Project Title :	Trevozah Barton Landfill	**Project Reference :**	HCE0312
Document Title:	Technical Memo: Update to Environmental Setting and Site Design	**Prepared by :**	Jamie Howourth

Introduction

Location:

The Site is located within a large arable field associated within Trevozah Barton Farm, South Petherwin, Cornwall, PL15 9LT. The approximate centre of the Site is located at Ordnance Survey grid reference: 233665E 080892N.

Background:

An initial permit application for an inert landfill at the Site was made on 17 May 2020 on behalf of Associated Landfill Ltd ("The Client") (Environment Agency Ref: EPR/GB3139RQ/A001). As part of the permit application, an Environmental Setting and Site Design Report (ESSD) was submitted for the proposed operation (Horizon Ref: HCE0312.ESSD.Rev1[1]). The report stated that given the relatively low sensitivity of the Site, the small scale of the proposed operation and the permitted waste types it was proposed to undertake the baseline monitoring over a minimum three-month period to establish baseline conditions prior to waste deposition commencing. Correspondence between Horizon and the EA showed that this proposal was acceptable however the baseline monitoring results would be required to be submitted with the permit application prior the license being considered for duly-made status. Horizon was subsequently instructed by the Client to install the necessary monitoring infrastructure and undertake monitoring of the baseline conditions at the Site.

Fieldworks

Borehole Installation:

The ground investigation was carried at the Site on 19 October 2020. Two boreholes, HBH01 and HBH02, were drilled to depths of between 15.0 m and 10.0 m below ground level (bgl) respectively using open-hole rotary coring method. The boreholes were completed with combined groundwater and ground gas monitoring wells. The installation of the boreholes was carried out with reference to the specification provided in Section 6.7 of Horizon's ESSD[1]. A plan showing the location of the boreholes is included in **Appendix A**.

Monitoring:

Monitoring of baseline conditions at the Site was carried out on three separate occasions at approximately 6-weekly intervals. Groundwater samples were obtained using low-flow sampling methods from boreholes HBH01 and HBH02. In addition, surface water samples were obtained from locations HWS02, HWS03 and HWS04 as per the locations illustrated on Horizon's drawing in **Appendix A**.

Samples were submitted to Element Materials Technology Ltd (Element), a UKAS accredited laboratory. The analytical testing suite for each location was developed as part of Horizon's ESSD[1]. The laboratory certificates from the Horizon monitoring are reproduced in **Appendix B**.

[1] Horizon (2020). Trevozah Barton Landfill – Environmental Setting and Site Design Report. Ref: HCE0312.ESSD.Rev1

Results

Groundwater:

The results of the groundwater monitoring are summarised in the **Appendix C**. At this time the baseline monitoring is not complete, hence groundwater assessment levels and trigger values have not been presented.

Surface Water:

The results of the surface water monitoring are summarised in the **Appendix C**. At this time the baseline monitoring is not complete, hence surface water assessment levels and compliance limits have not been presented.

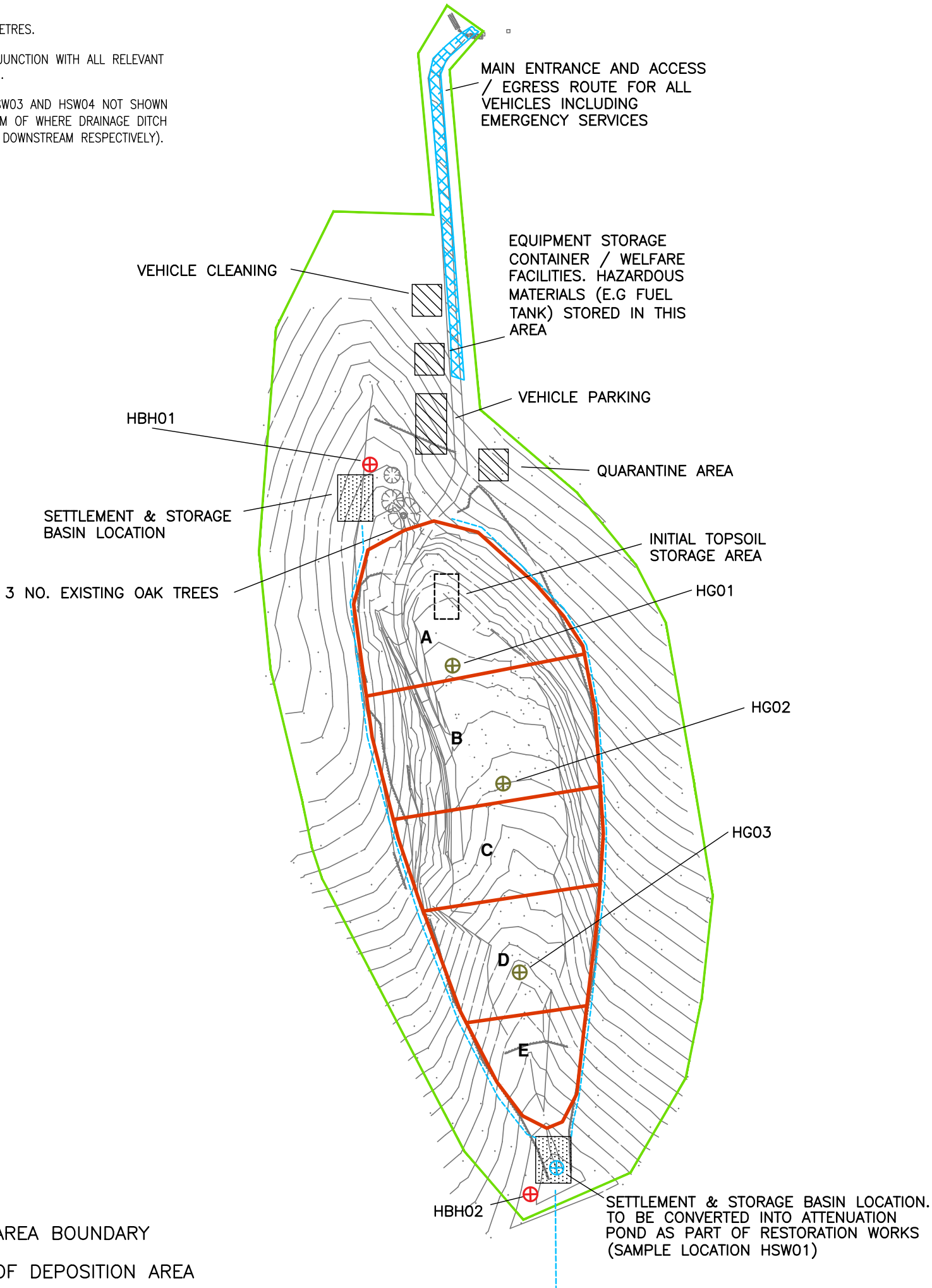
Ground Gas:

Ground gas monitoring was not undertaken as part of the baseline monitoring given the water level in the monitoring wells was above the uppermost slot in the well. Ground gas monitoring will be undertaken whenever possible during future monitoring visits.

Appendix A Horizon Drawing

NOTES: GENERAL

1. DO NOT SCALE FROM THIS DRAWING.
2. ALL DIMENSIONS SHOWN ARE IN MILLIMETRES.
3. THIS DRAWING SHALL BE READ IN CONJUNCTION WITH ALL RELEVANT SCHEME DRAWINGS AND SPECIFICATIONS.
4. SURFACE WATER SAMPLE LOCATIONS HSW03 AND HSW04 NOT SHOWN (MONITORING POINTS LOCATED UPSTREAM OF WHERE DRAINAGE DITCH DISCHARGES IN UNNAMED STREAM AND DOWNSTREAM RESPECTIVELY).



KEY:

- PERMITTED AREA BOUNDARY
- BOUNDARY OF DEPOSITION AREA
- EXTENT OF HARDSTANDING
- TEMPORARY ACCESS TRACK
- TOPSOIL STORAGE AREA (UNLESS OTHERWISE AGREED WITH PLANNING AUTHORITY)
- PERIMETER MONITORING WELL LOCATION (PROPOSED)
- SURFACE WATER SAMPLE LOCATION
- IN–WASTE GAS MONITORING WELL (TO BE INSTALLED POST–FILLING IN RESPECTIVE AREA)
- PERIMETER DRAINS (LINED SUBJECT TO STRATA ENCOUNTERED)

Rev	Description	Drn	Chk	Date
A				

REVISIONS

Preliminary	04.10.19	Approval		Tender		Const.	

dwg

ASSOCIATED LANDFILL LIMITED

Horizon Consulting Engineers
The Dairy Barn, Westpoint Crt, Sidmouth Rd, Exeter EX5 1DJ
T: 01392 363364 www.horizon–ce.co.uk

JOB TITLE

TREVOZAH BARTON LANDFILL
CORNWALL

DRAWING TITLE

PRELIMINARY SITE INFRASTRUCTURE PLAN
HYDROGEOLOGICAL RISK ASSESSMENT

DATE	DRAWN	CHECKED
OCT '19	JH	AL

DRAWING No.	REV	SCALE	
0312.102	.	.	@ A3

© This drawing is the copyright of Horizon Consulting Engineers (Horizon) Limited. It may not be reproduced or amended without the written approval of Horizon.

Appendix B Element Laboratory Certificates

Element Materials Technology
Unit 3 Deeside Point
Zone 3
Deeside Industrial Park
Deeside
CH5 2UA

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F: +44 (0) 1244 833781
W: www.element.com

Horizon Consulting Engineers Ltd
Suite 2, The Dairy Barn
Westpoint Court
Sidmouth Road
Clyst St Mary
Exeter,
EX5 1DJ

Attention :	Alex Large
Date :	9th November, 2020
Your reference :	HCE0312
Our reference :	Test Report 20/14926 Batch 1
Location :	
Date samples received :	29th October, 2020
Status :	Final report
Issue :	1

Five samples were received for analysis on 29th October, 2020 of which five were scheduled for analysis. Please find attached our Test Report which should be read with notes at the end of the report and should include all sections if reproduced. Interpretations and opinions are outside the scope of any accreditation, and all results relate only to samples supplied.
All analysis is carried out on as received samples and reported on a dry weight basis unless stated otherwise. Results are not surrogate corrected.

Authorised By:

Paul Boden BSc
Senior Project Manager

Please include all sections of this report if it is reproduced

Element Materials Technology

Client Name: Horizon Consulting Engineers Ltd
Reference: HCE0312
Location:
Contact: Alex Large
EMT Job No: 20/14926

Report : Liquid

Liquids/products: V=40ml vial, G=glass bottle, P=plastic bottle
H=H_2SO_4, Z=ZnAc, N=NaOH, HN=$HN0_3$

EMT Sample No.	1-2	3-4	5-6	7-8	9-10							
Sample ID	HSW02	HSW03	HSW04	HBH01	HBH02							
Depth												
COC No / misc												
Containers	P	P	P	P	P							
Sample Date	27/10/2020	27/10/2020	27/10/2020	27/10/2020	27/10/2020							
Sample Type	Liquid	Liquid	Liquid	Liquid	Liquid							
Batch Number	1	1	1	1	1							
Date of Receipt	29/10/2020	29/10/2020	29/10/2020	29/10/2020	29/10/2020							

