

12658/RAH/RevA

09 September 2020

Taylor Wimpey South Wales
Eastern Business Park
Wern Fawr Lane
St Mellons
Cardiff
CF3 5EA

For the attention of Mr Alex Daly

Dear Sirs,

Llancarfan Primary School: Grid Sampling

The Site

Within the residential development known as Golwg y Mor, a part of the site has been designated for a primary school.

During the course of the development, levels within the proposed school site had previously been raised by up to 3m to create a plateau and subsequently used as a site compound. It is understood that the materials used to raise levels were derived from the adjacent construction works and comprised naturally occurring clayey sandy gravel and cobbles/cobbly clays.

Background

A ground investigation has been completed by Hydrock titled Llancarfan Primary School, Rhoose, Additional Ground Investigation Report dated 9th April 2020 and referenced 12859-HYD-XX-XX-RP-GE-1003. The report concluded that the plateau did not pose an environmental risk and that remedial measures were not required for the proposed end use.

More recently, a letter report was produced by Intégral Géotechnique following in-situ CBR testing on the finished plateau. The works were undertaken in July 2020 and the report dated 2nd July 2020.

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Objectives

The purpose of the investigation was to undertake grid sampling at an approximate 30m grid across the school site area, in order to confirm that the previous geo-environmental recommendations with

regard to contamination outlined in the site investigation report need not be amended following the site's use as a compound and recent plant movements and fill removal across the area.

Site Works

On 1st September 2020, a site visit was undertaken in order to excavate 16 trial pits at previously agreed locations across the site. The trial pits were excavated to depths of between 0.1m and 2.0mbgl with a tracked excavator provided by the client.

The trial pits in the southern portion of the site were terminated at between 0.1m and 0.2mbgl in order to obtain a surface samples only. This was due to the presence of existing attenuation tanks and sewers beneath this part of the site.

A copy of the trial pit logs and an exploratory hole/sampling location plan are attached as Appendix A and Figure 1 respectively.

Ground Conditions

The trial pits encountered largely consistent shallow ground conditions with the majority of the raised plateau comprising firm (and soft to firm) brown gravelly clay with high cobble content and/or very silty/clayey gravel and cobbles. Gravel, cobbles and occasional boulders comprised predominantly limestone, with occasional mudstone.

The transition from fill/made ground to natural weathered bedrock was not able to be determined in several locations, due to the nature of the fill being reworked natural materials derived from elsewhere on the wider site, thus very similar to the in-situ natural soils. Often, the presence of brick fragments, clay pipe fragments and timber allowed the made ground to be confidently identified.

Locally, possible buried topsoil materials were recovered, ranging from dark brown to dark grey slightly sandy gravelly silty clay.

The surface sampling in the south of the site revealed topsoil/made ground in several locations and made ground/fill as described above in the central locations.

Risk Assessment Criteria and Tier 1 Risk Assessment of Laboratory Chemical Test Results

A total of 16 representative samples were collected from the trial pits and subjected to a chemical testing suite comprising Beryllium, Cadmium, Total Chromium, Hexavalent Chromium (VI), Copper, Lead, Mercury, Nickel, Vanadium, Zinc, Arsenic, Boron, Selenium, Elemental Sulphur, Total Cyanide, Total Sulphate, Sulphide, Water Soluble Sulphate, pH, Monohydric Phenol, Priority 16 Polyaromatic Hydrocarbons, asbestos screen and speciated TPH compounds (VPH/EPH).

Current practice during Generic Quantitative Risk Assessment of land affected by contamination is to use generic soil screening values based on the appropriate proposed end use. These usually comprise risk-based Soil Guideline values (SGVs) or Generic Assessment Criteria (GACs) derived by the Environment Agency's Contaminated Land Exposure Assessment Model (CLEA). The SGVs and the supporting technical guidance were developed in order to assist in the assessment of long-term risk to human health from exposure to contaminated soils.

Revised Statutory Guidance, published in 2012, to support Part 2A of the Environmental Protection Act 1990, introduced a new four category system for classifying land under Part 2A.

