SANCTUS

Site Investigation Report

The Old Colliery

Wick Lane

Pensford

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CONTENTS

Appendices

6.0 Contamination Appraisal

Sanctus has reviewed potential contamination issues by undertaking an intrusive investigation.

There were four exceedances of the CLR SGV's for Arsenic at TP01, TP02, TP03, TP12, TP13 and TP14. The concentrations were relatively low and consistent within the soils and would suggest that contaminants are naturally occurring, which is reasonably common in rock formations in the South West of the UK. However, the 95th Percentile exceeded the SGV and therefore some form of ground remediation will be necessary to break the potential pollutant pathway with the human end users for the site (intended for development for residential dwellings).

Sanctus identified no other potential contaminants at levels of concern within any of the other samples taken, and so no risk to human health was identified from other potential contaminants.

The identified sources of pollution have been assessed within the conceptual model below, examining the potential pollutant pathways identified to qualify the potential risks that they represent.

Table 2. Phase 2 Conceptual Model

Source	Pathway	Receptor	Significant Pollutant Linkage?
Soil and water contamination associated with former land uses as a Colliery & Precast Concrete Manufacture.	Dermal contact with soils	Current site occupants, maintenance workers, future site occupants	**Yes – Arsenic concentrations with soil samples exceeded the relevant guidelines.**
	Ingestion of contaminated soil	Current site occupants, maintenance workers, future site occupants	**Yes – Arsenic concentrations with soil samples exceeded the relevant guidelines.**
	Leaching / mobilisation into underlying groundwater	Groundwater and possible onward migration to surface water bodies (Salters Brook)	No – Groundwater was not encountered during the SI and no significant contamination encountered
	Deterioration of water pipework onsite leading to contamination of Potable water supply	Current site occupants, maintenance workers, future site occupant	No – no significant contamination encountered
	Consumption of home grown fruit and vegetables	Future site occupants	**Yes – Arsenic concentrations with soil samples exceeded the relevant guidelines.**

Cont…

Soil and water contamination associated with the commercial vehicle storage, repair and maintenance facility on the adjacent plot directly to the south of the site. Including dismantling and disposal of end of life vehicles.	Migration of contaminants via ground and surface water on to the subject site Migration of soil gas via permeable/fractured strata on to the subject site	Current site occupants, maintenance workers, future site occupants	No – No groundwater encountered. Possible – ground gas still to be assessed
Historic coal mining activities including railway sidings, spoil tips, mine shafts and associated mining buildings, directly surrounding the site. Numerous landfill activities within a 250m radius of the site.	Migration of contaminants via ground and surface water on to the subject site. Migration of soil gas via permeable/fractured strata on to the subject site	Current site occupants, maintenance workers, future site occupants	No – No groundwater encountered. Possible – ground gas still to be assessed

The conceptual model has identified a number of pollutant linkages at the site, which could be significant in relation to the arsenic levels identified at the site. As such, remediation works are recommended to addresses these linkages and protect construction workers and future users of the site.

Remediation options are discussed in Section 7.

The trial pits identified a varying thickness of aesthetically unsuitable made ground from 0.10m to 1.80m bgl. The made ground comprised dark grey coarse-grained sand with ash, clinker and coal in certain areas (TP01, TP03, TP06, TP08, TP09, TP10, TP12, TP13 and TP14) and demolition type waste in other areas (TP02, TP07 and TP11). This material will be unsuitable for aesthetic reasons within garden and landscape areas of the new development.

The investigation and assessment for ground gases found that due to the maximum percentage of Carbon Dioxide being above 5% Characteristic Situation 2 for ground gas protection will be considered, in order for the residential development to incorporate adequate protection measures for the gassing regime present.

Further, from the materials observed and the results of chemical analysis, Sanctus has noted that potentially Inert, Non Hazardous and Hazardous (asbestos sheets on shed roofs) wastes are present on site. Any waste, including soils, should be characterised under current waste legislation before being disposed of. Sanctus can advise on waste characterisation if disposal is necessary.

9.0 Conclusions

Sanctus had been instructed by Tom Smart to investigate the ground conditions at their site, The Old Colliery, Wick Lane, Pensford. BS39 4BU.

Sanctus carried out fourteen trial pits to a maximum depth of 3.20m bgl on the 11th November 2009 and obtained soil samples, which were subsequently analysed for contaminants of concern. Monitoring wells to assess the gassing and hydraulic regimes beneath the site were installed on the 8th December 2009.

The trial pits identified varying types and thicknesses of made ground at the site. In general the surface 500mm of made ground was composed of dark grey sand with much ash, clinker and coal fragments and several trial pits encountered demolition type waste. Below this, Made Ground comprised colliery spoil (natural reworked mudstones and sandstones) from the historic mining operations. No groundwater was encountered within any of the trial pit excavations.

Chemical analysis returned levels of Arsenic exceeding the Residential SGV, which statistical analysis confirmed to be potentially significant. The analysis results did not identify any other contaminants elevated above the relevant guidance for a residential development scenario.

Therefore, remediation was recommended to break the pollutant pathway, in the form of a capping layer. To implement this, some 600mm of Made Ground will need to be removed from areas proposed for gardens or soft landscaping and either used as engineering fill below 600mm in areas of garden or soft landscaping, or disposal offsite. The capping layer should comprise a geomembrane overlain by suitable subsoil and topsoil (at least 150mm).

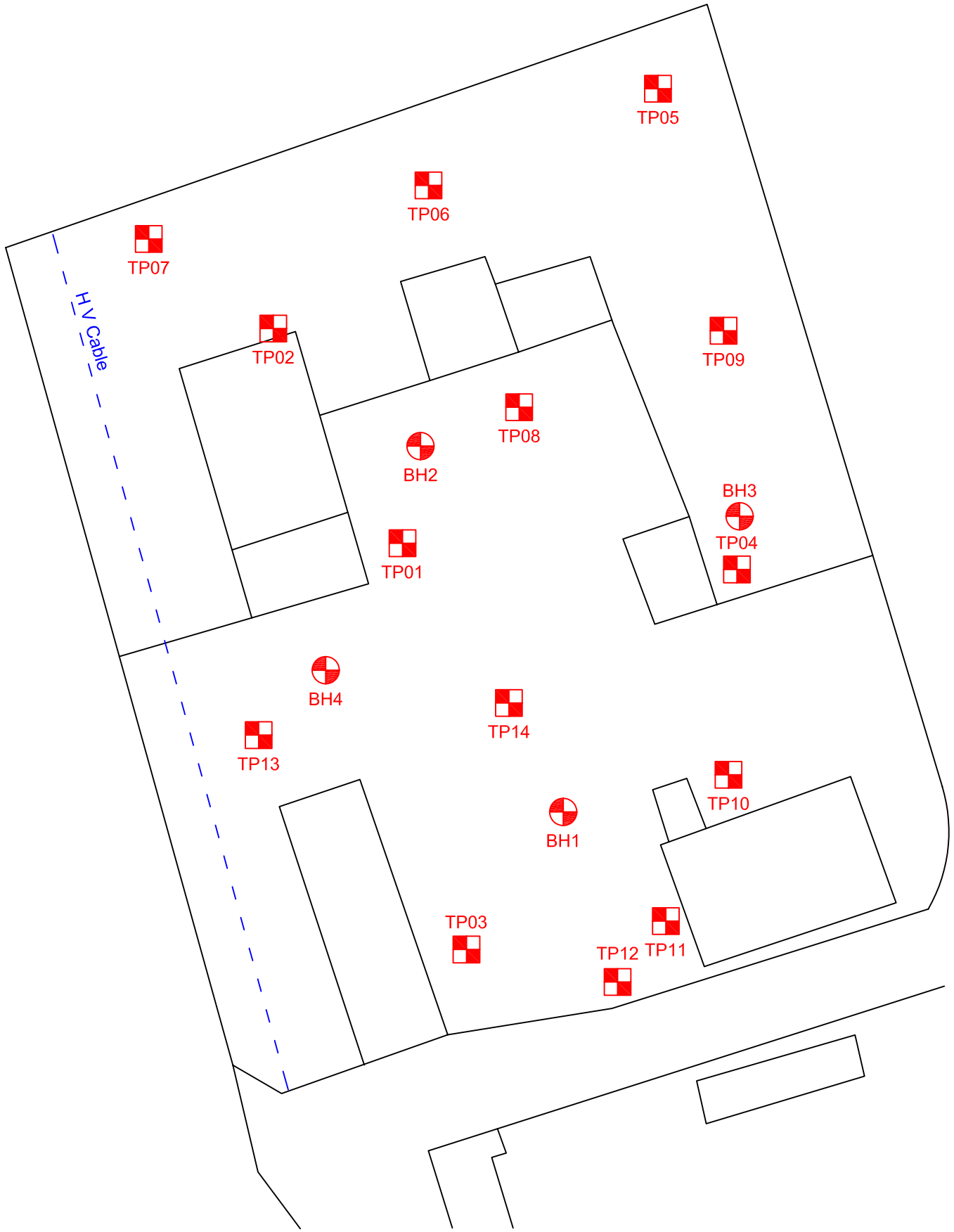
The Sanctus ground gas investigation concluded that due to the maximum concentration of Carbon Dioxide being above 5%, within the guidance detailed in CIRIA C665, Characteristic Situation 2 for ground gas protection will be considered,

