

22nd February 2022

Our ref: GE20252/FG02/220222



Heather Davies
Bargate Homes
The New Barn
Vicarage Farm Business Park
Winchester Road
Fair Oak
Hants
SO50 7HD

By email only

Dear Heather,

RE: Manor Farm, Bedhampton – Validation of PAH impacted Hotspot

Geo-Environmental Services Limited (Geo-Environmental) was instructed by Bargate Homes to undertake the validation of soil remediation works at the development site at Manor Farm, Lower Road, Bedhampton, Hampshire, PO9 3LJ, herein referred to as 'the site'.

Intrusive site investigation works undertaken by Geo-Environmental, identified an isolated 'hotspot' of PAH contamination located in the Made Ground within an existing farm track in the vicinity of WS4 (Figure 3). It was recommended that excavation works were undertaken within the farm track in the vicinity of WS4 to remove the identified impacted Made Ground.

It was proposed to oversee and inspect the removal of the identified PAH impacted Made Ground soils in the vicinity of WS4 in order to undertake confirmatory validation samples of formation soils within this area of the site as set out in the Remediation Strategy and Verification Plan (RSVP) for the site (GE20252/RSVP/AUG21).

1.0 Proposed Development

It is understood that the site is proposed to be redeveloped with 50 new dwellings together with access, landscaping and open space.

2.0 Background

The site has been the subject to a combined Phase I Desktop Study and Phase II intrusive investigation works undertaken and reported within the Ground Appraisal Report by Geo-Environmental (GE16507-GAR-NOV17, November 2017). Following the completion of these investigations a Remediation Strategy was developed for the site, GE20252/RSVP/AUG21, dated August 2021.

A summary of the key findings from these reports is presented below. For full details reference should be made to the complete reports:

- Historic mapping from 1868 showed the site to have comprised an open field, part of a larger field which extended to the east and west. The site was not noted to have changed significantly over the period for which mapping was reviewed.
- A farm type track was shown to cross the site from north to south and a railway line in a cutting was shown

Geo-Environmental Services Ltd
Unit 7 Danworth Farm, Cuckfield Road, Hurstpierpoint, West Sussex BN6 9GL
+44(0)1273 832972 www.gesl.net

Environmental Consultants | Geotechnical Engineers | Site Investigations

Geo-Environmental Services Ltd incorporated in England number 3214980 VAT number 679544479



- on the site's southern boundary.
- The surrounding land usage was primarily agricultural land usage. Other land uses distant from the site included chalk pits, a mill, sewage works and a retail park. Two tanks which were noted to the west and northwest, were believed to be associated with agricultural uses.
 - The ground conditions encountered during the intrusive investigation works comprised a mantle of Topsoil overlying soils inferred to be clay and sand of the superficial River Terrace Deposits, overlying a bedrock of Chalk. Made Ground was found in one location only, associated with the extant farm track (WS4).
 - Made Ground was encountered within one exploratory hole (WS4). The Made Ground was encountered to a depth of 0.9m bgl in WS4 and comprised grey and white silty sand and brown clay with gravel of flint and brick.
 - The exploratory holes were located to provide general coverage of the site area, the results of the sample analysis were compared to the Tier 1 screening criteria, where available. The Tier 1 contamination assessment identified one location (WS4) where reported concentrations of several PAH compounds were elevated or exceeded the Tier 1 screening criteria within the shallow soils (Made Ground) within the farm track.
 - In addition, the samples submitted for laboratory testing were also screened for asbestos. No asbestos was identified within any of the samples submitted for testing.
 - The position of the extant farm track (WS4) falls within an area of proposed public open space adjacent to a residential setting.
 - It was considered that remedial action would be warranted to protect end users of a residential development on this site in relation to the presence of Benzo(b)fluoranthene, Benzo(a)pyrene and Dibenzo(a,h)anthracene identified within the near surface Made Ground soils within the extant farm track in the vicinity of WS4.
 - Remedial works were proposed in relation to impacted soils identified on site within the farm track in the vicinity of WS4. It was proposed that these works would take place in the following phases:
 - 1) Excavation of the Made Ground at and around the position of WS4. The full depth of Made Ground was not proposed to be removed, but the depth zone in which the contaminant exceedance was recorded would be excavated, and the reduced dig progressed to sufficient depth to facilitate placement of Topsoil of c. 0.3-0.4m thickness to be placed in due course. The excavated impacted soils were proposed to be removed from site for appropriate disposal.
 - 2) Following excavation of the Made Ground soils (under observation by Geo-Environmental), the base and sides of the excavation would be sampled and laboratory testing undertaken to ascertain the concentrations of PAH compounds in the soils exposed in the base and sides of the excavation. It is possible that some further excavation may be required following this sampling exercise and the same verification sampling and testing process would be repeated.
 - 3) Following excavation and testing of the reduced dig area, it is understood that Topsoil would be placed to a minimum thickness of 0.3-0.4m to form the open space ground surface level. Whilst site won Topsoil might be placed to a greater thickness, the upper 0.3-0.4m would be considered as Topsoil.

The aim of the remediation was not necessarily to remove all contamination from the site but to reduce the identified risk to an acceptable level with respect to relevant receptors, e.g. human health, the built environment and controlled waters in relation to the proposed development levels.



3.0 Site Description

The site comprised an open agricultural field with a farm track running north south towards the railway line within the eastern portion of the site. At the time of the validation works, some enabling works had been undertaken on the site however these were not ongoing at the time of the remedial works.

4.0 Planning Permission

It is understood that a planning application has been submitted for the site to Havant Borough Council under Planning Reference APP/19/00427 and was subsequently granted via planning appeal, ref APP/X1735/W/20/3259067, on 13th July 2021. It is understood that the following pre-commencement planning conditions have been attached to the application which relate to the remediation and validation of land contamination on the site.

16) The development hereby permitted shall be carried out in accordance with the recommended Remedial Works and Contamination Discovery Strategy outlined in sections 11.2 & 13.0 of the Geo-Environmental Services Ltd. Ground Appraisal Report (Ref GE16507-GAR-NOV17 v1.0, dated 08/11/2017). Prior to the occupation of any part of the permitted development subject to remediation, a verification report by a suitably qualified contaminated land practitioner shall be submitted to and approved in writing by the local planning authority. The verification report must;

a) demonstrate the adequate segregation of made soils deemed inappropriate for use in private garden areas, and either the appropriate 'off-site disposal' or 'within-development placement' of this material to ensure that no unacceptable exposures arise, and;

b) document any assessments &/or remedial actions required to be taken in accordance with the Contamination Discovery Strategy, or if no actions were required; provide a positive declaration that no relevant discoveries of previously undocumented 'suspected contaminated' soils were made.

5.0 Validation of Removal of PAH Impacted Made Ground in Vicinity of WS4

Geo-Environmental visited site on 2nd November 2021 to oversee, observe and validate the excavation of PAH impacted Made Ground soils located in the vicinity of WS4 (Figure 3).

The area where impacted materials had been excavated is shown in Figures 4 with photographs of this area presented in Appendix A.

The excavation was progressed under the instruction and supervision of an engineer from Geo-Environmental. The final excavation extended the full width of the farm track, 3.70m, and was extended to 9.60m in length to ensure that the impacted Made Ground materials were removed. The final depth of the excavation varied slightly across the excavation, but the full extent of the Made Ground was excavated such that natural soils were present within the base. The final depth of the excavation was between 0.3m and 1.1m bgl. Figure 4 provides a schematic plan of the excavated area.

Samples were collected following completion of the excavation works from the sides and base of the excavation. A total of 4No. samples were taken from across the base of the excavation with a total of 4No. samples taken from the sides of the excavation. These samples were submitted for laboratory testing for PAH analysis. The locations of all the validation samples are presented within Figure 5.

In addition, the materials excavated from the impacted area were stockpiled adjacent to the excavation for offsite disposal. Four samples were taken from the stockpiled material in order to aid with the waste classification of this



material for offsite disposal. In addition, the laboratory test results for this stockpiled material were also run through the CATWASTE screening tool.

The laboratory test results for the validation samples from the base and sides of the excavation show no exceedances of the relevant screening criteria (public open space adjacent to residential use) for any PAH compounds. The laboratory test results for the soil validation samples are presented in Appendix B. As such, it is deemed that the excavation works has removed the PAH impacted Made Ground soils from the affected area of the farm track and it is therefore not deemed necessary to extend the excavation further.

The waste categorisation and WAC testing indicates that the stockpiled materials tested would likely be considered as non-hazardous and possibly inert for waste disposal purposes, subject to confirm of organic matter content acceptability at the receiving site. The laboratory test results for the stockpile testing are presented in Appendix B with the CATWASTE screening results presented in Appendix C.