Please see attached notes for all abbreviations and acronyms

											LOD/LOR	Units	Method No.
Dissolved Cadmium	<0.5	<0.5	<0.5	<0.5	<0.5						<0.5	ug/l	TM30/PM14
Total Dissolved Chromium	<1.5	<1.5	<1.5	<1.5	<1.5						<1.5	ug/l	TM30/PM14
Dissolved Copper	<7	<7	<7	<7	<7						<7	ug/l	TM30/PM14
Total Dissolved Iron	<20	31	29	<20	827						<20	ug/l	TM30/PM14
Dissolved Lead	<5	<5	<5	<5	<5						<5	ug/l	TM30/PM14
Dissolved Magnesium	-	-	-	28.0	16.7						<0.1	mg/l	TM30/PM14
Dissolved Manganese	6	<2	<2	173	1147						<2	ug/l	TM30/PM14
Dissolved Nickel	<2	<2	<2	6	31						<2	ug/l	TM30/PM14
Dissolved Potassium	-	-	-	0.9	1.2						<0.1	mg/l	TM30/PM14
Dissolved Sodium	-	-	-	9.9	11.7						<0.1	mg/l	TM30/PM14
Dissolved Zinc	<3	<3	<3	<3	12						<3	ug/l	TM30/PM14
Total Hardness Dissolved (as CaCO3)	86	88	86	198	131						<1	mg/l	TM30/PM14
Sulphate as SO4	17.1	9.4	9.5	9.7	45.5						<0.5	mg/l	TM38/PM0
Chloride	22.9	20.3	20.5	19.4	20.7						<0.3	mg/l	TM38/PM0
Ammoniacal Nitrogen as N	-	-	-	<0.03	<0.03						<0.03	mg/l	TM38/PM0
Ammoniacal Nitrogen as NH3	<0.03	<0.03	0.05	-	-						<0.03	mg/l	TM38/PM0
Hexavalent Chromium	<6	<6	<6	<6	<6						<6	ug/l	TM38/PM0
Total Dissolved Chromium III	<6	<6	<6	<6	<6						<6	ug/l	TM0/PM0
Total Organic Carbon	-	-	-	<2	<2						<2	mg/l	TM60/PM0

Please include all sections of this report if it is reproduced
All solid results are expressed on a dry weight basis unless stated otherwise.

Client Name: Horizon Consulting Engineers Ltd
Reference: HCE0312
Location:
Contact: Alex Large

EMT Job No.	Batch	Sample ID	Depth	EMT Sample No.	Analysis	Reason
No deviating sample report results for job 20/14926						

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

EMT Job No.: 20/14926

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. Limits of detection for analyses carried out on as received samples are not moisture content corrected. Results are not surrogate corrected. Samples are dried at 35°C ±5°C unless otherwise stated. Moisture content for CEN Leachate tests are dried at 105°C ±5°C.

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

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

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

Sufficient amount of sample must be received to carry out the testing specified. Where an insufficient amount of sample has been received the testing may not meet the requirements of our accredited methods, as such accreditation may be removed.

Negative Neutralization Potential (NP) values are obtained when the volume of NaOH (0.1N) titrated (pH 8.3) is greater than the volume of HCl (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.

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

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

DEVIATING SAMPLES

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.

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.

BLANKS

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 quality control checks performed during analysis to determine its suitability. Following this evaluation, provided the sample results have not been effected, the data is reported but accreditation is removed. It is a UKAS requirement for data not reported as accredited to be considered indicative only, but this does not mean the data is not valid.
Where possible, and if requested, samples will be re-extracted and a revised report issued with accredited results. Please do not hesitate to contact the laboratory if further details are required of the circumstances which have led to the removal of accreditation.

REPORTS FROM THE SOUTH AFRICA LABORATORY

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

Measurement Uncertainty

Measurement uncertainty defines the range of values that could reasonably be attributed to the measured quantity. This range of values has not been included within the reported results. Uncertainty expressed as a percentage can be provided upon request.

ABBREVIATIONS and ACRONYMS USED

#	ISO17025 (UKAS Ref No. 4225) accredited - UK.
SA	ISO17025 (SANAS Ref No.T0729) accredited - South Africa
B	Indicates analyte found in associated method blank.
DR	Dilution required.
M	MCERTS accredited.
NA	Not applicable
NAD	No Asbestos Detected.
ND	None Detected (usually refers to VOC and/SVOC TICs).
NDP	No Determination Possible
SS	Calibrated against a single substance
SV	Surrogate recovery outside performance criteria. This may be due to a matrix effect.
W	Results expressed on as received basis.
+	AQC failure, accreditation has been removed from this result, if appropriate, see 'Note' on previous page.
>>	Results above calibration range, the result should be considered the minimum value. The actual result could be significantly higher, this result is not accredited.
*	Analysis subcontracted to an Element Materials Technology 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
N	Client Sample
TB	Trip Blank Sample
OC	Outside Calibration Range

EMT Job No: 20/14926

Test Method No.	Description	Prep Method No. (if appropriate)	Description	ISO 17025 (UKAS/SANAS)	MCERTS (UK soils only)	Analysis done on As Received (AR) or Dried (AD)	Reported on dry weight basis
TM0	Not available	PM0	No preparation is required.				
TM30	Determination of Trace Metals by ICP-OES (Inductively Coupled Plasma – Optical Emission Spectrometry): WATERS by Modified USEPA Method 200.7, Rev. 4.4, 1994; Modified EPA Method 6010B, Rev.2, Dec 1996; Modified BS EN ISO 11885:2009: SOILS by Modified USEP	PM14	Preparation of waters and leachates for metals by ICP OES/ICP MS. Samples are filtered for Dissolved metals, and remain unfiltered for Total metals then acidified				
TM38	Soluble Ion analysis using Discrete Analyser. Modified US EPA methods: Chloride 325.2 (1978), Sulphate 375.4 (Rev.2 1993), o-Phosphate 365.2 (Rev.2 1993), TON 353.1 (Rev.2 1993), Nitrite 354.1 (1971), Hex Cr 7196A (1992), NH4+ 350.1 (Rev.2 1993 (comparabl	PM0	No preparation is required.				
TM60	TC/TOC analysis of Waters by High Temperature Combustion followed by NDIR detection. Based on the following modified standard methods: USEPA 9060A (2002), APHA SMEWW 5310B:1999 22nd Edition, ASTM D 7573, and USEPA 415.1.	PM0	No preparation is required.				