in order for the residential development to incorporate adequate protection measures for the gassing regime present. Further details are found in section 7.2.

A remediation strategy will need to be produced in line with the recommendations made in this report, possibly including ground gas protection measures, and agreed with Bath and North East Somerset Council prior to any remedial works commencing.

Appendix A

Drawing D886/001 Investigation Location Plan



LEGEND

TP01 Trial Pit Location

BH1 Borehole Location

NOTES

Rev.	Description	Date
A	First Issue	12/11/2009

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Site:
Former Dabros Site
Pensford

Client: Tom Smart

Title: Trial Pit Location Plan

Scale: NTS	Drawn By: AG
Contract No. 886	Dwg No. D886/001

Appendix B

Exploratory Hole Logs

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Borehole No
BH1
Sheet 1 of 1

Project Name	Project No.	Co-ords: -	Hole Type
Former Dabros Site, Pensford	S886		WS
Location: Wick Lane, Pensford		Level: -	Scale 1:50
Client: Tom Smart		Dates: 08/12/2009	Logged By AW

Well	Water Strikes	Samples & In Situ Testing			Depth (m)	Level (m AOD)	Legend	Stratum Description
		Depth (m)	Type	Results				
								End of Borehole at 2.25 m
			Type	Results				

Remarks: No groundwater encountered

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Borehole No
BH2
Sheet 1 of 1

Project Name	Project No.	Co-ords: -	Hole Type
Former Dabros Site, Pensford	S886		WS
Location: Wick Lane, Pensford		Level: -	Scale 1:50
Client: Tom Smart		Dates: 08/12/2009	Logged By AW

Well	Water Strikes	Samples & In Situ Testing			Depth (m)	Level (m AOD)	Legend	Stratum Description
		Depth (m)	Type	Results				
								End of Borehole at 2.25 m
			Type	Results				

Remarks: No groundwater encountered

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Borehole No
BH3
Sheet 1 of 1

Project Name	Project No.	Co-ords: -	Hole Type
Former Dabros Site, Pensford	S886		WS
Location: Wick Lane, Pensford		Level: -	Scale 1:50
Client: Tom Smart		Dates: 08/12/2009	Logged By AW

Well	Water Strikes	Samples & In Situ Testing			Depth (m)	Level (m AOD)	Legend	Stratum Description
		Depth (m)	Type	Results				
								End of Borehole at 2.25 m
			Type	Results				

Remarks: No groundwater encountered

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Borehole No
BH4
Sheet 1 of 1

Project Name	Project No.	Co-ords: -	Hole Type
Former Dabros Site, Pensford	S886		WS
Location: Wick Lane, Pensford		Level: -	Scale 1:50
Client: Tom Smart		Dates: 08/12/2009	Logged By AW

Well	Water Strikes	Samples & In Situ Testing			Depth (m)	Level (m AOD)	Legend	Stratum Description
		Depth (m)	Type	Results				
								End of Borehole at 2.25 m
			Type	Results				

Remarks: No groundwater encountered

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Trialpit No
01
Sheet 1 of 1

Project Name	Project No.	Co-ords: -	Date
Former Dabros Site, Pensford	S886	Level: -	11/11/2009
Location: Wick Lane, Pensford		Dimensions: 2.00m (Depth 2.30m, 0.75m)	Scale 1:25
Client: Tom Smart			Logged By AW

Samples & In Situ Testing			Depth (m)	Level (m AOD)	Legend	Stratum Description
Depth (m)	Type	Results				
			0.10			Grey angular subbase stone with vegetation and roots. (MADE GROUND)
0.50	EW					Dark grey/black coarse sand with fragments of clinker, ash, coal and occasional brick cobbles. (MADE GROUND)
			1.00			Soft brown sandy CLAY with much subangular gravel. (CLAY)
1.60	ES		1.60			Soft brown sandy CLAY with much angular gravels and cobbles of weathered SANDSTONE. (CLAY)
			2.20			Grey/brown coarse grained SANDSTONE with occasional lenses of soft, brown CLAY. (SANDSTONE)
			2.30			Trialpit Complete at 2.30 m

Remarks:

Groundwater:

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Trialpit No
02
Sheet 1 of 1

Project Name	Project No.	Co-ords: -	Date
Former Dabros Site, Pensford	S886	Level: -	11/11/2009
Location: Wick Lane, Pensford		Dimensions: 2.00m, Depth 1.80m, 0.75m	Scale 1:25
Client: Tom Smart			Logged By AW

Samples & In Situ Testing			Depth (m)	Level (m AOD)	Legend	Stratum Description
Depth (m)	Type	Results				
			0.10			Disused cast iron pipe (MADE GROUND)
						Grey brown angular subbase gravel with soil matrix including concrete lintels and curbstones, bricks, concrete, plastic bags, corrugated iron, reinforcing bar, general demolition material. (MADE GROUND)
1.20	ES					
			1.80			Trialpit Complete at 1.80 m

Remarks: Trial pit terminated on a solid concrete wall/floor at 1.8m

Groundwater:

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Trialpit No
03
Sheet 1 of 1

Project Name	Project No.	Co-ords: -	Date
Former Dabros Site, Pensford	S886	Level: -	11/11/2009
Location: Wick Lane, Pensford		Dimensions: 3.00m, Depth 2.00m, 0.75m	Scale 1:25
Client: Tom Smart			Logged By AW

Samples & In Situ Testing			Depth (m)	Level (m AOD)	Legend	Stratum Description
Depth (m)	Type	Results				
			0.10			Grey angular subbase stone with vegetation and roots. (MADE GROUND)
0.25	ES					Dark grey/black coarse sand with fragments of clinker, ash, coal and occasional brick cobbles. (MADE GROUND)
			0.50			Soft brown sandy CLAY with much angular gravels and cobbles of weathered SANDSTONE. (MADE GROUND?)
			0.80			Red/brown coarse clayey, crumbly SAND with much angular gravels and cobbles SANDSTONE. (MADE GROUND?)
1.00	ES					
			1.40			Dark grey, coarse SAND. (MADE GROUND?)
			1.80			Grey/brown coarse grained SANDSTONE with occasional lenses of soft, brown CLAY. (SANDSTONE)
			2.00			Trialpit Complete at 2.00 m

1
2
3
4

Remarks: Two foundations found in initial trialpit so it was excavated perpendicular to these

Groundwater:

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Trialpit No
04
Sheet 1 of 1

Project Name	Project No.	Co-ords: -	Date
Former Dabros Site, Pensford	S886	Level: -	11/11/2009
Location: Wick Lane, Pensford		Dimensions: 3.00m, Depth 2.90m, 0.75m	Scale 1:25
Client: Tom Smart			Logged By AW

