Chivers Site, Coolock – Ground Investigation

Client:	Platinum Land Limited
Client's Representative:	Cora Consulting Engineers
Report No.:	18-0767
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Status:	Final for Issue

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Report No.:		18-0767			
Project Title:		Chivers Site, Coolock			
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Prepared by:		**Reviewed by:**		**Approved by:**	
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The works were conducted in accordance with:

UK Specification for Ground Investigation 2nd Edition, published by ICE Publishing (2012)

British Standards Institute (2015) BS 5930:2015, Code of practice for site investigations.

BS EN 1997-2: 2007: Eurocode 7 - Geotechnical design - Part 2 Ground investigation and testing.

Geotechnical Society of Ireland (2016), Specification & Related Documents for Ground Investigation in Ireland

Laboratory testing was conducted in accordance with:

British Standards Institute BS 1377:1990 parts 2, 4, 5, 7 and 9

METHODS OF DESCRIBING SOILS AND ROCKS

Soil and rock descriptions are based on the guidance in BS5930:2015, The Code of Practice for Site Investigation.

Abbreviations used on exploratory hole logs	
U	Nominal 100mm diameter undisturbed open tube sample (thick walled sampler)
UT	Nominal 100mm diameter undisturbed open tube sample (thin walled sampler)
P	Nominal 100mm diameter undisturbed piston sample
B	Bulk disturbed sample
LB	Large bulk disturbed sample
D	Small disturbed sample
C	Core sub-sample (displayed in the Field Records column on the logs)
L	Liner sample from dynamic sampled borehole
W	Water sample
ES / EW	Soil sample for environmental testing / Water sample for environmental testing
SPT (s)	Standard penetration test using a split spoon sampler (small disturbed sample obtained)
SPT (c)	Standard penetration test using 60 degree solid cone
x,x/x,x,x,x	Blows per increment during the standard penetration test. The initial two values relate to the seating drive (150mm) and the remaining four to the 75mm increments of the test length. The length achieved is stated (mm) for any test increment less than 75mm
N=X	SPT blow count 'N' given by the summation of the blows 'X' required to drive the full test length (300mm)
N=X/Z	Incomplete standard penetration test where the full test length was not achieved. The blows 'X' represent the total blows for the given test length 'Z' (mm)
V VR	Shear vane test (borehole) Hand vane test (trial pit) Shear strength stated in kPa V: undisturbed vane shear strength VR: remoulded vane shear strength
dd/mm/yy: 1.0 dd/mm/yy: dry	Date & water level at the borehole depth at the end of shift and the start of the following shift
▽	Water strike: initial depth of strike
▼	Water strike: depth water rose to
Abbreviations relating to rock core – reference Clause 36.4.4 of BS 5930: 2015	
TCR (%)	Total Core Recovery: Ratio of rock/soil core recovered (both solid and non-intact) to the total length of core run.
SCR (%)	Solid Core Recovery: Ratio of solid core to the total length of core run. Solid core has a full diameter, uninterrupted by natural discontinuities, but not necessarily a full circumference and is measured along the core axis between natural fractures.
RQD (%)	Rock Quality Designation: Ratio of total length of solid core pieces greater than 100mm to the total length of core run.
FI	Fracture Index: Number of natural discontinuities per metre over an indicated length of core of similar intensity of fracturing.
NI	Non Intact: Used where the rock material was recovered fragmented, for example as fine to coarse gravel size particles.
AZCL	Assessed zone of core loss: The estimated depth range where core was not recovered.
DIF	Drilling induced fracture: A fracture of non-geological origin brought about by the rock coring.
(xxx/xxx/xxx)	Spacing between discontinuities (minimum/average/maximum).

Chivers Site, Coolock

1 AUTHORITY

On the instructions of Cora Consulting Engineers, ("the Client's Representative"), acting on the behalf of Platinum Land Limited ("the Client"), a ground investigation was undertaken at the above location to provide geotechnical and environmental information for input to the design and construction of a proposed residential development.

This report details the work carried out both on site and in the geotechnical and chemical testing laboratories; it contains a description of the site and the works undertaken, the exploratory hole logs and the laboratory test results. A discussion on the recommendations for construction is also provided.

All information given in this report is based upon the ground conditions encountered during the site investigation works, and on the results of the laboratory and field tests performed. However, there may be conditions at the site that have not been taken into account, such as unpredictable soil strata, contaminant concentrations, and water conditions between or below exploratory holes. It should be noted that groundwater levels usually vary due to seasonal and/or other effects and may at times differ to those recorded during the investigation. No responsibility can be taken for conditions not encountered through the scope of work commissioned, for example between exploratory hole points, or beneath the termination depths achieved.

This report was prepared by Causeway Geotech Ltd for the use of the Client and the Client's Representative in response to a particular set of instructions. Any other parties using the information contained in this report do so at their own risk and any duty of care to those parties is excluded.

2 SCOPE

The extent of the investigation, as instructed by the Client's Representative, included boreholes, trial pits, soil and environmental sampling, groundwater monitoring, in-situ and laboratory testing, and the preparation of a report on the findings including recommendations for construction.

3 DESCRIPTION OF SITE

As shown on the site location plan in Appendix A, the works were conducted on the site of the disused Chivers Factory in Coolock, Dublin 17. The site is located off Coolock Drive and is bordered to the north by a stream, to the east by Cadburys Factory and to the south and west by a pitch and putt golf course and industrial units. The site is generally flat with a large part covered by concrete and paved surfacing. An embankment is located between the site and the stream to the north.

4 SITE OPERATIONS

4.1 Summary of site works

Site operations, which were conducted between 21st and 27th August 2018, comprised:

- eight boreholes by dynamic (windowless) sampling methods;
- a standpipe installation in four boreholes; and
- four machine dug trial pits.

The exploratory holes and in-situ tests were located as instructed by the Client's Representative, as shown on the exploratory hole location plan in Appendix A.

4.2 Boreholes

Eight boreholes (BH01-BH08) were put down to completion by light percussion boring techniques using a Dando Terrier dynamic sampling rig. The boreholes were put down initially in 150mm diameter, reducing in diameter with depth as required, down to 50mm by use of the smallest sampler.

The boreholes were taken to depths ranging between 2.0m and 4.75m where they were terminated on encountering virtual refusal on obstructions above this depth or in very stiff deposits.

Standard penetration tests were carried out in accordance with BS EN 22476-3: 2005 at standard depth intervals using the split spoon sampler ($SPT_{(s)}$) or solid cone attachment ($SPT_{(c)}$). The penetrations are stated for those tests for which the full 150mm seating drive or 300mm test drive was not possible. The *N*-values provided on the borehole logs are uncorrected and no allowance has been made for energy ratio corrections. The SPT hammer energy measurement report is provided in Appendix I.

Disturbed (bulk and small bag) samples were taken within the encountered strata. Environmental samples were taken at standard intervals, as directed by the Client's Representative.

Any water strikes encountered during boring were recorded along with any changes in their levels as the borehole proceeded. Details of the water strikes are presented on the individual borehole logs.

Appendix B presents the borehole logs.

4.3 Standpipe installations

A groundwater monitoring standpipe was installed in boreholes BH01, BH04, BH07 and BH08.

Details of the installations, including the depth range of the response zone, are provided in Appendix B on the individual borehole logs.

4.4 Trial Pits

Four trial pits (TP01–TP04) were excavated using a 3t tracked excavator fitted with a 600mm wide bucket, to depths of 2.5m.

Environmental samples were taken at depths of 0.5, 1.5 and 2.5m in each trial pit.

Disturbed (small jar and bulk bag) samples were taken at standard depth intervals and at change of strata.

Any water strikes encountered during excavation were recorded along with any changes in their levels as the excavation proceeded. The stability of the trial pit walls was noted on completion.

Appendix C presents the trial pit logs with photographs of the pits and arising provided in Appendix D.

4.5 Surveying

The as-built exploratory hole positions were surveyed following completion of site operations by a Site Engineer from Causeway Geotech. Surveying was carried out using a Trimble R6 GPS system employing VRS and real time kinetic (RTK) techniques.

The plan coordinates (Irish National Grid) and ground elevation (mOD Malin) at each location are recorded on the individual exploratory hole logs. The exploratory hole plan presented in Appendix A shows these as-built positions.

4.6 Groundwater monitoring

Following completion of site works, groundwater monitoring was conducted on four rounds. Ground water monitoring was carried out using a water interface probe.

Table 1 Groundwater monitoring results

GI Ref	BH01	BH04	BH07	BH08
31/08/2018	Dry	1.27	0.67	3.21
07/09/2018	Dry	1.23	1.4	3.25
18/09/2018	1.39	1.19	0.56	3.2
28/09/2018	0.9	1.15	0.7	3.2

5 LABORATORY WORK

Upon their receipt in the laboratory, all disturbed samples were carefully examined and accurately described, and their descriptions incorporated into the borehole logs.

5.1 Geotechnical laboratory testing of soils

Laboratory testing of soils comprised:

- **soil classification:** moisture content measurement, Atterberg Limit tests and particle size distribution analysis.

- **soil chemistry:** pH and water soluble sulphate content

Laboratory testing of soils samples was carried out in accordance with British Standards Institute: *BS 1377, Methods of test for soils for civil engineering purposes; Part 1 (2016), and Parts 2-9 (1990).*

The test results are presented in Appendix E.

5.2 Environmental laboratory testing of soils

Environmental testing was conducted on selected environmental soil samples by Chemtest at its laboratory in Newmarket, Suffolk.

Testing was carried out for a range of determinants, including:

- Metals
- Speciated total petroleum hydrocarbons (TPH)
- Speciated polycyclic aromatic hydrocarbons (PAH)
- Cyanides
- Asbestos screen
- pH.

Results of environmental laboratory testing are presented in Appendix F and a Waste Classification Report compiled by an external environmental consultant, which analyses these environmental laboratory results, is presented in Appendix G.

6 GROUND CONDITIONS

6.1 General geology of the area

Published geological mapping indicate the superficial deposits underlying the site comprise Glacial Till. These deposits are underlain by limestones and shales of Malahide Formation.

6.2 Ground types encountered during investigation of the site

A summary of the ground types encountered in the exploratory holes is listed below, in approximate stratigraphic order:

- **Paved surface:** BH01-02 encountered 50-60mm of macadam surfacing. In addition, BH06-BH08 encountered 200mm of concrete surfacing.
- **Topsoil:** encountered with a thickness range of 100 - 400mm thickness across the site.
- **Made Ground (sub-base):** approximately 350-600mm of aggregate fill beneath the paved surface in BH02 and BH07.
- **Made Ground (fill):** reworked sandy gravelly clay/silt or clayey sandy gravel fill with fragments of concrete and brick extending to a depth of 3.0m in BH03.
- **Recent deposits (alluvium):** Very soft sandy silt encountered in BH03 adjacent to the river to a depth of 3.7m.
- **Glacial Till:** sandy gravelly clay, frequently with low cobble content, typically firm or stiff in upper horizons, becoming very stiff with increasing depth.

6.3 Groundwater

Groundwater was encountered during percussion boring and as seepage in trial pits at levels as shown in Table 1 below:

Table 2 Groundwater strikes encountered during ground investigation

GI Ref	Water Strike Level (mbgl)	Comments
TP03	1.3	Seepage
TP03	1.4	Fast Flow
BH03	3.4	Rose to 3.2 after 20 mins
BH07	1.5	Rose to 0.9m after 20 mins

Details of the individual groundwater strikes, along with any relative changes in levels as works proceeded, are presented on the exploratory hole logs for each location.

Groundwater was not noted during drilling at any of the other borehole locations. However, it should be noted that the casing used in supporting the borehole walls during drilling may have sealed out any/additional groundwater strikes and the possibility of encountering groundwater during excavation works should not be ruled out. Seasonal variation in groundwater levels should also be factored into design considerations.

Continued monitoring of the four installed standpipes will give an indication of the seasonal variation in groundwater level.

7 DISCUSSION

7.1 Proposed construction

It is proposed to construct a new residential development.

No further details were available to Causeway Geotech at the time of preparing this report and any designs based on the recommendations or conclusions within this report should be completed in accordance with the current design codes, taking into account the variation and the specific details contained within the exploratory holes. Causeway Geotech were commissioned to provide a geotechnical report, and it is outwith our remit to advise on structure design.

7.2 Recommendations for construction

7.2.1 Summary

Based on the presence of stiff glacial till at relatively shallow depths across the footprint of the proposed building, the implementation of traditional shallow (spread) foundations (strip/pad and trench fill) are considered suitable for the majority of the site.

However, the ground conditions in the north section of the site consisting of soft made ground used to build up ground levels adjacent to the stream, coupled with the relatively shallow groundwater table will render the implementation of any shallow (spread) foundations problematic. It follows that the most practicable solution for installing safe working foundations in these areas of the site will be by a “deep” foundation method, such as piling to transfer loadings to depth.

It is recommended that Geobor-S drilling be undertaken on site to obtain representative Class 1 samples to undertake testing which will aid in the detailed design of foundations. Should piling be adopted as the preferred foundation type, it is highly recommended that further ground investigation works involving rotary drilling be undertaken to determine depth to bedrock across the site.

7.2.2 Soil strength parameters

When estimating the shear strength of fine soils (silt/clay), reference is made to the results of Standard Penetration Tests (SPT's) carried out within the boreholes. The undrained shear strength of fine soils can be estimated using the correlation developed by Stroud & Butler:

$$C_u = f_1 \times N$$

where f_1 is typically in the range 4 to 6. A median f_1 value of 5 is adopted for this report.

For granular soils (sand/gravel), a graphical relationship between SPT "N" value and angle of shearing resistance, φ, has been developed by Peck, Hanson and Thorburn. This is published in *Foundation Design and Construction* (Tomlinson, 2001) and is referenced in this report when deriving angles of shearing resistance for the gravel soils.

7.2.3 Bearing resistance

The ultimate bearing resistance for conventional strip or pad foundations can be obtained from Brinch Hansen's general equation:

$$q_n = cN_c s_c d_c l_c b_c + p_o N_q s_q d_q l_q b_q + \frac{1}{2}\gamma B N_\gamma s_\gamma d_\gamma l_\gamma b_\gamma$$

(Equation 1)

where:

q_n = ultimate bearing resistance
c = undrained cohesion of soil
B = foundation width
p_o = effective overburden pressure at foundation level
Nc, Nq, Nγ = bearing capacity factors
s_c, s_q, s_γ = shape factors
d_c, d_q, d_γ = depth factors
l_c, l_q, l_γ = load inclination factors
b_c, b_q, b_γ = base inclination factors

For conventional strip and pad foundations constructed on fine soils, the general equation has been simplified by Terzaghi to:

Net ultimate bearing resistance = cN_c

(Equation 2)

where:

c = undrained cohesion

N_c = bearing capacity factor

For cohesionless soils (sand/gravel, c=0), the calculation of ultimate bearing resistance is generally required only for loose sands. This is because coarser gravel soils would not be expected to suffer a bearing capacity failure. However, limits are placed on the allowable bearing resistance in order to control settlement. For shallow conventional pad foundations on granular soils, Terzaghi's simplified equation can be used as follows:

$$q_n = p_o(N_q-1) + 0.4BN + p$$

(Equation 3)

where:

p = total overburden pressure

It is obvious from the equations 1 to 3 that some knowledge of the foundation width and depth is required before the ultimate bearing resistance can be calculated.

Table 3 provides an indication of minimum founding depth at each borehole location. Also shown are approximate soil strengths based on the Stroud and Butler (1975) correlations with SPT N-values and visual examination of recovered samples of the clay deposits.

The table also suggests allowable bearing resistance using Equations 2 and 3 for cohesive and cohesionless soils respectively.

This table does not take into account the variations in soil composition, and the effects of differential movement within a particular structure. Calculation of the design bearing resistance over the entire structure will entail a knowledge of the magnitude and distribution of the structural actions.

7.2.4 Foundations and ground floor construction

Foundations should transfer loading to below any Made Ground or subsoil. The recommended foundation construction and allowable bearing pressure (ABP) at the borehole locations are presented in Table 3.

Table 3: Construction recommendations

Borehole	Depth below EGL* to suitable bearing stratum	Estimated ABP (kPa)	Strata description	Foundation type	Ground floor construction	Groundwater
BH01	2.0m	>250	Stiff Glacial Till	Strip & pad	Suspended	
BH02	2.0m	150	Stiff Glacial Till	Strip & pad	Suspended	
BH03	3.9m**	>250	Stiff Glacial Till	Piled	Suspended	Strike at 3.4m rose to 3.2m
BH04	3.0m	>250	Stiff Glacial Till	Trench Fill	Suspended	
BH05	2.0m	225	Stiff Glacial Till	Strip & pad	Suspended	
BH06	3.0m	150	Stiff Glacial Till	Trench Fill	Suspended	
BH07	2.0m	>250	Stiff Glacial Till	Strip & pad	Suspended	Strike at 1.5m rose to 0.9m
BH08	3.4m	>250	Stiff Glacial Till	Piled	Suspended	

*Existing Ground Level
**BH03 was undertaken on top of an embankment ~1.5m high

Based on the findings of the site investigation, spread foundations (strip/pad and trench fill) are considered suitable with estimated allowable bearing pressures between 150kPa and >250kPa at depths between 2.0 and 3.0m on stiff glacial till. However, in the north of the site deep foundations are considered suitable with ABP's of >250kpa at depths of 3.4m to 3.9m. It is recommended that rotary drilling is undertaken to prove bedrock across the footprint of the proposed store.

The base of foundation excavations should be thoroughly inspected; any soft soils should be removed with the resultant void backfilled with ST1 concrete. A consistent bearing stratum should be provided for any building unit to limit differential settlements.

Given the generally fine grained/cohesive nature of the soils throughout the proposed formation levels, excavations for foundations are likely to be relatively stable. However, any instability can be minimised by battering the side slopes at 2 vertical to 1 horizontal and by limiting the duration that the excavation is open. Groundwater control, where required, will be possible by pumping from sumps formed in the base of excavations.
The practicable alternative foundation solutions are:

Piling to transfer loadings to depth.

Piling to transfer loadings to depth is suggested to be the most practicable and applicable option given the variation in depth to a consistent bearing stratum across the northern section of the site, coupled with the relatively shallow water table which would be problematic for any open trench shallow foundation systems.

Driven piles are the preferred pile type – of precast concrete or steel/ductile iron. The piles should be driven to a predetermined set – each pile will, therefore, be effectively proof tested by the installation method.

If the surrounding land use precludes the use of hard drive piles, due to environmental restrictions with respect to noise and vibration, low vibration driven piles, continuous flight auger (CFA) or continuous helical displacement (CHD) piles will be required.

Piles will acquire capacity from shaft friction through the alluvial and glacial deposits, and end bearing on the weathered igneous bedrock.

Where site levels are to be raised, piles should be designed to resist additional loading that will arise due to negative skin friction along the pile length passing through Made Ground and soft soils.

The detailed design of piles should be undertaken in conjunction with specialist piling contractors. Their proposals should include the means to verify that the required load capacity has been achieved: for example, dynamic pile tests and/or static load tests.

Where pile foundation solution is adopted, floor slabs should be supported by ground beams spanning between piles caps supported by piles.

7.2.5 Basement excavation/retaining walls

Basement excavation will require some system of retaining walls in order to allow the top down construction of the basement. Generally speaking excavations in stiff to very stiff glacial till (Dublin Boulder Clay) can stay open unsupported at high angles, however the presence of water strikes encountered in the trial pits indicate the presence of water bearing granular pockets within the glacial till, which will need to be cut off prior to excavation.

It is suggested that a piled wall may be the most practical construction method for basement excavation, as it will also provide a hydraulic cut-off. Given the proximity of nearby residences, with respect to noise and vibration a driven sheet pile wall may prove problematic. In such a case low vibration driven piles, continuous flight auger (CFA) or continuous helical displacement (CHD) piles will be required.

7.2.6 Floor slabs

Floor slabs should not bear directly onto Made Ground or soft soils. Therefore, the use of ground bearing floor slabs is only appropriate following the removal of any surface Made Ground and soft clay layers and their replacement using well-graded well-compacted granular fill. However, a suspended floor slab should be adopted where the difference in levels of the proposed floor and the base of Made Ground/soft soils is greater than 600mm.

Therefore, given the depth to the base of Made Ground and relative low strength of upper soil layers, a suspended floor slab may be required over parts of the site. The use of intermediate lines of support stub walls would reduce the spans required for flooring units.

7.2.7 Excavations for services

For the installation of services ducts/trenches, it is suggested that open trenching will be the most practicable construction method. Generally speaking, the ground conditions should render the use of open trenching by backhoe excavator possible, with some trench support required for the uppermost made ground if left in-situ.

Where working in open trenches, it is thought that trench support systems, by way of a trench box (or possibly sheet piles), will be required to maintain trench stability and safe working conditions. Groundwater control at these locations should be possible by means of sump pumping.

To preclude the eventuality of differential settlements in pipes, they should be laid on a consistent stratum of appropriate allowable bearing capacity and protected with appropriate fill cover.

Where ducts and chambers must be installed in areas where localised soft spots are encountered, the use of geogrid reinforcement along the base of the very soft/soft soil (e.g. peat) below the trench base is recommended. This will stiffen the base of the trench and help control longitudinal differential settlement.

Backfilling of trenches may be completed by using compacted Cl 804 granular fill and reinstated as appropriate.

7.2.8 Soil aggressivity

An assessment of the Aggressive Chemical Environment for Concrete (ACEC) was undertaken through reference to the Building Research Establishment (BRE) Special Digest 1 (2017).

As noted by BRE Special Digest 1, sulphates in the soil and groundwater are the chemical agents most likely to attack concrete. The extent to which sulphates affect concrete is linked to their concentrations, the type of ground, the presence of groundwater, the type of concrete and the form of construction in which concrete is used.

BRE Special Digest 1 identifies four different categories of site which require specific procedures for investigation for aggressive ground conditions:

- Sites not subjected to previous industrial development and not perceived as containing pyrite;
- Sites not subjected to previous industrial development and perceived as containing pyrite;
- Brownfield sites not perceived as containing pyrite;
- Brownfield sites perceived as containing pyrite.

For the purposes of this report the site was classified as having been subject to previous industrial development and not perceived as containing pyrite.

The results of chemical tests (pH and water soluble sulphate contents) on soil samples indicate Design Sulphate Class DS-1 and ACEC Class AC-1 – reference Table C1 of BRE Special Digest 1 (Building Research Establishment, 2005). The Special Digest does not require any measures to protect underground concrete elements greater that 140mm thick.

8 REFERENCES

Geotechnical Society of Ireland (2016), Specification & Related Documents for Ground Investigation in Ireland

IS EN 1997-2: 2007: Eurocode 7 - Geotechnical design - Part 2 Ground investigation and testing.

BS 1377: 1990: Methods of test for soils for civil engineering purposes. British Standards Institution.

BS 5930: 2015: Code of practice for ground investigations. British Standards Institution.

BS EN 1997-2: 2007: Eurocode 7 - Geotechnical design - Part 2 Ground investigation and testing. British Standards Institution.

BS EN ISO 14688-1:2018: Geotechnical investigation and testing. Identification and classification of soil. Part 1 Identification and description.

BS EN ISO 14688-2:2018: Geotechnical investigation and testing. Identification and classification of soil. Part 2 Principles for a classification.

BS EN ISO 22476-3:2005+A1:2011: Geotechnical investigation and testing. Field testing. Standard penetration test.

Building Research Establishment (2005) BRE Special Digest 1, Concrete in aggressive ground.

CAUSEWAY GEOTECH

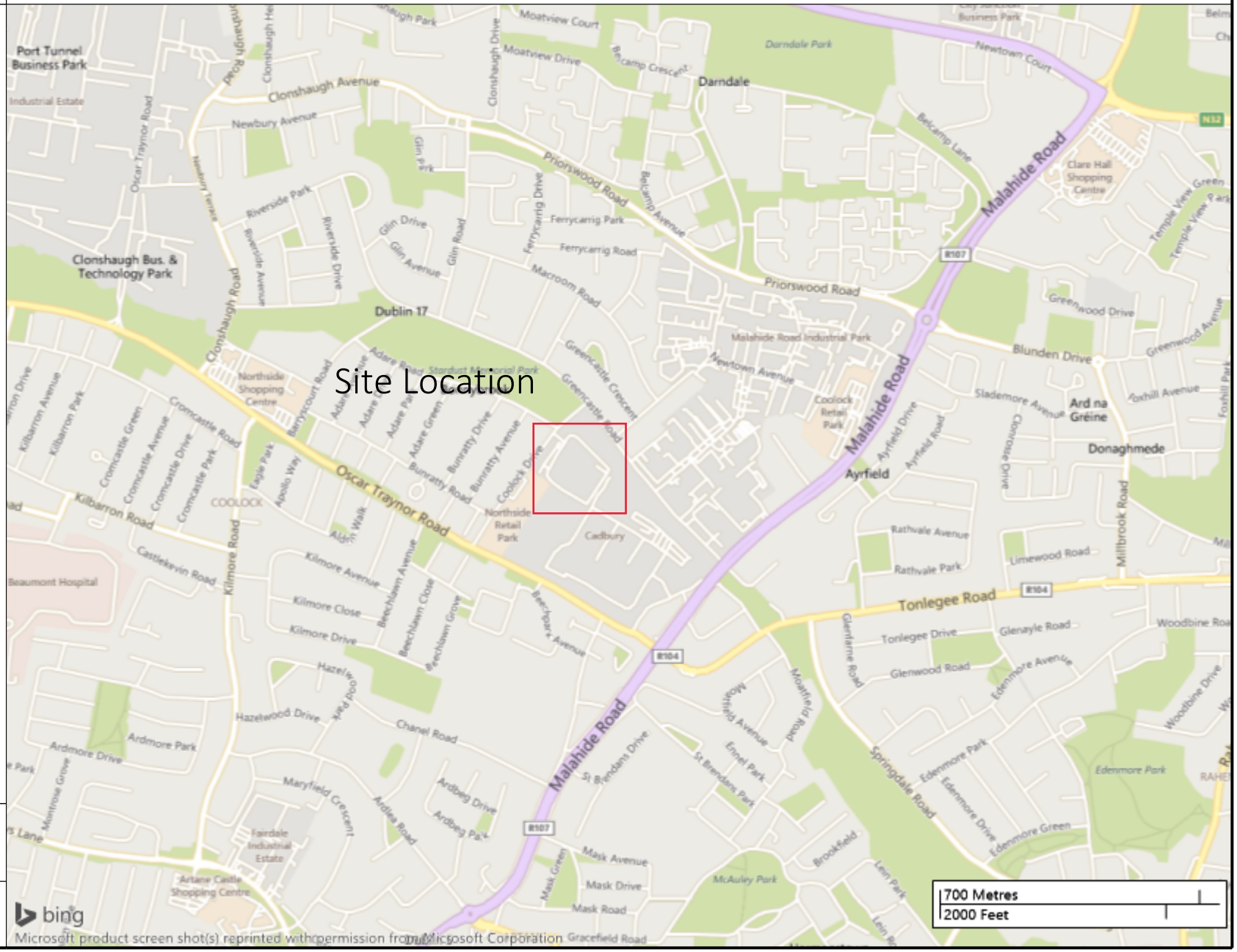
APPENDIX A

SITE AND EXPLORATORY HOLE LOCATION PLANS

CAUSEWAY GEOTECH

Project No.:	18-0767	**Client:**	Platinum Land Limited
Project Name:	Chivers Site, Dublin 17	**Client's Representative:**	Cora Consulting Engineers

Legend Key



Title:
Site Location Plan

Last Revised:	**Scale:**
29/08/2018	1:15000

CAUSEWAY GEOTECH

Project No.:	18-0767	**Client:**	Platinum Land Limited
Project Name:	Chivers Site, Dublin 17	**Client's Representative:**	Cora Consulting Engineers

Legend Key

- Locations By Type - CP
- Locations By Type - TP

Title:
Exploratory Hole Location Plan

Last Revised:	**Scale:**
03/10/2018	1:1500

CAUSEWAY GEOTECH

APPENDIX B

BOREHOLE LOGS

CAUSEWAY GEOTECH

Method	Plant Used	Top	Base
Light Percussion	Dando Terrier	0.00	2.45

Project No.: 18-0767

Project Name: Chivers Site, Dublin 17

Borehole No.: BH01

Coordinates: 319628.60 E, 239658.56 N

Client: Platinum Land Limited

Sheet 1 of 1

Client's Representative: Cora Consulting Engineers

Scale: 1:50

Ground Level: 34.87 mOD

Dates: 27/08/2018 - 27/08/2018

Driller: PL

Logger: SR

Depth (m)	Sample / Tests	Casing Depth (m)	Water Depth (m)	Field Records	Level (mOD)	Depth (m) (Thickness)	Legend	Description
0.06 - 0.40	B3				34.81	0.06 (0.34)		BITMAC
0.40 - 1.00	B4				34.47	0.40		MADE GROUND: Firm grey slightly sandy gravelly CLAY with low cobble content. Sand is fine to coarse. Gravel is subangular fine to medium. Cobbles are subangular, of mixed lithologies and a range of sizes.
0.50	ES1					(0.60)		
1.00 - 2.00	B5				33.87	1.00		MADE GROUND: Firm orangish brown slightly gravelly sandy CLAY with low cobble content. Sand is fine to coarse. Gravel is subangular fine to medium. Cobbles are subangular, of mixed lithologies and a range of sizes.
1.20 - 1.65	U6			Ublow=100 50%				Stiff black slightly sandy slightly gravelly CLAY with low cobble content. Sand is fine to coarse. Gravel is subangular fine to medium. Cobbles are subangular, of mixed lithologies and a range of sizes.
1.20 - 1.64	SPT (S)			N=50 (9,12/50 for 295mm)		(1.00)		
1.50	ES2							
					32.87	2.00		End of Borehole at 2.00m

Water: Backfill

Remarks
No groundwater encountered

Terminated in very stiff deposits.

Water Strikes				Chiselling Details		
Struck at (m)	Casing to (m)	Time (min)	Rose to (m)	From (m)	To (m)	Time (hh:mm)

Water Added		Casing Details	
From (m)	To (m)	To (m)	Diam (mm)

CAUSEWAY GEOTECH

Method	Plant Used	Top	Base
Light Percussion	Dando Terrier	0.00	3.43

Project No.: 18-0767

Project Name: Chivers Site, Dublin 17

Borehole No.: BH02

Coordinates: 319663.66 E, 239716.92 N

Client: Platinum Land Limited

Sheet 1 of 1

Client's Representative: Cora Consulting Engineers

Scale: 1:50

Ground Level: 34.07 mOD

Dates: 21/08/2018 - 21/08/2018

Driller: JL

Logger: SR

Depth (m)	Sample / Tests	Casing Depth (m)	Water Depth (m)	Field Records	Level (mOD)	Depth (m) (Thickness)	Legend	Description	Water	Backfill
					34.02	(0.05)		BITMAC		
						(0.35)		MADE GROUND: Grey angular fine to coarse GRAVEL		
0.40 - 0.60	ES3				33.67	0.40		MADE GROUND: Firm orangish brown slightly sandy slightly gravelly CLAY with low cobble content. Sand is fine to coarse. Gravel is subrounded fine to medium. Cobbles are subrounded, of mixed lithologies and a range of sizes.		
0.40 - 1.00	B6					(0.60)				
1.00 - 2.00	B7				33.07	1.00		MADE GROUND: Firm yellow slightly sandy slightly gravelly CLAY with medium cobble content. Sand is fine to coarse. Gravel is subrounded fine. Cobbles are subrounded, of mixed lithologies and a range of sizes.		
1.20 - 1.65	D1									
	SPT (S) N=14	0.00	Dry	N=14 (4,4/3,3,4,4)		(1.00)				
1.40 - 1.60	ES4									
2.00 - 3.00	B8				32.07	2.00		Stiff to very stiff greyish brown slightly sandy slightly gravelly CLAY with low cobble content. Sand is fine to coarse. Gravel is subangular fine to medium. Cobbles are subrounded, of mixed lithologies and a range of sizes.		
2.00 - 2.45	SPT (S) N=18	0.00	Dry	N=18 (2,3/4,4,5,5)						
2.40 - 2.60	ES5									
						(1.43)				
3.00 - 3.43	D2									
	SPT (S)	0.00	Dry	N=50 (4,11/50 for 280mm)						
		0.00	Dry	21-08-2018	30.64	3.43		End of Borehole at 3.43m		

Remarks

No groundwater encountered

Terminated in very stiff deposits.

Water Strikes

Struck at (m)	Casing to (m)	Time (min)	Rose to (m)

Water Added

From (m)	To (m)

Casing Details

To (m)	Diam (mm)

Chiselling Details

From (m)	To (m)	Time (hh:mm)

CAUSEWAY GEOTECH

Method	Plant Used	Top	Base
Light Percussion	Dando Terrier	0.00	3.90

Project No.: 18-0767

Project Name: Chivers Site, Dublin 17

Borehole No.: BH03

Coordinates: 319703.46 E, 239766.83 N

Client: Platinum Land Limited

Client's Representative: Cora Consulting Engineers

Ground Level: 34.30 mOD

Dates: 27/08/2018 - 27/08/2018

Sheet 1 of 1

Scale: 1:50

Driller: PL

Logger: SR

Depth (m)	Sample / Tests	Casing Depth (m)	Water Depth (m)	Field Records	Level (mOD)	Depth (m) (Thickness)	Legend	Description	Water	Backfill
						(0.40)		TOPSOIL		
0.40 - 1.00	B4				33.90	0.40		MADE GROUND: Firm locally stiff orangish brown mottled grey slightly gravelly sandy CLAY with low cobble content. Sand is fine to coarse. Gravel is subangular fine to medium. Cobbles are subangular, of mixed lithologies and a range of sizes.		
0.50	ES1					(0.60)				
1.00 - 2.00	B5				33.30	1.00		MADE GROUND: Very soft brownish grey slightly sandy slightly gravelly SILT with fragments of red brick and low cobble content. Sand is fine to coarse. Gravel is subrounded fine to medium. Cobbles are subrounded, of mixed lithologies and a range of sizes.		
1.20 - 1.65	U9			Ublow=35 50%						
1.50	ES2					(1.00)				
2.00 - 3.00	B6				32.30	2.00		Very soft brownish grey slightly gravelly sandy CLAY with low cobble content. Sand is fine to coarse. Gravel is subrounded fine to medium. Cobbles are subrounded, of mixed lithologies and a range of sizes.		
2.00 - 2.45	SPT (S) N=1			N=1 (1,0/0,0,1,0)						
2.50	ES3					(1.00)				
3.00 - 3.70	B7				31.30	3.00		Very soft greyish brown slightly gravelly sandy SILT with low cobble content. Sand is fine to coarse. Gravel is subangular fine to medium. Cobbles are subangular, of mixed lithologies and a range of sizes.	▼	
3.00 - 3.45	SPT (S) N=1			N=1 (0,0/0,1,0,0)					▽	
				Water Strike at 3.40m		(0.70)				
3.70 - 3.90	B8				30.60	3.70 (0.20)		Stiff brownish grey sandy gravelly CLAY with low cobble content. Sand is fine to coarse. Gravel is subangular fine to medium. Cobbles are subangular, of mixed lithologies and a range of sizes.		
3.90 - 4.35	SPT (S) N=50			N=50 (8,9/12,13,13,12)	30.40	3.90		End of Borehole at 3.90m		

Remarks

Terminated on very stiff material.

Water Strikes

Struck at (m)	Casing to (m)	Time (min)	Rose to (m)
3.40		10	3.20

Water Added

From (m)	To (m)

Casing Details

To (m)	Diam (mm)

Chiselling Details

From (m)	To (m)	Time (hh:mm)

CAUSEWAY GEOTECH

Method	Plant Used	Top	Base
Light Percussion	Dando Terrier	0.00	3.00

Project No.: 18-0767

Project Name: Chivers Site, Dublin 17

Borehole No.: BH04

Coordinates: 319670.64 E, 239634.39 N

Client: Platinum Land Limited

Sheet 1 of 1

Client's Representative: Cora Consulting Engineers

Scale: 1:50

Ground Level: 34.44 mOD

Dates: 27/08/2018 - 27/08/2018

Driller: PL

Logger: SR

Depth (m)	Sample / Tests	Casing Depth (m)	Water Depth (m)	Field Records	Level (mOD)	Depth (m) (Thickness)	Legend	Description
						(0.30)		TOPSOIL
0.30 - 1.00	B1				34.14	0.30		MADE GROUND: Firm orangish brown slightly gravelly sandy CLAY with low cobble content and fragments of concrete. Sand is fine to coarse. Gravel is subrounded fine to coarse. Cobbles are subangular, of mixed lithologies and a range of sizes.
0.50	ES4					(0.70)		
1.00 - 2.00	B2				33.44	1.00		MADE GROUND: Firm greyish brown mottled orange slightly gravelly sandy SILT with low cobble content. Sand is fine to coarse. Gravel is subangular fine to coarse. Cobbles are subangular, of mixed lithologies and a range of sizes.
1.20 - 1.65	SPT (S) N=8			N=8 (1,1/2,2,2,2)				
1.50	ES5					(1.00)		
2.00 - 2.45	U7			Ublow=69 50%	32.44	2.00		Stiff black slightly sandy slightly gravelly CLAY with low cobble content. Sand is fine to coarse. Gravel is subangular fine to medium. Cobbles are subangular, of mixed lithologies and a range of sizes.
2.00 - 3.00	B3							
2.50	ES6					(1.00)		
3.00 - 3.45	SPT (S) N=50			N=50 (10,11/12,12,13,13)	31.44	3.00		End of Borehole at 3.00m

Water	Backfill

Remarks

No groundwater encountered

Terminated on very stiff material.

Water Strikes				Chiselling Details		
Struck at (m)	Casing to (m)	Time (min)	Rose to (m)	From (m)	To (m)	Time (hh:mm)

Water Added		Casing Details	
From (m)	To (m)	To (m)	Diam (mm)

CAUSEWAY GEOTECH

Method	Plant Used	Top	Base
Light Percussion	Dando Terrier	0.00	3.85

Project No.: 18-0767

Project Name: Chivers Site, Dublin 17

Borehole No.: BH05

Coordinates: 319703.00 E 239691.61 N

Client: Platinum Land Limited

Sheet 1 of 1

Client's Representative: Cora Consulting Engineers

Scale: 1:50

Ground Level: 34.39 mOD

Dates: 21/08/2018 - 21/08/2018

Driller: JL

Logger: SR

Depth (m)	Sample / Tests	Casing Depth (m)	Water Depth (m)	Field Records	Level (mOD)	Depth (m) (Thickness)	Legend	Description	Water	Backfill
						(0.30)		TOPSOIL		
0.30 - 1.10	B5				34.09	0.30		MADE GROUND: Firm to stiff orangish brown slightly sandy slightly gravelly CLAY with low cobble content. Sand is fine to coarse. Gravel is subangular to subrounded fine to coarse. Cobbles are subrounded.		
0.40 - 0.60	ES8					(0.80)				
1.10 - 2.00	B6				33.29	1.10		Firm dark greyish brown slightly gravelly sandy CLAY with low cobble content. Sand is fine to coarse. Gravel is subrounded fine to medium. Cobbles are subrounded, of mixed lithologies and a range of sizes.		
1.20 - 1.65	D1									
	SPT (S) N=13	0.00	Dry	N=13 (3,4/3,3,3,4)		(0.90)				
1.40 - 1.60	ES9									
2.00 - 2.45	D2				32.39	2.00		Stiff becoming very stiff orangish brown slightly sandy slightly gravelly CLAY with low cobble content. Sand is fine to coarse. Gravel is subrounded fine to medium. Cobbles are subrounded, of mixed lithologies and a range of sizes.		
2.00 - 3.00	B7									
2.00 - 2.45	SPT (S) N=25	0.00	Dry	N=25 (7,14/9,6,5,5)						
2.40 - 2.60	B10									
3.00 - 3.45	D3					(1.85)				
	SPT (S)	0.00	Dry	N=29 (2,4/5,6,7,11)						
	N=29	0.00	Dry	21-08-2018						
3.45 - 3.84	D4									
	SPT (S)	0.00	Dry	N=50 (11,13/50 for 240mm)						
					30.54	3.85		End of Borehole at 3.85m		

Remarks

No groundwater encountered

Terminated in very stiff deposits.

Water Strikes				Chiselling Details		
Struck at (m)	Casing to (m)	Time (min)	Rose to (m)	From (m)	To (m)	Time (hh:mm)

Water Added		Casing Details	
From (m)	To (m)	To (m)	Diam (mm)

CAUSEWAY GEOTECH

Project No.:	Project Name:	Borehole No.:
18-0767	Chivers Site, Dublin 17	BH06
Coordinates: 319765.00 E 239709.38 N	**Client:** Platinum Land Limited	Sheet 1 of 1
	Client's Representative: Cora Consulting Engineers	**Scale:** 1:50
Ground Level: 33.86 mOD	**Dates:** 21/08/2018 - 21/08/2018	**Driller:** JL
		Logger: SR

Method	Plant Used	Top	Base
Light Percussion	Dando Terrier	0.00	4.75

Depth (m)	Sample / Tests	Casing Depth (m)	Water Depth (m)	Field Records	Level (mOD)	Depth (m) (Thickness)	Legend	Description	Water	Backfill
						(0.20)		CONCRETE		
0.20 - 1.00	B5				33.66	0.20		MADE GROUND: Firm to stiff dark brownish grey slightly sandy slightly gravelly CLAY with low cobble content. Sand is fine to coarse. Gravel is subrounded fine to medium. Cobbles are subrounded, of mixed lithologies and a range of sizes.		
0.40 - 0.60	ES2					(0.80)				
1.00 - 2.00	B6				32.86	1.00		MADE GROUND: Stiff dark brown slightly sandy slightly gravelly CLAY with low cobble content. Sand is fine to coarse. Gravel is subangular to subrounded fine to coarse. Cobbles are subrounded, of mixed lithologies and a range of sizes.		
1.20 - 1.65	SPT (C) N=30	0.00	Dry	N=30 (4,6/8,8,7,7)						
1.40 - 1.60	ES3					(1.00)				
2.00 - 2.45	D1				31.86	2.00		MADE GROUND: Firm brown slightly sandy slightly gravelly CLAY with low cobble content. Sand is fine to coarse. Gravel is subangular to subrounded fine to medium. Cobbles are subrounded, of mixed lithologies and a range of sizes.		
2.00 - 2.50	B7									
2.00 - 2.45	SPT (S) N=11	0.00	Dry	N=11 (1,3/3,3,2,3)		(0.50)				
2.40 - 2.60	ES4				31.36	2.50		Firm greenish grey slightly gravelly sandy CLAY with low cobble content. Sand is fine to coarse. Gravel is subrounded fine. Cobbles are subrounded, of mixed lithologies and a range of sizes.		
2.50 - 3.00	B8					(0.50)				
3.00 - 4.00	B9				30.86	3.00		Stiff becoming very stiff slightly sandy slightly gravelly CLAY with low cobble content. Sand is fine to coarse. Gravel is subrounded fine to medium. Cobbles are subrounded, of mixed lithologies and a range of sizes.		
3.00 - 3.45	SPT (C) N=16	1.00	Dry	N=16 (4,3/4,3,4,5)						
						(1.75)				
4.00 - 4.45	SPT (C) N=34	1.00 1.00	3.80 3.30	N=34 (4,6/7,8,8,11) 21-08-2018						
4.45 - 4.76	SPT (C)	1.00	3.80	N=50 (25 for 130mm/50 for 175mm)	29.11	4.75		End of Borehole at 4.75m		

Remarks
No groundwater encountered

Terminated in very stiff deposits.

Water Strikes				Chiselling Details		
Struck at (m)	Casing to (m)	Time (min)	Rose to (m)	From (m)	To (m)	Time (hh:mm)

Water Added		Casing Details	
From (m)	To (m)	To (m)	Diam (mm)

CAUSEWAY GEOTECH

Method	Plant Used	Top	Base
Light Percussion	Dando Terrier	0.00	2.65

Project No.: 18-0767

Project Name: Chivers Site, Dublin 17

Borehole No.: BH07

Coordinates: 319742.96 E, 239576.05 N

Client: Platinum Land Limited

Client's Representative: Cora Consulting Engineers

Ground Level: 33.64 mOD

Dates: 27/08/2018 - 27/08/2018

Sheet 1 of 1

Scale: 1:50

Driller: PL

Logger: SR

Depth (m)	Sample / Tests	Casing Depth (m)	Water Depth (m)	Field Records	Level (mOD)	Depth (m) (Thickness)	Legend	Description
						(0.20)		CONCRETE
0.20 - 0.80	B4				33.44	0.20		MADE GROUND: Brownish grey slightly sandy slightly clayey subangular fine to coarse GRAVEL with low cobble content. Sand is fine to coarse. Cobbles are subangular, of mixed lithologies and a range of sizes.
0.50	ES1					(0.60)		
0.80 - 1.20	B5				32.84	0.80		MADE GROUND: Soft to firm orangish brown slightly sandy slightly gravelly CLAY with low cobble content. Sand is fine to coarse. Gravel is subrounded fine to medium. Cobbles are subangular, of mixed lithologies and a range of sizes.
						(0.40)		
1.20 - 2.00	B6				32.44	1.20		
1.20 - 1.65	SPT (S) N=16			N=16 (3,6/3,3,4,6)				Stiff brownish black slightly sandy slightly gravelly CLAY with low cobble content. Sand is fine to coarse. Gravel is subangular fine to medium. Cobbles are subangular, of mixed lithologies and a range of sizes.
1.50	ES2			Water Strike at 1.50m		(0.80)		
2.00 - 2.65	B7				31.64	2.00		Stiff black slightly sandy slightly gravelly CLAY with low cobble content. Sand is fine to coarse. Gravel is subangular fine to medium. Cobbles are subangular, of mixed lithologies and a range of sizes.
2.00 - 2.45	SPT (S) N=33			N=33 (5,5/7,7,8,11)		(0.65)		
2.50	ES3							
2.65 - 3.04	SPT (S)			N=50 (10,12/50 for 245mm)	30.99	2.65		End of Borehole at 2.65m

Water

Backfill

Remarks

Terminated on very stiff material.

Water Strikes

Struck at (m)	Casing to (m)	Time (min)	Rose to (m)
1.50		10	0.90

Water Added

From (m)	To (m)

Casing Details

To (m)	Diam (mm)

Chiselling Details

From (m)	To (m)	Time (hh:mm)

CAUSEWAY GEOTECH

Method	Plant Used	Top	Base
Light Percussion	Dando Terrier	0.00	4.45

Project No.: 18-0767

Project Name: Chivers Site, Dublin 17

Borehole No.: BH08

Coordinates: 319812.49 E, 239673.44 N

Client: Platinum Land Limited

Sheet 1 of 1

Client's Representative: Cora Consulting Engineers

Scale: 1:50

Ground Level: 33.71 mOD

Dates: 21/08/2018 - 21/08/2018

Driller: JL

Logger: SR

Depth (m)	Sample / Tests	Casing Depth (m)	Water Depth (m)	Field Records	Level (mOD)	Depth (m) (Thickness)	Legend	Description
						(0.20)		CONCRETE
0.20 - 1.00	B6				33.51	0.20		MADE GROUND: Firm locally stiff brownish grey slightly sandy gravelly CLAY with low cobble content. Sand is fine to coarse. Gravel is subangular to subrounded fine to medium. Cobbles are subrounded, of mixed lithologies and a range of sizes.
0.40 - 0.60	ES3					(0.80)		
1.00 - 2.00	B7				32.71	1.00		MADE GROUND: Stiff orangish brown slightly sandy gravelly CLAY with low cobble content. Sand is fine to coarse. Gravel is subangular to subrounded fine to medium. Cobbles are subrounded, of mixed lithologies and a range of sizes.
1.20 - 1.65	SPT (C) N=17	1.00	Dry	N=17 (2,3/4,4,4,5)				
1.40 - 1.60	ES4					(1.20)		
2.00 - 2.45	SPT (C) N=8	1.00	Dry	N=8 (2,2/2,2,2,2)				
2.20 - 3.00	B8				31.51	2.20		Firm greenish grey slightly gravelly sandy CLAY with low cobble content. Sand is fine to coarse. Gravel is subrounded fine to coarse. Cobbles are subrounded, of mixed lithologies and a range of sizes.
2.40 - 2.60	ES5					(1.20)		
3.00 - 3.45	D1							
	SPT (S) N=10	1.00	Dry	N=10 (3,2/2,2,3,3)				
3.40 - 4.00	B9				30.31	3.40		Very stiff brown slightly sandy slightly gravelly CLAY with low cobble content. Sand is fine to coarse. Gravel is subangular fine to medium. Cobbles are subrounded, of mixed lithologies and a range of sizes.
4.00 - 4.45	D2					(1.05)		
	SPT (S) N=50	1.00	Dry	N=50 (4,5/9,11,13,17)				
					29.26	4.45		End of Borehole at 4.45m

Water: Backfill

Remarks

No groundwater encountered

Terminated in very stiff deposits.

Water Strikes				Chiselling Details		
Struck at (m)	Casing to (m)	Time (min)	Rose to (m)	From (m)	To (m)	Time (hh:mm)

Water Added		Casing Details	
From (m)	To (m)	To (m)	Diam (mm)

CAUSEWAY GEOTECH

APPENDIX C

TRIAL PIT LOGS

CAUSEWAY GEOTECH

Project No.: 18-0767	**Project Name:** Chivers Site, Dublin 17		**Trial Pit No.:** TP01
Co-ordinates: 319683.02 E	**Client:** Platinum Land Limited		Sheet 1 of 1
Method: Trial Pitting	239699.16 N	**Client's Representative:** Cora Consulting Engineers	**Scale:** 1:25
Plant: 3.5T Tracked Excavator	**Ground Level:** 34.64 mOD	**Date:** 22/08/2018	**Logger:** GH

Depth (m)	Sample / Tests	Field Records	Level (mOD)	Depth (m) (Thickness)	Legend	Description	Water
			34.54	(0.10) 0.10		TOPSOIL	
0.50	B1			(0.65)		MADE GROUND: Grey slightly sandy silty angular fine to coarse GRAVEL with medium cobble content Sand is fine to coarse. Cobbles are angular. Cobbles are subangular, of mixed lithologies and a range of sizes.	
0.50	D2						
0.50	ES3						
			33.89	0.75			
0.80	B4					MADE GROUND: Firm brown slightly sandy slightly gravelly CLAY with low cobble content. Sand is fine to coarse. Gravel is subrounded fine to coarse predominately of limestone. Cobbles are subrounded, of mixed lithologies and a range of sizes.	
0.80	D5			(0.50)			
			33.39	1.25			
1.30	B6					MADE GROUND: Firm becoming stiff bluish grey slightly sandy slightly gravelly CLAY with fragments of red brick. Sand is fine to coarse. Gravel is subangular fine to coarse.	
1.30	B7						
1.50	ES8			(1.25)			
2.30	B9						
2.30	D10						
2.50	ES11	Seepage at 2.50m	32.14	2.50		End of trial pit at 2.50m	▼

Remarks

Terminated due to maximum reach of excavator

Water Strikes:

Struck at (m):	Remarks:
2.50	Seepage at 2.50m

Stability: Stable

Width: 0.70

Length: 3.10

CAUSEWAY GEOTECH

Project No.: 18-0767	**Project Name:** Chivers Site, Dublin 17		**Trial Pit No.:** TP02
Co-ordinates: 319740.53 E	**Client:** Platinum Land Limited		Sheet 1 of 1
Method: Trial Pitting	239749.21 N	**Client's Representative:** Cora Consulting Engineers	**Scale:** 1:25
Plant: 3.5T Tracked Excavator	**Ground Level:** 34.14 mOD	**Date:** 22/08/2018	**Logger:** GH

Depth (m)	Sample / Tests	Field Records	Level (mOD)	Depth (m) (Thickness)	Legend	Description	Water
				(0.15)		TOPSOIL	
			33.99	0.15		MADE GROUND: Light brownish beige slightly sandy slightly silty angular fine to coarse GRAVEL with low cobble content and fragments of plastic and red brick. Sand is fine to coarse. Cobbles are subrounded, of mixed lithologies and a range of sizes.	
0.50	B1			(0.60)			
0.50	D2						
0.50	ES3						
			33.39	0.75		MADE GROUND: Soft locally firm light brown slightly sandy slightly gravelly SILT with medium cobble content. Sand is fine to coarse. Gravel is subangular fine to coarse. Cobbles are subangular, of mixed lithologies and a range of sizes.	
0.80	B4						
0.80	D5			(0.25)			
			33.14	1.00		MADE GROUND: Firm brown slightly sandy slightly gravelly CLAY with low cobble content. Sand is fine to coarse. Gravel is subangular fine to coarse. Cobbles are subrounded, of mixed lithologies and a range of sizes.	
1.10	B7						
1.10	D8			(0.60)			
1.50	ES6						
			32.54	1.60		MADE GROUND: Firm brown slightly sandy slightly gravelly CLAY with low cobble content. Sand is fine to coarse. Gravel is subangular fine to coarse. Cobbles are subrounded, of mixed lithologies and a range of sizes.	
1.80	B9						
1.80	D10			(0.70)			
			31.84	2.30		End of trial pit at 2.30m	

0.5 1.0 1.5 2.0 2.5 3.0 3.5 4.0 4.5

Remarks
No groundwater encountered

Terminated due to services

Water Strikes:	
Struck at (m):	Remarks:

Stability: Stable

Width: 0.70

Length: 3.50

CAUSEWAY GEOTECH

Project No.: 18-0767	**Project Name:** Chivers Site, Dublin 17		**Trial Pit No.:** TP03
Co-ordinates: 319675.35 E	**Client:** Platinum Land Limited		Sheet 1 of 1
Method: Trial Pitting	239626.77 N	**Client's Representative:** Cora Consulting Engineers	**Scale:** 1:25
Plant: 3T Tracked Excavator	**Ground Level:** 34.16 mOD	**Date:** 22/08/2018	**Logger:** GH

Depth (m)	Sample / Tests	Field Records	Level (mOD)	Depth (m) (Thickness)	Legend	Description	Water
			34.06	(0.10) 0.10		TOPSOIL	
				(0.50)		MADE GROUND: Soft beige slightly sandy gravelly SILT with low cobble content. Sand is fine to coarse, Gravel is angular fine to coarse. Cobbles are angular, of mixed lithologies and a range of sizes.	
0.50	B1						
0.50	D2						
0.50	ES3		33.56	0.60			
0.70	B4					Firm locally stiff brown slightly sandy slightly gravelly CLAY with low cobble content. Sand is fine to coarse. Gravel is subangular fine to coarse. Cobbles are subangular, of mixed lithologies and a range of sizes.	
0.70	D5			(0.40)			
			33.16	1.00			
1.20	B6					Firm bluish grey slightly sandy gravelly CLAY with medium cobble content. Sand is fine to coarse. Gravel is subrounded fine to coarse of predominately limestone. Cobbles are rounded, of mixed lithologies and a range of sizes.	
1.20	D7	Seepage at 1.30m Fast flow at 1.40m		(0.60)			▼
1.50	ES8						▼
			32.56	1.60		End of trial pit at 1.60m	

Remarks

Terminated due to pit walls collapsing

Water Strikes:

Struck at (m):	Remarks:
1.30	Seepage at 1.30m
1.40	Fast flow at 1.40m

Stability: Unstable

Width: 0.70

Length: 3.00

CAUSEWAY GEOTECH

Project No.: 18-0767	**Project Name:** Chivers Site, Dublin 17		**Trial Pit No.:** **TP04**
Co-ordinates: 319805.18 E	**Client:** Platinum Land Limited		Sheet 1 of 1
Method: Trial Pitting	239688.41 N	**Client's Representative:** Cora Consulting Engineers	**Scale:** 1:25
Plant: 3.5T Tracked Excavator	**Ground Level:** 33.85 mOD	**Date:** 22/08/2018	**Logger:** MMC

Depth (m)	Sample / Tests	Field Records	Level (mOD)	Depth (m) (Thickness)	Legend	Description	Water
				(0.15)		TOPSOIL	
			33.70	0.15		MADE GROUND: Brown slightly sandy slightly silty subrounded fine to coarse GRAVEL with low cobble content and fragments of brick and plastic. Sand is fine to coarse. Cobbles are subrounded, of mixed lithologies and a range of sizes.	
0.50	B1						
0.50	D2						
0.50	ES3						
				(1.35)			
1.50	B4		32.35	1.50		End of trial pit at 1.50m	
1.50	D5						
1.50	ES6						

Remarks
No groundwater encountered

Terminated due to services

Water Strikes:	
Struck at (m):	Remarks:

Stability: Stable

Width: 0.60

Length: 1.85

CAUSEWAY GEOTECH

APPENDIX D

TRIAL PIT PHOTOGRAPHS


Date: 22/8/18
EH No.: TP01
(m) 0.1 0.2 0.3 0.4 0.5

TP01


Project: Chivers Site
Project No.: 18-0767
Date: 22/8/18
EH No.: TP01
(m) 0.1 0.2 0.3 0.4 0.5

TP01


CAUSEWAY
Project: Chivers Site
Project No.: 18-0767
Date: 23/8/18
Hole No.: TP01
(m) 0.1 0.2 0.3 0.4 0.5

TP01


CAUSEWAY
Project: Chivers Site
Project No: 18-0767
Date: 22/9/18
Exp No: TP01
(m) 0.1 0.2 0.3 0.4

TP01


CAUSEWAY
Project:
Chivers Site
Project No.:
18-0767
Date:
22/8/18
EH No.:
TP01
(m)
0.1
0.2
0.3
0.4
0.5

TP01

TP02


Date:
EH No.:
TP02
(m) 0.1 0.2 0.3 0.4 0.5

TP02


CAUSEWAY
GEOTECH
Project:
Chivers Site
Project No.:
18-0767
Date:
EH No.:
TP02
(m) 0.1 0.2 0.3 0.4 0.5

TP02

TP02


CAUSEWAY
Project:
Chivers Site
Date:
22/5/18
Project No.:
18-0767
EH No.:
TP02
(m)
0.1
0.2
0.3
0.4
0.5

TP02

TP03


Project: Chivers Site
Project No.: 18-0767
Date: 22/8/18
EH No.: TP03
(m) 0.1 0.2 0.3 0.4 0.5

TP03


Project: Chivers Site
Project No.: 18-0767
Date: 22/8/18
EH No.: TP03
(m) 0.1 0.2 0.3 0.4 0.5

TP03

TP03


CAUSEWAY
Project:
Chivers Site
Project No.:
EH No.:
TP03
Date:
0.1
0.2
0.3
(m)

TP03

TP04


CAUSEWAY
Project: Chivers Site
Project No: 18 0767
Date: 22/8/18
Ell No: TP04
0.1
0.2
0.3
0.4
0.5

TP04


CAUSEWAY
Project: Chivers Site
Project No.: 18-0767
Date: 24/8/18
EH No.: TP04
(m) 0.1 0.2 0.3 0.4 0.5

TP04


CAUSEWAY
Project: Chivers Site
Project No.: 18 0767
Date: 22/8/18
EH No: TP04
(m) 0.1 0.2 0.3 0.4 0.5

TP04


CAUSEWAY
Project: Chives Site
Project No.: 18-0767
Date: 24/8/18
EH No.: TP04
(m) 0.1 0.2 0.3 0.4 0.5

TP04

CAUSEWAY GEOTECH

APPENDIX E

GEOTECHNICAL LABORATORY TEST RESULTS

CAUSEWAY GEOTECH

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SOIL AND ROCK SAMPLE ANALYSIS
LABORATORY TEST REPORT

Project Name:	Chivers Site, Dublin 17
Project No.:	18-0767
Client:	Platinum Land Ltd
Engineer:	Cora Consulting Engineers
Date:	01/10/18

We are pleased to attach the results of laboratory testing carried out for the above project. This memo and its attachments constitute a report of the results of tests as detailed in the Contents page(s).

The attached results complete the testing requested and we would therefore wish to confirm that samples will be retained without charge for a period of 28 days from the above date after which they will be appropriately disposed of unless we receive written instructions to the contrary prior to that date.

We trust our report meets with your approval but if you have any queries or require additional information, please do not hesitate to contact the undersigned.

Approved Signatory

Stephen Watson
Laboratory Manager

Signed for and on behalf of Causeway Geotech Ltd

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Project Name: Chivers Site, Dublin 17

Report Reference: 18-0767

The table below details the tests carried out, the specifications used, and the number of tests included in this report.

Tests marked with* in this report are not United Kingdom Accreditation Service (UKAS) accredited and are not included in Causeway Geotech Limited's scope of UKAS Accreditation Schedule of Tests. Opinions and interpretations expressed herein are outside the scope of UKAS accreditation.

Material tested	Type of test/Properties measured/Range of measurement	Standard specifications	No. of results included in the report
SOIL	Moisture Content of Soil	BS 1377-2: 1990: Cl 3.2	11
SOIL	Liquid and Plastic Limits of soil-1 point cone penetrometer method	BS 1377-2: 1990: Cl 4.4, 5.3 & 5.4	9
SOIL	Particle size distribution - wet sieving	BS 1377-2: 1990: Cl 9.2	8
SOIL	Particle size distribution - sedimentation hydrometer method	BS 1377-2: 1990: Cl 9.5	8
SOIL	Undrained shear strength – triaxial compression without measurement of pore pressure (loads from 0.12 to 24 kN)	BS 1377-7: 1990: Cl 8	2

SUB-CONTRACTED TESTS

In agreement with Client, the following tests were conducted by an approved sub-contractor. All sub-contracting laboratories used are UKAS accredited.