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Suite 2, The Dairy Barn
Westpoint Court
Sidmouth Road
Clyst St Mary
Exeter,
EX5 1DJ

Attention :	Jamie Howourth
Date :	29th December, 2020
Your reference :	HCE0312
Our reference :	Test Report 20/17626 Batch 1
Location :	
Date samples received :	12th December, 2020
Status :	Final report
Issue :	1

Five samples were received for analysis on 12th December, 2020 of which five were scheduled for analysis. Please find attached our Test Report which should be read with notes at the end of the report and should include all sections if reproduced. Interpretations and opinions are outside the scope of any accreditation, and all results relate only to samples supplied.
All analysis is carried out on as received samples and reported on a dry weight basis unless stated otherwise. Results are not surrogate corrected.

Authorised By:

Simon Gomery BSc
Project Manager

Please include all sections of this report if it is reproduced

Element Materials Technology

Client Name: Horizon Consulting Engineers Ltd
Reference: HCE0312
Location:
Contact: Jamie Howourth
EMT Job No: 20/17626

Report : Liquid

Liquids/products: V=40ml vial, G=glass bottle, P=plastic bottle
H=H_2SO_4, Z=ZnAc, N=NaOH, HN=$HN0_3$

EMT Sample No.	1-4	5-8	9-11,20	12-15	16-19						LOD/LOR	Units	Method No.
Sample ID	HBH01	HBH02	HWS02	HWS03-U	HWS04								
Depth													
COC No / misc													
Containers	H HN P BOD	H HN P BOD	H P BOD HN	H HN P BOD	H HN P BOD								
Sample Date	10/12/2020	10/12/2020	10/12/2020	10/12/2020	10/12/2020								
Sample Type	Liquid	Liquid	Liquid	Liquid	Liquid								
Batch Number	1	1	1	1	1								
Date of Receipt	12/12/2020	12/12/2020	12/12/2020	12/12/2020	12/12/2020								
Dissolved Cadmium	<0.5	<0.5	<0.5	<0.5	<0.5						<0.5	ug/l	TM30/PM14
Total Dissolved Chromium	<1.5	<1.5	<1.5	<1.5	<1.5						<1.5	ug/l	TM30/PM14
Dissolved Copper	<7	<7	<7	<7	<7						<7	ug/l	TM30/PM14
Total Dissolved Iron	771	5993	<20	39	251						<20	ug/l	TM30/PM14
Dissolved Lead	<5	<5	<5	<5	<5						<5	ug/l	TM30/PM14
Dissolved Magnesium	28.5	17.1	2.8	4.6	4.1						<0.1	mg/l	TM30/PM14
Dissolved Manganese	175	989	7	16	39						<2	ug/l	TM30/PM14
Dissolved Nickel	7	29	<2	<2	<2						<2	ug/l	TM30/PM14
Dissolved Potassium	0.9	1.3	0.8	3.3	2.6						<0.1	mg/l	TM30/PM14
Dissolved Sodium	9.7	11.5	9.4	9.5	9.1						<0.1	mg/l	TM30/PM14
Dissolved Zinc	4	21	4	11	10						<3	ug/l	TM30/PM14
Total Hardness Dissolved (as CaCO3)	195	133	78	84	81						<1	mg/l	TM30/PM14
Sulphate as SO4	10.1	46.1	16.8	8.3	11.0						<0.5	mg/l	TM38/PM0
Chloride	19.0	20.6	22.2	20.0	19.9						<0.3	mg/l	TM38/PM0
Ammoniacal Nitrogen as N	0.04	0.05	<0.03	0.07	0.09						<0.03	mg/l	TM38/PM0
Ammoniacal Nitrogen as NH3	0.05	0.06	<0.03	0.08	0.10						<0.03	mg/l	TM38/PM0
Hexavalent Chromium	<6	<6	<6	<6	<6						<6	ug/l	TM38/PM0
Total Dissolved Chromium III	<6	<6	<6	<6	<6						<6	ug/l	TM0/PM0
Total Organic Carbon	<2	<2	<2	2	<2						<2	mg/l	TM60/PM0

Please see attached notes for all abbreviations and acronyms

Please include all sections of this report if it is reproduced
All solid results are expressed on a dry weight basis unless stated otherwise.

Client Name: Horizon Consulting Engineers Ltd
Reference: HCE0312
Location:
Contact: Jamie Howourth

EMT Job No.	Batch	Sample ID	Depth	EMT Sample No.	Analysis	Reason
No deviating sample report results for job 20/17626						

Please note that only samples that are deviating are mentioned in this report. If no samples are listed it is because none were deviating.
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NOTES TO ACCOMPANY ALL SCHEDULES AND REPORTS

EMT Job No.: 20/17626

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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.

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

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

DEVIATING SAMPLES

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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.

BLANKS

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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.

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Measurement uncertainty defines the range of values that could reasonably be attributed to the measured quantity. This range of values has not been included within the reported results. Uncertainty expressed as a percentage can be provided upon request.

