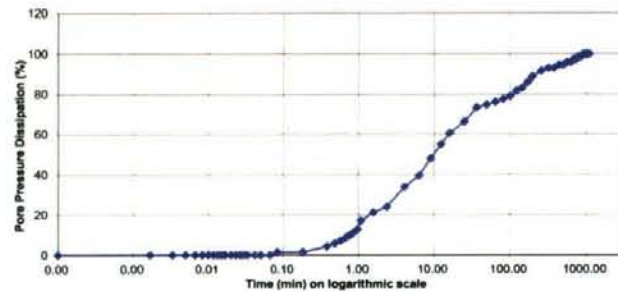


Permeability in a Triaxial Cell BS 1377 : Part 6 : 1990 Clause 6

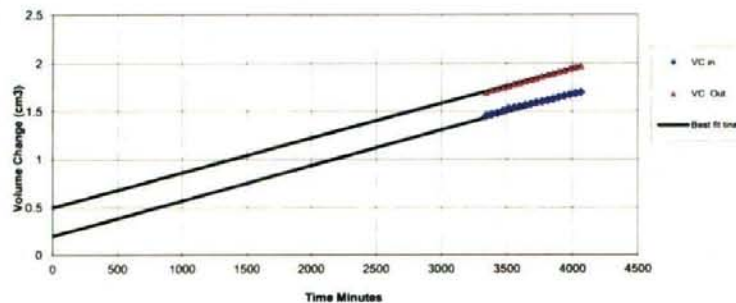
Specimen Details

Borehole	TRP28
Sample No.	9
Depth	m
Date	02/04/2020

Consolidation Stage



Permeability Stage



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Permeability in a Triaxial Cell BS 1377 : Part 6 : 1990 Clause 6

Specimen Details

Borehole	MGP28
Sample No.	29
Depth	m
Date	02/04/2020
Disturbed / Undisturbed	U

Description of Specimen

Black silty stiff CLAY

Initial Specimen Conditions

Height	mm	194.00
Diameter	mm	104.00
Area	mm ²	8494.87
Volume	cm ³	1648.00
Mass	g	1943.10
Dry Mass	g	1042.40
Density	Mg/m ³	1.18
Dry Density	Mg/m ³	0.63
Moisture Content	%	86.4
Voids Ratio		3.190
Specific Gravity	kN/m ³	2.65
	(assumed/measured)	assumed

Final Specimen Conditions

Moisture Content	%	86.61
Density	Mg/m ³	1.18
Dry Density	Mg/m ³	0.63

Test Setup

Date started	24/03/2020
Date Finished	01/04/2020
Top Drain Used	y
Base Drain Used	y
Pressure System Number	PCELL 2
Cell Number	CCELL 2

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Permeability in a Triaxial Cell

BS 1377 : Part 6 : 1990 Clause 6

Specimen Details

Borehole		MGP28
Sample No.		29
Depth	m	
Date		02/04/2020

Saturation

Cell Pressure Incr.	kPa	50.00
Back Pressure Incr.	kPa	48.00
Differential Pressure	kPa	2.00
Final Cell Pressure	kPa	300.00
Final Pore Pressure	kPa	300.00
Final B Value		0.96

Consolidation

Effective Pressure	kPa	100.00
Cell Pressure	kPa	300.00
Back Pressure	kPa	200.00
Excess Pore Pressure	kPa	100.00
Pore Pressure at End	kPa	200.00
Consolidated Volume	cm ³	1643.80
Consolidated Height	mm	193.84
Consolidated Area	mm ²	8480.43
Vol. Compressibility	m ² /MN	29.3690
Consolidation Coef.	m ² /yr.	0.0255
Final Voids Ratio		3.179

Permeability

Cell Pressure	kPa	300.00
Effective Cell Pressure	kPa	100.00
Back Pressure Diff.	kPa	20.00
Mean Rate of Flow	ml/min	0.00030
Average Temperature	°C	20

Vertical Permeability Kv	m/s	5.58 x 10 ⁻¹¹
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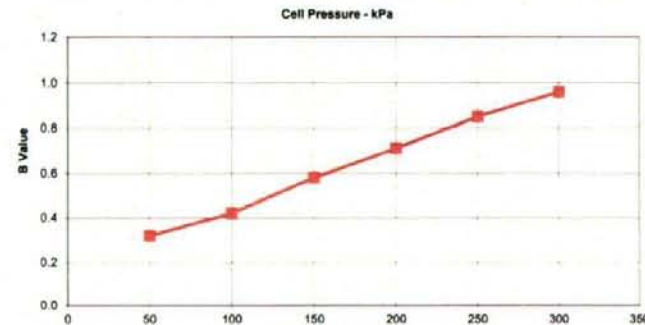
Permeability in a Triaxial Cell

BS 1377 : Part 6 : 1990 Clause 6

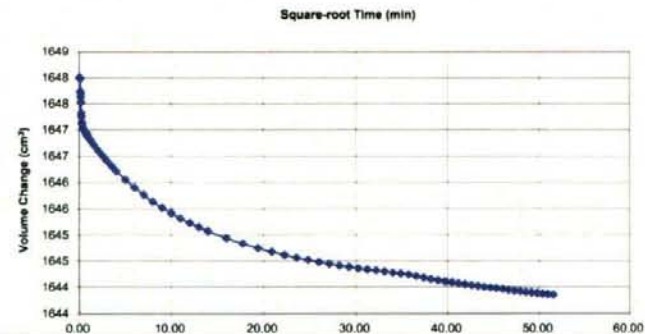
Specimen Details

Borehole		MGP28
Sample No.		29
Depth	m	
Date		02/04/2020

Saturation Stage



Consolidation Stage



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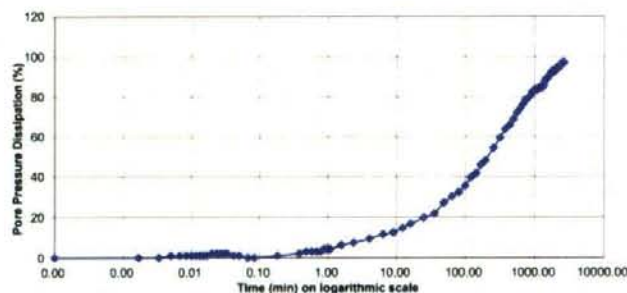
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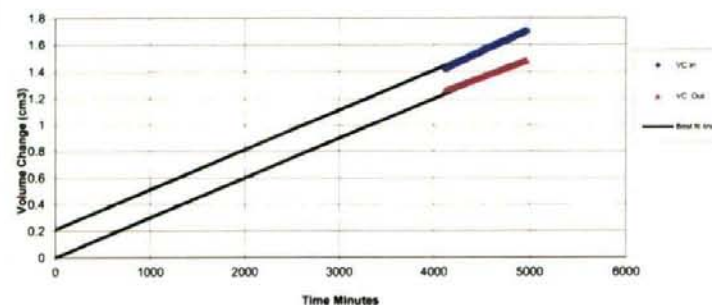
Specimen Details

Borehole	MGP28
Sample No.	29
Depth	m
Date	02/04/2020

Consolidation Stage



Permeability Stage



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Permeability in a Triaxial Cell

BS 1377 : Part 6 : 1990 Clause 6

Specimen Details

Borehole	MAP28
Sample No.	49
Depth	m
Date	02/04/2020
Disturbed / Undisturbed	U

Description of Specimen

Dark grey silty stiff CLAY

Initial Specimen Conditions

Height	mm	188.00
Diameter	mm	104.00
Area	mm²	8494.87
Volume	cm³	1597.03
Mass	g	1980.80
Dry Mass	g	1184.30
Density	Mg/m³	1.24
Dry Density	Mg/m³	0.74
Moisture Content	%	67.3
Voids Ratio		2.574
Specific Gravity	kN/m³	2.65
(assumed/measured)		assumed

Final Specimen Conditions

Moisture Content	%	67.92
Density	Mg/m³	1.25
Dry Density	Mg/m³	0.74

Test Setup

Date started	24/03/2020
Date Finished	01/04/2020
Top Drain Used	y
Base Drain Used	y
Pressure System Number	PCELL 3
Cell Number	CCELL 3

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Permeability in a Triaxial Cell

BS 1377 : Part 6 : 1990 Clause 6

Specimen Details

Borehole	MAP28
Sample No.	49
Depth	m
Date	02/04/2020

Saturation

Cell Pressure Incr.	kPa	50.00
Back Pressure Incr.	kPa	48.00
Differential Pressure	kPa	2.00
Final Cell Pressure	kPa	300.00
Final Pore Pressure	kPa	300.00
Final B Value		0.96

Consolidation

Effective Pressure	kPa	100.00
Cell Pressure	kPa	300.00
Back Pressure	kPa	200.00
Excess Pore Pressure	kPa	100.00
Pore Pressure at End	kPa	202.00
Consolidated Volume	cm ³	1592.93
Consolidated Height	mm	187.84
Consolidated Area	mm ²	8480.33
Vol. Compressibility	m ² /MN	6.4436
Consolidation Coef.	m ² /yr.	0.0262
Final Voids Ratio		2.564

Permeability

Cell Pressure	kPa	300.00
Effective Cell Pressure	kPa	100.00
Back Pressure Diff.	kPa	20.00
Mean Rate of Flow	ml/min	0.00031
Average Temperature	°C	20

Vertical Permeability $l\ m/s$

5.55×10^{-11}

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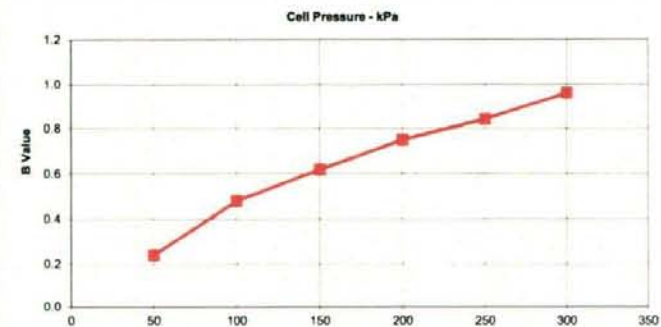
Permeability in a Triaxial Cell

BS 1377 : Part 6 : 1990 Clause 6

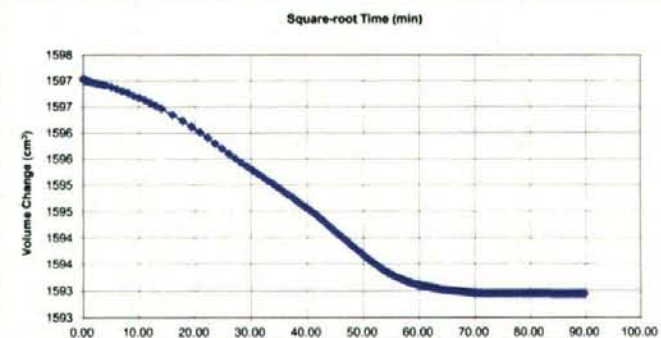
Specimen Details

Borehole	MAP28
Sample No.	49
Depth	m
Date	02/04/2020

Saturation Stage



Consolidation Stage



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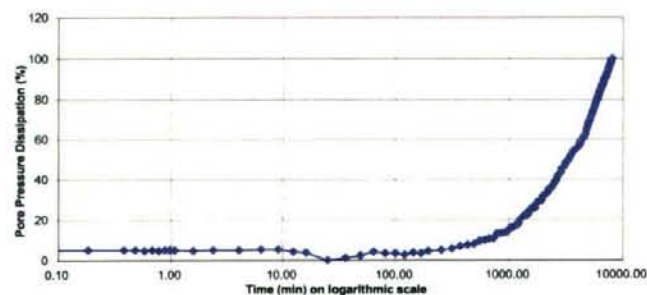
Permeability in a Triaxial Cell

BS 1377 : Part 6 : 1990 Clause 6

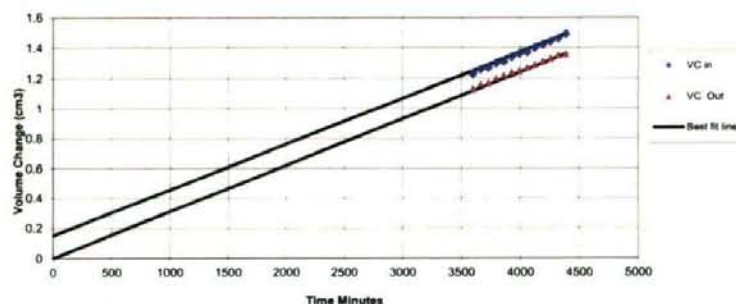
Specimen Details

Borehole	MAP28
Sample No.	49
Depth	m
Date	02/04/2020

Consolidation Stage



Permeability Stage



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Permeability in a Triaxial Cell

BS 1377 : Part 6 : 1990 Clause 6

Specimen Details

Borehole	1MXP28
Sample No.	69
Depth	m
Date	02/04/2020
Disturbed / Undisturbed	U

Description of Specimen

Dark grey silty stiff CLAY

Initial Specimen Conditions

Height	mm	193.00
Diameter	mm	103.00
Area	mm²	8332.29
Volume	cm³	1608.13
Mass	g	1939.40
Dry Mass	g	1012.00
Density	Mg/m³	1.21
Dry Density	Mg/m³	0.63
Moisture Content	%	91.6
Voids Ratio		3.211
Specific Gravity	kN/m³	2.65
	(assumed/measured)	assumed

Final Specimen Conditions

Moisture Content	%	92.42
Density	Mg/m³	1.22
Dry Density	Mg/m³	0.63

Test Setup

Date started	24/04/2020
Date Finished	01/04/2020
Top Drain Used	y
Base Drain Used	y
Pressure System Number	PCELL 4
Cell Number	CCELL 4

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Permeability in a Triaxial Cell

BS 1377 : Part 6 : 1990 Clause 4

Specimen Details

Borehole	1MXP28
Sample No.	69
Depth	m
Date	02/04/2020

Saturation

Cell Pressure Incr.	kPa	50.00
Back Pressure Incr.	kPa	48.00
Differential Pressure	kPa	2.00
Final Cell Pressure	kPa	300.00
Final Pore Pressure	kPa	247.00
Final B Value		0.96

Consolidation

Effective Pressure	kPa	100.00
Cell Pressure	kPa	300.00
Back Pressure	kPa	200.00
Excess Pore Pressure	kPa	100.00
Pore Pressure at End	kPa	201.00
Consolidated Volume	cm ³	1602.23
Consolidated Height	mm	192.76
Consolidated Area	mm ²	8311.91
Vol. Compressibility	m ² /MN	6.7885
Consolidation Coef.	m ² /yr.	0.0371
Final Voids Ratio		3.196

Permeability

Cell Pressure	kPa	300.00
Effective Cell Pressure	kPa	100.00
Back Pressure Diff.	kPa	20.00
Mean Rate of Flow	ml/min	0.00033
Average Temperature	°C	20

Vertical Permeability / m/s

6.32 x 10⁻¹¹

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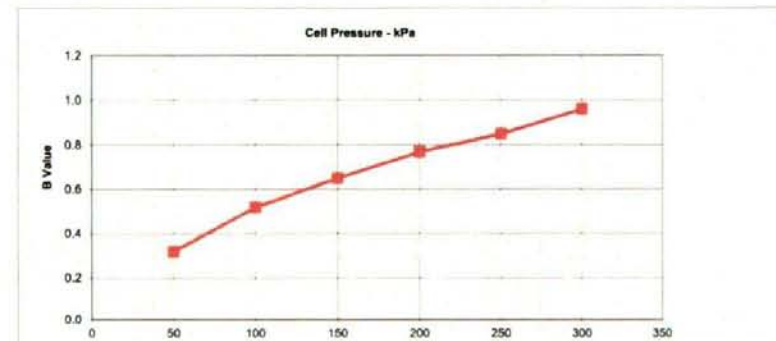
Permeability in a Triaxial Cell

BS 1377 : Part 6 : 1990 Clause 4

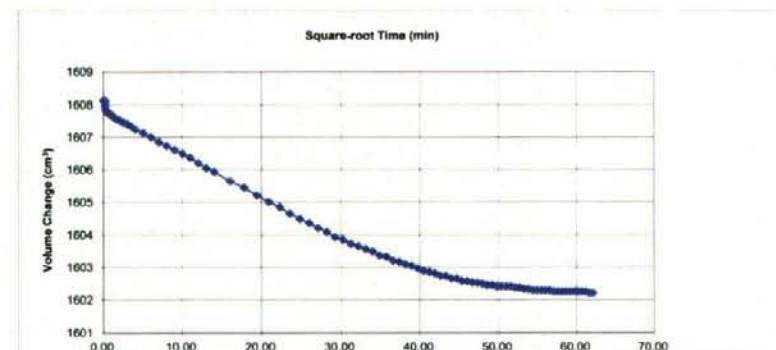
Specimen Details

Borehole	1MXP28
Sample No.	69
Depth	m
Date	02/04/2020

Saturation Stage



Consolidation Stage



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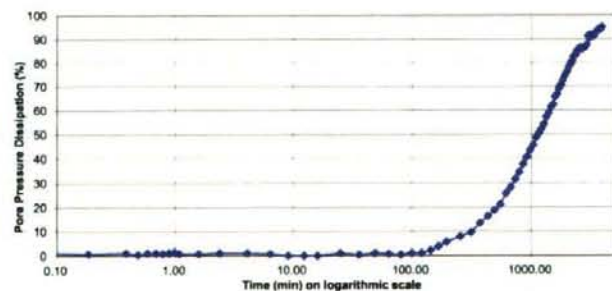
Permeability in a Triaxial Cell

BS 1377 : Part 6 : 1990 Clause 4

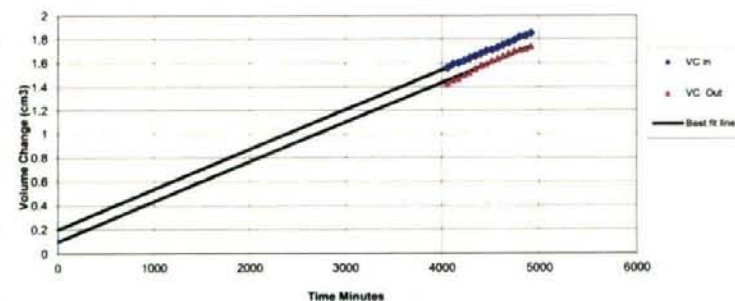
Specimen Details

Borehole	1MXP28
Sample No.	69
Depth	m
Date	02/04/2020

Consolidation Stage



Permeability Stage



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Permeability in a Triaxial Cell

BS 1377 : Part 6 : 1990 Clause 6

Specimen Details

Borehole	2MXP28
Sample No.	87
Depth	m
Date	02/04/2020
Disturbed / Undisturbed	U

Description of Specimen

Dark grey silty stiff CLAY

Initial Specimen Conditions

Height	mm	192.00
Diameter	mm	104.00
Area	mm ²	8494.87
Volume	cm ³	1631.01
Mass	g	1950.30
Dry Mass	g	1057.30
Density	Mg/m ³	1.20
Dry Density	Mg/m ³	0.65
Moisture Content	%	84.5
Voids Ratio		3.088
Specific Gravity	kN/m ³	2.65
(assumed/measured)		assumed

Final Specimen Conditions

Moisture Content	%	84.66
Density	Mg/m ³	1.20
Dry Density	Mg/m ³	0.65

Test Setup

Date started	24/03/2020
Date Finished	01/04/2020
Top Drain Used	y
Base Drain Used	y
Pressure System Number	PCELL 5
Cell Number	CCELL 5

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Permeability in a Triaxial Cell

BS 1377 : Part 6 : 1990 Clause 6

Specimen Details

Borehole	2MXP28
Sample No.	87
Depth	m
Date	02/04/2020

Saturation

Cell Pressure Incr.	kPa	50.00
Back Pressure Incr.	kPa	48.00
Differential Pressure	kPa	2.00
Final Cell Pressure	kPa	300.00
Final Pore Pressure	kPa	302.00
Final B Value		0.96

Consolidation

Effective Pressure	kPa	100.00
Cell Pressure	kPa	300.00
Back Pressure	kPa	200.00
Excess Pore Pressure	kPa	102.00
Pore Pressure at End	kPa	201.00
Consolidated Volume	cm ³	1627.31
Consolidated Height	mm	191.85
Consolidated Area	mm ²	8482.02
Vol. Compressibility	m ² /MN	7.5478
Consolidation Coef.	m ² /yr.	0.0225
Final Voids Ratio		3.079

Permeability

Cell Pressure	kPa	300.00
Effective Cell Pressure	kPa	100.00
Back Pressure Diff.	kPa	20.00
Mean Rate of Flow	ml/min	0.00030
Average Temperature	°C	20

Vertical Permeability I m/s	5.47 x 10 ⁻¹¹
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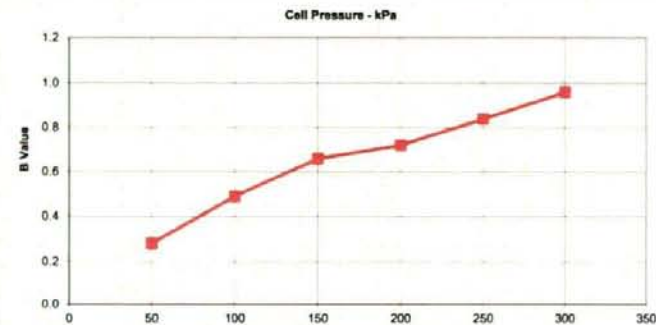
Permeability in a Triaxial Cell

BS 1377 : Part 6 : 1990 Clause 6

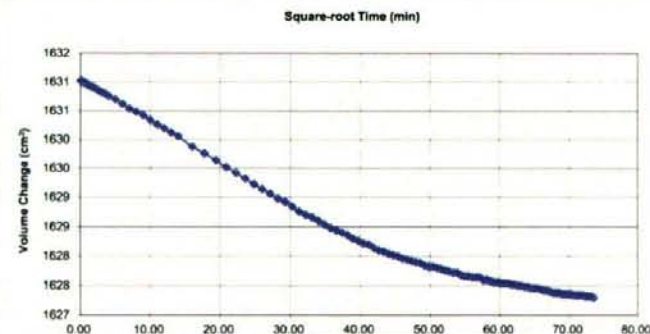
Specimen Details

Borehole	2MXP28
Sample No.	87
Depth	m
Date	02/04/2020

Saturation Stage



Consolidation Stage



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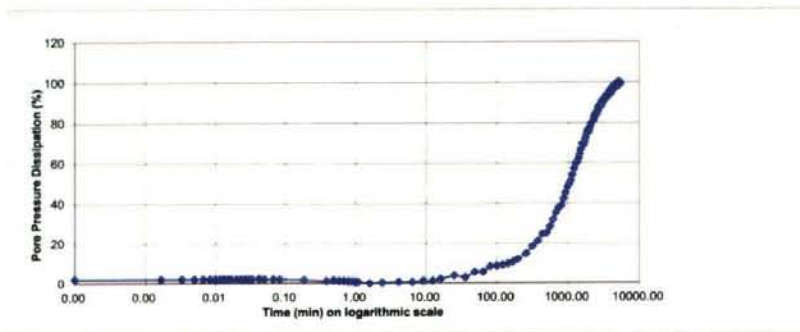


Permeability in a Triaxial Cell BS 1377 : Part 6 : 1990 Clause 6

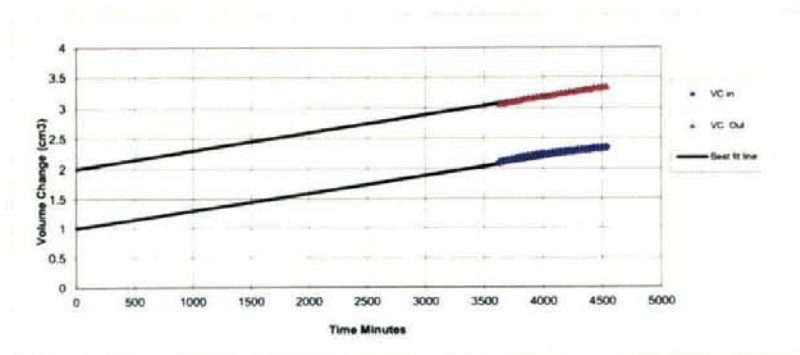
Specimen Details

Borehole	2MXP28
Sample No.	87
Depth	m
Date	02/04/2020

Consolidation Stage



Permeability Stage



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Permeability in a Triaxial Cell BS 1377 : Part 6 : 1990 Clause 6

Specimen Details

Borehole	3MXP28
Sample No.	108
Depth	m
Date	02/04/2020
Disturbed / Undisturbed	U

Description of Specimen

Grey silty stiff CLAY

Initial Specimen Conditions

Height	mm	190.00
Diameter	mm	104.00
Area	mm²	8494.87
Volume	cm³	1614.02
Mass	g	1963.70
Dry Mass	g	1107.70
Density	Mg/m³	1.22
Dry Density	Mg/m³	0.69
Moisture Content	%	77.3
Voids Ratio		2.861
Specific Gravity	kN/m³	2.65
	(assumed/measured)	assumed

