



12-16 Yarm Road
Stockton on Tees
TS18 3NA
01642 607083
info@solmek.com

Borehole Log

Scale 1:50 Sheet 1 of 2

BH03

Contract no: S220443	Site: Falkland Way, Barton-Upon-Humber	Driller: RD Drilling Ltd	GL (AOD):
Client: Allenby Commercial		Plant used: Dando4000	Easting: 503791
Method: Cable percussive		Started: 11/05/2022	Northing: 422674
		Ended: 11/05/2022	Logged: KW
		Backfilled: 11/05/2022	Status: FINAL

Backfill / Installation	Legend	Depth (m)	Level (m AOD)	Stratum Description	Samples and Insitu Testing			
					Depth (m)	Type	Results	
		0.30		MADE GROUND: Brown sandy clayey topsoil.	0.25	B+ES		
				Soft to firm brown low strength silty CLAY of high plasticity.	0.50 - 1.20	B+ES		
					1.20 - 1.65	SPT (S)	N=6 (1,1/2,1,1,2)	
					1.20 - 1.70	B		
				2.10		2.00 - 2.45	B	10 blows [NR]
					Very soft grey slightly gravelly low strength clayey SILT. Gravel is fine to coarse angular to subangular of chalk.	2.00 - 3.00	U	
						2.50 - 2.95	SPT (S)	N=0 (1,0/0,0,0,0)
						3.00 - 3.45	SPT (S)	N=0 (1,0/0,0,0,0)
						3.00 - 4.00	B	
						4.00 - 4.45	SPT (S)	N=8 (0,0/2,2,2,2)
				4.40		4.00 - 4.50	B	
						4.70	D	
						5.00 - 5.45	SPT (S)	N=18 (4,4/4,5,4,5)
						5.00 - 5.50	B	
						6.50 - 6.95	SPT (S)	N=16 (3,3/4,4,4,4)
				6.50 - 7.00	B			
				7.50	D			
		8.00		Firm to stiff light brown slightly sandy very gravelly low to high strength CLAY of low plasticity. Gravel is fine to medium subangular to angular of chalk.	8.00	U	60 blows [450mm]	
					8.50	D		
					9.50 - 9.95	SPT (S)	N=17 (2,3/4,4,4,5)	
					9.50 - 10.00	B		

Hole Diameter				Casing Depths			General Remarks			Chiselling			Ground Water			
Depth Base (m)	Diameter (mm)	Depth Base (m)	Diameter (mm)	From (m)	To (m)	Time (hr)	Depth Strike (m)	Depth Casing (m)	Depth Sealed (m)	Time Elapsed (min)	Water Level (m)					
							4.10				0.80					
							14.50			20	1.20					



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Scale 1:50 Sheet 2 of 2

BH03

Contract no: S220443	Site: Falkland Way, Barton-Upon-Humber	Driller: RD Drilling Ltd	GL (AOD):
Client: Allenby Commercial		Plant used: Dando4000	Easting: 503791
Method: Cable percussive		Started: 11/05/2022	Northing: 422674
		Ended: 11/05/2022	Logged: KW
		Backfilled: 11/05/2022	Status: FINAL

Backfill / Installation	Legend	Depth (m)	Level (m AOD)	Stratum Description	Samples and Insitu Testing		
					Depth (m)	Type	Results
				Firm to stiff light brown slightly sandy very gravelly low to high strength CLAY of low plasticity. Gravel is fine to medium subangular to angular of chalk.			
					11.00	U	60 blows [450mm]
					11.50	D	
					12.00 - 13.50	B	
					12.50 - 12.95	SPT (S)	N=18 (3,3/4,4,5,5)
					14.50	U	60 blows [450mm]
					15.00	D	
					16.00 - 16.45	SPT (S)	N=17 (3,4/4,4,4,5)
					16.00 - 16.50	B	
					17.00 - 18.00	B	
					17.50 - 17.95	SPT (S)	N=29 (3,6/7,7,7,8)
					19.00 - 19.45	SPT (S)	N=34 (5,8/8,8,9,9)
					19.00 - 20.00	B	
		20.00		End of Borehole at 20.000m			

Hole Diameter				Casing Depths		General Remarks	Chiselling			Ground Water			
Depth Base (m)	Diameter (mm)	Depth Base (m)	Diameter (mm)	From (m)	To (m)		Time (hr)	Depth Strike (m)	Depth Casing (m)	Depth Sealed (m)	Time Elapsed (min)	Water Level (m)	
						1.2m Hand excavated inspection pit dug. Groundwater encountered at 4.10							
							4.10				20	0.80	
							14.50				20	1.20	

**SOLMEK**

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Trial Pit Log

TrialPit No
TP01
 Sheet 1 of 1

Project Name: Falkland Way, Barton-Upon-Humber Project No. S220443 Co-ords: 503719E - 422715N Date: 09/05/2022

Plant Used: JCB 3CX Dimensions (m): 1.95 Scale: 1:26

Client: Allenby Commercial Depth: 2.50 Logged: KW

Water Strike	Samples & In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description
	Depth	Type	Results				
	0.10 - 0.20	B+ES		0.20			MADE GROUND: Grass over dark brown slightly sandy slightly gravelly topsoil. Sand is fine to medium, gravel is fine subrounded to subangular of sandstone, contains roots.
	0.60 - 0.70	B+ES					Soft to firm dark brown grey mottled slightly sandy slightly gravelly medium strength CLAY. Gravel is fine subrounded to rounded of sandstone.
	1.00	HV	52kPa	1.05			Soft dark brown sandy low strength CLAY.
	1.40 - 1.50	B					
▼	2.00	HV	30kPa				
	2.40 - 2.50			2.50			End of Pit at 2.500m

Remarks: Groundwater seepage at 0.80m full strike at 2.10m

Stability: Pit wall's Stable



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Trial Pit Log

Trial Pit No
TP02
Sheet 1 of 1

Project Name: Falkland Way, Barton-Upon-Humber
Project No. S220443
Co-ords: 503741E - 422710N
Level:
Date: 09/05/2022

Plant Used: JCB 3CX
Dimensions (m): 1.90
Scale: 1:26

Client: Allenby Commercial
Depth: 2.20
Logged: KW

Water Strike	Samples & In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description
	Depth	Type	Results				
	0.00 - 0.10	B+ES		0.10			MADE GROUND: Grass over dark brown clayey topsoil with roots. Firm brown slightly sandy CLAY.
	0.30 - 0.40	B+ES		0.40			Soft to firm dark brown grey mottled slightly sandy slightly gravelly medium strength CLAY. Gravel is fine subrounded to rounded of sandstone.
	1.00 1.00	B+ES HV	50kPa	1.70			Soft dark brown sandy low strength CLAY.
	2.00 2.00	B HV	38kPa	2.20			End of Pit at 2.200m

Remarks: Groundwater seepage at 1.00m

Stability: Pit wall's Stable



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Trial Pit Log

Trial Pit No
TP03
Sheet 1 of 1

Project Name: Falkland Way, Barton-Upon-Humber Project No. S220443 Co-ords: 503723E - 422692N Date: 10/05/2022

Plant Used: JCB 3CX Dimensions (m): 1.78 Scale: 1:26

Client: Allenby Commercial Depth: 2.20 Logged: KW

Water Strike	Samples & In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description
	Depth	Type	Results				
	0.10 - 0.20	B+ES		0.20			MADE GROUND: Grass over slightly gravelly very clayey topsoil. Gravel is fine to medium subrounded to rounded of sandstone.
	0.70 - 0.80	B+ES					Soft to firm dark brown, grey mottled slightly sandy slightly gravelly medium strength CLAY. Gravel is fine subrounded to rounded of sandstone.
	1.00	HV	56kPa				
	1.40 - 1.50	B		1.60			Soft dark brown slightly sandy CLAY.
	2.00 - 2.20 2.00	B HV	28kPa	2.20			End of Pit at 2.200m

Remarks: Groundwater seepage at 2.00m

Stability: Pit wall's Stable



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Trial Pit Log

TrialPit No
TP04
Sheet 1 of 1

Project Name: Falkland Way, Barton-Upon-Humber
Project No. S220443
Co-ords: 503747E - 422699N
Level:
Date: 09/05/2022

Plant Used: JCB 3CX
Dimensions (m): 1.95
Scale: 1:26

Client: Allenby Commercial
Depth: 2.60
Logged: KW

Water Strike	Samples & In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description
	Depth	Type	Results				
	0.10 - 0.20	B+ES		0.20			MADE GROUND: Dark brown slightly gravelly, very clayey topsoil. Gravel is fine to medium subangular to rounded of sandstone with frequent roots.
	0.70 - 0.80	B+ES					Soft to firm dark brown, grey mottled slightly sandy slightly gravelly medium strength CLAY. Gravel is fine subrounded to rounded of sandstone.
	1.00	HV	56kPa				
	1.70 - 1.80	B		1.90			Soft dark brown sandy low strength CLAY.
	2.00	HV	24kPa	2.10			Soft dark brown black mottled silty CLAY.
	2.40 - 2.50	B		2.60			End of Pit at 2.600m