This letter report relates specifically to the overseeing and validation of the PAH impacted area in the farm track within the vicinity of WS4.

6.0 Disposal of Impacted Soils

Geo-Environmental were sent a copy of the waste transfer note by the client, along with photographs showing the stockpiled excavated materials being placed within the muck away lorry ready for removal from site. A copy of this electronic waste transfer note is presented within Appendix D and the photographs are presented in Appendix E.

7.0 Inspection to Confirm Placement of Topsoil

An engineer from Geo-Environmental attended the site on Friday 11th February 2022 to inspect and confirm the installation of site-won Topsoil material within the PAH impacted excavation area.

At the time of inspection the excavation area had been backfilled with site-won Topsoil. The Topsoil material encountered was described as; dark brown slightly silty slightly sandy CLAY with occasional roots and rootlets and rare flint gravel. Two hand pits were excavated within the excavation area in the presence of the Geo-Environmental engineer, the location of these pits is presented on Figure 6. Photographs taken during this inspection visits are presented in Appendix F. It should be noted that at the point of inspection the turf and the final 100mm of the soil likely associated with the turf placement had not been laid within this area of soft landscaping at the time of the inspection.

The inspection confirmed that within the inspection pits Topsoil was found to be in excess of 400mm in thickness within all inspected areas. It should be noted that the Topsoil utilised within this area comprised site-won Topsoil which has previously been deemed suitable for re-use, as reported in the RSVP for the site (GE20252-RSVP-AUG21).

8.0 Closure

Please be aware that the independent inspection of the PAH impacted Made Ground excavation works undertaken to date and presented within this report relates to the works undertaken up to the point of inspection. Geo-Environmental can only verify the areas, location and depths inspected at the time of inspections. Geo-Environmental accepts no liability for areas that have not been directly inspected or works that have subsequently been undertaken on the site following our inspection visit(s) that may in any way alter or affect the validation



works inspected and reported herein. It is however noted that no conditions were identified during the inspection that clearly indicated that conditions may vary significantly across the areas inspected, unless detailed.

This report remains the property of Geo-Environmental and the Client has no rights to, or reliance upon this document or supporting documents until such time as payment has been received in full for all invoices for works undertaken in connection with this report.

We trust we have interpreted your request correctly and provided sufficient information for your current requirements.

Should you have any queries please do not hesitate to contact us.

Yours sincerely
For and on Behalf of Geo-Environmental



FIONA GOODE BSc (Hons), MSc, FGS, MIEEnvSc, RSoBRA
Senior Consultant Engineer
fiona.goode@gesl.net

Enc Figure 1 - Site Location Plan
 Figure 2 – Proposed Development Plan
 Figure 3 – Exploratory Hole Location Plan
 Figure 4 – Location of Excavation Area
 Figure 5 – Validation Sample Locations
 Figure 6 – Topsoil Inspection Hand Pit Locations
 Appendix A – Site Photographs
 Appendix B – Geo-chemical Laboratory Test Results
 Appendix C – CATWASTE Screening Results
 Appendix D – Waste Transfer Note
 Appendix E – Site Photographs – Waste Disposal (provided by the client)
 Appendix F – Site Photographs – Topsoil Inspection



FIGURES

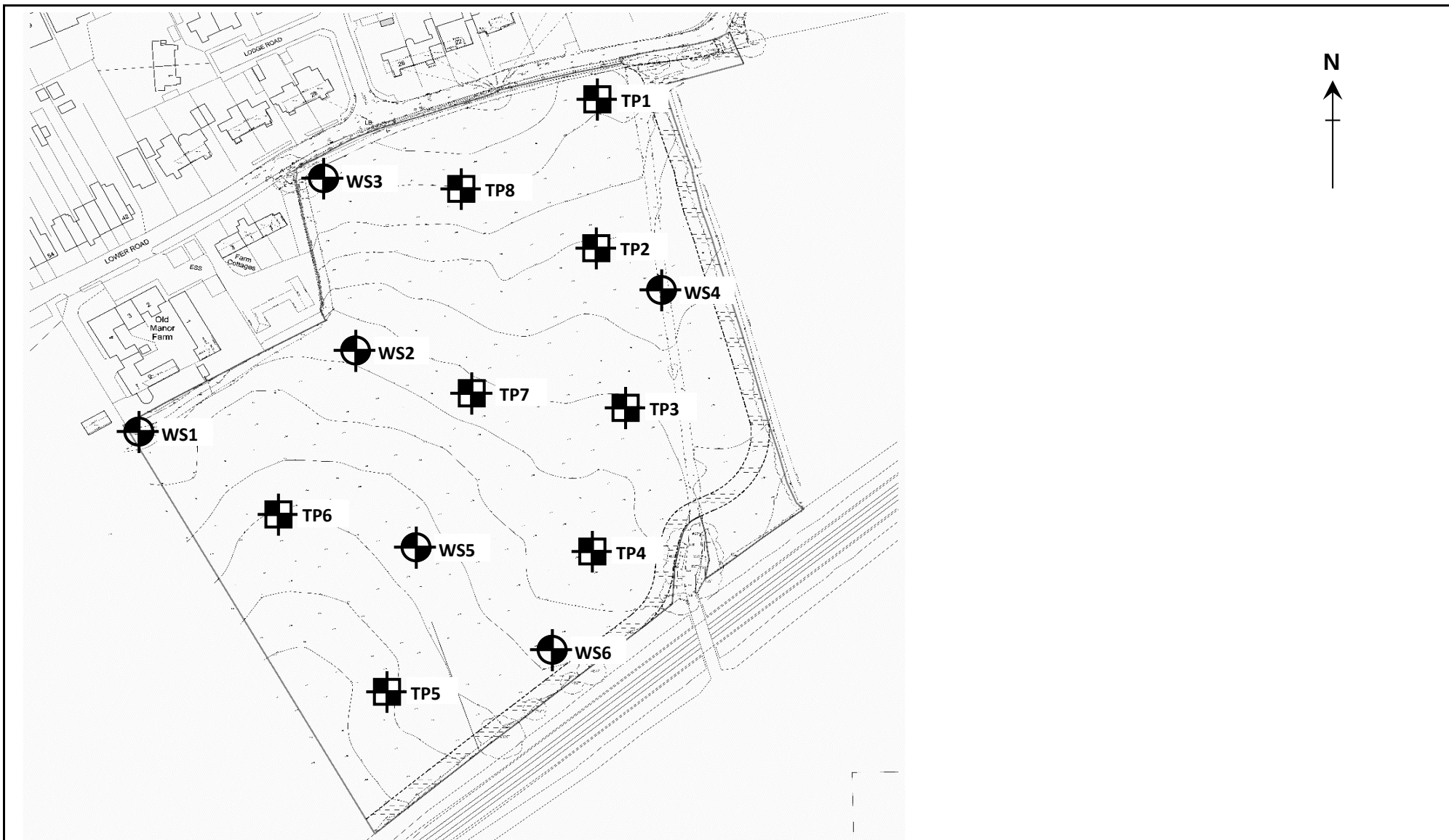




Project:	Manor Farm, Lower Road, Bedhampton			Title	Site Location Plan	
Client:	Bargate Homes			Geo-Environmental Services Ltd Unit 7 Danworth Farm, Cuckfield Road Hurstpierpoint, West Sussex BN6 9GL +44(0)1273 832972 www.gesl.net	 Geo-Environmental	
Ref No:	GE20525	Revision:	1.0			
Drawn:	GR	Date:	11/08/2021			
Figure:	1	Scale:	Not To Scale			



Project:	Manor Farm, Lower Road, Bedhampton			Title	Proposed Development Layout	
Client:	Bargate Homes			Geo-Environmental Services Ltd Unit 7 Danworth Farm, Cuckfield Road Hurstpierpoint, West Sussex BN6 9GL +44(0)1273 832972 www.gesl.net	 Geo-Environmental	
Ref No:	GE20525	Revision:	1.0			
Drawn:	FG	Date:	17/08/2021			
Figure:	2	Scale:	Not To Scale			



Project: Manor Farm, Lower Road, Bedhampton		Title: Exploratory Hole Location Plan	
Client: Bargate Homes		Geo-Environmental Services Ltd Unit 7 Danworth Farm, Cuckfield Road Hurstpierpoint, West Sussex BN6 9GL +44(0)1273 832972 www.gesl.net	
Ref No: GE20525	Revision: 1.0		
Drawn: GR	Date: 11/08/2021		
Figure: 3	Scale: Not To Scale		





