

KEY:

-  Trial Pit
- TP1401
-  Trial Trench
- TT2101
-  Driven Continuous Sampling Borehole
- DCS6101
-  Cone Penetration Test
- CPT5101
-  Extent of Opencast Workings- taken from Abandonment Plan ref. NE419_99 9999 2 of 5
-  Interpreted Extent of Opencast Workings Based on Trial Trench Findings and Coal Authority Abandonment Plans

Drawing based on Stafsuv, drawing No: 11143a dated 18/08/2020.

APPLIED GEOLOGY

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Client:



Project:

PARKSIDE, HOYLAND COMMON

Title:

EXPLORATORY HOLE LOCATION PLAN

Drawn By:

FD

Checked By:

SD

Paper Size:

A3

Scale:

1:2000

Date:

28.09.2020

Drawing No:

AG3080D-20-02

Revision:

0

APPENDIX C

TP4101



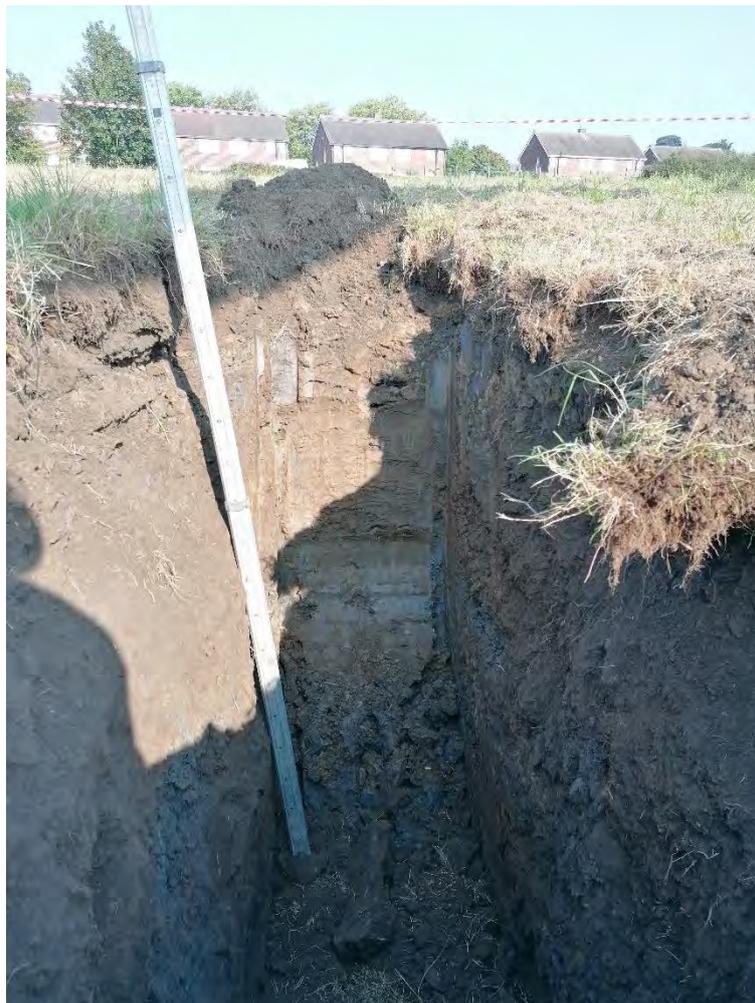
TP4102



TP1403



TP1404



TP1405



TP1406



TP1407



TP1408



TP1409



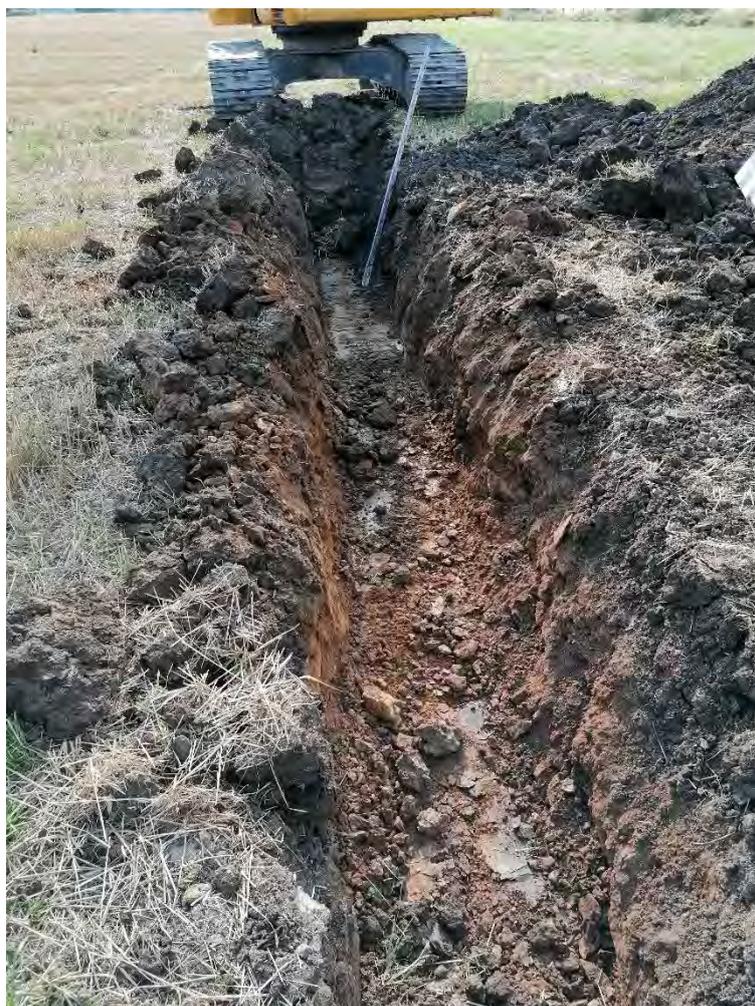
TP1410



TP1411



TP1412



TP1413



TP1414



TP1416



TT2101



TT2102



TT2103



TT2104



TT2105



TT2106



TT2107



APPENDIX D

Ground Gas Monitoring and Flow Results

Project Number: AG3080D-20

Date and Time of Monitoring: Wednesday 30th September 2020 - 11:30

Project Name: Parkside, Hoyland Common, Barnsley

Phase of Monitoring: 1 of 4

BH No.	Flow Range (litres/hr over 3 mins)			Differential Pressure (mb)	Methane % v/v		Carbon dioxide % v/v		Oxygen % v/v		Diameter of installation (mm)	Water level (m bgl)
	Max	Min	Avg		Peak	Steady	Peak	Steady	Min	Steady		
DCS6101	<0.1	<0.1	<0.1	<1	<0.1	<0.1	5.4	5.4	17.2	17.2	50	DRY
DCS6103	<0.1	<0.1	<0.1	<1	<0.1	<0.1	1.4	1.4	20.2	20.2	50	DRY
DCS6104	0.1	<0.1	<0.1	<1	<0.1	<0.1	4.3	4.3	14.3	14.3	50	DRY
DCS6105	<0.1	<0.1	<0.1	<1	<0.1	<0.1	5.7	5.7	15.9	15.9	50	DRY
DCS6106	0.1	<0.1	<0.1	<1	<0.1	<0.1	0.1	0.1	21.5	21.5	50	DRY
DCS6109	<0.1	<0.1	<0.1	<1	<0.1	<0.1	5.9	5.9	16.7	16.7	50	DRY

Additional gases (if required)

BH No.	Hydrogen Sulphide (ppm)	Carbon Monoxide (ppm)		
DCS6101	<1	<1		
DCS6103	<1	<1		
DCS6104	<1	<1		
DCS6105	<1	<1		
DCS6106	<1	<1		
DCS6109	<1	<1		

Borehole specific comments/observations

Meteorological Data

Atmospheric Pressure (mb)	Start: 989
Atmospheric Pressure (mb)	Finish: 989
Pressure Rising or Falling	Falling
Weather Conditions	8/8 cloud cover
Atmospheric Oxygen (% vol)	21.5
Wind Speed & Direction	12mph SSE
Ambient Air Temperature (°C)	10°C

Site Data

Monitoring Personnel	Carl Sellers
GPS Instrument	
Gasmeter Serial Number	G503948
PID Serial Number	110423
Ground Conditions (vegetation stress, visual contamination):	

General Notes:

1. Instrument specification data and calibration information provided on a separate sheet