Final Specimen Conditions

Moisture Content	%	77.72
Density	Mg/m³	1.22
Dry Density	Mg/m³	0.69

Test Setup

Date started	24/03/2020
Date Finished	01/04/2020
Top Drain Used	y
Base Drain Used	y
Pressure System Number	PCELL 6
Cell Number	CCELL 6

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Permeability in a Triaxial Cell

BS 1377 : Part 6 : 1990 Clause 6

Specimen Details

Borehole	3MXP28
Sample No.	108
Depth	m
Date	02/04/2020

Saturation

Cell Pressure Incr.	kPa	50.00
Back Pressure Incr.	kPa	48.00
Differential Pressure	kPa	2.00
Final Cell Pressure	kPa	300.00
Final Pore Pressure	kPa	302.00
Final B Value		0.96

Consolidation

Effective Pressure	kPa	100.00
Cell Pressure	kPa	300.00
Back Pressure	kPa	200.00
Excess Pore Pressure	kPa	102.00
Pore Pressure at End	kPa	201.00
Consolidated Volume	cm ³	1609.02
Consolidated Height	mm	189.80
Consolidated Area	mm ²	8477.32
Vol. Compressibility	m ² /MN	5.6521
Consolidation Coef.	m ² /yr.	0.0307
Final Voids Ratio		2.849

Permeability

Cell Pressure	kPa	300.00
Effective Cell Pressure	kPa	100.00
Back Pressure Diff.	kPa	20.00
Mean Rate of Flow	ml/min	0.00039
Average Temperature	°C	20

Vertical Permeability Kv	m/s	7.09 x 10 ⁻¹¹
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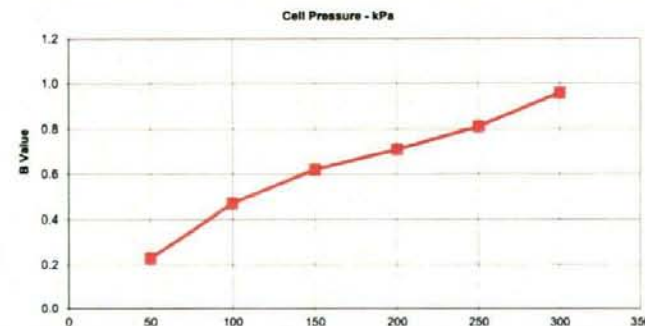
Permeability in a Triaxial Cell

BS 1377 : Part 6 : 1990 Clause 6

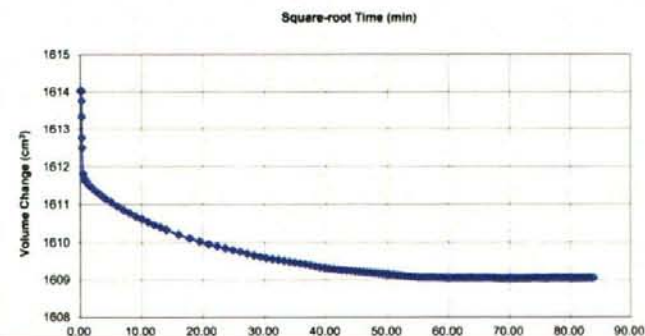
Specimen Details

Borehole	3MXP28
Sample No.	108
Depth	m
Date	02/04/2020

Saturation Stage



Consolidation Stage



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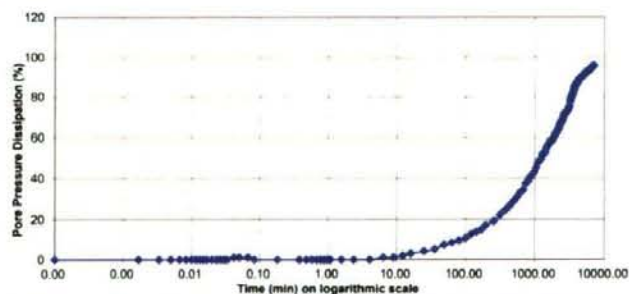
Permeability in a Triaxial Cell

BS 1377 : Part 6 : 1990 Clause 6

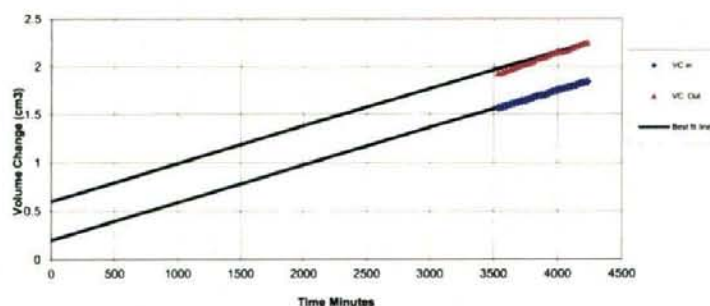
Specimen Details

Borehole	3MXP28
Sample No.	108
Depth	m
Date	02/04/2020

Consolidation Stage



Permeability Stage



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Permeability in a Triaxial Cell

BS 1377 : Part 6 : 1990 Clause 6

Specimen Details

Borehole	4MXP28
Sample No.	117
Depth	m
Date	02/04/2020
Disturbed / Undisturbed	U

Description of Specimen

Black silty stiff CLAY

Initial Specimen Conditions

Height	mm	196.00
Diameter	mm	108.00
Area	mm²	9160.88
Volume	cm³	1795.53
Mass	g	2026.10
Dry Mass	g	1090.70
Density	Mg/m³	1.13
Dry Density	Mg/m³	0.61
Moisture Content	%	85.8
Voids Ratio		3.362
Specific Gravity	kN/m³	2.65
	(assumed/measured)	assumed

Final Specimen Conditions

Moisture Content	%	86.75
Density	Mg/m³	1.14
Dry Density	Mg/m³	0.61

Test Setup

Date started	24/03/2020
Date Finished	01/04/2020
Top Drain Used	y
Base Drain Used	y
Pressure System Number	PCELL 8
Cell Number	CCELL 8

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Permeability in a Triaxial Cell

BS 1377 : Part 6 : 1990 Clause 6

Specimen Details

Borehole	4MXP28
Sample No.	117
Depth	m
Date	02/04/2020

Saturation

Cell Pressure Incr.	kPa	50.00
Back Pressure Incr.	kPa	48.00
Differential Pressure	kPa	2.00
Final Cell Pressure	kPa	300.00
Final Pore Pressure	kPa	298.00
Final B Value		0.96

Consolidation

Effective Pressure	kPa	100.00
Cell Pressure	kPa	300.00
Back Pressure	kPa	200.00
Excess Pore Pressure	kPa	98.00
Pore Pressure at End	kPa	201.00
Consolidated Volume	cm ³	1790.83
Consolidated Height	mm	195.83
Consolidated Area	mm ²	9144.90
Vol. Compressibility	m ² /MN	4.0918
Consolidation Coef.	m ² /yr.	0.0270
Final Voids Ratio		3.351

Permeability

Cell Pressure	kPa	300.00
Effective Cell Pressure	kPa	100.00
Back Pressure Diff.	kPa	20.00
Mean Rate of Flow	ml/min	0.00034
Average Temperature	°C	20

Vertical Permeability Kv	m/s	5.86 x 10 ⁻¹¹
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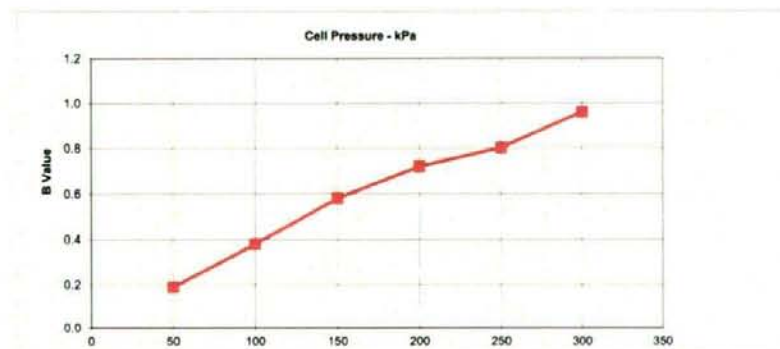
Permeability in a Triaxial Cell

BS 1377 : Part 6 : 1990 Clause 6

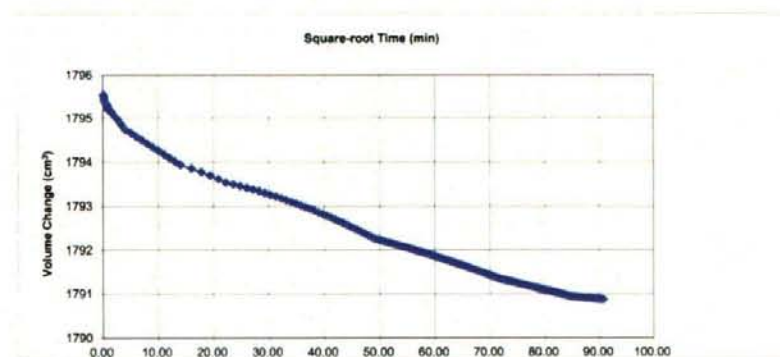
Specimen Details

Borehole	4MXP28
Sample No.	117
Depth	m
Date	02/04/2020

Saturation Stage



Consolidation Stage



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02/04/20
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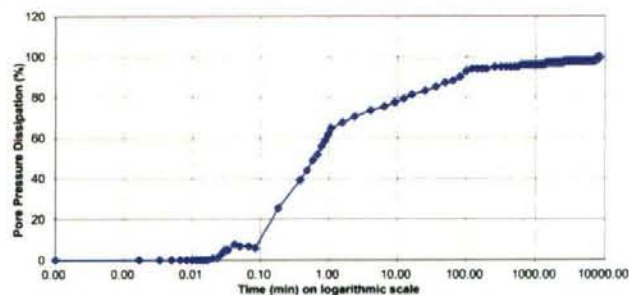
Permeability in a Triaxial Cell

BS 1377 : Part 6 : 1990 Clause 6

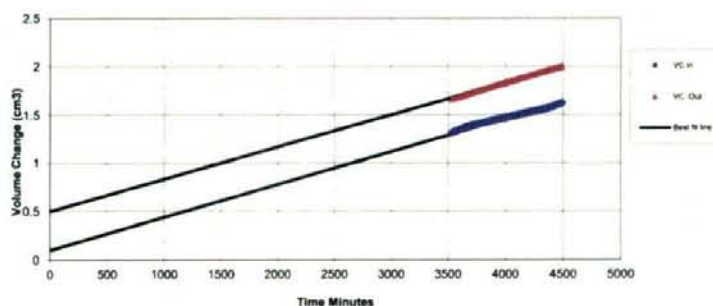
Specimen Details

Borehole	4MXP28
Sample No.	117
Depth	m
Date	02/04/2020

Consolidation Stage



Permeability Stage



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Permeability in a Triaxial Cell

BS 1377 : Part 6 : 1990 Clause 6

Specimen Details

Borehole	5MXP28
Sample No.	137
Depth	m
Date	02/04/2020
Disturbed / Undisturbed	U

Description of Specimen

Dark grey silty stiff CLAY

Initial Specimen Conditions

Height	mm	191.00
Diameter	mm	104.00
Area	mm²	8494.87
Volume	cm³	1622.52
Mass	g	1983.90
Dry Mass	g	1165.50
Density	Mg/m³	1.22
Dry Density	Mg/m³	0.72
Moisture Content	%	70.2
Voids Ratio		2.689
Specific Gravity	kN/m³	2.65
	(assumed/measured)	assumed

Final Specimen Conditions

Moisture Content	%	70.62
Density	Mg/m³	1.23
Dry Density	Mg/m³	0.72

Test Setup

Date started	24/03/2020
Date Finished	01/04/2020
Top Drain Used	y
Base Drain Used	y
Pressure System Number	PCELL 9
Cell Number	CCELL 9

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Permeability in a Triaxial Cell

BS 1377 : Part 6 : 1990 Clause 6

Specimen Details

Borehole	5MPX28
Sample No.	137
Depth	m
Date	02/04/2020

Saturation

Cell Pressure Incr.	kPa	50.00
Back Pressure Incr.	kPa	48.00
Differential Pressure	kPa	2.00
Final Cell Pressure	kPa	300.00
Final Pore Pressure	kPa	302.00
Final B Value		0.96

Consolidation

Effective Pressure	kPa	100.00
Cell Pressure	kPa	300.00
Back Pressure	kPa	200.00
Excess Pore Pressure	kPa	102.00
Pore Pressure at End	kPa	201.00
Consolidated Volume	cm ³	1618.62
Consolidated Height	mm	190.85
Consolidated Area	mm ²	8481.25
Vol. Compressibility	m ² /MN	802.9026
Consolidation Coef.	m ² /yr.	0.0238
Final Voids Ratio		2.680

Permeability

Cell Pressure	kPa	300.00
Effective Cell Pressure	kPa	100.00
Back Pressure Diff.	kPa	20.00
Mean Rate of Flow	ml/min	0.00035
Average Temperature	°C	20

Vertical Permeability l m/s	6.36 x 10 ⁻¹¹
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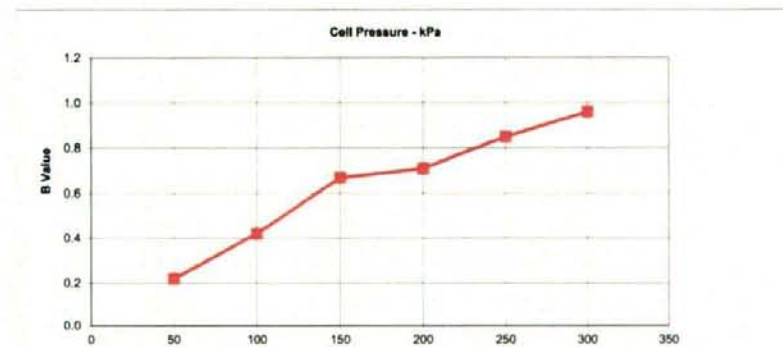
Permeability in a Triaxial Cell

BS 1377 : Part 6 : 1990 Clause 6

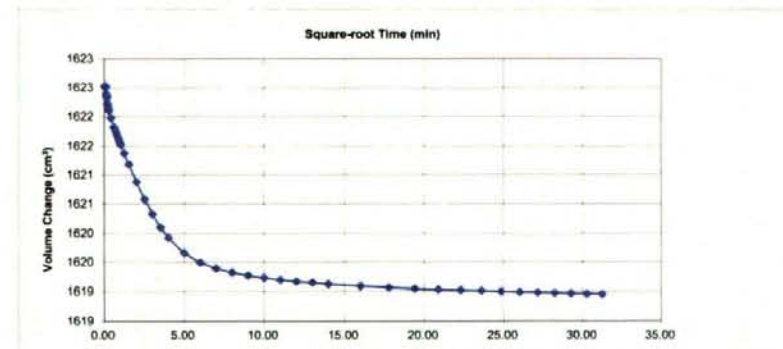
Specimen Details

Borehole	5MPX28
Sample No.	137
Depth	m
Date	02/04/2020

Saturation Stage



Consolidation Stage



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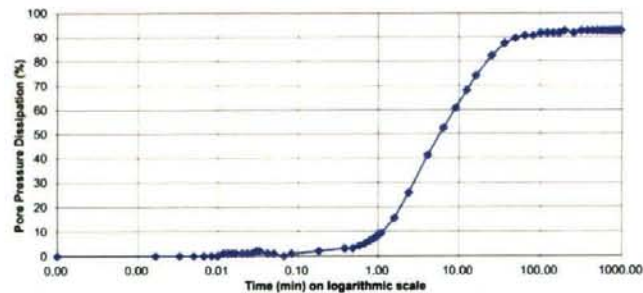
Permeability in a Triaxial Cell

BS 1377 : Part 6 : 1990 Clause 6

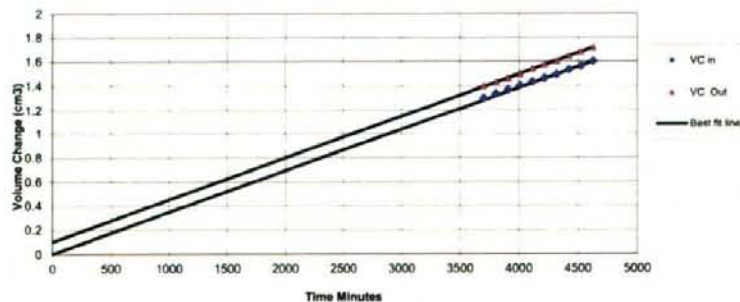
Specimen Details

Borehole	5MXP28
Sample No.	137
Depth	m
Date	02/04/2020

Consolidation Stage



Permeability Stage



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Permeability in a Triaxial Cell

BS 1377 : Part 6 : 1990 Clause 6

Specimen Details

Borehole	6MXP28
Sample No.	157
Depth	m
Date	02/04/2020
Disturbed / Undisturbed	U

Description of Specimen

Dark grey silty stiff CLAY

Initial Specimen Conditions

Height	mm	179.00
Diameter	mm	104.00
Area	mm²	8494.87
Volume	cm³	1520.58
Mass	g	1808.60
Dry Mass	g	1197.40
Density	Mg/m³	1.19
Dry Density	Mg/m³	0.79
Moisture Content	%	51.0
Void Ratio		2.365
Specific Gravity	kN/m³	2.65
(assumed/measured)		assumed

Final Specimen Conditions

Moisture Content	%	51.53
Density	Mg/m³	1.20
Dry Density	Mg/m³	0.79

Test Setup

Date started	24/03/2020
Date Finished	01/04/2020
Top Drain Used	y
Base Drain Used	y
Pressure System Number	PCELL 9
Cell Number	CCELL 9

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Permeability in a Triaxial Cell

BS 1377 : Part 6 : 1990 Clause 6

Specimen Details

Borehole	6MXP28
Sample No.	157
Depth	m
Date	02/04/2020

Saturation

Cell Pressure Incr.	kPa	50.00
Back Pressure Incr.	kPa	48.00
Differential Pressure	kPa	2.00
Final Cell Pressure	kPa	300.00
Final Pore Pressure	kPa	201.00
Final B Value		0.96

Consolidation

Effective Pressure	kPa	100.00
Cell Pressure	kPa	300.00
Back Pressure	kPa	200.00
Excess Pore Pressure	kPa	102.00
Pore Pressure at End	kPa	201.00
Consolidated Volume	cm ³	1516.98
Consolidated Height	mm	178.86
Consolidated Area	mm ²	8481.46
Vol. Compressibility	m ² /MN	60.3273
Consolidation Coef.	m ² /yr.	0.0234
Final Voids Ratio		2.357

Permeability

Cell Pressure	kPa	300.00
Effective Cell Pressure	kPa	100.00
Back Pressure Diff.	kPa	20.00
Mean Rate of Flow	ml/min	0.00042
Average Temperature	°C	20

Vertical Permeability 1 m/s

7.24×10^{-11}

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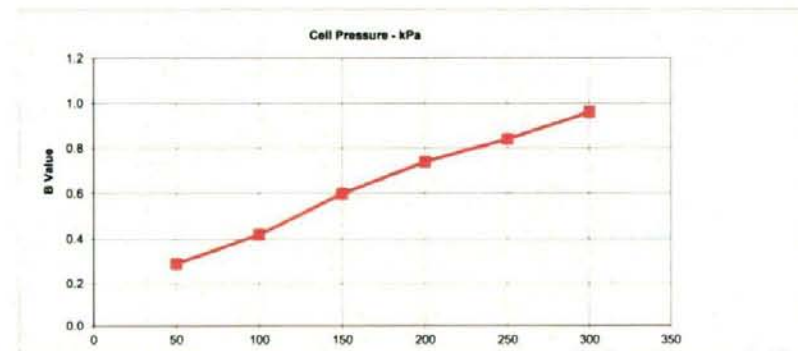
Permeability in a Triaxial Cell

BS 1377 : Part 6 : 1990 Clause 6

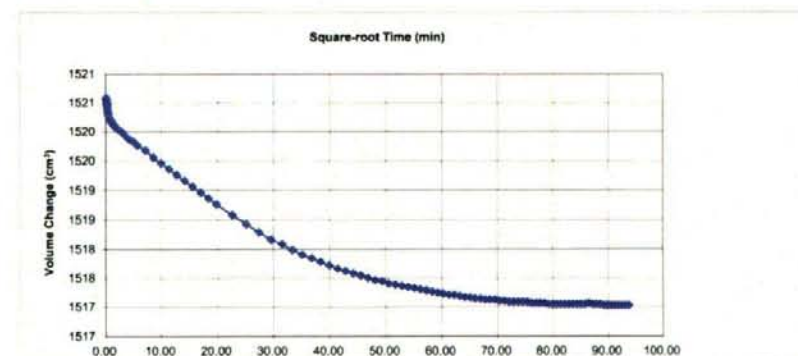
Specimen Details

Borehole	6MXP28
Sample No.	157
Depth	m
Date	02/04/2020

Saturation Stage



Consolidation Stage



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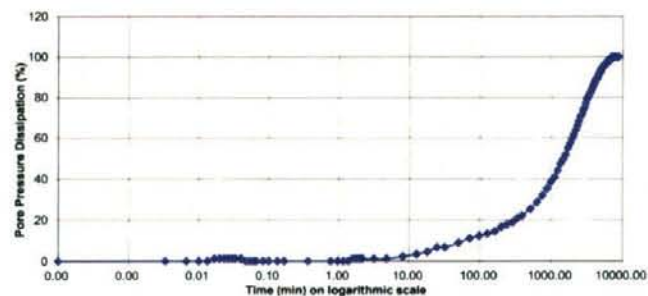
Permeability in a Triaxial Cell

BS 1377 : Part 6 : 1990 Clause 6

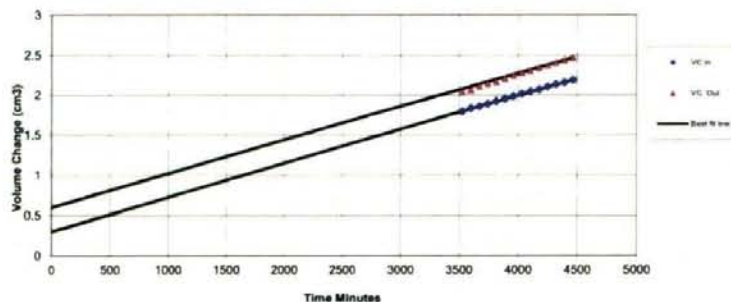
Specimen Details

Borehole	6MXP28
Sample No.	157
Depth	m
Date	02/04/2020

Consolidation Stage



Permeability Stage



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Permeability in a Triaxial Cell

BS 1377 : Part 6 : 1990 Clause 6

Specimen Details

Borehole	7MXP28
Sample No.	177
Depth	m
Date	07/04/2020
Disturbed / Undisturbed	Undisturbed

Description of Specimen

Dark grey silty CLAY.

