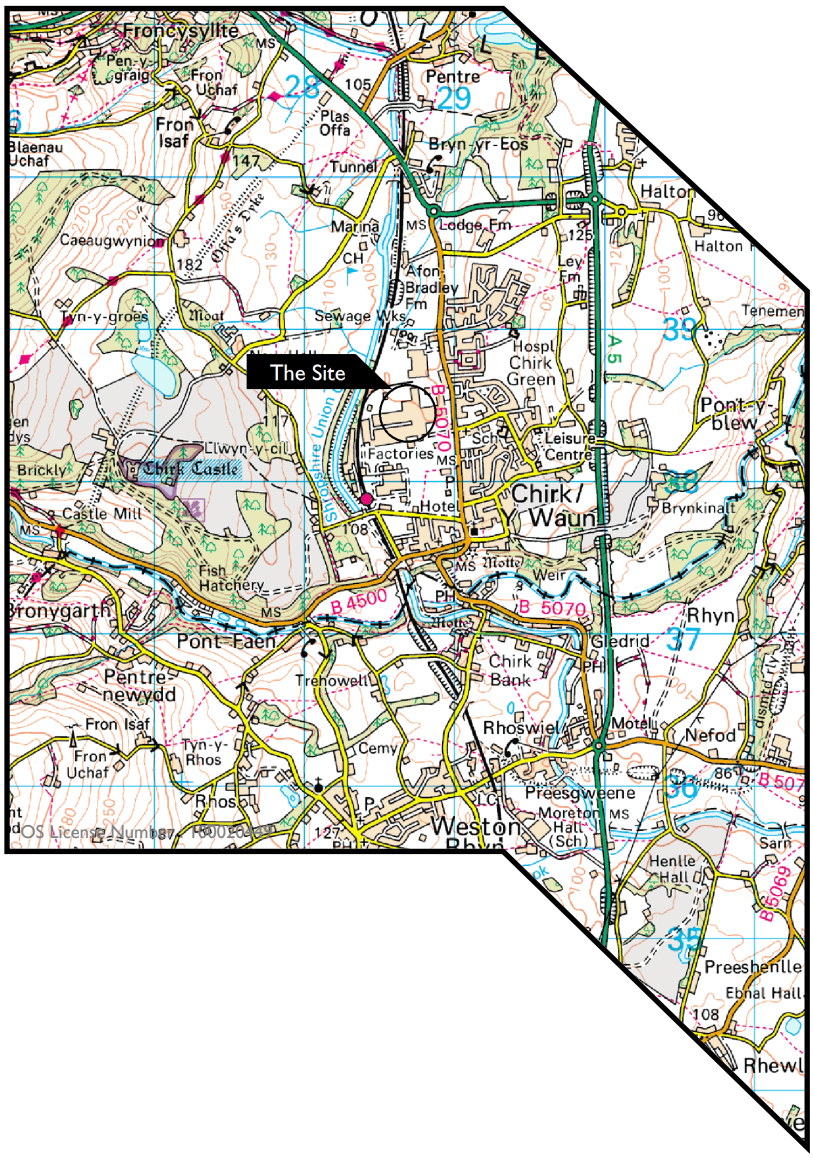

KRONOSPAN - NEW PRESS

Factual Report

for

Kronospan Limited

Engineer : Ramboll UK Limited

Project Number : PN122668

April 2012

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Factual Report

KRONOSPAN - NEW PRESS

for
Kronospan Limited

Engineer :
Ramboll UK Limited

Project No:
PN122668
April 2012

CONTENTS

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APPENDICES

1.0 INTRODUCTION

A geotechnical and geo-environmental investigation was undertaken by Geotechnics Limited at the site of a proposed new press within the Kronospan Limited factory at Chirk. The investigation was carried out to the instructions of Ramboll UK Limited (the Engineer) 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 boreholes, in situ and laboratory testing and reporting. A geotechnical and geo-environmental interpretation and evaluation of the data obtained was not 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 5 of this report.

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

Attention is drawn to the General Notes and Investigation Procedures presented in Appendix 7 to aid an understanding of the procedures followed and the context in which the report should be read.

4.0 THE SITE

4.1 Location

The site is located within the Kronospan Limited factory complex in Chirk, approximately 12.5km south-south-west of Wrexham town centre. The approximate Ordnance Survey National Grid Reference for the site is SJ 287 384 and an extract from the relevant 1:50,000 Scale O.S. Map is included as Appendix 1.

4.2 Description

The site comprises a rectangular area measuring approximately 35m by 12m within the existing factory. The site surface comprises a level reinforced concrete floor slab. The site is surrounded by existing process plant.

5.0 PROCEDURE

5.1 Commissioning

The work was awarded following submission of a tender for work designed by the Client's advisers 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 5930:1999 + A2:2010 - Code of Practice for Site Investigations* and *BS 10175 (2011) – Investigation of Potentially Contaminated Sites*. The Borehole Records are included in Appendix 2 and their positions (as determined by the Engineer) are shown on the Exploratory Hole Location Plan in Appendix 6.

The Exploratory Hole locations were specified by the Engineer. A survey to obtain co-ordinates and ground levels of the exploratory holes was not commissioned. The depths shown on the Borehole Records are quoted in metres below ground level.

5.3 Boreholes

Two (2 No.) boreholes were each sunk by Cable Percussion Tool techniques to a depth of 25.00m below ground level. The boreholes were commenced using 200mm diameter equipment. A reduction to 150mm diameter equipment was used at depth in order to limit friction on the borehole casing. The work was carried out between 22nd February and 2nd March 2012. A hole was concrete cored through the existing floor slab at each of the borehole locations. An inspection pit was then excavated at each borehole location using hand tools to a depth of 1.20m below ground level to check for the presence of underground services.

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 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 Borehole Records.

On encountering groundwater, boring operations were suspended for 20 minutes in order to record any rise in water level. Full details of groundwater observations during site work are included on the Borehole Records.

On completion standpipes were installed in each of the Boreholes (see Section 5.4).

5.4 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 Slotted Pipe & Filter Zone (m)
BH1	1.50 to 3.00
BH2	1.50 to 3.20

Monitoring of the gas and groundwater levels at the site commenced on 16th March 2012 with a further visit on 23rd March 2012.

At each position a record of the groundwater level in each instrument was taken. On each visit where water was recorded, samples were obtained following a purging of three volumes of water in the standpipe.

The results of the monitoring are presented in Appendix 3.

6.0 LABORATORY TESTING

6.1 Geotechnical

The laboratory testing schedule was specified by the Engineer in order to relate to the proposed development. The tests, where appropriate, conform *to BS 1377 - Methods of Test for Soils for Civil Engineering Purposes (1990)* and were carried out in Geotechnics Limited's UKAS accredited Laboratory (Testing No. 1365). 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	4 No.	Moisture Content Determination
4.3 & 5.3	4 No.	Liquid and Plastic Limit Determination
9.2 & 9.3	3 No.	Mechanical Analysis – Wet Sieving
Part 5		
3	2 No.	One-Dimensional Consolidation Test
Part 7		
9	1 No.	Shear Strength Measurement - 100mm diameter (Single Stage) Quick Undrained Triaxial Compression Test

The results of these tests are presented in Appendix 4.

6.2 Contamination

Selected samples of soil and groundwater were tested at the laboratories of ALcontrol Laboratories Limited for a number of determinands in order to check on potential site contamination. The determinands were specified by the Engineer.

The results are presented in Appendix 5.

Written by: .....
Colin Dodd, BSc (Hons), MSc, CEng, MICE
Principal Engineer

Checked by: .....
Keith Nicholls, BSc, MSc, CEng, FIM^3, MIQ, MICE
Principal Engineer
for GEOTECHNICS LIMITED - North West Office

APPENDIX I

Site Location Plan

SITE LOCATION PLAN

KRONOSPAN - NEW PRESS
for
Kronospan Limited

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APPENDIX 2

Borehole Records

DATA SHEET - Symbols and Abbreviations used on Records

Sample Types

B	Bulk disturbed sample
BLK	Block sample
C	Core sample
D	Small disturbed sample (tub/jar)
E	Environmental test sample
ES	Environmental soil sample
EW	Environmental water sample
G	Gas sample
L	Liner sample
LB	Large bulk disturbed sample
P	Piston sample (PF - failed P sample)
TW	Thin walled push in sample
U	Open Tube - 102mm diameter with blows to take sample. (UF - failed U sample)
UT	Thin wall open drive tube sampler - 102mm diameter with blows to take sample. (UTF - failed UT sample)
V	Vial sample
W	Water sample
#	Sample Not Recovered

Insitu Testing / Properties

CBRP	CBR using TRL probe
CHP	Constant Head Permeability Test
COND	Electrical conductivity
HV	Strength from Hand Vane
ICBR	CBR Test
IDEN	Density Test
IRES	Resistivity Test
MEX	CBR using Mexecone Probe Test
PKR	Packer Permeability Test
PLT	Plate Load Test
PP	Strength from Pocket Penetrometer
Temp	Temperature
VHP	Variable Head Permeability Test
VN	Strength from Insitu Vane
w%	Water content

(All other strengths from undrained triaxial testing)

S	Standard Penetration Test (SPT)
C	SPT with cone
N	SPT Result
-/-	Blows/penetration (mm) after seating drive
-*/- (mm)	Total blows/penetration
( )	Extrapolated value

Groundwater

Water Strike

Depth Water Rose To

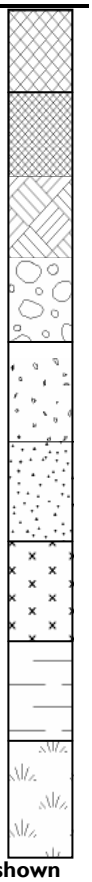
Instrumentation

Seal

Filter

Seal

Strata



Made Ground Type 1

Type 2

Topsoil

Cobbles and Boulders

Gravel

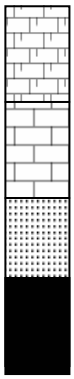
Sand

Silt

Clay

Peat

Note: Composite soil types shown by combined symbols



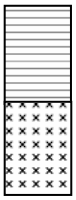
Chalk

Limestone

Sandstone

Coal

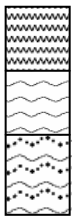
Strata, Continued



Mudstone

Siltstone

Metamorphic Rock

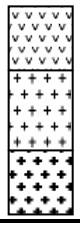


Fine Grained

Medium Grained

Coarse Grained

Igneous Rock



Fine Grained

Medium Grained

Coarse Grained

Backfill Materials

Arisings

Bentonite Seal

Concrete

Fine Gravel Filter

General Fill

Gravel Filter

Grout

Sand Filter

Tarmacadam

Rotary Core

RQD	Rock Quality Designation (% of intact core >100mm)
FRACTURE INDEX	Fractures/metre
FRACTURE SPACING (mm)	Maximum Minimum
NI	Non-intact core
NR	No core recovery
AZCL	Assumed zone of core loss

(where core recovery is unknown it is assumed to be at the base of the run)

BOREHOLE RECORD – Cable Percussion

Project **KRONOSPAN - GROUND INVESTIGATION FOR NEW PRESS**
Engineer **RAMBOLL**
Borehole **BH1**
Project No **PN122668**

Client **KRONOSPAN LTD**

Scale 1:50

Depth	Sample Type	Depth Cased & (to Water)	Strength kPa	w %	SPT N	Description	Depth
							G.L.
						REINFORCED CONCRETE	
0.20	ES						0.18
0.25	D					**MADE GROUND: Greyish brown sandy fine to coarse angular to subrounded gravel of sandstone with a low subrounded cobble content of sandstone.**	
0.40- 0.70	B						
0.50	ES						
1.00	ES						
1.10	D						1.10
1.20- 1.65	B	(DRY)			C19	**Greyish brown clayey fine to medium SAND with a low organic content. (Possible Relict Topsoil.)**	1.30
1.50	ES					**Medium dense greyish brown very sandy fine to coarse angular to subrounded sandstone GRAVEL with a low subrounded cobble content of sandstone.**	
2.00	D						
2.00	ES						
2.35- 2.78	B	1.70 (DRY)			C50/ 284		
2.80	W						
3.00	D						
3.00	ES						
3.25- 3.70	B	3.25 (WET)			C28		3.40
3.70- 4.30	B					**Very soft greyish brown CLAY with lenses of sand.**	
4.30	ES						4.30
4.30- 4.75	UT31	4.30 (2.80)				**Brown gravelly fine to coarse SAND. Gravel is fine to coarse angular to rounded of various lithologies.**	
4.75	D						4.85
4.90- 5.35	D	4.30			S18	**Firm to stiff laminated greyish brown CLAY with silt partings**	5.10
4.95	D	(2.80)					
5.10- 5.75	B					**Firm grey CLAY with lenses of fine sand. Locally grading to sandy clay.**	
5.75- 6.20	B	5.75 (5.30)		28	S9		
6.75	D						
7.20- 7.65	U						
7.20- 7.65	UT11	7.20 (6.80)					
7.65	D						
8.25	D						
8.35	W						
8.80- 9.25	D	8.80 (8.00)			S8		
9.70-10.25	B						

Boring

Depth	Hole Dia	Technique	Crew
1.20	0.40	Inspection Pit	KP/LP
10.70	0.20	Cable Percussion	KP/LP
25.00	0.15	Cable Percussion	KP/LP

Progress

Depth of Hole	Depth Cased	Depth to Water	Date	Time
G.L.			22/02/12	08:00
2.85	1.70	DRY	22/02/12	18:00
2.85	1.70	2.85	23/02/12	08:00
16.90	16.30	16.05	23/02/12	18:00
16.90	16.05	8.35	24/02/12	08:00
25.00	22.00	10.95	24/02/12	18:00

Groundwater

Depth Struck	Depth Cased	Rose to	in Mins	Depth Sealed	Remarks on Groundwater
2.85	1.70				Seepage - No rise
4.30	4.30	2.80	20	12.00	Medium Inflow

Remarks

Inspection pit hand excavated to 1.20m depth.
ES Sample = 2 x 60ml VOC vials, 1 x 1kg plastic tub and 2 x 258ml amber jars
Borehole "Blowing" between 18.60m and 21.90m - large quantity of water added to stabilise borehole.
Water was added to assist boring between 1.20m to 2.85m, 12.00m to 16.00m and 18.60m to 21.90m.
A 50mm groundwater monitoring pipe was installed to 3.00m with a geowrapped slotted section from 1.50m to 3.00m with flush lockable protective cover. Backfill details from base of

Symbols and abbreviations are explained on the accompanying key sheet.

All dimensions are in metres.

Logged in accordance with BS5930:1999 + A2:2010

Logged by **KP**

Figure **1 of 3**

10/04/2012

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BOREHOLE RECORD – Cable Percussion

Project **KRONOSPAN - GROUND INVESTIGATION FOR NEW PRESS**
Engineer **RAMBOLL**
Borehole **BH1**
Project No **PN122668**

Client **KRONOSPAN LTD**

Scale 1:50

Sampling			Properties			Strata		
Depth	Sample Type	Depth Cased & (to Water)	Strength kPa	w %	SPT N	Description	Depth	Legend
10.25-10.70	UT15	10.25 (9.65)						
10.70	D							
11.25	D							
11.80-12.25	D	11.80 (11.25)			S8			
12.80	D							
13.35-13.80	UT11	13.35 (13.20)						
13.80	D							
14.00-14.70	B							
14.70-15.15	D	14.70 (WET)			S8			
15.70	D							
16.30-16.75	UT12	16.30 (WET)						
16.75	D						16.75	
16.90-17.35	B					Medium dense greyish brown very sandy fine to coarse angular to subrounded GRAVEL of various lithologies including coal.		
16.90-17.35	B	16.90 (9.90)			C14		17.15	
						Firm greyish brown sandy CLAY.		
17.55-18.60	B						17.55	
						Dense greyish brown very sandy fine to coarse angular to subrounded GRAVEL of various lithologies. With a low subrounded cobble content.		
18.60-19.05	B							
18.60-19.05	B	18.60 (10.50)			C32			
19.70	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 **hole: bentonite seal up to 3.00m, gravel filter up to 1.50m, bentonite seal up to 0.60m, concrete up to ground level.**
Chiselling: 19.80-19.95m for 45 minutes and 20.90-21.50m for 75 minutes and 23.00-23.25m for 45 minutes.

Logged by **KP**
Figure **2 of 3**
10/04/2012

Symbols and abbreviations are explained on the accompanying key sheet.

All dimensions are in metres.

Logged in accordance with BS5930:1999 + A2:2010

geotechnics

BOREHOLE RECORD – Cable Percussion

Project **KRONOSPAN - GROUND INVESTIGATION FOR NEW PRESS**
Engineer **RAMBOLL**
Borehole **BH1**
Project No **PN122668**

Client **KRONOSPAN LTD**

Scale 1:50

Sampling			Properties			Strata		
Depth	Sample Type	Depth Cased & (to Water)	Strength kPa	w %	SPT N	Description	Depth	Legend
20.35-20.75	B	20.35 (7.90)			C50/ 247	At 20.35m, very dense		
21.15-21.30	D	21.15 (9.80)			C50/75			
21.90-22.45	B					Firm to stiff brown sandy slightly gravelly CLAY with a low cobble content. Gravel is fine to medium angular to subrounded of sandstone and siltstone.	21.90	
22.45-22.75	UT150	22.00 (10.75)						
22.75-23.25	B							
22.75-23.09		22.00 (10.80)			C50/ 189			
23.70	D			13				
23.70	D							
24.40-24.85	U		459	11		At 24.40m, extremely high strength		
24.40-24.85	UT121	22.00 (10.95)						
24.85	D							
24.85	D						25.00	
						End of Borehole		

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 BS5930:1999 + A2:2010

Logged by **KP**

Figure **3 of 3**
10/04/2012

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BOREHOLE RECORD – Cable Percussion

Project **KRONOSPAN - GROUND INVESTIGATION FOR NEW PRESS** Engineer **RAMBOLL** Borehole **BH2** Project No **PN122668**

Client **KRONOSPAN LTD**

Scale 1:50

Depth	Sample Type	Depth Cased & (to Water)	Strength kPa	w %	SPT N	Description	Depth
							G.L.
						REINFORCED CONCRETE	
0.20	ES						0.19
0.30- 0.70	B					**MADE GROUND: Brown very sandy fine to coarse angular gravel of sandstone**	0.30
0.30	D						
0.50	ES						
						MADE GROUND: Brown slightly clayey sandy fine to coarse angular to subrounded gravel of sandstone	
0.85	D						0.85
0.95	D						0.95
1.00	ES					**Soft to firm greyish brown gravelly CLAY with organic traces. Gravel is fine to coarse angular to rounded of various lithologies. (Probable Made Ground).**	1.10
1.20- 1.65	B	(DRY)			C26		
						Soft brown sandy CLAY with a low organic content. (Possible Relict Topsoil).	
1.95	D						
						Medium dense to dense brownish grey clayey sandy angular to subrounded GRAVEL of various lithologies.	
2.15- 2.60	B	1.70 (DRY)			C44		
2.50	W					**At 2.15m, dense**	
2.65	W						
3.05	D			28			3.05
3.05	D					**Very soft laminated brown CLAY with silt partings**	
3.20- 3.65	B	3.20 (3.00)			C3		
3.95	D						
4.15	D						
4.30- 4.75	B						4.30
4.30- 4.75	UTF 11	4.00 (2.65)				**Very loose brown slightly gravelly fine to coarse SAND. Gravel is fine to medium subangular to rounded of various lithologies**	
4.90- 5.35	B	4.00 (2.65)			C1		
							5.25
5.40- 6.10	B					**Very soft laminated greyish brown CLAY with silt partings**	5.40
						Very soft to soft grey CLAY with lenses of fine sand	
6.10- 6.55	U						
6.10- 6.55	UT14	6.00 (5.20)					
6.55	D						
7.15	D						
7.70- 8.15	D	7.70 (WET)			S4		
8.70	D			28			
8.70	D						
9.30- 9.75	UT7	9.20 (WET)					
9.75	D						

Boring

Depth	Hole Dia	Technique	Crew
1.20	0.40	Inspection Pit	KP/LP
10.70	0.20	Cable Percussion	KP/LP
24.95	0.15	Cable Percussion	KP/LP

Progress

Depth of Hole	Depth Cased	Depth to Water	Date	Time
G.L.			29/02/12	08:00
11.15	10.70	10.50	29/02/12	18:00
11.15	10.70	8.75	01/03/12	08:00
20.75	20.75	15.15	01/03/12	18:00
20.75	20.75	11.45	02/03/12	08:00
24.95	20.80	14.25	02/03/12	18:00

Groundwater

Depth Struck	Depth Cased	Rose to	in Mins	Depth Sealed	Remarks on Groundwater
2.80	2.40	2.50	20	4.00	Slow inflow
4.30	4.00	2.65	20	7.00	Medium inflow
18.95	18.20	12.95	20		Fast inflow

Remarks

AGS

Inspection pit hand excavated to 1.20m depth.
ES Sample = 2 x 60ml VOC vials, 1 x 1kg plastic tub and 2 x 258ml amber jars
Water was added to assist boring between 1.20m to 10.20m and 12.00m to 18.00m.
A 50mm groundwater monitoring pipe was installed to 3.20m with a geowrapped slotted section from 1.50m to 3.20m with flush lockable protective cover. Backfill details from base of hole: bentonite seal up to 3.20m, gravel filter up to 1.50m, bentonite seal up to 0.50m, concrete up to ground level.
Chiselling: 19.40-19.80m for 45 minutes and 20.50-20.75m for 75 minutes and 20.75-20.95m for

Symbols and abbreviations are explained on the accompanying key sheet.

All dimensions are in metres.

Logged in accordance with BS5930:1999 + A2:2010

Logged by **LP**

Figure **1 of 3**

10/04/2012

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BOREHOLE RECORD – Cable Percussion

Project **KRONOSPAN - GROUND INVESTIGATION FOR NEW PRESS**

Engineer **RAMBOLL**

Borehole **BH2**
Project No **PN122668**

Client **KRONOSPAN LTD**

Scale 1:50

Sampling			Properties			Strata		
Depth	Sample Type	Depth Cased & (to Water)	Strength kPa	w %	SPT N	Description	Depth	Legend
10.10-10.60	B							
10.70-11.15	D	10.70 (10.50)			S6			
11.65	D							
12.30-12.75	UT9	12.00 (11.95)						
12.75	D							
12.95	W							
13.05-13.75	B							
13.75-14.20	D	13.70 (13.50)			S6			
14.75	D							
15.20-15.65	UT6	15.20						
15.65	D							
16.25	D							
16.70-17.15	D	16.70 (16.60)			S8	At 16.70m, firm		
17.60	D							
18.15-18.60	UT12	18.15 (18.00)						
18.60	D						18.75	
18.95-19.40	B					Dense greyish brown sandy fine to coarse subangular to rounded GRAVEL of various lithologies with a low subrounded cobble content.		
19.40-19.80	B							
19.40-19.81	B	19.40 (13.25)			C47			
19.95-20.50	B						19.95	

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 **45 minutes and 22.40-22.60m for 45 minutes and 23.50-23.80m for 30 minutes.**

Logged by **LP**

Figure **2 of 3**
10/04/2012

Symbols and abbreviations are explained on the accompanying key sheet.

All dimensions are in metres.

Logged in accordance with BS5930:1999 + A2:2010

geotechnics

BOREHOLE RECORD – Cable Percussion

Project **KRONOSPAN - GROUND INVESTIGATION FOR NEW PRESS**

Engineer **RAMBOLL**

Borehole **BH2**
Project No **PN122668**

Client **KRONOSPAN LTD**

Scale 1:50

Sampling			Properties			Strata		
Depth	Sample Type	Depth Cased & (to Water)	Strength kPa	w %	SPT N	Description	Depth	Legend
20.50-20.63	D	19.40			C50/69	Stiff brown slightly sandy slightly gravelly CLAY with a low subrounded cobble content. Gravel is fine to coarse angular to subrounded of sandstone and siltstone.		
20.50	UTF 75							
20.95-21.80	B					At 21.00m, reddish brown		
21.80-22.25	UT141	20.80 (15.30)						
22.25	D							
22.60-23.10	B							
23.25-23.52	B	20.80 (15.20)			C50/ 117			
23.80-24.40	B							
24.40-24.65	B							
24.40-24.65	UTF 150	20.80						
24.65-24.96	D	20.80			S50/ 156			
						End of Borehole	25.00	

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

Symbols and abbreviations are explained on the accompanying key sheet.

All dimensions are in metres.

Logged in accordance with BS5930:1999 + A2:2010

Logged by **LP**

Figure **3 of 3**
10/04/2012

geotechnics

Fieldwork Results - SPT Results Summary

Project KRONOSPAN - GROUND INVESTIGATION FOR NEW PRESS

Project No PN122668

Client KRONOSPAN LTD

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
BH1	1.20		C	-	1	2	2	4	7	6	19	
BH1	2.35		C	-	8	12	10	15	15	10/59	50/284	
BH1	3.25		C	-	2	4	7	9	7	5	28	
BH1	4.90		S	-	2	3	4	5	5	4	18	
BH1	5.75		S	-	1	1	2	2	2	3	9	
BH1	8.80		S	-	1	1	1	2	2	3	8	
BH1	11.80		S	-	1	1	1	2	3	2	8	
BH1	14.70		S	-	1	-	1	2	2	3	8	
BH1	16.90		C	-	1	2	3	3	4	4	14	
BH1	18.60		C	-	1	2	4	7	9	12	32	
BH1	20.35		C	-	1	10	12	14	16	8/22	50/247	
BH1	21.15		C	-	25/74		50				50/75	
BH1	22.75		C	-	7	18	18	18	14/39		50/189	

Driller	Keith Pemberton
Hammer No.	BL01
Energy Ratio, Er (%)	76.00
Calibration Date	10/11/2011

Remarks
Equipment checked and calibration carried out in accordance with BS EN ISO 22476-3: 2005

-/- 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

Fieldwork Results - *SPT Results Summary*

Project KRONOSPAN - GROUND INVESTIGATION FOR NEW PRESS

Project No PN122668

Client KRONOSPAN LTD

Hole	Depth m bgl	Level m OD	Type	SWP (mm)	Seating Drive		Test Drive				SPT 'N' Value	Uncorrected SPT 'N' 10 20 30 40 50
					0-75 (mm)	75-150 (mm)	0-75 (mm)	75-150 (mm)	150-225 (mm)	225-300 (mm)		
BH2	1.20		C	-	3	7	6	8	7	5	26	
BH2	2.15		C	-	4	8	10	10	12	12	44	
BH2	3.20		C	-	1	-	-	-	1	2	3	
BH2	4.90		C	-	-	-	1	-	-	-	1	
BH2	7.70		S	-	1	1	1	1	1	1	4	
BH2	10.70		S	-	1	-	1	1	2	2	6	
BH2	13.75		S	-	1	-	1	1	2	2	6	
BH2	16.70		S	-	1	1	1	2	3	2	8	
BH2	19.40		C	-	17	8/31	13	12	12	10	47	
BH2	20.50		C	-	25/62		50/69				50/69	
BH2	23.25		C	-	8	16	22	28/42			50/117	
BH2	24.65		S	-	7	18	18	27	5/6		50/156	

Driller	Keith Pemberton
Hammer No.	BL01
Energy Ratio, Er (%)	76.00
Calibration Date	10/11/2011

Remarks
Equipment checked and calibration carried out in accordance with BS EN ISO 22476-3: 2005

-/- 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

APPENDIX 3

Monitoring Results

FIELDWORK – *Water Level Monitoring*

Project KRONOSPAN - GROUND INVESTIGATION FOR NEW PRESS

Project No PN122668

Client KRONOSPAN LTD

Sheet No 1

Borehole		BH1		BH2									
Instrument (dia. mm)		GWMP (50mm)		GWMP (50mm)									
Depth to Base (m)		3.00 (Note 1)		3.20 (Note 2)									
Filter Zone (m)		1.50-3.00		1.50-3.20									
Level													
Date	Time	Depth (m)	Level	Depth (m)	Level	Depth (m)	Level	Depth (m)	Level	Depth (m)	Level	Depth (m)	Level
16 Mar 2012		-		2.38									
23 Mar 2012		2.34		2.19									

Remarks

Note 1 - On 16/03/12 installation was not accessible. On 23/03/12 12mm of free product was detected.

Note 2 - On 16/03/12 15mm of free product was detected. On 23/03/12 12mm of free product was detected.

Symbols and abbreviations are explained on the accompanying key sheet.

All dimensions are in metres.

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APPENDIX 4

Laboratory Test Results - Geotechnical

Classification and Strength

Symbol	**C - Clay** **M - Silt** (0 - containing organic matter)
	Plasticity L - Low I - Intermediate H - High V - Very High E - Extremely High
Ip	Plasticity Index
%	% Retained on 425 µm sieve, shown under Ip value
w_L	Liquid Limit
w_P	Plastic Limit
NP	Non-Plastic
NAT	Sample tested in natural state
w	Moisture Content
P_d	Particle Density
Test	**Quick undrained triaxial tests** SS Single stage - 102mm diameter. S3 Single stage - set of 3 38mm diameter. MS Multistage - 102mm diameter. D Drained Test HV Hand Vane PP Pocket Penetrometer (kg/cm²) NST Not suitable for test
γ_b	Bulk Density
σ_3	Triaxial Cell Pressure
$\sigma_1 - \sigma_3$	Deviator Stress
##	Excessive Strain
c_u	Undrained Cohesion
c	Cohesion Intercept
ϕ	Angle of Shearing Resistance
Linear Shrink	Linear Shrinkage

Consolidation

m_v	Coefficient of Volume Compressibility
c_{v50}	Coefficient of Consolidation - Log t
c_{v90}	Coefficient of Consolidation - $\sqrt{t}$

Rock

UF	Unacceptable Failure

Chemical Analysis

Acid Soluble	Total sulphate in specimen, expressed as SO_3 %, value in brackets expressed as SO_4 %
Water Soluble	Soluble sulphate in 2:1 water : soil extract, expressed as SO_3 g/l, value in brackets expressed as SO_4 g/l
In Water	Sulphate content of groundwater, expressed as SO_3 g/l, value in brackets expressed as SO_4 g/l
pH	pH value
Organic content	Organic content expressed as a percentage of dry weight
Chloride	Chloride Ion content expressed as a percentage of dry weight

MCV, Compaction, CBR

MCV	Moisture Condition Value at natural moisture content
MCC	Moisture Condition Calibration
CCV	Chalk Crushing Value

Compaction

Type	2.5	=	BS 2.5 kg Rammer
	4.5	=	BS 4.5 kg Rammer
	V	=	BS Vibrating Hammer

γ_b	Bulk Density
γ_d	Dry Density

CBR California Bearing Ratio

Type	2.5	=	Test on Specimen Recompacted using BS 2.5 kg Rammer
	4.5	=	As above but using BS 4.5 kg Rammer
	V	=	As above but using BS Vibrating Hammer
	M	=	Test on open drive mould specimen cut in field
	S	=	Soaked Specimen

Top	CBR at top of mould
Bottom	CBR at bottom of mould
ND	None Detected

All tests performed in accordance with BS 1377 : Parts 1-9 : 1990 incorporating amendments where appropriate.

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LABORATORY RESULTS - Classification and Strength

Project KRONOSPAN - GROUND INVESTIGATION FOR NEW PRESS **Project No:** PN122668

Sample					Classification					Strength					
Hole	Depth (Specimen Depth) m	Type	Sample Ref	Description	Symbol	I_p (>425) %	w_L %	w_p %	w (p_d) %	Test	γ_b (γ_d) Mg/m^3	σ_3 kN/m^2	$\sigma_1 - \sigma_3$ kN/m^2	c_u kN/m^2	c_{Avg} kN/m^2
BH1	5.75-6.20 (5.75)	B	N31864	Firm grey slightly sandy CLAY.	CL	12 (3%)	33	21	28						
BH1	23.70 (23.70)	D	N31648	Firm to stiff brown slightly gravelly sandy CLAY.	CL	20 (18%)	32	12	13						
BH1	24.40-24.85 (24.40)	U	N31651	Stiff extremely high strength brown slightly gravelly sandy CLAY. PP = >4.5, >4.5					11	SS	2.30	500	917	459 ##	459
BH2	3.05 (3.05)	D	N31653	Very soft laminated brown slightly sandy CLAY.	CL	13 (5%)	31	18	28						
BH2	8.70 (8.70)	D	N31654	Very soft to soft grey CLAY.	CL	9 (NAT)	28	19	28						

Remarks Tests performed in accordance with BS 1377: 1990
NST - Not suitable for Test

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LABORATORY RESULTS - Unconsolidated Undrained Triaxial Test

Project: KRONOSPAN - GROUND INVESTIGATION FOR NEW PRESS

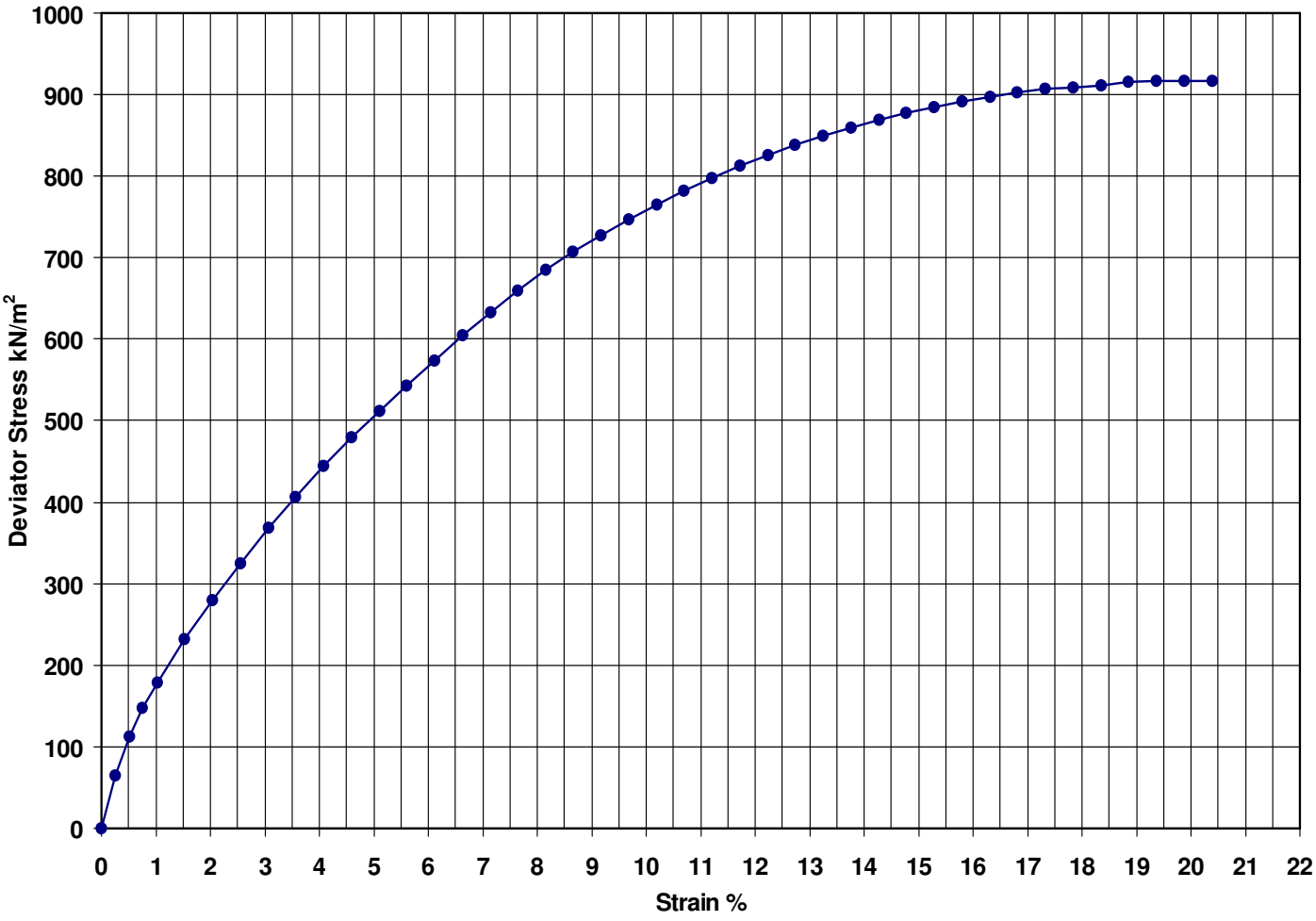
Project No: PN122668

Hole	BH1
Sample Depth	24.40-24.85m
Sample Type	U
Sample Ref	N31651

Sample Description

Stiff extremely high strength brown slightly gravelly sandy CLAY.

PP = >4.5, >4.5



Strain %	Corrected Deviator Stress kN/m 2	Strain %	Corrected Deviator Stress kN/m 2	Strain %	Corrected Deviator Stress kN/m 2
0.3	64.8	7.1	633.1	14.8	877.2
0.5	112.2	7.6	659.7	15.3	885.0
0.8	147.7	8.2	684.7	15.8	891.4
1.0	178.7	8.7	707.1	16.3	897.5
1.5	231.9	9.2	727.7	16.8	902.6
2.0	279.9	9.7	747.1	17.3	907.3
2.5	325.2	10.2	765	17.8	908.2
3.1	368.5	10.7	781.6	18.3	912.1
3.6	407.0	11.2	797.6	18.9	915.3
4.1	444.3	11.7	813.1	19.4	917.0
4.6	479.4	12.2	825.5	19.9	916.7
5.1	512.3	12.7	837.9	20.4	917.1
5.6	542.6	13.3	849.1		
6.1	573.9	13.8	859.8		
6.6	604.6	14.3	868.9		

Remarks

17/04/2012

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LABORATORY RESULTS - Particle Size Distribution

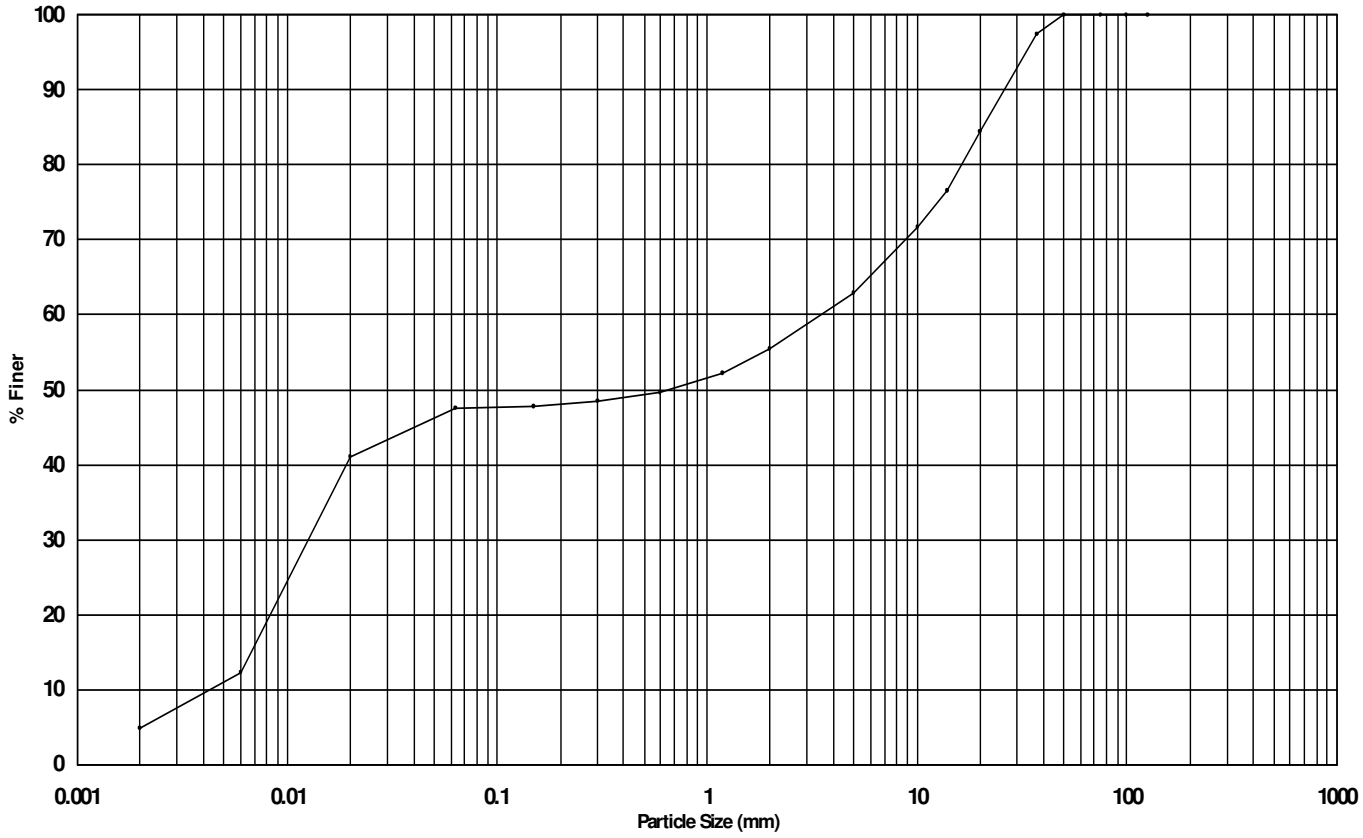
Project: KRONOSPAN - GROUND INVESTIGATION FOR NEW PRESS

Project No: PN122668

Hole BH1
Sample Depth 16.90-17.35m
Sample Type B
Sample Ref N31646

Sample Description

Firm greyish brown CLAY and greyish brown sandy fine to coarse GRAVEL.



Classification		Fine	Medium	Coarse	Fine	Medium	Coarse	Fine	Medium	Coarse	Cobbles	Boulders
	CLAY	SILT			SAND			Gravel				

Classification	% of each
CLAY	5
SILT	43
SAND	8
GRAVEL	44
COBBLES	0
BOULDERS	0

Size	% Finer
125 mm	100
100 mm	100
75 mm	100
50 mm	100
37.5 mm	98
20 mm	84
14 mm	77
10 mm	72
5 mm	63
2 mm	56
1.18 mm	52
600 µm	50
300 µm	48
150 µm	48
63 µm	48
20 µm	41

Size	% Finer
6 µm	12
2 µm	5

Uniformity Coefficient
817.28

Sieving Method
Wet sieve

Fine Particle Analysis	
Method	Pipette
Pre-treated with	Hydrogen Peroxide
% loss on Pre-treatment	0.10
Particle Density	2.65 (Assumed)

Remarks Test performed in accordance with BS 1377:Part 2:1990

Silt and clay proportions taken as all material smaller than 0.063mm.

10/04/2012

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LABORATORY RESULTS - *Particle Size Distribution*

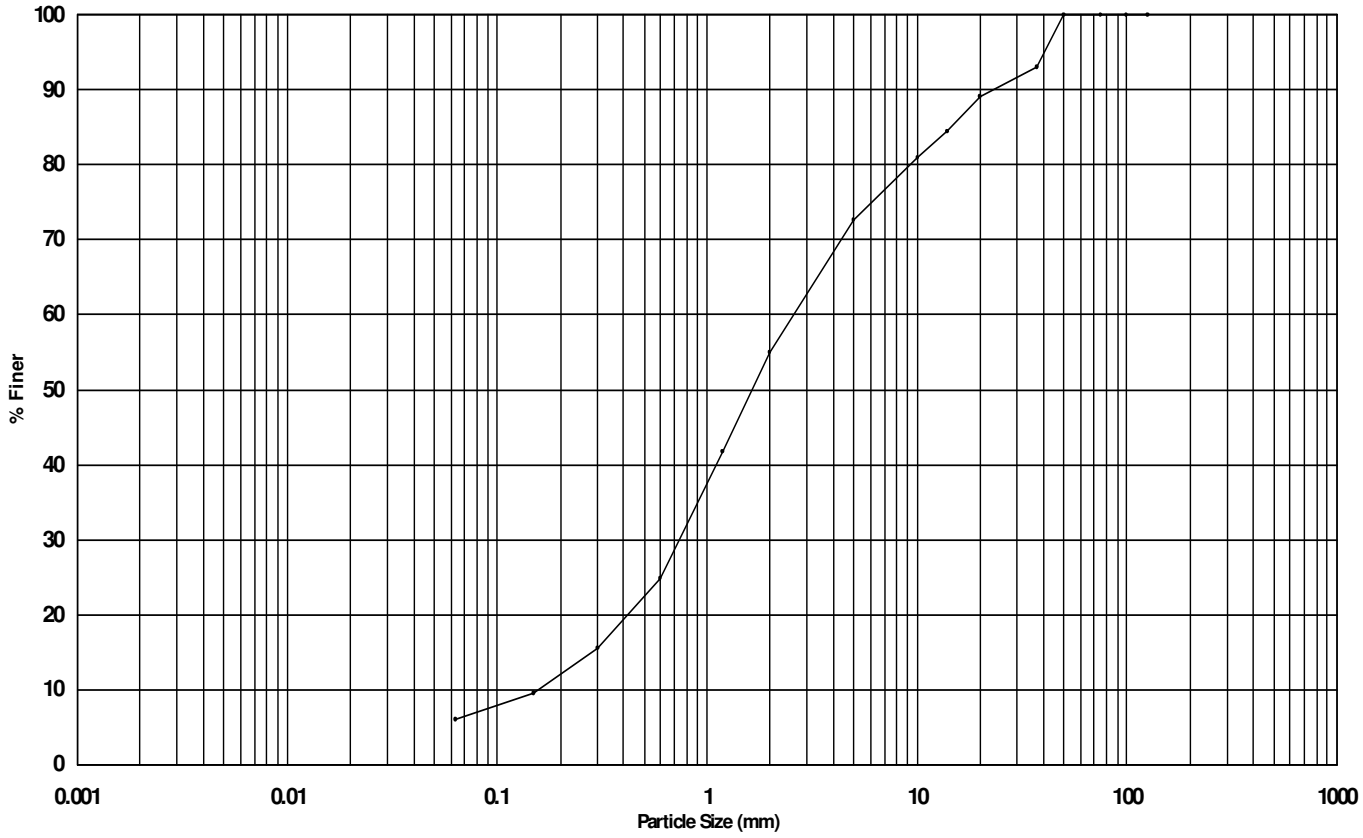
Project: KRONOSPAN - GROUND INVESTIGATION FOR NEW PRESS

Project No: PN122668

Hole	BH1
Sample Depth	18.60-19.05m
Sample Type	B
Sample Ref	N31647

Sample Description

Greyish brown silty fine to coarse SAND AND GRAVEL.