APPLIED GEOLOGY

Ground Gas Monitoring and Flow Results

column in
report

Project Number: AG3080D-20

Date and Time of Monitoring: Wednesday 7th October 2020 - 10:30

Project Name: Parkside, Hoyland Common, Barnsley

Phase of Monitoring: 2 of 4

BH No.	Flow Range (litres/hr over 3 mins)			Differential Pressure (mb)	Methane % v/v		Carbon dioxide % v/v		Oxygen % v/v		Diameter of installation (mm)	Water level (m bgl)	Base of installation check (m bgl)
	Max	Min	Avg		Peak	Steady	Peak	Steady	Min	Steady			
DCS6101	<0.1	<0.1	<0.1	<1	0.1	0.1	0.1	0.1	21.5	21.5	50	Dry	2.05
DCS6103	<0.1	<0.1	<0.1	<1	0.1	0.1	0.1	0.1	21.8	21.8	50	Dry	4.06
DCS6104	0.1	0.1	0.1	<1	0.1	0.1	0.3	0.3	21.7	21.7	50	Dry	5.05
DCS6105	<0.1	<0.1	<0.1	<1	0.1	0.1	0.1	0.1	21.8	21.8	50	Dry	5.00
DCS6106	<0.1	<0.1	<0.1	<1	0.1	0.1	5.1	5.1	13.0	13.0	50	4.46	5.15
DCS6109	<0.1	<0.1	<0.1	<1	0.1	0.1	0.1	0.1	21.9	21.9	50	Dry	5.00

Additional gases (if required)

BH No.	Carbon Monoxide (ppm)	Hydrogen Sulphide (ppm)		
DCS6101	<1	<1		
DCS6103	<1	<1		
DCS6104	<1	<1		
DCS6105	<1	<1		
DCS6106	1	<1		
DCS6109	<1	<1		

Borehole specific comments/observations

Meteorological Data

Atmospheric Pressure (mb)	Start: 994
Atmospheric Pressure (mb)	Finish: 996
Pressure Rising or Falling	Rising
Weather Conditions	6/8 cloud cover
Atmospheric Oxygen (% vol)	21.2
Wind Speed & Direction	13mph W
Ambient Air Temperature (°C)	11.0

Site Data

Monitoring Personnel	Jack Welch
GPS Instrument	
Gasmeter Serial Number	G503948
PID Serial Number	110423
Ground Conditions (vegetation stress, visual contamination):	

General Notes:

- Instrument specification data and calibration information provided on a separate sheet

APPLIED GEOLOGY

Ground Gas Monitoring and Flow Results

column in
report

Project Number: AG3080D-20

Date and Time of Monitoring: Thursday 15th October 2020 - 10:20

Project Name: Parkside, Hoyland Common, Barnsley

Phase of Monitoring: 3 of 4

BH No.	Flow Range (litres/hr over 3 mins)			Differential Pressure (mb)	Methane % v/v		Carbon dioxide % v/v		Oxygen % v/v		Diameter of installation (mm)	Water level (m bgl)	Base of installation check (m bgl)
	Max	Min	Avg		Peak	Steady	Peak	Steady	Min	Steady			
DCS6101	<0.1	<0.1	<0.1	<1	0.1	0.1	0.1	0.1	21.3	21.3	50	Dry	2.05
DCS6103	<0.1	<0.1	<0.1	<1	0.1	0.1	0.1	0.1	21.5	21.5	50	Dry	4.06
DCS6104	<0.1	<0.1	<0.1	<1	0.1	0.1	0.2	0.2	21.5	21.5	50	Dry	5.05
DCS6105	<0.1	<0.1	<0.1	<1	0.1	0.1	0.1	0.1	21.8	21.8	50	Dry	5.00
DCS6106	<0.1	<0.1	<0.1	<1	0.1	0.1	4.7	4.7	13.6	13.6	50	4.62	5.15
DCS6109	<0.1	<0.1	<0.1	<1	0.1	0.1	0.1	0.1	21.6	21.6	50	Dry	5.00

