	10	mg/kg	< 10	< 10	< 10
Aromatic C5-C7	DETSC 3321*	0.01	mg/kg	< 0.01	< 0.01	< 0.01
Aromatic C7-C8	DETSC 3321*	0.01	mg/kg	< 0.01	< 0.01	< 0.01
Aromatic C8-C10	DETSC 3321*	0.01	mg/kg	< 0.01	< 0.01	< 0.01
Aromatic C10-C12	DETSC 3072#	0.9	mg/kg	< 0.9	< 0.9	< 0.9
Aromatic C12-C16	DETSC 3072#	0.5	mg/kg	< 0.5	< 0.5	< 0.5
Aromatic C16-C21	DETSC 3072#	0.6	mg/kg	< 0.6	< 0.6	< 0.6
Aromatic C21-C35	DETSC 3072#	1.4	mg/kg	< 1.4	< 1.4	< 1.4
Aromatic C5-C35	DETSC 3072*	10	mg/kg	< 10	< 10	< 10
TPH Ali/Aro Total C5-C35	DETSC 3072*	10	mg/kg	< 10	< 10	< 10

Summary of Chemical Analysis

Soil Samples

Our Ref 21-06581

Client Ref PN214198

Contract Title Highbay Warehouse Kronospan

Lab No	1824136	1824137	1824138
Sample ID	HBW-WS103	HBW-WS103	HBW-WS103
Depth	0.27-0.55	1.00	3.00
Other ID			
Sample Type	ES	ES	ES
Sampling Date	25/03/2021	25/03/2021	25/03/2021
Sampling Time	n/s	n/s	n/s

Test	Method	LOD	Units			
PAHs						
Naphthalene	DETSC 3301	0.1	mg/kg	< 0.1	< 0.1	< 0.1
Acenaphthylene	DETSC 3301	0.1	mg/kg	< 0.1	< 0.1	< 0.1
Acenaphthene	DETSC 3301	0.1	mg/kg	< 0.1	< 0.1	< 0.1
Fluorene	DETSC 3301	0.1	mg/kg	< 0.1	< 0.1	< 0.1
Phenanthrene	DETSC 3301	0.1	mg/kg	< 0.1	< 0.1	< 0.1
Anthracene	DETSC 3301	0.1	mg/kg	< 0.1	< 0.1	< 0.1
Fluoranthene	DETSC 3301	0.1	mg/kg	< 0.1	< 0.1	< 0.1
Pyrene	DETSC 3301	0.1	mg/kg	< 0.1	< 0.1	< 0.1
Benzo(a)anthracene	DETSC 3301	0.1	mg/kg	< 0.1	< 0.1	< 0.1
Chrysene	DETSC 3301	0.1	mg/kg	< 0.1	< 0.1	< 0.1
Benzo(b)fluoranthene	DETSC 3301	0.1	mg/kg	< 0.1	< 0.1	< 0.1
Benzo(k)fluoranthene	DETSC 3301	0.1	mg/kg	< 0.1	< 0.1	< 0.1
Benzo(a)pyrene	DETSC 3301	0.1	mg/kg	< 0.1	< 0.1	< 0.1
Indeno(1,2,3-c,d)pyrene	DETSC 3301	0.1	mg/kg	< 0.1	< 0.1	< 0.1
Dibenzo(a,h)anthracene	DETSC 3301	0.1	mg/kg	< 0.1	< 0.1	< 0.1
Benzo(g,h,i)perylene	DETSC 3301	0.1	mg/kg	< 0.1	< 0.1	< 0.1
PAH Total	DETSC 3301	1.6	mg/kg	< 1.6	< 1.6	< 1.6

Summary of Chemical Analysis

Soil Samples

Our Ref 21-06581

Client Ref PN214198

Contract Title Highbay Warehouse Kronospan

Lab No	1824139	1824140
Sample ID	HBW-WS105	HBW-WS105
Depth	1.00	3.00
Other ID		
Sample Type	ES	ES
Sampling Date	25/03/2021	25/03/2021
Sampling Time	n/s	n/s

Test	Method	LOD	Units		
Metals					
Antimony	DETSC 2301*	1	mg/kg	< 1.0	< 1.0
Arsenic	DETSC 2301#	0.2	mg/kg	12	4.4
Barium	DETSC 2301#	1.5	mg/kg	34	22
Boron, Water Soluble	DETSC 2311#	0.2	mg/kg	0.6	0.2
Cadmium	DETSC 2301#	0.1	mg/kg	0.1	0.2
Chromium III	DETSC 2301*	0.15	mg/kg	31	30
Chromium, Hexavalent	DETSC 2204*	1	mg/kg	< 1.0	< 1.0
Copper	DETSC 2301#	0.2	mg/kg	28	41
Lead	DETSC 2301#	0.3	mg/kg	20	19
Mercury	DETSC 2325#	0.05	mg/kg	< 0.05	< 0.05
Nickel	DETSC 2301#	1	mg/kg	36	46
Selenium	DETSC 2301#	0.5	mg/kg	< 0.5	< 0.5
Vanadium	DETSC 2301#	0.8	mg/kg	28	24
Zinc	DETSC 2301#	1	mg/kg	90	120
Inorganics					
pH	DETSC 2008#		pH	7.5	8.1
Total Organic Carbon	DETSC 2002	0.1	%	0.3	0.2
Formaldehyde	DETSC 2047*	0.2	mg/kg	< 0.2	1.3
Sulphate Aqueous Extract as SO4	DETSC 2076#	10	mg/l	13	21
Petroleum Hydrocarbons					
Aliphatic C5-C6	DETSC 3321*	0.01	mg/kg	< 0.01	< 0.01
Aliphatic C6-C8	DETSC 3321*	0.01	mg/kg	< 0.01	< 0.01
Aliphatic C8-C10	DETSC 3321*	0.01	mg/kg	< 0.01	< 0.01
Aliphatic C10-C12	DETSC 3072#	1.5	mg/kg	< 1.5	< 1.5
Aliphatic C12-C16	DETSC 3072#	1.2	mg/kg	< 1.2	< 1.2
Aliphatic C16-C21	DETSC 3072#	1.5	mg/kg	< 1.5	< 1.5
Aliphatic C21-C35	DETSC 3072#	3.4	mg/kg	< 3.4	< 3.4
Aliphatic C5-C35	DETSC 3072*	10	mg/kg	< 10	< 10
Aromatic C5-C7	DETSC 3321*	0.01	mg/kg	< 0.01	< 0.01
Aromatic C7-C8	DETSC 3321*	0.01	mg/kg	< 0.01	< 0.01
Aromatic C8-C10	DETSC 3321*	0.01	mg/kg	< 0.01	< 0.01
Aromatic C10-C12	DETSC 3072#	0.9	mg/kg	< 0.9	< 0.9
Aromatic C12-C16	DETSC 3072#	0.5	mg/kg	< 0.5	< 0.5
Aromatic C16-C21	DETSC 3072#	0.6	mg/kg	< 0.6	< 0.6
Aromatic C21-C35	DETSC 3072#	1.4	mg/kg	< 1.4	< 1.4
Aromatic C5-C35	DETSC 3072*	10	mg/kg	< 10	< 10
TPH Ali/Aro Total C5-C35	DETSC 3072*	10	mg/kg	< 10	< 10

Summary of Chemical Analysis

Soil Samples

Our Ref 21-06581

Client Ref PN214198

Contract Title Highbay Warehouse Kronospan

Lab No	1824139	1824140
Sample ID	HBW-WS105	HBW-WS105
Depth	1.00	3.00
Other ID		
Sample Type	ES	ES
Sampling Date	25/03/2021	25/03/2021
Sampling Time	n/s	n/s

Test	Method	LOD	Units		
PAHs					
Naphthalene	DETSC 3301	0.1	mg/kg	< 0.1	< 0.1
Acenaphthylene	DETSC 3301	0.1	mg/kg	< 0.1	< 0.1
Acenaphthene	DETSC 3301	0.1	mg/kg	< 0.1	< 0.1
Fluorene	DETSC 3301	0.1	mg/kg	< 0.1	< 0.1
Phenanthrene	DETSC 3301	0.1	mg/kg	< 0.1	< 0.1
Anthracene	DETSC 3301	0.1	mg/kg	< 0.1	< 0.1
Fluoranthene	DETSC 3301	0.1	mg/kg	< 0.1	< 0.1
Pyrene	DETSC 3301	0.1	mg/kg	< 0.1	< 0.1
Benzo(a)anthracene	DETSC 3301	0.1	mg/kg	< 0.1	< 0.1
Chrysene	DETSC 3301	0.1	mg/kg	< 0.1	< 0.1
Benzo(b)fluoranthene	DETSC 3301	0.1	mg/kg	< 0.1	< 0.1
Benzo(k)fluoranthene	DETSC 3301	0.1	mg/kg	< 0.1	< 0.1
Benzo(a)pyrene	DETSC 3301	0.1	mg/kg	< 0.1	< 0.1
Indeno(1,2,3-c,d)pyrene	DETSC 3301	0.1	mg/kg	< 0.1	< 0.1
Dibenzo(a,h)anthracene	DETSC 3301	0.1	mg/kg	< 0.1	< 0.1
Benzo(g,h,i)perylene	DETSC 3301	0.1	mg/kg	< 0.1	< 0.1
PAH Total	DETSC 3301	1.6	mg/kg	< 1.6	< 1.6

Summary of Chemical Analysis

Soil VOC/SVOC Samples

Our Ref 21-06581

Client Ref PN214198

Contract Title Highbay Warehouse Kronospan

Lab No	1824137	1824139
Sample ID	HBW-WS103	HBW-WS105
Depth	1.00	1.00
Other ID		
Sample Type	ES	ES
Sampling Date	25/03/2021	25/03/2021
Sampling Time	n/s	n/s

Test	Method	LOD	Units		
VOCs					
Vinyl Chloride	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01
1,1 Dichloroethylene	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01
Trans-1,2-dichloroethylene	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01
1,1-dichloroethane	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01
Cis-1,2-dichloroethylene	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01
2,2-dichloropropane	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01
Bromochloromethane	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01
Chloroform	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01
1,1,1-trichloroethane	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01
1,1-dichloropropene	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01
Carbon tetrachloride	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01
Benzene	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01
1,2-dichloroethane	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01
Trichloroethylene	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01
1,2-dichloropropane	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01
Dibromomethane	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01
Bromodichloromethane	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01
cis-1,3-dichloropropene	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01
Toluene	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01
trans-1,3-dichloropropene	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01
1,1,2-trichloroethane	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01
Tetrachloroethylene	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01
1,3-dichloropropane	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01
Dibromochloromethane	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01
1,2-dibromoethane	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01
Chlorobenzene	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01
1,1,1,2-tetrachloroethane	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01
Ethylbenzene	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01
m+p-Xylene	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01
o-Xylene	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01
Styrene	DETSC 3431*	0.01	mg/kg	< 0.01	< 0.01
Bromoform	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01
Isopropylbenzene	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01
Bromobenzene	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01
1,2,3-trichloropropane	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01
n-propylbenzene	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01
2-chlorotoluene	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01
1,3,5-trimethylbenzene	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01
4-chlorotoluene	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01
Tert-butylbenzene	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01

Summary of Chemical Analysis

Soil VOC/SVOC Samples

Our Ref 21-06581

Client Ref PN214198

Contract Title Highbay Warehouse Kronospan

Lab No	1824137	1824139
Sample ID	HBW-WS103	HBW-WS105
Depth	1.00	1.00
Other ID		
Sample Type	ES	ES
Sampling Date	25/03/2021	25/03/2021
Sampling Time	n/s	n/s

Test	Method	LOD	Units		
1,2,4-trimethylbenzene	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01
sec-butylbenzene	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01
p-isopropyltoluene	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01
1,3-dichlorobenzene	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01
1,4-dichlorobenzene	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01
n-butylbenzene	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01
1,2-dichlorobenzene	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01
1,2-dibromo-3-chloropropane	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01
1,2,4-trichlorobenzene	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01
Hexachlorobutadiene	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01
1,2,3-trichlorobenzene	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01
MTBE	DETSC 3431*	0.01	mg/kg	< 0.01	< 0.01
SVOCs					
Phenol	DETSC 3433	0.1	mg/kg	< 0.1	< 0.1
Aniline	DETSC 3433*	0.1	mg/kg	< 0.1	< 0.1
2-Chlorophenol	DETSC 3433	0.1	mg/kg	< 0.1	< 0.1
Benzyl Alcohol	DETSC 3433	0.1	mg/kg	< 0.1	< 0.1
2-Methylphenol	DETSC 3433	0.1	mg/kg	< 0.1	< 0.1
Bis(2-chloroisopropyl)ether	DETSC 3433	0.1	mg/kg	< 0.1	< 0.1
3&4-Methylphenol	DETSC 3433	0.1	mg/kg	< 0.1	< 0.1
2,4-Dimethylphenol	DETSC 3433	0.1	mg/kg	< 0.1	< 0.1
Bis-(dichloroethoxy)methane	DETSC 3433	0.1	mg/kg	< 0.1	< 0.1
2,4-Dichlorophenol	DETSC 3433	0.1	mg/kg	< 0.1	< 0.1
1,2,4-Trichlorobenzene	DETSC 3433	0.1	mg/kg	< 0.1	< 0.1
4-Chloro-3-methylphenol	DETSC 3433	0.1	mg/kg	< 0.1	< 0.1
2-Methylnaphthalene	DETSC 3433	0.1	mg/kg	< 0.1	< 0.1
Hexachlorocyclopentadiene	DETSC 3433*	0.1	mg/kg	< 0.1	< 0.1
2,4,6-Trichlorophenol	DETSC 3433	0.1	mg/kg	< 0.1	< 0.1
2,4,5-Trichlorophenol	DETSC 3433*	0.1	mg/kg	< 0.1	< 0.1
2-Chloronaphthalene	DETSC 3433	0.1	mg/kg	< 0.1	< 0.1
2-Nitroaniline	DETSC 3433*	0.1	mg/kg	< 0.1	< 0.1
2,4-Dinitrotoluene	DETSC 3433*	0.1	mg/kg	< 0.1	< 0.1
3-Nitroaniline	DETSC 3433*	0.1	mg/kg	< 0.1	< 0.1
4-Nitrophenol	DETSC 3433*	0.1	mg/kg	< 0.1	< 0.1
Dibenzofuran	DETSC 3433	0.1	mg/kg	< 0.1	< 0.1
2,6-Dinitrotoluene	DETSC 3433	0.1	mg/kg	< 0.1	< 0.1
2,3,4,6-Tetrachlorophenol	DETSC 3433*	0.1	mg/kg	< 0.1	< 0.1
Diethylphthalate	DETSC 3433	0.1	mg/kg	< 0.1	< 0.1
4-Chlorophenylphenylether	DETSC 3433*	0.1	mg/kg	< 0.1	< 0.1
4-Nitroaniline	DETSC 3433*	0.1	mg/kg	< 0.1	< 0.1

Summary of Chemical Analysis

Soil VOC/SVOC Samples

Our Ref 21-06581

Client Ref PN214198

Contract Title Highbay Warehouse Kronospan

Lab No	1824137	1824139
Sample ID	HBW-WS103	HBW-WS105
Depth	1.00	1.00
Other ID		
Sample Type	ES	ES
Sampling Date	25/03/2021	25/03/2021
Sampling Time	n/s	n/s

Test	Method	LOD	Units		
2-Methyl-4,6-Dinitrophenol	DETSC 3433*	0.1	mg/kg	< 0.1	< 0.1
Diphenylamine	DETSC 3433	0.1	mg/kg	< 0.1	< 0.1
4-Bromophenylphenylether	DETSC 3433	0.1	mg/kg	< 0.1	< 0.1
Hexachlorobenzene	DETSC 3433	0.1	mg/kg	< 0.1	< 0.1
Pentachlorophenol	DETSC 3433*	0.1	mg/kg	< 0.1	< 0.1
Di-n-butylphthalate	DETSC 3433	0.1	mg/kg	< 0.1	< 0.1
Butylbenzylphthalate	DETSC 3433*	0.1	mg/kg	< 0.1	< 0.1
Bis(2-ethylhexyl)phthalate	DETSC 3433	0.1	mg/kg	< 0.1	< 0.1
Di-n-octylphthalate	DETSC 3433*	0.1	mg/kg	< 0.1	< 0.1
1,4-Dinitrobenzene	DETSC 3433*	0.1	mg/kg	< 0.1	< 0.1
Dimethylphthalate	DETSC 3433	0.1	mg/kg	< 0.1	< 0.1
1,3-Dinitrobenzene	DETSC 3433*	0.1	mg/kg	< 0.1	< 0.1
1,2-Dinitrobenzene	DETSC 3433*	0.1	mg/kg	< 0.1	< 0.1
2,3,5,6-Tetrachlorophenol	DETSC 3433*	0.1	mg/kg	< 0.1	< 0.1
Azobenzene	DETSC 3433	0.1	mg/kg	< 0.1	< 0.1
Carbazole	DETSC 3433*	0.1	mg/kg	< 0.1	< 0.1
VOC TICs					
Blank (TIC)	DETSC 3431*		mg/kg	None	None

Summary of Asbestos Analysis

Soil Samples

Our Ref 21-06581

Client Ref PN214198

Contract Title Highbay Warehouse Kronospan

Lab No	Sample ID	Material Type	Result	Comment*	Analyst
1824136	HBW-WS103 0.27-0.55	SOIL	NAD	none	Emma Stacey
1824137	HBW-WS103 1.00	SOIL	NAD	none	Emma Stacey
1824139	HBW-WS105 1.00	SOIL	NAD	none	Emma Stacey

Crocidolite = Blue Asbestos, Amosite = Brown Asbestos, Chrysotile = White Asbestos. Anthophyllite, Actinolite and Tremolite are other forms of Asbestos. Samples are analysed by DETSC 1101 using polarised light microscopy in accordance with HSG248 and documented in-house methods. NAD = No Asbestos Detected. Where a sample is NAD, the result is based on analysis of at least 2 sub-samples and should be taken to mean 'no asbestos detected in sample'. Key: * - not included in laboratory scope of accreditation.

Information in Support of the Analytical Results

Our Ref 21-06581
 Client Ref PN214198
 Contract Highbay Warehouse Kronospan

Containers Received & Deviating Samples

Lab No	Sample ID	Date Sampled	Containers Received	Holding time exceeded for tests	Inappropriate container for tests
1824136	HBW-WS103 0.27-0.55 SOIL	25/03/21	GJ 250ml, GJ 60ml x2, PT 1L		
1824137	HBW-WS103 1.00 SOIL	25/03/21	GJ 250ml, GJ 60ml x2, PT 1L		
1824138	HBW-WS103 3.00 SOIL	25/03/21	GJ 250ml, GJ 60ml x2, PT 1L		
1824139	HBW-WS105 1.00 SOIL	25/03/21	GJ 250ml, GJ 60ml x2, PT 1L		
1824140	HBW-WS105 3.00 SOIL	25/03/21	GJ 250ml, GJ 60ml x2, PT 1L		

Key: G-Glass P-Plastic J-Jar T-Tub

DETS cannot be held responsible for the integrity of samples received whereby the laboratory did not undertake the sampling. In this instance samples received may be deviating. Deviating Sample criteria are based on British and International standards and laboratory trials in conjunction with the UKAS note 'Guidance on Deviating Samples'. All samples received are listed above. However, those samples that have additional comments in relation to hold time, inappropriate containers etc are deviating due to the reasons stated. This means that the analysis is accredited where applicable, but results may be compromised due to sample deviations. If no sampled date (soils) or date+time (waters) has been supplied then samples are deviating. However, if you are able to supply a sampled date (and time for waters) this will prevent samples being reported as deviating where specific hold times are not exceeded and where the container supplied is suitable.

Soil Analysis Notes

Inorganic soil analysis was carried out on a dried sample, crushed to pass a 425µm sieve, in accordance with BS1377.

Organic soil analysis was carried out on an 'as received' sample. Organics results are corrected for moisture and expressed on a dry weight basis.

The Loss on Drying, used to express organics analysis on an air dried basis, is carried out at a temperature of 28°C +/-2°C.

Disposal

From the issue date of this test certificate, samples will be held for the following times prior to disposal :-

Soils - 1 month, Liquids - 2 weeks, Asbestos (test portion) - 6 months

End of Report



DETS

Certificate of Analysis

Certificate Number 21-07767

Issued: 29-Apr-21

Client Geotechnics LTD
The Geotechnical Centre
Unit 1B Borders Ind. Park
River Lane
Saltney
Chester
CH4 8RJ

Our Reference 21-07767

Client Reference PN214198

Order No ON29050

Contract Title Highbay Warehouse Kronospan

Description 1 Soil sample, 2 Leachate samples.

Date Received 29-Mar-21

Date Started 14-Apr-21

Date Completed 29-Apr-21

Test Procedures Identified by prefix DETSn (details on request).

Notes Opinions and interpretations are outside the laboratory's scope of ISO 17025 accreditation. This certificate is issued in accordance with the accreditation requirements of the United Kingdom Accreditation Service. The results reported herein relate only to the material supplied to the laboratory. This certificate shall not be reproduced except in full, without the prior written approval of the laboratory.

Approved By



Adam Fenwick
Contracts Manager



WASTE ACCEPTANCE CRITERIA TESTING ANALYTICAL REPORT

Our Ref 21-07767

Client Ref PN214198

Contract Title Highbay Warehouse Kronospan

Sample Id HBW-WS105 1.00

Sample Numbers 1831909 1831910 1831911

Date Analysed 20/04/2021

Test Results On Waste		
Determinand and Method Reference	Units	Result
DETS 2084* Total Organic Carbon	%	1.4
DETS 2003# Loss On Ignition	%	1.8
DETS 3321# BTEX	mg/kg	< 0.04
DETS 3401# PCBs (7 congeners)	mg/kg	< 0.01
DETS 3311# TPH (C10 - C40)	mg/kg	< 10
DETS 3301 PAHs	mg/kg	< 1.6
DETS 2008# pH	pH Units	7.6
DETS 2073* Acid Neutralisation Capacity (pH4)	mol/kg	< 1.0
DETS 2073* Acid Neutralisation Capacity (pH7)	mol/kg	< 1.0

WAC Limit Values		
Inert Waste	SNRHW	Hazardous Waste
3	5	6
n/a	n/a	10
6	n/a	n/a
1	n/a	n/a
500	n/a	n/a
100	n/a	n/a
n/a	>6	n/a
n/a	TBE	TBE
n/a	TBE	TBE

Test Results On Leachate				
Determinand and Method Reference	Conc in Eluate ug/l		Amount Leached* mg/kg	
	2:1	8:1	LS2	LS10
DETS 2306 Arsenic as As	1.5	0.56	0.003	< 0.01
DETS 2306 Barium as Ba	0.85	0.62	< 0.02	< 0.1
DETS 2306 Cadmium as Cd	< 0.030	< 0.030	< 0.004	< 0.02
DETS 2306 Chromium as Cr	1	0.27	< 0.02	< 0.1
DETS 2306 Copper as Cu	2.2	0.7	0.004	< 0.02
DETS 2306 Mercury as Hg	< 0.010	< 0.010	< 0.0004	< 0.002
DETS 2306 Molybdenum as Mo	< 1.1	< 1.1	< 0.02	< 0.1
DETS 2306 Nickel as Ni	< 0.50	< 0.50	< 0.02	< 0.1
DETS 2306 Lead as Pb	1.3	0.46	< 0.01	< 0.05
DETS 2306 Antimony as Sb	0.19	< 0.17	< 0.01	< 0.05
DETS 2306 Selenium as Se	0.51	< 0.25	< 0.006	< 0.03
DETS 2306 Zinc as Zn	2	< 1.3	0.004	< 0.01
DETS 2055 Chloride as Cl	1700	930	< 20	< 100
DETS 2055* Fluoride as F	230	< 100	0.46	0.19
DETS 2055 Sulphate as SO4	6600	1600	< 20	< 100
DETS 2009* Total Dissolved Solids	38000	16000	76	178.5
DETS 2130 Phenol Index	< 100	< 100	< 0.2	< 1
DETS 2085 Dissolved Organic Carbon	2500	< 2000	< 10	< 50

WAC Limit Values		
Limit values for LS10 Leachate		
Inert Waste	SNRHW	Hazardous Waste
0.5	2	25
20	100	300
0.04	1	5
0.5	10	70
2	50	100
0.01	0.2	2
0.5	10	30
0.4	10	40
0.5	10	50
0.06	0.7	5
0.1	0.5	7
4	50	200
800	15,000	25,000
10	150	500
1000	20,000	50,000
4000	60,000	100,000
1	n/a	n/a
500	800	1000

Additional Information

DETS 2008 pH	6.2	6.2
DETS 2009 Conductivity uS/cm	53.9	22.8
* Temperature*	17.0	17.0

Mass of Sample Kg*	0.130
Mass of dry Sample Kg*	0.119

Stage 1

Volume of Leachant L2*	0.226
Volume of Eluate VE1*	0.1

Stage 2

Volume of Leachant L8*	0.949
Volume of Eluate VE2*	0.91

TBE - To Be Evaluated
SNRHW - Stable Non-Reactive
Hazardous Waste

Disclaimer: The WAC limit values are provided for guidance only. DETS does not accept responsibility for errors or omissions. Values are correct at time of issue.