Remarks: Groundwater seepage at 2.10m

Stability: Pit wall's Stable



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Trial Pit Log

TrialPit No
TP05
Sheet 1 of 1

Project Name: Falkland Way, Barton-Upon-Humber	Project No. S220443	Co-ords: 503747E - 422682N Level:	Date 09/05/2022
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Plant Used: JCB 3CX	Dimensions (m): Depth 2.40	0.60 1.82	Scale 1:26
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Client: Allenby Commercial	Logged KW
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Water Strike	Samples & In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description
	Depth	Type	Results				
	0.20 - 0.30	B+ES		0.30			MADE GROUND: Dark brown slightly clayey gravelly topsoil. Gravel is fine to coarse, subangular to angular of cement and concrete.
	0.90 - 1.00 1.00	B+ES HV	48kPa				Soft to firm dark brown, grey mottled slightly sandy slightly gravelly low to medium strength CLAY. Gravel is fine subrounded to rounded of sandstone.
	2.00 2.10 - 2.20	HV B	22kPa	2.10			Soft dark brown slightly sandy CLAY.
				2.40			End of Pit at 2.400m

Remarks: No groundwater encountered

Stability: Pit wall's Stable



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
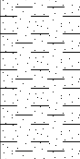

Trial Pit Log

TrialPit No
TP06
Sheet 1 of 1

Project Name: Falkland Way, Barton-Upon-Humber	Project No. S220443	Co-ords: 503789E - 422716N Level:	Date 10/05/2022
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Plant Used: JCB 3CX	Dimensions (m): Depth 2.10	0.60 	Scale 1:26
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Client: Allenby Commercial	Logged KW
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Water Strike	Samples & In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description	
	Depth	Type	Results					
	0.20 - 0.30	B+ES					MADE GROUND: Grass over dark brown very clayey topsoil.	
	0.40 - 0.50	B+ES		0.30 0.50			Soft to firm dark brown, grey mottled slightly sandy slightly gravelly medium strength CLAY. Gravel is fine subrounded to rounded of sandstone. Soft dark brown slightly sandy CLAY.	
	1.00 - 1.10 1.00	B+ES HV	30kPa	1.10				1
	2.00 - 2.10 2.00	B HV	18kPa	2.10			Brownish grey very silty SAND. Thin bands of silt noted.	2
	End of Pit at 2.100m							3 4 5

Remarks: Groundwater seepage at 0.70m

Stability: Pit wall's Stable



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Trial Pit Log

TrialPit No
TP07
Sheet 1 of 1

Project Name: Falkland Way, Barton-Upon-Humber	Project No. S220443	Co-ords: 503782E - 422697N Level:	Date 10/05/2022
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Plant Used: JCB 3CX	Dimensions (m): Depth 2.40	2.05 	Scale 1:26
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Client: Allenby Commercial	Logged KW
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Water Strike	Samples & In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description
	Depth	Type	Results				
	0.10 - 0.20	B+ES		0.20			MADE GROUND: Grass over dark brown slightly gravelly slightly clayey topsoil. Gravel is fine to medium, subrounded to angular of chalk with roots.
	0.50 - 0.60	B+ES					Soft to firm dark brown, grey mottled slightly sandy slightly gravelly medium strength CLAY. Gravel is fine subrounded to rounded of sandstone.
	1.00	HV	42kPa				
	1.50 - 1.60	B					
	2.00 - 2.10	B HV	20kPa	1.90			Soft dark brown sandy low strength CLAY.
	2.00			2.10			Soft blackish brown very silty CLAY.
	2.30 - 2.40	B		2.40			End of Pit at 2.400m

Remarks: No groundwater encountered.

Stability: Pit wall's Stable



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Trial Pit Log

Trial Pit No
TP08
Sheet 1 of 1

Project Name: Falkland Way, Barton-Upon-Humber	Project No. S220443	Co-ords: 503773E - 422682N Level:	Date: 10/05/2022
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Plant Used: JCB 3CX	Dimensions (m):	Scale: 1:26
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Client: Allenby Commercial	Depth: 2.50	Logged: KW
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Water Strike	Samples & In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description
	Depth	Type	Results				
	0.00 - 0.10	B+ES		0.30			MADE GROUND: Grass over slightly clayey very gravelly topsoil. Gravel is fine to medium, subangular to angular of chalk.
	0.40 - 0.50	B+ES					Soft to firm dark brown grey mottled slightly sandy slightly gravelly medium strength CLAY. Gravel is fine subrounded to rounded of sandstone.
	1.00	HV	50kPa	2.00			Soft dark brown to greyish black low strength silty CLAY.
	1.40 - 1.50	B					
	2.00 - 2.10 2.00	B HV	18kPa				
	2.40 - 2.50	B		2.50			End of Pit at 2.500m

Remarks: Groundwater seepage at 1.60m

Stability: Pit wall's Stable

**APPENDIX C:
Contamination Laboratory Results**



Final Report

Report No.: 22-18353-1
Initial Date of Issue: 24-May-2022
Client: Solmek Ltd
Client Address: 12 Yarm Road
Stockton-on-Tees
TS18 3NA
Contact(s): Lab
Leo Cassidy
Office
Project: S220443 Barton Upon Humber

Quotation No.:		Date Received:	18-May-2022
Order No.:	SOL-6203	Date Instructed:	18-May-2022
No. of Samples:	4		
Turnaround (Wkdays):	5	Results Due:	24-May-2022
Date Approved:	24-May-2022		

Approved By:



Details: Stuart Henderson, Technical
Manager

Results - Leachate

Project: S220443 Barton Upon Humber

Client: Solmek Ltd		Chemtest Job No.:		22-18353	22-18353	
Quotation No.:		Chemtest Sample ID.:		1430686	1430689	
		Sample Location:		TP01	TP08	
		Sample Type:		SOIL	SOIL	
		Top Depth (m):		0.10	0.00	
		Bottom Depth (m):		0.20	0.10	
		Date Sampled:		09-May-2022	10-May-2022	
Determinand	Accred.	SOP	Type	Units	LOD	
pH	U	1010			N/A	8.6 8.7
Sulphate	U	1220		mg/l	1.0	< 1.0 < 1.0
Cyanide (Total)	U	1300		mg/l	0.050	< 0.050 < 0.050
Hardness	U	1415		mg/l	15	260 250
Arsenic (Dissolved)	U	1455		µg/l	0.20	12 13
Boron (Dissolved)	U	1455		µg/l	10.0	120 76
Cadmium (Dissolved)	U	1455		µg/l	0.11	1.5 1.4
Chromium (Dissolved)	U	1455		µg/l	0.50	25 7.7
Copper (Dissolved)	U	1455		µg/l	0.50	54 57
Mercury (Dissolved)	U	1455		µg/l	0.05	< 0.05 < 0.05
Nickel (Dissolved)	U	1455		µg/l	0.50	18 15
Lead (Dissolved)	U	1455		µg/l	0.50	320 340
Selenium (Dissolved)	U	1455		µg/l	0.50	8.6 7.6
Zinc (Dissolved)	U	1455		µg/l	2.5	440 140
Aliphatic TPH >C5-C6	N	1675		µg/l	0.10	< 0.10
Aliphatic TPH >C6-C8	N	1675		µg/l	0.10	< 0.10
Aliphatic TPH >C8-C10	N	1675		µg/l	0.10	< 0.10
Aliphatic TPH >C10-C12	N	1675		µg/l	0.10	< 0.10
Aliphatic TPH >C12-C16	N	1675		µg/l	0.10	< 0.10
Aliphatic TPH >C16-C21	N	1675		µg/l	0.10	< 0.10
Aliphatic TPH >C21-C35	N	1675		µg/l	0.10	< 0.10
Aliphatic TPH >C35-C44	N	1675		µg/l	0.10	< 0.10
Total Aliphatic Hydrocarbons	N	1675		µg/l	5.0	< 5.0
Aromatic TPH >C5-C7	N	1675		µg/l	0.10	< 0.10
Aromatic TPH >C7-C8	N	1675		µg/l	0.10	< 0.10
Aromatic TPH >C8-C10	N	1675		µg/l	0.10	< 0.10
Aromatic TPH >C10-C12	N	1675		µg/l	0.10	< 0.10
Aromatic TPH >C12-C16	N	1675		µg/l	0.10	< 0.10
Aromatic TPH >C16-C21	N	1675		µg/l	0.10	< 0.10
Aromatic TPH >C21-C35	N	1675		µg/l	0.10	< 0.10
Aromatic TPH >C35-C44	N	1675		µg/l	0.10	< 0.10
Total Aromatic Hydrocarbons	N	1675		µg/l	5.0	< 5.0
Total Petroleum Hydrocarbons	N	1675		µg/l	10	< 10
Naphthalene	U	1800		µg/l	0.10	< 0.10 < 0.10
Acenaphthylene	U	1800		µg/l	0.10	< 0.10 < 0.10
Acenaphthene	U	1800		µg/l	0.10	< 0.10 < 0.10
Fluorene	U	1800		µg/l	0.10	< 0.10 < 0.10
Phenanthrene	U	1800		µg/l	0.10	< 0.10 < 0.10
Anthracene	U	1800		µg/l	0.10	< 0.10 < 0.10

