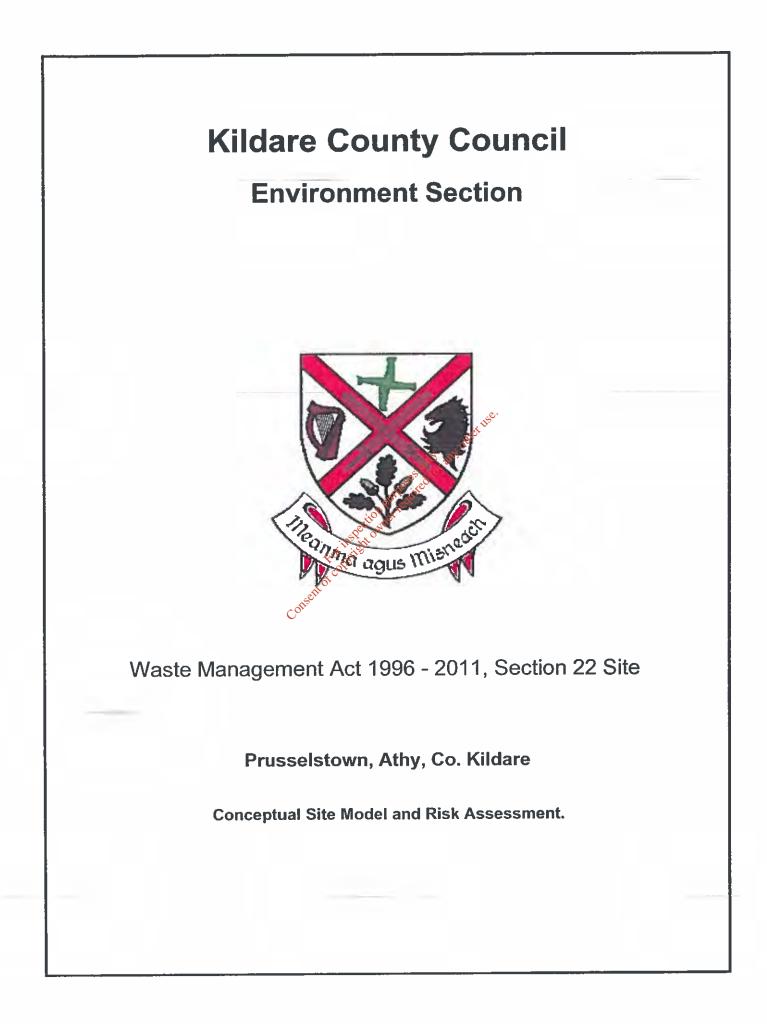
APPENDICES

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APPENDIX A

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Index

Site Summary

Background

- **Conceptual Site Model, Risk Screening and Prioritisation** Section 1:
- Site Location Map Appendix 1:
- **Ground Water Protection Map** Appendix 2: • For inspection numore of for any other use.
- Subsoil Map Appendix 3:
- Appendix 4: Photographs of site
- **Cost Estimate** Appendix 5:
- Walkover Survey Appendix 6:

Kildare County Council, Environment Section



Prusselstown Refuse Depot, Athy, Co. Kildare

Site Summary

Relevant Risk Screening Parameters.

Name: Prusselstown Refuse Depot, Athy, Co. Kildare

Source: Municipal Waste from 1st January '81 to 2nd February '82. Geology: Ballysteen Formation Fossiliferous dark-grey muddy limestone Groundwater: Regionally Important Aquifer with a High Vulnerability (Rg/H). Surface Water: The Clowgarrow Bog River is part of the Athy stream river system which is a tributary of the River Barrow and is 550m from the landfill site.

Human Presence: A hotel is located on the landfill site and dwellings are located 30m from the landfill site?

Protected Areas: There is no protected area around the site.

SPR Linkage: SPR10 Score of 70% for landfill gas lateral migration affecting humans as there is a hotel on the site and dwellings within 30m of the landfill site.

SPR11 score of 70% for landfill gas vertical migration affecting humans as there is a hotel on the landfill site and dwellings within 30m of the waste

Risk Classification: High Risk

Background

Location Appendix 1: Site Location Map

Prusselstown Refuse Depot is located adjacent to a residential area of Athy Town. A hotel was built on the site and residential dwelling areas are located within 30 meters from the landfill site.

The Clowgarrow Bog River is located 550m from the waste body.

Desk Top Study

Kildare County Council's files on the Prusselstown Refuse Depot do not indicate the nature of the waste material deposited at the site. The site was used as a refuse depot for the period 1" January 1981 to 2nd February 1982 approx. The site has been capped with clay

Walkover Survey (Appendix 6)

The exact extent of the Prusselstown Refuse Depot in Athy, Co. Kildare is assumed to match the footprint on the maps Appendix 1.

The plan area is approximately 3.7 hectares.

The current landuse of the site is a hotel development and its associated car park with waste land to the west of the site, green grazing area to the east and south of the site. There are residential area in close proximately to the site.

There is no sign of surface ponding of leachate or leachate seepage from the landfill site. Also there are no landfill odours Perion Purposed

Geology

The GSI groundwater vulnerability mapping identifies the site of the Prusselstown Refuse Depot is located within Regionally Important Aquifer with High Vulnerability, Rg/ Harone có

The rock type is Ballysteen Formation Fossiliferous dark-grey muddy limestone.

Tier 1 Risk Assessment Findings.

Following the Tier 1 Risk Assessment carried out on the site of the Prusselstown Refuse Depot a risk rating of 70% was assigned for:

SPR10 Score of 70% for landfill gas lateral migration affecting humans as there is a hotel on the landfill site and dwellings within 30m of the landfill site.

SPR11 score of 70% for landfill gas vertical migration affecting humans as there is a hotel on the landfill site and dwellings within 30m of the waste

Accordingly this historic unregulated waste disposal site is categorised as a High Risk site.

Access to site.

The portion of the site containing Hotel Delelopment is accessible when the facility is open.

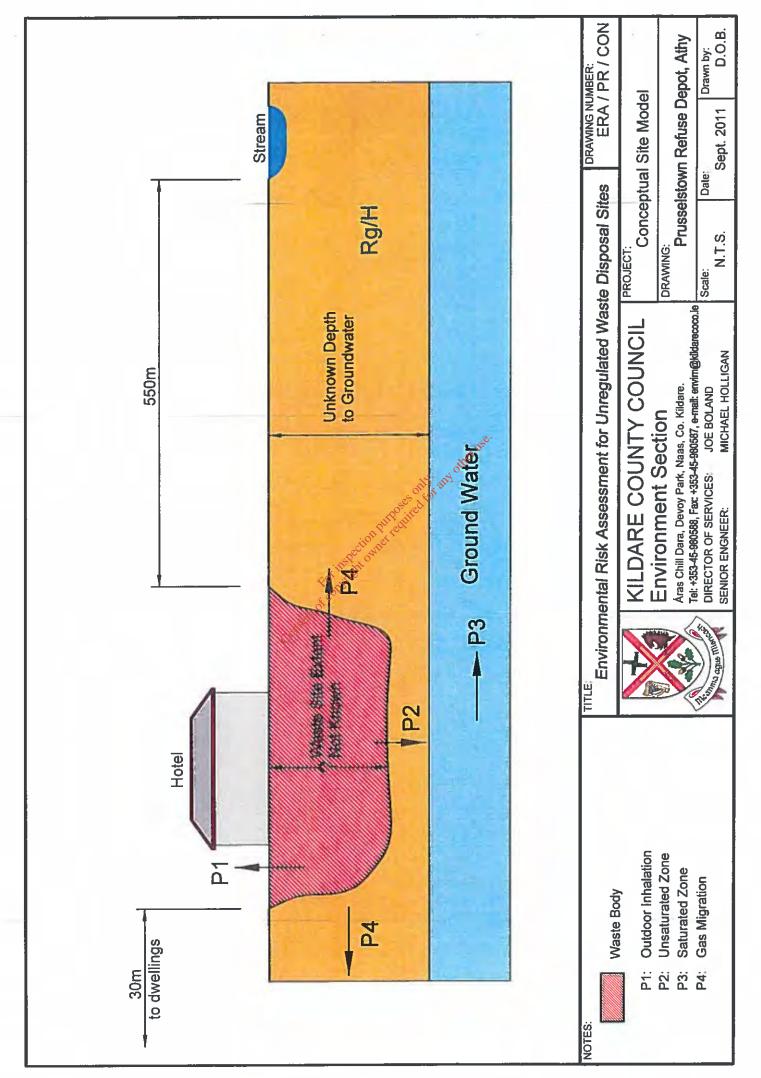
The areas outside the hotel development are accessible from public roadways.

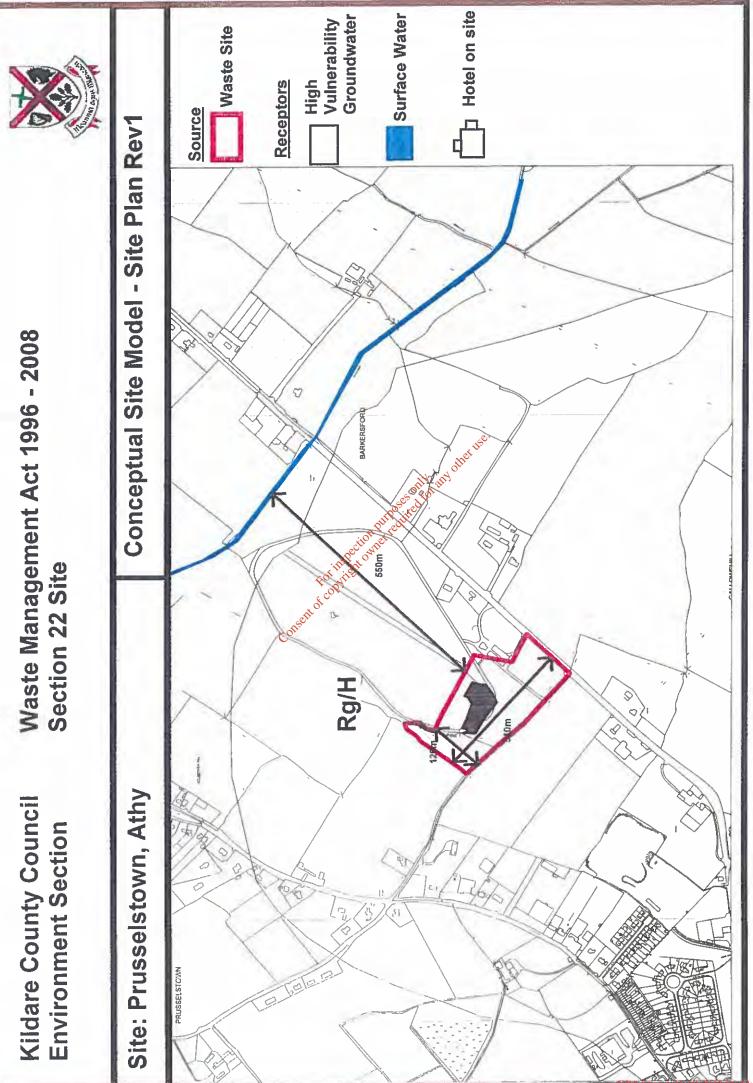
OFFICE

Ciara Corrigan, Assistant Environmental Scientist, **Environment Section**

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Senior Engineer, **Environment Section** Section 1: Conceptual Site Model, Risk Screening and Prioritisation





Kildare County Council Environment Section

Waste Management Act 1996-2008 Section 22 Sites



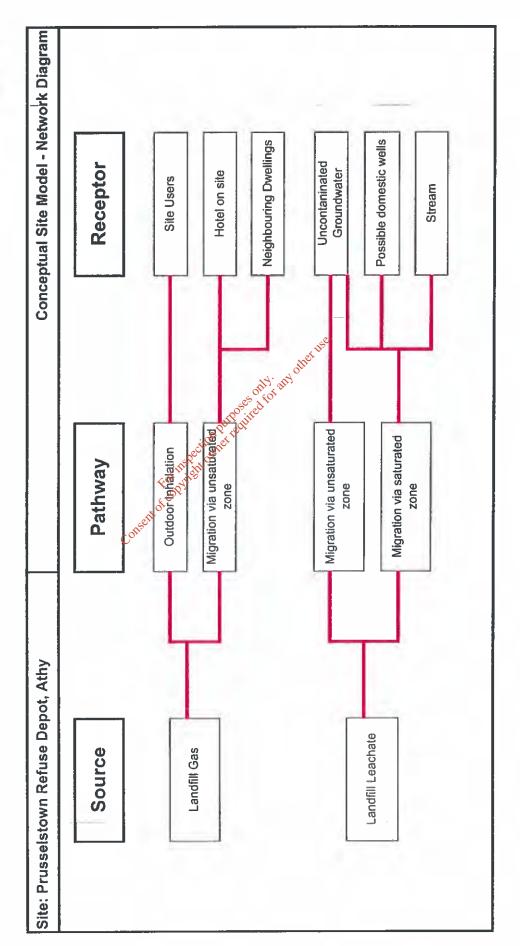


Table	Score	Rationale
1a: Leachate Hazard	7	Municipal waste deposited in area betweer 1 and 5 Ha (3.7 Ha approx)
1b: Landfill Gas Hazard	7	Municipal waste deposited in area between 1 and 5 Ha (3.7 Ha approx)
2a: Leachate Migration - GW Vulnerability	2	High Vunerability
2b: Leachate Migration - GW Flow Regime	2	Gravel groundwater bodies (Rg)
2C: Leachate Migration - SW Drainage	0	No direct connection to surface water drainage
2d: Landfill Gas - Laterial Migration	3	Sands and Gravels receptor within 250m
2e: Landfill Gas - Vertical Migration	5	Sands and Gravels receptor located above source
3a: Leachate Migration - Human Presence	3	Human presence above source
3b: Leachate Migration - Protected Area	0	None within the
3c: Leachate Migration - Aquifier Category	5	Regionally Important Aquifier (Rg)
3d: Leachate Migration - Public Water Supply	0 COL	None within 1km
3e: Leachate Migration - Surface Watewr Bobied	Conset	550m approx to surface water body
3f: Landfill Gas - Human Presence	Conset	Human presence above source

Site : Prusselstown Refuse Depot, Athy

SPR (Source Pathway Receptor) Linkage

SPR 1= 1a X (2a + 2b + 2c) X 3e SPR 2= 1a X (2a + 2b + 2c) X 3b (SWDTE) SPR 3= 1a X (2a + 2b) X 3a SPR 4= 1a X (2a + 2b) X 3b SPR 5= 1a X (2a + 2b) X 3c SPR 6= 1a X (2a + 2b) X 3d SPR 7= 1a X (2a + 2b) X 3d SPR 7= 1a X (2a + 2b) X 3e SPR 8= 1a X 2c X 3e SPR 2= 1a X 2c X 3b (SWDTE) SPR 10= 1b X 2d X 3f SPR 11= 1b X 2e X 3f

	Site score	Max score	%
SPR 1:	28	300	9.33%
SPR 2:	0	300	0.00%
SPR 3:	84	240	35.00%
SPR 4:	0	240	0.00%
SPR 5:	140	400	35.00%
SPR 6:	0	560	0.00%
SPR 7:	28	240	11.67%
SPR 8:	0	60	0.00%
SPR 9:	0	60	0.00%
SPR 10:	105	150	70,0036
SPR 11:	175	250	2 70 90 W

High Risk (Class A) alle

Site: Prusslestown, Athy

Table 1a.	LEACHARE: SOURCE/HAZARD SCORING MATE			CORING MATRIX
	WASTE F	OOTPRINT (h	a)	
WASTE TYPE	1 ha	>1< 5 ha	> 5 ha	
C&D ²⁰	0.5	- 1	1.5	1
Municipal ²¹	5	1	10	
Industrial ²²	5	7	10	
Pre 1977 sites ²³	1	2	3	
		Max	10	

1a 7

1b

2b

7

2

2

Table 1b: LANDFILL GAS: SOURCE/HAZARD SCORING MATRIX

	WASTE F	WASTE FOOTPRINT (ha)			
WASTE TYPE	< 1 ha	>1 <u>≤</u> 5 ha	> 5 ha		
C&D ²⁰	0.5	1	1.5		
Municipal ²¹	5	1	10		
Industrial ²²	5	7	10		
Pre 1977 sites ²³	1	2	3		
		Max	10		

Table 2a: LEACHATE MIGRAT		Points	her use.
Parameter		FUILS	of
		available	ne
GROUNDWATER FLOW REGIME	(Vertical	to . 41	
Pathway)		OTLOT REAL	
Extreme Vunerability		3 5000	
High Vunerability		S. Stand	
Moderate Vunerability	. న	10	
Low Vunerability	echa	0.5	
High - Low Vunerability	inspit	2	2a
	Fortynght		
	, 0P		

Table 2b:	LEACHATE MIGRATION: PATH	WAYS	
Parameter	Conset		Points available
GROUNDWATER F	LOW REGIME (Horizontal Path	way)	
Karstified Groundwa	ter bodies (Rk)		5
Productive Fissured	Bedrock Groundwater Bodies	(Rf	
and Lm)			3
Gravel Groundwater	bodies (Rg and Lg)		and the second
Poorley Productive E	Bedrock Ground Water Bodies	(LI,	V
PI, PU)			1

Table 2c: LEACHATE MIGRATION: PATHWAYS		
Parameter	Points available	
SURFACE WATER DRAINAGE (surface water pathway)		
Is there a direct connection between drainage ditches associated with the waste body and adjacent surface water body? Yes	2	
If no direct connection	0	2c 0

Table 2d: LANDFILL GAS. PATHWAY assu	ning receptor within 250m of	source
Parameter	Points	
	available	
LANDFILL GAS LATERIAL MIGRATION		
POTENTIAL		
Sand and gravel, Made ground, urban, Karst	3	
Bedrock	2	
All other Tills (including limestone, sandstone etc -	1.5	
moderate Permeability	a second second	
All Namurian or Irish Sea Tills (low permeability)	1	
Clay, Alluvium, Peat	1	2d

Table 2e: LANDFILL GAS: PATHWAY assuming receptor located above source

Parameter	Points available	
LANDFILL GAS LATERIAL MIGRATION		
POTENTIAL	-	
Sand and gravel, Made ground, urban, Karst	8	
Bedrock	3	
All other Tills (including limestone, sandstone etc -	2	
moderate Permeability		
All Namurian or Irish Sea Tills (low permeability)	1	
Clay, Alluvium, Peat	1	e [.] 2e
Table 3a: LEACHATE MIGRATION: RECEP	TORS	any other use. 2e
Parameter	Points for	

Table 3a. LEACHATE MIGRATION RECEPTO	
Parameter	Points So
HUMAN PRESENCE (presence of a house indicates	a to teal
potential private well)	p. et
On or within 50m of waste body	0 ³⁴
Greater than 50m but less than 250m of the waste body	2
Greater than 250m but less than 1km of the waste body	1
Greater than 1km of the waste body	0

Table 3b. LEACHATE MIGRATION: RECEPTORS	5
Parameter	Points available
PROTECTED AREAS (SWDTE or GWDTE)	
On or within 50m of waste body	3
Greater than 50m but less than 250m of the waste body	2
Greater than 250m but less than 1km of the waste body	1
Greater than 1km of the waste body	
Undesignated sites within 50m of waste body	1
Undesignated sites greater than 50m but less than 250m of the waste body	0.5
Undesignated sites greater than 250m of the waste body	0

3a 3

3

5

3b 0

Table 3c:	LEACHATE MIGRATION REC	EPTORS
Parameter		Points available
AQUIFIER CA	TEGORY (resource potential)	
	ortant Aquifier (Rk, Rf, Rg)	8
Locally Importa	ant Aquifier (Ll, Lm, Lg)	3
Poor Aquifier (PI, Pu)	1

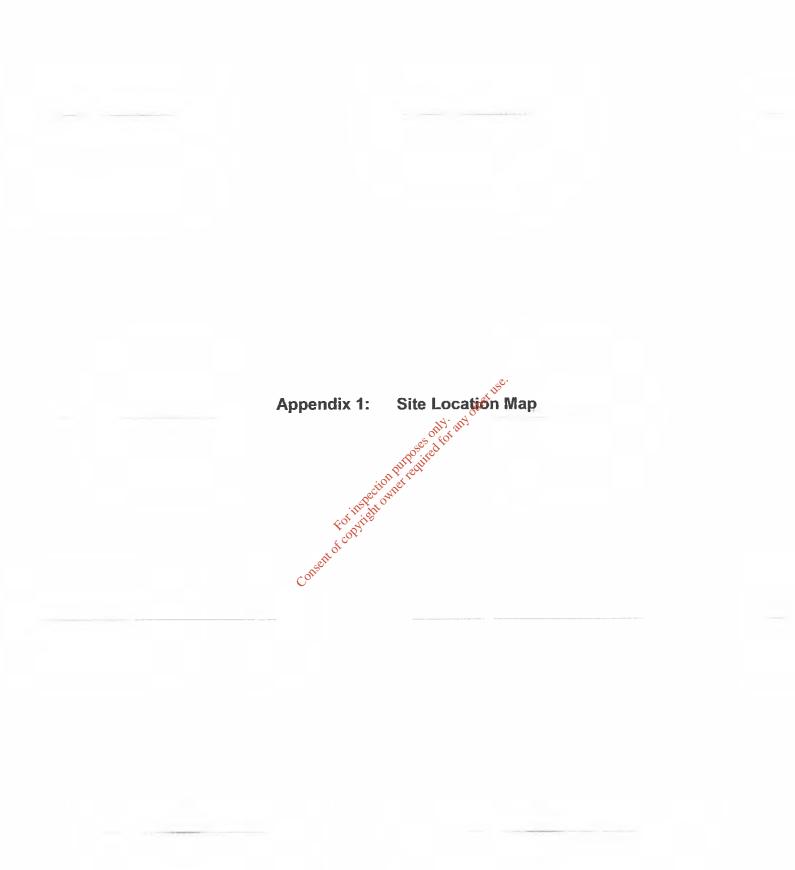
3c	5

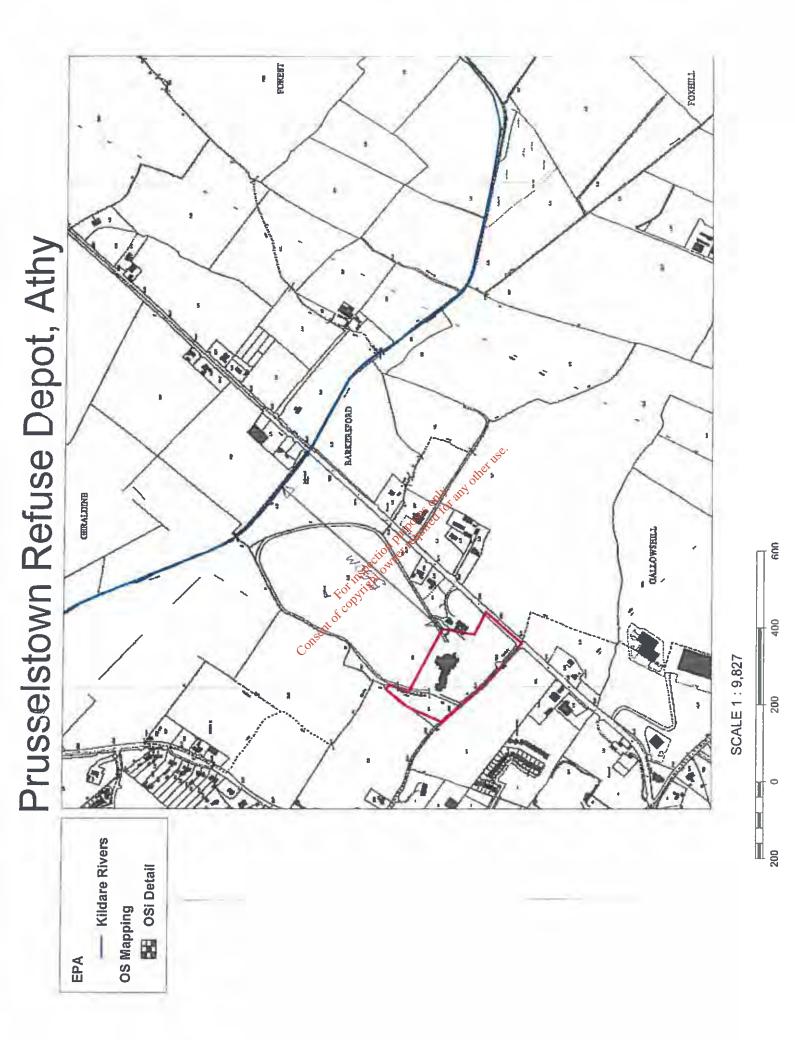
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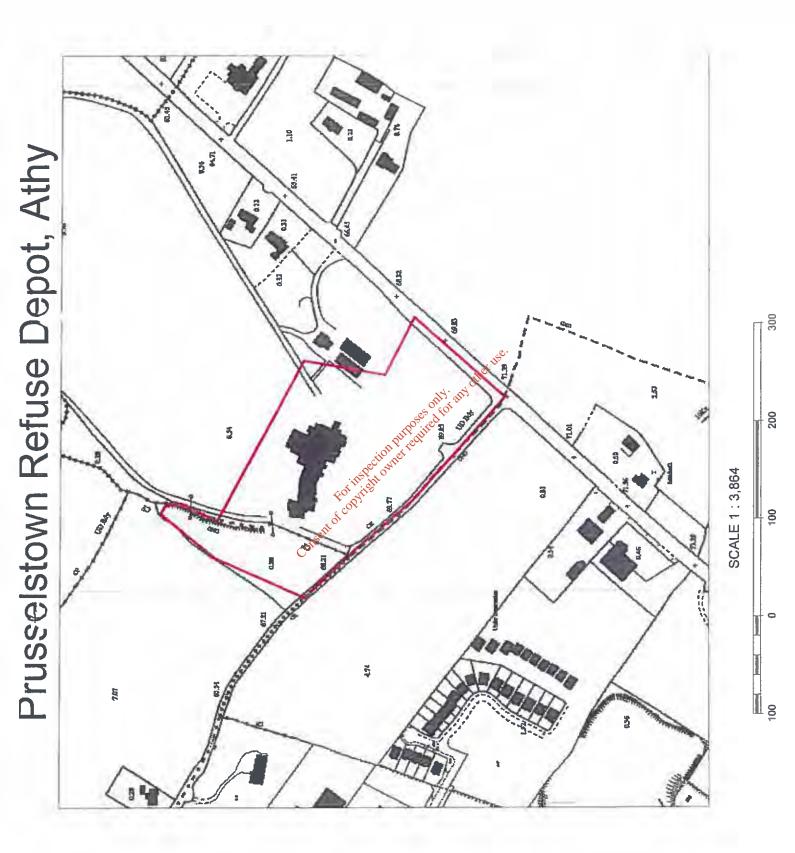
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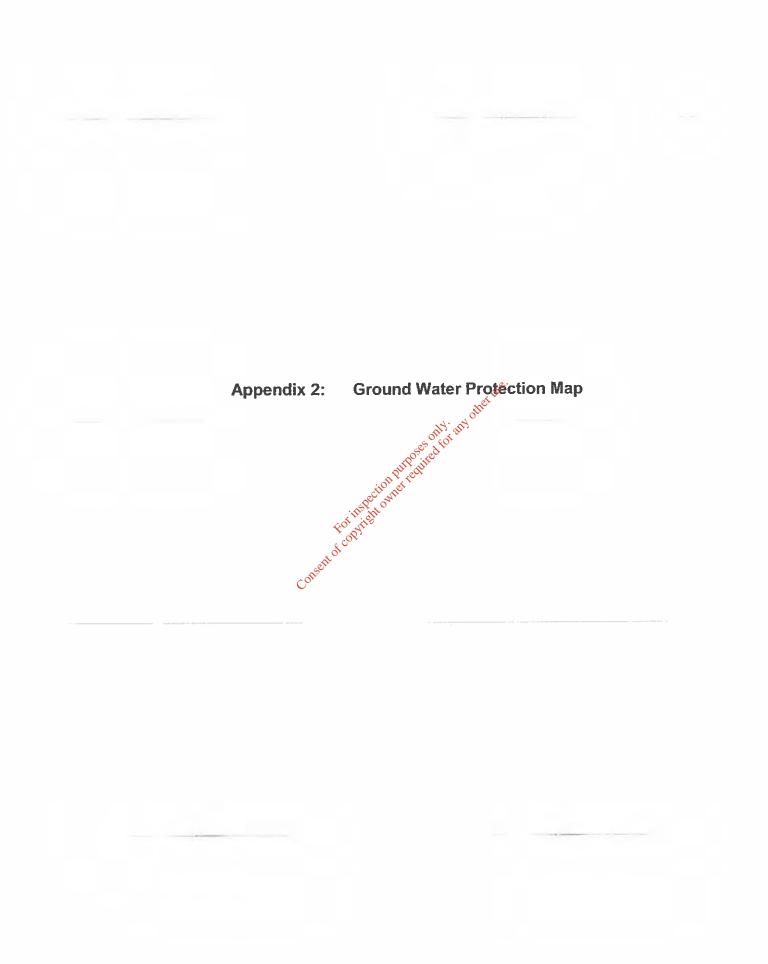
Parameter	Points available
PUBLIC WATER SUPPLY (other than private wells)	
Within 100m of site boundary	7
Greater than 100m but less than 300m or within Inner SPA (SI) for GW supplies	5
Greater than 300m but less than 1km or within Outer SPA (SO) for GW supplies	3
Greater than 1km (karst aquifier)	3
Greater than 1km (no karst aquifier)	0

Table 3e. LEACHATE MIGRATION RECEPT	ORS			
Parameter	Points	se.		
	available	net		
SURFACE WATER BODIES		otheruse		
Within 50m of site boundary	3 119 11	3		
Greater than 50m but less than 250m	2 5 5			
Greater than 250m but less than 1km	ALCONT OF ALL			
Our stand the set Allers			3e	4
Greater than 1km	tion to read			 !
Table 3f: LANDFILL GAS: RECEPTORS	tion net red		56	 !
Table 3f: LANDFILL GAS: RECEPTORS	points		00	 '
Table 3f: LANDFILL GAS: RECEPTORS	to whet		56	 1
Table 3f: LANDFILL GAS: RECEPTORS 11-90 Parameter	Points		56	 1
Table 3f: LANDFILL GAS: RECEPTORS 11-90 Parameter	Points		UC	1
Table 3f: LANDFILL GAS: RECEPTORS IN SPECIAL Parameter For the second secon	Points		Je	1
Table 3f: LANDFILL GAS: RECEPTORS 11-90 Parameter	Points available		00	1

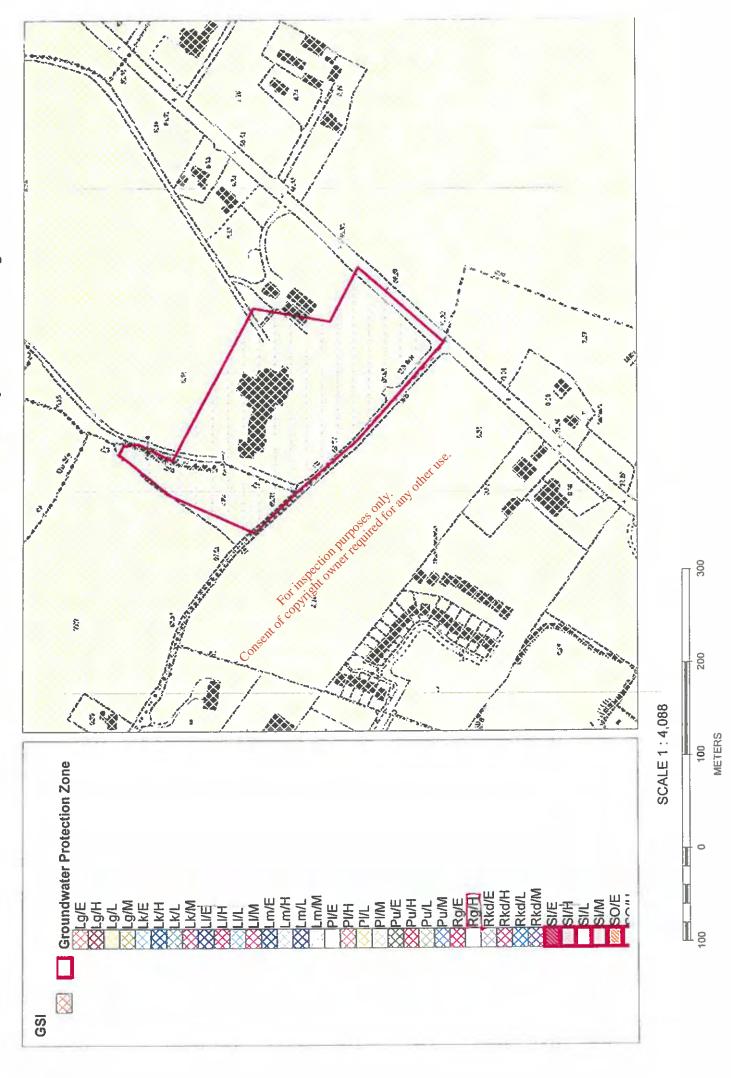




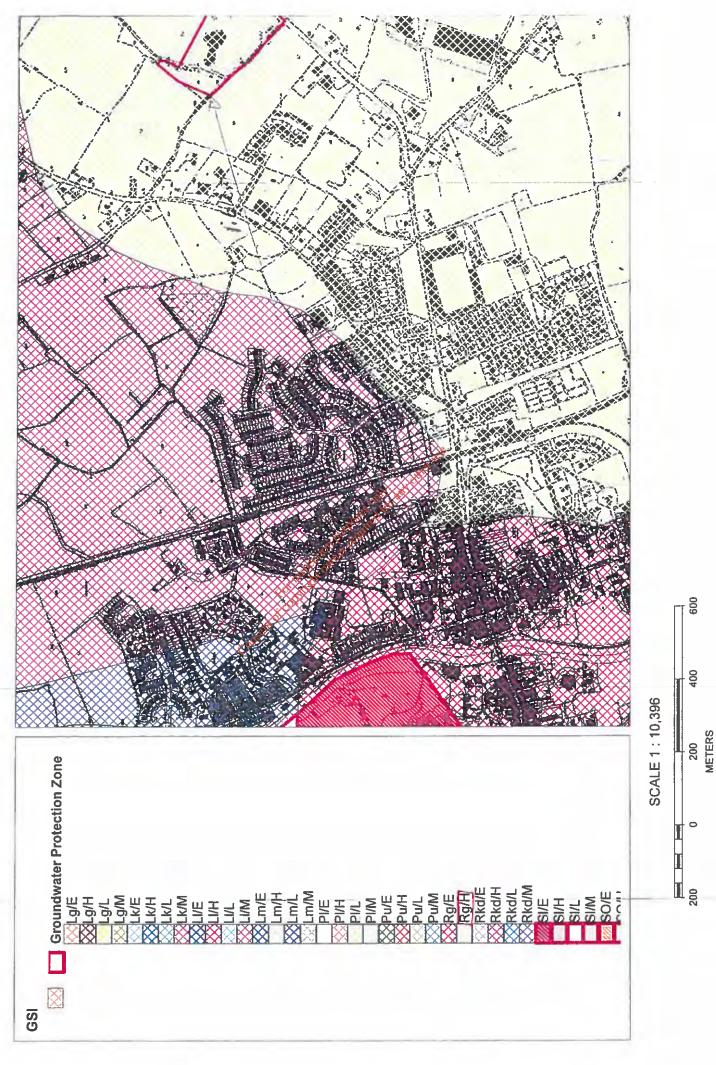


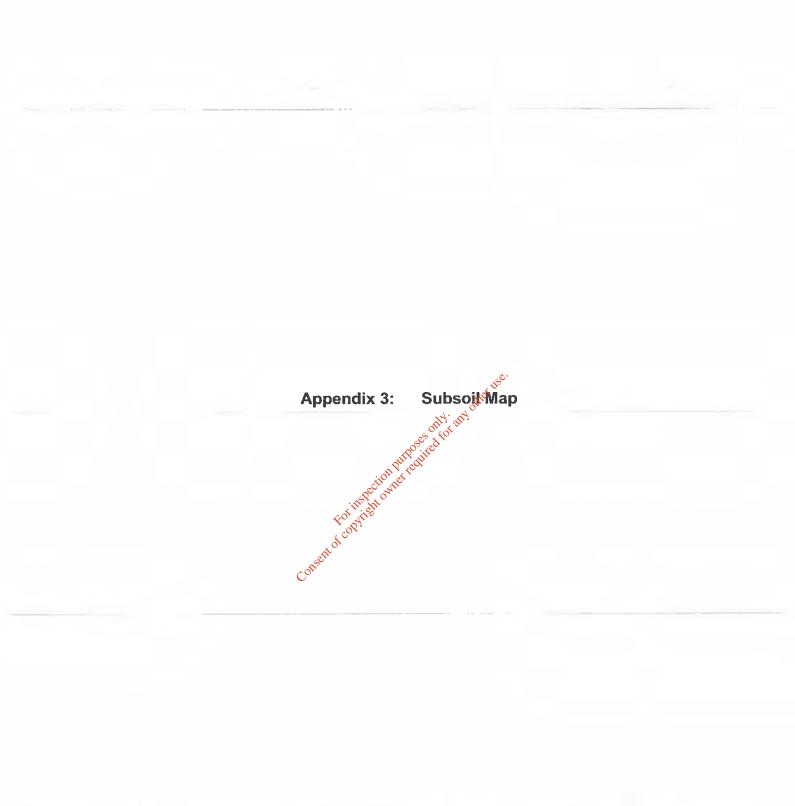


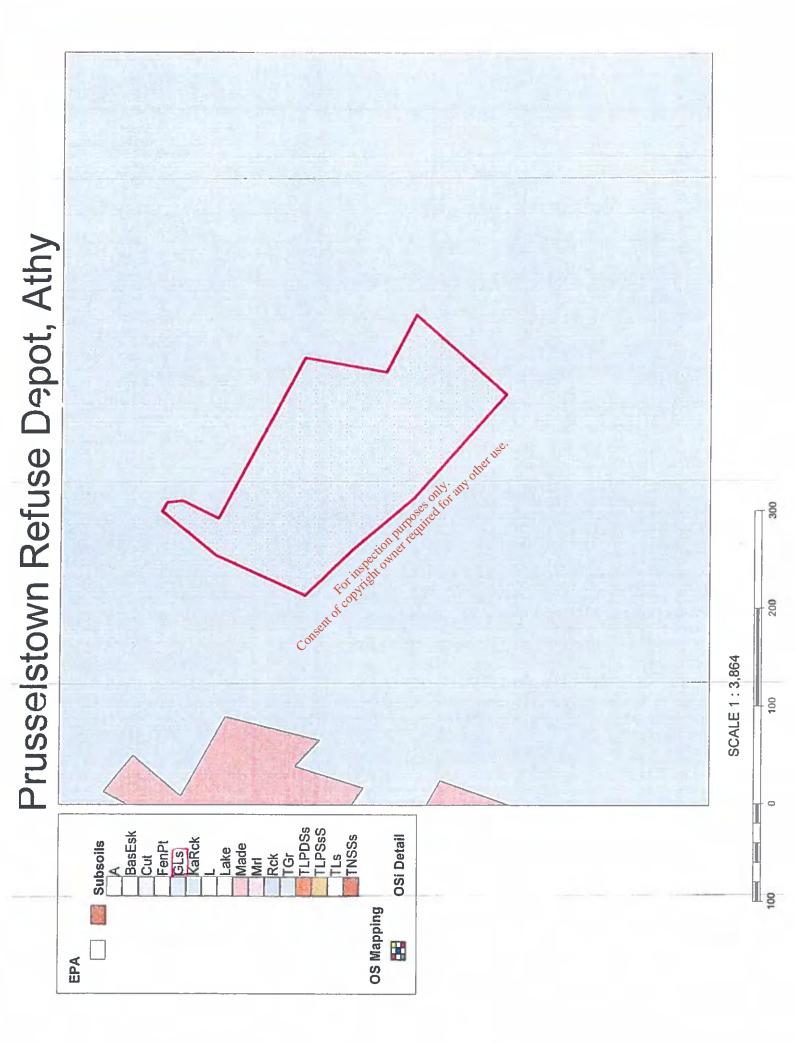
Prusselstown Refuse Depot, Athy













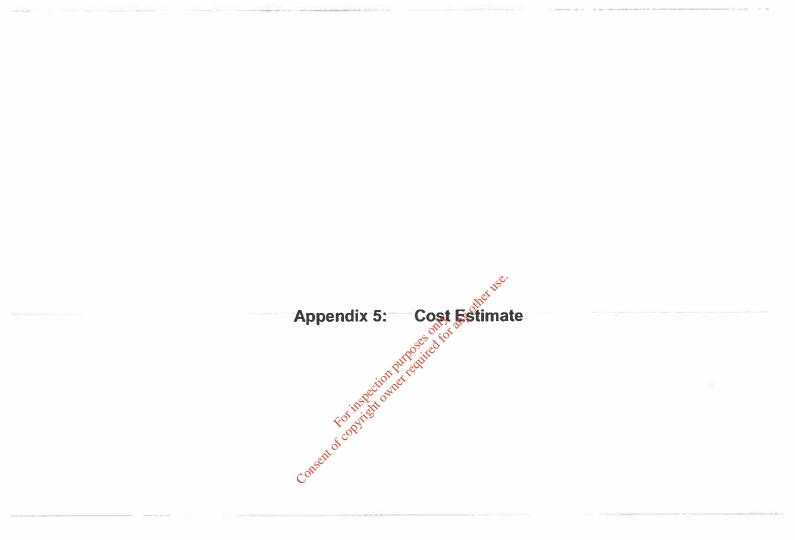


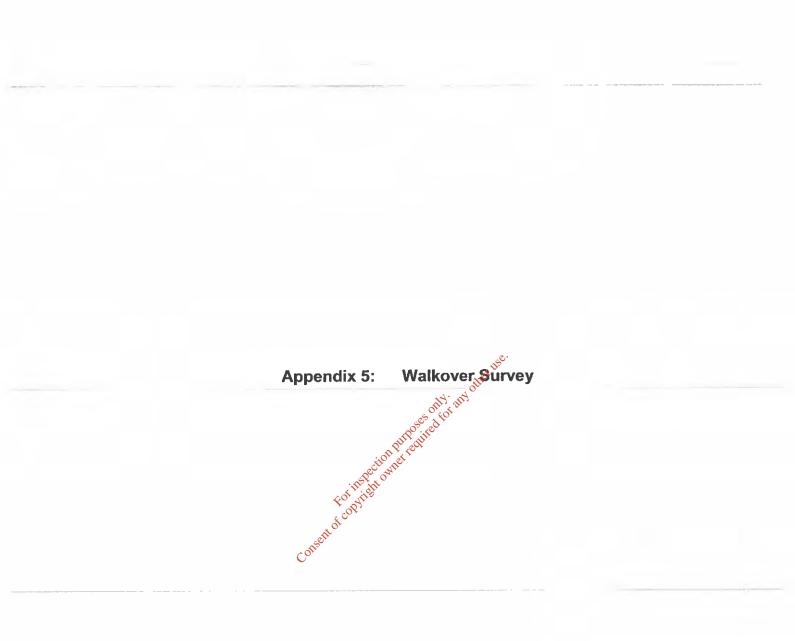
Photograph 2: Carpark on landfill site





Photograph 4: Waste Land within the landfill site





Wallover Survey Checklist

Section 22 - Waste Management Act 1996-2011

Location: Prusselstown Refuse Depot, Athy, Co. Kildare

Information	Checked	Comment (include distances from site boundary
1. What is the current land use?		Hotel Development and associated car park, green grazing area and waste land.
2. What are the neighbouring land uses?		Residential and agricultural use
3. What is the size of the site?		The site is approximately 4 hectares
4. What is the topography?		It is a fevel site
5. Are there potential receptors (if yes give details)?	of the second	lot and or
Houses	an purperinte	Yes
Surface water features (if yes distance and direction of flow)	or inspection purposes of copyright owner required	The Clowgarrow Bog River (is part of the Athy stream river system which is a tributary of the River Barrow) is 550 m from the landfill site.
Public Water Supplies		
Private Wells		
Services		
Other Buildings		Hotel Development
Other		
6. Are there any potential sources of contamination (if yes give details)?		
Surface waste (if yes what type)		No surface water visible
Surface ponding of leachate		No
Leachate seepage		No
Landfill gas odours		No

7. Are there any outfalls to surface water? (If so are there discharges and what is the nature of the discharge)	None visible
8. Are there any signs of impact on the environment? (if yes take photographic evidence)	No
Vegetation die off bare ground	No
Leachage seepages	No
Odours	No
Litter	No litter on site
Gas bubbling through water	No
Signs of settlement, subsidence, water logged areas	No settlement visible
Drainage of hydraulic issues	No No
Downstream water quality_ appears poorer than upstream quality	Not fested Not fested Not fested Not fested Clay Cap No
9. Are there any indication of remedial measures	Decion Putcing
Capping	S Trieder Clay Cap
Landfill gas collection	No
Leachate collection Conserver	No
10. Describe fences and security features (if any)	The hotel development has fencing around it. The rest of the landfill site is divided into 2 sections (i) a public waste land area with no fencing, (ii)fencing around agricultural/grazing land.
Any other relevant information	

APPENDIX B

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Table 1a: Leachate: Source/hazard Scoring Matrix

Waste Type	Waste Footprint (ha)		
	≤ 1 ha	> 1 ≤ 5 ha	>5
C&D ¹	0.5	1	1.5
Municipal ²	5	7	10
Industrial ³	5	7	10
Pre 1977 sites ⁴	1	2	3
		Max	10
		Result (1a)	7

Table 1b: Landfill Gas: Source/hazard Scoring Matrix

Waste Type	Waste Footprint (ha)		
	≤ 1 ha	> 1 ≤ 5 ha	>5
C&D ¹	0.5	0.75	1
Municipal ²	5	7	10
Industrial ³	3	5	7
Pre 1977 sites ⁴	0.5	0.75	1
		Max	10
		Result (1b)	7

Table 2a: Leachate Migration: Pathways

Parameters		Points Available
Groundwater Vulnerability	at 1150.	
(Vertical Pathway)	other	
Extreme Vulnerability	any any	3
High Vulnerability	es afor	2
Moderate Vulnerability	mpo sile	1
Low Vulnerability	an Pirteon	0.5
High – Low Vulnerability	I NICT	2
ill ²	Max	3
For in the second	Result (2a)	2
્રંગ્રેટ		

Table 2b: Leachate Migration: Pathways

Parameters Conser		Points Available
Groundwater Flow Regime		
(Horizontal Pathway)		
Karstified Groundwater Bodies (Rk) ⁵		5
Productive Fissured Bedrock Groundwater Bod	Productive Fissured Bedrock Groundwater Bodies	
(Rf and Lm)⁵		
Gravel Groundwater Bodies (Rg and Lg) ⁵		2
Poorly Productive Bedrock Groundwater Bodies		1
∣ (Li, Pl, Pu)⁵		
	Max	5
	Result (2b)	2

¹ Predominantly inert waste with low biodegradable fraction and/or small industrial waste fraction.

² Typically non-hazardous domestic waste (highly biodegradable) with potentially small hazardous waste fraction and/or small industrial waste fraction, e.g. town dump.

³ Generally industrial waste where hazardous waste was known to have been deposited or there is a strong likelihood that hazardous waste was deposited due to the close proximity of such industries.
⁴ Pre 1977 wastes would have been substantially degraded within the landfill.

⁵ Refer to DEHLG/EPA/GSI 1999, Groundwater Protection Scheme.

Table 2c: Leachate Migration: Pathways

Parameters		Points Available
Surface Water Drainage ⁶ (surface water pathway)		
Is there a direct connection between drainage ditches associated with the waste body and adjacent surface water body? Yes		2
If no direct connection		0
	Max	2
	Result (2c)	0

Table 2d: Landfill Gas: Pathways (assuming receptor within 250m of source)

Parameters		Points Available
Landfill Gas Lateral Migration Potential		
Sand and Gravel, Made ground, urban, karst		3
Bedrock		2
All other tills (including limestone, sandstone etc – moderate permeability)		1.5
All Namurian or Irish Sea Tills (low permeability)		1
Clay, Alluvium, Peat		1
	Max	3
	Result (2d)	3
	· 150.	

Table 2e: Landfill Gas: Pathways (assuming receptor logated above source)

Parameters	MIN. 2019	Points Available
Landfill Gas Vertical (upwards) Potential	Set of the	
Sand and Gravel, Made ground, urban, karst 🔬	ITP UIT	5
Bedrock	L LOOM	3
All other tills (including limestone, sandsto	one etc – moderate	2
permeability)		
All Namurian or Irish Sea Tills (low permeability)		1
Clay, Alluvium, Peat		1
ontio	Max	5
CONSOLI	Result (2e)	5
\mathbf{U}		

Table 3a: Leachate Migration: Receptors

Parameters		Points Available
Human Presence (presence of a house indicates potential private wells)		
On or within 50m of the waste body		3
Greater than 50m but less than 250m of the waste body		2
Greater than 250m but less than 1km of the waste body		1
Greater than 1km of the waste body		0
	Max	3
	Result (3a)	3

⁶ This element needs to be determined during the site inspection (including walkover survey). The presence of a direct link between surface water drainage from the waste body and any adjacent surface water body implies the existence of a pathway.

Table 3b: Leachate Migration: Receptors

Parameters		Points Available
Protected Areas (SWDTE or GWDTE)	Protected Areas (SWDTE or GWDTE)	
Within 50m of the waste body		3
Greater than 50m but less than 250m of the was	ste body	2
Greater than 250m but less than 1km of the waste body		1
Greater than 1km of the waste body		0
Undesignated sites ⁷ within 50m of site of the waste body		1
Undesignated sites ⁷ greater than 50m but less than 250m of the waste body		0.5
Undesignated sites ⁷ greater than 250m of the waste body		0
Max		3
	Result (3b)	0

Table 3c: Leachate Migration: Receptors

Parameters		Points Available
Aquifer Category ⁸ (resource potential)		
Regionally Important Aquifers (Rf, Rk, Rg)		5
Locally Important Aquifers (Li, Lm, Rg)		3
Poor Aquifers (PI, Pu)		1
	Max	5
	Result (3c)	5

- Rk
- Rf
- Regionally Important Karstified Aquifers Regionally Important Fissured Bedrock Aquifers Regionally Important Extensive Sand/Greek Rg
- LI
- Locally Important Sand/Gravel Aquifers Control Moderately productive Lm
- Locally Important Bedrock Aquifers Generally productive only in local zones Lg
- ΡI Poor Bedrock Aquifers - Generally unproductive except in local zones
- Pu Poor Bedrock Aquifers - Generally unproductive

Table 3d: Leachate Migration: Receptors

Public Water Supplies (other than private wells)		
Within 100m of site boundary		7
Greater than 100m but less than 300m or within Inner SPA (SI) for GW supplies		5
Greater than 300m but less than 1km or within Outer SPA (SO) for GW supplies		3
Greater than 1km (karst aquifer)		3
Greater than 1km (no karst aquifer)		0
	Max	7
	Result (3d)	0

⁷ The term "Undesignated sites" refers to wetland sites that are not designated under the Habitats or Bird Directive or Wildlife Act but are considered on a local scale. Consultation with NPWS is required to identify such sites.

⁸ (DOHLG/EPA/GSI 1999) Groundwater Protection Scheme

Table 3e: Leachate Migration: Receptors

Parameters		Points Available
Surface Water Bodies		
Within 50m of site boundary		3
Greater than 50m but less than 250m		2
Greater than 250m but less than 1km		1
Greater than 1km		0
	Max	3
	Result (3e)	1

Table 3f: Leachate Gas: Receptors

Parameters		Points Available
Human Presence		
On site or within 50m of site boundary		5
Greater than 50m but less than 150m		3
Greater than 150m but less than 250m		1
Greater than 250m		0.5
	Max	5
	Result (3f)	5

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Table 1a: Leachate: Source/hazard Scoring Matrix

Waste Type	Waste Footprint (ha)		
	≤ 1 ha	> 1 ≤ 5 ha	>5
C&D ¹	0.5	1	1.5
Municipal ²	5	7	10
Industrial ³	5	7	10
Pre 1977 sites ⁴	1	2	3
		Max	10
		Result (1a)	7

Table 1b: Landfill Gas: Source/hazard Scoring Matrix

Waste Type	Waste Footprint (ha)		
	≤ 1 ha	> 1 ≤ 5 ha	>5
C&D ¹	0.5	0.75	1
Municipal ²	5	7	10
Industrial ³	3	5	7
Pre 1977 sites ⁴	0.5	0.75	1
		Max	10
		Result (1b)	7

Table 2a: Leachate Migration: Pathways

Parameters		Points Available
Groundwater Vulnerability	at 150.	
(Vertical Pathway)	othe	
Extreme Vulnerability	ally any	3
High Vulnerability	Les XFOT	2
Moderate Vulnerability	arpo inte	1
Low Vulnerability	5 tod	0.5
High – Low Vulnerability	ter.	2
. Instation	Max	3
Formitett	Result (2a)	2
S CON		

Table 2b: Leachate Migration: Pathways

Parameters Conser		Points Available
Groundwater Flow Regime		
(Horizontal Pathway)		
Karstified Groundwater Bodies (Rk) ⁵		5
Productive Fissured Bedrock Groundwater Bodies		3
(Rf and Lm)⁵		
Gravel Groundwater Bodies (Rg and Lg) ⁵		2
Poorly Productive Bedrock Groundwater Bodies		1
(Li, Pl, Pu)⁵		
	Max	5
	Result (2b)	2

¹ Predominantly inert waste with low biodegradable fraction and/or small industrial waste fraction.

