



CAUSEWAY
— GEOTECH

APPENDIX D
TRIAL PIT LOGS

*For inspection purposes only.
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TP01 – WSW Face



TP01 – NNW Face



TP01 – ENE Face



TP01 – SSE Face



TP01 - Base



TP01 - Spoil heap



TP01 – Spoil heap

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TP02 - S Face



TP02 - W Face

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TP02 - N Face



TP02 - E Face



TP02 - Base



TP02 – Spoil heap



TP02 – Spoil heap



TP03 – ENE Face



TP03 – SSE Face



TP03 – WSW Face



TP03 – NNW Face



TP03 - Base



TP03 - Spoil heap



TP03 – Spoil heap

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TP04 - W Face



TP04 - N Face



TP04 - E Face



TP04 - S Face



TP04 - Base



TP04 - Spoil heap



TP04 – Spoil heap

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Consent of Causeway Geotech is required for any reuse.

TP05 - E Face



TP05 – S Face

For inspection purposes only.
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For information purposes only.
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TP05 - W Face



TP05 - N Face



TP05 - Base



TP05 – Spoil heap



TP05 – Spoil heap



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APPENDIX E
GEOTECHNICAL LABORATORY TEST RESULTS

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LABORATORY REPORT



4043

Contract Number: PSL19/3891

Report Date: 07 August 2019
Client's Reference: 18-1102b
Client Name: Causeway Geotech
8 Drumahiskey Road
Ballymoney
Co. Antrim
BT53 7QL

For the attention of: Stephen Watson

Contract Title: Castleisland
Date Received: 26/6/2019
Date Commenced: 26/6/2019
Date Completed: 7/8/2019

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)

S Royle
(Laboratory Manager)

A Watkins
(Director)

S Eyre
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Page 1 of

PERMEABILITY IN A TRIAXIAL CELL

BS 1377 : Part 6 : 1990: Clause 6

Hole Number: TP04 Top Depth (m) : 0.20
Sample Number: 1 Base Depth (m) :
Sample Type: B Lift Number:
Date Grid Reference:

Description of Specimen	
Brown slightly gravelly sandy very silty CLAY, frequent fine rootlets	
Remarks	
Undisturbed with 4.5kg rammer	

Initial Specimen Conditions		
Height	mm	102.14
Diameter	mm	101.09
Area	mm ²	8026.13
Volume	cm ³	819.79
Mass	g	1443
Dry Mass	g	1052
Bulk Density	Mg/m ³	1.76
Dry Density	Mg/m ³	1.28
Moisture Content	%	37
Voids Ratio	-	1.065
Specific Gravity (assumed/measured)	Mg/m ³ -	2.65 assumed

Final Specimen Conditions		
Moisture Content	%	33
Bulk Density	Mg/m ³	1.71
Dry Density	Mg/m ³	1.28

Test Setup		
Date Started		03/08/2019
Date Finished		06/08/2019
Top Drain Used		Y
Base Drain Used		Y
Method of Saturation		By back pressure
Direction Of Flow		Vertically Downwards
Saturation Time	Days	1
Consolidation Time	Days	3
Permeability Time	Days	2



