IGSL Limited

DRA Consulting Engineers

Carlow Water Activity Park

Site Investigation Report

Project No. 23016

February 2021

Report

M7 Business Park
Naas
Co. Kildare
Ireland

T: +353 (45) 846176
E: info @igsl.ie
W: www.igsl.ie

Document Verification

Project: Carlow Water Activity Centre

Project No. 23016

Revision	**Date**	**Title**		
Rev 0	05/02/2021	Site Investigation Report		
	Copies	Document Format	Prepared By	Reviewed By
	1	Digital	Brian Green Chartered Engineer	David Green Chartered Engineer
	To	DRA Consulting Engineers		
Revision	**Date**	**Title**		
	Copies	Document Format	Prepared By	Reviewed By
	To			
Revision	**Date**	**Title**		
	Copies	Document Format	Prepared By	Reviewed By
	To			
Revision	**Date**	**Title**		
	Copies	Document Format	Prepared By	Reviewed By
	To			

Report on a Site Investigation
For
Carlow Water Activity Centre

On behalf of

Carlow County Council

Report No. 23016

Contents

Appendices

FOREWORD
The following conditions and notes on the geotechnical site investigation procedures should be read in conjunction with this report.

Standards
The ground investigation works for this project have been carried out by IGSL in accordance with Eurocode 7 - Part 2: Ground Investigation & Testing (EN 1997-2:2007). This has been used together with complementary documents such as BS 5930 (1999), BS 1377 (Parts 1 to 9) and Engineers Ireland Specification & Related Documents for Ground Investigation in Ireland (2006). A new National Annex for use in the Republic of Ireland is currently in circulation for comment and will be adopted in the near future. In the mean time, the following Irish (IS) and European Standards or Norms are referenced:

- IS EN 1997-2 Eurocode 7: 2007 – Geotechnical Design – Part 2: Ground Investigation & Testing
- IS EN ISO 22475-1:2006 Geotechnical Investigation and Sampling – Sampling Methods & Groundwater Measurements
- IS EN ISO 14688-1:2002 Geotechnical Investigation and Testing – Identification and Classification of Soil, Part 1: Identification and Description
- IS EN ISO 14688-2:2004 Geotechnical Investigation and Testing – Identification and Classification of Soil, Part 2: Classification Principles
- IS EN ISO 14689-1:2004 Geotechnical Investigation and Testing - Identification & Classification of Rock, Part 1: Identification & Description

Reporting
Recommendations made and opinions expressed in this report are based on the strata observed in the exploratory holes, together with the results of in-situ and laboratory tests. No responsibility can be held by IGSL Ltd for ground conditions between exploratory hole locations.

The engineering logs provide ground profiles and configuration of strata relevant to the investigation depths achieved and caution should be taken when extrapolating between exploratory points. No liability is accepted for ground conditions extraneous to the investigation points.

This report has been prepared for DRA Consulting Engineers and the information should not be used without prior written permission. The recommendations developed in this report specifically relate to the proposed development. IGSL Ltd accepts no responsibility or liability for this document being used other than for the purposes for which it was intended.

Boring Procedures
Unless otherwise stated, ‘shell and auger' or cable percussive boring technique has been employed as defined by Section 6.3 of IS EN ISO 22475-1:2006. The boring operations, sampling and in-situ testing complies with the recommendations of IS EN 1997-2:2007 and BS 1377:1990 and EN ISO 22476-3:2005. The shell and auger boring technique allows for continuous sampling in clay and silt above the water table and sand and gravel below the water table (Table 2 of IS EN ISO 22475-1:2006).

It is highlighted that some disturbance and variations is unavoidable in particular ground (e.g. blowing sands, gravel / cobble dominant glacial deposits etc). Attention is drawn to this condition, whenever it is suspected. Where cobbles and boulders are recorded, no conclusion should be drawn concerning the size, presence, lithological nature, or numbers per unit volume of ground.

Rotary Drilling Procedures
Rotary drilling methods have been used to recover bedrock samples in line with Section 3.5 of IS EN 1997-2:2007 and IS EN ISO 22475-1. Where cable percussive boreholes terminated prematurely on an obstruction within overburden, open hole drilling methods (odex or symmetrix) were utilized to advance the drillholes through the superficial deposits with coring in bedrock. The key objectives of the rock sampling were to obtain high core recovery (TCR), minimize sample disturbance and facilitate accurate identification of strength, weathering and discontinuity characteristics.

In-Situ Testing
Standard penetration tests were conducted strictly in accordance with Section 4.6 of IS EN 1997-2:2007. The SPT equipment (hammer energy test) has been calibrated in accordance with EN ISO 22476-3:2005 and the Energy Ratio (E_r). A calibration certificate is available upon request. The E_r is defined as the ratio of the actual energy E_{meas} (measured energy during calibration) delivered to the drive weight assembly into the drive rod below the anvil, to the theoretical energy (E_{theor}) as calculated from the drive weight assembly. The measured number of blows (N) reported on the engineering logs are uncorrected. In sands, the energy losses due to rod length and the effect of the overburden pressure should be taken into account (see IS EN ISO 22476-3:2005).

Groundwater
The depth of entry of any influx of groundwater is recorded during the course of boring operations. However, the normal rate of boring does not usually permit the recording of an equilibrium level for any one water strike. Where possible drilling is suspended for a period of twenty minutes to monitor the subsequent rise in water level. Groundwater conditions observed in the borings or pits are those appertaining to the period of investigation. It should be noted however, that groundwater levels are subject to diurnal, seasonal and climatic variations and can also be affected by drainage conditions, tidal variations etc.

Engineering Logging
Soil and rock identification has been based on the examination of the samples recovered and conforms with IS EN ISO 14688-1:2002 and IS EN ISO 14689-1:2004. Rock weathering classification conforms to IS EN ISO 14689-1:2003 while discontinuities (bedding planes, joints, cleavages, faults etc) are classified in accordance with 4.3.3 of IS EN ISO 14689-1:2003. Rock mechanical indices (TCR, SCR, RQD) are defined in accordance with IS EN ISO 22475-1:2006.

Retention of Samples
Samples shall be retained for a period of 60 days following approval of the final factual report, as detailed in the Scope of Works.

Report on a Site Investigation
For
Carlow Water Activity Centre
On behalf of
Carlow County Council

Report No. 23016 Date February 2021

1.0 Introduction

An investigation of ground conditions was carried out at the site of the proposed Water Activity Centre in Carlow. The investigation entailed the following fieldworks.

- Boreholes were constructed in three locations using cable percussive techniques
- Rotary techniques were employed at each borehole location to attain greater depth and to ascertain the presence of bedrock within the scheduled depths.
- Trial pits were excavated in an additional five locations to permit close examination and sampling of the upper soils.
- An infiltration test was performed to ascertain the suitability of the sub-soils for soakaway purposes.

This report contains the fieldwork records and the results of associated laboratory tests. Also included is a discussion of ground conditions in relation to the proposed development.

2.0 Fieldwork

2.1 Boreholes

The boring records are enclosed in Appendix 1 while the locations are shown on the site plan enclosed in Appendix 7.

The boreholes encountered made ground composed largely of cobbles and boulders intermixed with demolition waste. While BH03 was terminated at a depth of 1.6 metres in brick fragments and reinforced concrete, BH01 and BH02 penetrated the made ground at depths of 2.2 metres and 2.8 metres respectively, exposing layers of sandy silt and peat which extended to depths of 4.0 metres and 4.8 metres respectively.

In both boreholes the silt and peat deposits were underlain by dense sandy gravel with occasional cobbles. Further boring exposed very stiff grey/black gravelly clay at depths of 5.8 metres and 5.2 metres, and the boreholes were terminated on obstructions at depths of 7.1 metres and 7.4 metres respectively.

While no water strikes were observed during drilling, water was measured at a depth of 3.0 m BGL in BH01 at the beginning of the second day of drilling.

2.2 Rotary Drilling and Coring

Rotary techniques were employed to ascertain the depth, composition and condition of bedrock. Open hole, Symmetrix, drilling techniques were used to penetrate the overburden soils, identifying the soil type from the flush returns. It is noted that Symmetrix drilling produces highly pulverised drill returns and therefore, soil descriptions based on these returns are very approximate. Reference should instead be made to the corresponding cable percussive borehole records for the overburden soil descriptions.

On the first indications of bedrock, coring techniques were employed.

The records include a detailed description of the bedrock including the rock structure, strength, and degree of weathering. In accordance with BS 5930: Amendment No.2: 2010, the records include the total core recovery (TCR), solid core recovery (SCR) and the rock quality designation (RQD). Also shown graphically is the fracture spacing.

Drilling below the refusal depths of the boreholes produced returns of very stiff dark grey gravelly clay. At RC01 and RC03, the clay soils became notably coarser with depth, grading to dense clayey sandy gravel at depths of 11.0 and 12.3 metres respectively.

While RC01 and RC02 were terminated in overburden soils at the scheduled depth of 15 metres, intact rock was recovered from a depth of 15.3 metres in RC03. The rock was identified as blue-grey fine grained limestone in a strong to very strong condition, and fresh, with some localised weathering. Total Core Recovery (TCR) was 100% in all core runs with Solid Core Recovery (SCR) generally in the range 87 to 99%. RQD values ranged from 80 to 97%.

Photo 1 shows the core recovery at RC03 (15.3 to 18.25 metres)

Photo 1 – Core recovery at RC03 (15.3 to 18.25 m)

Water strikes were identified at RC01 and RC03 at depths of 4.5 and 2.0 metres respectively, although it is noted that the use of a water flush medium can mask or obscure water ingress.

At the end of drilling, standing water was present in RC01 and RC03 at depths of 5.2 and 0.5 m BGL. However, it must be noted that the water levels immediately after drilling can be heavily influenced by the presence of residual drilling fluids.

2.3 Trial Pits

The trial pits exposed demolition waste to depths of 1.3 metres to 2.0 metres where obstructions precluded further progress. Water ingress was limited to a seepage at a depth of 1.8 metres in TP03 and all pits remained stable during the period of excavation (typically 45 minutes)..

2.4 Infiltration Testing

The infiltration tests were performed in accordance with BRE Digest 365 ‘Soakaway Design’.

To obtain a measure of the infiltration rate of the sub-soils, water is poured into the test pit, and records taken of the fall in water level against time. This procedure is repeated twice more to ensure saturation of the sub-soils. Normally the results for the final stage of testing, following the saturation periods, are used for soakaway design purposes. The infiltration rate is the volume of water dispersed per unit exposed area per unit of time, and is generally expressed as metres/minute or metres/second.

In this test the water level rose by 50 mm during the first saturation stage and no further testing was considered practical or necessary.

3.0 Laboratory Testing

3.1 Soil Classification

Atterberg Limits tests classified the stiff cohesive soils as predominately clay of low and intermediate plasticity (CL and CI) with a moisture content of 14%.

Particle Size Distribution (PSD) tests showed the stiff gravelly clay soils to be generally well graded, producing a typical "straight line" grading curve with a fines (silt/clay) content of 37%.

By comparison, the gravel soils were notably coarser, with approximately 90% of the sample consisting of gravel sized particles, with silt/clay contents of only 1 to 2%.

3.2 Point Load Test (Rock Core Samples)

The Point Load Index Test provides a rapid strength assessment from rock fragments or cores. The test specimen is compressed between two cones loaded from a hydraulic hand pump. The core fails due to the tensile forces over the diametral area between the points. The strength at failure is expressed as the point load index Is.

For purposes of comparison the Is values are corrected to give the equivalent strength for a 50 mm diameter specimen. The compressive strength of the rock (q_c) can be established using a correlation suggested by Goodman where UCS ≈ 18 to 24 x Is_{50}.

The results showed Is_{50} values mostly in the range 4 to 7 MPa, correlating to equivalent UCS values in the range 80 to 140 MPa. In accordance with Table 5 of EN ISO 14869-1, these strengths would confirm the rock to be predominately Strong to Very Strong.

3.3 Sulphate and pH

Determination of pH values and Sulphate content were conducted by a nominated accredited environmental laboratory (Chemtest). Results are presented in reports prepared by the laboratory.

The results of water soluble (water/soil extract) Sulphate and pH analyses revealed very low SO_4 levels (<0.01 g/l) in association with a near-neutral pH levels of 7.9.

3.4 Environmental Testing

A total of 8 samples were tested in accordance with the RILTA Suite, which is used to determine the suitability of soils for disposal to a landfill. The RILTA suite includes Heavy Metals, Polycyclic Aromatic Hydrocarbons (PAH), TPH-CWG, BTEX, PCB and Total Organic Carbon (TOC) carried out on dry soil samples. Also included are leachate analyses, whereby leachate is generated in accordance with CEN 10:1 specification and this is tested for the presence of recognised contaminants including

Heavy Metals, Dissolved Organic Carbon (DOC) and Total Dissolved Solids (TDS). An Asbestos Screen is also included in the RILTA Suite.

The analyses were carried out by Chemtest Laboratory and their reports are presented in Appendix 6. These have been assessed by environmental specialists O'Callaghan Moran and are also included in their Waste Characterisation Assessment (presented under separate cover).

4.0 Discussion

The boreholes revealed made ground, composed largely of demolition waste. Similar material was encountered in the trial pits. The made ground was underlain by soft peat and silt, the product of alluvial deposition. Penetration of these deposits revealed dense granular soils and very stiff dark grey gravelly clay which had the appearance and condition of glacial material. The borehole findings are summarised in Table1.

Location	Depth of Made Ground (m)	Peat and silty SAND	Dense sandy GRAVEL	Very stiff grey gravelly CLAY
BH01	2.20	2.20 to 4.00	4.00 to 5.60	5.60 to 7.10
BH02	2.80	2.80 to 4.80	4.80 to 5.20	5.20 to 7.40
BH03	>1.60			

Table1

The rotary drilling records were derived from visual examination of the flush returns. Reference should be made to Table 1 with regard to detailed description of the upper soils, while the flush returns of the deeper deposits and bedrock levels are summarised in Table2.

Location	Very stiff grey gravelly CLAY	Dense clayey GRAVEL	LIMESTONE
RC01	6.00 to 9.50	9.50 to 15.00	Not encountered
RC02	5.50 to 15.00		Not encountered
RC03	6.60 to 9.30	9.30 to 15.30	15.30 to 18.25

Table2

4.1 Structural Foundations

It is understood that the proposed development will include the construction of both single and 2-storey buildings.

In view of the variable condition and composition of the made ground, this material is unsuitable for founding purposes because of the risk of excessive settlements, both total and differential. Since the underlying peat and silt deposits are highly compressible, and in a weak condition, they are also considered unsuitable for founding purposes. Consideration should be given to alternative foundation solutions as discussed in Sections 5.11 and 5.12.

4.1.1 Ground Improvement

The bearing capacity of loose granular soils can be increased substantially by the use of Vibro Replacement. This entails the use of a vibrating poker which is lowered through the sub-soils, using vibration and air jetting to aid penetration. On achieving the design depth, the poker is held at this depth for a period of time to compact the surrounding ground. It is then withdrawn and granular material is poured into the hole. The poker is then lowered into the hole to compact the placed stone. This procedure is repeated until the compacted stone column reaches ground level.

On this site, consideration must be given to the presence of large obstructions which could impede progress. It will also be important to ensure that columns are taken to the soils underlying the soft silts and peat.

4.1.2 Piles

Structures can be supported on piles, embedded in the glacial deposits or, for higher loads, supported by the bedrock. While pre-cast concrete piles or CFA (Continuous Flight Auger) can be considered, the presence of large obstructions within the Made Ground should be taken into account, since these may impede the installation of certain pile types. The advice of a piling specialist should be sought with regard to the most suitable pile type and length for the ground conditions at this site.

4.2 Chemical Attack on Buried Concrete

The results of Sulphate and pH testing showed very low Sulphate and near-neutral pH levels. With reference to Table C1 of BRE Special Digest 1: 2005, the level of Sulphate suggests a design Sulphate Class of DS-1. Assuming a static groundwater table, an ACEC (Aggressive Chemical Environment for Concrete) Classification of AC-1s is applicable, since the pH levels are greater than 5.5.

In terms of concrete to I.S. EN 206-1:2013, the chemical testing demonstrates that concrete could be manufactured to Class XA1.

4.3 Storm Water

The infiltration test at TP05 recorded a slow rise in water level during the first saturation period. It is unlikely that soakaway systems will function in these ground conditions. It will, therefore, be necessary to discharge run-off water to an existing surface water system, using attenuation techniques to regulate the flow.

Appendix 1 Cable Percussive Borehole Records

GEOTECHNICAL BORING RECORD

REPORT NUMBER 23016

CONTRACT	Proposed Water Activity Centre - Carlow	**BOREHOLE NO.**	**BH01**
		SHEET	Sheet 1 of 1
CO-ORDINATES		**RIG TYPE**	Dando 2000
		BOREHOLE DIAMETER (mm)	200
GROUND LEVEL (m AOD)		**BOREHOLE DEPTH (m)**	7.10
		DATE COMMENCED	02/12/2020
		DATE COMPLETED	03/12/2020
CLIENT	Carlow Co.Co.	**SPT HAMMER REF. NO.**	
ENGINEER	D.R.A	**ENERGY RATIO (%)**	
		BORED BY	W.Butler
		PROCESSED BY	F.C

Depth (m)	Description	Legend	Elevation	Depth (m)	Samples: Ref. Number	Sample Type	Depth (m)	Recovery	Field Test Results	Standpipe Details
0	TOPSOIL			0.20						
	MADE GROUND (Comprised of brown sandy silty/clayey fill with cobbles , brick fragments and tarmacadam) pieces)				AA144851	B	1.00		N = 8 (1, 1, 2, 1, 2, 3)	
2				2.20	AA144852	B	2.00		N = 6 (1, 0, 2, 2, 1, 1)	
	Very soft dark brown /black PEAT				AA144853	B	2.50			
				2.90						
3	Loose grey/brown silty SAND				AA144854	B	3.00		N = 5 (1, 0, 1, 1, 2, 1)	
				3.80						
	Soft dark brown /black PEAT			4.00						
4	Dense grey fine to coarse sandy GRAVEL with occasional cobbles				AA144855	B	4.00		N = 30 (4, 5, 7, 9, 9, 5)	
					AA144856	B	4.50			
5					AA144857	B	5.00		N = 39 (3, 3, 5, 8, 11, 15)	
				5.60						
	Very stiff grey gravelly SILT/CLAY				AA144858	B	6.00		N = 48 (6, 9, 10, 12, 14, 12)	
7				7.10	AA144859	B	7.00		N = 50/75 mm (12, 21, 50)	
	Obstruction End of Borehole at 7.10 m									
8										
9										

HARD STRATA BORING/CHISELLING

From (m)	To (m)	Time (h)	Comments
4.6	1.8	1	
5.7	5.9	0.75	
6.8	7.1	2	

WATER STRIKE DETAILS

Water Strike	Casing Depth	Sealed At	Rise To	Time (min)	Comments
					No water strike

GROUNDWATER PROGRESS

Date	Hole Depth	Casing Depth	Depth to Water	Comments
03-12-20			3.00	Start of 2nd day

INSTALLATION DETAILS

Date	Tip Depth	RZ Top	RZ Base	Type

REMARKS 1hr erecting Covid 19 Safe Working Area . CAT scanned location and hand dug inspection pit carried out .

Sample Legend
D - Small Disturbed (tub)
B - Bulk Disturbed
LB - Large Bulk Disturbed
Env - Environmental Sample (Jar + Vial + Tub)
UT - Undisturbed 100mm Diameter Sample
P - Undisturbed Piston Sample
W - Water Sample

IGSL BH LOG 23016.GPJ IGSL.GDT 16/12/20

GEOTECHNICAL BORING RECORD

REPORT NUMBER 23016

CONTRACT	Proposed Water Activity Centre - Carlow	**BOREHOLE NO.**	**BH02**
		SHEET	Sheet 1 of 1
CO-ORDINATES		**RIG TYPE**	Dando 2000
		BOREHOLE DIAMETER (mm)	200
GROUND LEVEL (m AOD)		**BOREHOLE DEPTH (m)**	7.40
		DATE COMMENCED	04/12/2020
		DATE COMPLETED	04/12/2020
CLIENT	Carlow Co.Co.	**SPT HAMMER REF. NO.**	
ENGINEER	D.R.A	**ENERGY RATIO (%)**	
		BORED BY	W.Butler
		PROCESSED BY	F.C

Depth (m)	Description	Legend	Elevation	Depth (m)	Samples: Ref. Number	Sample Type	Depth (m)	Recovery	Field Test Results	Standpipe Details
0	TOPSOIL			0.30						
	MADE GROUND (Comprised of brown sandy silty/clayey fill with boulders , brick fragments and concrete pieces)				AA144860	B	1.00		N = 50/75 mm (25, 50)	
1										
					AA144861	B	2.00		N = 50/75 mm (25, 50)	
2					AA144862	B	2.50			
				2.80						
	Very soft brown/black sandy SILT/CLAY			3.00						
3	Loose grey/brown slightly silty fine SAND with occasional gravel				AA144863	B	3.00		N = 0 (1, 0, 0, 0, 0, 0)	
				3.90						
4	Soft grey SILT			4.10	AA144864	B	4.00		N = 6 (1, 1, 1, 1, 2, 2)	
	Soft dark brown/black PEAT				AA144865	B	4.50			
				4.80						
5	Dense grey very sandy GRAVEL with occasional cobbles			5.20	AA144866	B	5.00		N = 35 (4, 5, 7, 8, 8, 12)	
	Very stiff black sandy gravelly SILT/CLAY									
6					AA144867	B	6.00		N = 45 (5, 5, 7, 8, 14, 16)	
					AA144868	B	7.00		N = 39 (5, 7, 8, 8, 10, 13)	
7				7.40						
	Obstruction End of Borehole at 7.40 m									
8										
9										

HARD STRATA BORING/CHISELLING

From (m)	To (m)	Time (h)	Comments
1.6	2.5	1.5	
6.2	6.3	0.75	
7.2	7.4	2	

WATER STRIKE DETAILS

Water Strike	Casing Depth	Sealed At	Rise To	Time (min)	Comments
					No water strike

GROUNDWATER PROGRESS

Date	Hole Depth	Casing Depth	Depth to Water	Comments

INSTALLATION DETAILS

Date	Tip Depth	RZ Top	RZ Base	Type

REMARKS 1hr erecting Covid 19 Safe Working Area . CAT scanned location and hand dug inspection pit carried out .

Sample Legend
D - Small Disturbed (tub)
B - Bulk Disturbed
LB - Large Bulk Disturbed
Env - Environmental Sample (Jar + Vial + Tub)
UT - Undisturbed 100mm Diameter Sample
P - Undisturbed Piston Sample
W - Water Sample

IGSL BH LOG 23016.GPJ IGSL.GDT 16/12/20

GEOTECHNICAL BORING RECORD

REPORT NUMBER 23016

CONTRACT	Proposed Water Activity Centre - Carlow	**BOREHOLE NO.**	**BH03**
		SHEET	Sheet 1 of 1
CO-ORDINATES		**RIG TYPE**	Dando 2000
		BOREHOLE DIAMETER (mm)	200
GROUND LEVEL (m AOD)		**BOREHOLE DEPTH (m)**	1.60
		DATE COMMENCED	02/12/2020
		DATE COMPLETED	02/12/2020
CLIENT	Carlow Co.Co.	**SPT HAMMER REF. NO.**	
		BORED BY	W.Butler
ENGINEER	D.R.A	**ENERGY RATIO (%)**	
		PROCESSED BY	F.C

Depth (m)	Description	Legend	Elevation	Depth (m)	Samples: Ref. Number	Samples: Sample Type	Samples: Depth (m)	Samples: Recovery	Field Test Results	Standpipe Details
0	TOPSOIL			0.20						
	Brown sandy SILT/CLAY			0.40						
1	MADE GROUND (Ciomprised of large concrete pieces with brick fragments)			1.60	AA147400	B	1.00		N = 50/75 mm (25, 50)	
2	Obstruction - Possibly reinforced concrete End of Borehole at 1.60 m									
3										
4										
5										
6										
7										
8										
9										

HARD STRATA BORING/CHISELLING

From (m)	To (m)	Time (h)	Comments
1.4	1.6	1.5	

WATER STRIKE DETAILS

Water Strike	Casing Depth	Sealed At	Rise To	Time (min)	Comments
					No water strike

GROUNDWATER PROGRESS

Date	Hole Depth	Casing Depth	Depth to Water	Comments

INSTALLATION DETAILS

Date	Tip Depth	RZ Top	RZ Base	Type

REMARKS 1hr erecting Covid 19 Safe Working Area . CAT scanned location and hand dug inspection pit carried out .

Sample Legend
D - Small Disturbed (tub)
B - Bulk Disturbed
LB - Large Bulk Disturbed
Env - Environmental Sample (Jar + Vial + Tub)
UT - Undisturbed 100mm Diameter Sample
P - Undisturbed Piston Sample
W - Water Sample

IGSL BH LOG 23016.GPJ IGSL.GDT 16/12/20

Appendix 2 Rotary Corehole Records

GEOTECHNICAL CORE LOG RECORD

REPORT NUMBER 23016

CONTRACT Proposed Water Activity Centre - Carlow

DRILLHOLE NO RC01
SHEET Sheet 1 of 2

CO-ORDINATES

GROUND LEVEL (mOD)

RIG TYPE GEO205
FLUSH Air/Mist
INCLINATION (deg) -90
CORE DIAMETER (mm) 78

DATE COMMENCED 10/12/2020
DATE COMPLETED 11/12/2020

CLIENT Carlow Co.Co.
ENGINEER D.R.A

DRILLED BY IGSL
LOGGED BY D.O'Shea

Downhole Depth (m)	Core Run Depth (m)	T.C.R.%	S.C.R.%	R.Q.D.%	Fracture Spacing Log (mm) 0 250 500	Non-intact Zone	Legend	Description	Depth (m)	Elevation	Standpipe Details	SPT (N Value)
0								SYMMETRIX DRILLING: No recovery, observed by driller as returns of MADE GROUND consisting of TOPSOIL	0.20			
1	1.50	0	0	0				SYMMETRIX DRILLING: No recovery, observed by driller as returns of MADE GROUND consisting of brown sandy silty clay with cobbles, brick fragments and tarmacadam pieces	2.00			
2		0	0	0				SYMMETRIX DRILLING: No recovery, observed by driller as returns of black silty GRAVEL				
3	3.00	0	0	0								
4	4.50								4.50			
								SYMMETRIX DRILLING: No recovery, observed by driller as returns of GRAVEL	5.00			
5		0	0	0				SYMMETRIX DRILLING: No recovery, observed by driller as returns of brown clayey GRAVEL	6.00			
6	6.00	0	0	0				SYMMETRIX DRILLING: No recovery, observed by driller as returns of grey sandy gravelly CLAY				N = 50/15 mm (16, 9, 50)
7	7.50	0	0	0								
8	9.00								9.50			N = 50/0 mm (22, 3, 50)
9		0	0	0				SYMMETRIX DRILLING: No recovery, observed by driller as returns of SILT				

REMARKS

Hole cased 0.00-15.00m. Covid 19 Safe Zone erection - 1hr

WATER STRIKE DETAILS

Water Strike	Casing Depth	Sealed At	Rise To	Time (min)	Comments
4.50		N/S			Slow

GROUNDWATER DETAILS

Date	Hole Depth	Casing Depth	Depth to Water	Comments

INSTALLATION DETAILS

Date	Tip Depth	RZ Top	RZ Base	Type

GEOTECHNICAL CORE LOG RECORD

REPORT NUMBER 23016

CONTRACT Proposed Water Activity Centre - Carlow

DRILLHOLE NO RC01
SHEET Sheet 2 of 2

CO-ORDINATES

GROUND LEVEL (mOD)

RIG TYPE GEO205
FLUSH Air/Mist
INCLINATION (deg) -90
CORE DIAMETER (mm) 78

DATE COMMENCED 10/12/2020
DATE COMPLETED 11/12/2020

CLIENT Carlow Co.Co.
ENGINEER D.R.A

DRILLED BY IGSL
LOGGED BY D.O'Shea

Downhole Depth (m)	Core Run Depth (m)	T.C.R.%	S.C.R.%	R.Q.D.%	Fracture Spacing Log (mm) 0 250 500	Non-intact Zone	Legend	Description	Depth (m)	Elevation	Standpipe Details	SPT (N Value)
10	10.50							SYMMETRIX DRILLING: No recovery, observed by driller as returns of SILT *(continued)*	11.00			
11		0	0	0				SYMMETRIX DRILLING: No recovery, observed by driller as returns of clayey silty cobbly GRAVEL				N = 30 (4, 5, 5, 8, 8, 9)
12	12.00	0	0	0								
13	13.50											N = 34 (4, 6, 5, 9, 9, 11)
14		0	0	0								
15	15.00							End of Borehole at 15.00 m	15.00			N = 45 (4, 7, 7, 6, 11, 21)
16												
17												
18												
19												

REMARKS

Hole cased 0.00-15.00m. Covid 19 Safe Zone erection - 1hr

WATER STRIKE DETAILS

Water Strike	Casing Depth	Sealed At	Rise To	Time (min)	Comments
4.50		N/S			Slow

GROUNDWATER DETAILS

Date	Hole Depth	Casing Depth	Depth to Water	Comments
11-12-20	15.00	15.00	5.20	Water level recorded 5 mins after end of drilling.

INSTALLATION DETAILS

Date	Tip Depth	RZ Top	RZ Base	Type

IGSL RC FI 10M 23016.GPJ IGSL.GDT 18/12/20

GEOTECHNICAL CORE LOG RECORD

REPORT NUMBER 23016

CONTRACT Proposed Water Activity Centre - Carlow

DRILLHOLE NO RC02

SHEET Sheet 1 of 2

CO-ORDINATES

GROUND LEVEL (mOD)

RIG TYPE GEO205
FLUSH Air/Mist
INCLINATION (deg) -90
CORE DIAMETER (mm) 78

DATE COMMENCED 11/12/2020
DATE COMPLETED 14/12/2020

CLIENT Carlow Co.Co.
ENGINEER D.R.A

DRILLED BY IGSL
LOGGED BY D.O'Shea

Downhole Depth (m)	Core Run Depth (m)	T.C.R.%	S.C.R.%	R.Q.D.%	Fracture Spacing Log (mm) 0 250 500	Non-intact Zone	Legend	Description	Depth (m)	Elevation	Standpipe Details	SPT (N Value)
0								SYMMETRIX DRILLING: No recovery, observed by driller as returns of MADE GROUND consisting of TOPSOIL	0.30			
		0	0	0				SYMMETRIX DRILLING: No recovery, observed by driller as returns of MADE GROUND consisting of brown sandy silty clay with cobbles, brick fragments and tarmacadam pieces				
1	1.50											
		0	0	0								
2									2.80			
	3.00							SYMMETRIX DRILLING: No recovery, observed by driller as returns of brown/black sandy SILT/CLAY	3.00			
3		0	0	0				SYMMETRIX DRILLING: No recovery, observed by driller as returns of SILT				
4	4.50								4.50			
								SYMMETRIX DRILLING: No recovery, observed by driller as returns of silty GRAVEL	4.70			
5		0	0	0				SYMMETRIX DRILLING: No recovery, observed by driller as returns of SILT	5.50			
	6.00							SYMMETRIX DRILLING: No recovery, observed by driller as returns of grey sandy gravelly CLAY				
6		0	0	0								
7	7.50											N = 50/10 mm (25, 50)
8		0	0	0								
	9.00								9.00			
9								SYMMETRIX DRILLING: No recovery, observed by driller as returns of clayey SILT				N = 50/35 mm (25, 50)
		0	0	0								

REMARKS

Hole cased 0.00-13.50m. Covid 19 Safe Zone erection - 1hr

WATER STRIKE DETAILS

Water Strike	Casing Depth	Sealed At	Rise To	Time (min)	Comments
					No water strike recorded

GROUNDWATER DETAILS

Date	Hole Depth	Casing Depth	Depth to Water	Comments

INSTALLATION DETAILS

Date	Tip Depth	RZ Top	RZ Base	Type

IGSL RC FI 10M 23016.GPJ IGSL.GDT 18/12/20

GEOTECHNICAL CORE LOG RECORD

REPORT NUMBER 23016

CONTRACT Proposed Water Activity Centre - Carlow

DRILLHOLE NO RC02
SHEET Sheet 2 of 2

CO-ORDINATES

GROUND LEVEL (mOD)

RIG TYPE GEO205
FLUSH Air/Mist
INCLINATION (deg) -90
CORE DIAMETER (mm) 78

DATE COMMENCED 11/12/2020
DATE COMPLETED 14/12/2020

CLIENT Carlow Co.Co.
ENGINEER D.R.A

DRILLED BY IGSL
LOGGED BY D.O'Shea

Downhole Depth (m)	Core Run Depth (m)	T.C.R.%	S.C.R.%	R.Q.D.%	Fracture Spacing Log (mm) 0 250 500	Non-intact Zone	Legend	Description	Depth (m)	Elevation	Standpipe Details	SPT (N Value)
10	10.50							SYMMETRIX DRILLING: No recovery, observed by driller as returns of clayey SILT *(continued)*	11.00			N = 48 (8, 10, 10, 15, 11, 12)
11	12.00	0	0	0				SYMMETRIX DRILLING: No recovery, observed by driller as returns of gravelly CLAY				N = 55/115 mm (17, 8, 5, 50)
12		0	0	0					13.80			N = 50/0 mm (22, 3, 50)
13	13.50							SYMMETRIX DRILLING: No recovery, observed by driller as returns of possible BOULDER				
14		0	0	0					15.00			N = 50/20 mm (25, 50)
15	15.00							End of Borehole at 15.00 m				
16												
17												
18												
19												

REMARKS

Hole cased 0.00-13.50m. Covid 19 Safe Zone erection - 1hr

WATER STRIKE DETAILS

Water Strike	Casing Depth	Sealed At	Rise To	Time (min)	Comments
					No water strike recorded

GROUNDWATER DETAILS

Date	Hole Depth	Casing Depth	Depth to Water	Comments
14-11-20	15.00	13.50	Dry	Water level recorded 5 mins after end of drilling.

INSTALLATION DETAILS

Date	Tip Depth	RZ Top	RZ Base	Type

IGSL RC FI 10M 23016.GPJ IGSL.GDT 18/12/20

GEOTECHNICAL CORE LOG RECORD

REPORT NUMBER 23016

CONTRACT	Proposed Water Activity Centre - Carlow	**DRILLHOLE NO**	**RC03**
		SHEET	Sheet 1 of 2
CO-ORDINATES		**DATE COMMENCED**	14/12/2020
GROUND LEVEL (mOD)		**DATE COMPLETED**	15/12/2020
CLIENT	Carlow Co.Co.	**DRILLED BY**	IGSL
ENGINEER	D.R.A	**LOGGED BY**	D.O'Shea
RIG TYPE	GEO205		
FLUSH	Air/Mist		
INCLINATION (deg)	-90		
CORE DIAMETER (mm)	78		

Downhole Depth (m)	Core Run Depth (m)	T.C.R.%	S.C.R.%	R.Q.D.%	Fracture Spacing Log (mm) 0 250 500	Non-intact Zone	Legend	Description	Depth (m)	Elevation	Standpipe Details	SPT (N Value)
0												
1	1.50	0	0	0				SYMMETRIX DRILLING: No recovery, observed by driller as returns of MADE GROUND consisting of brown sandy silty clay with cobbles, brick fragments and tarmacadam pieces	2.00			
2	3.00	0	0	0				SYMMETRIX DRILLING: No recovery, observed by driller as returns of gravelly CLAY	3.00			
3								SYMMETRIX DRILLING: No recovery, observed by driller as returns of clayey silty GRAVEL	3.70			N = 7 (1, 1, 1, 1, 2, 3)
4	4.50	0	0	0				SYMMETRIX DRILLING: No recovery, observed by driller as returns of black SILT	4.40			
5	6.00	0	0	0				SYMMETRIX DRILLING: No recovery, observed by driller as returns of GRAVEL	5.00			N = 32 (4, 8, 8, 6, 9, 9)
6	7.50	0	0	0				SYMMETRIX DRILLING: No recovery, observed by driller as returns of silty GRAVEL	6.00			
7								SYMMETRIX DRILLING: No recovery, observed by driller as returns of sandy GRAVEL	6.60			N = 50/150 mm (4, 7, 14, 26, 10)
8	9.00	0	0	0				SYMMETRIX DRILLING: No recovery, observed by driller as returns of grey sandy gravelly CLAY	9.30			N = 44 (3, 6, 9, 10, 11, 14)
9		0	0	0				SYMMETRIX DRILLING: No recovery, observed by driller as returns of SILT				N = 50/75 mm (8, 14, 24, 26)

REMARKS

Hole cased 0.00-15.30m. Covid 19 Safe Zone erection - 1hr

WATER STRIKE DETAILS

Water Strike	Casing Depth	Sealed At	Rise To	Time (min)	Comments
2.00		N/S			Slow

GROUNDWATER DETAILS

Date	Hole Depth	Casing Depth	Depth to Water	Comments

INSTALLATION DETAILS

Date	Tip Depth	RZ Top	RZ Base	Type

IGSL RC FI 10M 23016.GPJ IGSL.GDT 18/12/20

GEOTECHNICAL CORE LOG RECORD

REPORT NUMBER 23016

CONTRACT Proposed Water Activity Centre - Carlow

DRILLHOLE NO RC03
SHEET Sheet 2 of 2

CO-ORDINATES
GROUND LEVEL (mOD)

RIG TYPE GEO205
FLUSH Air/Mist
INCLINATION (deg) -90
CORE DIAMETER (mm) 78

DATE COMMENCED 14/12/2020
DATE COMPLETED 15/12/2020

CLIENT Carlow Co.Co.
ENGINEER D.R.A

DRILLED BY IGSL
LOGGED BY D.O'Shea

Downhole Depth (m)	Core Run Depth (m)	T.C.R.%	S.C.R.%	R.Q.D.%	Fracture Spacing Log (mm) 0 250 500	Non-intact Zone	Legend	Description	Depth (m)	Elevation	Standpipe Details	SPT (N Value)
10	10.50							SYMMETRIX DRILLING: No recovery, observed by driller as returns of SILT *(continued)*				N = 43 (9, 9, 8, 10, 11, 14)
11		0	0	0								
12	12.00	0	0	0					12.30			N = 50/60 mm (18, 7, 50)
13	13.50							SYMMETRIX DRILLING: No recovery, observed by driller as returns of clayey silty GRAVEL				N = 50/75 mm (16, 9, 37, 13)
14	15.00	0	0	0								
15	15.30	0	0	0					15.30			N = 50/0 mm (25, 50)
16		100	87	80				Strong to very strong, thickly to thinly bedded, grey to dark blueish grey, fine-grained, LIMESTONE (locally fossiliferous, common chert throughout, local stylolites), fresh to locally slightly weathered. Discontinuities are widely to closely spaced, smooth, planar to curviplanar. Apertures are tight to locally moderately open, locally clay-smeared, locally calcite-veined (1-100mm thick) locally slightly iron-oxide stained. Dips are subhorizontal & locally 70°				
17	16.75	100	99	97		649.9999999999999						
18	18.25							End of Borehole at 18.25 m	18.25			
19												

REMARKS

Hole cased 0.00-15.30m. Covid 19 Safe Zone erection - 1hr

WATER STRIKE DETAILS

Water Strike	Casing Depth	Sealed At	Rise To	Time (min)	Comments
2.00		N/S			Slow

GROUNDWATER DETAILS

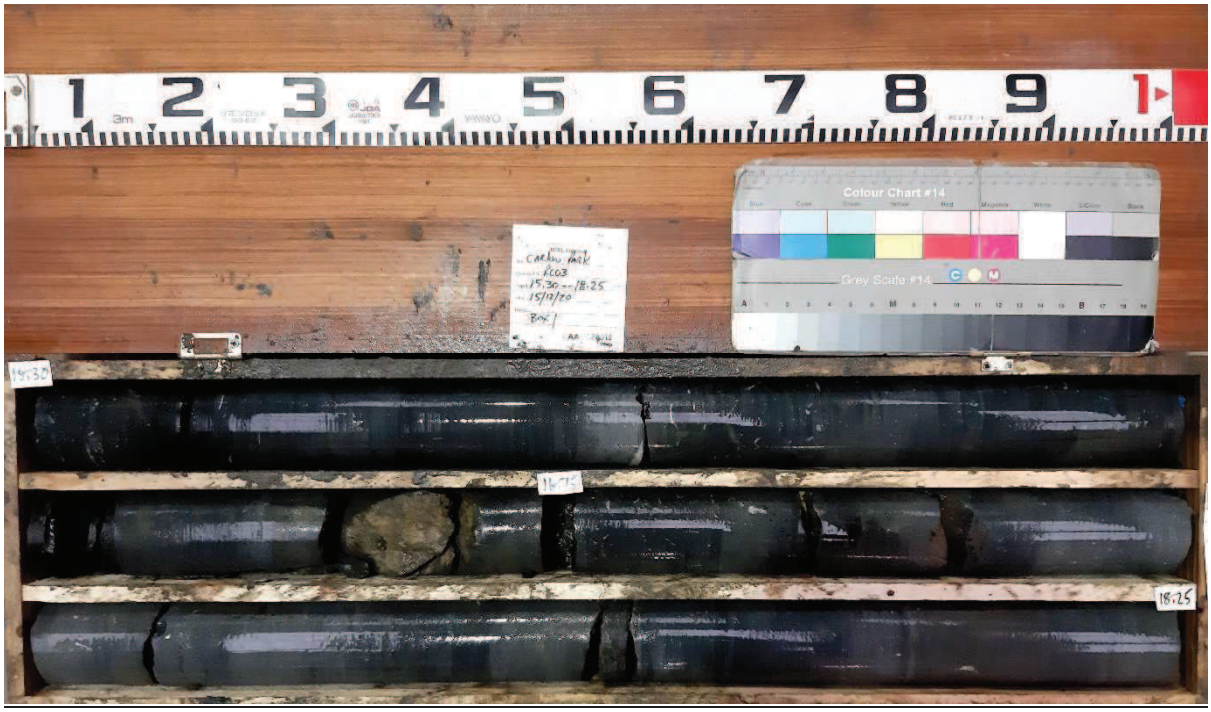
Date	Hole Depth	Casing Depth	Depth to Water	Comments
15-12-20	18.25	15.30	0.50	Water level recorded 5 mins after end of drilling.