Additional gases (if required)

BH No.	Carbon Monoxide (ppm)	Hydrogen Sulphide (ppm)		
DCS6101	<1	<1		
DCS6103	<1	<1		
DCS6104	<1	<1		
DCS6105	<1	<1		
DCS6106	<1	<1		
DCS6109	<1	<1		

Borehole specific comments/observations

Meteorological Data

Atmospheric Pressure (mb)	Start: 1016
Atmospheric Pressure (mb)	Finish: 1016
Pressure Rising or Falling	Rising
Weather Conditions	3/8 cloud cover
Atmospheric Oxygen (% vol)	21.1
Wind Speed & Direction	8mph NW
Ambient Air Temperature (°C)	9.0

Site Data

Monitoring Personnel	Jack Welch
GPS Instrument	
Gasmeter Serial Number	G503948
PID Serial Number	110423
Ground Conditions (vegetation stress, visual contamination):	

General Notes:

1. Instrument specification data and calibration information provided on a separate sheet

APPLIED GEOLOGY

Ground Gas Monitoring and Flow Results

column in
report

Project Number: AG3080D-20

Date and Time of Monitoring: 23/10/2020 10.45

Project Name: Parkside, Hoyland Common, Barnsley

Phase of Monitoring: 4 of 4

BH No.	Flow Range (litres/hr over 3 mins)			Differential Pressure (mb)	Methane % v/v		Carbon dioxide % v/v		Oxygen % v/v		Diameter of installation (mm)	Water level (m bgl)	Base of installation check (m bgl)
	Max	Min	Avg		Peak	Steady	Peak	Steady	Min	Steady			
DCS6101	<0.1	<0.1	<0.1	0.09	<0.1	<0.1	1.2	1.2	20.4	20.4	50	Dry	2.00
DCS6103	<0.1	<0.1	<0.1	0.14	<0.1	<0.1	6.1	6.1	14.3	14.3	50	Dry	4.06
DCS6104	<0.1	<0.1	<0.1	0.03	<0.1	<0.1	1.3	1.3	19.8	19.8	50	4.31	5.00
DCS6105	<0.1	<0.1	<0.1	0.10	<0.1	<0.1	5.5	5.5	16.1	16.1	50	Dry	5.00
DCS6106	<0.1	<0.1	<0.1	0.40	<0.1	<0.1	8.9	8.9	6.5	6.5	50	4.81	5.13
DCS6109	<0.1	<0.1	<0.1	0.28	<0.1	<0.1	1.1	1.1	20.5	20.5	50	4.89	4.97

Additional gases (if required)

BH No.	VOCs (ppm)	Carbon Monoxide (ppm)	Hydrogen Sulphide (ppm)	
DCS6101	0.0	<1	<1	
DCS6103	0.0	<1	<1	
DCS6104	0.0	<1	<1	
DCS6105	0.0	<1	<1	
DCS6106	0.0	<1	<1	
DCS6109	0.0	<1	<1	

Borehole specific comments/observations

Meteorological Data

Atmospheric Pressure (mb)	Start: 990
Atmospheric Pressure (mb)	Finish: 991
Pressure Rising or Falling	Rising
Weather Conditions	overcast/drizzle
Atmospheric Oxygen (% vol)	21.1
Wind Speed & Direction	moderate breeze SW
Ambient Air Temperature (°C)	10.0

Site Data

Monitoring Personnel	Malcolm McGlone
GPS Instrument	
Gasmeter Serial Number	G505737
PID Serial Number	109598
Ground Conditions (vegetation stress, visual contamination):	

General Notes:

1. Instrument specification data and calibration information provided on a separate sheet

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Gas Monitoring Equipment Specification and Accuracy Details

Instrument Specifications

Instrument	Atmospheric Pressure Range	Temperature Range	Flow Range	Flow Resolution	Borehole Pressure Range
GA5000	500-1500 mb +/- 5 mb	-10°C to + 50°C	0-20 lt/hr +/- 0.3 l/hr	0.1l/hr	+.500/-500 mbar +/- 4 mbar
Phocheck Tiger	-	-20 to + 60°C (Certified to -15 to + 45°C)	-	-	-

Instrument Accuracy

Instrument		Methane	Lower Explosive Limit	Carbon Dioxide	Oxygen	Volatile Organic Compounds	Hydrogen Sulphide	Carbon Monoxide
GA5000	Detection Range	0-100%	-	0 -100%	0-25%	NA	0 -50ppm response <30 secs	0 - 1000ppm response <30 Secs
	Detection Accuracy	./- 0.5% @ 0 to 70%, ./-1.5% @ 70 to 100% Response < 10 secs	N/A	./- 0.5% @ 0 to 60%, ./-1.5% @ 60 to 100% Response < 10 secs	./- 1.0% @ 0 to 25%, Response < 20 secs	NA	./- 1.5% FS	./- 2% of FS
Phocheck Tiger	Detection Range	N/A	N/A	N/A	N/A	1 ppb - 10,000 ppm	N/A	N/A
	Detection Accuracy	N/A	N/A	N/A	N/A	+/- 1ppb +/- 5% of actual displayed accuracy +/- One digit Response < 2sec	N/A	N/A