Material tested	Type of test/Properties measured/Range of measurement	Standard specifications	No. of results included in the report
SOIL – Subcontracted to Pro Soils Limited *(UKAS 2183)*	pH Value of Soil		9
SOIL – Subcontracted to Chemtest Ltd *(UKAS 2183)*	Sulphate Content water extract		9

CAUSEWAY GEOTECH

Summary of Classification Test Results

Project No.	Project Name
18-0767	Chivers Site, Dublin 17

Hole No.	Sample				Soil Description	Density bulk / dry Mg/m^3		*w* %	Passing 425µm %	LL %	PL %	PI %	Particle density Mg/m^3	Casagrande Classification
	Ref	Top	Base	Type										
BH01	5	1.00		B	Blackish grey sandy gravelly silty CLAY.			9.6	61	31 -1pt	15	16		CL
BH02	8	2.00		B	Greyish brown sandy gravelly silty CLAY.			9.8	63	24 -1pt	15	9		CL
BH03	5	1.00		B	MADE GROUND: Brownish grey sandy gravelly silty CLAY with fragments of red brick.			15						
BH03	6	2.00		B	Brownish grey sandy gravelly silty CLAY.			18	69	34 -1pt	20	14		CL
BH04	3	2.00		B	Blackish grey sandy gravelly silty CLAY.			10	71	32 -1pt	17	15		CL
BH05	7	2.00		B	Orangish brown sandy slightly gravelly silty CLAY.			12	66	28 -1pt	14	14		CL
BH06	6	1.00		B	MADE GROUND: Dark brown sandy gravelly silty CLAY.			18						
BH06	7	2.00		B	MADE GROUND: Brown sandy gravelly silty CLAY.			14	59	27 -1pt	14	13		CL
BH07	7	2.00		B	Blackish grey sandy gravelly silty CLAY.			12	64	26 -1pt	14	12		CL
BH08	8	2.20		B	Greenish grey sandy gravelly silty CLAY.			26	76	45 -1pt	24	21		CI
TP03	6	1.20		B	Bluish grey sandy gravelly silty CLAY.			16	57	37 -1pt	25	12		MI/CI

All tests performed in accordance with BS1377:1990 unless specified otherwise

Key

Density test	Liquid Limit	Particle density
Linear measurement unless :	4pt cone unless :	sp - small pyknometer
wd - water displacement	cas - Casagrande method	gj - gas jar
wi - immersion in water	1pt - single point test	

Date Printed: 29/09/2018

Approved By: Stephen.Watson

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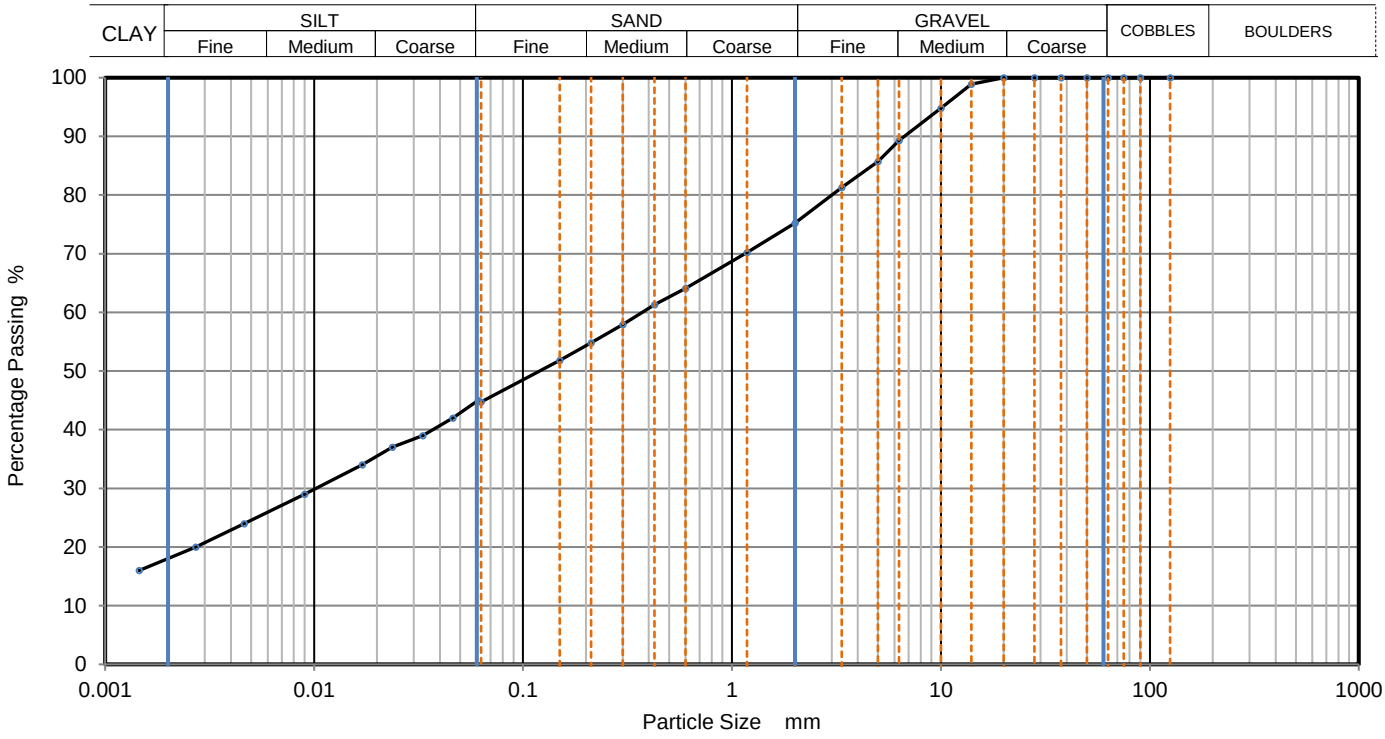
CAUSEWAY GEOTECH	**PARTICLE SIZE DISTRIBUTION**			Job Ref	**18-0767**
				Borehole/Pit No.	BH01
Site Name	Chivers Site, Dublin 17			Sample No.	5
Soil Description	Blackish grey sandy gravelly silty CLAY.			Depth, m	1.00
Specimen Reference	6	Specimen Depth	1 m	Sample Type	B
Test Method	BS1377:Part 2:1990, clauses 9.2 and 9.5			KeyLAB ID	Caus201808300



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100	0.0610	45
90	100	0.0461	42
75	100	0.0331	39
63	100	0.0237	37
50	100	0.0170	34
37.5	100	0.0090	29
28	100	0.0046	24
20	100	0.0027	20
14	99	0.0015	16
10	95		
6.3	89		
5	86		
3.35	81		
2	75		
1.18	70		
0.6	64	Particle density	(assumed)
0.425	61	2.65	Mg/m3
0.3	58		
0.212	55		
0.15	52		
0.063	45		

Dry Mass of sample, g	854

Sample Proportions	% dry mass
Cobbles	0
Gravel	25
Sand	31
Silt	27
Clay	18

Grading Analysis		
D100	mm	
D60	mm	0.374
D30	mm	0.0103
D10	mm	
Uniformity Coefficient		
Curvature Coefficient		

Remarks

Preparation and testing in accordance with BS1377 unless noted below

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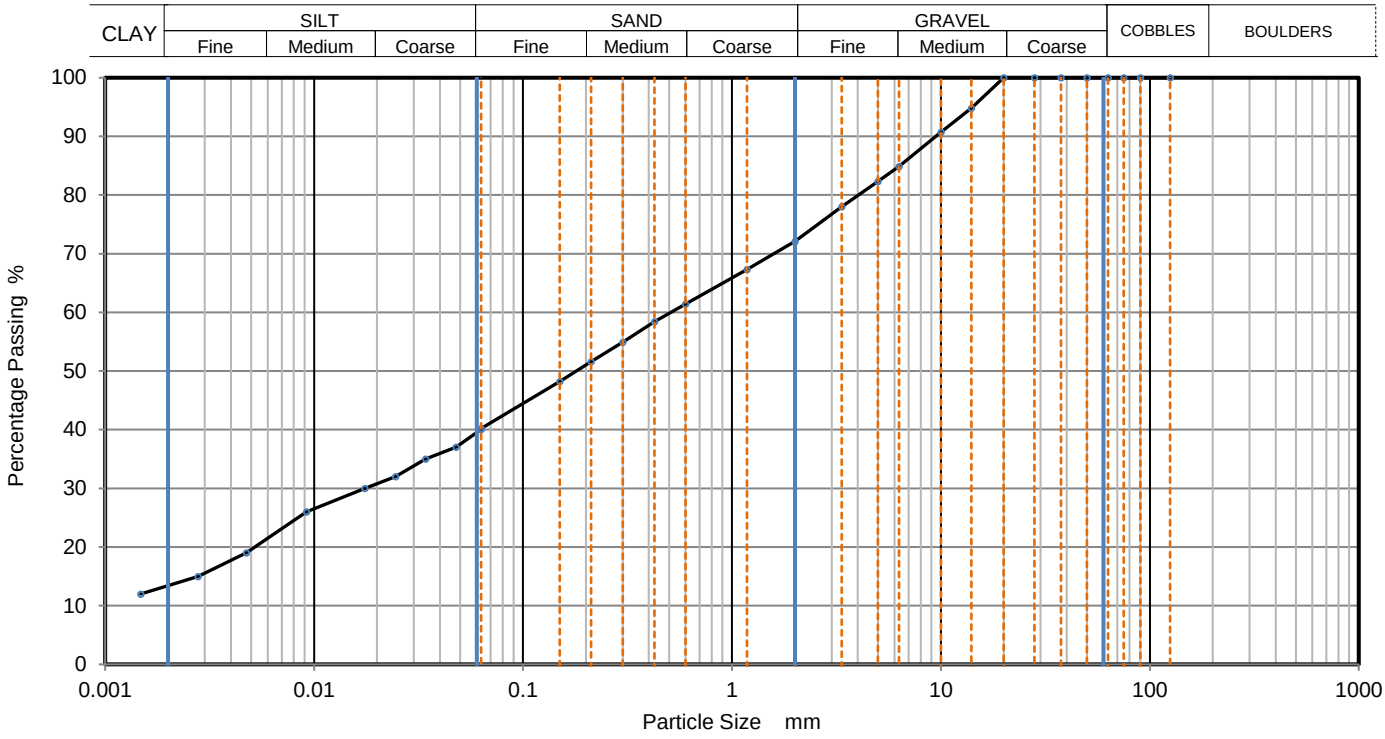
CAUSEWAY GEOTECH	**PARTICLE SIZE DISTRIBUTION**			Job Ref	**18-0767**
				Borehole/Pit No.	BH02
Site Name	Chivers Site, Dublin 17			Sample No.	8
Soil Description	Greyish brown sandy gravelly silty CLAY.			Depth, m	2.00
Specimen Reference	6	Specimen Depth	2 m	Sample Type	B
Test Method	BS1377:Part 2:1990, clauses 9.2 and 9.5			KeyLAB ID	Caus201808302



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100	0.0630	40
90	100	0.0478	37
75	100	0.0342	35
63	100	0.0245	32
50	100	0.0175	30
37.5	100	0.0092	26
28	100	0.0047	19
20	100	0.0028	15
14	95	0.0015	12
10	91		
6.3	85		
5	82		
3.35	78		
2	72		
1.18	67		
0.6	61	Particle density	(assumed)
0.425	58	2.65	Mg/m3
0.3	55		
0.212	52		
0.15	48		
0.063	40		

Dry Mass of sample, g	1478

Sample Proportions	% dry mass
Cobbles	0
Gravel	28
Sand	32
Silt	26
Clay	14

Grading Analysis		
D100	mm	
D60	mm	0.511
D30	mm	0.0162
D10	mm	
Uniformity Coefficient		
Curvature Coefficient		

Remarks

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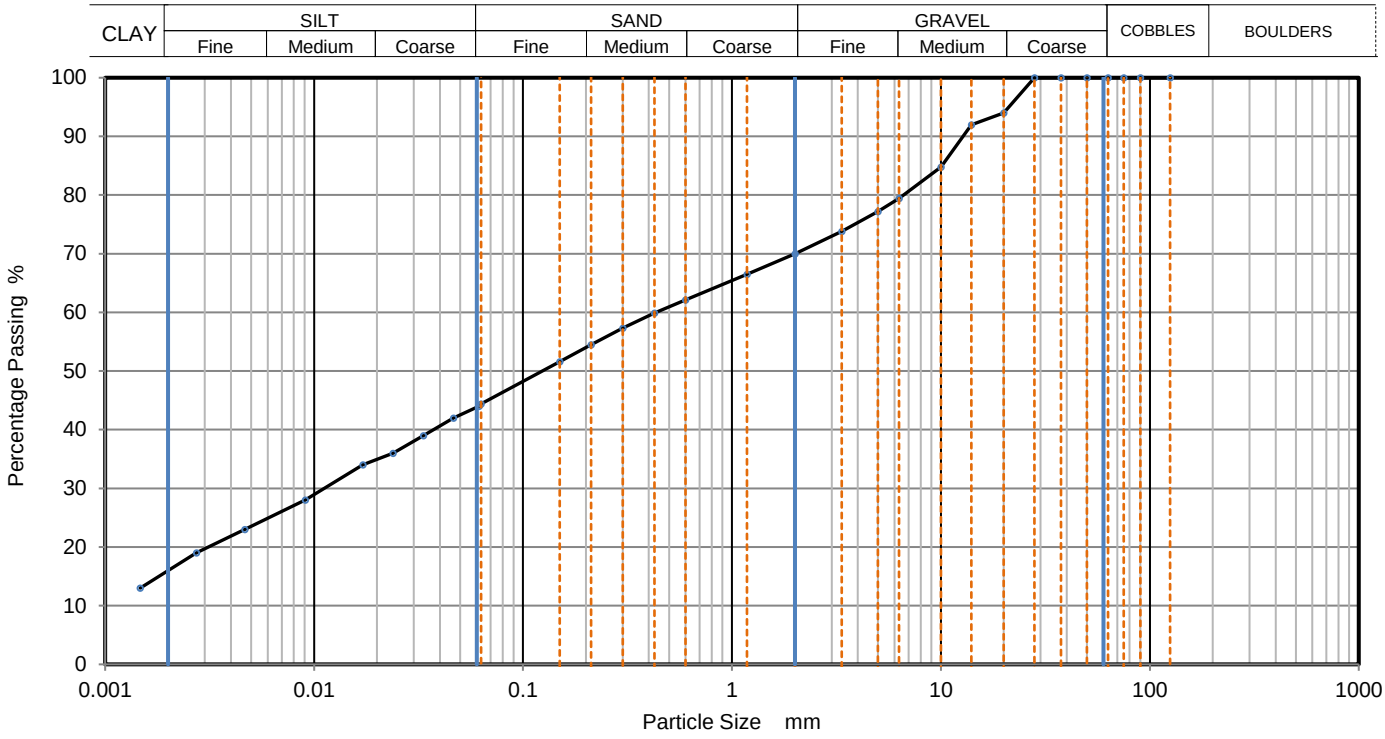
CAUSEWAY GEOTECH	**PARTICLE SIZE DISTRIBUTION**			Job Ref	**18-0767**
				Borehole/Pit No.	BH03
Site Name	Chivers Site, Dublin 17			Sample No.	6
Soil Description	Brownish grey sandy gravelly silty CLAY.			Depth, m	2.00
Specimen Reference	6	Specimen Depth	2 m	Sample Type	B
Test Method	BS1377:Part 2:1990, clauses 9.2 and 9.5			KeyLAB ID	Caus201808304



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100	0.0615	44
90	100	0.0464	42
75	100	0.0333	39
63	100	0.0239	36
50	100	0.0171	34
37.5	100	0.0091	28
28	100	0.0047	23
20	94	0.0027	19
14	92	0.0015	13
10	85		
6.3	79		
5	77		
3.35	74		
2	70		
1.18	67		
0.6	62	Particle density	(assumed)
0.425	60	2.65	Mg/m3
0.3	57		
0.212	55		
0.15	52		
0.063	44		

Dry Mass of sample, g	829

Sample Proportions	% dry mass
Cobbles	0
Gravel	30
Sand	26
Silt	28
Clay	16

Grading Analysis		
D100	mm	
D60	mm	0.431
D30	mm	0.0111
D10	mm	
Uniformity Coefficient		
Curvature Coefficient		

Remarks

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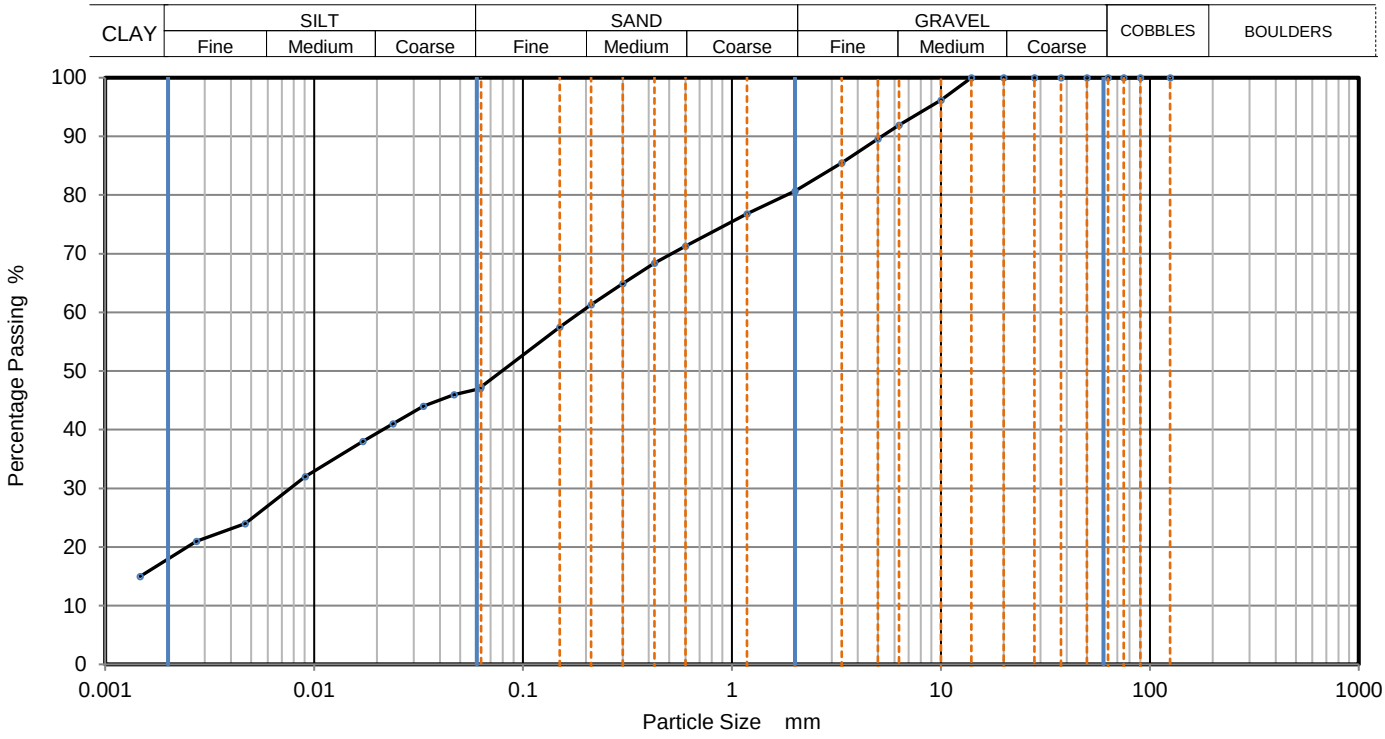
CAUSEWAY GEOTECH	**PARTICLE SIZE DISTRIBUTION**			Job Ref	**18-0767**
				Borehole/Pit No.	BH05
Site Name	Chivers Site, Dublin 17			Sample No.	7
Soil Description	Orangish brown sandy slightly gravelly silty CLAY.			Depth, m	2.00
Specimen Reference	6	Specimen Depth	2 m	Sample Type	B
Test Method	BS1377:Part 2:1990, clauses 9.2 and 9.5			KeyLAB ID	Caus201808307



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100	0.0624	47
90	100	0.0468	46
75	100	0.0333	44
63	100	0.0239	41
50	100	0.0171	38
37.5	100	0.0091	32
28	100	0.0047	24
20	100	0.0027	21
14	100	0.0015	15
10	96		
6.3	92		
5	90		
3.35	86		
2	81		
1.18	77		
0.6	71	Particle density	(assumed)
0.425	68	2.65	Mg/m3
0.3	65		
0.212	61		
0.15	58		
0.063	47		

Dry Mass of sample, g	859

Sample Proportions	% dry mass
Cobbles	0
Gravel	19
Sand	33
Silt	29
Clay	18

Grading Analysis		
D100	mm	
D60	mm	0.188
D30	mm	0.0076
D10	mm	
Uniformity Coefficient		
Curvature Coefficient		

Remarks

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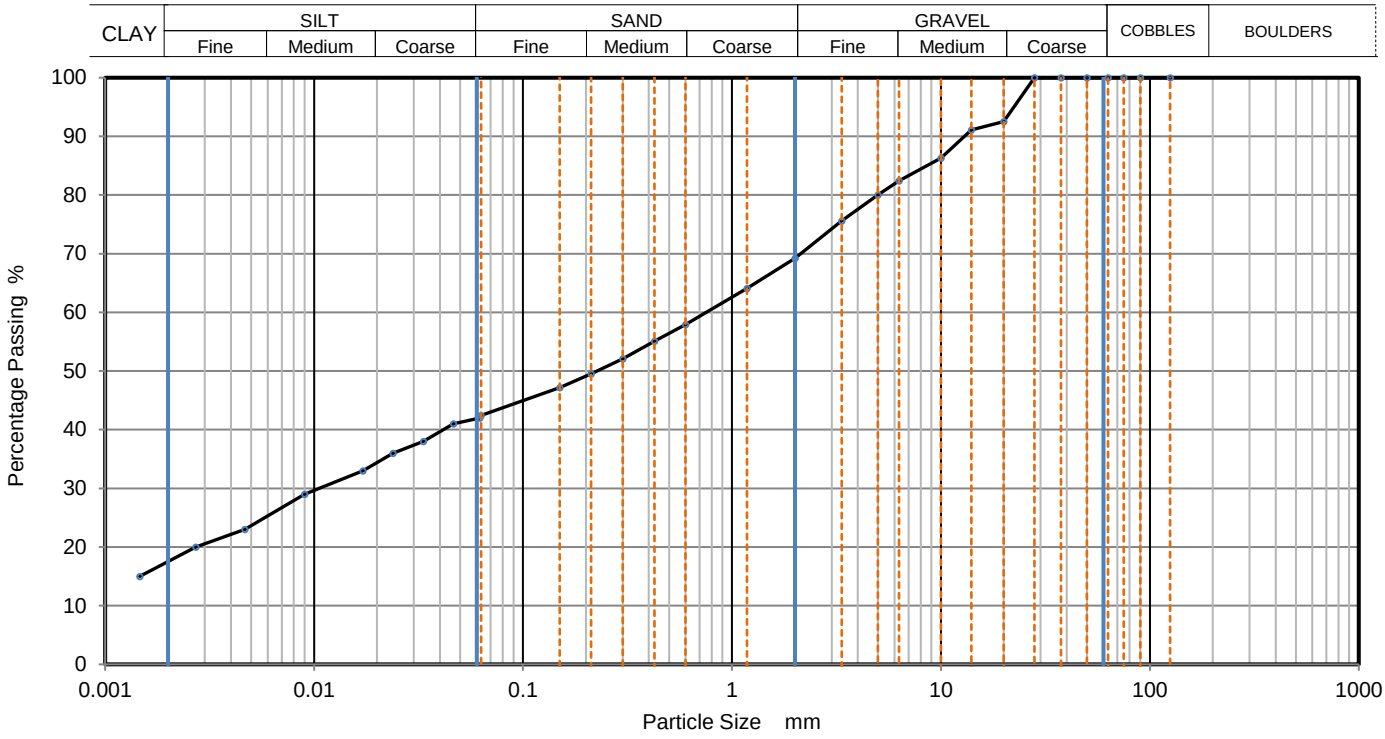
CAUSEWAY GEOTECH	**PARTICLE SIZE DISTRIBUTION**			Job Ref	**18-0767**
				Borehole/Pit No.	BH06
Site Name	Chivers Site, Dublin 17			Sample No.	7
Soil Description	MADE GROUND: Brown sandy gravelly silty CLAY.			Depth, m	2.00
Specimen Reference	6	Specimen Depth	2 m	Sample Type	B
Test Method	BS1377:Part 2:1990, clauses 9.2 and 9.5			KeyLAB ID	Caus201808309



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100	0.0620	42
90	100	0.0464	41
75	100	0.0333	38
63	100	0.0239	36
50	100	0.0171	33
37.5	100	0.0090	29
28	100	0.0047	23
20	93	0.0027	20
14	91	0.0015	15
10	86		
6.3	82		
5	80		
3.35	76		
2	69		
1.18	64		
0.6	58	Particle density	(assumed)
0.425	55	2.65	Mg/m3
0.3	52		
0.212	50		
0.15	47		
0.063	42		

Dry Mass of sample, g	2054

Sample Proportions	% dry mass
Cobbles	0
Gravel	31
Sand	27
Silt	25
Clay	17

Grading Analysis		
D100	mm	
D60	mm	0.754
D30	mm	0.0103
D10	mm	
Uniformity Coefficient		
Curvature Coefficient		

Remarks

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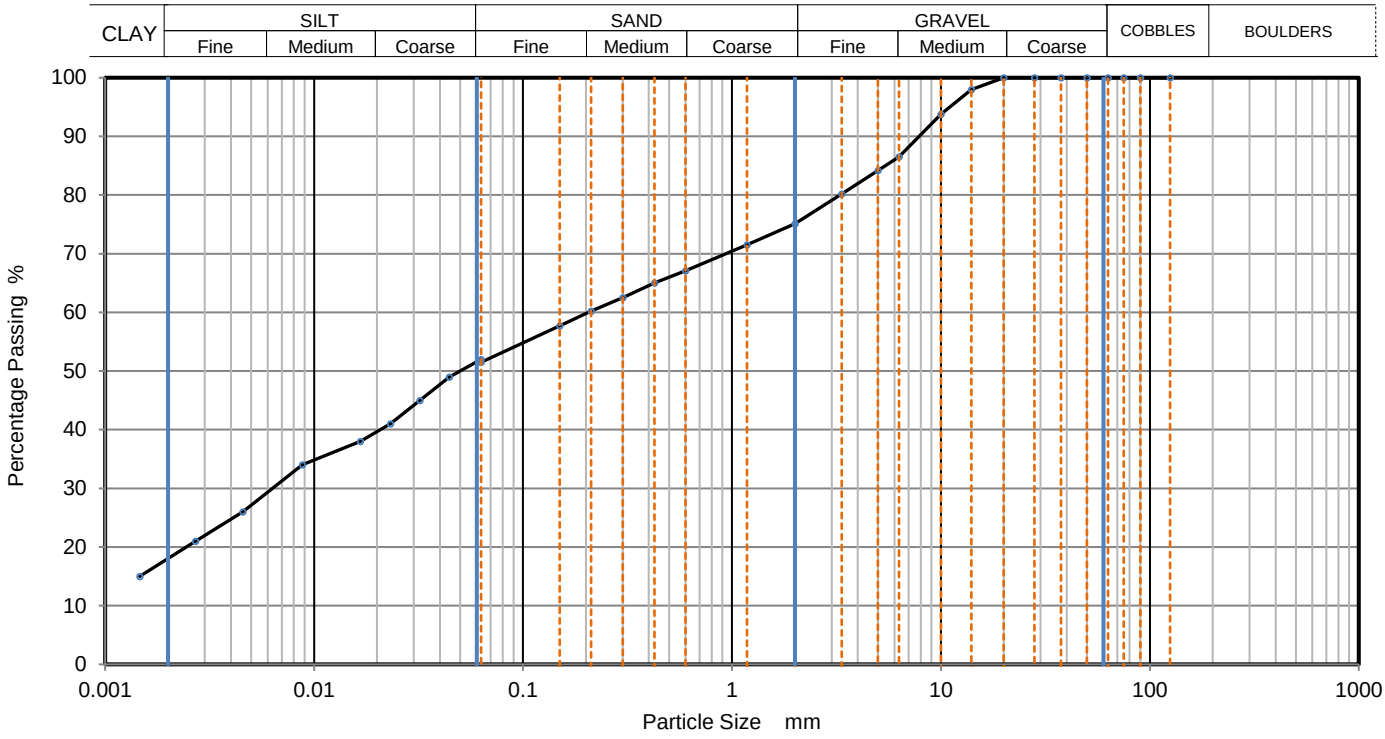
CAUSEWAY GEOTECH	**PARTICLE SIZE DISTRIBUTION**			Job Ref	**18-0767**
				Borehole/Pit No.	BH07
Site Name	Chivers Site, Dublin 17			Sample No.	7
Soil Description	Blackish grey sandy gravelly silty CLAY.			Depth, m	2.00
Specimen Reference	6	Specimen Depth	2 m	Sample Type	B
Test Method	BS1377:Part 2:1990, clauses 9.2 and 9.5			KeyLAB ID	Caus2018083010



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100	0.0630	52
90	100	0.0443	49
75	100	0.0321	45
63	100	0.0232	41
50	100	0.0166	38
37.5	100	0.0088	34
28	100	0.0046	26
20	100	0.0027	21
14	98	0.0015	15
10	94		
6.3	87		
5	84		
3.35	80		
2	75		
1.18	72		
0.6	67	Particle density	(assumed)
0.425	65	2.65	Mg/m3
0.3	63		
0.212	60		
0.15	58		
0.063	52		

Dry Mass of sample, g	796

Sample Proportions	% dry mass
Cobbles	0
Gravel	25
Sand	24
Silt	34
Clay	18

Grading Analysis		
D100	mm	
D60	mm	0.206
D30	mm	0.00614
D10	mm	
Uniformity Coefficient		
Curvature Coefficient		

Remarks

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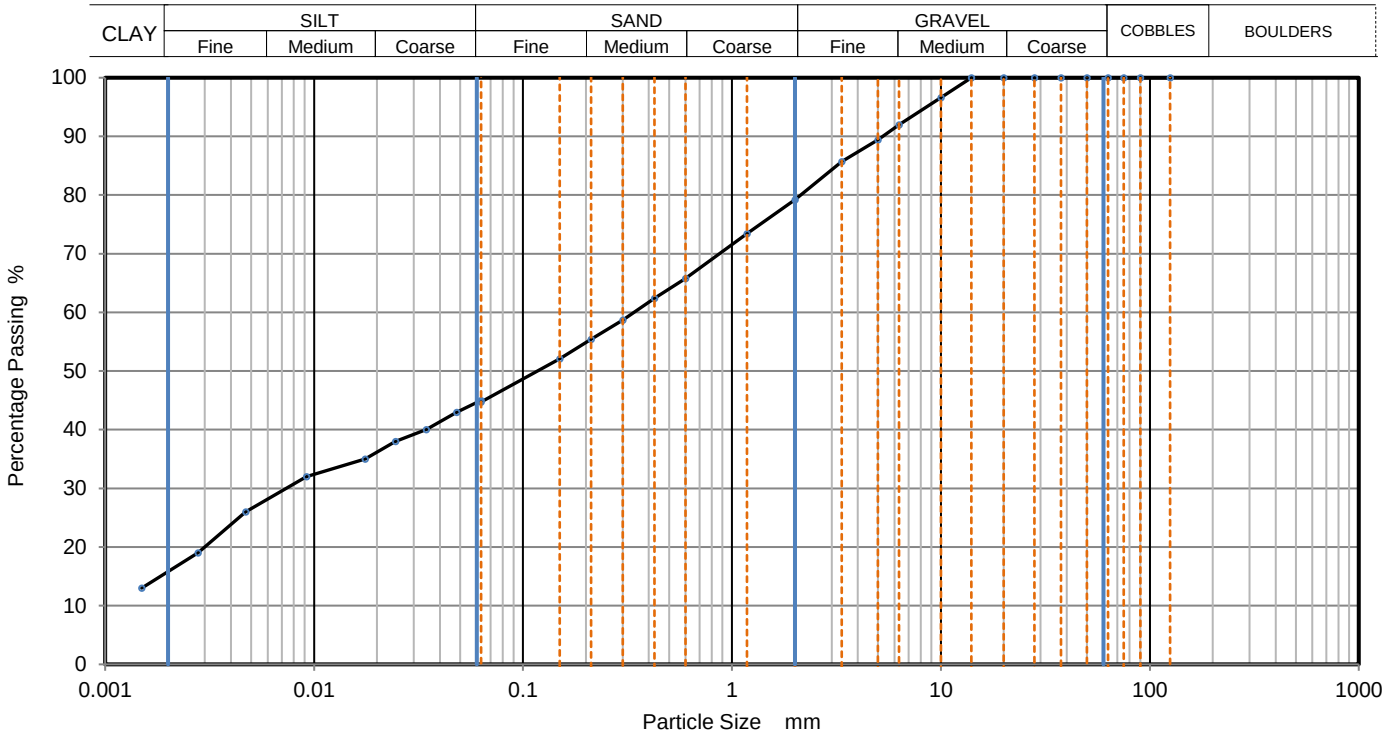
CAUSEWAY GEOTECH	**PARTICLE SIZE DISTRIBUTION**			Job Ref	**18-0767**
				Borehole/Pit No.	BH08
Site Name	Chivers Site, Dublin 17			Sample No.	8
Soil Description	Greenish grey sandy gravelly silty CLAY.			Depth, m	2.20
Specimen Reference	6	Specimen Depth	2.2 m	Sample Type	B
Test Method	BS1377:Part 2:1990, clauses 9.2 and 9.5			KeyLAB ID	Caus2018083011



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100	0.0630	45
90	100	0.0481	43
75	100	0.0345	40
63	100	0.0245	38
50	100	0.0176	35
37.5	100	0.0092	32
28	100	0.0047	26
20	100	0.0028	19
14	100	0.0015	13
10	97		
6.3	92		
5	89		
3.35	86		
2	79		
1.18	73		
0.6	66	Particle density	(assumed)
0.425	62	2.65	Mg/m3
0.3	59		
0.212	55		
0.15	52		
0.063	45		

Dry Mass of sample, g: 438

Sample Proportions	% dry mass
Cobbles	0
Gravel	21
Sand	35
Silt	29
Clay	16

Grading Analysis		
D100	mm	
D60	mm	0.34
D30	mm	0.00751
D10	mm	
Uniformity Coefficient		
Curvature Coefficient		

Remarks

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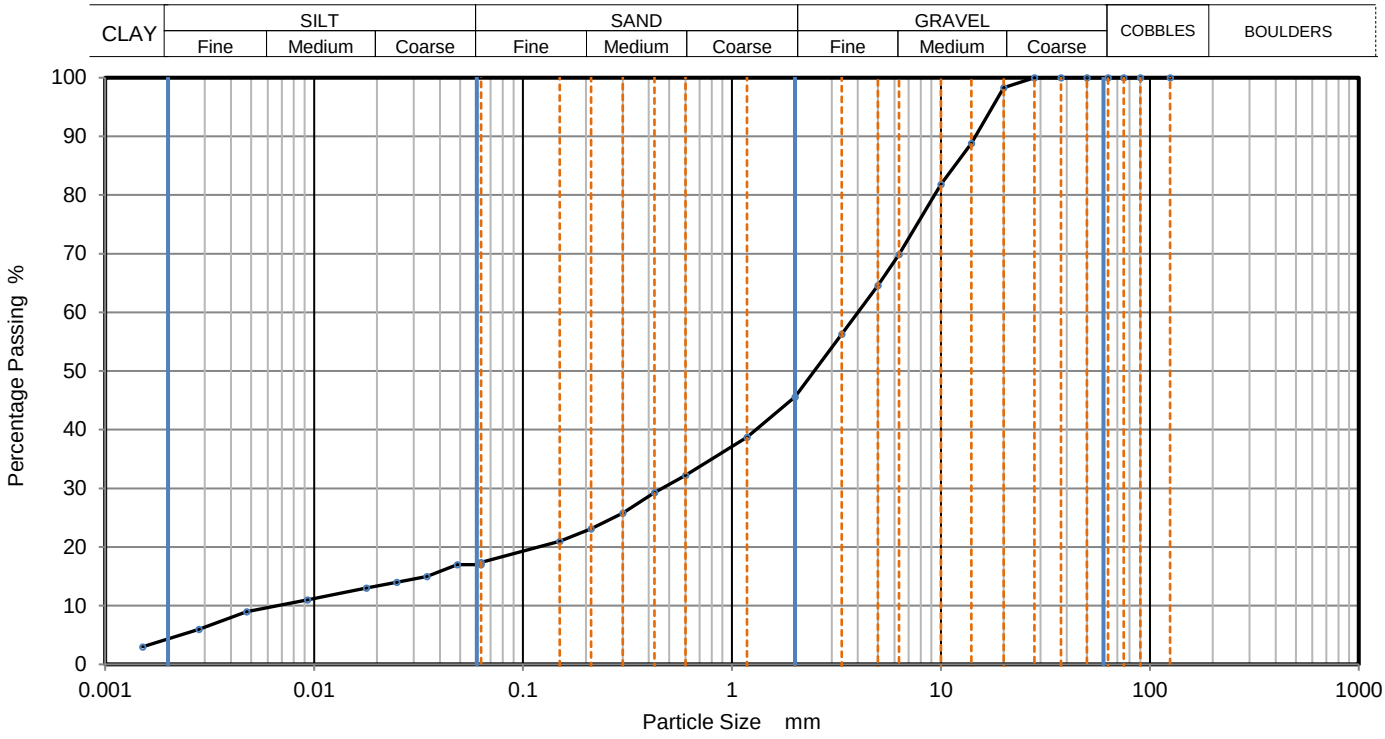
CAUSEWAY GEOTECH	**PARTICLE SIZE DISTRIBUTION**			Job Ref	**18-0767**
				Borehole/Pit No.	TP03
Site Name	Chivers Site, Dublin 17			Sample No.	6
Soil Description	Bluish grey sandy gravelly silty CLAY.			Depth, m	1.20
Specimen Reference	6	Specimen Depth	1.2 m	Sample Type	B
Test Method	BS1377:Part 2:1990, clauses 9.2 and 9.5			KeyLAB ID	Caus2018083012



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100	0.0630	17
90	100	0.0484	17
75	100	0.0347	15
63	100	0.0248	14
50	100	0.0178	13
37.5	100	0.0093	11
28	100	0.0048	9
20	98	0.0028	6
14	89	0.0015	3
10	82		
6.3	70		
5	65		
3.35	56		
2	46		
1.18	39		
0.6	32	Particle density	(assumed)
0.425	29	2.65	Mg/m3
0.3	26		
0.212	23		
0.15	21		
0.063	17		

Dry Mass of sample, g	975

Sample Proportions	% dry mass
Cobbles	0
Gravel	54
Sand	28
Silt	13
Clay	5

Grading Analysis		
D100	mm	
D60	mm	4
D30	mm	0.462
D10	mm	0.00659
Uniformity Coefficient		610
Curvature Coefficient		8.1

Remarks

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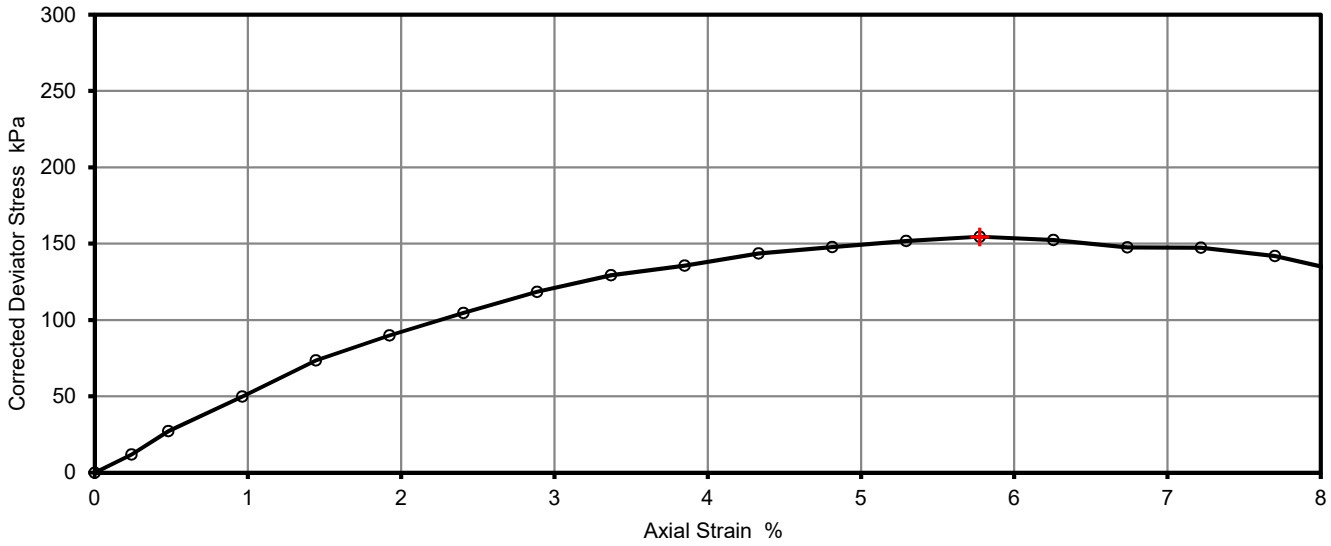
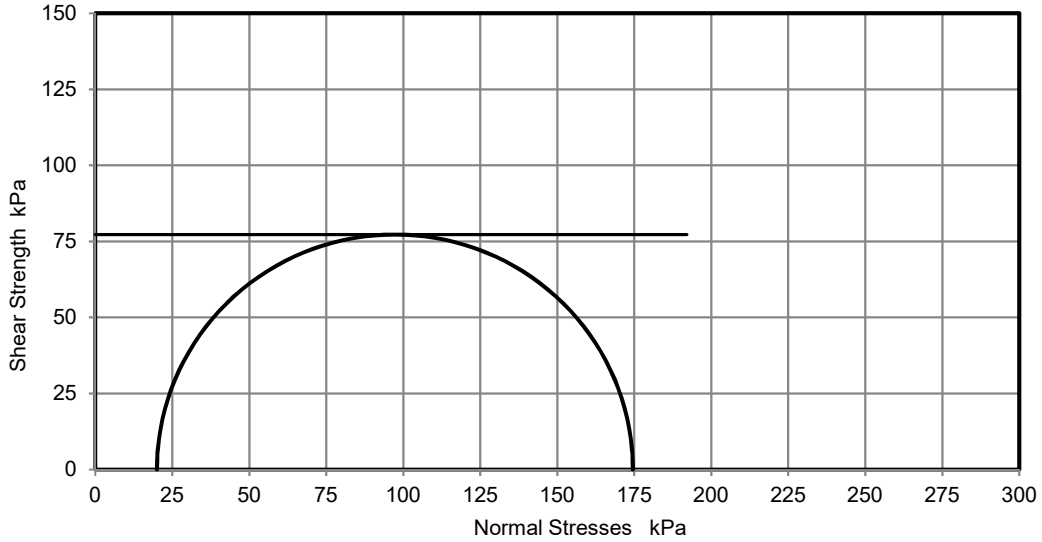
CAUSEWAY GEOTECH	**Unconsolidated Undrained Triaxial Compression Test without measurement of pore pressure - single specimen**				Job Ref	18-0767
					Borehole/Pit No.	BH01
Site Name	Chivers Site, Dublin 17				Sample No.	6
Soil Description	Blackish grey sandy gravelly silty CLAY.				Depth	1.20
Specimen Reference	2	Specimen Depth	1.20	m	Sample Type	U
Specimen Description	Stiff blackish grey sandy gravelly silty CLAY.				KeyLAB ID	Caus201808301
Test Method	BS1377 : Part 7 : 1990, clause 8, single specimen				Date of test	21/09/2018

Test Number		1	
Length		207.8	mm
Diameter		102.7	mm
Bulk Density		2.20	Mg/m^3
Moisture Content		8.9	%
Dry Density		2.02	Mg/m^3
Rate of Strain		2.0	%/min
Cell Pressure		20	kPa
At failure	Axial Strain	5.8	%
	Deviator Stress, $(\sigma_1 - \sigma_3)_f$	155	kPa
	Undrained Shear Strength, c_u	77	kPa $\frac{1}{2}(\sigma_1 - \sigma_3)_f$
	Mode of Failure	Brittle	

Deviator Stress v Axial Strain



Mohr Circles



Deviator stress corrected for area change and membrane effects

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

Remarks

Strengths corrected for area change and membrane effects based on Fig 11 BS1377

Approved: Stephen.Watson

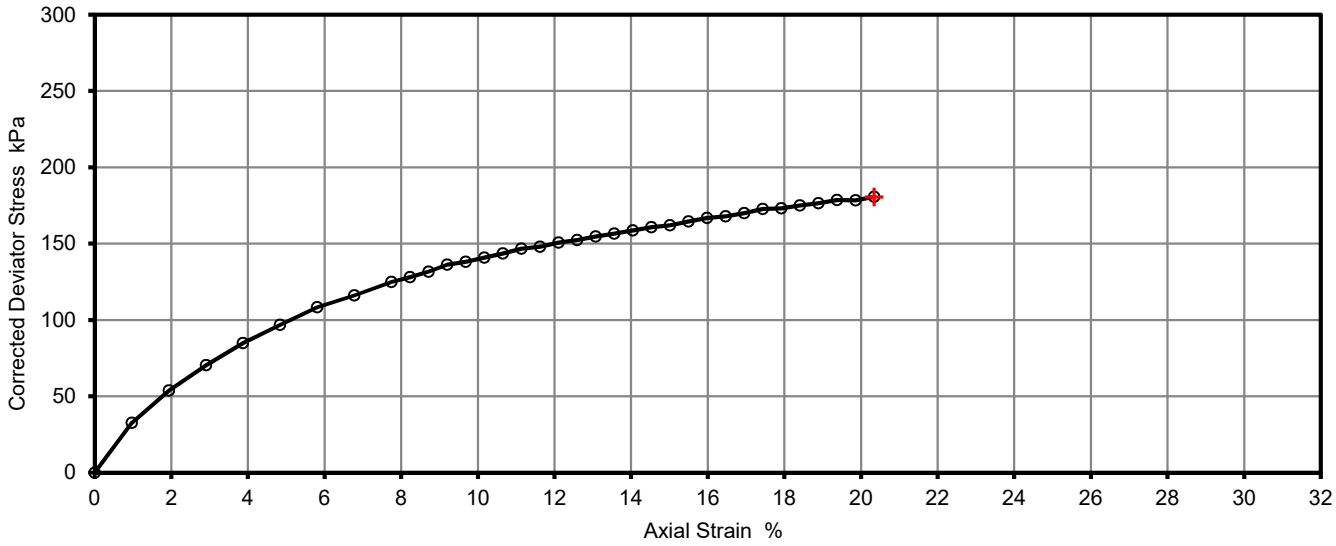
Printed: 29/09/2018 14:40

UKAS TESTING
10122

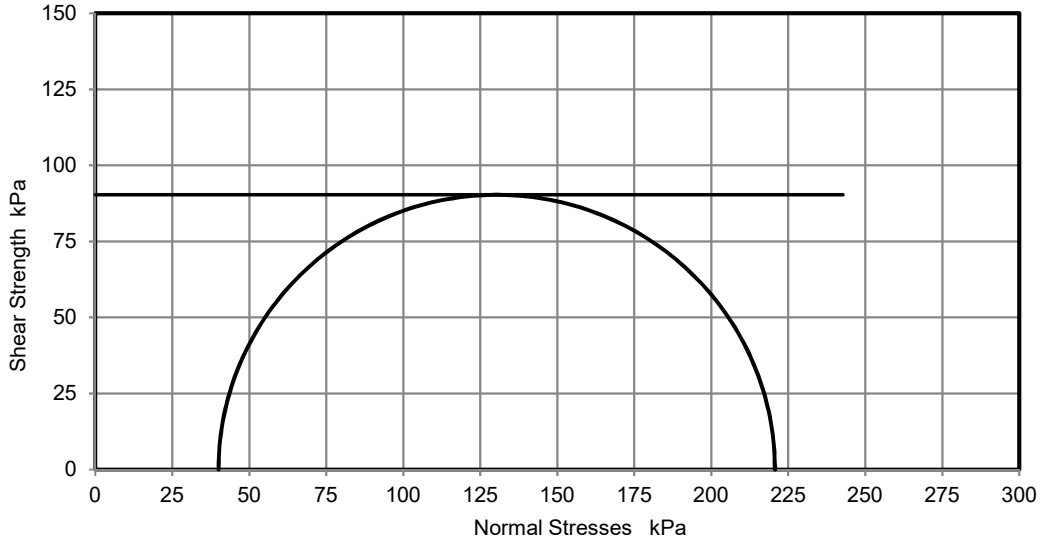
CAUSEWAY GEOTECH	**Unconsolidated Undrained Triaxial Compression Test without measurement of pore pressure - single specimen**				Job Ref	18-0767
					Borehole/Pit No.	BH04
Site Name	Chivers Site, Dublin 17				Sample No.	7
Soil Description	Blackish grey sandy gravelly silty CLAY.				Depth	2.00
Specimen Reference	2	Specimen Depth	2.00	m	Sample Type	U
Specimen Description	Stiff blackish grey sandy gravelly silty CLAY.				KeyLAB ID	Caus201808306
Test Method	BS1377 : Part 7 : 1990, clause 8, single specimen				Date of test	21/09/2018

Test Number		1	
Length		206.5	mm
Diameter		104.5	mm
Bulk Density		2.31	Mg/m^3
Moisture Content		11.7	%
Dry Density		2.07	Mg/m^3
Rate of Strain		2.0	%/min
Cell Pressure		40	kPa
At failure	Axial Strain	20.3	%
	Deviator Stress, $(\sigma_1 - \sigma_3)_f$	181	kPa
	Undrained Shear Strength, c_u	90	kPa $\frac{1}{2}(\sigma_1 - \sigma_3)_f$
	Mode of Failure		

Deviator Stress v Axial Strain



Mohr Circles



Deviator stress corrected for area change and membrane effects

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

Remarks

Testing terminated at 20% strain

Approved: Stephen.Watson

Printed: 29/09/2018 14:40

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

UKAS TESTING
2183

Final Report

Report No.: 18-28111-1

Initial Date of Issue: 19-Sep-2018

Client Causeway Geotech Ltd

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

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

Project 18-0767 Chivers Site, Dublin 17

Quotation No.:		**Date Received:**	17-Sep-2018
Order No.:		**Date Instructed:**	17-Sep-2018
No. of Samples:	9		
Turnaround (Wkdays):	3	**Results Due:**	19-Sep-2018
Date Approved:	19-Sep-2018		

Approved By:

Details: Robert Monk, Technical Manager

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Results - Soil

Project: 18-0767 Chivers Site, Dublin 17

Client: Causeway Geotech Ltd			**Chemtest Job No.:**		18-28111	18-28111	18-28111	18-28111	18-28111	18-28111	18-28111	18-28111	18-28111
Quotation No.:			**Chemtest Sample ID.:**		689112	689113	689114	689115	689116	689117	689118	689119	689120
Order No.:			Client Sample Ref.:		4	1	5	2	1	1	6	7	5
			Sample Location:		BH01	BH02	BH03	BH04	BH05	BH06	BH07	BH08	TP03
			Sample Type:		SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
			Top Depth (m):		0.40	1.20	1.00	1.00	1.20	2.00	1.20	1.00	0.70
			Date Sampled:		14-Sep-2018	14-Sep-2018	14-Sep-2018	14-Sep-2018	14-Sep-2018	14-Sep-2018	14-Sep-2018	14-Sep-2018	14-Sep-2018
Determinand	**Accred.**	**SOP**	**Units**	**LOD**									
Moisture	N	2030	%	0.020	10	9.7	16	11	13	10	9.7	16	11
pH	U	2010		N/A	8.6	8.5	8.3	8.6	9.5	8.6	8.7	8.2	8.4
Sulphate (2:1 Water Soluble) as SO4	U	2120	g/l	0.010	< 0.010	< 0.010	0.041	< 0.010	0.062	< 0.010	< 0.010	< 0.010	< 0.010

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

CAUSEWAY GEOTECH

APPENDIX F

ENVIRONMENTAL LABORATORY TEST RESULTS

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

UKAS TESTING
2183

Final Report

Report No.: 18-25748-1

Initial Date of Issue: 04-Sep-2018

Client Causeway Geotech Ltd

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

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

Project 18-0767 Chivers Site Coolock Ground Investigation

Quotation No.:		**Date Received:**	28-Aug-2018
Order No.:		**Date Instructed:**	29-Aug-2018
No. of Samples:	5		
Turnaround (Wkdays):	5	**Results Due:**	04-Sep-2018
Date Approved:	04-Sep-2018		

Approved By:

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

Chemtest
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Results - Soil

Project: 18-0767 Chivers Site Coolock Ground Investigation

Client: Causeway Geotech Ltd					Chemtest Job No.:	18-25748	18-25748	18-25748	18-25748	18-25748
Quotation No.:					Chemtest Sample ID.:	677608	677611	677613	677614	677616
					Sample Location:	TP01	TP02	TP03	TP03	TP04
					Sample Type:	SOIL	SOIL	SOIL	SOIL	SOIL
					Top Depth (m):	1.5	1.5	0.5	1.5	1.5
					Date Sampled:	22-Aug-2018	22-Aug-2018	22-Aug-2018	22-Aug-2018	22-Aug-2018
					Asbestos Lab:			COVENTRY		
Determinand	**Accred.**	**SOP**	**Units**	**LOD**						
ACM Type	U	2192		N/A				-		
Asbestos Identification	U	2192	%	0.001				No Asbestos Detected		
Moisture	N	2030	%	0.020	20	9.4	3.6	10	6.1	
pH	U	2010		N/A	7.7	8.3	8.5	8.8	8.6	
Boron (Hot Water Soluble)	U	2120	mg/kg	0.40	3.9	1.2	0.49	0.52	0.61	
Sulphate (2:1 Water Soluble) as SO4	U	2120	g/l	0.010	< 0.010	0.020	< 0.010	< 0.010	< 0.010	
Cyanide (Free)	U	2300	mg/kg	0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	
Cyanide (Total)	U	2300	mg/kg	0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	
Thiocyanate	U	2300	mg/kg	5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	
Sulphide (Easily Liberatable)	N	2325	mg/kg	0.50	4.5	4.7	4.9	3.7	5.0	
Sulphate (Total)	U	2430	%	0.010	0.13	0.16	0.11	0.061	0.13	
Arsenic	U	2450	mg/kg	1.0	19	24	26	24	25	
Cadmium	U	2450	mg/kg	0.10	2.2	2.2	2.2	1.6	2.0	
Chromium	U	2450	mg/kg	1.0	25	20	16	13	18	
Copper	U	2450	mg/kg	0.50	36	37	28	25	43	
Mercury	U	2450	mg/kg	0.10	0.28	0.27	< 0.10	< 0.10	0.12	
Nickel	U	2450	mg/kg	0.50	47	48	39	42	48	
Lead	U	2450	mg/kg	0.50	90	77	34	18	83	
Selenium	U	2450	mg/kg	0.20	1.1	1.8	1.0	0.81	1.0	
Zinc	U	2450	mg/kg	0.50	110	100	67	66	120	
Chromium (Hexavalent)	N	2490	mg/kg	0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	
Organic Matter	U	2625	%	0.40	4.3	4.1	1.9	1.4	1.9	
Aliphatic TPH >C5-C6	N	2680	mg/kg	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	
Aliphatic TPH >C6-C8	N	2680	mg/kg	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	
Aliphatic TPH >C8-C10	U	2680	mg/kg	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	
Aliphatic TPH >C10-C12	U	2680	mg/kg	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	
Aliphatic TPH >C12-C16	U	2680	mg/kg	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	
Aliphatic TPH >C16-C21	U	2680	mg/kg	1.0	< 1.0	18	< 1.0	< 1.0	5.9	
Aliphatic TPH >C21-C35	U	2680	mg/kg	1.0	< 1.0	120	< 1.0	< 1.0	120	
Aliphatic TPH >C35-C44	N	2680	mg/kg	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	
Total Aliphatic Hydrocarbons	N	2680	mg/kg	5.0	< 5.0	130	< 5.0	< 5.0	120	
Aromatic TPH >C5-C7	N	2680	mg/kg	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	
Aromatic TPH >C7-C8	N	2680	mg/kg	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	
Aromatic TPH >C8-C10	U	2680	mg/kg	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	
Aromatic TPH >C10-C12	U	2680	mg/kg	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	
Aromatic TPH >C12-C16	U	2680	mg/kg	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	
Aromatic TPH >C16-C21	U	2680	mg/kg	1.0	< 1.0	8.5	< 1.0	< 1.0	< 1.0	

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Results - Soil

Project: 18-0767 Chivers Site Coolock Ground Investigation

Client: Causeway Geotech Ltd					Chemtest Job No.:	18-25748	18-25748	18-25748	18-25748	18-25748
Quotation No.:					Chemtest Sample ID.:	677608	677611	677613	677614	677616
					Sample Location:	TP01	TP02	TP03	TP03	TP04
					Sample Type:	SOIL	SOIL	SOIL	SOIL	SOIL
					Top Depth (m):	1.5	1.5	0.5	1.5	1.5
					Date Sampled:	22-Aug-2018	22-Aug-2018	22-Aug-2018	22-Aug-2018	22-Aug-2018
					Asbestos Lab:			COVENTRY		
Determinand	**Accred.**	**SOP**	**Units**	**LOD**						
Aromatic TPH >C21-C35	U	2680	mg/kg	1.0		< 1.0	170	< 1.0	< 1.0	180
Aromatic TPH >C35-C44	N	2680	mg/kg	1.0		< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Total Aromatic Hydrocarbons	N	2680	mg/kg	5.0		< 5.0	180	< 5.0	< 5.0	180
Total Petroleum Hydrocarbons	N	2680	mg/kg	10.0		< 10	310	< 10	< 10	310
Naphthalene	U	2700	mg/kg	0.10		< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Acenaphthylene	U	2700	mg/kg	0.10		< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Acenaphthene	U	2700	mg/kg	0.10		< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Fluorene	U	2700	mg/kg	0.10		< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Phenanthrene	U	2700	mg/kg	0.10		< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Anthracene	U	2700	mg/kg	0.10		< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Fluoranthene	U	2700	mg/kg	0.10		0.29	0.43	< 0.10	< 0.10	< 0.10
Pyrene	U	2700	mg/kg	0.10		0.32	0.41	< 0.10	< 0.10	< 0.10
Benzo[a]anthracene	U	2700	mg/kg	0.10		< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Chrysene	U	2700	mg/kg	0.10		< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Benzo[b]fluoranthene	U	2700	mg/kg	0.10		< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Benzo[k]fluoranthene	U	2700	mg/kg	0.10		< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Benzo[a]pyrene	U	2700	mg/kg	0.10		< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Indeno(1,2,3-c,d)Pyrene	U	2700	mg/kg	0.10		< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Dibenz(a,h)Anthracene	U	2700	mg/kg	0.10		< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Benzo[g,h,i]perylene	U	2700	mg/kg	0.10		< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Total Of 16 PAH's	U	2700	mg/kg	2.0		< 2.0	< 2.0	< 2.0	< 2.0	< 2.0
Dichlorodifluoromethane	N	2760	µg/kg	1.0		< 1.0	< 1.0	< 1.0		< 1.0
Chloromethane	U	2760	µg/kg	1.0		< 1.0	< 1.0	< 1.0		< 1.0
Vinyl Chloride	U	2760	µg/kg	1.0		< 1.0	< 1.0	< 1.0		< 1.0
Bromomethane	U	2760	µg/kg	20		< 20	< 20	< 20		< 20
Chloroethane	N	2760	µg/kg	2.0		< 2.0	< 2.0	< 2.0		< 2.0
Trichlorofluoromethane	U	2760	µg/kg	1.0		< 1.0	< 1.0	< 1.0		< 1.0
1,1-Dichloroethene	U	2760	µg/kg	1.0		< 1.0	< 1.0	< 1.0		< 1.0
Trans 1,2-Dichloroethene	U	2760	µg/kg	1.0		< 1.0	< 1.0	< 1.0		< 1.0
1,1-Dichloroethane	U	2760	µg/kg	1.0		< 1.0	< 1.0	< 1.0		< 1.0
cis 1,2-Dichloroethene	U	2760	µg/kg	1.0		< 1.0	< 1.0	< 1.0		< 1.0
Bromochloromethane	N	2760	µg/kg	5.0		< 5.0	< 5.0	< 5.0		< 5.0
Trichloromethane	U	2760	µg/kg	1.0		< 1.0	< 1.0	< 1.0		< 1.0
1,1,1-Trichloroethane	U	2760	µg/kg	1.0		< 1.0	< 1.0	< 1.0		< 1.0
Tetrachloromethane	U	2760	µg/kg	1.0		< 1.0	< 1.0	< 1.0		< 1.0
1,1-Dichloropropene	N	2760	µg/kg	1.0		< 1.0	< 1.0	< 1.0		< 1.0
Benzene	U	2760	µg/kg	1.0		< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,2-Dichloroethane	U	2760	µg/kg	2.0		< 2.0	< 2.0	< 2.0		< 2.0

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Results - Soil

Project: 18-0767 Chivers Site Coolock Ground Investigation

Client: Causeway Geotech Ltd			**Chemtest Job No.:**		18-25748	18-25748	18-25748	18-25748	18-25748
Quotation No.:			**Chemtest Sample ID.:**		677608	677611	677613	677614	677616
			Sample Location:		TP01	TP02	TP03	TP03	TP04
			Sample Type:		SOIL	SOIL	SOIL	SOIL	SOIL
			Top Depth (m):		1.5	1.5	0.5	1.5	1.5
			Date Sampled:		22-Aug-2018	22-Aug-2018	22-Aug-2018	22-Aug-2018	22-Aug-2018
			Asbestos Lab:				COVENTRY		
Determinand	**Accred.**	**SOP**	**Units**	**LOD**					
Trichloroethene	U	2760	µg/kg	1.0	< 1.0	< 1.0	< 1.0		< 1.0
1,2-Dichloropropane	U	2760	µg/kg	1.0	< 1.0	< 1.0	< 1.0		< 1.0
Dibromomethane	U	2760	µg/kg	1.0	< 1.0	< 1.0	< 1.0		< 1.0
Bromodichloromethane	U	2760	µg/kg	5.0	< 5.0	< 5.0	< 5.0		< 5.0
cis-1,3-Dichloropropene	N	2760	µg/kg	10	< 10	< 10	< 10		< 10
Toluene	U	2760	µg/kg	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Trans-1,3-Dichloropropene	N	2760	µg/kg	10	< 10	< 10	< 10		< 10
1,1,2-Trichloroethane	U	2760	µg/kg	10	< 10	< 10	< 10		< 10
Tetrachloroethene	U	2760	µg/kg	1.0	< 1.0	< 1.0	< 1.0		< 1.0
1,3-Dichloropropane	N	2760	µg/kg	2.0	< 2.0	< 2.0	< 2.0		< 2.0
Dibromochloromethane	N	2760	µg/kg	10	< 10	< 10	< 10		< 10
1,2-Dibromoethane	U	2760	µg/kg	5.0	< 5.0	< 5.0	< 5.0		< 5.0
Chlorobenzene	U	2760	µg/kg	1.0	< 1.0	< 1.0	< 1.0		< 1.0
1,1,1,2-Tetrachloroethane	U	2760	µg/kg	2.0	< 2.0	< 2.0	< 2.0		< 2.0
Ethylbenzene	U	2760	µg/kg	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
m & p-Xylene	U	2760	µg/kg	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
o-Xylene	U	2760	µg/kg	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Styrene	U	2760	µg/kg	1.0	< 1.0	< 1.0	< 1.0		< 1.0
Tribromomethane	N	2760	µg/kg	1.0	< 1.0	< 1.0	< 1.0		< 1.0
Isopropylbenzene	U	2760	µg/kg	1.0	< 1.0	< 1.0	< 1.0		< 1.0
Bromobenzene	U	2760	µg/kg	1.0	< 1.0	< 1.0	< 1.0		< 1.0
1,2,3-Trichloropropane	N	2760	µg/kg	50	< 50	< 50	< 50		< 50
N-Propylbenzene	N	2760	µg/kg	1.0	< 1.0	< 1.0	< 1.0		< 1.0
2-Chlorotoluene	U	2760	µg/kg	1.0	< 1.0	< 1.0	< 1.0		< 1.0
1,3,5-Trimethylbenzene	U	2760	µg/kg	1.0	< 1.0	< 1.0	< 1.0		< 1.0
4-Chlorotoluene	N	2760	µg/kg	1.0	< 1.0	< 1.0	< 1.0		< 1.0
Tert-Butylbenzene	N	2760	µg/kg	1.0	< 1.0	< 1.0	< 1.0		< 1.0
1,2,4-Trimethylbenzene	U	2760	µg/kg	1.0	< 1.0	< 1.0	< 1.0		< 1.0
Sec-Butylbenzene	N	2760	µg/kg	1.0	< 1.0	< 1.0	< 1.0		< 1.0
1,3-Dichlorobenzene	U	2760	µg/kg	1.0	< 1.0	< 1.0	< 1.0		< 1.0
4-Isopropyltoluene	N	2760	µg/kg	1.0	< 1.0	< 1.0	< 1.0		< 1.0
1,4-Dichlorobenzene	U	2760	µg/kg	1.0	< 1.0	< 1.0	< 1.0		< 1.0
N-Butylbenzene	N	2760	µg/kg	1.0	< 1.0	< 1.0	< 1.0		< 1.0
1,2-Dichlorobenzene	U	2760	µg/kg	1.0	< 1.0	< 1.0	< 1.0		< 1.0
1,2-Dibromo-3-Chloropropane	N	2760	µg/kg	50	< 50	< 50	< 50		< 50
1,2,4-Trichlorobenzene	U	2760	µg/kg	1.0	< 1.0	< 1.0	< 1.0		< 1.0
Hexachlorobutadiene	N	2760	µg/kg	1.0	< 1.0	< 1.0	< 1.0		< 1.0
1,2,3-Trichlorobenzene	N	2760	µg/kg	2.0	< 2.0	< 2.0	< 2.0		< 2.0

Chemtest
The right chemistry to deliver results

Results - Soil

Project: 18-0767 Chivers Site Coolock Ground Investigation

Client: Causeway Geotech Ltd			**Chemtest Job No.:**		18-25748	18-25748	18-25748	18-25748	18-25748
Quotation No.:			**Chemtest Sample ID.:**		677608	677611	677613	677614	677616
			Sample Location:		TP01	TP02	TP03	TP03	TP04
			Sample Type:		SOIL	SOIL	SOIL	SOIL	SOIL
			Top Depth (m):		1.5	1.5	0.5	1.5	1.5
			Date Sampled:		22-Aug-2018	22-Aug-2018	22-Aug-2018	22-Aug-2018	22-Aug-2018
			Asbestos Lab:				COVENTRY		
Determinand	**Accred.**	**SOP**	**Units**	**LOD**					
Methyl Tert-Butyl Ether	U	2760	µg/kg	1.0	< 1.0	< 1.0	< 1.0		< 1.0
N-Nitrosodimethylamine	U	2790	mg/kg	0.50	< 0.50	< 0.50	< 0.50		< 0.50
Phenol	U	2790	mg/kg	0.50	< 0.50	< 0.50	< 0.50		< 0.50
2-Chlorophenol	U	2790	mg/kg	0.50	< 0.50	< 0.50	< 0.50		< 0.50
Bis-(2-Chloroethyl)Ether	U	2790	mg/kg	0.50	< 0.50	< 0.50	< 0.50		< 0.50
1,3-Dichlorobenzene	U	2790	mg/kg	0.50	< 0.50	< 0.50	< 0.50		< 0.50
1,4-Dichlorobenzene	N	2790	mg/kg	0.50	< 0.50	< 0.50	< 0.50		< 0.50
1,2-Dichlorobenzene	U	2790	mg/kg	0.50	< 0.50	< 0.50	< 0.50		< 0.50
2-Methylphenol	U	2790	mg/kg	0.50	< 0.50	< 0.50	< 0.50		< 0.50
Bis(2-Chloroisopropyl)Ether	U	2790	mg/kg	0.50	< 0.50	< 0.50	< 0.50		< 0.50
Hexachloroethane	N	2790	mg/kg	0.50	< 0.50	< 0.50	< 0.50		< 0.50
N-Nitrosodi-n-propylamine	U	2790	mg/kg	0.50	< 0.50	< 0.50	< 0.50		< 0.50
4-Methylphenol	U	2790	mg/kg	0.50	< 0.50	< 0.50	< 0.50		< 0.50
Nitrobenzene	U	2790	mg/kg	0.50	< 0.50	< 0.50	< 0.50		< 0.50
Isophorone	U	2790	mg/kg	0.50	< 0.50	< 0.50	< 0.50		< 0.50
2-Nitrophenol	N	2790	mg/kg	0.50	< 0.50	< 0.50	< 0.50		< 0.50
2,4-Dimethylphenol	N	2790	mg/kg	0.50	< 0.50	< 0.50	< 0.50		< 0.50
Bis(2-Chloroethoxy)Methane	U	2790	mg/kg	0.50	< 0.50	< 0.50	< 0.50		< 0.50
2,4-Dichlorophenol	U	2790	mg/kg	0.50	< 0.50	< 0.50	< 0.50		< 0.50
1,2,4-Trichlorobenzene	U	2790	mg/kg	0.50	< 0.50	< 0.50	< 0.50		< 0.50
Naphthalene	U	2790	mg/kg	0.50	< 0.50	< 0.50	< 0.50		< 0.50
4-Chloroaniline	N	2790	mg/kg	0.50	< 0.50	< 0.50	< 0.50		< 0.50
Hexachlorobutadiene	U	2790	mg/kg	0.50	< 0.50	< 0.50	< 0.50		< 0.50
4-Chloro-3-Methylphenol	U	2790	mg/kg	0.50	< 0.50	< 0.50	< 0.50		< 0.50
2-Methylnaphthalene	U	2790	mg/kg	0.50	< 0.50	< 0.50	< 0.50		< 0.50
4-Nitrophenol	N	2790	mg/kg	0.50	< 0.50	< 0.50	< 0.50		< 0.50
Hexachlorocyclopentadiene	N	2790	mg/kg	0.50	< 0.50	< 0.50	< 0.50		< 0.50
2,4,6-Trichlorophenol	U	2790	mg/kg	0.50	< 0.50	< 0.50	< 0.50		< 0.50
2,4,5-Trichlorophenol	U	2790	mg/kg	0.50	< 0.50	< 0.50	< 0.50		< 0.50
2-Chloronaphthalene	U	2790	mg/kg	0.50	< 0.50	< 0.50	< 0.50		< 0.50
2-Nitroaniline	U	2790	mg/kg	0.50	< 0.50	< 0.50	< 0.50		< 0.50
Acenaphthylene	U	2790	mg/kg	0.50	< 0.50	< 0.50	< 0.50		< 0.50
Dimethylphthalate	U	2790	mg/kg	0.50	< 0.50	< 0.50	< 0.50		< 0.50
2,6-Dinitrotoluene	U	2790	mg/kg	0.50	< 0.50	< 0.50	< 0.50		< 0.50
Acenaphthene	U	2790	mg/kg	0.50	< 0.50	< 0.50	< 0.50		< 0.50
3-Nitroaniline	N	2790	mg/kg	0.50	< 0.50	< 0.50	< 0.50		< 0.50
Dibenzofuran	U	2790	mg/kg	0.50	< 0.50	< 0.50	< 0.50		< 0.50
4-Chlorophenylphenylether	U	2790	mg/kg	0.50	< 0.50	< 0.50	< 0.50		< 0.50

Chemtest
The right chemistry to deliver results

Results - Soil

Project: 18-0767 Chivers Site Coolock Ground Investigation

Client: Causeway Geotech Ltd			**Chemtest Job No.:**		18-25748	18-25748	18-25748	18-25748	18-25748
Quotation No.:			**Chemtest Sample ID.:**		677608	677611	677613	677614	677616
			Sample Location:		TP01	TP02	TP03	TP03	TP04
			Sample Type:		SOIL	SOIL	SOIL	SOIL	SOIL
			Top Depth (m):		1.5	1.5	0.5	1.5	1.5
			Date Sampled:		22-Aug-2018	22-Aug-2018	22-Aug-2018	22-Aug-2018	22-Aug-2018
			Asbestos Lab:				COVENTRY		
Determinand	**Accred.**	**SOP**	**Units**	**LOD**					
2,4-Dinitrotoluene	U	2790	mg/kg	0.50	< 0.50	< 0.50	< 0.50		< 0.50
Fluorene	U	2790	mg/kg	0.50	< 0.50	< 0.50	< 0.50		< 0.50
Diethyl Phthalate	U	2790	mg/kg	0.50	< 0.50	< 0.50	< 0.50		< 0.50
4-Nitroaniline	U	2790	mg/kg	0.50	< 0.50	< 0.50	< 0.50		< 0.50
2-Methyl-4,6-Dinitrophenol	N	2790	mg/kg	0.50	< 0.50	< 0.50	< 0.50		< 0.50
Azobenzene	U	2790	mg/kg	0.50	< 0.50	< 0.50	< 0.50		< 0.50
4-Bromophenylphenyl Ether	U	2790	mg/kg	0.50	< 0.50	< 0.50	< 0.50		< 0.50
Hexachlorobenzene	U	2790	mg/kg	0.50	< 0.50	< 0.50	< 0.50		< 0.50
Pentachlorophenol	N	2790	mg/kg	0.50	< 0.50	< 0.50	< 0.50		< 0.50
Phenanthrene	U	2790	mg/kg	0.50	< 0.50	< 0.50	< 0.50		< 0.50
Anthracene	U	2790	mg/kg	0.50	< 0.50	< 0.50	< 0.50		< 0.50
Carbazole	U	2790	mg/kg	0.50	< 0.50	< 0.50	< 0.50		< 0.50
Di-N-Butyl Phthalate	U	2790	mg/kg	0.50	< 0.50	< 0.50	< 0.50		< 0.50
Fluoranthene	U	2790	mg/kg	0.50	< 0.50	0.66	< 0.50		< 0.50
Pyrene	U	2790	mg/kg	0.50	< 0.50	< 0.50	< 0.50		< 0.50
Butylbenzyl Phthalate	U	2790	mg/kg	0.50	< 0.50	< 0.50	< 0.50		< 0.50
Benzo[a]anthracene	U	2790	mg/kg	0.50	< 0.50	< 0.50	< 0.50		< 0.50
Chrysene	U	2790	mg/kg	0.50	< 0.50	< 0.50	< 0.50		< 0.50
Bis(2-Ethylhexyl)Phthalate	N	2790	mg/kg	0.50	< 0.50	< 0.50	< 0.50		< 0.50
Di-N-Octyl Phthalate	U	2790	mg/kg	0.50	< 0.50	< 0.50	< 0.50		< 0.50
Benzo[b]fluoranthene	U	2790	mg/kg	0.50	< 0.50	< 0.50	< 0.50		< 0.50
Benzo[k]fluoranthene	U	2790	mg/kg	0.50	< 0.50	< 0.50	< 0.50		< 0.50
Benzo[a]pyrene	U	2790	mg/kg	0.50	< 0.50	< 0.50	< 0.50		< 0.50
Indeno(1,2,3-c,d)Pyrene	U	2790	mg/kg	0.50	< 0.50	< 0.50	< 0.50		< 0.50
Dibenz(a,h)Anthracene	U	2790	mg/kg	0.50	< 0.50	< 0.50	< 0.50		< 0.50
Benzo[g,h,i]perylene	U	2790	mg/kg	0.50	< 0.50	< 0.50	< 0.50		< 0.50
Total Phenols	U	2920	mg/kg	0.30	< 0.30	< 0.30	< 0.30	< 0.30	< 0.30

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

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

Final Report

Report No.: 18-25848-1

Initial Date of Issue: 03-Sep-2018

Client Causeway Geotech Ltd

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

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

Project 18-0767 Chivers Site Coolock Ground Investigation

Quotation No.:		**Date Received:**	28-Aug-2018
Order No.:		**Date Instructed:**	29-Aug-2018
No. of Samples:	1		
Turnaround (Wkdays):	4	**Results Due:**	03-Sep-2018
Date Approved:	03-Sep-2018		

Approved By:

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

Results - Leachate

Project: 18-0767 Chivers Site Coolock Ground Investigation

Client: Causeway Geotech Ltd			**Chemtest Job No.:**		18-25848
Quotation No.:			**Chemtest Sample ID.:**		678105
			Sample Location:		TP03
			Sample Type:		SOIL
			Top Depth (m):		0.5
			Date Sampled:		22-Aug-2018
Determinand	**Accred.**	**SOP**	**Units**	**LOD**	
Ammonium	U	1220	mg/l	0.050	0.19
Ammonium	N	1220	mg/kg	0.10	1.9

Results - Soil

Project: 18-0767 Chivers Site Coolock Ground Investigation

Client: Causeway Geotech Ltd			**Chemtest Job No.:**		18-25848
Quotation No.:			**Chemtest Sample ID.:**		678105
			Sample Location:		TP03
			Sample Type:		SOIL
			Top Depth (m):		0.5
			Date Sampled:		22-Aug-2018
			Asbestos Lab:		COVENTRY
Determinand	**Accred.**	**SOP**	**Units**	**LOD**	
ACM Type	U	2192		N/A	-
Asbestos Identification	U	2192	%	0.001	No Asbestos Detected
Moisture	N	2030	%	0.020	4.4
pH	U	2010		N/A	8.5
Boron (Hot Water Soluble)	U	2120	mg/kg	0.40	0.42
Sulphur (Elemental)	U	2180	mg/kg	1.0	2.4
Cyanide (Total)	U	2300	mg/kg	0.50	< 0.50
Sulphide (Easily Liberatable)	N	2325	mg/kg	0.50	6.7
Sulphate (Total)	U	2430	%	0.010	0.11
Arsenic	U	2450	mg/kg	1.0	27
Barium	U	2450	mg/kg	10	74
Cadmium	U	2450	mg/kg	0.10	1.9
Chromium	U	2450	mg/kg	1.0	18
Molybdenum	U	2450	mg/kg	2.0	3.5
Antimony	N	2450	mg/kg	2.0	2.1
Copper	U	2450	mg/kg	0.50	30
Mercury	U	2450	mg/kg	0.10	0.16
Nickel	U	2450	mg/kg	0.50	41
Lead	U	2450	mg/kg	0.50	44
Selenium	U	2450	mg/kg	0.20	1.1
Zinc	U	2450	mg/kg	0.50	73
Chromium (Trivalent)	N	2490	mg/kg	1.0	18
Chromium (Hexavalent)	N	2490	mg/kg	0.50	< 0.50
Total Organic Carbon	U	2625	%	0.20	1.0
Mineral Oil	N	2670	mg/kg	10	< 10
Aliphatic TPH >C5-C6	N	2680	mg/kg	1.0	< 1.0
Aliphatic TPH >C6-C8	N	2680	mg/kg	1.0	< 1.0
Aliphatic TPH >C8-C10	U	2680	mg/kg	1.0	< 1.0
Aliphatic TPH >C10-C12	U	2680	mg/kg	1.0	< 1.0
Aliphatic TPH >C12-C16	U	2680	mg/kg	1.0	< 1.0
Aliphatic TPH >C16-C21	U	2680	mg/kg	1.0	< 1.0
Aliphatic TPH >C21-C35	U	2680	mg/kg	1.0	< 1.0
Aliphatic TPH >C35-C44	N	2680	mg/kg	1.0	< 1.0
Total Aliphatic Hydrocarbons	N	2680	mg/kg	5.0	< 5.0
Aromatic TPH >C5-C7	N	2680	mg/kg	1.0	< 1.0
Aromatic TPH >C7-C8	N	2680	mg/kg	1.0	< 1.0
Aromatic TPH >C8-C10	U	2680	mg/kg	1.0	< 1.0

Results - Soil

Project: 18-0767 Chivers Site Coolock Ground Investigation

Client: Causeway Geotech Ltd			**Chemtest Job No.:**		18-25848
Quotation No.:			**Chemtest Sample ID.:**		678105
			Sample Location:		TP03
			Sample Type:		SOIL
			Top Depth (m):		0.5
			Date Sampled:		22-Aug-2018
			Asbestos Lab:		COVENTRY
Determinand	**Accred.**	**SOP**	**Units**	**LOD**	
Aromatic TPH >C10-C12	U	2680	mg/kg	1.0	< 1.0
Aromatic TPH >C12-C16	U	2680	mg/kg	1.0	< 1.0
Aromatic TPH >C16-C21	U	2680	mg/kg	1.0	< 1.0
Aromatic TPH >C21-C35	U	2680	mg/kg	1.0	< 1.0
Aromatic TPH >C35-C44	N	2680	mg/kg	1.0	< 1.0
Total Aromatic Hydrocarbons	N	2680	mg/kg	5.0	< 5.0
Total Petroleum Hydrocarbons	N	2680	mg/kg	10.0	< 10
Benzene	U	2760	µg/kg	1.0	< 1.0
Toluene	U	2760	µg/kg	1.0	< 1.0
Ethylbenzene	U	2760	µg/kg	1.0	< 1.0
m & p-Xylene	U	2760	µg/kg	1.0	< 1.0
o-Xylene	U	2760	µg/kg	1.0	< 1.0
Methyl Tert-Butyl Ether	U	2760	µg/kg	1.0	< 1.0
Naphthalene	U	2800	mg/kg	0.10	< 0.10
Acenaphthylene	N	2800	mg/kg	0.10	< 0.10
Acenaphthene	U	2800	mg/kg	0.10	< 0.10
Fluorene	U	2800	mg/kg	0.10	< 0.10
Phenanthrene	U	2800	mg/kg	0.10	< 0.10
Anthracene	U	2800	mg/kg	0.10	< 0.10
Fluoranthene	U	2800	mg/kg	0.10	< 0.10
Pyrene	U	2800	mg/kg	0.10	< 0.10
Benzo[a]anthracene	U	2800	mg/kg	0.10	< 0.10
Chrysene	U	2800	mg/kg	0.10	< 0.10
Benzo[b]fluoranthene	U	2800	mg/kg	0.10	< 0.10
Benzo[k]fluoranthene	U	2800	mg/kg	0.10	< 0.10
Benzo[a]pyrene	U	2800	mg/kg	0.10	< 0.10
Indeno(1,2,3-c,d)Pyrene	U	2800	mg/kg	0.10	< 0.10
Dibenz(a,h)Anthracene	N	2800	mg/kg	0.10	< 0.10
Benzo[g,h,i]perylene	U	2800	mg/kg	0.10	< 0.10
Coronene	N	2800	mg/kg	0.10	< 0.10
Total Of 17 PAH's	N	2800	mg/kg	2.0	< 2.0
PCB 28	U	2815	mg/kg	0.010	< 0.010
PCB 52	U	2815	mg/kg	0.010	< 0.010
PCB 90+101	U	2815	mg/kg	0.010	< 0.010
PCB 118	U	2815	mg/kg	0.010	< 0.010
PCB 153	U	2815	mg/kg	0.010	< 0.010
PCB 138	U	2815	mg/kg	0.010	< 0.010
PCB 180	U	2815	mg/kg	0.010	< 0.010