Information in Support of the Analytical Results

Our Ref 21-07767
 Client Ref PN214198
 Contract Highbay Warehouse Kronospan

Containers Received & Deviating Samples

Lab No	Sample ID	Date Sampled	Containers Received	Holding time exceeded for tests	Inappropriate container for tests
1831909	HBW-WS105 1.00 SOIL	25/03/21	PT 1L (1kg)		BTEX, PAH FID, PCB, EPH/TPH
1831910	HBW-WS105 1.00 LEACHATE	25/03/21	PT 1L (1kg)		
1831911	HBW-WS105 1.00 LEACHATE	25/03/21	PT 1L (1kg)		

Key: P-Plastic T-Tub

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Soil Analysis Notes

Inorganic soil analysis was carried out on a dried sample, crushed to pass a 425µm sieve, in accordance with BS1377.

Organic soil analysis was carried out on an 'as received' sample. Organics results are corrected for moisture and expressed on a dry weight basis.

The Loss on Drying, used to express organics analysis on an air dried basis, is carried out at a temperature of 28°C +/-2°C.

Disposal

From the issue date of this test certificate, samples will be held for the following times prior to disposal :-

Soils - 1 month, Liquids - 2 weeks, Asbestos (test portion) - 6 months

End of Report



DETS

Certificate of Analysis

Certificate Number 21-06692

Issued: 29-Apr-21

Client Geotechnics LTD
The Geotechnical Centre
Unit 1B Borders Ind. Park
River Lane
Saltney
Chester
CH4 8RJ

Our Reference 21-06692

Client Reference PN214198

Order No ON29050

Contract Title Highbay Warehouse Kronospan

Description 6 Soil samples.

Date Received 30-Mar-21

Date Started 30-Mar-21

Date Completed 29-Apr-21

Test Procedures Identified by prefix DETSn (details on request).

Notes Opinions and interpretations are outside the laboratory's scope of ISO 17025 accreditation. This certificate is issued in accordance with the accreditation requirements of the United Kingdom Accreditation Service. The results reported herein relate only to the material supplied to the laboratory. This certificate shall not be reproduced except in full, without the prior written approval of the laboratory.

Approved By



Adam Fenwick
Contracts Manager



Summary of Chemical Analysis

Matrix Descriptions

Our Ref 21-06692

Client Ref PN214198

Contract Title Highbay Warehouse Kronospan

Sample ID	Depth	Lab No	Completed	Matrix Description
HBW-WS101	0.25	1824808	08/04/2021	Brown gravelly SAND
HBW-WS101	1	1824809	08/04/2021	Dark grey gravelly, very sandy CLAY
HBW-WS101	3	1824810	08/04/2021	Dark grey SAND
HBW-WS102	0.28	1824811	08/04/2021	Brown sandy GRAVEL (sample matrix outside MCERTS scope of accreditation)
HBW-WS102	1	1824812	08/04/2021	Grey gravelly SAND
HBW-WS102	2	1824813	08/04/2021	Brown gravelly SAND

Summary of Chemical Analysis

Soil Samples

Our Ref 21-06692

Client Ref PN214198

Contract Title Highbay Warehouse Kronospan

Lab No	1824808	1824809	1824810
Sample ID	HBW-WS101	HBW-WS101	HBW-WS101
Depth	0.25	1.00	3.00
Other ID			
Sample Type	ES	ES	ES
Sampling Date	26/03/2021	26/03/2021	26/03/2021
Sampling Time	n/s	n/s	n/s

Test	Method	LOD	Units			
Metals						
Antimony	DETSC 2301*	1	mg/kg	< 1.0	1.5	1.5
Arsenic	DETSC 2301#	0.2	mg/kg	14	12	2.3
Barium	DETSC 2301#	1.5	mg/kg	28	41	26
Boron, Water Soluble	DETSC 2311#	0.2	mg/kg	0.3	< 0.2	< 0.2
Cadmium	DETSC 2301#	0.1	mg/kg	0.9	0.2	0.1
Chromium III	DETSC 2301*	0.15	mg/kg	4.4	27	29
Chromium, Hexavalent	DETSC 2204*	1	mg/kg	< 1.0	< 1.0	< 1.0
Copper	DETSC 2301#	0.2	mg/kg	79	26	33
Lead	DETSC 2301#	0.3	mg/kg	9.9	21	20
Mercury	DETSC 2325#	0.05	mg/kg	< 0.05	< 0.05	< 0.05
Nickel	DETSC 2301#	1	mg/kg	7.2	31	37
Selenium	DETSC 2301#	0.5	mg/kg	< 0.5	< 0.5	< 0.5
Vanadium	DETSC 2301#	0.8	mg/kg	7.5	26	23
Zinc	DETSC 2301#	1	mg/kg	59	81	110
Inorganics						
pH	DETSC 2008#		pH	10.2	7.5	8.5
Total Organic Carbon	DETSC 2002	0.1	%	0.1	0.1	< 0.1
Formaldehyde	DETSC 2047*	0.2	mg/kg		< 0.2	0.4
Sulphate Aqueous Extract as SO4	DETSC 2076#	10	mg/l	270	16	17
Petroleum Hydrocarbons						
Aliphatic C5-C6	DETSC 3321*	0.01	mg/kg	< 0.01	< 0.01	< 0.01
Aliphatic C6-C8	DETSC 3321*	0.01	mg/kg	< 0.01	< 0.01	< 0.01
Aliphatic C8-C10	DETSC 3321*	0.01	mg/kg	< 0.01	< 0.01	< 0.01
Aliphatic C10-C12	DETSC 3072#	1.5	mg/kg	< 1.5	< 1.5	< 1.5
Aliphatic C12-C16	DETSC 3072#	1.2	mg/kg	< 1.2	< 1.2	< 1.2
Aliphatic C16-C21	DETSC 3072#	1.5	mg/kg	< 1.5	< 1.5	< 1.5
Aliphatic C21-C35	DETSC 3072#	3.4	mg/kg	< 3.4	< 3.4	< 3.4
Aliphatic C5-C35	DETSC 3072*	10	mg/kg	< 10	< 10	< 10
Aromatic C5-C7	DETSC 3321*	0.01	mg/kg	< 0.01	< 0.01	< 0.01
Aromatic C7-C8	DETSC 3321*	0.01	mg/kg	< 0.01	< 0.01	< 0.01
Aromatic C8-C10	DETSC 3321*	0.01	mg/kg	< 0.01	< 0.01	< 0.01
Aromatic C10-C12	DETSC 3072#	0.9	mg/kg	< 0.9	< 0.9	< 0.9
Aromatic C12-C16	DETSC 3072#	0.5	mg/kg	< 0.5	< 0.5	< 0.5
Aromatic C16-C21	DETSC 3072#	0.6	mg/kg	< 0.6	< 0.6	< 0.6
Aromatic C21-C35	DETSC 3072#	1.4	mg/kg	< 1.4	< 1.4	< 1.4
Aromatic C5-C35	DETSC 3072*	10	mg/kg	< 10	< 10	< 10
TPH Ali/Aro Total C5-C35	DETSC 3072*	10	mg/kg	< 10	< 10	< 10

Summary of Chemical Analysis

Soil Samples

Our Ref 21-06692

Client Ref PN214198

Contract Title Highbay Warehouse Kronospan

Lab No	1824808	1824809	1824810
Sample ID	HBW-WS101	HBW-WS101	HBW-WS101
Depth	0.25	1.00	3.00
Other ID			
Sample Type	ES	ES	ES
Sampling Date	26/03/2021	26/03/2021	26/03/2021
Sampling Time	n/s	n/s	n/s

Test	Method	LOD	Units			
PAHs						
Naphthalene	DETSC 3301	0.1	mg/kg	< 0.1	< 0.1	< 0.1
Acenaphthylene	DETSC 3301	0.1	mg/kg	< 0.1	< 0.1	< 0.1
Acenaphthene	DETSC 3301	0.1	mg/kg	< 0.1	< 0.1	< 0.1
Fluorene	DETSC 3301	0.1	mg/kg	< 0.1	< 0.1	< 0.1
Phenanthrene	DETSC 3301	0.1	mg/kg	< 0.1	< 0.1	< 0.1
Anthracene	DETSC 3301	0.1	mg/kg	< 0.1	< 0.1	< 0.1
Fluoranthene	DETSC 3301	0.1	mg/kg	< 0.1	< 0.1	< 0.1
Pyrene	DETSC 3301	0.1	mg/kg	< 0.1	< 0.1	< 0.1
Benzo(a)anthracene	DETSC 3301	0.1	mg/kg	< 0.1	< 0.1	< 0.1
Chrysene	DETSC 3301	0.1	mg/kg	< 0.1	< 0.1	< 0.1
Benzo(b)fluoranthene	DETSC 3301	0.1	mg/kg	< 0.1	< 0.1	< 0.1
Benzo(k)fluoranthene	DETSC 3301	0.1	mg/kg	< 0.1	< 0.1	< 0.1
Benzo(a)pyrene	DETSC 3301	0.1	mg/kg	< 0.1	< 0.1	< 0.1
Indeno(1,2,3-c,d)pyrene	DETSC 3301	0.1	mg/kg	< 0.1	< 0.1	< 0.1
Dibenzo(a,h)anthracene	DETSC 3301	0.1	mg/kg	< 0.1	< 0.1	< 0.1
Benzo(g,h,i)perylene	DETSC 3301	0.1	mg/kg	< 0.1	< 0.1	< 0.1
PAH Total	DETSC 3301	1.6	mg/kg	< 1.6	< 1.6	< 1.6

Summary of Chemical Analysis

Soil Samples

Our Ref 21-06692

Client Ref PN214198

Contract Title Highbay Warehouse Kronospan

Lab No	1824811	1824812	1824813
Sample ID	HBW-WS102	HBW-WS102	HBW-WS102
Depth	0.28	1.00	2.00
Other ID			
Sample Type	ES	ES	ES
Sampling Date	26/03/2021	26/03/2021	26/03/2021
Sampling Time	n/s	n/s	n/s

Test	Method	LOD	Units			
Metals						
Antimony	DETSC 2301*	1	mg/kg	< 1.0	< 1.0	1.6
Arsenic	DETSC 2301#	0.2	mg/kg	6.0	11	17
Barium	DETSC 2301#	1.5	mg/kg	7.4	98	28
Boron, Water Soluble	DETSC 2311#	0.2	mg/kg	< 0.2	< 0.2	< 0.2
Cadmium	DETSC 2301#	0.1	mg/kg	< 0.1	0.2	0.2
Chromium III	DETSC 2301*	0.15	mg/kg	3.1	20	28
Chromium, Hexavalent	DETSC 2204*	1	mg/kg	< 1.0	< 1.0	< 1.0
Copper	DETSC 2301#	0.2	mg/kg	50	30	35
Lead	DETSC 2301#	0.3	mg/kg	2.9	15	18
Mercury	DETSC 2325#	0.05	mg/kg	< 0.05	< 0.05	< 0.05
Nickel	DETSC 2301#	1	mg/kg	6.7	27	37
Selenium	DETSC 2301#	0.5	mg/kg	< 0.5	< 0.5	< 0.5
Vanadium	DETSC 2301#	0.8	mg/kg	6.7	18	25
Zinc	DETSC 2301#	1	mg/kg	54	72	87
Inorganics						
pH	DETSC 2008#		pH	9.1	8.0	7.7
Total Organic Carbon	DETSC 2002	0.1	%	< 0.1	0.3	1.1
Formaldehyde	DETSC 2047*	0.2	mg/kg		< 0.2	< 0.2
Sulphate Aqueous Extract as SO4	DETSC 2076#	10	mg/l	15	24	24
Petroleum Hydrocarbons						
Aliphatic C5-C6	DETSC 3321*	0.01	mg/kg	< 0.01	< 0.01	< 0.01
Aliphatic C6-C8	DETSC 3321*	0.01	mg/kg	< 0.01	< 0.01	< 0.01
Aliphatic C8-C10	DETSC 3321*	0.01	mg/kg	< 0.01	< 0.01	< 0.01
Aliphatic C10-C12	DETSC 3072#	1.5	mg/kg	< 1.5	5.1	< 1.5
Aliphatic C12-C16	DETSC 3072#	1.2	mg/kg	< 1.2	12	6.9
Aliphatic C16-C21	DETSC 3072#	1.5	mg/kg	< 1.5	44	45
Aliphatic C21-C35	DETSC 3072#	3.4	mg/kg	< 3.4	1300	1700
Aliphatic C5-C35	DETSC 3072*	10	mg/kg	< 10	1300	1800
Aromatic C5-C7	DETSC 3321*	0.01	mg/kg	< 0.01	< 0.01	< 0.01
Aromatic C7-C8	DETSC 3321*	0.01	mg/kg	< 0.01	< 0.01	< 0.01
Aromatic C8-C10	DETSC 3321*	0.01	mg/kg	< 0.01	< 0.01	< 0.01
Aromatic C10-C12	DETSC 3072#	0.9	mg/kg	< 0.9	< 0.9	< 0.9
Aromatic C12-C16	DETSC 3072#	0.5	mg/kg	< 0.5	5.8	7.2
Aromatic C16-C21	DETSC 3072#	0.6	mg/kg	< 0.6	34	31
Aromatic C21-C35	DETSC 3072#	1.4	mg/kg	< 1.4	850	1100
Aromatic C5-C35	DETSC 3072*	10	mg/kg	< 10	890	1100
TPH Ali/Aro Total C5-C35	DETSC 3072*	10	mg/kg	< 10	2200	2900

Summary of Chemical Analysis

Soil Samples

Our Ref 21-06692

Client Ref PN214198

Contract Title Highbay Warehouse Kronospan

Lab No	1824811	1824812	1824813
Sample ID	HBW-WS102	HBW-WS102	HBW-WS102
Depth	0.28	1.00	2.00
Other ID			
Sample Type	ES	ES	ES
Sampling Date	26/03/2021	26/03/2021	26/03/2021
Sampling Time	n/s	n/s	n/s

Test	Method	LOD	Units			
PAHs						
Naphthalene	DETSC 3301	0.1	mg/kg	< 0.1	< 0.1	< 0.1
Acenaphthylene	DETSC 3301	0.1	mg/kg	< 0.1	< 0.1	< 0.1
Acenaphthene	DETSC 3301	0.1	mg/kg	< 0.1	< 0.1	< 0.1
Fluorene	DETSC 3301	0.1	mg/kg	< 0.1	< 0.1	< 0.1
Phenanthrene	DETSC 3301	0.1	mg/kg	< 0.1	< 0.1	< 0.1
Anthracene	DETSC 3301	0.1	mg/kg	< 0.1	< 0.1	< 0.1
Fluoranthene	DETSC 3301	0.1	mg/kg	< 0.1	< 0.1	< 0.1
Pyrene	DETSC 3301	0.1	mg/kg	< 0.1	< 0.1	< 0.1
Benzo(a)anthracene	DETSC 3301	0.1	mg/kg	< 0.1	< 0.1	< 0.1
Chrysene	DETSC 3301	0.1	mg/kg	< 0.1	< 0.1	< 0.1
Benzo(b)fluoranthene	DETSC 3301	0.1	mg/kg	< 0.1	< 0.1	< 0.1
Benzo(k)fluoranthene	DETSC 3301	0.1	mg/kg	< 0.1	< 0.1	< 0.1
Benzo(a)pyrene	DETSC 3301	0.1	mg/kg	< 0.1	< 0.1	< 0.1
Indeno(1,2,3-c,d)pyrene	DETSC 3301	0.1	mg/kg	< 0.1	< 0.1	< 0.1
Dibenzo(a,h)anthracene	DETSC 3301	0.1	mg/kg	< 0.1	< 0.1	< 0.1
Benzo(g,h,i)perylene	DETSC 3301	0.1	mg/kg	< 0.1	< 0.1	< 0.1
PAH Total	DETSC 3301	1.6	mg/kg	< 1.6	< 1.6	< 1.6

Summary of Chemical Analysis

Soil VOC/SVOC Samples

Our Ref 21-06692

Client Ref PN214198

Contract Title Highbay Warehouse Kronospan

Lab No	1824809	1824812	1824813
Sample ID	HBW-WS101	HBW-WS102	HBW-WS102
Depth	1.00	1.00	2.00
Other ID			
Sample Type	ES	ES	ES
Sampling Date	26/03/2021	26/03/2021	26/03/2021
Sampling Time	n/s	n/s	n/s

Test	Method	LOD	Units			
VOCs						
Vinyl Chloride	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01	< 0.01
1,1 Dichloroethylene	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01	< 0.01
Trans-1,2-dichloroethylene	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01	< 0.01
1,1-dichloroethane	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01	< 0.01
Cis-1,2-dichloroethylene	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01	< 0.01
2,2-dichloropropane	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01	< 0.01
Bromochloromethane	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01	< 0.01
Chloroform	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01	< 0.01
1,1,1-trichloroethane	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01	< 0.01
1,1-dichloropropene	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01	< 0.01
Carbon tetrachloride	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01	< 0.01
Benzene	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01	< 0.01
1,2-dichloroethane	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01	< 0.01
Trichloroethylene	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01	< 0.01
1,2-dichloropropane	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01	< 0.01
Dibromomethane	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01	< 0.01
Bromodichloromethane	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01	< 0.01
cis-1,3-dichloropropene	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01	< 0.01
Toluene	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01	< 0.01
trans-1,3-dichloropropene	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01	< 0.01
1,1,2-trichloroethane	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01	< 0.01
Tetrachloroethylene	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01	< 0.01
1,3-dichloropropane	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01	< 0.01
Dibromochloromethane	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01	< 0.01
1,2-dibromoethane	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01	< 0.01
Chlorobenzene	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01	< 0.01
1,1,1,2-tetrachloroethane	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01	< 0.01
Ethylbenzene	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01	< 0.01
m+p-Xylene	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01	< 0.01
o-Xylene	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01	< 0.01
Styrene	DETSC 3431*	0.01	mg/kg	< 0.01	< 0.01	< 0.01
Bromoform	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01	< 0.01
Isopropylbenzene	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01	< 0.01
Bromobenzene	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01	< 0.01
1,2,3-trichloropropane	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01	< 0.01
n-propylbenzene	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01	< 0.01
2-chlorotoluene	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01	< 0.01
1,3,5-trimethylbenzene	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01	< 0.01
4-chlorotoluene	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01	< 0.01
Tert-butylbenzene	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01	< 0.01

Summary of Chemical Analysis

Soil VOC/SVOC Samples

Our Ref 21-06692

Client Ref PN214198

Contract Title Highbay Warehouse Kronospan

Lab No	1824809	1824812	1824813
Sample ID	HBW-WS101	HBW-WS102	HBW-WS102
Depth	1.00	1.00	2.00
Other ID			
Sample Type	ES	ES	ES
Sampling Date	26/03/2021	26/03/2021	26/03/2021
Sampling Time	n/s	n/s	n/s

Test	Method	LOD	Units			
1,2,4-trimethylbenzene	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01	< 0.01
sec-butylbenzene	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01	< 0.01
p-isopropyltoluene	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01	< 0.01
1,3-dichlorobenzene	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01	< 0.01
1,4-dichlorobenzene	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01	< 0.01
n-butylbenzene	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01	< 0.01
1,2-dichlorobenzene	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01	< 0.01
1,2-dibromo-3-chloropropane	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01	< 0.01
1,2,4-trichlorobenzene	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01	< 0.01
Hexachlorobutadiene	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01	< 0.01
1,2,3-trichlorobenzene	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01	< 0.01
MTBE	DETSC 3431*	0.01	mg/kg	< 0.01	< 0.01	< 0.01
SVOCs						
Phenol	DETSC 3433	0.1	mg/kg	< 0.1	< 0.1	< 0.1
Aniline	DETSC 3433*	0.1	mg/kg	< 0.1	< 0.1	< 0.1
2-Chlorophenol	DETSC 3433	0.1	mg/kg	< 0.1	< 0.1	< 0.1
Benzyl Alcohol	DETSC 3433	0.1	mg/kg	< 0.1	< 0.1	< 0.1
2-Methylphenol	DETSC 3433	0.1	mg/kg	< 0.1	< 0.1	< 0.1
Bis(2-chloroisopropyl)ether	DETSC 3433	0.1	mg/kg	< 0.1	< 0.1	< 0.1
3&4-Methylphenol	DETSC 3433	0.1	mg/kg	< 0.1	< 0.1	< 0.1
2,4-Dimethylphenol	DETSC 3433	0.1	mg/kg	< 0.1	< 0.1	< 0.1
Bis-(dichloroethoxy)methane	DETSC 3433	0.1	mg/kg	< 0.1	< 0.1	< 0.1
2,4-Dichlorophenol	DETSC 3433	0.1	mg/kg	< 0.1	< 0.1	< 0.1
1,2,4-Trichlorobenzene	DETSC 3433	0.1	mg/kg	< 0.1	< 0.1	< 0.1
4-Chloro-3-methylphenol	DETSC 3433	0.1	mg/kg	< 0.1	< 0.1	< 0.1
2-Methylnaphthalene	DETSC 3433	0.1	mg/kg	< 0.1	< 0.1	< 0.1
Hexachlorocyclopentadiene	DETSC 3433*	0.1	mg/kg	< 0.1	< 0.1	< 0.1
2,4,6-Trichlorophenol	DETSC 3433	0.1	mg/kg	< 0.1	< 0.1	< 0.1
2,4,5-Trichlorophenol	DETSC 3433*	0.1	mg/kg	< 0.1	< 0.1	< 0.1
2-Chloronaphthalene	DETSC 3433	0.1	mg/kg	< 0.1	< 0.1	< 0.1
2-Nitroaniline	DETSC 3433*	0.1	mg/kg	< 0.1	< 0.1	< 0.1
2,4-Dinitrotoluene	DETSC 3433*	0.1	mg/kg	< 0.1	< 0.1	< 0.1
3-Nitroaniline	DETSC 3433*	0.1	mg/kg	< 0.1	< 0.1	< 0.1
4-Nitrophenol	DETSC 3433*	0.1	mg/kg	< 0.1	< 0.1	< 0.1
Dibenzofuran	DETSC 3433	0.1	mg/kg	< 0.1	< 0.1	< 0.1
2,6-Dinitrotoluene	DETSC 3433	0.1	mg/kg	< 0.1	< 0.1	< 0.1
2,3,4,6-Tetrachlorophenol	DETSC 3433*	0.1	mg/kg	< 0.1	< 0.1	< 0.1
Diethylphthalate	DETSC 3433	0.1	mg/kg	< 0.1	< 0.1	< 0.1
4-Chlorophenylphenylether	DETSC 3433*	0.1	mg/kg	< 0.1	< 0.1	< 0.1
4-Nitroaniline	DETSC 3433*	0.1	mg/kg	< 0.1	< 0.1	< 0.1

Summary of Chemical Analysis

Soil VOC/SVOC Samples

Our Ref 21-06692

Client Ref PN214198

Contract Title Highbay Warehouse Kronospan

Lab No	1824809	1824812	1824813
Sample ID	HBW-WS101	HBW-WS102	HBW-WS102
Depth	1.00	1.00	2.00
Other ID			
Sample Type	ES	ES	ES
Sampling Date	26/03/2021	26/03/2021	26/03/2021
Sampling Time	n/s	n/s	n/s

Test	Method	LOD	Units			
2-Methyl-4,6-Dinitrophenol	DETSC 3433*	0.1	mg/kg	< 0.1	< 0.1	< 0.1
Diphenylamine	DETSC 3433	0.1	mg/kg	< 0.1	< 0.1	< 0.1
4-Bromophenylphenylether	DETSC 3433	0.1	mg/kg	< 0.1	< 0.1	< 0.1
Hexachlorobenzene	DETSC 3433	0.1	mg/kg	< 0.1	< 0.1	< 0.1
Pentachlorophenol	DETSC 3433*	0.1	mg/kg	< 0.1	< 0.1	< 0.1
Di-n-butylphthalate	DETSC 3433	0.1	mg/kg	< 0.1	< 0.1	< 0.1
Butylbenzylphthalate	DETSC 3433*	0.1	mg/kg	< 0.1	< 0.1	< 0.1
Bis(2-ethylhexyl)phthalate	DETSC 3433	0.1	mg/kg	< 0.1	< 0.1	< 0.1
Di-n-octylphthalate	DETSC 3433*	0.1	mg/kg	< 0.1	0.1	< 0.1
1,4-Dinitrobenzene	DETSC 3433*	0.1	mg/kg	< 0.1	< 0.1	< 0.1
Dimethylphthalate	DETSC 3433	0.1	mg/kg	< 0.1	< 0.1	< 0.1
1,3-Dinitrobenzene	DETSC 3433*	0.1	mg/kg	< 0.1	< 0.1	< 0.1
1,2-Dinitrobenzene	DETSC 3433*	0.1	mg/kg	< 0.1	< 0.1	< 0.1
2,3,5,6-Tetrachlorophenol	DETSC 3433*	0.1	mg/kg	< 0.1	< 0.1	< 0.1
Azobenzene	DETSC 3433	0.1	mg/kg	< 0.1	< 0.1	< 0.1
Carbazole	DETSC 3433*	0.1	mg/kg	< 0.1	< 0.1	< 0.1
SVOC TICs						
Blank (TIC)	DETSC 3433*		mg/kg	None	None	None

Summary of Asbestos Analysis

Soil Samples

Our Ref 21-06692

Client Ref PN214198

Contract Title Highbay Warehouse Kronospan

Lab No	Sample ID	Material Type	Result	Comment*	Analyst
1824808	HBW-WS101 0.25	SOIL	NAD	none	Colin Patrick
1824809	HBW-WS101 1.00	SOIL	NAD	none	Colin Patrick
1824811	HBW-WS102 0.28	SOIL	NAD	none	Colin Patrick
1824812	HBW-WS102 1.00	SOIL	NAD	none	Colin Patrick

Crocidolite = Blue Asbestos, Amosite = Brown Asbestos, Chrysotile = White Asbestos. Anthophyllite, Actinolite and Tremolite are other forms of Asbestos. Samples are analysed by DETSC 1101 using polarised light microscopy in accordance with HSG248 and documented in-house methods. NAD = No Asbestos Detected. Where a sample is NAD, the result is based on analysis of at least 2 sub-samples and should be taken to mean 'no asbestos detected in sample'. Key: * - not included in laboratory scope of accreditation.