² Typically non-hazardous domestic waste (highly biodegradable) with potentially small hazardous waste fraction and/or small industrial waste fraction, e.g. town dump.

³ Generally industrial waste where hazardous waste was known to have been deposited or there is a strong likelihood that hazardous waste was deposited due to the close proximity of such industries.
⁴ Pre 1977 wastes would have been substantially degraded within the landfill.

⁵ Refer to DEHLG/EPA/GSI 1999, Groundwater Protection Scheme.

Table 2c: Leachate Migration: Pathways

Parameters		Points Available
Surface Water Drainage ⁶ (surface water pathway)		
Is there a direct connection between drainage ditches associated with the waste body and adjacent surface water body? Yes		2
If no direct connection		0
	Max	2
	Result (2c)	0

Table 2d: Landfill Gas: Pathways (assuming receptor within 250m of source)

Parameters		Points Available
Landfill Gas Lateral Migration Potential		
Sand and Gravel, Made ground, urban, karst		3
Bedrock		2
All other tills (including limestone, sandstone etc – moderate permeability)		1.5
All Namurian or Irish Sea Tills (low permeability)		1
Clay, Alluvium, Peat		1
	Max	3
	Result (2d)	3
	, USC.	

Table 2e: Landfill Gas: Pathways (assuming receptor logated above source)

Parameters	MIN. 2019	Points Available
Landfill Gas Vertical (upwards) Potential	Set of the	
Sand and Gravel, Made ground, urban, karst 🔬	ITP UIT	5
Bedrock	L LOOM	3
All other tills (including limestone, sandstone etc - moderate		2
permeability)		
All Namurian or Irish Sea Tills (low permeability)		1
Clay, Alluvium, Peat		1
ontio	Max	5
CONSOLI	Result (2e)	5
\mathbf{U}		

Table 3a: Leachate Migration: Receptors

Parameters		Points Available
Human Presence (presence of a house indicates potential private wells)		
On or within 50m of the waste body		3
Greater than 50m but less than 250m of the waste body		2
Greater than 250m but less than 1km of the waste body		1
Greater than 1km of the waste body		0
	Max	3
	Result (3a)	3

⁶ This element needs to be determined during the site inspection (including walkover survey). The presence of a direct link between surface water drainage from the waste body and any adjacent surface water body implies the existence of a pathway.

Table 3b: Leachate Migration: Receptors

Parameters		Points Available
Protected Areas (SWDTE or GWDTE)		
Within 50m of the waste body		3
Greater than 50m but less than 250m of the wa	ste body	2
Greater than 250m but less than 1km of the waste body		1
Greater than 1km of the waste body		0
Undesignated sites ⁷ within 50m of site of the waste body		1
Undesignated sites ⁷ greater than 50m but less than 250m of the waste body		0.5
Undesignated sites ⁷ greater than 250m of the waste body		0
	Max	3
	Result (3b)	0

Table 3c: Leachate Migration: Receptors

Parameters		Points Available
Aquifer Category ⁸ (resource potential)		
Regionally Important Aquifers (Rf, Rk, Rg)		5
Locally Important Aquifers (Li, Lm, Rg)		3
Poor Aquifers (PI, Pu)		1
	Max	5
	Result (3c)	5

- Rk
- Rf
- Regionally Important Karstified Aquifers Regionally Important Fissured Bedrock Aquifers Regionally Important Extensive Sand/Greek Rg
- LI
- Locally Important Sand/Gravel Aquifers Control Moderately productive Lm
- Locally Important Bedrock Aquifers Generally productive only in local zones Lg
- ΡI Poor Bedrock Aquifers - Generally unproductive except in local zones
- Pu Poor Bedrock Aquifers - Generally unproductive

Table 3d: Leachate Migration: Receptors

Public Water Supplies (other than private wells)		
Within 100m of site boundary		7
Greater than 100m but less than 300m or within Inner SPA (SI) for GW supplies		5
Greater than 300m but less than 1km or within Outer SPA (SO) for GW supplies		3
Greater than 1km (karst aquifer)		3
Greater than 1km (no karst aquifer)		0
	Max	7
	Result (3d)	0

⁷ The term "Undesignated sites" refers to wetland sites that are not designated under the Habitats or Bird Directive or Wildlife Act but are considered on a local scale. Consultation with NPWS is required to identify such sites.

⁸ (DOHLG/EPA/GSI 1999) Groundwater Protection Scheme

Table 3e: Leachate Migration: Receptors

Parameters		Points Available
Surface Water Bodies		
Within 50m of site boundary		3
Greater than 50m but less than 250m		2
Greater than 250m but less than 1km		1
Greater than 1km		0
	Max	3
	Result (3e)	1

Table 3f: Leachate Gas: Receptors

Parameters		Points Available
Human Presence		
On site or within 50m of site boundary		5
Greater than 50m but less than 150m		3
Greater than 150m but less than 250m		1
Greater than 250m		0.5
	Max	5
	Result (3f)	3

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APPENDIX C

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REPORT ON THE

GEOPHYSICAL INVESTIGATION

AT

Consert of constraint owner required for any other us **PRUSSELSTOWN LANDFILL**

ATHY, CO. KILDARE,

FOR

MALONE O'REGAN





APEX Geoservices Limited Gorey Co. Wexford

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THE FINDINGS OF THIS REPORT ARE THE RESULT OF A GEOPHYSICAL SURVEY USING NON-INVASIVE SURVEY TECHNIQUES CARRIED OUT AT THE GROUND SURFACE. INTERPRETATIONS CONTAINED IN THIS REPORT ARE DERIVED FROM A KNOWLEDGE OF THE GROUND CONDITIONS, THE GEOPHYSICAL RESPONSES OF GROUND MATERIALS AND THE EXPERIENCE OF THE AUTHOR. APEX GEOSERVICES LTD. HAS PREPARED THIS REPORT IN LINE WITH BEST CURRENT PRACTICE AND WITH ALL REASONABLE SKILL, CARE AND DILIGENCE IN CONSIDERATION OF THE LIMITS IMPOSED BY THE SURVEY TECHNIQUES USED AND THE RESOURCES DEVOTED TO IT BY AGREEMENT WITH THE CLIENT. THE INTERPRETATIVE BASIS OF THE CONCLUSIONS CONTAINED IN THIS REPORT SHOULD BE TAKEN INTO ACCOUNT IN ANY FUTURE USE OF THIS REPORT.

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PROJECT NUMBER	AGL18195		
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TONY LOMBARD M.SC (GEOPHYSICS)	KEVIN GALVIN B.A. (MOD)	V.02	24 TH JUNE 2019



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1. EXECUTIVE SUMMARY

APEX Geoservices Limited was requested by Malone O'Regan to carry out a geophysical investigation at the site of Prusselstown Landfill in Athy, Co. Kildare. The purpose of the investigation is to assess the nature of a historical landfill on site.

Prusselstown Landfill site is within the grounds of a hotel in Athy, and the site is c. 4.3 Ha in extents and topography across the area ranges from c. 67 - 73 m OD.

The Geological Survey of Ireland (GSI) maps for the area indicate the site is underlain by gravels derived from limestones and the bedrock type across the site is the Ballysteen Formation which is described as dark muddy limestone.

The objectives of the investigation are to aid in determination of the extent of the waste body, the thickness of the waste, the presence of anomalous features, a volume calculation and depth to bedrock (if within limits of survey).

The geophysical investigation was conducted on the 6th and 8th November 2018 and consisted of EM Ground Conductivity mapping, Electrical Resistivity Tomography (ERT), Seismic Refraction surveying and Multi-Channel Analysis of Surface Waves (MASW) across accessible parts of the site (areas around the existing buildings were not surveyed).

A suite of 2019 direct investigation information consisting of trial pits, leachate monitoring wells and groundwater wells, was supplied by the client for incorporation into this report. While five of the pits encountered MADE GROUND / WASTE to termination depths of 3.1 to 5.0m below ground level (BGL) two of the pits did not encounter waste to termination depths of 3.2m BGL.

Soils consisting of sandy gravely c_{W} , clayey silty gravel and silty sandy gravel are interpreted across the site. Where **MADE GROUND / WASTE** is interpreted the capping / topsoil of sandy gravelly clay is 0.3 - 1.5 m thick.

Two types of waste are interpreted on site;

- MADE GROUND/WASTE (municipal including organic and C&D). Where present this material is c. 2.9 11.7m thick with the thickest areas in the south and northwest of the site.
- MADE GROUND/WASTE (C&D and municipal mixed with CLAY). Where present this material is 0.3

 11.9m thick.

The combined thickness of both types of waste ranges from 0.3m in the southwest to 15.6m in the south and northwest of the site. The geophysical datasets indicate the **MADE GROUND / WASTE** is very soft – soft / very loose – loose.

In total **MADE GROUND / WASTE** covers approximately 1.71 Ha. The volume of waste is estimated as **114,920 cu.m** and tonnage is estimated at **160,888 tonnes**.

The geophysical report should be reviewed after the completion of any further direct investigation.



2. INTRODUCTION

APEX Geoservices Limited was requested by Malone O'Regan to carry out a geophysical investigation at the site of Prusselstown Landfill in Athy, Co. Kildare. The purpose of the investigation is to assess the nature of a historical landfill on site.

The geophysical investigation was conducted between the 6th and 8th November 2018 and consisted of EM Ground Conductivity mapping, Electrical Resistivity Tomography (ERT), Seismic Refraction surveying and Multichannel Analysis of Surface Wave (MASW) across the site.

2.1 Survey Objectives

The objective of the investigation is to aid in determination of:

- The extent of the waste body,
- The thickness of the waste body,
- A volume calculation,
- Depth of ground water (where possible),
- Depth to bedrock (if within limits of survey)

2.2 Site Background & Topography

Prusselstown Landfill site is within the grounds of a hoter in Athy, Co. Kildare and is bounded to the south-east by a regional road, the R418, to the south-west by a locate oad, the L40071, and to the north by open agricultural lands. The area under investigation is c. 4.3 Ha in extents and topography across the area ranges from c. 67 – 73 m OD.

anyother

The site location is shown in Fig. 2.1.



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Fig 2.1: Location map (site marked in red).



2.2.1 Soils and Bedrock

The Teagasc soils map for the site describes the soil as gravels derived from limestones (Fig. 2.2).

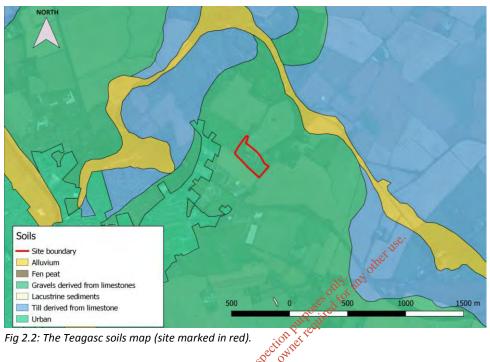


Fig 2.2: The Teagasc soils map (site marked in red). The GSI bedrock geology map (Fig. 2.3) shows the area under investigation is located within the Ballysteen Formation which is described as dark muddy limestone.



Fig 2.3: The GSI bedrock map (site marked in red).



2.2.2 Groundwater vulnerability and aquifer classification

The area under investigation lies within an area of high groundwater vulnerability (Fig. 2.4). Bedrock within the site has been classified as bedrock which is a Locally Important Aquifer - Bedrock which is Moderately Productive only in Local Zones (Fig. 2.5).

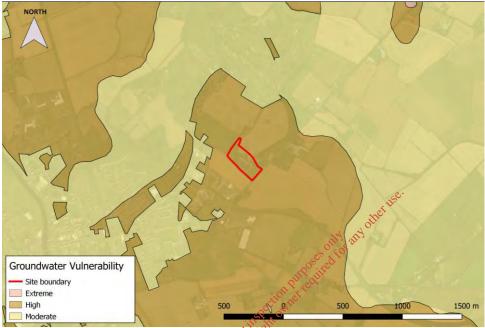


Fig 2.4: The GSI vulnerability map (site marked شربوط). رونی

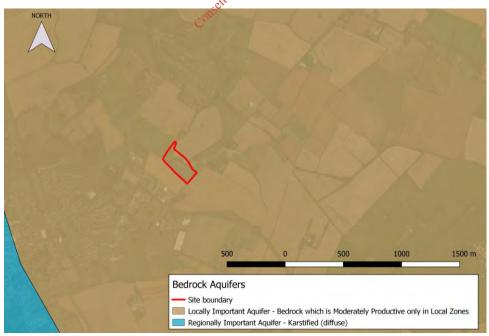


Fig 2.5: The GSI aquifer map (site marked in red).



2.2.3 Historical Data

The historical 6 inch map shows limestone gravel to the north-east of the site.

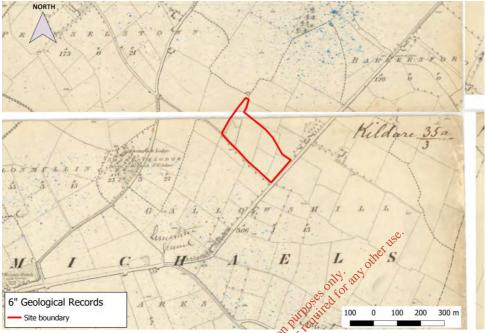


Fig 2.6: The historical 6inch map (site marked in red).

2.2.4 Direct Investigation Data

A suite of 2019 direct investigation information, consisting of trial pits, leachate monitoring wells and groundwater wells, was supplied by the client for incorporation into this report.

Seven trial pits were acquired across the site. Five encountered made ground of gravelly clay, cobbles, wood, plastic, glass, metal, brick, concrete, carpet, a mattress and burnt material to termination depths of 3.1 to 5.0m. Burnt and hydrocarbon odours are also recorded on a number of the logs. Two of the trial pits, TPC-PT & TPD-PT, encountered brown gravelly clay (with no waste indicated) to termination depths of 3.2m BGL.

Three leachate monitoring wells encountered made ground to termination depths of 5.1 - 8.5m BGL with one water strike at 1.8m BGL.

Three groundwater wells encountered thin topsoil 0.2 - 0.6m thick overlying sequences of sandy gravelly clay, gravelly sand and clayey sandy gravel to depths of 14.3 - 17.3m BGL. Water strikes were recorded at depths of 8.9 - 16.8m BGL.

The GSI online Geotechnical viewer shows six trial pits across the site. Two of these are within the area accessible to the geophysical investigation and four are to the north, around the main buildings. The pits encountered 0.2 - 0.4m of topsoil over sandy gravelly silt, silty sandy gravelly clay and made ground of plastic, clothing, wood, bags and bones to termination depths of 2.0 - 3.0m BGL. The made ground / possible made ground was encountered in the three most southerly trial pits. The location of these trial pits is shown on Drawing AGL18195_01.



2.3 Survey Rationale

The following techniques have been employed to achieve the objectives of the investigation:

- Electromagnetic ground conductivity mapping has been carried out across the site in order to map the extent of the fill and variations in the fill, and also to screen for any leachate plumes and obtain background values for the soils and rock.
- Electrical Resistivity Tomography (ERT) has been carried out across the site to investigate variations in the thickness and extent of the fill material and leachate, as well as to investigate the overburden and bedrock geology.
- Seismic refraction was carried out at selected locations. The results of the seismic survey have been used to outline the fill/soil boundary.
- Multi-Channel Analysis of Surface Waves (MASW) was carried out on the seismic refraction profiles. The
 results of the MASW have been used to indicate base of waste material. The MASW method is used to
 estimate shear-wave (S-wave) velocities in the ground material to indicate possible soft zones. Soil / fill
 material with an S-wave velocity of <175 m/s is generally classified as soft/loose.

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As with all geophysical methods the results are based on indirect readings of the subsurface properties. The effectiveness of the proposed approach will be affected by variations in the ground properties. By combining a number of techniques it is possible to provide chigher quality interpretation and reduce any ambiguities which may otherwise exist. Further information on the detailed methodology of each geophysical method employed in this investigation is given in **APPENDIX B: DEFAILED GEOPHYSICAL METHODOLOGY**.



3. RESULTS

The investigation was carried out between the 6th and 8th of November 2018 and involved the collection of 800 EM conductivity data points, 6 ERT profiles and 3 seismic refraction profiles and associated MASW across the site.

3.1 **EM Ground Conductivity Mapping**

The EM ground conductivity survey locations are shown on Drawing AGL18195_01. The recorded EM conductivity values are contoured on Drawing AGL18195_02. The conductivity values range from 2-95 milliSiemens/metre (mS/m).

The conductivity values have been interpreted as follows:

Conductivity (mS/m)	Interpretation
2 - 5	Clayey Silty GRAVEL
5 - 15	Sandy Gravelly CLAY
15 - 35	MADE GROUND / WASTE (6&D and Municipal)
35 - 95	MADE GROUND / (Municipal including organic and C&D)
.2 ERT	Former

3.2 ERT

Six ERT profiles were recorded across the site (Profiles R1 to R6). The locations are shown on Drawing AGL18195_01. Interpreted cross sections were compiled for the profiles and are presented on Drawings AGL18195_R1 to AGL18195_R6.

In determining the various types of imported material present from the resistivity sections R1-R6 it should be noted that:

a) typical resistivities of Irish soils range from 20 Ohm-m (clays) to around 3000 Ohm-m (dry gravel),

b) the resistivity generally increases as the sand/gravel content increases,

c) silt/clay typically has values in the range 30-50 Ohm-m,

d) silty gravelly clay typically has resistivity values in the range 50-100 Ohm-m,

e) deposits of predominantly organic waste such as those occurring in municipal landfills typically have resistivities in the range 5-30 Ohm-m.

f) leachate saturated soils originating from predominantly organic waste have a similar resistivity range to organic waste, but will be influenced by the resistivities of the host material and the degree of dilution and dispersion of the leachate,

g) inert construction and demolition (C&D) waste such as concrete, brick and mixed rock fill, stone and clay will usually have resistivities similar to gravelly material (50-500 Ohm-m).



The resistivity values recorded at this site have been interpreted on the following basis:

	Resistivity (Ohm-m)	Interpretation
Waste	<30	MADE GROUND / WASTE (Municipal Waste including organic and C&D
	30-80	MADE GROUND / WASTE (C&D and Municipal)
Natural	80 - 240	Sandy Gravelly CLAY
Ground	240 - 960	Clayey Silty GRAVEL (possible weathered rock towards base)
	>960	Silty Sandy GRAVEL (possible dark LIMESTONE)

3.3 **Seismic Refraction Profiling**

Three seismic refraction profiles (S1-S3) were recorded across the site. The locations are shown on Drawing AGL18195_01 and the results are included on the interpreted crossesections in Drawings AGL18195_R1 & AGL18195_R2 in Appendix A. The data quality of S3 was poor and the data was not used for seismic refraction only any interpretation.

The P-wave seismic velocities (Vp) have been interpreted as follows:				
Layer Average P-Wave Image: Construction Stiffness/Rock Quality Layer (m/s) Stiffness/Rock Quality				
1	257 - 500	MADE GROUND / WASTE	Very Soft - Soft / Very Loose - Loose	
2	500 - 1000	MADE GROUND / WASTE / SOIL	Firm / Medium Dense	
3	1000 - 1800	SOIL	Stiff / Dense	
4	1800 - 3207	SOIL / Weathered ROCK	Very Stiff / Very Dense or Fair – Good	

3.4 MASW

Three 1D MASW soundings were recorded across the site at the centre of each seismic refraction profile. Shear wave (S-wave) velocity (Vs) values were determined for the made ground/waste and underlying soil material.

Vs velocities and corresponding soil cohesion ranges are summarised in Figure 3.1.



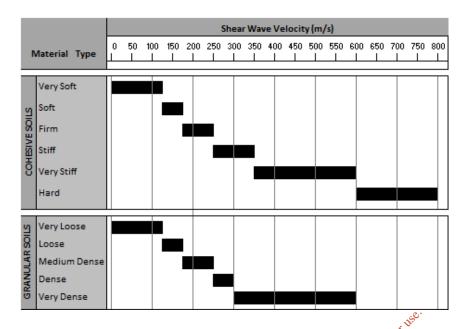
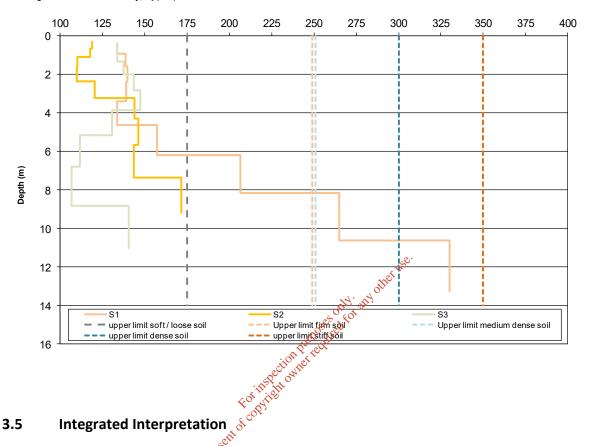


Fig 3.1: Vs velocities and corresponding soil cohesion ranges. offer use. The velocities from this site have been interpreted as follows for unterpreted as follows for unterpreted as follows for unterpretation Interpretation				
Layer	S-Wave Seismic Velocity (m/s)	ection terpretation		
1	106 - 125	For The BIL MADE GROUND / WASTE		
2	125- 175	Consent C MADE GROUND / WASTE		
3	175 - 330	SOIL		

The Vs seismic velocities and stiffness ranges are shown below in Figure 3.2.



Fig.3.2 Shear wave Velocity, V_s (m/s)



3.5 **Integrated Interpretation**

The interpretation of the geophysical data is plotted on Drawings AGL18195_03 and AGL18195_R1 to AGL18195_R6.

3.5.1 Extent of the waste

Client supplied trial pit data, leachate and monitoring well logs are combined with areas of elevated EM conductivity readings (15 - 95 mS/m) and reduced electrical resistivity readings (5 - 80 Ohm-m) to indicate areas of MADE GROUND / WASTE. The MADE GROUND / WASTE covers part of the site only (see Drawing AGL18195 03.)

Away from the MADE GROUND / WASTE the soil layers consist of sandy gravelly clay and clayey silty gravel. The seismic refraction data indicates the upper 3.2m of soil is soft - firm / loose - medium dense becoming stiff very stiff / dense - very dense.

3.5.2 Type of waste

Two types of waste are interpreted across the site;

MADE GROUND/WASTE (municipal including organic and C&D) has been interpreted based on EM conductivity values of 35 - 95 mS/m) and ERT resistivity values (4 - 30 Ohm-m).

10



MADE GROUND/WASTE (C&D and municipal mixed with CLAY) has been interpreted based on EM conductivity values of 15 - 35 mS/m) and ERT resistivity values (30 - 80 Ohm-m).

3.5.3 Thickness of waste

Where MADE GROUND / WASTE is interpreted it is present beneath a thin capping layer of sandy gravelly clay which ranges in thickness from 0.3 - 1.5m.

Across the site MADE GROUND/WASTE (municipal including organic and C&D) is c. 2.9 - 11.7m thick with the thickest areas in the south and northwest of the site. This material is interpreted on ERT profiles R1 – R2 and R4 – R6 and is present across most of the site but is not interpreted on R3 in the west.

Across the site MADE GROUND/WASTE (C&D and municipal mixed with CLAY) is 0.3 – 11.9m thick. This material is interpreted on all ERT profiles R1 – R6 across the site.

The combined thickness of both types of waste ranges from 0.3m in the southwest, (see distance 86m on profile R3 on Drawing AGL18195_R3), to 15.6m in the south and northwest of the site.

The seismic refraction and the MASW datasets indicate the MADE GROUND / WASTE is very soft – soft / very loose – loose as Vp and Vs velocities within the waste range from 257 – 500m/s and 106 – 171m/s respectively.

3.5.4 **Volume Calculation**

required The volume of waste calculated across the site is as follows;

Extent (Ha.)	Average Thickness (m)	Volume (cu. m)	Tonnes (@ 1.4 tonnes/cu.m)
0.52 (Thicker waste)	10.2 Conserve	53,040	74,256
1.19 (Thinner waste)	5.2	61,880	86,632
TOTAL		114,920	160,888

3.5.5 Depth to Bedrock

Away from the main areas of interpreted MADE GROUND / WASTE the natural material is interpreted as clayey silty gravel, clayey silty gravel and silty sandy gravel which is up to 25m thick. While this interpretation correlates well with a thick sequence of gravel encountered to 14.3 - 17.3m BGL on client supplied groundwater wells GW1A-PT, GW2A-PT and GW3A-PT an increase in model resistivity values (>240 Ohm-m) and in seismic refraction VP velocities (1800 – 3207m/s) may also indicate a transition to weathered rock / dark limestone at depth. This transition is highlighted on Drawings AGL18195_R1 to AGL18195_R6 at depths of 5.0 - 23m BGL



4. **RECOMMENDATIONS**

The geophysical report should be reviewed after the completion of any further direct investigation.

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Park, C.B., Miller, R.D., and Xia, J., 1999; 'Multi-channel analysis of surface waves (MASW)': Geophysics, May-June issue.



6. APPENDIX A: DRAWINGS

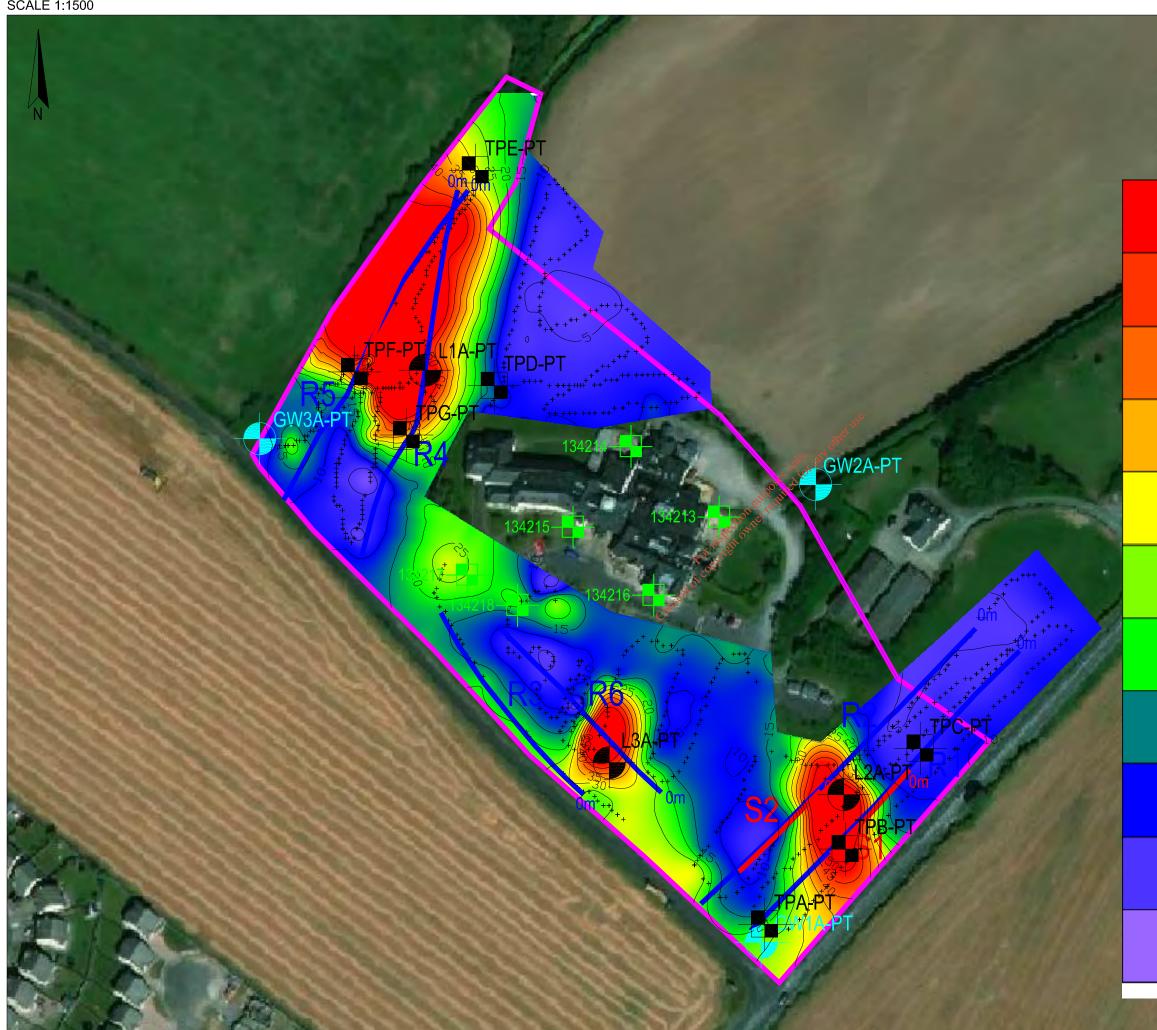
The information derived from the geophysical investigation as well as correlation with the available direct investigation is presented in the following drawings:

AGL18195_01	Geophysical Investigation Locations	Scale 1:1500 @ A3
AGL18195_02	Ground Conductivity (mS/m)	Scale 1:1500 @ A3
AGL18195_03	Summary Interpretation	Scale 1:1500 @ A3
AGL18195_R1	ERT R1 & Seismic S1 Results & Interpretation	Scale 1:1000 @ A4
AGL18195_R2	ERT R2 & Seismic S2 Results & Interpretation	Scale 1:1000 @ A4
AGL18195_R3	ERT R3 Results & Interpretation	Scale 1:1000 @ A4
AGL18195_R4	ERT R4 Results & Interpretation	Scale 1:1000 @ A4
AGL18195_R5	ERT R5 & Seismic S3 Results & Interpretation	Scale 1:1000 @ A4
AGL18195_R6	ERT R6 Results & Interpretation	Scale 1:1000 @ A4

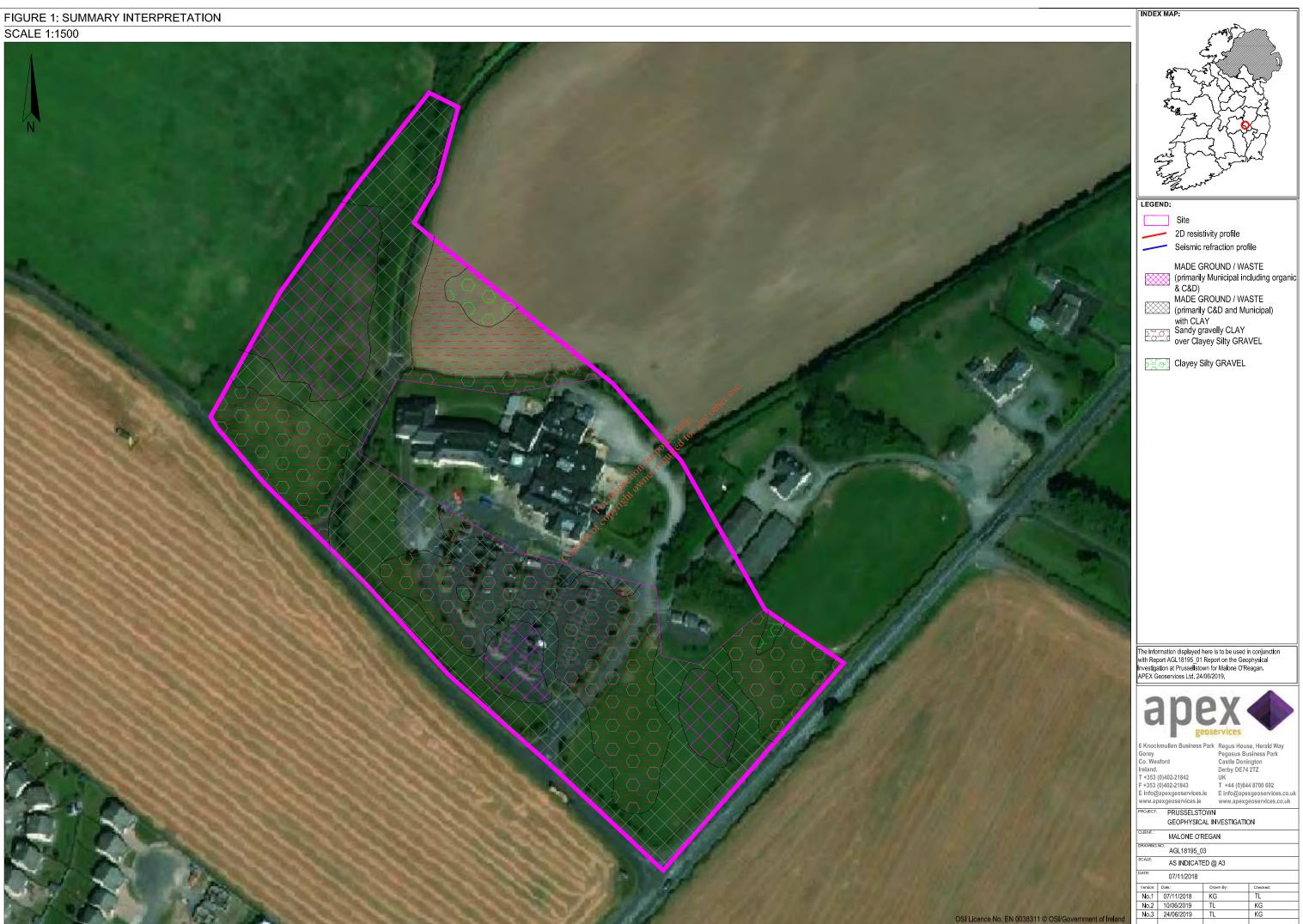
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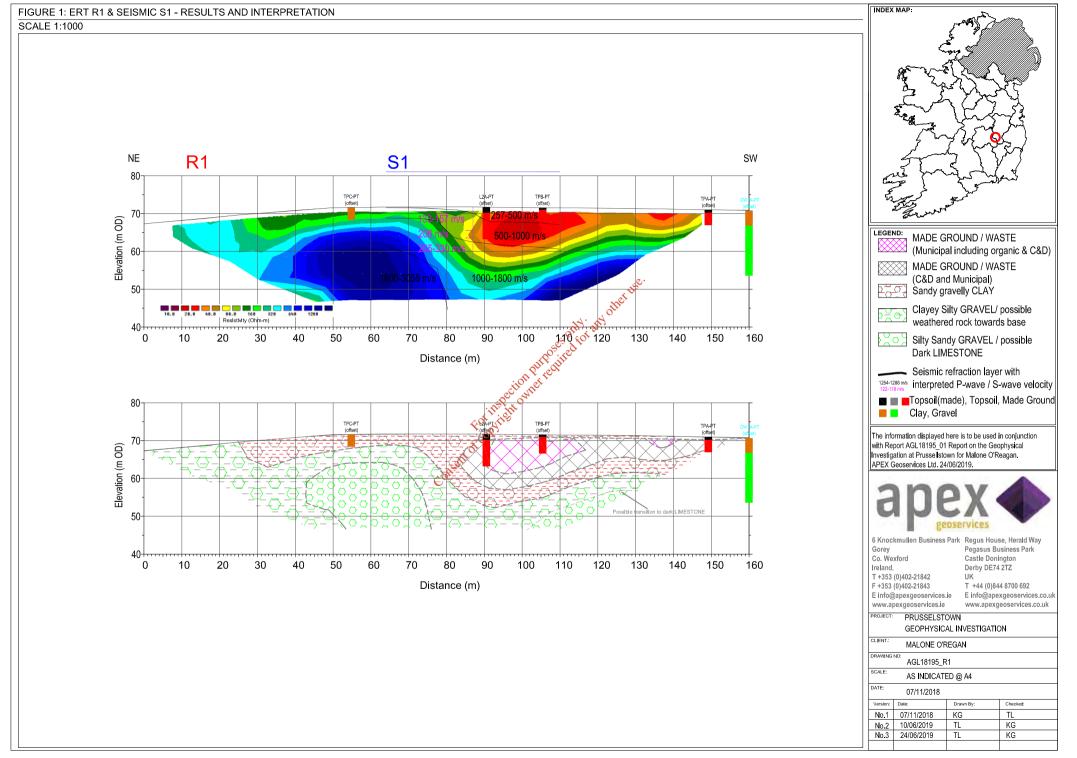


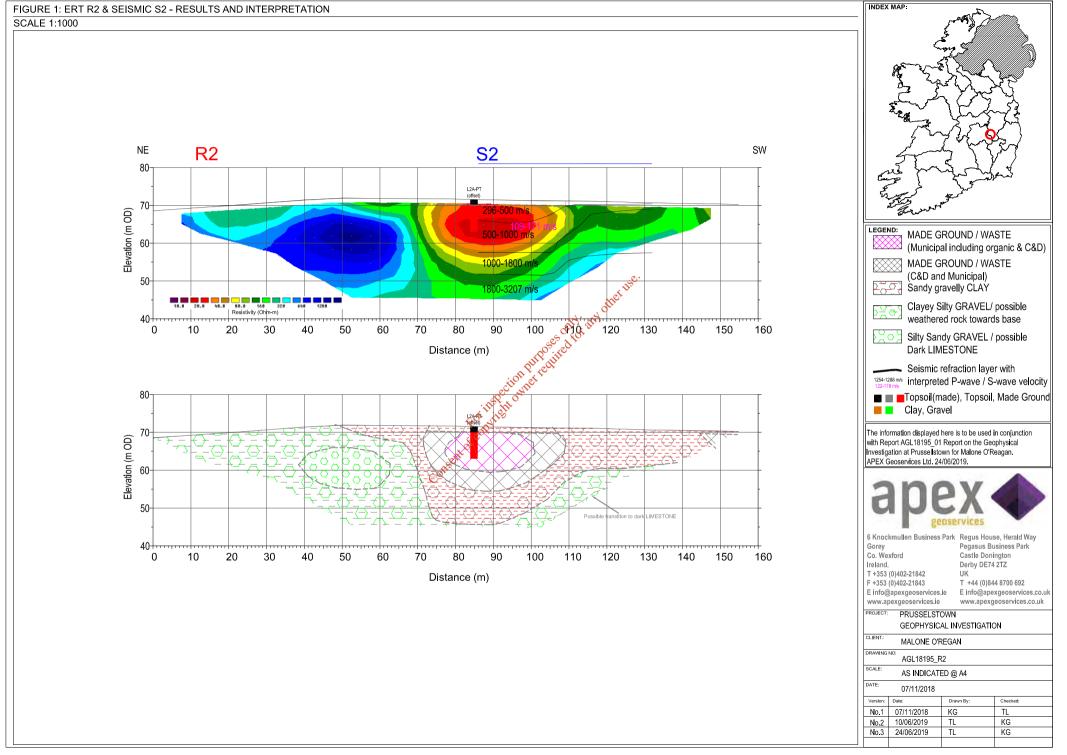
FIGURE 1: GROUND CONDUCTIVITY (mS/m) SCALE 1:1500



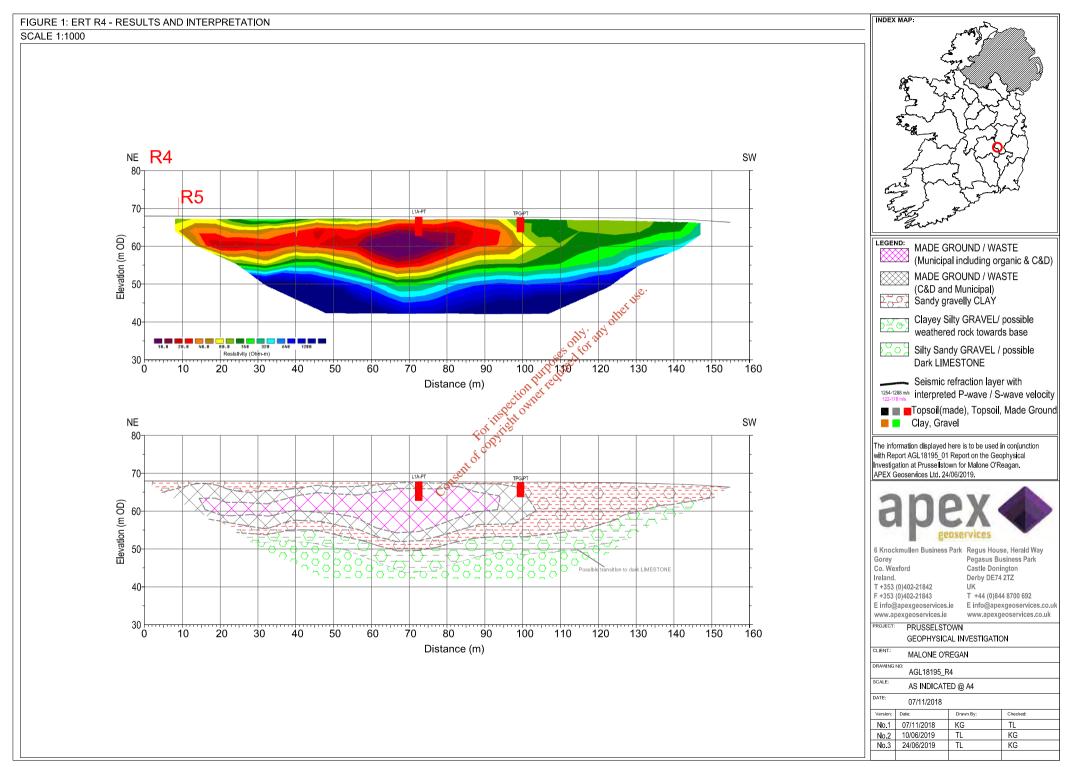
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	5	11000	E info@	apexgeoservices. bexgeoservices.ie PRUSSELST GEOPHYSIC	ie E info@ape: www.apexg OWN AL INVESTIGATIO	kgeoservices.co.uk eoservices.co.uk
		18 Cold	DRAWING SCALE:	AGL18195_0	2	
	0	1 Shew	DATE:	AS INDICATE 07/11/2018		
	31	CE STATE	Version: No.1 No.2	Date: 07/11/2018 10/06/2019	Drawn By: KG TL	Checked: TL KG
No.	EN 0038311	© OSI/Government of Ireland	No.3	24/06/2019	TL	KG

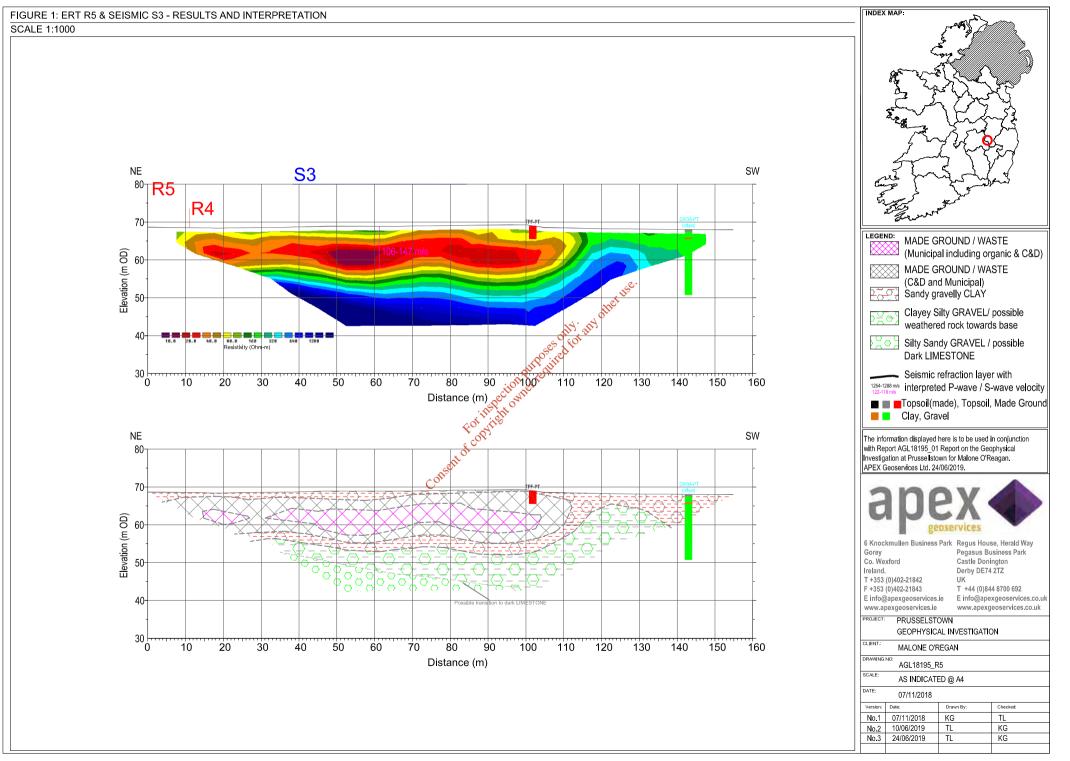






CALE 1:1000	INDEX MAP:
NW SE R3 MU MU MU MU MU MU MU MU MU MU	INDEX MAP: INDEX MAP:





INDEX MAP:
INDEX MAP: INDEX MAP:



7. APPENDIX B: DETAILED GEOPHYSICAL METHODOLOGY

A combination of a number of geophysical techniques was used to provide the high quality interpretation and reduce any ambiguities, which may otherwise exist.

7.1 EM ground conductivity mapping

7.1.1 Principles

This method operates on the principle of inducing currents in conductive substrata and measuring the resultant secondary electro-magnetic field. The strength of this secondary EM field is calibrated to give apparent ground conductivity in milliSiemens/metre (mS/m). Readings over material such as organic waste and peat give high conductivity values while readings over dry materials with low clay mineral content such as gravels, limestone or quartzite give low readings.

The EM ground conductivity survey technique determines the apparent conductivity of the ground material from 25 ofty any other us 0-6m bgl depending on the dipole mode used.

7.1.2 Data collection

The EM equipment used was a GF CMD-4 conductivity meter equipped with data logger. This instrument features a real time graphic display of the previous 20 measurement points to monitor data quality and results. Conductivity and in-phase values were recorded across the site. Local conditions and variations were recorded.

SU.

For

7.1.3 Data processing

copyrie The conductivity and in-phase field readings were downloaded, contoured and plotted using the SURFER 12 program (Golden Software, 2015). Assignation of material types and possible anomaly sources was carried out, with cross-reference to other data.

7.1.4 Relocation

All data were referenced using a GPS system and all positions are given in Irish Tranverse Mercator coordinates.

7.2 Electrical Resistivity Tomography (ERT)

Electrical Resistivity Tomography was carried out to provide information on lateral variations in the overburden material as well as on the underlying overburden and bedrock.

7.2.1 Principles

This surveying technique makes use of the Wenner resistivity array. The 2D-resistivity profiling method records a large number of resistivity readings in order to map lateral and vertical changes in material types. The 2Dresistivity profiling method involves the use of 64 electrodes connected to a resistivity meter, using computer software to control the process of data collection and storage.



7.2.2 Data Collection

Profiles were recorded using a Tigre resistivity meter, imaging software, two 32 takeout multicore cables and up to 64 stainless steel electrodes. Saline solution was used at the electrode/ground interface in order to gain a good electrical contact required for the technique to work effectively. The recorded data were processed and viewed immediately after surveying.

7.2.3 Data Processing

The field readings were stored in computer files and inverted using the RES2DINV package (Campus Geophysical Instruments, 1997) with up to 5 iterations of the measured data carried out for each profile to obtain a 2D-Depth model of the resistivities.

The inverted 2D-Resistivity models and corresponding interpreted geology are displayed on the accompanying drawings alongside the processed seismic sections. Distance is indicated along the horizontal axis of the profiles. Profiles have been contoured using the same contour intervals and colour codes.

7.3 Seismic refraction profiling

7.3.1 Principles

onty, any other us This method measures the velocity of refracted seismic waves through the overburden and rock material and allows an assessment of the thickness and quality of the materials present to be made. Stiffer and stronger materials usually have higher seismic velocities while soft, loose or fractured materials have lower velocities.

Seismic profiling measures the p-wave velocity (Vp) of refracted seismic waves through the overburden and rock material and allows an assessment of the the kness and quality of the materials present to be made. Stiffer and stronger materials usually have higher \sqrt{p} velocities while soft, loose or fractured materials have lower Vp velocities. Readings are taken using geophones connected via multi-core cable to a seismograph.

7.3.2 Data Collection

A Geode high resolution 24 channel digital seismograph, 24 10HZ vertical geophones and a 10 kg hammer were used to provide first break information, with a 24 take-out cable (2m spacing). Equipment was carried was operated by a two-person crew.

Readings are taken using geophones connected via multi-core cable to a seismograph. The depth of resolution of soil/bedrock boundaries is determined by the length of the seismic spread, typically the depth of resolution is about one third the length of the profile.(eg. 69m profile ~23m depth, 46m profile ~ 15m depth)

Shots from seven different positions were taken (2 x off-end, 2 x end, 3 x middle) to ensure optimum coverage of all refractors. All profiles were surveyed to Irish National Grid using a ProXR dGPS system.

7.3.3 Data Processing

The recorded data was processed and interpreted using ray-tracing along with time term inversion and tomographic inversion methods, to acquire depths to boundaries and the P-wave velocities of these layers, using the SeisImager/2D programme from Geometrics.



SeisImager/2D interprets seismic refraction data as a laterally varying layered earth structure. The programme includes three methods for data analysis, time-term inversion, the reciprocal method and tomography.

The tomography method creates an initial velocity model, then traces rays through the model, comparing the calculated and measured traveltimes. The model is then modified and the process repeated to minimise the difference between the calculated and measured times.

Approximate errors for Vp velocities are estimated to be +/- 10%. Errors for the calculated layer thicknesses are of the order of +/-20%. Possible errors due to the "hidden layer" and "velocity inversion" effects may also occur (Soske, 1959).

7.4 Multichannel Analysis of Surface Waves (MASW)

MASW profiling was carried out to provide shear wave velocity profiles with depth.

7.4.1 Principles

The Multi-channel Analysis of Surface Waves (MASW) (Park et al., 1998, 1999) utilizes Surface waves (Rayleigh waves) to determine the elastic properties of the shallow subsurface (<15m). Surface waves carry up to two/thirds of the seismic energy but are usually considered as poise in conventional body wave reflection and refraction seismic surveys.

The penetration depth of surface waves changes with wavelength, i.e. longer wavelengths penetrate deeper. When the elastic properties of near surface materials vary with depth, surface waves then become dispersive, i.e. propagation velocity changes with frequency. The propagation (or phase) velocity is determined by the average elastic property of the medium within the penetration depth. Therefore the dispersive nature of surface waves may be used to investigate changes in elastic properties of the shallow subsurface.

The MASW method employs the multi-channel recording and processing techniques (Sheriff and Geldart, 1982) that have similarities to those used in a seismic reflection survey and which allow better waveform analysis and noise elimination. To produce a shear wave velocity (Vs) profile and a stiffness profile of the subsurface using Surface waves the following basic procedure is followed:

(i)A point source (eg. a sledgehammer) is used to generate vertical ground motions,

(ii)The ground motions are measured using low frequency geophones, which are disposed along a straight line directed toward the source,

(iii)the ground motions are recorded using either a conventional seismograph, oscilloscope or spectrum analyzer,

(iv)a dispersion curve is produced from a spectral analysis of the data showing the variation of Surface wave velocity with wavelength,

(v)the dispersion curve in inverted using a modeling and least squares minimization process to produce a subsurface profile of the variation of Surface wave and shear wave velocity with depth.



7.4.2 Data Collection

A Geode high resolution 24 channel digital seismograph, 24 10HZ vertical geophones and a 10 kg hammer were used, with a 24 take-out cable (2m spacing). Equipment was carried was operated by a two-person crew.

7.4.3 Data Processing

MASW processing was carried out using the SURFSEIS processing package developed by Kansas Geological Survey (KGS, 2010). SURFSEIS is designed to generate a shear wave (Vs) velocity profile.

SURFSEIS data processing involves three steps:

- (i) Preparation of the acquired multichannel record. This involves converting data file into the processing format.
- (ii) Production of a dispersion curve from a spectral analysis of the data showing the variation of Raleigh wave phase velocity with wavelength. Confidence in the dispersion curve can be estimated through a measure of signal to noise ratio (S/N); which is obtained from a coherency analysis. Noise includes both body waves and higher mode surface waves. To obtain an accurate dispersion curve the spectral content and phase velocity characteristics are examined through an overtone analysis of the data.
- (iii) Inversion of the dispersion curve is then carried out to produce a subsurface profile of the variation of shear wave velocity with depth? Forth

7.5

All the geophysical investigation locations were acquired using Trimble Geo 7X high-accuracy GNSS handheld using the settings listed below. This system allows collecting GPS data with sub-meter accuracy.

Coordinate zone:	ITM (Republic of Ireland)	
Datum:	Ordnance	
Coordinate units:	Meters	
Altitude units:	Meters	
Survey altitude reference:	MSL	
Geoid model:	Republic of Ireland	



8. **APPENDIX C: SEISMIC REFRACTION PLATES**

For seismic refraction profile S1 and S2 the tomographic inversions are shown below. The locations of the profiles are shown in **Appendix A: Drawings**.

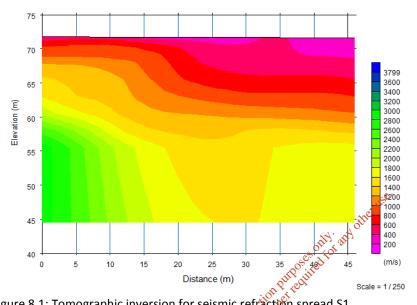


Figure 8.1: Tomographic inversion for seismic refraction spread S1.