ABBREVIATIONS and ACRONYMS USED

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SA	ISO17025 (SANAS Ref No.T0729) accredited - South Africa
B	Indicates analyte found in associated method blank.
DR	Dilution required.
M	MCERTS accredited.
NA	Not applicable
NAD	No Asbestos Detected.
ND	None Detected (usually refers to VOC and/SVOC TICs).
NDP	No Determination Possible
SS	Calibrated against a single substance
SV	Surrogate recovery outside performance criteria. This may be due to a matrix effect.
W	Results expressed on as received basis.
+	AQC failure, accreditation has been removed from this result, if appropriate, see 'Note' on previous page.
>>	Results above calibration range, the result should be considered the minimum value. The actual result could be significantly higher, this result is not accredited.
*	Analysis subcontracted to an Element Materials Technology 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
N	Client Sample
TB	Trip Blank Sample
OC	Outside Calibration Range

EMT Job No: 20/17626

Test Method No.	Description	Prep Method No. (if appropriate)	Description	ISO 17025 (UKAS/SANAS)	MCERTS (UK soils only)	Analysis done on As Received (AR) or Dried (AD)	Reported on dry weight basis
TM0	Not available	PM0	No preparation is required.				
TM30	Determination of Trace Metals by ICP-OES (Inductively Coupled Plasma – Optical Emission Spectrometry): WATERS by Modified USEPA Method 200.7, Rev. 4.4, 1994; Modified EPA Method 6010B, Rev.2, Dec 1996; Modified BS EN ISO 11885:2009: SOILS by Modified USEP	PM14	Preparation of waters and leachates for metals by ICP OES/ICP MS. Samples are filtered for Dissolved metals, and remain unfiltered for Total metals then acidified				
TM38	Soluble Ion analysis using Discrete Analyser. Modified US EPA methods: Chloride 325.2 (1978), Sulphate 375.4 (Rev.2 1993), o-Phosphate 365.2 (Rev.2 1993), TON 353.1 (Rev.2 1993), Nitrite 354.1 (1971), Hex Cr 7196A (1992), NH4+ 350.1 (Rev.2 1993 (comparabl	PM0	No preparation is required.				
TM60	TC/TOC analysis of Waters by High Temperature Combustion followed by NDIR detection. Based on the following modified standard methods: USEPA 9060A (2002), APHA SMEWW 5310B:1999 22nd Edition, ASTM D 7573, and USEPA 415.1.	PM0	No preparation is required.				

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Westpoint Court
Sidmouth Road
Clyst St Mary
Exeter,
EX5 1DJ

Attention :	Jamie Howourth
Date :	3rd February, 2021
Your reference :	HCE0312
Our reference :	Test Report 21/863 Batch 1
Location :	
Date samples received :	23rd January, 2021
Status :	Final report
Issue :	1

Five samples were received for analysis on 23rd January, 2021 of which five were scheduled for analysis. Please find attached our Test Report which should be read with notes at the end of the report and should include all sections if reproduced. Interpretations and opinions are outside the scope of any accreditation, and all results relate only to samples supplied.
All analysis is carried out on as received samples and reported on a dry weight basis unless stated otherwise. Results are not surrogate corrected.

Authorised By:

Paul Boden BSc
Senior Project Manager

Please include all sections of this report if it is reproduced

Element Materials Technology Environmental UK Limited
Registered in England and Wales
Registered Office: 10 Lower Grosvenor Place, London, SW1W 0EN
Company Registration No: 11371415

Element Materials Technology

Client Name: Horizon Consulting Engineers Ltd
Reference: HCE0312
Location:
Contact: Jamie Howourth
EMT Job No: 21/863

Report : Liquid

Liquids/products: V=40ml vial, G=glass bottle, P=plastic bottle
H=H_2SO_4, Z=ZnAc, N=NaOH, HN=$HN0_3$

EMT Sample No.	1-4	5-8	9-12	13-16	17-20						LOD/LOR	Units	Method No.
Sample ID	HBH01	HBH02	HWS02	HWS03-U	HWS04								
Depth													
COC No / misc													
Containers	H HN P BOD	H HN P BOD	H HN P BOD	H HN P BOD	H HN P BOD								
Sample Date	21/01/2021	21/01/2021	21/01/2021	21/01/2021	21/01/2021								
Sample Type	Liquid	Liquid	Liquid	Liquid	Liquid								
Batch Number	1	1	1	1	1								
Date of Receipt	23/01/2021	23/01/2021	23/01/2021	23/01/2021	23/01/2021								
Dissolved Cadmium	<0.5	<0.5	<0.5	<0.5	<0.5						<0.5	ug/l	TM30/PM14
Total Dissolved Chromium	<1.5	<1.5	<1.5	<1.5	<1.5						<1.5	ug/l	TM30/PM14
Dissolved Copper	<7	<7	<7	<7	<7						<7	ug/l	TM30/PM14
Total Dissolved Iron	979	7122	66	384	267						<20	ug/l	TM30/PM14
Dissolved Lead	<5	<5	<5	<5	<5						<5	ug/l	TM30/PM14
Dissolved Magnesium	28.9	16.5	2.3	3.7	3.6						<0.1	mg/l	TM30/PM14
Dissolved Manganese	176	1101	9	48	39						<2	ug/l	TM30/PM14
Dissolved Nickel	10	34	3	<2	<2						<2	ug/l	TM30/PM14
Dissolved Potassium	0.9	1.3	1.0	2.9	2.8						<0.1	mg/l	TM30/PM14
Dissolved Sodium	9.7	11.1	8.0	9.9	9.6						<0.1	mg/l	TM30/PM14
Dissolved Zinc	3	23	3	14	11						<3	ug/l	TM30/PM14
Total Hardness Dissolved (as CaCO3)	196	126	61	71	67						<1	mg/l	TM30/PM14
Sulphate as SO4	10.7	45.0	14.7	7.6	7.5						<0.5	mg/l	TM38/PM0
Chloride	18.5	19.5	16.2	17.9	17.8						<0.3	mg/l	TM38/PM0
Ammoniacal Nitrogen as N	<0.03	0.05	<0.03	0.09	0.07						<0.03	mg/l	TM38/PM0
Ammoniacal Nitrogen as NH3	<0.03	0.06	<0.03	0.11	0.08						<0.03	mg/l	TM38/PM0
Hexavalent Chromium	<6	<6	<6	<6	<6						<6	ug/l	TM38/PM0
Total Dissolved Chromium III	<6	<6	<6	<6	<6						<6	ug/l	TM0/PM0
Total Organic Carbon	<2	<2	2	3	2						<2	mg/l	TM60/PM0

Please see attached notes for all abbreviations and acronyms

Please include all sections of this report if it is reproduced
All solid results are expressed on a dry weight basis unless stated otherwise.