Project:	Manor Farm, Lower Road, Bedhampton			Title	Location of Excavation Area	
Client:	Bargate Homes			 Geo-Environmental Geo-Environmental Services Ltd Unit 7 Danworth Farm, Cuckfield Road Hurstpierpoint, West Sussex BN6 9GL +44(0)1273 832972 www.gesl.net		
Ref No:	GE20525	Revision:	1.0			
Drawn:	FG	Date:	16/11/2021			
Figure:	4	Scale:	Not To Scale			



Project:	Manor Farm, Lower Road, Bedhampton			Title	Validation Sample Locations	
Client:	Bargate Homes			Geo-Environmental Services Ltd Unit 7 Danworth Farm, Cuckfield Road Hurstpierpoint, West Sussex BN6 9GL +44(0)1273 832972 www.gesl.net  Geo-Environmental		
Ref No:	GE20525	Revision:	1.0			
Drawn:	FG	Date:	16/11/2021			
Figure:	5	Scale:	Not To Scale			





Project:	Manor Farm, Lower Road, Bedhampton			Title	Topsoil Inspection Hand Pit Locations	
Client:	Bargate Homes			Geo-Environmental Services Ltd Unit 7 Danworth Farm, Cuckfield Road Hurstpierpoint, West Sussex BN6 9GL +44(0)1273 832972 www.gesl.net  Geo-Environmental		
Ref No:	GE20525	Revision:	1.0			
Drawn:	FG	Date:	22/02/2022			
Figure:	6	Scale:	Not To Scale			

APPENDIX A

Site Photographs





Plate 1 – View north showing the area of impacted ground to be excavated



Plate 2 – View north west across the area to be excavated



Plate 3 – View of the start of the excavation exposing Made Ground soils



Plate 4 – Excavation in progress showing Made Ground materials



Plate 5 – View of north portion of excavation in progress



Plate 6 – Excavation in progress



Plate 7 – Excavation being taken across the width of the farm track



Plate 8 – Excavation being extended to full width of the farm track



Plate 9 – View of the encountered Made Ground materials



Plate 10 – View of excavation in progress



Plate 11 – View west across excavation



Plate 12 – View of excavation being extended in length



Plate 13 – View of excavation in progress, excavation being deepened to remove Made Ground



Plate 14 – View of excavation being deepened to removed full depth of Made Ground



Plate 15 – View of natural soils exposed beneath the Made Ground materials



Plate 16 – View of the material encountered in excavation



Plate 17 – View south across excavation

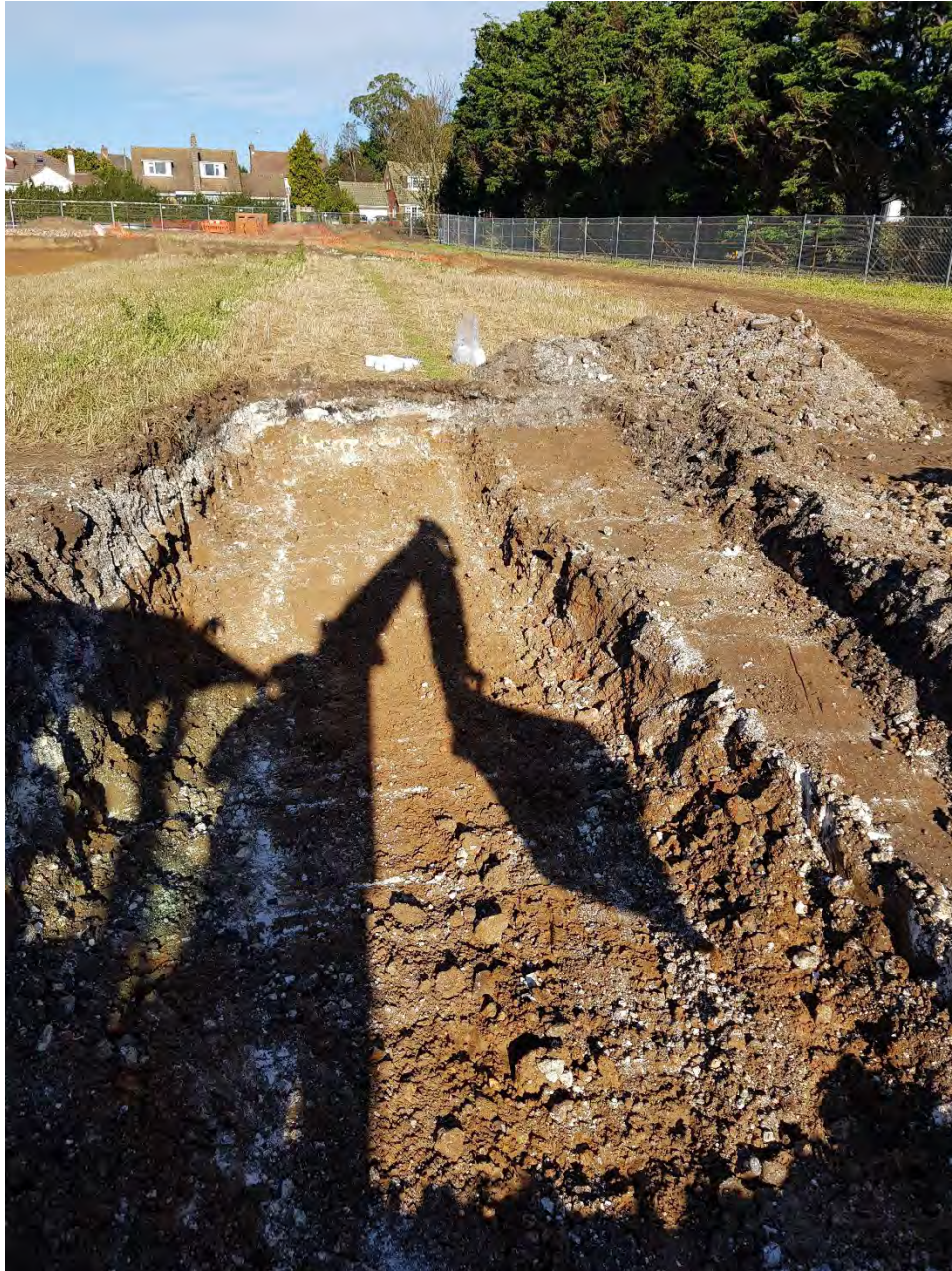


Plate 18 – View north across completed excavation



Plate 19 – View south across completed excavation

APPENDIX B

Geochemical Laboratory Results





Unit A2
Windmill Road
Ponswood Industrial Estate
St Leonards on Sea
East Sussex
TN38 9BY
Telephone: (01424) 718618

cs@elab-uk.co.uk
info@elab-uk.co.uk

THE ENVIRONMENTAL LABORATORY LTD

Analytical Report Number: 21-36938

Issue: 1

Date of Issue: 11/11/2021

Contact: Gavin Roberts

Customer Details: GESL
Unit 7
Danworth Farm
Hurstpierpoint
West Sussex BN6 9GL

Quotation No: Q19-01488

Order No: PO-4613

Customer Reference: GE20252

Date Received: 04/11/2021

Date Approved: 11/11/2021

Details: Manor Farm

Approved by:

Mike Varley, General Manager

Any comments, opinions or interpretations expressed herein are outside the scope of UKAS accreditation (Accreditation Number 2683)

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Sample Summary

Report No.: 21-36938, issue number 1

Elab No.	Client's Ref.	Date Sampled	Date Scheduled	Description	Deviations
256405	Base 1 0.90	02/11/2021	04/11/2021	Silty loam	
256406	Base 2 0.90	02/11/2021	04/11/2021	Silty loam	
256407	Base 3 1.00	02/11/2021	04/11/2021	Silty loam	
256408	Base 4 0.60	02/11/2021	04/11/2021	Silty loam	
256409	Side A 0.40	02/11/2021	04/11/2021	Silty loam	
256410	Side B 0.60	02/11/2021	04/11/2021	Silty loam	
256411	Side C 0.40	02/11/2021	04/11/2021	Silty loam	
256412	Side D 0.20	02/11/2021	04/11/2021	Silty loam	
256413	S/P 1 -	02/11/2021	04/11/2021	Silty loam + chalk	
256414	S/P 2 0.20	02/11/2021	04/11/2021	Silty loam	
256415	S/P 2 0.40	02/11/2021	04/11/2021	Silty loam + chalk	
256416	S/P 3 -	02/11/2021	04/11/2021	Silty loam	

