Appendix 16

Dredge Material Analysis Reports





TECHNICAL NOTE

Reusability of Soil at the Slang

DARGLE FLOOD DEFENCE SCHEME QUERIES

Doc Number	Report Title	Revision	Date	Authored	Checked
14016-15	Reusability of Soil at the Slang	REV0	24/03/2015	MD/CB/SOC	PD
14016-15	Reusability of Soil at the Slang	REV1	31/03/2015	MD/CB/SOC	PD



1 Introduction

Gavin and Doherty Geosolutions Ltd. (GDG) were requested by Wicklow County Council (through Bray Town Council and TKFM Ltd.) to supervise trial pitting at the area along the River Dargle in Bray known as the Slang (Figure 1) with a view to assessing the reusability of soil material stockpiled there.



Figure 1 Location of Relevant Area

2 Scope of Work

A total of 10 trial pits were performed in February 2015. The locations are illustrated in drawing 14016-003 and in Figure 2.

A suite of soil laboratory tests were undertaken in accordance with BS 1377 *Methods of test for Soils for Civil Engineering Purposes*. The laboratory tests included Moisture Content, Atterberg limits, PSD curves, dry density and MCV tests. These are included in Appendix B.

A suite of Waste Acceptance Criteria (WAC) chemical tests were also undertaken, with the test methodology in compliance with EC Decision of 19 December 2002 (2003/33/EC). The test results are included in Appendix C.

3 WAC Results

The WAC results show that all waste elements and compounds are below the level of detection (LOD – using the Murphy's Suite criteria) or within the inert criteria limits.



4 Ground Conditions

The pits logs are included in the Appendix A. In situ classification was confirmed by the laboratory testing (Appendix B).

Three stockpiles marked S1, S2 and S3 respectively in Figure 2 below are manmade. The soils observed within these three nearby pits are discussed below:

- The top of the Stockpile S1 is at a level of 16.0 mOD, bottom at approximately 11.8 mOD. TP4 is representative of this stockpile. Stiff to very stiff sandy clay was observed and classified as made ground. Gabion basket fractions have been detected along with a large angular boulder at 1.5 m below the ground level.
- The top of Stockpile S2 is at 12.7 mOD, bottom at approximately 11.2 mOD. TP 7 is representative for this compound. Sandy, gravelly clay was determined along with some organic matter.
- The top of the Stockpile S3 is at 16.0 mOD, bottom at approximately 11.1 mOD. No trial pits
 were performed in S3, the closest one is TP8 which contains clayey sandy gravel with fine
 sand and occasional cobbles and part of reinforced concrete which confirm this area to be
 made ground.

Since the stockpiles are of irregular shape it is hard to determine exact volumes, but approximate volumes for the stockpiles are as following: S1= 4100m³, S2= 770m³, S3=1700 m³.

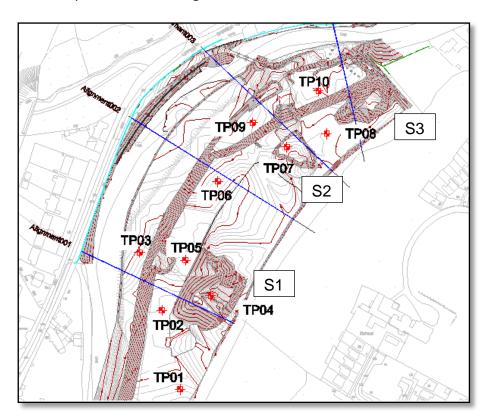


Figure 2 Location of the trial pits



In Chapter 5.4.4.1 of the EIS it is stated that:

It is currently proposed to place approximately 50% of the excavated soil/subsoil/riverbed sediment at the Slang, which is currently zoned for development. This will result in the level of the Slang being raised by approximately 1m to 1.25m. The Slang will then be landscaped and the remaining 50% transported off-site for authorised disposal...Suitable environmental testing of the excavated material will be undertaken prior to its placement on the Slang to confirm that it is suitable for its proposed use.

According to Drawings B237-120 to B237-123 of the EIS, the ground levels in the area prior to construction were typically 8.0 mOD (at Section 004) to 10.0 mOD (at Section 001). Thus the final ground level would be typically 9.0 mOD or 9.25 mOD at Section 004 increasing upstream to 11.0 mOD or 11.25 mOD. This "plateau" is at the back of the embankment should range is illustrated in EIS Drawings B237-130, B237-131 and B237-166.

It should be noted that this "plateau" is well above the flood defence level (aside from the area marked as the secondary flood channel), and that if the levels were greater than those indicated in the EIS, it would not interfere with the water level of the flooded river.

To match the EIS requirements, the stockpiles need to be stripped away along with approximately another metre of the existing soil at the location in order to accommodate the planned heights.

The rest of the trial pits exhibit different types of soil, mostly classified as made ground. The lower part of the slang, TP1 and TP2, contained gravel as made ground in the upper area of the trial pits, followed by either sand or clay. Similar can be found in TP3. TP 5 consisted of a clay with cobbles followed by clayey gravelly fine sand. TP 6, located in the central part of the area, shows sandy clayey gravel, followed by fine, clayey gravelly sand. In the upper part of the Slang TP 9 shows clayey sandy gravel followed by very clayey gravelly coarse sand and in TP 10 cobbles and gravel were detected.

5 Conclusion and Recommendation

Although the WAC tests for stockpiles were favourable, the material is mostly inhomogeneous made ground with fragments of gabion baskets, reinforced concrete and organic material. It is suggested for this soil only to be used in landscaping, and not for an embankment construction or specifically for the bund in the Slang area. However the gravels underneath the stockpiles are favourable and fit for other purposes.

It is suggested that the stockpiles to be removed; the gravel underneath should be excavated and the stockpile material placed back instead of the gravel. This would create usable fill material for other purposes. Quantities should correspond to the prescribed levels by the EIS.



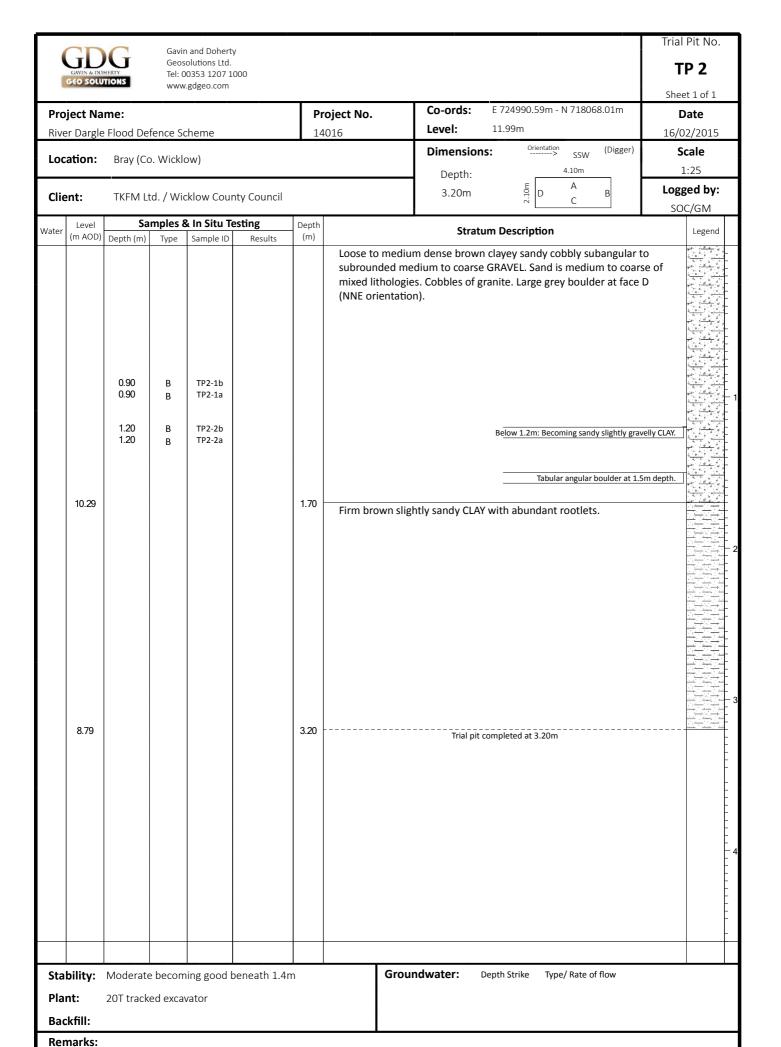
- **6 APPENDIX A- Site Logs and Photos**
- 7 APPENDIX B-Soil Classification Results
- **8 APPENDIX C-WAC Results**

APPENDIX A

Site Logs and Photos

		TREM Ited. / Wickdow Country Council TREM Ited. / Wickdow Country Council Samples & In Situ Testing						
	GD GAVIN A DO	G	Geos	olutions Ltd.				
	G€O SOLU	TIONS			J00			
Pro	ject Na	me:	,				oject No.	
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Loc	ation:	Bray (Co	. Wicklo	ow)			35W	I
Clie	nt:	TKFM Lt	d. / Wic	cklow Cour	nty Council		3.65m E D A B Logge	-
	Level	Sa	mples &	& In Situ Te	esting	Depth	SOC	
Water	(m AOD)			1 1		⊣ '	·	Legend
	9.27	2.45 2.45 2.45	ВВВ	TP1-1a TP1-2b TP1-2a			medium to coarse GRAVEL. Sand is fine to medium. Occasional timber fragments, roots, rare steel rods and frequent frayed cable. (MADE GROUND). Gravel of mixed lithologies: sandstone, quartzite and greywacke. Below 1.25m subangular boulders of granite. Below 1.25m subangular boulders of granite. Below 2.2m frequent subangular to rounded cobbles. Dense grey silty slightly gravelly medium to coarse SAND with boulder size pockets of fine yellow brown mottled orange sand with occasional rootlets and iron laminations.(BEACH DEPOSIT). Occasional rounded boulders. Below 3.3m becoming brown slightly silty gravelly cobbly medium SAND with boulder size pockets of grey clay. Gravel is subangular to rounded, fine to medium. Cobbles are subangular to rounded of quartzite, grey shale, granite and red sandstone. Below 3.3m becoming brown clayey very sandy GRAVEL with frequent cobbles and boulder size pockets of grey clay. Gravel is subangular to rounded, fine to medium. Cobbles are subangular to rounded of quartzite, grey shale, granite and red sandstone.	- 4
								-
<u> </u>	L:I:·	C 124	-l :				Groundwater, Dank Skille, Total State (St.	
	-			rato=			Groundwater: Depth Strike Type/ Rate of flow	
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	KΠII:							

TP terminated at 3.65mbgl.



														Trial	Pit No.	_
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Rive	er Dargle	Flood De	fence Sc	cheme		14	1016									
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											m L		D			
Clie	ent:		TP3 Interest Type State (1 of 1 o													
Water	Level (m AOD)								Strat	um Des	cription				Legend	
	2.94	2.50	В	TP3-1a			GROUND fresh to s Shallow s 0.1mgbl. At 0.2mb	o-construction of the subvertical occasional	brown slightly s	sandy, slig	thtly gravel	ly CLAY wit	h occasional f	ine gravel. t 1.9 mbgl		1 4
																H
Sta	bility:	Good				1		Ground	water:	Depth St	rike Ty	pe/ Rate o	of flow		1	╣
Pla	-		ed excav	/ator												
Bad	kfill:															
Rei	marks:															

TP terminated at 4.2mgbl - Client instructions.

	GD	G		and Dohert	у										Pit No.	٦
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Dro	iost No	<u></u>					oiost No	1	Co-ords:	E 7250)37.11m -	N 71808	32.02m			
			fence Sc	cheme					Level:	13.94r	n					
						•			Dimensio	ns:	Orientation	NW	(Digger)			
		Diay (CC	J. WICKIC	, , , , , , , , , , , , , , , , , , ,					Depth:		_	5.30m	_,			
Clie	ent:	TKFM L	td. / Wic	klow Cour	nty Council				1.60m		3.00m	C C	В			
Water	Level (m AOD)					Depth (m)		_	Stra	tum Desc	ription				Legend	
	12.34		- NAC			1.60			ark grey mu	et at 1. <u>5mb</u>	gl. Large tab	e. (MAC	DE GROUN	D).		1 2 3
							 -									Ц
		Co-ords: C72509711m-N 738062.02m Date Date														
Pla		20T track	ed excav	/ator												
	kfill:															
Rer	marks:	Terminate	ed on cli	ent instru	ctions due to	o excava	ition instabi	ility.								

				10.1										Trial	Pit No.	\neg
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-	G€O SOLU	TIONS	www.	.gdgeo.com										Shee	t 1 of 1	
	ject Na						oject No.	Co- Lev	ords:	E 7250 11.57r)13.09m -	N 71811	15.97m		ate	
		Flood Det				14	016		nensions		Orientatior	1 5115	(Digger)		2/2015 cale	-
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Water	(m AOD)		Туре	Sample ID	Results	(m)		obbly CLAY wit			cription				Legend	
	9.12 9.07	2.50 2.50	ВВВ	TP5-1b TP5-1a		2.45	GROUN	clayey sandy si	ubangula	r to rou		nedium			TT 1 T	
Sta	bility:	Moderate	2			1		Groundwat	er: D	epth Str	ike Typ	e/ Rate o	f flow			\dashv
Pla		20T track		/ator												
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Terminated at 2.5mbgl due to sidewall discontinuities at surface and instability.

8				16.1			-	-					Trial	l Pit No.
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			www	.gdgeo.com									She	et 1 of 1
	ject Na						oject No.	Co-ords:	E 72504	3.80m -	N 7181	91.34m		Date
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Loc	ation:	Bray (Co	o. Wicklo	ow)				Dimension Depth:	is:	Orientation	SSW 3.50m	(Digger)		icale 1:25
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	Level	Sa	mples 8	& In Situ Te	sting	Depth		Cl vil		•			SC	OC/GM
Water	(m AOD)		Туре	Sample ID	Results	(m)			um Descr					Legend
	7.70	0.95 0.95	В В В	TP6-1b TP6-1a		2.65	Medium dense coarse, subroun greywacke.	s are subround e, quartzite an brown clayey g ded to rounded	ded of greend orange	een tabu weathe Be	Frequer Coming f	immite/ sondstone. It boulders be iner gravel be el is mediu	low 0.7m.	1
														-
Sta	bility:	Good; Po	or belov	v 3.3m		1	Groun	ndwater:	Depth Strike	е Туре	e/ Rate o	of flow		
Pla	-	20T track												
	kfill:	_or cruck	_ c.c.u											
Rer	narks:	Terminate	ed at 3.3	37mbgl: sid	les collapsir	ng at bas	e.							

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_			www	.gdgeo.com				1 of 1
	ject Na							ate
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							5-5ps	25
Clie	nt:	TKFM Lt	td. / Wic	klow Cou	nty Council		4.25m 8 D B	ed by: :/GM
Water	Level (m AOD)			k In Situ T		Depth	Stratum Description	Legend
		2.00 2.00	ВВВ	TP7-1b TP7-1a	Results	(m)	Stiff brown slightly gravelly CLAY with abundant rootlets. Gravel is medium to coarse, subangular to rounded. Occasionally a tabular cobble. Rare medium gravel size fragments of organic matter. Below 3.3m occasional frequent subrounded cobbles.	
	8.12					4.25	Trial pit completed at 4.25m	4
Sta	bility:	Very good	d				Groundwater: Depth Strike Type/ Rate of flow	
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Bac	kfill:							
	narks:							
nei	ııaı N3.	Terminate	ed at 4.2	25mbgl.				

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			www.	.gdgeo.com										She	et 1 of 1	
Pro	ject Na	me:				Pr	oject No.		Co-ords:		148.21m -	N 71823	37.00m		Date	
Rive	er Dargle	Flood De	fence Sc	heme		14	016		Level:	11.02	_			16/0	02/2015	
Loc	ation:	Bray (Co	. Wicklo	ow)					Dimensio	ns:	Orientation >	1444	(Digger)		i cale 1:25	ŀ
Clie	nt.	TVENA I +	d / Mic	klow Cou	nty Council				Depth: 3.28m		1.90m D	4.00m	В		ged by:	
CITE	ent:										-	С		SC	C/GM	
Water	Level (m AOD)		mples 8 Type	Sample ID	esting Results	Depth (m)			Stra	tum Des	cription				Legend	
	7.74	2.05 2.05	ВВВ	TP8-1b TP8-1a		3.28	boulder litholog	s and fre ies. Rare	ry sandy GRA quent subang cobble of cor face A (groun	gular to ncrete w nd surfa	subround ith steel (led cobl	oles of mix	ed		1 2
	1. •1••	<u> </u>	1 1 -	<u> </u>			:	C	duate:	David St	-:l =	-/ D-1	f fl			Ц
	bility:	Poor to 2			v 2m.			Groun	dwater:	Depth St	rike Typ	e/ Rate o	TTIOW			
Pla	nt:	20T track	ed excav	/ator												
Bac	kfill:															

Remarks:

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	ject Na						-				- N 71824	7.62m			
Rive	er Dargle	Flood De	fence Sc	heme		14	016								4
Loc	ation:	Bray (Co	o. Wicklo	ow)				Dimen	sions:	>	33**	(Digger)			ł
		-1								۶ [_			-
Clie	ent:							2.80	m	1.70r	C	В			
Water	Level (m AOD)					Depth (m)		S	tratum D	escription				Legend	
	6.22 4.52	2.80 2.80	B B	TP9-1b TP9-1a	Kesuits	2.80	boulders an lithologies. Dense very layers of w	r clayey gravelly ood fragments.	coarse S. Gravel is	AND with p	ockets o	f fine sand nded of m	d and lixed		<u> </u>
			Defence Scheme Project No. 14016				+								
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Bac	kfill:														
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	- · · · · · ·	Terminate	ed at 2.8	Bmbgl due	to water inf	lux.									

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		Flood De	fence Sc	cheme			016		Level:	6.41n	n				2/2015	
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									Depth:		٤ _	4.80m A			:25 ed by:	\dashv
Clie	ent:				nty Council				2.50m		2.10m D	С	В		C/GM	
Water	Level (m AOD)			k In Situ To Sample ID	esting Results	Depth (m)			Stra	atum Des	cription				Legend	
	3.91					2.50		ded to rou gular.		ranite an		c c	9.9mbgl: Black			
Sta	bility:	Poor						Ground	water:	Depth St	rike Typ	e/ Rate o	f flow			
Pla		20T track	ed excav	/ator												
	kfill:															_
Rer	narks:															

Terminated at 2.5mbgl: Unstable side wall, surface fissures. No samples required.



Figure 1 Trial Pit 1



Figure 2 Trial Pit 2

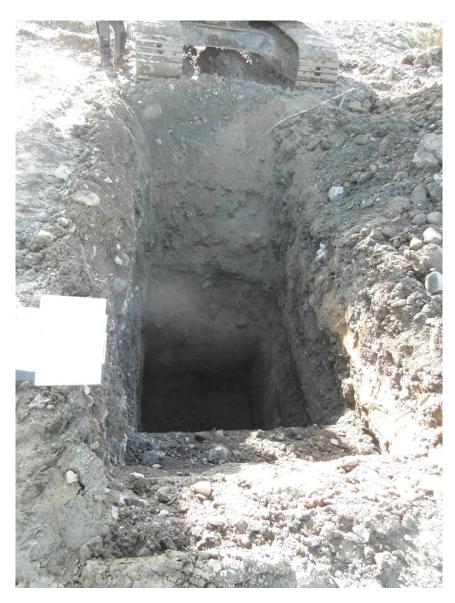


Figure 3 Trial Pit 3



Figure 4 Trial Pit 4



Figure 5 Trial Pit 5



Figure 6 Trial Pit 6



Figure 7 Trial Pit 7



Figure 8 Trial Pit 8



Figure 9 Trial Pit 9



Figure 10 Trial Pit 10

APPENDIX B

Soil Classification Results

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. R63502 Contract No. 18217 Contract Name: River Dargle Flood Defence Scheme

Customer GDG

Samples Received: 20/02/15 Date Tested: 20/02/15

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
TP01	1B	1.2	A15/0592	В	9.7	Little 70	Littile 70	шаах	- 120μπ	WS	4.4		Brown clayey/silty, very sandy, GRAVEL
TP01	3B	3.5	A15/0593	В	10					WS	4.4		Brown clayey/silty, very sandy, GRAVEL
TP02	1B	0.9	A15/0594	В	11					WS	4.4		Brown clayey/silty, very sandy, GRAVEL
TP02	2B	1.2	A15/0595	В	31					WS	4.4		Brown sandy, slightly gravelly, SILT/CLAY
TP03	1B	2.5	A15/0596	В	18					WS	4.4		Brown slightly sandy, slightly gravelly, SILT/CLAY
TP05	1B	2.5	A15/0597	В	10					WS	4.4		Brown slightly clayey/silty, sandy, GRAVEL with some cobbles
TP06	1B	0.95	A15/0599	В	5.6					WS	4.4		Brown clayey/silty, very sandy, GRAVEL
TP06	2B	3.3	A15/0600	В	13					WS	4.4		Brown clayey/silty, very gravelly, SAND
TP07	1B	2	A15/0601	В	38	50	30	20	68	WS	4.4	ΜI	Brown silty, very sandy, GRAVEL
TP08	1B	2.05	A15/0602	В	7.1					WS	4.4		Brown clayey/silty, very sandy, GRAVEL with some cobbles
TP09	1B	2.8	A15/0603	В	24					WS	4.4		Brown clayey/silty, very gravelly, SAND
		_						_			_		
		_						_			_		

WS - Wet sieved Notes: Preparation:

Sample Type: B - bulk disturbed AR - As received

NP - Non plastic

Liquid Limit 4.3 Cone Penetrometer definitive method

Clause: 4.4 Cone Penetrometer one point method Remarks:

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 J Barrett (Dep. Quality Manager) H Byrne (Quality Manager)

U - Undisturbed

Approved by Page Date 25/03/15 H Byrne 1 of 1

TEST REPORT

Determination of Particle Size Distribution



(note: Sedimentation stage not accredited)



particle	%			Contract No:	18217	Report No.	. R63496			
size	passing			Contract:	River Dar	gle Flood Defe	ence Scheme			
75	100	COBBLES		Bh:	TP01					
63	100	OODDEEO		Sample No.	1B	Lab. Samp	ole No.	A15/0592		
50	90			Sample Type:	В					
37.5	85			Depth (m)	1.20m	Customer:	CDG			
28	80			Date Received		5 Date Testi		20/02/2015		
20	73			Description:	Brown cla	yey/silty, very	sandy, GRAVE	L		
14	67	GRAVEL								
10	63			Remarks						
6.3	58						0.063	0.3 0.425 0.6 1.18	2 3.35 5 6.3 10 14 20	τ. Ci
5	56		100				0.0	0.0	2 20 1 4 2 8	3,000
3.35	53									
2	47		90							
1.18	42		80 <u>©</u>							
0.6	34		Percentage passing (%) 00 00 00 00 00 00 00 00 00 00 00 00 00	†						
0.425	31	SAND	issii 60	1						
0.3	27		<u>ම</u> 50	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1						
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0.063	13		<u>9</u> 30	1						
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			10							
		SILT/CLAY	0							
			ū	0001 0.0	001	0.01	0.1	1	10	100
				CLA	Y	SILT S i	eve size (mm)	SAND	GRAVEL	
		1001.11	1.84 - 4				Approved by:		Date:	Page no:
		IGSL Ltd	a Mater	ials Laborate	ory		Hugh	Byrne	25/03/15	1 of 1

IGSL Ltd Materials Laboratory M7 Business Park Naas Co.Kildare 045 846176

TEST REPORT Determination of MCV / moisture content Relation of a soil

Tested in accordance with BS1377-4:1990, clause 5.5

Report No. R63841 Contract River Dargle Flood Defence System

Contract No. 18217 Customer GDG

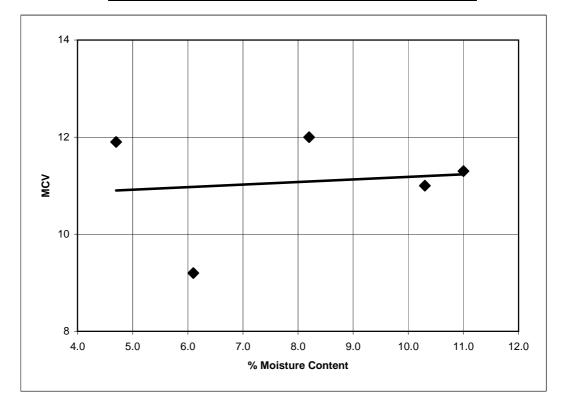
Date received 20/02/15 Date Tested 19/03/15

BH/TP No. TP01 Sample No. 1B Type: B

Depth (m) 1.20m Lab sample No. A15/0592

Description: Brown clayey/silty, very sandy, GRAVEL

MC% 4.7 6.1 8.2 10.3 11 MCV 11.9 9.2 12 11 11.3



% material >20mm 25

Persons authorized to approve reports

J Barrett (Deputy Quality Manager) H Byrne (Quality Manager)

IGSL Ltd Materials Laboratory

Approved by	Date	Page No.
H Byrne	20/03/15	1 of 1

IGSL Ltd Materials Laboratory M7 Business Park Naas Co. Kildare

Test Report

Dry Density/Moisture Content Relationship



Tested in accordance with BS1377:Part 4:1990

Report No. R63757 Contract No. River Dargle Flood Defence Scheme

Contract Name: River Dargle Flood Defence Scheme

18217 TP01 Lab Contract No. Location:

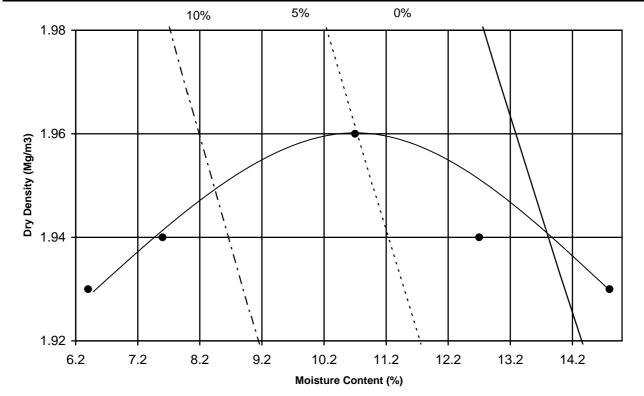
Depth (m) Sample No. TP01-1B 1.20m Material Type

A15/0592 Lab sample no. Customer: GDG

Date Received: 20/02/2015 Test Method: 2.5 KG Rammer

Date Tested: BS1377:Part 4:1990 03/03/2015 3.3

Dry Density (Mg/m³) 1.96 1.94 1.94 1.93 1.93 Moisture Content (%) 7.6 15 11 13 6.4



Maximum Dry Density (Mg/m³): 1.96 Optimum Moisture Content (%): 11

Description: Brown clayey/silty, very sandy, GRAVEL

Single / Separate samples used Sample Preparation: Material passing 20mm

Particle Density (Mg/m³): 2.65 Particle Density: Assumed

% retained on 20/37.5mm sieve: 31

The result relates to the specimen tested. Opinions and interpretations are outside the scope of accreditation

J Barrett (Dep. Quality Manager) H Byrne (Quality Manager)

Approved by Date **IGSL Materials Laboratory** H Byrne 13/03/15 1 of 1

Persons authorised to approve reports

TEST REPORT

Determination of Particle Size Distribution



(note: Sedimentation stage not accredited)



particle	%			Contract No:	18217	Report	No. R63497		-	
size	passing			Contract:	River Darg	gle Flood [Defence Scheme			
75	100	COBBLES		Bh:	TP01					
63	100	OODDEEO		Sample No.	3B	Lab. Sa	ample No.	A15/0593		
50	100			Sample Type:	В					
37.5	94			Depth (m)	3.50m	Custom	ner: CDG			
28	87			Date Received			esting started	20/02/2015		
20	82			Description:	Brown clay	yey/silty, v	ery sandy, GRAV	EL		
14	75	GRAVEL								
10	70			Remarks						
6.3	65						0.15	0.3 1.425 0.6 1.18	2 3.35 5 6.3 10 14 14	ιċ
5	62		100				0.063	0.3 0.425 0.6 1.18	2007	7630
3.35	56									
2	49		90							
1.18	41		§ 80							
0.6	30		ို့ 70	+ + + + + + + + + + + + + + + + + + + +						
0.425	26	SAND	isg 60	+ + + + + + + + + + + + + + + + + + + +						
0.3	23		<u>α</u> 50	+ + + + + + + + + + + + + + + + + + + +						
0.15	16		Percentage passing (%) 00 00 00 00 00 00 00 00 00 00 00 00 00	1						
0.063	8		<u>5</u> 30	1						
			20							
			10							
		SILT/CLAY								
			0.	0001 0.0	01	0.01	0.1	1	10	100
				CLA		SILT	Sieve size (mm)	SAND	GRAVEL	
							Approved by	: :	Date:	Page no:
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IGSL Ltd Materials Laboratory M7 Business Park Naas Co. Kildare

Test Report

Determination of Moisture Condition Value at Natural Moisture Content



Tested in accordance with BS1377:Part 4:1990, clause 5.4

Report No. R63551

Contract No. 18217

Contract Name: River Dargle Flood Relief Scheme

Customer: CDG

BH/TP TP01

Sample No. 3B

Depth (m) 3.50m

Sample Type: B

Lab Sample No. A15/0593

Source (if applicable) unknown

Material Type (if applicable):

Sample Received: 20/02/15

Date Tested: 25/02/15

Sample Cert: N/A

Moisture Content (%): 10

% Particles > 20mm 27.2

(By dry mass):

MCV: 15.6

Interpretation of Plot: Steepest Straight Line

Description of Soil: Brown clayey/silty, very sandy, GRAVEL

The result relates to the specimen tested.

Any remaining material will be retained for one month.

Sampling and opinions and interpretations are outside the scope of accreditation.

Persons authorised to approve reports

J Barrett (Dep. Quality Manager)

H Byrne (Quality Manager)

IGSL Ltd Materials Laboratory	
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Approved by	Date	Page
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IGSL Ltd Materials Laboratory M7 Business Park Naas Co. Kildare

Test Report

Dry Density/Moisture Content Relationship



Tested in accordance with BS1377:Part 4:1990

Report No. R63688 Contract No. River Dargle Flood Defence Schem

Contract Name: River Dargle Flood Defence Schem

Lab Contract No. 18217 Location: TP01

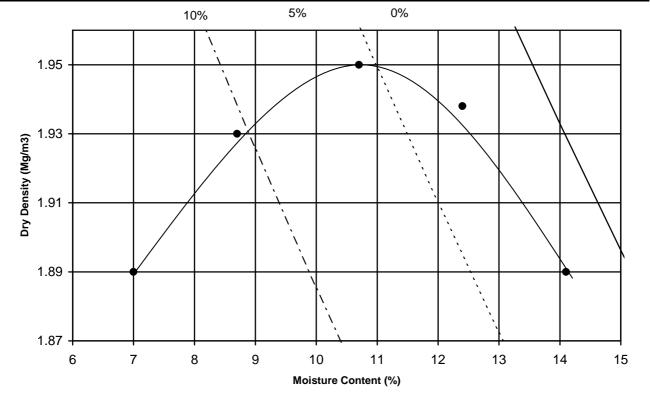
Sample No. TP01-3B Depth (m) 3.5 Material Type B

Lab sample no. A15/0593 Customer: GDG

Date Received: 20/02/2015 Test Method: 2.5 KG Rammer

Date Tested: 02/03/2015 BS1377:Part 4:1990 3.3

Dry Density (Mg/m ³)	1.95	1.94	1.93	1.89	1.89	
Moisture Content (%)	11	12	8.7	14	7.0	



Maximum Dry Density (Mg/m³): 1.95 Optimum Moisture Content (%): 12

Description: Brown clayey/silty, very sandy, GRAVEL

Sample Preparation: Material passing 20mm Single / Separate samples used

Particle Density (Mg/m³): 2.65 Particle Density: Assumed

% retained on 20/37.5mm sieve: 15.3

The result relates to the specimen tested.

Opinions and interpretations are outside the scope of accreditation

J Barrett (Dep. Quality Manager) H Byrne (Quality Manager)

Persons authorised to approve reports

IGSL Materials Laboratory Approved by Date Page
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TEST REPORT

Determination of Particle Size Distribution



(note: Sedimentation stage not accredited)



particle	%			Contract No:	18217	Report No	. R63545			
size	passing			Contract:	River Dargl	e Flood Defe	ence Scheme			
75	100	COBBLES		Bh:	TP02					
63	100	0000000		Sample No.	1B	Lab. Samp	ole No.	A15/0594		
50	96			Sample Type:	В					
37.5	85			Depth (m)	0.90m	Customer:	CDG			
28	75			Date Received		Date Testi	-	20/02/2015		
20	71			Description:	Brown clay	ey/silty, very	/ sandy, GRAVE	L		
14	65	GRAVEL								
10	61			Remarks						
6.3	56						0.063	0.3 0.425 0.6 1.18	2 3.35 5.3 6.3 10 14 20	37.5 37.5 50 93
5	53		100				0.0	0.0	2 6.3 14 20 20 20	990 37
3.35	49									
2	43		90							
1.18	38		80 <u>©</u>							
0.6	30	CAND	<u>ိ)</u> 70							
0.425	27	SAND	Percentage passing (%) 00 00 00 00 00 00 00 00 00 00 00 00 00	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1						
0.3	24		<u>a</u> 50	+ + + + + + + + + + + + + + + + + + + +						
0.15 0.063	17 12) jej 40	+ + + + + + + + + + + + + + + + + + + +					1	
0.063	12		<u> </u>	+ + + + + + + + + + + + + + + + + + + +						
			<u>م</u> 20							
			10							
		SILT/CLAY	0							
			_	0001 0.0	01	0.01	0.1	1	10	100
				CLA	Y	SILT S i	ieve size (mm)	SAND	GRAVEL	
		1001 11	-1 BA - 4 -	lala Lalas d			Approved by:		Date:	Page no:
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IGSL Ltd Materials Laboratory M7 Business Park Naas Co.Kildare 045 846176

TEST REPORT Determination of MCV / moisture content Relation of a soil

Tested in accordance with BS1377-4:1990, clause 5.5

Report No. R63843 Contract River Dargle Flood Defence System

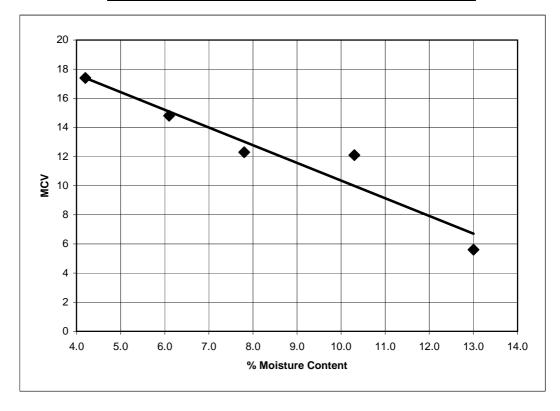
Contract No. 18217 Customer GDG

Date received 20/02/15 Date Tested 19/03/15

BH/TP No. TP02 Sample No. TP2 1B Type: B

Depth (m) 0.90 Lab sample No. A15/0594

MC% 4.2 6.1 7.8 10 13 MCV 17.4 14.8 12.3 12.1 5.6



% material >20mm 41

Persons authorized to approve reports

J Barrett (Deputy Quality Manager) H Byrne (Quality Manager)

IGSL Ltd Materials Laboratory

Approved by	Date	Page No.
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TEST REPORT

Determination of Particle Size Distribution



(note: Sedimentation stage not accredited)



particle	%			Contract No:	18217	Report No	o. R63546		•	
size	passing			Contract:	River Darg	le Flood De	fence Scheme			
75	100	COBBLES		Bh:	TP02					
63	100			Sample No.	2B	Lab. Sam	ple No.	A15/0595		
50	100			Sample Type:	В					
37.5	100			Depth (m)	1.20m	Customer	: CDG			
28	100			Date Received		5 Date Test	-	20/02/2015		
20	98			Description:	Brown sar	ndy, slightly o	gravelly, SILT/C	LAY		
14	98	GRAVEL								
10	98			Remarks						
6.3	97						0.063	0.3 0.425 0.6 1.18	2 3.35 5.3 6.3 10 20	28 37.5 50 93
5	96		100				0.0	0.6	2 3.3 5.3 6.3 10 14 20	37 37 37 37 37 37 37 37 37 37 37 37 37 3
3.35	95									
2	93		90							
1.18	91		80 <u>©</u>							
0.6	88) ၅) 70	1 1 			 	/ 		
0.425	84	SAND	Percentage passing (%) 00 00 00 00 00 00 00 00 00 00 00 00 00	· 			 			
0.3	80		<u>ම</u> 50	· 			 			
0.15	57		but du du du	· - 			+			
0.063	31		<u>9</u> 30	, 🚣 🔠 🔠						
			20 20							
			10							
		SILT/CLAY	0							
			_	.0001 0.0	01	0.01	0.1	1	10	100
				CLA	Y	SILT S	Sieve size (mm)	SAND	GRAVEL	
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IGSL Ltd Materials Laboratory M7 Business Park Naas

Co. Kildare

Test Report

Determination of Moisture Condition Value at Natural Moisture Content



Tested in accordance with BS1377:Part 4:1990, clause 5.4

Report No.	R63576
Report No.	K03370

Contract No. 18217

Contract Name: River Dargle Flood Relief Scheme

Customer: GDG

BH/TP TP07

Sample No. 1B

Depth (m) 2.00m

Sample Type: B

Lab Sample No. A15/601

Source (if applicable) unknown

Material Type (if applicable):

Sample Received: 20/02/15

Date Tested: 26/02/15

Sample Cert: N/A

Moisture Content (%): 36

% Particles > 20mm 28.1

(By dry mass):

MCV: 7.7

Interpretation of Plot: Steepest Straight Line

Description of Soil: Brown sandy, slightly gravelly, SILT/CLAY

The result relates to the specimen tested.

Any remaining material will be retained for one month.

Sampling and opinions and interpretations are outside the scope of accreditation.

Persons authorised to approve reports

J Barrett (Dep. Quality Manager)

H Byrne (Quality Manager)

	Approved by	Date	Page
IGSL Ltd Materials Laboratory	H Byrne	02/03/15	1 of 1

Test Report

Dry Density/Moisture Content Relationship



Tested in accordance with BS1377:Part 4:1990

Report No. R63689 Contract No. River Dargle Flood Defence Schem

Contract Name: River Dargle Flood Defence Schem

Lab Contract No. 18217 Location: TP02

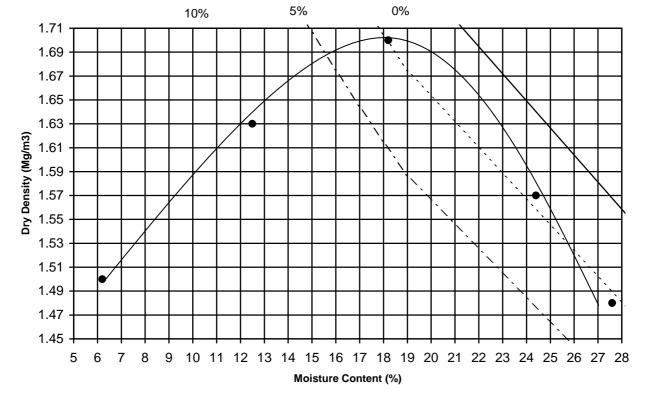
Sample No. TP02-2B Depth (m) 1.20m Material Type B

Lab sample no. A15/1595 Customer: GDG

Date Received: 20/02/2015 Test Method: 2.5 KG Rammer

Date Tested: 02/03/2015 BS1377:Part 4:1990 3.3

Dry Density (Mg/m ³)	1.48	1.50	1.63	1.70	1.57	
Moisture Content (%)	28	6	13	18.2	24	



Maximum Dry Density (Mg/m³): 1.70 Optimum Moisture Content (%): 18

Description: Brown sandy, slightly gravelly, SILT/CLAY

Sample Preparation: Material passing 20mm Single / Separate samples used

Particle Density (Mg/m³): 2.65 Particle Density: Assumed

% retained on 20/37.5mm sieve: 28

Persons authorised to approve reports

J Barrett (Dep. Quality Manager)

The result relates to the specimen tested.

H Byrne (Quality Manager)

Opinions and interpretations are outside the scope of accreditation

IGSL Materials Laboratory

Approved by

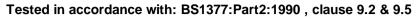
H Byrne

Date Page

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TEST REPORT

Determination of Particle Size Distribution



(note: Sedimentation stage not accredited)



particle	%			Contract No:	18217	Report No.	R63498		-	
size	passing			Contract:	River Darg	le Flood Defe	nce Scheme			
75	100	COBBLES		Bh:	TP03					
63	100			Sample No.	1B	Lab. Sampl	e No.	A15/0596		
50	100			Sample Type:	В					
37.5	100			Depth (m)	2.50m	Customer:	CDG			
28	99			Date Received		Date Testin	-	20/02/2015		
20	97			Description:	Brown sligh	ntly sandy, sli	ghtly gravelly, S	SILT/CLAY		
14	95	GRAVEL								
10	94			Remarks						
6.3	92						0.15	0.3).425 0.6 1.18	2 3.35 5.3 10 14 20	رن ت
5	90		100				0.063	0.3 0.425 0.6 1.18	2 4 4 6 6 5 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6	37 930 930 931
3.35	89									
2	86		90							
1.18	83		⊚ 80							
0.6	78		<u>ိ</u> စ္ပ် 70	+ + + + + + + + + + + + + + + + + + + +						
0.425	75	SAND	SSir 60							
0.3	70		<u>ω</u> 50							
0.15	62		14ag							
0.063	52		Percentage passing (%) 00 00 00 00 00 00 00 00 00 00 00 00 00	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1						
0.037	46		ص عاد 20							
0.027	40								<u> </u>	
0.017	36	SILT/CLAY	10							
0.010	31		0	0001 0.0		0.01	0.1	1	10	100
0.007	26		0.0					044/5		100
0.005 0.002	22 16			CLA	Υ	SILT S ie	eve size (mm)	SAND	GRAVEL	
0.002	10						Approved by:		Date:	Page no:
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Test Report

Dry Density/Moisture Content Relationship



Tested in accordance with BS1377:Part 4:1990

Report No. R63690 Contract No. River Dargle Flood Defence Scheme

Contract Name: River Dargle Flood Defence Scheme

Lab Contract No. 18217 Location: TP03

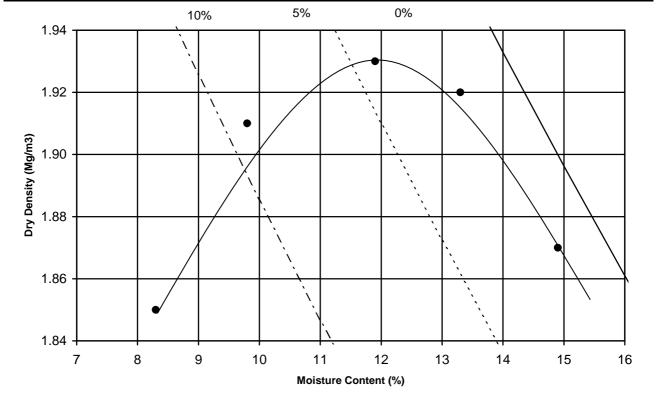
Sample No. TP03-1B Depth (m) 2.50m Material Type B

Lab sample no. A15/596 Customer:

Date Received: 20/02/2015 Test Method: 2.5 KG Rammer

Date Tested: 02/03/2015 BS1377:Part 4:1990 3.3

Dry Density (Mg/m ³)	1.93	1.92	1.91	1.85	1.87	
Moisture Content (%)	12	13	10	8.3	15	



Maximum Dry Density (Mg/m³): 1.93 Optimum Moisture Content (%): 11

Description: Brown slightly sandy, slightly gravelly, SILT/CLAY

Sample Preparation: Material passing 20mm Single / Separate samples used

Particle Density (Mg/m³): 2.65 Particle Density: Assumed

% retained on 20/37.5mm sieve: 26.8

Persons authorised to approve reports

J Barrett (Dep. Quality Manager)

The result relates to the specimen tested.

H Byrne (Quality Manager)

Opinions and interpretations are outside the scope of accreditation

IGSL Materials Laboratory

Approved by
Date Page
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TEST REPORT

Determination of Particle Size Distribution



(note: Sedimentation stage not accredited)



particle	%			Contract No:	18217	Report No	. R63499			
size	passing			Contract:	River Darg	le Flood Def	ence Scheme			
75	100	COBBLES		Bh:	TP05					
63	84	COBBLES		Sample No.	1B	Lab. Samp	ple No.	A15/0597		
50	84			Sample Type:	В					
37.5	54			Depth (m)	2.50m	Customer:	: CDG			
28	36			Date Received	20/01/201	5 Date Testi	ing started	20/02/2015		
20	22			Description:	Brown slig	htly clayey/si	ilty, sandy, GRA\	/EL with some	cobbles	
14	20	GRAVEL								
10	20	OKAVEL		Remarks	Sample size did not meet the	requirements of BS1377				
6.3	18						5 53	8 22 2		τċ.
5	18		400				0.063	0.3 0.425 0.6 1.18	2 3.35 6.3 10 14 20	37.5 37.5 53 53
3.35	17		100							
2	15		90							
1.18	14		80	+ + + + + + + + + + + + + + + + + + + +						
0.6	12		S 70	+ + + + + + + + + + + + + + + + + + + +						
0.425	11	SAND	ssin 60							
0.3	9		Percentage passing (%) 00 00 00 00 00 00 00 00 00 00 00 00 00							
0.15	7		tage 40							
0.063	4		arcen 30							$\ \cdot \ \cdot \ \cdot \ \cdot \ \cdot \ $
			20							
		SILT/CLAY	10							
			0	 					1	
			0.	0001 0.0		0.01	0.1	1	10	100
				CLA	Y	SILT S	ieve size (mm)	SAND	GRAVEL	
							Approved by:		Date:	Page no:
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							1		l	I

Test Report

Determination of Moisture Condition Value at Natural Moisture Content



Tested in accordance with BS1377:Part 4:1990, clause 5.4

Report No. R63554

Contract No. 18217

Contract Name: River Dargle Flood Relief Scheme

Customer: GDG

BH/TP TP05

Sample No. 1B

Depth (m) 2.50m

Sample Type: B

Lab Sample No. A15/0597

Source (if applicable) unknown

Material Type (if applicable):

Sample Received: 20/02/15

Date Tested: 25/02/15

Sample Cert: N/A

Moisture Content (%): 12

% Particles > 20mm 20.8

(By dry mass):

MCV: 8.1

Interpretation of Plot: Steepest Straight Line

Description of Soil: Brown slightly clayey/silty, sandy, GRAVEL with some

cobbles

The result relates to the specimen tested.

Any remaining material will be retained for one month.

Sampling and opinions and interpretations are outside the scope of accreditation.

Persons authorised to approve reports

J Barrett (Dep. Quality Manager)
H Byrne (Quality Manager)

IGSL Ltd Materials Laboratory

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Test Report

Dry Density/Moisture Content Relationship



Tested in accordance with BS1377:Part 4:1990

Report No. R63691 Contract No. River Dargle Flood Defence Scheme

Contract Name: River Dargle Flood Defence Scheme

18217 TP05 Lab Contract No. Location:

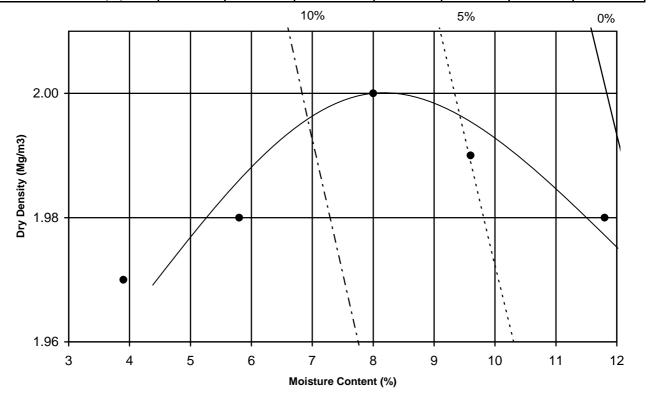
Sample No. TP05-1B Depth (m) 2.50m Material Type

A15/0597 Lab sample no. Customer: GDG

2.5 KG Rammer Date Received: 20/02/2015 Test Method:

Date Tested: BS1377:Part 4:1990 02/03/2015 3.3

Dry Density (Mg/m ³)	2.00	1.99	1.98	1.98	1.97	
Moisture Content (%)	8.0	9.6	5.8	12	3.9	



Maximum Dry Density (Mg/m³): 2.00 Optimum Moisture Content (%): 8

Description: Brown sandy very gravelly CLAY

Single / Separate samples used Sample Preparation: Material passing 20mm

Particle Density (Mg/m³): 2.62 Particle Density: Assumed

% retained on 20/37.5mm sieve: 25.3

J Barrett (Dep. Quality Manager) The result relates to the specimen tested.

H Byrne (Quality Manager)

Opinions and interpretations are outside the scope of accreditation

Approved by Date **IGSL Materials Laboratory** H Byrne 10/03/15 1 of 1

Persons authorised to approve reports

TEST REPORT

Determination of Particle Size Distribution



(note: Sedimentation stage not accredited)



particle	%			Contract No:	18217	Report No	. R63547			
size	passing			Contract:	River Darg	le Flood Def	ence Scheme			
75	100	COBBLES		Bh:	TP06					
63	100	0000000		Sample No.	1B	Lab. Samp	ole No.	A15/0599		
50	96			Sample Type:	В					
37.5	84			Depth (m)	0.95m	Customer:	CDG			
28	78			Date Received		5 Date Testi	-	20/02/2015		
20	67			Description:	Brown clay	ey/silty, very	/ sandy, GRAVE	L		
14	60	GRAVEL								
10	55	0		Remarks						
6.3	49						0.15	0.3 0.425 0.6	2 3.35 5 6.3 10 14 14	rċ
5	47		100				0.063	0.3 0.425 0.6 1.18	2 3.33 6.3 10 20 20	920 37 6
3.35	42									
2	37		90							
1.18	33		§ 80 <u>♀</u>						1 11 1 1 1 1 1 /	
0.6	26		<u>ိ</u> 70						 	
0.425	23	SAND	assir 60							
0.3	20		Percentage passing (%) 00 00 00 00 00 00 00 00 00 00 00 00 00					 		
0.15	15		utaĝ							
0.063	11		9 30							
			<u>م</u> 20							
			10							
		SILT/CLAY	0							
				0001 0.0	01	0.01	0.1	1	10	100
				CLA	1	SILT S	ieve size (mm)	SAND	GRAVEL	
				'-l- l -l			Approved by:		Date:	Page no:
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Test Report

Dry Density/Moisture Content Relationship



Tested in accordance with BS1377:Part 4:1990

Report No. R63979 Contract No. River Dargle Flood Defence Scheme

Contract Name: River Dargle Flood Defence Scheme

Lab Contract No. 18217 Location: TP06

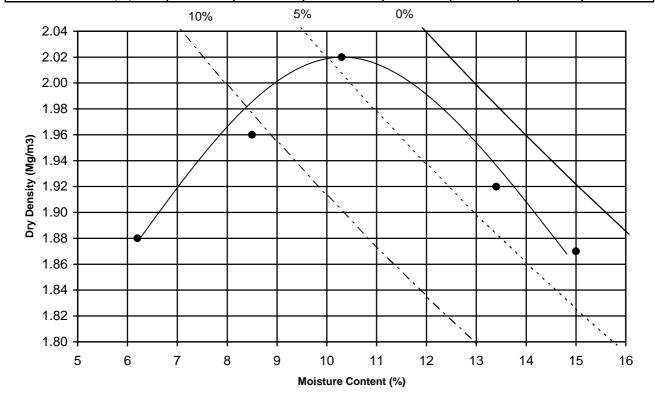
Sample No. TP06-1B Depth (m) 0.95m Material Type B

Lab sample no. A15/599 Customer: GDG

Date Received: 20/02/2015 Test Method: 2.5 KG Rammer

Date Tested: 25/03/2015 BS1377:Part 4:1990 3.3

Dry Density (Mg/m ³)	1.92	2.02	1.96	1.88	1.87	
Moisture Content (%)	13	10	8.5	6.2	15	



Maximum Dry Density (Mg/m³): 2.02 Optimum Moisture Content (%): 10

Description: Brown clayey/silty, very sandy, GRAVEL

Sample Preparation: Material passing 20mm Single / Separate samples used

Particle Density (Mg/m³): 2.70 Particle Density: Assumed

% retained on 20/37.5mm sieve: 18

Persons authorised to approve reports

J Barrett (Dep. Quality Manager)

H Byrne (Quality Manager)

The result relates to the specimen tested.

