

WR9

Our ref: 18-532.01L

David Hodgson
AMP Consultants
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Arc Environmental Ltd.
Solum House
Unit 1 Elliott Court
St John's Road
Meadowfield
Durham
DH7 8PN

10th August 2018

Dear David,

Re: Brief Geotechnical Ground Investigation – Proposed Waste Recycling Facility, Windermere Road, Hartlepool

Following completion of the site investigation works carried out at the above site, please find attached the following:

- Borehole Location Plan
- Borehole Record Sheets (BH1 – BH3A)
- Laboratory Results (Geotechnical & Chemical)

1.0 Introduction:

As requested by AMP Consultants, a brief geotechnical ground investigation has been carried out on a derelict portion of land off Windermere Road in Hartlepool where it is proposed to construct a large waste recycling unit.

The scope of the intrusive investigation works undertaken by Arc Environmental Limited comprised the completion of 4 no. cable percussive boreholes (BH1 – BH3A). The borehole positions can be seen on the borehole location plan attached, although this plan should be used for orientating purposes only, as the positions shown are approximate. The information contained in this report is limited to the areas of the site as indicated on the plan enclosed, and to those areas accessible during the ground investigation.

No contamination screening or hazardous ground gas risk assessment has been requested or undertaken during these works.

2.0 Ground Conditions:

For an accurate description of the ground conditions encountered at each borehole position, reference should be made to the borehole record sheets attached. The depths of strata on the borehole record sheets are recorded from current ground levels. It should be noted that there is always the possibility of variation in the ground conditions around and between the borehole locations. A summary of the soil profile can be seen in Table 1 below.

Table 1

Type of strata	Depths recorded	Description
MADE GROUND:	From 0.00m up to c.2.40m and c.3.50m.	The made ground generally comprised sandy gravel over soft and firm sandy gravelly clay. The gravel comprised fragments of brick and concrete with cobbles noted. BH3 was terminated at c.0.90m on a relic concrete obstruction.
DRIFT DEPOSITS:	From c.2.40m and c.3.50m up to c.>12.20m.	Natural drift deposits initially firm and stiff sandy gravelly CLAY over dense SAND and GRAVEL from c.5.70m and c.9.50m.

There was no visual and / or olfactory evidence of significant ground contamination (i.e. fuel-derived contaminants or asbestos containing materials, etc.) present within any of the exploratory positions undertaken across the site.

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Re: Ground Investigation – Proposed Waste Recycling Facility, Windermere Road, Hartlepool (Cont'd)

3.0 Groundwater:

No ingresses of water were noted within the boreholes during and on completion of the site investigation works.

However, pockets of trapped surface water may be present within the made ground and natural drift deposits and therefore it would be considered prudent to allow for the introduction of appropriate groundwater control measures, in order to take care of any future water ingresses within the underlying deposits, particularly during the wetter periods of the year, and where construction related excavations extend down to depths where groundwater has been recorded.

4.0 Insitu Testing:

4.1 Insitu Standard Penetration Tests:-

Insitu standard penetration tests (SPT's) were carried out on the made ground materials and natural deposits encountered within the boreholes across the site, in order to determine their relative strength and density using a normal split spoon sampler. The results are shown as blows on the graphic borehole record sheets, adjacent to the appropriate sample level and are also summarised in Table 2 below. Where the full penetration depth, including seating blows (450mm), could not be achieved, the bottom sampling depth is indicated as less than 0.45m from the top (start of test), with the actual depth of penetration and number of blows undertaken also being recorded.

Table 2

Type of strata	Range of SPT 'N' Values	Comments
MADE GROUND:	5 - 10	Indicative of loose to medium dense and soft to firm materials
DRIFT GEOLOGY:	19 - 47 & 50 Blows for limited penetration	Indicative of medium dense to dense and firm to stiff materials

5.0 Laboratory Testing:

The geotechnical testing was carried out in accordance with BS1377:1990: Parts 1-9, by Chemtech Environmental Limited of Stanley, Co. Durham.