Classification		Fine	Medium	Coarse	Fine	Medium	Coarse	Fine	Medium	Coarse	Cobbles	Boulders
	CLAY	SILT			SAND			Gravel				

Classification	% of each
SILT (including CLAY)	6
SAND	49
GRAVEL	45
COBBLES	0
BOULDERS	0

Size	% Finer
125 mm	100
100 mm	100
75 mm	100
50 mm	100
37.5 mm	93
20 mm	89
14 mm	84
10 mm	81
5 mm	73
2 mm	55
1.18 mm	42
600 µm	25
300 µm	15
150 µm	9
63 µm	6

Size	% Finer

Uniformity Coefficient
16.26
Sieving Method
Wet sieve
Fine Particle Analysis

Method	
Pre-treated with	
% loss on Pre-treatment	
Particle Density	

Remarks Test performed in accordance with BS 1377:Part 2:1990

Silt and clay proportions taken as all material smaller than 0.063mm.

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LABORATORY RESULTS - *Particle Size Distribution*

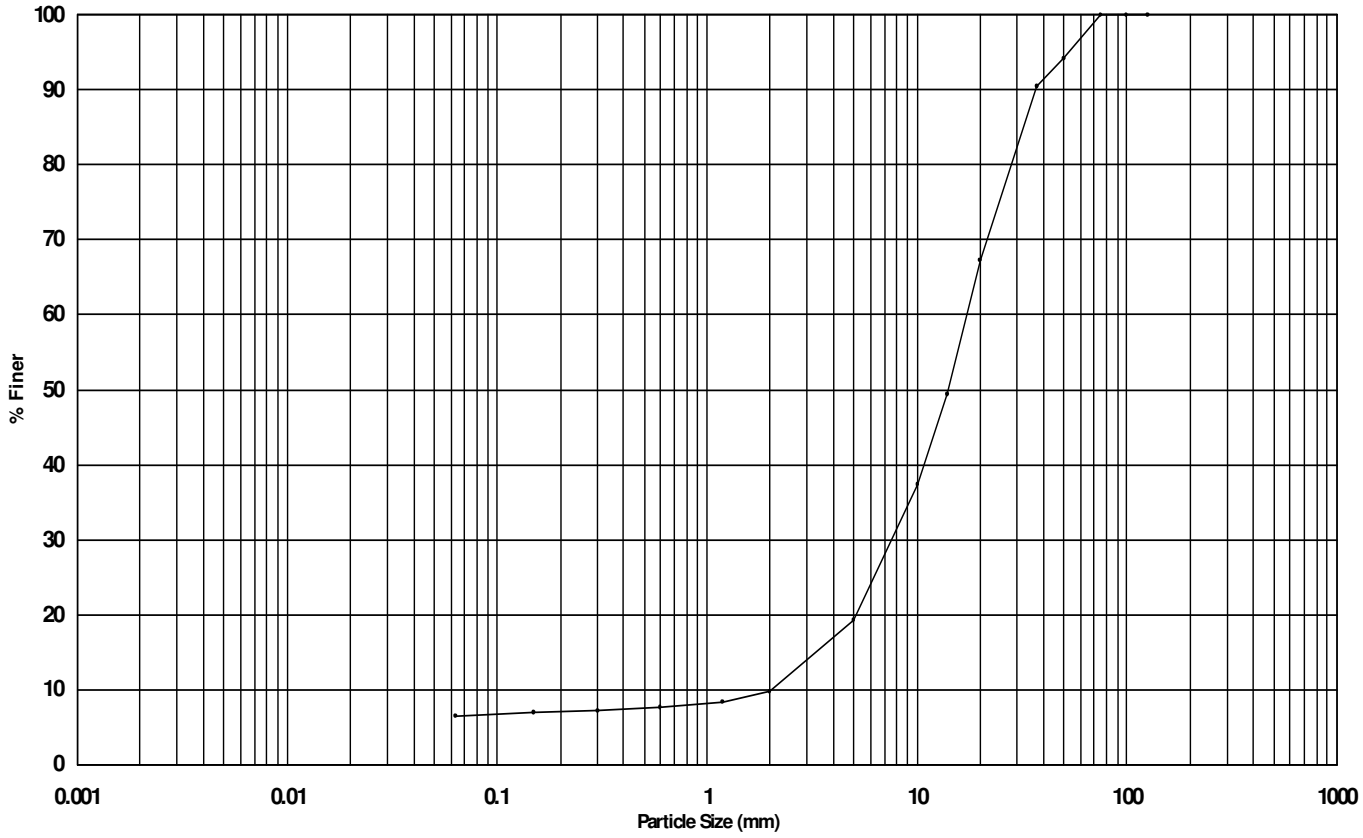
Project: KRONOSPAN - GROUND INVESTIGATION FOR NEW PRESS

Project No: PN122668

Hole BH2
Sample Depth 19.40-19.80m
Sample Type B
Sample Ref N31655

Sample Description

Greyish brown slightly sandy silty fine to coarse GRAVEL with a low cobble content.



Classification		Fine	Medium	Coarse	Fine	Medium	Coarse	Fine	Medium	Coarse	Cobbles	Boulders
	CLAY	SILT			SAND			Gravel				

Classification	% of each
SILT (including CLAY)	7
SAND	3
GRAVEL	88
COBBLES	2
BOULDERS	0

Size	% Finer
125 mm	100
100 mm	100
75 mm	100
50 mm	94
37.5 mm	90
20 mm	67
14 mm	49
10 mm	37
5 mm	19
2 mm	10
1.18 mm	8
600 µm	8
300 µm	7
150 µm	7
63 µm	7

Size	% Finer

Uniformity Coefficient
8.51
Sieving Method
Wet sieve
Fine Particle Analysis

Method	
Pre-treated with	
% loss on Pre-treatment	
Particle Density	

Remarks Test performed in accordance with BS 1377:Part 2:1990

Silt and clay proportions taken as all material smaller than 0.063mm.

10/04/2012

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LABORATORY RESULTS - *Consolidation e/logp Plot*

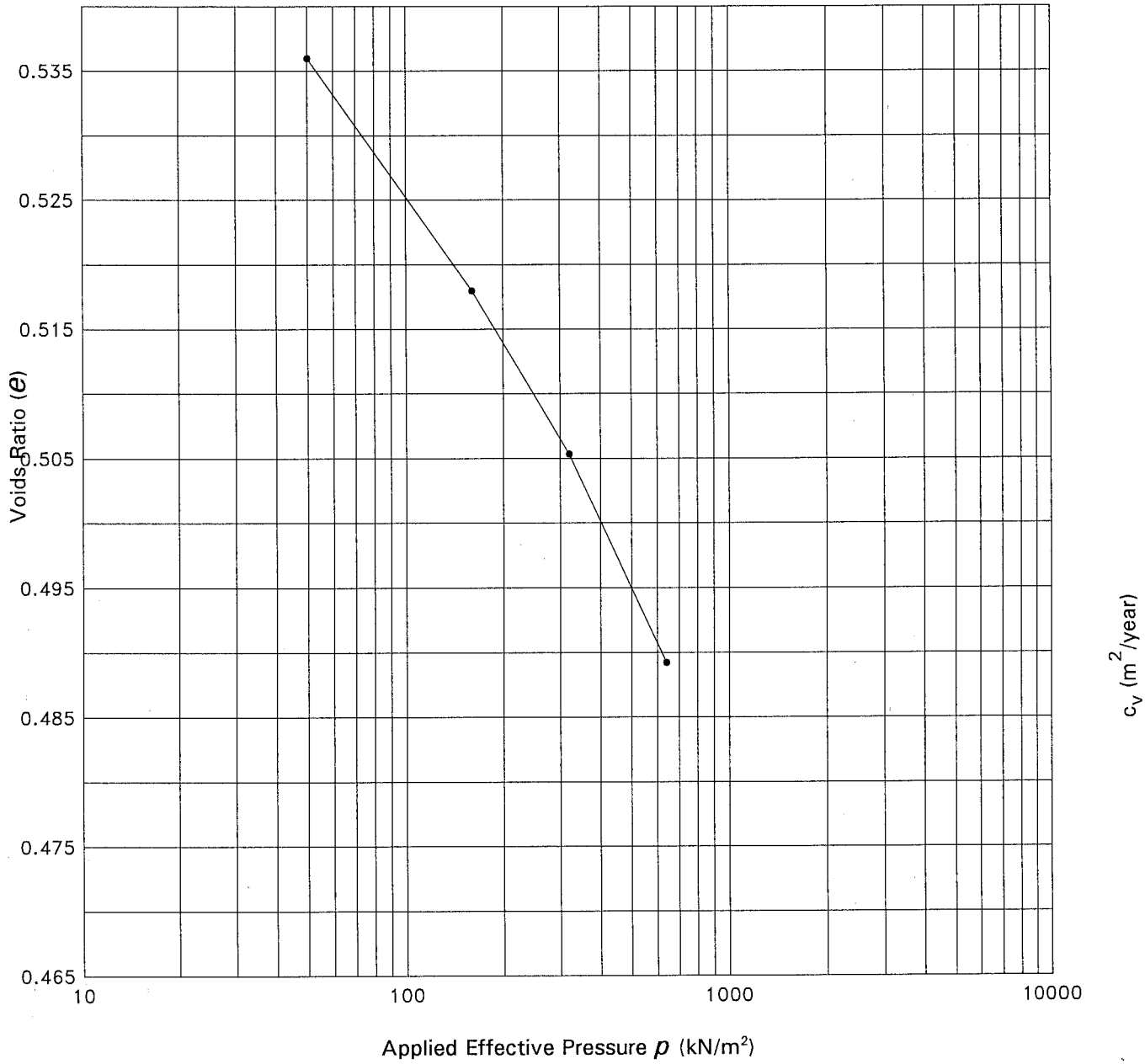
Project KRONOSPAN

Client

Project No PN122668
Borehole BH1
Sample Depth 7.20 - 7.65 m
Sample Type U

The determination of one dimensional consolidation properties in accordance with Clause 3 of BS1377: Part 5: 1990

Symbols: Voids Ratio •, c_{v50}, c_{v90}



Applied Pressure kN/m²	0-50	50-160	160-320	320-640						
m_v m²/MN	0.18	0.11	0.05	0.03						
c_{v50} Log Time m²/yr	-	-	-	-						
c_{v90} Root Time m²/yr	-	-	-	-						
Voids Ratio	0.536	0.518	0.505	0.489						

Description
N31650 Grey slightly sandy SILT

Specimen Diameter	74.610	mm
Initial Height	18.760	mm
Particle Density	2.65 Assumed	
Initial Voids Ratio	0.550	

Initial Water Content	22.81	%
Final Water Content	21.45	%
Initial Saturation	100	%
Initial Bulk Density	2.10	Mg/m³
Initial Dry Density	1.71	Mg/m³

Remarks Laboratory temperature 20°C ± 4°C
Specimen cut vertically from base of sample

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LABORATORY RESULTS - *Consolidation e/logp Plot*

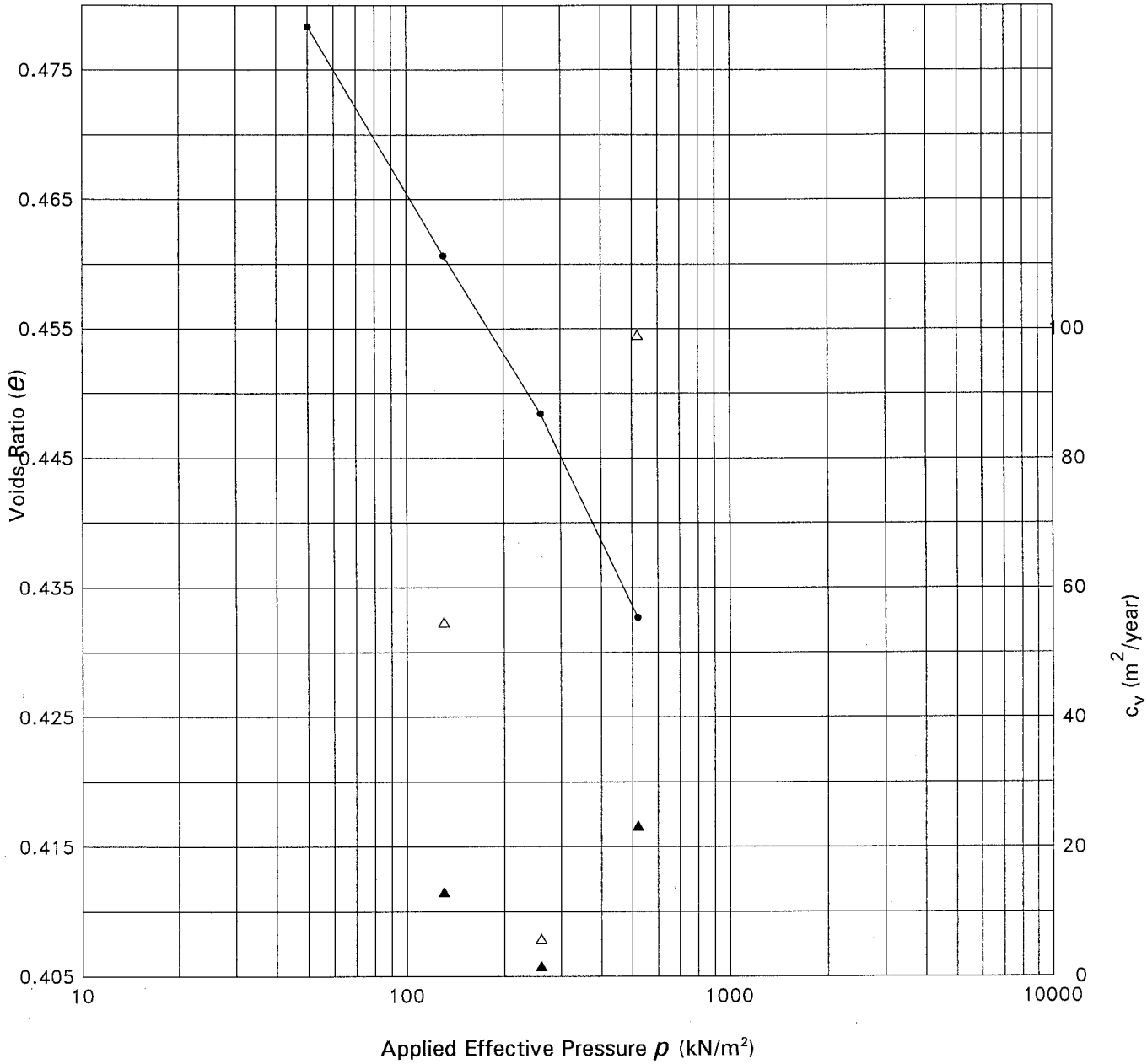
Project KRONOSPAN

Client

Project No PN122668
Borehole BH2
Sample Depth 6.10 - 6.55 m
Sample Type U

The determination of one dimensional consolidation properties in accordance with Clause 3 of BS1377: Part 5: 1990

Symbols: Voids Ratio •, c_{v50} ▲, c_{v90} △



Applied Pressure kN/m²	0-50	50-130	130-260	260-520						
m_v m²/MN	0.84	0.15	0.06	0.04						
c_{v50} Log Time m²/yr	-	13.00	1.54	23.20						
c_{v90} Root Time m²/yr	-	54.65	5.76	99.03						
Voids Ratio	0.478	0.461	0.448	0.433						

Description
N31652 Grey SILT

Specimen Diameter	74.600	mm
Initial Height	18.930	mm
Particle Density	2.65 Assumed	
Initial Voids Ratio	0.543	

Initial Water Content	23.81	%
Final Water Content	19.53	%
Initial Saturation	100	%
Initial Bulk Density	2.13	Mg/m³
Initial Dry Density	1.72	Mg/m³

Remarks Laboratory temperature 20°C ± 4°C
Specimen cut vertically from base of sample

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APPENDIX 5

Laboratory Test Results - Contamination

ALcontrol Laboratories

Unit 7-8 Hawarden Business Park
Manor Road (off Manor Lane)
Hawarden
Deeside
CH5 3US
Tel: (01244) 528700
Fax: (01244) 528701
email: mkt@alcontrol.com
Website: www.alcontrol.com

Geotechnics Ltd
The Geotechnical Centre, Unit 1
Borders Industrial Estate, River Lane
Saltney
Chester
Cheshire
CH4 8RJ

Attention: Jon Hutchinson

CERTIFICATE OF ANALYSIS

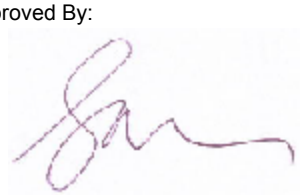
Date:	16 March 2012
Customer:	H_GEOTECHLT_CHE
Sample Delivery Group (SDG):	120302-52
Your Reference:	PN122668
Location:	Kronospan
Report No:	174609

We received 11 samples on Thursday March 01, 2012 and 6 of these samples were scheduled for analysis which was completed on Friday March 16, 2012. Accredited laboratory tests are defined within the report, but opinions, interpretations and on-site data expressed herein are outside the scope of ISO 17025 accreditation.

Should this report require incorporation into client reports, it must be used in its entirety and not simply with the data sections alone.

All chemical testing (unless subcontracted) is performed at ALcontrol Hawarden Laboratories.

Approved By:



Sonia McWhan

Operations Manager

CERTIFICATE OF ANALYSIS

SDG:	120302-52	**Location:**	Kronospan	**Order Number:**	
Job:	H_GEOTECHLT_CHE-145	**Customer:**	Geotechnics Ltd	**Report Number:**	174609
Client Reference:	PN122668	**Attention:**	Jon Hutchinson	**Superseded Report:**	

Received Sample Overview

Lab Sample No(s)	Customer Sample Ref.	AGS Ref.	Depth (m)	Sampled Date
5262319	BH1		0.20	
5262320	BH1		0.50	
5262321	BH1		1.00	
5262323	BH1		1.50	
5262325	BH1		2.00	
5262327	BH1		3.00	
5262328	BH1		4.30	
5262329	BH2		0.20	
5262330	BH2		0.50	
5262332	BH2		1.00	

Only received samples which have had analysis scheduled will be shown on the following pages.

CERTIFICATE OF ANALYSIS

SDG:	120302-52	**Location:**	Kronospan	**Order Number:**	
Job:	H_GEOTECHLT_CHE-145	**Customer:**	Geotechnics Ltd	**Report Number:**	174609
Client Reference:	PN122668	**Attention:**	Jon Hutchinson	**Superseded Report:**	

SOLID

Results Legend

X **Test**

N **No Determination Possible**

Lab Sample No(s)			5262320	5262321	5262323	5262330	5262332	5262333
Customer Sample Reference			BH1	BH1	BH1	BH2	BH2	BH2
AGS Reference								
Depth (m)			0.50	1.00	1.50	0.50	1.00	2.00
Container			1kg TUB	250g Amber Jar (AL	60g VOC (ALE215)	250g Amber Jar (AL	60g VOC (ALE215)	1kg TUB	250g Amber Jar (AL	60g VOC (ALE215)	1kg TUB	250g Amber Jar (AL	60g VOC (ALE215)	1kg TUB	250g Amber Jar (AL	60g VOC (ALE215)	1kg TUB	250g Amber Jar (AL	60g VOC (ALE215)
ANC at pH4 and ANC at pH 6	All	NDPs: 0 Tests: 2				X												X	
Anions by Kone (soil)	All	NDPs: 0 Tests: 5		X					X			X			X			X	
Anions by Kone (w)	All	NDPs: 0 Tests: 2				X											X		
Asbestos Identification (Soil)	All	NDPs: 0 Tests: 2	X								X								
Boron Water Soluble	All	NDPs: 0 Tests: 5		X					X			X			X			X	
CEN 2:1 Readings	All	NDPs: 0 Tests: 2				X											X		
CEN 8:1 Readings	All	NDPs: 0 Tests: 2				X											X		
Chromium III	All	NDPs: 0 Tests: 5	X					X			X			X			X		
Cyanide Comp/Free/Total/Thiocyanate	All	NDPs: 0 Tests: 5	X					X			X			X			X		
Dissolved Metals by ICP-MS	All	NDPs: 0 Tests: 2				X											X		
Dissolved Organic/Inorganic Carbon	All	NDPs: 0 Tests: 2				X											X		
EPH CWG (Aliphatic) GC (S)	All	NDPs: 0 Tests: 5		X					X			X			X			X	
EPH CWG (Aromatic) GC (S)	All	NDPs: 0 Tests: 5		X					X			X			X			X	
Fluoride	All	NDPs: 0 Tests: 2				X											X		
Free Formaldehyde	All	NDPs: 0 Tests: 5	X					X			X			X			X		

CERTIFICATE OF ANALYSIS

SDG:	120302-52	**Location:**	Kronospan	**Order Number:**	
Job:	H_GEOTECHLT_CHE-145	**Customer:**	Geotechnics Ltd	**Report Number:**	174609
Client Reference:	PN122668	**Attention:**	Jon Hutchinson	**Superseded Report:**	

SOLID

Results Legend

X Test

N No Determination Possible

			Lab Sample No(s)	Customer Sample Reference	AGS Reference	Depth (m)	Container
			5262320	BH1		0.50	1kg TUB
							250g Amber Jar (AL
							60g VOC (ALE215)
			5262321	BH1		1.00	1kg TUB
							250g Amber Jar (AL
							60g VOC (ALE215)
			5262323	BH1		1.50	1kg TUB
							250g Amber Jar (AL
							60g VOC (ALE215)
			5262330	BH2		0.50	1kg TUB
							250g Amber Jar (AL
							60g VOC (ALE215)
			5262332	BH2		1.00	1kg TUB
							250g Amber Jar (AL
							60g VOC (ALE215)
			5262333	BH2		2.00	1kg TUB
							250g Amber Jar (AL
							60g VOC (ALE215)
GRO by GC-FID (S)	All	NDPs: 0 Tests: 6					
							X
			X				
							X
							X
							X
							X
Hexavalent Chromium (s)	All	NDPs: 0 Tests: 5					
			X				
			X				
			X				
			X				
			X				
Loss on Ignition in soils	All	NDPs: 0 Tests: 2					
			X				
							X
Mercury Dissolved	All	NDPs: 0 Tests: 2					
			X				
Metals by iCap-OES (Soil)	Arsenic	NDPs: 0 Tests: 5					
			X				
			X				
			X				
			X				
			X				
	Barium	NDPs: 0 Tests: 5					
			X				
			X				
			X				
			X				
			X				
	Beryllium	NDPs: 0 Tests: 5					
			X				
			X				
			X				
			X				
			X				
	Cadmium	NDPs: 0 Tests: 5					
			X				
			X				
			X				
			X				
			X				
	Chromium	NDPs: 0 Tests: 5					
			X				
			X				
			X				
			X				
			X				
	Copper	NDPs: 0 Tests: 5					
			X				
			X				
			X				
			X				
			X				
	Lead	NDPs: 0 Tests: 5					
			X				
			X				
			X				
			X				
			X				
	Mercury	NDPs: 0 Tests: 5					
			X				
			X				
			X				
			X				
			X				
	Nickel	NDPs: 0 Tests: 5					
			X				
			X				
			X				
			X				
			X				
	Selenium	NDPs: 0 Tests: 5					
			X				
			X				
			X				
			X				
			X				
	Vanadium	NDPs: 0 Tests: 5					
			X				
			X				
			X				
			X				
			X				

CERTIFICATE OF ANALYSIS

SDG:	120302-52	**Location:**	Kronospan	**Order Number:**	
Job:	H_GEOTECHLT_CHE-145	**Customer:**	Geotechnics Ltd	**Report Number:**	174609
Client Reference:	PN122668	**Attention:**	Jon Hutchinson	**Superseded Report:**	

SOLID

Results Legend

X **Test**

N **No Determination Possible**

Lab Sample No(s)			5262320	5262321	5262323	5262330	5262332	5262333
Customer Sample Reference			BH1	BH1	BH1	BH2	BH2	BH2
AGS Reference								
Depth (m)			0.50	1.00	1.50	0.50	1.00	2.00
Container			1kg TUB / 250g Amber Jar (AL) / 60g VOC (ALE215)	1kg TUB / 250g Amber Jar (AL) / 60g VOC (ALE215)	1kg TUB / 250g Amber Jar (AL) / 60g VOC (ALE215)	1kg TUB / 250g Amber Jar (AL) / 60g VOC (ALE215)	1kg TUB / 250g Amber Jar (AL) / 60g VOC (ALE215)	1kg TUB / 250g Amber Jar (AL) / 60g VOC (ALE215)
Metals by iCap-OES (Soil)	Zinc	NDPs: 0 Tests: 5		X		X	X	X
Mineral Oil	All	NDPs: 0 Tests: 2		X				X
PAH by GCMS	All	NDPs: 0 Tests: 5		X		X	X	X
PAH Value of soil	All	NDPs: 0 Tests: 2		X				X
PCBs by GCMS	All	NDPs: 0 Tests: 2		X				X
pH	All	NDPs: 0 Tests: 6	X	X	X	X	X	X
Phenols by HPLC (S)	All	NDPs: 0 Tests: 5	X		X	X	X	X
Phenols by HPLC (W)	All	NDPs: 0 Tests: 2		X				X
Sample description	All	NDPs: 0 Tests: 6		X	X	X	X	X
Semi Volatile Organic Compounds	All	NDPs: 0 Tests: 5			X	X	X	X
Total Dissolved Solids	All	NDPs: 0 Tests: 2		X				X
Total Organic Carbon	All	NDPs: 0 Tests: 6		X	X	X	X	X
TPH CWG GC (S)	All	NDPs: 0 Tests: 5			X	X	X	X
VOC MS (S)	All	NDPs: 0 Tests: 5		X		X	X	X

CERTIFICATE OF ANALYSIS

SDG:	120302-52	**Location:**	Kronospan	**Order Number:**	
Job:	H_GEOTECHLT_CHE-145	**Customer:**	Geotechnics Ltd	**Report Number:**	174609
Client Reference:	PN122668	**Attention:**	Jon Hutchinson	**Superseded Report:**	

Sample Descriptions

Grain Sizes

very fine	<0.063mm	fine	0.063mm - 0.1mm	medium	0.1mm - 2mm	coarse	2mm - 10mm	very coarse	>10mm

Lab Sample No(s)	Customer Sample Ref.	Depth (m)	Colour	Description	Grain size	Inclusions	Inclusions 2
5262320	BH1	0.50	Dark Brown	Loamy Sand	0.1 - 2 mm	Stones	N/A
5262321	BH1	1.00	Dark Brown	Loamy Sand	0.063 - 0.1 mm	Stones	N/A
5262323	BH1	1.50	Grey	Silty Clay	0.063 - 0.1 mm	N/A	Stones
5262330	BH2	0.50	Light Brown	Sand	0.1 - 2 mm	Stones	N/A
5262332	BH2	1.00	Dark Brown	Loamy Sand	0.063 - 0.1 mm	Stones	N/A
5262333	BH2	2.00	Grey	Sandy Loam	0.1 - 2 mm	Stones	N/A

These descriptions are only intended to act as a cross check if sample identities are questioned, and to provide a log of sample matrices with respect to MCERTS validation. They are not intended as full geological descriptions.

We are accredited to MCERTS for sand, clay and loam/topsoil, or any of these materials - whether these are derived from naturally ocurring soil profiles, or from fill/made ground, as long as these materials constitute the major part of the sample.

Other coarse granular materials such as concrete, gravel and brick are not accredited if they comprise the major part of the sample.

CERTIFICATE OF ANALYSIS

SDG:	120302-52	**Location:**	Kronospan	**Order Number:**	
Job:	H_GEOTECHLT_CHE-145	**Customer:**	Geotechnics Ltd	**Report Number:**	174609
Client Reference:	PN122668	**Attention:**	Jon Hutchinson	**Superseded Report:**	

Results Legend

#	ISO17025 accredited.
M	*m*CERTS accredited.
§	Deviating sample.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	Subcontracted test.
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery
(F)	Trigger breach confirmed

Component	LOD/Units	Method	Customer Sample R	BH1	BH1	BH1	BH2	BH2	BH2
			Depth (m)	0.50	1.00	1.50	0.50	1.00	2.00
			Sample Type	Soil/Solid	Soil/Solid	Soil/Solid	Soil/Solid	Soil/Solid	Soil/Solid
			Date Sampled	-	-	-	-	-	-
			Date Received	01/03/2012	01/03/2012	01/03/2012	01/03/2012	01/03/2012	01/03/2012
			SDG Ref	120302-52	120302-52	120302-52	120302-52	120302-52	120302-52
			Lab Sample No.(s)	5262320	5262321	5262323	5262330	5262332	5262333
			AGS Reference						
Loss on ignition	<0.7 %	TM018			4.31 M				2.49 M
Free Formaldehyde	<1 mg/kg	TM038		<1		<1	<1	<1	<1
Mineral oil >C10-C40	<1 mg/kg	TM061			139 § #				813 § #
Phenols, Total Detected monohydric	<0.035 mg/kg	TM062 (S)		<0.035 § M		<0.035 § M	<0.035 M	<0.035 § M	<0.035 § M
Organic Carbon, Total	<0.2 %	TM132		0.86 #	1.37 #	0.569 #	0.246 #	3.28 #	0.451 #
pH	1 pH Units	TM133		8.16 M	7.89 M	8.39 M	8.98 M	7.64 M	8.34 M
Chromium, Hexavalent	<0.6 mg/kg	TM151		<1.2 #		<0.6 #	<0.6 #	<0.6 #	<0.6 #
Cyanide, Total	<1 mg/kg	TM153		<1 M		<1 M	<1 M	<1 M	<1 M
PCB congener 28	<3 µg/kg	TM168			<3 M				<3 M
PCB congener 52	<3 µg/kg	TM168			<3 M				<3 M
PCB congener 101	<3 µg/kg	TM168			<3 M				<3 M
PCB congener 118	<3 µg/kg	TM168			<3 M				<3 M
PCB congener 138	<3 µg/kg	TM168			<3 M				<3 M
PCB congener 153	<3 µg/kg	TM168			<3 M				<3 M
PCB congener 180	<3 µg/kg	TM168			<3 M				<3 M
Sum of detected PCB 7 Congeners	<21 µg/kg	TM168			<21				<21
Chromium, Trivalent	<0.9 mg/kg	TM181		28.3		32.4	18.6	28.9	33.3
Arsenic	<0.6 mg/kg	TM181		10.5 M		11.2 M	3.95 M	11.3 M	15.1 M
Barium	<0.6 mg/kg	TM181		63.2 #		45.2 #	37.2 #	72.1 #	41.4 #
Beryllium	<0.01 mg/kg	TM181		0.611 M		0.612 M	0.398 M	0.551 M	0.498 M
Cadmium	<0.02 mg/kg	TM181		0.456 M		0.65 M	0.259 M	<0.02 M	<0.2 M
Chromium	<0.9 mg/kg	TM181		28.3 M		32.4 M	18.6 M	28.9 M	33.3 M
Copper	<1.4 mg/kg	TM181		24.4 M		18.8 M	22 M	15.4 M	31.6 M
Lead	<0.7 mg/kg	TM181		27.4 M		21.8 M	5 M	42.1 M	27.1 M
Mercury	<0.14 mg/kg	TM181		<0.14 M		<0.14 M	<0.14 M	<0.14 M	<0.14 M
Nickel	<0.2 mg/kg	TM181		33.7 M		38.1 M	15.8 M	22.7 M	40.4 M
Selenium	<1 mg/kg	TM181		<1 #		<1 #	<1 #	<1 #	<10 #
Vanadium	<0.2 mg/kg	TM181		22.7 #		29.2 #	30.4 #	31.9 #	27.2 #
Zinc	<1.9 mg/kg	TM181		92.2 M		99.9 M	43.7 M	94.7 M	96.4 M
ANC @ pH 4	<0.03 mol/kg	TM182			0.154				0.0654
ANC @ pH 6	<0.03 mol/kg	TM182			0.0631				0.0345
Polyaromatic hydrocarbons, Total 17	<10 mg/kg	TM213			<10				<10
Boron, water soluble	<1 mg/kg	TM222		<1 M		<1 M	<1 M	1.14 M	<1 M
Water Soluble Sulphate as SO4 2:1 Extract	<0.008 g/l	TM243		0.0178 M		0.127 M	0.0164 M	<0.008 M	<0.008 M

CERTIFICATE OF ANALYSIS

SDG:	120302-52	**Location:**	Kronospan	**Order Number:**	
Job:	H_GEOTECHLT_CHE-145	**Customer:**	Geotechnics Ltd	**Report Number:**	174609
Client Reference:	PN122668	**Attention:**	Jon Hutchinson	**Superseded Report:**	

GRO by GC-FID (S)

Results Legend

#	ISO17025 accredited.
M	*m*CERTS accredited.
§	Deviating sample.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	Subcontracted test.
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery
(F)	Trigger breach confirmed

Component	LOD/Units	Method	Customer Sample R	
			Depth (m)	1.00
			Sample Type	Soil/Solid
			Date Sampled	-
			Date Received	01/03/2012
			SDG Ref	120302-52
			Lab Sample No.(s)	5262321
			AGS Reference	
GRO Surrogate % recovery**	%	TM089	100	
Methyl tertiary butyl ether (MTBE)	<5 µg/kg	TM089	<5	#
Benzene	<10 µg/kg	TM089	<10	M
Toluene	<2 µg/kg	TM089	4.56	M
Ethylbenzene	<3 µg/kg	TM089	<3	M
m,p-Xylene	<6 µg/kg	TM089	<6	M
o-Xylene	<3 µg/kg	TM089	<3	M
sum of detected mpo xylene by GC	<9 µg/kg	TM089	<9	
sum of detected BTEX by GC	<24 µg/kg	TM089	<24	

CERTIFICATE OF ANALYSIS

SDG:	120302-52	**Location:**	Kronospan	**Order Number:**	
Job:	H_GEOTECHLT_CHE-145	**Customer:**	Geotechnics Ltd	**Report Number:**	174609
Client Reference:	PN122668	**Attention:**	Jon Hutchinson	**Superseded Report:**	

PAH by GCMS

Results Legend

#	ISO17025 accredited.
M	*m*CERTS accredited.
§	Deviating sample.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	Subcontracted test.
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery
(F)	Trigger breach confirmed

Component	LOD/Units	Method	Customer Sample R	BH1	BH1	BH2	BH2	BH2
			Depth (m)	0.50	1.50	0.50	1.00	2.00
			Sample Type	Soil/Solid	Soil/Solid	Soil/Solid	Soil/Solid	Soil/Solid
			Date Sampled	-	-	-	-	-
			Date Received	01/03/2012	01/03/2012	01/03/2012	01/03/2012	01/03/2012
			SDG Ref	120302-52	120302-52	120302-52	120302-52	120302-52
			Lab Sample No.(s)	5262320	5262323	5262330	5262332	5262333
			AGS Reference					
Naphthalene-d8 % recovery**	%	TM218		96.2	96	93.7	102	98.5
Acenaphthene-d10 % recovery**	%	TM218		96.4	94.5	92.7	101	96.1
Phenanthrene-d10 % recovery**	%	TM218		95.7	91	91.4	97.7	95.1
Chrysene-d12 % recovery**	%	TM218		99.3	85.8	93.7	98.5	100
Perylene-d12 % recovery**	%	TM218		114	93.5	102	99.5	107
Naphthalene	<9 µg/kg	TM218		13.9 M	20.9 M	<9 M	35.9 M	26.9 M
Acenaphthylene	<12 µg/kg	TM218		<12 M	<12 M	<12 M	<12 M	<12 M
Acenaphthene	<8 µg/kg	TM218		<8 M	<8 M	<8 M	<8 M	<8 M
Fluorene	<10 µg/kg	TM218		16.6 M	<10 M	<10 M	<10 M	<10 M
Phenanthrene	<15 µg/kg	TM218		32.7 M	17.7 M	<15 M	53.9 M	<15 M
Anthracene	<16 µg/kg	TM218		<16 M	<16 M	<16 M	<16 M	<16 M
Fluoranthene	<17 µg/kg	TM218		23 M	<17 M	<17 M	56.1 M	<17 M
Pyrene	<15 µg/kg	TM218		23.4 M	<15 M	<15 M	50.8 M	<15 M
Benz(a)anthracene	<14 µg/kg	TM218		40 M	26.4 M	<14 M	38 M	18.5 M
Chrysene	<10 µg/kg	TM218		23.4 M	<10 M	<10 M	35.4 M	12.8 M
Benzo(b)fluoranthene	<15 µg/kg	TM218		35.8 M	<15 M	<15 M	65 M	<15 M
Benzo(k)fluoranthene	<14 µg/kg	TM218		<14 M	<14 M	<14 M	20.4 M	<14 M
Benzo(a)pyrene	<15 µg/kg	TM218		44.3 M	<15 M	<15 M	39.8 M	<15 M
Indeno(1,2,3-cd)pyrene	<18 µg/kg	TM218		<18 M	<18 M	<18 M	31.3 M	<18 M
Dibenzo(a,h)anthracene	<23 µg/kg	TM218		<23 M	<23 M	<23 M	<23 M	<23 M
Benzo(g,h,i)perylene	<24 µg/kg	TM218		26.1 M	<24 M	<24 M	54.8 M	<24 M
PAH, Total Detected USEPA 16	<118 µg/kg	TM218		279	<118	<118	481	<118

CERTIFICATE OF ANALYSIS

SDG:	120302-52	**Location:**	Kronospan	**Order Number:**	
Job:	H_GEOTECHLT_CHE-145	**Customer:**	Geotechnics Ltd	**Report Number:**	174609
Client Reference:	PN122668	**Attention:**	Jon Hutchinson	**Superseded Report:**	

Semi Volatile Organic Compounds

Results Legend

#	ISO17025 accredited.
M	*m*CERTS accredited.
§	Deviating sample.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	Subcontracted test.
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery
(F)	Trigger breach confirmed

Component	LOD/Units	Method	Customer Sample R	BH1	BH1	BH2	BH2	BH2
			Depth (m)	0.50	1.50	0.50	1.00	2.00
			Sample Type	Soil/Solid	Soil/Solid	Soil/Solid	Soil/Solid	Soil/Solid
			Date Sampled	-	-	-	-	-
			Date Received	01/03/2012	01/03/2012	01/03/2012	01/03/2012	01/03/2012
			SDG Ref	120302-52	120302-52	120302-52	120302-52	120302-52
			Lab Sample No.(s)	5262320	5262323	5262330	5262332	5262333
			AGS Reference					
Phenol	<100 µg/kg	TM157		<100	<100	<100	<100	<100
Pentachlorophenol	<100 µg/kg	TM157		<100	<100	<100	192	<100
n-Nitroso-n-dipropylamine	<100 µg/kg	TM157		<100	<100	<100	<100	<100
Nitrobenzene	<100 µg/kg	TM157		<100	<100	<100	<100	<100
Isophorone	<100 µg/kg	TM157		<100	<100	<100	<100	<100
Hexachloroethane	<100 µg/kg	TM157		<100	<100	<100	<100	<100
Hexachlorocyclopentadiene	<100 µg/kg	TM157		<100	<100	<100	<100	<100
Hexachlorobutadiene	<100 µg/kg	TM157		<100	<100	<100	<100	<100
Hexachlorobenzene	<100 µg/kg	TM157		<100	<100	<100	<100	<100
n-Dioctyl phthalate	<100 µg/kg	TM157		<100	<100	<100	<100	<100
Dimethyl phthalate	<100 µg/kg	TM157		<100	<100	<100	<100	<100
Diethyl phthalate	<100 µg/kg	TM157		<100	<100	<100	<100	<100
n-Dibutyl phthalate	<100 µg/kg	TM157		<100	<100	<100	<100	<100
Dibenzofuran	<100 µg/kg	TM157		<100	<100	<100	<100	<100
Carbazole	<100 µg/kg	TM157		<100	<100	<100	<100	<100
Butylbenzyl phthalate	<100 µg/kg	TM157		<100	<100	<100	<100	<100
bis(2-Ethylhexyl) phthalate	<100 µg/kg	TM157		323	<100	<100	<100	1170
bis(2-Chloroethoxy)methane	<100 µg/kg	TM157		<100	<100	<100	<100	<100
bis(2-Chloroethyl)ether	<100 µg/kg	TM157		<100	<100	<100	<100	<100
Azobenzene	<100 µg/kg	TM157		<100	<100	<100	<100	<100
4-Nitrophenol	<100 µg/kg	TM157		<100	<100	<100	<100	<100
4-Nitroaniline	<100 µg/kg	TM157		<100	<100	<100	<100	<100
4-Methylphenol	<100 µg/kg	TM157		<100	<100	<100	<100	<100
4-Chlorophenylphenylether	<100 µg/kg	TM157		<100	<100	<100	<100	<100
4-Chloroaniline	<100 µg/kg	TM157		<100	<100	<100	<100	<100
4-Chloro-3-methylphenol	<100 µg/kg	TM157		<100	<100	<100	<100	<100
4-Bromophenylphenylether	<100 µg/kg	TM157		<100	<100	<100	<100	<100
3-Nitroaniline	<100 µg/kg	TM157		<100	<100	<100	<100	<100
2-Nitrophenol	<100 µg/kg	TM157		<100	<100	<100	<100	<100
2-Nitroaniline	<100 µg/kg	TM157		<100	<100	<100	<100	<100
2-Methylphenol	<100 µg/kg	TM157		<100	<100	<100	<100	<100
1,2,4-Trichlorobenzene	<100 µg/kg	TM157		<100	<100	<100	<100	<100
2-Chlorophenol	<100 µg/kg	TM157		<100	<100	<100	<100	<100
2,6-Dinitrotoluene	<100 µg/kg	TM157		<100	<100	<100	<100	<100
2,4-Dinitrotoluene	<100 µg/kg	TM157		<100	<100	<100	<100	<100

CERTIFICATE OF ANALYSIS

SDG:	120302-52	**Location:**	Kronospan	**Order Number:**	
Job:	H_GEOTECHLT_CHE-145	**Customer:**	Geotechnics Ltd	**Report Number:**	174609
Client Reference:	PN122668	**Attention:**	Jon Hutchinson	**Superseded Report:**	

Semi Volatile Organic Compounds

Results Legend

#	ISO17025 accredited.
M	*m*CERTS accredited.
§	Deviating sample.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	Subcontracted test.
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery
(F)	Trigger breach confirmed

Component	LOD/Units	Method	Customer Sample R	BH1	BH1	BH2	BH2	BH2
			Depth (m)	0.50	1.50	0.50	1.00	2.00
			Sample Type	Soil/Solid	Soil/Solid	Soil/Solid	Soil/Solid	Soil/Solid
			Date Sampled	-	-	-	-	-
			Date Received	01/03/2012	01/03/2012	01/03/2012	01/03/2012	01/03/2012
			SDG Ref	120302-52	120302-52	120302-52	120302-52	120302-52
			Lab Sample No.(s)	5262320	5262323	5262330	5262332	5262333
			AGS Reference					
2,4-Dimethylphenol	<100 µg/kg	TM157		<100	<100	<100	<100	<100
2,4-Dichlorophenol	<100 µg/kg	TM157		<100	<100	<100	<100	<100
2,4,6-Trichlorophenol	<100 µg/kg	TM157		<100	<100	<100	<100	<100
2,4,5-Trichlorophenol	<100 µg/kg	TM157		<100	<100	<100	<100	<100
1,4-Dichlorobenzene	<100 µg/kg	TM157		<100	<100	<100	<100	<100
1,3-Dichlorobenzene	<100 µg/kg	TM157		<100	<100	<100	<100	<100
1,2-Dichlorobenzene	<100 µg/kg	TM157		<100	<100	<100	<100	<100
2-Chloronaphthalene	<100 µg/kg	TM157		<100	<100	<100	<100	<100
2-Methylnaphthalene	<100 µg/kg	TM157		<100	<100	<100	<100	<100
TIC report	-	TM157		See Attached	See Attached	No TICs identified	No TICs identified	See Attached

CERTIFICATE OF ANALYSIS

SDG:	120302-52	**Location:**	Kronospan	**Order Number:**	
Job:	H_GEOTECHLT_CHE-145	**Customer:**	Geotechnics Ltd	**Report Number:**	174609
Client Reference:	PN122668	**Attention:**	Jon Hutchinson	**Superseded Report:**	

TPH CWG (S)

Results Legend

#	ISO17025 accredited.
M	*m*CERTS accredited.
§	Deviating sample.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	Subcontracted test.
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery
(F)	Trigger breach confirmed

Component	LOD/Units	Method	Customer Sample R	BH1	BH1	BH2	BH2	BH2
			Depth (m)	0.50	1.50	0.50	1.00	2.00
			Sample Type	Soil/Solid	Soil/Solid	Soil/Solid	Soil/Solid	Soil/Solid
			Date Sampled	-	-	-	-	-
			Date Received	01/03/2012	01/03/2012	01/03/2012	01/03/2012	01/03/2012
			SDG Ref	120302-52	120302-52	120302-52	120302-52	120302-52
			Lab Sample No.(s)	5262320	5262323	5262330	5262332	5262333
			AGS Reference					
GRO Surrogate % recovery**	%	TM089		84	102	125	72	103
GRO >C5-C12	<44 µg/kg	TM089		110	<44	<44	<44	<44
Methyl tertiary butyl ether (MTBE)	<5 µg/kg	TM089		<5 #	<5 #	<5 #	<5 #	<5 #
Benzene	<10 µg/kg	TM089		<10 M	<10 M	<10 M	<10 M	<10 M
Toluene	<2 µg/kg	TM089		<2 M	<2 M	<2 M	7.98 M	<2 M
Ethylbenzene	<3 µg/kg	TM089		<3 M	<3 M	<3 M	<3 M	<3 M
m,p-Xylene	<6 µg/kg	TM089		<6 M	<6 M	<6 M	<6 M	<6 M
o-Xylene	<3 µg/kg	TM089		<3 M	<3 M	<3 M	<3 M	<3 M
sum of detected mpo xylene by GC	<9 µg/kg	TM089		<9	<9	<9	<9	<9
sum of detected BTEX by GC	<24 µg/kg	TM089		<24	<24	<24	<24	<24
Aliphatics >C5-C6	<10 µg/kg	TM089		<10	<10	<10	<10	<10
Aliphatics >C6-C8	<10 µg/kg	TM089		15	<10	<10	<10	<10
Aliphatics >C8-C10	<10 µg/kg	TM089		19.3	<10	<10	<10	<10
Aliphatics >C10-C12	<10 µg/kg	TM089		31.1	<10	<10	<10	<10
Aliphatics >C12-C16	<100 µg/kg	TM173		5570	25000	1900	2680	1960
Aliphatics >C16-C21	<100 µg/kg	TM173		23500	65800	3160	3230	8710
Aliphatics >C21-C35	<100 µg/kg	TM173		1180000	754000	33400	29900	652000
Aliphatics >C35-C44	<100 µg/kg	TM173		44100	34600	4420	2080	157000
Total Aliphatics >C12-C44	<100 µg/kg	TM173		1250000	879000	42800	37800	820000
Aromatics >EC5-EC7	<10 µg/kg	TM089		<10	<10	<10	<10	<10
Aromatics >EC7-EC8	<10 µg/kg	TM089		<10	<10	<10	<10	<10
Aromatics >EC8-EC10	<10 µg/kg	TM089		15	<10	<10	<10	<10
Aromatics >EC10-EC12	<10 µg/kg	TM089		20.4	<10	<10	<10	<10
Aromatics >EC12-EC16	<100 µg/kg	TM173		4940	8650	2590	6060	1960
Aromatics >EC16-EC21	<100 µg/kg	TM173		15500	31200	3050	4430	3990
Aromatics >EC21-EC35	<100 µg/kg	TM173		345000	218000	16100	36700	210000
Aromatics >EC35-EC44	<100 µg/kg	TM173		35900	33500	6280	6920	64100
Aromatics >EC40-EC44	<100 µg/kg	TM173		11200	12700	2410	1840	26100
Total Aromatics >EC12-EC44	<100 µg/kg	TM173		402000	291000	28000	54100	280000
Total Aliphatics & Aromatics >C5-C44	<100 µg/kg	TM173		1660000	1170000	70800	92000	1100000
Total Aliphatics >C5-35	<100 µg/kg	TM173		1210000	845000	38400	35800	663000
Total Aromatics >C5-35	<100 µg/kg	TM173		366000	257000	21700	47200	216000
Total Aliphatics & Aromatics >C5-35	<100 µg/kg	TM173		1580000	1100000	60100	83000	879000