PSL
Professional Soils Laboratory

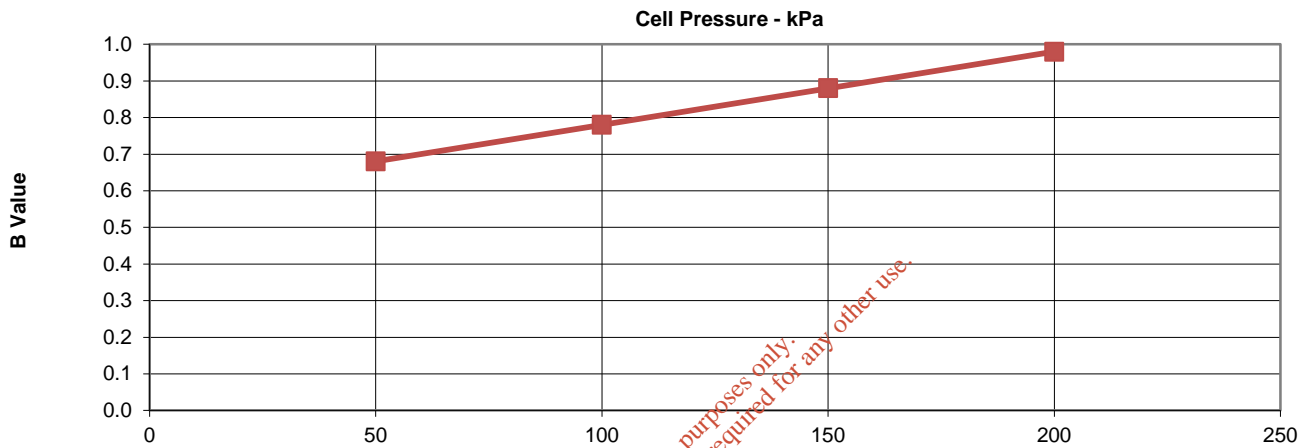
Castleisland

Contract No.
PSL19/3891
Client Ref
18/1102b

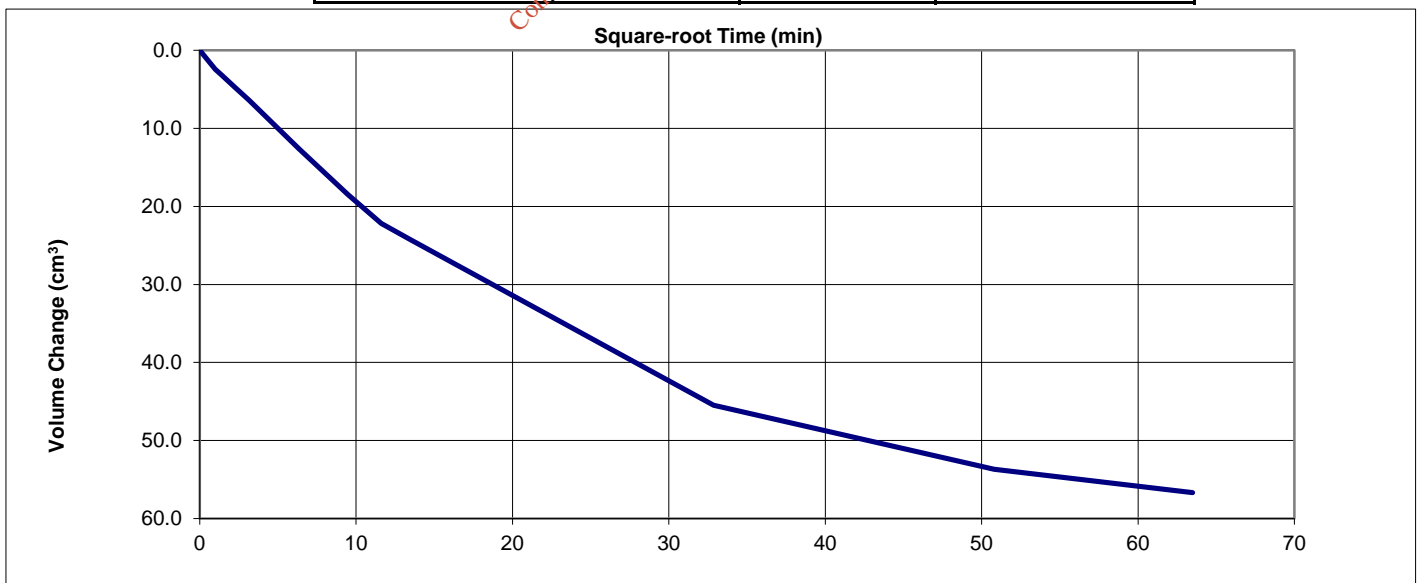
PERMEABILITY IN A TRIAXIAL CELL

BS 1377 : Part 6 : 1990 Clause 6

Specimen Details		
Hole Number		TP04
Sample Depth	m	0.20
Sample No.		1
Grid Reference		
Lift Number		
Saturation		
Cell Pressure Incr.	kPa	50
Back Pressure Incr.	kPa	50
Differential Pressure	kPa	10
Final Cell Pressure	kPa	200
Final B Value	-	0.98