5.1 Determination of Chemical Attack on Buried Concrete:

Representative samples (6no.) of the made ground materials and natural strata encountered, were tested in order to determine their pH value and soluble sulphate (SO₄) content in order to assess the chemical aggression on buried concrete. The results are shown in Table 3 below and are also contained in the Chemtech Environmental Analytical Report (ref: 73293), a copy of which is attached.

Table 3

Position	Depth (m)	SO ₄ (mg/l)	pH value	Design SO ₄ Class	ACEC Class
BH1	1.10	299	10.9	DS-1	AC-1
BH1	3.00-3.45	104	9.1	DS-1	AC-1
BH2	2.00-2.45	432	11.5	DS-1	AC-1
BH2	4.00-4.45	899	10.0	DS-2	AC-2
BH3A	1.20-1.65	809	9.7	DS-2	AC-2
BH3A	4.00-4.45	872	8.2	DS-2	AC-2

ACEC = Aggressive Chemical Environment for Concrete site classification.

From these results for the samples of soil tested, it can be seen that the amount of soluble sulphate present ranges between 104mg/l up to 899mg/l, and the pH values range between 8.2 up to 11.5. Therefore, in accordance with BRE Special Digest 1: 2005, the site can be given a classification of Class DS-2. When considering the nature of the materials tested and assuming mobile groundwater the assessment of the Aggressive Chemical Environment for Concrete (ACEC) is AC-2.

Re: Ground Investigation – Proposed Waste Recycling Facility, Windermere Road, Hartlepool (Cont'd)

5.0 Laboratory Testing (Cont'd):

5.2 Determination of Liquid & Plastic Limits:-

Three representative samples of the natural clay deposits recovered during the intrusive works were tested in order to determine their liquid and plastic limits, so these materials could be classified. The results can be seen in Table 4 below, and are also contained in the PSL analytical report ref no. PSL18/3769, a copy of which is attached.

Table 4

Position	Depth (m)	Strata Type	M/C	LL	PL	PI	Class	% Passing 425µm Sieve
BH1	3.00 – 3.45	NS	15	39	20	19	CI	96
BH2	3.50	NS	12	25	13	12	CL	94
BH3A	3.20	NS	16	40	20	20	CI	98

M/C = Moisture Content (%), LL = Liquid Limit (%), PL = Plastic Limit (%), PI = Plasticity Index (%), NS = Natural Strata, CL = Clay Low, CI = Clay Intermediate.

From these results it can be seen that the natural clay deposits tested are inorganic in nature, and when plotted on the plasticity chart, fall within the low to intermediate range, and from the resulting plasticity indices, have a low volume change potential, when taking into account the amount passing the 425µm sieve.

Subsequently, it can be seen that the natural clay materials are unlikely to undergo significant changes in volume, if large changes in their natural moisture content were to occur due to seasonal variations or the like, and if new foundations were to be based within these materials, they would need to be taken down to a minimum depth of 0.75m below finished ground levels.

When considering the above, an increase in this minimum depth will be required where increased depths of made ground/fill are identified below the site. In addition, should the proposed buildings extend close to existing vegetation, an increase in the minimum foundation depth may also be required, even if trees are to be removed, in order to ensure no additional future shrinkage and swelling of these materials occurs. Reference should be made to BS5837:2012, "Trees in relation to design, demolition and construction".

6.0 Foundation Options:

Based on the ground conditions encountered within the boreholes, and based on the proposed development, it is felt that conventional strip or pad foundations, possibly utilising mass trench fill, based within natural firm and stiff clay deposits, will be appropriate. Foundations located within the natural clay deposits can be designed to a maximum bearing pressure limited to 125kN/m². From the boreholes undertaken, the base of foundations will likely vary from c.2.40m depth to c.3.50m depth. It should be noted that the made ground materials will not be suitable for supporting the proposed structure and as such foundations should be based wholly within the natural firm and stiff clay deposits.

During the construction phase, it would be beneficial for a suitably qualified Geotechnical Engineer / Engineering Geologist to attend site in order to confirm the correct founding strata has been achieved within all foundation excavations.

It should be noted that the materials below the site are likely to be susceptible to weathering when exposed to the natural elements, and any excavations on this site should remain open for as short a period as possible, since these materials may be susceptible to deterioration, if left open to the natural elements even for short periods of time.