Results - Leachate

Project: S220443 Barton Upon Humber

Client: Solmek Ltd		Chemtest Job No.:		22-18353	22-18353		
Quotation No.:		Chemtest Sample ID.:		1430686	1430689		
		Sample Location:		TP01	TP08		
		Sample Type:		SOIL	SOIL		
		Top Depth (m):		0.10	0.00		
		Bottom Depth (m):		0.20	0.10		
		Date Sampled:		09-May-2022	10-May-2022		
Determinand	Accred.	SOP	Type	Units	LOD		
Fluoranthene	U	1800		µg/l	0.10	< 0.10	< 0.10
Pyrene	U	1800		µg/l	0.10	< 0.10	< 0.10
Benzo[a]anthracene	U	1800		µg/l	0.10	< 0.10	< 0.10
Chrysene	U	1800		µg/l	0.10	< 0.10	< 0.10
Benzo[b]fluoranthene	U	1800		µg/l	0.10	< 0.10	< 0.10
Benzo[k]fluoranthene	U	1800		µg/l	0.10	< 0.10	< 0.10
Benzo[a]pyrene	U	1800		µg/l	0.10	< 0.10	< 0.10
Indeno(1,2,3-c,d)Pyrene	U	1800		µg/l	0.10	< 0.10	< 0.10
Dibenz(a,h)Anthracene	U	1800		µg/l	0.10	< 0.10	< 0.10
Benzo[g,h,i]perylene	U	1800		µg/l	0.10	< 0.10	< 0.10
Total Of 16 PAH's	U	1800		µg/l	2.0	< 2.0	< 2.0
Total Phenols	U	1920		mg/l	0.030	< 0.030	< 0.030

Results - Soil

Project: S220443 Barton Upon Humber

Client: Solmek Ltd		Chemtest Job No.:		22-18353	22-18353	22-18353	22-18353
Quotation No.:		Chemtest Sample ID.:		1430686	1430687	1430688	1430689
Sample Location:		TP01	TP03	TP06	TP08		
Sample Type:		SOIL	SOIL	SOIL	SOIL		
Top Depth (m):		0.10	0.70	0.20	0.00		
Bottom Depth (m):		0.20	0.80	0.30	0.10		
Date Sampled:		09-May-2022	10-May-2022	10-May-2022	10-May-2022		
Asbestos Lab:		DURHAM	DURHAM	DURHAM	DURHAM		
Determinand	Accred.	SOP	Units	LOD			
ACM Type	U	2192		N/A	-	-	-
Asbestos Identification	U	2192		N/A	No Asbestos Detected	No Asbestos Detected	No Asbestos Detected
Moisture	N	2030	%	0.020	21	24	31
Soil Colour	N	2040		N/A	Brown	Brown	Brown
Other Material	N	2040		N/A	Stones and Roots	None	Roots
Soil Texture	N	2040		N/A	Clay	Clay	Clay
pH	M	2010		4.0	7.9	8.9	8.1
Boron (Hot Water Soluble)	M	2120	mg/kg	0.40	5.7	4.1	28
Sulphate (2:1 Water Soluble) as SO4	M	2120	mg/l	10	< 10	54	< 10
Cyanide (Total)	M	2300	mg/kg	0.50	< 0.50	< 0.50	0.60
Arsenic	M	2455	mg/kg	0.5	13	11	6.0
Cadmium	M	2455	mg/kg	0.10	0.19	0.10	0.14
Chromium	M	2455	mg/kg	0.5	19	26	10
Copper	M	2455	mg/kg	0.50	18	12	9.7
Mercury	M	2455	mg/kg	0.05	0.09	< 0.05	0.07
Nickel	M	2455	mg/kg	0.50	18	23	8.7
Lead	M	2455	mg/kg	0.50	96	38	53
Selenium	M	2455	mg/kg	0.25	0.65	0.93	0.30
Zinc	M	2455	mg/kg	0.50	64	58	34
Organic Matter	M	2625	%	0.40	7.4	1.7	12
Aliphatic TPH >C5-C6	N	2680	mg/kg	1.0	< 1.0		< 1.0
Aliphatic TPH >C6-C8	N	2680	mg/kg	1.0	< 1.0		< 1.0
Aliphatic TPH >C8-C10	M	2680	mg/kg	1.0	< 1.0		< 1.0
Aliphatic TPH >C10-C12	M	2680	mg/kg	1.0	< 1.0		< 1.0
Aliphatic TPH >C12-C16	M	2680	mg/kg	1.0	< 1.0		< 1.0
Aliphatic TPH >C16-C21	M	2680	mg/kg	1.0	< 1.0		< 1.0
Aliphatic TPH >C21-C35	M	2680	mg/kg	1.0	< 1.0		< 1.0
Aliphatic TPH >C35-C44	N	2680	mg/kg	1.0	< 1.0		< 1.0
Total Aliphatic Hydrocarbons	N	2680	mg/kg	5.0	< 5.0		< 5.0
Aromatic TPH >C5-C7	N	2680	mg/kg	1.0	< 1.0		< 1.0
Aromatic TPH >C7-C8	N	2680	mg/kg	1.0	< 1.0		< 1.0
Aromatic TPH >C8-C10	M	2680	mg/kg	1.0	< 1.0		< 1.0
Aromatic TPH >C10-C12	M	2680	mg/kg	1.0	< 1.0		< 1.0
Aromatic TPH >C12-C16	M	2680	mg/kg	1.0	< 1.0		< 1.0
Aromatic TPH >C16-C21	U	2680	mg/kg	1.0	< 1.0		< 1.0
Aromatic TPH >C21-C35	M	2680	mg/kg	1.0	< 1.0		< 1.0

Results - Soil

Project: S220443 Barton Upon Humber

Client: Solmek Ltd		Chemtest Job No.:		22-18353	22-18353	22-18353	22-18353
Quotation No.:		Chemtest Sample ID.:		1430686	1430687	1430688	1430689
		Sample Location:		TP01	TP03	TP06	TP08
		Sample Type:		SOIL	SOIL	SOIL	SOIL
		Top Depth (m):		0.10	0.70	0.20	0.00
		Bottom Depth (m):		0.20	0.80	0.30	0.10
		Date Sampled:		09-May-2022	10-May-2022	10-May-2022	10-May-2022
		Asbestos Lab:		DURHAM	DURHAM	DURHAM	DURHAM
Determinand	Accred.	SOP	Units	LOD			
Aromatic TPH >C35-C44	N	2680	mg/kg	1.0	< 1.0		< 1.0
Total Aromatic Hydrocarbons	N	2680	mg/kg	5.0	< 5.0		< 5.0
Total Petroleum Hydrocarbons	N	2680	mg/kg	10.0	< 10		< 10
Naphthalene	M	2700	mg/kg	0.10	< 0.10	< 0.10	< 0.10
Acenaphthylene	M	2700	mg/kg	0.10	< 0.10	< 0.10	< 0.10
Acenaphthene	M	2700	mg/kg	0.10	< 0.10	< 0.10	< 0.10
Fluorene	M	2700	mg/kg	0.10	< 0.10	< 0.10	< 0.10
Phenanthrene	M	2700	mg/kg	0.10	< 0.10	< 0.10	0.50
Anthracene	M	2700	mg/kg	0.10	< 0.10	< 0.10	0.17
Fluoranthene	M	2700	mg/kg	0.10	< 0.10	< 0.10	1.7
Pyrene	M	2700	mg/kg	0.10	< 0.10	< 0.10	1.9
Benzo[a]anthracene	M	2700	mg/kg	0.10	< 0.10	< 0.10	1.4
Chrysene	M	2700	mg/kg	0.10	< 0.10	< 0.10	2.0
Benzo[b]fluoranthene	M	2700	mg/kg	0.10	< 0.10	< 0.10	2.5
Benzo[k]fluoranthene	M	2700	mg/kg	0.10	< 0.10	< 0.10	0.87
Benzo[a]pyrene	M	2700	mg/kg	0.10	< 0.10	< 0.10	1.0
Indeno(1,2,3-c,d)Pyrene	M	2700	mg/kg	0.10	< 0.10	< 0.10	0.78
Dibenz(a,h)Anthracene	M	2700	mg/kg	0.10	< 0.10	< 0.10	0.21
Benzo[g,h,i]perylene	M	2700	mg/kg	0.10	< 0.10	< 0.10	0.66
Total Of 16 PAH's	M	2700	mg/kg	2.0	< 2.0	< 2.0	14
Total Phenols	M	2920	mg/kg	0.10	< 0.10	< 0.10	< 0.10