Calibration Frequency

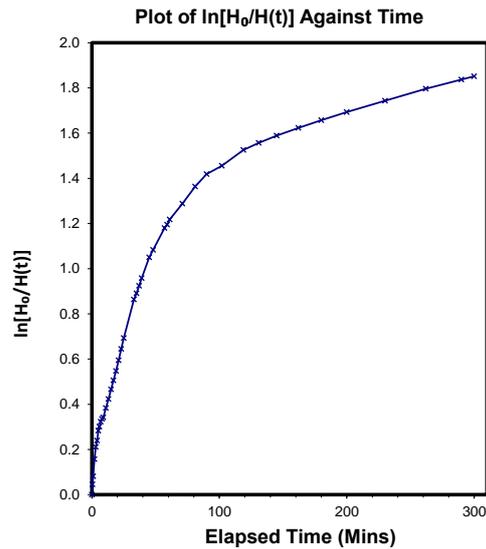
Equipment Serial Numbers

<p>Instruments are calibrated annually.</p> <p>Details of the instrument calibration certificates and service records are available if required.</p>		
	GA5000 (G503948, G505383, G505737)	
	Phocheck Tiger - (T-108308, T-109597, T-109598, T-110423)	

Variable Head Permeability Test - Velocity Graph Method

Borehole No.	DCS6101	Test No.	1
Date	23/10/2020	Type of Test	FH
Operator	MM	Ground level (mOD)	129.30
Diameter of response zone, D (mm)	85	Diameter of standpipe, d (mm)	50.00
Top of response zone (m bgl)	1.00	Height of standpipe above GL (m)	0
Base of response zone (m bgl)	2.00	Water level before test, below top of pipe (m)	4.46

Field Data				
Elapsed Time (t) (mins)	Depth to water from top of casing or standpipe (m)	Head (H) (m)	Head Ratio $H_0/H(t)$	$\ln[H_0/H(t)]$
0.0	0.00	4.46	1.000	0.000
0.5	0.20	4.26	1.047	0.046
1.0	0.35	4.11	1.085	0.082
2.0	0.65	3.81	1.171	0.158
3.0	0.85	3.61	1.235	0.211
4.0	0.95	3.51	1.271	0.240
5.0	1.10	3.36	1.327	0.283
6.0	1.16	3.30	1.352	0.301
7.0	1.23	3.23	1.381	0.323
8.0	1.27	3.19	1.398	0.335
9.0	1.29	3.17	1.407	0.341
11.0	1.42	3.04	1.467	0.383
13.0	1.54	2.92	1.527	0.424
17.0	1.77	2.69	1.658	0.506
21.0	2.00	2.46	1.813	0.595
25.0	2.23	2.23	2.000	0.693
33.0	2.58	1.88	2.372	0.864
35.0	2.63	1.83	2.437	0.891
39.0	2.75	1.71	2.608	0.959
45.0	2.90	1.56	2.859	1.050
48.0	2.95	1.51	2.954	1.083
57.0	3.09	1.37	3.255	1.180
61.0	3.14	1.32	3.379	1.218
71.0	3.23	1.23	3.626	1.288
81.0	3.32	1.14	3.912	1.364
90.0	3.38	1.08	4.130	1.418
102.0	3.42	1.04	4.288	1.456
119.0	3.49	0.97	4.598	1.526
131.0	3.52	0.94	4.745	1.557
145.0	3.55	0.91	4.901	1.589
162.0	3.58	0.88	5.068	1.623
180.0	3.61	0.85	5.247	1.658
200.0	3.64	0.82	5.439	1.694
230.0	3.68	0.78	5.718	1.744
262.0	3.72	0.74	6.027	1.796
290.0	3.75	0.71	6.282	1.838
300.0	3.76	0.70	6.371	1.852



Permeability Results

Using BS EN ISO
22282-2 Equation B.5

$k = \alpha \cdot S/F$ for straight line graph, where α = slope gradient

$$t_0 = \frac{102.00}{300.00}$$

$$\frac{1.456}{1.852} = \ln[H_0/H(t)]$$

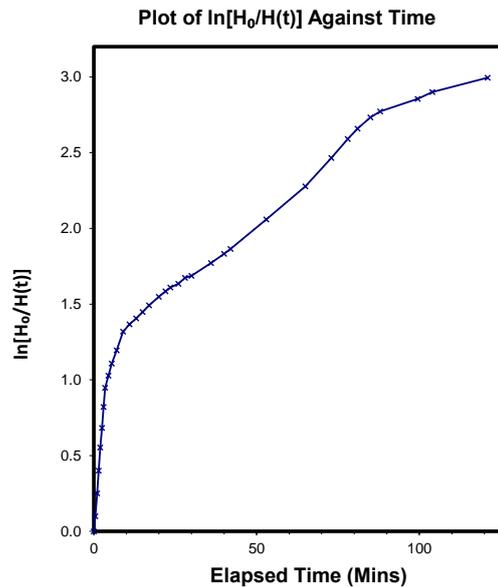
Permeability $k = 1.2E-08$ m/sec

Client:	Newlands Developments	APPLIED GEOLOGY
Project:	Parkside, Hoyland Common, Barnsley	
Project No.	AG3080D-20	

Variable Head Permeability Test - Velocity Graph Method

Borehole No.	DCS6103	Test No.	1
Date	15/10/2020	Type of Test	FH
Operator	JW	Ground level (mOD)	132.78
Diameter of response zone, D (mm)	85	Diameter of standpipe, d (mm)	50.00
Top of response zone (m bgl)	1.00	Height of standpipe above GL (m)	0
Base of response zone (m bgl)	4.00	Water level before test, below top of pipe (m)	Dry