Category 1 includes land where the level of risk is clearly unacceptable and Category 4 includes land where the level of risk posed is considered to be acceptably low. Under Part 2A, land would be determined as contaminated if it falls within Categories 1 or 2.

The revised Part 2A Statutory Guidance was accompanied by an Impact Assessment that identified a role for new ‘Category 4 Screening Levels’ (C4SLs) that would provide a simple test for determining when land is suitable for use and definitely not contaminated land. A Policy Companion Document including the C4SLs was published in March 2014 (England) and May 2014 (Wales).

The C4SLs have been based on the CLEA methodology and derived using the CLEA model, with modified toxicological and exposure parameters. To date, C4SLs have been released for six substances (arsenic, cadmium, chromium (VI), lead, benzo(a)pyrene and benzene).

The C4SLs have been derived on the assumption that where they exist, they will be used as generic screening criteria within generic quantitative risk assessment.

Following publication of the C4SLs, Land Quality Management (LQM), in conjunction with the Chartered Institute for Environmental Health (CIEH) released Suitable 4 Use Levels (S4ULs) in January 2015.

The S4ULs have been derived in accordance with UK legislation, and using a modified version of the Environment Agency’s CLEA software. As such, the S4ULs are based on the concept of minimal or tolerable risk as described in Human Health Toxicological Assessment of Contaminants in Soil (Science Report SR2, Environment Agency 2009a).

S4ULs have been derived for a wider number of substances.

In addition to the existing SGVs, C4SLs and S4ULs, Atkins ATRISKsoil also provide a set of Soil Screening Values. These are currently intended to be used in conjunction with SGVs, although they intend to update these values in line with the C4SLs in due course.

We have reviewed all sets of values and intend to use the most appropriate assessment criteria as Tier 1 screening values in the first instance. Where a published S4UL is available, and considered appropriate, this will be used in the first instance.

Whilst the proposed development is for a school campus, residential end use without home grown produce screening levels have been used. This is considered to be a conservative approach. Therefore, the critical sensitive receptor from a human health perspective used is an on-site residential receptor.

In accordance with S4UL/C4SL and CLEA guidance for a standard residential scenario, the critical sensitive receptor for a residential end use risk assessment is a female child, with exposure from 0 to 6 years. This again is considered a conservative approach.

The standard residential end-use conceptual model defined by S4UL/C4SL and CLEA is assumed to be suitable for the purposes of this assessment.

Chemical testing and analysis has not identified any of the contaminants at levels considered to be of concern, when comparing against the Suitable 4 Use Levels (S4ULs) for residential end use with home grown produce as a first tier screening assessment. The adoption of this screening standard is considered conservative.

None of the determinants exceeded the guidance thresholds. No asbestos was detected in any of the soil samples.

Accordingly, the results indicate that the soils are considered to be of low risk to human health and compliant with residential end use with home grown produce screening values.

The site is considered to be uncontaminated for education / school campus end use.

Chemical test results are included as Appendix B and a Chemical Results Summary Sheet is attached as Appendix C.

Conclusions

The trial pitting investigation did not encounter any visual or olfactory evidence of contamination in the proposed school site area.

The representative soil sampling and analysis has confirmed that the made ground remaining on site is compliant with residential end use with home grown produce S4ULs.

We trust that the above is to your satisfaction. However, if you have any queries or require any further information, please do not hesitate to contact us.

Yours faithfully,



Rebecca Hitt
For
Intégral Géotechnique (Wales) Limited
Enc.

Appendix A – Trial Pit Logs



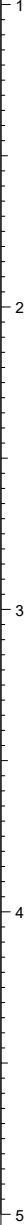

Appendix B – Laboratory Chemical Test Results


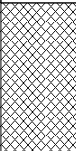



Appendix C – Summary of Chemical Test Results


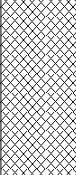
Figure 1

Appendix A



Trial Pit Logs


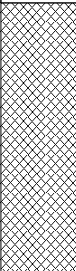
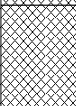