Test Methods

SOP	Title	Parameters included	Method summary
1010	pH Value of Waters	pH	pH Meter
1220	Anions, Alkalinity & Ammonium in Waters	Fluoride; Chloride; Nitrite; Nitrate; Total; Oxidisable Nitrogen (TON); Sulfate; Phosphate; Alkalinity; Ammonium	Automated colorimetric analysis using 'Aquakem 600' Discrete Analyser.
1300	Cyanides & Thiocyanate in Waters	Free (or easy liberatable) Cyanide; total Cyanide; complex Cyanide; Thiocyanate	Continuous Flow Analysis.
1415	Cations in Waters by ICP-MS	Sodium; Potassium; Calcium; Magnesium	Direct determination by inductively coupled plasma - mass spectrometry (ICP-MS).
1455	Metals in Waters by ICP-MS	Metals, including: Antimony; Arsenic; Barium; Beryllium; Boron; Cadmium; Chromium; Cobalt; Copper; Lead; Manganese; Mercury; Molybdenum; Nickel; Selenium; Tin; Vanadium; Zinc	Filtration of samples followed by direct determination by inductively coupled plasma mass spectrometry (ICP-MS).
1675	TPH Aliphatic/Aromatic split in Waters by GC-FID(cf. Texas Method 1006 / TPH CWG)	Aliphatics: >C5-C6, >C6-C8, >C8-C10, >C10-C12, >C12-C16, >C16-C21, >C21-C35, >C35-C44 Aromatics: >C5-C7, >C7-C8, >C8-C10, >C10-C12, >C12-C16, >C16-C21, >C21-C35, >C35-C44	Pentane extraction / GCxGC FID detection
1800	Speciated Polynuclear Aromatic Hydrocarbons (PAH) in Waters by GC-MS	Acenaphthene; Acenaphthylene; Anthracene; Benzo[a]Anthracene; Benzo[a]Pyrene; Benzo[b]Fluoranthene; Benzo[ghi]Perylene; Benzo[k]Fluoranthene; Chrysene; Dibenz[ah]Anthracene; Fluoranthene; Fluorene; Indeno[123cd]Pyrene; Naphthalene; Phenanthrene; Pyrene	Pentane extraction / GCMS detection
1920	Phenols in Waters by HPLC	Phenolic compounds including: Phenol, Cresols, Xylenols, Trimethylphenols Note: Chlorophenols are excluded.	Determination by High Performance Liquid Chromatography (HPLC) using electrochemical detection.
2010	pH Value of Soils	pH	pH Meter
2030	Moisture and Stone Content of Soils(Requirement of MCERTS)	Moisture content	Determination of moisture content of soil as a percentage of its as received mass obtained at <37°C.
2040	Soil Description(Requirement of MCERTS)	Soil description	As received soil is described based upon BS5930
2120	Water Soluble Boron, Sulphate, Magnesium & Chromium	Boron; Sulphate; Magnesium; Chromium	Aqueous extraction / ICP-OES
2192	Asbestos	Asbestos	Polarised light microscopy / Gravimetry
2300	Cyanides & Thiocyanate in Soils	Free (or easy liberatable) Cyanide; total Cyanide; complex Cyanide; Thiocyanate	Alkaline extraction followed by colorimetric determination using Automated Flow Injection Analyser.
2625	Total Organic Carbon in Soils	Total organic Carbon (TOC)	Determined by high temperature combustion under oxygen, using an Eltra elemental analyser.
2680	TPH A/A Split	Aliphatics: >C5-C6, >C6-C8,>C8-C10, >C10-C12, >C12-C16, >C16-C21, >C21-C35, >C35-C44 Aromatics: >C5-C7, >C7-C8, >C8-C10, >C10-C12, >C12-C16, >C16-C21, >C21-C35, >C35-C44	Dichloromethane extraction / GCxGC FID detection
2700	Speciated Polynuclear Aromatic Hydrocarbons (PAH) in Soil by GC-FID	Acenaphthene; Acenaphthylene; Anthracene; Benzo[a]Anthracene; Benzo[a]Pyrene; Benzo[b]Fluoranthene; Benzo[ghi]Perylene; Benzo[k]Fluoranthene; Chrysene; Dibenz[ah]Anthracene; Fluoranthene; Fluorene; Indeno[123cd]Pyrene; Naphthalene; Phenanthrene; Pyrene	Dichloromethane extraction / GC-FID (GC-FID detection is non-selective and can be subject to interference from co-eluting compounds)

Test Methods

SOP	Title	Parameters included	Method summary
2920	Phenols in Soils by HPLC	Phenolic compounds including Resorcinol, Phenol, Methylphenols, Dimethylphenols, 1-Naphthol and Trimethylphenols Note: chlorophenols are excluded.	60:40 methanol/water mixture extraction, followed by HPLC determination using electrochemical detection.

Report Information

Key

U	UKAS accredited
M	MCERTS and UKAS accredited
N	Unaccredited
S	This analysis has been subcontracted to a UKAS accredited laboratory that is accredited for this analysis
SN	This analysis has been subcontracted to a UKAS accredited laboratory that is not accredited for this analysis
T	This analysis has been subcontracted to an unaccredited laboratory
I/S	Insufficient Sample
U/S	Unsuitable Sample
N/E	not evaluated
<	"less than"
>	"greater than"
SOP	Standard operating procedure
LOD	Limit of detection

Comments or interpretations are beyond the scope of UKAS accreditation

The results relate only to the items tested

Uncertainty of measurement for the determinands tested are available upon request

None of the results in this report have been recovery corrected

All results are expressed on a dry weight basis

The following tests were analysed on samples as received and the results subsequently corrected to a dry weight basis TPH, BTEX, VOCs, SVOCs, PCBs, Phenols

For all other tests the samples were dried at < 37°C prior to analysis

All Asbestos testing is performed at the indicated laboratory

Issue numbers are sequential starting with 1 all subsequent reports are incremented by 1

Sample Deviation Codes

- A - Date of sampling not supplied
- B - Sample age exceeds stability time (sampling to extraction)
- C - Sample not received in appropriate containers
- D - Broken Container
- E - Insufficient Sample (Applies to LOI in Trommel Fines Only)

Sample Retention and Disposal

All soil samples will be retained for a period of 30 days from the date of receipt

All water samples will be retained for 14 days from the date of receipt

Charges may apply to extended sample storage

If you require extended retention of samples, please email your requirements to:

customerservices@chemtest.com

**APPENDIX D:
Geotechnical Laboratory Results**

Laboratory Report Front Sheet

Solmek
12-16 Yarm Road,
Stockton on Tees,
TS18 3NA
01642 607083
lab@solmek.com



Site name	Job number
Barton upon Humber	S220443

Client details:

Reference: S220443
Name: Solmek
Address: 12 Yarm Road,
Stockton-on-tees,
TS18 3NA

Telephone: 01642 607083
Email: lcassidy@solmek.com

FAO: Leo Cassidy

Date commenced: 20/05/2022

Date reported: 06/06/2022

Observations and interpretations are outside of 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 in full, without the prior written approval of the laboratory.

Samples will be held at the laboratory for a period of 4 weeks after the report date. After the above reporting date the samples will be disposed of. Should further testing be required then the office should be informed before the above date.

Signature: 	Approved Signatories: <input type="checkbox"/> D.Anderson (Associate Director) <input checked="" type="checkbox"/> J. Brischuk (Laboratory Manager) <input type="checkbox"/>
--	--

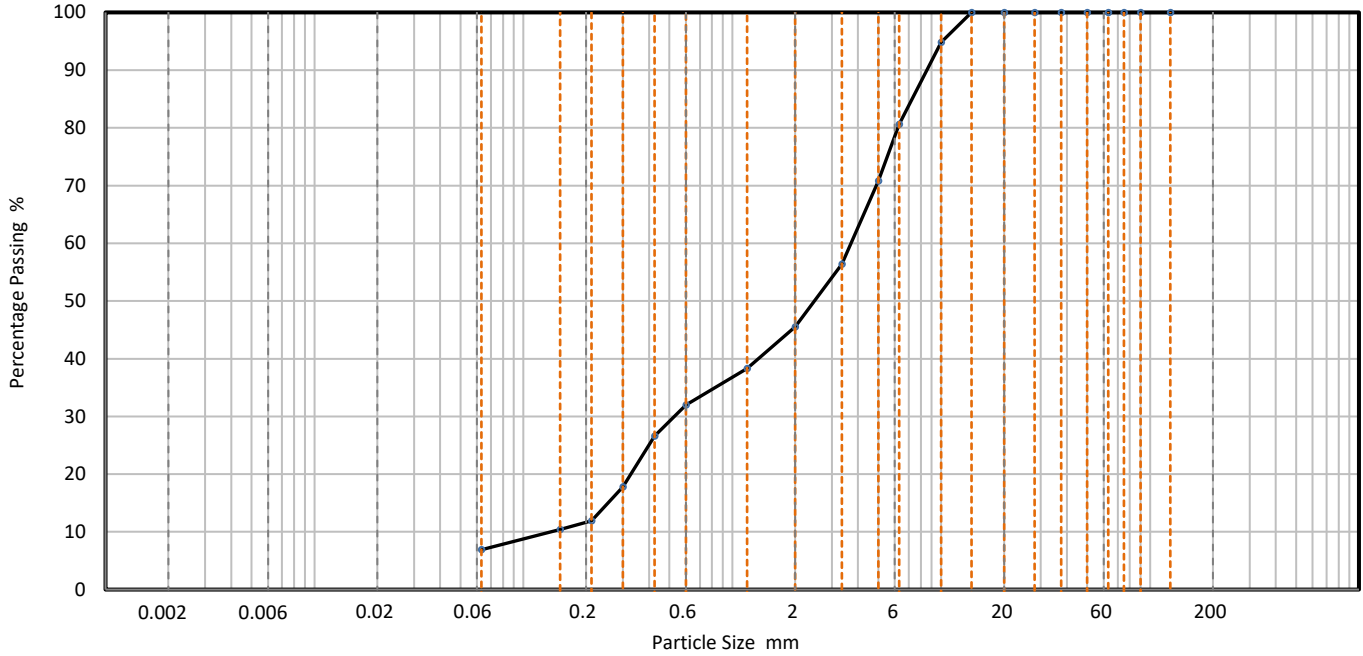
PARTICLE SIZE DISTRIBUTION

Solmek
12-16 Yarm Road,
Stockton on Tees,
TS18 3NA
01642 607083
lab@solmek.com



Site name	Job number
Barton upon Humber	S220443

Hole	BH02	Lab sample ID	SLMK2022052015
Depth (Top)	m 18.00	Test Method	BS 1377 - 2 : 1990 Clause 9.2
Depth (Base)	m	Soil Description	Slightly Clayey, Very Sandy GRAVEL
Sample type	B		