Consolidation		
Effective Pressure	kPa	100
Cell Pressure	kPa	400
Back Pressure	kPa	300
Final PWP	kPa	304
PWP dissipation	%	95



PSL
Professional Soils Laboratory

Castleisland

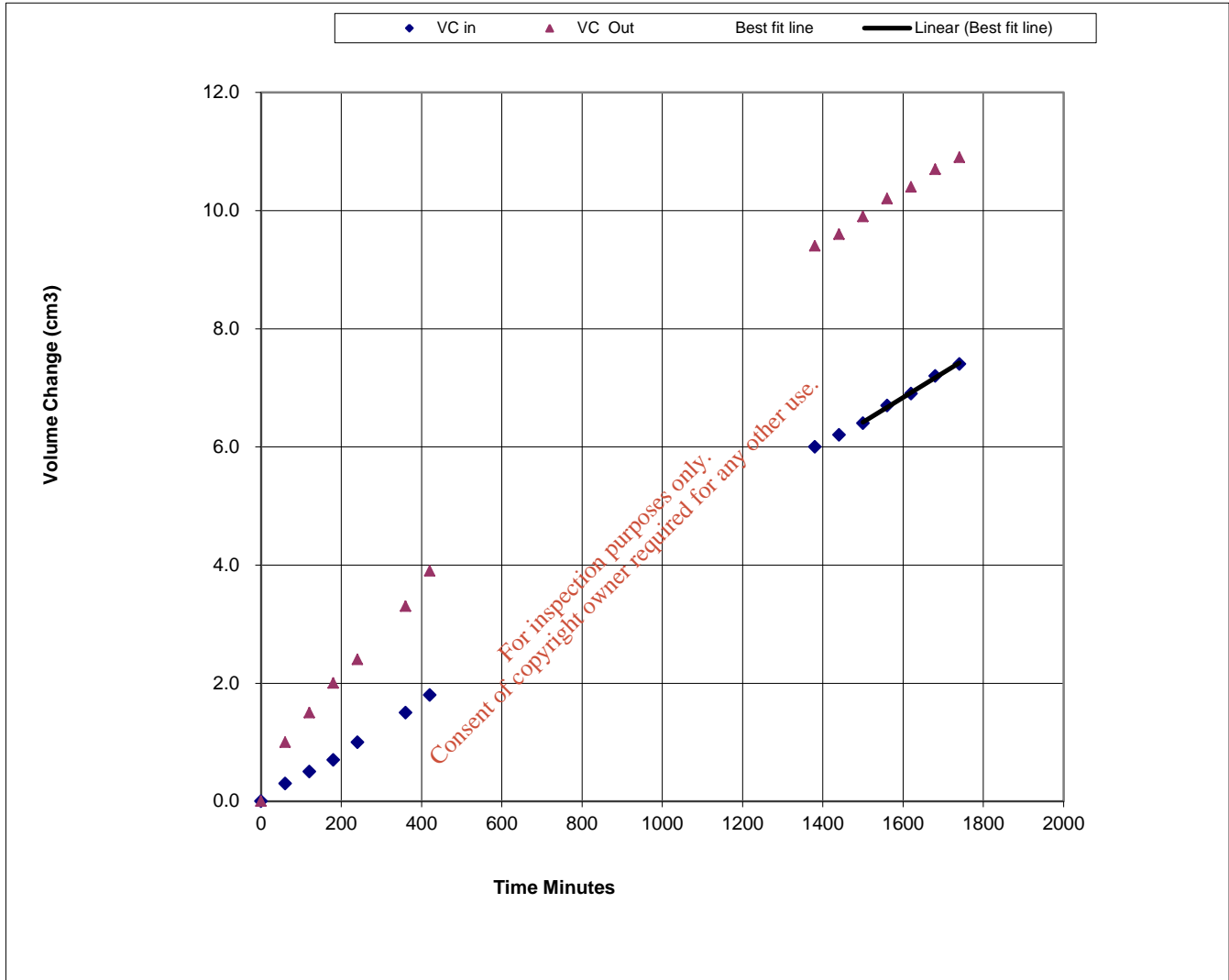
Contract No.
PSL19/3891
Client Ref
18/1102b