Results - Soil

Project: 18-0767 Chivers Site Coolock Ground Investigation

Client: Causeway Geotech Ltd			**Chemtest Job No.:**		18-25848
Quotation No.:			**Chemtest Sample ID.:**		678105
			Sample Location:		TP03
			Sample Type:		SOIL
			Top Depth (m):		0.5
			Date Sampled:		22-Aug-2018
			Asbestos Lab:		COVENTRY
Determinand	**Accred.**	**SOP**	**Units**	**LOD**	
Total PCBs (7 Congeners)	N	2815	mg/kg	0.10	< 0.10
Total Phenols	U	2920	mg/kg	0.30	< 0.30

Results - Single Stage WAC

Project: 18-0767 Chivers Site Coolock Ground Investigation

					Landfill Waste Acceptance Criteria Limits		
Chemtest Job No:	18-25848						
Chemtest Sample ID:	678105						
Sample Ref:							
Sample ID:							
Sample Location:	TP03						
Top Depth(m):	0.5						
Bottom Depth(m):							
Sampling Date:	22-Aug-2018						
Determinand	**SOP**	**Accred.**	**Units**		**Inert Waste Landfill**	**Stable, Non-reactive hazardous waste in non-hazardous Landfill**	**Hazardous Waste Landfill**
Total Organic Carbon	2625	U	%	1.0	3	5	6
Loss On Ignition	2610	U	%	4.1	--	--	10
Total BTEX	2760	U	mg/kg	< 0.010	6	--	--
Total PCBs (7 Congeners)	2815	U	mg/kg	< 0.10	1	--	--
TPH Total WAC (Mineral Oil)	2670	U	mg/kg	< 10	500	--	--
Total (Of 17) PAH's	2800	N	mg/kg	< 2.0	100	--	--
pH	2010	U		8.5	--	>6	--
Acid Neutralisation Capacity	2015	N	mol/kg	0.039	--	To evaluate	To evaluate
Eluate Analysis			**10:1 Eluate mg/l**	**10:1 Eluate mg/kg**	**Limit values for compliance leaching test using BS EN 12457 at L/S 10 l/kg**		
Arsenic	1450	U	< 0.0010	< 0.050	0.5	2	25
Barium	1450	U	0.0042	< 0.50	20	100	300
Cadmium	1450	U	< 0.00010	< 0.010	0.04	1	5
Chromium	1450	U	< 0.0010	< 0.050	0.5	10	70
Copper	1450	U	< 0.0010	< 0.050	2	50	100
Mercury	1450	U	< 0.00050	< 0.0050	0.01	0.2	2
Molybdenum	1450	U	0.0012	< 0.050	0.5	10	30
Nickel	1450	U	< 0.0010	< 0.050	0.4	10	40
Lead	1450	U	< 0.0010	< 0.010	0.5	10	50
Antimony	1450	U	< 0.0010	< 0.010	0.06	0.7	5
Selenium	1450	U	< 0.0010	< 0.010	0.1	0.5	7
Zinc	1450	U	< 0.0010	< 0.50	4	50	200
Chloride	1220	U	1.7	17	800	15000	25000
Fluoride	1220	U	0.17	1.7	10	150	500
Sulphate	1220	U	3.1	31	1000	20000	50000
Total Dissolved Solids	1020	N	66	660	4000	60000	100000
Phenol Index	1920	U	< 0.030	< 0.30	1	-	-
Dissolved Organic Carbon	1610	U	15	150	500	800	1000

Solid Information	
Dry mass of test portion/kg	0.090
Moisture (%)	4.4

Waste Acceptance Criteria

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

Report Information

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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

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

UKAS TESTING
2183

Final Report

Report No.: 18-26066-1

Initial Date of Issue: 20-Sep-2018

Client Causeway Geotech Ltd

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

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Paul Dunlop
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Stephen Franey
Stephen McCracken
Stephen Watson
Stuart Abraham

Project 18-0767 Chivers Site, Dublin 17

Quotation No.:		**Date Received:**	30-Aug-2018
Order No.:		**Date Instructed:**	17-Sep-2018
No. of Samples:	7		
Turnaround (Wkdays):	4	**Results Due:**	20-Sep-2018
Date Approved:	20-Sep-2018		

Approved By:

Details: Robert Monk, Technical Manager

Results - Leachate

Project: 18-0767 Chivers Site, Dublin 17

Client: Causeway Geotech Ltd			**Chemtest Job No.:**		18-26066	18-26066	18-26066	18-26066
Quotation No.:			**Chemtest Sample ID.:**		679437	679442	679445	679446
			Client Sample ID.:		1	1	1	2
			Sample Location:		BH01	BH04	BH07	BH07
			Sample Type:		SOIL	SOIL	SOIL	SOIL
			Top Depth (m):		0.5	0.5	0.5	1.5
			Date Sampled:		28-Aug-2018	28-Aug-2018	28-Aug-2018	28-Aug-2018
Determinand	**Accred.**	**SOP**	**Units**	**LOD**				
Ammonium	U	1220	mg/l	0.050	0.18	0.061	0.13	0.18
Ammonium	N	1220	mg/kg	0.10	1.8	0.61	1.3	1.8

Chemtest
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Results - Soil

Project: 18-0767 Chivers Site, Dublin 17

Client: Causeway Geotech Ltd				**Chemtest Job No.:**	18-26066	18-26066	18-26066	18-26066	18-26066	18-26066	18-26066
Quotation No.:				**Chemtest Sample ID.:**	679437	679439	679442	679443	679444	679445	679446
				Client Sample ID.:	1	1	1	2	3	1	2
				Sample Location:	BH01	BH03	BH04	BH04	BH04	BH07	BH07
				Sample Type:	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
				Top Depth (m):	0.5	0.5	0.5	1.5	2.5	0.5	1.5
				Date Sampled:	28-Aug-2018	28-Aug-2018	28-Aug-2018	28-Aug-2018	28-Aug-2018	28-Aug-2018	28-Aug-2018
				Asbestos Lab:	COVENTRY		COVENTRY			COVENTRY	COVENTRY
Determinand	**Accred.**	**SOP**	**Units**	**LOD**							
ACM Type	U	2192		N/A	-		-			-	-
Asbestos Identification	U	2192	%	0.001	No Asbestos Detected		No Asbestos Detected			No Asbestos Detected	No Asbestos Detected
Moisture	N	2030	%	0.020	7.9	12	7.8	11	6.7	8.9	9.5
pH	U	2010		N/A	8.6	8.2	8.5	8.6		8.5	8.6
Boron (Hot Water Soluble)	U	2120	mg/kg	0.40	< 0.40	0.58	< 0.40	< 0.40		< 0.40	< 0.40
Sulphate (2:1 Water Soluble) as SO4	U	2120	g/l	0.010	< 0.010	0.064	< 0.010	< 0.010		< 0.010	0.010
Sulphur (Elemental)	U	2180	mg/kg	1.0	< 1.0		< 1.0			< 1.0	< 1.0
Cyanide (Free)	U	2300	mg/kg	0.50	[B] < 0.50	[B] < 0.50	[B] < 0.50	[B] < 0.50		[B] < 0.50	[B] < 0.50
Cyanide (Total)	U	2300	mg/kg	0.50	[B] < 0.50	[B] < 0.50	[B] < 0.50	[B] < 0.50		[B] < 0.50	[B] < 0.50
Thiocyanate	U	2300	mg/kg	5.0	[B] < 5.0	[B] < 5.0	[B] < 5.0	[B] < 5.0		[B] < 5.0	[B] < 5.0
Sulphide (Easily Liberatable)	N	2325	mg/kg	0.50	6.0	5.1	2.9	4.8		3.6	5.0
Sulphate (Total)	U	2430	%	0.010	0.048	0.14	0.043	0.025		0.097	0.13
Arsenic	U	2450	mg/kg	1.0	26	27	24	21		22	22
Barium	U	2450	mg/kg	10	110		69			140	98
Cadmium	U	2450	mg/kg	0.10	2.4	2.3	2.4	1.9		1.7	1.5
Chromium	U	2450	mg/kg	1.0	21	29	20	18		19	17
Molybdenum	U	2450	mg/kg	2.0	6.0		4.5			4.0	3.4
Antimony	N	2450	mg/kg	2.0	2.4		2.6			2.0	< 2.0
Copper	U	2450	mg/kg	0.50	28	40	34	28		26	24
Mercury	U	2450	mg/kg	0.10	< 0.10	0.16	< 0.10	< 0.10		< 0.10	< 0.10
Nickel	U	2450	mg/kg	0.50	62	65	61	49		51	39
Lead	U	2450	mg/kg	0.50	36	67	30	26		26	24
Selenium	U	2450	mg/kg	0.20	0.90	1.8	0.70	0.86		0.36	3.1
Zinc	U	2450	mg/kg	0.50	100	110	95	90		81	72
Chromium (Trivalent)	N	2490	mg/kg	1.0	21		20			19	17
Chromium (Hexavalent)	N	2490	mg/kg	0.50	< 0.50	< 0.50	< 0.50	< 0.50		< 0.50	< 0.50
Organic Matter	U	2625	%	0.40	0.81	2.1	0.78	0.50		0.59	1.3
Total Organic Carbon	U	2625	%	0.20	0.47		0.45			0.34	0.76
Mineral Oil	N	2670	mg/kg	10	< 10		< 10			< 10	< 10
Aliphatic TPH >C5-C6	N	2680	mg/kg	1.0	[B] < 1.0	[B] < 1.0	[B] < 1.0	[B] < 1.0	[B] < 1.0	[B] < 1.0	[B] < 1.0
Aliphatic TPH >C6-C8	N	2680	mg/kg	1.0	[B] < 1.0	[B] < 1.0	[B] < 1.0	[B] < 1.0	[B] < 1.0	[B] < 1.0	[B] < 1.0
Aliphatic TPH >C8-C10	U	2680	mg/kg	1.0	[B] < 1.0	[B] < 1.0	[B] < 1.0	[B] < 1.0	[B] < 1.0	[B] < 1.0	[B] < 1.0
Aliphatic TPH >C10-C12	U	2680	mg/kg	1.0	[B] < 1.0	[B] < 1.0	[B] < 1.0	[B] < 1.0	[B] < 1.0	[B] < 1.0	[B] < 1.0
Aliphatic TPH >C12-C16	U	2680	mg/kg	1.0	[B] < 1.0	[B] < 1.0	[B] < 1.0	[B] < 1.0	[B] < 1.0	[B] < 1.0	[B] < 1.0
Aliphatic TPH >C16-C21	U	2680	mg/kg	1.0	[B] < 1.0	[B] < 1.0	[B] < 1.0	[B] < 1.0	[B] < 1.0	[B] < 1.0	[B] < 1.0
Aliphatic TPH >C21-C35	U	2680	mg/kg	1.0	[B] < 1.0	[B] < 1.0	[B] < 1.0	[B] < 1.0	[B] < 1.0	[B] < 1.0	[B] < 1.0
Aliphatic TPH >C35-C44	N	2680	mg/kg	1.0	[B] < 1.0	[B] < 1.0	[B] < 1.0	[B] < 1.0	[B] < 1.0	[B] < 1.0	[B] < 1.0

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Results - Soil

Project: 18-0767 Chivers Site, Dublin 17

Client: Causeway Geotech Ltd			**Chemtest Job No.:**		18-26066	18-26066	18-26066	18-26066	18-26066	18-26066	18-26066
Quotation No.:			**Chemtest Sample ID.:**		679437	679439	679442	679443	679444	679445	679446
			Client Sample ID.:		1	1	1	2	3	1	2
			Sample Location:		BH01	BH03	BH04	BH04	BH04	BH07	BH07
			Sample Type:		SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
			Top Depth (m):		0.5	0.5	0.5	1.5	2.5	0.5	1.5
			Date Sampled:		28-Aug-2018	28-Aug-2018	28-Aug-2018	28-Aug-2018	28-Aug-2018	28-Aug-2018	28-Aug-2018
			Asbestos Lab:		COVENTRY		COVENTRY			COVENTRY	COVENTRY
Determinand	**Accred.**	**SOP**	**Units**	**LOD**							
Total Aliphatic Hydrocarbons	N	2680	mg/kg	5.0	[B] < 5.0	[B] < 5.0	[B] < 5.0	[B] < 5.0	[B] < 5.0	[B] < 5.0	[B] < 5.0
Aromatic TPH >C5-C7	N	2680	mg/kg	1.0	[B] < 1.0	[B] < 1.0	[B] < 1.0	[B] < 1.0	[B] < 1.0	[B] < 1.0	[B] < 1.0
Aromatic TPH >C7-C8	N	2680	mg/kg	1.0	[B] < 1.0	[B] < 1.0	[B] < 1.0	[B] < 1.0	[B] < 1.0	[B] < 1.0	[B] < 1.0
Aromatic TPH >C8-C10	U	2680	mg/kg	1.0	[B] < 1.0	[B] < 1.0	[B] < 1.0	[B] < 1.0	[B] < 1.0	[B] < 1.0	[B] < 1.0
Aromatic TPH >C10-C12	U	2680	mg/kg	1.0	[B] < 1.0	[B] < 1.0	[B] < 1.0	[B] < 1.0	[B] < 1.0	[B] < 1.0	[B] < 1.0
Aromatic TPH >C12-C16	U	2680	mg/kg	1.0	[B] < 1.0	[B] < 1.0	[B] < 1.0	[B] < 1.0	[B] < 1.0	[B] < 1.0	[B] < 1.0
Aromatic TPH >C16-C21	U	2680	mg/kg	1.0	[B] 15	[B] < 1.0	[B] < 1.0	[B] < 1.0	[B] < 1.0	[B] < 1.0	[B] < 1.0
Aromatic TPH >C21-C35	U	2680	mg/kg	1.0	[B] 3.5	[B] < 1.0	[B] < 1.0	[B] < 1.0	[B] < 1.0	[B] < 1.0	[B] < 1.0
Aromatic TPH >C35-C44	N	2680	mg/kg	1.0	[B] < 1.0	[B] < 1.0	[B] < 1.0	[B] < 1.0	[B] < 1.0	[B] < 1.0	[B] < 1.0
Total Aromatic Hydrocarbons	N	2680	mg/kg	5.0	[B] 19	[B] < 5.0	[B] < 5.0	[B] < 5.0	[B] < 5.0	[B] < 5.0	[B] < 5.0
Total Petroleum Hydrocarbons	N	2680	mg/kg	10.0	[B] 19	[B] < 10	[B] < 10	[B] < 10	[B] < 10	[B] < 10	[B] < 10
Naphthalene	U	2700	mg/kg	0.10	0.24	0.17	< 0.10	< 0.10		< 0.10	< 0.10
Acenaphthylene	U	2700	mg/kg	0.10	0.10	0.14	< 0.10	< 0.10		< 0.10	< 0.10
Acenaphthene	U	2700	mg/kg	0.10	0.47	< 0.10	< 0.10	< 0.10		< 0.10	< 0.10
Fluorene	U	2700	mg/kg	0.10	0.74	0.10	< 0.10	< 0.10		< 0.10	< 0.10
Phenanthrene	U	2700	mg/kg	0.10	3.0	0.23	< 0.10	< 0.10		< 0.10	< 0.10
Anthracene	U	2700	mg/kg	0.10	0.77	< 0.10	< 0.10	< 0.10		< 0.10	< 0.10
Fluoranthene	U	2700	mg/kg	0.10	3.3	0.29	< 0.10	< 0.10		< 0.10	< 0.10
Pyrene	U	2700	mg/kg	0.10	2.3	0.31	< 0.10	< 0.10		< 0.10	< 0.10
Benzo[a]anthracene	U	2700	mg/kg	0.10	0.91	0.20	< 0.10	< 0.10		< 0.10	< 0.10
Chrysene	U	2700	mg/kg	0.10	1.3	0.38	< 0.10	< 0.10		< 0.10	< 0.10
Benzo[b]fluoranthene	U	2700	mg/kg	0.10	0.86	< 0.10	< 0.10	< 0.10		< 0.10	< 0.10
Benzo[k]fluoranthene	U	2700	mg/kg	0.10	0.59	< 0.10	< 0.10	< 0.10		< 0.10	< 0.10
Benzo[a]pyrene	U	2700	mg/kg	0.10	0.61	< 0.10	< 0.10	< 0.10		< 0.10	< 0.10
Indeno(1,2,3-c,d)Pyrene	U	2700	mg/kg	0.10	0.23	< 0.10	< 0.10	< 0.10		< 0.10	< 0.10
Dibenz(a,h)Anthracene	U	2700	mg/kg	0.10	0.27	< 0.10	< 0.10	< 0.10		< 0.10	< 0.10
Benzo[g,h,i]perylene	U	2700	mg/kg	0.10	0.63	< 0.10	< 0.10	< 0.10		< 0.10	< 0.10
Total Of 16 PAH's	U	2700	mg/kg	2.0	16	< 2.0	< 2.0	< 2.0		< 2.0	< 2.0
Dichlorodifluoromethane	N	2760	µg/kg	1.0	[B] < 1.0		[B] < 1.0	[B] < 1.0		[B] < 1.0	[B] < 1.0
Chloromethane	U	2760	µg/kg	1.0	[B] < 1.0		[B] < 1.0	[B] < 1.0		[B] < 1.0	[B] < 1.0
Vinyl Chloride	U	2760	µg/kg	1.0	[B] < 1.0		[B] < 1.0	[B] < 1.0		[B] < 1.0	[B] < 1.0
Bromomethane	U	2760	µg/kg	20	[B] < 20		[B] < 20	[B] < 20		[B] < 20	[B] < 20
Chloroethane	N	2760	µg/kg	2.0	[B] < 2.0		[B] < 2.0	[B] < 2.0		[B] < 2.0	[B] < 2.0
Trichlorofluoromethane	U	2760	µg/kg	1.0	[B] < 1.0		[B] < 1.0	[B] < 1.0		[B] < 1.0	[B] < 1.0
1,1-Dichloroethene	U	2760	µg/kg	1.0	[B] < 1.0		[B] < 1.0	[B] < 1.0		[B] < 1.0	[B] < 1.0
Trans 1,2-Dichloroethene	U	2760	µg/kg	1.0	[B] < 1.0		[B] < 1.0	[B] < 1.0		[B] < 1.0	[B] < 1.0
1,1-Dichloroethane	U	2760	µg/kg	1.0	[B] < 1.0		[B] < 1.0	[B] < 1.0		[B] < 1.0	[B] < 1.0
cis 1,2-Dichloroethene	U	2760	µg/kg	1.0	[B] < 1.0		[B] < 1.0	[B] < 1.0		[B] < 1.0	[B] < 1.0

Chemtest
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Results - Soil

Project: 18-0767 Chivers Site, Dublin 17

Client: Causeway Geotech Ltd					Chemtest Job No.:	18-26066	18-26066	18-26066	18-26066	18-26066	18-26066	18-26066
Quotation No.:					Chemtest Sample ID.:	679437	679439	679442	679443	679444	679445	679446
					Client Sample ID.:	1	1	1	2	3	1	2
					Sample Location:	BH01	BH03	BH04	BH04	BH04	BH07	BH07
					Sample Type:	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
					Top Depth (m):	0.5	0.5	0.5	1.5	2.5	0.5	1.5
					Date Sampled:	28-Aug-2018	28-Aug-2018	28-Aug-2018	28-Aug-2018	28-Aug-2018	28-Aug-2018	28-Aug-2018
					Asbestos Lab:	COVENTRY		COVENTRY			COVENTRY	COVENTRY
Determinand	**Accred.**	**SOP**	**Units**	**LOD**								
Bromochloromethane	N	2760	µg/kg	5.0		[B] < 5.0		[B] < 5.0	[B] < 5.0		[B] < 5.0	[B] < 5.0
Trichloromethane	U	2760	µg/kg	1.0		[B] < 1.0		[B] < 1.0	[B] < 1.0		[B] < 1.0	[B] < 1.0
1,1,1-Trichloroethane	U	2760	µg/kg	1.0		[B] < 1.0		[B] < 1.0	[B] < 1.0		[B] < 1.0	[B] < 1.0
Tetrachloromethane	U	2760	µg/kg	1.0		[B] < 1.0		[B] < 1.0	[B] < 1.0		[B] < 1.0	[B] < 1.0
1,1-Dichloropropene	N	2760	µg/kg	1.0		[B] < 1.0		[B] < 1.0	[B] < 1.0		[B] < 1.0	[B] < 1.0
Benzene	U	2760	µg/kg	1.0		[B] < 1.0	[B] < 1.0	[B] < 1.0	[B] < 1.0		[B] < 1.0	[B] < 1.0
1,2-Dichloroethane	U	2760	µg/kg	2.0		[B] < 2.0		[B] < 2.0	[B] < 2.0		[B] < 2.0	[B] < 2.0
Trichloroethene	U	2760	µg/kg	1.0		[B] < 1.0		[B] < 1.0	[B] < 1.0		[B] < 1.0	[B] < 1.0
1,2-Dichloropropane	U	2760	µg/kg	1.0		[B] < 1.0		[B] < 1.0	[B] < 1.0		[B] < 1.0	[B] < 1.0
Dibromomethane	U	2760	µg/kg	1.0		[B] < 1.0		[B] < 1.0	[B] < 1.0		[B] < 1.0	[B] < 1.0
Bromodichloromethane	U	2760	µg/kg	5.0		[B] < 5.0		[B] < 5.0	[B] < 5.0		[B] < 5.0	[B] < 5.0
cis-1,3-Dichloropropene	N	2760	µg/kg	10		[B] < 10		[B] < 10	[B] < 10		[B] < 10	[B] < 10
Toluene	U	2760	µg/kg	1.0		[B] < 1.0	[B] < 1.0	[B] < 1.0	[B] < 1.0		[B] < 1.0	[B] < 1.0
Trans-1,3-Dichloropropene	N	2760	µg/kg	10		[B] < 10		[B] < 10	[B] < 10		[B] < 10	[B] < 10
1,1,2-Trichloroethane	U	2760	µg/kg	10		[B] < 10		[B] < 10	[B] < 10		[B] < 10	[B] < 10
Tetrachloroethene	U	2760	µg/kg	1.0		[B] < 1.0		[B] < 1.0	[B] < 1.0		[B] < 1.0	[B] < 1.0
1,3-Dichloropropane	N	2760	µg/kg	2.0		[B] < 2.0		[B] < 2.0	[B] < 2.0		[B] < 2.0	[B] < 2.0
Dibromochloromethane	N	2760	µg/kg	10		[B] < 10		[B] < 10	[B] < 10		[B] < 10	[B] < 10
1,2-Dibromoethane	U	2760	µg/kg	5.0		[B] < 5.0		[B] < 5.0	[B] < 5.0		[B] < 5.0	[B] < 5.0
Chlorobenzene	U	2760	µg/kg	1.0		[B] < 1.0		[B] < 1.0	[B] < 1.0		[B] < 1.0	[B] < 1.0
1,1,1,2-Tetrachloroethane	U	2760	µg/kg	2.0		[B] < 2.0		[B] < 2.0	[B] < 2.0		[B] < 2.0	[B] < 2.0
Ethylbenzene	U	2760	µg/kg	1.0		[B] < 1.0	[B] < 1.0	[B] < 1.0	[B] < 1.0		[B] < 1.0	[B] < 1.0
m & p-Xylene	U	2760	µg/kg	1.0		[B] < 1.0	[B] < 1.0	[B] < 1.0	[B] < 1.0		[B] < 1.0	[B] < 1.0
o-Xylene	U	2760	µg/kg	1.0		[B] < 1.0	[B] < 1.0	[B] < 1.0	[B] < 1.0		[B] < 1.0	[B] < 1.0
Styrene	U	2760	µg/kg	1.0		[B] < 1.0		[B] < 1.0	[B] < 1.0		[B] < 1.0	[B] < 1.0
Tribromomethane	N	2760	µg/kg	1.0		[B] < 1.0		[B] < 1.0	[B] < 1.0		[B] < 1.0	[B] < 1.0
Isopropylbenzene	U	2760	µg/kg	1.0		[B] < 1.0		[B] < 1.0	[B] < 1.0		[B] < 1.0	[B] < 1.0
Bromobenzene	U	2760	µg/kg	1.0		[B] < 1.0		[B] < 1.0	[B] < 1.0		[B] < 1.0	[B] < 1.0
1,2,3-Trichloropropane	N	2760	µg/kg	50		[B] < 50		[B] < 50	[B] < 50		[B] < 50	[B] < 50
N-Propylbenzene	N	2760	µg/kg	1.0		[B] < 1.0		[B] < 1.0	[B] < 1.0		[B] < 1.0	[B] < 1.0
2-Chlorotoluene	U	2760	µg/kg	1.0		[B] < 1.0		[B] < 1.0	[B] < 1.0		[B] < 1.0	[B] < 1.0
1,3,5-Trimethylbenzene	U	2760	µg/kg	1.0		[B] < 1.0		[B] < 1.0	[B] < 1.0		[B] < 1.0	[B] < 1.0
4-Chlorotoluene	N	2760	µg/kg	1.0		[B] < 1.0		[B] < 1.0	[B] < 1.0		[B] < 1.0	[B] < 1.0
Tert-Butylbenzene	N	2760	µg/kg	1.0		[B] < 1.0		[B] < 1.0	[B] < 1.0		[B] < 1.0	[B] < 1.0
1,2,4-Trimethylbenzene	U	2760	µg/kg	1.0		[B] < 1.0		[B] < 1.0	[B] < 1.0		[B] < 1.0	[B] < 1.0
Sec-Butylbenzene	N	2760	µg/kg	1.0		[B] < 1.0		[B] < 1.0	[B] < 1.0		[B] < 1.0	[B] < 1.0
1,3-Dichlorobenzene	U	2760	µg/kg	1.0		[B] < 1.0		[B] < 1.0	[B] < 1.0		[B] < 1.0	[B] < 1.0
4-Isopropyltoluene	N	2760	µg/kg	1.0		[B] < 1.0		[B] < 1.0	[B] < 1.0		[B] < 1.0	[B] < 1.0

Chemtest
The right chemistry to deliver results

Results - Soil

Project: 18-0767 Chivers Site, Dublin 17

Client: Causeway Geotech Ltd					**Chemtest Job No.:**	18-26066	18-26066	18-26066	18-26066	18-26066	18-26066	18-26066
Quotation No.:					**Chemtest Sample ID.:**	679437	679439	679442	679443	679444	679445	679446
					Client Sample ID.:	1	1	1	2	3	1	2
					Sample Location:	BH01	BH03	BH04	BH04	BH04	BH07	BH07
					Sample Type:	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
					Top Depth (m):	0.5	0.5	0.5	1.5	2.5	0.5	1.5
					Date Sampled:	28-Aug-2018	28-Aug-2018	28-Aug-2018	28-Aug-2018	28-Aug-2018	28-Aug-2018	28-Aug-2018
					Asbestos Lab:	COVENTRY		COVENTRY			COVENTRY	COVENTRY
Determinand	**Accred.**	**SOP**	**Units**	**LOD**								
1,4-Dichlorobenzene	U	2760	µg/kg	1.0	[B] < 1.0		[B] < 1.0	[B] < 1.0		[B] < 1.0	[B] < 1.0
N-Butylbenzene	N	2760	µg/kg	1.0	[B] < 1.0		[B] < 1.0	[B] < 1.0		[B] < 1.0	[B] < 1.0
1,2-Dichlorobenzene	U	2760	µg/kg	1.0	[B] < 1.0		[B] < 1.0	[B] < 1.0		[B] < 1.0	[B] < 1.0
1,2-Dibromo-3-Chloropropane	N	2760	µg/kg	50	[B] < 50		[B] < 50	[B] < 50		[B] < 50	[B] < 50
1,2,4-Trichlorobenzene	U	2760	µg/kg	1.0	[B] < 1.0		[B] < 1.0	[B] < 1.0		[B] < 1.0	[B] < 1.0
Hexachlorobutadiene	N	2760	µg/kg	1.0	[B] < 1.0		[B] < 1.0	[B] < 1.0		[B] < 1.0	[B] < 1.0
1,2,3-Trichlorobenzene	N	2760	µg/kg	2.0	[B] < 2.0		[B] < 2.0	[B] < 2.0		[B] < 2.0	[B] < 2.0
Methyl Tert-Butyl Ether	U	2760	µg/kg	1.0	[B] < 1.0		[B] < 1.0	[B] < 1.0		[B] < 1.0	[B] < 1.0
N-Nitrosodimethylamine	U	2790	mg/kg	0.50	[B] < 0.50		[B] < 0.50	[B] < 0.50		[B] < 0.50	[B] < 0.50
Phenol	U	2790	mg/kg	0.50	[B] < 0.50		[B] < 0.50	[B] < 0.50		[B] < 0.50	[B] < 0.50
2-Chlorophenol	U	2790	mg/kg	0.50	[B] < 0.50		[B] < 0.50	[B] < 0.50		[B] < 0.50	[B] < 0.50
Bis-(2-Chloroethyl)Ether	U	2790	mg/kg	0.50	[B] < 0.50		[B] < 0.50	[B] < 0.50		[B] < 0.50	[B] < 0.50
1,3-Dichlorobenzene	U	2790	mg/kg	0.50	[B] < 0.50		[B] < 0.50	[B] < 0.50		[B] < 0.50	[B] < 0.50
1,4-Dichlorobenzene	N	2790	mg/kg	0.50	[B] < 0.50		[B] < 0.50	[B] < 0.50		[B] < 0.50	[B] < 0.50
1,2-Dichlorobenzene	U	2790	mg/kg	0.50	[B] < 0.50		[B] < 0.50	[B] < 0.50		[B] < 0.50	[B] < 0.50
2-Methylphenol	U	2790	mg/kg	0.50	[B] < 0.50		[B] < 0.50	[B] < 0.50		[B] < 0.50	[B] < 0.50
Bis(2-Chloroisopropyl)Ether	U	2790	mg/kg	0.50	[B] < 0.50		[B] < 0.50	[B] < 0.50		[B] < 0.50	[B] < 0.50
Hexachloroethane	N	2790	mg/kg	0.50	[B] < 0.50		[B] < 0.50	[B] < 0.50		[B] < 0.50	[B] < 0.50
N-Nitrosodi-n-propylamine	U	2790	mg/kg	0.50	[B] < 0.50		[B] < 0.50	[B] < 0.50		[B] < 0.50	[B] < 0.50
4-Methylphenol	U	2790	mg/kg	0.50	[B] < 0.50		[B] < 0.50	[B] < 0.50		[B] < 0.50	[B] < 0.50
Nitrobenzene	U	2790	mg/kg	0.50	[B] < 0.50		[B] < 0.50	[B] < 0.50		[B] < 0.50	[B] < 0.50
Isophorone	U	2790	mg/kg	0.50	[B] < 0.50		[B] < 0.50	[B] < 0.50		[B] < 0.50	[B] < 0.50
2-Nitrophenol	N	2790	mg/kg	0.50	[B] < 0.50		[B] < 0.50	[B] < 0.50		[B] < 0.50	[B] < 0.50
2,4-Dimethylphenol	N	2790	mg/kg	0.50	[B] < 0.50		[B] < 0.50	[B] < 0.50		[B] < 0.50	[B] < 0.50
Bis(2-Chloroethoxy)Methane	U	2790	mg/kg	0.50	[B] < 0.50		[B] < 0.50	[B] < 0.50		[B] < 0.50	[B] < 0.50
2,4-Dichlorophenol	U	2790	mg/kg	0.50	[B] < 0.50		[B] < 0.50	[B] < 0.50		[B] < 0.50	[B] < 0.50
1,2,4-Trichlorobenzene	U	2790	mg/kg	0.50	[B] < 0.50		[B] < 0.50	[B] < 0.50		[B] < 0.50	[B] < 0.50
Naphthalene	U	2790	mg/kg	0.50	[B] < 0.50		[B] < 0.50	[B] < 0.50		[B] < 0.50	[B] < 0.50
4-Chloroaniline	N	2790	mg/kg	0.50	[B] < 0.50		[B] < 0.50	[B] < 0.50		[B] < 0.50	[B] < 0.50
Hexachlorobutadiene	U	2790	mg/kg	0.50	[B] < 0.50		[B] < 0.50	[B] < 0.50		[B] < 0.50	[B] < 0.50
4-Chloro-3-Methylphenol	U	2790	mg/kg	0.50	[B] < 0.50		[B] < 0.50	[B] < 0.50		[B] < 0.50	[B] < 0.50
2-Methylnaphthalene	U	2790	mg/kg	0.50	[B] < 0.50		[B] < 0.50	[B] < 0.50		[B] < 0.50	[B] < 0.50
4-Nitrophenol	N	2790	mg/kg	0.50	[B] < 0.50		[B] < 0.50	[B] < 0.50		[B] < 0.50	[B] < 0.50
Hexachlorocyclopentadiene	N	2790	mg/kg	0.50	[B] < 0.50		[B] < 0.50	[B] < 0.50		[B] < 0.50	[B] < 0.50
2,4,6-Trichlorophenol	U	2790	mg/kg	0.50	[B] < 0.50		[B] < 0.50	[B] < 0.50		[B] < 0.50	[B] < 0.50
2,4,5-Trichlorophenol	U	2790	mg/kg	0.50	[B] < 0.50		[B] < 0.50	[B] < 0.50		[B] < 0.50	[B] < 0.50
2-Chloronaphthalene	U	2790	mg/kg	0.50	[B] < 0.50		[B] < 0.50	[B] < 0.50		[B] < 0.50	[B] < 0.50
2-Nitroaniline	U	2790	mg/kg	0.50	[B] < 0.50		[B] < 0.50	[B] < 0.50		[B] < 0.50	[B] < 0.50

Chemtest
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Results - Soil

Project: 18-0767 Chivers Site, Dublin 17

Client: Causeway Geotech Ltd					**Chemtest Job No.:**	18-26066	18-26066	18-26066	18-26066	18-26066	18-26066	18-26066
Quotation No.:					**Chemtest Sample ID.:**	679437	679439	679442	679443	679444	679445	679446
					Client Sample ID.:	1	1	1	2	3	1	2
					Sample Location:	BH01	BH03	BH04	BH04	BH04	BH07	BH07
					Sample Type:	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
					Top Depth (m):	0.5	0.5	0.5	1.5	2.5	0.5	1.5
					Date Sampled:	28-Aug-2018	28-Aug-2018	28-Aug-2018	28-Aug-2018	28-Aug-2018	28-Aug-2018	28-Aug-2018
					Asbestos Lab:	COVENTRY		COVENTRY			COVENTRY	COVENTRY
Determinand	**Accred.**	**SOP**	**Units**	**LOD**								
Acenaphthylene	U	2790	mg/kg	0.50	[B] < 0.50		[B] < 0.50	[B] < 0.50		[B] < 0.50	[B] < 0.50
Dimethylphthalate	U	2790	mg/kg	0.50	[B] < 0.50		[B] < 0.50	[B] < 0.50		[B] < 0.50	[B] < 0.50
2,6-Dinitrotoluene	U	2790	mg/kg	0.50	[B] < 0.50		[B] < 0.50	[B] < 0.50		[B] < 0.50	[B] < 0.50
Acenaphthene	U	2790	mg/kg	0.50	[B] < 0.50		[B] < 0.50	[B] < 0.50		[B] < 0.50	[B] < 0.50
3-Nitroaniline	N	2790	mg/kg	0.50	[B] < 0.50		[B] < 0.50	[B] < 0.50		[B] < 0.50	[B] < 0.50
Dibenzofuran	U	2790	mg/kg	0.50	[B] < 0.50		[B] < 0.50	[B] < 0.50		[B] < 0.50	[B] < 0.50
4-Chlorophenylphenylether	U	2790	mg/kg	0.50	[B] < 0.50		[B] < 0.50	[B] < 0.50		[B] < 0.50	[B] < 0.50
2,4-Dinitrotoluene	U	2790	mg/kg	0.50	[B] < 0.50		[B] < 0.50	[B] < 0.50		[B] < 0.50	[B] < 0.50
Fluorene	U	2790	mg/kg	0.50	[B] < 0.50		[B] < 0.50	[B] < 0.50		[B] < 0.50	[B] < 0.50
Diethyl Phthalate	U	2790	mg/kg	0.50	[B] < 0.50		[B] < 0.50	[B] < 0.50		[B] < 0.50	[B] < 0.50
4-Nitroaniline	U	2790	mg/kg	0.50	[B] < 0.50		[B] < 0.50	[B] < 0.50		[B] < 0.50	[B] < 0.50
2-Methyl-4,6-Dinitrophenol	N	2790	mg/kg	0.50	[B] < 0.50		[B] < 0.50	[B] < 0.50		[B] < 0.50	[B] < 0.50
Azobenzene	U	2790	mg/kg	0.50	[B] < 0.50		[B] < 0.50	[B] < 0.50		[B] < 0.50	[B] < 0.50
4-Bromophenylphenyl Ether	U	2790	mg/kg	0.50	[B] < 0.50		[B] < 0.50	[B] < 0.50		[B] < 0.50	[B] < 0.50
Hexachlorobenzene	U	2790	mg/kg	0.50	[B] < 0.50		[B] < 0.50	[B] < 0.50		[B] < 0.50	[B] < 0.50
Pentachlorophenol	N	2790	mg/kg	0.50	[B] < 0.50		[B] < 0.50	[B] < 0.50		[B] < 0.50	[B] < 0.50
Phenanthrene	U	2790	mg/kg	0.50	[B] < 0.50		[B] < 0.50	[B] < 0.50		[B] < 0.50	[B] < 0.50
Anthracene	U	2790	mg/kg	0.50	[B] < 0.50		[B] < 0.50	[B] < 0.50		[B] < 0.50	[B] < 0.50
Carbazole	U	2790	mg/kg	0.50	[B] < 0.50		[B] < 0.50	[B] < 0.50		[B] < 0.50	[B] < 0.50
Di-N-Butyl Phthalate	U	2790	mg/kg	0.50	[B] < 0.50		[B] < 0.50	[B] < 0.50		[B] < 0.50	[B] < 0.50
Fluoranthene	U	2790	mg/kg	0.50	[B] < 0.50		[B] < 0.50	[B] < 0.50		[B] < 0.50	[B] < 0.50
Pyrene	U	2790	mg/kg	0.50	[B] < 0.50		[B] < 0.50	[B] < 0.50		[B] < 0.50	[B] < 0.50
Butylbenzyl Phthalate	U	2790	mg/kg	0.50	[B] < 0.50		[B] < 0.50	[B] < 0.50		[B] < 0.50	[B] < 0.50
Benzo[a]anthracene	U	2790	mg/kg	0.50	[B] < 0.50		[B] < 0.50	[B] < 0.50		[B] < 0.50	[B] < 0.50
Chrysene	U	2790	mg/kg	0.50	[B] < 0.50		[B] < 0.50	[B] < 0.50		[B] < 0.50	[B] < 0.50
Bis(2-Ethylhexyl)Phthalate	N	2790	mg/kg	0.50	[B] < 0.50		[B] < 0.50	[B] < 0.50		[B] < 0.50	[B] < 0.50
Di-N-Octyl Phthalate	U	2790	mg/kg	0.50	[B] < 0.50		[B] < 0.50	[B] < 0.50		[B] < 0.50	[B] < 0.50
Benzo[b]fluoranthene	U	2790	mg/kg	0.50	[B] < 0.50		[B] < 0.50	[B] < 0.50		[B] < 0.50	[B] < 0.50
Benzo[k]fluoranthene	U	2790	mg/kg	0.50	[B] < 0.50		[B] < 0.50	[B] < 0.50		[B] < 0.50	[B] < 0.50
Benzo[a]pyrene	U	2790	mg/kg	0.50	[B] < 0.50		[B] < 0.50	[B] < 0.50		[B] < 0.50	[B] < 0.50
Indeno(1,2,3-c,d)Pyrene	U	2790	mg/kg	0.50	[B] < 0.50		[B] < 0.50	[B] < 0.50		[B] < 0.50	[B] < 0.50
Dibenz(a,h)Anthracene	U	2790	mg/kg	0.50	[B] < 0.50		[B] < 0.50	[B] < 0.50		[B] < 0.50	[B] < 0.50
Benzo[g,h,i]perylene	U	2790	mg/kg	0.50	[B] < 0.50		[B] < 0.50	[B] < 0.50		[B] < 0.50	[B] < 0.50
Naphthalene	U	2800	mg/kg	0.10	0.16		< 0.10			< 0.10	< 0.10
Acenaphthylene	N	2800	mg/kg	0.10	< 0.10		< 0.10			< 0.10	< 0.10
Acenaphthene	U	2800	mg/kg	0.10	0.62		< 0.10			< 0.10	< 0.10
Fluorene	U	2800	mg/kg	0.10	0.48		< 0.10			< 0.10	< 0.10
Phenanthrene	U	2800	mg/kg	0.10	3.0		< 0.10			< 0.10	< 0.10

Chemtest
The right chemistry to deliver results

Results - Soil

Project: 18-0767 Chivers Site, Dublin 17

Client: Causeway Geotech Ltd			**Chemtest Job No.:**		18-26066	18-26066	18-26066	18-26066	18-26066	18-26066	18-26066
Quotation No.:			**Chemtest Sample ID.:**		679437	679439	679442	679443	679444	679445	679446
			Client Sample ID.:		1	1	1	2	3	1	2
			Sample Location:		BH01	BH03	BH04	BH04	BH04	BH07	BH07
			Sample Type:		SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
			Top Depth (m):		0.5	0.5	0.5	1.5	2.5	0.5	1.5
			Date Sampled:		28-Aug-2018	28-Aug-2018	28-Aug-2018	28-Aug-2018	28-Aug-2018	28-Aug-2018	28-Aug-2018
			Asbestos Lab:		COVENTRY		COVENTRY			COVENTRY	COVENTRY
Determinand	**Accred.**	**SOP**	**Units**	**LOD**							
Anthracene	U	2800	mg/kg	0.10	0.81		< 0.10			< 0.10	< 0.10
Fluoranthene	U	2800	mg/kg	0.10	2.6		< 0.10			< 0.10	< 0.10
Pyrene	U	2800	mg/kg	0.10	2.0		< 0.10			< 0.10	< 0.10
Benzo[a]anthracene	U	2800	mg/kg	0.10	0.64		< 0.10			< 0.10	< 0.10
Chrysene	U	2800	mg/kg	0.10	0.55		< 0.10			< 0.10	< 0.10
Benzo[b]fluoranthene	U	2800	mg/kg	0.10	0.50		< 0.10			< 0.10	< 0.10
Benzo[k]fluoranthene	U	2800	mg/kg	0.10	0.15		< 0.10			< 0.10	< 0.10
Benzo[a]pyrene	U	2800	mg/kg	0.10	0.32		< 0.10			< 0.10	< 0.10
Indeno(1,2,3-c,d)Pyrene	U	2800	mg/kg	0.10	0.17		< 0.10			< 0.10	< 0.10
Dibenz(a,h)Anthracene	N	2800	mg/kg	0.10	< 0.10		< 0.10			< 0.10	< 0.10
Benzo[g,h,i]perylene	U	2800	mg/kg	0.10	0.20		< 0.10			< 0.10	< 0.10
Coronene	N	2800	mg/kg	0.10	< 0.10		< 0.10			< 0.10	< 0.10
Total Of 17 PAH's	N	2800	mg/kg	2.0	12		< 2.0			< 2.0	< 2.0
PCB 28	U	2815	mg/kg	0.010	< 0.010		< 0.010			< 0.010	< 0.010
PCB 52	U	2815	mg/kg	0.010	< 0.010		< 0.010			< 0.010	< 0.010
PCB 90+101	U	2815	mg/kg	0.010	< 0.010		< 0.010			< 0.010	< 0.010
PCB 118	U	2815	mg/kg	0.010	< 0.010		< 0.010			< 0.010	< 0.010
PCB 153	U	2815	mg/kg	0.010	< 0.010		< 0.010			< 0.010	< 0.010
PCB 138	U	2815	mg/kg	0.010	< 0.010		< 0.010			< 0.010	< 0.010
PCB 180	U	2815	mg/kg	0.010	< 0.010		< 0.010			< 0.010	< 0.010
Total PCBs (7 Congeners)	N	2815	mg/kg	0.10	< 0.10		< 0.10			< 0.10	< 0.10
Total Phenols	U	2920	mg/kg	0.30	< 0.30	< 0.30	< 0.30	< 0.30		< 0.30	< 0.30

Results - Single Stage WAC

Project: 18-0767 Chivers Site, Dublin 17

					Landfill Waste Acceptance Criteria Limits		
Chemtest Job No:	18-26066						
Chemtest Sample ID:	679437						
Sample Ref:							
Sample ID:	1						
Sample Location:	BH01						
Top Depth(m):	0.5						
Bottom Depth(m):							
Sampling Date:	28-Aug-2018						
Determinand	**SOP**	**Accred.**	**Units**		**Inert Waste Landfill**	**Stable, Non-reactive hazardous waste in non-hazardous Landfill**	**Hazardous Waste Landfill**
Total Organic Carbon	2625	U	%	0.47	3	5	6
Loss On Ignition	2610	U	%	1.6	--	--	10
Total BTEX	2760	U	mg/kg	[B] < 0.010	6	--	--
Total PCBs (7 Congeners)	2815	U	mg/kg	< 0.10	1	--	--
TPH Total WAC (Mineral Oil)	2670	U	mg/kg	[B] 19	500	--	--
Total (Of 17) PAH's	2800	N	mg/kg	12	100	--	--
pH	2010	U		8.6	--	>6	--
Acid Neutralisation Capacity	2015	N	mol/kg	0.40	--	To evaluate	To evaluate
Eluate Analysis			**10:1 Eluate mg/l**	**10:1 Eluate mg/kg**	**Limit values for compliance leaching test using BS EN 12457 at L/S 10 l/kg**		
Arsenic	1450	U	< 0.0010	< 0.050	0.5	2	25
Barium	1450	U	0.0096	< 0.50	20	100	300
Cadmium	1450	U	< 0.00010	< 0.010	0.04	1	5
Chromium	1450	U	< 0.0010	< 0.050	0.5	10	70
Copper	1450	U	0.0011	< 0.050	2	50	100
Mercury	1450	U	< 0.00050	< 0.0050	0.01	0.2	2
Molybdenum	1450	U	0.026	0.26	0.5	10	30
Nickel	1450	U	0.0052	0.052	0.4	10	40
Lead	1450	U	< 0.0010	< 0.010	0.5	10	50
Antimony	1450	U	< 0.0010	< 0.010	0.06	0.7	5
Selenium	1450	U	< 0.0010	< 0.010	0.1	0.5	7
Zinc	1450	U	0.0083	< 0.50	4	50	200
Chloride	1220	U	1.1	11	800	15000	25000
Fluoride	1220	U	0.38	3.8	10	150	500
Sulphate	1220	U	9.2	92	1000	20000	50000
Total Dissolved Solids	1020	N	81	810	4000	60000	100000
Phenol Index	1920	U	< 0.030	< 0.30	1	-	-
Dissolved Organic Carbon	1610	U	5.3	53	500	800	1000

Solid Information	
Dry mass of test portion/kg	0.090
Moisture (%)	7.9

Waste Acceptance Criteria

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

Results - Single Stage WAC

Project: 18-0767 Chivers Site, Dublin 17

					Landfill Waste Acceptance Criteria Limits		
Chemtest Job No:	18-26066						
Chemtest Sample ID:	679442						
Sample Ref:							
Sample ID:	1						
Sample Location:	BH04						
Top Depth(m):	0.5						
Bottom Depth(m):							
Sampling Date:	28-Aug-2018						
Determinand	**SOP**	**Accred.**	**Units**		**Inert Waste Landfill**	**Stable, Non-reactive hazardous waste in non-hazardous Landfill**	**Hazardous Waste Landfill**
Total Organic Carbon	2625	U	%	0.45	3	5	6
Loss On Ignition	2610	U	%	2.0	--	--	10
Total BTEX	2760	U	mg/kg	[B] < 0.010	6	--	--
Total PCBs (7 Congeners)	2815	U	mg/kg	< 0.10	1	--	--
TPH Total WAC (Mineral Oil)	2670	U	mg/kg	[B] < 10	500	--	--
Total (Of 17) PAH's	2800	N	mg/kg	< 2.0	100	--	--
pH	2010	U		8.5	--	>6	--
Acid Neutralisation Capacity	2015	N	mol/kg	0.086	--	To evaluate	To evaluate
Eluate Analysis			**10:1 Eluate mg/l**	**10:1 Eluate mg/kg**	**Limit values for compliance leaching test using BS EN 12457 at L/S 10 l/kg**		
Arsenic	1450	U	< 0.0010	< 0.050	0.5	2	25
Barium	1450	U	0.0056	< 0.50	20	100	300
Cadmium	1450	U	< 0.00010	< 0.010	0.04	1	5
Chromium	1450	U	< 0.0010	< 0.050	0.5	10	70
Copper	1450	U	< 0.0010	< 0.050	2	50	100
Mercury	1450	U	< 0.00050	< 0.0050	0.01	0.2	2
Molybdenum	1450	U	0.0077	0.077	0.5	10	30
Nickel	1450	U	< 0.0010	< 0.050	0.4	10	40
Lead	1450	U	< 0.0010	< 0.010	0.5	10	50
Antimony	1450	U	< 0.0010	< 0.010	0.06	0.7	5
Selenium	1450	U	< 0.0010	< 0.010	0.1	0.5	7
Zinc	1450	U	< 0.0010	< 0.50	4	50	200
Chloride	1220	U	1.3	13	800	15000	25000
Fluoride	1220	U	0.48	4.8	10	150	500
Sulphate	1220	U	2.3	23	1000	20000	50000
Total Dissolved Solids	1020	N	73	730	4000	60000	100000
Phenol Index	1920	U	< 0.030	< 0.30	1	-	-
Dissolved Organic Carbon	1610	U	3.8	< 50	500	800	1000

Solid Information	
Dry mass of test portion/kg	0.090
Moisture (%)	7.8

Waste Acceptance Criteria

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

Results - Single Stage WAC

Project: 18-0767 Chivers Site, Dublin 17

					Landfill Waste Acceptance Criteria Limits		
Chemtest Job No:	18-26066						
Chemtest Sample ID:	679445						
Sample Ref:							
Sample ID:	1						
Sample Location:	BH07						
Top Depth(m):	0.5						
Bottom Depth(m):							
Sampling Date:	28-Aug-2018						
Determinand	**SOP**	**Accred.**	**Units**		**Inert Waste Landfill**	**Stable, Non-reactive hazardous waste in non-hazardous Landfill**	**Hazardous Waste Landfill**
Total Organic Carbon	2625	U	%	0.34	3	5	6
Loss On Ignition	2610	U	%	1.3	--	--	10
Total BTEX	2760	U	mg/kg	[B] < 0.010	6	--	--
Total PCBs (7 Congeners)	2815	U	mg/kg	< 0.10	1	--	--
TPH Total WAC (Mineral Oil)	2670	U	mg/kg	[B] < 10	500	--	--
Total (Of 17) PAH's	2800	N	mg/kg	< 2.0	100	--	--
pH	2010	U		8.5	--	>6	--
Acid Neutralisation Capacity	2015	N	mol/kg	0.24	--	To evaluate	To evaluate
Eluate Analysis			**10:1 Eluate mg/l**	**10:1 Eluate mg/kg**	**Limit values for compliance leaching test using BS EN 12457 at L/S 10 l/kg**		
Arsenic	1450	U	< 0.0010	< 0.050	0.5	2	25
Barium	1450	U	0.012	< 0.50	20	100	300
Cadmium	1450	U	< 0.00010	< 0.010	0.04	1	5
Chromium	1450	U	< 0.0010	< 0.050	0.5	10	70
Copper	1450	U	< 0.0010	< 0.050	2	50	100
Mercury	1450	U	< 0.00050	< 0.0050	0.01	0.2	2
Molybdenum	1450	U	0.022	0.22	0.5	10	30
Nickel	1450	U	< 0.0010	< 0.050	0.4	10	40
Lead	1450	U	< 0.0010	< 0.010	0.5	10	50
Antimony	1450	U	< 0.0010	< 0.010	0.06	0.7	5
Selenium	1450	U	< 0.0010	< 0.010	0.1	0.5	7
Zinc	1450	U	< 0.0010	< 0.50	4	50	200
Chloride	1220	U	< 1.0	< 10	800	15000	25000
Fluoride	1220	U	0.48	4.8	10	150	500
Sulphate	1220	U	3.3	33	1000	20000	50000
Total Dissolved Solids	1020	N	78	780	4000	60000	100000
Phenol Index	1920	U	< 0.030	< 0.30	1	-	-
Dissolved Organic Carbon	1610	U	6.5	65	500	800	1000

Solid Information	
Dry mass of test portion/kg	0.090
Moisture (%)	8.9

Waste Acceptance Criteria

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

Results - Single Stage WAC

Project: 18-0767 Chivers Site, Dublin 17

					Landfill Waste Acceptance Criteria Limits		
Chemtest Job No:	18-26066						
Chemtest Sample ID:	679446						
Sample Ref:							
Sample ID:	2						
Sample Location:	BH07						
Top Depth(m):	1.5						
Bottom Depth(m):							
Sampling Date:	28-Aug-2018						
Determinand	**SOP**	**Accred.**	**Units**		**Inert Waste Landfill**	**Stable, Non-reactive hazardous waste in non-hazardous Landfill**	**Hazardous Waste Landfill**
Total Organic Carbon	2625	U	%	0.76	3	5	6
Loss On Ignition	2610	U	%	1.5	--	--	10
Total BTEX	2760	U	mg/kg	[B] < 0.010	6	--	--
Total PCBs (7 Congeners)	2815	U	mg/kg	< 0.10	1	--	--
TPH Total WAC (Mineral Oil)	2670	U	mg/kg	[B] < 10	500	--	--
Total (Of 17) PAH's	2800	N	mg/kg	< 2.0	100	--	--
pH	2010	U		8.6	--	>6	--
Acid Neutralisation Capacity	2015	N	mol/kg	0.48	--	To evaluate	To evaluate
Eluate Analysis			**10:1 Eluate mg/l**	**10:1 Eluate mg/kg**	**Limit values for compliance leaching test using BS EN 12457 at L/S 10 l/kg**		
Arsenic	1450	U	< 0.0010	< 0.050	0.5	2	25
Barium	1450	U	0.0089	< 0.50	20	100	300
Cadmium	1450	U	< 0.00010	< 0.010	0.04	1	5
Chromium	1450	U	< 0.0010	< 0.050	0.5	10	70
Copper	1450	U	< 0.0010	< 0.050	2	50	100
Mercury	1450	U	0.00063	0.0063	0.01	0.2	2
Molybdenum	1450	U	0.021	0.21	0.5	10	30
Nickel	1450	U	< 0.0010	< 0.050	0.4	10	40
Lead	1450	U	< 0.0010	< 0.010	0.5	10	50
Antimony	1450	U	< 0.0010	< 0.010	0.06	0.7	5
Selenium	1450	U	< 0.0010	< 0.010	0.1	0.5	7
Zinc	1450	U	< 0.0010	< 0.50	4	50	200
Chloride	1220	U	1.7	17	800	15000	25000
Fluoride	1220	U	0.44	4.4	10	150	500
Sulphate	1220	U	3.5	35	1000	20000	50000
Total Dissolved Solids	1020	N	75	750	4000	60000	100000
Phenol Index	1920	U	< 0.030	< 0.30	1	-	-
Dissolved Organic Carbon	1610	U	6.0	60	500	800	1000

Solid Information	
Dry mass of test portion/kg	0.090
Moisture (%)	9.5

Waste Acceptance Criteria

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

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:
679437		1	BH01	28-Aug-2018	B	Amber Glass 250ml
679437		1	BH01	28-Aug-2018	B	Amber Glass 60ml
679437		1	BH01	28-Aug-2018	B	Plastic Tub 500g
679439		1	BH03	28-Aug-2018	B	Amber Glass 250ml
679439		1	BH03	28-Aug-2018	B	Amber Glass 60ml
679439		1	BH03	28-Aug-2018	B	Plastic Tub 500g
679442		1	BH04	28-Aug-2018	B	Amber Glass 250ml
679442		1	BH04	28-Aug-2018	B	Amber Glass 60ml
679442		1	BH04	28-Aug-2018	B	Plastic Tub 500g
679443		2	BH04	28-Aug-2018	B	Amber Glass 250ml
679443		2	BH04	28-Aug-2018	B	Amber Glass 60ml
679443		2	BH04	28-Aug-2018	B	Plastic Tub 500g
679444		3	BH04	28-Aug-2018	B	Amber Glass 250ml
679444		3	BH04	28-Aug-2018	B	Amber Glass 60ml
679444		3	BH04	28-Aug-2018	B	Plastic Tub 500g
679445		1	BH07	28-Aug-2018	B	Amber Glass 250ml
679445		1	BH07	28-Aug-2018	B	Amber Glass 60ml
679445		1	BH07	28-Aug-2018	B	Plastic Tub 500g
679446		2	BH07	28-Aug-2018	B	Amber Glass 250ml
679446		2	BH07	28-Aug-2018	B	Amber Glass 60ml
679446		2	BH07	28-Aug-2018	B	Plastic Tub 500g

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

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

UKAS TESTING
2183

Final Report

Report No.: 18-26563-1

Initial Date of Issue: 17-Sep-2018

Client Causeway Geotech Ltd

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

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

Project 18-0767 - Chivers Site Cooklock Ground Inversstigation

Quotation No.:

Order No.:

No. of Samples: 8

Turnaround (Wkdays): 3

Date Approved: 17-Sep-2018

Approved By:

Details: Robert Monk, Technical Manager

Date Received: 29-Sep-2018

Date Instructed: 04-Sep-2018

Results Due: 06-Sep-2018

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

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Results - Soil

Project: 18-0767 - Chivers Site Cooklock Ground Inversstigation

Client: Causeway Geotech Ltd					**Chemtest Job No.:**	18-26563	18-26563	18-26563	18-26563	18-26563	18-26563	18-26563	18-26563
Quotation No.:					**Chemtest Sample ID.:**	681910	681913	681914	681916	681918	681919	681920	681921
Order No.:					Client Sample Ref.:	3	8	9	2	4	3	4	5
					Sample Location:	BH02	BH05	BH05	BH06	BH06	BH08	BH08	BH08
					Sample Type:	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
					Top Depth (m):	0.40	0.40	1.40	0.40	2.00	0.40	1.40	2.40
					Date Sampled:	21-Sep-2018	21-Sep-2018	21-Sep-2018	21-Sep-2018	21-Sep-2018	21-Sep-2018	21-Sep-2018	21-Sep-2018
Determinand	**Accred.**	**SOP**	**Units**	**LOD**									
Moisture	N	2030	%	0.020		12	9.2	24	20	18	12	13	16
pH	U	2010		N/A		8.6		8.0		8.3	8.4	8.4	
Boron (Hot Water Soluble)	U	2120	mg/kg	0.40		< 0.40		1.4		0.61	0.54	< 0.40	
Sulphate (2:1 Water Soluble) as SO4	U	2120	g/l	0.010		< 0.010	< 0.010	< 0.010	0.045	< 0.010	0.026	< 0.010	< 0.010
Cyanide (Free)	U	2300	mg/kg	0.50		< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
Cyanide (Total)	U	2300	mg/kg	0.50		< 0.50		< 0.50		< 0.50	< 0.50	< 0.50	
Thiocyanate	U	2300	mg/kg	5.0		< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Sulphide (Easily Liberatable)	N	2325	mg/kg	0.50		5.1		3.6		7.4	8.9	7.0	
Sulphate (Total)	U	2430	%	0.010		0.040		0.086		0.10	0.40	0.067	
Arsenic	U	2450	mg/kg	1.0		23		17		20	25	18	
Cadmium	U	2450	mg/kg	0.10		1.4		1.9		1.9	1.5	2.2	
Chromium	U	2450	mg/kg	1.0		17		29		19	17	19	
Copper	U	2450	mg/kg	0.50		15		31		29	110	27	
Mercury	U	2450	mg/kg	0.10		0.10		< 0.10		0.13	0.17	0.11	
Nickel	U	2450	mg/kg	0.50		35		50		40	44	46	
Lead	U	2450	mg/kg	0.50		20		27		33	39	23	
Selenium	U	2450	mg/kg	0.20		< 0.20		1.3		1.1	1.9	0.80	
Zinc	U	2450	mg/kg	0.50		71		110		78	86	78	
Chromium (Hexavalent)	N	2490	mg/kg	0.50		< 0.50		< 0.50		< 0.50	< 0.50	< 0.50	
Organic Matter	U	2625	%	0.40		3.5	1.2	1.1	4.1	1.7	2.1	1.4	1.3
Aliphatic TPH >C5-C6	N	2680	mg/kg	1.0		< 1.0		< 1.0		< 1.0	< 1.0	< 1.0	
Aliphatic TPH >C6-C8	N	2680	mg/kg	1.0		< 1.0		< 1.0		< 1.0	< 1.0	< 1.0	
Aliphatic TPH >C8-C10	U	2680	mg/kg	1.0		< 1.0		< 1.0		< 1.0	< 1.0	< 1.0	
Aliphatic TPH >C10-C12	U	2680	mg/kg	1.0		< 1.0		< 1.0		< 1.0	< 1.0	< 1.0	
Aliphatic TPH >C12-C16	U	2680	mg/kg	1.0		< 1.0		< 1.0		< 1.0	< 1.0	< 1.0	
Aliphatic TPH >C16-C21	U	2680	mg/kg	1.0		< 1.0		< 1.0		< 1.0	< 1.0	< 1.0	
Aliphatic TPH >C21-C35	U	2680	mg/kg	1.0		< 1.0		< 1.0		< 1.0	< 1.0	< 1.0	
Aliphatic TPH >C35-C44	N	2680	mg/kg	1.0		< 1.0		< 1.0		< 1.0	< 1.0	< 1.0	
Total Aliphatic Hydrocarbons	N	2680	mg/kg	5.0		< 5.0		< 5.0		< 5.0	< 5.0	< 5.0	
Aromatic TPH >C5-C7	N	2680	mg/kg	1.0		< 1.0		< 1.0		< 1.0	< 1.0	< 1.0	
Aromatic TPH >C7-C8	N	2680	mg/kg	1.0		< 1.0		< 1.0		< 1.0	< 1.0	< 1.0	
Aromatic TPH >C8-C10	U	2680	mg/kg	1.0		< 1.0		< 1.0		< 1.0	< 1.0	< 1.0	
Aromatic TPH >C10-C12	U	2680	mg/kg	1.0		< 1.0		< 1.0		< 1.0	< 1.0	< 1.0	
Aromatic TPH >C12-C16	U	2680	mg/kg	1.0		< 1.0		< 1.0		< 1.0	< 1.0	< 1.0	
Aromatic TPH >C16-C21	U	2680	mg/kg	1.0		< 1.0		< 1.0		< 1.0	< 1.0	< 1.0	
Aromatic TPH >C21-C35	U	2680	mg/kg	1.0		< 1.0		< 1.0		< 1.0	< 1.0	< 1.0	
Aromatic TPH >C35-C44	N	2680	mg/kg	1.0		< 1.0		< 1.0		< 1.0	< 1.0	< 1.0	
Total Aromatic Hydrocarbons	N	2680	mg/kg	5.0		< 5.0		< 5.0		< 5.0	< 5.0	< 5.0	

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Results - Soil

Project: 18-0767 - Chivers Site Cooklock Ground Inversstigation

Client: Causeway Geotech Ltd					**Chemtest Job No.:**	18-26563	18-26563	18-26563	18-26563	18-26563	18-26563	18-26563	18-26563
Quotation No.:					**Chemtest Sample ID.:**	681910	681913	681914	681916	681918	681919	681920	681921
Order No.:					Client Sample Ref.:	3	8	9	2	4	3	4	5
					Sample Location:	BH02	BH05	BH05	BH06	BH06	BH08	BH08	BH08
					Sample Type:	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
					Top Depth (m):	0.40	0.40	1.40	0.40	2.00	0.40	1.40	2.40
					Date Sampled:	21-Sep-2018	21-Sep-2018	21-Sep-2018	21-Sep-2018	21-Sep-2018	21-Sep-2018	21-Sep-2018	21-Sep-2018
Determinand	**Accred.**	**SOP**	**Units**	**LOD**									
Total Petroleum Hydrocarbons	N	2680	mg/kg	10.0		< 10		< 10		< 10	< 10	< 10	
Dichlorodifluoromethane	N	2760	µg/kg	1.0			< 1.0		< 1.0		< 1.0		
Chloromethane	U	2760	µg/kg	1.0			< 1.0		< 1.0		< 1.0		
Vinyl Chloride	U	2760	µg/kg	1.0			< 1.0		< 1.0		< 1.0		
Bromomethane	U	2760	µg/kg	20			< 20		< 20		< 20		
Chloroethane	N	2760	µg/kg	2.0			< 2.0		< 2.0		< 2.0		
Trichlorofluoromethane	U	2760	µg/kg	1.0			< 1.0		< 1.0		< 1.0		
1,1-Dichloroethene	U	2760	µg/kg	1.0			< 1.0		< 1.0		< 1.0		
Trans 1,2-Dichloroethene	U	2760	µg/kg	1.0			< 1.0		< 1.0		< 1.0		
1,1-Dichloroethane	U	2760	µg/kg	1.0			< 1.0		< 1.0		< 1.0		
cis 1,2-Dichloroethene	U	2760	µg/kg	1.0			< 1.0		< 1.0		< 1.0		
Bromochloromethane	N	2760	µg/kg	5.0			< 5.0		< 5.0		< 5.0		
Trichloromethane	U	2760	µg/kg	1.0			< 1.0		< 1.0		< 1.0		
1,1,1-Trichloroethane	U	2760	µg/kg	1.0			< 1.0		< 1.0		< 1.0		
Tetrachloromethane	U	2760	µg/kg	1.0			< 1.0		< 1.0		< 1.0		
1,1-Dichloropropene	N	2760	µg/kg	1.0			< 1.0		< 1.0		< 1.0		
Benzene	U	2760	µg/kg	1.0	< 1.0			< 1.0		< 1.0	< 1.0	< 1.0	
1,2-Dichloroethane	U	2760	µg/kg	2.0			< 2.0		< 2.0		< 2.0		
Trichloroethene	U	2760	µg/kg	1.0			< 1.0		< 1.0		< 1.0		
1,2-Dichloropropane	U	2760	µg/kg	1.0			< 1.0		< 1.0		< 1.0		
Dibromomethane	U	2760	µg/kg	1.0			< 1.0		< 1.0		< 1.0		
Bromodichloromethane	U	2760	µg/kg	5.0			< 5.0		< 5.0		< 5.0		
cis-1,3-Dichloropropene	N	2760	µg/kg	10			< 10		< 10		< 10		
Toluene	U	2760	µg/kg	1.0	< 1.0			< 1.0		< 1.0	< 1.0	< 1.0	
Trans-1,3-Dichloropropene	N	2760	µg/kg	10			< 10		< 10		< 10		
1,1,2-Trichloroethane	U	2760	µg/kg	10			< 10		< 10		< 10		
Tetrachloroethene	U	2760	µg/kg	1.0			< 1.0		< 1.0		< 1.0		
1,3-Dichloropropane	N	2760	µg/kg	2.0			< 2.0		< 2.0		< 2.0		
Dibromochloromethane	N	2760	µg/kg	10			< 10		< 10		< 10		
1,2-Dibromoethane	U	2760	µg/kg	5.0			< 5.0		< 5.0		< 5.0		
Chlorobenzene	U	2760	µg/kg	1.0			< 1.0		< 1.0		< 1.0		
1,1,1,2-Tetrachloroethane	U	2760	µg/kg	2.0			< 2.0		< 2.0		< 2.0		
Ethylbenzene	U	2760	µg/kg	1.0	< 1.0			< 1.0		< 1.0	< 1.0	< 1.0	
m & p-Xylene	U	2760	µg/kg	1.0	< 1.0			< 1.0		< 1.0	< 1.0	< 1.0	
o-Xylene	U	2760	µg/kg	1.0	< 1.0			< 1.0		< 1.0	< 1.0	< 1.0	
Styrene	U	2760	µg/kg	1.0			< 1.0		< 1.0		< 1.0		
Tribromomethane	N	2760	µg/kg	1.0			< 1.0		< 1.0		< 1.0		
Isopropylbenzene	U	2760	µg/kg	1.0			< 1.0		< 1.0		< 1.0		