Opinions and interpretations are outside the scope of accreditation

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TEST REPORT

Determination of Particle Size Distribution



(note: Sedimentation stage not accredited)



particle	%			Contract No:	18217	Report	No. R63500			
size	passing			Contract:	River Darg	gle Flood D	Defence Scheme			
75	100	COBBLES		Bh:	TP06					
63	100	OODDEEO		Sample No.	2B	Lab. Sa	ample No.	A15/0600		
50	100			Sample Type:	В					
37.5	100			Depth (m)	3.30m	Custom	ner: CDG			
28	96			Date Received			esting started	20/02/2015		
20	94			Description:	Brown cla	yey/silty, v	ery gravelly, SAND			
14	90	GRAVEL								
10	85			Remarks						
6.3	81						0.15	0.3 1.425 0.6 1.18	35	ιċ
5	79		100				0.063	0.3 0.425 0.6 1.18	2 3.35 6.3 10 14 20	37 37 37 37 37 37 37 37 37 37 37 37 37 3
3.35	74									
2	66		90							
1.18	58		§ 80							
0.6	47		ို့ 70	†						
0.425	41	SAND	Percentage passing (%) 00 00 00 00 00 00 00 00 00 00 00 00 00	+ + + + + + + + + + + + + + + + + + + +						
0.3	34		မ စ 50	+ + + + + + + + + + + + + + + + + + + +						
0.15	22		bet 40							
0.063	11		ja 30					<u> </u>		
			20							
			10							
		SILT/CLAY								
			0 0.	0001 0.0	01	0.01	0.1	1	10	100
				CLAY		SILT	Sieve size (mm)	SAND	GRAVEL	
							Approved by:		Date:	Page no:
		IGSL Ltd	d Mater	ials Laborato	ory		Н Ву	/rne	26/02/15	1 of 1

Test Report

Dry Density/Moisture Content Relationship



Tested in accordance with BS1377:Part 4:1990

Report No. R63692 Contract No. River Dargle Flood Defence Scheme

Contract Name: River Dargle Flood Defence Scheme

Lab Contract No. 18217 Location: TP06

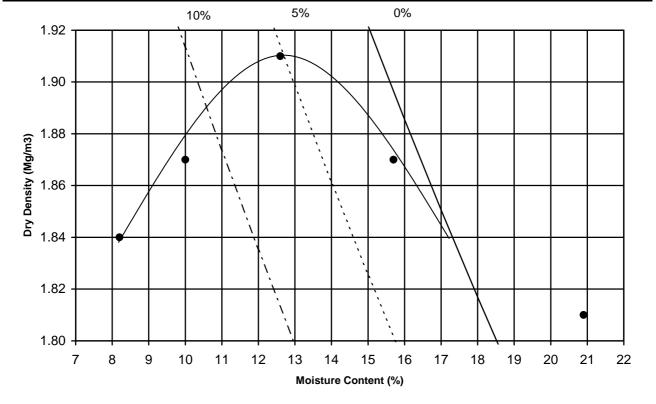
Sample No. TP06-2B Depth (m) 3.30m Material Type B

Lab sample no. A15/600 Customer: GDG

Date Received: 20/02/2015 Test Method: 2.5 KG Rammer

Date Tested: 02/03/2015 BS1377:Part 4:1990 3.3

Dry Density (Mg/m ³)	1.91	1.87	1.87	1.84	1.81	
Moisture Content (%)	13	10	16	8.2	21	



Maximum Dry Density (Mg/m³): 1.91 Optimum Moisture Content (%): 13

Description: Brown clayey/silty, very gravelly, SAND

Sample Preparation: Material passing 20mm Single / Separate samples used

Particle Density (Mg/m³): 2.70 Particle Density: Assumed

% retained on 20/37.5mm sieve: 20.5

Persons authorised to approve reports

J Barrett (Dep. Quality Manager)

The result relates to the specimen tested.

H Byrne (Quality Manager)

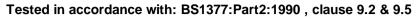
Opinions and interpretations are outside the scope of accreditation

IGSL Materials Laboratory

Approved by
Date Page
10/03/15 1 of 1

TEST REPORT

Determination of Particle Size Distribution



(note: Sedimentation stage not accredited)



75 1 63 1 50 5 50 5 50 5 50 5 50 5 50 5 50 5 5	100 100 96 84 78 67 60 55 49	COBBLES		Contract: Bh: Sample No. Sample Type: Depth (m) Date Received Description: Remarks	River Dargle TP06 1B B 0.95m 20/01/2015 Brown silty,	Lab. Sam Customer Date Test	: CDG ing started	A15/0599 20/02/2015		
63 1 50 9 37.5 28 20 6 14 6	100 96 84 78 67 60 55 49			Sample No. Sample Type: Depth (m) Date Received Description:	1B B 0.95m 20/01/2015	Customer Date Test	: CDG ing started			
50 9 37.5 8 28 20 6 14 6	96 84 78 67 60 55 49			Sample Type: Depth (m) Date Received Description:	B 0.95m 20/01/2015	Customer Date Test	: CDG ing started			
37.5 28 20 14	84 78 67 60 55 49	GRAVEL		Depth (m) Date Received Description:	0.95m 20/01/2015	Date Test	ing started	20/02/2015		
28 20 14	78 67 60 55 49	GRAVEL		Date Received Description:	20/01/2015	Date Test	ing started	20/02/2015		
20 14	67 60 55 49	GRAVEL		Description:			_	20/02/2015		
14	60 55 49	GRAVEL		•	Brown silty,	very sandy	/, GRAVEL			
	55 49	GRAVEL		Domarka						
10	49	-		Domorko						
				Remarks						
							0.063	0.3 0.425 0.6 1.18	2 3.35 6.3 10 20 20	52.5 50 63
	47		100) - 			0.0	0.6	2	320
	42									
	37		90							
	33		80 <u>©</u>							
	26		<u>ိ</u> 70) 						
	23	SAND	iss 60) 						
	20		Percentage passing (%)) 			 			
	15		Se uta) 						
0.063	11		<u> </u>	, 📗 📗						
				, 📗 📗 📗						
			10							
		SILT/CLAY								
			_	.0001 0.0	01	0.01	0.1	1	10	100
				CLA	/	SILT S	sieve size (mm)	SAND	GRAVEL	
				2-1-1-1			Approved by:		Date:	Page no:
		IGSL Ltd	d Mater	ials Laborato	ory		НЕ	Byrne	27/02/15	1 of 1

IGSL Ltd Materials Laboratory M7 Business Park Naas

Co. Kildare

Test Report

Determination of Moisture Condition Value at Natural Moisture Content



Tested in accordance with BS1377:Part 4:1990, clause 5.4

Report No.	R63576

Contract No. 18217

Contract Name: River Dargle Flood Relief Scheme

Customer: GDG

BH/TP TP07

Sample No. 1B

Depth (m) 2.0m

Sample Type: B

Lab Sample No. A15/0601

Source (if applicable) unknown

Material Type (if applicable):

Sample Received: 20/02/15

Date Tested: 26/02/15

Sample Cert: N/A

Moisture Content (%): 36

% Particles > 20mm 28

(By dry mass):

MCV: 7.7

Interpretation of Plot: Steepest Straight Line

Description of Soil: Brown silty, very sandy, GRAVEL

The result relates to the specimen tested.

Any remaining material will be retained for one month.

Sampling and opinions and interpretations are outside the scope of accreditation.

Persons authorised to approve reports

J Barrett (Dep. Quality Manager)

H Byrne (Quality Manager)

IGSL Ltd Materials Laboratory

Approved by

Date Page

H Byrne 02/03/15 1 of 1

TEST REPORT Determination of MCV / moisture content Relation of a soil

Tested in accordance with BS1377-4:1990, clause 5.5

Report No. R63842 Contract River Dargle Flood Defence System

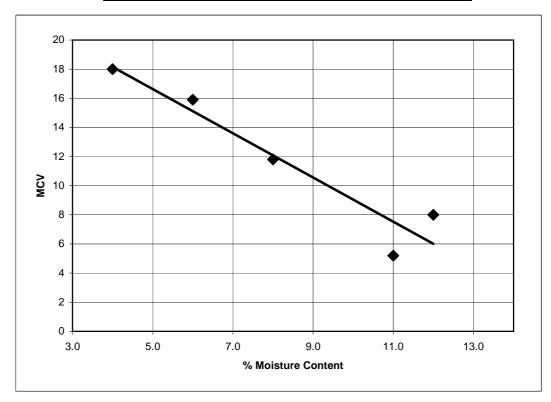
Contract No. 18217 Customer GDG

Date received 20/02/15 Date Tested 19/03/15

BH/TP No. TP07 Sample No. 1B Type: B

Depth (m) 2.00m Lab sample No. A15/0601

MC% 4.0 6.0 8.0 11 12 MCV 18 15.9 11.8 5.2 8



% material >20mm 28

Persons authorized to approve reports

J Barrett (Deputy Quality Manager) H Byrne (Quality Manager)

IGSL Ltd Materials Laboratory

Approved by	Date	Page No.
H Byrne	20/03/15	1 of 1

Test Report

Dry Density/Moisture Content Relationship



Tested in accordance with BS1377:Part 4:1990

Report No. R63693 Contract No. River Dargle Flood Defence Scheme

Contract Name: River Dargle Flood Defence Scheme

Lab Contract No. 18217 Location: TP07

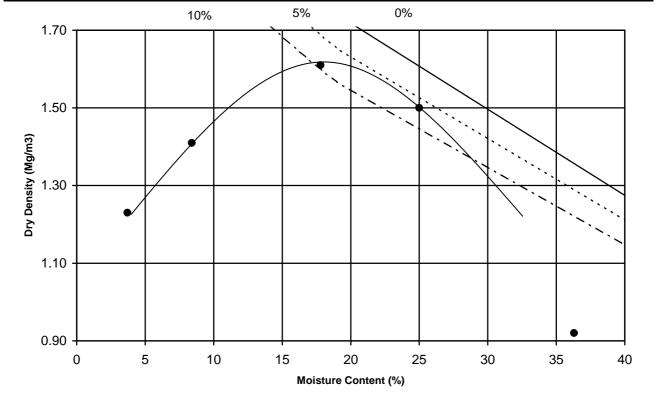
Sample No. TP07-1B Depth (m) 2.00m Material Type B

Lab sample no. A15/601 Customer: GDG

Date Received: 20/02/2015 Test Method: 2.5 KG Rammer

Date Tested: 02/03/2015 BS1377:Part 4:1990 3.3

Dry Density (Mg/m ³)	0.92	1.41	1.61	1.50	1.23	
Moisture Content (%)	36	8.4	18	25	3.7	



Maximum Dry Density (Mg/m³): 1.61 Optimum Moisture Content (%): 18

Description: Brown silty, very sandy, GRAVEL

Sample Preparation: Material passing 20mm Single / Separate samples used

Particle Density (Mg/m³): 2.60 Particle Density: Assumed

% retained on 20/37.5mm sieve: 14

Persons authorised to approve reports

J Barrett (Dep. Quality Manager)

H Byrne (Quality Manager)

The result relates to the specimen tested.

Opinions and interpretations are outside the scope of accreditation

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IGSL Materials Laboratory	H Byrne	10/03/15	1 of 1

TEST REPORT

Determination of Particle Size Distribution



(note: Sedimentation stage not accredited)



particle	%			Contract No:	18217	Report No.	. R63501		!	
size	passing			Contract:	River Darg	le Flood Defe	ence Scheme			
75	82	COBBLES		Bh:	TP08					
63	82	OODDELO		Sample No.	1B	Lab. Samp	ole No.	A15/0602		
50	76			Sample Type:	В					
37.5	71			Depth (m)	2.05m	Customer:	CDG			
28	64			Date Received		5 Date Testi	-	20/02/2015		
20	59			Description:	Brown clay	ey/silty, very	sandy, GRAVE	L with some co	obbles	
14	53	GRAVEL								
10	50	OTOWEL		Remarks	Sample size did not meet the	requirement of BS1377				
6.3	45						63	3 3 3 1 8 1 8	35 -	ιč
5	43		400				0.063	0.3 0.425 0.6 1.18	2 3.35 6.3 10 14 20	37.5 37.5 50 63 63
3.35	39		100							
2	33		90	1						
1.18	28		® 80	+ + + + + + + + + + + + + + + + + + + +						
0.6	23		<u>©</u> 70	+ + + + + + + + + + + + + + + + + + + +						
0.425	21	SAND	ssin 60	+						
0.3	18		ed 50	1						
0.15	12		Percentage passing (%) 00 00 00 00 00 00 00 00 00 00 00 00 00							
0.063	6		acer 30							
			ص 30 20							
		SILT/CLAY	10							
			0	0001 0.0	01	0.01	0.1	4	10	100
			0.					0.44/5		100
				CLA	Υ	SILT S i	ieve size (mm)	SAND	GRAVEL	
							Approved by:		Date:	Page no:
	IGSL Ltd Materials Laboratory						НВ	yrne	26/02/15	1 of 1
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Test Report

Dry Density/Moisture Content Relationship



Tested in accordance with BS1377:Part 4:1990

R63738 Report No. Contract No. River Dargle Flood Defence Schem

Contract Name: River Dargle Flood Defence Schem

Lab Contract No. 18217 Location: TP08

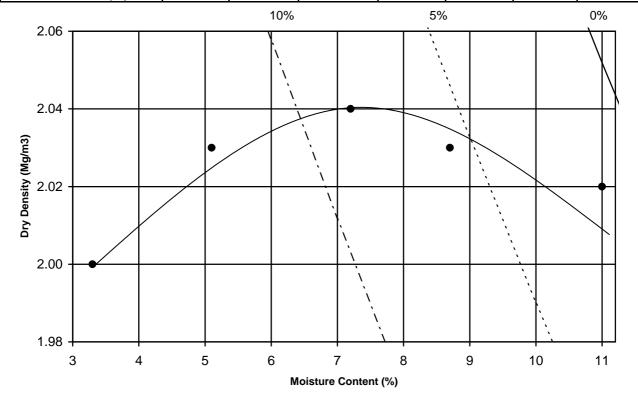
Depth (m) Sample No. TP08-1B 2.05m Material Type

Lab sample no. A15/602 Customer: GDG

2.5 KG Rammer Date Received: 20/02/2015 Test Method:

Date Tested: BS1377:Part 4:1990 03/03/2015 3.3

Dry Density (Mg/m ³)	2.04	2.03	2.03	2.00	2.02	
Moisture Content (%)	7.2	8.7	5.1	3.3	11	



Maximum Dry Density (Mg/m³): 2.04 Optimum Moisture Content (%): 7

Description: Brown clayey/silty, very sandy, GRAVEL with some cobbles

Single / Separate samples used Sample Preparation: Material passing 20mm

Particle Density (Mg/m³): 2.65 Particle Density: Assumed

% retained on 20/37.5mm sieve: 53

Opinions and interpretations are outside the scope of accreditation

J Barrett (Dep. Quality Manager) The result relates to the specimen tested. H Byrne (Quality Manager)

Approved by Date **IGSL Materials Laboratory**

H Byrne

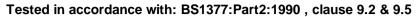
1 of 1

Persons authorised to approve reports

12/03/15

TEST REPORT

Determination of Particle Size Distribution



(note: Sedimentation stage not accredited)



particle	%			Contract No:	18217	Report N	o. R63549			
size	passing			Contract:	River Dar	gle Flood De	fence Scheme			
75	100	COBBLES		Bh:	TP09					
63	100			Sample No.	1B	Lab. Sam	nple No.	A15/0603		
50	100			Sample Type:	В					
37.5	100			Depth (m)	2.80m	Custome	r: CDG			
28	98			Date Received		5 Date Tes	-	20/02/2015		
20	93			Description:	Brown cla	yey/silty, ver	ry gravelly, SAND)		
14	90	GRAVEL								
10	88			Remarks						
6.3	85						0.15	0.3 0.425 0.6	2 3.35 5.3 6.3 10 14	τ.
5	83		100				0.063	0.3 0.425 0.6 1.18	2 3.3. 6.3 14 20	37.6
3.35	78									
2	66		90							
1.18	53		80	†						
0.6	38		<u>ိ</u> 70	† 					// 	
0.425	29	SAND	Percentage passing (%) 00 00 00 00 00 00 00 00 00 00 00 00 00	+ + + + + + + + + + + + + + + + + + + +				 	 	
0.3	20		<u>α</u> 50	+ + + + + + + + + + + + + + + + + + + +						
0.15	10		bet 40	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1						
0.063	7		<u>0</u> 30	 						
			20							
			10							
		SILT/CLAY	0							
			•	0001 0.0	01	0.01	0.1	1	10	100
				CLA	1	SILT S	Sieve size (mm)	SAND	GRAVEL	
		100: 1:	1.55.4				Approved by	:	Date:	Page no:
		IGSL Ltd	a Materi	als Laborato	ory		HE	Byrne	27/02/15	1 of 1

Test Report

Determination of Moisture Condition Value at Natural Moisture Content



Tested in accordance with BS1377:Part 4:1990, clause 5.4

Report No. R63577

Contract No. 18217

Contract Name: River Dargle Flood Relief Scheme

Customer: GDG

BH/TP TP09

Sample No. 1B

Depth (m) 2.80m

Sample Type: B

Lab Sample No. A15/0603

Source (if applicable) unknown

Material Type (if applicable):

Sample Received: 20/02/15

Date Tested: 26/02/15

Sample Cert: N/A

Moisture Content (%): 23

% Particles > 20mm 41

(By dry mass):

MCV: 8.1

Interpretation of Plot: Steepest Straight Line

Description of Soil: Brown clayey/silty, very gravelly, SAND

The result relates to the specimen tested.

Any remaining material will be retained for one month.

Sampling and opinions and interpretations are outside the scope of accreditation.

Persons authorised to approve reports

J Barrett (Dep. Quality Manager)

H Byrne (Quality Manager)

	Approved by	Date	Page
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Test Report

Dry Density/Moisture Content Relationship



Tested in accordance with BS1377:Part 4:1990

Report No. R63694 Contract No. River Dargle Flood Defence Scheme

Contract Name: River Dargle Flood Defence Scheme

Lab Contract No. 18217 Location: TP09

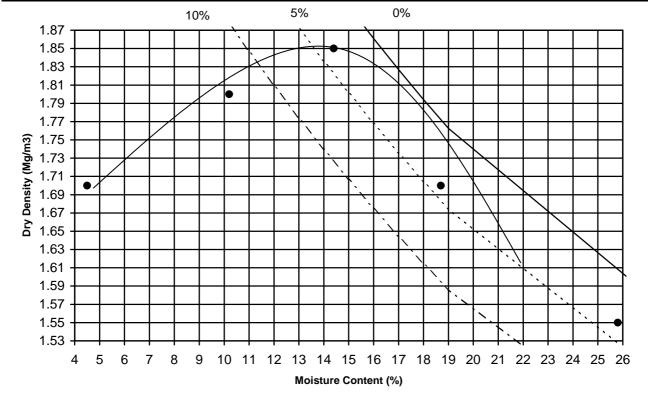
Sample No. TP09-1B Depth (m) 2.80m Material Type E

Lab sample no. A15/603 Customer: GDG

Date Received: 20/02/2015 Test Method: 2.5 KG Rammer

Date Tested: 02/03/2015 BS1377:Part 4:1990 3.3

Dry Density (Mg/m ³)	1.55	1.70	1.85	1.80	1.70	
Moisture Content (%)	26	19	14	10	4.5	



Maximum Dry Density (Mg/m³): 1.85 Optimum Moisture Content (%): 14

Description: Grey brown very sandy gravelly CLAY

Sample Preparation: Material passing 20mm Single / Separate samples used

Particle Density (Mg/m³): 2.65 Particle Density: Assumed

% retained on 20/37.5mm sieve: 2.8

Persons authorised to approve reports

J Barrett (Dep. Quality Manager)

The result relates to the specimen tested.

H Byrne (Quality Manager)

Opinions and interpretations are outside the scope of accreditation

ICCI Motoriala Laboratory	Approved by	Date	Page
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APPENDIX C

WAC Results



Registered Address: Unit 3 Deeside Point, Zone 3, Deeside Industrial Park, Deeside, CH5 2UA. UK

Unit 3 Deeside Point

Zone 3

Deeside Industrial Park

Deeside CH5 2UA

IGSL Unit F M7 Business Park Naas Co Kildare Ireland

Tel: +44 (0) 1244 833780 Fax: +44 (0) 1244 833781





Attention: Darren Keogh

Date: 9th March, 2015

Your reference:

Our reference: Test Report 15/4014 Batch 1

Location : River Dargle

Date samples received : 24th February, 2015

Status: Final report

Issue:

Ten samples were received for analysis on 24th February, 2015 of which ten were scheduled for analysis. Please find attached our Test Report which should be read with notes at the end of the report and should include all sections if reproduced. Interpretations and opinions are outside the scope of any accreditation, and all results relate only to samples supplied.

All analysis is carried out on as received samples and reported on a dry weight basis unless stated otherwise. Results are not surrogate corrected.

Where Waste Acceptance Criteria Suite (EC Decision of 19 December 2002 (2003/33/EC)) has been requested, all analyses have been performed using the relevant EN methods where they exist.

Compiled By:

Bruce Leslie

hlun

Project Co-ordinator

Bob Millward BSc FRSC Principal Chemist

Rjuiellward

Client Name: IGSL

Reference:

Location: River Dargle Solids: V=60g VOC jar, J=250g glass jar, T=plastic tub

Report : Solid

Contact: Darren Keogh
JE Job No.: 15/4014

JE Job No.:	15/4014												
J E Sample No.	1-2	3-4	5-6	7-8	9-10	11-12	13-14	15-16	17-18	19-20			
Sample ID	TP1	TP1	TP2	TP2	TP3	TP6	TP6	TP7	TP8	TP9			
Depth	1.10	3.50	0.90	1.2	2.50	0.95	3.30	2.00	2.05	2.80	Please se	e attached n	otes for all
COC No / misc											abbrevi	ations and a	cronyms
Containers	٧J	٧J	٧J	٧J	٧J	٧J	٧J	٧J	٧J	٧J			
Sample Date	23/02/2015	23/02/2015	23/02/2015	23/02/2015	23/02/2015	23/02/2015	23/02/2015	23/02/2015	23/02/2015	23/02/2015			
Sample Type	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil			
Batch Number	1	1	1	1	1	1	1	1	1	1			Madhad
Date of Receipt	24/02/2015		24/02/2015	24/02/2015	24/02/2015	24/02/2015	24/02/2015		24/02/2015		LOD/LOR	Units	Method No.
PAH MS	24/02/2010	24/02/2010	24/02/2010	24/02/2010	24/02/2010	24/02/2010	24/02/2010	24/02/2010	24/02/2010	24/02/2010			
Naphthalene #	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	0.09	<0.04	<0.04	<0.04	mg/kg	TM4/PM8
Acenaphthylene	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	mg/kg	TM4/PM8
Acenaphthene #	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	0.90	<0.05	<0.05	<0.05	mg/kg	TM4/PM8
Fluorene #	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	0.52	<0.04	<0.04	<0.04	mg/kg	TM4/PM8
Phenanthrene #	0.19	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	6.34	<0.03	<0.03	<0.03	mg/kg	TM4/PM8
Anthracene #	0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	0.93	<0.04	<0.04	<0.04	mg/kg	TM4/PM8
Fluoranthene # Pyrene #	0.22	<0.03 <0.03	<0.03	<0.03	0.05	0.05	<0.03	6.84 5.97	<0.03	<0.03	<0.03	mg/kg mg/kg	TM4/PM8 TM4/PM8
Benzo(a)anthracene #	0.18	<0.03	<0.03	<0.03	0.04	0.04	<0.03	2.48	<0.03	<0.03	<0.03	mg/kg	TM4/PM8
Chrysene #	0.12	<0.02	<0.02	<0.02	0.03	0.03	<0.02	2.90	<0.02	<0.02	<0.02	mg/kg	TM4/PM8
Benzo(bk)fluoranthene #	0.11	<0.07	<0.07	<0.07	<0.07	<0.07	<0.07	3.52	<0.07	<0.07	<0.07	mg/kg	TM4/PM8
Benzo(a)pyrene#	0.06	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	1.93	<0.04	<0.04	<0.04	mg/kg	TM4/PM8
Indeno(123cd)pyrene #	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	1.14	<0.04	<0.04	<0.04	mg/kg	TM4/PM8
Dibenzo(ah)anthracene #	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	0.15	<0.04	<0.04	<0.04	mg/kg	TM4/PM8
Benzo(ghi)perylene #	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	0.96	<0.04	<0.04	<0.04	mg/kg	TM4/PM8
Coronene	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	0.10	<0.04	<0.04	<0.04	mg/kg	TM4/PM8
PAH 6 Total #	0.39	<0.22	<0.22	<0.22	<0.22	<0.22	<0.22	14.39	<0.22	<0.22	<0.22	mg/kg	TM4/PM8
PAH 17 Total Benzo(b)fluoranthene	1.03 0.08	<0.64 <0.05	<0.64 <0.05	<0.64 <0.05	<0.64 <0.05	<0.64 <0.05	<0.64 <0.05	34.77 2.53	<0.64 <0.05	<0.64 <0.05	<0.64 <0.05	mg/kg mg/kg	TM4/PM8 TM4/PM8
Benzo(k)fluoranthene	0.03	<0.02	<0.03	<0.02	<0.03	<0.02	<0.03	0.99	<0.03	<0.02	<0.02	mg/kg	TM4/PM8
PAH Surrogate % Recovery	95	89	93	106	104	103	104	97	88	102	<0	%	TM4/PM8
Mineral Oil >C8-C10	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	mg/kg	TM5/PM16
Mineral Oil >C10-C12	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	mg/kg	TM5/PM16
Mineral Oil >C12-C16	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	mg/kg	TM5/PM16
Mineral Oil >C16-C21	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	mg/kg	TM5/PM16
Mineral Oil >C21-C40 Mineral Oil >C8-C40	<10 <45	<10 <45	<10 <45	<10 <45	<10 <45	<10 <45	<10 <45	<10 <45	<10 <45	<10 <45	<10 <45	mg/kg mg/kg	TM5/PM16 TM5/PM16
IVIII TETAT OII 200-040	C43	C45	V45	V45	V40	V45	V45	V45	V45	V45	V45	ilig/kg	TIVIS/FIVITO
MTBE #	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	ug/kg	TM31/PM12
Benzene #	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	ug/kg	TM31/PM12
Toluene #	27	<5	<5	<5	<5	<5	<5	36	<5	<5	<5	ug/kg	TM31/PM12
Ethylbenzene #	<5	<5	<5	<5	<5	<5	<5	28	<5	<5	<5	ug/kg	TM31/PM12
m/p-Xylene #	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	ug/kg	TM31/PM12
o-Xylene [#]	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	ug/kg	TM31/PM12
PCB 28 #	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	ug/kg	TM17/PM8
PCB 52 #	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	ug/kg	TM17/PM8
PCB 101 #	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	ug/kg	TM17/PM8
PCB 118 #	<5	<5 <5 <5	<5 <5	<5 <5	ug/kg	TM17/PM8							
PCB 138 # PCB 153 #	<5 <5	<5 <5	<5 <5	<5 <5	<5 <5	<5 <5	<5 <5	<5 <5	<5 <5	<5 <5	<5 <5	ug/kg ug/kg	TM17/PM8 TM17/PM8
PCB 180#	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	ug/kg	TM17/PM8

Client Name: IGSL

Reference:

Location: River Dargle

Contact: Darren Keogh
JE Joh No.: 15/4014

Report : Solid

Solids: V=60g VOC jar, J=250g glass jar, T=plastic tub

JE Job No.:	15/4014										_		
J E Sample No.	1-2	3-4	5-6	7-8	9-10	11-12	13-14	15-16	17-18	19-20			
Sample ID	TP1	TP1	TP2	TP2	TP3	TP6	TP6	TP7	TP8	TP9			
Depth		3.50	0.90	1.2	2.50	0.95	3.30	2.00	2.05	2.80		e attached n	
COC No / misc											abblevi	alloris aria a	Cionyma
Containers		٧J	۸٦	۸٦	۸٦	٧J	۸٦	۸٦	٧J	۸٦			
Sample Date		23/02/2015							23/02/2015				
Sample Type		Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil			
Batch Number		1	1	1	1	1	1	1	1	1	LOD/LOR	Units	Method No.
Date of Receipt													
Total 7 PCBs#	<35	<35	<35	<35	<35	<35	<35	<35	<35	<35	<35	ug/kg	TM17/PM8
Natural Moisture Content	11.8	14.6	13.7	12.0	7.4	5.7	14.1	27.9	7.1	18.6	<0.1	%	PM4/PM0
% Dry Matter 105°C	87.9	90.3	88.4	88.3	93.2	92.6	79.3	71.2	91.4	84.3	<0.1	%	NONE/PM4
Total Organic Carbon [#]	0.82	0.46	0.47	0.46	0.28	1.34	0.60	3.19	0.20	0.20	<0.02	%	TM21/PM24
Mass of raw test portion	0.1024	0.0999	0.1015	0.102	0.0964	0.097	0.1137	0.1265	0.0981	0.1063		kg	NONE/PM17
Mass of dried test portion	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09		kg	NONE/PM17
		ı		l	l		l	l		1		l	1

Client Name:

IGSL

Report: CEN 10:1 1 Batch

Reference: Location:

River Dargle Darren Keogh Solids: V=60g VOC jar, J=250g glass jar, T=plastic tub

Contact: Darren K
JE Job No.: 15/4014

JE JOD NO.:	15/4014												
J E Sample No.	1-2	3-4	5-6	7-8	9-10	11-12	13-14	15-16	17-18	19-20			
Sample ID	TP1	TP1	TP2	TP2	TP3	TP6	TP6	TP7	TP8	TP9			
Depth	1.10	3.50	0.90	1.2	2.50	0.95	3.30	2.00	2.05	2.80	Please se	e attached n	otes for all
COC No / misc												ations and a	
Containers	٧J	٧J	٧J	٧J	٧J	٧J	٨٦	٧J	٨٦	٨٦			
Sample Date													
-													
Sample Type	Soil	Soil	Soil	Soil		1							
Batch Number	1	1	1	1	1	1	1	1	1	1	LOD/LOR	Units	Method
Date of Receipt	24/02/2015	24/02/2015	24/02/2015	24/02/2015	24/02/2015	24/02/2015	24/02/2015	24/02/2015	24/02/2015	24/02/2015			No.
Dissolved Antimony#	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	mg/l	TM30/PM17
Dissolved Antimony (A10) #	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	mg/kg	TM30/PM17
Dissolved Arsenic#	<0.0025	<0.0025	<0.0025	<0.0025	0.0026	<0.0025	<0.0025	<0.0025	<0.0025	<0.0025	<0.0025	mg/l	TM30/PM17
Dissolved Arsenic (A10)#	<0.025	<0.025	<0.025	<0.025	0.026	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	mg/kg	TM30/PM17
Dissolved Barium #	0.011	0.004	0.007	0.007	0.005	0.004	0.006	0.021	<0.003	<0.003	<0.003	mg/l	TM30/PM17
Dissolved Barium (A10) #	0.11	0.04	0.07	0.07	0.05	0.04	0.06	0.21	<0.03	<0.03	<0.03	mg/kg	TM30/PM17
Dissolved Cadmium #	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	mg/l	TM30/PM17
Dissolved Cadmium (A10) #	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	mg/kg	TM30/PM17
Dissolved Chromium #	<0.0015	<0.0015	<0.0015	<0.0015	<0.0015	<0.0015	<0.0015	<0.0015	<0.0015	<0.0015	<0.0015	mg/l	TM30/PM17
Dissolved Chromium (A10) #	<0.015	<0.015	<0.015	<0.015	<0.015	<0.015	<0.015	<0.015	<0.015	<0.015	<0.015	mg/kg	TM30/PM17
Dissolved Copper*	<0.007	<0.007	<0.007	<0.007	<0.007	<0.007	<0.007	<0.007	<0.007	<0.007	<0.007	mg/l	TM30/PM17
Dissolved Copper (A10) #	<0.07	<0.07	<0.07	<0.07	<0.07	<0.07	<0.07	<0.07	<0.07	<0.07	<0.07	mg/kg	TM30/PM17
Dissolved Lead #	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	mg/l	TM30/PM17
Dissolved Lead (A10) #	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	mg/kg	TM30/PM17
Dissolved Molybdenum *	0.003	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	0.006	<0.002	<0.002	<0.002	mg/l	TM30/PM17
Dissolved Molybdenum (A10) #	0.03	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	0.06	<0.02	<0.02	<0.02	mg/kg	TM30/PM17
Dissolved Nickel #	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	0.003	<0.002	<0.002	<0.002	mg/l	TM30/PM17 TM30/PM17
Dissolved Nickel (A10) * Dissolved Selenium *	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02 <0.003	0.03 <0.003	<0.02 <0.003	<0.02 <0.003	<0.02	mg/kg mg/l	TM30/PM17
Dissolved Selenium (A10) #	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	mg/kg	TM30/PM17
Dissolved Zinc#	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	mg/l	TM30/PM17
Dissolved Zinc (A10) #	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	mg/kg	TM30/PM17
Mercury Dissolved by CVAF#	0.00021	0.00011	0.00012	0.00013	0.00006	0.00025	0.00057	0.00028	0.00007	0.00018	<0.00001	mg/l	TM61/PM38
Mercury Dissolved by CVAF#	0.0021	0.0011	0.0012	0.0013	0.0006	0.0025	0.0057	0.0028	0.0007	0.0018	<0.0001	mg/kg	TM61/PM38
Phenol	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	mg/l	TM26/PM0
Phenol	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	mg/kg	TM26/PM0
Fluoride	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	mg/l	TM27/PM0
Fluoride	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	mg/kg	TM27/PM0
Chloride	0.5	0.5	0.3	0.3	<0.3	0.7	<0.3	2.1	<0.3	<0.3	<0.3	mg/l	TM27/PM0
Chloride	5	5	<3	<3	<3	7	<3	21	<3	<3	<3	mg/kg	TM27/PM0
Sulphate	3.29	1.38	2.66	2.42	3.06	7.79	0.99	3.77	0.56	1.03	<0.05	mg/l	TM27/PM0
Sulphate	32.9	13.8	26.6	24.2	30.6	77.9	9.9	37.7	5.6	10.3	<0.5	mg/kg	TM27/PM0
Mass of raw test portion	0.1024	0.0999	0.1015	0.102	0.0964	0.097	0.1137	0.1265	0.0981	0.1063		kg	NONE/PM17
Leachant Volume	0.888	0.89	0.888	0.888	0.893	0.893	0.877	0.864	0.892	0.883		1	NONE/PM17
Eluate Volume	0.85	0.85	0.8	0.85	0.85	0.88	0.76	0.78	0.87	0.85		1	NONE/PM17
Dissolved Organic Carbon	6	6	4	5	4	4	5	10	3	2	<2	mg/l	TM60/PM0
Dissolved Organic Carbon	60	60	40	50	40	40	50	100	30	<20	<20	mg/kg	TM60/PM0
Total Dissolved Solids #	153	92	94	47	84	181	102	148	163	83	<10	mg/l	TM20/PM0
Total Dissolved Solids #	1531	920	940	470	840	1810	1021	1481	1631	830	<100	mg/kg	TM20/PM0

Mass of sample taken (kg)	0.1024	Dry Matter Content Ratio (%) =		87.9	
Mass of dry sample (kg) =	0.09	Leachant Volume (I)		0.888	
Particle Size <4mm =	>95%	Eluate Volume (I)		0.85	
JEFL Job No	1	15/4014	Land	fill Waste Ac	ceptance
Sample No		2		Criteria Lin	nits
Client Sample No		TP1			
Depth/Other		1.10			
Sample Date		23/02/2015	Inert	Stable Non-reactive	Hazardous
Batch No		1			
Solid Waste Analysis					
Total Organic Carbon (%)	0.82		3	5	6
Sum of BTEX (mg/kg)	0.027		6	-	-
Sum of 7 PCBs (mg/kg)	< 0.035		1	-	-
Mineral Oil (mg/kg)	<45		500	-	-
PAH Sum of 6 (mg/kg)	0.39		-	-	-
PAH Sum of 17 (mg/kg)	1.03		100	-	-
Eluate Analysis	10:1 concn leached		le	values for co	using
	A10		BS EN	12457-2 at	L/S 10 l/kg
	A10 mg/kg		BS EN	mg/kg	L/S 10 l/kg
Arsenic	-		0.5		L/ S 10 l/kg
Arsenic Barium	mg/kg			mg/kg	
	mg/kg <0.025		0.5	mg/kg	25
Barium	mg/kg <0.025 0.11		0.5	mg/kg 2 100	25 300
Barium Cadmium	mg/kg <0.025 0.11 <0.005		0.5 20 0.04	mg/kg 2 100	25 300 5
Barium Cadmium Chromium	mg/kg <0.025 0.11 <0.005 <0.015		0.5 20 0.04 0.5	mg/kg 2 100 1 10	25 300 5 70
Barium Cadmium Chromium Copper	mg/kg <0.025 0.11 <0.005 <0.015 <0.07		0.5 20 0.04 0.5 2	mg/kg 2 100 1 100 50	25 300 5 70 100
Barium Cadmium Chromium Copper Mercury	mg/kg <0.025 0.11 <0.005 <0.015 <0.07 0.0021		0.5 20 0.04 0.5 2 0.01	mg/kg 2 100 1 10 50 0.2	25 300 5 70 100 2
Barium Cadmium Chromium Copper Mercury Molybdenum	mg/kg <0.025 0.11 <0.005 <0.015 <0.07 0.0021 0.03		0.5 20 0.04 0.5 2 0.01 0.5	mg/kg 2 100 1 10 50 0.2 10	25 300 5 70 100 2 30
Barium Cadmium Chromium Copper Mercury Molybdenum Nickel	mg/kg <0.025 0.11 <0.005 <0.015 <0.07 0.0021 0.03 <0.02		0.5 20 0.04 0.5 2 0.01 0.5 0.4	mg/kg 2 100 1 10 50 0.2 10 10	25 300 5 70 100 2 30 40 50 5
Barium Cadmium Chromium Copper Mercury Molybdenum Nickel Lead	mg/kg <0.025 0.11 <0.005 <0.015 <0.07 0.0021 0.03 <0.02 <0.05		0.5 20 0.04 0.5 2 0.01 0.5 0.4	mg/kg 2 100 1 10 50 0.2 10 10 10	25 300 5 70 100 2 30 40 50
Barium Cadmium Chromium Copper Mercury Molybdenum Nickel Lead Antimony	mg/kg <0.025 0.11 <0.005 <0.015 <0.07 0.0021 0.03 <0.02 <0.05 <0.02		0.5 20 0.04 0.5 2 0.01 0.5 0.4 0.5	mg/kg 2 100 1 10 50 0.2 10 10 10 10 10 7 7 7 8 10 10 10 10 10 10 10 10 10	25 300 5 70 100 2 30 40 50 5
Barium Cadmium Chromium Copper Mercury Molybdenum Nickel Lead Antimony Selenium	mg/kg <0.025 0.11 <0.005 <0.015 <0.07 0.0021 0.03 <0.02 <0.05 <0.02 <0.03		0.5 20 0.04 0.5 2 0.01 0.5 0.4 0.5 0.06	mg/kg 2 100 1 10 50 0.2 10 10 10 0.7 0.5	25 300 5 70 100 2 30 40 50 5
Barium Cadmium Chromium Copper Mercury Molybdenum Nickel Lead Antimony Selenium Zinc	mg/kg <0.025 0.11 <0.005 <0.015 <0.07 0.0021 0.03 <0.02 <0.05 <0.02 <0.03 <0.03		0.5 20 0.04 0.5 2 0.01 0.5 0.4 0.5 0.06 0.1	mg/kg 2 100 1 10 50 0.2 10 10 0.7 0.5 50	25 300 5 70 100 2 30 40 50 5 7 200
Barium Cadmium Chromium Copper Mercury Molybdenum Nickel Lead Antimony Selenium Zinc Chloride	mg/kg <0.025 0.11 <0.005 <0.015 <0.07 0.0021 0.03 <0.02 <0.05 <0.02 <0.03 <0.03 5		0.5 20 0.04 0.5 2 0.01 0.5 0.4 0.5 0.06 0.1 4	mg/kg 2 100 1 10 50 0.2 10 10 10 0.7 0.5 50 15000	25 300 5 70 100 2 30 40 50 5 7 200 25000
Barium Cadmium Chromium Copper Mercury Molybdenum Nickel Lead Antimony Selenium Zinc Chloride Fluoride	mg/kg <0.025 0.11 <0.005 <0.015 <0.07 0.0021 0.03 <0.02 <0.05 <0.02 <0.03 <0.03 <5 <0.3		0.5 20 0.04 0.5 2 0.01 0.5 0.4 0.5 0.06 0.1 4 800	mg/kg 2 100 1 10 50 0.2 10 10 10 50 15000 150	25 300 5 70 100 2 30 40 50 5 7 200 25000 500
Barium Cadmium Chromium Copper Mercury Molybdenum Nickel Lead Antimony Selenium Zinc Chloride Fluoride Sulphate as SO4	mg/kg <0.025 0.11 <0.005 <0.015 <0.07 0.0021 0.03 <0.02 <0.05 <0.02 <0.03 <0.03 5 <3 32.9		0.5 20 0.04 0.5 2 0.01 0.5 0.4 0.5 0.06 0.1 4 800 10	mg/kg 2 100 1 10 50 0.2 10 10 0.7 0.5 50 15000 150 20000	25 300 5 70 100 2 30 40 50 5 7 200 25000 500 5000

Mass of sample taken (kg)	0.0999	Dry Matter Content Ratio (%) =		90.3	
Mass of dry sample (kg) =	0.09	Leachant Volume (I)		0.89	
Particle Size <4mm =	>95%	Eluate Volume (I)		0.85	
JEFL Job No		15/4014	Land	fill Waste Ac	
Sample No		4		Criteria Lin	nits
Client Sample No		TP1			
Depth/Other		3.50			
Sample Date		23/02/2015	Inert	Stable Non-reactive	Hazardous
Batch No		1			
Solid Waste Analysis					
Total Organic Carbon (%)	0.46		3	5	6
Sum of BTEX (mg/kg)	<0.025		6	-	-
Sum of 7 PCBs (mg/kg)	<0.035		1	-	-
Mineral Oil (mg/kg)	<45		500	-	-
PAH Sum of 6 (mg/kg)	<0.22		_	-	-
PAH Sum of 17 (mg/kg)	<0.64		100	-	-
	10:1 concn leached			values for co	•
Eluate Analysis	A10		BS EN	l 12457-2 at	L/S 10 I/kg
	mg/kg			mg/kg	
Arsenic	<0.025		0.5	2	25
Barium	0.04		20	100	300
Cadmium	<0.005		0.04	1	5
Chromium	<0.015		0.5	10	70
Copper	< 0.07		2	50	100
• • • • • • • • • • • • • • • • • • • •					2
	0.0011		0.01	0.2	_
Mercury	0.0011		0.01 0.5	0.2 10	30
Mercury Molybdenum	_			-	
Mercury Molybdenum Nickel	<0.02		0.5	10	30
Mercury Molybdenum Nickel Lead	<0.02 <0.02		0.5 0.4	10 10	30 40
Mercury Molybdenum Nickel Lead Antimony	<0.02 <0.02 <0.05		0.5 0.4 0.5	10 10 10	30 40 50
Mercury Molybdenum Nickel Lead Antimony Selenium	<0.02 <0.02 <0.05 <0.02		0.5 0.4 0.5 0.06	10 10 10 0.7	30 40 50 5
Mercury Molybdenum Nickel Lead Antimony Selenium Zinc	<0.02 <0.02 <0.05 <0.02 <0.03		0.5 0.4 0.5 0.06 0.1	10 10 10 0.7 0.5	30 40 50 5 7
Mercury Molybdenum Nickel Lead Antimony Selenium Zinc Chloride	<0.02 <0.02 <0.05 <0.02 <0.03 <0.03		0.5 0.4 0.5 0.06 0.1 4	10 10 10 0.7 0.5 50	30 40 50 5 7 200
Mercury Molybdenum Nickel Lead Antimony Selenium Zinc Chloride Fluoride	<0.02 <0.02 <0.05 <0.02 <0.03 <0.03		0.5 0.4 0.5 0.06 0.1 4 800	10 10 10 0.7 0.5 50 15000	30 40 50 5 7 200 25000
Mercury Molybdenum Nickel Lead Antimony Selenium Zinc Chloride Fluoride Sulphate as SO4 Total Dissolved Solids	<0.02 <0.02 <0.05 <0.02 <0.03 <0.03 5 <3		0.5 0.4 0.5 0.06 0.1 4 800 10	10 10 10 0.7 0.5 50 15000	30 40 50 5 7 200 25000 500
Mercury Molybdenum Nickel Lead Antimony Selenium Zinc Chloride Fluoride Sulphate as SO4	<0.02 <0.02 <0.05 <0.02 <0.03 <0.03 5 <3 13.8		0.5 0.4 0.5 0.06 0.1 4 800 10 1000	10 10 10 0.7 0.5 50 15000 150 20000	30 40 50 5 7 200 25000 500 5000

Mass of sample taken (kg)	0.1015	Dry Matter Content Ratio (%) =		88.4	
Mass of dry sample (kg) =	0.09	Leachant Volume (I)		0.888	
Particle Size <4mm =	>95%	Eluate Volume (I)		0.8	
JEFL Job No	1	15/4014	Land	fill Waste Ac	ceptance
Sample No		6		Criteria Lin	
Client Sample No		TP2			
Depth/Other		0.90			
Sample Date		23/02/2015	Inert	Stable Non-reactive	Hazardous
Batch No		1			
Solid Waste Analysis					
Total Organic Carbon (%)	0.47		3	5	6
Sum of BTEX (mg/kg)	<0.025		6	-	-
Sum of 7 PCBs (mg/kg)	< 0.035		1	-	-
Mineral Oil (mg/kg)	<45		500	-	-
PAH Sum of 6 (mg/kg)	<0.22		-	-	-
PAH Sum of 17 (mg/kg)	<0.64		100	-	-
Eluate Analysis	10:1 concn leached		le	values for co aching test l 12457-2 at l	using
	mg/kg			mg/kg	1
				2	25
Arsenic	<0.025		0.5		
Arsenic Barium	0.07		20	100	300
	0.07 <0.005		20 0.04	100 1	5
Barium Cadmium Chromium	0.07 <0.005 <0.015		20 0.04 0.5	100 1 10	5 70
Barium Cadmium Chromium Copper	0.07 <0.005 <0.015 <0.07		20 0.04 0.5 2	100 1 10 50	5 70 100
Barium Cadmium Chromium Copper Mercury	0.07 <0.005 <0.015 <0.07 0.0012		20 0.04 0.5 2 0.01	100 1 10 50 0.2	5 70 100 2
Barium Cadmium Chromium Copper Mercury Molybdenum	0.07 <0.005 <0.015 <0.07 0.0012 <0.02		20 0.04 0.5 2 0.01 0.5	100 1 10 50 0.2 10	5 70 100 2 30
Barium Cadmium Chromium Copper Mercury Molybdenum Nickel	0.07 <0.005 <0.015 <0.07 0.0012 <0.02 <0.02		20 0.04 0.5 2 0.01 0.5 0.4	100 1 10 50 0.2 10	5 70 100 2 30 40
Barium Cadmium Chromium Copper Mercury Molybdenum Nickel Lead	0.07 <0.005 <0.015 <0.07 0.0012 <0.02 <0.02 <0.05		20 0.04 0.5 2 0.01 0.5 0.4 0.5	100 1 10 50 0.2 10 10	5 70 100 2 30 40 50
Barium Cadmium Chromium Copper Mercury Molybdenum Nickel Lead Antimony	0.07 <0.005 <0.015 <0.07 0.0012 <0.02 <0.02 <0.05 <0.02		20 0.04 0.5 2 0.01 0.5 0.4 0.5	100 1 10 50 0.2 10 10 10 0.7	5 70 100 2 30 40 50 5
Barium Cadmium Chromium Copper Mercury Molybdenum Nickel Lead Antimony Selenium	0.07 <0.005 <0.015 <0.07 0.0012 <0.02 <0.02 <0.05 <0.03		20 0.04 0.5 2 0.01 0.5 0.4 0.5 0.06	100 1 10 50 0.2 10 10 10 0.7 0.5	5 70 100 2 30 40 50 5
Barium Cadmium Chromium Copper Mercury Molybdenum Nickel Lead Antimony Selenium Zinc	0.07 <0.005 <0.015 <0.07 0.0012 <0.02 <0.02 <0.05 <0.03 <0.03		20 0.04 0.5 2 0.01 0.5 0.4 0.5 0.06 0.1	100 1 10 50 0.2 10 10 10 0.7 0.5 50	5 70 100 2 30 40 50 5 7 200
Barium Cadmium Chromium Copper Mercury Molybdenum Nickel Lead Antimony Selenium Zinc Chloride	0.07 <0.005 <0.015 <0.07 0.0012 <0.02 <0.02 <0.05 <0.02 <0.03 <3		20 0.04 0.5 2 0.01 0.5 0.4 0.5 0.06 0.1 4	100 1 10 50 0.2 10 10 10 0.7 0.5 50 15000	5 70 100 2 30 40 50 5 7 200 25000
Barium Cadmium Chromium Copper Mercury Molybdenum Nickel Lead Antimony Selenium Zinc Chloride Fluoride	0.07 <0.005 <0.015 <0.07 0.0012 <0.02 <0.02 <0.05 <0.02 <0.03 <0.03 <3 <3		20 0.04 0.5 2 0.01 0.5 0.4 0.5 0.06 0.1 4 800	100 1 10 50 0.2 10 10 0.7 0.5 50 15000	5 70 100 2 30 40 50 5 7 200 25000 500
Barium Cadmium Chromium Copper Mercury Molybdenum Nickel Lead Antimony Selenium Zinc Chloride Fluoride Sulphate as SO4	0.07 <0.005 <0.015 <0.07 0.0012 <0.02 <0.02 <0.05 <0.03 <0.03 <3 <3 26.6		20 0.04 0.5 2 0.01 0.5 0.4 0.5 0.06 0.1 4 800 10 1000	100 1 10 50 0.2 10 10 10 0.7 0.5 50 15000 20000	5 70 100 2 30 40 50 5 7 200 25000 500 5000
Barium Cadmium Chromium Copper Mercury Molybdenum Nickel Lead Antimony Selenium Zinc Chloride Fluoride Sulphate as SO4 Total Dissolved Solids	0.07 <0.005 <0.015 <0.07 0.0012 <0.02 <0.02 <0.05 <0.02 <0.03 <0.03 <3 <3 26.6 940		20 0.04 0.5 2 0.01 0.5 0.4 0.5 0.06 0.1 4 800 10 1000 4000	100 1 10 50 0.2 10 10 0.7 0.5 50 15000	5 70 100 2 30 40 50 5 7 200 25000 500
Barium Cadmium Chromium Copper Mercury Molybdenum Nickel Lead Antimony Selenium Zinc Chloride Fluoride Sulphate as SO4	0.07 <0.005 <0.015 <0.07 0.0012 <0.02 <0.02 <0.05 <0.03 <0.03 <3 <3 26.6		20 0.04 0.5 2 0.01 0.5 0.4 0.5 0.06 0.1 4 800 10 1000	100 1 10 50 0.2 10 10 10 0.7 0.5 50 15000 20000	5 70 100 2 30 40 50 5 7 200 25000 500 50000