PERMEABILITY IN A TRIAXIAL CELL

BS 1377 : Part 6 : 1990 Clause 6

Specimen Details		
Hole Number		TP04
Sample Depth	m	0.20
Sample No.		1
Grid Reference		
Lift Number		

Permeability Stage



Permeability Stage		
Cell Pressure	kPa	400
Mean Effective Stress	kPa	100
Back Pressure Diff.	kPa	20
Mean Rate of Flow	ml/min	0.0042
Average Temperature	'C	20
Vertical Permeability Kv	m/s	4.3E-10



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PSL19/3891
Client Ref
18/1102b



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APPENDIX F
ENVIRONMENTAL LABORATORY TEST RESULTS

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Final Report

Report No.: 19-18918-1
Initial Date of Issue: 17-Jun-2019
Client: Causeway Geotech Ltd

Client Address: 8 Drumahiskey Road
Balnamore
Ballymoney
County Antrim
BT53 7QL

Contact(s): Carin Cornwall
Colm Hurley
Darren O'Mahony
Gabiella Horan
John Cameron
Lucy Newland
Lucy Peaker
Matthew Gilbert
Neil Haggan
Paul Dunlop
Paul McNamara
Sean Ross
Stephen Franey
Stephen Watson
Stuart Abraham

Project: 18-1102b Castleisland

Quotation No.: Q18-13245 **Date Received:** 05-Jun-2019

Order No.: **Date Instructed:** 10-Jun-2019

No. of Samples: 2

Turnaround (Wkdays): 5 **Results Due:** 14-Jun-2019

Date Approved: 17-Jun-2019

Approved By:

Details: Martin Dyer, Laboratory Manager

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Results - Single Stage WAC

Project: 18-1102b Castleisland

Chemtest Job No: 19-18918 Chemtest Sample ID: 837839 Sample Ref: Sample ID: Sample Location: TP01 Top Depth(m): 1.7 Bottom Depth(m): Sampling Date: 31-May-2019				Landfill Waste Acceptance Criteria Limits			
				Inert Waste Landfill	Stable, Non-reactive hazardous waste in non-hazardous Landfill	Hazardous Waste Landfill	
Determinand	SOP	Accred.	Units				
Total Organic Carbon	2625	U	%	1.0	3	5	
Loss On Ignition	2610	U	%	4.2	--	10	
Total BTEX	2760	U	mg/kg	< 0.010	6	--	
Total PCBs (7 Congeners)	2815	U	mg/kg	< 0.10	1	--	
TPH Total WAC (Mineral Oil)	2670	U	mg/kg	< 10	500	--	
Total (Of 17) PAH's	2700	N	mg/kg	< 2.0	100	--	
pH	2010	U		8.5	--	>6	
Acid Neutralisation Capacity	2015	N	mol/kg	0.050	--	To evaluate	
Eluate Analysis			10:1 Eluate mg/l	10:1 Eluate mg/kg	Limit values for compliance leaching test using BS EN 12457 at L/S 10 l/kg		
Arsenic	1450	U	< 0.0010	< 0.050	0.5	2	
Barium	1450	U	0.036	< 0.50	20	100	
Cadmium	1450	U	< 0.00010	< 0.010	0.04	1	
Chromium	1450	U	0.0020	< 0.050	0.5	10	
Copper	1450	U	0.0010	< 0.050	2	50	
Mercury	1450	U	< 0.00050	< 0.0050	0.01	0.2	
Molybdenum	1450	U	0.010	0.10	0.5	10	
Nickel	1450	U	< 0.0010	< 0.050	0.4	10	
Lead	1450	U	< 0.0010	< 0.010	0.5	10	
Antimony	1450	U	0.0024	0.024	0.06	0.7	
Selenium	1450	U	0.012	0.12	0.1	0.5	
Zinc	1450	U	< 0.0010	< 0.50	4	50	
Chloride	1220	U	5.3	53	800	15000	
Fluoride	1220	U	0.19	1.9	10	150	
Sulphate	1220	U	100	1000	1000	20000	
Total Dissolved Solids	1020	N	220	2200	4000	60000	
Phenol Index	1920	U	< 0.030	< 0.30	1	-	
Dissolved Organic Carbon	1610	U	7.0	70	500	800	