Client Name: Horizon Consulting Engineers Ltd
Reference: HCE0312
Location:
Contact: Jamie Howourth

EMT Job No.	Batch	Sample ID	Depth	EMT Sample No.	Analysis	Reason
No deviating sample report results for job 21/863						

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

EMT Job No.: 21/863

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. Limits of detection for analyses carried out on as received samples are not moisture content corrected. Results are not surrogate corrected. Samples are dried at 35°C ±5°C unless otherwise stated. Moisture content for CEN Leachate tests are dried at 105°C ±5°C.

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

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

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

Sufficient amount of sample must be received to carry out the testing specified. Where an insufficient amount of sample has been received the testing may not meet the requirements of our accredited methods, as such accreditation may be removed.

Negative Neutralization Potential (NP) values are obtained when the volume of NaOH (0.1N) titrated (pH 8.3) is greater than the volume of HCl (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.

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

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

DEVIATING SAMPLES

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.

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.

BLANKS

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 quality control checks performed during analysis to determine its suitability. Following this evaluation, provided the sample results have not been effected, the data is reported but accreditation is removed. It is a UKAS requirement for data not reported as accredited to be considered indicative only, but this does not mean the data is not valid.
Where possible, and if requested, samples will be re-extracted and a revised report issued with accredited results. Please do not hesitate to contact the laboratory if further details are required of the circumstances which have led to the removal of accreditation.

REPORTS FROM THE SOUTH AFRICA LABORATORY

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

Measurement Uncertainty

Measurement uncertainty defines the range of values that could reasonably be attributed to the measured quantity. This range of values has not been included within the reported results. Uncertainty expressed as a percentage can be provided upon request.

ABBREVIATIONS and ACRONYMS USED

#	ISO17025 (UKAS Ref No. 4225) accredited - UK.
SA	ISO17025 (SANAS Ref No.T0729) accredited - South Africa
B	Indicates analyte found in associated method blank.
DR	Dilution required.
M	MCERTS accredited.
NA	Not applicable
NAD	No Asbestos Detected.
ND	None Detected (usually refers to VOC and/SVOC TICs).
NDP	No Determination Possible
SS	Calibrated against a single substance
SV	Surrogate recovery outside performance criteria. This may be due to a matrix effect.
W	Results expressed on as received basis.
+	AQC failure, accreditation has been removed from this result, if appropriate, see 'Note' on previous page.
>>	Results above calibration range, the result should be considered the minimum value. The actual result could be significantly higher, this result is not accredited.
*	Analysis subcontracted to an Element Materials Technology 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
N	Client Sample
TB	Trip Blank Sample
OC	Outside Calibration Range

EMT Job No: 21/863

Test Method No.	Description	Prep Method No. (if appropriate)	Description	ISO 17025 (UKAS/SANAS)	MCERTS (UK soils only)	Analysis done on As Received (AR) or Dried (AD)	Reported on dry weight basis
TM0	Not available	PM0	No preparation is required.				
TM30	Determination of Trace Metals by ICP-OES (Inductively Coupled Plasma – Optical Emission Spectrometry): WATERS by Modified USEPA Method 200.7, Rev. 4.4, 1994; Modified EPA Method 6010B, Rev.2, Dec 1996; Modified BS EN ISO 11885:2009: SOILS by Modified USEP	PM14	Preparation of waters and leachates for metals by ICP OES/ICP MS. Samples are filtered for Dissolved metals, and remain unfiltered for Total metals then acidified				
TM38	Soluble Ion analysis using Discrete Analyser. Modified US EPA methods: Chloride 325.2 (1978), Sulphate 375.4 (Rev.2 1993), o-Phosphate 365.2 (Rev.2 1993), TON 353.1 (Rev.2 1993), Nitrite 354.1 (1971), Hex Cr 7196A (1992), NH4+ 350.1 (Rev.2 1993 (comparabl	PM0	No preparation is required.				
TM60	TC/TOC analysis of Waters by High Temperature Combustion followed by NDIR detection. Based on the following modified standard methods: USEPA 9060A (2002), APHA SMEWW 5310B:1999 22nd Edition, ASTM D 7573, and USEPA 415.1.	PM0	No preparation is required.				

Appendix C Horizon Tables

Groundwater Monitoring Summary

Permit Number:	**EPR/GB3139RQ/A001**
Facility:	**TREVOZAH BARTON INERT LANDFILL**
Operator:	**Associated Landfill Limited**

Location	Units	LRL / Instrument Limit	Baseline Mean	Standard Deviation	Assessment Level (Baseline Mean Plus 2Standard Deviations)	Drinking Water Standard	Drinking Water Standard	Trigger Level	HBH01						
Sampling Period									Baseline				Operational		
Laboratory Certificate									20/14926	20/17626	21/863	-	-	-	-
Date									27-Oct-20	10-Dec-20	21-Jan-21				
Laboratory Analysis															
Dissolved Cadmium	ug/l	<0.5				0.53	WFD (Max. TV, GW impacts on SW)		<0.5	<0.5	<0.5				
Total Dissolved Chromium	ug/l	<1.5				7.21	WFD (Max. TV, GW impacts on SW)		<1.5	<1.5	<1.5				
Dissolved Copper	ug/l	<7				2.1	WFD (Max. TV, GW impacts on SW)		<7	<7	<7				
Total Dissolved Iron	ug/l	<20				1000	WFD (LTM)		<20	**771**	**979**				
Dissolved Lead	ug/l	<5				2.54	WFD (Max. TV, GW impacts on SW)		<5	<5	<5				
Dissolved Magnesium	mg/l	<0.1				-	-		28	28.5	28.9				
Dissolved Manganese	ug/l	<2					WFD (Bioavailable)		**173**	**175**	**176**				
Dissolved Nickel	ug/l	<2				8.68	WFD (Max. TV, GW impacts on SW)		6	7	10				
Dissolved Potassium	mg/l	<0.1				-	-		0.9	0.9	0.9				
Dissolved Sodium	mg/l	<0.1				-	-		9.9	9.7	9.7				
Dissolved Zinc	ug/l	<3				11	WFD (Bioavailable)		<3	4	3				
Total Hardness (as CaCO3)	ug/l	<1				-	-		198	195	196				
Sulphate as SO4	mg/l	<0.5				-	-		9.7	10.1	10.7				
Chloride	mg/l	<0.3				-	-		19.4	19	18.5				
Ammoniacal Nitrogen as N	mg/l	<0.03				1.27	WFD (Max. TV, GW impacts on SW, Ammonia as N)		<0.03	0.04	<0.03				
Hexavalent Chromium	ug/l	<6				-	-		<6	<6	<6				
Total Dissolved Chromium III	ug/l	<6				-	-		<6	<6	<6				
Total Organic Carbon	mg/l	<2				-	-		<2	<2	<2				