Chemtest
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Results - Soil

Project: 18-0767 - Chivers Site Cooklock Ground Inversstigation

Client: Causeway Geotech Ltd					**Chemtest Job No.:**	18-26563	18-26563	18-26563	18-26563	18-26563	18-26563	18-26563	18-26563
Quotation No.:					**Chemtest Sample ID.:**	681910	681913	681914	681916	681918	681919	681920	681921
Order No.:					Client Sample Ref.:	3	8	9	2	4	3	4	5
					Sample Location:	BH02	BH05	BH05	BH06	BH06	BH08	BH08	BH08
					Sample Type:	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
					Top Depth (m):	0.40	0.40	1.40	0.40	2.00	0.40	1.40	2.40
					Date Sampled:	21-Sep-2018	21-Sep-2018	21-Sep-2018	21-Sep-2018	21-Sep-2018	21-Sep-2018	21-Sep-2018	21-Sep-2018
Determinand	**Accred.**	**SOP**	**Units**	**LOD**									
Bromobenzene	U	2760	µg/kg	1.0		< 1.0		< 1.0		< 1.0			
1,2,3-Trichloropropane	N	2760	µg/kg	50		< 50		< 50		< 50			
N-Propylbenzene	N	2760	µg/kg	1.0		< 1.0		< 1.0		< 1.0			
2-Chlorotoluene	U	2760	µg/kg	1.0		< 1.0		< 1.0		< 1.0			
1,3,5-Trimethylbenzene	U	2760	µg/kg	1.0		< 1.0		< 1.0		< 1.0			
4-Chlorotoluene	N	2760	µg/kg	1.0		< 1.0		< 1.0		< 1.0			
Tert-Butylbenzene	N	2760	µg/kg	1.0		< 1.0		< 1.0		< 1.0			
1,2,4-Trimethylbenzene	U	2760	µg/kg	1.0		< 1.0		< 1.0		< 1.0			
Sec-Butylbenzene	N	2760	µg/kg	1.0		< 1.0		< 1.0		< 1.0			
1,3-Dichlorobenzene	U	2760	µg/kg	1.0		< 1.0		< 1.0		< 1.0			
4-Isopropyltoluene	N	2760	µg/kg	1.0		< 1.0		< 1.0		< 1.0			
1,4-Dichlorobenzene	U	2760	µg/kg	1.0		< 1.0		< 1.0		< 1.0			
N-Butylbenzene	N	2760	µg/kg	1.0		< 1.0		< 1.0		< 1.0			
1,2-Dichlorobenzene	U	2760	µg/kg	1.0		< 1.0		< 1.0		< 1.0			
1,2-Dibromo-3-Chloropropane	N	2760	µg/kg	50		< 50		< 50		< 50			
1,2,4-Trichlorobenzene	U	2760	µg/kg	1.0		< 1.0		< 1.0		< 1.0			
Hexachlorobutadiene	N	2760	µg/kg	1.0		< 1.0		< 1.0		< 1.0			
1,2,3-Trichlorobenzene	N	2760	µg/kg	2.0		< 2.0		< 2.0		< 2.0			
Methyl Tert-Butyl Ether	U	2760	µg/kg	1.0						< 1.0			
N-Nitrosodimethylamine	U	2790	mg/kg	0.50		< 0.50		< 0.50		< 0.50			
Phenol	U	2790	mg/kg	0.50		< 0.50		< 0.50		< 0.50			
2-Chlorophenol	U	2790	mg/kg	0.50		< 0.50		< 0.50		< 0.50			
Bis-(2-Chloroethyl)Ether	U	2790	mg/kg	0.50		< 0.50		< 0.50		< 0.50			
1,3-Dichlorobenzene	U	2790	mg/kg	0.50		< 0.50		< 0.50		< 0.50			
1,4-Dichlorobenzene	N	2790	mg/kg	0.50		< 0.50		< 0.50		< 0.50			
1,2-Dichlorobenzene	U	2790	mg/kg	0.50		< 0.50		< 0.50		< 0.50			
2-Methylphenol	U	2790	mg/kg	0.50		< 0.50		< 0.50		< 0.50			
Bis(2-Chloroisopropyl)Ether	U	2790	mg/kg	0.50		< 0.50		< 0.50		< 0.50			
Hexachloroethane	N	2790	mg/kg	0.50		< 0.50		< 0.50		< 0.50			
N-Nitrosodi-n-propylamine	U	2790	mg/kg	0.50		< 0.50		< 0.50		< 0.50			
4-Methylphenol	U	2790	mg/kg	0.50		< 0.50		< 0.50		< 0.50			
Nitrobenzene	U	2790	mg/kg	0.50		< 0.50		< 0.50		< 0.50			
Isophorone	U	2790	mg/kg	0.50		< 0.50		< 0.50		< 0.50			
2-Nitrophenol	N	2790	mg/kg	0.50		< 0.50		< 0.50		< 0.50			
2,4-Dimethylphenol	N	2790	mg/kg	0.50		< 0.50		< 0.50		< 0.50			
Bis(2-Chloroethoxy)Methane	U	2790	mg/kg	0.50		< 0.50		< 0.50		< 0.50			
2,4-Dichlorophenol	U	2790	mg/kg	0.50		< 0.50		< 0.50		< 0.50			
1,2,4-Trichlorobenzene	U	2790	mg/kg	0.50		< 0.50		< 0.50		< 0.50			

Chemtest
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Results - Soil

Project: 18-0767 - Chivers Site Cooklock Ground Inversstigation

Client: Causeway Geotech Ltd					**Chemtest Job No.:**	18-26563	18-26563	18-26563	18-26563	18-26563	18-26563	18-26563	18-26563
Quotation No.:					**Chemtest Sample ID.:**	681910	681913	681914	681916	681918	681919	681920	681921
Order No.:					Client Sample Ref.:	3	8	9	2	4	3	4	5
					Sample Location:	BH02	BH05	BH05	BH06	BH06	BH08	BH08	BH08
					Sample Type:	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
					Top Depth (m):	0.40	0.40	1.40	0.40	2.00	0.40	1.40	2.40
					Date Sampled:	21-Sep-2018	21-Sep-2018	21-Sep-2018	21-Sep-2018	21-Sep-2018	21-Sep-2018	21-Sep-2018	21-Sep-2018
Determinand	**Accred.**	**SOP**	**Units**	**LOD**									
Naphthalene	U	2790	mg/kg	0.50		< 0.50		< 0.50		< 0.50			
4-Chloroaniline	N	2790	mg/kg	0.50		< 0.50		< 0.50		< 0.50			
Hexachlorobutadiene	U	2790	mg/kg	0.50		< 0.50		< 0.50		< 0.50			
4-Chloro-3-Methylphenol	U	2790	mg/kg	0.50		< 0.50		< 0.50		< 0.50			
2-Methylnaphthalene	U	2790	mg/kg	0.50		< 0.50		< 0.50		< 0.50			
4-Nitrophenol	N	2790	mg/kg	0.50		< 0.50		< 0.50		< 0.50			
Hexachlorocyclopentadiene	N	2790	mg/kg	0.50		< 0.50		< 0.50		< 0.50			
2,4,6-Trichlorophenol	U	2790	mg/kg	0.50		< 0.50		< 0.50		< 0.50			
2,4,5-Trichlorophenol	U	2790	mg/kg	0.50		< 0.50		< 0.50		< 0.50			
2-Chloronaphthalene	U	2790	mg/kg	0.50		< 0.50		< 0.50		< 0.50			
2-Nitroaniline	U	2790	mg/kg	0.50		< 0.50		< 0.50		< 0.50			
Acenaphthylene	U	2790	mg/kg	0.50		< 0.50		< 0.50		< 0.50			
Dimethylphthalate	U	2790	mg/kg	0.50		< 0.50		< 0.50		< 0.50			
2,6-Dinitrotoluene	U	2790	mg/kg	0.50		< 0.50		< 0.50		< 0.50			
Acenaphthene	U	2790	mg/kg	0.50		< 0.50		< 0.50		< 0.50			
3-Nitroaniline	N	2790	mg/kg	0.50		< 0.50		< 0.50		< 0.50			
Dibenzofuran	U	2790	mg/kg	0.50		< 0.50		< 0.50		< 0.50			
4-Chlorophenylphenylether	U	2790	mg/kg	0.50		< 0.50		< 0.50		< 0.50			
2,4-Dinitrotoluene	U	2790	mg/kg	0.50		< 0.50		< 0.50		< 0.50			
Fluorene	U	2790	mg/kg	0.50		< 0.50		< 0.50		< 0.50			
Diethyl Phthalate	U	2790	mg/kg	0.50		< 0.50		< 0.50		< 0.50			
4-Nitroaniline	U	2790	mg/kg	0.50		< 0.50		< 0.50		< 0.50			
2-Methyl-4,6-Dinitrophenol	N	2790	mg/kg	0.50		< 0.50		< 0.50		< 0.50			
Azobenzene	U	2790	mg/kg	0.50		< 0.50		< 0.50		< 0.50			
4-Bromophenylphenyl Ether	U	2790	mg/kg	0.50		< 0.50		< 0.50		< 0.50			
Hexachlorobenzene	U	2790	mg/kg	0.50		< 0.50		< 0.50		< 0.50			
Pentachlorophenol	N	2790	mg/kg	0.50		< 0.50		< 0.50		< 0.50			
Phenanthrene	U	2790	mg/kg	0.50		< 0.50		< 0.50		< 0.50			
Anthracene	U	2790	mg/kg	0.50		< 0.50		< 0.50		< 0.50			
Carbazole	U	2790	mg/kg	0.50		< 0.50		< 0.50		< 0.50			
Di-N-Butyl Phthalate	U	2790	mg/kg	0.50		< 0.50		< 0.50		< 0.50			
Fluoranthene	U	2790	mg/kg	0.50		< 0.50		< 0.50		< 0.50			
Pyrene	U	2790	mg/kg	0.50		< 0.50		< 0.50		< 0.50			
Butylbenzyl Phthalate	U	2790	mg/kg	0.50		< 0.50		< 0.50		< 0.50			
Benzo[a]anthracene	U	2790	mg/kg	0.50		< 0.50		< 0.50		< 0.50			
Chrysene	U	2790	mg/kg	0.50		< 0.50		< 0.50		< 0.50			
Bis(2-Ethylhexyl)Phthalate	N	2790	mg/kg	0.50		< 0.50		< 0.50		< 0.50			
Di-N-Octyl Phthalate	U	2790	mg/kg	0.50		< 0.50		< 0.50		< 0.50			

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Results - Soil

Project: 18-0767 - Chivers Site Cooklock Ground Inversstigation

Client: Causeway Geotech Ltd			**Chemtest Job No.:**		18-26563	18-26563	18-26563	18-26563	18-26563	18-26563	18-26563	18-26563
Quotation No.:			**Chemtest Sample ID.:**		681910	681913	681914	681916	681918	681919	681920	681921
Order No.:			Client Sample Ref.:		3	8	9	2	4	3	4	5
			Sample Location:		BH02	BH05	BH05	BH06	BH06	BH08	BH08	BH08
			Sample Type:		SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
			Top Depth (m):		0.40	0.40	1.40	0.40	2.00	0.40	1.40	2.40
			Date Sampled:		21-Sep-2018	21-Sep-2018	21-Sep-2018	21-Sep-2018	21-Sep-2018	21-Sep-2018	21-Sep-2018	21-Sep-2018
Determinand	**Accred.**	**SOP**	**Units**	**LOD**								
Benzo[b]fluoranthene	U	2790	mg/kg	0.50		< 0.50		< 0.50		< 0.50		
Benzo[k]fluoranthene	U	2790	mg/kg	0.50		< 0.50		< 0.50		< 0.50		
Benzo[a]pyrene	U	2790	mg/kg	0.50		< 0.50		< 0.50		< 0.50		
Indeno(1,2,3-c,d)Pyrene	U	2790	mg/kg	0.50		< 0.50		< 0.50		< 0.50		
Dibenz(a,h)Anthracene	U	2790	mg/kg	0.50		< 0.50		< 0.50		< 0.50		
Benzo[g,h,i]perylene	U	2790	mg/kg	0.50		< 0.50		< 0.50		< 0.50		
Naphthalene	U	2800	mg/kg	0.10	< 0.10		< 0.10		< 0.10	< 0.10	< 0.10	
Acenaphthylene	N	2800	mg/kg	0.10	< 0.10		< 0.10		< 0.10	< 0.10	< 0.10	
Acenaphthene	U	2800	mg/kg	0.10	< 0.10		< 0.10		< 0.10	< 0.10	< 0.10	
Fluorene	U	2800	mg/kg	0.10	< 0.10		< 0.10		< 0.10	< 0.10	< 0.10	
Phenanthrene	U	2800	mg/kg	0.10	< 0.10		< 0.10		< 0.10	< 0.10	< 0.10	
Anthracene	U	2800	mg/kg	0.10	< 0.10		< 0.10		< 0.10	< 0.10	< 0.10	
Fluoranthene	U	2800	mg/kg	0.10	< 0.10		< 0.10		0.12	< 0.10	< 0.10	
Pyrene	U	2800	mg/kg	0.10	< 0.10		< 0.10		0.25	0.13	< 0.10	
Benzo[a]anthracene	U	2800	mg/kg	0.10	< 0.10		< 0.10		< 0.10	< 0.10	< 0.10	
Chrysene	U	2800	mg/kg	0.10	< 0.10		< 0.10		< 0.10	< 0.10	< 0.10	
Benzo[b]fluoranthene	U	2800	mg/kg	0.10	< 0.10		< 0.10		< 0.10	< 0.10	< 0.10	
Benzo[k]fluoranthene	U	2800	mg/kg	0.10	< 0.10		< 0.10		< 0.10	< 0.10	< 0.10	
Benzo[a]pyrene	U	2800	mg/kg	0.10	< 0.10		< 0.10		< 0.10	< 0.10	< 0.10	
Indeno(1,2,3-c,d)Pyrene	U	2800	mg/kg	0.10	< 0.10		< 0.10		< 0.10	< 0.10	< 0.10	
Dibenz(a,h)Anthracene	N	2800	mg/kg	0.10	< 0.10		< 0.10		< 0.10	< 0.10	< 0.10	
Benzo[g,h,i]perylene	U	2800	mg/kg	0.10	< 0.10		< 0.10		< 0.10	< 0.10	< 0.10	
Coronene	N	2800	mg/kg	0.10	< 0.10		< 0.10		< 0.10	< 0.10	< 0.10	
Total Of 17 PAH's	N	2800	mg/kg	2.0	< 2.0		< 2.0		< 2.0	< 2.0	< 2.0	
PCB 28	U	2815	mg/kg	0.010						< 0.010		
PCB 52	U	2815	mg/kg	0.010						< 0.010		
PCB 90+101	U	2815	mg/kg	0.010						< 0.010		
PCB 118	U	2815	mg/kg	0.010						< 0.010		
PCB 153	U	2815	mg/kg	0.010						< 0.010		
PCB 138	U	2815	mg/kg	0.010						< 0.010		
PCB 180	U	2815	mg/kg	0.010						< 0.010		
Total PCBs (7 Congeners)	N	2815	mg/kg	0.10						< 0.10		
Total Phenols	U	2920	mg/kg	0.30	< 0.30		< 0.30		< 0.30	< 0.30	< 0.30	

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

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

UKAS TESTING
2183

Final Report

Report No.: 18-26567-1

Initial Date of Issue: 11-Sep-2018

Client Causeway Geotech Ltd

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

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

Project 18-0767 - Chivers Site Cooklock
Ground Investigation

Quotation No.:

Order No.:

No. of Samples: 3

Turnaround (Wkdays): 4

Date Approved: 11-Sep-2018

Approved By:

Details: Glynn Harvey, Laboratory Manager

Date Received: 29-Aug-2018

Date Instructed: 04-Sep-2018

Results Due: 07-Sep-2018

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

Results - Leachate

Project: 18-0767 - Chivers Site Cooklock Ground Investigation

Client: Causeway Geotech Ltd			**Chemtest Job No.:**		18-26567	18-26567	18-26567
Quotation No.:			**Chemtest Sample ID.:**		681953	681954	681955
			Sample Location:		BH05	BH06	BH08
			Sample Type:		SOIL	SOIL	SOIL
			Top Depth (m):		0.40	0.40	2.40
			Date Sampled:		21-Aug-2018	21-Aug-2018	21-Aug-2018
Determinand	**Accred.**	**SOP**	**Units**	**LOD**			
Ammonium	U	1220	mg/l	0.050	0.24	1.7	1.2
Ammonium	N	1220	mg/kg	0.10	2.4	17	12

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Results - Soil

Project: 18-0767 - Chivers Site Cooklock Ground Investigation

Client: Causeway Geotech Ltd				**Chemtest Job No.:**	18-26567	18-26567	18-26567
Quotation No.:				**Chemtest Sample ID.:**	681953	681954	681955
				Sample Location:	BH05	BH06	BH08
				Sample Type:	SOIL	SOIL	SOIL
				Top Depth (m):	0.40	0.40	2.40
				Date Sampled:	21-Aug-2018	21-Aug-2018	21-Aug-2018
				Asbestos Lab:	COVENTRY	COVENTRY	COVENTRY
Determinand	**Accred.**	**SOP**	**Units**	**LOD**			
ACM Type	U	2192		N/A	-	-	-
Asbestos Identification	U	2192	%	0.001	No Asbestos Detected	No Asbestos Detected	No Asbestos Detected
Moisture	N	2030	%	0.020	8.1	20	18
pH	U	2010		N/A	8.2	7.9	7.9
Boron (Hot Water Soluble)	U	2120	mg/kg	0.40	< 0.40	2.8	1.7
Sulphur (Elemental)	U	2180	mg/kg	1.0	1.0	16	3.8
Cyanide (Total)	U	2300	mg/kg	0.50	< 0.50	< 0.50	< 0.50
Sulphide (Easily Liberatable)	N	2325	mg/kg	0.50	9.0	8.6	9.1
Sulphate (Total)	U	2430	%	0.010	0.044	0.17	0.072
Arsenic	U	2450	mg/kg	1.0	18	19	19
Barium	U	2450	mg/kg	10	50	120	67
Cadmium	U	2450	mg/kg	0.10	2.1	2.2	2.4
Chromium	U	2450	mg/kg	1.0	13	23	17
Molybdenum	U	2450	mg/kg	2.0	3.2	3.3	3.3
Antimony	N	2450	mg/kg	2.0	< 2.0	< 2.0	< 2.0
Copper	U	2450	mg/kg	0.50	22	38	30
Mercury	U	2450	mg/kg	0.10	< 0.10	0.31	0.11
Nickel	U	2450	mg/kg	0.50	38	41	48
Lead	U	2450	mg/kg	0.50	20	71	36
Selenium	U	2450	mg/kg	0.20	0.41	0.88	0.58
Zinc	U	2450	mg/kg	0.50	67	140	74
Chromium (Trivalent)	N	2490	mg/kg	1.0	13	23	17
Chromium (Hexavalent)	N	2490	mg/kg	0.50	< 0.50	< 0.50	< 0.50
Total Organic Carbon	U	2625	%	0.20	0.35	1.7	1.4
Mineral Oil	N	2670	mg/kg	10	< 10	< 10	< 10
Aliphatic TPH >C5-C6	N	2680	mg/kg	1.0	< 1.0	< 1.0	< 1.0
Aliphatic TPH >C6-C8	N	2680	mg/kg	1.0	< 1.0	< 1.0	< 1.0
Aliphatic TPH >C8-C10	U	2680	mg/kg	1.0	< 1.0	< 1.0	< 1.0
Aliphatic TPH >C10-C12	U	2680	mg/kg	1.0	< 1.0	< 1.0	< 1.0
Aliphatic TPH >C12-C16	U	2680	mg/kg	1.0	< 1.0	< 1.0	< 1.0
Aliphatic TPH >C16-C21	U	2680	mg/kg	1.0	< 1.0	< 1.0	< 1.0
Aliphatic TPH >C21-C35	U	2680	mg/kg	1.0	< 1.0	< 1.0	< 1.0
Aliphatic TPH >C35-C44	N	2680	mg/kg	1.0	< 1.0	< 1.0	< 1.0
Total Aliphatic Hydrocarbons	N	2680	mg/kg	5.0	< 5.0	< 5.0	< 5.0
Aromatic TPH >C5-C7	N	2680	mg/kg	1.0	< 1.0	< 1.0	< 1.0
Aromatic TPH >C7-C8	N	2680	mg/kg	1.0	< 1.0	< 1.0	< 1.0
Aromatic TPH >C8-C10	U	2680	mg/kg	1.0	< 1.0	< 1.0	< 1.0

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Results - Soil

Project: 18-0767 - Chivers Site Cooklock Ground Investigation

Client: Causeway Geotech Ltd			**Chemtest Job No.:**		18-26567	18-26567	18-26567
Quotation No.:			**Chemtest Sample ID.:**		681953	681954	681955
			Sample Location:		BH05	BH06	BH08
			Sample Type:		SOIL	SOIL	SOIL
			Top Depth (m):		0.40	0.40	2.40
			Date Sampled:		21-Aug-2018	21-Aug-2018	21-Aug-2018
			Asbestos Lab:		COVENTRY	COVENTRY	COVENTRY
Determinand	**Accred.**	**SOP**	**Units**	**LOD**			
Aromatic TPH >C10-C12	U	2680	mg/kg	1.0	< 1.0	< 1.0	< 1.0
Aromatic TPH >C12-C16	U	2680	mg/kg	1.0	< 1.0	< 1.0	< 1.0
Aromatic TPH >C16-C21	U	2680	mg/kg	1.0	< 1.0	< 1.0	< 1.0
Aromatic TPH >C21-C35	U	2680	mg/kg	1.0	< 1.0	< 1.0	< 1.0
Aromatic TPH >C35-C44	N	2680	mg/kg	1.0	< 1.0	< 1.0	< 1.0
Total Aromatic Hydrocarbons	N	2680	mg/kg	5.0	< 5.0	< 5.0	< 5.0
Total Petroleum Hydrocarbons	N	2680	mg/kg	10.0	< 10	< 10	< 10
Benzene	U	2760	µg/kg	1.0	< 1.0	< 1.0	< 1.0
Toluene	U	2760	µg/kg	1.0	< 1.0	< 1.0	< 1.0
Ethylbenzene	U	2760	µg/kg	1.0	< 1.0	< 1.0	< 1.0
m & p-Xylene	U	2760	µg/kg	1.0	< 1.0	< 1.0	< 1.0
o-Xylene	U	2760	µg/kg	1.0	< 1.0	< 1.0	< 1.0
Methyl Tert-Butyl Ether	U	2760	µg/kg	1.0	< 1.0	< 1.0	< 1.0
Naphthalene	U	2800	mg/kg	0.10	< 0.10	< 0.10	< 0.10
Acenaphthylene	N	2800	mg/kg	0.10	< 0.10	< 0.10	< 0.10
Acenaphthene	U	2800	mg/kg	0.10	< 0.10	< 0.10	< 0.10
Fluorene	U	2800	mg/kg	0.10	< 0.10	< 0.10	< 0.10
Phenanthrene	U	2800	mg/kg	0.10	< 0.10	0.40	0.13
Anthracene	U	2800	mg/kg	0.10	< 0.10	< 0.10	< 0.10
Fluoranthene	U	2800	mg/kg	0.10	< 0.10	0.62	0.12
Pyrene	U	2800	mg/kg	0.10	< 0.10	0.55	0.12
Benzo[a]anthracene	U	2800	mg/kg	0.10	< 0.10	< 0.10	< 0.10
Chrysene	U	2800	mg/kg	0.10	< 0.10	< 0.10	< 0.10
Benzo[b]fluoranthene	U	2800	mg/kg	0.10	< 0.10	< 0.10	< 0.10
Benzo[k]fluoranthene	U	2800	mg/kg	0.10	< 0.10	< 0.10	< 0.10
Benzo[a]pyrene	U	2800	mg/kg	0.10	< 0.10	< 0.10	< 0.10
Indeno(1,2,3-c,d)Pyrene	U	2800	mg/kg	0.10	< 0.10	< 0.10	< 0.10
Dibenz(a,h)Anthracene	N	2800	mg/kg	0.10	< 0.10	< 0.10	< 0.10
Benzo[g,h,i]perylene	U	2800	mg/kg	0.10	< 0.10	< 0.10	< 0.10
Coronene	N	2800	mg/kg	0.10	< 0.10	< 0.10	< 0.10
Total Of 17 PAH's	N	2800	mg/kg	2.0	< 2.0	< 2.0	< 2.0
PCB 28	U	2815	mg/kg	0.010	< 0.010	< 0.010	< 0.010
PCB 52	U	2815	mg/kg	0.010	< 0.010	< 0.010	< 0.010
PCB 90+101	U	2815	mg/kg	0.010	< 0.010	< 0.010	< 0.010
PCB 118	U	2815	mg/kg	0.010	< 0.010	< 0.010	< 0.010
PCB 153	U	2815	mg/kg	0.010	< 0.010	< 0.010	< 0.010
PCB 138	U	2815	mg/kg	0.010	< 0.010	< 0.010	< 0.010
PCB 180	U	2815	mg/kg	0.010	< 0.010	< 0.010	< 0.010

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Results - Soil

Project: 18-0767 - Chivers Site Cooklock Ground Investigation

Client: Causeway Geotech Ltd			**Chemtest Job No.:**		18-26567	18-26567	18-26567
Quotation No.:			**Chemtest Sample ID.:**		681953	681954	681955
			Sample Location:		BH05	BH06	BH08
			Sample Type:		SOIL	SOIL	SOIL
			Top Depth (m):		0.40	0.40	2.40
			Date Sampled:		21-Aug-2018	21-Aug-2018	21-Aug-2018
			Asbestos Lab:		COVENTRY	COVENTRY	COVENTRY
Determinand	**Accred.**	**SOP**	**Units**	**LOD**			
Total PCBs (7 Congeners)	N	2815	mg/kg	0.10	< 0.10	< 0.10	< 0.10
Total Phenols	U	2920	mg/kg	0.30	< 0.30	< 0.30	< 0.30

Results - Single Stage WAC

Project: 18-0767 - Chivers Site Cooklock Ground Investigation

					Landfill Waste Acceptance Criteria Limits		
Chemtest Job No:	18-26567						
Chemtest Sample ID:	681953						
Sample Ref:							
Sample ID:							
Sample Location:	BH05						
Top Depth(m):	0.40						
Bottom Depth(m):							
Sampling Date:	21-Aug-2018						
Determinand	**SOP**	**Accred.**	**Units**		**Inert Waste Landfill**	**Stable, Non-reactive hazardous waste in non-hazardous Landfill**	**Hazardous Waste Landfill**
Total Organic Carbon	2625	U	%	0.35	3	5	6
Loss On Ignition	2610	U	%	2.1	--	--	10
Total BTEX	2760	U	mg/kg	< 0.010	6	--	--
Total PCBs (7 Congeners)	2815	U	mg/kg	< 0.10	1	--	--
TPH Total WAC (Mineral Oil)	2670	U	mg/kg	< 10	500	--	--
Total (Of 17) PAH's	2800	N	mg/kg	< 2.0	100	--	--
pH	2010	U		8.2	--	>6	--
Acid Neutralisation Capacity	2015	N	mol/kg	0.12	--	To evaluate	To evaluate
Eluate Analysis			**10:1 Eluate mg/l**	**10:1 Eluate mg/kg**	**Limit values for compliance leaching test using BS EN 12457 at L/S 10 l/kg**		
Arsenic	1450	U	< 0.0010	< 0.050	0.5	2	25
Barium	1450	U	0.0028	< 0.50	20	100	300
Cadmium	1450	U	< 0.00010	< 0.010	0.04	1	5
Chromium	1450	U	< 0.0010	< 0.050	0.5	10	70
Copper	1450	U	< 0.0010	< 0.050	2	50	100
Mercury	1450	U	< 0.00050	< 0.0050	0.01	0.2	2
Molybdenum	1450	U	0.0015	< 0.050	0.5	10	30
Nickel	1450	U	< 0.0010	< 0.050	0.4	10	40
Lead	1450	U	< 0.0010	< 0.010	0.5	10	50
Antimony	1450	U	< 0.0010	< 0.010	0.06	0.7	5
Selenium	1450	U	< 0.0010	< 0.010	0.1	0.5	7
Zinc	1450	U	< 0.0010	< 0.50	4	50	200
Chloride	1220	U	< 1.0	< 10	800	15000	25000
Fluoride	1220	U	0.22	2.2	10	150	500
Sulphate	1220	U	1.9	19	1000	20000	50000
Total Dissolved Solids	1020	N	41	410	4000	60000	100000
Phenol Index	1920	U	< 0.030	< 0.30	1	-	-
Dissolved Organic Carbon	1610	U	5.6	56	500	800	1000

Solid Information	
Dry mass of test portion/kg	0.090
Moisture (%)	8.1

Waste Acceptance Criteria

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

Results - Single Stage WAC

Project: 18-0767 - Chivers Site Cooklock Ground Investigation

					Landfill Waste Acceptance Criteria Limits		
Chemtest Job No:	18-26567						
Chemtest Sample ID:	681954						
Sample Ref:							
Sample ID:							
Sample Location:	BH06						
Top Depth(m):	0.40						
Bottom Depth(m):							
Sampling Date:	21-Aug-2018						
Determinand	**SOP**	**Accred.**	**Units**		**Inert Waste Landfill**	**Stable, Non-reactive hazardous waste in non-hazardous Landfill**	**Hazardous Waste Landfill**
Total Organic Carbon	2625	U	%	1.7	3	5	6
Loss On Ignition	2610	U	%	5.6	--	--	10
Total BTEX	2760	U	mg/kg	< 0.010	6	--	--
Total PCBs (7 Congeners)	2815	U	mg/kg	< 0.10	1	--	--
TPH Total WAC (Mineral Oil)	2670	U	mg/kg	< 10	500	--	--
Total (Of 17) PAH's	2800	N	mg/kg	< 2.0	100	--	--
pH	2010	U		7.9	--	>6	--
Acid Neutralisation Capacity	2015	N	mol/kg	0.062	--	To evaluate	To evaluate
Eluate Analysis			**10:1 Eluate mg/l**	**10:1 Eluate mg/kg**	**Limit values for compliance leaching test using BS EN 12457 at L/S 10 l/kg**		
Arsenic	1450	U	< 0.0010	< 0.050	0.5	2	25
Barium	1450	U	0.0091	< 0.50	20	100	300
Cadmium	1450	U	< 0.00010	< 0.010	0.04	1	5
Chromium	1450	U	< 0.0010	< 0.050	0.5	10	70
Copper	1450	U	< 0.0010	< 0.050	2	50	100
Mercury	1450	U	< 0.00050	< 0.0050	0.01	0.2	2
Molybdenum	1450	U	0.0021	< 0.050	0.5	10	30
Nickel	1450	U	< 0.0010	< 0.050	0.4	10	40
Lead	1450	U	< 0.0010	< 0.010	0.5	10	50
Antimony	1450	U	< 0.0010	< 0.010	0.06	0.7	5
Selenium	1450	U	< 0.0010	< 0.010	0.1	0.5	7
Zinc	1450	U	< 0.0010	< 0.50	4	50	200
Chloride	1220	U	< 1.0	< 10	800	15000	25000
Fluoride	1220	U	0.11	1.1	10	150	500
Sulphate	1220	U	21	210	1000	20000	50000
Total Dissolved Solids	1020	N	60	600	4000	60000	100000
Phenol Index	1920	U	< 0.030	< 0.30	1	-	-
Dissolved Organic Carbon	1610	U	7.0	70	500	800	1000

Solid Information	
Dry mass of test portion/kg	0.090
Moisture (%)	20

Waste Acceptance Criteria

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

Results - Single Stage WAC

Project: 18-0767 - Chivers Site Cooklock Ground Investigation

					Landfill Waste Acceptance Criteria Limits		
Chemtest Job No:	18-26567						
Chemtest Sample ID:	681955						
Sample Ref:							
Sample ID:							
Sample Location:	BH08						
Top Depth(m):	2.40						
Bottom Depth(m):							
Sampling Date:	21-Aug-2018						
Determinand	**SOP**	**Accred.**	**Units**		**Inert Waste Landfill**	**Stable, Non-reactive hazardous waste in non-hazardous Landfill**	**Hazardous Waste Landfill**
Total Organic Carbon	2625	U	%	1.4	3	5	6
Loss On Ignition	2610	U	%	3.7	--	--	10
Total BTEX	2760	U	mg/kg	< 0.010	6	--	--
Total PCBs (7 Congeners)	2815	U	mg/kg	< 0.10	1	--	--
TPH Total WAC (Mineral Oil)	2670	U	mg/kg	< 10	500	--	--
Total (Of 17) PAH's	2800	N	mg/kg	< 2.0	100	--	--
pH	2010	U		7.9	--	>6	--
Acid Neutralisation Capacity	2015	N	mol/kg	0.077	--	To evaluate	To evaluate
Eluate Analysis			**10:1 Eluate mg/l**	**10:1 Eluate mg/kg**	**Limit values for compliance leaching test using BS EN 12457 at L/S 10 l/kg**		
Arsenic	1450	U	< 0.0010	< 0.050	0.5	2	25
Barium	1450	U	0.013	< 0.50	20	100	300
Cadmium	1450	U	< 0.00010	< 0.010	0.04	1	5
Chromium	1450	U	< 0.0010	< 0.050	0.5	10	70
Copper	1450	U	0.0013	< 0.050	2	50	100
Mercury	1450	U	< 0.00050	< 0.0050	0.01	0.2	2
Molybdenum	1450	U	0.0018	< 0.050	0.5	10	30
Nickel	1450	U	< 0.0010	< 0.050	0.4	10	40
Lead	1450	U	0.0035	0.035	0.5	10	50
Antimony	1450	U	< 0.0010	< 0.010	0.06	0.7	5
Selenium	1450	U	< 0.0010	< 0.010	0.1	0.5	7
Zinc	1450	U	0.0027	< 0.50	4	50	200
Chloride	1220	U	< 1.0	< 10	800	15000	25000
Fluoride	1220	U	0.14	1.4	10	150	500
Sulphate	1220	U	2.4	24	1000	20000	50000
Total Dissolved Solids	1020	N	36	360	4000	60000	100000
Phenol Index	1920	U	< 0.030	< 0.30	1	-	-
Dissolved Organic Carbon	1610	U	5.7	57	500	800	1000

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

Waste Acceptance Criteria

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

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

CAUSEWAY GEOTECH

APPENDIX G

WASTE CLASSIFCATION REPORT

Waste Classification Report

Chivers Site, Dublin 17

Ref. A110143

Causeway Geotech Limited.

October 2018

Prepared on behalf of WYG Environmental and Planning (Northern Ireland) Limited

Document control

Document:	Waste Classification Report
Project:	Chivers Site, Dublin 17
Client:	Causeway Geotech Limited
Job Number:	A110143
File Origin:	G:\Projects\A110\A110143 CGT Chivers\P-03 Execution\11 EP\01 Reports

Revision:	V1.0	
Date:	October 2018	
Prepared by: David Kerr	Checked by: Patrick Higgins	Approved By: Gareth McCaughan
Description of revision:		

Table of Contents

Figures

Appendices

1.0 Project Details

1.1 Scope of Works

WYG was commissioned by Causeway Geotech Limited (CGT) to conduct a soil waste classification assessment to support the development of residential apartment blocks at a former industrial site at Coolock Drive in Dublin 17, Ireland. Information provided by the Client indicates that the development will comprise the following:

- The construction of multi-storey residential apartment blocks; and,
- The development of a 1-storey sub-terranean basement to a depth of c. 3-metres below existing ground level (mbgl).

The site location is presented in Figure 1, and the site layout is presented in Figure 2.

This classification has been undertaken using laboratory analysis data provided to WYG by CGT following a site investigation undertaken at the site. Exploratory borehole logs provided at Appendix B.

WYG's scope of works included the following:

- The classification of test data provided to WYG by the client (CGT);
- Preparation of a Soil Waste Classification Report in accordance with Environmental Protection Agency (EPA) (2015) Waste Classification, List of Waste & Determining if Waste is Hazardous or Non-Hazardous (hereafter referred to as "EPA guidance");
- To include assessment of the properties (hazardous/non-hazardous) of the materials designated for offsite disposal, which in conjunction with appropriate WAC (waste acceptance criteria) testing will inform appropriate legal disposal of subsequent arisings; and
- Following assessment of wastes an appropriate EWC (European Waste Catalogue) will be recommended to be included on all accompanying waste documentation (waste transfer notes and/or season tickets).

This information should be provided to the receiving landfill operator to ensure compliance with relevant licensing and to provide evidence of the waste producers maintenance of their Duty of Care.

2.0 Waste Classification

2.1 Methodology

The characterisation and classification of wastes in Ireland is governed by waste management legislation primarily informed by EU Directives including the Waste Framework Directive, as implemented at national level in Ireland via the Waste Management Acts 1996-2008 and other regulations.

Waste management legislation and associated guidance defines the following procedure for the classification of waste to assign the appropriate European Waste Catalogue (EWC) entry/entries:

- Determine whether the waste is non-hazardous or hazardous on the basis of laboratory soils analysis.

This has been completed through the assessment of soils data via the HazWasteOnline™ software, which is a web-based software for classifying hazardous waste. The software follows the latest European regulations in the assessment of wastes hazardous properties and has been endorsed by the EPA in Ireland as a method suitable for this purpose.

When the waste has been classified correctly it can then be disposed of legally via appropriate WAC (waste acceptance criteria) testing. (Please note WAC testing cannot be used to classify a waste in respect of its hazardousness and should not be confused with this assessment).

- For materials that have been classified as non-hazardous and meet the WAC for a landfill licensed to accept inert wastes, these can be disposed of to a landfill licensed to accept inert wastes. Alternately materials classified as non-hazardous can be disposed of directly to a landfill licensed to accept non-hazardous waste without any further WAC testing.
- Where materials classified as non-hazardous fail to meet the Inert WAC for disposal as Inert waste these wastes remain suitable for disposal as a non-hazardous waste.
- Where materials are classified as hazardous, these materials will require further WAC testing to ensure their acceptability at a landfill licensed to accept hazardous wastes. Where materials do not meet with the relevant WAC, further treatment may be required prior to acceptance. Advice should be sought from the receiving facility if this should be the case. Materials classified as hazardous may be acceptable as stable non-reactive hazardous wastes at a non-hazardous landfill if the relevant WAC are met.

The Duty of Care for the legal disposal of materials categorised as waste rests with the producer of the waste.

2.2 Relevant European Waste Catalogue (EWC) Codes

The anticipated waste codes likely to apply to the majority of the arisings are as follows:

- 17 05 03* – Soil and stones containing dangerous substances (Hazardous)
- 17 05 04 – soils and stones other than those mentioned in 17 05 03
- 17 01 07 – mixtures of concrete, bricks, tiles and ceramics other than those mentioned in 17 01 06
- 17 01 06* - mixtures of, or separate fractions of concrete, bricks, tiles and ceramics containing dangerous substance (hazardous)

Some codes are defined as "absolute entries" and require no testing to determine the level of hazard. However, for "mirror entries" (which may be either non-hazardous or hazardous) testing is required to determine whether dangerous substances are present and thus define the appropriate EWC code(s).

2.3 Assessment Findings

2.3.1 Ground Conditions – Exploratory Logs

The site investigation locations are presented in Figure 2 and a copy of the exploratory site investigation exploratory logs is provided in Appendix B.

The ground conditions at the site were recorded to generally comprise the following:

- Tarmac or concrete hardstanding to a maximum depth of 0.2mbgl, or topsoil to a maximum depth of 0.4mbgl;
- Made ground comprising gravelly clay with hardcore fill with occasional cobbles and fragments of concrete to a maximum recorded depth of 1.0mbgl. Fragments of plastic and brick were recorded in TP02 and TP04.
- Made ground consisting of brown sandy gravelly clay and silt with cobbles to a maximum recorded depth of 3.0mbgl; over,
- Natural ground comprising slightly gravelly sandy silt and clay to 4.75mbgl.

No remarks regarding visual or olfactory evidence of contamination were provided, and no field screening was recorded to have been undertaken.

2.3.2 Laboratory Analysis

Soil samples have been submitted for analysis of a wide range of contaminants to inform the waste classification assessment and to assess the wastes hazardousness in accordance with guidance. Analytical suites for selected samples included:

- Heavy metals;
- Speciated total petroleum hydrocarbons (TPH CWG);
- Speciated polycyclic aromatic hydrocarbons (PAH USEPA 16);
- Volatile (VOC) and semi-volatile (SVOC) organic compounds;
- Polychlorinated biphenyls (PCBs); and,
- Asbestos presence and quantification.

A number of samples were also submitted for WAC (waste acceptance criteria) testing to inform appropriate disposal options following the initial waste classification. All supporting laboratory test certificates are included at Appendix C.

2.3.3 Waste Classification – EPA Guidance

A copy of the Waste Classification report is included at Appendix D.

Considering the reported depth of the proposed sub-terranean basement excavation, soil samples were obtained from both the made and natural ground to a maximum depth of 2.5mbgl.

Following completion of the classification report, all samples were reported to be non-hazardous.

Asbestos was not detected in any of the samples submitted for laboratory analysis.

2.3.4 Waste Acceptance Criteria (WAC) Testing

In total, 8 no. samples were submitted for WAC testing. In line with the methodology outlined previously, those samples which were classified as non-hazardous will be considered suitable for disposal at an Inert Landfill as inert waste if they are seen to meet the Inert WAC.

A summary of the WAC analysis results is presented in Table 1 below.

Table 1. Summary of WAC Results

Sample Ref.	WM3 Determination	WAC Result	Comment
BH01 – 0.5m	Non-hazardous	Does not exceed Inert WAC	Suitable for disposal at an inert waste landfill.
BH04 – 0.5m	Non-hazardous	Does not exceed Inert WAC	Suitable for disposal at an inert waste landfill.
BH05 – 0.4m	Non-hazardous	Does not exceed Inert WAC	Suitable for disposal at an inert waste landfill.
BH06 – 0.4m	Non-hazardous	Does not exceed Inert WAC	Suitable for disposal at an inert waste landfill.
BH07 – 0.5m	Non-hazardous	Does not exceed Inert WAC	Suitable for disposal at an inert waste landfill.
BH07 – 1.5m	Non-hazardous	Does not exceed Inert WAC	Suitable for disposal at an inert waste landfill.
BH08 – 2.4m	Non-hazardous	Does not exceed Inert WAC	Suitable for disposal at an inert waste landfill.
TP03 – 0.5m	Non-hazardous	Does not exceed Inert WAC	Suitable for disposal at an inert waste landfill.

2.3.5 Waste Classification and WAC Testing Summary

Based on the laboratory analysis provided to WYG, the following conclusions have been drawn:

- All samples have been classified as non-hazardous and do not exceed inert waste landfill WAC.
- WYG understand that the development includes the excavation of a 1-storey basement to a depth of c. 3.0mbgl. Based on the geology reported in the BH logs provided to WYG by CGT, the material to this depth will be suitable for disposal as inert waste to an appropriately licenced landfill.

2.3.6 Designation of Appropriate EWC Codes

It is the responsibility of the waste producer to appropriately identify and describe the waste to ensure legal transport and disposal. This information should be included on all waste transfer documentation. WYG have considered the laboratory test data and reviewed the

exploratory borehole logs as provided (refer to Appendices B and C). The following EWC should be adopted for description of materials within waste transfer documentation.

Non-Hazardous materials

- 17 05 04 – soils and stones other than those mentioned in 17 05 03

3.0 Conclusions and Recommendations

The report is intended to provide an assessment of the potential disposal options for the waste soils arising from development works to be undertaken at a former industrial site on Coolock Drive in Dublin 17 based on laboratory data provided to WYG by CGT.

In undertaking this assessment WYG have reviewed all available lines of evidence and taken all due care and attention in arriving at their conclusions within the relevant legislative and guidance frameworks available at the time of writing. WYG has, as instructed, placed reliance on the laboratory test data provided in undertaking this assessment.

Based on the data provided to WYG for consideration, all samples tested have been classified as non-hazardous. The results of the WAC testing of soil samples of both made and natural ground indicate materials would be suitable for disposal to inert landfill as inert waste.

It should be noted, that this waste classification based on discrete sample locations based on the geology encountered during the site investigation and reported in the logs provided to WYG.

his report is not intended as a contaminated land risk assessment that considers risk to development from contaminants in soils potentially remaining in-situ but is intended to support the legal classification of materials potentially arising during development to ensure legal disposal in line with current best legislative arrangements relevant to the applicable jurisdiction.

The acceptance of any material proposed for landfill is at the discretion of the receiving landfill and compliance with its relevant management license. It is therefore recommended that this report is made available to the proposed receiving landfill and that the landfill operator have an opportunity to review the findings to ensure compliance with relevant licensing obligations.

WYG cannot be held liable for additional costs incurred as a result of any changes to the commercial practices of waste operators, or changes to legislation. Similarly, WYG cannot be held responsible for additional costs incurred as a result of unforeseen materials being encountered during earthworks.

In the event that unforeseen materials are identified during earthworks, then these materials should be appropriately assessed via visual inspection and laboratory analysis. This may require segregation of those materials on-site whilst an assessment can be completed. The contractor must be satisfied that the material being disposed of is representative of the samples considered in this assessment.

The future appointed works contractor/design team should be cognisant of the recommendations as set out in the Landfill Directive (Council Directive 1999/31/EC of 26 April 1999), which state materials destined for landfill should be considered for pre-treatment where possible in an effort to reduce volumes and subsequent burden on this method of waste management with added benefit for potentially significant costs savings relevant to the payment of landfill levy.

Future works should also consider recommendations as outlined in Article 4 of the EU Directive 2008/98/EC (2008), and the Waste Management Hierarchy with regard to recommendations therein with respect to reuse, recycling and recovery prior to disposal to landfill.

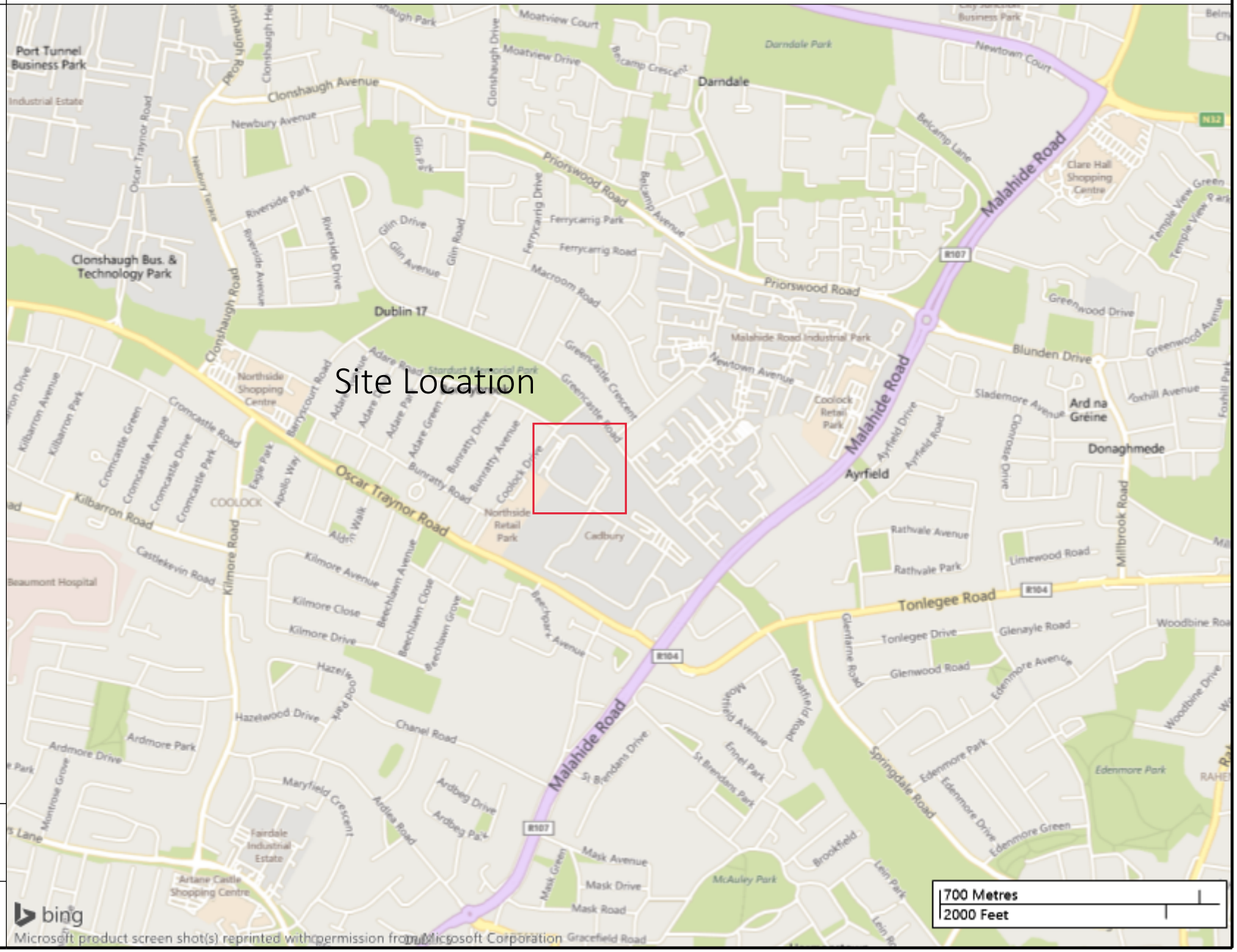
Figures

Figure 1 – Site Location Plan

CAUSEWAY GEOTECH

Project No.:	18-0767	**Client:**	
Project Name:	Chivers Site, Dublin 17	**Client's Representative:**	Cora Consulting Engineers

Legend Key



Title:
Site Location Plan

Last Revised:	**Scale:**
29/08/2018	1:15000

Figure 2 – Site Investigation Location Plan

CAUSEWAY GEOTECH

Project No.:	18-0767	**Client:**	Platinum Land Ltd
Project Name:	Chivers Site, Dublin 17	**Client's Representative:**	Cora Consulting Engineers

Legend Key

- Locations By Type - CP
- Locations By Type - TP

Title:
Exploratory Hole Location Plan

Last Revised:	**Scale:**
03/09/2018	1:1500

Appendices

Appendix A – Terms and Conditions

WYG Environmental and Planning (NI) LTD

REPORT CONDITIONS
Waste Classification Report
Chivers Site, Dublin 17

This report is produced solely for the benefit of **Causeway Geotech Ltd** and no liability is accepted for any reliance placed on it by any other party unless specifically agreed in writing otherwise.

This report is prepared for the proposed uses stated in the report and should not be used in a different context without reference to WYGE. In time improved practices, fresh information or amended legislation may necessitate a re-assessment. Opinions and information provided in this report are on the basis of WYGE using due skill and care in the preparation of the report.

This report refers, within the limitations stated, to the environment of the site in the context of the surrounding area at the time of the inspections. Environmental conditions can vary, and no warranty is given as to the possibility of changes in the environment of the site and surrounding area at differing times.

This report is limited to those aspects reported on, within the scope and limits agreed with the client under our appointment. It is necessarily restricted, and no liability is accepted for any other aspect. It is based on the information sources indicated in the report. Some of the opinions are based on unconfirmed data and information and are presented as the best obtained within the scope for this report.

Reliance has been placed on the documents and information supplied to WYGE by others but no independent verification of these has been made and no warranty is given on them. No liability is accepted, or warranty given in relation to the performance, reliability, standing etc of any products, services, organisations or companies referred to in this report.

Whilst skill and care have been used, no investigative method can eliminate the possibility of obtaining partially imprecise, incomplete or not fully representative information. Any monitoring or survey work undertaken as part of the commission will have been subject to limitations, including for example timescale, seasonal and weather-related conditions.

Although care is taken to select monitoring and survey periods that are typical of the environmental conditions being measured, within the overall reporting programme constraints, measured conditions may not be fully representative of the actual conditions. Any predictive or modelling work, undertaken as part of the commission will be subject to limitations including the representativeness of data used by the model and the assumptions inherent within the approach used. Actual environmental conditions are typically more complex and variable than the investigative, predictive and modelling approaches indicate in practice, and the output of such approaches cannot be relied upon as a comprehensive or accurate indicator of future conditions.

The potential influence of our assessment and report on other aspects of any development or future planning requires evaluation by other involved parties.

The performance of environmental protection measures and of buildings and other structures in relation to acoustics, vibration, noise mitigation and other environmental issues is influenced to a large extent by the degree to which the relevant environmental considerations are incorporated into the final design and specifications and the quality of workmanship and compliance with the specifications on site during construction. WYGE accept no liability for issues with performance arising from such factors.

Appendix B – Borehole Logs

CAUSEWAY GEOTECH

Method	Plant Used	Top	Base
Light Percussion	Dando Terrier	0.00	2.45

Project No.: 18-0767

Project Name: Chivers Site, Dublin 17

Borehole No.: BH01

Coordinates: 319628.60 E, 239658.56 N

Client: Platinum Land Ltd

Sheet 1 of 1

Client's Representative: Cora Consulting Engineers

Scale: 1:50

Driller: PL

Ground Level: 34.87 mOD

Dates: 27/08/2018 - 27/08/2018

Logger: SR

Depth (m)	Sample / Tests	Casing Depth (m)	Water Depth (m)	Field Records	Level (mOD)	Depth (m) (Thickness)	Legend	Description
0.06 - 0.40	B3				34.81	0.06 (0.34)		BITMAC
0.40 - 1.00	B4				34.47	0.40		MADE GROUND: Firm grey slightly sandy gravelly CLAY with low cobble content. Sand is fine to coarse. Gravel is subangular fine to medium. Cobbles are subangular, of mixed lithologies and a range of sizes.
0.50	ES1					(0.60)		
1.00 - 2.00	B5				33.87	1.00		MADE GROUND: Firm orangish brown slightly gravelly sandy CLAY with low cobble content. Sand is fine to coarse. Gravel is subangular fine to medium. Cobbles are subangular, of mixed lithologies and a range of sizes.
1.20 - 1.65	U6			Ublow=100 50%				Stiff black slightly sandy slightly gravelly CLAY with low cobble content. Sand is fine to coarse. Gravel is subangular fine to medium. Cobbles are subangular, of mixed lithologies and a range of sizes.
1.20 - 1.64	SPT (S)			N=50 (9,12/50 for 295mm)		(1.00)		
1.50	ES2							
					32.87	2.00		End of Borehole at 2.00m

Water	Backfill

Remarks

No groundwater encountered

Terminated in very stiff deposits.

Water Strikes

Struck at (m)	Casing to (m)	Time (min)	Rose to (m)

Water Added

From (m)	To (m)

Casing Details

To (m)	Diam (mm)

Chiselling Details

From (m)	To (m)	Time (hh:mm)

CAUSEWAY GEOTECH

Method	Plant Used	Top	Base
Light Percussion	Dando Terrier	0.00	3.43

Project No.: 18-0767

Project Name: Chivers Site, Dublin 17

Borehole No.: BH02

Coordinates: 319663.66 E, 239716.92 N

Client: Platinum Land Ltd

Sheet 1 of 1

Client's Representative: Cora Consulting Engineers

Scale: 1:50

Ground Level: 34.07 mOD

Dates: 21/08/2018 - 21/08/2018

Driller: JL

Logger: SR

Depth (m)	Sample / Tests	Casing Depth (m)	Water Depth (m)	Field Records	Level (mOD)	Depth (m) (Thickness)	Legend	Description	Water	Backfill
					34.02	(0.05)		BITMAC		
						(0.35)		MADE GROUND: Grey angular fine to coarse GRAVEL		
0.40 - 0.60	ES3				33.67	0.40		MADE GROUND: Firm orangish brown slightly sandy slightly gravelly CLAY with low cobble content. Sand is fine to coarse. Gravel is subrounded fine to medium. Cobbles are subrounded, of mixed lithologies and a range of sizes.		
0.40 - 1.00	B6					(0.60)				
1.00 - 2.00	B7				33.07	1.00		MADE GROUND: Firm yellow slightly sandy slightly gravelly CLAY with medium cobble content. Sand is fine to coarse. Gravel is subrounded fine. Cobbles are subrounded, of mixed lithologies and a range of sizes.		
1.20 - 1.65	D1									
	SPT (S) N=14	0.00	Dry	N=14 (4,4/3,3,4,4)		(1.00)				
1.40 - 1.60	ES4									
2.00 - 3.00	B8				32.07	2.00		Stiff to very stiff greyish brown slightly sandy slightly gravelly CLAY with low cobble content. Sand is fine to coarse. Gravel is subangular fine to medium. Cobbles are subrounded, of mixed lithologies and a range of sizes.		
2.00 - 2.45	SPT (S) N=18	0.00	Dry	N=18 (2,3/4,4,5,5)						
2.40 - 2.60	ES5					(1.43)				
3.00 - 3.43	D2									
	SPT (S)	0.00	Dry	N=50 (4,11/50 for 280mm)						
		0.00	Dry	21-08-2018	30.64	3.43		End of Borehole at 3.43m		

Remarks

No groundwater encountered

Terminated in very stiff deposits.

Water Strikes				Chiselling Details		
Struck at (m)	Casing to (m)	Time (min)	Rose to (m)	From (m)	To (m)	Time (hh:mm)

Water Added		Casing Details	
From (m)	To (m)	To (m)	Diam (mm)

CAUSEWAY GEOTECH

Method	Plant Used	Top	Base
Light Percussion	Dando Terrier	0.00	3.90

Project No.: 18-0767

Project Name: Chivers Site, Dublin 17

Borehole No.: BH03

Coordinates: 319703.46 E, 239766.83 N

Client: Platinum Land Ltd

Sheet 1 of 1

Client's Representative: Cora Consulting Engineers

Scale: 1:50

Ground Level: 34.30 mOD

Dates: 27/08/2018 - 27/08/2018

Driller: PL

Logger: SR

Depth (m)	Sample / Tests	Casing Depth (m)	Water Depth (m)	Field Records	Level (mOD)	Depth (m) (Thickness)	Legend	Description	Water	Backfill
						(0.40)		TOPSOIL		
0.40 - 1.00	B4				33.90	0.40		MADE GROUND: Firm locally stiff orangish brown mottled grey slightly gravelly sandy CLAY with low cobble content. Sand is fine to coarse. Gravel is subangular fine to medium. Cobbles are subangular, of mixed lithologies and a range of sizes.		
0.50	ES1					(0.60)				
1.00 - 2.00	B5				33.30	1.00		MADE GROUND: Very soft brownish grey slightly sandy slightly gravelly SILT with fragments of red brick and low cobble content. Sand is fine to coarse. Gravel is subrounded fine to medium. Cobbles are subrounded, of mixed lithologies and a range of sizes.		
1.20 - 1.65	U9			Ublow=35 50%						
1.50	ES2					(1.00)				
2.00 - 3.00	B6				32.30	2.00		Very soft brownish grey slightly gravelly sandy CLAY with low cobble content. Sand is fine to coarse. Gravel is subrounded fine to medium. Cobbles are subrounded, of mixed lithologies and a range of sizes.		
2.00 - 2.45	SPT (S) N=1			N=1 (1,0/0,0,1,0)						
2.50	ES3					(1.00)				
3.00 - 3.70	B7				31.30	3.00		Very soft greyish brown slightly gravelly sandy SILT with low cobble content. Sand is fine to coarse. Gravel is subangular fine to medium. Cobbles are subangular, of mixed lithologies and a range of sizes.	▼	
3.00 - 3.45	SPT (S) N=1			N=1 (0,0/0,1,0,0) Water Strike at 3.40m		(0.70)			▽	
3.70 - 3.90	B8				30.60	3.70 (0.20)		Stiff brownish grey sandy gravelly CLAY with low cobble content. Sand is fine to coarse. Gravel is subangular fine to medium. Cobbles are subangular, of mixed lithologies and a range of sizes.		
3.90 - 4.35	SPT (S) N=50			N=50 (8,9/12,13,13,12)	30.40	3.90		End of Borehole at 3.90m		

Remarks

Terminated on very stiff material.

Water Strikes

Struck at (m)	Casing to (m)	Time (min)	Rose to (m)
3.40		10	3.20

Water Added

From (m)	To (m)

Casing Details

To (m)	Diam (mm)

Chiselling Details

From (m)	To (m)	Time (hh:mm)

CAUSEWAY GEOTECH

Method	Plant Used	Top	Base
Light Percussion	Dando Terrier	0.00	3.00

Project No.: 18-0767

Project Name: Chivers Site, Dublin 17

Borehole No.: BH04

Coordinates: 319670.64 E, 239634.39 N

Client: Platinum Land Ltd

Sheet 1 of 1

Client's Representative: Cora Consulting Engineers

Scale: 1:50

Ground Level: 34.44 mOD

Dates: 27/08/2018 - 27/08/2018

Driller: PL

Logger: SR

Depth (m)	Sample / Tests	Casing Depth (m)	Water Depth (m)	Field Records	Level (mOD)	Depth (m) (Thickness)	Legend	Description
						(0.30)		TOPSOIL
0.30 - 1.00	B1				34.14	0.30		MADE GROUND: Firm orangish brown slightly gravelly sandy CLAY with low cobble content and fragments of concrete. Sand is fine to coarse. Gravel is subrounded fine to coarse. Cobbles are subangular, of mixed lithologies and a range of sizes.
0.50	ES4					(0.70)		
1.00 - 2.00	B2				33.44	1.00		MADE GROUND: Firm greyish brown mottled orange slightly gravelly sandy SILT with low cobble content. Sand is fine to coarse. Gravel is subangular fine to coarse. Cobbles are subangular, of mixed lithologies and a range of sizes.
1.20 - 1.65	SPT (S) N=8			N=8 (1,1/2,2,2,2)				
1.50	ES5					(1.00)		
2.00 - 2.45	U7			Ublow=69 50%	32.44	2.00		Stiff black slightly sandy slightly gravelly CLAY with low cobble content. Sand is fine to coarse. Gravel is subangular fine to medium. Cobbles are subangular, of mixed lithologies and a range of sizes.
2.00 - 3.00	B3							
2.50	ES6					(1.00)		
3.00 - 3.45	SPT (S) N=50			N=50 (10,11/12,12,13,13)	31.44	3.00		End of Borehole at 3.00m

Water	Backfill

Remarks

No groundwater encountered

Terminated on very stiff material.

Water Strikes				Chiselling Details		
Struck at (m)	Casing to (m)	Time (min)	Rose to (m)	From (m)	To (m)	Time (hh:mm)

Water Added		Casing Details	
From (m)	To (m)	To (m)	Diam (mm)

CAUSEWAY GEOTECH

Method	Plant Used	Top	Base
Light Percussion	Dando Terrier	0.00	3.85

Project No.: 18-0767

Project Name: Chivers Site, Dublin 17

Borehole No.: BH05

Coordinates: 319703.00 E, 239691.61 N

Client: Platinum Land Ltd

Sheet 1 of 1

Client's Representative: Cora Consulting Engineers

Scale: 1:50

Ground Level: 34.39 mOD

Dates: 21/08/2018 - 21/08/2018

Driller: JL

Logger: SR

Depth (m)	Sample / Tests	Casing Depth (m)	Water Depth (m)	Field Records	Level (mOD)	Depth (m) (Thickness)	Legend	Description	Water	Backfill
						(0.30)		TOPSOIL		
0.30 - 1.10	B5				34.09	0.30		MADE GROUND: Firm to stiff orangish brown slightly sandy slightly gravelly CLAY with low cobble content. Sand is fine to coarse. Gravel is subangular to subrounded fine to coarse. Cobbles are subrounded.		
0.40 - 0.60	ES8					(0.80)				
1.10 - 2.00	B6				33.29	1.10		Firm dark greyish brown slightly gravelly sandy CLAY with low cobble content. Sand is fine to coarse. Gravel is subrounded fine to medium. Cobbles are subrounded, of mixed lithologies and a range of sizes.		
1.20 - 1.65	D1									
	SPT (S) N=13	0.00	Dry	N=13 (3,4/3,3,3,4)		(0.90)				
1.40 - 1.60	ES9									
2.00 - 2.45	D2				32.39	2.00		Stiff becoming very stiff orangish brown slightly sandy slightly gravelly CLAY with low cobble content. Sand is fine to coarse. Gravel is subrounded fine to medium. Cobbles are subrounded, of mixed lithologies and a range of sizes.		
2.00 - 3.00	B7									
2.00 - 2.45	SPT (S) N=25	0.00	Dry	N=25 (7,14/9,6,5,5)						
2.40 - 2.60	B10									
3.00 - 3.45	D3					(1.85)				
	SPT (S)	0.00	Dry	N=29 (2,4/5,6,7,11)						
	N=29	0.00	Dry	21-08-2018						
3.45 - 3.84	D4									
	SPT (S)	0.00	Dry	N=50 (11,13/50 for 240mm)						
					30.54	3.85		End of Borehole at 3.85m		

Remarks

No groundwater encountered

Terminated in very stiff deposits.

Water Strikes

Struck at (m)	Casing to (m)	Time (min)	Rose to (m)

Water Added

From (m)	To (m)

Casing Details

To (m)	Diam (mm)

Chiselling Details

From (m)	To (m)	Time (hh:mm)

CAUSEWAY GEOTECH

Method	Plant Used	Top	Base
Light Percussion	Dando Terrier	0.00	4.75

Project No.: 18-0767

Project Name: Chivers Site, Dublin 17

Borehole No.: BH06

Coordinates: 319765.00 E 239709.38 N

Client: Platinum Land Ltd

Client's Representative: Cora Consulting Engineers

Ground Level: 33.86 mOD

Dates: 21/08/2018 - 21/08/2018

Sheet 1 of 1

Scale: 1:50

Driller: JL

Logger: SR

Depth (m)	Sample / Tests	Casing Depth (m)	Water Depth (m)	Field Records	Level (mOD)	Depth (m) (Thickness)	Legend	Description	Water	Backfill
						(0.20)		CONCRETE		
0.20 - 1.00	B5				33.66	0.20		MADE GROUND: Firm to stiff dark brownish grey slightly sandy slightly gravelly CLAY with low cobble content. Sand is fine to coarse. Gravel is subrounded fine to medium. Cobbles are subrounded, of mixed lithologies and a range of sizes.		
0.40 - 0.60	ES2					(0.80)				
1.00 - 2.00	B6				32.86	1.00		MADE GROUND: Stiff dark brown slightly sandy slightly gravelly CLAY with low cobble content. Sand is fine to coarse. Gravel is subangular to subrounded fine to coarse. Cobbles are subrounded, of mixed lithologies and a range of sizes.		
1.20 - 1.65	SPT (C) N=30	0.00	Dry	N=30 (4,6/8,8,7,7)						
1.40 - 1.60	ES3					(1.00)				
2.00 - 2.45	D1				31.86	2.00		MADE GROUND: Firm brown slightly sandy slightly gravelly CLAY with low cobble content. Sand is fine to coarse. Gravel is subangular to subrounded fine to medium. Cobbles are subrounded, of mixed lithologies and a range of sizes.		
2.00 - 2.50	B7									
2.00 - 2.45	SPT (S) N=11	0.00	Dry	N=11 (1,3/3,3,2,3)		(0.50)				
2.40 - 2.60	ES4				31.36	2.50		Firm greenish grey slightly gravelly sandy CLAY with low cobble content. Sand is fine to coarse. Gravel is subrounded fine. Cobbles are subrounded, of mixed lithologies and a range of sizes.		
2.50 - 3.00	B8					(0.50)				
3.00 - 4.00	B9				30.86	3.00		Stiff becoming very stiff slightly sandy slightly gravelly CLAY with low cobble content. Sand is fine to coarse. Gravel is subrounded fine to medium. Cobbles are subrounded, of mixed lithologies and a range of sizes.		
3.00 - 3.45	SPT (C) N=16	1.00	Dry	N=16 (4,3/4,3,4,5)						
						(1.75)				
4.00 - 4.45	SPT (C) N=34	1.00 1.00	3.80 3.30	N=34 (4,6/7,8,8,11) 21-08-2018						
4.45 - 4.76	SPT (C)	1.00	3.80	N=50 (25 for 130mm/50 for 175mm)	29.11	4.75		End of Borehole at 4.75m		

Remarks

No groundwater encountered

Terminated in very stiff deposits.

Water Strikes

Struck at (m)	Casing to (m)	Time (min)	Rose to (m)

Water Added

From (m)	To (m)

Casing Details

To (m)	Diam (mm)

Chiselling Details

From (m)	To (m)	Time (hh:mm)

CAUSEWAY GEOTECH

Method	Plant Used	Top	Base
Light Percussion	Dando Terrier	0.00	2.65

Project No.: 18-0767

Project Name: Chivers Site, Dublin 17

Borehole No.: BH07

Coordinates: 319742.96 E, 239576.05 N

Client: Platinum Land Ltd

Client's Representative: Cora Consulting Engineers

Ground Level: 33.64 mOD

Dates: 27/08/2018 - 27/08/2018

Sheet 1 of 1

Scale: 1:50

Driller: PL

Logger: SR

Depth (m)	Sample / Tests	Casing Depth (m)	Water Depth (m)	Field Records	Level (mOD)	Depth (m) (Thickness)	Legend	Description
						(0.20)		CONCRETE
0.20 - 0.80	B4				33.44	0.20		MADE GROUND: Brownish grey slightly sandy slightly clayey subangular fine to coarse GRAVEL with low cobble content. Sand is fine to coarse. Cobbles are subangular, of mixed lithologies and a range of sizes.
0.50	ES1					(0.60)		
0.80 - 1.20	B5				32.84	0.80		MADE GROUND: Soft to firm orangish brown slightly sandy slightly gravelly CLAY with low cobble content. Sand is fine to coarse. Gravel is subrounded fine to medium. Cobbles are subangular, of mixed lithologies and a range of sizes.
						(0.40)		
1.20 - 2.00	B6				32.44	1.20		
1.20 - 1.65	SPT (S) N=16			N=16 (3,6/3,3,4,6)				Stiff brownish black slightly sandy slightly gravelly CLAY with low cobble content. Sand is fine to coarse. Gravel is subangular fine to medium. Cobbles are subangular, of mixed lithologies and a range of sizes.
1.50	ES2			Water Strike at 1.50m		(0.80)		
2.00 - 2.65	B7				31.64	2.00		Stiff black slightly sandy slightly gravelly CLAY with low cobble content. Sand is fine to coarse. Gravel is subangular fine to medium. Cobbles are subangular, of mixed lithologies and a range of sizes.
2.00 - 2.45	SPT (S) N=33			N=33 (5,5/7,7,8,11)		(0.65)		
2.50	ES3							
2.65 - 3.04	SPT (S)			N=50 (10,12/50 for 245mm)	30.99	2.65		End of Borehole at 2.65m

Water

Backfill

Remarks

Terminated on very stiff material.

Water Strikes

Struck at (m)	Casing to (m)	Time (min)	Rose to (m)
1.50		10	0.90

Water Added

From (m)	To (m)

Casing Details

To (m)	Diam (mm)

Chiselling Details

From (m)	To (m)	Time (hh:mm)

CAUSEWAY GEOTECH

Method	Plant Used	Top	Base
Light Percussion	Dando Terrier	0.00	4.45

Project No.: 18-0767

Project Name: Chivers Site, Dublin 17

Borehole No.: BH08

Coordinates: 319812.49 E, 239673.44 N

Client: Platinum Land Ltd

Sheet 1 of 1

Client's Representative: Cora Consulting Engineers

Scale: 1:50

Ground Level: 33.71 mOD

Dates: 21/08/2018 - 21/08/2018

Driller: JL

Logger: SR

Depth (m)	Sample / Tests	Casing Depth (m)	Water Depth (m)	Field Records	Level (mOD)	Depth (m) (Thickness)	Legend	Description
						(0.20)		CONCRETE
0.20 - 1.00	B6				33.51	0.20		MADE GROUND: Firm locally stiff brownish grey slightly sandy gravelly CLAY with low cobble content. Sand is fine to coarse. Gravel is subangular to subrounded fine to medium. Cobbles are subrounded, of mixed lithologies and a range of sizes.
0.40 - 0.60	ES3					(0.80)		
1.00 - 2.00	B7				32.71	1.00		MADE GROUND: Stiff orangish brown slightly sandy gravelly CLAY with low cobble content. Sand is fine to coarse. Gravel is subangular to subrounded fine to medium. Cobbles are subrounded, of mixed lithologies and a range of sizes.
1.20 - 1.65	SPT (C) N=17	1.00	Dry	N=17 (2,3/4,4,4,5)				
1.40 - 1.60	ES4					(1.20)		
2.00 - 2.45	SPT (C) N=8	1.00	Dry	N=8 (2,2/2,2,2,2)				
2.20 - 3.00	B8				31.51	2.20		Firm greenish grey slightly gravelly sandy CLAY with low cobble content. Sand is fine to coarse. Gravel is subrounded fine to coarse. Cobbles are subrounded, of mixed lithologies and a range of sizes.
2.40 - 2.60	ES5					(1.20)		
3.00 - 3.45	D1							
	SPT (S) N=10	1.00	Dry	N=10 (3,2/2,2,3,3)				
3.40 - 4.00	B9				30.31	3.40		Very stiff brown slightly sandy slightly gravelly CLAY with low cobble content. Sand is fine to coarse. Gravel is subangular fine to medium. Cobbles are subrounded, of mixed lithologies and a range of sizes.
4.00 - 4.45	D2					(1.05)		
	SPT (S) N=50	1.00	Dry	N=50 (4,5/9,11,13,17)				
					29.26	4.45		End of Borehole at 4.45m

Water: Backfill

Remarks

No groundwater encountered

Terminated in very stiff deposits.