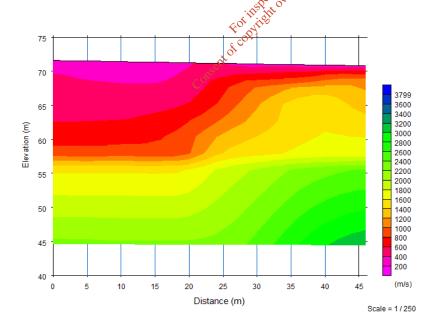


Figure 8.2: Tomographic inversion for seismic refraction spread S2.

APPENDIX D

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TRIAL PIT	LOG			MALONE C'REGAN	Ground Floor - Unit 3 Bracken Business Park Bracken Road, Sandyford Dublin 18, D18 V32Y	
Project Number: E1506		Client: Kildare County Council				
Project Title: E1506-Kildare	Legacy Landfills	Site Location: Prusselstown, Athy, Co. Ki	dare	TRIAL PIT NO: TPA-PT		
	SUBSURFACE COM	IDITIONS		SAM	PLE	
Depth (mbgl) SYMBOL	DESCRIPTION	COMMENTS	WATER (mbgl)	Depth (mbgl)	PID (ppm)	
MADE GROU MADE GROU Brown, grave Dry. No odour. MADE GROU Dark brown, occasional/se No odour. Dry. MADE GROU Dark brown, occasional/se No odour. Dry. MADE GROU	JND. JND. gravelly, CLAY with cobbles and ome wood, plastic, glass, metal and JND. like material (burnt) and ome concrete, coal, red bricks and	Forinspection purposes only any other use.		(mbgi) 3.8-4.1mbgi	(ppm)	
Excavation Date: 17/01/2019 Excavation Method: 13 tonne exc	cavator	Reference Datum:		Water Strike: Strike: ▽ Lev	el: 🔻	
Excavated By: Dunne Ltd. Logged By: NM		Elevation: 0 Easting: 669879.1		Strike: \sum Lev Revision: FINAL	*	
Checked By: TVM		Northing: 694570.4		Revision: FINAL	Page 1 of 1	

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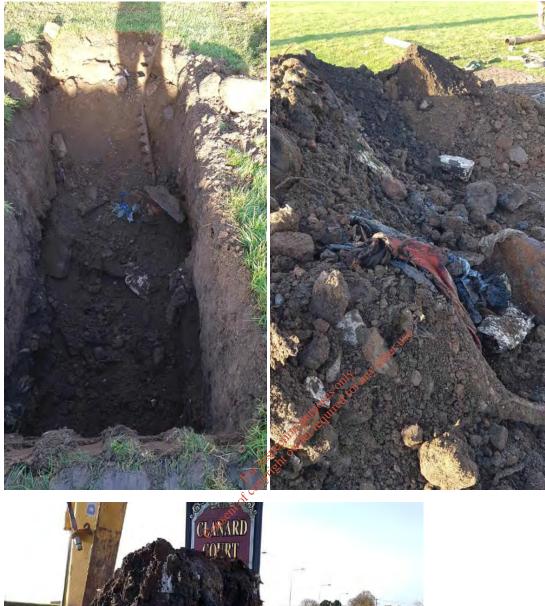
Trial Pit – TPA



T	RIAL	PIT LOG			MALONE O'REGAN	Ground Floor - Unit 3 Bracken Business Park Bracken Road, Sandyford Dublin 18, D18 V32Y
Proj	ect Numbe	er: E1506	Client: Kildare County Council			
Proj	ect Title: E	1506-Kildare Legacy Landfills	Site Location: Prusselstown, Athy, Co. Kil	dare	TRIAL PIT NO:	198-91
		SUBSURFACE CO	NDITIONS		SAM	PLE
Depth (mbgl)	SYMBOL	DESCRIPTION	COMMENTS	WATER (mbgl)	Depth (mbgl)	PID (ppm)
		MADE GROUND. Brown CLAY. Dry. No odour. MADE GROUND. Black, CLAY with gravels, cobbles & occcasional cobbles and some/many mixed waste comprising plastic, sacks, glass bottles, car parts (metal). Strong decomposed odour. Dry at first - small inflow of water at 2.6mbgl.	For inspection purposes only any other use.	(mbgl)		
- - - - - -	-		EOH at 5.0mbgl due to obstruction			
	ation Date:		Reference Datum:		Water Strike:	
Excav		d: 13 tonne excavator	Elevation: 0			əl: T
Logge	ed By: NM (ed By: TVM		Easting: 669911.1 Northing: 694600.3		Revision: FINAL	Page 1 of 1

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Trial Pit – TPB









T	RIA	_ PIT LOG			MALONE O'REGAN	Bracken Business Par Bracken Road, Sandyford Dublin 18, D18 V32Y	
Pro	ject Numbe	er: E1506	Client: Kildare County Council				
Pro	ject Title: E	E1506-Kildare Legacy Landfills	Site Location: Prusselstown, Athy, Co. K	ildare	TRIAL PIT NO: 1	196-91	
		SUBSURFACE CO	NDITIONS	SAMPLE			
Depth (mbgl)	SYMBOL	DESCRIPTION	COMMENTS	WATER (mbgl)	Depth (mbgl)	PID (ppm)	
Depth (mbgi) 0- - - - - - - - - - - - - - - - - - -	SYMBOL	CLAY. Brown, gravelly, CLAY with cobbles and boulders. No odour. Dry.	COMMENTS	(mbgl)	Depth (mbgi)	PID (ppm)	
-	-						
6-							
Exca	/ation Date: /ation Metho	17/01/2019 od: 13 tonne excavator	Reference Datum:	1	Water Strike:		
Exca	/ated By: Du		Elevation: 0 Easting: 669940.8		Strike: 🕎 Leve	əl: 🍸	
	ed By: NM ked By: TVM		Northing: 694640.2		Revision: FINAL	Page 1 of 1	

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Trial Pit – TPC



Т	RIA	_ PIT LOG			MALONE O'REGAN	Bracken Business Par Bracken Road, Sandyford Dublin 18, D18 V32Y
Proj	ect Numbe	er: E1506	Client: Kildare County Council			
Proj	ect Title: E	E1506-Kildare Legacy Landfills	Site Location: Prusselstown, Athy, Co.	Kildare	- TRIAL PIT NO:	TPD-PT
		SUBSURFACE	CONDITIONS		SAN	IPLE
Depth (mbgl)	SYMBOL	DESCRIPTION	COMMENTS	WATER (mbgl)	Depth (mbgl)	PID (ppm)
Depth (mbgi) 0 - - - - - - - - - - - -	SYMBOL	CLAY. Brown, very gravelly, CLAY with cobbles. No odour. Dry.	EOH at 3.3mgl due to natural ground	(mbgl)	Depth (mbgi)	
-						
6-						
Excav	vation Date: vation Metho	17/01/2019 od: 13 tonne excavator	Reference Datum:	I	Water Strike:	
Exca	rated By: Du		Elevation: 0 Easting: 669771.8			rel: T
	ed By: NM ked By: TVM		Northing: 694784.1		Revision: FINAL	Page 1 of 1

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Trial Pit – TPD



T	RIAL	PIT LOG			MALONE O'REGAN	Ground Floor - Unit 3 Bracken Business Park Bracken Road, Sandyford Dublin 18, D18 V32Y
Proj	ject Numbe	er: E1506	Client: Kildare County Council			
Proj	ject Title: E	1506-Kildare Legacy Landfills	Site Location: Prusselstown, Athy, Co.	Kildare	TRIAL PIT NO:	TPE-PT
		SUBSURFACE COM	NDITIONS	SAMPLE		
Depth (mbgl)	SYMBOL	DESCRIPTION	COMMENTS	WATER (mbgl)	Depth (mbgl)	PID (ppm)
0		MADE GROUND. Brown /reddish, gravelly, CLAY. Dry. No odour. MADE GROUND.				
- - 1-		Dark brown, gravelly, CLAY and rare plastic and red bricks. No odour. Dry.				
- - 2 - -		MADE GROUND. Black, gravelly, CLAY and many mixed waste comprising plastic, cloths, glass bottles, bags from cement, oil can, pieces of carpet and mattress. Moderate decomposed and hydrocarbon odour. Dry.	For inspection purposes only on the rule of contribution on the required for any other use of contribution on the required for any other use	2.		
- 3- - - - - -		Consert	For the fight of convitant EOH at 3.1mbgl due to obstruction			
- - - 5	-					
Excav Excav	vated By: Du	d: 13 tonne excavator	Reference Datum: Elevation: 0 Easting: 669764.3		Water Strike: Strike: ∑ Lev	*
	ed By: NM ked By: TVM		Northing: 694869.6		Revision: FINAL	Page 1 of 1

Trial Pit – TPE





T	RIAI	- PIT LOG			MALONE O'REGAN ENVIRONMENTAL	Ground Floor - Unit 3 Bracken Business Park Bracken Road, Sandyford Dublin 18, D18 V32Y
Proj	ect Numbe	er: E1506	Client: Kildare County Council			
Proj	ect Title: E	E1506-Kildare Legacy Landfills	Site Location: Prusselstown, Athy, Co. K	ildare	TRIAL PIT NO): TPF-PT
		SUBSURFACE CO	NDITIONS	S	AMPLE	
Depth (mbgl)	SYMBOL	DESCRIPTION	COMMENTS	WATER (mbgl)	Depth (mbgl)	PID (ppm)
0 1		MADE GROUND. Brown, gravelly, CLAY and occasional plastic and wood. No odour. Dry.				
- 2 - - - - 3 - - - - - - - - - - -		MADE GROUND. Black, sandy material and industrial and household waste comprising plastic glasses, milk bricks, metal, cans (milk formula) and its lids, steel sheeting(to make up the lids), supermarket bags, pieces of throw, blue barrel and hard metal. Strong decomposed odour. Wet - Inflow of water at 1.6mbgl.	For inspection nutronical for any other use to contrast owner required for any other use to contrast owner required for any other use		1.6-2.0mbgl	
-						
5						
	ation Date: ation Metho	17/01/2019 od: 13 tonne excavator	Reference Datum:		Water Strike:	
Excav	ated By: Du ed By: NM		Elevation: 0 Easting: 669716.3			evel:
	ed By: TVM	1	Northing: 694789.6		Revision: FINAL	Page 1 of 1

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Trial Pit – TPF









TRIAL P	IT LOG			MALONE O'REGAN	Ground Floor - Unit 3 Bracken Business Park Bracken Road, Sandyford Dublin 18, D18 V32Y		
Project Number: E150	6	Client: Kildare County Council					
Project Title: E1506-Ki	Idare Legacy Landfills	Site Location: Prusselstown, Athy, Co. Kild	lare	TRIAL PIT NO: TPG-PT			
	SUBSURFACE COM	IDITIONS		SAM	PLE		
Depth (mbgl) SYMBOL	DESCRIPTION	COMMENTS	WATER (mbgl)	Depth (mbgl)	PID (ppm)		
(mbgi) STMBOL MADE Brown, metal. No odo Dry. MADE Brown, compris glass, 2 Dry. MADE Brown, compris glass, 2 Dry. MADE Brown, compris glass, 2 MADE Brown, compris glass, 2 MADE Black, 1 Wood.	GROUND. CLAY with gravels and cobbles and rare ur. GROUND. gravelly, CLAY and some mixed waste sing plastic bottles, concrete, glass jars, sacks from cement and metal wires. weet odour.	For inspection purposes only any other use.	(mbgl)	Depth (mbgl)			
6		Reference Datum: Elevation: 0 Easting: 669736.7		Water Strike: Strike: ∑ Leve	*		
Checked By: TVM		Northing: 694762.6		Revision: FINAL R: This log is for environ	Page 1 of 1		

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Trial Pit – TPG



APPENDIX E

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	ect Number ect Title: E ²	1506-Kildare Legacy Landfills		ildare County Council ation: Prusselstown, Athy, Co. Kild	are	BORE	EHOLE	E NO: GW1A-PT
-		SUBSURFACE CON	IDITIONS			SAN	IPLE	
Depth mbgl)	SYMBOL	DESCRIPTION	Elev (mAOD)	COMMENTS	WATER (mbgl)	Depth (mbgl)	PID (ppm)	INSTALLATION DETAILS
		TOPSOIL Brown, slightly sandy, CLAY with gravels and cobbles. Earthy odour. Dry. CLAY Brown, slightly sandy, CLAY with gravels and cobbles. No odour. Dry. BOULDER CLAY Black, very sandy, CLAY with some gravels. Burnt odour. Dry.	(mAOD) 0.0 0.2 0.2 -1.4 1.4	No evidence of contamination (0.0-17.3mbgl)	(mbgl)			Bentonite Seal (7.3-7.8mbgl) Concrete and Flushed Cover - Gravel Pack (7.8-17.3mbgl) - - Gravel Pack (7.8-17.3mbgl) - - Gravel Pack (0.5-7.3mbgl) - - Gravel Pac
	ate: 10-11/04		Reference	Datum:		Water	Strike: (W	
Drilled	-	otary ay Geotech Ltd	Elevation:	0		Strike:		Level: T
Logge	ed By: NM and By: TVM		Easting: 2	69942.321 194528.131		Revisio	on: Fina	al Page: 1 of 2



Project NL	Project Number: E1506		Client: Kildare County Council			BOREHOLE NO: GW1A-PT			
Project Tit	e: E1506-Kildare Legacy Landfills	Site Loca	ation: Prusselstown, Athy, Co. Kil	dare	BURI		INU: GWIA-PI		
	SUBSURFACE	CONDITIONS			SAN	IPLE			
Depth mbgl) SYME	OL DESCRIPTION	Elev (mAOD)	COMMENTS	WATER (mbgl)	Depth (mbgl)	PID (ppm)			
11	BOULDER GRAVEL Black/grey, sandy, GRAVEL with small proportion of clay coating. The gravel is subangular/subrounded and fine to medium. No codur. Dry at first. Water Strike at 14.0mbgl. Water Strike at 16.8mbgl.	nd For inspect to copyright -17.3 17.3	EOH at 17.3mbgl	-«WS (16.8mbgl) -«WS (15.5mbgl)WL (10/04/2019)-12.7mbgl -+WL (11/04/19)-12.6mbgl			Cravel Pack (7.8-17.3mbg)) Cravel Pack (7.8-17.3mbg)) Cravel Pack (7.8-17.3mbg)) Cravel Pack (7.8-17.3mbg))		
Drill Method:		Reference Elevation:	0		Strike:	Strike: (W	Level:		
Logged By: 1		Easting: 2	69942.321 194528.131		Revisio	on: Fina	al Page: 2 of 2		



Proj	Project Number: E1506		Client: K	ildare County Council		POP		E NO: GW2A-PT	
Proj	ect Title: E ²	1506-Kildare Legacy Landfills	Site Loca	ation: Prusselstown, Athy, Co. Kilda	are				
		SUBSURFACE CON	IDITIONS			SAN	IPLE	INSTALLATION DETAILS	
Depth (mbgl)	SYMBOL	DESCRIPTION	Elev (mAOD)	COMMENTS	WATER (mbgl)	Depth (mbgl)	PID (ppm)		
0		TOPSOIL Brown (reddish), CLAY with some gravels and roots. Earthy odour. Dry. CLAY Light brown, CLAY with frequent gravels and some cobbles. Earthy odour. Dry CLAY	0.0 0.0 -0.2 0.2 -0.8 0.8	No evidence of contamination (0.0-14.3mbgl)				Concrete and Flushed Cover	
- - 2 - - 3		Slightly sandy, CLAY with gravels. Getting more cobbly with depth. From 1.5mbgl - Light brown, very sandy, CLAY with gravels. No odour. Dry. SAND Black/grey, very gravelly (fine to medium, subangular/subrounded), SAND. Sand is fine to	-2.2 2.2	net use.				C C C C C C C C C C C C C C C C C C C	
		Dry.	For inspect	ton puposes only. any other use.				Bentonite Seal (3.3-3.8mbgl)	
- - - 7 - - - - -		SAND and GRAVEL Black/grey, SAND and GRAVEL. The proportion of sand and gravel changing slightly with depth. No odour. Dry. GRAVEL Black/grey, very sandy, GRAVEL. No odour. Dry. POSSIBLE BOULDER	-6.4 6.4 7.2 7.2 -7.7 7.7					Gravel Pack (3.8-14.3mbgl)	
8 — - - 9 — - - - - - - - - - - - - - - - - -		GRAVEL Grey, slightly clayey, slightly sandy, GRAVEL. Gravel is subangular, fine to medium. Proportion of clay decreased with depth to small proportion of clay coating. From 9.8mbgl increasing the proportion of gravel - GRAVEL with sand. Gravel is black/grey, rounded to subrounded. Turning into sandy, GRAVEL from 11.3mbgl. From 13.0mbgl increasing proportion of clay. No odour. Dry at first. Wet after the water strike. Water Strike at 9.8mbgl.	-8.2 8.2		(lgdm8.9) SWა⊷				
Drill D Drill N	ate: 11/04/20 lethod: Air Ro	otary	Reference Elevation:			Water S Strike:	Strike: (W	/S) Level: T	
	d By: Causewa ad By: NM	ay Geotech Ltd	Easting: 2	69963.971		Revisio	-	-	
	ced By: TVM		Northing:					nvironmental purposes only	

В	ORE	HOLE LOG				MALON		Ground Floor - Unit 3 Bracken Business Park Bracken Road, Sandyford Dublin 18, D18 V4K6
Proj	ect Number	r: E1506	Client: Kildare	County Council				
Proj	ect Title: E1	1506-Kildare Legacy Landfills	Site Location	Prusselstown, Athy, Co. I	Kildare	BOR	EHOLE	NO: GW2A-PT
		SUBSURFA	CE CONDITIONS			SAN	IPLE	
Depth (mbgl)	SYMBOL	DESCRIPTION	Elev (mAOD)	COMMENTS	WATER (mbgl)	Depth (mbgl)	PID (ppm)	INSTALLATION DETAILS
111	ate: 11/04/20 etertod: Air Rec	19 tary	Consent of constraints of the second	m:	WL (11/04/19)-12.4mbgl	Water	Strike: (W	
Drilled Logge	By: Causewa d By: NM	ay Geotech Ltd	Elevation: 0 Easting: 26996 Northing: 1947			Strike: Revisio		Level: T I Page: 2 of 2

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Ground Floor - Unit 3 Bracken Business Park Bracken Road, Sandyford Dublin 18, D18 V4K6

Proj	ect Number	: E1506	Client: Ki	Client: Kildare County Council			BOREHOLE NO: GW3A-PT		
Proj	ect Title: E1	506-Kildare Legacy Landfills		ation: Prusselstown, Athy, Co. Kilda	are	SAMPLE			
		SUBSURFACE CON	IDITIONS			SAN	PLE	INSTALLATION DETAILS	
Depth (mbgl)	SYMBOL	DESCRIPTION	Elev (mAOD)	COMMENTS	WATER (mbgl)	Depth (mbgl)	PID (ppm)		
0		TOPSOIL Brown (reddish), CLAY with some gravels and roots and some plastic. Earthy odour. Dry. BOULDER SAND Brown, slightly clayey, SAND with gravels. The proportion of gravel varying with depth. No odour. Dry.	0.0 0.0 -0.6 -0.8 0.8 -1.8	No evidence of contamination (0.0-17.3mbgl)				Concrete and Flushed Cover	
- 2 - - 3 - - -		POSSIBLE BOULDER CLAY Brown, sandy, CLAY with frequent gravels (grey, subangular/subrounded). No odour. Dry. SAND Black/brown, slightly clayey, SAND with occasional gravel. From 3.4mbgl increasing proportion of gravel. From 3.4mbgl - GRAVEL with some clay coating. No odour. Dry.	1.8 -2.1 2.1 -2.5 2.5	es only any other use.				+ Gravel Pack (0.7-3	
4 5 		POSSIBLE BOULDER GRAVEL Black/grey, slightly sandy, GRAVEL. Gravel is subangular to subrounded. No odour. Dry. BOULDER SAND / SAND and GRAVEL Brown/grey, SAND with gravels. Proportion of gravel increasing slightly with depth - slightly gravelly, SAND. From 5.3mbgl - SAND and GRAVEL. No odour. Dry.	- 3.9 3.9 - 4.1 4.1 4.3 - 4.3 - 4.3 - 4.3 - 6 - 6 - 6 - 6 - 6 - 6 - 6 - 6 - 6 - 6	ton puposes only. any other use.				Bentonite Seal (3.3-3.8mbgl)	
6 — - - 7 — - - - - - - - - - - - - - - - - - - -		BOULDER SAND and GRAVEL Black/grey, SAND and GRAVELS. No odour. Dry. BOULDER GRAVEL Black/grey, GRAVEL with some sand. No odour. Dry. BOULDER	-6.1 6.1 -6.4 6.4 -6.9 -7.2 -7.2 -7.4 7.4		.≪WL (15/04/19)-8.9mbgl			Gravel Pack (3.8-17.3mbgl)	
			-8.9 8.9 -9.3 9.3 Reference		∘s WS (9.6mbg)) .* WL (15		Strike: (W	,	
Drilled	By: Causewa	ay Geotech Ltd	Elevation: Easting: 2			Strike:	¥	Level: T	
	ed By: NM aed By: TVM		-	194728.019		Revisio	on: Fina	al Page: 1 of 2	

DISCLAIMER: This log is for environmental purposes only.



	ject Number			Idare County Council		BOR	EHOLE	E NO: GW3A-PT
Proj	ject Title: E ²	1506-Kildare Legacy Landfills SUBSURFACE CON		ition: Prusselstown, Athy, Co. Ki	dare	CAN	IPLE	
Depth mbgl)	SYMBOL	DESCRIPTION	Elev (mAOD)	COMMENTS	WATER (m_ggl)	Depth (mbgl)	PID (ppm)	INSTALLATION DETAIL
		GRAVEL Black/grey, very sandy, GRAVEL. The proportion of sand and gravel varying with depth - SAND and GRAVELS with some calcite pieces. No odour. Wet.	-11.3 11.3	EOH at 17.3mbgl	-#WS (11.2mbgl) #WS (10.7n			Gravel Pack (3.8-17.3mbgl) - Gravel Pack (3.8
Drill N	Date: 12-15/04 Method: Air Ro d By: Causewa		Reference Elevation:	0		Water Strike:	Strike: (W	S) Level: T
	ed By: NM		Easting: 2	69743.287 194728.019		Revisio	on: Fina	Al Page: 2 of 2



Ground Floor - Unit 3 Bracken Business Park Bracken Road, Sandyford Dublin 18, D18 V4K6

-	ect Numbe	r: E1506 1506-Kildare Legacy Landfills		Idare County Council	are	BORI	EHOLE	E NO: L1A-PT
110		SUBSURFACE CON				SAN	IPLE	
Depth (mbgl)	SYMBOL	DESCRIPTION	Elev (mAOD)	COMMENTS	WATER (mbgl)	Depth (mbgl)	PID (ppm)	INSTALLATION DETAILS
Drill M	ate: 07/01/22	119 and Auger	Reference		* At 1.8mbgl - Water Strike	Water		Gravel Pack (0.5-5.1mbg)
	I By: O'Conne d By: NM	ell Byrne	Elevation: Easting: 2			Strike:		Level:
	ed By: NM ed By: TVM			194755.197		Revisio	on: Fina	al Page: 1 of 1

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Proje	ect Numbe	r: E1506	Client: K	ildare County Council		BODI		
Proje	ect Title: E	1506-Kildare Legacy Landfills	Site Loca	ation: Prusselstown, Athy, Co. Kilda	are	BORI	HOLE	ENO: L2A-PT
		SUBSURFACE CON	DITIONS			SAN	IPLE	INSTALLATION DETAILS
Depth (mbgl)	SYMBOL	DESCRIPTION	Elev (mAOD)	COMMENTS	WATER (mbgl)	Depth (mbgl)	PID (ppm)	
		MADE GROUND Brown, CLAY with gravels and cobbles. Dry - A bit mosit at 1.5mbgl No odour. MADE GROUND. Brown/black, CLAY with gravels and cobbles and rare/occasional mixed waste comprising hard plastic, clothes, broken glass, red bricks, heavy duty black plastic and a piece of can. Slight hydrocarbon odour with depth. Small inflow of water at 1.5mbgl.	<u>0.0</u> 0.0 -1.5 1.5					50mm Plain Pipe (0.0-1.0mbgl) Concrete and Flushed Cover
3		MADE GROUND. Black, CLAY and some mixed waste (industrial and household) comprising hard plastic, half burnt tyre, metal, plastic bottles, wood, broken glass from bottle drinks, lids and refuse bags (heavy duty). Turning to slightly sandy, CLAY with gravels and some cobbles with depth. Moderate burnt odour. Dry.	-3.5 3.5 For inspec	ton puposes only, and other use.				Gravel Pack (0.5.8.5mbgl)
6		MADE GROUND. Light black/reddish, slightly sandy, CLAY with cobbles and occasional C&D material comprising red bricks, broken glass and metal. Slight burnt and hydrocarbon odour. Dry.	-6.6 6.6					
			-8.5	End of Borehole at 8.5mbgl due to obstruction				
Drill M	ate: 08/01/20 ethod: Shell By: O'Conn	and Auger	Reference Elevation:			Water Strike:		Level: T
Logge	d By: NM ed By: TVM	,	-	69975.1668 194586.756		Revisio	on: Fin	al Page: 1 of 1

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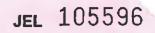
Project Numbe			ildare County Council		BORI	EHOLE	E NO: L3A-PT
Project Title: E	1506-Kildare Legacy Landfills SUBSURFACE CO		ation: Prusselstown, Athy, Co. Kild	are	SAN	IPLE	
Depth (mbgl) SYMBOL	DESCRIPTION	Elev (mAOD)	COMMENTS	WATER (mbgl)	Depth (mbgl)	PID (ppm)	INSTALLATION DETAILS
	MADE GROUND. Grey, sandy, CLAY with gravels and cobbles and rare red bricks. No odour. Dry. At approx. 0.9mbgl rare plastic, glass pieces, small rope. Slight hydrocarbon odour. MADE GROUND. Black, CLAY and some gravel, with rare concrete, plastic, broken glass and red bricks. Slight to moderate hydrocarbon odour with depth and slight sweet odour. A bit damp with depth.	-1.4 1.4					50mm Plain Pipe (0.0-1.0mbgl)
3	MADE GROUND. Black, slightly sandy, CLAY and some gravels with depth, with rare broken glass, timber, and red bricks. Pieces of steel, concrete, hard plastic and red pipes with depth Slight hydrocarbon odour. Slightly damp - getting moist with depth.	tof copyright	ton puposes only. any other use.				Gravel Pack (0.5-6.5mbgl)
- 6- - - 7- - - - - - - - -		-6.5 6.5	End of Borehole at 6.5mbgl due to obstruction				
- 8- - - 9- - - - - - - - -							
10 Drill Date: 04-05/0 Drill Method: Shell Drilled By: O'Conn	and Auger	Reference Elevation:			Water Strike:		Level: 🗶

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APPENDIX F

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JEL 131209

Exova Jones Environmental Unit 3 Deeside Point, Zone 3 Deeside Industrial Park, Deeside, CH5 2UA Tel: 0044 1244 833 780 Reg Office: Exova (UK) Ltd, Lochand Industrial Estate, Newbridge, Midtothian EH28 8PL Company Reg No: SC070429

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Unit 3 Deeside Point.	Exova Jones Environmental Unit 3 Deeside Point, Zone 3 Deeside Industrial Park, Deeside, CH5 2UA	ones Environmental dustrial Park, Deeside, CH5 2UA Tel: 0044 1244 833 780	
Reg Office: Exova (UK) Ltd, Lochend Industrial	id, Lochend Industrial Estate, Ne	ř.	JEL IJICIU

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	S=Soil, GW≐GroundWater, SW=SurfaceWater, L/E=Leachate/	Vater, P=Product/Oil)	u		effuents are accredited for some tests, please
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Rey	teg Office: Exova (UK) Ltd, I	ochend Industrial Estate, N	ewbridge, Midlothian	2	JEL 160564

APPENDIX G

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Exova Jones Environmental

	Unit 3 Deeside Point
	Zone 3
	Deeside Industrial Park
	Deeside
	CH5 2UA
Malone O'Regan	
Ground Floor - Unit 3 Bracken Business Park	Tel: +44 (0) 1244 833780
Bracken Road	Fax: +44 (0) 1244 833781
Sandyford Dublin 18 D18 V4K6	
Attention :	Thomas Vainio-Mattila
Date :	13th February, 2019
Your reference :	E1506
Our reference :	Test Report 19/1582 Batch 1
Location :	Athy Co Kildare Prussletown
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Three samples were received for analysis on 1st February, 2019 of which three 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:

b luce

Bruce Leslie Project Co-ordinator

Client Name: Malone O'Regan Report : Solid E1506 Reference: Location: Athy Co Kildare Prussletown Solids: V=60g VOC jar, J=250g glass jar, T=plastic tub Thomas Vainio-Mattila Contact: JE Job No.: 19/1582 J E Sample No. 1-3 4-6 7-9 TPA TPF Sample ID TPG Depth 3.80-4.10 1.60-2.00 3.60-4.00 Please see attached notes for all abbreviations and acronyms COC No / misc VIT VIT VIT Containers Sample Date 17/01/2019 17/01/2019 17/01/2019 Sample Type Soil Soil Soil Batch Number 1 1 Method LOD/LOR Units No. Date of Receipt 01/02/2019 01/02/2019 01/02/2019 TM30/PM1 Antimony 11 5 <1 mg/kg TM30/PM1 Arsenic * 56.0 10.2 <0.5 mg/kg TM30/PM1 Barium * 581 136 <1 mg/kg TM30/PM18 1.6 <0.1 Cadmium¹ 1.5 mg/kg TM30/PM18 Chromium # 79.6 227.3 <0.5 mg/kg TM30/PM18 Copper[#] 237 91 <1 mg/kg TM30/PM18 ead* 377 78 <5 mg/kg ally and the use. TM30/PM18 0.1 <0.1 Mercurv⁴ 1.0 mg/kg TM30/PM18 9.1 3.8 <0.1 Molybdenum mg/kg Nickel[#] TM30/PM18 51.7 31.4 <0.7 ma/ka TM30/PM18 Selenium[#] 2 For inspection Purposes & mg/kg 3 <1 1811 6467 <50 mg/kg TM50/PM29 Total Sulphate as SO4 # TM74/PM32 8.2 mg/kg Water Soluble Boron # 3.3 <0.1 TM30/PM15 Zinc[#] mg/kg 706 555 <5 mg/kg TM30/PM62 Antimony 8 <1 Arsenic 16.1 <0.5 mg/kg TM30/PM62 TM30/PM62 Barium 308 <1 mg/kg TM30/PM62 Cadmium 0.6 <0.1 mg/kg onsentof TM30/PM62 Chromium 26.8 <0.5 mg/kg 32 TM30/PM62 Copper <1 mg/kg 73 TM30/PM62 Lead <5 mg/kg 0.2 TM30/PM6 Mercury <0.1 mg/kg TM30/PM6 Molybdenum 6.5 <0.1 mg/kg Nickel 33.8 <0.7 mg/kg TM30/PM6 2 TM30/PM6 Selenium <1 mg/kg Total Sulphate as SO4 5713 <50 TM50/PM29 mg/kg Water Soluble Boron 28.8 <0.1 TM74/PM6 mg/kg Zinc 302 <5 mg/kg TM30/PM62

Client Name:				
Reference:				
Location:				
Contact:				
JE Job No.:				

E1506 Athy Co Kildare Prussletown Thomas Vainio-Mattila 19/1582

Malone O'Regan

Report : Solid

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

JE JOD NO.:	19/1582									_		
J E Sample No.	1-3	4-6	7-9									
Sample ID	TPA	TPF	TPG									
Depth	3.80-4.10	1.60-2.00	3.60-4.00							Discourse		- f
COC No / misc											e attached n ations and ac	
Containers	VJT	VJT	VJT									
Sample Date												
-												
Sample Type	Soil	Soil	Soil									
Batch Number	1	1	1							LOD/LOR	Units	Method No.
Date of Receipt	01/02/2019	01/02/2019	01/02/2019									NO.
PAH MS												
Naphthalene [#]	0.40	0.12	<0.04							<0.04	mg/kg	TM4/PM8
Acenaphthylene	0.12	<0.03	<0.03							<0.03	mg/kg	TM4/PM8
Acenaphthene #	<0.05	<0.05	<0.05							<0.05	mg/kg	TM4/PM8
Fluorene [#]	< 0.04	0.07	< 0.04							<0.04	mg/kg	TM4/PM8
Phenanthrene [#]	0.56	0.33	< 0.03							< 0.03	mg/kg	TM4/PM8
Anthracene [#] Fluoranthene [#]	0.13	<0.04 0.25	<0.04 <0.03				ator any o			<0.04	mg/kg	TM4/PM8 TM4/PM8
Pluoranthene *	0.97	0.25	<0.03					150.		<0.03 <0.03	mg/kg	TM4/PM8
Pyrene Benzo(a)anthracene [#]	0.83	0.21	<0.03					her		<0.03	mg/kg mg/kg	TM4/PM8
Chrysene [#]	0.89	0.12	<0.00				A. A.	~		<0.00	mg/kg	TM4/PM8
Benzo(bk)fluoranthene [#]	2.31	0.31	<0.02			<u> </u>	oll's are			<0.02	mg/kg	TM4/PM8
Benzo(a)pyrene [#]	1.21	0.14	<0.04			20 ⁵ 00	0,0			<0.04	mg/kg	TM4/PM8
Indeno(123cd)pyrene [#]	0.99	0.11	<0.04			OUTPOLII	ſ			<0.04	mg/kg	TM4/PM8
Dibenzo(ah)anthracene #	0.35	<0.04	<0.04		id	A Y TO				<0.04	mg/kg	TM4/PM8
Benzo(ghi)perylene #	0.87	0.11	<0.04		Dectr.	NIC				<0.04	mg/kg	TM4/PM8
Coronene	0.16	<0.04	<0.04		in the					<0.04	mg/kg	TM4/PM8
PAH 6 Total [#]	6.35	0.92	<0.22	÷.	orythe					<0.22	mg/kg	TM4/PM8
PAH 17 Total	10.66	1.91	<0.64	consent of	60×					<0.64	mg/kg	TM4/PM8
Benzo(b)fluoranthene	1.66	0.22	<0.05	ont						<0.05	mg/kg	TM4/PM8
Benzo(k)fluoranthene	0.65	0.09	<0.02	~ 01 ⁵⁰						<0.02	mg/kg	TM4/PM8
Benzo(j)fluoranthene	<1	<1	<1							<1	mg/kg	TM4/PM8
PAH Surrogate % Recovery	100	95	99							<0	%	TM4/PM8
Mineral Oil (C10-C40)	<30	905	97							<30	mg/kg	TM5/PM8/PM16
TPH CWG												
Aliphatics												
- >C5-C6 [#]	<0.1 ^{SV}	<0.1 ^{sv}	<0.1 ^{sv}							<0.1	mg/kg	TM36/PM12
>C6-C8 [#]	<0.1 ^{SV}	<0.1 ^{SV}	<0.1 ^{sv}							<0.1	mg/kg	TM36/PM12
>C8-C10	<0.1 ^{\$V}	<0.1 ^{\$V}	<0.1 ^{SV}							<0.1	mg/kg	TM36/PM12
>C10-C12#	<0.2	4.8	<0.2							<0.2	mg/kg	TM5/PM8/PM16
>C12-C16 [#]	<4	47	<4							<4	mg/kg	TM5/PM8/PM16
>C16-C21 #	<7	119	<7							<7	mg/kg	TM5/PM8/PM16
>C21-C35#	28	672	97							<7	mg/kg	TM5/PM8/PM16
>C35-C40	<7	62	<7							<7	mg/kg	TM5/PM8/PM16
Total aliphatics C5-40	28	905	97							<26	mg/kg	TM5/TM38/PM8/PM12/PM16
>C6-C10	<0.1 ^{SV}	<0.1 ^{SV}	<0.1 ^{SV}							<0.1	mg/kg	TM36/PM12
>C10-C25	<10	360	<10							<10	mg/kg	TM5/PM8/PM16
>C25-C35	32	494	82							<10	mg/kg	TM5/PM8/PM16
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Client Name: Malone O'Regan Report : Solid E1506 Reference: Athy Co Kildare Prussletown Solids: V=60g VOC jar, J=250g glass jar, T=plastic tub Location: Thomas Vainio-Mattila Contact: JE Job No.: 19/1582 J E Sample No 1-3 4-6 7-9 TPA Sample ID TPF TPG 3.80-4.10 1.60-2.00 3.60-4.00 Depth Please see attached notes for all abbreviations and acronyms COC No / mise VIT VIT Containers VIT Sample Date 17/01/2019 17/01/2019 17/01/2019 Sample Type Soil Soil Soil Batch Number 1 1 Method LOD/LOR Units No. Date of Receipt 01/02/2019 01/02/2019 01/02/2019 TPH CWG Aromatics <0.1^{SV} <0.1^{SV} <0.1^{\$V} >C5-EC7# TM36/PM1: <0.1 mg/kg <0.1^{\$V} <0.1^{\$V} <0.1^{\$V} TM36/PM1 >FC7-FC8[#] <0.1 mg/kg <0.1^{\$V} <0.1^{\$V} <0.1^{\$V} TM36/PM12 >EC8-EC10# <0.1 mg/kg >EC10-EC12# TM5/PM8/PM1 < 0.2 6.6 < 0.2 < 0.2 mg/kg TM5/PM8/PM1 >EC12-EC16# mg/kg <4 19 <4 <4 ATT' BY OTEL USE. >EC16-EC21 # TM5/PM8/PM1 <7 79 mg/kg 11 <7 >EC21-EC35# TM5/PM8/PM1 423 117 mg/kg 115 <7 >EC35-EC40 TM5/PM8/PM1 17 62 27 <7 ma/ka 590 <26 Total aromatics C5-40 132 155 mg/kg Top inspection purposes Total aliphatics and aromatics(C5-40) 1495 252 160 <52 mg/kg <0.1^{sv} <0.1^{SV} <0.1^{sv} >EC6-EC10# TM36/PM12 <0.1 ma/ka >EC10-EC25 TM5/PM8/PM1 200 <10 19 29 ma/ka >EC25-EC35 TM5/PM8/PM1 331 93 94 <10 mg/kg <5^{sv} <5^{sv} <5^{sv} TM31/PM12 MTBE # <5 ug/kg <5^{sv} <5^{SV} <5^{SV} TM31/PM12 Benzene # ug/kg <5 onsentof <5^{sv} <5^{\$V} <5^{\$V} TM31/PM12 Toluene # <5 ug/kg <5^{sv} <5^{sv} <5^{sv} Ethylbenzene # <5 ug/kg TM31/PM12 <5^{sv} <5^{sv} 8sv m/p-Xylene [#] <5 ug/kg TM31/PM12 <5^{sv} <5^{sv} <5^{sv} TM31/PM12 o-Xylene # <5 ug/kg <5 <5 <5 TM17/PM8 PCB 28 # <100_{AA} ug/kg PCB 52# <5 <5 TM17/PM8 <100_{AA} <5 ug/kg PCB 101 # <5 <100_{AA} <5 <5 TM17/PM8 ug/kg PCB 118[#] <5 <5 TM17/PM8 <100_{AA} <5 ug/kg <5 <5 <5 ug/kg TM17/PM8 PCB 138# <100_{AA} PCB 153[#] <5 <5 <5 TM17/PM8 <100_{AA} ug/kg PCB 180 # <5 <100_{AA} <5 <5 TM17/PM8 ug/kg Total 7 PCBs[#] <35 <700_{AA} <35 <35 TM17/PM8 ug/kg <0.01 <0.01 < 0.01 <0.01 mg/kg TM26/PM2 Phenol # Natural Moisture Content 34.1 36.9 52.3 <0.1 % PM4/PM0 Moisture Content (% Wet Weight) 25.4 27.0 34.3 <0.1 % PM4/PM0 Hexavalent Chromium # <0.3 <0.3 <0.3 <0.3 mg/kg TM38/PM2 Chromium III 79.6 227.3 <0.5 mg/kg NONE/NON Chromium III 26.8 <0.5 mg/kg NONE/NON Total Cyanide [#] 1.2 1.0 <0.5 <0.5 mg/kg TM89/PM45

Total Organic Carbon[#]

19.80

3.44

NDP

Exova Jones Environmental

TM21/PM2

%

< 0.02

Client Name: Malone O'Regan Report : Solid E1506 Reference: Location: Athy Co Kildare Prussletown Solids: V=60g VOC jar, J=250g glass jar, T=plastic tub Thomas Vainio-Mattila Contact: JE Job No.: 19/1582 J E Sample No. 1-3 4-6 7-9 Sample ID TPA TPF TPG 3.80-4.10 1.60-2.00 3.60-4.00 Depth Please see attached notes for all abbreviations and acronyms COC No / misc Containers VJT VJT VIT Sample Date 17/01/2019 17/01/2019 17/01/2019 Sample Type Soil Soil Soil Batch Number 1 1 1 Method LOD/LOR Units No. Date of Receipt 01/02/2019 01/02/2019 01/02/2019 TM107/PM119 Sulphide <10 <10 41 <10 mg/kg TM108/PM114 Elemental Sulphur mg/kg 28 1422 <1 TM108/PM8 Elemental Sulphur 11 <1 mg/kg TM73/PM1 pH# 7.71 7.88 7.95 <0.01 pH units For inspection purposes with any other use. NONE/PM17 0.1184 0.1127 0.1344 Mass of raw test portion kg NONE/PM17 Mass of dried test portion 0.09 0.09 0.09 kg

Client Name:				
Reference:				
Location:				
Contact:				
JE Job No.:				

E1506 Athy Co Kildare Prussletown Thomas Vainio-Mattila 19/1582

Malone O'Regan

Report : CEN 10:1 1 Batch

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

										1		
J E Sample No.	1-3	4-6	7-9									
Sample ID	TPA	TPF	TPG									
Depth	3.80-4.10	1.60-2.00	3.60-4.00							Please se	e attached r	otes for all
COC No / misc											ations and a	
Containers	VJT	VJT	VJT									
Sample Date	17/01/2010	17/01/2019	17/01/2019									
•												
Sample Type	Soil	Soil	Soil									-
Batch Number	1	1	1							 LOD/LOR	Units	Method No.
Date of Receipt	01/02/2019	01/02/2019	01/02/2019									NO.
Dissolved Antimony [#]	0.007	<0.002	0.011							<0.002	mg/l	TM30/PM17
Dissolved Antimony (A10)#	0.07	<0.02	0.11							<0.02	mg/kg	TM30/PM17
Dissolved Arsenic [#]	0.0108	0.0074	0.0054							<0.0025	mg/l	TM30/PM17
Dissolved Arsenic (A10) [#]	0.108	0.074	0.054							<0.025	mg/kg	TM30/PM17
Dissolved Barium [#]	0.023	0.025	0.059							< 0.003	mg/l	TM30/PM17
Dissolved Barium (A10) [#]	0.23	0.25	0.59							<0.03 <0.012	mg/kg	TM30/PM17 TM30/PM17
Dissolved Boron #											mg/l	
Dissolved Boron (A10) [#] Dissolved Cadmium [#]	0.44 <0.0005	3.69 <0.0005	9.97 <0.0005		st inspection opyright of			. 150.		<0.12 <0.0005	mg/kg mg/l	TM30/PM17 TM30/PM17
Dissolved Cadmium Dissolved Cadmium (A10) #	< 0.0005	<0.0005	< 0.0005					her		< 0.0005	mg/kg	TM30/PM17
Dissolved Chromium [#]	0.0182	<0.0015	<0.003				A. D	~		<0.003	mg/l	TM30/PM17
Dissolved Chromium (A10) [#]	0.182	<0.015	< 0.015				officiation of the			< 0.015	mg/kg	TM30/PM17
Dissolved Copper [#]	0.007	< 0.007	< 0.007			-0 ⁵ 05	gre .			<0.007	mg/l	TM30/PM17
Dissolved Copper (A10) [#]	<0.07	<0.07	<0.07			OUTPOLII				<0.07	mg/kg	TM30/PM17
Dissolved Lead [#]	<0.005	0.005	0.010		ů.	at rect				< 0.005	mg/l	TM30/PM17
Dissolved Lead (A10) [#]	<0.05	0.05	0.10		Dectr.	MAC				<0.05	mg/kg	TM30/PM17
Dissolved Molybdenum #	0.009	0.052	0.078		in the					<0.002	mg/l	TM30/PM17
Dissolved Molybdenum (A10) #	0.09	0.52	0.78	Ŷ	NILE					<0.02	mg/kg	TM30/PM17
Dissolved Nickel [#]	<0.002	0.007	<0.002	S	,0×					<0.002	mg/l	TM30/PM17
Dissolved Nickel (A10) [#]	<0.02	0.07	<0.02	consent of						<0.02	mg/kg	TM30/PM17
Dissolved Selenium [#]	<0.003	<0.003	<0.003	ORS						<0.003	mg/l	TM30/PM17
Dissolved Selenium (A10)#	<0.03	<0.03	<0.03							<0.03	mg/kg	TM30/PM17
Dissolved Zinc [#]	0.008	0.004	<0.003							<0.003	mg/l	TM30/PM17
Dissolved Zinc (A10) [#]	0.08	0.04	<0.03							<0.03	mg/kg	TM30/PM17
Mercury Dissolved by CVAF #	<0.00001	<0.00001	<0.00001							<0.00001	mg/l	TM61/PM0
Mercury Dissolved by CVAF #	<0.0001	<0.0001	<0.0001							<0.0001	mg/kg	TM61/PM0
Phenol	<0.01	<0.01	<0.01							<0.01	mg/l	TM26/PM0
Phenol	<0.1	<0.1	<0.1							<0.1	mg/kg	TM26/PM0
The set of the	-0.0	-0.0	.0.0							-0.0		Th 44 72 /Dh 40
Fluoride	<0.3	< 0.3	< 0.3							<0.3	mg/l	TM173/PM0
Fluoride	<3	<3	<3							<3	mg/kg	TM173/PM0
Sulphate as SO4 #	13.2	209.5	80.3							<0.5	mg/l	TM38/PM0
Sulphate as SO4	13.2	209.5	803							<0.5	mg/kg	TM38/PM0
Chloride [#]	<0.3	7.8	1.4							<0.3	mg/l	TM38/PM0
Chloride [#]	<3	78	14							<3	mg/kg	TM38/PM0
Ammoniacal Nitrogen as N [#]	0.09	42.69	4.02							<0.03	mg/l	TM38/PM0
Ammoniacal Nitrogen as N [#]	0.9	426.9	40.2							<0.3	mg/kg	TM38/PM0
											-	
Dissolved Organic Carbon	3	18	8							<2	mg/l	TM60/PM0
Dissolved Organic Carbon	30	180	80							<20	mg/kg	TM60/PM0
Total Dissolved Solids [#]	176	421	361							<35	mg/l	TM20/PM0
Total Dissolved Solids [#]	1760	4210	3608							<350	mg/kg	TM20/PM0

EN-12457-2 Result Report

Mass of sample taken (kg)	-	Dry Matter Content Ratio (%) =		75.7	
Mass of dry sample (kg) =	0.09	Leachant Volume (I)		-	
Particle Size <4mm =	>95%	Eluate Volume (I)		0.8	
	-		T		
JEFL Job No		19/1582	Land	fill Waste Ac	
Sample No		3		Criteria Lin	nits
Client Sample No	-	ТРА	-		
Depth/Other	-	3.80-4.10	-	Stable	
Sample Date	-	17/01/2019	Inert	Non-reactive	Hazardous
Batch No		1			
Solid Waste Analysis					
Total Organic Carbon (%)	19.80		3	5	6
Sum of BTEX (mg/kg)	<0.025		6	-	-
Sum of 7 PCBs (mg/kg)	<0.035		1	-	-
Mineral Oil (mg/kg)	<30		500	-	-
PAH Sum of 6 (mg/kg)	6.35		-	-	-
PAH Sum of 17 (mg/kg)	10.66		100	-	-
		يو [.]			
	10:1	alle	Limit	values for co	molianco
Eluate Analysis	10:1 concn leached A10	COSES ON A DAVIE	le	values for co eaching test I 12457-2 at l	using
Eluate Analysis	concn leached	Dupose only any one	le	aching test	using
Eluate Analysis	concn leached A10	action purposes only any other	le	eaching test I 12457-2 at ∣	using
	concn leached A10 mg/kg	, napetion puposes only any other	le BS EN	eaching test I 12457-2 at mg/kg	using L/S 10 l/kg
Arsenic	concn leached A10 mg/kg 0.108	For inspection purpose only any other	le BS EN 0.5	aching test I 12457-2 at mg/kg 2	using L/S 10 l/kg 25
Arsenic Barium	concn leached A10 mg/kg 0.108 0.23	For inspection purposes only on any other	0.5 20	eaching test I 12457-2 at mg/kg 2 100	using L/S 10 I/kg 25 300
Arsenic Barium Cadmium	concn leached A10 mg/kg 0.108 0.23 <0.005	For inspection purposes only any other	0.5 0.04	eaching test 12457-2 at mg/kg 2 100 1	using L/S 10 I/kg 25 300 5
Arsenic Barium Cadmium Chromium	concn leached A10 mg/kg 0.108 0.23 <0.005	consent of copyright owner course of for any office	0.5 20 0.5 0.04	mg/kg 2 100 1 10	using L/S 10 I/kg 25 300 5 70
Arsenic Barium Cadmium Chromium Copper Mercury	concn leached A10 mg/kg 0.108 0.23 <0.005	Consent of copyright owner control for any other	0.5 20 0.04 0.5 2	aching test 12457-2 at 2 100 1 10 50	25 300 5 70 100
Arsenic Barium Cadmium Chromium Copper Mercury Molybdenum	concn leached A10 mg/kg 0.108 0.23 <0.005	Consent of constraint on the required for any other ase.	0.5 20 0.04 0.5 2 0.01	mg/kg 2 100 1 0 0 0 0.2	25 300 5 70 100 2
Arsenic Barium Cadmium Chromium Copper Mercury Molybdenum	concn leached A10 mg/kg 0.108 0.23 <0.005	Consent of copyright owner course of for any office	0.5 20 0.04 0.5 2 0.01 0.5	mg/kg 2 100 1 0 50 0.2 10	25 300 5 70 100 2 30
Arsenic Barium Cadmium Chromium Copper Mercury Molybdenum Nickel Lead	concn leached A10 mg/kg 0.108 0.23 <0.005	Consent for inspection purposes only on any other	0.5 20 0.04 0.5 2 0.01 0.5 0.4	mg/kg 2 100 1 0 0 0.2 10 50 0.2 10	25 300 5 70 100 2 30 40
Arsenic Barium Cadmium Chromium Copper Mercury Molybdenum Nickel Lead Antimony	concn leached A10 mg/kg 0.108 0.23 <0.005	Consent of copyright owned required for any other	0.5 20 0.04 0.5 2 0.01 0.5 0.4 0.5	mg/kg 2 100 1 0 0 0.2 10 10 10 50 0.2 10 10	using _/S 10 I/kg 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 0.108 0.23 <0.005	Consent of constraint on the required for any other	le BS EN 0.5 20 0.04 0.5 2 0.01 0.5 0.4 0.5 0.06	mg/kg 2 100 1 0 0.2 10 50 0.2 10 0.2 10 0.2 10 0.2 10 10 10 10 10 10 10 10 10	25 300 5 70 100 2 30 40 50 5
Arsenic Barium Cadmium Chromium Copper Mercury Molybdenum Nickel Lead Antimony Selenium Zinc	concn leached A10 mg/kg 0.108 0.23 <0.005	Consent of copyright owner course of tor any other	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 0 0 0.2 10 0.2 10 0.2 0.2 0.2 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 Chloride	concn leached A10 mg/kg 0.108 0.23 <0.005	Consent of copyright owned required for any other	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 0 10 50 0.2 10 0 0.2 10 0.2 50 0.2 50 50 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 0.108 0.23 <0.005	Consent of constraint of consent of consent of consent of constraint of constraint of consent of co	le BS EN 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 0 0.2 10 0.2 10 0.2 10 10 50 0.2 10	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	concn leached A10 mg/kg 0.108 0.23 <0.005	Consent for inspection number of the any office	Iee BS EN 0.5 20 0.04 0.5 2 0.01 0.5 0.4 0.5 0.4 0.5 0.4 0.5 0.4 0.5 0.1 4 800 10	mg/kg 2 100 1 0 0 0.2 10 0.2 10 0.2 10	25 300 5 70 100 2 30 40 50 5 7 200 25000 500
Arsenic Barium Cadmium Chromium Copper Mercury Molybdenum Nickel	concn leached A10 mg/kg 0.108 0.23 <0.005	Consent of copyright owner course of tor any often	Ie BS EN 0.5 20 0.04 0.5 2 0.01 0.5 0.4 0.5 0.4 0.5 0.06 0.1 4 800 10 10000	mg/kg 2 100 1 0 10 50 0.2 10 0 0 10 10 50 0.2 10	25 300 5 70 100 2 30 40 50 5 7 200 25000 500 5000

EN-12457-2 Result Report

Mass of sample taken (kg)	-	Dry Matter Content Ratio (%) =		79.6				
Mass of dry sample (kg) =	0.09	Leachant Volume (I)		-				
Particle Size <4mm =	>95%	Eluate Volume (I)	0.82					
JEFL Job No		19/1582	Landfill Waste Acceptance					
Sample No		6		Criteria Lin	nits			
Client Sample No		TPF						
Depth/Other		1.60-2.00						
Sample Date		17/01/2019	Inert	Stable Non-reactive	Hazardous			
Batch No		1						
Solid Waste Analysis								
Total Organic Carbon (%)	3.44		3	5	6			
Sum of BTEX (mg/kg)	<0.025		6	-	-			
Sum of 7 PCBs (mg/kg)	<0.700		1	-	-			
Mineral Oil (mg/kg)	905		500	-	-			
PAH Sum of 6 (mg/kg)	0.92		-	-	-			
PAH Sum of 17 (mg/kg)	1.91		100	-	-			
		e [.]						
Eluate Analysis	concn leached A10	Consent of copyright owned required for any other ase.	le	values for co eaching test I 12457-2 at	using			
	mg/kg	Purcedin		mg/kg				
Arsenic	0.074	actionnet	0.5	2	25			
Barium	0.25	inspector	20	100	300			
Cadmium	< 0.005	Forviet	0.04	1	5			
Chromium	<0.015	A CON.	0.5	10	70			
Copper	<0.07	ent	2	50	100			
Mercury	<0.0001	Colle	0.01	0.2	2			
Molybdenum	0.52		0.5	10	30			
Nickel	0.07		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	0.04		4	50	200			
Chloride	78		800	15000	25000			
Fluoride	<3		10	150	500			
Sulphate as SO4	2095		1000	20000	50000			
Total Dissolved Solids	4210		4000	60000	100000			
Phenol	<0.1		1	-	-			
Dissolved Organic Carbon	180		500	800	1000			

EN-12457-2 Result Report

Mass of sample taken (kg)	-	Dry Matter Content Ratio (%) =		66.9	
Mass of dry sample (kg) =	0.09	Leachant Volume (I)		-	
Particle Size <4mm =	>95%	Eluate Volume (I)		0.74	
		40/4500	— ——		
JEFL Job No		19/1582	Land	fill Waste Ac Criteria Lin	
Sample No		9		Criteria Lin	lits
Client Sample No		TPG			
Depth/Other		3.60-4.00		Stable	
Sample Date		17/01/2019	Inert	Non-reactive	Hazardous
Batch No		1			
Solid Waste Analysis					
Total Organic Carbon (%)	NDP		3	5	6
Sum of BTEX (mg/kg)	<0.025		6	-	-
Sum of 7 PCBs (mg/kg)	<0.035		1	-	-
Mineral Oil (mg/kg)	97		500	-	-
PAH Sum of 6 (mg/kg)	<0.22		-	-	-
PAH Sum of 17 (mg/kg)	<0.64		100	-	-
		se.			
Eluate Analysis	concn leached A10	oses officially	le	values for co eaching test I 12457-2 at l	using
	mg/kg	Purequit		mg/kg	
Arsenic	0.054	oction net	0.5	2	25
Barium	0.59	inspire or	20	100	300
Cadmium	< 0.005	* Y • OY		100	000
	~0.005	FOLUTE	0.04	1	5
Chromium	<0.005	FORTHE	0.04		
Chromium Copper	_	Fol COPYTE		1	5
Copper	<0.015	Consent of construe	0.5	1 10	5 70
Copper Mercury	<0.015 <0.07	Consent of copyrise	0.5	1 10 50	5 70 100
Copper Mercury Molybdenum	<0.015 <0.07 <0.0001	Consent of copyright owner required for any other ase.	0.5 2 0.01	1 10 50 0.2	5 70 100 2
Copper Mercury Molybdenum	<0.015 <0.07 <0.0001 0.78	Consent of copyrise	0.5 2 0.01 0.5	1 10 50 0.2 10	5 70 100 2 30
Copper Mercury Molybdenum Nickel Lead	<0.015	Consent of copyrise	0.5 2 0.01 0.5 0.4	1 10 50 0.2 10 10	5 70 100 2 30 40
Copper Mercury Molybdenum Nickel Lead Antimony	<0.015 <0.07 <0.0001 0.78 <0.02 0.10	Consent of construe	0.5 2 0.01 0.5 0.4 0.5	1 10 50 0.2 10 10 10	5 70 100 2 30 40 50
Copper Mercury Molybdenum Nickel Lead Antimony Selenium	<0.015 <0.07 <0.0001 0.78 <0.02 0.10 0.11	Consent of construe	0.5 2 0.01 0.5 0.4 0.5 0.06	1 10 50 0.2 10 10 10 0.7	5 70 100 2 30 40 50 5
Copper Mercury Molybdenum Nickel Lead Antimony Selenium Zinc	<0.015	Consent of construe	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	5 70 100 2 30 40 50 5 7
Copper Mercury Molybdenum Nickel Lead Antimony Selenium Zinc Chloride	<0.015	Consent of construe	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	5 70 100 2 30 40 50 5 7 200
Copper Mercury Molybdenum Nickel Lead Antimony Selenium Zinc Chloride Fluoride	<0.015	Consent of construe	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
Copper Mercury Molybdenum Nickel Lead Antimony Selenium Zinc Chloride Fluoride Sulphate as SO4	<0.015	Consent of construe	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	5 70 100 2 30 40 50 5 7 200 25000 500
Copper Mercury Molybdenum Nickel	<0.015	Consent of construe	0.5 2 0.01 0.5 0.4 0.5 0.06 0.1 4 800 10 1000	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

		• •• •
MOTRIX		Solia.
Matrix	-	JUILU

Client Name:	Malone O'Regan
Reference:	E1506
Location:	Athy Co Kildare Prussletown
Contact:	Thomas Vainio-Mattila

J E Job No.	Batch	Sample ID	Depth	J E Sample No.	EPH Interpretation
19/1582	1	TPA	3.80-4.10	1-3	PAH's & lubricating oil
19/1582	1	TPF	1.60-2.00	4-6	Degraded diesel, Possible PAH's, lubricating oil & Naturally occurring compounds
19/1582	1	TPG	3.60-4.00	7-9	PAH's & lubricating oil
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Client Name:	Malone O'Regan
Reference:	E1506
Location:	Athy Co Kildare Prussletown
Contact:	Thomas Vainio-Mattila

Note:

Asbestos Screen analysis is carried out in accordance with our documented in-house methods PM042 and TM065 and HSG 248 by Stereo and Polarised Light Microscopy using Dispersion Staining Techniques and is covered by our UKAS accreditation. Detailed Gravimetric Quantification and PCOM Fibre Analysis is carried out in accordance with our documented in-house methods PM042 and TM131 and HSG 248 using Stereo and Polarised Light Microscopy and Phase Contrast Optical Microscopy (PCOM). Samples are retained for not less than 6 months from the date of analysis unless specifically requested.