Initial Specimen Conditions

Height	mm	192.00
Diameter	mm	104.00
Area	mm²	8494.87
Volume	cm³	1631.01
Mass	g	1958.00
Dry Mass	g	1249.20
Density	Mg/m³	1.20
Dry Density	Mg/m³	0.77
Moisture Content	%	56.7
Voids Ratio		2.460
Specific Gravity	kN/m³	2.65
	(assumed/measured)	assumed

Final Specimen Conditions

Moisture Content	%	56.74
Density	Mg/m³	1.23
Dry Density	Mg/m³	0.78

Test Setup

Date started	24/03/2020
Date Finished	02/04/2020
Top Drain Used	y
Base Drain Used	y
Pressure System Number	PPerm10
Cell Number	CPerm10

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Permeability in a Triaxial Cell

BS 1377 : Part 6 : 1990 Clause 6

Specimen Details

Borehole	7MXP28
Sample No.	177
Depth	m
Date	07/04/2020

Saturation

Cell Pressure Incr.	kPa	50.00
Back Pressure Incr.	kPa	48.00
Differential Pressure	kPa	2.00
Final Cell Pressure	kPa	200.00
Final Pore Pressure	kPa	202.00
Final B Value		0.96

Consolidation

Effective Pressure	kPa	100.00
Cell Pressure	kPa	200.00
Back Pressure	kPa	100.00
Excess Pore Pressure	kPa	105.00
Pore Pressure at End	kPa	106.00
Consolidated Volume	cm ³	1597.71
Consolidated Height	mm	190.69
Consolidated Area	mm ²	8379.24
Vol. Compressibility	m ² /MN	3.9032
Consolidation Coef.	m ² /yr.	0.2062
Final Voids Ratio		2.389

Permeability

Cell Pressure	kPa	200.00
Effective Cell Pressure	kPa	100.00
Back Pressure Diff.	kPa	20.00
Mean Rate of Flow	ml/min	0.00024
Average Temperature	°C	20

Vertical Permeability Kv	m/s	4.36 x 10 ⁻¹¹
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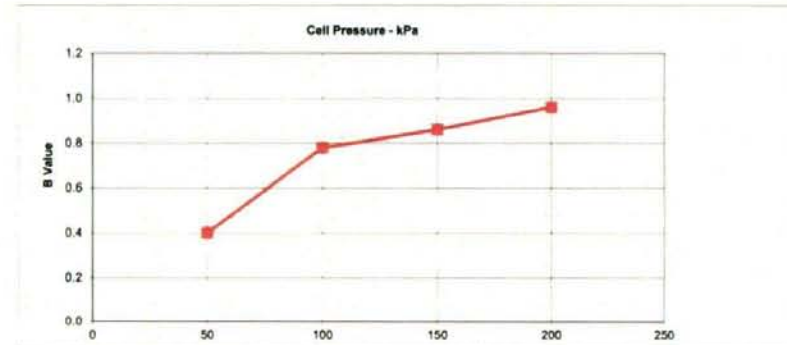
Permeability in a Triaxial Cell

BS 1377 : Part 6 : 1990 Clause 6

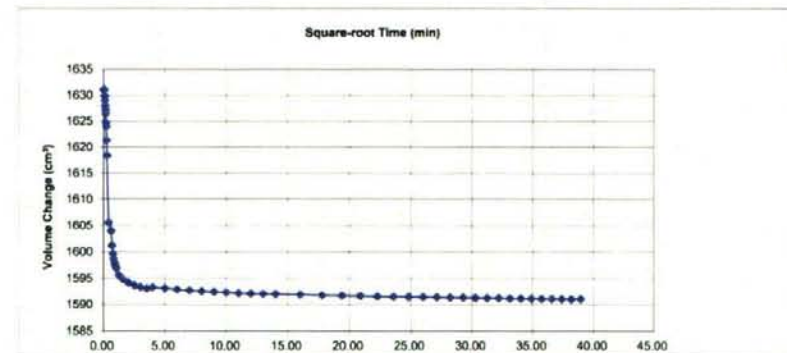
Specimen Details

Borehole	7MXP28
Sample No.	177
Depth	m
Date	07/04/2020

Saturation Stage



Consolidation Stage



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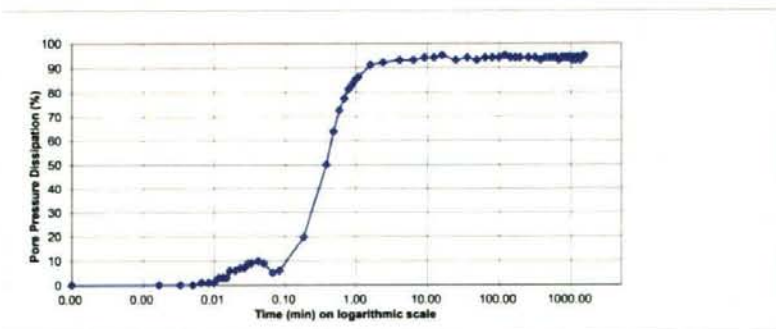
Permeability in a Triaxial Cell

BS 1377 : Part 6 : 1990 Clause 6

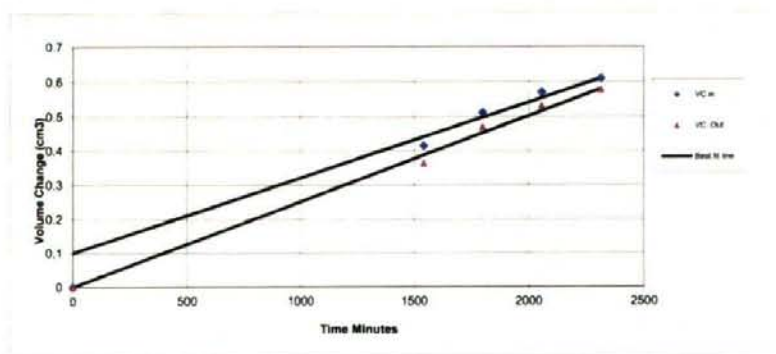
Specimen Details

Borehole	7MXP28
Sample No.	177
Depth	m
Date	07/04/2020

Consolidation Stage



Permeability Stage



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Permeability in a Triaxial Cell

BS 1377 : Part 6 : 1990 Clause 6

Specimen Details

Borehole	8MXP28
Sample No.	186
Depth	m
Date	07/04/2020
Disturbed / Undisturbed	Undisturbed

Description of Specimen

Dark brown silty CLAY.

Initial Specimen Conditions

Height	mm	194.00
Diameter	mm	103.00
Area	mm²	8332.29
Volume	cm³	1616.46
Mass	g	2021.30
Dry Mass	g	1359.30
Density	Mg/m³	1.25
Dry Density	Mg/m³	0.84
Moisture Content	%	48.7
Voids Ratio		2.151
Specific Gravity	kN/m³	2.65
	(assumed/measured)	assumed

Final Specimen Conditions

Moisture Content	%	48.70
Density	Mg/m³	1.28
Dry Density	Mg/m³	0.86

Test Setup

Date started	23/03/2020
Date Finished	02/04/2020
Top Drain Used	y
Base Drain Used	y
Pressure System Number	PPerm11
Cell Number	CPerm11

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Permeability in a Triaxial Cell

BS 1377 : Part 6 : 1990 Clause 6

Specimen Details

Borehole	8MXP28
Sample No.	186
Depth	m
Date	07/04/2020

Saturation

Cell Pressure Incr.	kPa	50.00
Back Pressure Incr.	kPa	48.00
Differential Pressure	kPa	2.00
Final Cell Pressure	kPa	200.00
Final Pore Pressure	kPa	200.00
Final B Value		0.96

Consolidation

Effective Pressure	kPa	100.00
Cell Pressure	kPa	200.00
Back Pressure	kPa	100.00
Excess Pore Pressure	kPa	100.00
Pore Pressure at End	kPa	105.00
Consolidated Volume	cm ³	1576.26
Consolidated Height	mm	192.39
Consolidated Area	mm ²	8194.14
Vol. Compressibility	m ² /MN	3.9790
Consolidation Coef.	m ² /yr.	0.2618
Final Voids Ratio		2.073

Permeability

Cell Pressure	kPa	200.00
Effective Cell Pressure	kPa	100.00
Back Pressure Diff.	kPa	20.00
Mean Rate of Flow	ml/min	0.00010
Average Temperature	°C	20

Vertical Permeability Kv	m/s	1.84 x 10 ⁻¹¹
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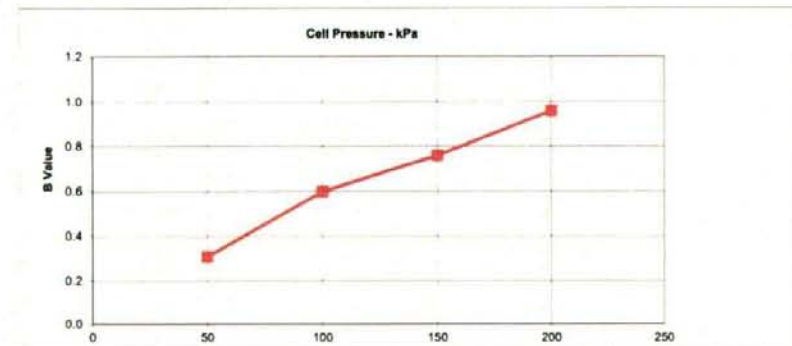
Permeability in a Triaxial Cell

BS 1377 : Part 6 : 1990 Clause 6

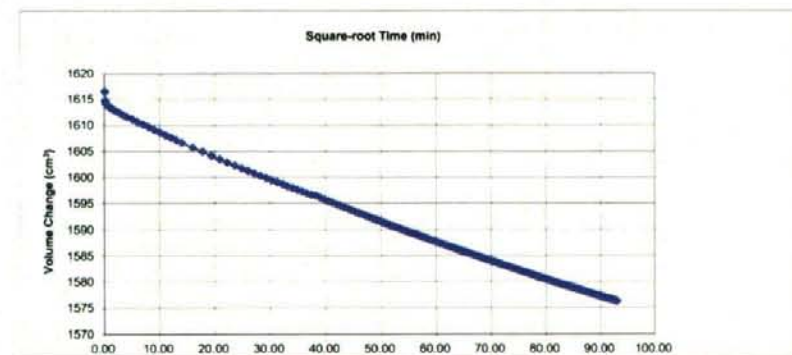
Specimen Details

Borehole	8MXP28
Sample No.	186
Depth	m
Date	07/04/2020

Saturation Stage



Consolidation Stage



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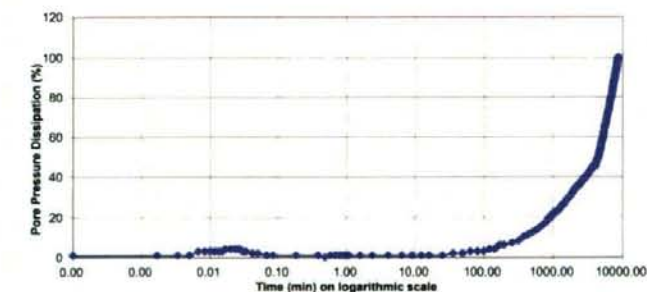
Permeability in a Triaxial Cell

BS 1377 : Part 6 : 1990 Clause 6

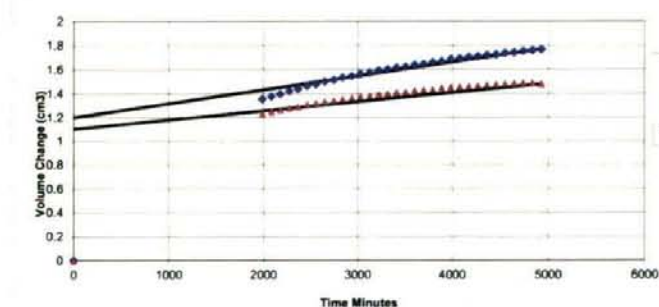
Specimen Details

Borehole	8MXP28
Sample No.	186
Depth	m
Date	07/04/2020

Consolidation Stage



Permeability Stage



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Permeability in a Triaxial Cell

BS 1377 : Part 6 : 1990 Clause 6

Specimen Details

Borehole	9MXP28
Sample No.	195
Depth	m
Date	07/04/2020
Disturbed / Undisturbed	Undisturbed

Description of Specimen

Dark grey silty CLAY.

Initial Specimen Conditions

Height	mm	193.00
Diameter	mm	103.00
Area	mm ²	8332.29
Volume	cm ³	1608.13
Mass	g	2009.00
Dry Mass	g	1387.20
Density	Mg/m ³	1.25
Dry Density	Mg/m ³	0.86
Moisture Content	%	44.8
Voids Ratio		2.072
Specific Gravity	kN/m ³	2.65
	(assumed/measured)	assumed

Final Specimen Conditions

Moisture Content	%	44.82
Density	Mg/m ³	1.27
Dry Density	Mg/m ³	0.88

Test Setup

Date started	23/03/2020
Date Finished	03/04/2020
Top Drain Used	y
Base Drain Used	y
Pressure System Number	PPerm 12
Cell Number	CPerm 12

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Permeability in a Triaxial Cell

BS 1377 : Part 6 : 1990 Clause 6

Permeability in a Triaxial Cell

BS 1377 : Part 6 : 1990 Clause 6

Specimen Details

Borehole	9MXP28
Sample No.	195
Depth	m
Date	07/04/2020

Saturation

Cell Pressure Incr.	kPa	50.00
Back Pressure Incr.	kPa	48.00
Differential Pressure	kPa	2.00
Final Cell Pressure	kPa	200.00
Final Pore Pressure	kPa	204.00
Final B Value		0.96

Consolidation

Effective Pressure	kPa	100.00
Cell Pressure	kPa	200.00
Back Pressure	kPa	100.00
Excess Pore Pressure	kPa	104.00
Pore Pressure at End	kPa	106.00
Consolidated Volume	cm ³	1580.23
Consolidated Height	mm	191.88
Consolidated Area	mm ²	8235.92
Vol. Compressibility	m ³ /MN	3.9480
Consolidation Coef.	m ² /yr.	0.1770
Final Voids Ratio		2.019

Permeability

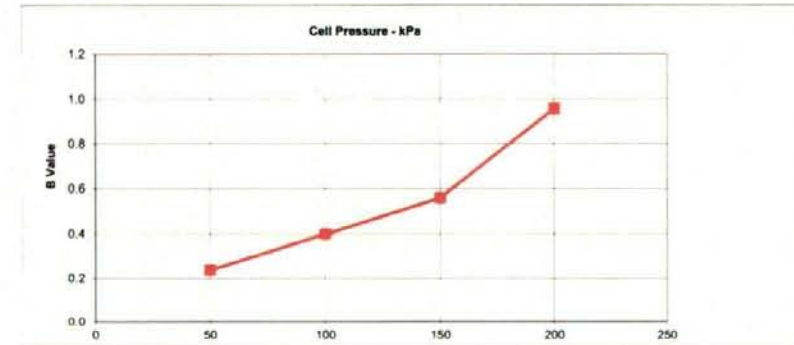
Cell Pressure	kPa	200.00
Effective Cell Pressure	kPa	100.00
Back Pressure Diff.	kPa	20.00
Mean Rate of Flow	ml/min	0.00041
Average Temperature	°C	20

Vertical Permeability Kv	m/s	7.7 x 10 ⁻¹¹
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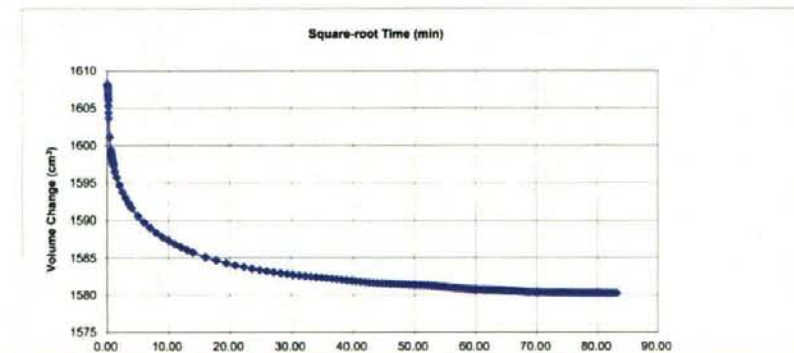
Specimen Details

Borehole	9MXP28
Sample No.	195
Depth	m
Date	07/04/2020

Saturation Stage



Consolidation Stage



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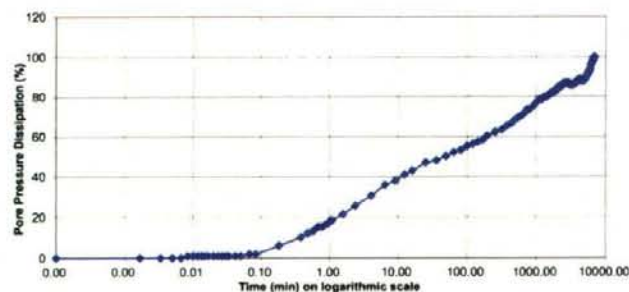
Permeability in a Triaxial Cell

BS 1377 : Part 6 : 1990 Clause 6

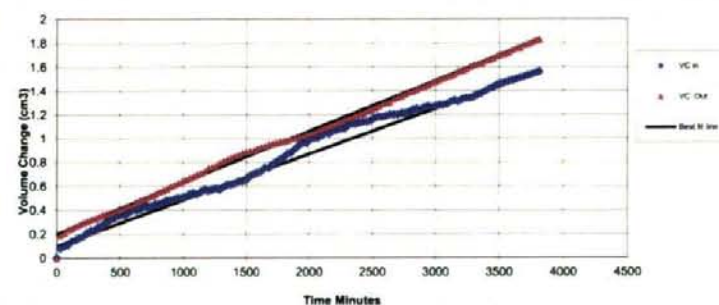
Specimen Details

Borehole	9MXP28
Sample No.	195
Depth	m
Date	07/04/2020

Consolidation Stage



Permeability Stage



DP Gas
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Permeability in a Triaxial Cell

BS 1377 : Part 6 : 1990 Clause 6

Specimen Details

Borehole	10MXP
Sample No.	204
Depth	m
Date	07/04/2020
Sample Type	U

Description of Specimen

Dark grey silty CLAY.

Initial Specimen Conditions

Height	mm	195.00
Diameter	mm	104.00
Area	mm²	8494.87
Volume	cm³	1656.50
Mass	g	2028.10
Dry Mass	g	1088.90
Density	Mg/m³	1.22
Dry Density	Mg/m³	0.66
Moisture Content	%	86.3
Voids Ratio		3.031
Specific Gravity	kN/m³	2.65
	(assumed/measured)	assumed

Final Specimen Conditions

Moisture Content	%	86.25
Density	Mg/m³	1.26
Dry Density	Mg/m³	0.68

Test Setup

Date started	24/03/2020
Date Finished	03/04/2020
Top Drain Used	y
Base Drain Used	y
Pressure System Number	PPerm 13
Cell Number	CPerm 13

DP Gas
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07/04/20
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Permeability in a Triaxial Cell

BS 1377 : Part 6 : 1990 Clause 6

Specimen Details

Borehole	10MXP
Sample No.	204
Depth	m
Date	07/04/2020

Saturation

Cell Pressure Incr.	kPa	50.00
Back Pressure Incr.	kPa	48.00
Differential Pressure	kPa	2.00
Final Cell Pressure	kPa	200.00
Final Pore Pressure	kPa	203.00
Final B Value		0.96

Consolidation

Effective Pressure	kPa	100.00
Cell Pressure	kPa	200.00
Back Pressure	kPa	100.00
Excess Pore Pressure	kPa	103.00
Pore Pressure at End	kPa	100.00
Consolidated Volume	cm ³	1607.60
Consolidated Height	mm	193.08
Consolidated Area	mm ²	8327.69
Vol. Compressibility	m ² /MN	209.6423
Consolidation Coef.	m ² /yr.	0.2866
Final Voids Ratio		2.912

Permeability

Cell Pressure	kPa	200.00
Effective Cell Pressure	kPa	100.00
Back Pressure Diff.	kPa	20.00
Mean Rate of Flow	ml/min	0.00030
Average Temperature	°C	20

Vertical Permeability Kv	m/s	5.73 x 10 ⁻¹¹
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D.P. Gans

Checked and Approved By

07/04/20
Date

GSTL
Geo Site & Testing Services Limited

Howth

Client Ref
P19188
Contract No
48237



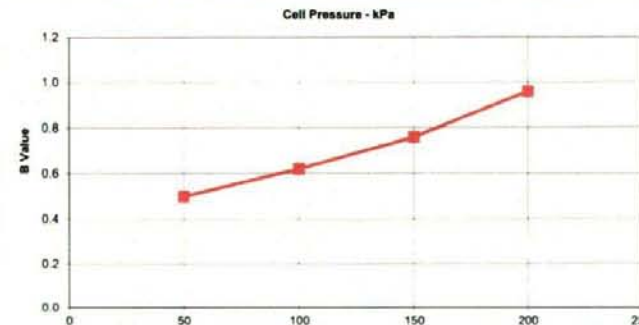
Permeability in a Triaxial Cell

BS 1377 : Part 6 : 1990 Clause 6

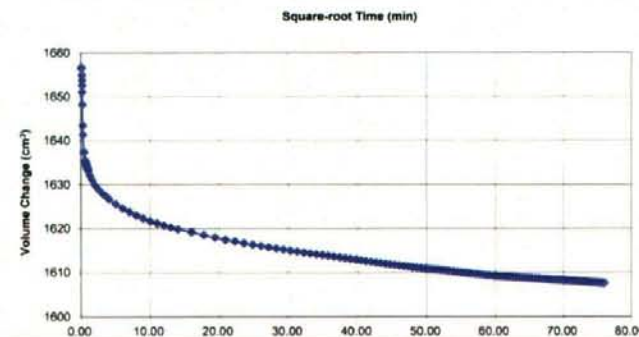
Specimen Details

Borehole	10MXP
Sample No.	204
Depth	m
Date	07/04/2020

Saturation Stage



Consolidation Stage



D.P. Gans

Checked and Approved By

07/04/20
Date

GSTL
Geo Site & Testing Services Limited

Howth

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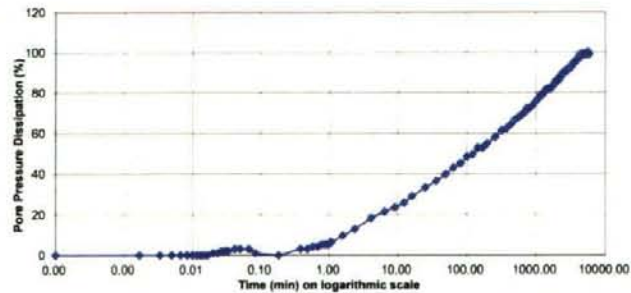
Permeability in a Triaxial Cell

BS 1377 : Part 6 : 1990 Clause 6

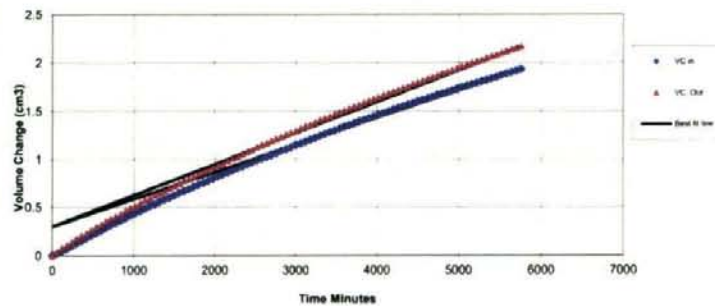
Specimen Details

Borehole		10MXP
Sample No.		204
Depth	m	
Date		07/04/2020

Consolidation Stage



Permeability Stage



Checked and Approved By

07/04/20
Date

Client Ref
P19188
Contract No

48237

Howth

DP Gans
GSTL
Geotechnical & Testing Services Limited





Final Report

Report No.: 20-15963-1
Initial Date of Issue: 02-Jul-2020
Client: Priority Geotechnical Ltd
Client Address: Unit 12
Owenacurra Business Park
Midleton
County Cork
Ireland
Contact(s): Colette Kelly
Project: P19188 Howth
Quotation No.: Q20-19920
Order No.: 12451
No. of Samples: 4
Turnaround (Wkdays): 7
Date Approved: 02-Jul-2020
Approved By:

Date Received: 24-Jun-2020
Date Instructed: 24-Jun-2020
Results Due: 02-Jul-2020

Details: Glynn Harvey, Technical Manager

Results - Leachate

Project: P19188 Howth		Chemtest Job No.:		20-15963		20-15963		20-15963		20-15963		20-15963	
Client: Priority Geotechnical Ltd		Chemtest Sample ID.:		1021601		1021602		1021603		1021604		1021604	
Quotation No.: Q20-19920		Sample Location:		4MXM120		5MXM120		6MXM120		10MXM120		10MXM120	
Determination	Accred.	SOP	Type	Units	LOD	Date Sampled		Date Sampled		Date Sampled		Date Sampled	
						19-Jun-2020		19-Jun-2020		19-Jun-2020		19-Jun-2020	
Chloride	U	1220	10:1	mg/l	1.0	330		480		340		330	
Sulphate	U	1220	10:1	mg/l	1.0	33		28		27		< 1.0	
Calcium	U	1415	10:1	mg/l	5.0	200		270		280		520	
Sodium	U	1415	10:1	mg/l	0.50	180		280		160		220	
Arsenic (Dissolved)	U	1450	10:1	µg/l	1.0	2.6		3.0		2.0		4.3	
Cadmium (Dissolved)	U	1450	10:1	µg/l	0.080	< 0.080		< 0.080		< 0.080		< 0.080	
Chromium (Dissolved)	U	1450	10:1	µg/l	1.0	6.5		7.5		7.8		9.9	
Copper (Dissolved)	U	1450	10:1	µg/l	1.0	1.2		1.2		< 1.0		1.8	
Mercury (Dissolved)	U	1450	10:1	µg/l	0.50	< 0.50		< 0.50		< 0.50		< 0.50	
Nickel (Dissolved)	U	1450	10:1	µg/l	1.0	26		15		10		90	
Lead (Dissolved)	U	1450	10:1	µg/l	1.0	< 1.0		< 1.0		< 1.0		< 1.0	
Selenium (Dissolved)	U	1450	10:1	µg/l	1.0	7.6		11		9.1		8.3	
Tin (Dissolved)	U	1450	10:1	µg/l	1.0	< 1.0		< 1.0		< 1.0		1.3	
Vanadium (Dissolved)	U	1450	10:1	µg/l	1.0	3.9		4.1		3.3		1.0	
Zinc (Dissolved)	U	1450	10:1	µg/l	1.0	28		20		19		24	
Diethyl Tin	N	1730	10:1	µg/l	0.050	< 0.050		< 0.050		< 0.050		< 0.050	
Tributyl Tin	N	1730	10:1	µg/l	0.0500	< 0.0500		< 0.0500		< 0.0500		< 0.0500	

Test Methods

SOP	Title	Parameters included	Method summary
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.
1415	Cations in Waters by ICP-MS	Sodium; Potassium; Calcium; Magnesium	Direct determination by inductively coupled plasma - mass spectrometry (ICP-MS).
1450	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).
1730	Organo-Leads	Organo-Leads	Solvent extraction / GCMS detection
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 BSS930
640	Characterisation of Waste (Leaching C10)	Waste material including soil, sludges and granular waste	Compliance Test for Leaching of Granular Waste Material and Sludge

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
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- < "less than"
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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



Final Report

Report No.: 20-13172-1
 Initial Date of Issue: 02-Jun-2020
 Client: Priority Geotechnical Ltd
 Client Address: Unit 12
 Owenacurra Business Park
 Midleton
 County Cork
 Ireland
 Contact(s): Colette Kelly
 Project: P19188 Howth
 Quotation No.: Q20-19920
 Order No.: 12451
 No. of Samples: 4
 Turnaround (Wkdays): 7
 Date Approved: 02-Jun-2020

Approved By:

Details: Glynn Harvey, Technical Manager



The right chemistry to deliver results

Chemtest Ltd.