INSTALLATION DETAILS

Date	Tip Depth	RZ Top	RZ Base	Type

IGSL RC FI 10M 23016.GPJ IGSL.GDT 18/12/20

RC03 Box 1 of 1 -15.30-18.25m



Appendix 3 Trial Pit Records

TRIAL PIT RECORD

REPORT NUMBER 23016

CONTRACT	Carlow WAC	**TRIAL PIT NO.**	**TP01**
		SHEET	Sheet 1 of 1
LOGGED BY	N. Scott	**CO-ORDINATES**	
		DATE STARTED	14/08/2020
		DATE COMPLETED	14/08/2020
CLIENT	Carlow Co. Council	**GROUND LEVEL (m)**	
ENGINEER	DRA Consulting Engineers	**EXCAVATION METHOD**	3 Tonne Excavator

Geotechnical Description	Legend	Depth (m)	Elevation	Water Strike	Samples: Sample Ref	Samples: Type	Samples: Depth	Vane Test (KPa)	Hand Penetrometer (KPa)
0.0 Topsoil		0.20							
MADE GROUND consisting of a firm to stiff, browm, very sandy gravelly silty clay containing cut stone blocks concrete and red brick fragments. Gravel is fine to coarse and sub-angular to sub-rounded.					AA140049	B	1.00		
1.0 Obstruction End of Trial Pit at 1.30m		1.30							
2.0									
3.0									
4.0									

Groundwater Conditions
Dry

Stability
Stable

General Remarks
CAT Scanned Location

TRIAL PIT RECORD

REPORT NUMBER 23016

CONTRACT	Carlow WAC	**TRIAL PIT NO.**	**TP02**
		SHEET	Sheet 1 of 1
LOGGED BY	N. Scott	**CO-ORDINATES**	
		DATE STARTED	16/08/2020
		DATE COMPLETED	16/08/2020
CLIENT	Carlow Co. Council	**GROUND LEVEL (m)**	
ENGINEER	DRA Consulting Engineers	**EXCAVATION METHOD**	3 Tonne Excavator

Geotechnical Description	Legend	Depth (m)	Elevation	Water Strike	Samples: Sample Ref	Samples: Type	Samples: Depth	Vane Test (KPa)	Hand Penetrometer (KPa)
0.0 Topsoil		0.20							
MADE GROUND consisting of a firm to stiff, brown, sandy gravelly silty clay containing cut stone blocks, concrete and red brick fragments.					AA145001	B	1.00		
2.0 Obstruction End of Trial Pit at 2.00m		2.00			AA145002	B	2.00		

Groundwater Conditions
Dry

Stability
Stable

General Remarks
CAT Scanned Location

TRIAL PIT RECORD

REPORT NUMBER 23016

CONTRACT	Carlow WAC	**TRIAL PIT NO.**	**TP03**
		SHEET	Sheet 1 of 1
LOGGED BY	N. Scott	**CO-ORDINATES**	
		DATE STARTED	14/08/2020
		DATE COMPLETED	16/08/2020
CLIENT	Carlow Co. Council	**GROUND LEVEL (m)**	
ENGINEER	DRA Consulting Engineers	**EXCAVATION METHOD**	3 Tonne Excavator

	Geotechnical Description	Legend	Depth (m)	Elevation	Water Strike	Samples: Sample Ref	Samples: Type	Samples: Depth	Vane Test (KPa)	Hand Penetrometer (KPa)
0.0	Topsoil		0.20							
	MADE GROUND consisting of a firm to stiff, brown, sandy gravelly silty clay containing cut stone blocks, concrete and red brick fragments.									
1.0					1 (Seepage)	AA140050	B	1.00		
2.0	Obstruction End of Trial Pit at 2.00m		2.00							
3.0										
4.0										

Groundwater Conditions
Xseepage @1.8

Stability
Stable

General Remarks
CAT Scanned Location

TRIAL PIT RECORD

REPORT NUMBER 23016

CONTRACT	Carlow WAC	**TRIAL PIT NO.**	**TP04**
		SHEET	Sheet 1 of 1
LOGGED BY	N. Scott	**CO-ORDINATES**	
		DATE STARTED	11/08/2020
		DATE COMPLETED	11/08/2020
CLIENT	Carlow Co. Council	**GROUND LEVEL (m)**	
ENGINEER	DRA Consulting Engineers	**EXCAVATION METHOD**	3 Tonne Excavator

Geotechnical Description	Legend	Depth (m)	Elevation	Water Strike	Samples: Sample Ref	Samples: Type	Samples: Depth	Vane Test (KPa)	Hand Penetrometer (KPa)
0.0 Topsoil		0.20							
MADE GROUND conisting of a firm to stiff, brown, very sandy very gravelly silty clay containing cut stone blocks, concrete and red brick fragments.					AA140048	B	1.00		
Obstruction End of Trial Pit at 1.40m		1.40							

Groundwater Conditions
Dry

Stability
Stable

General Remarks
CAT Scanned Location

IGSL TP LOG 23016.GPJ IGSL.GDT 8/1/21

TRIAL PIT RECORD

REPORT NUMBER 23016

CONTRACT	Carlow WAC	**TRIAL PIT NO.**	**TP05**
		SHEET	Sheet 1 of 1
LOGGED BY	N. Scott	**CO-ORDINATES**	
		DATE STARTED	11/08/2020
		DATE COMPLETED	11/08/2020
CLIENT	Carlow Co. Council	**GROUND LEVEL (m)**	
ENGINEER	DRA Consulting Engineers	**EXCAVATION METHOD**	3 Tonne Excavator

Geotechnical Description	Legend	Depth (m)	Elevation	Water Strike	Samples: Sample Ref	Samples: Type	Samples: Depth	Vane Test (KPa)	Hand Penetrometer (KPa)
0.0 Topsoil		0.20							
MADE GROUND consisting of a firm to stiff brown, sandy slightly gravelly silty clay with a low cobble content containing plastic, red brick fragments, tar and concrete. Gravel is fine to coarse and sub-angular to sub-rounded. Cobbles are sub-angular to sub-rounded.					AA140046	B	0.50		
1.0 MADE GROUND consisting of a firm to stiff, grey mottled brown, sandy very gravelly clayey silt containing wavin and concrete.		1.30			AA140047	B	1.50		
2.0 Obstruction End of Trial Pit at 2.00m		2.00							
3.0									
4.0									

Groundwater Conditions
Dry

Stability
Stable

General Remarks
CAT Scanned Location

Appendix 4 Infiltration Test Records

Soakaway Design f -value from field tests (F2C) IGSL

Contract: Carlow WAC Contract No. 23016
Test No. TP05 C1
Client Carlow Co. Co.
Date: 11/08/2020

Summary of ground conditions

from	to	Description	Ground water
0.00	0.20	Topsoil	None observed
0.20	1.30	MADE GROUND consisting of firm to stiff brown, sandy	
		slightly gravelly silty clay with a low cobble content	
1.30	2.00	MADE GROUND consisting of firm to stiff, grey mottled brown,	
		sandy very gravelly clayey silt containing wavin and concrete	

Field Data

Depth to Water (m)	Elapsed Time (min)
1.20	0.00
1.20	1.00
1.20	2.00
1.20	3.00
1.20	4.00
1.19	5.00
1.19	7.00
1.18	9.00
1.17	11.00
1.17	13.00
1.17	15.00
1.17	20.00
1.16	25.00
1.16	30.00
1.16	35.00
1.16	40.00
1.15	50.00
1.15	60.00

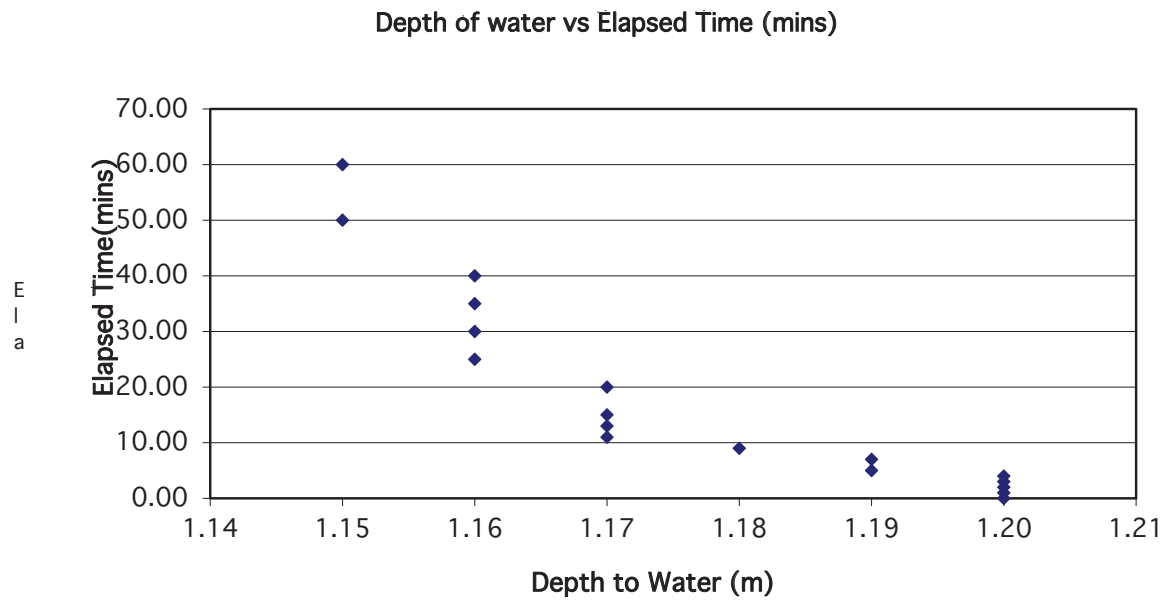
Field Test

Depth of Pit (D)	2.00	m
Width of Pit (B)	0.60	m
Length of Pit (L)	1.80	m
Initial depth to Water =	1.20	m
Final depth to water =	1.15	m
Elapsed time (mins)=	60.00	
Top of permeable soil		m
Base of permeable soil		m
Base area=	1.08	m2
*Av. side area of permeable stratum over test perio	3.96	m2
Total Exposed area =	5.04	m2

Infiltration rate (f) = Volume of water used/unit exposed area / unit time

f= 0 m/min or 0 m/sec

Water level rose during test



Appendix 5 Laboratory Test Results (Geotechnical)

IGSL Ltd
Materials Laboratory
Unit J5, M7 Business Park
Newhall, Naas
Co. Kildare
045 846176

Test Report

Determination of Moisture Content, Liquid & Plastic Limits

Tested in accordance with BS1377:Part 2:1990, clauses 3.2*, 4.3, 4.4 & 5.3

Report No. **R118242** Contract No. 23016 Contract Name: Carlow Water Park

Customer DRA

Samples Received: 22/12/20 Date Tested: 05/01/21

BH/TP	Sample No.	Depth (m)	Lab. Ref	Sample Type	Moisture Content %	Liquid Limit %	Plastic Limit %	Plasticity Index	% <425µm	Preparation	Liquid Limit Clause	Classification (BS5930)	Description
BH01	AA144858	6.0	A21/023	B	14	29	14	15	61	WS	4.4	C L	Brown slightly sandy, slightly gravelly, CLAY
BH02	AA144868	7.0	A21/038	B	14	43	22	21	45	WS	4.4	C I	Grey clayey, very sandy, GRAVEL

Notes:
Preparation: WS - Wet sieved; AR - As received; NP - Non plastic
Liquid Limit Clause: 4.3 Cone Penetrometer definitive method; 4.4 Cone Penetrometer one point method
Sample Type: B - Bulk Disturbed; U - Undisturbed

Remarks:
Results apply to the sample as received.
NOTE: *Clause 3.2 of BS1377 is a "withdrawn" standard due to publication of ISO17892-1:2014
Opinions and interpretations are outside the scope of accreditation.
The results relate to the specimens tested. Any remaining material will be retained for one month.

IGSL Ltd Materials Laboratory

Persons authorized to approve reports
H Byrne (Laboratory Manager)

Approved by: H Byrne
Date: 18/01/21
Page: 1 of 1

TEST REPORT
Determination of Particle Size Distribution
Tested in accordance with: BS1377:Part2:1990 , clause 9.2 & 9.5
(note: Sedimentation stage not accredited)

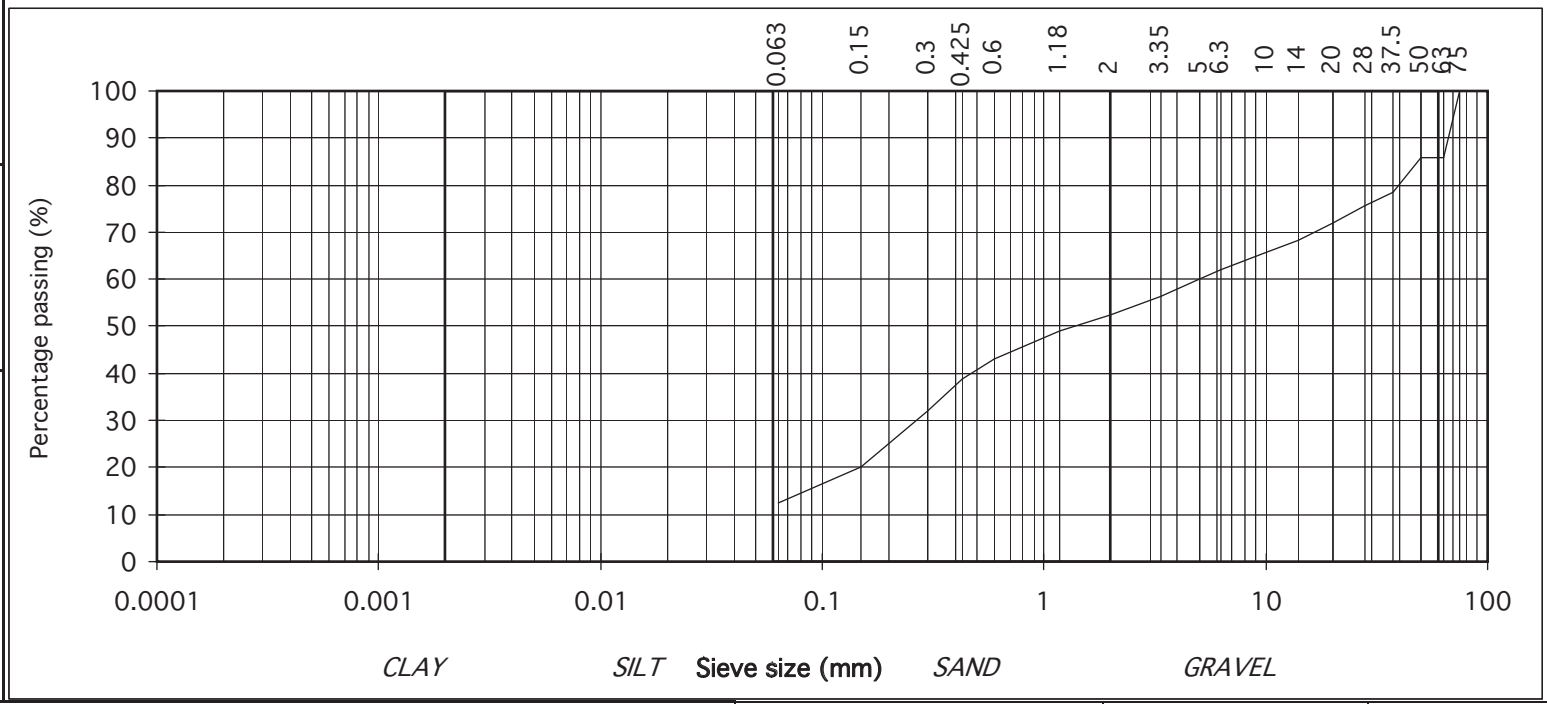
ISO 17025 INAB ACCREDITED TESTING DETAILED IN SCOPE REG NO. 133T

particle size	% passing	
75	100	COBBLES
63	86	
50	86	GRAVEL
37.5	79	
28	76	
20	72	
14	68	
10	66	
6.3	62	
5	60	
3.35	56	
2	52	
1.18	49	SAND
0.6	43	
0.425	39	
0.3	32	
0.15	20	
0.063	13	SILT/CLAY

Contract No.	23016	Report No.	R118336
Contract Name:	Carlow Water Park		
BH/TP :	BH01		
Sample No.	AA144853	Lab. Sample No.	A21/0030
Sample Type:	B		
Depth (m)	2.50	Customer:	DRA
Date Received	22/12/2020	Date Testing started	05/01/2021
Description:	Brown clayey/silty, very sandy, GRAVEL with some cobbles		

Remarks

Note: Clause 9.2 and Clause 9.5 of BS1377:Part 2:1990 have been superseded by ISO17892-4:2016 . Results apply to sample as received. Sample size did not meet the requirements of BS1377



IGSL Ltd Materials Laboratory

Approved by:	Date:	Page no:
H Byrne	18/01/21	1 of 1

Persons authorised to approve report: J Barrett (Quality Manager) H Byrne (Laboratory Manager)

TEST REPORT
Determination of Particle Size Distribution
Tested in accordance with: BS1377:Part2:1990 , clause 9.2 & 9.5
(note: Sedimentation stage not accredited)

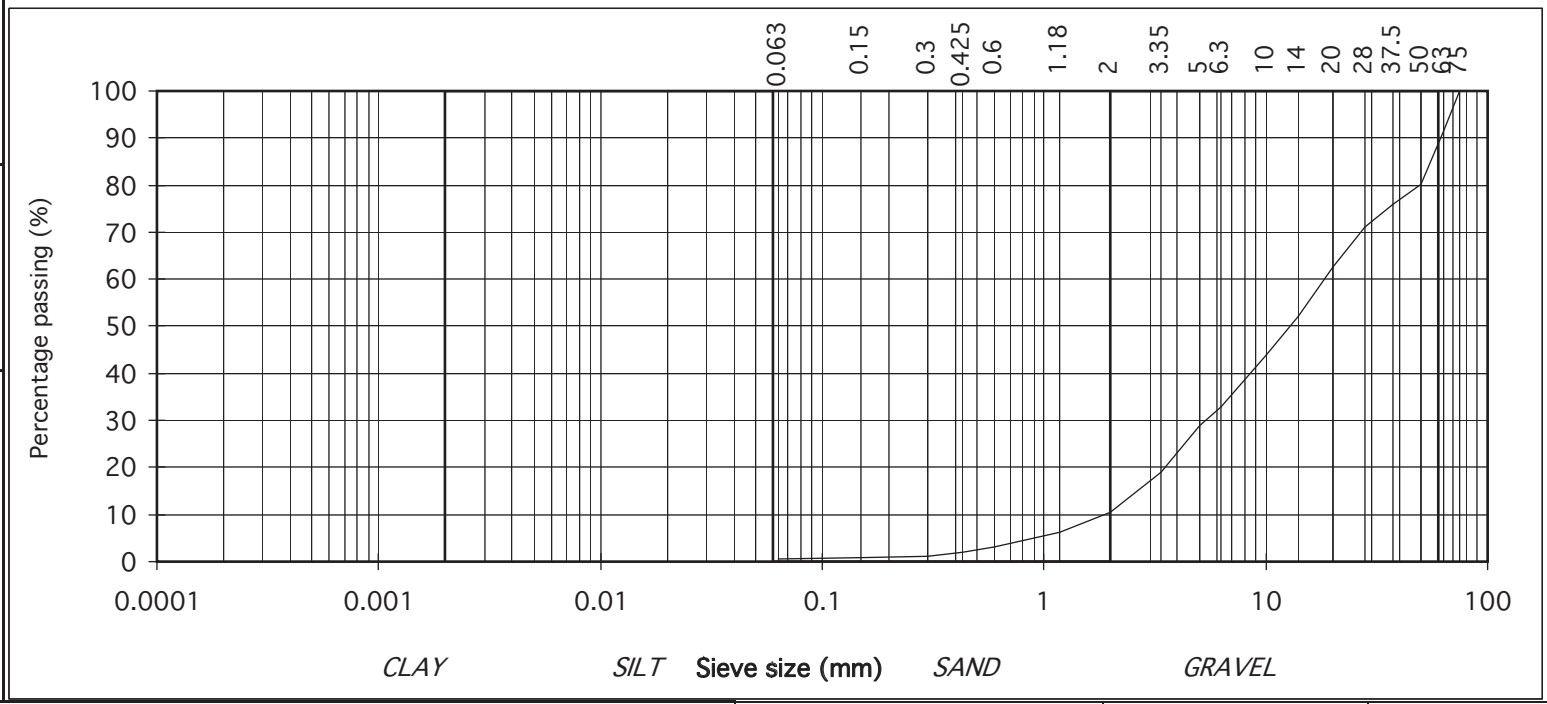
ISO 17025 INAB ACCREDITED TESTING DETAILED IN SCOPE REG NO. 137T

particle size	% passing	
75	100	COBBLES
63	92	
50	80	GRAVEL
37.5	76	
28	71	
20	63	
14	52	
10	44	
6.3	33	
5	29	
3.35	19	
2	10	
1.18	6	SAND
0.6	3	
0.425	2	
0.3	1	
0.15	1	
0.063	1	SILT/CLAY

Contract No.	23016	Report No.	R118243
Contract Name:	Carlow Water Park		
BH/TP :	BH01		
Sample No.	AA144857	Lab. Sample No.	A21/033
Sample Type:	B		
Depth (m)	5.00	Customer:	DRA
Date Received	22/12/2020	Date Testing started	05/01/2021
Description:	Grey slightly clayey/silty, sandy, GRAVEL with some cobbles		

Remarks

Note: Clause 9.2 and Clause 9.5 of BS1377:Part 2:1990 have been superseded by ISO17892-4:2016 . Results apply to sample as received.



IGSL Ltd Materials Laboratory

Approved by:	Date:	Page no:
H Byrne	13/01/21	1 of 1

Persons authorised to approve report: J Barrett (Quality Manager) H Byrne (Laboratory Manager)

TEST REPORT
Determination of Particle Size Distribution
Tested in accordance with: BS1377:Part2:1990 , clause 9.2 & 9.5
(note: Sedimentation stage not accredited)

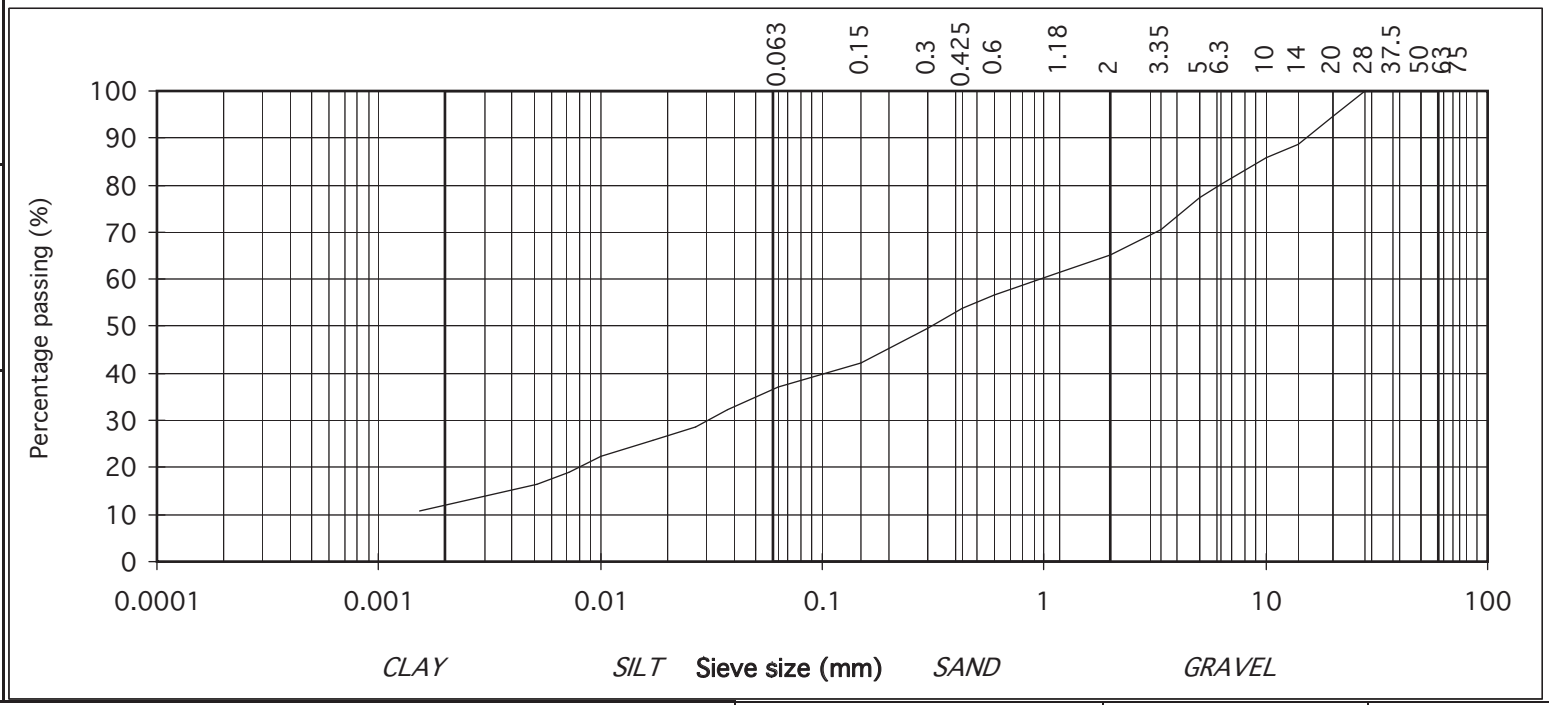
ISO 17025 INAB ACCREDITED TESTING DETAILED IN SCOPE REG NO. 137T

particle size	% passing	
75	100	COBBLES
63	100	
50	100	GRAVEL
37.5	100	
28	100	
20	95	
14	89	
10	86	
6.3	80	
5	77	
3.35	70	
2	65	
1.18	61	SAND
0.6	57	
0.425	54	
0.3	50	
0.15	42	
0.063	37	SILT/CLAY
0.037	32	
0.027	29	
0.017	26	
0.010	22	
0.007	19	
0.005	16	
0.002	11	

Contract No.	23016	Report No.	R118244
Contract Name:	Carlow Water Park		
BH/TP :	BH01		
Sample No.	AA144858	Lab. Sample No.	A21/033
Sample Type:	B		
Depth (m)	6.00	Customer:	DRA
Date Received	22/12/2020	Date Testing started	05/01/2021
Description:	Brown slightly sandy, slightly gravelly, CLAY		

Remarks

Note: Clause 9.2 and Clause 9.5 of BS1377:Part 2:1990 have been superseded by ISO17892-4:2016 . Results apply to sample as received.



IGSL Ltd Materials Laboratory

Approved by:	Date:	Page no:
H Byrne	13/01/21	1 of 1

Persons authorised to approve report: J Barrett (Quality Manager) H Byrne (Laboratory Manager)

TEST REPORT
Determination of Particle Size Distribution
Tested in accordance with: BS1377:Part2:1990 , clause 9.2 & 9.5
(note: Sedimentation stage not accredited)

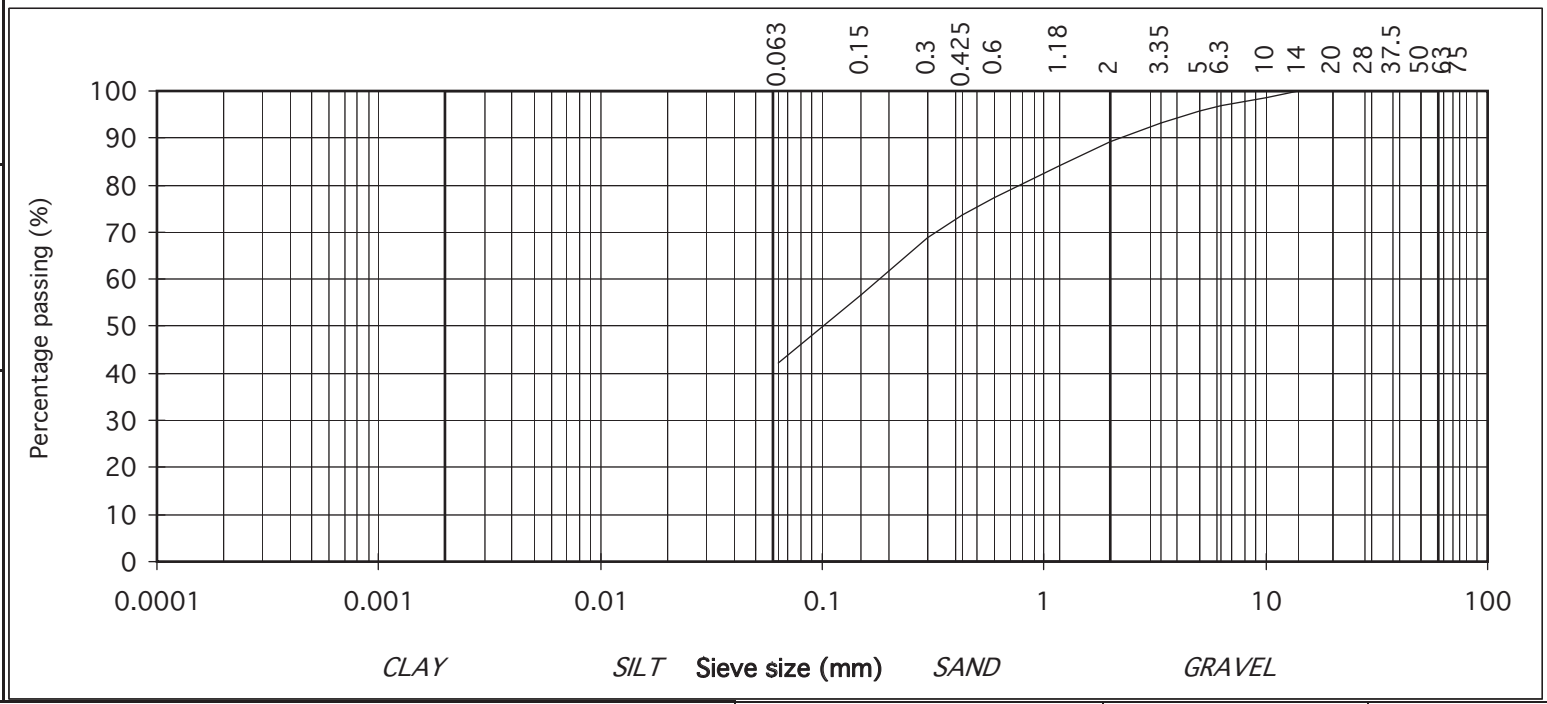
ISO 17025 INAB ACCREDITED TESTING DETAILED IN SCOPE REG NO. 133T

particle size	% passing	
75	100	COBBLES
63	100	
50	100	GRAVEL
37.5	100	
28	100	
20	100	
14	100	
10	98	
6.3	97	
5	96	
3.35	93	
2	89	SAND
1.18	84	
0.6	77	
0.425	74	
0.3	69	
0.15	57	
0.063	42	SILT/CLAY

Contract No.	23016	Report No.	R118337
Contract Name:	Carlow Water Park		
BH/TP :	BH02		
Sample No.	AA144863	Lab. Sample No.	A21/036
Sample Type:	B		
Depth (m)	3.00	Customer:	DRA
Date Received	22/12/2020	Date Testing started	05/01/2021
Description:	Brown sandy, slightly gravelly, SILT/CLAY		

Remarks

Note: Clause 9.2 and Clause 9.5 of BS1377:Part 2:1990 have been superseded by ISO17892-4:2016 . Results apply to sample as received.



IGSL Ltd Materials Laboratory

Approved by:	Date:	Page no:
H Byrne	18/01/21	1 of 1

Persons authorised to approve report: J Barrett (Quality Manager) H Byrne (Laboratory Manager)

TEST REPORT
Determination of Particle Size Distribution
Tested in accordance with: BS1377:Part2:1990 , clause 9.2 & 9.5
(note: Sedimentation stage not accredited)

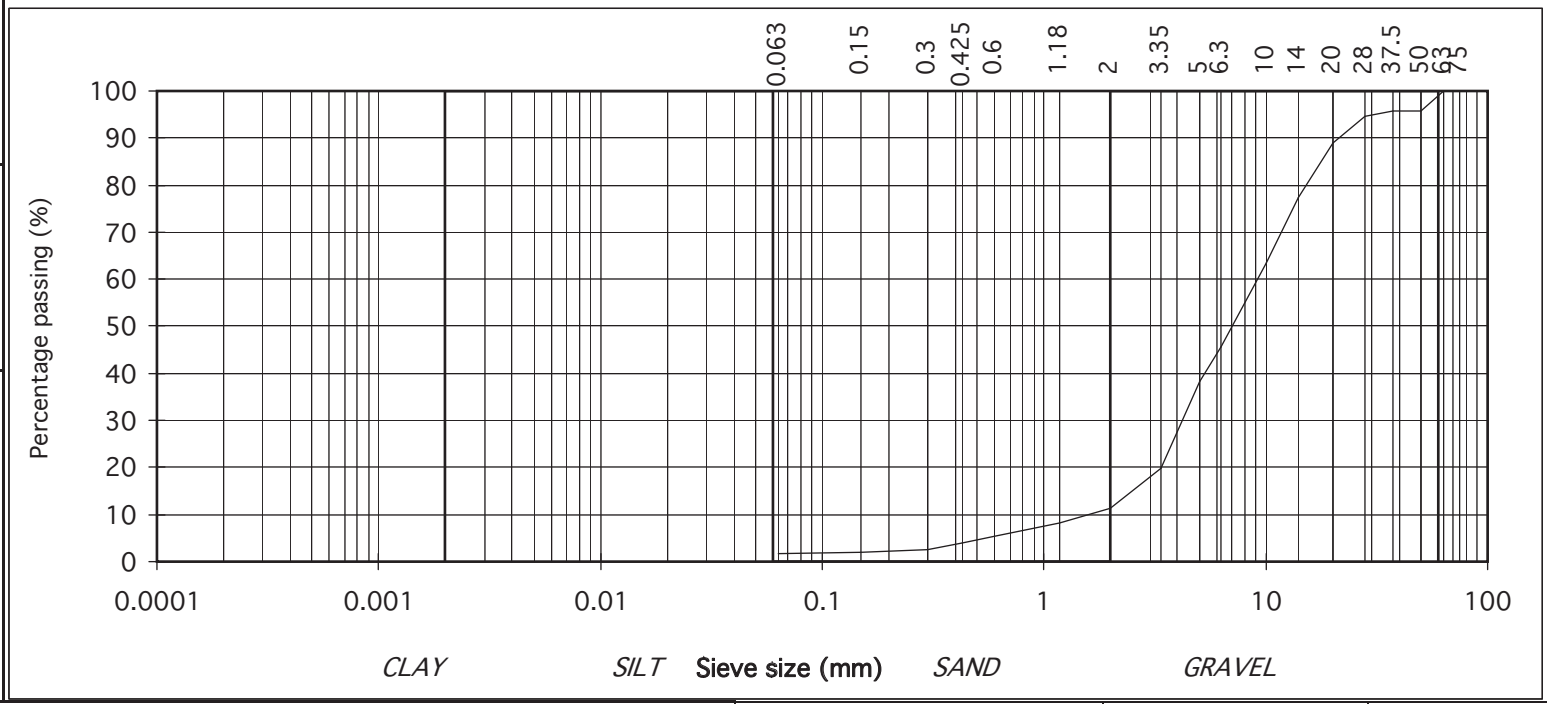
ISO 17025 INAB ACCREDITED TESTING DETAILED IN SCOPE REG NO. 137T

particle size	% passing	
75	100	COBBLES
63	100	
50	96	GRAVEL
37.5	96	
28	95	
20	89	
14	77	
10	63	
6.3	46	
5	38	
3.35	20	
2	11	
1.18	8	SAND
0.6	5	
0.425	4	
0.3	2	
0.15	2	
0.063	2	SILT/CLAY

Contract No.	23016	Report No.	R118245
Contract Name:	Carlow Water Park		
BH/TP :	BH02		
Sample No.	AA144866	Lab. Sample No.	A21/037
Sample Type:	B		
Depth (m)	5.00	Customer:	DRA
Date Received	22/12/2020	Date Testing started	05/01/2021
Description:	Grey slightly clayey/silty, sandy, GRAVEL		

Remarks

Note: Clause 9.2 and Clause 9.5 of BS1377:Part 2:1990 have been superseded by ISO17892-4:2016 . Results apply to sample as received.



IGSL Ltd Materials Laboratory

Approved by:	Date:	Page no:
H Byrne	13/01/21	1 of 1

Persons authorised to approve report: J Barrett (Quality Manager) H Byrne (Laboratory Manager)

TEST REPORT
Determination of Particle Size Distribution
Tested in accordance with: BS1377:Part2:1990 , clause 9.2 & 9.5
(note: Sedimentation stage not accredited)

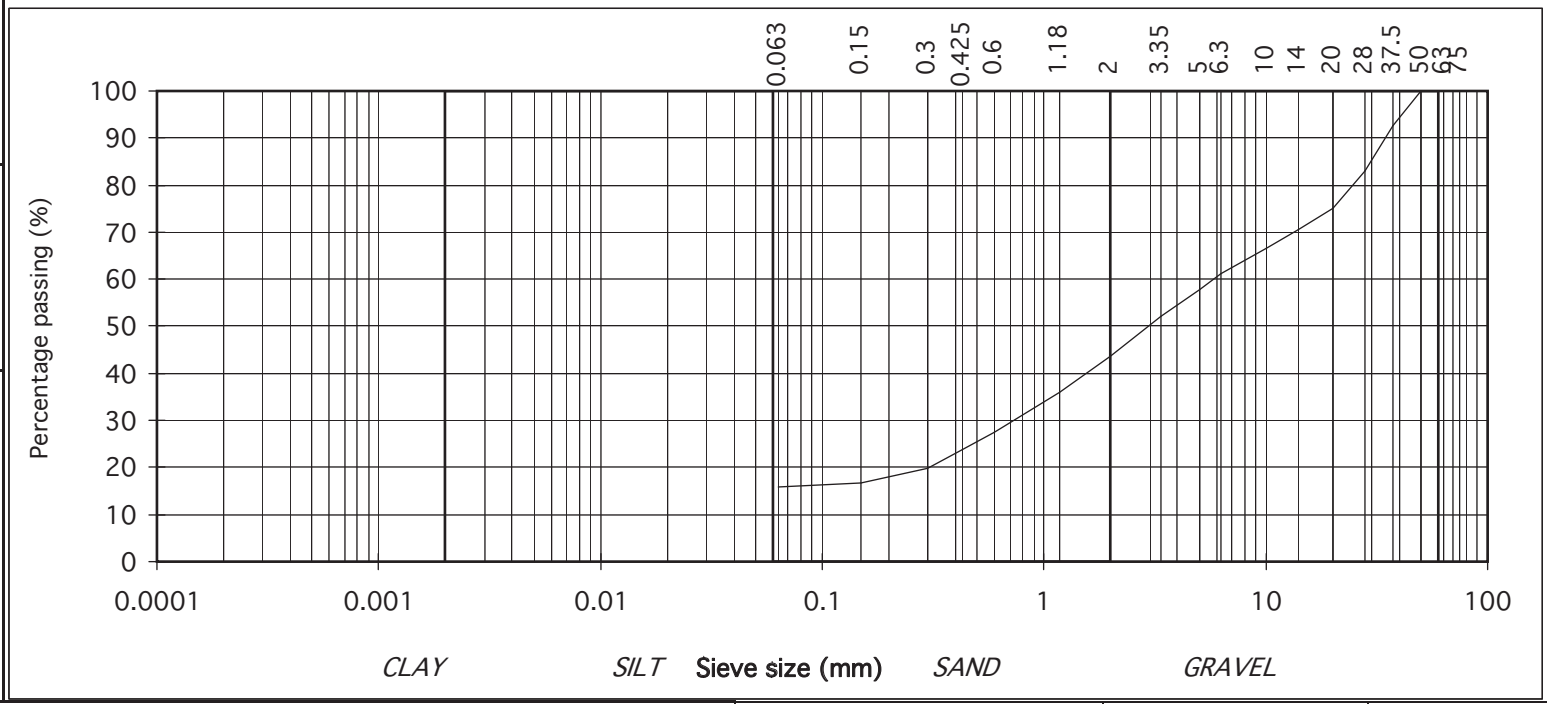
ISO 17025 IVNAB ACCREDITED TESTING DETAILED IN SCOPE REG NO. 137T

particle size	% passing	
75	100	COBBLES
63	100	
50	100	GRAVEL
37.5	93	
28	83	
20	75	
14	71	
10	67	
6.3	61	
5	58	
3.35	52	
2	43	SAND
1.18	36	
0.6	28	
0.425	24	
0.3	20	
0.15	17	
0.063	16	SILT/CLAY

Contract No.	23016	Report No.	R118246
Contract Name:	Carlow Water Park		
BH/TP :	BH02		
Sample No.	AA144868	Lab. Sample No.	A21/038
Sample Type:	B		
Depth (m)	7.00	Customer:	DRA
Date Received	22/12/2020	Date Testing started	05/01/2021
Description:	Grey clayey, very sandy, GRAVEL		

Remarks

Note: Clause 9.2 and Clause 9.5 of BS1377:Part 2:1990 have been superseded by ISO17892-4:2016 . Results apply to sample as received.