Mass of sample taken (kg)	0.102	Dry Matter Content Ratio (%) =		88.3	
Mass of dry sample (kg) =	0.09	Leachant Volume (I)		0.888	
Particle Size <4mm =	>95%	Eluate Volume (I)		0.85	
JEFL Job No		15/4014	Landfill Waste Acceptance		
Sample No		8		Criteria Lim	nits
Client Sample No		TP2			
Depth/Other		1.2			
Sample Date		23/02/2015	Inert	Stable Non-reactive	Hazardous
Batch No		1			
Solid Waste Analysis					
Total Organic Carbon (%)	0.46		3	5	6
Sum of BTEX (mg/kg)	<0.025		6	-	-
Sum of 7 PCBs (mg/kg)	<0.035		1	-	-
Mineral Oil (mg/kg)	<45		500	-	-
PAH Sum of 6 (mg/kg)	<0.22		-	-	-
PAH Sum of 17 (mg/kg)	<0.64		100	-	-
_					
	10:1 concn			values for co	•
Eluate Analysis	leached				
Eluate Analysis	A10			12457-2 at l	
Eluate Analysis Arsenic	A10			12457-2 at l	
	A10 mg/kg		BS EN	12457-2 at l	L/S 10 l/kg
Arsenic	A10 mg/kg <0.025		0.5	mg/kg	L/S 10 l/kg
Arsenic Barium	A10 mg/kg <0.025 0.07		0.5 20	mg/kg 2 100	25 300
Arsenic Barium Cadmium Chromium Copper	A10 mg/kg <0.025 0.07 <0.005 <0.015 <0.07		0.5 20 0.04 0.5 2	mg/kg 2 100 1	25 300 5
Arsenic Barium Cadmium Chromium Copper Mercury	A10 mg/kg <0.025 0.07 <0.005 <0.015 <0.07 0.0013		0.5 20 0.04 0.5	mg/kg 2 100 1 10	25 300 5 70
Arsenic Barium Cadmium Chromium Copper Mercury Molybdenum	A10 mg/kg <0.025 0.07 <0.005 <0.015 <0.07 0.0013 <0.02		0.5 20 0.04 0.5 2	12457-2 at l mg/kg 2 100 1 10 50	25 300 5 70 100 2 30
Arsenic Barium Cadmium Chromium Copper Mercury Molybdenum Nickel	A10 mg/kg <0.025 0.07 <0.005 <0.015 <0.007 0.0013 <0.02 <0.02		0.5 20 0.04 0.5 2 0.01 0.5 0.4	mg/kg 2 100 1 10 50 0.2 10	25 300 5 70 100 2 30 40
Arsenic Barium Cadmium Chromium Copper Mercury Molybdenum Nickel Lead	A10 mg/kg <0.025 0.07 <0.005 <0.015 <0.007 0.0013 <0.02 <0.02 <0.05		0.5 20 0.04 0.5 2 0.01 0.5 0.4 0.5	mg/kg 2 100 1 10 50 0.2 10 10	25 300 5 70 100 2 30 40
Arsenic Barium Cadmium Chromium Copper Mercury Molybdenum Nickel Lead Antimony	A10 mg/kg <0.025 0.07 <0.005 <0.015 <0.07 0.0013 <0.02 <0.02 <0.02 <0.05 <0.05		0.5 20 0.04 0.5 2 0.01 0.5 0.4 0.5	mg/kg 2 100 1 10 50 0.2 10 10 10 0.7	25 300 5 70 100 2 30 40 50
Arsenic Barium Cadmium Chromium Copper Mercury Molybdenum Nickel Lead Antimony Selenium	A10 mg/kg <0.025 0.07 <0.005 <0.015 <0.07 0.0013 <0.02 <0.02 <0.05 <0.02 <0.05		0.5 20 0.04 0.5 2 0.01 0.5 0.4 0.5 0.06	mg/kg 2 100 1 10 50 0.2 10 10 10 0.7 0.5	25 300 5 70 100 2 30 40 50 5
Arsenic Barium Cadmium Chromium Copper Mercury Molybdenum Nickel Lead Antimony Selenium Zinc	A10 mg/kg <0.025 0.07 <0.005 <0.015 <0.007 0.0013 <0.02 <0.02 <0.05 <0.02 <0.03 <0.03		0.5 20 0.04 0.5 2 0.01 0.5 0.4 0.5 0.06 0.1	mg/kg 2 100 1 10 50 0.2 10 10 10 0.7 0.5 50	25 300 5 70 100 2 30 40 50 5 7 200
Arsenic Barium Cadmium Chromium Copper Mercury Molybdenum Nickel Lead Antimony Selenium Zinc Chloride	A10 mg/kg <0.025 0.07 <0.005 <0.015 <0.07 0.0013 <0.02 <0.02 <0.02 <0.03 <0.03 <3		0.5 20 0.04 0.5 2 0.01 0.5 0.4 0.5 0.06 0.1 4	mg/kg 2 100 1 10 50 0.2 10 10 0.7 0.5 50 15000	25 300 5 70 100 2 30 40 50 5 7 200 25000
Arsenic Barium Cadmium Chromium Copper Mercury Molybdenum Nickel Lead Antimony Selenium Zinc Chloride Fluoride	A10 mg/kg <0.025 0.07 <0.005 <0.015 <0.07 0.0013 <0.02 <0.02 <0.02 <0.03 <0.03 <3 <3		0.5 20 0.04 0.5 2 0.01 0.5 0.4 0.5 0.06 0.1 4 800	mg/kg 2 100 1 10 50 0.2 10 10 10 0.7 0.5 50 15000	25 300 5 70 100 2 30 40 50 5 7 200 25000 500
Arsenic Barium Cadmium Chromium Copper Mercury Molybdenum Nickel Lead Antimony Selenium Zinc Chloride Fluoride Sulphate as SO4	A10 mg/kg <0.025 0.07 <0.005 <0.015 <0.007 0.0013 <0.02 <0.02 <0.05 <0.03 <0.03 <3 <3 24.2		0.5 20 0.04 0.5 2 0.01 0.5 0.4 0.5 0.06 0.1 4 800 10	mg/kg 2 100 1 10 50 0.2 10 10 10 0.7 0.5 50 15000 150 20000	25 300 5 70 100 2 30 40 50 5 7 200 25000 5000
Arsenic Barium Cadmium Chromium Copper Mercury Molybdenum Nickel Lead Antimony Selenium Zinc Chloride Fluoride Sulphate as SO4 Total Dissolved Solids	A10 mg/kg <0.025 0.07 <0.005 <0.015 <0.07 0.0013 <0.02 <0.02 <0.05 <0.02 <0.03 <0.03 <3 <3 <44.2 470		0.5 20 0.04 0.5 2 0.01 0.5 0.4 0.5 0.06 0.1 4 800 10 1000 4000	mg/kg 2 100 1 10 50 0.2 10 10 10 0.7 0.5 50 15000	25 300 5 70 100 2 30 40 50 5 7 200 25000 500
Arsenic Barium Cadmium Chromium Copper Mercury Molybdenum Nickel Lead Antimony Selenium Zinc Chloride Fluoride Sulphate as SO4	A10 mg/kg <0.025 0.07 <0.005 <0.015 <0.007 0.0013 <0.02 <0.02 <0.05 <0.03 <0.03 <3 <3 24.2		0.5 20 0.04 0.5 2 0.01 0.5 0.4 0.5 0.06 0.1 4 800 10	mg/kg 2 100 1 10 50 0.2 10 10 10 0.7 0.5 50 15000 150 20000	25 300 5 70 100 2 30 40 50 5 7 200 25000 50000

Mass of sample taken (kg)	0.0964	Dry Matter Content Ratio (%) =		93.2	
Mass of dry sample (kg) =	0.09	Leachant Volume (I)		0.893	
Particle Size <4mm =	>95%	Eluate Volume (I)		0.85	
JEFL Job No		15/4014	Land	fill Waste Ac	ceptance
Sample No		10		Criteria Lin	
Client Sample No		TP3			
Depth/Other		2.50			
Sample Date		23/02/2015	Inert	Stable Non-reactive	Hazardous
Batch No		1		Tron rodonic	
Solid Waste Analysis					
Total Organic Carbon (%)	0.28		3	5	6
Sum of BTEX (mg/kg)	<0.025		6	-	-
Sum of 7 PCBs (mg/kg)	< 0.035		1	-	-
Mineral Oil (mg/kg)	<45		500	-	-
PAH Sum of 6 (mg/kg)	<0.22		-	-	-
PAH Sum of 17 (mg/kg)	<0.64		100	-	-
Eluate Analysis	10:1 concn leached		le	values for co eaching test I 12457-2 at	using
	mg/kg			mg/kg	
				2	25
Arsenic	0.026		0.5		
Arsenic Barium	0.05		20	100	300
	0.05 <0.005		20 0.04	100 1	300 5
Barium Cadmium Chromium	0.05 <0.005 <0.015		20 0.04 0.5	100 1 10	300 5 70
Barium Cadmium Chromium Copper	0.05 <0.005 <0.015 <0.07		20 0.04 0.5 2	100 1 10 50	300 5 70 100
Barium Cadmium Chromium Copper Mercury	0.05 <0.005 <0.015 <0.07 0.0006		20 0.04 0.5 2 0.01	100 1 10 50 0.2	300 5 70 100 2
Barium Cadmium Chromium Copper Mercury Molybdenum	0.05 <0.005 <0.015 <0.07 0.0006 <0.02		20 0.04 0.5 2 0.01 0.5	100 1 10 50 0.2 10	300 5 70 100 2 30
Barium Cadmium Chromium Copper Mercury Molybdenum Nickel	0.05 <0.005 <0.015 <0.07 0.0006 <0.02 <0.02		20 0.04 0.5 2 0.01 0.5 0.4	100 1 10 50 0.2 10	300 5 70 100 2 30 40
Barium Cadmium Chromium Copper Mercury Molybdenum Nickel Lead	0.05 <0.005 <0.015 <0.07 0.0006 <0.02 <0.02 <0.05		20 0.04 0.5 2 0.01 0.5 0.4 0.5	100 1 10 50 0.2 10 10	300 5 70 100 2 30 40 50
Barium Cadmium Chromium Copper Mercury Molybdenum Nickel Lead Antimony	0.05 <0.005 <0.015 <0.07 0.0006 <0.02 <0.02 <0.05 <0.02		20 0.04 0.5 2 0.01 0.5 0.4 0.5	100 1 10 50 0.2 10 10 10 0.7	300 5 70 100 2 30 40 50 5
Barium Cadmium Chromium Copper Mercury Molybdenum Nickel Lead Antimony Selenium	0.05 <0.005 <0.015 <0.07 0.0006 <0.02 <0.02 <0.05 <0.03		20 0.04 0.5 2 0.01 0.5 0.4 0.5 0.06	100 1 10 50 0.2 10 10 10 0.7 0.5	300 5 70 100 2 30 40 50 5 7
Barium Cadmium Chromium Copper Mercury Molybdenum Nickel Lead Antimony Selenium Zinc	0.05 <0.005 <0.015 <0.07 0.0006 <0.02 <0.02 <0.05 <0.02 <0.03		20 0.04 0.5 2 0.01 0.5 0.4 0.5 0.06 0.1	100 1 10 50 0.2 10 10 10 0.7 0.5 50	300 5 70 100 2 30 40 50 5 7 200
Barium Cadmium Chromium Copper Mercury Molybdenum Nickel Lead Antimony Selenium Zinc Chloride	0.05 <0.005 <0.015 <0.07 0.0006 <0.02 <0.02 <0.05 <0.02 <0.03 <0.03 <3		20 0.04 0.5 2 0.01 0.5 0.4 0.5 0.06 0.1 4	100 1 10 50 0.2 10 10 10 0.7 0.5 50 15000	300 5 70 100 2 30 40 50 5 7 200 25000
Barium Cadmium Chromium Copper Mercury Molybdenum Nickel Lead Antimony Selenium Zinc Chloride Fluoride	0.05 <0.005 <0.015 <0.07 0.0006 <0.02 <0.02 <0.05 <0.02 <0.03 <0.03 <3 <3		20 0.04 0.5 2 0.01 0.5 0.4 0.5 0.06 0.1 4 800	100 1 10 50 0.2 10 10 10 0.7 0.5 50 15000	300 5 70 100 2 30 40 50 5 7 200 25000 500
Barium Cadmium Chromium Copper Mercury Molybdenum Nickel Lead Antimony Selenium Zinc Chloride Fluoride Sulphate as SO4	0.05 <0.005 <0.015 <0.07 0.0006 <0.02 <0.02 <0.05 <0.02 <0.03 <0.03 <3 <3 30.6		20 0.04 0.5 2 0.01 0.5 0.4 0.5 0.06 0.1 4 800 10 1000	100 1 10 50 0.2 10 10 10 0.7 0.5 50 15000 20000	300 5 70 100 2 30 40 50 5 7 200 25000 500 50000
Barium Cadmium Chromium Copper Mercury Molybdenum Nickel Lead Antimony Selenium Zinc Chloride Fluoride Sulphate as SO4 Total Dissolved Solids	0.05 <0.005 <0.015 <0.07 0.0006 <0.02 <0.02 <0.05 <0.02 <0.03 <0.03 <3 <3 30.6 840		20 0.04 0.5 2 0.01 0.5 0.4 0.5 0.06 0.1 4 800 10 1000 4000	100 1 10 50 0.2 10 10 10 0.7 0.5 50 15000	300 5 70 100 2 30 40 50 5 7 200 25000 500
Barium Cadmium Chromium Copper Mercury Molybdenum Nickel Lead Antimony Selenium Zinc Chloride Fluoride Sulphate as SO4	0.05 <0.005 <0.015 <0.07 0.0006 <0.02 <0.02 <0.05 <0.02 <0.03 <0.03 <3 <3 30.6		20 0.04 0.5 2 0.01 0.5 0.4 0.5 0.06 0.1 4 800 10 1000	100 1 10 50 0.2 10 10 10 0.7 0.5 50 15000 20000	300 5 70 100 2 30 40 50 5 7 200 25000 500 50000

Mass of sample taken (kg)	0.097	Dry Matter Content Ratio (%) =		92.6		
Mass of dry sample (kg) =	0.09	Leachant Volume (I)		0.893		
Particle Size <4mm =	>95%	Eluate Volume (I)		0.88		
JEFL Job No		15/4014	Landfill Waste Acceptance			
Sample No		12		Criteria Lin	nits	
Client Sample No		TP6				
Depth/Other		0.95				
Sample Date		23/02/2015	Inert	Stable Non-reactive	Hazardous	
Batch No		1				
Solid Waste Analysis						
Total Organic Carbon (%)	1.34		3	5	6	
Sum of BTEX (mg/kg)	<0.025		6	-	-	
Sum of 7 PCBs (mg/kg)	<0.035		1	-	-	
Mineral Oil (mg/kg)	<45		500	-	-	
PAH Sum of 6 (mg/kg)	<0.22		-	-	-	
PAH Sum of 17 (mg/kg)	<0.64		100	-	-	
	10:1					
	concn			values for co aching test		
Eluate Analysis	leached			12457-2 at		
	A10		_			
	mg/kg			mg/kg		
Arsenic	mg/kg <0.025		0.5	mg/kg	25	
Arsenic Barium			0.5		25 300	
	<0.025		-	2		
Barium	<0.025 0.04		20	2 100	300	
Barium Cadmium Chromium	<0.025 0.04 <0.005		20 0.04	100	300 5	
Barium Cadmium Chromium Copper Mercury	<0.025 0.04 <0.005 <0.015		20 0.04 0.5	2 100 1 10	300 5 70	
Barium Cadmium Chromium Copper	<0.025 0.04 <0.005 <0.015 <0.07		20 0.04 0.5 2	2 100 1 10 50	300 5 70 100	
Barium Cadmium Chromium Copper Mercury	<0.025 0.04 <0.005 <0.015 <0.07 0.0025 <0.02 <0.02		20 0.04 0.5 2 0.01 0.5 0.4	2 100 1 10 50 0.2 10	300 5 70 100 2	
Barium Cadmium Chromium Copper Mercury Molybdenum	<0.025 0.04 <0.005 <0.015 <0.07 0.0025 <0.02		20 0.04 0.5 2 0.01 0.5	2 100 1 10 50 0.2 10	300 5 70 100 2 30	
Barium Cadmium Chromium Copper Mercury Molybdenum Nickel	<0.025 0.04 <0.005 <0.015 <0.07 0.0025 <0.02 <0.02		20 0.04 0.5 2 0.01 0.5 0.4	2 100 1 10 50 0.2 10	300 5 70 100 2 30 40	
Barium Cadmium Chromium Copper Mercury Molybdenum Nickel Lead Antimony Selenium	<0.025 0.04 <0.005 <0.015 <0.07 0.0025 <0.02 <0.02 <0.05 <0.02 <0.05 <0.02 <0.03		20 0.04 0.5 2 0.01 0.5 0.4 0.5	2 100 1 10 50 0.2 10 10 10 0.7 0.5	300 5 70 100 2 30 40 50	
Barium Cadmium Chromium Copper Mercury Molybdenum Nickel Lead	<0.025 0.04 <0.005 <0.015 <0.07 0.0025 <0.02 <0.02 <0.05 <0.05 <0.02		20 0.04 0.5 2 0.01 0.5 0.4 0.5	2 100 1 10 50 0.2 10 10 10	300 5 70 100 2 30 40 50 5	
Barium Cadmium Chromium Copper Mercury Molybdenum Nickel Lead Antimony Selenium Zinc	<0.025 0.04 <0.005 <0.015 <0.07 0.0025 <0.02 <0.02 <0.05 <0.02 <0.05 <0.02 <0.03		20 0.04 0.5 2 0.01 0.5 0.4 0.5 0.06	2 100 1 10 50 0.2 10 10 10 0.7 0.5	300 5 70 100 2 30 40 50 5 7	
Barium Cadmium Chromium Copper Mercury Molybdenum Nickel Lead Antimony Selenium Zinc Chloride Fluoride	<0.025 0.04 <0.005 <0.015 <0.07 0.0025 <0.02 <0.02 <0.05 <0.02 <0.03 <0.03		20 0.04 0.5 2 0.01 0.5 0.4 0.5 0.06 0.1	2 100 1 10 50 0.2 10 10 10 0.7 0.5 50	300 5 70 100 2 30 40 50 5 7 200	
Barium Cadmium Chromium Copper Mercury Molybdenum Nickel Lead Antimony Selenium Zinc Chloride Fluoride	<0.025 0.04 <0.005 <0.015 <0.07 0.0025 <0.02 <0.02 <0.05 <0.02 <0.03 <0.03 7		20 0.04 0.5 2 0.01 0.5 0.4 0.5 0.06 0.1 4	2 100 1 10 50 0.2 10 10 10 0.7 0.5 50 15000	300 5 70 100 2 30 40 50 5 7 200 25000	
Barium Cadmium Chromium Copper Mercury Molybdenum Nickel Lead Antimony Selenium	<0.025 0.04 <0.005 <0.015 <0.07 0.0025 <0.02 <0.02 <0.05 <0.02 <0.03 <0.03 7 <3		20 0.04 0.5 2 0.01 0.5 0.4 0.5 0.06 0.1 4 800	2 100 1 10 50 0.2 10 10 10 0.7 0.5 50 15000	300 5 70 100 2 30 40 50 5 7 200 25000 500	
Barium Cadmium Chromium Copper Mercury Molybdenum Nickel Lead Antimony Selenium Zinc Chloride Fluoride Sulphate as SO4	<0.025 0.04 <0.005 <0.015 <0.07 0.0025 <0.02 <0.02 <0.05 <0.02 <0.03 <0.03 7 <3 77.9		20 0.04 0.5 2 0.01 0.5 0.4 0.5 0.06 0.1 4 800 10	2 100 1 10 50 0.2 10 10 10 0.7 0.5 50 15000 150 20000	300 5 70 100 2 30 40 50 5 7 200 25000 500 50000	

Mass of sample taken (kg)	0.1137	Dry Matter Content Ratio (%) =		79.3	
Mass of dry sample (kg) =	0.09	Leachant Volume (I)		0.877	
Particle Size <4mm =	>95%	Eluate Volume (I)		0.76	
JEFL Job No		15/4014	Land	fill Waste Ac	ceptance
Sample No		14		Criteria Lim	nits
Client Sample No		TP6			
Depth/Other		3.30			Hazardous
Sample Date		23/02/2015	Inert	Stable Non-reactive	
Batch No		1			
Solid Waste Analysis					
Total Organic Carbon (%)	0.60		3	5	6
Sum of BTEX (mg/kg)	<0.025		6	-	-
Sum of 7 PCBs (mg/kg)	<0.035		1	-	-
Mineral Oil (mg/kg)	<45		500	-	-
PAH Sum of 6 (mg/kg)	<0.22		-	-	-
PAH Sum of 17 (mg/kg)	<0.64		100	-	-
	10:1		Limit	valuas fau as	
	concn			values for co aching test	•
Eluate Analysis	leached			12457-2 at l	
	A10				
	mg/kg			mg/kg	ı
	<0.025		0.5	2	25
Barium	<0.025 0.06		20	2 100	300
Barium Cadmium	<0.025 0.06 <0.005		20 0.04	2 100 1	300 5
Arsenic Barium Cadmium Chromium	<0.025 0.06 <0.005 <0.015		20 0.04 0.5	2 100 1 10	300 5 70
Barium Cadmium Chromium Copper	<0.025 0.06 <0.005 <0.015 <0.07		20 0.04 0.5 2	2 100 1 10 50	300 5 70 100
Barium Cadmium Chromium Copper Mercury	<0.025 0.06 <0.005 <0.015 <0.07 0.0057		20 0.04 0.5 2 0.01	2 100 1 10 50 0.2	300 5 70 100 2
Barium Cadmium Chromium Copper Mercury Molybdenum	<0.025 0.06 <0.005 <0.015 <0.07 0.0057 <0.02		20 0.04 0.5 2 0.01 0.5	2 100 1 10 50 0.2 10	300 5 70 100 2 30
Barium Cadmium Chromium Copper Mercury Molybdenum Nickel	<0.025 0.06 <0.005 <0.015 <0.07 0.0057 <0.02 <0.02		20 0.04 0.5 2 0.01 0.5 0.4	2 100 1 10 50 0.2 10	300 5 70 100 2 30 40
Barium Cadmium Chromium Copper Mercury Molybdenum Nickel	<0.025 0.06 <0.005 <0.015 <0.07 0.0057 <0.02 <0.02 <0.05		20 0.04 0.5 2 0.01 0.5 0.4 0.5	2 100 1 10 50 0.2 10 10	300 5 70 100 2 30 40 50
Barium Cadmium Chromium Copper Mercury Molybdenum Nickel Lead Antimony	<0.025 0.06 <0.005 <0.015 <0.07 0.0057 <0.02 <0.02 <0.05 <0.02		20 0.04 0.5 2 0.01 0.5 0.4 0.5	2 100 1 10 50 0.2 10 10 10	300 5 70 100 2 30 40 50
Barium Cadmium Chromium Copper Mercury Molybdenum Nickel Lead Antimony Selenium	<0.025 0.06 <0.005 <0.015 <0.07 0.0057 <0.02 <0.02 <0.05 <0.02 <0.05 <0.02		20 0.04 0.5 2 0.01 0.5 0.4 0.5 0.06	2 100 1 10 50 0.2 10 10 10 0.7 0.5	300 5 70 100 2 30 40 50 5 7
Barium Cadmium Chromium Copper Mercury Molybdenum Nickel Lead Antimony Selenium Zinc	<0.025 0.06 <0.005 <0.015 <0.07 0.0057 <0.02 <0.02 <0.05 <0.02 <0.03 <0.03		20 0.04 0.5 2 0.01 0.5 0.4 0.5 0.06 0.1	2 100 1 10 50 0.2 10 10 10 0.7 0.5 50	300 5 70 100 2 30 40 50 5 7 200
Barium Cadmium Chromium Copper Mercury Molybdenum Nickel Lead Antimony Selenium Zinc Chloride	<0.025 0.06 <0.005 <0.015 <0.07 0.0057 <0.02 <0.02 <0.05 <0.02 <0.03 <0.03 <3		20 0.04 0.5 2 0.01 0.5 0.4 0.5 0.06 0.1 4	2 100 1 10 50 0.2 10 10 10 0.7 0.5 50 15000	300 5 70 100 2 30 40 50 5 7 200 25000
Barium Cadmium Chromium Copper Mercury Molybdenum Nickel Lead Antimony Selenium Zinc Chloride Fluoride	<0.025 0.06 <0.005 <0.015 <0.07 0.0057 <0.02 <0.02 <0.05 <0.03 <0.03 <3 <3		20 0.04 0.5 2 0.01 0.5 0.4 0.5 0.06 0.1 4 800	2 100 1 10 50 0.2 10 10 10 0.7 0.5 50 15000	300 5 70 100 2 30 40 50 5 7 200 25000 500
Barium Cadmium Chromium Copper Mercury Molybdenum Nickel Lead Antimony Selenium Zinc Chloride Fluoride Sulphate as SO4	<0.025 0.06 <0.005 <0.015 <0.07 0.0057 <0.02 <0.02 <0.05 <0.02 <0.03 <0.03 <3 9.9		20 0.04 0.5 2 0.01 0.5 0.4 0.5 0.06 0.1 4 800 10	2 100 1 10 50 0.2 10 10 10 0.7 0.5 50 15000 150 20000	300 5 70 100 2 30 40 50 5 7 200 25000 5000
Barium Cadmium Chromium Copper Mercury Molybdenum Nickel Lead Antimony Selenium Zinc Chloride Fluoride Sulphate as SO4 Total Dissolved Solids	<0.025 0.06 <0.005 <0.015 <0.07 0.0057 <0.02 <0.02 <0.05 <0.03 <0.03 <3 <3 9.9 1021		20 0.04 0.5 2 0.01 0.5 0.4 0.5 0.06 0.1 4 800 10 1000 4000	2 100 1 10 50 0.2 10 10 10 0.7 0.5 50 15000	300 5 70 100 2 30 40 50 5 7 200 25000 500
Barium Cadmium	<0.025 0.06 <0.005 <0.015 <0.07 0.0057 <0.02 <0.02 <0.05 <0.02 <0.03 <0.03 <3 9.9		20 0.04 0.5 2 0.01 0.5 0.4 0.5 0.06 0.1 4 800 10	2 100 1 10 50 0.2 10 10 10 0.7 0.5 50 15000 150 20000	300 5 70 100 2 30 40 50 5 7 200 25000 500 50000

Mass of sample taken (kg)	0.1265	Dry Matter Content Ratio (%) =		71.2	
Mass of dry sample (kg) =	0.09	Leachant Volume (I)		0.864	
Particle Size <4mm =	>95%	Eluate Volume (I)		0.78	
JEFL Job No		15/4014	Land	fill Waste Ac	ceptance
Sample No		16		Criteria Lin	nits
Client Sample No		TP7			
Depth/Other		2.00			Hazardous
Sample Date		23/02/2015	Inert	Stable Non-reactive	
Batch No		1			
Solid Waste Analysis					
Total Organic Carbon (%)	3.19		3	5	6
Sum of BTEX (mg/kg)	0.064		6	-	-
Sum of 7 PCBs (mg/kg)	< 0.035		1	-	-
Mineral Oil (mg/kg)	<45		500	-	-
PAH Sum of 6 (mg/kg)	14.39		-	-	-
PAH Sum of 17 (mg/kg)	34.77		100	-	-
Eluate Analysis	10:1 concn leached		le	values for co aching test 12457-2 at	using
•	A10		B3 EN		
	mg/kg			mg/kg	
Arsenic	<0.025		0.5	2	25
			- 0.0		
Barium	0.21		20	100	300
Cadmium	<0.005		20 0.04	1	5
Cadmium Chromium	<0.005 <0.015		20 0.04 0.5	1 10	
Cadmium Chromium Copper	<0.005 <0.015 <0.07		20 0.04 0.5 2	1 10 50	5 70 100
Cadmium Chromium Copper Mercury	<0.005 <0.015 <0.07 0.0028		20 0.04 0.5 2 0.01	1 10 50 0.2	5 70 100 2
Cadmium Chromium Copper Mercury Molybdenum	<0.005 <0.015 <0.07 0.0028 0.06		20 0.04 0.5 2 0.01 0.5	1 10 50 0.2 10	5 70 100 2 30
Cadmium Chromium Copper Mercury Molybdenum Nickel	<0.005 <0.015 <0.07 0.0028 0.06 0.03		20 0.04 0.5 2 0.01 0.5 0.4	1 10 50 0.2 10	5 70 100 2 30 40
Cadmium Chromium Copper Mercury Molybdenum Nickel Lead	<0.005 <0.015 <0.07 0.0028 0.06 0.03 <0.05		20 0.04 0.5 2 0.01 0.5 0.4 0.5	1 10 50 0.2 10 10	5 70 100 2 30 40 50
Cadmium Chromium Copper Mercury Molybdenum Nickel Lead Antimony	<0.005 <0.015 <0.07 0.0028 0.06 0.03 <0.05 <0.02		20 0.04 0.5 2 0.01 0.5 0.4 0.5	1 10 50 0.2 10 10 10 0.7	5 70 100 2 30 40 50
Cadmium Chromium Copper Mercury Molybdenum Nickel Lead Antimony Selenium	<0.005 <0.015 <0.07 0.0028 0.06 0.03 <0.05 <0.02 <0.03		20 0.04 0.5 2 0.01 0.5 0.4 0.5 0.06	1 10 50 0.2 10 10 10 0.7 0.5	5 70 100 2 30 40 50 5
Cadmium Chromium Copper Mercury Molybdenum Nickel Lead Antimony Selenium Zinc	<0.005 <0.015 <0.07 0.0028 0.06 0.03 <0.05 <0.02 <0.03 <0.03		20 0.04 0.5 2 0.01 0.5 0.4 0.5 0.06 0.1	1 10 50 0.2 10 10 10 0.7 0.5 50	5 70 100 2 30 40 50 5 7 200
Cadmium Chromium Copper Mercury Molybdenum Nickel Lead Antimony Selenium Zinc Chloride	<0.005 <0.015 <0.07 0.0028 0.06 0.03 <0.05 <0.02 <0.03 <0.03		20 0.04 0.5 2 0.01 0.5 0.4 0.5 0.06 0.1 4	1 10 50 0.2 10 10 10 0.7 0.5 50 15000	5 70 100 2 30 40 50 5 7 200 25000
Cadmium Chromium Copper Mercury Molybdenum Nickel Lead Antimony Selenium Zinc Chloride Fluoride	<0.005 <0.015 <0.07 0.0028 0.06 0.03 <0.05 <0.02 <0.03 <0.03 <1.002 <0.03 <0.03 <0.03 <0.03 <0.03		20 0.04 0.5 2 0.01 0.5 0.4 0.5 0.06 0.1 4 800	1 10 50 0.2 10 10 10 0.7 0.5 50 15000	5 70 100 2 30 40 50 5 7 200 25000 500
Cadmium Chromium Copper Mercury Molybdenum Nickel Lead Antimony Selenium Zinc Chloride Fluoride Sulphate as SO4	<0.005 <0.015 <0.07 0.0028 0.06 0.03 <0.05 <0.02 <0.03 <0.03 <1.003 <0.03 <1.003 <0.03 <1.003 <0.03 <0.03 <0.03 <0.03 <0.03 <0.03 <0.03 <0.03 <0.03 <0.03 <0.03 <0.03 <0.03 <0.03 <0.03 <0.03 <0.03 <0.03 <0.03 <0.03 <0.03 <0.03 <0.03 <0.03 <0.03 <0.03 <0.03 <0.03 <0.03 <0.03 <0.03 <0.03 <0.03 <0.03 <0.03 <0.03 <0.03 <0.03 <0.03 <0.03 <0.03 <0.03 <0.03 <0.03 <0.03 <0.03 <0.03 <0.03 <0.03 <0.03 <0.03 <0.03 <0.03 <0.03 <0.03 <0.03 <0.03 <0.03 <0.03 <0.03 <0.03 <0.03 <0.03 <0.03 <0.03 <0.03 <0.03 <0.03 <0.03 <0.03 <0.03 <0.03 <0.03 <0.03 <0.03 <0.03 <0.03 <0.03 <0.03 <0.03 <0.03 <0.03 <0.03 <0.03 <0.03 <0.03 <0.03 <0.03 <0.03 <0.03 <0.03 <0.03 <0.03 <0.03 <0.03 <0.03 <0.03 <0.03 <0.03 <0.03 <0.03 <0.03 <0.03 <0.03 <0.03 <0.03 <0.03 <0.03 <0.03 <0.03 <0.03 <0.03 <0.03 <0.03 <0.03 <0.03 <0.03 <0.03 <0.03 <0.03 <0.03 <0.03 <0.03 <0.03 <0.03 <0.03 <0.03 <0.03 <0.03 <0.03 <0.03 <0.03 <0.03 <0.03 <0.03 <0.03 <0.03 <0.03 <0.03 <0.03 <0.03 <0.03 <0.03 <0.03 <0.03 <0.03 <0.03 <0.03 <0.03 <0.03 <0.03 <0.03 <0.03 <0.03 <0.03 <0.03 <0.03 <0.03 <0.03 <0.03 <0.03 <0.03 <0.03 <0.03 <0.03 <0.03 <0.03 <0.03 <0.03 <0.03 <0.03 <0.03 <0.03 <0.03 <0.03 <0.03 <0.03 <0.03 <0.03 <0.03 <0.03 <0.03 <0.03 <0.03 <0.03 <0.03 <0.03 <0.03 <0.03 <0.03 <0.03 <0.03 <0.03 <0.03 <0.03 <0.03 <0.03 <0.03 <0.03 <0.03 <0.03 <0.03 <0.03 <0.03 <0.03 <0.03 <0.03 <0.03 <0.03 <0.03 <0.03 <0.03 <0.03 <0.03 <0.03 <0.03 <0.03 <0.03 <0.03 <0.03 <0.03 <0.03 <0.03 <0.03 <0.03 <0.03 <0.03 <0.03 <0.03 <0.03 <0.03 <0.03 <0.03 <0.03 <0.03 <0.03 <0.03 <0.03 <0.03 <0.03 <0.03 <0.03 <0.03 <0.03 <0.03 <0.03 <0.03 <0.03 <0.03 <0.03 <0.03 <0.03 <0.03 <0.03 <0.03 <0.03 <0.03 <0.03 <0.03 <0.03 <0.03 <0.03 <0.03 <0.03 <0.03 <0.03 <0.03 <0.03 <0.03 <0.03 <0.03 <0.03 <0.03 <0.03 <0.03 <0.03 <0.03 <0.03 <0.03 <0.03 <0.03 <0.03 <0.03 <0.03 <0.03 <0.03 <0.03 <0.03 <0.03 <0.03 <0.03 <0.03 <0.03 <0.03 <0.03 <0.03 <0.03 <0.03 <0.03 <0.03 <0.03 <0.03 <0.03 <0.03 <0.03 <0.03 <0.03 <0.03 <0.03 <0.03 <0.03 <0.03 <0.03 <0.03 <0.03 <0.03 <0.03 <0.03 <0.03 <0.03 <0.03 <0.03 <0.03 <0.03 <0.03 <0		20 0.04 0.5 2 0.01 0.5 0.4 0.5 0.06 0.1 4 800 10	1 10 50 0.2 10 10 10 0.7 0.5 50 15000 20000	5 70 100 2 30 40 50 5 7 200 25000 5000
Cadmium Chromium Copper Mercury Molybdenum Nickel Lead Antimony Selenium Zinc Chloride Fluoride Sulphate as SO4 Total Dissolved Solids	<0.005 <0.015 <0.017 0.0028 0.06 0.03 <0.05 <0.02 <0.03 <0.03 <1.003 <1.003 <1.003 <1.003 <1.003 <1.003 <1.003 <1.003 <1.003 <1.003 <1.003 <1.003 <1.003 <1.003 <1.003 <1.003 <1.003 <1.003 <1.003 <1.003 <1.003 <1.003 <1.003 <1.003 <1.003 <1.003 <1.003 <1.003 <1.003 <1.003 <1.003 <1.003 <1.003 <1.003 <1.003 <1.003 <1.003 <1.003 <1.003 <1.003 <1.003 <1.003 <1.003 <1.003 <1.003 <1.003 <1.003 <1.003 <1.003 <1.003 <1.003 <1.003 <1.003 <1.003 <1.003 <1.003 <1.003 <1.003 <1.003 <1.003 <1.003 <1.003 <1.003 <1.003 <1.003 <1.003 <1.003 <1.003 <1.003 <1.003 <1.003 <1.003 <1.003 <1.003 <1.003 <1.003 <1.003 <1.003 <1.003 <1.003 <1.003 <1.003 <1.003 <1.003 <1.003 <1.003 <1.003 <1.003 <1.003 <1.003 <1.003 <1.003 <1.003 <1.003 <1.003 <1.003 <1.003 <1.003 <1.003 <1.003 <1.003 <1.003 <1.003 <1.003 <1.003 <1.003 <1.003 <1.003 <1.003 <1.003 <1.003 <1.003 <1.003 <1.003 <1.003 <1.003 <1.003 <1.003 <1.003 <1.003 <1.003 <1.003 <1.003 <1.003 <1.003 <1.003 <1.003 <1.003 <1.003 <1.003 <1.003 <1.003 <1.003 <1.003 <1.003 <1.003 <1.003 <1.003 <1.003 <1.003 <1.003 <1.003 <1.003 <1.003 <1.003 <1.003 <1.003 <1.003 <1.003 <1.003 <1.003 <1.003 <1.003 <1.003 <1.003 <1.003 <1.003 <1.003 <1.003 <1.003 <1.003 <1.003 <1.003 <1.003 <1.003 <1.003 <1.003 <1.003 <1.003 <1.003 <1.003 <1.003 <1.003 <1.003 <1.003 <1.003 <1.003 <1.003 <1.003 <1.003 <1.003 <1.003 <1.003 <1.003 <1.003 <1.003 <1.003 <1.003 <1.003 <1.003 <1.003 <1.003 <1.003 <1.003 <1.003 <1.003 <1.003 <1.003 <1.003 <1.003 <1.003 <1.003 <1.003 <1.003 <1.003 <1.003 <1.003 <1.003 <1.003 <1.003 <1.003 <1.003 <1.003 <1.003 <1.003 <1.003 <1.003 <1.003 <1.003 <1.003 <1.003 <1.003 <1.003 <1.003 <1.003 <1.003 <1.003 <1.003 <1.003 <1.003 <1.003 <1.003 <1.003 <1.003 <1.003 <1.003 <1.003 <1.003 <1.003 <1.003 <1.003 <1.003 <1.003 <1.003 <1.003 <1.003 <1.003 <1.003 <1.003 <1.003 <1.003 <1.003 <1.003 <1.003 <1.003 <1.003 <1.003 <1.003 <1.003 <1.003 <1.003 <1.003 <1.003 <1.003 <1.003 <1.003 <1.003 <1.003 <1.003 <1.003 <1.003 <1.003 <1.003 <1.003 <1.003 <1.003 <1.003 <1.003 <1.003 <1.003 <1.003 <1.003 <1.003 <1.		20 0.04 0.5 2 0.01 0.5 0.4 0.5 0.06 0.1 4 800 10 1000 4000	1 10 50 0.2 10 10 10 0.7 0.5 50 15000	5 70 100 2 30 40 50 5 7 200 25000 500
Cadmium Chromium Copper Mercury Molybdenum Nickel	<0.005 <0.015 <0.07 0.0028 0.06 0.03 <0.05 <0.02 <0.03 <0.03 <1.003 <0.03 <1.003 <0.03 <1.003 <0.03 <0.03 <0.03 <0.03 <0.03 <0.03 <0.03 <0.03 <0.03 <0.03 <0.03 <0.03 <0.03 <0.03 <0.03 <0.03 <0.03 <0.03 <0.03 <0.03 <0.03 <0.03 <0.03 <0.03 <0.03 <0.03 <0.03 <0.03 <0.03 <0.03 <0.03 <0.03 <0.03 <0.03 <0.03 <0.03 <0.03 <0.03 <0.03 <0.03 <0.03 <0.03 <0.03 <0.03 <0.03 <0.03 <0.03 <0.03 <0.03 <0.03 <0.03 <0.03 <0.03 <0.03 <0.03 <0.03 <0.03 <0.03 <0.03 <0.03 <0.03 <0.03 <0.03 <0.03 <0.03 <0.03 <0.03 <0.03 <0.03 <0.03 <0.03 <0.03 <0.03 <0.03 <0.03 <0.03 <0.03 <0.03 <0.03 <0.03 <0.03 <0.03 <0.03 <0.03 <0.03 <0.03 <0.03 <0.03 <0.03 <0.03 <0.03 <0.03 <0.03 <0.03 <0.03 <0.03 <0.03 <0.03 <0.03 <0.03 <0.03 <0.03 <0.03 <0.03 <0.03 <0.03 <0.03 <0.03 <0.03 <0.03 <0.03 <0.03 <0.03 <0.03 <0.03 <0.03 <0.03 <0.03 <0.03 <0.03 <0.03 <0.03 <0.03 <0.03 <0.03 <0.03 <0.03 <0.03 <0.03 <0.03 <0.03 <0.03 <0.03 <0.03 <0.03 <0.03 <0.03 <0.03 <0.03 <0.03 <0.03 <0.03 <0.03 <0.03 <0.03 <0.03 <0.03 <0.03 <0.03 <0.03 <0.03 <0.03 <0.03 <0.03 <0.03 <0.03 <0.03 <0.03 <0.03 <0.03 <0.03 <0.03 <0.03 <0.03 <0.03 <0.03 <0.03 <0.03 <0.03 <0.03 <0.03 <0.03 <0.03 <0.03 <0.03 <0.03 <0.03 <0.03 <0.03 <0.03 <0.03 <0.03 <0.03 <0.03 <0.03 <0.03 <0.03 <0.03 <0.03 <0.03 <0.03 <0.03 <0.03 <0.03 <0.03 <0.03 <0.03 <0.03 <0.03 <0.03 <0.03 <0.03 <0.03 <0.03 <0.03 <0.03 <0.03 <0.03 <0.03 <0.03 <0.03 <0.03 <0.03 <0.03 <0.03 <0.03 <0.03 <0.03 <0.03 <0.03 <0.03 <0.03 <0.03 <0.03 <0.03 <0.03 <0.03 <0.03 <0.03 <0.03 <0.03 <0.03 <0.03 <0.03 <0.03 <0.03 <0.03 <0.03 <0.03 <0.03 <0.03 <0.03 <0.03 <0.03 <0.03 <0.03 <0.03 <0.03 <0.03 <0.03 <0.03 <0.03 <0.03 <0.03 <0.03 <0.03 <0.03 <0.03 <0.03 <0.03 <0.03 <0.03 <0.03 <0.03 <0.03 <0.03 <0.03 <0.03 <0.03 <0.03 <0.03 <0.03 <0.03 <0.03 <0.03 <0.03 <0.03 <0.03 <0.03 <0.03 <0.03 <0.03 <0.03 <0.03 <0.03 <0.03 <0.03 <0.03 <0.03 <0.03 <0.03 <0.03 <0.03 <0.03 <0.03 <0.03 <0.03 <0.03 <0.03 <0.03 <0.03 <0.03 <0.03 <0.03 <0.03 <0.03 <0.03 <0.03 <0.03 <0.03 <0.03 <0.03 <0.03 <0.03 <0.03 <0.03 <0.03 <0.03 <0.03 <0.03 <0.03 <0.03 <0.03 <0.03 <0.03 <0		20 0.04 0.5 2 0.01 0.5 0.4 0.5 0.06 0.1 4 800 10	1 10 50 0.2 10 10 10 0.7 0.5 50 15000 20000	5 70 100 2 30 40 50 5 7 200 25000 5000

Mass of sample taken (kg)	0.0981	Dry Matter Content Ratio (%) =		91.4	
Mass of dry sample (kg) =	0.09	Leachant Volume (I)		0.892	
Particle Size <4mm =	>95%	Eluate Volume (I)		0.87	
JEFL Job No		15/4014	Land	fill Waste Ac	ceptance
Sample No		18		Criteria Lin	nits
Client Sample No		TP8			
Depth/Other		2.05			
Sample Date		23/02/2015	Inert	Stable Non-reactive	Hazardous
Batch No		1			
Solid Waste Analysis					
Total Organic Carbon (%)	0.20		3	5	6
Sum of BTEX (mg/kg)	<0.025		6	-	-
Sum of 7 PCBs (mg/kg)	< 0.035		1	-	-
Mineral Oil (mg/kg)	<45		500	-	-
PAH Sum of 6 (mg/kg)	<0.22		-	-	-
PAH Sum of 17 (mg/kg)	<0.64		100	-	-
Eluate Analysis	10:1 concn leached		le	values for co aching test 12457-2 at	using
	mg/kg			mg/kg	1
Arsenic	<0.025		0.5	2	25
Barium	< 0.03		20	100	300
Cadmium	<0.005		0.04	1	5
Chromium	<0.015		0.5	10	70
Copper	<0.07		2	50	100
Mercury	0.0007		0.01	0.2	2
Molybdenum	<0.02		0.5	10	30
Nickel	< 0.02		0.4	10	40
Lead	<0.05		0.5	10	50
Antimony	<0.02		0.06	0.7	5
	< 0.03		0.1	0.5	7
Selenium					200
Zinc	<0.03		4	50	•
Zinc Chloride	<3		800	15000	25000
Zinc Chloride Fluoride	<3 <3		800 10	15000 150	25000 500
Zinc Chloride Fluoride Sulphate as SO4	<3		800	15000	25000
Zinc Chloride Fluoride Sulphate as SO4 Total Dissolved Solids	<3 <3 5.6 1631		800 10	15000 150	25000 500
Zinc Chloride Fluoride Sulphate as SO4	<3 <3 5.6		800 10 1000	15000 150 20000	25000 500 50000

Mass of sample taken (kg)	0.1063	Dry Matter Content Ratio (%) =		84.3	
Mass of dry sample (kg) =	0.09	Leachant Volume (I)		0.883	
Particle Size <4mm =	>95%	Eluate Volume (I)		0.85	
JEFL Job No	T	15/4014	Land	fill Waste Ac	ceptance
Sample No		20		Criteria Lin	
Client Sample No		TP9			
Depth/Other		2.80			
Sample Date		23/02/2015	Inert	Stable Non-reactive	Hazardous
Batch No		1		Non readure	
Solid Waste Analysis	_				
Total Organic Carbon (%)	0.20		3	5	6
Sum of BTEX (mg/kg)	<0.025		6	-	-
Sum of 7 PCBs (mg/kg)	< 0.035		1	-	-
Mineral Oil (mg/kg)	<45		500	-	-
PAH Sum of 6 (mg/kg)	<0.22		-	-	-
PAH Sum of 17 (mg/kg)	<0.64		100	-	-
Eluate Analysis	10:1 concn leached		le	values for co aching test l 12457-2 at l	using
	A10				
	mg/kg			mg/kg	
Arsenic	mg/kg <0.025		0.5	mg/kg	25
Barium	mg/kg <0.025 <0.03		0.5	mg/kg 2 100	25 300
Barium Cadmium	mg/kg <0.025 <0.03 <0.005		0.5 20 0.04	mg/kg 2 100	25 300 5
Barium Cadmium Chromium	mg/kg <0.025 <0.03 <0.005 <0.015		0.5 20 0.04 0.5	mg/kg 2 100 1 10	25 300 5 70
Barium Cadmium Chromium Copper	mg/kg <0.025 <0.03 <0.005 <0.015 <0.07		0.5 20 0.04 0.5 2	mg/kg 2 100 1 100 50	25 300 5 70 100
Barium Cadmium Chromium Copper Mercury	mg/kg <0.025 <0.03 <0.005 <0.015 <0.07 0.0018		0.5 20 0.04 0.5 2 0.01	mg/kg 2 100 1 10 50 0.2	25 300 5 70 100 2
Barium Cadmium Chromium Copper Mercury Molybdenum	mg/kg <0.025 <0.03 <0.005 <0.015 <0.07 0.0018 <0.02		0.5 20 0.04 0.5 2 0.01 0.5	mg/kg 2 100 1 10 50 0.2 10	25 300 5 70 100 2 30
Barium Cadmium Chromium Copper Mercury Molybdenum Nickel	mg/kg <0.025 <0.03 <0.005 <0.015 <0.007 0.0018 <0.02 <0.02		0.5 20 0.04 0.5 2 0.01 0.5 0.4	mg/kg 2 100 1 10 50 0.2 10 10	25 300 5 70 100 2 30 40
Barium Cadmium Chromium Copper Mercury Molybdenum Nickel Lead	mg/kg <0.025 <0.03 <0.005 <0.015 <0.07 0.0018 <0.02 <0.02		0.5 20 0.04 0.5 2 0.01 0.5 0.4	mg/kg 2 100 1 10 50 0.2 10 10 10	25 300 5 70 100 2 30 40 50
Barium Cadmium Chromium Copper Mercury Molybdenum Nickel Lead Antimony	mg/kg <0.025 <0.03 <0.005 <0.015 <0.07 0.0018 <0.02 <0.02 <0.05 <0.05 <0.05		0.5 20 0.04 0.5 2 0.01 0.5 0.4 0.5	mg/kg 2 100 1 10 50 0.2 10 10 10 10 10 7 7 7 8 10 10 10 10 10 10 10 10 10	25 300 5 70 100 2 30 40 50 5
Barium Cadmium Chromium Copper Mercury Molybdenum Nickel Lead Antimony Selenium	mg/kg <0.025 <0.03 <0.005 <0.015 <0.07 0.0018 <0.02 <0.02 <0.05 <0.03		0.5 20 0.04 0.5 2 0.01 0.5 0.4 0.5 0.06	mg/kg 2 100 1 10 50 0.2 10 10 10 0.7 0.5	25 300 5 70 100 2 30 40 50 5
Barium Cadmium Chromium Copper Mercury Molybdenum Nickel Lead Antimony Selenium Zinc	mg/kg <0.025 <0.03 <0.005 <0.015 <0.07 0.0018 <0.02 <0.02 <0.05 <0.02 <0.03 <0.03		0.5 20 0.04 0.5 2 0.01 0.5 0.4 0.5 0.06	mg/kg 2 100 1 10 50 0.2 10 10 0.7 0.5 50	25 300 5 70 100 2 30 40 50 5 7 200
Barium Cadmium Chromium Copper Mercury Molybdenum Nickel Lead Antimony Selenium Zinc Chloride	mg/kg <0.025 <0.03 <0.005 <0.015 <0.07 0.0018 <0.02 <0.02 <0.02 <0.03 <0.03 <0.03 <3		0.5 20 0.04 0.5 2 0.01 0.5 0.4 0.5 0.06 0.1 4	mg/kg 2 100 1 10 50 0.2 10 10 10 0.7 0.5 50 15000	25 300 5 70 100 2 30 40 50 5 7 200 25000
Barium Cadmium Chromium Copper Mercury Molybdenum Nickel Lead Antimony Selenium Zinc Chloride Fluoride	mg/kg <0.025 <0.03 <0.005 <0.015 <0.07 0.0018 <0.02 <0.02 <0.02 <0.03 <0.03 <3 <3		0.5 20 0.04 0.5 2 0.01 0.5 0.4 0.5 0.06 0.1 4 800	mg/kg 2 100 1 10 50 0.2 10 10 10 50 15000 150	25 300 5 70 100 2 30 40 50 5 7 200 25000 500
Barium Cadmium Chromium Copper Mercury Molybdenum Nickel Lead Antimony Selenium Zinc Chloride Fluoride Sulphate as SO4	mg/kg <0.025 <0.03 <0.005 <0.015 <0.07 0.0018 <0.02 <0.02 <0.05 <0.03 <0.03 <3 <3 10.3		0.5 20 0.04 0.5 2 0.01 0.5 0.4 0.5 0.06 0.1 4 800 10	mg/kg 2 100 1 10 50 0.2 10 10 0.7 0.5 50 15000 150 20000	25 300 5 70 100 2 30 40 50 5 7 200 25000 500 5000
Barium Cadmium Chromium Copper Mercury Molybdenum Nickel Lead Antimony Selenium Zinc Chloride Fluoride Sulphate as SO4 Total Dissolved Solids	mg/kg <0.025 <0.003 <0.005 <0.015 <0.007 0.0018 <0.002 <0.002 <0.002 <0.003 <0.003 <3 <3 10.3 830		0.5 20 0.04 0.5 2 0.01 0.5 0.4 0.5 0.06 0.1 4 800 10 1000 4000	mg/kg 2 100 1 10 50 0.2 10 10 10 50 15000 150	25 300 5 70 100 2 30 40 50 5 7 200 25000 500
Barium Cadmium Chromium Copper Mercury Molybdenum Nickel Lead Antimony Selenium Zinc Chloride Fluoride Sulphate as SO4	mg/kg <0.025 <0.03 <0.005 <0.015 <0.07 0.0018 <0.02 <0.02 <0.05 <0.03 <0.03 <3 <3 10.3		0.5 20 0.04 0.5 2 0.01 0.5 0.4 0.5 0.06 0.1 4 800 10	mg/kg 2 100 1 10 50 0.2 10 10 0.7 0.5 50 15000 150 20000	25 300 5 70 100 2 30 40 50 5 7 200 25000 500 5000

Client Name: IGSL

Reference:

Location: River Dargle
Contact: Darren Keogh

J E Job No.	Batch	Sample ID	Depth	J E Sample No.		Reason
					No deviating sample report results for job 15/4014	

Please note that only samples that are deviating are mentioned in this report. If no samples are listed it is because none were deviating. Only analyses which are accredited are recorded as deviating if set criteria are not met.

NOTES TO ACCOMPANY ALL SCHEDULES AND REPORTS

JE Job No.: 15/4014

SOILS

Please note we are only MCERTS accredited for sand, loam and clay and any other matrix is outside our scope of accreditation.

Where an MCERTS report has been requested, you will be notified within 48 hours of any samples that have been identified as being outside our MCERTS scope. As validation has been performed on clay, sand and loam, only samples that are predominantly these matrices, or combinations of them will be within our MCERTS scope. If samples are not one of a combination of the above matrices they will not be marked as MCERTS accredited.