Depot Road

Newmarket

CB8 0AL

Tel: 01638 606070

Email: info@chemtest.com

Date Received: 26-May-2020
 Date Instructed: 26-May-2020
 Results Due: 03-Jun-2020



The right chemistry to deliver results

Project: P19188 Howth

Client: Priority Geotechnical Ltd	Quotation No.: Q20-19920	Chemtest Job No.:		Chemtest Sample ID.:		Sample Location:		Sample Type:		Date Sampled:		LOD		20-13172		20-13172		20-13172		20-13172		20-13172	
		20-13172		20-13172		20-13172		20-13172		20-13172		20-13172		20-13172		20-13172		20-13172		20-13172		20-13172	
		U	1220	10.1	mg/l	1.0	850	330	430	480	480	480	480	480	480	480	480	480	480	480	480	480	480
		U	1220	10.1	mg/l	1.0	45	23	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37
		U	1415	10.1	mg/l	5.0	100	230	240	260	260	260	260	260	260	260	260	260	260	260	260	260	260
		U	1415	10.1	mg/l	0.50	580	270	400	420	420	420	420	420	420	420	420	420	420	420	420	420	420
		U	1450	10.1	µg/l	1.0	4.6	1.7	3.1	4.9	4.9	4.9	4.9	4.9	4.9	4.9	4.9	4.9	4.9	4.9	4.9	4.9	4.9
		U	1450	10.1	µg/l	0.080	0.12	< 0.080	< 0.080	0.085	0.085	0.085	0.085	0.085	0.085	0.085	0.085	0.085	0.085	0.085	0.085	0.085	0.085
		U	1450	10.1	µg/l	1.0	6.7	2.5	6.1	5.6	5.6	5.6	5.6	5.6	5.6	5.6	5.6	5.6	5.6	5.6	5.6	5.6	5.6
		U	1450	10.1	µg/l	1.0	2.0	< 1.0	1.5	3.7	3.7	3.7	3.7	3.7	3.7	3.7	3.7	3.7	3.7	3.7	3.7	3.7	3.7
		U	1450	10.1	µg/l	0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
		U	1450	10.1	µg/l	1.0	51	6.7	22	120	120	120	120	120	120	120	120	120	120	120	120	120	120
		U	1450	10.1	µg/l	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
		U	1450	10.1	µg/l	1.0	13	6.3	12	7.5	7.5	7.5	7.5	7.5	7.5	7.5	7.5	7.5	7.5	7.5	7.5	7.5	7.5
		U	1450	10.1	µg/l	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
		U	1450	10.1	µg/l	1.0	6.2	3.5	6.0	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2
		U	1450	10.1	µg/l	1.0	47	29	40	35	35	35	35	35	35	35	35	35	35	35	35	35	35
		N	1730	10.1	µg/l	0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050
		N	1730	10.1	µg/l	0.0500	< 0.0500	< 0.0500	< 0.0500	< 0.0500	< 0.0500	< 0.0500	< 0.0500	< 0.0500	< 0.0500	< 0.0500	< 0.0500	< 0.0500	< 0.0500	< 0.0500	< 0.0500	< 0.0500	< 0.0500

Results - Leachate

Test Methods

SOP	Title	Parameters included	Method summary
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.
1415	Cations in Waters by ICP-MS	Sodium; Potassium; Calcium; Magnesium	Direct determination by inductively coupled plasma - mass spectrometry (ICP-MS).
1450	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).
1730	Organo-Leads	Organo-Leads	Solvent extraction / GCMS detection
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
640	Characterisation of Waste (Leaching C10)	Waste material including soil, sludges and granular waste	Compliance Test for Leaching of Granular Waste Material and Sludge

Report Information

Key

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- < "less than"
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The results relate only to the items tested

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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



Final Report

Report No.: 20-12147-1
 Initial Date of Issue: 20-May-2020
 Client: Priority Geotechnical Ltd
 Client Address: Unit 12
 Owenacurra Business Park
 Midleton
 County Cork
 Ireland
 Contact(s): Colette Kelly
 Project: P19188 Howth
 Quotation No.: Q20-19920
 Order No.: 12451
 No. of Samples: 4
 Turnaround (Wkdays): 7
 Date Approved: 20-May-2020

Approved By:

Details: Glynn Harvey, Technical Manager



Chemtest Ltd.
 Depot Road
 Newmarket
 CB8 0AL
 Tel: 01638 606070
 Email: info@chemtest.com



Results - Leachate

Client: Priority Geotechnical Ltd		Chemtest Job No.: 20-12147		Chemtest Sample ID: 1003871		20-12147		20-12147		20-12147		20-12147	
Quotation No.: Q20-19920		Sample Location: 4m x 76		Sample Type: SOIL		Date Sampled: 06-May-2020		06-May-2020		06-May-2020		06-May-2020	
Determinand	Accred.	SOP	Type	Units	LOD	1003871	1003872	1003873	1003874	1003875	1003876	1003877	1003878
Chloride	U	1220	10.1	mg/l	1.0	520	500	390	610	390	610	390	610
Sulphate	U	1220	10.1	mg/l	1.0	35	20	37	< 1.0	37	< 1.0	37	< 1.0
Calcium	U	1415	10.1	mg/l	5.0	220	190	160	580	160	580	160	580
Sodium	U	1415	10.1	mg/l	0.50	400	350	220	510	220	510	220	510
Arsenic (Dissolved)	U	1450	10.1	µg/l	1.0	3.3	2.5	3.0	5.8	3.0	5.8	3.0	5.8
Cadmium (Dissolved)	U	1450	10.1	µg/l	0.080	0.12	< 0.080	< 0.080	0.11	< 0.080	0.11	< 0.080	0.11
Chromium (Dissolved)	U	1450	10.1	µg/l	1.0	11	3.8	10	14	10	14	10	14
Copper (Dissolved)	U	1450	10.1	µg/l	1.0	2.8	1.5	1.5	4.5	1.5	4.5	1.5	4.5
Mercury (Dissolved)	U	1450	10.1	µg/l	0.50	0.81	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
Nickel (Dissolved)	U	1450	10.1	µg/l	1.0	29	17	26	180	26	180	26	180
Lead (Dissolved)	U	1450	10.1	µg/l	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Selenium (Dissolved)	U	1450	10.1	µg/l	1.0	9.3	9.1	9.5	16	9.5	16	9.5	16
Tin (Dissolved)	U	1450	10.1	µg/l	1.0	< 1.0	1.3	9.4	2.5	1.3	9.4	1.3	2.5
Vanadium (Dissolved)	U	1450	10.1	µg/l	1.0	8.3	3.4	7.5	5.0	3.4	7.5	3.4	5.0
Zinc (Dissolved)	U	1450	10.1	µg/l	1.0	19	17	10	17	17	10	17	17
Dibutyl Tin	N	1730	10.1	µg/l	0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050
Tributyl Tin	N	1730	10.1	µg/l	0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050

SOP	Title	Parameters included	Method summary
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.
1415	Cations in Waters by ICP-MS	Sodium; Potassium; Calcium; Magnesium	Direct determination by inductively coupled plasma - mass spectrometry (ICP-MS).
1450	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).
1730	Organo-Leads	Organo-Leads	Solvent extraction / GCMS detection
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
640	Characterisation of Waste (Leaching C10)	Waste material including soil, sludges and granular waste	Compliance Test for Leaching of Granular Waste Material and Sludge

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Sample Retention and Disposal

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Final Report

Report No.: 20-09950-1
 Initial Date of Issue: 09-Apr-2020
 Client: Priority Geotechnical Ltd
 Client Address: Unit 12
 Owenacurra Business Park
 Midleton
 County Cork
 Ireland
 Contact(s): Colette Kelly
 Project: P19188 HOWTH
 Quotation No.: Q20-19920
 Order No.: 12451
 No. of Samples: 4
 Turnaround (Wkdays): 7
 Date Approved: 09-Apr-2020

Approved By:

Details: Glynn Harvey, Technical Manager



The right chemistry to deliver results

Chemtest Ltd.

Depot Road

Newmarket

CB8 0AL

Tel: 01638 606070

Email: info@chemtest.com



The right chemistry to deliver results

Project: P19188 HOWTH

Client: Priority Geotechnical Ltd

Quotation No.: Q20-19920

Results - Leachate

Determinand	Accred.	SOP	Type	Units	LOD	Chemtest Job No.:	Chemtest Sample ID:	Sample Location:	Sample Type	Date Sampled	20-09950	20-09950	20-09950	20-09950	20-09950
Chloride	U	1220	10.1	mg/l	1.0	994846	994847	5Mx28	SOIL	23-Mar-2020	440	440	440	440	340
Sulphate	U	1220	10.1	mg/l	1.0	994846	994847	5Mx28	SOIL	23-Mar-2020	30	23	16	16	2.8
Calcium	U	1415	10.1	mg/l	5.0	994846	994847	5Mx28	SOIL	23-Mar-2020	140	200	160	160	650
Sodium	U	1415	10.1	mg/l	0.50	994846	994847	5Mx28	SOIL	23-Mar-2020	190	190	200	200	180
Arsenic (Dissolved)	U	1450	10.1	µg/l	1.0	994846	994847	5Mx28	SOIL	23-Mar-2020	2.4	3.2	2.5	2.5	3.5
Cadmium (Dissolved)	U	1450	10.1	µg/l	0.080	994846	994847	5Mx28	SOIL	23-Mar-2020	< 0.080	0.35	0.086	0.086	< 0.080
Chromium (Dissolved)	U	1450	10.1	µg/l	1.0	994846	994847	5Mx28	SOIL	23-Mar-2020	2.4	3.7	3.8	3.8	2.2
Copper (Dissolved)	U	1450	10.1	µg/l	1.0	994846	994847	5Mx28	SOIL	23-Mar-2020	1.8	2.1	1.6	1.6	2.7
Mercury (Dissolved)	U	1450	10.1	µg/l	0.50	994846	994847	5Mx28	SOIL	23-Mar-2020	0.56	22	3.5	3.5	1.2
Nickel (Dissolved)	U	1450	10.1	µg/l	1.0	994846	994847	5Mx28	SOIL	23-Mar-2020	18	25	5.0	5.0	70
Lead (Dissolved)	U	1450	10.1	µg/l	1.0	994846	994847	5Mx28	SOIL	23-Mar-2020	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Selenium (Dissolved)	U	1450	10.1	µg/l	1.0	994846	994847	5Mx28	SOIL	23-Mar-2020	9.1	11	16	16	6.3
Tin (Dissolved)	U	1450	10.1	µg/l	1.0	994846	994847	5Mx28	SOIL	23-Mar-2020	< 1.0	1.2	< 1.0	< 1.0	< 1.0
Vanadium (Dissolved)	U	1450	10.1	µg/l	1.0	994846	994847	5Mx28	SOIL	23-Mar-2020	3.9	5.2	3.5	3.5	1.1
Zinc (Dissolved)	U	1450	10.1	µg/l	1.0	994846	994847	5Mx28	SOIL	23-Mar-2020	13	16	16	16	13
Diethyl Tin	N	1730	10.1	µg/l	0.050	994846	994847	5Mx28	SOIL	23-Mar-2020	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050
Tributyl Tin	N	1730	10.1	µg/l	0.0500	994846	994847	5Mx28	SOIL	23-Mar-2020	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050

Test Methods

SOP	Title	Parameters included	Method summary
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.
1415	Cations in Waters by ICP-MS	Sodium; Potassium; Calcium; Magnesium	Direct determination by inductively coupled plasma - mass spectrometry (ICP-MS).
1450	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).
1730	Organo-Leads	Organo-Leads	Solvent extraction / GCMS detection
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.
640	Characterisation of Waste (Leaching C10)	Waste material including soil, sludges and granular waste	ComplianceTest for Leaching of Granular Waste Material and Sludge

Report Information

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- U/S Unsuitable Sample
- N/E not evaluated
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- > "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
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- 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



Final Report

Report No.: 20-08616-1
 Initial Date of Issue: 27-Mar-2020
 Client: Priority Geotechnical Ltd
 Client Address: Unit 12
 Owenacurra Business Park
 Midleton
 County Cork
 Ireland
 Contact(s): Colette Kelly
 Project: P19188 Howth
 Quotation No.: Q20-19850
 Order No.: 12451
 No. of Samples: 4
 Turnaround (Wkdays): 7
 Date Approved: 27-Mar-2020

Approved By:

Details: Glynn Harvey, Technical Manager



The right chemistry to deliver results

Chemtest Ltd.
 Depot Road
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 Email: info@chemtest.com



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Results - Leachate

Project: P19188 Howth		Chemtest Job No.:									
Client: Priority Geotechnical Ltd		Chemtest Sample ID.:									
Quotation No.: Q20-19850		Sample Location:									
		Sample Type									
		Date Sampled									
		LOD									
Determinand	Accred.	SOP	Type	Units							
Chloride	U	1220	10.1	mg/l	1.0	490	630	550	390		
Sulphate	U	1220	10.1	mg/l	1.0	36	64	89	<1.0		
Calcium	U	1415	10.1	mg/l	5.0	130	150	120	390		
Sodium	U	1415	10.1	mg/l	0.50	350	320	250	250		
Arsenic (Dissolved)	U	1450	10.1	µg/l	1.0	3.1	3.5	3.0	4.4		
Cadmium (Dissolved)	U	1450	10.1	µg/l	0.080	0.12	0.16	0.11	0.11		
Chromium (Dissolved)	U	1450	10.1	µg/l	1.0	4.6	5.6	4.4	3.0		
Copper (Dissolved)	U	1450	10.1	µg/l	1.0	12	180	19	13		
Mercury (Dissolved)	U	1450	10.1	µg/l	0.50	1.8	<0.50	<0.50	<0.50		
Nickel (Dissolved)	U	1450	10.1	µg/l	1.0	33	63	18	120		
Lead (Dissolved)	U	1450	10.1	µg/l	1.0	<1.0	<1.0	<1.0	<1.0		
Selenium (Dissolved)	U	1450	10.1	µg/l	1.0	10	11	9.7	6.0		
Tin (Dissolved)	U	1450	10.1	µg/l	1.0	<1.0	1.0	1.2	2.1		
Vanadium (Dissolved)	U	1450	10.1	µg/l	1.0	4.2	9.0	11	1.3		
Zinc (Dissolved)	U	1450	10.1	µg/l	1.0	17	36	40	20		
Diethyl Tin	N	1730	10.1	µg/l	0.050	<0.050	<0.050	<0.050	<0.050		
Tributyl Tin	N	1730	10.1	µg/l	0.050	<0.050	<0.050	<0.050	<0.050		

Test Methods

SOP	Title	Parameters included	Method summary
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.
1415	Cations in Waters by ICP-MS	Sodium; Potassium; Calcium; Magnesium	Direct determination by inductively coupled plasma - mass spectrometry (ICP-MS).
1450	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).
1730	Organo-Leads	Organo-Leads	Solvent extraction / GCMS detection
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.
640	Characterisation of Waste (Leaching C10)	Waste material including soil, sludges and granular waste	ComplianceTest for Leaching of Granular Waste Material and Sludge

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Comments or interpretations are beyond the scope of UKAS accreditation

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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

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

Sample Deviation Codes

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- 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



Final Report

Report No.: 20-03433-1
 Initial Date of Issue: 19-Feb-2020
 Client: Priority Geotechnical Ltd
 Client Address: Unit 12
 Owenacurra Business Park
 Midleton
 County Cork
 Ireland
 Contact(s): Colette Kelly
 Project: P19188 Howth
 Quotation No.:
 Order No.: 12451
 No. of Samples: 3
 Turnaround (Wkdays): 7
 Date Approved: 14-Feb-2020
 Approved By:

Details: Glynn Harvey, Laboratory Manager

Chemtest
 The right chemistry to deliver results
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 Email: info@chemtest.com



The right chemistry to deliver results

Project: P19188 Howth

Client: Priority Geotechnical Ltd	Chemtest Job No.: 20-03433		20-03433		20-03433		20-03433		20-03433	
	Quotation No.: 12451	Chemtest Sample ID: C1	Client Sample Ref: C1	Sample Location: LB203	Sample Type: SOIL	Date Sampled: 31-Jan-2020	SOIL	SOIL	SOIL	SOIL
Determinand	Accred.	SOP	Type	Units	LOD					
Chloride	U	1220	10.1	mg/l	1.0	1300	680	950	950	950
Sulphate	U	1220	10.1	mg/l	1.0	140	110	120	120	120
Calcium	U	1415	10.1	mg/l	5.0	23	35	31	31	31
Sodium	U	1415	10.1	mg/l	0.50	850	420	530	530	530
Arsenic (Dissolved)	U	1450	10.1	µg/l	1.0	7.3	5.0	6.7	6.7	6.7
Cadmium (Dissolved)	U	1450	10.1	µg/l	0.080	0.24	0.27	0.26	0.26	0.26
Chromium (Dissolved)	U	1450	10.1	µg/l	1.0	18	12	17	17	17
Copper (Dissolved)	U	1450	10.1	µg/l	1.0	3.5	2.5	4.0	4.0	4.0
Mercury (Dissolved)	U	1450	10.1	µg/l	0.50	2.3	0.62	0.52	0.52	0.52
Nickel (Dissolved)	U	1450	10.1	µg/l	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Lead (Dissolved)	U	1450	10.1	µg/l	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Selenium (Dissolved)	U	1450	10.1	µg/l	1.0	22	13	18	18	18
Tin (Dissolved)	U	1450	10.1	µg/l	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Vanadium (Dissolved)	U	1450	10.1	µg/l	1.0	9.4	6.1	13	13	13
Zinc (Dissolved)	U	1450	10.1	µg/l	1.0	5.4	5.0	6.2	6.2	6.2
Diethyl Tin	N	1730	10.1	µg/l	0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050
Tributyl Tin	N	1730	10.1	µg/l	0.0500	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050

Results - Leachate

Project: P19188 Howth

Client: Priority Geotechnical Ltd	Chemtest Job No.:	20-03433	20-03433	20-03433
Quotation No.:	Chemtest Sample ID.:	963611	963612	963613
Order No.: 12451	Client Sample Ref.:	C1	C1	C1
	Sample Location:	LB203	LB204	LB207
	Sample Type:	SOIL	SOIL	SOIL
	Date Sampled	31-Jan-2020	31-Jan-2020	31-Jan-2020
Determinand	Accred.	SOP	Units	LOD
Moisture	N	2030	%	0.020
Sulphate (2.1 Water Soluble) as SO ₄	U	2120	g/l	0.010
Chloride (Water Soluble)	U	2220	g/l	0.010
Calcium	N	2400	mg/l	20
Sodium	N	2400	mg/l	2.0
Arsenic	U	2450	mg/kg	1.0
Cadmium	U	2450	mg/kg	0.10
Chromium	U	2450	mg/kg	1.0
Tin	N	2450	mg/kg	5.0
Copper	U	2450	mg/kg	0.50
Mercury	U	2450	mg/kg	0.10
Nickel	U	2450	mg/kg	0.50
Lead	U	2450	mg/kg	0.50
Selenium	U	2450	mg/kg	0.20
Vanadium	U	2450	mg/kg	5.0
Zinc	U	2450	mg/kg	0.50
Dibutyl Tin	N	2730	µg/kg	10
Tributyl Tin	N	2730	µg/kg	10

SOP	Title	Parameters included	Method summary
1220	Anions, Alkalinity & Ammonium in Waters	Fluoride, Chloride, Nitrite, Nitrate, Total, Oxidisable Nitrogen (TON), Sulfate, Phosphate, Alkalinity, Ammonium	Automated colorimetric analysis using Aquatam 600 Discrete Analyser.
1415	Cations in Waters by ICP-AES	Sodium, Potassium, Calcium, Magnesium	Direct determination by inductively coupled plasma - mass spectrometry (ICP-AES).
1450	Metals in Waters by ICP-AES	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-AES).
1730	Organic-Leads	Organic-Leads	Solvent extraction / GC/MS detection
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.
2120	Water Soluble Boron, Sulphate, Magnesium & Chromium	Boron, Sulphate, Magnesium, Chromium	Aqueous extraction / ICP-OES
2220	Water soluble Chloride in Soils	Chloride	Aqueous extraction and measurement by Aquatam 600 Discrete Analyser using ferrous nitrate / mercuric thiocyanate.
2400	Cations	Cations	ICP-AES
2450	Acid Soluble Metals in Soils	Metals, including: Arsenic, Barium, Beryllium, Cadmium, Chromium, Cobalt, Copper, Lead, Manganese, Mercury, Molybdenum, Nickel, Selenium, Vanadium, Zinc	Acid digestion followed by determination of metals in extract by ICP-AES.
2730	Organic-Leads	Organic-Leads	Solvent extraction / GC/MS detection
640	Characterisation of Waste (leaching C10)	Waste material including soil, sludges and granular waste	Compliance test for leaching of Granular Waste Material and Sludge

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weight basis TPH, BTEX, VOCs, SVOCs, PCBs, Phenols

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Sample Deviation Codes

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- D - Broken Container
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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



Final Report

Report No.:	20-13473-1		
Initial Date of Issue:	05-Jun-2020		
Client	Priority Geotechnical Ltd		
Client Address:	Unit 12 Owenacurra Business Park Midleton County Cork Ireland		
Contact(s):	Colette Kelly		
Project	P19188 Howth		
Quotation No.:	Q20-19850	Date Received:	28-May-2020
Order No.:	12451	Date Instructed:	28-May-2020
No. of Samples:	4		
Turnaround (Wkdays):	75	Results Due:	10-Sep-2020
Date Approved:	05-Jun-2020		
Approved By:			
Details:	Glynn Harvey, Technical Manager		

Chemtest Ltd.
Depot Road
Newmarket
CB8 0AL

Tel: 01638 606070
Email: info@chemtest.com

Project: P19188 Howth

Client: Priority Geotechnical Ltd	Chemtest Job No.:	20-13473	20-13473	20-13473	20-13473
Quotation No.: Q20-19850	Chemtest Sample ID.:	1010021	1010022	1010023	1010024
	Client Sample ID.:	P5	P6	P7	P8
	Sample Location:	1MXM28	1MXM28	1MXM28	1MXM28
	Sample Type:	WATER	WATER	WATER	WATER
	Date Sampled:	01-Apr-2020	08-Apr-2020	14-Apr-2020	26-May-2020
Determinand	Accred.	SOP	Units	LOD	
Chloride	U	1220	mg/l	1.0	[B] 300
Sulphate	U	1220	mg/l	1.0	[B] 16
Calcium	U	1415	mg/l	5.0	[B] 180
Sodium	U	1415	mg/l	0.50	[B] 320
Arsenic (Dissolved)	U	1450	µg/l	1.0	[B] 1.5
Cadmium (Dissolved)	U	1450	µg/l	0.080	[B] < 0.080
Chromium (Dissolved)	U	1450	µg/l	1.0	[B] 1.4
Copper (Dissolved)	U	1450	µg/l	1.0	[B] < 1.0
Mercury (Dissolved)	U	1450	µg/l	0.50	[B] 19
Nickel (Dissolved)	U	1450	µg/l	1.0	[B] 3.9
Lead (Dissolved)	U	1450	µg/l	1.0	[B] < 1.0
Selenium (Dissolved)	U	1450	µg/l	1.0	[B] 6.2
Tin (Dissolved)	U	1450	µg/l	1.0	[B] < 1.0
Vanadium (Dissolved)	U	1450	µg/l	1.0	[B] 7.2
Zinc (Dissolved)	U	1450	µg/l	1.0	[B] 9.6
Dibutyl Tin	N	1730	µg/l	0.050	< 0.050
Tributyl Tin	N	1730	µg/l	0.0500	< 0.050

Deviations

In accordance with UKAS Policy on Deviating Samples TFS 03, Chemtest have a procedure to ensure upon receipt of each sample a competent laboratory shall assess whether the sample is suitable with regard to the requested test(s). This policy and the respective holding times applied, can be supplied upon request. The reason a sample is declared as deviating is detailed below. Where applicable the analysis remains UKAS/MCER's accredited but the results may be compromised.