Information in Support of the Analytical Results

Our Ref 21-06692
 Client Ref PN214198
 Contract Highbay Warehouse Kronospan

Containers Received & Deviating Samples

Lab No	Sample ID	Date Sampled	Containers Received	Holding time exceeded for tests	Inappropriate container for tests
1824808	HBW-WS101 0.25 SOIL	26/03/21	GJ 250ml, GJ 60ml x2, PT 1L		
1824809	HBW-WS101 1.00 SOIL	26/03/21	GJ 250ml, GJ 60ml x2, PT 1L		
1824810	HBW-WS101 3.00 SOIL	26/03/21	GJ 250ml, GJ 60ml x2, PT 1L		
1824811	HBW-WS102 0.28 SOIL	26/03/21	GJ 250ml, GJ 60ml x2, PT 1L		
1824812	HBW-WS102 1.00 SOIL	26/03/21	GJ 250ml, GJ 60ml x2, PT 1L		
1824813	HBW-WS102 2.00 SOIL	26/03/21	GJ 250ml, GJ 60ml x2, PT 1L		

Key: G-Glass P-Plastic J-Jar T-Tub

DETS cannot be held responsible for the integrity of samples received whereby the laboratory did not undertake the sampling. In this instance samples received may be deviating. Deviating Sample criteria are based on British and International standards and laboratory trials in conjunction with the UKAS note 'Guidance on Deviating Samples'. All samples received are listed above. However, those samples that have additional comments in relation to hold time, inappropriate containers etc are deviating due to the reasons stated. This means that the analysis is accredited where applicable, but results may be compromised due to sample deviations. If no sampled date (soils) or date+time (waters) has been supplied then samples are deviating. However, if you are able to supply a sampled date (and time for waters) this will prevent samples being reported as deviating where specific hold times are not exceeded and where the container supplied is suitable.

Soil Analysis Notes

Inorganic soil analysis was carried out on a dried sample, crushed to pass a 425µm sieve, in accordance with BS1377.

Organic soil analysis was carried out on an 'as received' sample. Organics results are corrected for moisture and expressed on a dry weight basis.

The Loss on Drying, used to express organics analysis on an air dried basis, is carried out at a temperature of 28°C +/-2°C.

Disposal

From the issue date of this test certificate, samples will be held for the following times prior to disposal :-

Soils - 1 month, Liquids - 2 weeks, Asbestos (test portion) - 6 months

Appendix A - Details of Analysis

Method	Parameter	Units	Limit of Detection	Sample Preparation	Sub-Contracted	UKAS	MCERTS
DETS 2002	Organic matter	%	0.1	Air Dried	No	Yes	Yes
DETS 2003	Loss on ignition	%	0.01	Air Dried	No	Yes	Yes
DETS 2008	pH	pH Units	1	Air Dried	No	Yes	Yes
DETS 2024	Sulphide	mg/kg	10	Air Dried	No	Yes	Yes
DETS 2076	Sulphate Aqueous Extract as SO ₄	mg/l	10	Air Dried	No	Yes	Yes
DETS 2084	Total Carbon	%	0.5	Air Dried	No	Yes	Yes
DETS 2084	Total Organic Carbon	%	0.5	Air Dried	No	Yes	Yes
DETS 2119	Ammoniacal Nitrogen as N	mg/kg	0.5	Air Dried	No	Yes	Yes
DETS 2130	Cyanide free	mg/kg	0.1	Air Dried	No	Yes	Yes
DETS 2130	Cyanide total	mg/kg	0.1	Air Dried	No	Yes	Yes
DETS 2130	Phenol - Monohydric	mg/kg	0.3	Air Dried	No	Yes	Yes
DETS 2130	Thiocyanate	mg/kg	0.6	Air Dried	No	Yes	Yes
DETS 2321	Total Sulphate as SO ₄	%	0.01	Air Dried	No	Yes	Yes
DETS 2325	Mercury	mg/kg	0.05	Air Dried	No	Yes	Yes
DETS 3049	Sulphur (free)	mg/kg	0.75	Air Dried	No	Yes	Yes
DETS 2123	Boron (water soluble)	mg/kg	0.2	Air Dried	No	Yes	Yes
DETS 2301	Arsenic	mg/kg	0.2	Air Dried	No	Yes	Yes
DETS 2301	Barium	mg/kg	1.5	Air Dried	No	Yes	Yes
DETS 2301	Beryllium	mg/kg	0.2	Air Dried	No	Yes	Yes
DETS 2301	Cadmium Available	mg/kg	0.1	Air Dried	No	Yes	Yes
DETS 2301	Cadmium	mg/kg	0.1	Air Dried	No	Yes	Yes
DETS 2301	Cobalt	mg/kg	0.7	Air Dried	No	Yes	Yes
DETS 2301	Chromium	mg/kg	0.15	Air Dried	No	Yes	Yes
DETS 2301	Copper	mg/kg	0.2	Air Dried	No	Yes	Yes
DETS 2301	Manganese	mg/kg	20	Air Dried	No	Yes	Yes
DETS 2301	Molybdenum	mg/kg	0.4	Air Dried	No	Yes	Yes
DETS 2301	Nickel	mg/kg	1	Air Dried	No	Yes	Yes
DETS 2301	Lead	mg/kg	0.3	Air Dried	No	Yes	Yes
DETS 2301	Selenium	mg/kg	0.5	Air Dried	No	Yes	Yes
DETS 2301	Zinc	mg/kg	1	Air Dried	No	Yes	Yes
DETS 3072	Ali/Aro C10-C35	mg/kg	10	As Received	No	Yes	Yes
DETS 3072	Aliphatic C10-C12	mg/kg	1.5	As Received	No	Yes	Yes
DETS 3072	Aliphatic C10-C12	mg/kg	10	As Received	No	Yes	Yes
DETS 3072	Aliphatic C10-C35	mg/kg	10	As Received	No	Yes	Yes
DETS 3072	Aliphatic C12-C16	mg/kg	1.2	As Received	No	Yes	Yes
DETS 3072	Aliphatic C12-C16	mg/kg	10	As Received	No	Yes	Yes
DETS 3072	Aliphatic C16-C21	mg/kg	1.5	As Received	No	Yes	Yes
DETS 3072	Aliphatic C16-C21	mg/kg	10	As Received	No	Yes	Yes
DETS 3072	Aliphatic C21-C35	mg/kg	3.4	As Received	No	Yes	Yes
DETS 3072	Aliphatic C21-C35	mg/kg	3.4	As Received	No	Yes	Yes
DETS 3072	Aromatic C10-C12	mg/kg	0.9	As Received	No	Yes	Yes
DETS 3072	Aromatic C10-C12	mg/kg	10	As Received	No	Yes	Yes
DETS 3072	Aromatic C10-C35	mg/kg	10	As Received	No	Yes	Yes
DETS 3072	Aromatic C12-C16	mg/kg	0.5	As Received	No	Yes	Yes
DETS 3072	Aromatic C12-C16	mg/kg	10	As Received	No	Yes	Yes
DETS 3072	Aromatic C16-C21	mg/kg	0.6	As Received	No	Yes	Yes
DETS 3072	Aromatic C16-C21	mg/kg	10	As Received	No	Yes	Yes
DETS 3072	Aromatic C21-C35	mg/kg	1.4	As Received	No	Yes	Yes
DETS 3072	Aromatic C21-C35	mg/kg	1.4	As Received	No	Yes	Yes
DETS 062	Benzene	mg/kg	0.01	As Received	No	Yes	Yes
DETS 062	Ethylbenzene	mg/kg	0.01	As Received	No	Yes	Yes
DETS 062	Toluene	mg/kg	0.01	As Received	No	Yes	Yes
DETS 062	Xylene	mg/kg	0.01	As Received	No	Yes	Yes
DETS 062	m+p Xylene	mg/kg	0.01	As Received	No	Yes	Yes
DETS 062	o Xylene	mg/kg	0.01	As Received	No	Yes	Yes
DETS 3311	C10-C24 Diesel Range Organics (DRO)	mg/kg	10	As Received	No	Yes	Yes
DETS 3311	C24-C40 Lube Oil Range Organics (LORO)	mg/kg	10	As Received	No	Yes	Yes
DETS 3311	EPH (C10-C40)	mg/kg	10	As Received	No	Yes	Yes

Appendix A - Details of Analysis

Method	Parameter	Units	Limit of Detection	Sample Preparation	Sub-Contracted	UKAS	MCERTS
DETS 3303	Acenaphthene	mg/kg	0.03	As Received	No	Yes	Yes
DETS 3303	Acenaphthylene	mg/kg	0.03	As Received	No	Yes	Yes
DETS 3303	Benzo(a)pyrene	mg/kg	0.03	As Received	No	Yes	Yes
DETS 3303	Benzo(a)anthracene	mg/kg	0.03	As Received	No	Yes	Yes
DETS 3303	Benzo(b)fluoranthene	mg/kg	0.03	As Received	No	Yes	Yes
DETS 3303	Benzo(k)fluoranthene	mg/kg	0.03	As Received	No	Yes	Yes
DETS 3303	Benzo(g,h,i)perylene	mg/kg	0.03	As Received	No	Yes	Yes
DETS 3303	Dibenzo(a,h)anthracene	mg/kg	0.03	As Received	No	Yes	Yes
DETS 3303	Fluoranthene	mg/kg	0.03	As Received	No	Yes	Yes
DETS 3303	Indeno(1,2,3-c,d)pyrene	mg/kg	0.03	As Received	No	Yes	Yes
DETS 3303	Naphthalene	mg/kg	0.03	As Received	No	Yes	Yes
DETS 3303	Phenanthrene	mg/kg	0.03	As Received	No	Yes	Yes
DETS 3303	Pyrene	mg/kg	0.03	As Received	No	Yes	Yes
DETS 3401	PCB 28 + PCB 31	mg/kg	0.01	As Received	No	Yes	Yes
DETS 3401	PCB 52	mg/kg	0.01	As Received	No	Yes	Yes
DETS 3401	PCB 101	mg/kg	0.01	As Received	No	Yes	Yes
DETS 3401	PCB 118	mg/kg	0.01	As Received	No	Yes	Yes
DETS 3401	PCB 153	mg/kg	0.01	As Received	No	Yes	Yes
DETS 3401	PCB 138	mg/kg	0.01	As Received	No	Yes	Yes
DETS 3401	PCB 180	mg/kg	0.01	As Received	No	Yes	Yes
DETS 3401	PCB Total	mg/kg	0.01	As Received	No	Yes	Yes

Method details are shown only for those determinands listed in Annex A of the MCERTS standard. Anything not included on this list falls outside the scope of MCERTS. No Recovery Factors are used in the determination of results. Results reported assume 100% recovery. Full method statements are available on request.

End of Report



DETS

Certificate of Analysis

Certificate Number 21-07768

Issued: 29-Apr-21

Client Geotechnics LTD
The Geotechnical Centre
Unit 1B Borders Ind. Park
River Lane
Saltney
Chester
CH4 8RJ

Our Reference 21-07768

Client Reference PN214198

Order No ON29050

Contract Title Highbay Warehouse Kronospan

Description 1 Soil sample, 2 Leachate samples.

Date Received 30-Mar-21

Date Started 14-Apr-21

Date Completed 29-Apr-21

Test Procedures Identified by prefix DETSn (details on request).

Notes Opinions and interpretations are outside the laboratory's scope of ISO 17025 accreditation. This certificate is issued in accordance with the accreditation requirements of the United Kingdom Accreditation Service. The results reported herein relate only to the material supplied to the laboratory. This certificate shall not be reproduced except in full, without the prior written approval of the laboratory.

Approved By



Adam Fenwick
Contracts Manager



WASTE ACCEPTANCE CRITERIA TESTING ANALYTICAL REPORT

Our Ref 21-07768

Client Ref PN214198

Contract Title Highbay Warehouse Kronospan

Sample Id HBW-WS102 1.00

Sample Numbers 1831912 1831913 1831914

Date Analysed 21/04/2021

Test Results On Waste		
Determinand and Method Reference	Units	Result
DETS 2084# Total Organic Carbon	%	0.7
DETS 2003# Loss On Ignition	%	1.6
DETS 3321# BTEX	mg/kg	< 0.04
DETS 3401# PCBs (7 congeners)	mg/kg	< 0.01
DETS 3311# TPH (C10 - C40)	mg/kg	3800.0
DETS 3301 PAHs	mg/kg	< 1.6
DETS 2008# pH	pH Units	8.0
DETS 2073* Acid Neutralisation Capacity (pH4)	mol/kg	< 1.0
DETS 2073* Acid Neutralisation Capacity (pH7)	mol/kg	< 1.0

WAC Limit Values		
Inert Waste	SNRHW	Hazardous Waste
3	5	6
n/a	n/a	10
6	n/a	n/a
1	n/a	n/a
500	n/a	n/a
100	n/a	n/a
n/a	>6	n/a
n/a	TBE	TBE
n/a	TBE	TBE

Test Results On Leachate				
Determinand and Method Reference	Conc in Eluate ug/l		Amount Leached* mg/kg	
	2:1	8:1	LS2	LS10
DETS 2306 Arsenic as As	2.2	0.75	0.004	< 0.01
DETS 2306 Barium as Ba	2.5	0.75	< 0.02	< 0.1
DETS 2306 Cadmium as Cd	0.2	< 0.030	< 0.004	< 0.02
DETS 2306 Chromium as Cr	2.2	0.27	< 0.02	< 0.1
DETS 2306 Copper as Cu	3.1	0.85	0.006	< 0.02
DETS 2306 Mercury as Hg	< 0.010	< 0.010	< 0.0004	< 0.002
DETS 2306 Molybdenum as Mo	< 1.1	< 1.1	< 0.02	< 0.1
DETS 2306 Nickel as Ni	0.51	< 0.50	< 0.02	< 0.1
DETS 2306 Lead as Pb	4.1	0.6	< 0.01	< 0.05
DETS 2306 Antimony as Sb	1.8	0.33	< 0.01	< 0.05
DETS 2306 Selenium as Se	0.47	< 0.25	< 0.006	< 0.03
DETS 2306 Zinc as Zn	1.9	< 1.3	0.004	< 0.01
DETS 2055 Chloride as Cl	1900	1100	< 20	< 100
DETS 2055* Fluoride as F	< 100	< 100	< 0.02	< 0.1
DETS 2055 Sulphate as SO4	8200	1300	< 20	< 100
DETS 2009* Total Dissolved Solids	55000	16000	110	191.9
DETS 2130 Phenol Index	< 100	< 100	< 0.2	< 1
DETS 2085 Dissolved Organic Carbon	12000	< 2000	24	< 50

WAC Limit Values		
Limit values for LS10 Leachate		
Inert Waste	SNRHW	Hazardous Waste
0.5	2	25
20	100	300
0.04	1	5
0.5	10	70
2	50	100
0.01	0.2	2
0.5	10	30
0.4	10	40
0.5	10	50
0.06	0.7	5
0.1	0.5	7
4	50	200
800	15,000	25,000
10	150	500
1000	20,000	50,000
4000	60,000	100,000
1	n/a	n/a
500	800	1000

Additional Information

DETS 2008 pH	6.3	6.4
DETS 2009 Conductivity uS/cm	79.0	23.0
* Temperature*	18.0	18.0

Mass of Sample Kg*	0.130
Mass of dry Sample Kg*	0.122

Stage 1

Volume of Leachant L2*	0.237
Volume of Eluate VE1*	0.1

Stage 2

Volume of Leachant L8*	0.979
Volume of Eluate VE2*	0.96

TBE - To Be Evaluated
SNRHW - Stable Non-Reactive
Hazardous Waste

Disclaimer: The WAC limit values are provided for guidance only. DETS does not accept responsibility for errors or omissions. Values are correct at time of issue.

Information in Support of the Analytical Results

Our Ref 21-07768
 Client Ref PN214198
 Contract Highbay Warehouse Kronospan

Containers Received & Deviating Samples

Lab No	Sample ID	Date Sampled	Containers Received	Holding time exceeded for tests	Inappropriate container for tests
1831912	HBW-WS102 1.00 SOIL	26/03/21	PT 1L (1kg)		BTEX, PAH FID, PCB, EPH/TPH
1831913	HBW-WS102 1.00 LEACHATE	26/03/21	PT 1L (1kg)		
1831914	HBW-WS102 1.00 LEACHATE	26/03/21	PT 1L (1kg)		

Key: P-Plastic T-Tub

DETS cannot be held responsible for the integrity of samples received whereby the laboratory did not undertake the sampling. In this instance samples received may be deviating. Deviating Sample criteria are based on British and International standards and laboratory trials in conjunction with the UKAS note 'Guidance on Deviating Samples'. All samples received are listed above. However, those samples that have additional comments in relation to hold time, inappropriate containers etc are deviating due to the reasons stated. This means that the analysis is accredited where applicable, but results may be compromised due to sample deviations. If no sampled date (soils) or date+time (waters) has been supplied then samples are deviating. However, if you are able to supply a sampled date (and time for waters) this will prevent samples being reported as deviating where specific hold times are not exceeded and where the container supplied is suitable.

Soil Analysis Notes

Inorganic soil analysis was carried out on a dried sample, crushed to pass a 425µm sieve, in accordance with BS1377.

Organic soil analysis was carried out on an 'as received' sample. Organics results are corrected for moisture and expressed on a dry weight basis.

The Loss on Drying, used to express organics analysis on an air dried basis, is carried out at a temperature of 28°C +/-2°C.

Disposal

From the issue date of this test certificate, samples will be held for the following times prior to disposal :-

Soils - 1 month, Liquids - 2 weeks, Asbestos (test portion) - 6 months

End of Report



DETS

Certificate of Analysis

Certificate Number 21-07055

Issued: 29-Apr-21

Client Geotechnics LTD
The Geotechnical Centre
Unit 1B Borders Ind. Park
River Lane
Saltney
Chester
CH4 8RJ

Our Reference 21-07055

Client Reference PN214198

Order No ON29050

Contract Title Highbay Warehouse Kronospan

Description 2 Soil samples.

Date Received 06-Apr-21

Date Started 06-Apr-21

Date Completed 29-Apr-21

Test Procedures Identified by prefix DETSn (details on request).

Notes Opinions and interpretations are outside the laboratory's scope of ISO 17025 accreditation. This certificate is issued in accordance with the accreditation requirements of the United Kingdom Accreditation Service. The results reported herein relate only to the material supplied to the laboratory. This certificate shall not be reproduced except in full, without the prior written approval of the laboratory.

Approved By



Adam Fenwick
Contracts Manager





Summary of Chemical Analysis

Matrix Descriptions

Our Ref 21-07055

Client Ref PN214198

Contract Title Highbay Warehouse Kronospan

Sample ID	Depth	Lab No	Completed	Matrix Description
HBW-BH101	1	1827075	13/04/2021	Brown sandy, gravelly CLAY
HBW-BH101	3	1827076	13/04/2021	Brown gravelly CLAY

Summary of Chemical Analysis

Soil Samples

Our Ref 21-07055

Client Ref PN214198

Contract Title Highbay Warehouse Kronospan

Lab No	1827075	1827076
Sample ID	HBW-BH101	HBW-BH101
Depth	1.00	3.00
Other ID		
Sample Type	ES	ES
Sampling Date	31/03/2021	31/03/2021
Sampling Time	n/s	n/s

Test	Method	LOD	Units		
Metals					
Antimony	DETSC 2301*	1	mg/kg	1.2	1.3
Arsenic	DETSC 2301#	0.2	mg/kg	13	7.0
Barium	DETSC 2301#	1.5	mg/kg	40	81
Boron, Water Soluble	DETSC 2311#	0.2	mg/kg	< 0.2	< 0.2
Cadmium	DETSC 2301#	0.1	mg/kg	< 0.1	0.2
Chromium III	DETSC 2301*	0.15	mg/kg	25	28
Chromium, Hexavalent	DETSC 2204*	1	mg/kg	< 1.0	< 1.0
Copper	DETSC 2301#	0.2	mg/kg	20	34
Lead	DETSC 2301#	0.3	mg/kg	24	34
Mercury	DETSC 2325#	0.05	mg/kg	< 0.05	< 0.05
Nickel	DETSC 2301#	1	mg/kg	27	40
Selenium	DETSC 2301#	0.5	mg/kg	< 0.5	< 0.5
Vanadium	DETSC 2301#	0.8	mg/kg	26	29
Zinc	DETSC 2301#	1	mg/kg	85	110
Inorganics					
pH	DETSC 2008#		pH	7.5	8.6
Total Organic Carbon	DETSC 2002	0.1	%	0.4	1.0
Formaldehyde	DETSC 2047*	0.2	mg/kg	< 0.2	
Sulphate Aqueous Extract as SO4	DETSC 2076#	10	mg/l	42	78
Petroleum Hydrocarbons					
Aliphatic C5-C6	DETSC 3321*	0.01	mg/kg	< 0.01	< 0.01
Aliphatic C6-C8	DETSC 3321*	0.01	mg/kg	< 0.01	< 0.01
Aliphatic C8-C10	DETSC 3321*	0.01	mg/kg	< 0.01	< 0.01
Aliphatic C10-C12	DETSC 3072#	1.5	mg/kg	< 1.5	< 1.5
Aliphatic C12-C16	DETSC 3072#	1.2	mg/kg	< 1.2	< 1.2
Aliphatic C16-C21	DETSC 3072#	1.5	mg/kg	< 1.5	< 1.5
Aliphatic C21-C35	DETSC 3072#	3.4	mg/kg	< 3.4	< 3.4
Aliphatic C5-C35	DETSC 3072*	10	mg/kg	< 10	< 10
Aromatic C5-C7	DETSC 3321*	0.01	mg/kg	< 0.01	< 0.01
Aromatic C7-C8	DETSC 3321*	0.01	mg/kg	< 0.01	< 0.01
Aromatic C8-C10	DETSC 3321*	0.01	mg/kg	< 0.01	< 0.01
Aromatic C10-C12	DETSC 3072#	0.9	mg/kg	< 0.9	< 0.9
Aromatic C12-C16	DETSC 3072#	0.5	mg/kg	< 0.5	< 0.5
Aromatic C16-C21	DETSC 3072#	0.6	mg/kg	< 0.6	< 0.6
Aromatic C21-C35	DETSC 3072#	1.4	mg/kg	< 1.4	< 1.4
Aromatic C5-C35	DETSC 3072*	10	mg/kg	< 10	< 10
TPH Ali/Aro Total C5-C35	DETSC 3072*	10	mg/kg	< 10	< 10

Summary of Chemical Analysis

Soil Samples

Our Ref 21-07055

Client Ref PN214198

Contract Title Highbay Warehouse Kronospan

Lab No	1827075	1827076
Sample ID	HBW-BH101	HBW-BH101
Depth	1.00	3.00
Other ID		
Sample Type	ES	ES
Sampling Date	31/03/2021	31/03/2021
Sampling Time	n/s	n/s

Test	Method	LOD	Units		
PAHs					
Naphthalene	DETSC 3301	0.1	mg/kg	< 0.1	< 0.1
Acenaphthylene	DETSC 3301	0.1	mg/kg	< 0.1	< 0.1
Acenaphthene	DETSC 3301	0.1	mg/kg	< 0.1	< 0.1
Fluorene	DETSC 3301	0.1	mg/kg	< 0.1	< 0.1
Phenanthrene	DETSC 3301	0.1	mg/kg	< 0.1	< 0.1
Anthracene	DETSC 3301	0.1	mg/kg	< 0.1	< 0.1
Fluoranthene	DETSC 3301	0.1	mg/kg	< 0.1	< 0.1
Pyrene	DETSC 3301	0.1	mg/kg	< 0.1	< 0.1
Benzo(a)anthracene	DETSC 3301	0.1	mg/kg	< 0.1	< 0.1
Chrysene	DETSC 3301	0.1	mg/kg	< 0.1	< 0.1
Benzo(b)fluoranthene	DETSC 3301	0.1	mg/kg	< 0.1	< 0.1
Benzo(k)fluoranthene	DETSC 3301	0.1	mg/kg	< 0.1	< 0.1
Benzo(a)pyrene	DETSC 3301	0.1	mg/kg	< 0.1	< 0.1
Indeno(1,2,3-c,d)pyrene	DETSC 3301	0.1	mg/kg	< 0.1	< 0.1
Dibenzo(a,h)anthracene	DETSC 3301	0.1	mg/kg	< 0.1	< 0.1
Benzo(g,h,i)perylene	DETSC 3301	0.1	mg/kg	< 0.1	< 0.1
PAH Total	DETSC 3301	1.6	mg/kg	< 1.6	< 1.6

Summary of Asbestos Analysis Soil Samples

Our Ref 21-07055

Client Ref PN214198

Contract Title Highbay Warehouse Kronospan

Lab No	Sample ID	Material Type	Result	Comment*	Analyst
1827075	HBW-BH101 1.00	SOIL	NAD	none	Darryl Fletcher

Crocidolite = Blue Asbestos, Amosite = Brown Asbestos, Chrysotile = White Asbestos. Anthophyllite, Actinolite and Tremolite are other forms of Asbestos. Samples are analysed by DETSC 1101 using polarised light microscopy in accordance with HSG248 and documented in-house methods. NAD = No Asbestos Detected. Where a sample is NAD, the result is based on analysis of at least 2 sub-samples and should be taken to mean 'no asbestos detected in sample'. Key: * - not included in laboratory scope of accreditation.