CERTIFICATE OF ANALYSIS

SDG:	120302-52	**Location:**	Kronospan	**Order Number:**	
Job:	H_GEOTECHLT_CHE-145	**Customer:**	Geotechnics Ltd	**Report Number:**	174609
Client Reference:	PN122668	**Attention:**	Jon Hutchinson	**Superseded Report:**	

VOC MS (S)

Results Legend

#	ISO17025 accredited.
M	*m*CERTS accredited.
§	Deviating sample.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	Subcontracted test.
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery
(F)	Trigger breach confirmed

Component	LOD/Units	Method	Customer Sample R	BH1	BH1	BH2	BH2	BH2
			Depth (m)	0.50	1.50	0.50	1.00	2.00
			Sample Type	Soil/Solid	Soil/Solid	Soil/Solid	Soil/Solid	Soil/Solid
			Date Sampled	-	-	-	-	-
			Date Received	01/03/2012	01/03/2012	01/03/2012	01/03/2012	01/03/2012
			SDG Ref	120302-52	120302-52	120302-52	120302-52	120302-52
			Lab Sample No.(s)	5262320	5262323	5262330	5262332	5262333
			AGS Reference					
Dibromofluoromethane**	%	TM116		96.1	98.2	50.1	102	92.1
Toluene-d8**	%	TM116		94.5	97.9	99	99.4	95.2
4-Bromofluorobenzene**	%	TM116		123	115	105	118	127
Dichlorodifluoromethane	<4 µg/kg	TM116		<8 M	<4 M	<4 M	<8 M	<4 M
Chloromethane	<7 µg/kg	TM116		<14	<7	<7	<14	<7
Vinyl Chloride	<10 µg/kg	TM116		<20	<10	<10	<20	<10
Bromomethane	<13 µg/kg	TM116		<26 M	<13 M	<13 M	<26 M	<13 M
Chloroethane	<14 µg/kg	TM116		<28 M	<14 M	<14 M	<28 M	<14 M
Trichlorofluorormethane	<6 µg/kg	TM116		<12 M	<6 M	<6 M	<12 M	<6 M
1.1-Dichloroethene	<10 µg/kg	TM116		<20 #	<10 #	<10 #	<20 #	<10 #
Carbon Disulphide	<7 µg/kg	TM116		<14 M	8.8 M	<7 M	23.3 M	10.5 M
Dichloromethane	<10 µg/kg	TM116		<20 #	<10 #	<10 #	<20 #	13.6 #
Methyl Tertiary Butyl Ether	<11 µg/kg	TM116		<22 M	<11 M	<11 M	<22 M	<11 M
trans-1-2-Dichloroethene	<11 µg/kg	TM116		<22 M	<11 M	<11 M	<22 M	<11 M
1.1-Dichloroethane	<8 µg/kg	TM116		<16 M	<8 M	<8 M	<16 M	<8 M
cis-1-2-Dichloroethene	<5 µg/kg	TM116		<10 M	<5 M	<5 M	<10 M	<5 M
2.2-Dichloropropane	<12 µg/kg	TM116		<24 M	<12 M	<12 M	<24 M	<12 M
Bromochloromethane	<14 µg/kg	TM116		<28 M	<14 M	<14 M	<28 M	<14 M
Chloroform	<8 µg/kg	TM116		<16 M	<8 M	<8 M	<16 M	<8 M
1.1.1-Trichloroethane	<7 µg/kg	TM116		<14 M	<7 M	<7 M	<14 M	<7 M
1.1-Dichloropropene	<11 µg/kg	TM116		<22 M	<11 M	<11 M	<22 M	<11 M
Carbontetrachloride	<14 µg/kg	TM116		<28 M	<14 M	<14 M	<28 M	<14 M
1.2-Dichloroethane	<5 µg/kg	TM116		<10 M	<5 M	<5 M	<10 M	<5 M
Benzene	<9 µg/kg	TM116		<18 M	<9 M	<9 M	<18 M	<9 M
Trichloroethene	<9 µg/kg	TM116		<18 M	<9 M	<9 M	<18 M	<9 M
1.2-Dichloropropane	<12 µg/kg	TM116		<24 M	<12 M	<12 M	<24 M	<12 M
Dibromomethane	<9 µg/kg	TM116		<18 M	<9 M	<9 M	<18 M	<9 M
Bromodichloromethane	<7 µg/kg	TM116		<14 M	<7 M	<7 M	<14 M	<7 M
cis-1-3-Dichloropropene	<14 µg/kg	TM116		<28 M	<14 M	<14 M	<28 M	<14 M
Toluene	<5 µg/kg	TM116		<10 M	<5 M	<5 M	22 M	12.7 M
trans-1-3-Dichloropropene	<14 µg/kg	TM116		<28	<14	<14	<28	<14
1.1.2-Trichloroethane	<10 µg/kg	TM116		<20 M	<10 M	<10 M	<20 M	<10 M
1.3-Dichloropropane	<7 µg/kg	TM116		<14 #	<7 #	<7 #	<14 #	<7 #
Tetrachloroethene	<5 µg/kg	TM116		<10 M	<5 M	<5 M	<10 M	<5 M
Dibromochloromethane	<13 µg/kg	TM116		<26 M	<13 M	<13 M	<26 M	<13 M

CERTIFICATE OF ANALYSIS

SDG:	120302-52	**Location:**	Kronospan	**Order Number:**	
Job:	H_GEOTECHLT_CHE-145	**Customer:**	Geotechnics Ltd	**Report Number:**	174609
Client Reference:	PN122668	**Attention:**	Jon Hutchinson	**Superseded Report:**	

VOC MS (S)

Results Legend

#	ISO17025 accredited.
M	*m*CERTS accredited.
§	Deviating sample.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	Subcontracted test.
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery
(F)	Trigger breach confirmed

Component	LOD/Units	Method	Customer Sample R	BH1	BH1	BH2	BH2	BH2
			Depth (m)	0.50	1.50	0.50	1.00	2.00
			Sample Type	Soil/Solid	Soil/Solid	Soil/Solid	Soil/Solid	Soil/Solid
			Date Sampled	-	-	-	-	-
			Date Received	01/03/2012	01/03/2012	01/03/2012	01/03/2012	01/03/2012
			SDG Ref	120302-52	120302-52	120302-52	120302-52	120302-52
			Lab Sample No.(s)	5262320	5262323	5262330	5262332	5262333
			AGS Reference					
1.2-Dibromoethane	<12 µg/kg	TM116		<24 M	<12 M	<12 M	<24 M	<12 M
Chlorobenzene	<5 µg/kg	TM116		<10 M	<5 M	<5 M	<10 M	<5 M
1.1.1.2-Tetrachloroethane	<10 µg/kg	TM116		<20 M	<10 M	<10 M	<20 M	<10 M
Ethylbenzene	<4 µg/kg	TM116		<8 M	<4 M	<4 M	<8 M	<4 M
p/m-Xylene	<14 µg/kg	TM116		<28 #	<14 #	<14 #	<28 #	<14 #
o-Xylene	<10 µg/kg	TM116		<20 M	<10 M	<10 M	<20 M	<10 M
Styrene	<10 µg/kg	TM116		<20 M	<10 M	<10 M	<20 M	<10 M
Bromoform	<10 µg/kg	TM116		<20 M	<10 M	<10 M	<20 M	<10 M
Isopropylbenzene	<5 µg/kg	TM116		<10 M	<5 M	<5 M	<10 M	<5 M
1.1.2.2-Tetrachloroethane	<10 µg/kg	TM116		<20 #	<10 #	<10 #	<20 #	<10 #
1.2.3-Trichloropropane	<17 µg/kg	TM116		<34 M	<17 M	<17 M	<34 M	<17 M
Bromobenzene	<10 µg/kg	TM116		<20 M	<10 M	<10 M	<20 M	<10 M
Propylbenzene	<11 µg/kg	TM116		<22 M	<11 M	<11 M	<22 M	<11 M
2-Chlorotoluene	<9 µg/kg	TM116		<18 M	<9 M	<9 M	<18 M	<9 M
1.3.5-Trimethylbenzene	<8 µg/kg	TM116		<16 #	<8 #	<8 #	<16 #	<8 #
4-Chlorotoluene	<12 µg/kg	TM116		<24 M	<12 M	<12 M	<24 M	<12 M
tert-Butylbenzene	<12 µg/kg	TM116		<24 #	<12 #	<12 #	<24 #	<12 #
1.2.4-Trimethylbenzene	<9 µg/kg	TM116		<18 #	<9 #	<9 #	<18 #	<9 #
sec-Butylbenzene	<10 µg/kg	TM116		<20 M	<10 M	<10 M	<20 M	<10 M
4-Isopropyltoluene	<11 µg/kg	TM116		<22 M	<11 M	<11 M	<22 M	<11 M
1.3-Dichlorobenzene	<6 µg/kg	TM116		<12 M	<6 M	<6 M	<12 M	<6 M
1.4-Dichlorobenzene	<5 µg/kg	TM116		<10 M	<5 M	<5 M	<10 M	<5 M
n-Butylbenzene	<10 µg/kg	TM116		<20 M	<10 M	<10 M	<20 M	<10 M
1.2-Dichlorobenzene	<12 µg/kg	TM116		<24 M	<12 M	<12 M	<24 M	<12 M
1.2-Dibromo-3-chloropropane	<14 µg/kg	TM116		<28 M	<14 M	<14 M	<28 M	<14 M
Tert-amyl methyl ether	<15 µg/kg	TM116		<30	<15	<15	<30	<15
1.2.4-Trichlorobenzene	<6 µg/kg	TM116		<12 #	<6 #	<6 #	<12 #	<6 #
Hexachlorobutadiene	<12 µg/kg	TM116		<24	<12	<12	<24	<12
Naphthalene	<13 µg/kg	TM116		<26 M	<13 M	<13 M	<26 M	<13 M
1.2.3-Trichlorobenzene	<6 µg/kg	TM116		<12 M	<6 M	<6 M	<12 M	<6 M
VOC TIC	-	TM116		No TICs identified	No TICs identified	No TICs identified	No TICs identified	No TICs identified

CERTIFICATE OF ANALYSIS

SDG:	120302-52	**Location:**	Kronospan	**Order Number:**	
Job:	H_GEOTECHLT_CHE-145	**Customer:**	Geotechnics Ltd	**Report Number:**	174609
Client Reference:	PN122668	**Attention:**	Jon Hutchinson	**Superseded Report:**	

Asbestos Identification - Soil

		Date of Analysis	Analysed By	Comments	Amosite (Brown) Asbestos	Chrysotile (White) Asbestos	Crocidolite (Blue) Asbestos	Fibrous Actinolite	Fibrous Anthophyllite	Fibrous Tremolite	Non-Asbestos Fibre
Customer Sample Ref. Depth (m) Sample Type Date Sampled Date Receieved SDG Original Sample Method Number	BH1 NS Z 0.50 SOLID 120302-52 5,262,320 TM048	14/03/12	Tomasz Pawlikowski	-	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected
Customer Sample Ref. Depth (m) Sample Type Date Sampled Date Receieved SDG Original Sample Method Number	BH2 NS Z 0.50 SOLID 120302-52 5,262,330 TM048	14/03/12	Tomasz Pawlikowski	-	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected

CERTIFICATE OF ANALYSIS

SDG:	120302-52	**Location:**	Kronospan	**Order Number:**	
Job:	H_GEOTECHLT_CHE-145	**Customer:**	Geotechnics Ltd	**Report Number:**	174609
Client Reference:	PN122668	**Attention:**	Jon Hutchinson	**Superseded Report:**	

CEN 10:1 CUMULATIVE TWO STAGE BATCH TEST

WAC ANALYTICAL RESULTS

REF : BS EN 12457/3

Client Reference		**Site Location**	Kronospan
Mass Sample taken (kg)	0.222	**Moisture Content Ratio (%)**	26.9
Mass of dry sample (kg)	0.175	**Dry Matter Content Ratio (%)**	78.8
Particle Size <4mm	>95%		

Case	
SDG	120302-52
Lab Sample Number(s)	5262321
Sampled Date	
Customer Sample Ref.	BH1
Depth (m)	1.00

Solid Waste Analysis

		Landfill Waste Acceptance Criteria Limits		
		Inert Waste Landfill	Stable Non-reactive Hazardous Waste in Non-Hazardous Landfill	Hazardous Waste Landfill
Total Organic Carbon (%)	1.37	3	5	6
Loss on Ignition (%)	4.31	-	-	10
Sum of BTEX (mg/kg)	<0.024	6	-	-
Sum of 7 PCBs (mg/kg)	<0.021	1	-	-
Mineral Oil (mg/kg)	139	500	-	-
PAH Sum of 17 (mg/kg)	<10	100	-	-
pH (pH Units)	7.89	-	<6 or >9	-
ANC to pH 6 (mol/kg)	0.0631	-	-	-
ANC to pH 4 (mol/kg)	0.154	-	-	-

Eluate Analysis

	C_2 Concⁿ in 2:1 eluate	C_8 Concⁿ in 8:1 eluate	A_2 2:1 concⁿ leached	$A_{2\text{-}10}$ Cumulative concⁿ leached	Limit values for compliance leaching test using BS EN 12457-3 at L/S 10 l/kg		
	mg/l		mg/kg				
Arsenic	0.019	0.00839	0.0379	0.0972	0.5	2	25
Barium	0.0418	0.00336	0.0836	0.0819	20	100	300
Cadmium	<0.0001	<0.0001	<0.0002	<0.001	0.04	1	5
Chromium	<0.00022	<0.00022	<0.00044	<0.0022	0.5	10	70
Copper	0.0293	0.00459	0.0586	0.077	2	50	100
Mercury Dissolved (CVAF)	0.0000116	<0.00001	0.0000233	<0.0001	0.01	0.2	2
Molybdenum	0.0232	0.00398	0.0464	0.0639	0.5	10	30
Nickel	0.00447	0.001	0.00895	0.0144	0.4	10	40
Lead	0.00361	0.000545	0.00723	0.0093	0.5	10	50
Antimony	0.00494	0.00163	0.00988	0.0205	0.06	0.7	5
Selenium	0.00509	0.000911	0.0102	0.0144	0.1	0.5	7
Zinc	0.0164	0.000754	0.0329	0.0272	4	50	200
Chloride	8.7	<2	17.4	<20	800	15000	25000
Fluoride	<0.5	<0.5	<1	<5	10	150	500
Sulphate (soluble)	<2	<2	<4	<20	1000	20000	50000
Total Dissolved Solids	273	93.9	546	1160	4000	60000	100000
Total Monohydric Phenols (W)	<0.016	<0.016	<0.032	<0.16	1	-	-
Dissolved Organic Carbon	68.9	13.6	138	205	500	800	1000

Leach Test Information

	2:1	8:1
Date Prepared	08-Mar-2012	12-Mar-2012
pH (pH Units)	8.205	7.749
Conductivity (µS/cm)	349.00	113.70
Temperature (°C)	21.40	19.30
Volume Leachant (Litres)	0.303	1.400
Volume of Eluate VE1 (Litres)	0.220	

Solid Results are expressed on a dry weight basis, after correction for moisture content where applicable
Stated limits are for guidance only and ALcontrol cannot be held responsible for any discrepancies with current legislation
Mcerts Certification does not apply to leachates
16/03/2012 18:19:51

CERTIFICATE OF ANALYSIS

SDG:	120302-52	**Location:**	Kronospan	**Order Number:**	
Job:	H_GEOTECHLT_CHE-145	**Customer:**	Geotechnics Ltd	**Report Number:**	174609
Client Reference:	PN122668	**Attention:**	Jon Hutchinson	**Superseded Report:**	

CEN 10:1 CUMULATIVE TWO STAGE BATCH TEST

WAC ANALYTICAL RESULTS

REF : BS EN 12457/3

Client Reference		**Site Location**	Kronospan
Mass Sample taken (kg)	0.211	**Moisture Content Ratio (%)**	20.8
Mass of dry sample (kg)	0.175	**Dry Matter Content Ratio (%)**	82.8
Particle Size <4mm	>95%		

Case	
SDG	120302-52
Lab Sample Number(s)	5262333
Sampled Date	
Customer Sample Ref.	BH2
Depth (m)	2.00

Solid Waste Analysis

		Landfill Waste Acceptance Criteria Limits		
		Inert Waste Landfill	Stable Non-reactive Hazardous Waste in Non-Hazardous Landfill	Hazardous Waste Landfill
Total Organic Carbon (%)	0.451	3	5	6
Loss on Ignition (%)	2.49	-	-	10
Sum of BTEX (mg/kg)	<0.024	6	-	-
Sum of 7 PCBs (mg/kg)	<0.021	1	-	-
Mineral Oil (mg/kg)	813	500	-	-
PAH Sum of 17 (mg/kg)	<10	100	-	-
pH (pH Units)	8.34	-	<6 or >9	-
ANC to pH 6 (mol/kg)	0.0345	-	-	-
ANC to pH 4 (mol/kg)	0.0654	-	-	-

Eluate Analysis

	C_2 Concⁿ in 2:1 eluate	C_8 Concⁿ in 8:1 eluate	A_2 2:1 concⁿ leached	$A_{2\text{-}10}$ Cumulative concⁿ leached	Limit values for compliance leaching test using BS EN 12457-3 at L/S 10 l/kg		
	mg/l		mg/kg				
Arsenic	0.0046	0.00272	0.0092	0.0301	0.5	2	25
Barium	0.0107	0.00274	0.0214	0.0397	20	100	300
Cadmium	<0.0001	<0.0001	<0.0002	<0.001	0.04	1	5
Chromium	<0.00022	<0.00022	<0.000441	<0.0022	0.5	10	70
Copper	0.00597	0.00255	0.0119	0.0308	2	50	100
Mercury Dissolved (CVAF)	<0.00001	<0.00001	<0.00002	<0.0001	0.01	0.2	2
Molybdenum	0.00506	0.00169	0.0101	0.0221	0.5	10	30
Nickel	0.00155	0.000784	0.0031	0.00902	0.4	10	40
Lead	0.000274	0.00195	0.000549	0.0169	0.5	10	50
Antimony	0.00125	0.000911	0.00251	0.00964	0.06	0.7	5
Selenium	0.00207	0.00058	0.00415	0.0081	0.1	0.5	7
Zinc	0.0191	0.00317	0.0381	0.0563	4	50	200
Chloride	6.1	<2	12.2	<20	800	15000	25000
Fluoride	<0.5	<0.5	<1	<5	10	150	500
Sulphate (soluble)	6.3	<2	12.6	<20	1000	20000	50000
Total Dissolved Solids	158	68.9	317	827	4000	60000	100000
Total Monohydric Phenols (W)	<0.016	<0.016	<0.032	<0.16	1	-	-
Dissolved Organic Carbon	22.6	6.42	45.3	89.2	500	800	1000

Leach Test Information

	2:1	8:1
Date Prepared	08-Mar-2012	12-Mar-2012
pH (pH Units)	8.063	7.307
Conductivity (µS/cm)	200.00	75.40
Temperature (°C)	21.40	20.10
Volume Leachant (Litres)	0.314	1.400
Volume of Eluate VE1 (Litres)	0.270	

Solid Results are expressed on a dry weight basis, after correction for moisture content where applicable
Stated limits are for guidance only and ALcontrol cannot be held responsible for any discrepancies with current legislation
Mcerts Certification does not apply to leachates
16/03/2012 18:19:51

CERTIFICATE OF ANALYSIS

SDG:	120302-52	**Location:**	Kronospan	**Order Number:**	
Job:	H_GEOTECHLT_CHE-145	**Customer:**	Geotechnics Ltd	**Report Number:**	174609
Client Reference:	PN122668	**Attention:**	Jon Hutchinson	**Superseded Report:**	

Notification of Deviating Samples

Sample Number	Customer Sample Ref.	Depth (m)	Matrix	Test Name	Component Name	Comment
5294215	BH1	0.50	SOLID	Phenols by HPLC (S)	Phenols, Total Detected monohydric	Sample holding time exceeded
5305923	BH2	1.00	SOLID	Phenols by HPLC (S)	Phenols, Total Detected monohydric	Sample holding time exceeded
5305944	BH2	2.00	SOLID	Phenols by HPLC (S)	Phenols, Total Detected monohydric	Sample holding time exceeded
5305967	BH1	1.50	SOLID	Phenols by HPLC (S)	Phenols, Total Detected monohydric	Sample holding time exceeded
5316115	BH2	2.00	SOLID	Mineral Oil	Mineral oil >C10-C40	Sample holding time exceeded
5316259	BH1	1.00	SOLID	Mineral Oil	Mineral oil >C10-C40	Sample holding time exceeded

Note : Test results may be compromised

CERTIFICATE OF ANALYSIS

SDG:	120302-52	**Location:**	Kronospan	**Order Number:**	
Job:	H_GEOTECHLT_CHE-145	**Customer:**	Geotechnics Ltd	**Report Number:**	174609
Client Reference:	PN122668	**Attention:**	Jon Hutchinson	**Superseded Report:**	

Table of Results - Appendix

Method No	Reference	Description	Wet/Dry Sample [1]	Surrogate Corrected
PM001		Preparation of Samples for Metals Analysis		
PM024	Modified BS 1377	Soil preparation including homogenisation, moisture screens of soils for Asbestos Containing Material		
PM114		Leaching Procedure for CEN Two Stage BatchTest 2:1/8:1 Cumulative		
TM018	BS 1377: Part 3 1990	Determination of Loss on Ignition		
TM038	Based on: NASH, T. (1953). Biochem. J., 55:416-421	Determination of Formaldehyde using Dr Lange test kit		
TM048	HSG 248, Asbestos: The analysts' guide for sampling, analysis and clearance procedures	Identification of Asbestos in Bulk Material		
TM061	Method for the Determination of EPH,Massachusetts Dept.of EP, 1998	Determination of Extractable Petroleum Hydrocarbons by GC-FID (C10-C40)		
TM062 (S)	National Grid Property Holdings Methods for the Collection & Analysis of Samples from National Grid Sites version 1 Sec 3.9	Determination of Phenols in Soils by HPLC		
TM089	Modified: US EPA Methods 8020 & 602	Determination of Gasoline Range Hydrocarbons (GRO) and BTEX (MTBE) compounds by Headspace GC-FID (C4-C12)		
TM090	Method 5310, AWWA/APHA, 20th Ed., 1999 / Modified: US EPA Method 415.1 & 9060	Determination of Total Organic Carbon/Total Inorganic Carbon in Water and Waste Water		
TM104	Method 4500F, AWWA/APHA, 20th Ed., 1999	Determination of Fluoride using the Kone Analyser		
TM116	Modified: US EPA Method 8260, 8120, 8020, 624, 610 & 602	Determination of Volatile Organic Compounds by Headspace / GC-MS		
TM123	BS 2690: Part 121:1981	The Determination of Total Dissolved Solids in Water		
TM132	In - house Method	ELTRA CS800 Operators Guide		
TM133	BS 1377: Part 3 1990;BS 6068-2.5	Determination of pH in Soil and Water using the GLpH pH Meter		
TM151	Method 3500D, AWWA/APHA, 20th Ed., 1999	Determination of Hexavalent Chromium using Kone analyser		
TM152	Method 3125B, AWWA/APHA, 20th Ed., 1999	Analysis of Aqueous Samples by ICP-MS		
TM153	Method 4500A,B,C, I, M AWWA/APHA, 20th Ed., 1999	Determination of Total Cyanide, Free (Easily Liberatable) Cyanide and Thiocyanate using the Skalar SANS+ System Segmented Flow Analyser		
TM157	HP 6890 Gas Chromatograph (GC) system and HP 5973 Mass Selective Detector (MSD).	Determination of SVOC in Soils by GC-MS extracted by sonication in DCM/Acetone		
TM168	EPA Method 8082, Polychlorinated Biphenyls by Gas Chromatography	Determination of WHO12 and EC7 Polychlorinated Biphenyl Congeners by GC-MS in Soils		
TM173	Analysis of Petroleum Hydrocarbons in Environmental Media – Total Petroleum Hydrocarbon Criteria	Determination of Speciated Extractable Petroleum Hydrocarbons in Soils by GC-FID		
TM181	US EPA Method 6010B	Determination of Routine Metals in Soil by iCap 6500 Duo ICP-OES		
TM182	CEN/TC 292 - WI 292046-chacterization of waste-leaching Behaviour Tests- Acid and Base Neutralization Capacity Test	Determination of Acid Neutralisation Capacity (ANC) Using Autotitration in Soils		
TM183	BS EN 23506:2002, (BS 6068-2.74:2002) ISBN 0 580 38924 3	Determination of Trace Level Mercury in Waters and Leachates by PSA Cold Vapour Atomic Fluorescence Spectrometry		
TM184	EPA Methods 325.1 & 325.2,	The Determination of Anions in Aqueous Matrices using the Kone Spectrophotometric Analysers		
TM213	In-house Method	Rapid Determination of PAHs by GC-FID		
TM218	Microwave extraction – EPA method 3546	Microwave extraction - EPA method 3546		
TM222	In-House Method	Determination of Hot Water Soluble Boron in Soils (10:1 Water:soil) by IRIS Emission Spectrometer		
TM243		Mixed Anions In Soils By Kone		
TM259	by HPLC	Determination of Phenols in Waters and Leachates by HPLC		
TM321		Organic matter Content of Soil By Titration		

[1] Applies to Solid samples only. DRY indicates samples have been dried at 35°C. NA = not applicable.

CERTIFICATE OF ANALYSIS

SDG:	120302-52	**Location:**	Kronospan	**Order Number:**	
Job:	H_GEOTECHLT_CHE-145	**Customer:**	Geotechnics Ltd	**Report Number:**	174609
Client Reference:	PN122668	**Attention:**	Jon Hutchinson	**Superseded Report:**	

Test Completion Dates

Lab Sample No(s)	5262320	5262321	5262323	5262330	5262332	5262333
Customer Sample Ref.	BH1	BH1	BH1	BH2	BH2	BH2
AGS Ref.						
Depth	0.50	1.00	1.50	0.50	1.00	2.00
Type	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID
ANC at pH4 and ANC at pH 6		14-Mar-2012				14-Mar-2012
Anions by Kone (soil)	15-Mar-2012		13-Mar-2012	15-Mar-2012	15-Mar-2012	14-Mar-2012
Anions by Kone (w)		16-Mar-2012				16-Mar-2012
Asbestos Identification (Soil)	14-Mar-2012			14-Mar-2012		
Boron Water Soluble	16-Mar-2012		15-Mar-2012	16-Mar-2012	14-Mar-2012	14-Mar-2012
CEN 2:1 Leachate (2 Stage)		09-Mar-2012				09-Mar-2012
CEN 2:1 Readings		13-Mar-2012				13-Mar-2012
CEN 8:1 Leachate (2 Stage)		13-Mar-2012				13-Mar-2012
CEN 8:1 Readings		14-Mar-2012				14-Mar-2012
Chromium III	15-Mar-2012		14-Mar-2012	15-Mar-2012	14-Mar-2012	15-Mar-2012
Cyanide Comp/Free/Total/Thiocyanate	14-Mar-2012		13-Mar-2012	14-Mar-2012	14-Mar-2012	14-Mar-2012
Dissolved Metals by ICP-MS		15-Mar-2012				15-Mar-2012
Dissolved Organic/Inorganic Carbon		14-Mar-2012				14-Mar-2012
EPH CWG (Aliphatic) GC (S)	15-Mar-2012		14-Mar-2012	15-Mar-2012	15-Mar-2012	15-Mar-2012
EPH CWG (Aromatic) GC (S)	15-Mar-2012		14-Mar-2012	15-Mar-2012	15-Mar-2012	15-Mar-2012
Fluoride		16-Mar-2012				16-Mar-2012
Free Formaldehyde	14-Mar-2012		14-Mar-2012	14-Mar-2012	14-Mar-2012	14-Mar-2012
GRO by GC-FID (S)	15-Mar-2012	15-Mar-2012	15-Mar-2012	15-Mar-2012	15-Mar-2012	15-Mar-2012
Hexavalent Chromium (s)	15-Mar-2012		14-Mar-2012	15-Mar-2012	14-Mar-2012	14-Mar-2012
Loss on Ignition in soils		14-Mar-2012				14-Mar-2012
Mercury Dissolved		14-Mar-2012				14-Mar-2012
Metals by iCap-OES (Soil)	15-Mar-2012		14-Mar-2012	15-Mar-2012	14-Mar-2012	15-Mar-2012
Mineral Oil		15-Mar-2012				15-Mar-2012
PAH by GCMS	16-Mar-2012		14-Mar-2012	16-Mar-2012	15-Mar-2012	15-Mar-2012
PAH Value of soil		14-Mar-2012				14-Mar-2012
PCBs by GCMS		15-Mar-2012				15-Mar-2012
pH	15-Mar-2012	15-Mar-2012	15-Mar-2012	15-Mar-2012	14-Mar-2012	14-Mar-2012
Phenols by HPLC (S)	14-Mar-2012		13-Mar-2012	14-Mar-2012	14-Mar-2012	14-Mar-2012
Phenols by HPLC (W)		16-Mar-2012				16-Mar-2012
Sample description	08-Mar-2012	08-Mar-2012	10-Mar-2012	08-Mar-2012	08-Mar-2012	08-Mar-2012
Semi Volatile Organic Compounds	14-Mar-2012		16-Mar-2012	16-Mar-2012	16-Mar-2012	16-Mar-2012
Total Dissolved Solids		14-Mar-2012				14-Mar-2012
Total Organic Carbon	15-Mar-2012	14-Mar-2012	13-Mar-2012	15-Mar-2012	14-Mar-2012	14-Mar-2012
TPH CWG GC (S)	15-Mar-2012		15-Mar-2012	15-Mar-2012	15-Mar-2012	15-Mar-2012
VOC MS (S)	15-Mar-2012		13-Mar-2012	15-Mar-2012	15-Mar-2012	14-Mar-2012

CERTIFICATE OF ANALYSIS

SDG:	120302-52	**Location:**	Kronospan	**Order Number:**	
Job:	H_GEOTECHLT_CHE-145	**Customer:**	Geotechnics Ltd	**Report Number:**	174609
Client Reference:	PN122668	**Attention:**	Jon Hutchinson	**Superseded Report:**	

Chromatogram

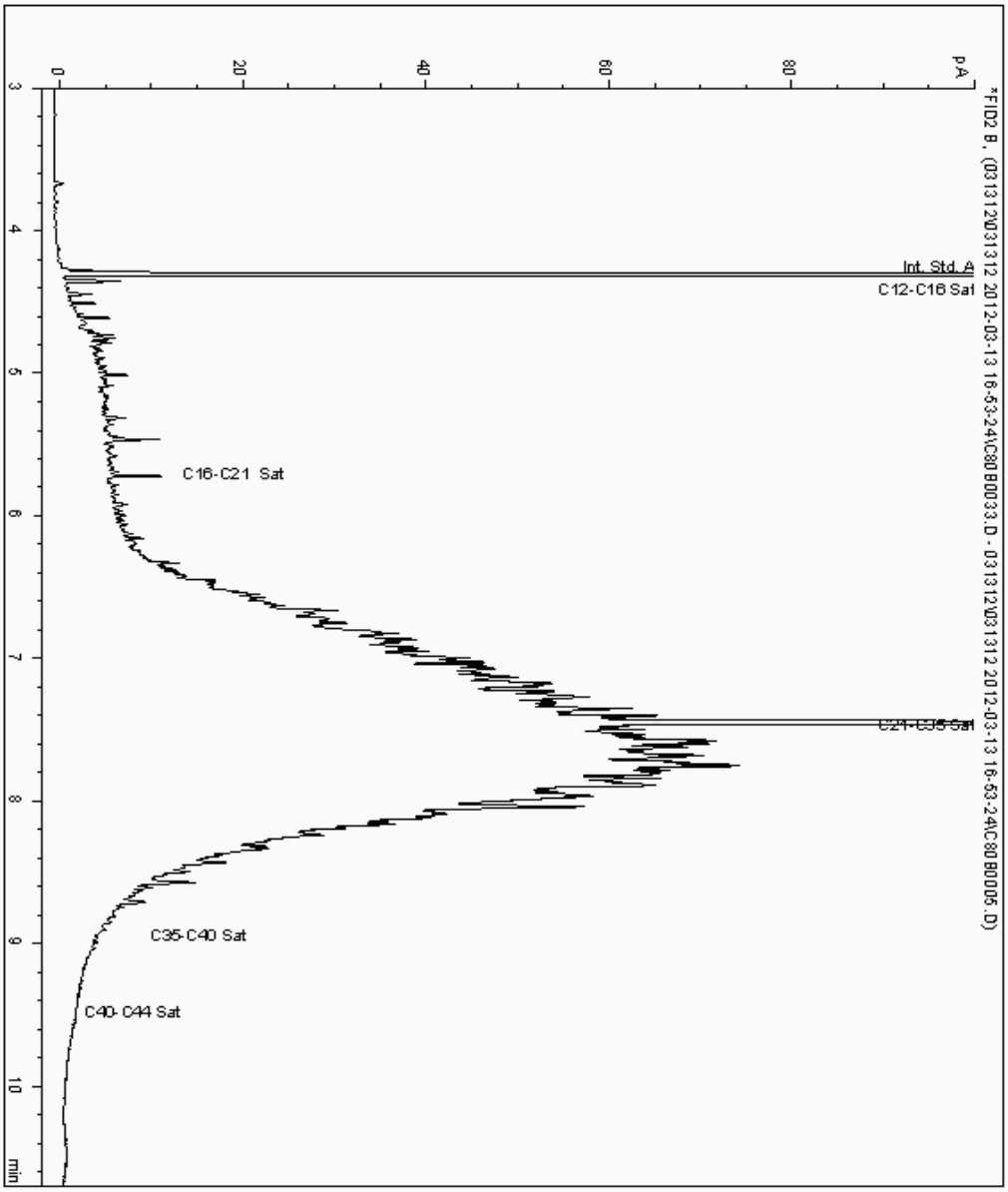
Analysis: EPH CWG (Aliphatic) GC (S)

Sample No : 5310609
Sample ID : BH1

Depth : 1.50

Alcontrol/Geochem Analytical Services
Speciated TPH - AROM (C12 - C40)

Sample Identity: 5171716-5310609
Date Acquired : 14/03/12 02:52:03
Units : ppb
Dilution :
CF : 1
Multiplier : 1.030



CERTIFICATE OF ANALYSIS

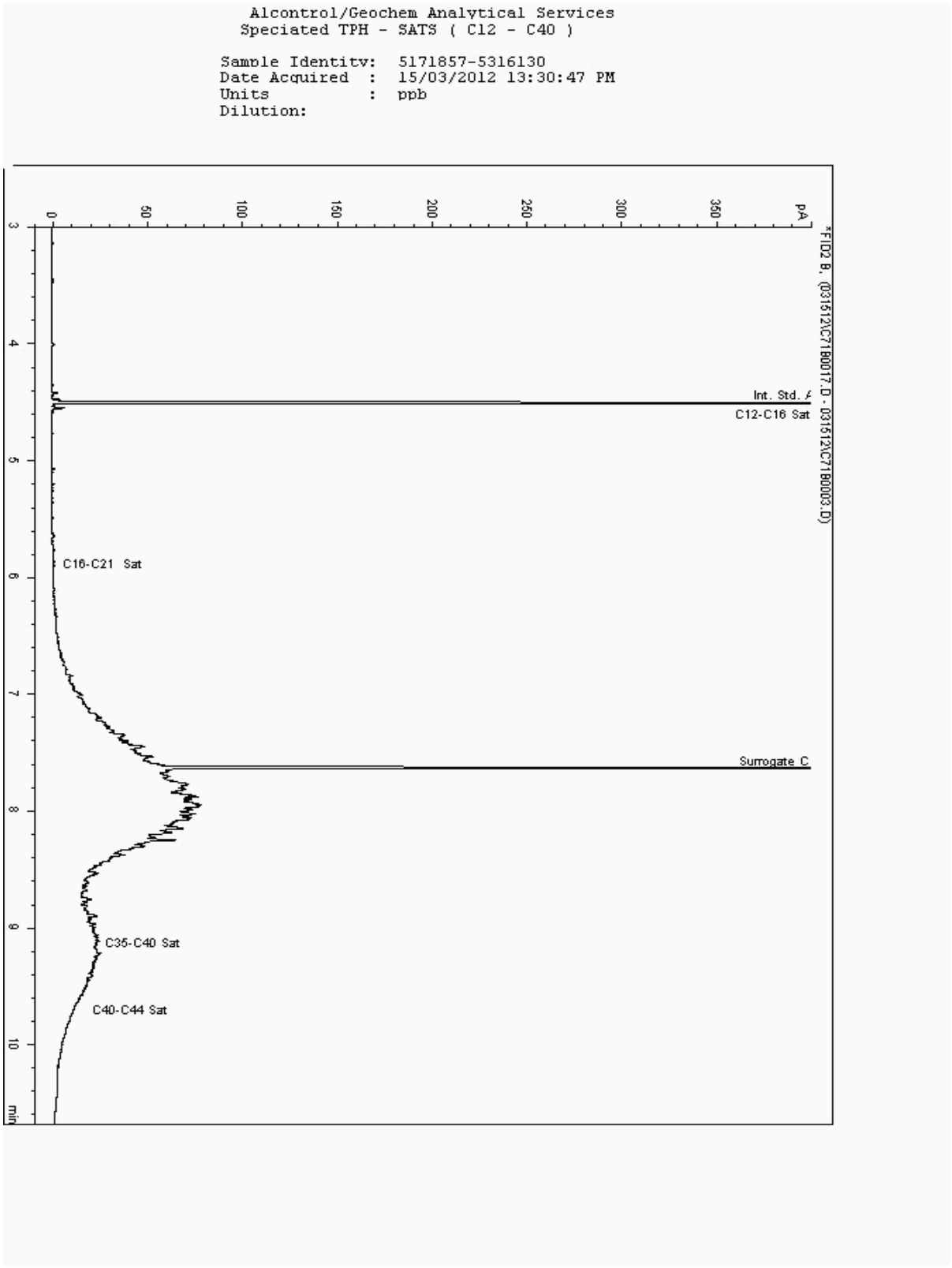
SDG:	120302-52	**Location:**	Kronospan	**Order Number:**	
Job:	H_GEOTECHLT_CHE-145	**Customer:**	Geotechnics Ltd	**Report Number:**	174609
Client Reference:	PN122668	**Attention:**	Jon Hutchinson	**Superseded Report:**	

Chromatogram

Analysis: EPH CWG (Aliphatic) GC (S)

Sample No : 5316130
Sample ID : BH2

Depth : 2.00



CERTIFICATE OF ANALYSIS

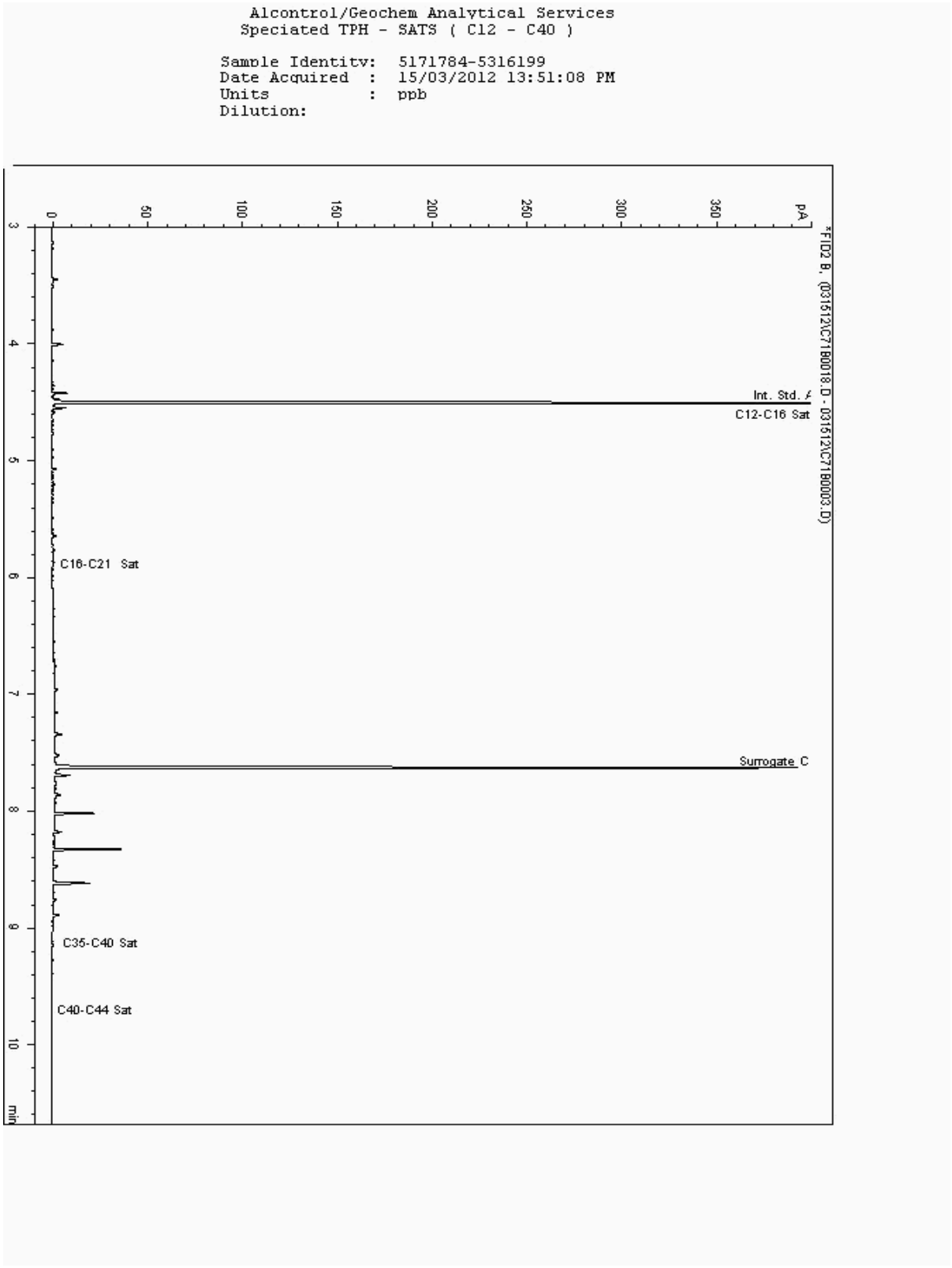
SDG:	120302-52	**Location:**	Kronospan	**Order Number:**	
Job:	H_GEOTECHLT_CHE-145	**Customer:**	Geotechnics Ltd	**Report Number:**	174609
Client Reference:	PN122668	**Attention:**	Jon Hutchinson	**Superseded Report:**	

Chromatogram

Analysis: EPH CWG (Aliphatic) GC (S)