IGSL Ltd Materials Laboratory

Approved by:	Date:	Page no:
H Byrne	13/01/21	1 of 1

Persons authorised to approve report: J Barrett (Quality Manager) H Byrne (Laboratory Manager)

(Diametrial) POINT LOAD STRENGTH INDEX TEST DATA

Contract: Proposed Water Activity Centre - Carlow
Date of test: 18/12/20

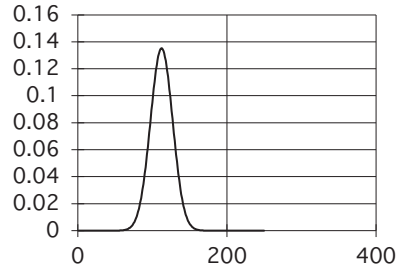
Sample Type: Core
Contract no. 23016

RC No.	Depth m	D (Diameter) mm	P (failure load) kN	F	Is (index strength) Mpa	Is(50) (index strength) Mpa	*UCS MPa	Type	Orienation
RC03	15.6	78	28.0	1.222	4.60	5.62	112	d	//
	15.9	78	32.0	1.222	5.26	6.42	128	d	//
	17.5	78	26.0	1.222	4.27	5.22	104	d	//
	18.1	78	23.0	1.222	3.78	4.62	92	d	//
	18.2	78	31.0	1.222	5.10	6.22	124	d	//

Statistical Summary Data	Is(50)	UCS*
Number of Samples Tested	5	5
Minimum	4.62	92
Average	5.62	112
Maximum	6.42	128
Standard Dev.	0.74	15
Upper 95% Confidence Limit	7.07	141.35
Lower 95% Confidence Limit	4.18	83.52

Comments:
*UCS taken as k x Point Load Is(50): k= 20

*UCS Normal Distribution Curve



Abbreviations

i	irregular
a	axial
b	block
d	diametral

approx. orientation to planes of weakness/bedding

U	unknown
P	perpendicular
//	parallel

Appendix 6 Laboratory Test Results (Environmental)

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

2183

Final Report

Report No.:	20-35643-1
Initial Date of Issue:	05-Jan-2021
Client	IGSL
Client Address:	M7 Business Park Naas County Kildare Ireland
Contact(s):	Darren Keogh
Project	23017 Carlow Water Park

Quotation No.:		**Date Received:**	29-Dec-2020
Order No.:		**Date Instructed:**	29-Dec-2020
No. of Samples:	14		
Turnaround (Wkdays):	5	**Results Due:**	05-Jan-2021
Date Approved:	05-Jan-2021		

Approved By:

Details: Glynn Harvey, Technical Manager

Results - Leachate

Project: 23017 Carlow Water Park

Client: IGSL				**Chemtest Job No.:**		20-35643	20-35643	20-35643	20-35643	20-35643	20-35643	20-35643	20-35643	20-35643	20-35643	20-35643	20-35643
Quotation No.:				**Chemtest Sample ID.:**		1120032	1120033	1120034	1120035	1120036	1120037	1120038	1120039	1120040	1120041	1120042	1120043
Order No.:				Client Sample Ref.:		144851	144852	144854	144860	144861	144863	147400	AA1400149	AA145001	AA145002	AA140050	AA140048
				Sample Location:		BH1	BH1	BH1	BH2	BH2	BH2	BH3	TP01	TP02	TP02	TP03	TP04
				Sample Type:		SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
				Top Depth (m):		1.00	2.00	3.00	1.00	2.00	3.00	1.00	1.00	1.00	2.00	1.00	1.00
Determinand	**Accred.**	**SOP**	**Type**	**Units**	**LOD**												
pH	U	1010	10:1		N/A	8.3	8.2	8.2	8.2	8.2	8.3	8.4	8.4	8.4	8.3	8.2	8.2
Ammonium	U	1220	10:1	mg/l	0.050	0.15	7.8	6.3	7.2	4.2	0.42	0.19	0.32	0.069	0.16	0.087	0.33
Ammonium	N	1220	10:1	mg/kg	0.10	1.7	85	69	78	45	4.7	2.2	3.6	0.78	1.8	0.95	3.6
Boron (Dissolved)	U	1450	10:1	mg/kg	0.20	< 0.20	0.89	0.28	0.81	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20
Benzo[j]fluoranthene	N	1800	10:1	µg/l	0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010

Results - Leachate

Project: 23017 Carlow Water Park

Client: IGSL				**Chemtest Job No.:**		20-35643	20-35643
Quotation No.:				**Chemtest Sample ID.:**		1120044	1120045
Order No.:				Client Sample Ref.:		AA144046	AA140047
				Sample Location:		TP05	TP05
				Sample Type:		SOIL	SOIL
				Top Depth (m):		0.50	1.50
Determinand	**Accred.**	**SOP**	**Type**	**Units**	**LOD**		
pH	U	1010	10:1		N/A	8.2	8.3
Ammonium	U	1220	10:1	mg/l	0.050	1.6	3.2
Ammonium	N	1220	10:1	mg/kg	0.10	17	35
Boron (Dissolved)	U	1450	10:1	mg/kg	0.20	0.28	0.50
Benzo[j]fluoranthene	N	1800	10:1	µg/l	0.010	< 0.010	< 0.010

Results - Soil

Project: 23017 Carlow Water Park

Client: IGSL				**Chemtest Job No.:**	20-35643	20-35643	20-35643	20-35643	20-35643	20-35643	20-35643	20-35643	20-35643
Quotation No.:				**Chemtest Sample ID.:**	1120032	1120033	1120034	1120035	1120036	1120037	1120038	1120039	1120040
Order No.:				Client Sample Ref.:	144851	144852	144854	144860	144861	144863	147400	AA1400149	AA145001
				Sample Location:	BH1	BH1	BH1	BH2	BH2	BH2	BH3	TP01	TP02
				Sample Type:	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
				Top Depth (m):	1.00	2.00	3.00	1.00	2.00	3.00	1.00	1.00	1.00
				Asbestos Lab:	DURHAM	DURHAM	DURHAM	DURHAM	DURHAM	DURHAM	DURHAM	DURHAM	DURHAM
Determinand	**Accred.**	**SOP**	**Units**	**LOD**									
ACM Type	U	2192		N/A	-	-	-	-	-	-	-	-	-
Asbestos Identification	U	2192		N/A	No Asbestos Detected	No Asbestos Detected	No Asbestos Detected	No Asbestos Detected	No Asbestos Detected	No Asbestos Detected	No Asbestos Detected	No Asbestos Detected	No Asbestos Detected
ACM Detection Stage	U	2192		N/A	-	-	-	-	-	-	-	-	-
Moisture	N	2030	%	0.020	43	48	36	62	42	28	20	1.9	13
pH (2.5:1)	N	2010		4.0						[A] 7.9			
Boron (Hot Water Soluble)	U	2120	mg/kg	0.40	[A] < 0.40	[A] 1.5	[A] 0.70	[A] 0.99	[A] 0.56	[A] < 0.40	[A] < 0.40	[A] < 0.40	[A] < 0.40
Magnesium (Water Soluble)	N	2120	g/l	0.010						[A] < 0.010			
Sulphate (2:1 Water Soluble) as SO4	U	2120	g/l	0.010						[A] < 0.010			
Total Sulphur	U	2175	%	0.010						[A] 0.048			
Sulphur (Elemental)	U	2180	mg/kg	1.0	[A] < 1.0	[A] 200	[A] 48	[A] 180	[A] 440	[A] 50	[A] 5.0	[A] 4.1	[A] 2.4
Chloride (Water Soluble)	U	2220	g/l	0.010						[A] < 0.010			
Nitrate (Water Soluble)	N	2220	g/l	0.010						< 0.010			
Cyanide (Total)	U	2300	mg/kg	0.50	[A] < 0.50	[A] < 0.50	[A] < 0.50	[A] < 0.50	[A] < 0.50	[A] < 0.50	[A] < 0.50	[A] < 0.50	[A] < 0.50
Sulphide (Easily Liberatable)	N	2325	mg/kg	0.50	[A] 3.0	[A] 13	[A] 5.3	[A] 11	[A] 39	[A] 5.4	[A] 5.9	[A] 5.1	[A] 7.9
Ammonium (Water Soluble)	U	2120	g/l	0.01						< 0.01			
Sulphate (Acid Soluble)	U	2430	%	0.010	[A] 0.039	[A] 0.18	[A] 0.13	[A] 0.15	[A] 0.14	[A] 0.048	[A] 0.066	[A] 0.051	[A] 0.040
Arsenic	U	2450	mg/kg	1.0	17	20	8.5	17	10	22	17	16	20
Barium	U	2450	mg/kg	10	70	240	290	190	610	910	95	54	76
Cadmium	U	2450	mg/kg	0.10	1.4	1.2	2.2	1.1	2.6	3.2	0.80	1.0	0.90
Chromium	U	2450	mg/kg	1.0	15	16	21	14	25	25	13	9.2	14
Molybdenum	U	2450	mg/kg	2.0	2.1	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0
Antimony	N	2450	mg/kg	2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0
Copper	U	2450	mg/kg	0.50	26	77	12	30	13	14	68	12	23
Mercury	U	2450	mg/kg	0.10	0.10	0.13	< 0.10	0.11	< 0.10	< 0.10	< 0.10	< 0.10	0.12
Nickel	U	2450	mg/kg	0.50	32	23	23	21	28	32	17	15	20
Lead	U	2450	mg/kg	0.50	32	49	21	33	21	17	75	20	52
Selenium	U	2450	mg/kg	0.20	0.42	1.6	1.6	1.3	1.8	1.1	< 0.20	< 0.20	0.20
Zinc	U	2450	mg/kg	0.50	68	90	110	73	120	130	66	88	72
Chromium (Trivalent)	N	2490	mg/kg	1.0	15	16	21	14	25	25	13	9.2	14
Chromium (Hexavalent)	N	2490	mg/kg	0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
Mineral Oil	N	2670	mg/kg	10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10
Aliphatic TPH >C5-C6	N	2680	mg/kg	1.0	[A] < 1.0	[A] < 1.0	[A] < 1.0	[A] < 1.0	[A] < 1.0	[A] < 1.0	[A] < 1.0	[A] < 1.0	[A] < 1.0
Aliphatic TPH >C6-C8	N	2680	mg/kg	1.0	[A] < 1.0	[A] < 1.0	[A] < 1.0	[A] < 1.0	[A] < 1.0	[A] < 1.0	[A] < 1.0	[A] < 1.0	[A] < 1.0
Aliphatic TPH >C8-C10	U	2680	mg/kg	1.0	[A] < 1.0	[A] < 1.0	[A] < 1.0	[A] < 1.0	[A] < 1.0	[A] < 1.0	[A] < 1.0	[A] < 1.0	[A] < 1.0
Aliphatic TPH >C10-C12	U	2680	mg/kg	1.0	[A] < 1.0	[A] < 1.0	[A] < 1.0	[A] < 1.0	[A] < 1.0	[A] < 1.0	[A] < 1.0	[A] < 1.0	[A] < 1.0
Aliphatic TPH >C12-C16	U	2680	mg/kg	1.0	[A] < 1.0	[A] < 1.0	[A] < 1.0	[A] < 1.0	[A] < 1.0	[A] < 1.0	[A] < 1.0	[A] < 1.0	[A] < 1.0
Aliphatic TPH >C16-C21	U	2680	mg/kg	1.0	[A] < 1.0	[A] < 1.0	[A] < 1.0	[A] < 1.0	[A] < 1.0	[A] < 1.0	[A] < 1.0	[A] < 1.0	[A] < 1.0
Aliphatic TPH >C21-C35	U	2680	mg/kg	1.0	[A] < 1.0	[A] < 1.0	[A] < 1.0	[A] < 1.0	[A] < 1.0	[A] < 1.0	[A] < 1.0	[A] < 1.0	[A] < 1.0

Results - Soil

Project: 23017 Carlow Water Park

Client: IGSL			**Chemtest Job No.:**		20-35643	20-35643	20-35643	20-35643	20-35643	20-35643	20-35643	20-35643	20-35643
Quotation No.:			**Chemtest Sample ID.:**		1120032	1120033	1120034	1120035	1120036	1120037	1120038	1120039	1120040
Order No.:			Client Sample Ref.:		144851	144852	144854	144860	144861	144863	147400	AA1400149	AA145001
			Sample Location:		BH1	BH1	BH1	BH2	BH2	BH2	BH3	TP01	TP02
			Sample Type:		SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
			Top Depth (m):		1.00	2.00	3.00	1.00	2.00	3.00	1.00	1.00	1.00
			Asbestos Lab:		DURHAM	DURHAM	DURHAM	DURHAM	DURHAM	DURHAM	DURHAM	DURHAM	DURHAM
Determinand	**Accred.**	**SOP**	**Units**	**LOD**									
Aliphatic TPH >C35-C44	N	2680	mg/kg	1.0	[A] < 1.0	[A] < 1.0	[A] < 1.0	[A] < 1.0	[A] < 1.0	[A] < 1.0	[A] < 1.0	[A] < 1.0	[A] < 1.0
Total Aliphatic Hydrocarbons	N	2680	mg/kg	5.0	[A] < 5.0	[A] < 5.0	[A] < 5.0	[A] < 5.0	[A] < 5.0	[A] < 5.0	[A] < 5.0	[A] < 5.0	[A] < 5.0
Aromatic TPH >C5-C7	N	2680	mg/kg	1.0	[A] < 1.0	[A] < 1.0	[A] < 1.0	[A] < 1.0	[A] < 1.0	[A] < 1.0	[A] < 1.0	[A] < 1.0	[A] < 1.0
Aromatic TPH >C7-C8	N	2680	mg/kg	1.0	[A] < 1.0	[A] < 1.0	[A] < 1.0	[A] < 1.0	[A] < 1.0	[A] < 1.0	[A] < 1.0	[A] < 1.0	[A] < 1.0
Aromatic TPH >C8-C10	U	2680	mg/kg	1.0	[A] < 1.0	[A] < 1.0	[A] < 1.0	[A] < 1.0	[A] < 1.0	[A] < 1.0	[A] < 1.0	[A] < 1.0	[A] < 1.0
Aromatic TPH >C10-C12	U	2680	mg/kg	1.0	[A] < 1.0	[A] < 1.0	[A] < 1.0	[A] < 1.0	[A] < 1.0	[A] < 1.0	[A] < 1.0	[A] < 1.0	[A] < 1.0
Aromatic TPH >C12-C16	U	2680	mg/kg	1.0	[A] < 1.0	[A] < 1.0	[A] < 1.0	[A] < 1.0	[A] < 1.0	[A] < 1.0	[A] < 1.0	[A] < 1.0	[A] < 1.0
Aromatic TPH >C16-C21	U	2680	mg/kg	1.0	[A] < 1.0	[A] < 1.0	[A] < 1.0	[A] < 1.0	[A] < 1.0	[A] < 1.0	[A] < 1.0	[A] < 1.0	[A] < 1.0
Aromatic TPH >C21-C35	U	2680	mg/kg	1.0	[A] < 1.0	[A] < 1.0	[A] < 1.0	[A] < 1.0	[A] < 1.0	[A] < 1.0	[A] < 1.0	[A] < 1.0	[A] < 1.0
Aromatic TPH >C35-C44	N	2680	mg/kg	1.0	[A] < 1.0	[A] < 1.0	[A] < 1.0	[A] < 1.0	[A] < 1.0	[A] < 1.0	[A] < 1.0	[A] < 1.0	[A] < 1.0
Total Aromatic Hydrocarbons	N	2680	mg/kg	5.0	[A] < 5.0	[A] < 5.0	[A] < 5.0	[A] < 5.0	[A] < 5.0	[A] < 5.0	[A] < 5.0	[A] < 5.0	[A] < 5.0
Total Petroleum Hydrocarbons	N	2680	mg/kg	10.0	[A] < 10	[A] < 10	[A] < 10	[A] < 10	[A] < 10	[A] < 10	[A] < 10	[A] < 10	[A] < 10
Benzene	U	2760	µg/kg	1.0	[A] < 1.0	[A] < 1.0	[A] < 1.0	[A] < 1.0	[A] < 1.0	[A] < 1.0	[A] < 1.0	[A] < 1.0	[A] < 1.0
Toluene	U	2760	µg/kg	1.0	[A] < 1.0	[A] < 1.0	[A] < 1.0	[A] < 1.0	[A] < 1.0	[A] < 1.0	[A] < 1.0	[A] < 1.0	[A] < 1.0
Ethylbenzene	U	2760	µg/kg	1.0	[A] < 1.0	[A] < 1.0	[A] < 1.0	[A] < 1.0	[A] < 1.0	[A] < 1.0	[A] < 1.0	[A] < 1.0	[A] < 1.0
m & p-Xylene	U	2760	µg/kg	1.0	[A] < 1.0	[A] < 1.0	[A] < 1.0	[A] < 1.0	[A] < 1.0	[A] < 1.0	[A] < 1.0	[A] < 1.0	[A] < 1.0
o-Xylene	U	2760	µg/kg	1.0	[A] < 1.0	[A] < 1.0	[A] < 1.0	[A] < 1.0	[A] < 1.0	[A] < 1.0	[A] < 1.0	[A] < 1.0	[A] < 1.0
Methyl Tert-Butyl Ether	U	2760	µg/kg	1.0	[A] < 1.0	[A] < 1.0	[A] < 1.0	[A] < 1.0	[A] < 1.0	[A] < 1.0	[A] < 1.0	[A] < 1.0	[A] < 1.0
Naphthalene	N	2800	mg/kg	0.010	[A] < 0.010	[A] < 0.010	[A] < 0.010	[A] 0.078	[A] < 0.010	[A] < 0.010	[A] 0.088	[A] < 0.010	[A] < 0.010
Acenaphthylene	N	2800	mg/kg	0.010	[A] < 0.010	[A] < 0.010	[A] < 0.010	[A] 0.072	[A] < 0.010	[A] < 0.010	[A] 0.083	[A] < 0.010	[A] < 0.010
Acenaphthene	N	2800	mg/kg	0.010	[A] < 0.010	[A] < 0.010	[A] < 0.010	[A] 0.040	[A] < 0.010	[A] < 0.010	[A] 0.017	[A] < 0.010	[A] < 0.010
Fluorene	N	2800	mg/kg	0.010	[A] < 0.010	[A] < 0.010	[A] < 0.010	[A] 0.073	[A] < 0.010	[A] < 0.010	[A] 0.076	[A] < 0.010	[A] < 0.010
Phenanthrene	N	2800	mg/kg	0.010	[A] 0.089	[A] 0.13	[A] 0.051	[A] 0.14	[A] < 0.010	[A] 0.078	[A] 0.49	[A] 0.19	[A] 0.16
Anthracene	N	2800	mg/kg	0.010	[A] 0.040	[A] 0.039	[A] < 0.010	[A] 0.099	[A] < 0.010	[A] 0.050	[A] 0.13	[A] 0.059	[A] 0.066
Fluoranthene	N	2800	mg/kg	0.010	[A] 0.23	[A] 0.15	[A] 0.073	[A] 0.15	[A] 0.036	[A] 0.14	[A] 0.84	[A] 0.67	[A] 0.61
Pyrene	N	2800	mg/kg	0.010	[A] 0.19	[A] 0.14	[A] 0.069	[A] 0.15	[A] 0.048	[A] 0.14	[A] 0.72	[A] 0.64	[A] 0.61
Benzo[a]anthracene	N	2800	mg/kg	0.010	[A] 0.16	[A] 0.092	[A] < 0.010	[A] 0.12	[A] < 0.010	[A] 0.087	[A] 0.44	[A] 0.39	[A] 0.43
Chrysene	N	2800	mg/kg	0.010	[A] 0.11	[A] 0.094	[A] < 0.010	[A] 0.12	[A] < 0.010	[A] 0.081	[A] 0.39	[A] 0.33	[A] 0.38
Benzo[b]fluoranthene	N	2800	mg/kg	0.010	[A] 0.19	[A] < 0.010	[A] < 0.010	[A] 0.18	[A] < 0.010	[A] 0.074	[A] 0.52	[A] 0.50	[A] 0.61
Benzo[k]fluoranthene	N	2800	mg/kg	0.010	[A] 0.078	[A] < 0.010	[A] < 0.010	[A] 0.078	[A] < 0.010	[A] 0.061	[A] 0.18	[A] 0.18	[A] 0.18
Benzo[a]pyrene	N	2800	mg/kg	0.010	[A] 0.16	[A] < 0.010	[A] < 0.010	[A] 0.15	[A] < 0.010	[A] 0.093	[A] 0.39	[A] 0.41	[A] 0.52
Indeno(1,2,3-c,d)Pyrene	N	2800	mg/kg	0.010	[A] 0.11	[A] < 0.010	[A] < 0.010	[A] 0.18	[A] < 0.010	[A] < 0.010	[A] 0.31	[A] 0.34	[A] 0.37
Dibenz(a,h)Anthracene	N	2800	mg/kg	0.010	[A] < 0.010	[A] < 0.010	[A] < 0.010	[A] 0.13	[A] < 0.010	[A] < 0.010	[A] 0.098	[A] 0.086	[A] 0.096
Benzo[g,h,i]perylene	N	2800	mg/kg	0.010	[A] 0.081	[A] < 0.010	[A] < 0.010	[A] 0.13	[A] < 0.010	[A] < 0.010	[A] 0.24	[A] 0.32	[A] 0.36
Coronene	N	2800	mg/kg	0.010	[A] < 0.010	[A] < 0.010	[A] < 0.010	[A] < 0.010	[A] < 0.010	[A] < 0.010	[A] < 0.010	[A] < 0.010	[A] < 0.010
Total Of 17 PAH's	N	2800	mg/kg	0.20	[A] 1.4	[A] 0.65	[A] < 0.20	[A] 1.9	[A] < 0.20	[A] 0.80	[A] 5.0	[A] 4.1	[A] 4.4
PCB 28	N	2815	mg/kg	0.0010	[A] < 0.0010	[A] < 0.0010	[A] < 0.0010	[A] < 0.0010	[A] < 0.0010	[A] < 0.0010	[A] < 0.0010	[A] < 0.0010	[A] < 0.0010
PCB 52	N	2815	mg/kg	0.0010	[A] < 0.0010	[A] < 0.0010	[A] < 0.0010	[A] < 0.0010	[A] < 0.0010	[A] < 0.0010	[A] < 0.0010	[A] < 0.0010	[A] < 0.0010
PCB 90+101	N	2815	mg/kg	0.0010	[A] < 0.0010	[A] < 0.0010	[A] < 0.0010	[A] < 0.0010	[A] < 0.0010	[A] < 0.0010	[A] < 0.0010	[A] < 0.0010	[A] < 0.0010

Results - Soil

Project: 23017 Carlow Water Park

Client: IGSL			**Chemtest Job No.:**		20-35643	20-35643	20-35643	20-35643	20-35643	20-35643	20-35643	20-35643	20-35643
Quotation No.:			**Chemtest Sample ID.:**		1120032	1120033	1120034	1120035	1120036	1120037	1120038	1120039	1120040
Order No.:			Client Sample Ref.:		144851	144852	144854	144860	144861	144863	147400	AA1400149	AA145001
			Sample Location:		BH1	BH1	BH1	BH2	BH2	BH2	BH3	TP01	TP02
			Sample Type:		SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
			Top Depth (m):		1.00	2.00	3.00	1.00	2.00	3.00	1.00	1.00	1.00
			Asbestos Lab:		DURHAM	DURHAM	DURHAM	DURHAM	DURHAM	DURHAM	DURHAM	DURHAM	DURHAM
Determinand	**Accred.**	**SOP**	**Units**	**LOD**									
PCB 118	N	2815	mg/kg	0.0010	[A] < 0.0010	[A] < 0.0010	[A] < 0.0010	[A] < 0.0010	[A] < 0.0010	[A] < 0.0010	[A] < 0.0010	[A] < 0.0010	[A] < 0.0010
PCB 153	N	2815	mg/kg	0.0010	[A] < 0.0010	[A] < 0.0010	[A] < 0.0010	[A] < 0.0010	[A] < 0.0010	[A] < 0.0010	[A] < 0.0010	[A] < 0.0010	[A] < 0.0010
PCB 138	N	2815	mg/kg	0.0010	[A] < 0.0010	[A] < 0.0010	[A] < 0.0010	[A] < 0.0010	[A] < 0.0010	[A] < 0.0010	[A] < 0.0010	[A] < 0.0010	[A] < 0.0010
PCB 180	N	2815	mg/kg	0.0010	[A] < 0.0010	[A] < 0.0010	[A] < 0.0010	[A] < 0.0010	[A] < 0.0010	[A] < 0.0010	[A] < 0.0010	[A] < 0.0010	[A] < 0.0010
Total PCBs (7 congeners)	N	2815	mg/kg	0.0010	[A] < 0.0010	[A] < 0.0010	[A] < 0.0010	[A] < 0.0010	[A] < 0.0010	[A] < 0.0010	[A] < 0.0010	[A] < 0.0010	[A] < 0.0010
Total Phenols	U	2920	mg/kg	0.30	< 0.30	< 0.30	< 0.30	< 0.30	< 0.30	< 0.30	< 0.30	< 0.30	< 0.30

Results - Soil

Project: 23017 Carlow Water Park

Client: IGSL				**Chemtest Job No.:**	20-35643	20-35643	20-35643	20-35643	20-35643
Quotation No.:				**Chemtest Sample ID.:**	1120041	1120042	1120043	1120044	1120045
Order No.:				Client Sample Ref.:	AA145002	AA140050	AA140048	AA144046	AA140047
				Sample Location:	TP02	TP03	TP04	TP05	TP05
				Sample Type:	SOIL	SOIL	SOIL	SOIL	SOIL
				Top Depth (m):	2.00	1.00	1.00	0.50	1.50
				Asbestos Lab:	DURHAM	DURHAM	DURHAM	DURHAM	DURHAM
Determinand	**Accred.**	**SOP**	**Units**	**LOD**					
ACM Type	U	2192		N/A	-	-	-	-	-
Asbestos Identification	U	2192		N/A	No Asbestos Detected	No Asbestos Detected	No Asbestos Detected	No Asbestos Detected	No Asbestos Detected
ACM Detection Stage	U	2192		N/A	-	-	-	-	-
Moisture	N	2030	%	0.020	18	32	60	15	25
pH (2.5:1)	N	2010		4.0					
Boron (Hot Water Soluble)	U	2120	mg/kg	0.40	[A] < 0.40	[A] < 0.40	[A] < 0.40	[A] < 0.40	[A] 0.47
Magnesium (Water Soluble)	N	2120	g/l	0.010					
Sulphate (2:1 Water Soluble) as SO4	U	2120	g/l	0.010					
Total Sulphur	U	2175	%	0.010					
Sulphur (Elemental)	U	2180	mg/kg	1.0	[A] 2.4	[A] < 1.0	[A] 1.3	[A] 2.6	[A] 47
Chloride (Water Soluble)	U	2220	g/l	0.010					
Nitrate (Water Soluble)	N	2220	g/l	0.010					
Cyanide (Total)	U	2300	mg/kg	0.50	[A] < 0.50	[A] < 0.50	[A] < 0.50	[A] < 0.50	[A] < 0.50
Sulphide (Easily Liberatable)	N	2325	mg/kg	0.50	[A] 7.7	[A] 2.2	[A] 3.9	[A] 4.0	[A] 5.4
Ammonium (Water Soluble)	U	2120	g/l	0.01					
Sulphate (Acid Soluble)	U	2430	%	0.010	[A] 0.050	[A] 0.033	[A] 0.058	[A] 0.044	[A] 0.073
Arsenic	U	2450	mg/kg	1.0	15	17	19	17	20
Barium	U	2450	mg/kg	10	61	58	66	77	64
Cadmium	U	2450	mg/kg	0.10	0.69	0.64	1.1	1.3	1.1
Chromium	U	2450	mg/kg	1.0	10	12	14	15	16
Molybdenum	U	2450	mg/kg	2.0	< 2.0	< 2.0	< 2.0	< 2.0	2.3
Antimony	N	2450	mg/kg	2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0
Copper	U	2450	mg/kg	0.50	17	19	27	26	28
Mercury	U	2450	mg/kg	0.10	< 0.10	< 0.10	0.15	< 0.10	0.21
Nickel	U	2450	mg/kg	0.50	15	19	21	30	31
Lead	U	2450	mg/kg	0.50	40	31	53	43	49
Selenium	U	2450	mg/kg	0.20	< 0.20	0.22	0.24	0.35	0.20
Zinc	U	2450	mg/kg	0.50	58	58	110	74	77
Chromium (Trivalent)	N	2490	mg/kg	1.0	10	12	14	15	16
Chromium (Hexavalent)	N	2490	mg/kg	0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
Mineral Oil	N	2670	mg/kg	10	< 10	< 10	< 10	< 10	< 10
Aliphatic TPH >C5-C6	N	2680	mg/kg	1.0	[A] < 1.0	[A] < 1.0	[A] < 1.0	[A] < 1.0	[A] < 1.0
Aliphatic TPH >C6-C8	N	2680	mg/kg	1.0	[A] < 1.0	[A] < 1.0	[A] < 1.0	[A] < 1.0	[A] < 1.0
Aliphatic TPH >C8-C10	U	2680	mg/kg	1.0	[A] < 1.0	[A] < 1.0	[A] < 1.0	[A] < 1.0	[A] < 1.0
Aliphatic TPH >C10-C12	U	2680	mg/kg	1.0	[A] < 1.0	[A] < 1.0	[A] < 1.0	[A] < 1.0	[A] < 1.0
Aliphatic TPH >C12-C16	U	2680	mg/kg	1.0	[A] < 1.0	[A] < 1.0	[A] < 1.0	[A] < 1.0	[A] < 1.0
Aliphatic TPH >C16-C21	U	2680	mg/kg	1.0	[A] < 1.0	[A] < 1.0	[A] < 1.0	[A] < 1.0	[A] < 1.0
Aliphatic TPH >C21-C35	U	2680	mg/kg	1.0	[A] < 1.0	[A] < 1.0	[A] < 1.0	[A] < 1.0	[A] < 1.0

Results - Soil

Project: 23017 Carlow Water Park

Client: IGSL			**Chemtest Job No.:**		20-35643	20-35643	20-35643	20-35643	20-35643
Quotation No.:			**Chemtest Sample ID.:**		1120041	1120042	1120043	1120044	1120045
Order No.:			Client Sample Ref.:		AA145002	AA140050	AA140048	AA144046	AA140047
			Sample Location:		TP02	TP03	TP04	TP05	TP05
			Sample Type:		SOIL	SOIL	SOIL	SOIL	SOIL
			Top Depth (m):		2.00	1.00	1.00	0.50	1.50
			Asbestos Lab:		DURHAM	DURHAM	DURHAM	DURHAM	DURHAM
Determinand	**Accred.**	**SOP**	**Units**	**LOD**					
Aliphatic TPH >C35-C44	N	2680	mg/kg	1.0	[A] < 1.0	[A] < 1.0	[A] < 1.0	[A] < 1.0	[A] < 1.0
Total Aliphatic Hydrocarbons	N	2680	mg/kg	5.0	[A] < 5.0	[A] < 5.0	[A] < 5.0	[A] < 5.0	[A] < 5.0
Aromatic TPH >C5-C7	N	2680	mg/kg	1.0	[A] < 1.0	[A] < 1.0	[A] < 1.0	[A] < 1.0	[A] < 1.0
Aromatic TPH >C7-C8	N	2680	mg/kg	1.0	[A] < 1.0	[A] < 1.0	[A] < 1.0	[A] < 1.0	[A] < 1.0
Aromatic TPH >C8-C10	U	2680	mg/kg	1.0	[A] < 1.0	[A] < 1.0	[A] < 1.0	[A] < 1.0	[A] < 1.0
Aromatic TPH >C10-C12	U	2680	mg/kg	1.0	[A] < 1.0	[A] < 1.0	[A] < 1.0	[A] < 1.0	[A] < 1.0
Aromatic TPH >C12-C16	U	2680	mg/kg	1.0	[A] < 1.0	[A] < 1.0	[A] < 1.0	[A] < 1.0	[A] < 1.0
Aromatic TPH >C16-C21	U	2680	mg/kg	1.0	[A] < 1.0	[A] < 1.0	[A] < 1.0	[A] < 1.0	[A] < 1.0
Aromatic TPH >C21-C35	U	2680	mg/kg	1.0	[A] < 1.0	[A] < 1.0	[A] < 1.0	[A] < 1.0	[A] < 1.0
Aromatic TPH >C35-C44	N	2680	mg/kg	1.0	[A] < 1.0	[A] < 1.0	[A] < 1.0	[A] < 1.0	[A] < 1.0
Total Aromatic Hydrocarbons	N	2680	mg/kg	5.0	[A] < 5.0	[A] < 5.0	[A] < 5.0	[A] < 5.0	[A] < 5.0
Total Petroleum Hydrocarbons	N	2680	mg/kg	10.0	[A] < 10	[A] < 10	[A] < 10	[A] < 10	[A] < 10
Benzene	U	2760	µg/kg	1.0	[A] < 1.0	[A] < 1.0	[A] < 1.0	[A] < 1.0	[A] < 1.0
Toluene	U	2760	µg/kg	1.0	[A] < 1.0	[A] < 1.0	[A] < 1.0	[A] < 1.0	[A] < 1.0
Ethylbenzene	U	2760	µg/kg	1.0	[A] < 1.0	[A] < 1.0	[A] < 1.0	[A] < 1.0	[A] < 1.0
m & p-Xylene	U	2760	µg/kg	1.0	[A] < 1.0	[A] < 1.0	[A] < 1.0	[A] < 1.0	[A] < 1.0
o-Xylene	U	2760	µg/kg	1.0	[A] < 1.0	[A] < 1.0	[A] < 1.0	[A] < 1.0	[A] < 1.0
Methyl Tert-Butyl Ether	U	2760	µg/kg	1.0	[A] < 1.0	[A] < 1.0	[A] < 1.0	[A] < 1.0	[A] < 1.0
Naphthalene	N	2800	mg/kg	0.010	[A] < 0.010	[A] < 0.010	[A] < 0.010	[A] < 0.010	[A] < 0.010
Acenaphthylene	N	2800	mg/kg	0.010	[A] < 0.010	[A] < 0.010	[A] < 0.010	[A] < 0.010	[A] < 0.010
Acenaphthene	N	2800	mg/kg	0.010	[A] < 0.010	[A] < 0.010	[A] < 0.010	[A] < 0.010	[A] < 0.010
Fluorene	N	2800	mg/kg	0.010	[A] < 0.010	[A] < 0.010	[A] < 0.010	[A] < 0.010	[A] < 0.010
Phenanthrene	N	2800	mg/kg	0.010	[A] 0.29	[A] 0.043	[A] 0.17	[A] 0.17	[A] 0.25
Anthracene	N	2800	mg/kg	0.010	[A] 0.087	[A] < 0.010	[A] 0.041	[A] 0.10	[A] 0.073
Fluoranthene	N	2800	mg/kg	0.010	[A] 0.69	[A] 0.041	[A] 0.41	[A] 0.47	[A] 0.67
Pyrene	N	2800	mg/kg	0.010	[A] 0.61	[A] 0.035	[A] 0.33	[A] 0.39	[A] 0.62
Benzo[a]anthracene	N	2800	mg/kg	0.010	[A] 0.44	[A] < 0.010	[A] 0.24	[A] 0.30	[A] 0.41
Chrysene	N	2800	mg/kg	0.010	[A] 0.43	[A] < 0.010	[A] 0.19	[A] 0.33	[A] 0.35
Benzo[b]fluoranthene	N	2800	mg/kg	0.010	[A] 0.56	[A] < 0.010	[A] 0.34	[A] 0.40	[A] 0.46
Benzo[k]fluoranthene	N	2800	mg/kg	0.010	[A] 0.21	[A] < 0.010	[A] 0.089	[A] 0.13	[A] 0.18
Benzo[a]pyrene	N	2800	mg/kg	0.010	[A] 0.55	[A] < 0.010	[A] 0.29	[A] 0.34	[A] 0.36
Indeno(1,2,3-c,d)Pyrene	N	2800	mg/kg	0.010	[A] 0.41	[A] < 0.010	[A] 0.23	[A] 0.24	[A] 0.30
Dibenz(a,h)Anthracene	N	2800	mg/kg	0.010	[A] 0.12	[A] < 0.010	[A] 0.050	[A] 0.052	[A] 0.073
Benzo[g,h,i]perylene	N	2800	mg/kg	0.010	[A] 0.33	[A] < 0.010	[A] 0.20	[A] 0.20	[A] 0.25
Coronene	N	2800	mg/kg	0.010	[A] < 0.010	[A] < 0.010	[A] < 0.010	[A] < 0.010	[A] < 0.010
Total Of 17 PAH's	N	2800	mg/kg	0.20	[A] 4.7	[A] < 0.20	[A] 2.6	[A] 3.1	[A] 4.0
PCB 28	N	2815	mg/kg	0.0010	[A] < 0.0010	[A] < 0.0010	[A] < 0.0010	[A] < 0.0010	[A] < 0.0010
PCB 52	N	2815	mg/kg	0.0010	[A] < 0.0010	[A] < 0.0010	[A] < 0.0010	[A] < 0.0010	[A] < 0.0010
PCB 90+101	N	2815	mg/kg	0.0010	[A] < 0.0010	[A] < 0.0010	[A] < 0.0010	[A] < 0.0010	[A] < 0.0010

Results - Soil

Project: 23017 Carlow Water Park

Client: IGSL			**Chemtest Job No.:**		20-35643	20-35643	20-35643	20-35643	20-35643
Quotation No.:			**Chemtest Sample ID.:**		1120041	1120042	1120043	1120044	1120045
Order No.:			Client Sample Ref.:		AA145002	AA140050	AA140048	AA144046	AA140047
			Sample Location:		TP02	TP03	TP04	TP05	TP05
			Sample Type:		SOIL	SOIL	SOIL	SOIL	SOIL
			Top Depth (m):		2.00	1.00	1.00	0.50	1.50
			Asbestos Lab:		DURHAM	DURHAM	DURHAM	DURHAM	DURHAM
Determinand	**Accred.**	**SOP**	**Units**	**LOD**					
PCB 118	N	2815	mg/kg	0.0010	[A] < 0.0010	[A] < 0.0010	[A] < 0.0010	[A] < 0.0010	[A] < 0.0010
PCB 153	N	2815	mg/kg	0.0010	[A] < 0.0010	[A] < 0.0010	[A] < 0.0010	[A] < 0.0010	[A] < 0.0010
PCB 138	N	2815	mg/kg	0.0010	[A] < 0.0010	[A] < 0.0010	[A] < 0.0010	[A] < 0.0010	[A] < 0.0010
PCB 180	N	2815	mg/kg	0.0010	[A] < 0.0010	[A] < 0.0010	[A] < 0.0010	[A] < 0.0010	[A] < 0.0010
Total PCBs (7 congeners)	N	2815	mg/kg	0.0010	[A] < 0.0010	[A] < 0.0010	[A] < 0.0010	[A] < 0.0010	[A] < 0.0010
Total Phenols	U	2920	mg/kg	0.30	< 0.30	< 0.30	< 0.30	< 0.30	< 0.30

Results - Single Stage WAC

Project: 23017 Carlow Water Park

					Landfill Waste Acceptance Criteria Limits		
Chemtest Job No:	20-35643						
Chemtest Sample ID:	1120032						
Sample Ref:	144851						
Sample ID:							
Sample Location:	BH1						
Top Depth(m):	1.00						
Bottom Depth(m):							
Sampling Date:							
Determinand	**SOP**	**Accred.**	**Units**		**Inert Waste Landfill**	**Stable, Non-reactive hazardous waste in non-hazardous Landfill**	**Hazardous Waste Landfill**
Total Organic Carbon	2625	U	%	[A] 0.73	3	5	6
Loss On Ignition	2610	U	%	14	--	--	10
Total BTEX	2760	U	mg/kg	[A] < 0.010	6	--	--
Total PCBs (7 congeners)	2815	N	mg/kg	[A] < 0.0010	1	--	--
TPH Total WAC (Mineral Oil)	2670	U	mg/kg	[A] < 10	500	--	--
Total Of 17 PAH's	2800	N	mg/kg	[A] 1.4	100	--	--
pH	2010	U		8.1	--	>6	--
Acid Neutralisation Capacity	2015	N	mol/kg	0.010	--	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	0.0047	< 0.50	20	100	300
Cadmium	1450	U	< 0.00010	< 0.010	0.04	1	5
Chromium	1450	U	0.0015	< 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	0.0029	< 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	0.25	2.5	10	150	500
Sulphate	1220	U	2.7	27	1000	20000	50000
Total Dissolved Solids	1020	N	100	1000	4000	60000	100000
Phenol Index	1920	U	< 0.030	< 0.30	1	-	-
Dissolved Organic Carbon	1610	U	6.8	68	500	800	1000

Solid Information	
Dry mass of test portion/kg	0.090
Moisture (%)	43

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: 23017 Carlow Water Park

					Landfill Waste Acceptance Criteria Limits		
Chemtest Job No:	20-35643						
Chemtest Sample ID:	1120033						
Sample Ref:	144852						
Sample ID:							
Sample Location:	BH1						
Top Depth(m):	2.00						
Bottom Depth(m):							
Sampling Date:							
Determinand	**SOP**	**Accred.**	**Units**		**Inert Waste Landfill**	**Stable, Non-reactive hazardous waste in non-hazardous Landfill**	**Hazardous Waste Landfill**
Total Organic Carbon	2625	U	%	[A] 6.4	3	5	6
Loss On Ignition	2610	U	%	9.1	--	--	10
Total BTEX	2760	U	mg/kg	[A] < 0.010	6	--	--
Total PCBs (7 congeners)	2815	N	mg/kg	[A] < 0.0010	1	--	--
TPH Total WAC (Mineral Oil)	2670	U	mg/kg	[A] < 10	500	--	--
Total Of 17 PAH's	2800	N	mg/kg	[A] 0.65	100	--	--
pH	2010	U		7.4	--	>6	--
Acid Neutralisation Capacity	2015	N	mol/kg	< 0.0020	--	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	0.0025	< 0.050	0.5	2	25
Barium	1450	U	0.14	1.4	20	100	300
Cadmium	1450	U	< 0.00010	< 0.010	0.04	1	5
Chromium	1450	U	0.0011	< 0.050	0.5	10	70
Copper	1450	U	0.0017	< 0.050	2	50	100
Mercury	1450	U	< 0.00050	< 0.0050	0.01	0.2	2
Molybdenum	1450	U	0.0065	0.065	0.5	10	30
Nickel	1450	U	0.0013	< 0.050	0.4	10	40
Lead	1450	U	< 0.0010	< 0.010	0.5	10	50
Antimony	1450	U	0.0014	0.014	0.06	0.7	5
Selenium	1450	U	0.0018	0.018	0.1	0.5	7
Zinc	1450	U	0.010	< 0.50	4	50	200
Chloride	1220	U	1.9	19	800	15000	25000
Fluoride	1220	U	0.15	1.5	10	150	500
Sulphate	1220	U	89	890	1000	20000	50000
Total Dissolved Solids	1020	N	330	3100	4000	60000	100000
Phenol Index	1920	U	< 0.030	< 0.30	1	-	-
Dissolved Organic Carbon	1610	U	13	130	500	800	1000

Solid Information	
Dry mass of test portion/kg	0.090
Moisture (%)	48

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: 23017 Carlow Water Park

					Landfill Waste Acceptance Criteria Limits		
Chemtest Job No:	20-35643						
Chemtest Sample ID:	1120034						
Sample Ref:	144854						
Sample ID:							
Sample Location:	BH1						
Top Depth(m):	3.00						
Bottom Depth(m):							
Sampling Date:							
Determinand	**SOP**	**Accred.**	**Units**		**Inert Waste Landfill**	**Stable, Non-reactive hazardous waste in non-hazardous Landfill**	**Hazardous Waste Landfill**
Total Organic Carbon	2625	U	%	[A] 2.7	3	5	6
Loss On Ignition	2610	U	%	16	--	--	10
Total BTEX	2760	U	mg/kg	[A] < 0.010	6	--	--
Total PCBs (7 congeners)	2815	N	mg/kg	[A] < 0.0010	1	--	--
TPH Total WAC (Mineral Oil)	2670	U	mg/kg	[A] < 10	500	--	--
Total Of 17 PAH's	2800	N	mg/kg	[A] < 0.20	100	--	--
pH	2010	U		7.1	--	>6	--
Acid Neutralisation Capacity	2015	N	mol/kg	0.0030	--	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	0.0012	< 0.050	0.5	2	25
Barium	1450	U	0.23	2.3	20	100	300
Cadmium	1450	U	< 0.00010	< 0.010	0.04	1	5
Chromium	1450	U	0.0011	< 0.050	0.5	10	70
Copper	1450	U	0.0018	< 0.050	2	50	100
Mercury	1450	U	< 0.00050	< 0.0050	0.01	0.2	2
Molybdenum	1450	U	0.0040	< 0.050	0.5	10	30
Nickel	1450	U	0.0020	< 0.050	0.4	10	40
Lead	1450	U	< 0.0010	< 0.010	0.5	10	50
Antimony	1450	U	0.0011	0.011	0.06	0.7	5
Selenium	1450	U	0.0020	0.020	0.1	0.5	7
Zinc	1450	U	0.0030	< 0.50	4	50	200
Chloride	1220	U	1.0	10	800	15000	25000
Fluoride	1220	U	0.18	1.8	10	150	500
Sulphate	1220	U	38	380	1000	20000	50000
Total Dissolved Solids	1020	N	230	2300	4000	60000	100000
Phenol Index	1920	U	< 0.030	< 0.30	1	-	-
Dissolved Organic Carbon	1610	U	9.2	92	500	800	1000

Solid Information	
Dry mass of test portion/kg	0.090
Moisture (%)	36

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: 23017 Carlow Water Park

					Landfill Waste Acceptance Criteria Limits		
Chemtest Job No:	20-35643						
Chemtest Sample ID:	1120035						
Sample Ref:	144860						
Sample ID:							
Sample Location:	BH2						
Top Depth(m):	1.00						
Bottom Depth(m):							
Sampling Date:							
Determinand	**SOP**	**Accred.**	**Units**		**Inert Waste Landfill**	**Stable, Non-reactive hazardous waste in non-hazardous Landfill**	**Hazardous Waste Landfill**
Total Organic Carbon	2625	U	%	[A] 5.5	3	5	6
Loss On Ignition	2610	U	%	9.9	--	--	10
Total BTEX	2760	U	mg/kg	[A] < 0.010	6	--	--
Total PCBs (7 congeners)	2815	N	mg/kg	[A] < 0.0010	1	--	--
TPH Total WAC (Mineral Oil)	2670	U	mg/kg	[A] < 10	500	--	--
Total Of 17 PAH's	2800	N	mg/kg	[A] 1.9	100	--	--
pH	2010	U		7.3	--	>6	--
Acid Neutralisation Capacity	2015	N	mol/kg	< 0.0020	--	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	0.0018	< 0.050	0.5	2	25
Barium	1450	U	0.12	1.2	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	0.0020	< 0.050	2	50	100
Mercury	1450	U	< 0.00050	< 0.0050	0.01	0.2	2
Molybdenum	1450	U	0.0028	< 0.050	0.5	10	30
Nickel	1450	U	0.0013	< 0.050	0.4	10	40
Lead	1450	U	< 0.0010	< 0.010	0.5	10	50
Antimony	1450	U	0.0014	0.014	0.06	0.7	5
Selenium	1450	U	0.0012	0.012	0.1	0.5	7
Zinc	1450	U	0.011	< 0.50	4	50	200
Chloride	1220	U	1.4	14	800	15000	25000
Fluoride	1220	U	0.14	1.4	10	150	500
Sulphate	1220	U	120	1200	1000	20000	50000
Total Dissolved Solids	1020	N	360	3300	4000	60000	100000
Phenol Index	1920	U	< 0.030	< 0.30	1	-	-
Dissolved Organic Carbon	1610	U	10	100	500	800	1000