7.0 Off-Site Disposal:

If during future development works, any excavated materials are to be discarded and removed from this site as a waste to landfill, these materials will need to be classified in accordance with the 'Guidance on the Classification and Assessment of Waste (1st Edition 2015) – Technical Guidance WM3 Version 1.1 June 2018'.

Re: Ground Investigation – Proposed Waste Recycling Facility, Windermere Road, Hartlepool (Cont'd)

7.0 Off-Site Disposal (Cont'd):

Where possible, removal of materials from site as a 'waste' should be kept to a minimum and ideally excavated materials should all be reused on site. However, if excavated materials must be discarded it should be noted that additional analysis and screening is likely to be required once each specific waste stream has been identified and the volume of material to be disposed of has been calculated, since the amount of screening required, including any pre-disposal WAC screening, will be dependent upon the final volume of material to be disposed of.

8.0 General Comments:

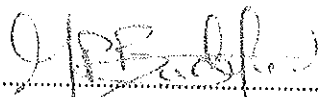
During the creation of deep excavations there may be some requirement for dewatering, along with potential instability issues when excavations are left open for a long period of time. Bearing in mind the nature of the materials encountered on this site lateral trench support will be required for excavations, in order to prevent trench wall collapse or over excavation, as well as to provide a safe working environment. Reference to CIRIA 97 'Trenching Practice' would be beneficial to establish a suitable means of support or battering of excavation sides during construction.

In addition, for deeper excavations, drainage, service runs or the like that may pass close to or beneath any existing or proposed new foundations, these should be undertaken with care and completed prior to the preparation of any new foundations, so as not to allow any loose or granular material to move or 'flow', thus causing settlement to occur to any new or adjacent existing foundations based at a higher level.

It is also recommended that adequate surface drainage should be designed and installed by a competent contractor, in order to prevent surface water 'ponding' or collection, during and post construction, particularly where the existing surface drainage system is disrupted or damaged.

I trust the information we have provided to you is to your satisfaction and if you require any further information or clarification, please do not hesitate to contact us.

Yours sincerely,



For and on behalf of ARC Environmental Limited
Matt Bradford BSc (Hons) FGS
Associate

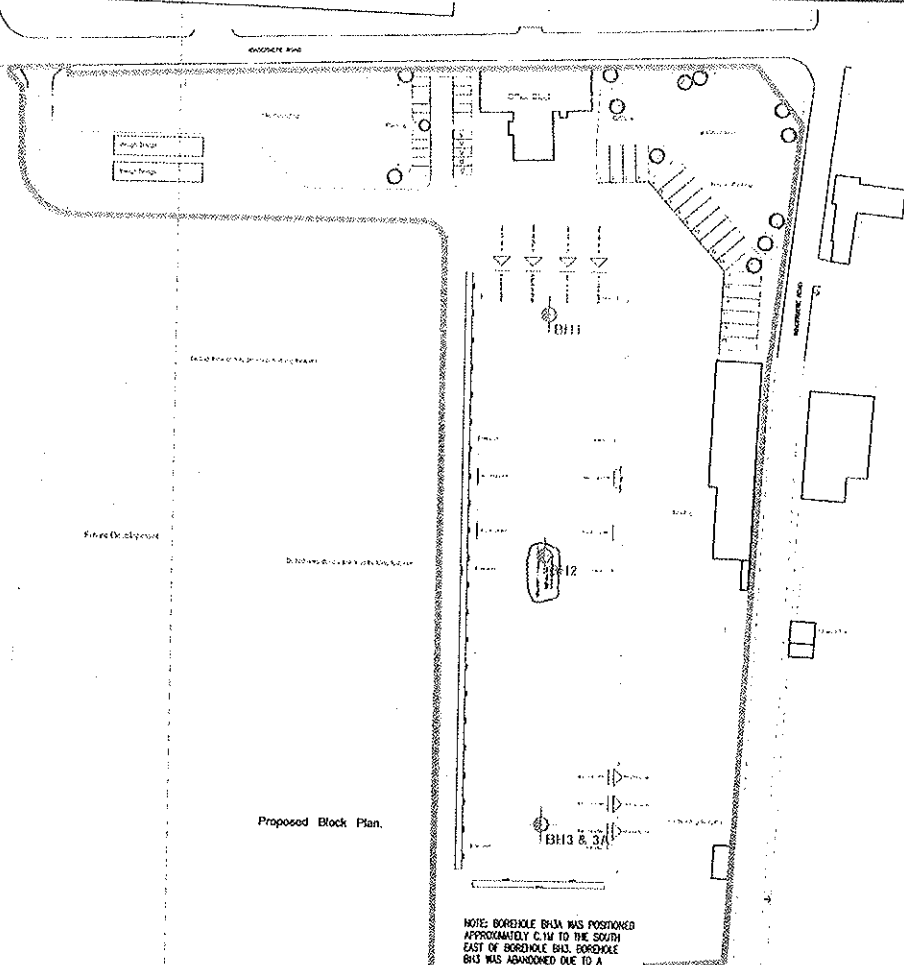
Borehole Location Plan and Borehole Record Sheets