Samples & In Situ Testing			Depth (m)	Level (m AOD)	Legend	Stratum Description
Depth (m)	Type	Results				
			0.10			Grey angular subbase stone with vegetation and roots. (MADE GROUND)
						Dark grey, fine grained, laminated MUDSTONE, weak (Colliery spoil). (MADE GROUND?)
1.50	ES		1.50			Red/brown coarse clayey, crumbly SAND with much angular gravels and cobbles SANDSTONE. (MADE GROUND)
			1.75			Soft brown sandy CLAY with much subangular gravel. (CLAY)
			2.90			Trialpit Complete at 2.90 m

Remarks:

Groundwater:

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Trialpit No
05
Sheet 1 of 1

Project Name	Project No.	Co-ords: -	Date
Former Dabros Site, Pensford	S886	Level: -	11/11/2009
Location: Wick Lane, Pensford		Dimensions: 2.00m, Depth 2.60m, 0.75m	Scale 1:25
Client: Tom Smart			Logged By AW

Samples & In Situ Testing			Depth (m)	Level (m AOD)	Legend	Stratum Description
Depth (m)	Type	Results				
						Grey angular subbase stone with vegetation and roots. (MADE GROUND)
			0.20			
						Soft brown sandy CLAY with much angular gravels and cobbles of weathered SANDSTONE. Occasional fragments of clinker and ash. (MADE GROUND)
0.50	ES					
			1.10			
1.20	ES					Dark grey, fine grained, laminated MUDSTONE, weak (Colliery spoil). (MADE GROUND?)
			2.60			Trialpit Complete at 2.60 m

Remarks:

Groundwater:

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Trialpit No
06
Sheet 1 of 1

Project Name	Project No.	Co-ords: -	Date
Former Dabros Site, Pensford	S886	Level: -	11/11/2009
Location: Wick Lane, Pensford		Dimensions: 2.00m, Depth 2.20m, 0.75m	Scale 1:25
Client: Tom Smart			Logged By AW

Samples & In Situ Testing			Depth (m)	Level (m AOD)	Legend	Stratum Description
Depth (m)	Type	Results				
			0.10			Grey angular subbase stone with vegetation and roots. (MADE GROUND)
0.40	ES					Dark grey/black coarse sand with fragments of clinker, ash, coal and occasional brick cobbles. (MADE GROUND)
			0.50			Dark grey, fine grained, laminated MUDSTONE, weak (Colliery spoil). (MADE GROUND)
1.20	ES		1.20			Red/brown coarse clayey, crumbly SAND with much angular gravels and cobbles SANDSTONE (MADE GROUND)
			2.10			Grey/brown coarse grained SANDSTONE with occasional lenses of soft, brown CLAY. (SANDSTONE)
			2.20			Trialpit Complete at 2.20 m

Remarks:

Groundwater:

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Trialpit No
07
Sheet 1 of 1

Project Name	Project No.	Co-ords: -	Date
Former Dabros Site, Pensford	S886	Level: -	11/11/2009
Location: Wick Lane, Pensford		Dimensions: 2.00m, Depth 1.40m, 0.75m	Scale 1:25
Client: Tom Smart			Logged By AW

Samples & In Situ Testing			Depth (m)	Level (m AOD)	Legend	Stratum Description
Depth (m)	Type	Results				
			0.10			Grey angular subbase stone with vegetation and roots. (MADE GROUND)
						Grey brown angular subbase gravel with soil matrix including concrete lintels and curbstones, bricks, concrete, plastic bags, corrugated iron, reinforcing bar, rubber tyre, general demolition material. (MADE GROUND)
1.00	ES					
			1.40			Trialpit Complete at 1.40 m

Remarks: Trial pit terminated at 1.4m due to concrete/brick floor structure

Groundwater:

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Trialpit No
08
Sheet 1 of 1

Project Name	Project No.	Co-ords: -	Date
Former Dabros Site, Pensford	S886	Level: -	11/11/2009
Location: Wick Lane, Pensford		Dimensions: 2.00m, Depth 1.90m, 0.75m	Scale 1:25
Client: Tom Smart			Logged By AW

Samples & In Situ Testing			Depth (m)	Level (m AOD)	Legend	Stratum Description
Depth (m)	Type	Results				
			0.10			Grey angular subbase stone with vegetation and roots. (MADE GROUND)
0.30	ES					Dark grey/black coarse sand with fragments of clinker, ash, coal and occasional brick cobbles. (MADE GROUND)
0.50	ES		0.50			Red/brown coarse clayey, crumbly SAND with much angular gravels and cobbles SANDSTONE (MADE GROUND)
			1.80			Grey/brown coarse grained SANDSTONE with occasional lenses of soft, brown CLAY. (SANDSTONE)
			1.90			Trialpit Complete at 1.90 m

Remarks: Clay pipe observed at 1.0m with a solid black crystalline resdiue in pipe

Groundwater:

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Trialpit No
09
Sheet 1 of 1

Project Name	Project No.	Co-ords: -	Date
Former Dabros Site, Pensford	S886	Level: -	11/11/2009
Location: Wick Lane, Pensford		Dimensions: 2.00m, Depth 3.20m, 0.75m	Scale 1:25
Client: Tom Smart			Logged By AW

Samples & In Situ Testing			Depth (m)	Level (m AOD)	Legend	Stratum Description
Depth (m)	Type	Results				
			0.10			Grey angular subbase stone with vegetation and roots. (MADE GROUND)
						Dark grey/black coarse sand with fragments of clinker, ash, coal and occasional brick cobbles. (MADE GROUND)
			0.50			
0.60	ES					Dark grey, fine grained, laminated MUDSTONE, weak, with occasional coal fragments (Colliery spoil). (MADE GROUND)
			3.20			Trialpit Complete at 3.20 m

Remarks: Trial pit terminated due to collapse

Groundwater:

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Trialpit No
10
Sheet 1 of 1

Project Name	Project No.	Co-ords: -	Date
Former Dabros Site, Pensford	S886	Level: -	11/11/2009
Location: Wick Lane, Pensford		Dimensions: 2.00m (0.75m) Depth 1.90m	Scale 1:25
Client: Tom Smart			Logged By AW

Samples & In Situ Testing			Depth (m)	Level (m AOD)	Legend	Stratum Description
Depth (m)	Type	Results				
			0.10			Grey angular subbase stone with vegetation and roots. (MG)
0.40	ES					Dark grey/black coarse sand with fragments of clinker, ash, coal and occasional brick cobbles. (MADE GROUND?)
			0.80			Soft brown sandy CLAY with much angular gravels and cobbles of weathered SANDSTONE. (MADE GROUND?)
			1.80			SANDSTONE (SANDSTONE)
			1.90			Trialpit Complete at 1.90 m

Remarks:

Groundwater:

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Trialpit No
11
Sheet 1 of 1

Project Name	Project No.	Co-ords: -	Date
Former Dabros Site, Pensford	S886	Level: -	11/11/2009
Location: Wick Lane, Pensford		Dimensions: 2.00m, Depth 1.60m, 0.75m	Scale 1:25
Client: Tom Smart			Logged By AW

Samples & In Situ Testing			Depth (m)	Level (m AOD)	Legend	Stratum Description
Depth (m)	Type	Results				
						Grey brown angular subbase gravel with soil matrix including concrete lintels, bricks, concrete, general demolition material. (MADE GROUND)
			0.50			Trialpit Complete at 1.60 m

Remarks: Trial terminated at 0.5m due to concrete obstruction

Groundwater:

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Trialpit No
12
Sheet 1 of 1

Project Name	Project No.	Co-ords: -	Date
Former Dabros Site, Pensford	S886	Level: -	11/11/2009
Location: Wick Lane, Pensford		Dimensions: 2.00m (0.75m) Depth 1.60m	Scale 1:25
Client: Tom Smart			Logged By AW

Samples & In Situ Testing			Depth (m)	Level (m AOD)	Legend	Stratum Description
Depth (m)	Type	Results				
			0.10			Grey angular subbase stone with vegetation and roots. (MADE GROUND)
						Light grey, cobbles and boulders of angular SANDSTONE in a coarse gravel matrix with occasional fragments of clinker and ash. (MADE GROUND)
			0.50			Soft brown sandy CLAY with much angular gravels and cobbles of weathered SANDSTONE. (MADE GROUND)
1.00	ES					
			1.50			Grey/brown coarse grained SANDSTONE with occasional lenses of soft, brown CLAY. (SANDSTONE)
			1.60			Trialpit Complete at 1.60 m