 Intégral House, 7 Beddau Way Castlegate Business Park Caerphilly CF83 2AX Tel. 029 20807991 Fax. 029 20862176 mail@integralgeotec.com		Project Name: Rhoose School Site			Project No.: 12658	Trial Pit No.: TP01 Sheet 1 of 1
		Location: Rhoose			Client: Taylor Wimpey	Logged By: RAH
Equipment: Tracked excavator		Coordinates:			Dimensions m Depth : 0.25m 0.70m 	
Date Excavated: 01/09/2020		Level:				
Samples & In-situ Testing			Depth (m)	Level (m AOD)	Legend	Stratum Description
Depth (m)	Type	Results				
0.10	ES		0.25 0.25			Firm brown gravelly silty CLAY with high cobble content. Gravel and cobbles comprise fine to coarse sub-angular to angular limestone. Excavator scratching at base on suspected limestone bedrock. <small>End of Trialpit at 0.25 m</small>
						
Remarks: Trial pit terminated at 0.25m.			Groundwater: No groundwater encountered, soils generally damp.		Key: D - Small disturbed sample B - Bulk disturbed sample ES - Environmental soil sample W - Water sample	
			Stability:			


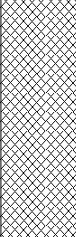
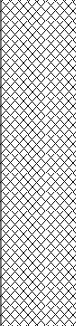



		Intégral House, 7 Beddau Way Castlegate Business Park Caerphilly CF83 2AX Tel. 029 20807991 Fax. 029 20862176 mail@integralgeotec.com		Project Name: Rhoose School Site		Project No.: 12658		Trial Pit No.: TP02 Sheet 1 of 1	
Location: Rhoose		Client: Taylor Wimpey		Logged By: RAH		Scale: 1:25			
Equipment: Tracked excavator		Coordinates:		Dimensions		m			
Date Excavated: 01/09/2020		Level:		Depth: 1.00m		0.70m			
Samples & In-situ Testing			Depth (m)	Level (m AOD)	Legend	Stratum Description			
Depth (m)	Type	Results							
0.10	ES					FILL: Firm to stiff brown, locally red brown, gravelly silty CLAY with high cobble content tending to clayey silty gravel and cobbles. Gravel and cobbles comprise fine to coarse sub-angular to angular limestone.			
			0.50			Firm dark grey slightly gravelly silty CLAY. Gravel comprises tabular mudstone.			
			0.70			Firm to stiff yellow brown slightly sandy slightly gravelly silty CLAY. Gravel comprises fine to medium sub-angular mudstone.			
			1.00			Excavator scratching at base on suspected limestone bedrock.			
			1.00			End of Trialpit at 1.00 m			
Remarks: Trial pit terminated at 1.0m.			Groundwater: No groundwater encountered, soils generally damp.			Key: D - Small disturbed sample B - Bulk disturbed sample ES - Environmental soil sample W - Water sample			
			Stability: Sides stable in the short term.						



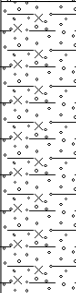


 Intégral House, 7 Beddau Way Castlegate Business Park Caerphilly CF83 2AX Tel. 029 20807991 Fax. 029 20862176 mail@integralgeotec.com			Project Name: Rhoose School Site			Project No.: 12658		Trial Pit No.: TP03 Sheet 1 of 1	
Location: Rhoose			Client: Taylor Wimpey			Logged By: RAH		Scale 1:25	
Equipment: Tracked excavator			Coordinates:			Dimensions m			
Date Excavated: 01/09/2020			Level:			Depth : 0.60m 0.70m			
Samples & In-situ Testing			Depth (m)	Level (m AOD)	Legend	Stratum Description			
Depth (m)	Type	Results							
0.40	ES		0.60 0.60			FILL: Largely firm gravelly silty CLAY with high cobble content. Gravel and cobbles comprise fine to coarse sub-angular to angular limestone with occasional quartz and occasional brick fragments.			
						Excavator scratching at base on suspected limestone bedrock. End of Trialpit at 0.60 m			
Remarks: Trial pit terminated at 0.6m.			Groundwater: No groundwater encountered, soils generally damp.			Key: D - Small disturbed sample B - Bulk disturbed sample ES - Environmental soil sample W - Water sample			



