CLAY	Fine	Medium	Coarse	Fine	Medium	Coarse	Fine	Medium	Coarse	COBBLES	BOULDERS
	SILT			SAND			GRAVEL				

Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100		
90	100		
75	100		
63	100		
50	100		
37.5	100		
28	100		
20	100		
14	100		
10	95		
6.3	81		
5	71		
3.35	56		
2	46		
1.18	38		
0.6	32		
0.425	27		
0.3	18		
0.212	12		
0.15	10		
0.063	7		

Dry Mass of sample, g

419

Sample Proportions	% dry mass
Very coarse	0.0
Gravel	54.5
Sand	38.6
Fines <0.063mm	7.0


Grading Analysis		
D100	mm	
D60	mm	3.7
D30	mm	0.527
D10	mm	0.135
Uniformity Coefficient		27
Curvature Coefficient		0.55

Remarks
Preparation and testing in accordance with test method unless noted below

Accreditation status

Hydrometer is the usual Sedimentation method carried out by Solmek and is part of the Solmek UKAS accreditation schedule.

Approved by	JBrischuk
Approval date	06/06/2022 14:38

	Unconsolidated Undrained Triaxial Compression Test without measurement of pore pressure - single specimen		Job Ref	S220443	
			Borehole/Pit No.	BH01	
Site Name	Barton upon Humber		Sample No.		
Soil Description			Depth	7.50	
Specimen Reference		Specimen Depth	m	Sample Type	U
Specimen Description	High strength CLAY		KeyLAB ID	SLMK2022052010	
Test Method	BS1377 : Part 7 : 1990, clause 8, single specimen		Date of test	01/06/2022	

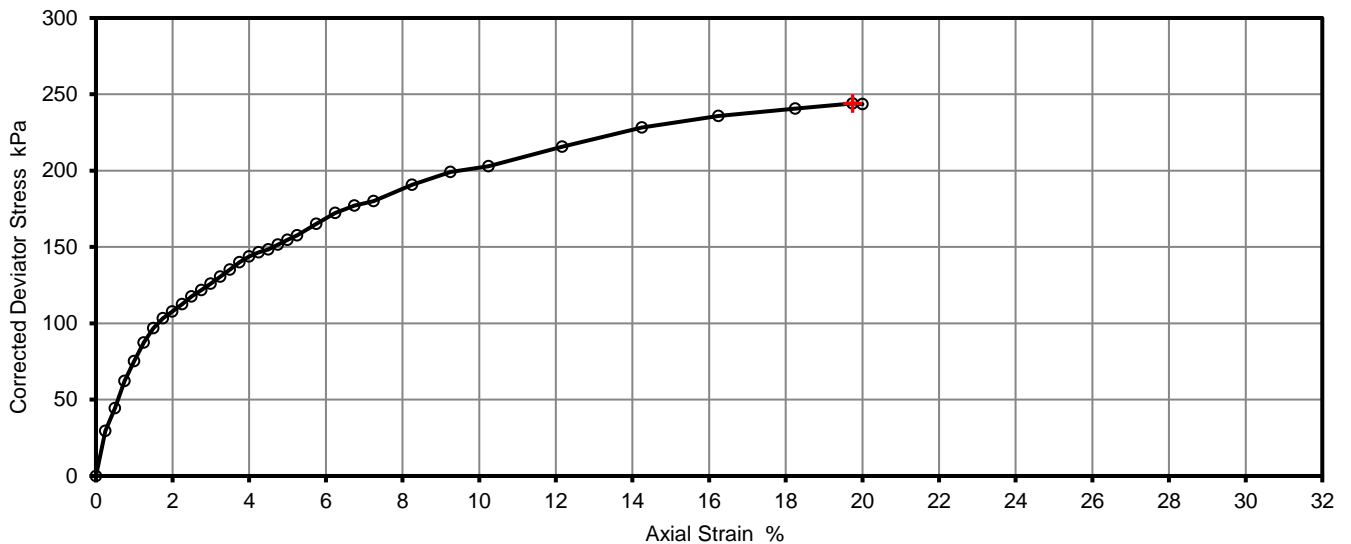
Test Number	1
Length	202.0 mm
Diameter	102.0 mm
Bulk Density	2.17 Mg/m ³
Moisture Content	14.7 %
Dry Density	1.89 Mg/m ³

Tracable Equipment Record

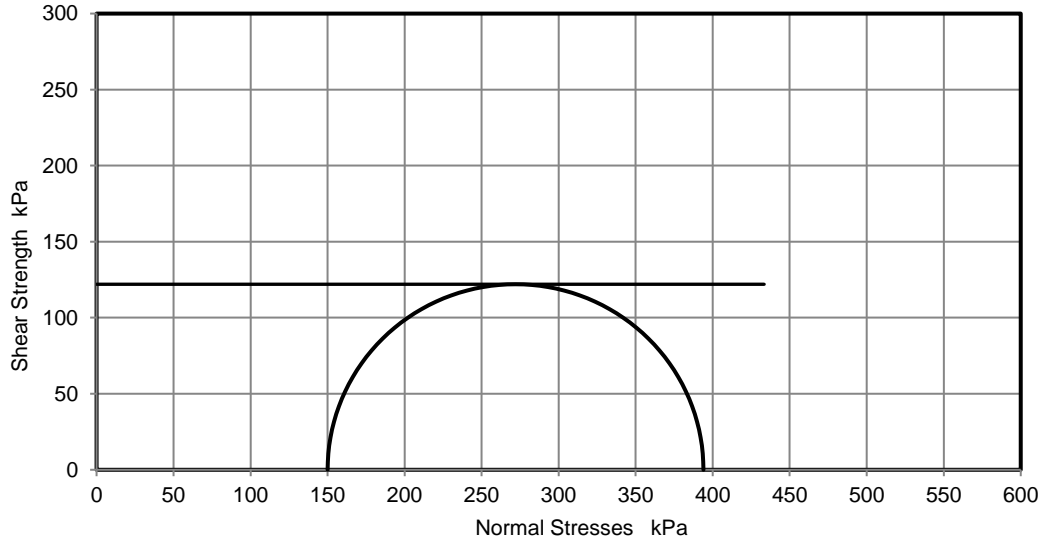
Test Frame	TRI 004
Load Ring	LOAD CELL 001
Pressure Gauge	PRE 006
Digital Caliper	CAL-005
Balance	BAL-007

Rate of Strain	1.0 %/min
Cell Pressure	150 kPa
At failure	
Axial Strain	19.7 %
Deviator Stress, ($\sigma_1 - \sigma_3$) _f	244 kPa
Undrained Shear Strength, c_u	122 kPa $\frac{1}{2}(\sigma_1 - \sigma_3)_f$
Mode of Failure	Compound

Deviator Stress v Axial Strain




Mohr Circles



Deviator stress corrected for area change and membrane effects

Mohr circles and their interpretation is not covered by BS1377. This is provided for information only.

No of membranes used	1
Total thickness (mm)	0.25
Membrane Correction	
Membrane Type	

	Unconsolidated Undrained Triaxial Compression Test without measurement of pore pressure - single specimen		Job Ref	S220443	
			Borehole/Pit No.	BH01	
Site Name	Barton upon Humber		Sample No.		
Soil Description			Depth	13.00	
Specimen Reference		Specimen Depth	m	Sample Type	U
Specimen Description	Medium strength CLAY		KeyLAB ID	SLMK2022052011	
Test Method	BS1377 : Part 7 : 1990, clause 8, single specimen		Date of test	01/06/2022	

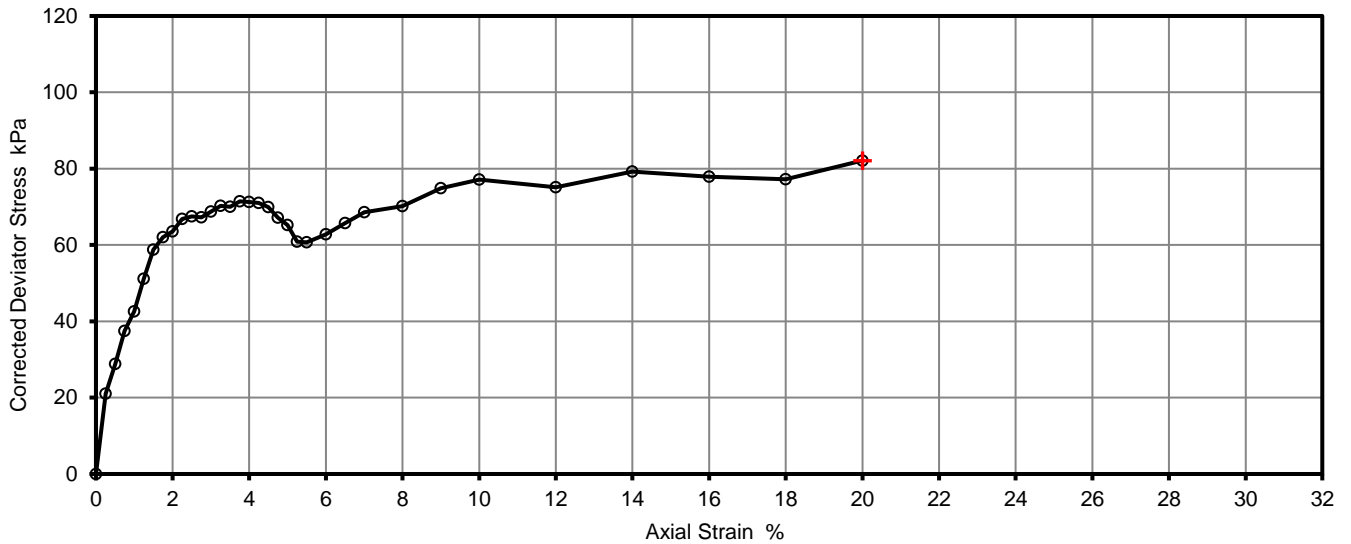
Test Number	1
Length	76.0 mm
Diameter	38.0 mm
Bulk Density	2.19 Mg/m ³
Moisture Content	15.7 %
Dry Density	1.89 Mg/m ³