Remarks:

Groundwater:

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Trialpit No
13
Sheet 1 of 1

Project Name	Project No.	Co-ords: -	Date
Former Dabros Site, Pensford	S886	Level: -	11/11/2009
Location: Wick Lane, Pensford		Dimensions: 2.00m (Depth 3.10m, 0.75m)	Scale 1:25
Client: Tom Smart			Logged By AW

Samples & In Situ Testing			Depth (m)	Level (m AOD)	Legend	Stratum Description
Depth (m)	Type	Results				
			0.10			Grey angular subbase stone with vegetation and roots. (MADE GROUND)
						Dark grey/black coarse sand with fragments of clinker, ash, coal and MUDSTONE. (MADE GROUND)
1.50	ES					
			1.80			Red/brown coarse clayey, crumbly SAND with much angular gravels and cobbles SANDSTONE (MADE GROUND)
			2.80			Soft brown sandy CLAY with much subangular gravel. (CLAY)
			3.10			Trialpit Complete at 3.10 m

Remarks:

Groundwater:

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Trialpit No
14
Sheet 1 of 1

Project Name	Project No.	Co-ords: -	Date
Former Dabros Site, Pensford	S886	Level: -	11/11/2009
Location: Wick Lane, Pensford		Dimensions: 2.00m, Depth 3.00m, 0.75m	Scale 1:25
Client: Tom Smart			Logged By AW

Samples & In Situ Testing			Depth (m)	Level (m AOD)	Legend	Stratum Description
Depth (m)	Type	Results				
			0.10			Grey angular subbase stone with vegetation and roots. (MADE GROUND)
						Dark grey/black coarse sand with fragments of clinker, ash, coal and occasional brick cobbles. (MADE GROUND)
			0.50			Red/brown coarse clayey, crumbly SAND with much angular gravels and cobbles SANDSTONE (MADE GROUND)
0.90	ES					
			2.90			Grey/brown coarse grained SANDSTONE with occasional lenses of soft, brown CLAY. (SANDSTONE)
			3.00			Trialpit Complete at 3.00 m

Remarks:

Groundwater:

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Appendix C

Chemical Analysis Results (Soil)

Chemtest
The right chemistry to deliver results

Depot Road
Newmarket
CB8 0AL
Tel: 01638 606070

Sanctus Limited
Sanctus House
Stonehouse Park
Stonehouse, Glos
GL10 3UT

FAO Alexa Gray
19 November 2009

Dear Alexa Gray

Test Report Number **97743**
Your Project Reference **Former Dabios Site, Pensford - SL886**

Please find enclosed the results of analysis for the samples received 13 November 2009.

All soil samples will be retained for a period of one month and all water samples will be retained for 7 days following the date of the test report. Should you require an extended retention period then please detail your requirements in an email to customerservices@chemtest.co.uk. Please be aware that charges may be applicable for extended sample storage.

If you require any further assistance, please do not hesitate to contact the Customer Services team.

Yours sincerely

Authorised Signatory

☑ Darrell Hall	Laboratory Manager
☐ Phil Hellier	Operations Director
☐ Keith Jones	Technical Development Manager
☐ John Crawford	Quality Manager
☐ Malcolm Avis	Technical Director

UKAS TESTING
2183

mCERTS

Notes to accompany report:

- *The sign < means 'less than'*
- *Tests marked 'U' hold UKAS accreditation*
- *Tests marked 'M' hold MCertS (and UKAS) accreditation*
- *Tests marked 'N' do not currently hold UKAS accreditation*
- *Tests marked 'S' were subcontracted to an approved laboratory*
- *n/e means 'not evaluated'*
- *i/s means 'insufficient sample'*
- *u/s means 'unsuitable sample'*
- *Comments or interpretations are outside of the scope of UKAS accreditation*
- *The results relate only to the items tested*
- *Stones represent the quantity of material removed prior to analysis*
- *All results are expressed on a dry weight basis*
- *The following tests were analysed on samples as received and the results subsequently corrected to a dry weight basis TPH, BTEX, VOCs, SVOCs, PCBs, phenols*
- *For all other tests the samples were dried at < 37°C prior to analysis*
- *Uncertainties of measurement for the determinands tested are available upon request*
- *Soil descriptions, including colour and texture, are beyond the scope of MCertS accreditation*

Sanctus Limited
Sanctus House
Stonehouse Park
Stonehouse, Glos
GL10 3UT

FAO Alexa Gray

LABORATORY TEST REPORT

Results of analysis of 11 samples
received 13 November 2009

Former Dabios Site, Pensford - SL886

Chemtest

Report Date
19 November 2009

Login Batch No					97743							
Chemtest LIMS ID					AE47489	AE47491	AE47493	AE47494	AE47498	AE47499	AE47500	AE47502
Sample ID					TP01	TP02	TP03	TP04	TP06	TP07	TP08	TP09
Sample No												
Sampling Date					11/11/2009	11/11/2009	11/11/2009	11/11/2009	11/11/2009	11/11/2009	11/11/2009	11/11/2009
Depth					0.5m	1.2m	1m	1.5m	1.2m	1m	0.3m	0.6m
Matrix					*SOIL*	*SOIL*	*SOIL*	*SOIL*	*SOIL*	*SOIL*	*SOIL*	*SOIL*
SOP↓	Determinand↓	CAS No↓	Units↓	*								
2120	Boron (hot water soluble)	7440428	mg kg-¹	M	0.8	1.7	1.2	2.2	1.6		1.3	2.2
	Sulfate (2:1 water soluble) as SO4	14808798	g l-¹	M	0.28	0.90	0.10	0.14	0.14		0.11	1.4
2175	Sulfur (total TRL report 447)		%	N	0.53	0.39	0.58	0.06	0.20		0.03	0.25
2300	Cyanide (free)	57125	mg kg-¹	M	<0.50	<0.50	<0.50	<0.50	<0.50		<0.50	<0.50
	Cyanide (total)	57125	mg kg-¹	M	<0.50	<0.50	<0.50	<0.50	<0.50		<0.50	<0.50
2430	Sulfate (total) by BS1377 (HCl extract)	14808798	%	N	0.65	0.45	0.50	0.08	0.29		0.05	0.25
2450	Arsenic	7440382	mg kg-¹	M	35	58	62	27	25		29	16
	Cadmium	7440439	mg kg-¹	M	0.31	2.4	0.22	0.81	0.13		0.83	0.19
	Chromium	7440473	mg kg-¹	M	18	36	29	12	14		18	9.9
	Copper	7440508	mg kg-¹	M	77	56	17	37	9.1		40	24
	Mercury	7439976	mg kg-¹	M	0.10	0.12	0.36	0.46	0.15		0.23	0.25
	Nickel	7440020	mg kg-¹	M	120	66	19	52	17		30	12
	Lead	7439921	mg kg-¹	M	31	100	41	410	30		100	36
	Selenium	7782492	mg kg-¹	M	<0.20	<0.20	1.6	0.27	0.52		<0.20	0.58
	Zinc	7440666	mg kg-¹	M	81	800	35	160	51		120	54
2490	Chromium (hexavalent)	18540299	mg kg-¹	N	<0.5	<0.5	<0.5	<0.5	<0.5		<0.5	<0.5
2675	TPH aliphatic >C5-C6		mg kg-¹	N	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1		< 0.1	< 0.1
	TPH aliphatic >C6-C8		mg kg-¹	N	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1		< 0.1	< 0.1
	TPH aliphatic >C8-C10		mg kg-¹	N	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1		< 0.1	< 0.1
	TPH aliphatic >C10-C12		mg kg-¹	N	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1		0.9	< 0.1
	TPH aliphatic >C12-C16		mg kg-¹	N	< 0.1	2.1	< 0.1	< 0.1	< 0.1		7.6	< 0.1
	TPH aliphatic >C16-C21		mg kg-¹	N	< 0.1	57	< 0.1	< 0.1	< 0.1		36	< 0.1
	TPH aliphatic >C21-C35		mg kg-¹	N	< 0.1	130	< 0.1	< 0.1	< 0.1		90	< 0.1
	TPH aromatic >C5-C7		mg kg-¹	N	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1		< 0.1	< 0.1
	TPH aromatic >C7-C8		mg kg-¹	N	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1		< 0.1	< 0.1
	TPH aromatic >C8-C10		mg kg-¹	N	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1		< 0.1	< 0.1
	TPH aromatic >C10-C12		mg kg-¹	N	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1		4.4	< 0.1
	TPH aromatic >C12-C16		mg kg-¹	N	1.9	0.7	< 0.1	< 0.1	< 0.1		11	< 0.1
	TPH aromatic >C16-C21		mg kg-¹	N	3.8	2.9	< 0.1	< 0.1	< 0.1		7.8	< 0.1