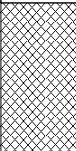


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Location: Rhoose		Client: Taylor Wimpey		Logged By: RAH		Scale 1:25				
Equipment: Tracked excavator		Coordinates:		Dimensions						
Date Excavated: 01/09/2020		Level:		Depth : 1.00m		0.70m m				
Samples & In-situ Testing			Depth (m)	Level (m AOD)	Legend	Stratum Description				
Depth (m)	Type	Results								
0.50	ES		1.00			FILL: Soft becoming firm dark grey slightly gravelly silty clay with low cobble content and very occasional boulder. Gravel and cobbles comprise fine to coarse sub-angular limestone and occasional rounded quartz. (Reworked Topsoil?) Excavator scratching at base on suspected limestone bedrock. End of Trialpit at 1.00 m				
			1.00							
Remarks: Trial pit terminated at 1.0m.			Groundwater: No groundwater encountered, soils generally damp.			Key: D - Small disturbed sample B - Bulk disturbed sample ES - Environmental soil sample W - Water sample				
			Stability: Sides stable in the short term.							


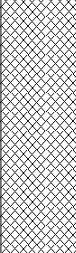


 Intégral House, 7 Beddau Way Castlegate Business Park Caerphilly CF83 2AX Tel. 029 20807991 Fax. 029 20862176 mail@integralgeotec.com		Project Name: Rhoose School Site			Project No.: 12658	Trial Pit No.: TP05 Sheet 1 of 1
		Location: Rhoose			Client: Taylor Wimpey	Logged By: RAH
Equipment: Tracked excavator		Coordinates:			Dimensions m	
Date Excavated: 01/09/2020		Level:			Depth : 1.25m	0.70m
Samples & In-situ Testing			Depth (m)	Level (m AOD)	Legend	Stratum Description
Depth (m)	Type	Results				
0.20	ES					FILL: Soft to firm brown gravelly silty CLAY with high cobble content and low boulder content tending to gravel and cobbles. Gravel, cobbles and boulders comprise fine to coarse sub-angular to angular limestone.
1.00	ES		0.90			Soft to firm dark brown to black slightly sandy gravelly silty CLAY with roots and rootlets. Gravel comprises fine to medium sub-angular limestone. (Buried Topsoil/Fill) Organic odour. Damp to wet.
			1.25 1.25			Excavator scratching at base on suspected limestone bedrock. End of Trialpit at 1.25 m
Remarks: Trial pit terminated at 1.25m.		Groundwater: No groundwater encountered, soils generally damp.			Key: D - Small disturbed sample B - Bulk disturbed sample ES - Environmental soil sample W - Water sample	
		Stability: Some spalling observed.				




		Intégral House, 7 Beddau Way Castlegate Business Park Caerphilly CF83 2AX Tel. 029 20807991 Fax. 029 20862176 mail@integralgeotec.com		Project Name: Rhoose School Site		Project No.: 12658	Trial Pit No.: TP06 Sheet 1 of 1
Location: Rhoose		Client: Taylor Wimpey		Logged By: RAH+		Scale: 1:25	
Equipment: Tracked excavator+		Coordinates:		Dimensions m			
Date Excavated: 01/09/2020		Level:		Depth : 2.00m 0.70m			
Samples & In-situ Testing			Depth (m)	Level (m AOD)	Legend	Stratum Description	
Depth (m)	Type	Results					
0.70	ES		0.80			FILL: Soft to firm, largely firm, brown very slightly sandy gravelly silty CLAY with medium cobble content. Gravel and cobbles comprise predominantly fine to coarse sub-angular to angular limestone and occasional quartz.	
						FILL: Largely firm grey brown slightly sandy gravelly to very gravelly silty clay. Gravel and cobbles comprise predominantly sub-angular limestone with occasional black gravel of mudstone. Contains brick fragments and occasional cable tie.	
			1.90			Very stiff orange brown silty clay.	
			2.00			Excavator scratching at base on suspected limestone bedrock.	
			2.00			End of Trialpit at 2.00 m	
Remarks: Trial pit terminated at 2.0m.			Groundwater: Soils generally damp. Very slight groundwater seepage at 1.9mbgl.			Key: D - Small disturbed sample B - Bulk disturbed sample ES - Environmental soil sample W - Water sample	
			Stability: Minor spalling observed.+				