Tracable Equipment Record

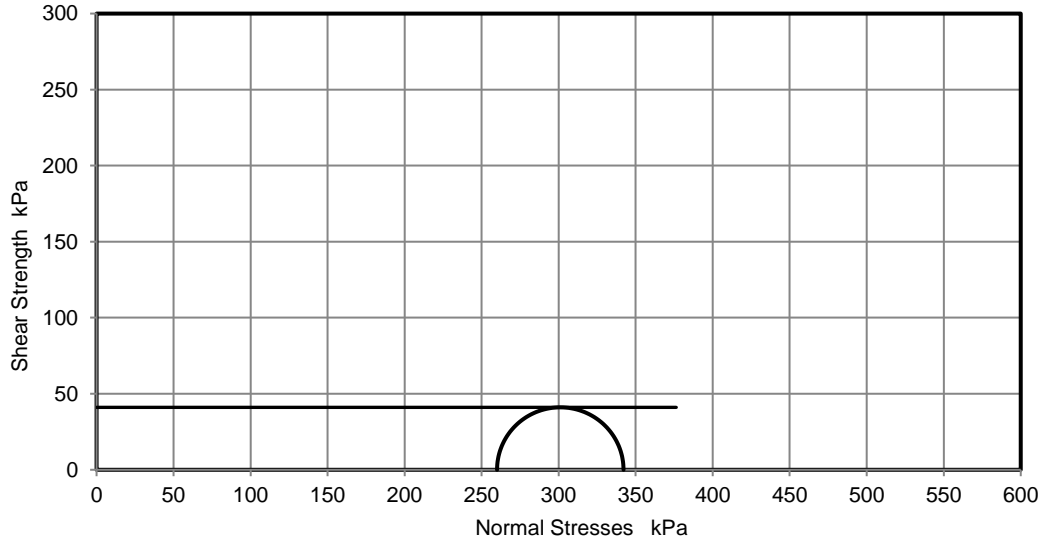
Test Frame	TRI 004
Load Ring	LOAD CELL 003
Pressure Gauge	PRE 006
Digital Caliper	CAL-005
Balance	BAL-007

Rate of Strain	1.0 %/min
Cell Pressure	260 kPa
At failure	
Axial Strain	20.0 %
Deviator Stress, ($\sigma_1 - \sigma_3$) _f	82 kPa
Undrained Shear Strength, c_u	41 kPa $\frac{1}{2}(\sigma_1 - \sigma_3)_f$
Mode of Failure	Plastic

Deviator Stress v Axial Strain




Mohr Circles



Deviator stress corrected for area change and membrane effects

Mohr circles and their interpretation is not covered by BS1377. This is provided for information only.

No of membranes used	1
Total thickness (mm)	0.25
Membrane Correction	
Membrane Type	

	Unconsolidated Undrained Triaxial Compression Test without measurement of pore pressure - single specimen		Job Ref	S220443	
			Borehole/Pit No.	BH02	
Site Name	Barton upon Humber		Sample No.		
Soil Description			Depth	7.50	
Specimen Reference		Specimen Depth	m	Sample Type	U
Specimen Description	Medium strength CLAY		KeyLAB ID	SLMK2022052013	
Test Method	BS1377 : Part 7 : 1990, clause 8, single specimen		Date of test	01/06/2022	

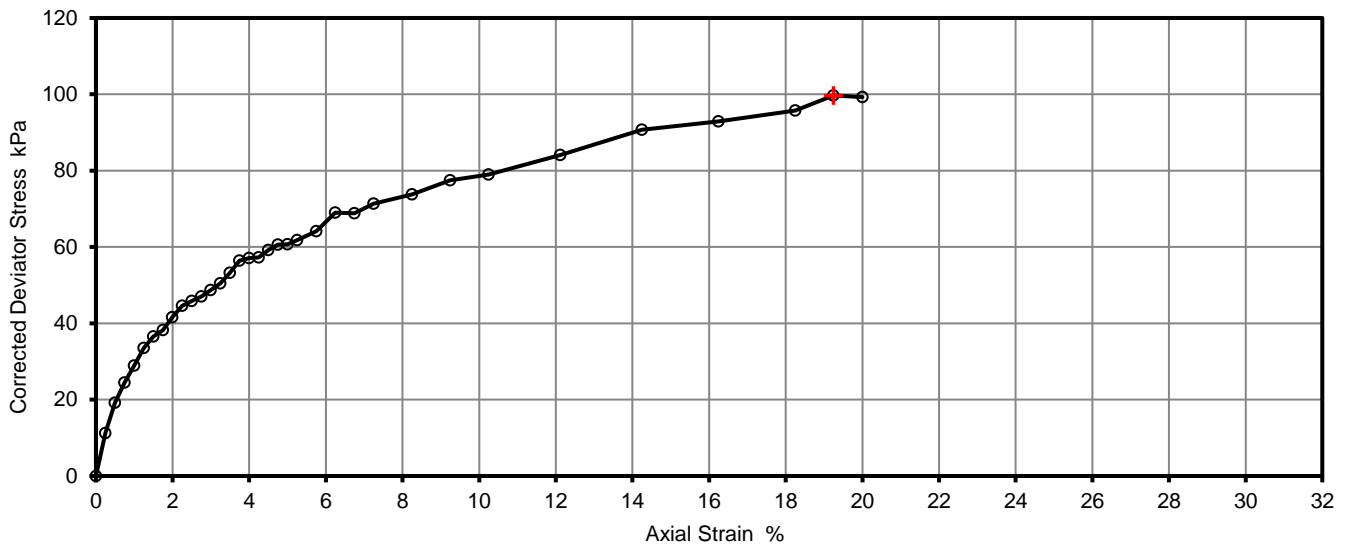
Test Number	1
Length	203.0 mm
Diameter	102.0 mm
Bulk Density	2.25 Mg/m3
Moisture Content	15.7 %
Dry Density	1.95 Mg/m3

Tracable Equipment Record

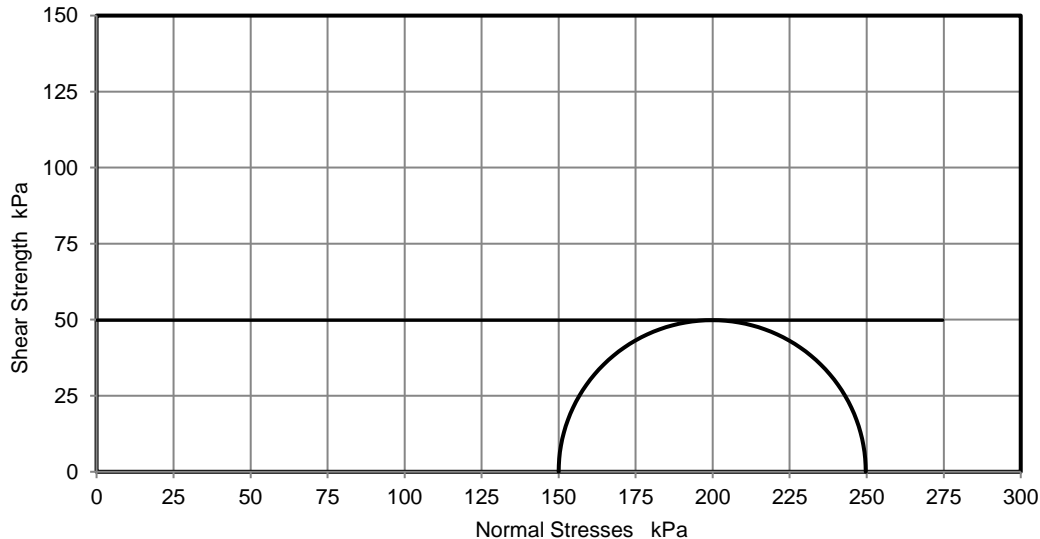
Test Frame	TRI 003
Load Ring	LOAD CELL 001
Pressure Gauge	PRE 006
Digital Caliper	CAL-005
Balance	BAL-007

Rate of Strain	1.0 %/min
Cell Pressure	150 kPa
At failure	
Axial Strain	19.2 %
Deviator Stress, $(\sigma_1 - \sigma_3)_f$	100 kPa
Undrained Shear Strength, c_u	50 kPa $\frac{1}{2}(\sigma_1 - \sigma_3)_f$
Mode of Failure	Plastic

Deviator Stress v Axial Strain




Mohr Circles



Deviator stress corrected for area change and membrane effects

Mohr circles and their interpretation is not covered by BS1377. This is provided for information only.