It is assumed that you have taken representative samples on site and require analysis on a representative subsample. Stones will generally be included unless we are requested to remove them.

All samples will be discarded one month after the date of reporting, unless we are instructed to the contrary. If we are instructed to keep samples, a storage charge of £1 (1.5 Euros) per sample per month will be applied until we are asked to dispose of them.

If you have not already done so, please send us a purchase order if this is required by your company.

Where appropriate please make sure that our detection limits are suitable for your needs, if they are not, please notify us immediately.

All analysis is reported on a dry weight basis unless stated otherwise. Results are not surrogate corrected. Samples are dried at 35°C ±5°C unless otherwise stated. Moisture content for CEN Leachate tests are dried at 105°C ±5°C.

Where Mineral Oil or Fats, Oils and Grease is quoted, this refers to Total Aliphatics C10-C40.

Where a CEN 10:1 ZERO Headspace VOC test has been carried out, a 10:1 ratio of water to wet (as received) soil has been used.

% Asbestos in Asbestos Containing Materials (ACMs) is determined by reference to HSG 264 The Survey Guide - Appendix 2 : ACMs in buildings listed in order of ease of fibre release.

WATERS

Please note we are not a Drinking Water Inspectorate (DWI) Approved Laboratory . It is important that detection limits are carefully considered when requesting water analysis.

UKAS accreditation applies to surface water and groundwater and one other matrix which is analysis specific, any other liquids are outside our scope of accreditation

As surface waters require different sample preparation to groundwaters the laboratory must be informed of the water type when submitting samples.

Where Mineral Oil or Fats, Oils and Grease is quoted, this refers to Total Aliphatics C10-C40.

DEVIATING SAMPLES

Samples must be received in a condition appropriate to the requested analyses. All samples should be submitted to the laboratory in suitable containers with sufficient ice packs to sustain an appropriate temperature for the requested analysis. If this is not the case you will be informed and any test results that may be compromised highlighted on your deviating samples report.

SURROGATES

Surrogate compounds are added during the preparation process to monitor recovery of analytes. However low recovery in soils is often due to peat, clay or other organic rich matrices. For waters this can be due to oxidants, surfactants, organic rich sediments or remediation fluids. Acceptable limits for most organic methods are 70 - 130% and for VOCs are 50 - 150%. When surrogate recoveries are outside the performance criteria but the associated AQC passes this is assumed to be due to matrix effect. Results are not surrogate corrected.

DILUTIONS

A dilution suffix indicates a dilution has been performed and the reported result takes this into account. No further calculation is required.

NOTE

Data is only reported if the laboratory is confident that the data is a true reflection of the samples analysed. Data is only reported as accredited when all the requirements of our Quality System have been met. In certain circumstances where all the requirements of the Quality System have not been met, for instance if the associated AQC has failed, the reason is fully investigated and documented. The sample data is then evaluated alongside the other quality control checks performed during analysis to determine its suitability. Following this evaluation, provided the sample results have not been effected, the data is reported but accreditation is removed. It is a UKAS requirement for data not reported as accredited to be considered indicative only, but this does not mean the data is not valid.

Where possible, and if requested, samples will be re-extracted and a revised report issued with accredited results. Please do not hesitate to contact the laboratory if further details are required of the circumstances which have led to the removal of accreditation.

ABBREVIATIONS and ACRONYMS USED

15/4014

-	
#	UKAS accredited.
В	Indicates analyte found in associated method blank.
DR	Dilution required.
M	MCERTS accredited.
NA	Not applicable
NAD	No Asbestos Detected.
ND	None Detected (usually refers to VOC and/SVOC TICs).
NDP	No Determination Possible
SS	Calibrated against a single substance
SV	Surrogate recovery outside performance criteria. This may be due to a matrix effect.
W	Results expressed on as received basis.
+	AQC failure, accreditation has been removed from this result, if appropriate, see 'Note' on previous page.
++	Result outside calibration range, results should be considered as indicative only and are not accredited.
*	Analysis subcontracted to a Jones Environmental approved laboratory.
AD	Samples are dried at 35°C ±5°C
СО	Suspected carry over
LOD/LOR	Limit of Detection (Limit of Reporting) in line with ISO 17025 and MCERTS
ME	Matrix Effect
NFD	No Fibres Detected
OC	Outside Calibration Range

JE Job No: 15/4014

Test Method No.	Description	Prep Method No. (if appropriate)	Description	UKAS	MCERTS (soils only)	Analysis done on As Received (AR) or Dried (AD)	Reported on dry weight basis
PM4	Gravimetric measurement of Natural Moisture Content and % Moisture Content at either 35°C or 105°C. Calculation based on ISO 11465 and BS1377.	PM0	No preparation is required.				
TM4	Modified USEPA 8270 method for the solvent extraction and determination of 16 PAHs by GC-MS.	PM8	End over end extraction of solid samples for organic analysis. The solvent mix varies depending on analysis required.			AR	Yes
TM4	Modified USEPA 8270 method for the solvent extraction and determination of 16 PAHs by GC-MS.	PM8	End over end extraction of solid samples for organic analysis. The solvent mix varies depending on analysis required.	Yes		AR	Yes
TM5	Modified USEPA 8015B method for the determination of solvent Extractable Petroleum Hydrocarbons (EPH) with carbon banding within the range C8-C40 GC-FID.	PM16	Fractionation into aliphatic and aromatic fractions using a Rapid Trace SPE.			AR	Yes
TM17	Modified US EPA method 8270. Determination of specific Polychlorinated Biphenyl congeners by GC-MS.	PM8	End over end extraction of solid samples for organic analysis. The solvent mix varies depending on analysis required.	Yes		AR	Yes
TM20	Modified USEPA 8163. Gravimetric determination of Total Dissolved Solids/Total Solids	PM0	No preparation is required.	Yes		AR	Yes
TM21	Modified USEPA 415.1. Determination of Total Organic Carbon or Total Carbon by combustion in an Eltra TOC furnace/analyser in the presence of oxygen. The CO2 generated is quantified using infra-red detection.	PM24	Dried and ground solid samples are washed with hydrochloric acid, then rinsed with deionised water to remove the mineral carbon before TOC analysis.	Yes		AD	Yes
TM26	Determination of phenols by Reversed Phased High Performance Liquid Chromatography and Electro-Chemical Detection.	PM0	No preparation is required.			AR	Yes
TM27	Modified US EPA method 9056. Determination of water soluble anions using Dionex (Ion-Chromatography).	PM0	No preparation is required.			AR	Yes
TM30	Determination of Trace Metal elements by ICP-OES (Inductively Coupled Plasma - Optical Emission Spectrometry). Modified US EPA Method 200.7	PM17	Modified method EN12457-2 As received solid samples are leached with water in a 10:1 water to soil ratio for 24 hours, the moisture content of the sample is included in the ratio.	Yes		AR	Yes

JE Job No: 15/4014

Test Method No.	Description	Prep Method No. (if appropriate)	Description	UKAS	MCERTS (soils only)	Analysis done on As Received (AR) or Dried (AD)	Reported on dry weight basis
TM31	Modified USEPA 8015B. Determination of Methyltertbutylether, Benzene, Toluene, Ethylbenzene and Xylene by headspace GC-FID.	PM12	Modified US EPA method 5021. Preparation of solid and liquid samples for GC headspace analysis.			AR	Yes
TM31	Modified USEPA 8015B. Determination of Methyltertbutylether, Benzene, Toluene, Ethylbenzene and Xylene by headspace GC-FID.	PM12	Modified US EPA method 5021. Preparation of solid and liquid samples for GC headspace analysis.	Yes		AR	Yes
TM60	Modified USEPA 9060. Determination of TOC by calculation from Total Carbon and Inorganic Carbon using a TOC analyser, the carbon in the sample is converted to CO2 and then passed through a non-dispersive infrared gas analyser (NDIR).	PM0	No preparation is required.			AR	Yes
TM61	Modified US EPA methods 245.7 and 200.7. Determination of Mercury by Cold Vapour Atomic Fluorescence.	PM38	Samples are brominated to reduce all mercury compounds to Mercury (II) which is analysed using method TM061.	Yes		AR	Yes
NONE	No Method Code	PM17	Modified method EN12457-2 As received solid samples are leached with water in a 10:1 water to soil ratio for 24 hours, the moisture content of the sample is included in the ratio.				
NONE	No Method Code	PM17	Modified method EN12457-2 As received solid samples are leached with water in a 10:1 water to soil ratio for 24 hours, the moisture content of the sample is included in the ratio.			AR	
NONE	No Method Code	PM4	Gravimetric measurement of Natural Moisture Content and % Moisture Content at either 35°C or 105°C. Calculation based on ISO 11465 and BS1377.			AR	

Appendix - Methods used for WAC (2003/33/EC)

Leachate tests	
	I.S. EN 12457-2:2002 Specified particle size; water added to L/S ratio; capped; agitated for 24 ± 0.5 hours; eluate settled and
10l/kg; 4mm	filtered over 0.45 µm membrane filter.
Eluate analysis	intered over 0.15 km membrane meer.
As	I.S. EN 12506 : EN ISO 11885 (ICP-OES)
Ba	I.S. EN 12506 : EN ISO 11885 (ICP-OES)
Cd	I.S. EN 12506 : EN ISO 11885 (ICP-OES)
Cr total	I.S. EN 12506 : EN ISO 11885 (ICP-OES)
Cu	I.S. EN 12506 : EN ISO 11885 (ICP-OES)
Hg	I.S. EN 13370 rec. EN 1483 (CVAAS)
Mo	I.S. EN 12506 : EN ISO 11885 (ICP-OES)
Ni	I.S. EN 12506 : EN ISO 11885 (ICP-OES)
Pb	I.S. EN 12506 : EN ISO 11885 (ICP-OES)
Sb	I.S. EN 12506 : EN ISO 11885 (ICP-OES)
Se	I.S. EN 12506 : EN ISO 11885 (ICP-OES)
Zn	I.S. EN 12506 : EN ISO 11885 (ICP-OES)
Chloride	I.S. EN 12506 rec. EN ISO 10304-part 1 (liquid chromatography of ions)
Fluoride	I.S. EN 12506 rec. EN ISO 10304-part 1 (liquid chromatography of ions)
Sulphate	I.S. EN 12506 rec. EN ISO 10304-part 1 (liquid chromatography of ions)
Phenol index	I.S. EN 13370 rec. ISO 6439 (4-Aminoantipyrine spectrometic methods after distillation)* (BY HPLC - Jones Env)
DOC	I.S. EN 15216
Compositional analys	sis
TOC	I.S. EN 13137 Method B: carbonates removed with acid; TOC by combustion.
ВТЕХ	GC-FID
PCB7**	I.S. EN 15308 analysis by GC-ECD.
Mineral oil	I.S. EN 14039 C10 to C40 analysis by GC-FID.
PAH17***	I.S. EN 15527 PAH17 analysis by GC-MS
Metals	I.S. EN 13657 - Aqua regia digestion: EN ISO 11885 (ICP-OES)
Other	
	I.S. EN 14346 sample is dried to a constant mass in an oven at 105 ± 3 °C; Method B Water content by direct Karl-Fischer-
Dry matter	titration and either volumetric or coulometric detection.
LOI	I.S. EN 15169 Difference in mass after heating in a furnace up to 550 ± 25 °C.
ANC	CEN/TS 15364 Determined by amouns of acid or base needed to cover the pH range

Notes

^{*}If not suitable due to LOD, precision, etc., any other suitable method can be used, e.g. AFS, ICP-MS

^{**}PCB-28, PCB-52, PCB-101, PCB-118, PCB-138, PCB-153 and PCB-180

^{***}Naphthalene, Acenaphthylene, Acenaphthene, Anthracene, Benzo(a)anthracene, Benzo(b)fluoranthene, Benzo(k)fluoranthene, Benzo(g,h,i)perylene, Benzo(a)pyrene, Chrysene, Coronene, Dibenzo(a,h)anthracene, Fluorene, Fluoranthene, Indeno(1,2,3-c,d)pyrene, Phenanthrene and Pyrene.

River Dargle, Bray Appraisal of fill material stockpiled at Bray Golf Course



River Dargle Fill Material Appraisal



Project Title:
River Dargle Flood Protection Scheme

Report Title:

Assessment of the fill material stockpiled at Bray Golf Course

Client:

Wicklow County Council

Ultimate Client:

Wicklow County Council

Confidentiality:

N/A

Guidelines of use of report:

This report has been commissioned by Wicklow County Council for the material stockpiled at Bray Golf Course in September 2015. Third Parties using this report should independently satisfy themselves that the information contained in this report remains valid for their own purposes.

Doc Number	Revision	Date	Authored	Checked
15019-6	0	19 November 2015	PQ	PD

Executive Summary

The soil extracted from the River Dargle appears to be inert material and is suitable as a general fill material. Over time the material may wet up slightly. Some conditioning of the soil may be required at the point of deposition to ensure that adequate compaction of the material is achieved.

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1 Introduction

The River Dargle Flood Alleviate scheme in Bray, Co Wicklow has generated surplus material excavated from the river. This material is stockpiled on the north bank of the River Dargle on Bray Golf Course alongside Ravenswell Road and the fill is currently acting as a temporary flood defence measure while the permanent works are being designed and constructed. Wicklow County Council has requested Gavin and Doherty Geosolutions (GDG) to review the constituents of the fill material and comment on the potential reuse of the material once the permanent flood defence measures are in place.

GDG has inspected the stockpiles and agreed a sampling plan with Wicklow County Council. Bulk samples were taken from the site and tested at IGSL to determine the geotechnical and chemical properties.

This report summarises the results from the testing phases and provides:

- Geotechnical assessment of the material
- A commentary on the degree of contamination of the soil
- Possible uses of the material.

2 Sampling

Sampling of the fill material was undertaken by Wicklow County Council on 21 October, 2015. The samples were sent to IGSL and then issued to Jones Environmental Laboratory for environmental testing. The test reports from IGSL and Jones Environmental are appended to this report in Appendices A and B.

3 Geotechnical characterisation

3.1 Soil indices

The moisture content of the material was measured on 15 specimens and the results varied between 3.7 and 7.1%. These are indicative of sandy, Gravel materials. The organic content measured by a loss of ignition test are less than 2% and the maximum value measured was 1.3%.

3.2 Grading

Particle size distribution tests were undertaken on ten samples. The soil could be described as a slightly clayey/silty, very sandy Gravel with cobbles. The deposition regime in the river has produced a very similar grading distribution in the various samples. The grading curves have been plotted against the grading requirements for Class 1A from the National Road Authority (NRA) Specification for Road Works 600 Series.

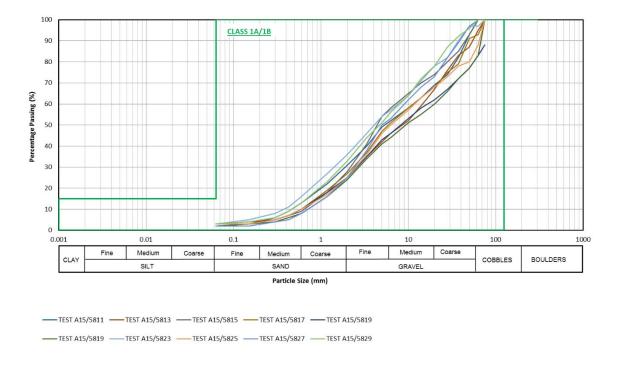


Figure 1 Particle size distribution analyses

3.3 Compaction tests

Dry density versus moisture content relationships were undertaken on five samples using a 2.5kg rammer. The results suggest that the optimum moisture content varied between 5 and 7% with an average value of 6%. The natural moisture content is typically 1 to 2% wet of optimum.

3.4 Moisture Condition Value

The Moisture Condition Value (MCV) test was undertaken on 20 samples. The very sandy Gravel nature of the soil is not readily suitable for the MCV test. The results vary from <1 to 14. The results are summarised on Figure 2.

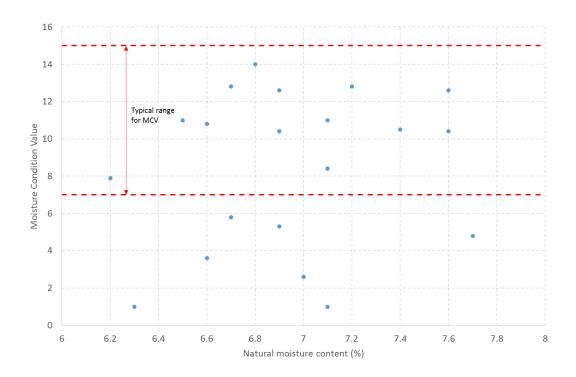


Figure 2 Moisture Condition Value versus natural moisture content

4 Environmental results

4.1 Criteria for Assessment

Soil analysis for contamination was carried out in accordance with two sets of criteria relevant to the environmental assessment of a site depending on whether soils are to remain in-situ or are being reused on site of origin, or are to be removed from site. These are:

- a) Does the soil have properties that deems it hazardous under the Waste Framework Directive
- b) Waste Acceptance Criteria (WAC) for soils to be removed/disposed offsite. In accordance with the parameters for disposal of excavated material to landfill (European Council decision of 19 December 2002 pursuant to Article 16 and Annex II to Directive 1999/31/EC). This Council Decision sets limit values on waste for each landfill type based on total pollutant contents and leachate concentrations.

4.1.1 Waste Acceptance Criteria (WAC)

For soils which are to be removed off-site for disposal in a landfill, the EU has set criteria for the acceptance of waste at a land fill. These are referred to as the Waste Acceptance Criteria (WAC) and are set out in Directive 1999/31/EC (The Landfill Directive) and the Council Decision of 19 December 2002. This decision classifies landfills as Inert, Non-hazardous or Hazardous based on total pollutant contents and leachate concentrations.

4.2 Test Results

4.2.1 Soils to be removed/disposal off site - Waste Acceptance Criteria (WAC)

Excavated soils from construction sites can be disposed to a number of facilities, depending on the concentration of contaminants present in the soils. The main disposal options are as follows:

- Inert Natural Ground, suitable for permitted site (category A)
- Soils suitable for disposal to an Inert Licenced Landfill (category B)
- Soils suitable for disposal to a Non Hazardous Licenced Landfill (category C)
- Soils suitable for disposal to a Hazardous Licenced Landfill (category D)

The results indicate that the materials classify as inert (category A) and are suitable for reuse as construction materials.

5 Conclusions and recommendations

The material extracted from the River Dargle is a slightly silty/clayey, very sandy Gravel with cobbles. The material is suitable for use as a general fill material. The material is current at or slightly wet (1 - 2%) of the optimum moisture content for compaction. Over time some of the outer material may wet up and require some mixing or drying to improve the material and make it suitable for placement as general fill. The moisture contents should be checked before the material is reused.

APPENDIX A – IGSL Test Results

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. R68395 Contract No. 18804 Contract Name: Ravenswell Road

Customer GDGeo

Samples Received: 21/10/15 Date Tested: 27/10/15

BH/TP	Sample No.	Depth (m)	Lab. Ref	Sample	Moisture	Liquid	Plastic	Plasticity	%	Preparation	Liquid Limit	Classification	Description
				Type	Content %	Limit %	Limit %	Index	<425μm		Clause	(BS5930)	
Sample No.01	Α	N/A	A15/5811	В	5.5								Grey brown slightly clayey/silty, very sandy, GRAVEL
Sample No.01	В	N/A	A15/5812	В	6.1								Grey brown slightly clayey/silty, very sandy, GRAVEL
Sample No.02	Α	N/A	A15/5813	В	5.1								Brown slightly clayey/silty, very sandy, GRAVEL with occasional cobbles
Sample No.02	В	N/A	A15/5814	В	5								Brown slightly clayey/silty, very sandy, GRAVEL with occasional cobbles
Sample No.03	А	N/A	A15/5815	В	5.9								Grey brown slightly clayey/silty, very sandy, GRAVEL
Sample No.03	В	N/A	A15/5816	В	7.1								Grey brown slightly clayey/silty, very sandy, GRAVEL
Sample No.04	Α	N/A	A15/5817	В	4.8								Grey/brown slightly clayey/silty, very sandy, GRAVEL with some cobbles
Sample No.04	В	N/A	A15/5818	В	5.3								Grey/brown slightly clayey/silty, very sandy, GRAVEL with some cobbles
Sample No.05	А	N/A	A15/5819	В	5.3								Grey/brown slightly clayey/silty, very sandy, GRAVEL with some cobbles
Sample No.05	В	N/A	A15/5820	В	6.7								Grey/brown slightly clayey/silty, very sandy, GRAVEL with some cobbles
Sample No.06	Α	N/A	A15/5821	В	5.6								Grey/brown slightly clayey/silty, very sandy, GRAVEL with some cobbles
Sample No.06	В	N/A	A15/5822	В	4.8								Grey/brown slightly clayey/silty, very sandy, GRAVEL with some cobbles
Sample No.07	Α	N/A	A15/5823	В	5								Grey brown slightly clayey/silty, very sandy, GRAVEL with occasional cobbles
Sample No.07	В	N/A	A15/5824	В	3.7								Grey brown slightly clayey/silty, very sandy, GRAVEL with occasional cobbles
Sample No.08	Α	N/A	A15/5825	В	6.2								Grey brown slightly clayey/silty, very sandy, GRAVEL with some cobbles
Notes:	Preparation:	WS - Wet sie	ved	•	Sample Type:	B - bulk distu	rbed	Remarks:		•			•

Clause:

AR - As received

U - Undisturbed

NP - Non plastic

Liquid Limit 4.3 Cone Penetrometer definitive method

4.4 Cone Penetrometer one point method

Remarks:

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 (Quality Manager)

Approved by A Byene

29/10/15

Date

1 of 1

Page

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

Test Report

Determination of Moisture Content, Liquid & Plastic Limits





Report No. Contract No. Contract Name: R68396 Ravenswell Road

Customer GDGeo

Samples Received: 21/10/15 Date Tested: 27/10/15

BH/TP	Sample No.	Depth (m)	Lab. Ref	Sample	Moisture	Liquid	Plastic	Plasticity		Preparation	Liquid Limit	Classification (BS5930)	Description
				Туре	Content %	Limit %	Limit %	Index	<425μm		Clause		
Sample No.08	В	N/A	A15/5826	В	6.2								Grey brown slightly clayey/silty, very sandy, GRAVEL with some cobbles
Sample No.09	А	N/A	A15/5827	В	5.9								Brown slightly clayey/silty, very sandy, GRAVEL
Sample No.09	В	N/A	A15/5828	В	6.3								Brown slightly clayey/silty, very sandy, GRAVEL
Sample No.10	Α	N/A	A15/5829	В	5.1								Grey brown slightly clayey/silty, very sandy, GRAVEL
Sample No.10	В	N/A	A15/5830	В	6.7								Grey brown slightly clayey/silty, very sandy, GRAVEL
·													
	_						_					_	

WS - Wet sieved Sample Type: B - bulk disturbed Notes: Preparation:

AR - As received U - Undisturbed NP - Non plastic

4.3 Cone Penetrometer definitive method

Liquid Limit Clause: 4.4 Cone Penetrometer one point method Remarks:

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.

Approved by Date Page

IGSL Ltd Materials Laboratory

Persons authorized to approve reports

H Byrne (Quality Manager)

A Byene

29/10/15

1 of 1

Determination of Particle Size Distribution





particle	%			Contract No:	18804	Report	No. R68548		•												
size	passing		Ī	Contract:	Ravenswell	Road															
75	100	COBBLES		Bh:	Sample No.	01															
63	100			Sample No.	No. 1	Lab. Sa	ample No.	A15/5811													
50	93			Sample Type:	В																
37.5	82			Depth (m)	N/A	Custon	ner:	GDGeo													
28	74			Date Received			esting started	27/10/2015													
20	69			Description:	Grey brown	slightly	clayey/silty, very s	sandy, GRAVEL													
14	63	GRAVEL																			
10	58	OIVWLL		Remarks																	
6.3	52						5 53	8 22 2	22	rč.											
5	49						0.063	0.3 0.425 0.6 1.18	2 3.35 6.3 10 14 14	28 37 50 50 50 63											
3.35	40		100																		
2	31		90																		
1.18	22		80	1																	
0.6	13		8 70	+ + + + + + + + + + + + + + + + + + + +																	
0.425	9	SAND	SAND	SAND	SAND	SAND	iss 60	1													
0.3	6																		e 50		
0.15	3		Percentage passing (%) 00 00 00 00 00 00 00 00 00 00 00 00 00																		
0.063	2		cen																		
			20																		
		SILT/CLAY	10																		
		0.2.7,02.7.	0																		
			0.	0001 0.0	01	0.01	0.1	1	10	100											
				CLA	Y	SILT	Sieve size (mm)) SAND	GRAVEL												
			al Mater	iala Labarete			Approved by	/ :	Date:	Page no:											
		IGSL Lt	a water	ials Laborato	ory		A Byen	~-	06/11/15	1 of 1											
						Persons a	authorised to approve r	eport: J Barrett (De	ep. Quality Manager) H	Byrne (Quality Manag											

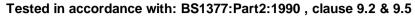
Determination of Particle Size Distribution





particle	%			Contract No:	18804	Report N	lo. R68549			
size	passing			Contract:	Ravenswell	Road				
75	100	COBBLES		Bh:	Sample 02					
63	95			Sample No.	No.2	Lab. Sam	nple No.	A15/5813		
50	87			Sample Type:	В					
37.5	83			Depth (m)	N/A	Custome	r:	GDGeo		
28	76			Date Received			sting started	27/10/2015		
20	67			Description:	Brown sligh	tly clayey/s	silty, very sandy, (GRAVEL with	occasional cobbles	
14	59	GRAVEL								
10	52	OIVIVEE		Remarks						
6.3	46						5 53	8 22 8	22	5
5	42		400				0.063	0.3 0.425 0.6 1.18	2 3.35 6.3 10 14 20	930 33
3.35	35		100							
2	25		90							
1.18	18	SOUTH OF THE PROPERTY OF THE PERCENTAGE PASSING (%)	80	+ + + + + + + + + + + + + + + + + + + +						
0.6	10		8 70	+ + + + + + + + + + + + + + + + + + + +				- 	 /	
0.425	7		issin 60	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1					 / 	
0.3	5		ື່ ອີ່ ຄ 50							
0.15	4		tage 40							
0.063	3		cen							
			20	1						
		SILT/CLAY	10							
		0.21,0211	0							
			0.	0001 0.00	01	0.01	0.1	1	10	100
				CLAY	,	SILT \$	Sieve size (mm)	SAND	GRAVEL	
			-1 BA - 4 -	lala Lala seri			Approved by:		Date:	Page no:
		IGSL Lt	d Mater	ials Laborato	ory 		A Byen	-	06/11/15	1 of 1
						Persons aut	thorised to approve rep	oort: J Barrett (De	p. Quality Manager) H Byr	ne (Quality Manage

Determination of Particle Size Distribution





particle	%			Contract No:	18804	Report	No. R68422		•											
size	passing		1	Contract:	Ravenswell	Road														
75	100	COBBLES		Bh:	Sample No.	.03														
63	100	0000000		Sample No.	No.3	Lab. Sa	mple No.	A15/5815												
50	93			Sample Type:	В															
37.5	85			Depth (m)	N/A	Custom	er:	GDGeo												
28	80			Date Received			sting started	27/10/2015												
20	74			Description:	Grey brown	n slightly o	clayey/silty, very sa	ındy, GRAVEL												
14	70	GRAVEL																		
10	65	OIVWLL		Remarks																
6.3	58						5 53	8 8		ιĊ										
5	54		400				0.063	0.3 0.425 0.6 1.18	2 3.35 6.3 10 14 20	28 33 50 50 50 7										
3.35	41		100																	
2	28		90	1																
1.18	18		80	† † † † † † † † † † † † † † † † † † † 																
0.6	9		8 70	+ + + + + + + + + + + + + + + + + + + +																
0.425	7	SAND	issin 60	+ + + + + + + + + + + + + + + + + + + +																
0.3	5													φ 50						
0.15	3		40																	
0.063	3		Percentage passing (%) 00 00 00 00 00 00 00 00 00 00 00 00 00						1/1111111111111111111111111111111111111											
			<u>م</u> 20																	
			10	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1																
		SILT/CLAY	0			Ш		<u> </u>	<u> </u>											
			0.0	0.00	01	0.01	0.1	1	10	100										
				CLAY	,	SILT	Sieve size (mm)	SAND	GRAVEL											
			- No.4c -:				Approved by:		Date:	Page no:										
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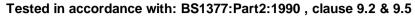
Determination of Particle Size Distribution





particle	%			Contract No:	18804	Report	rt No. R68550																			
size	passing		ſ	Contract:	Ravenswell	Road																				
75	100	COBBLES		Bh:	Sample 04																					
63	93			Sample No.	No. 4	Lab. Sa	Sample No. A15/5817																			
50	91			Sample Type:	В																					
37.5	79			Depth (m)	N/A	Custon	mer: GDGeo																			
28	75			Date Received			Testing started 27/10/2015																			
20	68			Description:	Grey/brown	slightly	y clayey/silty, very sandy, GRAVEL with some cobbles																			
14	63	GRAVEL																								
10	58	OIVWLL		Remarks																						
6.3	51																									
5	47		100				0.063 0.425 0.6 1.18 2 2 2 3.35 5 6.3 10 14 12 10 14 20 8 37.5 5 6 6 3 7 6 6 7 7 7 8 7 8 7 8 7 8 7 8 7 8 7 8 7																			
3.35	37		100]																		
2	27		90																							
1.18	19		80					-																		
0.6	10		8 70	+ + + + + + + + + + + + + + + + + + + +																						
0.425	7	SAND	SAND	SAND	SAND	SAND	SAND	SAND	SAND	SAND	SAND	SAND	SAND	SAND	SAND	SAND	SAND	SAND	SAND	SAND	iss 60	+ + + + + + + + + + + + + + + + + + + +				4
0.3	5																Percentage passing (%) 30					\mathbb{I}				
0.15	3							etu 40																		
0.063	2		cen c																							
								1																		
			20					1																		
		SILT/CLAY	10					-																		
		0.21702711	0					4																		
			0.	0001 0.0	01	0.01	0.1 1 10 10	00																		
				CLA'	Y	SILT	Sieve size (mm) SAND GRAVEL																			
				iala Labanata			Approved by: Date: Page no	<u> </u>																		
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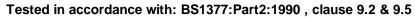
Determination of Particle Size Distribution





particle	%			Contract No:	18804	Papart	No. R68551			
size	passing			Contract:	Ravenswe		110. 1100551			
75	88			Bh:	Sample 05					
63	83	COBBLES		Sample No.	No.5		ample No.	A15/5819		
50	77			Sample Type:	В	_0.0.		711070010		
37.5	72			Depth (m)	N/A	Custon	ner:	GDGeo		
28	67			Date Received			esting started	27/10/2015		
20	62			Description:			-		with some cobbles	
14	58	OD 4) /FI		,						
10	53	GRAVEL		Remarks	Sample size did not meet the	requirements of BS1377				
6.3	46						5 53	8 22		2
5	43						0.063	0.3 0.425 0.6 1.18	2 3.35 5.3 10 14 20	33. 500. 533.
3.35	35		100							
2	25		90							
1.18	18		80	+ + + + + + + + + + + + + + + + + + + +						
0.6	10		Percentage passing (%) 00 00 00 00 00 00 00 00 00 00 00 00 00	+ + + + + + + + + + + + + + + + + + + +						
0.425	7	SAND		+ + + + + + + + + + + + + + + + + + + +						
0.3	5		ed 50							
0.15	3		40 tage							
0.063	3		and 30							
			ည်း 30 20						<u> </u>	
		SILT/CLAY	10							
			0 0.0	0001 0.0	01	0.01	0.1	1	10	100
				CLA		SILT	Sieve size (mm)	SAND	GRAVEL	
		1001.11	-1 BA - 4 '				Approved by	<i>r</i> :	Date:	Page no:
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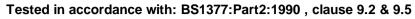
Determination of Particle Size Distribution





	ī	ī																			
particle	%			Contract No:	18804	Report No.	R68551														
size	passing			Contract:	Ravenswell	Road															
75	100	COBBLES		Bh:	Sample 06																
63	83	OODDEEO		Sample No.	No.6	Lab. Samp	le No.	A15/5819													
50	77			Sample Type:	В																
37.5	72			Depth (m)	N/A	Customer:		GDGeo													
28	66			Date Received		Date Testir	_	27/10/2015													
20	60			Description:	Grey/brown	slightly clay	ey/silty, very sa	ndy, GRAVEL	with some cobbles												
14	55	GRAVEL																			
10	51	0		Remarks	Sample size did not meet the re	quirements of BS1377															
6.3	44						63	3 25 8	35	5.											
5	41		100				0.063	0.3 0.425 0.6 1.18	2 3.35 6.3 10 14 20 20	37. 50 53 53											
3.35	34		100																		
2	24		90																		
1.18	16		⊚ 80																		
0.6	8		<u>စ်</u> 70																		
0.425	6	SAND	SAND	SAND	SAND	4	SAND	SAND	SAND	SAND	SAND	SAND	SAND	SAND (%) 70 - 60 - 60 - 60 - 60 - 60 - 60 - 60 -	+ + + + + + + + + + + + + + + + + + + +						
0.3	4						ed 50														
0.15	3		04 tag																		
0.063	2		30 30																		
			ص ع 20																		
			10																		
		SILT/CLAY																			
			0 0.0	0001 0.0	01	0.01	0.1	1	10	100											
				CLA			eve size (mm)	SAND	GRAVEL												
		1001 1	al Matai	lala labaret			Approved by:		Date:	Page no:											
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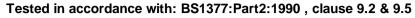
Determination of Particle Size Distribution





particle	%			Contract No:	18804	Report No.	R68423		-																
size	passing			Contract:	Ravenswell	Road																			
75	100	COBBLES		Bh:	Sample No.	07																			
63	97	OODDLLO		Sample No.	No.7	Lab. Samp	le No.	A15/5823																	
50	97			Sample Type:	В																				
37.5	90			Depth (m)	N/A	Customer:		GDGeo																	
28	82			Date Received	21/10/2015		-	27/10/2015																	
20	78			Description:		slightly clay	ey/silty, very sa	ndy, GRAVEL	with occasional																
14	71	GRAVEL			cobbles																				
10	64	0		Remarks																					
6.3	57						0.15	0.3).425 0.6 1.18	35	rč.															
5	54		100				0.063	0.3 0.425 0.6 1.18	2 3.35 6.3 10 14 20 20	37. 50 53 53															
3.35	46																								
2	36		90																						
1.18	27		80 <u>©</u>																						
0.6	16		<u>ှိ</u> 70	+ + + + + + + + + + + + + + + + + + + +																					
0.425	11	SAND	SAND	SAND	SAND	SAND	SAND	SAND	SAND	SAND	SAND	SAND	SAND	SAND	SAND	SAND	SAND	SAND (%) 70 60 40 40 30							
0.3	8						<u>ə</u> 50	+																	
0.15	5		Utaĝ																						
0.063	3		<u>5</u> 30	1					1																
			<u>مّ</u> 20																						
			10																						
		SILT/CLAY	0					<u> </u>																	
			_	0001 0.0	01	0.01	0.1	1	10	100															
				CLA	/	SILT Si e	eve size (mm)	SAND	GRAVEL																
			al Mata				Approved by:		Date:	Page no:															
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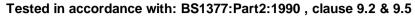
Determination of Particle Size Distribution





particle	%			Contract No:	18804	Report	No. R68449		•																										
size	passing		•	Contract:	Ravenswel	l Road																													
75	100	COBBLES		Bh:	Sample No	.08																													
63	88	000000		Sample No.	No 8	Lab. Sa	mple No.	A15/5825																											
50	80			Sample Type:	В																														
37.5	78			Depth (m)	N/A	Custom	er:	GDGeo																											
28	73			Date Received	21/10/2015	27/10/2015																													
20	68			Description:	Grey brow	n slightly o	clayey/silty, very sa	andy, GRAVEL	with some cobbles																										
14	63	GRAVEL																																	
10	57	0		Remarks	Sample size did not meet the	requirements of BS1377																													
6.3	50						0.15	0.3 1.425 0.6 1.18	2 3.35 5.3 6.3 10 10	τύ.																									
5	46		100				0.063	0.3 0.425 0.6 1.18	33.0	937																									
3.35	36																																		
2	25		90																																
1.18	17		§ 80																																
0.6	10	SAND	ိ) ၅	1																															
0.425	7		SAND	SAND	SAND	SAND	SAND	SAND	SAND	SAND	SAND	SAND	SAND	SAND	SAND	SAND	SAND	SAND	SAND	SAND	SAND	SAND	SAND	SAND	SAND	SAND	SAND	issii 60							
0.3	5														Percentage passing (%) 00 00 00 00 00 00 00 00 00 00 00 00 00	1																			
0.15	3		bet 40																																
0.063	3		<u>5</u> 30	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1																															
			ى 20						<u> </u>																										
			10																																
		SILT/CLAY																																	
			0	0001 0.0	001	0.01	0.1	1	10	100																									
			0.	CLA		SILT	Sieve size (mm)	SAND	GRAVEL	.55																									
							Approved by:		Date:	Page no:																									
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	Persons authorised to approve report: J Barrett (Dep. Quality Manager) H Byrne (Quality Manager)																																		

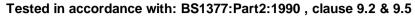
Determination of Particle Size Distribution





particle	%			Contract No:	18804	Report	No. R68424				
size	passing			Contract:	Ravenswell	Road					
75	100	COBBLES		Bh:	Sample 09						
63	100	0000000		Sample No.	No. 9	Lab. Sa	ample No.	A15/5827			
50	97			Sample Type:	В						
37.5	89			Depth (m)	N/A	Custon	ner:	GDGeo			
28	82			Date Received			esting started	27/10/2015	5		
20	73			Description:	Brown sligh	tly claye	y/silty, very sandy,	GRAVEL			
14	68	GRAVEL									
10	62	010.022		Remarks							
6.3	53						53	25	35	75.	
5	50		400				0.063	0.3 0.425 0.6 1.18	2 3.35 5.3 10 14	20 28 37 50 50 50	
3.35	38		100								
2	25		90								
1.18	16		® 80	+ + + + + + + + + + + + + + + + + + + +							
0.6	8		<u></u> 5 70	+ + + + + + + + + + + + + + + + + + + +					+ + + + + + + + + + + + + + + + + + +	1 	
0.425	5	SAND	SAND	iss 60	+ + + + + + + + + + + + + + + + + + + +						
0.3	4		Percentage passing (%) 00 00 00 00 00 00 00 00 00 00 00 00 00	 							
0.15	2) 40								
0.063	2		arcen 30								
									/		
			20								
		SILT/CLAY	10								
			0	.0001 0.0	01	0.01	0.1	1	10	100	
				.0001 0.0 CLA		SILT		CAND	GRAVEL		
				CLA	Ī	SILI	Sieve size (mm)	SAND	GRAVEL	-	
	<u> </u>	100: 1:	185 4				Approved by	:	Date:	Page no:	
IGSL Ltd Materials Laboratory							A Byen	~-	30/10/15	1 of 1	
Persons authorised to approve report: J Barrett (Dep. Quality Manager) H Byrne (Quality Manager)											

Determination of Particle Size Distribution





particle	%			Contract No:	18804	Report	No. R68450		•																							
size	passing		1	Contract:	Ravenswell	Road																										
75	100	COBBLES		Bh:	Sample No.	10																										
63	100			Sample No.	No.10	Lab. Sa	ample No.	A15/5829																								
50	96			Sample Type:	В																											
37.5	92			Depth (m)	N/A	Custom	ner:	GDGeo																								
28	87			Date Received			esting started	27/10/2015																								
20	78			Description:	Grey brown	slightly	clayey/silty, very sa	andy, GRAVEL																								
14	72	GRAVEL																														
10	64	0.0		Remarks																												
6.3	56						0.15	0.3 0.425 0.6	35 - 3	rò.																						
5	51		400				0.063	0.3 0.425 0.6 1.18	2 3.35 6.3 10 14 20	97.00																						
3.35	44		100																													
2	33		90																													
1.18	23		® 80																													
0.6	13	SAND	Percentage passing (%) 8 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0																													
0.425	9		SAND	SAND	SAND	SAND	SAND	SAND	SAND	SAND	SAND	SAND	SAND	SAND	SAND	SAND	SAND	SAND	SAND	SAND	SAND	SAND	SAND	SAND	iss 60					- 		
0.3	6																ed 50															
0.15	4		14ag																													
0.063	3		arcen 30						$X \sqcup \sqcup \sqcup \sqcup \sqcup$																							
			20																													
		SILT/CLAY	10																													
			0	2004	24		2.4		40	400																						
			0.0	0.00		0.01	0.1	1	10	100																						
				CLAY	,	SILT	Sieve size (mm)	SAND	GRAVEL																							
							Approved by:		Date:	Page no:																						
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Persons authorised to approve report: J Barrett (Dep. Quality Manager) H Byrne (Quality Manager)																																

Naas Co. Kildare 045 899324

Test Report

Determination of Moisture Condition Value at Natural Moisture Content



Tested in accordance with BS1377:Part 4:1990, clause 5.4

Report No.	R68470

Contract No. 18804

Contract Name: Ravensell Road

Customer: GDGeo

BH/TP Sample 01

Sample No. A

Depth (m) N/A

Sample Type: B

Lab Sample No. A15/5811

Source (if applicable) unknown

Material Type (if applicable):

Sample Received: 21/10/15

Date Tested: 28/10/15

Sample Cert: N/A

Moisture Content (%): 7.1

% Particles > 20mm 26

(By dry mass):

MCV: 11

Interpretation of Plot: Steepest Straight Line

Description of Soil: Grey brown slightly clayey/silty, very sandy, GRAVEL

The result relates to the specimen tested.

Any remaining material will be retained for one month.

Sampling and opinions and interpretations are outside the scope of accreditation.

Persons authorised to approve reports

J Barrett (Dep. Quality Manager)

H Byrne (Quality Manager)

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Co. Kildare 045 899324

Test Report

Determination of Moisture Condition Value at Natural Moisture Content



Tested in accordance with BS1377:Part 4:1990, clause 5.4

Report No.	R68471
Contract No.	18804

Contract Name: Ravensell Road

Customer: GDGeo

BH/TP Sample 01

Sample No. B

Depth (m) N/A

Sample Type:

Lab Sample No. A15/5812

Source (if applicable) unknown

Material Type (if applicable):

Sample Received: 21/10/15

Date Tested: 28/10/15

Sample Cert: N/A

Moisture Content (%): 6.5

% Particles > 20mm 26

(By dry mass):

MCV: 11

Interpretation of Plot: Steepest Straight Line

Description of Soil: Grey brown slightly clayey/silty, very sandy, GRAVEL

The result relates to the specimen tested.

Any remaining material will be retained for one month.

Sampling and opinions and interpretations are outside the scope of accreditation.

Persons authorised to approve reports

J Barrett (Dep. Quality Manager)

H Byrne (Quality Manager)

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Naas Co. Kildare 045 899324

Test Report

Determination of Moisture Condition Value at Natural Moisture Content



Tested in accordance with BS1377:Part 4:1990, clause 5.4

Report No.	R68472
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Contract No. 18804

Contract Name: Ravensell Road

Customer: GDGeo

BH/TP Sample 02

Sample No. A

Depth (m) N/A

Sample Type: B

Lab Sample No. A15/5813

Source (if applicable) unknown

Material Type (if applicable):

Sample Received: 21/10/15

Date Tested: 28/10/15

Sample Cert: N/A

Moisture Content (%): 6.9

% Particles > 20mm 26

(By dry mass):

MCV: 5.3

Interpretation of Plot: Steepest Straight Line

Description of Soil: Brown slightly clayey/silty, very sandy, GRAVEL with

occasional cobbles

The result relates to the specimen tested.

Any remaining material will be retained for one month.

Sampling and opinions and interpretations are outside the scope of accreditation.

Persons authorised to approve reports

J Barrett (Dep. Quality Manager)

H Byrne (Quality Manager)

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Naas Co. Kildare 045 899324

Test Report

Determination of Moisture Condition Value at Natural Moisture Content



Tested in accordance with BS1377:Part 4:1990, clause 5.4

R68473

Contract No. 18804

Contract Name: Ravensell Road

Customer: GDGeo

BH/TP Sample 2

Sample No. B

Depth (m) N/A

Sample Type: B

Lab Sample No. A15/5814

Source (if applicable) unknown

Material Type (if applicable):

Sample Received: 21/10/15

Date Tested: 28/10/15

Sample Cert: N/A

Moisture Content (%): 6.7

% Particles > 20mm 26

(By dry mass):

MCV: 12.8

Interpretation of Plot: Steepest Straight Line

Description of Soil: Brown slightly clayey/silty, very sandy, GRAVEL with

occasional cobbles

The result relates to the specimen tested.

Any remaining material will be retained for one month.

Sampling and opinions and interpretations are outside the scope of accreditation.

Persons authorised to approve reports

J Barrett (Dep. Quality Manager)

H Byrne (Quality Manager)

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Naas Co. Kildare 045 899324

Test Report

Determination of Moisture Condition Value at Natural Moisture Content



Tested in accordance with BS1377:Part 4:1990, clause 5.4

Report No.	R68474
Report No.	R68474

Contract No. 18804

Contract Name: Ravensell Road

Customer: GDGeo

BH/TP Sample 3

Sample No. A

Depth (m) N/A

Sample Type:

Lab Sample No. A15/5815

Source (if applicable) unknown

Material Type (if applicable):

Sample Received: 21/10/15

Date Tested: 28/10/15

Sample Cert: N/A

Moisture Content (%): 7.4

% Particles > 20mm 26

(By dry mass):

MCV: 10.5

Interpretation of Plot: Steepest Straight Line

Description of Soil: Grey brown slightly clayey/silty, very sandy, GRAVEL

The result relates to the specimen tested.

Any remaining material will be retained for one month.

Sampling and opinions and interpretations are outside the scope of accreditation.

Persons authorised to approve reports

J Barrett (Dep. Quality Manager)

H Byrne (Quality Manager)

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Naas Co. Kildare 045 899324

Test Report

Determination of Moisture Condition Value at Natural Moisture Content



Tested in accordance with BS1377:Part 4:1990, clause 5.4

Report No.	R68475
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Contract No. 18804

Contract Name: Ravensell Road

Customer: GDGeo

BH/TP Sample 03

Sample No. B

Depth (m) N/A

Sample Type: B

Lab Sample No. A15/5816

Source (if applicable) unknown

Material Type (if applicable):

Sample Received: 21/10/15

Date Tested: 28/10/15

Sample Cert: N/A

Moisture Content (%): 6.2

% Particles > 20mm 25

(By dry mass):

MCV: 7.9

Interpretation of Plot: Steepest Straight Line

Description of Soil: Grey brown slightly clayey/silty, very sandy, GRAVEL

The result relates to the specimen tested.

Any remaining material will be retained for one month.

Sampling and opinions and interpretations are outside the scope of accreditation.

Persons authorised to approve reports

J Barrett (Dep. Quality Manager)

H Byrne (Quality Manager)

IGSL Ltd Materials Laboratory

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Date Page

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Naas Co. Kildare 045 899324

Test Report

Determination of Moisture Condition Value at Natural Moisture Content



Tested in accordance with BS1377:Part 4:1990, clause 5.4

Report No.	R68476
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Contract No. 18804

Contract Name: Ravensell Road

Customer: GDGeo

BH/TP Sample 4

Sample No. A

Depth (m) N/A

Sample Type: B

Lab Sample No. A15/5817

Source (if applicable) unknown

Material Type (if applicable):

Sample Received: 21/10/15

Date Tested: 28/10/15

Sample Cert: N/A

Moisture Content (%): 6.9

% Particles > 20mm 26

(By dry mass):

MCV: 12.6

Interpretation of Plot: Steepest Straight Line

Description of Soil: Grey/brown slightly clayey/silty, very sandy, GRAVEL

with some cobbles

The result relates to the specimen tested.

Any remaining material will be retained for one month.

Sampling and opinions and interpretations are outside the scope of accreditation.

Persons authorised to approve reports

J Barrett (Dep. Quality Manager)

H Byrne (Quality Manager)

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Naas Co. Kildare 045 899324

Test Report

Determination of Moisture Condition Value at Natural Moisture Content



Tested in accordance with BS1377:Part 4:1990, clause 5.4

R68477

Contract No. 18804

Contract Name: Ravensell Road

Customer: GDGeo

BH/TP Sample 4

Sample No. B

Depth (m) N/A

Sample Type: B

Lab Sample No. A15/5818

Source (if applicable) unknown

Material Type (if applicable):

Sample Received: 21/10/15

Date Tested: 28/10/15

Sample Cert: N/A

Moisture Content (%): 7.2

% Particles > 20mm 26

(By dry mass):

MCV: 12.8

Interpretation of Plot: Steepest Straight Line

Description of Soil: Grey/brown slightly clayey/silty, very sandy, GRAVEL

with some cobbles

The result relates to the specimen tested.

Any remaining material will be retained for one month.

Sampling and opinions and interpretations are outside the scope of accreditation.

Persons authorised to approve reports

J Barrett (Dep. Quality Manager)

H Byrne (Quality Manager)

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Test Report

Determination of Moisture Condition Value at Natural Moisture Content



Tested in accordance with BS1377:Part 4:1990, clause 5.4

Report No.	R68478
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Contract No. 18804

Contract Name: Ravensell Road

Customer: GDGeo

BH/TP Sample 05

Sample No. A

Depth (m) N/A

Sample Type: B

Lab Sample No. A15/5819

Source (if applicable) unknown

Material Type (if applicable):

Sample Received: 21/10/15

Date Tested: 28/10/15

Sample Cert: N/A

Moisture Content (%): 6.8

% Particles > 20mm 26

(By dry mass):

MCV: 14

Interpretation of Plot: Steepest Straight Line

Description of Soil: Grey/brown slightly clayey/silty, very sandy, GRAVEL

with some cobbles

The result relates to the specimen tested.

Any remaining material will be retained for one month.

Sampling and opinions and interpretations are outside the scope of accreditation.

Persons authorised to approve reports

J Barrett (Dep. Quality Manager)

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Test Report

Determination of Moisture Condition Value at Natural Moisture Content



Tested in accordance with BS1377:Part 4:1990, clause 5.4

Report No.	R68479
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Contract No. 18804

Contract Name: Ravensell Road

Customer: GDGeo

BH/TP Sample 5

Sample No. B

Depth (m) N/A

Sample Type: B

Lab Sample No. A15/5820

Source (if applicable) unknown

Material Type (if applicable):

Sample Received: 21/10/15

Date Tested: 28/10/15

Sample Cert: N/A

Moisture Content (%): 6.6

% Particles > 20mm 26

(By dry mass):

MCV: 3.6

Interpretation of Plot: Steepest Straight Line

Description of Soil: Grey/brown slightly clayey/silty, very sandy, GRAVEL

with some cobbles

The result relates to the specimen tested.

Any remaining material will be retained for one month.

Sampling and opinions and interpretations are outside the scope of accreditation.

Persons authorised to approve reports

J Barrett (Dep. Quality Manager)

H Byrne (Quality Manager)

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Test Report

Determination of Moisture Condition Value at Natural Moisture Content



Tested in accordance with BS1377:Part 4:1990, clause 5.4

Report No.	R68480
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Contract No. 18804

Contract Name: Ravensell Road

Customer: GDGeo

BH/TP Sample 6

Sample No. A

Depth (m) N/A

Sample Type: B

Lab Sample No. A15/5821

Source (if applicable) unknown

Material Type (if applicable):

Sample Received: 21/10/15

Date Tested: 28/10/15

Sample Cert: N/A

Moisture Content (%): 6.7

% Particles > 20mm 26

(By dry mass):

MCV: 5.8

Interpretation of Plot: Steepest Straight Line

Description of Soil: Grey/brown slightly clayey/silty, very sandy, GRAVEL

with some cobbles

The result relates to the specimen tested.

Any remaining material will be retained for one month.

Sampling and opinions and interpretations are outside the scope of accreditation.

Persons authorised to approve reports

J Barrett (Dep. Quality Manager)

H Byrne (Quality Manager)

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Naas Co. Kildare

Test Report

Determination of Moisture Condition Value at Natural Moisture Content



Tested in accordance with BS1377:Part 4:1990, clause 5.4

045 699324		
	Report No.	R68481
	Contract No.	18804
	Contract Name:	Ravensell Road
	Customer:	GDGeo
	BH/TP	Sample 6
	Sample No.	В
	Depth (m)	N/A
	Sample Type:	В
	Lab Sample No.	A15/5822
	Source (if applicable)	unknown
	Material Type (if applicable):	В
	Sample Received:	21/10/15
	Date Tested:	28/10/15
	Sample Cert:	N/A
	Moisture Content (%):	7.1
	% Particles > 20mm (By dry mass):	26
	MCV:	8.4
	Interpretation of Plot:	Steepest Straight Line

The result relates to the specimen tested.