Solid Information	
Dry mass of test portion/kg	0.090
Moisture (%)	62

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: 23017 Carlow Water Park

					Landfill Waste Acceptance Criteria Limits		
Chemtest Job No:	20-35643						
Chemtest Sample ID:	1120036						
Sample Ref:	144861						
Sample ID:							
Sample Location:	BH2						
Top Depth(m):	2.00						
Bottom Depth(m):							
Sampling Date:							
Determinand	**SOP**	**Accred.**	**Units**		**Inert Waste Landfill**	**Stable, Non-reactive hazardous waste in non-hazardous Landfill**	**Hazardous Waste Landfill**
Total Organic Carbon	2625	U	%	[A] 2.8	3	5	6
Loss On Ignition	2610	U	%	6.0	--	--	10
Total BTEX	2760	U	mg/kg	[A] < 0.010	6	--	--
Total PCBs (7 congeners)	2815	N	mg/kg	[A] < 0.0010	1	--	--
TPH Total WAC (Mineral Oil)	2670	U	mg/kg	[A] < 10	500	--	--
Total Of 17 PAH's	2800	N	mg/kg	[A] < 0.20	100	--	--
pH	2010	U		7.1	--	>6	--
Acid Neutralisation Capacity	2015	N	mol/kg	0.0040	--	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	0.0011	< 0.050	0.5	2	25
Barium	1450	U	0.13	1.3	20	100	300
Cadmium	1450	U	< 0.00010	< 0.010	0.04	1	5
Chromium	1450	U	< 0.0010	< 0.050	0.5	10	70
Copper	1450	U	< 0.0010	< 0.050	2	50	100
Mercury	1450	U	< 0.00050	< 0.0050	0.01	0.2	2
Molybdenum	1450	U	0.0023	< 0.050	0.5	10	30
Nickel	1450	U	0.0020	< 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	0.0019	0.019	0.1	0.5	7
Zinc	1450	U	0.0094	< 0.50	4	50	200
Chloride	1220	U	2.6	26	800	15000	25000
Fluoride	1220	U	0.11	1.1	10	150	500
Sulphate	1220	U	150	1500	1000	20000	50000
Total Dissolved Solids	1020	N	370	3600	4000	60000	100000
Phenol Index	1920	U	< 0.030	< 0.30	1	-	-
Dissolved Organic Carbon	1610	U	12	120	500	800	1000

Solid Information	
Dry mass of test portion/kg	0.090
Moisture (%)	42

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: 23017 Carlow Water Park

					Landfill Waste Acceptance Criteria Limits		
Chemtest Job No:	20-35643						
Chemtest Sample ID:	1120037						
Sample Ref:	144863						
Sample ID:							
Sample Location:	BH2						
Top Depth(m):	3.00						
Bottom Depth(m):							
Sampling Date:							
Determinand	**SOP**	**Accred.**	**Units**		**Inert Waste Landfill**	**Stable, Non-reactive hazardous waste in non-hazardous Landfill**	**Hazardous Waste Landfill**
Total Organic Carbon	2625	U	%	[A] 1.0	3	5	6
Loss On Ignition	2610	U	%	5.0	--	--	10
Total BTEX	2760	U	mg/kg	[A] < 0.010	6	--	--
Total PCBs (7 congeners)	2815	N	mg/kg	[A] < 0.0010	1	--	--
TPH Total WAC (Mineral Oil)	2670	U	mg/kg	[A] < 10	500	--	--
Total Of 17 PAH's	2800	N	mg/kg	[A] 0.80	100	--	--
pH	2010	U		7.5	--	>6	--
Acid Neutralisation Capacity	2015	N	mol/kg	< 0.0020	--	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	0.0017	< 0.050	0.5	2	25
Barium	1450	U	0.30	3.0	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	< 0.0010	< 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	0.0019	0.019	0.1	0.5	7
Zinc	1450	U	0.0016	< 0.50	4	50	200
Chloride	1220	U	1.1	11	800	15000	25000
Fluoride	1220	U	0.14	1.4	10	150	500
Sulphate	1220	U	18	180	1000	20000	50000
Total Dissolved Solids	1020	N	160	1500	4000	60000	100000
Phenol Index	1920	U	< 0.030	< 0.30	1	-	-
Dissolved Organic Carbon	1610	U	6.8	68	500	800	1000

Solid Information	
Dry mass of test portion/kg	0.090
Moisture (%)	28

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: 23017 Carlow Water Park

					Landfill Waste Acceptance Criteria Limits		
Chemtest Job No:	20-35643						
Chemtest Sample ID:	1120038						
Sample Ref:	147400						
Sample ID:							
Sample Location:	BH3						
Top Depth(m):	1.00						
Bottom Depth(m):							
Sampling Date:							
Determinand	**SOP**	**Accred.**	**Units**		**Inert Waste Landfill**	**Stable, Non-reactive hazardous waste in non-hazardous Landfill**	**Hazardous Waste Landfill**
Total Organic Carbon	2625	U	%	[A] 3.2	3	5	6
Loss On Ignition	2610	U	%	3.8	--	--	10
Total BTEX	2760	U	mg/kg	[A] < 0.010	6	--	--
Total PCBs (7 congeners)	2815	N	mg/kg	[A] < 0.0010	1	--	--
TPH Total WAC (Mineral Oil)	2670	U	mg/kg	[A] < 10	500	--	--
Total Of 17 PAH's	2800	N	mg/kg	[A] 5.0	100	--	--
pH	2010	U		8.1	--	>6	--
Acid Neutralisation Capacity	2015	N	mol/kg	< 0.0020	--	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	0.0032	< 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	0.0016	< 0.050	0.5	10	70
Copper	1450	U	0.0046	< 0.050	2	50	100
Mercury	1450	U	< 0.00050	< 0.0050	0.01	0.2	2
Molybdenum	1450	U	0.0063	0.063	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	0.0021	0.021	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	1.8	18	800	15000	25000
Fluoride	1220	U	0.22	2.2	10	150	500
Sulphate	1220	U	7.5	75	1000	20000	50000
Total Dissolved Solids	1020	N	120	1200	4000	60000	100000
Phenol Index	1920	U	< 0.030	< 0.30	1	-	-
Dissolved Organic Carbon	1610	U	16	160	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: 23017 Carlow Water Park

					Landfill Waste Acceptance Criteria Limits		
Chemtest Job No:	20-35643						
Chemtest Sample ID:	1120039						
Sample Ref:	AA1400149						
Sample ID:							
Sample Location:	TP01						
Top Depth(m):	1.00						
Bottom Depth(m):							
Sampling Date:							
Determinand	**SOP**	**Accred.**	**Units**		**Inert Waste Landfill**	**Stable, Non-reactive hazardous waste in non-hazardous Landfill**	**Hazardous Waste Landfill**
Total Organic Carbon	2625	U	%	[A] 1.5	3	5	6
Loss On Ignition	2610	U	%	4.2	--	--	10
Total BTEX	2760	U	mg/kg	[A] < 0.010	6	--	--
Total PCBs (7 congeners)	2815	N	mg/kg	[A] < 0.0010	1	--	--
TPH Total WAC (Mineral Oil)	2670	U	mg/kg	[A] < 10	500	--	--
Total Of 17 PAH's	2800	N	mg/kg	[A] 4.1	100	--	--
pH	2010	U		8.4	--	>6	--
Acid Neutralisation Capacity	2015	N	mol/kg	0.029	--	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	0.0012	< 0.050	0.5	2	25
Barium	1450	U	0.0046	< 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	0.0042	< 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	0.18	1.8	10	150	500
Sulphate	1220	U	1.8	18	1000	20000	50000
Total Dissolved Solids	1020	N	91	910	4000	60000	100000
Phenol Index	1920	U	< 0.030	< 0.30	1	-	-
Dissolved Organic Carbon	1610	U	9.3	93	500	800	1000

Solid Information	
Dry mass of test portion/kg	0.090
Moisture (%)	1.9

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: 23017 Carlow Water Park

					Landfill Waste Acceptance Criteria Limits		
Chemtest Job No:	20-35643						
Chemtest Sample ID:	1120040						
Sample Ref:	AA145001						
Sample ID:							
Sample Location:	TP02						
Top Depth(m):	1.00						
Bottom Depth(m):							
Sampling Date:							
Determinand	**SOP**	**Accred.**	**Units**		**Inert Waste Landfill**	**Stable, Non-reactive hazardous waste in non-hazardous Landfill**	**Hazardous Waste Landfill**
Total Organic Carbon	2625	U	%	[A] 2.1	3	5	6
Loss On Ignition	2610	U	%	4.8	--	--	10
Total BTEX	2760	U	mg/kg	[A] < 0.010	6	--	--
Total PCBs (7 congeners)	2815	N	mg/kg	[A] < 0.0010	1	--	--
TPH Total WAC (Mineral Oil)	2670	U	mg/kg	[A] < 10	500	--	--
Total Of 17 PAH's	2800	N	mg/kg	[A] 4.4	100	--	--
pH	2010	U		8.2	--	>6	--
Acid Neutralisation Capacity	2015	N	mol/kg	0.025	--	To evaluate	To evaluate
Eluate Analysis			**10:1 Eluate mg/l**	**10:1 Eluate mg/kg**	**Limit values for compliance leaching test using BS EN 12457 at L/S 10 l/kg**		
Arsenic	1450	U	0.0016	< 0.050	0.5	2	25
Barium	1450	U	0.0071	< 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	0.0017	< 0.050	2	50	100
Mercury	1450	U	< 0.00050	< 0.0050	0.01	0.2	2
Molybdenum	1450	U	0.0024	< 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	0.0015	0.015	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	0.15	1.5	10	150	500
Sulphate	1220	U	1.7	17	1000	20000	50000
Total Dissolved Solids	1020	N	65	650	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 (%)	13

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: 23017 Carlow Water Park

					Landfill Waste Acceptance Criteria Limits		
Chemtest Job No:	20-35643						
Chemtest Sample ID:	1120041						
Sample Ref:	AA145002						
Sample ID:							
Sample Location:	TP02						
Top Depth(m):	2.00						
Bottom Depth(m):							
Sampling Date:							
Determinand	**SOP**	**Accred.**	**Units**		**Inert Waste Landfill**	**Stable, Non-reactive hazardous waste in non-hazardous Landfill**	**Hazardous Waste Landfill**
Total Organic Carbon	2625	U	%	[A] 1.8	3	5	6
Loss On Ignition	2610	U	%	4.2	--	--	10
Total BTEX	2760	U	mg/kg	[A] < 0.010	6	--	--
Total PCBs (7 congeners)	2815	N	mg/kg	[A] < 0.0010	1	--	--
TPH Total WAC (Mineral Oil)	2670	U	mg/kg	[A] < 10	500	--	--
Total Of 17 PAH's	2800	N	mg/kg	[A] 4.7	100	--	--
pH	2010	U		8.1	--	>6	--
Acid Neutralisation Capacity	2015	N	mol/kg	0.075	--	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	0.0013	< 0.050	0.5	2	25
Barium	1450	U	0.017	< 0.50	20	100	300
Cadmium	1450	U	< 0.00010	< 0.010	0.04	1	5
Chromium	1450	U	0.0021	< 0.050	0.5	10	70
Copper	1450	U	0.0014	< 0.050	2	50	100
Mercury	1450	U	< 0.00050	< 0.0050	0.01	0.2	2
Molybdenum	1450	U	0.011	0.11	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	0.0022	0.022	0.06	0.7	5
Selenium	1450	U	0.0010	0.010	0.1	0.5	7
Zinc	1450	U	0.0013	< 0.50	4	50	200
Chloride	1220	U	1.9	19	800	15000	25000
Fluoride	1220	U	0.22	2.2	10	150	500
Sulphate	1220	U	9.2	92	1000	20000	50000
Total Dissolved Solids	1020	N	120	1200	4000	60000	100000
Phenol Index	1920	U	< 0.030	< 0.30	1	-	-
Dissolved Organic Carbon	1610	U	5.4	54	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.

Results - Single Stage WAC

Project: 23017 Carlow Water Park

					Landfill Waste Acceptance Criteria Limits		
Chemtest Job No:	20-35643						
Chemtest Sample ID:	1120042						
Sample Ref:	AA140050						
Sample ID:							
Sample Location:	TP03						
Top Depth(m):	1.00						
Bottom Depth(m):							
Sampling Date:							
Determinand	**SOP**	**Accred.**	**Units**		**Inert Waste Landfill**	**Stable, Non-reactive hazardous waste in non-hazardous Landfill**	**Hazardous Waste Landfill**
Total Organic Carbon	2625	U	%	[A] 1.3	3	5	6
Loss On Ignition	2610	U	%	4.0	--	--	10
Total BTEX	2760	U	mg/kg	[A] < 0.010	6	--	--
Total PCBs (7 congeners)	2815	N	mg/kg	[A] < 0.0010	1	--	--
TPH Total WAC (Mineral Oil)	2670	U	mg/kg	[A] < 10	500	--	--
Total Of 17 PAH's	2800	N	mg/kg	[A] < 0.20	100	--	--
pH	2010	U		7.9	--	>6	--
Acid Neutralisation Capacity	2015	N	mol/kg	0.021	--	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	0.0053	< 0.50	20	100	300
Cadmium	1450	U	< 0.00010	< 0.010	0.04	1	5
Chromium	1450	U	0.0013	< 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	0.0070	0.070	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	0.35	3.5	10	150	500
Sulphate	1220	U	< 1.0	< 10	1000	20000	50000
Total Dissolved Solids	1020	N	85	830	4000	60000	100000
Phenol Index	1920	U	< 0.030	< 0.30	1	-	-
Dissolved Organic Carbon	1610	U	8.5	85	500	800	1000

Solid Information	
Dry mass of test portion/kg	0.090
Moisture (%)	32

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: 23017 Carlow Water Park

					Landfill Waste Acceptance Criteria Limits		
Chemtest Job No:	20-35643						
Chemtest Sample ID:	1120043						
Sample Ref:	AA140048						
Sample ID:							
Sample Location:	TP04						
Top Depth(m):	1.00						
Bottom Depth(m):							
Sampling Date:							
Determinand	**SOP**	**Accred.**	**Units**		**Inert Waste Landfill**	**Stable, Non-reactive hazardous waste in non-hazardous Landfill**	**Hazardous Waste Landfill**
Total Organic Carbon	2625	U	%	[A] 2.0	3	5	6
Loss On Ignition	2610	U	%	4.1	--	--	10
Total BTEX	2760	U	mg/kg	[A] < 0.010	6	--	--
Total PCBs (7 congeners)	2815	N	mg/kg	[A] < 0.0010	1	--	--
TPH Total WAC (Mineral Oil)	2670	U	mg/kg	[A] < 10	500	--	--
Total Of 17 PAH's	2800	N	mg/kg	[A] 2.6	100	--	--
pH	2010	U		8.3	--	>6	--
Acid Neutralisation Capacity	2015	N	mol/kg	0.010	--	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	0.0030	< 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	0.0022	< 0.050	0.5	10	70
Copper	1450	U	0.0057	0.057	2	50	100
Mercury	1450	U	< 0.00050	< 0.0050	0.01	0.2	2
Molybdenum	1450	U	0.0063	0.063	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	0.0014	0.014	0.06	0.7	5
Selenium	1450	U	0.0011	0.011	0.1	0.5	7
Zinc	1450	U	0.0023	< 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	3.1	31	1000	20000	50000
Total Dissolved Solids	1020	N	120	1100	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 (%)	60

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: 23017 Carlow Water Park

					Landfill Waste Acceptance Criteria Limits		
Chemtest Job No:	20-35643						
Chemtest Sample ID:	1120044						
Sample Ref:	AA144046						
Sample ID:							
Sample Location:	TP05						
Top Depth(m):	0.50						
Bottom Depth(m):							
Sampling Date:							
Determinand	**SOP**	**Accred.**	**Units**		**Inert Waste Landfill**	**Stable, Non-reactive hazardous waste in non-hazardous Landfill**	**Hazardous Waste Landfill**
Total Organic Carbon	2625	U	%	[A] 1.1	3	5	6
Loss On Ignition	2610	U	%	4.1	--	--	10
Total BTEX	2760	U	mg/kg	[A] < 0.010	6	--	--
Total PCBs (7 congeners)	2815	N	mg/kg	[A] < 0.0010	1	--	--
TPH Total WAC (Mineral Oil)	2670	U	mg/kg	[A] < 10	500	--	--
Total Of 17 PAH's	2800	N	mg/kg	[A] 3.1	100	--	--
pH	2010	U		8.3	--	>6	--
Acid Neutralisation Capacity	2015	N	mol/kg	0.0070	--	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	0.0021	< 0.050	0.5	2	25
Barium	1450	U	0.021	< 0.50	20	100	300
Cadmium	1450	U	< 0.00010	< 0.010	0.04	1	5
Chromium	1450	U	0.0021	< 0.050	0.5	10	70
Copper	1450	U	0.0029	< 0.050	2	50	100
Mercury	1450	U	< 0.00050	< 0.0050	0.01	0.2	2
Molybdenum	1450	U	0.012	0.12	0.5	10	30
Nickel	1450	U	0.0013	< 0.050	0.4	10	40
Lead	1450	U	< 0.0010	< 0.010	0.5	10	50
Antimony	1450	U	0.0014	0.014	0.06	0.7	5
Selenium	1450	U	0.0013	0.013	0.1	0.5	7
Zinc	1450	U	0.0035	< 0.50	4	50	200
Chloride	1220	U	< 1.0	< 10	800	15000	25000
Fluoride	1220	U	0.25	2.5	10	150	500
Sulphate	1220	U	24	240	1000	20000	50000
Total Dissolved Solids	1020	N	170	1700	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 (%)	15

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: 23017 Carlow Water Park

					Landfill Waste Acceptance Criteria Limits		
Chemtest Job No:	20-35643						
Chemtest Sample ID:	1120045						
Sample Ref:	AA140047						
Sample ID:							
Sample Location:	TP05						
Top Depth(m):	1.50						
Bottom Depth(m):							
Sampling Date:							
Determinand	**SOP**	**Accred.**	**Units**		**Inert Waste Landfill**	**Stable, Non-reactive hazardous waste in non-hazardous Landfill**	**Hazardous Waste Landfill**
Total Organic Carbon	2625	U	%	[A] 1.7	3	5	6
Loss On Ignition	2610	U	%	7.1	--	--	10
Total BTEX	2760	U	mg/kg	[A] < 0.010	6	--	--
Total PCBs (7 congeners)	2815	N	mg/kg	[A] < 0.0010	1	--	--
TPH Total WAC (Mineral Oil)	2670	U	mg/kg	[A] < 10	500	--	--
Total Of 17 PAH's	2800	N	mg/kg	[A] 4.0	100	--	--
pH	2010	U		8.1	--	>6	--
Acid Neutralisation Capacity	2015	N	mol/kg	0.015	--	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	0.0028	< 0.050	0.5	2	25
Barium	1450	U	0.033	< 0.50	20	100	300
Cadmium	1450	U	< 0.00010	< 0.010	0.04	1	5
Chromium	1450	U	0.0019	< 0.050	0.5	10	70
Copper	1450	U	0.0041	< 0.050	2	50	100
Mercury	1450	U	< 0.00050	< 0.0050	0.01	0.2	2
Molybdenum	1450	U	0.015	0.15	0.5	10	30
Nickel	1450	U	0.0018	< 0.050	0.4	10	40
Lead	1450	U	0.0013	0.013	0.5	10	50
Antimony	1450	U	0.0022	0.022	0.06	0.7	5
Selenium	1450	U	0.0016	0.016	0.1	0.5	7
Zinc	1450	U	0.0036	< 0.50	4	50	200
Chloride	1220	U	3.2	32	800	15000	25000
Fluoride	1220	U	0.24	2.4	10	150	500
Sulphate	1220	U	39	390	1000	20000	50000
Total Dissolved Solids	1020	N	160	1500	4000	60000	100000
Phenol Index	1920	U	< 0.030	< 0.30	1	-	-
Dissolved Organic Carbon	1610	U	5.1	51	500	800	1000

Solid Information	
Dry mass of test portion/kg	0.090
Moisture (%)	25

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:
1120032	144851		BH1		A	Amber Glass 250ml
1120032	144851		BH1		A	Plastic Tub 500g
1120033	144852		BH1		A	Amber Glass 250ml
1120033	144852		BH1		A	Plastic Tub 500g
1120034	144854		BH1		A	Amber Glass 250ml
1120034	144854		BH1		A	Plastic Tub 500g
1120035	144860		BH2		A	Amber Glass 250ml
1120035	144860		BH2		A	Plastic Tub 500g
1120036	144861		BH2		A	Amber Glass 250ml
1120036	144861		BH2		A	Plastic Tub 500g
1120037	144863		BH2		A	Amber Glass 250ml
1120037	144863		BH2		A	Plastic Tub 500g
1120038	147400		BH3		A	Amber Glass 250ml
1120039	AA1400149		TP01		A	Amber Glass 250ml
1120039	AA1400149		TP01		A	Plastic Tub 500g
1120040	AA145001		TP02		A	Amber Glass 250ml
1120040	AA145001		TP02		A	Plastic Tub 500g
1120041	AA145002		TP02		A	Amber Glass 250ml
1120041	AA145002		TP02		A	Plastic Tub 500g
1120042	AA140050		TP03		A	Amber Glass 250ml
1120042	AA140050		TP03		A	Plastic Tub 500g
1120043	AA140048		TP04		A	Amber Glass 250ml

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:
1120043	AA140048		TP04		A	Plastic Tub 500g
1120044	AA144046		TP05		A	Amber Glass 250ml
1120044	AA144046		TP05		A	Plastic Tub 500g
1120045	AA140047		TP05		A	Amber Glass 250ml
1120045	AA140047		TP05		A	Plastic Tub 500g

Test Methods

SOP	Title	Parameters included	Method summary
1010	pH Value of Waters	pH	pH Meter
1020	Electrical Conductivity and Total Dissolved Solids (TDS) in Waters	Electrical Conductivity and Total Dissolved Solids (TDS) in Waters	Conductivity Meter
1220	Anions, Alkalinity & Ammonium in Waters	Fluoride; Chloride; Nitrite; Nitrate; Total; Oxidisable Nitrogen (TON); Sulfate; Phosphate; Alkalinity; Ammonium	Automated colorimetric analysis using 'Aquakem 600' Discrete Analyser.
1450	Metals in Waters by ICP-MS	Metals, including: Antimony; Arsenic; Barium; Beryllium; Boron; Cadmium; Chromium; Cobalt; Copper; Lead; Manganese; Mercury; Molybdenum; Nickel; Selenium; Tin; Vanadium; Zinc	Filtration of samples followed by direct determination by inductively coupled plasma mass spectrometry (ICP-MS).
1610	Total/Dissolved Organic Carbon in Waters	Organic Carbon	TOC Analyser using Catalytic Oxidation
1800	Speciated Polynuclear Aromatic Hydrocarbons (PAH) in Waters by GC-MS	Acenaphthene; Acenaphthylene; Anthracene; Benzo[a]Anthracene; Benzo[a]Pyrene; Benzo[b]Fluoranthene; Benzo[ghi]Perylene; Benzo[k]Fluoranthene; Chrysene; Dibenz[ah]Anthracene; Fluoranthene; Fluorene; Indeno[123cd]Pyrene; Naphthalene; Phenanthrene; Pyrene	Pentane extraction / GCMS detection
1920	Phenols in Waters by HPLC	Phenolic compounds including: Phenol, Cresols, Xylenols, Trimethylphenols Note: Chlorophenols are excluded.	Determination by High Performance Liquid Chromatography (HPLC) using electrochemical detection.
2010	pH Value of Soils	pH	pH Meter
2015	Acid Neutralisation Capacity	Acid Reserve	Titration
2030	Moisture and Stone Content of Soils(Requirement of MCERTS)	Moisture content	Determination of moisture content of soil as a percentage of its as received mass obtained at <37°C.
2040	Soil Description(Requirement of MCERTS)	Soil description	As received soil is described based upon BS5930
2120	Water Soluble Boron, Sulphate, Magnesium & Chromium	Boron; Sulphate; Magnesium; Chromium	Aqueous extraction / ICP-OES
2175	Total Sulphur in Soils	Total Sulphur	Determined by high temperature combustion under oxygen, using an Eltra elemental analyser.
2180	Sulphur (Elemental) in Soils by HPLC	Sulphur	Dichloromethane extraction / HPLC with UV detection
2192	Asbestos	Asbestos	Polarised light microscopy / Gravimetry
2220	Water soluble Chloride in Soils	Chloride	Aqueous extraction and measuremernt by 'Aquakem 600' Discrete Analyser using ferric nitrate / mercuric thiocyanate.
2300	Cyanides & Thiocyanate in Soils	Free (or easy liberatable) Cyanide; total Cyanide; complex Cyanide; Thiocyanate	Allkaline extraction followed by colorimetric determination using Automated Flow Injection Analyser.
2325	Sulphide in Soils	Sulphide	Steam distillation with sulphuric acid / analysis by 'Aquakem 600' Discrete Analyser, using N,N–dimethyl-p-phenylenediamine.
2430	Total Sulphate in soils	Total Sulphate	Acid digestion followed by determination of sulphate in extract by ICP-OES.
2450	Acid Soluble Metals in Soils	Metals, including: Arsenic; Barium; Beryllium; Cadmium; Chromium; Cobalt; Copper; Lead; Manganese; Mercury; Molybdenum; Nickel; Selenium; Vanadium; Zinc	Acid digestion followed by determination of metals in extract by ICP-MS.
2490	Hexavalent Chromium in Soils	Chromium [VI]	Soil extracts are prepared by extracting dried and ground soil samples into boiling water. Chromium [VI] is determined by 'Aquakem 600' Discrete Analyser using 1,5-diphenylcarbazide.

Test Methods

SOP	Title	Parameters included	Method summary
2610	Loss on Ignition	loss on ignition (LOI)	Determination of the proportion by mass that is lost from a soil by ignition at 550°C.
2625	Total Organic Carbon in Soils	Total organic Carbon (TOC)	Determined by high temperature combustion under oxygen, using an Eltra elemental analyser.
2670	Total Petroleum Hydrocarbons (TPH) in Soils by GC-FID	TPH (C6–C40); optional carbon banding, e.g. 3-band – GRO, DRO & LRO*TPH C8–C40	Dichloromethane extraction / GC-FID
2680	TPH A/A Split	Aliphatics: >C5–C6, >C6–C8,>C8–C10, >C10–C12, >C12–C16, >C16–C21, >C21–C35, >C35– C44Aromatics: >C5–C7, >C7–C8, >C8– C10, >C10–C12, >C12–C16, >C16– C21, >C21– C35, >C35– C44	Dichloromethane extraction / GCxGC FID detection
2760	Volatile Organic Compounds (VOCs) in Soils by Headspace GC-MS	Volatile organic compounds, including BTEX and halogenated Aliphatic/Aromatics.(cf. USEPA Method 8260)*please refer to UKAS schedule	Automated headspace gas chromatographic (GC) analysis of a soil sample, as received, with mass spectrometric (MS) detection of volatile organic compounds.
2800	Speciated Polynuclear Aromatic Hydrocarbons (PAH) in Soil by GC-MS	Acenaphthene*; Acenaphthylene; Anthracene*; Benzo[a]Anthracene*; Benzo[a]Pyrene*; Benzo[b]Fluoranthene*; Benzo[ghi]Perylene*; Benzo[k]Fluoranthene; Chrysene*; Dibenz[ah]Anthracene; Fluoranthene*; Fluorene*; Indeno[123cd]Pyrene*; Naphthalene*; Phenanthrene*; Pyrene*	Dichloromethane extraction / GC-MS
2815	Polychlorinated Biphenyls (PCB) ICES7Congeners in Soils by GC-MS	ICES7 PCB congeners	Acetone/Hexane extraction / GC-MS
2920	Phenols in Soils by HPLC	Phenolic compounds including Resorcinol, Phenol, Methylphenols, Dimethylphenols, 1-Naphthol and TrimethylphenolsNote: chlorophenols are excluded.	60:40 methanol/water mixture extraction, followed by HPLC determination using electrochemical detection.
640	Characterisation of Waste (Leaching C10)	Waste material including soil, sludges and granular waste	ComplianceTest for Leaching of Granular Waste Material and Sludge

Report Information

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

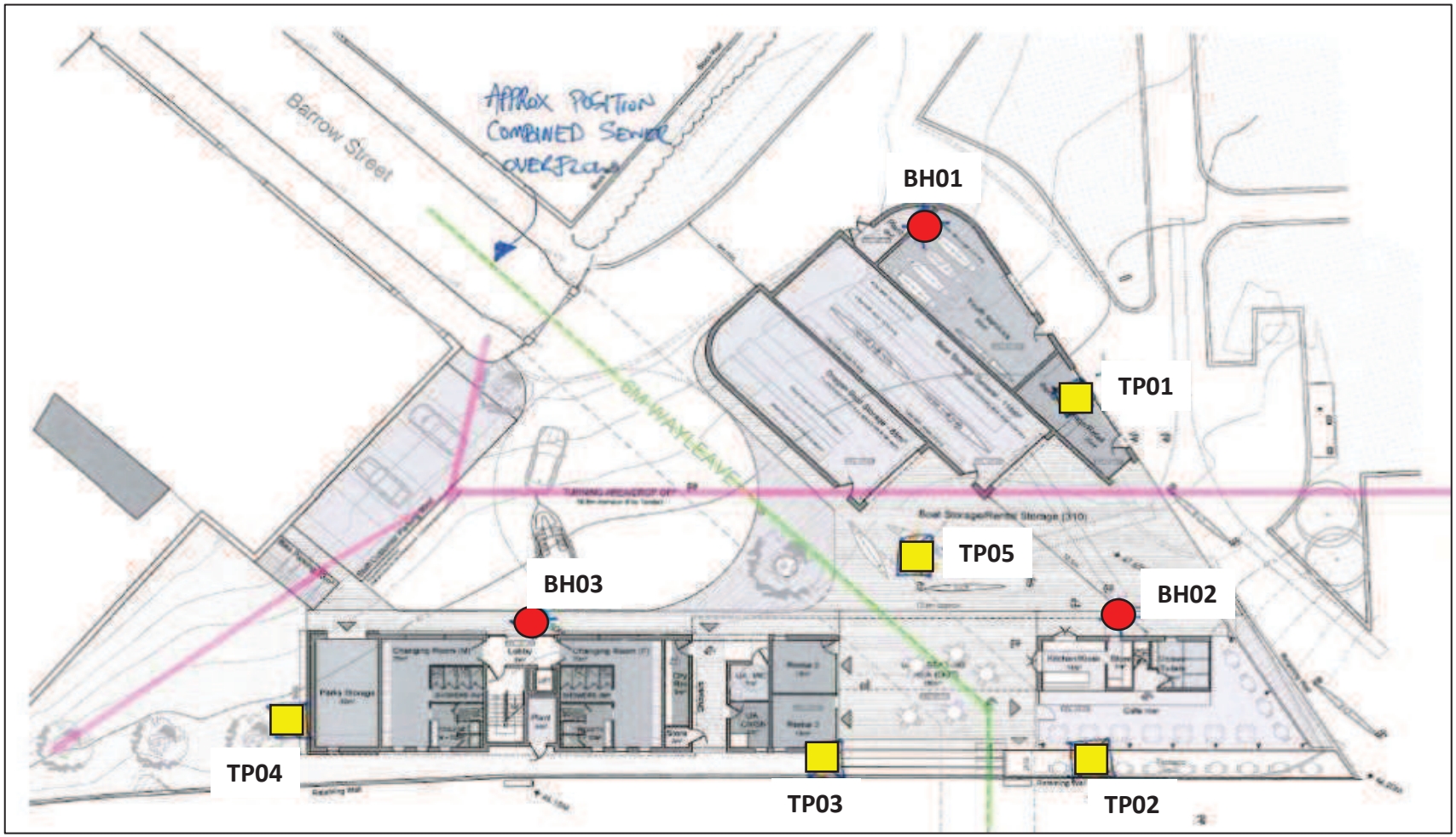
A - Date of sampling not supplied
B - Sample age exceeds stability time (sampling to extraction)
C - Sample not received in appropriate containers
D - Broken Container
E - Insufficient Sample (Applies to LOI in Trommel Fines Only)

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

Appendix 7 Site Plan



Project No:	23016
Project Title:	Carlow Water Activity Park
Client:	DRA Consulting Engineers

Drawing No.	SI Locations
Drawn By:	DEG
Date:	28/01/2021
Scale:	NTS

Unit 15
Melbourne Business Park
Model Farm Road
Cork T12 WR89

T: 021 434 5366
E:admin@ocallaghanmoran.com
www.ocallaghanmoran.com

Waste Characterisation Assessment,

Proposed Water Activity Centre,

Carlow,

Co. Carlow

Prepared For: -

IGSL Limited
Unit F
M7 Business Park
Naas
County Kildare

Prepared By: -

O' Callaghan Moran & Associates
Unit 15 Melbourne Business Park
Model Farm Road
Cork

January 2021

Project	Waste Characterisation: Proposed Water Activity Centre, Carlow			
Client	IGSL Limited			
Report No	Date	Status	Prepared By	Reviewed By
210010301	13/01/2021	Final	Austin Hynes MSc	Sean Moran B.Sc. MSc

TABLE OF CONTENTS

APPENDICES

1 INTRODUCTION

IGSL Limited requested O'Callaghan Moran & Associates (OCM) to undertake a waste characterisation assessment of samples of made ground and natural soils collected from five (5 No.) trial pits and three (3 No.) boreholes installed at a proposed Water Activity Centre in Co. Carlow.

1.1 Methodology

IGSL provided a description of the ground conditions and collected samples of the soils from the trial pit and borehole locations. The samples were analysed at an accredited laboratory and the results formed the basis for a waste classification assessment, which was undertaken by OCM in accordance with the Environmental Protection Agency (EPA) Guidelines on the Classification of Waste (2015).

2 WASTE CLASSIFICATION ASSESSMENT

2.1 Soil Sampling and Laboratory Analysis

2.1.1 *Site Investigation*

The site investigation was completed by IGSL Limited in December 2020 and included the collection of fourteen composite samples from five (5 No.) trial pits and three (3 No.) boreholes. The locations are shown on Figure 2.1. The trial pit and borehole logs are in Appendix 1.

The logs indicate that there is topsoil at the surface of all locations. The subsurface comprises MADE GROUND underlain by Natural Ground. The Made Ground is composed of firm to stiff, brown, sandy gravelly CLAY with some cobble and boulders with concrete, red brick, plastic and tarmacadam (>2%) ranging from 0.00-2.60 mbgl. This is underlain by natural ground. The Natural Ground is composed of a thin layer of very soft brown/black peaty CLAY circa. 0.30m in thickness underlain by loose, grey/brown, slightly silty slightly gravelly SAND to 4.00m bgl.

2.1.2 *Sample Collection*

IGSL collected the samples and placed them in laboratory prepared containers that were stored in coolers prior to shipment to Chemtest Ltd.

2.1.3 *Laboratory Analysis*

The samples were tested for Total Heavy Metals, Total Organic Carbon (TOC), BTEX (benzene, toluene, ethylbenzene and xylene) aliphatic and aromatic hydrocarbons, Polychlorinated Biphenyls (PCB), Mineral Oil, Polyaromatic Hydrocarbons (PAH) and asbestos. Leachate generated from the samples was tested for arsenic, barium, cadmium, chromium, copper, mercury, molybdenum, nickel, lead, antimony, selenium and zinc, chloride, fluoride, soluble sulphate, phenols, dissolved organic carbon (DOC), total dissolved solids (TDS).

This parameter range facilitates an assessment of the hazardous properties of the waste, and also allows a determination of appropriate off-site management options based on the Waste Acceptance Criteria (WAC) applied by landfill operators.

The analytical methods were all ISO/CEN approved and the method detection limits were below the relevant guidance/threshold values. The full laboratory report is in Appendix 2.

2.2 Waste Classification

The Haz Waste Online Classification Engine, developed in the UK by One Touch Data Ltd, was used to determine the waste classification. This tool was developed specifically to establish

whether waste is non-hazardous or hazardous and has been approved for use in Ireland by the Environmental Protection Agency.

The full Waste Classification Report is in Appendix 3 and the results are summarised in Table 2.1.

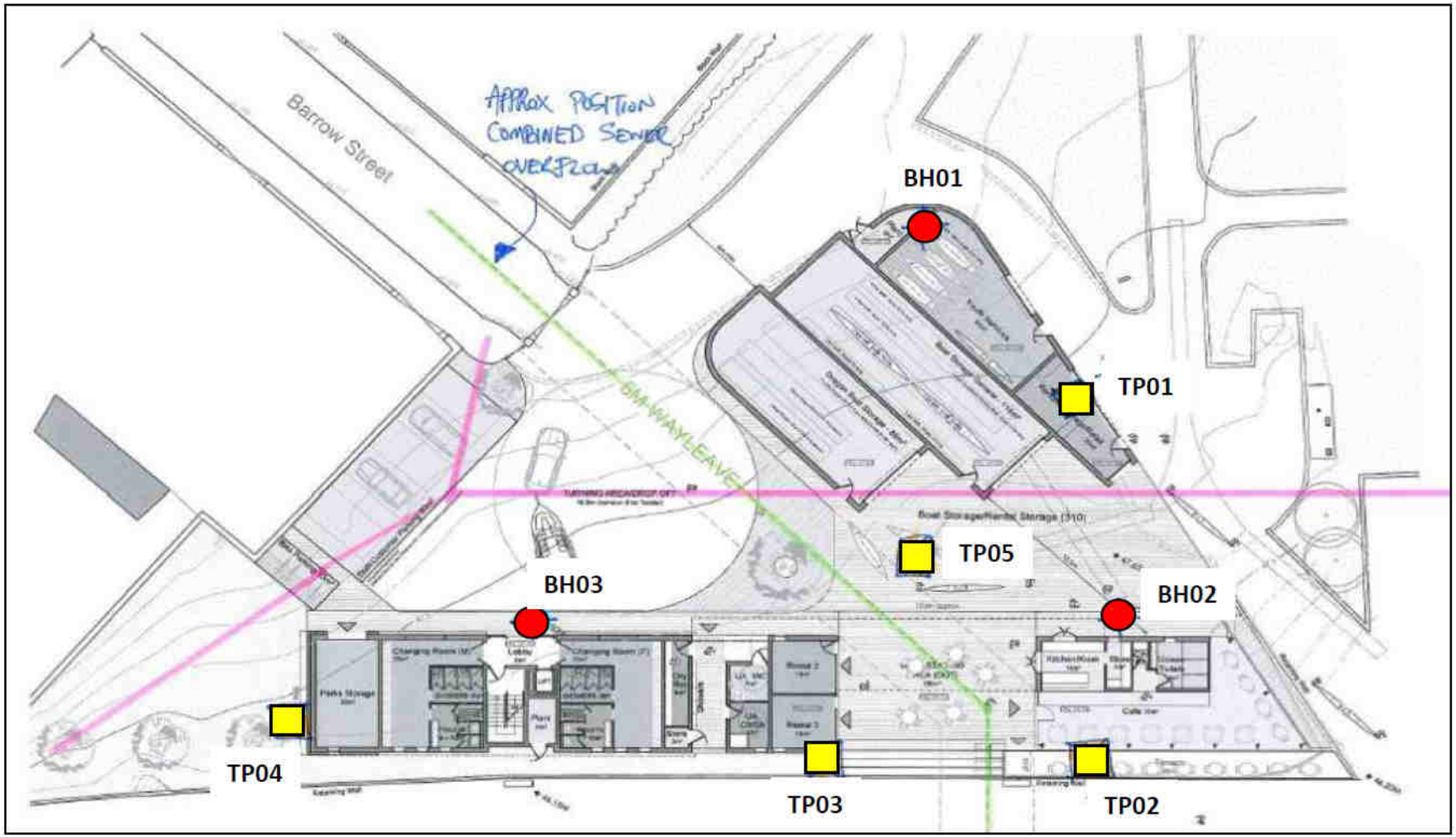
Table 2.1 Waste Classification

Sample No.	Depth	Classification	LoW Code
BH1	1.00	Non-Hazardous	17 09 04
BH1	2.00	Non-Hazardous	17 09 04
BH1	3.00	Non-Hazardous	17 05 04
BH2	1.00	Non-Hazardous	17 09 04
BH2	2.00	Non-Hazardous	17 09 04
BH2	3.00	Non-Hazardous	17 05 04
BH3	1.00	Non-Hazardous	17 09 04
TP01	1.00	Non-Hazardous	17 09 04
TP02	1.00	Non-Hazardous	17 09 04
TP02	2.00	Non-Hazardous	17 09 04
TP03	1.00	Non-Hazardous	17 09 04
TP04	1.00	Non-Hazardous	17 09 04
TP05	0.50	Non-Hazardous	17 09 04
TP05	1.50	Non-Hazardous	17 09 04

Asbestos was not detected in any of the samples.

BH1 (3.0m) and BH2 (3.0m) are classified as non-hazardous and the appropriate List of Waste Code is 17 05 04 (Soil and stone other than those mentioned in 17 05 03*).

All other samples are classified as non-hazardous and the appropriate List of Waste Code is 17 09 04 (Construction and Demolition Waste other than those mentioned in 17 09 03*)



Project No:	23016
Project Title:	Carlow Water Activity Park
Client:	DRA Consulting Engineers

Drawing No.	SI Locations
Drawn By:	DEG
Date:	28/01/2021
Scale:	NTS

O'Callaghan Moran & Associates
environmental management for business
www.ocallaghanmoran.com

O'Callaghan Moran & Associates,
Unit 15 Melbourne Business Park,
Model Farm Road, Cork.
Tel. (021) 4345366
Email: info@ocallaghanmoran.com

Title:

Figure 2.1 Sample Location Plan

Legend

Client:

IGSL Limited

2.3 Waste Acceptance Criteria

The results of the WAC testing are presented in Table 2.2, which includes for comparative purposes the WAC for Inert, Non Hazardous and Hazardous Waste Landfills pursuant to Article 16 of the EU Landfill Directive 1999/31/EC Annex II which establishes criteria and procedures for the acceptance of waste at landfills.

The samples from BH2 (1.0m and 2.0m) exceed the inert WAC for Sulphate.

Table 2.2 WAC Results

Parameter	Unit	BH1	BH1	BH1	BH2	BH2	BH2	BH3	TP01	TP02	TP02	TP03	TP04	TP05	TP05	Inert Landfill	Inert Landfill Increased Limits	Non-Hazardous Landfill	Hazardous Landfill
Depth	**m**	**1.00**	**2.00**	**3.00**	**1.00**	**2.00**	**3.00**	**1.00**	**1.00**	**1.00**	**2.00**	**1.00**	**1.00**	**0.50**	**1.50**				
Antimony	mg/kg	< 0.010	0.014	0.011	0.014	< 0.010	< 0.010	0.021	< 0.010	0.015	0.022	< 0.010	0.014	0.014	0.022	0.06	0.18	0.7	5
Arsenic	mg/kg	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	0.5	1.5	2	25
Barium	mg/kg	< 0.50	1.4	2.3	1.2	1.3	3.0	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	20	20	100	300
Cadmium	mg/kg	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	0.04	0.04	1	5
Chromium	mg/kg	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	0.5	0.5	10	70
Copper	mg/kg	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	0.057	< 0.050	< 0.050	2	2	50	100
Lead	mg/kg	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	0.013	0.5	0.5	10	50
Molybdenum	mg/kg	< 0.050	0.065	< 0.050	< 0.050	< 0.050	< 0.050	0.063	< 0.050	< 0.050	0.11	0.070	0.063	0.12	0.15	0.5	1.5	10	30
Nickel	mg/kg	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	0.4	0.4	10	40
Selenium	mg/kg	< 0.010	0.018	0.020	0.012	0.019	0.019	< 0.010	< 0.010	< 0.010	0.010	< 0.010	0.011	0.013	0.016	0.1	0.3	0.5	7
Zinc	mg/kg	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	4	4	50	200
Mercury	mg/kg	< 0.0050	< 0.0050	< 0.0050	< 0.0050	< 0.0050	< 0.0050	< 0.0050	< 0.0050	< 0.0050	< 0.0050	< 0.0050	< 0.0050	< 0.0050	< 0.0050	0.01	0.01	0.2	2
Phenol	mg/kg	< 0.30	< 0.30	< 0.30	< 0.30	< 0.30	< 0.30	< 0.30	< 0.30	< 0.30	< 0.30	< 0.30	< 0.30	< 0.30	< 0.30	1	1	NE	NE
Fluoride	mg/kg	2.5	1.5	1.8	1.4	1.1	1.4	2.2	1.8	1.5	2.2	3.5	2.2	2.5	2.4	10	10	150	500
Chloride	mg/kg	< 10	19	10	14	26	11	18	< 10	< 10	19	< 10	< 10	< 10	32	800	2,400	15,000	25,000
Sulphate	mg/kg	27	890	380	1200	1500	180	75	18	17	92	< 10	31	240	390	1000*	3,000	20000*	50,000
DOC **	mg/kg	68	130	92	100	120	68	160	93	53	54	85	70	57	51	500	500	800	1,000
pH	pH units	8.1	7.4	7.1	7.3	7.1	7.5	8.1	8.4	8.2	8.1	7.9	8.3	8.3	8.1	NE	NE	NE	NE
TDS ***	mg/kg	1000	3100	2300	3300	3600	1500	1200	910	650	1200	830	1100	1700	1500	4,000	12,000	60,000	100,000
TOC	%	0.73	6.4	2.7	5.5	2.8	1	3.2	1.5	2.1	1.8	1.3	2	1.1	1.7	3	6	NE	6
Benzene	mg/kg	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	6	6	NE	NE
Toluene	mg/kg	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	6	6	NE	NE
Ethylbenzene	mg/kg	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	6	6	NE	NE
m/p-Xylene	mg/kg	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	6	6	NE	NE
o-Xylene	mg/kg	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	6	6	NE	NE
PCB Total of 7	mg/kg	< 0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0010	1	1	NE	NE
Total 17 PAH's	mg/kg	1.4	0.65	< 0.20	1.9	< 0.20	0.8	5	4.1	4.4	4.7	< 0.20	2.6	3.1	4	NE	100	NE	NE
Mineral Oil	mg/kg	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	500	500	NE	NE
Asbestos	% mass	NAD	NAD	NAD	NAD	NAD	NAD	NAD	NAD	NAD	NAD	NAD	NAD	NAD	NAD	NE	NE	NE	NE

NAD denotes No Asbestos Detected

* denotes sulphate level exceeding inert waste limit may be considered as complying if the TDS value does not exceed 6,000mg/kg at L/S = 10l/kg.