Field Data				
Elapsed Time (t) (mins)	Depth to water from top of casing or standpipe (m)	Head (H) (m)	Head Ratio $H_0/H(t)$	ln[H ₀ /H(t)]
0.0	0.00	4.00	1.000	0.000
0.5	0.38	3.62	1.105	0.100
1.0	0.89	3.11	1.286	0.252
1.5	1.32	2.68	1.493	0.400
2.0	1.70	2.30	1.739	0.553
2.5	1.98	2.02	1.980	0.683
3.0	2.24	1.76	2.273	0.821
3.5	2.45	1.55	2.581	0.948
4.5	2.57	1.43	2.797	1.029
5.5	2.68	1.32	3.030	1.109
7.0	2.79	1.21	3.306	1.196
9.0	2.93	1.07	3.738	1.319
11.0	2.98	1.02	3.922	1.366
13.0	3.02	0.98	4.082	1.406
15.0	3.06	0.94	4.255	1.448
17.0	3.10	0.90	4.444	1.492
20.0	3.15	0.85	4.706	1.549
22.0	3.18	0.82	4.878	1.585
23.5	3.20	0.80	5.000	1.609
26.0	3.22	0.78	5.128	1.635
28.0	3.25	0.75	5.333	1.674
30.0	3.26	0.74	5.405	1.687
36.0	3.32	0.68	5.882	1.772
40.0	3.36	0.64	6.250	1.833
42.0	3.38	0.62	6.452	1.864
53.0	3.49	0.51	7.843	2.060
65.0	3.59	0.41	9.756	2.278
73.0	3.66	0.34	11.765	2.465
78.0	3.70	0.30	13.333	2.590
81.0	3.72	0.28	14.286	2.659
85.0	3.74	0.26	15.385	2.733
88.0	3.75	0.25	16.000	2.773
99.5	3.77	0.23	17.391	2.856
104.0	3.78	0.22	18.182	2.900
121.0	3.80	0.20	20.000	2.996



Permeability Results

**Using BS EN ISO
22282-2 Equation B.5**

$k = \alpha \cdot S/F$ for straight line graph, where α = slope gradient

to = 11.00
t = 121.00

1.366 ln[H₀/H(t)]
2.996 ln[H₀/H(t)]

Permeability k = **1.1E-07** m/sec

Client:	Newlands Developments
Project:	Parkside, Hoyland Common, Barnsley
Project No.	AG3080D-20

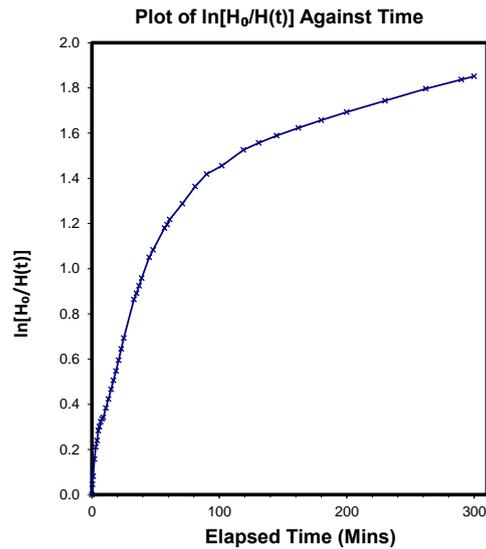
APPLIED GEOLOGY

Variable Head Permeability Test - Velocity Graph Method

Borehole No.	DCS6104	Test No.	1
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Date	23/10/2020	Type of Test	FH
Operator	MM	Ground level (mOD)	129.30
Diameter of response zone, D (mm)	85	Diameter of standpipe, d (mm)	50.00
Top of response zone (m bgl)	0.00	Height of standpipe above GL (m)	0
Base of response zone (m bgl)	0.00	Water level before test, below top of pipe (m)	4.46

Field Data				
Elapsed Time (t) (mins)	Depth to water from top of casing or standpipe (m)	Head (H) (m)	Head Ratio $H_0/H(t)$	$\ln[H_0/H(t)]$
0.0	0.00	4.46	1.000	0.000
0.5	0.20	4.26	1.047	0.046
1.0	0.35	4.11	1.085	0.082
2.0	0.65	3.81	1.171	0.158
3.0	0.85	3.61	1.235	0.211
4.0	0.95	3.51	1.271	0.240
5.0	1.10	3.36	1.327	0.283
6.0	1.16	3.30	1.352	0.301
7.0	1.23	3.23	1.381	0.323
8.0	1.27	3.19	1.398	0.335
9.0	1.29	3.17	1.407	0.341
11.0	1.42	3.04	1.467	0.383
13.0	1.54	2.92	1.527	0.424
17.0	1.77	2.69	1.658	0.506
21.0	2.00	2.46	1.813	0.595
25.0	2.23	2.23	2.000	0.693
33.0	2.58	1.88	2.372	0.864
35.0	2.63	1.83	2.437	0.891
39.0	2.75	1.71	2.608	0.959
45.0	2.90	1.56	2.859	1.050
48.0	2.95	1.51	2.954	1.083
57.0	3.09	1.37	3.255	1.180
61.0	3.14	1.32	3.379	1.218
71.0	3.23	1.23	3.626	1.288
81.0	3.32	1.14	3.912	1.364
90.0	3.38	1.08	4.130	1.418
102.0	3.42	1.04	4.288	1.456
119.0	3.49	0.97	4.598	1.526
131.0	3.52	0.94	4.745	1.557
145.0	3.55	0.91	4.901	1.589
162.0	3.58	0.88	5.068	1.623
180.0	3.61	0.85	5.247	1.658
200.0	3.64	0.82	5.439	1.694
230.0	3.68	0.78	5.718	1.744
262.0	3.72	0.74	6.027	1.796
290.0	3.75	0.71	6.282	1.838
300.0	3.76	0.70	6.371	1.852