Opinions, including ACM type and Asbestos level less than 0.1%, lie outside the scope of our UKAS accreditation.

Where the sample is not taken by a Jones Environmental Laboratory consultant, Jones Environmental Laboratory cannot be responsible for inaccurate or unrepresentative sampling.

Signed on behalf of Jones Environmental Laboratory:

Ryan Butterworth Asbestos Team Leader

J E Job No.	Batch	Sample ID	Depth	J E Sample No.	Date Of Analysis	Analysis	Result
19/1582	1	TPA	3.80-4.10	2	06/02/2019	General Description (Bulk Analysis)	Soil/Stones
					06/02/2019	Asbestos Fibres	NAD
					06/02/2019	Asbestos ACM	NAD
					06/02/2019	Asbestos Type	NAD
					06/02/2019	Asbestos Level Screen	NAD NSO
							atter
19/1582	1	TPF	1.60-2.00	5	06/02/2019	General Description (Bulk Analysis)	Sol/Stones
					06/02/2019	Asbestos Fibres	NAD NAD USE SolyStones NAD
					06/02/2019	Asbestos ACM	NAD
					06/02/2019	Asbestos Type	NAD
					06/02/2019	Asbestos Level Screen	NAD
						General Description (Bulk Analysis) Asbestos Fibres Asbestos ACM Asbestos Type Asbestos Level Screen General Description (Bulk Analysis) Asbestos Fibres	
19/1582	1	TPG	3.60-4.00	8	06/02/2019	General Description (Bulk Analysis)	Soil/Stones
					06/02/2019	Asbestos Fibres	Fibre Bundles
					06/02/2019	Asbestos ACM	NAD
					06/02/2019	Asbestos Type	Chrysotile
					06/02/2019	Asbestos Level Screen	less than 0.1%
					13/02/2019	Total ACM Gravimetric Quantification (% Asb)	<0.001 (mass %)
					13/02/2019	Total Detailed Gravimetric Quantification (% Asb)	<0.001 (mass %)
					13/02/2019	Total Gravimetric Quantification (ACM + Detailed) (% Asb)	<0.001 (mass %)
					13/02/2019	Asbestos PCOM Quantification (Fibres)	<0.001 (mass %)
					13/02/2019	Asbestos Gravimetric & PCOM Total	<0.001 (mass %)

Matrix		

Client Name:	Malone O'Regan
Reference:	E1506
Location:	Athy Co Kildare Prussletown
Contact:	Thomas Vainio-Mattila

J E Job No.	Batch	Sample ID	Depth	J E Sample No.	Method No.	NDP Reason
19/1582	1	TPG	3.60-4.00	7-9	TM21/PM24	Asbestos detected in sample
						Several office of the several of the several office of the several office of the several of the
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Client Name:	Malone O'Regan
Reference:	E1506
Location:	Athy Co Kildare Prussletown
Contact:	Thomas Vainio-Mattila

J E Job No.	Batch	Sample ID	Depth	J E Sample No.	Analysis	Reason
19/1582	1	TPA	3.80-4.10	1-3	Cyanide, EPH, GRO, PAH, PCB, Phenols	Sample holding time exceeded prior to receipt
19/1582	1	TPF	1.60-2.00	4-6	Cyanide, EPH, GRO, PAH, PCB, Phenols	Sample holding time exceeded prior to receipt
19/1582	1	TPG	3.60-4.00	7-9	Cyanide, EPH, GRO, PAH, PCB, Phenols	Sample holding time exceeded prior to receipt
					Cyanide, EPH, GRO, PAH, PCB, Prienois	

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.

Matrix : Solid

NOTES TO ACCOMPANY ALL SCHEDULES AND REPORTS

19/1582 JE Job No.:

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 guoted, 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.

The calculation of Pyrite content assumes that all oxidisable sulphides present in the sample are pyrite. This may not be the case. The calculation may be an overesitimate when other sulphides such as Barite (Barium Sulphate) are present.

WATERS

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

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

As surface waters require different sample preparation to groundwaters the additory 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. inst.

DEVIATING SAMPLES

For Samples must be received in a condition appropriate to the received 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. Cos

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.

BI ANKS

Where analytes have been found in the blank, the sample will be treated in accordance with our laboratory procedure for dealing with contaminated blanks.

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 guality 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.

REPORTS FROM THE SOUTH AFRICA LABORATORY

Any method number not prefixed with SA has been undertaken in our UK laboratory unless reported as subcontracted.

ABBREVIATIONS and ACRONYMS USED

#	ISO17025 (UKAS Ref No. 4225) accredited - UK.
#	ISO17025 (SANAS Ref No. T0729) accredited - South Africa.
В	Indicates analyte found in associated method blank.
DR	Dilution required.
M	MCERTS accredited.
	Not applicable
NA	No Asbestos Detected.
NAD	
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 an Exova Jones Environmental approved laboratory.
AD	Samples are dried at 35°C ±5°C
CO	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
Ν	Client Sample
ТВ	Trip Blank Sample
OC	Outside Calibration Range
AA	x20 Dilution
	Trip Blank Sample purperture Outside Calibration Range citon metric x20 Dilution respection metric too respection metric consent of constraint consent of constraint

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

JE Job No.:

E JOD NO.:	19/1582
Leachate tests	
10l/kg; 4mm	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 filtered over 0.45 μm membrane filter.
Eluate analysis	
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	1.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 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 ev
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 DES)
Other	DUPOLITES
	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-Fische
Dry matter	titration and either volumetric or coulometric detection.
LOI	I.S. EN 15169 Difference in mass after the ating 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:	eethol contraction of the contra
	due to LOD, precision, etc., any other suitable method can be used, e.g. AFS, ICP-MS -52, PCB-101, PCB-118, PCB-138, PCB-153 and PCB-180
***Nonbtholono	Acenantitylene Acenantithene Anthracene Renzo(a)anthracene Renzo(h)fluoranthene Renzo(k)fluoranthene

***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.

Method Code Appendix

Test Method No.	Description	Prep Method No. (if appropriate)	Description	ISO 17025 (UKAS/S ANAS)	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.			AR	
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	End over end extraction of solid samples for organic analysis. The solvent mix varies depending on analysis required.			AR	
TM5	Modified USEPA 8015B method for the determination of solvent Extractable Petroleum Hydrocarbons (EPH) with carbon banding within the range C8-C40 GC-FID.	PM8/PM16	depending on analysis required/Fractionation into aliphatic and aromatic fractions using a Repid Trace SPE.			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.	PM8/PM16	End over end extraction of solid samples for organic analysis. The solvent mix varies depending on analysis required/Fractionation into aliphatic and aromatic fractions using a Rapid Trace SPE.	Yes		AR	Yes
TM5/TM36	please refer to TM5 and TM36 for method details	PM8/PM12/PM16	please refer to PM8/PM16 and PM12 for method details			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 BS 1377-3: 1990/USEPA 160.3 Gravimetric determination of Total Dissolved Solids/Total Solids	PM0	No preparation is required.	Yes		AR	Yes
TM21	Modified BS 7755-3:1995, ISO10694:1995 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. Organic Matter (SOM) calculated as per EA MCERTS Chemical Testing of Soil, March 2012 v4.	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

Method Code Appendix

Test Method No.	Description	Prep Method No. (if appropriate)	Description	ISO 17025 (UKAS/S ANAS)	MCERTS (UK soils only)	Analysis done on As Received (AR) or Dried (AD)	Reported on dry weight basis
TM26	Determination of phenols by Reversed Phased High Performance Liquid Chromatography and Electro-Chemical Detection.	PM0	No preparation is required.			AR	Yes
TM26	Determination of phenols by Reversed Phased High Performance Liquid Chromatography and Electro-Chemical Detection.	PM21	As received solid or water samples are extracted in Methanol: Sodium Hydroxide (0.1M NaOH) (60:40) by orbital shaker.	Yes		AR	Yes
ТМЗО	Determination of Trace Metal elements by ICP-OES (Inductively Coupled Plasma - Optical Emission Spectrometry). Modified US EPA Method 200.7, 6010B and BS EN ISO 11885 2009	PM15	Acid digestion of dried and ground solid samples using Aqua Regia refluxed at 112.5 °C. Samples containing asbestos are not dried and ground.			AD	Yes
ТМЗО	Determination of Trace Metal elements by ICP-OES (Inductively Coupled Plasma - Optical Emission Spectrometry). Modified US EPA Method 200.7, 6010B and BS EN ISO 11885 2009	PM15	Acid digestion of diged and ground solid samples using Aqua Regia refluxed at 112.5 °C. Samples containing asbestos are not dried and ground.	Yes		AD	Yes
ТМЗО	Determination of Trace Metal elements by ICP-OES (Inductively Coupled Plasma - Optical Emission Spectrometry). Modified US EPA Method 200.7, 6010B and BS EN ISO 11885 2009	PM17	water to soil ratio for 24 hours, the moisture content of the sample is included in the ratio.	Yes		AR	Yes
ТМ30	Determination of Trace Metal elements by ICP-OES (Inductively Coupled Plasma - Optical Emission Spectrometry). Modified US EPA Method 200.7, 6010B and BS EN ISO 11885 2009	PM6291 COP	Acid digestion of as received solid samples using Aqua Regia refluxed at 112.5 °C.			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
ТМ36	Modified US EPA method 8015B. Determination of Gasoline Range Organics (GRO) in the carbon chain range of C4-12 by headspace GC-FID. MTBE by GCFID co-elutes with 3-methylpentane if present and therefore can give a false positive. Positive MTBE results can be confirmed using GCMS.	PM12	Modified US EPA method 5021. Preparation of solid and liquid samples for GC headspace analysis.			AR	Yes
TM36	Modified US EPA method 8015B. Determination of Gasoline Range Organics (GRO) in the carbon chain range of C4-12 by headspace GC-FID. MTBE by GCFID co-elutes with 3-methylpentane if present and therefore can give a false positive. Positive MTBE results can be confirmed using GCMS.	PM12	Modified US EPA method 5021. Preparation of solid and liquid samples for GC headspace analysis.	Yes		AR	Yes

Test Method No.	Description	Prep Method No. (if appropriate)	Description	ISO 17025 (UKAS/S ANAS)	MCERTS (UK soils only)	Analysis done on As Received (AR) or Dried (AD)	Reported on dry weight basis
TM38	Soluble Ion analysis using Discrete Analyser. Modified US EPA methods 325.2 (Chloride), 375.4 (Sulphate), 365.2 (o-Phosphate), 353.1 (TON), 354.1 (Nitrite), 350.1 (NH4+) comparable to BS ISO 15923-1, 7196A (Hex Cr)	PM0	No preparation is required.	Yes		AR	Yes
TM38	Soluble Ion analysis using Discrete Analyser. Modified US EPA methods 325.2 (Chloride), 375.4 (Sulphate), 365.2 (o-Phosphate), 353.1 (TON), 354.1 (Nitrite), 350.1 (NH4+) comparable to BS ISO 15923-1, 7196A (Hex Cr)	PM20	Extraction of dried and ground or as received samples with deionised water in a 2:1 water to solid ratio using a reciprocal shaker for all analytes except hexavalent chromium. Extraction of as received sample using 10:1 ratio of 0.2M sodium hydroxide to soil for hexavalent chromium using a reciprocal shaker.	Yes		AR	Yes
TM50	Acid soluble sulphate (Total Sulphate) analysed by ICP-OES	PM29	Dried and ground solid sample is abiled with dilute hydrochloric acid, the resulting liquor is then analysed.	Yes		AD	Yes
TM50	Acid soluble sulphate (Total Sulphate) analysed by ICP-OES	PM29	Dried and ground solid sample is boiled with dilute hydrochloric acid, the resulting liquor is then analysed.			AR	Yes
ТМб0	TC/TOC analysis of Waters by High Temperature Combustion followed by NDIR detection. Based on the following modified standard methods: USEPA 9060, APHA Standard Methods for Examination of Water and Wastewater 5310B, ASTM D 7573, and USEPA 415.1.	PM0	is then analysed			AR	Yes
TM61	Modified US EPA methods 245.7 and 200.7. Determination of Mercury by Cold Vapour Atomic Fluorescence.	PMOSt COP	No preparation is required.	Yes		AR	Yes
TM65	Asbestos Bulk Identification method based on HSG 248.	PM42	Solid samples undergo a thorough visual inspection for asbestos fibres prior to asbestos identification using TM065.	Yes		AR	
TM73	Modified US EPA methods 150.1 and 9045D and BS1377:1990. 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
TM74	Analysis of water soluble boron (20:1 extract) by ICP-OES.	PM32	Hot water soluble boron is extracted from dried and ground samples using a 20:1 ratio.	Yes		AD	Yes
TM74	Analysis of water soluble boron (20:1 extract) by ICP-OES.	PM61	As received solid samples are extracted with hot water in a 20:1 ratio of water to soil ready for analysis by ICP.			AR	Yes

Test Method No.	Description	Prep Method No. (if appropriate)	Description	ISO 17025 (UKAS/S ANAS)	MCERTS (UK soils only)	Analysis done on As Received (AR) or Dried (AD)	Reported on dry weight basis
TM89	Modified USEPA method OIA-1667. Determination of cyanide by Flow Injection Analyser. Where WAD cyanides are required a Ligand displacement step is carried out before analysis.	PM45	As received solid samples are extracted with 1M NaOH by orbital shaker for Cyanide and Thiocyanate analysis.	Yes		AR	Yes
TM107	Determination of Sulphide/Thiocyanate by Skalar Continuous Flow Analyser	PM119	As received solid samples are extracted with 1M NaOH by orbital shaker for Sulphide and Thiocyanate analysis.			AR	Yes
TM108	Determination of Elemental Sulphur by Reversed Phase High Performance Liquid Chromatography with Ultra Violet spectroscopy.	PM114	End over end extraction of dried and crushed soil samples for organic analysis. The solvent mix varies depending on analysis required			AD	Yes
TM108	Determination of Elemental Sulphur by Reversed Phase High Performance Liquid Chromatography with Ultra Violet spectroscopy.	PM8	End over end extraction of solid samples for organic analysis. The solvent mix varies depending on analysis required.			AR	Yes
TM131	Quantification of Asbestos Fibres and ACM, based on HSG248 and SCA method.	18	Agentification using TMU65.	Yes		AR	Yes
TM173	Analysis of fluoride by ISE (Ion Selective Electrode) using modified ISE method 340.2	PMO1 COP	No preparation is required.			AR	Yes
NONE	No Method Code	NONE	No Method Code			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.			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	



Exova Jones Environmental

Unit 3 Deeside Point

	Zone 3
	Deeside Industrial Park
	Deeside
	CH5 2UA
Malone O'Regan Ground Floor - Unit 3 Bracken Business Park	Tel: +44 (0) 1244 833780
Bracken Road Sandyford Dublin 18 D18 V4K6	Fax: +44 (0) 1244 833781
Attention :	Thomas Vainio-Mattila
Date :	10th May, 2019
Your reference :	E1506
Our reference :	Test Report 19/6806 Batch 1
Location :	Athy - Site 2
Date samples received :	26th April, 2019
Status :	Final report
Issue :	E1506 Test Report 19/6806 Batch 1 us ^e Athy - Site 2 offer any offer 1 26th April, 2019 offer any for

For المجمع المحتفة محتفة المحتفة المحت المحتفة الحتفة الحتفة الحصة المحتفة المحتفة المحتفة المحتفة المحتفة المحتة 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 ported on a dry weight basis unless stated otherwise. Results are not surrogate corrected.

Compiled By:

6 lune

Bruce Leslie Project Co-ordinator

Reference:	Malone O' E1506 Athy - Site	-					Report :	Liquid					
Contact:		′ainio-Matti	la						=40ml vial, G =NaOH, HN=	G=glass bottle ∺HN0₃	e, P=plastic	bottle	
J E Sample No.	1-8	9-16	17-24	25-33	34-42	43-51							
Sample ID	GW1A	GW2A	GW3A	L1A	SW1A	SW2A							
Depth													
												e attached r ations and a	
COC No / misc													
Containers	VHNPG	VHNPG	VHNPG	V H N P BOD G	V H N P BOD G	V H N P BOD G							
Sample Date	25/04/2019	25/04/2019	25/04/2019	25/04/2019	25/04/2019	25/04/2019							
Sample Type	Ground Water	Ground Water	Ground Water	Leachate	Surface Water	Surface Water							
Batch Number	1	1	1	1	1	1						l lucita	Method
Date of Receipt	26/04/2019	26/04/2019	26/04/2019	26/04/2019	26/04/2019	26/04/2019					LOD/LOR	Units	No.
Dissolved Arsenic	-	-	-	<2.5	-	-					<2.5	ug/l	TM30/PM14
Dissolved Arsenic [#]	<2.5	<2.5	<2.5	-	<2.5	<2.5					<2.5	ug/l	TM30/PM14
Dissolved Boron	92	23	39	286	23	21					<12	ug/l	TM30/PM14
Dissolved Cadmium	-	-	-	<0.5	-	-					<0.5	ug/l	TM30/PM14
Dissolved Cadmium [#]	<0.5	<0.5	<0.5	-	<0.5	<0.5					<0.5	ug/l	TM30/PM14
Dissolved Calcium	-	-	-	255.1 _{AA}	-	-					<0.2	mg/l	TM30/PM14
Dissolved Calcium [#]	148.7	142.9	142.0	-	104.7	128.9					<0.2	mg/l	TM30/PM14
Total Dissolved Chromium	-	-	-	<1.5	-	-		se.			<1.5	ug/l	TM30/PM14
Total Dissolved Chromium [#]	<1.5	<1.5	<1.5	-	<1.5	<1.5		net			<1.5	ug/l	TM30/PM14
Dissolved Copper	-	-	-	<7	-	-	in the second	о [.]			<7	ug/l	TM30/PM14
Dissolved Copper [#] Total Dissolved Iron	<7	<7	<7	- <20	<7	<7	oup any				<7 <20	ug/l ug/l	TM30/PM14 TM30/PM14
Total Dissolved Iron #	<20	- <20	- <20	-20	<20	<2050	dfor any c				<20	ug/l	TM30/PM14
Dissolved Lead	-20	-20	-20	<5	-20	A PUTROSES	Í				<5	ug/l	TM30/PM14
Dissolved Lead [#]	<5	<5	<5	-	<5 :0	1<5					<5	ug/l	TM30/PM14
Dissolved Magnesium	-	-	-	26.1	<5 tio	NTIC -					<0.1	mg/l	TM30/PM14
Dissolved Magnesium [#]	19.9	14.2	18.5	-	or inspection	17.7					<0.1	mg/l	TM30/PM14
Dissolved Manganese	-	-	-	1031 🛠	or yric	-					<2	ug/l	TM30/PM14
Dissolved Manganese [#]	3	<2	<2	- &	<2	<2					<2	ug/l	TM30/PM14
Dissolved Mercury	-	-	-	SAL	-	-					<1	ug/l	TM30/PM14
Dissolved Mercury [#]	<1	<1	<1	0150	<1	<1					<1	ug/l	TM30/PM14
Dissolved Nickel	-	-	-	5	-	-					<2	ug/l	TM30/PM14
Dissolved Nickel [#]	<2	<2	<2	-	<2	<2					<2	ug/l	TM30/PM14
Dissolved Potassium	-	-	-	28.3	-	-					<0.1	mg/l	TM30/PM14
Dissolved Potassium [#]	7.6	2.1	1.9	-	2.1	2.3					<0.1	mg/l	TM30/PM14
Dissolved Sodium Dissolved Sodium [#]	-	-	-	21.9	-	- 9.5					<0.1 <0.1	mg/l	TM30/PM14 TM30/PM14
Dissolved Sodium" Dissolved Zinc	45.4	- 15.0	- 11.3	- 27	9.2	9.5					<0.1	mg/l ug/l	TM30/PM12 TM30/PM14
Dissolved Zinc [#]	<3	<3	<3	-	<3	<3					<3	ug/l	TM30/PM14
Methyl Tertiary Butyl Ether	-	-	-	<0.1	-	-					<0.1	ug/l	TM15/PM10
Methyl Tertiary Butyl Ether #	<0.1	<0.1	<0.1	-	<0.1	<0.1					<0.1	ug/l	TM15/PM10
Benzene	-	-	-	<0.5	-	-					<0.5	ug/l	TM15/PM10
Benzene #	<0.5	<0.5	<0.5	-	<0.5	<0.5					<0.5	ug/l	TM15/PM10
Toluene	-	-	-	<5	-	-					<5	ug/l	TM15/PM10
Toluene [#]	<5	<5	<5	-	<5	<5					<5	ug/l	TM15/PM10
Ethylbenzene	-	-	-	<1	-	-					<1	ug/l	TM15/PM10
Ethylbenzene [#]	<1	<1	<1	-	<1	<1					<1	ug/l	TM15/PM10
m/p-Xylene	-	-	-	<2	-	-					<2	ug/l	TM15/PM10
m/p-Xylene [#] o-Xylene	<2	<2	<2	- <1	<2	<2					<2 <1	ug/l	TM15/PM10 TM15/PM10
o-Xylene [#]	- <1	- <1	- <1	-	- <1	- <1					<1	ug/l ug/l	TM15/PM10
o-Xylene " Surrogate Recovery Toluene D8	111	109	107	- 112	108	103					<0	ug/i %	TM15/PM1 TM15/PM1
Surrogate Recovery 4-Bromofluorobenzene	103	97	95	103	97	94					<0	%	TM15/PM10

	Malone O' E1506	'Regan					Report :	Liquid					
Location:	Athy - Site	2											
Contact:	Thomas V	′ainio-Matti	la				Liquids/pr	oducts: V=	40ml vial, G	=glass bottle	e, P=plastic	bottle	
JE Job No.:	19/6806						H=H ₂ SO ₄ , 2	Z=ZnAc, N=	NaOH, HN=	HN0 ₃			
J E Sample No.	1-8	9-16	17-24	25-33	34-42	43-51							
Sample ID	GW1A	GW2A	GW3A	L1A	SW1A	SW2A							
Depth												e attached n ations and a	
COC No / misc Containers	VHNPG	VHNPG	VHNPG	V H N P BOD G	V H N P BOD G	V H N P BOD G							,
Sample Date	25/04/2019	25/04/2019	25/04/2019	25/04/2019	25/04/2019	25/04/2019							
Sample Type	Ground Water	Ground Water	Ground Water	Leachate	Surface Water	Surface Water							
Batch Number	1	1	1	1	1	1							Mathead
Date of Receipt	26/04/2019	26/04/2019	26/04/2019	26/04/2019	26/04/2019	26/04/2019					LOD/LOR	Units	Method No.
Pesticides													
Organochlorine Pesticides													
Aldrin	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01					<0.01	ug/l	TM149/PM30
Alpha-HCH (BHC)	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01					<0.01	ug/l	TM149/PM30
Beta-HCH (BHC)	< 0.01	<0.01	<0.01	<0.01	<0.01	<0.01					< 0.01	ug/l	TM149/PM30
Chlorothalonil cis-Chlordane	<2.50 _{AB} <0.01					<0.01 <0.01	ug/l	TM149/PM30 TM149/PM30					
cis-Chiordane Delta-HCH (BHC)	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01					<0.01	ug/l	TM149/PM30
Dieldrin	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01		, 15 ⁰ .			<0.01	ug/l ug/l	TM149/PM30
Endosulphan I	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	ś	her			<0.01	ug/l	TM149/PM30
Endosulphan II	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	4.00				<0.01	ug/l	TM149/PM30
Endosulphan sulphate	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	offer ar				<0.01	ug/l	TM149/PM30
Endrin	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01 <0.07 0.03 0.03	alty. any				<0.01	ug/l	TM149/PM30
Gamma-HCH (BHC)	<0.01	<0.01	<0.01	<0.01	<0.01	040.0011					<0.01	ug/l	TM149/PM30
Heptachlor	<0.01	<0.01	<0.01	<0.01	<0.01	0.01					<0.01	ug/l	TM149/PM30
Heptachlor Epoxide	<0.01	<0.01	<0.01	<0.01	< 2.61	<0.01					<0.01	ug/l	TM149/PM30
Hexachlorobenzene	<0.01	<0.01	<0.01	<0.01	· 20 00	<0.01					<0.01	ug/l	TM149/PM30
Isodrin	<0.01	<0.01	<0.01	<0.01 🛠	00,001	<0.01					<0.01	ug/l	TM149/PM30
o,p'-DDE	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01					<0.01	ug/l	TM149/PM30
o,p'-DDT	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01					<0.01	ug/l	TM149/PM30
o,p'-Methoxychlor	<0.01	<0.01	<0.01	080.01	<0.01	<0.01					<0.01	ug/l	TM149/PM30
o,p'-TDE	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01					<0.01	ug/l	TM149/PM30
p,p'-DDE	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01					<0.01	ug/l	TM149/PM30
p,p'-DDT	< 0.01	<0.01	<0.01	<0.01	<0.01	< 0.01					< 0.01	ug/l	TM149/PM30
p,p'-Methoxychlor	< 0.01	<0.01	< 0.01	<0.01	<0.01	<0.01					< 0.01	ug/l	TM149/PM30 TM149/PM30
p,p'-TDE Pendimethalin	<0.01 <0.01	<0.01 <0.01	<0.01 <0.01	<0.01 <0.01	<0.01 <0.01	<0.01 <0.01					<0.01 <0.01	ug/l	TM149/PM30 TM149/PM30
Pendimethalin Permethrin I	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01					<0.01	ug/l ug/l	TM149/PM30
Permethrin II	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01					<0.01	ug/i ug/i	TM149/PM30
Quintozene (PCNB)	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01					<0.01	ug/l	TM149/PM30
Tecnazene	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01					<0.01	ug/l	TM149/PM30
Telodrin	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01					<0.01	ug/l	TM149/PM30
trans-Chlordane	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01					<0.01	ug/l	TM149/PM30
Triadimefon	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01					<0.01	ug/l	TM149/PM30
Triallate	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01					<0.01	ug/l	TM149/PM30
Trifluralin	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01					<0.01	ug/l	TM149/PM30
												-	

Client Name: Reference:	Malone O' E1506	'Regan					Report :	Liquid					
Location:	Athy - Site	2											
Contact:	Thomas V	′ainio-Matti	la				Liquids/pr	oducts: V=	40ml vial, G	=glass bottl	e, P=plastic	bottle	
JE Job No.:	19/6806						H=H ₂ SO ₄ , 2	Z=ZnAc, N=	NaOH, HN=	HN0 ₃			
J E Sample No.	1-8	9-16	17-24	25-33	34-42	43-51					1		
•													
Sample ID	GW1A	GW2A	GW3A	L1A	SW1A	SW2A							
Depth												e attached n	
COC No / misc											abbrevi	ations and a	cronyms
Containers	VHNPG	VHNPG	VHNPG	V H N P BOD G	V H N P BOD G	V H N P BOD G							
Sample Date	25/04/2019	25/04/2019	25/04/2019	25/04/2019	25/04/2019	25/04/2019							
Sample Type	Ground Water	Ground Water	Ground Water	Leachate	Surface Water	Surface Water							
Batch Number	1	1	1	1	1	1					LOD/LOR	Units	Method
Date of Receipt	26/04/2019	26/04/2019	26/04/2019	26/04/2019	26/04/2019	26/04/2019					LOBILOIN	Onito	No.
Pesticides													
Organophosphorus Pesticides													
Azinphos ethyl	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01					<0.01	ug/l	TM149/PM30
Azinphos methyl	< 0.01	<0.01	< 0.01	< 0.01	< 0.01	< 0.01					< 0.01	ug/l	TM149/PM30
Carbophenothion	<0.01	<0.01	<0.01	< 0.01	<0.01	<0.01					<0.01	ug/l	TM149/PM30 TM149/PM30
Chlorfenvinphos Chlorpyrifos	<0.01 <0.01	<0.01 <0.01	<0.01 <0.01	<0.01 <0.01	<0.01 <0.01	<0.01 <0.01					<0.01 <0.01	ug/l ug/l	TM149/PM30 TM149/PM30
Chlorpyrifos-methyl	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01					<0.01	ug/l	TM149/PM30
Diazinon	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01		, 15 ⁰ .			<0.01	ug/l	TM149/PM30
Dichlorvos	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	ator any o	net			<0.01	ug/l	TM149/PM30
Disulfoton	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	17. 17				<0.01	ug/l	TM149/PM30
Dimethoate	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	off of a				<0.01	ug/l	TM149/PM30
Ethion	<0.01	<0.01	<0.01	<0.01	<0.01	<0.07	<u>8</u>				<0.01	ug/l	TM149/PM30
Ethyl Parathion (Parathion)	<0.01	<0.01	<0.01	<0.01	<0.01	2~0.00					<0.01	ug/l	TM149/PM30
Etrimphos	<0.01	<0.01	<0.01	<0.01	<0.01	0.01					<0.01	ug/l	TM149/PM30
Fenitrothion	<0.01	<0.01	<0.01	<0.01	< 0.61						<0.01	ug/l	TM149/PM30
Fenthion	<0.01	<0.01	<0.01	<0.01	120.091	<0.01					<0.01	ug/l	TM149/PM30
Malathion	< 0.01	< 0.01	<0.01	<0.01	01001	< 0.01					< 0.01	ug/l	TM149/PM30 TM149/PM30
Methyl Parathion Mevinphos	<0.01 <0.01	<0.01 <0.01	<0.01 <0.01	<0.01	<0.01 <0.01	<0.01 <0.01					<0.01 <0.01	ug/l ug/l	TM149/PM30
Phosalone	<0.01	<0.01	<0.01	0100.01	<0.01	<0.01					<0.01	ug/l	TM149/PM30
Pirimiphos Methyl	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01					<0.01	ug/l	TM149/PM30
Propetamphos	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01					<0.01	ug/l	TM149/PM30
Triazophos	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01					<0.01	ug/l	TM149/PM30

	Malone O E1506	'Regan					Report :	Liquid					
Location:	Athy - Site	2											
Contact:	Thomas V	/ainio-Matti	ila				Liquids/pr	oducts: \	/=40ml vial, G	=glass bottle	, P=plastic	bottle	
JE Job No.:	19/6806						H=H ₂ SO ₄ , 2	Z=ZnAc, N	I=NaOH, HN=	HN0 ₃			
J E Sample No.	1-8	9-16	17-24	25-33	34-42	43-51							
Sample ID	GW1A	GW2A	GW3A	L1A	SW1A	SW2A							
Depth												e attached n ations and a	
COC No / misc Containers	VHNPG	VHNPG	VHNPG	V H N P BOD G	V H N P BOD G	V H N P BOD G							2
Sample Date	25/04/2019	25/04/2019	25/04/2019	25/04/2019	25/04/2019	25/04/2019							
Sample Type	Ground Water	Ground Water	Ground Water	Leachate	Surface Water	Surface Water							
Batch Number	1	1	1	1	1	1					LOD/LOR	Units	Method
Date of Receipt	26/04/2019	26/04/2019	26/04/2019	26/04/2019	26/04/2019	26/04/2019					LOD/LOR	Units	No.
Acid Herbicides													
Benazolin	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1					<0.1	ug/l	TM42/PM30
Bentazone Bromovunil	<0.1	<0.1	<0.1	<0.1 <0.1	<0.1	<0.1					<0.1	ug/l	TM42/PM30 TM42/PM30
Bromoxynil Clopyralid	<0.1 <0.1	<0.1 <0.1	<0.1 <0.1	<0.1	<0.1 <0.1	<0.1 <0.1					<0.1 <0.1	ug/l ug/l	TM42/PM30 TM42/PM30
4-CPA	<0.1	<0.1	<0.1	<0.1	-0.1	-0.1					<0.1	ug/l	TM42/PM30
2,4-D	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1					<0.1	ug/l	TM42/PM30
2,4-DB	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1 <0.1 <0.1 <0.1 <0.1 <0.1 <0.1 <0.1					<0.1	ug/l	TM42/PM30
Dicamba	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1		at USC			<0.1	ug/l	TM42/PM30
Dichloroprop	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	, ć	ne			<0.1	ug/l	TM42/PM30
Diclofop	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	aly and				<0.1	ug/l	TM42/PM30
Fenoprop	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	for				<0.1	ug/l	TM42/PM30
Flamprop	<0.1	<0.1	<0.1	<0.1	<0.1	- 10° 11	, C				<0.1	ug/l	TM42/PM30
Flamprop-isopropyl	<0.1	<0.1	<0.1	<0.1	<0.1	Dr=0 0tr					<0.1	ug/l	TM42/PM30
loxynil	<0.1	<0.1	<0.1	<0.1	<0.1 10 <890	110×0.1					<0.1	ug/l	TM42/PM30
MCPA	<0.1 <0.1	<0.1 <0.1	<0.1	<0.1 <0.1	1120301	<0.1 <0.1					<0.1	ug/l	TM42/PM30 TM42/PM30
MCPB Mecoprop	<0.1	<0.1	<0.1 <0.1	<0.1	02 50.1	<0.1					<0.1 <0.1	ug/l ug/l	TM42/PM30
Picloram	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1					<0.1	ug/l	TM42/PM30
Pentachlorophenol	<0.1	<0.1	<0.1	<0 th	<0.1	<0.1					<0.1	ug/l	TM42/PM30
2,4,5-T	<0.1	<0.1	<0.1	OTRO.1	<0.1	<0.1					<0.1	ug/l	TM42/PM30
2,3,6-TBA	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1					<0.1	ug/l	TM42/PM30
Triclopyr	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1					<0.1	ug/l	TM42/PM30
Atrazine	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01					<0.01	ug/l	TM149/PM30
Simazine	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01					<0.01	ug/l	TM149/PM30
EPH (C8-C40)	-	-	-	<10	-	-					<10	ug/l	TM5/PM30
EPH (C8-C40)#	<10	<10	<10	-	<10	<10					<10	ug/l	TM5/PM30
Mineral Oil (C10-C40)											<10	ug/l	TM5/PM16/PM30
													1

Client Name: Reference:	Malone O' E1506	'Regan					Report :	Liquid					
Location:	Athy - Site	2											
Contact:	Thomas V	′ainio-Matti	ila				Liquids/pr	oducts: V=	40ml vial, G	=glass bottle	e, P=plastic	bottle	
JE Job No.:	19/6806						H=H ₂ SO ₄ , 2	Z=ZnAc, N=	NaOH, HN=	HN0 ₃			
J E Sample No.	1-8	9-16	17-24	25-33	34-42	43-51							
Sample ID	GW1A	GW2A	GW3A	L1A	SW1A	SW2A							
Depth												e attached r	
COC No / misc											apprevi	ations and a	cronyms
Containers					V H N P BOD G								
Sample Date Sample Type					25/04/2019 Surface Water								
Batch Number	1	1	1	Leachale	1	1							
Date of Receipt											LOD/LOR	Units	Method No.
TPH CWG													
Aliphatics													
>C5-C6	-	-	-	<10	-	-					<10	ug/l	TM36/PM12
>C5-C6 #	<10	<10	<10	-	<10	<10					<10	ug/l	TM36/PM12
>C6-C8	-	-	-	<10	-	-					<10	ug/l	TM36/PM12
>C6-C8 [#]	<10	<10	<10	-	<10	<10					<10	ug/l	TM36/PM12
>C8-C10	-	-	-	<10	-	-					<10	ug/l	TM36/PM12
>C8-C10 #	<10	<10	<10	-	<10	<10		se.			<10	ug/l	TM36/PM12
>C10-C12	-	-	-	<5	-	-	alty. any of	net			<5	ug/l	TM5/PM16/PM30
>C10-C12 [#]	<5	<5	<5	-	<5	<5	de la construction de la constru				<5	ug/l	TM5/PM16/PM30
>C12-C16	-	-	-	<10	-	-	MIN an				<10	ug/l	TM5/PM16/PM30
>C12-C16 [#]	<10	<10	<10	-	<10	<10	a for				<10	ug/l	TM5/PM16/PM30
>C16-C21 >C16-C21 [#]	- <10	- <10	- <10	<10	- <10	allouit	0-				<10 <10	ug/l	TM5/PM16/PM30 TM5/PM16/PM30
>C16-C21 >C21-C35	-	-	-	- <10	<10 · d	P. tor					<10	ug/l ug/l	TM5/PM16/PM30
>C21-C35 [#]	- <10	- <10	- <10	-	<10 ^c th	N110 - 10					<10	ug/l	TM5/PM16/PM30
Total aliphatics C5-35	-	-	-	<10	inspito	-					<10	ug/l	TM5/TM36/PM12/PM16/PM3
Total aliphatics C5-35 [#]	<10	<10	<10	- (opy10	<10					<10	ug/l	TM5/TM36/PM12/PM16/PM3
Aromatics				5	COX.							-	
>C5-EC7	-	-	-	<10	-	-					<10	ug/l	TM36/PM12
>C5-EC7#	<10	<10	<10	<14.01	<10	<10					<10	ug/l	TM36/PM12
>EC7-EC8	-	-	- (<10	-	-					<10	ug/l	TM36/PM12
>EC7-EC8 [#]	<10	<10	<10	-	<10	<10					<10	ug/l	TM36/PM12
>EC8-EC10	-	-	-	<10	-	-					<10	ug/l	TM36/PM12
>EC8-EC10#	<10	<10	<10	-	<10	<10					<10	ug/l	TM36/PM12
>EC10-EC12	-	-	-	<5	-	-					<5	ug/l	TM5/PM16/PM30
>EC10-EC12#	<5	<5	<5	-	<5	<5					<5	ug/l	TM5/PM16/PM30
>EC12-EC16	-	-	-	<10	-	-					<10	ug/l	TM5/PM16/PM30
>EC12-EC16 [#]	<10	<10	<10	-	<10	<10					<10	ug/l	TM5/PM16/PM30
>EC16-EC21	- <10	-	-	<10	-	- <10					<10	ug/l	TM5/PM16/PM30 TM5/PM16/PM30
>EC16-EC21 # >EC21-EC35	-	<10	<10	- <10	<10	-					<10 <10	ug/l ug/l	TM5/PM16/PM30
>EC21-EC35	- <10	- <10	- <10	-	- <10	- <10					<10	ug/l	TM5/PM16/PM30
Total aromatics C5-35	-	-	-	<10	-	-					<10	ug/l	TM5/TM36/PM12/PM16/PM3
Total aromatics C5-35 [#]	<10	<10	<10	-	<10	<10					<10	ug/l	TM5/TM38/PM12/PM18/PM3
Total aliphatics and aromatics(C5-35)	-	-	-	<10	-	-					<10	ug/l	TM5/TM38/PM12/PM16/PM3
Total aliphatics and aromatics(C5-35) #	<10	<10	<10	-	<10	<10					<10	ug/l	TM5/TM38/PM12/PM16/PM3
GRO (>C4-C9)	-	-	-	<10	-	-					<10	110/1	TM36/PM12
GRO (>C4-C8) GRO (>C4-C8) [#]	- <10	- <10	- <10	<10	- <10	- <10					<10	ug/l	TM36/PM12
	<10	<10	<10	- 16	<10	<10					<10	ug/l ug/l	TM36/PM12
GRO (>C8-C12)	- <10	- <10	- <10	-	- <10	- <10					<10	-	TM36/PM12
GRO (>C8-C12) [#] GRO (>C4-C12)	-	-	-	- 16	-	-					<10	ug/l	TM36/PM12
						- <10						ug/l	
GRO (>C4-C12) [#]	<10	<10	<10	-	<10	< IU					<10	ug/l	TM36/PM12

Client Name:	Malone O	'Regan					Report :	Liquid					
Reference:	E1506												
Location:	Athy - Site	2											
Contact:	Thomas V	/ainio-Matti	ila				Liquids/pr	oducts:	V=40ml vial, G	=glass bottle	, P=plastic	bottle	
JE Job No.:	19/6806						H=H ₂ SO ₄ , 2	Z=ZnAc, I	N=NaOH, HN=	HN0 ₃			
J E Sample No.	1-8	9-16	17-24	25-33	34-42	43-51							
Sample ID	GW1A	GW2A	GW3A	L1A	SW1A	SW2A							
Depth											Please se	e attached n	otes for all
COC No / misc											abbrevi	ations and ac	cronyms
Containers		VHNPG			V H N P BOD G								
Sample Date Sample Type				25/04/2019 Leachate		25/04/2019 Surface Water							
Batch Number	1	1	1	1	1	1							Method
Date of Receipt	26/04/2019	26/04/2019	26/04/2019	26/04/2019	26/04/2019	26/04/2019					LOD/LOR	Units	No.
Phenol	-	-	-	<0.01	-	-					<0.01	mg/l	TM26/PM0
Phenol [#]	<0.01	<0.01	<0.01	-	<0.01	<0.01					<0.01	mg/l	TM26/PM0
Fluoride	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3					<0.3	mg/l	TM173/PM0
Sulphate as SO4	-	-	-	33.7	-	-					<0.5	mg/l	TM38/PM0
Sulphate as SO4 [#]	79.0	43.4	26.4	-	29.2	24.3					<0.5	mg/l	TM38/PM0
Chloride	-	_	-	25.8	-	-		<i>c</i> .			<0.3	mg/l	TM38/PM0
Chloride [#]	83.7	50.0	30.1	-	27.4	26.8		, 150			<0.3	mg/l	TM38/PM0
MRP Ortho Phosphate as P	< 0.03	< 0.03	< 0.03	<0.03	< 0.03	< 0.03	,	net			< 0.03	mg/l	TM38/PM0
Total Oxidised Nitrogen as N	-	-	-	<0.2	-	-	A. 02	-			<0.2	mg/l	TM38/PM0
Total Oxidised Nitrogen as N [#]	7.6	8.9	7.8	-	9.1	8.9	offer ar				<0.2	mg/l	TM38/PM0
						170 ^{5e5}	dre						
Total Cyanide	-	-	-	0.04	-	Purech					<0.01	mg/l	TM89/PM0
Total Cyanide [#]	<0.01	<0.01	<0.01	-	<0.01;00	N1050.01					<0.01	mg/l	TM89/PM0
Ammoniacal Nitrogen as N	-	-	-	39.03	in oht	-					<0.03	mg/l	TM38/PM0
Ammoniacal Nitrogen as N [#]	<0.03	<0.03	<0.03	- 😵	- 29.2 - 27.4 <0.03 - 9.1 - <0.01;10 - <0.01;10 0,00;00;00 0,00;00;00 0,00;00;00 0,00;00;00 0,00;00;00;00;00;00;00;00;00;00;00;00;00	<0.03					<0.03	mg/l	TM38/PM0
Total Alkalinity as CaCO3 [#]	666	4770	342	Onsent of	274	284					<1	mg/l	TM75/PM0
Dibutyltin	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1					<0.1	ug/l	TM94/PM48
Tributyltin	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1					<0.1	ug/l	TM94/PM48
Triphenyltin	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1					<0.1	ug/l	TM94/PM48
BOD (Settled)	-	-	-	10	-	-					<1	mg/l	TM58/PM0
BOD (Settled) [#]	-	-	-	-	<1	<1					<1	mg/l	TM58/PM0
COD (Settled)	-	-	-	69	-	-					<7	mg/l	TM57/PM0
COD (Settled) [#]	-	-	-	-	13	9					<7	mg/l	TM57/PM0
Dissolved Oxygen	8	9	6	3	9	11					<1	mg/l	TM58/PM0
Electrical Conductivity @25C	-	-	-	1500	-	-					<2	uS/cm	TM76/PM0
Electrical Conductivity @25C [#]	875	805	707	-	685	731					<2	uS/cm	TM76/PM0
Faecal Coliforms*	<1	<1	<	-	-	-	l				-	CFU/100ml	Subcontracted
рН	-	-	-	7.51	-	-					<0.01	pH units	TM73/PM0
рн#	7.38	7.21	7.28	-	7.74	7.86					<0.01	pH units	TM73/PM0
Redox	369.49	365.04	358.73	-40.96	135.08	172.41	l				5.01	mV	TM72/PM0
Total Organic Carbon [#]	<2	<2	<2	-40.30	-	-					<2	mg/l	TM60/PM0
Total Coliforms*	<1.0	7.4	165.8	-	-	-					-	CFU/100ml	Subcontracted
Total Dissolved Solids [#]	673	530	516	-	-	-					<35	mg/l	TM20/PM0
Total Suspended Solids	-	-	-	-	- <10	- <10					<10	mg/l	TM37/PM0
Total Suspended Solids	-	-	-	-	~10	~10					-10	iiig/i	

Client Name:	Malone O'Regan
Reference:	E1506
Location:	Athy - Site 2
Contact:	Thomas Vainio-Mattila
JE Job No.:	19/6806