Information in Support of the Analytical Results

Our Ref 21-07055
 Client Ref PN214198
 Contract Highbay Warehouse Kronospan

Containers Received & Deviating Samples

Lab No	Sample ID	Date Sampled	Containers Received	Holding time exceeded for tests	Inappropriate container for tests
1827075	HBW-BH101 1.00 SOIL	31/03/21	GJ 250ml, GJ 60ml x2, PT 1L		
1827076	HBW-BH101 3.00 SOIL	31/03/21	GJ 250ml, GJ 60ml x2, PT 1L		

Key: G-Glass P-Plastic J-Jar T-Tub

DETS cannot be held responsible for the integrity of samples received whereby the laboratory did not undertake the sampling. In this instance samples received may be deviating. Deviating Sample criteria are based on British and International standards and laboratory trials in conjunction with the UKAS note 'Guidance on Deviating Samples'. All samples received are listed above. However, those samples that have additional comments in relation to hold time, inappropriate containers etc are deviating due to the reasons stated. This means that the analysis is accredited where applicable, but results may be compromised due to sample deviations. If no sampled date (soils) or date+time (waters) has been supplied then samples are deviating. However, if you are able to supply a sampled date (and time for waters) this will prevent samples being reported as deviating where specific hold times are not exceeded and where the container supplied is suitable.

Soil Analysis Notes

Inorganic soil analysis was carried out on a dried sample, crushed to pass a 425µm sieve, in accordance with BS1377.

Organic soil analysis was carried out on an 'as received' sample. Organics results are corrected for moisture and expressed on a dry weight basis.

The Loss on Drying, used to express organics analysis on an air dried basis, is carried out at a temperature of 28°C +/-2°C.

Disposal

From the issue date of this test certificate, samples will be held for the following times prior to disposal :-

Soils - 1 month, Liquids - 2 weeks, Asbestos (test portion) - 6 months

Appendix A - Details of Analysis

Method	Parameter	Units	Limit of Detection	Sample Preparation	Sub-Contracted	UKAS	MCERTS
DETS 2002	Organic matter	%	0.1	Air Dried	No	Yes	Yes
DETS 2003	Loss on ignition	%	0.01	Air Dried	No	Yes	Yes
DETS 2008	pH	pH Units	1	Air Dried	No	Yes	Yes
DETS 2024	Sulphide	mg/kg	10	Air Dried	No	Yes	Yes
DETS 2076	Sulphate Aqueous Extract as SO ₄	mg/l	10	Air Dried	No	Yes	Yes
DETS 2084	Total Carbon	%	0.5	Air Dried	No	Yes	Yes
DETS 2084	Total Organic Carbon	%	0.5	Air Dried	No	Yes	Yes
DETS 2119	Ammoniacal Nitrogen as N	mg/kg	0.5	Air Dried	No	Yes	Yes
DETS 2130	Cyanide free	mg/kg	0.1	Air Dried	No	Yes	Yes
DETS 2130	Cyanide total	mg/kg	0.1	Air Dried	No	Yes	Yes
DETS 2130	Phenol - Monohydric	mg/kg	0.3	Air Dried	No	Yes	Yes
DETS 2130	Thiocyanate	mg/kg	0.6	Air Dried	No	Yes	Yes
DETS 2321	Total Sulphate as SO ₄	%	0.01	Air Dried	No	Yes	Yes
DETS 2325	Mercury	mg/kg	0.05	Air Dried	No	Yes	Yes
DETS 3049	Sulphur (free)	mg/kg	0.75	Air Dried	No	Yes	Yes
DETS 2123	Boron (water soluble)	mg/kg	0.2	Air Dried	No	Yes	Yes
DETS 2301	Arsenic	mg/kg	0.2	Air Dried	No	Yes	Yes
DETS 2301	Barium	mg/kg	1.5	Air Dried	No	Yes	Yes
DETS 2301	Beryllium	mg/kg	0.2	Air Dried	No	Yes	Yes
DETS 2301	Cadmium Available	mg/kg	0.1	Air Dried	No	Yes	Yes
DETS 2301	Cadmium	mg/kg	0.1	Air Dried	No	Yes	Yes
DETS 2301	Cobalt	mg/kg	0.7	Air Dried	No	Yes	Yes
DETS 2301	Chromium	mg/kg	0.15	Air Dried	No	Yes	Yes
DETS 2301	Copper	mg/kg	0.2	Air Dried	No	Yes	Yes
DETS 2301	Manganese	mg/kg	20	Air Dried	No	Yes	Yes
DETS 2301	Molybdenum	mg/kg	0.4	Air Dried	No	Yes	Yes
DETS 2301	Nickel	mg/kg	1	Air Dried	No	Yes	Yes
DETS 2301	Lead	mg/kg	0.3	Air Dried	No	Yes	Yes
DETS 2301	Selenium	mg/kg	0.5	Air Dried	No	Yes	Yes
DETS 2301	Zinc	mg/kg	1	Air Dried	No	Yes	Yes
DETS 3072	Ali/Aro C10-C35	mg/kg	10	As Received	No	Yes	Yes
DETS 3072	Aliphatic C10-C12	mg/kg	1.5	As Received	No	Yes	Yes
DETS 3072	Aliphatic C10-C12	mg/kg	10	As Received	No	Yes	Yes
DETS 3072	Aliphatic C10-C35	mg/kg	10	As Received	No	Yes	Yes
DETS 3072	Aliphatic C12-C16	mg/kg	1.2	As Received	No	Yes	Yes
DETS 3072	Aliphatic C12-C16	mg/kg	10	As Received	No	Yes	Yes
DETS 3072	Aliphatic C16-C21	mg/kg	1.5	As Received	No	Yes	Yes
DETS 3072	Aliphatic C16-C21	mg/kg	10	As Received	No	Yes	Yes
DETS 3072	Aliphatic C21-C35	mg/kg	3.4	As Received	No	Yes	Yes
DETS 3072	Aliphatic C21-C35	mg/kg	3.4	As Received	No	Yes	Yes
DETS 3072	Aromatic C10-C12	mg/kg	0.9	As Received	No	Yes	Yes
DETS 3072	Aromatic C10-C12	mg/kg	10	As Received	No	Yes	Yes
DETS 3072	Aromatic C10-C35	mg/kg	10	As Received	No	Yes	Yes
DETS 3072	Aromatic C12-C16	mg/kg	0.5	As Received	No	Yes	Yes
DETS 3072	Aromatic C12-C16	mg/kg	10	As Received	No	Yes	Yes
DETS 3072	Aromatic C16-C21	mg/kg	0.6	As Received	No	Yes	Yes
DETS 3072	Aromatic C16-C21	mg/kg	10	As Received	No	Yes	Yes
DETS 3072	Aromatic C21-C35	mg/kg	1.4	As Received	No	Yes	Yes
DETS 3072	Aromatic C21-C35	mg/kg	1.4	As Received	No	Yes	Yes
DETS 062	Benzene	mg/kg	0.01	As Received	No	Yes	Yes
DETS 062	Ethylbenzene	mg/kg	0.01	As Received	No	Yes	Yes
DETS 062	Toluene	mg/kg	0.01	As Received	No	Yes	Yes
DETS 062	Xylene	mg/kg	0.01	As Received	No	Yes	Yes
DETS 062	m+p Xylene	mg/kg	0.01	As Received	No	Yes	Yes
DETS 062	o Xylene	mg/kg	0.01	As Received	No	Yes	Yes
DETS 3311	C10-C24 Diesel Range Organics (DRO)	mg/kg	10	As Received	No	Yes	Yes
DETS 3311	C24-C40 Lube Oil Range Organics (LORO)	mg/kg	10	As Received	No	Yes	Yes
DETS 3311	EPH (C10-C40)	mg/kg	10	As Received	No	Yes	Yes

Appendix A - Details of Analysis

Method	Parameter	Units	Limit of Detection	Sample Preparation	Sub-Contracted	UKAS	MCERTS
DETSC 3303	Acenaphthene	mg/kg	0.03	As Received	No	Yes	Yes
DETSC 3303	Acenaphthylene	mg/kg	0.03	As Received	No	Yes	Yes
DETSC 3303	Benzo(a)pyrene	mg/kg	0.03	As Received	No	Yes	Yes
DETSC 3303	Benzo(a)anthracene	mg/kg	0.03	As Received	No	Yes	Yes
DETSC 3303	Benzo(b)fluoranthene	mg/kg	0.03	As Received	No	Yes	Yes
DETSC 3303	Benzo(k)fluoranthene	mg/kg	0.03	As Received	No	Yes	Yes
DETSC 3303	Benzo(g,h,i)perylene	mg/kg	0.03	As Received	No	Yes	Yes
DETSC 3303	Dibenzo(a,h)anthracene	mg/kg	0.03	As Received	No	Yes	Yes
DETSC 3303	Fluoranthene	mg/kg	0.03	As Received	No	Yes	Yes
DETSC 3303	Indeno(1,2,3-c,d)pyrene	mg/kg	0.03	As Received	No	Yes	Yes
DETSC 3303	Naphthalene	mg/kg	0.03	As Received	No	Yes	Yes
DETSC 3303	Phenanthrene	mg/kg	0.03	As Received	No	Yes	Yes
DETSC 3303	Pyrene	mg/kg	0.03	As Received	No	Yes	Yes
DETSC 3401	PCB 28 + PCB 31	mg/kg	0.01	As Received	No	Yes	Yes
DETSC 3401	PCB 52	mg/kg	0.01	As Received	No	Yes	Yes
DETSC 3401	PCB 101	mg/kg	0.01	As Received	No	Yes	Yes
DETSC 3401	PCB 118	mg/kg	0.01	As Received	No	Yes	Yes
DETSC 3401	PCB 153	mg/kg	0.01	As Received	No	Yes	Yes
DETSC 3401	PCB 138	mg/kg	0.01	As Received	No	Yes	Yes
DETSC 3401	PCB 180	mg/kg	0.01	As Received	No	Yes	Yes
DETSC 3401	PCB Total	mg/kg	0.01	As Received	No	Yes	Yes

Method details are shown only for those determinands listed in Annex A of the MCERTS standard. Anything not included on this list falls outside the scope of MCERTS. No Recovery Factors are used in the determination of results. Results reported assume 100% recovery. Full method statements are available on request.

End of Report



Certificate of Analysis

Certificate Number 21-07626

Issued: 20-Apr-21

Client Geotechnics LTD
The Geotechnical Centre
Unit 1B Borders Ind. Park
River Lane
Saltney
Chester
CH4 8RJ

Our Reference 21-07626

Client Reference PN214198

Order No ON29050

Contract Title Highbay Warehouse Kronospan

Description One Soil sample.

Date Received 13-Apr-21

Date Started 13-Apr-21

Date Completed 20-Apr-21

Test Procedures Identified by prefix DETSn (details on request).

Notes Opinions and interpretations are outside the laboratory's scope of ISO 17025 accreditation. This certificate is issued in accordance with the accreditation requirements of the United Kingdom Accreditation Service. The results reported herein relate only to the material supplied to the laboratory. This certificate shall not be reproduced except in full, without the prior written approval of the laboratory.

Approved By

Adam Fenwick
Contracts Manager





Summary of Chemical Analysis

Matrix Descriptions

Our Ref 21-07626

Client Ref PN214198

Contract Title Highbay Warehouse Kronospan

Sample ID	Depth	Lab No	Completed	Matrix Description
BH102	1	1830921	20/04/2021	Brown sandy GRAVEL (sample matrix outside MCERTS scope of accreditation)

Summary of Chemical Analysis

Soil Samples

Our Ref 21-07626

Client Ref PN214198

Contract Title Highbay Warehouse Kronospan

Lab No	1830921
Sample ID	BH102
Depth	1.00
Other ID	
Sample Type	ES
Sampling Date	09/04/2021
Sampling Time	n/s

Test	Method	LOD	Units	
Metals				
Antimony	DETSC 2301*	1	mg/kg	1.4
Arsenic	DETSC 2301#	0.2	mg/kg	12
Barium	DETSC 2301#	1.5	mg/kg	32
Boron, Water Soluble	DETSC 2311#	0.2	mg/kg	< 0.2
Cadmium	DETSC 2301#	0.1	mg/kg	0.1
Chromium III	DETSC 2301*	0.15	mg/kg	25
Chromium, Hexavalent	DETSC 2204*	1	mg/kg	< 1.0
Copper	DETSC 2301#	0.2	mg/kg	33
Lead	DETSC 2301#	0.3	mg/kg	18
Mercury	DETSC 2325#	0.05	mg/kg	0.17
Nickel	DETSC 2301#	1	mg/kg	33
Selenium	DETSC 2301#	0.5	mg/kg	< 0.5
Vanadium	DETSC 2301#	0.8	mg/kg	26
Zinc	DETSC 2301#	1	mg/kg	75
Inorganics				
pH	DETSC 2008#		pH	8.3
Total Organic Carbon	DETSC 2084#	0.5	%	< 0.5
Sulphate Aqueous Extract as SO4	DETSC 2076#	10	mg/l	15
Petroleum Hydrocarbons				
Aliphatic C5-C6	DETSC 3321*	0.01	mg/kg	< 0.01
Aliphatic C6-C8	DETSC 3321*	0.01	mg/kg	< 0.01
Aliphatic C8-C10	DETSC 3321*	0.01	mg/kg	< 0.01
Aliphatic C10-C12	DETSC 3072#	1.5	mg/kg	< 1.5
Aliphatic C12-C16	DETSC 3072#	1.2	mg/kg	< 1.2
Aliphatic C16-C21	DETSC 3072#	1.5	mg/kg	< 1.5
Aliphatic C21-C35	DETSC 3072#	3.4	mg/kg	< 3.4
Aliphatic C5-C35	DETSC 3072*	10	mg/kg	< 10
Aromatic C5-C7	DETSC 3321*	0.01	mg/kg	< 0.01
Aromatic C7-C8	DETSC 3321*	0.01	mg/kg	< 0.01
Aromatic C8-C10	DETSC 3321*	0.01	mg/kg	< 0.01
Aromatic C10-C12	DETSC 3072#	0.9	mg/kg	< 0.9
Aromatic C12-C16	DETSC 3072#	0.5	mg/kg	< 0.5
Aromatic C16-C21	DETSC 3072#	0.6	mg/kg	< 0.6
Aromatic C21-C35	DETSC 3072#	1.4	mg/kg	< 1.4
Aromatic C5-C35	DETSC 3072*	10	mg/kg	< 10
TPH Ali/Aro Total C5-C35	DETSC 3072*	10	mg/kg	< 10

Summary of Chemical Analysis

Soil Samples

Our Ref 21-07626

Client Ref PN214198

Contract Title Highbay Warehouse Kronospan

Lab No	1830921
Sample ID	BH102
Depth	1.00
Other ID	
Sample Type	ES
Sampling Date	09/04/2021
Sampling Time	n/s

Test	Method	LOD	Units	
PAHs				
Naphthalene	DETSC 3301	0.1	mg/kg	< 0.1
Acenaphthylene	DETSC 3301	0.1	mg/kg	< 0.1
Acenaphthene	DETSC 3301	0.1	mg/kg	< 0.1
Fluorene	DETSC 3301	0.1	mg/kg	< 0.1
Phenanthrene	DETSC 3301	0.1	mg/kg	< 0.1
Anthracene	DETSC 3301	0.1	mg/kg	< 0.1
Fluoranthene	DETSC 3301	0.1	mg/kg	< 0.1
Pyrene	DETSC 3301	0.1	mg/kg	< 0.1
Benzo(a)anthracene	DETSC 3301	0.1	mg/kg	< 0.1
Chrysene	DETSC 3301	0.1	mg/kg	< 0.1
Benzo(b)fluoranthene	DETSC 3301	0.1	mg/kg	< 0.1
Benzo(k)fluoranthene	DETSC 3301	0.1	mg/kg	< 0.1
Benzo(a)pyrene	DETSC 3301	0.1	mg/kg	< 0.1
Indeno(1,2,3-c,d)pyrene	DETSC 3301	0.1	mg/kg	< 0.1
Dibenzo(a,h)anthracene	DETSC 3301	0.1	mg/kg	< 0.1
Benzo(g,h,i)perylene	DETSC 3301	0.1	mg/kg	< 0.1
PAH Total	DETSC 3301	1.6	mg/kg	< 1.6

Summary of Asbestos Analysis Soil Samples

Our Ref 21-07626

Client Ref PN214198

Contract Title Highbay Warehouse Kronospan

Lab No	Sample ID	Material Type	Result	Comment*	Analyst
1830921	BH102 1.00	SOIL	NAD	none	Emma Stacey

Crocidolite = Blue Asbestos, Amosite = Brown Asbestos, Chrysotile = White Asbestos. Anthophyllite, Actinolite and Tremolite are other forms of Asbestos. Samples are analysed by DETSC 1101 using polarised light microscopy in accordance with HSG248 and documented in-house methods. NAD = No Asbestos Detected. Where a sample is NAD, the result is based on analysis of at least 2 sub-samples and should be taken to mean 'no asbestos detected in sample'. Key: * - not included in laboratory scope of accreditation.

Information in Support of the Analytical Results

Our Ref 21-07626
 Client Ref PN214198
 Contract Highbay Warehouse Kronospan

Containers Received & Deviating Samples

Lab No	Sample ID	Date Sampled	Containers Received	Holding time exceeded for tests	Inappropriate container for tests
1830921	BH102 1.00 SOIL	09/04/21	GJ 250ml, GJ 60ml x2, PT 1L		
Key: G-Glass P-Plastic J-Jar T-Tub DETS cannot be held responsible for the integrity of samples received whereby the laboratory did not undertake the sampling. In this instance samples received may be deviating. Deviating Sample criteria are based on British and International standards and laboratory trials in conjunction with the UKAS note 'Guidance on Deviating Samples'. All samples received are listed above. However, those samples that have additional comments in relation to hold time, inappropriate containers etc are deviating due to the reasons stated. This means that the analysis is accredited where applicable, but results may be compromised due to sample deviations. If no sampled date (soils) or date+time (waters) has been supplied then samples are deviating. However, if you are able to supply a sampled date (and time for waters) this will prevent samples being reported as deviating where specific hold times are not exceeded and where the container supplied is suitable.					

Soil Analysis Notes

Inorganic soil analysis was carried out on a dried sample, crushed to pass a 425µm sieve, in accordance with BS1377. Organic soil analysis was carried out on an 'as received' sample. Organics results are corrected for moisture and expressed on a dry weight basis. The Loss on Drying, used to express organics analysis on an air dried basis, is carried out at a temperature of 28°C +/-2°C.
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Disposal

From the issue date of this test certificate, samples will be held for the following times prior to disposal :- Soils - 1 month, Liquids - 2 weeks, Asbestos (test portion) - 6 months

Appendix A - Details of Analysis

Method	Parameter	Units	Limit of Detection	Sample Preparation	Sub-Contracted	UKAS	MCERTS
DETSC 2002	Organic matter	%	0.1	Air Dried	No	Yes	Yes
DETSC 2003	Loss on ignition	%	0.01	Air Dried	No	Yes	Yes
DETSC 2008	pH	pH Units	1	Air Dried	No	Yes	Yes
DETSC 2024	Sulphide	mg/kg	10	Air Dried	No	Yes	Yes
DETSC 2076	Sulphate Aqueous Extract as SO ₄	mg/l	10	Air Dried	No	Yes	Yes
DETSC 2084	Total Carbon	%	0.5	Air Dried	No	Yes	Yes
DETSC 2084	Total Organic Carbon	%	0.5	Air Dried	No	Yes	Yes
DETSC 2119	Ammoniacal Nitrogen as N	mg/kg	0.5	Air Dried	No	Yes	Yes
DETSC 2130	Cyanide free	mg/kg	0.1	Air Dried	No	Yes	Yes
DETSC 2130	Cyanide total	mg/kg	0.1	Air Dried	No	Yes	Yes
DETSC 2130	Phenol - Monohydric	mg/kg	0.3	Air Dried	No	Yes	Yes
DETSC 2130	Thiocyanate	mg/kg	0.6	Air Dried	No	Yes	Yes
DETSC 2321	Total Sulphate as SO ₄	%	0.01	Air Dried	No	Yes	Yes
DETSC 2325	Mercury	mg/kg	0.05	Air Dried	No	Yes	Yes
DETSC 3049	Sulphur (free)	mg/kg	0.75	Air Dried	No	Yes	Yes
DETSC2123	Boron (water soluble)	mg/kg	0.2	Air Dried	No	Yes	Yes
DETSC2301	Arsenic	mg/kg	0.2	Air Dried	No	Yes	Yes
DETSC2301	Barium	mg/kg	1.5	Air Dried	No	Yes	Yes
DETSC2301	Beryllium	mg/kg	0.2	Air Dried	No	Yes	Yes
DETSC2301	Cadmium Available	mg/kg	0.1	Air Dried	No	Yes	Yes
DETSC2301	Cadmium	mg/kg	0.1	Air Dried	No	Yes	Yes
DETSC2301	Cobalt	mg/kg	0.7	Air Dried	No	Yes	Yes
DETSC2301	Chromium	mg/kg	0.15	Air Dried	No	Yes	Yes
DETSC2301	Copper	mg/kg	0.2	Air Dried	No	Yes	Yes
DETSC2301	Manganese	mg/kg	20	Air Dried	No	Yes	Yes
DETSC2301	Molybdenum	mg/kg	0.4	Air Dried	No	Yes	Yes
DETSC2301	Nickel	mg/kg	1	Air Dried	No	Yes	Yes
DETSC2301	Lead	mg/kg	0.3	Air Dried	No	Yes	Yes
DETSC2301	Selenium	mg/kg	0.5	Air Dried	No	Yes	Yes
DETSC2301	Zinc	mg/kg	1	Air Dried	No	Yes	Yes
DETSC 3072	Ali/Aro C10-C35	mg/kg	10	As Received	No	Yes	Yes
DETSC 3072	Aliphatic C10-C12	mg/kg	1.5	As Received	No	Yes	Yes
DETSC 3072	Aliphatic C10-C12	mg/kg	10	As Received	No	Yes	Yes
DETSC 3072	Aliphatic C10-C35	mg/kg	10	As Received	No	Yes	Yes
DETSC 3072	Aliphatic C12-C16	mg/kg	1.2	As Received	No	Yes	Yes
DETSC 3072	Aliphatic C12-C16	mg/kg	10	As Received	No	Yes	Yes
DETSC 3072	Aliphatic C16-C21	mg/kg	1.5	As Received	No	Yes	Yes
DETSC 3072	Aliphatic C16-C21	mg/kg	10	As Received	No	Yes	Yes
DETSC 3072	Aliphatic C21-C35	mg/kg	3.4	As Received	No	Yes	Yes
DETSC 3072	Aliphatic C21-C35	mg/kg	3.4	As Received	No	Yes	Yes
DETSC 3072	Aromatic C10-C12	mg/kg	0.9	As Received	No	Yes	Yes
DETSC 3072	Aromatic C10-C12	mg/kg	10	As Received	No	Yes	Yes
DETSC 3072	Aromatic C10-C35	mg/kg	10	As Received	No	Yes	Yes
DETSC 3072	Aromatic C12-C16	mg/kg	0.5	As Received	No	Yes	Yes
DETSC 3072	Aromatic C12-C16	mg/kg	10	As Received	No	Yes	Yes
DETSC 3072	Aromatic C16-C21	mg/kg	0.6	As Received	No	Yes	Yes
DETSC 3072	Aromatic C16-C21	mg/kg	10	As Received	No	Yes	Yes
DETSC 3072	Aromatic C21-C35	mg/kg	1.4	As Received	No	Yes	Yes
DETSC 3072	Aromatic C21-C35	mg/kg	1.4	As Received	No	Yes	Yes
DETS 062	Benzene	mg/kg	0.01	As Received	No	Yes	Yes
DETS 062	Ethylbenzene	mg/kg	0.01	As Received	No	Yes	Yes
DETS 062	Toluene	mg/kg	0.01	As Received	No	Yes	Yes
DETS 062	Xylene	mg/kg	0.01	As Received	No	Yes	Yes
DETS 062	m+p Xylene	mg/kg	0.01	As Received	No	Yes	Yes
DETS 062	o Xylene	mg/kg	0.01	As Received	No	Yes	Yes
DETSC 3311	C10-C24 Diesel Range Organics (DRO)	mg/kg	10	As Received	No	Yes	Yes
DETSC 3311	C24-C40 Lube Oil Range Organics (LORO)	mg/kg	10	As Received	No	Yes	Yes
DETSC 3311	EPH (C10-C40)	mg/kg	10	As Received	No	Yes	Yes

Appendix A - Details of Analysis

Method	Parameter	Units	Limit of Detection	Sample Preparation	Sub-Contracted	UKAS	MCERTS
DETSC 3303	Acenaphthene	mg/kg	0.03	As Received	No	Yes	Yes
DETSC 3303	Acenaphthylene	mg/kg	0.03	As Received	No	Yes	Yes
DETSC 3303	Benzo(a)pyrene	mg/kg	0.03	As Received	No	Yes	Yes
DETSC 3303	Benzo(a)anthracene	mg/kg	0.03	As Received	No	Yes	Yes
DETSC 3303	Benzo(b)fluoranthene	mg/kg	0.03	As Received	No	Yes	Yes
DETSC 3303	Benzo(k)fluoranthene	mg/kg	0.03	As Received	No	Yes	Yes
DETSC 3303	Benzo(g,h,i)perylene	mg/kg	0.03	As Received	No	Yes	Yes
DETSC 3303	Dibenzo(a,h)anthracene	mg/kg	0.03	As Received	No	Yes	Yes
DETSC 3303	Fluoranthene	mg/kg	0.03	As Received	No	Yes	Yes
DETSC 3303	Indeno(1,2,3-c,d)pyrene	mg/kg	0.03	As Received	No	Yes	Yes
DETSC 3303	Naphthalene	mg/kg	0.03	As Received	No	Yes	Yes
DETSC 3303	Phenanthrene	mg/kg	0.03	As Received	No	Yes	Yes
DETSC 3303	Pyrene	mg/kg	0.03	As Received	No	Yes	Yes
DETSC 3401	PCB 28 + PCB 31	mg/kg	0.01	As Received	No	Yes	Yes
DETSC 3401	PCB 52	mg/kg	0.01	As Received	No	Yes	Yes
DETSC 3401	PCB 101	mg/kg	0.01	As Received	No	Yes	Yes
DETSC 3401	PCB 118	mg/kg	0.01	As Received	No	Yes	Yes
DETSC 3401	PCB 153	mg/kg	0.01	As Received	No	Yes	Yes
DETSC 3401	PCB 138	mg/kg	0.01	As Received	No	Yes	Yes
DETSC 3401	PCB 180	mg/kg	0.01	As Received	No	Yes	Yes
DETSC 3401	PCB Total	mg/kg	0.01	As Received	No	Yes	Yes

Method details are shown only for those determinands listed in Annex A of the MCERTS standard. Anything not included on this list falls outside the scope of MCERTS. No Recovery Factors are used in the determination of results. Results reported assume 100% recovery. Full method statements are available on request.