Permeability Results

Using BS EN ISO
22282-2 Equation B.5

$k = \alpha \cdot S/F$ for straight line graph, where α = slope gradient

$$t_0 = \frac{90.00}{300.00}$$

$$\frac{1.418}{1.852} \ln[H_0/H(t)]$$

Permeability $k = 1.2E-08$ m/sec

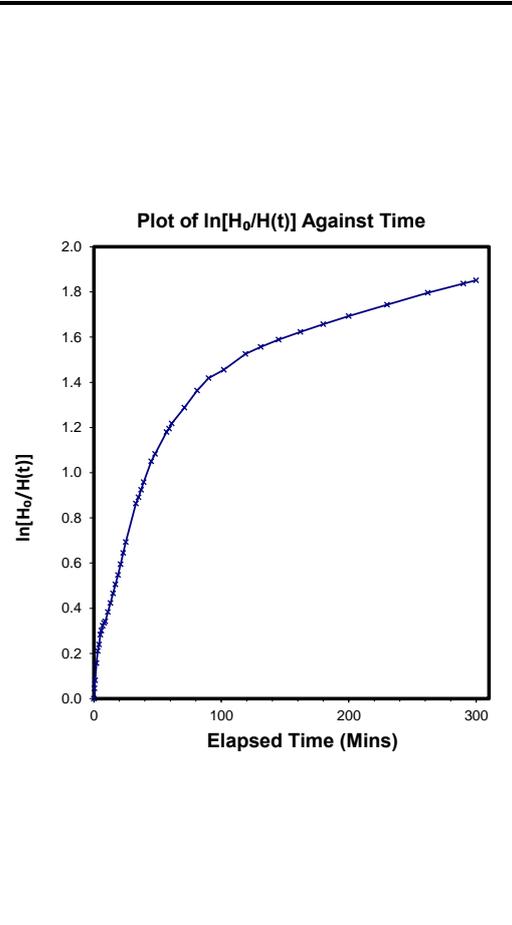
Client:	Newlands Developments
Project:	Parkside, Hoyland Common, Barnsley
Project No.	AG3080D-20

APPLIED GEOLOGY

Variable Head Permeability Test - Velocity Graph Method

Borehole No.	DCS6106	Test No.	1
Date	07/10/2020	Type of Test	FH
Operator	JW	Ground level (mOD)	129.30
Diameter of response zone, D (mm)	85	Diameter of standpipe, d (mm)	50.00
Top of response zone (m bgl)	1.00	Height of standpipe above GL (m)	0
Base of response zone (m bgl)	5.00	Water level before test, below top of pipe (m)	4.46

Field Data				
Elapsed Time (t) (mins)	Depth to water from top of casing or standpipe (m)	Head (H) (m)	Head Ratio $H_0/H(t)$	ln[H ₀ /H(t)]
0.0	0.00	4.46	1.000	0.000
0.5	0.20	4.26	1.047	0.046
1.0	0.35	4.11	1.085	0.082
2.0	0.65	3.81	1.171	0.158
3.0	0.85	3.61	1.235	0.211
4.0	0.95	3.51	1.271	0.240
5.0	1.10	3.36	1.327	0.283
6.0	1.16	3.30	1.352	0.301
7.0	1.23	3.23	1.381	0.323
8.0	1.27	3.19	1.398	0.335
9.0	1.29	3.17	1.407	0.341
11.0	1.42	3.04	1.467	0.383
13.0	1.54	2.92	1.527	0.424
17.0	1.77	2.69	1.658	0.506
21.0	2.00	2.46	1.813	0.595
25.0	2.23	2.23	2.000	0.693
33.0	2.58	1.88	2.372	0.864
35.0	2.63	1.83	2.437	0.891
39.0	2.75	1.71	2.608	0.959
45.0	2.90	1.56	2.859	1.050
48.0	2.95	1.51	2.954	1.083
57.0	3.09	1.37	3.255	1.180
61.0	3.14	1.32	3.379	1.218
71.0	3.23	1.23	3.626	1.288
81.0	3.32	1.14	3.912	1.364
90.0	3.38	1.08	4.130	1.418
102.0	3.42	1.04	4.288	1.456
119.0	3.49	0.97	4.598	1.526
131.0	3.52	0.94	4.745	1.557
145.0	3.55	0.91	4.901	1.589
162.0	3.58	0.88	5.068	1.623
180.0	3.61	0.85	5.247	1.658
200.0	3.64	0.82	5.439	1.694
230.0	3.68	0.78	5.718	1.744
262.0	3.72	0.74	6.027	1.796
290.0	3.75	0.71	6.282	1.838
300.0	3.76	0.70	6.371	1.852



Permeability Results

Using BS EN ISO
22282-2 Equation B.5

$k = \alpha \cdot S/F$ for straight line graph, where α = slope gradient

$$t_0 = \frac{90.00}{300.00}$$

$$\frac{1.418}{1.852} = \ln\left[\frac{H_0}{H(t)}\right]$$

Permeability $k =$ **1.2E-08** m/sec

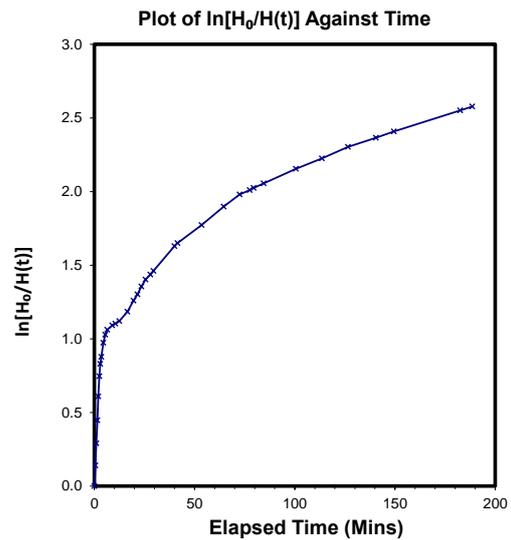
Client:	Newlands Developments
Project:	Parkside, Hoyland Common, Barnsley
Project No.	AG3080D-20