SVOC Report : Liquid

J E Sample No.1-8Sample IDGW1ACOC No / miscGW1ACOC No / miscV H N P GSample Date25/04/2019Sample Date26/04/2019Sample TypeGround WaterBatch Number1Date of Receipt26/04/2019SVOC MSPhenols2-Chlorophenol-2-Chlorophenol-2-Methylphenol-2-Methylphenol-2.4-Dinchorophenol-2.4-Dinchorophenol-2.4-Dinchorophenol-2.4.5-Trichlorophenol-2.4.5-Trichlorophenol-2.4.5-Trichlorophenol-2.4.5-Trichlorophenol-2.4.6-Trichlorophenol-4.7.61007-3-methylphenol-4.7.61007-3-methylphenol-2.7.61000 aphthalene-2.7.61000 aphthalene-3.7.7-3.7.7-3.7.7- <th< th=""><th>9 25/04/2019 Fr Ground Water 1</th><th>25/04/2019 Ground Water 1</th><th>25/04/2019 Leachate 1</th><th>25/04/2019 Surface Water 1 26/04/2019 - <1 - <0.5 <0.5 - <0.5 - <0.5 <1 - <0.5 <1</th><th>25/04/2019 Surface Water 1 26/04/2019 - <1 - <0.5 <0.5 - <0.5 - <0.5 - <0.5 - <0.5 - <0.5 - <0.5 - <0.5 - <1 -</th><th></th><th></th><th></th><th></th><th>Units ug/l ug/l ug/l ug/l ug/l ug/l</th><th>Method No. TM16/PM30 TM16/PM30 TM16/PM30 TM16/PM30</th></th<>	9 25/04/2019 Fr Ground Water 1	25/04/2019 Ground Water 1	25/04/2019 Leachate 1	25/04/2019 Surface Water 1 26/04/2019 - <1 - <0.5 <0.5 - <0.5 - <0.5 <1 - <0.5 <1	25/04/2019 Surface Water 1 26/04/2019 - <1 - <0.5 <0.5 - <0.5 - <0.5 - <0.5 - <0.5 - <0.5 - <0.5 - <0.5 - <1 -					Units ug/l ug/l ug/l ug/l ug/l ug/l	Method No. TM16/PM30 TM16/PM30 TM16/PM30 TM16/PM30
DepthCOC No / miscContainersV H N P GSample Date25/04/2019Sample TypeGround WaterBatch Number1Date of Receipt26/04/2019SVOC MS26/04/2019SVOC MS12-Chlorophenol #<12-Chlorophenol #<12-Methylphenol #<0.52,4-Ditchlorophenol #<0.52,4-Ditchlorophenol #<0.52,4-Ditchlorophenol #<0.52,4-Ditchlorophenol #<0.52,4,5-Trichlorophenol #<0.52,4,5-Trichlorophenol #<0.52,4,5-Trichlorophenol #<0.52,4,5-Trichlorophenol #<0.52,4,5-Trichlorophenol #<0.52,4,5-Trichlorophenol #<0.52,4,5-Trichlorophenol #<14-Nitrophenol<14-Nitrophenol<14-Nitrophenol<14-Nitrophenol<14-Nitrophenol<14-Nitrophenol<14-Nitrophenol<14-Nitrophenol<14-Nitrophenol<14-Nitrophenol<12-Chloronaphthalene #<12-Chloronaphthalene #<12-Chloronaphthalene #<12-Methylnaphthalene #<12-Methylnaphthalene #<12-Methylnaphthalene #<13-Chloronaphthylene #<13-Chloronaphthylene #<14-Chloronaphthylene #<14-Chloronaphthylene #<13-Chloronaphthylene	V H N P G 25/04/2019 r Ground Water 1 26/04/2019 - <1 - <0.5 <0.5 <1 - <0.5 <1 - <0.5 <1 - <0.5 <1 - <10.5 <1 <10 <1 <10 <1 <11 <1 <11 -	V H N P G 25/04/2019 Ground Water 1 26/04/2019 - <1 - <0.5 <10.5 <1 - <0.5 <1 - <0.5 <1 - <0.5 <1 - <0.5 <1 - <10.5 <1 - <10.5 <1 - <10.5 <1 - <10.5 <10.5 <10.5 <10.5 <10.5 <10.5 <10.5 <10.5 <10.5 <10.5 <10.5 <10.5 <10.5 <10.5 <10.5 <10.5 <10.5 <10.5 <10.5 <10.5 <10.5 <10.5 <10.5 <10.5 <10.5 <10.5 <10.5 <10.5 <10.5 <10.5 <10.5 <10.5 <10.5 <10.5 <10.5 <10.5 <10.5 <10.5 <10.5 <10.5 <10.5 <10.5 <10.5 <10.5 <10.5 <10.5 <10.5 <10.5 <10.5 <10.5 <10.5 <10.5 <10.5 <10.5 <10.5 <10.5 <10.5 <10.5 <10.5 <10.5 <10.5 <10.5 <10.5 <10.5 <10.5 <10.5 <10.5 <10.5 <10.5 <10.5 <10.5 <10.5 <10.5 <10.5 <10.5 <10.5 <10.5 <10.5 <10.5 <10.5 <10.5 <10.5 <10.5 <10.5 <10.5 <10.5 <10.5 <10.5 <10.5 <10.5 <10.5 <10.5 <10.5 <10.5 <10.5 <10.5 <10.5 <10.5 <10.5 <10.5 <10.5 <10.5 <10.5 <10.5 <10.5 <10.5 <10.5 <10.5 <10.5 <10.5 <10.5 <10.5 <10.5 <10.5 <10.5 <10.5 <10.5 <10.5 <10.5 <10.5 <10.5 <10.5 <10.5 <10.5 <10.5 <10.5 <10.5 <10.5 <10.5 <10.5 <10.5 <10.5 <10.5 <10.5 <10.5 <10.5 <10.5 <10.5 <10.5 <10.5 <10.5 <10.5 <10.5 <10.5 <10.5 <10.5 <10.5 <10.5 <10.5 <10.5 <10.5 <10.5 <10.5 <10.5 <10.5 <10.5 <10.5 <10.5 <10.5 <10.5 <10.5 <10.5 <10.5 <10.5 <10.5 <10.5 <10.5 <10.5 <10.5 <10.5 <10.5 <10.5 <10.5 <10.5 <10.5 <10.5 <10.5 <10.5 <10.5 <10.5 <10.5 <10.5 <10.5 <10.5 <10.5 <10.5 <10.5 <10.5 <10.5 <10.5 <10.5 <10.5 <10.5 <10.5 <10.5 <10.5 <10.5 <10.5 <10.5 <10.5 <10.5 <10.5 <10.5 <10.5 <10.5 <10.5 <10.5 <10.5 <10.5 <10.5 <10.5 <10.5 <10.5 <10.5 <10.5 <10.5 <10.5 <10.5 <10.5 <10.5 <10.5 <10.5 <10.5 <10.5 <10.5 <10.5 <10.5 <10.5 <10.5 <10.5 <10.5 <10.5 <10.5 <10.5 <10.5 <10.5 <10.5 <10.5 <10.5 <10.5 <10.5 <10.5 <10.5 <10.5 <10.5 <10.5 <10.5 <10.5 <10.5 <10.5 <10.5 <10.5 <10.5 <10.5 <10.5 <10.5 <10.5 <10.5 <10.5 <10.5 <10.5 <10.5 <10.5 <10.5 <10.5 <10.5 <10.5 <10.5 <10.5 <10.5 <10.5 <10.5 <10.5 <10.5 <10.5 <10.5 <10.5 <10.5 <10.5 <10.5 <10.5 <10.5 <10.5 <10.5 <10.5 <10.5 <10.5 <10.5 <10.5 <10.5 <10.5 <10.5 <10.5 <10.5 <10.5 <10.5 <10.5 <10.5 <10.5 <10.5 <10.5 <10.5 <10.5 <10.5 <10.5 <10.5 <10.5 <10.5 <10.5 <10.5 <10.5 <10.5 <10.5 <10.5 <10.5 <10.5 <10.5 <	VHNPBODG 25/04/2019 Leachate 1 26/04/2019 <1 - <0.5 - <0.5 - <0.5 - <1 <0.5 - <1 <0.5 - <1 <0.5 - <1	V H N P BOD G 25/04/2019 Surface Water 1 26/04/2019 - <1 - <0.5 <0.5 - <0.5 <1 - <0.5 <1 -	V H N P BOD G 25/04/2019 Surface Water 1 26/04/2019 - <1 - <0.5 <0.5 <0.5 <1 - <0.5 <1 - <0.5 <1 -				abbrevia	Units Ug/l ug/l ug/l ug/l ug/l ug/l	Method No. TM16/PM30 TM16/PM30 TM16/PM30 TM16/PM30
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Sample Date25/04/2019Sample TypeGround WaterBatch Number1Date of Receipt26/04/2019SVOC MS-2-Chlorophenol-2-Chlorophenol-2-Methylphenol-2-Methylphenol-2-Methylphenol-2-Methylphenol-2-Methylphenol-2-Methylphenol-2-Methylphenol-2-Methylphenol-2-Methylphenol-2-Methylphenol-2-Methylphenol-2-Methylphenol-2,4-Dichlorophenol-2,4,5-Trichlorophenol-2,4,5-Trichlorophenol-4-Chloro-3-methylphenol-4-Chloro-3-methylphenol-4-Methylphenol-4-Methylphenol-2-Chloronaphthalene-2-Chloronaphthalene-2-Chloronaphthalene-2-Methylnaphthalene-2-Methylnaphthalene-2-Methylnaphthalene-2-Methylnaphthalene-2-Methylnaphthalene-3-Chloronaphthalene-3-Chloronaphthalene-3-Chloronaphthalene-3-Chloronaphthalene-3-Chloronaphthalene-3-Chloronaphthalene-3-Chloronaphthalene-3-Chloronaphthalene-3-Chloronaphthalene-3-Chloronaphthalene-3-Chloronaphthalene- <t< td=""><td>25/04/2019 r Ground Water 1 26/04/2019 - - - - - - - - - - - - -</td><td>25/04/2019 Ground Water 1 26/04/2019 - <1 - <0.5 <1 - <0.5 <1 - <0.5 <1 - <0.5 <1 - <0.5 <1 - 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<0.5 - <0.5 - <1 <0.5 - <1 <0.5 - <1 <0.5 - <1</td><td>25/04/2019 Surface Water 1 26/04/2019 - <1 - <0.5 <0.5 - <0.5 - <0.5 <1 - <0.5 <1</td><td>25/04/2019 Surface Water 1 26/04/2019 - <1 - <0.5 <0.5 - <0.5 - <0.5 - <0.5 - <0.5 - <0.5 - <0.5 - <0.5 - <1 -</td><td></td><td></td><td></td><td><1 <1 <0.5 <0.5 <0.5</td><td>ug/l ug/l ug/l ug/l ug/l</td><td>No. TM16/PM30 TM16/PM30 TM16/PM30 TM16/PM30</td></t<>	25/04/2019 r Ground Water 1 26/04/2019 - - - - - - - - - - - - -	25/04/2019 Ground Water 1 26/04/2019 - <1 - <0.5 <1 - <0.5 <1 - <0.5 <1 - <0.5 <1 - <0.5 <1 - <10.5 <1 - <10.5 <11 - <10.5 <11 - <11 - <10.5 <11 - <10.5 <11 - <10.5 <11 - <10.5 <10.5 <11 - <10.5 <10.5 <10.5 <10.5 <10.5 <10.5 <10.5 <10.5 <10.5 <10.5 <10.5 <10.5 <10.5 <10.5 <10.5 <10.5 <10.5 <10.5 <10.5 <10.5 <10.5 <10.5 <10.5 <10.5 <10.5 <10.5 <10.5 <10.5 <10.5 <10.5 <10.5 <10.5 <10.5 <10.5 <10.5 <10.5 <10.5 <10.5 <10.5 <10.5 <10.5 <10.5 <10.5 <10.5 <10.5 <10.5 <10.5 <10.5 <10.5 <10.5 <10.5 <10.5 <10.5 <10.5 <10.5 <10.5 <10.5 <10.5 <10.5 <10.5 <10.5 <10.5 <10.5 <10.5 <10.5 <10.5 <10.5 <10.5 <10.5 <10.5 <10.5 <10.5 <10.5 <10.5 <10.5 <10.5 <10.5 <10.5 <10.5 <10.5 <10.5 <10.5 <10.5 <10.5 <10.5 <10.5 <10.5 <10.5 <10.5 <10.5 <10.5 <10.5 <10.5 <10.5 <10.5 <10.5 <10.5 <10.5 <10.5 <10.5 <10.5 <10.5 <10.5 <10.5 <10.5 <10.5 <10.5 <10.5 <10.5 <10.5 <10.5 <10.5 <10.5 <10.5 <10.5 <10.5 <10.5 <10.5 <10.5 <10.5 <10.5 <10.5 <10.5 <10.5 <10.5 <10.5 <10.5 <10.5 <10.5 <10.5 <10.5 <10.5 <10.5 <10.5 <10.5 <10.5 <10.5 <10.5 <10.5 <10.5 <10.5 <10.5 <10.5 <10.5 <10.5 <10.5 <10.5 <10.5 <10.5 <10.5 <10.5 <10.5 <10.5 <10.5 <10.5 <10.5 <10.5 <10.5 <10.5 <10.5 <10.5 <10.5 <10.5 <10.5 <10.5 <10.5 <10.5 <10.5 <10.5 <10.5 <10.5 <10.5 <10.5 <10.5 <10.5 <10.5 <10.5 <10.5 <10.5 <10.5 <10.5 <10.5 <10.5 <10.5 <10.5 <10.5 <10.5 <10.5 <10.5 <10.5 <10.5 <10.5 <10.5 <10.5 <10.5 <10.5 <10.5 <10.5 <10.5 <10.5 <10.5 <10.5 <10.5 <10.5 <10.5 <10.5 <10.5 <10.5 <10.5 <10.5 <10.5 <10.5 <10.5 <10.5 <10.5 <10.5 <10.5 <10.5 <10.5 <10.5 <10.5 <10.5 <10.5 <10.5 <10.5 <10.5 <10.5 <10.5 <10.5 <10.5 <10.5 <10.5 <10.5 <10.5 <10.5 <10.5 <10.5 <10.5 <10.5 <10.5 <10.5 <10.5 <10.5 <10.5 <10.5 <10.5 <10.5 <10.5 <10.5 <10.5 <10.5 <10.5 <10.5 <10.5 <10.5 <10.5 <10.5 <10.5 <10.5 <10.5 <10.5 <10.5 <10.5 <10.5 <10.5 <10.5 <10.5 <10.5 <10.5 <10.5 <10.5 <10.5 <10.5 <10.5 <10.5 <10.5 <10.5 <10.5 <10.5 <10.5 <10.5 <10.5 <10.5 <10.5 <10.5 <10.5 <10.5 <10.5 <10.5 <10.5 <10.5 <10.5 <10.5 <10.5 <10.5 <10.5 <10.5 <10.5 <10.5 <10.5 <10.5 <10.5 <10.5 <10.5 <10.5 <10.5 <10.5 <10.5 <10.5 <10	25/04/2019 Leachate 1 26/04/2019 <1 - 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Sample TypeGround WaterBatch Number1Date of Receipt26/04/2019SVOC MS-2-Chlorophenol-2-Chlorophenol-2-Methylphenol-2-Methylphenol-2-Methylphenol-2-Nitrophenol-2-Nitrophenol-2-Abethylphenol-2-Abethylphenol-2-Abethylphenol-2-Abethylphenol-2-Abethylphenol-2-Abethylphenol-2-Abethylphenol-2-Abethylphenol-2-Abethylphenol-2-Abethylphenol-2-Abethylphenol-2-Abethylphenol-2-Abethylphenol-2-Abethylphenol-4-Chloro-3-methylphenol-4-Methylphenol-4-Methylphenol-2-Chloronaphthalene-2-Chloronaphthalene-2-Chloronaphthalene-2-Chloronaphthalene-2-Methylnaphthalene-2-Methylnaphthalene-2-Methylnaphthalene-Acenaphthylene-Acenaphthylene-Acenaphthylene-2-Diorene-Phenanthrene-2-Diorene-2-Diorene-2-Diorene-2-Diorene-2-Diorene-3-Diorene-3-Diorene-3-Diorene-	r Ground Water 1 26/04/2019 - <1 - <0.5 <0.5 <1 - <0.5 <1 - <0.5 <1 - <0.5 <1 - <0.5 <1 - <0.5 <1 - <0.5 <1 - <0.5 <1 - <0.5 <1 - <0.5 <1 - <0.5 <1 - <0.5 <1 - <1 <1 - <0.5 <1 - <1 <1 - <0.5 <1 - <1 <1 - <0.5 <1 - <1 <1 - <1 <1 - <1 <1 - <1 <1 - <1 <1 - <1 <1 - <1 <1 - <1 <1 - <1 <1 - <1 <1 - <1 <1 - <1 <1 - <1 <1 - <1 <1 - <1 <1 - <1 <1 - <1 <1 - <1 <1 - <1 <1 - <1 <1 - <1 <1 - <1 <1 - <1 <1 - <1 <1 - <1 <1 - <1 <1 - <1 <1 - <1 <1 - <1 <1 - <1 <1 <1 <1 <1 <1 <1 <1 <1 <1	Ground Water 1 26/04/2019 - <1	Leachate 1 26/04/2019 <1 - <0.5 - <0.5 <0.5 - <1 <0.5 - <1 <0.5 - <1 <0.5 - <1 <0.5 - <1 <0.5 - <1 <0.5 - <1 <0.5 - <1 <0.5 - <1 <0.5 - <1 <0.5 - <1 <0.5 - <1 <0.5 - <1 <0.5 - <1 <0.5 - <1 <0.5 - <1 <0.5 - <1 <0.5 - <1 <0.5 - <1 <1 <0.5 - <1 <1 <1 <1 <1 <1 <1 <1 <1 <1	Surface Water 1 26/04/2019 - <1 - <0.5 <0.5 - <0.5 <1 - <0.5 <1 - <0.5 <1 - <0.5 <1 - <0.5 <1 - <0.5 <1 - <0.5 <1 - <0.5 <0.5 <1 - <0.5 <0.5 <0.5 <1 - <0.5 <0.5 <1 - <0.5 <1 - <0.5 <1 - <0.5 <1 - <0.5 <1 - <0.5 <1 - <0.5 <1 - <0.5 <1 - <0.5 <1 - <0.5 <1 - <1 - <0.5 <1 - <1 - <0.5 <1 - <1 - <1 - <1 - <1 - <1 - <1 - <1 - <1 - <1 - <1 - <1 - <1 - <1 - <1 - <1 - <1 - <1 - <1 - <1 - <1 - <1 - <1 - <1 - <1 - <1 - <1 - <1 - <1 - <1 - <1 - <1 - <1 - <1 - <1 - <1 - <1 - <1 - <1 - <1 - <1 - <1 - <1 - <1 - <1 - <1 - <1 - <1 - <1 - <1 - <1 - <1 - <1 - <1 - <1 - <1 - <1 - <1 - <1 - <1 - <1 - <1 - - <1 - - - <1 - - - - - - - - - - - - -	Surface Water 1 26/04/2019 - <1 - <0.5 <0.5 <1 - <0.5 <1 - <0.5 <1 - <0.5 <1 - <0.5 <1 - <0.5 <1 - <0.5 <1 - <0.5 <1 - <0.5 <1 - <0.5 <1 - <0.5 <1 - <0.5 <1 - <0.5 <1 - <0.5 <1 - <0.5 <1 - <0.5 <1 - <0.5 <1 - <0.5 <1 - <0.5 <1 - <0.5 <1 - <0.5 <1 - <0.5 <1 - <1 - <0.5 <1 - <1 - <0.5 <1 - <1 - <1 - <1 - <1 - <1 - <1 - <1 - <1 - <1 - <1 - <1 - <1 - <1 - <1 - <1 - <1 - <1 - <1 - <1 - <1 - <1 - <1 - <1 - <1 - <1 - <1 - <1 - <1 - <1 - <1 - <1 - <1 - <1 - <1 - <1 - <1 - <1 - <1 - <1 - <1 - <1 - <1 - <1 - <1 - <1 - <1 - <1 - <1 - <1 - <1 - <1 - <1 - <1 - <1 - <1 - <1 - <1 - <1 - <1 - <1 - <1 - <1 - <1 - <1 - <1 - - <1 - <1 - - - - - - - - - - - - -				<1 <1 <0.5 <0.5 <0.5	ug/l ug/l ug/l ug/l ug/l	No. TM16/PM30 TM16/PM30 TM16/PM30 TM16/PM30
Batch Number1Date of Receipt26/04/2019SVOC MS26/04/20192-Chlorophenol-2-Chlorophenol-2-Chlorophenol-2-Methylphenol-2-Methylphenol-2-Abichlorophenol-2,4-Dichlorophenol-2,4-Dichlorophenol-2,4-Dichlorophenol-2,4-Dichlorophenol-2,4-Dichlorophenol-2,4,5-Trichlorophenol-2,4,5-Trichlorophenol-4-Chloro-3-methylphenol-4-Chloro-3-methylphenol-4-Nitrophenol-14-Nitrophenol-12-Chloronaphthalene-2-Chloronaphthalene-2-Chloronaphthalene-2-Chloronaphthalene-2-Methylphenol-12-Methylnaphthalene-2-Chloronaphthalene-2-Chloronaphthalene-2-Methylnaphthalene-2-Methylnaphthalene-2-Methylnaphthalene-2-Methylnaphthalene-2-Methylnaphthalene-2-Methylnaphthalene-2-Methylnaphthalene-2-Methylnaphthalene-2-Methylnaphthalene-2-Methylnaphthalene-3-Methylnaphthalene-3-Methylnaphthalene-3-Methylnaphthalene-3-Methylnaphthalene-3-Methylnaphthalene-3-Methylnaphthalene-3	1 26/04/2019 - <1 - <0.5 <0.5 - <0.5 <1 - <0.5 <1 - <0.5 <1 - <0.5 <1 - <0.5 <1 - <0.5 <1 - <0.5 <1 - <0.5 <1 - <0.5 <1 - <0.5 <0.5 - <0.5 - <0.5 - <0.5 - <0.5 - <0.5 - <0.5 - <0.5 - <0.5 - <0.5 - <0.5 - <0.5 - <0.5 - <0.5 - <0.5 - <0.5 - <0.5 - <0.5 - <0.5 - <0.5 - <0.5 - <0.5 - <0.5 - <0.5 - <0.5 - <0.5 - <0.5 - <0.5 - <0.5 - <0.5 - <0.5 - <0.5 - <0.5 - <0.5 - <0.5 - <0.5 - <0.5 - <0.5 - <0.5 - <0.5 - <0.5 - <0.5 - <0.5 - <0.5 - <0.5 - <0.5 - <0.5 - <0.5 - <0.5 - <0.5 - <0.5 - <0.5 - <0.5 - <0.5 - <0.5 - <0.5 - <0.5 - <0.5 - <0.5 - <0.5 - <0.5 - <0.5 - <0.5 - <0.5 - <0.5 - <0.5 - <0.5 - <0.5 - <0.5 - <0.5 - <0.5 - <0.5 - <0.5 - <0.5 - <0.5 - <0.5 - <0.5 - <0.5 - <0.5 - <0.5 - <0.5 - <0.5 - - - - <0.5 - - - - - - - - - - - - - - - - - - -	1 26/04/2019 - <1 - <0.5 <0.5 <1 - <0.5 <1 - <0.5 <1 - <0.5 <1 - <0.5 <1 - <0.5 <1 - <0.5 <1 - <0.5 <1 - <0.5 <0.5 <0.5 <0.5 <0.5 - <0.5 <0.5 <0.5 <0.5 - <0.5 <0.5 <0.5 <0.5 <0.5 <0.5 <0.5 <0.5	1 26/04/2019 <1 - <0.5 - <0.5 <0.5 - <1 <0.5 - <1 <0.5 - <1	1 26/04/2019 - <1 - <0.5 <0.5 - <0.5 - <0.5 <1 - <0.5 <1	1 26/04/2019 - <1 - <0.5 <0.5 - <0.5 <1 - <0.5 <1 -				<1 <1 <0.5 <0.5 <0.5	ug/l ug/l ug/l ug/l ug/l	No. TM16/PM30 TM16/PM30 TM16/PM30 TM16/PM30
Batch Number1Date of Receipt26/04/2019SVOC MS26/04/20192-Chlorophenol-2-Chlorophenol-2-Chlorophenol-2-Methylphenol-2-Methylphenol-2-Nitrophenol-2-Nitrophenol-2-Abethylphenol-2-Nitrophenol-2-Abethylphenol-2-Abethylphenol-2-Abethylphenol-2-Abethylphenol-2-Abethylphenol-2-Abethylphenol-2-Abethylphenol-2-Abethylphenol-2-Abethylphenol-2-Abethylphenol-2-Abethylphenol-4-Chloro-3-methylphenol-4-Chloro-3-methylphenol-4-Nitrophenol-2-Abethylphenol-2-Chloronaphthalene-2-Chloronaphthalene-2-Chloronaphthalene-2-Chloronaphthalene-2-Methylnaphthalene-2-Methylnaphthalene-2-Methylnaphthalene-2-Methylnaphthalene-2-Methylnaphthalene-2-Methylnaphthalene-2-Methylnaphthalene-2-Methylnaphthalene-2-Methylnaphthalene-2-Methylnaphthalene-2-Methylnaphthalene-3-Abethylene-3-Acenaphthylene-3-Acenaphthylene-3-Athtracene- <td>26/04/2019 - <1 - <0.5 <0.5 <1 - <0.5 <1 - <0.5 <1 - <0.5 <1 - <0.5 <1 - <0.5 <1 - <0.5 <1 - <0.5 <1 - <0.5 <1 - <0.5 <1 - <0.5 <1 - <1 <1 - <0.5 <1 - <1 <1 - <1 <1 - <1 - <1 - <1 - <1 - <1 - <1 - <1 - <1 - <1 - <1 - <1 - <1 - <1 - <1 - <1 - <1 - <1 - <1 - <1 - <1 - <1 - <1 - <1 - <1 - <1 - <1 - <1 - <1 - <1 - <1 - <1 - <1 - <1 - <1 - <1 - <1 - <1 - <1 - <1 - <1 - <1 - <1 - <1 - <1 - <1 - <1 - <1 - <1 - <1 - <1 - <1 - <1 - <1 - <1 - <1 - <1 - <1 - <1 - <1 - <1 - <1 - <1 - <1 - <1 - <1 - <1 - <1 - <1 - <1 - <1 - <1 - <1 - <1 - <1 - <1 - <1 - <1 - <1 - <1 - <1 - <1 - <1 - - <1 - <1 - - - - - - - - - - - - -</td> <td>26/04/2019 </td> <td>26/04/2019 <1 - <0.5 - <0.5 <0.5 - <1 <0.5 - <1 <0.5 - <1</td> <td>26/04/2019 - <1 - <0.5 <0.5 - <0.5 <1 - <0.5 <1</td> <td>26/04/2019 - <1 <0.5 <0.5 <0.5 <1 - <0.5 <1 - <0.5 <1</td> <td></td> <td></td> <td></td> <td><1 <1 <0.5 <0.5 <0.5</td> <td>ug/l ug/l ug/l ug/l ug/l</td> <td>No. TM16/PM30 TM16/PM30 TM16/PM30 TM16/PM30</td>	26/04/2019 - <1 - <0.5 <0.5 <1 - <0.5 <1 - <0.5 <1 - <0.5 <1 - <0.5 <1 - <0.5 <1 - <0.5 <1 - <0.5 <1 - <0.5 <1 - <0.5 <1 - <0.5 <1 - <1 <1 - <0.5 <1 - <1 <1 - <1 <1 - <1 - <1 - <1 - <1 - <1 - <1 - <1 - <1 - <1 - <1 - <1 - <1 - <1 - <1 - <1 - <1 - <1 - <1 - <1 - <1 - <1 - <1 - <1 - <1 - <1 - <1 - <1 - <1 - <1 - <1 - <1 - <1 - <1 - <1 - <1 - <1 - <1 - <1 - <1 - <1 - <1 - <1 - <1 - <1 - <1 - <1 - <1 - <1 - <1 - <1 - <1 - <1 - <1 - <1 - <1 - <1 - <1 - <1 - <1 - <1 - <1 - <1 - <1 - <1 - <1 - <1 - <1 - <1 - <1 - <1 - <1 - <1 - <1 - <1 - <1 - <1 - <1 - <1 - <1 - <1 - <1 - <1 - - <1 - <1 - - - - - - - - - - - - -	26/04/2019 	26/04/2019 <1 - <0.5 - <0.5 <0.5 - <1 <0.5 - <1 <0.5 - <1	26/04/2019 - <1 - <0.5 <0.5 - <0.5 <1 - <0.5 <1	26/04/2019 - <1 <0.5 <0.5 <0.5 <1 - <0.5 <1 - <0.5 <1				<1 <1 <0.5 <0.5 <0.5	ug/l ug/l ug/l ug/l ug/l	No. TM16/PM30 TM16/PM30 TM16/PM30 TM16/PM30
Date of Receipt26/04/2019SVOC MS-2-Chlorophenol12-Chlorophenol12-Methylphenol0.52-Methylphenol0.52-Methylphenol0.52-Abichlorophenol0.52.4-Dichlorophenol0.52.4-Dichlorophenol12.4-Dichlorophenol12.4-Dichlorophenol12.4-Dichlorophenol12.4-Dichlorophenol12.4-Dichlorophenol12.4-Dichlorophenol12.4-Dichlorophenol12.4-Dichlorophenol12.4-Dichlorophenol14-Chloro-3-methylphenol14-Chloro-3-methylphenol14-Chloro-3-methylphenol14-Nitrophenol1Phenol12-Chloronaphthalene12-Chloronaphthalene12-Methylnaphthalene12-Methylnaphthalene12-Methylnaphthalene12-Methylnaphthalene12-Methylnaphthalene12-Methylnaphthalene12-Methylnaphthalene12-Methylnaphthalene12-Methylnaphthalene12-Methylnaphthalene12-Methylnaphthalene12-Methylnaphthalene12-Methylnaphthalene12-Methylnaphthalene12-Methylnaphthalene13-Methylnaphthalene13-Methylnaphthalen	- <1 - <0.5 <0.5 - <1.5 <1 - <0.5 <1 - <0.5 <1 - <0.5 <1 - <1.5 <1 - <1.5 <0.5 <1.5 - <0.5 <0.5 - <0.5 - <0.5 - <0.5 - <0.5 - <0.5 - <0.5 - <0.5 - <0.5 - <0.5 - <0.5 - <0.5 - <0.5 - <0.5 - <0.5 - <0.5 - <0.5 - <0.5 - <0.5 - <0.5 - <0.5 - <0.5 - <0.5 - <0.5 - <0.5 - <0.5 - <0.5 - <0.5 - <0.5 - <0.5 - <0.5 - <0.5 - <0.5 - <0.5 - <0.5 - <0.5 - <0.5 - <0.5 - <0.5 - <0.5 - <0.5 - <0.5 - <0.5 - <0.5 - <0.5 - <0.5 - <0.5 - <0.5 - <0.5 - <0.5 - <0.5 - <0.5 - <0.5 - <0.5 - <0.5 - <0.5 - <0.5 - <0.5 - <0.5 - <0.5 - <0.5 - <0.5 - <0.5 - <0.5 - <0.5 - <0.5 - <0.5 - <0.5 - <0.5 - <0.5 - <0.5 - <0.5 - <0.5 - <0.5 - <0.5 - <0.5 - <0.5 - <0.5 - <0.5 - <0.5 - <0.5 - <0.5 - <0.5 - <0.5 - <0.5 - <0.5 - <0.5 - <0.5 - <0.5 - <0.5 - <0.5 - <0.5 - <0.5 - <0.5 - <0.5 - <0.5 - - - - - - - - - - - - - - - - - - -	- <1 - <0.5 <0.5 - <0.5 <1 - <0.5 <1 - <0.5 <1 - <0.5 <1 - <1 <10 <1	<1 - <0.5 - <0.5 <0.5 - <1 <0.5 - <1 <0.5 - <1	- <1 - <0.5 <0.5 - <0.5 <1 - <0.5 <1	26/04/2019 - <1 <0.5 <0.5 <0.5 <1 - <0.5 <1 - <0.5 <1				<1 <1 <0.5 <0.5 <0.5	ug/l ug/l ug/l ug/l ug/l	No. TM16/PM30 TM16/PM30 TM16/PM30 TM16/PM30
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Phenois2-Chlorophenol-2-Chlorophenol<1	<1 - <0.5 <0.5 - <0.5 <1 - <0.5 <1 - <0.5 <1 - <0.5 <1 <10 <1 <1 <1	<1 - <0.5 - <0.5 <1 - <0.5 <1 - <0.5 <1 - <0.5 <1 - <10 <1	- <0.5 <0.5 <0.5 - <1 <0.5 - <1 <0.5 -	<1 - <0.5 <0.5 - <0.5 <1 - <0.5 <1 - <0.5 <1	<1 - <0.5 <0.5 - <0.5 <1 - <0.5 <1 - <0.5 <1				<1 <0.5 <0.5 <0.5	ug/l ug/l ug/l ug/l	TM16/PM30 TM16/PM30 TM16/PM30
2-Chlorophenol-2-Chlorophenol<1	<1 - <0.5 <0.5 - <0.5 <1 - <0.5 <1 - <0.5 <1 - <0.5 <1 <10 <1 <1 <1	<1 - <0.5 - <0.5 <1 - <0.5 <1 - <0.5 <1 - <0.5 <1 - <10 <1	- <0.5 <0.5 <0.5 - <1 <0.5 - <1 <0.5 -	<1 - <0.5 <0.5 - <0.5 <1 - <0.5 <1 - <0.5 <1	<1 - <0.5 <0.5 - <0.5 <1 - <0.5 <1 - <0.5 <1				<1 <0.5 <0.5 <0.5	ug/l ug/l ug/l ug/l	TM16/PM30 TM16/PM30 TM16/PM30
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2.4-Dichlorophenol<0.52.4-Dimethylphenol<1	<0.5 <1 - <0.5 <1 - <0.5 <1 <10 <1 <1 <1	<0.5 <1 - <0.5 <1 - <0.5 <1 <10 <1	- <1 <0.5 - <1	<0.5 <1 - <0.5 <1	<0.5 <1 - <0.5 <1					ug/l	TM16/PM30
2.4-Dimethylphenol<1	<1 - <0.5 <1 - <0.5 <1 <10 <1 <1 <1	<1 - <0.5 <1 - <0.5 <1 <10 <1	<1 <0.5 - <1	<1 - <0.5 <1	<1 - <0.5 <1				<0.5	ug/l	TM16/PM30
2.4,5-Trichlorophenol-2.4,5-Trichlorophenol<1	- <0.5 <1 - <0.5 <1 <10 <1 <1 <1	- <0.5 <1 - <0.5 <1 <10 <1	<0.5 - <1	- <0.5 <1	- <0.5 <1				<1	ug/l	TM16/PM30
2.4.5-Trichlorophenol<0.5	<0.5 <1 - <0.5 <1 <10 <1 <1	<0.5 <1 - <0.5 <1 <10 <1	- <1	<0.5 <1	<0.5 <1				<0.5	ug/i ug/i	TM16/PM30
2.4,6-Trichlorophenol<1	<1 - <0.5 <1 <10 <1 <1 <1	<1 - <0.5 <1 <10 <1	<1	<1	<1				< 0.5		TM16/PM30 TM16/PM30
4-Chloro-3-methylphenol - 4-Chloro-3-methylphenol <10	- <0.5 <1 <10 <1 <1 <1	- <0.5 <1 <10 <1								ug/l	TM16/PM30 TM16/PM30
4-Chloro-3-methylphenol <0.5	<0.5 <1 <10 <1 <1	<0.5 <1 <10 <1	<0.5 - <1 <10 <1	<0.5	-				<1	ug/l	1
4-Methylphenol <1	<1 <10 <1 <1	<1 <10 <1	<1 <10 <1	<0.5	-0 F				<0.5	ug/l	TM16/PM30 TM16/PM30
4-Nitrophenol <10	<10 <1 <1	<10 <1	<1 <10 <1		<0.5				<0.5	ug/l	
Pentachlorophenol <1	<1 <1	<1	<10	<1	<1		• •		<1	ug/l	TM16/PM30
Phenol <1	<1		<1	<10	<10		150.		<10	ug/l	TM16/PM30
PAHs 2-Chloronaphthalene - 2-Chloronaphthalene - 2-Methylnaphthalene - 2-Methylnaphthalene - 2-Methylnaphthalene - 2-Methylnaphthalene - Naphthalene - Naphthalene - Naphthalene - Acenaphthylene - Acenaphthylene - Acenaphthylene - Acenaphthylene - Acenaphthylene - Acenaphthene - Fluorene - Fluorene - Fluorene - Fluoranthrene - Phenanthrene - Fluoranthene - Fluoranthene - Fluoranthene - Fluoranthene - Pyrene - Pyrene - Pyrene - Pyrene - Benzo(a)anthracene - Benzo(bk)fluoranthene - Benzo(bk)fluoranthene		<1		<1	<1		net .		<1	ug/l	TM16/PM30
2-Chloronaphthalene - 2-Chloronaphthalene - 2-Methylnaphthalene - 2-Methylnaphthalene - 2-Methylnaphthalene - 2-Methylnaphthalene - Naphthalene - Naphthalene - Naphthalene - Naphthalene - Acenaphthylene - Acenaphthene - Acenaphthene - Acenaphthene - Acenaphthene - Acenaphthene - Acenaphthene - Fluorene - Fluorene - Fluorene - Fluoranthrene - Phenanthrene - Fluoranthene - Fluoranthene - Fluoranthene - Fluoranthene - Pyrene - Pyrene - Benzo(a)anthracene - Chrysene - Benzo(bk)fluoranthene - Benzo(bk)fluoranthene - Benzo(bk)fluoranthene - Benzo(a)pyrene <1	_		<1	<1	<1	, ð	<u>у</u>		<1	ug/l	TM16/PM30
2-Chloronaphthalene <1	-					19. m					
2-Methylnaphthalene - 2-Methylnaphthalene - Naphthalene - Naphthalene - Naphthalene - Naphthalene - Naphthalene - Acenaphthylene - Acenaphthene - Acenaphthene - Acenaphthene - Acenaphthene - Fluorene - Phenanthrene - Phenanthrene - Phenanthrene - Phenanthrene - Fluoranthene - Pyrene - Benzo(a)anthracene - Benzo(b/fluoranthene - Benzo(b/fluoranthene - Benzo(b/fluoranthene - Benzo(b/fluoranthene - Benzo(b/fluoranthene - Indeno(123cd)pyrene <1		-	<1	-		M. of .or			<1	ug/l	TM16/PM30
2-Methylnaphthalene <1	<1	<1	-	<1	<1.05	910			<1	ug/l	TM16/PM30
Naphthalene - Naphthalene <1	-	-	<1	-	- R il				<1	ug/l	TM16/PM30
Naphthalene # <1	<1	<1	-	<1	Sr 300				<1	ug/l	TM16/PM30
Acenaphthylene - Acenaphthylene <0.5	-	-	<1	- ;0	et -				<1	ug/l	TM16/PM30
Acenaphthylene # <0.5	<1	<1	-	Secur	x ^{11 <1}				<1	ug/l	TM16/PM30
Acenaphthene - Acenaphthene # <1	-	-	<0.5	instra	-				<0.5	ug/l	TM16/PM30
Acenaphthene # <1	<0.5	<0.5	- 0	5 \$0.5	<0.5				<0.5	ug/l	TM16/PM30
Fluorene - Fluorene <0.5	-	-	<1 🔨	ar-	-				<1	ug/l	TM16/PM30
Fluorene # <0.5	<1	<1	- &	<1	<1				<1	ug/l	TM16/PM30
Phenanthrene - Phenanthrene # <0.5	-	-	<0.5	-	-				<0.5	ug/l	TM16/PM30
Phenanthrene # <0.5	<0.5	<0.5	ASOV	<0.5	<0.5				<0.5	ug/l	TM16/PM30
Anthracene - Anthracene # <0.5	-	- (<0.5	-	-				<0.5	ug/l	TM16/PM30
Anthracene # <0.5	<0.5	<0.5	-	<0.5	<0.5				<0.5	ug/l	TM16/PM30
Fluoranthene - Fluoranthene # <0.5	-	-	<0.5	-	-				<0.5	ug/l	TM16/PM30
Fluoranthene # <0.5	<0.5	<0.5	-	<0.5	<0.5				<0.5	ug/l	TM16/PM30
Pyrene - Pyrene # <0.5	-	-	<0.5	-	-				<0.5	ug/l	TM16/PM30
Pyrene - Pyrene # <0.5	<0.5	<0.5	-	<0.5	<0.5				<0.5	ug/l	TM16/PM30
Pyrene # <0.5	-	-	<0.5	-	-				<0.5	ug/l	TM16/PM30
Benzo(a)anthracene - Benzo(a)anthracene # <0.5	<0.5	<0.5	-	<0.5	<0.5				<0.5	ug/l	TM16/PM30
Benzo(a)anthracene # <0.5	-	-	<0.5	-	-				<0.5	ug/l	TM16/PM30
Chrysene - Chrysene # <0.5	<0.5	<0.5	-	<0.5	<0.5				<0.5	ug/l	TM16/PM30
Chrysene # <0.5	-	-	<0.5	-	-				<0.5	ug/l	TM16/PM30
Benzo(bk)fluoranthene - Benzo(bk)fluoranthene # <1	<0.5	<0.5	-	<0.5	<0.5				<0.5	ug/l	TM16/PM30
Benzo(bk)fluoranthene# <1	-0.0	-	<1	-	-0.0				<1	ug/l	TM16/PM30
Benzo(a)pyrene <1	<1	<1	-	<1	<1				<1	ug/l	TM16/PM30
Indeno(123cd)pyrene <1	<1	<1	<1	<1	<1				<1	ug/l	TM16/PM30
	<1	<1	<1	<1	<1				<1	ug/l	TM16/PM30
Dibenzo(ah)anthracene -		-	<0.5	-	-				<0.5	ug/l	TM16/PM30
Dibenzo(ah)anthracene [#] <0.5		< 0.5		< 0.5	<0.5				<0.5		TM16/PM30
Benzo(ghi)perylene -	-		< 0.5						<0.5	ug/l ug/l	TM16/PM30
	<0.5										TM16/PM30
Benzo(ghi)perylene [#] <0.5 Phthalates	<0.5 -	<0.5	-	<0.5	<0.5				<0.5	ug/l	11110/191030
	<0.5	-5	~F	-5	~F				~F	110-11	TM16/DM20
Bis(2-ethylhexyl) phthalate <5	<0.5 - <0.5	<5	<5	<5	<5				<5	ug/l	TM16/PM30
Butylbenzyl phthalate <1	<0.5 - <0.5 <5	<1	<1	<1	<1				<1	ug/l	TM16/PM30
Di-n-butyl phthalate -	<0.5 - <0.5 <5 <1	-	<1.5	-	-				<1.5	ug/l	TM16/PM30
Di-n-butyl phthalate * <1.5	<0.5 - <0.5 <5 <1 -	<1.5	-	<1.5	<1.5				<1.5	ug/l	TM16/PM30
Di-n-Octyl phthalate <1	<0.5 - <0.5 <5 <1 - <1.5		<1	<1	<1				<1	ug/l	TM16/PM30
Diethyl phthalate -	<0.5 - <0.5 <5 <1 - <1.5 <1	<1	<1	-	-				<1	ug/l	TM16/PM30
Diethyl phthalate # <1	<0.5 - <0.5 <5 <1 - <1.5 <1 - -	-	-	<1	<1				<1	ug/l	TM16/PM30
Dimethyl phthalate <1	<0.5 - <0.5 <1 - <1.5 <1 - <1.5 <1 - <1	- <1	<1	<1	<1				<1	ug/l	TM16/PM30
	<0.5 - <0.5 <5 <1 - <1.5 <1 - -	-	1					1			

Client Name:	Malone O'Regan
Reference:	E1506
Location:	Athy - Site 2
Contact:	Thomas Vainio-Mattila
JE Job No.:	19/6806

SVOC Report : Liquid

JE Job No.:	19/6806											
J E Sample No.	1-8	9-16	17-24	25-33	34-42	43-51						
Sample ID	GW1A	GW2A	GW3A	L1A	SW1A	SW2A						
oumpie ib	011.01	01121	011011	2.03	011.01	011211						
Denth												
Depth											e attached r ations and a	
COC No / misc										abbievia	alloris ariu a	cronyms
Containers	VHNPG	VHNPG			V H N P BOD G							
Sample Date	25/04/2019	25/04/2019	25/04/2019									
Sample Type	Ground Water	Ground Water		Leachate		Surface Water						
Batch Number	1	1	1	1	1	1				LOD/LOR	Units	Method No.
Date of Receipt	26/04/2019	26/04/2019	26/04/2019	26/04/2019	26/04/2019	26/04/2019						INU.
SVOC MS												
Other SVOCs												
1,2-Dichlorobenzene	-	-	-	<1	-	-				<1	ug/l	TM16/PM30
1,2-Dichlorobenzene [#]	<1	<1	<1	-	<1	<1				<1	ug/l	TM16/PM30
1,2,4-Trichlorobenzene	-	-	-	<1	-	-				<1	ug/l	TM16/PM30
1,2,4-Trichlorobenzene #	<1	<1	<1	-	<1	<1				<1	ug/l	TM16/PM30
1,3-Dichlorobenzene	-	-	-	<1	-	-				<1	ug/l	TM16/PM30
1,3-Dichlorobenzene [#]	<1	<1	<1	-	<1	<1				<1	ug/l	TM16/PM30
1,4-Dichlorobenzene	-	-	-	<1	-	-				<1	ug/l	TM16/PM30
1,4-Dichlorobenzene#	<1	<1	<1	-	<1	<1				<1	ug/l	TM16/PM30
2-Nitroaniline	<1	<1	<1	<1	<1	<1				<1	ug/l	TM16/PM30
2,4-Dinitrotoluene	-	-	-	<0.5	-	-				<0.5	ug/l	TM16/PM30
2,4-Dinitrotoluene #	<0.5	<0.5	<0.5	-	<0.5	<0.5				<0.5	ug/l	TM16/PM30
2,6-Dinitrotoluene	<1	<1	<1	<1	<1	<1				<1	ug/l	TM16/PM30
3-Nitroaniline	<1	<1	<1	<1	<1	<1				<1	ug/l	TM16/PM30
4-Bromophenylphenylether	-	-	-	<1	-	-				<1	ug/l	TM16/PM30
4-Bromophenylphenylether #	<1	<1	<1	-	<1	<1		. e.		<1	ug/l	TM16/PM30
4-Chloroaniline	<1	<1	<1	<1	<1	<1		atte		<1	ug/l	TM16/PM30
4-Chlorophenylphenylether	-	-	-	<1	-	-	ally any o	ne.		<1	ug/l	TM16/PM30
4-Chlorophenylphenylether #	<1	<1	<1	-	<1	<1	.s. A			<1	ug/l	TM16/PM30
4-Nitroaniline	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	m an			<0.5	ug/l	TM16/PM30
Azobenzene	-	-	-	<0.5	-	- , 65	for			<0.5	ug/l	TM16/PM30
Azobenzene [#]	<0.5	<0.5	<0.5	-	<0.5	\$0.5 .	^o			<0.5	ug/l	TM16/PM30
Bis(2-chloroethoxy)methane	-	-	-	<0.5	-	OULEDIT				<0.5	ug/l	TM16/PM30
Bis(2-chloroethoxy)methane [#]	<0.5	<0.5	<0.5	-	<0.5.	A PUT COLIFF				<0.5	ug/l	TM16/PM30
Bis(2-chloroethyl)ether	-	-	-	<1	ctic	ner				<1	ug/l	TM16/PM30
Bis(2-chloroethyl)ether #	<1	<1	<1	-	<0.5.10 stingection of the state	<1				<1	ug/l	TM16/PM30
Carbazole	-	-	-	<0.5	the the	-				<0.5	ug/l	TM16/PM30
Carbazole [#]	<0.5	<0.5	<0.5	- 4	205	<0.5				<0.5	ug/l	TM16/PM30
Dibenzofuran				<0.5 🔨	QX ×0.3					<0.5	ug/l	TM16/PM30
Dibenzofuran [#]	- <0.5	< 0.5		×0.5 ×	< 0.5	- <0.5				<0.5		TM16/PM30
Dibenzoturan Hexachlorobenzene	<0.5		×0.5	ent							ug/l	TM16/PM30
	-	-	-	Consent or	-	-				<1	ug/l	TM16/PM30
Hexachlorobenzene [#]	<1	<1		J ^e -	<1	<1				<1	ug/l	
Hexachlorobutadiene	-	-	-	<1	-	-				<1	ug/l	TM16/PM30
Hexachlorobutadiene #	<1	<1	<1	-	<1	<1				<1	ug/l	TM16/PM30
Hexachlorocyclopentadiene	<1	<1	<1	<1	<1	<1				<1	ug/l	TM16/PM30
Hexachloroethane	-	-	-	<1	-	-				<1	ug/l	TM16/PM30
Hexachloroethane [#]	<1	<1	<1	-	<1	<1				<1	ug/l	TM16/PM30
Isophorone	-	-	-	<0.5	-	-				<0.5	ug/l	TM16/PM30
Isophorone #	<0.5	<0.5	<0.5	-	<0.5	<0.5				<0.5	ug/l	TM16/PM30
N-nitrosodi-n-propylamine	-	-	-	<0.5	-	-				<0.5	ug/l	TM16/PM30
N-nitrosodi-n-propylamine #	<0.5	<0.5	<0.5	-	<0.5	<0.5				<0.5	ug/l	TM16/PM30
Nitrobenzene	-	-	-	<1	-	-				<1	ug/l	TM16/PM30
Nitrobenzene [#]	<1	<1	<1	-	<1	<1				<1	ug/l	TM16/PM30
Surrogate Recovery 2-Fluorobiphenyl	95	98	83	94	87	96				<0	%	TM16/PM30
Surrogate Recovery p-Terphenyl-d14	102	104	86	102	98	102				<0	%	TM16/PM30
												}

Client Name:	Malone O'Regan
Reference:	E1506
Location:	Athy - Site 2
Contact:	Thomas Vainio-Mattila
JE Job No.:	19/6806

VOC Report : Liquid

JE Job No.:	19/6806											
J E Sample No.	1-8	9-16	17-24	25-33	34-42	43-51						
Sample ID	GW1A	GW2A	GW3A	L1A	SW1A	SW2A						
Depth										Please see	e attached r	otes for all
COC No / misc										abbrevia	ations and a	cronyms
Containers	VHNPG	VHNPG			V H N P BOD G							
Sample Date	25/04/2019			25/04/2019		25/04/2019						
Sample Type	Ground Water	Ground Water		Leachate		Surface Water						
Batch Number Date of Receipt	1 26/04/2019	1 26/04/2019	1 26/04/2019	1 26/04/2019	1 26/04/2019	1 26/04/2019				LOD/LOR	Units	Method No.
VOC MS	20/04/2013	20/04/2013	20/04/2013	20/04/2013	20/04/2013	20/04/2013						
Dichlorodifluoromethane	<2	<2	<2	<2	<2	<2				<2	ug/l	TM15/PM10
Methyl Tertiary Butyl Ether	-	-	-	<0.1	-	-				<0.1	ug/l	TM15/PM10
Methyl Tertiary Butyl Ether #	<0.1	<0.1	<0.1	-	<0.1	<0.1				<0.1	ug/l	TM15/PM10
Chloromethane	-	-	-	<3	-	-				<3	ug/l	TM15/PM10
Chloromethane#	<3	<3	<3	-	<3	<3				<3	ug/l	TM15/PM10 TM15/PM10
Vinyl Chloride Vinyl Chloride [#]	- <0.1	- <0.1	- <0.1	<0.1	- <0.1	- <0.1				<0.1 <0.1	ug/l ug/l	TM15/PM10 TM15/PM10
Bromomethane	<1	<1	<1	<1	<1	<1				<1	ug/l	TM15/PM10
Chloroethane	-	-	-	<3	-	-				<3	ug/l	TM15/PM10
Chloroethane #	<3	<3	<3	-	<3	<3				<3	ug/l	TM15/PM10
Trichlorofluoromethane	-	-	-	<3	-	-				<3	ug/l	TM15/PM10
Trichlorofluoromethane #	<3	<3	<3	-	<3	<3				<3	ug/l	TM15/PM10
1,1-Dichloroethene (1,1 DCE)	-	-	-	<3	-	-				<3	ug/l	TM15/PM10
1,1-Dichloroethene (1,1 DCE) [#] Dichloromethane (DCM)	<3	<3	<3	- <5	<3	<3				<3 <5	ug/l ug/l	TM15/PM10 TM15/PM10
Dichloromethane (DCM)	- <5	- <5	- <5		- <5	- <5		.9.*		<5	ug/l	TM15/PM10
trans-1-2-Dichloroethene	-	-	-	<3	-	-		1 USC		<3	ug/l	TM15/PM10
trans-1-2-Dichloroethene #	<3	<3	<3	-	<3	<3	à	her		<3	ug/l	TM15/PM10
1,1-Dichloroethane	-	-	-	<3	-	-	to te			<3	ug/l	TM15/PM10
1,1-Dichloroethane [#]	<3	<3	<3	-	<3	<3	Dect &			<3	ug/l	TM15/PM10
cis-1-2-Dichloroethene	-	-	-	<3	-	- 65	nty. any			<3	ug/l	TM15/PM10
cis-1-2-Dichloroethene # 2,2-Dichloropropane	<3 <1	<3 <1	<3 <1	-	<3	alleguit				<3 <1	ug/l	TM15/PM10 TM15/PM10
Bromochloromethane	-	-	-	<2		P. Con				<2	ug/l ug/l	TM15/PM10
Bromochloromethane #	<2	<2	<2	-	- <3 - 3 <1 - - - - - - - - - - - - - - - - - -	NTIC <2				<2	ug/l	TM15/PM10
Chloroform	-	-	-	<2	: nsp. to	-				<2	ug/l	TM15/PM10
Chloroform [#]	<2	<2	<2	- 6	51 1 1 1 2 b	<2				<2	ug/l	TM15/PM10
1,1,1-Trichloroethane	-	-	-	<2 >	08-	-				<2	ug/l	TM15/PM10
1,1,1-Trichloroethane #	<2	<2	<2	Consett of	<2	<2				<2	ug/l	TM15/PM10
1,1-Dichloropropene 1,1-Dichloropropene [#]	- <3	- <3	- <3	ent	- <3	- <3				<3 <3	ug/l ug/l	TM15/PM10 TM15/PM10
Carbon tetrachloride	-0	-	- (0115-2	-	-				<2	ug/l	TM15/PM10
Carbon tetrachloride #	<2	<2	<2	-	<2	<2				<2	ug/l	TM15/PM10
1,2-Dichloroethane	-	-	-	<2	-	-				<2	ug/l	TM15/PM10
1,2-Dichloroethane#	<2	<2	<2	-	<2	<2				<2	ug/l	TM15/PM10
Benzene	-	-	-	<0.5	-	-				<0.5	ug/l	TM15/PM10
Benzene [#]	<0.5	<0.5	<0.5	-	<0.5	<0.5				<0.5	ug/l	TM15/PM10
Trichloroethene (TCE) Trichloroethene (TCE) [#]	- <3	- <3	- <3	<3	- <3	- <3				<3 <3	ug/l ug/l	TM15/PM10 TM15/PM10
1,2-Dichloropropane				<2		-5				<2	ug/l	TM15/PM10
1,2-Dichloropropane [#]	<2	<2	<2	-	<2	<2				<2	ug/l	TM15/PM10
Dibromomethane	-	-	-	<3	-	-				<3	ug/l	TM15/PM10
Dibromomethane [#]	<3	<3	<3	-	<3	<3				<3	ug/l	TM15/PM10
Bromodichloromethane	-	-	-	<2	-	-				<2	ug/l	TM15/PM10
Bromodichloromethane #	<2	<2	<2	-	<2	<2 <2				<2 <2	ug/l	TM15/PM10 TM15/PM10
cis-1-3-Dichloropropene Toluene	<2	<2	<2	<2 <5	<2	<2				<2 <5	ug/l ug/l	TM15/PM10 TM15/PM10
Toluene [#]	- <5	<5	<5	-5	<5	<5				<5	ug/l	TM15/PM10
trans-1-3-Dichloropropene	<2	<2	<2	<2	<2	<2				<2	ug/l	TM15/PM10
1,1,2-Trichloroethane	-	-	-	<2	-	-				<2	ug/l	TM15/PM10
1,1,2-Trichloroethane #	<2	<2	<2	-	<2	<2				<2	ug/l	TM15/PM10
Tetrachloroethene (PCE)	-	-	-	<3	-	-				<3	ug/l	TM15/PM10
Tetrachloroethene (PCE) [#]	<3	<3	<3	-	<3	<3				<3	ug/l	TM15/PM10
1,3-Dichloropropane	- <2	- <2	- <2	<2	- <2	- <2				<2 <2	ug/l ug/l	TM15/PM10 TM15/PM10
1,3-Dichloropropane [#] Dibromochloromethane	-2	-	-	<2	-	-2				<2	ug/i ug/i	TM15/PM10 TM15/PM10
Dibromochloromethane #	<2	<2	<2	-	<2	<2				<2	ug/l	TM15/PM10
1,2-Dibromoethane	-	-	-	<2	-	-				<2	ug/l	TM15/PM10
1,2-Dibromoethane #	<2	<2	<2	-	<2	<2				<2	ug/l	TM15/PM10
Chlorobenzene	-	-	-	<2	-	-				<2	ug/l	TM15/PM10
Chlorobenzene#	<2	<2	<2	-	<2	<2				<2	ug/l	TM15/PM10
1,1,1,2-Tetrachloroethane	-	-	-	<2	-	-				<2	ug/l	TM15/PM10