** denotes a higher limit may be accepted provided the DOC values of 500mg/kg is achieved

*** denotes TDS. The values for TDS can be used alternative to sulphate and chloride.

PAH over 1mg/kg exceeds PAH limit at soil recovery site in Ireland

2.4 Waste Management Options

The EPA has released new guidance on waste acceptance criteria for a range of parameters for soil recovery facilities. This include;

- Metals in soil and stone (including As, Cd, Cr, Cu, Hg, Ni, Pb, Zn);
- Total organic carbon in soil and stone;
- Total BTEX (benzene, toluene, ethylbenzene, xylenes) in soil and stone;
- Mineral oil in soil and stone;
- Polycyclic aromatic hydrocarbons (PAHs) in soil and stone;
- Polychlorinated Biphenyls (PCBs) in soil and stone;
- Asbestos fibres in soil and stone.

This requires that soils from brownfield sites should not exceed the limits for the parameters specified in Table 2.3 and 2.4. For metals the limits have been specified for a range of soil types nationally separated into six domain areas.

Table 2.3 Soil Recovery Site Criteria

Parameter	Limit for Soil Recovery Sites
Total BTEX	0.05 mg/kg
Mineral oil	50 mg/kg
Total PAHs	1 mg/kg
Total PCBs	0.05 mg/kg

The soil and stone cannot be sent for recovery if the trigger levels for a particular domain are exceeded. There is however some flexibility in applying the limits. A derogation applies where up to three parameters can exceed the limit for a sample provided the concentration in the samples is no more than 1.5 times the trigger level. The site which is subject to this investigation is located in Domain 6 and the trigger levels are listed in Table 2.4.

Table 2.4

		Domain 6 Trigger Level	1.5 times Trigger Level
Arsenic	**mg/kg**	85.8	128.7
Cadmium	**mg/kg**	2.38	3.57
Chromium	**mg/kg**	54	81
Copper	**mg/kg**	40	60
Mercury	**mg/kg**	0.527	0.7905
Nickel	**mg/kg**	28.2	42.3
Lead	**mg/kg**	108	162
Zinc	**mg/kg**	168	252

While the samples from BH1 (1.0m and 2.0m), BH3 (1.0m), TP1 (1.0m), TP2 (1.0m and 2.0m), TP4 (1.0m), TP5 (0.5m and 1.5m) meet the inert WAC they do not meet the soil recovery criteria for PAHs. The samples have been classified as B-1 suitable for recovery/disposal to inert waste landfill with increased limits.

The samples from BH1 (1.0m) and BH3 (1.0m) meet the inert WAC but do not meet the soil recovery criteria for metal concentrations. Both samples exceed the 1.5 times trigger level for Copper. The samples has been classified as B-1 suitable for recovery/disposal to inert waste landfill with increased limits.

Waste management options are summarised on Table 2.5. All are subject to approval of the waste management facility operators. Class A wastes are suitable for recovery at a licensed/permitted soils recovery facility. Class B wastes are suitable for disposal to inert landfill. B-1 wastes are suitable for recovery/disposal to inert waste landfill with increased limits.

Table 2.5 Waste Management Options

Sample No.	Depth	Classification	LoW Code	Category
BH1	1.00	Non-Hazardous	17 09 04	B-1
BH1	2.00	Non-Hazardous	17 09 04	B-1
BH1	3.00	Non-Hazardous	17 05 04	A
BH2	1.00	Non-Hazardous	17 09 04	B-1
BH2	2.00	Non-Hazardous	17 09 04	B-1
BH2	3.00	Non-Hazardous	17 05 04	A
BH3	1.00	Non-Hazardous	17 09 04	B-1
TP01	1.00	Non-Hazardous	17 09 04	B-1
TP02	1.00	Non-Hazardous	17 09 04	B-1
TP02	2.00	Non-Hazardous	17 09 04	B-1
TP03	1.00	Non-Hazardous	17 09 04	B
TP04	1.00	Non-Hazardous	17 09 04	B-1
TP05	0.50	Non-Hazardous	17 09 04	B-1
TP05	1.50	Non-Hazardous	17 09 04	B-1

A	Classified as Non-Hazardous, 17 05 04 meets inert WAC
B	Classified as Non-Hazardous, 17 09 04 meets inert WAC
B-1	Classified as Non-Hazardous, 17 05 04 or 17 09 04 meets inert WAC increased limits

3 CONCLUSIONS AND RECOMMENDATIONS

3.1 Conclusions

3.1.1 *Waste Classification*

Asbestos was not detected in any of the samples.

BH1 (3.0m) and BH2 (3.0m) are classified as non-hazardous and the appropriate List of Waste Code is 17 05 04 (Soil and stone other than those mentioned in 17 05 03*).

All other samples are classified as non-hazardous and the appropriate List of Waste Code is 17 09 04 (Construction and Demolition Waste other than those mentioned in 17 09 03*)

The recovery/disposal options are discussed in Section 2.4.

3.2 Recommendations

OCM recommend that a copy of this report be provided in full to the relevant waste management facilities to which the made ground and subsoils will be consigned to confirm its suitability for acceptance.

Appendix 1

Trial Pit and Borehole Logs

GEOTECHNICAL BORING RECORD

REPORT NUMBER 23016

CONTRACT Proposed Water Activity Centre - Carlow

BOREHOLE NO. **BH01**
SHEET Sheet 1 of 1

CO-ORDINATES
GROUND LEVEL (m AOD)

RIG TYPE Dando 2000
BOREHOLE DIAMETER (mm) 200
BOREHOLE DEPTH (m) 7.10

DATE COMMENCED 02/12/2020
DATE COMPLETED 03/12/2020

CLIENT Carlow Co.Co.
ENGINEER D.R.A

SPT HAMMER REF. NO.
ENERGY RATIO (%)

BORED BY W.Butler
PROCESSED BY F.C

Depth (m)	Description	Legend	Elevation	Depth (m)	Samples: Ref. Number	Sample Type	Depth (m)	Recovery	Field Test Results	Standpipe Details
0	TOPSOIL			0.20						
	MADE GROUND (Comprised of brown sandy silty/clayey fill with cobbles , brick fragments and tarmacadam) pieces)				AA144851	B	1.00		N = 8 (1, 1, 2, 1, 2, 3)	
2				2.20	AA144852	B	2.00		N = 6 (1, 0, 2, 2, 1, 1)	
	Very soft dark brown /black PEAT				AA144853	B	2.50			
				2.90						
3	Loose grey/brown silty SAND				AA144854	B	3.00		N = 5 (1, 0, 1, 1, 2, 1)	
				3.80						
	Soft dark brown /black PEAT			4.00						
4	Dense grey fine to coarse sandy GRAVEL with occasional cobbles				AA144855	B	4.00		N = 30 (4, 5, 7, 9, 9, 5)	
					AA144856	B	4.50			
5					AA144857	B	5.00		N = 39 (3, 3, 5, 8, 11, 15)	
				5.60						
	Very stiff grey gravelly SILT/CLAY									
6					AA144858	B	6.00		N = 48 (6, 9, 10, 12, 14, 12)	
				7.10	AA144859	B	7.00		N = 50/75 mm (12, 21, 50)	
7	Obstruction End of Borehole at 7.10 m									
8										
9										

HARD STRATA BORING/CHISELLING

From (m)	To (m)	Time (h)	Comments
4.6	1.8	1	
5.7	5.9	0.75	
6.8	7.1	2	

WATER STRIKE DETAILS

Water Strike	Casing Depth	Sealed At	Rise To	Time (min)	Comments
					No water strike

GROUNDWATER PROGRESS

Date	Hole Depth	Casing Depth	Depth to Water	Comments
03-12-20			3.00	Start of 2nd day

INSTALLATION DETAILS

Date	Tip Depth	RZ Top	RZ Base	Type

REMARKS 1hr erecting Covid 19 Safe Working Area . CAT scanned location and hand dug inspection pit carried out .

Sample Legend
D - Small Disturbed (tub)
B - Bulk Disturbed
LB - Large Bulk Disturbed
Env - Environmental Sample (Jar + Vial + Tub)
UT - Undisturbed 100mm Diameter Sample
P - Undisturbed Piston Sample
W - Water Sample

IGSL BH LOG 23016.GPJ IGSL.GDT 16/12/20

GEOTECHNICAL BORING RECORD

REPORT NUMBER 23016

CONTRACT	Proposed Water Activity Centre - Carlow	**BOREHOLE NO.**	**BH02**
		SHEET	Sheet 1 of 1
CO-ORDINATES		**RIG TYPE**	Dando 2000
		BOREHOLE DIAMETER (mm)	200
GROUND LEVEL (m AOD)		**BOREHOLE DEPTH (m)**	7.40
		DATE COMMENCED	04/12/2020
		DATE COMPLETED	04/12/2020
CLIENT	Carlow Co.Co.	**SPT HAMMER REF. NO.**	
ENGINEER	D.R.A	**ENERGY RATIO (%)**	
		BORED BY	W.Butler
		PROCESSED BY	F.C

Depth (m)	Description	Legend	Elevation	Depth (m)	Samples: Ref. Number	Sample Type	Depth (m)	Recovery	Field Test Results	Standpipe Details
0	TOPSOIL			0.30						
	MADE GROUND (Comprised of brown sandy silty/clayey fill with boulders , brick fragments and concrete pieces)				AA144860	B	1.00		N = 50/75 mm (25, 50)	
2					AA144861	B	2.00		N = 50/75 mm (25, 50)	
					AA144862	B	2.50			
				2.80						
	Very soft brown/black sandy SILT/CLAY			3.00						
3	Loose grey/brown slightly silty fine SAND with occasional gravel				AA144863	B	3.00		N = 0 (1, 0, 0, 0, 0, 0)	
				3.90						
	Soft grey SILT			4.10	AA144864	B	4.00		N = 6 (1, 1, 1, 1, 2, 2)	
4	Soft dark brown/black PEAT				AA144865	B	4.50			
				4.80						
	Dense grey very sandy GRAVEL with occasional cobbles			5.20	AA144866	B	5.00		N = 35 (4, 5, 7, 8, 8, 12)	
5	Very stiff black sandy gravelly SILT/CLAY									
6					AA144867	B	6.00		N = 45 (5, 5, 7, 8, 14, 16)	
7					AA144868	B	7.00		N = 39 (5, 7, 8, 8, 10, 13)	
				7.40						
	Obstruction End of Borehole at 7.40 m									
8										
9										

HARD STRATA BORING/CHISELLING

From (m)	To (m)	Time (h)	Comments
1.6	2.5	1.5	
6.2	6.3	0.75	
7.2	7.4	2	

WATER STRIKE DETAILS

Water Strike	Casing Depth	Sealed At	Rise To	Time (min)	Comments
					No water strike

GROUNDWATER PROGRESS

Date	Hole Depth	Casing Depth	Depth to Water	Comments

INSTALLATION DETAILS

Date	Tip Depth	RZ Top	RZ Base	Type

REMARKS 1hr erecting Covid 19 Safe Working Area . CAT scanned location and hand dug inspection pit carried out .

Sample Legend
D - Small Disturbed (tub)
B - Bulk Disturbed
LB - Large Bulk Disturbed
Env - Environmental Sample (Jar + Vial + Tub)
UT - Undisturbed 100mm Diameter Sample
P - Undisturbed Piston Sample
W - Water Sample

IGSL BH LOG 23016.GPJ IGSL.GDT 16/12/20

GEOTECHNICAL BORING RECORD

REPORT NUMBER 23016

CONTRACT	Proposed Water Activity Centre - Carlow	**BOREHOLE NO.**	**BH03**
		SHEET	Sheet 1 of 1
CO-ORDINATES		**RIG TYPE**	Dando 2000
		BOREHOLE DIAMETER (mm)	200
GROUND LEVEL (m AOD)		**BOREHOLE DEPTH (m)**	1.60
		DATE COMMENCED	02/12/2020
		DATE COMPLETED	02/12/2020
CLIENT	Carlow Co.Co.	**SPT HAMMER REF. NO.**	
ENGINEER	D.R.A	**ENERGY RATIO (%)**	
		BORED BY	W.Butler
		PROCESSED BY	F.C

Depth (m)	Description	Legend	Elevation	Depth (m)	Samples: Ref. Number	Samples: Sample Type	Samples: Depth (m)	Samples: Recovery	Field Test Results	Standpipe Details
0	TOPSOIL			0.20						
	Brown sandy SILT/CLAY			0.40						
1	MADE GROUND (Ciomprised of large concrete pieces with brick fragments)			1.60	AA147400	B	1.00		N = 50/75 mm (25, 50)	
2	Obstruction - Possibly reinforced concrete End of Borehole at 1.60 m									
3										
4										
5										
6										
7										
8										
9										

HARD STRATA BORING/CHISELLING

From (m)	To (m)	Time (h)	Comments
1.4	1.6	1.5	

WATER STRIKE DETAILS

Water Strike	Casing Depth	Sealed At	Rise To	Time (min)	Comments
					No water strike

GROUNDWATER PROGRESS

Date	Hole Depth	Casing Depth	Depth to Water	Comments

INSTALLATION DETAILS

Date	Tip Depth	RZ Top	RZ Base	Type

REMARKS 1hr erecting Covid 19 Safe Working Area . CAT scanned location and hand dug inspection pit carried out .

Sample Legend
D - Small Disturbed (tub)
B - Bulk Disturbed
LB - Large Bulk Disturbed
Env - Environmental Sample (Jar + Vial + Tub)
UT - Undisturbed 100mm Diameter Sample
P - Undisturbed Piston Sample
W - Water Sample

IGSL BH LOG 23016.GPJ IGSL.GDT 16/12/20

Appendix 2

Laboratory Reports

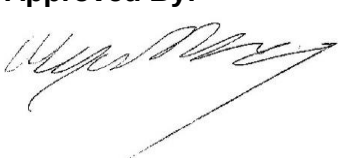
Eurofins Chemtest Ltd
Depot Road
Newmarket
CB8 0AL
Tel: 01638 606070
Email: info@chemtest.com

Final Report

Report No.:	20-35643-1
Initial Date of Issue:	05-Jan-2021
Client	IGSL
Client Address:	M7 Business Park Naas County Kildare Ireland
Contact(s):	Darren Keogh
Project	23017 Carlow Water Park

Quotation No.:		**Date Received:**	29-Dec-2020
Order No.:		**Date Instructed:**	29-Dec-2020
No. of Samples:	14		
Turnaround (Wkdays):	5	**Results Due:**	05-Jan-2021
Date Approved:	05-Jan-2021		

Approved By:



Details: Glynn Harvey, Technical Manager

Results - Leachate

Project: 23017 Carlow Water Park

Client: IGSL				**Chemtest Job No.:**		20-35643	20-35643	20-35643	20-35643	20-35643	20-35643	20-35643	20-35643	20-35643	20-35643	20-35643	20-35643
Quotation No.:				**Chemtest Sample ID.:**		1120032	1120033	1120034	1120035	1120036	1120037	1120038	1120039	1120040	1120041	1120042	1120043
Order No.:				Client Sample Ref.:		144851	144852	144854	144860	144861	144863	147400	AA1400149	AA145001	AA145002	AA140050	AA140048
				Sample Location:		BH1	BH1	BH1	BH2	BH2	BH2	BH3	TP01	TP02	TP02	TP03	TP04
				Sample Type:		SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
				Top Depth (m):		1.00	2.00	3.00	1.00	2.00	3.00	1.00	1.00	1.00	2.00	1.00	1.00
Determinand	**Accred.**	**SOP**	**Type**	**Units**	**LOD**												
pH	U	1010	10:1		N/A	8.3	8.2	8.2	8.2	8.2	8.3	8.4	8.4	8.4	8.3	8.2	8.2
Ammonium	U	1220	10:1	mg/l	0.050	0.15	7.8	6.3	7.2	4.2	0.42	0.19	0.32	0.069	0.16	0.087	0.33
Ammonium	N	1220	10:1	mg/kg	0.10	1.7	85	69	78	45	4.7	2.2	3.6	0.78	1.8	0.95	3.6
Boron (Dissolved)	U	1450	10:1	mg/kg	0.20	< 0.20	0.89	0.28	0.81	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20
Benzo[j]fluoranthene	N	1800	10:1	µg/l	0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010

Results - Leachate

Project: 23017 Carlow Water Park

Client: IGSL				**Chemtest Job No.:**		20-35643	20-35643
Quotation No.:				**Chemtest Sample ID.:**		1120044	1120045
Order No.:				Client Sample Ref.:		AA144046	AA140047
				Sample Location:		TP05	TP05
				Sample Type:		SOIL	SOIL
				Top Depth (m):		0.50	1.50
Determinand	**Accred.**	**SOP**	**Type**	**Units**	**LOD**		
pH	U	1010	10:1		N/A	8.2	8.3
Ammonium	U	1220	10:1	mg/l	0.050	1.6	3.2
Ammonium	N	1220	10:1	mg/kg	0.10	17	35
Boron (Dissolved)	U	1450	10:1	mg/kg	0.20	0.28	0.50
Benzo[j]fluoranthene	N	1800	10:1	µg/l	0.010	< 0.010	< 0.010

Results - Soil

Project: 23017 Carlow Water Park

Client: IGSL				**Chemtest Job No.:**	20-35643	20-35643	20-35643	20-35643	20-35643	20-35643	20-35643	20-35643	20-35643
Quotation No.:				**Chemtest Sample ID.:**	1120032	1120033	1120034	1120035	1120036	1120037	1120038	1120039	1120040
Order No.:				Client Sample Ref.:	144851	144852	144854	144860	144861	144863	147400	AA1400149	AA145001
				Sample Location:	BH1	BH1	BH1	BH2	BH2	BH2	BH3	TP01	TP02
				Sample Type:	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
				Top Depth (m):	1.00	2.00	3.00	1.00	2.00	3.00	1.00	1.00	1.00
				Asbestos Lab:	DURHAM	DURHAM	DURHAM	DURHAM	DURHAM	DURHAM	DURHAM	DURHAM	DURHAM
Determinand	**Accred.**	**SOP**	**Units**	**LOD**									
ACM Type	U	2192		N/A	-	-	-	-	-	-	-	-	-
Asbestos Identification	U	2192		N/A	No Asbestos Detected	No Asbestos Detected	No Asbestos Detected	No Asbestos Detected	No Asbestos Detected	No Asbestos Detected	No Asbestos Detected	No Asbestos Detected	No Asbestos Detected
ACM Detection Stage	U	2192		N/A	-	-	-	-	-	-	-	-	-
Moisture	N	2030	%	0.020	43	48	36	62	42	28	20	1.9	13
pH (2.5:1)	N	2010		4.0						[A] 7.9			
Boron (Hot Water Soluble)	U	2120	mg/kg	0.40	[A] < 0.40	[A] 1.5	[A] 0.70	[A] 0.99	[A] 0.56	[A] < 0.40	[A] < 0.40	[A] < 0.40	[A] < 0.40
Magnesium (Water Soluble)	N	2120	g/l	0.010						[A] < 0.010			
Sulphate (2:1 Water Soluble) as SO4	U	2120	g/l	0.010						[A] < 0.010			
Total Sulphur	U	2175	%	0.010						[A] 0.048			
Sulphur (Elemental)	U	2180	mg/kg	1.0	[A] < 1.0	[A] 200	[A] 48	[A] 180	[A] 440	[A] 50	[A] 5.0	[A] 4.1	[A] 2.4
Chloride (Water Soluble)	U	2220	g/l	0.010						[A] < 0.010			
Nitrate (Water Soluble)	N	2220	g/l	0.010						< 0.010			
Cyanide (Total)	U	2300	mg/kg	0.50	[A] < 0.50	[A] < 0.50	[A] < 0.50	[A] < 0.50	[A] < 0.50	[A] < 0.50	[A] < 0.50	[A] < 0.50	[A] < 0.50
Sulphide (Easily Liberatable)	N	2325	mg/kg	0.50	[A] 3.0	[A] 13	[A] 5.3	[A] 11	[A] 39	[A] 5.4	[A] 5.9	[A] 5.1	[A] 7.9
Ammonium (Water Soluble)	U	2120	g/l	0.01						< 0.01			
Sulphate (Acid Soluble)	U	2430	%	0.010	[A] 0.039	[A] 0.18	[A] 0.13	[A] 0.15	[A] 0.14	[A] 0.048	[A] 0.066	[A] 0.051	[A] 0.040
Arsenic	U	2450	mg/kg	1.0	17	20	8.5	17	10	22	17	16	20
Barium	U	2450	mg/kg	10	70	240	290	190	610	910	95	54	76
Cadmium	U	2450	mg/kg	0.10	1.4	1.2	2.2	1.1	2.6	3.2	0.80	1.0	0.90
Chromium	U	2450	mg/kg	1.0	15	16	21	14	25	25	13	9.2	14
Molybdenum	U	2450	mg/kg	2.0	2.1	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0
Antimony	N	2450	mg/kg	2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0
Copper	U	2450	mg/kg	0.50	26	77	12	30	13	14	68	12	23
Mercury	U	2450	mg/kg	0.10	0.10	0.13	< 0.10	0.11	< 0.10	< 0.10	< 0.10	< 0.10	0.12
Nickel	U	2450	mg/kg	0.50	32	23	23	21	28	32	17	15	20
Lead	U	2450	mg/kg	0.50	32	49	21	33	21	17	75	20	52
Selenium	U	2450	mg/kg	0.20	0.42	1.6	1.6	1.3	1.8	1.1	< 0.20	< 0.20	0.20
Zinc	U	2450	mg/kg	0.50	68	90	110	73	120	130	66	88	72
Chromium (Trivalent)	N	2490	mg/kg	1.0	15	16	21	14	25	25	13	9.2	14
Chromium (Hexavalent)	N	2490	mg/kg	0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
Mineral Oil	N	2670	mg/kg	10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10
Aliphatic TPH >C5-C6	N	2680	mg/kg	1.0	[A] < 1.0	[A] < 1.0	[A] < 1.0	[A] < 1.0	[A] < 1.0	[A] < 1.0	[A] < 1.0	[A] < 1.0	[A] < 1.0
Aliphatic TPH >C6-C8	N	2680	mg/kg	1.0	[A] < 1.0	[A] < 1.0	[A] < 1.0	[A] < 1.0	[A] < 1.0	[A] < 1.0	[A] < 1.0	[A] < 1.0	[A] < 1.0
Aliphatic TPH >C8-C10	U	2680	mg/kg	1.0	[A] < 1.0	[A] < 1.0	[A] < 1.0	[A] < 1.0	[A] < 1.0	[A] < 1.0	[A] < 1.0	[A] < 1.0	[A] < 1.0
Aliphatic TPH >C10-C12	U	2680	mg/kg	1.0	[A] < 1.0	[A] < 1.0	[A] < 1.0	[A] < 1.0	[A] < 1.0	[A] < 1.0	[A] < 1.0	[A] < 1.0	[A] < 1.0
Aliphatic TPH >C12-C16	U	2680	mg/kg	1.0	[A] < 1.0	[A] < 1.0	[A] < 1.0	[A] < 1.0	[A] < 1.0	[A] < 1.0	[A] < 1.0	[A] < 1.0	[A] < 1.0
Aliphatic TPH >C16-C21	U	2680	mg/kg	1.0	[A] < 1.0	[A] < 1.0	[A] < 1.0	[A] < 1.0	[A] < 1.0	[A] < 1.0	[A] < 1.0	[A] < 1.0	[A] < 1.0
Aliphatic TPH >C21-C35	U	2680	mg/kg	1.0	[A] < 1.0	[A] < 1.0	[A] < 1.0	[A] < 1.0	[A] < 1.0	[A] < 1.0	[A] < 1.0	[A] < 1.0	[A] < 1.0

Results - Soil

Project: 23017 Carlow Water Park

Client: IGSL					**Chemtest Job No.:**	20-35643	20-35643	20-35643	20-35643	20-35643	20-35643	20-35643	20-35643	20-35643
Quotation No.:					**Chemtest Sample ID.:**	1120032	1120033	1120034	1120035	1120036	1120037	1120038	1120039	1120040
Order No.:					Client Sample Ref.:	144851	144852	144854	144860	144861	144863	147400	AA1400149	AA145001
					Sample Location:	BH1	BH1	BH1	BH2	BH2	BH2	BH3	TP01	TP02
					Sample Type:	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
					Top Depth (m):	1.00	2.00	3.00	1.00	2.00	3.00	1.00	1.00	1.00
					Asbestos Lab:	DURHAM	DURHAM	DURHAM	DURHAM	DURHAM	DURHAM	DURHAM	DURHAM	DURHAM
Determinand	**Accred.**	**SOP**	**Units**	**LOD**										
Aliphatic TPH >C35-C44	N	2680	mg/kg	1.0		[A] < 1.0	[A] < 1.0	[A] < 1.0	[A] < 1.0	[A] < 1.0	[A] < 1.0	[A] < 1.0	[A] < 1.0	[A] < 1.0
Total Aliphatic Hydrocarbons	N	2680	mg/kg	5.0		[A] < 5.0	[A] < 5.0	[A] < 5.0	[A] < 5.0	[A] < 5.0	[A] < 5.0	[A] < 5.0	[A] < 5.0	[A] < 5.0
Aromatic TPH >C5-C7	N	2680	mg/kg	1.0		[A] < 1.0	[A] < 1.0	[A] < 1.0	[A] < 1.0	[A] < 1.0	[A] < 1.0	[A] < 1.0	[A] < 1.0	[A] < 1.0
Aromatic TPH >C7-C8	N	2680	mg/kg	1.0		[A] < 1.0	[A] < 1.0	[A] < 1.0	[A] < 1.0	[A] < 1.0	[A] < 1.0	[A] < 1.0	[A] < 1.0	[A] < 1.0
Aromatic TPH >C8-C10	U	2680	mg/kg	1.0		[A] < 1.0	[A] < 1.0	[A] < 1.0	[A] < 1.0	[A] < 1.0	[A] < 1.0	[A] < 1.0	[A] < 1.0	[A] < 1.0
Aromatic TPH >C10-C12	U	2680	mg/kg	1.0		[A] < 1.0	[A] < 1.0	[A] < 1.0	[A] < 1.0	[A] < 1.0	[A] < 1.0	[A] < 1.0	[A] < 1.0	[A] < 1.0
Aromatic TPH >C12-C16	U	2680	mg/kg	1.0		[A] < 1.0	[A] < 1.0	[A] < 1.0	[A] < 1.0	[A] < 1.0	[A] < 1.0	[A] < 1.0	[A] < 1.0	[A] < 1.0
Aromatic TPH >C16-C21	U	2680	mg/kg	1.0		[A] < 1.0	[A] < 1.0	[A] < 1.0	[A] < 1.0	[A] < 1.0	[A] < 1.0	[A] < 1.0	[A] < 1.0	[A] < 1.0
Aromatic TPH >C21-C35	U	2680	mg/kg	1.0		[A] < 1.0	[A] < 1.0	[A] < 1.0	[A] < 1.0	[A] < 1.0	[A] < 1.0	[A] < 1.0	[A] < 1.0	[A] < 1.0
Aromatic TPH >C35-C44	N	2680	mg/kg	1.0		[A] < 1.0	[A] < 1.0	[A] < 1.0	[A] < 1.0	[A] < 1.0	[A] < 1.0	[A] < 1.0	[A] < 1.0	[A] < 1.0
Total Aromatic Hydrocarbons	N	2680	mg/kg	5.0		[A] < 5.0	[A] < 5.0	[A] < 5.0	[A] < 5.0	[A] < 5.0	[A] < 5.0	[A] < 5.0	[A] < 5.0	[A] < 5.0
Total Petroleum Hydrocarbons	N	2680	mg/kg	10.0		[A] < 10	[A] < 10	[A] < 10	[A] < 10	[A] < 10	[A] < 10	[A] < 10	[A] < 10	[A] < 10
Benzene	U	2760	µg/kg	1.0		[A] < 1.0	[A] < 1.0	[A] < 1.0	[A] < 1.0	[A] < 1.0	[A] < 1.0	[A] < 1.0	[A] < 1.0	[A] < 1.0
Toluene	U	2760	µg/kg	1.0		[A] < 1.0	[A] < 1.0	[A] < 1.0	[A] < 1.0	[A] < 1.0	[A] < 1.0	[A] < 1.0	[A] < 1.0	[A] < 1.0
Ethylbenzene	U	2760	µg/kg	1.0		[A] < 1.0	[A] < 1.0	[A] < 1.0	[A] < 1.0	[A] < 1.0	[A] < 1.0	[A] < 1.0	[A] < 1.0	[A] < 1.0
m & p-Xylene	U	2760	µg/kg	1.0		[A] < 1.0	[A] < 1.0	[A] < 1.0	[A] < 1.0	[A] < 1.0	[A] < 1.0	[A] < 1.0	[A] < 1.0	[A] < 1.0
o-Xylene	U	2760	µg/kg	1.0		[A] < 1.0	[A] < 1.0	[A] < 1.0	[A] < 1.0	[A] < 1.0	[A] < 1.0	[A] < 1.0	[A] < 1.0	[A] < 1.0
Methyl Tert-Butyl Ether	U	2760	µg/kg	1.0		[A] < 1.0	[A] < 1.0	[A] < 1.0	[A] < 1.0	[A] < 1.0	[A] < 1.0	[A] < 1.0	[A] < 1.0	[A] < 1.0
Naphthalene	N	2800	mg/kg	0.010		[A] < 0.010	[A] < 0.010	[A] < 0.010	[A] 0.078	[A] < 0.010	[A] < 0.010	[A] 0.088	[A] < 0.010	[A] < 0.010
Acenaphthylene	N	2800	mg/kg	0.010		[A] < 0.010	[A] < 0.010	[A] < 0.010	[A] 0.072	[A] < 0.010	[A] < 0.010	[A] 0.083	[A] < 0.010	[A] < 0.010
Acenaphthene	N	2800	mg/kg	0.010		[A] < 0.010	[A] < 0.010	[A] < 0.010	[A] 0.040	[A] < 0.010	[A] < 0.010	[A] 0.017	[A] < 0.010	[A] < 0.010
Fluorene	N	2800	mg/kg	0.010		[A] < 0.010	[A] < 0.010	[A] < 0.010	[A] 0.073	[A] < 0.010	[A] < 0.010	[A] 0.076	[A] < 0.010	[A] < 0.010
Phenanthrene	N	2800	mg/kg	0.010		[A] 0.089	[A] 0.13	[A] 0.051	[A] 0.14	[A] < 0.010	[A] 0.078	[A] 0.49	[A] 0.19	[A] 0.16
Anthracene	N	2800	mg/kg	0.010		[A] 0.040	[A] 0.039	[A] < 0.010	[A] 0.099	[A] < 0.010	[A] 0.050	[A] 0.13	[A] 0.059	[A] 0.066
Fluoranthene	N	2800	mg/kg	0.010		[A] 0.23	[A] 0.15	[A] 0.073	[A] 0.15	[A] 0.036	[A] 0.14	[A] 0.84	[A] 0.67	[A] 0.61
Pyrene	N	2800	mg/kg	0.010		[A] 0.19	[A] 0.14	[A] 0.069	[A] 0.15	[A] 0.048	[A] 0.14	[A] 0.72	[A] 0.64	[A] 0.61
Benzo[a]anthracene	N	2800	mg/kg	0.010		[A] 0.16	[A] 0.092	[A] < 0.010	[A] 0.12	[A] < 0.010	[A] 0.087	[A] 0.44	[A] 0.39	[A] 0.43
Chrysene	N	2800	mg/kg	0.010		[A] 0.11	[A] 0.094	[A] < 0.010	[A] 0.12	[A] < 0.010	[A] 0.081	[A] 0.39	[A] 0.33	[A] 0.38
Benzo[b]fluoranthene	N	2800	mg/kg	0.010		[A] 0.19	[A] < 0.010	[A] < 0.010	[A] 0.18	[A] < 0.010	[A] 0.074	[A] 0.52	[A] 0.50	[A] 0.61
Benzo[k]fluoranthene	N	2800	mg/kg	0.010		[A] 0.078	[A] < 0.010	[A] < 0.010	[A] 0.078	[A] < 0.010	[A] 0.061	[A] 0.18	[A] 0.18	[A] 0.18
Benzo[a]pyrene	N	2800	mg/kg	0.010		[A] 0.16	[A] < 0.010	[A] < 0.010	[A] 0.15	[A] < 0.010	[A] 0.093	[A] 0.39	[A] 0.41	[A] 0.52
Indeno(1,2,3-c,d)Pyrene	N	2800	mg/kg	0.010		[A] 0.11	[A] < 0.010	[A] < 0.010	[A] 0.18	[A] < 0.010	[A] < 0.010	[A] 0.31	[A] 0.34	[A] 0.37
Dibenz(a,h)Anthracene	N	2800	mg/kg	0.010		[A] < 0.010	[A] < 0.010	[A] < 0.010	[A] 0.13	[A] < 0.010	[A] < 0.010	[A] 0.098	[A] 0.086	[A] 0.096
Benzo[g,h,i]perylene	N	2800	mg/kg	0.010		[A] 0.081	[A] < 0.010	[A] < 0.010	[A] 0.13	[A] < 0.010	[A] < 0.010	[A] 0.24	[A] 0.32	[A] 0.36
Coronene	N	2800	mg/kg	0.010		[A] < 0.010	[A] < 0.010	[A] < 0.010	[A] < 0.010	[A] < 0.010	[A] < 0.010	[A] < 0.010	[A] < 0.010	[A] < 0.010
Total Of 17 PAH's	N	2800	mg/kg	0.20		[A] 1.4	[A] 0.65	[A] < 0.20	[A] 1.9	[A] < 0.20	[A] 0.80	[A] 5.0	[A] 4.1	[A] 4.4
PCB 28	N	2815	mg/kg	0.0010		[A] < 0.0010	[A] < 0.0010	[A] < 0.0010	[A] < 0.0010	[A] < 0.0010	[A] < 0.0010	[A] < 0.0010	[A] < 0.0010	[A] < 0.0010
PCB 52	N	2815	mg/kg	0.0010		[A] < 0.0010	[A] < 0.0010	[A] < 0.0010	[A] < 0.0010	[A] < 0.0010	[A] < 0.0010	[A] < 0.0010	[A] < 0.0010	[A] < 0.0010
PCB 90+101	N	2815	mg/kg	0.0010		[A] < 0.0010	[A] < 0.0010	[A] < 0.0010	[A] < 0.0010	[A] < 0.0010	[A] < 0.0010	[A] < 0.0010	[A] < 0.0010	[A] < 0.0010

Results - Soil

Project: 23017 Carlow Water Park

Client: IGSL			**Chemtest Job No.:**		20-35643	20-35643	20-35643	20-35643	20-35643	20-35643	20-35643	20-35643	20-35643
Quotation No.:			**Chemtest Sample ID.:**		1120032	1120033	1120034	1120035	1120036	1120037	1120038	1120039	1120040
Order No.:			Client Sample Ref.:		144851	144852	144854	144860	144861	144863	147400	AA1400149	AA145001
			Sample Location:		BH1	BH1	BH1	BH2	BH2	BH2	BH3	TP01	TP02
			Sample Type:		SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
			Top Depth (m):		1.00	2.00	3.00	1.00	2.00	3.00	1.00	1.00	1.00
			Asbestos Lab:		DURHAM	DURHAM	DURHAM	DURHAM	DURHAM	DURHAM	DURHAM	DURHAM	DURHAM
Determinand	**Accred.**	**SOP**	**Units**	**LOD**									
PCB 118	N	2815	mg/kg	0.0010	[A] < 0.0010	[A] < 0.0010	[A] < 0.0010	[A] < 0.0010	[A] < 0.0010	[A] < 0.0010	[A] < 0.0010	[A] < 0.0010	[A] < 0.0010
PCB 153	N	2815	mg/kg	0.0010	[A] < 0.0010	[A] < 0.0010	[A] < 0.0010	[A] < 0.0010	[A] < 0.0010	[A] < 0.0010	[A] < 0.0010	[A] < 0.0010	[A] < 0.0010
PCB 138	N	2815	mg/kg	0.0010	[A] < 0.0010	[A] < 0.0010	[A] < 0.0010	[A] < 0.0010	[A] < 0.0010	[A] < 0.0010	[A] < 0.0010	[A] < 0.0010	[A] < 0.0010
PCB 180	N	2815	mg/kg	0.0010	[A] < 0.0010	[A] < 0.0010	[A] < 0.0010	[A] < 0.0010	[A] < 0.0010	[A] < 0.0010	[A] < 0.0010	[A] < 0.0010	[A] < 0.0010
Total PCBs (7 congeners)	N	2815	mg/kg	0.0010	[A] < 0.0010	[A] < 0.0010	[A] < 0.0010	[A] < 0.0010	[A] < 0.0010	[A] < 0.0010	[A] < 0.0010	[A] < 0.0010	[A] < 0.0010
Total Phenols	U	2920	mg/kg	0.30	< 0.30	< 0.30	< 0.30	< 0.30	< 0.30	< 0.30	< 0.30	< 0.30	< 0.30

Results - Soil

Project: 23017 Carlow Water Park

Client: IGSL		**Chemtest Job No.:**			20-35643	20-35643	20-35643	20-35643	20-35643
Quotation No.:		**Chemtest Sample ID.:**			1120041	1120042	1120043	1120044	1120045
Order No.:		Client Sample Ref.:			AA145002	AA140050	AA140048	AA144046	AA140047
		Sample Location:			TP02	TP03	TP04	TP05	TP05
		Sample Type:			SOIL	SOIL	SOIL	SOIL	SOIL
		Top Depth (m):			2.00	1.00	1.00	0.50	1.50
		Asbestos Lab:			DURHAM	DURHAM	DURHAM	DURHAM	DURHAM
Determinand	**Accred.**	**SOP**	**Units**	**LOD**					
ACM Type	U	2192		N/A	-	-	-	-	-
Asbestos Identification	U	2192		N/A	No Asbestos Detected	No Asbestos Detected	No Asbestos Detected	No Asbestos Detected	No Asbestos Detected
ACM Detection Stage	U	2192		N/A	-	-	-	-	-
Moisture	N	2030	%	0.020	18	32	60	15	25
pH (2.5:1)	N	2010		4.0					
Boron (Hot Water Soluble)	U	2120	mg/kg	0.40	[A] < 0.40	[A] < 0.40	[A] < 0.40	[A] < 0.40	[A] 0.47
Magnesium (Water Soluble)	N	2120	g/l	0.010					
Sulphate (2:1 Water Soluble) as SO4	U	2120	g/l	0.010					
Total Sulphur	U	2175	%	0.010					
Sulphur (Elemental)	U	2180	mg/kg	1.0	[A] 2.4	[A] < 1.0	[A] 1.3	[A] 2.6	[A] 47
Chloride (Water Soluble)	U	2220	g/l	0.010					
Nitrate (Water Soluble)	N	2220	g/l	0.010					
Cyanide (Total)	U	2300	mg/kg	0.50	[A] < 0.50	[A] < 0.50	[A] < 0.50	[A] < 0.50	[A] < 0.50
Sulphide (Easily Liberatable)	N	2325	mg/kg	0.50	[A] 7.7	[A] 2.2	[A] 3.9	[A] 4.0	[A] 5.4
Ammonium (Water Soluble)	U	2120	g/l	0.01					
Sulphate (Acid Soluble)	U	2430	%	0.010	[A] 0.050	[A] 0.033	[A] 0.058	[A] 0.044	[A] 0.073
Arsenic	U	2450	mg/kg	1.0	15	17	19	17	20
Barium	U	2450	mg/kg	10	61	58	66	77	64
Cadmium	U	2450	mg/kg	0.10	0.69	0.64	1.1	1.3	1.1
Chromium	U	2450	mg/kg	1.0	10	12	14	15	16
Molybdenum	U	2450	mg/kg	2.0	< 2.0	< 2.0	< 2.0	< 2.0	2.3
Antimony	N	2450	mg/kg	2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0
Copper	U	2450	mg/kg	0.50	17	19	27	26	28
Mercury	U	2450	mg/kg	0.10	< 0.10	< 0.10	0.15	< 0.10	0.21
Nickel	U	2450	mg/kg	0.50	15	19	21	30	31
Lead	U	2450	mg/kg	0.50	40	31	53	43	49
Selenium	U	2450	mg/kg	0.20	< 0.20	0.22	0.24	0.35	0.20
Zinc	U	2450	mg/kg	0.50	58	58	110	74	77
Chromium (Trivalent)	N	2490	mg/kg	1.0	10	12	14	15	16
Chromium (Hexavalent)	N	2490	mg/kg	0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
Mineral Oil	N	2670	mg/kg	10	< 10	< 10	< 10	< 10	< 10
Aliphatic TPH >C5-C6	N	2680	mg/kg	1.0	[A] < 1.0	[A] < 1.0	[A] < 1.0	[A] < 1.0	[A] < 1.0
Aliphatic TPH >C6-C8	N	2680	mg/kg	1.0	[A] < 1.0	[A] < 1.0	[A] < 1.0	[A] < 1.0	[A] < 1.0
Aliphatic TPH >C8-C10	U	2680	mg/kg	1.0	[A] < 1.0	[A] < 1.0	[A] < 1.0	[A] < 1.0	[A] < 1.0
Aliphatic TPH >C10-C12	U	2680	mg/kg	1.0	[A] < 1.0	[A] < 1.0	[A] < 1.0	[A] < 1.0	[A] < 1.0
Aliphatic TPH >C12-C16	U	2680	mg/kg	1.0	[A] < 1.0	[A] < 1.0	[A] < 1.0	[A] < 1.0	[A] < 1.0
Aliphatic TPH >C16-C21	U	2680	mg/kg	1.0	[A] < 1.0	[A] < 1.0	[A] < 1.0	[A] < 1.0	[A] < 1.0
Aliphatic TPH >C21-C35	U	2680	mg/kg	1.0	[A] < 1.0	[A] < 1.0	[A] < 1.0	[A] < 1.0	[A] < 1.0