Any remaining material will be retained for one month.

Description of Soil:

Sampling and opinions and interpretations are outside the scope of accreditation.

Persons authorised to approve reports

J Barrett (Dep. Quality Manager)

H Byrne (Quality Manager)

Grey/brown slightly clayey/silty, very sandy, GRAVEL

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with some cobbles

Naas Co. Kildare

045 899324

Test Report

Determination of Moisture Condition Value at Natural Moisture Content



Tested in accordance with BS1377:Part 4:1990, clause 5.4

Report No.	R68500
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Contract No. 18804

Contract Name: Ravensell Road

Customer: GDGeo

BH/TP Sample 7

Sample No. A

Depth (m) N/A

Sample Type:

Lab Sample No. A15/5823

Source (if applicable) unknown

Material Type (if applicable):

Sample Received: 21/10/15

Date Tested: 02/11/15

Sample Cert: N/A

Moisture Content (%): 6.6

% Particles > 20mm 26

(By dry mass):

MCV: 10.8

Interpretation of Plot: Steepest Straight Line

Description of Soil: Grey brown slightly clayey/silty, very sandy, GRAVEL

with occasional cobbles

The result relates to the specimen tested.

Any remaining material will be retained for one month.

Sampling and opinions and interpretations are outside the scope of accreditation.

Persons authorised to approve reports

J Barrett (Dep. Quality Manager)

H Byrne (Quality Manager)

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Report No.

Co. Kildare 045 899324

Test Report

Determination of Moisture Condition Value at Natural Moisture Content



Tested in accordance with BS1377:Part 4:1990, clause 5.4

R68501

Contract No.	18804
Contract Name:	Ravensell Road
Customer:	GDGeo
BH/TP	Sample 7
Sample No.	В
Depth (m)	N/A
Sample Type:	В
Lab Sample No.	A15/5824
Source (if applicable)	unknown
Material Type (if applicable):	В

21/10/15

02/11/15

Sample Cert: N/A

Moisture Content (%): 6.3

% Particles > 20mm 25

(By dry mass):

Sample Received:

Date Tested:

MCV: <1

Interpretation of Plot: Steepest Straight Line

Description of Soil: Grey brown slightly clayey/silty, very sandy, GRAVEL

with occasional cobbles

The result relates to the specimen tested.

Any remaining material will be retained for one month.

Sampling and opinions and interpretations are outside the scope of accreditation.

Persons authorised to approve reports

J Barrett (Dep. Quality Manager)

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Test Report

Determination of Moisture Condition Value at Natural Moisture Content



Tested in accordance with BS1377:Part 4:1990, clause 5.4

Report No.	R68502
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Contract No. 18804

Contract Name: Ravensell Road

Customer: GDGeo

BH/TP Sample 8

Sample No. A

Depth (m) N/A

Sample Type: B

Lab Sample No. A15/5825

Source (if applicable) unknown

Material Type (if applicable):

Sample Received: 21/10/15

Date Tested: 02/11/15

Sample Cert: N/A

Moisture Content (%): 6.9

% Particles > 20mm 26

(By dry mass):

MCV: 10.4

Interpretation of Plot: Steepest Straight Line

Description of Soil: Grey brown slightly clayey/silty, very sandy, GRAVEL

with some cobbles

The result relates to the specimen tested.

Any remaining material will be retained for one month.

Sampling and opinions and interpretations are outside the scope of accreditation.

Persons authorised to approve reports

J Barrett (Dep. Quality Manager)

H Byrne (Quality Manager)

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Test Report

Determination of Moisture Condition Value at Natural Moisture Content



Tested in accordance with BS1377:Part 4:1990, clause 5.4

Report No.	R68503

Contract No. 18804

Contract Name: Ravensell Road

Customer: GDGeo

BH/TP Sample 8

Sample No. B

Depth (m) N/A

Sample Type: B

Lab Sample No. A15/5826

Source (if applicable) unknown

Material Type (if applicable):

Sample Received: 21/10/15

Date Tested: 02/11/15

Sample Cert: N/A

Moisture Content (%): 7.7

% Particles > 20mm 26

(By dry mass):

MCV: 4.8

Interpretation of Plot: Steepest Straight Line

Description of Soil: Grey brown slightly clayey/silty, very sandy, GRAVEL

with some cobbles

The result relates to the specimen tested.

Any remaining material will be retained for one month.

Sampling and opinions and interpretations are outside the scope of accreditation.

Persons authorised to approve reports

J Barrett (Dep. Quality Manager)
H Byrne (Quality Manager)

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Report No.

Naas Co. Kildare 045 899324

Test Report

Determination of Moisture Condition Value at Natural Moisture Content



Tested in accordance with BS1377:Part 4:1990, clause 5.4

R68504

Contract No.	18804
Contract Name:	Ravensell Road
Customer:	GDGeo
BH/TP	Sample 9
Sample No.	A
Depth (m)	N/A
Sample Type:	В
Lab Sample No.	A15/5827
Source (if applicable)	unknown
Material Type (if applicable):	В

21/10/15

02/11/15

Sample Cert: N/A

Moisture Content (%): 7.1

% Particles > 20mm 26

(By dry mass):

Sample Received:

Date Tested:

MCV: <1

Interpretation of Plot: Steepest Straight Line

Description of Soil: Brown slightly clayey/silty, very sandy, GRAVEL

The result relates to the specimen tested.

Any remaining material will be retained for one month.

Sampling and opinions and interpretations are outside the scope of accreditation.

Persons authorised to approve reports

J Barrett (Dep. Quality Manager)

H Byrne (Quality Manager)

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Test Report

Determination of Moisture Condition Value at Natural Moisture Content



Tested in accordance with BS1377:Part 4:1990, clause 5.4

Ravensell Road

Report No.	R68505
Contract No.	18804

Customer: GDGeo

BH/TP Sample 9

Sample No. B

Contract Name:

Depth (m) N/A

Sample Type:

Lab Sample No. A15/5828

Source (if applicable) unknown

Material Type (if applicable):

Sample Received: 21/10/15

Date Tested: 02/11/15

Sample Cert: N/A

Moisture Content (%): 7.0

% Particles > 20mm 26

(By dry mass):

MCV: 2.6

Interpretation of Plot: Steepest Straight Line

Description of Soil: Brown slightly clayey/silty, very sandy, GRAVEL

The result relates to the specimen tested.

Any remaining material will be retained for one month.

Sampling and opinions and interpretations are outside the scope of accreditation.

Persons authorised to approve reports

J Barrett (Dep. Quality Manager)

H Byrne (Quality Manager)

Naas Co. Kildare 045 899324

Test Report

Determination of Moisture Condition Value at Natural Moisture Content



Tested in accordance with BS1377:Part 4:1990, clause 5.4

Report No.	R68506
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Contract No. 18804

Contract Name: Ravensell Road

GDGeo Customer:

BH/TP Sample 10

Sample No.

Depth (m) N/A

Sample Type:

Lab Sample No. A15/5829

Source (if applicable) unknown

Material Type (if applicable): В

21/10/15 Sample Received:

Date Tested: 02/11/15

Sample Cert: N/A

Moisture Content (%): 7.6

% Particles > 20mm 26

(By dry mass):

MCV: 10.4

Interpretation of Plot: Steepest Straight Line

Description of Soil: Grey brown slightly clayey/silty, very sandy, GRAVEL

The result relates to the specimen tested.

Any remaining material will be retained for one month.

Sampling and opinions and interpretations are outside the scope of accreditation.

Persons authorised to approve reports J Barrett (Dep. Quality Manager) H Byrne (Quality Manager)

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Naas Co. Kildare 045 899324

Test Report

Determination of Moisture Condition Value at Natural Moisture Content



Tested in accordance with BS1377:Part 4:1990, clause 5.4

Report No.	R68602

Contract No. 18804

Contract Name: Ravensell Road

Customer: GDGeo

BH/TP Sample 10

Sample No. B

Depth (m) N/A

Sample Type: B

Lab Sample No. A15/5830

Source (if applicable) unknown

Material Type (if applicable):

Sample Received: 21/10/15

Date Tested: 03/11/15

Sample Cert: N/A

Moisture Content (%): 7.6

% Particles > 20mm 26

(By dry mass):

MCV: 12.6

Interpretation of Plot: Steepest Straight Line

Description of Soil: Grey brown slightly clayey/silty, very sandy, GRAVEL

The result relates to the specimen tested.

Any remaining material will be retained for one month.

Sampling and opinions and interpretations are outside the scope of accreditation.

Persons authorised to approve reports

J Barrett (Dep. Quality Manager)

H Byrne (Quality Manager)

Test Report

Dry Density/Moisture Content Relationship



Tested in accordance with BS1377:Part 4:1990

Report No. R68507 Contract No. 18804

Contract Name: Ravenswell Road

Lab Contract No. 18804 Location: Sample 1

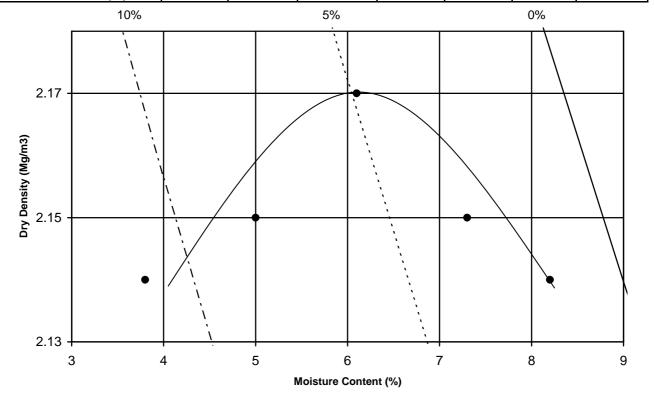
Sample No. A Depth (m) N/A Material Type B

Lab sample no. A15/5811 Customer: GDGeo

Date Received: 21/10/2015 Test Method: 2.5 KG Rammer

Date Tested: 28/10/2015 BS1377:Part 4:1990 3.3

Dry Density (Mg/m ³)	2.17	2.14	2.15	2.15	2.14	
Moisture Content (%)	6.1	3.8	5.0	7.3	8.2	



Maximum Dry Density (Mg/m³): 2.17 Optimum Moisture Content (%): 6

Description: Grey brown slightly clayey/silty, very sandy, GRAVEL

Sample Preparation: Material passing 20mm Single / Separate samples used

Particle Density (Mg/m³): 2.65 Particle Density: Assumed

% retained on 20/37.5mm sieve: 6.4

Persons authorised to approve reports

J Barrett (Dep. Quality Manager)

The result relates to the specimen tested.

H Byrne (Quality Manager)

Opinions and interpretations are outside the scope of accreditation

Test Report

Dry Density/Moisture Content Relationship



Tested in accordance with BS1377:Part 4:1990

Report No. R68508 Contract No. 18804

Contract Name: Ravenswell Road

Lab Contract No. 18804 Location: Sample 3

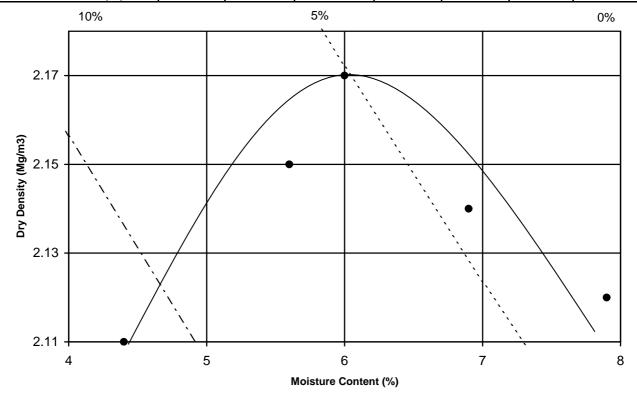
Sample No. A Depth (m) N/A Material Type B

Lab sample no. A15/5815 Customer: GDGeo

Date Received: 21/10/2015 Test Method: 2.5 KG Rammer

Date Tested: 28/10/2015 BS1377:Part 4:1990 3.3

Dry Density (Mg/m ³)	2.17	2.11	2.15	2.14	2.12	
Moisture Content (%)	6.0	4.4	5.6	6.9	7.9	



Maximum Dry Density (Mg/m³): 2.17 Optimum Moisture Content (%): 6

Description: Grey brown slightly clayey/silty, very sandy, GRAVEL

Sample Preparation: Material passing 20mm Single / Separate samples used

Particle Density (Mg/m³): 2.65 Particle Density: Assumed

% retained on 20/37.5mm sieve: 14.3

The result relates to the specimen tested.

Opinions and interpretations are outside the scope of accreditation

Persons authorised to approve reports

J Barrett (Dep. Quality Manager)

H Byrne (Quality Manager)

Test Report

Dry Density/Moisture Content Relationship



Tested in accordance with BS1377:Part 4:1990

Report No. R68509 Contract No. 18804

Contract Name: Ravenswell Road

Lab Contract No. 18804 Location: Sample 5

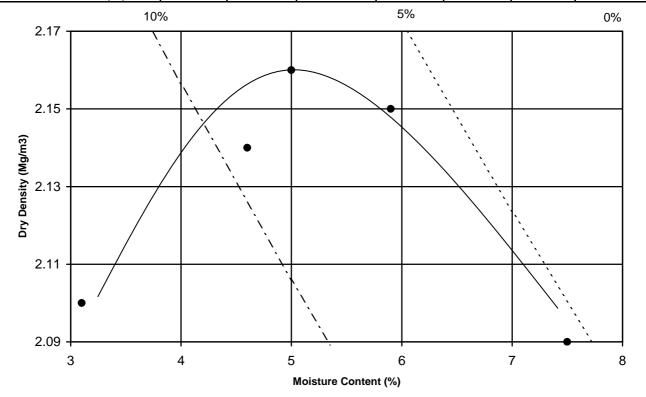
Sample No. A Depth (m) N/A Material Type B

Lab sample no. A15/5819 Customer: GDGeo

Date Received: 21/10/2015 Test Method: 2.5 KG Rammer

Date Tested: 27/10/2015 BS1377:Part 4:1990 3.3

Dry Density (Mg/m ³)	2.15	2.14	2.16	2.09	2.10	
Moisture Content (%)	5.9	4.6	5.0	7.5	3.1	



Maximum Dry Density (Mg/m³): 2.16 Optimum Moisture Content (%): 5

Description: Grey/brown slightly clayey/silty, very sandy, GRAVEL with some cobbles

Sample Preparation: Material passing 20mm Single / Separate samples used

Particle Density (Mg/m³): 2.65 Particle Density: Assumed

% retained on 20/37.5mm sieve: 3.4

The result relates to the specimen tested.

Opinions and interpretations are outside the scope of accreditation

Persons authorised to approve reports

J Barrett (Dep. Quality Manager)

H Byrne (Quality Manager)

Test Report

Dry Density/Moisture Content Relationship



Tested in accordance with BS1377:Part 4:1990

Report No. R68510 Contract No. 18804

Contract Name: Ravenswell Road

Lab Contract No. 18804 Location: Sample 6

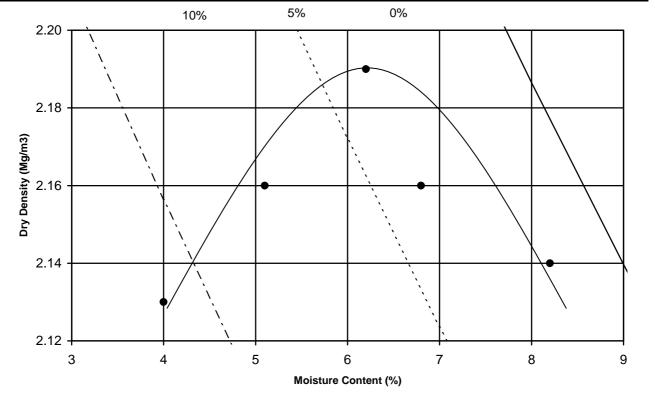
Sample No. A Depth (m) N/A Material Type B

Lab sample no. A15/5821 Customer: GDGeo

Date Received: 21/10/2015 Test Method: 2.5 KG Rammer

Date Tested: 27/10/2015 BS1377:Part 4:1990 3.3

Dry Density (Mg/m ³)	2.16	2.13	2.16	2.19	2.14	
Moisture Content (%)	6.8	4.0	5.1	6.2	8.2	



Maximum Dry Density (Mg/m³): 2.19 Optimum Moisture Content (%): 6

Description: Grey/brown slightly clayey/silty, very sandy, GRAVEL with some cobbles

Sample Preparation: Material passing 20mm Single / Separate samples used

Particle Density (Mg/m³): 2.65 Particle Density: Assumed

% retained on 20/37.5mm sieve: 8.5

The result relates to the specimen tested.

Opinions and interpretations are outside the scope of accreditation

Persons authorised to approve reports

J Barrett (Dep. Quality Manager)

H Byrne (Quality Manager)

Test Report

Dry Density/Moisture Content Relationship



Tested in accordance with BS1377:Part 4:1990

R68511 Report No. Contract No. 18804

Contract Name: Ravenswell Road

Lab Contract No. 18804 Location: Sample 7

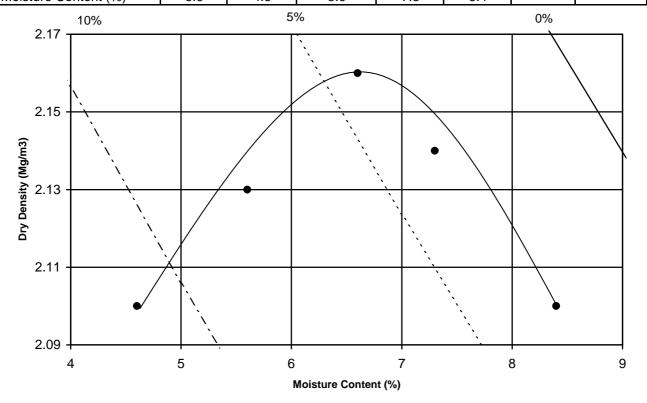
Sample No. Α Depth (m) N/A Material Type В

Lab sample no. A15/5823 Customer: GDGeo

2.5 KG Rammer Date Received: 21/10/2015 Test Method:

Date Tested: 28/10/2015 BS1377:Part 4:1990 3.3

Dry Density (Mg/m ³)	2.16	2.10	2.13	2.14	2.10	
Moisture Content (%)	6.6	4.6	5.6	7.3	8.4	



Maximum Dry Density (Mg/m³): 2.16 Optimum Moisture Content (%): 7

Description: Grey brown slightly clayey/silty, very sandy, GRAVEL with occasional cobbles

Single / Separate samples used Sample Preparation: Material passing 20mm

Particle Density (Mg/m³): 2.65 Particle Density: Assumed

% retained on 20/37.5mm sieve: 9

The result relates to the specimen tested.

Opinions and interpretations are outside the scope of accreditation

Persons authorised to approve reports J Barrett (Dep. Quality Manager) H Byrne (Quality Manager)

IGSL Materials Laboratory	Approved by	Date	Page
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APPENDIX B - Jones Environmental Laboratory Results



Registered Address: Unit 3 Deeside Point, Zone 3, Deeside Industrial Park, Deeside, CH5 2UA. UK

Unit 3 Deeside Point

Zone 3

Deeside Industrial Park

Deeside CH5 2UA

IGSL Unit F M7 Business Park Naas Co Kildare Ireland

Tel: +44 (0) 1244 833780 Fax: +44 (0) 1244 833781





Attention: Darren Keogh

Date: 3rd November, 2015

Your reference:

Our reference: Test Report 15/15115 Batch 1

Location: Ravenswell Road

Date samples received: 22nd October, 2015

Status: Final report

Issue:

Five samples were received for analysis on 22nd October, 2015 of which five were scheduled for analysis. Please find attached our Test Report which should be read with notes at the end of the report and should include all sections if reproduced. Interpretations and opinions are outside the scope of any accreditation, and all results relate only to samples supplied.

All analysis is carried out on as received samples and reported on a dry weight basis unless stated otherwise. Results are not surrogate corrected.

Where Waste Acceptance Criteria Suite (EC Decision of 19 December 2002 (2003/33/EC)) has been requested, all analyses have been performed using the relevant EN methods where they exist.

Compiled By:

Phil Sommerton BSc Project Manager

Client Name: IGSL

Reference:

Location: Ravenswell Road

Contact: Darren Keogh
JE Job No.: 15/15115

Report : Solid

Solids: V=60g VOC jar, J=250g glass jar, T=plastic tub

JE JOD NO.:	15/15115					 	 	 _		
J E Sample No.	1-2	3-4	5-6	7-8	9-10]		
Sample ID	SAMPLE 1	SAMPLE 3	SAMPLE 5	SAMPLE 7	SAMPLE 9					
Dd.										
Depth									e attached nations and a	
COC No / misc								abbievi	ations and a	oronymo
Containers	٧J	٧J	٧J	٧J	٧J					
Sample Date	21/10/2015	21/10/2015	21/10/2015	21/10/2015	21/10/2015					
Sample Type	Soil	Soil	Soil	Soil	Soil					
Batch Number	1	1	1	1	1					Market
Date of Receipt								LOD/LOR	Units	Method No.
PAH MS	22/10/2013	22/10/2013	22/10/2013	22/10/2013	22/10/2013					
Naphthalene #	<0.04	<0.04	<0.04	<0.04	<0.04			<0.04	mg/kg	TM4/PM8
Acenaphthylene	<0.04	<0.03	<0.03	<0.03	<0.03			<0.03	mg/kg	TM4/PM8
Acenaphthene #	<0.05	<0.05	<0.05	<0.05	<0.05			<0.05	mg/kg	TM4/PM8
Fluorene #	<0.04	<0.04	<0.04	<0.04	<0.04			<0.04	mg/kg	TM4/PM8
Phenanthrene #	<0.03	0.03	<0.03	0.03	<0.03			<0.03	mg/kg	TM4/PM8
Anthracene #	<0.04	<0.04	<0.04	<0.04	<0.04			<0.04	mg/kg	TM4/PM8
Fluoranthene #	0.03	0.05	0.03	0.05	<0.03			<0.03	mg/kg	TM4/PM8
Pyrene #	0.03	0.05	0.03	0.04	<0.03			<0.03	mg/kg	TM4/PM8
Benzo(a)anthracene #	<0.06	<0.06	<0.06	<0.06	<0.06			<0.06	mg/kg	TM4/PM8
Chrysene #	0.02	0.03	0.02	0.04	<0.02			<0.02	mg/kg	TM4/PM8
Benzo(bk)fluoranthene #	<0.07	<0.07	<0.07	<0.07	<0.07			<0.07	mg/kg	TM4/PM8
Benzo(a)pyrene #	<0.04	0.04	<0.04	0.04	<0.04			<0.04	mg/kg	TM4/PM8
Indeno(123cd)pyrene#	<0.04	<0.04	<0.04	<0.04	<0.04			<0.04	mg/kg	TM4/PM8
Dibenzo(ah)anthracene #	<0.04	<0.04	<0.04	<0.04	<0.04			<0.04	mg/kg	TM4/PM8
Benzo(ghi)perylene #	<0.04	<0.04	<0.04	<0.04	<0.04			<0.04	mg/kg	TM4/PM8
Coronene	<0.04	<0.04	<0.04	<0.04	<0.04			<0.04	mg/kg	TM4/PM8
PAH 6 Total #	<0.22	<0.22	<0.22	<0.22	<0.22			<0.22	mg/kg	TM4/PM8
PAH 17 Total	<0.64	<0.64	<0.64	<0.64	<0.64			<0.64	mg/kg	TM4/PM8
Benzo(b)fluoranthene	<0.05	<0.05	<0.05	<0.05	<0.05			<0.05	mg/kg	TM4/PM8
Benzo(k)fluoranthene PAH Surrogate % Recovery	<0.02 117	<0.02 106	<0.02 100	<0.02 107	<0.02 108			<0.02	mg/kg %	TM4/PM8 TM4/PM8
PAH Surrogate % Recovery	117	106	100	107	100			<0	70	TIVI4/PIVIO
Mineral Oil >C8-C10	<5	<5	<5	<5	<5			<5	mg/kg	TM5/PM16
Mineral Oil >C10-C12	<10	<10	<10	<10	<10			<10	mg/kg	TM5/PM16
Mineral Oil >C12-C16	<10	<10	<10	<10	<10			<10	mg/kg	TM5/PM16
Mineral Oil >C16-C21	<10	<10	<10	<10	<10			<10	mg/kg	TM5/PM16
Mineral Oil >C21-C40	<10	<10	<10	<10	<10			<10	mg/kg	TM5/PM16
Mineral Oil >C8-C40	<45	<45	<45	<45	<45			<45	mg/kg	TM5/PM16
MTBE#	<5	<5	<5	<5	<5			<5	ug/kg	TM31/PM12
Benzene #	<5	<5	<5	<5	<5			<5	ug/kg	TM31/PM12
Toluene #	<5	<5	<5	<5	<5			<5	ug/kg	TM31/PM12
Ethylbenzene #	<5	<5	<5	<5	<5			<5	ug/kg	TM31/PM12
m/p-Xylene #	<5	<5	<5	<5	<5			<5	ug/kg	TM31/PM12
o-Xylene #	<5	<5	<5	<5	<5			<5	ug/kg	TM31/PM12
									-	
PCB 28 #	<5	<5	<5	<5	<5			<5	ug/kg	TM17/PM8
PCB 52#	<5	<5	<5	<5	<5			<5	ug/kg	TM17/PM8
PCB 101 #	<5	<5	<5	<5	<5			<5	ug/kg	TM17/PM8
PCB 118#	<5	<5	<5	<5	<5			<5	ug/kg	TM17/PM8
PCB 138 #	<5	<5	<5	<5	<5			<5	ug/kg	TM17/PM8
PCB 153#	<5	<5	<5	<5	<5			<5	ug/kg	TM17/PM8
PCB 180 #	<5	<5	<5	<5	<5			<5	ug/kg	TM17/PM8

Client Name: IGSL Report : Solid

Reference:

Location:Ravenswell RoadSolids: V=60g VOC jar, J=250g glass jar, T=plastic tubContact:Darren Keogh

JE Job No.: 15/15115

JE Job No.:	15/15115						 	 •		
J E Sample No.	1-2	3-4	5-6	7-8	9-10					
Sample ID	SAMPLE 1	SAMPLE 3	SAMPLE 5	SAMPLE 7	SAMPLE 9					
Depth								Please se	e attached n	otes for all
COC No / misc								abbrevi	ations and a	cronyms
Containers	٧J	۸٦	٧J	٧J	٧J					
Sample Date	21/10/2015	21/10/2015	21/10/2015	21/10/2015	21/10/2015					
Sample Type	Soil	Soil	Soil	Soil	Soil					
Batch Number	1	1	1	1	1			LOD/LOR	11.50	Method
Date of Receipt	22/10/2015	22/10/2015	22/10/2015	22/10/2015	22/10/2015			LOD/LOR	Units	No.
Total 7 PCBs#	<35	<35	<35	<35	<35			<35	ug/kg	TM17/PM8
Natural Moisture Content	4.7	6.3	4.1	4.4	6.3			<0.1	%	PM4/PM0
% Dry Matter 105°C	92.6	93.6	93.4	93.7	93.7			<0.1	%	NONE/PM4
Chloride #	72	-	90	-	-			<2	mg/kg	TM38/PM20
Sulphate as SO4 (2:1 Ext) #	0.0474	-	0.0837	-	-			<0.0015	g/I	TM38/PM20
Total Organic Carbon # Organic Matter	0.15	0.16	0.22	0.19	0.17			<0.02 <0.2	%	TM21/PM24 TM21/PM24
Organic Matter	0.5	0.5	0.4	0.5	0.3			VO.2	70	1101217110124
Loss on Ignition#	<1.0	<1.0	1.1	1.3	<1.0			<1.0	%	TM22/PM0
pH#	8.32	-	8.35	-	-			<0.01	pH units	TM73/PM11
Mass of raw test portion	0.0973	0.0958	0.0967	0.0964	0.0956				kg	NONE/PM17
Mass of dried test portion	0.09	0.09	0.09	0.09	0.09				kg	NONE/PM17
		<u> </u>			<u> </u>		<u> </u>			

Client Name:

IGSL

Report: CEN 10:1 1 Batch

Reference: Location:

Ravenswell Road Darren Keogh Solids: V=60g VOC jar, J=250g glass jar, T=plastic tub

Contact: Darren Ke JE Job No.: 15/15115

								 ı		
J E Sample No.	1-2	3-4	5-6	7-8	9-10					
Sample ID	SAMPLE 1	SAMPLE 3	SAMPLE 5	SAMPLE 7	SAMPLE 9					
Depth								Please se	e attached n	otes for all
COC No / misc									ations and a	
Containers	٧J	٧J	٧J	٧J	٧J					
Sample Date	21/10/2015	21/10/2015	21/10/2015	21/10/2015	21/10/2015					
Sample Type										
	Soil	Soil	Soil	Soil	Soil					
Batch Number	1	1	1	1	1			LOD/LOR	Units	Method No.
Date of Receipt	22/10/2015	22/10/2015	22/10/2015	22/10/2015	22/10/2015					140.
Dissolved Antimony#	<0.002	<0.002	<0.002	<0.002	<0.002			<0.002	mg/l	TM30/PM17
Dissolved Antimony (A10) #	<0.02	<0.02	<0.02	<0.02	<0.02			<0.02	mg/kg	TM30/PM17
Dissolved Arsenic#	0.0063	<0.0025	0.0037	<0.0025	0.0044			<0.0025	mg/l	TM30/PM17
Dissolved Arsenic (A10) #	0.063	<0.025	0.037	<0.025	0.044			<0.025	mg/kg	TM30/PM17
Dissolved Barium #	<0.003	<0.003	<0.003	<0.003	<0.003			<0.003	mg/l	TM30/PM17
Dissolved Barium (A10) #	<0.03	<0.03	<0.03	<0.03	<0.03			<0.03	mg/kg	TM30/PM17
Dissolved Cadmium #	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005			<0.0005	mg/l	TM30/PM17
Dissolved Cadmium (A10) #	<0.005	<0.005	<0.005	<0.005	<0.005			<0.005	mg/kg	TM30/PM17
Dissolved Chromium # Dissolved Chromium (A10) #	<0.0015 <0.015	<0.0015 <0.015	<0.0015 <0.015	<0.0015 <0.015	<0.0015 <0.015			<0.0015 <0.015	mg/l mg/kg	TM30/PM17 TM30/PM17
Dissolved Copper#	<0.013	<0.015	<0.015	<0.015	<0.015			<0.013	mg/l	TM30/PM17
Dissolved Copper (A10) #	<0.07	<0.07	<0.07	<0.07	<0.07			<0.07	mg/kg	TM30/PM17
Dissolved Copper (A10) Dissolved Lead #	<0.005	<0.005	<0.005	<0.005	<0.005			<0.005	mg/l	TM30/PM17
Dissolved Lead (A10) #	<0.05	<0.05	<0.05	<0.05	<0.05			<0.05	mg/kg	TM30/PM17
Dissolved Molybdenum #	<0.002	<0.002	<0.002	<0.002	<0.002			<0.002	mg/l	TM30/PM17
Dissolved Molybdenum (A10) #	<0.02	<0.02	<0.02	<0.02	<0.02			<0.02	mg/kg	TM30/PM17
Dissolved Nickel#	<0.002	<0.002	<0.002	<0.002	<0.002			<0.002	mg/l	TM30/PM17
Dissolved Nickel (A10)#	<0.02	<0.02	<0.02	<0.02	<0.02			<0.02	mg/kg	TM30/PM17
Dissolved Selenium #	<0.003	<0.003	<0.003	<0.003	<0.003			<0.003	mg/l	TM30/PM17
Dissolved Selenium (A10) #	<0.03	<0.03	<0.03	<0.03	<0.03			<0.03	mg/kg	TM30/PM17
Dissolved Zinc#	0.004	0.004	0.003	<0.003	<0.003			<0.003	mg/l	TM30/PM17
Dissolved Zinc (A10) #	0.04	0.04	0.03	<0.03	<0.03			<0.03	mg/kg	TM30/PM17
Mercury Dissolved by CVAF#	0.00004	0.00004	0.00003	0.00006	0.00004			<0.00001	mg/l	TM61/PM38
Mercury Dissolved by CVAF#	0.0004	0.0004	0.0003	0.0006	0.0004			<0.0001	mg/kg	TM61/PM38
Phenol	<0.01	<0.01	<0.01	<0.01	<0.01			<0.01	mg/l	TM26/PM0
Phenol	<0.1	<0.1	<0.1	<0.1	<0.1			<0.1	mg/kg	TM26/PM0
Fluoride	<0.3	<0.3	<0.3	<0.3	<0.3			<0.3	mg/l	TM27/PM0
Fluoride	<3	<3	<3	<3	<3			<3	mg/kg	TM27/PM0
Chloride	6.4	7.4	6.6	6.6	8.5			<0.3	mg/l	TM27/PM0
Chloride Sulphate	64 13.32	74	66 12.85	66 12.79	85 15.13			<3 <0.05	mg/kg	TM27/PM0 TM27/PM0
Sulphate	13.32	14.13 141.3	12.85	12.79	15.13			<0.05	mg/l mg/kg	TM27/PM0
Guipriale	133.2	141.3	120.5	127.9	101.3			<0.5	mg/kg	TIVIZ//FIVIU
Mass of raw test portion	0.0973	0.0958	0.0967	0.0964	0.0956				kg	NONE/PM17
Leachant Volume	0.893	0.894	0.894	0.894	0.894				ı	NONE/PM17
Eluate Volume	0.9	0.89	0.86	0.87	0.9				I	NONE/PM17
Dissolved Organic Carbon	3	3	3	2	3			<2	mg/l	TM60/PM0
Dissolved Organic Carbon	30	30	30	20	30			<20	mg/kg	TM60/PM0
Total Dissolved Solids #	78	81	71	104	84			<10	mg/l	TM20/PM0
Total Dissolved Solids #	780	810	710	1040	840			<100	mg/kg	TM20/PM0

Mass of sample taken (kg)	0.0973	Dry Matter Content Ratio (%) =		92.6	
Mass of dry sample (kg) =	0.09	Leachant Volume (I)		0.893	
Particle Size <4mm =	>95%	Eluate Volume (I)		0.9	
JEFL Job No		15/15115	Landi	ill Waste Ac	ceptance
Sample No		2		Criteria Lim	nits
Client Sample No		SAMPLE 1			
Depth/Other					
Sample Date		21/10/2015	Inert	Stable Non-reactive	Hazardous
Batch No		1			
Solid Waste Analysis					
Total Organic Carbon (%)	0.15		3	5	6
Sum of BTEX (mg/kg)	<0.025		6	-	-
Sum of 7 PCBs (mg/kg)	<0.035		1	-	-
Mineral Oil (mg/kg)	<45		500	-	-
PAH Sum of 6 (mg/kg)	<0.22		-	-	-
PAH Sum of 17 (mg/kg)	<0.64		100	-	-
	10:1		Limit	values for co	mulianaa
	concn			aching test	•
Eluate Analysis	leached				
			BS EN	12457-2 at I	L/S 10 l/kg
	A10		BS EN		L/S 10 l/kg
	mg/kg			mg/kg	
Arsenic	mg/kg 0.063		0.5	mg/kg	25
Barium	mg/kg 0.063 <0.03		0.5	mg/kg 2 100	25 300
Barium Cadmium	mg/kg 0.063 <0.03 <0.005		0.5 20 0.04	mg/kg 2 100 1	25 300 5
Barium Cadmium Chromium	mg/kg 0.063 <0.03 <0.005 <0.015		0.5 20 0.04 0.5	mg/kg 2 100 1 10	25 300 5 70
Barium Cadmium Chromium Copper	mg/kg 0.063 <0.003 <0.005 <0.015 <0.07		0.5 20 0.04 0.5 2	mg/kg 2 100 1 100 50	25 300 5 70 100
Barium Cadmium Chromium Copper Mercury	mg/kg 0.063 <0.03 <0.005 <0.015 <0.07 0.0004		0.5 20 0.04 0.5 2 0.01	mg/kg 2 100 1 10 50 0.2	25 300 5 70 100 2
Barium Cadmium Chromium Copper Mercury Molybdenum	mg/kg 0.063 <0.03 <0.005 <0.015 <0.07 0.0004 <0.02		0.5 20 0.04 0.5 2 0.01 0.5	mg/kg 2 100 1 10 50 0.2 10	25 300 5 70 100 2 30
Barium Cadmium Chromium Copper Mercury Molybdenum Nickel	mg/kg 0.063 <0.003 <0.005 <0.015 <0.007 0.0004 <0.02 <0.02		0.5 20 0.04 0.5 2 0.01 0.5 0.4	mg/kg 2 100 1 10 50 0.2 10	25 300 5 70 100 2 30 40
Barium Cadmium Chromium Copper Mercury Molybdenum Nickel Lead	mg/kg 0.063 <0.003 <0.005 <0.015 <0.07 0.0004 <0.02 <0.05		0.5 20 0.04 0.5 2 0.01 0.5 0.4	mg/kg 2 100 1 10 50 0.2 10 10 10	25 300 5 70 100 2 30 40
Barium Cadmium Chromium Copper Mercury Molybdenum Nickel Lead Antimony	mg/kg 0.063 <0.003 <0.005 <0.015 <0.07 0.0004 <0.02 <0.02 <0.05 <0.05 <0.05		0.5 20 0.04 0.5 2 0.01 0.5 0.4 0.5	mg/kg 2 100 1 10 50 0.2 10 10 10 0.7	25 300 5 70 100 2 30 40 50
Barium Cadmium Chromium Copper Mercury Molybdenum Nickel Lead Antimony Selenium	mg/kg 0.063 <0.003 <0.005 <0.015 <0.007 0.0004 <0.02 <0.02 <0.05 <0.002 <0.003		0.5 20 0.04 0.5 2 0.01 0.5 0.4 0.5 0.06	mg/kg 2 100 1 10 50 0.2 10 10 10 0.7 0.5	25 300 5 70 100 2 30 40 50 5
Barium Cadmium Chromium Copper Mercury Molybdenum Nickel Lead Antimony Selenium Zinc	mg/kg 0.063 <0.003 <0.005 <0.015 <0.07 0.0004 <0.02 <0.02 <0.05 <0.02 <0.03 0.04		0.5 20 0.04 0.5 2 0.01 0.5 0.4 0.5 0.06 0.1	mg/kg 2 100 1 10 50 0.2 10 10 10 0.7 0.5 50	25 300 5 70 100 2 30 40 50 5 7 200
Barium Cadmium Chromium Copper Mercury Molybdenum Nickel Lead Antimony Selenium Zinc Chloride	mg/kg 0.063 <0.003 <0.005 <0.015 <0.07 0.0004 <0.02 <0.02 <0.05 <0.02 <0.04 64		0.5 20 0.04 0.5 2 0.01 0.5 0.4 0.5 0.06 0.1 4	mg/kg 2 100 1 10 50 0.2 10 10 0.7 0.5 50 15000	25 300 5 70 100 2 30 40 50 5 7 200 25000
Barium Cadmium Chromium Copper Mercury Molybdenum Nickel Lead Antimony Selenium Zinc Chloride Fluoride	mg/kg 0.063 <0.003 <0.005 <0.015 <0.007 0.0004 <0.02 <0.02 <0.05 <0.02 <0.03 0.04 64 <3		0.5 20 0.04 0.5 2 0.01 0.5 0.4 0.5 0.06 0.1 4 800	mg/kg 2 100 1 10 50 0.2 10 10 10 0.7 0.5 50 15000	25 300 5 70 100 2 30 40 50 5 7 200 25000 500
Barium Cadmium Chromium Copper Mercury Molybdenum Nickel Lead Antimony Selenium Zinc Chloride Fluoride Sulphate as SO4	mg/kg 0.063 <0.003 <0.005 <0.015 <0.007 0.0004 <0.02 <0.02 <0.05 <0.02 <0.03 0.04 64 <3 133.2		0.5 20 0.04 0.5 2 0.01 0.5 0.4 0.5 0.06 0.1 4 800 10	mg/kg 2 100 1 10 50 0.2 10 10 10 0.7 0.5 50 15000 150 20000	25 300 5 70 100 2 30 40 50 5 7 200 25000 500 5000
Barium Cadmium Chromium Copper Mercury Molybdenum Nickel Lead Antimony Selenium Zinc Chloride Fluoride Sulphate as SO4 Total Dissolved Solids	mg/kg 0.063 <0.003 <0.005 <0.015 <0.07 0.0004 <0.02 <0.02 <0.02 <0.02 <0.03 0.04 64 <3 133.2 780		0.5 20 0.04 0.5 2 0.01 0.5 0.4 0.5 0.06 0.1 4 800 10 1000 4000	mg/kg 2 100 1 10 50 0.2 10 10 10 0.7 0.5 50 15000	25 300 5 70 100 2 30 40 50 5 7 200 25000 500
Barium Cadmium Chromium Copper Mercury Molybdenum Nickel Lead Antimony Selenium Zinc Chloride Fluoride Sulphate as SO4	mg/kg 0.063 <0.003 <0.005 <0.015 <0.007 0.0004 <0.02 <0.02 <0.05 <0.02 <0.03 0.04 64 <3 133.2		0.5 20 0.04 0.5 2 0.01 0.5 0.4 0.5 0.06 0.1 4 800 10	mg/kg 2 100 1 10 50 0.2 10 10 10 0.7 0.5 50 15000 150 20000	25 300 5 70 100 2 30 40 50 5 7 200 25000 5000

Mass of sample taken (kg)	0.0958	Dry Matter Content Ratio (%) =		93.6	
Mass of dry sample (kg) =	0.09	Leachant Volume (I)		0.894	
Particle Size <4mm =	>95%	Eluate Volume (I)		0.89	
JEFL Job No		15/15115	Landf	ill Waste Ac	ceptance
Sample No		4		Criteria Lim	nits
Client Sample No		SAMPLE 3			
Depth/Other					
Sample Date		21/10/2015	Inert	Stable Non-reactive	Hazardous
Batch No		1			
Solid Waste Analysis					
Total Organic Carbon (%)	0.16		3	5	6
Sum of BTEX (mg/kg)	<0.025		6	-	-
Sum of 7 PCBs (mg/kg)	< 0.035		1	-	-
Mineral Oil (mg/kg)	<45		500	-	-
PAH Sum of 6 (mg/kg)	<0.22		-	-	-
PAH Sum of 17 (mg/kg)	<0.64		100	-	-
	10:1				
	concn			alues for co	•
Eluate Analysis	concn leached		le	aching test	using
Eluate Analysis			le		using
	leached		le	aching test	using
Eluate Analysis Arsenic	leached A10		le	aching test 12457-2 at l	using
	A10 mg/kg		le BS EN	aching test 12457-2 at l mg/kg	using L/S 10 l/kg
Arsenic	A10 mg/kg <0.025		0.5	aching test 12457-2 at I mg/kg	using L/S 10 l/kg
Arsenic Barium	A10 mg/kg <0.025 <0.03		0.5 20	mg/kg 2 100	using L/S 10 l/kg 25 300
Arsenic Barium Cadmium	A10 mg/kg <0.025 <0.03 <0.005		0.5 20 0.04	mg/kg 2 100 1	25 300 5
Arsenic Barium Cadmium Chromium Copper Mercury	leached A10 mg/kg <0.025 <0.03 <0.005 <0.015		0.5 20 0.04 0.5	mg/kg 2 100 1 10	25 300 5 70
Arsenic Barium Cadmium Chromium Copper Mercury	leached A10 mg/kg <0.025 <0.03 <0.005 <0.015 <0.07		0.5 20 0.04 0.5 2	mg/kg 2 100 1 10 50	25 300 5 70
Arsenic Barium Cadmium Chromium Copper Mercury Molybdenum	leached		0.5 20 0.04 0.5 2 0.01 0.5	mg/kg 2 100 1 10 50 0.2 10	25 300 5 70 100 2 30 40
Arsenic Barium Cadmium Chromium Copper Mercury Molybdenum Nickel Lead	leached		0.5 20 0.04 0.5 2 0.01	aching test 12457-2 at 1 mg/kg 2 100 1 10 50 0.2 10 10 10	25 300 5 70 100 2 30
Arsenic Barium Cadmium Chromium Copper Mercury Molybdenum Nickel Lead Antimony	leached A10 mg/kg <0.025 <0.005 <0.015 <0.007 0.0004 <0.02 <0.02 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.02 <0.02 <0.02 <0.02 <0.02 <0.02 <0.02 <0.02 <0.02 <0.02 <0.02 <0.02 <0.02 <0.02 <0.02 <0.02 <0.02 <0.02 <0.02 <0.02 <0.02 <0.02 <0.02 <0.02 <0.02 <0.02 <0.02 <0.02 <0.02 <0.02 <0.02 <0.02 <0.02 <0.02 <0.02 <0.02 <0.02 <0.02 <0.02 <0.02 <0.02 <0.02 <0.02 <0.02 <0.02 <0.02 <0.02 <0.02 <0.02 <0.02 <0.02 <0.02 <0.02 <0.02 <0.02 <0.02 <0.02 <0.02 <0.02 <0.02 <0.02 <0.02 <0.02 <0.02 <0.02 <0.02 <0.02 <0.02 <0.02 <0.02 <0.02 <0.02 <0.02 <0.02 <0.02 <0.02 <0.02 <0.02 <0.02 <0.02 <0.02 <0.02 <0.02 <0.02 <0.02 <0.02 <0.02 <0.02 <0.02 <0.02 <0.02 <0.02 <0.02 <0.02 <0.02 <0.02 <0.02 <0.02 <0.02 <0.02 <0.02 <0.02 <0.02 <0.02 <0.02 <0.02 <0.02 <0.02 <0.02 <0.02 <0.02 <0.02 <0.02 <0.02 <0.02 <0.02 <0.02 <0.02 <0.02 <0.02 <0.02 <0.02 <0.02 <0.02 <0.02 <0.02 <0.02 <0.02 <0.02 <0.02 <0.02 <0.02 <0.02 <0.02 <0.02 <0.02 <0.02 <0.02 <0.02 <0.02 <0.02 <0.02 <0.02 <0.02 <0.02 <0.02 <0.02 <0.02 <0.02 <0.02 <0.02 <0.02 <0.02 <0.02 <0.02 <0.02 <0.02 <0.02 <0.02 <0.02 <0.02 <0.02 <0.02 <0.02 <0.02 <0.02 <0.02 <0.02 <0.02 <0.02 <0.02 <0.02 <0.02 <0.02 <0.02 <0.02 <0.02 <0.02 <0.02 <0.02 <0.02 <0.02 <0.02 <0.02 <0.02 <0.02 <0.02 <0.02 <0.02 <0.02 <0.02 <0.02 <0.02 <0.02 <0.02 <0.02 <0.02 <0.02 <0.02 <0.02 <0.02 <0.02 <0.02 <0.02 <0.02 <0.02 <0.02 <0.02 <0.02 <0.02 <0.02 <0.02 <0.02 <0.02 <0.02 <0.02 <0.02 <0.02 <0.02 <0.02 <0.02 <0.02 <0.02 <0.02 <0.02 <0.02 <0.02 <0.02 <0.02 <0.02 <0.02 <0.02 <0.02 <0.02 <0.02 <0.02 <0.02		0.5 20 0.04 0.5 2 0.01 0.5 0.4 0.5	aching test 12457-2 at 1 mg/kg 2 100 1 10 50 0.2 10 10 10 0.7	25 300 5 70 100 2 30 40 50
Arsenic Barium Cadmium Chromium Copper Mercury Molybdenum Nickel Lead Antimony Selenium	leached A10 mg/kg <0.025 <0.03 <0.005 <0.015 <0.07 0.0004 <0.02 <0.02 <0.05 <0.02 <0.05 <0.03 <0.03 <0.03 <0.03 <0.03 <0.03 <0.03 <0.03 <0.03 <0.03 <0.03 <0.03 <0.03 <0.03 <0.03 <0.03 <0.03 <0.03 <0.04 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05		0.5 20 0.04 0.5 2 0.01 0.5 0.4 0.5	aching test 12457-2 at 1 mg/kg 2 100 1 10 50 0.2 10 10 10 0.7 0.5	25 300 5 70 100 2 30 40 50 5
Arsenic Barium Cadmium Chromium Copper Mercury Molybdenum Nickel Lead Antimony Selenium Zinc	leached		0.5 20 0.04 0.5 2 0.01 0.5 0.4 0.5 0.06 0.1	mg/kg 2 100 1 10 50 0.2 10 10 0.7 0.5 50	25 300 5 70 100 2 30 40 50 5 7 200
Arsenic Barium Cadmium Chromium Copper Mercury Molybdenum Nickel Lead Antimony Selenium Zinc Chloride	leached A10 mg/kg <0.025 <0.03 <0.005 <0.015 <0.07 0.0004 <0.02 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.02 <0.05 <0.04 <0.04 <0.04 <0.04 <0.04 <0.04 <0.04 <0.04 <0.05 <0.05 <0.05 <0.05 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07		0.5 20 0.04 0.5 2 0.01 0.5 0.4 0.5 0.06	aching test 12457-2 at 1 mg/kg 2 100 1 10 50 0.2 10 10 0.7 0.5 50 15000	25 300 5 70 100 2 30 40 50 5 7 200 25000
Arsenic Barium Cadmium Chromium Copper Mercury Molybdenum Nickel Lead Antimony Selenium Zinc Chloride Fluoride	leached		0.5 20 0.04 0.5 2 0.01 0.5 0.4 0.5 0.06 0.1	aching test 12457-2 at 1 mg/kg 2 100 1 10 50 0.2 10 10 10 0.7 0.5 50 15000	25 300 5 70 100 2 30 40 50 5 7 200
Arsenic Barium Cadmium Chromium Copper Mercury Molybdenum Nickel Lead Antimony Selenium Zinc Chloride Fluoride Sulphate as SO4	leached A10 mg/kg <0.025 <0.03 <0.005 <0.015 <0.07 0.0004 <0.02 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.02 <0.05 <0.04 <0.04 <0.04 <0.04 <0.04 <0.04 <0.04 <0.04 <0.05 <0.05 <0.05 <0.05 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07 <0.07		0.5 20 0.04 0.5 2 0.01 0.5 0.4 0.5 0.06 0.1 4	aching test 12457-2 at 1 mg/kg 2 100 1 10 50 0.2 10 10 0.7 0.5 50 15000	25 300 5 70 100 2 30 40 50 5 7 200 25000
Arsenic Barium Cadmium Chromium Copper Mercury Molybdenum Nickel Lead Antimony Selenium Zinc Chloride Fluoride Sulphate as SO4 Total Dissolved Solids	leached A10 mg/kg <0.025 <0.03 <0.005 <0.015 <0.07 0.0004 <0.02 <0.02 <0.05 <0.03 <0.04 <74 <3		0.5 20 0.04 0.5 2 0.01 0.5 0.4 0.5 0.06 0.1 4 800	aching test 12457-2 at 1 mg/kg 2 100 1 10 50 0.2 10 10 10 0.7 0.5 50 15000	25 300 5 70 100 2 30 40 50 5 7 200 25000 500
Arsenic Barium Cadmium Chromium Copper Mercury Molybdenum Nickel Lead Antimony Selenium Zinc Chloride Fluoride Sulphate as SO4	leached A10 mg/kg <0.025 <0.03 <0.005 <0.015 <0.07 0.0004 <0.02 <0.02 <0.05 <0.03 <0.04 74 <3 141.3		0.5 20 0.04 0.5 2 0.01 0.5 0.4 0.5 0.06 0.1 4 800 10	mg/kg 2 100 1 10 50 0.2 10 10 0.7 0.5 50 15000 150 20000	25 300 5 70 100 2 30 40 50 7 200 25000 50000

Mass of sample taken (kg)	0.0967	Dry Matter Content Ratio (%) =		93.4	
Mass of dry sample (kg) =	0.09	Leachant Volume (I)		0.894	
Particle Size <4mm =	>95%	Eluate Volume (I)		0.86	
JEFL Job No		15/15115	Land	fill Waste Ac	ceptance
Sample No		6		Criteria Lin	nits
Client Sample No		SAMPLE 5			
Depth/Other					
Sample Date		21/10/2015	Inert	Stable Non-reactive	Hazardous
Batch No		1			
Solid Waste Analysis					
Total Organic Carbon (%)	0.22		3	5	6
Sum of BTEX (mg/kg)	<0.025		6	-	-
Sum of 7 PCBs (mg/kg)	< 0.035		1	-	-
Mineral Oil (mg/kg)	<45		500	-	-
PAH Sum of 6 (mg/kg)	<0.22		-	-	-
PAH Sum of 17 (mg/kg)	<0.64		100	-	-
	10:1 concn		Limit	values for co	ompliance
Eluate Analysis	leached			aching test	_
Liuate Alialysis	A10		BS EN	12457-2 at	L/S 10 l/kg
	mg/kg			mg/kg	
Arsenic	0.037		0.5	2	25
Barium	<0.03		20	100	300
Cadmium	<0.005		0.04	1	5
Chromium	<0.015		0.5	10	70
Copper	<0.07		2	50	100
Mercury	0.0003		0.01	0.2	2
Molybdenum	<0.02		0.5	10	30
Nickel	<0.02		0.4	10	40
Lead	<0.05		0.5	10	50
Antimony	<0.02		0.06	0.7	5
Selenium	<0.03		0.1	0.5	7
Zinc	0.03		4	50	200
Chloride	66		800	15000	25000
00			10	150	500
Fluoride	<3				
	<3 128.5		1000	20000	50000
Fluoride			1000 4000	20000 60000	50000 100000
Fluoride Sulphate as SO4	128.5		-		ł

Mass of sample taken (kg)	0.0964	Dry Matter Content Ratio (%) =		93.7	
Mass of dry sample (kg) =	0.09	Leachant Volume (I)		0.894	
Particle Size <4mm =	>95%	Eluate Volume (I)		0.87	
. 4.1.6.6 6.26 4.1.1.1.	7 00 70	Zisate volume (/)		0.0.	
JEFL Job No		15/15115	Land	fill Waste Ac	ceptance
Sample No		8		Criteria Lin	•
Client Sample No		SAMPLE 7			
Depth/Other					
Sample Date		21/10/2015	Inert	Stable Non-reactive	Hazardous
Batch No		1			
Solid Waste Analysis					
Total Organic Carbon (%)	0.19		3	5	6
Sum of BTEX (mg/kg)	<0.025		6	-	-
Sum of 7 PCBs (mg/kg)	< 0.035		1	-	-
Mineral Oil (mg/kg)	<45		500	-	-
PAH Sum of 6 (mg/kg)	<0.22		-	-	-
PAH Sum of 17 (mg/kg)	<0.64		100	-	-
	10:1		Limit		
	concn			values for co aching test	
Eluate Analysis	leached			12457-2 at	
	A10				
	mg/kg			mg/kg	
Arsenic	<0.025		0.5	2	25
Barium	< 0.03		20	100	300
Cadmium	<0.005		0.04	1	5
Chromium	<0.015		0.5	10	70
Copper	<0.07		2	50	100
Mercury	0.0006		0.01	0.2	2
Mark de al anaceman	_		0.01	.	
Molybdenum	<0.02		0.01	10	30
Nickel	<0.02		0.5	10	40
Nickel Lead	_		0.5	10 10	40 50
Nickel Lead Antimony	<0.02 <0.05 <0.02		0.5 0.4 0.5 0.06	10 10 0.7	40 50 5
Nickel Lead Antimony Selenium	<0.02 <0.05 <0.02 <0.03		0.5 0.4 0.5 0.06 0.1	10 10 0.7 0.5	40 50
Nickel Lead Antimony Selenium Zinc	<0.02 <0.05 <0.02 <0.03 <0.03		0.5 0.4 0.5 0.06 0.1 4	10 10 0.7 0.5 50	40 50 5 7 200
Nickel Lead Antimony Selenium Zinc Chloride	<0.02 <0.05 <0.02 <0.03		0.5 0.4 0.5 0.06 0.1	10 10 0.7 0.5 50 15000	40 50 5 7 200 25000
Nickel Lead Antimony Selenium Zinc Chloride Fluoride	<0.02 <0.05 <0.02 <0.03 <0.03		0.5 0.4 0.5 0.06 0.1 4	10 10 0.7 0.5 50	40 50 5 7 200
Nickel Lead Antimony Selenium Zinc Chloride Fluoride Sulphate as SO4	<0.02 <0.05 <0.02 <0.03 <0.03		0.5 0.4 0.5 0.06 0.1 4 800	10 10 0.7 0.5 50 15000	40 50 5 7 200 25000
Nickel Lead Antimony Selenium Zinc Chloride Fluoride	<0.02 <0.05 <0.02 <0.03 <0.03 66 <3		0.5 0.4 0.5 0.06 0.1 4 800 10	10 10 0.7 0.5 50 15000	40 50 5 7 200 25000 500
Nickel Lead Antimony Selenium Zinc Chloride Fluoride Sulphate as SO4	<0.02 <0.05 <0.02 <0.03 <0.03 66 <3 127.9		0.5 0.4 0.5 0.06 0.1 4 800 10 1000	10 10 0.7 0.5 50 15000 150 20000	40 50 5 7 200 25000 500 5000

Mass of sample taken (kg)	0.0956	Dry Matter Content Ratio (%) =		93.7	
Mass of dry sample (kg) =	0.09	Leachant Volume (I)		0.894	
Particle Size <4mm =	>95%	Eluate Volume (I)		0.9	
Tartiolo 0120 CHIIII =	20070	Litate volume (i)		0.0	
JEFL Job No		15/15115	Land	fill Waste Ac	ceptance
Sample No		10		Criteria Lin	
Client Sample No		SAMPLE 9			
Depth/Other					
Sample Date		21/10/2015	Inert	Stable Non-reactive	Hazardous
Batch No		1			
Solid Waste Analysis					
Total Organic Carbon (%)	0.17		3	5	6
Sum of BTEX (mg/kg)	<0.025		6	-	-
Sum of 7 PCBs (mg/kg)	< 0.035		1	-	-
Mineral Oil (mg/kg)	<45		500	-	-
PAH Sum of 6 (mg/kg)	<0.22		_	-	-
PAH Sum of 17 (mg/kg)	<0.64		100	-	-
	10:1				
	concn			values for co	
Eluate Analysis	leached			aching test I 12457-2 at I	
	A10				
	mg/kg			mg/kg	
Arsenic	0.044		0.5	2	25
Barium	<0.03		20	100	300
Cadmium	< 0.005		0.04	1	5
Chromium	<0.015		0.5	10	70
Copper	<0.07		2	50	100
Mercury	0.0004		0.01	0.2	2
Molybdenum	<0.02		0.5	10	30
Nickel					40
	<0.02		0.4	10	10
Lead	<0.02 <0.05		0.4 0.5	10	50
Lead Antimony				.	
	<0.05		0.5	10	50
Antimony	<0.05 <0.02		0.5 0.06	10 0.7	50 5
Antimony Selenium	<0.05 <0.02 <0.03		0.5 0.06 0.1	10 0.7 0.5	50 5 7
Antimony Selenium Zinc	<0.05 <0.02 <0.03 <0.03		0.5 0.06 0.1 4	10 0.7 0.5 50	50 5 7 200
Antimony Selenium Zinc Chloride	<0.05 <0.02 <0.03 <0.03 85		0.5 0.06 0.1 4 800	10 0.7 0.5 50 15000	50 5 7 200 25000
Antimony Selenium Zinc Chloride Fluoride	<0.05 <0.02 <0.03 <0.03 85 <3		0.5 0.06 0.1 4 800	10 0.7 0.5 50 15000	50 5 7 200 25000 500
Antimony Selenium Zinc Chloride Fluoride Sulphate as SO4	<0.05 <0.02 <0.03 <0.03 85 <3 151.3		0.5 0.06 0.1 4 800 10	10 0.7 0.5 50 15000 150 20000	50 5 7 200 25000 500 50000

Notification of Deviating Samples

Client Name: IGSL Matrix : Solid

Reference:

Location: Ravenswell Road **Contact:** Darren Keogh

J E Job No.	Batch	Sample ID	Depth	J E Sample No.	Analysis	Reason
15/15115	1	SAMPLE 1		1-2	GRO	Solid Samples were received at a temperature above 9°C.
15/15115	1	SAMPLE 3		3-4	GRO	Solid Samples were received at a temperature above 9°C.
15/15115	1	SAMPLE 5		5-6	GRO	Solid Samples were received at a temperature above 9°C.
15/15115	1	SAMPLE 7		7-8	GRO	Solid Samples were received at a temperature above 9°C.
15/15115	1	SAMPLE 9		9-10	GRO	Solid Samples were received at a temperature above 9°C.