Results Summary

Report No.: 21-36938, issue number 1

				ELAB Reference	256405	256406	256407
				Customer Reference			
				Sample ID			
				Sample Type	SOIL	SOIL	SOIL
				Sample Location	Base 1	Base 2	Base 3
				Sample Depth (m)	0.90	0.90	1.00
				Sampling Date	02/11/2021	02/11/2021	02/11/2021
Determinand	Codes	Units	LOD				
Soil sample preparation parameters							
Moisture Content	N	%	0.1	n/t	n/t	n/t	
Material removed	N	%	0.1	n/t	n/t	n/t	
Description of Inert material removed	N		0	n/t	n/t	n/t	
Metals							
Arsenic	M	mg/kg	1	n/t	n/t	n/t	
Beryllium	U	mg/kg	1	n/t	n/t	n/t	
Cadmium	M	mg/kg	0.5	n/t	n/t	n/t	
Chromium	M	mg/kg	5	n/t	n/t	n/t	
Copper	M	mg/kg	5	n/t	n/t	n/t	
Lead	M	mg/kg	5	n/t	n/t	n/t	
Mercury	M	mg/kg	0.5	n/t	n/t	n/t	
Nickel	M	mg/kg	5	n/t	n/t	n/t	
Selenium	M	mg/kg	1	n/t	n/t	n/t	
Vanadium	M	mg/kg	5	n/t	n/t	n/t	
Zinc	M	mg/kg	5	n/t	n/t	n/t	
Anions							
Water Soluble Chloride	M	mg/kg	40	n/t	n/t	n/t	
Water Soluble Sulphate	M	g/l	0.02	n/t	n/t	n/t	
Inorganics							
Elemental Sulphur	M	mg/kg	20	n/t	n/t	n/t	
Hexavalent Chromium	N	mg/kg	0.8	n/t	n/t	n/t	
Total Sulphide	N	mg/kg	2	n/t	n/t	n/t	
Total Cyanide	M	mg/kg	1	n/t	n/t	n/t	
Acid Soluble Sulphate (SO4)	U	%	0.02	n/t	n/t	n/t	
Water Soluble Boron	N	mg/kg	0.5	n/t	n/t	n/t	
Miscellaneous							
Acid Neutralisation Capacity	N	mol/kg	0.1	n/t	n/t	n/t	
Loss on Ignition	M	%	0.01	n/t	n/t	n/t	
pH	M	pH units	0.1	n/t	n/t	n/t	
Total Organic Carbon	N	%	0.01	n/t	n/t	n/t	
Organics							
>C8-C10 BCB (EH_1D_Total)	N	mg/kg	1	n/t	n/t	n/t	
>C10-C12 BCB (EH_1D_Total)	N	mg/kg	1	n/t	n/t	n/t	
>C12-C16 BCB (EH_1D_Total)	N	mg/kg	1	n/t	n/t	n/t	
>C16-C21 BCB (EH_1D_Total)	N	mg/kg	1	n/t	n/t	n/t	
Diesel Range Organics (>C10-C25) (EH_1D_Total)	N	mg/kg	1	n/t	n/t	n/t	
Petrol Range Organics (>C6-C10) (HS_1D_MS)	N	mg/kg	0.01	n/t	n/t	n/t	

ELAB Reference				256405	256406	256407
Customer Reference						
Sample ID						
Sample Type				SOIL	SOIL	SOIL
Sample Location				Base 1	Base 2	Base 3
Sample Depth (m)				0.90	0.90	1.00
Sampling Date				02/11/2021	02/11/2021	02/11/2021
Determinand	Codes	Units	LOD			
Phenols						
Total Phenols	N	mg/kg	6	n/t	n/t	n/t
Polyaromatic hydrocarbons						
Naphthalene	M	mg/kg	0.1	< 0.1	< 0.1	< 0.1
Acenaphthylene	M	mg/kg	0.1	< 0.1	< 0.1	< 0.1
Acenaphthene	M	mg/kg	0.1	< 0.1	< 0.1	< 0.1
Fluorene	M	mg/kg	0.1	< 0.1	< 0.1	< 0.1
Phenanthrene	M	mg/kg	0.1	< 0.1	< 0.1	< 0.1
Anthracene	M	mg/kg	0.1	< 0.1	< 0.1	< 0.1
Fluoranthene	M	mg/kg	0.1	< 0.1	< 0.1	< 0.1
Pyrene	M	mg/kg	0.1	< 0.1	< 0.1	< 0.1
Benzo(a)anthracene	M	mg/kg	0.1	< 0.1	< 0.1	< 0.1
Chrysene	M	mg/kg	0.1	< 0.1	< 0.1	< 0.1
Benzo(b)fluoranthene	M	mg/kg	0.1	< 0.1	< 0.1	< 0.1
Benzo(k)fluoranthene	M	mg/kg	0.1	< 0.1	< 0.1	< 0.1
Benzo(a)pyrene	M	mg/kg	0.1	< 0.1	< 0.1	< 0.1
Indeno(1,2,3-cd)pyrene	M	mg/kg	0.1	< 0.1	< 0.1	< 0.1
Dibenzo(a,h)anthracene	M	mg/kg	0.1	< 0.1	< 0.1	< 0.1
Benzo(g,h,i)perylene	M	mg/kg	0.1	< 0.1	< 0.1	< 0.1
Total PAH(16)	M	mg/kg	0.4	< 0.4	< 0.4	< 0.4
Total (of 17) PAHs	N	mg/kg	2	n/t	n/t	n/t
BTEX						
Benzene	M	ug/kg	10	n/t	n/t	n/t
Toluene	M	ug/kg	10	n/t	n/t	n/t
Ethylbenzene	M	ug/kg	10	n/t	n/t	n/t
Xylenes	M	ug/kg	10	n/t	n/t	n/t
MTBE	N	ug/kg	10	n/t	n/t	n/t
Total BTEX	N	mg/kg	0.01	n/t	n/t	n/t
TPH CWG						
>C5-C6 Aliphatic (HS_1D_MS)	N	mg/kg	0.01	n/t	n/t	n/t
>C6-C8 Aliphatic (HS_1D_MS)	N	mg/kg	0.01	n/t	n/t	n/t
>C8-C10 Aliphatic (HS_1D_MS+EH_2D_Total)	N	mg/kg	1	n/t	n/t	n/t
>C10-C12 Aliphatic (EH_2D_Total)	M	mg/kg	1	n/t	n/t	n/t
>C12-C16 Aliphatic (EH_2D_Total)	M	mg/kg	1	n/t	n/t	n/t
>C16-C21 Aliphatic (EH_2D_Total)	M	mg/kg	1	n/t	n/t	n/t
>C21-C35 Aliphatic (EH_2D_Total)	M	mg/kg	1	n/t	n/t	n/t
>C35-C40 Aliphatic (EH_2D_Total)	M	mg/kg	1	n/t	n/t	n/t
Total aliphatic hydrocarbons (>C5 - C40) (HS_1D_MS+EH_2D_Total)	N	mg/kg	1	n/t	n/t	n/t
>C5-C7 Aromatic (HS_1D_MS)	N	mg/kg	0.01	n/t	n/t	n/t
>C7-C8 Aromatic (HS_1D_MS)	N	mg/kg	0.01	n/t	n/t	n/t
>C8-C10 Aromatic (HS_1D_MS+EH_2D_Total)	N	mg/kg	1	n/t	n/t	n/t
>C10-C12 Aromatic (EH_2D_Total)	M	mg/kg	1	n/t	n/t	n/t
>C12-C16 Aromatic (EH_2D_Total)	M	mg/kg	1	n/t	n/t	n/t
>C16-C21 Aromatic (EH_2D_Total)	M	mg/kg	1	n/t	n/t	n/t
>C21-C35 Aromatic (EH_2D_Total)	M	mg/kg	1	n/t	n/t	n/t
>C35-C40 Aromatic (EH_2D_Total)	M	mg/kg	1	n/t	n/t	n/t
Total aromatic hydrocarbons (>C5 - C40) (HS_1D_MS+EH_2D_Total)	N	mg/kg	1	n/t	n/t	n/t
Total petroleum hydrocarbons (>C5 - C40) (HS_1D_MS+EH_2D_Total)	N	mg/kg	1	n/t	n/t	n/t
Total Petroleum Hydrocarbons						
Mineral Oil (>C8-C40) (EH_CU_1D_Total)	M	mg/kg	5	n/t	n/t	n/t
PCB (ICES 7 congeners)						
Total PCBs (7 congeners)	M	mg/kg	0.03	n/t	n/t	n/t