Client Name:	Malone O'Regan
Reference:	E1506
Location:	Athy - Site 2
Contact:	Thomas Vainio-Mattila
JE Job No.:	19/6806

VOC Report : Liquid

JE Job No.:	19/6806											
J E Sample No.	1-8	9-16	17-24	25-33	34-42	43-51						
Sample ID	GW1A	GW2A	GW3A	L1A	SW1A	SW2A						
Depth										Please se	e attached r	notes for all
COC No / misc											ations and a	
Containers	VHNPG	VHNPG	VHNPG	V H N P BOD G	V H N P BOD G	V H N P BOD G						
Sample Date	25/04/2019	25/04/2019	25/04/2019	25/04/2019	25/04/2019	25/04/2019						
Sample Type	Ground Water	Ground Water	Ground Water	Leachate	Surface Water							
Batch Number	1	1	1	1	1	1				LOD/LOR	Units	Method No.
Date of Receipt VOC MS Continued	26/04/2019	26/04/2019	26/04/2019	26/04/2019	26/04/2019	26/04/2019						NU.
1,1,1,2-Tetrachloroethane [#]	<2	<2	<2	-	<2	<2				<2	ug/l	TM15/PM10
Ethylbenzene	-	-	-	<1	-	-				<1	ug/l	TM15/PM10
Ethylbenzene [#]	<1	<1	<1	-	<1	<1				<1	ug/l	TM15/PM10
m/p-Xylene	-	-	-	<2	-	-				<2	ug/l	TM15/PM10
m/p-Xylene [#]	<2	<2	<2	-	<2	<2				<2	ug/l	TM15/PM10
o-Xylene	-	-	-	<1	-	-				<1	ug/l	TM15/PM10
o-Xylene [#] Styrene	<1 <2	<1 <2	<1 <2	- <2	<1 <2	<1 <2				<1 <2	ug/l	TM15/PM10 TM15/PM10
Bromoform	-			<2	-	-				<2	ug/l ug/l	TM15/PM10 TM15/PM10
Bromoform [#]	<2	<2	<2	-	<2	<2				<2	ug/l	TM15/PM10
Isopropylbenzene	-	-	-	<3	-	-				<3	ug/l	TM15/PM10
Isopropylbenzene #	<3	<3	<3	-	<3	<3				<3	ug/l	TM15/PM10
1,1,2,2-Tetrachloroethane	<4	<4	<4	<4	<4	<4	AFOT ANY			<4	ug/l	TM15/PM10
Bromobenzene	-	-	-	<2	-	-				<2	ug/l	TM15/PM10
Bromobenzene [#] 1,2,3-Trichloropropane	<2	<2	<2	-	<2	<2		0		<2 <3	ug/l ug/l	TM15/PM10 TM15/PM10
1,2,3-Trichloropropane [#]	- <3	- <3	<3		- <3	- <3		· 150		<3	ug/l	TM15/PM10 TM15/PM10
Propylbenzene	-	-	-	<3	-	-	ŝ	her		<3	ug/l	TM15/PM10
Propylbenzene [#]	<3	<3	<3	-	<3	<3	A. A.			<3	ug/l	TM15/PM10
2-Chlorotoluene	-	-	-	<3	-	- (MIL alt.			<3	ug/l	TM15/PM10
2-Chlorotoluene #	<3	<3	<3	-	<3	<3.05	8×0.			<3	ug/l	TM15/PM10
1,3,5-Trimethylbenzene	-	-	-	<3	-	110 JI	0-			<3	ug/l	TM15/PM10
1,3,5-Trimethylbenzene [#]	<3	<3	<3	-	<3	Dr 301				<3	ug/l	TM15/PM10
4-Chlorotoluene 4-Chlorotoluene	- <3	- <3	- <3	< 3	- cito	THE -3				<3 <3	ug/l ug/l	TM15/PM10 TM15/PM10
tert-Butylbenzene			-5	<3	50 0	-				<3	ug/l	TM15/PM10
tert-Butylbenzene [#]	<3	<3	<3		N III SOU	<3				<3	ug/l	TM15/PM10
1,2,4-Trimethylbenzene	-	-	-	<3 🛠	R.	-				<3	ug/l	TM15/PM10
1,2,4-Trimethylbenzene#	<3	<3	<3	Onseit of	<3	<3				<3	ug/l	TM15/PM10
sec-Butylbenzene	-	-	-	A	-					<3	ug/l	TM15/PM10
sec-Butylbenzene#	<3	<3	<3	ORSU	<3	<3				<3	ug/l	TM15/PM10 TM15/PM10
4-Isopropyltoluene 4-Isopropyltoluene [#]	- <3	- <3	- (- <3	- <3	- <3				<3 <3	ug/l ug/l	TM15/PM10 TM15/PM10
1,3-Dichlorobenzene	-	-0	-0	<3	-	-				<3	ug/l	TM15/PM10
1,3-Dichlorobenzene [#]	<3	<3	<3	-	<3	<3				<3	ug/l	TM15/PM10
1,4-Dichlorobenzene	-	-	-	<3	-	-				<3	ug/l	TM15/PM10
1,4-Dichlorobenzene#	<3	<3	<3	-	<3	<3				<3	ug/l	TM15/PM10
n-Butylbenzene	-	-	-	<3	-	-				<3	ug/l	TM15/PM10
n-Butylbenzene#	<3	<3	<3	-	<3	<3				<3	ug/l	TM15/PM10 TM15/PM10
1,2-Dichlorobenzene 1,2-Dichlorobenzene [#]	- <3	- <3	- <3	<3	- <3	- <3				<3 <3	ug/l ug/l	TM15/PM10 TM15/PM10
1,2-Dibromo-3-chloropropane	<2	<2	<2	<2	<2	<2				<2	ug/l	TM15/PM10
1,2,4-Trichlorobenzene	<3	<3	<3	<3	<3	<3				<3	ug/l	TM15/PM10
Hexachlorobutadiene	<3	<3	<3	<3	<3	<3				<3	ug/l	TM15/PM10
Naphthalene	<2	<2	<2	<2	<2	<2				<2	ug/l	TM15/PM10
1,2,3-Trichlorobenzene	<3	<3	<3	<3	<3	<3				<3	ug/l	TM15/PM10
Surrogate Recovery Toluene D8 Surrogate Recovery 4-Bromofluorobenzene	111 103	109 97	107 95	112 103	108 97	103 94				<0 <0	%	TM15/PM10 TM15/PM10
Surrogate Recovery 4-bromonuorobenzene	103	97	95	103	97	94				<0	%	TIMT5/PINTU

Client Name:Malone O'ReganReference:E1506Location:Athy - Site 2Contact:Thomas Vainio-Mattila

J E Job No.	Batch	Sample ID	Depth	J E Sample No.	Analysis	Reason
19/6806	1	GW1A		1-8	Mercury, Metals	Sample holding time exceeded
19/6806	1	GW2A		9-16	Mercury, Metals	Sample holding time exceeded
19/6806	1	GW3A		17-24	Mercury, Metals	Sample holding time exceeded
19/6806	1	SW1A		34-42	Mercury, Metals	Sample holding time exceeded
19/6806	1	SW2A		43-51	Mercury, Metals	Sample holding time exceeded
					Mercury, Metals Mercury, Metals Mercur	

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.

Matrix : Liquid

NOTES TO ACCOMPANY ALL SCHEDULES AND REPORTS

19/6806 JE Job No.:

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 guoted, 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.

The calculation of Pyrite content assumes that all oxidisable sulphides present in the sample are pyrite. This may not be the case. The calculation may be an overesitimate when other sulphides such as Barite (Barium Sulphate) are present.

WATERS

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

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

As surface waters require different sample preparation to groundwaters the additory 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

FOI All samples should be submitted to the laboratory in suitable containers with sufficient ice packs to sustain an appropriate temperature for the requested analysis. The temperature of sample receipt is recorded on the confirmation schedules in order that the client can make an informed decision as to whether testing should still be undertaken so Cor

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.

BI ANKS

Where analytes have been found in the blank, the sample will be treated in accordance with our laboratory procedure for dealing with contaminated blanks.

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 guality 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.

REPORTS FROM THE SOUTH AFRICA LABORATORY

Any method number not prefixed with SA has been undertaken in our UK laboratory unless reported as subcontracted.

ABBREVIATIONS and ACRONYMS USED

#	ISO17025 (UKAS Ref No. 4225) accredited - UK.
SA	ISO17025 (SANAS Ref No.T0729) accredited - South Africa.
В	Indicates analyte found in associated method blank.
DR	Dilution required.
М	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 an Exova Jones Environmental approved laboratory.
AD	Samples are dried at 35°C ±5°C
CO	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	AQC Sample 0 ¹¹⁰ Blank Sample 0 ¹¹⁰ / ₁ a ¹¹ Client Sample 0 ¹¹⁰ / ₁ a ¹¹
Ν	Client Sample
ТВ	Trip Blank Sample
OC	Outside Calibration Range
AA	x5 Dilution
AB	Trip Blank Sample putterun Outside Calibration Range putterun x5 Dilution potneticut x250 Dilution Folget
	x250 Dilution tropy consent of copy

Test Method No.	Description	Prep Method No. (if appropriate)	Description	ISO 17025 (UKAS/S ANAS)	MCERTS (UK soils only)	Analysis done on As Received (AR) or Dried (AD)	Reported on dry weight basis
TM5	Modified 8015B method for the determination of solvent Extractable Petroleum Hydrocarbons (EPH) within the range C8-C40 by GCFID. For waters the solvent extracts dissolved phase plus a sheen if present.	PM16/PM30	Fractionation into aliphatic and aromatic fractions using a Rapid Trace SPE/Water samples are extracted with solvent using a magnetic stirrer to create a vortex.				
TM5	Modified 8015B method for the determination of solvent Extractable Petroleum Hydrocarbons (EPH) within the range C8-C40 by GCFID. For waters the solvent extracts dissolved phase plus a sheen if present.	PM16/PM30	Fractionation into aliphatic and aromatic fractions using a Rapid Trace SPE/Water samples are extracted with solvent using a magnetic stirrer to create a vortex.	Yes			
TM5	Modified 8015B method for the determination of solvent Extractable Petroleum Hydrocarbons (EPH) within the range C8-C40 by GCFID. For waters the solvent extracts dissolved phase plus a sheen if present.	PM30	Water samples are extracted with solvent using a magnetic stirrer to create a vortex.				
TM5	Modified 8015B method for the determination of solvent Extractable Petroleum Hydrocarbons (EPH) within the range C8-C40 by GCFID. For waters the solvent extracts dissolved phase plus a sheen if present.	PM30	Water samples are extracted with solvent using a magnetic stirrer to create a vortex. Water samples are extracted with solvent using a magnetic stirrer to create a vortex. Water samples are extracted with solvent using a magnetic stirrer to create a vortex.	Yes			
TM5/TM36	please refer to TM5 and TM36 for method details	PM12/PM16/PM30	200				
TM5/TM36	please refer to TM5 and TM36 for method details	PM12/PM16/PM30	please refer to PM16/PM30 and PM12 for method details	Yes			
TM15	Modified USEPA 8260. Quantitative Determination of Volatile Organic Compounds (VOCs) by Headspace GC-MS.	PM10	Modified US EPA method 5021. Preparation of solid and liquid samples for GC headspace analysis.				
TM15	Modified USEPA 8260. Quantitative Determination of Volatile Organic Compounds (VOCs) by Headspace GC-MS.	PM10	Modified US EPA method 5021. Preparation of solid and liquid samples for GC headspace analysis.	Yes			
TM16	Modified USEPA 8270. Quantitative determination of Semi-Volatile Organic compounds (SVOCs) by GC-MS.	PM30	Water samples are extracted with solvent using a magnetic stirrer to create a vortex.				
TM16	Modified USEPA 8270. Quantitative determination of Semi-Volatile Organic compounds (SVOCs) by GC-MS.	PM30	Water samples are extracted with solvent using a magnetic stirrer to create a vortex.	Yes			

Method Code Appendix

Test Method No.	Description	Prep Method No. (if appropriate)	Description	ISO 17025 (UKAS/S ANAS)	MCERTS (UK soils only)	Analysis done on As Received (AR) or Dried (AD)	Reported on dry weight basis
TM20	Modified BS 1377-3: 1990/USEPA 160.3 Gravimetric determination of Total Dissolved Solids/Total Solids	PM0	No preparation is required.	Yes			
TM26	Determination of phenols by Reversed Phased High Performance Liquid Chromatography and Electro-Chemical Detection.	PM0	No preparation is required.				
TM26	Determination of phenols by Reversed Phased High Performance Liquid Chromatography and Electro-Chemical Detection.	PM0	No preparation is required. Other users of the analysis of waters, and leachates for metals by ICP OES/ICP MS. Samples are filtered for	Yes			
ТМЗО	Determination of Trace Metal elements by ICP-OES (Inductively Coupled Plasma - Optical Emission Spectrometry). Modified US EPA Method 200.7, 6010B and BS EN ISO 11885 2009	PM14	Analysis of waters and leachates for metals by ICP OES/ICP MS. Samples are filtered for dissolved metals and acidified if required.				
ТМЗО	Determination of Trace Metal elements by ICP-OES (Inductively Coupled Plasma - Optical Emission Spectrometry). Modified US EPA Method 200.7, 6010B and BS EN ISO 11885 2009	18	dissolved metals and acidified if required.	Yes			
TM36	Modified US EPA method 8015B. Determination of Gasoline Range Organics (GRO) in the carbon chain range of C4-12 by headspace GC-FID. MTBE by GCFID co-elutes with 3-methylpentane if present and therefore can give a false positive. Positive MTBE results can be confirmed using GCMS.	PM125COP	Modified US EPA method 5021. Preparation of solid and liquid samples for GC headspace analysis.				
TM36	Modified US EPA method 8015B. Determination of Gasoline Range Organics (GRO) in the carbon chain range of C4-12 by headspace GC-FID. MTBE by GCFID co-elutes with 3-methylpentane if present and therefore can give a false positive. Positive MTBE results can be confirmed using GCMS.	PM12	Modified US EPA method 5021. Preparation of solid and liquid samples for GC headspace analysis.	Yes			
ТМ37	Modified methods USEPA 160.2, EN872:2005 and SMWW 2540D. Gravimetric determination of Total Suspended Solids. Sample is filtered through a 1.5um pore size glass fibre filter and the resulting residue is dried and weighed.	PM0	No preparation is required.	Yes			
TM38	Soluble Ion analysis using Discrete Analyser. Modified US EPA methods 325.2 (Chloride), 375.4 (Sulphate), 365.2 (o-Phosphate), 353.1 (TON), 354.1 (Nitrite), 350.1 (NH4+) comparable to BS ISO 15923-1, 7196A (Hex Cr)	PM0	No preparation is required.				
TM38	Soluble Ion analysis using Discrete Analyser. Modified US EPA methods 325.2 (Chloride), 375.4 (Sulphate), 365.2 (o-Phosphate), 353.1 (TON), 354.1 (Nitrite), 350.1 (NH4+) comparable to BS ISO 15923-1, 7196A (Hex Cr)	PM0	No preparation is required.	Yes			

Method Code Appendix

Test Method No.	Description	Prep Method No. (if appropriate)	Description	ISO 17025 (UKAS/S ANAS)	MCERTS (UK soils only)	Analysis done on As Received (AR) or Dried (AD)	Reported on dry weight basis
TM42	Modified US EPA method 8270. Pesticides and herbicides by GC-MS	PM30	Water samples are extracted with solvent using a magnetic stirrer to create a vortex.				
TM57	Modified US EPA Method 410.4. Comparable with ISO 15705:2002. Chemical Oxygen Demand is determined by hot digestion with Potassium Dichromate and measured spectrophotometerically.	PM0	No preparation is required.				
TM57	Modified US EPA Method 410.4. Comparable with ISO 15705:2002. Chemical Oxygen Demand is determined by hot digestion with Potassium Dichromate and measured spectrophotometerically.	PM0	No preparation is required.	Yes			
TM58	A THA Standard Weardown or the extraction or water and waste water (SML WW) 22105. Comparible with ISO 5815:1989. Measurement of Biochemical Oxygen Demand. When CBOD (Carbonaceous BOD) is requested a nitrification inhibitor is added which prevents the oxidation of reduced forms of nitrogen, such as ammonia, nitrite and organic nitrogen which exert a nitrogenous demand. Determination of Dissolved Oxygen using the Hach UCOPD on the such as a such a	PM0	No preparation is required. No preparation is required.				
TM58	HCRACSCRITCATO Methods for the extraction or water and waste water (SMELWW) 32 rob. Comparible with ISO 5815:1989. Measurement of Biochemical Oxygen Demand. When CBOD (Carbonaceous BOD) is requested a hitrification inhibitor is added which prevents the oxidation of reduced forms of nitrogen, such as ammonia, nitrite and organic nitrogen which exert a nitrogenous demand. Determination of Dissolved Oxygen using the Hach MC20D Owners Metro.	PM0	No Preparation is required.	Yes			
ТМ60	TC/TOC analysis of Waters by High Temperature Combustion followed by NDIR detection. Based on the following modified standard methods: USEPA 9060, APHA Standard Methods for Examination of Water and Wastewater 5310B, ASTM D 7573, and USEPA 415.1.	PMOST COR	Դ No preparation is required.	Yes			
TM72	Redox Potential is measured by HI98120 redox meter.	РМО	No preparation is required.				
ТМ73	Modified US EPA methods 150.1 and 9045D and BS1377:1990. Determination of pH by Metrohm automated probe analyser.	PM0	No preparation is required.				
ТМ73	Modified US EPA methods 150.1 and 9045D and BS1377:1990. Determination of pH by Metrohm automated probe analyser.	PM0	No preparation is required.	Yes			
TM75	Modified US EPA method 310.1. Determination of Alkalinity by Metrohm automated titration analyser.	PM0	No preparation is required.	Yes			

Method Code Appendix

Test Method No.	Description	Prep Method No. (if appropriate)	Description	ISO 17025 (UKAS/S ANAS)	MCERTS (UK soils only)	Analysis done on As Received (AR) or Dried (AD)	Reported on dry weight basis
TM76	Modified US EPA method 120.1. Determination of Specific Conductance by Metrohm automated probe analyser.	PM0	No preparation is required.				
TM76	Modified US EPA method 120.1. Determination of Specific Conductance by Metrohm automated probe analyser.	PM0	No preparation is required.	Yes			
TM89	Modified USEPA method OIA-1667. Determination of cyanide by Flow Injection Analyser. Where WAD cyanides are required a Ligand displacement step is carried out before analysis.	PM0	No preparation is required.				
TM89	Modified USEPA method OIA-1667. Determination of cyanide by Flow Injection Analyser. Where WAD cyanides are required a Ligand displacement step is carried out before analysis.	PM0	No preparation is required. No preparation is required. No preparation is required. No preparation is required. Plangues are pretreated and derivatised. The derivatised organotins are then extracted using hexane.	Yes			
TM94	Derivatisation and extraction of Organotins. Analysis by GC-MS	~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~					
TM149	Determination of Pesticides by Large Volume Injection on GC Triple Quad MS, based upon USEPA method 8270	PM30f COP) Water samples are extracted with solvent using a magnetic stirrer to create a vortex.				
TM173	Analysis of fluoride by ISE (Ion Selective Electrode) using modified ISE method 340.2	РМО	No preparation is required.				
Subcontracted	See attached subcontractor report for accreditation status and provider.						





DETAILED IN SCOPE REG NO. 138

City Analysts Limited, Pigeon House Road, Ringsend, Dublin 4.

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Customer

Kate Wiley Exova Environmental UK Ltd **Rosewell House** 2A (1F) Harvest Drive Newbridge, MidLothian Scotland EH28 8QJ United Kingdom

Certificate Of Analysis

Job Number:	19-55383
Issue Number:	1
Report Date:	29 April 2019

Site: Not Applicable **PO Number:** Not Supplied Date Samples Received: 25/04/2019

For inspection numposes only any other use. Please find attached the results for the samples received at our laboratory on 25/04/2019.

Should you have any queries regarding the report or require any further services, we would be happy to discuss your requirements. For additional information about the company please log-on to our website at the above address.

Thank you for choosing City Analysts Limited. We look forward to assisting you again.

Authorised By:

Shane Reynolds Laboratory Manager Authorised Date: 29 April 2019

Notes:

Results relate only to the items tested. Information on methods of analysis and performance characteristics is available on request. Any opinions or interpretations indicated are outside the scope of our INAB accreditation. This test report shall not be reproduced except in full or with written approval of City Analysts Limited.

Template: 1146 Revision: 018





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Certificate Of Analysis

Customer Kate Wiley

Exova Environmental UK Ltd Rosewell House 2A (1F) Harvest Drive Newbridge, MidLothian Scotland EH28 8QJ United Kingdom Report Reference: 19-55383 Report Version: 1

Site:	Not Applicable		
Sample Description:	GW1A	Date of Sampling:	25/04/2019
Sample Type:	Ground	Date Sample Received:	25/04/2019
Lab Reference Numbe	r: 436538		

Site / Method Ref.	Analysis Start Date	Parameter	other Result	Units	PV Value (Drinking Water Only)
D/D1201#	25/04/2019	Coliforms	×1.0	MPN/100ml	-
D/D3221#	25/04/2019	Faecal Coliforms	< 1	cfu/100ml	-
		Consent of copyright owner read			

= INAB Accredited, U = UKAS Accredited, * = Subcontracted

Note:

PV Value is the parametric value, taken from European Communities, (Drinking Water) Regulations, 2014. S.I. No. 122 of 2014 and relates only to drinking water samples.

For queries on results, please contact us within two weeks of the report date to ensure that we can accommodate your query as samples cannot be stored indefinitely.

NAC & ATC - No abnormal change and acceptable to customers. TVC - Total viable count





Tel: (01) 613 6003 Fax: (01) 613 6008

Email: reports@cityanalysts.ie

www.cityanalysts.ie

Certificate Of Analysis

Customer Kate Wiley

Exova Environmental UK Ltd Rosewell House 2A (1F) Harvest Drive Newbridge, MidLothian Scotland EH28 8QJ United Kingdom Report Reference: 19-55383 Report Version: 1

Site:	Not Applicable		
Sample Description:	GW2A	Date of Sampling:	25/04/2019
Sample Type:	Ground	Date Sample Received:	25/04/2019
Lab Reference Numbe	r: 436539		

Site / Method Ref.	Analysis Start Date	Parameter	uti-ot	Units	PV Value (Drinking Water Only)
D/D1201#	25/04/2019	Coliforms	7.4 T.4	MPN/100ml	-
D/D3221#	25/04/2019	Faecal Coliforms	< 1	cfu/100ml	-
		Consolt of copyright owner rear			

= INAB Accredited, U = UKAS Accredited, * = Subcontracted

Note:

PV Value is the parametric value, taken from European Communities, (Drinking Water) Regulations, 2014. S.I. No. 122 of 2014 and relates only to drinking water samples.

For queries on results, please contact us within two weeks of the report date to ensure that we can accommodate your query as samples cannot be stored indefinitely.

NAC & ATC - No abnormal change and acceptable to customers. TVC - Total viable count





Tel: (01) 613 6003 Fax: (01) 613 6008

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www.cityanalysts.ie

Certificate Of Analysis

Customer Kate Wiley

Exova Environmental UK Ltd Rosewell House 2A (1F) Harvest Drive Newbridge, MidLothian Scotland EH28 8QJ United Kingdom Report Reference: 19-55383 Report Version: 1

Site:	Not Applicable		
Sample Description:	GW3A	Date of Sampling:	25/04/2019
Sample Type:	Ground	Date Sample Received:	25/04/2019
Lab Reference Numbe	er: 436540		

Site / Method Ref.	Analysis Start Date	Parameter	UN: 07 OTRESULT	Units	PV Value (Drinking Water Only)
D/D1201#	25/04/2019	Coliforms	51 tot to 165.8	MPN/100ml	-
D/D3221#	25/04/2019	Faecal Coliforms	< 1	cfu/100ml	-
		Consolt of copyright owner read			

= INAB Accredited, U = UKAS Accredited, * = Subcontracted

Note:

PV Value is the parametric value, taken from European Communities, (Drinking Water) Regulations, 2014. S.I. No. 122 of 2014 and relates only to drinking water samples.

For queries on results, please contact us within two weeks of the report date to ensure that we can accommodate your query as samples cannot be stored indefinitely.

NAC & ATC - No abnormal change and acceptable to customers. TVC - Total viable count





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Report Reference: 19-55383

Report Version: 1

Kate Wiley
Exova Environmental UK Ltd
Rosewell House
2A (1F) Harvest Drive
Newbridge, MidLothian Scotland
EH28 8QJ United Kingdom

Customer

Site:	Not Applicable		
Sample Description:	L1A	Date of Sampling:	25/04/2019
Sample Type:	Ground	Date Sample Received:	25/04/2019
Lab Reference Numb	er: 436541		

Certificate Of Analysis

Site / Method Ref.	Analysis Start Date	Parameter	uting the Result	Units	PV Value (Drinking Water Only)
D/D1201#	25/04/2019	Coliforms	01101 te 10810.0	MPN/100ml	-
D/D3221#	25/04/2019	Faecal Coliforms	23	cfu/100ml	-
		Consolt of copyright owner read			

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Note: PV Value is the parametric value, taken from European Communities, (Drinking Water) Regulations, 2014. S.I. No. 122 of 2014 and relates only to drinking water samples.

For queries on results, please contact us within two weeks of the report date to ensure that we can accommodate your query as samples cannot be stored indefinitely.

NAC & ATC - No abnormal change and acceptable to customers. TVC - Total viable count Site D = Analysed at City Analysts Dublin. Site S = Analysed at City Analysts Shannon

Page 5 of 5



Registered Office: Exova Environmental UK Limited, 10 Lower Grosvenor Place, London, SW1W 0EN. Reg No. 11371415

Unit 3 Deeside Point

	Zone 3
	Deeside Industrial Park
	Deeside
	CH5 2UA
Malone O'Regan Ground Floor - Unit 3	
Bracken Business Park	Tel: +44 (0) 1244 833780
Bracken Road	Fax: +44 (0) 1244 833781
Sandyford Dublin 18 D18 V4K6	
Attention :	Thomas Vainio-Mattila
Date :	14th June, 2019
Your reference :	E1506
Our reference :	Test Report 19/7606 Batch 1
Location :	A. A other
Date samples received :	10th May, 2019 50 10 10 10 10 10 10 10 10 10 10 10 10 10
Status :	Final report nuponities
Issue :	E1506 Test Report 19/7606 Batch 1 use 10th May, 2019 offer any offer use Final report purpose offer any offer use 2 use the offer offer any offer use 2 use the offer offer use of the offer

Six samples were received for analysis on 10th May, 2019 of which six 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.

For

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

Compiled By:

Phil Sommerton BSc Senior Project Manager

Client Name: Reference:	Malone O E1506	'Regan					Report :	Liquid					
Location:													
Contact:		/ainio-Matti	ila				• •		/=40ml vial, G		e, P=plastic	bottle	
JE Job No.:	19/7606						H=H ₂ SO ₄ , 2	Z=ZnAc, N	=NaOH, HN=	HN0 ₃			
J E Sample No.	1-8	9-16	17-24	25-33	52-59	60-68							
Sample ID	GW1A	GW2A	GW3A	L1A	SW1A	SW2A							
Depth												e attached n	
COC No / misc											abbrevi	ations and a	cronyms
Containers	VHNPG	VHNPG	VHNPG	V H N P BOD G	V H N P BOD G	V H N P BOD G							
Sample Date	09/05/2019	09/05/2019	09/05/2019	09/05/2019	09/05/2019	09/05/2019							
Sample Type	Ground Water	Ground Water	Ground Water	Leachate	Surface Water	Surface Water						1	
Batch Number	1	1	1	1	1	1					LOD/LOR	Units	Method
Date of Receipt	10/05/2019	10/05/2019	10/05/2019	10/05/2019	10/05/2019	10/05/2019							No.
Dissolved Arsenic	-	-	-	17.1	-	-					<2.5	ug/l	TM30/PM1
Dissolved Arsenic [#]	8.1	<2.5	<2.5	-	<2.5	<2.5					<2.5	ug/l	TM30/PM1
Dissolved Boron	98	26	45	298	32	30					<12	ug/l	TM30/PM1
Dissolved Cadmium	-	-	-	<0.5	-	-					<0.5	ug/l	TM30/PM1
Dissolved Cadmium [#]	<0.5	<0.5	<0.5	-	<0.5	<0.5					<0.5	ug/l	TM30/PM14
Dissolved Calcium	-	-	-	254.3 _{AA}	-	-					<0.2	mg/l	TM30/PM14
Dissolved Calcium [#]	150.4	146.0	131.3	-	128.3	123.2					<0.2	mg/l	TM30/PM1
Total Dissolved Chromium	-	-	-	<1.5	-	-		se.			<1.5	ug/l	TM30/PM1
Total Dissolved Chromium [#]	<1.5	<1.5	<1.5	-	<1.5	<1.5		net			<1.5	ug/l	TM30/PM1
Dissolved Copper	-	-	-	<7	-	-	di la constante di la constant	Q.			<7	ug/l	TM30/PM1
Dissolved Copper [#]	<7	<7	<7	-	- 128.3 - <1.5 - <7 - <20 - <5,00 - - <5,00 - - - - - - - - - - - - -	<7	113. 312				<7	ug/l	TM30/PM1
Total Dissolved Iron	-	-	-	65	-	- 25	for				<20	ug/l	TM30/PM1
Total Dissolved Iron #	<20	<20	<20	-	<20	120 ji					<20	ug/l	TM30/PM1
Dissolved Lead	-	-	-	<5	-	Puredo					<5	ug/l	TM30/PM1
Dissolved Lead #	<5	<5	<5	-	<5 10	net<5					<5	ug/l	TM30/PM1
Dissolved Magnesium	-	-	-	24.5	- spero	4 -					<0.1	mg/l	TM30/PM1
Dissolved Magnesium [#]	20.8	14.5	18.2	-	116.71×	17.1					<0.1	mg/l	TM30/PM1
Dissolved Manganese	-	-	-	1331 🍾	023-	-					<2	ug/l	TM30/PM1
Dissolved Manganese #	4	<2	<2	- 8	2	<2					<2	ug/l	TM30/PM1
Dissolved Mercury	-	-	-	consett of	-						<1	ug/l	TM30/PM1
Dissolved Mercury [#]	<1	<1	<1	010-	<1	<1					<1	ug/l	TM30/PM1
Dissolved Nickel	-	-		4		-					<2	ug/l	TM30/PM1
Dissolved Nickel [#]	<2	<2	<2	-	<2	<2					<2	ug/l	TM30/PM1
Dissolved Potassium	-	-	-	25.0	-	-					<0.1	mg/l	TM30/PM1
Dissolved Potassium [#]	8.3	2.0	1.8	-	2.1	2.1					<0.1	mg/l	TM30/PM1
Dissolved Sodium	-	-	-	22.8	-	-					<0.1	mg/l	TM30/PM1
Dissolved Sodium [#]	42.7	14.3	11.5	-	8.9	9.1					<0.1	mg/l	TM30/PM1
Dissolved Zinc	-	-	-	5	-	-					<3	ug/l	TM30/PM1
Dissolved Zinc [#]	<3	<3	<3	-	<3	<3					<3	ug/l	TM30/PM1
Methyl Tertiary Butyl Ether	-	-	-	<0.1	-	-					<0.1	ug/l	TM15/PM1
Methyl Tertiary Butyl Ether #	<0.1	<0.1	<0.1	-	<0.1	<0.1					<0.1	ug/l	TM15/PM1
Benzene	-	-	-	<0.5	-	-					<0.5	ug/l	TM15/PM1
Benzene #	<0.5	<0.5	<0.5	-	<0.5	<0.5					<0.5	ug/l	TM15/PM1
Toluene	-	-	-	<5	-	-					<5	ug/l	TM15/PM1
Toluene [#]	<5	<5	<5	-	<5	<5					<5	ug/l	TM15/PM1
Ethylbenzene	-	-	-	<1	-	-					<1	ug/l	TM15/PM1
Ethylbenzene [#]	<1	<1	<1	-	<1	<1					<1	ug/l	TM15/PM1
m/p-Xylene	-	-	-	<2	-	-					<2	ug/l	TM15/PM1
m/p-Xylene [#]	<2	<2	<2	-	<2	<2					<2	ug/l	TM15/PM1
o-Xylene	-	-	-	<1	-	-					<1	ug/l	TM15/PM1
o-Xylene [#]	<1	<1	<1	-	<1	<1					<1	ug/l	TM15/PM1
Surrogate Recovery Toluene D8	109	111	111	89	88	89					<0	%	TM15/PM1
Surrogate Recovery 4-Bromofluorobenzene	108	110	109	85	86	86					<0	%	TM15/PM1

Client Name: Reference:	Malone O' E1506	Regan					Report :	Liquid					
Location: Contact: JE Job No.:	Thomas V 19/7606	′ainio-Matti	la				• •		=40ml vial, G :NaOH, HN=	≔glass bottle HN0₃	e, P=plastic	bottle	
J E Sample No.	1-8	9-16	17-24	25-33	52-59	60-68							
Sample ID	GW1A	GW2A	GW3A	L1A	SW1A	SW2A							
Depth												e attached r	
COC No / misc											abbrevi	ations and a	cronyms
Containers	VHNPG	VHNPG	VHNPG	V H N P BOD G	V H N P BOD G	V H N P BOD G							
Sample Date	09/05/2019	09/05/2019	09/05/2019	09/05/2019	09/05/2019	09/05/2019							
Sample Type	Ground Water	Ground Water	Ground Water	Leachate	Surface Water	Surface Water							
Batch Number	1	1	1	1	1	1					LOD/LOR	Units	Method
Date of Receipt	10/05/2019	10/05/2019	10/05/2019	10/05/2019	10/05/2019	10/05/2019					LODIEOIN	0110	No.
Pesticides													
Organochlorine Pesticides	-0.01	-0.01	-0.01	-0.01	-0.01	-0.01					-0.01		TM440/DM2
Aldrin Alpha-HCH (BHC)	<0.01 <0.01	<0.01 <0.01	<0.01 <0.01	<0.01 <0.01	<0.01 <0.01	<0.01 <0.01					<0.01 <0.01	ug/l ug/l	TM149/PM30 TM149/PM30
Beta-HCH (BHC)	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01					<0.01	ug/l	TM149/PM30
Chlorothalonil	<2.50 _{AB}					<0.01	ug/l	TM149/PM30					
cis-Chlordane	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01					<0.01	ug/l	TM149/PM30
Delta-HCH (BHC)	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01		<u>ی</u> .			<0.01	ug/l	TM149/PM30
Dieldrin	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	ally any	octile			<0.01	ug/l	TM149/PM30
Endosulphan I	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	di si	ar.			<0.01	ug/l	TM149/PM30
Endosulphan II	<0.01 <0.01	<0.01 <0.01	<0.01 <0.01	<0.01 <0.01	<0.01 <0.01	<0.01	nly and				< 0.01	ug/l	TM149/PM30 TM149/PM30
Endosulphan sulphate Endrin	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	d 10				<0.01 <0.01	ug/l ug/l	TM149/PM30
Gamma-HCH (BHC)	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01 <007 007 001 000 001					< 0.01	ug/l	TM149/PM30
Heptachlor	<0.01	<0.01	<0.01	<0.01	<0.01	0.01					<0.01	ug/l	TM149/PM30
Heptachlor Epoxide	<0.01	<0.01	<0.01	<0.01	<0.61	×11 < 0.01					<0.01	ug/l	TM149/PM30
Hexachlorobenzene	<0.01	<0.01	<0.01	<0.01	1 A O A	<0.01					<0.01	ug/l	TM149/PM30
Isodrin	<0.01	<0.01	<0.01	<0.01 🛠	00,01	<0.01					<0.01	ug/l	TM149/PM30
o,p'-DDE	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01					<0.01	ug/l	TM149/PM30
o,p'-DDT o,p'-Methoxychlor	<0.01 <0.01	<0.01 <0.01	<0.01 <0.01	<0.01	<0.01 <0.01	<0.01 <0.01					<0.01 <0.01	ug/l ug/l	TM149/PM30 TM149/PM30
o,p'-TDE	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01					<0.01	ug/l	TM149/PM30
p,p'-DDE	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01					<0.01	ug/l	TM149/PM30
p,p'-DDT	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01					<0.01	ug/l	TM149/PM30
p,p'-Methoxychlor	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01					<0.01	ug/l	TM149/PM30
p,p'-TDE	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01					<0.01	ug/l	TM149/PM30
Pendimethalin	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01					<0.01	ug/l	TM149/PM30
Permethrin I	<0.01	<0.01	< 0.01	< 0.01	<0.01	<0.01					< 0.01	ug/l	TM149/PM30
Permethrin II Quintozene (PCNB)	<0.01 <0.01	<0.01 <0.01	<0.01 <0.01	<0.01 <0.01	<0.01 <0.01	<0.01 <0.01					<0.01 <0.01	ug/l ug/l	TM149/PM30 TM149/PM30
Tecnazene	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01					<0.01	ug/i ug/i	TM149/PM30
Telodrin	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01					< 0.01	ug/l	TM149/PM30
trans-Chlordane	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01					<0.01	ug/l	TM149/PM30
Triadimefon	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01					<0.01	ug/l	TM149/PM30
Triallate	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01					<0.01	ug/l	TM149/PM30
Trifluralin	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01					<0.01	ug/l	TM149/PM30
													1

Client Name: Reference:	Malone O E1506	'Regan					Report :	Liquid					
Location: Contact:	Thomas V	/ainio-Matti	ila				l iquids/pr	oducts: V=	40ml vial, G	=alass bottle	P=plastic	bottle	
JE Job No.:	19/7606								NaOH, HN=	-	o, i pidodo	bottio	
J E Sample No.	1-8	9-16	17-24	25-33	52-59	60-68							
Sample ID	GW1A	GW2A	GW3A	L1A	SW1A	SW2A							
Depth											Please se	e attached n	otes for all
COC No / misc											abbrevia	ations and a	cronyms
Containers	VHNPG	VHNPG	VHNPG	V H N P BOD G	V H N P BOD G	V H N P BOD G							
Sample Date	09/05/2019	09/05/2019	09/05/2019	09/05/2019	09/05/2019	09/05/2019							
Sample Type	Ground Water	Ground Water	Ground Water	Leachate	Surface Water	Surface Water							
Batch Number	1	1	1	1	1	1							Method
Date of Receipt	10/05/2019	10/05/2019	10/05/2019	10/05/2019	10/05/2019	10/05/2019					LOD/LOR	Units	No.
Pesticides													
Organophosphorus Pesticides													
Azinphos ethyl	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01					<0.01	ug/l	TM149/PM30
Azinphos methyl	<0.01	< 0.01	<0.01	< 0.01	<0.01	<0.01					<0.01	ug/l	TM149/PM30
Carbophenothion	<0.01	< 0.01	<0.01	< 0.01	< 0.01	<0.01					< 0.01	ug/l	TM149/PM30 TM149/PM30
Chlorfenvinphos Chlorpyrifos	<0.01 <0.01	<0.01 <0.01	<0.01 <0.01	<0.01 <0.01	<0.01 <0.01	<0.01 <0.01					<0.01 <0.01	ug/l ug/l	TM149/PM30
Chlorpyrifos-methyl	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	ally any c	0.0			<0.01	ug/l	TM149/PM30
Diazinon	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01		x 1150.			<0.01	ug/l	TM149/PM30
Dichlorvos	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	ć	ner			<0.01	ug/l	TM149/PM30
Disulfoton	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	17. 217				<0.01	ug/l	TM149/PM30
Dimethoate	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01 <0.07 <0.07 +0.03 +0.03 +0.03 +0.01	for				<0.01	ug/l	TM149/PM30
Ethion	<0.01	<0.01	<0.01	<0.01	<0.01	<0.07	.U				<0.01	ug/l	TM149/PM30
Ethyl Parathion (Parathion)	<0.01	< 0.01	<0.01	< 0.01	< 0.01	Q20.03					< 0.01	ug/l	TM149/PM30 TM149/PM30
Etrimphos Fenitrothion	<0.01 <0.01	<0.01 <0.01	<0.01 <0.01	<0.01 <0.01	<0.01	<0.01					<0.01 <0.01	ug/l ug/l	TM149/PM30
Fenthion	<0.01	<0.01	<0.01	<0.01	NO 00	<0.01					<0.01	ug/l	TM149/PM30
Malathion	<0.01	<0.01	<0.01	<0.01 🞸	01 01 0.01	<0.01					<0.01	ug/l	TM149/PM30
Methyl Parathion	<0.01	<0.01	<0.01	<0.01 🔇	<0.01	<0.01					<0.01	ug/l	TM149/PM30
Mevinphos	<0.01	<0.01	<0.01	<0.01 01 00 01	<0.01	<0.01					<0.01	ug/l	TM149/PM30
Phosalone	<0.01	<0.01	<0.01		<0.01	<0.01					<0.01	ug/l	TM149/PM30
Pirimiphos Methyl	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01					<0.01	ug/l	TM149/PM30
Propetamphos Triazophos	<0.01 <0.01	<0.01 <0.01	<0.01 <0.01	<0.01 <0.01	<0.01 <0.01	<0.01 <0.01					<0.01 <0.01	ug/l ug/l	TM149/PM30 TM149/PM30
mazophos	<0.01	~0.01	<0.01	~0.01	~0.01	<0.01					~0.01	ugn	110143/11030

Client Name: Reference:	Malone O E1506	'Regan					Report :	Liquid					
Location: Contact: JE Job No.:	Thomas V 19/7606	/ainio-Matti	ila				• •		40ml vial, G NaOH, HN=	•	e, P=plastic	bottle	
J E Sample No.	1-8	9-16	17-24	25-33	52-59	60-68							
Sample ID	GW1A	GW2A	GW3A	L1A	SW1A	SW2A							
Depth											Please se	e attached r	notes for all
COC No / misc											abbrevi	ations and a	cronyms
Containers	VHNPG	VHNPG	VHNPG	V H N P BOD G	V H N P BOD G	V H N P BOD G							
Sample Date	09/05/2019	09/05/2019	09/05/2019	09/05/2019	09/05/2019	09/05/2019							
Sample Type	Ground Water	Ground Water	Ground Water	Leachate	Surface Water	Surface Water							
Batch Number	1	1	1	1	1	1					LOD/LOR	Units	Method
Date of Receipt	10/05/2019	10/05/2019	10/05/2019	10/05/2019	10/05/2019	10/05/2019					LOBILOIT	onno	No.
Acid Herbicides													
Benazolin Bentazone	<0.1 <0.1	<0.1 <0.1	<0.1 <0.1	<0.1 <0.1	<0.1 <0.1	<0.1 <0.1					<0.1 <0.1	ug/l	TM42/PM3 TM42/PM3
	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1					<0.1	ug/l	TM42/PM30 TM42/PM30
Bromoxynil Clopyralid	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1					<0.1	ug/l ug/l	TM42/PM30
4-CPA	<0.1	<0.1	<0.1	<0.1	-0.1	-0.1					<0.1	ug/l	TM42/PM30
2,4-D	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1					<0.1	ug/l	TM42/PM30
2,4-DB	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1		.Ø1*			<0.1	ug/l	TM42/PM30
Dicamba	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1		A USC			<0.1	ug/l	TM42/PM30
Dichloroprop	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	, ć	ne			<0.1	ug/l	TM42/PM30
Diclofop	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	aly and				<0.1	ug/l	TM42/PM30
Fenoprop	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	for				<0.1	ug/l	TM42/PM30
Flamprop	<0.1	<0.1	<0.1	<0.1	<0.1						<0.1	ug/l	TM42/PM30
Flamprop-isopropyl	<0.1	<0.1	<0.1	<0.1	<0.1	Dix0 Ch					<0.1	ug/l	TM42/PM30
loxynil	<0.1	<0.1	<0.1	<0.1	<0.1:10	10×0.1					<0.1	ug/l	TM42/PM30
МСРА МСРВ	<0.1 <0.1	<0.1 <0.1	<0.1 <0.1	<0.1 <0.1	in the set	<0.1 <0.1 <0.1 <0.1 <0.1 <0.1 <0.1 <0.1					<0.1 <0.1	ug/l ug/l	TM42/PM30 TM42/PM30
Месоргор	<0.1	<0.1	<0.1	<0.1	0230.1	<0.1					<0.1	ug/l	TM42/PM30
Picloram	<0.1	<0.1	<0.1	<0.1 \$	<0.1	<0.1					<0.1	ug/l	TM42/PM30
Pentachlorophenol	<0.1	<0.1	<0.1	<0.1 5	<0.1	<0.1					<0.1	ug/l	TM42/PM30
2,4,5-T	<0.1	<0.1	<0.1	<01 0,	<0.1	<0.1					<0.1	ug/l	TM42/PM30
2,3,6-TBA	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1					<0.1	ug/l	TM42/PM30
Triclopyr	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1					<0.1	ug/l	TM42/PM30
Atrazine	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01					<0.01	ug/l	TM149/PM30
Simazine	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01					<0.01	ug/l	TM149/PM30
GRO (>C4-C8)	-	-	-	<10	-	-					<10	ug/l	TM36/PM12
GRO (>C4-C8)*	<10	<10	<10	-	<10	<10					<10	ug/l	TM36/PM12
GRO (>C8-C12)	-	-	-	<10	-	-					<10	ug/l	TM36/PM12
GRO (>C8-C12) [#]	<10	<10	<10	-	<10	<10					<10	ug/l	TM36/PM12
GRO (>C4-C12)	-	-	-	<10	-	-					<10	ug/l	TM36/PM12
GRO (>C4-C12) [#]	<10	<10	<10	-	<10	<10					<10	ug/l	TM36/PM12
EPH (C8-C40)	-	-	-	<10	-	-					<10	ug/l	TM5/PM30
EPH (C8-C40) [#]	<10	<10	<10	-	<10	<10					<10	ug/l	TM5/PM30
Mineral Oil (C10-C40)	<10	<10	<10	<10	<10	<10					<10	ug/l	TM5/PM16/PM30

Reference:	Malone O E1506	'Regan					Report :	Liquid					
Location: Contact: JE Job No.:	Thomas V 19/7606	/ainio-Matti	ila						40ml vial, G NaOH, HN=	-	e, P=plastic	bottle	
J E Sample No.	1-8	9-16	17-24	25-33	52-59	60-68							
Sample ID	GW1A	GW2A	GW3A	L1A	SW1A	SW2A							
Depth											Please se	e attached n	otes for all
COC No / misc											abbrevi	ations and a	cronyms
Containers	VHNPG	VHNPG	VHNPG	V H N P BOD G	V H N P BOD G	V H N P BOD G							
Sample Date	09/05/2019	09/05/2019	09/05/2019	09/05/2019	09/05/2019	09/05/2019							
Sample Type	Ground Water	Ground Water	Ground Water	Leachate	Surface Water	Surface Water							
Batch Number	1	1	1	1	1	1							Method
Date of Receipt	10/05/2019	10/05/2019	10/05/2019	10/05/2019	10/05/2019	10/05/2019					LOD/LOR	Units	No.
TPH CWG													
Aliphatics													THOCTO
>C5-C6 >C5-C6 [#]	-	-	-	<10 -	- <10	-					<10	ug/l	TM36/PM12 TM36/PM12
>C5-C6 <i>"</i> >C6-C8	<10 -	<10	<10 -	- <10	<10	<10					<10 <10	ug/l ug/l	TM36/PM12
>C6-C8 [#]	<10	<10	<10	-	<10	<10					<10	ug/l	TM36/PM12
>C8-C10	-	-	-	<10							<10	ug/l	TM36/PM12
>C8-C10 [#]	<10	<10	<10	-	<10	<10	8119' 819 C	.9.*			<10	ug/l	TM36/PM12
>C10-C12	-	-	-	<5	-	-		of USC			<5	ug/l	TM5/PM16/PM3
>C10-C12 [#]	<5	<5	<5	-	<5	<5	ć	ne.			<5	ug/l	TM5/PM16/PM3
>C12-C16	-	-	-	<10	-	-	119. 2119				<10	ug/l	TM5/PM16/PM3
>C12-C16 [#]	<10	<10	<10	-	<10	<10	for				<10	ug/l	TM5/PM16/PM3
>C16-C21	-	-	-	<10	-	100511	a V				<10	ug/l	TM5/PM16/PM3
>C16-C21 #	<10	<10	<10	-	<10	PU<101					<10	ug/l	TM5/PM16/PM3
>C21-C35	-	-	-	<10	- cito	Met-					<10	ug/l	TM5/PM16/PM3 TM5/PM16/PM3
>C21-C35 [#] Total aliphatics C5-35	<10	<10	<10	- <10	inspiro						<10 <10	ug/l ug/l	TM5/PM16/PM3
Total aliphatics C5-35	- <10	- <10	- <10	- 🔨	or instantio	- <10					<10	ug/l	TM5/TM36/PM12/PM16/PM
Aromatics				c	01 11570 0 01 11570 0 01 110							49/1	
>C5-EC7	-	-	-	<14 01	-	-					<10	ug/l	TM36/PM12
>C5-EC7#	<10	<10	<10	~ 01 ⁵⁰	<10	<10					<10	ug/l	TM36/PM12
>EC7-EC8	-	-	- `	<10	-	-					<10	ug/l	TM36/PM12
>EC7-EC8 [#]	<10	<10	<10	-	<10	<10					<10	ug/l	TM36/PM12
>EC8-EC10	-	-	-	<10	-	-					<10	ug/l	TM36/PM12
>EC8-EC10 [#]	<10	<10	<10	-	<10	<10					<10	ug/l	TM36/PM12
>EC10-EC12	- <5	-	-	<5	- <5	- <5					<5 <5	ug/l	TM5/PM16/PM3 TM5/PM16/PM3
>EC10-EC12 [#] >EC12-EC16	<5	<5	<5	- <10	-	<5					<5 <10	ug/l ug/l	TM5/PM16/PM3
>EC12-EC16 [#]	<10	<10	<10	-	<10	<10					<10	ug/l	TM5/PM16/PM3
>EC16-EC21	-	-	-	<10	-	-					<10	ug/l	TM5/PM16/PM3
>EC16-EC21 #	<10	<10	<10	-	<10	<10					<10	ug/l	TM5/PM16/PM3
>EC21-EC35	-	-	-	<10	-	-					<10	ug/l	TM5/PM16/PM3
>EC21-EC35#	<10	<10	<10	-	<10	<10					<10	ug/l	TM5/PM16/PM3
Total aromatics C5-35	-	-	-	<10	-	-					<10	ug/l	TM5/TM38/PM12/PM16/PM
Total aromatics C5-35 [#]	<10	<10	<10	-	<10	<10					<10	ug/l	TM5/TM36/PM12/PM16/PM
Total aliphatics and aromatics(C5-35) Total aliphatics and aromatics(C5-35)	- <10	- <10	- <10	<10 -	- <10	- <10					<10 <10	ug/l ug/l	TM5/TM38/PM12/PM16/PM TM5/TM38/PM12/PM16/PM
Phenol	-	-	-	<0.01	-	-					<0.01	mg/l	TM26/PM0
Phenol [#]	<0.01	<0.01	<0.01	-	<0.01	<0.01					<0.01	mg/l	TM26/PM0
Fluoride	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3					<0.3	mg/l	TM173/PM
													1