Please note that only samples that are deviating are mentioned in this report. If no samples are listed it is because none were deviating. Only analyses which are accredited are recorded as deviating if set criteria are not met.

NOTES TO ACCOMPANY ALL SCHEDULES AND REPORTS

JE Job No.: 15/15115

SOILS

Please note we are only MCERTS accredited (UK soils only) for sand, loam and clay and any other matrix is outside our scope of accreditation.

Where an MCERTS report has been requested, you will be notified within 48 hours of any samples that have been identified as being outside our MCERTS scope. As validation has been performed on clay, sand and loam, only samples that are predominantly these matrices, or combinations of them will be within our MCERTS scope. If samples are not one of a combination of the above matrices they will not be marked as MCERTS accredited

It is assumed that you have taken representative samples on site and require analysis on a representative subsample. Stones will generally be included unless we are requested to remove them.

All samples will be discarded one month after the date of reporting, unless we are instructed to the contrary.

If you have not already done so, please send us a purchase order if this is required by your company.

Where appropriate please make sure that our detection limits are suitable for your needs, if they are not, please notify us immediately.

All analysis is reported on a dry weight basis unless stated otherwise. Results are not surrogate corrected. Samples are dried at 35°C ±5°C unless otherwise stated. Moisture content for CEN Leachate tests are dried at 105°C ±5°C.

Where Mineral Oil or Fats, Oils and Grease is quoted, this refers to Total Aliphatics C10-C40.

Where a CEN 10:1 ZERO Headspace VOC test has been carried out, a 10:1 ratio of water to wet (as received) soil has been used.

% Asbestos in Asbestos Containing Materials (ACMs) is determined by reference to HSG 264 The Survey Guide - Appendix 2 : ACMs in buildings listed in order of ease of fibre release.

Negative Neutralization Potential (NP) values are obtained when the volume of NaOH (0.1N) titrated (pH 8.3) is greater than the volume of HCI (1N) to reduce the pH of the sample to 2.0 - 2.5. Any negative NP values are corrected to 0.

WATERS

Please note we are not a UK Drinking Water Inspectorate (DWI) Approved Laboratory .

ISO17025 (UKAS) accreditation applies to surface water and groundwater and one other matrix which is analysis specific, any other liquids are outside our scope of accreditation.

As surface waters require different sample preparation to groundwaters the laboratory must be informed of the water type when submitting samples.

Where Mineral Oil or Fats, Oils and Grease is quoted, this refers to Total Aliphatics C10-C40.

DEVIATING SAMPLES

Samples must be received in a condition appropriate to the requested analyses. All samples should be submitted to the laboratory in suitable containers with sufficient ice packs to sustain an appropriate temperature for the requested analysis. If this is not the case you will be informed and any test results that may be compromised highlighted on your deviating samples report.

SURROGATES

Surrogate compounds are added during the preparation process to monitor recovery of analytes. However low recovery in soils is often due to peat, clay or other organic rich matrices. For waters this can be due to oxidants, surfactants, organic rich sediments or remediation fluids. Acceptable limits for most organic methods are 70 - 130% and for VOCs are 50 - 150%. When surrogate recoveries are outside the performance criteria but the associated AQC passes this is assumed to be due to matrix effect. Results are not surrogate corrected.

DILUTIONS

A dilution suffix indicates a dilution has been performed and the reported result takes this into account. No further calculation is required.

NOTE

Data is only reported if the laboratory is confident that the data is a true reflection of the samples analysed. Data is only reported as accredited when all the requirements of our Quality System have been met. In certain circumstances where all the requirements of the Quality System have not been met, for instance if the associated AQC has failed, the reason is fully investigated and documented. The sample data is then evaluated alongside the other quality control checks performed during analysis to determine its suitability. Following this evaluation, provided the sample results have not been effected, the data is reported but accreditation is removed. It is a UKAS requirement for data not reported as accredited to be considered indicative only, but this does not mean the data is not valid.

Where possible, and if requested, samples will be re-extracted and a revised report issued with accredited results. Please do not hesitate to contact the laboratory if further details are required of the circumstances which have led to the removal of accreditation.

ABBREVIATIONS and ACRONYMS USED

i 	
#	ISO17025 (UKAS) accredited - UK.
В	Indicates analyte found in associated method blank.
DR	Dilution required.
M	MCERTS accredited.
NA	Not applicable
NAD	No Asbestos Detected.
ND	None Detected (usually refers to VOC and/SVOC TICs).
NDP	No Determination Possible
SS	Calibrated against a single substance
SV	Surrogate recovery outside performance criteria. This may be due to a matrix effect.
W	Results expressed on as received basis.
+	AQC failure, accreditation has been removed from this result, if appropriate, see 'Note' on previous page.
++	Result outside calibration range, results should be considered as indicative only and are not accredited.
*	Analysis subcontracted to a Jones Environmental approved laboratory.
AD	Samples are dried at 35°C ±5°C
СО	Suspected carry over
LOD/LOR	Limit of Detection (Limit of Reporting) in line with ISO 17025 and MCERTS
ME	Matrix Effect
NFD	No Fibres Detected
BS	AQC Sample
LB	Blank Sample
N	Client Sample
TB	Trip Blank Sample
OC	Outside Calibration Range

JE Job No: 15/15115

Test Method No.	Description	Prep Method No. (if appropriate)	Description	ISO 17025 (UKAS)	MCERTS (UK soils only)	Analysis done on As Received (AR) or Dried (AD)	Reported on dry weight basis
PM4	Gravimetric measurement of Natural Moisture Content and % Moisture Content at either 35°C or 105°C. Calculation based on ISO 11465 and BS1377.	PM0	No preparation is required.				
TM4	Modified USEPA 8270 method for the solvent extraction and determination of 16 PAHs by GC-MS.	PM8	End over end extraction of solid samples for organic analysis. The solvent mix varies depending on analysis required.			AR	Yes
TM4	Modified USEPA 8270 method for the solvent extraction and determination of 16 PAHs by GC-MS.	PM8	End over end extraction of solid samples for organic analysis. The solvent mix varies depending on analysis required.	Yes		AR	Yes
TM5	Modified USEPA 8015B method for the determination of solvent Extractable Petroleum Hydrocarbons (EPH) with carbon banding within the range C8-C40 GC-FID.	PM16	Fractionation into aliphatic and aromatic fractions using a Rapid Trace SPE.			AR	Yes
TM17	Modified US EPA method 8270. Determination of specific Polychlorinated Biphenyl congeners by GC-MS.	PM8	End over end extraction of solid samples for organic analysis. The solvent mix varies depending on analysis required.	Yes		AR	Yes
TM20	Modified USEPA 8163. Gravimetric determination of Total Dissolved Solids/Total Solids	PM0	No preparation is required.	Yes		AR	Yes
TM21	Modified USEPA 415.1. Determination of Total Organic Carbon or Total Carbon by combustion in an Eltra TOC furnace/analyser in the presence of oxygen. The CO2 generated is quantified using infra-red detection.	PM24	Dried and ground solid samples are washed with hydrochloric acid, then rinsed with deionised water to remove the mineral carbon before TOC analysis.			AD	Yes
TM21	Modified USEPA 415.1. Determination of Total Organic Carbon or Total Carbon by combustion in an Eltra TOC furnace/analyser in the presence of oxygen. The CO2 generated is quantified using infra-red detection.	PM24	Dried and ground solid samples are washed with hydrochloric acid, then rinsed with deionised water to remove the mineral carbon before TOC analysis.	Yes		AD	Yes
TM22	Modified USEPA 160.4. Gravimetric determination of Loss on Ignition by temperature controlled Muffle Furnace (450°C)	PM0	No preparation is required.	Yes		AD	Yes
TM26	Determination of phenols by Reversed Phased High Performance Liquid Chromatography and Electro-Chemical Detection.	PM0	No preparation is required.			AR	Yes

JE Job No: 15/15115

Test Method No.	Description	Prep Method No. (if appropriate)	Description	ISO 17025 (UKAS)	MCERTS (UK soils only)	Analysis done on As Received (AR) or Dried (AD)	Reported on dry weight basis
TM27	Modified US EPA method 9056.Determination of water soluble anions using Dionex (lon-Chromatography).	PM0	No preparation is required.			AR	Yes
TM30	Determination of Trace Metal elements by ICP-OES (Inductively Coupled Plasma - Optical Emission Spectrometry). Modified US EPA Method 200.7	PM17	Modified method EN12457-2 As received solid samples are leached with water in a 10:1 water to soil ratio for 24 hours, the moisture content of the sample is included in the ratio.	Yes		AR	Yes
TM31	Modified USEPA 8015B. Determination of Methyltertbutylether, Benzene, Toluene, Ethylbenzene and Xylene by headspace GC-FID.	PM12	Modified US EPA method 5021. Preparation of solid and liquid samples for GC headspace analysis.			AR	Yes
TM31	Modified USEPA 8015B. Determination of Methyltertbutylether, Benzene, Toluene, Ethylbenzene and Xylene by headspace GC-FID.	PM12	Modified US EPA method 5021. Preparation of solid and liquid samples for GC headspace analysis.	Yes		AR	Yes
TM38	Soluble Ion analysis using the Thermo Aquakem Photometric Automatic Analyser. Modified US EPA methods 325.2, 375.4, 365.2, 353.1, 354.1	PM20	Extraction of dried and ground samples with deionised water in a 2:1 water to solid ratio for anions. Extraction of as received samples with deionised water in a 2:1 water to solid ratio for ammoniacal nitrogen. Samples are extracted using an orbital shaker.	Yes		AD	Yes
TM60	Modified USEPA 9060. Determination of TOC by calculation from Total Carbon and Inorganic Carbon using a TOC analyser, the carbon in the sample is converted to CO2 and then passed through a non-dispersive infrared gas analyser (NDIR).	PM0	No preparation is required.			AR	Yes
TM61	Modified US EPA methods 245.7 and 200.7. Determination of Mercury by Cold Vapour Atomic Fluorescence.	PM38	Samples are brominated to reduce all mercury compounds to Mercury (II) which is analysed using method TM061.	Yes		AR	Yes
TM73	Modified US EPA methods 150.1 and 9045D. Determination of pH by Metrohm automated probe analyser.	PM11	Extraction of as received solid samples using one part solid to 2.5 parts deionised water.	Yes		AR	No
NONE	No Method Code	PM17	Modified method EN12457-2 As received solid samples are leached with water in a 10:1 water to soil ratio for 24 hours, the moisture content of the sample is included in the ratio.				
NONE	No Method Code	PM17	Modified method EN12457-2 As received solid samples are leached with water in a 10:1 water to soil ratio for 24 hours, the moisture content of the sample is included in the ratio.			AR	

JE Job No: 15/15115

Test Method No.	Description	Prep Method No. (if appropriate)	Description	ISO 17025 (UKAS)	MCERTS (UK soils only)	Analysis done on As Received (AR) or Dried (AD)	Reported on dry weight basis
NONE	No Method Code	PM4	Gravimetric measurement of Natural Moisture Content and % Moisture Content at either 35°C or 105°C. Calculation based on ISO 11465 and BS1377.			AR	

Appendix - Methods used for WAC (2003/33/EC)

1.5. EN 12457-2:2002 Specified particle size; water added to L/S ratio; capped; agitated for 24 ± 0.5 hours; eluate settled and filtered over 0.45 jum membrane filter. Eluate analysis	I.S. EN 12457-2:2002 Specified particle size; water added to I/S ratio; capped; agitated for 24 ± 0.5 hours; eluate settled and filtered over 0.45 jum membrane filter. Eluate analysis	1.5. EN 12457-2:2002 Specified particle size; water added to L/S ratio; capped; agitated for 24 ± 0.5 hours; eluate settled and filtered over 0.45 jum membrane filter. Eluate analysis		
Total Filtered over 0.45 \(\text{ \text{m}} \) membrane filter. Eluate analysis	Total Filtered over 0.45 \(\text{pm membrane filter.} \) Eluate analysis I.S. EN 12506 : EN ISO 11885 (ICP-OES) Ba	Total Filtered over 0.45 \(\text{ \text{mm}} \)	Leachate tests	LC EN 42457 2:2000 Consideration with a single dark of Constitution and a single for 24 to 5 hours about a silled and
Section Sect	Eluate analysis	As	10l/kg; 4mm	
As	As	As	Charte englacia	Tiltered over 0.45 μm membrane filter.
Ba	Ba	Ba	•	V 0 TH 100 TH 100 1100 1100 1100
Cd	Cd	Cd		` '
Cr total I.S. EN 12506 : EN ISO 11885 (ICP-OES) Cu I.S. EN 12506 : EN ISO 11885 (ICP-OES) Hg I.S. EN 1370 rec. EN 1483 (ICP-OES) Mo I.S. EN 12506 : EN ISO 11885 (ICP-OES) Ni I.S. EN 12506 : EN ISO 11885 (ICP-OES) Pb I.S. EN 12506 : EN ISO 11885 (ICP-OES) Sb I.S. EN 12506 : EN ISO 11885 (ICP-OES) Se I.S. EN 12506 : EN ISO 11885 (ICP-OES) Chloride I.S. EN 12506 : EN ISO 11885 (ICP-OES) Chloride I.S. EN 12506 rec. EN ISO 10304-part 1 (liquid chromatography of ions) Fluoride I.S. EN 12506 rec. EN ISO 10304-part 1 (liquid chromatography of ions) Phenol index I.S. EN 12506 rec. EN ISO 10304-part 1 (liquid chromatography of ions) Phenol index I.S. EN 13370 rec. ISO 6439 (4-Aminoantipyrine spectrometic methods after distillation)* (BY HPLC - Jones Env) DOC I.S. EN 15216 Compositional analysis TOC I.S. EN 13317 Method B: carbonates removed with acid; TOC by combustion. BTEX GC-FID PCB7** I.S. EN 15308 analysis by GC-ECD. Mineral oil I.S. EN 15307 - Aqua regia digestion: EN ISO 11885 (ICP-OES) Other	Cr total I.S. EN 12506 : EN ISO 11885 (ICP-OES)	Cr total I.S. EN 12506 : EN ISO 11885 (ICP-OES)		
Cu I.S. EN 12506 : EN ISO 11885 (ICP-OES) Hg I.S. EN 13370 rec. EN 1483 (CVAAS) Mo I.S. EN 12506 : EN ISO 11885 (ICP-OES) Ni I.S. EN 12506 : EN ISO 11885 (ICP-OES) Pb I.S. EN 12506 : EN ISO 11885 (ICP-OES) Sb I.S. EN 12506 : EN ISO 11885 (ICP-OES) Se I.S. EN 12506 : EN ISO 11885 (ICP-OES) Zn I.S. EN 12506 : EN ISO 11885 (ICP-OES) Chloride I.S. EN 12506 rec. EN ISO 13004-part 1 (liquid chromatography of ions) Fluoride I.S. EN 12506 rec. EN ISO 10304-part 1 (liquid chromatography of ions) Sulphate I.S. EN 12506 rec. EN ISO 10304-part 1 (liquid chromatography of ions) Phenol index I.S. EN 13370 rec. ISO 6439 (4-Aminoantipyrine spectrometic methods after distillation)* (BY HPLC - Jones Env) DOC I.S. EN 1484 Compositional analysis TOC I.S. EN 13137 Method B: carbonates removed with acid; TOC by combustion. BTEX GC-FID PGB7** I.S. EN 15308 analysis by GC-ECD. Mineral oil I.S. EN 15307 PAH17 analysis by GC-FID. PAH17**** I.S. EN 15657 - Aqua regia digestion: EN ISO 11885 (ICP-OES) Other	Cu I.S. EN 12506 : EN ISO 11885 (ICP-OES) Hg I.S. EN 13370 rec. EN 1483 (CVAAS) Mo I.S. EN 12506 : EN ISO 11885 (ICP-OES) Ni I.S. EN 12506 : EN ISO 11885 (ICP-OES) Pb I.S. EN 12506 : EN ISO 11885 (ICP-OES) Sb I.S. EN 12506 : EN ISO 11885 (ICP-OES) Se I.S. EN 12506 : EN ISO 11885 (ICP-OES) Zn I.S. EN 12506 : EN ISO 11885 (ICP-OES) Chloride I.S. EN 12506 rec. EN ISO 10304-part 1 (liquid chromatography of ions) Fluoride I.S. EN 12506 rec. EN ISO 10304-part 1 (liquid chromatography of ions) Sulphate I.S. EN 12506 rec. EN ISO 10304-part 1 (liquid chromatography of ions) Phenol index I.S. EN 13370 rec. ISO 6439 (4-Aminoantipyrine spectrometic methods after distillation)* (BY HPLC - Jones Env) DOC I.S. EN 15216 Compositional analysis TOC I.S. EN 153137 Method B: carbonates removed with acid; TOC by combustion. BTEX GC-FID PCB7** I.S. EN 15308 analysis by GC-ECD. Mineral oil I.S. EN 14039 C10 to C40 analysis by GC-FID. PAH17*** I.S. EN 15557 PAH17 analysis by GC-MS Other	Cu I.S. EN 12506 : EN ISO 11885 (ICP-OES) Hg I.S. EN 13370 rec. EN 1483 (CVAAS) Mo I.S. EN 12506 : EN ISO 11885 (ICP-OES) Ni I.S. EN 12506 : EN ISO 11885 (ICP-OES) Pb I.S. EN 12506 : EN ISO 11885 (ICP-OES) Sb I.S. EN 12506 : EN ISO 11885 (ICP-OES) Se I.S. EN 12506 : EN ISO 11885 (ICP-OES) Zn I.S. EN 12506 : EN ISO 13885 (ICP-OES) Zn I.S. EN 12506 : EN ISO 1304-part 1 (liquid chromatography of ions) Fluoride I.S. EN 12506 rec. EN ISO 10304-part 1 (liquid chromatography of ions) Sulphate I.S. EN 12506 rec. EN ISO 10304-part 1 (liquid chromatography of ions) Phenol index I.S. EN 13370 rec. ISO 6439 (4-Aminoantipyrine spectrometic methods after distillation)* (BY HPLC - Jones Env) DOC I.S. EN 1484 TDS I.S. EN 15216 Compositional analysis GC-FID PG3** I.S. EN 15308 analysis by GC-ECD. Mineral oil I.S. EN 15308 analysis by GC-FID. PAH17*** I.S. EN 15307 - Aqua regia digestion: EN ISO 11885 (ICP-OES) Other I.S. EN 14346 sample is dried to a constant mass in an oven at 105 ± 3 *C; Method B Water content by direct Karl-Fischer-		· · ·
Hg	Hg	Hg		· · ·
Mo	No	Mo		
Ni	Ni	Ni		
Pb	Pb	Pb		
Sb I.S. EN 12506 : EN ISO 11885 (ICP-OES) Se I.S. EN 12506 : EN ISO 11885 (ICP-OES) Zn I.S. EN 12506 : EN ISO 11885 (ICP-OES) Zn I.S. EN 12506 : EN ISO 10885 (ICP-OES) Zn I.S. EN 12506 rec. EN ISO 10304-part 1 (liquid chromatography of ions) Fluoride I.S. EN 12506 rec. EN ISO 10304-part 1 (liquid chromatography of ions) Sulphate I.S. EN 12506 rec. EN ISO 10304-part 1 (liquid chromatography of ions) Phenol index I.S. EN 13370 rec. ISO 6439 (4-Aminoantipyrine spectrometic methods after distillation)* (BY HPLC - Jones Env) DOC I.S. EN 1484 TDS I.S. EN 15216 Compositional analysis TOC I.S. EN 13137 Method B: carbonates removed with acid; TOC by combustion. BTEX GC-FID PCB7** I.S. EN 15308 analysis by GC-ECD. Mineral oil I.S. EN 14039 C10 to C40 analysis by GC-FID. PAH17*** I.S. EN 15527 PAH17 analysis by GC-MS Metals I.S. EN 13466 sample is dried to a constant mass in an oven at 105 ± 3 °C; Method B Water content by direct Karl-Fischer-	Sb	Sb I.S. EN 12506 : EN ISO 11885 (ICP-OES) Se I.S. EN 12506 : EN ISO 11885 (ICP-OES) Zn I.S. EN 12506 : EN ISO 11885 (ICP-OES) Chloride I.S. EN 12506 rec. EN ISO 10304-part 1 (liquid chromatography of ions) Fluoride I.S. EN 12506 rec. EN ISO 10304-part 1 (liquid chromatography of ions) Sulphate I.S. EN 12506 rec. EN ISO 10304-part 1 (liquid chromatography of ions) Phenol index I.S. EN 13370 rec. ISO 6439 (4-Aminoantipyrine spectrometic methods after distillation)* (BY HPLC - Jones Env) DOC I.S. EN 1484 TDS I.S. EN 1484 Compositional analysis TOC I.S. EN 13137 Method B: carbonates removed with acid; TOC by combustion. BTEX GC-FID PCB7** I.S. EN 15308 analysis by GC-ECD. Mineral oil I.S. EN 14039 C10 to C40 analysis by GC-FID. PAH17*** I.S. EN 15527 PAH17 analysis by GC-MS Metals I.S. EN 13657 - Aqua regia digestion: EN ISO 11885 (ICP-OES) Other I.S. EN 14346 sample is dried to a constant mass in an oven at 105 ± 3 °C; Method B Water content by direct Karl-Fischer-		
Se	Se I.S. EN 12506 : EN ISO 11885 (ICP-OES) Zn I.S. EN 12506 : EN ISO 11885 (ICP-OES) LIS. EN 12506 : EN ISO 11885 (ICP-OES) Chloride I.S. EN 12506 rec. EN ISO 10304-part 1 (liquid chromatography of ions) Fluoride I.S. EN 12506 rec. EN ISO 10304-part 1 (liquid chromatography of ions) Sulphate I.S. EN 12506 rec. EN ISO 10304-part 1 (liquid chromatography of ions) Phenol index I.S. EN 13370 rec. ISO 6439 (4-Aminoantipyrine spectrometic methods after distillation)* (BY HPLC - Jones Env) DOC I.S. EN 1484 TDS I.S. EN 1484 Compositional analysis TOC I.S. EN 13137 Method B: carbonates removed with acid; TOC by combustion. BTEX GC-FID PCB7** I.S. EN 15308 analysis by GC-ECD. Mineral oil I.S. EN 14039 (10 to C40 analysis by GC-FID. PAH17*** I.S. EN 15527 PAH17 analysis by GC-MS Metals I.S. EN 13657 - Aqua regia digestion: EN ISO 11885 (ICP-OES)	Se I.S. EN 12506 : EN ISO 11885 (ICP-OES) Zn I.S. EN 12506 : EN ISO 11885 (ICP-OES) Chloride I.S. EN 12506 rec. EN ISO 10304-part 1 (liquid chromatography of ions) Fluoride I.S. EN 12506 rec. EN ISO 10304-part 1 (liquid chromatography of ions) Sulphate I.S. EN 12506 rec. EN ISO 10304-part 1 (liquid chromatography of ions) Phenol index I.S. EN 13370 rec. ISO 6439 (4-Aminoantipyrine spectrometic methods after distillation)* (BY HPLC - Jones Env) DOC I.S. EN 1484 TDS I.S. EN 15216 Compositional analysis TOC I.S. EN 13137 Method B: carbonates removed with acid; TOC by combustion. BTEX GC-FID PCB7** I.S. EN 15308 analysis by GC-ECD. Mineral oil I.S. EN 14039 C10 to C40 analysis by GC-FID. PAH17*** I.S. EN 15527 PAH17 analysis by GC-MS Metals I.S. EN 13657 - Aqua regia digestion: EN ISO 11885 (ICP-OES) Other I.S. EN 14346 sample is dried to a constant mass in an oven at 105 ± 3 °C; Method B Water content by direct Karl-Fischer-		· · ·
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I.S. EN 14346 sample is dried to a constant mass in an oven at 105 ± 3 °C; Method B Water content by direct Karl-Fischer-		I.S. EN 14346 sample is dried to a constant mass in an oven at 105 ± 3 °C; Method B Water content by direct Karl-Fischer-		[16: 21: 2000 - 1462 - 2562 - 2562 - 21: 160 - 225]
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Dry matter litration and either volumetric or coulometric detection.	Dry matter titration and either volumetric or coulometric detection.		Compositional analys TOC BTEX PCB7** Mineral oil PAH17***	I.S. EN 13137 Method B: carbonates removed with acid; TOC by combustion. GC-FID I.S. EN 15308 analysis by GC-ECD. I.S. EN 14039 C10 to C40 analysis by GC-FID. I.S. EN 15527 PAH17 analysis by GC-MS
I S. FN 15169 Difference in mass after heating in a furnace up to 550 + 25 °C	IOI IS EN 15169 Difference in mass after heating in a furnace up to 550 + 25 °C	ILINER IS 169 DITTERENCE IN MASS ATTER DEATING IN A TURNACE UN TO SOUTE 25 T	Other Dry matter	titration and either volumetric or coulometric detection.

Notes

^{*}If not suitable due to LOD, precision, etc., any other suitable method can be used, e.g. AFS, ICP-MS

^{**}PCB-28, PCB-52, PCB-101, PCB-118, PCB-138, PCB-153 and PCB-180

^{***}Naphthalene, Acenaphthylene, Acenaphthene, Anthracene, Benzo(a)anthracene, Benzo(b)fluoranthene, Benzo(k)fluoranthene, Benzo(g,h,i)perylene, Benzo(a)pyrene, Chrysene, Coronene, Dibenzo(a,h)anthracene, Fluorene, Fluoranthene, Indeno(1,2,3-c,d)pyrene, Phenanthrene and Pyrene.

River Dargle, Appraisal of dredge material



Wicklow County C	ouncil						
Ultimate Client:							
Wicklow County C	Council						
Confidentiality:							
N/A							
Guidelines of use	of report:						
This report has been commissioned by Wicklow County Council for dredge material sampled from along the River Dargle in Bray. Third Parties using this report should independently satisfy themselves that the information contained in this report remains valid for their own purposes.							
themselves that th	ne information co	ontained in this repo	ort remains valid fo	r their own purposes.			
Doc Number	Revision	ontained in this repo	ort remains valid fo Authored	r their own purposes. Checked			

Project Title:

Report Title:

Client:

River Dargle Flood Defence Scheme

River Dargle, Appraisal of dredge material

River Dargle - Appraisal of dredge material



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1 Introduction

Gavin and Doherty Geosolutions Ltd. (GDG) was requested by Wicklow County Council to assess dredge material sampled from along the River Dargle in Bray and to review the constituents of the material and comment on the potential reuse of the soil.

Bulk samples were taken from the site and tested to determine the geotechnical and chemical properties. The locations are illustrated in Figure .



Figure 1- Location of the samples

This report summarises the results from the testing phases and provides:

- Geotechnical assessment of the material
- A commentary on the degree of contamination of the soil
- Possible uses of the material.

2 Sampling

The samples were sent to IGSL for classification purposes and then issued to Jones Environmental Laboratory for environmental testing.

A suite of Particle Size Distributions were undertaken in accordance with BS 1377 Methods of test for Soils of Civil Engineering Purposes and a suit of Waste Acceptance Criteria (WAC) chemical tests were also undertaken, with the test methodology in compliance with EC Decision of 19 December 2002 (1999/31/EC).

The test reports from IGSL and Jones Environmental are appended to this report in Appendices A and B.

3 Geotechnical characterisation

3.1 Grading

Particle size distribution tests were undertaken on six samples. The soil could be described as a well/uniformly graded granular material. The deposition regime in the river has produced a very similar grading distribution in the various samples, with most of the material determined to be sandy GRAVEL.

The grading curves (Figure 2) have been plotted against the grading requirements for Class 1A/1B from the National Road Authority (NRA) Specification for Road Works 600 Series.

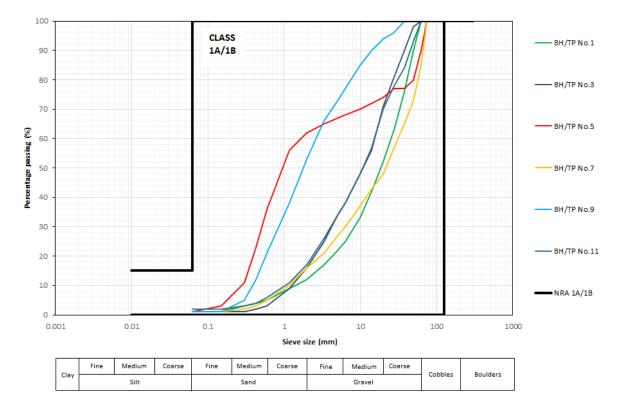


Figure 2- Grading curves and NRA SRW limits for selected materials.

3.2 Criteria for Assessment

Soil analysis for contamination was carried out in accordance with two sets of criteria relevant to the environmental assessment of a site depending on whether soils are to remain in-situ or are being reused on site of origin, or are to be removed from site. These are:

- a) Does the soil have properties that deems it hazardous under the Waste Framework Directive, and
- b) Waste Acceptance Criteria (WAC) for soils to be removed/disposed offsite. In accordance with the parameters for disposal of excavated material to landfill (European Council decision of 19 December 2002 pursuant to Article 16 and of and Annex II to Directive 1999/31/EC). This Council Decision sets limit values on waste for each landfill type based on total pollutant contents and leachate concentrations.

3.2.1 Waste Acceptance Criteria (WAC)

For soils which are to be removed off-site for disposal in a landfill, the EU has set criteria for the acceptance of waste at a land fill. These are referred to as the Waste Acceptance Criteria (WAC) and are set out in Directive 1999/31/EC (The Landfill Directive) and the Council Decision of 19 December 2002. This decision classifies landfills as Inert, Non-hazardous or Hazardous based on total pollutant contents and leachate concentrations.

3.3 Test Results

3.3.1 Soils to be removed/disposal off site - Waste Acceptance Criteria (WAC)

Excavated soils from construction sites can be disposed to a number of facilities, depending on the concentration of contaminants present in the soils. The main disposal options are as follows:

- Inert Natural Ground, suitable for permitted site (category A)
- Soils suitable for disposal to an Inert Licenced Landfill (category B)
- Soils suitable for disposal to a Non Hazardous Licenced Landfill (category C)
- Soils suitable for disposal to a Hazardous Licenced Landfill (category D)

The results indicate that the materials classify as inert (category A) and are suitable for reuse as construction materials.

4 Conclusions and recommendations

The dredge material sampled from along the River Dargle in Bray consists of granular materials that could be described as a well/uniformly graded granular material, with samples determined to be sandy GRAVEL / gravelly SAND.

The material suitability for a number of applications is assessed below.

4.1 General Fill

The material is suitable for use as a general fill material. We have assessed the material on the classifications presented in the NRA Specification for Road Works. The material would meet the grading requirements for Class 1A/1B General Fill.

The granular material is likely to require minimal processing to be suitable for compaction. Over time some of the outer material may wet up and require some mixing or drying to improve the material and make it suitable for placement as general fill.

4.2 Capping material for landfill tips

The material is a sandy gravel material and could be used in some landfill operations. For example the material could be used as a daily cover to be spread over deposited waste at the end of every working day. The daily cover should ideally be permeable to allow water to pass through thereby preventing ponding / perched water build up.

The material would be less useful as an intermediate or long term capping material as the capping material should significantly reduce the rainfall infiltration.

4.3 Beach nourishment

GDG was asked to review the suitability of the material stockpiled for beach nourishment at the Bray Beach.

The requirements for a suitable material for beach nourishment at Bray are:

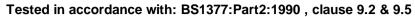
- The material should match the existing material as closely as possible,
- It should be natural stone only and similar in colour and texture to the existing beach deposits and
- It should be rounded and ideally somewhat flat.

A comparison between the materials is shown in the table below.

Source	Colour	Flat?	Roughness	Rounded / angular	Broken stones / sharp edges	Size	Overall comment
Bray beach	Predominantly Grey and Yellowish Brown, with pink brown & off white	Yes	All smooth	Rounded	None	Note shingle is finer further south and more sand (medium to coarse gravel)	Original
Dredge material from River Dargle	Light Brown/Grey	The stone is predominately more flat than round	Smooth	Rounded to sub rounded	Very limited	The material is graded within an envelope with D50 from 1mm to 20mm	Possible

APPENDIX A IGSL Test Results

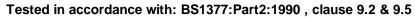
Determination of Particle Size Distribution





									<u></u>	
particle	%			Contract No:	19183	Report No.	R71974			
size	passing			Contract:	River Dargl	le , Bray				
75	100	COBBLES		BH/TP:	No.1					
63	100			Sample No.	N/A	Lab. Samp	le No.	A16/1644		
50	90			Sample Type:	В					
37.5	76			Depth (m)	N/A	Customer:	Gavin & Doherty Geo	solutions, Office 1B Park	wiew House, Beech Hill Office Ca	mpus, Clonskeagh.
28	63			Date Received	29-04-16	Date Testin	-	04-05-16		
20	52			Description:	Brown sligh	htly clayey/sil	ty, sandy, GRA	VEL		
14	42	GRAVEL								
10	33	ONWEL		Remarks						
6.3	25						53	8 8	5	75.
5	22						0.063	0.3 0.425 0.6 1.18	2 3.35 6.3 10 14 20 20	37 37 53 63
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2	12		90							
1.18	9		80	+ + + + + + + + + + + + + + + + + + + +						╫╫╫
0.6	5		§ 70	+ + + + + + + + + + + + + + + + + + + +						 /
0.425	4	SAND	iss 60	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1						
0.3	3		6 50 0 50							
0.15	1		Percentage passing (%) 00 00 00 00 00 00 00 00 00 00 00 00 00							
0.063	1		cen							
			20							
		SILT/CLAY	10						1	
			0		 					
			0.	0001 0.0		0.01	0.1	1	10	100
				CLA	Y	SILT Si	eve size (mm)	SAND	GRAVEL	
				iala Labarat			Approved by:		Date:	Page no:
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						Persons author	rised to approve re	port: J Barrett (De	p. Quality Manager) H Byr	ne (Quality Mana

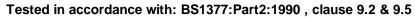
Determination of Particle Size Distribution





particle	%			Contract No:	19183	Report No.	D71072		!	
size	passing			Contract:	River Darg	-	. 1312			
75	100			BH/TP:	No.3	Jie , Diay				
63	100	COBBLES		Sample No.	N/A	Lab. Samp	ole No	A16/1645		
50	98			Sample Type:	В	Lab. Samp	de No.	A10/1043		
37.5	90			Depth (m)	N/A	Customer:	Covin & Doborty Coope	lutions Office 1P Port	κview House, Beech Hill Office Caι	mnua Clanakaaah
28	81			Date Received	29-04-16	Date Testi	·	04-05-16		mpus, Cionskeagn.
20	71			Description:			lty, sandy, GRAV			
14	56			Description.	J		<i>3.</i>			
10	48	GRAVEL		Remarks						
6.3	38							۰ ۵ ۰	10	10
5	34						0.063	0.3 0.425 0.6 1.18	2 3.35 6.3 10 20 20	37.£ 53 53 53 53
3.35	25		100							
2	16		90	+ + + + + + + + + + + + + + + + + + + +						
1.18	9		80							
0.6	3		§ 70	1						
0.425	2	SAND	ssing 60							
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0.15	1		Percentage passing (%) 00 00 00 00 00 00 00 00 00 00 00 00 00							
0.063	1		cent							
				T						
			20							
		SILT/CLAY	10							
			0		 					<u> </u>
			0.0	0001 0.0		0.01	0.1	1	10	100
				CLA	Y	SILT S i	eve size (mm)	SAND	GRAVEL	
			d Nata	lala labaret			Approved by:		Date:	Page no:
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Determination of Particle Size Distribution





%			Contract No:	10102	Donort No	D74070			
				19183	Report No.	R/19/3			
passing			Contract:	River Darg	le , Bray				
100	COBBLES		BH/TP:	No.5					
			Sample No.	N/A	Lab. Samp	e No.	A16/1646		
80			Sample Type:	В					
77			Depth (m)	N/A	Customer:	Gavin & Doherty Geo	solutions, Office 1B Par	kview House, Beech Hill Office Ca	mpus, Clonskeagh.
77			Date Received	29-04-16		-			
74			Description:	Brown sligh	ntly clayey/silt	y, very gravelly	, SAND with so	ome cobbles	
72	GRAVFI								
70	0.0.022		Remarks						
68						63	3 3 18	35	ıv
67		400				0.00	0.3 0.4; 0.6 1.1	2 2 3 3 3 5 4 7 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8	37 53 53 53
65									
62									
56		80	† 						
36		<u>ි</u> 70	+ + + + + + + + + + + + + + + + + + + +						
23	SAND	ssin 60							
11		ed 50							
3		tage							
1		cen							
							ПИПП		
	SILT/CLAY	10					1		
		_		204		2.4		12	400
		0.					1		100
			CLA	Υ	SILT S ic	eve size (mm)	SAND	GRAVEL	
			lala Labarat					Date:	Page no:
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_	90 80 77 77 74 72 70 68 67 65 62 56 36 23 11 3	90 80 77 77 74 72 70 68 67 65 62 56 36 23 SAND 11 3 1	90 80 77 77 77 77 77 77 77 77 77 77 77 77 77	Sample No. Sample Type: Depth (m) Date Received Description: Remarks 68 67 65 62 56 36 23 SAND 11 3 1 SILT/CLAY SILT/CLAY SILT/CLAY SILT/CLAY Sample No.	Sample No. N/A Sample Type: B Depth (m) N/A Date Received 29-04-16 Description: Brown slight Remarks 100 90 80 77 74 Date Received 29-04-16 Description: Brown slight Remarks 100 90 80 11 3 1 SILT/CLAY SILT/CLAY	Sample No. N/A Lab. Sample No. Sample Type: B Depth (m) N/A Customer: Date Received 29-04-16 Date Testin Description: Brown slightly clayey/silt Remarks 100 90 80 Sample No. N/A Lab. Sample No. N/A Customer: Date Received 29-04-16 Date Testin Description: Brown slightly clayey/silt Remarks 100 90 80 80 70 80 80 70 80 70 80 70 80 70 80 70 80 70 80 70 80 70 80 70 80 70 80 70 80 80 80 80 80 80 80 80 80 80 80 80 80	Sample No. N/A Lab. Sample No. Sample No. Sample No. Sample No. N/A Customer: Gavin a Doherty Geo Date Received 29-04-16 Date Testing started Description: Brown slightly clayey/silty, very gravelly Remarks GRAVEL Remarks GRAVEL Remarks Sample No. N/A Lab. Sample No. Sample No. Sample No. Sample No. Sample No. N/A Customer: Gavin a Doherty Geo Date Received 29-04-16 Date Testing started Description: Brown slightly clayey/silty, very gravelly Remarks Sample No. N/A Lab. Sample No. N/A Customer: Gavin a Doherty Geo Date No. Sample N	Sample No. N/A Lab. Sample No. A16/1646 Sample Type: B Depth (m) N/A Customer: Gavin & Doherty Geosolutions, Office 18 Part Date Received 29-04-16 Date Testing started 04-05-16 Description: Brown slightly clayey/silty, very gravelly, SAND with sc Remarks Remarks Sample No. N/A Lab. Sample No. A16/1646 Sample No. A16/1646 Sample No. N/A Lab. Sample No. A16/1646 Sample No. A16/1646 Sample No. N/A Lab. Sample No. A16/1646 Sample No. N/A Customer: Gavin & Debetty Geoscolutions, Office 18 Part No. A16/1646 Sample No. N/A Customer: Gavin & Debetty Geoscolutions, Office 18 Part No. A16/1646 Sample No. N/A Customer: Gavin & Debetty Geoscolutions, Office 18 Part No. A16/1646 Sample No. N/A Customer: Gavin & Debetty Geoscolutions, Office 18 Part No. A16/1646 Sample No. N/A Customer: Gavin & Debetty Geoscolutions, Office 18 Part No. A16/1646 Sample No. N/A Customer: Gavin & Debetty Geoscolutions, Office 18 Part No. A16/1646 Sample No. N/A Customer: Gavin & Sample No. A16/1646 Sample No. N/A Customer: Gavin & Sample No. A16/1646 Sample No	Sample No. N/A Lab. Sample No. A16/1646 Sample Type: B Depth (m) N/A Customer: Gavin & Deberty Geoscolutions, Office 18 Partivlew House, Beech Hill Office Ca Date Received 29-04-16 Date Testing started 04-05-16 Description: Brown slightly clayey/slity, very gravelly, SAND with some cobbles Remarks Remarks SAND SILT/CLAY SILT/CLAY Approved by: Date:

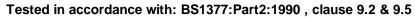
Determination of Particle Size Distribution





particle	%			Contract No:	19183	Report I	No. R71975		•	
size	passing			Contract:	River Dargl	le , Bray				
75	100	COBBLES		BH/TP:	No.7					
63	85	0000000		Sample No.	N/A	Lab. Sa	mple No.	A16/1647		
50	73			Sample Type:	В					
37.5	65			Depth (m)	N/A	Custome	er: Gavin & Doherty Geos	solutions, Office 1B Par	kview House, Beech Hill Office C	ampus, Clonskeagh.
28	57			Date Received	29-04-16		sting started	04-05-16		
20	48			Description:	Brown sligh	ntly clayey	/silty, sandy, GRA	VEL with some	cobbles	
14	43	GRAVEL								
10	37	010.022		Remarks	Sample size did not meet the r	requirements of BS1377				
6.3	30						53	25	35	ιċ
5	27		400				0.063	0.3 0.425 0.6 1.18	2 3.35 5.3 6.3 10 20	28 37 50 53 633
3.35	21		100							
2	16		90							
1.18	10		® 80	+ + + + + + + + + + + + + + + + + + + +						
0.6	5		ို့ 70	+ + + + + + + + + + + + + + + + + + + +						
0.425	3	SAND	Percentage passing (%) 00 00 00 00 00 00 00 00 00 00 00 00 00	+ + + + + + + + + + + + + + + + + + + +				- 		
0.3	2		<u>α</u> 50	+ + + + + + + + + + + + + + + + + + + +						
0.15	1		ugati 40							
0.063	1		90 30 30 a							
			20							
		SILT/CLAY	10							
			0	.0001 0.0	n01	0.01	0.1	1	10	100
			0.	.0001 0.0 CLA		SILT	Sieve size (mm)	SVVID	GRAVEL	100
				CLA	I	SIL I	Sieve Size (IIIII)	SAIND	GNAVEL	
	I						Approved by:		Date:	Page no:
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						Persons a	uthorised to approve rep	port: J Barrett (De	ep. Quality Manager) H By	rne (Quality Manage

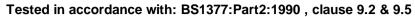
Determination of Particle Size Distribution





									<u> </u>	
particle	%			Contract No:	19183	Report No.	. R71973			
size	passing	ļ		Contract:	River Darg	le , Bray				
75	100	COBBLES		BH/TP:	No.9					
63	100			Sample No.	N/A	Lab. Samp	ole No.	A16/1648		
50	100			Sample Type:	В					
37.5	100			Depth (m)	N/A	Customer:	Gavin & Doherty Geo	osolutions, Office 1B Par	xview House, Beech Hill Office Ca	mpus, Clonskeagh.
28	96			Date Received	29-04-16	Date Testin	_	04-05-16		
20	94			Description:	Brown sligh	htly clayey/sil	ty, very gravell	y, SAND		
14	90	GRAVEL								
10	85	0		Remarks						
6.3	77						63	3 25 3 18	35	5:
5	73		400				0.063	0.3 0.425 0.6 1.18	2 3.35 6.3 10 14 20	37 37 53 63 63
3.35	66		100							
2	53		90							
1.18	38		80	+ + + + + + + + + + + + + + + + + + + +						
0.6	21		§ 70	+ + + + + + + + + + + + + + + + + + + +						
0.425	12	SAND	Ssin 60	+ + + + + + + + + + + + + + + + + + + +					1/1111111111111111111111111111111111111	
0.3	5		6 50						<i>X</i>	
0.15	1		Percentage passing (%) 00 00 00 00 00 00 00 00 00 00 00 00 00							
0.063	1		arcen 30							
			20							
		SILT/CLAY	10							
			0							
			0.		001	0.01	0.1	1	10	100
				CLA	Y	SILT Si	eve size (mm)	SAND	GRAVEL	
				iolo I oborot			Approved by		Date:	Page no:
		IGSL LT	a water	ials Laborat	ory		A Byen	~-	11-05-16	1 of 1
						Persons author	orised to approve re	eport: J Barrett (De	p. Quality Manager) H Byr	ne (Quality Mana

Determination of Particle Size Distribution





particle	%			Contract No:	19183	Report No.	R71976			
size	passing			Contract:	River Dargl	le , Bray				
75	100	COBBLES		BH/TP:	No.11					
63	100			Sample No.	N/A	Lab. Samp	le No.	A16/1649		
50	93			Sample Type:	В					
37.5	84			Depth (m)	N/A	Customer:	Gavin & Doherty Geos	solutions, Office 1B Park	wiew House, Beech Hill Office Ca	mpus, Clonskeagh.
28	78			Date Received	29-04-16	Date Testir	_	04-05-16		
20	70			Description:	Brown sligh	ntly clayey/sil	ty, sandy, GRA	VEL		
14	57	GRAVEL								
10	48	0		Remarks						
6.3	38						63	3 25 3 18	35	7.
5	34		400				0.063	0.3 0.425 0.6 1.18	2 3.35 6.3 10 14 20 20	930
3.35	26		100							
2	17		90	1						
1.18	11		® 80	+ + + + + + + + + + + + + + + + + + + +						/
0.6	6		Percentage passing (%) 00 00 00 00 00 00 00 00 00 00 00 00 00	+ + + + + + + + + + + + + + + + + + + +					 	
0.425	4	SAND	ssin 60						 	
0.3	3		g 50							
0.15	2		tage							
0.063	2		arcen 30							
			20						/ 	
		SILT/CLAY	10							
			0		· · · · · · · · · · · · · · · · · · ·	0.04	0.4		40	400
			0.	0001 0.0		0.01	0.1	1	10	100
				CLA	Υ	SILT Si	eve size (mm)	SAND	GRAVEL	
	<u>l</u>	1001 14		lala Labarrat			Approved by:		Date:	Page no:
		IGSL Lt	a water	ials Laborat	ory		A Bejer		11-05-16	1 of 1
						Persons autho	rised to approve re	port: J Barrett (De	p. Quality Manager) H Byr	ne (Quality Mana

APPENDIX B Jones Environmental Laboratory Results



Registered Address: Unit 3 Deeside Point, Zone 3, Deeside Industrial Park, Deeside, CH5 2UA. UK

Unit 3 Deeside Point

Zone 3

Deeside Industrial Park

Deeside CH5 2UA

IGSL
Unit F
M7 Business Park
Naas
Co Kildare
Ireland

Tel: +44 (0) 1244 833780

Fax: +44 (0) 1244 833781





Attention: Darren Keogh

Date: 26th April, 2016

Your reference:

Our reference: Test Report 16/7524 Batch 1

Location : River Dargle

Date samples received: 13th April, 2016

Status: Final report

Issue:

Eleven samples were received for analysis on 13th April, 2016 of which eleven were scheduled for analysis. Please find attached our Test Report which should be read with notes at the end of the report and should include all sections if reproduced. Interpretations and opinions are outside the scope of any accreditation, and all results relate only to samples supplied.