Water Strikes				Chiselling Details		
Struck at (m)	Casing to (m)	Time (min)	Rose to (m)	From (m)	To (m)	Time (hh:mm)

Water Added		Casing Details	
From (m)	To (m)	To (m)	Diam (mm)

CAUSEWAY GEOTECH

Project No.: 18-0767	**Project Name:** Chivers Site, Dublin 17	**Trial Pit No.:** TP01
Co-ordinates: 319683.02 E 239699.16 N	**Client:** Platinum Land Ltd	Sheet 1 of 1
Method: Trial Pitting	**Client's Representative:** Cora Consulting Engineers	**Scale:** 1:25
Plant: 3.5T Tracked Excavator	**Ground Level:** 34.64 mOD	**Date:** 22/08/2018	**Logger:** GH

Depth (m)	Sample / Tests	Field Records	Level (mOD)	Depth (m) (Thickness)	Legend	Description	Water
			34.54	(0.10) 0.10		TOPSOIL	
						MADE GROUND: Grey slightly sandy silty angular fine to coarse GRAVEL with medium cobble content Sand is fine to coarse. Cobbles are angular. Cobbles are subangular, of mixed lithologies and a range of sizes.	
0.50	B1			(0.65)			
0.50	D2						
0.50	ES3						
			33.89	0.75			
0.80	B4					MADE GROUND: Firm brown slightly sandy slightly gravelly CLAY with low cobble content. Sand is fine to coarse. Gravel is subrounded fine to coarse predominately of limestone. Cobbles are subrounded, of mixed lithologies and a range of sizes.	
0.80	D5			(0.50)			
			33.39	1.25			
1.30	B6					MADE GROUND: Firm becoming stiff bluish grey slightly sandy slightly gravelly CLAY with fragments of red brick. Sand is fine to coarse. Gravel is subangular fine to coarse.	
1.30	B7						
1.50	ES8			(1.25)			
2.30	B9						
2.30	D10						
2.50	ES11	Seepage at 2.50m	32.14	2.50		End of trial pit at 2.50m	▼

Remarks

Terminated due to maximum reach of excavator

Water Strikes:

Struck at (m):	Remarks:
2.50	Seepage at 2.50m

Stability: Stable

Width: 0.70

Length: 3.10

CAUSEWAY GEOTECH

Project No.: 18-0767	**Project Name:** Chivers Site, Dublin 17		**Trial Pit No.:** TP02
Co-ordinates: 319740.53 E	**Client:** Platinum Land Ltd		Sheet 1 of 1
Method: Trial Pitting	239749.21 N	**Client's Representative:** Cora Consulting Engineers	**Scale:** 1:25
Plant: 3.5T Tracked Excavator	**Ground Level:** 34.14 mOD	**Date:** 22/08/2018	**Logger:** GH

Depth (m)	Sample / Tests	Field Records	Level (mOD)	Depth (m) (Thickness)	Legend	Description	Water
				(0.15)		TOPSOIL	
			33.99	0.15		MADE GROUND: Light brownish beige slightly sandy slightly silty angular fine to coarse GRAVEL with low cobble content and fragments of plastic and red brick. Sand is fine to coarse. Cobbles are subrounded, of mixed lithologies and a range of sizes.	
0.50	B1			(0.60)			
0.50	D2						
0.50	ES3						
			33.39	0.75		MADE GROUND: Soft locally firm light brown slightly sandy slightly gravelly SILT with medium cobble content. Sand is fine to coarse. Gravel is subangular fine to coarse. Cobbles are subangular, of mixed lithologies and a range of sizes.	
0.80	B4						
0.80	D5			(0.25)			
			33.14	1.00		MADE GROUND: Firm brown slightly sandy slightly gravelly CLAY with low cobble content. Sand is fine to coarse. Gravel is subangular fine to coarse. Cobbles are subrounded, of mixed lithologies and a range of sizes.	
1.10	B7						
1.10	D8			(0.60)			
1.50	ES6						
			32.54	1.60		MADE GROUND: Firm brown slightly sandy slightly gravelly CLAY with low cobble content. Sand is fine to coarse. Gravel is subangular fine to coarse. Cobbles are subrounded, of mixed lithologies and a range of sizes.	
1.80	B9						
1.80	D10			(0.70)			
			31.84	2.30		End of trial pit at 2.30m	

0.5 1.0 1.5 2.0 2.5 3.0 3.5 4.0 4.5

Remarks
No groundwater encountered

Terminated due to services

Water Strikes:	
Struck at (m):	Remarks:

Stability: Stable

Width: 0.70

Length: 3.50

CAUSEWAY GEOTECH

Project No.: 18-0767	**Project Name:** Chivers Site, Dublin 17		**Trial Pit No.:** **TP03**
Co-ordinates: 319675.35 E	**Client:** Platinum Land Ltd		Sheet 1 of 1
Method: Trial Pitting	239626.77 N	**Client's Representative:** Cora Consulting Engineers	**Scale:** 1:25
Plant: 3T Tracked Excavator	**Ground Level:** 34.16 mOD	**Date:** 22/08/2018	**Logger:** GH

Depth (m)	Sample / Tests	Field Records	Level (mOD)	Depth (m) (Thickness)	Legend	Description	Water
			34.06	(0.10) 0.10		TOPSOIL	
				(0.50)		MADE GROUND: Soft beige slightly sandy gravelly SILT with low cobble content. Sand is fine to coarse, Gravel is angular fine to coarse. Cobbles are angular, of mixed lithologies and a range of sizes.	
0.50	B1						
0.50	D2						
0.50	ES3		33.56	0.60			
0.70	B4					Firm locally stiff brown slightly sandy slightly gravelly CLAY with low cobble content. Sand is fine to coarse. Gravel is subangular fine to coarse. Cobbles are subangular, of mixed lithologies and a range of sizes.	
0.70	D5			(0.40)			
			33.16	1.00			
1.20	B6					Firm bluish grey slightly sandy gravelly CLAY with medium cobble content. Sand is fine to coarse. Gravel is subrounded fine to coarse of predominately limestone. Cobbles are rounded, of mixed lithologies and a range of sizes.	
1.20	D7	Seepage at 1.30m Fast flow at 1.40m		(0.60)			▼ ▼
1.50	ES8		32.56	1.60		End of trial pit at 1.60m	

Remarks

Terminated due to pit walls collapsing

Water Strikes:

Struck at (m):	Remarks:
1.30	Seepage at 1.30m
1.40	Fast flow at 1.40m

Stability: Unstable

Width: 0.70

Length: 3.00

CAUSEWAY GEOTECH

	Project No.: 18-0767	**Project Name:** Chivers Site, Dublin 17	**Trial Pit No.:** **TP04**
	Co-ordinates: 319805.18 E	**Client:** Platinum Land Ltd	Sheet 1 of 1
Method: Trial Pitting	239688.41 N	**Client's Representative:** Cora Consulting Engineers	**Scale:** 1:25
Plant: 3.5T Tracked Excavator	**Ground Level:** 33.85 mOD	**Date:** 22/08/2018	**Logger:** MMC

Depth (m)	Sample / Tests	Field Records	Level (mOD)	Depth (m) (Thickness)	Legend	Description	Water
				(0.15)		TOPSOIL	
			33.70	0.15		MADE GROUND: Brown slightly sandy slightly silty subrounded fine to coarse GRAVEL with low cobble content and fragments of brick and plastic. Sand is fine to coarse. Cobbles are subrounded, of mixed lithologies and a range of sizes.	
0.50	B1						
0.50	D2						
0.50	ES3						
				(1.35)			
1.50	B4		32.35	1.50		End of trial pit at 1.50m	
1.50	D5						
1.50	ES6						

Remarks
No groundwater encountered

Terminated due to services

Water Strikes:	
Struck at (m):	Remarks:

Stability: Stable

Width: 0.60

Length: 1.85

Appendix C – Laboratory Test Certificates

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

UKAS TESTING
2183

Final Report

Report No.: 18-26066-1

Initial Date of Issue: 20-Sep-2018

Client Causeway Geotech Ltd

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

Contact(s): Carin Cornwall
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Lucy Newland
Matthew Gilbert
Neil Haggan
Paul Dunlop
Paul McNamara
Stephen Franey
Stephen McCracken
Stephen Watson
Stuart Abraham

Project 18-0767 Chivers Site, Dublin 17

Quotation No.:		**Date Received:**	30-Aug-2018
Order No.:		**Date Instructed:**	17-Sep-2018
No. of Samples:	7		
Turnaround (Wkdays):	4	**Results Due:**	20-Sep-2018
Date Approved:	20-Sep-2018		

Approved By:

Details: Robert Monk, Technical Manager

Results - Leachate

Project: 18-0767 Chivers Site, Dublin 17

Client: Causeway Geotech Ltd			**Chemtest Job No.:**		18-26066	18-26066	18-26066	18-26066
Quotation No.:			**Chemtest Sample ID.:**		679437	679442	679445	679446
			Client Sample ID.:		1	1	1	2
			Sample Location:		BH01	BH04	BH07	BH07
			Sample Type:		SOIL	SOIL	SOIL	SOIL
			Top Depth (m):		0.5	0.5	0.5	1.5
			Date Sampled:		28-Aug-2018	28-Aug-2018	28-Aug-2018	28-Aug-2018
Determinand	**Accred.**	**SOP**	**Units**	**LOD**				
Ammonium	U	1220	mg/l	0.050	0.18	0.061	0.13	0.18
Ammonium	N	1220	mg/kg	0.10	1.8	0.61	1.3	1.8

Chemtest
The right chemistry to deliver results

Results - Soil

Project: 18-0767 Chivers Site, Dublin 17

Client: Causeway Geotech Ltd				**Chemtest Job No.:**	18-26066	18-26066	18-26066	18-26066	18-26066	18-26066	18-26066
Quotation No.:				**Chemtest Sample ID.:**	679437	679439	679442	679443	679444	679445	679446
				Client Sample ID.:	1	1	1	2	3	1	2
				Sample Location:	BH01	BH03	BH04	BH04	BH04	BH07	BH07
				Sample Type:	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
				Top Depth (m):	0.5	0.5	0.5	1.5	2.5	0.5	1.5
				Date Sampled:	28-Aug-2018	28-Aug-2018	28-Aug-2018	28-Aug-2018	28-Aug-2018	28-Aug-2018	28-Aug-2018
				Asbestos Lab:	COVENTRY		COVENTRY			COVENTRY	COVENTRY
Determinand	**Accred.**	**SOP**	**Units**	**LOD**							
ACM Type	U	2192		N/A	-		-			-	-
Asbestos Identification	U	2192	%	0.001	No Asbestos Detected		No Asbestos Detected			No Asbestos Detected	No Asbestos Detected
Moisture	N	2030	%	0.020	7.9	12	7.8	11	6.7	8.9	9.5
pH	U	2010		N/A	8.6	8.2	8.5	8.6		8.5	8.6
Boron (Hot Water Soluble)	U	2120	mg/kg	0.40	< 0.40	0.58	< 0.40	< 0.40		< 0.40	< 0.40
Sulphate (2:1 Water Soluble) as SO4	U	2120	g/l	0.010	< 0.010	0.064	< 0.010	< 0.010		< 0.010	0.010
Sulphur (Elemental)	U	2180	mg/kg	1.0	< 1.0		< 1.0			< 1.0	< 1.0
Cyanide (Free)	U	2300	mg/kg	0.50	[B] < 0.50	[B] < 0.50	[B] < 0.50	[B] < 0.50		[B] < 0.50	[B] < 0.50
Cyanide (Total)	U	2300	mg/kg	0.50	[B] < 0.50	[B] < 0.50	[B] < 0.50	[B] < 0.50		[B] < 0.50	[B] < 0.50
Thiocyanate	U	2300	mg/kg	5.0	[B] < 5.0	[B] < 5.0	[B] < 5.0	[B] < 5.0		[B] < 5.0	[B] < 5.0
Sulphide (Easily Liberatable)	N	2325	mg/kg	0.50	6.0	5.1	2.9	4.8		3.6	5.0
Sulphate (Total)	U	2430	%	0.010	0.048	0.14	0.043	0.025		0.097	0.13
Arsenic	U	2450	mg/kg	1.0	26	27	24	21		22	22
Barium	U	2450	mg/kg	10	110		69			140	98
Cadmium	U	2450	mg/kg	0.10	2.4	2.3	2.4	1.9		1.7	1.5
Chromium	U	2450	mg/kg	1.0	21	29	20	18		19	17
Molybdenum	U	2450	mg/kg	2.0	6.0		4.5			4.0	3.4
Antimony	N	2450	mg/kg	2.0	2.4		2.6			2.0	< 2.0
Copper	U	2450	mg/kg	0.50	28	40	34	28		26	24
Mercury	U	2450	mg/kg	0.10	< 0.10	0.16	< 0.10	< 0.10		< 0.10	< 0.10
Nickel	U	2450	mg/kg	0.50	62	65	61	49		51	39
Lead	U	2450	mg/kg	0.50	36	67	30	26		26	24
Selenium	U	2450	mg/kg	0.20	0.90	1.8	0.70	0.86		0.36	3.1
Zinc	U	2450	mg/kg	0.50	100	110	95	90		81	72
Chromium (Trivalent)	N	2490	mg/kg	1.0	21		20			19	17
Chromium (Hexavalent)	N	2490	mg/kg	0.50	< 0.50	< 0.50	< 0.50	< 0.50		< 0.50	< 0.50
Organic Matter	U	2625	%	0.40	0.81	2.1	0.78	0.50		0.59	1.3
Total Organic Carbon	U	2625	%	0.20	0.47		0.45			0.34	0.76
Mineral Oil	N	2670	mg/kg	10	< 10		< 10			< 10	< 10
Aliphatic TPH >C5-C6	N	2680	mg/kg	1.0	[B] < 1.0	[B] < 1.0	[B] < 1.0	[B] < 1.0	[B] < 1.0	[B] < 1.0	[B] < 1.0
Aliphatic TPH >C6-C8	N	2680	mg/kg	1.0	[B] < 1.0	[B] < 1.0	[B] < 1.0	[B] < 1.0	[B] < 1.0	[B] < 1.0	[B] < 1.0
Aliphatic TPH >C8-C10	U	2680	mg/kg	1.0	[B] < 1.0	[B] < 1.0	[B] < 1.0	[B] < 1.0	[B] < 1.0	[B] < 1.0	[B] < 1.0
Aliphatic TPH >C10-C12	U	2680	mg/kg	1.0	[B] < 1.0	[B] < 1.0	[B] < 1.0	[B] < 1.0	[B] < 1.0	[B] < 1.0	[B] < 1.0
Aliphatic TPH >C12-C16	U	2680	mg/kg	1.0	[B] < 1.0	[B] < 1.0	[B] < 1.0	[B] < 1.0	[B] < 1.0	[B] < 1.0	[B] < 1.0
Aliphatic TPH >C16-C21	U	2680	mg/kg	1.0	[B] < 1.0	[B] < 1.0	[B] < 1.0	[B] < 1.0	[B] < 1.0	[B] < 1.0	[B] < 1.0
Aliphatic TPH >C21-C35	U	2680	mg/kg	1.0	[B] < 1.0	[B] < 1.0	[B] < 1.0	[B] < 1.0	[B] < 1.0	[B] < 1.0	[B] < 1.0
Aliphatic TPH >C35-C44	N	2680	mg/kg	1.0	[B] < 1.0	[B] < 1.0	[B] < 1.0	[B] < 1.0	[B] < 1.0	[B] < 1.0	[B] < 1.0

Chemtest
The right chemistry to deliver results

Results - Soil

Project: 18-0767 Chivers Site, Dublin 17

Client: Causeway Geotech Ltd					**Chemtest Job No.:**	18-26066	18-26066	18-26066	18-26066	18-26066	18-26066	18-26066
Quotation No.:					**Chemtest Sample ID.:**	679437	679439	679442	679443	679444	679445	679446
					Client Sample ID.:	1	1	1	2	3	1	2
					Sample Location:	BH01	BH03	BH04	BH04	BH04	BH07	BH07
					Sample Type:	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
					Top Depth (m):	0.5	0.5	0.5	1.5	2.5	0.5	1.5
					Date Sampled:	28-Aug-2018	28-Aug-2018	28-Aug-2018	28-Aug-2018	28-Aug-2018	28-Aug-2018	28-Aug-2018
					Asbestos Lab:	COVENTRY		COVENTRY			COVENTRY	COVENTRY
Determinand	**Accred.**	**SOP**	**Units**	**LOD**								
Total Aliphatic Hydrocarbons	N	2680	mg/kg	5.0		[B] < 5.0	[B] < 5.0	[B] < 5.0	[B] < 5.0	[B] < 5.0	[B] < 5.0	[B] < 5.0
Aromatic TPH >C5-C7	N	2680	mg/kg	1.0		[B] < 1.0	[B] < 1.0	[B] < 1.0	[B] < 1.0	[B] < 1.0	[B] < 1.0	[B] < 1.0
Aromatic TPH >C7-C8	N	2680	mg/kg	1.0		[B] < 1.0	[B] < 1.0	[B] < 1.0	[B] < 1.0	[B] < 1.0	[B] < 1.0	[B] < 1.0
Aromatic TPH >C8-C10	U	2680	mg/kg	1.0		[B] < 1.0	[B] < 1.0	[B] < 1.0	[B] < 1.0	[B] < 1.0	[B] < 1.0	[B] < 1.0
Aromatic TPH >C10-C12	U	2680	mg/kg	1.0		[B] < 1.0	[B] < 1.0	[B] < 1.0	[B] < 1.0	[B] < 1.0	[B] < 1.0	[B] < 1.0
Aromatic TPH >C12-C16	U	2680	mg/kg	1.0		[B] < 1.0	[B] < 1.0	[B] < 1.0	[B] < 1.0	[B] < 1.0	[B] < 1.0	[B] < 1.0
Aromatic TPH >C16-C21	U	2680	mg/kg	1.0		[B] 15	[B] < 1.0	[B] < 1.0	[B] < 1.0	[B] < 1.0	[B] < 1.0	[B] < 1.0
Aromatic TPH >C21-C35	U	2680	mg/kg	1.0		[B] 3.5	[B] < 1.0	[B] < 1.0	[B] < 1.0	[B] < 1.0	[B] < 1.0	[B] < 1.0
Aromatic TPH >C35-C44	N	2680	mg/kg	1.0		[B] < 1.0	[B] < 1.0	[B] < 1.0	[B] < 1.0	[B] < 1.0	[B] < 1.0	[B] < 1.0
Total Aromatic Hydrocarbons	N	2680	mg/kg	5.0		[B] 19	[B] < 5.0	[B] < 5.0	[B] < 5.0	[B] < 5.0	[B] < 5.0	[B] < 5.0
Total Petroleum Hydrocarbons	N	2680	mg/kg	10.0		[B] 19	[B] < 10	[B] < 10	[B] < 10	[B] < 10	[B] < 10	[B] < 10
Naphthalene	U	2700	mg/kg	0.10		0.24	0.17	< 0.10	< 0.10		< 0.10	< 0.10
Acenaphthylene	U	2700	mg/kg	0.10		0.10	0.14	< 0.10	< 0.10		< 0.10	< 0.10
Acenaphthene	U	2700	mg/kg	0.10		0.47	< 0.10	< 0.10	< 0.10		< 0.10	< 0.10
Fluorene	U	2700	mg/kg	0.10		0.74	0.10	< 0.10	< 0.10		< 0.10	< 0.10
Phenanthrene	U	2700	mg/kg	0.10		3.0	0.23	< 0.10	< 0.10		< 0.10	< 0.10
Anthracene	U	2700	mg/kg	0.10		0.77	< 0.10	< 0.10	< 0.10		< 0.10	< 0.10
Fluoranthene	U	2700	mg/kg	0.10		3.3	0.29	< 0.10	< 0.10		< 0.10	< 0.10
Pyrene	U	2700	mg/kg	0.10		2.3	0.31	< 0.10	< 0.10		< 0.10	< 0.10
Benzo[a]anthracene	U	2700	mg/kg	0.10		0.91	0.20	< 0.10	< 0.10		< 0.10	< 0.10
Chrysene	U	2700	mg/kg	0.10		1.3	0.38	< 0.10	< 0.10		< 0.10	< 0.10
Benzo[b]fluoranthene	U	2700	mg/kg	0.10		0.86	< 0.10	< 0.10	< 0.10		< 0.10	< 0.10
Benzo[k]fluoranthene	U	2700	mg/kg	0.10		0.59	< 0.10	< 0.10	< 0.10		< 0.10	< 0.10
Benzo[a]pyrene	U	2700	mg/kg	0.10		0.61	< 0.10	< 0.10	< 0.10		< 0.10	< 0.10
Indeno(1,2,3-c,d)Pyrene	U	2700	mg/kg	0.10		0.23	< 0.10	< 0.10	< 0.10		< 0.10	< 0.10
Dibenz(a,h)Anthracene	U	2700	mg/kg	0.10		0.27	< 0.10	< 0.10	< 0.10		< 0.10	< 0.10
Benzo[g,h,i]perylene	U	2700	mg/kg	0.10		0.63	< 0.10	< 0.10	< 0.10		< 0.10	< 0.10
Total Of 16 PAH's	U	2700	mg/kg	2.0		16	< 2.0	< 2.0	< 2.0		< 2.0	< 2.0
Dichlorodifluoromethane	N	2760	µg/kg	1.0		[B] < 1.0		[B] < 1.0	[B] < 1.0		[B] < 1.0	[B] < 1.0
Chloromethane	U	2760	µg/kg	1.0		[B] < 1.0		[B] < 1.0	[B] < 1.0		[B] < 1.0	[B] < 1.0
Vinyl Chloride	U	2760	µg/kg	1.0		[B] < 1.0		[B] < 1.0	[B] < 1.0		[B] < 1.0	[B] < 1.0
Bromomethane	U	2760	µg/kg	20		[B] < 20		[B] < 20	[B] < 20		[B] < 20	[B] < 20
Chloroethane	N	2760	µg/kg	2.0		[B] < 2.0		[B] < 2.0	[B] < 2.0		[B] < 2.0	[B] < 2.0
Trichlorofluoromethane	U	2760	µg/kg	1.0		[B] < 1.0		[B] < 1.0	[B] < 1.0		[B] < 1.0	[B] < 1.0
1,1-Dichloroethene	U	2760	µg/kg	1.0		[B] < 1.0		[B] < 1.0	[B] < 1.0		[B] < 1.0	[B] < 1.0
Trans 1,2-Dichloroethene	U	2760	µg/kg	1.0		[B] < 1.0		[B] < 1.0	[B] < 1.0		[B] < 1.0	[B] < 1.0
1,1-Dichloroethane	U	2760	µg/kg	1.0		[B] < 1.0		[B] < 1.0	[B] < 1.0		[B] < 1.0	[B] < 1.0
cis 1,2-Dichloroethene	U	2760	µg/kg	1.0		[B] < 1.0		[B] < 1.0	[B] < 1.0		[B] < 1.0	[B] < 1.0

Chemtest
The right chemistry to deliver results

Results - Soil

Project: 18-0767 Chivers Site, Dublin 17

Client: Causeway Geotech Ltd					**Chemtest Job No.:**	18-26066	18-26066	18-26066	18-26066	18-26066	18-26066	18-26066
Quotation No.:					**Chemtest Sample ID.:**	679437	679439	679442	679443	679444	679445	679446
					Client Sample ID.:	1	1	1	2	3	1	2
					Sample Location:	BH01	BH03	BH04	BH04	BH04	BH07	BH07
					Sample Type:	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
					Top Depth (m):	0.5	0.5	0.5	1.5	2.5	0.5	1.5
					Date Sampled:	28-Aug-2018	28-Aug-2018	28-Aug-2018	28-Aug-2018	28-Aug-2018	28-Aug-2018	28-Aug-2018
					Asbestos Lab:	COVENTRY		COVENTRY			COVENTRY	COVENTRY
Determinand	**Accred.**	**SOP**	**Units**	**LOD**								
Bromochloromethane	N	2760	µg/kg	5.0	[B] < 5.0		[B] < 5.0	[B] < 5.0		[B] < 5.0	[B] < 5.0
Trichloromethane	U	2760	µg/kg	1.0	[B] < 1.0		[B] < 1.0	[B] < 1.0		[B] < 1.0	[B] < 1.0
1,1,1-Trichloroethane	U	2760	µg/kg	1.0	[B] < 1.0		[B] < 1.0	[B] < 1.0		[B] < 1.0	[B] < 1.0
Tetrachloromethane	U	2760	µg/kg	1.0	[B] < 1.0		[B] < 1.0	[B] < 1.0		[B] < 1.0	[B] < 1.0
1,1-Dichloropropene	N	2760	µg/kg	1.0	[B] < 1.0		[B] < 1.0	[B] < 1.0		[B] < 1.0	[B] < 1.0
Benzene	U	2760	µg/kg	1.0	[B] < 1.0	[B] < 1.0	[B] < 1.0	[B] < 1.0		[B] < 1.0	[B] < 1.0
1,2-Dichloroethane	U	2760	µg/kg	2.0	[B] < 2.0		[B] < 2.0	[B] < 2.0		[B] < 2.0	[B] < 2.0
Trichloroethene	U	2760	µg/kg	1.0	[B] < 1.0		[B] < 1.0	[B] < 1.0		[B] < 1.0	[B] < 1.0
1,2-Dichloropropane	U	2760	µg/kg	1.0	[B] < 1.0		[B] < 1.0	[B] < 1.0		[B] < 1.0	[B] < 1.0
Dibromomethane	U	2760	µg/kg	1.0	[B] < 1.0		[B] < 1.0	[B] < 1.0		[B] < 1.0	[B] < 1.0
Bromodichloromethane	U	2760	µg/kg	5.0	[B] < 5.0		[B] < 5.0	[B] < 5.0		[B] < 5.0	[B] < 5.0
cis-1,3-Dichloropropene	N	2760	µg/kg	10	[B] < 10		[B] < 10	[B] < 10		[B] < 10	[B] < 10
Toluene	U	2760	µg/kg	1.0	[B] < 1.0	[B] < 1.0	[B] < 1.0	[B] < 1.0		[B] < 1.0	[B] < 1.0
Trans-1,3-Dichloropropene	N	2760	µg/kg	10	[B] < 10		[B] < 10	[B] < 10		[B] < 10	[B] < 10
1,1,2-Trichloroethane	U	2760	µg/kg	10	[B] < 10		[B] < 10	[B] < 10		[B] < 10	[B] < 10
Tetrachloroethene	U	2760	µg/kg	1.0	[B] < 1.0		[B] < 1.0	[B] < 1.0		[B] < 1.0	[B] < 1.0
1,3-Dichloropropane	N	2760	µg/kg	2.0	[B] < 2.0		[B] < 2.0	[B] < 2.0		[B] < 2.0	[B] < 2.0
Dibromochloromethane	N	2760	µg/kg	10	[B] < 10		[B] < 10	[B] < 10		[B] < 10	[B] < 10
1,2-Dibromoethane	U	2760	µg/kg	5.0	[B] < 5.0		[B] < 5.0	[B] < 5.0		[B] < 5.0	[B] < 5.0
Chlorobenzene	U	2760	µg/kg	1.0	[B] < 1.0		[B] < 1.0	[B] < 1.0		[B] < 1.0	[B] < 1.0
1,1,1,2-Tetrachloroethane	U	2760	µg/kg	2.0	[B] < 2.0		[B] < 2.0	[B] < 2.0		[B] < 2.0	[B] < 2.0
Ethylbenzene	U	2760	µg/kg	1.0	[B] < 1.0	[B] < 1.0	[B] < 1.0	[B] < 1.0		[B] < 1.0	[B] < 1.0
m & p-Xylene	U	2760	µg/kg	1.0	[B] < 1.0	[B] < 1.0	[B] < 1.0	[B] < 1.0		[B] < 1.0	[B] < 1.0
o-Xylene	U	2760	µg/kg	1.0	[B] < 1.0	[B] < 1.0	[B] < 1.0	[B] < 1.0		[B] < 1.0	[B] < 1.0
Styrene	U	2760	µg/kg	1.0	[B] < 1.0		[B] < 1.0	[B] < 1.0		[B] < 1.0	[B] < 1.0
Tribromomethane	N	2760	µg/kg	1.0	[B] < 1.0		[B] < 1.0	[B] < 1.0		[B] < 1.0	[B] < 1.0
Isopropylbenzene	U	2760	µg/kg	1.0	[B] < 1.0		[B] < 1.0	[B] < 1.0		[B] < 1.0	[B] < 1.0
Bromobenzene	U	2760	µg/kg	1.0	[B] < 1.0		[B] < 1.0	[B] < 1.0		[B] < 1.0	[B] < 1.0
1,2,3-Trichloropropane	N	2760	µg/kg	50	[B] < 50		[B] < 50	[B] < 50		[B] < 50	[B] < 50
N-Propylbenzene	N	2760	µg/kg	1.0	[B] < 1.0		[B] < 1.0	[B] < 1.0		[B] < 1.0	[B] < 1.0
2-Chlorotoluene	U	2760	µg/kg	1.0	[B] < 1.0		[B] < 1.0	[B] < 1.0		[B] < 1.0	[B] < 1.0
1,3,5-Trimethylbenzene	U	2760	µg/kg	1.0	[B] < 1.0		[B] < 1.0	[B] < 1.0		[B] < 1.0	[B] < 1.0
4-Chlorotoluene	N	2760	µg/kg	1.0	[B] < 1.0		[B] < 1.0	[B] < 1.0		[B] < 1.0	[B] < 1.0
Tert-Butylbenzene	N	2760	µg/kg	1.0	[B] < 1.0		[B] < 1.0	[B] < 1.0		[B] < 1.0	[B] < 1.0
1,2,4-Trimethylbenzene	U	2760	µg/kg	1.0	[B] < 1.0		[B] < 1.0	[B] < 1.0		[B] < 1.0	[B] < 1.0
Sec-Butylbenzene	N	2760	µg/kg	1.0	[B] < 1.0		[B] < 1.0	[B] < 1.0		[B] < 1.0	[B] < 1.0
1,3-Dichlorobenzene	U	2760	µg/kg	1.0	[B] < 1.0		[B] < 1.0	[B] < 1.0		[B] < 1.0	[B] < 1.0
4-Isopropyltoluene	N	2760	µg/kg	1.0	[B] < 1.0		[B] < 1.0	[B] < 1.0		[B] < 1.0	[B] < 1.0

Chemtest
The right chemistry to deliver results

Results - Soil

Project: 18-0767 Chivers Site, Dublin 17

Client: Causeway Geotech Ltd					**Chemtest Job No.:**	18-26066	18-26066	18-26066	18-26066	18-26066	18-26066	18-26066
Quotation No.:					**Chemtest Sample ID.:**	679437	679439	679442	679443	679444	679445	679446
					Client Sample ID.:	1	1	1	2	3	1	2
					Sample Location:	BH01	BH03	BH04	BH04	BH04	BH07	BH07
					Sample Type:	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
					Top Depth (m):	0.5	0.5	0.5	1.5	2.5	0.5	1.5
					Date Sampled:	28-Aug-2018	28-Aug-2018	28-Aug-2018	28-Aug-2018	28-Aug-2018	28-Aug-2018	28-Aug-2018
					Asbestos Lab:	COVENTRY		COVENTRY			COVENTRY	COVENTRY
Determinand	**Accred.**	**SOP**	**Units**	**LOD**								
1,4-Dichlorobenzene	U	2760	µg/kg	1.0	[B] < 1.0		[B] < 1.0	[B] < 1.0		[B] < 1.0	[B] < 1.0
N-Butylbenzene	N	2760	µg/kg	1.0	[B] < 1.0		[B] < 1.0	[B] < 1.0		[B] < 1.0	[B] < 1.0
1,2-Dichlorobenzene	U	2760	µg/kg	1.0	[B] < 1.0		[B] < 1.0	[B] < 1.0		[B] < 1.0	[B] < 1.0
1,2-Dibromo-3-Chloropropane	N	2760	µg/kg	50	[B] < 50		[B] < 50	[B] < 50		[B] < 50	[B] < 50
1,2,4-Trichlorobenzene	U	2760	µg/kg	1.0	[B] < 1.0		[B] < 1.0	[B] < 1.0		[B] < 1.0	[B] < 1.0
Hexachlorobutadiene	N	2760	µg/kg	1.0	[B] < 1.0		[B] < 1.0	[B] < 1.0		[B] < 1.0	[B] < 1.0
1,2,3-Trichlorobenzene	N	2760	µg/kg	2.0	[B] < 2.0		[B] < 2.0	[B] < 2.0		[B] < 2.0	[B] < 2.0
Methyl Tert-Butyl Ether	U	2760	µg/kg	1.0	[B] < 1.0		[B] < 1.0	[B] < 1.0		[B] < 1.0	[B] < 1.0
N-Nitrosodimethylamine	U	2790	mg/kg	0.50	[B] < 0.50		[B] < 0.50	[B] < 0.50		[B] < 0.50	[B] < 0.50
Phenol	U	2790	mg/kg	0.50	[B] < 0.50		[B] < 0.50	[B] < 0.50		[B] < 0.50	[B] < 0.50
2-Chlorophenol	U	2790	mg/kg	0.50	[B] < 0.50		[B] < 0.50	[B] < 0.50		[B] < 0.50	[B] < 0.50
Bis-(2-Chloroethyl)Ether	U	2790	mg/kg	0.50	[B] < 0.50		[B] < 0.50	[B] < 0.50		[B] < 0.50	[B] < 0.50
1,3-Dichlorobenzene	U	2790	mg/kg	0.50	[B] < 0.50		[B] < 0.50	[B] < 0.50		[B] < 0.50	[B] < 0.50
1,4-Dichlorobenzene	N	2790	mg/kg	0.50	[B] < 0.50		[B] < 0.50	[B] < 0.50		[B] < 0.50	[B] < 0.50
1,2-Dichlorobenzene	U	2790	mg/kg	0.50	[B] < 0.50		[B] < 0.50	[B] < 0.50		[B] < 0.50	[B] < 0.50
2-Methylphenol	U	2790	mg/kg	0.50	[B] < 0.50		[B] < 0.50	[B] < 0.50		[B] < 0.50	[B] < 0.50
Bis(2-Chloroisopropyl)Ether	U	2790	mg/kg	0.50	[B] < 0.50		[B] < 0.50	[B] < 0.50		[B] < 0.50	[B] < 0.50
Hexachloroethane	N	2790	mg/kg	0.50	[B] < 0.50		[B] < 0.50	[B] < 0.50		[B] < 0.50	[B] < 0.50
N-Nitrosodi-n-propylamine	U	2790	mg/kg	0.50	[B] < 0.50		[B] < 0.50	[B] < 0.50		[B] < 0.50	[B] < 0.50
4-Methylphenol	U	2790	mg/kg	0.50	[B] < 0.50		[B] < 0.50	[B] < 0.50		[B] < 0.50	[B] < 0.50
Nitrobenzene	U	2790	mg/kg	0.50	[B] < 0.50		[B] < 0.50	[B] < 0.50		[B] < 0.50	[B] < 0.50
Isophorone	U	2790	mg/kg	0.50	[B] < 0.50		[B] < 0.50	[B] < 0.50		[B] < 0.50	[B] < 0.50
2-Nitrophenol	N	2790	mg/kg	0.50	[B] < 0.50		[B] < 0.50	[B] < 0.50		[B] < 0.50	[B] < 0.50
2,4-Dimethylphenol	N	2790	mg/kg	0.50	[B] < 0.50		[B] < 0.50	[B] < 0.50		[B] < 0.50	[B] < 0.50
Bis(2-Chloroethoxy)Methane	U	2790	mg/kg	0.50	[B] < 0.50		[B] < 0.50	[B] < 0.50		[B] < 0.50	[B] < 0.50
2,4-Dichlorophenol	U	2790	mg/kg	0.50	[B] < 0.50		[B] < 0.50	[B] < 0.50		[B] < 0.50	[B] < 0.50
1,2,4-Trichlorobenzene	U	2790	mg/kg	0.50	[B] < 0.50		[B] < 0.50	[B] < 0.50		[B] < 0.50	[B] < 0.50
Naphthalene	U	2790	mg/kg	0.50	[B] < 0.50		[B] < 0.50	[B] < 0.50		[B] < 0.50	[B] < 0.50
4-Chloroaniline	N	2790	mg/kg	0.50	[B] < 0.50		[B] < 0.50	[B] < 0.50		[B] < 0.50	[B] < 0.50
Hexachlorobutadiene	U	2790	mg/kg	0.50	[B] < 0.50		[B] < 0.50	[B] < 0.50		[B] < 0.50	[B] < 0.50
4-Chloro-3-Methylphenol	U	2790	mg/kg	0.50	[B] < 0.50		[B] < 0.50	[B] < 0.50		[B] < 0.50	[B] < 0.50
2-Methylnaphthalene	U	2790	mg/kg	0.50	[B] < 0.50		[B] < 0.50	[B] < 0.50		[B] < 0.50	[B] < 0.50
4-Nitrophenol	N	2790	mg/kg	0.50	[B] < 0.50		[B] < 0.50	[B] < 0.50		[B] < 0.50	[B] < 0.50
Hexachlorocyclopentadiene	N	2790	mg/kg	0.50	[B] < 0.50		[B] < 0.50	[B] < 0.50		[B] < 0.50	[B] < 0.50
2,4,6-Trichlorophenol	U	2790	mg/kg	0.50	[B] < 0.50		[B] < 0.50	[B] < 0.50		[B] < 0.50	[B] < 0.50
2,4,5-Trichlorophenol	U	2790	mg/kg	0.50	[B] < 0.50		[B] < 0.50	[B] < 0.50		[B] < 0.50	[B] < 0.50
2-Chloronaphthalene	U	2790	mg/kg	0.50	[B] < 0.50		[B] < 0.50	[B] < 0.50		[B] < 0.50	[B] < 0.50
2-Nitroaniline	U	2790	mg/kg	0.50	[B] < 0.50		[B] < 0.50	[B] < 0.50		[B] < 0.50	[B] < 0.50

Chemtest
The right chemistry to deliver results

Results - Soil

Project: 18-0767 Chivers Site, Dublin 17

Client: Causeway Geotech Ltd					Chemtest Job No.:	18-26066	18-26066	18-26066	18-26066	18-26066	18-26066	18-26066
Quotation No.:					Chemtest Sample ID.:	679437	679439	679442	679443	679444	679445	679446
					Client Sample ID.:	1	1	1	2	3	1	2
					Sample Location:	BH01	BH03	BH04	BH04	BH04	BH07	BH07
					Sample Type:	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
					Top Depth (m):	0.5	0.5	0.5	1.5	2.5	0.5	1.5
					Date Sampled:	28-Aug-2018	28-Aug-2018	28-Aug-2018	28-Aug-2018	28-Aug-2018	28-Aug-2018	28-Aug-2018
					Asbestos Lab:	COVENTRY		COVENTRY			COVENTRY	COVENTRY
Determinand	**Accred.**	**SOP**	**Units**	**LOD**								
Acenaphthylene	U	2790	mg/kg	0.50	[B] < 0.50		[B] < 0.50	[B] < 0.50		[B] < 0.50	[B] < 0.50
Dimethylphthalate	U	2790	mg/kg	0.50	[B] < 0.50		[B] < 0.50	[B] < 0.50		[B] < 0.50	[B] < 0.50
2,6-Dinitrotoluene	U	2790	mg/kg	0.50	[B] < 0.50		[B] < 0.50	[B] < 0.50		[B] < 0.50	[B] < 0.50
Acenaphthene	U	2790	mg/kg	0.50	[B] < 0.50		[B] < 0.50	[B] < 0.50		[B] < 0.50	[B] < 0.50
3-Nitroaniline	N	2790	mg/kg	0.50	[B] < 0.50		[B] < 0.50	[B] < 0.50		[B] < 0.50	[B] < 0.50
Dibenzofuran	U	2790	mg/kg	0.50	[B] < 0.50		[B] < 0.50	[B] < 0.50		[B] < 0.50	[B] < 0.50
4-Chlorophenylphenylether	U	2790	mg/kg	0.50	[B] < 0.50		[B] < 0.50	[B] < 0.50		[B] < 0.50	[B] < 0.50
2,4-Dinitrotoluene	U	2790	mg/kg	0.50	[B] < 0.50		[B] < 0.50	[B] < 0.50		[B] < 0.50	[B] < 0.50
Fluorene	U	2790	mg/kg	0.50	[B] < 0.50		[B] < 0.50	[B] < 0.50		[B] < 0.50	[B] < 0.50
Diethyl Phthalate	U	2790	mg/kg	0.50	[B] < 0.50		[B] < 0.50	[B] < 0.50		[B] < 0.50	[B] < 0.50
4-Nitroaniline	U	2790	mg/kg	0.50	[B] < 0.50		[B] < 0.50	[B] < 0.50		[B] < 0.50	[B] < 0.50
2-Methyl-4,6-Dinitrophenol	N	2790	mg/kg	0.50	[B] < 0.50		[B] < 0.50	[B] < 0.50		[B] < 0.50	[B] < 0.50
Azobenzene	U	2790	mg/kg	0.50	[B] < 0.50		[B] < 0.50	[B] < 0.50		[B] < 0.50	[B] < 0.50
4-Bromophenylphenyl Ether	U	2790	mg/kg	0.50	[B] < 0.50		[B] < 0.50	[B] < 0.50		[B] < 0.50	[B] < 0.50
Hexachlorobenzene	U	2790	mg/kg	0.50	[B] < 0.50		[B] < 0.50	[B] < 0.50		[B] < 0.50	[B] < 0.50
Pentachlorophenol	N	2790	mg/kg	0.50	[B] < 0.50		[B] < 0.50	[B] < 0.50		[B] < 0.50	[B] < 0.50
Phenanthrene	U	2790	mg/kg	0.50	[B] < 0.50		[B] < 0.50	[B] < 0.50		[B] < 0.50	[B] < 0.50
Anthracene	U	2790	mg/kg	0.50	[B] < 0.50		[B] < 0.50	[B] < 0.50		[B] < 0.50	[B] < 0.50
Carbazole	U	2790	mg/kg	0.50	[B] < 0.50		[B] < 0.50	[B] < 0.50		[B] < 0.50	[B] < 0.50
Di-N-Butyl Phthalate	U	2790	mg/kg	0.50	[B] < 0.50		[B] < 0.50	[B] < 0.50		[B] < 0.50	[B] < 0.50
Fluoranthene	U	2790	mg/kg	0.50	[B] < 0.50		[B] < 0.50	[B] < 0.50		[B] < 0.50	[B] < 0.50
Pyrene	U	2790	mg/kg	0.50	[B] < 0.50		[B] < 0.50	[B] < 0.50		[B] < 0.50	[B] < 0.50
Butylbenzyl Phthalate	U	2790	mg/kg	0.50	[B] < 0.50		[B] < 0.50	[B] < 0.50		[B] < 0.50	[B] < 0.50
Benzo[a]anthracene	U	2790	mg/kg	0.50	[B] < 0.50		[B] < 0.50	[B] < 0.50		[B] < 0.50	[B] < 0.50
Chrysene	U	2790	mg/kg	0.50	[B] < 0.50		[B] < 0.50	[B] < 0.50		[B] < 0.50	[B] < 0.50
Bis(2-Ethylhexyl)Phthalate	N	2790	mg/kg	0.50	[B] < 0.50		[B] < 0.50	[B] < 0.50		[B] < 0.50	[B] < 0.50
Di-N-Octyl Phthalate	U	2790	mg/kg	0.50	[B] < 0.50		[B] < 0.50	[B] < 0.50		[B] < 0.50	[B] < 0.50
Benzo[b]fluoranthene	U	2790	mg/kg	0.50	[B] < 0.50		[B] < 0.50	[B] < 0.50		[B] < 0.50	[B] < 0.50
Benzo[k]fluoranthene	U	2790	mg/kg	0.50	[B] < 0.50		[B] < 0.50	[B] < 0.50		[B] < 0.50	[B] < 0.50
Benzo[a]pyrene	U	2790	mg/kg	0.50	[B] < 0.50		[B] < 0.50	[B] < 0.50		[B] < 0.50	[B] < 0.50
Indeno(1,2,3-c,d)Pyrene	U	2790	mg/kg	0.50	[B] < 0.50		[B] < 0.50	[B] < 0.50		[B] < 0.50	[B] < 0.50
Dibenz(a,h)Anthracene	U	2790	mg/kg	0.50	[B] < 0.50		[B] < 0.50	[B] < 0.50		[B] < 0.50	[B] < 0.50
Benzo[g,h,i]perylene	U	2790	mg/kg	0.50	[B] < 0.50		[B] < 0.50	[B] < 0.50		[B] < 0.50	[B] < 0.50
Naphthalene	U	2800	mg/kg	0.10	0.16		< 0.10			< 0.10	< 0.10
Acenaphthylene	N	2800	mg/kg	0.10	< 0.10		< 0.10			< 0.10	< 0.10
Acenaphthene	U	2800	mg/kg	0.10	0.62		< 0.10			< 0.10	< 0.10
Fluorene	U	2800	mg/kg	0.10	0.48		< 0.10			< 0.10	< 0.10
Phenanthrene	U	2800	mg/kg	0.10	3.0		< 0.10			< 0.10	< 0.10

Chemtest
The right chemistry to deliver results

Results - Soil

Project: 18-0767 Chivers Site, Dublin 17

Client: Causeway Geotech Ltd			**Chemtest Job No.:**		18-26066	18-26066	18-26066	18-26066	18-26066	18-26066	18-26066
Quotation No.:			**Chemtest Sample ID.:**		679437	679439	679442	679443	679444	679445	679446
			Client Sample ID.:		1	1	1	2	3	1	2
			Sample Location:		BH01	BH03	BH04	BH04	BH04	BH07	BH07
			Sample Type:		SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
			Top Depth (m):		0.5	0.5	0.5	1.5	2.5	0.5	1.5
			Date Sampled:		28-Aug-2018	28-Aug-2018	28-Aug-2018	28-Aug-2018	28-Aug-2018	28-Aug-2018	28-Aug-2018
			Asbestos Lab:		COVENTRY		COVENTRY			COVENTRY	COVENTRY
Determinand	**Accred.**	**SOP**	**Units**	**LOD**							
Anthracene	U	2800	mg/kg	0.10	0.81		< 0.10			< 0.10	< 0.10
Fluoranthene	U	2800	mg/kg	0.10	2.6		< 0.10			< 0.10	< 0.10
Pyrene	U	2800	mg/kg	0.10	2.0		< 0.10			< 0.10	< 0.10
Benzo[a]anthracene	U	2800	mg/kg	0.10	0.64		< 0.10			< 0.10	< 0.10
Chrysene	U	2800	mg/kg	0.10	0.55		< 0.10			< 0.10	< 0.10
Benzo[b]fluoranthene	U	2800	mg/kg	0.10	0.50		< 0.10			< 0.10	< 0.10
Benzo[k]fluoranthene	U	2800	mg/kg	0.10	0.15		< 0.10			< 0.10	< 0.10
Benzo[a]pyrene	U	2800	mg/kg	0.10	0.32		< 0.10			< 0.10	< 0.10
Indeno(1,2,3-c,d)Pyrene	U	2800	mg/kg	0.10	0.17		< 0.10			< 0.10	< 0.10
Dibenz(a,h)Anthracene	N	2800	mg/kg	0.10	< 0.10		< 0.10			< 0.10	< 0.10
Benzo[g,h,i]perylene	U	2800	mg/kg	0.10	0.20		< 0.10			< 0.10	< 0.10
Coronene	N	2800	mg/kg	0.10	< 0.10		< 0.10			< 0.10	< 0.10
Total Of 17 PAH's	N	2800	mg/kg	2.0	12		< 2.0			< 2.0	< 2.0
PCB 28	U	2815	mg/kg	0.010	< 0.010		< 0.010			< 0.010	< 0.010
PCB 52	U	2815	mg/kg	0.010	< 0.010		< 0.010			< 0.010	< 0.010
PCB 90+101	U	2815	mg/kg	0.010	< 0.010		< 0.010			< 0.010	< 0.010
PCB 118	U	2815	mg/kg	0.010	< 0.010		< 0.010			< 0.010	< 0.010
PCB 153	U	2815	mg/kg	0.010	< 0.010		< 0.010			< 0.010	< 0.010
PCB 138	U	2815	mg/kg	0.010	< 0.010		< 0.010			< 0.010	< 0.010
PCB 180	U	2815	mg/kg	0.010	< 0.010		< 0.010			< 0.010	< 0.010
Total PCBs (7 Congeners)	N	2815	mg/kg	0.10	< 0.10		< 0.10			< 0.10	< 0.10
Total Phenols	U	2920	mg/kg	0.30	< 0.30	< 0.30	< 0.30	< 0.30		< 0.30	< 0.30

Results - Single Stage WAC

Project: 18-0767 Chivers Site, Dublin 17

					Landfill Waste Acceptance Criteria Limits		
Chemtest Job No:	18-26066						
Chemtest Sample ID:	679437						
Sample Ref:							
Sample ID:	1						
Sample Location:	BH01						
Top Depth(m):	0.5						
Bottom Depth(m):							
Sampling Date:	28-Aug-2018						
Determinand	**SOP**	**Accred.**	**Units**		**Inert Waste Landfill**	**Stable, Non-reactive hazardous waste in non-hazardous Landfill**	**Hazardous Waste Landfill**
Total Organic Carbon	2625	U	%	0.47	3	5	6
Loss On Ignition	2610	U	%	1.6	--	--	10
Total BTEX	2760	U	mg/kg	[B] < 0.010	6	--	--
Total PCBs (7 Congeners)	2815	U	mg/kg	< 0.10	1	--	--
TPH Total WAC (Mineral Oil)	2670	U	mg/kg	[B] 19	500	--	--
Total (Of 17) PAH's	2800	N	mg/kg	12	100	--	--
pH	2010	U		8.6	--	>6	--
Acid Neutralisation Capacity	2015	N	mol/kg	0.40	--	To evaluate	To evaluate
Eluate Analysis			**10:1 Eluate mg/l**	**10:1 Eluate mg/kg**	**Limit values for compliance leaching test using BS EN 12457 at L/S 10 l/kg**		
Arsenic	1450	U	< 0.0010	< 0.050	0.5	2	25
Barium	1450	U	0.0096	< 0.50	20	100	300
Cadmium	1450	U	< 0.00010	< 0.010	0.04	1	5
Chromium	1450	U	< 0.0010	< 0.050	0.5	10	70
Copper	1450	U	0.0011	< 0.050	2	50	100
Mercury	1450	U	< 0.00050	< 0.0050	0.01	0.2	2
Molybdenum	1450	U	0.026	0.26	0.5	10	30
Nickel	1450	U	0.0052	0.052	0.4	10	40
Lead	1450	U	< 0.0010	< 0.010	0.5	10	50
Antimony	1450	U	< 0.0010	< 0.010	0.06	0.7	5
Selenium	1450	U	< 0.0010	< 0.010	0.1	0.5	7
Zinc	1450	U	0.0083	< 0.50	4	50	200
Chloride	1220	U	1.1	11	800	15000	25000
Fluoride	1220	U	0.38	3.8	10	150	500
Sulphate	1220	U	9.2	92	1000	20000	50000
Total Dissolved Solids	1020	N	81	810	4000	60000	100000
Phenol Index	1920	U	< 0.030	< 0.30	1	-	-
Dissolved Organic Carbon	1610	U	5.3	53	500	800	1000

Solid Information	
Dry mass of test portion/kg	0.090
Moisture (%)	7.9

Waste Acceptance Criteria

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

Results - Single Stage WAC

Project: 18-0767 Chivers Site, Dublin 17

					Landfill Waste Acceptance Criteria Limits		
Chemtest Job No:	18-26066						
Chemtest Sample ID:	679442						
Sample Ref:							
Sample ID:	1						
Sample Location:	BH04						
Top Depth(m):	0.5						
Bottom Depth(m):							
Sampling Date:	28-Aug-2018						
Determinand	**SOP**	**Accred.**	**Units**		**Inert Waste Landfill**	**Stable, Non-reactive hazardous waste in non-hazardous Landfill**	**Hazardous Waste Landfill**
Total Organic Carbon	2625	U	%	0.45	3	5	6
Loss On Ignition	2610	U	%	2.0	--	--	10
Total BTEX	2760	U	mg/kg	[B] < 0.010	6	--	--
Total PCBs (7 Congeners)	2815	U	mg/kg	< 0.10	1	--	--
TPH Total WAC (Mineral Oil)	2670	U	mg/kg	[B] < 10	500	--	--
Total (Of 17) PAH's	2800	N	mg/kg	< 2.0	100	--	--
pH	2010	U		8.5	--	>6	--
Acid Neutralisation Capacity	2015	N	mol/kg	0.086	--	To evaluate	To evaluate
Eluate Analysis			**10:1 Eluate mg/l**	**10:1 Eluate mg/kg**	**Limit values for compliance leaching test using BS EN 12457 at L/S 10 l/kg**		
Arsenic	1450	U	< 0.0010	< 0.050	0.5	2	25
Barium	1450	U	0.0056	< 0.50	20	100	300
Cadmium	1450	U	< 0.00010	< 0.010	0.04	1	5
Chromium	1450	U	< 0.0010	< 0.050	0.5	10	70
Copper	1450	U	< 0.0010	< 0.050	2	50	100
Mercury	1450	U	< 0.00050	< 0.0050	0.01	0.2	2
Molybdenum	1450	U	0.0077	0.077	0.5	10	30
Nickel	1450	U	< 0.0010	< 0.050	0.4	10	40
Lead	1450	U	< 0.0010	< 0.010	0.5	10	50
Antimony	1450	U	< 0.0010	< 0.010	0.06	0.7	5
Selenium	1450	U	< 0.0010	< 0.010	0.1	0.5	7
Zinc	1450	U	< 0.0010	< 0.50	4	50	200
Chloride	1220	U	1.3	13	800	15000	25000
Fluoride	1220	U	0.48	4.8	10	150	500
Sulphate	1220	U	2.3	23	1000	20000	50000
Total Dissolved Solids	1020	N	73	730	4000	60000	100000
Phenol Index	1920	U	< 0.030	< 0.30	1	-	-
Dissolved Organic Carbon	1610	U	3.8	< 50	500	800	1000

Solid Information	
Dry mass of test portion/kg	0.090
Moisture (%)	7.8

Waste Acceptance Criteria

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

Results - Single Stage WAC

Project: 18-0767 Chivers Site, Dublin 17

					Landfill Waste Acceptance Criteria Limits		
Chemtest Job No:	18-26066						
Chemtest Sample ID:	679445						
Sample Ref:							
Sample ID:	1						
Sample Location:	BH07						
Top Depth(m):	0.5						
Bottom Depth(m):							
Sampling Date:	28-Aug-2018						
Determinand	**SOP**	**Accred.**	**Units**		**Inert Waste Landfill**	**Stable, Non-reactive hazardous waste in non-hazardous Landfill**	**Hazardous Waste Landfill**
Total Organic Carbon	2625	U	%	0.34	3	5	6
Loss On Ignition	2610	U	%	1.3	--	--	10
Total BTEX	2760	U	mg/kg	[B] < 0.010	6	--	--
Total PCBs (7 Congeners)	2815	U	mg/kg	< 0.10	1	--	--
TPH Total WAC (Mineral Oil)	2670	U	mg/kg	[B] < 10	500	--	--
Total (Of 17) PAH's	2800	N	mg/kg	< 2.0	100	--	--
pH	2010	U		8.5	--	>6	--
Acid Neutralisation Capacity	2015	N	mol/kg	0.24	--	To evaluate	To evaluate
Eluate Analysis			**10:1 Eluate mg/l**	**10:1 Eluate mg/kg**	**Limit values for compliance leaching test using BS EN 12457 at L/S 10 l/kg**		
Arsenic	1450	U	< 0.0010	< 0.050	0.5	2	25
Barium	1450	U	0.012	< 0.50	20	100	300
Cadmium	1450	U	< 0.00010	< 0.010	0.04	1	5
Chromium	1450	U	< 0.0010	< 0.050	0.5	10	70
Copper	1450	U	< 0.0010	< 0.050	2	50	100
Mercury	1450	U	< 0.00050	< 0.0050	0.01	0.2	2
Molybdenum	1450	U	0.022	0.22	0.5	10	30
Nickel	1450	U	< 0.0010	< 0.050	0.4	10	40
Lead	1450	U	< 0.0010	< 0.010	0.5	10	50
Antimony	1450	U	< 0.0010	< 0.010	0.06	0.7	5
Selenium	1450	U	< 0.0010	< 0.010	0.1	0.5	7
Zinc	1450	U	< 0.0010	< 0.50	4	50	200
Chloride	1220	U	< 1.0	< 10	800	15000	25000
Fluoride	1220	U	0.48	4.8	10	150	500
Sulphate	1220	U	3.3	33	1000	20000	50000
Total Dissolved Solids	1020	N	78	780	4000	60000	100000
Phenol Index	1920	U	< 0.030	< 0.30	1	-	-
Dissolved Organic Carbon	1610	U	6.5	65	500	800	1000

Solid Information	
Dry mass of test portion/kg	0.090
Moisture (%)	8.9

Waste Acceptance Criteria

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

Results - Single Stage WAC

Project: 18-0767 Chivers Site, Dublin 17

					Landfill Waste Acceptance Criteria Limits		
Chemtest Job No:	18-26066						
Chemtest Sample ID:	679446						
Sample Ref:							
Sample ID:	2						
Sample Location:	BH07						
Top Depth(m):	1.5						
Bottom Depth(m):							
Sampling Date:	28-Aug-2018						
Determinand	**SOP**	**Accred.**	**Units**		**Inert Waste Landfill**	**Stable, Non-reactive hazardous waste in non-hazardous Landfill**	**Hazardous Waste Landfill**
Total Organic Carbon	2625	U	%	0.76	3	5	6
Loss On Ignition	2610	U	%	1.5	--	--	10
Total BTEX	2760	U	mg/kg	[B] < 0.010	6	--	--
Total PCBs (7 Congeners)	2815	U	mg/kg	< 0.10	1	--	--
TPH Total WAC (Mineral Oil)	2670	U	mg/kg	[B] < 10	500	--	--
Total (Of 17) PAH's	2800	N	mg/kg	< 2.0	100	--	--
pH	2010	U		8.6	--	>6	--
Acid Neutralisation Capacity	2015	N	mol/kg	0.48	--	To evaluate	To evaluate
Eluate Analysis			**10:1 Eluate mg/l**	**10:1 Eluate mg/kg**	**Limit values for compliance leaching test using BS EN 12457 at L/S 10 l/kg**		
Arsenic	1450	U	< 0.0010	< 0.050	0.5	2	25
Barium	1450	U	0.0089	< 0.50	20	100	300
Cadmium	1450	U	< 0.00010	< 0.010	0.04	1	5
Chromium	1450	U	< 0.0010	< 0.050	0.5	10	70
Copper	1450	U	< 0.0010	< 0.050	2	50	100
Mercury	1450	U	0.00063	0.0063	0.01	0.2	2
Molybdenum	1450	U	0.021	0.21	0.5	10	30
Nickel	1450	U	< 0.0010	< 0.050	0.4	10	40
Lead	1450	U	< 0.0010	< 0.010	0.5	10	50
Antimony	1450	U	< 0.0010	< 0.010	0.06	0.7	5
Selenium	1450	U	< 0.0010	< 0.010	0.1	0.5	7
Zinc	1450	U	< 0.0010	< 0.50	4	50	200
Chloride	1220	U	1.7	17	800	15000	25000
Fluoride	1220	U	0.44	4.4	10	150	500
Sulphate	1220	U	3.5	35	1000	20000	50000
Total Dissolved Solids	1020	N	75	750	4000	60000	100000
Phenol Index	1920	U	< 0.030	< 0.30	1	-	-
Dissolved Organic Carbon	1610	U	6.0	60	500	800	1000

Solid Information	
Dry mass of test portion/kg	0.090
Moisture (%)	9.5

Waste Acceptance Criteria

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

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:
679437		1	BH01	28-Aug-2018	B	Amber Glass 250ml
679437		1	BH01	28-Aug-2018	B	Amber Glass 60ml
679437		1	BH01	28-Aug-2018	B	Plastic Tub 500g
679439		1	BH03	28-Aug-2018	B	Amber Glass 250ml
679439		1	BH03	28-Aug-2018	B	Amber Glass 60ml
679439		1	BH03	28-Aug-2018	B	Plastic Tub 500g
679442		1	BH04	28-Aug-2018	B	Amber Glass 250ml
679442		1	BH04	28-Aug-2018	B	Amber Glass 60ml
679442		1	BH04	28-Aug-2018	B	Plastic Tub 500g
679443		2	BH04	28-Aug-2018	B	Amber Glass 250ml
679443		2	BH04	28-Aug-2018	B	Amber Glass 60ml
679443		2	BH04	28-Aug-2018	B	Plastic Tub 500g
679444		3	BH04	28-Aug-2018	B	Amber Glass 250ml
679444		3	BH04	28-Aug-2018	B	Amber Glass 60ml
679444		3	BH04	28-Aug-2018	B	Plastic Tub 500g
679445		1	BH07	28-Aug-2018	B	Amber Glass 250ml
679445		1	BH07	28-Aug-2018	B	Amber Glass 60ml
679445		1	BH07	28-Aug-2018	B	Plastic Tub 500g
679446		2	BH07	28-Aug-2018	B	Amber Glass 250ml
679446		2	BH07	28-Aug-2018	B	Amber Glass 60ml
679446		2	BH07	28-Aug-2018	B	Plastic Tub 500g

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

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

Final Report

Report No.:	18-26563-1
Initial Date of Issue:	17-Sep-2018
Client	Causeway Geotech Ltd
Client Address:	8 Drumahiskey Road Balnamore Ballymoney County Antrim BT53 7QL
Contact(s):	Carin Cornwall Colm Hurley Darren O'Mahony Gabriella Horan John Cameron Lucy Newland Matthew Gilbert Neil Haggan Paul Dunlop Paul McNamara Sean Ross Stephen Franey Stephen Watson Stuart Abraham
Project	18-0767 - Chivers Site Cooklock Ground Inversstigation

Quotation No.:		**Date Received:**	29-Sep-2018
Order No.:		**Date Instructed:**	04-Sep-2018
No. of Samples:	8		
Turnaround (Wkdays):	3	**Results Due:**	06-Sep-2018
Date Approved:	17-Sep-2018		

Approved By:

Details: Robert Monk, Technical Manager

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

Chemtest
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Results - Soil

Project: 18-0767 - Chivers Site Cooklock Ground Inversstigation

Client: Causeway Geotech Ltd					**Chemtest Job No.:**	18-26563	18-26563	18-26563	18-26563	18-26563	18-26563	18-26563	18-26563
Quotation No.:					**Chemtest Sample ID.:**	681910	681913	681914	681916	681918	681919	681920	681921
Order No.:					Client Sample Ref.:	3	8	9	2	4	3	4	5
					Sample Location:	BH02	BH05	BH05	BH06	BH06	BH08	BH08	BH08
					Sample Type:	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
					Top Depth (m):	0.40	0.40	1.40	0.40	2.00	0.40	1.40	2.40
					Date Sampled:	21-Sep-2018	21-Sep-2018	21-Sep-2018	21-Sep-2018	21-Sep-2018	21-Sep-2018	21-Sep-2018	21-Sep-2018
Determinand	**Accred.**	**SOP**	**Units**	**LOD**									
Moisture	N	2030	%	0.020		12	9.2	24	20	18	12	13	16
pH	U	2010		N/A		8.6		8.0		8.3	8.4	8.4	
Boron (Hot Water Soluble)	U	2120	mg/kg	0.40		< 0.40		1.4		0.61	0.54	< 0.40	
Sulphate (2:1 Water Soluble) as SO4	U	2120	g/l	0.010		< 0.010	< 0.010	< 0.010	0.045	< 0.010	0.026	< 0.010	< 0.010
Cyanide (Free)	U	2300	mg/kg	0.50		< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
Cyanide (Total)	U	2300	mg/kg	0.50		< 0.50		< 0.50		< 0.50	< 0.50	< 0.50	
Thiocyanate	U	2300	mg/kg	5.0		< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Sulphide (Easily Liberatable)	N	2325	mg/kg	0.50		5.1		3.6		7.4	8.9	7.0	
Sulphate (Total)	U	2430	%	0.010		0.040		0.086		0.10	0.40	0.067	
Arsenic	U	2450	mg/kg	1.0		23		17		20	25	18	
Cadmium	U	2450	mg/kg	0.10		1.4		1.9		1.9	1.5	2.2	
Chromium	U	2450	mg/kg	1.0		17		29		19	17	19	
Copper	U	2450	mg/kg	0.50		15		31		29	110	27	
Mercury	U	2450	mg/kg	0.10		0.10		< 0.10		0.13	0.17	0.11	
Nickel	U	2450	mg/kg	0.50		35		50		40	44	46	
Lead	U	2450	mg/kg	0.50		20		27		33	39	23	
Selenium	U	2450	mg/kg	0.20		< 0.20		1.3		1.1	1.9	0.80	
Zinc	U	2450	mg/kg	0.50		71		110		78	86	78	
Chromium (Hexavalent)	N	2490	mg/kg	0.50		< 0.50		< 0.50		< 0.50	< 0.50	< 0.50	
Organic Matter	U	2625	%	0.40		3.5	1.2	1.1	4.1	1.7	2.1	1.4	1.3
Aliphatic TPH >C5-C6	N	2680	mg/kg	1.0		< 1.0		< 1.0		< 1.0	< 1.0	< 1.0	
Aliphatic TPH >C6-C8	N	2680	mg/kg	1.0		< 1.0		< 1.0		< 1.0	< 1.0	< 1.0	
Aliphatic TPH >C8-C10	U	2680	mg/kg	1.0		< 1.0		< 1.0		< 1.0	< 1.0	< 1.0	
Aliphatic TPH >C10-C12	U	2680	mg/kg	1.0		< 1.0		< 1.0		< 1.0	< 1.0	< 1.0	
Aliphatic TPH >C12-C16	U	2680	mg/kg	1.0		< 1.0		< 1.0		< 1.0	< 1.0	< 1.0	
Aliphatic TPH >C16-C21	U	2680	mg/kg	1.0		< 1.0		< 1.0		< 1.0	< 1.0	< 1.0	
Aliphatic TPH >C21-C35	U	2680	mg/kg	1.0		< 1.0		< 1.0		< 1.0	< 1.0	< 1.0	
Aliphatic TPH >C35-C44	N	2680	mg/kg	1.0		< 1.0		< 1.0		< 1.0	< 1.0	< 1.0	
Total Aliphatic Hydrocarbons	N	2680	mg/kg	5.0		< 5.0		< 5.0		< 5.0	< 5.0	< 5.0	
Aromatic TPH >C5-C7	N	2680	mg/kg	1.0		< 1.0		< 1.0		< 1.0	< 1.0	< 1.0	
Aromatic TPH >C7-C8	N	2680	mg/kg	1.0		< 1.0		< 1.0		< 1.0	< 1.0	< 1.0	
Aromatic TPH >C8-C10	U	2680	mg/kg	1.0		< 1.0		< 1.0		< 1.0	< 1.0	< 1.0	
Aromatic TPH >C10-C12	U	2680	mg/kg	1.0		< 1.0		< 1.0		< 1.0	< 1.0	< 1.0	
Aromatic TPH >C12-C16	U	2680	mg/kg	1.0		< 1.0		< 1.0		< 1.0	< 1.0	< 1.0	
Aromatic TPH >C16-C21	U	2680	mg/kg	1.0		< 1.0		< 1.0		< 1.0	< 1.0	< 1.0	
Aromatic TPH >C21-C35	U	2680	mg/kg	1.0		< 1.0		< 1.0		< 1.0	< 1.0	< 1.0	
Aromatic TPH >C35-C44	N	2680	mg/kg	1.0		< 1.0		< 1.0		< 1.0	< 1.0	< 1.0	
Total Aromatic Hydrocarbons	N	2680	mg/kg	5.0		< 5.0		< 5.0		< 5.0	< 5.0	< 5.0	

Chemtest
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Results - Soil

Project: 18-0767 - Chivers Site Cooklock Ground Inversstigation

Client: Causeway Geotech Ltd					**Chemtest Job No.:**	18-26563	18-26563	18-26563	18-26563	18-26563	18-26563	18-26563	18-26563
Quotation No.:					**Chemtest Sample ID.:**	681910	681913	681914	681916	681918	681919	681920	681921
Order No.:					Client Sample Ref.:	3	8	9	2	4	3	4	5
					Sample Location:	BH02	BH05	BH05	BH06	BH06	BH08	BH08	BH08
					Sample Type:	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
					Top Depth (m):	0.40	0.40	1.40	0.40	2.00	0.40	1.40	2.40
					Date Sampled:	21-Sep-2018	21-Sep-2018	21-Sep-2018	21-Sep-2018	21-Sep-2018	21-Sep-2018	21-Sep-2018	21-Sep-2018
Determinand	**Accred.**	**SOP**	**Units**	**LOD**									
Total Petroleum Hydrocarbons	N	2680	mg/kg	10.0		< 10		< 10		< 10	< 10	< 10	
Dichlorodifluoromethane	N	2760	µg/kg	1.0			< 1.0		< 1.0		< 1.0		
Chloromethane	U	2760	µg/kg	1.0			< 1.0		< 1.0		< 1.0		
Vinyl Chloride	U	2760	µg/kg	1.0			< 1.0		< 1.0		< 1.0		
Bromomethane	U	2760	µg/kg	20			< 20		< 20		< 20		
Chloroethane	N	2760	µg/kg	2.0			< 2.0		< 2.0		< 2.0		
Trichlorofluoromethane	U	2760	µg/kg	1.0			< 1.0		< 1.0		< 1.0		
1,1-Dichloroethene	U	2760	µg/kg	1.0			< 1.0		< 1.0		< 1.0		
Trans 1,2-Dichloroethene	U	2760	µg/kg	1.0			< 1.0		< 1.0		< 1.0		
1,1-Dichloroethane	U	2760	µg/kg	1.0			< 1.0		< 1.0		< 1.0		
cis 1,2-Dichloroethene	U	2760	µg/kg	1.0			< 1.0		< 1.0		< 1.0		
Bromochloromethane	N	2760	µg/kg	5.0			< 5.0		< 5.0		< 5.0		
Trichloromethane	U	2760	µg/kg	1.0			< 1.0		< 1.0		< 1.0		
1,1,1-Trichloroethane	U	2760	µg/kg	1.0			< 1.0		< 1.0		< 1.0		
Tetrachloromethane	U	2760	µg/kg	1.0			< 1.0		< 1.0		< 1.0		
1,1-Dichloropropene	N	2760	µg/kg	1.0			< 1.0		< 1.0		< 1.0		
Benzene	U	2760	µg/kg	1.0	< 1.0			< 1.0		< 1.0	< 1.0	< 1.0	
1,2-Dichloroethane	U	2760	µg/kg	2.0			< 2.0		< 2.0		< 2.0		
Trichloroethene	U	2760	µg/kg	1.0			< 1.0		< 1.0		< 1.0		
1,2-Dichloropropane	U	2760	µg/kg	1.0			< 1.0		< 1.0		< 1.0		
Dibromomethane	U	2760	µg/kg	1.0			< 1.0		< 1.0		< 1.0		
Bromodichloromethane	U	2760	µg/kg	5.0			< 5.0		< 5.0		< 5.0		
cis-1,3-Dichloropropene	N	2760	µg/kg	10			< 10		< 10		< 10		
Toluene	U	2760	µg/kg	1.0	< 1.0			< 1.0		< 1.0	< 1.0	< 1.0	
Trans-1,3-Dichloropropene	N	2760	µg/kg	10			< 10		< 10		< 10		
1,1,2-Trichloroethane	U	2760	µg/kg	10			< 10		< 10		< 10		
Tetrachloroethene	U	2760	µg/kg	1.0			< 1.0		< 1.0		< 1.0		
1,3-Dichloropropane	N	2760	µg/kg	2.0			< 2.0		< 2.0		< 2.0		
Dibromochloromethane	N	2760	µg/kg	10			< 10		< 10		< 10		
1,2-Dibromoethane	U	2760	µg/kg	5.0			< 5.0		< 5.0		< 5.0		
Chlorobenzene	U	2760	µg/kg	1.0			< 1.0		< 1.0		< 1.0		
1,1,1,2-Tetrachloroethane	U	2760	µg/kg	2.0			< 2.0		< 2.0		< 2.0		
Ethylbenzene	U	2760	µg/kg	1.0	< 1.0			< 1.0		< 1.0	< 1.0	< 1.0	
m & p-Xylene	U	2760	µg/kg	1.0	< 1.0			< 1.0		< 1.0	< 1.0	< 1.0	
o-Xylene	U	2760	µg/kg	1.0	< 1.0			< 1.0		< 1.0	< 1.0	< 1.0	
Styrene	U	2760	µg/kg	1.0			< 1.0		< 1.0		< 1.0		
Tribromomethane	N	2760	µg/kg	1.0			< 1.0		< 1.0		< 1.0		
Isopropylbenzene	U	2760	µg/kg	1.0			< 1.0		< 1.0		< 1.0		