Location:ThomasContact:JendoJE Job No.:19/7606JE Job No.:1-8JE Job No.:Gw1ASample IDGw1AContainersGw1ACOC No / misc0ContainersV H N PContainers09/05/20Sample Date09/05/20Sample TypeGround WaBatch Number1Date of Receipt10/05/20Sulphate as SO4 #58.2Chloride68.32MRP Ortho Phosphate as P<0.03Total Oxidised Nitrogen as N-Total Oxidised Nitrogen as N-Total Oxidised Nitrogen as N-Total Cyanide-Total Cyanide-Total Alkalinity as CaCO3962Dibutyltin<0.1Tributyltin<0.1Tributyltin<0.1Tributyltin<0.1Tributyltin<0.1Tributyltin<0.1COD (Settled)-CoD (Settled)-Dissolved Oxygen7	9-16 GW2A G V H N P G 09/05/2019 ter Ground Wate 1	17-24 GW3A V H N P G 09/05/2019 r Ground Water 1	09/05/2019 Leachate 1 10/05/2019 - 22.8 - <0.03 <0.2	Surface Water	09/05/2019 Surface Water 1 10/05/2019 22.9 - 28.1 <0.03 -	H=H ₂ SO ₄ , 2	z=ZnAc, N=	40ml vial, G= NaOH, HN=H	-	Please se	units Units mg/l mg/l mg/l mg/l	
JE Job No.:19/7600JE Job No.:1-8JE Sample No.1-8Sample IDGW1ACortainersV H N PContainersV H N PContainersV H N PSample Date09/05/20Sample TypeGround WatBatch Number1Date of Receipt10/05/20Sulphate as SO4 #58.2Chloride10/05/20Sulphate as SO4 #63.2Chloride6Choride6Choride3Total Cyanide1Total Cyanide3Total Cyanide3Total Cyanide3Mamoniacal Nitrogen as N4Ammoniacal Nitrogen as N4Total Alkalinity as CaCO3 #962Dibutytlin<Tributytlin<Triphenytlin<BOD (Settled)-BOD (Settled)-COD (Settled)-Con (Settled)-Con (Settled)-	G VHNPG GV2A GV2	17-24 GW3A V H N P G 09/05/2019 Ground Water 1 10/05/2019 22.1 - 33.1 <0.03 - 7.9 - <0.01 -	L1A VHNPBODG 09/05/2019 Leachate 1 10/05/2019 - 22.8 - <0.03 <0.2	SW1A V H N P BOD G 09/05/2019 Surface Water 1 10/05/2019 22.6 - 27.8 <0.03 -	SW2A VHNPBODG 09/05/2019 Surface Water 1 10/05/2019 22.9 - 28.1 <0.03 -	H=H ₂ SO ₄ , 2	z=ZnAc, N=	NaOH, HN=H	-	Please se abbrevi: COD/LOR <0.5 <0.3 <0.3 <0.03 <0.2	units Units mg/l mg/l mg/l mg/l	Method No. TM38/PM TM38/PM TM38/PM TM38/PM
JE Sample IN1.8Sample IDGW1ADepthCOC No / miseCOC No / miseCOC No / miseGound ValSample DateBatch Number10/05/20'Suphate as SO4 #ChorideChoride #Choride # <th>9-16 GW2A GW2A 9 09/05/2019 10/05/2019 10/05/2019 20.3 - 20.3 - 49.8 <0.03 - 9.1 - - <0.01</th> <th>GW3A V H N P G 09/05/2019 Ground Water 1 10/05/2019 22.1 - 33.1 <0.03 - 7.9 - <0.01 -</th> <th>L1A VHNPBODG 09/05/2019 Leachate 1 10/05/2019 - 22.8 - <0.03 <0.2</th> <th>SW1A V H N P BOD G 09/05/2019 Surface Water 1 10/05/2019 22.6 - 27.8 <0.03 -</th> <th>SW2A VHNPBODG 09/05/2019 Surface Water 1 10/05/2019 22.9 - 28.1 <0.03 -</th> <th></th> <th></th> <th></th> <th>1NO3</th> <th>abbrevi: LOD/LOR <0.5 <0.3 <0.3 <0.03 <0.03 <0.2</th> <th>Units Mg/l mg/l mg/l mg/l mg/l</th> <th>Method No. TM38/PM TM38/PM TM38/PM TM38/PM</th>	9-16 GW2A GW2A 9 09/05/2019 10/05/2019 10/05/2019 20.3 - 20.3 - 49.8 <0.03 - 9.1 - - <0.01	GW3A V H N P G 09/05/2019 Ground Water 1 10/05/2019 22.1 - 33.1 <0.03 - 7.9 - <0.01 -	L1A VHNPBODG 09/05/2019 Leachate 1 10/05/2019 - 22.8 - <0.03 <0.2	SW1A V H N P BOD G 09/05/2019 Surface Water 1 10/05/2019 22.6 - 27.8 <0.03 -	SW2A VHNPBODG 09/05/2019 Surface Water 1 10/05/2019 22.9 - 28.1 <0.03 -				1NO3	abbrevi: LOD/LOR <0.5 <0.3 <0.3 <0.03 <0.03 <0.2	Units Mg/l mg/l mg/l mg/l mg/l	Method No. TM38/PM TM38/PM TM38/PM TM38/PM
Sample ID GW1A Detht Image: COC No / mise COC No / mise V H N P Containers V H N P Sample Date 09/05/20 Sample Type Ground Wa Batch Number 1 Date of Receipt 10/05/20 Sulphate as SO4 # 68.2 Chloride 10/05/20 Sulphate as SO4 # 68.2 Chloride 83.2 MRP Ortho Phosphate as P <0.03 Total Oxidised Nitrogen as N - Total Cyanide # <0.01 Total Cyanide # <0.01 Ammoniacal Nitrogen as N - Ammoniacal Nitrogen as N - Dibutytlin <0.01 Tributytlin <0.1 Tributytlin <0.1 Triphenytlin <0.1 BOD (Settled) - BOD (Settled) - GOD (Settled) -	GW2A GVHNPG 9 09/05/2019 4 09/05/2019 1 0/05/2019 20.3 - 49.8 <0.03 - 9.1 - <0.01 -	GW3A V H N P G 09/05/2019 Ground Water 1 10/05/2019 22.1 - 33.1 <0.03 - 7.9 - <0.01 -	L1A VHNPBODG 09/05/2019 Leachate 1 10/05/2019 - 22.8 - <0.03 <0.2	SW1A V H N P BOD G 09/05/2019 Surface Water 1 10/05/2019 22.6 - 27.8 <0.03 -	SW2A VHNPBODG 09/05/2019 Surface Water 1 10/05/2019 22.9 - 28.1 <0.03 -					abbrevi: LOD/LOR <0.5 <0.3 <0.3 <0.03 <0.03 <0.2	Units Mg/l mg/l mg/l mg/l mg/l	Method No. TM38/PM TM38/PM TM38/PM TM38/PM
Depth COC No / misc Containers V H N P Containers O/05/20/ Sample Date O/05/20/ Sample Type Ground Wa Batch Number 1 Date of Receipt 10/05/20/ Sulphate as SO4# 58.2 Chloride 3.32 MRP Ortho Phosphate as P <0.03	G V H N P G 9 09/05/2019 ter Ground Wate 1 1 9 10/05/2019 20.3 - 49.8 <0.03 - 9.1 - - <0.01	V H N P G 09/05/2019 r Ground Water 1 10/05/2019 22.1 - 33.1 <0.03 - 7.9 - <0.01 -	V H N P BOD G 09/05/2019 Leachate 1 10/05/2019 - 22.8 - <0.03 <0.2	V H N P BOD G 09/05/2019 Surface Water 1 10/05/2019 22.6 - 27.8 <0.03 -	V H N P BOD G 09/05/2019 Surface Water 1 10/05/2019 22.9 - 28.1 <0.03 -		<u>دې</u> .			abbrevi: LOD/LOR <0.5 <0.3 <0.3 <0.03 <0.03 <0.2	Units Mg/l mg/l mg/l mg/l mg/l	Method No. TM38/PM TM38/PM TM38/PM TM38/PM
COC No / miss V H N P Containers V H N P Sample Date 09/05/20 Sample Type Ground Wath Batch Number 1 Date of Receipt 10/05/20 Sulphate as SO4# 58.2 Chloride 6 Chloride 83.2 MRP Ortho Phosphate as P <0.03 Total Oxidised Nitrogen as N 7.5 Total Cyanide Total Cyanide Ammoniacal Nitrogen as N Ammoniacal Nitrogen as N Total Alkalinity as CaCO3# 962 Dibutyltin <0.1 Tributyltin <0.1 Tributyltin <0.1 Tributyltin <0.1 BOD (Settled) BOD (Settled) BOD (Settled) COD (Settled)	9 09/05/2019 ter Ground Wate 1 0/05/2019 20.3 - 49.8 <0.03 - 9.1 - <0.01 -	09/05/2019 r Ground Water 1 10/05/2019 22.1 - 33.1 <0.03 - 7.9 - <0.01	09/05/2019 Leachate 1 10/05/2019 - 22.8 - <0.03 <0.2	09/05/2019 Surface Water 1 10/05/2019 22.6 - 27.8 <0.03 -	09/05/2019 Surface Water 1 10/05/2019 22.9 - 28.1 <0.03 -		<u>ر</u> ې			abbrevi: LOD/LOR <0.5 <0.3 <0.3 <0.03 <0.03 <0.2	Units Mg/l mg/l mg/l mg/l mg/l	Method No. TM38/PM TM38/PM TM38/PM TM38/PM
Containers V H N P Sample Date 9/05/20' Sample Type Ground Wath Batch Number 1/1 Date of Receive 1/05/20' Sulphate as SO4 [#] 58.2 Chloride 58.2 Chloride * 68.3 MRP Ortho Phosphate as P 6<0.03 Total Oxidised Nitrogen as N* 7.5 Total Oxidised Nitrogen as N* 6<0.01 Total Cyanide * 6<0.01 Mamoniacal Nitrogen as N* 6<0.03 Ammoniacal Nitrogen as N* 6<0.03 Total Alkalinity as CaCO3* 962 Dibutyttin 6<0.1 Tributyttin 6<0.1 Tributyttin 6<0.1 BOD (Settled) * 6 BOD (Settled) * 6 COD (Settled) * 6	9 09/05/2019 ter Ground Wate 1 0/05/2019 20.3 - 49.8 <0.03 - 9.1 - <0.01 -	09/05/2019 r Ground Water 1 10/05/2019 22.1 - 33.1 <0.03 - 7.9 - <0.01	09/05/2019 Leachate 1 10/05/2019 - 22.8 - <0.03 <0.2	09/05/2019 Surface Water 1 10/05/2019 22.6 - 27.8 <0.03 -	09/05/2019 Surface Water 1 10/05/2019 22.9 - 28.1 <0.03 -		<u>ر</u> ې.			LOD/LOR <0.5 <0.3 <0.3 <0.03 <0.2	Units mg/l mg/l mg/l mg/l	Method No. TM38/PMi TM38/PMi TM38/PMi TM38/PMi
Sample Date 9/0/05/20/ Sample Type Ground Wather Batch Number 1 Date of Receipt 1/0/05/20/ Sulphate as SO4 # 58.2 Chloride 58.2 Chloride 6.3 Chloride 6.3 Chloride 6.3 MRP Ortho Phosphate as PO 6.03 Total Oxidised Nitrogen as N 7.3 Total Cyanide 6.3 Total Cyanide 6.3 Ammoniacal Nitrogen as N 6.3 Ammoniacal Nitrogen as N 6.3 Total Alkalinity as CaCO3 # 9.62 Dibutytlin 6.01 Triphenytlin 6.01 BOD (Settled) 6.3 BOD (Settled) 6.3 COD (Settled) # 6.3	9 09/05/2019 ter Ground Wate 1 0/05/2019 20.3 - 49.8 <0.03 - 9.1 - <0.01 -	09/05/2019 r Ground Water 1 10/05/2019 22.1 - 33.1 <0.03 - 7.9 - <0.01	09/05/2019 Leachate 1 10/05/2019 - 22.8 - <0.03 <0.2	09/05/2019 Surface Water 1 10/05/2019 22.6 - 27.8 <0.03 -	09/05/2019 Surface Water 1 10/05/2019 22.9 - 28.1 <0.03 -		<u>ر</u> ې.			<0.5 <0.3 <0.3 <0.03 <0.2	mg/l mg/l mg/l mg/l mg/l	No. TM38/PM0 TM38/PM0 TM38/PM0 TM38/PM0
Sample Type Ground Wather Batch Number 1 Date of Receipt 10/05/20' Sulphate as SO4 # 58.2 Chloride 68.2 Chloride # 83.2 MRP Ortho Phosphate as P <0.03 Total Oxidised Nitrogen as N* 7.5 Total Oxidised Nitrogen as N* <0.01 Total Cyanide # <0.01 Total Cyanide # <0.01 Mamoniacal Nitrogen as N* <0.01 Total Alkalinity as CaCO3 # 902 Dibutyltin <0.1 Tributyltin <0.1 Tributyltin <0.1 BOD (Settled) <0.1 BOD (Settled) <0.1 COD (Settled) # <0.1	ter Ground Wate 1 10/05/2015 20.3 - 49.8 <0.03 - 9.1 - <0.01 -	Ground Water 1 10/05/2019 22.1 - 33.1 <0.03 - 7.9 - <0.01 -	Leachate 1 10/05/2019 - 22.8 - - <0.03 <0.2	Surface Water 1 10/05/2019 22.6 - 27.8 <0.03 -	Surface Water 1 10/05/2019 22.9 - 28.1 <0.03 -		_ري.			<0.5 <0.3 <0.3 <0.03 <0.2	mg/l mg/l mg/l mg/l mg/l	No. TM38/PM TM38/PM TM38/PM TM38/PM
Date of Receip 1005/201 Sulphate as SO4 # 58.2 Chloride 58.2 Chloride 83.2 MRP Ortho Phosphate as P <0.03 Total Oxidised Nitrogen as N 7.5 Total Oxidised Nitrogen as N 7.5 Total Cyanide <0.01 Total Cyanide <0.01 Ammoniacal Nitrogen as N <0.03 Total Alkalinity as CaCO3 # 902 Dibutyltin <0.11 Triphenyltin <0.11 Tiphenyltin <0.11 BOD (Settled) # <0.11 COD (Settled) # <0.11	10/05/2019 20.3 - 49.8 <0.03 - 9.1 - <0.01	22.1 - 33.1 <0.03 - 7.9 - <0.01	10/05/2019 - 22.8 - <0.03 <0.2	10/05/2019 22.6 - 27.8 <0.03 -	10/05/2019 22.9 - 28.1 <0.03 -		_ري.			<0.5 <0.3 <0.3 <0.03 <0.2	mg/l mg/l mg/l mg/l mg/l	No. TM38/PM TM38/PM TM38/PM TM38/PM
Sulphate as SO4 [#] 58.2 Chloride 58.2 Chloride 83.2 MRP Ortho Phosphate as P <0.03 Total Oxidised Nitrogen as N 7.5 Total Oxidised Nitrogen as N [#] 7.5 Total Cyanide 30.01 Ammoniacal Nitrogen as N 4.001 Ammoniacal Nitrogen as N 4.001 Total Alkalinity as CaCO3 962 Dibutyltin <0.1 Tributyltin <0.1 Tributyltin <0.1 SOD (Settled) 6.0 GOD (Settled) 7.0 COD (Sett	20.3 - 49.8 <0.03 - 9.1 - <0.01 -	22.1 - 33.1 <0.03 - 7.9 - <0.01	- 22.8 - <0.03 <0.2	22.6 - 27.8 <0.03 -	22.9 - 28.1 <0.03 -					<0.5 <0.3 <0.3 <0.03 <0.2	mg/l mg/l mg/l mg/l mg/l	TM38/PM0 TM38/PM0 TM38/PM0 TM38/PM0
Chloride - Chloride 83.2 MRP Ortho Phosphate as P <0.03 Total Oxidised Nitrogen as N - Total Oxidised Nitrogen as N 7.5 Total Oxidised Nitrogen as N - Total Cyanide <0.01 Ammoniacal Nitrogen as N <0.03 Ammoniacal Nitrogen as N <0.03 Total Alkalinity as CaCO3 962 Dibutyttin <0.1 Triphenyttin <0.1 BOD (Settled) - BOD (Settled) - COD (Settled) -	- 49.8 <0.03 - 9.1 - <0.01	- 33.1 <0.03 - 7.9 - <0.01	22.8 - <0.03 <0.2	- 27.8 <0.03 -	- 28.1 <0.03 -		_رو.			<0.3 <0.3 <0.03 <0.2	mg/l mg/l mg/l mg/l	TM38/PM0 TM38/PM0 TM38/PM0
Chloride * 83.2 MRP Ortho Phosphate as P <0.03	49.8 <0.03 - 9.1 - <0.01	33.1 <0.03 - 7.9 - <0.01	- <0.03 <0.2	27.8 <0.03 -	28.1 <0.03 -		_دی.			<0.3 <0.03 <0.2	mg/l mg/l mg/l	TM38/PM0 TM38/PM0
MRP Ortho Phosphate as P <0.03	<0.03 - 9.1 - <0.01	<0.03 - 7.9 - <0.01	<0.03 <0.2	<0.03 -	<0.03 -		_{.د} و.			<0.03 <0.2	mg/l mg/l	TM38/PM0
Total Oxidised Nitrogen as N - Total Oxidised Nitrogen as N 7.5 Total Cyanide - Total Cyanide <0.01	- 9.1 - <0.01	- 7.9 - <0.01	<0.2	-	-		<u>ر</u> ي.			<0.2	mg/l	
Total Oxidised Nitrogen as N # 7.5 Total Cyanide - Total Cyanide # <0.01	9.1 - <0.01	7.9 - <0.01 -					<u>رو</u> .				-	TM38/PM0
Total Cyanide - Total Cyanide # <0.01	- <0.01	- <0.01 -	- 0.01 - 31.00	8.8 - <0.01	8.7 - <0.01		درم.			<0.2		
Total Cyanide # <0.01	<0.01	<0.01	0.01 - 31.00	- <0.01	- <0.01		<u>ي</u> و.				mg/l	TM38/PM0
Total Cyanide # <0.01	-	<0.01	- 31.00	<0.01	<0.01		°.			<0.01	mg/l	TM89/PM0
Ammoniacal Nitrogen as N [#] <0.03 Total Alkalinity as CaCO3 [#] 962 Dibutyltin <0.1 Tributyltin <0.1 Triphenyltin <0.1 BOD (Settled) <0.1 BOD (Settled) * - COD (Settled) * - COD (Settled) * -			31.00				hertic			<0.01	mg/l	TM89/PM0
Ammoniacal Nitrogen as N [#] <0.03 Total Alkalinity as CaCO3 [#] 962 Dibutyltin <0.1 Tributyltin <0.1 Triphenyltin <0.1 BOD (Settled) * - BOD (Settled) [#] - COD (Settled) [#] -			51.00		_	A. A.	~			<0.03	mg/l	TM38/PM0
Dibutyltin <0.1 Tributyltin <0.1 Triphenyltin <0.1 BOD (Settled) * COD (Settled) * COD (Settled) * COD (Settled) * COD (Settled) * COD (Settled) * COD (Settled) *			-	0.03	<0.03	for alt.				<0.03	mg/l	TM38/PM0
Dibutyltin <0.1 Tributyltin <0.1 Triphenyltin <0.1 BOD (Settled) * COD (Settled) * COD (Settled) * COD (Settled) * COD (Settled) * COD (Settled) * COD (Settled) *	0.400				110050 ir	,o						
Tributyltin <0.1 Triphenyltin <0.1 BOD (Settled) - BOD (Settled) - COD (Settled) - COD (Settled) - COD (Settled) -	3430	328	-	262	P ²⁷ 0					<1	mg/l	TM75/PM0
Triphenyltin <0.1 BOD (Settled) - BOD (Settled) - COD (Settled) - COD (Settled) -	<0.1	<0.1	<0.1	28ª 0	<0.1					<0.1	ug/l	TM94/PM4
BOD (Settled) - BOD (Settled) * - COD (Settled) * - COD (Settled) * -	<0.1	<0.1	<0.1	11<0311	<0.1					<0.1	ug/l	TM94/PM4
BOD (Settled) [#] - COD (Settled) - COD (Settled) [#] -	<0.1	<0.1	<0.1 F	or 12000	<0.1					<0.1	ug/l	TM94/PM4
COD (Settled) - COD (Settled) # -	-	-	The store	-	-					<1	mg/l	TM58/PM0
COD (Settled) [#] -	-	-	MSC.	<1	<1					<1	mg/l	TM58/PM0
COD (Settled) [#] -	-	-	49	-	-					<7	mg/l	TM57/PM0
,	_	-	-	<7	<7					<7	mg/l	TM57/PM0
	9	8	2	10	10					<1	mg/l	TM58/PM0
Electrical Conductivity @25C -	-	-	1288	-	-					<2	uS/cm	TM76/PM0
Electrical Conductivity @25C [#] 858	727	718	-	631	641					<2	uS/cm	TM76/PM0
Faecal Coliforms* <1	<1	<1	-	-	-	l				-		
pH -	-	-	7.15	-	-					<0.01	pH units	TM73/PM0
pH [#] 7.12	7.14	7.37	-	7.62	- 7.51					<0.01	pH units	TM73/PM0
Redox 96.27	165.48	188.64	-89.80	167.10	181.78					0.01	mV	TM72/PM0
Total Organic Carbon [#] <2	<2	<2	-09.60	-	-					<2	mg/l	TM60/PM0
										~2	MPN/100ml	
Total Coliforms* 3.1 Total Dissolved Solids [#] 753	9.6	27.2	-	-	-					<2E		TM20/PM
	- 532	500	-	-	- <10					<35 <10	mg/l	TM20/PM0 TM37/PM0
Total Suspended Solids # -	-	-	-	<10	<10					<10	mg/l	TNI37/PINI

Client Name:	
Reference:	
Location:	
Contact:	

Thomas Vainio-Mattila

Malone O'Regan

E1506

SVOC Report : Liquid

Contact: JE Job No.:	19/7606	/ainio-Matt	lla									
										1		
J E Sample No.	1-8	9-16	17-24	25-33	52-59	60-68						
Sample ID	GW1A	GW2A	GW3A	L1A	SW1A	SW2A						
Depth										Please see	e attached r	notes for all
COC No / misc										abbrevia	ations and a	cronyms
Containers	VHNPG		-		V H N P BOD G							
Sample Date	09/05/2019		09/05/2019	09/05/2019		09/05/2019						
Sample Type	Ground Water	Ground Water	Ground Water	Leachate	Surface Water	Surface Water						1
Batch Number Date of Receipt	1 10/05/2019	1 10/05/2019	1 10/05/2019	1 10/05/2019	1 10/05/2019	1 10/05/2019				LOD/LOR	Units	Method No.
SVOC MS	10/05/2019	10/03/2019	10/05/2019	10/05/2019	10/03/2019	10/05/2019						
Phenols												i i
2-Chlorophenol	-	-	-	<1	-	-				<1	ug/l	TM16/PM30
2-Chlorophenol [#]	<1	<1	<1	-	<1	<1				<1	ug/l	TM16/PM30
2-Methylphenol	-	-	-	<0.5	-	-				<0.5	ug/l	TM16/PM30
2-Methylphenol #	<0.5	<0.5	<0.5	-	<0.5	<0.5				<0.5	ug/l	TM16/PM30
2-Nitrophenol	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5				<0.5	ug/l	TM16/PM30
2,4-Dichlorophenol	- <0.5	- <0.5	- <0.5	<0.5	- <0.5	- <0.5				< 0.5	ug/l	TM16/PM30 TM16/PM30
2,4-Dichlorophenol [#]	<0.5	<0.5	<0.5	- <1	<0.5	<0.5				<0.5 <1	ug/l	TM16/PM30
2,4-Dimethylphenol 2,4,5-Trichlorophenol	-	-	-	<0.5	-	-				<0.5	ug/l ug/l	TM16/PM30
2,4,5-Trichlorophenol #	< 0.5	< 0.5	< 0.5		< 0.5	< 0.5				<0.5	ug/l	TM16/PM30
2,4,6-Trichlorophenol	<1	<1	<1	<1	<1	<1				<0.0	ug/l	TM16/PM30
-Chloro-3-methylphenol	-	-	-							<0.5	ug/l	TM16/PM30
I-Chloro-3-methylphenol #	<0.5	<0.5	<0.5	-	- <0.5 <1 <10 <1 <1 - - <1 - - <1 - - - - - - - - - -	<0.5				<0.5	ug/l	TM16/PM30
I-Methylphenol	<1	<1	<1	<1	<1	<1				<1	ug/l	TM16/PM30
I-Nitrophenol	<10	<10	<10	<10	<10	<10		se.		<10	ug/l	TM16/PM30
Pentachlorophenol	<1	<1	<1	<1	<1	<1		ot		<1	ug/l	TM16/PM30
Phenol	<1	<1	<1	<1	<1	<1	Ŏ	Ur.		<1	ug/l	TM16/PM30
PAHs							17. my					
2-Chloronaphthalene	-	-	-	<1	-		ME OT CO			<1	ug/l	TM16/PM30
2-Chloronaphthalene #	<1	<1	<1	-	<1	<1.00	9,			<1	ug/l	TM16/PM30
2-Methylnaphthalene	-	-	-	<1	-	allPull				<1	ug/l	TM16/PM30 TM16/PM30
2-Methylnaphthalene [#]	<1	<1	<1	-	<1 	19. 100 ·				<1 <1	ug/l ug/l	TM16/PM30
Vaphthalene #	<1	<1	<1	-	<1010	Ter <1				<1	ug/l	TM16/PM30
Acenaphthylene	-	-	-	<0.5	58,0	-				<0.5	ug/l	TM16/PM30
Acenaphthylene #	<0.5	<0.5	<0.5		N \$05	<0.5				<0.5	ug/l	TM16/PM30
Acenaphthene	-	-	-	<1 🛠	ast.	-				<1	ug/l	TM16/PM30
Acenaphthene #	<1	<1	<1	<0.5 Of	<1	<1				<1	ug/l	TM16/PM30
luorene	-	-	-	<0.5	-	-				<0.5	ug/l	TM16/PM30
Fluorene #	<0.5	<0.5	<0.5	01/20.5	<0.5	<0.5				<0.5	ug/l	TM16/PM30
Phenanthrene	-	-	- (<0.5	-	-				<0.5	ug/l	TM16/PM30
Phenanthrene#	<0.5	<0.5	<0.5	-	<0.5	<0.5				<0.5	ug/l	TM16/PM30
Anthracene	-	-	-	<0.5	-	-				<0.5	ug/l	TM16/PM30
Anthracene [#] Fluoranthene	<0.5	<0.5	<0.5	-	<0.5	<0.5				<0.5	ug/l	TM16/PM30 TM16/PM30
Fluoranthene	- <0.5	- <0.5	- <0.5	<0.5	- <0.5	- <0.5				<0.5 <0.5	ug/l	TM16/PM30
Pyrene			-	< 0.5	-					<0.5	ug/l ug/l	TM16/PM30
Pyrene [#]	<0.5	<0.5	<0.5	-0.0	<0.5	<0.5				<0.5	ug/l	TM16/PM30
Benzo(a)anthracene	-	-	-	<0.5	-	-				<0.5	ug/l	TM16/PM30
Benzo(a)anthracene [#]	<0.5	<0.5	<0.5	-	<0.5	<0.5				<0.5	ug/l	TM16/PM30
Chrysene	-	-	-	<0.5	-	-				<0.5	ug/l	TM16/PM30
Chrysene [#]	<0.5	<0.5	<0.5	-	<0.5	<0.5				<0.5	ug/l	TM16/PM30
Benzo(bk)fluoranthene	-	-	-	<1	-	-				<1	ug/l	TM16/PM30
Benzo(bk)fluoranthene #	<1	<1	<1	-	<1	<1				<1	ug/l	TM16/PM30
Benzo(a)pyrene	<1	<1	<1	<1	<1	<1				<1	ug/l	TM16/PM30
ndeno(123cd)pyrene	<1	<1	<1	<1	<1	<1				<1	ug/l	TM16/PM30
Dibenzo(ah)anthracene	-	-	-	<0.5	-	-				<0.5	ug/l	TM16/PM30
Dibenzo(ah)anthracene #	<0.5	<0.5	<0.5	-	<0.5	<0.5				<0.5	ug/l	TM16/PM30
Benzo(ghi)perylene	- <0.5	- <0.5	- <0.5	<0.5	- <0.5	- <0.5				<0.5 <0.5	ug/l ug/l	TM16/PM30 TM16/PM30
Benzo(ghi)perylene [#] Phthalates	~ 0.5	~U.0	×0.5	-	~u.5	∿u.o				~0.0	uy/I	110/17/030
Bis(2-ethylhexyl) phthalate	<5	<5	<5	<5	<5	<5				<5	ug/l	TM16/PM30
Butylbenzyl phthalate	<1	<1	<1	<1	<1	<1				<1	ug/l	TM16/PM30
Di-n-butyl phthalate	-	-	-	<1.5	-	-				<1.5	ug/l	TM16/PM30
Di-n-butyl phthalate #	<1.5	<1.5	<1.5	-	<1.5	<1.5				<1.5	ug/l	TM16/PM30
Di-n-Octyl phthalate	<1	<1	<1	<1	<1	<1				<1	ug/l	TM16/PM30
Diethyl phthalate	-	-	-	<1	-	-				<1	ug/l	TM16/PM30
Diethyl phthalate [#]	<1	<1	<1	-	<1	<1				<1	ug/l	TM16/PM30
Dimethyl phthalate	<1	<1	<1	<1	<1	<1				<1	ug/l	TM16/PM30
		1										

Client Name:	
Reference:	
Location:	
Contact:	

E1506 Thomas Vainio-Mattila

Malone O'Regan

SVOC Report : Liquid

JE Job No.: 19/7606 JE Sample No. 1-8 9-16 17-24 25-33 52-59 60-68 Image: Sample No. Pease seatach Sample ID GW1A GW2A GW1A LiA SW1A SW2A Image: Sample No. Pease seatach Depth COC No Imace VH N P G VM N P G0 G0052019 G0052019 <th>d acronyms</th>	d acronyms
Sample ID GW1A GW2A GW3A L1A SW1A SW2A	Method No. TM16/PM30 TM16/PM30 TM16/PM30 TM16/PM30 TM16/PM30
Depth COC No / misc Image: Company of the second seco	Method No. TM16/PM30 TM16/PM30 TM16/PM30 TM16/PM30 TM16/PM30
COC No / misc ContainersVH NP G VH NP GVH NP G VH NP G 09/05/2019VH NP G VH NP BOD G 09/05/2019VH NP BOD G 	Method No. TM16/PM30 TM16/PM30 TM16/PM30 TM16/PM30 TM16/PM30
Batch Number 1 <t< th=""><th>No. TM16/PM30 TM16/PM30 TM16/PM30 TM16/PM30 TM16/PM30</th></t<>	No. TM16/PM30 TM16/PM30 TM16/PM30 TM16/PM30 TM16/PM30
SVOC MS Image: Constraint of the structure of the s	TM16/PM30 TM16/PM30 TM16/PM30 TM16/PM30 TM16/PM30
Other SVOCs Image: state	TM16/PM30 TM16/PM30 TM16/PM30 TM16/PM30
1.2-Dichlorobenzene $\frac{4}{3}$	TM16/PM30 TM16/PM30 TM16/PM30 TM16/PM30
1.2-Dichlorobenzene $#$ <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1	TM16/PM30 TM16/PM30 TM16/PM30 TM16/PM30
1,2,4-Trichlorobenzene - - <1	TM16/PM30 TM16/PM30
1.3-Dichlorobenzene <td>TM16/PM30</td>	TM16/PM30
1.3.Dichlorobenzene <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <td></td>	
1.4-Dichlorobenzene <td>TM16/PM30</td>	TM16/PM30
1.4-Dichlorobenzene# <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <td></td>	
2-Nitroaniline <1 <1 <1 <1 <1 ug/l 2.4-Dinitrotoluene - - - <0.5	TM16/PM30
2.4-Dinitrotoluene - - - < - - - 0 0 0g/l 2.4-Dinitrotoluene [#] <0.5	TM16/PM30
2.4-Dinitrotoluene * <0.5 <0.5 <0.5 - <0.5 <0.5 <0.5 <0.5 <0.5 <0.5 <0.5 <0.5	TM16/PM30
	TM16/PM30 TM16/PM30
2.10 Examples -1 <td>TM16/PM30 TM16/PM30</td>	TM16/PM30 TM16/PM30
A-Bromophenylphenylether - - <1	TM16/PM30
4-Bromophenylphenylether# <1	TM16/PM30
4-Chloroanline <1	TM16/PM30
4-Chlorophenylph	TM16/PM30
4-Chlorophenylphe	TM16/PM30
4-Nitroaniline <0.5	TM16/PM30
Azobenzene - - - < - - - - - - - - - ug/l Azobenzene # <0.5	TM16/PM30
Azobenzene # <0.5 <0.5 <0.5 - <0.5 optimization <0.5 ug/l Bis(2-chloroethoxy)methane # - - - <0.5	TM16/PM30
Bis(2-chloroethoxy)methane - - <0.5	TM16/PM30
Bis(2-chloroethoxy)methane* <0.5 <0.5 <0.5 - <0.5 <0.5 ug/l Bis(2-chloroethyl)ether <1 - <1 ug/l Bis(2-chloroethyl)ether* <1 <1 <1 - <1 ug/l	TM16/PM30
Bis(2-chloroethyl)ether <1 <1 ug/l	TM16/PM30 TM16/PM30
	TM16/PM30
Bis(2-chloroeuny)euner Ci Ci <thci< th=""> Ci Ci Ci<!--</td--><td>TM16/PM30</td></thci<>	TM16/PM30
Carbazole # <0.5 <0.5 <0.5 <0.5 <0.5 <0.5 <0.5 <0.5	TM16/PM30
Dibenzofuran <0.5 <0.5 ug/l	TM16/PM30
Dibenzofuran [#] <0.5 <0.5 <0.5 <0.5 <0.5 <0.5 <0.5 <0.5	TM16/PM30
Hexachlorobenzene	TM16/PM30
Hexachlorobenzene * <1 <1 <1 <1 <1 ug/l	TM16/PM30
Hexachlorobutadiene <1 (1 ug/l	TM16/PM30
Hexachlorobutadiene* <1 <1 <1 <1 ug/l	TM16/PM30
Hexachlorocyclopentadiene <1 <1 <1 <1 <1 ug/l	TM16/PM30
Hexachloroethane - - <1 ug/l Use bloot bloot rd rd rd ug/l	TM16/PM30
Hexachloroethane# <1 <1 - <1 <1 ug/l Isophorone - - <0.5	TM16/PM30 TM16/PM30
Isophotone - - < - - - - - - ugh Isophotone <0.5	TM16/PM30
N-nitrosodi-n-propylamine - - <0.5 - - <0.5 ug/l	TM16/PM30
N-nitrosodi-n-propylamine # <0.5 <0.5 <0.5 <0.5 <0.5 <0.5 ug/l	TM16/PM30
Nitrobenzene <1 <1 ug/l	TM16/PM30
Nitrobenzene # <1 <1 <1 - <1 <1 ug/l	TM16/PM30
Surrogate Recovery 2-Fluorobiphenyl 101 98 121 93 90 105 <0 %	TM16/PM30
Surrogate Recovery p-Terphenyl-d14 122 116 125 111 109 124 <0 %	TM16/PM30
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Client Name:	
Reference:	
Location:	
Contact:	

E1506 Thomas Vainio-Mattila

Malone O'Regan

VOC Report : Liquid

Contact:		'ainio-Matti	la									
JE Job No.:	19/7606									_		
J E Sample No.	1-8	9-16	17-24	25-33	52-59	60-68						
Sample ID	GW1A	GW2A	GW3A	L1A	SW1A	SW2A						
Depth										Please se	e attached r	otes for all
COC No / misc										abbrevia	ations and a	cronyms
Containers	VHNPG	VHNPG	VHNPG	V H N P BOD G	V H N P BOD G	V H N P BOD G						
Sample Date	09/05/2019	09/05/2019	09/05/2019	09/05/2019	09/05/2019	09/05/2019						
Sample Type	Ground Water	Ground Water	Ground Water	Leachate		Surface Water						
Batch Number Date of Receipt	1 10/05/2019	1 10/05/2019	1 10/05/2019	1 10/05/2019	1 10/05/2019	1 10/05/2019				LOD/LOR	Units	Method No.
VOC MS	10/03/2013	10/03/2013	10/03/2013	10/03/2013	10/03/2013	10/03/2013						
Dichlorodifluoromethane	<2	<2	<2	<2	<2	<2				<2	ug/l	TM15/PM10
Methyl Tertiary Butyl Ether	-	-	-	<0.1	-	-				<0.1	ug/l	TM15/PM10
Methyl Tertiary Butyl Ether #	<0.1	<0.1	<0.1	-	<0.1	<0.1				<0.1	ug/l	TM15/PM10
Chloromethane	-	-	-	<3	-	-				<3	ug/l	TM15/PM10
Chloromethane [#]	<3	<3	<3	- <0.1	<3	<3				<3	ug/l	TM15/PM10 TM15/PM10
Vinyl Chloride Vinyl Chloride [#]	- <0.1	- <0.1	- <0.1	-	- <0.1	- <0.1				<0.1 <0.1	ug/l ug/l	TM15/PM10 TM15/PM10
Bromomethane	<1	<1	<1	<1	<1	<1				<1	ug/l	TM15/PM10
Chloroethane	-	-	-	<3	-	-				<3	ug/l	TM15/PM10
Chloroethane [#]	<3	<3	<3	-	<3	<3				<3	ug/l	TM15/PM10
Trichlorofluoromethane	-	-	-	<3	-	-				<3	ug/l	TM15/PM10
Trichlorofluoromethane [#]	<3	<3	<3	-	<3	<3				<3	ug/l	TM15/PM10
1,1-Dichloroethene (1,1 DCE) 1,1-Dichloroethene (1,1 DCE) [#]	- <3	- <3	- <3	<3	-	-	any. any			<3 <3	ug/l ug/l	TM15/PM10 TM15/PM10
Dichloromethane (DCM)	-	-	-	- <5						<3 <5	ug/i ug/i	TM15/PM10 TM15/PM10
Dichloromethane (DCM)#	<5	<5	<5	-	<5	<5		<u>ی</u> .		<5	ug/l	TM15/PM10
trans-1-2-Dichloroethene	-	-	-	<3	-	-		attl		<3	ug/l	TM15/PM10
trans-1-2-Dichloroethene #	<3	<3	<3	-	<3	<3	ć	ne.		<3	ug/l	TM15/PM10
1,1-Dichloroethane	-	-	-	<3	-	-	N. m			<3	ug/l	TM15/PM10
1,1-Dichloroethane [#]	<3	<3	<3	-	<3	<3	SIL OF O			<3	ug/l	TM15/PM10
cis-1-2-Dichloroethene cis-1-2-Dichloroethene #	- <3	- <3	- <3	<3	-	- 0°	<u>8</u> ,			<3 <3	ug/l ug/l	TM15/PM10 TM15/PM10
2,2-Dichloropropane	<1	<1	<1	- <1	<1	OUTPOUL				<1	ug/l	TM15/PM10
Bromochloromethane	-	-	-	<2		AY TON				<2	ug/l	TM15/PM10
Bromochloromethane #	<2	<2	<2	-	Sacht	NAC <2				<2	ug/l	TM15/PM10
Chloroform	-	-	-	<2	inspito	-				<2	ug/l	TM15/PM10
Chloroform [#]	<2	<2	<2		st 1520	<2				<2	ug/l	TM15/PM10
1,1,1-Trichloroethane	- <2	- <2	- <2	<2 *	0 ⁶ ,-	-				<2 <2	ug/l	TM15/PM10 TM15/PM10
1,1,1-Trichloroethane [#] 1,1-Dichloropropene	-	-	-	- of sent of	- ~2	-				<2	ug/l ug/l	TM15/PM10
1,1-Dichloropropene [#]	<3	<3	<3	sent	<3	<3				<3	ug/l	TM15/PM10
Carbon tetrachloride	-	-	- (011<2	-	-				<2	ug/l	TM15/PM10
Carbon tetrachloride #	<2	<2	<2	-	<2	<2				<2	ug/l	TM15/PM10
1,2-Dichloroethane	-	-	-	<2	-	-				<2	ug/l	TM15/PM10
1,2-Dichloroethane [#] Benzene	<2	<2	<2	- <0.5	<2	<2				<2 <0.5	ug/l	TM15/PM10 TM15/PM10
Benzene [#]	< 0.5	- <0.5	- <0.5	-	- <0.5	- <0.5				<0.5	ug/l ug/l	TM15/PM10
Trichloroethene (TCE)	-	-	-	<3	-	-				<3	ug/l	TM15/PM10
Trichloroethene (TCE)#	<3	<3	<3	-	<3	<3				<3	ug/l	TM15/PM10
1,2-Dichloropropane	-	-	-	<2	-	-				<2	ug/l	TM15/PM10
1,2-Dichloropropane [#]	<2	<2	<2	-	<2	<2				<2	ug/l	TM15/PM10
Dibromomethane	-	- <3	-	<3	-	- <3				<3	ug/l	TM15/PM10 TM15/PM10
Dibromomethane [#] Bromodichloromethane	<3	<3	<3	- <2	<3	<3				<3 <2	ug/l ug/l	TM15/PM10 TM15/PM10
Bromodichloromethane [#]	<2	<2	<2	-	<2	<2				<2	ug/l	TM15/PM10
cis-1-3-Dichloropropene	<2	<2	<2	<2	<2	<2				<2	ug/l	TM15/PM10
Toluene	-	-	-	<5	-	-				<5	ug/l	TM15/PM10
Toluene [#]	<5	<5	<5	-	<5	<5				<5	ug/l	TM15/PM10
trans-1-3-Dichloropropene	<2	<2	<2	<2	<2	<2				<2	ug/l	TM15/PM10
1,1,2-Trichloroethane 1,1,2-Trichloroethane [#]	- <2	- <2	- <2	<2	- <2	- <2				<2 <2	ug/l ug/l	TM15/PM10 TM15/PM10
Tetrachloroethene (PCE)	-2	-	-	- <3	-	-				<2	ug/i ug/i	TM15/PM10
Tetrachloroethene (PCE) [#]	<3	<3	<3	-	<3	<3				<3	ug/l	TM15/PM10
1,3-Dichloropropane	-	-	-	<2	-	-				<2	ug/l	TM15/PM10
1,3-Dichloropropane [#]	<2	<2	<2	-	<2	<2				<2	ug/l	TM15/PM10
Dibromochloromethane	-	-	-	<2	-	-				<2	ug/l	TM15/PM10
Dibromochloromethane #	<2	<2	<2	-	<2	<2				<2	ug/l	TM15/PM10
1,2-Dibromoethane 1,2-Dibromoethane [#]	- <2	- <2	- <2	<2	- <2	- <2				<2 <2	ug/l ug/l	TM15/PM10 TM15/PM10
Chlorobenzene	-	-	-	- <2	-	-2				<2	ug/l	TM15/PM10
Chlorobenzene [#]	<2	<2	<2	-	<2	<2				<2	ug/l	TM15/PM10
1,1,1,2-Tetrachloroethane	-	-	-	<2	-	-				<2	ug/l	TM15/PM10

Client Name:	
Reference:	
Location:	
Contact:	

E1506 Thomas Vainio-Mattila

Malone O'Regan

VOC Report : Liquid

J E Sample ID On TA 918 1724 2533 52.50 60.46 Image: Constraints Image: Constraints <th></th> <th></th> <th>/ainio-Matti</th> <th>la</th> <th></th>			/ainio-Matti	la										
Sample D OVIA OVIA OVIA Dia BVIA BVIA BVIA BVIA <	JE Job No.:	19/7606			1	1				1	1			
Depth Deph Dep	J E Sample No.	1-8	9-16	17-24	25-33	52-59	60-68							
COCC Notifies VI N PG	Sample ID	GW1A	GW2A	GW3A	L1A	SW1A	SW2A							
Sample Type Ourout Wate Londen is state Wate Sample Wate Sample Wate Additional Material Mate	COC No / misc	VHNPG	VHNPG	VHNPG	V H N P BOD G	V H N P BOD G	V H N P BOD G							
Date of Receit0005201910052019	Sample Type	Ground Water	Ground Water	Ground Water	Leachate	Surface Water	Surface Water							
OCM IS Control Overall												LOD/LOR	Units	Method
11.12-fractachangebane929292929292929293	•	10/05/2019	10/05/2019	10/05/2019	10/05/2019	10/05/2019	10/05/2019							110.
Envip <th< td=""><td></td><td><2</td><td><2</td><td><2</td><td>-</td><td><2</td><td><2</td><td></td><td></td><td></td><td></td><td><2</td><td>ug/l</td><td>TM15/PM10</td></th<>		<2	<2	<2	-	<2	<2					<2	ug/l	TM15/PM10
mix-lysien <td></td> <td>-</td> <td>-</td> <td>-</td> <td><1</td> <td>-</td> <td>-</td> <td></td> <td></td> <td></td> <td></td> <td><1</td> <td>ug/l</td> <td>TM15/PM10</td>		-	-	-	<1	-	-					<1	ug/l	TM15/PM10
miny Agene q. q. q. q. q. q. q. q. q. miny Mission Sylame -	-	<1	<1	<1		<1	<1						ug/l	TM15/PM10
oxymen													-	TM15/PM10
symme fil fil< fil fil< fil													-	
Symem92	•												-	TM15/PM10 TM15/PM10
Biomodorm ·< ·< ·< ·< ·< ·< ·< ·< ·< ·< ·< ·< ·< ·< ·< ·< ·< ·< ·< ·< ·< ·< ·< ·< ·< ·< ·< ·< ·< ·< ·< ·<													-	TM15/PM10
Boundom Q2 Q2 Q2 Q2 Q2 Q3 M15PP boproplezzene -	•												-	TM15/PM10
bacycoylbenzene* 43 43 43 43 43 43 43 44<	Bromoform [#]	<2	<2	<2	-	<2	<2						-	TM15/PM10
1,1,2,2,7,Ertachbroethane -4 -4 -4 -4 -4 -4 ug1 TMSPP Bromobanzane -					<3								-	TM15/PM10
sec-Butylbenzene* <3 <3 <3 <3 <3 <3 <3 <3 <3 <3 <3 <3 <3 <3 <3 <3 <3 <3 <3 <3 <3 <3 <3 <3 <3 <3 <3 <3 <3 <3 <3 <3 <3 <3 <3 <3 <3 <3 <3 <3 <3 <3 <3 <3 <3 <3 <3 <3 <3 <3 <3 <3 <3 <3 <3 <3 <3 <3 <3 <3 <3 <3 <3 <3 <3 <3 <3 <3 <3 <3 <3 <3 <3 <3 <3 <3 <3 <3 <3 <3 <3 <3 <3 <3 <3 <3 <3 <3 <3 <3 <3 <3 <3 <3 <3 <3 <3 <3 <3 <3 <3 <3 <3 <3 <3 <3 <3 <3 <3 <3 <3					-	<3	<3						-	TM15/PM10
sec-Butylbenzene* <3 <3 <3 <3 <3 <3 <3 <3 <3 <3 <3 <3 <3 <3 <3 <3 <3 <3 <3 <3 <3 <3 <3 <3 <3 <3 <3 <3 <3 <3 <3 <3 <3 <3 <3 <3 <3 <3 <3 <3 <3 <3 <3 <3 <3 <3 <3 <3 <3 <3 <3 <3 <3 <3 <3 <3 <3 <3 <3 <3 <3 <3 <3 <3 <3 <3 <3 <3 <3 <3 <3 <3 <3 <3 <3 <3 <3 <3 <3 <3 <3 <3 <3 <3 <3 <3 <3 <3 <3 <3 <3 <3 <3 <3 <3 <3 <3 <3 <3 <3 <3 <3 <3 <3 <3 <3 <3 <3 <3 <3 <3					<4	<4	<4						-	TM15/PM10
sec-Butylbenzene* <3 <3 <3 <3 <3 <3 <3 <3 <3 <3 <3 <3 <3 <3 <3 <3 <3 <3 <3 <3 <3 <3 <3 <3 <3 <3 <3 <3 <3 <3 <3 <3 <3 <3 <3 <3 <3 <3 <3 <3 <3 <3 <3 <3 <3 <3 <3 <3 <3 <3 <3 <3 <3 <3 <3 <3 <3 <3 <3 <3 <3 <3 <3 <3 <3 <3 <3 <3 <3 <3 <3 <3 <3 <3 <3 <3 <3 <3 <3 <3 <3 <3 <3 <3 <3 <3 <3 <3 <3 <3 <3 <3 <3 <3 <3 <3 <3 <3 <3 <3 <3 <3 <3 <3 <3 <3 <3 <3 <3 <3 <3						- <2	- <2						-	TM15/PM10 TM15/PM10
sec-Butylbenzene* <3 <3 <3 <3 <3 <3 <3 <3 <3 <3 <3 <3 <3 <3 <3 <3 <3 <3 <3 <3 <3 <3 <3 <3 <3 <3 <3 <3 <3 <3 <3 <3 <3 <3 <3 <3 <3 <3 <3 <3 <3 <3 <3 <3 <3 <3 <3 <3 <3 <3 <3 <3 <3 <3 <3 <3 <3 <3 <3 <3 <3 <3 <3 <3 <3 <3 <3 <3 <3 <3 <3 <3 <3 <3 <3 <3 <3 <3 <3 <3 <3 <3 <3 <3 <3 <3 <3 <3 <3 <3 <3 <3 <3 <3 <3 <3 <3 <3 <3 <3 <3 <3 <3 <3 <3 <3 <3 <3 <3 <3 <3					<3	-	-		<u>ر</u> و.				-	TM15/PM10
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sec-Butylbenzene* <3 <3 <3 <3 <3 <3 <3 <3 <3 <3 <3 <3 <3 <3 <3 <3 <3 <3 <3 <3 <3 <3 <3 <3 <3 <3 <3 <3 <3 <3 <3 <3 <3 <3 <3 <3 <3 <3 <3 <3 <3 <3 <3 <3 <3 <3 <3 <3 <3 <3 <3 <3 <3 <3 <3 <3 <3 <3 <3 <3 <3 <3 <3 <3 <3 <3 <3 <3 <3 <3 <3 <3 <3 <3 <3 <3 <3 <3 <3 <3 <3 <3 <3 <3 <3 <3 <3 <3 <3 <3 <3 <3 <3 <3 <3 <3 <3 <3 <3 <3 <3 <3 <3 <3 <3 <3 <3 <3 <3 <3 <3	Propylbenzene	-	-	-	<3	-	-	ð	ne			<3	ug/l	TM15/PM10
sec-Butylbenzene* <3 <3 <3 <3 <3 <3 <3 <3 <3 <3 <3 <3 <3 <3 <3 <3 <3 <3 <3 <3 <3 <3 <3 <3 <3 <3 <3 <3 <3 <3 <3 <3 <3 <3 <3 <3 <3 <3 <3 <3 <3 <3 <3 <3 <3 <3 <3 <3 <3 <3 <3 <3 <3 <3 <3 <3 <3 <3 <3 <3 <3 <3 <3 <3 <3 <3 <3 <3 <3 <3 <3 <3 <3 <3 <3 <3 <3 <3 <3 <3 <3 <3 <3 <3 <3 <3 <3 <3 <3 <3 <3 <3 <3 <3 <3 <3 <3 <3 <3 <3 <3 <3 <3 <3 <3 <3 <3 <3 <3 <3 <3		<3	<3	<3	-	<3	<3	N. M.				<3	ug/l	TM15/PM10
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sec-Butylbenzene* <3 <3 <3 <3 <3 <3 <3 <3 <3 <3 <3 <3 <3 <3 <3 <3 <3 <3 <3 <3 <3 <3 <3 <3 <3 <3 <3 <3 <3 <3 <3 <3 <3 <3 <3 <3 <3 <3 <3 <3 <3 <3 <3 <3 <3 <3 <3 <3 <3 <3 <3 <3 <3 <3 <3 <3 <3 <3 <3 <3 <3 <3 <3 <3 <3 <3 <3 <3 <3 <3 <3 <3 <3 <3 <3 <3 <3 <3 <3 <3 <3 <3 <3 <3 <3 <3 <3 <3 <3 <3 <3 <3 <3 <3 <3 <3 <3 <3 <3 <3 <3 <3 <3 <3 <3 <3 <3 <3 <3 <3 <3		<3	<3	<3	-	of 1,1736	<3						ug/l	TM15/PM10
sec-Butylbenzene* <3 <3 <3 <3 <3 <3 <3 <3 <3 <3 <3 <3 <3 <3 <3 <3 <3 <3 <3 <3 <3 <3 <3 <3 <3 <3 <3 <3 <3 <3 <3 <3 <3 <3 <3 <3 <3 <3 <3 <3 <3 <3 <3 <3 <3 <3 <3 <3 <3 <3 <3 <3 <3 <3 <3 <3 <3 <3 <3 <3 <3 <3 <3 <3 <3 <3 <3 <3 <3 <3 <3 <3 <3 <3 <3 <3 <3 <3 <3 <3 <3 <3 <3 <3 <3 <3 <3 <3 <3 <3 <3 <3 <3 <3 <3 <3 <3 <3 <3 <3 <3 <3 <3 <3 <3 <3 <3 <3 <3 <3 <3					<3	08	-						-	TM15/PM10
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4-IsopropyItoluene* <3				- <3	cent								-	TM15/PM10 TM15/PM10
4-IsopropyItoluene* <3				- (01123								-	TM15/PM10
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Client Name:Malone O'ReganReference:E1506

Location:

Contact: Thomas Vainio-Mattila

J E Job No.	Batch	Sample ID	Depth	J E Sample No.	Analysis	Reason
					No deviating sample report results for job 19/7606	
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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

19/7606 JE Job No.:

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 guoted, 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.

The calculation of Pyrite content assumes that all oxidisable sulphides present in the sample are pyrite. This may not be the case. The calculation may be an overesitimate when other sulphides such as Barite (Barium Sulphate) are present.