All tests undertaken between 13-Nov-2009 and 19-Nov-2009

* Accreditation status

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Sanctus Limited
Sanctus House
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FAO Alexa Gray

LABORATORY TEST REPORT

Results of analysis of 11 samples
received 13 November 2009

Former Dabios Site, Pensford - SL886

Chemtest

Report Date
19 November 2009

Login Batch No					**97743**		
Chemtest LIMS ID					AE47504	AE47505	AE47506
Sample ID					TP12	TP13	TP14
Sample No							
Sampling Date					11/11/2009	11/11/2009	11/11/2009
Depth					1m	1.5m	0.9m
Matrix					*SOIL*	*SOIL*	*SOIL*
SOP↓	Determinand↓	CAS No↓	Units↓				
2120	Boron (hot water soluble)	7440428	mg kg-¹	M	0.7	1.3	0.8
	Sulfate (2:1 water soluble) as SO4	14808798	g l-¹	M	0.07	0.23	0.23
2175	Sulfur (total TRL report 447)		%	N	0.76	0.15	0.30
2300	Cyanide (free)	57125	mg kg-¹	M	<0.50	<0.50	<0.50
	Cyanide (total)	57125	mg kg-¹	M	<0.50	<0.50	<0.50
2430	Sulfate (total) by BS1377 (HCl extract)	14808798	%	N	0.80	0.13	0.32
2450	Arsenic	7440382	mg kg-¹	M	57	58	42
	Cadmium	7440439	mg kg-¹	M	0.50	0.60	0.17
	Chromium	7440473	mg kg-¹	M	46	19	20
	Copper	7440508	mg kg-¹	M	20	68	15
	Mercury	7439976	mg kg-¹	M	0.19	0.52	0.33
	Nickel	7440020	mg kg-¹	M	27	62	20
	Lead	7439921	mg kg-¹	M	66	110	40
	Selenium	7782492	mg kg-¹	M	1.8	0.24	2.0
	Zinc	7440666	mg kg-¹	M	94	110	35
2490	Chromium (hexavalent)	18540299	mg kg-¹	N	<0.5	<0.5	<0.5
2675	TPH aliphatic >C5-C6		mg kg-¹	N	< 0.1	< 0.1	< 0.1
	TPH aliphatic >C6-C8		mg kg-¹	N	< 0.1	< 0.1	< 0.1
	TPH aliphatic >C8-C10		mg kg-¹	N	< 0.1	< 0.1	< 0.1
	TPH aliphatic >C10-C12		mg kg-¹	N	< 0.1	< 0.1	< 0.1
	TPH aliphatic >C12-C16		mg kg-¹	N	< 0.1	< 0.1	< 0.1
	TPH aliphatic >C16-C21		mg kg-¹	N	< 0.1	< 0.1	< 0.1
	TPH aliphatic >C21-C35		mg kg-¹	N	< 0.1	< 0.1	< 0.1
	TPH aromatic >C5-C7		mg kg-¹	N	< 0.1	< 0.1	< 0.1
	TPH aromatic >C7-C8		mg kg-¹	N	< 0.1	< 0.1	< 0.1
	TPH aromatic >C8-C10		mg kg-¹	N	< 0.1	< 0.1	< 0.1
	TPH aromatic >C10-C12		mg kg-¹	N	< 0.1	< 0.1	< 0.1
	TPH aromatic >C12-C16		mg kg-¹	N	0.7	1.5	< 0.1
	TPH aromatic >C16-C21		mg kg-¹	N	1.5	1.2	< 0.1

All tests undertaken between 13-Nov-2009 and 19-Nov-2009

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LABORATORY TEST REPORT

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Former Dabios Site, Pensford - SL886

Chemtest

Report Date
19 November 2009

					97743							
					AE47489	AE47491	AE47493	AE47494	AE47498	AE47499	AE47500	AE47502
					TP01	TP02	TP03	TP04	TP06	TP07	TP08	TP09
					11/11/2009	11/11/2009	11/11/2009	11/11/2009	11/11/2009	11/11/2009	11/11/2009	11/11/2009
					0.5m	1.2m	1m	1.5m	1.2m	1m	0.3m	0.6m
					SOIL	*SOIL*	*SOIL*	*SOIL*	*SOIL*	*SOIL*	*SOIL*	*SOIL*
2675	TPH aromatic >C21-C35		mg kg-1	N	2.0	4.0	< 0.1	< 0.1	< 0.1		150	< 0.1
	Total Petroleum Hydrocarbons		mg kg-1	N	< 10	200	< 10	< 10	< 10		310	< 10
2700	Naphthalene	91203	mg kg-1	M	0.18	0.11	< 0.1	< 0.1	< 0.1		0.1	< 0.1
	Acenaphthylene	208968	mg kg-1	M	0.75	< 0.1	< 0.1	< 0.1	< 0.1		< 0.1	< 0.1
	Acenaphthene	83329	mg kg-1	M	1.1	< 0.1	< 0.1	0.17	< 0.1		0.21	< 0.1
	Fluorene	86737	mg kg-1	M	1.9	0.25	< 0.1	< 0.1	< 0.1		0.25	< 0.1
	Phenanthrene	85018	mg kg-1	M	3	1.1	0.15	0.48	0.12		2	0.51
	Anthracene	120127	mg kg-1	M	0.18	< 0.1	< 0.1	< 0.1	< 0.1		0.15	< 0.1
	Fluoranthene	206440	mg kg-1	M	0.85	0.53	< 0.1	< 0.1	< 0.1		0.96	0.1
	Pyrene	129000	mg kg-1	M	0.8	1.1	< 0.1	< 0.1	0.13		1	0.35
	Benzo[a]anthracene	56553	mg kg-1	M	0.25	< 0.1	< 0.1	< 0.1	< 0.1		0.44	< 0.1
	Chrysene	218019	mg kg-1	M	1.4	0.21	< 0.1	< 0.1	< 0.1		1	< 0.1
	Benzo[b]fluoranthene	205992	mg kg-1	M	0.18	0.42	< 0.1	< 0.1	< 0.1		0.76	< 0.1
	Benzo[k]fluoranthene	207089	mg kg-1	M	0.2	0.13	< 0.1	< 0.1	< 0.1		0.16	< 0.1
	Benzo[a]pyrene	50328	mg kg-1	M	0.16	0.21	< 0.1	< 0.1	< 0.1		0.73	< 0.1
	Dibenzo[a,h]anthracene	53703	mg kg-1	M	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1		< 0.1	< 0.1
	Indeno[1,2,3-cd]pyrene	193395	mg kg-1	M	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1		0.25	< 0.1
	Benzo[g,h,i]perylene	191242	mg kg-1	M	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1		0.29	< 0.1
	Total (of 16) PAHs		mg kg-1	M	11	4.1	< 2	< 2	< 2		8.3	< 2
2920	Phenols (total)		mg kg-1	N	<0.3	<0.3	<0.3	<0.3	<0.3		<0.3	<0.3
2010	pH		-	M	8.3	8.0	7.5	8.1	7.7		8.1	6.0
2030	Moisture		%	n/a	20.2	22.2	16.5	8.51	13		14.7	14.3
	Stones content (>50mm)		%	n/a	<0.02	<0.02	<0.02	<0.02	<0.02		<0.02	<0.02
2140	Soil colour			n/a	black	brown	brown	brown	brown		brown	brown
	Soil texture			n/a	sand	sand	sand	sand	sand		sand	clay
	Other material			n/a	stones	stones	stones	slate	stones		stones	slate
2186	Asbestos Containing Material		-	N	not found	not found	not found	not found	not found	not found	not found	not found