Results Summary

Report No.: 21-36938, issue number 1

ELAB Reference	256408	256409	256410	256411	256412	256413	256414	256415	256416
Customer Reference									
Sample ID									
Sample Type	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
Sample Location	Base 4	Side A	Side B	Side C	Side D	S/P 1	S/P 2	S/P 2	S/P 3
Sample Depth (m)	0.60	0.40	0.60	0.40	0.20	-	0.20	0.40	-
Sampling Date	02/11/2021	02/11/2021	02/11/2021	02/11/2021	02/11/2021	02/11/2021	02/11/2021	02/11/2021	02/11/2021
Determinand	Codes	Units	LOD						
Soil sample preparation parameters									
Moisture Content	N	%	0.1	n/t	n/t	n/t	n/t	17.5	15.9
Material removed	N	%	0.1	n/t	n/t	n/t	n/t	< 0.1	< 0.1
Description of Inert material removed	N		0	n/t	n/t	n/t	n/t	None	None
Metals									
Arsenic	M	mg/kg	1	n/t	n/t	n/t	n/t	9.3	n/t
Beryllium	U	mg/kg	1	n/t	n/t	n/t	n/t	< 1.0	n/t
Cadmium	M	mg/kg	0.5	n/t	n/t	n/t	n/t	0.6	n/t
Chromium	M	mg/kg	5	n/t	n/t	n/t	n/t	16.6	n/t
Copper	M	mg/kg	5	n/t	n/t	n/t	n/t	27.1	n/t
Lead	M	mg/kg	5	n/t	n/t	n/t	n/t	260	n/t
Mercury	M	mg/kg	0.5	n/t	n/t	n/t	n/t	0.5	n/t
Nickel	M	mg/kg	5	n/t	n/t	n/t	n/t	13.2	n/t
Selenium	M	mg/kg	1	n/t	n/t	n/t	n/t	< 1.0	n/t
Vanadium	M	mg/kg	5	n/t	n/t	n/t	n/t	22.1	n/t
Zinc	M	mg/kg	5	n/t	n/t	n/t	n/t	98.5	n/t
Anions									
Water Soluble Chloride	M	mg/kg	40	n/t	n/t	n/t	n/t	< 40	n/t
Water Soluble Sulphate	M	g/l	0.02	n/t	n/t	n/t	n/t	< 0.02	n/t
Inorganics									
Elemental Sulphur	M	mg/kg	20	n/t	n/t	n/t	n/t	< 20	n/t
Hexavalent Chromium	N	mg/kg	0.8	n/t	n/t	n/t	n/t	< 0.8	n/t
Total Sulphide	N	mg/kg	2	n/t	n/t	n/t	n/t	< 2	n/t
Total Cyanide	M	mg/kg	1	n/t	n/t	n/t	n/t	< 1.0	n/t
Acid Soluble Sulphate (SO ₄)	U	%	0.02	n/t	n/t	n/t	n/t	0.03	n/t
Water Soluble Boron	N	mg/kg	0.5	n/t	n/t	n/t	n/t	< 0.5	n/t
Miscellaneous									
Acid Neutralisation Capacity	N	mol/kg	0.1	n/t	n/t	n/t	n/t	< 0.1	n/t
Loss on Ignition	M	%	0.01	n/t	n/t	n/t	n/t	^ 3.46	n/t
pH	M	pH units	0.1	n/t	n/t	n/t	n/t	^ 7.9	8.1
Total Organic Carbon	N	%	0.01	n/t	n/t	n/t	n/t	3.1	0.76
Organics									
>C8-C10 BCB (EH_ID_Total)	N	mg/kg	1	n/t	n/t	n/t	n/t	< 1.0	n/t
>C10-C12 BCB (EH_ID_Total)	N	mg/kg	1	n/t	n/t	n/t	n/t	< 1.0	n/t
>C12-C16 BCB (EH_ID_Total)	N	mg/kg	1	n/t	n/t	n/t	n/t	< 1.0	n/t
>C16-C21 BCB (EH_ID_Total)	N	mg/kg	1	n/t	n/t	n/t	n/t	< 1.0	n/t
Diesel Range Organics (>C10-C25) (EH_ID_Total)	N	mg/kg	1	n/t	n/t	n/t	n/t	< 1	n/t
Petrol Range Organics (>C6-C10) (HS_ID_MS)	N	mg/kg	0.01	n/t	n/t	n/t	n/t	0.15	n/t

Results Summary

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ELAB Reference				256408	256409	256410	256411	256412	256413	256414	256415	256416
Customer Reference												
Sample ID												
Sample Type				SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
Sample Location				Base 4	Side A	Side B	Side C	Side D	S/P 1	S/P 2	S/P 2	S/P 3
Sample Depth (m)				0.60	0.40	0.60	0.40	0.20	-	0.20	0.40	-
Sampling Date				02/11/2021	02/11/2021	02/11/2021	02/11/2021	02/11/2021	02/11/2021	02/11/2021	02/11/2021	02/11/2021
Determinand	Codes	Units	LOD									
Phenols												
Total Phenols	N	mg/kg	6	n/t	n/t	n/t	n/t	n/t	n/t	< 6	n/t	< 6
Polyaromatic hydrocarbons												
Naphthalene	M	mg/kg	0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	n/t	< 0.1	n/t	0.2
Acenaphthylene	M	mg/kg	0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	n/t	< 0.1	n/t	< 0.1
Acenaphthene	M	mg/kg	0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	n/t	< 0.1	n/t	< 0.1
Fluorene	M	mg/kg	0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	n/t	< 0.1	n/t	< 0.1
Phenanthrene	M	mg/kg	0.1	< 0.1	< 0.1	< 0.1	0.5	< 0.1	n/t	0.4	n/t	0.4
Anthracene	M	mg/kg	0.1	< 0.1	< 0.1	< 0.1	0.1	< 0.1	n/t	< 0.1	n/t	< 0.1
Fluoranthene	M	mg/kg	0.1	< 0.1	< 0.1	< 0.1	1.6	< 0.1	n/t	0.5	n/t	1.0
Pyrene	M	mg/kg	0.1	< 0.1	< 0.1	< 0.1	1.4	< 0.1	n/t	0.3	n/t	0.9
Benzo(a)anthracene	M	mg/kg	0.1	< 0.1	< 0.1	< 0.1	1.0	< 0.1	n/t	0.2	n/t	0.7
Chrysene	M	mg/kg	0.1	< 0.1	< 0.1	< 0.1	1.1	< 0.1	n/t	0.3	n/t	0.8
Benzo(b)fluoranthene	M	mg/kg	0.1	< 0.1	< 0.1	< 0.1	1.2	< 0.1	n/t	0.2	n/t	1.1
Benzo(k)fluoranthene	M	mg/kg	0.1	< 0.1	< 0.1	< 0.1	1.2	< 0.1	n/t	0.2	n/t	0.9
Benzo(a)pyrene	M	mg/kg	0.1	< 0.1	< 0.1	< 0.1	1.2	< 0.1	n/t	0.2	n/t	0.9
Indeno(1,2,3-cd)pyrene	M	mg/kg	0.1	< 0.1	< 0.1	< 0.1	0.9	< 0.1	n/t	0.1	n/t	0.7
Dibenzo(a,h)anthracene	M	mg/kg	0.1	< 0.1	< 0.1	< 0.1	0.2	< 0.1	n/t	< 0.1	n/t	0.2
Benzo(g,h,i)perylene	M	mg/kg	0.1	< 0.1	< 0.1	< 0.1	0.8	< 0.1	n/t	< 0.1	n/t	0.3
Total PAH(16)	M	mg/kg	0.4	< 0.4	< 0.4	< 0.4	11.3	< 0.4	n/t	2.8	n/t	8.2
Total (of 17) PAHs	N	mg/kg	2	n/t	n/t	n/t	n/t	n/t	9	n/t	3	n/t
BTEX												
Benzene	M	ug/kg	10	n/t	n/t	n/t	n/t	n/t	n/t	< 10.0	n/t	< 10.0
Toluene	M	ug/kg	10	n/t	n/t	n/t	n/t	n/t	n/t	< 10.0	n/t	< 10.0
Ethylbenzene	M	ug/kg	10	n/t	n/t	n/t	n/t	n/t	n/t	< 10.0	n/t	< 10.0
Xylenes	M	ug/kg	10	n/t	n/t	n/t	n/t	n/t	n/t	< 10.0	n/t	< 10.0
MTBE	N	ug/kg	10	n/t	n/t	n/t	n/t	n/t	n/t	< 10.0	n/t	< 10.0
Total BTEX	N	mg/kg	0.01	n/t	n/t	n/t	n/t	n/t	< 0.01	n/t	< 0.01	n/t
TPH CWG												
>C5-C6 Aliphatic (HS_1D_MS)	N	mg/kg	0.01	n/t	n/t	n/t	n/t	n/t	n/t	< 0.01	n/t	< 0.01
>C6-C8 Aliphatic (HS_1D_MS)	N	mg/kg	0.01	n/t	n/t	n/t	n/t	n/t	n/t	< 0.01	n/t	< 0.01
>C8-C10 Aliphatic (HS_1D_MS+EH_2D_Total)	N	mg/kg	1	n/t	n/t	n/t	n/t	n/t	n/t	< 1.0	n/t	< 1.0
>C10-C12 Aliphatic (EH_2D_Total)	M	mg/kg	1	n/t	n/t	n/t	n/t	n/t	n/t	< 1.0	n/t	< 1.0
>C12-C16 Aliphatic (EH_2D_Total)	M	mg/kg	1	n/t	n/t	n/t	n/t	n/t	n/t	< 1.0	n/t	< 1.0
>C16-C21 Aliphatic (EH_2D_Total)	M	mg/kg	1	n/t	n/t	n/t	n/t	n/t	n/t	< 1.0	n/t	< 1.0
>C21-C35 Aliphatic (EH_2D_Total)	M	mg/kg	1	n/t	n/t	n/t	n/t	n/t	n/t	< 1.0	n/t	< 1.0
>C35-C40 Aliphatic (EH_2D_Total)	M	mg/kg	1	n/t	n/t	n/t	n/t	n/t	n/t	< 1.0	n/t	< 1.0
Total aliphatic hydrocarbons (>C5 - C40) (HS_1D_MS+EH_2D_Total)	N	mg/kg	1	n/t	n/t	n/t	n/t	n/t	n/t	< 1.0	n/t	< 1.0
>C5-C7 Aromatic (HS_1D_MS)	N	mg/kg	0.01	n/t	n/t	n/t	n/t	n/t	n/t	< 0.01	n/t	< 0.01
>C7-C8 Aromatic (HS_1D_MS)	N	mg/kg	0.01	n/t	n/t	n/t	n/t	n/t	n/t	< 0.01	n/t	< 0.01
>C8-C10 Aromatic (HS_1D_MS+EH_2D_Total)	N	mg/kg	1	n/t	n/t	n/t	n/t	n/t	n/t	< 1.0	n/t	< 1.0
>C10-C12 Aromatic (EH_2D_Total)	M	mg/kg	1	n/t	n/t	n/t	n/t	n/t	n/t	< 1.0	n/t	< 1.0
>C12-C16 Aromatic (EH_2D_Total)	M	mg/kg	1	n/t	n/t	n/t	n/t	n/t	n/t	< 1.0	n/t	< 1.0
>C16-C21 Aromatic (EH_2D_Total)	M	mg/kg	1	n/t	n/t	n/t	n/t	n/t	n/t	< 1.0	n/t	< 1.0
>C21-C35 Aromatic (EH_2D_Total)	M	mg/kg	1	n/t	n/t	n/t	n/t	n/t	n/t	< 1.0	n/t	< 1.0
>C35-C40 Aromatic (EH_2D_Total)	M	mg/kg	1	n/t	n/t	n/t	n/t	n/t	n/t	< 1.0	n/t	< 1.0
Total aromatic hydrocarbons (>C5 - C40) (HS_1D_MS+EH_2D_Total)	N	mg/kg	1	n/t	n/t	n/t	n/t	n/t	n/t	1.4	n/t	< 1.0
Total petroleum hydrocarbons (>C5 - C40) (HS_1D_MS+EH_2D_Total)	N	mg/kg	1	n/t	n/t	n/t	n/t	n/t	n/t	1.8	n/t	< 1.0
Total Petroleum Hydrocarbons												
Mineral Oil (>C8-C40) (EH_CU_1D_Total)	M	mg/kg	5	n/t	n/t	n/t	n/t	n/t	^ < 5	n/t	^ < 5	n/t
PCB (ICES 7 congeners)												
Total PCBs (7 congeners)	M	mg/kg	0.03	n/t	n/t	n/t	n/t	n/t	^ < 0.03	n/t	^ < 0.03	n/t