Sample:	Sample Ref:	Sample ID:	Sample Location:	Sample Date:	Deviation Code(s):	Containers Received:
1010021		P5	1MXM28	01-Apr-2020	B	Plastic Bottle 1000ml
1010022		P6	1MXM28	08-Apr-2020	B	Plastic Bottle 1000ml
1010023		P7	1MXM28	14-Apr-2020	B	Plastic Bottle 1000ml

Test Methods

SOP	Title	Parameters included	Method summary
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.
1415	Cations in Waters by ICP-MS	Sodium, Potassium, Calcium, Magnesium	Direct determination by inductively coupled plasma - mass spectrometry (ICP-MS).
1450	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).
1730	Organo-Leads	Organo-Leads	Solvent extraction / GCMS detection

Report Information

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Sample Retention and Disposal

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customerservices@chemtest.com



2183

Final Report



The right chemistry to deliver results
 Chemtest Ltd.
 Depot Road
 Newmarket
 CB8 0AL
 Tel: 01638 606070
 Email: info@chemtest.com

Report No.: 20-12268-1

Initial Date of Issue: 18-May-2020

Client: Priority Geotechnical Ltd

Client Address: Unit 12
Owenacurra Business Park
Middleton
County Cork
Ireland

Contact(s): Colette Kelly

Project: P19188 Howth

Quotation No.: Q20-19850

Order No.: 12451

No. of Samples: 4

Turnaround (Wkdays): 7

Date Approved: 18-May-2020

Approved By:

Details: Glynn Harvey, Technical Manager

Date Received: 13-May-2020

Date Instructed: 14-May-2020

Results Due: 22-May-2020

Results - Water



Project: P19188 Howth

Client: Priority Geotechnical Ltd		Chemtest Job No.:		20-12268	20-12268	20-12268	20-12268
Quotation No.: Q20-19850		Chemtest Sample ID.:		1004480	1004481	1004482	1004483
		Client Sample ID.:		P5	P6	P7	P8
		Sample Location:		IMXM14	IMXM14	IMXM14	IMXM14
		Sample Type:		WATER	WATER	WATER	WATER
		Date Sampled:		18-Mar-2020	25-Mar-2020	14-Apr-2020	12-May-2020
Determinand	Accred.	SOP	Units	LOD			
Chloride	U	1220	mg/l	1.0	[B] 220	[B] 150	[B] 65
Sulphate	U	1220	mg/l	1.0	[B] 11	[B] 13	[B] 16
Calcium	U	1415	mg/l	5.0	[B] 42	[B] 36	[B] 71
Sodium	U	1415	mg/l	0.50	[B] 150	[B] 80	[B] 21
Arsenic (Dissolved)	U	1450	µg/l	1.0	[B] 1.1	[B] < 1.0	[B] < 1.0
Cadmium (Dissolved)	U	1450	µg/l	0.080	[B] < 0.080	[B] < 0.080	[B] < 0.080
Chromium (Dissolved)	U	1450	µg/l	1.0	[B] 2.8	[B] 1.6	[B] 1.1
Copper (Dissolved)	U	1450	µg/l	1.0	[B] 3.2	[B] 1.6	[B] 3.0
Mercury (Dissolved)	U	1450	µg/l	0.50	[B] 0.67	[B] < 0.50	[B] < 0.50
Nickel (Dissolved)	U	1450	µg/l	1.0	[B] 4.2	[B] 4.2	[B] 7.0
Lead (Dissolved)	U	1450	µg/l	1.0	[B] < 1.0	[B] < 1.0	[B] < 1.0
Selenium (Dissolved)	U	1450	µg/l	1.0	[B] 7.0	[B] 4.4	[B] 2.6
Tin (Dissolved)	U	1450	µg/l	1.0	[B] 40	[B] < 1.0	[B] 14
Vanadium (Dissolved)	U	1450	µg/l	1.0	[B] 3.8	[B] 2.8	[B] 3.5
Zinc (Dissolved)	U	1450	µg/l	1.0	[B] 9.9	[B] 7.1	[B] 5.1
Dibutyl Tin	N	1730	µg/l	0.050	< 0.050	< 0.050	< 0.050
Tributyl Tin	N	1730	µg/l	0.0500	< 0.050	< 0.050	< 0.050

Deviations

In accordance with UKAS Policy on Deviating Samples TPS 53, Chemtest have a procedure to ensure 'upon receipt of each sample a competent laboratory shall assess whether the sample is suitable with regard to the requested test(s)'. This policy and the respective holding times applied, can be supplied upon request. The reason a sample is declared as deviating is detailed below. Where applicable the analysis remains UKAS/MCERTs accredited but the results may be compromised.

Sample:	Sample Ref:	Sample ID:	Sample Location:	Sampled Date:	Deviation Code(s):	Containers Received:
1004480		P5	IMXM14	18-Mar-2020	B	Plastic Bottle 1000ml
1004481		P6	IMXM14	25-Mar-2020	B	Plastic Bottle 1000ml
1004482		P7	IMXM14	14-Apr-2020	B	Plastic Tub 500g

Test Methods

SOP	Title	Parameters included	Method summary
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.
1415	Cations in Waters by ICP-MS	Sodium; Potassium; Calcium; Magnesium	Direct determination by inductively coupled plasma - mass spectrometry (ICP-MS).
1450	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).
1730	Organo-Leads	Organo-Leads	Solvent extraction / GCMS 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"

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



Final Report

Report No.: 20-09764-1

Initial Date of Issue: 06-Apr-2020

Client: Priority Geotechnical Ltd

Client Address: Unit 12
Owenacurra Business Park
Midleton
County Cork
Ireland

Contact(s): Colette Kelly

Project: P19188 Howth

Quotation No.: Q20-19850

Order No.: 12451

No. of Samples: 4

Turnaround (Wkdays): 7

Date Approved: 06-Apr-2020

Approved By:

Details: Glynn Harvey, Technical Manager

Date Received: 30-Mar-2020

Date Instructed: 31-Mar-2020

Results Due: 08-Apr-2020

Chemtest Ltd.

Depot Road

Newmarket

CB8 0AL

Tel: 01638 606070

Email: info@chemtest.com

Project: P19188 Howth

Client: Priority Geotechnical Ltd	Chemtest Job No.:	20-09764	20-09764	20-09764	20-09764
Quotation No.: Q20-19850	Chemtest Sample ID.:	993946	993947	993948	993949
	Client Sample ID.:	P1	P2	P3	P4
	Sample Location:	1MXM28	1MXM28	1MXM28	1MXM28
	Sample Type:	WATER	WATER	WATER	WATER
	Date Sampled:	23-Mar-2020	24-Mar-2020	25-Mar-2020	27-Mar-2020
Determinand	Accred.	SOP	Units	LOD	
Chloride	U	1220	mg/l	1.0	270
Sulphate	U	1220	mg/l	1.0	1.4
Calcium	U	1415	mg/l	5.0	46
Sodium	U	1415	mg/l	0.50	200
Arsenic (Dissolved)	U	1450	µg/l	1.0	< 1.0
Cadmium (Dissolved)	U	1450	µg/l	0.080	< 0.080
Chromium (Dissolved)	U	1450	µg/l	1.0	1.4
Copper (Dissolved)	U	1450	µg/l	1.0	1.1
Mercury (Dissolved)	U	1450	µg/l	0.50	< 0.50
Nickel (Dissolved)	U	1450	µg/l	1.0	1.9
Lead (Dissolved)	U	1450	µg/l	1.0	< 1.0
Selenium (Dissolved)	U	1450	µg/l	1.0	6.7
Tin (Dissolved)	U	1450	µg/l	1.0	< 1.0
Vanadium (Dissolved)	U	1450	µg/l	1.0	2.2
Zinc (Dissolved)	U	1450	µg/l	1.0	7.0
Dibutyl Tin	N	1730	µg/l	0.050	< 0.050
Tributyl Tin	N	1730	µg/l	0.0500	< 0.050

SOP	Title	Parameters included	Method summary
1220	Anions, Alkalinity & Ammonium in Waters	Fluoride, Chloride, Nitrite, Nitrate, Total Oxidisable Nitrogen (TON), Sulfate, Phosphate, Ammonium	Automated colorimetric analysis using Aquakem 600 Discrete Analyser.
1415	Cations in Waters by ICP-MS	Sodium, Potassium, Calcium, Magnesium	Direct determination by inductively coupled plasma - mass spectrometry (ICP-MS).
1450	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).
1730	Organic-Leads	Organic-Leads	Solvent extraction / GC/MS detection

Report Information

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- > "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



Final Report

Report No.: 20-08345-1

Initial Date of Issue: 24-Mar-2020

Client: Priority Geotechnical Ltd

Client Address: Unit 12
Owenacurra Business Park
Midleton
County Cork
Ireland

Contact(s): Colette Kelly

Project: P19188 Howth

Quotation No.: Q20-19850

Order No.: 12451

No. of Samples: 4

Turnaround (Wkdays): 7

Date Approved: 24-Mar-2020

Approved By:

Details: Glynn Harvey, Technical Manager

Chemtest Ltd.

Depot Road

Newmarket

CB8 0AL

Tel: 01638 606070

Email: info@chemtest.com

Date Received: 16-Mar-2020

Date Instructed: 17-Mar-2020

Results Due: 25-Mar-2020

Project: P19188 Howth

Client: Priority Geotechnical Ltd		Chemtest Job No.:		20-08345	20-08345	20-08345	20-08345	
Quotation No.: Q20-19850		Chemtest Sample ID.:		986713	986714	986715	986716	
		Client Sample ID.:		P1	P2	P3	P4	
		Sample Location:		1MXM14	1MXM14	1MXM14	1MXM14	
		Sample Type:		WATER	WATER	WATER	WATER	
		Date Sampled:		09-Mar-2020	10-Mar-2020	11-Mar-2020	13-Mar-2020	
Determinand	Accred.	SOP	Units	LOD				
Chloride	U	1220	mg/l	1.0	390	270	240	310
Sulphate	U	1220	mg/l	1.0	3.8	2.5	2.8	2.9
Calcium	U	1415	mg/l	5.0	< 5.0	< 5.0	5.8	< 5.0
Sodium	U	1415	mg/l	0.50	380	390	210	170
Arsenic (Dissolved)	U	1450	µg/l	1.0	1.3	1.6	1.2	1.0
Cadmium (Dissolved)	U	1450	µg/l	0.080	< 0.080	< 0.080	< 0.080	< 0.080
Chromium (Dissolved)	U	1450	µg/l	1.0	1.7	1.7	2.0	1.7
Copper (Dissolved)	U	1450	µg/l	1.0	1.7	1.7	2.6	1.4
Mercury (Dissolved)	U	1450	µg/l	0.50	1.3	0.57	2.5	0.63
Nickel (Dissolved)	U	1450	µg/l	1.0	2.7	2.9	5.3	2.8
Lead (Dissolved)	U	1450	µg/l	1.0	< 1.0	< 1.0	< 1.0	< 1.0
Selenium (Dissolved)	U	1450	µg/l	1.0	5.8	7.1	4.3	3.8
Tin (Dissolved)	U	1450	µg/l	1.0	< 1.0	< 1.0	< 1.0	< 1.0
Vanadium (Dissolved)	U	1450	µg/l	1.0	3.3	3.2	3.3	3.4
Zinc (Dissolved)	U	1450	µg/l	1.0	< 1.0	< 1.0	1.9	1.6
Dibutyl Tin	N	1730	µg/l	0.050	< 0.050	< 0.050	< 0.050	< 0.050
Tributyl Tin	N	1730	µg/l	0.0500	< 0.050	< 0.050	< 0.050	< 0.050

SOP	Title	Parameters included	Method summary
1220	Arsenic, Alkalinity & Ammonium in Waters	Fluoride, Chloride, Nitrite, Nitrate, Total, Oxidisable Nitrogen (TON), Sulfate, Phosphate, Alkalinity, Ammonium	Automated colorimetric analysis using Aquamem 800 Discrete Analyser.
1415	Cations in Waters by ICP-MS	Sodium, Potassium, Calcium, Magnesium	Direct determination by inductively coupled plasma - mass spectrometry (ICP-MS).
1450	Metals in Waters by ICP-MS	Metals, including: 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).
1730	Organic-Leads	Organic-Leads	Solvent extraction / GC/MS detection

Report Information

Key

- U UKAS accredited
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- 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



Final Report

Report No.: 20-19235-1
Initial Date of Issue: 31-Jul-2020
Client: Priority Geotechnical Ltd
Client Address: Unit 12
 Owenacurra Business Park
 Midleton
 County Cork
 Ireland
Contact(s): Colette Kelly
Project: P19188 Howth
Quotation No.: Q20-19850
Order No.: 12451
No. of Samples: 2
Turnaround (Wkdays): 7
Date Approved: 31-Jul-2020
Approved By: 
Details: Glynn Harvey, Technical Manager

Date Received: 24-Jul-2020
Date Instructed: 24-Jul-2020
Results Due: 03-Aug-2020

Results - Water

Project: P19188 Howth

Client: Priority Geotechnical Ltd		Chemtest Job No.:		20-19235	20-19235
Quotation No.: Q20-19850		Chemtest Sample ID.:		1037337	1037338
		Client Sample ID.:		P7	P8
		Sample Location:		2mxm90	2mxm90
		Sample Type:		WATER	WATER
		Date Sampled:		26-Jun-2020	23-Jul-2020
Determinand	Accred.	SOP	Units	LOD	
Chloride	U	1220	mg/l	1.0	[B] 190 110
Sulphate	U	1220	mg/l	1.0	[B] 95 28
Calcium	U	1415	mg/l	5.0	[B] 8.9 54
Sodium	U	1415	mg/l	0.50	[B] 190 34
Arsenic (Dissolved)	U	1450	µg/l	1.0	[B] 4.1 < 1.0
Cadmium (Dissolved)	U	1450	µg/l	0.080	[B] < 0.080 < 0.080
Chromium (Dissolved)	U	1450	µg/l	1.0	[B] 4.3 < 1.0
Copper (Dissolved)	U	1450	µg/l	1.0	[B] 30 16
Mercury (Dissolved)	U	1450	µg/l	0.50	[B] < 0.50 < 0.50
Nickel (Dissolved)	U	1450	µg/l	1.0	[B] 5.6 8.7
Lead (Dissolved)	U	1450	µg/l	1.0	[B] 3.5 < 1.0
Selenium (Dissolved)	U	1450	µg/l	1.0	[B] 4.7 2.5
Tin (Dissolved)	U	1450	µg/l	1.0	[B] < 1.0 < 1.0
Vanadium (Dissolved)	U	1450	µg/l	1.0	[B] 34 2.5
Zinc (Dissolved)	U	1450	µg/l	1.0	[B] 6.1 3.7
Dibutyl Tin	N	1730	µg/l	0.050	< 0.050 < 0.050
Tributyl Tin	N	1730	µg/l	0.0500	< 0.050 < 0.050

Page 2 of 5

Deviations

In accordance with UKAS Policy on Deviating Samples TPS 83, Chemtest have a procedure to ensure upon receipt of each sample a competent laboratory shall assess whether the sample is suitable with regard to the requested test(s). This policy and the respective holding times applied, can be supplied upon request. The reason a sample is declared as deviating is detailed below. Where applicable the analysis remains UKAS/MCERF's accredited but the results may be compromised.

Sample:	Sample Ref:	Sample ID:	Sample Location:	Sampled Date:	Deviation Code(s):	Containers Received:
1037337		P7	2mxm90	26-Jun-2020	B	Plastic Bottle 1000ml

Page 3 of 5

Test Methods

SOP	Title	Parameters included	Method summary
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.
1415	Cations in Waters by ICP-MS	Sodium; Potassium; Calcium; Magnesium	Direct determination by inductively coupled plasma - mass spectrometry (ICP-MS).
1450	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).
1730	Organo-Leads	Organo-Leads	Solvent extraction / GCMS 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"

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



Final Report

Report No.: 20-17645-1
Initial Date of Issue: 15-Jul-2020
Client: Priority Geotechnical Ltd
Client Address: Unit 12
Owenacurra Business Park
Midleton
County Cork
Ireland
Contact(s): Colette Kelly
Project: P19188 Howth
Quotation No.: Q20-19850
Order No.: 12451
No. of Samples: 2
Turnaround (Wkdays): 7
Date Approved: 15-Jul-2020

Date Received: 10-Jul-2020
Date Instructed: 10-Jul-2020
Results Due: 20-Jul-2020

Approved By:

Details: Glynn Harvey, Technical Manager

Results - Water

Project: P19188 Howth		Chemtest Job No.:		20-17645		20-17645	
Client: Priority Geotechnical Ltd		Chemtest Sample ID:		P7		P8	
Quotation No.: Q20-19850		Client Sample ID:		2mxm76		2mxm76	
		Sample Location:		WATER		WATER	
		Sample Type:		10-Jun-2020		08-Jul-2020	
		Date Sampled:					
Determinand	Accred	SOP	Units	LOD			
Chloride	U	1220	mg/l	1.0	[B] 230	170	
Sulphate	U	1220	mg/l	1.0	[B] 110	92	
Calcium	U	1415	mg/l	5.0	[B] < 5.0	7.0	
Sodium	U	1415	mg/l	0.50	[B] 200	150	
Arsenic (Dissolved)	U	1450	µg/l	1.0	[B] 4.6	2.8	
Cadmium (Dissolved)	U	1450	µg/l	0.080	[B] < 0.080	< 0.080	
Chromium (Dissolved)	U	1450	µg/l	1.0	[B] 7.4	5.0	
Copper (Dissolved)	U	1450	µg/l	1.0	[B] 27	13	
Mercury (Dissolved)	U	1450	µg/l	0.50	[B] < 0.50	< 0.50	
Nickel (Dissolved)	U	1450	µg/l	1.0	[B] 4.8	1.9	
Lead (Dissolved)	U	1450	µg/l	1.0	[B] < 1.0	< 1.0	
Selenium (Dissolved)	U	1450	µg/l	1.0	[B] 5.4	3.4	
Tin (Dissolved)	U	1450	µg/l	1.0	[B] < 1.0	< 1.0	
Vanadium (Dissolved)	U	1450	µg/l	1.0	[B] 31	20	
Zinc (Dissolved)	U	1450	µg/l	1.0	[B] 5.5	5.6	
Diethyl Tin	N	1730	µg/l	0.050	< 0.050	< 0.050	
Tributyl Tin	N	1730	µg/l	0.0500	< 0.050	< 0.050	

Deviations

In accordance with UKAS Policy on Deviating Samples TPS 63, Eurofins Chemtest have a procedure to ensure 'upon receipt of each sample a competent laboratory shall assess whether the sample is suitable with regard to the requested test(s)'. This policy and the respective holding times applied, can be supplied upon request. The reason a sample is declared as deviating is detailed below. Where applicable the analysis remains UKAS/MCERTS accredited but the results may be compromised.

Sample:	Sample Ref:	Sample ID:	Sample Location:	Sampled Date:	Deviation Code(s):	Containers Received:
1029595		P7	2mxm76	10-Jun-2020	B	Plastic Bottle 1000ml

Test Methods

SOP	Title	Parameters included	Method summary
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.
1415	Cations in Waters by ICP-MS	Sodium; Potassium; Calcium; Magnesium	Direct determination by inductively coupled plasma - mass spectrometry (ICP-MS).
1450	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)
1730	Organo-Leads	Organo-Leads	Solvent extraction / GCMS detection

Report Information

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- > "greater than"

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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



Final Report

Report No.: 20-14333-1
Initial Date of Issue: 10-Jun-2020
Client: Priority Geotechnical Ltd
Client Address: Unit 12
Owenacurra Business Park
Midleton
County Cork
Ireland
Contact(s): Colette Kelly
Project: P19188 Howth
Quotation No.: Q20-19850
Order No.: 12451
No. of Samples: 2
Turnaround (Wkdays): 7
Date Approved: 10-Jun-2020

Approved By:

Details: Glynn Harvey, Technical Manager

Chemtest
The right chemistry to deliver results

Chemtest Ltd.
Depot Road
Newmarket
CB8 0AL
Tel: 01638 606070
Email: info@chemtest.com

Date Received: 08-Jun-2020
Date Instructed: 08-Jun-2020
Results Due: 16-Jun-2020

Project: P19188 Howth

Client: Priority Geotechnical Ltd		Chemtest Job No.:		20-14333	20-14333
Quotation No.: Q20-19850		Chemtest Sample ID.:		1013965	1013966
		Client Sample ID.:		P5	P6
		Sample Location:		2MXM90	2MXM90
		Sample Type:		WATER	WATER
		Date Sampled:		26-May-2020	05-Jun-2020
Determinand	Accred.	SOP	Units	LOD	
Chloride	U	1220	mg/l	1.0	74
Sulphate	U	1220	mg/l	1.0	5.8
Calcium	U	1415	mg/l	5.0	5.5
Sodium	U	1415	mg/l	0.50	67
Arsenic (Dissolved)	U	1450	µg/l	1.0	< 1.0
Cadmium (Dissolved)	U	1450	µg/l	0.080	< 0.080
Chromium (Dissolved)	U	1450	µg/l	1.0	< 1.0
Copper (Dissolved)	U	1450	µg/l	1.0	7.6
Mercury (Dissolved)	U	1450	µg/l	0.50	< 0.50
Nickel (Dissolved)	U	1450	µg/l	1.0	< 1.0
Lead (Dissolved)	U	1450	µg/l	1.0	< 1.0
Selenium (Dissolved)	U	1450	µg/l	1.0	1.3
Tin (Dissolved)	U	1450	µg/l	1.0	< 1.0
Vanadium (Dissolved)	U	1450	µg/l	1.0	4.3
Zinc (Dissolved)	U	1450	µg/l	1.0	< 1.0
Dibutyl Tin	N	1730	µg/l	0.050	< 0.050
Tributyl Tin	N	1730	µg/l	0.0500	< 0.050

Test Methods

SOP	Title	Parameters included	Method summary
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.
1415	Cations in Waters by ICP-MS	Sodium, Potassium, Calcium, Magnesium	Direct determination by inductively coupled plasma - mass spectrometry (ICP-MS).
1450	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).
1730	Organo-Leads	Organo-Leads	Solvent extraction / GC/MS detection

Report Information

Key

- U UKAS accredited
- M MCERTS and UKAS accredited
- N Unaccredited
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- 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



Final Report

Report No.: 20-13484-1
Initial Date of Issue: 04-Jun-2020
Client: Priority Geotechnical Ltd
Client Address: Unit 12
 Owenacurra Business Park
 Midleton
 County Cork
 Ireland
Contact(s): Colette Kelly
Project: P19188 Howth
Quotation No.: Q20-19850
Order No.: 12451
No. of Samples: 2
Turnaround (Wkdays): 7
Date Approved: 04-Jun-2020

Date Received: 28-May-2020
Date Instructed: 29-May-2020
Results Due: 08-Jun-2020

Approved By:

Details: Glynn Harvey, Technical Manager

Chemtest Ltd.
Depot Road
Newmarket
CB8 0AL
Tel: 01638 606070
Email: info@chemtest.com

Project: P19188 Howth

Client: Priority Geotechnical Ltd		Chemtest Job No.:		20-13484	20-13484
Quotation No.: Q20-19850		Chemtest Sample ID.:		1010085	1010086
		Client Sample ID.:		P5	P6
		Sample Location:		2MXM76	2MXM76
		Sample Type:		WATER	
		Date Sampled:		14-May-2020	21-May-2020
Determinand	Accred.	SOP	Units	LOD	
Chloride	U	1220	mg/l	1.0	[B] 79 110
Sulphate	U	1220	mg/l	1.0	[B] 2.9 11
Calcium	U	1415	mg/l	5.0	[B] 24 14
Sodium	U	1415	mg/l	0.50	[B] 64 110
Arsenic (Dissolved)	U	1450	µg/l	1.0	[B] < 1.0 < 1.0
Cadmium (Dissolved)	U	1450	µg/l	0.080	[B] < 0.080 < 0.080
Chromium (Dissolved)	U	1450	µg/l	1.0	[B] 2.3 1.1
Copper (Dissolved)	U	1450	µg/l	1.0	[B] 7.0 11
Mercury (Dissolved)	U	1450	µg/l	0.50	[B] < 0.50 < 0.50
Nickel (Dissolved)	U	1450	µg/l	1.0	[B] < 1.0 1.8
Lead (Dissolved)	U	1450	µg/l	1.0	[B] < 1.0 < 1.0
Selenium (Dissolved)	U	1450	µg/l	1.0	[B] 1.5 2.3
Tin (Dissolved)	U	1450	µg/l	1.0	[B] < 1.0 < 1.0
Vanadium (Dissolved)	U	1450	µg/l	1.0	[B] 5.1 7.6
Zinc (Dissolved)	U	1450	µg/l	1.0	[B] 2.1 3.4
Dibutyl Tin	N	1730	µg/l	0.050	< 0.050 < 0.050
Tributyl Tin	N	1730	µg/l	0.0500	< 0.050 < 0.050

Sample:	Sample Ref:	Sample ID:	Sample Location:	Sample Date:	Deviation Code(s):	Containers Received:
1010085		P5	2MXM76	14-May-2020	B	Plastic Bottle 1000ml

In accordance with UKAS Policy on Deviating Samples TFS 63, Chemtest have a procedure to ensure upon receipt of each sample a competent laboratory shall assess whether the sample is suitable with regard to the requested test(s). This policy and the respective holding times applied, can be supplied upon request. The reason a sample is declared as deviating is detailed below. Where applicable the analysis remains UKAS/MCERT's accredited but the results may be compromised.