End of Report



DETS

Certificate of Analysis

Certificate Number 21-07754

Issued: 29-Apr-21

Client Geotechnics LTD
The Geotechnical Centre
Unit 1B Borders Ind. Park
River Lane
Saltney
Chester
CH4 8RJ

Our Reference 21-07754

Client Reference PN214198

Order No ON29050

Contract Title Highbay Warehouse Kronospan

Description 1 Soil sample, 2 Leachate samples.

Date Received 14-Apr-21

Date Started 14-Apr-21

Date Completed 29-Apr-21

Test Procedures Identified by prefix DETSn (details on request).

Notes Opinions and interpretations are outside the laboratory's scope of ISO 17025 accreditation. This certificate is issued in accordance with the accreditation requirements of the United Kingdom Accreditation Service. The results reported herein relate only to the material supplied to the laboratory. This certificate shall not be reproduced except in full, without the prior written approval of the laboratory.

Approved By



Adam Fenwick
Contracts Manager





Summary of Chemical Analysis

Matrix Descriptions

Our Ref 21-07754

Client Ref PN214198

Contract Title Highbay Warehouse Kronospan

Sample ID	Depth	Lab No	Completed	Matrix Description
HBW-BH102	2	1831831	21/04/2021	Brown gravelly, sandy CLAY

Summary of Chemical Analysis

Soil Samples

Our Ref 21-07754

Client Ref PN214198

Contract Title Highbay Warehouse Kronospan

Lab No	1831831
Sample ID	HBW-BH102
Depth	2.00
Other ID	
Sample Type	ES
Sampling Date	12/04/2021
Sampling Time	n/s

Test	Method	LOD	Units	
Metals				
Antimony	DETSC 2301*	1	mg/kg	< 1.0
Arsenic	DETSC 2301#	0.2	mg/kg	14
Barium	DETSC 2301#	1.5	mg/kg	26
Boron, Water Soluble	DETSC 2311#	0.2	mg/kg	< 0.2
Cadmium	DETSC 2301#	0.1	mg/kg	0.1
Chromium III	DETSC 2301*	0.15	mg/kg	26
Chromium, Hexavalent	DETSC 2204*	1	mg/kg	< 1.0
Copper	DETSC 2301#	0.2	mg/kg	31
Lead	DETSC 2301#	0.3	mg/kg	17
Mercury	DETSC 2325#	0.05	mg/kg	< 0.05
Nickel	DETSC 2301#	1	mg/kg	32
Selenium	DETSC 2301#	0.5	mg/kg	< 0.5
Vanadium	DETSC 2301#	0.8	mg/kg	22
Zinc	DETSC 2301#	1	mg/kg	83
Inorganics				
pH	DETSC 2008#		pH	7.8
Total Organic Carbon	DETSC 2084#	0.5	%	< 0.5
Sulphate Aqueous Extract as SO4	DETSC 2076#	10	mg/l	15
Petroleum Hydrocarbons				
Aliphatic C5-C6	DETSC 3321*	0.01	mg/kg	< 0.01
Aliphatic C6-C8	DETSC 3321*	0.01	mg/kg	< 0.01
Aliphatic C8-C10	DETSC 3321*	0.01	mg/kg	< 0.01
Aliphatic C10-C12	DETSC 3072#	1.5	mg/kg	< 1.5
Aliphatic C12-C16	DETSC 3072#	1.2	mg/kg	< 1.2
Aliphatic C16-C21	DETSC 3072#	1.5	mg/kg	21
Aliphatic C21-C35	DETSC 3072#	3.4	mg/kg	1500
Aliphatic C5-C35	DETSC 3072*	10	mg/kg	1500
Aromatic C5-C7	DETSC 3321*	0.01	mg/kg	< 0.01
Aromatic C7-C8	DETSC 3321*	0.01	mg/kg	< 0.01
Aromatic C8-C10	DETSC 3321*	0.01	mg/kg	< 0.01
Aromatic C10-C12	DETSC 3072#	0.9	mg/kg	< 0.9
Aromatic C12-C16	DETSC 3072#	0.5	mg/kg	< 0.5
Aromatic C16-C21	DETSC 3072#	0.6	mg/kg	6.0
Aromatic C21-C35	DETSC 3072#	1.4	mg/kg	870
Aromatic C5-C35	DETSC 3072*	10	mg/kg	880
TPH Ali/Aro Total C5-C35	DETSC 3072*	10	mg/kg	2400

Summary of Chemical Analysis

Soil Samples

Our Ref 21-07754

Client Ref PN214198

Contract Title Highbay Warehouse Kronospan

Lab No	1831831
Sample ID	HBW-BH102
Depth	2.00
Other ID	
Sample Type	ES
Sampling Date	12/04/2021
Sampling Time	n/s

Test	Method	LOD	Units	
PAHs				
Naphthalene	DETSC 3301	0.1	mg/kg	< 0.1
Acenaphthylene	DETSC 3301	0.1	mg/kg	< 0.1
Acenaphthene	DETSC 3301	0.1	mg/kg	< 0.1
Fluorene	DETSC 3301	0.1	mg/kg	< 0.1
Phenanthrene	DETSC 3301	0.1	mg/kg	< 0.1
Anthracene	DETSC 3301	0.1	mg/kg	< 0.1
Fluoranthene	DETSC 3301	0.1	mg/kg	< 0.1
Pyrene	DETSC 3301	0.1	mg/kg	< 0.1
Benzo(a)anthracene	DETSC 3301	0.1	mg/kg	< 0.1
Chrysene	DETSC 3301	0.1	mg/kg	< 0.1
Benzo(b)fluoranthene	DETSC 3301	0.1	mg/kg	< 0.1
Benzo(k)fluoranthene	DETSC 3301	0.1	mg/kg	< 0.1
Benzo(a)pyrene	DETSC 3301	0.1	mg/kg	< 0.1
Indeno(1,2,3-c,d)pyrene	DETSC 3301	0.1	mg/kg	< 0.1
Dibenzo(a,h)anthracene	DETSC 3301	0.1	mg/kg	< 0.1
Benzo(g,h,i)perylene	DETSC 3301	0.1	mg/kg	< 0.1
PAH Total	DETSC 3301	1.6	mg/kg	< 1.6

Summary of Chemical Analysis

Soil Samples

Our Ref 21-07754

Client Ref PN214198

Contract Title Highbay Warehouse Kronospan

Lab No	1831831
Sample ID	HBW-BH102
Depth	2.00
Other ID	
Sample Type	ES
Sampling Date	12/04/2021
Sampling Time	n/s

Test	Method	LOD	Units	
VOCs				
Vinyl Chloride	DETSC 3431	0.01	mg/kg	< 0.01
1,1 Dichloroethylene	DETSC 3431	0.01	mg/kg	< 0.01
Trans-1,2-dichloroethylene	DETSC 3431	0.01	mg/kg	< 0.01
1,1-dichloroethane	DETSC 3431	0.01	mg/kg	< 0.01
Cis-1,2-dichloroethylene	DETSC 3431	0.01	mg/kg	< 0.01
2,2-dichloropropane	DETSC 3431	0.01	mg/kg	< 0.01
Bromochloromethane	DETSC 3431	0.01	mg/kg	< 0.01
Chloroform	DETSC 3431	0.01	mg/kg	< 0.01
1,1,1-trichloroethane	DETSC 3431	0.01	mg/kg	< 0.01
1,1-dichloropropene	DETSC 3431	0.01	mg/kg	< 0.01
Carbon tetrachloride	DETSC 3431	0.01	mg/kg	< 0.01
Benzene	DETSC 3431	0.01	mg/kg	< 0.01
1,2-dichloroethane	DETSC 3431	0.01	mg/kg	< 0.01
Trichloroethylene	DETSC 3431	0.01	mg/kg	< 0.01
1,2-dichloropropane	DETSC 3431	0.01	mg/kg	< 0.01
Dibromomethane	DETSC 3431	0.01	mg/kg	< 0.01
Bromodichloromethane	DETSC 3431	0.01	mg/kg	< 0.01
cis-1,3-dichloropropene	DETSC 3431	0.01	mg/kg	< 0.01
Toluene	DETSC 3431	0.01	mg/kg	< 0.01
trans-1,3-dichloropropene	DETSC 3431	0.01	mg/kg	< 0.01
1,1,2-trichloroethane	DETSC 3431	0.01	mg/kg	< 0.01
Tetrachloroethylene	DETSC 3431	0.01	mg/kg	< 0.01
1,3-dichloropropane	DETSC 3431	0.01	mg/kg	< 0.01
Dibromochloromethane	DETSC 3431	0.01	mg/kg	< 0.01
1,2-dibromoethane	DETSC 3431	0.01	mg/kg	< 0.01
Chlorobenzene	DETSC 3431	0.01	mg/kg	< 0.01
1,1,1,2-tetrachloroethane	DETSC 3431	0.01	mg/kg	< 0.01
Ethylbenzene	DETSC 3431	0.01	mg/kg	< 0.01
m+p-Xylene	DETSC 3431	0.01	mg/kg	< 0.01
o-Xylene	DETSC 3431	0.01	mg/kg	< 0.01
Styrene	DETSC 3431*	0.01	mg/kg	< 0.01
Bromoform	DETSC 3431	0.01	mg/kg	< 0.01
Isopropylbenzene	DETSC 3431	0.01	mg/kg	< 0.01
Bromobenzene	DETSC 3431	0.01	mg/kg	< 0.01
1,2,3-trichloropropane	DETSC 3431	0.01	mg/kg	< 0.01
n-propylbenzene	DETSC 3431	0.01	mg/kg	< 0.01
2-chlorotoluene	DETSC 3431	0.01	mg/kg	< 0.01
1,3,5-trimethylbenzene	DETSC 3431	0.01	mg/kg	< 0.01
4-chlorotoluene	DETSC 3431	0.01	mg/kg	< 0.01

Summary of Chemical Analysis

Soil Samples

Our Ref 21-07754

Client Ref PN214198

Contract Title Highbay Warehouse Kronospan

Lab No	1831831
Sample ID	HBW-BH102
Depth	2.00
Other ID	
Sample Type	ES
Sampling Date	12/04/2021
Sampling Time	n/s

Test	Method	LOD	Units	
Tert-butylbenzene	DETSC 3431	0.01	mg/kg	< 0.01
1,2,4-trimethylbenzene	DETSC 3431	0.01	mg/kg	< 0.01
sec-butylbenzene	DETSC 3431	0.01	mg/kg	< 0.01
p-isopropyltoluene	DETSC 3431	0.01	mg/kg	< 0.01
1,3-dichlorobenzene	DETSC 3431	0.01	mg/kg	< 0.01
1,4-dichlorobenzene	DETSC 3431	0.01	mg/kg	< 0.01
n-butylbenzene	DETSC 3431	0.01	mg/kg	< 0.01
1,2-dichlorobenzene	DETSC 3431	0.01	mg/kg	< 0.01
1,2-dibromo-3-chloropropane	DETSC 3431	0.01	mg/kg	< 0.01
1,2,4-trichlorobenzene	DETSC 3431	0.01	mg/kg	< 0.01
Hexachlorobutadiene	DETSC 3431	0.01	mg/kg	< 0.01
1,2,3-trichlorobenzene	DETSC 3431	0.01	mg/kg	< 0.01
MTBE	DETSC 3431*	0.01	mg/kg	< 0.01
SVOCs				
Phenol	DETSC 3433	0.1	mg/kg	< 0.1
Aniline	DETSC 3433*	0.1	mg/kg	< 0.1
2-Chlorophenol	DETSC 3433	0.1	mg/kg	< 0.1
Benzyl Alcohol	DETSC 3433	0.1	mg/kg	< 0.1
2-Methylphenol	DETSC 3433	0.1	mg/kg	< 0.1
Bis(2-chloroisopropyl)ether	DETSC 3433	0.1	mg/kg	< 0.1
3&4-Methylphenol	DETSC 3433	0.1	mg/kg	< 0.1
2,4-Dimethylphenol	DETSC 3433	0.1	mg/kg	< 0.1
Bis-(dichloroethoxy)methane	DETSC 3433	0.1	mg/kg	< 0.1
2,4-Dichlorophenol	DETSC 3433	0.1	mg/kg	< 0.1
1,2,4-Trichlorobenzene	DETSC 3433	0.1	mg/kg	< 0.1
4-Chloro-3-methylphenol	DETSC 3433	0.1	mg/kg	< 0.1
2-Methylnaphthalene	DETSC 3433	0.1	mg/kg	< 0.1
Hexachlorocyclopentadiene	DETSC 3433*	0.1	mg/kg	< 0.1
2,4,6-Trichlorophenol	DETSC 3433	0.1	mg/kg	< 0.1
2,4,5-Trichlorophenol	DETSC 3433*	0.1	mg/kg	< 0.1
2-Chloronaphthalene	DETSC 3433	0.1	mg/kg	< 0.1
2-Nitroaniline	DETSC 3433*	0.1	mg/kg	< 0.1
2,4-Dinitrotoluene	DETSC 3433*	0.1	mg/kg	< 0.1
3-Nitroaniline	DETSC 3433*	0.1	mg/kg	< 0.1
4-Nitrophenol	DETSC 3433*	0.1	mg/kg	< 0.1
Dibenzofuran	DETSC 3433	0.1	mg/kg	< 0.1
2,6-Dinitrotoluene	DETSC 3433	0.1	mg/kg	< 0.1
2,3,4,6-Tetrachlorophenol	DETSC 3433*	0.1	mg/kg	< 0.1
Diethylphthalate	DETSC 3433	0.1	mg/kg	< 0.1
4-Chlorophenylphenylether	DETSC 3433*	0.1	mg/kg	< 0.1

Summary of Chemical Analysis

Soil Samples

Our Ref 21-07754

Client Ref PN214198

Contract Title Highbay Warehouse Kronospan

Lab No	1831831
Sample ID	HBW-BH102
Depth	2.00
Other ID	
Sample Type	ES
Sampling Date	12/04/2021
Sampling Time	n/s

Test	Method	LOD	Units	
4-Nitroaniline	DETSC 3433*	0.1	mg/kg	< 0.1
2-Methyl-4,6-Dinitrophenol	DETSC 3433*	0.1	mg/kg	< 0.1
Diphenylamine	DETSC 3433	0.1	mg/kg	< 0.1
4-Bromophenylphenylether	DETSC 3433	0.1	mg/kg	< 0.1
Hexachlorobenzene	DETSC 3433	0.1	mg/kg	< 0.1
Pentachlorophenol	DETSC 3433*	0.1	mg/kg	< 0.1
Di-n-butylphthalate	DETSC 3433	0.1	mg/kg	< 0.1
Butylbenzylphthalate	DETSC 3433*	0.1	mg/kg	< 0.1
Bis(2-ethylhexyl)phthalate	DETSC 3433	0.1	mg/kg	< 0.1
Di-n-octylphthalate	DETSC 3433*	0.1	mg/kg	< 0.1
1,4-Dinitrobenzene	DETSC 3433*	0.1	mg/kg	< 0.1
Dimethylphthalate	DETSC 3433	0.1	mg/kg	< 0.1
1,3-Dinitrobenzene	DETSC 3433*	0.1	mg/kg	< 0.1
1,2-Dinitrobenzene	DETSC 3433*	0.1	mg/kg	< 0.1
2,3,5,6-Tetrachlorophenol	DETSC 3433*	0.1	mg/kg	< 0.1
Azobenzene	DETSC 3433	0.1	mg/kg	< 0.1
Carbazole	DETSC 3433*	0.1	mg/kg	< 0.1
SVOC TICs				
Blank (TIC)	DETSC 3433*		mg/kg	None

WASTE ACCEPTANCE CRITERIA TESTING ANALYTICAL REPORT

Our Ref 21-07754

Client Ref PN214198

Contract Title Highbay Warehouse Kronospan

Sample Id HBW-BH102 2.00

Sample Numbers 1831831 1831832 1831833

Date Analysed 21/04/2021

Test Results On Waste		
Determinand and Method Reference	Units	Result
DETS 2084# Total Organic Carbon	%	< 0.5
DETS 2003# Loss On Ignition	%	1.5
DETS 3321# BTEX	mg/kg	< 0.04
DETS 3401# PCBs (7 congeners)	mg/kg	< 0.01
DETS 3311# TPH (C10 - C40)	mg/kg	2700.0
DETS 3301 PAHs	mg/kg	< 1.6
DETS 2008# pH	pH Units	7.8
DETS 2073* Acid Neutralisation Capacity (pH4)	mol/kg	< 1.0
DETS 2073* Acid Neutralisation Capacity (pH7)	mol/kg	< 1.0

WAC Limit Values		
Inert Waste	SNRHW	Hazardous Waste
3	5	6
n/a	n/a	10
6	n/a	n/a
1	n/a	n/a
500	n/a	n/a
100	n/a	n/a
n/a	>6	n/a
n/a	TBE	TBE
n/a	TBE	TBE

Test Results On Leachate				
Determinand and Method Reference	Conc in Eluate ug/l		Amount Leached* mg/kg	
	2:1	8:1	LS2	LS10
DETS 2306 Arsenic as As	1.4	0.38	0.003	< 0.01
DETS 2306 Barium as Ba	5.6	1.2	< 0.02	< 0.1
DETS 2306 Cadmium as Cd	< 0.030	< 0.030	< 0.004	< 0.02
DETS 2306 Chromium as Cr	0.61	< 0.25	< 0.02	< 0.1
DETS 2306 Copper as Cu	1.5	0.41	< 0.004	< 0.02
DETS 2306 Mercury as Hg	0.016	< 0.010	< 0.0004	< 0.002
DETS 2306 Molybdenum as Mo	3.9	1.2	< 0.02	< 0.1
DETS 2306 Nickel as Ni	< 0.50	< 0.50	< 0.02	< 0.1
DETS 2306 Lead as Pb	0.9	0.2	< 0.01	< 0.05
DETS 2306 Antimony as Sb	0.95	0.29	< 0.01	< 0.05
DETS 2306 Selenium as Se	1.1	0.48	< 0.006	< 0.03
DETS 2306 Zinc as Zn	2.3	< 1.3	0.005	< 0.01
DETS 2055 Chloride as Cl	1400	310	< 20	< 100
DETS 2055* Fluoride as F	150	< 100	0.3	0.13
DETS 2055 Sulphate as SO4	1800	600	< 20	< 100
DETS 2009* Total Dissolved Solids	17000	7900	34	86.7
DETS 2130 Phenol Index	< 100	< 100	< 0.2	< 1
DETS 2085 Dissolved Organic Carbon	4300	< 2000	< 10	< 50

WAC Limit Values		
Limit values for LS10 Leachate		
Inert Waste	SNRHW	Hazardous Waste
0.5	2	25
20	100	300
0.04	1	5
0.5	10	70
2	50	100
0.01	0.2	2
0.5	10	30
0.4	10	40
0.5	10	50
0.06	0.7	5
0.1	0.5	7
4	50	200
800	15,000	25,000
10	150	500
1000	20,000	50,000
4000	60,000	100,000
1	n/a	n/a
500	800	1000

Additional Information

DETS 2008 pH	6.8	6.8
DETS 2009 Conductivity uS/cm	23.5	11.3
* Temperature*	18.0	18.0

Mass of Sample Kg*	0.130
Mass of dry Sample Kg*	0.118

Stage 1

Volume of Leachant L2*	0.225
Volume of Eluate VE1*	0.1

Stage 2

Volume of Leachant L8*	0.947
Volume of Eluate VE2*	0.91

TBE - To Be Evaluated
SNRHW - Stable Non-Reactive
Hazardous Waste

Disclaimer: The WAC limit values are provided for guidance only. DETS does not accept responsibility for errors or omissions. Values are correct at time of issue.

Summary of Asbestos Analysis Soil Samples

Our Ref 21-07754

Client Ref PN214198

Contract Title Highbay Warehouse Kronospan

Lab No	Sample ID	Material Type	Result	Comment*	Analyst
1831831	HBW-BH102 2.00	SOIL	NAD	none	Jordan Farley

Crocidolite = Blue Asbestos, Amosite = Brown Asbestos, Chrysotile = White Asbestos. Anthophyllite, Actinolite and Tremolite are other forms of Asbestos. Samples are analysed by DETSC 1101 using polarised light microscopy in accordance with HSG248 and documented in-house methods. NAD = No Asbestos Detected. Where a sample is NAD, the result is based on analysis of at least 2 sub-samples and should be taken to mean 'no asbestos detected in sample'. Key: * - not included in laboratory scope of accreditation.

Information in Support of the Analytical Results

Our Ref 21-07754
 Client Ref PN214198
 Contract Highbay Warehouse Kronospan

Containers Received & Deviating Samples

Lab No	Sample ID	Date Sampled	Containers Received	Holding time exceeded for tests	Inappropriate container for tests
1831831	HBW-BH102 2.00 SOIL	12/04/21	GJ 250ml, GJ 60ml x2, PT 1L		
1831832	HBW-BH102 2.00 LEACHATE	12/04/21	GJ 250ml, GJ 60ml x2, PT 1L		
1831833	HBW-BH102 2.00 LEACHATE	12/04/21	GJ 250ml, GJ 60ml x2, PT 1L		

Key: G-Glass P-Plastic J-Jar T-Tub

DETS cannot be held responsible for the integrity of samples received whereby the laboratory did not undertake the sampling. In this instance samples received may be deviating. Deviating Sample criteria are based on British and International standards and laboratory trials in conjunction with the UKAS note 'Guidance on Deviating Samples'. All samples received are listed above. However, those samples that have additional comments in relation to hold time, inappropriate containers etc are deviating due to the reasons stated. This means that the analysis is accredited where applicable, but results may be compromised due to sample deviations. If no sampled date (soils) or date+time (waters) has been supplied then samples are deviating. However, if you are able to supply a sampled date (and time for waters) this will prevent samples being reported as deviating where specific hold times are not exceeded and where the container supplied is suitable.

Soil Analysis Notes

Inorganic soil analysis was carried out on a dried sample, crushed to pass a 425µm sieve, in accordance with BS1377.

Organic soil analysis was carried out on an 'as received' sample. Organics results are corrected for moisture and expressed on a dry weight basis.

The Loss on Drying, used to express organics analysis on an air dried basis, is carried out at a temperature of 28°C +/-2°C.