Sample No : 5316199
Sample ID : BH2

Depth : 1.00



CERTIFICATE OF ANALYSIS

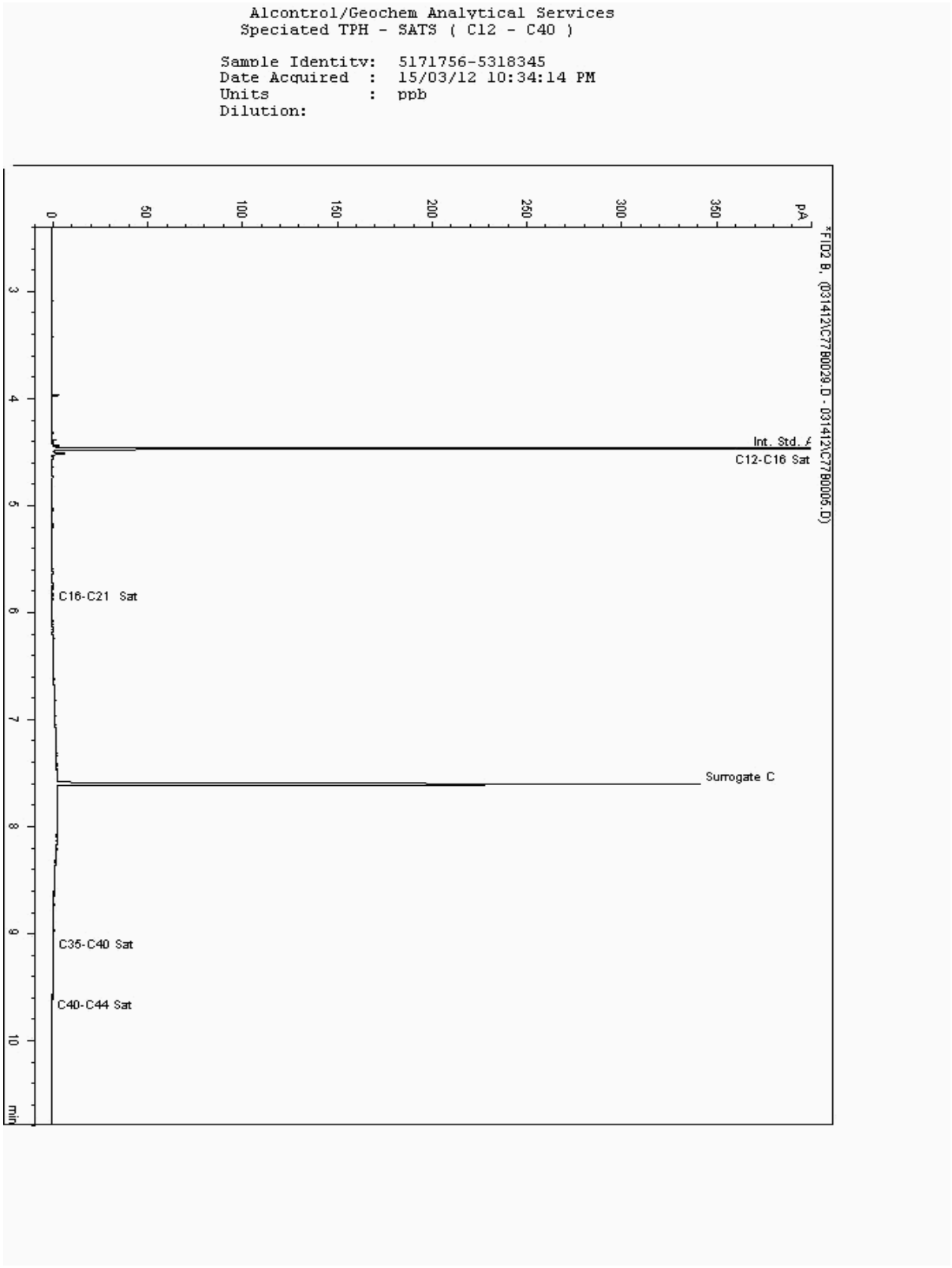
SDG:	120302-52	**Location:**	Kronospan	**Order Number:**	
Job:	H_GEOTECHLT_CHE-145	**Customer:**	Geotechnics Ltd	**Report Number:**	174609
Client Reference:	PN122668	**Attention:**	Jon Hutchinson	**Superseded Report:**	

Chromatogram

Analysis: EPH CWG (Aliphatic) GC (S)

Sample No : 5318345
Sample ID : BH2

Depth : 0.50



CERTIFICATE OF ANALYSIS

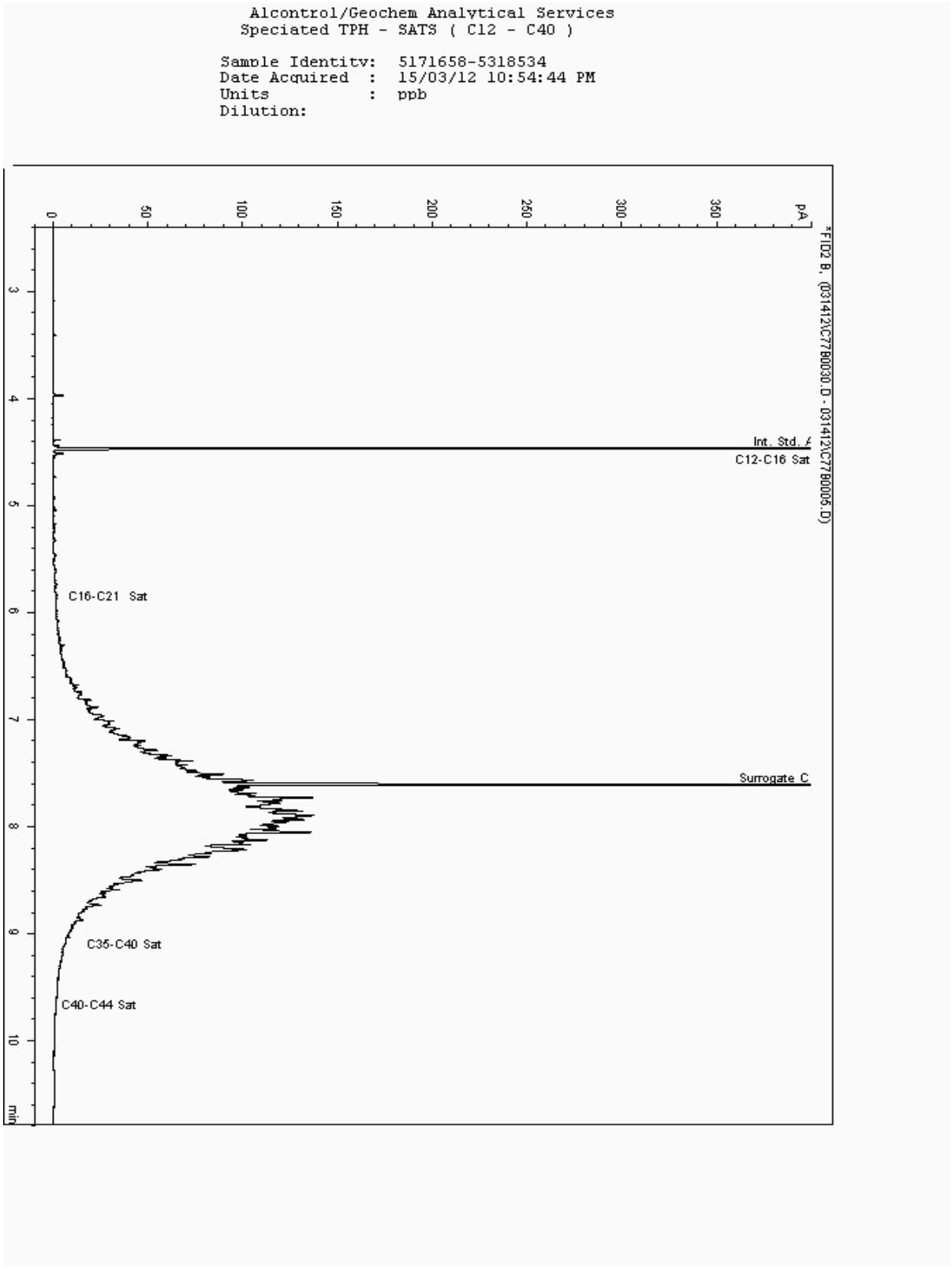
SDG:	120302-52	**Location:**	Kronospan	**Order Number:**	
Job:	H_GEOTECHLT_CHE-145	**Customer:**	Geotechnics Ltd	**Report Number:**	174609
Client Reference:	PN122668	**Attention:**	Jon Hutchinson	**Superseded Report:**	

Chromatogram

Analysis: EPH CWG (Aliphatic) GC (S)

Sample No : 5318534
Sample ID : BH1

Depth : 0.50



CERTIFICATE OF ANALYSIS

SDG:	120302-52	**Location:**	Kronospan	**Order Number:**	
Job:	H_GEOTECHLT_CHE-145	**Customer:**	Geotechnics Ltd	**Report Number:**	174609
Client Reference:	PN122668	**Attention:**	Jon Hutchinson	**Superseded Report:**	

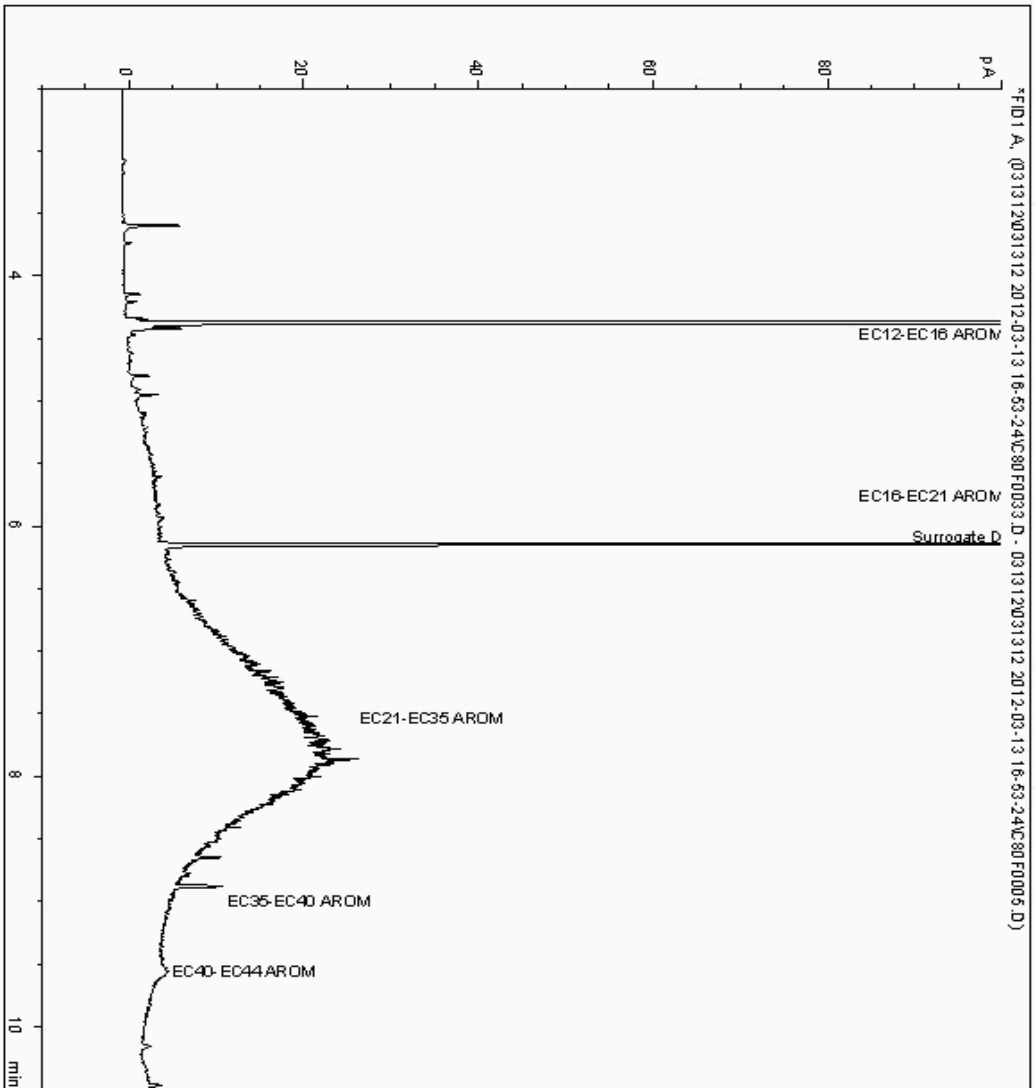
Chromatogram

Analysis: EPH CWG (Aromatic) GC (S) **Sample No :** 5310609 **Sample ID :** BH1 **Depth :** 1.50

Alcontrol/Geochem Analytical Services
Speciated TPH - AROM (C12 - C40)

Sample Identity: 5171717-5310609
Date Acquired : 14/03/12 02:52:03
Units : ppb
Dilution :
CF : 1
Multiplier : 1.030

#	Compound Name	Main Peak Area	Amount
1	Int. Std. A	406.9	51.500
2	EC12-EC16 AROM	77.7	8.649
3	EC16-EC21 AROM	298.4	31.218
4	Surrogate D	378.6	41.110
5	EC21-EC35 AROM	2081.3	217.500
6	EC35-EC40 AROM	198.8	20.775
7	EC40-EC44 AROM	121.8	12.730
	Total Peak Area	3563.5	



CERTIFICATE OF ANALYSIS

SDG:	120302-52	**Location:**	Kronospan	**Order Number:**	
Job:	H_GEOTECHLT_CHE-145	**Customer:**	Geotechnics Ltd	**Report Number:**	174609
Client Reference:	PN122668	**Attention:**	Jon Hutchinson	**Superseded Report:**	

Chromatogram

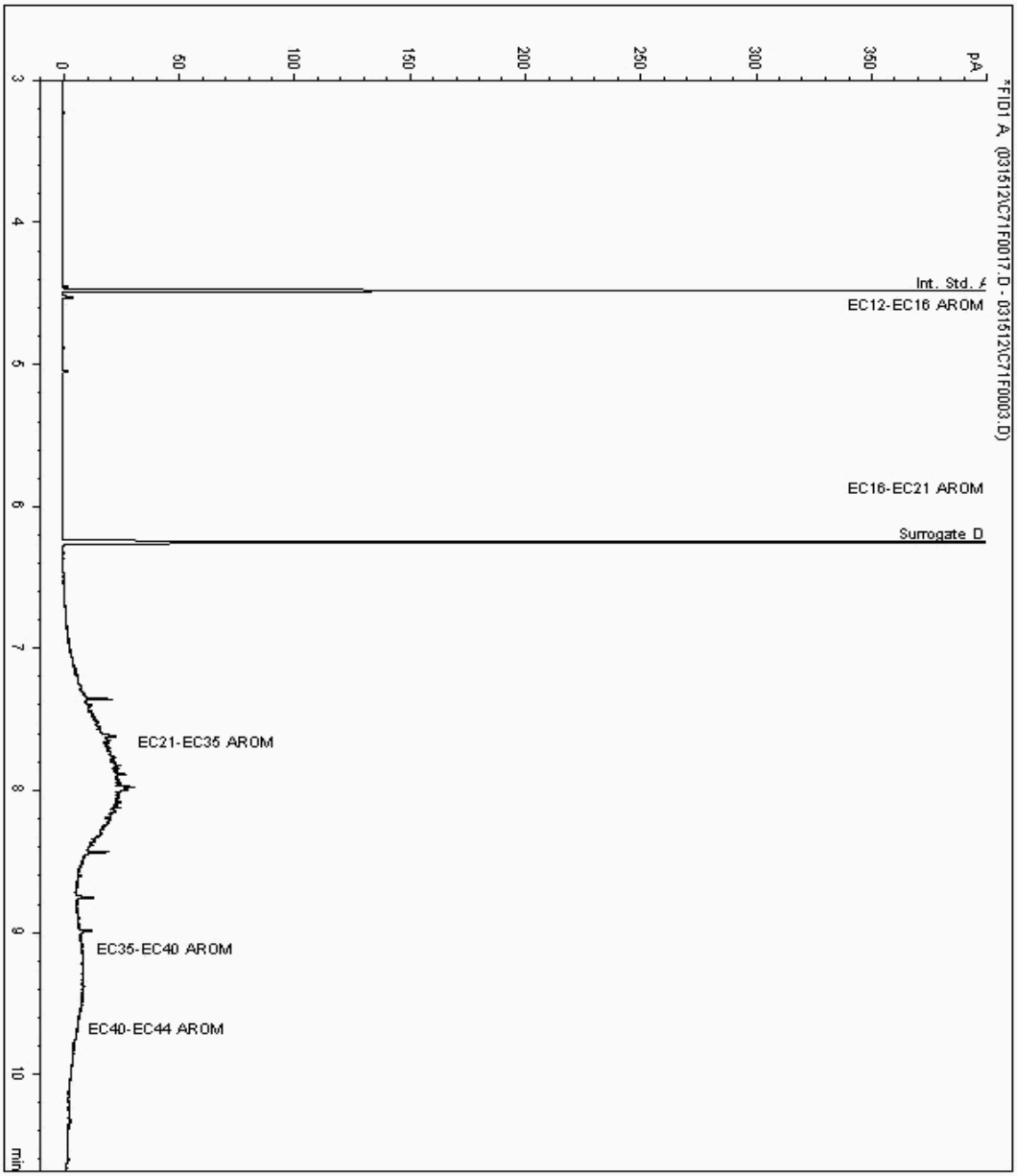
Analysis: EPH CWG (Aromatic) GC (S)

Sample No : 5316130
Sample ID : BH2

Depth : 2.00

Alcontrol/Geochem Analytical Services
Speciated TPH - AROM (C12 - C40)

Sample Identity: 5171858-5316130
Date Acquired : 15/03/2012 13:30:46 PM
Units : ppb
Dilution:



CERTIFICATE OF ANALYSIS

SDG:	120302-52	**Location:**	Kronospan	**Order Number:**	
Job:	H_GEOTECHLT_CHE-145	**Customer:**	Geotechnics Ltd	**Report Number:**	174609
Client Reference:	PN122668	**Attention:**	Jon Hutchinson	**Superseded Report:**	

Chromatogram

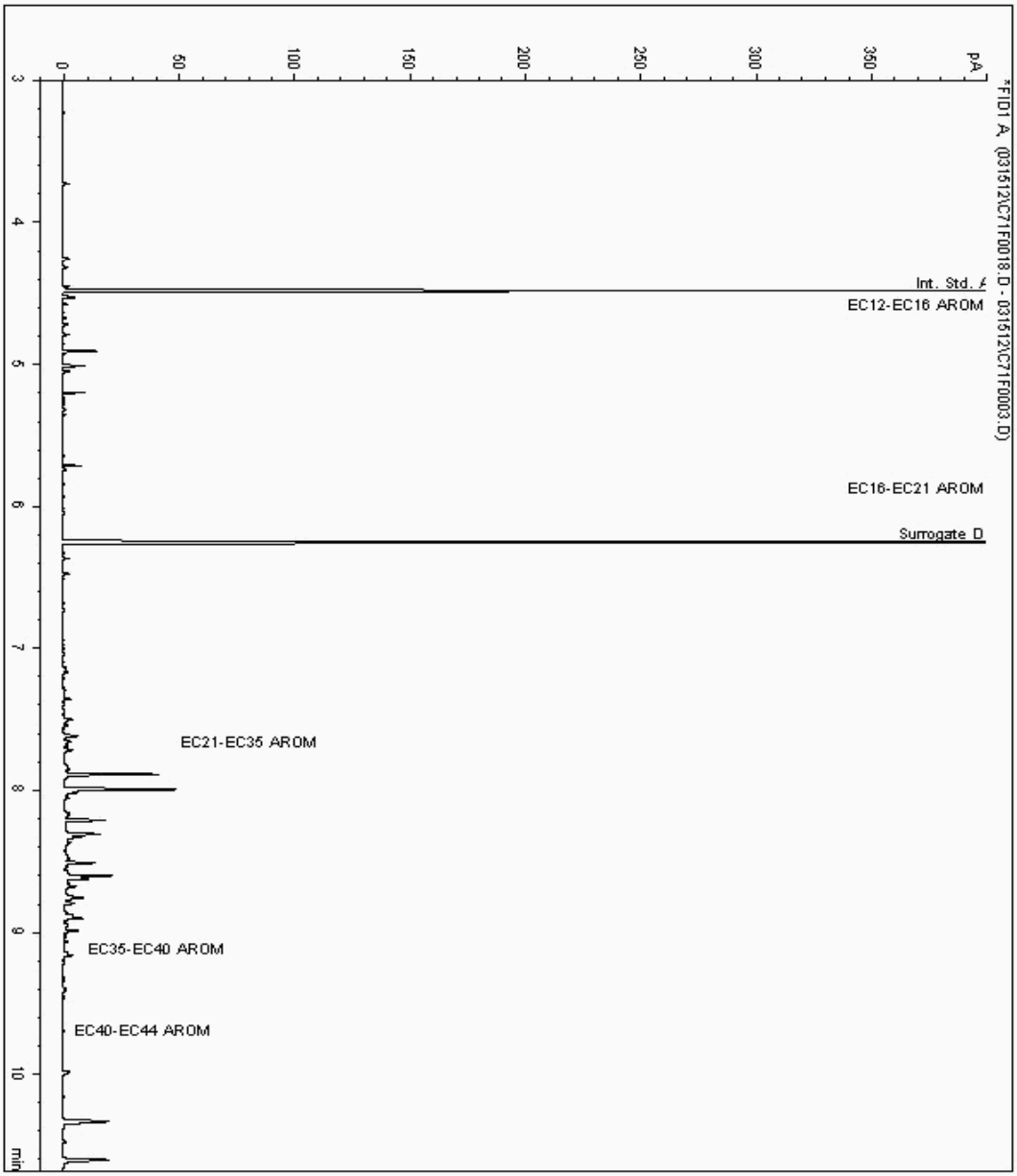
Analysis: EPH CWG (Aromatic) GC (S)

Sample No : 5316199
Sample ID : BH2

Depth : 1.00

Alcontrol/Geochem Analytical Services
Speciated TPH - AROM (C12 - C40)

Sample Identity: 5171785-5316199
Date Acquired : 15/03/2012 13:51:08 PM
Units : ppb
Dilution:



CERTIFICATE OF ANALYSIS

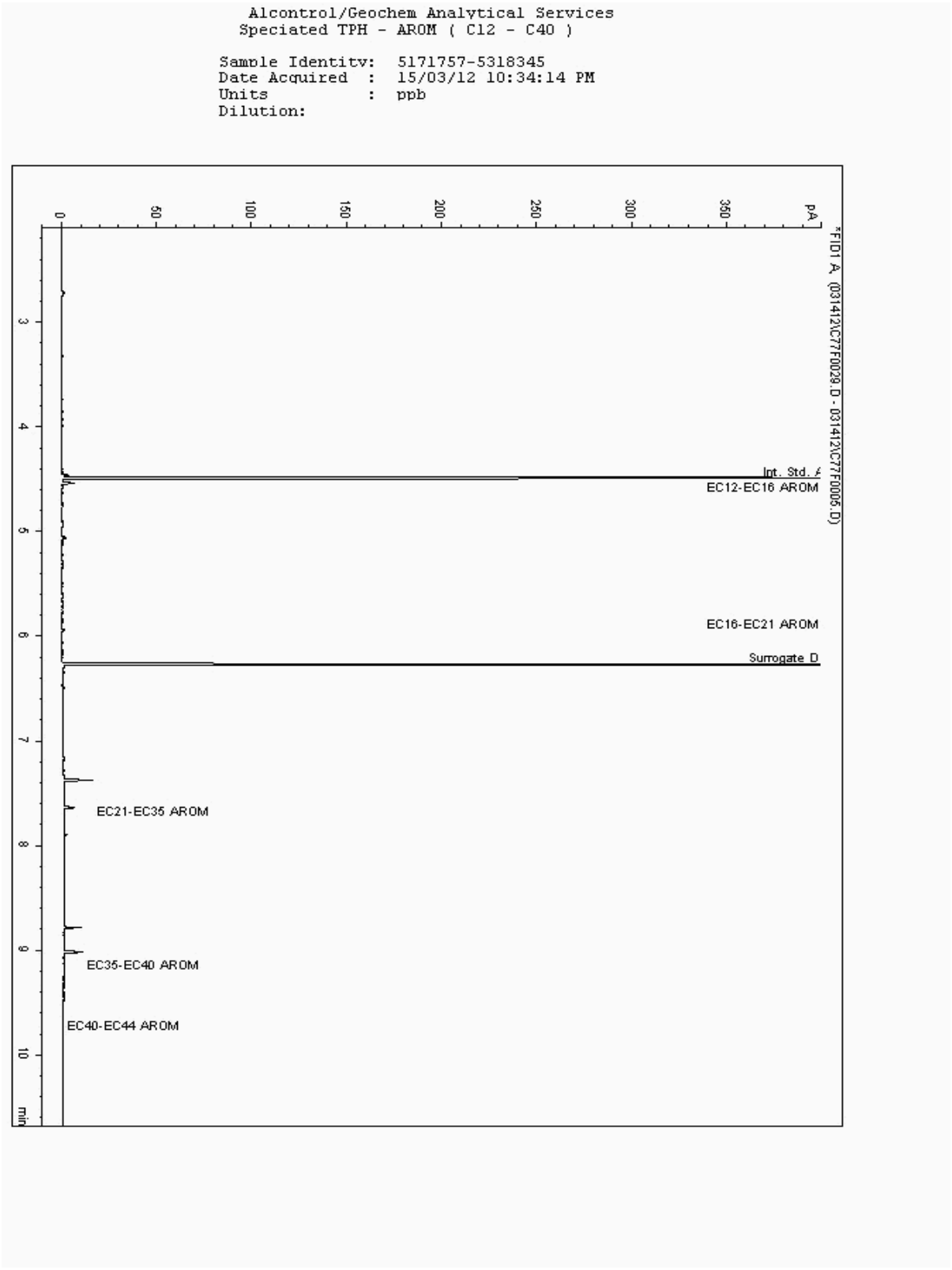
SDG:	120302-52	**Location:**	Kronospan	**Order Number:**	
Job:	H_GEOTECHLT_CHE-145	**Customer:**	Geotechnics Ltd	**Report Number:**	174609
Client Reference:	PN122668	**Attention:**	Jon Hutchinson	**Superseded Report:**	

Chromatogram

Analysis: EPH CWG (Aromatic) GC (S)

Sample No : 5318345
Sample ID : BH2

Depth : 0.50



CERTIFICATE OF ANALYSIS

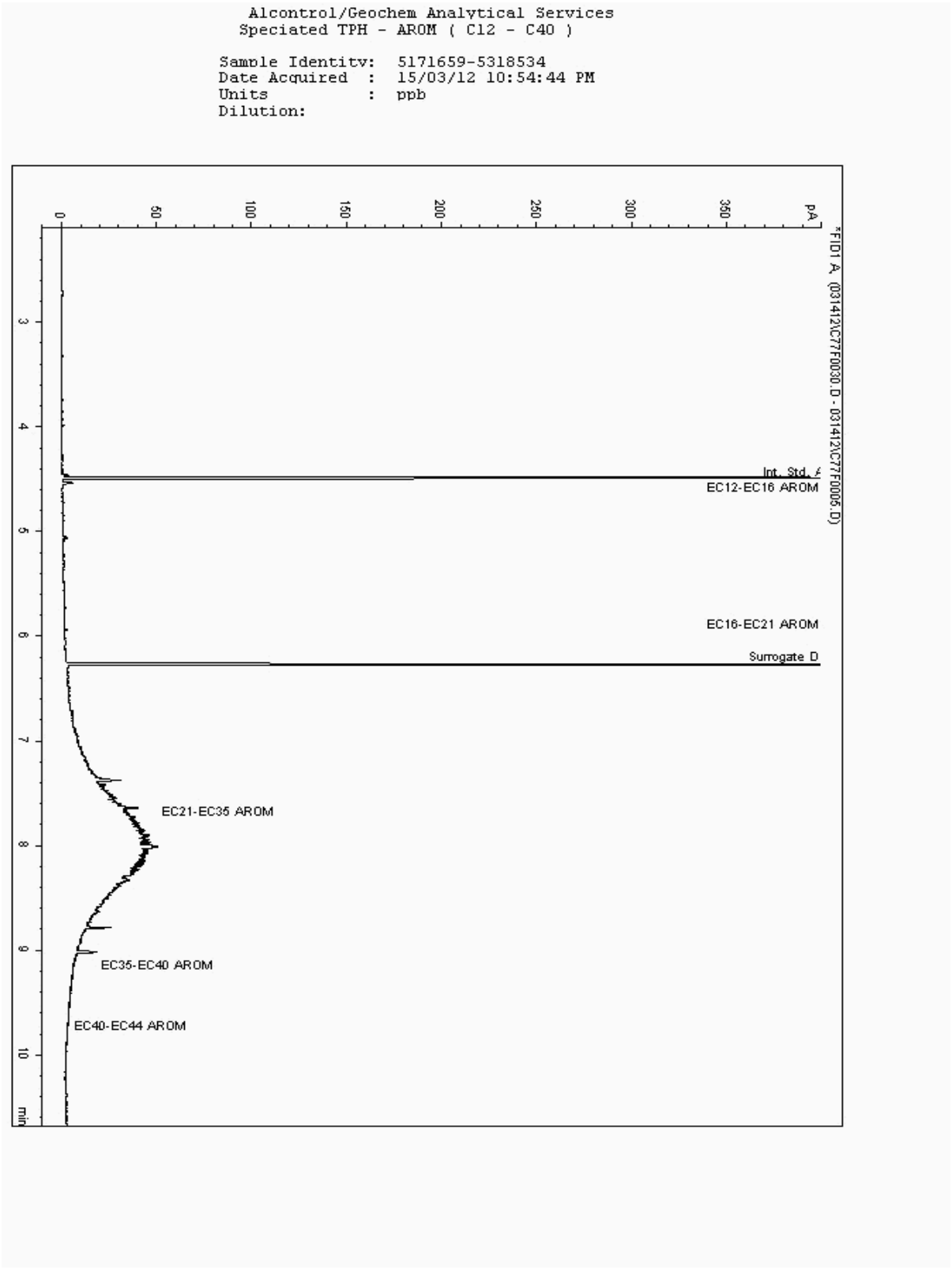
SDG:	120302-52	**Location:**	Kronospan	**Order Number:**	
Job:	H_GEOTECHLT_CHE-145	**Customer:**	Geotechnics Ltd	**Report Number:**	174609
Client Reference:	PN122668	**Attention:**	Jon Hutchinson	**Superseded Report:**	

Chromatogram

Analysis: EPH CWG (Aromatic) GC (S)

Sample No : 5318534
Sample ID : BH1

Depth : 0.50



CERTIFICATE OF ANALYSIS

SDG:	120302-52	**Location:**	Kronospan	**Order Number:**	
Job:	H_GEOTECHLT_CHE-145	**Customer:**	Geotechnics Ltd	**Report Number:**	174609
Client Reference:	PN122668	**Attention:**	Jon Hutchinson	**Superseded Report:**	

Chromatogram

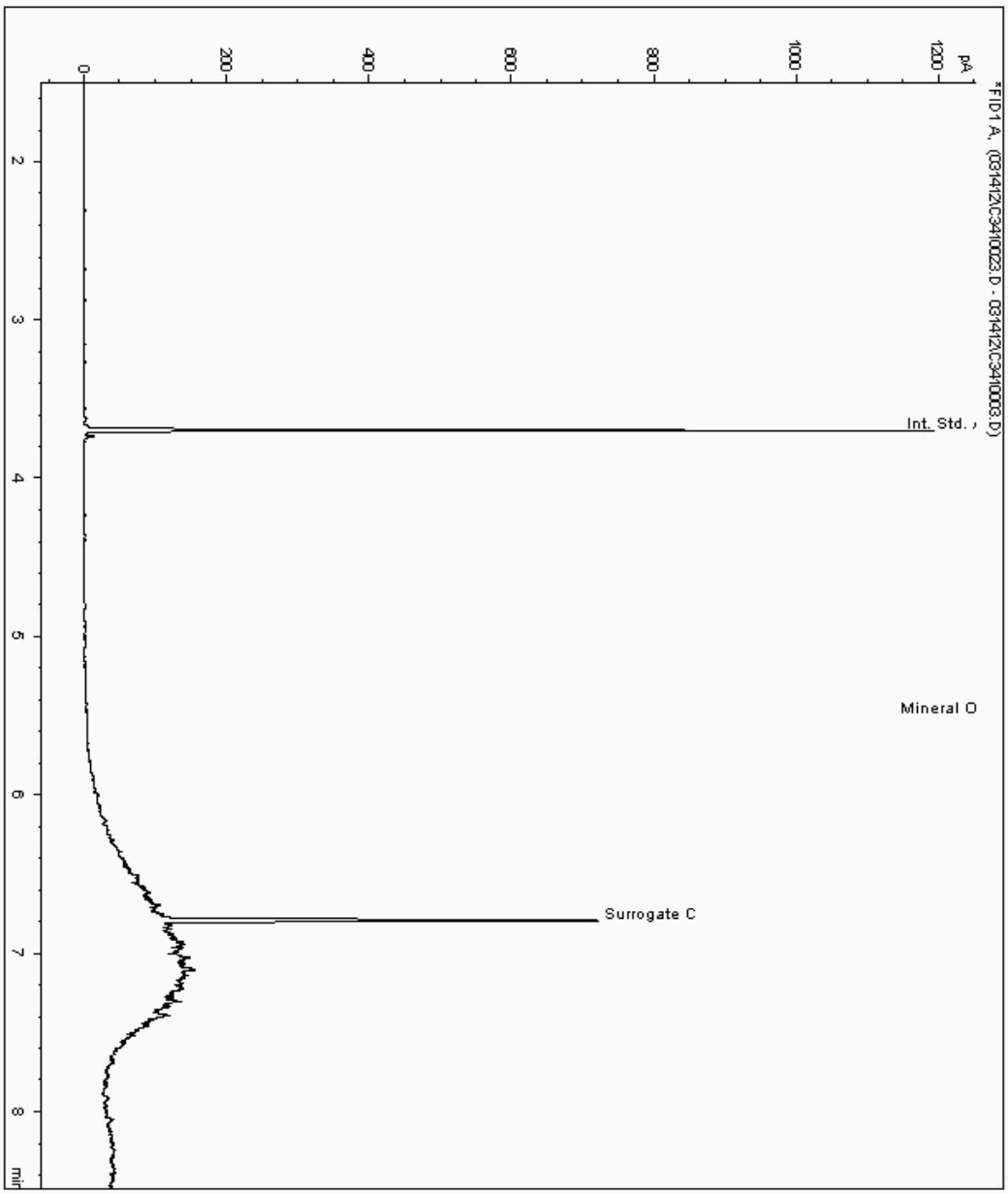
Analysis: Mineral Oil

Sample No : 5316115
Sample ID : BH2

Depth : 2.00

Alcontrol Laboratories
Mineral Oil Range Organics (C10 - C40)

Sample Identity : 5171864-5316115
Date Acquired : 14/03/12 17:12:18 PM
Units : mg/kg
Sample Multiplier : 0.000
Dilution : 1.0 ->



CERTIFICATE OF ANALYSIS

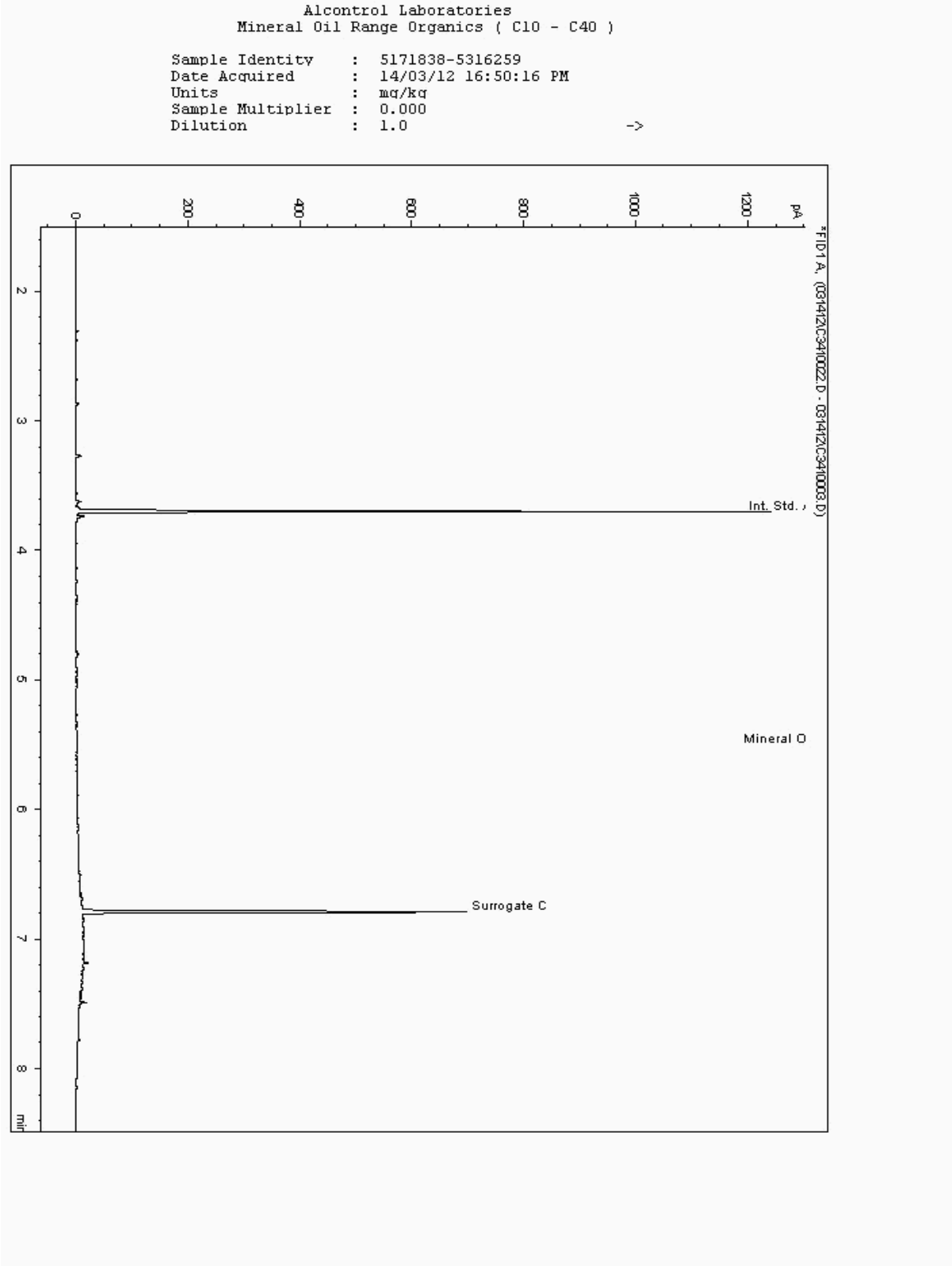
SDG:	120302-52	**Location:**	Kronospan	**Order Number:**	
Job:	H_GEOTECHLT_CHE-145	**Customer:**	Geotechnics Ltd	**Report Number:**	174609
Client Reference:	PN122668	**Attention:**	Jon Hutchinson	**Superseded Report:**	

Chromatogram

Analysis: Mineral Oil

Sample No : 5316259
Sample ID : BH1

Depth : 1.00



CERTIFICATE OF ANALYSIS

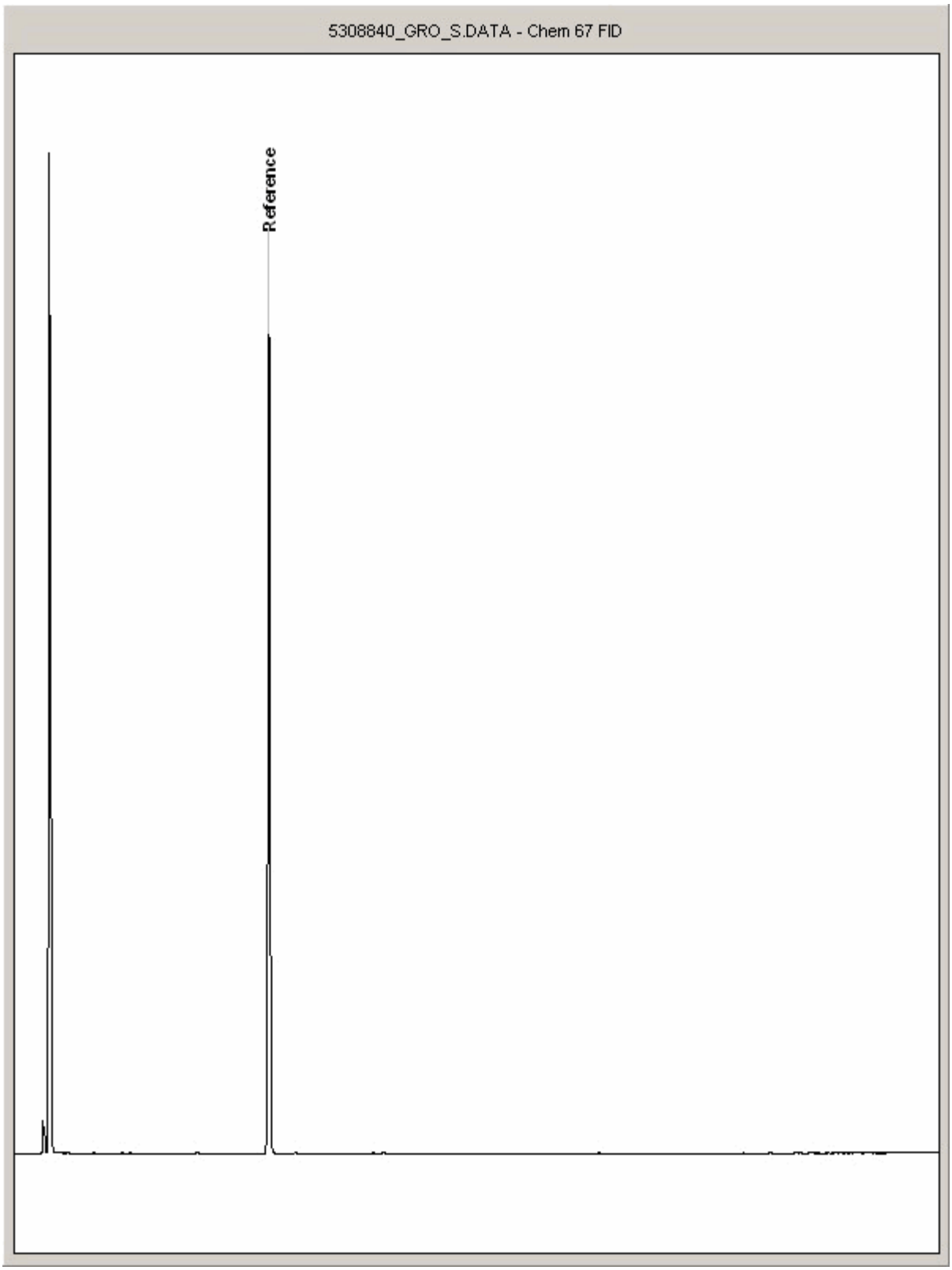
SDG:	120302-52	**Location:**	Kronospan	**Order Number:**	
Job:	H_GEOTECHLT_CHE-145	**Customer:**	Geotechnics Ltd	**Report Number:**	174609
Client Reference:	PN122668	**Attention:**	Jon Hutchinson	**Superseded Report:**	

Chromatogram

Analysis: GRO by GC-FID (S)

Sample No : 5308840
Sample ID : BH2

Depth : 2.00



CERTIFICATE OF ANALYSIS

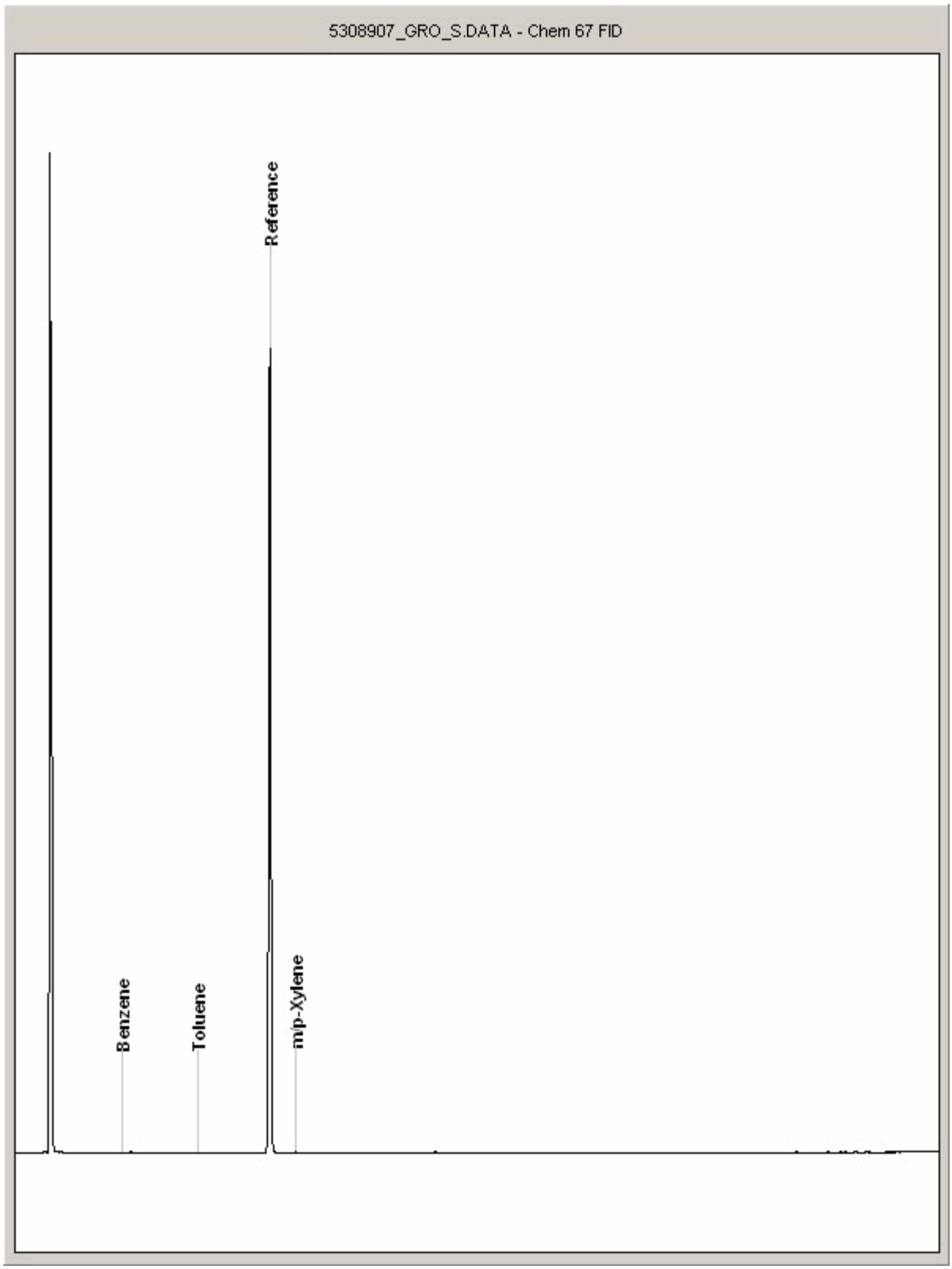
SDG:	120302-52	**Location:**	Kronospan	**Order Number:**	
Job:	H_GEOTECHLT_CHE-145	**Customer:**	Geotechnics Ltd	**Report Number:**	174609
Client Reference:	PN122668	**Attention:**	Jon Hutchinson	**Superseded Report:**	

Chromatogram

Analysis: GRO by GC-FID (S)