Results Summary

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WAC Analysis

Elab Ref:	256415					Landfill Waste Acceptance Criteria Limits*		
Sample Date:	02/11/2021					Inert Waste Landfill	Stable Non-reactive Hazardous waste in non-hazardous Landfill	Hazardous Waste Landfill
Sample ID:	S/P 2							
Depth (m)	0.4							
Site:	Manor Farm							
Determinand		Code	Units					
Total Organic Carbon		N	%		1.30	3	5	6
Loss on Ignition		M	%		3.2	--	--	10
Total BTEX		M	mg/kg		< 0.01	6	--	--
Total PCBs (7 congeners)		M	mg/kg		< 0.03	1	--	--
TPH Total WAC (EH_CU_1D_Total)		M	mg/kg		< 5	500	--	--
Total (of 17) PAHs		N	mg/kg		3.0	100	--	--
pH		M			8.1	--	>6	--
Acid Neutralisation Capacity		N	mol/kg		< 0.1	--	To evaluate	To evaluate

Eluate Analysis

			10:1	10:1	Limit values for compliance leaching test using BS EN 12457-2 at L/S 10 l/kg		
			mg/l	mg/kg			
Arsenic		N	< 0.005	< 0.05	0.5	2	25
Barium		N	0.007	0.07	20	100	300
Cadmium		N	< 0.001	< 0.01	0.04	1	5
Chromium		N	< 0.005	< 0.05	0.5	10	70
Copper		N	< 0.005	< 0.05	2	50	100
Mercury		N	< 0.005	< 0.01	0.01	0.2	2
Molybdenum		N	< 0.005	< 0.05	0.5	10	30
Nickel		N	< 0.001	< 0.05	0.4	10	40
Lead		N	< 0.001	< 0.05	0.5	10	50
Antimony		N	< 0.005	< 0.05	0.06	0.7	5
Selenium		N	< 0.005	< 0.05	0.1	0.5	7
Zinc		N	< 0.005	< 0.05	4	50	200
Chloride		N	< 5	< 50	800	15000	25000
Fluoride		N	< 5	< 10	10	150	500
Sulphate		N	2	15.40	1000	20000	50000
Total Dissolved Solids		N	62	623.00	4000	60000	100000
Phenol Index		N	< 0.01	< 0.10	1	-	-
Dissolved Organic Carbon		N	11.900	119.00	500	800	1000

Leach Test Information

pH		N	7.5				
Conductivity (uS/cm)		N	93				
Dry mass of test portion (g)			102.000				
Dry Matter (%)			84				
Moisture (%)			19				
Eluent Volume (ml)			978				

Results are expressed on a dry weight basis, after correction for moisture content where applicable

* Stated limits are for guidance only, and not for conformity assessment.

Results Summary

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WAC Analysis

Elab Ref:	256413					Landfill Waste Acceptance Criteria Limits*		
Sample Date:	02/11/2021					Inert Waste Landfill	Stable Non-reactive Hazardous waste in non-hazardous Landfill	Hazardous Waste Landfill
Sample ID:	S/P 1							
Depth (m)	-							
Site:	Manor Farm							
Determinand		Code	Units					
Total Organic Carbon		N	%		3.10	3	5	6
Loss on Ignition		M	%		3.5	--	--	10
Total BTEX		M	mg/kg		< 0.01	6	--	--
Total PCBs (7 congeners)		M	mg/kg		< 0.03	1	--	--
TPH Total WAC (EH_CU_1D_Total)		M	mg/kg		< 5	500	--	--
Total (of 17) PAHs		N	mg/kg		9.0	100	--	--
pH		M			7.9	--	>6	--
Acid Neutralisation Capacity		N	mol/kg		< 0.1	--	To evaluate	To evaluate

Eluate Analysis

			10:1	10:1	Limit values for compliance leaching test using BS EN 12457-2 at L/S 10 l/kg		
			mg/l	mg/kg			
Arsenic		N	< 0.005	< 0.05	0.5	2	25
Barium		N	0.008	0.08	20	100	300
Cadmium		N	< 0.001	< 0.01	0.04	1	5
Chromium		N	< 0.005	< 0.05	0.5	10	70
Copper		N	< 0.005	< 0.05	2	50	100
Mercury		N	< 0.005	< 0.01	0.01	0.2	2
Molybdenum		N	< 0.005	< 0.05	0.5	10	30
Nickel		N	< 0.001	< 0.05	0.4	10	40
Lead		N	< 0.001	< 0.05	0.5	10	50
Antimony		N	< 0.005	< 0.05	0.06	0.7	5
Selenium		N	< 0.005	< 0.05	0.1	0.5	7
Zinc		N	< 0.005	< 0.05	4	50	200
Chloride		N	< 5	< 50	800	15000	25000
Fluoride		N	< 5	< 10	10	150	500
Sulphate		N	2	16.40	1000	20000	50000
Total Dissolved Solids		N	60	598.00	4000	60000	100000
Phenol Index		N	< 0.01	< 0.10	1	-	-
Dissolved Organic Carbon		N	10.000	100.00	500	800	1000

Leach Test Information

pH		N	7.3				
Conductivity (uS/cm)		N	89				
Dry mass of test portion (g)			103.000				
Dry Matter (%)			82				
Moisture (%)			22				
Eluent Volume (ml)			994				

Results are expressed on a dry weight basis, after correction for moisture content where applicable

* Stated limits are for guidance only, and not for conformity assessment.