Disposal

From the issue date of this test certificate, samples will be held for the following times prior to disposal :-

Soils - 1 month, Liquids - 2 weeks, Asbestos (test portion) - 6 months

Appendix A - Details of Analysis

Method	Parameter	Units	Limit of Detection	Sample Preparation	Sub-Contracted	UKAS	MCERTS
DETS 2002	Organic matter	%	0.1	Air Dried	No	Yes	Yes
DETS 2003	Loss on ignition	%	0.01	Air Dried	No	Yes	Yes
DETS 2008	pH	pH Units	1	Air Dried	No	Yes	Yes
DETS 2024	Sulphide	mg/kg	10	Air Dried	No	Yes	Yes
DETS 2076	Sulphate Aqueous Extract as SO ₄	mg/l	10	Air Dried	No	Yes	Yes
DETS 2084	Total Carbon	%	0.5	Air Dried	No	Yes	Yes
DETS 2084	Total Organic Carbon	%	0.5	Air Dried	No	Yes	Yes
DETS 2119	Ammoniacal Nitrogen as N	mg/kg	0.5	Air Dried	No	Yes	Yes
DETS 2130	Cyanide free	mg/kg	0.1	Air Dried	No	Yes	Yes
DETS 2130	Cyanide total	mg/kg	0.1	Air Dried	No	Yes	Yes
DETS 2130	Phenol - Monohydric	mg/kg	0.3	Air Dried	No	Yes	Yes
DETS 2130	Thiocyanate	mg/kg	0.6	Air Dried	No	Yes	Yes
DETS 2321	Total Sulphate as SO ₄	%	0.01	Air Dried	No	Yes	Yes
DETS 2325	Mercury	mg/kg	0.05	Air Dried	No	Yes	Yes
DETS 3049	Sulphur (free)	mg/kg	0.75	Air Dried	No	Yes	Yes
DETS 2123	Boron (water soluble)	mg/kg	0.2	Air Dried	No	Yes	Yes
DETS 2301	Arsenic	mg/kg	0.2	Air Dried	No	Yes	Yes
DETS 2301	Barium	mg/kg	1.5	Air Dried	No	Yes	Yes
DETS 2301	Beryllium	mg/kg	0.2	Air Dried	No	Yes	Yes
DETS 2301	Cadmium Available	mg/kg	0.1	Air Dried	No	Yes	Yes
DETS 2301	Cadmium	mg/kg	0.1	Air Dried	No	Yes	Yes
DETS 2301	Cobalt	mg/kg	0.7	Air Dried	No	Yes	Yes
DETS 2301	Chromium	mg/kg	0.15	Air Dried	No	Yes	Yes
DETS 2301	Copper	mg/kg	0.2	Air Dried	No	Yes	Yes
DETS 2301	Manganese	mg/kg	20	Air Dried	No	Yes	Yes
DETS 2301	Molybdenum	mg/kg	0.4	Air Dried	No	Yes	Yes
DETS 2301	Nickel	mg/kg	1	Air Dried	No	Yes	Yes
DETS 2301	Lead	mg/kg	0.3	Air Dried	No	Yes	Yes
DETS 2301	Selenium	mg/kg	0.5	Air Dried	No	Yes	Yes
DETS 2301	Zinc	mg/kg	1	Air Dried	No	Yes	Yes
DETS 3072	Ali/Aro C10-C35	mg/kg	10	As Received	No	Yes	Yes
DETS 3072	Aliphatic C10-C12	mg/kg	1.5	As Received	No	Yes	Yes
DETS 3072	Aliphatic C10-C12	mg/kg	10	As Received	No	Yes	Yes
DETS 3072	Aliphatic C10-C35	mg/kg	10	As Received	No	Yes	Yes
DETS 3072	Aliphatic C12-C16	mg/kg	1.2	As Received	No	Yes	Yes
DETS 3072	Aliphatic C12-C16	mg/kg	10	As Received	No	Yes	Yes
DETS 3072	Aliphatic C16-C21	mg/kg	1.5	As Received	No	Yes	Yes
DETS 3072	Aliphatic C16-C21	mg/kg	10	As Received	No	Yes	Yes
DETS 3072	Aliphatic C21-C35	mg/kg	3.4	As Received	No	Yes	Yes
DETS 3072	Aliphatic C21-C35	mg/kg	3.4	As Received	No	Yes	Yes
DETS 3072	Aromatic C10-C12	mg/kg	0.9	As Received	No	Yes	Yes
DETS 3072	Aromatic C10-C12	mg/kg	10	As Received	No	Yes	Yes
DETS 3072	Aromatic C10-C35	mg/kg	10	As Received	No	Yes	Yes
DETS 3072	Aromatic C12-C16	mg/kg	0.5	As Received	No	Yes	Yes
DETS 3072	Aromatic C12-C16	mg/kg	10	As Received	No	Yes	Yes
DETS 3072	Aromatic C16-C21	mg/kg	0.6	As Received	No	Yes	Yes
DETS 3072	Aromatic C16-C21	mg/kg	10	As Received	No	Yes	Yes
DETS 3072	Aromatic C21-C35	mg/kg	1.4	As Received	No	Yes	Yes
DETS 3072	Aromatic C21-C35	mg/kg	1.4	As Received	No	Yes	Yes
DETS 062	Benzene	mg/kg	0.01	As Received	No	Yes	Yes
DETS 062	Ethylbenzene	mg/kg	0.01	As Received	No	Yes	Yes
DETS 062	Toluene	mg/kg	0.01	As Received	No	Yes	Yes
DETS 062	Xylene	mg/kg	0.01	As Received	No	Yes	Yes
DETS 062	m+p Xylene	mg/kg	0.01	As Received	No	Yes	Yes
DETS 062	o Xylene	mg/kg	0.01	As Received	No	Yes	Yes
DETS 3311	C10-C24 Diesel Range Organics (DRO)	mg/kg	10	As Received	No	Yes	Yes
DETS 3311	C24-C40 Lube Oil Range Organics (LORO)	mg/kg	10	As Received	No	Yes	Yes
DETS 3311	EPH (C10-C40)	mg/kg	10	As Received	No	Yes	Yes

Appendix A - Details of Analysis

Method	Parameter	Units	Limit of Detection	Sample Preparation	Sub-Contracted	UKAS	MCERTS
DETSC 3303	Acenaphthene	mg/kg	0.03	As Received	No	Yes	Yes
DETSC 3303	Acenaphthylene	mg/kg	0.03	As Received	No	Yes	Yes
DETSC 3303	Benzo(a)pyrene	mg/kg	0.03	As Received	No	Yes	Yes
DETSC 3303	Benzo(a)anthracene	mg/kg	0.03	As Received	No	Yes	Yes
DETSC 3303	Benzo(b)fluoranthene	mg/kg	0.03	As Received	No	Yes	Yes
DETSC 3303	Benzo(k)fluoranthene	mg/kg	0.03	As Received	No	Yes	Yes
DETSC 3303	Benzo(g,h,i)perylene	mg/kg	0.03	As Received	No	Yes	Yes
DETSC 3303	Dibenzo(a,h)anthracene	mg/kg	0.03	As Received	No	Yes	Yes
DETSC 3303	Fluoranthene	mg/kg	0.03	As Received	No	Yes	Yes
DETSC 3303	Indeno(1,2,3-c,d)pyrene	mg/kg	0.03	As Received	No	Yes	Yes
DETSC 3303	Naphthalene	mg/kg	0.03	As Received	No	Yes	Yes
DETSC 3303	Phenanthrene	mg/kg	0.03	As Received	No	Yes	Yes
DETSC 3303	Pyrene	mg/kg	0.03	As Received	No	Yes	Yes
DETSC 3401	PCB 28 + PCB 31	mg/kg	0.01	As Received	No	Yes	Yes
DETSC 3401	PCB 52	mg/kg	0.01	As Received	No	Yes	Yes
DETSC 3401	PCB 101	mg/kg	0.01	As Received	No	Yes	Yes
DETSC 3401	PCB 118	mg/kg	0.01	As Received	No	Yes	Yes
DETSC 3401	PCB 153	mg/kg	0.01	As Received	No	Yes	Yes
DETSC 3401	PCB 138	mg/kg	0.01	As Received	No	Yes	Yes
DETSC 3401	PCB 180	mg/kg	0.01	As Received	No	Yes	Yes
DETSC 3401	PCB Total	mg/kg	0.01	As Received	No	Yes	Yes

Method details are shown only for those determinands listed in Annex A of the MCERTS standard. Anything not included on this list falls outside the scope of MCERTS. No Recovery Factors are used in the determination of results. Results reported assume 100% recovery. Full method statements are available on request.

End of Report

APPENDIX 7

Laboratory Test Results - Contamination (Groundwater)



Certificate of Analysis

Certificate Number 21-08981

Issued: 10-May-21

Client Geotechnics LTD
The Geotechnical Centre
Unit 1B Borders Ind. Park
River Lane
Saltney
Chester
CH4 8RJ

Our Reference 21-08981

Client Reference PN214198

Order No ON29050

Contract Title Highbay Warehouse Kronospan

Description 4 Water samples.

Date Received 29-Apr-21

Date Started 29-Apr-21

Date Completed 10-May-21

Test Procedures Identified by prefix DETSn (details on request).

Notes Opinions and interpretations are outside the laboratory's scope of ISO 17025 accreditation. This certificate is issued in accordance with the accreditation requirements of the United Kingdom Accreditation Service. The results reported herein relate only to the material supplied to the laboratory. This certificate shall not be reproduced except in full, without the prior written approval of the laboratory.

Approved By

Adam Fenwick
Contracts Manager



Summary of Chemical Analysis

Water Samples

Our Ref 21-08981

Client Ref PN214198

Contract Title Highbay Warehouse Kronospan

Lab No	1839601	1839602	1839603	1839604
Sample ID	WS105	WS102	BH102	BH102
Depth	0.03	0.03	0.05	0.03
Other ID				
Sample Type	WATER	WATER	WATER	WATER
Sampling Date	27/04/2021	27/04/2021	27/04/2021	27/04/2021
Sampling Time	n/s	n/s	n/s	n/s

Test	Method	LOD	Units				
Metals							
Antimony, Dissolved	DETSC 2306	0.17	ug/l	0.29		< 0.17	< 0.17
Arsenic, Dissolved	DETSC 2306	0.16	ug/l	0.45		1.6	1.3
Barium, Dissolved	DETSC 2306	0.26	ug/l	44		98	110
Boron, Dissolved	DETSC 2306*	12	ug/l	100		23	21
Cadmium, Dissolved	DETSC 2306	0.03	ug/l	0.05		< 0.03	0.04
Chromium III, Dissolved	DETSC 2306*	1	ug/l	1.2		< 1.0	< 1.0
Chromium, Hexavalent	DETSC 2203	7	ug/l	< 7.0		< 7.0	< 7.0
Copper, Dissolved	DETSC 2306	0.4	ug/l	2.9		1.2	1.3
Lead, Dissolved	DETSC 2306	0.09	ug/l	0.46		0.89	0.15
Mercury, Dissolved	DETSC 2306	0.01	ug/l	< 0.01		< 0.01	< 0.01
Nickel, Dissolved	DETSC 2306	0.5	ug/l	1.7		3.8	1.6
Selenium, Dissolved	DETSC 2306	0.25	ug/l	< 0.25		0.53	< 0.25
Vanadium, Dissolved	DETSC 2306	0.6	ug/l	< 0.6		< 0.6	< 0.6
Zinc, Dissolved	DETSC 2306	1.3	ug/l	< 1.3		12	2.8
Inorganics							
Conductivity	DETSC 2009	1	uS/cm	503		689	628
pH	DETSC 2008		pH	7.1		7.0	7.0
Total Hardness as CaCO3	DETSC 2303	0.1	mg/l	171		215	186
Ammoniacal Nitrogen as N	DETSC 2207	0.015	mg/l	0.069		0.12	0.13
Formaldehyde	DETSC 2047*	20	ug/l	< 20		< 20	< 20
Sulphate as SO4	DETSC 2055	0.1	mg/l	28		47	33
Total Organic Carbon	DETSC 2085	1	mg/l	17		15	15
Petroleum Hydrocarbons							
Aliphatic C5-C6	DETSC 3322	0.1	ug/l	< 0.1	< 0.1	< 0.1	< 0.1
Aliphatic C6-C8	DETSC 3322	0.1	ug/l	< 0.1	< 0.1	< 0.1	< 0.1
Aliphatic C8-C10	DETSC 3322	0.1	ug/l	< 0.1	< 0.1	< 0.1	< 0.1
Aliphatic C10-C12	DETSC 3072*	1	ug/l	< 1.0	< 1.0	< 1.0	< 1.0
Aliphatic C12-C16	DETSC 3072*	1	ug/l	< 1.0	< 1.0	< 1.0	< 1.0
Aliphatic C16-C21	DETSC 3072*	1	ug/l	< 1.0	3.7	1.0	< 1.0
Aliphatic C21-C35	DETSC 3072*	1	ug/l	< 1.0	500	120	93
Aliphatic C5-C35	DETSC 3072*	10	ug/l	< 10	500	120	93
Aromatic C5-C7	DETSC 3322	0.1	ug/l	< 0.1	< 0.1	< 0.1	< 0.1
Aromatic C7-C8	DETSC 3322	0.1	ug/l	< 0.1	< 0.1	< 0.1	< 0.1
Aromatic C8-C10	DETSC 3322	0.1	ug/l	< 0.1	< 0.1	< 0.1	< 0.1
Aromatic C10-C12	DETSC 3072*	1	ug/l	< 1.0	< 1.0	< 1.0	< 1.0
Aromatic C12-C16	DETSC 3072*	1	ug/l	< 1.0	< 1.0	< 1.0	< 1.0
Aromatic C16-C21	DETSC 3072*	1	ug/l	< 1.0	12	< 1.0	< 1.0
Aromatic C21-C35	DETSC 3072*	1	ug/l	< 1.0	990	110	90
Aromatic C5-C35	DETSC 3072*	10	ug/l	< 10	1000	110	90
TPH Ali/Aro Total C5-C35	DETSC 3072*	10	ug/l	< 10	1500	230	180

Summary of Chemical Analysis

Water Samples

Our Ref 21-08981

Client Ref PN214198

Contract Title Highbay Warehouse Kronospan

Lab No	1839601	1839602	1839603	1839604
Sample ID	WS105	WS102	BH102	BH102
Depth	0.03	0.03	0.05	0.03
Other ID				
Sample Type	WATER	WATER	WATER	WATER
Sampling Date	27/04/2021	27/04/2021	27/04/2021	27/04/2021
Sampling Time	n/s	n/s	n/s	n/s

Test	Method	LOD	Units				
PAHs							
Naphthalene	DETSC 3304	0.05	ug/l	< 0.50		< 0.05	< 0.05
Acenaphthylene	DETSC 3304	0.01	ug/l	< 0.10		< 0.01	< 0.01
Acenaphthene	DETSC 3304	0.01	ug/l	< 0.10		< 0.01	< 0.01
Fluorene	DETSC 3304	0.01	ug/l	0.11		< 0.01	0.01
Phenanthrene	DETSC 3304	0.01	ug/l	0.51		0.03	0.04
Anthracene	DETSC 3304	0.01	ug/l	< 0.10		< 0.01	< 0.01
Fluoranthene	DETSC 3304	0.01	ug/l	0.33		0.02	0.02
Pyrene	DETSC 3304	0.01	ug/l	0.30		0.03	0.02
Benzo(a)anthracene	DETSC 3304	0.01	ug/l	< 0.10		0.03	< 0.01
Chrysene	DETSC 3304	0.01	ug/l	< 0.10		< 0.01	< 0.01
Benzo(b)fluoranthene	DETSC 3304	0.01	ug/l	< 0.10		< 0.01	< 0.01
Benzo(k)fluoranthene	DETSC 3304	0.01	ug/l	< 0.10		0.03	< 0.01
Benzo(a)pyrene	DETSC 3304	0.01	ug/l	< 0.10		0.01	< 0.01
Indeno(1,2,3-c,d)pyrene	DETSC 3304	0.01	ug/l	< 0.10		< 0.01	< 0.01
Dibenzo(a,h)anthracene	DETSC 3304	0.01	ug/l	< 0.10		0.01	< 0.01
Benzo(g,h,i)perylene	DETSC 3304	0.01	ug/l	< 0.10		< 0.01	< 0.01
PAH Total	DETSC 3304	0.2	ug/l	< 2.00		0.23	< 0.20

Summary of Chemical Analysis

Water VOC/SVOC Samples

Our Ref 21-08981

Client Ref PN214198

Contract Title Highbay Warehouse Kronospan

Lab No	1839601	1839602	1839604
Sample ID	WS105	WS102	BH102
Depth	0.03	0.03	0.03
Other ID			
Sample Type	WATER	WATER	WATER
Sampling Date	27/04/2021	27/04/2021	27/04/2021
Sampling Time	n/s	n/s	n/s

Test	Method	LOD	Units			
VOCs						
Dichlorodifluoromethane	DETS 3432	1	ug/l	< 1	< 1	< 1
Chloromethane	DETS 3432	1	ug/l	< 1	< 1	< 1
Vinyl Chloride	DETS 3432	1	ug/l	< 1	< 1	< 1
Bromomethane	DETS 3432	1	ug/l	< 1	< 1	< 1
Chloroethane	DETS 3432	1	ug/l	< 1	< 1	< 1
Trichlorofluoromethane	DETS 3432*	1	ug/l	< 1	< 1	< 1
1,1-dichloroethylene	DETS 3432	1	ug/l	< 1	< 1	< 1
Methylene Chloride	DETS 3432*	27	ug/l	< 27	< 27	< 27
Trans-1,2-dichloroethylene	DETS 3432	1	ug/l	< 1	< 1	< 1
1,1-dichloroethane	DETS 3432	1	ug/l	< 1	< 1	< 1
Cis-1,2-dichloroethylene	DETS 3432	1	ug/l	< 1	< 1	< 1
2,2-dichloropropane	DETS 3432	2	ug/l	< 2	< 2	< 2
Bromochloromethane	DETS 3432	4	ug/l	< 4	< 4	< 4
Chloroform	DETS 3432	1	ug/l	< 1	< 1	< 1
1,1,1-trichloroethane	DETS 3432	1	ug/l	< 1	< 1	< 1
1,1-dichloropropene	DETS 3432	1	ug/l	< 1	< 1	< 1
Carbon tetrachloride	DETS 3432	1	ug/l	< 1	< 1	< 1
Benzene	DETS 3432	1	ug/l	< 1	< 1	< 1
1,2-dichloroethane	DETS 3432	1	ug/l	< 1	< 1	< 1
Trichloroethylene	DETS 3432*	1	ug/l	< 1	< 1	< 1
1,2-dichloropropane	DETS 3432	1	ug/l	< 1	< 1	< 1
Dibromomethane	DETS 3432	1	ug/l	< 1	< 1	< 1
Bromodichloromethane	DETS 3432	4	ug/l	< 4	< 4	< 4
cis-1,3-dichloropropene	DETS 3432	1	ug/l	< 1	< 1	< 1
Toluene	DETS 3432	1	ug/l	< 1	< 1	< 1
trans-1,3-dichloropropene	DETS 3432	1	ug/l	< 1	< 1	< 1
1,1,2-trichloroethane	DETS 3432	1	ug/l	< 1	< 1	< 1
Tetrachloroethylene	DETS 3432	1	ug/l	< 1	< 1	< 1
1,3-dichloropropane	DETS 3432	1	ug/l	< 1	< 1	< 1
Dibromochloromethane	DETS 3432	1	ug/l	< 1	< 1	< 1
1,2-dibromoethane	DETS 3432	1	ug/l	< 1	< 1	< 1
Chlorobenzene	DETS 3432	1	ug/l	< 1	< 1	< 1
1,1,1,2-tetrachloroethane	DETS 3432	1	ug/l	< 1	< 1	< 1
Ethylbenzene	DETS 3432	1	ug/l	< 1	< 1	< 1
m+p-Xylene	DETS 3432	2	ug/l	< 2	< 2	< 2
o-Xylene	DETS 3432	1	ug/l	< 1	< 1	< 1
Styrene	DETS 3432	1	ug/l	< 1	< 1	< 1
Bromoform	DETS 3432	1	ug/l	< 1	< 1	< 1
Isopropylbenzene	DETS 3432	1	ug/l	< 1	< 1	< 1
1,1,2,2-tetrachloroethane	DETS 3432	1	ug/l	< 1	< 1	< 1
Bromobenzene	DETS 3432	1	ug/l	< 1	< 1	< 1

Summary of Chemical Analysis

Water VOC/SVOC Samples

Our Ref 21-08981

Client Ref PN214198

Contract Title Highbay Warehouse Kronospan

Lab No	1839601	1839602	1839604
Sample ID	WS105	WS102	BH102
Depth	0.03	0.03	0.03
Other ID			
Sample Type	WATER	WATER	WATER
Sampling Date	27/04/2021	27/04/2021	27/04/2021
Sampling Time	n/s	n/s	n/s

Test	Method	LOD	Units			
1,2,3-trichloropropane	DETS 3432	1	ug/l	< 1	< 1	< 1
n-propylbenzene	DETS 3432	1	ug/l	< 1	< 1	< 1
2-chlorotoluene	DETS 3432	1	ug/l	< 1	< 1	< 1
1,3,5-trimethylbenzene	DETS 3432	1	ug/l	< 1	< 1	< 1
4-chlorotoluene	DETS 3432	1	ug/l	< 1	< 1	< 1
Tert-butylbenzene	DETS 3432	1	ug/l	< 1	< 1	< 1
1,2,4-trimethylbenzene	DETS 3432	1	ug/l	< 1	< 1	< 1
sec-butylbenzene	DETS 3432	1	ug/l	< 1	< 1	< 1
p-isopropyltoluene	DETS 3432	1	ug/l	< 1	< 1	< 1
1,3-dichlorobenzene	DETS 3432	2	ug/l	< 2	< 2	< 2
1,4-dichlorobenzene	DETS 3432	1	ug/l	< 1	< 1	< 1
n-butylbenzene	DETS 3432	1	ug/l	< 1	< 1	< 1
1,2-dichlorobenzene	DETS 3432	1	ug/l	< 1	< 1	< 1
1,2-dibromo-3-chloropropane	DETS 3432	1	ug/l	< 1	< 1	< 1
1,2,4-trichlorobenzene	DETS 3432	1	ug/l	< 1	< 1	< 1
Hexachlorobutadiene	DETS 3432	1	ug/l	< 1	< 1	< 1
Naphthalene	DETS 3432	1	ug/l		< 1	
1,2,3-trichlorobenzene	DETS 3432	1	ug/l	< 1	< 1	< 1
MTBE	DETS 3432*	1	ug/l	< 1	< 1	< 1
SVOCs						
Phenol	DETS 3434*	1	ug/l	< 1.0		< 1.0
Aniline	DETS 3434*	1	ug/l	< 1.0		< 1.0
2-Chlorophenol	DETS 3434*	1	ug/l	< 1.0		< 1.0
Benzyl Alcohol	DETS 3434*	1	ug/l	< 1.0		< 1.0
2-Methylphenol	DETS 3434*	1	ug/l	< 1.0		< 1.0
Bis(2-chloroisopropyl)ether	DETS 3434*	1	ug/l	< 1.0		< 1.0
3&4-Methylphenol	DETS 3434*	1	ug/l	< 1.0		< 1.0
Bis(2-chloroethoxy)methane	DETS 3434*	1	ug/l	< 1.0		< 1.0
2,4-Dimethylphenol	DETS 3434*	1	ug/l	< 1.0		< 1.0
2,4-Dichlorophenol	DETS 3434*	1	ug/l	< 1.0		< 1.0
1,2,4-Trichlorobenzene	DETS 3434*	1	ug/l	< 1.0		< 1.0
4-Chloro-3-methylphenol	DETS 3434*	1	ug/l	< 1.0		< 1.0
2-Methylnaphthalene	DETS 3434*	1	ug/l	< 1.0		< 1.0
Hexachlorocyclopentadiene	DETS 3434*	1	ug/l	< 1.0		< 1.0
2,4,6-Trichlorophenol	DETS 3434*	1	ug/l	< 1.0		< 1.0
2,4,5-Trichlorophenol	DETS 3434*	1	ug/l	< 1.0		< 1.0
2-Chloronaphthalene	DETS 3434*	1	ug/l	< 1.0		< 1.0
2-Nitroaniline	DETS 3434*	1	ug/l	< 1.0		< 1.0
2,4-Dinitrotoluene	DETS 3434*	1	ug/l	< 1.0		< 1.0
3-Nitroaniline	DETS 3434*	1	ug/l	< 1.0		< 1.0
4-Nitrophenol	DETS 3434*	1	ug/l	< 1.0		< 1.0
Dibenzofuran	DETS 3434*	1	ug/l	< 1.0		< 1.0

Summary of Chemical Analysis

Water VOC/SVOC Samples

Our Ref 21-08981

Client Ref PN214198

Contract Title Highbay Warehouse Kronospan

Lab No	1839601	1839602	1839604
Sample ID	WS105	WS102	BH102
Depth	0.03	0.03	0.03
Other ID			
Sample Type	WATER	WATER	WATER
Sampling Date	27/04/2021	27/04/2021	27/04/2021
Sampling Time	n/s	n/s	n/s

Test	Method	LOD	Units			
2,6-Dinitrotoluene	DETSC 3434*	1	ug/l	< 1.0		< 1.0
2,3,4,6-Tetrachlorophenol	DETSC 3434*	1	ug/l	< 1.0		< 1.0
Diethylphthalate	DETSC 3434*	1	ug/l	< 1.0		< 1.0
4-Chlorophenylphenylether	DETSC 3434*	1	ug/l	< 1.0		< 1.0
4-Nitroaniline	DETSC 3434*	1	ug/l	< 1.0		< 1.0
Diphenylamine	DETSC 3434*	1	ug/l	< 1.0		< 1.0
4-Bromophenylphenylether	DETSC 3434*	1	ug/l	< 1.0		< 1.0
Hexachlorobenzene	DETSC 3434*	1	ug/l	< 1.0		< 1.0
Bis(2-ethylhexyl)ester	DETSC 3434*	1	ug/l	< 1.0		< 1.0
Pentachlorophenol	DETSC 3434*	1	ug/l	< 1.0		< 1.0
Di-n-butylphthalate	DETSC 3434*	1	ug/l	< 1.0		< 1.0
Butylbenzylphthalate	DETSC 3434*	1	ug/l	< 1.0		< 1.0
Bis(2-ethylhexyl)phthalate	DETSC 3434*	1	ug/l	< 1.0		< 1.0
Di-n-octylphthalate	DETSC 3434*	1	ug/l	< 1.0		< 1.0
1,4-Dinitrobenzene	DETSC 3434*	1	ug/l	< 1.0		< 1.0
Dimethylphthalate	DETSC 3434*	1	ug/l	< 1.0		< 1.0
1,3-Dinitrobenzene	DETSC 3434*	1	ug/l	< 1.0		< 1.0
2,3,5,6-Tetrachlorophenol	DETSC 3434*	1	ug/l	< 1.0		< 1.0
Azobenzene	DETSC 3434*	1	ug/l	< 1.0		< 1.0
Carbazole	DETSC 3434*	1	ug/l	< 1.0		< 1.0
1-Methylnaphthalene	DETSC 3434*	1	ug/l	< 1.0		< 1.0

Information in Support of the Analytical Results

Our Ref 21-08981
 Client Ref PN214198
 Contract Highbay Warehouse Kronospan

Containers Received & Deviating Samples

					Inappropriate container for tests
Lab No	Sample ID	Date Sampled	Containers Received	Holding time exceeded for tests	
1839601	WS105 0.03 WATER	27/04/21	GB 1L, GV	pH/Cond/TDS (1 days)	
1839602	WS102 0.03 WATER	27/04/21	GV, PB 1L		
1839603	BH102 0.05 WATER	27/04/21	GB 1L, GV, PB 1L	pH/Cond/TDS (1 days)	
1839604	BH102 0.03 WATER	27/04/21	GB 1L, GV, PB 1L	pH/Cond/TDS (1 days)	

Key: G-Glass B-Bottle V-Vial P-Plastic

DETS cannot be held responsible for the integrity of samples received whereby the laboratory did not undertake the sampling. In this instance samples received may be deviating. Deviating Sample criteria are based on British and International standards and laboratory trials in conjunction with the UKAS note 'Guidance on Deviating Samples'. All samples received are listed above. However, those samples that have additional comments in relation to hold time, inappropriate containers etc are deviating due to the reasons stated. This means that the analysis is accredited where applicable, but results may be compromised due to sample deviations. If no sampled date (soils) or date+time (waters) has been supplied then samples are deviating. However, if you are able to supply a sampled date (and time for waters) this will prevent samples being reported as deviating where specific hold times are not exceeded and where the container supplied is suitable.