Sample No : 5308907
Sample ID : BH2

Depth : 0.50



CERTIFICATE OF ANALYSIS

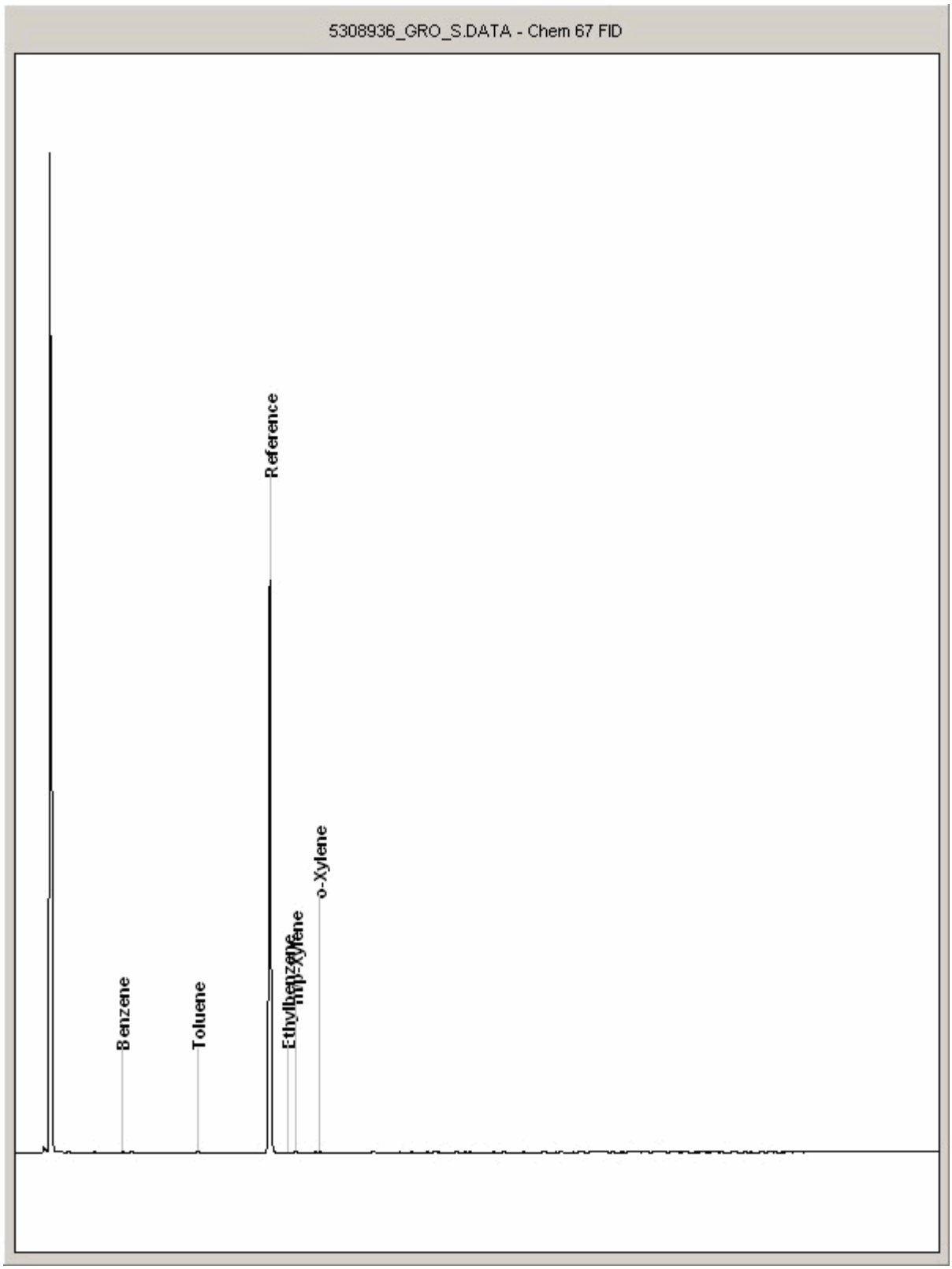
SDG:	120302-52	**Location:**	Kronospan	**Order Number:**	
Job:	H_GEOTECHLT_CHE-145	**Customer:**	Geotechnics Ltd	**Report Number:**	174609
Client Reference:	PN122668	**Attention:**	Jon Hutchinson	**Superseded Report:**	

Chromatogram

Analysis: GRO by GC-FID (S)

Sample No : 5308936
Sample ID : BH1

Depth : 0.50



CERTIFICATE OF ANALYSIS

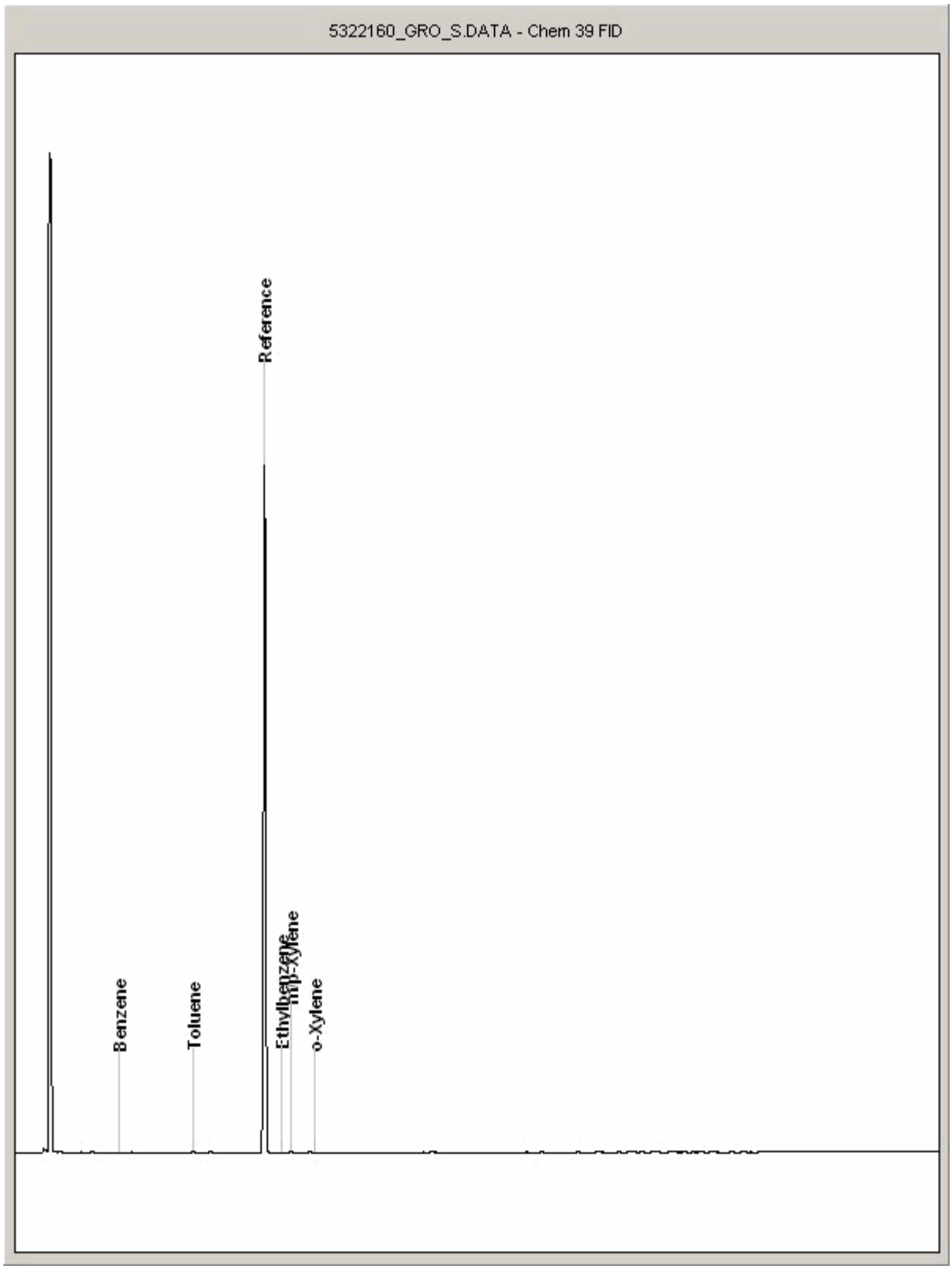
SDG:	120302-52	**Location:**	Kronospan	**Order Number:**	
Job:	H_GEOTECHLT_CHE-145	**Customer:**	Geotechnics Ltd	**Report Number:**	174609
Client Reference:	PN122668	**Attention:**	Jon Hutchinson	**Superseded Report:**	

Chromatogram

Analysis: GRO by GC-FID (S)

Sample No : 5322160
Sample ID : BH1

Depth : 1.00



CERTIFICATE OF ANALYSIS

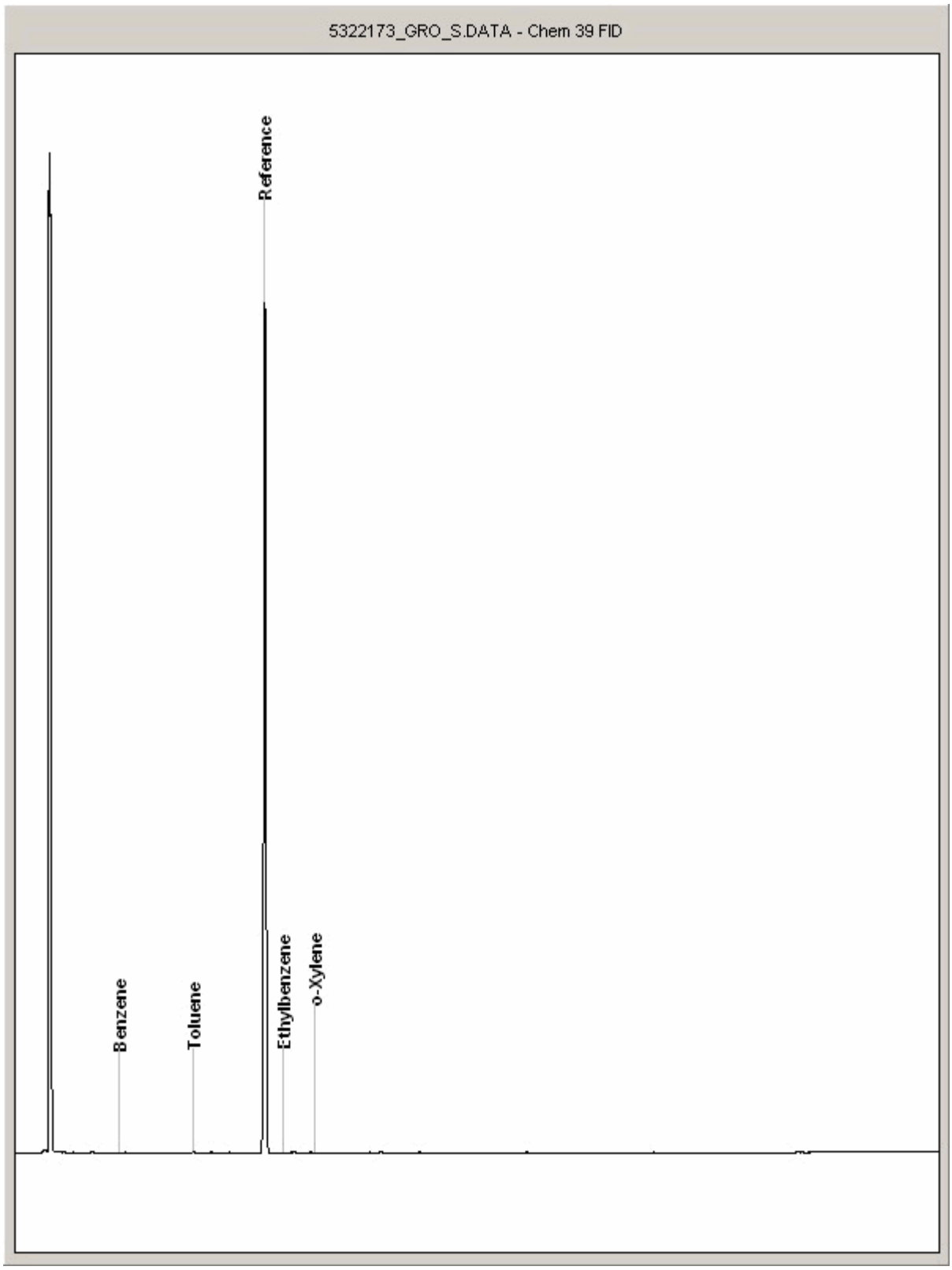
SDG:	120302-52	**Location:**	Kronospan	**Order Number:**	
Job:	H_GEOTECHLT_CHE-145	**Customer:**	Geotechnics Ltd	**Report Number:**	174609
Client Reference:	PN122668	**Attention:**	Jon Hutchinson	**Superseded Report:**	

Chromatogram

Analysis: GRO by GC-FID (S)

Sample No : 5322173
Sample ID : BH1

Depth : 1.50



CERTIFICATE OF ANALYSIS

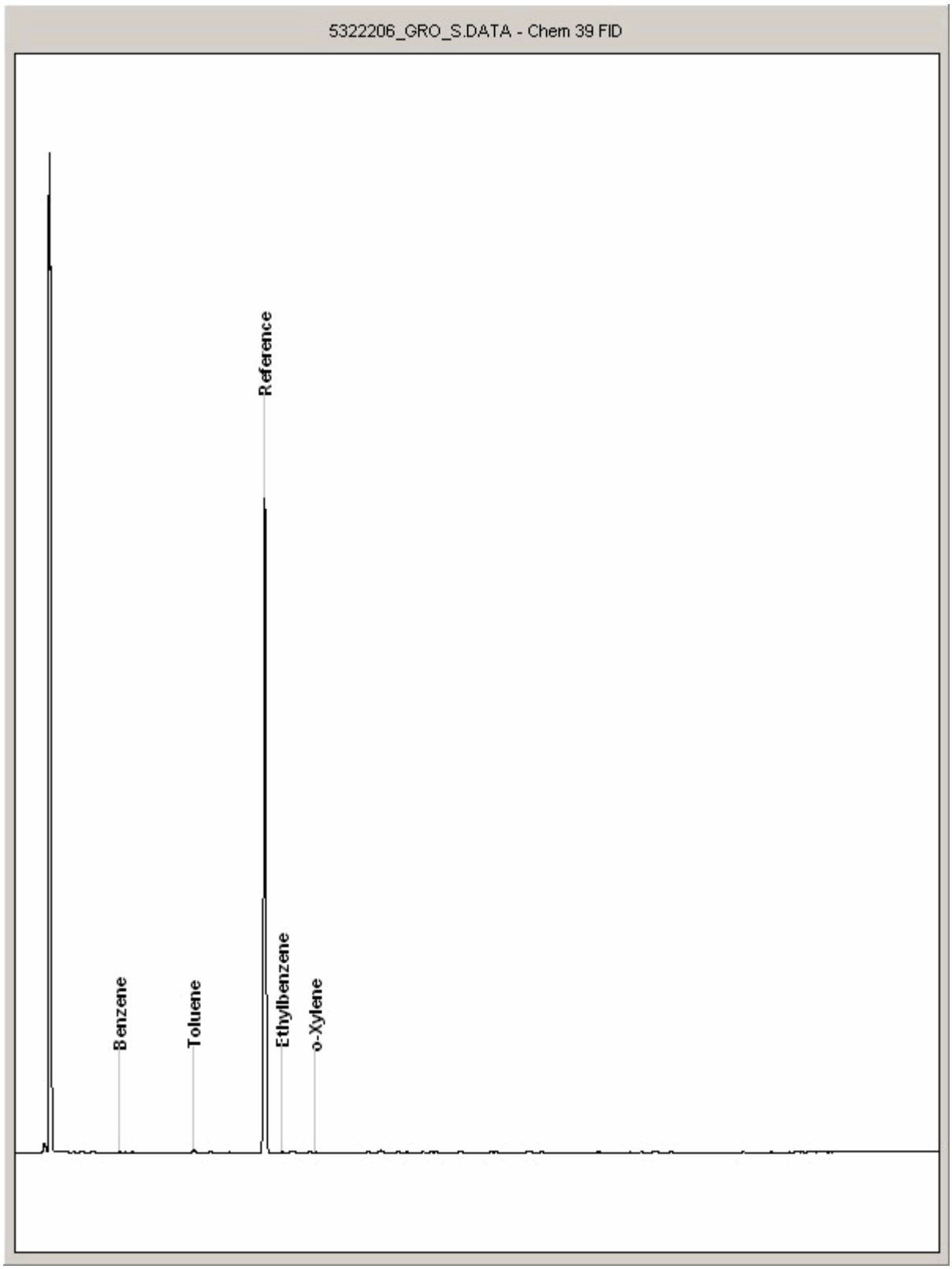
SDG:	120302-52	**Location:**	Kronospan	**Order Number:**	
Job:	H_GEOTECHLT_CHE-145	**Customer:**	Geotechnics Ltd	**Report Number:**	174609
Client Reference:	PN122668	**Attention:**	Jon Hutchinson	**Superseded Report:**	

Chromatogram

Analysis: GRO by GC-FID (S)

Sample No : 5322206
Sample ID : BH2

Depth : 1.00



Alcontrol Laboratories

SVOC Tentatively Identified Compounds

SDG - 120302-52
Client - H_GEOTECHLT_CHE
Sample Identity - 5294233 / 5171656-BH1[0.50]
Sample Type [Units] - Soil - µg/kg
Date Acquired - 13/03/12
Date Reported - 14/03/12
Analyst - Y. BRYANT

Tentative Compound Identification	Time min	Concentration µg/kg
Hydrocarbons	13.57 - 15.58	1697447.39

TIC RESULTS ARE REPORTED ON AN AS RECEIVED BASIS AND ARE NOT MOISTURE CORRECTED
MAY INCLUDE PREVIOUSLY QUANTIFIED RESULTS

Alcontrol Laboratories

SVOC Tentatively Identified Compounds

SDG - 120302-52
Client - H_GEOTECHLT_CHE
Sample Identity - 5316793 /5202942-BH1[1.50]-SOIL
Sample Type [Units] - Soil - µg/kg
Date Acquired - 15/03/12
Date Reported - 16/03/12
Analyst - A Haider

Tentative Compound Identification	Time min	Concentration µg/kg
Hydrocarbons	12.00-17.00	517716.52

TIC RESULTS ARE REPORTED ON AN AS RECEIVED BASIS AND ARE NOT MOISTURE CORRECTED
MAY INCLUDE PREVIOUSLY QUANTIFIED RESULTS

Alcontrol Laboratories

SVOC Tentatively Identified Compounds

SDG - 120302-52
Client - H_GEOTECHLT_CHE
Sample Identity - 5293840 / 5171855-BH2[2.00]
Sample Type [Units] - Soil - µg/kg
Date Acquired - 15/03/12
Date Reported - 16/03/12
Analyst - Y. BRYANT

Tentative Compound Identification	Time min	Concentration µg/kg
Hydrocarbons (C21- C23)	13.36 - 16.24	1726363.73

TIC RESULTS ARE REPORTED ON AN AS RECEIVED BASIS AND ARE NOT MOISTURE CORRECTED
MAY INCLUDE PREVIOUSLY QUANTIFIED RESULTS

SDG:	120302-52	**Location:**	Kronospan	**Order Number:**	
Job:	H_GEOTECHLT_CHE-145	**Customer:**	Geotechnics Ltd	**Report Number:**	174609
Client Reference:	PN122668	**Attention:**	Jon Hutchinson	**Superseded Report:**	

Appendix

1. Results are expressed on a dry weight basis (dried at 35ºC) for all soil analyses except for the following: NRA and CEN Leach tests, flash point LOI, pH, ammonium as NH4 by the BRE method, VOC TICS and SVOC TICS.

2. Samples will be run in duplicate upon request, but an additional charge may be incurred.

3. If sufficient sample is received a sub sample will be retained free of charge for 30 days after analysis is completed (e-mailed) for all sample types unless the sample is destroyed on testing. The prepared soil sub sample that is analysed for asbestos will be retained for a period of 2 months after the analysis date. All bulk samples will be retained for a period of 6 months after the analysis date. All samples received and not scheduled will be disposed of one month after the date of receipt unless we are instructed to the contrary. Once the initial period has expired, a storage charge will be applied for each month or part thereof until the client cancels the request for sample storage. ALcontrol Laboratories reserve the right to charge for samples received and stored but not analysed.

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5. We take responsibility for any test performed by sub-contractors (marked with an asterisk). We endeavour to use UKAS/MCERTS Accredited Laboratories, who either complete a quality questionnaire or are audited by ourselves. For some determinands there are no UKAS/MCERTS Accredited Laboratories, in this instance a laboratory with a known track record will be utilised.

6. When requested, the individual sub sample scheduled will be analysed in house for the presence of asbestos fibres and asbestos containing material by our documented in house method TM048 based on HSG 248 (2005), which is accredited to ISO17025. If a specific asbestos fibre type is not found this will be reported as “Not detected”. If no asbestos fibre types are found all will be reported as “Not detected” and the sub sample analysed deemed to be clear of asbestos. If an asbestos fibre type is found it will be reported as detected (for each fibre type found). Testing can be carried out on asbestos positive samples, but, due to Health and Safety considerations, may be replaced by alternative tests or reported as No Determination Possible. The quantity of asbestos present is not determined unless specifically requested.

7. If no separate volatile sample is supplied by the client, or if a headspace or sediment is present in the volatile sample, the integrity of the data may be compromised. This will be flagged up as an invalid VOC on the test schedule and the result marked as deviating on the test certificate.

8. If appropriate preserved bottles are not received preservation will take place on receipt. However, the integrity of the data may be compromised.

9. NDP -No determination possible due to insufficient/unsuitable sample.

10. Metals in water are performed on a filtered sample, and therefore represent dissolved metals -total metals must be requested separately.

11. Results relate only to the items tested.

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14. **Product analyses** -Organic analyses on products can only be semi-quantitative due to the matrix effects and high dilution factors
employed.

15. Phenols monohydric by HPLC include phenol, cresols (2-Methylphenol, 3-Methylphenol and 4-Methylphenol) and Xylenols (2,3 Dimethylphenol, 2,4 Dimethylphenol, 2,5 Dimethylphenol, 2,6 Dimethylphenol, 3,4 Dimethyphenol, 3,5 Dimethylphenol).

16. Total of 5 speciated phenols by HPLC includes Phenol, 2,3,5-Trimethyl Phenol, 2-Isopropylphenol, Cresols and Xylenols (as detailed in 15).

17. Stones/debris are not routinely removed. We always endeavour to take a representative sub sample from the received sample.

18. In certain circumstances the method detection limit may be elevated due to the sample being outside the calibration range. Other factors that may contribute to this include possible interferences. In both cases the sample would be diluted which would cause the method detection limit to be raised.

19. Mercury results quoted on soils will not include volatile mercury as the analysis is performed on a dried and crushed sample.

20. For the BSEN 12457-3 two batch process to allow the cumulative release to be calculated, the volume of the leachate produced is measured and filtered for all tests. We therefore cannot carry out any unfiltered analysis. The tests affected include volatiles GCFID/GCMS and all subcontracted analysis.

21. For all leachate preparations (NRA, DIN, TCLP, BSEN 12457-1, 2, 3) volatile loss may occur, as we do not employ zero headspace extraction.

22. We are accredited to MCERTS for sand, clay and loam/topsoil, or any of these materials - whether these are derived from naturally occurring soil profiles, or from fill/made ground, as long as these materials constitute the major part of the sample. Other coarse granular material such as concrete, gravel and brick are not accredited if they comprise the major part of the sample.

23. Analysis and identification of specific compounds using GCFID is by retention time only, and we routinely calibrate and quantify for benzene, toluene, ethylbenzenes and xylenes (BTEX). For total volatiles in the C5 -C12 range, the total area of the chromatogram is integrated and expressed as ug/kg or ug/l. Although this analysis is commonly used for the quantification of gasoline range organics (GRO), the system will also detect other compounds such as chlorinated solvents, and this may lead to a falsely high result with respect to hydrocarbons only. It is not possible to specifically identify these non-hydrocarbons, as standards are not routinely run for any other compounds, and for more definitive identification, volatiles by GCMS should be utilised.

SOLID MATRICES EXTRACTION SUMMARY

ANALYSIS	D&C OR WET	EXTRACTION SOLVENT	EXTRACTION METHOD	ANALYSIS
SOLVENT EXTRACTABLE MATTER	D&C	DCM	SOXTHERM	GRAVIMETRIC
CYCLOHEXANE EXT. MATTER	D&C	CYCLOHEXANE	SOXTHERM	GRAVIMETRIC
ELEMENTAL SULPHUR	D&C	DCM	SOXTHERM	HPLC
PHENOLS BY GCMS	WET	DCM	SOXTHERM	GC-MS
HERBICIDES	D&C	HEXANE:ACETONE	SOXTHERM	GC-MS
PESTICIDES	D&C	HEXANE:ACETONE	SOXTHERM	GC-MS
EPH (DRO)	D&C	HEXANE:ACETONE	END OVER END	GC-FID
EPH (MIN OIL)	D&C	HEXANE:ACETONE	END OVER END	GC-FID
EPH (CLEANED UP)	D&C	HEXANE:ACETONE	END OVER END	GC-FID
EPH CWG BY GC	D&C	HEXANE:ACETONE	END OVER END	GC-FID
PCB AROCLOR 1254 / PCB CON	D&C	HEXANE:ACETONE	END OVER END	GC-MS
POLYAROMATIC HYDROCARBONS (MS)	WET	HEXANE:ACETONE	MICROWAVE TM218.	GC-MS
>C6-C40	WET	HEXANE:ACETONE	SHAKER	GC-FID
POLYAROMATIC HYDROCARBONS RAPID GC	WET	HEXANE:ACETONE	SHAKER	GC-FID
SEMI VOLATILE ORGANIC COMPOUNDS	WET	DCM:ACETONE	SONICATE	GC-MS

LIQUID MATRICES EXTRACTION SUMMARY

ANALYSIS	EXTRACTION SOLVENT	EXTRACTION METHOD	ANALYSIS
PAH MS	HEXANE	STIRRED EXTRACTION (STIR-BAR)	GC MS
EPH	HEXANE	STIRRED EXTRACTION (STIR-BAR)	GC FID
EPH CWG	HEXANE	STIRRED EXTRACTION (STIR-BAR)	GC FID
MINERAL OIL	HEXANE	STIRRED EXTRACTION (STIR-BAR)	GC FID
PCB 7 CONGENERS	HEXANE	STIRRED EXTRACTION (STIR-BAR)	GC MS
PCB AROCLOR 1254	HEXANE	STIRRED EXTRACTION (STIR-BAR)	GC MS
SVOC	DCM	LIQUID/LIQUID SHAKE	GC MS
FREE SULPHUR	DCM	SOLID PHASE EXTRACTION	HPLC
PESTOC PCP P	DCM	LIQUID/LIQUID SHAKE	GC MS
TRIAZINE HERBS	DCM	LIQUID/LIQUID SHAKE	GC MS
PHENOLS MS	ACETONE	SOLID PHASE EXTRACTION	GC MS
TPH by INFRARED (IR)	TCE	STIRRED EXTRACTION (STIR-BAR)	IR
MINERAL OIL by IR	TCE	STIRRED EXTRACTION (STIR-BAR)	IR
GLYCOLS	NONE	DIRECT INJECTION	GC FID

Identification of Asbestos in Bulk Materials & Soils

The results for identification of asbestos in bulk materials are obtained from supplied bulk materials or those identified as potentially asbestos containing during sample description which have been examined to determine the presence of asbestos fibres using Alcontrol Laboratories (Hawarden) in-house method of transmitted/polarised light microscopy and central stop dispersion staining, based on HSG 248 (2005).

The results for identification of asbestos in soils are obtained from a homogenised sub sample which has been examined to determine the presence of asbestos fibres using Alcontrol Laboratories (Hawarden) in-house method of transmitted/polarised light microscopy and central stop dispersion staining, based on HSG 248 (2005).

Asbestos Type	Common Name
Chrysotile	White Asbestos
Amosite	Brown Asbestos
Crocidolite	Blue Asbestos
Fibrous Actinolite	-
Fibrous Anthophyllite	-
Fibrous Tremolite	-

Visual Estimation Of Fibre Content

Estimation of fibre content is not permitted as part of our UKAS accredited test other than: -
Trace -Where only one or two asbestos fibres were identified.

Further guidance on typical asbestos fibre content of manufactured products can be found in HSG 264.

The identification of asbestos containing materials and soils falls within our schedule of tests for which we hold UKAS accreditation, however opinions, interpretations and all other information contained in the report are outside the scope of UKAS accreditation.

ALcontrol Laboratories

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Website: www.alcontrol.com

Geotechnics Ltd
The Geotechnical Centre, Unit 1
Borders Industrial Estate, River Lane
Saltney
Chester
Cheshire
CH4 8RJ

Attention: Jon Hutchinson

CERTIFICATE OF ANALYSIS

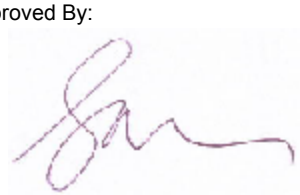
Date:	16 March 2012
Customer:	H_GEOTECHLT_CHE
Sample Delivery Group (SDG):	120308-116
Your Reference:	PN122668
Location:	Kronospan
Report No:	174485

We received 4 samples on Thursday March 08, 2012 and 4 of these samples were scheduled for analysis which was completed on Friday March 16, 2012. Accredited laboratory tests are defined within the report, but opinions, interpretations and on-site data expressed herein are outside the scope of ISO 17025 accreditation.

Should this report require incorporation into client reports, it must be used in its entirety and not simply with the data sections alone.

All chemical testing (unless subcontracted) is performed at ALcontrol Hawarden Laboratories.

Approved By:



Sonia McWhan

Operations Manager

CERTIFICATE OF ANALYSIS

SDG:	120308-116	**Location:**	Kronospan	**Order Number:**	
Job:	H_GEOTECHLT_CHE-145	**Customer:**	Geotechnics Ltd	**Report Number:**	174485
Client Reference:	PN122668	**Attention:**	Jon Hutchinson	**Superseded Report:**	

Received Sample Overview

Lab Sample No(s)	Customer Sample Ref.	AGS Ref.	Depth (m)	Sampled Date
5294222	BH1	D1	19.70	
5294220	BH1	D1	2.00	
5294221	BH1	D1	6.75	
5294223	BH2	D1	11.65	

Only received samples which have had analysis scheduled will be shown on the following pages.

CERTIFICATE OF ANALYSIS

SDG:	120308-116	**Location:**	Kronospan	**Order Number:**	
Job:	H_GEOTECHLT_CHE-145	**Customer:**	Geotechnics Ltd	**Report Number:**	174485
Client Reference:	PN122668	**Attention:**	Jon Hutchinson	**Superseded Report:**	

SOLID

Results Legend

X **Test**

N **No Determination Possible**

			Lab Sample No(s)	Customer Sample Reference	AGS Reference	Depth (m)	Container
			529220	BH1	D1	2.00	1kg TUB
			529221	BH1	D1	6.75	1kg TUB
			529222	BH1	D1	19.70	1kg TUB
			529223	BH2	D1	11.65	1kg TUB
Ammoniacal N as NH4 in 2:1 extract	All	NDPs: 0 Tests: 4	X	X	X	X	
Anions by Kone (soil)	All	NDPs: 0 Tests: 4	X	X	X	X	
Magnesium (BRE)	All	NDPs: 0 Tests: 4	X	X	X	X	
NO3, NO2 and TON by KONE (s)	All	NDPs: 0 Tests: 4	X	X	X	X	
pH	All	NDPs: 0 Tests: 4	X	X	X	X	
Sample description	All	NDPs: 0 Tests: 4	X	X	X	X	
Total Sulphate	All	NDPs: 0 Tests: 4	X	X	X	X	
Total Sulphur	All	NDPs: 0 Tests: 4	X	X	X	X	

CERTIFICATE OF ANALYSIS

SDG:	120308-116	**Location:**	Kronospan	**Order Number:**	
Job:	H_GEOTECHLT_CHE-145	**Customer:**	Geotechnics Ltd	**Report Number:**	174485
Client Reference:	PN122668	**Attention:**	Jon Hutchinson	**Superseded Report:**	

Sample Descriptions

Grain Sizes

very fine	<0.063mm	fine	0.063mm - 0.1mm	medium	0.1mm - 2mm	coarse	2mm - 10mm	very coarse	>10mm

Lab Sample No(s)	Customer Sample Ref.	Depth (m)	Colour	Description	Grain size	Inclusions	Inclusions 2
5294220	BH1	2.00	Grey	Sandy Clay Loam	0.1 - 2 mm	Stones	None
5294221	BH1	6.75	Grey	Silt Loam	0.063 - 0.1 mm	Stones	None
5294222	BH1	19.70	Grey	Shale	2 - 10 mm	Stones	None
5294223	BH2	11.65	Grey	Clay	<0.063 mm	None	None

These descriptions are only intended to act as a cross check if sample identities are questioned, and to provide a log of sample matrices with respect to MCERTS validation. They are not intended as full geological descriptions.

We are accredited to MCERTS for sand, clay and loam/topsoil, or any of these materials - whether these are derived from naturally ocurring soil profiles, or from fill/made ground, as long as these materials constitute the major part of the sample.

Other coarse granular materials such as concrete, gravel and brick are not accredited if they comprise the major part of the sample.

ALcontrol Laboratories

Validated

CERTIFICATE OF ANALYSIS

SDG:	120308-116	**Location:**	Kronospan	**Order Number:**	
Job:	H_GEOTECHLT_CHE-145	**Customer:**	Geotechnics Ltd	**Report Number:**	174485
Client Reference:	PN122668	**Attention:**	Jon Hutchinson	**Superseded Report:**	

Results Legend

#	ISO17025 accredited.
M	*m*CERTS accredited.
§	Deviating sample.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	Subcontracted test.
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery
(F)	Trigger breach confirmed

Component	LOD/Units	Method	Customer Sample R	BH1	BH1	BH1	BH2		
			Depth (m)	19.70	2.00	6.75	11.65		
			Sample Type	Soil/Solid	Soil/Solid	Soil/Solid	Soil/Solid		
			Date Sampled	-	-	-	-		
			Date Received	08/03/2012	08/03/2012	08/03/2012	08/03/2012		
			SDG Ref	120308-116	120308-116	120308-116	120308-116		
			Lab Sample No.(s)	5294222	5294220	5294221	5294223		
			AGS Reference	D1	D1	D1	D1		
Sulphur, Total	<0.02 %	TM132		0.212 #	<0.02 #	0.243 #	0.159 #		
pH	1 pH Units	TM133		8.68 #	7.72 M	6.42 M	8.23 M		
Sulphate, acid soluble (total)	<0.02 %	TM221		0.0223	<0.02	0.0279	0.026		
Soluble Sulphate 2:1 extract as SO4 BRE	<0.003 g/l	TM243		0.0411 #	0.0288 M	0.0759 M	0.0687 M		
Chloride 2:1 water/soil extract BRE	<0.001 g/l	TM243		0.0059 #	0.0068 M	0.0132 M	0.0088 M		
Nitrate as NO3, 2:1 water soluble (BRE)	<0.0003 g/l	TM243		<0.0003	0.000962	0.000349	<0.0003		
Ammoniacal N as NH4 in 2:1 extract BRE	<0.0003 g/l	TM248		<0.0003	0.00163	<0.0003	<0.0003		
Magnesium (BRE)	<0.008 g/l	TM282		<0.008	<0.008	<0.008	<0.008		

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Table of Results - Appendix

Method No	Reference	Description	Wet/Dry Sample [1]	Surrogate Corrected
PM024	Modified BS 1377	Soil preparation including homogenisation, moisture screens of soils for Asbestos Containing Material		
TM132	In - house Method	ELTRA CS800 Operators Guide		
TM133	BS 1377: Part 3 1990;BS 6068-2.5	Determination of pH in Soil and Water using the GLpH pH Meter		
TM221	Inductively Coupled Plasma - Atomic Emission Spectroscopy. An Atlas of Spectral Information: Winge, Fassel, Peterson and Floyd	Determination of Acid extractable Sulphate in Soils by IRIS Emission Spectrometer		
TM243		Mixed Anions In Soils By Kone		
TM248	In-House Method	Determination of Ammonium BRE (2:1 Extract) on solids		
TM282		Extraction of Magnesium by BRE Method		

[1] Applies to Solid samples only. DRY indicates samples have been dried at 35°C. NA = not applicable.

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Test Completion Dates

Lab Sample No(s)	5294220	5294221	5294222	5294223
Customer Sample Ref.	BH1	BH1	BH1	BH2
AGS Ref.	D1	D1	D1	D1
Depth	2.00	6.75	19.70	11.65
Type	SOLID	SOLID	SOLID	SOLID
Ammoniacal N as NH4 in 2:1 extract	14-Mar-2012	14-Mar-2012	14-Mar-2012	14-Mar-2012
Anions by Kone (soil)	15-Mar-2012	15-Mar-2012	15-Mar-2012	15-Mar-2012
Magnesium (BRE)	14-Mar-2012	14-Mar-2012	14-Mar-2012	14-Mar-2012
NO3, NO2 and TON by KONE (s)	15-Mar-2012	15-Mar-2012	15-Mar-2012	15-Mar-2012
pH	16-Mar-2012	16-Mar-2012	16-Mar-2012	16-Mar-2012
Sample description	11-Mar-2012	11-Mar-2012	11-Mar-2012	11-Mar-2012
Total Sulphate	13-Mar-2012	13-Mar-2012	13-Mar-2012	13-Mar-2012
Total Sulphur	13-Mar-2012	13-Mar-2012	13-Mar-2012	13-Mar-2012

CERTIFICATE OF ANALYSIS

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20. For the BSEN 12457-3 two batch process to allow the cumulative release to be calculated, the volume of the leachate produced is measured and filtered for all tests. We therefore cannot carry out any unfiltered analysis. The tests affected include volatiles GCFID/GCMS and all subcontracted analysis.

21. For all leachate preparations (NRA, DIN, TCLP, BSEN 12457-1, 2, 3) volatile loss may occur, as we do not employ zero headspace extraction.

22. We are accredited to MCERTS for sand, clay and loam/topsoil, or any of these materials - whether these are derived from naturally occurring soil profiles, or from fill/made ground, as long as these materials constitute the major part of the sample. Other coarse granular material such as concrete, gravel and brick are not accredited if they comprise the major part of the sample.

23. Analysis and identification of specific compounds using GCFID is by retention time only, and we routinely calibrate and quantify for benzene, toluene, ethylbenzenes and xylenes (BTEX). For total volatiles in the C5 -C12 range, the total area of the chromatogram is integrated and expressed as ug/kg or ug/l. Although this analysis is commonly used for the quantification of gasoline range organics (GRO), the system will also detect other compounds such as chlorinated solvents, and this may lead to a falsely high result with respect to hydrocarbons only. It is not possible to specifically identify these non-hydrocarbons, as standards are not routinely run for any other compounds, and for more definitive identification, volatiles by GCMS should be utilised.

SOLID MATRICES EXTRACTION SUMMARY

ANALYSIS	D&C OR WET	EXTRACTION SOLVENT	EXTRACTION METHOD	ANALYSIS
SOLVENT EXTRACTABLE MATTER	D&C	DCM	SOXTHERM	GRAVIMETRIC
CYCLOHEXANE EXT. MATTER	D&C	CYCLOHEXANE	SOXTHERM	GRAVIMETRIC
ELEMENTAL SULPHUR	D&C	DCM	SOXTHERM	HPLC
PHENOLS BY GCMS	WET	DCM	SOXTHERM	GC-MS
HERBICIDES	D&C	HEXANE:ACETONE	SOXTHERM	GC-MS
PESTICIDES	D&C	HEXANE:ACETONE	SOXTHERM	GC-MS
EPH (DRO)	D&C	HEXANE:ACETONE	END OVER END	GC-FID
EPH (MIN OIL)	D&C	HEXANE:ACETONE	END OVER END	GC-FID
EPH (CLEANED UP)	D&C	HEXANE:ACETONE	END OVER END	GC-FID
EPH CWG BY GC	D&C	HEXANE:ACETONE	END OVER END	GC-FID
PCB AROCLOR 1254 / PCB CON	D&C	HEXANE:ACETONE	END OVER END	GC-MS
POLYAROMATIC HYDROCARBONS (MS)	WET	HEXANE:ACETONE	MICROWAVE TM218.	GC-MS
>C6-C40	WET	HEXANE:ACETONE	SHAKER	GC-FID
POLYAROMATIC HYDROCARBONS RAPID GC	WET	HEXANE:ACETONE	SHAKER	GC-FID
SEMI VOLATILE ORGANIC COMPOUNDS	WET	DCM:ACETONE	SONICATE	GC-MS

LIQUID MATRICES EXTRACTION SUMMARY

ANALYSIS	EXTRACTION SOLVENT	EXTRACTION METHOD	ANALYSIS
PAH MS	HEXANE	STIRRED EXTRACTION (STIR-BAR)	GC MS
EPH	HEXANE	STIRRED EXTRACTION (STIR-BAR)	GC FID
EPH CWG	HEXANE	STIRRED EXTRACTION (STIR-BAR)	GC FID
MINERAL OIL	HEXANE	STIRRED EXTRACTION (STIR-BAR)	GC FID
PCB 7 CONGENERS	HEXANE	STIRRED EXTRACTION (STIR-BAR)	GC MS
PCB AROCLOR 1254	HEXANE	STIRRED EXTRACTION (STIR-BAR)	GC MS
SVOC	DCM	LIQUID/LIQUID SHAKE	GC MS
FREE SULPHUR	DCM	SOLID PHASE EXTRACTION	HPLC
PESTOCP/OPP	DCM	LIQUID/LIQUID SHAKE	GC MS
TRIAZINE HERBS	DCM	LIQUID/LIQUID SHAKE	GC MS
PHENOLS MS	ACETONE	SOLID PHASE EXTRACTION	GC MS
TPH by INFRARED (IR)	TCE	STIRRED EXTRACTION (STIR-BAR)	IR
MINERAL OIL by IR	TCE	STIRRED EXTRACTION (STIR-BAR)	IR
GLYCOLS	NONE	DIRECT INJECTION	GC FID

Identification of Asbestos in Bulk Materials & Soils

The results for identification of asbestos in bulk materials are obtained from supplied bulk materials or those identified as potentially asbestos containing during sample description which have been examined to determine the presence of asbestos fibres using Alcontrol Laboratories (Hawarden) in-house method of transmitted/polarised light microscopy and central stop dispersion staining, based on HSG 248 (2005).

The results for identification of asbestos in soils are obtained from a homogenised sub sample which has been examined to determine the presence of asbestos fibres using Alcontrol Laboratories (Hawarden) in-house method of transmitted/polarised light microscopy and central stop dispersion staining, based on HSG 248 (2005).

Asbestos Type	Common Name
Chrysotile	White Asbestos
Amosite	Brown Asbestos
Crocidolite	Blue Asbestos
Fibrous Actinolite	-
Fibrous Anthophyllite	-
Fibrous Tremolite	-

Visual Estimation Of Fibre Content

Estimation of fibre content is not permitted as part of our UKAS accredited test other than: -
Trace -Where only one or two asbestos fibres were identified.

Further guidance on typical asbestos fibre content of manufactured products can be found in HSG 264.

The identification of asbestos containing materials and soils falls within our schedule of tests for which we hold UKAS accreditation, however opinions, interpretations and all other information contained in the report are outside the scope of UKAS accreditation.

ALcontrol Laboratories

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Geotechnics Ltd
The Geotechnical Centre, Unit 1
Borders Industrial Estate, River Lane
Saltney
Chester
Cheshire
CH4 8RJ

Attention: Jon Hutchinson

CERTIFICATE OF ANALYSIS

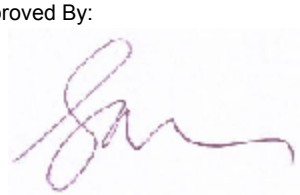
Date:	26 March 2012
Customer:	H_GEOTECHLT_CHE
Sample Delivery Group (SDG):	120317-79
Your Reference:	PN122668
Location:	Kronospan
Report No:	175530

We received 1 sample on Friday March 16, 2012 and 1 of these samples were scheduled for analysis which was completed on Monday March 26, 2012. Accredited laboratory tests are defined within the report, but opinions, interpretations and on-site data expressed herein are outside the scope of ISO 17025 accreditation.

Should this report require incorporation into client reports, it must be used in its entirety and not simply with the data sections alone.

All chemical testing (unless subcontracted) is performed at ALcontrol Hawarden Laboratories.

Approved By:



Sonia McWhan

Operations Manager

CERTIFICATE OF ANALYSIS

SDG:	120317-79	**Location:**	Kronospan	**Order Number:**	AUTH ON 07907
Job:	H_GEOTECHLT_CHE-145	**Customer:**	Geotechnics Ltd	**Report Number:**	175530
Client Reference:	PN122668	**Attention:**	Jon Hutchinson	**Superseded Report:**	

Received Sample Overview

Lab Sample No(s)	Customer Sample Ref.	AGS Ref.	Depth (m)	Sampled Date
5335199	BH2		2.50 - 3.20	16/03/2012

Only received samples which have had analysis scheduled will be shown on the following pages.