Results - Soil

Project: 23017 Carlow Water Park

Client: IGSL		**Chemtest Job No.:**			20-35643	20-35643	20-35643	20-35643	20-35643
Quotation No.:		**Chemtest Sample ID.:**			1120041	1120042	1120043	1120044	1120045
Order No.:		Client Sample Ref.:			AA145002	AA140050	AA140048	AA144046	AA140047
		Sample Location:			TP02	TP03	TP04	TP05	TP05
		Sample Type:			SOIL	SOIL	SOIL	SOIL	SOIL
		Top Depth (m):			2.00	1.00	1.00	0.50	1.50
		Asbestos Lab:			DURHAM	DURHAM	DURHAM	DURHAM	DURHAM
Determinand	**Accred.**	**SOP**	**Units**	**LOD**					
Aliphatic TPH >C35-C44	N	2680	mg/kg	1.0	[A] < 1.0	[A] < 1.0	[A] < 1.0	[A] < 1.0	[A] < 1.0
Total Aliphatic Hydrocarbons	N	2680	mg/kg	5.0	[A] < 5.0	[A] < 5.0	[A] < 5.0	[A] < 5.0	[A] < 5.0
Aromatic TPH >C5-C7	N	2680	mg/kg	1.0	[A] < 1.0	[A] < 1.0	[A] < 1.0	[A] < 1.0	[A] < 1.0
Aromatic TPH >C7-C8	N	2680	mg/kg	1.0	[A] < 1.0	[A] < 1.0	[A] < 1.0	[A] < 1.0	[A] < 1.0
Aromatic TPH >C8-C10	U	2680	mg/kg	1.0	[A] < 1.0	[A] < 1.0	[A] < 1.0	[A] < 1.0	[A] < 1.0
Aromatic TPH >C10-C12	U	2680	mg/kg	1.0	[A] < 1.0	[A] < 1.0	[A] < 1.0	[A] < 1.0	[A] < 1.0
Aromatic TPH >C12-C16	U	2680	mg/kg	1.0	[A] < 1.0	[A] < 1.0	[A] < 1.0	[A] < 1.0	[A] < 1.0
Aromatic TPH >C16-C21	U	2680	mg/kg	1.0	[A] < 1.0	[A] < 1.0	[A] < 1.0	[A] < 1.0	[A] < 1.0
Aromatic TPH >C21-C35	U	2680	mg/kg	1.0	[A] < 1.0	[A] < 1.0	[A] < 1.0	[A] < 1.0	[A] < 1.0
Aromatic TPH >C35-C44	N	2680	mg/kg	1.0	[A] < 1.0	[A] < 1.0	[A] < 1.0	[A] < 1.0	[A] < 1.0
Total Aromatic Hydrocarbons	N	2680	mg/kg	5.0	[A] < 5.0	[A] < 5.0	[A] < 5.0	[A] < 5.0	[A] < 5.0
Total Petroleum Hydrocarbons	N	2680	mg/kg	10.0	[A] < 10	[A] < 10	[A] < 10	[A] < 10	[A] < 10
Benzene	U	2760	µg/kg	1.0	[A] < 1.0	[A] < 1.0	[A] < 1.0	[A] < 1.0	[A] < 1.0
Toluene	U	2760	µg/kg	1.0	[A] < 1.0	[A] < 1.0	[A] < 1.0	[A] < 1.0	[A] < 1.0
Ethylbenzene	U	2760	µg/kg	1.0	[A] < 1.0	[A] < 1.0	[A] < 1.0	[A] < 1.0	[A] < 1.0
m & p-Xylene	U	2760	µg/kg	1.0	[A] < 1.0	[A] < 1.0	[A] < 1.0	[A] < 1.0	[A] < 1.0
o-Xylene	U	2760	µg/kg	1.0	[A] < 1.0	[A] < 1.0	[A] < 1.0	[A] < 1.0	[A] < 1.0
Methyl Tert-Butyl Ether	U	2760	µg/kg	1.0	[A] < 1.0	[A] < 1.0	[A] < 1.0	[A] < 1.0	[A] < 1.0
Naphthalene	N	2800	mg/kg	0.010	[A] < 0.010	[A] < 0.010	[A] < 0.010	[A] < 0.010	[A] < 0.010
Acenaphthylene	N	2800	mg/kg	0.010	[A] < 0.010	[A] < 0.010	[A] < 0.010	[A] < 0.010	[A] < 0.010
Acenaphthene	N	2800	mg/kg	0.010	[A] < 0.010	[A] < 0.010	[A] < 0.010	[A] < 0.010	[A] < 0.010
Fluorene	N	2800	mg/kg	0.010	[A] < 0.010	[A] < 0.010	[A] < 0.010	[A] < 0.010	[A] < 0.010
Phenanthrene	N	2800	mg/kg	0.010	[A] 0.29	[A] 0.043	[A] 0.17	[A] 0.17	[A] 0.25
Anthracene	N	2800	mg/kg	0.010	[A] 0.087	[A] < 0.010	[A] 0.041	[A] 0.10	[A] 0.073
Fluoranthene	N	2800	mg/kg	0.010	[A] 0.69	[A] 0.041	[A] 0.41	[A] 0.47	[A] 0.67
Pyrene	N	2800	mg/kg	0.010	[A] 0.61	[A] 0.035	[A] 0.33	[A] 0.39	[A] 0.62
Benzo[a]anthracene	N	2800	mg/kg	0.010	[A] 0.44	[A] < 0.010	[A] 0.24	[A] 0.30	[A] 0.41
Chrysene	N	2800	mg/kg	0.010	[A] 0.43	[A] < 0.010	[A] 0.19	[A] 0.33	[A] 0.35
Benzo[b]fluoranthene	N	2800	mg/kg	0.010	[A] 0.56	[A] < 0.010	[A] 0.34	[A] 0.40	[A] 0.46
Benzo[k]fluoranthene	N	2800	mg/kg	0.010	[A] 0.21	[A] < 0.010	[A] 0.089	[A] 0.13	[A] 0.18
Benzo[a]pyrene	N	2800	mg/kg	0.010	[A] 0.55	[A] < 0.010	[A] 0.29	[A] 0.34	[A] 0.36
Indeno(1,2,3-c,d)Pyrene	N	2800	mg/kg	0.010	[A] 0.41	[A] < 0.010	[A] 0.23	[A] 0.24	[A] 0.30
Dibenz(a,h)Anthracene	N	2800	mg/kg	0.010	[A] 0.12	[A] < 0.010	[A] 0.050	[A] 0.052	[A] 0.073
Benzo[g,h,i]perylene	N	2800	mg/kg	0.010	[A] 0.33	[A] < 0.010	[A] 0.20	[A] 0.20	[A] 0.25
Coronene	N	2800	mg/kg	0.010	[A] < 0.010	[A] < 0.010	[A] < 0.010	[A] < 0.010	[A] < 0.010
Total Of 17 PAH's	N	2800	mg/kg	0.20	[A] 4.7	[A] < 0.20	[A] 2.6	[A] 3.1	[A] 4.0
PCB 28	N	2815	mg/kg	0.0010	[A] < 0.0010	[A] < 0.0010	[A] < 0.0010	[A] < 0.0010	[A] < 0.0010
PCB 52	N	2815	mg/kg	0.0010	[A] < 0.0010	[A] < 0.0010	[A] < 0.0010	[A] < 0.0010	[A] < 0.0010
PCB 90+101	N	2815	mg/kg	0.0010	[A] < 0.0010	[A] < 0.0010	[A] < 0.0010	[A] < 0.0010	[A] < 0.0010

Results - Soil

Project: 23017 Carlow Water Park

Client: IGSL			**Chemtest Job No.:**		20-35643	20-35643	20-35643	20-35643	20-35643
Quotation No.:			**Chemtest Sample ID.:**		1120041	1120042	1120043	1120044	1120045
Order No.:			Client Sample Ref.:		AA145002	AA140050	AA140048	AA144046	AA140047
			Sample Location:		TP02	TP03	TP04	TP05	TP05
			Sample Type:		SOIL	SOIL	SOIL	SOIL	SOIL
			Top Depth (m):		2.00	1.00	1.00	0.50	1.50
			Asbestos Lab:		DURHAM	DURHAM	DURHAM	DURHAM	DURHAM
Determinand	**Accred.**	**SOP**	**Units**	**LOD**					
PCB 118	N	2815	mg/kg	0.0010	[A] < 0.0010	[A] < 0.0010	[A] < 0.0010	[A] < 0.0010	[A] < 0.0010
PCB 153	N	2815	mg/kg	0.0010	[A] < 0.0010	[A] < 0.0010	[A] < 0.0010	[A] < 0.0010	[A] < 0.0010
PCB 138	N	2815	mg/kg	0.0010	[A] < 0.0010	[A] < 0.0010	[A] < 0.0010	[A] < 0.0010	[A] < 0.0010
PCB 180	N	2815	mg/kg	0.0010	[A] < 0.0010	[A] < 0.0010	[A] < 0.0010	[A] < 0.0010	[A] < 0.0010
Total PCBs (7 congeners)	N	2815	mg/kg	0.0010	[A] < 0.0010	[A] < 0.0010	[A] < 0.0010	[A] < 0.0010	[A] < 0.0010
Total Phenols	U	2920	mg/kg	0.30	< 0.30	< 0.30	< 0.30	< 0.30	< 0.30

Results - Single Stage WAC

Project: 23017 Carlow Water Park

					Landfill Waste Acceptance Criteria Limits		
Chemtest Job No:	20-35643						
Chemtest Sample ID:	1120032						
Sample Ref:	144851						
Sample ID:							
Sample Location:	BH1						
Top Depth(m):	1.00						
Bottom Depth(m):							
Sampling Date:							
Determinand	**SOP**	**Accred.**	**Units**		**Inert Waste Landfill**	**Stable, Non-reactive hazardous waste in non-hazardous Landfill**	**Hazardous Waste Landfill**
Total Organic Carbon	2625	U	%	[A] 0.73	3	5	6
Loss On Ignition	2610	U	%	14	--	--	10
Total BTEX	2760	U	mg/kg	[A] < 0.010	6	--	--
Total PCBs (7 congeners)	2815	N	mg/kg	[A] < 0.0010	1	--	--
TPH Total WAC (Mineral Oil)	2670	U	mg/kg	[A] < 10	500	--	--
Total Of 17 PAH's	2800	N	mg/kg	[A] 1.4	100	--	--
pH	2010	U		8.1	--	>6	--
Acid Neutralisation Capacity	2015	N	mol/kg	0.010	--	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	0.0047	< 0.50	20	100	300
Cadmium	1450	U	< 0.00010	< 0.010	0.04	1	5
Chromium	1450	U	0.0015	< 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	0.0029	< 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	0.25	2.5	10	150	500
Sulphate	1220	U	2.7	27	1000	20000	50000
Total Dissolved Solids	1020	N	100	1000	4000	60000	100000
Phenol Index	1920	U	< 0.030	< 0.30	1	-	-
Dissolved Organic Carbon	1610	U	6.8	68	500	800	1000

Solid Information	
Dry mass of test portion/kg	0.090
Moisture (%)	43

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: 23017 Carlow Water Park

					Landfill Waste Acceptance Criteria Limits		
Chemtest Job No:	20-35643						
Chemtest Sample ID:	1120033						
Sample Ref:	144852						
Sample ID:							
Sample Location:	BH1						
Top Depth(m):	2.00						
Bottom Depth(m):							
Sampling Date:							
Determinand	**SOP**	**Accred.**	**Units**		**Inert Waste Landfill**	**Stable, Non-reactive hazardous waste in non-hazardous Landfill**	**Hazardous Waste Landfill**
Total Organic Carbon	2625	U	%	[A] 6.4	3	5	6
Loss On Ignition	2610	U	%	9.1	--	--	10
Total BTEX	2760	U	mg/kg	[A] < 0.010	6	--	--
Total PCBs (7 congeners)	2815	N	mg/kg	[A] < 0.0010	1	--	--
TPH Total WAC (Mineral Oil)	2670	U	mg/kg	[A] < 10	500	--	--
Total Of 17 PAH's	2800	N	mg/kg	[A] 0.65	100	--	--
pH	2010	U		7.4	--	>6	--
Acid Neutralisation Capacity	2015	N	mol/kg	< 0.0020	--	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	0.0025	< 0.050	0.5	2	25
Barium	1450	U	0.14	1.4	20	100	300
Cadmium	1450	U	< 0.00010	< 0.010	0.04	1	5
Chromium	1450	U	0.0011	< 0.050	0.5	10	70
Copper	1450	U	0.0017	< 0.050	2	50	100
Mercury	1450	U	< 0.00050	< 0.0050	0.01	0.2	2
Molybdenum	1450	U	0.0065	0.065	0.5	10	30
Nickel	1450	U	0.0013	< 0.050	0.4	10	40
Lead	1450	U	< 0.0010	< 0.010	0.5	10	50
Antimony	1450	U	0.0014	0.014	0.06	0.7	5
Selenium	1450	U	0.0018	0.018	0.1	0.5	7
Zinc	1450	U	0.010	< 0.50	4	50	200
Chloride	1220	U	1.9	19	800	15000	25000
Fluoride	1220	U	0.15	1.5	10	150	500
Sulphate	1220	U	89	890	1000	20000	50000
Total Dissolved Solids	1020	N	330	3100	4000	60000	100000
Phenol Index	1920	U	< 0.030	< 0.30	1	-	-
Dissolved Organic Carbon	1610	U	13	130	500	800	1000

Solid Information	
Dry mass of test portion/kg	0.090
Moisture (%)	48

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: 23017 Carlow Water Park

					Landfill Waste Acceptance Criteria Limits		
Chemtest Job No:	20-35643						
Chemtest Sample ID:	1120034						
Sample Ref:	144854						
Sample ID:							
Sample Location:	BH1						
Top Depth(m):	3.00						
Bottom Depth(m):							
Sampling Date:							
Determinand	**SOP**	**Accred.**	**Units**		**Inert Waste Landfill**	**Stable, Non-reactive hazardous waste in non-hazardous Landfill**	**Hazardous Waste Landfill**
Total Organic Carbon	2625	U	%	[A] 2.7	3	5	6
Loss On Ignition	2610	U	%	16	--	--	10
Total BTEX	2760	U	mg/kg	[A] < 0.010	6	--	--
Total PCBs (7 congeners)	2815	N	mg/kg	[A] < 0.0010	1	--	--
TPH Total WAC (Mineral Oil)	2670	U	mg/kg	[A] < 10	500	--	--
Total Of 17 PAH's	2800	N	mg/kg	[A] < 0.20	100	--	--
pH	2010	U		7.1	--	>6	--
Acid Neutralisation Capacity	2015	N	mol/kg	0.0030	--	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	0.0012	< 0.050	0.5	2	25
Barium	1450	U	0.23	2.3	20	100	300
Cadmium	1450	U	< 0.00010	< 0.010	0.04	1	5
Chromium	1450	U	0.0011	< 0.050	0.5	10	70
Copper	1450	U	0.0018	< 0.050	2	50	100
Mercury	1450	U	< 0.00050	< 0.0050	0.01	0.2	2
Molybdenum	1450	U	0.0040	< 0.050	0.5	10	30
Nickel	1450	U	0.0020	< 0.050	0.4	10	40
Lead	1450	U	< 0.0010	< 0.010	0.5	10	50
Antimony	1450	U	0.0011	0.011	0.06	0.7	5
Selenium	1450	U	0.0020	0.020	0.1	0.5	7
Zinc	1450	U	0.0030	< 0.50	4	50	200
Chloride	1220	U	1.0	10	800	15000	25000
Fluoride	1220	U	0.18	1.8	10	150	500
Sulphate	1220	U	38	380	1000	20000	50000
Total Dissolved Solids	1020	N	230	2300	4000	60000	100000
Phenol Index	1920	U	< 0.030	< 0.30	1	-	-
Dissolved Organic Carbon	1610	U	9.2	92	500	800	1000

Solid Information	
Dry mass of test portion/kg	0.090
Moisture (%)	36

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: 23017 Carlow Water Park

					Landfill Waste Acceptance Criteria Limits		
Chemtest Job No:	20-35643						
Chemtest Sample ID:	1120035						
Sample Ref:	144860						
Sample ID:							
Sample Location:	BH2						
Top Depth(m):	1.00						
Bottom Depth(m):							
Sampling Date:					**Inert Waste Landfill**	**Stable, Non-reactive hazardous waste in non-hazardous Landfill**	**Hazardous Waste Landfill**
Determinand	**SOP**	**Accred.**	**Units**				
Total Organic Carbon	2625	U	%	[A] 5.5	3	5	6
Loss On Ignition	2610	U	%	9.9	--	--	10
Total BTEX	2760	U	mg/kg	[A] < 0.010	6	--	--
Total PCBs (7 congeners)	2815	N	mg/kg	[A] < 0.0010	1	--	--
TPH Total WAC (Mineral Oil)	2670	U	mg/kg	[A] < 10	500	--	--
Total Of 17 PAH's	2800	N	mg/kg	[A] 1.9	100	--	--
pH	2010	U		7.3	--	>6	--
Acid Neutralisation Capacity	2015	N	mol/kg	< 0.0020	--	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	0.0018	< 0.050	0.5	2	25
Barium	1450	U	0.12	1.2	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	0.0020	< 0.050	2	50	100
Mercury	1450	U	< 0.00050	< 0.0050	0.01	0.2	2
Molybdenum	1450	U	0.0028	< 0.050	0.5	10	30
Nickel	1450	U	0.0013	< 0.050	0.4	10	40
Lead	1450	U	< 0.0010	< 0.010	0.5	10	50
Antimony	1450	U	0.0014	0.014	0.06	0.7	5
Selenium	1450	U	0.0012	0.012	0.1	0.5	7
Zinc	1450	U	0.011	< 0.50	4	50	200
Chloride	1220	U	1.4	14	800	15000	25000
Fluoride	1220	U	0.14	1.4	10	150	500
Sulphate	1220	U	120	1200	1000	20000	50000
Total Dissolved Solids	1020	N	360	3300	4000	60000	100000
Phenol Index	1920	U	< 0.030	< 0.30	1	-	-
Dissolved Organic Carbon	1610	U	10	100	500	800	1000

Solid Information	
Dry mass of test portion/kg	0.090
Moisture (%)	62

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: 23017 Carlow Water Park

					Landfill Waste Acceptance Criteria Limits		
Chemtest Job No:	20-35643						
Chemtest Sample ID:	1120036						
Sample Ref:	144861						
Sample ID:							
Sample Location:	BH2						
Top Depth(m):	2.00						
Bottom Depth(m):							
Sampling Date:							
Determinand	**SOP**	**Accred.**	**Units**		**Inert Waste Landfill**	**Stable, Non-reactive hazardous waste in non-hazardous Landfill**	**Hazardous Waste Landfill**
Total Organic Carbon	2625	U	%	[A] 2.8	3	5	6
Loss On Ignition	2610	U	%	6.0	--	--	10
Total BTEX	2760	U	mg/kg	[A] < 0.010	6	--	--
Total PCBs (7 congeners)	2815	N	mg/kg	[A] < 0.0010	1	--	--
TPH Total WAC (Mineral Oil)	2670	U	mg/kg	[A] < 10	500	--	--
Total Of 17 PAH's	2800	N	mg/kg	[A] < 0.20	100	--	--
pH	2010	U		7.1	--	>6	--
Acid Neutralisation Capacity	2015	N	mol/kg	0.0040	--	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	0.0011	< 0.050	0.5	2	25
Barium	1450	U	0.13	1.3	20	100	300
Cadmium	1450	U	< 0.00010	< 0.010	0.04	1	5
Chromium	1450	U	< 0.0010	< 0.050	0.5	10	70
Copper	1450	U	< 0.0010	< 0.050	2	50	100
Mercury	1450	U	< 0.00050	< 0.0050	0.01	0.2	2
Molybdenum	1450	U	0.0023	< 0.050	0.5	10	30
Nickel	1450	U	0.0020	< 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	0.0019	0.019	0.1	0.5	7
Zinc	1450	U	0.0094	< 0.50	4	50	200
Chloride	1220	U	2.6	26	800	15000	25000
Fluoride	1220	U	0.11	1.1	10	150	500
Sulphate	1220	U	150	1500	1000	20000	50000
Total Dissolved Solids	1020	N	370	3600	4000	60000	100000
Phenol Index	1920	U	< 0.030	< 0.30	1	-	-
Dissolved Organic Carbon	1610	U	12	120	500	800	1000

Solid Information	
Dry mass of test portion/kg	0.090
Moisture (%)	42

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: 23017 Carlow Water Park

					Landfill Waste Acceptance Criteria Limits		
Chemtest Job No:	20-35643						
Chemtest Sample ID:	1120037						
Sample Ref:	144863						
Sample ID:							
Sample Location:	BH2						
Top Depth(m):	3.00						
Bottom Depth(m):							
Sampling Date:							
Determinand	**SOP**	**Accred.**	**Units**		**Inert Waste Landfill**	**Stable, Non-reactive hazardous waste in non-hazardous Landfill**	**Hazardous Waste Landfill**
Total Organic Carbon	2625	U	%	[A] 1.0	3	5	6
Loss On Ignition	2610	U	%	5.0	--	--	10
Total BTEX	2760	U	mg/kg	[A] < 0.010	6	--	--
Total PCBs (7 congeners)	2815	N	mg/kg	[A] < 0.0010	1	--	--
TPH Total WAC (Mineral Oil)	2670	U	mg/kg	[A] < 10	500	--	--
Total Of 17 PAH's	2800	N	mg/kg	[A] 0.80	100	--	--
pH	2010	U		7.5	--	>6	--
Acid Neutralisation Capacity	2015	N	mol/kg	< 0.0020	--	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	0.0017	< 0.050	0.5	2	25
Barium	1450	U	0.30	3.0	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	< 0.0010	< 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	0.0019	0.019	0.1	0.5	7
Zinc	1450	U	0.0016	< 0.50	4	50	200
Chloride	1220	U	1.1	11	800	15000	25000
Fluoride	1220	U	0.14	1.4	10	150	500
Sulphate	1220	U	18	180	1000	20000	50000
Total Dissolved Solids	1020	N	160	1500	4000	60000	100000
Phenol Index	1920	U	< 0.030	< 0.30	1	-	-
Dissolved Organic Carbon	1610	U	6.8	68	500	800	1000

Solid Information	
Dry mass of test portion/kg	0.090
Moisture (%)	28

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: 23017 Carlow Water Park

					Landfill Waste Acceptance Criteria Limits		
Chemtest Job No:	20-35643						
Chemtest Sample ID:	1120038						
Sample Ref:	147400						
Sample ID:							
Sample Location:	BH3						
Top Depth(m):	1.00						
Bottom Depth(m):							
Sampling Date:							
Determinand	**SOP**	**Accred.**	**Units**		**Inert Waste Landfill**	**Stable, Non-reactive hazardous waste in non-hazardous Landfill**	**Hazardous Waste Landfill**
Total Organic Carbon	2625	U	%	[A] 3.2	3	5	6
Loss On Ignition	2610	U	%	3.8	--	--	10
Total BTEX	2760	U	mg/kg	[A] < 0.010	6	--	--
Total PCBs (7 congeners)	2815	N	mg/kg	[A] < 0.0010	1	--	--
TPH Total WAC (Mineral Oil)	2670	U	mg/kg	[A] < 10	500	--	--
Total Of 17 PAH's	2800	N	mg/kg	[A] 5.0	100	--	--
pH	2010	U		8.1	--	>6	--
Acid Neutralisation Capacity	2015	N	mol/kg	< 0.0020	--	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	0.0032	< 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	0.0016	< 0.050	0.5	10	70
Copper	1450	U	0.0046	< 0.050	2	50	100
Mercury	1450	U	< 0.00050	< 0.0050	0.01	0.2	2
Molybdenum	1450	U	0.0063	0.063	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	0.0021	0.021	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	1.8	18	800	15000	25000
Fluoride	1220	U	0.22	2.2	10	150	500
Sulphate	1220	U	7.5	75	1000	20000	50000
Total Dissolved Solids	1020	N	120	1200	4000	60000	100000
Phenol Index	1920	U	< 0.030	< 0.30	1	-	-
Dissolved Organic Carbon	1610	U	16	160	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: 23017 Carlow Water Park

					Landfill Waste Acceptance Criteria Limits		
Chemtest Job No:	20-35643						
Chemtest Sample ID:	1120039						
Sample Ref:	AA1400149						
Sample ID:							
Sample Location:	TP01						
Top Depth(m):	1.00						
Bottom Depth(m):							
Sampling Date:							
Determinand	**SOP**	**Accred.**	**Units**		**Inert Waste Landfill**	**Stable, Non-reactive hazardous waste in non-hazardous Landfill**	**Hazardous Waste Landfill**
Total Organic Carbon	2625	U	%	[A] 1.5	3	5	6
Loss On Ignition	2610	U	%	4.2	--	--	10
Total BTEX	2760	U	mg/kg	[A] < 0.010	6	--	--
Total PCBs (7 congeners)	2815	N	mg/kg	[A] < 0.0010	1	--	--
TPH Total WAC (Mineral Oil)	2670	U	mg/kg	[A] < 10	500	--	--
Total Of 17 PAH's	2800	N	mg/kg	[A] 4.1	100	--	--
pH	2010	U		8.4	--	>6	--
Acid Neutralisation Capacity	2015	N	mol/kg	0.029	--	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	0.0012	< 0.050	0.5	2	25
Barium	1450	U	0.0046	< 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	0.0042	< 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	0.18	1.8	10	150	500
Sulphate	1220	U	1.8	18	1000	20000	50000
Total Dissolved Solids	1020	N	91	910	4000	60000	100000
Phenol Index	1920	U	< 0.030	< 0.30	1	-	-
Dissolved Organic Carbon	1610	U	9.3	93	500	800	1000

Solid Information	
Dry mass of test portion/kg	0.090
Moisture (%)	1.9

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: 23017 Carlow Water Park

					Landfill Waste Acceptance Criteria Limits		
Chemtest Job No:	20-35643						
Chemtest Sample ID:	1120040						
Sample Ref:	AA145001						
Sample ID:							
Sample Location:	TP02						
Top Depth(m):	1.00						
Bottom Depth(m):							
Sampling Date:							
Determinand	**SOP**	**Accred.**	**Units**		**Inert Waste Landfill**	**Stable, Non-reactive hazardous waste in non-hazardous Landfill**	**Hazardous Waste Landfill**
Total Organic Carbon	2625	U	%	[A] 2.1	3	5	6
Loss On Ignition	2610	U	%	4.8	--	--	10
Total BTEX	2760	U	mg/kg	[A] < 0.010	6	--	--
Total PCBs (7 congeners)	2815	N	mg/kg	[A] < 0.0010	1	--	--
TPH Total WAC (Mineral Oil)	2670	U	mg/kg	[A] < 10	500	--	--
Total Of 17 PAH's	2800	N	mg/kg	[A] 4.4	100	--	--
pH	2010	U		8.2	--	>6	--
Acid Neutralisation Capacity	2015	N	mol/kg	0.025	--	To evaluate	To evaluate
Eluate Analysis			**10:1 Eluate mg/l**	**10:1 Eluate mg/kg**	**Limit values for compliance leaching test using BS EN 12457 at L/S 10 l/kg**		
Arsenic	1450	U	0.0016	< 0.050	0.5	2	25
Barium	1450	U	0.0071	< 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	0.0017	< 0.050	2	50	100
Mercury	1450	U	< 0.00050	< 0.0050	0.01	0.2	2
Molybdenum	1450	U	0.0024	< 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	0.0015	0.015	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	0.15	1.5	10	150	500
Sulphate	1220	U	1.7	17	1000	20000	50000
Total Dissolved Solids	1020	N	65	650	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 (%)	13

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: 23017 Carlow Water Park

					Landfill Waste Acceptance Criteria Limits		
Chemtest Job No:	20-35643						
Chemtest Sample ID:	1120041						
Sample Ref:	AA145002						
Sample ID:							
Sample Location:	TP02						
Top Depth(m):	2.00						
Bottom Depth(m):							
Sampling Date:					**Inert Waste Landfill**	**Stable, Non-reactive hazardous waste in non-hazardous Landfill**	**Hazardous Waste Landfill**
Determinand	**SOP**	**Accred.**	**Units**				
Total Organic Carbon	2625	U	%	[A] 1.8	3	5	6
Loss On Ignition	2610	U	%	4.2	--	--	10
Total BTEX	2760	U	mg/kg	[A] < 0.010	6	--	--
Total PCBs (7 congeners)	2815	N	mg/kg	[A] < 0.0010	1	--	--
TPH Total WAC (Mineral Oil)	2670	U	mg/kg	[A] < 10	500	--	--
Total Of 17 PAH's	2800	N	mg/kg	[A] 4.7	100	--	--
pH	2010	U		8.1	--	>6	--
Acid Neutralisation Capacity	2015	N	mol/kg	0.075	--	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	0.0013	< 0.050	0.5	2	25
Barium	1450	U	0.017	< 0.50	20	100	300
Cadmium	1450	U	< 0.00010	< 0.010	0.04	1	5
Chromium	1450	U	0.0021	< 0.050	0.5	10	70
Copper	1450	U	0.0014	< 0.050	2	50	100
Mercury	1450	U	< 0.00050	< 0.0050	0.01	0.2	2
Molybdenum	1450	U	0.011	0.11	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	0.0022	0.022	0.06	0.7	5
Selenium	1450	U	0.0010	0.010	0.1	0.5	7
Zinc	1450	U	0.0013	< 0.50	4	50	200
Chloride	1220	U	1.9	19	800	15000	25000
Fluoride	1220	U	0.22	2.2	10	150	500
Sulphate	1220	U	9.2	92	1000	20000	50000
Total Dissolved Solids	1020	N	120	1200	4000	60000	100000
Phenol Index	1920	U	< 0.030	< 0.30	1	-	-
Dissolved Organic Carbon	1610	U	5.4	54	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.

Results - Single Stage WAC

Project: 23017 Carlow Water Park

					Landfill Waste Acceptance Criteria Limits		
Chemtest Job No:	20-35643						
Chemtest Sample ID:	1120042						
Sample Ref:	AA140050						
Sample ID:							
Sample Location:	TP03						
Top Depth(m):	1.00						
Bottom Depth(m):							
Sampling Date:							
Determinand	**SOP**	**Accred.**	**Units**		**Inert Waste Landfill**	**Stable, Non-reactive hazardous waste in non-hazardous Landfill**	**Hazardous Waste Landfill**
Total Organic Carbon	2625	U	%	[A] 1.3	3	5	6
Loss On Ignition	2610	U	%	4.0	--	--	10
Total BTEX	2760	U	mg/kg	[A] < 0.010	6	--	--
Total PCBs (7 congeners)	2815	N	mg/kg	[A] < 0.0010	1	--	--
TPH Total WAC (Mineral Oil)	2670	U	mg/kg	[A] < 10	500	--	--
Total Of 17 PAH's	2800	N	mg/kg	[A] < 0.20	100	--	--
pH	2010	U		7.9	--	>6	--
Acid Neutralisation Capacity	2015	N	mol/kg	0.021	--	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	0.0053	< 0.50	20	100	300
Cadmium	1450	U	< 0.00010	< 0.010	0.04	1	5
Chromium	1450	U	0.0013	< 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	0.0070	0.070	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	0.35	3.5	10	150	500
Sulphate	1220	U	< 1.0	< 10	1000	20000	50000
Total Dissolved Solids	1020	N	85	830	4000	60000	100000
Phenol Index	1920	U	< 0.030	< 0.30	1	-	-
Dissolved Organic Carbon	1610	U	8.5	85	500	800	1000

Solid Information	
Dry mass of test portion/kg	0.090
Moisture (%)	32

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: 23017 Carlow Water Park

					Landfill Waste Acceptance Criteria Limits		
Chemtest Job No:	20-35643						
Chemtest Sample ID:	1120043						
Sample Ref:	AA140048						
Sample ID:							
Sample Location:	TP04						
Top Depth(m):	1.00						
Bottom Depth(m):							
Sampling Date:							
Determinand	**SOP**	**Accred.**	**Units**		**Inert Waste Landfill**	**Stable, Non-reactive hazardous waste in non-hazardous Landfill**	**Hazardous Waste Landfill**
Total Organic Carbon	2625	U	%	[A] 2.0	3	5	6
Loss On Ignition	2610	U	%	4.1	--	--	10
Total BTEX	2760	U	mg/kg	[A] < 0.010	6	--	--
Total PCBs (7 congeners)	2815	N	mg/kg	[A] < 0.0010	1	--	--
TPH Total WAC (Mineral Oil)	2670	U	mg/kg	[A] < 10	500	--	--
Total Of 17 PAH's	2800	N	mg/kg	[A] 2.6	100	--	--
pH	2010	U		8.3	--	>6	--
Acid Neutralisation Capacity	2015	N	mol/kg	0.010	--	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	0.0030	< 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	0.0022	< 0.050	0.5	10	70
Copper	1450	U	0.0057	0.057	2	50	100
Mercury	1450	U	< 0.00050	< 0.0050	0.01	0.2	2
Molybdenum	1450	U	0.0063	0.063	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	0.0014	0.014	0.06	0.7	5
Selenium	1450	U	0.0011	0.011	0.1	0.5	7
Zinc	1450	U	0.0023	< 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	3.1	31	1000	20000	50000
Total Dissolved Solids	1020	N	120	1100	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 (%)	60

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: 23017 Carlow Water Park

					Landfill Waste Acceptance Criteria Limits		
Chemtest Job No:	20-35643						
Chemtest Sample ID:	1120044						
Sample Ref:	AA144046						
Sample ID:							
Sample Location:	TP05						
Top Depth(m):	0.50						
Bottom Depth(m):							
Sampling Date:					**Inert Waste Landfill**	**Stable, Non-reactive hazardous waste in non-hazardous Landfill**	**Hazardous Waste Landfill**
Determinand	**SOP**	**Accred.**	**Units**				
Total Organic Carbon	2625	U	%	[A] 1.1	3	5	6
Loss On Ignition	2610	U	%	4.1	--	--	10
Total BTEX	2760	U	mg/kg	[A] < 0.010	6	--	--
Total PCBs (7 congeners)	2815	N	mg/kg	[A] < 0.0010	1	--	--
TPH Total WAC (Mineral Oil)	2670	U	mg/kg	[A] < 10	500	--	--
Total Of 17 PAH's	2800	N	mg/kg	[A] 3.1	100	--	--
pH	2010	U		8.3	--	>6	--
Acid Neutralisation Capacity	2015	N	mol/kg	0.0070	--	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	0.0021	< 0.050	0.5	2	25
Barium	1450	U	0.021	< 0.50	20	100	300
Cadmium	1450	U	< 0.00010	< 0.010	0.04	1	5
Chromium	1450	U	0.0021	< 0.050	0.5	10	70
Copper	1450	U	0.0029	< 0.050	2	50	100
Mercury	1450	U	< 0.00050	< 0.0050	0.01	0.2	2
Molybdenum	1450	U	0.012	0.12	0.5	10	30
Nickel	1450	U	0.0013	< 0.050	0.4	10	40
Lead	1450	U	< 0.0010	< 0.010	0.5	10	50
Antimony	1450	U	0.0014	0.014	0.06	0.7	5
Selenium	1450	U	0.0013	0.013	0.1	0.5	7
Zinc	1450	U	0.0035	< 0.50	4	50	200
Chloride	1220	U	< 1.0	< 10	800	15000	25000
Fluoride	1220	U	0.25	2.5	10	150	500
Sulphate	1220	U	24	240	1000	20000	50000
Total Dissolved Solids	1020	N	170	1700	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 (%)	15

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: 23017 Carlow Water Park

					Landfill Waste Acceptance Criteria Limits		
Chemtest Job No:	20-35643						
Chemtest Sample ID:	1120045						
Sample Ref:	AA140047						
Sample ID:							
Sample Location:	TP05						
Top Depth(m):	1.50						
Bottom Depth(m):							
Sampling Date:							
Determinand	**SOP**	**Accred.**	**Units**		**Inert Waste Landfill**	**Stable, Non-reactive hazardous waste in non-hazardous Landfill**	**Hazardous Waste Landfill**
Total Organic Carbon	2625	U	%	[A] 1.7	3	5	6
Loss On Ignition	2610	U	%	7.1	--	--	10
Total BTEX	2760	U	mg/kg	[A] < 0.010	6	--	--
Total PCBs (7 congeners)	2815	N	mg/kg	[A] < 0.0010	1	--	--
TPH Total WAC (Mineral Oil)	2670	U	mg/kg	[A] < 10	500	--	--
Total Of 17 PAH's	2800	N	mg/kg	[A] 4.0	100	--	--
pH	2010	U		8.1	--	>6	--
Acid Neutralisation Capacity	2015	N	mol/kg	0.015	--	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	0.0028	< 0.050	0.5	2	25
Barium	1450	U	0.033	< 0.50	20	100	300
Cadmium	1450	U	< 0.00010	< 0.010	0.04	1	5
Chromium	1450	U	0.0019	< 0.050	0.5	10	70
Copper	1450	U	0.0041	< 0.050	2	50	100
Mercury	1450	U	< 0.00050	< 0.0050	0.01	0.2	2
Molybdenum	1450	U	0.015	0.15	0.5	10	30
Nickel	1450	U	0.0018	< 0.050	0.4	10	40
Lead	1450	U	0.0013	0.013	0.5	10	50
Antimony	1450	U	0.0022	0.022	0.06	0.7	5
Selenium	1450	U	0.0016	0.016	0.1	0.5	7
Zinc	1450	U	0.0036	< 0.50	4	50	200
Chloride	1220	U	3.2	32	800	15000	25000
Fluoride	1220	U	0.24	2.4	10	150	500
Sulphate	1220	U	39	390	1000	20000	50000
Total Dissolved Solids	1020	N	160	1500	4000	60000	100000
Phenol Index	1920	U	< 0.030	< 0.30	1	-	-
Dissolved Organic Carbon	1610	U	5.1	51	500	800	1000

Solid Information	
Dry mass of test portion/kg	0.090
Moisture (%)	25

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:
1120032	144851		BH1		A	Amber Glass 250ml
1120032	144851		BH1		A	Plastic Tub 500g
1120033	144852		BH1		A	Amber Glass 250ml
1120033	144852		BH1		A	Plastic Tub 500g
1120034	144854		BH1		A	Amber Glass 250ml
1120034	144854		BH1		A	Plastic Tub 500g
1120035	144860		BH2		A	Amber Glass 250ml
1120035	144860		BH2		A	Plastic Tub 500g
1120036	144861		BH2		A	Amber Glass 250ml
1120036	144861		BH2		A	Plastic Tub 500g
1120037	144863		BH2		A	Amber Glass 250ml
1120037	144863		BH2		A	Plastic Tub 500g
1120038	147400		BH3		A	Amber Glass 250ml
1120039	AA1400149		TP01		A	Amber Glass 250ml
1120039	AA1400149		TP01		A	Plastic Tub 500g
1120040	AA145001		TP02		A	Amber Glass 250ml
1120040	AA145001		TP02		A	Plastic Tub 500g
1120041	AA145002		TP02		A	Amber Glass 250ml
1120041	AA145002		TP02		A	Plastic Tub 500g
1120042	AA140050		TP03		A	Amber Glass 250ml
1120042	AA140050		TP03		A	Plastic Tub 500g
1120043	AA140048		TP04		A	Amber Glass 250ml

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:
1120043	AA140048		TP04		A	Plastic Tub 500g
1120044	AA144046		TP05		A	Amber Glass 250ml
1120044	AA144046		TP05		A	Plastic Tub 500g
1120045	AA140047		TP05		A	Amber Glass 250ml
1120045	AA140047		TP05		A	Plastic Tub 500g

Test Methods

SOP	Title	Parameters included	Method summary
1010	pH Value of Waters	pH	pH Meter
1020	Electrical Conductivity and Total Dissolved Solids (TDS) in Waters	Electrical Conductivity and Total Dissolved Solids (TDS) in Waters	Conductivity Meter
1220	Anions, Alkalinity & Ammonium in Waters	Fluoride; Chloride; Nitrite; Nitrate; Total; Oxidisable Nitrogen (TON); Sulfate; Phosphate; Alkalinity; Ammonium	Automated colorimetric analysis using 'Aquakem 600' Discrete Analyser.
1450	Metals in Waters by ICP-MS	Metals, including: Antimony; Arsenic; Barium; Beryllium; Boron; Cadmium; Chromium; Cobalt; Copper; Lead; Manganese; Mercury; Molybdenum; Nickel; Selenium; Tin; Vanadium; Zinc	Filtration of samples followed by direct determination by inductively coupled plasma mass spectrometry (ICP-MS).
1610	Total/Dissolved Organic Carbon in Waters	Organic Carbon	TOC Analyser using Catalytic Oxidation
1800	Speciated Polynuclear Aromatic Hydrocarbons (PAH) in Waters by GC-MS	Acenaphthene; Acenaphthylene; Anthracene; Benzo[a]Anthracene; Benzo[a]Pyrene; Benzo[b]Fluoranthene; Benzo[ghi]Perylene; Benzo[k]Fluoranthene; Chrysene; Dibenz[ah]Anthracene; Fluoranthene; Fluorene; Indeno[123cd]Pyrene; Naphthalene; Phenanthrene; Pyrene	Pentane extraction / GCMS detection
1920	Phenols in Waters by HPLC	Phenolic compounds including: Phenol, Cresols, Xylenols, Trimethylphenols Note: Chlorophenols are excluded.	Determination by High Performance Liquid Chromatography (HPLC) using electrochemical detection.
2010	pH Value of Soils	pH	pH Meter
2015	Acid Neutralisation Capacity	Acid Reserve	Titration
2030	Moisture and Stone Content of Soils(Requirement of MCERTS)	Moisture content	Determination of moisture content of soil as a percentage of its as received mass obtained at <37°C.
2040	Soil Description(Requirement of MCERTS)	Soil description	As received soil is described based upon BS5930
2120	Water Soluble Boron, Sulphate, Magnesium & Chromium	Boron; Sulphate; Magnesium; Chromium	Aqueous extraction / ICP-OES
2175	Total Sulphur in Soils	Total Sulphur	Determined by high temperature combustion under oxygen, using an Eltra elemental analyser.
2180	Sulphur (Elemental) in Soils by HPLC	Sulphur	Dichloromethane extraction / HPLC with UV detection
2192	Asbestos	Asbestos	Polarised light microscopy / Gravimetry
2220	Water soluble Chloride in Soils	Chloride	Aqueous extraction and measurememrnt by 'Aquakem 600' Discrete Analyser using ferric nitrate / mercuric thiocyanate.
2300	Cyanides & Thiocyanate in Soils	Free (or easy liberatable) Cyanide; total Cyanide; complex Cyanide; Thiocyanate	Allkaline extraction followed by colorimetric determination using Automated Flow Injection Analyser.
2325	Sulphide in Soils	Sulphide	Steam distillation with sulphuric acid / analysis by 'Aquakem 600' Discrete Analyser, using N,N–dimethyl-p-phenylenediamine.
2430	Total Sulphate in soils	Total Sulphate	Acid digestion followed by determination of sulphate in extract by ICP-OES.
2450	Acid Soluble Metals in Soils	Metals, including: Arsenic; Barium; Beryllium; Cadmium; Chromium; Cobalt; Copper; Lead; Manganese; Mercury; Molybdenum; Nickel; Selenium; Vanadium; Zinc	Acid digestion followed by determination of metals in extract by ICP-MS.
2490	Hexavalent Chromium in Soils	Chromium [VI]	Soil extracts are prepared by extracting dried and ground soil samples into boiling water. Chromium [VI] is determined by 'Aquakem 600' Discrete Analyser using 1,5-diphenylcarbazide.