WATERS

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

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

As surface waters require different sample preparation to groundwaters the additory 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

FOI All samples should be submitted to the laboratory in suitable containers with sufficient ice packs to sustain an appropriate temperature for the requested analysis. The temperature of sample receipt is recorded on the confirmation schedules in order that the client can make an informed decision as to whether testing should still be undertaken so Cor

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.

BI ANKS

Where analytes have been found in the blank, the sample will be treated in accordance with our laboratory procedure for dealing with contaminated blanks.

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 guality 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.

REPORTS FROM THE SOUTH AFRICA LABORATORY

Any method number not prefixed with SA has been undertaken in our UK laboratory unless reported as subcontracted.

ABBREVIATIONS and ACRONYMS USED

#	ISO17025 (UKAS Ref No. 4225) accredited - UK.
SA	ISO17025 (SANAS Ref No.T0729) accredited - South Africa.
В	Indicates analyte found in associated method blank.
DR	Dilution required.
М	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 an Exova 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	No Fibres Detected It is 0 AQC Sample 0111 and Blank Sample 0111 and Client Sample 0111 and
Ν	Client Sample
ТВ	Trip Blank Sample
OC	Outside Calibration Range
AA	Trip Blank Sample putterun Outside Calibration Range putterun x5 Dilution potterun x250 Dilution Folger
AB	x250 Dilution for pro-
	Consent of copy

JE Job No: 19/7606

Test Method No.	Description	Prep Method No. (if appropriate)	Description	ISO 17025 (UKAS/S ANAS)	MCERTS (UK soils only)	Analysis done on As Received (AR) or Dried (AD)	Reported on dry weight basis
TM5	Modified 8015B method for the determination of solvent Extractable Petroleum Hydrocarbons (EPH) within the range C8-C40 by GCFID. For waters the solvent extracts dissolved phase plus a sheen if present.	PM16/PM30	Fractionation into aliphatic and aromatic fractions using a Rapid Trace SPE/Water samples are extracted with solvent using a magnetic stirrer to create a vortex.				
TM5	Modified 8015B method for the determination of solvent Extractable Petroleum Hydrocarbons (EPH) within the range C8-C40 by GCFID. For waters the solvent extracts dissolved phase plus a sheen if present.	PM16/PM30	Fractionation into aliphatic and aromatic fractions using a Rapid Trace SPE/Water samples are extracted with solvent using a magnetic stirrer to create a vortex.	Yes			
TM5	Modified 8015B method for the determination of solvent Extractable Petroleum Hydrocarbons (EPH) within the range C8-C40 by GCFID. For waters the solvent extracts dissolved phase plus a sheen if present.	PM30	Water samples are extracted with solvent using a magnetic stirrer to create a vortex.				
TM5	Modified 8015B method for the determination of solvent Extractable Petroleum Hydrocarbons (EPH) within the range C8-C40 by GCFID. For waters the solvent extracts dissolved phase plus a sheen if present.	PM30	Water samples are extracted with solvent using a magnetic stirrer to create a vortex. Water samples are extracted with solvent using a magnetic stirrer to create a vortex. Water samples are extracted with solvent using a magnetic stirrer to create a vortex.	Yes			
TM5/TM36	please refer to TM5 and TM36 for method details	PM12/PM16/PM30	Polease refer to PM16/PM30 and PM12 for method details				
TM5/TM36	please refer to TM5 and TM36 for method details	PM12/PM16/PM30	א please refer to PM16/PM30 and PM12 for method details	Yes			
TM15	Modified USEPA 8260. Quantitative Determination of Volatile Organic Compounds (VOCs) by Headspace GC-MS.	PM10	Modified US EPA method 5021. Preparation of solid and liquid samples for GC headspace analysis.				
TM15	Modified USEPA 8260. Quantitative Determination of Volatile Organic Compounds (VOCs) by Headspace GC-MS.	PM10	Modified US EPA method 5021. Preparation of solid and liquid samples for GC headspace analysis.	Yes			
TM16	Modified USEPA 8270. Quantitative determination of Semi-Volatile Organic compounds (SVOCs) by GC-MS.	PM30	Water samples are extracted with solvent using a magnetic stirrer to create a vortex.				
TM16	Modified USEPA 8270. Quantitative determination of Semi-Volatile Organic compounds (SVOCs) by GC-MS.	PM30	Water samples are extracted with solvent using a magnetic stirrer to create a vortex.	Yes			

Method Code Appendix

Method Code Appendix

Test Method No.	Description	Prep Method No. (if appropriate)	Description	ISO 17025 (UKAS/S ANAS)	MCERTS (UK soils only)	Analysis done on As Received (AR) or Dried (AD)	Reported on dry weight basis
TM20	Modified BS 1377-3: 1990/USEPA 160.3 Gravimetric determination of Total Dissolved Solids/Total Solids	PM0	No preparation is required.	Yes			
TM26	Determination of phenols by Reversed Phased High Performance Liquid Chromatography and Electro-Chemical Detection.	PM0	No preparation is required.				
TM26	Determination of phenols by Reversed Phased High Performance Liquid Chromatography and Electro-Chemical Detection.	PM0	No preparation is required.	Yes			
ТМЗО	Determination of Trace Metal elements by ICP-OES (Inductively Coupled Plasma - Optical Emission Spectrometry). Modified US EPA Method 200.7, 6010B and BS EN ISO 11885 2009	PM14	Analysis of waters and leachates for metals by ICP OES/ICP MS. Samples are filtered for dissolved metals and acidified if required.				
ТМ30	Determination of Trace Metal elements by ICP-OES (Inductively Coupled Plasma - Optical Emission Spectrometry). Modified US EPA Method 200.7, 6010B and BS EN ISO 11885 2009	PM14	Analysis of waters and leachates for metals by ICP OES/ICP MS. Samples are intered for dissolved metals and acidified if required.	Yes			
TM36	Modified US EPA method 8015B. Determination of Gasoline Range Organics (GRO) in the carbon chain range of C4-12 by headspace GC-FID. MTBE by GCFID co-elutes with 3-methylpentane if present and therefore can give a false positive. Positive MTBE results can be confirmed using GCMS.	PMtafcol	Modified US EPA method 5021. Preparation of solid and liquid samples for GC headspace analysis.				
TM36	Modified US EPA method 8015B. Determination of Gasoline Range Organics (GRO) in the carbon chain range of C4-12 by headspace GC-FID. MTBE by GCFID co-elutes with 3-methylpentane if present and therefore can give a false positive. Positive MTBE results can be confirmed using GCMS.	PM12	Modified US EPA method 5021. Preparation of solid and liquid samples for GC headspace analysis.	Yes			
ТМ37	Modified methods USEPA 160.2, EN872:2005 and SMWW 2540D. Gravimetric determination of Total Suspended Solids. Sample is filtered through a 1.5um pore size glass fibre filter and the resulting residue is dried and weighed.	PM0	No preparation is required.	Yes			
TM38	Soluble Ion analysis using Discrete Analyser. Modified US EPA methods 325.2 (Chloride), 375.4 (Sulphate), 365.2 (o-Phosphate), 353.1 (TON), 354.1 (Nitrite), 350.1 (NH4+) comparable to BS ISO 15923-1, 7196A (Hex Cr)	PM0	No preparation is required.				
TM38	Soluble Ion analysis using Discrete Analyser. Modified US EPA methods 325.2 (Chloride), 375.4 (Sulphate), 365.2 (o-Phosphate), 353.1 (TON), 354.1 (Nitrite), 350.1 (NH4+) comparable to BS ISO 15923-1, 7196A (Hex Cr)	PM0	No preparation is required.	Yes			

Method Code Appendix

Test Method No.	Description	Prep Method No. (if appropriate)	Description	ISO 17025 (UKAS/S ANAS)	MCERTS (UK soils only)	Analysis done on As Received (AR) or Dried (AD)	Reported on dry weight basis
TM42	Modified US EPA method 8270. Pesticides and herbicides by GC-MS	PM30	Water samples are extracted with solvent using a magnetic stirrer to create a vortex.				
TM57	Modified US EPA Method 410.4. Comparable with ISO 15705:2002. Chemical Oxygen Demand is determined by hot digestion with Potassium Dichromate and measured spectrophotometerically.	PM0	No preparation is required.				
TM57	Modified US EPA Method 410.4. Comparable with ISO 15705:2002. Chemical Oxygen Demand is determined by hot digestion with Potassium Dichromate and measured spectrophotometerically.	PM0	No preparation is required.	Yes			
TM58	Ar TA Standard memory or the extraction or water and waste water (SME WWY) 22 r05. Comparible with ISO 5815:1989. Measurement of Biochemical Oxygen Demand. When cBOD (Carbonaceous BOD) is requested a nitrification inhibitor is added which prevents the oxidation of reduced forms of nitrogen, such as ammonia, nitrite and organic nitrogen which exert a nitrogenous demand. Determination of Dissolved Oxygen using the Hach	PM0	No preparation is required. No preparation is required.				
TM58	HPACSAntarto Metricos nor me extraction or water and waste water (SINE WW) 32 rob. Comparible with ISO 5815:1989. Measurement of Biochemical Oxygen Demand. When CBOD (Carbonaceous BOD) is requested a nitrification inhibitor is added which prevents the oxidation of reduced forms of nitrogen, such as ammonia, nitrite and organic nitrogen which exert a nitrogenous demand. Determination of Dissolved Oxygen using the Hach MO200 Owners Metric	PM0	No areparation is required.	Yes			
TM60	TC/TOC analysis of Waters by High Temperature Combustion followed by NDIR detection. Based on the following modified standard methods: USEPA 9060, APHA Standard Methods for Examination of Water and Wastewater 5310B, ASTM D 7573, and USEPA 415.1.	PMO0F COR	א No preparation is required.	Yes			
TM72	Redox Potential is measured by HI98120 redox meter.	PM0	No preparation is required.				
TM73	Modified US EPA methods 150.1 and 9045D and BS1377:1990. Determination of pH by Metrohm automated probe analyser.	PM0	No preparation is required.				
TM73	Modified US EPA methods 150.1 and 9045D and BS1377:1990. Determination of pH by Metrohm automated probe analyser.	PM0	No preparation is required.	Yes			
TM75	Modified US EPA method 310.1. Determination of Alkalinity by Metrohm automated titration analyser.	PM0	No preparation is required.	Yes			

Method Code Appendix

Test Method No.	Description	Prep Method No. (if appropriate)	Description	ISO 17025 (UKAS/S ANAS)	MCERTS (UK soils only)	Analysis done on As Received (AR) or Dried (AD)	Reported on dry weight basis
TM76	Modified US EPA method 120.1. Determination of Specific Conductance by Metrohm automated probe analyser.	PM0	No preparation is required.				
TM76	Modified US EPA method 120.1. Determination of Specific Conductance by Metrohm automated probe analyser.	PM0	No preparation is required.	Yes			
TM89	Modified USEPA method OIA-1667. Determination of cyanide by Flow Injection Analyser. Where WAD cyanides are required a Ligand displacement step is carried out before analysis.	PM0	No preparation is required.				
TM89	Modified USEPA method OIA-1667. Determination of cyanide by Flow Injection Analyser. Where WAD cyanides are required a Ligand displacement step is carried out before analysis.	PM0	No preparation is required. No preparation is required. No preparation is required. Bangles are pretreated and derivatised. The derviatised organotins are then extracted using hexane.	Yes			
TM94	Derivatisation and extraction of Organotins. Analysis by GC-MS		1.62				
TM149	Determination of Pesticides by Large Volume Injection on GC Triple Quad MS, based upon USEPA method 8270	PM301 COR) Water samples are extracted with solvent using a magnetic stirrer to create a vortex.				
TM173	Analysis of fluoride by ISE (Ion Selective Electrode) using modified ISE method 340.2	РМО	No preparation is required.				
Subcontracted	See attached subcontractor report for accreditation status and provider.						





DETAILED IN SCOPE REG NO. 138

City Analysts Limited, Pigeon House Road, Ringsend, Dublin 4.

Tel: (01) 613 6003 Fax: (01) 613 6008

Email: reports@cityanalysts.ie

www.cityanalysts.ie

Customer

Kate Wiley Exova Environmental UK Ltd **Rosewell House** 2A (1F) Harvest Drive Newbridge, MidLothian Scotland EH28 8QJ United Kingdom

Certificate Of Analysis

Job Number:	19-55902
Issue Number:	1
Report Date:	13 May 2019

Site: Not Applicable **PO Number:** Not Supplied Date Samples Received: 09/05/2019

For inspection numposes only any other use. Please find attached the results for the samples received at our laboratory on 09/05/2019.

Should you have any queries regarding the report or require any further services, we would be happy to discuss your requirements. For additional information about the company please log-on to our website at the above address.

Thank you for choosing City Analysts Limited. We look forward to assisting you again.

Authorised By:

Shane Reynolds Laboratory Manager Authorised Date: 13 May 2019

Notes:

Results relate only to the items tested. Information on methods of analysis and performance characteristics is available on request. Any opinions or interpretations indicated are outside the scope of our INAB accreditation. This test report shall not be reproduced except in full or with written approval of City Analysts Limited.

Template: 1146 Revision: 018





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www.cityanalysts.ie

Certificate Of Analysis

Customer Kate Wiley

Exova Environmental UK Ltd Rosewell House 2A (1F) Harvest Drive Newbridge, MidLothian Scotland EH28 8QJ United Kingdom Report Reference: 19-55902 Report Version: 1

Site:	Not Applicable		
Sample Description:	GW 1A	Date of Sampling:	09/05/2019
Sample Type:	Ground	Date Sample Received:	09/05/2019
Lab Reference Numbe	r: 438201		

Site / Method Ref.	Analysis Start Date	Parameter	other Result	Units	PV Value (Drinking Water Only)
D/D1201#	09/05/2019	Coliforms	3.1	MPN/100ml	-
D/D3221#	09/05/2019	Faecal Coliforms	< 1	cfu/100ml	-
		Consent of copyright owner rear			

= INAB Accredited, U = UKAS Accredited, * = Subcontracted

Note:

PV Value is the parametric value, taken from European Communities, (Drinking Water) Regulations, 2014. S.I. No. 122 of 2014 and relates only to drinking water samples.

For queries on results, please contact us within two weeks of the report date to ensure that we can accommodate your query as samples cannot be stored indefinitely.

NAC & ATC - No abnormal change and acceptable to customers. TVC - Total viable count





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Certificate Of Analysis

Customer Kate Wiley

Exova Environmental UK Ltd Rosewell House 2A (1F) Harvest Drive Newbridge, MidLothian Scotland EH28 8QJ United Kingdom

Report Version: 1

Report Reference: 19-55902

Site:	Not Applicable					
Sample Description:	GW 2A	Date of Sampling:	09/05/2019			
Sample Type:	Ground	Date Sample Received:	09/05/2019			
Lab Reference Number: 438202						

Site / Method Ref.	Analysis Start Date	Parameter	UN: 07	Units	PV Value (Drinking Water Only)	
D/D1201#	09/05/2019	Coliforms	9.6	MPN/100ml	-	
D/D3221#	09/05/2019	Faecal Coliforms	< 1	cfu/100ml	-	
		Consent of copyright owner read				

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Note:

PV Value is the parametric value, taken from European Communities, (Drinking Water) Regulations, 2014. S.I. No. 122 of 2014 and relates only to drinking water samples.

For queries on results, please contact us within two weeks of the report date to ensure that we can accommodate your query as samples cannot be stored indefinitely.

NAC & ATC - No abnormal change and acceptable to customers. TVC - Total viable count





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Email: reports@cityanalysts.ie

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Certificate Of Analysis

Customer Kate Wiley

Exova Environmental UK Ltd Rosewell House 2A (1F) Harvest Drive Newbridge, MidLothian Scotland EH28 8QJ United Kingdom Report Reference: 19-55902 Report Version: 1

Site:	Not Applicable		
Sample Description:	GW 3A	Date of Sampling:	09/05/2019
Sample Type:	Ground	Date Sample Received:	09/05/2019
Lab Reference Numbe	r: 438203		

Site / Method Ref.	Analysis Start Date	Parameter	UN: 01	Units	PV Value (Drinking Water Only)
D/D1201#	09/05/2019	Coliforms	27.2	MPN/100ml	-
D/D3221#	09/05/2019	Faecal Coliforms	< 1	cfu/100ml	-
		Consolt of copyright owner rear			

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Note:

PV Value is the parametric value, taken from European Communities, (Drinking Water) Regulations, 2014. S.I. No. 122 of 2014 and relates only to drinking water samples.

For queries on results, please contact us within two weeks of the report date to ensure that we can accommodate your query as samples cannot be stored indefinitely.

NAC & ATC - No abnormal change and acceptable to customers. TVC - Total viable count

Private Well (Hotel)





Independent Analytical Supplies

Test Report

Lab Report Number:	5742L01	A	analysis Number:	99A/123770		
Customer ID:	CLAN.C1	A	nalysis Type:	Misc. Tests (99A)		
Contact Name:	DAVID MCCAR	rhy d	elivery By:	Customer		
Company Name:	CLANARD COU		ample Card Number:	49555/2		
Address:	ATHY CO. KILDARE		ample Condition:	Acceptable		
Sample Type:	Drinking Water	ם	ate Sample Received:	23/10/2019		
Sample Reference:	KITCHEN TAP	D	ate Analysis Commenced:	23/10/2019		
Sample Description:	T:9.30AM 23.10.	19 WASH AREA D	ate Certificate Issued:	04/11/2019		
Parameter		Method	Result	Unit		
E. Coli		Quanti-tray SOP 2090	0	MPN/100ml		
Total Coliforms		Quanti-tray SOP 2090	0	MPN/100ml		
T.V.C. @ 22°C^*^		Subcontracted	0	c.f.u./ml		
Aluminium*^		Subcontracted	11 ^{56.} <20	ug/l		
Iron*^		Subcontracted	<20	ug/l		
Manganese*^		Subcontracted	Stand 27	ug/l		
Ammonia		Konelab Aquakem SOP 2657	0.02	mg/l NH3		
Nitrite		Konelab Aquakem SOP 2059	0.03	mg/l NO2		
Nitrate		Konelab Aquakem SQP 2060	16.15	mg/l NO3		
рН		Electrometry SOP 2004	7.2	pH units		
Colour		Konelab Aquakem SOP 2063	1.5	Pt Co		
Conductivity		Electrometry SOP 2076	711	μS/cm 20°C		
Total Hardness*^		Subcontracted	394	mg/I CaCO3		
Turbidity		Curbidimetric SOP 2022	<0.02	NTU		
Chloride		Konelab Aquakem SOP 2065	41.20	mg/l		
Sulphate		Konelab Aquakem SOP 2062	20.12	mg/l SO4		
Calcium*^		Subcontracted	112	mg/l		
Sodium*^		Subcontracted	15.2	mg/l		
Potassium*^		Subcontracted	1.64	mg/l		
Lead*^		Subcontracted	<1	ug/ł		
Copper*^		Subcontracted	93	ug/l		
Magnesium*^		Subcontracted	27.3	mg/l		

Signed:

w mecall

Date: 04/

04/11/2019

Wendy McCall - Laboratory Manager

* = not INAB Accredited ^ = 9

^ = Subcontracted



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4070 Issue 3

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e Page 1 of 1 EPA Export 23-10-2020:06:42:14

APPENDIX H

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LABORATORY REPORT



4043

Contract Number: PSL19/2620

Report Date: 04 June 2019

Client's Reference: 19-0225B

Client Name: Causeway Geotech 8 Drumahiskey Road Ballymoney Co.Antrim BT53 7QL

For the attention of: Stephen Watson

Contract Title: Groundwater Monitoring Wells - Glamard Court Hotel, Athy

Date Received:	26/4/2019
Date Commenced:	26/4/2019
Date Completed:	4/6/2019

Notes:

Opinions and Interpretations are outside the UKAS Accreditation

A copy of the Laboratory Schedule of accredited tests as issued by UKAS is attached to this report. This certificate is issued in accordance with the accreditation requirements of the United Kingdom Accreditation Service. The results reported herein relate only to the material supplied to the laboratory. This certificate shall not be reproduced other than in full, without the prior written approval of the laboratory.

Checked and Approved Signatories:

R Gunson (Director) A Watkins (Director) R Berriman (Quality Manager)

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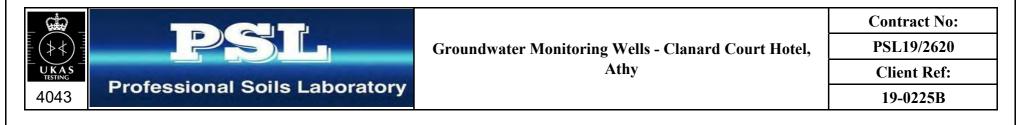
S Royle (Laboratory Manager) S Eyre (Senior Technician) L Knight (Senior Technician)

Page 1 of

5 – 7 Hexthorpe Road, Hexthorpe, Doncaster DN4 0AR tel: +44 (0)844 815 6641 fax: +44 (0)844 815 6642 e-mail: rgunson@prosoils.co.uk awatkins@prosoils.co.uk

SUMMARY OF LABORATORY SOIL DESCRIPTIONS

Hole Number	Sample Number	Sample Type	Top Depth m	Base Depth m	Description of Sample
GW04	1	U	0.00	0.45	Brown very gravelly very sandy CLAY.
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					OIL 21
					or purpose of for
					a putre of the
					AND
					1 State
					Forpite
					a sectiv



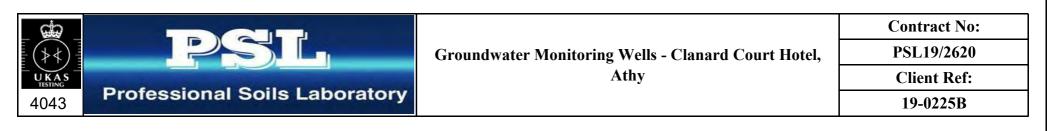
SUMMARY OF SOIL CLASSIFICATION TESTS

(BS1377 : PART 2 : 1990)

Hole Number	Sample Number	Sample Type	Top Depth m	Base Depth m	Moisture Content % Clause 3.2	Linear Shrinkage % Clause 6.5	Particle Density Mg/m ³ Clause 8.2	Liquid Limit % Clause 4.3/4	Plastic Limit % Clause 5.3	Plasticity Index % Clause 5.4	Passing .425mm %	Remarks
GW04	1	U	0.00	0.45	18							
								it wother use	<u>, </u>			
								othe				
								only and				
							00 ⁵⁰⁵	dt				
							ection purper provins					
							ection net					
						in the second se	en c					
						¥~8	y					
						ofor						
						CONSORI						
						0						

SYMBOLS : NP : Non Plastic

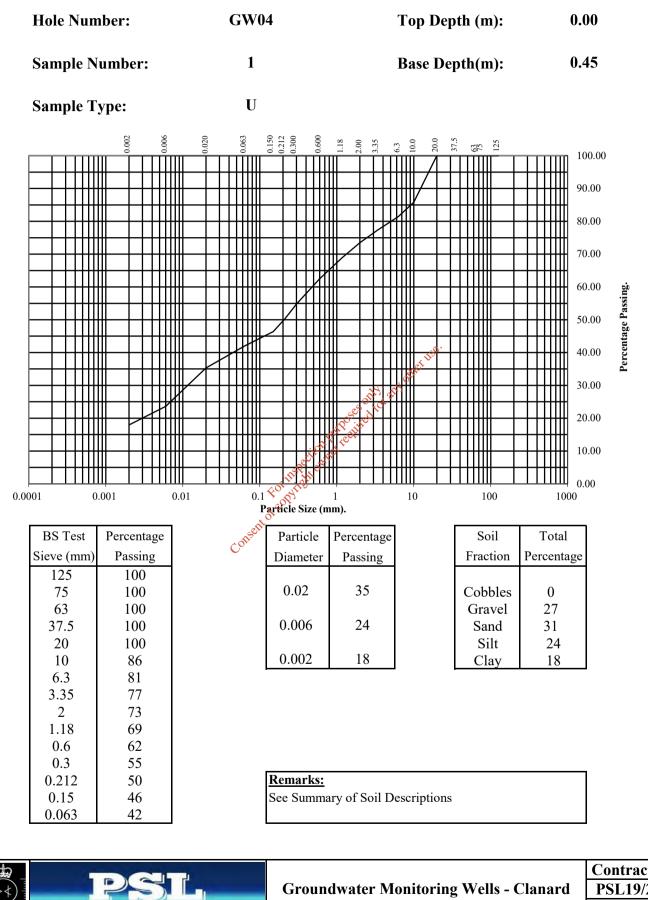
* : Liquid Limit and Plastic Limit Wet Sieved.



PARTICLE SIZE DISTRIBUTION TEST

BS1377 : Part 2 : 1990

Wet Sieve & Pipette Analysis, Clause 9.2 & 9.4





4043

oundwater Monitoring Wells - Clanard Court Hotel, Athy

Contract No:
PSL19/2620
Client Ref:
19-0225B

PERMEABILITY IN A TRIAXIAL CELL

BS 1377 : Part 6 : 1990: Clause 6

Hole Number:	GW04	Top Depth (m) :	0.00
Sample Number:	1	Base Depth (m) :	0.45
Sample Type:	U	Lift Number:	

Date

Grid Reference:

Description of Specimen		
See summary of soil descriptions		
Remarks		
Remoulded to original density of U70 sample		

Initial Specimen Conditions					
Height	mm	102.00			
Diameter	mm 📢 🕫	101.50			
Area	mm	8091.37			
Volume	17. CON3	825.32			
Mass	so tot g	1697			
Dry Mass	g g	1442			
Bulk Density	Mg/m ³	2.06			
Dry Density	Mg/m ³	1.75			
Moisture Content	%	18			
Voids Ratio	-	0.516			
Specific Gravity	Mg/m ³	2.65			
(assumed/measured)	-	assumed			
ASCIE					

Final Specimen Conditions						
Moisture Content	%	20				
Bulk Density	Mg/m ³	2.09				
Dry Density	Mg/m ³	1.75				

Test Setup					
Date Started		17/05/2019			
Date Finished		22/05/2019			
Top Drain Used		Y			
Base Drain Used		Y			
Method of Saturation		By back pressure			
Direction Of Flow		Vertically Downwards			
Saturation Time	Days	4			
Consolidation Time	Days	1			
Permeability Time	Days	1			



Groundwater Monitoring Wells - Clanar	ď		
Court Hotel, Athy			

PERMEABILITY IN A TRIAXIAL CELL

BS 1377 : Part 6 : 1990 Clause 6

						men Detai	ils			
				Hole Nu				GW04		
				Sample I		m	1	0.00		
				Sample				1		
				Grid Refe Lift Nu						
				LIII NU		turation				
				Cell Pressu			kPa 50			
				Back Press		kP		50		
				Differential		kP		10		
				Final Cell		kP		500		
				Final B		-		0.95		
	1.0 _T				Cell P	ressure - kPa				
	0.9									
	0.9							_		
	0.7 +									
	0.6 +									
	0.5 +									
	0.4 +						x 1150			
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	0.1 +					Les rot				
	0.0 + 0		100	2	00 3	Solution of the second	400	5	+ 00	600
					. Eq.	solidation				
			Effective Pressure			kP		100		
			Cell Pressure			kP		600		
					essure of	kP		500		
				Final P PWP diss		<u>kP</u>		<u>500</u> 100		
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210										
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5	16.0									
>	18.0									
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Q										Contract

Court Hotel, Athy

Professional Soils Laboratory

UKAS

4043

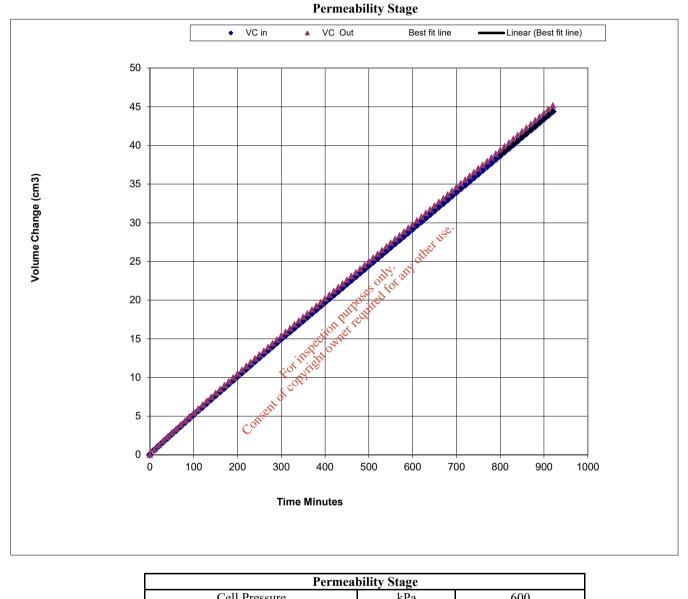
Client Ref

19-0225B

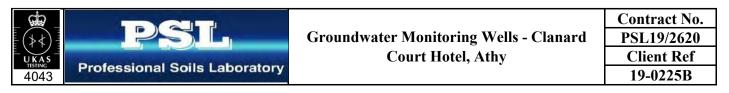
PERMEABILITY IN A TRIAXIAL CELL

BS 1377 : Part 6 : 1990 Clause 6

Specimen Details					
Hole Number		GW04			
Sample Depth	m	0.00			
Sample No.		1			
Grid Reference					
Lift Number					



Permeability Stage					
Cell Pressure	kPa	600			
Mean Effective Stress	kPa	100			
Back Pressure Diff.	kPa	20			
Mean Rate of Flow	ml/min	0.0474			
Average Temperature	'C	20			
Vertical Permeability Kv	m/s	4.9E-09			



APPENDIX I

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October 2019



Appropriate Assessment - Stage 1

Screening Report

Site at Prusselstown

Kildare County Council

Athy, Co. Kildare



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Form ES - 04



Ground Floor – Unit 3 **Bracken Business Park** Bracken Road, Sandyford Dublin 18, D18 V32Y Tel: +353-1-567 76 55 Email: enviro@mores.ie

Title: Appropriate Assessment - Stage 1 Screening Report, Site at Prusselstown, Kildare County Council, Athy, Co. Kildare

Job Number: E1506

Prepared By: Amelia Keane

Checked By: Stephen Coakley

Signed: Signed: Signed:

Revision Record

Approve	ed By: Dyfriç	g Hubble	Si conserved for	gned:		
Approved By: Dyfrig Hubble Signed: Revision Record						
lssue No.	Date	Description of com	Remark	Prepared	Checked	Approved
01	11/19/2019	AA Screening Report	FINAL	AK	SC	DH

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Appropriate Assessment - Stage 1 Screening Report Site at Prusselstown Kildare County Council Athy, Co. Kildare

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1 INTRODUCTION

1.1 Background

This Appropriate Assessment Screening Report has been prepared by Malone O'Regan Environmental (MOR) on behalf of Kildare County Council (KCC) to assess the potential impacts, if any, of imported fill materials that had been deposited at a location in the legacy landfill at a location in Prusselstown, Co. Kildare (the Site), (OS Ref: S 69883 94639), on nearby sites with European conservation designations (i.e. Natura 2000 sites).

The location of the Site is shown in Figure 1-1.

In 2019 MOR undertook an Environmental Risk Assessment (ERA), which included Tier 1 Risk Screening and preliminary conceptual site model (CSM), Tier 2 Site Investigations and Testing, Tier 3 Refinement of CSM and Quantitative Risk Assessment (QRA), for the Site on behalf of KCC for submission to the Environmental Protection Agency (EPA). The aim of the assessment was to assess if the imported materials deposited within the Site cause an adverse impact to the groundwater, the surface water and the receiving environment within and adjacent to the Site.

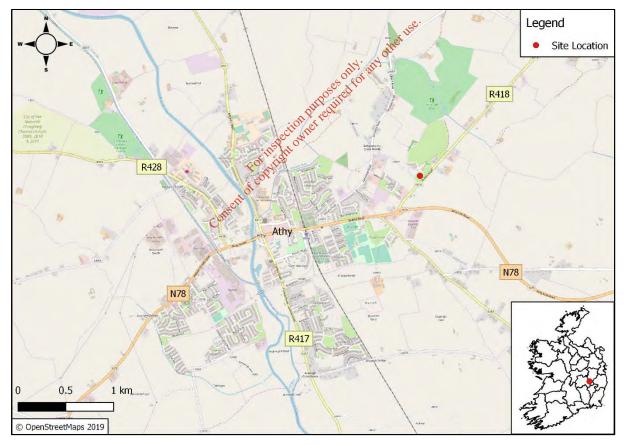


Figure 1-1: Site Location

The purpose of this assessment was to determine the appropriateness, or otherwise, of the Site in the context of the conservation objectives of European conservation designations (i.e. Natura 2000 sites).

This report also considers the need and or appropriateness, or otherwise, of the recommendations in the ERA in the context of the conservation objectives of the Natura 2000 sites.

1.2 Regulatory Context

This Appropriate Assessment Screening Report was prepared in compliance with the following legislation:

Council Directive 92/43/EEC on the Conservation of Natural Habitats and of Wild Flora and Fauna better known as 'The Habitats Directive' which provides the framework for legal protection for habitats and species of European importance. Articles 3 to 9 provide the legislative means to protect habitats and species of community interest through the establishment and conservation of an EU-wide network of sites known as Natura 2000 sites. These are Special Areas of Conservation (SACs) designated under the Habitats Directive and Special Protection Areas (SPAs) designated under the Conservation of Wild Birds Directive (79/409/EEC as amended 2009/149/EC)) (better known as 'The Birds Directive').

Article 6(3) and 6(4) of the Habitats Directive set out the decision-making tests for plans and projects likely to affect Natura 2000 sites (Annex 1.1). Article 6(3) establishes the requirement for Appropriate Assessment (now termed Natura Impact Statement):

Any plan or project not directly connected with or necessary to the management of the [Natura 2000] site but likely to have a significant effect thereon, either individually or in combination with other plans and projects, shall be subjected to appropriate assessment of its implications for the site in view of the site's conservation objectives. In light of the conclusions of the assessment of the implication for the site and subject to the provisions of paragraph 4, the competent national authorities shall agree to the plan or project only after having ascertained that it will not adversely affect the integrity of the site concerned and, if appropriate, after having obtained the opinion of the general public."

The Habitats Directive promotes a hierarchy of avoidance, mitigation and compensatory measures. First, the project should aim to avoid any negative impacts on European sites by identifying possible impacts early in the planning stage, and designing the project in order to avoid such impacts. Second, mitigation measures should be applied, if necessary, during the AA process to the point where no adverse impacts on the site(s) remain. If the project is still likely to result in adverse effects, and no further practicable mitigation is possible, it is rejected. If no alternative solutions are identified and the project is required for imperative reasons of overriding public interest (IROPI test) under Article 6(4) of the Habitats Directive, then compensation measures are required for any remaining adverse effects.

1.3 Stages of Appropriate Assessment

This Appropriate Assessment Screening Report has been undertaken in accordance with the European Commission Methodological Guidance on the provision of Article 6(3) and 6(4) of the 'Habitats' Directive 92/43/EEC (EC 2001) and the European Commission Guidance 'Managing Natura 2000 Sites.' The Guidance for Planning Authorities published by the Department of Environment, Heritage and Local Government (DOEHLG, December 2009) was also adhered to.

There are four distinct stages to undertaking an AA as outlined in current EU and DOEHLG guidance:

- 1. Appropriate Assessment Screening;
- 2. Appropriate Assessment;
- 3. Assessment of Alternatives in cases where significant impact cannot be prevented; and,
- 4. Where no alternatives exist, an Assessment of Compensatory Issues in the case of projects or plans which can be considered to be necessary for Imperative Reasons of Overriding Public Interest (IROPI).

This Report comprises a Stage 1 Screening Report, which seeks to determine whether the subject site will, on its own or in combination with other plans / projects, have a significant effect on Natura 2000 sites within a defined radius of the subject site.

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SCREENING FOR APPROPRIATE ASSESSMENT 2

Screening determines whether Appropriate Assessment is necessary by examining:

- 1. Whether a plan or project can be excluded from AA requirements because it is directly connected with, or necessary to, the management of a Natura 2000 site; and
- 2. Whether the project will have a potentially significant effect on a Natura 2000 site, either alone or in combination with other projects or plans, in view of the site's conservation objectives.

Screening involves the following:

- Description of a plan or project; i)
- ii) Identification of relevant Natura 2000 sites, and compilation of information on their qualifying interests and conservation objectives;
- Assessment of likely effects direct, indirect and cumulative undertaken on iii) the basis of available information as a desk study or field survey or primary research as necessary; and
- iv) Screening Statement with conclusions.

Desk Based Studies 2.1

other A desk-based review of information sources was completed, which included the following sources of information:

- The National Parks and Wildlife Service (NPWS) website was consulted to obtain the most up to date detail on conservation objectives for the Natura 2000 sites relevant to this assessment (National Parks and Wildlife Service, 2019);
- The National Biodiversity Data Centre (NBDC) website was consulted with regard to . species distributions (National Biodiveristy Data Centre, 2019);
- The EPA Envision website was consulted to obtain details about watercourses in the . vicinity of the Site (http://gis.epa.ie/Envision) (EPA, 2019); and
- The EPA Catchments website was also consulted to obtain details about watercourses • in the vicinity of the Site (https://www.catchments.ie/maps/) (EPA, 2019).

3 DESCRIPTION OF THE PROJECT

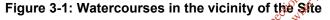
3.1 Site Context and Description

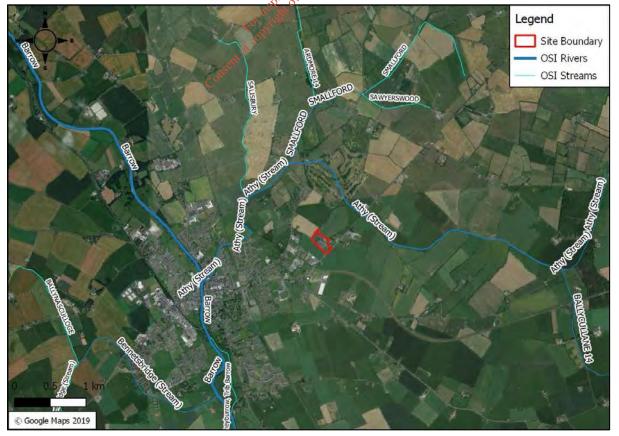
The Site is located ca. 1.6km south-west of the centre of Athy town, County Kildare. The Site is accessed through a third-class road R418 off the national road N78, and it is located within the Townlands of Gallowshill and Prusselstown (Refer to Figure 1-1). The area of the Site is approximately 4.4ha and is currently occupied by a hotel with an associated car park, a field to the west of the hotel and a grassed area for sheep, horses and alpacas to the east and south of the Site.

There are a number of residential properties along the northern boundary of the Site, the closest ca.11m from the boundary. Further residential properties are located ca.150m southwest of the site. A petrol station is located ca. 160m south-west of the Site, and the town centre is ca. 1.6km south-west of the Site.

There are two watercourses of note within the vicinity of the Site; the River Barrow and the Athy Stream, both located within the Barrow_SC_070 sub-catchment. The Athy Stream is the closest hydrological feature, located ca. 600m north east of the Site at its closest point. The Athy Stream flows in a north easterly direction and is a tributary of the River Barrow. The River Barrow is located ca. 1.6km south-west of the Site and flows in a southerly direction. The River Barrow forms part of the River Barrow and River Nore SAC.

The water quality and status of the portion of the Athy Stream nearest to the Site is considered *'moderate'* and *'at risk'* and the water quality and risk' status of the River Barrow adjacent to the Site is *'unassigned'* (EPA Catchments, 2019). There is no hydrological connection between the Site and any watercourses.





3.2 Description of the Environmental Risk Assessment

MOR was appointed by KCC to undertake an ERA based on an exploratory site investigation of Prusselstown, Co. Kildare, in accordance with the EPA's published Code of Practice: Environmental Risk Assessment for Unregulated Waste Disposal Sites (2007) published in December 2008, hereafter referred to as the 'CoP' (where applicable).

As part of the ERA there is a requirement to complete an AA to determine potential impacts, if any, of the Site, on nearby Natura 2000 sites. The report also considers the need and or appropriateness, or otherwise, of the recommendations made in the ERA in the context of the conservation objectives of the Natura 2000 sites.

Prior to sampling, a geographical survey and topographical survey were undertaken to assess subsurface and surface conditions of the Site. Once site conditions were established, trial pit extractions, leachate and gas boreholes and groundwater boreholes were extracted. All of the monitoring / sampling pits were located in amenity grassland with a flat topography (See Figure 3-1).

3.3 Trial Pit Excavations

Trial pitting excavations at seven (7 No) locations were carried out on the 17th of January 2019 (Figure 3-1, TPA to TPG). The objective of the trial pitting was to assess the lateral extent and composition of the imported material. In this regard any visual or olfactory evidence of contamination was recorded including photographic evidence. A MOR environmental consultant was on site during all of the trial pit excavations.

The excavation of the trial pits to a maximum depth of approximately 5.0mbgl was undertaken using a 13-tonne tracked excavator. Each trial pit was logged in accordance with the BS 5930:2015 standards. Locations for the trial pits were selected based on initial discussions with KCC, findings of the desk-based studies, the Site walkover and the results of the geophysical survey. Each trial pit was to instated to as close to its original condition as possible. Exact locations are shown in Drawing No. 12. Refer to Appendix D for trial pit logs and also for photographic records of all trial pits. Three (3 No) different sub-surface profiles were recorded at the Site;

- Profile 1 Trial pits on the eastern boundary of the Site (TPC) and to the north-west
 of the hotel building (TPD);
- Profile 2 Trial pits located in the field to the south-east and east of the hotel (TPA and TPB); and
- Profile 3 Trial pits located in the agricultural field to the west boundary of the hotel (TPE, TPF and TPG).

3.4 Leachate and Gas Boreholes

A shell and auger rig was mobilised to the Site from the 9th to the 15th of January 2019 to install shallow leachate/gas wells (Figure 3-1, L1A to L3A). The three (3 No) combined leachate and gas monitoring wells were installed within the imported material to maximum depths ranging from 5.1 to 8.5mbgl. During the installation works the MOR consultant noted any field evidence of contamination through the soil/lithological profile to ensure that a conduit was not provided to the underlying aquifer.

3.5 Groundwater Boreholes

Three (3 No) groundwater monitoring wells were installed between the 10th and the 15th of April 2019 to a maximum depth of 17.3mbgl using an air rotary drill rig (Figure 3-1, GW1A to GW3A). The wells were installed in order to characterise groundwater quality upgradient and downgradient of the imported fill materials,

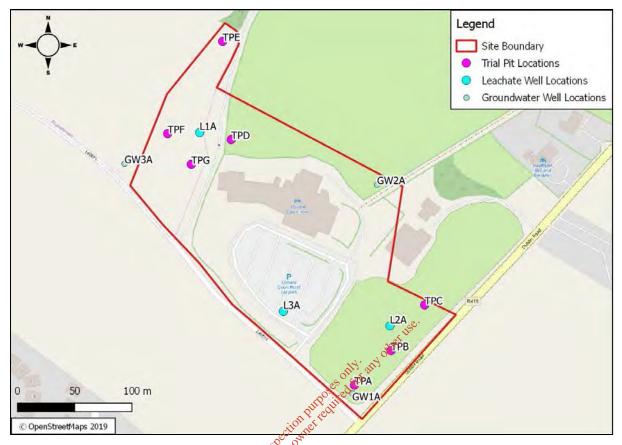


Figure 3-2: Environmental Risk Assessment Sampling Locations

Findings of the Environmental Risk Assessment 3.6 A CO

The ERA concluded the following:

Overall the ERA completed in July 2019, concluded that the Site has been well characterised. This assumption was based on the different investigations undertaken at the Site between January to April 2019.

Based on the evaluation of all available data in accordance with recognised best practice criteria, the following was concluded:

- The Site was in operation from the early 1970s to mid-1980s. According to KCC's files • the Site was used as a refuse depot from approximately 1st January 1981 to 2nd February 1982;
- The Site is located within a sensitive receiving environment based on the high-extreme . vulnerability rating assigned. This vulnerability rating was assigned due to the presence of an important gravel aguifer beneath the Site. However, the River Barrow and River Nore SAC is c. 1.70km west of the Site and therefore there would not be any potential risks arising from the Site to the SAC;
- The hydrogeological setting of the Site comprises a regionally important gravel aquifer underlain by the Ballysteen Formation and a locally important bedrock aquifer;
- Groundwater flow direction in the underlying aquifer is interpreted to be to the south / south-west towards the River Barrow;
- In general, the imported material comprises gravelly/sandy clay with mixed imported material, with a thickness of c. 0.6-8.5mbgl (trial pits and leachate/gas wells data).

Natural ground was not encountered during the trial pit excavations and leachate/gas well installations, with the exception at TPC and TPD, which were excavated in natural ground. Bedrock was not encountered during the groundwater well installations;

- The preliminary CSM identified the source associated with the Site as;
 - The imported material underneath the Site.

The potential pathways were identified as follows;

• Shallow Sand and Gravel aquifer and subsoils.

The key environmental receptors were identified as follows;

- The groundwater (sand & gravel aquifer) beneath the Site, the surface water (Athy Stream / River Barrow), the hotel adjacent to the imported material, the residential properties in the vicinity of the Site (c.15m) and the ecologically protected sites within the 10km radius.
- The imported materials comprised mainly gravelly, clay and ashy material with variable amounts of red bricks, concrete, glass, wood, plastic, metal, cables, car parts, cloths, pieces of carpets and mattress, milk cartons, metal cans, lids, steel sheeting, supermarket bags and textiles;
- The capping material encountered during the Site investigations (trial pit) was identified as brown gravelly clay with a thickness of 0.6 to 1.4m. According to the geotechnical results the capping material was classified as brown very gravelly very sandy CLAY, with low permeability 4.9x10⁻⁹ m/s. The dow permeability of the capping material overlying the imported material would impede rainfall infiltration and therefore reduce the generation of leachate.
- The soil laboratory results of three (3No.) of the trial pits were compliant with the inert Waste Acceptance Criteria (WAC) limits. There were some exceedances in antimony, molybdenum, sulphate and total dissolved solids, which complied with the nonhazardous WAC. An exceedance was noted in Total Organic Carbon in TPA, which complied with the hazardous WAC. There was a visual identification only of asbestos fibres at TPG, which were further quantified at concentrations <0.001%, confirming that the imported material present on site, with the current use of the Site, poses a low risk of contamination to the underlying strata (natural ground);
- The leachate results indicate that there were some exceedances of the parameters analysed. However, it was concluded that they would not pose a risk to human health and the environment, and do not require further assessment;
- The groundwater results (GW1A to GW3A and the private well) confirm that the imported material has not negatively impacted upon the underlying aquifer. There were a number of exceedances in the groundwater, which it was concluded do not pose a risk to human health and the environment, and do not require further assessment;
- The surface water results confirm that the imported materials have not negatively impacted on the Athy Stream. The risk to surface water is considered to be low;
- This assessment did not identify any impacts from the imported materials on the ecological receptors on-site or within the surrounding vicinity;
- Elevated Methane (CH₄) was detected at leachate/gas locations L1A. Methane was not detected at groundwater monitoring locations external to the imported materials GW1A to GW3A during any sampling event. Given the very low flow concentrations of methane and the surface VOC monitoring survey measured within and outside of the

Site, the detected gas concentrations are not considered to represent a risk to any identified receptors (on and off-site);

- In strict accordance with the CoP and taking cognisance of the intrusive site investigation and the updated conceptual site model, the Site would be classified as a Moderate risk site. However, during the data assessment, it was concluded that the pathways to the receptors were broken and therefore the pollutant linkages no longer exist; and,
- According to the Environmental Risk Assessment carried out for the Site, it is believed that the imported materials have not resulted in any impacts on the identified human receptors or environmental receptors.

3.7 Environmental Risk Assessment Recommendations

The Environmental Risk Assessment considers that the Site has been well characterised at this juncture given the comprehensive investigations undertaken. Based on the evaluation of the current data set in accordance with recognised best practice criteria, it is considered that there is enough evidence to conclude that the unregulated historic landfill does not present a potential environmental risk to underlying aquifer or potential receptors and therefore, in strict accordance with the CoP, no further actions are required.

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4 IDENTIFICATION OF NATURA 2000 SITES

In accordance with the European Commission Methodological Guidance (European Commission, 2002) a list of European sites that can be potentially affected by the Historic Landfill has been compiled. Guidance for Planning Authorities prepared by the Department of Environment Heritage and Local Government (DoEHLG, 2009) states that defining the likely zone of impact for the screening and the approach used will depend on the nature, size, location and the likely effects of the project. The key variables determining whether or not a particular Natura 2000 site is likely to be negatively affected by a project are: the physical distance from the project to the site; the sensitivities of the ecological receptors; and, the potential for in-combination effects. Adopting the precautionary principle, all Special Areas of Conservation (SACs) and Special Protection Areas (SPAs) sites within a 10km radius of the Site have been considered.

One Natura 2000 designated sites were identified within 10km of the Site (Table 4-1, Figure 4-1).

Site Name	Site Code	Distance (km)	Direction	
Special Areas of Conservation				
River Barrow and River Nore SAC	002162	1.63	W	

Table 4-1: Natura 2000 Designated Sites within 10km of the Site

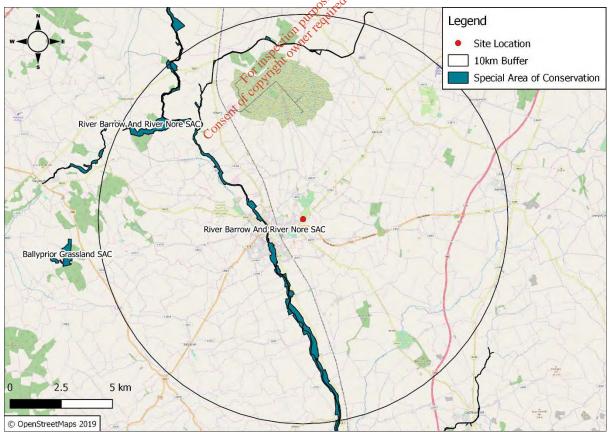


Figure 4-1: Designated Sites located further within 10km of Site Location

Only the River Barrow and River Nore SAC are located within 10km of the Site. Further consideration in terms of potential adverse effects are considered below.

5 IDENTIFICATION AND ASSESSMENT OF POTENTIAL IMPACTS

Only features that have the potential to cause adverse effects on the conservation objectives of the identified Natura 2000 sites were considered. A number of factors were examined at this stage and dismissed due to the very low risk associated with them. The key area of potential concern is in relation to potential adverse effects on the SAC are from the impairment of water quality resulting from the landfill site.

5.1 Potential Impairment of Water Quality

In accordance with the EPA CoP risk prioritisation calculations prepared for Environmental Risk Assessment the Site has been classified as a Class A – HIGH Risk Site due to the potential risks associated with landfill gas migration to on-site receptors and the risk of landfill gas migration to off-site receptors.

However, as stated in the ERA, due to the current site settings, the low flow rates observed throughout the monitoring locations and the findings during the landfill gas monitoring survey, it can be stated that the observed landfill gas concentrations do not pose a risk to human health or the environment, these exceedances do not pose a risk to water quality. The surface water results of the ERA confirmed that the imported materials are not impacting on the Athy Stream and therefore the potential risk and impacts to the quality to the Barrow River are considered to be low.

It can therefore be stated that in its current state, the Site is not contributing to a discernible decline in water quality. Furthermore, in the absence of any impact on the water quality within the waterbodies, it can also be stated that the Site is not currently causing any loss or disturbance as a result of emissions from the Site to either habitats or species for which the Natura 2000 sites are designated.

5.2 Analysis of 'In-Combination' Effects

The Habitats Directive requires completent authorities to undertake an appropriate assessment of any plan or project which is likely to have a significant effect alone or incombination with other plans and projects.

The assessment has considered the possibility of impacts on the River Barrow and River Nore SAC. It can be objectively demonstrated that the historic landfill and the proposed recommendations will not have any adverse effects, direct or indirect, on the conservation objectives of these designated European sites, either alone or in combination with other activities and projects, such as the Scowland Water Treatment Plant, agricultural practices, industrial practices, residential properties, transport infrastructure and commercial and leisure activities occurring along the River Barrow.

The conclusions of this assessment are that the historic landfill site in its current state will not have any adverse effects on the River Barrow and River Nore SAC, either alone or in combination with other activities and projects.

6 SCREENING CONCLUSIONS AND STATEMENT

The screening process has examined the details of the ERA undertaken for the Site and has considered the potential for causing impacts on Natura 2000 European sites and their qualifying features of interests within a 10km radius of the proposed Site.

One designated site, the River Barrow and River Nore SAC, is located within a 10km radius of the Site.

Taking into consideration the findings of the Risk Assessment, it has been concluded that that the historic landfill is currently not resulting in the direct loss or disturbance of any Annex I habitats or Annex II species for which the SAC is designated. Furthermore, it is considered that the implementation of further monitoring works at the Site will not have any significant impact on the SAC. The proposed monitoring of surface water and groundwater at the Site will also provide an early indication to any changes at the Site that could potentially result in impacts to designated sites.

Taking into account all of the matters discussed, it can be concluded that the historic landfill site or the proposed monitoring works, alone or in-combination with other projects, will not adversely affect the integrity and conservation status of any of the Natura 2000 sites or their qualifying features of interest.

Accordingly, progression to Stage 2 of the Appropriate Assessment process (i.e. preparation of a Natura Impact Statement) is not considered necessary as this stage.

7 REFERENCES

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