CERTIFICATE OF ANALYSIS

SDG:	120317-79	**Location:**	Kronospan	**Order Number:**	AUTH ON 07907
Job:	H_GEOTECHLT_CHE-145	**Customer:**	Geotechnics Ltd	**Report Number:**	175530
Client Reference:	PN122668	**Attention:**	Jon Hutchinson	**Superseded Report:**	

LIQUID

Results Legend

X **Test**

N **No Determination Possible**

			Lab Sample No(s)	Customer Sample Reference	AGS Reference	Depth (m)	Container
			5335199	BH2		2.50 - 3.20	0.5l glass bottle (AL / 500ml Plastic (ALE2 / Vial (ALE297)
Alcohols/Acetates MS (W)	All	NDPs: 0 Tests: 1					X
Ammoniacal Nitrogen	All	NDPs: 0 Tests: 1				X	
Anions by Kone (w)	All	NDPs: 0 Tests: 1				X	
Conductivity (at 20 deg.C)	All	NDPs: 0 Tests: 1				X	
Cyanide Comp/Free/Total/Thiocyanate	All	NDPs: 0 Tests: 1					X
Dissolved Metals by ICP-MS	All	NDPs: 0 Tests: 1				X	
EPH CWG (Aliphatic) Aqueous GC (W)	All	NDPs: 0 Tests: 1					X
EPH CWG (Aromatic) Aqueous GC (W)	All	NDPs: 0 Tests: 1					X
Free Formaldehyde	All	NDPs: 0 Tests: 1				X	
Glycols by GC-FID	All	NDPs: 0 Tests: 1					X
GRO by GC-FID (W)	All	NDPs: 0 Tests: 1					X
Mercury Dissolved	All	NDPs: 0 Tests: 1					X
Metals by iCap-OES Dissolved (W)	All	NDPs: 0 Tests: 1				X	
PAH Spec MS - Aqueous (W)	All	NDPs: 0 Tests: 1					X
pH Value	All	NDPs: 0 Tests: 1				X	

CERTIFICATE OF ANALYSIS

SDG:	120317-79	**Location:**	Kronospan	**Order Number:**	AUTH ON 07907
Job:	H_GEOTECHLT_CHE-145	**Customer:**	Geotechnics Ltd	**Report Number:**	175530
Client Reference:	PN122668	**Attention:**	Jon Hutchinson	**Superseded Report:**	

LIQUID

Results Legend

X **Test**

N **No Determination Possible**

			Lab Sample No(s)	Customer Sample Reference	AGS Reference	Depth (m)	Container
			5335199	BH2		2.50 - 3.20	0.5l glass bottle (AL / 500ml Plastic (ALE2 / Vial (ALE297)
Phenols by HPLC (W)	All	NDPs: 0 Tests: 1	X				
Suspended Solids	All	NDPs: 0 Tests: 1		X			
SVOC MS (W) - Aqueous	All	NDPs: 0 Tests: 1	X				
Total Organic and Inorganic Carbon	All	NDPs: 0 Tests: 1	X				
TPH CWG (W)	All	NDPs: 0 Tests: 1	X				
VOC MS (W)	All	NDPs: 0 Tests: 1					X

CERTIFICATE OF ANALYSIS

SDG:	120317-79	**Location:**	Kronospan	**Order Number:**	AUTH ON 07907
Job:	H_GEOTECHLT_CHE-145	**Customer:**	Geotechnics Ltd	**Report Number:**	175530
Client Reference:	PN122668	**Attention:**	Jon Hutchinson	**Superseded Report:**	

Results Legend

#	ISO17025 accredited.
M	*m*CERTS accredited.
§	Deviating sample.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	Subcontracted test.
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery
(F)	Trigger breach confirmed

Component	LOD/Units	Method	Customer Sample R	BH2
			Depth (m)	2.50 - 3.20
			Sample Type	Water(GW/SW)
			Date Sampled	16/03/2012
			Date Received	16/03/2012
			SDG Ref	120317-79
			Lab Sample No.(s)	5335199
			AGS Reference	
Suspended solids, Total	<2 mg/l	TM022		12100 #
Organic Carbon, Total	<3 mg/l	TM090		22.8 #
Ammoniacal Nitrogen as N	<0.2 mg/l	TM099		1.99 #
Conductivity @ 20 deg.C	<0.005 mS/cm	TM120		0.635 #
Arsenic (diss.filt)	<0.12 µg/l	TM152		14.5 #
Barium (diss.filt)	<0.03 µg/l	TM152		200 #
Beryllium (diss.filt)	<0.07 µg/l	TM152		<0.07 #
Boron (diss.filt)	<9.4 µg/l	TM152		27.2 #
Cadmium (diss.filt)	<0.1 µg/l	TM152		<0.1 #
Chromium (diss.filt)	<0.22 µg/l	TM152		<0.22 #
Copper (diss.filt)	<0.85 µg/l	TM152		<0.85 #
Lead (diss.filt)	<0.02 µg/l	TM152		0.127 #
Nickel (diss.filt)	<0.15 µg/l	TM152		5.55 #
Selenium (diss.filt)	<0.39 µg/l	TM152		0.936 #
Vanadium (diss.filt)	<0.24 µg/l	TM152		<0.24 #
Zinc (diss.filt)	<0.41 µg/l	TM152		1.64 #
Mercury (diss.filt)	<0.01 µg/l	TM183		<0.01 #
Sulphate	<2 mg/l	TM184		5.6 #
Cyanide, Total	<0.05 mg/l	TM227		<0.05 #
Hardness, Total as CaCO3	<1 mg/l	TM228		238 #
pH	<1 pH Units	TM256		7.11 #
Phenols, Total Detected monohydric	<0.016 mg/l	TM259		<0.016 § #
Free Formaldehyde	<0.5 mg/l	TM272		<0.5

CERTIFICATE OF ANALYSIS

SDG:	120317-79	**Location:**	Kronospan	**Order Number:**	AUTH ON 07907
Job:	H_GEOTECHLT_CHE-145	**Customer:**	Geotechnics Ltd	**Report Number:**	175530
Client Reference:	PN122668	**Attention:**	Jon Hutchinson	**Superseded Report:**	

Alcohols/Acetates MS (W)

Results Legend	
#	ISO17025 accredited.
M	*m*CERTS accredited.
§	Deviating sample.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	Subcontracted test.
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery
(F)	Trigger breach confirmed

Component	LOD/Units	Method	Customer Sample R	BH2
			Depth (m)	2.50 - 3.20
			Sample Type	Water(GW/SW)
			Date Sampled	16/03/2012
			Date Received	16/03/2012
			SDG Ref	120317-79
			Lab Sample No.(s)	5335199
			AGS Reference	
Methanol	<100 µg/l	TM232		<100
Ethanol	<100 µg/l	TM232		<100
Acetone	<25 µg/l	TM232		<25
iso-Propanol	<100 µg/l	TM232		<100
Methyl acetate	<100 µg/l	TM232		<100
tert-Butyl Alcohol	<10 µg/l	TM232		<10
n-Propanol	<100 µg/l	TM232		<100
2-Butanone	<100 µg/l	TM232		<100
Ethyl acetate	<100 µg/l	TM232		<100
sec-Butanol	<100 µg/l	TM232		<100
Tetrahydrofuran	<100 µg/l	TM232		<100
iso-Butanol	<100 µg/l	TM232		<100
iso-Propyl acetate	<100 µg/l	TM232		<100
n-Butanol	<100 µg/l	TM232		<100
n-Propyl acetate	<100 µg/l	TM232		<100
Methyl-iso-butyl ketone	<100 µg/l	TM232		<100
n-Pentanol	<100 µg/l	TM232		<100
n-Butyl acetate	<100 µg/l	TM232		<100
n-Hexanol	<100 µg/l	TM232		<100
n-Heptanol	<100 µg/l	TM232		<100

CERTIFICATE OF ANALYSIS

SDG:	120317-79	**Location:**	Kronospan	**Order Number:**	AUTH ON 07907
Job:	H_GEOTECHLT_CHE-145	**Customer:**	Geotechnics Ltd	**Report Number:**	175530
Client Reference:	PN122668	**Attention:**	Jon Hutchinson	**Superseded Report:**	

Glycols by GC-FID

Results Legend	
#	ISO17025 accredited.
M	*m*CERTS accredited.
§	Deviating sample.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	Subcontracted test.
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery
(F)	Trigger breach confirmed

Component	LOD/Units	Method	Customer Sample R	BH2
			Depth (m)	2.50 - 3.20
			Sample Type	Water(GW/SW)
			Date Sampled	16/03/2012
			Date Received	16/03/2012
			SDG Ref	120317-79
			Lab Sample No.(s)	5335199
			AGS Reference	
Propylene glycol	<10 mg/l	TM194		<10
Ethylene glycol	<10 mg/l	TM194		<10
1,3-Propanediol	<10 mg/l	TM194		<10
1,3-Butanediol	<10 mg/l	TM194		<10
1,4-Butanediol	<10 mg/l	TM194		<10
Diethylene glycol	<10 mg/l	TM194		<10
Triethylene glycol	<20 mg/l	TM194		<20

CERTIFICATE OF ANALYSIS

SDG:	120317-79	**Location:**	Kronospan	**Order Number:**	AUTH ON 07907
Job:	H_GEOTECHLT_CHE-145	**Customer:**	Geotechnics Ltd	**Report Number:**	175530
Client Reference:	PN122668	**Attention:**	Jon Hutchinson	**Superseded Report:**	

PAH Spec MS - Aqueous (W)

Results Legend

#	ISO17025 accredited.
M	*m*CERTS accredited.
§	Deviating sample.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	Subcontracted test.
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery
(F)	Trigger breach confirmed

Component	LOD/Units	Method	Customer Sample R	BH2
			Depth (m)	2.50 - 3.20
			Sample Type	Water(GW/SW)
			Date Sampled	16/03/2012
			Date Received	16/03/2012
			SDG Ref	120317-79
			Lab Sample No.(s)	5335199
			AGS Reference	
Naphthalene (aq)	<0.1 µg/l	TM178		1 #
Acenaphthene (aq)	<0.015 µg/l	TM178		0.484 #
Acenaphthylene (aq)	<0.011 µg/l	TM178		0.21 #
Fluoranthene (aq)	<0.017 µg/l	TM178		0.605 #
Anthracene (aq)	<0.015 µg/l	TM178		<0.03 #
Phenanthrene (aq)	<0.022 µg/l	TM178		2.81 #
Fluorene (aq)	<0.014 µg/l	TM178		1.45 #
Chrysene (aq)	<0.013 µg/l	TM178		2.28 #
Pyrene (aq)	<0.015 µg/l	TM178		1.43 #
Benzo(a)anthracene (aq)	<0.017 µg/l	TM178		0.945 #
Benzo(b)fluoranthene (aq)	<0.023 µg/l	TM178		0.494 #
Benzo(k)fluoranthene (aq)	<0.027 µg/l	TM178		0.541 #
Benzo(a)pyrene (aq)	<0.009 µg/l	TM178		8.33 #
Dibenzo(a,h)anthracene (aq)	<0.016 µg/l	TM178		0.249 #
Benzo(g,h,i)perylene (aq)	<0.016 µg/l	TM178		0.216 #
Indeno(1,2,3-cd)pyrene (aq)	<0.014 µg/l	TM178		0.123 #
PAH, Total Detected USEPA 16 (aq)	<0.247 µg/l	TM178		21.2

CERTIFICATE OF ANALYSIS

SDG:	120317-79	**Location:**	Kronospan	**Order Number:**	AUTH ON 07907
Job:	H_GEOTECHLT_CHE-145	**Customer:**	Geotechnics Ltd	**Report Number:**	175530
Client Reference:	PN122668	**Attention:**	Jon Hutchinson	**Superseded Report:**	

SVOC MS (W) - Aqueous

Results Legend	
#	ISO17025 accredited.
M	*m*CERTS accredited.
§	Deviating sample.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	Subcontracted test.
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery
(F)	Trigger breach confirmed

Component	LOD/Units	Method	Customer Sample R	
			BH2	
			Depth (m)	2.50 - 3.20
			Sample Type	Water(GW/SW)
			Date Sampled	16/03/2012
			Date Received	16/03/2012
			SDG Ref	120317-79
			Lab Sample No.(s)	5335199
			AGS Reference	
1,2,4-Trichlorobenzene (aq)	<1 µg/l	TM176	<1	
1,2-Dichlorobenzene (aq)	<1 µg/l	TM176	<1	
1,3-Dichlorobenzene (aq)	<1 µg/l	TM176	<1	
1,4-Dichlorobenzene (aq)	<1 µg/l	TM176	<1	
2,4,5-Trichlorophenol (aq)	<1 µg/l	TM176	<1	
2,4,6-Trichlorophenol (aq)	<1 µg/l	TM176	<1	
2,4-Dichlorophenol (aq)	<1 µg/l	TM176	<1	
2,4-Dimethylphenol (aq)	<1 µg/l	TM176	<1	
2,4-Dinitrotoluene (aq)	<1 µg/l	TM176	<1	
2,6-Dinitrotoluene (aq)	<1 µg/l	TM176	<1	
2-Chloronaphthalene (aq)	<1 µg/l	TM176	<1	
2-Chlorophenol (aq)	<1 µg/l	TM176	<1	
2-Methylnaphthalene (aq)	<1 µg/l	TM176	<1	
2-Methylphenol (aq)	<1 µg/l	TM176	<1	
2-Nitroaniline (aq)	<1 µg/l	TM176	<1	
2-Nitrophenol (aq)	<1 µg/l	TM176	<1	
3-Nitroaniline (aq)	<1 µg/l	TM176	<1	
4-Bromophenylphenylether (aq)	<1 µg/l	TM176	<1	
4-Chloro-3-methylphenol (aq)	<1 µg/l	TM176	<1	
4-Chloroaniline (aq)	<1 µg/l	TM176	<1	
4-Chlorophenylphenylether (aq)	<1 µg/l	TM176	<1	
4-Methylphenol (aq)	<1 µg/l	TM176	<1	
4-Nitrophenol (aq)	<1 µg/l	TM176	<1	
4-Nitroaniline (aq)	<1 µg/l	TM176	<1	
Azobenzene (aq)	<1 µg/l	TM176	<1	
bis(2-Chloroethyl)ether (aq)	<1 µg/l	TM176	<1	
bis(2-Chloroethoxy)methane (aq)	<1 µg/l	TM176	<1	
bis(2-Ethylhexyl) phthalate (aq)	<2 µg/l	TM176	<2	
Butylbenzyl phthalate (aq)	<1 µg/l	TM176	<1	
Benzo(k)fluoranthene (aq)	<1 µg/l	TM176	<1	
Carbazole (aq)	<1 µg/l	TM176	<1	
Dibenzofuran (aq)	<1 µg/l	TM176	<1	
n-Dibutyl phthalate (aq)	<1 µg/l	TM176	<1	
Diethyl phthalate (aq)	<1 µg/l	TM176	<1	
Dimethyl phthalate (aq)	<1 µg/l	TM176	<1	

CERTIFICATE OF ANALYSIS

SDG:	120317-79	**Location:**	Kronospan	**Order Number:**	AUTH ON 07907
Job:	H_GEOTECHLT_CHE-145	**Customer:**	Geotechnics Ltd	**Report Number:**	175530
Client Reference:	PN122668	**Attention:**	Jon Hutchinson	**Superseded Report:**	

SVOC MS (W) - Aqueous

Results Legend	
#	ISO17025 accredited.
M	*m*CERTS accredited.
§	Deviating sample.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	Subcontracted test.
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery
(F)	Trigger breach confirmed

Component	LOD/Units	Method	Customer Sample R	BH2
			Depth (m)	2.50 - 3.20
			Sample Type	Water(GW/SW)
			Date Sampled	16/03/2012
			Date Received	16/03/2012
			SDG Ref	120317-79
			Lab Sample No.(s)	5335199
			AGS Reference	
n-Dioctyl phthalate (aq)	<5 µg/l	TM176		<5
Hexachlorobenzene (aq)	<1 µg/l	TM176		<1
Hexachlorobutadiene (aq)	<1 µg/l	TM176		<1
Pentachlorophenol (aq)	<1 µg/l	TM176		<1
Phenol (aq)	<1 µg/l	TM176		<1
n-Nitroso-n-dipropylamine (aq)	<1 µg/l	TM176		<1
Hexachloroethane (aq)	<1 µg/l	TM176		<1
Nitrobenzene (aq)	<1 µg/l	TM176		<1
Isophorone (aq)	<1 µg/l	TM176		<1
Hexachlorocyclopentadiene (aq)	<1 µg/l	TM176		<1
Indeno(1,2,3-cd)pyrene (aq)	<1 µg/l	TM176		<1
SVOC TIC (aq)	-	TM176		See Attached

CERTIFICATE OF ANALYSIS

SDG:	120317-79	**Location:**	Kronospan	**Order Number:**	AUTH ON 07907
Job:	H_GEOTECHLT_CHE-145	**Customer:**	Geotechnics Ltd	**Report Number:**	175530
Client Reference:	PN122668	**Attention:**	Jon Hutchinson	**Superseded Report:**	

TPH CWG (W)

Results Legend	
#	ISO17025 accredited.
M	*m*CERTS accredited.
§	Deviating sample.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	Subcontracted test.
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery
(F)	Trigger breach confirmed

Component	LOD/Units	Method	Customer Sample R	BH2
			Depth (m)	2.50 - 3.20
			Sample Type	Water(GW/SW)
			Date Sampled	16/03/2012
			Date Received	16/03/2012
			SDG Ref	120317-79
			Lab Sample No.(s)	5335199
			AGS Reference	
GRO Surrogate % recovery**	%	TM245		74 §
GRO >C5-C12	<50 µg/l	TM245		<50 § #
Methyl tertiary butyl ether (MTBE)	<3 µg/l	TM245		<3 § #
Benzene	<7 µg/l	TM245		<7 § #
Toluene	<4 µg/l	TM245		<4 § #
Ethylbenzene	<5 µg/l	TM245		<5 § #
m,p-Xylene	<8 µg/l	TM245		<8 § #
o-Xylene	<3 µg/l	TM245		<3 § #
Sum of detected Xylenes	<11 µg/l	TM245		<11 §
Sum of detected BTEX	<28 µg/l	TM245		<28 §
Aliphatics >C5-C6	<10 µg/l	TM245		<10 §
Aliphatics >C6-C8	<10 µg/l	TM245		<10 §
Aliphatics >C8-C10	<10 µg/l	TM245		<10 §
Aliphatics >C10-C12	<10 µg/l	TM245		<10 §
Aliphatics >C12-C16 (aq)	<10 µg/l	TM174		<1000
Aliphatics >C16-C21 (aq)	<10 µg/l	TM174		12600
Aliphatics >C21-C35 (aq)	<10 µg/l	TM174		2190000
Total Aliphatics >C12-C35 (aq)	<10 µg/l	TM174		2200000
Aromatics >EC5-EC7	<10 µg/l	TM245		<10 §
Aromatics >EC7-EC8	<10 µg/l	TM245		<10 §
Aromatics >EC8-EC10	<10 µg/l	TM245		<10 §
Aromatics >EC10-EC12	<10 µg/l	TM245		<10 §
Aromatics >EC12-EC16 (aq)	<10 µg/l	TM174		1450
Aromatics >EC16-EC21 (aq)	<10 µg/l	TM174		2140
Aromatics >EC21-EC35 (aq)	<10 µg/l	TM174		152000
Total Aromatics >EC12-EC35 (aq)	<10 µg/l	TM174		156000
Total Aliphatics & Aromatics >C5-35 (aq)	<10 µg/l	TM174		2360000

CERTIFICATE OF ANALYSIS

SDG:	120317-79	**Location:**	Kronospan	**Order Number:**	AUTH ON 07907
Job:	H_GEOTECHLT_CHE-145	**Customer:**	Geotechnics Ltd	**Report Number:**	175530
Client Reference:	PN122668	**Attention:**	Jon Hutchinson	**Superseded Report:**	

VOC MS (W)

Results Legend

#	ISO17025 accredited.
M	*m*CERTS accredited.
§	Deviating sample.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	Subcontracted test.
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery
(F)	Trigger breach confirmed

Component	LOD/Units	Method	Customer Sample R: BH2
			Depth (m): 2.50 - 3.20
			Sample Type: Water(GW/SW)
			Date Sampled: 16/03/2012
			Date Received: 16/03/2012
			SDG Ref: 120317-79
			Lab Sample No.(s): 5335199
			AGS Reference:
Dibromofluoromethane**	%	TM208	111 §
Toluene-d8**	%	TM208	96.7 §
4-Bromofluorobenzene**	%	TM208	87.3 §
Dichlorodifluoromethane	<1 µg/l	TM208	<10 § #
Chloromethane	<1 µg/l	TM208	<10 § #
Vinyl chloride	<1 µg/l	TM208	<10 § #
Bromomethane	<1 µg/l	TM208	<10 § #
Chloroethane	<1 µg/l	TM208	<10 § #
Trichlorofluoromethane	<1 µg/l	TM208	<10 § #
1,1-Dichloroethene	<1 µg/l	TM208	<10 § #
Carbon disulphide	<1 µg/l	TM208	<10 § #
Dichloromethane	<3 µg/l	TM208	<30 § #
Methyl tertiary butyl ether (MTBE)	<1 µg/l	TM208	<10 § #
trans-1,2-Dichloroethene	<1 µg/l	TM208	<10 § #
1,1-Dichloroethane	<1 µg/l	TM208	<10 § #
cis-1,2-Dichloroethene	<1 µg/l	TM208	<10 § #
2,2-Dichloropropane	<1 µg/l	TM208	<10 § #
Bromochloromethane	<1 µg/l	TM208	<10 § #
Chloroform	<1 µg/l	TM208	16.9 § #
1,1,1-Trichloroethane	<1 µg/l	TM208	<10 § #
1,1-Dichloropropene	<1 µg/l	TM208	<10 § #
Carbontetrachloride	<1 µg/l	TM208	<10 § #
1,2-Dichloroethane	<1 µg/l	TM208	<10 §
Benzene	<1 µg/l	TM208	<10 § #
Trichloroethene	<1 µg/l	TM208	<10 § #
1,2-Dichloropropane	<1 µg/l	TM208	<10 § #
Dibromomethane	<1 µg/l	TM208	<10 § #
Bromodichloromethane	<1 µg/l	TM208	<10 § #
cis-1,3-Dichloropropene	<1 µg/l	TM208	<10 § #
Toluene	<1 µg/l	TM208	<10 § #
trans-1,3-Dichloropropene	<1 µg/l	TM208	<10 § #
1,1,2-Trichloroethane	<1 µg/l	TM208	<10 § #
1,3-Dichloropropane	<1 µg/l	TM208	<10 § #
Tetrachloroethene	<1 µg/l	TM208	<10 § #
Dibromochloromethane	<1 µg/l	TM208	<10 § #

CERTIFICATE OF ANALYSIS

SDG:	120317-79	**Location:**	Kronospan	**Order Number:**	AUTH ON 07907
Job:	H_GEOTECHLT_CHE-145	**Customer:**	Geotechnics Ltd	**Report Number:**	175530
Client Reference:	PN122668	**Attention:**	Jon Hutchinson	**Superseded Report:**	

VOC MS (W)

Results Legend	
#	ISO17025 accredited.
M	*m*CERTS accredited.
§	Deviating sample.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	Subcontracted test.
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery
(F)	Trigger breach confirmed

Component	LOD/Units	Method	Customer Sample R	
			Depth (m)	2.50 - 3.20
			Sample Type	Water(GW/SW)
			Date Sampled	16/03/2012
			Date Received	16/03/2012
			SDG Ref	120317-79
			Lab Sample No.(s)	5335199
			AGS Reference	
1,2-Dibromoethane	<1 µg/l	TM208	<10	§ #
Chlorobenzene	<1 µg/l	TM208	<10	§ #
1,1,1,2-Tetrachloroethane	<1 µg/l	TM208	<10	§ #
Ethylbenzene	<1 µg/l	TM208	<10	§ #
m,p-Xylene	<1 µg/l	TM208	<10	§ #
o-Xylene	<1 µg/l	TM208	<10	§ #
Styrene	<1 µg/l	TM208	<10	§ #
Bromoform	<1 µg/l	TM208	<10	§ #
Isopropylbenzene	<1 µg/l	TM208	<10	§ #
1,1,2,2-Tetrachloroethane	<1 µg/l	TM208	<10	§
1,2,3-Trichloropropane	<1 µg/l	TM208	<10	§ #
Bromobenzene	<1 µg/l	TM208	<10	§ #
Propylbenzene	<1 µg/l	TM208	<10	§ #
2-Chlorotoluene	<1 µg/l	TM208	<10	§ #
1,3,5-Trimethylbenzene	<1 µg/l	TM208	<10	§ #
4-Chlorotoluene	<1 µg/l	TM208	<10	§ #
tert-Butylbenzene	<1 µg/l	TM208	<10	§ #
1,2,4-Trimethylbenzene	<1 µg/l	TM208	<10	§ #
sec-Butylbenzene	<1 µg/l	TM208	<10	§ #
4-iso-Propyltoluene	<1 µg/l	TM208	<10	§ #
1,3-Dichlorobenzene	<1 µg/l	TM208	<10	§ #
1,4-Dichlorobenzene	<1 µg/l	TM208	<10	§ #
n-Butylbenzene	<1 µg/l	TM208	<10	§ #
1,2-Dichlorobenzene	<1 µg/l	TM208	<10	§
1,2-Dibromo-3-chloropropane	<1 µg/l	TM208	<10	§
1,2,4-Trichlorobenzene	<1 µg/l	TM208	<10	§ #
Hexachlorobutadiene	<1 µg/l	TM208	<10	§ #
tert-Amyl methyl ether (TAME)	<1 µg/l	TM208	<10	§ #
Naphthalene	<1 µg/l	TM208	<10	§ #
1,2,3-Trichlorobenzene	<1 µg/l	TM208	<10	§ #
1,3,5-Trichlorobenzene	<1 µg/l	TM208	<10	§
VOC TIC	-	TM208	No TICs identified	§
Sum of detected Xylenes	<2 µg/l	TM208	<20	§

CERTIFICATE OF ANALYSIS

SDG:	120317-79	**Location:**	Kronospan	**Order Number:**	AUTH ON 07907
Job:	H_GEOTECHLT_CHE-145	**Customer:**	Geotechnics Ltd	**Report Number:**	175530
Client Reference:	PN122668	**Attention:**	Jon Hutchinson	**Superseded Report:**	

Notification of Deviating Samples

Sample Number	Customer Sample Ref.	Depth (m)	Matrix	Test Name	Component Name	Comment
5335202	BH2	2.50 - 3.20	LIQUID	Phenols by HPLC (W)	Phenols, Total Detected monohydric	Analysis carried out on unpreserved sample
5345251	BH2	2.50 - 3.20	LIQUID	VOC MS (W)	1,1,1,2-Tetrachloroethane	Container with Headspace provided for volatiles analysis
5345251	BH2	2.50 - 3.20	LIQUID	VOC MS (W)	1,1,1-Trichloroethane	Container with Headspace provided for volatiles analysis
5345251	BH2	2.50 - 3.20	LIQUID	VOC MS (W)	1,1,2,2-Tetrachloroethane	Container with Headspace provided for volatiles analysis
5345251	BH2	2.50 - 3.20	LIQUID	VOC MS (W)	1,1,2-Trichloroethane	Container with Headspace provided for volatiles analysis
5345251	BH2	2.50 - 3.20	LIQUID	VOC MS (W)	1,1-Dichloroethane	Container with Headspace provided for volatiles analysis
5345251	BH2	2.50 - 3.20	LIQUID	VOC MS (W)	1,1-Dichloroethene	Container with Headspace provided for volatiles analysis
5345251	BH2	2.50 - 3.20	LIQUID	VOC MS (W)	1,1-Dichloropropene	Container with Headspace provided for volatiles analysis
5345251	BH2	2.50 - 3.20	LIQUID	VOC MS (W)	1,2,3-Trichlorobenzene	Container with Headspace provided for volatiles analysis
5345251	BH2	2.50 - 3.20	LIQUID	VOC MS (W)	1,2,3-Trichloropropane	Container with Headspace provided for volatiles analysis
5345251	BH2	2.50 - 3.20	LIQUID	VOC MS (W)	1,2,4-Trichlorobenzene	Container with Headspace provided for volatiles analysis
5345251	BH2	2.50 - 3.20	LIQUID	VOC MS (W)	1,2,4-Trimethylbenzene	Container with Headspace provided for volatiles analysis
5345251	BH2	2.50 - 3.20	LIQUID	VOC MS (W)	1,2-Dibromo-3-chloropropane	Container with Headspace provided for volatiles analysis
5345251	BH2	2.50 - 3.20	LIQUID	VOC MS (W)	1,2-Dibromoethane	Container with Headspace provided for volatiles analysis
5345251	BH2	2.50 - 3.20	LIQUID	VOC MS (W)	1,2-Dichlorobenzene	Container with Headspace provided for volatiles analysis
5345251	BH2	2.50 - 3.20	LIQUID	VOC MS (W)	1,2-Dichloroethane	Container with Headspace provided for volatiles analysis
5345251	BH2	2.50 - 3.20	LIQUID	VOC MS (W)	1,2-Dichloropropane	Container with Headspace provided for volatiles analysis
5345251	BH2	2.50 - 3.20	LIQUID	VOC MS (W)	1,3,5-Trichlorobenzene	Container with Headspace provided for volatiles analysis
5345251	BH2	2.50 - 3.20	LIQUID	VOC MS (W)	1,3,5-Trimethylbenzene	Container with Headspace provided for volatiles analysis
5345251	BH2	2.50 - 3.20	LIQUID	VOC MS (W)	1,3-Dichlorobenzene	Container with Headspace provided for volatiles analysis
5345251	BH2	2.50 - 3.20	LIQUID	VOC MS (W)	1,3-Dichloropropane	Container with Headspace provided for volatiles analysis
5345251	BH2	2.50 - 3.20	LIQUID	VOC MS (W)	1,4-Dichlorobenzene	Container with Headspace provided for volatiles analysis
5345251	BH2	2.50 - 3.20	LIQUID	VOC MS (W)	2,2-Dichloropropane	Container with Headspace provided for volatiles analysis
5345251	BH2	2.50 - 3.20	LIQUID	VOC MS (W)	2-Chlorotoluene	Container with Headspace provided for volatiles analysis
5345251	BH2	2.50 - 3.20	LIQUID	VOC MS (W)	4-Bromofluorobenzene**	Container with Headspace provided for volatiles analysis
5345251	BH2	2.50 - 3.20	LIQUID	VOC MS (W)	4-Chlorotoluene	Container with Headspace provided for volatiles analysis
5345251	BH2	2.50 - 3.20	LIQUID	VOC MS (W)	4-iso-Propyltoluene	Container with Headspace provided for volatiles analysis
5345251	BH2	2.50 - 3.20	LIQUID	VOC MS (W)	Benzene	Container with Headspace provided for volatiles analysis
5345251	BH2	2.50 - 3.20	LIQUID	VOC MS (W)	Bromobenzene	Container with Headspace provided for volatiles analysis
5345251	BH2	2.50 - 3.20	LIQUID	VOC MS (W)	Bromochloromethane	Container with Headspace provided for volatiles analysis
5345251	BH2	2.50 - 3.20	LIQUID	VOC MS (W)	Bromodichloromethane	Container with Headspace provided for volatiles analysis
5345251	BH2	2.50 - 3.20	LIQUID	VOC MS (W)	Bromoform	Container with Headspace provided for volatiles analysis
5345251	BH2	2.50 - 3.20	LIQUID	VOC MS (W)	Bromomethane	Container with Headspace provided for volatiles analysis
5345251	BH2	2.50 - 3.20	LIQUID	VOC MS (W)	Carbon disulphide	Container with Headspace provided for volatiles analysis
5345251	BH2	2.50 - 3.20	LIQUID	VOC MS (W)	Carbontetrachloride	Container with Headspace provided for volatiles analysis
5345251	BH2	2.50 - 3.20	LIQUID	VOC MS (W)	Chlorobenzene	Container with Headspace provided for volatiles analysis

CERTIFICATE OF ANALYSIS

SDG:	120317-79	**Location:**	Kronospan	**Order Number:**	AUTH ON 07907
Job:	H_GEOTECHLT_CHE-145	**Customer:**	Geotechnics Ltd	**Report Number:**	175530
Client Reference:	PN122668	**Attention:**	Jon Hutchinson	**Superseded Report:**	

Sample Number	Customer Sample Ref.	Depth (m)	Matrix	Test Name	Component Name	Comment
5345251	BH2	2.50 - 3.20	LIQUID	VOC MS (W)	Chloroethane	Container with Headspace provided for volatiles analysis
5345251	BH2	2.50 - 3.20	LIQUID	VOC MS (W)	Chloroform	Container with Headspace provided for volatiles analysis
5345251	BH2	2.50 - 3.20	LIQUID	VOC MS (W)	Chloromethane	Container with Headspace provided for volatiles analysis
5345251	BH2	2.50 - 3.20	LIQUID	VOC MS (W)	cis-1,2-Dichloroethene	Container with Headspace provided for volatiles analysis
5345251	BH2	2.50 - 3.20	LIQUID	VOC MS (W)	cis-1,3-Dichloropropene	Container with Headspace provided for volatiles analysis
5345251	BH2	2.50 - 3.20	LIQUID	VOC MS (W)	Dibromochloromethane	Container with Headspace provided for volatiles analysis
5345251	BH2	2.50 - 3.20	LIQUID	VOC MS (W)	Dibromofluoromethane**	Container with Headspace provided for volatiles analysis
5345251	BH2	2.50 - 3.20	LIQUID	VOC MS (W)	Dibromomethane	Container with Headspace provided for volatiles analysis
5345251	BH2	2.50 - 3.20	LIQUID	VOC MS (W)	Dichlorodifluoromethane	Container with Headspace provided for volatiles analysis
5345251	BH2	2.50 - 3.20	LIQUID	VOC MS (W)	Dichloromethane	Container with Headspace provided for volatiles analysis
5345251	BH2	2.50 - 3.20	LIQUID	VOC MS (W)	Ethylbenzene	Container with Headspace provided for volatiles analysis
5345251	BH2	2.50 - 3.20	LIQUID	VOC MS (W)	Hexachlorobutadiene	Container with Headspace provided for volatiles analysis
5345251	BH2	2.50 - 3.20	LIQUID	VOC MS (W)	Isopropylbenzene	Container with Headspace provided for volatiles analysis
5345251	BH2	2.50 - 3.20	LIQUID	VOC MS (W)	m,p-Xylene	Container with Headspace provided for volatiles analysis
5345251	BH2	2.50 - 3.20	LIQUID	VOC MS (W)	Methyl tertiary butyl ether (MTBE)	Container with Headspace provided for volatiles analysis
5345251	BH2	2.50 - 3.20	LIQUID	VOC MS (W)	Naphthalene	Container with Headspace provided for volatiles analysis
5345251	BH2	2.50 - 3.20	LIQUID	VOC MS (W)	n-Butylbenzene	Container with Headspace provided for volatiles analysis
5345251	BH2	2.50 - 3.20	LIQUID	VOC MS (W)	o-Xylene	Container with Headspace provided for volatiles analysis
5345251	BH2	2.50 - 3.20	LIQUID	VOC MS (W)	Propylbenzene	Container with Headspace provided for volatiles analysis
5345251	BH2	2.50 - 3.20	LIQUID	VOC MS (W)	sec-Butylbenzene	Container with Headspace provided for volatiles analysis
5345251	BH2	2.50 - 3.20	LIQUID	VOC MS (W)	Styrene	Container with Headspace provided for volatiles analysis
5345251	BH2	2.50 - 3.20	LIQUID	VOC MS (W)	Sum of detected Xylenes	Container with Headspace provided for volatiles analysis
5345251	BH2	2.50 - 3.20	LIQUID	VOC MS (W)	tert-Amyl methyl ether (TAME)	Container with Headspace provided for volatiles analysis
5345251	BH2	2.50 - 3.20	LIQUID	VOC MS (W)	tert-Butylbenzene	Container with Headspace provided for volatiles analysis
5345251	BH2	2.50 - 3.20	LIQUID	VOC MS (W)	Tetrachloroethene	Container with Headspace provided for volatiles analysis
5345251	BH2	2.50 - 3.20	LIQUID	VOC MS (W)	Toluene	Container with Headspace provided for volatiles analysis
5345251	BH2	2.50 - 3.20	LIQUID	VOC MS (W)	Toluene-d8**	Container with Headspace provided for volatiles analysis
5345251	BH2	2.50 - 3.20	LIQUID	VOC MS (W)	trans-1,2-Dichloroethene	Container with Headspace provided for volatiles analysis
5345251	BH2	2.50 - 3.20	LIQUID	VOC MS (W)	trans-1,3-Dichloropropene	Container with Headspace provided for volatiles analysis
5345251	BH2	2.50 - 3.20	LIQUID	VOC MS (W)	Trichloroethene	Container with Headspace provided for volatiles analysis
5345251	BH2	2.50 - 3.20	LIQUID	VOC MS (W)	Trichlorofluoromethane	Container with Headspace provided for volatiles analysis
5345251	BH2	2.50 - 3.20	LIQUID	VOC MS (W)	Vinyl chloride	Container with Headspace provided for volatiles analysis
5345251	BH2	2.50 - 3.20	LIQUID	VOC MS (W)	VOC TIC	Container with Headspace provided for volatiles analysis
5348039	BH2	2.50 - 3.20	LIQUID	GRO by GC-FID (W)	Aliphatics >C10-C12	Container with Headspace provided for volatiles analysis
5348039	BH2	2.50 - 3.20	LIQUID	GRO by GC-FID (W)	Aliphatics >C5-C6	Container with Headspace provided for volatiles analysis
5348039	BH2	2.50 - 3.20	LIQUID	GRO by GC-FID (W)	Aliphatics >C6-C8	Container with Headspace provided for volatiles analysis
5348039	BH2	2.50 - 3.20	LIQUID	GRO by GC-FID (W)	Aliphatics >C8-C10	Container with Headspace provided for volatiles analysis

CERTIFICATE OF ANALYSIS

SDG:	120317-79	**Location:**	Kronospan	**Order Number:**	AUTH ON 07907
Job:	H_GEOTECHLT_CHE-145	**Customer:**	Geotechnics Ltd	**Report Number:**	175530
Client Reference:	PN122668	**Attention:**	Jon Hutchinson	**Superseded Report:**	

Sample Number	Customer Sample Ref.	Depth (m)	Matrix	Test Name	Component Name	Comment
5348039	BH2	2.50 - 3.20	LIQUID	GRO by GC-FID (W)	Aromatics >EC10-EC12	Container with Headspace provided for volatiles analysis
5348039	BH2	2.50 - 3.20	LIQUID	GRO by GC-FID (W)	Aromatics >EC5-EC7	Container with Headspace provided for volatiles analysis
5348039	BH2	2.50 - 3.20	LIQUID	GRO by GC-FID (W)	Aromatics >EC7-EC8	Container with Headspace provided for volatiles analysis
5348039	BH2	2.50 - 3.20	LIQUID	GRO by GC-FID (W)	Aromatics >EC8-EC10	Container with Headspace provided for volatiles analysis
5348039	BH2	2.50 - 3.20	LIQUID	GRO by GC-FID (W)	Benzene	Container with Headspace provided for volatiles analysis
5348039	BH2	2.50 - 3.20	LIQUID	GRO by GC-FID (W)	Ethylbenzene	Container with Headspace provided for volatiles analysis
5348039	BH2	2.50 - 3.20	LIQUID	GRO by GC-FID (W)	GRO >C5-C12	Container with Headspace provided for volatiles analysis
5348039	BH2	2.50 - 3.20	LIQUID	GRO by GC-FID (W)	GRO Surrogate % recovery**	Container with Headspace provided for volatiles analysis
5348039	BH2	2.50 - 3.20	LIQUID	GRO by GC-FID (W)	m,p-Xylene	Container with Headspace provided for volatiles analysis
5348039	BH2	2.50 - 3.20	LIQUID	GRO by GC-FID (W)	Methyl tertiary butyl ether (MTBE)	Container with Headspace provided for volatiles analysis
5348039	BH2	2.50 - 3.20	LIQUID	GRO by GC-FID (W)	o-Xylene	Container with Headspace provided for volatiles analysis
5348039	BH2	2.50 - 3.20	LIQUID	GRO by GC-FID (W)	Sum of detected BTEX	Container with Headspace provided for volatiles analysis
5348039	BH2	2.50 - 3.20	LIQUID	GRO by GC-FID (W)	Sum of detected Xylenes	Container with Headspace provided for volatiles analysis
5348039	BH2	2.50 - 3.20	LIQUID	GRO by GC-FID (W)	Toluene	Container with Headspace provided for volatiles analysis

Note : Test results may be compromised

CERTIFICATE OF ANALYSIS

SDG:	120317-79	**Location:**	Kronospan	**Order Number:**	AUTH ON 07907
Job:	H_GEOTECHLT_CHE-145	**Customer:**	Geotechnics Ltd	**Report Number:**	175530
Client Reference:	PN122668	**Attention:**	Jon Hutchinson	**Superseded Report:**	

Table of Results - Appendix

Method No	Reference	Description	Wet/Dry Sample [1]	Surrogate Corrected
TM022	Method 2540D, AWWA/APHA, 20th Ed., 1999 / BS 2690: Part120 1981;BS EN 872	Determination of total suspended solids in waters		
TM061	Method for the Determination of EPH,Massachusetts Dept.of EP, 1998	Determination of Extractable Petroleum Hydrocarbons by GC-FID (C10-C40)		
TM090	Method 5310, AWWA/APHA, 20th Ed., 1999 / Modified: US EPA Method 415.1 & 9060	Determination of Total Organic Carbon/Total Inorganic Carbon in Water and Waste Water		
TM099	BS 2690: Part 7:1968 / BS 6068: Part2.11:1984	Determination of Ammonium in Water Samples using the Kone Analyser		
TM120	Method 2510B, AWWA/APHA, 20th Ed., 1999 / BS 2690: Part 9:1970	Determination of Electrical Conductivity using a Conductivity Meter		
TM152	Method 3125B, AWWA/APHA, 20th Ed., 1999	Analysis of Aqueous Samples by ICP-MS		
TM174	Analysis of Petroleum Hydrocarbons in Environmental Media – Total Petroleum Hydrocarbon Criteria	Determination of Speciated Extractable Petroleum Hydrocarbons in Waters by GC-FID		
TM176	EPA 8270D Semi-Volatile Organic Compounds by Gas Chromatography/Mass Spectrometry (GC/MS)	Determination of SVOCs in Water by GCMS		
TM178	Modified: US EPA Method 8100	Determination of Polynuclear Aromatic Hydrocarbons (PAH) by GC-MS in Waters		
TM183	BS EN 23506:2002, (BS 6068-2.74:2002) ISBN 0 580 38924 3	Determination of Trace Level Mercury in Waters and Leachates by PSA Cold Vapour Atomic Fluorescence Spectrometry		
TM184	EPA Methods 325.1 & 325.2,	The Determination of Anions in Aqueous Matrices using the Kone Spectrophotometric Analysers		
TM194	Restek applications note #59187 “Techniques for Optimising GC Analysis of Ethylene Glycol in Water”	Determination of Glycols in Liquid Matrices by Direct Injection Gas Chromatography		
TM208	Modified: US EPA Method 8260b & 624	Determination of Volatile Organic Compounds by Headspace / GC-MS in Waters		
TM227	Standard methods for the examination of waters and wastewaters 20th Edition, AWWA/APHA Method 4500.	Determination of Total Cyanide, Free (Easily Liberatable) Cyanide and Thiocyanate		
TM228	US EPA Method 6010B	Determination of Major Cations in Water by iCap 6500 Duo ICP-OES		
TM232	USEPA Method No. 8260b 'Volatile Organic Compounds by Gas Chromatography/Mass Spectrometry (GC-MS)'	Determination of Volatile Alcohols, Acetates and Ketones in Waters by Headspace GC-MS		
TM245	By GC-FID	Determination of GRO by Headspace in waters		
TM256	The measurement of Electrical Conductivity and the Laboratory determination of pH Value of Natural, Treated and Wastewaters. HMSO, 1978. ISBN 011 751428 4.	Determination of pH in Water and Leachate using the GLpH pH Meter		
TM259	by HPLC	Determination of Phenols in Waters and Leachates by HPLC		
TM272		Determination of Free Formaldehyde in waters using Dr Lange test kit		

[1] Applies to Solid samples only. DRY indicates samples have been dried at 35°C. NA = not applicable.