Location	Units	LRL / Instrument Limit	Baseline Mean	Standard Deviation	Assessment Level (Baseline Mean Plus 2Standard Deviations)	Drinking Water Standard		Trigger Level	HBH02						
Sampling Period									Baseline				Operational		
Laboratory Certificate									20/14926	21/863	21/863				
Date									27-Oct-20	21-Jan-21	21-Jan-21				
Laboratory Analysis															
Dissolved Cadmium	ug/l	<0.5				0.53	WFD (Max. TV, GW impacts on SW)		<0.5	<0.5	<0.5				
Total Dissolved Chromium	ug/l	<1.5				7.21	WFD (Max. TV, GW impacts on SW)		<1.5	<1.5	<1.5				
Dissolved Copper	ug/l	<7				2.1	WFD (Max. TV, GW impacts on SW)		<7	<7	<7				
Total Dissolved Iron	ug/l	<20				1000	WFD (LTM)		**827**	**5993**	**7122**				
Dissolved Lead	ug/l	<5				2.54	WFD (Max. TV, GW impacts on SW)		<5	<5	<5				
Dissolved Magnesium	mg/l	<0.1				-	-		16.7	17.1	16.5				
Dissolved Manganese	ug/l	<2					WFD (Bioavailable)		**1147**	**989**	**1101**				
Dissolved Nickel	ug/l	<2				8.68	WFD (Max. TV, GW impacts on SW)		31	29	34				
Dissolved Potassium	mg/l	<0.1				-	-		1.2	1.3	1.3				
Dissolved Sodium	mg/l	<0.1				-	-		11.7	11.5	11.1				
Dissolved Zinc	ug/l	<3				11	WFD (Bioavailable)		12	21	23				
Total Hardness (as CaCO3)	ug/l	<1				-	-		131	133	126				
Sulphate as SO4	mg/l	<0.5				-	-		45.5	46.1	45				
Chloride	mg/l	<0.3				-	-		20.7	20.6	19.5				
Ammoniacal Nitrogen as N	mg/l	<0.03				1.27	WFD (Max. TV, GW impacts on SW, Ammonia as N)		<0.03	0.05	0.06				
Hexavalent Chromium	ug/l	<6				-	-		<6	<6	<6				
Total Dissolved Chromium III	ug/l	<6				-	-		<6	<6	<6				
Total Organic Carbon	mg/l	<2				-	-		<2	<2	<2				

Notes:
LRL - Laboratory Reporting Limit
WFD - Water Framework Directive
AA - Annual Average
Refer to relevant laboratory certificate for full details of test methods adopted by laboratory.
Statistics, where calculated, assume concentrations reported below LRL are at LRL.
NC - Not Calculated
Compliance Limit set at EQS plus 35% or Assessment Level plus 3 Standard Deviations, whichever is greater
Denotes exceedance of Assessment Level
Denotes exceedance of Compliance Limit
No compliance limit proposed (upgradient water sample)

Surface Water Monitoring Summary

Permit Number:	**EPR/GB3139RQ/A001**
Facility:	**TREVOZAH BARTON INERT LANDFILL**
Operator:	**Associated Landfill Limited**

Location									**HSW02**						
Sampling Period	**Units**	**LRL / Instrument Limit**	**Baseline Mean**	**Standard Deviation**	**Assessment Level (Baseline Mean Plus 2Standard Deviations)**	**EQS**	**EQS Source**	**Compliance Limit**	**Baseline**				**Operational**		
Laboratory Certificate									**20/14926**	**20/17626**	**21/863**	**-**	**-**	**-**	**-**
Date									**27-Oct-20**	**10-Dec-20**	**21-Jan-21**				
Laboratory Analysis															
Dissolved Cadmium	ug/l	<0.5				90	WFD (AA Hardness Dependent)		<0.5	<0.5	<0.5				
Total Dissolved Chromium	ug/l	<1.5				4.7	WFD (Chromium III, LTM)		<1.5	<1.5	<1.5				
Dissolved Copper	ug/l	<7				1.0	WFD (Bioavailable)		<7	<7	<7				
Total Dissolved Iron	ug/l	<20				1000	WFD (LTM)		<20	<20	66				
Dissolved Lead	ug/l	<5				1.2	WFD (Bioavailable)		<5	<5	<5				
Dissolved Magnesium	mg/l	<0.1				-	-		-	2.8	2.3				
Dissolved Manganese	ug/l	<2					WFD (Bioavailable)		6	7	9				
Dissolved Nickel	ug/l	<2				4	WFD (AA Bioavailable)		<2	<2	3				
Dissolved Potassium	mg/l	<0.1				-	-		-	0.8	1				
Dissolved Sodium	mg/l	<0.1				-	-		-	9.4	8				
Dissolved Zinc	ug/l	<3				11	WFD (Bioavailable)		<3	4	3				
Total Hardness (as CaCO3)	mg/l	<1				-	-		86	78	61				
Sulphate as SO4	mg/l	<0.5				-	-		17.1	16.8	14.7				
Chloride	mg/l	<0.3				-	-		22.9	22.2	16.2				
Ammoniacal Nitrogen as N	mg/l	<0.03				0.6	WFD (Type 3, <80m Altitude, Good River)		-	<0.03	<0.03				
Hexavalent Chromium	ug/l	<6				3.4	WFD (Long-Term Mean)		<6	<6	<6				
Total Dissolved Chromium III	ug/l	<6				4.7	WFD (Chromium III, LTM)		<6	<6	<6				
Total Organic Carbon	mg/l	<2				-	-		-	<2	<2				