All tests undertaken between 13-Nov-2009 and 19-Nov-2009

* Accreditation status

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LABORATORY TEST REPORT

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received 13 November 2009

Former Dabios Site, Pensford - SL886

Chemtest

Report Date
19 November 2009

					97743		
					AE47504	AE47505	AE47506
					TP12	TP13	TP14
					11/11/2009	11/11/2009	11/11/2009
					1m	1.5m	0.9m
					SOIL	*SOIL*	*SOIL*
2675	TPH aromatic >C21-C35		mg kg-¹	N	0.9	1.2	< 0.1
	Total Petroleum Hydrocarbons		mg kg-¹	N	< 10	< 10	< 10
2700	Naphthalene	91203	mg kg-¹	M	< 0.1	< 0.1	< 0.1
	Acenaphthylene	208968	mg kg-¹	M	< 0.1	0.13	< 0.1
	Acenaphthene	83329	mg kg-¹	M	< 0.1	0.17	< 0.1
	Fluorene	86737	mg kg-¹	M	< 0.1	< 0.1	< 0.1
	Phenanthrene	85018	mg kg-¹	M	0.67	1.1	0.21
	Anthracene	120127	mg kg-¹	M	< 0.1	< 0.1	< 0.1
	Fluoranthene	206440	mg kg-¹	M	0.36	0.4	0.13
	Pyrene	129000	mg kg-¹	M	0.48	0.12	0.12
	Benzo[a]anthracene	56553	mg kg-¹	M	0.2	0.21	< 0.1
	Chrysene	218019	mg kg-¹	M	0.47	0.65	< 0.1
	Benzo[b]fluoranthene	205992	mg kg-¹	M	< 0.1	0.11	< 0.1
	Benzo[k]fluoranthene	207089	mg kg-¹	M	< 0.1	< 0.1	< 0.1
	Benzo[a]pyrene	50328	mg kg-¹	M	< 0.1	0.11	< 0.1
	Dibenzo[a,h]anthracene	53703	mg kg-¹	M	< 0.1	< 0.1	< 0.1
	Indeno[1,2,3-cd]pyrene	193395	mg kg-¹	M	< 0.1	< 0.1	< 0.1
	Benzo[g,h,i]perylene	191242	mg kg-¹	M	< 0.1	< 0.1	< 0.1
	Total (of 16) PAHs		mg kg-¹	M	2.2	3	< 2
2920	Phenols (total)		mg kg-¹	N	<0.3	<0.3	<0.3
2010	pH		-	M	7.3	7.7	6.2
2030	Moisture		%	n/a	15.9	19.3	14.8
	Stones content (>50mm)		%	n/a	<0.02	<0.02	<0.02
2140	Soil colour			n/a	brown	brown	brown
	Soil texture			n/a	sand	sand	sand
	Other material			n/a	stones	stones	stones
2186	Asbestos Containing Material		-	N	not found	not found	not found

All tests undertaken between 13-Nov-2009 and 19-Nov-2009

This report should be interpreted in conjunction with the notes on the accompanying cover page

Appendix D

Statistical Analysis

SANCTUS

Site: Dabro, Pensford

		Contaminant Concentration (mg/kg)					
Sample ID	Depth (m)	Contam 1 Arsenic	Contam 2	Contam 3	Contam 4	Contam 5	Contam 6
TP01	0.5	35.00					
TP02	1.2	58.00					
TP03	1.0	**62.00**					
TP04	1.5	27.00					
TP06	1.2	25.00					
TP08	0.3	29.00					
TP09	0.6	16.00					
TP12	0.6	57.00					
TP13	0.5	58.00					
TP14	0.9	42.00					
max value test							
max y		1.79239169	0	0	0	0	0
mean y		1.57382616	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
standard deviation y		0.19901672	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
T=		1.09822697	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
Tcrit=		2.18	#N/A	#N/A	#N/A	#N/A	#N/A
Any Outliers?		No Outliers	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
Action?		None	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
mean value test							
mean x		40.90	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
standard deviation x		16.7759749	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
t		1.833	#N/A	#N/A	#N/A	#N/A	#N/A
number, n		10	0	0	0	0	0
square root of n		3.16227766	0	0	0	0	0
US95		50.6241183	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!

Notes:
It is recommended that at least 5-samples are required to perform a suitable mean value test
A maximum of 50-samples can be inputted into the table
Maximum values are returned in bold

Appendix E

Ground Gas Monitoring Results

SANCTUS

Gas Monitoring Record Sheet

Site: S886 - Dabro, Pensford

Weather: Cold and Sunny, frozen ground
Atmospheric Pressure: 1004mb, Groundwater: Dry, Base of Borehole: m bgl.
Equipment Used: GA2000 Landfill Gas Analyser

Date	Location	Time (mins)	CH_4 (%vol)	CO_2 (%vol)	O_2 (%vol)	Flow Rate (l/hr)
18/12/2009	BH01	0	0.0	0.0	21.3	-0.1 to + 0.1
		+1	0.0	0.1	21.2	
		+2	0.0	0.1	21.1	
		+3	0.0	0.1	21.2	
		+4	0.0	0.1	21.3	
		+5	0.0	0.1	21.2	
		+8	0.0	0.1	21.3	
		+10	0.0	0.1	21.3	
		+13	0.0	0.1	21.3	
		+15	0.0	0.1	21.4	

Weather: Cold and Sunny, frozen ground
Atmospheric Pressure: 1004mb, Groundwater: Dry, Base of Borehole: m bgl.
Equipment Used: GA2000 Landfill Gas Analyser

Date	Location	Time (mins)	CH_4 (%vol)	CO_2 (%vol)	O_2 (%vol)	Flow Rate (l/hr)
18/12/2009	BH02	0	0.0	0.0	21.3	-0.1 to + 0.1
		+1	0.0	0.8	20.3	
		+2	0.0	0.8	20.4	
		+3	0.0	0.8	20.4	
		+4	0.0	0.8	20.3	
		+5	0.0	0.8	20.3	
		+8	0.0	0.8	20.3	
		+10	0.0	0.8	20.3	
		+13	0.0	0.8	20.3	
		+15	0.0	0.8	20.3	

Weather: Cold and Sunny, frozen ground
Atmospheric Pressure: 1004mb, Groundwater: Dry, Base of Borehole: m bgl.
Equipment Used: GA2000 Landfill Gas Analyser

Date	Location	Time (mins)	CH_4 (%vol)	CO_2 (%vol)	O_2 (%vol)	Flow Rate (l/hr)
18/12/2009	BH03	0	0.0	0.0	21.3	-0.1 to + 0.1
		+1	0.0	0.2	21.3	
		+2	0.0	0.2	21.3	
		+3	0.0	0.2	21.3	
		+4	0.0	0.2	21.3	
		+5	0.0	0.1	21.3	
		+8	0.0	0.1	21.2	
		+10	0.0	0.1	21.3	
		+13	0.0	0.1	21.3	
		+15	0.0	0.1	21.2	

Weather: Cold and Sunny, frozen ground
Atmospheric Pressure: 1004mb, Groundwater: Dry, Base of Borehole: m bgl.
Equipment Used: GA2000 Landfill Gas Analyser

Date	Location	Time (mins)	CH_4 (%vol)	CO_2 (%vol)	O_2 (%vol)	Flow Rate (l/hr)
18/12/2009	BH04	0	0.0	0.0	21.3	-0.1 to + 0.1
		+1	0.0	0.6	20.6	
		+2	0.0	0.6	20.6	
		+3	0.0	0.6	20.6	
		+4	0.0	0.6	20.6	
		+5	0.0	0.6	20.6	
		+8	0.0	0.6	20.6	
		+10	0.0	0.6	20.6	
		+13	0.0	0.6	20.6	
		+15	0.0	0.6	20.6	