CERTIFICATE OF ANALYSIS

SDG:	120317-79	**Location:**	Kronospan	**Order Number:**	AUTH ON 07907
Job:	H_GEOTECHLT_CHE-145	**Customer:**	Geotechnics Ltd	**Report Number:**	175530
Client Reference:	PN122668	**Attention:**	Jon Hutchinson	**Superseded Report:**	

Test Completion Dates

Lab Sample No(s)	5335199
Customer Sample Ref.	BH2
AGS Ref.	
Depth	2.50 - 3.20
Type	LIQUID
Alcohols/Acetates MS (W)	20-Mar-2012
Ammoniacal Nitrogen	23-Mar-2012
Anions by Kone (w)	24-Mar-2012
Conductivity (at 20 deg.C)	22-Mar-2012
Cyanide Comp/Free/Total/Thiocyanate	22-Mar-2012
Dissolved Metals by ICP-MS	22-Mar-2012
EPH CWG (Aliphatic) Aqueous GC (W)	26-Mar-2012
EPH CWG (Aromatic) Aqueous GC (W)	26-Mar-2012
Free Formaldehyde	23-Mar-2012
Glycols by GC-FID	20-Mar-2012
GRO by GC-FID (W)	23-Mar-2012
Mercury Dissolved	20-Mar-2012
Metals by iCap-OES Dissolved (W)	20-Mar-2012
PAH Spec MS - Aqueous (W)	23-Mar-2012
pH Value	23-Mar-2012
Phenols by HPLC (W)	20-Mar-2012
Suspended Solids	22-Mar-2012
SVOC MS (W) - Aqueous	23-Mar-2012
Total Organic and Inorganic Carbon	21-Mar-2012
TPH CWG (W)	26-Mar-2012
VOC MS (W)	22-Mar-2012

CERTIFICATE OF ANALYSIS

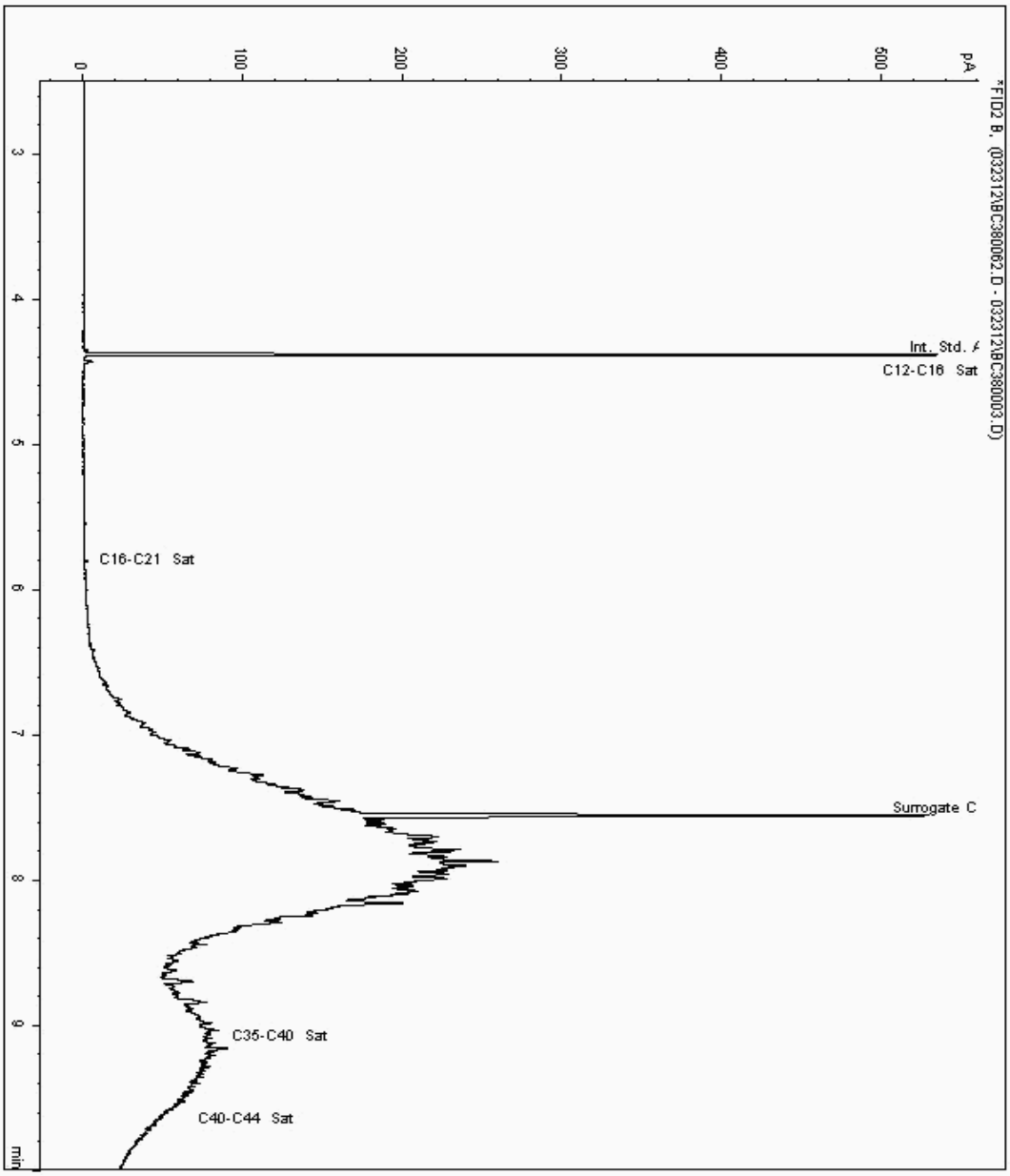
SDG:	120317-79	**Location:**	Kronospan	**Order Number:**	AUTH ON 07907
Job:	H_GEOTECHLT_CHE-145	**Customer:**	Geotechnics Ltd	**Report Number:**	175530
Client Reference:	PN122668	**Attention:**	Jon Hutchinson	**Superseded Report:**	

Chromatogram

Analysis: EPH CWG (Aliphatic) Aqueous GC (W) **Sample No :** 5335202 **Sample ID :** BH2 **Depth :** 2.50 - 3.20

Alcontrol/Geochem Analytical Services
Speciated TPH - SATS (C12 - C40)

Sample Identity: 5232917-5335202
Date Acquired : 24/03/12 13:29:32 PM
Units : ppb
Dilution :
CF : 1
Multiplier : 0.893

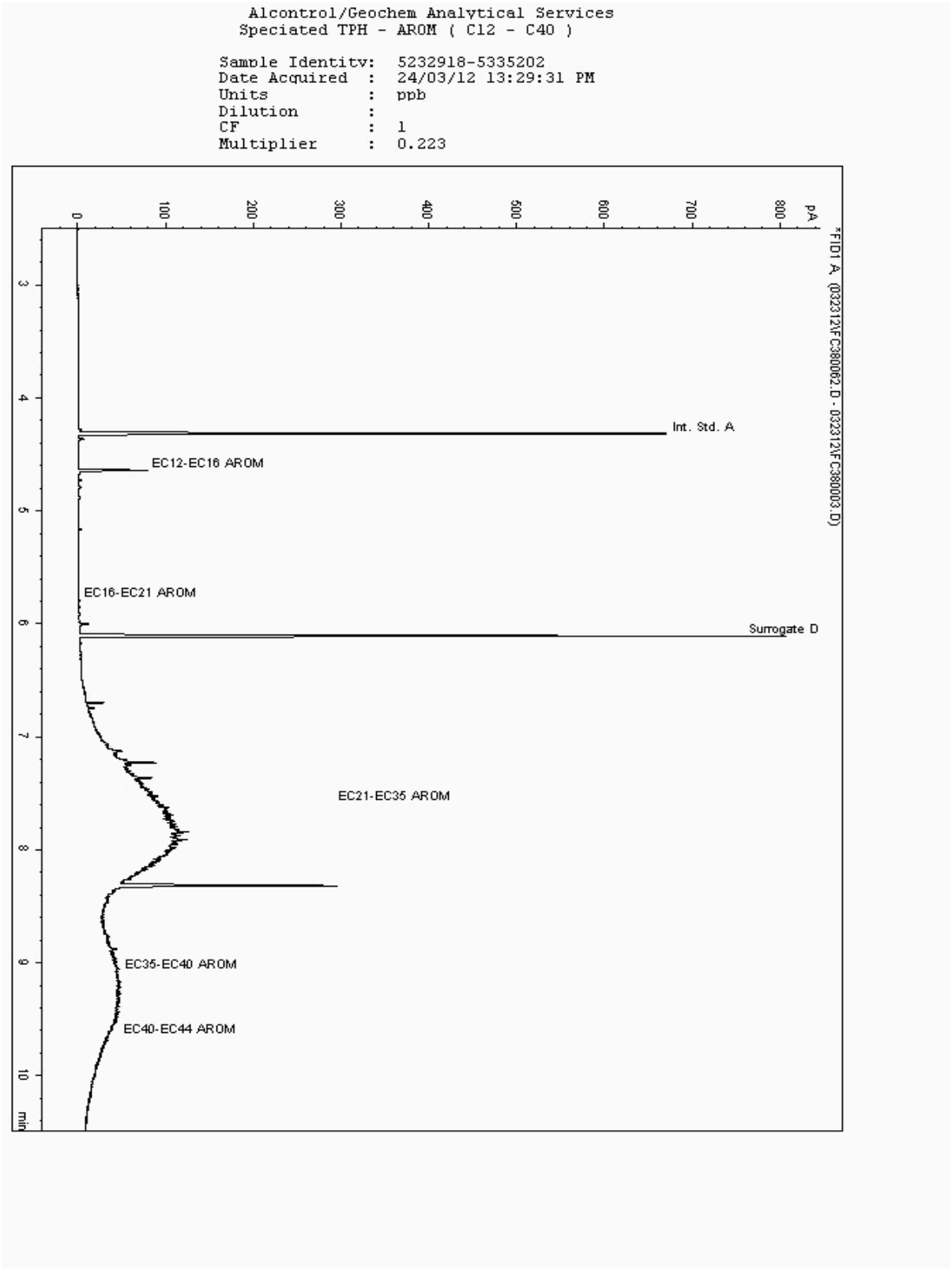


CERTIFICATE OF ANALYSIS

SDG:	120317-79	**Location:**	Kronospan	**Order Number:**	AUTH ON 07907
Job:	H_GEOTECHLT_CHE-145	**Customer:**	Geotechnics Ltd	**Report Number:**	175530
Client Reference:	PN122668	**Attention:**	Jon Hutchinson	**Superseded Report:**	

Chromatogram

Analysis: EPH CWG (Aromatic) Aqueous GC (W) **Sample No :** 5335202 **Sample ID :** BH2 **Depth :** 2.50 - 3.20



CERTIFICATE OF ANALYSIS

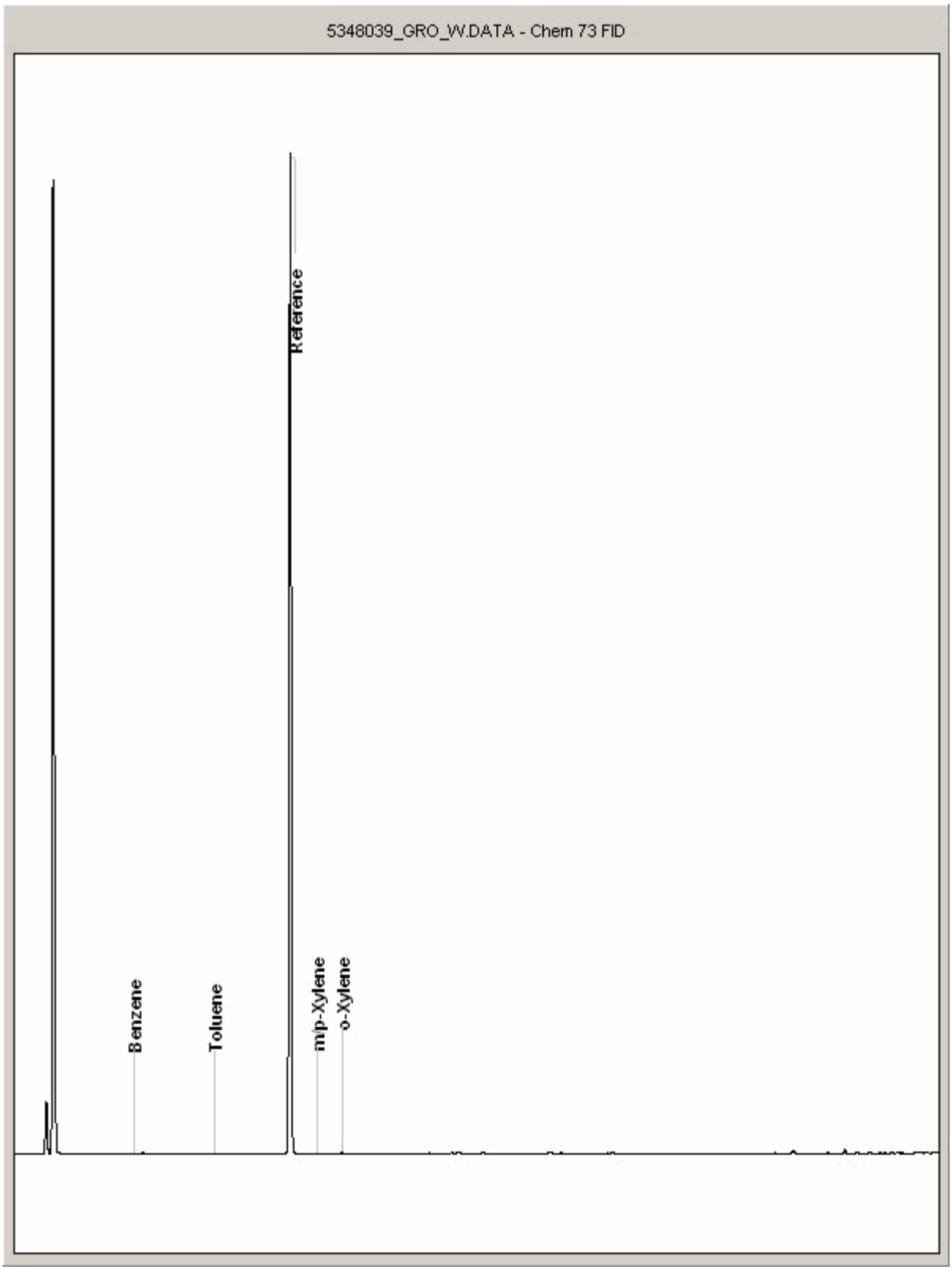
SDG:	120317-79	**Location:**	Kronospan	**Order Number:**	AUTH ON 07907
Job:	H_GEOTECHLT_CHE-145	**Customer:**	Geotechnics Ltd	**Report Number:**	175530
Client Reference:	PN122668	**Attention:**	Jon Hutchinson	**Superseded Report:**	

Chromatogram

Analysis: GRO by GC-FID (W)

Sample No : 5348039
Sample ID : BH2

Depth : 2.50 - 3.20



ALcontrol Laboratories

SVOC Tentatively Identified Compounds

Job Number - 120317-79
Customer - H_GEOTECHLT_CHE
Sample Identity - 5335202 / SE BH2 [2.50 - 3.20]
Sample Type [Units] - Water - µg/l
Date Acquired - 23/03/12
Date Reported - 23/03/12
Analyst - PB

Tentative Compound Identification		Retention Time min	Concentration µg/l
Unknown	-	7.09	67.80
Dimethylethylbisphenol	-	7.33	222.77
Unknown	-	7.40	77.90
Ethoxybenzoic acid ethylester	-	7.79	74.91
Dimethylbenzenepropanoic acid	-	7.89	127.05
Unknown	-	7.97	51.28
Unknown	-	8.12	60.77
Unknown	-	8.28	100.95
Tetramethyl hexadecane	-	9.09	71.84
C21-C41 Hydrocarbons	-	10.15 - 14.89	81708.52

MAY INCLUDE PREVIOUSLY QUANTIFIED RESULTS
Please Note: the identification and semi-quantification of these tentatively identified compounds is outside the scope of the UKAS accreditation for this method

SDG:	120317-79	**Location:**	Kronospan	**Order Number:**	AUTH ON 07907
Job:	H_GEOTECHLT_CHE-145	**Customer:**	Geotechnics Ltd	**Report Number:**	175530
Client Reference:	PN122668	**Attention:**	Jon Hutchinson	**Superseded Report:**	

Appendix

1. Results are expressed on a dry weight basis (dried at 35ºC) for all soil analyses except for the following: NRA and CEN Leach tests, flash point LOI, pH, ammonium as NH4 by the BRE method, VOC TICS and SVOC TICS.

2. Samples will be run in duplicate upon request, but an additional charge may be incurred.

3. If sufficient sample is received a sub sample will be retained free of charge for 30 days after analysis is completed (e-mailed) for all sample types unless the sample is destroyed on testing. The prepared soil sub sample that is analysed for asbestos will be retained for a period of 2 months after the analysis date. All bulk samples will be retained for a period of 6 months after the analysis date. All samples received and not scheduled will be disposed of one month after the date of receipt unless we are instructed to the contrary. Once the initial period has expired, a storage charge will be applied for each month or part thereof until the client cancels the request for sample storage. ALcontrol Laboratories reserve the right to charge for samples received and stored but not analysed.

4. With respect to turnaround, we will always endeavour to meet client requirements wherever possible, but turnaround times cannot be absolutely guaranteed due to so many variables beyond our control.

5. We take responsibility for any test performed by sub-contractors (marked with an asterisk). We endeavour to use UKAS/MCERTS Accredited Laboratories, who either complete a quality questionnaire or are audited by ourselves. For some determinands there are no UKAS/MCERTS Accredited Laboratories, in this instance a laboratory with a known track record will be utilised.

6. When requested, the individual sub sample scheduled will be analysed in house for the presence of asbestos fibres and asbestos containing material by our documented in house method TM048 based on HSG 248 (2005), which is accredited to ISO17025. If a specific asbestos fibre type is not found this will be reported as “Not detected”. If no asbestos fibre types are found all will be reported as “Not detected” and the sub sample analysed deemed to be clear of asbestos. If an asbestos fibre type is found it will be reported as detected (for each fibre type found). Testing can be carried out on asbestos positive samples, but, due to Health and Safety considerations, may be replaced by alternative tests or reported as No Determination Possible. The quantity of asbestos present is not determined unless specifically requested.

7. If no separate volatile sample is supplied by the client, or if a headspace or sediment is present in the volatile sample, the integrity of the data may be compromised. This will be flagged up as an invalid VOC on the test schedule and the result marked as deviating on the test certificate.

8. If appropriate preserved bottles are not received preservation will take place on receipt. However, the integrity of the data may be compromised.

9. NDP -No determination possible due to insufficient/unsuitable sample.

10. Metals in water are performed on a filtered sample, and therefore represent dissolved metals -total metals must be requested separately.

11. Results relate only to the items tested.

12. LODs for wet tests reported on a dry weight basis are not corrected for moisture content.

13. **Surrogate recoveries** -Most of our organic methods include surrogates, the recovery of which is monitored and reported. For EPH, MO, PAH, GRO and VOCs on soils the result is not surrogate corrected, but a percentage recovery is quoted. Acceptable limits for most organic methods are 70 -130 %.

14. **Product analyses** -Organic analyses on products can only be semi-quantitative due to the matrix effects and high dilution factors
employed.

15. Phenols monohydric by HPLC include phenol, cresols (2-Methylphenol, 3-Methylphenol and 4-Methylphenol) and Xylenols (2,3 Dimethylphenol, 2,4 Dimethylphenol, 2,5 Dimethylphenol, 2,6 Dimethylphenol, 3,4 Dimethyphenol, 3,5 Dimethylphenol).

16. Total of 5 speciated phenols by HPLC includes Phenol, 2,3,5-Trimethyl Phenol, 2-Isopropylphenol, Cresols and Xylenols (as detailed in 15).

17. Stones/debris are not routinely removed. We always endeavour to take a representative sub sample from the received sample.

18. In certain circumstances the method detection limit may be elevated due to the sample being outside the calibration range. Other factors that may contribute to this include possible interferences. In both cases the sample would be diluted which would cause the method detection limit to be raised.

19. Mercury results quoted on soils will not include volatile mercury as the analysis is performed on a dried and crushed sample.

20. For the BSEN 12457-3 two batch process to allow the cumulative release to be calculated, the volume of the leachate produced is measured and filtered for all tests. We therefore cannot carry out any unfiltered analysis. The tests affected include volatiles GCFID/GCMS and all subcontracted analysis.

21. For all leachate preparations (NRA, DIN, TCLP, BSEN 12457-1, 2, 3) volatile loss may occur, as we do not employ zero headspace extraction.

22. We are accredited to MCERTS for sand, clay and loam/topsoil, or any of these materials - whether these are derived from naturally occurring soil profiles, or from fill/made ground, as long as these materials constitute the major part of the sample. Other coarse granular material such as concrete, gravel and brick are not accredited if they comprise the major part of the sample.

23. Analysis and identification of specific compounds using GCFID is by retention time only, and we routinely calibrate and quantify for benzene, toluene, ethylbenzenes and xylenes (BTEX). For total volatiles in the C5 -C12 range, the total area of the chromatogram is integrated and expressed as ug/kg or ug/l. Although this analysis is commonly used for the quantification of gasoline range organics (GRO), the system will also detect other compounds such as chlorinated solvents, and this may lead to a falsely high result with respect to hydrocarbons only. It is not possible to specifically identify these non-hydrocarbons, as standards are not routinely run for any other compounds, and for more definitive identification, volatiles by GCMS should be utilised.

SOLID MATRICES EXTRACTION SUMMARY

ANALYSIS	D&C OR WET	EXTRACTION SOLVENT	EXTRACTION METHOD	ANALYSIS
SOLVENT EXTRACTABLE MATTER	D&C	DCM	SOXTHERM	GRAVIMETRIC
CYCLOHEXANE EXT. MATTER	D&C	CYCLOHEXANE	SOXTHERM	GRAVIMETRIC
ELEMENTAL SULPHUR	D&C	DCM	SOXTHERM	HPLC
PHENOLS BY GCMS	WET	DCM	SOXTHERM	GC-MS
HERBICIDES	D&C	HEXANE:ACETONE	SOXTHERM	GC-MS
PESTICIDES	D&C	HEXANE:ACETONE	SOXTHERM	GC-MS
EPH (DRO)	D&C	HEXANE:ACETONE	END OVER END	GC-FID
EPH (MIN OIL)	D&C	HEXANE:ACETONE	END OVER END	GC-FID
EPH (CLEANED UP)	D&C	HEXANE:ACETONE	END OVER END	GC-FID
EPH CWG BY GC	D&C	HEXANE:ACETONE	END OVER END	GC-FID
PCB AROCLOR 1254 / PCB CON	D&C	HEXANE:ACETONE	END OVER END	GC-MS
POLYAROMATIC HYDROCARBONS (MS)	WET	HEXANE:ACETONE	MICROWAVE TM218.	GC-MS
>C6-C40	WET	HEXANE:ACETONE	SHAKER	GC-FID
POLYAROMATIC HYDROCARBONS RAPID GC	WET	HEXANE:ACETONE	SHAKER	GC-FID
SEMI VOLATILE ORGANIC COMPOUNDS	WET	DCM:ACETONE	SONICATE	GC-MS

LIQUID MATRICES EXTRACTION SUMMARY

ANALYSIS	EXTRACTION SOLVENT	EXTRACTION METHOD	ANALYSIS
PAH MS	HEXANE	STIRRED EXTRACTION (STIR-BAR)	GC MS
EPH	HEXANE	STIRRED EXTRACTION (STIR-BAR)	GC FID
EPH CWG	HEXANE	STIRRED EXTRACTION (STIR-BAR)	GC FID
MINERAL OIL	HEXANE	STIRRED EXTRACTION (STIR-BAR)	GC FID
PCB 7 CONGENERS	HEXANE	STIRRED EXTRACTION (STIR-BAR)	GC MS
PCB AROCLOR 1254	HEXANE	STIRRED EXTRACTION (STIR-BAR)	GC MS
SVOC	DCM	LIQUID/LIQUID SHAKE	GC MS
FREE SULPHUR	DCM	SOLID PHASE EXTRACTION	HPLC
PESTOCP/OPP	DCM	LIQUID/LIQUID SHAKE	GC MS
TRIAZINE HERBS	DCM	LIQUID/LIQUID SHAKE	GC MS
PHENOLS MS	ACETONE	SOLID PHASE EXTRACTION	GC MS
TPH by INFRARED (IR)	TCE	STIRRED EXTRACTION (STIR-BAR)	IR
MINERAL OIL by IR	TCE	STIRRED EXTRACTION (STIR-BAR)	IR
GLYCOLS	NONE	DIRECT INJECTION	GC FID

Identification of Asbestos in Bulk Materials & Soils

The results for identification of asbestos in bulk materials are obtained from supplied bulk materials or those identified as potentially asbestos containing during sample description which have been examined to determine the presence of asbestos fibres using Alcontrol Laboratories (Hawarden) in-house method of transmitted/polarised light microscopy and central stop dispersion staining, based on HSG 248 (2005).

The results for identification of asbestos in soils are obtained from a homogenised sub sample which has been examined to determine the presence of asbestos fibres using Alcontrol Laboratories (Hawarden) in-house method of transmitted/polarised light microscopy and central stop dispersion staining, based on HSG 248 (2005).

Asbestos Type	Common Name
Chrysotile	White Asbestos
Amosite	Brown Asbestos
Crocidolite	Blue Asbestos
Fibrous Actinolite	-
Fibrous Anthophyllite	-
Fibrous Tremolite	-

Visual Estimation Of Fibre Content

Estimation of fibre content is not permitted as part of our UKAS accredited test other than: -
Trace -Where only one or two asbestos fibres were identified.

Further guidance on typical asbestos fibre content of manufactured products can be found in HSG 264.

The identification of asbestos containing materials and soils falls within our schedule of tests for which we hold UKAS accreditation, however opinions, interpretations and all other information contained in the report are outside the scope of UKAS accreditation.

ALcontrol Laboratories

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Website: www.alcontrol.com

Geotechnics Ltd
The Geotechnical Centre, Unit 1
Borders Industrial Estate, River Lane
Saltney
Chester
Cheshire
CH4 8RJ

Attention: Jon Hutchinson

CERTIFICATE OF ANALYSIS

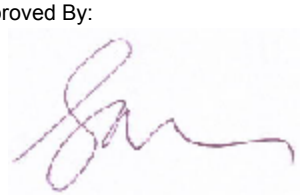
Date:	30 March 2012
Customer:	H_GEOTECHLT_CHE
Sample Delivery Group (SDG):	120323-94
Your Reference:	PN122668
Location:	Kronospan
Report No:	176093

We received 2 samples on Friday March 23, 2012 and 1 of these samples were scheduled for analysis which was completed on Friday March 30, 2012. Accredited laboratory tests are defined within the report, but opinions, interpretations and on-site data expressed herein are outside the scope of ISO 17025 accreditation.

Should this report require incorporation into client reports, it must be used in its entirety and not simply with the data sections alone.

All chemical testing (unless subcontracted) is performed at ALcontrol Hawarden Laboratories.

Approved By:



Sonia McWhan

Operations Manager

CERTIFICATE OF ANALYSIS

SDG:	120323-94	**Location:**	Kronospan	**Order Number:**	
Job:	H_GEOTECHLT_CHE-145	**Customer:**	Geotechnics Ltd	**Report Number:**	176093
Client Reference:	PN122668	**Attention:**	Jon Hutchinson	**Superseded Report:**	

Received Sample Overview

Lab Sample No(s)	Customer Sample Ref.	AGS Ref.	Depth (m)	Sampled Date
5357093	BH1			23/03/2012
5357094	BH2			23/03/2012

Only received samples which have had analysis scheduled will be shown on the following pages.

CERTIFICATE OF ANALYSIS

SDG:	120323-94	**Location:**	Kronospan	**Order Number:**	
Job:	H_GEOTECHLT_CHE-145	**Customer:**	Geotechnics Ltd	**Report Number:**	176093
Client Reference:	PN122668	**Attention:**	Jon Hutchinson	**Superseded Report:**	

LIQUID

Results Legend

X **Test**

N **No Determination Possible**

			Lab Sample No(s)	Customer Sample Reference	AGS Reference	Depth (m)	Container
			5357093	BH1			1l green glass bottle / 1lplastic (ALE221) / Vial (ALE297)
Alcohols/Acetates MS (W)	All	NDPs: 0 Tests: 1					X
Ammoniacal Nitrogen	All	NDPs: 0 Tests: 1				X	
Anions by Kone (w)	All	NDPs: 0 Tests: 1				X	
Conductivity (at 20 deg.C)	All	NDPs: 0 Tests: 1				X	
Cyanide Comp/Free/Total/Thiocyanate	All	NDPs: 0 Tests: 1			X		
Dissolved Metals by ICP-MS	All	NDPs: 0 Tests: 1				X	
EPH CWG (Aliphatic) Aqueous GC (W)	All	NDPs: 0 Tests: 1			X		
EPH CWG (Aromatic) Aqueous GC (W)	All	NDPs: 0 Tests: 1			X		
Free Formaldehyde	All	NDPs: 0 Tests: 1				X	
Glycols by GC-FID	All	NDPs: 0 Tests: 1			X		
GRO by GC-FID (W)	All	NDPs: 0 Tests: 1					X
Mercury Dissolved	All	NDPs: 0 Tests: 1			X		
Metals by iCap-OES Dissolved (W)	All	NDPs: 0 Tests: 1				X	
PAH Spec MS - Aqueous (W)	All	NDPs: 0 Tests: 1			X		
pH Value	All	NDPs: 0 Tests: 1				X	

CERTIFICATE OF ANALYSIS

SDG:	120323-94	**Location:**	Kronospan	**Order Number:**	
Job:	H_GEOTECHLT_CHE-145	**Customer:**	Geotechnics Ltd	**Report Number:**	176093
Client Reference:	PN122668	**Attention:**	Jon Hutchinson	**Superseded Report:**	

LIQUID

Results Legend

X **Test**

N **No Determination Possible**

Lab Sample No(s)			5357093		
Customer Sample Reference			BH1		
AGS Reference					
Depth (m)					
Container			1l green glass bottle	1lplastic (ALE221)	Vial (ALE297)
Phenols by HPLC (W)	All	NDPs: 0 Tests: 1	X		
Suspended Solids	All	NDPs: 0 Tests: 1		X	
SVOC MS (W) - Aqueous	All	NDPs: 0 Tests: 1	X		
Total Organic and Inorganic Carbon	All	NDPs: 0 Tests: 1	X		
TPH CWG (W)	All	NDPs: 0 Tests: 1	X		
VOC MS (W)	All	NDPs: 0 Tests: 1			X

CERTIFICATE OF ANALYSIS

SDG:	120323-94	**Location:**	Kronospan	**Order Number:**	
Job:	H_GEOTECHLT_CHE-145	**Customer:**	Geotechnics Ltd	**Report Number:**	176093
Client Reference:	PN122668	**Attention:**	Jon Hutchinson	**Superseded Report:**	

Results Legend

#	ISO17025 accredited.
M	*m*CERTS accredited.
§	Deviating sample.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	Subcontracted test.
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery
(F)	Trigger breach confirmed

Component	LOD/Units	Method	Customer Sample R	BH1
			Depth (m)	.
			Sample Type	Water(GW/SW)
			Date Sampled	23/03/2012
			Date Received	23/03/2012
			SDG Ref	120323-94
			Lab Sample No.(s)	5357093
			AGS Reference	
Suspended solids, Total	<2 mg/l	TM022		3010 #
Organic Carbon, Total	<3 mg/l	TM090		21.5 #
Ammoniacal Nitrogen as N	<0.2 mg/l	TM099		1.13 #
Conductivity @ 20 deg.C	<0.005 mS/cm	TM120		0.469 #
Arsenic (diss.filt)	<0.12 µg/l	TM152		6.47 #
Barium (diss.filt)	<0.03 µg/l	TM152		148 #
Beryllium (diss.filt)	<0.07 µg/l	TM152		<0.07 #
Boron (diss.filt)	<9.4 µg/l	TM152		23.8 #
Cadmium (diss.filt)	<0.1 µg/l	TM152		<0.1 #
Chromium (diss.filt)	<0.22 µg/l	TM152		8.7 #
Copper (diss.filt)	<0.85 µg/l	TM152		<0.85 #
Lead (diss.filt)	<0.02 µg/l	TM152		0.075 #
Nickel (diss.filt)	<0.15 µg/l	TM152		4.18 #
Selenium (diss.filt)	<0.39 µg/l	TM152		0.897 #
Vanadium (diss.filt)	<0.24 µg/l	TM152		3 #
Zinc (diss.filt)	<0.41 µg/l	TM152		4.6 #
Mercury (diss.filt)	<0.01 µg/l	TM183		<0.01 #
Sulphate	<2 mg/l	TM184		2.5 #
Cyanide, Total	<0.05 mg/l	TM227		<0.05 #
Hardness, Total as CaCO3	<1 mg/l	TM228		215 #
pH	<1 pH Units	TM256		7.26 #
Phenols, Total Detected monohydric	<0.016 mg/l	TM259		<0.016 § #
Free Formaldehyde	<0.5 mg/l	TM272		<0.5

CERTIFICATE OF ANALYSIS

SDG:	120323-94	**Location:**	Kronospan	**Order Number:**	
Job:	H_GEOTECHLT_CHE-145	**Customer:**	Geotechnics Ltd	**Report Number:**	176093
Client Reference:	PN122668	**Attention:**	Jon Hutchinson	**Superseded Report:**	

Alcohols/Acetates MS (W)

Results Legend

#	ISO17025 accredited.
M	*m*CERTS accredited.
§	Deviating sample.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	Subcontracted test.
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery
(F)	Trigger breach confirmed

Component	LOD/Units	Method	Customer Sample R	BH1
			Depth (m)	.
			Sample Type	Water(GW/SW)
			Date Sampled	23/03/2012
			Date Received	23/03/2012
			SDG Ref	120323-94
			Lab Sample No.(s)	5357093
			AGS Reference	
Methanol	<100 µg/l	TM232		<100
Ethanol	<100 µg/l	TM232		<100
Acetone	<25 µg/l	TM232		<25
iso-Propanol	<100 µg/l	TM232		<100
Methyl acetate	<100 µg/l	TM232		<100
tert-Butyl Alcohol	<10 µg/l	TM232		<10
n-Propanol	<100 µg/l	TM232		<100
2-Butanone	<100 µg/l	TM232		<100
Ethyl acetate	<100 µg/l	TM232		<100
sec-Butanol	<100 µg/l	TM232		<100
Tetrahydrofuran	<100 µg/l	TM232		<100
iso-Butanol	<100 µg/l	TM232		<100
iso-Propyl acetate	<100 µg/l	TM232		<100
n-Butanol	<100 µg/l	TM232		<100
n-Propyl acetate	<100 µg/l	TM232		<100
Methyl-iso-butyl ketone	<100 µg/l	TM232		<100
n-Pentanol	<100 µg/l	TM232		<100
n-Butyl acetate	<100 µg/l	TM232		<100
n-Hexanol	<100 µg/l	TM232		<100
n-Heptanol	<100 µg/l	TM232		<100

CERTIFICATE OF ANALYSIS

SDG:	120323-94	**Location:**	Kronospan	**Order Number:**	
Job:	H_GEOTECHLT_CHE-145	**Customer:**	Geotechnics Ltd	**Report Number:**	176093
Client Reference:	PN122668	**Attention:**	Jon Hutchinson	**Superseded Report:**	

Glycols by GC-FID

Results Legend

#	ISO17025 accredited.
M	*m*CERTS accredited.
§	Deviating sample.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	Subcontracted test.
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery
(F)	Trigger breach confirmed

Component	LOD/Units	Method	Customer Sample R	BH1
			Depth (m)	.
			Sample Type	Water(GW/SW)
			Date Sampled	23/03/2012
			Date Received	23/03/2012
			SDG Ref	120323-94
			Lab Sample No.(s)	5357093
			AGS Reference	
Propylene glycol	<10 mg/l	TM194		<10
Ethylene glycol	<10 mg/l	TM194		<10
1,3-Propanediol	<10 mg/l	TM194		<10
1,3-Butanediol	<10 mg/l	TM194		<10
1,4-Butanediol	<10 mg/l	TM194		<10
Diethylene glycol	<10 mg/l	TM194		<10
Triethylene glycol	<20 mg/l	TM194		<20

CERTIFICATE OF ANALYSIS

SDG:	120323-94	**Location:**	Kronospan	**Order Number:**	
Job:	H_GEOTECHLT_CHE-145	**Customer:**	Geotechnics Ltd	**Report Number:**	176093
Client Reference:	PN122668	**Attention:**	Jon Hutchinson	**Superseded Report:**	

PAH Spec MS - Aqueous (W)

Results Legend

#	ISO17025 accredited.
M	*m*CERTS accredited.
§	Deviating sample.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	Subcontracted test.
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery
(F)	Trigger breach confirmed

Component	LOD/Units	Method	Customer Sample R	BH1
			Depth (m)	.
			Sample Type	Water(GW/SW)
			Date Sampled	23/03/2012
			Date Received	23/03/2012
			SDG Ref	120323-94
			Lab Sample No.(s)	5357093
			AGS Reference	
Naphthalene (aq)	<0.1 µg/l	TM178		0.28 #
Acenaphthene (aq)	<0.015 µg/l	TM178		0.0487 #
Acenaphthylene (aq)	<0.011 µg/l	TM178		0.0432 #
Fluoranthene (aq)	<0.017 µg/l	TM178		0.0266 #
Anthracene (aq)	<0.015 µg/l	TM178		0.0369 #
Phenanthrene (aq)	<0.022 µg/l	TM178		0.245 #
Fluorene (aq)	<0.014 µg/l	TM178		0.174 #
Chrysene (aq)	<0.013 µg/l	TM178		<0.013 #
Pyrene (aq)	<0.015 µg/l	TM178		0.054 #
Benzo(a)anthracene (aq)	<0.017 µg/l	TM178		<0.017 #
Benzo(b)fluoranthene (aq)	<0.023 µg/l	TM178		<0.023 #
Benzo(k)fluoranthene (aq)	<0.027 µg/l	TM178		<0.027 #
Benzo(a)pyrene (aq)	<0.009 µg/l	TM178		<0.009 #
Dibenzo(a,h)anthracene (aq)	<0.016 µg/l	TM178		<0.016 #
Benzo(g,h,i)perylene (aq)	<0.016 µg/l	TM178		<0.016 #
Indeno(1,2,3-cd)pyrene (aq)	<0.014 µg/l	TM178		<0.014 #
PAH, Total Detected USEPA 16 (aq)	<0.247 µg/l	TM178		0.909

CERTIFICATE OF ANALYSIS

SDG:	120323-94	**Location:**	Kronospan	**Order Number:**	
Job:	H_GEOTECHLT_CHE-145	**Customer:**	Geotechnics Ltd	**Report Number:**	176093
Client Reference:	PN122668	**Attention:**	Jon Hutchinson	**Superseded Report:**	

SVOC MS (W) - Aqueous

Results Legend

#	ISO17025 accredited.
M	*m*CERTS accredited.
§	Deviating sample.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	Subcontracted test.
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery
(F)	Trigger breach confirmed

Customer Sample R	BH1
Depth (m)	.
Sample Type	Water(GW/SW)
Date Sampled	23/03/2012
Date Received	23/03/2012
SDG Ref	120323-94
Lab Sample No.(s)	5357093
AGS Reference	

Component	LOD/Units	Method	
1,2,4-Trichlorobenzene (aq)	<1 µg/l	TM176	<50
1,2-Dichlorobenzene (aq)	<1 µg/l	TM176	<50
1,3-Dichlorobenzene (aq)	<1 µg/l	TM176	<50
1,4-Dichlorobenzene (aq)	<1 µg/l	TM176	<50
2,4,5-Trichlorophenol (aq)	<1 µg/l	TM176	<50
2,4,6-Trichlorophenol (aq)	<1 µg/l	TM176	<50
2,4-Dichlorophenol (aq)	<1 µg/l	TM176	<50
2,4-Dimethylphenol (aq)	<1 µg/l	TM176	<50
2,4-Dinitrotoluene (aq)	<1 µg/l	TM176	<50
2,6-Dinitrotoluene (aq)	<1 µg/l	TM176	<50
2-Chloronaphthalene (aq)	<1 µg/l	TM176	<50
2-Chlorophenol (aq)	<1 µg/l	TM176	<50
2-Methylnaphthalene (aq)	<1 µg/l	TM176	<50
2-Methylphenol (aq)	<1 µg/l	TM176	<50
2-Nitroaniline (aq)	<1 µg/l	TM176	<50
2-Nitrophenol (aq)	<1 µg/l	TM176	<50
3-Nitroaniline (aq)	<1 µg/l	TM176	<50
4-Bromophenylphenylether (aq)	<1 µg/l	TM176	<50
4-Chloro-3-methylphenol (aq)	<1 µg/l	TM176	<50
4-Chloroaniline (aq)	<1 µg/l	TM176	<50
4-Chlorophenylphenylether (aq)	<1 µg/l	TM176	<50
4-Methylphenol (aq)	<1 µg/l	TM176	<50
4-Nitrophenol (aq)	<1 µg/l	TM176	<50
4-Nitroaniline (aq)	<1 µg/l	TM176	<50
Azobenzene (aq)	<1 µg/l	TM176	<50
bis(2-Chloroethyl)ether (aq)	<1 µg/l	TM176	<50
bis(2-Chloroethoxy)methane (aq)	<1 µg/l	TM176	<50
bis(2-Ethylhexyl) phthalate (aq)	<2 µg/l	TM176	293
Butylbenzyl phthalate (aq)	<1 µg/l	TM176	<50
Benzo(k)fluoranthene (aq)	<1 µg/l	TM176	<50
Carbazole (aq)	<1 µg/l	TM176	<50
Dibenzofuran (aq)	<1 µg/l	TM176	<50
n-Dibutyl phthalate (aq)	<1 µg/l	TM176	<50
Diethyl phthalate (aq)	<1 µg/l	TM176	<50
Dimethyl phthalate (aq)	<1 µg/l	TM176	<50

CERTIFICATE OF ANALYSIS

SDG:	120323-94	**Location:**	Kronospan	**Order Number:**	
Job:	H_GEOTECHLT_CHE-145	**Customer:**	Geotechnics Ltd	**Report Number:**	176093
Client Reference:	PN122668	**Attention:**	Jon Hutchinson	**Superseded Report:**	

SVOC MS (W) - Aqueous

Results Legend	
#	ISO17025 accredited.
M	*m*CERTS accredited.
§	Deviating sample.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	Subcontracted test.
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery
(F)	Trigger breach confirmed

Component	LOD/Units	Method	Customer Sample R	BH1
			Depth (m)	.
			Sample Type	Water(GW/SW)
			Date Sampled	23/03/2012
			Date Received	23/03/2012
			SDG Ref	120323-94
			Lab Sample No.(s)	5357093
			AGS Reference	
n-Dioctyl phthalate (aq)	<5 µg/l	TM176		<250
Hexachlorobenzene (aq)	<1 µg/l	TM176		<50
Hexachlorobutadiene (aq)	<1 µg/l	TM176		<50
Pentachlorophenol (aq)	<1 µg/l	TM176		<50
Phenol (aq)	<1 µg/l	TM176		<50
n-Nitroso-n-dipropylamine (aq)	<1 µg/l	TM176		<50
Hexachloroethane (aq)	<1 µg/l	TM176		<50
Nitrobenzene (aq)	<1 µg/l	TM176		<50
Isophorone (aq)	<1 µg/l	TM176		<50
Hexachlorocyclopentadiene (aq)	<1 µg/l	TM176		<50
Indeno(1,2,3-cd)pyrene (aq)	<1 µg/l	TM176		<50
SVOC TIC (aq)	-	TM176		See Attached

CERTIFICATE OF ANALYSIS

SDG:	120323-94	**Location:**	Kronospan	**Order Number:**	
Job:	H_GEOTECHLT_CHE-145	**Customer:**	Geotechnics Ltd	**Report Number:**	176093
Client Reference:	PN122668	**Attention:**	Jon Hutchinson	**Superseded Report:**	

TPH CWG (W)

Results Legend

#	ISO17025 accredited.
M	*m*CERTS accredited.
§	Deviating sample.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	Subcontracted test.
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery
(F)	Trigger breach confirmed

	Customer Sample R	Depth (m)	Sample Type	Date Sampled	Date Received	SDG Ref	Lab Sample No.(s)	AGS Reference
	BH1	.	Water(GW/SW)	23/03/2012	23/03/2012	120323-94	5357093	

Component	LOD/Units	Method	
GRO Surrogate % recovery**	%	TM245	89
GRO >C5-C12	<50 µg/l	TM245	<50 #
Methyl tertiary butyl ether (MTBE)	<3 µg/l	TM245	<3 #
Benzene	<7 µg/l	TM245	<7 #
Toluene	<4 µg/l	TM245	<4 #
Ethylbenzene	<5 µg/l	TM245	<5 #
m,p-Xylene	<8 µg/l	TM245	<8 #
o-Xylene	<3 µg/l	TM245	<3 #
Sum of detected Xylenes	<11 µg/l	TM245	<11
Sum of detected BTEX	<28 µg/l	TM245	<28
Aliphatics >C5-C6	<10 µg/l	TM245	<10
Aliphatics >C6-C8	<10 µg/l	TM245	<10
Aliphatics >C8-C10	<10 µg/l	TM245	<10
Aliphatics >C10-C12	<10 µg/l	TM245	10
Aliphatics >C12-C16 (aq)	<10 µg/l	TM174	<1000
Aliphatics >C16-C21 (aq)	<10 µg/l	TM174	57100
Aliphatics >C21-C35 (aq)	<10 µg/l	TM174	1650000
Total Aliphatics >C12-C35 (aq)	<10 µg/l	TM174	1700000
Aromatics >EC5-EC7	<10 µg/l	TM245	<10
Aromatics >EC7-EC8	<10 µg/l	TM245	<10
Aromatics >EC8-EC10	<10 µg/l	TM245	<10
Aromatics >EC10-EC12	<10 µg/l	TM245	<10
Aromatics >EC12-EC16 (aq)	<10 µg/l	TM174	<500
Aromatics >EC16-EC21 (aq)	<10 µg/l	TM174	8560
Aromatics >EC21-EC35 (aq)	<10 µg/l	TM174	202000
Total Aromatics >EC12-EC35 (aq)	<10 µg/l	TM174	211000
Total Aliphatics & Aromatics >C5-35 (aq)	<10 µg/l	TM174	1910000

CERTIFICATE OF ANALYSIS

SDG:	120323-94	**Location:**	Kronospan	**Order Number:**	
Job:	H_GEOTECHLT_CHE-145	**Customer:**	Geotechnics Ltd	**Report Number:**	176093
Client Reference:	PN122668	**Attention:**	Jon Hutchinson	**Superseded Report:**	

VOC MS (W)

Results Legend

#	ISO17025 accredited.
M	*m*CERTS accredited.
§	Deviating sample.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	Subcontracted test.
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery
(F)	Trigger breach confirmed

Component	LOD/Units	Method	Customer Sample R	BH1
			Depth (m)	.
			Sample Type	Water(GW/SW)
			Date Sampled	23/03/2012
			Date Received	23/03/2012
			SDG Ref	120323-94
			Lab Sample No.(s)	5357093
			AGS Reference	
Dibromofluoromethane**	%	TM208		106 §
Toluene-d8**	%	TM208		65.5 §
4-Bromofluorobenzene**	%	TM208		62.6 §
Dichlorodifluoromethane	<1 µg/l	TM208		<1 § #
Chloromethane	<1 µg/l	TM208		<1 § #
Vinyl chloride	<1 µg/l	TM208		<1 § #
Bromomethane	<1 µg/l	TM208		<1 § #
Chloroethane	<1 µg/l	TM208		<1 § #
Trichlorofluoromethane	<1 µg/l	TM208		<1 § #
1,1-Dichloroethene	<1 µg/l	TM208		<1 § #
Carbon disulphide	<1 µg/l	TM208		<1 § #
Dichloromethane	<3 µg/l	TM208		<3 § #
Methyl tertiary butyl ether (MTBE)	<1 µg/l	TM208		<1 § #
trans-1,2-Dichloroethene	<1 µg/l	TM208		<1 § #
1,1-Dichloroethane	<1 µg/l	TM208		<1 § #
cis-1,2-Dichloroethene	<1 µg/l	TM208		<1 § #
2,2-Dichloropropane	<1 µg/l	TM208		<1 § #
Bromochloromethane	<1 µg/l	TM208		<1 § #
Chloroform	<1 µg/l	TM208		<1 § #
1,1,1-Trichloroethane	<1 µg/l	TM208		<1 § #
1,1-Dichloropropene	<1 µg/l	TM208		<1 § #
Carbontetrachloride	<1 µg/l	TM208		<1 § #
1,2-Dichloroethane	<1 µg/l	TM208		<1 §
Benzene	<1 µg/l	TM208		<1 § #
Trichloroethene	<1 µg/l	TM208		<1 § #
1,2-Dichloropropane	<1 µg/l	TM208		<1 § #
Dibromomethane	<1 µg/l	TM208		<1 § #
Bromodichloromethane	<1 µg/l	TM208		<1 § #
cis-1,3-Dichloropropene	<1 µg/l	TM208		<1 § #
Toluene	<1 µg/l	TM208		<1 § #
trans-1,3-Dichloropropene	<1 µg/l	TM208		<1 § #
1,1,2-Trichloroethane	<1 µg/l	TM208		<1 § #
1,3-Dichloropropane	<1 µg/l	TM208		<1 § #
Tetrachloroethene	<1 µg/l	TM208		<1 § #
Dibromochloromethane	<1 µg/l	TM208		<1 § #

CERTIFICATE OF ANALYSIS

SDG:	120323-94	**Location:**	Kronospan	**Order Number:**	
Job:	H_GEOTECHLT_CHE-145	**Customer:**	Geotechnics Ltd	**Report Number:**	176093
Client Reference:	PN122668	**Attention:**	Jon Hutchinson	**Superseded Report:**	

VOC MS (W)

Results Legend	
#	ISO17025 accredited.
M	*m*CERTS accredited.
§	Deviating sample.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	Subcontracted test.
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery
(F)	Trigger breach confirmed