Test Methods

SOP	Title	Parameters included	Method summary
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.
1415	Cations in Waters by ICP-MS	Sodium; Potassium; Calcium; Magnesium	Direct determination by inductively coupled plasma - mass spectrometry (ICP-MS).
1450	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).
1730	Organo-Leads	Organo-Leads	Solvent extraction / GCMS 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"

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



Final Report

Report No.: 20-13474-1
Initial Date of Issue: 04-Jun-2020
Client: Priority Geotechnical Ltd
Client Address: Unit 12
Owenacurra Business Park
Midleton
County Cork
Ireland
Contact(s): Colette Kelly
Project: P19188 Howth
Quotation No.: Q20-19850
Order No.: 12451
No. of Samples: 4
Turnaround (Wkdays): 7
Date Approved: 04-Jun-2020
Approved By:

Details: Glynn Harvey, Technical Manager

Date Received: 28-May-2020
Date Instructed: 28-May-2020
Results Due: 05-Jun-2020

Results - Water

Client: Priority Geotechnical Ltd Quotation No.: Q20-19850		Chemtest Job No.: Chemtest Sample ID.: Client Sample ID.: Sample Location:		20-13474 1010025 P5 2MXM28		20-13474 1010026 P6 2MXM28		20-13474 1010027 P7 2MXM28		20-13474 1010028 P8 2MXM28	
Determination		Accred.	SOP	Units	LOD	01-Apr-2020		08-Apr-2020		14-Apr-2020	
						Date Sampled		Date Sampled		Date Sampled	
						Sample Type		Sample Type		Sample Type	
						WATER		WATER		WATER	
						1.0		1.0		1.0	
Chloride	U	1220	mg/l	1.0	[B] 190	[B] 240		[B] 240		[B] 93	
Sulphate	U	1220	mg/l	1.0	[B] 18	[B] 51		[B] 28		[B] 60	
Calcium	U	1415	mg/l	5.0	[B] 8.1	[B] < 5.0		[B] < 5.0		[B] 11	
Sodium	U	1415	mg/l	0.50	[B] 170	[B] 210		[B] 70		[B] 110	
Arsenic (Dissolved)	U	1450	µg/l	1.0	[B] 1.5	[B] 3.9		[B] < 1.0		[B] 2.0	
Cadmium (Dissolved)	U	1450	µg/l	0.080	[B] < 0.080	[B] < 0.080		[B] < 0.080		[B] < 0.080	
Chromium (Dissolved)	U	1450	µg/l	1.0	[B] < 1.0	[B] 9.5		[B] < 1.0		[B] < 1.0	
Copper (Dissolved)	U	1450	µg/l	1.0	[B] 11	[B] 28		[B] 8.1		[B] 24	
Mercury (Dissolved)	U	1450	µg/l	0.50	[B] 0.58	[B] < 0.50		[B] < 0.50		[B] < 0.50	
Nickel (Dissolved)	U	1450	µg/l	1.0	[B] 2.1	[B] 4.4		[B] 1.2		[B] 2.9	
Lead (Dissolved)	U	1450	µg/l	1.0	[B] < 1.0	[B] < 1.0		[B] < 1.0		[B] < 1.0	
Selenium (Dissolved)	U	1450	µg/l	1.0	[B] 1.5	[B] 4.8		[B] 1.1		[B] 3.5	
Tin (Dissolved)	U	1450	µg/l	1.0	[B] < 1.0	[B] < 1.0		[B] < 1.0		[B] < 1.0	
Vanadium (Dissolved)	U	1450	µg/l	1.0	[B] 6.3	[B] 22		[B] 2.6		[B] 11	
Zinc (Dissolved)	U	1450	µg/l	1.0	[B] 9.6	[B] 12		[B] 1.8		[B] 3.9	
Dibutyl Tin	N	1730	µg/l	0.050	< 0.050	< 0.050		< 0.050		< 0.050	
Tributyl Tin	N	1730	µg/l	0.0500	< 0.050	< 0.050		< 0.050		< 0.050	

Deviations

In accordance with UKAS Policy on Deviating Samples TPS 63, Chemtest have a procedure to ensure 'upon receipt of each sample a competent laboratory shall assess whether the sample is suitable with regard to the requested test(s)'. This policy and the respective holding times applied, can be supplied upon request. The reason a sample is declared as deviating is detailed below. Where applicable the analysis remains UKAS/MCERT's accredited but the results may be compromised.

Sample:	Sample Ref:	Sample ID:	Sample Location:	Sampled Date:	Deviation Code(s):	Containers Received:
1010025		P5	2MXM28	01-Apr-2020	B	Plastic Bottle 1000ml
1010026		P6	2MXM28	08-Apr-2020	B	Plastic Bottle 1000ml
1010027		P7	2MXM28	14-Apr-2020	B	Plastic Bottle 1000ml
1010028		P8	2MXM28	26-Apr-2020	B	Plastic Tub 500g

Test Methods

SOP	Title	Parameters included	Method summary
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.
1415	Cations in Waters by ICP-MS	Sodium, Potassium, Calcium, Magnesium	Direct determination by inductively coupled plasma - mass spectrometry (ICP-MS).
1450	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).
1730	Organo-Leads	Organo-Leads	Solvent extraction / GCMS detection

Report Information

Key

- U UKAS accredited
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- I/S Insufficient Sample
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- 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
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- 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



Final Report

Report No.: 20-13341-1

Initial Date of Issue: 01-Jun-2020

Client: Priority Geotechnical Ltd

Client Address: Unit 12
Owenacurra Business Park
Midleton
County Cork
Ireland

Contact(s): Colette Kelly

Project: P19188 Howth

Quotation No.: Q20-19850

Order No.: 12451

No. of Samples: 4

Turnaround (Wkdays): 7

Date Approved: 01-Jun-2020

Approved By:

Details: Glynn Harvey, Technical Manager

Date Received: 27-May-2020

Date Instructed: 27-May-2020

Results Due: 04-Jun-2020

Chemtest Ltd.

Depot Road

Newmarket

CB8 0AL

Tel: 01638 606070

Email: info@chemtest.com

Project: P19188 Howth

Project: Priority Geotechnical Ltd		Chemtest Job No.:		20-13341	20-13341	20-13341	20-13341	
Quotation No.: Q20-19850		Chemtest Sample ID.:		1009373	1009374	1009375	1009376	
		Client Sample ID.:		P1	P2	P3	P4	
		Sample Location:		2MXM90	2MXM90	2MXM90	2MXM90	
		Sample Type:		WATER	WATER	WATER	WATER	
		Date Sampled		20-May-2020	21-May-2020	22-May-2020	25-May-2020	
Determinand	Accred.	SOP	Units	LOD				
Chloride	U	1220	mg/l	1.0	63	76	38	69
Sulphate	U	1220	mg/l	1.0	< 1.0	< 1.0	1.6	5.2
Calcium	U	1415	mg/l	5.0	8.2	6.2	10	9.4
Sodium	U	1415	mg/l	0.50	49	56	30	53
Arsenic (Dissolved)	U	1450	µg/l	1.0	< 1.0	< 1.0	< 1.0	< 1.0
Cadmium (Dissolved)	U	1450	µg/l	0.080	< 0.080	< 0.080	< 0.080	< 0.080
Chromium (Dissolved)	U	1450	µg/l	1.0	< 1.0	< 1.0	< 1.0	< 1.0
Copper (Dissolved)	U	1450	µg/l	1.0	< 1.0	< 1.0	< 1.0	1.8
Mercury (Dissolved)	U	1450	µg/l	0.50	0.89	0.79	0.70	1.0
Nickel (Dissolved)	U	1450	µg/l	1.0	< 1.0	< 1.0	< 1.0	< 1.0
Lead (Dissolved)	U	1450	µg/l	1.0	< 1.0	< 1.0	< 1.0	< 1.0
Selenium (Dissolved)	U	1450	µg/l	1.0	< 1.0	< 1.0	< 1.0	< 1.0
Tin (Dissolved)	U	1450	µg/l	1.0	< 1.0	< 1.0	< 1.0	< 1.0
Vanadium (Dissolved)	U	1450	µg/l	1.0	< 1.0	< 1.0	< 1.0	2.6
Zinc (Dissolved)	U	1450	µg/l	1.0	< 1.0	< 1.0	8.1	1.1
Dibutyl Tin	N	1730	µg/l	0.050	< 0.050	< 0.050	< 0.050	< 0.050
Tributyl Tin	N	1730	µg/l	0.0500	< 0.050	< 0.050	< 0.050	< 0.050

SOP	Title	Parameters included	Method summary
1220	Anions, Alkalinity & Ammonium in Waters	Fluoride, Chloride, Nitrate, Total Oxidisable Nitrogen (TON), Sulfate, Phosphate, Alkalinity, Ammonium	Automated colorimetric analysis using Aquamem 600 Discrete Analyser.
1415	Cations in Waters by ICP-MS	Sodium, Potassium, Calcium, Magnesium	Direct determination by inductively coupled plasma - mass spectrometry (ICP-MS).
1450	Metals in Waters by ICP-MS	Metals, including 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).
1730	Organo-Leads	Organo-Leads	Solvent extraction / GC/MS detection

Report Information

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- U UKAS accredited
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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



Final Report

Report No.: 20-12272-1
Initial Date of Issue: 19-May-2020
Client: Priority Geotechnical Ltd
Client Address: Unit 12
 Owenacurra Business Park
 Midleton
 County Cork
 Ireland
Contact(s): Colette Kelly
Project: P19188 Howth
Quotation No.: Q20-19850
Order No.: 12451
No. of Samples: 4
Turnaround (Wkdays): 7
Date Approved: 19-May-2020

Date Received: 13-May-2020

Date Instructed: 14-May-2020

Results Due: 22-May-2020

Approved By:

Details: Glynn Harvey, Technical Manager

Chemtest Ltd.

Depot Road

Newmarket

CB8 0AL

Tel: 01638 606070

Email: info@chemtest.com

Project: P19188 Howth

Client: Priority Geotechnical Ltd		Chemtest Job No.:		20-12272	20-12272	20-12272	20-12272
Quotation No.: Q20-19850		Chemtest Sample ID.:		1004496	1004497	1004498	1004499
		Client Sample ID.:		P1	P2	P3	P4
		Sample Location:		2MXM76	2MXM76	2MXM76	2MXM76
		Sample Type:		WATER	WATER	WATER	WATER
		Date Sampled:		06-May-2020	07-May-2020	08-May-2020	11-May-2020
Determinand	Accred.	SOP	Units	LOD			
Chloride	U	1220	mg/l	1.0	68	61	70
Sulphate	U	1220	mg/l	1.0	< 1.0	1.0	2.0
Calcium	U	1415	mg/l	5.0	16	8.8	11
Sodium	U	1415	mg/l	0.50	80	70	53
Arsenic (Dissolved)	U	1450	µg/l	1.0	< 1.0	< 1.0	< 1.0
Cadmium (Dissolved)	U	1450	µg/l	0.080	< 0.080	< 0.080	< 0.080
Chromium (Dissolved)	U	1450	µg/l	1.0	1.0	1.2	< 1.0
Copper (Dissolved)	U	1450	µg/l	1.0	< 1.0	< 1.0	1.5
Mercury (Dissolved)	U	1450	µg/l	0.50	< 0.50	< 0.50	< 0.50
Nickel (Dissolved)	U	1450	µg/l	1.0	< 1.0	< 1.0	< 1.0
Lead (Dissolved)	U	1450	µg/l	1.0	< 1.0	< 1.0	< 1.0
Selenium (Dissolved)	U	1450	µg/l	1.0	1.2	1.7	1.1
Tin (Dissolved)	U	1450	µg/l	1.0	3.0	1.7	< 1.0
Vanadium (Dissolved)	U	1450	µg/l	1.0	1.3	1.6	1.8
Zinc (Dissolved)	U	1450	µg/l	1.0	< 1.0	< 1.0	< 1.0
Dibutyl Tin	N	1730	µg/l	0.050	< 0.050	< 0.050	< 0.050
Tributyl Tin	N	1730	µg/l	0.0500	< 0.050	< 0.050	< 0.050

SOP	Title	Parameters included	Method summary
1220	Anions, Alkalinity & Ammonium in Waters	Fluoride, Chloride, Nitrate, Total, Oxidisable Nitrogen (TON), Sulfate, Phosphate, Ammonium	Automated colorimetric analysis using Aquatem 800 Discrete Analyser.
1415	Cations in Waters by ICP-MS	Sodium, Potassium, Calcium, Magnesium	Direct determination by inductively coupled plasma - mass spectrometry (ICP-MS).
1450	Metals in Waters by ICP-MS	Metals, including: 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).
1730	Organic-Leads	Organic-Leads	Solvent extraction / GCMS detection

Report Information

Key

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- M MCERTS and UKAS accredited
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- 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



Final Report

Report No.:	20-12264-1		
Initial Date of Issue:	19-May-2020		
Client	Priority Geotechnical Ltd		
Client Address:	Unit 12 Owenacurra Business Park Midleton County Cork Ireland		
Contact(s):	Colette Kelly		
Project	P19188 Howth		
Quotation No.:	Q20-19850	Date Received:	13-May-2020
Order No.:	12451	Date Instructed:	14-May-2020
No. of Samples:	4		
Turnaround (Wkdays):	7	Results Due:	22-May-2020
Date Approved:	19-May-2020		
Approved By:			
Details:	Glynn Harvey, Technical Manager		

Chemtest Ltd.

Depot Road

Newmarket

CB8 0AL

Tel: 01638 606070

Email: info@chemtest.com

Project: P19188 Howth

Client: Priority Geotechnical Ltd		Chemtest Job No.:		20-12264	20-12264	20-12264	20-12264
Quotation No.: Q20-19850		Chemtest Sample ID.:		1004464	1004465	1004466	1004467
		Client Sample ID.:		P5	P6	P7	P8
		Sample Location:		2MXM14	2MXM14	2MXM14	2MXM14
		Sample Type:		WATER	WATER	WATER	WATER
		Date Sampled:		18-Mar-2020	25-Mar-2020	14-Apr-2020	12-May-2020
Determinand	Accred.	SOP	Units	LOD			
Chloride	U	1220	mg/l	1.0	[B] 230	[B] 170	[B] 65
Sulphate	U	1220	mg/l	1.0	[B] 7.0	[B] 12	[B] 48
Calcium	U	1415	mg/l	5.0	[B] 22	[B] 9.5	[B] 30
Sodium	U	1415	mg/l	0.50	[B] 150	[B] 120	[B] 50
Arsenic (Dissolved)	U	1450	µg/l	1.0	[B] 1.3	[B] < 1.0	[B] < 1.0
Cadmium (Dissolved)	U	1450	µg/l	0.080	[B] < 0.080	[B] < 0.080	[B] < 0.080
Chromium (Dissolved)	U	1450	µg/l	1.0	[B] 2.9	[B] 3.4	[B] 1.3
Copper (Dissolved)	U	1450	µg/l	1.0	[B] 2.8	[B] 7.3	[B] 8.3
Mercury (Dissolved)	U	1450	µg/l	0.50	[B] 0.57	[B] 27	[B] < 0.50
Nickel (Dissolved)	U	1450	µg/l	1.0	[B] 1.4	[B] < 1.0	[B] 2.5
Lead (Dissolved)	U	1450	µg/l	1.0	[B] < 1.0	[B] 5.9	[B] < 1.0
Selenium (Dissolved)	U	1450	µg/l	1.0	[B] 4.6	[B] 6.4	[B] 2.5
Tin (Dissolved)	U	1450	µg/l	1.0	[B] < 1.0	[B] 2.9	[B] 6.3
Vanadium (Dissolved)	U	1450	µg/l	1.0	[B] 4.0	[B] 4.8	[B] 6.7
Zinc (Dissolved)	U	1450	µg/l	1.0	[B] 7.8	[B] 69	[B] 2.8
Dibutyl Tin	N	1730	µg/l	0.050	< 0.050	< 0.050	< 0.050
Tributyl Tin	N	1730	µg/l	0.0500	< 0.050	< 0.050	< 0.050

Deviations

In accordance with UKAS Policy on Deviating Samples TPS 63, Chemtest have a procedure to ensure, upon receipt of each sample a competent laboratory shall assess whether the sample is suitable with regard to the requested test(s). This policy and the respective holding times applied, can be supplied upon request. The reason a sample is declared as deviating is detailed below. Where applicable the analysis remains UKAS/MCERF's accredited but the results may be compromised.

Sample:	Sample Ref:	Sample ID:	Sample Location:	Sampled Date:	Deviation Code(s):	Containers Received:
1004464		P5	2MXM14	18-Mar-2020	B	Plastic Bottle 1000ml
1004465		P6	2MXM14	25-Mar-2020	B	Plastic Bottle 1000ml
1004466		P7	2MXM14	14-Apr-2020	B	Plastic Tub 500g

SOP	Title	Parameters included	Method summary
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.
1415	Cations in Waters by ICP-MS	Sodium; Potassium; Calcium; Magnesium	Direct determination by inductively coupled plasma - mass spectrometry (ICP-MS).
1450	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).
1730	Organo-Leads	Organo-Leads	Solvent extraction / GCMS detection

Report Information

Key

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- N/E not evaluated
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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



Final Report

Report No.: 20-09761-1
Initial Date of Issue: 06-Apr-2020
Client: Priority Geotechnical Ltd
Client Address: Unit 12
 Owenacurra Business Park
 Middleton
 County Cork
 Ireland
Contact(s): Colette Kelly
Project: P19188 Howth
Quotation No.: Q20-19850
Order No.: 12451
No. of Samples: 4
Turnaround (Wkdays): 7
Date Approved: 06-Apr-2020
Approved By:

Details: Glynn Harvey, Technical Manager



The right chemistry to deliver results
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 Tel: 01638 606070
 Email: info@chemtest.com

06-07-2021F 21A/0368
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Results - Water

Client: Priority Geotechnical Ltd		Chemtest Job No.: 20-09761		20-09761		20-09761		20-09761		20-09761	
Quotation No.: Q20-19850		Chemtest Sample ID: P1		993935		993937		993938		993939	
Sample Location: 2MCM28		2MCM28		2MCM28		2MCM28		2MCM28		2MCM28	
Sample Type: WATER		WATER		WATER		WATER		WATER		WATER	
Date Sampled: 23-Mar-2020		23-Mar-2020		24-Mar-2020		25-Mar-2020		26-Mar-2020		27-Mar-2020	
Determinand	Accred.	SOP	Units	LOD	20-09761	20-09761	20-09761	20-09761	20-09761	20-09761	20-09761
Chloride	U	1220	mg/l	1.0	170	220	110	140	140	140	140
Sulphate	U	1220	mg/l	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Calcium	U	1415	mg/l	5.0	40	43	35	33	33	33	33
Sodium	U	1415	mg/l	0.50	150	140	78	130	130	130	130
Arsenic (Dissolved)	U	1450	µg/l	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Cadmium (Dissolved)	U	1450	µg/l	0.080	< 0.080	< 0.080	< 0.080	< 0.080	< 0.080	< 0.080	< 0.080
Chromium (Dissolved)	U	1450	µg/l	1.0	1.4	1.4	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Copper (Dissolved)	U	1450	µg/l	1.0	< 1.0	1.2	1.0	2.9	2.9	2.9	2.9
Mercury (Dissolved)	U	1450	µg/l	0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
Nickel (Dissolved)	U	1450	µg/l	1.0	< 1.0	1.1	< 1.0	1.3	1.3	1.3	1.3
Lead (Dissolved)	U	1450	µg/l	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Selenium (Dissolved)	U	1450	µg/l	1.0	4.1	5.1	3.2	4.4	4.4	4.4	4.4
Tin (Dissolved)	U	1450	µg/l	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Vanadium (Dissolved)	U	1450	µg/l	1.0	1.7	2.0	1.3	2.8	2.8	2.8	2.8
Zinc (Dissolved)	U	1450	µg/l	1.0	3.0	4.2	1.5	2.3	2.3	2.3	2.3
Diethyl Tin	N	1730	µg/l	0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050
Tributyl Tin	N	1730	µg/l	0.0500	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050

Test Methods

SOP	Title	Parameters included	Method summary
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.
1415	Cations in Waters by ICP-MS	Sodium; Potassium; Calcium; Magnesium	Direct determination by inductively coupled plasma - mass spectrometry (ICP-MS).
1450	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).
1730	Organo-Leads	Organo-Leads	Solvent extraction / GCMS detection

Report Information

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All results are expressed on a dry weight basis

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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



Final Report

Report No.: 20-08347-1
Initial Date of Issue: 24-Mar-2020
Client: Priority Geotechnical Ltd
Client Address: Unit 12
 Owenacurra Business Park
 Midleton
 County Cork
 Ireland
Contact(s): Colette Kelly
Project: P19188 Howth
Quotation No.: Q20-19850
Order No.: P2451
No. of Samples: 4
Turnaround (Wkdays): 7
Date Approved: 24-Mar-2020
Approved By:

Details: Glynn Harvey, Technical Manager



The right chemistry to deliver results

Chemtest Ltd.

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Tel: 01638 606070

Email: info@chemtest.com



The right chemistry to deliver results

Results - Water

Project: P19188 Howth		Chemtest Job No.:		20-08347		20-08347		20-08347		20-08347	
Client: Priority Geotechnical Ltd		Chemtest Sample ID.:		986718		986719		986720		986721	
Quotation No.: Q20-19850		Client Sample ID.:		P1		P2		P3		P4	
		Sample Location:		2MXM14		2MXM14		2MXM14		2MXM14	
		Sample Type:		WATER		WATER		WATER		WATER	
		Date Sampled		09-Mar-2020		10-Mar-2020		11-Mar-2020		13-Mar-2020	
Determinand	Accred.	SOP	Units	LOD	20-08347	20-08347	20-08347	20-08347	20-08347	20-08347	20-08347
Chloride	U	1220	mg/l	1.0	310	200	180	180	180	260	260
Sulphate	U	1220	mg/l	1.0	1.8	1.1	1.1	1.8	1.8	< 1.0	< 1.0
Calcium	U	1415	mg/l	5.0	86	71	73	73	73	56	56
Sodium	U	1415	mg/l	0.50	630	200	120	120	120	85	85
Arsenic (Dissolved)	U	1450	µg/l	1.0	1.2	1.2	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Cadmium (Dissolved)	U	1450	µg/l	0.080	< 0.080	< 0.080	< 0.080	< 0.080	< 0.080	< 0.080	< 0.080
Chromium (Dissolved)	U	1450	µg/l	1.0	2.8	2.8	2.0	2.0	2.0	2.0	2.0
Copper (Dissolved)	U	1450	µg/l	1.0	3.6	1.7	1.6	1.6	1.6	2.2	2.2
Mercury (Dissolved)	U	1450	µg/l	0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
Nickel (Dissolved)	U	1450	µg/l	1.0	1.3	1.6	1.1	1.1	1.1	1.3	1.3
Lead (Dissolved)	U	1450	µg/l	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Selenium (Dissolved)	U	1450	µg/l	1.0	5.1	4.6	2.8	2.8	2.8	2.9	2.9
Tin (Dissolved)	U	1450	µg/l	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Vanadium (Dissolved)	U	1450	µg/l	1.0	3.2	3.2	3.2	3.2	3.2	4.1	4.1
Zinc (Dissolved)	U	1450	µg/l	1.0	3.4	1.9	1.9	1.9	1.9	1.7	1.7
Diethyl Tin	N	1730	µg/l	0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050
Triethyl Tin	N	1730	µg/l	0.0500	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050

SOP	Title	Parameters included	Method summary
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.
1415	Cations in Waters by ICP-MS	Sodium; Potassium; Calcium; Magnesium	Direct determination by inductively coupled plasma - mass spectrometry (ICP-MS).
1450	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).
1730	Organo-Leads	Organo-Leads	Solvent extraction / GCMS detection

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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

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- 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



Final Report

Report No.: 20-13475-1
 Initial Date of Issue: 04-Jun-2020
 Client: Priority Geotechnical Ltd
 Client Address: Unit 12
 Owenacurra Business Park
 Middleton
 County Cork
 Ireland
 Contact(s): Colette Kelly
 Project: P19188 Howth
 Quotation No.: Q20-19850
 Order No.: 12451
 No. of Samples: 4
 Turnaround (Wkdays): 7
 Date Approved: 04-Jun-2020

Approved By:

Details: Glynn Harvey, Technical Manager

Chemtest
 The right chemistry to deliver results
 Chemtest Ltd.
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 Newmarket
 CB8 0AL
 Tel: 01638 606070
 Email: info@chemtest.com



Project: P19188 Howth		Chemtest Job No.: 20-13475		Chemtest Sample ID: 1010031		20-13475		20-13475	
Client: Priority Geotechnical Ltd		Client Sample ID: P5		Client Sample ID: P6		Client Sample ID: P7		Client Sample ID: P8	
Quotation No.: Q20-19850		Sample Location: 3MXM28		Sample Location: 3MXM28		Sample Location: 3MXM28		Sample Location: 3MXM28	
		Sample Type: WATER		Sample Type: WATER		Sample Type: WATER		Sample Type: WATER	
		Date Sampled: 01-Apr-2020		Date Sampled: 08-Apr-2020		Date Sampled: 14-Apr-2020		Date Sampled: 28-May-2020	
Determinand	Accred.	SCOP	Units	LOD	Units	LOD	Units	LOD	Units
Chloride	U	1220	mg/l	1.0	[B] 110	[B] 150	[B] 61	[B] 100	100
Sulphate	U	1220	mg/l	1.0	[B] 11	[B] 54	[B] 30	[B] 30	100
Calcium	U	1415	mg/l	5.0	[B] < 5.0	[B] < 5.0	[B] < 5.0	[B] < 5.0	14
Sodium	U	1415	mg/l	0.50	[B] 110	[B] 140	[B] 52	[B] 52	110
Arsenic (Dissolved)	U	1450	µg/l	1.0	[B] 1.7	[B] 3.1	[B] 40	[B] 40	< 1.0
Cadmium (Dissolved)	U	1450	µg/l	0.080	[B] < 0.080	[B] < 0.080	[B] 3.3	[B] 3.3	0.11
Chromium (Dissolved)	U	1450	µg/l	1.0	[B] < 1.0	[B] < 1.0	[B] 110	[B] 110	420
Copper (Dissolved)	U	1450	µg/l	1.0	[B] 12	[B] 16	[B] 110	[B] 110	9.3
Mercury (Dissolved)	U	1450	µg/l	0.50	[B] < 0.50	[B] < 0.50	[B] 2.5	[B] 2.5	< 0.50
Nickel (Dissolved)	U	1450	µg/l	1.0	[B] 1.3	[B] 2.3	[B] 55	[B] 55	200
Lead (Dissolved)	U	1450	µg/l	1.0	[B] < 1.0	[B] < 1.0	[B] < 1.0	[B] < 1.0	< 1.0
Selenium (Dissolved)	U	1450	µg/l	1.0	[B] 3.0	[B] 3.4	[B] < 1.0	[B] < 1.0	< 1.0
Tin (Dissolved)	U	1450	µg/l	1.0	[B] < 1.0	[B] < 1.0	[B] 64	[B] 64	1.3
Vanadium (Dissolved)	U	1450	µg/l	1.0	[B] 10	[B] 22	[B] 8.6	[B] 8.6	< 1.0
Zinc (Dissolved)	U	1450	µg/l	1.0	[B] 2.7	[B] 3.2	[B] 33	[B] 33	3.7
Diethyl Tin	N	1730	µg/l	0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050
Tributyl Tin	N	1730	µg/l	0.0500	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050

Results - Water

Deviations

In accordance with UKAS Policy on Deviating Samples TPS 63, Chemtest have a procedure to ensure 'upon receipt of each sample a competent laboratory shall assess whether the sample is suitable with regard to the requested test(s)'. This policy and the respective holding times applied, can be supplied upon request. The reason a sample is declared as deviating is detailed below. Where applicable the analysis remains UKAS/MCERTs accredited but the results may be compromised.