No of membranes used	1
Total thickness (mm)	0.25
Membrane Correction	
Membrane Type	

	Unconsolidated Undrained Triaxial Compression Test without measurement of pore pressure - single specimen		Job Ref	S220443	
			Borehole/Pit No.	BH02	
Site Name	Barton upon Humber		Sample No.		
Soil Description			Depth	13.50	
Specimen Reference		Specimen Depth	m	Sample Type	U
Specimen Description	Medium strength CLAY		KeyLAB ID	SLMK2022052014	
Test Method	BS1377 : Part 7 : 1990, clause 8, single specimen		Date of test	01/06/2022	

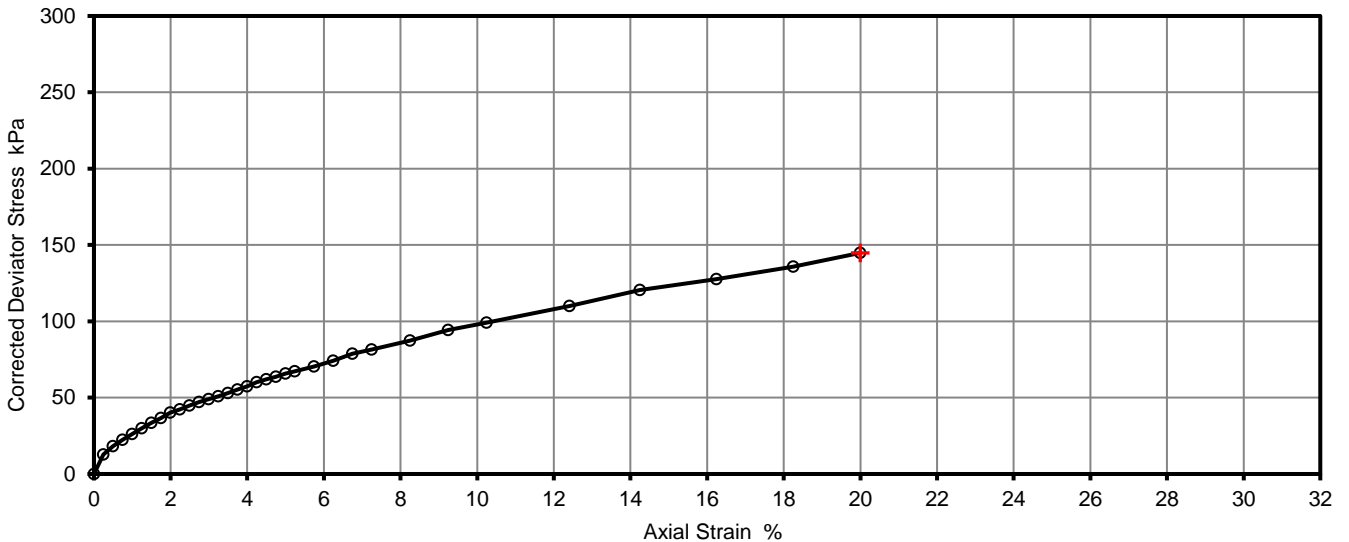
Test Number	1
Length	204.0 mm
Diameter	103.0 mm
Bulk Density	2.22 Mg/m ³
Moisture Content	15.9 %
Dry Density	1.92 Mg/m ³

Tracable Equipment Record

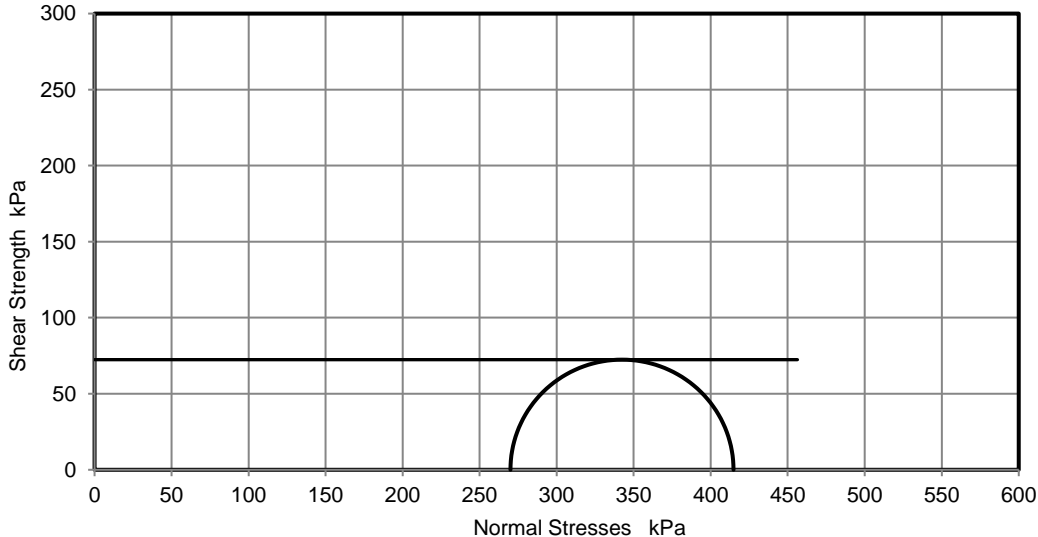
Test Frame	TRI 004
Load Ring	LOAD CELL 001
Pressure Gauge	PRE 006
Digital Caliper	CAL-005
Balance	BAL-007

Rate of Strain	1.0 %/min
Cell Pressure	270 kPa
At failure	
Axial Strain	20.0 %
Deviator Stress, ($\sigma_1 - \sigma_3$) _f	145 kPa
Undrained Shear Strength, c_u	72 kPa $\frac{1}{2}(\sigma_1 - \sigma_3)_f$
Mode of Failure	Plastic

Deviator Stress v Axial Strain




Mohr Circles



Deviator stress corrected for area change and membrane effects

Mohr circles and their interpretation is not covered by BS1377. This is provided for information only.

No of membranes used	1
Total thickness (mm)	0.25
Membrane Correction	
Membrane Type	

	Unconsolidated Undrained Triaxial Compression Test without measurement of pore pressure - single specimen		Job Ref	S220443	
			Borehole/Pit No.	BH03	
Site Name	Barton upon Humber		Sample No.		
Soil Description			Depth	8.00	
Specimen Reference		Specimen Depth	m	Sample Type	U
Specimen Description	Low strength CLAY		KeyLAB ID	SLMK2022052017	
Test Method	BS1377 : Part 7 : 1990, clause 8, single specimen		Date of test	31/05/2022	

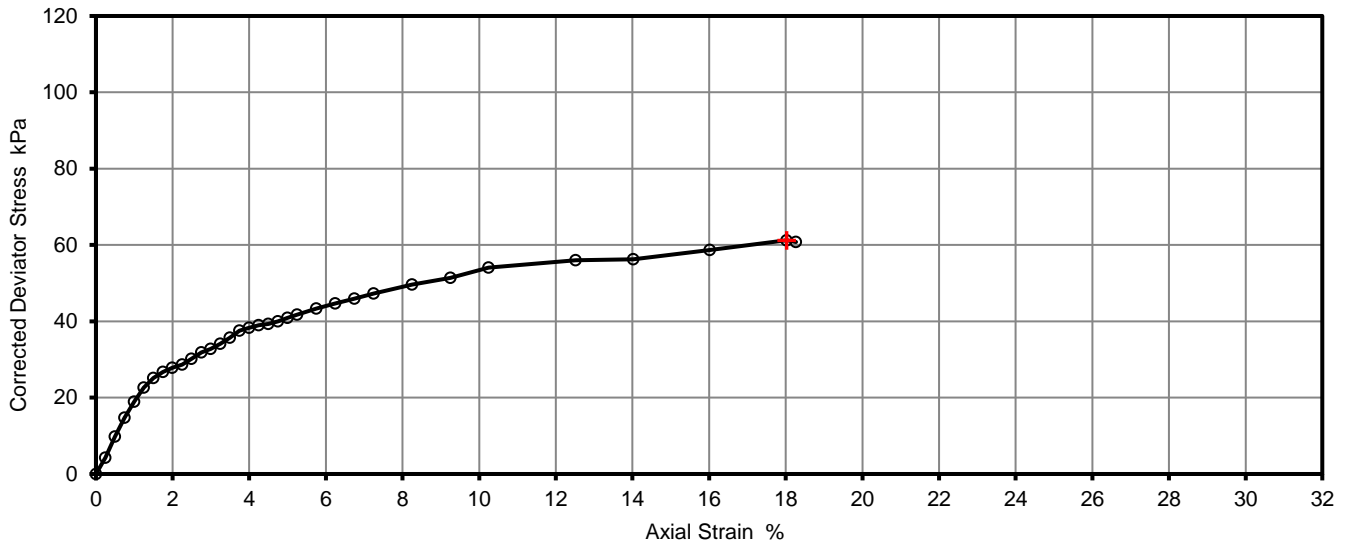
Test Number	1
Length	202.0 mm
Diameter	102.0 mm
Bulk Density	2.23 Mg/m ³
Moisture Content	16.2 %
Dry Density	1.92 Mg/m ³