Component	LOD/Units	Method	Customer Sample R	BH1
			Depth (m)	.
			Sample Type	Water(GW/SW)
			Date Sampled	23/03/2012
			Date Received	23/03/2012
			SDG Ref	120323-94
			Lab Sample No.(s)	5357093
			AGS Reference	
1,2-Dibromoethane	<1 µg/l	TM208		<1 § #
Chlorobenzene	<1 µg/l	TM208		<1 § #
1,1,1,2-Tetrachloroethane	<1 µg/l	TM208		<1 § #
Ethylbenzene	<1 µg/l	TM208		<1 § #
m,p-Xylene	<1 µg/l	TM208		<1 § #
o-Xylene	<1 µg/l	TM208		<1 § #
Styrene	<1 µg/l	TM208		<1 § #
Bromoform	<1 µg/l	TM208		<1 § #
Isopropylbenzene	<1 µg/l	TM208		<1 § #
1,1,2,2-Tetrachloroethane	<1 µg/l	TM208		<1 §
1,2,3-Trichloropropane	<1 µg/l	TM208		<1 § #
Bromobenzene	<1 µg/l	TM208		<1 § #
Propylbenzene	<1 µg/l	TM208		<1 § #
2-Chlorotoluene	<1 µg/l	TM208		<1 § #
1,3,5-Trimethylbenzene	<1 µg/l	TM208		<1 § #
4-Chlorotoluene	<1 µg/l	TM208		<1 § #
tert-Butylbenzene	<1 µg/l	TM208		<1 § #
1,2,4-Trimethylbenzene	<1 µg/l	TM208		<1 § #
sec-Butylbenzene	<1 µg/l	TM208		<1 § #
4-iso-Propyltoluene	<1 µg/l	TM208		<1 § #
1,3-Dichlorobenzene	<1 µg/l	TM208		<1 § #
1,4-Dichlorobenzene	<1 µg/l	TM208		<1 § #
n-Butylbenzene	<1 µg/l	TM208		<1 § #
1,2-Dichlorobenzene	<1 µg/l	TM208		<1 §
1,2-Dibromo-3-chloropropane	<1 µg/l	TM208		<1 §
1,2,4-Trichlorobenzene	<1 µg/l	TM208		<1 § #
Hexachlorobutadiene	<1 µg/l	TM208		<1 § #
tert-Amyl methyl ether (TAME)	<1 µg/l	TM208		<1 § #
Naphthalene	<1 µg/l	TM208		<1 § #
1,2,3-Trichlorobenzene	<1 µg/l	TM208		<1 § #
1,3,5-Trichlorobenzene	<1 µg/l	TM208		<1 §
VOC TIC	-	TM208		No TICs identified §
Sum of detected Xylenes	<2 µg/l	TM208		<2 §

CERTIFICATE OF ANALYSIS

SDG:	120323-94	**Location:**	Kronospan	**Order Number:**	
Job:	H_GEOTECHLT_CHE-145	**Customer:**	Geotechnics Ltd	**Report Number:**	176093
Client Reference:	PN122668	**Attention:**	Jon Hutchinson	**Superseded Report:**	

Notification of Deviating Samples

Sample Number	Customer Sample Ref.	Depth (m)	Matrix	Test Name	Component Name	Comment
5357100	BH1		LIQUID	Phenols by HPLC (W)	Phenols, Total Detected monohydric	Analysis carried out on unpreserved sample
5372957	BH1		LIQUID	VOC MS (W)	1,1,1,2-Tetrachloroethane	Container with Headspace provided for volatiles analysis
5372957	BH1		LIQUID	VOC MS (W)	1,1,1-Trichloroethane	Container with Headspace provided for volatiles analysis
5372957	BH1		LIQUID	VOC MS (W)	1,1,2,2-Tetrachloroethane	Container with Headspace provided for volatiles analysis
5372957	BH1		LIQUID	VOC MS (W)	1,1,2-Trichloroethane	Container with Headspace provided for volatiles analysis
5372957	BH1		LIQUID	VOC MS (W)	1,1-Dichloroethane	Container with Headspace provided for volatiles analysis
5372957	BH1		LIQUID	VOC MS (W)	1,1-Dichloroethene	Container with Headspace provided for volatiles analysis
5372957	BH1		LIQUID	VOC MS (W)	1,1-Dichloropropene	Container with Headspace provided for volatiles analysis
5372957	BH1		LIQUID	VOC MS (W)	1,2,3-Trichlorobenzene	Container with Headspace provided for volatiles analysis
5372957	BH1		LIQUID	VOC MS (W)	1,2,3-Trichloropropane	Container with Headspace provided for volatiles analysis
5372957	BH1		LIQUID	VOC MS (W)	1,2,4-Trichlorobenzene	Container with Headspace provided for volatiles analysis
5372957	BH1		LIQUID	VOC MS (W)	1,2,4-Trimethylbenzene	Container with Headspace provided for volatiles analysis
5372957	BH1		LIQUID	VOC MS (W)	1,2-Dibromo-3-chloropropane	Container with Headspace provided for volatiles analysis
5372957	BH1		LIQUID	VOC MS (W)	1,2-Dibromoethane	Container with Headspace provided for volatiles analysis
5372957	BH1		LIQUID	VOC MS (W)	1,2-Dichlorobenzene	Container with Headspace provided for volatiles analysis
5372957	BH1		LIQUID	VOC MS (W)	1,2-Dichloroethane	Container with Headspace provided for volatiles analysis
5372957	BH1		LIQUID	VOC MS (W)	1,2-Dichloropropane	Container with Headspace provided for volatiles analysis
5372957	BH1		LIQUID	VOC MS (W)	1,3,5-Trichlorobenzene	Container with Headspace provided for volatiles analysis
5372957	BH1		LIQUID	VOC MS (W)	1,3,5-Trimethylbenzene	Container with Headspace provided for volatiles analysis
5372957	BH1		LIQUID	VOC MS (W)	1,3-Dichlorobenzene	Container with Headspace provided for volatiles analysis
5372957	BH1		LIQUID	VOC MS (W)	1,3-Dichloropropane	Container with Headspace provided for volatiles analysis
5372957	BH1		LIQUID	VOC MS (W)	1,4-Dichlorobenzene	Container with Headspace provided for volatiles analysis
5372957	BH1		LIQUID	VOC MS (W)	2,2-Dichloropropane	Container with Headspace provided for volatiles analysis
5372957	BH1		LIQUID	VOC MS (W)	2-Chlorotoluene	Container with Headspace provided for volatiles analysis
5372957	BH1		LIQUID	VOC MS (W)	4-Bromofluorobenzene**	Container with Headspace provided for volatiles analysis
5372957	BH1		LIQUID	VOC MS (W)	4-Chlorotoluene	Container with Headspace provided for volatiles analysis
5372957	BH1		LIQUID	VOC MS (W)	4-iso-Propyltoluene	Container with Headspace provided for volatiles analysis
5372957	BH1		LIQUID	VOC MS (W)	Benzene	Container with Headspace provided for volatiles analysis
5372957	BH1		LIQUID	VOC MS (W)	Bromobenzene	Container with Headspace provided for volatiles analysis
5372957	BH1		LIQUID	VOC MS (W)	Bromochloromethane	Container with Headspace provided for volatiles analysis
5372957	BH1		LIQUID	VOC MS (W)	Bromodichloromethane	Container with Headspace provided for volatiles analysis
5372957	BH1		LIQUID	VOC MS (W)	Bromoform	Container with Headspace provided for volatiles analysis
5372957	BH1		LIQUID	VOC MS (W)	Bromomethane	Container with Headspace provided for volatiles analysis
5372957	BH1		LIQUID	VOC MS (W)	Carbon disulphide	Container with Headspace provided for volatiles analysis
5372957	BH1		LIQUID	VOC MS (W)	Carbontetrachloride	Container with Headspace provided for volatiles analysis
5372957	BH1		LIQUID	VOC MS (W)	Chlorobenzene	Container with Headspace provided for volatiles analysis

CERTIFICATE OF ANALYSIS

SDG:	120323-94	**Location:**	Kronospan	**Order Number:**	
Job:	H_GEOTECHLT_CHE-145	**Customer:**	Geotechnics Ltd	**Report Number:**	176093
Client Reference:	PN122668	**Attention:**	Jon Hutchinson	**Superseded Report:**	

Sample Number	Customer Sample Ref.	Depth (m)	Matrix	Test Name	Component Name	Comment
5372957	BH1		LIQUID	VOC MS (W)	Chloroethane	Container with Headspace provided for volatiles analysis
5372957	BH1		LIQUID	VOC MS (W)	Chloroform	Container with Headspace provided for volatiles analysis
5372957	BH1		LIQUID	VOC MS (W)	Chloromethane	Container with Headspace provided for volatiles analysis
5372957	BH1		LIQUID	VOC MS (W)	cis-1,2-Dichloroethene	Container with Headspace provided for volatiles analysis
5372957	BH1		LIQUID	VOC MS (W)	cis-1,3-Dichloropropene	Container with Headspace provided for volatiles analysis
5372957	BH1		LIQUID	VOC MS (W)	Dibromochloromethane	Container with Headspace provided for volatiles analysis
5372957	BH1		LIQUID	VOC MS (W)	Dibromofluoromethane**	Container with Headspace provided for volatiles analysis
5372957	BH1		LIQUID	VOC MS (W)	Dibromomethane	Container with Headspace provided for volatiles analysis
5372957	BH1		LIQUID	VOC MS (W)	Dichlorodifluoromethane	Container with Headspace provided for volatiles analysis
5372957	BH1		LIQUID	VOC MS (W)	Dichloromethane	Container with Headspace provided for volatiles analysis
5372957	BH1		LIQUID	VOC MS (W)	Ethylbenzene	Container with Headspace provided for volatiles analysis
5372957	BH1		LIQUID	VOC MS (W)	Hexachlorobutadiene	Container with Headspace provided for volatiles analysis
5372957	BH1		LIQUID	VOC MS (W)	Isopropylbenzene	Container with Headspace provided for volatiles analysis
5372957	BH1		LIQUID	VOC MS (W)	m,p-Xylene	Container with Headspace provided for volatiles analysis
5372957	BH1		LIQUID	VOC MS (W)	Methyl tertiary butyl ether (MTBE)	Container with Headspace provided for volatiles analysis
5372957	BH1		LIQUID	VOC MS (W)	Naphthalene	Container with Headspace provided for volatiles analysis
5372957	BH1		LIQUID	VOC MS (W)	n-Butylbenzene	Container with Headspace provided for volatiles analysis
5372957	BH1		LIQUID	VOC MS (W)	o-Xylene	Container with Headspace provided for volatiles analysis
5372957	BH1		LIQUID	VOC MS (W)	Propylbenzene	Container with Headspace provided for volatiles analysis
5372957	BH1		LIQUID	VOC MS (W)	sec-Butylbenzene	Container with Headspace provided for volatiles analysis
5372957	BH1		LIQUID	VOC MS (W)	Styrene	Container with Headspace provided for volatiles analysis
5372957	BH1		LIQUID	VOC MS (W)	Sum of detected Xylenes	Container with Headspace provided for volatiles analysis
5372957	BH1		LIQUID	VOC MS (W)	tert-Amyl methyl ether (TAME)	Container with Headspace provided for volatiles analysis
5372957	BH1		LIQUID	VOC MS (W)	tert-Butylbenzene	Container with Headspace provided for volatiles analysis
5372957	BH1		LIQUID	VOC MS (W)	Tetrachloroethene	Container with Headspace provided for volatiles analysis
5372957	BH1		LIQUID	VOC MS (W)	Toluene	Container with Headspace provided for volatiles analysis
5372957	BH1		LIQUID	VOC MS (W)	Toluene-d8**	Container with Headspace provided for volatiles analysis
5372957	BH1		LIQUID	VOC MS (W)	trans-1,2-Dichloroethene	Container with Headspace provided for volatiles analysis
5372957	BH1		LIQUID	VOC MS (W)	trans-1,3-Dichloropropene	Container with Headspace provided for volatiles analysis
5372957	BH1		LIQUID	VOC MS (W)	Trichloroethene	Container with Headspace provided for volatiles analysis
5372957	BH1		LIQUID	VOC MS (W)	Trichlorofluoromethane	Container with Headspace provided for volatiles analysis
5372957	BH1		LIQUID	VOC MS (W)	Vinyl chloride	Container with Headspace provided for volatiles analysis
5372957	BH1		LIQUID	VOC MS (W)	VOC TIC	Container with Headspace provided for volatiles analysis

Note : Test results may be compromised

CERTIFICATE OF ANALYSIS

SDG:	120323-94	**Location:**	Kronospan	**Order Number:**	
Job:	H_GEOTECHLT_CHE-145	**Customer:**	Geotechnics Ltd	**Report Number:**	176093
Client Reference:	PN122668	**Attention:**	Jon Hutchinson	**Superseded Report:**	

Table of Results - Appendix

Method No	Reference	Description	Wet/Dry Sample [1]	Surrogate Corrected
TM022	Method 2540D, AWWA/APHA, 20th Ed., 1999 / BS 2690: Part120 1981;BS EN 872	Determination of total suspended solids in waters		
TM061	Method for the Determination of EPH,Massachusetts Dept.of EP, 1998	Determination of Extractable Petroleum Hydrocarbons by GC-FID (C10-C40)		
TM090	Method 5310, AWWA/APHA, 20th Ed., 1999 / Modified: US EPA Method 415.1 & 9060	Determination of Total Organic Carbon/Total Inorganic Carbon in Water and Waste Water		
TM099	BS 2690: Part 7:1968 / BS 6068: Part2.11:1984	Determination of Ammonium in Water Samples using the Kone Analyser		
TM120	Method 2510B, AWWA/APHA, 20th Ed., 1999 / BS 2690: Part 9:1970	Determination of Electrical Conductivity using a Conductivity Meter		
TM152	Method 3125B, AWWA/APHA, 20th Ed., 1999	Analysis of Aqueous Samples by ICP-MS		
TM174	Analysis of Petroleum Hydrocarbons in Environmental Media – Total Petroleum Hydrocarbon Criteria	Determination of Speciated Extractable Petroleum Hydrocarbons in Waters by GC-FID		
TM176	EPA 8270D Semi-Volatile Organic Compounds by Gas Chromatography/Mass Spectrometry (GC/MS)	Determination of SVOCs in Water by GCMS		
TM178	Modified: US EPA Method 8100	Determination of Polynuclear Aromatic Hydrocarbons (PAH) by GC-MS in Waters		
TM183	BS EN 23506:2002, (BS 6068-2.74:2002) ISBN 0 580 38924 3	Determination of Trace Level Mercury in Waters and Leachates by PSA Cold Vapour Atomic Fluorescence Spectrometry		
TM184	EPA Methods 325.1 & 325.2,	The Determination of Anions in Aqueous Matrices using the Kone Spectrophotometric Analysers		
TM194	Restek applications note #59187 “Techniques for Optimising GC Analysis of Ethylene Glycol in Water”	Determination of Glycols in Liquid Matrices by Direct Injection Gas Chromatography		
TM208	Modified: US EPA Method 8260b & 624	Determination of Volatile Organic Compounds by Headspace / GC-MS in Waters		
TM227	Standard methods for the examination of waters and wastewaters 20th Edition, AWWA/APHA Method 4500.	Determination of Total Cyanide, Free (Easily Liberatable) Cyanide and Thiocyanate		
TM228	US EPA Method 6010B	Determination of Major Cations in Water by iCap 6500 Duo ICP-OES		
TM232	USEPA Method No. 8260b 'Volatile Organic Compounds by Gas Chromatography/Mass Spectrometry (GC-MS)'	Determination of Volatile Alcohols, Acetates and Ketones in Waters by Headspace GC-MS		
TM245	By GC-FID	Determination of GRO by Headspace in waters		
TM256	The measurement of Electrical Conductivity and the Laboratory determination of pH Value of Natural, Treated and Wastewaters. HMSO, 1978. ISBN 011 751428 4.	Determination of pH in Water and Leachate using the GLpH pH Meter		
TM259	by HPLC	Determination of Phenols in Waters and Leachates by HPLC		
TM272		Determination of Free Formaldehyde in waters using Dr Lange test kit		

[1] Applies to Solid samples only. DRY indicates samples have been dried at 35°C. NA = not applicable.

CERTIFICATE OF ANALYSIS

SDG:	120323-94	**Location:**	Kronospan	**Order Number:**	
Job:	H_GEOTECHLT_CHE-145	**Customer:**	Geotechnics Ltd	**Report Number:**	176093
Client Reference:	PN122668	**Attention:**	Jon Hutchinson	**Superseded Report:**	

Test Completion Dates

Lab Sample No(s)	5357093
Customer Sample Ref.	BH1
AGS Ref.	
Depth	
Type	LIQUID
Alcohols/Acetates MS (W)	29-Mar-2012
Ammoniacal Nitrogen	29-Mar-2012
Anions by Kone (w)	29-Mar-2012
Conductivity (at 20 deg.C)	28-Mar-2012
Cyanide Comp/Free/Total/Thiocyanate	28-Mar-2012
Dissolved Metals by ICP-MS	30-Mar-2012
EPH CWG (Aliphatic) Aqueous GC (W)	29-Mar-2012
EPH CWG (Aromatic) Aqueous GC (W)	29-Mar-2012
Free Formaldehyde	29-Mar-2012
Glycols by GC-FID	29-Mar-2012
GRO by GC-FID (W)	28-Mar-2012
Mercury Dissolved	28-Mar-2012
Metals by iCap-OES Dissolved (W)	28-Mar-2012
PAH Spec MS - Aqueous (W)	29-Mar-2012
pH Value	28-Mar-2012
Phenols by HPLC (W)	29-Mar-2012
Suspended Solids	28-Mar-2012
SVOC MS (W) - Aqueous	29-Mar-2012
Total Organic and Inorganic Carbon	29-Mar-2012
TPH CWG (W)	29-Mar-2012
VOC MS (W)	29-Mar-2012

CERTIFICATE OF ANALYSIS

SDG:	120323-94	**Location:**	Kronospan	**Order Number:**	
Job:	H_GEOTECHLT_CHE-145	**Customer:**	Geotechnics Ltd	**Report Number:**	176093
Client Reference:	PN122668	**Attention:**	Jon Hutchinson	**Superseded Report:**	

Chromatogram

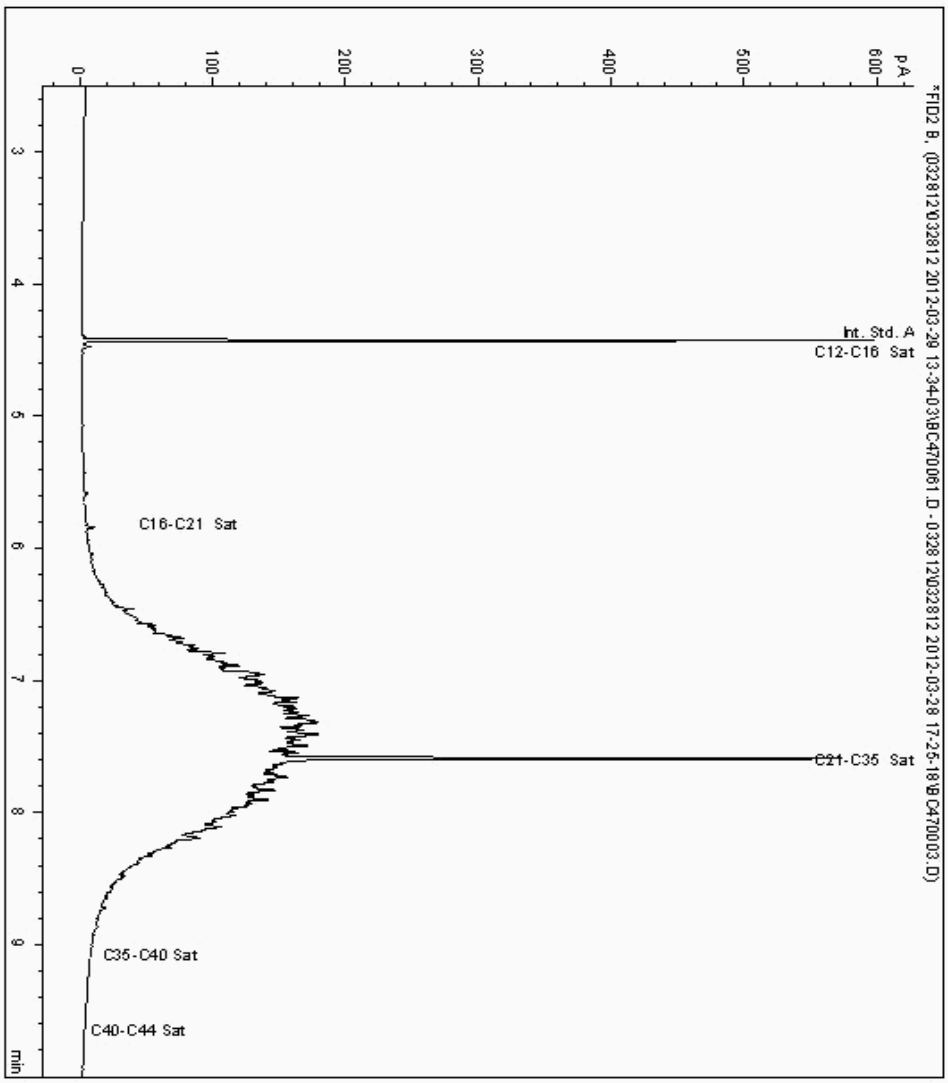
Analysis: EPH CWG (Aliphatic) Aqueous GC (W)

Sample No : 5357100
Sample ID : BH1

Depth :

Alcontrol/Geochem Analytical Services
Speciated TPH - SATS (C12 - C40)

Sample Identity: 5267285-5357100
Date Acquired : 29/03/12 14:41:07
Units : ppb
Dilution :
CF : 1
Multiplier : 0.833



CERTIFICATE OF ANALYSIS

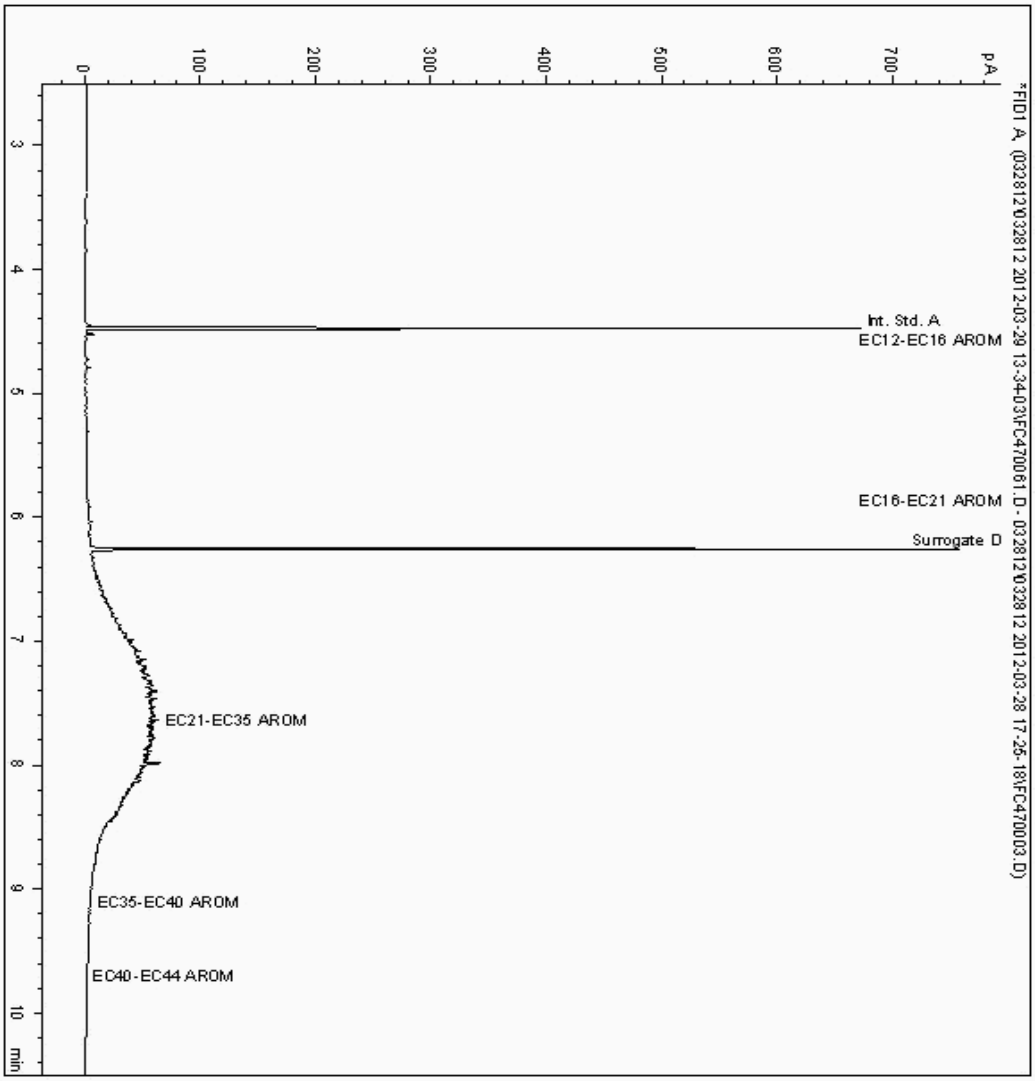
SDG:	120323-94	**Location:**	Kronospan	**Order Number:**	
Job:	H_GEOTECHLT_CHE-145	**Customer:**	Geotechnics Ltd	**Report Number:**	176093
Client Reference:	PN122668	**Attention:**	Jon Hutchinson	**Superseded Report:**	

Chromatogram

Analysis: EPH CWG (Aromatic) Aqueous GC (W) **Sample No :** 5357100 **Sample ID :** BH1 **Depth :**

Alcontrol/Geochem Analytical Services
Speciated TPH - AROM (C12 - C40)

Sample Identity: 5267286-5357100
Date Acquired : 29/03/12 14:41:07
Units :
Dilution :
CF : 1
Multiplier : 0.417



CERTIFICATE OF ANALYSIS

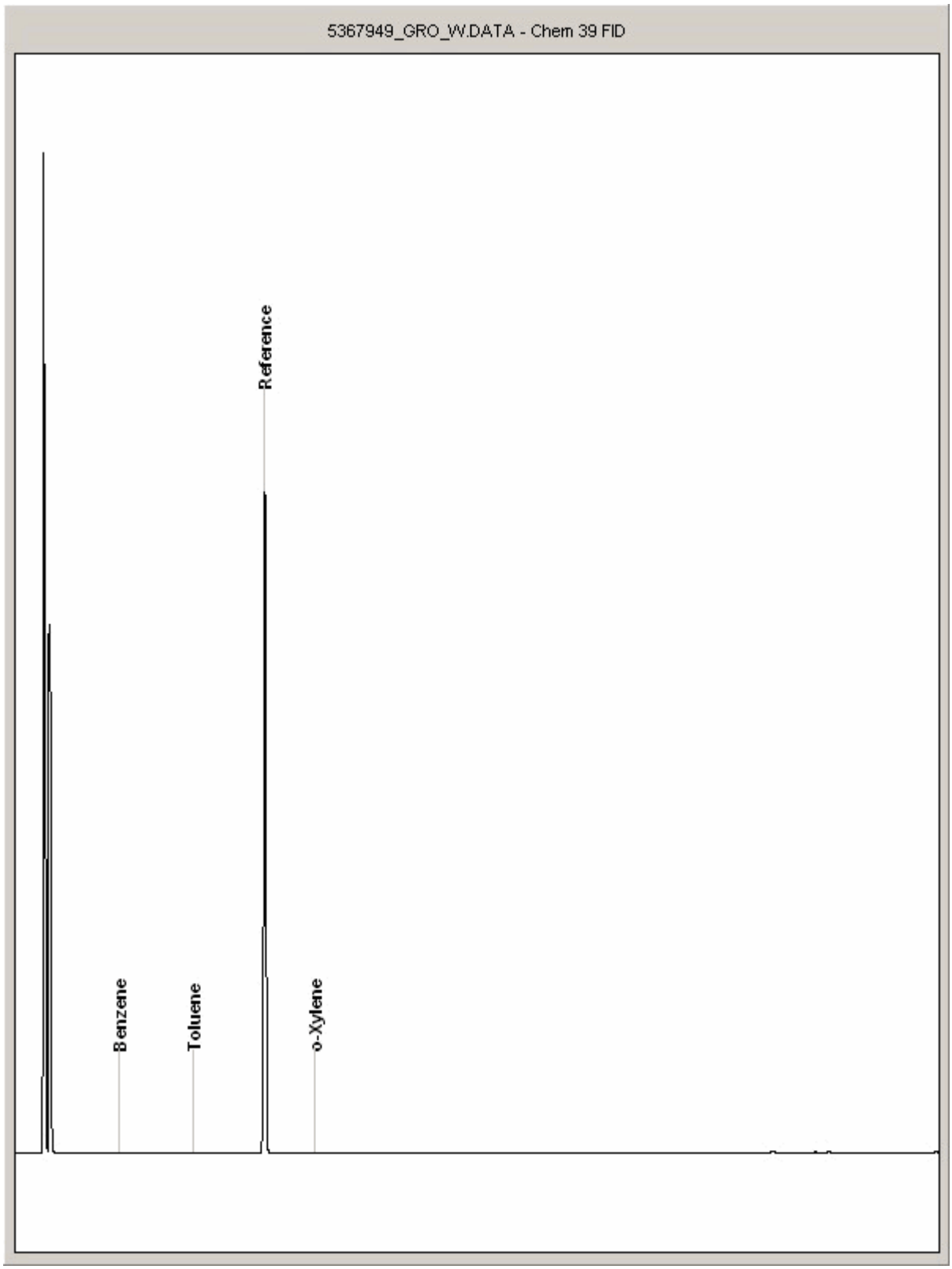
SDG:	120323-94	**Location:**	Kronospan	**Order Number:**	
Job:	H_GEOTECHLT_CHE-145	**Customer:**	Geotechnics Ltd	**Report Number:**	176093
Client Reference:	PN122668	**Attention:**	Jon Hutchinson	**Superseded Report:**	

Chromatogram

Analysis: GRO by GC-FID (W)

Sample No : 5367949
Sample ID : BH1

Depth :



ALcontrol Laboratories

SVOC Tentatively Identified Compounds

Job Number - 120323-94
Customer - H_GEOTECHLT_CHE
Sample Identity - 5357100 / SE BH1[]
Sample Type [Units] - Water - µg/l
Date Acquired - 29/03/12
Date Reported - 29/03/12
Analyst - GN

Tentative Compound Identification		Retention Time min	Concentration µg/l
Unknown	-	7.50	206.77
Bis(dimethylethyl)-phenol	-	7.63	292.05
Tetramethylpentadecane	-	8.91	584.24
Tetramethylhexadecane	-	9.38	1429.57
Hydrocarbons (C20-C32)	-	9.6-17.1	4060022
	-		
	-		
	-		
	-		
	-		

MAY INCLUDE PREVIOUSLY QUANTIFIED RESULTS
Please Note: the identification and semi-quantification of these tentatively identified compounds is outside the scope of the UKAS accreditation for this method

CERTIFICATE OF ANALYSIS

SDG:	120323-94	**Location:**	Kronospan	**Order Number:**	
Job:	H_GEOTECHLT_CHE-145	**Customer:**	Geotechnics Ltd	**Report Number:**	176093
Client Reference:	PN122668	**Attention:**	Jon Hutchinson	**Superseded Report:**	

Appendix

1. Results are expressed on a dry weight basis (dried at 35ºC) for all soil analyses except for the following: NRA and CEN Leach tests, flash point LOI, pH, ammonium as NH4 by the BRE method, VOC TICS and SVOC TICS.

2. Samples will be run in duplicate upon request, but an additional charge may be incurred.

3. If sufficient sample is received a sub sample will be retained free of charge for 30 days after analysis is completed (e-mailed) for all sample types unless the sample is destroyed on testing. The prepared soil sub sample that is analysed for asbestos will be retained for a period of 2 months after the analysis date. All bulk samples will be retained for a period of 6 months after the analysis date. All samples received and not scheduled will be disposed of one month after the date of receipt unless we are instructed to the contrary. Once the initial period has expired, a storage charge will be applied for each month or part thereof until the client cancels the request for sample storage. ALcontrol Laboratories reserve the right to charge for samples received and stored but not analysed.

4. With respect to turnaround, we will always endeavour to meet client requirements wherever possible, but turnaround times cannot be absolutely guaranteed due to so many variables beyond our control.

5. We take responsibility for any test performed by sub-contractors (marked with an asterisk). We endeavour to use UKAS/MCERTS Accredited Laboratories, who either complete a quality questionnaire or are audited by ourselves. For some determinands there are no UKAS/MCERTS Accredited Laboratories, in this instance a laboratory with a known track record will be utilised.

6. When requested, the individual sub sample scheduled will be analysed in house for the presence of asbestos fibres and asbestos containing material by our documented in house method TM048 based on HSG 248 (2005), which is accredited to ISO17025. If a specific asbestos fibre type is not found this will be reported as “Not detected”. If no asbestos fibre types are found all will be reported as “Not detected” and the sub sample analysed deemed to be clear of asbestos. If an asbestos fibre type is found it will be reported as detected (for each fibre type found). Testing can be carried out on asbestos positive samples, but, due to Health and Safety considerations, may be replaced by alternative tests or reported as No Determination Possible. The quantity of asbestos present is not determined unless specifically requested.

7. If no separate volatile sample is supplied by the client, or if a headspace or sediment is present in the volatile sample, the integrity of the data may be compromised. This will be flagged up as an invalid VOC on the test schedule and the result marked as deviating on the test certificate.

8. If appropriate preserved bottles are not received preservation will take place on receipt. However, the integrity of the data may be compromised.

9. NDP -No determination possible due to insufficient/unsuitable sample.

10. Metals in water are performed on a filtered sample, and therefore represent dissolved metals -total metals must be requested separately.

11. Results relate only to the items tested.

12. LODs for wet tests reported on a dry weight basis are not corrected for moisture content.

13. **Surrogate recoveries** -Most of our organic methods include surrogates, the recovery of which is monitored and reported. For EPH, MO, PAH, GRO and VOCs on soils the result is not surrogate corrected, but a percentage recovery is quoted. Acceptable limits for most organic methods are 70 -130 %.

14. **Product analyses** -Organic analyses on products can only be semi-quantitative due to the matrix effects and high dilution factors
employed.

15. Phenols monohydric by HPLC include phenol, cresols (2-Methylphenol, 3-Methylphenol and 4-Methylphenol) and Xylenols (2,3 Dimethylphenol, 2,4 Dimethylphenol, 2,5 Dimethylphenol, 2,6 Dimethylphenol, 3,4 Dimethyphenol, 3,5 Dimethylphenol).

16. Total of 5 speciated phenols by HPLC includes Phenol, 2,3,5-Trimethyl Phenol, 2-Isopropylphenol, Cresols and Xylenols (as detailed in 15).

17. Stones/debris are not routinely removed. We always endeavour to take a representative sub sample from the received sample.

18. In certain circumstances the method detection limit may be elevated due to the sample being outside the calibration range. Other factors that may contribute to this include possible interferences. In both cases the sample would be diluted which would cause the method detection limit to be raised.

19. Mercury results quoted on soils will not include volatile mercury as the analysis is performed on a dried and crushed sample.

20. For the BSEN 12457-3 two batch process to allow the cumulative release to be calculated, the volume of the leachate produced is measured and filtered for all tests. We therefore cannot carry out any unfiltered analysis. The tests affected include volatiles GCFID/GCMS and all subcontracted analysis.

21. For all leachate preparations (NRA, DIN, TCLP, BSEN 12457-1, 2, 3) volatile loss may occur, as we do not employ zero headspace extraction.

22. We are accredited to MCERTS for sand, clay and loam/topsoil, or any of these materials - whether these are derived from naturally occurring soil profiles, or from fill/made ground, as long as these materials constitute the major part of the sample. Other coarse granular material such as concrete, gravel and brick are not accredited if they comprise the major part of the sample.

23. Analysis and identification of specific compounds using GCFID is by retention time only, and we routinely calibrate and quantify for benzene, toluene, ethylbenzenes and xylenes (BTEX). For total volatiles in the C5 -C12 range, the total area of the chromatogram is integrated and expressed as ug/kg or ug/l. Although this analysis is commonly used for the quantification of gasoline range organics (GRO), the system will also detect other compounds such as chlorinated solvents, and this may lead to a falsely high result with respect to hydrocarbons only. It is not possible to specifically identify these non-hydrocarbons, as standards are not routinely run for any other compounds, and for more definitive identification, volatiles by GCMS should be utilised.

SOLID MATRICES EXTRACTION SUMMARY

ANALYSIS	D&C OR WET	EXTRACTION SOLVENT	EXTRACTION METHOD	ANALYSIS
SOLVENT EXTRACTABLE MATTER	D&C	DCM	SOXTHERM	GRAVIMETRIC
CYCLOHEXANE EXT. MATTER	D&C	CYCLOHEXANE	SOXTHERM	GRAVIMETRIC
ELEMENTAL SULPHUR	D&C	DCM	SOXTHERM	HPLC
PHENOLS BY GCMS	WET	DCM	SOXTHERM	GC-MS
HERBICIDES	D&C	HEXANE:ACETONE	SOXTHERM	GC-MS
PESTICIDES	D&C	HEXANE:ACETONE	SOXTHERM	GC-MS
EPH (DRO)	D&C	HEXANE:ACETONE	END OVER END	GC-FID
EPH (MIN OIL)	D&C	HEXANE:ACETONE	END OVER END	GC-FID
EPH (CLEANED UP)	D&C	HEXANE:ACETONE	END OVER END	GC-FID
EPH CWG BY GC	D&C	HEXANE:ACETONE	END OVER END	GC-FID
PCB AROCLOR 1254 / PCB CON	D&C	HEXANE:ACETONE	END OVER END	GC-MS
POLYAROMATIC HYDROCARBONS (MS)	WET	HEXANE:ACETONE	MICROWAVE TM218.	GC-MS
>C6-C40	WET	HEXANE:ACETONE	SHAKER	GC-FID
POLYAROMATIC HYDROCARBONS RAPID GC	WET	HEXANE:ACETONE	SHAKER	GC-FID
SEMI VOLATILE ORGANIC COMPOUNDS	WET	DCM:ACETONE	SONICATE	GC-MS

LIQUID MATRICES EXTRACTION SUMMARY

ANALYSIS	EXTRACTION SOLVENT	EXTRACTION METHOD	ANALYSIS
PAH MS	HEXANE	STIRRED EXTRACTION (STIR-BAR)	GC MS
EPH	HEXANE	STIRRED EXTRACTION (STIR-BAR)	GC FID
EPH CWG	HEXANE	STIRRED EXTRACTION (STIR-BAR)	GC FID
MINERAL OIL	HEXANE	STIRRED EXTRACTION (STIR-BAR)	GC FID
PCB 7 CONGENERS	HEXANE	STIRRED EXTRACTION (STIR-BAR)	GC MS
PCB AROCLOR 1254	HEXANE	STIRRED EXTRACTION (STIR-BAR)	GC MS
SVOC	DCM	LIQUID/LIQUID SHAKE	GC MS
FREE SULPHUR	DCM	SOLID PHASE EXTRACTION	HPLC
PESTOC PROPP	DCM	LIQUID/LIQUID SHAKE	GC MS
TRIAZINE HERBS	DCM	LIQUID/LIQUID SHAKE	GC MS
PHENOLS MS	ACETONE	SOLID PHASE EXTRACTION	GC MS
TPH by INFRARED (IR)	TCE	STIRRED EXTRACTION (STIR-BAR)	IR
MINERAL OIL by IR	TCE	STIRRED EXTRACTION (STIR-BAR)	IR
GLYCOLS	NONE	DIRECT INJECTION	GC FID

Identification of Asbestos in Bulk Materials & Soils

The results for identification of asbestos in bulk materials are obtained from supplied bulk materials or those identified as potentially asbestos containing during sample description which have been examined to determine the presence of asbestos fibres using Alcontrol Laboratories (Hawarden) in-house method of transmitted/polarised light microscopy and central stop dispersion staining, based on HSG 248 (2005).

The results for identification of asbestos in soils are obtained from a homogenised sub sample which has been examined to determine the presence of asbestos fibres using Alcontrol Laboratories (Hawarden) in-house method of transmitted/polarised light microscopy and central stop dispersion staining, based on HSG 248 (2005).

Asbestos Type	Common Name
Chrysotile	White Asbestos
Amosite	Brown Asbestos
Crocidolite	Blue Asbestos
Fibrous Actinolite	-
Fibrous Anthophyllite	-
Fibrous Tremolite	-

Visual Estimation Of Fibre Content

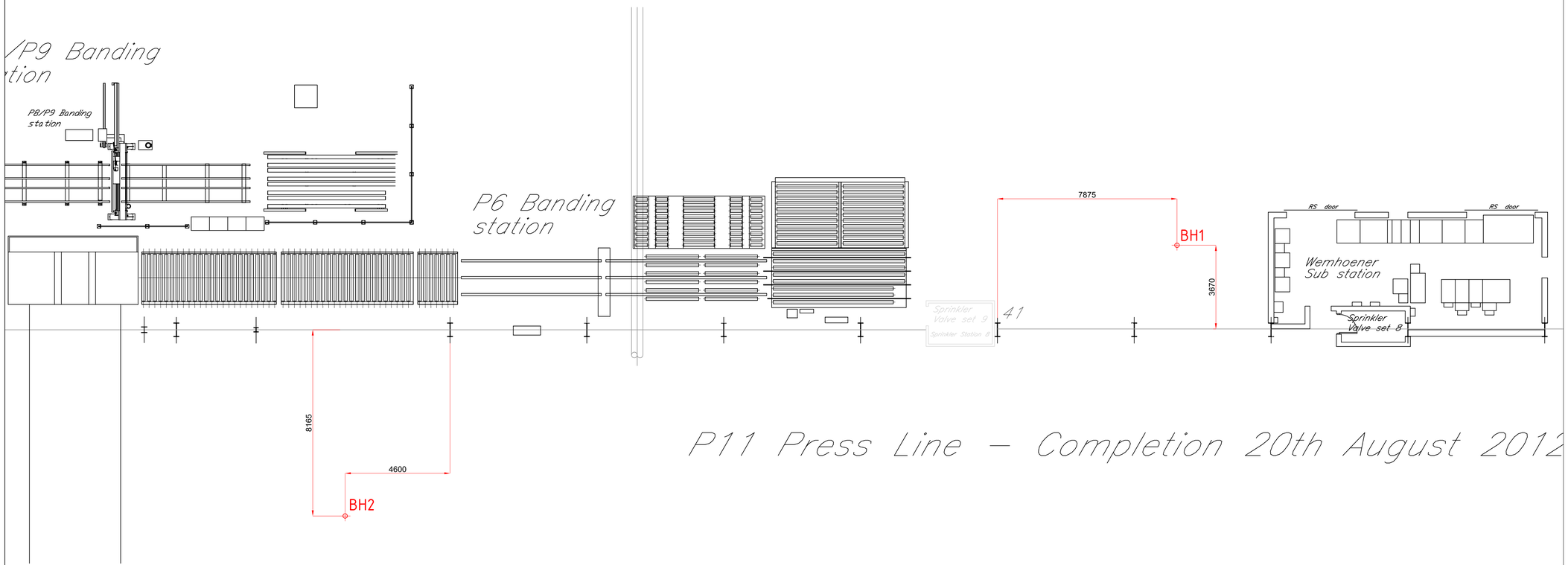
Estimation of fibre content is not permitted as part of our UKAS accredited test other than: -
Trace -Where only one or two asbestos fibres were identified.

Further guidance on typical asbestos fibre content of manufactured products can be found in HSG 264.

The identification of asbestos containing materials and soils falls within our schedule of tests for which we hold UKAS accreditation, however opinions, interpretations and all other information contained in the report are outside the scope of UKAS accreditation.

APPENDIX 6

Exploratory Hole Location Plan



P11 Press Line – Completion 20th August 2012

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Engineer:
RAMBOLL UK LIMITED

Client:
KRONOSPAN LIMITED

Project:
KRONOSPAN - NEW PRESS

Drawing Title:

EXPLORATORY HOLE LOCATION PLAN

Taken from a drawing supplied by the Engineer

Scale:	Date:
1:100 @ A1	APRIL 2012

Project No:
PN122668

APPENDIX 7

Investigation Techniques and General Notes

INVESTIGATION TECHNIQUES

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 most simple yet 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 backacting 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 ground conditions to some 1.20 metres can be closely inspected, subject to stability assessment, but below this depth, entrance into the pit is not permitted in the absence of shoring and hence observations will have been made from ground surface and samples taken from the excavator bucket.

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 insitu 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 backfilling. 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 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.

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, insitu 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 more dense strata. Small disturbed samples are obtained throughout.

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.

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.

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. Where open hole rotary drilling is employed, descriptions of strata result from examination at 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. Small scale plant can be used for auger drilling to limited depths where access is constrained.

Depths in excess of 60 metres can be achieved under suitable circumstances using rotary techniques, with minimal surface disturbance.

WINDOW SAMPLING

This technique involves the driving of an open-ended tube into the ground and retrieval of the soil which enters the tube. 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 has now been superseded by the use of a thin-walled plastic liner within a sampler which has a solid wall. 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. The hole formed is not cased, however, and hence the success of this technique is 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 8m can be achieved in suitable circumstances but depths of 4m to 6m are more common.

EXPLORATORY HOLE RECORDS

The data obtained by these techniques are generally presented on Trial Pit, Borehole, Drillhole or Window 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, insitu 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 TRL to provide a profile of CBR values over a range of depths of up to 1.50m.

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 "dipmeter" 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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GENERAL NOTES

1. *The report is prepared for the exclusive use of the Client named in the document and copyright subsists with Geotechnics Limited. Prior written permission must be obtained to reproduce all or part of the report. It is prepared on the understanding that its contents are only disclosed to parties directly involved in the current investigation, preparation and development of the site.*

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3. *The report and/or opinion is prepared for the specific purpose stated in the document and in relation to the nature and extent of proposals made available to Geotechnics Limited at that time. Re-consideration will be necessary should those details change. The recommendations should not be used for other schemes on or adjacent to the site without further reference to Geotechnics Limited.*

4. *The assessment of the significance of the factual data, where called for, is provided to assist the Client and his 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 of 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. *Classification of materials as Made Ground 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 fill materials 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.*

15. *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 (2007). Specific testing would be necessary where such definition is a requirement.*

16. *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.*

17. *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.*

18. *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. The foundations should be designed in accordance with the good practice embodied in BS 8004:1986 - 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.*

19. *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.*

20. *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.*