Chemtest
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Results - Soil

Project: 18-0767 - Chivers Site Cooklock Ground Inversstigation

Client: Causeway Geotech Ltd			**Chemtest Job No.:**		18-26563	18-26563	18-26563	18-26563	18-26563	18-26563	18-26563	18-26563
Quotation No.:			**Chemtest Sample ID.:**		681910	681913	681914	681916	681918	681919	681920	681921
Order No.:			Client Sample Ref.:		3	8	9	2	4	3	4	5
			Sample Location:		BH02	BH05	BH05	BH06	BH06	BH08	BH08	BH08
			Sample Type:		SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
			Top Depth (m):		0.40	0.40	1.40	0.40	2.00	0.40	1.40	2.40
			Date Sampled:		21-Sep-2018	21-Sep-2018	21-Sep-2018	21-Sep-2018	21-Sep-2018	21-Sep-2018	21-Sep-2018	21-Sep-2018
Determinand	**Accred.**	**SOP**	**Units**	**LOD**								
Bromobenzene	U	2760	µg/kg	1.0		< 1.0		< 1.0		< 1.0		
1,2,3-Trichloropropane	N	2760	µg/kg	50		< 50		< 50		< 50		
N-Propylbenzene	N	2760	µg/kg	1.0		< 1.0		< 1.0		< 1.0		
2-Chlorotoluene	U	2760	µg/kg	1.0		< 1.0		< 1.0		< 1.0		
1,3,5-Trimethylbenzene	U	2760	µg/kg	1.0		< 1.0		< 1.0		< 1.0		
4-Chlorotoluene	N	2760	µg/kg	1.0		< 1.0		< 1.0		< 1.0		
Tert-Butylbenzene	N	2760	µg/kg	1.0		< 1.0		< 1.0		< 1.0		
1,2,4-Trimethylbenzene	U	2760	µg/kg	1.0		< 1.0		< 1.0		< 1.0		
Sec-Butylbenzene	N	2760	µg/kg	1.0		< 1.0		< 1.0		< 1.0		
1,3-Dichlorobenzene	U	2760	µg/kg	1.0		< 1.0		< 1.0		< 1.0		
4-Isopropyltoluene	N	2760	µg/kg	1.0		< 1.0		< 1.0		< 1.0		
1,4-Dichlorobenzene	U	2760	µg/kg	1.0		< 1.0		< 1.0		< 1.0		
N-Butylbenzene	N	2760	µg/kg	1.0		< 1.0		< 1.0		< 1.0		
1,2-Dichlorobenzene	U	2760	µg/kg	1.0		< 1.0		< 1.0		< 1.0		
1,2-Dibromo-3-Chloropropane	N	2760	µg/kg	50		< 50		< 50		< 50		
1,2,4-Trichlorobenzene	U	2760	µg/kg	1.0		< 1.0		< 1.0		< 1.0		
Hexachlorobutadiene	N	2760	µg/kg	1.0		< 1.0		< 1.0		< 1.0		
1,2,3-Trichlorobenzene	N	2760	µg/kg	2.0		< 2.0		< 2.0		< 2.0		
Methyl Tert-Butyl Ether	U	2760	µg/kg	1.0						< 1.0		
N-Nitrosodimethylamine	U	2790	mg/kg	0.50		< 0.50		< 0.50		< 0.50		
Phenol	U	2790	mg/kg	0.50		< 0.50		< 0.50		< 0.50		
2-Chlorophenol	U	2790	mg/kg	0.50		< 0.50		< 0.50		< 0.50		
Bis-(2-Chloroethyl)Ether	U	2790	mg/kg	0.50		< 0.50		< 0.50		< 0.50		
1,3-Dichlorobenzene	U	2790	mg/kg	0.50		< 0.50		< 0.50		< 0.50		
1,4-Dichlorobenzene	N	2790	mg/kg	0.50		< 0.50		< 0.50		< 0.50		
1,2-Dichlorobenzene	U	2790	mg/kg	0.50		< 0.50		< 0.50		< 0.50		
2-Methylphenol	U	2790	mg/kg	0.50		< 0.50		< 0.50		< 0.50		
Bis(2-Chloroisopropyl)Ether	U	2790	mg/kg	0.50		< 0.50		< 0.50		< 0.50		
Hexachloroethane	N	2790	mg/kg	0.50		< 0.50		< 0.50		< 0.50		
N-Nitrosodi-n-propylamine	U	2790	mg/kg	0.50		< 0.50		< 0.50		< 0.50		
4-Methylphenol	U	2790	mg/kg	0.50		< 0.50		< 0.50		< 0.50		
Nitrobenzene	U	2790	mg/kg	0.50		< 0.50		< 0.50		< 0.50		
Isophorone	U	2790	mg/kg	0.50		< 0.50		< 0.50		< 0.50		
2-Nitrophenol	N	2790	mg/kg	0.50		< 0.50		< 0.50		< 0.50		
2,4-Dimethylphenol	N	2790	mg/kg	0.50		< 0.50		< 0.50		< 0.50		
Bis(2-Chloroethoxy)Methane	U	2790	mg/kg	0.50		< 0.50		< 0.50		< 0.50		
2,4-Dichlorophenol	U	2790	mg/kg	0.50		< 0.50		< 0.50		< 0.50		
1,2,4-Trichlorobenzene	U	2790	mg/kg	0.50		< 0.50		< 0.50		< 0.50		

Chemtest
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Results - Soil

Project: 18-0767 - Chivers Site Cooklock Ground Inversstigation

Client: Causeway Geotech Ltd					**Chemtest Job No.:**	18-26563	18-26563	18-26563	18-26563	18-26563	18-26563	18-26563
Quotation No.:					**Chemtest Sample ID.:**	681910	681913	681914	681916	681918	681919	681920	681921
Order No.:					Client Sample Ref.:	3	8	9	2	4	3	4	5
					Sample Location:	BH02	BH05	BH05	BH06	BH06	BH08	BH08	BH08
					Sample Type:	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
					Top Depth (m):	0.40	0.40	1.40	0.40	2.00	0.40	1.40	2.40
					Date Sampled:	21-Sep-2018	21-Sep-2018	21-Sep-2018	21-Sep-2018	21-Sep-2018	21-Sep-2018	21-Sep-2018	21-Sep-2018
Determinand	**Accred.**	**SOP**	**Units**	**LOD**									
Naphthalene	U	2790	mg/kg	0.50		< 0.50		< 0.50		< 0.50			
4-Chloroaniline	N	2790	mg/kg	0.50		< 0.50		< 0.50		< 0.50			
Hexachlorobutadiene	U	2790	mg/kg	0.50		< 0.50		< 0.50		< 0.50			
4-Chloro-3-Methylphenol	U	2790	mg/kg	0.50		< 0.50		< 0.50		< 0.50			
2-Methylnaphthalene	U	2790	mg/kg	0.50		< 0.50		< 0.50		< 0.50			
4-Nitrophenol	N	2790	mg/kg	0.50		< 0.50		< 0.50		< 0.50			
Hexachlorocyclopentadiene	N	2790	mg/kg	0.50		< 0.50		< 0.50		< 0.50			
2,4,6-Trichlorophenol	U	2790	mg/kg	0.50		< 0.50		< 0.50		< 0.50			
2,4,5-Trichlorophenol	U	2790	mg/kg	0.50		< 0.50		< 0.50		< 0.50			
2-Chloronaphthalene	U	2790	mg/kg	0.50		< 0.50		< 0.50		< 0.50			
2-Nitroaniline	U	2790	mg/kg	0.50		< 0.50		< 0.50		< 0.50			
Acenaphthylene	U	2790	mg/kg	0.50		< 0.50		< 0.50		< 0.50			
Dimethylphthalate	U	2790	mg/kg	0.50		< 0.50		< 0.50		< 0.50			
2,6-Dinitrotoluene	U	2790	mg/kg	0.50		< 0.50		< 0.50		< 0.50			
Acenaphthene	U	2790	mg/kg	0.50		< 0.50		< 0.50		< 0.50			
3-Nitroaniline	N	2790	mg/kg	0.50		< 0.50		< 0.50		< 0.50			
Dibenzofuran	U	2790	mg/kg	0.50		< 0.50		< 0.50		< 0.50			
4-Chlorophenylphenylether	U	2790	mg/kg	0.50		< 0.50		< 0.50		< 0.50			
2,4-Dinitrotoluene	U	2790	mg/kg	0.50		< 0.50		< 0.50		< 0.50			
Fluorene	U	2790	mg/kg	0.50		< 0.50		< 0.50		< 0.50			
Diethyl Phthalate	U	2790	mg/kg	0.50		< 0.50		< 0.50		< 0.50			
4-Nitroaniline	U	2790	mg/kg	0.50		< 0.50		< 0.50		< 0.50			
2-Methyl-4,6-Dinitrophenol	N	2790	mg/kg	0.50		< 0.50		< 0.50		< 0.50			
Azobenzene	U	2790	mg/kg	0.50		< 0.50		< 0.50		< 0.50			
4-Bromophenylphenyl Ether	U	2790	mg/kg	0.50		< 0.50		< 0.50		< 0.50			
Hexachlorobenzene	U	2790	mg/kg	0.50		< 0.50		< 0.50		< 0.50			
Pentachlorophenol	N	2790	mg/kg	0.50		< 0.50		< 0.50		< 0.50			
Phenanthrene	U	2790	mg/kg	0.50		< 0.50		< 0.50		< 0.50			
Anthracene	U	2790	mg/kg	0.50		< 0.50		< 0.50		< 0.50			
Carbazole	U	2790	mg/kg	0.50		< 0.50		< 0.50		< 0.50			
Di-N-Butyl Phthalate	U	2790	mg/kg	0.50		< 0.50		< 0.50		< 0.50			
Fluoranthene	U	2790	mg/kg	0.50		< 0.50		< 0.50		< 0.50			
Pyrene	U	2790	mg/kg	0.50		< 0.50		< 0.50		< 0.50			
Butylbenzyl Phthalate	U	2790	mg/kg	0.50		< 0.50		< 0.50		< 0.50			
Benzo[a]anthracene	U	2790	mg/kg	0.50		< 0.50		< 0.50		< 0.50			
Chrysene	U	2790	mg/kg	0.50		< 0.50		< 0.50		< 0.50			
Bis(2-Ethylhexyl)Phthalate	N	2790	mg/kg	0.50		< 0.50		< 0.50		< 0.50			
Di-N-Octyl Phthalate	U	2790	mg/kg	0.50		< 0.50		< 0.50		< 0.50			

Chemtest
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Results - Soil

Project: 18-0767 - Chivers Site Cooklock Ground Inversstigation

Client: Causeway Geotech Ltd			**Chemtest Job No.:**		18-26563	18-26563	18-26563	18-26563	18-26563	18-26563	18-26563	18-26563
Quotation No.:			**Chemtest Sample ID.:**		681910	681913	681914	681916	681918	681919	681920	681921
Order No.:			Client Sample Ref.:		3	8	9	2	4	3	4	5
			Sample Location:		BH02	BH05	BH05	BH06	BH06	BH08	BH08	BH08
			Sample Type:		SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
			Top Depth (m):		0.40	0.40	1.40	0.40	2.00	0.40	1.40	2.40
			Date Sampled:		21-Sep-2018	21-Sep-2018	21-Sep-2018	21-Sep-2018	21-Sep-2018	21-Sep-2018	21-Sep-2018	21-Sep-2018
Determinand	**Accred.**	**SOP**	**Units**	**LOD**								
Benzo[b]fluoranthene	U	2790	mg/kg	0.50		< 0.50		< 0.50		< 0.50		
Benzo[k]fluoranthene	U	2790	mg/kg	0.50		< 0.50		< 0.50		< 0.50		
Benzo[a]pyrene	U	2790	mg/kg	0.50		< 0.50		< 0.50		< 0.50		
Indeno(1,2,3-c,d)Pyrene	U	2790	mg/kg	0.50		< 0.50		< 0.50		< 0.50		
Dibenz(a,h)Anthracene	U	2790	mg/kg	0.50		< 0.50		< 0.50		< 0.50		
Benzo[g,h,i]perylene	U	2790	mg/kg	0.50		< 0.50		< 0.50		< 0.50		
Naphthalene	U	2800	mg/kg	0.10	< 0.10		< 0.10		< 0.10	< 0.10	< 0.10	
Acenaphthylene	N	2800	mg/kg	0.10	< 0.10		< 0.10		< 0.10	< 0.10	< 0.10	
Acenaphthene	U	2800	mg/kg	0.10	< 0.10		< 0.10		< 0.10	< 0.10	< 0.10	
Fluorene	U	2800	mg/kg	0.10	< 0.10		< 0.10		< 0.10	< 0.10	< 0.10	
Phenanthrene	U	2800	mg/kg	0.10	< 0.10		< 0.10		< 0.10	< 0.10	< 0.10	
Anthracene	U	2800	mg/kg	0.10	< 0.10		< 0.10		< 0.10	< 0.10	< 0.10	
Fluoranthene	U	2800	mg/kg	0.10	< 0.10		< 0.10		0.12	< 0.10	< 0.10	
Pyrene	U	2800	mg/kg	0.10	< 0.10		< 0.10		0.25	0.13	< 0.10	
Benzo[a]anthracene	U	2800	mg/kg	0.10	< 0.10		< 0.10		< 0.10	< 0.10	< 0.10	
Chrysene	U	2800	mg/kg	0.10	< 0.10		< 0.10		< 0.10	< 0.10	< 0.10	
Benzo[b]fluoranthene	U	2800	mg/kg	0.10	< 0.10		< 0.10		< 0.10	< 0.10	< 0.10	
Benzo[k]fluoranthene	U	2800	mg/kg	0.10	< 0.10		< 0.10		< 0.10	< 0.10	< 0.10	
Benzo[a]pyrene	U	2800	mg/kg	0.10	< 0.10		< 0.10		< 0.10	< 0.10	< 0.10	
Indeno(1,2,3-c,d)Pyrene	U	2800	mg/kg	0.10	< 0.10		< 0.10		< 0.10	< 0.10	< 0.10	
Dibenz(a,h)Anthracene	N	2800	mg/kg	0.10	< 0.10		< 0.10		< 0.10	< 0.10	< 0.10	
Benzo[g,h,i]perylene	U	2800	mg/kg	0.10	< 0.10		< 0.10		< 0.10	< 0.10	< 0.10	
Coronene	N	2800	mg/kg	0.10	< 0.10		< 0.10		< 0.10	< 0.10	< 0.10	
Total Of 17 PAH's	N	2800	mg/kg	2.0	< 2.0		< 2.0		< 2.0	< 2.0	< 2.0	
PCB 28	U	2815	mg/kg	0.010						< 0.010		
PCB 52	U	2815	mg/kg	0.010						< 0.010		
PCB 90+101	U	2815	mg/kg	0.010						< 0.010		
PCB 118	U	2815	mg/kg	0.010						< 0.010		
PCB 153	U	2815	mg/kg	0.010						< 0.010		
PCB 138	U	2815	mg/kg	0.010						< 0.010		
PCB 180	U	2815	mg/kg	0.010						< 0.010		
Total PCBs (7 Congeners)	N	2815	mg/kg	0.10						< 0.10		
Total Phenols	U	2920	mg/kg	0.30	< 0.30		< 0.30		< 0.30	< 0.30	< 0.30	

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

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

Final Report

Report No.:	18-26567-1
Initial Date of Issue:	11-Sep-2018
Client	Causeway Geotech Ltd
Client Address:	8 Drumahiskey Road Balnamore Ballymoney County Antrim BT53 7QL
Contact(s):	Carin Cornwall Colm Hurley Darren O'Mahony Gabriella Horan John Cameron Lucy Newland Matthew Gilbert Neil Haggan Paul Dunlop Paul McNamara Sean Ross Stephen Franey Stephen Watson Stuart Abraham
Project	18-0767 - Chivers Site Cooklock Ground Investigation

Quotation No.:		**Date Received:**	29-Aug-2018
Order No.:		**Date Instructed:**	04-Sep-2018
No. of Samples:	3		
Turnaround (Wkdays):	4	**Results Due:**	07-Sep-2018
Date Approved:	11-Sep-2018		

Approved By:

Details: Glynn Harvey, Laboratory Manager

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

Results - Leachate

Project: 18-0767 - Chivers Site Cooklock Ground Investigation

Client: Causeway Geotech Ltd			**Chemtest Job No.:**		18-26567	18-26567	18-26567
Quotation No.:			**Chemtest Sample ID.:**		681953	681954	681955
			Sample Location:		BH05	BH06	BH08
			Sample Type:		SOIL	SOIL	SOIL
			Top Depth (m):		0.40	0.40	2.40
			Date Sampled:		21-Aug-2018	21-Aug-2018	21-Aug-2018
Determinand	**Accred.**	**SOP**	**Units**	**LOD**			
Ammonium	U	1220	mg/l	0.050	0.24	1.7	1.2
Ammonium	N	1220	mg/kg	0.10	2.4	17	12

Results - Soil

Project: 18-0767 - Chivers Site Cooklock Ground Investigation

Client: Causeway Geotech Ltd					Chemtest Job No.:	18-26567	18-26567	18-26567
Quotation No.:					Chemtest Sample ID.:	681953	681954	681955
					Sample Location:	BH05	BH06	BH08
					Sample Type:	SOIL	SOIL	SOIL
					Top Depth (m):	0.40	0.40	2.40
					Date Sampled:	21-Aug-2018	21-Aug-2018	21-Aug-2018
					Asbestos Lab:	COVENTRY	COVENTRY	COVENTRY
Determinand	**Accred.**	**SOP**	**Units**	**LOD**				
ACM Type	U	2192		N/A		-	-	-
Asbestos Identification	U	2192	%	0.001		No Asbestos Detected	No Asbestos Detected	No Asbestos Detected
Moisture	N	2030	%	0.020		8.1	20	18
pH	U	2010		N/A		8.2	7.9	7.9
Boron (Hot Water Soluble)	U	2120	mg/kg	0.40		< 0.40	2.8	1.7
Sulphur (Elemental)	U	2180	mg/kg	1.0		1.0	16	3.8
Cyanide (Total)	U	2300	mg/kg	0.50		< 0.50	< 0.50	< 0.50
Sulphide (Easily Liberatable)	N	2325	mg/kg	0.50		9.0	8.6	9.1
Sulphate (Total)	U	2430	%	0.010		0.044	0.17	0.072
Arsenic	U	2450	mg/kg	1.0		18	19	19
Barium	U	2450	mg/kg	10		50	120	67
Cadmium	U	2450	mg/kg	0.10		2.1	2.2	2.4
Chromium	U	2450	mg/kg	1.0		13	23	17
Molybdenum	U	2450	mg/kg	2.0		3.2	3.3	3.3
Antimony	N	2450	mg/kg	2.0		< 2.0	< 2.0	< 2.0
Copper	U	2450	mg/kg	0.50		22	38	30
Mercury	U	2450	mg/kg	0.10		< 0.10	0.31	0.11
Nickel	U	2450	mg/kg	0.50		38	41	48
Lead	U	2450	mg/kg	0.50		20	71	36
Selenium	U	2450	mg/kg	0.20		0.41	0.88	0.58
Zinc	U	2450	mg/kg	0.50		67	140	74
Chromium (Trivalent)	N	2490	mg/kg	1.0		13	23	17
Chromium (Hexavalent)	N	2490	mg/kg	0.50		< 0.50	< 0.50	< 0.50
Total Organic Carbon	U	2625	%	0.20		0.35	1.7	1.4
Mineral Oil	N	2670	mg/kg	10		< 10	< 10	< 10
Aliphatic TPH >C5-C6	N	2680	mg/kg	1.0		< 1.0	< 1.0	< 1.0
Aliphatic TPH >C6-C8	N	2680	mg/kg	1.0		< 1.0	< 1.0	< 1.0
Aliphatic TPH >C8-C10	U	2680	mg/kg	1.0		< 1.0	< 1.0	< 1.0
Aliphatic TPH >C10-C12	U	2680	mg/kg	1.0		< 1.0	< 1.0	< 1.0
Aliphatic TPH >C12-C16	U	2680	mg/kg	1.0		< 1.0	< 1.0	< 1.0
Aliphatic TPH >C16-C21	U	2680	mg/kg	1.0		< 1.0	< 1.0	< 1.0
Aliphatic TPH >C21-C35	U	2680	mg/kg	1.0		< 1.0	< 1.0	< 1.0
Aliphatic TPH >C35-C44	N	2680	mg/kg	1.0		< 1.0	< 1.0	< 1.0
Total Aliphatic Hydrocarbons	N	2680	mg/kg	5.0		< 5.0	< 5.0	< 5.0
Aromatic TPH >C5-C7	N	2680	mg/kg	1.0		< 1.0	< 1.0	< 1.0
Aromatic TPH >C7-C8	N	2680	mg/kg	1.0		< 1.0	< 1.0	< 1.0
Aromatic TPH >C8-C10	U	2680	mg/kg	1.0		< 1.0	< 1.0	< 1.0

Results - Soil

Project: 18-0767 - Chivers Site Cooklock Ground Investigation

Client: Causeway Geotech Ltd			Chemtest Job No.:		18-26567	18-26567	18-26567
Quotation No.:			Chemtest Sample ID.:		681953	681954	681955
			Sample Location:		BH05	BH06	BH08
			Sample Type:		SOIL	SOIL	SOIL
			Top Depth (m):		0.40	0.40	2.40
			Date Sampled:		21-Aug-2018	21-Aug-2018	21-Aug-2018
			Asbestos Lab:		COVENTRY	COVENTRY	COVENTRY
Determinand	**Accred.**	**SOP**	**Units**	**LOD**			
Aromatic TPH >C10-C12	U	2680	mg/kg	1.0	< 1.0	< 1.0	< 1.0
Aromatic TPH >C12-C16	U	2680	mg/kg	1.0	< 1.0	< 1.0	< 1.0
Aromatic TPH >C16-C21	U	2680	mg/kg	1.0	< 1.0	< 1.0	< 1.0
Aromatic TPH >C21-C35	U	2680	mg/kg	1.0	< 1.0	< 1.0	< 1.0
Aromatic TPH >C35-C44	N	2680	mg/kg	1.0	< 1.0	< 1.0	< 1.0
Total Aromatic Hydrocarbons	N	2680	mg/kg	5.0	< 5.0	< 5.0	< 5.0
Total Petroleum Hydrocarbons	N	2680	mg/kg	10.0	< 10	< 10	< 10
Benzene	U	2760	µg/kg	1.0	< 1.0	< 1.0	< 1.0
Toluene	U	2760	µg/kg	1.0	< 1.0	< 1.0	< 1.0
Ethylbenzene	U	2760	µg/kg	1.0	< 1.0	< 1.0	< 1.0
m & p-Xylene	U	2760	µg/kg	1.0	< 1.0	< 1.0	< 1.0
o-Xylene	U	2760	µg/kg	1.0	< 1.0	< 1.0	< 1.0
Methyl Tert-Butyl Ether	U	2760	µg/kg	1.0	< 1.0	< 1.0	< 1.0
Naphthalene	U	2800	mg/kg	0.10	< 0.10	< 0.10	< 0.10
Acenaphthylene	N	2800	mg/kg	0.10	< 0.10	< 0.10	< 0.10
Acenaphthene	U	2800	mg/kg	0.10	< 0.10	< 0.10	< 0.10
Fluorene	U	2800	mg/kg	0.10	< 0.10	< 0.10	< 0.10
Phenanthrene	U	2800	mg/kg	0.10	< 0.10	0.40	0.13
Anthracene	U	2800	mg/kg	0.10	< 0.10	< 0.10	< 0.10
Fluoranthene	U	2800	mg/kg	0.10	< 0.10	0.62	0.12
Pyrene	U	2800	mg/kg	0.10	< 0.10	0.55	0.12
Benzo[a]anthracene	U	2800	mg/kg	0.10	< 0.10	< 0.10	< 0.10
Chrysene	U	2800	mg/kg	0.10	< 0.10	< 0.10	< 0.10
Benzo[b]fluoranthene	U	2800	mg/kg	0.10	< 0.10	< 0.10	< 0.10
Benzo[k]fluoranthene	U	2800	mg/kg	0.10	< 0.10	< 0.10	< 0.10
Benzo[a]pyrene	U	2800	mg/kg	0.10	< 0.10	< 0.10	< 0.10
Indeno(1,2,3-c,d)Pyrene	U	2800	mg/kg	0.10	< 0.10	< 0.10	< 0.10
Dibenz(a,h)Anthracene	N	2800	mg/kg	0.10	< 0.10	< 0.10	< 0.10
Benzo[g,h,i]perylene	U	2800	mg/kg	0.10	< 0.10	< 0.10	< 0.10
Coronene	N	2800	mg/kg	0.10	< 0.10	< 0.10	< 0.10
Total Of 17 PAH's	N	2800	mg/kg	2.0	< 2.0	< 2.0	< 2.0
PCB 28	U	2815	mg/kg	0.010	< 0.010	< 0.010	< 0.010
PCB 52	U	2815	mg/kg	0.010	< 0.010	< 0.010	< 0.010
PCB 90+101	U	2815	mg/kg	0.010	< 0.010	< 0.010	< 0.010
PCB 118	U	2815	mg/kg	0.010	< 0.010	< 0.010	< 0.010
PCB 153	U	2815	mg/kg	0.010	< 0.010	< 0.010	< 0.010
PCB 138	U	2815	mg/kg	0.010	< 0.010	< 0.010	< 0.010
PCB 180	U	2815	mg/kg	0.010	< 0.010	< 0.010	< 0.010

Chemtest
The right chemistry to deliver results

Results - Soil

Project: 18-0767 - Chivers Site Cooklock Ground Investigation

Client: Causeway Geotech Ltd			**Chemtest Job No.:**		18-26567	18-26567	18-26567
Quotation No.:			**Chemtest Sample ID.:**		681953	681954	681955
			Sample Location:		BH05	BH06	BH08
			Sample Type:		SOIL	SOIL	SOIL
			Top Depth (m):		0.40	0.40	2.40
			Date Sampled:		21-Aug-2018	21-Aug-2018	21-Aug-2018
			Asbestos Lab:		COVENTRY	COVENTRY	COVENTRY
Determinand	**Accred.**	**SOP**	**Units**	**LOD**			
Total PCBs (7 Congeners)	N	2815	mg/kg	0.10	< 0.10	< 0.10	< 0.10
Total Phenols	U	2920	mg/kg	0.30	< 0.30	< 0.30	< 0.30

Results - Single Stage WAC

Project: 18-0767 - Chivers Site Cooklock Ground Investigation

					Landfill Waste Acceptance Criteria Limits		
Chemtest Job No:	18-26567						
Chemtest Sample ID:	681953						
Sample Ref:							
Sample ID:							
Sample Location:	BH05						
Top Depth(m):	0.40						
Bottom Depth(m):							
Sampling Date:	21-Aug-2018						
Determinand	**SOP**	**Accred.**	**Units**		**Inert Waste Landfill**	**Stable, Non-reactive hazardous waste in non-hazardous Landfill**	**Hazardous Waste Landfill**
Total Organic Carbon	2625	U	%	0.35	3	5	6
Loss On Ignition	2610	U	%	2.1	--	--	10
Total BTEX	2760	U	mg/kg	< 0.010	6	--	--
Total PCBs (7 Congeners)	2815	U	mg/kg	< 0.10	1	--	--
TPH Total WAC (Mineral Oil)	2670	U	mg/kg	< 10	500	--	--
Total (Of 17) PAH's	2800	N	mg/kg	< 2.0	100	--	--
pH	2010	U		8.2	--	>6	--
Acid Neutralisation Capacity	2015	N	mol/kg	0.12	--	To evaluate	To evaluate
Eluate Analysis			**10:1 Eluate mg/l**	**10:1 Eluate mg/kg**	**Limit values for compliance leaching test using BS EN 12457 at L/S 10 l/kg**		
Arsenic	1450	U	< 0.0010	< 0.050	0.5	2	25
Barium	1450	U	0.0028	< 0.50	20	100	300
Cadmium	1450	U	< 0.00010	< 0.010	0.04	1	5
Chromium	1450	U	< 0.0010	< 0.050	0.5	10	70
Copper	1450	U	< 0.0010	< 0.050	2	50	100
Mercury	1450	U	< 0.00050	< 0.0050	0.01	0.2	2
Molybdenum	1450	U	0.0015	< 0.050	0.5	10	30
Nickel	1450	U	< 0.0010	< 0.050	0.4	10	40
Lead	1450	U	< 0.0010	< 0.010	0.5	10	50
Antimony	1450	U	< 0.0010	< 0.010	0.06	0.7	5
Selenium	1450	U	< 0.0010	< 0.010	0.1	0.5	7
Zinc	1450	U	< 0.0010	< 0.50	4	50	200
Chloride	1220	U	< 1.0	< 10	800	15000	25000
Fluoride	1220	U	0.22	2.2	10	150	500
Sulphate	1220	U	1.9	19	1000	20000	50000
Total Dissolved Solids	1020	N	41	410	4000	60000	100000
Phenol Index	1920	U	< 0.030	< 0.30	1	-	-
Dissolved Organic Carbon	1610	U	5.6	56	500	800	1000

Solid Information	
Dry mass of test portion/kg	0.090
Moisture (%)	8.1

Waste Acceptance Criteria

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

Results - Single Stage WAC

Project: 18-0767 - Chivers Site Cooklock Ground Investigation

					Landfill Waste Acceptance Criteria Limits		
Chemtest Job No:	18-26567						
Chemtest Sample ID:	681954						
Sample Ref:							
Sample ID:							
Sample Location:	BH06						
Top Depth(m):	0.40						
Bottom Depth(m):							
Sampling Date:	21-Aug-2018						
Determinand	**SOP**	**Accred.**	**Units**		**Inert Waste Landfill**	**Stable, Non-reactive hazardous waste in non-hazardous Landfill**	**Hazardous Waste Landfill**
Total Organic Carbon	2625	U	%	1.7	3	5	6
Loss On Ignition	2610	U	%	5.6	--	--	10
Total BTEX	2760	U	mg/kg	< 0.010	6	--	--
Total PCBs (7 Congeners)	2815	U	mg/kg	< 0.10	1	--	--
TPH Total WAC (Mineral Oil)	2670	U	mg/kg	< 10	500	--	--
Total (Of 17) PAH's	2800	N	mg/kg	< 2.0	100	--	--
pH	2010	U		7.9	--	>6	--
Acid Neutralisation Capacity	2015	N	mol/kg	0.062	--	To evaluate	To evaluate
Eluate Analysis			**10:1 Eluate mg/l**	**10:1 Eluate mg/kg**	**Limit values for compliance leaching test using BS EN 12457 at L/S 10 l/kg**		
Arsenic	1450	U	< 0.0010	< 0.050	0.5	2	25
Barium	1450	U	0.0091	< 0.50	20	100	300
Cadmium	1450	U	< 0.00010	< 0.010	0.04	1	5
Chromium	1450	U	< 0.0010	< 0.050	0.5	10	70
Copper	1450	U	< 0.0010	< 0.050	2	50	100
Mercury	1450	U	< 0.00050	< 0.0050	0.01	0.2	2
Molybdenum	1450	U	0.0021	< 0.050	0.5	10	30
Nickel	1450	U	< 0.0010	< 0.050	0.4	10	40
Lead	1450	U	< 0.0010	< 0.010	0.5	10	50
Antimony	1450	U	< 0.0010	< 0.010	0.06	0.7	5
Selenium	1450	U	< 0.0010	< 0.010	0.1	0.5	7
Zinc	1450	U	< 0.0010	< 0.50	4	50	200
Chloride	1220	U	< 1.0	< 10	800	15000	25000
Fluoride	1220	U	0.11	1.1	10	150	500
Sulphate	1220	U	21	210	1000	20000	50000
Total Dissolved Solids	1020	N	60	600	4000	60000	100000
Phenol Index	1920	U	< 0.030	< 0.30	1	-	-
Dissolved Organic Carbon	1610	U	7.0	70	500	800	1000

Solid Information	
Dry mass of test portion/kg	0.090
Moisture (%)	20

Waste Acceptance Criteria

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

Results - Single Stage WAC

Project: 18-0767 - Chivers Site Cooklock Ground Investigation

					Landfill Waste Acceptance Criteria Limits		
Chemtest Job No:	18-26567						
Chemtest Sample ID:	681955						
Sample Ref:							
Sample ID:							
Sample Location:	BH08						
Top Depth(m):	2.40						
Bottom Depth(m):							
Sampling Date:	21-Aug-2018						
Determinand	**SOP**	**Accred.**	**Units**		**Inert Waste Landfill**	**Stable, Non-reactive hazardous waste in non-hazardous Landfill**	**Hazardous Waste Landfill**
Total Organic Carbon	2625	U	%	1.4	3	5	6
Loss On Ignition	2610	U	%	3.7	--	--	10
Total BTEX	2760	U	mg/kg	< 0.010	6	--	--
Total PCBs (7 Congeners)	2815	U	mg/kg	< 0.10	1	--	--
TPH Total WAC (Mineral Oil)	2670	U	mg/kg	< 10	500	--	--
Total (Of 17) PAH's	2800	N	mg/kg	< 2.0	100	--	--
pH	2010	U		7.9	--	>6	--
Acid Neutralisation Capacity	2015	N	mol/kg	0.077	--	To evaluate	To evaluate
Eluate Analysis			**10:1 Eluate mg/l**	**10:1 Eluate mg/kg**	**Limit values for compliance leaching test using BS EN 12457 at L/S 10 l/kg**		
Arsenic	1450	U	< 0.0010	< 0.050	0.5	2	25
Barium	1450	U	0.013	< 0.50	20	100	300
Cadmium	1450	U	< 0.00010	< 0.010	0.04	1	5
Chromium	1450	U	< 0.0010	< 0.050	0.5	10	70
Copper	1450	U	0.0013	< 0.050	2	50	100
Mercury	1450	U	< 0.00050	< 0.0050	0.01	0.2	2
Molybdenum	1450	U	0.0018	< 0.050	0.5	10	30
Nickel	1450	U	< 0.0010	< 0.050	0.4	10	40
Lead	1450	U	0.0035	0.035	0.5	10	50
Antimony	1450	U	< 0.0010	< 0.010	0.06	0.7	5
Selenium	1450	U	< 0.0010	< 0.010	0.1	0.5	7
Zinc	1450	U	0.0027	< 0.50	4	50	200
Chloride	1220	U	< 1.0	< 10	800	15000	25000
Fluoride	1220	U	0.14	1.4	10	150	500
Sulphate	1220	U	2.4	24	1000	20000	50000
Total Dissolved Solids	1020	N	36	360	4000	60000	100000
Phenol Index	1920	U	< 0.030	< 0.30	1	-	-
Dissolved Organic Carbon	1610	U	5.7	57	500	800	1000

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

Waste Acceptance Criteria

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

Report Information

Key

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I/S	Insufficient Sample
U/S	Unsuitable Sample
N/E	not evaluated
<	"less than"
>	"greater than"

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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

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

Final Report

Report No.: 18-25748-1

Initial Date of Issue: 04-Sep-2018

Client Causeway Geotech Ltd

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

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

Project 18-0767 Chivers Site Coolock Ground Investigation

Quotation No.:		**Date Received:**	28-Aug-2018
Order No.:		**Date Instructed:**	29-Aug-2018
No. of Samples:	5		
Turnaround (Wkdays):	5	**Results Due:**	04-Sep-2018
Date Approved:	04-Sep-2018		

Approved By:

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

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Results - Soil

Project: 18-0767 Chivers Site Coolock Ground Investigation

Client: Causeway Geotech Ltd									
Quotation No.:				Chemtest Job No.:	18-25748	18-25748	18-25748	18-25748	18-25748
				Chemtest Sample ID.:	677608	677611	677613	677614	677616
				Sample Location:	TP01	TP02	TP03	TP03	TP04
				Sample Type:	SOIL	SOIL	SOIL	SOIL	SOIL
				Top Depth (m):	1.5	1.5	0.5	1.5	1.5
				Date Sampled:	22-Aug-2018	22-Aug-2018	22-Aug-2018	22-Aug-2018	22-Aug-2018
				Asbestos Lab:			COVENTRY		
Determinand	**Accred.**	**SOP**	**Units**	**LOD**					
ACM Type	U	2192		N/A			-		
Asbestos Identification	U	2192	%	0.001			No Asbestos Detected		
Moisture	N	2030	%	0.020	20	9.4	3.6	10	6.1
pH	U	2010		N/A	7.7	8.3	8.5	8.8	8.6
Boron (Hot Water Soluble)	U	2120	mg/kg	0.40	3.9	1.2	0.49	0.52	0.61
Sulphate (2:1 Water Soluble) as SO4	U	2120	g/l	0.010	< 0.010	0.020	< 0.010	< 0.010	< 0.010
Cyanide (Free)	U	2300	mg/kg	0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
Cyanide (Total)	U	2300	mg/kg	0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
Thiocyanate	U	2300	mg/kg	5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Sulphide (Easily Liberatable)	N	2325	mg/kg	0.50	4.5	4.7	4.9	3.7	5.0
Sulphate (Total)	U	2430	%	0.010	0.13	0.16	0.11	0.061	0.13
Arsenic	U	2450	mg/kg	1.0	19	24	26	24	25
Cadmium	U	2450	mg/kg	0.10	2.2	2.2	2.2	1.6	2.0
Chromium	U	2450	mg/kg	1.0	25	20	16	13	18
Copper	U	2450	mg/kg	0.50	36	37	28	25	43
Mercury	U	2450	mg/kg	0.10	0.28	0.27	< 0.10	< 0.10	0.12
Nickel	U	2450	mg/kg	0.50	47	48	39	42	48
Lead	U	2450	mg/kg	0.50	90	77	34	18	83
Selenium	U	2450	mg/kg	0.20	1.1	1.8	1.0	0.81	1.0
Zinc	U	2450	mg/kg	0.50	110	100	67	66	120
Chromium (Hexavalent)	N	2490	mg/kg	0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
Organic Matter	U	2625	%	0.40	4.3	4.1	1.9	1.4	1.9
Aliphatic TPH >C5-C6	N	2680	mg/kg	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Aliphatic TPH >C6-C8	N	2680	mg/kg	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Aliphatic TPH >C8-C10	U	2680	mg/kg	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Aliphatic TPH >C10-C12	U	2680	mg/kg	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Aliphatic TPH >C12-C16	U	2680	mg/kg	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Aliphatic TPH >C16-C21	U	2680	mg/kg	1.0	< 1.0	18	< 1.0	< 1.0	5.9
Aliphatic TPH >C21-C35	U	2680	mg/kg	1.0	< 1.0	120	< 1.0	< 1.0	120
Aliphatic TPH >C35-C44	N	2680	mg/kg	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Total Aliphatic Hydrocarbons	N	2680	mg/kg	5.0	< 5.0	130	< 5.0	< 5.0	120
Aromatic TPH >C5-C7	N	2680	mg/kg	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Aromatic TPH >C7-C8	N	2680	mg/kg	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Aromatic TPH >C8-C10	U	2680	mg/kg	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Aromatic TPH >C10-C12	U	2680	mg/kg	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Aromatic TPH >C12-C16	U	2680	mg/kg	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Aromatic TPH >C16-C21	U	2680	mg/kg	1.0	< 1.0	8.5	< 1.0	< 1.0	< 1.0

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Results - Soil

Project: 18-0767 Chivers Site Coolock Ground Investigation

Client: Causeway Geotech Ltd					**Chemtest Job No.:**	18-25748	18-25748	18-25748	18-25748	18-25748
Quotation No.:					**Chemtest Sample ID.:**	677608	677611	677613	677614	677616
					Sample Location:	TP01	TP02	TP03	TP03	TP04
					Sample Type:	SOIL	SOIL	SOIL	SOIL	SOIL
					Top Depth (m):	1.5	1.5	0.5	1.5	1.5
					Date Sampled:	22-Aug-2018	22-Aug-2018	22-Aug-2018	22-Aug-2018	22-Aug-2018
					Asbestos Lab:			COVENTRY		
Determinand	**Accred.**	**SOP**	**Units**	**LOD**						
Aromatic TPH >C21-C35	U	2680	mg/kg	1.0		< 1.0	170	< 1.0	< 1.0	180
Aromatic TPH >C35-C44	N	2680	mg/kg	1.0		< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Total Aromatic Hydrocarbons	N	2680	mg/kg	5.0		< 5.0	180	< 5.0	< 5.0	180
Total Petroleum Hydrocarbons	N	2680	mg/kg	10.0		< 10	310	< 10	< 10	310
Naphthalene	U	2700	mg/kg	0.10		< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Acenaphthylene	U	2700	mg/kg	0.10		< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Acenaphthene	U	2700	mg/kg	0.10		< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Fluorene	U	2700	mg/kg	0.10		< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Phenanthrene	U	2700	mg/kg	0.10		< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Anthracene	U	2700	mg/kg	0.10		< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Fluoranthene	U	2700	mg/kg	0.10		0.29	0.43	< 0.10	< 0.10	< 0.10
Pyrene	U	2700	mg/kg	0.10		0.32	0.41	< 0.10	< 0.10	< 0.10
Benzo[a]anthracene	U	2700	mg/kg	0.10		< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Chrysene	U	2700	mg/kg	0.10		< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Benzo[b]fluoranthene	U	2700	mg/kg	0.10		< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Benzo[k]fluoranthene	U	2700	mg/kg	0.10		< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Benzo[a]pyrene	U	2700	mg/kg	0.10		< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Indeno(1,2,3-c,d)Pyrene	U	2700	mg/kg	0.10		< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Dibenz(a,h)Anthracene	U	2700	mg/kg	0.10		< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Benzo[g,h,i]perylene	U	2700	mg/kg	0.10		< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Total Of 16 PAH's	U	2700	mg/kg	2.0		< 2.0	< 2.0	< 2.0	< 2.0	< 2.0
Dichlorodifluoromethane	N	2760	µg/kg	1.0		< 1.0	< 1.0	< 1.0		< 1.0
Chloromethane	U	2760	µg/kg	1.0		< 1.0	< 1.0	< 1.0		< 1.0
Vinyl Chloride	U	2760	µg/kg	1.0		< 1.0	< 1.0	< 1.0		< 1.0
Bromomethane	U	2760	µg/kg	20		< 20	< 20	< 20		< 20
Chloroethane	N	2760	µg/kg	2.0		< 2.0	< 2.0	< 2.0		< 2.0
Trichlorofluoromethane	U	2760	µg/kg	1.0		< 1.0	< 1.0	< 1.0		< 1.0
1,1-Dichloroethene	U	2760	µg/kg	1.0		< 1.0	< 1.0	< 1.0		< 1.0
Trans 1,2-Dichloroethene	U	2760	µg/kg	1.0		< 1.0	< 1.0	< 1.0		< 1.0
1,1-Dichloroethane	U	2760	µg/kg	1.0		< 1.0	< 1.0	< 1.0		< 1.0
cis 1,2-Dichloroethene	U	2760	µg/kg	1.0		< 1.0	< 1.0	< 1.0		< 1.0
Bromochloromethane	N	2760	µg/kg	5.0		< 5.0	< 5.0	< 5.0		< 5.0
Trichloromethane	U	2760	µg/kg	1.0		< 1.0	< 1.0	< 1.0		< 1.0
1,1,1-Trichloroethane	U	2760	µg/kg	1.0		< 1.0	< 1.0	< 1.0		< 1.0
Tetrachloromethane	U	2760	µg/kg	1.0		< 1.0	< 1.0	< 1.0		< 1.0
1,1-Dichloropropene	N	2760	µg/kg	1.0		< 1.0	< 1.0	< 1.0		< 1.0
Benzene	U	2760	µg/kg	1.0		< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,2-Dichloroethane	U	2760	µg/kg	2.0		< 2.0	< 2.0	< 2.0		< 2.0

Results - Soil

Project: 18-0767 Chivers Site Coolock Ground Investigation

Client: Causeway Geotech Ltd			Chemtest Job No.:		18-25748	18-25748	18-25748	18-25748	18-25748
Quotation No.:			Chemtest Sample ID.:		677608	677611	677613	677614	677616
			Sample Location:		TP01	TP02	TP03	TP03	TP04
			Sample Type:		SOIL	SOIL	SOIL	SOIL	SOIL
			Top Depth (m):		1.5	1.5	0.5	1.5	1.5
			Date Sampled:		22-Aug-2018	22-Aug-2018	22-Aug-2018	22-Aug-2018	22-Aug-2018
			Asbestos Lab:				COVENTRY		
Determinand	**Accred.**	**SOP**	**Units**	**LOD**					
Trichloroethene	U	2760	µg/kg	1.0	< 1.0	< 1.0	< 1.0		< 1.0
1,2-Dichloropropane	U	2760	µg/kg	1.0	< 1.0	< 1.0	< 1.0		< 1.0
Dibromomethane	U	2760	µg/kg	1.0	< 1.0	< 1.0	< 1.0		< 1.0
Bromodichloromethane	U	2760	µg/kg	5.0	< 5.0	< 5.0	< 5.0		< 5.0
cis-1,3-Dichloropropene	N	2760	µg/kg	10	< 10	< 10	< 10		< 10
Toluene	U	2760	µg/kg	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Trans-1,3-Dichloropropene	N	2760	µg/kg	10	< 10	< 10	< 10		< 10
1,1,2-Trichloroethane	U	2760	µg/kg	10	< 10	< 10	< 10		< 10
Tetrachloroethene	U	2760	µg/kg	1.0	< 1.0	< 1.0	< 1.0		< 1.0
1,3-Dichloropropane	N	2760	µg/kg	2.0	< 2.0	< 2.0	< 2.0		< 2.0
Dibromochloromethane	N	2760	µg/kg	10	< 10	< 10	< 10		< 10
1,2-Dibromoethane	U	2760	µg/kg	5.0	< 5.0	< 5.0	< 5.0		< 5.0
Chlorobenzene	U	2760	µg/kg	1.0	< 1.0	< 1.0	< 1.0		< 1.0
1,1,1,2-Tetrachloroethane	U	2760	µg/kg	2.0	< 2.0	< 2.0	< 2.0		< 2.0
Ethylbenzene	U	2760	µg/kg	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
m & p-Xylene	U	2760	µg/kg	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
o-Xylene	U	2760	µg/kg	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Styrene	U	2760	µg/kg	1.0	< 1.0	< 1.0	< 1.0		< 1.0
Tribromomethane	N	2760	µg/kg	1.0	< 1.0	< 1.0	< 1.0		< 1.0
Isopropylbenzene	U	2760	µg/kg	1.0	< 1.0	< 1.0	< 1.0		< 1.0
Bromobenzene	U	2760	µg/kg	1.0	< 1.0	< 1.0	< 1.0		< 1.0
1,2,3-Trichloropropane	N	2760	µg/kg	50	< 50	< 50	< 50		< 50
N-Propylbenzene	N	2760	µg/kg	1.0	< 1.0	< 1.0	< 1.0		< 1.0
2-Chlorotoluene	U	2760	µg/kg	1.0	< 1.0	< 1.0	< 1.0		< 1.0
1,3,5-Trimethylbenzene	U	2760	µg/kg	1.0	< 1.0	< 1.0	< 1.0		< 1.0
4-Chlorotoluene	N	2760	µg/kg	1.0	< 1.0	< 1.0	< 1.0		< 1.0
Tert-Butylbenzene	N	2760	µg/kg	1.0	< 1.0	< 1.0	< 1.0		< 1.0
1,2,4-Trimethylbenzene	U	2760	µg/kg	1.0	< 1.0	< 1.0	< 1.0		< 1.0
Sec-Butylbenzene	N	2760	µg/kg	1.0	< 1.0	< 1.0	< 1.0		< 1.0
1,3-Dichlorobenzene	U	2760	µg/kg	1.0	< 1.0	< 1.0	< 1.0		< 1.0
4-Isopropyltoluene	N	2760	µg/kg	1.0	< 1.0	< 1.0	< 1.0		< 1.0
1,4-Dichlorobenzene	U	2760	µg/kg	1.0	< 1.0	< 1.0	< 1.0		< 1.0
N-Butylbenzene	N	2760	µg/kg	1.0	< 1.0	< 1.0	< 1.0		< 1.0
1,2-Dichlorobenzene	U	2760	µg/kg	1.0	< 1.0	< 1.0	< 1.0		< 1.0
1,2-Dibromo-3-Chloropropane	N	2760	µg/kg	50	< 50	< 50	< 50		< 50
1,2,4-Trichlorobenzene	U	2760	µg/kg	1.0	< 1.0	< 1.0	< 1.0		< 1.0
Hexachlorobutadiene	N	2760	µg/kg	1.0	< 1.0	< 1.0	< 1.0		< 1.0
1,2,3-Trichlorobenzene	N	2760	µg/kg	2.0	< 2.0	< 2.0	< 2.0		< 2.0

Chemtest
The right chemistry to deliver results

Results - Soil

Project: 18-0767 Chivers Site Coolock Ground Investigation

Client: Causeway Geotech Ltd			Chemtest Job No.:		18-25748	18-25748	18-25748	18-25748	18-25748
Quotation No.:			Chemtest Sample ID.:		677608	677611	677613	677614	677616
			Sample Location:		TP01	TP02	TP03	TP03	TP04
			Sample Type:		SOIL	SOIL	SOIL	SOIL	SOIL
			Top Depth (m):		1.5	1.5	0.5	1.5	1.5
			Date Sampled:		22-Aug-2018	22-Aug-2018	22-Aug-2018	22-Aug-2018	22-Aug-2018
			Asbestos Lab:				COVENTRY		
Determinand	**Accred.**	**SOP**	**Units**	**LOD**					
Methyl Tert-Butyl Ether	U	2760	µg/kg	1.0	< 1.0	< 1.0	< 1.0		< 1.0
N-Nitrosodimethylamine	U	2790	mg/kg	0.50	< 0.50	< 0.50	< 0.50		< 0.50
Phenol	U	2790	mg/kg	0.50	< 0.50	< 0.50	< 0.50		< 0.50
2-Chlorophenol	U	2790	mg/kg	0.50	< 0.50	< 0.50	< 0.50		< 0.50
Bis-(2-Chloroethyl)Ether	U	2790	mg/kg	0.50	< 0.50	< 0.50	< 0.50		< 0.50
1,3-Dichlorobenzene	U	2790	mg/kg	0.50	< 0.50	< 0.50	< 0.50		< 0.50
1,4-Dichlorobenzene	N	2790	mg/kg	0.50	< 0.50	< 0.50	< 0.50		< 0.50
1,2-Dichlorobenzene	U	2790	mg/kg	0.50	< 0.50	< 0.50	< 0.50		< 0.50
2-Methylphenol	U	2790	mg/kg	0.50	< 0.50	< 0.50	< 0.50		< 0.50
Bis(2-Chloroisopropyl)Ether	U	2790	mg/kg	0.50	< 0.50	< 0.50	< 0.50		< 0.50
Hexachloroethane	N	2790	mg/kg	0.50	< 0.50	< 0.50	< 0.50		< 0.50
N-Nitrosodi-n-propylamine	U	2790	mg/kg	0.50	< 0.50	< 0.50	< 0.50		< 0.50
4-Methylphenol	U	2790	mg/kg	0.50	< 0.50	< 0.50	< 0.50		< 0.50
Nitrobenzene	U	2790	mg/kg	0.50	< 0.50	< 0.50	< 0.50		< 0.50
Isophorone	U	2790	mg/kg	0.50	< 0.50	< 0.50	< 0.50		< 0.50
2-Nitrophenol	N	2790	mg/kg	0.50	< 0.50	< 0.50	< 0.50		< 0.50
2,4-Dimethylphenol	N	2790	mg/kg	0.50	< 0.50	< 0.50	< 0.50		< 0.50
Bis(2-Chloroethoxy)Methane	U	2790	mg/kg	0.50	< 0.50	< 0.50	< 0.50		< 0.50
2,4-Dichlorophenol	U	2790	mg/kg	0.50	< 0.50	< 0.50	< 0.50		< 0.50
1,2,4-Trichlorobenzene	U	2790	mg/kg	0.50	< 0.50	< 0.50	< 0.50		< 0.50
Naphthalene	U	2790	mg/kg	0.50	< 0.50	< 0.50	< 0.50		< 0.50
4-Chloroaniline	N	2790	mg/kg	0.50	< 0.50	< 0.50	< 0.50		< 0.50
Hexachlorobutadiene	U	2790	mg/kg	0.50	< 0.50	< 0.50	< 0.50		< 0.50
4-Chloro-3-Methylphenol	U	2790	mg/kg	0.50	< 0.50	< 0.50	< 0.50		< 0.50
2-Methylnaphthalene	U	2790	mg/kg	0.50	< 0.50	< 0.50	< 0.50		< 0.50
4-Nitrophenol	N	2790	mg/kg	0.50	< 0.50	< 0.50	< 0.50		< 0.50
Hexachlorocyclopentadiene	N	2790	mg/kg	0.50	< 0.50	< 0.50	< 0.50		< 0.50
2,4,6-Trichlorophenol	U	2790	mg/kg	0.50	< 0.50	< 0.50	< 0.50		< 0.50
2,4,5-Trichlorophenol	U	2790	mg/kg	0.50	< 0.50	< 0.50	< 0.50		< 0.50
2-Chloronaphthalene	U	2790	mg/kg	0.50	< 0.50	< 0.50	< 0.50		< 0.50
2-Nitroaniline	U	2790	mg/kg	0.50	< 0.50	< 0.50	< 0.50		< 0.50
Acenaphthylene	U	2790	mg/kg	0.50	< 0.50	< 0.50	< 0.50		< 0.50
Dimethylphthalate	U	2790	mg/kg	0.50	< 0.50	< 0.50	< 0.50		< 0.50
2,6-Dinitrotoluene	U	2790	mg/kg	0.50	< 0.50	< 0.50	< 0.50		< 0.50
Acenaphthene	U	2790	mg/kg	0.50	< 0.50	< 0.50	< 0.50		< 0.50
3-Nitroaniline	N	2790	mg/kg	0.50	< 0.50	< 0.50	< 0.50		< 0.50
Dibenzofuran	U	2790	mg/kg	0.50	< 0.50	< 0.50	< 0.50		< 0.50
4-Chlorophenylphenylether	U	2790	mg/kg	0.50	< 0.50	< 0.50	< 0.50		< 0.50

Results - Soil

Project: 18-0767 Chivers Site Coolock Ground Investigation

Client: Causeway Geotech Ltd			**Chemtest Job No.:**		18-25748	18-25748	18-25748	18-25748	18-25748
Quotation No.:			**Chemtest Sample ID.:**		677608	677611	677613	677614	677616
			Sample Location:		TP01	TP02	TP03	TP03	TP04
			Sample Type:		SOIL	SOIL	SOIL	SOIL	SOIL
			Top Depth (m):		1.5	1.5	0.5	1.5	1.5
			Date Sampled:		22-Aug-2018	22-Aug-2018	22-Aug-2018	22-Aug-2018	22-Aug-2018
			Asbestos Lab:				COVENTRY		
Determinand	**Accred.**	**SOP**	**Units**	**LOD**					
2,4-Dinitrotoluene	U	2790	mg/kg	0.50	< 0.50	< 0.50	< 0.50		< 0.50
Fluorene	U	2790	mg/kg	0.50	< 0.50	< 0.50	< 0.50		< 0.50
Diethyl Phthalate	U	2790	mg/kg	0.50	< 0.50	< 0.50	< 0.50		< 0.50
4-Nitroaniline	U	2790	mg/kg	0.50	< 0.50	< 0.50	< 0.50		< 0.50
2-Methyl-4,6-Dinitrophenol	N	2790	mg/kg	0.50	< 0.50	< 0.50	< 0.50		< 0.50
Azobenzene	U	2790	mg/kg	0.50	< 0.50	< 0.50	< 0.50		< 0.50
4-Bromophenylphenyl Ether	U	2790	mg/kg	0.50	< 0.50	< 0.50	< 0.50		< 0.50
Hexachlorobenzene	U	2790	mg/kg	0.50	< 0.50	< 0.50	< 0.50		< 0.50
Pentachlorophenol	N	2790	mg/kg	0.50	< 0.50	< 0.50	< 0.50		< 0.50
Phenanthrene	U	2790	mg/kg	0.50	< 0.50	< 0.50	< 0.50		< 0.50
Anthracene	U	2790	mg/kg	0.50	< 0.50	< 0.50	< 0.50		< 0.50
Carbazole	U	2790	mg/kg	0.50	< 0.50	< 0.50	< 0.50		< 0.50
Di-N-Butyl Phthalate	U	2790	mg/kg	0.50	< 0.50	< 0.50	< 0.50		< 0.50
Fluoranthene	U	2790	mg/kg	0.50	< 0.50	0.66	< 0.50		< 0.50
Pyrene	U	2790	mg/kg	0.50	< 0.50	< 0.50	< 0.50		< 0.50
Butylbenzyl Phthalate	U	2790	mg/kg	0.50	< 0.50	< 0.50	< 0.50		< 0.50
Benzo[a]anthracene	U	2790	mg/kg	0.50	< 0.50	< 0.50	< 0.50		< 0.50
Chrysene	U	2790	mg/kg	0.50	< 0.50	< 0.50	< 0.50		< 0.50
Bis(2-Ethylhexyl)Phthalate	N	2790	mg/kg	0.50	< 0.50	< 0.50	< 0.50		< 0.50
Di-N-Octyl Phthalate	U	2790	mg/kg	0.50	< 0.50	< 0.50	< 0.50		< 0.50
Benzo[b]fluoranthene	U	2790	mg/kg	0.50	< 0.50	< 0.50	< 0.50		< 0.50
Benzo[k]fluoranthene	U	2790	mg/kg	0.50	< 0.50	< 0.50	< 0.50		< 0.50
Benzo[a]pyrene	U	2790	mg/kg	0.50	< 0.50	< 0.50	< 0.50		< 0.50
Indeno(1,2,3-c,d)Pyrene	U	2790	mg/kg	0.50	< 0.50	< 0.50	< 0.50		< 0.50
Dibenz(a,h)Anthracene	U	2790	mg/kg	0.50	< 0.50	< 0.50	< 0.50		< 0.50
Benzo[g,h,i]perylene	U	2790	mg/kg	0.50	< 0.50	< 0.50	< 0.50		< 0.50
Total Phenols	U	2920	mg/kg	0.30	< 0.30	< 0.30	< 0.30	< 0.30	< 0.30

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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
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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

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

Final Report

Report No.: 18-25848-1

Initial Date of Issue: 03-Sep-2018

Client Causeway Geotech Ltd

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

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

Project 18-0767 Chivers Site Coolock Ground Investigation

Quotation No.:

Order No.:

No. of Samples: 1

Turnaround (Wkdays): 4

Date Approved: 03-Sep-2018

Approved By:

Date Received: 28-Aug-2018

Date Instructed: 29-Aug-2018

Results Due: 03-Sep-2018

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

Results - Leachate

Project: 18-0767 Chivers Site Coolock Ground Investigation

Client: Causeway Geotech Ltd			**Chemtest Job No.:**		18-25848
Quotation No.:			**Chemtest Sample ID.:**		678105
			Sample Location:		TP03
			Sample Type:		SOIL
			Top Depth (m):		0.5
			Date Sampled:		22-Aug-2018
Determinand	**Accred.**	**SOP**	**Units**	**LOD**	
Ammonium	U	1220	mg/l	0.050	0.19
Ammonium	N	1220	mg/kg	0.10	1.9

Results - Soil

Project: 18-0767 Chivers Site Coolock Ground Investigation

Client: Causeway Geotech Ltd			**Chemtest Job No.:**		18-25848
Quotation No.:			**Chemtest Sample ID.:**		678105
			Sample Location:		TP03
			Sample Type:		SOIL
			Top Depth (m):		0.5
			Date Sampled:		22-Aug-2018
			Asbestos Lab:		COVENTRY
Determinand	**Accred.**	**SOP**	**Units**	**LOD**	
ACM Type	U	2192		N/A	-
Asbestos Identification	U	2192	%	0.001	No Asbestos Detected
Moisture	N	2030	%	0.020	4.4
pH	U	2010		N/A	8.5
Boron (Hot Water Soluble)	U	2120	mg/kg	0.40	0.42
Sulphur (Elemental)	U	2180	mg/kg	1.0	2.4
Cyanide (Total)	U	2300	mg/kg	0.50	< 0.50
Sulphide (Easily Liberatable)	N	2325	mg/kg	0.50	6.7
Sulphate (Total)	U	2430	%	0.010	0.11
Arsenic	U	2450	mg/kg	1.0	27
Barium	U	2450	mg/kg	10	74
Cadmium	U	2450	mg/kg	0.10	1.9
Chromium	U	2450	mg/kg	1.0	18
Molybdenum	U	2450	mg/kg	2.0	3.5
Antimony	N	2450	mg/kg	2.0	2.1
Copper	U	2450	mg/kg	0.50	30
Mercury	U	2450	mg/kg	0.10	0.16
Nickel	U	2450	mg/kg	0.50	41
Lead	U	2450	mg/kg	0.50	44
Selenium	U	2450	mg/kg	0.20	1.1
Zinc	U	2450	mg/kg	0.50	73
Chromium (Trivalent)	N	2490	mg/kg	1.0	18
Chromium (Hexavalent)	N	2490	mg/kg	0.50	< 0.50
Total Organic Carbon	U	2625	%	0.20	1.0
Mineral Oil	N	2670	mg/kg	10	< 10
Aliphatic TPH >C5-C6	N	2680	mg/kg	1.0	< 1.0
Aliphatic TPH >C6-C8	N	2680	mg/kg	1.0	< 1.0
Aliphatic TPH >C8-C10	U	2680	mg/kg	1.0	< 1.0
Aliphatic TPH >C10-C12	U	2680	mg/kg	1.0	< 1.0
Aliphatic TPH >C12-C16	U	2680	mg/kg	1.0	< 1.0
Aliphatic TPH >C16-C21	U	2680	mg/kg	1.0	< 1.0
Aliphatic TPH >C21-C35	U	2680	mg/kg	1.0	< 1.0
Aliphatic TPH >C35-C44	N	2680	mg/kg	1.0	< 1.0
Total Aliphatic Hydrocarbons	N	2680	mg/kg	5.0	< 5.0
Aromatic TPH >C5-C7	N	2680	mg/kg	1.0	< 1.0
Aromatic TPH >C7-C8	N	2680	mg/kg	1.0	< 1.0
Aromatic TPH >C8-C10	U	2680	mg/kg	1.0	< 1.0

Results - Soil

Project: 18-0767 Chivers Site Coolock Ground Investigation

Client: Causeway Geotech Ltd			**Chemtest Job No.:**		18-25848
Quotation No.:			**Chemtest Sample ID.:**		678105
			Sample Location:		TP03
			Sample Type:		SOIL
			Top Depth (m):		0.5
			Date Sampled:		22-Aug-2018
			Asbestos Lab:		COVENTRY
Determinand	**Accred.**	**SOP**	**Units**	**LOD**	
Aromatic TPH >C10-C12	U	2680	mg/kg	1.0	< 1.0
Aromatic TPH >C12-C16	U	2680	mg/kg	1.0	< 1.0
Aromatic TPH >C16-C21	U	2680	mg/kg	1.0	< 1.0
Aromatic TPH >C21-C35	U	2680	mg/kg	1.0	< 1.0
Aromatic TPH >C35-C44	N	2680	mg/kg	1.0	< 1.0
Total Aromatic Hydrocarbons	N	2680	mg/kg	5.0	< 5.0
Total Petroleum Hydrocarbons	N	2680	mg/kg	10.0	< 10
Benzene	U	2760	µg/kg	1.0	< 1.0
Toluene	U	2760	µg/kg	1.0	< 1.0
Ethylbenzene	U	2760	µg/kg	1.0	< 1.0
m & p-Xylene	U	2760	µg/kg	1.0	< 1.0
o-Xylene	U	2760	µg/kg	1.0	< 1.0
Methyl Tert-Butyl Ether	U	2760	µg/kg	1.0	< 1.0
Naphthalene	U	2800	mg/kg	0.10	< 0.10
Acenaphthylene	N	2800	mg/kg	0.10	< 0.10
Acenaphthene	U	2800	mg/kg	0.10	< 0.10
Fluorene	U	2800	mg/kg	0.10	< 0.10
Phenanthrene	U	2800	mg/kg	0.10	< 0.10
Anthracene	U	2800	mg/kg	0.10	< 0.10
Fluoranthene	U	2800	mg/kg	0.10	< 0.10
Pyrene	U	2800	mg/kg	0.10	< 0.10
Benzo[a]anthracene	U	2800	mg/kg	0.10	< 0.10
Chrysene	U	2800	mg/kg	0.10	< 0.10
Benzo[b]fluoranthene	U	2800	mg/kg	0.10	< 0.10
Benzo[k]fluoranthene	U	2800	mg/kg	0.10	< 0.10
Benzo[a]pyrene	U	2800	mg/kg	0.10	< 0.10
Indeno(1,2,3-c,d)Pyrene	U	2800	mg/kg	0.10	< 0.10
Dibenz(a,h)Anthracene	N	2800	mg/kg	0.10	< 0.10
Benzo[g,h,i]perylene	U	2800	mg/kg	0.10	< 0.10
Coronene	N	2800	mg/kg	0.10	< 0.10
Total Of 17 PAH's	N	2800	mg/kg	2.0	< 2.0
PCB 28	U	2815	mg/kg	0.010	< 0.010
PCB 52	U	2815	mg/kg	0.010	< 0.010
PCB 90+101	U	2815	mg/kg	0.010	< 0.010
PCB 118	U	2815	mg/kg	0.010	< 0.010
PCB 153	U	2815	mg/kg	0.010	< 0.010
PCB 138	U	2815	mg/kg	0.010	< 0.010
PCB 180	U	2815	mg/kg	0.010	< 0.010

Results - Soil

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			Top Depth (m):		0.5
			Date Sampled:		22-Aug-2018
			Asbestos Lab:		COVENTRY
Determinand	**Accred.**	**SOP**	**Units**	**LOD**	
Total PCBs (7 Congeners)	N	2815	mg/kg	0.10	< 0.10
Total Phenols	U	2920	mg/kg	0.30	< 0.30

Results - Single Stage WAC

Project: 18-0767 Chivers Site Coolock Ground Investigation

					Landfill Waste Acceptance Criteria Limits		
Chemtest Job No:	18-25848						
Chemtest Sample ID:	678105						
Sample Ref:							
Sample ID:							
Sample Location:	TP03						
Top Depth(m):	0.5						
Bottom Depth(m):							
Sampling Date:	22-Aug-2018						
Determinand	**SOP**	**Accred.**	**Units**		**Inert Waste Landfill**	**Stable, Non-reactive hazardous waste in non-hazardous Landfill**	**Hazardous Waste Landfill**
Total Organic Carbon	2625	U	%	1.0	3	5	6
Loss On Ignition	2610	U	%	4.1	--	--	10
Total BTEX	2760	U	mg/kg	< 0.010	6	--	--
Total PCBs (7 Congeners)	2815	U	mg/kg	< 0.10	1	--	--
TPH Total WAC (Mineral Oil)	2670	U	mg/kg	< 10	500	--	--
Total (Of 17) PAH's	2800	N	mg/kg	< 2.0	100	--	--
pH	2010	U		8.5	--	>6	--
Acid Neutralisation Capacity	2015	N	mol/kg	0.039	--	To evaluate	To evaluate
Eluate Analysis			**10:1 Eluate mg/l**	**10:1 Eluate mg/kg**	**Limit values for compliance leaching test using BS EN 12457 at L/S 10 l/kg**		
Arsenic	1450	U	< 0.0010	< 0.050	0.5	2	25
Barium	1450	U	0.0042	< 0.50	20	100	300
Cadmium	1450	U	< 0.00010	< 0.010	0.04	1	5
Chromium	1450	U	< 0.0010	< 0.050	0.5	10	70
Copper	1450	U	< 0.0010	< 0.050	2	50	100
Mercury	1450	U	< 0.00050	< 0.0050	0.01	0.2	2
Molybdenum	1450	U	0.0012	< 0.050	0.5	10	30
Nickel	1450	U	< 0.0010	< 0.050	0.4	10	40
Lead	1450	U	< 0.0010	< 0.010	0.5	10	50
Antimony	1450	U	< 0.0010	< 0.010	0.06	0.7	5
Selenium	1450	U	< 0.0010	< 0.010	0.1	0.5	7
Zinc	1450	U	< 0.0010	< 0.50	4	50	200
Chloride	1220	U	1.7	17	800	15000	25000
Fluoride	1220	U	0.17	1.7	10	150	500
Sulphate	1220	U	3.1	31	1000	20000	50000
Total Dissolved Solids	1020	N	66	660	4000	60000	100000
Phenol Index	1920	U	< 0.030	< 0.30	1	-	-
Dissolved Organic Carbon	1610	U	15	150	500	800	1000

Solid Information	
Dry mass of test portion/kg	0.090
Moisture (%)	4.4

Waste Acceptance Criteria

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

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Appendix D – HazWasteOnline™ Results

Waste Classification Report

JJEMK-TUYYL-7YHH4

Job name

Chivers Dublin

Description/Comments

Waste classification of insitu soils samples retrieved during investigation at former food processing factory.