SANCTUS

Gas Monitoring Record Sheet

Site: S886 - Dabro, Pensford

Weather: Overcast, frozen ground
Atmospheric Pressure: 992mb, Groundwater: Dry, Base of Borehole: m bgl.
Equipment Used: GA2000 Landfill Gas Analyser

Date	Location	Time (mins)	CH_4 (%vol)	CO_2 (%vol)	O_2 (%vol)	Flow Rate (l/hr)
21/01/2010	BH01	0	0.0	0.0	21.3	-0.1 to + 0.1
		+1	0.0	0.1	21.2	
		+2	0.0	0.1	21.1	
		+3	0.0	0.2	21.1	
		+4	0.0	0.2	21.1	
		+5	0.0	0.2	21.1	
		+8	0.0	0.2	21.1	
		+10	0.0	0.2	21.1	
		+13	0.0	0.2	21.1	
		+15	0.0	0.2	21.1	

Weather: Overcast, frozen ground
Atmospheric Pressure: 992mb, Groundwater: Dry, Base of Borehole: m bgl.
Equipment Used: GA2000 Landfill Gas Analyser

Date	Location	Time (mins)	CH_4 (%vol)	CO_2 (%vol)	O_2 (%vol)	Flow Rate (l/hr)
21/01/2010	BH02	0	0.0	0.0	21.3	-0.1 to + 0.1
		+1	0.0	0.8	20.3	
		+2	0.0	0.9	20.3	
		+3	0.0	0.9	20.2	
		+4	0.0	0.9	20.2	
		+5	0.0	0.9	20.2	
		+8	0.0	0.9	20.2	
		+10	0.0	0.9	20.2	
		+13	0.0	0.9	20.2	
		+15	0.0	0.9	20.2	

Weather: Overcast, frozen ground
Atmospheric Pressure: 992mb, Groundwater: Dry, Base of Borehole: m bgl.
Equipment Used: GA2000 Landfill Gas Analyser

Date	Location	Time (mins)	CH_4 (%vol)	CO_2 (%vol)	O_2 (%vol)	Flow Rate (l/hr)
21/01/2010	BH03	0	0.0	0.0	21.3	-0.1 to + 0.1
		+1	0.0	0.2	21.2	
		+2	0.0	0.2	21.2	
		+3	0.0	0.2	21.2	
		+4	0.0	0.2	21.2	
		+5	0.0	0.2	21.2	
		+8	0.0	0.2	21.2	
		+10	0.0	0.2	21.2	
		+13	0.0	0.2	21.2	
		+15	0.0	0.2	21.2	

Weather: Overcast, frozen ground
Atmospheric Pressure: 992mb, Groundwater: Dry, Base of Borehole: m bgl.
Equipment Used: GA2000 Landfill Gas Analyser

Date	Location	Time (mins)	CH_4 (%vol)	CO_2 (%vol)	O_2 (%vol)	Flow Rate (l/hr)
21/01/2010	BH04	0	0.0	0.5	21.3	-0.1 to + 0.1
		+1	0.0	0.6	20.6	
		+2	0.0	0.6	20.6	
		+3	0.0	0.6	20.6	
		+4	0.0	0.7	20.6	
		+5	0.0	0.7	20.6	
		+8	0.0	0.7	20.6	
		+10	0.0	0.6	20.6	
		+13	0.0	0.6	20.6	
		+15	0.0	0.6	20.6	

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Gas Monitoring Record Sheet

Site: S886 - Dabro, Pensford

Weather: Cold and Sunny						
Atmospheric Pressure: 1000mb, Groundwater: Dry, Base of Borehole: m bgl.						
Equipment Used: GA2000 Landfill Gas Analyser						
Date	Location	Time (mins)	CH_4 (%vol)	CO_2 (%vol)	O_2 (%vol)	Flow Rate (l/hr)
01/03/2010	BH01	0	0.0	0.0	21.3	-0.1 to + 0.1
		+1	0.0	0.0	19.5	
		+2	0.0	0.0	19.5	
		+3	0.0	0.0	19.5	
		+4	0.0	0.1	19.5	
		+5	0.1	0.1	19.5	
		+8	0.2	0.1	19.4	
		+10	0.4	0.2	19.6	
		+13	1.8	0.4	19.6	
		+15	2.4	0.4	19.7	
		18	3.1	0.4	19.6	
		20	4.5	0.5	19.7	
		25	5.0	0.5	19.7	

Weather: Cold and Sunny						
Atmospheric Pressure: 1000mb, Groundwater: Dry, Base of Borehole: m bgl.						
Equipment Used: GA2000 Landfill Gas Analyser						
Date	Location	Time (mins)	CH_4 (%vol)	CO_2 (%vol)	O_2 (%vol)	Flow Rate (l/hr)
01/03/2010	BH02	0	0.0	0.0	21.4	-0.1 to + 0.1
		+1	0.1	0.1	19.9	
		+2	0.1	0.1	19.9	
		+3	0.1	0.1	19.9	
		+4	0.1	0.1	19.9	
		+5	0.1	0.1	19.8	
		+8	0.1	0.1	19.7	
		+10	0.1	0.1	19.7	
		+13	0.1	0.1	19.8	
		+15	0.1	0.1	19.8	

Weather: Cold and Sunny						
Atmospheric Pressure: 1000mb, Groundwater: Dry, Base of Borehole: m bgl.						
Equipment Used: GA2000 Landfill Gas Analyser						
Date	Location	Time (mins)	CH_4 (%vol)	CO_2 (%vol)	O_2 (%vol)	Flow Rate (l/hr)
01/03/2010	BH03	0	0.0	0.0	21.3	-0.1 to + 0.1
		+1	0.0	0.1	20.2	
		+2	0.0	0.1	20.2	
		+3	0.0	0.1	20.3	
		+4	0.0	0.1	20.3	
		+5	0.0	0.1	20.3	
		+8	0.1	0.1	20.3	
		+10	0.1	0.1	20.3	
		+13	0.1	0.1	20.3	
		+15	0.1	0.1	20.3	

Weather: Cold and Sunny						
Atmospheric Pressure: 1000mb, Groundwater: Dry, Base of Borehole: m bgl.						
Equipment Used: GA2000 Landfill Gas Analyser						
Date	Location	Time (mins)	CH_4 (%vol)	CO_2 (%vol)	O_2 (%vol)	Flow Rate (l/hr)
01/03/2010	BH04	0	0.0	0.0	21.6	-0.1 to + 0.1
		+1	0.0	0.1	20.1	
		+2	0.0	0.4	19.9	
		+3	0.0	0.5	19.9	
		+4	0.0	0.6	19.9	
		+5	0.0	0.7	19.9	
		+8	0.0	0.7	19.9	
		+10	0.0	0.8	19.9	
		+13	0.0	0.8	19.9	
		+15	0.0	0.8	19.9	

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Gas Monitoring Record Sheet

Site: S886 - Dabro, Pensford

Weather: Sunny spells with cold blustery breeze
Atmospheric Pressure: 1017mb, Groundwater: Dry, Base of Borehole: m bgl.
Equipment Used: GA2000 Landfill Gas Analyser

Date	Location	Time (mins)	CH_4 (%vol)	CO_2 (%vol)	O_2 (%vol)	Flow Rate (l/hr)
09/03/2010	BH01	0	0.0	0.1	20.4	+0.2
		+1	0.0	6.7	14.1	
		+2	0.0	6.7	14.0	
		+3	0.0	6.7	14.0	
		+4	0.0	6.7	14.0	
		+5	0.0	6.8	14.1	
		+8	0.0	6.7	14.1	
		+10	0.0	6.7	14.1	

Weather: Sunny spells with cold blustery breeze
Atmospheric Pressure: 1017mb, Groundwater: Dry, Base of Borehole: m bgl.
Equipment Used: GA2000 Landfill Gas Analyser

Date	Location	Time (mins)	CH_4 (%vol)	CO_2 (%vol)	O_2 (%vol)	Flow Rate (l/hr)
09/03/2010	BH02	0	0.0	0.1	20.8	+0.1
		+1	0.0	0.2	20.8	
		+2	0.0	0.2	20.7	
		+3	0.0	0.2	20.7	
		+4	0.0	0.2	20.7	
		+5	0.0	0.2	20.7	
		+8	0.0	0.2	20.7	
		+10	0.0	0.2	20.7	