APPLIED GEOLOGY

Variable Head Permeability Test - Velocity Graph Method

Borehole No.	DCS6109	Test No.	1
Date	07/10/2020	Type of Test	FH
Operator	JW	Ground level (mOD)	127.00
Diameter of response zone, D (mm)	85	Diameter of standpipe, d (mm)	50.00
Top of response zone (m bgl)	1.00	Height of standpipe above GL (m)	0
Base of response zone (m bgl)	5.00	Water level before test, below top of pipe (m)	Dry

Field Data				
Elapsed Time (t) (mins)	Depth to water from top of casing or standpipe (m)	Head (H) (m)	Head Ratio $H_p/H(t)$	$\ln[H_0/H(t)]$
0.0	0.00	5.00	1.000	0.000
0.5	0.65	4.35	1.149	0.139
1.0	1.26	3.74	1.337	0.290
1.5	1.80	3.20	1.563	0.446
2.0	2.28	2.72	1.838	0.609
2.5	2.63	2.37	2.110	0.747
3.0	2.82	2.18	2.294	0.830
3.5	2.92	2.08	2.404	0.877
4.5	3.11	1.89	2.646	0.973
5.5	3.21	1.79	2.793	1.027
6.5	3.27	1.73	2.890	1.061
9.0	3.32	1.68	2.976	1.091
10.5	3.34	1.66	3.012	1.103
12.5	3.37	1.63	3.067	1.121
16.5	3.47	1.53	3.268	1.184
19.5	3.58	1.42	3.521	1.259
21.5	3.64	1.36	3.676	1.302
23.5	3.71	1.29	3.876	1.355
25.5	3.77	1.23	4.065	1.402
28.0	3.81	1.19	4.202	1.435
29.5	3.84	1.16	4.310	1.461
40.0	4.02	0.98	5.102	1.630
41.5	4.04	0.96	5.208	1.650
53.5	4.15	0.85	5.882	1.772
64.5	4.25	0.75	6.667	1.897
72.5	4.31	0.69	7.246	1.981
77.5	4.33	0.67	7.463	2.010
79.5	4.34	0.66	7.576	2.025
84.5	4.36	0.64	7.813	2.056
100.5	4.42	0.58	8.621	2.154
113.5	4.46	0.54	9.259	2.226
126.5	4.50	0.50	10.000	2.303
140.5	4.53	0.47	10.638	2.364
149.5	4.55	0.45	11.111	2.408
182.5	4.61	0.39	12.821	2.551
188.5	4.62	0.38	13.158	2.577



Permeability Results

Using BS EN ISO
22282-2 Equation B.5

$k = \alpha \cdot S/F$ for straight line graph, where α = slope gradient

$$t_0 = \frac{40.00}{188.50}$$

$$\frac{1.630}{2.577} \ln[H_0/H(t)]$$

Permeability $k =$ **3.8E-08** m/sec

Client:	Newlands Developments	APPLIED GEOLOGY
Project:	Parkside, Hoyland Common, Barnsley	
Project No.	AG3080D-20	

APPENDIX E



LABORATORY REPORT



4043

Contract Number: PSL20/5161

Report Date: 26 October 2020
Client's Reference: AG3080D-20
Client Name: Applied Geology Ltd
Unit 23, Abbey Park
Stareton
Kenilworth
Warwickshire
CV8 2LY

For the attention of: Adam Perks

Contract Title: Parkside Hoyland Common
Date Received: 28/9/2020
Date Commenced: 28/9/2020
Date Completed: 26/10/2020

Notes: Opinions and Interpretations are outside the UKAS Accreditation

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

Checked and Approved Signatories:


S Royle
(Laboratory Manager)

A Watkins
(Director)

R Berriman
(Quality Manager)

H Daniels
(Senior Technician)

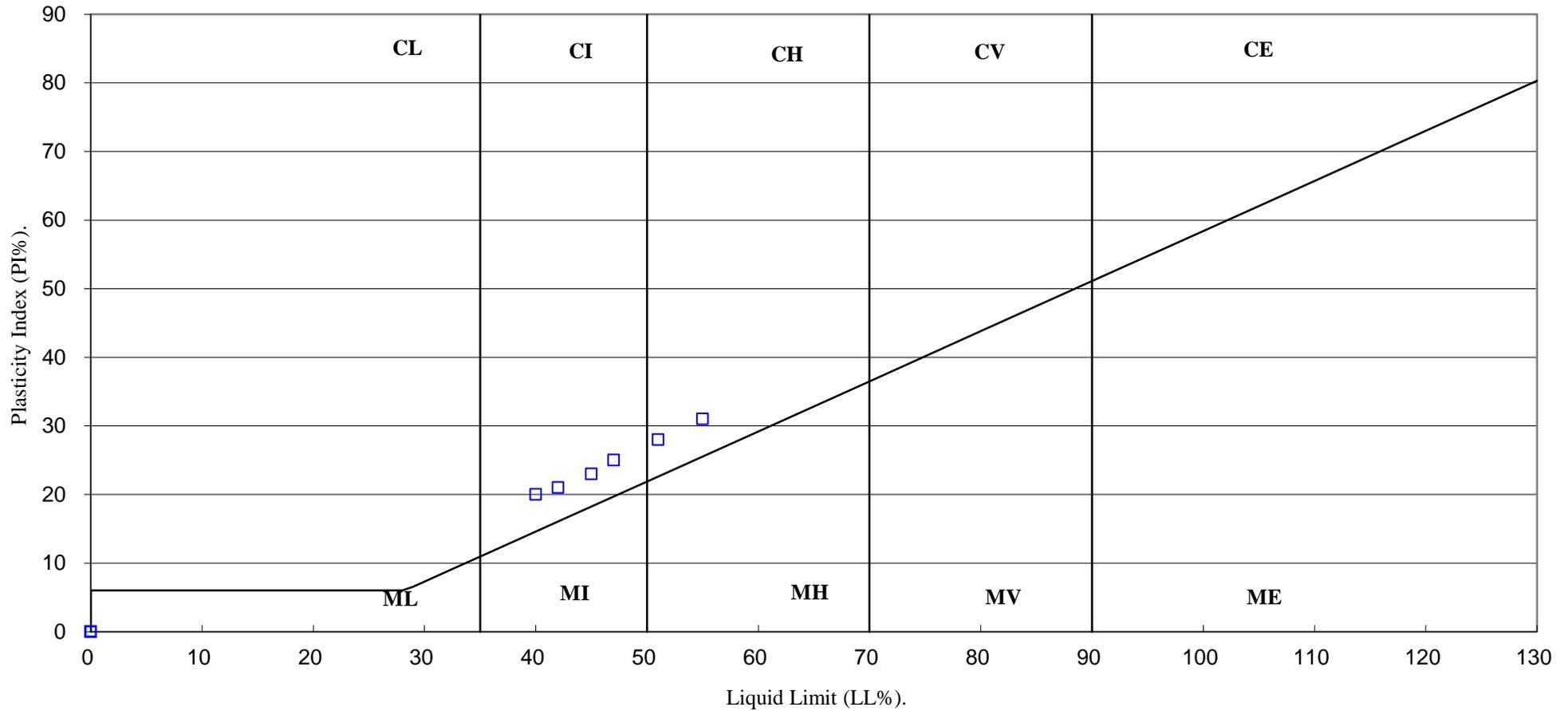
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Page 1 of