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Location: Rhoose		Client: Taylor Wimpey		Logged By: RAH		Scale 1:25	
Equipment: Tracked excavator		Coordinates:		Dimensions m			
Date Excavated: 01/09/2020		Level:		Depth : 2.00m 0.70m 			
Samples & In-situ Testing			Depth (m)	Level (m AOD)	Legend	Stratum Description	
Depth (m)	Type	Results					
0.30	ES					Soft to firm brown gravelly silty CLAY with medium cobble content. Gravel and cobbles comprise fine to coarse sub-angular to angular limestone. (Possible Fill)	
			1.00			(Medium dense) brown very silty/clayey GRAVEL and COBBLES tending to soft to firm gravelly clay with cobbles. Gravel and cobbles comprise fine to coarse sub-angular to angular limestone. (Possible Fill)	1
			2.00			End of Trialpit at 2.00 m	2
							3
							4
							5
Remarks: Trial pit terminated at 2.0m.				Groundwater: No groundwater encountered, soils generally damp.		Key: D - Small disturbed sample B - Bulk disturbed sample ES - Environmental soil sample W - Water sample	
				Stability: Some spalling observed.			




 Intégral House, 7 Beddau Way Castlegate Business Park Caerphilly CF83 2AX Tel. 029 20807991 Fax. 029 20862176 mail@integralgeotec.com		Project Name: Rhoose School Site		Project No.: 12658	Trial Pit No.: TP08 Sheet 1 of 1	
		Location: Rhoose		Client: Taylor Wimpey	Logged By: RAH	Scale 1:25
Equipment: Tracked excavator		Coordinates:		Dimensions m		
Date Excavated: 01/09/2020		Level:		Depth : 1.00m	0.70m	
Samples & In-situ Testing			Depth (m)	Level (m AOD)	Legend	Stratum Description
Depth (m)	Type	Results				
0.10	ES		0.20		                            	FILL: Soft brown very slightly sandy gravelly silty CLAY with high cobble content. Gravel and cobbles comprise sub-angular to angular limestone and occasional mudstone and occasional brick fragments. Soft to firm brown and light brown gravelly silty CLAY with high cobble content and low boulder content. Gravel, cobbles and boulders comprise fine to coarse sub-angular to angular limestone and occasional mudstone.
			1.00			End of Trialpit at 1.00 m
Remarks: Trial pit terminated at 1.0m.		Groundwater: No groundwater encountered, soils generally damp.		Key: D - Small disturbed sample B - Bulk disturbed sample ES - Environmental soil sample W - Water sample		
		Stability: Some spalling observed.				




 Intégral House, 7 Beddau Way Castlegate Business Park Caerphilly CF83 2AX Tel. 029 20807991 Fax. 029 20862176 mail@integralgeotec.com			Project Name: Rhoose School Site			Project No.: 12658		Trial Pit No.: TP09 Sheet 1 of 1	
Location: Rhoose			Client: Taylor Wimpey			Logged By: RAH		Scale: 1:25	
Equipment: Tracked excavator			Coordinates:			Dimensions			
Date Excavated: 01/09/2020			Level:			Depth : 1.10m 0.70m m			
Samples & In-situ Testing			Depth (m)	Level (m AOD)	Legend	Stratum Description			
Depth (m)	Type	Results							
0.30	ES		0.50			FILL: Soft to firm grey brown locally dark grey brown very slightly sandy gravelly silty CLAY with high cobble content. Gravel and cobbles comprise fine to coarse sub-angular to angular limestone and mudstone. Contains occasional brick fragments, clay pipe fragments and rootlets.			
			1.10			Soft to firm becoming firm light brown gravelly silty CLAY with high cobble content tending to clayey silty gravel and cobbles. Gravel, and cobbles comprise fine to coarse sub-angular to angular limestone.			
						----- End of Trialpit at 1.10 m -----			
Remarks: Trial pit terminated at 1.1m.			Groundwater: No groundwater encountered, soils generally damp.			Key: D - Small disturbed sample B - Bulk disturbed sample ES - Environmental soil sample W - Water sample			
			Stability: Some spalling observed.						