Test Methods

SOP	Title	Parameters included	Method summary
2610	Loss on Ignition	loss on ignition (LOI)	Determination of the proportion by mass that is lost from a soil by ignition at 550°C.
2625	Total Organic Carbon in Soils	Total organic Carbon (TOC)	Determined by high temperature combustion under oxygen, using an Eltra elemental analyser.
2670	Total Petroleum Hydrocarbons (TPH) in Soils by GC-FID	TPH (C6–C40); optional carbon banding, e.g. 3-band – GRO, DRO & LRO*TPH C8–C40	Dichloromethane extraction / GC-FID
2680	TPH A/A Split	Aliphatics: >C5–C6, >C6–C8,>C8–C10, >C10–C12, >C12–C16, >C16–C21, >C21–C35, >C35– C44Aromatics: >C5–C7, >C7–C8, >C8– C10, >C10–C12, >C12–C16, >C16– C21, >C21– C35, >C35– C44	Dichloromethane extraction / GCxGC FID detection
2760	Volatile Organic Compounds (VOCs) in Soils by Headspace GC-MS	Volatile organic compounds, including BTEX and halogenated Aliphatic/Aromatics.(cf. USEPA Method 8260)*please refer to UKAS schedule	Automated headspace gas chromatographic (GC) analysis of a soil sample, as received, with mass spectrometric (MS) detection of volatile organic compounds.
2800	Speciated Polynuclear Aromatic Hydrocarbons (PAH) in Soil by GC-MS	Acenaphthene*; Acenaphthylene; Anthracene*; Benzo[a]Anthracene*; Benzo[a]Pyrene*; Benzo[b]Fluoranthene*; Benzo[ghi]Perylene*; Benzo[k]Fluoranthene; Chrysene*; Dibenz[ah]Anthracene; Fluoranthene*; Fluorene*; Indeno[123cd]Pyrene*; Naphthalene*; Phenanthrene*; Pyrene*	Dichloromethane extraction / GC-MS
2815	Polychlorinated Biphenyls (PCB) ICES7Congeners in Soils by GC-MS	ICES7 PCB congeners	Acetone/Hexane extraction / GC-MS
2920	Phenols in Soils by HPLC	Phenolic compounds including Resorcinol, Phenol, Methylphenols, Dimethylphenols, 1-Naphthol and TrimethylphenolsNote: chlorophenols are excluded.	60:40 methanol/water mixture extraction, followed by HPLC determination using electrochemical detection.
640	Characterisation of Waste (Leaching C10)	Waste material including soil, sludges and granular waste	ComplianceTest for Leaching of Granular Waste Material and Sludge

Report Information

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

TRIAL PIT RECORD

REPORT NUMBER 23016

CONTRACT	Proposed Water Activity Centre - Carlow	**TRIAL PIT NO.**	**TP01**
		SHEET	Sheet 1 of 1
LOGGED BY	N. Scott	**CO-ORDINATES**	
		DATE STARTED	14/08/2020
		DATE COMPLETED	14/08/2020
CLIENT	Carlow Co.Co.	**GROUND LEVEL (m)**	
ENGINEER	D.R.A	**EXCAVATION METHOD**	3 Tonne Excavator

Geotechnical Description	Legend	Depth (m)	Elevation	Water Strike	Samples: Sample Ref	Samples: Type	Samples: Depth	Vane Test (KPa)	Hand Penetrometer (KPa)
0.0 Topsoil		0.20							
MADE GROUND consisting of a firm to stiff, browm, very sandy gravelly silty clay containing cut stone blocks concrete and red brick fragments. Gravel is fine to coarse and sub-angular to sub-rounded.					AA140049	B	1.00		
End of Trial Pit at 1.30m		1.30							

1.0
2.0
3.0
4.0

Groundwater Conditions
Dry

Stability
Stable

General Remarks
CAT Scanned Location

IGSL TP LOG 23016.GPJ IGSL.GDT 18/12/20

TRIAL PIT RECORD

REPORT NUMBER 23016

CONTRACT	Proposed Water Activity Centre - Carlow	**TRIAL PIT NO.**	**TP02**
		SHEET	Sheet 1 of 1
LOGGED BY	N. Scott	**CO-ORDINATES**	
		DATE STARTED	16/08/2020
		DATE COMPLETED	16/08/2020
CLIENT	Carlow Co.Co.	**GROUND LEVEL (m)**	
ENGINEER	D.R.A	**EXCAVATION METHOD**	3 Tonne Excavator

Geotechnical Description	Legend	Depth (m)	Elevation	Water Strike	Samples: Sample Ref	Samples: Type	Samples: Depth	Vane Test (KPa)	Hand Penetrometer (KPa)
0.0									
1.0					AA145001	B	1.00		
2.0					AA145002	B	2.00		
3.0									
4.0									

Groundwater Conditions
Dry

Stability
Stable

General Remarks
CAT Scanned Location

IGSL TP LOG 23016.GPJ IGSL.GDT 18/12/20

TRIAL PIT RECORD

REPORT NUMBER 23016

CONTRACT	Proposed Water Activity Centre - Carlow	**TRIAL PIT NO.**	**TP03**
		SHEET	Sheet 1 of 1
LOGGED BY	N. Scott	**CO-ORDINATES**	
		DATE STARTED	14/08/2020
		DATE COMPLETED	16/08/2020
CLIENT	Carlow Co.Co.	**GROUND LEVEL (m)**	
ENGINEER	D.R.A	**EXCAVATION METHOD**	3 Tonne Excavator

Geotechnical Description	Legend	Depth (m)	Elevation	Water Strike	Samples: Sample Ref	Samples: Type	Samples: Depth	Vane Test (KPa)	Hand Penetrometer (KPa)
0.0 Topsoil		0.20							
MADE GROUND consisting of a firm to stiff, brown, sandy gravelly silty clay containing cut stone blocks, concrete and red brick fragments.				1 (Seepage)	AA140050	B	1.00		
2.0 End of Trial Pit at 2.00m		2.00							

Groundwater Conditions
Xseepage @1.8

Stability
Stable

General Remarks
CAT Scanned Location

IGSL TP LOG 23016.GPJ IGSL.GDT 18/12/20

TRIAL PIT RECORD

REPORT NUMBER 23016

CONTRACT	Proposed Water Activity Centre - Carlow	**TRIAL PIT NO.**	**TP04**
		SHEET	Sheet 1 of 1
LOGGED BY	N. Scott	**CO-ORDINATES**	
		DATE STARTED	11/08/2020
		DATE COMPLETED	11/08/2020
CLIENT	Carlow Co.Co.	**GROUND LEVEL (m)**	
ENGINEER	D.R.A	**EXCAVATION METHOD**	3 Tonne Excavator

Geotechnical Description	Legend	Depth (m)	Elevation	Water Strike	Samples: Sample Ref	Samples: Type	Samples: Depth	Vane Test (KPa)	Hand Penetrometer (KPa)
0.0 Topsoil		0.20							
MADE GROUND conisting of a firm to stiff, brown, very sandy very gravelly silty clay containing cut stone blocks, concrete and red brick fragments.					AA140048	B	1.00		
End of Trial Pit at 1.40m		1.40							

Groundwater Conditions
Dry

Stability
Stable

General Remarks
CAT Scanned Location

IGSL TP LOG 23016.GPJ IGSL.GDT 18/12/20

TRIAL PIT RECORD

REPORT NUMBER 23016

CONTRACT	Proposed Water Activity Centre - Carlow	**TRIAL PIT NO.**	**TP05**
		SHEET	Sheet 1 of 1
LOGGED BY	N. Scott	**CO-ORDINATES**	
		DATE STARTED	11/08/2020
		DATE COMPLETED	11/08/2020
CLIENT	Carlow Co.Co.	**GROUND LEVEL (m)**	
ENGINEER	D.R.A	**EXCAVATION METHOD**	3 Tonne Excavator

Geotechnical Description	Legend	Depth (m)	Elevation	Water Strike	Samples: Sample Ref	Samples: Type	Samples: Depth	Vane Test (KPa)	Hand Penetrometer (KPa)
0.0 Topsoil		0.20							
MADE GROUND consisting of a firm to stiff brown, sandy slightly gravelly silty clay with a low cobble content containing plastic, red brick fragments, tar and concrete. Gravel is fine to coarse and sub-angular to sub-rounded. Cobbles are sub-angular to sub-rounded.					AA140046	B	0.50		
1.0 MADE GROUND consisting of a firm to stiff, grey mottled brown, sandy very gravelly clayey silt containing wavin and concrete.		1.30			AA140047	B	1.50		
2.0 End of Trial Pit at 2.00m		2.00							
3.0									
4.0									

Groundwater Conditions
Dry

Stability
Stable

General Remarks
CAT Scanned Location

IGSL TP LOG 23016.GPJ IGSL.GDT 18/12/20

Appendix 3

Waste Classification Report

Waste Classification Report

UC2FU-B7VFY-HSV42

Job name

21-001-03 Carlow (17 05 04)

Description/Comments

Project

21-001-03

Site

Carlow

Related Documents

#	Name	Description
None		

Waste Stream Template

O'Callaghan Moran Waste Stream

Classified by

Name:
Austin Hynes
Date:
11 Jan 2021 16:38 GMT
Telephone:
+353 (0)21 4345366

Company:
O'Callaghan Moran & Associates
Unit 15 Melbourne Business Park,
Model Farm Road
Cork

HazWasteOnline™ Training Record:

Course	Date
Hazardous Waste Classification	-
Advanced Hazardous Waste Classification	-

Report

Created by: Austin Hynes
Created date: 11 Jan 2021 16:38 GMT

Job summary

Classification of sample: BH1

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

Sample details

Sample Name:
BH1
Sample Depth:
3.00 m
Moisture content:
36%
(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: 36% 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		8.5 mg/kg	1.32	11.223 mg/kg	0.00112 %		
3	boron { diboron trioxide; boric oxide }	005-008-00-8	215-125-8	1303-86-2		0.7 mg/kg	3.22	2.254 mg/kg	0.000225 %		
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 (worst case) }		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		12 mg/kg	1.126	13.511 mg/kg	0.00135 %		
8	lead { lead chromate }	082-004-00-2	231-846-0	7758-97-6	1	21 mg/kg	1.56	32.756 mg/kg	0.0021 %		
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		<2 mg/kg	1.5	<3 mg/kg	<0.0003 %		<LOD
11	nickel { nickel chromate }	028-035-00-7	238-766-5	14721-18-7		23 mg/kg	2.976	68.454 mg/kg	0.00685 %		
12	selenium { selenium compounds with the exception of cadmium sulphoselenide and those specified elsewhere in this Annex }	034-002-00-8				1.6 mg/kg	1.405	2.248 mg/kg	0.000225 %		
13	zinc { zinc chromate }	024-007-00-3	236-878-9	13530-65-9		110 mg/kg	2.774	305.156 mg/kg	0.0305 %		
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				<0.001	mg/kg		<0.001	mg/kg	<0.0000001 %		<**LOD**
		603-181-00-X	216-653-1	1634-04-4									
16		benzene				<0.001	mg/kg		<0.001	mg/kg	<0.0000001 %		<**LOD**
		601-020-00-8	200-753-7	71-43-2									
17		toluene				<0.001	mg/kg		<0.001	mg/kg	<0.0000001 %		<**LOD**
		601-021-00-3	203-625-9	108-88-3									
18		ethylbenzene				<0.001	mg/kg		<0.001	mg/kg	<0.0000001 %		<**LOD**
		601-023-00-4	202-849-4	100-41-4									
19		xylene				<0.001	mg/kg		<0.001	mg/kg	<0.0000001 %		<**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		naphthalene				<0.01	mg/kg		<0.01	mg/kg	<0.000001 %		<**LOD**
		601-052-00-2	202-049-5	91-20-3									
22		acenaphthylene				<0.01	mg/kg		<0.01	mg/kg	<0.000001 %		<**LOD**
			205-917-1	208-96-8									
23		acenaphthene				<0.01	mg/kg		<0.01	mg/kg	<0.000001 %		<**LOD**
			201-469-6	83-32-9									
24		fluorene				<0.01	mg/kg		<0.01	mg/kg	<0.000001 %		<**LOD**
			201-695-5	86-73-7									
25		phenanthrene				0.051	mg/kg		0.051	mg/kg	0.0000051 %		
			201-581-5	85-01-8									
26		anthracene				<0.01	mg/kg		<0.01	mg/kg	<0.000001 %		<**LOD**
			204-371-1	120-12-7									
27		fluoranthene				0.073	mg/kg		0.073	mg/kg	0.0000073 %		
			205-912-4	206-44-0									
28		pyrene				0.069	mg/kg		0.069	mg/kg	0.0000069 %		
			204-927-3	129-00-0									
29		benzo[a]anthracene				<0.01	mg/kg		<0.01	mg/kg	<0.000001 %		<**LOD**
		601-033-00-9	200-280-6	56-55-3									
30		chrysene				<0.01	mg/kg		<0.01	mg/kg	<0.000001 %		<**LOD**
		601-048-00-0	205-923-4	218-01-9									
31		benzo[b]fluoranthene				<0.01	mg/kg		<0.01	mg/kg	<0.000001 %		<**LOD**
		601-034-00-4	205-911-9	205-99-2									
32		benzo[k]fluoranthene				<0.01	mg/kg		<0.01	mg/kg	<0.000001 %		<**LOD**
		601-036-00-5	205-916-6	207-08-9									
33		benzo[a]pyrene; benzo[def]chrysene				<0.01	mg/kg		<0.01	mg/kg	<0.000001 %		<**LOD**
		601-032-00-3	200-028-5	50-32-8									
34		indeno[123-cd]pyrene				<0.01	mg/kg		<0.01	mg/kg	<0.000001 %		<**LOD**
			205-893-2	193-39-5									
35		dibenz[a,h]anthracene				<0.01	mg/kg		<0.01	mg/kg	<0.000001 %		<**LOD**
		601-041-00-2	200-181-8	53-70-3									
36		benzo[ghi]perylene				<0.01	mg/kg		<0.01	mg/kg	<0.000001 %		<**LOD**
			205-883-8	191-24-2									
37		phenol				<0.3	mg/kg		<0.3	mg/kg	<0.00003 %		<**LOD**
		604-001-00-2	203-632-7	108-95-2									
38		polychlorobiphenyls; PCB				<0.001	mg/kg		<0.001	mg/kg	<0.0000001 %		<**LOD**
		602-039-00-4	215-648-1	1336-36-3									
										Total:	0.0475 %		

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
ND	Not detected
CLP: Note 1	Only the metal concentration has been used for classification

Classification of sample: BH2

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

Sample details

Sample Name:
BH2
Sample Depth:
3.00 m
Moisture content:
28%
(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: 28% 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		3.2 mg/kg	1.142	3.655 mg/kg	0.000366 %		
5	chromium in chromium(III) compounds { chromium(III) oxide (worst case) }		215-160-9	1308-38-9		25 mg/kg	1.462	36.539 mg/kg	0.00365 %		
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		14 mg/kg	1.126	15.762 mg/kg	0.00158 %		
8	lead { lead chromate }	082-004-00-2	231-846-0	7758-97-6	1	17 mg/kg	1.56	26.517 mg/kg	0.0017 %		
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		<2 mg/kg	1.5	<3 mg/kg	<0.0003 %		<**LOD**
11	nickel { nickel chromate }	028-035-00-7	238-766-5	14721-18-7		32 mg/kg	2.976	95.24 mg/kg	0.00952 %		
12	selenium { selenium compounds with the exception of cadmium sulphoselenide and those specified elsewhere in this Annex }	034-002-00-8				1.1 mg/kg	1.405	1.546 mg/kg	0.000155 %		
13	zinc { zinc chromate }	024-007-00-3	236-878-9	13530-65-9		130 mg/kg	2.774	360.639 mg/kg	0.0361 %		
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				<0.001	mg/kg		<0.001	mg/kg	<0.0000001 %		<**LOD**
		603-181-00-X	216-653-1	1634-04-4									
16		benzene				<0.001	mg/kg		<0.001	mg/kg	<0.0000001 %		<**LOD**
		601-020-00-8	200-753-7	71-43-2									
17		toluene				<0.001	mg/kg		<0.001	mg/kg	<0.0000001 %		<**LOD**
		601-021-00-3	203-625-9	108-88-3									
18		ethylbenzene				<0.001	mg/kg		<0.001	mg/kg	<0.0000001 %		<**LOD**
		601-023-00-4	202-849-4	100-41-4									
19		xylene				<0.001	mg/kg		<0.001	mg/kg	<0.0000001 %		<**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		naphthalene				<0.01	mg/kg		<0.01	mg/kg	<0.000001 %		<**LOD**
		601-052-00-2	202-049-5	91-20-3									
22		acenaphthylene				<0.01	mg/kg		<0.01	mg/kg	<0.000001 %		<**LOD**
			205-917-1	208-96-8									
23		acenaphthene				<0.01	mg/kg		<0.01	mg/kg	<0.000001 %		<**LOD**
			201-469-6	83-32-9									
24		fluorene				<0.01	mg/kg		<0.01	mg/kg	<0.000001 %		<**LOD**
			201-695-5	86-73-7									
25		phenanthrene				0.078	mg/kg		0.078	mg/kg	0.0000078 %		
			201-581-5	85-01-8									
26		anthracene				0.05	mg/kg		0.05	mg/kg	0.000005 %		
			204-371-1	120-12-7									
27		fluoranthene				0.14	mg/kg		0.14	mg/kg	0.000014 %		
			205-912-4	206-44-0									
28		pyrene				0.14	mg/kg		0.14	mg/kg	0.000014 %		
			204-927-3	129-00-0									
29		benzo[a]anthracene				0.087	mg/kg		0.087	mg/kg	0.0000087 %		
		601-033-00-9	200-280-6	56-55-3									
30		chrysene				0.081	mg/kg		0.081	mg/kg	0.0000081 %		
		601-048-00-0	205-923-4	218-01-9									
31		benzo[b]fluoranthene				0.074	mg/kg		0.074	mg/kg	0.0000074 %		
		601-034-00-4	205-911-9	205-99-2									
32		benzo[k]fluoranthene				0.061	mg/kg		0.061	mg/kg	0.0000061 %		
		601-036-00-5	205-916-6	207-08-9									
33		benzo[a]pyrene; benzo[def]chrysene				0.093	mg/kg		0.093	mg/kg	0.0000093 %		
		601-032-00-3	200-028-5	50-32-8									
34		indeno[123-cd]pyrene				<0.01	mg/kg		<0.01	mg/kg	<0.000001 %		<**LOD**
			205-893-2	193-39-5									
35		dibenz[a,h]anthracene				<0.01	mg/kg		<0.01	mg/kg	<0.000001 %		<**LOD**
		601-041-00-2	200-181-8	53-70-3									
36		benzo[ghi]perylene				<0.01	mg/kg		<0.01	mg/kg	<0.000001 %		<**LOD**
			205-883-8	191-24-2									
37		phenol				<0.3	mg/kg		<0.3	mg/kg	<0.00003 %		<**LOD**
		604-001-00-2	203-632-7	108-95-2									
38		polychlorobiphenyls; PCB				<0.001	mg/kg		<0.001	mg/kg	<0.0000001 %		<**LOD**
		602-039-00-4	215-648-1	1336-36-3									
										Total:	0.0579 %		

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
ND	Not detected
CLP: Note 1	Only the metal concentration has been used for classification

Appendix A: Classifier defined and non CLP determinands

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

Description/Comments: Data from C&L Inventory Database
Data source: https://echa.europa.eu/information-on-chemicals/cl-inventory-database/-/discli/details/33806
Data source date: 17 Jul 2015
Hazard Statements: Acute Tox. 4 H332 , Acute Tox. 4 H302 , Eye Irrit. 2 H319 , STOT SE 3 H335 , Skin Irrit. 2 H315 , Resp. Sens. 1 H334 , Skin Sens. 1 H317 , Repr. 1B H360FD , Aquatic Acute 1 H400 , Aquatic Chronic 1 H410

- **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: Flam. Liq. 3 H226 , Asp. Tox. 1 H304 , STOT RE 2 H373 , Muta. 1B H340 , Carc. 1B H350 , Repr. 2 H361d , Aquatic Chronic 2 H411

- **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):
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):
14 Dec 2015 - EUH032 >= 0.2 % hazard statement sourced from: WM3, Table C12.2

- **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: Acute Tox. 4 H302 , Acute Tox. 1 H330 , Acute Tox. 1 H310 , Eye Irrit. 2 H319 , STOT SE 3 H335 , Skin Irrit. 2 H315

- **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: Eye Irrit. 2 H319 , STOT SE 3 H335 , Skin Irrit. 2 H315 , Aquatic Acute 1 H400 , Aquatic Chronic 1 H410 , Aquatic Chronic 2 H411

- **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 Acute 1 H400 , Aquatic Chronic 1 H410

- **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: Acute Tox. 4 H302 , Eye Irrit. 2 H319 , STOT SE 3 H335 , Carc. 2 H351 , Skin Sens. 1 H317 , Aquatic Acute 1 H400 , Aquatic Chronic 1 H410 , Skin Irrit. 2 H315

- **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: Eye Irrit. 2 H319 , STOT SE 3 H335 , Skin Irrit. 2 H315 , Skin Sens. 1 H317 , Aquatic Acute 1 H400 , Aquatic Chronic 1 H410

- **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: Acute Tox. 4 H302 , Aquatic Acute 1 H400 , Aquatic Chronic 1 H410

- **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: Skin Irrit. 2 H315 , Eye Irrit. 2 H319 , STOT SE 3 H335 , Aquatic Acute 1 H400 , Aquatic Chronic 1 H410

- **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 Acute 1 H400 , Aquatic Chronic 1 H410

- **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):
29 Sep 2015 - Carc. 1A H350 hazard statement sourced from: IARC Group 1 (23, Sup 7, 100C) 2012

Appendix B: Rationale for selection of metal species

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

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

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

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. 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

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

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

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

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. Worse case copper sulphate is very soluble and likely to have been leached away if ever present and/or not enough soluble sulphate detected.

lead {lead chromate}

Worst case CLP species based on hazard statements/molecular weight

mercury {mercury dichloride}

Worst case CLP species based on hazard statements/molecular weight

molybdenum {molybdenum(VI) oxide}

Worst case CLP species based on hazard statements/molecular weight

nickel {nickel chromate}

Worst case CLP species based on hazard statements/molecular weight

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.

zinc {zinc chromate}

Worst case CLP species based on hazard statements/molecular weight

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)

Appendix C: Version

HazWasteOnline Classification Engine: WM3 1st Edition v1.1, May 2018
HazWasteOnline Classification Engine Version: 2020.346.4563.8832 (11 Dec 2020)
HazWasteOnline Database: 2020.346.4563.8832 (11 Dec 2020)

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 Waste 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
13th ATP - Regulation (EU) 2018/1480 of 4 October 2018
14th ATP - Regulation (EU) 2020/217 of 4 October 2019
15th ATP - Regulation (EU) 2020/1182 of 19 May 2020
POPs Regulation 2019 - Regulation (EU) 2019/1021 of 20 June 2019

Waste Classification Report

B6KKC-X4FSJ-VTLMA

Job name

21-001-03 Carlow (17 09 04)

Description/Comments

Project

21-001-03

Site

Carlow

Related Documents

#	Name	Description
None		

Waste Stream Template

O'Callaghan Moran Waste Stream

Classified by

Name:
Austin Hynes
Date:
11 Jan 2021 16:40 GMT
Telephone:
+353 (0)21 4345366

Company:
O'Callaghan Moran & Associates
Unit 15 Melbourne Business Park,
Model Farm Road
Cork

HazWasteOnline™ Training Record:

Course	Date
Hazardous Waste Classification	-
Advanced Hazardous Waste Classification	-

Report

Created by: Austin Hynes
Created date: 11 Jan 2021 16:40 GMT

Job summary

Classification of sample: BH1

Non Hazardous Waste
Classified as **17 09 04**
in the List of Waste

Sample details

Sample Name:
BH1
Sample Depth:
1.00 m
Moisture content:
43%
(no correction)

LoW Code:
Chapter: 17: Construction and Demolition Wastes (including excavated soil from contaminated sites)
Entry: 17 09 04 (mixed construction and demolition wastes other than those mentioned in 17 09 01, 17 09 02 and 17 09 03)

Hazard properties

None identified

Determinands

Moisture content: 43% 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		17 mg/kg	1.32	22.446 mg/kg	0.00224 %		
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		1.4 mg/kg	1.142	1.599 mg/kg	0.00016 %		
5	chromium in chromium(III) compounds { chromium(III) oxide (worst case) }		215-160-9	1308-38-9		15 mg/kg	1.462	21.923 mg/kg	0.00219 %		
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	32 mg/kg	1.56	49.914 mg/kg	0.0032 %		
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 %		
10	molybdenum { molybdenum(VI) oxide }	042-001-00-9	215-204-7	1313-27-5		2.1 mg/kg	1.5	3.15 mg/kg	0.000315 %		
11	nickel { nickel chromate }	028-035-00-7	238-766-5	14721-18-7		32 mg/kg	2.976	95.24 mg/kg	0.00952 %		
12	selenium { selenium compounds with the exception of cadmium sulphoselenide and those specified elsewhere in this Annex }	034-002-00-8				0.42 mg/kg	1.405	0.59 mg/kg	0.000059 %		
13	zinc { zinc chromate }	024-007-00-3	236-878-9	13530-65-9		68 mg/kg	2.774	188.642 mg/kg	0.0189 %		
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				<0.001	mg/kg		<0.001	mg/kg	<0.0000001 %		<LOD
		603-181-00-X	216-653-1	1634-04-4									
16		benzene				<0.001	mg/kg		<0.001	mg/kg	<0.0000001 %		<LOD
		601-020-00-8	200-753-7	71-43-2									
17		toluene				<0.001	mg/kg		<0.001	mg/kg	<0.0000001 %		<LOD
		601-021-00-3	203-625-9	108-88-3									
18		ethylbenzene				<0.001	mg/kg		<0.001	mg/kg	<0.0000001 %		<LOD
		601-023-00-4	202-849-4	100-41-4									
19		xylene				<0.001	mg/kg		<0.001	mg/kg	<0.0000001 %		<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		naphthalene				<0.01	mg/kg		<0.01	mg/kg	<0.000001 %		<LOD
		601-052-00-2	202-049-5	91-20-3									
22		acenaphthylene				<0.01	mg/kg		<0.01	mg/kg	<0.000001 %		<LOD
			205-917-1	208-96-8									
23		acenaphthene				<0.01	mg/kg		<0.01	mg/kg	<0.000001 %		<LOD
			201-469-6	83-32-9									
24		fluorene				<0.01	mg/kg		<0.01	mg/kg	<0.000001 %		<LOD
			201-695-5	86-73-7									
25		phenanthrene				0.089	mg/kg		0.089	mg/kg	0.0000089 %		
			201-581-5	85-01-8									
26		anthracene				0.04	mg/kg		0.04	mg/kg	0.000004 %		
			204-371-1	120-12-7									
27		fluoranthene				0.23	mg/kg		0.23	mg/kg	0.000023 %		
			205-912-4	206-44-0									
28		pyrene				0.19	mg/kg		0.19	mg/kg	0.000019 %		
			204-927-3	129-00-0									
29		benzo[a]anthracene				0.16	mg/kg		0.16	mg/kg	0.000016 %		
		601-033-00-9	200-280-6	56-55-3									
30		chrysene				0.11	mg/kg		0.11	mg/kg	0.000011 %		
		601-048-00-0	205-923-4	218-01-9									
31		benzo[b]fluoranthene				0.19	mg/kg		0.19	mg/kg	0.000019 %		
		601-034-00-4	205-911-9	205-99-2									
32		benzo[k]fluoranthene				0.078	mg/kg		0.078	mg/kg	0.0000078 %		
		601-036-00-5	205-916-6	207-08-9									
33		benzo[a]pyrene; benzo[def]chrysene				0.16	mg/kg		0.16	mg/kg	0.000016 %		
		601-032-00-3	200-028-5	50-32-8									
34		indeno[123-cd]pyrene				0.11	mg/kg		0.11	mg/kg	0.000011 %		
			205-893-2	193-39-5									
35		dibenz[a,h]anthracene				<0.01	mg/kg		<0.01	mg/kg	<0.000001 %		<LOD
		601-041-00-2	200-181-8	53-70-3									
36		benzo[ghi]perylene				0.081	mg/kg		0.081	mg/kg	0.0000081 %		
			205-883-8	191-24-2									
37		phenol				<0.3	mg/kg		<0.3	mg/kg	<0.00003 %		<LOD
		604-001-00-2	203-632-7	108-95-2									
38		polychlorobiphenyls; PCB				<0.001	mg/kg		<0.001	mg/kg	<0.0000001 %		<LOD
		602-039-00-4	215-648-1	1336-36-3									
										Total:	0.0412 %		

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
ND	Not detected
CLP: Note 1	Only the metal concentration has been used for classification

Classification of sample: BH1[2]

Non Hazardous Waste
Classified as **17 09 04**
in the List of Waste

Sample details

Sample Name:
BH1[2]
Sample Depth:
2.00 m
Moisture content:
48%
(no correction)

LoW Code:
Chapter: 17: Construction and Demolition Wastes (including excavated soil from contaminated sites)
Entry: 17 09 04 (mixed construction and demolition wastes other than those mentioned in 17 09 01, 17 09 02 and 17 09 03)

Hazard properties

None identified

Determinands

Moisture content: 48% 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		20 mg/kg	1.32	26.407 mg/kg	0.00264 %		
3	boron { diboron trioxide; boric oxide }	005-008-00-8	215-125-8	1303-86-2		1.5 mg/kg	3.22	4.83 mg/kg	0.000483 %		
4	cadmium { cadmium oxide }	048-002-00-0	215-146-2	1306-19-0		1.2 mg/kg	1.142	1.371 mg/kg	0.000137 %		
5	chromium in chromium(III) compounds { chromium(III) oxide (worst case) }		215-160-9	1308-38-9		16 mg/kg	1.462	23.385 mg/kg	0.00234 %		
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		77 mg/kg	1.126	86.693 mg/kg	0.00867 %		
8	lead { lead chromate }	082-004-00-2	231-846-0	7758-97-6	1	49 mg/kg	1.56	76.431 mg/kg	0.0049 %		
9	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 %		
10	molybdenum { molybdenum(VI) oxide }	042-001-00-9	215-204-7	1313-27-5		<2 mg/kg	1.5	<3 mg/kg	<0.0003 %		<LOD
11	nickel { nickel chromate }	028-035-00-7	238-766-5	14721-18-7		23 mg/kg	2.976	68.454 mg/kg	0.00685 %		
12	selenium { selenium compounds with the exception of cadmium sulphoselenide and those specified elsewhere in this Annex }	034-002-00-8				1.6 mg/kg	1.405	2.248 mg/kg	0.000225 %		
13	zinc { zinc chromate }	024-007-00-3	236-878-9	13530-65-9		90 mg/kg	2.774	249.673 mg/kg	0.025 %		
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				<0.001	mg/kg		<0.001	mg/kg	<0.0000001 %		<LOD
		603-181-00-X	216-653-1	1634-04-4									
16		benzene				<0.001	mg/kg		<0.001	mg/kg	<0.0000001 %		<LOD
		601-020-00-8	200-753-7	71-43-2									
17		toluene				<0.001	mg/kg		<0.001	mg/kg	<0.0000001 %		<LOD
		601-021-00-3	203-625-9	108-88-3									
18		ethylbenzene				<0.001	mg/kg		<0.001	mg/kg	<0.0000001 %		<LOD
		601-023-00-4	202-849-4	100-41-4									
19		xylene				<0.001	mg/kg		<0.001	mg/kg	<0.0000001 %		<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		naphthalene				<0.01	mg/kg		<0.01	mg/kg	<0.000001 %		<LOD
		601-052-00-2	202-049-5	91-20-3									
22		acenaphthylene				<0.01	mg/kg		<0.01	mg/kg	<0.000001 %		<LOD
			205-917-1	208-96-8									
23		acenaphthene				<0.01	mg/kg		<0.01	mg/kg	<0.000001 %		<LOD
			201-469-6	83-32-9									
24		fluorene				<0.01	mg/kg		<0.01	mg/kg	<0.000001 %		<LOD
			201-695-5	86-73-7									
25		phenanthrene				0.13	mg/kg		0.13	mg/kg	0.000013 %		
			201-581-5	85-01-8									
26		anthracene				0.039	mg/kg		0.039	mg/kg	0.0000039 %		
			204-371-1	120-12-7									
27		fluoranthene				0.15	mg/kg		0.15	mg/kg	0.000015 %		
			205-912-4	206-44-0									
28		pyrene				0.14	mg/kg		0.14	mg/kg	0.000014 %		
			204-927-3	129-00-0									
29		benzo[a]anthracene				0.092	mg/kg		0.092	mg/kg	0.0000092 %		
		601-033-00-9	200-280-6	56-55-3									
30		chrysene				0.094	mg/kg		0.094	mg/kg	0.0000094 %		
		601-048-00-0	205-923-4	218-01-9									
31		benzo[b]fluoranthene				<0.01	mg/kg		<0.01	mg/kg	<0.000001 %		<LOD
		601-034-00-4	205-911-9	205-99-2									
32		benzo[k]fluoranthene				<0.01	mg/kg		<0.01	mg/kg	<0.000001 %		<LOD
		601-036-00-5	205-916-6	207-08-9									
33		benzo[a]pyrene; benzo[def]chrysene				<0.01	mg/kg		<0.01	mg/kg	<0.000001 %		<LOD
		601-032-00-3	200-028-5	50-32-8									
34		indeno[123-cd]pyrene				<0.01	mg/kg		<0.01	mg/kg	<0.000001 %		<LOD
			205-893-2	193-39-5									
35		dibenz[a,h]anthracene				<0.01	mg/kg		<0.01	mg/kg	<0.000001 %		<LOD
		601-041-00-2	200-181-8	53-70-3									
36		benzo[ghi]perylene				<0.01	mg/kg		<0.01	mg/kg	<0.000001 %		<LOD
			205-883-8	191-24-2									
37		phenol				<0.3	mg/kg		<0.3	mg/kg	<0.00003 %		<LOD
		604-001-00-2	203-632-7	108-95-2									
38		polychlorobiphenyls; PCB				<0.001	mg/kg		<0.001	mg/kg	<0.0000001 %		<LOD
		602-039-00-4	215-648-1	1336-36-3									
										Total:	0.0531 %		

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
ND	Not detected
CLP: Note 1	Only the metal concentration has been used for classification

Classification of sample: BH2

Non Hazardous Waste
Classified as **17 09 04**
in the List of Waste

Sample details

Sample Name:
BH2
Sample Depth:
1.00 m
Moisture content:
62%
(no correction)

LoW Code:
Chapter: 17: Construction and Demolition Wastes (including excavated soil from contaminated sites)
Entry: 17 09 04 (mixed construction and demolition wastes other than those mentioned in 17 09 01, 17 09 02 and 17 09 03)

Hazard properties

None identified

Determinands

Moisture content: 62% 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		17 mg/kg	1.32	22.446 mg/kg	0.00224 %		
3	boron { diboron trioxide; boric oxide }	005-008-00-8	215-125-8	1303-86-2		0.99 mg/kg	3.22	3.188 mg/kg	0.000319 %		
4	cadmium { cadmium oxide }	048-002-00-0	215-146-2	1306-19-0		1.1 mg/kg	1.142	1.257 mg/kg	0.000126 %		
5	chromium in chromium(III) compounds { chromium(III) oxide (worst case) }		215-160-9	1308-38-9		14 mg/kg	1.462	20.462 mg/kg	0.00205 %		
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	33 mg/kg	1.56	51.474 mg/kg	0.0033 %		
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		<2 mg/kg	1.5	<3 mg/kg	<0.0003 %		<**LOD**
11	nickel { nickel chromate }	028-035-00-7	238-766-5	14721-18-7		21 mg/kg	2.976	62.502 mg/kg	0.00625 %		
12	selenium { selenium compounds with the exception of cadmium sulphoselenide and those specified elsewhere in this Annex }	034-002-00-8				1.3 mg/kg	1.405	1.827 mg/kg	0.000183 %		
13	zinc { zinc chromate }	024-007-00-3	236-878-9	13530-65-9		73 mg/kg	2.774	202.513 mg/kg	0.0203 %		
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				<0.001	mg/kg		<0.001	mg/kg	<0.0000001 %		<**LOD**
		603-181-00-X	216-653-1	1634-04-4									
16		benzene				<0.001	mg/kg		<0.001	mg/kg	<0.0000001 %		<**LOD**
		601-020-00-8	200-753-7	71-43-2									
17		toluene				<0.001	mg/kg		<0.001	mg/kg	<0.0000001 %		<**LOD**
		601-021-00-3	203-625-9	108-88-3									
18		ethylbenzene				<0.001	mg/kg		<0.001	mg/kg	<0.0000001 %		<**LOD**
		601-023-00-4	202-849-4	100-41-4									
19		xylene				<0.001	mg/kg		<0.001	mg/kg	<0.0000001 %		<**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		naphthalene				0.078	mg/kg		0.078	mg/kg	0.0000078 %		
		601-052-00-2	202-049-5	91-20-3									
22		acenaphthylene				0.072	mg/kg		0.072	mg/kg	0.0000072 %		
			205-917-1	208-96-8									
23		acenaphthene				0.04	mg/kg		0.04	mg/kg	0.000004 %		
			201-469-6	83-32-9									
24		fluorene				0.073	mg/kg		0.073	mg/kg	0.0000073 %		
			201-695-5	86-73-7									
25		phenanthrene				0.14	mg/kg		0.14	mg/kg	0.000014 %		
			201-581-5	85-01-8									
26		anthracene				0.099	mg/kg		0.099	mg/kg	0.0000099 %		
			204-371-1	120-12-7									
27		fluoranthene				0.15	mg/kg		0.15	mg/kg	0.000015 %		
			205-912-4	206-44-0									
28		pyrene				0.15	mg/kg		0.15	mg/kg	0.000015 %		
			204-927-3	129-00-0									
29		benzo[a]anthracene				0.12	mg/kg		0.12	mg/kg	0.000012 %		
		601-033-00-9	200-280-6	56-55-3									
30		chrysene				0.12	mg/kg		0.12	mg/kg	0.000012 %		
		601-048-00-0	205-923-4	218-01-9									
31		benzo[b]fluoranthene				0.18	mg/kg		0.18	mg/kg	0.000018 %		
		601-034-00-4	205-911-9	205-99-2									
32		benzo[k]fluoranthene				0.078	mg/kg		0.078	mg/kg	0.0000078 %		
		601-036-00-5	205-916-6	207-08-9									
33		benzo[a]pyrene; benzo[def]chrysene				0.15	mg/kg		0.15	mg/kg	0.000015 %		
		601-032-00-3	200-028-5	50-32-8									
34		indeno[123-cd]pyrene				0.18	mg/kg		0.18	mg/kg	0.000018 %		
			205-893-2	193-39-5									
35		dibenz[a,h]anthracene				0.13	mg/kg		0.13	mg/kg	0.000013 %		
		601-041-00-2	200-181-8	53-70-3									
36		benzo[ghi]perylene				0.13	mg/kg		0.13	mg/kg	0.000013 %		
			205-883-8	191-24-2									
37		phenol				<0.3	mg/kg		<0.3	mg/kg	<0.00003 %		<**LOD**
		604-001-00-2	203-632-7	108-95-2									
38		polychlorobiphenyls; PCB				<0.001	mg/kg		<0.001	mg/kg	<0.0000001 %		<**LOD**
		602-039-00-4	215-648-1	1336-36-3									
										Total:	0.0401 %		

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
ND	Not detected
CLP: Note 1	Only the metal concentration has been used for classification

Classification of sample: BH2[2]

Non Hazardous Waste
Classified as **17 09 04**
in the List of Waste

Sample details

Sample Name:
BH2[2]
Sample Depth:
2.00 m
Moisture content:
42%
(no correction)

LoW Code:
Chapter: 17: Construction and Demolition Wastes (including excavated soil from contaminated sites)
Entry: 17 09 04 (mixed construction and demolition wastes other than those mentioned in 17 09 01, 17 09 02 and 17 09 03)

Hazard properties

None identified

Determinands

Moisture content: 42% 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		10 mg/kg	1.32	13.203 mg/kg	0.00132 %		
3	boron { diboron trioxide; boric oxide }	005-008-00-8	215-125-8	1303-86-2		0.56 mg/kg	3.22	1.803 mg/kg	0.00018 %		
4	cadmium { cadmium oxide }	048-002-00-0	215-146-2	1306-19-0		2.6 mg/kg	1.142	2.97 mg/kg	0.000297 %		
5	chromium in chromium(III) compounds { chromium(III) oxide (worst case) }		215-160-9	1308-38-9		25 mg/kg	1.462	36.539 mg/kg	0.00365 %		
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		13 mg/kg	1.126	14.637 mg/kg	0.00146 %		
8	lead { lead chromate }	082-004-00-2	231-846-0	7758-97-6	1	21 mg/kg	1.56	32.756 mg/kg	0.0021 %		
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		<2 mg/kg	1.5	<3 mg/kg	<0.0003 %		<LOD
11	nickel { nickel chromate }	028-035-00-7	238-766-5	14721-18-7		28 mg/kg	2.976	83.335 mg/kg	0.00833 %		
12	selenium { selenium compounds with the exception of cadmium sulphoselenide and those specified elsewhere in this Annex }	034-002-00-8				1.8 mg/kg	1.405	2.529 mg/kg	0.000253 %		
13	zinc { zinc chromate }	024-007-00-3	236-878-9	13530-65-9		120 mg/kg	2.774	332.898 mg/kg	0.0333 %		
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				<0.001	mg/kg		<0.001	mg/kg	<0.0000001 %		<LOD
		603-181-00-X	216-653-1	1634-04-4									
16		benzene				<0.001	mg/kg		<0.001	mg/kg	<0.0000001 %		<LOD
		601-020-00-8	200-753-7	71-43-2									
17		toluene				<0.001	mg/kg		<0.001	mg/kg	<0.0000001 %		<LOD
		601-021-00-3	203-625-9	108-88-3									
18		ethylbenzene				<0.001	mg/kg		<0.001	mg/kg	<0.0000001 %		<LOD
		601-023-00-4	202-849-4	100-41-4									
19		xylene				<0.001	mg/kg		<0.001	mg/kg	<0.0000001 %		<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		naphthalene				<0.01	mg/kg		<0.01	mg/kg	<0.000001 %		<LOD
		601-052-00-2	202-049-5	91-20-3									
22		acenaphthylene				<0.01	mg/kg		<0.01	mg/kg	<0.000001 %		<LOD
			205-917-1	208-96-8									
23		acenaphthene				<0.01	mg/kg		<0.01	mg/kg	<0.000001 %		<LOD
			201-469-6	83-32-9									
24		fluorene				<0.01	mg/kg		<0.01	mg/kg	<0.000001 %		<LOD
			201-695-5	86-73-7									
25		phenanthrene				<0.01	mg/kg		<0.01	mg/kg	<0.000001 %		<LOD
			201-581-5	85-01-8									
26		anthracene				<0.01	mg/kg		<0.01	mg/kg	<0.000001 %		<LOD
			204-371-1	120-12-7									
27		fluoranthene				0.036	mg/kg		0.036	mg/kg	0.0000036 %		
			205-912-4	206-44-0									
28		pyrene				0.048	mg/kg		0.048	mg/kg	0.0000048 %		
			204-927-3	129-00-0									
29		benzo[a]anthracene				<0.01	mg/kg		<0.01	mg/kg	<0.000001 %		<LOD
		601-033-00-9	200-280-6	56-55-3									
30		chrysene				<0.01	mg/kg		<0.01	mg/kg	<0.000001 %		<LOD
		601-048-00-0	205-923-4	218-01-9									
31		benzo[b]fluoranthene				<0.01	mg/kg		<0.01	mg/kg	<0.000001 %		<LOD
		601-034-00-4	205-911-9	205-99-2									
32		benzo[k]fluoranthene				<0.01	mg/kg		<0.01	mg/kg	<0.000001 %		<LOD
		601-036-00-5	205-916-6	207-08-9									
33		benzo[a]pyrene; benzo[def]chrysene				<0.01	mg/kg		<0.01	mg/kg	<0.000001 %		<LOD
		601-032-00-3	200-028-5	50-32-8									
34		indeno[123-cd]pyrene				<0.01	mg/kg		<0.01	mg/kg	<0.000001 %		<LOD
			205-893-2	193-39-5									
35		dibenz[a,h]anthracene				<0.01	mg/kg		<0.01	mg/kg	<0.000001 %		<LOD
		601-041-00-2	200-181-8	53-70-3									
36		benzo[ghi]perylene				<0.01	mg/kg		<0.01	mg/kg	<0.000001 %		<LOD
			205-883-8	191-24-2									
37		phenol				<0.3	mg/kg		<0.3	mg/kg	<0.00003 %		<LOD
		604-001-00-2	203-632-7	108-95-2									
38		polychlorobiphenyls; PCB				<0.001	mg/kg		<0.001	mg/kg	<0.0000001 %		<LOD
		602-039-00-4	215-648-1	1336-36-3									
										Total:	0.0527 %		

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
ND	Not detected
CLP: Note 1	Only the metal concentration has been used for classification

Classification of sample: BH3

Non Hazardous Waste
Classified as **17 09 04**
in the List of Waste

Sample details

Sample Name:
BH3
Sample Depth:
1.00 m
Moisture content:
20%
(no correction)