Unit A2, Windmill Road, Ponswood Industrial Estate, St Leonards on Sea, East Sussex, TN38 9BY

Tel: +44 (0)1424 718618, Email: info@elab-uk.co.uk, Web: www.elab-uk.co.uk

Results Summary

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Asbestos Results

Analytical result only applies to the sample as submitted by the client. Any comments, opinions or interpretations (marked #) in this report are outside UKAS accreditation (Accreditation No2683). They are subjective comments only which must be verified by the client.

Elab No	Depth (m)	Clients Reference	Description of Sample Matrix #	Asbestos Identification	Gravimetric Analysis Total (%)	Gravimetric Analysis by ACM Type (%)	Free Fibre Analysis (%)	Total Asbestos (%)
256414	0.20	S/P 2	Brown chalky soil, chalk, brick, stones, glass, shell	No asbestos detected	n/t	n/t	n/t	n/t
256416	-	S/P 3	Brown chalky soil, chalk, stones, clinker	No asbestos detected	n/t	n/t	n/t	n/t

Method Summary

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Parameter	Codes	Analysis Undertaken On	Date Tested	Method Number	Technique
Soil					
Petrol range organics in soil	N	As submitted sample	10/11/2021		GC-MS
Sulphide	N	As submitted sample	05/11/2021	109	Colorimetry
Hexavalent chromium	N	As submitted sample	05/11/2021	110	Colorimetry
Acid Soluble Sulphate	U	Air dried sample	08/11/2021	115	Ion Chromatography
Aqua regia extractable metals	M	Air dried sample	05/11/2021	118	ICPMS
Phenols in solids	N	As submitted sample	05/11/2021	121	HPLC
Elemental Sulphur	M	Air dried sample	05/11/2021	122	HPLC
PAH (GC-FID)	M	As submitted sample	05/11/2021	133	GC-FID
Water soluble anions	M	Air dried sample	05/11/2021	172	Ion Chromatography
Low range Aliphatic hydrocarbons soil	N	As submitted sample	08/11/2021	181	GC-MS
Low range Aromatic hydrocarbons soil	N	As submitted sample	08/11/2021	181	GC-MS
Water soluble boron	N	Air dried sample	05/11/2021	202	Colorimetry
Total cyanide	M	As submitted sample	05/11/2021	204	Colorimetry
Basic carbon banding in soil	N	As submitted sample	05/11/2021	218	GC-FID
Diesel range organics in soil	N	As submitted sample	10/11/2021	257	GC-FID
TPH CWG soil by gc-gc	M	As submitted sample	04/11/2021	271	
Asbestos identification	U	Air dried sample	08/11/2021	280	Microscopy
Leachate					
Arsenic	N		09/11/2021	301	ICPMS
Cadmium	N		09/11/2021	301	ICPMS
Chromium	N		09/11/2021	301	ICPMS
Lead	N		09/11/2021	301	ICPMS
Nickel	N		09/11/2021	301	ICPMS
Copper	N		09/11/2021	301	ICPMS
Zinc	N		09/11/2021	301	ICPMS
Mercury	N		09/11/2021	301	ICPMS
Selenium	N		09/11/2021	301	ICPMS
Antimony	N		09/11/2021	301	ICPMS
Barium	N		09/11/2021	301	ICPMS
Molybdenum	N		09/11/2021	301	ICPMS
pH Value	N		09/11/2021	113	Electrometric
Electrical Conductivity	N		09/11/2021	136	Probe
Dissolved Organic Carbon	N		09/11/2021	102	TOC analyser
Chloride	N		09/11/2021	131	Ion Chromatography
Fluoride	N		09/11/2021	131	Ion Chromatography
Sulphate	N		09/11/2021	131	Ion Chromatography
Total Dissolved Solids	N		09/11/2021	144	Gravimetric
Phenol index	N		09/11/2021	121	HPLC
WAC Solids analysis	N				
pH	M	Air dried sample	05/11/2021	113	Electrometric
Total Organic Carbon	N	Air dried sample	08/11/2021	210	IR
Loss on Ignition	M	Air dried sample	09/11/2021	129	Gravimetric
Acid Neutralisation Capacity	N	Air dried sample	05/11/2021	NEN 737	Electrometric
Total BTEX	M	As submitted sample	08/11/2021	181	GCMS
Mineral Oil (EH_CU_1D_Total)	M	As submitted sample	05/11/2021	117	GCFID
Total PCBs (7 congeners)	M	Air dried sample	05/11/2021	120	GCMS
Total (of 17) PAHs	N	As submitted sample	09/11/2021	133	GCFID

Tests marked N are not UKAS accredited

Report Information

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Key

U	hold UKAS accreditation
M	hold MCERTS and UKAS accreditation
N	do not currently hold UKAS accreditation
^	MCERTS accreditation not applicable for sample matrix
*	UKAS accreditation not applicable for sample matrix
S	Subcontracted to approved laboratory UKAS Accredited for the test
SM	Subcontracted to approved laboratory MCERTS/UKAS Accredited for the test
NS	Subcontracted to approved laboratory. UKAS accreditation is not applicable.
I/S	Insufficient Sample
U/S	Unsuitable sample
n/t	Not tested
<	means "less than"
>	means "greater than"
LOD	LOD refers to limit of detection, except in the case of pH soils and pH waters where it means limit of discrimination. Soil sample results are expressed on an air dried basis (dried at < 30°C), and are uncorrected for inert material removed. ELAB are unable to provide an interpretation or opinion on the content of this report. The results relate only to the sample received. PCB congener results may include any coeluting PCBs Uncertainty of measurement for the determinands tested are available upon request Unless otherwise stated, sample information has been provided by the client. This may affect the validity of the results.

Deviation Codes

a	No date of sampling supplied
b	No time of sampling supplied (Waters Only)
c	Sample not received in appropriate containers
d	Sample not received in cooled condition
e	The container has been incorrectly filled
f	Sample age exceeds stability time (sampling to receipt)
g	Sample age exceeds stability time (sampling to analysis)

Where a sample has a deviation code, the applicable test result may be invalid.

Sample Retention and Disposal

All soil samples will be retained for a period of one month
 All water samples will be retained for 7 days following the date of the test report
 Charges may apply to extended sample storage

TPH Classification - HWOL Acronym System

HS	Headspace analysis
EH	Extractable Hydrocarbons - i.e. everything extracted by the solvent
CU	Clean-up - e.g. by florisil, silica gel
1D	GC - Single coil gas chromatography
Total	Aliphatics & Aromatics
AL	Aliphatics only
AR	Aromatics only
2D	GC-GC - Double coil gas chromatography
#1	EH_Total but with humics mathematically subtracted
#2	EH_Total but with fatty acids mathematically subtracted
_	Operator - underscore to separate acronyms (exception for +)
+	Operator to indicate cumulative e.g. EH+HS_Total or EH_CU+HS_Total
MS	Mass Spectrometry



APPENDIX C

CATWASTE Output



Site Name	Manor Farm
Location	Bedhampton
Site ID	
Job Number	GE20252
Date	11/16/2021
User Name	laura.legate@gesl.net
Company Name	Geo-Environmental Services Limited

Hole ID	Sample Depth	Hazardous Waste Y/N	HP1	HP2	HP3	HP4	HP5	HP6	HP7	HP8	HP9	HP10	HP11	HP12	HP13	HP14	HP15	HP16
S/P 1	0m	N	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No
S/P 2	0m	N	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No
S/P 2	0m	N	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No
S/P 3	0m	N	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No