		Intégral House, 7 Beddau Way Castlegate Business Park Caerphilly CF83 2AX Tel. 029 20807991 Fax. 029 20862176 mail@integralgeotec.com		Project Name: Rhoose School Site		Project No.: 12658	Trial Pit No.: TP10 Sheet 1 of 1
Location: Rhoose		Client: Taylor Wimpey		Logged By: RAH		Scale: 1:25	
Equipment: Tracked excavator		Coordinates:		Dimensions			
Date Excavated: 01/09/2020		Level:		Depth : 1.25m 0.70m m			
Samples & In-situ Testing			Depth (m)	Level (m AOD)	Legend	Stratum Description	
Depth (m)	Type	Results					
0.40	ES					FILL: Firm dark grey brown slightly sandy gravelly silty CLAY with high cobble content. Gravel and cobbles comprise fine to coarse sub-angular limestone and mudstone. Contains frequent timber fragments up to 1.5m long, plastic wrap, scrap metal and occasional brick. Tending to gravel in places and locally soft. Extends to between 0.6m and 0.85mbgl.	
			0.85			Firm light brown gravelly silty CLAY with high cobble content. Gravel and cobbles comprise fine to coarse sub-angular to angular limestone. (Possible Fill)	
			1.25			End of Trialpit at 1.25 m	
Remarks: Trial pit terminated at 1.25m.			Groundwater: No groundwater encountered, soils generally damp.			Key: D - Small disturbed sample B - Bulk disturbed sample ES - Environmental soil sample W - Water sample	
			Stability: Some spalling observed.				


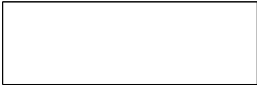


 Intégral House, 7 Beddau Way Castlegate Business Park Caerphilly CF83 2AX Tel. 029 20807991 Fax. 029 20862176 mail@integralgeotec.com		Project Name: Rhoose School Site			Project No.: 12658	Trial Pit No.: TP11 Sheet 1 of 1
		Location: Rhoose			Client: Taylor Wimpey	Logged By: RAH
Equipment: Tracked excavator		Coordinates:			Dimensions m Depth : 0.20m 0.70m 	
Date Excavated: 01/09/2020		Level:				
Samples & In-situ Testing			Depth (m)	Level (m AOD)	Legend	Stratum Description
Depth (m)	Type	Results	0.10	0.20		MADE GROUND/TOPSOIL: Soft to firm brown very slightly sandy slightly gravelly silty CLAY with occasional rootlets. Gravel comprises fine to coarse sub-angular to angular limestone, quartz and mudstone. ----- End of Trialpit at 0.20 m
						1 2 3 4 5
Remarks: Trial pit terminated at 0.2m.			Groundwater: No groundwater encountered, soils generally damp.		Key: D - Small disturbed sample B - Bulk disturbed sample ES - Environmental soil sample W - Water sample	
			Stability:			

		Intégral House, 7 Beddau Way Castlegate Business Park Caerphilly CF83 2AX Tel. 029 20807991 Fax. 029 20862176 mail@integralgeotec.com		Project Name: Rhoose School Site		Project No.: 12658		Trial Pit No.: TP12 Sheet 1 of 1	
Location: Rhoose		Client: Taylor Wimpey		Logged By: RAH		Scale: 1:25			
Equipment: Tracked excavator		Coordinates:		Dimensions		m			
Date Excavated: 01/09/2020		Level:		Depth: 0.10m		0.70m			
Samples & In-situ Testing			Depth (m)	Level (m AOD)	Legend	Stratum Description			
Depth (m)	Type	Results	0.10			MADE GROUND/FILL: Compact brown and grey very silty/clayey GRAVEL of sub-angular limestone.			
0.10	ES					End of Trialpit at 0.10 m			
Remarks: Trial pit terminated at 0.1m.			Groundwater: No groundwater encountered, soils generally damp.			Key: D - Small disturbed sample B - Bulk disturbed sample ES - Environmental soil sample W - Water sample			
			Stability:						