Location									**HSW03**						
Sampling Period	**Units**	**LRL / Instrument Limit**	**Baseline Mean**	**Standard Deviation**	**Assessment Level (Baseline Mean Plus 2Standard Deviations)**	**EQS**	**EQS Source**	**Compliance Limit**	**Baseline**				**Operational**		
Laboratory Certificate									**20/14926**	**20/17626**	**21/863**				
Date									**27-Oct-20**	**10-Dec-20**	**21-Jan-21**				
Laboratory Analysis															
Dissolved Cadmium	ug/l	<0.5				90	WFD (AA Hardness Dependent)		<0.5	<0.5	<0.5				
Total Dissolved Chromium	ug/l	<1.5				4.7	WFD (Chromium III, LTM)		<1.5	<1.5	<1.5				
Dissolved Copper	ug/l	<7				1.0	WFD (Bioavailable)		<7	<7	<7				
Total Dissolved Iron	ug/l	<20				1000	WFD (LTM)		31	39	384				
Dissolved Lead	ug/l	<5				1.2	WFD (Bioavailable)		<5	<5	<5				
Dissolved Magnesium	mg/l	<0.1							-	4.6	3.7				
Dissolved Manganese	ug/l	<2					WFD (Bioavailable)		<2	16	48				
Dissolved Nickel	ug/l	<2				4	WFD (AA Bioavailable)		<2	<2	<2				
Dissolved Potassium	mg/l	<0.1							-	3.3	2.9				
Dissolved Sodium	mg/l	<0.1							-	9.5	9.9				
Dissolved Zinc	ug/l	<3				11	WFD (Bioavailable)		<3	11	14				
Total Hardness (as CaCO3)	mg/l	<1							88	84	71				
Sulphate as SO4	mg/l	<0.5							9.4	8.3	7.6				
Chloride	mg/l	<0.3							20.3	20	17.9				
Ammoniacal Nitrogen as N	mg/l	<0.03				0.6	WFD (Type 3, <80m Altitude, Good River)		-	0.07	0.09				
Hexavalent Chromium	ug/l	<6				3.4	WFD (Long-Term Mean)		<6	<6	<6				
Total Dissolved Chromium III	ug/l	<6				4.7	WFD (Chromium III, LTM)		<6	<6	<6				
Total Organic Carbon	mg/l	<2							-	<2	<2				

Location									**HSW04**						
Sampling Period	**Units**	**LRL / Instrument Limit**	**Baseline Mean**	**Standard Deviation**	**Assessment Level (Baseline Mean Plus 2Standard Deviations)**	**EQS**	**EQS Source**	**Compliance Limit**	**Baseline**				**Operational**		
Laboratory Certificate									**20/14926**	**20/17626**	**21/863**				
Date									**27-Oct-20**	**10-Dec-20**	**21-Jan-21**				
Laboratory Analysis															
Dissolved Cadmium	ug/l	<0.5				90	WFD (AA Hardness Dependent)		<0.5	<0.5	<0.5				
Total Dissolved Chromium	ug/l	<1.5				4.7	WFD (Chromium III, LTM)		<1.5	<1.5	<1.5				
Dissolved Copper	ug/l	<7				1.0	WFD (Bioavailable)		<7	<7	<7				
Total Dissolved Iron	ug/l	<20				1000	WFD (LTM)		29	251	267				
Dissolved Lead	ug/l	<5				1.2	WFD (Bioavailable)		<5	<5	<5				
Dissolved Magnesium	mg/l	<0.1							-	4.1	3.6				
Dissolved Manganese	ug/l	<2					WFD (Bioavailable)		<2	39	39				
Dissolved Nickel	ug/l	<2				4	WFD (AA Bioavailable)		<2	<2	<2				
Dissolved Potassium	mg/l	<0.1							-	2.6	2.8				
Dissolved Sodium	mg/l	<0.1							-	9.1	9.6				
Dissolved Zinc	ug/l	<3				11	WFD (Bioavailable)		<3	10	11				
Total Hardness (as CaCO3)	ug/l	<1							86	81	67				
Sulphate as SO4	mg/l	<0.5							9.5	11	7.5				
Chloride	mg/l	<0.3							20.5	19.9	17.8				
Ammoniacal Nitrogen as N	mg/l	<0.03				0.6	WFD (Type 3, <80m Altitude, Good River)		-	0.05	0.07				
Hexavalent Chromium	ug/l	<6				3.4	WFD (Long-Term Mean)		<6	<6	<6				
Total Dissolved Chromium III	ug/l	<6				4.7	WFD (Chromium III, LTM)		<6	<6	<6				
Total Organic Carbon	mg/l	<2							-	<2	<2				

Notes:
LRL - Laboratory Reporting Limit
WFD - Water Framework Directive
AA - Annual Average
LTM - Long-Term Mean
Refer to relevant laboratory certificate for full details of test methods adopted by laboratory.
Statistics, where calculated, assume concentrations reported below LRL are at LRL.
NC - Not Calculated
Compliance Limit set at EQS plus 35% or Assessment Level plus 3 Standard Deviations, whichever is greater
Denotes exceedance of Assessment Level
Denotes exceedance of Compliance Limit
No compliance limit proposed (upstream water sample)