Hole ID	Sample Depth	Contaminant	Contaminant Concentration (%)	Hazardous Waste Y/N	Hazard Property	Individual Hazard Statements Exceeded	Cumulative Hazard Statements Exceeded	Additional Hazard Statements (see notes section)
SP-1	0m	pH	0.0000	N				
SP-1	0m	Benzene	0.0000	N				H225 test
SP-1	0m	Toluene	0.0000	N				H225 test
SP-1	0m	Ethylbenzene	0.0000	N				H225 test
SP-1	0m	n-Butylbenzene	0.0000	N				H225 test
SP-1	0m	Xylenes	0.0000	N				H225 test
SP-1	0m	Petrol	0.0002	N				
SP-1	0m	Diesel	0.0000	N				
SP-2	0m	pH	0.0000	N				
SP-2	0m	Benzene	0.0000	N				H225 test
SP-2	0m	Toluene	0.0000	N				H225 test
SP-2	0m	Ethylbenzene	0.0000	N				H225 test
SP-2	0m	n-Butylbenzene	0.0000	N				H225 test
SP-2	0m	Xylenes	0.0000	N				H225 test
SP-2	0m	Naphthalene	0.0000	N				H225 test
SP-2	0m	Acenaphthene	0.0000	N				
SP-2	0m	Acenaphthylene	0.0000	N				
SP-2	0m	Fluorene	0.0000	N				
SP-2	0m	Phenanthrene	0.0004	N				
SP-2	0m	Anthracene	0.0000	N				
SP-2	0m	Fluoranthene	0.0005	N				
SP-2	0m	Pyrene	0.0000	N				
SP-2	0m	Benzofluoranthene	0.0002	N				
SP-2	0m	Chrysene	0.0000	N				
SP-2	0m	Benzochrysene	0.0006	N				
SP-2	0m	Benzofluoranthene	0.0002	N				
SP-2	0m	Benzobenzene	0.0000	N				
SP-2	0m	Indeno 1,2,3-cdpyrene	0.0000	N				
SP-2	0m	n-Heptylbenzylbenzene	0.0000	N				
SP-2	0m	Benzonitrobenzene	0.0000	N				
SP-2	0m	Phenol	0.0010	N				
SP-2	0m	Acetone	0.00143	N				
SP-2	0m	Boron	0.00116	N				
SP-2	0m	Cadmium	0.0001	N				
SP-2	0m	Hexachlorocyclopentadiene	0.0004	N				
SP-2	0m	Chloroform (Total)	0.0021	N				
SP-2	0m	Copper	0.00081	N				
SP-2	0m	Lead	0.0000	N				
SP-2	0m	Lead	0.0000	N				
SP-2	0m	Manganese	0.0002	N				
SP-2	0m	Nickel	0.00048	N				
SP-2	0m	Selenium	0.00038	N				
SP-2	0m	Zinc	0.0000	N				
SP-2	0m	Zinc	0.00142	N				
SP-2	0m	Vanadium	0.00096	N				
SP-2	0m	Free Copper	0.00010	N				
SP-2	0m	pH	0.0000	N				H274 test
SP-2	0m	Benzene	0.0000	N				H225 test
SP-2	0m	Toluene	0.0000	N				H225 test
SP-2	0m	Ethylbenzene	0.0000	N				H225 test
SP-2	0m	n-Butylbenzene	0.0000	N				H225 test
SP-2	0m	Xylenes	0.0000	N				H225 test
SP-2	0m	Naphthalene	0.0000	N				H225 test
SP-2	0m	Acenaphthene	0.0000	N				H225 test
SP-2	0m	Acenaphthylene	0.0000	N				
SP-2	0m	Fluorene	0.0000	N				
SP-2	0m	Phenanthrene	0.0004	N				
SP-2	0m	Anthracene	0.0000	N				
SP-2	0m	Fluoranthene	0.00010	N				
SP-2	0m	Pyrene	0.00009	N				
SP-2	0m	Benzofluoranthene	0.00007	N				
SP-2	0m	Chrysene	0.00008	N				
SP-2	0m	Benzofluoranthene	0.0001	N				
SP-2	0m	Benzochrysene	0.00005	N				
SP-2	0m	Indeno 1,2,3-cdpyrene	0.00007	N				
SP-2	0m	n-Heptylbenzylbenzene	0.0000	N				
SP-2	0m	Benzonitrobenzene	0.0000	N				
SP-2	0m	Phenol	0.0010	N				
SP-2	0m	Acetone	0.00143	N				
SP-2	0m	Boron	0.00116	N				
SP-2	0m	Cadmium	0.00009	N				
SP-2	0m	Hexachlorocyclopentadiene	0.0004	N				
SP-2	0m	Chloroform (Total)	0.00248	N				
SP-2	0m	Copper	0.00081	N				
SP-2	0m	Lead	0.0000	N				
SP-2	0m	Lead	0.00792	N				
SP-2	0m	Manganese	0.0002	N				
SP-2	0m	Nickel	0.00461	N				
SP-2	0m	Selenium	0.00038	N				
SP-2	0m	Zinc	0.0000	N				
SP-2	0m	Zinc	0.00188	N				
SP-2	0m	Vanadium	0.00030	N				
SP-2	0m	Free Copper	0.00010	N				H274 test

Notes - Additional Information on Hazard Properties

Hazardous Property	Description	Hazard Statement	Note
HP1	Explosive	H200, H201, H202, H203, H204, H240 and H241	A waste is assessed for HP1 via test methods, rather than a concentration limit. If you have substances or a mixture containing explosive properties the waste should be tested in accordance with the European Chemical Agency's guidance on the application of the CLP Criteria.
HP2	Oxidising	H270, H271, H272	A waste is assessed for HP2 via test methods, rather than a concentration limit. If you have substances or a mixture containing oxidising properties the waste should be tested in accordance with the European Chemical Agency's guidance on the application of the CLP Criteria.
HP3	Flammable	H220 to H226, H228, H242, H250, H251m H252, H260, H261	A waste is assessed for HP3 via test methods, rather than a concentration limit. If you have substances or a mixture containing flammable properties the waste should be tested in accordance with the European Chemical Agency's guidance on the application of the CLP Criteria. If a waste contains either H220, H221, H260 or H261 a calculation can be performed to identify the minimum amount of that substance that will trigger HP3.
HP5	Specific Target Organ Toxicity (STOT)	H304	Should a waste contain two or more compounds displaying H304 (Asp. Tox 1) and equal or exceed its specific concentration limit of 10%, then a waste will be hazardous by HP5 if its kinematic viscosity exceeds 20.5 mm ² /s. Guidance should be sought from the CLP Criteria.
HP9	Infectious	N/A	A waste is assessed for HP9 via further testing, rather than a concentration limit. In cases where there is the potential for toxins to be present, further testing will be required. For healthcare waste reference should be made to the Department of health guidance: Safe management of healthcare waste.
HP12	Release of acute toxic gas	EUH029, EUH031, EUH032, H260 or H261	A waste is assessed for HP12 via test methods, rather than a concentration limit. If you have substances or a mixture that may release acute toxic gas the waste should be tested in accordance with the European Chemical Agency's guidance on the application of the CLP Criteria.
HP15	Explosive or explosive properties	H205, EUH001, EUH019 or EUH044	A waste is assessed for HP15 via test methods, rather than a concentration limit. If you have substances or a mixture that may exhibit explosive or explosive properties the waste should be tested in accordance with the European Chemical Agency's guidance on the application of the CLP Criteria.
HP16	Persistent organic pollutants	N/A	A waste is considered hazardous if the concentration of one or more compound (persistent organic pollutant) as listed in Appendix C of Environment Agency guidance WM3 is above its assigned concentration limit. For reference for dioxins and furans, this assessment incorporates the use of specific toxicity equivalent factors.

APPENDIX D

Waste Transfer Note

Waste Transfer Note

Description of Transfer		Driver	
Ticket Number	220814	Full Name	Andrew Campbell
Waste regulation code	17-05-04 Soils & Stones	Company Name and Address	TJ Transport Limited 127 Wickham Road, Fareham, Hampshire, PO17 5BP
Weight in Loads	1.00 Loads 8W Tipper		
Transfer Date and Time	09-Feb-2022 08:21:15	Driver Signature	
Waste Carrier Registration Number	CBDU133054	Vehicle Registration Number	V20 TJT
Order Number	1/030PE		

From		To	
Full Name	John Alying	Full Name	Will Osman
Weighbridge number	N/A	Weighbridge number	35199
SIC Code	55900		
Company Name and Address	England Civils Ltd Bargate Homes Lower road Havant PO9 3LH	Company Name and Address	T J Transport Ltd. TJ - Forest Lodge (EPR/FB3502MK), Fawley Road, Hythe, SO45 3NJ
Time and Date	09-Feb-2022 08:21:15 50.851490020752 -1.005730390549	Time and Date	09-Feb-2022 09:28:06 50.850402832031 -1.394950509071
Signature		Signature	

By signing the above I confirm that I have fulfilled my duty to apply the waste hierarchy as required by Regulation 12 of the Waste (England and Wales) Regulations 2011

APPENDIX E

Site Photographs

Client Photos





Plate 1



Plate 2



Plate 3



Plate 4



Plate 5



Plate 6

APPENDIX F

Site Photographs

Topsoil Inspection





Plate 1 – Topsoil material placed in excavation



Plate 2 – Topsoil placed in excavation



Plate 3 – Topsoil material



Plate 4 – HP01



Plate 5 – HP02 depth



Plate 6 – View of backfilled excavation area



Plate 7 – View of backfilled excavation area