Tracable Equipment Record

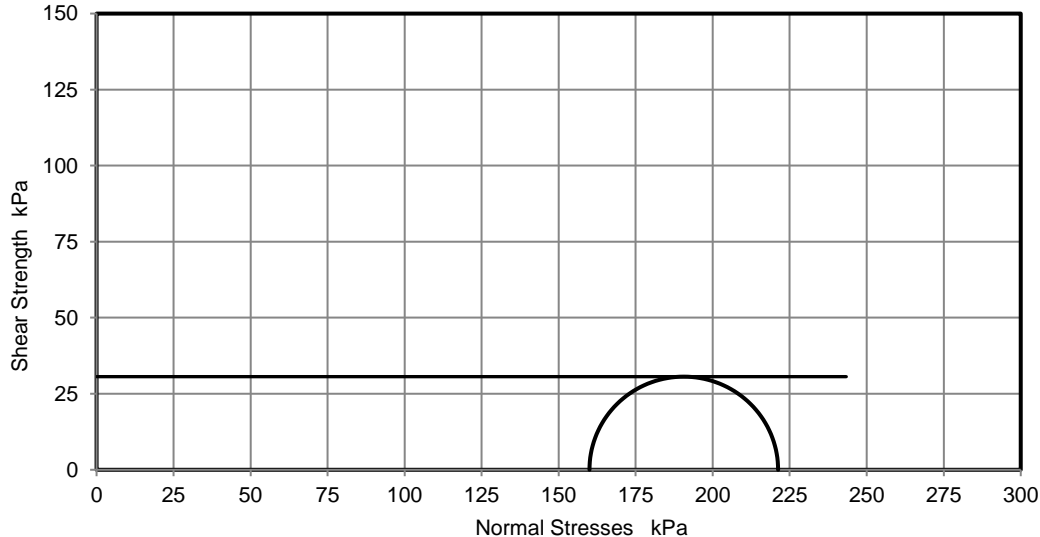
Test Frame	TRI 004
Load Ring	LOAD CELL 001
Pressure Gauge	PRE 006
Digital Caliper	CAL-005
Balance	BAL-007

Rate of Strain	1.0 %/min
Cell Pressure	160 kPa
At failure	
Axial Strain	18.0 %
Deviator Stress, (σ ₁ - σ ₃) _f	61 kPa
Undrained Shear Strength, c _u	31 kPa ½(σ ₁ - σ ₃) _f
Mode of Failure	Plastic

Deviator Stress v Axial Strain




Mohr Circles



Deviator stress corrected for area change and membrane effects

Mohr circles and their interpretation is not covered by BS1377. This is provided for information only.

No of membranes used	1
Total thickness (mm)	0.25
Membrane Correction	
Membrane Type	

	Unconsolidated Undrained Triaxial Compression Test without measurement of pore pressure - single specimen		Job Ref	S220443
			Borehole/Pit No.	BH03
Site Name	Barton upon Humber		Sample No.	
Soil Description			Depth	14.50
Specimen Reference		Specimen Depth	m	
Specimen Description	High strength CLAY		KeyLAB ID	SLMK2022052018
Test Method	BS1377 : Part 7 : 1990, clause 8, single specimen		Date of test	01/06/2022

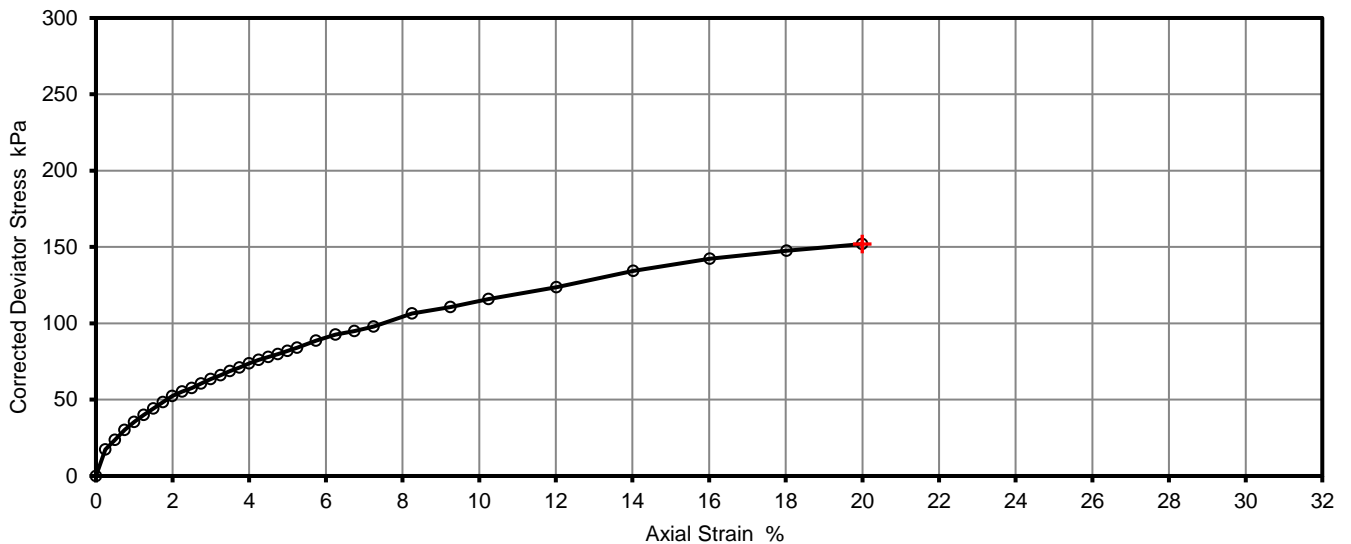
Test Number	1	
Length	205.0	mm
Diameter	102.0	mm
Bulk Density	2.21	Mg/m ³
Moisture Content	14.7	%
Dry Density	1.93	Mg/m ³

Tracable Equipment Record

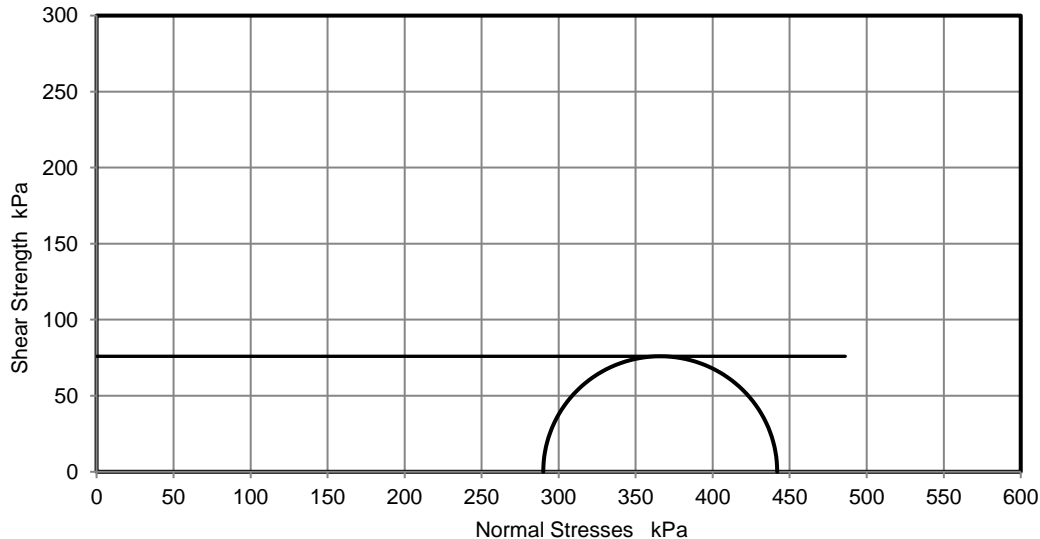
Test Frame	TRI 004
Load Ring	LOAD CELL 001
Pressure Gauge	PRE 006
Digital Caliper	CAL-005
Balance	BAL-007

Rate of Strain	1.0	%/min
Cell Pressure	290	kPa
At failure	20.0	%
Axial Strain	152	kPa
Deviator Stress, ($\sigma_1 - \sigma_3$) _f	76	kPa $\frac{1}{2}(\sigma_1 - \sigma_3)$ _f
Undrained Shear Strength, c_u	Plastic	
Mode of Failure		

Deviator Stress v Axial Strain



Mohr Circles



Deviator stress corrected for area change and membrane effects

Mohr circles and their interpretation is not covered by BS1377. This is provided for information only.

No of membranes used	1
Total thickness (mm)	0.25
Membrane Correction	
Membrane Type	



Final Report

Report No.: 22-19035-1

Initial Date of Issue: 25-May-2022

Client: Solmek Ltd


Client Address: 12 Yarm Road
Stockton-on-Tees
TS18 3NA

Contact(s): B Atkinson
Joe Brischuk
Lab
Leo Cassidy
Office

Project: S220443 Barton Upon Humber

Quotation No.:		Date Received:	23-May-2022
Order No.:	1463	Date Instructed:	23-May-2022
No. of Samples:	5		
Turnaround (Wkdays):	5	Results Due:	27-May-2022

Date Approved: 25-May-2022

Approved By:


Details: Stuart Henderson, Technical Manager