All analysis is carried out on as received samples and reported on a dry weight basis unless stated otherwise. Results are not surrogate corrected.

Where Waste Acceptance Criteria Suite (EC Decision of 19 December 2002 (2003/33/EC)) has been requested, all analyses have been performed using the relevant EN methods where they exist.

Compiled By:

Bruce Leslie

Project Co-ordinator

Client Name: IGSL

Reference:

Location: River Dargle

Contact: Darren Keogh
JE Job No.: 16/7524

Report : Solid

Solids: V=60g VOC jar, J=250g glass jar, T=plastic tub

JE Job No.:	16/7524												
J E Sample No.	1-2	3	4-5	6-7	8-9	10-11	12-13	14-15	16-17	18-19			
Sample ID	1	2	3	4	5	6	7	8	9	10			
Depth											Diagon on	e attached n	otoo for all
COC No / misc												e attached nations and ac	
Containers	٧J	J	٧J										
Sample Date	<>	<>	<>	<>	<>	<>	<>	<>	<>	<>			
Sample Type	Soil												
Batch Number	1	1	1	1	1	1	1	1	1	1			Method
Date of Receipt	13/04/2016	13/04/2016	13/04/2016	13/04/2016	13/04/2016	13/04/2016	13/04/2016	13/04/2016	13/04/2016	13/04/2016	LOD/LOR	Units	No.
PAH MS													
Naphthalene #	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	mg/kg	TM4/PM8
Acenaphthylene	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	mg/kg	TM4/PM8
Acenaphthene #	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	mg/kg	TM4/PM8
Fluorene #	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	mg/kg	TM4/PM8
Phenanthrene #	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	mg/kg	TM4/PM8
Anthracene #	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	mg/kg	TM4/PM8
Fluoranthene#	<0.03	<0.03	<0.03	<0.03	0.07	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	mg/kg	TM4/PM8
Pyrene #	<0.03	<0.03	<0.03	<0.03	0.06	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	mg/kg	TM4/PM8
Benzo(a)anthracene #	<0.06	<0.06	<0.06	<0.06	<0.06	<0.06	<0.06	<0.06	<0.06	<0.06	<0.06	mg/kg	TM4/PM8
Chrysene #	<0.02	<0.02	<0.02	<0.02	0.04	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	mg/kg	TM4/PM8
Benzo(bk)fluoranthene #	<0.07	<0.07	<0.07	<0.07	<0.07	<0.07	<0.07	<0.07	<0.07	<0.07	<0.07	mg/kg	TM4/PM8
Benzo(a)pyrene #	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	mg/kg	TM4/PM8
Indeno(123cd)pyrene#	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	mg/kg	TM4/PM8
Dibenzo(ah)anthracene #	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	mg/kg	TM4/PM8
Benzo(ghi)perylene #	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	mg/kg	TM4/PM8
Coronene	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	mg/kg	TM4/PM8
PAH 6 Total #	<0.22	<0.22	<0.22	<0.22	<0.22	<0.22	<0.22	<0.22	<0.22	<0.22	<0.22	mg/kg	TM4/PM8
PAH 17 Total	<0.64	<0.64	<0.64	<0.64	<0.64	<0.64	<0.64	<0.64	<0.64	<0.64	<0.64	mg/kg	TM4/PM8
Benzo(b)fluoranthene	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	mg/kg	TM4/PM8
Benzo(k)fluoranthene	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	mg/kg	TM4/PM8
PAH Surrogate % Recovery	117	106	106	107	109	106	110	114	114	114	<0	%	TM4/PM8
Mineral Oil >C8-C10	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	mg/kg	TM5/PM16
Mineral Oil >C10-C12	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	mg/kg	TM5/PM16
Mineral Oil >C12-C16	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	mg/kg	TM5/PM16
Mineral Oil >C16-C21	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	mg/kg	TM5/PM16
Mineral Oil >C21-C40	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	mg/kg	TM5/PM16
Mineral Oil >C8-C40	<45	<45	<45	<45	<45	<45	<45	<45	<45	<45	<45	mg/kg	TM5/PM16
MTBE#	-5	-5	-5	-5	-5	-5	-5	-5	-5	-5	-5	ua/ka	TM31/PM12
MIBE" Benzene#	<5 <5 ug/kg ug/kg	TM31/PM12											
Toluene #	<5 <5 ug/kg ug/kg	TM31/PM12											
Ethylbenzene #	<5 <5 ug/kg ug/kg	TM31/PM12											
m/p-Xylene #	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	ug/kg	TM31/PM12
o-Xylene #	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	ug/kg	TM31/PM12
PCB 28 #	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	ug/kg	TM17/PM8
PCB 52#	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	ug/kg	TM17/PM8
PCB 101 #	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	ug/kg	TM17/PM8
PCB 118#	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	ug/kg	TM17/PM8
PCB 138#	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	ug/kg	TM17/PM8
PCB 153#	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	ug/kg	TM17/PM8

PCB 180#

TM17/PM8

ug/kg

IGSL Client Name:

Reference:

River Dargle

Location: Darren Keogh Report : Solid

Solids: V=60g VOC jar, J=250g glass jar, T=plastic tub

Contact: JE Job No.: 16/7524

											ı		
J E Sample No.	1-2	3	4-5	6-7	8-9	10-11	12-13	14-15	16-17	18-19			
Sample ID	1	2	3	4	5	6	7	8	9	10			
Depth												e attached n	
COC No / misc											abbrevi	ations and a	cronyms
Containers	٧J	J	٧J	٧J	٧J	٧J	٧J	٧J	٧J	٧J			
Sample Date	<>	<>	<>	<>	<>	<>	<>	<>	<>	<>			
Sample Type	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil			
Batch Number	1	1	1	1	1	1	1	1	1	1			Method
Date of Receipt	13/04/2016	13/04/2016	13/04/2016	13/04/2016	13/04/2016	13/04/2016	13/04/2016	13/04/2016	13/04/2016	13/04/2016	LOD/LOR	Units	No.
Total 7 PCBs#	<35	<35	<35	<35	<35	<35	<35	<35	<35	<35	<35	ug/kg	TM17/PM8
Natural Moisture Content	6.1	7.5	2.7	7.0	20.8	20.8	5.2	4.5	8.7	8.7	<0.1	%	PM4/PM0
% Dry Matter 105°C	93.1	90.2	94.1	96.7	83.4	83.5	94.0	91.8	92.5	91.6	<0.1	%	NONE/PM4
Total Organic Carbon #	0.20	0.16	0.12	0.14	0.22	0.18	0.16	0.20	0.14	0.05	<0.02	%	TM21/PM24
Loss on Ignition#	1.1	1.0	<1.0	<1.0	1.8	1.2	<1.0	1.3	<1.0	1.4	<1.0	%	TM22/PM0
Mass of raw test portion	0.097	0.1003	0.0958	0.0929	0.1074	0.1078	0.0954	0.0984	0.0969	0.0984		kg	NONE/PM17
Mass of dried test portion	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09		kg	NONE/PM17

IGSL Client Name:

Reference:

River Dargle

Report : Solid

Solids: V=60g VOC jar, J=250g glass jar, T=plastic tub

Location: Contact: Darren Keogh JE Job No.: 16/7524

JE Job No.:	16/7524				 			_		
J E Sample No.	20-21									
Sample ID	11									
Depth									e attached n	
COC No / misc								abbrevia	ations and a	cronyms
Containers	٧J									
Sample Date	<>									
Sample Type	Soil									
Batch Number	1									Method
Date of Receipt	13/04/2016							LOD/LOR	Units	No.
PAH MS										
Naphthalene #	<0.04							<0.04	mg/kg	TM4/PM8
Acenaphthylene	<0.03							<0.03	mg/kg	TM4/PM8
Acenaphthene #	<0.05							<0.05	mg/kg	TM4/PM8
Fluorene #	<0.04							<0.04	mg/kg	TM4/PM8
Phenanthrene #	<0.03							<0.03	mg/kg	TM4/PM8
Anthracene #	<0.04							<0.04	mg/kg	TM4/PM8
Fluoranthene#	<0.03							<0.03	mg/kg	TM4/PM8 TM4/PM8
Pyrene # Benzo(a)anthracene #	<0.03 <0.06							<0.03 <0.06	mg/kg mg/kg	TM4/PM8
Chrysene #	<0.00							<0.00	mg/kg	TM4/PM8
Benzo(bk)fluoranthene #	<0.07							<0.07	mg/kg	TM4/PM8
Benzo(a)pyrene #	<0.04							<0.04	mg/kg	TM4/PM8
Indeno(123cd)pyrene#	<0.04							<0.04	mg/kg	TM4/PM8
Dibenzo(ah)anthracene #	<0.04							<0.04	mg/kg	TM4/PM8
Benzo(ghi)perylene #	<0.04							<0.04	mg/kg	TM4/PM8
Coronene	<0.04							<0.04	mg/kg	TM4/PM8
PAH 6 Total #	<0.22							<0.22	mg/kg	TM4/PM8
PAH 17 Total	<0.64							<0.64	mg/kg	TM4/PM8
Benzo(b)fluoranthene	<0.05							<0.05	mg/kg	TM4/PM8
Benzo(k)fluoranthene PAH Surrogate % Recovery	<0.02 116							<0.02 <0	mg/kg %	TM4/PM8 TM4/PM8
1741 Gariogato 76 Necestery	110							40	70	1101-971 1010
Mineral Oil >C8-C10	<5							<5	mg/kg	TM5/PM16
Mineral Oil >C10-C12	<10							<10	mg/kg	TM5/PM16
Mineral Oil >C12-C16	<10							<10	mg/kg	TM5/PM16
Mineral Oil >C16-C21	<10							<10	mg/kg	TM5/PM16
Mineral Oil >C21-C40	<10							<10	mg/kg	TM5/PM16
Mineral Oil >C8-C40	<45							<45	mg/kg	TM5/PM16
NATOE#										TM31/PM12
MTBE # Benzene #	<5 <5							<5 <5	ug/kg	TM31/PM12
Toluene #	<5 <5							<5 <5	ug/kg ug/kg	TM31/PM12
Ethylbenzene #	<5							<5	ug/kg	TM31/PM12
m/p-Xylene #	<5							<5	ug/kg	TM31/PM12
o-Xylene #	<5							<5	ug/kg	TM31/PM12
PCB 28#	<5							<5	ug/kg	TM17/PM8
PCB 52 #	<5							<5	ug/kg	TM17/PM8
PCB 101 #	<5							<5	ug/kg	TM17/PM8
PCB 118 #	<5							<5	ug/kg	TM17/PM8
PCB 138 #	<5 -5							<5 <5	ug/kg	TM17/PM8
PCB 153 [#] PCB 180 [#]	<5 <5							<5 <5	ug/kg ug/kg	TM17/PM8 TM17/PM8
1 00 100	\3	<u> </u>	~ 3	ug/Ng	TIVITI/FIVIO					

IGSL Client Name:

Reference:

River Dargle Location: Darren Keogh Report : Solid

Solids: V=60g VOC jar, J=250g glass jar, T=plastic tub

Contact: JE Job No.: 16/7524

JE Job No.:	16/7524					_		
J E Sample No.	20-21							
Sample ID	11							
Depth						DI		
COC No / misc						abbrevi	e attached n ations and a	ores for all pronyms
Containers	٧J							
Sample Date	<>							
Sample Type	Soil							
Batch Number	1							
Date of Receipt						LOD/LOR	Units	Method No.
Total 7 PCBs#	<35					<35	ug/kg	TM17/PM8
Natural Moisture Content	2.6					<0.1	%	PM4/PM0
% Dry Matter 105°C	94.9					<0.1	%	NONE/PM4
Total Organic Carbon #	0.17					<0.02	%	TM21/PM24
Loss on Ignition#	<1.0					<1.0	%	TM22/PM0
Mass of raw test portion	0.0948						kg	NONE/PM17
Mass of dried test portion	0.09						kg	NONE/PM17
								j

Client Name:

IGSL

Report: CEN 10:1 1 Batch

Reference:

JE Job No.:

Location: River Dargle
Contact: Darren Keog

Darren Keogh 16/7524 Solids: V=60g VOC jar, J=250g glass jar, T=plastic tub

J E Sample No.	1-2	3	4-5	6-7	8-9	10-11	12-13	14-15	16-17	18-19
Sample ID	1	2	3	4	5	6	7	8	9	10
Depth										
COC No / misc										
Containers	٧J	J	٧J	٧J	٧J	٧J	٧J	٧J	٧J	٧J
Sample Date	<>	<>	<>	<>	<>	<>	<>	<>	<>	<>
Sample Type	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil
Batch Number	1	1	1	1	1	1	1	1	1	1

Please see attached notes for all

COC No / misc												iations and a	
Containers	٧J	J	٧J	٧J	۷J	٧J	٧J	٧J	٧J	٧J			
Sample Date	<>		. · · · · · · · · · · · · · · · · · · ·	<	<> <	<>	. · · · · · · · · · · · · · · · · · · ·	<>	<>	<>			
Sample Type	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil		1	1
Batch Number	1	1	1	1	1	1	1	1	1	1	LOD/LOR	Units	Method
Date of Receipt	13/04/2016	13/04/2016	13/04/2016	13/04/2016	13/04/2016	13/04/2016	13/04/2016	13/04/2016	13/04/2016	13/04/2016		515	No.
Dissolved Antimony#	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	mg/l	TM30/PM17
Dissolved Antimony (A10) #	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	mg/kg	TM30/PM17
Dissolved Arsenic #	0.0054	<0.0025	0.0033	<0.0025	<0.0025	<0.0025	<0.0025	<0.0025	0.0032	<0.0025	<0.0025	mg/l	TM30/PM17
Dissolved Arsenic (A10)#	0.054	<0.025	0.033	<0.025	<0.025	<0.025	<0.025	<0.025	0.032	<0.025	<0.025	mg/kg	TM30/PM17
Dissolved Barium #	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	mg/l	TM30/PM17
Dissolved Barium (A10) #	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	mg/kg	TM30/PM17
Dissolved Cadmium #	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	mg/l	TM30/PM17
Dissolved Cadmium (A10) #	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	mg/kg	TM30/PM17
Dissolved Chromium #	<0.0015	<0.0015	<0.0015	<0.0015	<0.0015	<0.0015	<0.0015	<0.0015	<0.0015	<0.0015	<0.0015	mg/l	TM30/PM17
Dissolved Chromium (A10) #	<0.015	<0.015	<0.015	<0.015	<0.015	<0.015	<0.015	<0.015	<0.015	<0.015	<0.015	mg/kg	TM30/PM17
Dissolved Copper#	<0.007	<0.007	<0.007	<0.007	<0.007	<0.007	<0.007	<0.007	<0.007	<0.007	<0.007	mg/l	TM30/PM17
Dissolved Copper (A10) #	<0.07	<0.07	<0.07	<0.07	<0.07	<0.07	<0.07	<0.07	<0.07	<0.07	<0.07	mg/kg	TM30/PM17
Dissolved Lead#	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	mg/l	TM30/PM17
Dissolved Lead (A10) #	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	mg/kg	TM30/PM17
Dissolved Molybdenum #	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	mg/l	TM30/PM17
Dissolved Molybdenum (A10) #	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	mg/kg	TM30/PM17
Dissolved Nickel #	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	mg/l	TM30/PM17
Dissolved Nickel (A10) #	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	mg/kg	TM30/PM17
Dissolved Selenium #	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	mg/l	TM30/PM17
Dissolved Selenium (A10) #	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	mg/kg	TM30/PM17
Dissolved Zinc#	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	mg/l	TM30/PM17
Dissolved Zinc (A10) #	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	mg/kg	TM30/PM17
Mercury Dissolved by CVAF#	0.00049	0.00049	0.00043	0.00046	0.00049	0.00063	0.00045	0.00001	0.00003	0.00003	<0.00001	mg/l	TM61/PM38
Mercury Dissolved by CVAF #	0.0049	0.0049	0.0043	0.0046	0.0049	0.0063	0.0045	0.0001	0.0003	0.0003	<0.0001	mg/kg	TM61/PM38
Microary Dissolved by CV/II												99	
Phenol	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	mg/l	TM26/PM0
Phenol	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	mg/kg	TM26/PM0
Fluoride	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	mg/l	TM27/PM0
Fluoride	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	mg/kg	TM27/PM0
Sulphate #	4.04	1.34	2.37	1.71	1.56	1.47	1.51	1.72	3.50	1.96	<0.05	mg/l	TM38/PM0
Sulphate #	40.4	13.4	23.7	17.1	15.6	14.7	15.1	17.2	35.0	19.6	<0.5	mg/kg	TM38/PM0
Chloride #	1.0	<0.3	<0.3	<0.3	<0.3	0.4	<0.3	<0.3	<0.3	<0.3	<0.3	mg/l	TM38/PM0
Chloride #	10	<3	<3	<3	<3	4	<3	<3	<3	<3	<3	mg/kg	TM38/PM0
	-	-	-		-						-	3 3	
Mass of raw test portion	0.097	0.1003	0.0958	0.0929	0.1074	0.1078	0.0954	0.0984	0.0969	0.0984		kg	NONE/PM17
Leachant Volume	0.893	0.89	0.894	0.897	0.882	0.882	0.894	0.892	0.893	0.892		ı	NONE/PM17
Eluate Volume	0.86	0.82	0.83	0.85	0.88	0.89	0.88	0.84	0.87	0.89		1	NONE/PM17
		-						-	-				
Dissolved Organic Carbon	3	3	3	3	3	3	3	4	3	3	<2	mg/l	TM60/PM0
Dissolved Organic Carbon	30	30	30	30	30	30	30	40	30	30	<20	mg/kg	TM60/PM0
Total Dissolved Solids #	12	80	72	62	72	104	66	52	<10	54	<10	mg/l	TM20/PM0
Total Dissolved Solids #	120	800	720	620	720	1040	660	520	<100	540	<100	mg/kg	TM20/PM0

Client Name:

IGSL

Report: CEN 10:1 1 Batch

Reference: Location: Contact:

JE Job No.:

River Dargle

Darren Keogh

16/7524

Solids: V=60g VOC jar, J=250g glass jar, T=plastic tub

JE JOD NO.:	16/7524	 	 	 	 			
J E Sample No.	20-21							
Sample ID	11							
Depth								
COC No / misc							e attached nations and a	
Containers	٧J							
Sample Date	<>							
Sample Type	Soil						1	
Batch Number	1					LOD/LOR	Units	Method
Date of Receipt	13/04/2016							No.
Dissolved Antimony#	<0.002					<0.002	mg/l	TM30/PM17
Dissolved Antimony (A10) #	<0.02					<0.02	mg/kg	TM30/PM17
Dissolved Arsenic#	0.0035					<0.0025	mg/l	TM30/PM17
Dissolved Arsenic (A10)#	0.035					<0.025	mg/kg	TM30/PM17
Dissolved Barium #	<0.003					<0.003	mg/l	TM30/PM17
Dissolved Barium (A10) #	<0.03					<0.03	mg/kg	TM30/PM17
Dissolved Cadmium#	<0.0005					<0.0005	mg/l	TM30/PM17
Dissolved Cadmium (A10) #	<0.005					<0.005	mg/kg	TM30/PM17
Dissolved Chromium#	<0.0015					<0.0015	mg/l	TM30/PM17
Dissolved Chromium (A10) #	<0.015					<0.015	mg/kg	TM30/PM17
Dissolved Copper#	<0.007					<0.007	mg/l	TM30/PM17
Dissolved Copper (A10) #	<0.07					<0.07	mg/kg	TM30/PM17
Dissolved Lead #	<0.005					<0.005	mg/l	TM30/PM17
Dissolved Lead (A10) #	<0.05					<0.05	mg/kg	TM30/PM17 TM30/PM17
Dissolved Molybdenum #	<0.002 <0.02					<0.002 <0.02	mg/l	TM30/PM17
Dissolved Molybdenum (A10) * Dissolved Nickel *	<0.02					<0.02	mg/kg mg/l	TM30/PM17
Dissolved Nickel (A10) #	<0.02					<0.02	mg/kg	TM30/PM17
Dissolved Selenium #	<0.003					<0.003	mg/l	TM30/PM17
Dissolved Selenium (A10) #	<0.03					<0.03	mg/kg	TM30/PM17
Dissolved Zinc#	<0.003					<0.003	mg/l	TM30/PM17
Dissolved Zinc (A10) #	<0.03					<0.03	mg/kg	TM30/PM17
Mercury Dissolved by CVAF#	0.00002					<0.00001	mg/l	TM61/PM38
Mercury Dissolved by CVAF#	0.0002					<0.0001	mg/kg	TM61/PM38
Phenol	<0.01					<0.01	mg/l	TM26/PM0
Phenol	<0.1					<0.1	mg/kg	TM26/PM0
								T1 10 = / 10 1 10
Fluoride	<0.3					<0.3	mg/l	TM27/PM0
Fluoride	<3					<3	mg/kg	TM27/PM0
Sulphate #	1.85					<0.05	mg/l	TM38/PM0
Sulphate #	18.5					<0.5	mg/kg	TM38/PM0
Chloride #	<0.3					<0.3	mg/l	TM38/PM0
Chloride#	<3					<3	mg/kg	TM38/PM0
Mass of raw test portion	0.0948						kg	NONE/PM17
Leachant Volume	0.895						I	NONE/PM17
Eluate Volume	0.85						1	NONE/PM17
Dissolved Organic Carbon	3					<2	mg/l	TM60/PM0
Dissolved Organic Carbon	30					<20	mg/kg	TM60/PM0
Total Dissolved Solids #	86					<10	mg/l	TM20/PM0
Total Dissolved Solids Total Dissolved Solids #	860					<100	mg/kg	TM20/PM0
Total Dissolved Solids"	UØØ					<100	mg/kg	TIVI∠U/PIMU

Mass of sample taken (kg)	0.097	Dry Matter Content Ratio (%) =		93.1	
Mass of dry sample (kg) =	0.09	Leachant Volume (I)		0.893	
Particle Size <4mm =	>95%	Eluate Volume (I)		0.86	
JEFL Job No		16/7524	Land	fill Waste Ac	ceptance
Sample No		2		Criteria Lin	
Client Sample No		1			
Depth/Other					
Sample Date		\$	Inert	Stable Non-reactive	Hazardous
Batch No		1		Tron rodonivo	
Solid Waste Analysis					
Total Organic Carbon (%)	0.20		3	5	6
Sum of BTEX (mg/kg)	<0.025		6	-	-
Sum of 7 PCBs (mg/kg)	<0.035		1	-	-
Mineral Oil (mg/kg)	<45		500	-	-
PAH Sum of 6 (mg/kg)	<0.22		-	-	-
PAH Sum of 17 (mg/kg)	<0.64		100	-	-
	10:1				
	concn			values for co aching test	-
Eluate Analysis	leached			l 12457-2 at	
	A10				ŭ
	Mg/kg			mg/kg	
Arsenic			0.5	mg/kg	25
Arsenic Barium	mg/kg				
	mg/kg 0.054		0.5	2	25
Barium	mg/kg 0.054 <0.03		0.5	2 100	25 300
Barium Cadmium	mg/kg 0.054 <0.03 <0.005		0.5 20 0.04	100	25 300 5
Barium Cadmium Chromium	mg/kg 0.054 <0.03 <0.005 <0.015		0.5 20 0.04 0.5	2 100 1 10	25 300 5 70
Barium Cadmium Chromium Copper	mg/kg 0.054 <0.03 <0.005 <0.015 <0.07		0.5 20 0.04 0.5 2	2 100 1 10 50	25 300 5 70 100
Barium Cadmium Chromium Copper Mercury	mg/kg 0.054 <0.03 <0.005 <0.015 <0.07 0.0049		0.5 20 0.04 0.5 2 0.01	2 100 1 10 50 0.2	25 300 5 70 100 2
Barium Cadmium Chromium Copper Mercury Molybdenum	mg/kg 0.054 <0.03 <0.005 <0.015 <0.07 0.0049 <0.02		0.5 20 0.04 0.5 2 0.01 0.5	2 100 1 10 50 0.2 10	25 300 5 70 100 2 30
Barium Cadmium Chromium Copper Mercury Molybdenum Nickel	mg/kg 0.054 <0.03 <0.005 <0.015 <0.07 0.0049 <0.02 <0.02		0.5 20 0.04 0.5 2 0.01 0.5 0.4	2 100 1 10 50 0.2 10	25 300 5 70 100 2 30 40
Barium Cadmium Chromium Copper Mercury Molybdenum Nickel Lead	mg/kg 0.054 <0.03 <0.005 <0.015 <0.07 0.0049 <0.02 <0.05		0.5 20 0.04 0.5 2 0.01 0.5 0.4	2 100 1 10 50 0.2 10 10	25 300 5 70 100 2 30 40 50
Barium Cadmium Chromium Copper Mercury Molybdenum Nickel Lead Antimony	mg/kg 0.054 <0.03 <0.005 <0.015 <0.07 0.0049 <0.02 <0.02 <0.05 <0.05		0.5 20 0.04 0.5 2 0.01 0.5 0.4 0.5	2 100 1 10 50 0.2 10 10 10	25 300 5 70 100 2 30 40 50 5
Barium Cadmium Chromium Copper Mercury Molybdenum Nickel Lead Antimony Selenium	mg/kg 0.054 <0.03 <0.005 <0.015 <0.07 0.0049 <0.02 <0.02 <0.05 <0.02 <0.03		0.5 20 0.04 0.5 2 0.01 0.5 0.4 0.5 0.06	2 100 1 10 50 0.2 10 10 10 0.7 0.5	25 300 5 70 100 2 30 40 50 5
Barium Cadmium Chromium Copper Mercury Molybdenum Nickel Lead Antimony Selenium Zinc	mg/kg 0.054 <0.03 <0.005 <0.015 <0.07 0.0049 <0.02 <0.02 <0.05 <0.02 <0.03 <0.03		0.5 20 0.04 0.5 2 0.01 0.5 0.4 0.5 0.06 0.1	2 100 1 10 50 0.2 10 10 10 0.7 0.5 50	25 300 5 70 100 2 30 40 50 5 7 200
Barium Cadmium Chromium Copper Mercury Molybdenum Nickel Lead Antimony Selenium Zinc Chloride	mg/kg 0.054 <0.03 <0.005 <0.015 <0.07 0.0049 <0.02 <0.02 <0.05 <0.02 <0.03 <10		0.5 20 0.04 0.5 2 0.01 0.5 0.4 0.5 0.06 0.1 4	2 100 1 10 50 0.2 10 10 10 0.7 0.5 50 15000	25 300 5 70 100 2 30 40 50 5 7 200 25000
Barium Cadmium Chromium Copper Mercury Molybdenum Nickel Lead Antimony Selenium Zinc Chloride Fluoride	mg/kg 0.054 <0.03 <0.005 <0.015 <0.07 0.0049 <0.02 <0.02 <0.05 <0.03 <0.03 10 <3		0.5 20 0.04 0.5 2 0.01 0.5 0.4 0.5 0.06 0.1 4 800	2 100 1 10 50 0.2 10 10 10 0.7 0.5 50 15000	25 300 5 70 100 2 30 40 50 5 7 200 25000 500
Barium Cadmium Chromium Copper Mercury Molybdenum Nickel Lead Antimony Selenium Zinc Chloride Fluoride Sulphate as SO4	mg/kg 0.054 <0.03 <0.005 <0.015 <0.07 0.0049 <0.02 <0.02 <0.05 <0.03 <0.03 10 <3 40.4		0.5 20 0.04 0.5 2 0.01 0.5 0.4 0.5 0.06 0.1 4 800 10	2 100 1 10 50 0.2 10 10 10 0.7 0.5 50 15000 150 20000	25 300 5 70 100 2 30 40 50 5 7 200 25000 500 5000

Mass of sample taken (kg)	0.1003	Dry Matter Content Ratio (%) =		90.2	
Mass of dry sample (kg) =	0.09	Leachant Volume (I)		0.89	
Particle Size <4mm =	>95%	Eluate Volume (I)		0.82	
JEFL Job No		16/7524	Landf	ill Waste Ac	
Sample No		3		Criteria Lin	nits
Client Sample No		2			
Depth/Other				04-1-1-	
Sample Date		<	Inert	Stable Non-reactive	Hazardous
Batch No		1			
Solid Waste Analysis					
Total Organic Carbon (%)	0.16		3	5	6
Sum of BTEX (mg/kg)	<0.025		6	-	-
Sum of 7 PCBs (mg/kg)	<0.035		1	-	-
Mineral Oil (mg/kg)	<45		500	-	-
PAH Sum of 6 (mg/kg)	<0.22		-	-	-
PAH Sum of 17 (mg/kg)	<0.64		100	-	-
	10:1 concn			values for co	•
Eluate Analysis			le	aching test	using
Eluate Analysis	concn		le		using
Eluate Analysis	concn leached A10		le	aching test	using
Eluate Analysis Arsenic	concn		le	aching test 12457-2 at	using
-	concn leached A10 mg/kg		le BS EN	aching test 12457-2 at l mg/kg	using L/S 10 l/kg
Arsenic	concn leached A10 mg/kg <0.025 <0.03		0.5	aching test 12457-2 at 1 mg/kg	using L/S 10 l/kg
Arsenic Barium	concn leached A10 mg/kg <0.025 <0.03 <0.005		0.5 20	mg/kg 2 100	using L/S 10 l/kg 25 300
Arsenic Barium Cadmium Chromium	concn leached A10 mg/kg <0.025 <0.03		0.5 20 0.04	mg/kg 2 100 1	using L/S 10 l/kg 25 300 5
Arsenic Barium Cadmium	concn leached A10 mg/kg <0.025 <0.03 <0.005 <0.015		0.5 20 0.04 0.5	mg/kg 2 100 1 10	25 300 5 70
Arsenic Barium Cadmium Chromium Copper	concn leached A10 mg/kg <0.025 <0.03 <0.005 <0.015 <0.07		0.5 20 0.04 0.5 2	mg/kg 2 100 1 10 50	25 300 5 70
Arsenic Barium Cadmium Chromium Copper Mercury	concn leached A10 mg/kg <0.025 <0.03 <0.005 <0.015 <0.07 0.0049		0.5 20 0.04 0.5 2	aching test 12457-2 at 1 mg/kg 2 100 1 10 50 0.2	25 300 5 70 100 2
Arsenic Barium Cadmium Chromium Copper Mercury Molybdenum	concn leached A10 mg/kg <0.025 <0.03 <0.005 <0.015 <0.07 0.0049 <0.02		0.5 20 0.04 0.5 2 0.01	mg/kg 2 100 1 10 50 0.2 10	25 300 5 70 100 2 30
Arsenic Barium Cadmium Chromium Copper Mercury Molybdenum Nickel	concn leached A10 mg/kg <0.025 <0.03 <0.005 <0.015 <0.07 0.0049 <0.02 <0.02		0.5 20 0.04 0.5 2 0.01 0.5 0.4	mg/kg 2 100 1 10 50 0.2 10	25 300 5 70 100 2 30 40
Arsenic Barium Cadmium Chromium Copper Mercury Molybdenum Nickel Lead	concn leached A10 mg/kg <0.025 <0.03 <0.005 <0.015 <0.07 0.0049 <0.02 <0.02 <0.05		0.5 20 0.04 0.5 2 0.01 0.5 0.4	aching test 12457-2 at 1 mg/kg 2 100 1 10 50 0.2 10 10 10	25 300 5 70 100 2 30 40 50
Arsenic Barium Cadmium Chromium Copper Mercury Molybdenum Nickel Lead Antimony	concn leached A10 mg/kg <0.025 <0.03 <0.005 <0.015 <0.07 0.0049 <0.02 <0.02 <0.02 <0.05 <0.05		0.5 20 0.04 0.5 2 0.01 0.5 0.4 0.5	aching test 12457-2 at mg/kg 2 100 1 10 50 0.2 10 10 10 0.7	25 300 5 70 100 2 30 40 50
Arsenic Barium Cadmium Chromium Copper Mercury Molybdenum Nickel Lead Antimony Selenium	concn leached A10 mg/kg <0.025 <0.03 <0.005 <0.015 <0.07 0.0049 <0.02 <0.02 <0.05 <0.03		0.5 20 0.04 0.5 2 0.01 0.5 0.4 0.5 0.06	aching test 12457-2 at mg/kg 2 100 1 10 50 0.2 10 10 10 0.7 0.5	25 300 5 70 100 2 30 40 50 5 7
Arsenic Barium Cadmium Chromium Copper Mercury Molybdenum Nickel Lead Antimony Selenium Zinc	concn leached A10 mg/kg <0.025 <0.03 <0.005 <0.015 <0.07 0.0049 <0.02 <0.02 <0.05 <0.03 <0.03		0.5 20 0.04 0.5 2 0.01 0.5 0.4 0.5 0.06 0.1	mg/kg 2 100 1 10 50 0.2 10 10 0.7 0.5 50	25 300 5 70 100 2 30 40 50 5 7 200
Arsenic Barium Cadmium Chromium Copper Mercury Molybdenum Nickel Lead Antimony Selenium Zinc Chloride	concn leached A10 mg/kg <0.025 <0.03 <0.005 <0.015 <0.07 0.0049 <0.02 <0.02 <0.05 <0.03 <0.03 <3		0.5 20 0.04 0.5 2 0.01 0.5 0.4 0.5 0.06 0.1 4	aching test 12457-2 at mg/kg 2 100 1 10 50 0.2 10 10 10 0.7 0.5 50 15000	25 300 5 70 100 2 30 40 50 5 7 200 25000
Arsenic Barium Cadmium Chromium Copper Mercury Molybdenum Nickel Lead Antimony Selenium Zinc Chloride Fluoride	concn leached A10 mg/kg <0.025 <0.03 <0.005 <0.015 <0.07 0.0049 <0.02 <0.02 <0.02 <0.03 <0.03 <0.03 <0.03 <0.03 <0.03		0.5 20 0.04 0.5 2 0.01 0.5 0.4 0.5 0.06 0.1 4 800	aching test 12457-2 at mg/kg 2 100 1 10 50 0.2 10 10 10 0.7 0.5 50 15000	using L/S 10 I/kg 25 300 5 70 100 2 30 40 50 5 7 200 25000 500
Arsenic Barium Cadmium Chromium Copper Mercury Molybdenum Nickel Lead Antimony Selenium Zinc Chloride Fluoride Sulphate as SO4	concn leached A10 mg/kg <0.025 <0.03 <0.005 <0.015 <0.07 0.0049 <0.02 <0.02 <0.05 <0.03 <0.03 <3 <3 13.4		0.5 20 0.04 0.5 2 0.01 0.5 0.4 0.5 0.06 0.1 4 800 10	mg/kg 2 100 1 10 50 0.2 10 10 10 0.7 0.5 50 15000 150 20000	25 300 5 70 100 2 30 40 50 7 200 25000 50000

Mass of sample taken (kg)	0.0958	Dry Matter Content Ratio (%) =		94.1	
Mass of dry sample (kg) =	0.09	Leachant Volume (I)		0.894	
Particle Size <4mm =	>95%	Eluate Volume (I)		0.83	
JEFL Job No		16/7524	Land	fill Waste Ac	ceptance
Sample No		5		Criteria Lin	
Client Sample No		3			
Depth/Other					
Sample Date		\$	Inert	Stable Non-reactive	Hazardous
Batch No		1			
Solid Waste Analysis					
Total Organic Carbon (%)	0.12		3	5	6
Sum of BTEX (mg/kg)	<0.025		6	-	-
Sum of 7 PCBs (mg/kg)	< 0.035		1	-	-
Mineral Oil (mg/kg)	<45		500	-	-
PAH Sum of 6 (mg/kg)	<0.22		-	-	-
PAH Sum of 17 (mg/kg)	<0.64		100	-	-
Eluate Analysis	10:1 concn leached		le	values for co aching test I 12457-2 at I	using
	mg/kg			mg/kg	
Arsenic	0.033		0.5	2	25
				100	300
Barium	<0.03		20		
	<0.005		0.04	1	5
Barium Cadmium Chromium			0.04	1 10	5 70
Barium Cadmium Chromium Copper	<0.005 <0.015 <0.07		0.04 0.5 2	1 10 50	70 100
Barium Cadmium Chromium Copper Mercury	<0.005 <0.015 <0.07 0.0043		0.04 0.5 2 0.01	1 10 50 0.2	70 100 2
Barium Cadmium Chromium Copper Mercury Molybdenum	<0.005 <0.015 <0.07 0.0043 <0.02		0.04 0.5 2 0.01 0.5	1 10 50 0.2 10	70 100 2 30
Barium Cadmium Chromium Copper Mercury Molybdenum Nickel	<0.005 <0.015 <0.07 0.0043 <0.02 <0.02		0.04 0.5 2 0.01 0.5 0.4	1 10 50 0.2 10	70 100 2 30 40
Barium Cadmium Chromium Copper Mercury Molybdenum Nickel Lead	<0.005 <0.015 <0.07 0.0043 <0.02 <0.02 <0.05		0.04 0.5 2 0.01 0.5 0.4 0.5	1 10 50 0.2 10 10	70 100 2 30 40 50
Barium Cadmium Chromium Copper Mercury Molybdenum Nickel Lead Antimony	<0.005 <0.015 <0.07 0.0043 <0.02 <0.02 <0.05 <0.02		0.04 0.5 2 0.01 0.5 0.4 0.5 0.06	1 10 50 0.2 10 10 10 0.7	70 100 2 30 40 50 5
Barium Cadmium Chromium Copper Mercury Molybdenum Nickel Lead Antimony Selenium	<0.005 <0.015 <0.07 0.0043 <0.02 <0.02 <0.05 <0.02		0.04 0.5 2 0.01 0.5 0.4 0.5 0.06 0.1	1 10 50 0.2 10 10 10 0.7 0.5	70 100 2 30 40 50 5
Barium Cadmium Chromium Copper Mercury Molybdenum Nickel Lead Antimony Selenium Zinc	<0.005 <0.015 <0.07 0.0043 <0.02 <0.02 <0.05 <0.02 <0.03 <0.03		0.04 0.5 2 0.01 0.5 0.4 0.5 0.06 0.1	1 10 50 0.2 10 10 10 0.7 0.5 50	70 100 2 30 40 50 5 7 200
Barium Cadmium Chromium Copper Mercury Molybdenum Nickel Lead Antimony Selenium Zinc Chloride	<0.005 <0.015 <0.07 0.0043 <0.02 <0.02 <0.05 <0.02 <0.03 <0.03 <3		0.04 0.5 2 0.01 0.5 0.4 0.5 0.06 0.1 4	1 10 50 0.2 10 10 10 0.7 0.5 50 15000	70 100 2 30 40 50 5 7 200 25000
Barium Cadmium Chromium Copper Mercury Molybdenum Nickel Lead Antimony Selenium Zinc Chloride Fluoride	<0.005 <0.015 <0.07 0.0043 <0.02 <0.02 <0.05 <0.02 <0.03 <0.03 <3 <3		0.04 0.5 2 0.01 0.5 0.4 0.5 0.06 0.1 4 800 10	1 10 50 0.2 10 10 10 0.7 0.5 50 15000	70 100 2 30 40 50 5 7 200 25000 500
Barium Cadmium Chromium Copper Mercury Molybdenum Nickel Lead Antimony Selenium Zinc Chloride Fluoride Sulphate as SO4	<0.005 <0.015 <0.07 0.0043 <0.02 <0.02 <0.05 <0.02 <0.03 <0.03 <3 <3 23.7		0.04 0.5 2 0.01 0.5 0.4 0.5 0.06 0.1 4 800 10	1 10 50 0.2 10 10 10 0.7 0.5 50 15000 150 20000	70 100 2 30 40 50 5 7 200 25000 500 50000
Barium Cadmium Chromium Copper Mercury Molybdenum Nickel Lead Antimony Selenium Zinc Chloride Fluoride Sulphate as SO4 Total Dissolved Solids	<0.005 <0.015 <0.07 0.0043 <0.02 <0.02 <0.05 <0.02 <0.03 <0.03 <3 <3 23.7 720		0.04 0.5 2 0.01 0.5 0.4 0.5 0.06 0.1 4 800 10 1000 4000	1 10 50 0.2 10 10 10 0.7 0.5 50 15000	70 100 2 30 40 50 5 7 200 25000 500
Barium Cadmium Chromium Copper Mercury Molybdenum Nickel Lead Antimony Selenium Zinc Chloride Fluoride Sulphate as SO4	<0.005 <0.015 <0.07 0.0043 <0.02 <0.02 <0.05 <0.02 <0.03 <0.03 <3 <3 23.7		0.04 0.5 2 0.01 0.5 0.4 0.5 0.06 0.1 4 800 10	1 10 50 0.2 10 10 10 0.7 0.5 50 15000 150 20000	70 100 2 30 40 50 5 7 200 25000 500 50000

Mass of sample taken (kg)	0.0929	Dry Matter Content Ratio (%) =		96.7	
Mass of dry sample (kg) =	0.09	Leachant Volume (I)		0.897	
Particle Size <4mm =	>95%	Eluate Volume (I)		0.85	
JEFL Job No		16/7524	Landi	fill Waste Ac	ceptance
Sample No		7		Criteria Lin	
Client Sample No		4			
Depth/Other					
Sample Date		<	Inert	Stable Non-reactive	Hazardous
Batch No		1			
Solid Waste Analysis					
Total Organic Carbon (%)	0.14		3	5	6
Sum of BTEX (mg/kg)	<0.025		6	-	-
Sum of 7 PCBs (mg/kg)	<0.035		1	-	-
Mineral Oil (mg/kg)	<45		500	-	-
PAH Sum of 6 (mg/kg)	<0.22		-	-	-
PAH Sum of 17 (mg/kg)	< 0.64		100	-	-
	10:1				
	concn			values for co aching test	
Eluate Analysis	leached			12457-2 at	
			I DO LIN		L/3 10 1/Kg
	A10		B3 LIV		L/3 10 1/kg
	A10 mg/kg		BSEN	mg/kg	L/3 10 l/kg
Arsenic	_		0.5		25 25
Arsenic Barium	mg/kg			mg/kg	
	mg/kg <0.025		0.5	mg/kg	25
Barium	mg/kg <0.025 <0.03		0.5	mg/kg 2 100	25 300
Barium Cadmium	mg/kg <0.025 <0.03 <0.005		0.5 20 0.04	mg/kg 2 100 1	25 300 5
Barium Cadmium Chromium Copper Mercury	mg/kg <0.025 <0.03 <0.005 <0.015		0.5 20 0.04 0.5	mg/kg 2 100 1 10	25 300 5 70
Barium Cadmium Chromium Copper	mg/kg <0.025 <0.03 <0.005 <0.015 <0.07		0.5 20 0.04 0.5 2	mg/kg 2 100 1 100 50	25 300 5 70 100
Barium Cadmium Chromium Copper Mercury Molybdenum Nickel	mg/kg <0.025 <0.03 <0.005 <0.015 <0.07 0.0046 <0.02 <0.02		0.5 20 0.04 0.5 2 0.01 0.5 0.4	mg/kg 2 100 1 10 50 0.2 10 10	25 300 5 70 100 2 30 40
Barium Cadmium Chromium Copper Mercury Molybdenum Nickel Lead	mg/kg <0.025 <0.03 <0.005 <0.015 <0.07 0.0046 <0.02 <0.02 <0.05		0.5 20 0.04 0.5 2 0.01 0.5	mg/kg 2 100 1 10 50 0.2 10 10 10	25 300 5 70 100 2 30 40 50
Barium Cadmium Chromium Copper Mercury Molybdenum Nickel Lead Antimony	mg/kg <0.025 <0.03 <0.005 <0.015 <0.07 0.0046 <0.02 <0.02 <0.05 <0.05 <0.05		0.5 20 0.04 0.5 2 0.01 0.5 0.4 0.5	mg/kg 2 100 1 10 50 0.2 10 10 10 0.7	25 300 5 70 100 2 30 40 50
Barium Cadmium Chromium Copper Mercury Molybdenum Nickel Lead Antimony Selenium	mg/kg <0.025 <0.03 <0.005 <0.015 <0.07 0.0046 <0.02 <0.02 <0.05 <0.02 <0.05 <0.02 <0.03		0.5 20 0.04 0.5 2 0.01 0.5 0.4 0.5 0.06	mg/kg 2 100 1 10 50 0.2 10 10 10 0.7 0.5	25 300 5 70 100 2 30 40 50
Barium Cadmium Chromium Copper Mercury Molybdenum Nickel Lead Antimony Selenium Zinc	mg/kg <0.025 <0.003 <0.005 <0.015 <0.007 0.0046 <0.02 <0.02 <0.05 <0.02 <0.03 <0.03		0.5 20 0.04 0.5 2 0.01 0.5 0.4 0.5	mg/kg 2 100 1 10 50 0.2 10 10 0.7 0.5 50	25 300 5 70 100 2 30 40 50 5 7
Barium Cadmium Chromium Copper Mercury Molybdenum Nickel Lead Antimony Selenium Zinc Chloride	mg/kg <0.025 <0.003 <0.005 <0.015 <0.007 0.0046 <0.02 <0.02 <0.02 <0.02 <0.03 <0.03 <0.03		0.5 20 0.04 0.5 2 0.01 0.5 0.4 0.5 0.06 0.1 4	mg/kg 2 100 1 10 50 0.2 10 10 10 0.7 0.5 50 15000	25 300 5 70 100 2 30 40 50 5 7 200 25000
Barium Cadmium Chromium Copper Mercury Molybdenum Nickel Lead Antimony Selenium Zinc Chloride Fluoride	mg/kg <0.025 <0.03 <0.005 <0.015 <0.07 0.0046 <0.02 <0.02 <0.05 <0.02 <0.03 <0.03 <3 <3		0.5 20 0.04 0.5 2 0.01 0.5 0.4 0.5 0.06 0.1 4 800	mg/kg 2 100 1 10 50 0.2 10 10 10 50 15000 150	25 300 5 70 100 2 30 40 50 5 7 200 25000 500
Barium Cadmium Chromium Copper Mercury Molybdenum Nickel Lead Antimony Selenium Zinc Chloride Fluoride Sulphate as SO4	mg/kg <0.025 <0.003 <0.005 <0.015 <0.007 0.0046 <0.02 <0.02 <0.02 <0.02 <0.03 <0.03 <0.03		0.5 20 0.04 0.5 2 0.01 0.5 0.4 0.5 0.06 0.1 4	mg/kg 2 100 1 10 50 0.2 10 10 10 0.7 0.5 50 15000 20000	25 300 5 70 100 2 30 40 50 5 7 200 25000
Barium Cadmium Chromium Copper Mercury Molybdenum Nickel Lead Antimony Selenium Zinc Chloride Fluoride Sulphate as SO4 Total Dissolved Solids	mg/kg <0.025 <0.03 <0.005 <0.015 <0.07 0.0046 <0.02 <0.02 <0.05 <0.02 <0.03 <0.03 <3 <3		0.5 20 0.04 0.5 2 0.01 0.5 0.4 0.5 0.06 0.1 4 800	mg/kg 2 100 1 10 50 0.2 10 10 10 50 15000 150	25 300 5 70 100 2 30 40 50 5 7 200 25000 500
Barium Cadmium Chromium Copper Mercury Molybdenum Nickel Lead Antimony Selenium Zinc Chloride Fluoride Sulphate as SO4	mg/kg <0.025 <0.03 <0.005 <0.015 <0.07 0.0046 <0.02 <0.02 <0.02 <0.03 <0.03 <3 <3 17.1		0.5 20 0.04 0.5 2 0.01 0.5 0.4 0.5 0.06 0.1 4 800 10	mg/kg 2 100 1 10 50 0.2 10 10 10 0.7 0.5 50 15000 20000	25 300 5 70 100 2 30 40 50 5 7 200 25000 500 5000

Mass of sample taken (kg)	0.1074	Dry Matter Content Ratio (%) =		83.4	
Mass of dry sample (kg) =	0.09	Leachant Volume (I)		0.882	
Particle Size <4mm =	>95%	Eluate Volume (I)		0.88	
JEFL Job No		16/7524	Land	fill Waste Ac	ceptance
Sample No		9		Criteria Lin	
Client Sample No		5			
Depth/Other					
Sample Date		>	Inert	Stable Non-reactive	Hazardous
Batch No		1			
Solid Waste Analysis					
Total Organic Carbon (%)	0.22		3	5	6
Sum of BTEX (mg/kg)	<0.025		6	-	-
Sum of 7 PCBs (mg/kg)	< 0.035		1	-	-
Mineral Oil (mg/kg)	<45		500	-	-
PAH Sum of 6 (mg/kg)	<0.22		-	-	-
PAH Sum of 17 (mg/kg)	<0.64		100	-	-
	10:1		Limit	valuas fan a	
	concn			values for co aching test	
Eluate Analysis	leached			12457-2 at	
	A10				
	mg/kg			mg/kg	1
Arsenic	<0.025		0.5	2	25
Barium	<0.03		20	100	300
Cadmium	<0.005		0.04	1	5
Chromium	<0.015		0.5	10	70
Copper	<0.07		2	50	100
Mercury	0.0049		0.01	0.2	2
Molybdenum	<0.02		0.5	10	30
Nickel	<0.02		0.4	10	40
Lead	<0.05		0.5	10	50
Antimony	<0.02		0.06	0.7	5
Selenium	<0.03		0.1	0.5	7
Zinc	<0.03		4	50	200
Chloride	<3		800	15000	25000
Fluoride	<3		10	150	500
Sulphate as SO4	15.6		1000	20000	50000
			4000	60000	100000
Total Dissolved Solids	720		-		
Total Dissolved Solids Phenol Dissolved Organic Carbon	<0.1 30		1 500	- 800	- 1000