Sample:	Sample Ref:	Sample ID:	Sample Location:	Sampled Date:	Deviation Code(s):	Containers Received:
1010029		P5	3MXM28	01-Apr-2020	B	Plastic Bottle 1000ml
1010030		P6	3MXM28	08-Apr-2020	B	Plastic Bottle 1000ml
1010031		P7	3MXM28	14-Apr-2020	B	Plastic Bottle 1000ml

Test Methods

SOP	Title	Parameters included	Method summary
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.
1415	Cations in Waters by ICP-MS	Sodium; Potassium; Calcium; Magnesium	Direct determination by inductively coupled plasma - mass spectrometry (ICP-MS).
1450	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).
1730	Organo-Leads	Organo-Leads	Solvent extraction / GCMS detection

Report Information

Key

- U UKAS accredited
- M MCERTS and UKAS accredited
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- 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



Final Report

Report No.: 20-12265-1

Initial Date of Issue: 19-May-2020

Client: Priority Geotechnical Ltd

Client Address: Unit 12
Owenacurra Business Park
Midleton
County Cork
Ireland

Contact(s): Colette Kelly

Project: P19188 Howth

Quotation No.: Q20-19850

Order No.: 12451

No. of Samples: 4

Turnaround (Wkdays): 7

Date Approved: 19-May-2020

Approved By:

Details: Glynn Harvey, Technical Manager

Chemtest Ltd.
Depot Road
Newmarket
CB8 0AL
Tel: 01638 606070
Email: info@chemtest.com

Project: P19188 Howth

Client: Priority Geotechnical Ltd	Chemtest Job No.:	20-12265	20-12265	20-12265	20-12265
Quotation No.: Q20-19850	Chemtest Sample ID.:	1004468	1004469	1004470	1004471
	Client Sample ID.:	P5	P6	P7	P8
	Sample Location:	3MXM14	3MXM14	3MXM14	3MXM14
	Sample Type:	WATER	WATER	WATER	WATER
	Date Sampled:	18-Mar-2020	25-Mar-2020	14-Apr-2020	12-May-2020
Determinand	Accred.	SOP	Units	LOD	
Chloride	U	1220	mg/l	1.0	[B] 190
Sulphate	U	1220	mg/l	1.0	[B] 4.4
Calcium	U	1415	mg/l	5.0	[B] 9.9
Sodium	U	1415	mg/l	0.50	[B] 130
Arsenic (Dissolved)	U	1450	µg/l	1.0	[B] < 1.0
Cadmium (Dissolved)	U	1450	µg/l	0.080	[B] < 0.080
Chromium (Dissolved)	U	1450	µg/l	1.0	[B] 2.3
Copper (Dissolved)	U	1450	µg/l	1.0	[B] 2.3
Mercury (Dissolved)	U	1450	µg/l	0.50	[B] < 0.50
Nickel (Dissolved)	U	1450	µg/l	1.0	[B] < 1.0
Lead (Dissolved)	U	1450	µg/l	1.0	[B] < 1.0
Selenium (Dissolved)	U	1450	µg/l	1.0	[B] 4.8
Tin (Dissolved)	U	1450	µg/l	1.0	[B] < 1.0
Vanadium (Dissolved)	U	1450	µg/l	1.0	[B] 4.0
Zinc (Dissolved)	U	1450	µg/l	1.0	[B] 3.5
Dibutyl Tin	N	1730	µg/l	0.050	< 0.050
Tributyl Tin	N	1730	µg/l	0.0500	< 0.050

In accordance with UKAS Policy on Deviating Samples TFS 63, Chemtest have a procedure to ensure, upon receipt of each sample, a competent laboratory shall assess whether the sample is suitable with regard to the requested test(s). This policy and the respective holding times applied, can be supplied upon request. The reason a sample is declared as deviating is detailed below. Where applicable the analysis remains UKAS/MCE/RT's accredited but the results may be compromised.

Sample:	Sample Ref:	Sample ID:	Sample Location:	Sample Date:	Deviation Code(s):	Containers Received:
1004468		P5	3MXM14	18-Mar-2020	B	Plastic Bottle 1000ml
1004469		P6	3MXM14	25-Mar-2020	B	Plastic Bottle 1000ml
1004470		P7	3MXM14	14-Apr-2020	B	Plastic Tub 500g

Test Methods

SOP	Title	Parameters included	Method summary
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.
1415	Cations in Waters by ICP-MS	Sodium; Potassium; Calcium; Magnesium	Direct determination by inductively coupled plasma - mass spectrometry (ICP-MS).
1450	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).
1730	Organo-Leads	Organo-Leads	Solvent extraction / GCMS detection

Report Information

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- > "greater than"

Comments or interpretations are beyond the scope of UKAS accreditation

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Uncertainty of measurement for the determinands tested are available upon request

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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

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- 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



Chemtest Ltd.

Depot Road

Newmarket

CB8 0AL

Tel: 01638 606070

Email: info@chemtest.com

Final Report

Report No.: 20-09760-1

Initial Date of Issue: 06-Apr-2020

Client: Priority Geotechnical Ltd

Client Address: Unit 12
Owenacurra Business Park
Midleton
County Cork
Ireland

Contact(s): Colette Kelly

Project: P19188 Howth

Quotation No.: Q20-19850

Order No.: 12451

No. of Samples: 4

Turnaround (Wkdays): 7

Date Approved: 06-Apr-2020

Approved By:

Details: Glynn Harvey, Technical Manager

Date Received: 30-Mar-2020

Date Instructed: 31-Mar-2020

Results Due: 08-Apr-2020



Project: P19188 Howth

Client: Priority Geotechnical Ltd
Quotation No.: Q20-19850

Determination	Accred.	SOP	Units	LOD	Chemtest Job No.: 20-09760			
					Chemtest Sample ID: 993932	Client Sample ID: P1	20-09760	20-09760
Chloride	U	1220	mg/l	1.0	95	110	59	70
Sulphate	U	1220	mg/l	1.0	< 1.0	< 1.0	< 1.0	2.0
Calcium	U	1415	mg/l	5.0	31	31	21	17
Sodium	U	1415	mg/l	0.50	71	73	44	55
Arsenic (Dissolved)	U	1450	µg/l	1.0	< 1.0	< 1.0	< 1.0	< 1.0
Cadmium (Dissolved)	U	1450	µg/l	0.080	< 0.080	< 0.080	< 0.080	< 0.080
Chromium (Dissolved)	U	1450	µg/l	1.0	< 1.0	< 1.0	< 1.0	1.3
Copper (Dissolved)	U	1450	µg/l	1.0	< 1.0	< 1.0	< 1.0	2.5
Mercury (Dissolved)	U	1450	µg/l	0.50	< 0.50	< 0.50	< 0.50	< 0.50
Nickel (Dissolved)	U	1450	µg/l	1.0	< 1.0	< 1.0	< 1.0	< 1.0
Lead (Dissolved)	U	1450	µg/l	1.0	< 1.0	< 1.0	< 1.0	< 1.0
Selenium (Dissolved)	U	1450	µg/l	1.0	1.7	1.3	< 1.0	2.1
Tin (Dissolved)	U	1450	µg/l	1.0	< 1.0	< 1.0	< 1.0	< 1.0
Vanadium (Dissolved)	U	1450	µg/l	1.0	< 1.0	< 1.0	< 1.0	3.5
Zinc (Dissolved)	U	1450	µg/l	1.0	1.8	< 1.0	< 1.0	1.8
Diethyl Tin	N	1730	µg/l	0.050	< 0.050	< 0.050	< 0.050	< 0.050
Tributyl Tin	N	1730	µg/l	0.0500	< 0.050	< 0.050	< 0.050	< 0.050

Results - Water

SOP	Title	Parameters included	Method summary
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.
1415	Cations in Waters by ICP-MS	Sodium; Potassium; Calcium; Magnesium	Direct determination by inductively coupled plasma - mass spectrometry (ICP-MS).
1450	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).
1730	Organo-Leads	Organo-Leads	Solvent extraction / GCMS detection

Report Information

Key

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- N/E not evaluated
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- > "greater than"

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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

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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



2183

Final Report



The right chemistry to deliver results

Chemtest Ltd.

Depot Road

Newmarket

CB8 0AL

Tel: 01638 606070

Email: info@chemtest.com

Report No.: 20-08348-1
 Initial Date of Issue: 24-Mar-2020
 Client: Priority Geotechnical Ltd
 Client Address: Unit 12
 Owenacurra Business Park
 Midleton
 County Cork
 Ireland
 Contact(s): Colette Kelly
 Project: P19188 Howth
 Quotation No.: Q20-19850
 Order No.: 12451
 No. of Samples: 4
 Turnaround (Wkdays): 7
 Date Approved: 24-Mar-2020

Date Received: 16-Mar-2020

Date Instructed: 17-Mar-2020

Results Due: 25-Mar-2020

Approved By:

Details: Glynn Harvey, Technical Manager



The right chemistry to deliver results

Results - Water

Project: P19188 Howth		Chemtest Job No.: 20-08348	20-08348	20-08348	20-08348
Client: Priority Geotechnical Ltd		Chemtest Sample ID.: 986722	986722	986722	986722
Quotation No.: Q20-19850		Client Sample ID.: P1	P1	P2	P3
		Client Sample Location: 3M/M14	3M/M14	3M/M14	3M/M14
		Sample Type: WATER	WATER	WATER	WATER
		Date Sampled: 09-Mar-2020	10-Mar-2020	11-Mar-2020	13-Mar-2020
Determinand	Accred.	SOP	Units	LOD	
Chloride	U	1220	mg/l	1.0	280
Sulphate	U	1220	mg/l	1.0	< 1.0
Calcium	U	1415	mg/l	5.0	42
Sodium	U	1415	mg/l	0.50	120
Arsenic (Dissolved)	U	1450	µg/l	1.0	< 1.0
Cadmium (Dissolved)	U	1450	µg/l	0.080	< 0.080
Chromium (Dissolved)	U	1450	µg/l	1.0	1.1
Copper (Dissolved)	U	1450	µg/l	1.0	1.1
Mercury (Dissolved)	U	1450	µg/l	0.50	3.7
Nickel (Dissolved)	U	1450	µg/l	1.0	< 1.0
Lead (Dissolved)	U	1450	µg/l	1.0	< 1.0
Selenium (Dissolved)	U	1450	µg/l	1.0	4.4
Tin (Dissolved)	U	1450	µg/l	1.0	< 1.0
Vanadium (Dissolved)	U	1450	µg/l	1.0	2.3
Zinc (Dissolved)	U	1450	µg/l	1.0	< 1.0
Diethyl Tin	N	1730	µg/l	0.050	< 0.050
Tributyl Tin	N	1730	µg/l	0.0500	< 0.050

SOP	Title	Parameters included	Method summary
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.
1415	Cations in Waters by ICP-MS	Sodium; Potassium; Calcium; Magnesium	Direct determination by inductively coupled plasma - mass spectrometry (ICP-MS).
1450	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).
1730	Organo-Leads	Organo-Leads	Solvent extraction / GCMS detection

Report Information

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Uncertainty of measurement for the determinands tested are available upon request

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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

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Sample Deviation Codes

- A - Date of sampling not supplied
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- 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



Chemtest
Eurofins Chemtest Ltd
Depot Road
Newmarket
CB8 0AL
Tel: 01638 606070
Email: info@chemtest.com

Final Report

Report No.: 20-19276-1
Initial Date of Issue: 31-Jul-2020
Client: Priority Geotechnical Ltd
Client Address: Unit 12
Owenacurra Business Park
Midleton
County Cork
Ireland
Contact(s): Colette Kelly
Project: P19188 Howth
Quotation No.: Q20-19850
Order No.: 12451
No. of Samples: 2
Turnaround (Wkdays): 7
Date Approved: 31-Jul-2020

Date Received: 24-Jul-2020
Date Instructed: 24-Jul-2020
Results Due: 03-Aug-2020

Approved By:

Details: Glynn Harvey, Technical Manager

Results - Water

Project: P19188 Howth		Chemtest Job No.: 20-19276		20-19276	
Client: Priority Geotechnical Ltd		Chemtest Sample ID.: 1037555		1037556	
Quotation No.: Q20-19850		Client Sample ID.: P7		P8	
		Sample Location: 4m x m90		4m x m90	
		Sample Type: WATER		WATER	
		Date Sampled: 26-Jun-2020		23-Jul-2020	
Determinand	Accred.	SGP	Units	LOD	
Chloride	U	1220	mg/l	1.0	[B] 170 150
Sulphate	U	1220	mg/l	1.0	[B] 96 110
Calcium	U	1415	mg/l	5.0	[B] 11 15
Sodium	U	1415	mg/l	0.50	[B] 160 150
Arsenic (Dissolved)	U	1450	µg/l	1.0	[B] 4.0 3.1
Cadmium (Dissolved)	U	1450	µg/l	0.080	[B] < 0.080 < 0.080
Chromium (Dissolved)	U	1450	µg/l	1.0	[B] 6.2 5.5
Copper (Dissolved)	U	1450	µg/l	1.0	[B] 29 23
Mercury (Dissolved)	U	1450	µg/l	0.50	[B] < 0.50 < 0.50
Nickel (Dissolved)	U	1450	µg/l	1.0	[B] 6.7 5.2
Lead (Dissolved)	U	1450	µg/l	1.0	[B] < 1.0 < 1.0
Selenium (Dissolved)	U	1450	µg/l	1.0	[B] 4.1 3.6
Tin (Dissolved)	U	1450	µg/l	1.0	[B] 2.5 1.8
Vanadium (Dissolved)	U	1450	µg/l	1.0	[B] 31 27
Zinc (Dissolved)	U	1450	µg/l	1.0	[B] 8.1 8.8
Dibutyl Tin	N	1730	µg/l	0.050	< 0.050 < 0.050
Tributyl Tin	N	1730	µg/l	0.0500	< 0.050 < 0.050

Deviations

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Sample:	Sample Ref:	Sample ID:	Sample Location:	Sampled Date:	Deviation Code(s):	Containers Received:
1037555		P7	4mxrn90	26-Jun-2020	B	Plastic Bottle 1000ml

Test Methods

SOP	Title	Parameters included	Method summary
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.
1415	Cations in Waters by ICP-MS	Sodium; Potassium; Calcium; Magnesium	Direct determination by inductively coupled plasma - mass spectrometry (ICP-MS).
1450	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).
1730	Organo-Leads	Organo-Leads	Solvent extraction / GCMS detection

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- D - Broken Container
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Sample Retention and Disposal

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All water samples will be retained for 14 days from the date of receipt
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customerservices@chemtest.com



Final Report

Report No.:	20-17642-1	
Initial Date of Issue:	14-Jul-2020	
Client	Priority Geotechnical Ltd	
Client Address:	Unit 12 Owenacurra Business Park Midleton County Cork Ireland	
Contact(s):	Colette Kelly	
Project	P19188 Howth	
Quotation No.:	Q20-19850	Date Received: 10-Jul-2020
Order No.:	12451	Date Instructed: 10-Jul-2020
No. of Samples:	2	
Turnaround (Wkdays):	7	Results Due: 20-Jul-2020
Date Approved:	14-Jul-2020	
Approved By:		
Details:	Glynn Harvey, Technical Manager	

Results - Water

Project: P19188 Howth

Client: Priority Geotechnical Ltd	Chemtest Job No.:		20-17642	20-17642
Quotation No.: Q20-19850	Chemtest Sample ID.:		1029588	1029589
	Client Sample ID.:		P7	P8
	Sample Location:		4mxm 76	4mxm 76
	Sample Type:		WATER	WATER
	Date Sampled:		10-Jun-2020	08-Jul-2020
Determinand	Accred.	SOP	Units	LOD
Chloride	U	1220	mg/l	1.0
Sulphate	U	1220	mg/l	1.0
Calcium	U	1415	mg/l	5.0
Sodium	U	1415	mg/l	0.50
Arsenic (Dissolved)	U	1450	µg/l	1.0
Cadmium (Dissolved)	U	1450	µg/l	0.080
Chromium (Dissolved)	U	1450	µg/l	1.0
Copper (Dissolved)	U	1450	µg/l	1.0
Mercury (Dissolved)	U	1450	µg/l	0.50
Nickel (Dissolved)	U	1450	µg/l	1.0
Lead (Dissolved)	U	1450	µg/l	1.0
Selenium (Dissolved)	U	1450	µg/l	1.0
Tin (Dissolved)	U	1450	µg/l	1.0
Vanadium (Dissolved)	U	1450	µg/l	1.0
Zinc (Dissolved)	U	1450	µg/l	1.0
Dibutyl Tin	N	1730	µg/l	0.050
Tributyl Tin	N	1730	µg/l	0.050

Page 2 of 5

Deviations

In accordance with UKAS Policy on Deviating Samples (PS 63, Eurofins Chemists) have a procedure to ensure upon receipt of each sample a competent laboratory shall assess whether the sample is suitable with regard to the requested test(s). This policy and the respective holding times applied, can be supplied upon request. The reason a sample is declared as deviating is detailed below. Where applicable the analysis remains UKAS/MCER's accredited but the results may be compromised.

Sample:	Sample Ref:	Sample ID:	Sample Location:	Sample Date:	Deviation Code(s):	Containers Received:
1029588		P7	4mxm 76	10-Jun-2020	B	Plastic Bottle 1000ml

Test Methods

SOP	Title	Parameters included	Method summary
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.
1415	Cations in Waters by ICP-MS	Sodium; Potassium; Calcium; Magnesium	Direct determination by inductively coupled plasma - mass spectrometry (ICP-MS).
1450	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).
1730	Organo-Leads	Organo-Leads	Solvent extraction / GCMS 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"

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



Final Report

Report No.: 20-14335-1
Initial Date of Issue: 10-Jun-2020
Client: Priority Geotechnical Ltd
Client Address: Unit 12
 Owenacurra Business Park
 Midleton
 County Cork
 Ireland
Contact(s): Colette Kelly
Project: P19188 Howth
Quotation No.: Q20-19850
Order No.: 12451
No. of Samples: 2
Turnaround (Wkdays): 7
Date Approved: 10-Jun-2020
Approved By:

Details: Glynn Harvey, Technical Manager

Results - Water

Project: P19188 Howth		Chemtest Job No.:	20-14335	20-14335
Client: Priority Geotechnical Ltd		Chemtest Sample ID.:	1013977	1013978
Quotation No.: Q20-19850		Client Sample ID.:	P5	P6
		Sample Location:	4MXM90	4MXM90
		Sample Type:	WATER	WATER
		Date Sampled:	28-May-2020	05-Jun-2020
Determinand	Accred.	SOP	Units	LOD
Chloride	U	1220	mg/l	1.0
Sulphate	U	1220	mg/l	1.0
Calcium	U	1415	mg/l	5.0
Sodium	U	1415	mg/l	0.50
Arsenic (Dissolved)	U	1450	µg/l	1.0
Cadmium (Dissolved)	U	1450	µg/l	0.080
Chromium (Dissolved)	U	1450	µg/l	1.0
Copper (Dissolved)	U	1450	µg/l	1.0
Mercury (Dissolved)	U	1450	µg/l	0.50
Nickel (Dissolved)	U	1450	µg/l	1.0
Lead (Dissolved)	U	1450	µg/l	1.0
Selenium (Dissolved)	U	1450	µg/l	1.0
Tin (Dissolved)	U	1450	µg/l	1.0
Vanadium (Dissolved)	U	1450	µg/l	1.0
Zinc (Dissolved)	U	1450	µg/l	1.0
Diethyl Tin	N	1730	µg/l	0.050
Tributyl Tin	N	1730	µg/l	0.050

SOP	Title	Parameters included	Method summary
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.
1415	Cations in Waters by ICP-MS	Sodium; Potassium; Calcium; Magnesium	Direct determination by inductively coupled plasma - mass spectrometry (ICP-MS).
1450	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).
1730	Organo-Leads	Organo-Leads	Solvent extraction / GCMS detection

Report Information

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- > "greater than"

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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



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Final Report

Report No.: 20-13519-1
 Initial Date of Issue: 05-Jun-2020
 Client: Priority Geotechnical Ltd
 Client Address: Unit 12
 Owenacurra Business Park
 Midleton
 County Cork
 Ireland
 Contact(s): Colette Kelly
 Project: P19188 Howth
 Quotation No.: Q20-19850
 Order No.: 12451
 No. of Samples: 4
 Turnaround (Wkdays): 7
 Date Approved: 05-Jun-2020
 Approved By:

Details: Glynn Harvey, Technical Manager



The right chemistry to deliver results

Chemtest Ltd.

Depot Road

Newmarket

CB8 0AL

Tel: 01638 606070

Email: info@chemtest.com



The right chemistry to deliver results

Results - Water

Client: Priority Geotechnical Ltd		Chemtest Job No.: 20-13519		20-13519		20-13519		20-13519		20-13519	
Quotation No.: Q20-19850		Chemtest Sample ID.: 1010207		1010207		1010208		1010209		1010210	
		Client Sample ID.: P5		P5		P6		P7		P8	
		Sample Location: 7MMX28		7MMX28		7MMX28		7MMX28		7MMX28	
		Sample Type: WATER		WATER		WATER		WATER		WATER	
		Date Sampled: 02-Apr-2020		02-Apr-2020		09-Apr-2020		15-Apr-2020		27-May-2020	
Determinand	Accond.	SOP	Units	LOD							
Chloride	U	1220	mg/l	1.0	[B] 320	[B] 160	[B] 82	[B] 62	[B] 62	[B] 98	
Sulphate	U	1220	mg/l	1.0	[B] 14	[B] 60	[B] 15	[B] 15	[B] 15	[B] 40	
Calcium	U	1415	mg/l	5.0	[B] 69	[B] 69	[B] 6.4	[B] 6.4	[B] 6.4	[B] 12	
Sodium	U	1415	mg/l	0.50	[B] 310	[B] 190	[B] 190	[B] 70	[B] 70	[B] 78	
Arsenic (Dissolved)	U	1450	µg/l	1.0	[B] 1.1	[B] 1.3	[B] 1.3	[B] 1.0	[B] 1.0	[B] 1.0	
Cadmium (Dissolved)	U	1450	µg/l	0.080	[B] 0.080	[B] 0.080	[B] 0.080	[B] 0.080	[B] 0.080	[B] 0.080	
Chromium (Dissolved)	U	1450	µg/l	1.0	[B] 1.7	[B] 1.5	[B] 1.5	[B] 1.0	[B] 1.0	[B] 1.0	
Copper (Dissolved)	U	1450	µg/l	1.0	[B] 3.6	[B] 3.6	[B] 6.5	[B] 2.4	[B] 2.4	[B] 6.4	
Mercury (Dissolved)	U	1450	µg/l	0.50	[B] 0.50	[B] 0.50	[B] 0.50	[B] 0.50	[B] 0.50	[B] 0.50	
Nickel (Dissolved)	U	1450	µg/l	1.0	[B] 3.5	[B] 3.6	[B] 1.9	[B] 1.9	[B] 1.9	[B] 3.8	
Lead (Dissolved)	U	1450	µg/l	1.0	[B] 1.0	[B] 1.0	[B] 1.0	[B] 1.0	[B] 1.0	[B] 1.0	
Selenium (Dissolved)	U	1450	µg/l	1.0	[B] 5.0	[B] 5.0	[B] 2.3	[B] 2.3	[B] 2.3	[B] 2.4	
Tin (Dissolved)	U	1450	µg/l	1.0	[B] 1.0	[B] 1.0	[B] 1.0	[B] 1.0	[B] 1.0	[B] 1.0	
Vanadium (Dissolved)	U	1450	µg/l	1.0	[B] 5.3	[B] 6.5	[B] 3.2	[B] 3.2	[B] 3.2	[B] 3.5	
Zinc (Dissolved)	U	1450	µg/l	1.0	[B] 8.5	[B] 6.0	[B] 9.3	[B] 9.3	[B] 9.3	[B] 4.2	
Dibutyl Tin	N	1730	µg/l	0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	
Tributyl Tin	N	1730	µg/l	0.0500	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	

Deviations

In accordance with UKAS Policy on Deviating Samples TPS 63, Chemtest have a procedure to ensure 'upon receipt of each sample a competent laboratory shall assess whether the sample is suitable with regard to the requested test(s)'. This policy and the respective holding times applied, can be supplied upon request. The reason a sample is declared as deviating is detailed below. Where applicable the analysis remains UKAS/MCERT's accredited but the results may be compromised.