PLASTICITY CHART FOR CASAGRANDE CLASSIFICATION.



4043

PSL
Professional Soils Laboratory

Parkside, Hoyland Common

Contract No:

PSL20/5161

Client Ref:

AG3080D-20

PARTICLE SIZE DISTRIBUTION TEST

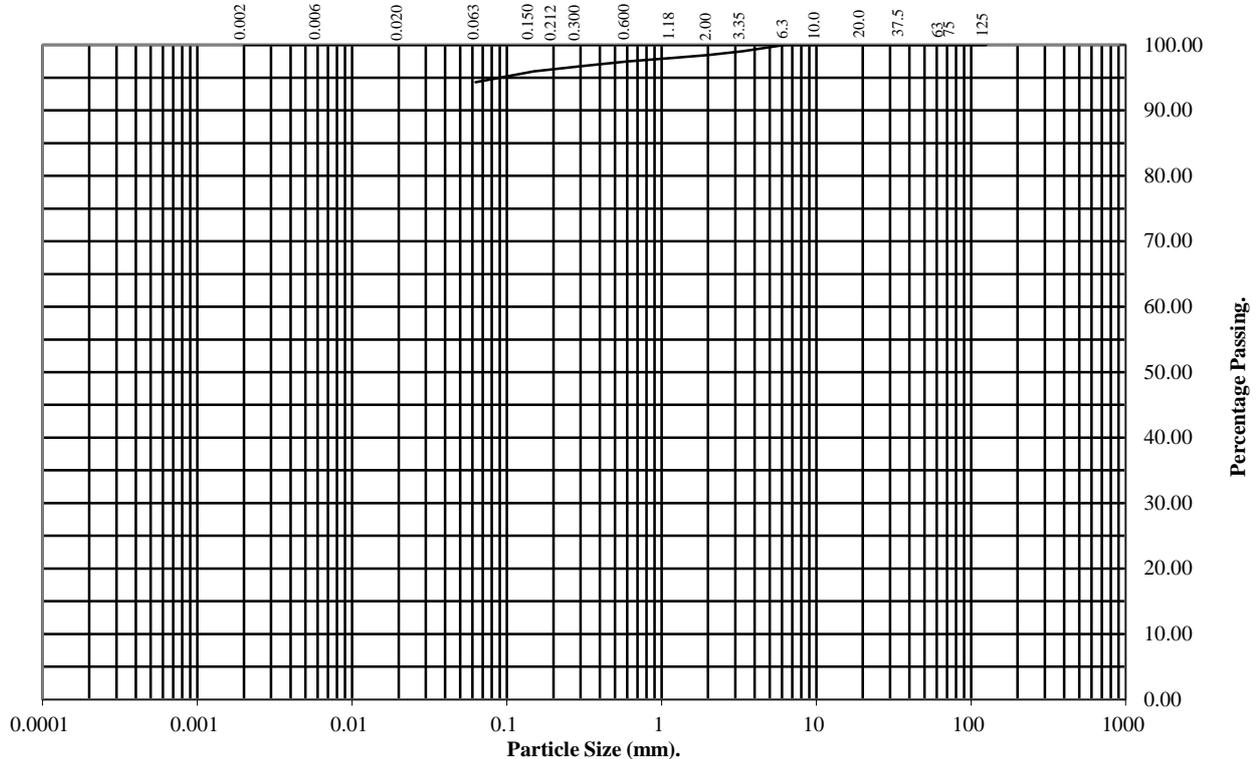
BS1377 : Part 2 : 1990

Wet Sieve, Clause 9.2

Hole Number: TT2101 **Top Depth (m):** 0.50

Sample Number: **Base Depth(m):**

Sample Type: B



BS Test Sieve (mm)	Percentage Passing
125	100
75	100
63	100
37.5	100
20	100
10	100
6.3	100
3.35	99
2	98
1.18	98
0.6	97
0.3	97
0.212	96
0.15	96
0.063	94

Soil Fraction	Total Percentage
Cobbles	0
Gravel	2
Sand	4
Silt/Clay	94

Remarks:
See Summary of Soil Descriptions



Parkside, Hoyland Common

Contract No:
PSL20/5161
Client Ref:
AG3080D-20