Mass of sample taken (kg)	0.1078	Dry Matter Content Ratio (%) =		83.5	
Mass of dry sample (kg) =	0.09	Leachant Volume (I)		0.882	
Particle Size <4mm =	>95%	Eluate Volume (I)		0.89	
JEFL Job No		16/7524	Land	fill Waste Ac	ceptance
Sample No		11		Criteria Lim	nits
Client Sample No		6			
Depth/Other					
Sample Date		⇔	Inert	Stable Non-reactive	Hazardous
Batch No		1			
Solid Waste Analysis					
Total Organic Carbon (%)	0.18		3	5	6
Sum of BTEX (mg/kg)	<0.025		6	-	-
Sum of 7 PCBs (mg/kg)	< 0.035		1	-	-
Mineral Oil (mg/kg)	<45		500	-	-
PAH Sum of 6 (mg/kg)	<0.22		-	-	-
PAH Sum of 17 (mg/kg)	<0.64		100	-	-
Eluate Analysis	10:1 concn leached		le	values for co aching test I 12457-2 at I	using
	mg/kg			mg/kg	
	5 5			7	
Arsenic	<0.025		0.5	2	25
Arsenic Barium			0.5 20	2 100	25 300
	<0.025				
Barium	<0.025 <0.03		20	100	300
Barium Cadmium	<0.025 <0.03 <0.005		20 0.04	100 1	300 5
Barium Cadmium Chromium	<0.025 <0.03 <0.005 <0.015		20 0.04 0.5	100 1 10	300 5 70
Barium Cadmium Chromium Copper	<0.025 <0.03 <0.005 <0.015 <0.07		20 0.04 0.5 2	100 1 10 50	300 5 70 100
Barium Cadmium Chromium Copper Mercury	<0.025 <0.03 <0.005 <0.015 <0.07 0.0063		20 0.04 0.5 2 0.01	100 1 10 50 0.2	300 5 70 100 2
Barium Cadmium Chromium Copper Mercury Molybdenum	<0.025 <0.03 <0.005 <0.015 <0.07 0.0063 <0.02		20 0.04 0.5 2 0.01 0.5	100 1 10 50 0.2 10	300 5 70 100 2 30
Barium Cadmium Chromium Copper Mercury Molybdenum Nickel	<0.025 <0.03 <0.005 <0.015 <0.07 0.0063 <0.02 <0.02		20 0.04 0.5 2 0.01 0.5 0.4	100 1 10 50 0.2 10	300 5 70 100 2 30 40 50 5
Barium Cadmium Chromium Copper Mercury Molybdenum Nickel Lead	<0.025 <0.03 <0.005 <0.015 <0.07 0.0063 <0.02 <0.02 <0.05		20 0.04 0.5 2 0.01 0.5 0.4 0.5	100 1 10 50 0.2 10 10	300 5 70 100 2 30 40 50
Barium Cadmium Chromium Copper Mercury Molybdenum Nickel Lead Antimony	<0.025 <0.03 <0.005 <0.015 <0.07 0.0063 <0.02 <0.02 <0.05 <0.02		20 0.04 0.5 2 0.01 0.5 0.4 0.5	100 1 10 50 0.2 10 10 10 0.7	300 5 70 100 2 30 40 50 5
Barium Cadmium Chromium Copper Mercury Molybdenum Nickel Lead Antimony Selenium	<0.025 <0.03 <0.005 <0.015 <0.07 0.0063 <0.02 <0.02 <0.05 <0.03		20 0.04 0.5 2 0.01 0.5 0.4 0.5 0.06	100 1 10 50 0.2 10 10 10 0.7 0.5	300 5 70 100 2 30 40 50 5 7
Barium Cadmium Chromium Copper Mercury Molybdenum Nickel Lead Antimony Selenium Zinc	<0.025 <0.03 <0.005 <0.015 <0.07 0.0063 <0.02 <0.02 <0.05 <0.02 <0.03 <0.03		20 0.04 0.5 2 0.01 0.5 0.4 0.5 0.06 0.1	100 1 10 50 0.2 10 10 10 0.7 0.5 50	300 5 70 100 2 30 40 50 5 7 200
Barium Cadmium Chromium Copper Mercury Molybdenum Nickel Lead Antimony Selenium Zinc Chloride	<0.025 <0.03 <0.005 <0.015 <0.07 0.0063 <0.02 <0.02 <0.05 <0.02 <0.03 <0.03 4		20 0.04 0.5 2 0.01 0.5 0.4 0.5 0.06 0.1 4	100 1 10 50 0.2 10 10 10 0.7 0.5 50 15000	300 5 70 100 2 30 40 50 5 7 200 25000
Barium Cadmium Chromium Copper Mercury Molybdenum Nickel Lead Antimony Selenium Zinc Chloride Fluoride	<0.025 <0.03 <0.005 <0.015 <0.07 0.0063 <0.02 <0.02 <0.05 <0.03 <0.03 <0.03 <4 <3		20 0.04 0.5 2 0.01 0.5 0.4 0.5 0.06 0.1 4 800	100 1 10 50 0.2 10 10 10 0.7 0.5 50 15000	300 5 70 100 2 30 40 50 5 7 200 25000 500
Barium Cadmium Chromium Copper Mercury Molybdenum Nickel Lead Antimony Selenium Zinc Chloride Fluoride Sulphate as SO4	<0.025 <0.03 <0.005 <0.015 <0.07 0.0063 <0.02 <0.02 <0.05 <0.03 <0.03 <1.03 <4.03 4.03 4.7		20 0.04 0.5 2 0.01 0.5 0.4 0.5 0.06 0.1 4 800 10	100 1 10 50 0.2 10 10 10 0.7 0.5 50 15000 20000	300 5 70 100 2 30 40 50 5 7 200 25000 500 50000

Mass of sample taken (kg)	0.0954	Dry Matter Content Ratio (%) =		94.0	
Mass of dry sample (kg) =	0.09	Leachant Volume (I)		0.894	
Particle Size <4mm =	>95%	Eluate Volume (I)		0.88	
JEFL Job No		16/7524	Land	ill Waste Ac	ceptance
Sample No		13		Criteria Lin	nits
Client Sample No		7			
Depth/Other					
Sample Date		<	Inert	Stable Non-reactive	Hazardous
Batch No		1			
Solid Waste Analysis					
Total Organic Carbon (%)	0.16		3	5	6
Sum of BTEX (mg/kg)	<0.025		6	-	-
Sum of 7 PCBs (mg/kg)	<0.035		1	-	-
Mineral Oil (mg/kg)	<45		500	-	-
PAH Sum of 6 (mg/kg)	<0.22		-	-	-
PAH Sum of 17 (mg/kg)	< 0.64		100	-	-
	10:1		Limit	valuas fan a	
	concn			values for co aching test	
Eluate Analysis	leached			12457-2 at	
	A10				
	mg/kg			mg/kg	
Arsenic	<0.025		0.5	2	25
Barium	< 0.03		20	100	300
Cadmium	<0.005		0.04	1	5
Chromium	<0.015		0.5	10	70
Copper	<0.07		2	50	100
Mercury	0.0045		0.01	0.2	2
Molybdenum	<0.02		0.5	10	30
Nickel	<0.02		0.4	10	40
Lead	<0.05		0.5	10	50
Antimony	<0.02		0.06	0.7	5
Selenium	<0.03		0.1	0.5	7
Zinc	<0.03		4	50	200
Chloride	<3		800	15000	25000
Fluoride	<3		10	150	500
			1000	20000	50000
Sulphate as SO4	15.1			-	
Total Dissolved Solids	660		4000	60000	100000
	_			-	100000 - 1000

Mass of sample taken (kg)	0.0984	Dry Matter Content Ratio (%) =		91.8	
Mass of dry sample (kg) =	0.09	Leachant Volume (I)		0.892	
Particle Size <4mm =	>95%	Eluate Volume (I)		0.84	
JEFL Job No		16/7524	Landf	ill Waste Ac	ceptance
Sample No		15		Criteria Lin	nits
Client Sample No		8			
Depth/Other					
Sample Date		⇔	Inert	Stable Non-reactive	Hazardous
Batch No		1			
Solid Waste Analysis					
Total Organic Carbon (%)	0.20		3	5	6
Sum of BTEX (mg/kg)	<0.025		6	-	-
Sum of 7 PCBs (mg/kg)	<0.035		1	-	-
Mineral Oil (mg/kg)	<45		500	-	-
PAH Sum of 6 (mg/kg)	<0.22		-	-	-
PAH Sum of 17 (mg/kg)	<0.64		100	-	-
	10:1		Limit	valuas fan av	
	concn			values for co aching test	•
Eluate Analysis	leached				
Eluate Analysis	leached A10			12457-2 at	
Eluate Analysis Arsenic	A10			12457-2 at	
	A10 mg/kg		BS EN	12457-2 at mg/kg	L/S 10 l/kg
Arsenic	A10 mg/kg <0.025		0.5	mg/kg	L/S 10 l/kg
Arsenic Barium	A10 mg/kg <0.025 <0.03		0.5 20	mg/kg 2 100	25 300
Arsenic Barium Cadmium	A10 mg/kg <0.025 <0.03 <0.005		0.5 20 0.04	mg/kg 2 100 1	25 300 5
Arsenic Barium Cadmium Chromium Copper Mercury	A10 mg/kg <0.025 <0.03 <0.005 <0.015		0.5 20 0.04 0.5	mg/kg 2 100 1 10	25 300 5 70
Arsenic Barium Cadmium Chromium Copper	A10 mg/kg <0.025 <0.03 <0.005 <0.015 <0.07		0.5 20 0.04 0.5 2	12457-2 at mg/kg 2 100 1 10 50	25 300 5 70 100
Arsenic Barium Cadmium Chromium Copper Mercury	A10 mg/kg <0.025 <0.03 <0.005 <0.015 <0.07 0.0001		0.5 20 0.04 0.5 2 0.01	mg/kg 2 100 1 10 50 0.2	25 300 5 70 100 2
Arsenic Barium Cadmium Chromium Copper Mercury Molybdenum	A10 mg/kg <0.025 <0.03 <0.005 <0.015 <0.007 0.0001 <0.02 <0.02 <0.05		0.5 20 0.04 0.5 2 0.01	mg/kg 2 100 1 10 50 0.2 10 10	25 300 5 70 100 2 30
Arsenic Barium Cadmium Chromium Copper Mercury Molybdenum Nickel Lead Antimony	A10 mg/kg <0.025 <0.03 <0.005 <0.015 <0.07 0.0001 <0.02 <0.02 <0.02 <0.05 <0.05		0.5 20 0.04 0.5 2 0.01 0.5 0.4 0.5	mg/kg 2 100 1 10 50 0.2 10 10 10 0.7	25 300 5 70 100 2 30 40 50
Arsenic Barium Cadmium Chromium Copper Mercury Molybdenum Nickel Lead Antimony Selenium	A10 mg/kg <0.025 <0.03 <0.005 <0.015 <0.07 0.0001 <0.02 <0.02 <0.05 <0.02 <0.03		0.5 20 0.04 0.5 2 0.01 0.5 0.4 0.5	mg/kg 2 100 1 10 50 0.2 10 10 10 0.7 0.5	25 300 5 70 100 2 30 40 50 5
Arsenic Barium Cadmium Chromium Copper Mercury Molybdenum Nickel Lead Antimony Selenium Zinc	A10 mg/kg <0.025 <0.03 <0.005 <0.015 <0.007 0.0001 <0.02 <0.02 <0.05 <0.02 <0.03 <0.03		0.5 20 0.04 0.5 2 0.01 0.5 0.4 0.5 0.06	mg/kg 2 100 1 10 50 0.2 10 10 10 0.7 0.5 50	25 300 5 70 100 2 30 40 50 5 7 200
Arsenic Barium Cadmium Chromium Copper Mercury Molybdenum Nickel Lead Antimony Selenium Zinc Chloride	A10 mg/kg <0.025 <0.03 <0.005 <0.015 <0.07 0.0001 <0.02 <0.02 <0.05 <0.02 <0.03		0.5 20 0.04 0.5 2 0.01 0.5 0.4 0.5 0.06	mg/kg 2 100 1 10 50 0.2 10 10 0.7 0.5 50 15000	25 300 5 70 100 2 30 40 50 5 7 200 25000
Arsenic Barium Cadmium Chromium Copper Mercury Molybdenum Nickel Lead Antimony Selenium Zinc Chloride Fluoride	A10 mg/kg <0.025 <0.03 <0.005 <0.015 <0.007 0.0001 <0.02 <0.02 <0.05 <0.02 <0.03 <0.03		0.5 20 0.04 0.5 2 0.01 0.5 0.4 0.5 0.06	mg/kg 2 100 1 10 50 0.2 10 10 10 0.7 0.5 50 15000	25 300 5 70 100 2 30 40 50 5 7 200
Arsenic Barium Cadmium Chromium Copper Mercury Molybdenum Nickel Lead Antimony Selenium Zinc Chloride Fluoride Sulphate as SO4	A10 mg/kg <0.025 <0.03 <0.005 <0.015 <0.07 0.0001 <0.02 <0.02 <0.05 <0.02 <0.03 <0.03 <3		0.5 20 0.04 0.5 2 0.01 0.5 0.4 0.5 0.06 0.1 4	mg/kg 2 100 1 10 50 0.2 10 10 0.7 0.5 50 15000	25 300 5 70 100 2 30 40 50 5 7 200 25000
Arsenic Barium Cadmium Chromium Copper Mercury Molybdenum Nickel Lead Antimony Selenium Zinc Chloride Fluoride Sulphate as SO4 Total Dissolved Solids	A10 mg/kg <0.025 <0.03 <0.005 <0.015 <0.07 0.0001 <0.02 <0.02 <0.05 <0.03 <0.03 <0.03 <3 <3		0.5 20 0.04 0.5 2 0.01 0.5 0.4 0.5 0.06 0.1 4 800	mg/kg 2 100 1 10 50 0.2 10 10 10 0.7 0.5 50 15000	25 300 5 70 100 2 30 40 50 5 7 200 25000 500
Arsenic Barium Cadmium Chromium Copper Mercury Molybdenum Nickel Lead Antimony Selenium Zinc Chloride Fluoride Sulphate as SO4	A10 mg/kg <0.025 <0.03 <0.005 <0.015 <0.007 0.0001 <0.02 <0.02 <0.05 <0.03 <0.03 <3 <3 17.2		0.5 20 0.04 0.5 2 0.01 0.5 0.4 0.5 0.06 0.1 4 800 10	mg/kg 2 100 1 10 50 0.2 10 10 10 0.7 0.5 50 15000 150 20000	25 300 5 70 100 2 30 40 50 5 7 200 25000 50000

Mass of sample taken (kg)	0.0969	Dry Matter Content Ratio (%) =		92.5	
Mass of dry sample (kg) =	0.09	Leachant Volume (I)		0.893	
Particle Size <4mm =	>95%	Eluate Volume (I)		0.87	
JEFL Job No		16/7524	Landf	ill Waste Ac	ceptance
Sample No		17		Criteria Lim	nits
Client Sample No		9			
Depth/Other					
Sample Date		<	Inert	Stable Non-reactive	Hazardous
Batch No		1			
Solid Waste Analysis					
Total Organic Carbon (%)	0.14		3	5	6
Sum of BTEX (mg/kg)	<0.025		6	-	-
Sum of 7 PCBs (mg/kg)	<0.035		1	-	-
Mineral Oil (mg/kg)	<45		500	-	-
PAH Sum of 6 (mg/kg)	<0.22		-	-	-
PAH Sum of 17 (mg/kg)	<0.64		100	-	-
				•	•
	10:1				
	10:1 concn			alues for co	•
Eluate Analysis			le	aching test	using
Eluate Analysis	concn		le		using
Eluate Analysis	concn leached		le	aching test	using
Eluate Analysis Arsenic	concn leached A10		le	aching test 12457-2 at l	using
	concn leached A10 mg/kg		le BS EN	aching test 12457-2 at l mg/kg	using L/S 10 l/kg
Arsenic	concn leached A10 mg/kg 0.032		0.5	aching test 12457-2 at I mg/kg	using L/S 10 l/kg
Arsenic Barium	concn leached A10 mg/kg 0.032 <0.03		0.5 20	mg/kg 2 100	using L/S 10 l/kg 25 300
Arsenic Barium Cadmium	A10 mg/kg 0.032 <0.003 <0.005		0.5 20 0.04	mg/kg 2 100 1	25 300 5
Arsenic Barium Cadmium Chromium	concn leached A10 mg/kg 0.032 <0.03 <0.005 <0.015		0.5 20 0.04 0.5	mg/kg 2 100 1 10	25 300 5 70
Arsenic Barium Cadmium Chromium Copper	concn leached A10 mg/kg 0.032 <0.03 <0.005 <0.015 <0.07		0.5 20 0.04 0.5 2	aching test 12457-2 at 1 mg/kg 2 100 1 10 50	25 300 5 70
Arsenic Barium Cadmium Chromium Copper Mercury	concn leached A10 mg/kg 0.032 <0.003 <0.005 <0.015 <0.007 0.0003		0.5 20 0.04 0.5 2	aching test 12457-2 at 1 mg/kg 2 100 1 10 50 0.2	25 300 5 70 100 2
Arsenic Barium Cadmium Chromium Copper Mercury Molybdenum	concn leached A10 mg/kg 0.032 <0.03 <0.005 <0.015 <0.07 0.0003 <0.02		0.5 20 0.04 0.5 2 0.01	mg/kg 2 100 1 10 50 0.2 10	25 300 5 70 100 2 30
Arsenic Barium Cadmium Chromium Copper Mercury Molybdenum Nickel	concn leached A10 mg/kg 0.032 <0.03 <0.005 <0.015 <0.007 0.0003 <0.002 <0.002		0.5 20 0.04 0.5 2 0.01 0.5	mg/kg 2 100 1 10 50 0.2 10	25 300 5 70 100 2 30 40
Arsenic Barium Cadmium Chromium Copper Mercury Molybdenum Nickel Lead	concn leached A10 mg/kg 0.032 <0.03 <0.005 <0.015 <0.07 0.0003 <0.02 <0.02 <0.05		0.5 20 0.04 0.5 2 0.01 0.5 0.4 0.5	aching test 12457-2 at 1 mg/kg 2 100 1 10 50 0.2 10 10 10	25 300 5 70 100 2 30 40
Arsenic Barium Cadmium Chromium Copper Mercury Molybdenum Nickel Lead Antimony	concn leached A10 mg/kg 0.032 <0.005 <0.015 <0.007 0.0003 <0.02 <0.02 <0.05 <0.02		0.5 20 0.04 0.5 2 0.01 0.5 0.4 0.5	aching test 12457-2 at 1 mg/kg 2 100 1 10 50 0.2 10 10 10 0.7	25 300 5 70 100 2 30 40 50
Arsenic Barium Cadmium Chromium Copper Mercury Molybdenum Nickel Lead Antimony Selenium Zinc	concn leached A10 mg/kg 0.032 <0.03 <0.005 <0.015 <0.07 0.0003 <0.02 <0.02 <0.05 <0.02 <0.03		0.5 20 0.04 0.5 2 0.01 0.5 0.4 0.5 0.06	aching test 12457-2 at 1 mg/kg 2 100 1 10 50 0.2 10 10 10 0.7 0.5	25 300 5 70 100 2 30 40 50 5
Arsenic Barium Cadmium Chromium Copper Mercury Molybdenum Nickel Lead Antimony Selenium	concn leached A10 mg/kg 0.032 <0.03 <0.005 <0.015 <0.07 0.0003 <0.02 <0.02 <0.05 <0.03 <0.03		0.5 20 0.04 0.5 2 0.01 0.5 0.4 0.5 0.06 0.1	mg/kg 2 100 1 10 50 0.2 10 10 0.7 0.5 50	25 300 5 70 100 2 30 40 50 5 7 200
Arsenic Barium Cadmium Chromium Copper Mercury Molybdenum Nickel Lead Antimony Selenium Zinc Chloride	concn leached A10 mg/kg 0.032 <0.03 <0.005 <0.015 <0.07 0.0003 <0.02 <0.02 <0.02 <0.03 <0.03 <0.03 <0.03 <0.03 <0.03 <0.03 <0.03 <0.03		0.5 20 0.04 0.5 2 0.01 0.5 0.4 0.5 0.06 0.1 4	aching test 12457-2 at 1 mg/kg 2 100 1 10 50 0.2 10 10 0.7 0.5 50 15000	25 300 5 70 100 2 30 40 50 5 7 200 25000
Arsenic Barium Cadmium Chromium Copper Mercury Molybdenum Nickel Lead Antimony Selenium Zinc Chloride Fluoride	concn leached A10 mg/kg 0.032 <0.03 <0.005 <0.015 <0.07 0.0003 <0.02 <0.02 <0.02 <0.03 <0.03 <3 <3 <3		0.5 20 0.04 0.5 2 0.01 0.5 0.4 0.5 0.06 0.1 4 800	aching test 12457-2 at 1 mg/kg 2 100 1 10 50 0.2 10 10 10 0.7 0.5 50 15000	25 300 5 70 100 2 30 40 50 5 7 200 25000 500
Arsenic Barium Cadmium Chromium Copper Mercury Molybdenum Nickel Lead Antimony Selenium Zinc Chloride Fluoride Sulphate as SO4	concn leached A10 mg/kg 0.032 <0.03 <0.005 <0.015 <0.07 0.0003 <0.02 <0.02 <0.05 <0.03 <0.03 <3 <3 <3 35.0		0.5 20 0.04 0.5 2 0.01 0.5 0.4 0.5 0.06 0.1 4 800 10	mg/kg 2 100 1 10 50 0.2 10 10 0.7 0.5 50 15000 150 20000	25 300 5 70 100 2 30 40 50 7 200 25000 50000

Mass of sample taken (kg)	0.0984	Dry Matter Content Ratio (%) =		91.6	
Mass of dry sample (kg) =	0.09	Leachant Volume (I)		0.892	
Particle Size <4mm =	>95%	Eluate Volume (I)		0.89	
JEFL Job No		16/7524	Landi	fill Waste Ac	
Sample No		19		Criteria Lin	nits
Client Sample No		10			
Depth/Other				Ctable	
Sample Date		<	Inert	Stable Non-reactive	Hazardous
Batch No		1			
Solid Waste Analysis					
Total Organic Carbon (%)	0.05		3	5	6
Sum of BTEX (mg/kg)	<0.025		6	-	-
Sum of 7 PCBs (mg/kg)	<0.035		1	-	-
Mineral Oil (mg/kg)	<45		500	-	-
PAH Sum of 6 (mg/kg)	<0.22		-	-	-
PAH Sum of 17 (mg/kg)	<0.64		100	-	-
	1				
Eluate Analysis	10:1 concn leached		le	values for co aching test 12457-2 at	using
Eluate Analysis	concn leached A10		le	aching test 12457-2 at	using
-	concn leached A10 mg/kg		le BS EN	aching test 12457-2 at mg/kg	using L/S 10 l/kg
Arsenic	concn leached A10 mg/kg <0.025		0.5	aching test 12457-2 at mg/kg 2	using L/S 10 l/kg
Arsenic Barium	concn leached A10 mg/kg <0.025 <0.03		0.5 20	mg/kg 2 100	using L/S 10 l/kg 25 300
Arsenic Barium Cadmium	concn leached A10 mg/kg <0.025 <0.03 <0.005		0.5 20 0.04	mg/kg 2 100 1	using L/S 10 l/kg 25 300 5
Arsenic Barium Cadmium Chromium	concn leached A10 mg/kg <0.025 <0.03		0.5 20	mg/kg 2 100 1 10	25 300 5 70
Arsenic Barium Cadmium Chromium Copper	concn leached A10 mg/kg <0.025 <0.03 <0.005 <0.015 <0.07		0.5 20 0.04 0.5 2	mg/kg 2 100 1 10 50	25 300 5 70
Arsenic Barium Cadmium Chromium Copper Mercury	concn leached A10 mg/kg <0.025 <0.03 <0.005 <0.015		0.5 20 0.04 0.5	mg/kg 2 100 1 10	25 300 5 70
Arsenic Barium Cadmium Chromium Copper	concn leached A10 mg/kg <0.025 <0.03 <0.005 <0.015 <0.07 0.0003		0.5 20 0.04 0.5 2	mg/kg 2 100 1 10 50 0.2	25 300 5 70 100 2
Arsenic Barium Cadmium Chromium Copper Mercury Molybdenum	concn leached A10 mg/kg <0.025 <0.03 <0.005 <0.015 <0.07 0.0003 <0.02		0.5 20 0.04 0.5 2 0.01	mg/kg 2 100 1 10 50 0.2 10	25 300 5 70 100 2 30
Arsenic Barium Cadmium Chromium Copper Mercury Molybdenum Nickel	concn leached A10 mg/kg <0.025 <0.03 <0.005 <0.015 <0.07 0.0003 <0.02 <0.02		0.5 20 0.04 0.5 2 0.01 0.5	mg/kg 2 100 1 10 50 0.2 10 10	25 300 5 70 100 2 30 40
Arsenic Barium Cadmium Chromium Copper Mercury Molybdenum Nickel Lead	concn leached A10 mg/kg <0.025 <0.03 <0.005 <0.015 <0.007 0.0003 <0.002 <0.002 <0.005		0.5 20 0.04 0.5 2 0.01 0.5 0.4 0.5	mg/kg 2 100 1 10 50 0.2 10 10	25 300 5 70 100 2 30 40 50
Arsenic Barium Cadmium Chromium Copper Mercury Molybdenum Nickel Lead Antimony	concn leached A10 mg/kg <0.025 <0.03 <0.005 <0.015 <0.07 0.0003 <0.02 <0.02 <0.02 <0.05 <0.05		0.5 20 0.04 0.5 2 0.01 0.5 0.4 0.5	mg/kg 2 100 1 10 50 0.2 10 10 10 0.7	25 300 5 70 100 2 30 40 50
Arsenic Barium Cadmium Chromium Copper Mercury Molybdenum Nickel Lead Antimony Selenium Zinc	concn leached A10 mg/kg <0.025 <0.03 <0.005 <0.015 <0.07 0.0003 <0.02 <0.02 <0.05 <0.02 <0.03		0.5 20 0.04 0.5 2 0.01 0.5 0.4 0.5 0.06	mg/kg 2 100 1 10 50 0.2 10 10 10 0.7 0.5	25 300 5 70 100 2 30 40 50 5
Arsenic Barium Cadmium Chromium Copper Mercury Molybdenum Nickel Lead Antimony Selenium	concn leached A10 mg/kg <0.025 <0.03 <0.005 <0.015 <0.07 0.0003 <0.02 <0.02 <0.05 <0.03 <0.03 <0.03		0.5 20 0.04 0.5 2 0.01 0.5 0.4 0.5 0.06 0.1	mg/kg 2 100 1 10 50 0.2 10 10 0.7 0.5 50	25 300 5 70 100 2 30 40 50 5 7 200
Arsenic Barium Cadmium Chromium Copper Mercury Molybdenum Nickel Lead Antimony Selenium Zinc Chloride Fluoride	concn leached A10 mg/kg <0.025 <0.03 <0.005 <0.015 <0.07 0.0003 <0.02 <0.02 <0.02 <0.03 <0.03 <0.03 <0.03 <0.03		0.5 20 0.04 0.5 2 0.01 0.5 0.4 0.5 0.06 0.1 4	mg/kg 2 100 1 10 50 0.2 10 10 10 0.7 0.5 50 15000	25 300 5 70 100 2 30 40 50 5 7 200 25000
Arsenic Barium Cadmium Chromium Copper Mercury Molybdenum Nickel Lead Antimony Selenium Zinc Chloride	concn leached A10 mg/kg <0.025 <0.03 <0.005 <0.015 <0.07 0.0003 <0.02 <0.02 <0.02 <0.03 <0.03 <3 <3 <3		0.5 20 0.04 0.5 2 0.01 0.5 0.4 0.5 0.06 0.1 4 800	mg/kg 2 100 1 10 50 0.2 10 10 10 0.7 0.5 50 15000	25 300 5 70 100 2 30 40 50 5 7 200 25000 500
Arsenic Barium Cadmium Chromium Copper Mercury Molybdenum Nickel Lead Antimony Selenium Zinc Chloride Fluoride Sulphate as SO4	concn leached A10 mg/kg <0.025 <0.03 <0.005 <0.015 <0.07 0.0003 <0.02 <0.02 <0.05 <0.03 <0.03 <3 <3 19.6		0.5 20 0.04 0.5 2 0.01 0.5 0.4 0.5 0.06 0.1 4 800 10	mg/kg 2 100 1 10 50 0.2 10 10 10 0.7 0.5 50 15000 150 20000	25 300 5 70 100 2 30 40 50 7 200 25000 50000

Mass of sample taken (kg)	0.0948	Dry Matter Content Ratio (%) =		94.9		
Mass of dry sample (kg) =	0.09	Leachant Volume (I)		0.895		
Particle Size <4mm =	>95%	Eluate Volume (I)		0.85		
JEFL Job No		16/7524	Landf	ill Waste Ac		
Sample No		21		Criteria Lin	nits	
Client Sample No		11				
Depth/Other				0.11		
Sample Date		<>	Inert	Stable Non-reactive	Hazardous	
Batch No		1				
Solid Waste Analysis						
Total Organic Carbon (%)	0.17		3	5	6	
Sum of BTEX (mg/kg)	<0.025		6	-	-	
Sum of 7 PCBs (mg/kg)	<0.035		1	-	-	
Mineral Oil (mg/kg)	<45		500	-	-	
PAH Sum of 6 (mg/kg)	<0.22		-	-	-	
PAH Sum of 17 (mg/kg)	<0.64		100	-	-	
	10:1 concn			Limit values for compliance leaching test using BS EN 12457-2 at L/S 10 I/kg		
Eluate Analysis	leached					
Eluate Analysis	A10			12457-2 at		
	A10 mg/kg		BS EN	12457-2 at mg/kg	L/S 10 l/kg	
Arsenic	A10 mg/kg 0.035		0.5	mg/kg	L/S 10 l/kg 25	
Arsenic Barium	A10 mg/kg 0.035 <0.03		0.5 20	mg/kg 2 100	25 300	
Arsenic Barium Cadmium	A10 mg/kg 0.035 <0.03 <0.005		0.5 20 0.04	mg/kg 2 100 1	25 300 5	
Arsenic Barium Cadmium Chromium	A10 mg/kg 0.035 <0.03 <0.005 <0.015		0.5 20 0.04 0.5	mg/kg 2 100 1 10	25 300 5 70	
Arsenic Barium Cadmium Chromium Copper	A10 mg/kg 0.035 <0.03 <0.005 <0.015 <0.07		0.5 20 0.04 0.5 2	12457-2 at mg/kg 2 100 1 10 50	25 300 5 70 100	
Arsenic Barium Cadmium Chromium Copper Mercury	A10 mg/kg 0.035 <0.03 <0.005 <0.015 <0.07 0.0002		0.5 20 0.04 0.5 2 0.01	mg/kg 2 100 1 10 50 0.2	25 300 5 70 100 2	
Arsenic Barium Cadmium Chromium Copper Mercury Molybdenum	A10 mg/kg 0.035 <0.03 <0.005 <0.015 <0.07 0.0002 <0.02		0.5 20 0.04 0.5 2 0.01	mg/kg 2 100 1 10 50 0.2 10	25 300 5 70 100 2 30	
Arsenic Barium Cadmium Chromium Copper Mercury Molybdenum Nickel	A10 mg/kg 0.035 <0.03 <0.005 <0.015 <0.07 0.0002 <0.02 <0.02		0.5 20 0.04 0.5 2 0.01 0.5 0.4	mg/kg 2 100 1 10 50 0.2 10	25 300 5 70 100 2 30 40	
Arsenic Barium Cadmium Chromium Copper Mercury Molybdenum Nickel Lead	A10 mg/kg 0.035 <0.03 <0.005 <0.015 <0.07 0.0002 <0.02 <0.02 <0.05		0.5 20 0.04 0.5 2 0.01 0.5 0.4 0.5	mg/kg 2 100 1 10 50 0.2 10 10	25 300 5 70 100 2 30 40 50	
Arsenic Barium Cadmium Chromium Copper Mercury Molybdenum Nickel Lead Antimony	A10 mg/kg 0.035 <0.03 <0.005 <0.015 <0.07 0.0002 <0.02 <0.02 <0.05 <0.05 <0.05		0.5 20 0.04 0.5 2 0.01 0.5 0.4 0.5	mg/kg 2 100 1 10 50 0.2 10 10 10 0.7	25 300 5 70 100 2 30 40 50	
Arsenic Barium Cadmium Chromium Copper Mercury Molybdenum Nickel Lead Antimony Selenium	A10 mg/kg 0.035 <0.03 <0.005 <0.015 <0.07 0.0002 <0.02 <0.02 <0.05 <0.02 <0.03		0.5 20 0.04 0.5 2 0.01 0.5 0.4 0.5 0.06	mg/kg 2 100 1 10 50 0.2 10 10 10 0.7 0.5	25 300 5 70 100 2 30 40 50 5	
Arsenic Barium Cadmium Chromium Copper Mercury Molybdenum Nickel Lead Antimony Selenium Zinc	A10 mg/kg 0.035 <0.03 <0.005 <0.015 <0.07 0.0002 <0.02 <0.02 <0.05 <0.02 <0.03 <0.03		0.5 20 0.04 0.5 2 0.01 0.5 0.4 0.5 0.06	mg/kg 2 100 1 10 50 0.2 10 10 10 0.7 0.5 50	25 300 5 70 100 2 30 40 50 5 7 200	
Arsenic Barium Cadmium Chromium Copper Mercury Molybdenum Nickel Lead Antimony Selenium Zinc Chloride	A10 mg/kg 0.035 <0.03 <0.005 <0.015 <0.07 0.0002 <0.02 <0.02 <0.05 <0.02 <0.03 <0.03 <3		0.5 20 0.04 0.5 2 0.01 0.5 0.4 0.5 0.06 0.1 4	mg/kg 2 100 1 10 50 0.2 10 10 10 0.7 0.5 50 15000	25 300 5 70 100 2 30 40 50 5 7 200 25000	
Arsenic Barium Cadmium Chromium Copper Mercury Molybdenum Nickel Lead Antimony Selenium Zinc Chloride Fluoride	A10 mg/kg 0.035 <0.03 <0.005 <0.015 <0.07 0.0002 <0.02 <0.02 <0.02 <0.03 <0.03 <3 <3 <3		0.5 20 0.04 0.5 2 0.01 0.5 0.4 0.5 0.06 0.1 4 800	mg/kg 2 100 1 10 50 0.2 10 10 10 0.7 0.5 50 15000	25 300 5 70 100 2 30 40 50 5 7 200 25000 500	
Arsenic Barium Cadmium Chromium Copper Mercury Molybdenum Nickel Lead Antimony Selenium Zinc Chloride Fluoride Sulphate as SO4	A10 mg/kg 0.035 <0.03 <0.005 <0.015 <0.07 0.0002 <0.02 <0.02 <0.03 <0.03 <0.03 <3 <3 18.5		0.5 20 0.04 0.5 2 0.01 0.5 0.4 0.5 0.06 0.1 4 800 10	mg/kg 2 100 1 10 50 0.2 10 10 10 0.7 0.5 50 15000 150 20000	25 300 5 70 100 2 30 40 50 5 7 200 25000 5000	
Arsenic Barium Cadmium Chromium Copper Mercury Molybdenum Nickel Lead Antimony Selenium Zinc Chloride Fluoride Sulphate as SO4 Total Dissolved Solids	A10 mg/kg 0.035 <0.03 <0.005 <0.015 <0.07 0.0002 <0.02 <0.02 <0.05 <0.03 <0.03 <1.003 <1.003 <1.003 <1.003 <1.003 <1.003 <1.003 <1.003 <1.003 <1.003 <1.003 <1.003 <1.003 <1.003 <1.003 <1.003 <1.003 <1.003 <1.003 <1.003 <1.003 <1.003 <1.003 <1.003 <1.003 <1.003 <1.003 <1.003 <1.003 <1.003 <1.003 <1.003 <1.003 <1.003 <1.003 <1.003 <1.003 <1.003 <1.003 <1.003 <1.003 <1.003 <1.003 <1.003 <1.003 <1.003 <1.003 <1.003 <1.003 <1.003 <1.003 <1.003 <1.003 <1.003 <1.003 <1.003 <1.003 <1.003 <1.003 <1.003 <1.003 <1.003 <1.003 <1.003 <1.003 <1.003 <1.003 <1.003 <1.003 <1.003 <1.003 <1.003 <1.003 <1.003 <1.003 <1.003 <1.003 <1.003 <1.003 <1.003 <1.003 <1.003 <1.003 <1.003 <1.003 <1.003 <1.003 <1.003 <1.003 <1.003 <1.003 <1.003 <1.003 <1.003 <1.003 <1.003 <1.003 <1.003 <1.003 <1.003 <1.003 <1.003 <1.003 <1.003 <1.003 <1.003 <1.003 <1.003 <1.003 <1.003 <1.003 <1.003 <1.003 <1.003 <1.003 <1.003 <1.003 <1.003 <1.003 <1.003 <1.003 <1.003 <1.003 <1.003 <1.003 <1.003 <1.003 <1.003 <1.003 <1.003 <1.003 <1.003 <1.003 <1.003 <1.003 <1.003 <1.003 <1.003 <1.003 <1.003 <1.003 <1.003 <1.003 <1.003 <1.003 <1.003 <1.003 <1.003 <1.003 <1.003 <1.003 <1.003 <1.003 <1.003 <1.003 <1.003 <1.003 <1.003 <1.003 <1.003 <1.003 <1.003 <1.003 <1.003 <1.003 <1.003 <1.003 <1.003 <1.003 <1.003 <1.003 <1.003 <1.003 <1.003 <1.003 <1.003 <1.003 <1.003 <1.003 <1.003 <1.003 <1.003 <1.003 <1.003 <1.003 <1.003 <1.003 <1.003 <1.003 <1.003 <1.003 <1.003 <1.003 <1.003 <1.003 <1.003 <1.003 <1.003 <1.003 <1.003 <1.003 <1.003 <1.003 <1.003 <1.003 <1.003 <1.003 <1.003 <1.003 <1.003 <1.003 <1.003 <1.003 <1.003 <1.003 <1.003 <1.003 <1.003 <1.003 <1.003 <1.003 <1.003 <1.003 <1.003 <1.003 <1.003 <1.003 <1.003 <1.003 <1.003 <1.003 <1.003 <1.003 <1.003 <1.003 <1.003 <1.003 <1.003 <1.003 <1.003 <1.003 <1.003 <1.003 <1.003 <1.003 <1.003 <1.003 <1.003 <1.003 <1.003 <1.003 <1.003 <1.003 <1.003 <1.003 <1.003 <1.003 <1.003 <1.003 <1.003 <1.003 <1.003 <1.003 <1.003 <1.003 <1.003 <1.003 <1.003 <1.003 <1.003 <1.003 <1.003 <1.003 <1.003 <1.003 <1.003 <1.003 <1.003 <1.003 <1.003 <1.003		0.5 20 0.04 0.5 2 0.01 0.5 0.4 0.5 0.06 0.1 4 800 10 1000 4000	mg/kg 2 100 1 10 50 0.2 10 10 10 0.7 0.5 50 15000 150 20000 60000	25 300 5 70 100 2 30 40 50 5 7 200 25000 500 50000	
Arsenic Barium Cadmium Chromium Copper Mercury Molybdenum Nickel Lead Antimony Selenium Zinc Chloride Fluoride Sulphate as SO4	A10 mg/kg 0.035 <0.03 <0.005 <0.015 <0.07 0.0002 <0.02 <0.02 <0.03 <0.03 <0.03 <3 <3 18.5		0.5 20 0.04 0.5 2 0.01 0.5 0.4 0.5 0.06 0.1 4 800 10	mg/kg 2 100 1 10 50 0.2 10 10 10 0.7 0.5 50 15000 150 20000	25 300 5 70 100 2 30 40 50 5 7 200 25000 5000	

Notification of Deviating Samples

Client Name: IGSL Matrix : Solid

Reference:

Location: River Dargle **Contact:** Darren Keogh

J E Job No.	Batch	Sample ID	Depth	J E Sample No.	Analysis	Reason
16/7524	1	1		1-2	All analyses	No sampling date given
16/7524	1	2		3	All analyses	No sampling date given
16/7524	1	3		4-5	All analyses	No sampling date given
16/7524	1	4		6-7	All analyses	No sampling date given
16/7524	1	5		8-9	All analyses	No sampling date given
16/7524	1	6		10-11	All analyses	No sampling date given
16/7524	1	7		12-13	All analyses	No sampling date given
16/7524	1	8		14-15	All analyses	No sampling date given
16/7524	1	9		16-17	All analyses	No sampling date given
16/7524	1	10		18-19	All analyses	No sampling date given
16/7524	1	11		20-21	All analyses	No sampling date given

Please note that only samples that are deviating are mentioned in this report. If no samples are listed it is because none were deviating. Only analyses which are accredited are recorded as deviating if set criteria are not met.

NOTES TO ACCOMPANY ALL SCHEDULES AND REPORTS

JE Job No.: 16/7524

SOILS

Please note we are only MCERTS accredited (UK soils only) for sand, loam and clay and any other matrix is outside our scope of accreditation.

Where an MCERTS report has been requested, you will be notified within 48 hours of any samples that have been identified as being outside our MCERTS scope. As validation has been performed on clay, sand and loam, only samples that are predominantly these matrices, or combinations of them will be within our MCERTS scope. If samples are not one of a combination of the above matrices they will not be marked as MCERTS accredited.

It is assumed that you have taken representative samples on site and require analysis on a representative subsample. Stones will generally be included unless we are requested to remove them.

All samples will be discarded one month after the date of reporting, unless we are instructed to the contrary.

If you have not already done so, please send us a purchase order if this is required by your company.

Where appropriate please make sure that our detection limits are suitable for your needs, if they are not, please notify us immediately.

All analysis is reported on a dry weight basis unless stated otherwise. Results are not surrogate corrected. Samples are dried at 35°C ±5°C unless otherwise stated. Moisture content for CEN Leachate tests are dried at 105°C ±5°C.

Where Mineral Oil or Fats, Oils and Grease is quoted, this refers to Total Aliphatics C10-C40.

Where a CEN 10:1 ZERO Headspace VOC test has been carried out, a 10:1 ratio of water to wet (as received) soil has been used.

% Asbestos in Asbestos Containing Materials (ACMs) is determined by reference to HSG 264 The Survey Guide - Appendix 2 : ACMs in buildings listed in order of ease of fibre release.

Negative Neutralization Potential (NP) values are obtained when the volume of NaOH (0.1N) titrated (pH 8.3) is greater than the volume of HCI (1N) to reduce the pH of the sample to 2.0 - 2.5. Any negative NP values are corrected to 0.

WATERS

Please note we are not a UK Drinking Water Inspectorate (DWI) Approved Laboratory .

ISO17025 (UKAS) accreditation applies to surface water and groundwater and one other matrix which is analysis specific, any other liquids are outside our scope of accreditation.

As surface waters require different sample preparation to groundwaters the laboratory must be informed of the water type when submitting samples.

Where Mineral Oil or Fats, Oils and Grease is quoted, this refers to Total Aliphatics C10-C40.

DEVIATING SAMPLES

Samples must be received in a condition appropriate to the requested analyses. All samples should be submitted to the laboratory in suitable containers with sufficient ice packs to sustain an appropriate temperature for the requested analysis. If this is not the case you will be informed and any test results that may be compromised highlighted on your deviating samples report.

SURROGATES

Surrogate compounds are added during the preparation process to monitor recovery of analytes. However low recovery in soils is often due to peat, clay or other organic rich matrices. For waters this can be due to oxidants, surfactants, organic rich sediments or remediation fluids. Acceptable limits for most organic methods are 70 - 130% and for VOCs are 50 - 150%. When surrogate recoveries are outside the performance criteria but the associated AQC passes this is assumed to be due to matrix effect. Results are not surrogate corrected.

DILUTIONS

A dilution suffix indicates a dilution has been performed and the reported result takes this into account. No further calculation is required.

NOTE

Data is only reported if the laboratory is confident that the data is a true reflection of the samples analysed. Data is only reported as accredited when all the requirements of our Quality System have been met. In certain circumstances where all the requirements of the Quality System have not been met, for instance if the associated AQC has failed, the reason is fully investigated and documented. The sample data is then evaluated alongside the other quality control checks performed during analysis to determine its suitability. Following this evaluation, provided the sample results have not been effected, the data is reported but accreditation is removed. It is a UKAS requirement for data not reported as accredited to be considered indicative only, but this does not mean the data is not valid.

Where possible, and if requested, samples will be re-extracted and a revised report issued with accredited results. Please do not hesitate to contact the laboratory if further details are required of the circumstances which have led to the removal of accreditation.

ABBREVIATIONS and ACRONYMS USED

i 		
#	ISO17025 (UKAS) accredited - UK.	
В	Indicates analyte found in associated method blank.	
DR	Dilution required.	
M	MCERTS accredited.	
NA	Not applicable	
NAD	No Asbestos Detected.	
ND	None Detected (usually refers to VOC and/SVOC TICs).	
NDP	No Determination Possible	
SS	Calibrated against a single substance	
SV	Surrogate recovery outside performance criteria. This may be due to a matrix effect.	
W	Results expressed on as received basis.	
+	AQC failure, accreditation has been removed from this result, if appropriate, see 'Note' on previous page.	
++	Result outside calibration range, results should be considered as indicative only and are not accredited.	
*	Analysis subcontracted to a Jones Environmental approved laboratory.	
AD	Samples are dried at 35°C ±5°C	
СО	Suspected carry over	
LOD/LOR	Limit of Detection (Limit of Reporting) in line with ISO 17025 and MCERTS	
ME	Matrix Effect	
NFD	No Fibres Detected	
BS	AQC Sample	
LB	Blank Sample	
N	Client Sample	
TB	Trip Blank Sample	
OC	Outside Calibration Range	

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Test Method No.	Description	Prep Method No. (if appropriate)	Description	ISO 17025 (UKAS)	MCERTS (UK soils only)	Analysis done on As Received (AR) or Dried (AD)	Reported on dry weight basis
PM4	Gravimetric measurement of Natural Moisture Content and % Moisture Content at either 35°C or 105°C. Calculation based on ISO 11465 and BS1377.	PM0	No preparation is required.				
TM4	Modified USEPA 8270 method for the solvent extraction and determination of 16 PAHs by GC-MS.	PM8	End over end extraction of solid samples for organic analysis. The solvent mix varies depending on analysis required.			AR	Yes
TM4	Modified USEPA 8270 method for the solvent extraction and determination of 16 PAHs by GC-MS.	PM8	End over end extraction of solid samples for organic analysis. The solvent mix varies depending on analysis required.	Yes		AR	Yes
TM5	Modified USEPA 8015B method for the determination of solvent Extractable Petroleum Hydrocarbons (EPH) with carbon banding within the range C8-C40 GC-FID.	PM16	Fractionation into aliphatic and aromatic fractions using a Rapid Trace SPE.			AR	Yes
TM17	Modified US EPA method 8270. Determination of specific Polychlorinated Biphenyl congeners by GC-MS.	PM8	End over end extraction of solid samples for organic analysis. The solvent mix varies depending on analysis required.	Yes		AR	Yes
TM20	Modified USEPA 8163. Gravimetric determination of Total Dissolved Solids/Total Solids	PM0	No preparation is required.	Yes		AR	Yes
TM21	Modified USEPA 415.1. Determination of Total Organic Carbon or Total Carbon by combustion in an Eltra TOC furnace/analyser in the presence of oxygen. The CO2 generated is quantified using infra-red detection.	PM24	Dried and ground solid samples are washed with hydrochloric acid, then rinsed with deionised water to remove the mineral carbon before TOC analysis.	Yes		AD	Yes
TM22	Modified USEPA 160.4. Gravimetric determination of Loss on Ignition by temperature controlled Muffle Furnace (450°C)	PM0	No preparation is required.	Yes		AD	Yes
TM26	Determination of phenols by Reversed Phased High Performance Liquid Chromatography and Electro-Chemical Detection.	PM0	No preparation is required.			AR	Yes
TM27	Modified US EPA method 9056. Determination of water soluble anions using Dionex (Ion-Chromatography).	PM0	No preparation is required.			AR	Yes

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Test Method No.	Description	Prep Method No. (if appropriate)	Description	ISO 17025 (UKAS)	MCERTS (UK soils only)	Analysis done on As Received (AR) or Dried (AD)	Reported on dry weight basis
TM30	Determination of Trace Metal elements by ICP-OES (Inductively Coupled Plasma - Optical Emission Spectrometry). Modified US EPA Method 200.7	PM17	Modified method EN12457-2 As received solid samples are leached with water in a 10:1 water to soil ratio for 24 hours, the moisture content of the sample is included in the ratio.	Yes		AR	Yes
TM31	Modified USEPA 8015B. Determination of Methyltertbutylether, Benzene, Toluene, Ethylbenzene and Xylene by headspace GC-FID.	PM12	Modified US EPA method 5021. Preparation of solid and liquid samples for GC headspace analysis.			AR	Yes
TM31	Modified USEPA 8015B. Determination of Methyltertbutylether, Benzene, Toluene, Ethylbenzene and Xylene by headspace GC-FID.	PM12	Modified US EPA method 5021. Preparation of solid and liquid samples for GC headspace analysis.	Yes		AR	Yes
TM38	Soluble Ion analysis using the Thermo Aquakem Photometric Automatic Analyser. Modified US EPA methods 325.2, 375.4, 365.2, 353.1, 354.1	PM0	No preparation is required.	Yes		AR	Yes
TM60	Modified USEPA 9060. Determination of TOC by calculation from Total Carbon and Inorganic Carbon using a TOC analyser, the carbon in the sample is converted to CO2 and then passed through a non-dispersive infrared gas analyser (NDIR).	PM0	No preparation is required.			AR	Yes
TM61	Modified US EPA methods 245.7 and 200.7. Determination of Mercury by Cold Vapour Atomic Fluorescence.	PM38	Samples are brominated to reduce all mercury compounds to Mercury (II) which is analysed using method TM061.	Yes		AR	Yes
NONE	No Method Code	PM17	Modified method EN12457-2 As received solid samples are leached with water in a 10:1 water to soil ratio for 24 hours, the moisture content of the sample is included in the ratio.				
NONE	No Method Code	PM17	Modified method EN12457-2 As received solid samples are leached with water in a 10:1 water to soil ratio for 24 hours, the moisture content of the sample is included in the ratio.			AR	
NONE	No Method Code	PM4	Gravimetric measurement of Natural Moisture Content and % Moisture Content at either 35°C or 105°C. Calculation based on ISO 11465 and BS1377.			AR	

Appendix - Methods used for WAC (2003/33/EC)

Leachate tests	
. 6	I.S. EN 12457-2:2002 Specified particle size; water added to L/S ratio; capped; agitated for 24 ± 0.5 hours; eluate settled and
10l/kg; 4mm	filtered over 0.45 μm membrane filter.
Eluate analysis	•
As	I.S. EN 12506 : EN ISO 11885 (ICP-OES)
Ва	I.S. EN 12506 : EN ISO 11885 (ICP-OES)
Cd	I.S. EN 12506 : EN ISO 11885 (ICP-OES)
Cr total	I.S. EN 12506 : EN ISO 11885 (ICP-OES)
Cu	I.S. EN 12506 : EN ISO 11885 (ICP-OES)
Hg	I.S. EN 13370 rec. EN 1483 (CVAAS)
Мо	I.S. EN 12506 : EN ISO 11885 (ICP-OES)
Ni	I.S. EN 12506 : EN ISO 11885 (ICP-OES)
Pb	I.S. EN 12506 : EN ISO 11885 (ICP-OES)
Sb	I.S. EN 12506 : EN ISO 11885 (ICP-OES)
Se	I.S. EN 12506 : EN ISO 11885 (ICP-OES)
Zn	I.S. EN 12506 : EN ISO 11885 (ICP-OES)
Chloride	I.S. EN 12506 rec. EN ISO 10304-part 1 (liquid chromatography of ions)
Fluoride	I.S. EN 12506 rec. EN ISO 10304-part 1 (liquid chromatography of ions)
Sulphate	I.S. EN 12506 rec. EN ISO 10304-part 1 (liquid chromatography of ions)
Phenol index	I.S. EN 13370 rec. ISO 6439 (4-Aminoantipyrine spectrometic methods after distillation)* (BY HPLC - Jones Env)
DOC	I.S. EN 1484
TDS	I.S. EN 15216
Compositional analy	ysis
TOC	I.S. EN 13137 Method B: carbonates removed with acid; TOC by combustion.
BTEX	GC-FID
PCB7**	I.S. EN 15308 analysis by GC-ECD.
Mineral oil	I.S. EN 14039 C10 to C40 analysis by GC-FID.
PAH17***	I.S. EN 15527 PAH17 analysis by GC-MS
Metals	I.S. EN 13657 - Aqua regia digestion: EN ISO 11885 (ICP-OES)
Other	IC FNAME TO THE PROPERTY OF TH
D	I.S. EN 14346 sample is dried to a constant mass in an oven at 105 ± 3 °C; Method B Water content by direct Karl-Fischer-
Dry matter	titration and either volumetric or coulometric detection.
LOI	I.S. EN 15169 Difference in mass after heating in a furnace up to 550 ± 25 °C.
ANC	CEN/TS 15364 Determined by amouns of acid or base needed to cover the pH range

Notes

^{*}If not suitable due to LOD, precision, etc., any other suitable method can be used, e.g. AFS, ICP-MS

^{**}PCB-28, PCB-52, PCB-101, PCB-118, PCB-138, PCB-153 and PCB-180

^{***}Naphthalene, Acenaphthylene, Acenaphthene, Anthracene, Benzo(a)anthracene, Benzo(b)fluoranthene, Benzo(k)fluoranthene, Benzo(g,h,i)perylene, Benzo(a)pyrene, Chrysene, Coronene, Dibenzo(a,h)anthracene, Fluorene, Fluoranthene, Indeno(1,2,3-c,d)pyrene, Phenanthrene and Pyrene.