Weather: Sunny spells with cold blustery breeze
Atmospheric Pressure: 1017mb, Groundwater: Dry, Base of Borehole: m bgl.
Equipment Used: GA2000 Landfill Gas Analyser

Date	Location	Time (mins)	CH_4 (%vol)	CO_2 (%vol)	O_2 (%vol)	Flow Rate (l/hr)
09/03/2010	BH03	0	0.0	0.1	21.3	-0.1
		+1	0.0	1.3	18.9	
		+2	0.0	1.3	19.0	
		+3	0.0	1.3	19.0	
		+4	0.0	1.3	19.0	
		+5	0.0	1.3	19.0	
		+8	0.0	1.3	19.0	
		+10	0.0	1.3	19.0	

Weather: Sunny spells with cold blustery breeze
Atmospheric Pressure: 1017mb, Groundwater: Dry, Base of Borehole: m bgl.
Equipment Used: GA2000 Landfill Gas Analyser

Date	Location	Time (mins)	CH_4 (%vol)	CO_2 (%vol)	O_2 (%vol)	Flow Rate (l/hr)
09/03/2010	BH04	0	0.0	0.1	21.3	0.0
		+1	0.0	0.7	20.6	
		+2	0.0	1.0	20.6	
		+3	-	-	-	
		+4	0.0	1.4	20.6	
		+5	0.0	1.3	20.6	
		+8	0.0	1.3	20.6	
		+10	0.0	1.2	20.6	

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Gas Monitoring Record Sheet

Site: S886 - Dabro, Pensford

Weather: Sunny and calm
Atmospheric Pressure: 1014mb Groundwater: Dry, Base of Borehole: m bgl.
Equipment Used: GA2000 Landfill Gas Analyser

Date	Location	Time (mins)	CH_4 (%vol)	CO_2 (%vol)	O_2 (%vol)	Flow Rate (l/hr)
16-Mar	BH01	0	0.0	0.1	20.2	'-0.1 to + 0.1
		+1	0.0	7.0	14.3	
		+2	0.0	6.9	14.3	
		+3	0.0	7.0	14.3	
		+4	0.0	6.9	14.2	
		+5	0.0	6.9	14.3	
		+8	0.0	6.9	14.3	
		+10	0.0	6.8	14.3	
		+13	0.0	6.7	14.3	
		+15	0.0	6.7	14.3	

Weather: Sunny and calm
Atmospheric Pressure: 1014mb Groundwater: Dry, Base of Borehole: m bgl.
Equipment Used: GA2000 Landfill Gas Analyser

Date	Location	Time (mins)	CH_4 (%vol)	CO_2 (%vol)	O_2 (%vol)	Flow Rate (l/hr)
16-Mar	BH02	0	0.0	0.1	20.1	'-0.1 to + 0.1
		+1	0.0	1.4	18.3	
		+2	0.0	1.4	18.2	
		+3	0.0	1.4	18.4	
		+4	0.0	1.4	18.3	
		+5	0.0	1.4	18.4	
		+8	0.0	1.4	18.5	
		+10	0.0	1.3	18.5	
		+13	0.1	1.3	18.5	
		+15	0.0	1.3	18.6	

Weather: Sunny and calm
Atmospheric Pressure: 1014mb Groundwater: Dry, Base of Borehole: m bgl.
Equipment Used: GA2000 Landfill Gas Analyser

Date	Location	Time (mins)	CH_4 (%vol)	CO_2 (%vol)	O_2 (%vol)	Flow Rate (l/hr)
16-Mar	BH03	0	0.0	0.0	20.6	'-0.1 to + 0.1
		+1	0.0	0.5	19.8	
		+2	0.0	0.5	19.9	
		+3	0.1	0.5	19.9	
		+4	0.0	0.5	19.9	
		+5	0.0	0.5	20.0	
		+8	0.0	0.5	19.9	
		+10	0.0	0.5	20.0	
		+13	0.1	0.5	19.9	
		+15	0.0	0.5	20.1	

Weather: Sunny and calm
Atmospheric Pressure: 1014mb Groundwater: Dry, Base of Borehole: m bgl.
Equipment Used: GA2000 Landfill Gas Analyser

Date	Location	Time (mins)	CH_4 (%vol)	CO_2 (%vol)	O_2 (%vol)	Flow Rate (l/hr)
16-Mar	BH04	0	0.0	0.0	20.7	'-0.1 to + 0.1
		+1	0.0	0.6	20.2	
		+2	0.0	0.6	20.2	
		+3	0.0	0.6	20.3	
		+4	0.0	0.6	20.4	
		+5	0.0	0.6	20.4	
		+8	0.0	0.5	20.5	
		+10	0.0	0.5	20.6	
		+13	0.0	0.5	20.5	
		+15	0.0	0.5	20.6	

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Gas Monitoring Record Sheet

Site: S886 - Dabro, Pensford

Weather: Windy and cloudy some rain
Atmospheric Pressure: 1002mb Groundwater: Dry, Base of Borehole: m bgl.
Equipment Used: GA2000 Landfill Gas Analyser

Date	Location	Time (mins)	CH_4 (%vol)	CO_2 (%vol)	O_2 (%vol)	Flow Rate (l/hr)
22-Mar	BH01	0	0.0	0.1	20.6	'-0.1 to + 0.1
		+1	0.0	7.3	14.6	
		+2	0.0	7.3	14.4	
		+3	0.0	7.3	14.4	
		+4	0.0	7.2	14.4	
		+5	0.0	7.2	14.4	
		+8	0.0	7.2	14.4	
		+10	0.0	7.1	14.4	
		+13	0.0	7.1	14.4	
		+15	0.0	7.1	14.4	

Weather: Windy and cloudy some rain
Atmospheric Pressure: 1002mb Groundwater: Dry, Base of Borehole: m bgl.
Equipment Used: GA2000 Landfill Gas Analyser

Date	Location	Time (mins)	CH_4 (%vol)	CO_2 (%vol)	O_2 (%vol)	Flow Rate (l/hr)
22-Mar	BH02	0	0.0	0.1	20.5	'-0.1 to + 0.1
		+1	0.0	1.1	18.4	
		+2	0.0	1.2	18.3	
		+3	0.0	1.2	18.3	
		+4	0.0	1.2	18.3	
		+5	0.0	1.2	18.3	
		+8	0.0	1.2	18.3	
		+10	0.0	1.2	18.3	
		+13	0.0	1.2	18.3	
		+15	0.0	1.1	18.3	

Weather: Windy and cloudy some rain
Atmospheric Pressure: 1002mb Groundwater: Dry, Base of Borehole: m bgl.
Equipment Used: GA2000 Landfill Gas Analyser

Date	Location	Time (mins)	CH_4 (%vol)	CO_2 (%vol)	O_2 (%vol)	Flow Rate (l/hr)
22-Mar	BH03	0	0.0	0.0	20.6	'-0.1 to + 0.1
		+1	0.0	0.3	19.9	
		+2	0.0	0.4	19.8	
		+3	0.0	0.3	19.8	
		+4	0.0	0.3	19.8	
		+5	0.0	0.4	19.8	
		+8	0.0	0.3	19.8	
		+10	0.1	0.3	19.8	
		+13	0.0	0.3	19.8	
		+15	0.0	0.3	19.9	

Weather: Windy and cloudy some rain
Atmospheric Pressure: 1002mb Groundwater: Dry, Base of Borehole: m bgl.
Equipment Used: GA2000 Landfill Gas Analyser

Date	Location	Time (mins)	CH_4 (%vol)	CO_2 (%vol)	O_2 (%vol)	Flow Rate (l/hr)
22-Mar	BH04	0	0.0	0.0	20.6	'-0.1 to + 0.1
		+1	0.0	0.2	20.2	
		+2	0.0	0.3	20.2	
		+3	0.0	0.3	20.2	
		+4	0.0	0.3	20.2	
		+5	0.0	0.3	20.2	
		+8	0.0	0.5	20.2	
		+10	0.0	0.5	20.2	
		+13	0.0	0.4	20.2	
		+15	0.0	0.5	20.2	