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The contractor shall check all dimensions on all before commencement of any work. He shall be responsible for the accuracy of all dimensions.
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LEGEND	
	APPROXIMATE SITE BOUNDARY

Client:
AMP CONSULTANTS

Project Title:
 Proposed Waste Recycling Facility
 Windermere Road
 Hartlepool

Drawing Title:
 Borehole Location Plan

Scale of A1:	1:1	Date:	23.07.18	Drawn by:	P.D.	Approved by:	M.P.B.
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Job No.:	18-532	Drawn by:	P.D.	Approved by:	M.P.B.
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NOTE: BOREHOLE BH3 WAS POSITIONED APPROXIMATELY 0.1M TO THE SOUTH EAST OF BOREHOLE BH1. BOREHOLE BH3 WAS ABANDONED DUE TO A CONCRETE OBSTRUCTION AT 0.050M DCL.



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BOREHOLE LOG

Project Wards Recycling, Hartlepool				BOREHOLE No BH1
Job No 18-532	Date 22-07-18	Ground Level (m)	Co-Ordinates ()	
Contractor Arc Environmental Limited				Sheet 1 of 1

SAMPLES & TESTS			STRATA						
Depth	Type No	Test Result	Water	Reduced Level	Legend	Depth (Thickness)	DESCRIPTION	Geology	Instrument/Backfill
0.00-1.20 0.20	B D					(1.10) 1.10	Grey and brown sandy gravel. Gravel is fine to coarse comprising fragments of brick and concrete. Becoming clayey in places. Cobbles (MADE GROUND).		
1.10 1.20-1.65 1.20-1.65	D B SPT	N=9				(1.30)	Firm grey sandy gravelly clay. Gravel is fine to coarse comprising fragments of brick (MADE GROUND).		
2.00-2.45 2.00-2.45 2.40	B SPT D	N=8				2.40 2.80	Firm brown sandy gravelly CLAY. Gravel is fine to coarse of sandstone and mudstone (GLACIAL TILL).		
2.80 3.00-3.45 3.00-3.45	D B SPT	N=23				3.30	Firm light brown silty laminated CLAY (GLACIAL TILL). Stiff brown sandy gravelly CLAY. Gravel is fine to coarse of sandstone and mudstone (GLACIAL TILL).		
4.00-4.45 4.00-4.45	B SPT	N=28							
5.00-5.45 5.00-5.45	B SPT	N=32							
6.00-6.45 6.00-6.45	B SPT	N=32				(6.20)			
7.00-7.45 7.00-7.45	B SPT	N=30							
8.00-8.45 8.00-8.45	B SPT	N=35							
9.50-9.70 9.50-9.70	D SPT	50 Blows				9.50 9.70	Dense reddish brown compacted fine SAND (GLACIAL TILL). Borehole terminated at 9.70m due to refusal.		