Project

Chivers Dublin

Site

Chivers Dublin

Waste Stream Template

Example waste stream template for contaminated soils

Classified by

Name:
Patrick Higgins
Date:
01 Oct 2018 10:46 GMT
Telephone:
028 9070 7058

Company:
WYG Environment Planning Transport Limited
1 Locksley Business Park
Montgomery Road
Belfast
BT6 9UP

Report

Created by: Patrick Higgins
Created date: 01 Oct 2018 10:46 GMT

Job summary

Classification of sample: BH01

Non Hazardous Waste
Classified as **17 05 04**
in the List of Waste

Sample details

Sample Name:
BH01
Sample Depth:
0.50 m
Moisture content:
7.9%
(no correction)

LoW Code:
Chapter: 17: Construction and Demolition Wastes (including excavated soil from contaminated sites)
Entry: 17 05 04 (Soil and stones other than those mentioned in 17 05 03)

Hazard properties

None identified

Determinands

Moisture content: 7.9% No Moisture Correction applied (MC)

#	Determinand	CLP index number	EC Number	CAS Number	CLP Note	User entered data	Conv. Factor	Compound conc.	Classification value	MC Applied	Conc. Not Used
1	antimony { antimony trioxide }	051-005-00-X	215-175-0	1309-64-4		2.4 mg/kg	1.197	2.873 mg/kg	0.000287 %		
2	arsenic { arsenic trioxide }	033-003-00-0	215-481-4	1327-53-3		26 mg/kg	1.32	34.328 mg/kg	0.00343 %		
3	boron { diboron trioxide; boric oxide }	005-008-00-8	215-125-8	1303-86-2		<0.4 mg/kg	3.22	<1.288 mg/kg	<0.000129 %		<**LOD**
4	cadmium { cadmium oxide }	048-002-00-0	215-146-2	1306-19-0		2.4 mg/kg	1.142	2.742 mg/kg	0.000274 %		
5	chromium in chromium(III) compounds { chromium(III) oxide }		215-160-9	1308-38-9		21 mg/kg	1.462	30.693 mg/kg	0.00307 %		
6	chromium in chromium(VI) compounds { chromium(VI) oxide }	024-001-00-0	215-607-8	1333-82-0		<0.5 mg/kg	1.923	<0.962 mg/kg	<0.0000962 %		<**LOD**
7	copper { dicopper oxide; copper (I) oxide }	029-002-00-X	215-270-7	1317-39-1		28 mg/kg	1.126	31.525 mg/kg	0.00315 %		
8	lead { lead chromate }	082-004-00-2	231-846-0	7758-97-6	1	36 mg/kg	1.56	56.153 mg/kg	0.0036 %		
9	mercury { mercury dichloride }	080-010-00-X	231-299-8	7487-94-7		<0.1 mg/kg	1.353	<0.135 mg/kg	<0.0000135 %		<**LOD**
10	molybdenum { molybdenum(VI) oxide }	042-001-00-9	215-204-7	1313-27-5		6 mg/kg	1.5	9.001 mg/kg	0.0009 %		
11	nickel { nickel chromate }	028-035-00-7	238-766-5	14721-18-7		62 mg/kg	2.976	184.528 mg/kg	0.0185 %		
12	selenium { selenium compounds with the exception of cadmium sulphoselenide and those specified elsewhere in this Annex }	034-002-00-8				0.9 mg/kg	2.554	2.298 mg/kg	0.00023 %		
13	zinc { zinc chromate }	024-007-00-3				100 mg/kg	2.774	277.415 mg/kg	0.0277 %		
14	TPH (C6 to C40) petroleum group			TPH		19 mg/kg		19 mg/kg	0.0019 %		

#		Determinand			CLP Note	User entered data		Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
		CLP index number	EC Number	CAS Number									
15		tert-butyl methyl ether; MTBE; 2-methoxy-2-methylpropane				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<**LOD**
		603-181-00-X	216-653-1	1634-04-4									
16		benzene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<**LOD**
		601-020-00-8	200-753-7	71-43-2									
17		toluene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<**LOD**
		601-021-00-3	203-625-9	108-88-3									
18		ethylbenzene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<**LOD**
		601-023-00-4	202-849-4	100-41-4									
19		xylene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<**LOD**
		601-022-00-9	202-422-2 [1] 203-396-5 [2] 203-576-3 [3] 215-535-7 [4]	95-47-6 [1] 106-42-3 [2] 108-38-3 [3] 1330-20-7 [4]									
20		cyanides { salts of hydrogen cyanide with the exception of complex cyanides such as ferrocyanides, ferricyanides and mercuric oxycyanide and those specified elsewhere in this Annex }				<0.5	mg/kg	1.884	<0.942	mg/kg	<0.0000942 %		<**LOD**
		006-007-00-5											
21		pH				8.6	pH		8.6	pH	8.6 pH		
				PH									
22		naphthalene				0.24	mg/kg		0.24	mg/kg	0.000024 %		
		601-052-00-2	202-049-5	91-20-3									
23		acenaphthylene				0.1	mg/kg		0.1	mg/kg	0.00001 %		
			205-917-1	208-96-8									
24		acenaphthene				0.47	mg/kg		0.47	mg/kg	0.000047 %		
			201-469-6	83-32-9									
25		fluorene				0.74	mg/kg		0.74	mg/kg	0.000074 %		
			201-695-5	86-73-7									
26		phenanthrene				3	mg/kg		3	mg/kg	0.0003 %		
			201-581-5	85-01-8									
27		anthracene				<0.5	mg/kg		<0.5	mg/kg	<0.00005 %		<**LOD**
			204-371-1	120-12-7									
28		fluoranthene				<0.5	mg/kg		<0.5	mg/kg	<0.00005 %		<**LOD**
			205-912-4	206-44-0									
29		pyrene				<0.5	mg/kg		<0.5	mg/kg	<0.00005 %		<**LOD**
			204-927-3	129-00-0									
30		benzo[a]anthracene				0.64	mg/kg		0.64	mg/kg	0.000064 %		
		601-033-00-9	200-280-6	56-55-3									
31		chrysene				1.3	mg/kg		1.3	mg/kg	0.00013 %		
		601-048-00-0	205-923-4	218-01-9									
32		benzo[b]fluoranthene				0.86	mg/kg		0.86	mg/kg	0.000086 %		
		601-034-00-4	205-911-9	205-99-2									
33		benzo[k]fluoranthene				0.59	mg/kg		0.59	mg/kg	0.000059 %		
		601-036-00-5	205-916-6	207-08-9									
34		benzo[a]pyrene; benzo[def]chrysene				0.61	mg/kg		0.61	mg/kg	0.000061 %		
		601-032-00-3	200-028-5	50-32-8									
35		indeno[123-cd]pyrene				0.23	mg/kg		0.23	mg/kg	0.000023 %		
			205-893-2	193-39-5									
36		dibenz[a,h]anthracene				0.27	mg/kg		0.27	mg/kg	0.000027 %		
		601-041-00-2	200-181-8	53-70-3									
37		benzo[ghi]perylene				0.63	mg/kg		0.63	mg/kg	0.000063 %		
			205-883-8	191-24-2									
38		phenol				<0.5	mg/kg		<0.5	mg/kg	<0.00005 %		<**LOD**
		604-001-00-2	203-632-7	108-95-2									
39		1,1-dichloroethane and 1,2-dichloroethane (combined)				<0.2	mg/kg		<0.2	mg/kg	<0.00002 %		<**LOD**
			203-458-1, 200-863-5	107-06-2, 75-34-3									
40		trichloroethylene; trichloroethene				<1	mg/kg		<1	mg/kg	<0.0001 %		<**LOD**
		602-027-00-9	201-167-4	79-01-6									

#		Determinand			CLP Note	User entered data		Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
		CLP index number	EC Number	CAS Number									
41		vinyl chloride; chloroethylene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<**LOD**
		602-023-00-7	200-831-0	75-01-4									
42		hexachlorobenzene				<0.5	mg/kg		<0.5	mg/kg	<0.00005 %		<**LOD**
		602-065-00-6	204-273-9	118-74-1									
43		polychlorobiphenyls; PCB				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<**LOD**
		602-039-00-4	215-648-1	1336-36-3									
										Total:	0.0648 %		

Key

	User supplied data
	Determinand values ignored for classification, see column 'Conc. Not Used' for reason
	Determinand defined or amended by HazWasteOnline (see Appendix A)
	Speciated Deteminand - Unless the Determinand is Note 1, the Conversion Factor is used to calculate the compound concentration
<LOD	Below limit of detection
CLP: Note 1	Only the metal concentration has been used for classification

Supplementary Hazardous Property Information

HP 3(i): Flammable "flammable liquid waste: liquid waste having a flash point below 60°C or waste gas oil, diesel and light heating oils having a flash point > 55°C and <= 75°C"

Force this Hazardous property to non hazardous because Not considered flammable per WFD HP3 definition 6 indents testing. Annex III of the Waste Framework Directive (WFD) Council Directive 2008/98/EC

Hazard Statements hit:

Flam. Liq. 3; H226 "Flammable liquid and vapour."

Because of determinand:

TPH (C6 to C40) petroleum group: (conc.: 0.0019%)

Classification of sample: BH02

Non Hazardous Waste
Classified as **17 05 04**
in the List of Waste

Sample details

Sample Name:
BH02
Sample Depth:
0.40 m
Moisture content:
12%
(no correction)

LoW Code:
Chapter: 17: Construction and Demolition Wastes (including excavated soil from contaminated sites)
Entry: 17 05 04 (Soil and stones other than those mentioned in 17 05 03)

Hazard properties

None identified

Determinands

Moisture content: 12% No Moisture Correction applied (MC)

#	Determinand	CLP Note	User entered data	Conv. Factor	Compound conc.	Classification value	MC Applied	Conc. Not Used
	CLP index number / EC Number / CAS Number							
1	arsenic { arsenic trioxide }		23 mg/kg	1.32	30.367 mg/kg	0.00304 %		
	033-003-00-0 / 215-481-4 / 1327-53-3							
2	boron { diboron trioxide; boric oxide }		<0.4 mg/kg	3.22	<1.288 mg/kg	<0.000129 %		<LOD
	005-008-00-8 / 215-125-8 / 1303-86-2							
3	cadmium { cadmium oxide }		1.4 mg/kg	1.142	1.599 mg/kg	0.00016 %		
	048-002-00-0 / 215-146-2 / 1306-19-0							
4	chromium in chromium(III) compounds { chromium(III) oxide }		17 mg/kg	1.462	24.846 mg/kg	0.00248 %		
	215-160-9 / 1308-38-9							
5	chromium in chromium(VI) compounds { chromium(VI) oxide }		<0.5 mg/kg	1.923	<0.962 mg/kg	<0.0000962 %		<LOD
	024-001-00-0 / 215-607-8 / 1333-82-0							
6	copper { dicopper oxide; copper (I) oxide }		15 mg/kg	1.126	16.888 mg/kg	0.00169 %		
	029-002-00-X / 215-270-7 / 1317-39-1							
7	lead { lead chromate }	1	20 mg/kg	1.56	31.196 mg/kg	0.002 %		
	082-004-00-2 / 231-846-0 / 7758-97-6							
8	mercury { mercury dichloride }		0.1 mg/kg	1.353	0.135 mg/kg	0.0000135 %		
	080-010-00-X / 231-299-8 / 7487-94-7							
9	nickel { nickel chromate }		35 mg/kg	2.976	104.169 mg/kg	0.0104 %		
	028-035-00-7 / 238-766-5 / 14721-18-7							
10	selenium { selenium compounds with the exception of cadmium sulphoselenide and those specified elsewhere in this Annex }		<0.2 mg/kg	2.554	<0.511 mg/kg	<0.0000511 %		<LOD
	034-002-00-8							
11	zinc { zinc chromate }		71 mg/kg	2.774	196.964 mg/kg	0.0197 %		
	024-007-00-3							
12	TPH (C6 to C40) petroleum group		<10 mg/kg		<10 mg/kg	<0.001 %		<LOD
	TPH							
13	benzene		<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
	601-020-00-8 / 200-753-7 / 71-43-2							
14	ethylbenzene		<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
	601-023-00-4 / 202-849-4 / 100-41-4							

#		Determinand			CLP Note	User entered data		Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
		CLP index number	EC Number	CAS Number									
15		xylene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
		601-022-00-9	202-422-2 [1] 203-396-5 [2] 203-576-3 [3] 215-535-7 [4]	95-47-6 [1] 106-42-3 [2] 108-38-3 [3] 1330-20-7 [4]									
16		cyanides { salts of hydrogen cyanide with the exception of complex cyanides such as ferrocyanides, ferricyanides and mercuric oxycyanide and those specified elsewhere in this Annex }				<0.5	mg/kg	1.884	<0.942	mg/kg	<0.0000942 %		<LOD
		006-007-00-5											
17		pH				8.6	pH		8.6	pH	8.6 pH		
				PH									
18		naphthalene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
		601-052-00-2	202-049-5	91-20-3									
19		acenaphthylene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
			205-917-1	208-96-8									
20		acenaphthene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
			201-469-6	83-32-9									
21		fluorene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
			201-695-5	86-73-7									
22		phenanthrene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
			201-581-5	85-01-8									
23		anthracene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
			204-371-1	120-12-7									
24		fluoranthene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
			205-912-4	206-44-0									
25		pyrene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
			204-927-3	129-00-0									
26		benzo[a]anthracene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
		601-033-00-9	200-280-6	56-55-3									
27		chrysene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
		601-048-00-0	205-923-4	218-01-9									
28		benzo[b]fluoranthene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
		601-034-00-4	205-911-9	205-99-2									
29		benzo[k]fluoranthene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
		601-036-00-5	205-916-6	207-08-9									
30		benzo[a]pyrene; benzo[def]chrysene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
		601-032-00-3	200-028-5	50-32-8									
31		indeno[123-cd]pyrene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
			205-893-2	193-39-5									
32		dibenz[a,h]anthracene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
		601-041-00-2	200-181-8	53-70-3									
33		benzo[ghi]perylene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
			205-883-8	191-24-2									
34		phenol				<0.3	mg/kg		<0.3	mg/kg	<0.00003 %		<LOD
		604-001-00-2	203-632-7	108-95-2									
										Total:	0.0411 %		

Key

	User supplied data
	Determinand values ignored for classification, see column 'Conc. Not Used' for reason
	Determinand defined or amended by HazWasteOnline (see Appendix A)
	Speciated Deteminand - Unless the Determinand is Note 1, the Conversion Factor is used to calculate the compound concentration
<LOD	Below limit of detection
CLP: Note 1	Only the metal concentration has been used for classification

Classification of sample: BH03

Non Hazardous Waste
Classified as **17 05 04**
in the List of Waste

Sample details

Sample Name:
BH03
Sample Depth:
0.50 m
Moisture content:
7.9%
(no correction)

LoW Code:
Chapter: 17: Construction and Demolition Wastes (including excavated soil from contaminated sites)
Entry: 17 05 04 (Soil and stones other than those mentioned in 17 05 03)

Hazard properties

None identified

Determinands

Moisture content: 7.9% No Moisture Correction applied (MC)

#		Determinand	CLP index number	EC Number	CAS Number	CLP Note	User entered data		Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
1		arsenic { arsenic trioxide }	033-003-00-0	215-481-4	1327-53-3		27	mg/kg	1.32	35.649	mg/kg	0.00356 %		
2		boron { diboron trioxide; boric oxide }	005-008-00-8	215-125-8	1303-86-2		0.58	mg/kg	3.22	1.868	mg/kg	0.000187 %		
3		cadmium { cadmium oxide }	048-002-00-0	215-146-2	1306-19-0		2.3	mg/kg	1.142	2.627	mg/kg	0.000263 %		
4		chromium in chromium(VI) compounds { chromium(VI) oxide }	024-001-00-0	215-607-8	1333-82-0		<0.5	mg/kg	1.923	<0.962	mg/kg	<0.0000962 %		<**LOD**
5		copper { dicopper oxide; copper (I) oxide }	029-002-00-X	215-270-7	1317-39-1		40	mg/kg	1.126	45.036	mg/kg	0.0045 %		
6		lead { lead chromate }	082-004-00-2	231-846-0	7758-97-6	1	67	mg/kg	1.56	104.508	mg/kg	0.0067 %		
7		mercury { mercury dichloride }	080-010-00-X	231-299-8	7487-94-7		0.16	mg/kg	1.353	0.217	mg/kg	0.0000217 %		
8		nickel { nickel chromate }	028-035-00-7	238-766-5	14721-18-7		65	mg/kg	2.976	193.457	mg/kg	0.0193 %		
9		selenium { selenium compounds with the exception of cadmium sulphoselenide and those specified elsewhere in this Annex }	034-002-00-8				1.8	mg/kg	2.554	4.596	mg/kg	0.00046 %		
10		zinc { zinc chromate }	024-007-00-3				110	mg/kg	2.774	305.156	mg/kg	0.0305 %		
11		TPH (C6 to C40) petroleum group			TPH		<10	mg/kg		<10	mg/kg	<0.001 %		<**LOD**
12		benzene	601-020-00-8	200-753-7	71-43-2		<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<**LOD**
13		toluene	601-021-00-3	203-625-9	108-88-3		<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<**LOD**
14		ethylbenzene	601-023-00-4	202-849-4	100-41-4		<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<**LOD**

#		Determinand			CLP Note	User entered data		Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
		CLP index number	EC Number	CAS Number									
15		xylene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<**LOD**
		601-022-00-9	202-422-2 [1] 203-396-5 [2] 203-576-3 [3] 215-535-7 [4]	95-47-6 [1] 106-42-3 [2] 108-38-3 [3] 1330-20-7 [4]									
16		cyanides { salts of hydrogen cyanide with the exception of complex cyanides such as ferrocyanides, ferricyanides and mercuric oxycyanide and those specified elsewhere in this Annex }				<0.5	mg/kg	1.884	<0.942	mg/kg	<0.0000942 %		<**LOD**
		006-007-00-5											
17		pH				8.2	pH		8.2	pH	8.2 pH		
				PH									
18		naphthalene				0.17	mg/kg		0.17	mg/kg	0.000017 %		
		601-052-00-2	202-049-5	91-20-3									
19		acenaphthylene				0.14	mg/kg		0.14	mg/kg	0.000014 %		
			205-917-1	208-96-8									
20		acenaphthene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<**LOD**
			201-469-6	83-32-9									
21		phenanthrene				0.23	mg/kg		0.23	mg/kg	0.000023 %		
			201-581-5	85-01-8									
22		anthracene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<**LOD**
			204-371-1	120-12-7									
23		fluoranthene				0.29	mg/kg		0.29	mg/kg	0.000029 %		
			205-912-4	206-44-0									
24		pyrene				0.31	mg/kg		0.31	mg/kg	0.000031 %		
			204-927-3	129-00-0									
25		benzo[a]anthracene				0.2	mg/kg		0.2	mg/kg	0.00002 %		
		601-033-00-9	200-280-6	56-55-3									
26		chrysene				0.38	mg/kg		0.38	mg/kg	0.000038 %		
		601-048-00-0	205-923-4	218-01-9									
27		benzo[b]fluoranthene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<**LOD**
		601-034-00-4	205-911-9	205-99-2									
28		benzo[k]fluoranthene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<**LOD**
		601-036-00-5	205-916-6	207-08-9									
29		benzo[a]pyrene; benzo[def]chrysene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<**LOD**
		601-032-00-3	200-028-5	50-32-8									
30		indeno[123-cd]pyrene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<**LOD**
			205-893-2	193-39-5									
31		dibenz[a,h]anthracene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<**LOD**
		601-041-00-2	200-181-8	53-70-3									
32		benzo[ghi]perylene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<**LOD**
			205-883-8	191-24-2									
33		phenol				<0.3	mg/kg		<0.3	mg/kg	<0.00003 %		<**LOD**
		604-001-00-2	203-632-7	108-95-2									
										Total:	0.0671 %		

Key

	User supplied data
	Determinand values ignored for classification, see column 'Conc. Not Used' for reason
	Determinand defined or amended by HazWasteOnline (see Appendix A)
	Speciated Deteminand - Unless the Determinand is Note 1, the Conversion Factor is used to calculate the compound concentration
<LOD	Below limit of detection
CLP: Note 1	Only the metal concentration has been used for classification

Classification of sample: BH04

Non Hazardous Waste
Classified as **17 05 04**
in the List of Waste

Sample details

Sample Name:
BH04
Sample Depth:
0.50 m
Moisture content:
7.8%
(no correction)

LoW Code:
Chapter: 17: Construction and Demolition Wastes (including excavated soil from contaminated sites)
Entry: 17 05 04 (Soil and stones other than those mentioned in 17 05 03)

Hazard properties

None identified

Determinands

Moisture content: 7.8% No Moisture Correction applied (MC)

#	Determinand	CLP index number	EC Number	CAS Number	CLP Note	User entered data	Conv. Factor	Compound conc.	Classification value	MC Applied	Conc. Not Used
1	antimony { antimony trioxide }	051-005-00-X	215-175-0	1309-64-4		2.6 mg/kg	1.197	3.112 mg/kg	0.000311 %		
2	arsenic { arsenic trioxide }	033-003-00-0	215-481-4	1327-53-3		24 mg/kg	1.32	31.688 mg/kg	0.00317 %		
3	boron { diboron trioxide; boric oxide }	005-008-00-8	215-125-8	1303-86-2		<0.4 mg/kg	3.22	<1.288 mg/kg	<0.000129 %		<**LOD**
4	cadmium { cadmium oxide }	048-002-00-0	215-146-2	1306-19-0		2.4 mg/kg	1.142	2.742 mg/kg	0.000274 %		
5	chromium in chromium(III) compounds { chromium(III) oxide }		215-160-9	1308-38-9		20 mg/kg	1.462	29.231 mg/kg	0.00292 %		
6	chromium in chromium(VI) compounds { chromium(VI) oxide }	024-001-00-0	215-607-8	1333-82-0		<0.5 mg/kg	1.923	<0.962 mg/kg	<0.0000962 %		<**LOD**
7	copper { dicopper oxide; copper (I) oxide }	029-002-00-X	215-270-7	1317-39-1		34 mg/kg	1.126	38.28 mg/kg	0.00383 %		
8	lead { lead chromate }	082-004-00-2	231-846-0	7758-97-6	1	30 mg/kg	1.56	46.794 mg/kg	0.003 %		
9	mercury { mercury dichloride }	080-010-00-X	231-299-8	7487-94-7		<0.1 mg/kg	1.353	<0.135 mg/kg	<0.0000135 %		<**LOD**
10	molybdenum { molybdenum(VI) oxide }	042-001-00-9	215-204-7	1313-27-5		4.5 mg/kg	1.5	6.751 mg/kg	0.000675 %		
11	nickel { nickel chromate }	028-035-00-7	238-766-5	14721-18-7		61 mg/kg	2.976	181.552 mg/kg	0.0182 %		
12	selenium { selenium compounds with the exception of cadmium sulphoselenide and those specified elsewhere in this Annex }	034-002-00-8				0.7 mg/kg	2.554	1.788 mg/kg	0.000179 %		
13	zinc { zinc chromate }	024-007-00-3				95 mg/kg	2.774	263.544 mg/kg	0.0264 %		
14	TPH (C6 to C40) petroleum group			TPH		<10 mg/kg		<10 mg/kg	<0.001 %		<**LOD**

#		Determinand			CLP Note	User entered data		Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
		CLP index number	EC Number	CAS Number									
15		tert-butyl methyl ether; MTBE; 2-methoxy-2-methylpropane				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<**LOD**
		603-181-00-X	216-653-1	1634-04-4									
16		benzene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<**LOD**
		601-020-00-8	200-753-7	71-43-2									
17		toluene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<**LOD**
		601-021-00-3	203-625-9	108-88-3									
18		ethylbenzene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<**LOD**
		601-023-00-4	202-849-4	100-41-4									
19		xylene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<**LOD**
		601-022-00-9	202-422-2 [1] 203-396-5 [2] 203-576-3 [3] 215-535-7 [4]	95-47-6 [1] 106-42-3 [2] 108-38-3 [3] 1330-20-7 [4]									
20		cyanides { salts of hydrogen cyanide with the exception of complex cyanides such as ferrocyanides, ferricyanides and mercuric oxycyanide and those specified elsewhere in this Annex }				<0.5	mg/kg	1.884	<0.942	mg/kg	<0.0000942 %		<**LOD**
		006-007-00-5											
21		pH				8.5	pH		8.5	pH	8.5 pH		
				PH									
22		naphthalene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<**LOD**
		601-052-00-2	202-049-5	91-20-3									
23		acenaphthylene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<**LOD**
			205-917-1	208-96-8									
24		acenaphthene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<**LOD**
			201-469-6	83-32-9									
25		fluorene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<**LOD**
			201-695-5	86-73-7									
26		phenanthrene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<**LOD**
			201-581-5	85-01-8									
27		anthracene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<**LOD**
			204-371-1	120-12-7									
28		fluoranthene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<**LOD**
			205-912-4	206-44-0									
29		pyrene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<**LOD**
			204-927-3	129-00-0									
30		benzo[a]anthracene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<**LOD**
		601-033-00-9	200-280-6	56-55-3									
31		chrysene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<**LOD**
		601-048-00-0	205-923-4	218-01-9									
32		benzo[b]fluoranthene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<**LOD**
		601-034-00-4	205-911-9	205-99-2									
33		benzo[k]fluoranthene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<**LOD**
		601-036-00-5	205-916-6	207-08-9									
34		benzo[a]pyrene; benzo[def]chrysene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<**LOD**
		601-032-00-3	200-028-5	50-32-8									
35		indeno[123-cd]pyrene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<**LOD**
			205-893-2	193-39-5									
36		dibenz[a,h]anthracene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<**LOD**
		601-041-00-2	200-181-8	53-70-3									
37		benzo[ghi]perylene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<**LOD**
			205-883-8	191-24-2									
38		phenol				<0.5	mg/kg		<0.5	mg/kg	<0.00005 %		<**LOD**
		604-001-00-2	203-632-7	108-95-2									
39		1,1-dichloroethane and 1,2-dichloroethane (combined)				<0.2	mg/kg		<0.2	mg/kg	<0.00002 %		<**LOD**
			203-458-1, 200-863-5	107-06-2, 75-34-3									
40		trichloroethylene; trichloroethene				<1	mg/kg		<1	mg/kg	<0.0001 %		<**LOD**
		602-027-00-9	201-167-4	79-01-6									

#		Determinand			CLP Note	User entered data		Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
		CLP index number	EC Number	CAS Number									
41		vinyl chloride; chloroethylene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<**LOD**
		602-023-00-7	200-831-0	75-01-4									
42		hexachlorobenzene				<0.5	mg/kg		<0.5	mg/kg	<0.00005 %		<**LOD**
		602-065-00-6	204-273-9	118-74-1									
43		polychlorobiphenyls; PCB				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<**LOD**
		602-039-00-4	215-648-1	1336-36-3									
										Total:	0.0607 %		

Key

	User supplied data
	Determinand values ignored for classification, see column 'Conc. Not Used' for reason
	Determinand defined or amended by HazWasteOnline (see Appendix A)
	Speciated Deteminand - Unless the Determinand is Note 1, the Conversion Factor is used to calculate the compound concentration
<LOD	Below limit of detection
CLP: Note 1	Only the metal concentration has been used for classification

Classification of sample: BH04[1]

Non Hazardous Waste
Classified as **17 05 04**
in the List of Waste

Sample details

Sample Name:
BH04[1]
Sample Depth:
1.50 m
Moisture content:
12%
(no correction)

LoW Code:
Chapter: 17: Construction and Demolition Wastes (including excavated soil from contaminated sites)
Entry: 17 05 04 (Soil and stones other than those mentioned in 17 05 03)

Hazard properties

None identified

Determinands

Moisture content: 12% No Moisture Correction applied (MC)

#	Determinand	CLP index number	EC Number	CAS Number	CLP Note	User entered data	Conv. Factor	Compound conc.	Classification value	MC Applied	Conc. Not Used
1	arsenic { arsenic trioxide }	033-003-00-0	215-481-4	1327-53-3		21 mg/kg	1.32	27.727 mg/kg	0.00277 %		
2	boron { diboron trioxide; boric oxide }	005-008-00-8	215-125-8	1303-86-2		<0.4 mg/kg	3.22	<1.288 mg/kg	<0.000129 %		<**LOD**
3	cadmium { cadmium oxide }	048-002-00-0	215-146-2	1306-19-0		1.9 mg/kg	1.142	2.17 mg/kg	0.000217 %		
4	chromium in chromium(VI) compounds { chromium(VI) oxide }	024-001-00-0	215-607-8	1333-82-0		<0.5 mg/kg	1.923	<0.962 mg/kg	<0.0000962 %		<**LOD**
5	copper { dicopper oxide; copper (I) oxide }	029-002-00-X	215-270-7	1317-39-1		28 mg/kg	1.126	31.525 mg/kg	0.00315 %		
6	lead { lead chromate }	082-004-00-2	231-846-0	7758-97-6	1	26 mg/kg	1.56	40.555 mg/kg	0.0026 %		
7	mercury { mercury dichloride }	080-010-00-X	231-299-8	7487-94-7		<0.1 mg/kg	1.353	<0.135 mg/kg	<0.0000135 %		<**LOD**
8	nickel { nickel chromate }	028-035-00-7	238-766-5	14721-18-7		49 mg/kg	2.976	145.837 mg/kg	0.0146 %		
9	selenium { selenium compounds with the exception of cadmium sulphoselenide and those specified elsewhere in this Annex }	034-002-00-8				0.86 mg/kg	2.554	2.196 mg/kg	0.00022 %		
10	zinc { zinc chromate }	024-007-00-3				90 mg/kg	2.774	249.673 mg/kg	0.025 %		
11	TPH (C6 to C40) petroleum group			TPH		<10 mg/kg		<10 mg/kg	<0.001 %		<**LOD**
12	tert-butyl methyl ether; MTBE; 2-methoxy-2-methylpropane	603-181-00-X	216-653-1	1634-04-4		<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<**LOD**
13	benzene	601-020-00-8	200-753-7	71-43-2		<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<**LOD**
14	toluene	601-021-00-3	203-625-9	108-88-3		<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<**LOD**

#		Determinand			CLP Note	User entered data		Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
		CLP index number	EC Number	CAS Number									
15		ethylbenzene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
		601-023-00-4	202-849-4	100-41-4									
16		xylene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
		601-022-00-9	202-422-2 [1] 203-396-5 [2] 203-576-3 [3] 215-535-7 [4]	95-47-6 [1] 106-42-3 [2] 108-38-3 [3] 1330-20-7 [4]									
17		cyanides { salts of hydrogen cyanide with the exception of complex cyanides such as ferrocyanides, ferricyanides and mercuric oxycyanide and those specified elsewhere in this Annex }				<0.5	mg/kg	1.884	<0.942	mg/kg	<0.0000942 %		<LOD
		006-007-00-5											
18		pH				8.6	pH		8.6	pH	8.6 pH		
				PH									
19		naphthalene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
		601-052-00-2	202-049-5	91-20-3									
20		acenaphthylene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
			205-917-1	208-96-8									
21		acenaphthene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
			201-469-6	83-32-9									
22		fluorene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
			201-695-5	86-73-7									
23		phenanthrene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
			201-581-5	85-01-8									
24		anthracene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
			204-371-1	120-12-7									
25		fluoranthene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
			205-912-4	206-44-0									
26		pyrene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
			204-927-3	129-00-0									
27		benzo[a]anthracene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
		601-033-00-9	200-280-6	56-55-3									
28		chrysene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
		601-048-00-0	205-923-4	218-01-9									
29		benzo[b]fluoranthene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
		601-034-00-4	205-911-9	205-99-2									
30		benzo[k]fluoranthene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
		601-036-00-5	205-916-6	207-08-9									
31		benzo[a]pyrene; benzo[def]chrysene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
		601-032-00-3	200-028-5	50-32-8									
32		indeno[123-cd]pyrene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
			205-893-2	193-39-5									
33		dibenz[a,h]anthracene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
		601-041-00-2	200-181-8	53-70-3									
34		benzo[ghi]perylene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
			205-883-8	191-24-2									
35		phenol				<0.3	mg/kg		<0.3	mg/kg	<0.00003 %		<LOD
		604-001-00-2	203-632-7	108-95-2									
36		1,1-dichloroethane and 1,2-dichloroethane (combined)				<2	mg/kg		<2	mg/kg	<0.0002 %		<LOD
			203-458-1, 200-863-5	107-06-2, 75-34-3									
37		trichloroethylene; trichloroethene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
		602-027-00-9	201-167-4	79-01-6									
38		vinyl chloride; chloroethylene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
		602-023-00-7	200-831-0	75-01-4									
39		hexachlorobenzene				<0.5	mg/kg		<0.5	mg/kg	<0.00005 %		<LOD
		602-065-00-6	204-273-9	118-74-1									
										Total:	0.0504 %		

Key

	User supplied data
	Determinand values ignored for classification, see column 'Conc. Not Used' for reason
	Determinand defined or amended by HazWasteOnline (see Appendix A)
	Speciated Deteminand - Unless the Determinand is Note 1, the Conversion Factor is used to calculate the compound concentration
<LOD	Below limit of detection
CLP: Note 1	Only the metal concentration has been used for classification

Classification of sample: BH04[2]

Non Hazardous Waste
Classified as **17 05 04**
in the List of Waste

Sample details

Sample Name:
BH04[2]
Sample Depth:
2.50 m
Moisture content:
7.8%
(no correction)

LoW Code:
Chapter: 17: Construction and Demolition Wastes (including excavated soil from contaminated sites)
Entry: 17 05 04 (Soil and stones other than those mentioned in 17 05 03)

Hazard properties

None identified

Determinands

Moisture content: 7.8% No Moisture Correction applied (MC)

#		Determinand			CLP Note	User entered data	Conv. Factor	Compound conc.	Classification value	MC Applied	Conc. Not Used
		CLP index number	EC Number	CAS Number							
1		TPH (C6 to C40) petroleum group				<10 mg/kg		<10 mg/kg	<0.001 %		<**LOD**
				TPH							
								Total:	0.001 %		

Key

	User supplied data
	Determinand values ignored for classification, see column 'Conc. Not Used' for reason
	Determinand defined or amended by HazWasteOnline (see Appendix A)
<LOD	Below limit of detection

Classification of sample: BH05

Non Hazardous Waste
Classified as **17 05 04**
in the List of Waste

Sample details

Sample Name:
BH05
Sample Depth:
0.40 m
Moisture content:
9.2%
(no correction)

LoW Code:
Chapter: 17: Construction and Demolition Wastes (including excavated soil from contaminated sites)
Entry: 17 05 04 (Soil and stones other than those mentioned in 17 05 03)

Hazard properties

None identified

Determinands

Moisture content: 9.2% No Moisture Correction applied (MC)

#		Determinand	CLP index number	EC Number	CAS Number	CLP Note	User entered data	Conv. Factor	Compound conc.	Classification value	MC Applied	Conc. Not Used
1		cyanides { salts of hydrogen cyanide with the exception of complex cyanides such as ferrocyanides, ferricyanides and mercuric oxycyanide and those specified elsewhere in this Annex }	006-007-00-5				<0.5 mg/kg	1.884	<0.942 mg/kg	<0.0000942 %		<**LOD**
2		naphthalene	601-052-00-2	202-049-5	91-20-3		<0.5 mg/kg		<0.5 mg/kg	<0.00005 %		<**LOD**
3		acenaphthylene		205-917-1	208-96-8		<0.5 mg/kg		<0.5 mg/kg	<0.00005 %		<**LOD**
4		acenaphthene		201-469-6	83-32-9		<0.5 mg/kg		<0.5 mg/kg	<0.00005 %		<**LOD**
5		fluorene		201-695-5	86-73-7		<0.5 mg/kg		<0.5 mg/kg	<0.00005 %		<**LOD**
6		phenanthrene		201-581-5	85-01-8		<0.5 mg/kg		<0.5 mg/kg	<0.00005 %		<**LOD**
7		anthracene		204-371-1	120-12-7		<0.5 mg/kg		<0.5 mg/kg	<0.00005 %		<**LOD**
8		fluoranthene		205-912-4	206-44-0		<0.5 mg/kg		<0.5 mg/kg	<0.00005 %		<**LOD**
9		pyrene		204-927-3	129-00-0		<0.5 mg/kg		<0.5 mg/kg	<0.00005 %		<**LOD**
10		benzo[a]anthracene	601-033-00-9	200-280-6	56-55-3		<0.5 mg/kg		<0.5 mg/kg	<0.00005 %		<**LOD**
11		chrysene	601-048-00-0	205-923-4	218-01-9		<0.5 mg/kg		<0.5 mg/kg	<0.00005 %		<**LOD**
12		benzo[b]fluoranthene	601-034-00-4	205-911-9	205-99-2		<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<**LOD**
13		benzo[k]fluoranthene	601-036-00-5	205-916-6	207-08-9		<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<**LOD**
14		benzo[a]pyrene; benzo[def]chrysene	601-032-00-3	200-028-5	50-32-8		<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<**LOD**

#		Determinand			CLP Note	User entered data		Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
		CLP index number	EC Number	CAS Number									
15	●	indeno[123-cd]pyrene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<**LOD**
			205-893-2	193-39-5									
16		dibenz[a,h]anthracene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<**LOD**
		601-041-00-2	200-181-8	53-70-3									
17	●	benzo[ghi]perylene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<**LOD**
			205-883-8	191-24-2									
18		phenol				<0.5	mg/kg		<0.5	mg/kg	<0.00005 %		<**LOD**
		604-001-00-2	203-632-7	108-95-2									
19	●	1,1-dichloroethane and 1,2-dichloroethane (combined)				<0.2	mg/kg		<0.2	mg/kg	<0.00002 %		<**LOD**
			203-458-1, 200-863-5	107-06-2, 75-34-3									
20		vinyl chloride; chloroethylene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<**LOD**
		602-023-00-7	200-831-0	75-01-4									
21		hexachlorobenzene				<0.5	mg/kg		<0.5	mg/kg	<0.00005 %		<**LOD**
		602-065-00-6	204-273-9	118-74-1									
										Total:	0.00078 %		

Key

	User supplied data
	Determinand values ignored for classification, see column 'Conc. Not Used' for reason
●	Determinand defined or amended by HazWasteOnline (see Appendix A)
	Speciated Deteminand - Unless the Determinand is Note 1, the Conversion Factor is used to calculate the compound concentration
<LOD	Below limit of detection

Classification of sample: BH05b

Non Hazardous Waste
Classified as **17 05 04**
in the List of Waste

Sample details

Sample Name:
BH05b
Sample Depth:
0.40 m
Moisture content:
8.1%
(no correction)

LoW Code:
Chapter: 17: Construction and Demolition Wastes (including excavated soil from contaminated sites)
Entry: 17 05 04 (Soil and stones other than those mentioned in 17 05 03)

Hazard properties

None identified

Determinands

Moisture content: 8.1% No Moisture Correction applied (MC)

#	Determinand	CLP index number	EC Number	CAS Number	CLP Note	User entered data	Conv. Factor	Compound conc.	Classification value	MC Applied	Conc. Not Used
1	antimony { antimony trioxide }	051-005-00-X	215-175-0	1309-64-4		<0.2 mg/kg	1.197	<0.239 mg/kg	<0.0000239 %		<**LOD**
2	arsenic { arsenic trioxide }	033-003-00-0	215-481-4	1327-53-3		18 mg/kg	1.32	23.766 mg/kg	0.00238 %		
3	boron { diboron trioxide; boric oxide }	005-008-00-8	215-125-8	1303-86-2		<0.4 mg/kg	3.22	<1.288 mg/kg	<0.000129 %		<**LOD**
4	cadmium { cadmium oxide }	048-002-00-0	215-146-2	1306-19-0		2.1 mg/kg	1.142	2.399 mg/kg	0.00024 %		
5	chromium in chromium(III) compounds { chromium(III) oxide }		215-160-9	1308-38-9		67 mg/kg	1.462	97.924 mg/kg	0.00979 %		
6	chromium in chromium(VI) compounds { chromium(VI) oxide }	024-001-00-0	215-607-8	1333-82-0		<0.5 mg/kg	1.923	<0.962 mg/kg	<0.0000962 %		<**LOD**
7	copper { dicopper oxide; copper (I) oxide }	029-002-00-X	215-270-7	1317-39-1		22 mg/kg	1.126	24.77 mg/kg	0.00248 %		
8	lead { lead chromate }	082-004-00-2	231-846-0	7758-97-6	1	20 mg/kg	1.56	31.196 mg/kg	0.002 %		
9	mercury { mercury dichloride }	080-010-00-X	231-299-8	7487-94-7		<0.1 mg/kg	1.353	<0.135 mg/kg	<0.0000135 %		<**LOD**
10	molybdenum { molybdenum(VI) oxide }	042-001-00-9	215-204-7	1313-27-5		3.2 mg/kg	1.5	4.801 mg/kg	0.00048 %		
11	nickel { nickel chromate }	028-035-00-7	238-766-5	14721-18-7		38 mg/kg	2.976	113.098 mg/kg	0.0113 %		
12	selenium { selenium compounds with the exception of cadmium sulphoselenide and those specified elsewhere in this Annex }	034-002-00-8				0.41 mg/kg	2.554	1.047 mg/kg	0.000105 %		
13	zinc { zinc chromate }	024-007-00-3				67 mg/kg	2.774	185.868 mg/kg	0.0186 %		
14	TPH (C6 to C40) petroleum group			TPH		<10 mg/kg		<10 mg/kg	<0.001 %		<**LOD**

#		Determinand	CLP index number	EC Number	CAS Number	CLP Note	User entered data		Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
15		tert-butyl methyl ether; MTBE; 2-methoxy-2-methylpropane	603-181-00-X	216-653-1	1634-04-4		<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
16		benzene	601-020-00-8	200-753-7	71-43-2		<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
17		toluene	601-021-00-3	203-625-9	108-88-3		<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
18		ethylbenzene	601-023-00-4	202-849-4	100-41-4		<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
19		xylene	601-022-00-9	202-422-2 [1] 203-396-5 [2] 203-576-3 [3] 215-535-7 [4]	95-47-6 [1] 106-42-3 [2] 108-38-3 [3] 1330-20-7 [4]		<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
20		cyanides { salts of hydrogen cyanide with the exception of complex cyanides such as ferrocyanides, ferricyanides and mercuric oxycyanide and those specified elsewhere in this Annex }	006-007-00-5				<0.5	mg/kg	1.884	<0.942	mg/kg	<0.0000942 %		<LOD
21		pH			PH		8.2	pH		8.2	pH	8.2 pH		
22		naphthalene	601-052-00-2	202-049-5	91-20-3		<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
23		acenaphthylene		205-917-1	208-96-8		<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
24		acenaphthene		201-469-6	83-32-9		<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
25		fluorene		201-695-5	86-73-7		<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
26		phenanthrene		201-581-5	85-01-8		<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
27		anthracene		204-371-1	120-12-7		<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
28		fluoranthene		205-912-4	206-44-0		<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
29		pyrene		204-927-3	129-00-0		<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
30		benzo[a]anthracene	601-033-00-9	200-280-6	56-55-3		<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
31		chrysene	601-048-00-0	205-923-4	218-01-9		<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
32		benzo[b]fluoranthene	601-034-00-4	205-911-9	205-99-2		<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
33		benzo[k]fluoranthene	601-036-00-5	205-916-6	207-08-9		<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
34		benzo[a]pyrene; benzo[def]chrysene	601-032-00-3	200-028-5	50-32-8		<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
35		indeno[123-cd]pyrene		205-893-2	193-39-5		<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
36		dibenz[a,h]anthracene	601-041-00-2	200-181-8	53-70-3		<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
37		benzo[ghi]perylene		205-883-8	191-24-2		<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
38		phenol	604-001-00-2	203-632-7	108-95-2		<0.3	mg/kg		<0.3	mg/kg	<0.00003 %		<LOD
39		polychlorobiphenyls; PCB	602-039-00-4	215-648-1	1336-36-3		<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
											Total:	0.049 %		

Key

	User supplied data
	Determinand values ignored for classification, see column 'Conc. Not Used' for reason
	Determinand defined or amended by HazWasteOnline (see Appendix A)
	Speciated Deteminand - Unless the Determinand is Note 1, the Conversion Factor is used to calculate the compound concentration
<LOD	Below limit of detection
CLP: Note 1	Only the metal concentration has been used for classification

Classification of sample: BH05[1]

Non Hazardous Waste
Classified as **17 05 04**
in the List of Waste

Sample details

Sample Name:
BH05[1]
Sample Depth:
1.40 m
Moisture content:
24%
(no correction)

LoW Code:
Chapter: 17: Construction and Demolition Wastes (including excavated soil from contaminated sites)
Entry: 17 05 04 (Soil and stones other than those mentioned in 17 05 03)

Hazard properties

None identified

Determinands

Moisture content: 24% No Moisture Correction applied (MC)

#	Determinand	CLP index number	EC Number	CAS Number	CLP Note	User entered data		Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
1	arsenic { arsenic trioxide }	033-003-00-0	215-481-4	1327-53-3		17	mg/kg	1.32	22.446	mg/kg	0.00224 %		
2	boron { diboron trioxide; boric oxide }	005-008-00-8	215-125-8	1303-86-2		1.4	mg/kg	3.22	4.508	mg/kg	0.000451 %		
3	cadmium { cadmium oxide }	048-002-00-0	215-146-2	1306-19-0		1.9	mg/kg	1.142	2.17	mg/kg	0.000217 %		
4	chromium in chromium(III) compounds { chromium(III) oxide }		215-160-9	1308-38-9		29	mg/kg	1.462	42.385	mg/kg	0.00424 %		
5	chromium in chromium(VI) compounds { chromium(VI) oxide }	024-001-00-0	215-607-8	1333-82-0		<0.5	mg/kg	1.923	<0.962	mg/kg	<0.0000962 %		<**LOD**
6	copper { dicopper oxide; copper (I) oxide }	029-002-00-X	215-270-7	1317-39-1		31	mg/kg	1.126	34.903	mg/kg	0.00349 %		
7	lead { lead chromate }	082-004-00-2	231-846-0	7758-97-6	1	27	mg/kg	1.56	42.115	mg/kg	0.0027 %		
8	mercury { mercury dichloride }	080-010-00-X	231-299-8	7487-94-7		<0.1	mg/kg	1.353	<0.135	mg/kg	<0.0000135 %		<**LOD**
9	nickel { nickel chromate }	028-035-00-7	238-766-5	14721-18-7		27	mg/kg	2.976	80.359	mg/kg	0.00804 %		
10	selenium { selenium compounds with the exception of cadmium sulphoselenide and those specified elsewhere in this Annex }	034-002-00-8				1.3	mg/kg	2.554	3.32	mg/kg	0.000332 %		
11	zinc { zinc chromate }	024-007-00-3				110	mg/kg	2.774	305.156	mg/kg	0.0305 %		
12	TPH (C6 to C40) petroleum group			TPH		<10	mg/kg		<10	mg/kg	<0.001 %		<**LOD**
13	benzene	601-020-00-8	200-753-7	71-43-2		<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<**LOD**
14	toluene	601-021-00-3	203-625-9	108-88-3		<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<**LOD**

#		Determinand			CLP Note	User entered data		Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
		CLP index number	EC Number	CAS Number									
15		ethylbenzene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
		601-023-00-4	202-849-4	100-41-4									
16		xylene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
		601-022-00-9	202-422-2 [1] 203-396-5 [2] 203-576-3 [3] 215-535-7 [4]	95-47-6 [1] 106-42-3 [2] 108-38-3 [3] 1330-20-7 [4]									
17		cyanides { salts of hydrogen cyanide with the exception of complex cyanides such as ferrocyanides, ferricyanides and mercuric oxycyanide and those specified elsewhere in this Annex }				<0.5	mg/kg	1.884	<0.942	mg/kg	<0.0000942 %		<LOD
		006-007-00-5											
18		pH				8	pH		8	pH	8pH		
				PH									
19		naphthalene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
		601-052-00-2	202-049-5	91-20-3									
20		acenaphthene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
			201-469-6	83-32-9									
21		fluorene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
			201-695-5	86-73-7									
22		phenanthrene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
			201-581-5	85-01-8									
23		anthracene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
			204-371-1	120-12-7									
24		fluoranthene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
			205-912-4	206-44-0									
25		pyrene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
			204-927-3	129-00-0									
26		benzo[a]anthracene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
		601-033-00-9	200-280-6	56-55-3									
27		chrysene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
		601-048-00-0	205-923-4	218-01-9									
28		benzo[b]fluoranthene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
		601-034-00-4	205-911-9	205-99-2									
29		benzo[k]fluoranthene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
		601-036-00-5	205-916-6	207-08-9									
30		benzo[a]pyrene; benzo[def]chrysene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
		601-032-00-3	200-028-5	50-32-8									
31		indeno[123-cd]pyrene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
			205-893-2	193-39-5									
32		dibenz[a,h]anthracene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
		601-041-00-2	200-181-8	53-70-3									
33		benzo[ghi]perylene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
			205-883-8	191-24-2									
34		phenol				<0.3	mg/kg		<0.3	mg/kg	<0.00003 %		<LOD
		604-001-00-2	203-632-7	108-95-2									
										Total:	0.0536 %		

Key

	User supplied data
	Determinand values ignored for classification, see column 'Conc. Not Used' for reason
	Determinand defined or amended by HazWasteOnline (see Appendix A)
	Speciated Deteminand - Unless the Determinand is Note 1, the Conversion Factor is used to calculate the compound concentration
<LOD	Below limit of detection
CLP: Note 1	Only the metal concentration has been used for classification

Classification of sample: BH06

Non Hazardous Waste
Classified as **17 05 04**
in the List of Waste

Sample details

Sample Name:
BH06
Sample Depth:
0.40 m
Moisture content:
20%
(no correction)

LoW Code:
Chapter: 17: Construction and Demolition Wastes (including excavated soil from contaminated sites)
Entry: 17 05 04 (Soil and stones other than those mentioned in 17 05 03)

Hazard properties

None identified

Determinands

Moisture content: 20% No Moisture Correction applied (MC)

#		Determinand	CLP index number	EC Number	CAS Number	CLP Note	User entered data		Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
1		cyanides { salts of hydrogen cyanide with the exception of complex cyanides such as ferrocyanides, ferricyanides and mercuric oxycyanide and those specified elsewhere in this Annex }	006-007-00-5				<0.5	mg/kg	1.884	<0.942	mg/kg	<0.0000942 %		<**LOD**
2		naphthalene	601-052-00-2	202-049-5	91-20-3		<0.5	mg/kg		<0.5	mg/kg	<0.00005 %		<**LOD**
3		acenaphthylene		205-917-1	208-96-8		<0.5	mg/kg		<0.5	mg/kg	<0.00005 %		<**LOD**
4		acenaphthene		201-469-6	83-32-9		<0.5	mg/kg		<0.5	mg/kg	<0.00005 %		<**LOD**
5		fluorene		201-695-5	86-73-7		<0.5	mg/kg		<0.5	mg/kg	<0.00005 %		<**LOD**
6		phenanthrene		201-581-5	85-01-8		<0.5	mg/kg		<0.5	mg/kg	<0.00005 %		<**LOD**
7		anthracene		204-371-1	120-12-7		<0.5	mg/kg		<0.5	mg/kg	<0.00005 %		<**LOD**
8		fluoranthene		205-912-4	206-44-0		<0.5	mg/kg		<0.5	mg/kg	<0.00005 %		<**LOD**
9		pyrene		204-927-3	129-00-0		<0.5	mg/kg		<0.5	mg/kg	<0.00005 %		<**LOD**
10		benzo[a]anthracene	601-033-00-9	200-280-6	56-55-3		<0.5	mg/kg		<0.5	mg/kg	<0.00005 %		<**LOD**
11		chrysene	601-048-00-0	205-923-4	218-01-9		<0.5	mg/kg		<0.5	mg/kg	<0.00005 %		<**LOD**
12		benzo[b]fluoranthene	601-034-00-4	205-911-9	205-99-2		<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<**LOD**
13		benzo[k]fluoranthene	601-036-00-5	205-916-6	207-08-9		<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<**LOD**
14		benzo[a]pyrene; benzo[def]chrysene	601-032-00-3	200-028-5	50-32-8		<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<**LOD**

#		Determinand			CLP Note	User entered data		Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
		CLP index number	EC Number	CAS Number									
15		indeno[123-cd]pyrene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<**LOD**
			205-893-2	193-39-5									
16		dibenz[a,h]anthracene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<**LOD**
		601-041-00-2	200-181-8	53-70-3									
17		benzo[ghi]perylene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<**LOD**
			205-883-8	191-24-2									
18		phenol				<0.5	mg/kg		<0.5	mg/kg	<0.00005 %		<**LOD**
		604-001-00-2	203-632-7	108-95-2									
19		1,1-dichloroethane and 1,2-dichloroethane (combined)				<0.2	mg/kg		<0.2	mg/kg	<0.00002 %		<**LOD**
			203-458-1, 200-863-5	107-06-2, 75-34-3									
20		trichloroethylene; trichloroethene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<**LOD**
		602-027-00-9	201-167-4	79-01-6									
21		vinyl chloride; chloroethylene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<**LOD**
		602-023-00-7	200-831-0	75-01-4									
22		hexachlorobenzene				<0.5	mg/kg		<0.5	mg/kg	<0.00005 %		<**LOD**
		602-065-00-6	204-273-9	118-74-1									
										Total:	0.00079 %		

Key

	User supplied data
	Determinand values ignored for classification, see column 'Conc. Not Used' for reason
	Determinand defined or amended by HazWasteOnline (see Appendix A)
	Speciated Deteminand - Unless the Determinand is Note 1, the Conversion Factor is used to calculate the compound concentration
<LOD	Below limit of detection

Classification of sample: BH06b

Non Hazardous Waste
Classified as **17 05 04**
in the List of Waste

Sample details

Sample Name:
BH06b
Sample Depth:
0.40 m
Moisture content:
20%
(no correction)

LoW Code:
Chapter: 17: Construction and Demolition Wastes (including excavated soil from contaminated sites)
Entry: 17 05 04 (Soil and stones other than those mentioned in 17 05 03)

Hazard properties

None identified

Determinands

Moisture content: 20% No Moisture Correction applied (MC)

#	Determinand	CLP index number	EC Number	CAS Number	CLP Note	User entered data	Conv. Factor	Compound conc.	Classification value	MC Applied	Conc. Not Used
1	antimony { antimony trioxide }	051-005-00-X	215-175-0	1309-64-4		<2 mg/kg	1.197	<2.394 mg/kg	<0.000239 %		<LOD
2	arsenic { arsenic trioxide }	033-003-00-0	215-481-4	1327-53-3		0.2 mg/kg	1.32	0.264 mg/kg	0.0000264 %		
3	boron { diboron trioxide; boric oxide }	005-008-00-8	215-125-8	1303-86-2		2.8 mg/kg	3.22	9.016 mg/kg	0.000902 %		
4	cadmium { cadmium oxide }	048-002-00-0	215-146-2	1306-19-0		2.2 mg/kg	1.142	2.513 mg/kg	0.000251 %		
5	chromium in chromium(III) compounds { chromium(III) oxide }		215-160-9	1308-38-9		23 mg/kg	1.462	33.616 mg/kg	0.00336 %		
6	chromium in chromium(VI) compounds { chromium(VI) oxide }	024-001-00-0	215-607-8	1333-82-0		<0.5 mg/kg	1.923	<0.962 mg/kg	<0.0000962 %		<LOD
7	copper { dicopper oxide; copper (I) oxide }	029-002-00-X	215-270-7	1317-39-1		38 mg/kg	1.126	42.784 mg/kg	0.00428 %		
8	lead { lead chromate }	082-004-00-2	231-846-0	7758-97-6	1	71 mg/kg	1.56	110.747 mg/kg	0.0071 %		
9	mercury { mercury dichloride }	080-010-00-X	231-299-8	7487-94-7		0.31 mg/kg	1.353	0.42 mg/kg	0.000042 %		
10	molybdenum { molybdenum(VI) oxide }	042-001-00-9	215-204-7	1313-27-5		3.3 mg/kg	1.5	4.951 mg/kg	0.000495 %		
11	nickel { nickel chromate }	028-035-00-7	238-766-5	14721-18-7		41 mg/kg	2.976	122.027 mg/kg	0.0122 %		
12	selenium { selenium compounds with the exception of cadmium sulphoselenide and those specified elsewhere in this Annex }	034-002-00-8				0.88 mg/kg	2.554	2.247 mg/kg	0.000225 %		
13	zinc { zinc chromate }	024-007-00-3				140 mg/kg	2.774	388.381 mg/kg	0.0388 %		
14	TPH (C6 to C40) petroleum group			TPH		<10 mg/kg		<10 mg/kg	<0.001 %		<LOD

#		Determinand			CLP Note	User entered data		Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
		CLP index number	EC Number	CAS Number									
15		tert-butyl methyl ether; MTBE; 2-methoxy-2-methylpropane				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<**LOD**
		603-181-00-X	216-653-1	1634-04-4									
16		benzene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<**LOD**
		601-020-00-8	200-753-7	71-43-2									
17		toluene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<**LOD**
		601-021-00-3	203-625-9	108-88-3									
18		ethylbenzene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<**LOD**
		601-023-00-4	202-849-4	100-41-4									
19		xylene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<**LOD**
		601-022-00-9	202-422-2 [1] 203-396-5 [2] 203-576-3 [3] 215-535-7 [4]	95-47-6 [1] 106-42-3 [2] 108-38-3 [3] 1330-20-7 [4]									
20		cyanides { salts of hydrogen cyanide with the exception of complex cyanides such as ferrocyanides, ferricyanides and mercuric oxycyanide and those specified elsewhere in this Annex }				16	mg/kg	1.884	30.144	mg/kg	0.00301 %		
		006-007-00-5											
21		pH				7.9	pH		7.9	pH	7.9 pH		
				PH									
22		naphthalene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<**LOD**
		601-052-00-2	202-049-5	91-20-3									
23		acenaphthylene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<**LOD**
			205-917-1	208-96-8									
24		acenaphthene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<**LOD**
			201-469-6	83-32-9									
25		fluorene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<**LOD**
			201-695-5	86-73-7									
26		phenanthrene				0.4	mg/kg		0.4	mg/kg	0.00004 %		
			201-581-5	85-01-8									
27		anthracene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<**LOD**
			204-371-1	120-12-7									
28		fluoranthene				0.62	mg/kg		0.62	mg/kg	0.000062 %		
			205-912-4	206-44-0									
29		pyrene				0.55	mg/kg		0.55	mg/kg	0.000055 %		
			204-927-3	129-00-0									
30		benzo[a]anthracene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<**LOD**
		601-033-00-9	200-280-6	56-55-3									
31		chrysene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<**LOD**
		601-048-00-0	205-923-4	218-01-9									
32		benzo[b]fluoranthene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<**LOD**
		601-034-00-4	205-911-9	205-99-2									
33		benzo[k]fluoranthene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<**LOD**
		601-036-00-5	205-916-6	207-08-9									
34		benzo[a]pyrene; benzo[def]chrysene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<**LOD**
		601-032-00-3	200-028-5	50-32-8									
35		indeno[123-cd]pyrene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<**LOD**
			205-893-2	193-39-5									
36		dibenz[a,h]anthracene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<**LOD**
		601-041-00-2	200-181-8	53-70-3									
37		benzo[ghi]perylene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<**LOD**
			205-883-8	191-24-2									
38		phenol				<0.3	mg/kg		<0.3	mg/kg	<0.00003 %		<**LOD**
		604-001-00-2	203-632-7	108-95-2									
39		polychlorobiphenyls; PCB				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<**LOD**
		602-039-00-4	215-648-1	1336-36-3									
										Total:	0.0724 %		

Key

	User supplied data
	Determinand values ignored for classification, see column 'Conc. Not Used' for reason
	Determinand defined or amended by HazWasteOnline (see Appendix A)
	Speciated Deteminand - Unless the Determinand is Note 1, the Conversion Factor is used to calculate the compound concentration
<LOD	Below limit of detection
CLP: Note 1	Only the metal concentration has been used for classification

Classification of sample: BH06[1]

Non Hazardous Waste
Classified as **17 05 04**
in the List of Waste

Sample details

Sample Name:
BH06[1]
Sample Depth:
2.00 m
Moisture content:
18%
(no correction)

LoW Code:
Chapter: 17: Construction and Demolition Wastes (including excavated soil from contaminated sites)
Entry: 17 05 04 (Soil and stones other than those mentioned in 17 05 03)

Hazard properties

None identified

Determinands

Moisture content: 18% No Moisture Correction applied (MC)

#	Determinand	CLP index number	EC Number	CAS Number	CLP Note	User entered data	Conv. Factor	Compound conc.	Classification value	MC Applied	Conc. Not Used
1	arsenic { arsenic trioxide }	033-003-00-0	215-481-4	1327-53-3		20 mg/kg	1.32	26.407 mg/kg	0.00264 %		
2	boron { diboron trioxide; boric oxide }	005-008-00-8	215-125-8	1303-86-2		0.61 mg/kg	3.22	1.964 mg/kg	0.000196 %		
3	cadmium { cadmium oxide }	048-002-00-0	215-146-2	1306-19-0		1.9 mg/kg	1.142	2.17 mg/kg	0.000217 %		
4	chromium in chromium(III) compounds { chromium(III) oxide }		215-160-9	1308-38-9		19 mg/kg	1.462	27.77 mg/kg	0.00278 %		
5	chromium in chromium(VI) compounds { chromium(VI) oxide }	024-001-00-0	215-607-8	1333-82-0		<0.5 mg/kg	1.923	<0.962 mg/kg	<0.0000962 %		<**LOD**
6	copper { dicopper oxide; copper (I) oxide }	029-002-00-X	215-270-7	1317-39-1		29 mg/kg	1.126	32.651 mg/kg	0.00327 %		
7	lead { lead chromate }	082-004-00-2	231-846-0	7758-97-6	1	33 mg/kg	1.56	51.474 mg/kg	0.0033 %		
8	mercury { mercury dichloride }	080-010-00-X	231-299-8	7487-94-7		0.13 mg/kg	1.353	0.176 mg/kg	0.0000176 %		
9	nickel { nickel chromate }	028-035-00-7	238-766-5	14721-18-7		40 mg/kg	2.976	119.051 mg/kg	0.0119 %		
10	selenium { selenium compounds with the exception of cadmium sulphoselenide and those specified elsewhere in this Annex }	034-002-00-8				1.1 mg/kg	2.554	2.809 mg/kg	0.000281 %		
11	zinc { zinc chromate }	024-007-00-3				78 mg/kg	2.774	216.383 mg/kg	0.0216 %		
12	TPH (C6 to C40) petroleum group			TPH		<10 mg/kg		<10 mg/kg	<0.001 %		<**LOD**
13	tert-butyl methyl ether; MTBE; 2-methoxy-2-methylpropane	603-181-00-X	216-653-1	1634-04-4		<1 mg/kg		<1 mg/kg	<0.0001 %		<**LOD**

#		Determinand			CLP Note	User entered data		Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
		CLP index number	EC Number	CAS Number									
14		benzene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
		601-020-00-8	200-753-7	71-43-2									
15		toluene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
		601-021-00-3	203-625-9	108-88-3									
16		ethylbenzene				<0	mg/kg		<0	mg/kg	<0%		<LOD
		601-023-00-4	202-849-4	100-41-4									
17		xylene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
		601-022-00-9	202-422-2 [1] 203-396-5 [2] 203-576-3 [3] 215-535-7 [4]	95-47-6 [1] 106-42-3 [2] 108-38-3 [3] 1330-20-7 [4]									
18		cyanides { salts of hydrogen cyanide with the exception of complex cyanides such as ferrocyanides, ferricyanides and mercuric oxycyanide and those specified elsewhere in this Annex }				<0.5	mg/kg	1.884	<0.942	mg/kg	<0.0000942 %		<LOD
		006-007-00-5											
19		pH				8.3	pH		8.3	pH	8.3 pH		
				PH									
20		acenaphthylene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
			205-917-1	208-96-8									
21		acenaphthene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
			201-469-6	83-32-9									
22		fluorene				0.12	mg/kg		0.12	mg/kg	0.000012 %		
			201-695-5	86-73-7									
23		phenanthrene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
			201-581-5	85-01-8									
24		anthracene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
			204-371-1	120-12-7									
25		fluoranthene				0.12	mg/kg		0.12	mg/kg	0.000012 %		
			205-912-4	206-44-0									
26		pyrene				0.25	mg/kg		0.25	mg/kg	0.000025 %		
			204-927-3	129-00-0									
27		benzo[a]anthracene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
		601-033-00-9	200-280-6	56-55-3									
28		chrysene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
		601-048-00-0	205-923-4	218-01-9									
29		benzo[b]fluoranthene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
		601-034-00-4	205-911-9	205-99-2									
30		benzo[k]fluoranthene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
		601-036-00-5	205-916-6	207-08-9									
31		benzo[a]pyrene; benzo[def]chrysene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
		601-032-00-3	200-028-5	50-32-8									
32		indeno[123-cd]pyrene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
			205-893-2	193-39-5									
33		dibenz[a,h]anthracene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
		601-041-00-2	200-181-8	53-70-3									
34		benzo[ghi]perylene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
			205-883-8	191-24-2									
35		phenol				<0.3	mg/kg		<0.3	mg/kg	<0.00003 %		<LOD
		604-001-00-2	203-632-7	108-95-2									
										Total:	0.0478 %		

Key

	User supplied data
	Determinand values ignored for classification, see column 'Conc. Not Used' for reason
	Determinand defined or amended by HazWasteOnline (see Appendix A)
	Speciated Deteminand - Unless the Determinand is Note 1, the Conversion Factor is used to calculate the compound concentration
<LOD	Below limit of detection
CLP: Note 1	Only the metal concentration has been used for classification

Classification of sample: BH07

Non Hazardous Waste
Classified as **17 05 04**
in the List of Waste

Sample details

Sample Name:
BH07
Sample Depth:
0.50 m
Moisture content:
8.9%
(no correction)

LoW Code:
Chapter: 17: Construction and Demolition Wastes (including excavated soil from contaminated sites)
Entry: 17 05 04 (Soil and stones other than those mentioned in 17 05 03)

Hazard properties

None identified

Determinands

Moisture content: 8.9% No Moisture Correction applied (MC)

#	Determinand	CLP index number	EC Number	CAS Number	CLP Note	User entered data	Conv. Factor	Compound conc.	Classification value	MC Applied	Conc. Not Used
1	antimony { antimony trioxide }	051-005-00-X	215-175-0	1309-64-4		2 mg/kg	1.197	2.394 mg/kg	0.000239 %		
2	arsenic { arsenic trioxide }	033-003-00-0	215-481-4	1327-53-3		22 mg/kg	1.32	29.047 mg/kg	0.0029 %		
3	boron { diboron trioxide; boric oxide }	005-008-00-8	215-125-8	1303-86-2		<0.4 mg/kg	3.22	<1.288 mg/kg	<0.000129 %		<**LOD**
4	cadmium { cadmium oxide }	048-002-00-0	215-146-2	1306-19-0		1.7 mg/kg	1.142	1.942 mg/kg	0.000194 %		
5	chromium in chromium(III) compounds { chromium(III) oxide }		215-160-9	1308-38-9		19 mg/kg	1.462	27.77 mg/kg	0.00278 %		
6	chromium in chromium(VI) compounds { chromium(VI) oxide }	024-001-00-0	215-607-8	1333-82-0		<0.5 mg/kg	1.923	<0.962 mg/kg	<0.0000962 %		<**LOD**
7	copper { dicopper oxide; copper (I) oxide }	029-002-00-X	215-270-7	1317-39-1		26 mg/kg	1.126	29.273 mg/kg	0.00293 %		
8	lead { lead chromate }	082-004-00-2	231-846-0	7758-97-6	1	26 mg/kg	1.56	40.555 mg/kg	0.0026 %		
9	mercury { mercury dichloride }	080-010-00-X	231-299-8	7487-94-7		<0.1 mg/kg	1.353	<0.135 mg/kg	<0.0000135 %		<**LOD**
10	molybdenum { molybdenum(VI) oxide }	042-001-00-9	215-204-7	1313-27-5		4 mg/kg	1.5	6.001 mg/kg	0.0006 %		
11	nickel { nickel chromate }	028-035-00-7	238-766-5	14721-18-7		51 mg/kg	2.976	151.79 mg/kg	0.0152 %		
12	selenium { selenium compounds with the exception of cadmium sulphoselenide and those specified elsewhere in this Annex }	034-002-00-8				0.36 mg/kg	2.554	0.919 mg/kg	0.0000919 %		
13	zinc { zinc chromate }	024-007-00-3				81 mg/kg	2.774	224.706 mg/kg	0.0225 %		
14	TPH (C6 to C40) petroleum group			TPH		<10 mg/kg		<10 mg/kg	<0.001 %		<**LOD**

#		Determinand			CLP Note	User entered data		Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
		CLP index number	EC Number	CAS Number									
15		tert-butyl methyl ether; MTBE; 2-methoxy-2-methylpropane				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<**LOD**
		603-181-00-X	216-653-1	1634-04-4									
16		benzene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<**LOD**
		601-020-00-8	200-753-7	71-43-2									
17		toluene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<**LOD**
		601-021-00-3	203-625-9	108-88-3									
18		ethylbenzene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<**LOD**
		601-023-00-4	202-849-4	100-41-4									
19		xylene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<**LOD**
		601-022-00-9	202-422-2 [1] 203-396-5 [2] 203-576-3 [3] 215-535-7 [4]	95-47-6 [1] 106-42-3 [2] 108-38-3 [3] 1330-20-7 [4]									
20		cyanides { salts of hydrogen cyanide with the exception of complex cyanides such as ferrocyanides, ferricyanides and mercuric oxycyanide and those specified elsewhere in this Annex }				<0.5	mg/kg	1.884	<0.942	mg/kg	<0.0000942 %		<**LOD**
		006-007-00-5											
21		pH				8.5	pH		8.5	pH	8.5 pH		
				PH									
22		naphthalene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<**LOD**
		601-052-00-2	202-049-5	91-20-3									
23		acenaphthylene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<**LOD**
			205-917-1	208-96-8									
24		acenaphthene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<**LOD**
			201-469-6	83-32-9									
25		fluorene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<**LOD**
			201-695-5	86-73-7									
26		phenanthrene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<**LOD**
			201-581-5	85-01-8									
27		anthracene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<**LOD**
			204-371-1	120-12-7									
28		fluoranthene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<**LOD**
			205-912-4	206-44-0									
29		pyrene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<**LOD**
			204-927-3	129-00-0									
30		benzo[a]anthracene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<**LOD**
		601-033-00-9	200-280-6	56-55-3									
31		chrysene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<**LOD**
		601-048-00-0	205-923-4	218-01-9									
32		benzo[b]fluoranthene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<**LOD**
		601-034-00-4	205-911-9	205-99-2									
33		benzo[k]fluoranthene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<**LOD**
		601-036-00-5	205-916-6	207-08-9									
34		benzo[a]pyrene; benzo[def]chrysene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<**LOD**
		601-032-00-3	200-028-5	50-32-8									
35		indeno[123-cd]pyrene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<**LOD**
			205-893-2	193-39-5									
36		dibenz[a,h]anthracene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<**LOD**
		601-041-00-2	200-181-8	53-70-3									
37		benzo[ghi]perylene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<**LOD**
			205-883-8	191-24-2									
38		phenol				<0.3	mg/kg		<0.3	mg/kg	<0.00003 %		<**LOD**
		604-001-00-2	203-632-7	108-95-2									
39		1,1-dichloroethane and 1,2-dichloroethane (combined)				<2	mg/kg		<2	mg/kg	<0.0002 %		<**LOD**
			203-458-1, 200-863-5	107-06-2, 75-34-3									
40		trichloroethylene; trichloroethene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<**LOD**
		602-027-00-9	201-167-4	79-01-6									

#		Determinand			CLP Note	User entered data		Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
		CLP index number	EC Number	CAS Number									
41		vinyl chloride; chloroethylene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<**LOD**
		602-023-00-7	200-831-0	75-01-4									
42		hexachlorobenzene				<0.5	mg/kg		<0.5	mg/kg	<0.00005 %		<**LOD**
		602-065-00-6	204-273-9	118-74-1									
43		polychlorobiphenyls; PCB				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<**LOD**
		602-039-00-4	215-648-1	1336-36-3									
										Total:	0.0518 %		

Key

	User supplied data
	Determinand values ignored for classification, see column 'Conc. Not Used' for reason
	Determinand defined or amended by HazWasteOnline (see Appendix A)
	Speciated Deteminand - Unless the Determinand is Note 1, the Conversion Factor is used to calculate the compound concentration
<LOD	Below limit of detection
CLP: Note 1	Only the metal concentration has been used for classification

Classification of sample: BH07[1]

Non Hazardous Waste
Classified as **17 05 04**
in the List of Waste

Sample details

Sample Name:
BH07[1]
Sample Depth:
1.50 m
Moisture content:
9.5%
(no correction)

LoW Code:
Chapter: 17: Construction and Demolition Wastes (including excavated soil from contaminated sites)
Entry: 17 05 04 (Soil and stones other than those mentioned in 17 05 03)

Hazard properties

None identified

Determinands

Moisture content: 9.5% No Moisture Correction applied (MC)