		Intégral House, 7 Beddau Way Castlegate Business Park Caerphilly CF83 2AX Tel. 029 20807991 Fax. 029 20862176 mail@integralgeotec.com		Project Name: Rhoose School Site		Project No.: 12658		Trial Pit No.: TP13 Sheet 1 of 1		
Location: Rhoose		Client: Taylor Wimpey		Logged By: RAH		Scale 1:25				
Equipment: Tracked excavator		Coordinates:		Dimensions						
Date Excavated: 01/09/2020		Level:		Depth : 0.20m		0.70m m				
Samples & In-situ Testing			Depth (m)	Level (m AOD)	Legend	Stratum Description				
Depth (m)	Type	Results								
0.10	ES		0.20			MADE GROUND/FILL: Firm brown slightly sandy gravelly silty CLAY with occasional rootlets. Gravel comprises fine to coarse sub-angular limestone.				
						----- End of Trialpit at 0.20 m -----				
						1				
						2				
						3				
						4				
						5				
Remarks: Trial pit terminated at 0.2m.			Groundwater: No groundwater encountered, soils generally damp.			Key: D - Small disturbed sample B - Bulk disturbed sample ES - Environmental soil sample W - Water sample				
			Stability:							

		Intégral House, 7 Beddau Way Castlegate Business Park Caerphilly CF83 2AX Tel. 029 20807991 Fax. 029 20862176 mail@integralgeotec.com		Project Name: Rhoose School Site		Project No.: 12658	Trial Pit No.: TP14 Sheet 1 of 1
Location: Rhoose		Client: Taylor Wimpey		Logged By: RAH		Scale: 1:25	
Equipment: Tracked excavator		Coordinates:		Dimensions			
Date Excavated: 01/09/2020		Level:		Depth : 0.10m 0.70m <div style="border: 1px solid black; width: 100px; height: 30px; margin-left: 10px;"></div>			
Samples & In-situ Testing			Depth (m)	Level (m AOD)	Legend	Stratum Description	
Depth (m)	Type	Results	Depth (m)	Level (m AOD)	Legend	Stratum Description	
0.10	ES		0.10			MADE GROUND/FILL: Soft to firm brown gravelly silty CLAY with high cobble content. Gravel and cobbles comprise sub-angular to angular limestone. ----- End of Trialpit at 0.10 m	
							1
							2
							3
							4
							5
Remarks: Trial pit terminated at 0.1m.			Groundwater: No groundwater encountered, soils generally damp.		Key: D - Small disturbed sample B - Bulk disturbed sample ES - Environmental soil sample W - Water sample		
			Stability:				

		Intégral House, 7 Beddau Way Castlegate Business Park Caerphilly CF83 2AX Tel. 029 20807991 Fax. 029 20862176 mail@integralgeotec.com		Project Name: Rhoose School Site		Project No.: 12658		Trial Pit No.: TP15 Sheet 1 of 1	
Location: Rhoose		Client: Taylor Wimpey		Logged By: RAH		Scale: 1:25			
Equipment: Tracked excavator		Coordinates:		Dimensions		m			
Date Excavated: 01/09/2020		Level:		Depth: 0.20m		0.70m			
Samples & In-situ Testing			Depth (m)	Level (m AOD)	Legend	Stratum Description			
Depth (m)	Type	Results	0.20			MADE GROUND/TOPSOIL: Soft dark brown slightly sandy gravelly silty clay with occasional rootlets. Gravel comprises fine to coarse sub-angular to angular limestone and occasional mudstone. Contains occasional plastic wrap and brick fragments. End of Trialpit at 0.20 m			
0.10	ES								
Remarks: Trial pit terminated at 0.2m.			Groundwater: No groundwater encountered, soils generally damp.			Key: D - Small disturbed sample B - Bulk disturbed sample ES - Environmental soil sample W - Water sample			
			Stability:						