Solid Information	
Dry mass of test portion/kg	0.090
Moisture (%)	18

Waste Acceptance Criteria

Landfill WAC analysis (specifically leaching test results) must not be used for hazardous waste classification purposes. This analysis is only applicable for hazardous waste landfill acceptance and does not give any indication as to whether a waste may be hazardous or non-hazardous.

Results - Single Stage WAC

Project: 18-1102b Castleisland

Chemtest Job No: 19-18918 Chemtest Sample ID: 837847 Sample Ref: Sample ID: Sample Location: TP04 Top Depth(m): 1.0 Bottom Depth(m): Sampling Date: 31-May-2019				Landfill Waste Acceptance Criteria Limits			
				Inert Waste Landfill	Stable, Non-reactive hazardous waste in non-hazardous Landfill	Hazardous Waste Landfill	
Determinand	SOP	Accred.	Units				
Total Organic Carbon	2625	U	%	6.3	3	5	6
Loss On Ignition	2610	U	%	20	--	--	10
Total BTEX	2760	U	mg/kg	< 0.010	6	--	--
Total PCBs (7 Congeners)	2815	U	mg/kg	< 0.10	1	--	--
TPH Total WAC (Mineral Oil)	2670	U	mg/kg	320	500	--	--
Total (Of 17) PAH's	2700	N	mg/kg	< 2.0	100	--	--
pH	2010	U		8.2	--	>6	--
Acid Neutralisation Capacity	2015	N	mol/kg	0.032	--	To evaluate	To evaluate
Eluate Analysis			10:1 Eluate mg/l	10:1 Eluate mg/kg	Limit values for compliance leaching test using BS EN 12457 at L/S 10 l/kg		
Arsenic	1450	U	0.0016	< 0.050	0.5	2	25
Barium	1450	U	0.13	1.3	20	100	300
Cadmium	1450	U	< 0.00010	< 0.010	0.04	1	5
Chromium	1450	U	< 0.0010	< 0.050	0.5	10	70
Copper	1450	U	< 0.0010	< 0.050	2	50	100
Mercury	1450	U	< 0.00050	< 0.0050	0.01	0.2	2
Molybdenum	1450	U	0.012	0.12	0.5	10	30
Nickel	1450	U	0.096	0.96	0.4	10	40
Lead	1450	U	< 0.0010	< 0.010	0.5	10	50
Antimony	1450	U	0.0026	0.026	0.06	0.7	5
Selenium	1450	U	0.0012	0.012	0.1	0.5	7
Zinc	1450	U	0.033	< 0.50	4	50	200
Chloride	1220	U	3.2	32	800	15000	25000
Fluoride	1220	U	0.12	1.2	10	150	500
Sulphate	1220	U	530	5300	1000	20000	50000
Total Dissolved Solids	1020	N	780	7700	4000	60000	100000
Phenol Index	1920	U	< 0.030	< 0.30	1	-	-
Dissolved Organic Carbon	1610	U	14	140	500	800	1000

Solid Information	
Dry mass of test portion/kg	0.090
Moisture (%)	29

Waste Acceptance Criteria

Landfill WAC analysis (specifically leaching test results) must not be used for hazardous waste classification purposes. This analysis is only applicable for hazardous waste landfill acceptance and does not give any indication as to whether a waste may be hazardous or non-hazardous.

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"

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 45 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