Disposal

From the issue date of this test certificate, samples will be held for the following times prior to disposal :-
 Soils - 1 month, Liquids - 2 weeks, Asbestos (test portion) - 6 months

End of Report



DETS

Certificate of Analysis

Certificate Number 21-10129

Issued: 19-May-21

Client Geotechnics LTD
The Geotechnical Centre
Unit 1B Borders Ind. Park
River Lane
Saltney
Chester
CH4 8RJ

Our Reference 21-10129

Client Reference PN214198

Order No ON29050

Contract Title Highbay Warehouse Kronospan

Description 4 Water samples.

Date Received 13-May-21

Date Started 13-May-21

Date Completed 19-May-21

Test Procedures Identified by prefix DETSn (details on request).

Notes Opinions and interpretations are outside the laboratory's scope of ISO 17025 accreditation. This certificate is issued in accordance with the accreditation requirements of the United Kingdom Accreditation Service. The results reported herein relate only to the material supplied to the laboratory. This certificate shall not be reproduced except in full, without the prior written approval of the laboratory.

Approved By



Adam Fenwick
Contracts Manager



Summary of Chemical Analysis

Water Samples

Our Ref 21-10129

Client Ref PN214198

Contract Title Highbay Warehouse Kronospan

Lab No	1846540	1846541	1846542	1846543
Sample ID	BH101	BH101	BH103	WS102
Depth	4.90	33.90		
Other ID				
Sample Type	WATER	WATER	WATER	WATER
Sampling Date	07/05/2021	07/05/2021	07/05/2021	07/05/2021
Sampling Time	n/s	n/s	n/s	n/s

Test	Method	LOD	Units				
Metals							
Antimony, Dissolved	DETSC 2306	0.17	ug/l	0.31	< 0.17	0.17	0.25
Arsenic, Dissolved	DETSC 2306	0.16	ug/l	1.6	0.35	1.9	2.1
Barium, Dissolved	DETSC 2306	0.26	ug/l	170	290	37	52
Boron, Dissolved	DETSC 2306*	12	ug/l	22	51	17	34
Cadmium, Dissolved	DETSC 2306	0.03	ug/l	0.09	< 0.03	< 0.03	< 0.03
Chromium III, Dissolved	DETSC 2306*	1	ug/l	< 1.0	< 1.0	< 1.0	< 1.0
Chromium, Hexavalent	DETSC 2203	7	ug/l	< 7.0	< 7.0	< 7.0	< 7.0
Copper, Dissolved	DETSC 2306	0.4	ug/l	1.6	1.1	1.3	0.5
Lead, Dissolved	DETSC 2306	0.09	ug/l	0.59	0.12	0.36	0.50
Mercury, Dissolved	DETSC 2306	0.01	ug/l	< 0.01	< 0.01	< 0.01	< 0.01
Nickel, Dissolved	DETSC 2306	0.5	ug/l	5.7	1.5	2.2	1.5
Selenium, Dissolved	DETSC 2306	0.25	ug/l	0.50	0.53	< 0.25	0.26
Vanadium, Dissolved	DETSC 2306	0.6	ug/l	< 0.6	< 0.6	< 0.6	< 0.6
Zinc, Dissolved	DETSC 2306	1.3	ug/l	4.0	68	9.2	7.1
Inorganics							
Conductivity	DETSC 2009	1	uS/cm	717	520	485	602
pH	DETSC 2008		pH	6.8	7.0	7.0	7.0
Total Hardness as CaCO3	DETSC 2303	0.1	mg/l	265	182	172	222
Ammoniacal Nitrogen as N	DETSC 2207	0.015	mg/l	0.070	0.080	0.040	0.060
Formaldehyde	DETSC 2047*	20	ug/l	< 20	< 20	29	< 20
Sulphate as SO4	DETSC 2055	0.1	mg/l	76	27	38	43
Total Organic Carbon	DETSC 2085	1	mg/l	230	190	< 1.0	110
Petroleum Hydrocarbons							
Aliphatic C5-C6	DETSC 3322	0.1	ug/l	< 0.1	< 0.1	< 0.1	< 0.1
Aliphatic C6-C8	DETSC 3322	0.1	ug/l	< 0.1	< 0.1	< 0.1	< 0.1
Aliphatic C8-C10	DETSC 3322	0.1	ug/l	< 0.1	< 0.1	< 0.1	< 0.1
Aliphatic C10-C12	DETSC 3072*	1	ug/l	< 1.0	< 1.0	< 1.0	< 1.0
Aliphatic C12-C16	DETSC 3072*	1	ug/l	5.3	< 1.0	< 1.0	< 1.0
Aliphatic C16-C21	DETSC 3072*	1	ug/l	8.0	< 1.0	< 1.0	< 1.0
Aliphatic C21-C35	DETSC 3072*	1	ug/l	68	< 1.0	< 1.0	< 1.0
Aliphatic C5-C35	DETSC 3072*	10	ug/l	82	< 10	< 10	< 10
Aromatic C5-C7	DETSC 3322	0.1	ug/l	< 0.1	< 0.1	< 0.1	< 0.1
Aromatic C7-C8	DETSC 3322	0.1	ug/l	< 0.1	< 0.1	< 0.1	< 0.1
Aromatic C8-C10	DETSC 3322	0.1	ug/l	< 0.1	< 0.1	< 0.1	< 0.1
Aromatic C10-C12	DETSC 3072*	1	ug/l	< 1.0	< 1.0	< 1.0	< 1.0
Aromatic C12-C16	DETSC 3072*	1	ug/l	< 1.0	< 1.0	< 1.0	< 1.0
Aromatic C16-C21	DETSC 3072*	1	ug/l	1.8	< 1.0	< 1.0	< 1.0
Aromatic C21-C35	DETSC 3072*	1	ug/l	47	< 1.0	< 1.0	< 1.0
Aromatic C5-C35	DETSC 3072*	10	ug/l	49	< 10	< 10	< 10
TPH Ali/Aro Total C5-C35	DETSC 3072*	10	ug/l	130	< 10	< 10	< 10

Summary of Chemical Analysis

Water Samples

Our Ref 21-10129

Client Ref PN214198

Contract Title Highbay Warehouse Kronospan

Lab No	1846540	1846541	1846542	1846543
Sample ID	BH101	BH101	BH103	WS102
Depth	4.90	33.90		
Other ID				
Sample Type	WATER	WATER	WATER	WATER
Sampling Date	07/05/2021	07/05/2021	07/05/2021	07/05/2021
Sampling Time	n/s	n/s	n/s	n/s

Test	Method	LOD	Units				
PAHs							
Naphthalene	DETSC 3304	0.05	ug/l	0.07	< 0.05	< 0.05	< 0.05
Acenaphthylene	DETSC 3304	0.01	ug/l	< 0.01	< 0.01	< 0.01	< 0.01
Acenaphthene	DETSC 3304	0.01	ug/l	0.02	< 0.01	< 0.01	< 0.01
Fluorene	DETSC 3304	0.01	ug/l	< 0.01	< 0.01	< 0.01	< 0.01
Phenanthrene	DETSC 3304	0.01	ug/l	< 0.01	< 0.01	< 0.01	< 0.01
Anthracene	DETSC 3304	0.01	ug/l	0.02	0.02	< 0.01	0.01
Fluoranthene	DETSC 3304	0.01	ug/l	< 0.01	< 0.01	< 0.01	< 0.01
Pyrene	DETSC 3304	0.01	ug/l	< 0.01	< 0.01	< 0.01	< 0.01
Benzo(a)anthracene	DETSC 3304	0.01	ug/l	< 0.01	< 0.01	< 0.01	< 0.01
Chrysene	DETSC 3304	0.01	ug/l	< 0.01	< 0.01	< 0.01	< 0.01
Benzo(b)fluoranthene	DETSC 3304	0.01	ug/l	< 0.01	< 0.01	< 0.01	< 0.01
Benzo(k)fluoranthene	DETSC 3304	0.01	ug/l	< 0.01	< 0.01	< 0.01	< 0.01
Benzo(a)pyrene	DETSC 3304	0.01	ug/l	< 0.01	< 0.01	< 0.01	< 0.01
Indeno(1,2,3-c,d)pyrene	DETSC 3304	0.01	ug/l	< 0.01	< 0.01	< 0.01	< 0.01
Dibenzo(a,h)anthracene	DETSC 3304	0.01	ug/l	< 0.01	< 0.01	< 0.01	< 0.01
Benzo(g,h,i)perylene	DETSC 3304	0.01	ug/l	< 0.01	< 0.01	< 0.01	< 0.01
PAH Total	DETSC 3304	0.2	ug/l	< 0.20	< 0.20	< 0.20	< 0.20



Summary of Chemical Analysis

Water VOC/SVOC Samples

Our Ref 21-10129

Client Ref PN214198

Contract Title Highbay Warehouse Kronospan

Lab No	1846540	1846542	1846543
Sample ID	BH101	BH103	WS102
Depth	4.90		
Other ID			
Sample Type	WATER	WATER	WATER
Sampling Date	07/05/2021	07/05/2021	07/05/2021
Sampling Time	n/s	n/s	n/s

Test	Method	LOD	Units			
VOCs						
Dichlorodifluoromethane	DETSC 3432	1	ug/l	< 1	< 1	< 1
Chloromethane	DETSC 3432	1	ug/l	< 1	< 1	< 1
Vinyl Chloride	DETSC 3432	1	ug/l	< 1	< 1	< 1
Bromomethane	DETSC 3432	1	ug/l	< 1	< 1	< 1
Chloroethane	DETSC 3432	1	ug/l	< 1	< 1	< 1
Trichlorofluoromethane	DETSC 3432*	1	ug/l	< 1	< 1	< 1
1,1-dichloroethylene	DETSC 3432	1	ug/l	< 1	< 1	< 1
Methylene Chloride	DETSC 3432*	27	ug/l	< 27	< 27	< 27
Trans-1,2-dichloroethylene	DETSC 3432	1	ug/l	< 1	< 1	< 1
1,1-dichloroethane	DETSC 3432	1	ug/l	< 1	< 1	< 1
Cis-1,2-dichloroethylene	DETSC 3432	1	ug/l	< 1	< 1	< 1
2,2-dichloropropane	DETSC 3432	2	ug/l	< 2	< 2	< 2
Bromochloromethane	DETSC 3432	4	ug/l	< 4	< 4	< 4
Chloroform	DETSC 3432	1	ug/l	< 1	< 1	< 1
1,1,1-trichloroethane	DETSC 3432	1	ug/l	< 1	< 1	< 1
1,1-dichloropropene	DETSC 3432	1	ug/l	< 1	< 1	< 1
Carbon tetrachloride	DETSC 3432	1	ug/l	< 1	< 1	< 1
Benzene	DETSC 3432	1	ug/l	< 1	< 1	< 1
1,2-dichloroethane	DETSC 3432	1	ug/l	< 1	< 1	< 1
Trichloroethylene	DETSC 3432*	1	ug/l	< 1	< 1	< 1
1,2-dichloropropane	DETSC 3432	1	ug/l	< 1	< 1	< 1
Dibromomethane	DETSC 3432	1	ug/l	< 1	< 1	< 1
Bromodichloromethane	DETSC 3432	4	ug/l	< 4	< 4	< 4
cis-1,3-dichloropropene	DETSC 3432	1	ug/l	< 1	< 1	< 1
Toluene	DETSC 3432	1	ug/l	< 1	< 1	< 1
trans-1,3-dichloropropene	DETSC 3432	1	ug/l	< 1	< 1	< 1
1,1,2-trichloroethane	DETSC 3432	1	ug/l	< 1	< 1	< 1
Tetrachloroethylene	DETSC 3432	1	ug/l	< 1	< 1	< 1
1,3-dichloropropane	DETSC 3432	1	ug/l	< 1	< 1	< 1
Dibromochloromethane	DETSC 3432	1	ug/l	< 1	< 1	< 1
1,2-dibromoethane	DETSC 3432	1	ug/l	< 1	< 1	< 1
Chlorobenzene	DETSC 3432	1	ug/l	< 1	< 1	< 1
1,1,1,2-tetrachloroethane	DETSC 3432	1	ug/l	< 1	< 1	< 1
Ethylbenzene	DETSC 3432	1	ug/l	< 1	< 1	< 1
m+p-Xylene	DETSC 3432	2	ug/l	< 2	< 2	< 2
o-Xylene	DETSC 3432	1	ug/l	< 1	< 1	< 1
Styrene	DETSC 3432	1	ug/l	< 1	< 1	< 1
Bromoform	DETSC 3432	1	ug/l	< 1	< 1	< 1
Isopropylbenzene	DETSC 3432	1	ug/l	< 1	< 1	< 1
1,1,2,2-tetrachloroethane	DETSC 3432	1	ug/l	< 1	< 1	< 1

Summary of Chemical Analysis

Water VOC/SVOC Samples

Our Ref 21-10129

Client Ref PN214198

Contract Title Highbay Warehouse Kronospan

Lab No	1846540	1846542	1846543
Sample ID	BH101	BH103	WS102
Depth	4.90		
Other ID			
Sample Type	WATER	WATER	WATER
Sampling Date	07/05/2021	07/05/2021	07/05/2021
Sampling Time	n/s	n/s	n/s

Test	Method	LOD	Units			
Bromobenzene	DETSC 3432	1	ug/l	< 1	< 1	< 1
1,2,3-trichloropropane	DETSC 3432	1	ug/l	< 1	< 1	< 1
n-propylbenzene	DETSC 3432	1	ug/l	< 1	< 1	< 1
2-chlorotoluene	DETSC 3432	1	ug/l	< 1	< 1	< 1
1,3,5-trimethylbenzene	DETSC 3432	1	ug/l	< 1	< 1	< 1
4-chlorotoluene	DETSC 3432	1	ug/l	< 1	< 1	< 1
Tert-butylbenzene	DETSC 3432	1	ug/l	< 1	< 1	< 1
1,2,4-trimethylbenzene	DETSC 3432	1	ug/l	< 1	< 1	< 1
sec-butylbenzene	DETSC 3432	1	ug/l	< 1	< 1	< 1
p-isopropyltoluene	DETSC 3432	1	ug/l	< 1	< 1	< 1
1,3-dichlorobenzene	DETSC 3432	2	ug/l	< 2	< 2	< 2
1,4-dichlorobenzene	DETSC 3432	1	ug/l	< 1	< 1	< 1
n-butylbenzene	DETSC 3432	1	ug/l	< 1	< 1	< 1
1,2-dichlorobenzene	DETSC 3432	1	ug/l	< 1	< 1	< 1
1,2-dibromo-3-chloropropane	DETSC 3432	1	ug/l	< 1	< 1	< 1
1,2,4-trichlorobenzene	DETSC 3432	1	ug/l	< 1	< 1	< 1
Hexachlorobutadiene	DETSC 3432	1	ug/l	< 1	< 1	< 1
1,2,3-trichlorobenzene	DETSC 3432	1	ug/l	< 1	< 1	< 1
MTBE	DETSC 3432*	1	ug/l	< 1	< 1	< 1
SVOCs						
Phenol	DETSC 3434*	1	ug/l	< 2.0	< 1.0	< 1.0
Aniline	DETSC 3434*	1	ug/l	< 2.0	< 1.0	< 1.0
2-Chlorophenol	DETSC 3434*	1	ug/l	< 2.0	< 1.0	< 1.0
Benzyl Alcohol	DETSC 3434*	1	ug/l	< 2.0	< 1.0	< 1.0
2-Methylphenol	DETSC 3434*	1	ug/l	< 2.0	< 1.0	< 1.0
Bis(2-chloroisopropyl)ether	DETSC 3434*	1	ug/l	< 2.0	< 1.0	< 1.0
3&4-Methylphenol	DETSC 3434*	1	ug/l	< 2.0	< 1.0	< 1.0
Bis(2-chloroethoxy)methane	DETSC 3434*	1	ug/l	< 2.0	< 1.0	< 1.0
2,4-Dimethylphenol	DETSC 3434*	1	ug/l	< 2.0	< 1.0	< 1.0
2,4-Dichlorophenol	DETSC 3434*	1	ug/l	< 2.0	< 1.0	< 1.0
1,2,4-Trichlorobenzene	DETSC 3434*	1	ug/l	< 2.0	< 1.0	< 1.0
4-Chloro-3-methylphenol	DETSC 3434*	1	ug/l	< 2.0	< 1.0	< 1.0
2-Methylnaphthalene	DETSC 3434*	1	ug/l	< 2.0	< 1.0	< 1.0
Hexachlorocyclopentadiene	DETSC 3434*	1	ug/l	< 2.0	< 1.0	< 1.0
2,4,6-Trichlorophenol	DETSC 3434*	1	ug/l	< 2.0	< 1.0	< 1.0
2,4,5-Trichlorophenol	DETSC 3434*	1	ug/l	< 2.0	< 1.0	< 1.0
2-Chloronaphthalene	DETSC 3434*	1	ug/l	< 2.0	< 1.0	< 1.0
2-Nitroaniline	DETSC 3434*	1	ug/l	< 2.0	< 1.0	< 1.0
2,4-Dinitrotoluene	DETSC 3434*	1	ug/l	< 2.0	< 1.0	< 1.0
3-Nitroaniline	DETSC 3434*	1	ug/l	< 2.0	< 1.0	< 1.0

Summary of Chemical Analysis

Water VOC/SVOC Samples

Our Ref 21-10129

Client Ref PN214198

Contract Title Highbay Warehouse Kronospan

Lab No	1846540	1846542	1846543
Sample ID	BH101	BH103	WS102
Depth	4.90		
Other ID			
Sample Type	WATER	WATER	WATER
Sampling Date	07/05/2021	07/05/2021	07/05/2021
Sampling Time	n/s	n/s	n/s

Test	Method	LOD	Units			
4-Nitrophenol	DETSC 3434*	1	ug/l	< 2.0	< 1.0	< 1.0
Dibenzofuran	DETSC 3434*	1	ug/l	< 2.0	< 1.0	< 1.0
2,6-Dinitrotoluene	DETSC 3434*	1	ug/l	< 2.0	< 1.0	< 1.0
2,3,4,6-Tetrachlorophenol	DETSC 3434*	1	ug/l	< 2.0	< 1.0	< 1.0
Diethylphthalate	DETSC 3434*	1	ug/l	< 2.0	< 1.0	< 1.0
4-Chlorophenylphenylether	DETSC 3434*	1	ug/l	< 2.0	< 1.0	< 1.0
4-Nitroaniline	DETSC 3434*	1	ug/l	< 2.0	< 1.0	< 1.0
Diphenylamine	DETSC 3434*	1	ug/l	< 2.0	< 1.0	< 1.0
4-Bromophenylphenylether	DETSC 3434*	1	ug/l	< 2.0	< 1.0	< 1.0
Hexachlorobenzene	DETSC 3434*	1	ug/l	< 2.0	< 1.0	< 1.0
Bis(2-ethylhexyl)ester	DETSC 3434*	1	ug/l	< 2.0	< 1.0	< 1.0
Pentachlorophenol	DETSC 3434*	1	ug/l	< 2.0	< 1.0	< 1.0
Di-n-butylphthalate	DETSC 3434*	1	ug/l	< 2.0	< 1.0	< 1.0
Butylbenzylphthalate	DETSC 3434*	1	ug/l	< 2.0	< 1.0	< 1.0
Bis(2-ethylhexyl)phthalate	DETSC 3434*	1	ug/l	< 2.0	< 1.0	< 1.0
Di-n-octylphthalate	DETSC 3434*	1	ug/l	< 2.0	< 1.0	< 1.0
1,4-Dinitrobenzene	DETSC 3434*	1	ug/l	< 2.0	< 1.0	< 1.0
Dimethylphthalate	DETSC 3434*	1	ug/l	< 2.0	< 1.0	< 1.0
1,3-Dinitrobenzene	DETSC 3434*	1	ug/l	< 2.0	< 1.0	< 1.0
2,3,5,6-Tetrachlorophenol	DETSC 3434*	1	ug/l	< 2.0	< 1.0	< 1.0
Azobenzene	DETSC 3434*	1	ug/l	< 2.0	< 1.0	< 1.0
Carbazole	DETSC 3434*	1	ug/l	< 2.0	< 1.0	< 1.0
1-Methylnaphthalene	DETSC 3434*	1	ug/l	< 2.0	< 1.0	< 1.0
SVOC TICs						
Blank (TIC)	DETSC 3433*		mg/kg	None	None	None

Information in Support of the Analytical Results

Our Ref 21-10129
 Client Ref PN214198
 Contract Highbay Warehouse Kronospan

Containers Received & Deviating Samples

Lab No	Sample ID	Date Sampled	Containers Received	Holding time exceeded for tests	Inappropriate container for tests
1846540	BH101 4.90 WATER	07/05/21	GB 1L, GV, PB 1L	Aliphatics/Aromatics (4 days), Chromium, Hexavalent (4 days), Kone (4 days), pH/Cond/TDS (1 days), PAH MS (4 days)	
1846541	BH101 33.90 WATER	07/05/21	GB 1L, GV, PB 1L	Aliphatics/Aromatics (4 days), Chromium, Hexavalent (4 days), Kone (4 days), pH/Cond/TDS (1 days), PAH MS (4 days)	
1846542	BH103 WATER	07/05/21	GB 1L, GV, PB 1L	Aliphatics/Aromatics (4 days), Chromium, Hexavalent (4 days), Kone (4 days), pH/Cond/TDS (1 days), PAH MS (4 days)	
1846543	WS102 WATER	07/05/21	GB 1L, GV, PB 1L	Aliphatics/Aromatics (4 days), Chromium, Hexavalent (4 days), Kone (4 days), pH/Cond/TDS (1 days), PAH MS (4 days)	

Key: G-Glass P-Plastic B-Bottle V-Vial

DETS cannot be held responsible for the integrity of samples received whereby the laboratory did not undertake the sampling. In this instance samples received may be deviating. Deviating Sample criteria are based on British and International standards and laboratory trials in conjunction with the UKAS note 'Guidance on Deviating Samples'. All samples received are listed above. However, those samples that have additional comments in relation to hold time, inappropriate containers etc are deviating due to the reasons stated. This means that the analysis is accredited where applicable, but results may be compromised due to sample deviations. If no sampled date (soils) or date+time (waters) has been supplied then samples are deviating. However, if you are able to supply a sampled date (and time for waters) this will prevent samples being reported as deviating where specific hold times are not exceeded and where the container supplied is suitable.