AGS3 UK BH LOGS 18-532.GPJ AGS3 ALL.GDT 23/7/18

Boring Progress and Water Observations					Chiselling			Water Added		GENERAL REMARKS	
Date	Time	Depth	Casing Depth	Casing Dia. mm	Water Dpt	From	To	Hours	From		To
						0.7	0.9	0.5hrs			WATER: Borehole remained dry on completion.
All dimensions in metres Scale 1:87.5					Client	Method/ Plant Used	Cable Percussive		Logged By MH		



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BOREHOLE LOG

Project Wards Recycling, Hartlepool				BOREHOLE No BH2	
Job No 18-532	Date 22-07-18	Ground Level (m)	Co-Ordinates ()		
Contractor Arc Environmental Limited				Sheet 1 of 1	

SAMPLES & TESTS			STRATA						
Depth	Type No	Test Result	Water	Reduced Level	Legend	Depth (Thickness)	DESCRIPTION	Geology	Instrument/Backfill
0.00-1.00	B					(1.30)	Grey and brown sandy gravel. Gravel is fine to coarse comprising fragments of brick and concrete. Becoming clayey in places. Cobbles (MADE GROUND).		
1.20-1.65 1.20-1.65	B SPT	N=7				1.30	Soft grey sandy gravelly clay. Gravel is fine to coarse comprising fragments of brick. Becoming silty in places (MADE GROUND).		
2.00-2.45 2.00-2.45	B SPT	N=5				(2.20)			
3.50	D					3.50			
4.00-4.45 4.00-4.45	B SPT	N=24				(2.40)	Stiff brown sandy gravelly CLAY. Gravel is fine to coarse of sandstone and mudstone (GLACIAL TILL).		
5.00-5.45 5.00-5.45	B SPT	N=26				5.90			
5.90	D					6.30	Firm brown very sandy CLAY (GLACIAL TILL).		
6.00-6.45 6.00-6.45 6.30	B SPT D	N=26				(1.20)	Firm brown sandy gravelly CLAY. Gravel is fine to coarse of sandstone and mudstone (GLACIAL TILL).		
7.50	D					7.50			
8.00-8.37 8.00-8.37	B SPT	50 Blows				(0.87) 8.37	Dense brown fine to coarse SAND and GRAVEL. Gravel is fine to coarse and rounded to angular (GLACIAL TILL).		
							Borehole terminated at 8.37m due to refusal.		

AGS3 UK BH LOGS 18-532.GPJ AGS3.ALL.GDT 23/7/18

Boring Progress and Water Observations						Chiselling			Water Added		GENERAL REMARKS
Date	Time	Depth	Casing Depth	Casing Dia. mm	Water Dpt	From	To	Hours	From	To	
						0.8	1.1	0.75hrs			WATER: Borehole remained dry on completion.
All dimensions in metres Scale 1:87.5			Client			Method/ Plant Used Cable Percussive			Logged By MH		



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BOREHOLE LOG

Project Wards Recycling, Hartlepool				BOREHOLE No BH3	
Job No 18-532	Date 21-07-18	Ground Level (m)	Co-Ordinates ()		
Contractor Arc Environmental Limited				Sheet 1 of 1	

SAMPLES & TESTS			STRATA					Geology	Instrument/ Backfill
Depth	Type No	Test Result	Reduced Level	Legend	Depth (Thickness)	DESCRIPTION			
				[Cross-hatch pattern]	(0.80) 0.80 0.90	Grey and brown sandy gravel. Gravel is fine to coarse comprising fragments of brick and concrete. Becoming clayey in places. Cobbles (MADE GROUND). Concrete (MADE GROUND). Borehole terminated at 0.90m due to refusal on concrete.		[Cobble pattern]	

AGS3 UK BH LOGS 18-532.GPJ AGS3 ALL.GDT 23/7/18

Boring Progress and Water Observations						Chiselling			Water Added		GENERAL REMARKS
Date	Time	Depth	Casing Depth	Casing Dia. mm	Water Dpt	From	To	Hours	From	To	
						0.8	0.9	0.75hrs			WATER: Borehole remained dry on completion.
All dimensions in metres Scale 1:87.5			Client			Method/ Plant Used Cable Percussive			Logged By MH		



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BOREHOLE LOG

Project Wards Recycling, Hartlepool				BOREHOLE No BH3A
Job No 18-532	Date 21-07-18	Ground Level (m)	Co-Ordinates ()	
Contractor Arc Environmental Limited				Sheet 1 of 1