Sample:	Sample Ref:	Sample ID:	Sample Location:	Sampled Date:	Deviation Code(s):	Containers Received:
1010207		P5	7MXM28	02-Apr-2020	B	Plastic Tub 500g
1010208		P6	7MXM28	09-Apr-2020	B	Plastic Tub 500g
1010209		P7	7MXM28	15-Apr-2020	B	Plastic Tub 500g

Test Methods

SOP	Title	Parameters included	Method summary
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.
1415	Cations in Waters by ICP-MS	Sodium; Potassium; Calcium; Magnesium	Direct determination by inductively coupled plasma - mass spectrometry (ICP-MS).
1450	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).
1730	Organo-Leads	Organo-Leads	Solvent extraction / GCMS detection

Report Information

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- 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



Final Report

Report No.: 20-13489-1
Initial Date of Issue: 05-Jun-2020
Client: Priority Geotechnical Ltd
Client Address: Unit 12
 Owenacurra Business Park
 Midleton
 County Cork
 Ireland
Contact(s): Colette Kelly
Project: P19188 Howth
Quotation No.:
Order No.: 12451
No. of Samples: 4
Turnaround (Wkdays): 7
Date Approved: 05-Jun-2020
Approved By:

Details: Glynn Harvey, Technical Manager

Chemtest Ltd.
Depot Road
Newmarket
CB8 0AL
Tel: 01638 606070
Email: info@chemtest.com

Date Received: 28-May-2020
Date Instructed: 29-May-2020
Results Due: 08-Jun-2020

Results - Water

Project: P19188 Howth

Client: Priority Geotechnical Ltd	Chemtest Job No.:		20-13489	20-13489	20-13489	20-13489
Quotation No.:	Chemtest Sample ID.:		1010097	1010098	1010099	1010100
	Client Sample ID.:		P5	P6	P7	P8
	Sample Location:		4MXM28	4MXM28	4MXM28	4MXM28
	Sample Type:		WATER	WATER	WATER	WATER
	Date Sampled:		01-Apr-2020	08-Apr-2020	14-Apr-2020	26-May-2020
Determinand	Accred.	SOP	Units	LOD		
Chloride	U	1220	mg/l	1.0	[B] 300	[B] 190
Sulphate	U	1220	mg/l	1.0	[B] 14	[B] 50
Calcium	U	1415	mg/l	5.0	[B] 15	[B] 52
Sodium	U	1415	mg/l	0.50	[B] 270	[B] 160
Arsenic (Dissolved)	U	1450	µg/l	1.0	[B] < 1.0	[B] 1.6
Cadmium (Dissolved)	U	1450	µg/l	0.080	[B] < 0.080	[B] < 0.080
Chromium (Dissolved)	U	1450	µg/l	1.0	[B] 1.5	[B] 1.9
Copper (Dissolved)	U	1450	µg/l	1.0	[B] 2.9	[B] 6.3
Mercury (Dissolved)	U	1450	µg/l	0.50	[B] 0.63	[B] < 0.50
Nickel (Dissolved)	U	1450	µg/l	1.0	[B] 4.2	[B] 7.3
Lead (Dissolved)	U	1450	µg/l	1.0	[B] < 1.0	[B] < 1.0
Selenium (Dissolved)	U	1450	µg/l	1.0	[B] 5.8	[B] 6.3
Tin (Dissolved)	U	1450	µg/l	1.0	[B] < 1.0	[B] < 1.0
Vanadium (Dissolved)	U	1450	µg/l	1.0	[B] 3.7	[B] 5.6
Zinc (Dissolved)	U	1450	µg/l	1.0	[B] 5.0	[B] 14
Dibutyl Tin	N	1730	µg/l	0.050	< 0.050	< 0.050
Tributyl Tin	N	1730	µg/l	0.0500	< 0.050	< 0.050

Sample:	Sample Ref:	Sample ID:	Sample Location:	Sample Date:	Deviation Code(s):	Containers Received:
1010097		P5	4MXM28	01-Apr-2020	B	Plastic Tub 500g
1010098		P6	4MXM28	08-Apr-2020	B	Plastic Tub 500g
1010099		P7	4MXM28	14-Apr-2020	B	Plastic Tub 500g

In accordance with UKAS Policy on Deviating Samples TFS 63, Chemtest have a procedure to ensure upon receipt of each sample a competent laboratory shall assess whether the sample is suitable with regard to the requested test(s). This policy and the respective holding times applied can be supplied upon request. The reason a sample is declared as deviating is detailed below. Where applicable the analysis remains UKAS/ISO/IEC 17025 accredited but the results may be compromised.

SOP	Title	Parameters included	Method summary
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.
1415	Cations in Waters by ICP-MS	Sodium; Potassium; Calcium; Magnesium	Direct determination by inductively coupled plasma - mass spectrometry (ICP-MS).
1450	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).
1730	Organo-Leads	Organo-Leads	Solvent extraction / GCMS detection

Report Information

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Sample Deviation Codes

- A - Date of sampling not supplied
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- 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

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customerservices@chemtest.com



Chemtest Ltd.
Depot Road
Newmarket
CB8 0AL
Tel: 01638 606070
Email: info@chemtest.com

Final Report

Report No.: 20-13482-1
Initial Date of Issue: 04-Jun-2020
Client: Priority Geotechnical Ltd
Client Address: Unit 12
Owenacurra Business Park
Midleton
County Cork
Ireland
Contact(s): Colette Kelly
Project: P19188 Howth
Quotation No.: Q20-19850
Order No.: 12451
No. of Samples: 2
Turnaround (Wkdays): 7
Date Approved: 04-Jun-2020

Date Received: 28-May-2020
Date Instructed: 29-May-2020
Results Due: 08-Jun-2020

Approved By:

Details: Glynn Harvey, Technical Manager



Project: P19188 Howth

Client: Priority Geotechnical Ltd	Chemtest Job No.: 20-13482	20-13482	20-13482
Quotation No.: Q20-19850	Chemtest Sample ID: 1010081	1010082	1010082
	Client Sample ID: P5	P5	P6
	Sample Location: 4MAM76	4MAM76	4MAM76
	Sample Type: WATER	WATER	WATER
	Date Sampled: 14-May-2020	14-May-2020	21-May-2020
Determinand	Accred.	SOP	Units
Chloride	U	1220	mg/l
Sulphate	U	1220	mg/l
Calcium	U	1415	mg/l
Sodium	U	1415	mg/l
Arsenic (Dissolved)	U	1450	µg/l
Cadmium (Dissolved)	U	1450	µg/l
Chromium (Dissolved)	U	1450	µg/l
Copper (Dissolved)	U	1450	µg/l
Mercury (Dissolved)	U	1450	µg/l
Nickel (Dissolved)	U	1450	µg/l
Lead (Dissolved)	U	1450	µg/l
Selenium (Dissolved)	U	1450	µg/l
Tin (Dissolved)	U	1450	µg/l
Vanadium (Dissolved)	U	1450	µg/l
Zinc (Dissolved)	U	1450	µg/l
Dibutyl Tin	N	1730	µg/l
Tributyl Tin	N	1730	µg/l

Results - Water

Deviations

In accordance with UKAS Policy on Deviating Samples TPS 63, Chemtest have a procedure to ensure 'upon receipt of each sample a competent laboratory shall assess whether the sample is suitable with regard to the requested test(s)'. This policy and the respective holding times applied, can be supplied upon request. The reason a sample is declared as deviating is detailed below. Where applicable the analysis remains UKAS/MCERT's accredited but the results may be compromised.

Sample:	Sample Ref:	Sample ID:	Sample Location:	Sampled Date:	Deviation Code(s):	Containers Received:
1010081		P5	4MXM76	14-May-2020	B	Plastic Bottle 1000ml

Test Methods

SOP	Title	Parameters included	Method summary
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.
1415	Cations in Waters by ICP-MS	Sodium; Potassium; Calcium; Magnesium	Direct determination by inductively coupled plasma - mass spectrometry (ICP-MS).
1450	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).
1730	Organo-Leads	Organo-Leads	Solvent extraction / GCMS detection

Report Information

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Comments or interpretations are beyond the scope of UKAS accreditation

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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

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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



Final Report

Report No.: 20-13324-1

Initial Date of Issue: 01-Jun-2020

Client: Priority Geotechnical Ltd

Client Address: Unit 12
Owenacurra Business Park
Midleton
County Cork
Ireland

Contact(s): Colette Kelly

Project: P19188 Howth

Quotation No.: Q20-19850

Order No.: 12451

No. of Samples: 4

Turnaround (Wkdays): 7

Date Approved: 01-Jun-2020

Approved By:

Details: Glynn Harvey, Technical Manager

Chemtest Ltd.

Depot Road

Newmarket

CB8 0AL

Tel: 01638 606070

Email: info@chemtest.com

Date Received: 27-May-2020

Date Instructed: 27-May-2020

Results Due: 04-Jun-2020

Project: P19188 Howth

Client: Priority Geotechnical Ltd		Chemtest Job No.:		20-13324	20-13324	20-13324	20-13324
Quotation No.: Q20-19850		Chemtest Sample ID.:		1009274	1009275	1009276	1009277
		Client Sample ID.:		P1	P2	P3	P4
		Sample Location:		4MXM90	4MXM90	4MXM90	4MXM90
		Sample Type:		WATER	WATER	WATER	WATER
		Date Sampled:		20-May-2020	21-May-2020	22-May-2020	25-May-2020
Determinand	Accred.	SOP	Units	LOD			
Chloride	U	1220	mg/l	1.0	240	280	150
Sulphate	U	1220	mg/l	1.0	22	6.6	3.0
Calcium	U	1415	mg/l	5.0	37	50	76
Sodium	U	1415	mg/l	0.50	240	270	190
Arsenic (Dissolved)	U	1450	µg/l	1.0	< 1.0	< 1.0	< 1.0
Cadmium (Dissolved)	U	1450	µg/l	0.080	< 0.080	< 0.080	< 0.080
Chromium (Dissolved)	U	1450	µg/l	1.0	< 1.0	< 1.0	< 1.0
Copper (Dissolved)	U	1450	µg/l	1.0	< 1.0	< 1.0	< 1.0
Mercury (Dissolved)	U	1450	µg/l	0.50	< 0.50	< 0.50	< 0.50
Nickel (Dissolved)	U	1450	µg/l	1.0	5.0	5.2	2.8
Lead (Dissolved)	U	1450	µg/l	1.0	< 1.0	< 1.0	< 1.0
Selenium (Dissolved)	U	1450	µg/l	1.0	< 1.0	< 1.0	< 1.0
Tin (Dissolved)	U	1450	µg/l	1.0	< 1.0	< 1.0	< 1.0
Vanadium (Dissolved)	U	1450	µg/l	1.0	1.7	1.5	< 1.0
Zinc (Dissolved)	U	1450	µg/l	1.0	6.6	11	4.3
Dibutyl Tin	N	1730	µg/l	0.050	< 0.050	< 0.050	< 0.050
Tributyl Tin	N	1730	µg/l	0.0500	< 0.050	< 0.050	< 0.050

SOP	Title	Parameters included	Method summary
1220	Anions, Alkalinity & Ammonium in Waters	Fluoride, Chloride, Nitrite, Nitrate, Total Oxidisable Nitrogen (TON), Sulfate, Phosphate, Alkalinity, Ammonium	Automated colorimetric analysis using Aquatem 600 Discrete Analyser.
1415	Cations in Waters by ICP-MS	Sodium, Potassium, Calcium, Magnesium	Direct determination by inductively coupled plasma - mass spectrometry (ICP-MS).
1450	Metals in Waters by ICP-MS	Mercury, Beryllium, Barium, Arsenic, Barium, 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).
1730	Organo-Leads	Organo-Leads	Solvent extraction / GC/MS detection

Report Information

Key

- U UKAS accredited
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- SN This analysis has been subcontracted to a UKAS accredited laboratory that is not accredited for this analysis
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- 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:

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Final Report

Report No.: 20-12270-1

Initial Date of Issue: 19-May-2020

Client: Priority Geotechnical Ltd

Client Address: Unit 12
Owenacurra Business Park
Midleton
County Cork
Ireland

Contact(s): Colette Kelly

Project: P19188 Howth

Quotation No.: Q20-19850

Order No.: 12451

No. of Samples: 4

Turnaround (Wkdays): 7

Date Approved: 19-May-2020

Approved By:

Details: Glynn Harvey, Technical Manager

Chemtest Ltd.

Depot Road

Newmarket

CB8 0AL

Tel: 01638 606070

Email: info@chemtest.com

Date Received: 13-May-2020

Date Instructed: 14-May-2020

Results Due: 22-May-2020

Project: P19188 Howth

Client: Priority Geotechnical Ltd		Chemtest Job No.:		20-12270	20-12270	20-12270	20-12270	
Quotation No.: Q20-19850		Chemtest Sample ID.:		1004487	1004488	1004489	1004490	
		Client Sample ID.:		P1	P2	P3	P4	
		Sample Location:		4MXM76	4MXM76	4MXM76	4MXM76	
		Sample Type		WATER	WATER	WATER	WATER	
		Date Sampled		06-May-2020	07-May-2020	08-May-2020	11-May-2020	
Determinand	Accred.	SOP	Units	LOD				
Chloride	U	1220	mg/l	1.0	120	340	140	240
Sulphate	U	1220	mg/l	1.0	1.7	4.8	2.2	6.5
Calcium	U	1415	mg/l	5.0	37	9.3	33	27
Sodium	U	1415	mg/l	0.50	110	270	130	270
Arsenic (Dissolved)	U	1450	µg/l	1.0	< 1.0	1.1	< 1.0	< 1.0
Cadmium (Dissolved)	U	1450	µg/l	0.080	< 0.080	< 0.080	< 0.080	< 0.080
Chromium (Dissolved)	U	1450	µg/l	1.0	1.6	3.3	1.9	1.7
Copper (Dissolved)	U	1450	µg/l	1.0	1.8	1.8	1.9	1.9
Mercury (Dissolved)	U	1450	µg/l	0.50	< 0.50	0.51	< 0.50	5.3
Nickel (Dissolved)	U	1450	µg/l	1.0	1.9	4.2	2.1	2.9
Lead (Dissolved)	U	1450	µg/l	1.0	< 1.0	< 1.0	< 1.0	< 1.0
Selenium (Dissolved)	U	1450	µg/l	1.0	3.1	7.3	3.1	2.2
Tin (Dissolved)	U	1450	µg/l	1.0	160	5.2	1200	< 1.0
Vanadium (Dissolved)	U	1450	µg/l	1.0	2.6	3.0	2.4	1.7
Zinc (Dissolved)	U	1450	µg/l	1.0	< 1.0	8.4	6.0	53
Dibutyl Tin	N	1730	µg/l	0.050	< 0.050	< 0.050	< 0.050	< 0.050
Tributyl Tin	N	1730	µg/l	0.0500	< 0.050	< 0.050	< 0.050	< 0.050

SOP	Title	Parameters included	Method summary
1220	Anions, Alkalinity & Ammonium in Waters	Fluoride, Chloride, Nitrite, Nitrate, Total Oxidisable Nitrogen (TON), Sulfate, Phosphate, Alkalinity, Ammonium	Automated colorimetric analysis using Aquatem 800 Discrete Analyser.
1415	Cations in Waters by ICP-MS	Sodium, Potassium, Calcium, Magnesium	Direct determination by inductively coupled plasma - mass spectrometry (ICP-MS).
1450	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).
1730	Organoleads	Organoleads	Solvent extraction / GCMS detection

19-07-2021 21A/0368
INGAL CO CO
Chemtest

Test Methods

Report Information

Key

- U UKAS accredited
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Uncertainty of measurement for the determinands tested are available upon request

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- 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



Final Report

Report No.: 20-12266-1

Initial Date of Issue: 18-May-2020

Client: Priority Geotechnical Ltd

Client Address: Unit 12
Owenacurra Business Park
Midleton
County Cork
Ireland

Contact(s): Colette Kelly

Project: P19188 Howth

Quotation No.: Q20-19850

Order No.: 12451

No. of Samples: 4

Turnaround (Wkdays): 7

Date Approved: 18-May-2020

Approved By:

Details: Glynn Harvey, Technical Manager

Chemtest Ltd.

Depot Road

Newmarket

CB8 9AL

Tel: 01638 606070

Email: info@chemtest.com

Date Received: 13-May-2020

Date Instructed: 14-May-2020

Results Due: 22-May-2020

Project: P19188 Howth

Project: P19188 Nowin									
Client: Priority Geotechnical Ltd		Chemtest Job No.:		20-12266	20-12266	20-12266	20-12266	20-12266	20-12266
Quotation No.: Q20-19850		Chemtest Sample ID.:		1004472	1004473	1004474	1004475	1004475	1004475
		Client Sample ID.:		P5	P6	P7	P8	P8	P8
		Sample Location:		4MXM14	4MXM14	4MXM14	4MXM14	4MXM14	4MXM14
		Sample Type:		WATER	WATER	WATER	WATER	WATER	WATER
		Date Sampled:		18-Mar-2020	25-Mar-2020	14-Apr-2020	12-May-2020	12-May-2020	12-May-2020
Determinand	Accred.	SOP	Units	LOD					
Chloride	U	1220	mg/l	1.0	[B] 190	[B] 120	[B] 63		58
Sulphate	U	1220	mg/l	1.0	[B] 12	[B] 12	[B] 13		9.6
Calcium	U	1415	mg/l	5.0	[B] 9.3	[B] 65	[B] 66		31
Sodium	U	1415	mg/l	0.50	[B] 140	[B] 77	[B] 14		3.6
Arsenic (Dissolved)	U	1450	µg/l	1.0	[B] < 1.0	[B] < 1.0	[B] < 1.0		< 1.0
Cadmium (Dissolved)	U	1450	µg/l	0.080	[B] < 0.080	[B] < 0.080	[B] 0.17		0.089
Chromium (Dissolved)	U	1450	µg/l	1.0	[B] 2.3	[B] 1.7	[B] < 1.0		< 1.0
Copper (Dissolved)	U	1450	µg/l	1.0	[B] 2.5	[B] 1.6	[B] 3.1		1.6
Mercury (Dissolved)	U	1450	µg/l	0.50	[B] < 0.50	[B] < 0.50	[B] 6.5		1.2
Nickel (Dissolved)	U	1450	µg/l	1.0	[B] 3.8	[B] 3.8	[B] 7.1		3.5
Lead (Dissolved)	U	1450	µg/l	1.0	[B] < 1.0	[B] < 1.0	[B] < 1.0		< 1.0
Selenium (Dissolved)	U	1450	µg/l	1.0	[B] 5.3	[B] 4.1	[B] 2.1		1.1
Tin (Dissolved)	U	1450	µg/l	1.0	[B] 8.3	[B] 88	[B] 13		< 1.0
Vanadium (Dissolved)	U	1450	µg/l	1.0	[B] 2.7	[B] 2.2	[B] 2.4		2.5
Zinc (Dissolved)	U	1450	µg/l	1.0	[B] 8.5	[B] 7.0	[B] 4.2		2.4
Dibutyl Tin	N	1730	µg/l	0.050	< 0.050	< 0.050	< 0.050		< 0.050
Tributyl Tin	N	1730	µg/l	0.0500	< 0.050	< 0.050	< 0.050		< 0.050

In accordance with UKAS Policy on Deviating Samples TPS 63, Chemtest have a procedure to ensure upon receipt of each sample a competent laboratory shall assess whether the sample is suitable with regard to the requested test(s). This policy and the respective holding times applied, can be supplied upon request. The reason a sample is declared as deviating is detailed below. Where applicable the analysis remains UKAS/MCER's accredited but the results may be compromised.

Sample:	Sample Ref:	Sample ID:	Sample Location:	Sampled Date:	Deviation Code(s):	Containers Received:
1004472		P5	4MXM14	18-Mar-2020	B	Plastic Bottle 1000ml
1004473		P6	4MXM14	25-Mar-2020	B	Plastic Tub 500g
1004474		P7	4MXM14	14-Apr-2020	B	Plastic Bottle 1000ml

Test Methods

SOP	Title	Parameters included	Method summary
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.
1415	Cations in Waters by ICP-MS	Sodium; Potassium; Calcium; Magnesium	Direct determination by inductively coupled plasma - mass spectrometry (ICP-MS).
1450	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).
1730	Organo-Leads	Organo-Leads	Solvent extraction / GCMS detection

Report Information

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- U UKAS accredited
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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



Final Report

Report No.: 20-09759-1
 Initial Date of Issue: 06-Apr-2020
 Client: Priority Geotechnical Ltd
 Client Address: Unit 12
 Owenacurra Business Park
 Midleton
 County Cork
 Ireland
 Contact(s): Colette Kelly
 Project: P19188 Howth
 Quotation No.: Q20-19850
 Order No.: 12451
 No. of Samples: 4
 Turnaround (Wkdays): 7
 Date Approved: 06-Apr-2020

Approved By:

Details: Glynn Harvey, Technical Manager



The right chemistry to deliver results

Chemtest Ltd.

Depot Road

Newmarket

CB8 0AL

Tel: 01638 806070

Email: info@chemtest.com

Date Received: 30-Mar-2020

Date Instructed: 31-Mar-2020

Results Due: 08-Apr-2020



The right chemistry to deliver results

Project: P19188 Howth

Client: Priority Geotechnical Ltd

Quotation No.: Q20-19850

Chemtest Job No.: 20-09759

Chemtest Sample ID.: 993931

Client Sample ID.: P4

Client Sample Location: 4MXM28

Sample Type: WATER

Date Sampled: 24-Mar-2020

LOD

Units

Accred.

SOP

Units

LOD

Units

Accred.

SOP

Units

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Units

Accred.

SOP

Units

LOD

Units

Results - Water

Determinand	Accred.	SOP	Units	LOD	20-09759	20-09759	20-09759	20-09759	20-09759
Chloride	U	1220	mg/l	1.0	280	340	220	240	240
Sulphate	U	1220	mg/l	1.0	1.1	< 1.0	1.3	3.1	3.1
Calcium	U	1415	mg/l	5.0	69	110	99	92	92
Sodium	U	1415	mg/l	0.50	340	380	230	240	240
Arsenic (Dissolved)	U	1450	µg/l	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Chromium (Dissolved)	U	1450	µg/l	0.080	< 0.080	< 0.080	< 0.080	< 0.080	< 0.080
Chromium (Dissolved)	U	1450	µg/l	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Copper (Dissolved)	U	1450	µg/l	1.0	< 1.0	1.2	< 1.0	2.1	2.1
Mercury (Dissolved)	U	1450	µg/l	0.50	0.61	0.63	< 0.50	< 0.50	< 0.50
Nickel (Dissolved)	U	1450	µg/l	1.0	1.7	2.1	1.5	2.1	2.1
Lead (Dissolved)	U	1450	µg/l	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Selenium (Dissolved)	U	1450	µg/l	1.0	5.1	6.4	3.7	4.3	4.3
Tin (Dissolved)	U	1450	µg/l	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Vanadium (Dissolved)	U	1450	µg/l	1.0	1.5	1.9	1.6	2.5	2.5
Zinc (Dissolved)	U	1450	µg/l	1.0	6.2	8.4	5.8	7.4	7.4
Diethyl Tin	N	1730	µg/l	0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050
Tributyl Tin	N	1730	µg/l	0.0500	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050