LoW Code:
Chapter: 17: Construction and Demolition Wastes (including excavated soil from contaminated sites)
Entry: 17 09 04 (mixed construction and demolition wastes other than those mentioned in 17 09 01, 17 09 02 and 17 09 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		17 mg/kg	1.32	22.446 mg/kg	0.00224 %		
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		0.8 mg/kg	1.142	0.914 mg/kg	0.0000914 %		
5	chromium in chromium(III) compounds { chromium(III) oxide (worst case) }		215-160-9	1308-38-9		13 mg/kg	1.462	19 mg/kg	0.0019 %		
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		68 mg/kg	1.126	76.56 mg/kg	0.00766 %		
8	lead { lead chromate }	082-004-00-2	231-846-0	7758-97-6	1	75 mg/kg	1.56	116.986 mg/kg	0.0075 %		
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		<2 mg/kg	1.5	<3 mg/kg	<0.0003 %		<LOD
11	nickel { nickel chromate }	028-035-00-7	238-766-5	14721-18-7		17 mg/kg	2.976	50.597 mg/kg	0.00506 %		
12	selenium { selenium compounds with the exception of cadmium sulphoselenide and those specified elsewhere in this Annex }	034-002-00-8				<0.2 mg/kg	1.405	<0.281 mg/kg	<0.0000281 %		<LOD
13	zinc { zinc chromate }	024-007-00-3	236-878-9	13530-65-9		66 mg/kg	2.774	183.094 mg/kg	0.0183 %		
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				<0.001	mg/kg		<0.001	mg/kg	<0.0000001 %		<**LOD**
		603-181-00-X	216-653-1	1634-04-4									
16		benzene				<0.001	mg/kg		<0.001	mg/kg	<0.0000001 %		<**LOD**
		601-020-00-8	200-753-7	71-43-2									
17		toluene				<0.001	mg/kg		<0.001	mg/kg	<0.0000001 %		<**LOD**
		601-021-00-3	203-625-9	108-88-3									
18		ethylbenzene				<0.001	mg/kg		<0.001	mg/kg	<0.0000001 %		<**LOD**
		601-023-00-4	202-849-4	100-41-4									
19		xylene				<0.001	mg/kg		<0.001	mg/kg	<0.0000001 %		<**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		naphthalene				0.088	mg/kg		0.088	mg/kg	0.0000088 %		
		601-052-00-2	202-049-5	91-20-3									
22		acenaphthylene				0.083	mg/kg		0.083	mg/kg	0.0000083 %		
			205-917-1	208-96-8									
23		acenaphthene				0.017	mg/kg		0.017	mg/kg	0.0000017 %		
			201-469-6	83-32-9									
24		fluorene				0.076	mg/kg		0.076	mg/kg	0.0000076 %		
			201-695-5	86-73-7									
25		phenanthrene				0.49	mg/kg		0.49	mg/kg	0.000049 %		
			201-581-5	85-01-8									
26		anthracene				0.13	mg/kg		0.13	mg/kg	0.000013 %		
			204-371-1	120-12-7									
27		fluoranthene				0.84	mg/kg		0.84	mg/kg	0.000084 %		
			205-912-4	206-44-0									
28		pyrene				0.72	mg/kg		0.72	mg/kg	0.000072 %		
			204-927-3	129-00-0									
29		benzo[a]anthracene				0.44	mg/kg		0.44	mg/kg	0.000044 %		
		601-033-00-9	200-280-6	56-55-3									
30		chrysene				0.39	mg/kg		0.39	mg/kg	0.000039 %		
		601-048-00-0	205-923-4	218-01-9									
31		benzo[b]fluoranthene				0.52	mg/kg		0.52	mg/kg	0.000052 %		
		601-034-00-4	205-911-9	205-99-2									
32		benzo[k]fluoranthene				0.18	mg/kg		0.18	mg/kg	0.000018 %		
		601-036-00-5	205-916-6	207-08-9									
33		benzo[a]pyrene; benzo[def]chrysene				0.39	mg/kg		0.39	mg/kg	0.000039 %		
		601-032-00-3	200-028-5	50-32-8									
34		indeno[123-cd]pyrene				0.31	mg/kg		0.31	mg/kg	0.000031 %		
			205-893-2	193-39-5									
35		dibenz[a,h]anthracene				0.098	mg/kg		0.098	mg/kg	0.0000098 %		
		601-041-00-2	200-181-8	53-70-3									
36		benzo[ghi]perylene				0.24	mg/kg		0.24	mg/kg	0.000024 %		
			205-883-8	191-24-2									
37		phenol				<0.3	mg/kg		<0.3	mg/kg	<0.00003 %		<**LOD**
		604-001-00-2	203-632-7	108-95-2									
38		polychlorobiphenyls; PCB				<0.001	mg/kg		<0.001	mg/kg	<0.0000001 %		<**LOD**
		602-039-00-4	215-648-1	1336-36-3									
										Total:	0.0452 %		

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
ND	Not detected
CLP: Note 1	Only the metal concentration has been used for classification

Classification of sample: TP01

Non Hazardous Waste
Classified as **17 09 04**
in the List of Waste

Sample details

Sample Name:
TP01
Sample Depth:
1.00 m
Moisture content:
1.9%
(no correction)

LoW Code:
Chapter: 17: Construction and Demolition Wastes (including excavated soil from contaminated sites)
Entry: 17 09 04 (mixed construction and demolition wastes other than those mentioned in 17 09 01, 17 09 02 and 17 09 03)

Hazard properties

None identified

Determinands

Moisture content: 1.9% 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 %		<LOD
2	arsenic { arsenic trioxide }	033-003-00-0	215-481-4	1327-53-3		16 mg/kg	1.32	21.125 mg/kg	0.00211 %		
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 mg/kg	1.142	1.142 mg/kg	0.000114 %		
5	chromium in chromium(III) compounds { chromium(III) oxide (worst case) }		215-160-9	1308-38-9		9.2 mg/kg	1.462	13.446 mg/kg	0.00134 %		
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		12 mg/kg	1.126	13.511 mg/kg	0.00135 %		
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		<2 mg/kg	1.5	<3 mg/kg	<0.0003 %		<LOD
11	nickel { nickel chromate }	028-035-00-7	238-766-5	14721-18-7		15 mg/kg	2.976	44.644 mg/kg	0.00446 %		
12	selenium { selenium compounds with the exception of cadmium sulphoselenide and those specified elsewhere in this Annex }	034-002-00-8				<0.2 mg/kg	1.405	<0.281 mg/kg	<0.0000281 %		<LOD
13	zinc { zinc chromate }	024-007-00-3	236-878-9	13530-65-9		88 mg/kg	2.774	244.125 mg/kg	0.0244 %		
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				<0.001	mg/kg		<0.001	mg/kg	<0.0000001 %		<**LOD**
		603-181-00-X	216-653-1	1634-04-4									
16		benzene				<0.001	mg/kg		<0.001	mg/kg	<0.0000001 %		<**LOD**
		601-020-00-8	200-753-7	71-43-2									
17		toluene				<0.001	mg/kg		<0.001	mg/kg	<0.0000001 %		<**LOD**
		601-021-00-3	203-625-9	108-88-3									
18		ethylbenzene				<0.001	mg/kg		<0.001	mg/kg	<0.0000001 %		<**LOD**
		601-023-00-4	202-849-4	100-41-4									
19		xylene				<0.001	mg/kg		<0.001	mg/kg	<0.0000001 %		<**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		naphthalene				<0.01	mg/kg		<0.01	mg/kg	<0.000001 %		<**LOD**
		601-052-00-2	202-049-5	91-20-3									
22		acenaphthylene				<0.01	mg/kg		<0.01	mg/kg	<0.000001 %		<**LOD**
			205-917-1	208-96-8									
23		acenaphthene				<0.01	mg/kg		<0.01	mg/kg	<0.000001 %		<**LOD**
			201-469-6	83-32-9									
24		fluorene				<0.01	mg/kg		<0.01	mg/kg	<0.000001 %		<**LOD**
			201-695-5	86-73-7									
25		phenanthrene				0.19	mg/kg		0.19	mg/kg	0.000019 %		
			201-581-5	85-01-8									
26		anthracene				0.059	mg/kg		0.059	mg/kg	0.0000059 %		
			204-371-1	120-12-7									
27		fluoranthene				0.67	mg/kg		0.67	mg/kg	0.000067 %		
			205-912-4	206-44-0									
28		pyrene				0.64	mg/kg		0.64	mg/kg	0.000064 %		
			204-927-3	129-00-0									
29		benzo[a]anthracene				0.39	mg/kg		0.39	mg/kg	0.000039 %		
		601-033-00-9	200-280-6	56-55-3									
30		chrysene				0.33	mg/kg		0.33	mg/kg	0.000033 %		
		601-048-00-0	205-923-4	218-01-9									
31		benzo[b]fluoranthene				0.5	mg/kg		0.5	mg/kg	0.00005 %		
		601-034-00-4	205-911-9	205-99-2									
32		benzo[k]fluoranthene				0.18	mg/kg		0.18	mg/kg	0.000018 %		
		601-036-00-5	205-916-6	207-08-9									
33		benzo[a]pyrene; benzo[def]chrysene				0.41	mg/kg		0.41	mg/kg	0.000041 %		
		601-032-00-3	200-028-5	50-32-8									
34		indeno[123-cd]pyrene				0.34	mg/kg		0.34	mg/kg	0.000034 %		
			205-893-2	193-39-5									
35		dibenz[a,h]anthracene				0.086	mg/kg		0.086	mg/kg	0.0000086 %		
		601-041-00-2	200-181-8	53-70-3									
36		benzo[ghi]perylene				0.32	mg/kg		0.32	mg/kg	0.000032 %		
			205-883-8	191-24-2									
37		phenol				<0.3	mg/kg		<0.3	mg/kg	<0.00003 %		<**LOD**
		604-001-00-2	203-632-7	108-95-2									
38		polychlorobiphenyls; PCB				<0.001	mg/kg		<0.001	mg/kg	<0.0000001 %		<**LOD**
		602-039-00-4	215-648-1	1336-36-3									
										Total:	0.0381 %		

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
ND	Not detected
CLP: Note 1	Only the metal concentration has been used for classification

Classification of sample: TP02

Non Hazardous Waste
Classified as **17 09 04**
in the List of Waste

Sample details

Sample Name:
TP02
Sample Depth:
1.00 m
Moisture content:
13%
(no correction)

LoW Code:
Chapter: 17: Construction and Demolition Wastes (including excavated soil from contaminated sites)
Entry: 17 09 04 (mixed construction and demolition wastes other than those mentioned in 17 09 01, 17 09 02 and 17 09 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	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		20 mg/kg	1.32	26.407 mg/kg	0.00264 %		
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		0.9 mg/kg	1.142	1.028 mg/kg	0.000103 %		
5	chromium in chromium(III) compounds { chromium(III) oxide (worst case) }		215-160-9	1308-38-9		14 mg/kg	1.462	20.462 mg/kg	0.00205 %		
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		23 mg/kg	1.126	25.895 mg/kg	0.00259 %		
8	lead { lead chromate }	082-004-00-2	231-846-0	7758-97-6	1	52 mg/kg	1.56	81.11 mg/kg	0.0052 %		
9	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 %		
10	molybdenum { molybdenum(VI) oxide }	042-001-00-9	215-204-7	1313-27-5		<2 mg/kg	1.5	<3 mg/kg	<0.0003 %		<**LOD**
11	nickel { nickel chromate }	028-035-00-7	238-766-5	14721-18-7		20 mg/kg	2.976	59.525 mg/kg	0.00595 %		
12	selenium { selenium compounds with the exception of cadmium sulphoselenide and those specified elsewhere in this Annex }	034-002-00-8				0.2 mg/kg	1.405	0.281 mg/kg	0.0000281 %		
13	zinc { zinc chromate }	024-007-00-3	236-878-9	13530-65-9		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				<0.001	mg/kg		<0.001	mg/kg	<0.0000001 %		<**LOD**
		603-181-00-X	216-653-1	1634-04-4									
16		benzene				<0.001	mg/kg		<0.001	mg/kg	<0.0000001 %		<**LOD**
		601-020-00-8	200-753-7	71-43-2									
17		toluene				<0.001	mg/kg		<0.001	mg/kg	<0.0000001 %		<**LOD**
		601-021-00-3	203-625-9	108-88-3									
18		ethylbenzene				<0.001	mg/kg		<0.001	mg/kg	<0.0000001 %		<**LOD**
		601-023-00-4	202-849-4	100-41-4									
19		xylene				<0.001	mg/kg		<0.001	mg/kg	<0.0000001 %		<**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		naphthalene				<0.01	mg/kg		<0.01	mg/kg	<0.000001 %		<**LOD**
		601-052-00-2	202-049-5	91-20-3									
22		acenaphthylene				<0.01	mg/kg		<0.01	mg/kg	<0.000001 %		<**LOD**
			205-917-1	208-96-8									
23		acenaphthene				<0.01	mg/kg		<0.01	mg/kg	<0.000001 %		<**LOD**
			201-469-6	83-32-9									
24		fluorene				<0.01	mg/kg		<0.01	mg/kg	<0.000001 %		<**LOD**
			201-695-5	86-73-7									
25		phenanthrene				0.16	mg/kg		0.16	mg/kg	0.000016 %		
			201-581-5	85-01-8									
26		anthracene				0.066	mg/kg		0.066	mg/kg	0.0000066 %		
			204-371-1	120-12-7									
27		fluoranthene				0.61	mg/kg		0.61	mg/kg	0.000061 %		
			205-912-4	206-44-0									
28		pyrene				0.61	mg/kg		0.61	mg/kg	0.000061 %		
			204-927-3	129-00-0									
29		benzo[a]anthracene				0.43	mg/kg		0.43	mg/kg	0.000043 %		
		601-033-00-9	200-280-6	56-55-3									
30		chrysene				0.38	mg/kg		0.38	mg/kg	0.000038 %		
		601-048-00-0	205-923-4	218-01-9									
31		benzo[b]fluoranthene				0.61	mg/kg		0.61	mg/kg	0.000061 %		
		601-034-00-4	205-911-9	205-99-2									
32		benzo[k]fluoranthene				0.18	mg/kg		0.18	mg/kg	0.000018 %		
		601-036-00-5	205-916-6	207-08-9									
33		benzo[a]pyrene; benzo[def]chrysene				0.52	mg/kg		0.52	mg/kg	0.000052 %		
		601-032-00-3	200-028-5	50-32-8									
34		indeno[123-cd]pyrene				0.37	mg/kg		0.37	mg/kg	0.000037 %		
			205-893-2	193-39-5									
35		dibenz[a,h]anthracene				0.096	mg/kg		0.096	mg/kg	0.0000096 %		
		601-041-00-2	200-181-8	53-70-3									
36		benzo[ghi]perylene				0.36	mg/kg		0.36	mg/kg	0.000036 %		
			205-883-8	191-24-2									
37		phenol				<0.3	mg/kg		<0.3	mg/kg	<0.00003 %		<**LOD**
		604-001-00-2	203-632-7	108-95-2									
38		polychlorobiphenyls; PCB				<0.001	mg/kg		<0.001	mg/kg	<0.0000001 %		<**LOD**
		602-039-00-4	215-648-1	1336-36-3									
										Total:	0.0409 %		

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
ND	Not detected
CLP: Note 1	Only the metal concentration has been used for classification

Classification of sample: TP02[2]

Non Hazardous Waste
Classified as **17 09 04**
in the List of Waste

Sample details

Sample Name:
TP02[2]
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 09 04 (mixed construction and demolition wastes other than those mentioned in 17 09 01, 17 09 02 and 17 09 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		15 mg/kg	1.32	19.805 mg/kg	0.00198 %		
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		0.69 mg/kg	1.142	0.788 mg/kg	0.0000788 %		
5	chromium in chromium(III) compounds { chromium(III) oxide (worst case) }		215-160-9	1308-38-9		10 mg/kg	1.462	14.616 mg/kg	0.00146 %		
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		17 mg/kg	1.126	19.14 mg/kg	0.00191 %		
8	lead { lead chromate }	082-004-00-2	231-846-0	7758-97-6	1	40 mg/kg	1.56	62.393 mg/kg	0.004 %		
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		<2 mg/kg	1.5	<3 mg/kg	<0.0003 %		<LOD
11	nickel { nickel chromate }	028-035-00-7	238-766-5	14721-18-7		15 mg/kg	2.976	44.644 mg/kg	0.00446 %		
12	selenium { selenium compounds with the exception of cadmium sulphoselenide and those specified elsewhere in this Annex }	034-002-00-8				<0.2 mg/kg	1.405	<0.281 mg/kg	<0.0000281 %		<LOD
13	zinc { zinc chromate }	024-007-00-3	236-878-9	13530-65-9		58 mg/kg	2.774	160.9 mg/kg	0.0161 %		
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		<0.001	mg/kg		<0.001	mg/kg	<0.0000001 %		<**LOD**
16		benzene	601-020-00-8	200-753-7	71-43-2		<0.001	mg/kg		<0.001	mg/kg	<0.0000001 %		<**LOD**
17		toluene	601-021-00-3	203-625-9	108-88-3		<0.001	mg/kg		<0.001	mg/kg	<0.0000001 %		<**LOD**
18		ethylbenzene	601-023-00-4	202-849-4	100-41-4		<0.001	mg/kg		<0.001	mg/kg	<0.0000001 %		<**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]		<0.001	mg/kg		<0.001	mg/kg	<0.0000001 %		<**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		naphthalene	601-052-00-2	202-049-5	91-20-3		<0.01	mg/kg		<0.01	mg/kg	<0.000001 %		<**LOD**
22		acenaphthylene		205-917-1	208-96-8		<0.01	mg/kg		<0.01	mg/kg	<0.000001 %		<**LOD**
23		acenaphthene		201-469-6	83-32-9		<0.01	mg/kg		<0.01	mg/kg	<0.000001 %		<**LOD**
24		fluorene		201-695-5	86-73-7		<0.01	mg/kg		<0.01	mg/kg	<0.000001 %		<**LOD**
25		phenanthrene		201-581-5	85-01-8		0.29	mg/kg		0.29	mg/kg	0.000029 %		
26		anthracene		204-371-1	120-12-7		0.087	mg/kg		0.087	mg/kg	0.0000087 %		
27		fluoranthene		205-912-4	206-44-0		0.69	mg/kg		0.69	mg/kg	0.000069 %		
28		pyrene		204-927-3	129-00-0		0.61	mg/kg		0.61	mg/kg	0.000061 %		
29		benzo[a]anthracene	601-033-00-9	200-280-6	56-55-3		0.44	mg/kg		0.44	mg/kg	0.000044 %		
30		chrysene	601-048-00-0	205-923-4	218-01-9		0.43	mg/kg		0.43	mg/kg	0.000043 %		
31		benzo[b]fluoranthene	601-034-00-4	205-911-9	205-99-2		0.56	mg/kg		0.56	mg/kg	0.000056 %		
32		benzo[k]fluoranthene	601-036-00-5	205-916-6	207-08-9		0.21	mg/kg		0.21	mg/kg	0.000021 %		
33		benzo[a]pyrene; benzo[def]chrysene	601-032-00-3	200-028-5	50-32-8		0.55	mg/kg		0.55	mg/kg	0.000055 %		
34		indeno[123-cd]pyrene		205-893-2	193-39-5		0.41	mg/kg		0.41	mg/kg	0.000041 %		
35		dibenz[a,h]anthracene	601-041-00-2	200-181-8	53-70-3		0.12	mg/kg		0.12	mg/kg	0.000012 %		
36		benzo[ghi]perylene		205-883-8	191-24-2		0.33	mg/kg		0.33	mg/kg	0.000033 %		
37		phenol	604-001-00-2	203-632-7	108-95-2		<0.3	mg/kg		<0.3	mg/kg	<0.00003 %		<**LOD**
38		polychlorobiphenyls; PCB	602-039-00-4	215-648-1	1336-36-3		<0.001	mg/kg		<0.001	mg/kg	<0.0000001 %		<**LOD**
											Total:	0.0324 %		

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
ND	Not detected
CLP: Note 1	Only the metal concentration has been used for classification

Classification of sample: TP03

Non Hazardous Waste
Classified as **17 09 04**
in the List of Waste

Sample details

Sample Name:
TP03
Sample Depth:
1.00 m
Moisture content:
32%
(no correction)

LoW Code:
Chapter: 17: Construction and Demolition Wastes (including excavated soil from contaminated sites)
Entry: 17 09 04 (mixed construction and demolition wastes other than those mentioned in 17 09 01, 17 09 02 and 17 09 03)

Hazard properties

None identified

Determinands

Moisture content: 32% 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		17 mg/kg	1.32	22.446 mg/kg	0.00224 %		
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		0.64 mg/kg	1.142	0.731 mg/kg	0.0000731 %		
5	chromium in chromium(III) compounds { chromium(III) oxide (worst case) }		215-160-9	1308-38-9		12 mg/kg	1.462	17.539 mg/kg	0.00175 %		
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		19 mg/kg	1.126	21.392 mg/kg	0.00214 %		
8	lead { lead chromate }	082-004-00-2	231-846-0	7758-97-6	1	31 mg/kg	1.56	48.354 mg/kg	0.0031 %		
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		<2 mg/kg	1.5	<3 mg/kg	<0.0003 %		<LOD
11	nickel { nickel chromate }	028-035-00-7	238-766-5	14721-18-7		19 mg/kg	2.976	56.549 mg/kg	0.00565 %		
12	selenium { selenium compounds with the exception of cadmium sulphoselenide and those specified elsewhere in this Annex }	034-002-00-8				0.22 mg/kg	1.405	0.309 mg/kg	0.0000309 %		
13	zinc { zinc chromate }	024-007-00-3	236-878-9	13530-65-9		58 mg/kg	2.774	160.9 mg/kg	0.0161 %		
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				<0.001	mg/kg		<0.001	mg/kg	<0.0000001 %		<**LOD**
		603-181-00-X	216-653-1	1634-04-4									
16		benzene				<0.001	mg/kg		<0.001	mg/kg	<0.0000001 %		<**LOD**
		601-020-00-8	200-753-7	71-43-2									
17		toluene				<0.001	mg/kg		<0.001	mg/kg	<0.0000001 %		<**LOD**
		601-021-00-3	203-625-9	108-88-3									
18		ethylbenzene				<0.001	mg/kg		<0.001	mg/kg	<0.0000001 %		<**LOD**
		601-023-00-4	202-849-4	100-41-4									
19		xylene				<0.001	mg/kg		<0.001	mg/kg	<0.0000001 %		<**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		naphthalene				<0.01	mg/kg		<0.01	mg/kg	<0.000001 %		<**LOD**
		601-052-00-2	202-049-5	91-20-3									
22		acenaphthylene				<0.01	mg/kg		<0.01	mg/kg	<0.000001 %		<**LOD**
			205-917-1	208-96-8									
23		acenaphthene				<0.01	mg/kg		<0.01	mg/kg	<0.000001 %		<**LOD**
			201-469-6	83-32-9									
24		fluorene				<0.01	mg/kg		<0.01	mg/kg	<0.000001 %		<**LOD**
			201-695-5	86-73-7									
25		phenanthrene				0.043	mg/kg		0.043	mg/kg	0.0000043 %		
			201-581-5	85-01-8									
26		anthracene				<0.01	mg/kg		<0.01	mg/kg	<0.000001 %		<**LOD**
			204-371-1	120-12-7									
27		fluoranthene				0.041	mg/kg		0.041	mg/kg	0.0000041 %		
			205-912-4	206-44-0									
28		pyrene				0.035	mg/kg		0.035	mg/kg	0.0000035 %		
			204-927-3	129-00-0									
29		benzo[a]anthracene				<0.01	mg/kg		<0.01	mg/kg	<0.000001 %		<**LOD**
		601-033-00-9	200-280-6	56-55-3									
30		chrysene				<0.01	mg/kg		<0.01	mg/kg	<0.000001 %		<**LOD**
		601-048-00-0	205-923-4	218-01-9									
31		benzo[b]fluoranthene				<0.01	mg/kg		<0.01	mg/kg	<0.000001 %		<**LOD**
		601-034-00-4	205-911-9	205-99-2									
32		benzo[k]fluoranthene				<0.01	mg/kg		<0.01	mg/kg	<0.000001 %		<**LOD**
		601-036-00-5	205-916-6	207-08-9									
33		benzo[a]pyrene; benzo[def]chrysene				<0.01	mg/kg		<0.01	mg/kg	<0.000001 %		<**LOD**
		601-032-00-3	200-028-5	50-32-8									
34		indeno[123-cd]pyrene				<0.01	mg/kg		<0.01	mg/kg	<0.000001 %		<**LOD**
			205-893-2	193-39-5									
35		dibenz[a,h]anthracene				<0.01	mg/kg		<0.01	mg/kg	<0.000001 %		<**LOD**
		601-041-00-2	200-181-8	53-70-3									
36		benzo[ghi]perylene				<0.01	mg/kg		<0.01	mg/kg	<0.000001 %		<**LOD**
			205-883-8	191-24-2									
37		phenol				<0.3	mg/kg		<0.3	mg/kg	<0.00003 %		<**LOD**
		604-001-00-2	203-632-7	108-95-2									
38		polychlorobiphenyls; PCB				<0.001	mg/kg		<0.001	mg/kg	<0.0000001 %		<**LOD**
		602-039-00-4	215-648-1	1336-36-3									
										Total:	0.033 %		

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
ND	Not detected
CLP: Note 1	Only the metal concentration has been used for classification

Classification of sample: TP04

Non Hazardous Waste
Classified as **17 09 04**
in the List of Waste

Sample details

Sample Name:
TP04
Sample Depth:
1.00 m
Moisture content:
60%
(no correction)

LoW Code:
Chapter: 17: Construction and Demolition Wastes (including excavated soil from contaminated sites)
Entry: 17 09 04 (mixed construction and demolition wastes other than those mentioned in 17 09 01, 17 09 02 and 17 09 03)

Hazard properties

None identified

Determinands

Moisture content: 60% 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		<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		1.1 mg/kg	1.142	1.257 mg/kg	0.000126 %		
5	chromium in chromium(III) compounds { chromium(III) oxide (worst case) }		215-160-9	1308-38-9		14 mg/kg	1.462	20.462 mg/kg	0.00205 %		
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		27 mg/kg	1.126	30.399 mg/kg	0.00304 %		
8	lead { lead chromate }	082-004-00-2	231-846-0	7758-97-6	1	53 mg/kg	1.56	82.67 mg/kg	0.0053 %		
9	mercury { mercury dichloride }	080-010-00-X	231-299-8	7487-94-7		0.15 mg/kg	1.353	0.203 mg/kg	0.0000203 %		
10	molybdenum { molybdenum(VI) oxide }	042-001-00-9	215-204-7	1313-27-5		<2 mg/kg	1.5	<3 mg/kg	<0.0003 %		<LOD
11	nickel { nickel chromate }	028-035-00-7	238-766-5	14721-18-7		21 mg/kg	2.976	62.502 mg/kg	0.00625 %		
12	selenium { selenium compounds with the exception of cadmium sulphoselenide and those specified elsewhere in this Annex }	034-002-00-8				0.24 mg/kg	1.405	0.337 mg/kg	0.0000337 %		
13	zinc { zinc chromate }	024-007-00-3	236-878-9	13530-65-9		110 mg/kg	2.774	305.156 mg/kg	0.0305 %		
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				<0.001	mg/kg		<0.001	mg/kg	<0.0000001 %		<**LOD**
		603-181-00-X	216-653-1	1634-04-4									
16		benzene				<0.001	mg/kg		<0.001	mg/kg	<0.0000001 %		<**LOD**
		601-020-00-8	200-753-7	71-43-2									
17		toluene				<0.001	mg/kg		<0.001	mg/kg	<0.0000001 %		<**LOD**
		601-021-00-3	203-625-9	108-88-3									
18		ethylbenzene				<0.001	mg/kg		<0.001	mg/kg	<0.0000001 %		<**LOD**
		601-023-00-4	202-849-4	100-41-4									
19		xylene				<0.001	mg/kg		<0.001	mg/kg	<0.0000001 %		<**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		naphthalene				<0.01	mg/kg		<0.01	mg/kg	<0.000001 %		<**LOD**
		601-052-00-2	202-049-5	91-20-3									
22		acenaphthylene				<0.01	mg/kg		<0.01	mg/kg	<0.000001 %		<**LOD**
			205-917-1	208-96-8									
23		acenaphthene				<0.01	mg/kg		<0.01	mg/kg	<0.000001 %		<**LOD**
			201-469-6	83-32-9									
24		fluorene				<0.01	mg/kg		<0.01	mg/kg	<0.000001 %		<**LOD**
			201-695-5	86-73-7									
25		phenanthrene				0.17	mg/kg		0.17	mg/kg	0.000017 %		
			201-581-5	85-01-8									
26		anthracene				0.041	mg/kg		0.041	mg/kg	0.0000041 %		
			204-371-1	120-12-7									
27		fluoranthene				0.41	mg/kg		0.41	mg/kg	0.000041 %		
			205-912-4	206-44-0									
28		pyrene				0.33	mg/kg		0.33	mg/kg	0.000033 %		
			204-927-3	129-00-0									
29		benzo[a]anthracene				0.24	mg/kg		0.24	mg/kg	0.000024 %		
		601-033-00-9	200-280-6	56-55-3									
30		chrysene				0.19	mg/kg		0.19	mg/kg	0.000019 %		
		601-048-00-0	205-923-4	218-01-9									
31		benzo[b]fluoranthene				0.34	mg/kg		0.34	mg/kg	0.000034 %		
		601-034-00-4	205-911-9	205-99-2									
32		benzo[k]fluoranthene				0.089	mg/kg		0.089	mg/kg	0.0000089 %		
		601-036-00-5	205-916-6	207-08-9									
33		benzo[a]pyrene; benzo[def]chrysene				0.29	mg/kg		0.29	mg/kg	0.000029 %		
		601-032-00-3	200-028-5	50-32-8									
34		indeno[123-cd]pyrene				0.23	mg/kg		0.23	mg/kg	0.000023 %		
			205-893-2	193-39-5									
35		dibenz[a,h]anthracene				0.05	mg/kg		0.05	mg/kg	0.000005 %		
		601-041-00-2	200-181-8	53-70-3									
36		benzo[ghi]perylene				0.2	mg/kg		0.2	mg/kg	0.00002 %		
			205-883-8	191-24-2									
37		phenol				<0.3	mg/kg		<0.3	mg/kg	<0.00003 %		<**LOD**
		604-001-00-2	203-632-7	108-95-2									
38		polychlorobiphenyls; PCB				<0.001	mg/kg		<0.001	mg/kg	<0.0000001 %		<**LOD**
		602-039-00-4	215-648-1	1336-36-3									
										Total:	0.052 %		

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
ND	Not detected
CLP: Note 1	Only the metal concentration has been used for classification

Classification of sample: TP05

Non Hazardous Waste
Classified as **17 09 04**
in the List of Waste

Sample details

Sample Name:
TP05
Sample Depth:
0.50 m
Moisture content:
15%
(no correction)

LoW Code:
Chapter: 17: Construction and Demolition Wastes (including excavated soil from contaminated sites)
Entry: 17 09 04 (mixed construction and demolition wastes other than those mentioned in 17 09 01, 17 09 02 and 17 09 03)

Hazard properties

None identified

Determinands

Moisture content: 15% 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		17 mg/kg	1.32	22.446 mg/kg	0.00224 %		
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		1.3 mg/kg	1.142	1.485 mg/kg	0.000149 %		
5	chromium in chromium(III) compounds { chromium(III) oxide (worst case) }		215-160-9	1308-38-9		15 mg/kg	1.462	21.923 mg/kg	0.00219 %		
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	43 mg/kg	1.56	67.072 mg/kg	0.0043 %		
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		<2 mg/kg	1.5	<3 mg/kg	<0.0003 %		<**LOD**
11	nickel { nickel chromate }	028-035-00-7	238-766-5	14721-18-7		30 mg/kg	2.976	89.288 mg/kg	0.00893 %		
12	selenium { selenium compounds with the exception of cadmium sulphoselenide and those specified elsewhere in this Annex }	034-002-00-8				0.35 mg/kg	1.405	0.492 mg/kg	0.0000492 %		
13	zinc { zinc chromate }	024-007-00-3	236-878-9	13530-65-9		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 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				<0.001	mg/kg		<0.001	mg/kg	<0.0000001 %		<LOD
		603-181-00-X	216-653-1	1634-04-4									
16		benzene				<0.001	mg/kg		<0.001	mg/kg	<0.0000001 %		<LOD
		601-020-00-8	200-753-7	71-43-2									
17		toluene				<0.001	mg/kg		<0.001	mg/kg	<0.0000001 %		<LOD
		601-021-00-3	203-625-9	108-88-3									
18		ethylbenzene				<0.001	mg/kg		<0.001	mg/kg	<0.0000001 %		<LOD
		601-023-00-4	202-849-4	100-41-4									
19		xylene				<0.001	mg/kg		<0.001	mg/kg	<0.0000001 %		<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		naphthalene				<0.01	mg/kg		<0.01	mg/kg	<0.000001 %		<LOD
		601-052-00-2	202-049-5	91-20-3									
22		acenaphthylene				<0.01	mg/kg		<0.01	mg/kg	<0.000001 %		<LOD
			205-917-1	208-96-8									
23		acenaphthene				<0.01	mg/kg		<0.01	mg/kg	<0.000001 %		<LOD
			201-469-6	83-32-9									
24		fluorene				<0.01	mg/kg		<0.01	mg/kg	<0.000001 %		<LOD
			201-695-5	86-73-7									
25		phenanthrene				0.17	mg/kg		0.17	mg/kg	0.000017 %		
			201-581-5	85-01-8									
26		anthracene				0.1	mg/kg		0.1	mg/kg	0.00001 %		
			204-371-1	120-12-7									
27		fluoranthene				0.47	mg/kg		0.47	mg/kg	0.000047 %		
			205-912-4	206-44-0									
28		pyrene				0.39	mg/kg		0.39	mg/kg	0.000039 %		
			204-927-3	129-00-0									
29		benzo[a]anthracene				0.3	mg/kg		0.3	mg/kg	0.00003 %		
		601-033-00-9	200-280-6	56-55-3									
30		chrysene				0.33	mg/kg		0.33	mg/kg	0.000033 %		
		601-048-00-0	205-923-4	218-01-9									
31		benzo[b]fluoranthene				0.4	mg/kg		0.4	mg/kg	0.00004 %		
		601-034-00-4	205-911-9	205-99-2									
32		benzo[k]fluoranthene				0.13	mg/kg		0.13	mg/kg	0.000013 %		
		601-036-00-5	205-916-6	207-08-9									
33		benzo[a]pyrene; benzo[def]chrysene				0.34	mg/kg		0.34	mg/kg	0.000034 %		
		601-032-00-3	200-028-5	50-32-8									
34		indeno[123-cd]pyrene				0.24	mg/kg		0.24	mg/kg	0.000024 %		
			205-893-2	193-39-5									
35		dibenz[a,h]anthracene				0.052	mg/kg		0.052	mg/kg	0.0000052 %		
		601-041-00-2	200-181-8	53-70-3									
36		benzo[ghi]perylene				0.2	mg/kg		0.2	mg/kg	0.00002 %		
			205-883-8	191-24-2									
37		phenol				<0.3	mg/kg		<0.3	mg/kg	<0.00003 %		<LOD
		604-001-00-2	203-632-7	108-95-2									
38		polychlorobiphenyls; PCB				<0.001	mg/kg		<0.001	mg/kg	<0.0000001 %		<LOD
		602-039-00-4	215-648-1	1336-36-3									
										Total:	0.0435 %		

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
ND	Not detected
CLP: Note 1	Only the metal concentration has been used for classification

Classification of sample: TP05[2]

Non Hazardous Waste
Classified as **17 09 04**
in the List of Waste

Sample details

Sample Name:
TP05[2]
Sample Depth:
1.50 m
Moisture content:
25%
(no correction)

LoW Code:
Chapter: 17: Construction and Demolition Wastes (including excavated soil from contaminated sites)
Entry: 17 09 04 (mixed construction and demolition wastes other than those mentioned in 17 09 01, 17 09 02 and 17 09 03)

Hazard properties

None identified

Determinands

Moisture content: 25% 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		20 mg/kg	1.32	26.407 mg/kg	0.00264 %		
3	boron { diboron trioxide; boric oxide }	005-008-00-8	215-125-8	1303-86-2		0.47 mg/kg	3.22	1.513 mg/kg	0.000151 %		
4	cadmium { cadmium oxide }	048-002-00-0	215-146-2	1306-19-0		1.1 mg/kg	1.142	1.257 mg/kg	0.000126 %		
5	chromium in chromium(III) compounds { chromium(III) oxide (worst case) }		215-160-9	1308-38-9		16 mg/kg	1.462	23.385 mg/kg	0.00234 %		
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	49 mg/kg	1.56	76.431 mg/kg	0.0049 %		
9	mercury { mercury dichloride }	080-010-00-X	231-299-8	7487-94-7		0.21 mg/kg	1.353	0.284 mg/kg	0.0000284 %		
10	molybdenum { molybdenum(VI) oxide }	042-001-00-9	215-204-7	1313-27-5		2.3 mg/kg	1.5	3.45 mg/kg	0.000345 %		
11	nickel { nickel chromate }	028-035-00-7	238-766-5	14721-18-7		31 mg/kg	2.976	92.264 mg/kg	0.00923 %		
12	selenium { selenium compounds with the exception of cadmium sulphoselenide and those specified elsewhere in this Annex }	034-002-00-8				0.2 mg/kg	1.405	0.281 mg/kg	0.0000281 %		
13	zinc { zinc chromate }	024-007-00-3	236-878-9	13530-65-9		77 mg/kg	2.774	213.609 mg/kg	0.0214 %		
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				<0.001	mg/kg		<0.001	mg/kg	<0.0000001 %		<**LOD**
		603-181-00-X	216-653-1	1634-04-4									
16		benzene				<0.001	mg/kg		<0.001	mg/kg	<0.0000001 %		<**LOD**
		601-020-00-8	200-753-7	71-43-2									
17		toluene				<0.001	mg/kg		<0.001	mg/kg	<0.0000001 %		<**LOD**
		601-021-00-3	203-625-9	108-88-3									
18		ethylbenzene				<0.001	mg/kg		<0.001	mg/kg	<0.0000001 %		<**LOD**
		601-023-00-4	202-849-4	100-41-4									
19		xylene				<0.001	mg/kg		<0.001	mg/kg	<0.0000001 %		<**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		naphthalene				<0.01	mg/kg		<0.01	mg/kg	<0.000001 %		<**LOD**
		601-052-00-2	202-049-5	91-20-3									
22		acenaphthylene				<0.01	mg/kg		<0.01	mg/kg	<0.000001 %		<**LOD**
			205-917-1	208-96-8									
23		acenaphthene				<0.01	mg/kg		<0.01	mg/kg	<0.000001 %		<**LOD**
			201-469-6	83-32-9									
24		fluorene				<0.01	mg/kg		<0.01	mg/kg	<0.000001 %		<**LOD**
			201-695-5	86-73-7									
25		phenanthrene				0.25	mg/kg		0.25	mg/kg	0.000025 %		
			201-581-5	85-01-8									
26		anthracene				0.073	mg/kg		0.073	mg/kg	0.0000073 %		
			204-371-1	120-12-7									
27		fluoranthene				0.67	mg/kg		0.67	mg/kg	0.000067 %		
			205-912-4	206-44-0									
28		pyrene				0.62	mg/kg		0.62	mg/kg	0.000062 %		
			204-927-3	129-00-0									
29		benzo[a]anthracene				0.41	mg/kg		0.41	mg/kg	0.000041 %		
		601-033-00-9	200-280-6	56-55-3									
30		chrysene				0.35	mg/kg		0.35	mg/kg	0.000035 %		
		601-048-00-0	205-923-4	218-01-9									
31		benzo[b]fluoranthene				0.46	mg/kg		0.46	mg/kg	0.000046 %		
		601-034-00-4	205-911-9	205-99-2									
32		benzo[k]fluoranthene				0.18	mg/kg		0.18	mg/kg	0.000018 %		
		601-036-00-5	205-916-6	207-08-9									
33		benzo[a]pyrene; benzo[def]chrysene				0.36	mg/kg		0.36	mg/kg	0.000036 %		
		601-032-00-3	200-028-5	50-32-8									
34		indeno[123-cd]pyrene				0.3	mg/kg		0.3	mg/kg	0.00003 %		
			205-893-2	193-39-5									
35		dibenz[a,h]anthracene				0.073	mg/kg		0.073	mg/kg	0.0000073 %		
		601-041-00-2	200-181-8	53-70-3									
36		benzo[ghi]perylene				0.25	mg/kg		0.25	mg/kg	0.000025 %		
			205-883-8	191-24-2									
37		phenol				<0.3	mg/kg		<0.3	mg/kg	<0.00003 %		<**LOD**
		604-001-00-2	203-632-7	108-95-2									
38		polychlorobiphenyls; PCB				<0.001	mg/kg		<0.001	mg/kg	<0.0000001 %		<**LOD**
		602-039-00-4	215-648-1	1336-36-3									
										Total:	0.0462 %		

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
ND	Not detected
CLP: Note 1	Only the metal concentration has been used for classification

Appendix A: Classifier defined and non CLP determinands

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

Description/Comments: Data from C&L Inventory Database
Data source: https://echa.europa.eu/information-on-chemicals/cl-inventory-database/-/discli/details/33806
Data source date: 17 Jul 2015
Hazard Statements: Acute Tox. 4 H332 , Acute Tox. 4 H302 , Eye Irrit. 2 H319 , STOT SE 3 H335 , Skin Irrit. 2 H315 , Resp. Sens. 1 H334 , Skin Sens. 1 H317 , Repr. 1B H360FD , Aquatic Acute 1 H400 , Aquatic Chronic 1 H410

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: Flam. Liq. 3 H226 , Asp. Tox. 1 H304 , STOT RE 2 H373 , Muta. 1B H340 , Carc. 1B H350 , Repr. 2 H361d , Aquatic Chronic 2 H411

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):
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):
14 Dec 2015 - EUH032 >= 0.2 % hazard statement sourced from: WM3, Table C12.2

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: Acute Tox. 4 H302 , Acute Tox. 1 H330 , Acute Tox. 1 H310 , Eye Irrit. 2 H319 , STOT SE 3 H335 , Skin Irrit. 2 H315

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: Eye Irrit. 2 H319 , STOT SE 3 H335 , Skin Irrit. 2 H315 , Aquatic Acute 1 H400 , Aquatic Chronic 1 H410 , Aquatic Chronic 2 H411

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 Acute 1 H400 , Aquatic Chronic 1 H410

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: Acute Tox. 4 H302 , Eye Irrit. 2 H319 , STOT SE 3 H335 , Carc. 2 H351 , Skin Sens. 1 H317 , Aquatic Acute 1 H400 , Aquatic Chronic 1 H410 , Skin Irrit. 2 H315

- **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: Eye Irrit. 2 H319 , STOT SE 3 H335 , Skin Irrit. 2 H315 , Skin Sens. 1 H317 , Aquatic Acute 1 H400 , Aquatic Chronic 1 H410

- **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: Acute Tox. 4 H302 , Aquatic Acute 1 H400 , Aquatic Chronic 1 H410

- **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: Skin Irrit. 2 H315 , Eye Irrit. 2 H319 , STOT SE 3 H335 , Aquatic Acute 1 H400 , Aquatic Chronic 1 H410

- **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 Acute 1 H400 , Aquatic Chronic 1 H410

- **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):
29 Sep 2015 - Carc. 1A H350 hazard statement sourced from: IARC Group 1 (23, Sup 7, 100C) 2012

Appendix B: Rationale for selection of metal species

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

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

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

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. 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

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

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

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

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. Worse case copper sulphate is very soluble and likely to have been leached away if ever present and/or not enough soluble sulphate detected.

lead {lead chromate}

Worst case CLP species based on hazard statements/molecular weight

mercury {mercury dichloride}

Worst case CLP species based on hazard statements/molecular weight

molybdenum {molybdenum(VI) oxide}

Worst case CLP species based on hazard statements/molecular weight

nickel {nickel chromate}

Worst case CLP species based on hazard statements/molecular weight

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.

zinc {zinc chromate}

Worst case CLP species based on hazard statements/molecular weight

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)

Appendix C: Version

HazWasteOnline Classification Engine: WM3 1st Edition v1.1, May 2018
HazWasteOnline Classification Engine Version: 2020.346.4563.8832 (11 Dec 2020)
HazWasteOnline Database: 2020.346.4563.8832 (11 Dec 2020)

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 Waste 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
13th ATP - Regulation (EU) 2018/1480 of 4 October 2018
14th ATP - Regulation (EU) 2020/217 of 4 October 2019
15th ATP - Regulation (EU) 2020/1182 of 19 May 2020
POPs Regulation 2019 - Regulation (EU) 2019/1021 of 20 June 2019