SAMPLES & TESTS			STRATA						
Depth	Type No	Test Result	Water	Reduced Level	Legend	Depth (Thickness)	DESCRIPTION	Geology	Instrument/Backfill
0.00-1.20 0.20	B D					(1.40)	Grey and brown sandy gravel. Gravel is fine to coarse comprising fragments of brick and concrete. Becoming clayey in places. Cobbles (MADE GROUND).		
1.20-1.65 1.20-1.65 1.40	B SPT D	N=9				1.40	Firm grey sandy gravelly clay. Gravel is fine to coarse comprising fragments of brick (MADE GROUND).		
2.00-2.45 2.00-2.45	B SPT	N=10				(1.80)			
3.00-3.45 3.00-3.45 3.20	B SPT D	N=19				3.20	Stiff brown sandy gravelly CLAY. Gravel is fine to coarse of sandstone and mudstone (GLACIAL TILL).		
4.00-4.45 4.00-4.45	B SPT	N=21				(2.20)			
5.00-5.45 5.00-5.45	B SPT	N=25				5.40			
5.70	D					5.70	Firm light brown very sandy CLAY (GLACIAL TILL).		
6.00-6.45 6.00-6.45	B SPT	N=47					Dense brown fine to coarse SAND and GRAVEL. Gravel is fine to coarse and rounded to angular (GLACIAL TILL).		
7.00-7.45 7.00-7.40	B SPT	50 Blows							
8.00-8.45 8.00-8.37	B SPT	50 Blows							
9.00-9.45 9.00-9.40	B SPT	50 Blows				(6.50)			
10.00-10.45 10.00-10.33	B SPT	50 Blows							
11.00-11.45 11.00-11.34	B SPT	50 Blows							
12.00-12.20	SPT	50 Blows				12.20			
							Borehole terminated at 12.20m due to refusal.		

AGS3 UK BH LOGS 18-532.GPJ AGS3 ALL.GDT 23/7/18

Boring Progress and Water Observations						Chiselling			Water Added		GENERAL REMARKS
Date	Time	Depth	Casing Depth	Casing Dia. mm	Water Dpt	From	To	Hours	From	To	
											WATER: Borehole remained dry on completion.

All dimensions in metres Scale 1:87.5	Client	Method/ Plant Used Cable Percussive	Logged By MH
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Laboratory Testing Results (Geotechnical)



LABORATORY REPORT



4043

Contract Number: PSL18/3769

Report Date: 08 August 2018
Client's Reference: 18-532
Client Name: Arc Environmental
Solum House
Unit 1 Elliott Court
St Johns Road, Meadowfield
Durham
DH7 8PN

For the attention of: Matt Bradford

Contract Title: Wards Recycling, Hartlepool
Date Received: 30/7/2018
Date Commenced: 30/7/2018
Date Completed: 8/8/2018

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:


R Gunson
(Director)

A Watkins
(Director)

R Berriman
(Quality Manager)

L Knight
(Senior Technician)

L Pavey
(Senior/Quality Technician)


S Wilson
(Senior Technician)

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Page 1 of

SUMMARY OF LABORATORY SOIL DESCRIPTIONS

Hole Number	Sample Number	Sample Type	Top Depth m	Base Depth m	Description of Sample
BH1		B	3.00	3.45	Brown slightly gravelly sandy CLAY.
BH2		D	3.50		Brown slightly gravelly very sandy CLAY.
BH3A		D	3.20		Brown slightly gravelly sandy CLAY.



Wards Recycling, Hartlepool

Contract No:
PSL18/3769
Client Ref:
18-532

SUMMARY OF SOIL CLASSIFICATION TESTS

(BS1377 : PART 2 : 1990)

Hole Number	Sample Number	Sample Type	Top Depth m	Base Depth m	Moisture Content % <small>Clause 3.2</small>	Linear Shrinkage % <small>Clause 6.5</small>	Particle Density Mg/m ³ <small>Clause 8.2</small>	Liquid Limit % <small>Clause 4.3/4</small>	Plastic Limit % <small>Clause 5.3</small>	Plasticity Index % <small>Clause 5.4</small>	Passing .425mm %	Remarks
BH1		B	3.00	3.45	15			39	20	19	96	Intermediate plasticity CL
BH2		D	3.50		12			25	13	12	94	Low plasticity CL
BH3A		D	3.20		16			40	20	20	98	Intermediate plasticity CL