Soil Analysis Notes

Inorganic soil analysis was carried out on a dried sample, crushed to pass a 425µm sieve, in accordance with BS1377.
 Organic soil analysis was carried out on an 'as received' sample. Organics results are corrected for moisture and expressed on a dry weight basis.
 The Loss on Drying, used to express organics analysis on an air dried basis, is carried out at a temperature of 28°C +/-2°C.

Disposal

From the issue date of this test certificate, samples will be held for the following times prior to disposal :-
 Soils - 1 month, Liquids - 2 weeks, Asbestos (test portion) - 6 months

End of Report



Certificate of Analysis

Certificate Number 21-12881

Issued: 29-Jun-21

Client Geotechnics LTD
The Geotechnical Centre
Unit 1B Borders Ind. Park
River Lane
Saltney
Chester
CH4 8RJ

Our Reference 21-12881

Client Reference PN214198

Order No ON29050

Contract Title Highbay Warehouse Kronospan

Description 2 Water samples.

Date Received 18-Jun-21

Date Started 18-Jun-21

Date Completed 29-Jun-21

Test Procedures Identified by prefix DETSn (details on request).

Notes Opinions and interpretations are outside the laboratory's scope of ISO 17025 accreditation. This certificate is issued in accordance with the accreditation requirements of the United Kingdom Accreditation Service. The results reported herein relate only to the material supplied to the laboratory. This certificate shall not be reproduced except in full, without the prior written approval of the laboratory.

Approved By

Adam Fenwick
Contracts Manager



Summary of Chemical Analysis

Water Samples

Our Ref 21-12881

Client Ref PN214198

Contract Title Highbay Warehouse Kronospan

Lab No	1864176	1864177
Sample ID	BH102	BH102
Depth	4.00	14.00
Other ID		
Sample Type	WATER	WATER
Sampling Date	16/06/2021	16/06/2021
Sampling Time	n/s	n/s

Test	Method	LOD	Units		
Metals					
Antimony, Dissolved	DETSC 2306	0.17	ug/l	< 0.17	< 0.17
Arsenic, Dissolved	DETSC 2306	0.16	ug/l	0.34	0.54
Barium, Dissolved	DETSC 2306	0.26	ug/l	82	110
Boron, Dissolved	DETSC 2306*	12	ug/l	39	38
Cadmium, Dissolved	DETSC 2306	0.03	ug/l	0.03	0.07
Chromium III, Dissolved	DETSC 2306*	1	ug/l	2.3	1.3
Chromium, Hexavalent	DETSC 2203	7	ug/l	< 7.0	< 7.0
Copper, Dissolved	DETSC 2306	0.4	ug/l	0.7	1.8
Lead, Dissolved	DETSC 2306	0.09	ug/l	0.15	0.24
Mercury, Dissolved	DETSC 2306	0.01	ug/l	< 0.01	< 0.01
Nickel, Dissolved	DETSC 2306	0.5	ug/l	1.8	2.0
Selenium, Dissolved	DETSC 2306	0.25	ug/l	< 0.25	< 0.25
Vanadium, Dissolved	DETSC 2306	0.6	ug/l	< 0.6	< 0.6
Zinc, Dissolved	DETSC 2306	1.3	ug/l	2.3	8.3
Inorganics					
Conductivity	DETSC 2009	1	uS/cm	577	554
pH	DETSC 2008		pH	6.7	6.9
Total Hardness as CaCO3	DETSC 2303	0.1	mg/l	126	177
Ammoniacal Nitrogen as N	DETSC 2207	0.015	mg/l	0.080	0.070
Formaldehyde	DETSC 2047*	20	ug/l	< 20	23
Sulphate as SO4	DETSC 2055	0.1	mg/l	28	28
Total Organic Carbon	DETSC 2033	0.1	mg/l	2.2	2.9
Petroleum Hydrocarbons					
Aliphatic C5-C6	DETSC 3322	0.1	ug/l	< 0.1	< 0.1
Aliphatic C6-C8	DETSC 3322	0.1	ug/l	< 0.1	< 0.1
Aliphatic C8-C10	DETSC 3322	0.1	ug/l	< 0.1	< 0.1
Aliphatic C10-C12	DETSC 3072*	1	ug/l	< 1.0	360
Aliphatic C12-C16	DETSC 3072*	1	ug/l	< 1.0	15
Aliphatic C16-C21	DETSC 3072*	1	ug/l	< 1.0	< 1.0
Aliphatic C21-C35	DETSC 3072*	1	ug/l	< 1.0	2.6
Aliphatic C5-C35	DETSC 3072*	10	ug/l	< 10	370
Aromatic C5-C7	DETSC 3322	0.1	ug/l	< 0.1	< 0.1
Aromatic C7-C8	DETSC 3322	0.1	ug/l	< 0.1	< 0.1
Aromatic C8-C10	DETSC 3322	0.1	ug/l	< 0.1	< 0.1
Aromatic C10-C12	DETSC 3072*	1	ug/l	< 1.0	150
Aromatic C12-C16	DETSC 3072*	1	ug/l	< 1.0	9.7
Aromatic C16-C21	DETSC 3072*	1	ug/l	< 1.0	6.0
Aromatic C21-C35	DETSC 3072*	1	ug/l	< 1.0	5.9
Aromatic C5-C35	DETSC 3072*	10	ug/l	< 10	170
TPH Ali/Aro Total C5-C35	DETSC 3072*	10	ug/l	< 10	550
PAHs					
Naphthalene	DETSC 3304	0.05	ug/l	< 0.05	< 0.05

Summary of Chemical Analysis

Water Samples

Our Ref 21-12881

Client Ref PN214198

Contract Title Highbay Warehouse Kronospan

Lab No	1864176	1864177
Sample ID	BH102	BH102
Depth	4.00	14.00
Other ID		
Sample Type	WATER	WATER
Sampling Date	16/06/2021	16/06/2021
Sampling Time	n/s	n/s

Test	Method	LOD	Units		
Acenaphthylene	DETSC 3304	0.01	ug/l	< 0.01	< 0.01
Acenaphthene	DETSC 3304	0.01	ug/l	< 0.01	< 0.01
Fluorene	DETSC 3304	0.01	ug/l	< 0.01	< 0.01
Phenanthrene	DETSC 3304	0.01	ug/l	< 0.01	< 0.01
Anthracene	DETSC 3304	0.01	ug/l	< 0.01	< 0.01
Fluoranthene	DETSC 3304	0.01	ug/l	< 0.01	< 0.01
Pyrene	DETSC 3304	0.01	ug/l	< 0.01	< 0.01
Benzo(a)anthracene	DETSC 3304	0.01	ug/l	< 0.01	< 0.01
Chrysene	DETSC 3304	0.01	ug/l	< 0.01	< 0.01
Benzo(b)fluoranthene	DETSC 3304	0.01	ug/l	< 0.01	< 0.01
Benzo(k)fluoranthene	DETSC 3304	0.01	ug/l	< 0.01	< 0.01
Benzo(a)pyrene	DETSC 3304	0.01	ug/l	< 0.01	< 0.01
Indeno(1,2,3-c,d)pyrene	DETSC 3304	0.01	ug/l	< 0.01	< 0.01
Dibenzo(a,h)anthracene	DETSC 3304	0.01	ug/l	< 0.01	< 0.01
Benzo(g,h,i)perylene	DETSC 3304	0.01	ug/l	< 0.01	< 0.01
PAH Total	DETSC 3304	0.2	ug/l	< 0.20	< 0.20

Information in Support of the Analytical Results

Our Ref 21-12881
 Client Ref PN214198
 Contract Highbay Warehouse Kronospan

Containers Received & Deviating Samples

Lab No	Sample ID	Date Sampled	Containers Received	Holding time exceeded for tests	inappropriate container for tests
1864176	BH102 4.00 WATER	16/06/21	GB 1L, GV, PB 1L	pH/Cond/TDS (1 days)	
1864177	BH102 14.00 WATER	16/06/21	GB 1L, GV, PB 1L	pH/Cond/TDS (1 days)	

Key: G-Glass P-Plastic B-Bottle V-Vial

DETS cannot be held responsible for the integrity of samples received whereby the laboratory did not undertake the sampling. In this instance samples received may be deviating. Deviating Sample criteria are based on British and International standards and laboratory trials in conjunction with the UKAS note 'Guidance on Deviating Samples'. All samples received are listed above. However, those samples that have additional comments in relation to hold time, inappropriate containers etc are deviating due to the reasons stated. This means that the analysis is accredited where applicable, but results may be compromised due to sample deviations. If no sampled date (soils) or date+time (waters) has been supplied then samples are deviating. However, if you are able to supply a sampled date (and time for waters) this will prevent samples being reported as deviating where specific hold times are not exceeded and where the container supplied is suitable.

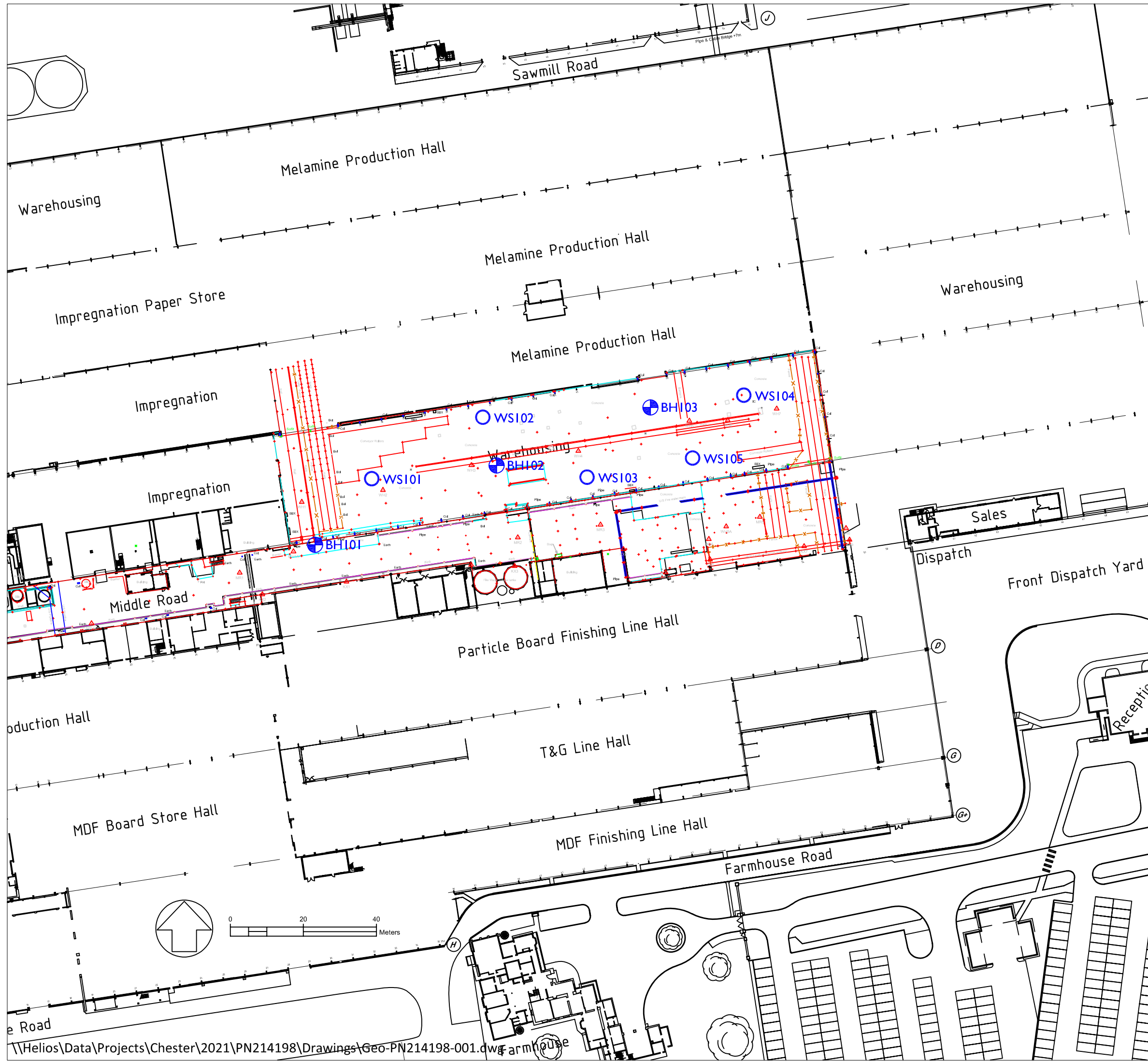
Disposal

From the issue date of this test certificate, samples will be held for the following times prior to disposal :-
 Soils - 1 month, Liquids - 2 weeks, Asbestos (test portion) - 6 months

End of Report

APPENDIX 8

Exploratory Hole Location Plan



- Key
- Cable Percussive Borehole
 - Dynamic Sample Borehole

Hole ID	Easting (mE)	Northing (mN)	Level (mOD)
BH101	328647.2	338374.6	101.01
BH102	328696.9	338396.3	101.00
BH103	328739.0	338412.2	100.80
WS101	328662.7	338392.7	101.01
WS102	328693.1	338409.5	101.00
WS103	328721.6	338393.1	101.01
WS104	328764.5	338415.5	100.80
WS105	328750.5	338398.3	101.00

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Ramboll

Client:
Kronospan

Project:
Kronospan - Raw Board Storage

Drawing Title:
Exploratory Hole Location Plan

Scale: 1:1000@A3

Date:
April 2021

Project No:
PN214198

File Name:
Geo-PN214198-001(1)

APPENDIX 9

Investigation Techniques and General Notes

INTRODUCTION

The following brief review of Ground Investigation techniques, generally used as part of most Site Investigations in the UK, summarises their methodology, advantages and limitations. Detailed descriptions of the techniques are available and can be provided on request. This review should be read in conjunction with the accompanying General Notes.

TRIAL PITS

The trial pit is amongst the simplest yet most effective means of identifying shallow ground conditions on a site. Its advantages include simplicity, speed, potential accuracy and cost-effectiveness. The trial pit is most commonly formed using a back-acting excavator which can typically determine ground conditions to some 4 metres below ground level. Hand excavation is often used to locate, expose and detail existing foundations, features or services. In general, it is difficult to extend pits significantly below the water table in predominantly granular soils, where flows can cause instability. Unless otherwise stated, the trial pits will not have been provided with temporary side support during their construction. Under such circumstances, entrance into the pit is not permitted and hence observations will have been made from the ground surface and samples taken from the excavator bucket.

Where access for personnel is required to allow close observation of the exposed strata, the taking of samples and the carrying out of in situ tests, the sides of the trial pits (Observation Pits in BS 5930:2015) will be made safe using temporary supports or the sides battered back to a stable angle. Some limited access to such Trial Pits (Observation Pits) at depths less than 1m may be allowed in stable conditions or where the sides are benched or battered back to a safe angle.

Trends in strata type, level and thickness can be determined, shear surfaces identified and the behaviour of plant, excavation sides and excavated materials can be related to the construction process. They are particularly valuable in land slip investigations. Some types of in situ test can be undertaken in such pits and large disturbed or block samples obtained.

CABLE PERCUSSION BORING

The light Cable Percussion technique of soft ground boring, typically at a diameter of 150mm, is a well-established simple and flexible method of boring vertical holes and generally allows data to be obtained in respect of strata conditions other than rock. A tubular cutter (for cohesive soils) or shell with a flap valve (for granular soils) is repeatedly lifted and dropped using a winch and rope operating from an "A" frame. Soil which enters these tools is regularly removed and either sampled for subsequent examination or test, or laid to one side for later removal off site and licensed disposal or, if permitted by the Client, use as backfill. Steel casing will have been used to prevent collapse of the borehole sides where necessary. A degree of disturbance of soil and mixing of layers is inevitable and the presence of very thin layers of different soils within a particular stratum may not be identified. Changes in strata type can only be detected on recognition of a change in soil samples at the surface, after the interface has been passed. For the foregoing reasons, depth measurements should not be considered to be more accurate than 0.10 metre. The technique can determine ground conditions to depths in excess of 30 metres under suitable circumstances and usually causes less surface disturbance than trial pitting.

In cohesive soils cylindrical samples are retrieved by driving or pushing in 100mm nominal diameter tubes. In soft soils, piston sampling or vane testing may be undertaken. In granular soils and often in cohesive materials, in situ Standard Penetration Tests (SPT's) are performed. The SPT records the number of standard blows required to drive a 50mm diameter open or cone ended probe for 300mm after an initial 150mm penetration. A modified method of recording is used in denser strata. Small disturbed samples are obtained throughout.

ROTARY DRILLING

Rotary Drilling to produce cores by rotating an annular diamond-impregnated tube or barrel into the ground is the technique most appropriate to the forming of site investigation boreholes through rock or other hard strata. It has the advantage of being able to be used vertically or at an angle. Core diameters of less than 100mm are most common for site investigation purposes. Core is normally retrieved in plastic lining tubes. A flushing fluid such as air, water or foam is used to cool the bit and carry cuttings to the surface. Depths in excess of 60 metres can be achieved under suitable circumstances using rotary techniques, with minimal surface disturbance.

Examination of cores allows detailed rock description and generally enables angled discontinuity surfaces to be observed. However, vertical holes do not necessarily reveal the presence of vertical or near-vertical fissures or joint discontinuities. The core type and/or techniques used will depend on the ground conditions. Where open hole rotary drilling is employed, descriptions of strata result from examination at the surface of small particles ejected from the borehole in the flushing medium. In consequence, no indication of fissuring, bedding, consistency or degree of weathering can be obtained.

DYNAMIC SAMPLING

This technique involves the driving of an open-ended tube into the ground and retrieval of the soil which enters the tube. It was previously called window or windowless sampling. The term "window sample" arose from the original device which had a "window" or slot cut into the side of the tube through which samples were taken. This was superseded by the use of a thin-walled plastic liner to retrieve the soil sample from within a sampler (windowless sampling) which has a solid wall. Line diameters range from 36 to 86mm. Such samples can be used for qualitative logging, selection of samples for classification and chemical analysis and for obtaining a rudimentary assessment of strength.

Driving devices can be hand-held or machine mounted and the drive tubes are typically in 1m lengths. Depending on the type of rig used, the hole formed can be cased to prevent collapse of the borehole sides. Where the type of rig does not allow the insertion of casing, the success of this technique can be limited when soils and groundwater conditions are such that the sides of the hole collapse on withdrawal of the sampler. Obstructions within the ground, the density of the material or its strength can also limit the depth and rate of penetration of this light-weight investigation technique. Nevertheless, it is a valuable tool where access is constrained such as within buildings or on embankments. Depths of up to 10m can be achieved in suitable circumstances depending on the rig type but depths of 5m to 6m are more common.

EXPLORATORY HOLE RECORDS

The data obtained by these techniques are generally presented on Trial Pit, Borehole, Drillhole or Dynamic Sample Records. The descriptions of strata result from information gathered from a number of sources which may include published geological data, preliminary field observations and descriptions, in situ test results, laboratory test results and specimen descriptions. A key to the symbols and abbreviations used accompanies the records. The descriptions on the exploratory hole records accommodate but may not necessarily be identical to those on any preliminary records or the laboratory summaries.

The records show ground conditions at the exploratory hole locations. The degree to which they can be used to represent conditions between or beyond such holes, however, is a matter for geological interpretation rather than factual reporting and the associated uncertainties must be recognised.

DYNAMIC PROBING

This technique typically measures the number of blows of a standard weight falling over a standard height to advance a cone-ended rod over sequential standard distances (typically 100mm). Some devices measure the penetration of the probe per standard blow. It is essentially a profiling tool and is best used in conjunction with other investigation techniques where site-specific correlation can be used to delineate the distribution of soft or loose soils or the upper horizon of a dense or strong layer such as rock.

Both machine-driven and hand-driven equipment is available, the selection depending upon access restrictions and the depth of penetration required. It is particularly useful where access for larger equipment is not available, disturbance is to be minimised or where there are cost constraints. No samples are recovered and some techniques leave a sacrificial cone head in the ground. As with other lightweight techniques, progress is limited in strong or dense soils. The results are presented both numerically and graphically. Depths of up to 10m are commonly achieved in suitable circumstances.

The hand-driven DCP probing device has been calibrated by the Highways Agency to provide a profile of CBR values over a range of depths.

INSTRUMENTATION

The most common form of instrument used in site investigation is either the standpipe or else the standpipe piezometer which can be installed in investigation holes. They are used to facilitate monitoring of groundwater levels and water sampling over a period of time following site work. Normally a standpipe would be formed using rigid plastic tubing which has been perforated or slotted over much of its length whilst a standpipe piezometer would have a filter tip which would be placed at a selected level and the hole sealed above and sometimes below to isolate the zone of interest. Groundwater levels are determined using an electronic "dip meter" to measure the depth to the water surface from ground level. Piezometers can also be used to measure permeability. They are simple and inexpensive instruments for long term monitoring but response times can limit their use in tidal areas and access to the ground surface at each instrument is necessary. Remote reading requires more sophisticated hydraulic, electronic or pneumatic equipment.

Settlement can be monitored using surface or buried target plates whilst lateral movement over a range of depths is monitored using slip indicator or inclinometer equipment.

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4. The assessment of the significance of the factual data, where called for, is provided to assist the Client and their Engineer and/or Advisers in the preparation of their designs.
5. The report is based on the ground conditions encountered in the exploratory holes together with the results of field and laboratory testing in the context of the proposed development. The data from any commissioned desk study and site reconnaissance are also drawn upon. There may be special conditions appertaining to the site, however, which are not revealed by the investigation and which may not be taken into account in the report.
6. Methods of construction and/or design other than those proposed by the designers or referred to in the report may require consideration during the evolution of the proposals and further assessment of the geotechnical and any geoenvironmental data would be required to provide discussion and evaluations appropriate to these methods.
7. The accuracy of results reported depends upon the technique of measurement, investigation and test used and these values should not be regarded necessarily as characteristics of the strata as a whole (see accompanying notes on Investigation Techniques). Where such measurements are critical, the technique of investigation will need to be reviewed and supplementary investigation undertaken in accordance with the advice of the Company where necessary.
8. The samples selected for laboratory test are prepared and tested in accordance with the relevant Clauses and Parts of BS EN ISO 17892 and BS 1377 Parts 1 to 8, where appropriate, in Geotechnics Limited's UKAS accredited Laboratory, where possible. A list of tests is given.
9. Tests requiring the use of another laboratory having UKAS accreditation where possible are identified.
10. Any unavoidable variations from specified procedures are identified in the report.
11. Specimens are cut vertically, where this is relevant and can be identified, unless otherwise stated
12. All the data required by the test procedures are recorded on individual test sheets but the results in the report are presented in summary form to aid understanding and assimilation for design purposes. Where all details are required, these can be made available.
13. Whilst the report may express an opinion on possible configurations of strata between or beyond exploratory holes, or on the possible presence of features based on either visual, verbal, written, cartographical, photographic or published evidence, this is for guidance only and no liability can be accepted for its accuracy.
14. The Code of Practice for Ground Investigations – BS 5930:2015 calls for man-made soils to be described as Anthropogenic Ground with soils placed in an un-controlled manner classified as Made Ground and soils placed in a controlled manner as Fill. In view of the difficulty in always accurately determining the origin of man-made soils in exploratory holes, Geotechnics Limited classify such materials as Made Ground. Where soils can be clearly identified as being placed in a controlled manner then further classification of the soils as Fill has been added to the Exploratory Hole Records.
15. Classification of man-made soils is based on the inspection of retrieved samples or exposed excavations. Where it is obvious that foreign matter such as paper, plastic or metal is present, classification is clear. Frequently, however, for man-made soils that arise from the adjacent ground or from the backfilling of excavations, their visual characteristics can closely resemble those of undisturbed ground. Other evidence such as site history, exploratory hole location or other tests may need to be drawn upon to provide clarification. For these reasons, classification of soils on the exploratory hole records as either Made Ground or naturally occurring strata, the boundary between them and any interpretation that this gives rise to should be regarded as provisional and subject to re-evaluation in the light of further data.
16. The classification of materials as Topsoil is generally based on visual description and should not be interpreted to mean that the material so described complies with the criteria for Topsoil used in BS 3882:2015. Specific testing would be necessary where such a definition is a requirement.
17. Ground conditions should be monitored during the construction of the works and the report should be re-evaluated in the light of these data by the supervising geotechnical engineers.
18. Any comments on groundwater conditions are based on observations made at the time of the investigation, unless specifically stated otherwise. It should be noted, however, that the observations are subject to the method and speed of boring, drilling or excavation and that groundwater levels will vary due to seasonal or other effects.
19. Any bearing capacities for conventional spread foundations which are given in the report and interpreted from the investigation are for bases at a minimum depth of 1m below finished ground level in naturally occurring strata and at broadly similar levels throughout individual structures, unless otherwise stated. Typically they are based on serviceability criteria taking account of an assessment of the shear strength and/or density data obtained by the investigation. The foundations should be designed in accordance with the good practice embodied in BS 8004:2015 - Foundations, supplemented for housing by NHBC Standards. Foundation design is an iterative process and bearing pressures may need adjustment or other measures may need to be taken in the context of final layouts and levels prior to finalisation of proposals.
20. Unless specifically stated, the investigation does not take account of the possible effects of mineral extraction or of gases from fill or natural sources within, below or outside the site.
21. The costs or economic viability of the proposals referred to in the report, or of the solutions put forward to any problems encountered, will depend on very many factors in addition to geotechnical or geoenvironmental considerations and hence their evaluation is outside the scope of the report.