#	Determinand	CLP index number	EC Number	CAS Number	CLP Note	User entered data	Conv. Factor	Compound conc.	Classification value	MC Applied	Conc. Not Used
1	antimony { antimony trioxide }	051-005-00-X	215-175-0	1309-64-4		<2 mg/kg	1.197	<2.394 mg/kg	<0.000239 %		<LOD
2	arsenic { arsenic trioxide }	033-003-00-0	215-481-4	1327-53-3		22 mg/kg	1.32	29.047 mg/kg	0.0029 %		
3	boron { diboron trioxide; boric oxide }	005-008-00-8	215-125-8	1303-86-2		<0.4 mg/kg	3.22	<1.288 mg/kg	<0.000129 %		<LOD
4	cadmium { cadmium oxide }	048-002-00-0	215-146-2	1306-19-0		1.5 mg/kg	1.142	1.713 mg/kg	0.000171 %		
5	chromium in chromium(III) compounds { chromium(III) oxide }		215-160-9	1308-38-9		17 mg/kg	1.462	24.846 mg/kg	0.00248 %		
6	chromium in chromium(VI) compounds { chromium(VI) oxide }	024-001-00-0	215-607-8	1333-82-0		<0.5 mg/kg	1.923	<0.962 mg/kg	<0.0000962 %		<LOD
7	copper { dicopper oxide; copper (I) oxide }	029-002-00-X	215-270-7	1317-39-1		24 mg/kg	1.126	27.021 mg/kg	0.0027 %		
8	lead { lead chromate }	082-004-00-2	231-846-0	7758-97-6	1	24 mg/kg	1.56	37.436 mg/kg	0.0024 %		
9	mercury { mercury dichloride }	080-010-00-X	231-299-8	7487-94-7		<0.1 mg/kg	1.353	<0.135 mg/kg	<0.0000135 %		<LOD
10	molybdenum { molybdenum(VI) oxide }	042-001-00-9	215-204-7	1313-27-5		3 mg/kg	1.5	4.501 mg/kg	0.00045 %		
11	nickel { nickel chromate }	028-035-00-7	238-766-5	14721-18-7		39 mg/kg	2.976	116.074 mg/kg	0.0116 %		
12	selenium { selenium compounds with the exception of cadmium sulphoselenide and those specified elsewhere in this Annex }	034-002-00-8				3.1 mg/kg	2.554	7.916 mg/kg	0.000792 %		
13	zinc { zinc chromate }	024-007-00-3				72 mg/kg	2.774	199.739 mg/kg	0.02 %		
14	TPH (C6 to C40) petroleum group			TPH		<10 mg/kg		<10 mg/kg	<0.001 %		<LOD

#		Determinand			CLP Note	User entered data		Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
		CLP index number	EC Number	CAS Number									
15		tert-butyl methyl ether; MTBE; 2-methoxy-2-methylpropane				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<**LOD**
		603-181-00-X	216-653-1	1634-04-4									
16		benzene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<**LOD**
		601-020-00-8	200-753-7	71-43-2									
17		toluene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<**LOD**
		601-021-00-3	203-625-9	108-88-3									
18		ethylbenzene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<**LOD**
		601-023-00-4	202-849-4	100-41-4									
19		xylene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<**LOD**
		601-022-00-9	202-422-2 [1] 203-396-5 [2] 203-576-3 [3] 215-535-7 [4]	95-47-6 [1] 106-42-3 [2] 108-38-3 [3] 1330-20-7 [4]									
20		cyanides { salts of hydrogen cyanide with the exception of complex cyanides such as ferrocyanides, ferricyanides and mercuric oxycyanide and those specified elsewhere in this Annex }				<0.5	mg/kg	1.884	<0.942	mg/kg	<0.0000942 %		<**LOD**
		006-007-00-5											
21		pH				8.6	pH		8.6	pH	8.6 pH		
				PH									
22		naphthalene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<**LOD**
		601-052-00-2	202-049-5	91-20-3									
23		acenaphthylene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<**LOD**
			205-917-1	208-96-8									
24		acenaphthene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<**LOD**
			201-469-6	83-32-9									
25		fluorene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<**LOD**
			201-695-5	86-73-7									
26		phenanthrene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<**LOD**
			201-581-5	85-01-8									
27		anthracene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<**LOD**
			204-371-1	120-12-7									
28		fluoranthene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<**LOD**
			205-912-4	206-44-0									
29		pyrene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<**LOD**
			204-927-3	129-00-0									
30		benzo[a]anthracene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<**LOD**
		601-033-00-9	200-280-6	56-55-3									
31		chrysene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<**LOD**
		601-048-00-0	205-923-4	218-01-9									
32		benzo[b]fluoranthene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<**LOD**
		601-034-00-4	205-911-9	205-99-2									
33		benzo[k]fluoranthene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<**LOD**
		601-036-00-5	205-916-6	207-08-9									
34		benzo[a]pyrene; benzo[def]chrysene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<**LOD**
		601-032-00-3	200-028-5	50-32-8									
35		indeno[123-cd]pyrene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<**LOD**
			205-893-2	193-39-5									
36		dibenz[a,h]anthracene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<**LOD**
		601-041-00-2	200-181-8	53-70-3									
37		benzo[ghi]perylene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<**LOD**
			205-883-8	191-24-2									
38		phenol				<0.3	mg/kg		<0.3	mg/kg	<0.00003 %		<**LOD**
		604-001-00-2	203-632-7	108-95-2									
39		1,1-dichloroethane and 1,2-dichloroethane (combined)				<2	mg/kg		<2	mg/kg	<0.0002 %		<**LOD**
			203-458-1, 200-863-5	107-06-2, 75-34-3									
40		trichloroethylene; trichloroethene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<**LOD**
		602-027-00-9	201-167-4	79-01-6									

#		Determinand			CLP Note	User entered data		Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
		CLP index number	EC Number	CAS Number									
41		vinyl chloride; chloroethylene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<**LOD**
		602-023-00-7	200-831-0	75-01-4									
42		hexachlorobenzene				<0.5	mg/kg		<0.5	mg/kg	<0.00005 %		<**LOD**
		602-065-00-6	204-273-9	118-74-1									
43		polychlorobiphenyls; PCB				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<**LOD**
		602-039-00-4	215-648-1	1336-36-3									
										Total:	0.0456 %		

Key

	User supplied data
	Determinand values ignored for classification, see column 'Conc. Not Used' for reason
	Determinand defined or amended by HazWasteOnline (see Appendix A)
	Speciated Deteminand - Unless the Determinand is Note 1, the Conversion Factor is used to calculate the compound concentration
<LOD	Below limit of detection
CLP: Note 1	Only the metal concentration has been used for classification

Classification of sample: BH08

Non Hazardous Waste
Classified as **17 05 04**
in the List of Waste

Sample details

Sample Name:
BH08
Sample Depth:
0.40 m
Moisture content:
12%
(no correction)

LoW Code:
Chapter: 17: Construction and Demolition Wastes (including excavated soil from contaminated sites)
Entry: 17 05 04 (Soil and stones other than those mentioned in 17 05 03)

Hazard properties

None identified

Determinands

Moisture content: 12% No Moisture Correction applied (MC)

#	Determinand	CLP index number	EC Number	CAS Number	CLP Note	User entered data	Conv. Factor	Compound conc.	Classification value	MC Applied	Conc. Not Used
1	arsenic { arsenic trioxide }	033-003-00-0	215-481-4	1327-53-3		25 mg/kg	1.32	33.008 mg/kg	0.0033 %		
2	boron { diboron trioxide; boric oxide }	005-008-00-8	215-125-8	1303-86-2		0.54 mg/kg	3.22	1.739 mg/kg	0.000174 %		
3	cadmium { cadmium oxide }	048-002-00-0	215-146-2	1306-19-0		1.5 mg/kg	1.142	1.713 mg/kg	0.000171 %		
4	chromium in chromium(III) compounds { chromium(III) oxide }		215-160-9	1308-38-9		17 mg/kg	1.462	24.846 mg/kg	0.00248 %		
5	chromium in chromium(VI) compounds { chromium(VI) oxide }	024-001-00-0	215-607-8	1333-82-0		<0.5 mg/kg	1.923	<0.962 mg/kg	<0.0000962 %		<**LOD**
6	copper { dicopper oxide; copper (I) oxide }	029-002-00-X	215-270-7	1317-39-1		110 mg/kg	1.126	123.848 mg/kg	0.0124 %		
7	lead { lead chromate }	082-004-00-2	231-846-0	7758-97-6	1	39 mg/kg	1.56	60.833 mg/kg	0.0039 %		
8	mercury { mercury dichloride }	080-010-00-X	231-299-8	7487-94-7		0.17 mg/kg	1.353	0.23 mg/kg	0.000023 %		
9	nickel { nickel chromate }	028-035-00-7	238-766-5	14721-18-7		44 mg/kg	2.976	130.956 mg/kg	0.0131 %		
10	selenium { selenium compounds with the exception of cadmium sulphoselenide and those specified elsewhere in this Annex }	034-002-00-8				1.9 mg/kg	2.554	4.852 mg/kg	0.000485 %		
11	zinc { zinc chromate }	024-007-00-3				86 mg/kg	2.774	238.577 mg/kg	0.0239 %		
12	TPH (C6 to C40) petroleum group			TPH		<10 mg/kg		<10 mg/kg	<0.001 %		<**LOD**
13	benzene	601-020-00-8	200-753-7	71-43-2		<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<**LOD**
14	toluene	601-021-00-3	203-625-9	108-88-3		<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<**LOD**

#		Determinand			CLP Note	User entered data		Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
		CLP index number	EC Number	CAS Number									
15		ethylbenzene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
		601-023-00-4	202-849-4	100-41-4									
16		xylene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
		601-022-00-9	202-422-2 [1] 203-396-5 [2] 203-576-3 [3] 215-535-7 [4]	95-47-6 [1] 106-42-3 [2] 108-38-3 [3] 1330-20-7 [4]									
17		cyanides { salts of hydrogen cyanide with the exception of complex cyanides such as ferrocyanides, ferricyanides and mercuric oxycyanide and those specified elsewhere in this Annex }				<0.5	mg/kg	1.884	<0.942	mg/kg	<0.0000942 %		<LOD
		006-007-00-5											
18		pH				8.4	pH		8.4	pH	8.4 pH		
				PH									
19		naphthalene				<0.5	mg/kg		<0.5	mg/kg	<0.00005 %		<LOD
		601-052-00-2	202-049-5	91-20-3									
20		acenaphthylene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
			205-917-1	208-96-8									
21		acenaphthene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
			201-469-6	83-32-9									
22		fluorene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
			201-695-5	86-73-7									
23		phenanthrene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
			201-581-5	85-01-8									
24		anthracene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
			204-371-1	120-12-7									
25		fluoranthene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
			205-912-4	206-44-0									
26		pyrene				0.13	mg/kg		0.13	mg/kg	0.000013 %		
			204-927-3	129-00-0									
27		benzo[a]anthracene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
		601-033-00-9	200-280-6	56-55-3									
28		chrysene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
		601-048-00-0	205-923-4	218-01-9									
29		benzo[b]fluoranthene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
		601-034-00-4	205-911-9	205-99-2									
30		benzo[k]fluoranthene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
		601-036-00-5	205-916-6	207-08-9									
31		benzo[a]pyrene; benzo[def]chrysene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
		601-032-00-3	200-028-5	50-32-8									
32		indeno[123-cd]pyrene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
			205-893-2	193-39-5									
33		dibenz[a,h]anthracene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
		601-041-00-2	200-181-8	53-70-3									
34		benzo[ghi]perylene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
			205-883-8	191-24-2									
35		phenol				<0.3	mg/kg		<0.3	mg/kg	<0.00003 %		<LOD
		604-001-00-2	203-632-7	108-95-2									
36		1,1-dichloroethane and 1,2-dichloroethane (combined)				<0.5	mg/kg		<0.5	mg/kg	<0.00005 %		<LOD
			203-458-1, 200-863-5	107-06-2, 75-34-3									
37		trichloroethylene; trichloroethene				<1	mg/kg		<1	mg/kg	<0.0001 %		<LOD
		602-027-00-9	201-167-4	79-01-6									
38		hexachlorobenzene				<0.5	mg/kg		<0.5	mg/kg	<0.00005 %		<LOD
		602-065-00-6	204-273-9	118-74-1									
39		polychlorobiphenyls; PCB				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
		602-039-00-4	215-648-1	1336-36-3									
										Total:	0.0616 %		

Key

	User supplied data
	Determinand values ignored for classification, see column 'Conc. Not Used' for reason
	Determinand defined or amended by HazWasteOnline (see Appendix A)
	Speciated Deteminand - Unless the Determinand is Note 1, the Conversion Factor is used to calculate the compound concentration
<LOD	Below limit of detection
CLP: Note 1	Only the metal concentration has been used for classification

Classification of sample: BH08[1]

Non Hazardous Waste
Classified as **17 05 04**
in the List of Waste

Sample details

Sample Name:
BH08[1]
Sample Depth:
1.40 m
Moisture content:
13%
(no correction)

LoW Code:
Chapter: 17: Construction and Demolition Wastes (including excavated soil from contaminated sites)
Entry: 17 05 04 (Soil and stones other than those mentioned in 17 05 03)

Hazard properties

None identified

Determinands

Moisture content: 13% No Moisture Correction applied (MC)

#	Determinand	CLP index number	EC Number	CAS Number	CLP Note	User entered data	Conv. Factor	Compound conc.	Classification value	MC Applied	Conc. Not Used
1	arsenic { arsenic trioxide }	033-003-00-0	215-481-4	1327-53-3		18 mg/kg	1.32	23.766 mg/kg	0.00238 %		
2	boron { diboron trioxide; boric oxide }	005-008-00-8	215-125-8	1303-86-2		<0.4 mg/kg	3.22	<1.288 mg/kg	<0.000129 %		<LOD
3	cadmium { cadmium oxide }	048-002-00-0	215-146-2	1306-19-0		2.2 mg/kg	1.142	2.513 mg/kg	0.000251 %		
4	chromium in chromium(III) compounds { chromium(III) oxide }		215-160-9	1308-38-9		19 mg/kg	1.462	27.77 mg/kg	0.00278 %		
5	chromium in chromium(VI) compounds { chromium(VI) oxide }	024-001-00-0	215-607-8	1333-82-0		<0.5 mg/kg	1.923	<0.962 mg/kg	<0.0000962 %		<LOD
6	copper { dicopper oxide; copper (I) oxide }	029-002-00-X	215-270-7	1317-39-1		27 mg/kg	1.126	30.399 mg/kg	0.00304 %		
7	lead { lead chromate }	082-004-00-2	231-846-0	7758-97-6	1	23 mg/kg	1.56	35.876 mg/kg	0.0023 %		
8	mercury { mercury dichloride }	080-010-00-X	231-299-8	7487-94-7		0.11 mg/kg	1.353	0.149 mg/kg	0.0000149 %		
9	nickel { nickel chromate }	028-035-00-7	238-766-5	14721-18-7		46 mg/kg	2.976	136.908 mg/kg	0.0137 %		
10	selenium { selenium compounds with the exception of cadmium sulphoselenide and those specified elsewhere in this Annex }	034-002-00-8				0.8 mg/kg	2.554	2.043 mg/kg	0.000204 %		
11	zinc { zinc chromate }	024-007-00-3				78 mg/kg	2.774	216.383 mg/kg	0.0216 %		
12	TPH (C6 to C40) petroleum group			TPH		<10 mg/kg		<10 mg/kg	<0.001 %		<LOD
13	benzene	601-020-00-8	200-753-7	71-43-2		<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
14	toluene	601-021-00-3	203-625-9	108-88-3		<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD

#		Determinand			CLP Note	User entered data		Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
		CLP index number	EC Number	CAS Number									
15		ethylbenzene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
		601-023-00-4	202-849-4	100-41-4									
16		xylene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
		601-022-00-9	202-422-2 [1] 203-396-5 [2] 203-576-3 [3] 215-535-7 [4]	95-47-6 [1] 106-42-3 [2] 108-38-3 [3] 1330-20-7 [4]									
17		cyanides { salts of hydrogen cyanide with the exception of complex cyanides such as ferrocyanides, ferricyanides and mercuric oxycyanide and those specified elsewhere in this Annex }				<0.5	mg/kg	1.884	<0.942	mg/kg	<0.0000942 %		<LOD
		006-007-00-5											
18		pH				8.4	pH		8.4	pH	8.4 pH		
				PH									
19		acenaphthylene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
			205-917-1	208-96-8									
20		acenaphthene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
			201-469-6	83-32-9									
21		fluorene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
			201-695-5	86-73-7									
22		phenanthrene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
			201-581-5	85-01-8									
23		anthracene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
			204-371-1	120-12-7									
24		fluoranthene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
			205-912-4	206-44-0									
25		pyrene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
			204-927-3	129-00-0									
26		benzo[a]anthracene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
		601-033-00-9	200-280-6	56-55-3									
27		chrysene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
		601-048-00-0	205-923-4	218-01-9									
28		benzo[b]fluoranthene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
		601-034-00-4	205-911-9	205-99-2									
29		benzo[k]fluoranthene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
		601-036-00-5	205-916-6	207-08-9									
30		benzo[a]pyrene; benzo[def]chrysene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
		601-032-00-3	200-028-5	50-32-8									
31		indeno[123-cd]pyrene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
			205-893-2	193-39-5									
32		dibenz[a,h]anthracene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
		601-041-00-2	200-181-8	53-70-3									
33		benzo[ghi]perylene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
			205-883-8	191-24-2									
34		phenol				<0.3	mg/kg		<0.3	mg/kg	<0.00003 %		<LOD
		604-001-00-2	203-632-7	108-95-2									
										Total:	0.0478 %		

Key

	User supplied data
	Determinand values ignored for classification, see column 'Conc. Not Used' for reason
	Determinand defined or amended by HazWasteOnline (see Appendix A)
	Speciated Deteminand - Unless the Determinand is Note 1, the Conversion Factor is used to calculate the compound concentration
<LOD	Below limit of detection
CLP: Note 1	Only the metal concentration has been used for classification

Classification of sample: BH08[2]

Non Hazardous Waste
Classified as **17 05 04**
in the List of Waste

Sample details

Sample Name:
BH08[2]
Sample Depth:
2.40 m
Moisture content:
16%
(no correction)

LoW Code:
Chapter: 17: Construction and Demolition Wastes (including excavated soil from contaminated sites)
Entry: 17 05 04 (Soil and stones other than those mentioned in 17 05 03)

Hazard properties

None identified

Determinands

Moisture content: 16% No Moisture Correction applied (MC)

#		Determinand			CLP Note	User entered data	Conv. Factor	Compound conc.	Classification value	MC Applied	Conc. Not Used
		CLP index number	EC Number	CAS Number							
1		cyanides { salts of hydrogen cyanide with the exception of complex cyanides such as ferrocyanides, ferricyanides and mercuric oxycyanide and those specified elsewhere in this Annex }				<0.5 mg/kg	1.884	<0.942 mg/kg	<0.0000942 %		<**LOD**
		006-007-00-5									
								Total:	0.00009 %		

Key

	User supplied data
	Determinand values ignored for classification, see column 'Conc. Not Used' for reason
	Determinand defined or amended by HazWasteOnline (see Appendix A)
	Speciated Deteminand - Unless the Determinand is Note 1, the Conversion Factor is used to calculate the compound concentration
<LOD	Below limit of detection

Classification of sample: BH08b

Non Hazardous Waste
Classified as **17 05 04**
in the List of Waste

Sample details

Sample Name:
BH08b
Sample Depth:
2.40 m
Moisture content:
18%
(no correction)

LoW Code:
Chapter: 17: Construction and Demolition Wastes (including excavated soil from contaminated sites)
Entry: 17 05 04 (Soil and stones other than those mentioned in 17 05 03)

Hazard properties

None identified

Determinands

Moisture content: 18% No Moisture Correction applied (MC)

#	Determinand	CLP index number	EC Number	CAS Number	CLP Note	User entered data	Conv. Factor	Compound conc.	Classification value	MC Applied	Conc. Not Used
1	antimony { antimony trioxide }	051-005-00-X	215-175-0	1309-64-4		<2 mg/kg	1.197	<2.394 mg/kg	<0.000239 %		<**LOD**
2	arsenic { arsenic trioxide }	033-003-00-0	215-481-4	1327-53-3		19 mg/kg	1.32	25.086 mg/kg	0.00251 %		
3	boron { diboron trioxide; boric oxide }	005-008-00-8	215-125-8	1303-86-2		1.7 mg/kg	3.22	5.474 mg/kg	0.000547 %		
4	cadmium { cadmium oxide }	048-002-00-0	215-146-2	1306-19-0		2.4 mg/kg	1.142	2.742 mg/kg	0.000274 %		
5	chromium in chromium(III) compounds { chromium(III) oxide }		215-160-9	1308-38-9		17 mg/kg	1.462	24.846 mg/kg	0.00248 %		
6	chromium in chromium(VI) compounds { chromium(VI) oxide }	024-001-00-0	215-607-8	1333-82-0		<0.5 mg/kg	1.923	<0.962 mg/kg	<0.0000962 %		<**LOD**
7	copper { dicopper oxide; copper (I) oxide }	029-002-00-X	215-270-7	1317-39-1		30 mg/kg	1.126	33.777 mg/kg	0.00338 %		
8	lead { lead chromate }	082-004-00-2	231-846-0	7758-97-6	1	36 mg/kg	1.56	56.153 mg/kg	0.0036 %		
9	mercury { mercury dichloride }	080-010-00-X	231-299-8	7487-94-7		0.11 mg/kg	1.353	0.149 mg/kg	0.0000149 %		
10	molybdenum { molybdenum(VI) oxide }	042-001-00-9	215-204-7	1313-27-5		3.3 mg/kg	1.5	4.951 mg/kg	0.000495 %		
11	nickel { nickel chromate }	028-035-00-7	238-766-5	14721-18-7		48 mg/kg	2.976	142.861 mg/kg	0.0143 %		
12	selenium { selenium compounds with the exception of cadmium sulphoselenide and those specified elsewhere in this Annex }	034-002-00-8				0.58 mg/kg	2.554	1.481 mg/kg	0.000148 %		
13	zinc { zinc chromate }	024-007-00-3				74 mg/kg	2.774	205.287 mg/kg	0.0205 %		
14	TPH (C6 to C40) petroleum group			TPH		<10 mg/kg		<10 mg/kg	<0.001 %		<**LOD**

#		Determinand	CLP index number	EC Number	CAS Number	CLP Note	User entered data		Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
15		tert-butyl methyl ether; MTBE; 2-methoxy-2-methylpropane	603-181-00-X	216-653-1	1634-04-4		<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
16		benzene	601-020-00-8	200-753-7	71-43-2		<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
17		toluene	601-021-00-3	203-625-9	108-88-3		<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
18		ethylbenzene	601-023-00-4	202-849-4	100-41-4		<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
19		xylene	601-022-00-9	202-422-2 [1] 203-396-5 [2] 203-576-3 [3] 215-535-7 [4]	95-47-6 [1] 106-42-3 [2] 108-38-3 [3] 1330-20-7 [4]		<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
20		cyanides { salts of hydrogen cyanide with the exception of complex cyanides such as ferrocyanides, ferricyanides and mercuric oxycyanide and those specified elsewhere in this Annex }	006-007-00-5				<0.5	mg/kg	1.884	<0.942	mg/kg	<0.0000942 %		<LOD
21		pH			PH		7.9	pH		7.9	pH	7.9 pH		
22		naphthalene	601-052-00-2	202-049-5	91-20-3		<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
23		acenaphthylene		205-917-1	208-96-8		<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
24		acenaphthene		201-469-6	83-32-9		<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
25		fluorene		201-695-5	86-73-7		<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
26		phenanthrene		201-581-5	85-01-8		0.13	mg/kg		0.13	mg/kg	0.000013 %		
27		anthracene		204-371-1	120-12-7		<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
28		fluoranthene		205-912-4	206-44-0		0.12	mg/kg		0.12	mg/kg	0.000012 %		
29		pyrene		204-927-3	129-00-0		0.12	mg/kg		0.12	mg/kg	0.000012 %		
30		benzo[a]anthracene	601-033-00-9	200-280-6	56-55-3		<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
31		chrysene	601-048-00-0	205-923-4	218-01-9		<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
32		benzo[b]fluoranthene	601-034-00-4	205-911-9	205-99-2		<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
33		benzo[k]fluoranthene	601-036-00-5	205-916-6	207-08-9		<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
34		benzo[a]pyrene; benzo[def]chrysene	601-032-00-3	200-028-5	50-32-8		<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
35		indeno[123-cd]pyrene		205-893-2	193-39-5		<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
36		dibenz[a,h]anthracene	601-041-00-2	200-181-8	53-70-3		<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
37		benzo[ghi]perylene		205-883-8	191-24-2		<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
38		phenol	604-001-00-2	203-632-7	108-95-2		<0.3	mg/kg		<0.3	mg/kg	<0.00003 %		<LOD
39		polychlorobiphenyls; PCB	602-039-00-4	215-648-1	1336-36-3		<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
											Total:	0.05 %		

Key

	User supplied data
	Determinand values ignored for classification, see column 'Conc. Not Used' for reason
	Determinand defined or amended by HazWasteOnline (see Appendix A)
	Speciated Deteminand - Unless the Determinand is Note 1, the Conversion Factor is used to calculate the compound concentration
<LOD	Below limit of detection
CLP: Note 1	Only the metal concentration has been used for classification

Classification of sample: TP01

Non Hazardous Waste
Classified as **17 05 04**
in the List of Waste

Sample details

Sample Name:
TP01
Sample Depth:
1.50 m
Moisture content:
20%
(no correction)

LoW Code:
Chapter: 17: Construction and Demolition Wastes (including excavated soil from contaminated sites)
Entry: 17 05 04 (Soil and stones other than those mentioned in 17 05 03)

Hazard properties

None identified

Determinands

Moisture content: 20% No Moisture Correction applied (MC)

#	Determinand	CLP index number	EC Number	CAS Number	CLP Note	User entered data	Conv. Factor	Compound conc.	Classification value	MC Applied	Conc. Not Used
1	arsenic { arsenic trioxide }	033-003-00-0	215-481-4	1327-53-3		19 mg/kg	1.32	25.086 mg/kg	0.00251 %		
2	boron { diboron trioxide; boric oxide }	005-008-00-8	215-125-8	1303-86-2		3.9 mg/kg	3.22	12.558 mg/kg	0.00126 %		
3	cadmium { cadmium oxide }	048-002-00-0	215-146-2	1306-19-0		2.2 mg/kg	1.142	2.513 mg/kg	0.000251 %		
4	chromium in chromium(III) compounds { chromium(III) oxide }		215-160-9	1308-38-9		25 mg/kg	1.462	36.539 mg/kg	0.00365 %		
5	chromium in chromium(VI) compounds { chromium(VI) oxide }	024-001-00-0	215-607-8	1333-82-0		<0.5 mg/kg	1.923	<0.962 mg/kg	<0.0000962 %		<LOD
6	copper { dicopper oxide; copper (I) oxide }	029-002-00-X	215-270-7	1317-39-1		36 mg/kg	1.126	40.532 mg/kg	0.00405 %		
7	lead { lead chromate }	082-004-00-2	231-846-0	7758-97-6	1	90 mg/kg	1.56	140.383 mg/kg	0.009 %		
8	mercury { mercury dichloride }	080-010-00-X	231-299-8	7487-94-7		0.28 mg/kg	1.353	0.379 mg/kg	0.0000379 %		
9	nickel { nickel chromate }	028-035-00-7	238-766-5	14721-18-7		47 mg/kg	2.976	139.884 mg/kg	0.014 %		
10	selenium { selenium compounds with the exception of cadmium sulphoselenide and those specified elsewhere in this Annex }	034-002-00-8				1.1 mg/kg	2.554	2.809 mg/kg	0.000281 %		
11	zinc { zinc chromate }	024-007-00-3				110 mg/kg	2.774	305.156 mg/kg	0.0305 %		
12	TPH (C6 to C40) petroleum group			TPH		<10 mg/kg		<10 mg/kg	<0.001 %		<LOD
13	tert-butyl methyl ether; MTBE; 2-methoxy-2-methylpropane	603-181-00-X	216-653-1	1634-04-4		<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD

#		Determinand			CLP Note	User entered data		Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
		CLP index number	EC Number	CAS Number									
14		benzene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
		601-020-00-8	200-753-7	71-43-2									
15		toluene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
		601-021-00-3	203-625-9	108-88-3									
16		ethylbenzene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
		601-023-00-4	202-849-4	100-41-4									
17		xylene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
		601-022-00-9	202-422-2 [1] 203-396-5 [2] 203-576-3 [3] 215-535-7 [4]	95-47-6 [1] 106-42-3 [2] 108-38-3 [3] 1330-20-7 [4]									
18		cyanides { salts of hydrogen cyanide with the exception of complex cyanides such as ferrocyanides, ferricyanides and mercuric oxycyanide and those specified elsewhere in this Annex }				<0.5	mg/kg	1.884	<0.942	mg/kg	<0.0000942 %		<LOD
		006-007-00-5											
19		pH				7.7	pH		7.7	pH	7.7 pH		
				PH									
20		naphthalene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
		601-052-00-2	202-049-5	91-20-3									
21		acenaphthylene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
			205-917-1	208-96-8									
22		acenaphthene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
			201-469-6	83-32-9									
23		fluorene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
			201-695-5	86-73-7									
24		phenanthrene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
			201-581-5	85-01-8									
25		anthracene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
			204-371-1	120-12-7									
26		fluoranthene				0.29	mg/kg		0.29	mg/kg	0.000029 %		
			205-912-4	206-44-0									
27		pyrene				0.32	mg/kg		0.32	mg/kg	0.000032 %		
			204-927-3	129-00-0									
28		benzo[a]anthracene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
		601-033-00-9	200-280-6	56-55-3									
29		chrysene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
		601-048-00-0	205-923-4	218-01-9									
30		benzo[b]fluoranthene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
		601-034-00-4	205-911-9	205-99-2									
31		benzo[k]fluoranthene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
		601-036-00-5	205-916-6	207-08-9									
32		benzo[a]pyrene; benzo[def]chrysene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
		601-032-00-3	200-028-5	50-32-8									
33		indeno[123-cd]pyrene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
			205-893-2	193-39-5									
34		dibenz[a,h]anthracene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
		601-041-00-2	200-181-8	53-70-3									
35		benzo[ghi]perylene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
			205-883-8	191-24-2									
36		phenol				<0.3	mg/kg		<0.3	mg/kg	<0.00003 %		<LOD
		604-001-00-2	203-632-7	108-95-2									
37		trichloroethylene; trichloroethene				<1	mg/kg		<1	mg/kg	<0.0001 %		<LOD
		602-027-00-9	201-167-4	79-01-6									
38		vinyl chloride; chloroethylene				<1	mg/kg		<1	mg/kg	<0.0001 %		<LOD
		602-023-00-7	200-831-0	75-01-4									
39		hexachlorobenzene				<0.5	mg/kg		<0.5	mg/kg	<0.00005 %		<LOD
		602-065-00-6	204-273-9	118-74-1									
										Total:	0.0673 %		

Key

	User supplied data
	Determinand values ignored for classification, see column 'Conc. Not Used' for reason
	Determinand defined or amended by HazWasteOnline (see Appendix A)
	Speciated Deteminand - Unless the Determinand is Note 1, the Conversion Factor is used to calculate the compound concentration
<LOD	Below limit of detection
CLP: Note 1	Only the metal concentration has been used for classification

Classification of sample: TP02

Non Hazardous Waste
Classified as **17 05 04**
in the List of Waste

Sample details

Sample Name:
TP02
Sample Depth:
1.50 m
Moisture content:
9.4%
(no correction)

LoW Code:
Chapter: 17: Construction and Demolition Wastes (including excavated soil from contaminated sites)
Entry: 17 05 04 (Soil and stones other than those mentioned in 17 05 03)

Hazard properties

None identified

Determinands

Moisture content: 9.4% No Moisture Correction applied (MC)

#	Determinand	CLP index number	EC Number	CAS Number	CLP Note	User entered data	Conv. Factor	Compound conc.	Classification value	MC Applied	Conc. Not Used
1	arsenic { arsenic trioxide }	033-003-00-0	215-481-4	1327-53-3		24 mg/kg	1.32	31.688 mg/kg	0.00317 %		
2	boron { diboron trioxide; boric oxide }	005-008-00-8	215-125-8	1303-86-2		1.2 mg/kg	3.22	3.864 mg/kg	0.000386 %		
3	cadmium { cadmium oxide }	048-002-00-0	215-146-2	1306-19-0		2.2 mg/kg	1.142	2.513 mg/kg	0.000251 %		
4	chromium in chromium(III) compounds { chromium(III) oxide }		215-160-9	1308-38-9		20 mg/kg	1.462	29.231 mg/kg	0.00292 %		
5	chromium in chromium(VI) compounds { chromium(VI) oxide }	024-001-00-0	215-607-8	1333-82-0		<0.5 mg/kg	1.923	<0.962 mg/kg	<0.0000962 %		**<LOD**
6	copper { dicopper oxide; copper (I) oxide }	029-002-00-X	215-270-7	1317-39-1		37 mg/kg	1.126	41.658 mg/kg	0.00417 %		
7	lead { lead chromate }	082-004-00-2	231-846-0	7758-97-6	1	77 mg/kg	1.56	120.106 mg/kg	0.0077 %		
8	mercury { mercury dichloride }	080-010-00-X	231-299-8	7487-94-7		0.27 mg/kg	1.353	0.365 mg/kg	0.0000365 %		
9	nickel { nickel chromate }	028-035-00-7	238-766-5	14721-18-7		48 mg/kg	2.976	142.861 mg/kg	0.0143 %		
10	selenium { selenium compounds with the exception of cadmium sulphoselenide and those specified elsewhere in this Annex }	034-002-00-8				1.8 mg/kg	2.554	4.596 mg/kg	0.00046 %		
11	zinc { zinc chromate }	024-007-00-3				100 mg/kg	2.774	277.415 mg/kg	0.0277 %		
12	TPH (C6 to C40) petroleum group			TPH		310 mg/kg		310 mg/kg	0.031 %		
13	tert-butyl methyl ether; MTBE; 2-methoxy-2-methylpropane	603-181-00-X	216-653-1	1634-04-4		<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		**<LOD**

#		Determinand			CLP Note	User entered data		Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
		CLP index number	EC Number	CAS Number									
14		benzene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
		601-020-00-8	200-753-7	71-43-2									
15		toluene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
		601-021-00-3	203-625-9	108-88-3									
16		ethylbenzene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
		601-023-00-4	202-849-4	100-41-4									
17		xylene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
		601-022-00-9	202-422-2 [1] 203-396-5 [2] 203-576-3 [3] 215-535-7 [4]	95-47-6 [1] 106-42-3 [2] 108-38-3 [3] 1330-20-7 [4]									
18		cyanides { salts of hydrogen cyanide with the exception of complex cyanides such as ferrocyanides, ferricyanides and mercuric oxycyanide and those specified elsewhere in this Annex }				<0.5	mg/kg	1.884	<0.942	mg/kg	<0.0000942 %		<LOD
		006-007-00-5											
19		pH				8.3	pH		8.3	pH	8.3 pH		
				PH									
20		naphthalene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
		601-052-00-2	202-049-5	91-20-3									
21		acenaphthylene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
			205-917-1	208-96-8									
22		acenaphthene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
			201-469-6	83-32-9									
23		fluorene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
			201-695-5	86-73-7									
24		phenanthrene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
			201-581-5	85-01-8									
25		anthracene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
			204-371-1	120-12-7									
26		fluoranthene				0.43	mg/kg		0.43	mg/kg	0.000043 %		
			205-912-4	206-44-0									
27		pyrene				0.41	mg/kg		0.41	mg/kg	0.000041 %		
			204-927-3	129-00-0									
28		benzo[a]anthracene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
		601-033-00-9	200-280-6	56-55-3									
29		chrysene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
		601-048-00-0	205-923-4	218-01-9									
30		benzo[b]fluoranthene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
		601-034-00-4	205-911-9	205-99-2									
31		benzo[k]fluoranthene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
		601-036-00-5	205-916-6	207-08-9									
32		benzo[a]pyrene; benzo[def]chrysene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
		601-032-00-3	200-028-5	50-32-8									
33		indeno[123-cd]pyrene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
			205-893-2	193-39-5									
34		dibenz[a,h]anthracene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
		601-041-00-2	200-181-8	53-70-3									
35		benzo[ghi]perylene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
			205-883-8	191-24-2									
36		phenol				<0.3	mg/kg		<0.3	mg/kg	<0.00003 %		<LOD
		604-001-00-2	203-632-7	108-95-2									
37		trichloroethylene; trichloroethene				<1	mg/kg		<1	mg/kg	<0.0001 %		<LOD
		602-027-00-9	201-167-4	79-01-6									
38		vinyl chloride; chloroethylene				<1	mg/kg		<1	mg/kg	<0.0001 %		<LOD
		602-023-00-7	200-831-0	75-01-4									
39		hexachlorobenzene				<0.5	mg/kg		<0.5	mg/kg	<0.00005 %		<LOD
		602-065-00-6	204-273-9	118-74-1									
										Total:	0.0929 %		

Key	
	User supplied data
	Determinand values ignored for classification, see column 'Conc. Not Used' for reason
	Determinand defined or amended by HazWasteOnline (see Appendix A)
	Speciated Deteminand - Unless the Determinand is Note 1, the Conversion Factor is used to calculate the compound concentration
<LOD	Below limit of detection
CLP: Note 1	Only the metal concentration has been used for classification

Supplementary Hazardous Property Information

HP 3(i): Flammable "flammable liquid waste: liquid waste having a flash point below 60°C or waste gas oil, diesel and light heating oils having a flash point > 55°C and <= 75°C"

Force this Hazardous property to non hazardous because Not considered flammable per WFD HP3 definition 6 indents testing. Annex III of the Waste Framework Directive (WFD) Council Directive 2008/98/EC

Hazard Statements hit:

Flam. Liq. 3; H226 "Flammable liquid and vapour."

Because of determinand:

TPH (C6 to C40) petroleum group: (conc.: 0.031%)

Classification of sample: TP03

Non Hazardous Waste
Classified as **17 05 04**
in the List of Waste

Sample details

Sample Name:
TP03
Sample Depth:
0.50 m
Moisture content:
3.6%
(no correction)

LoW Code:
Chapter: 17: Construction and Demolition Wastes (including excavated soil from contaminated sites)
Entry: 17 05 04 (Soil and stones other than those mentioned in 17 05 03)

Hazard properties

None identified

Determinands

Moisture content: 3.6% No Moisture Correction applied (MC)

#	Determinand	CLP Note	User entered data	Conv. Factor	Compound conc.	Classification value	MC Applied	Conc. Not Used
	CLP index number / EC Number / CAS Number							
1	arsenic { arsenic trioxide }		26 mg/kg	1.32	34.328 mg/kg	0.00343 %		
	033-003-00-0 / 215-481-4 / 1327-53-3							
2	boron { diboron trioxide; boric oxide }		0.49 mg/kg	3.22	1.578 mg/kg	0.000158 %		
	005-008-00-8 / 215-125-8 / 1303-86-2							
3	cadmium { cadmium oxide }		2.2 mg/kg	1.142	2.513 mg/kg	0.000251 %		
	048-002-00-0 / 215-146-2 / 1306-19-0							
4	chromium in chromium(III) compounds { chromium(III) oxide }		16 mg/kg	1.462	23.385 mg/kg	0.00234 %		
	/ 215-160-9 / 1308-38-9							
5	chromium in chromium(VI) compounds { chromium(VI) oxide }		<0.5 mg/kg	1.923	<0.962 mg/kg	<0.0000962 %		<LOD
	024-001-00-0 / 215-607-8 / 1333-82-0							
6	copper { dicopper oxide; copper (I) oxide }		28 mg/kg	1.126	31.525 mg/kg	0.00315 %		
	029-002-00-X / 215-270-7 / 1317-39-1							
7	lead { lead chromate }	1	34 mg/kg	1.56	53.034 mg/kg	0.0034 %		
	082-004-00-2 / 231-846-0 / 7758-97-6							
8	mercury { mercury dichloride }		<0.1 mg/kg	1.353	<0.135 mg/kg	<0.0000135 %		<LOD
	080-010-00-X / 231-299-8 / 7487-94-7							
9	nickel { nickel chromate }		39 mg/kg	2.976	116.074 mg/kg	0.0116 %		
	028-035-00-7 / 238-766-5 / 14721-18-7							
10	selenium { selenium compounds with the exception of cadmium sulphoselenide and those specified elsewhere in this Annex }		1 mg/kg	2.554	2.554 mg/kg	0.000255 %		
	034-002-00-8 / /							
11	zinc { zinc chromate }		67 mg/kg	2.774	185.868 mg/kg	0.0186 %		
	024-007-00-3 / /							
12	TPH (C6 to C40) petroleum group		<10 mg/kg		<10 mg/kg	<0.001 %		<LOD
	/ / TPH							
13	tert-butyl methyl ether; MTBE; 2-methoxy-2-methylpropane		<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
	603-181-00-X / 216-653-1 / 1634-04-4							

#		Determinand			CLP Note	User entered data		Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
		CLP index number	EC Number	CAS Number									
14		benzene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
		601-020-00-8	200-753-7	71-43-2									
15		toluene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
		601-021-00-3	203-625-9	108-88-3									
16		ethylbenzene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
		601-023-00-4	202-849-4	100-41-4									
17		xylene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
		601-022-00-9	202-422-2 [1] 203-396-5 [2] 203-576-3 [3] 215-535-7 [4]	95-47-6 [1] 106-42-3 [2] 108-38-3 [3] 1330-20-7 [4]									
18		cyanides { salts of hydrogen cyanide with the exception of complex cyanides such as ferrocyanides, ferricyanides and mercuric oxycyanide and those specified elsewhere in this Annex }				<0.5	mg/kg	1.884	<0.942	mg/kg	<0.0000942 %		<LOD
		006-007-00-5											
19		pH				8.5	pH		8.5	pH	8.5 pH		
				PH									
20		naphthalene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
		601-052-00-2	202-049-5	91-20-3									
21		acenaphthylene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
			205-917-1	208-96-8									
22		acenaphthene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
			201-469-6	83-32-9									
23		fluorene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
			201-695-5	86-73-7									
24		phenanthrene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
			201-581-5	85-01-8									
25		anthracene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
			204-371-1	120-12-7									
26		fluoranthene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
			205-912-4	206-44-0									
27		pyrene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
			204-927-3	129-00-0									
28		benzo[a]anthracene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
		601-033-00-9	200-280-6	56-55-3									
29		chrysene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
		601-048-00-0	205-923-4	218-01-9									
30		benzo[b]fluoranthene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
		601-034-00-4	205-911-9	205-99-2									
31		benzo[k]fluoranthene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
		601-036-00-5	205-916-6	207-08-9									
32		benzo[a]pyrene; benzo[def]chrysene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
		601-032-00-3	200-028-5	50-32-8									
33		indeno[123-cd]pyrene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
			205-893-2	193-39-5									
34		dibenz[a,h]anthracene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
		601-041-00-2	200-181-8	53-70-3									
35		benzo[ghi]perylene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
			205-883-8	191-24-2									
36		phenol				<0.3	mg/kg		<0.3	mg/kg	<0.00003 %		<LOD
		604-001-00-2	203-632-7	108-95-2									
37		trichloroethylene; trichloroethene				<1	mg/kg		<1	mg/kg	<0.0001 %		<LOD
		602-027-00-9	201-167-4	79-01-6									
38		vinyl chloride; chloroethylene				<1	mg/kg		<1	mg/kg	<0.0001 %		<LOD
		602-023-00-7	200-831-0	75-01-4									
39		hexachlorobenzene				<0.5	mg/kg		<0.5	mg/kg	<0.00005 %		<LOD
		602-065-00-6	204-273-9	118-74-1									
										Total:	0.0449 %		

Key	
	User supplied data
	Determinand values ignored for classification, see column 'Conc. Not Used' for reason
	Determinand defined or amended by HazWasteOnline (see Appendix A)
	Speciated Deteminand - Unless the Determinand is Note 1, the Conversion Factor is used to calculate the compound concentration
<LOD	Below limit of detection
CLP: Note 1	Only the metal concentration has been used for classification

Classification of sample: TP03[1]

Non Hazardous Waste
Classified as **17 05 04**
in the List of Waste

Sample details

Sample Name:
TP03[1]
Sample Depth:
1.50 m
Moisture content:
10%
(no correction)

LoW Code:
Chapter: 17: Construction and Demolition Wastes (including excavated soil from contaminated sites)
Entry: 17 05 04 (Soil and stones other than those mentioned in 17 05 03)

Hazard properties

None identified

Determinands

Moisture content: 10% No Moisture Correction applied (MC)

#		Determinand	CLP index number	EC Number	CAS Number	CLP Note	User entered data		Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
1		arsenic { arsenic trioxide }	033-003-00-0	215-481-4	1327-53-3		24	mg/kg	1.32	31.688	mg/kg	0.00317 %		
2		boron { diboron trioxide; boric oxide }	005-008-00-8	215-125-8	1303-86-2		0.52	mg/kg	3.22	1.674	mg/kg	0.000167 %		
3		cadmium { cadmium oxide }	048-002-00-0	215-146-2	1306-19-0		1.6	mg/kg	1.142	1.828	mg/kg	0.000183 %		
4		chromium in chromium(III) compounds { chromium(III) oxide }		215-160-9	1308-38-9		13	mg/kg	1.462	19	mg/kg	0.0019 %		
5		chromium in chromium(VI) compounds { chromium(VI) oxide }	024-001-00-0	215-607-8	1333-82-0		<0.5	mg/kg	1.923	<0.962	mg/kg	<0.0000962 %		<**LOD**
6		copper { dicopper oxide; copper (I) oxide }	029-002-00-X	215-270-7	1317-39-1		25	mg/kg	1.126	28.147	mg/kg	0.00281 %		
7		lead { lead chromate }	082-004-00-2	231-846-0	7758-97-6	1	18	mg/kg	1.56	28.077	mg/kg	0.0018 %		
8		mercury { mercury dichloride }	080-010-00-X	231-299-8	7487-94-7		<0.1	mg/kg	1.353	<0.135	mg/kg	<0.0000135 %		<**LOD**
9		nickel { nickel chromate }	028-035-00-7	238-766-5	14721-18-7		42	mg/kg	2.976	125.003	mg/kg	0.0125 %		
10		selenium { selenium compounds with the exception of cadmium sulphoselenide and those specified elsewhere in this Annex }	034-002-00-8				0.81	mg/kg	2.554	2.068	mg/kg	0.000207 %		
11		zinc { zinc chromate }	024-007-00-3				66	mg/kg	2.774	183.094	mg/kg	0.0183 %		
12		TPH (C6 to C40) petroleum group			TPH		<10	mg/kg		<10	mg/kg	<0.001 %		<**LOD**
13		benzene	601-020-00-8	200-753-7	71-43-2		<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<**LOD**
14		toluene	601-021-00-3	203-625-9	108-88-3		<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<**LOD**

#		Determinand			CLP Note	User entered data		Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
		CLP index number	EC Number	CAS Number									
15		ethylbenzene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
		601-023-00-4	202-849-4	100-41-4									
16		xylene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
		601-022-00-9	202-422-2 [1] 203-396-5 [2] 203-576-3 [3] 215-535-7 [4]	95-47-6 [1] 106-42-3 [2] 108-38-3 [3] 1330-20-7 [4]									
17		cyanides { salts of hydrogen cyanide with the exception of complex cyanides such as ferrocyanides, ferricyanides and mercuric oxycyanide and those specified elsewhere in this Annex }				<0.5	mg/kg	1.884	<0.942	mg/kg	<0.0000942 %		<LOD
		006-007-00-5											
18		pH				8.8	pH		8.8	pH	8.8 pH		
				PH									
19		naphthalene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
		601-052-00-2	202-049-5	91-20-3									
20		acenaphthylene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
			205-917-1	208-96-8									
21		acenaphthene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
			201-469-6	83-32-9									
22		fluorene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
			201-695-5	86-73-7									
23		phenanthrene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
			201-581-5	85-01-8									
24		anthracene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
			204-371-1	120-12-7									
25		fluoranthene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
			205-912-4	206-44-0									
26		pyrene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
			204-927-3	129-00-0									
27		benzo[a]anthracene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
		601-033-00-9	200-280-6	56-55-3									
28		chrysene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
		601-048-00-0	205-923-4	218-01-9									
29		benzo[b]fluoranthene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
		601-034-00-4	205-911-9	205-99-2									
30		benzo[k]fluoranthene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
		601-036-00-5	205-916-6	207-08-9									
31		benzo[a]pyrene; benzo[def]chrysene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
		601-032-00-3	200-028-5	50-32-8									
32		indeno[123-cd]pyrene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
			205-893-2	193-39-5									
33		dibenz[a,h]anthracene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
		601-041-00-2	200-181-8	53-70-3									
34		benzo[ghi]perylene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
			205-883-8	191-24-2									
35		phenol				<0.3	mg/kg		<0.3	mg/kg	<0.00003 %		<LOD
		604-001-00-2	203-632-7	108-95-2									
										Total:	0.0425 %		

Key

	User supplied data
	Determinand values ignored for classification, see column 'Conc. Not Used' for reason
	Determinand defined or amended by HazWasteOnline (see Appendix A)
	Speciated Deteminand - Unless the Determinand is Note 1, the Conversion Factor is used to calculate the compound concentration
<LOD	Below limit of detection
CLP: Note 1	Only the metal concentration has been used for classification

Classification of sample: TP04

Non Hazardous Waste
Classified as **17 05 04**
in the List of Waste

Sample details

Sample Name:
TP04
Sample Depth:
1.50 m
Moisture content:
6.1%
(no correction)

LoW Code:
Chapter: 17: Construction and Demolition Wastes (including excavated soil from contaminated sites)
Entry: 17 05 04 (Soil and stones other than those mentioned in 17 05 03)

Hazard properties

None identified

Determinands

Moisture content: 6.1% No Moisture Correction applied (MC)

#	Determinand	CLP index number	EC Number	CAS Number	CLP Note	User entered data	Conv. Factor	Compound conc.	Classification value	MC Applied	Conc. Not Used
1	arsenic { arsenic trioxide }	033-003-00-0	215-481-4	1327-53-3		25 mg/kg	1.32	33.008 mg/kg	0.0033 %		
2	boron { diboron trioxide; boric oxide }	005-008-00-8	215-125-8	1303-86-2		0.61 mg/kg	3.22	1.964 mg/kg	0.000196 %		
3	cadmium { cadmium oxide }	048-002-00-0	215-146-2	1306-19-0		2 mg/kg	1.142	2.285 mg/kg	0.000228 %		
4	chromium in chromium(III) compounds { chromium(III) oxide }		215-160-9	1308-38-9		18 mg/kg	1.462	26.308 mg/kg	0.00263 %		
5	chromium in chromium(VI) compounds { chromium(VI) oxide }	024-001-00-0	215-607-8	1333-82-0		<0.5 mg/kg	1.923	<0.962 mg/kg	<0.0000962 %		**<LOD**
6	copper { dicopper oxide; copper (I) oxide }	029-002-00-X	215-270-7	1317-39-1		43 mg/kg	1.126	48.413 mg/kg	0.00484 %		
7	lead { lead chromate }	082-004-00-2	231-846-0	7758-97-6	1	83 mg/kg	1.56	129.465 mg/kg	0.0083 %		
8	mercury { mercury dichloride }	080-010-00-X	231-299-8	7487-94-7		0.12 mg/kg	1.353	0.162 mg/kg	0.0000162 %		
9	nickel { nickel chromate }	028-035-00-7	238-766-5	14721-18-7		48 mg/kg	2.976	142.861 mg/kg	0.0143 %		
10	selenium { selenium compounds with the exception of cadmium sulphoselenide and those specified elsewhere in this Annex }	034-002-00-8				1 mg/kg	2.554	2.554 mg/kg	0.000255 %		
11	zinc { zinc chromate }	024-007-00-3				120 mg/kg	2.774	332.898 mg/kg	0.0333 %		
12	TPH (C6 to C40) petroleum group			TPH		310 mg/kg		310 mg/kg	0.031 %		
13	tert-butyl methyl ether; MTBE; 2-methoxy-2-methylpropane	603-181-00-X	216-653-1	1634-04-4		<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		**<LOD**

#		Determinand			CLP Note	User entered data		Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
		CLP index number	EC Number	CAS Number									
14		benzene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
		601-020-00-8	200-753-7	71-43-2									
15		toluene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
		601-021-00-3	203-625-9	108-88-3									
16		ethylbenzene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
		601-023-00-4	202-849-4	100-41-4									
17		xylene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
		601-022-00-9	202-422-2 [1] 203-396-5 [2] 203-576-3 [3] 215-535-7 [4]	95-47-6 [1] 106-42-3 [2] 108-38-3 [3] 1330-20-7 [4]									
18		cyanides { salts of hydrogen cyanide with the exception of complex cyanides such as ferrocyanides, ferricyanides and mercuric oxycyanide and those specified elsewhere in this Annex }				<0.5	mg/kg	1.884	<0.942	mg/kg	<0.0000942 %		<LOD
		006-007-00-5											
19		pH				8.6	pH		8.6	pH	8.6 pH		
				PH									
20		naphthalene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
		601-052-00-2	202-049-5	91-20-3									
21		acenaphthylene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
			205-917-1	208-96-8									
22		acenaphthene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
			201-469-6	83-32-9									
23		fluorene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
			201-695-5	86-73-7									
24		phenanthrene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
			201-581-5	85-01-8									
25		anthracene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
			204-371-1	120-12-7									
26		fluoranthene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
			205-912-4	206-44-0									
27		pyrene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
			204-927-3	129-00-0									
28		benzo[a]anthracene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
		601-033-00-9	200-280-6	56-55-3									
29		chrysene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
		601-048-00-0	205-923-4	218-01-9									
30		benzo[b]fluoranthene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
		601-034-00-4	205-911-9	205-99-2									
31		benzo[k]fluoranthene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
		601-036-00-5	205-916-6	207-08-9									
32		benzo[a]pyrene; benzo[def]chrysene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
		601-032-00-3	200-028-5	50-32-8									
33		indeno[123-cd]pyrene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
			205-893-2	193-39-5									
34		dibenz[a,h]anthracene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
		601-041-00-2	200-181-8	53-70-3									
35		benzo[ghi]perylene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
			205-883-8	191-24-2									
36		phenol				<0.3	mg/kg		<0.3	mg/kg	<0.00003 %		<LOD
		604-001-00-2	203-632-7	108-95-2									
37		trichloroethylene; trichloroethene				<1	mg/kg		<1	mg/kg	<0.0001 %		<LOD
		602-027-00-9	201-167-4	79-01-6									
38		vinyl chloride; chloroethylene				<1	mg/kg		<1	mg/kg	<0.0001 %		<LOD
		602-023-00-7	200-831-0	75-01-4									
39		hexachlorobenzene				<0.5	mg/kg		<0.5	mg/kg	<0.00005 %		<LOD
		602-065-00-6	204-273-9	118-74-1									
										Total:	0.099 %		

Key	
	User supplied data
	Determinand values ignored for classification, see column 'Conc. Not Used' for reason
	Determinand defined or amended by HazWasteOnline (see Appendix A)
	Speciated Deteminand - Unless the Determinand is Note 1, the Conversion Factor is used to calculate the compound concentration
<LOD	Below limit of detection
CLP: Note 1	Only the metal concentration has been used for classification

Supplementary Hazardous Property Information

HP 3(i): Flammable "flammable liquid waste: liquid waste having a flash point below 60°C or waste gas oil, diesel and light heating oils having a flash point > 55°C and <= 75°C"

Force this Hazardous property to non hazardous because Not considered flammable per WFD HP3 definition 6 indents testing. Annex III of the Waste Framework Directive (WFD) Council Directive 2008/98/EC

Hazard Statements hit:

Flam. Liq. 3; H226 "Flammable liquid and vapour."

Because of determinand:

TPH (C6 to C40) petroleum group: (conc.: 0.031%)

Appendix A: Classifier defined and non CLP determinands

- **chromium(III) oxide** (EC Number: 215-160-9, CAS Number: 1308-38-9)

Conversion factor: 1.462
Description/Comments: Data from C&L Inventory Database
Data source: http://echa.europa.eu/web/guest/information-on-chemicals/cl-inventory-database
Data source date: 17 Jul 2015
Hazard Statements: Aquatic Chronic 1 H410 , Aquatic Acute 1 H400 , Repr. 1B H360FD , Skin Sens. 1 H317 , Resp. Sens. 1 H334 , Skin Irrit. 2 H315 , STOT SE 3 H335 , Eye Irrit. 2 H319 , Acute Tox. 4 H302 , Acute Tox. 4 H332

- **TPH (C6 to C40) petroleum group** (CAS Number: TPH)

Description/Comments: Hazard statements taken from WM3 1st Edition 2015; Risk phrases: WM2 3rd Edition 2013
Data source: WM3 1st Edition 2015
Data source date: 25 May 2015
Hazard Statements: Aquatic Chronic 2 H411 , Repr. 2 H361d , Carc. 1B H350 , Muta. 1B H340 , STOT RE 2 H373 , Asp. Tox. 1 H304 , Flam. Liq. 3 H226

- **ethylbenzene** (EC Number: 202-849-4, CAS Number: 100-41-4)

CLP index number: 601-023-00-4
Description/Comments:
Data source: Commission Regulation (EU) No 605/2014 – 6th Adaptation to Technical Progress for Regulation (EC) No 1272/2008. (ATP6)
Additional Hazard Statement(s): Carc. 2 H351
Reason for additional Hazards Statement(s)/Risk Phrase(s):
03 Jun 2015 - Carc. 2 H351 hazard statement sourced from: IARC Group 2B (77) 2000

- **salts of hydrogen cyanide with the exception of complex cyanides such as ferrocyanides, ferricyanides and mercuric oxycyanide and those specified elsewhere in this Annex**

CLP index number: 006-007-00-5
Description/Comments: Conversion factor based on a worst case compound: sodium cyanide
Data source: Commission Regulation (EC) No 790/2009 - 1st Adaptation to Technical Progress for Regulation (EC) No 1272/2008. (ATP1)
Additional Hazard Statement(s): EUH032 >= 0.2 %
Reason for additional Hazards Statement(s)/Risk Phrase(s):
14 Dec 2015 - EUH032 >= 0.2 % hazard statement sourced from: WM3, Table C12.2

- **pH** (CAS Number: PH)

Description/Comments: Appendix C4
Data source: WM3 1st Edition 2015
Data source date: 25 May 2015
Hazard Statements: None.

- **acenaphthylene** (EC Number: 205-917-1, CAS Number: 208-96-8)

Description/Comments: Data from C&L Inventory Database
Data source: http://echa.europa.eu/web/guest/information-on-chemicals/cl-inventory-database
Data source date: 17 Jul 2015
Hazard Statements: Skin Irrit. 2 H315 , STOT SE 3 H335 , Eye Irrit. 2 H319 , Acute Tox. 1 H310 , Acute Tox. 1 H330 , Acute Tox. 4 H302

- **acenaphthene** (EC Number: 201-469-6, CAS Number: 83-32-9)

Description/Comments: Data from C&L Inventory Database
Data source: http://echa.europa.eu/web/guest/information-on-chemicals/cl-inventory-database
Data source date: 17 Jul 2015
Hazard Statements: Aquatic Chronic 2 H411 , Aquatic Chronic 1 H410 , Aquatic Acute 1 H400 , Skin Irrit. 2 H315 , STOT SE 3 H335 , Eye Irrit. 2 H319

- **fluorene** (EC Number: 201-695-5, CAS Number: 86-73-7)

Description/Comments: Data from C&L Inventory Database
Data source: http://echa.europa.eu/web/guest/information-on-chemicals/cl-inventory-database
Data source date: 06 Aug 2015
Hazard Statements: Aquatic Chronic 1 H410 , Aquatic Acute 1 H400

phenanthrene (EC Number: 201-581-5, CAS Number: 85-01-8)

Description/Comments: Data from C&L Inventory Database
Data source: http://echa.europa.eu/web/guest/information-on-chemicals/cl-inventory-database
Data source date: 06 Aug 2015
Hazard Statements: Skin Irrit. 2 H315 , Aquatic Chronic 1 H410 , Aquatic Acute 1 H400 , Skin Sens. 1 H317 , Carc. 2 H351 , STOT SE 3 H335 , Eye Irrit. 2 H319 , Acute Tox. 4 H302

anthracene (EC Number: 204-371-1, CAS Number: 120-12-7)

Description/Comments: Data from C&L Inventory Database
Data source: http://echa.europa.eu/web/guest/information-on-chemicals/cl-inventory-database
Data source date: 17 Jul 2015
Hazard Statements: Aquatic Chronic 1 H410 , Aquatic Acute 1 H400 , Skin Sens. 1 H317 , Skin Irrit. 2 H315 , STOT SE 3 H335 , Eye Irrit. 2 H319

fluoranthene (EC Number: 205-912-4, CAS Number: 206-44-0)

Description/Comments: Data from C&L Inventory Database
Data source: http://echa.europa.eu/web/guest/information-on-chemicals/cl-inventory-database
Data source date: 21 Aug 2015
Hazard Statements: Aquatic Chronic 1 H410 , Aquatic Acute 1 H400 , Acute Tox. 4 H302

pyrene (EC Number: 204-927-3, CAS Number: 129-00-0)

Description/Comments: Data from C&L Inventory Database; SDS Sigma Aldrich 2014
Data source: http://echa.europa.eu/web/guest/information-on-chemicals/cl-inventory-database
Data source date: 21 Aug 2015
Hazard Statements: Aquatic Chronic 1 H410 , Aquatic Acute 1 H400 , STOT SE 3 H335 , Eye Irrit. 2 H319 , Skin Irrit. 2 H315

indeno[123-cd]pyrene (EC Number: 205-893-2, CAS Number: 193-39-5)

Description/Comments: Data from C&L Inventory Database
Data source: http://echa.europa.eu/web/guest/information-on-chemicals/cl-inventory-database
Data source date: 06 Aug 2015
Hazard Statements: Carc. 2 H351

benzo[ghi]perylene (EC Number: 205-883-8, CAS Number: 191-24-2)

Description/Comments: Data from C&L Inventory Database; SDS Sigma Aldrich 28/02/2015
Data source: http://echa.europa.eu/web/guest/information-on-chemicals/cl-inventory-database
Data source date: 23 Jul 2015
Hazard Statements: Aquatic Chronic 1 H410 , Aquatic Acute 1 H400

polychlorobiphenyls; PCB (EC Number: 215-648-1, CAS Number: 1336-36-3)

CLP index number: 602-039-00-4
Description/Comments: Worst Case: IARC considers PCB Group 1; Carcinogenic to humans; POP specific threshold from ATP1 (Regulation 756/2010/EU) to POPs Regulation (Regulation 850/2004/EC). Where applicable, the calculation method laid down in European standards EN 12766-1 and EN 12766-2 shall be applied.
Data source: Regulation 1272/2008/EC - Classification, labelling and packaging of substances and mixtures. (CLP)
Additional Hazard Statement(s): Carc. 1A H350
Reason for additional Hazards Statement(s)/Risk Phrase(s):
29 Sep 2015 - Carc. 1A H350 hazard statement sourced from: IARC Group 1 (23, Sup 7, 100C) 2012

1,1-dichloroethane and 1,2-dichloroethane (combined) (EC Number: 203-458-1, 200-863-5, CAS Number: 107-06-2, 75-34-3)

Description/Comments: Combines the hazard statements and risk phrases for 1,1-dichloroethane and 1,2-dichloroethane
Data source: N/a
Data source date: 14 Oct 2016
Hazard Statements: Aquatic Chronic 3 H412 , Carc. 1B H350 , STOT SE 3 H335 , Eye Irrit. 2 H319 , Skin Irrit. 2 H315 , Acute Tox. 4 H302 , Flam. Liq. 2 H225

Appendix B: Rationale for selection of metal species

arsenic {arsenic trioxide}

Reasonable case CLP species based on hazard statements/molecular weight and most common (stable) oxide of arsenic. Industrial sources include: smelting; main precursor to other arsenic compounds (edit as required)

boron {diboron trioxide; boric oxide}

Reasonable case CLP species based on hazard statements/ molecular weight, physical form and low solubility. Industrial sources include: fluxing agent for glass/enamels; additive for fibre optics, borosilicate glass (edit as required)

cadmium {cadmium oxide}

Reasonable case CLP species based on hazard statements/molecular weight, very low solubility in water. Industrial sources include: electroplating baths, electrodes for storage batteries, catalysts, ceramic glazes, phosphors, pigments and nematocides. (edit as required) Worst case compounds in CLP: cadmium sulphate, chloride, fluoride & iodide not expected as either very soluble and/or compound's industrial usage not related to site history (edit as required)

chromium in chromium(III) compounds {chromium(III) oxide}

Reasonable case species based on hazard statements/molecular weight. Industrial sources include: tanning, pigment in paint, inks and glass (edit as required)

chromium in chromium(VI) compounds {chromium(VI) oxide}

Worst case CLP species based on hazard statements/molecular weight. Industrial sources include: production stainless steel, electroplating, wood preservation, anti-corrosion agents or coatings, pigments (edit as required)

copper {dicopper oxide; copper (I) oxide}

Reasonable case CLP species based on hazard statements/molecular weight and insolubility in water. Industrial sources include: oxidised copper metal, brake pads, pigments, antifouling paints, fungicide. (edit as required) Worse case copper sulphate is very soluble and likely to have been leached away if ever present and/or not enough soluble sulphate detected. (edit as required)

lead {lead chromate}

Worst case CLP species based on hazard statements/molecular weight (edit as required)

mercury {mercury dichloride}

Worst case CLP species based on hazard statements/molecular weight (edit as required)

nickel {nickel chromate}

Worst case CLP species based on hazard statements/molecular weight (edit as required)

selenium {selenium compounds with the exception of cadmium sulphoselenide and those specified elsewhere in this Annex}

Harmonised group entry used as most reasonable case. Pigment cadmium sulphoselenide not likely to be present in this soil. No evidence for the other CLP entries: sodium selenite, nickel II selenite and nickel selenide, to be present in this soil. (edit as required)

zinc {zinc chromate}

Worst case CLP species based on hazard statements/molecular weight (edit as required)

cyanides {salts of hydrogen cyanide with the exception of complex cyanides such as ferrocyanides, ferricyanides and mercuric oxycyanide and those specified elsewhere in this Annex}

Harmonised group entry used as most reasonable case as complex cyanides and those specified elsewhere in the annex are not likely to be present in this soil: [Note conversion factor based on a worst case compound: sodium cyanide] (edit as required)

antimony {antimony trioxide}

Worst case CLP species based on hazard statements/molecular weight and low solubility. Industrial sources include: flame retardants in electrical apparatus, textiles and coatings (edit as required)

molybdenum {molybdenum(VI) oxide}

Worst case CLP species based on hazard statements/molecular weight (edit as required)

Appendix C: Version

HazWasteOnline Classification Engine: WM3 1st Edition v1.1, May 2018
HazWasteOnline Classification Engine Version: 2018.271.3649.7455 (29 Sep 2018)
HazWasteOnline Database: 2018.271.3649.7455 (29 Sep 2018)

This classification utilises the following guidance and legislation:
WM3 v1.1 - Waste Classification - 1st Edition v1.1 - May 2018
CLP Regulation - Regulation 1272/2008/EC of 16 December 2008
1st ATP - Regulation 790/2009/EC of 10 August 2009
2nd ATP - Regulation 286/2011/EC of 10 March 2011
3rd ATP - Regulation 618/2012/EU of 10 July 2012
4th ATP - Regulation 487/2013/EU of 8 May 2013
Correction to 1st ATP - Regulation 758/2013/EU of 7 August 2013
5th ATP - Regulation 944/2013/EU of 2 October 2013
6th ATP - Regulation 605/2014/EU of 5 June 2014
WFD Annex III replacement - Regulation 1357/2014/EU of 18 December 2014
Revised List of Wastes 2014 - Decision 2014/955/EU of 18 December 2014
7th ATP - Regulation 2015/1221/EU of 24 July 2015
8th ATP - Regulation (EU) 2016/918 of 19 May 2016
9th ATP - Regulation (EU) 2016/1179 of 19 July 2016
10th ATP - Regulation (EU) 2017/776 of 4 May 2017
HP14 amendment - Regulation (EU) 2017/997 of 8 June 2017
POPs Regulation 2004 - Regulation 850/2004/EC of 29 April 2004
1st ATP to POPs Regulation - Regulation 756/2010/EU of 24 August 2010
2nd ATP to POPs Regulation - Regulation 757/2010/EU of 24 August 2010

CAUSEWAY GEOTECH

APPENDIX H

SPT HAMMER ENERGY MEASUREMENT REPORT

Southern Testing
Environmental & Geotechnical

SPT Hammer Energy Test Report

in accordance with BSEN ISO 22476-3:2005

Neil Burrows
Southern Testing Laboratories
Unit 11
Charlwoods Road
East Grinstead
RH19 2HU

SPT Hammer Ref:	T10267
Test Date:	14/04/2018
Report Date:	15/04/2018
File Name:	T10267.spt
Test Operator:	CAUSEWAY

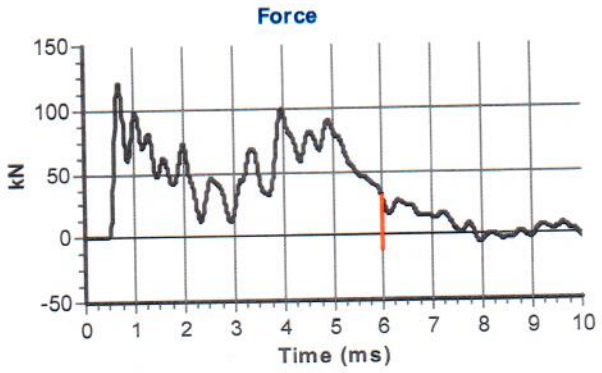
Instrumented Rod Data

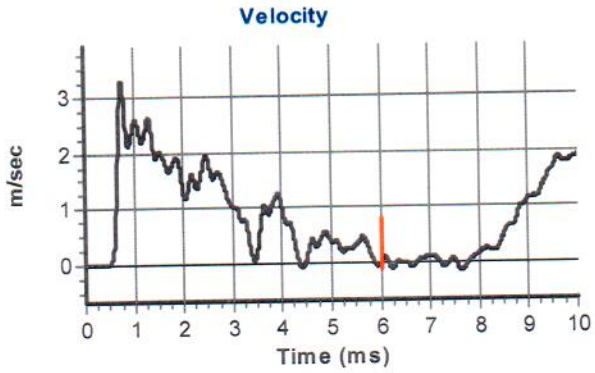
Diameter d_r (mm):	54
Wall Thickness t_r (mm):	6.0
Assumed Modulus E_a (GPa):	200
Accelerometer No.1:	6458
Accelerometer No.2:	9607

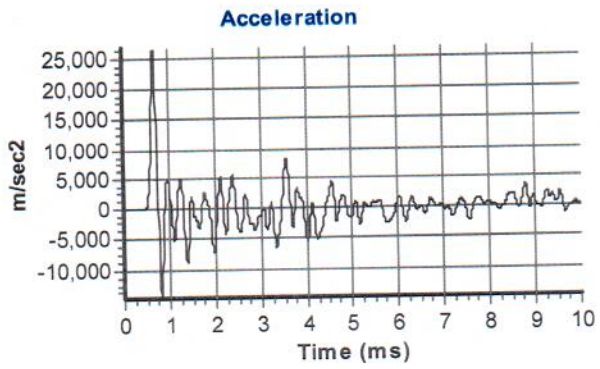
SPT Hammer Information

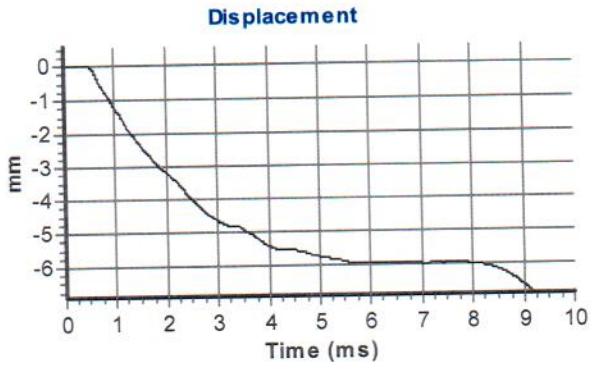
Hammer Mass m (kg):	63.5
Falling Height h (mm):	760
SPT String Length L (m):	10.5

Comments / Location
Causeway Yard









Calculations

Area of Rod A (mm2):	905
Theoretical Energy E_{theor} (J):	473
Measured Energy E_{meas} (J):	351

Energy Ratio E_r (%): 74

N P Burrows

Signed: N P Burrows
Title: Field Operations Manager

The recommended calibration interval is 12 months