SYMBOLS : NP : Non Plastic

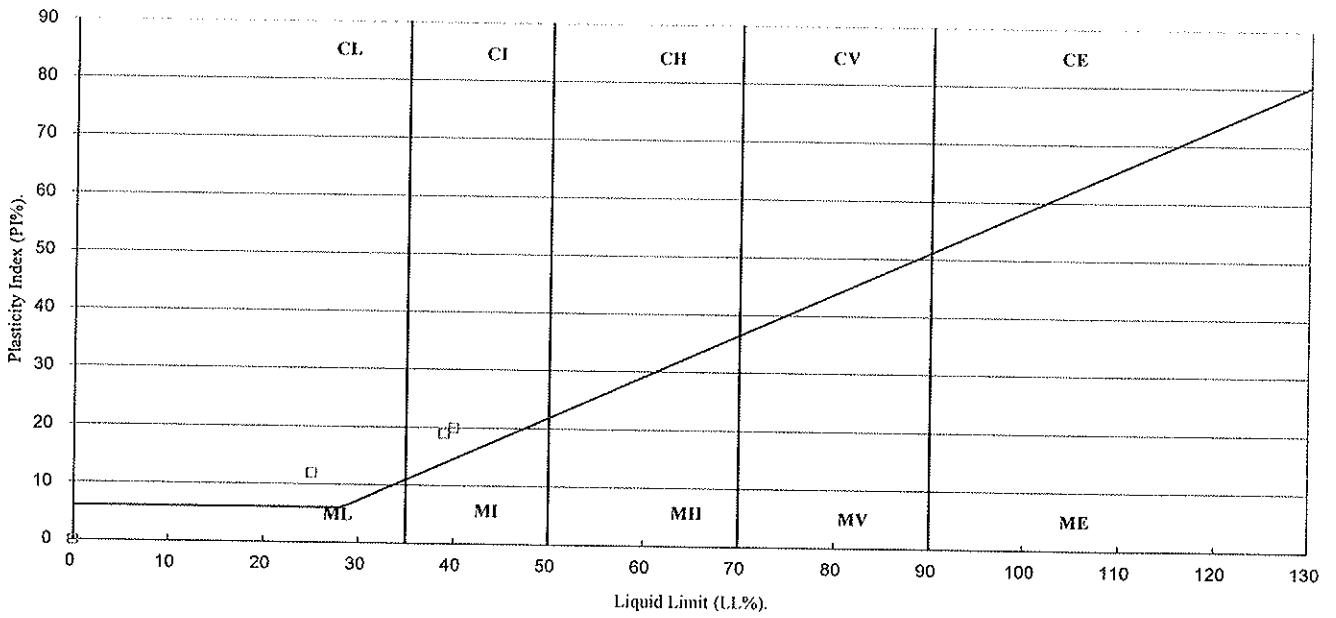
* : Liquid Limit and Plastic Limit Wet Sieved.



Wards Recycling, Hartlepool

Contract No:
PSL18/3769
Client Ref:
18-532

PLASTICITY CHART FOR CASAGRANDE CLASSIFICATION.



PSL
Professional Soils Laboratory

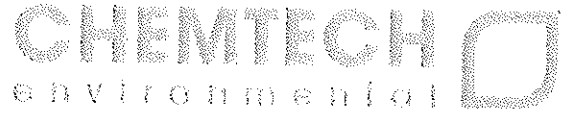
Wards Recycling, Hartlepool

Contract No:

PSL18/3769

Client Ref:

18-532



ANALYTICAL TEST REPORT

Contract no: 73293
Contract name: Wards Recycling, Hartlepool
Client reference: 18-532
Clients name: ARC Environmental
Clients address: Solum House
Unit 1 Elliott Court
St Johns Road, Meadowfield
DH7 8PN
Samples received: 26 July 2018
Analysis started: 26 July 2018
Analysis completed: 02 August 2018
Report issued: 02 August 2018

Notes: Opinions and interpretations expressed herein are outside the UKAS accreditation scope. Unless otherwise stated, Chemtech Environmental Ltd was not responsible for sampling. Methods, procedures and performance data are available on request. Results reported herein relate only to the material supplied to the laboratory. This report shall not be reproduced except in full, without prior written approval. Samples will be disposed of 6 weeks from initial receipt unless otherwise instructed.

Key: U UKAS accredited test
M MCERTS & UKAS accredited test
\$ Test carried out by an approved subcontractor
I/S Insufficient sample to carry out test
N/S Sample not suitable for testing

Approved by:

James Spittle
Customer Services Team Leader

Chemtech Environmental Limited

SAMPLE INFORMATION

MCERTS (Soils):

Soil descriptions are only intended to provide a log of sample matrices with respect to MCERTS validation. They are not intended as full geological descriptions. MCERTS accreditation applies for sand, clay and loam/topsoil, or combinations of these whether these are derived from naturally occurring soils or from made ground, as long as these materials constitute the major part of the sample. Other materials such as concrete, gravel and brick are not accredited if they comprise the major part of the sample.

All results are reported on a dry basis. Samples dried at no more than 30°C in a drying cabinet.
Analytical results are inclusive of stones.

Lab ref	Sample id	Depth (m)	Sample description	Material removed	% Removed	% Moisture
73293-1	BH1	1.10	Sandy Clay	-	-	15.9
73293-2	BH1	3.00-3.45	Sandy Clay	-	-	12.6
73293-3	BH2	2.00-2.45	Sandy Clay with Gravel	-	-	13.7
73293-4	BH2	4.00-4.45	Sandy Clay with Gravel	-	-	10.8
73293-5	BH3A	1.20-1.65	Clay with Gravel	-	-	16.1
73293-6	BH3A	4.00-4.45	Clay	-	-	16.8

Chemtech Environmental Limited

SOILS

Lab number			73293-1	73293-2	73293-3	73293-4	73293-5	73293-6
Sample id			BH1	BH1	BH2	BH2	BH3A	BH3A
Depth (m)			1.10	3.00-3.45	2.00-2.45	4.00-4.45	1.20-1.65	4.00-4.45
Date sampled			21/07/2018	21/07/2018	21/07/2018	21/07/2018	21/07/2018	21/07/2018
Test	Method	Units						
pH	CE004 ^M	units	10.9	9.1	11.5	10.0	9.7	8.2
Sulphate (2:1 water soluble)	CE061 ^M	mg/l SO ₄	299	104	432	899	809	872

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METHOD DETAILS

METHOD	SOILS	METHOD SUMMARY	SAMPLE	STATUS	LOD	UNITS
CE004	pH	Based on BS 1377, pH Meter	Wet	M	-	units
CE061	Sulphate (2:1 water soluble)	Aqueous extraction, ICP-OES	Dry	M	10	mg/l SO ₄

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DEVIATING SAMPLE INFORMATION

Comments

Sample deviation is determined in accordance with the UKAS note "Guidance on Deviating Samples" and based on reference standards and laboratory trials.

For samples identified as deviating, test result(s) may be compromised and may not be representative of the sample at the time of sampling.

Chemtech Environmental Ltd cannot be held responsible for the integrity of sample(s) received if Chemtech Environmental Ltd did not undertake the sampling. Such samples may be deviating.

Key

N	No (not deviating sample)
Y	Yes (deviating sample)
NSD	Sampling date not provided
NST	Sampling time not provided (waters only)
EHT	Sample exceeded holding time(s)
IC	Sample not received in appropriate containers
HP	Headspace present in sample container
NCF	Sample not chemically fixed (where appropriate)
OR	Other (specify)

Lab ref	Sample id	Depth (m)	Deviating	Tests (Reason for deviation)
73293-1	BH1	1.10	N	
73293-2	BH1	3.00-3.45	N	
73293-3	BH2	2.00-2.45	N	
73293-4	BH2	4.00-4.45	N	
73293-5	BH3A	1.20-1.65	N	
73293-6	BH3A	4.00-4.45	N	