 Intégral House, 7 Beddau Way Castlegate Business Park Caerphilly CF83 2AX Tel. 029 20807991 Fax. 029 20862176 mail@integralgeotec.com		Project Name: Rhoose School Site			Project No.: 12658	Trial Pit No.: TP16 Sheet 1 of 1
		Location: Rhoose			Client: Taylor Wimpey	Logged By: RAH
Equipment: Tracked excavator		Coordinates:			Dimensions m	
Date Excavated: 01/09/2020		Level:			Depth : 0.10m	
Samples & In-situ Testing			Depth (m)	Level (m AOD)	Legend	Stratum Description
Depth (m)	Type	Results	Depth (m)	Level (m AOD)	Legend	Stratum Description
0.10	ES		0.10			TOPSOIL: Soft to firm dark brown very slightly sandy slightly gravelly silty clay with low cobble content and occasional rootlets. Gravel comprises fine to coarse sub-angular limestone, brick and mudstone. Contains occasional polystyrene fragments, timber fragments, plastic fragments and concrete blocks. End of Trialpit at 0.10 m
Remarks: Trial pit terminated at 0.1m.			Groundwater: No groundwater encountered, soils generally damp.		Key: D - Small disturbed sample B - Bulk disturbed sample ES - Environmental soil sample W - Water sample	
			Stability:			

Appendix B

Laboratory Chemical Test Results



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Environmental Science

Rebecca Hitt

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Analytical Report Number : 20-27871

Project / Site name:	Rhose School Site	Samples received on:	03/09/2020
Your job number:	12658	Samples instructed on/ Analysis started on:	03/09/2020
Your order number:	12568	Analysis completed by:	08/09/2020
Report Issue Number:	1	Report issued on:	08/09/2020
Samples Analysed:	16 soil samples		

Signed:

Joanna Wawrzeczek
Technical Reviewer (Reporting Team)
For & on behalf of i2 Analytical Ltd.

Standard Geotechnical, Asbestos and Chemical Testing Laboratory located at: ul. Pionierów 39, 41 -711 Ruda Śląska, Poland.

Accredited tests are defined within the report, opinions and interpretations expressed herein are outside the scope of accreditation.

Standard sample disposal times, unless otherwise agreed with the laboratory, are :

soils	- 4 weeks from reporting
leachates	- 2 weeks from reporting
waters	- 2 weeks from reporting
asbestos	- 6 months from reporting

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Any assessments of compliance with specifications are based on actual analytical results with no contribution from uncertainty of measurement. Application of uncertainty of measurement would provide a range within which the true result lies. An estimate of measurement uncertainty can be provided on request.



Environmental Science

Analytical Report Number: 20-27871
 Project / Site name: Rhoose School Site
 Your Order No: 12568

Lab Sample Number				1609561	1609562	1609563	1609564
Sample Reference				TP01	TP02	TP03	TP04
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				0.10	0.10	0.40	0.50
Date Sampled				01/09/2020	01/09/2020	01/09/2020	01/09/2020
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	Units	Limit of detection	Accreditation Status				

Stone Content	%	0.1	NONE	< 0.1	< 0.1	< 0.1	< 0.1
Moisture Content	%	N/A	NONE	16	14	12	23
Total mass of sample received	kg	0.001	NONE	0.95	0.95	0.97	0.89

Asbestos in Soil	Type	N/A	ISO 17025	Not-detected	Not-detected	Not-detected	Not-detected
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General Inorganics

pH - Automated	pH Units	N/A	MCERTS	8.5	8.4	8.5	8.1
Total Cyanide	mg/kg	1	MCERTS	< 1	< 1	< 1	< 1
Total Sulphate as SO4	mg/kg	50	MCERTS	610	880	630	610
Water Soluble SO4 16hr extraction (2:1 Leachate Equivalent)	g/l	0.00125	MCERTS	0.0095	0.034	0.027	0.044
Sulphide	mg/kg	1	MCERTS	6.9	9.1	11	17
Total Sulphur	mg/kg	50	MCERTS	230	380	280	330
Total Organic Carbon (TOC)	%	0.1	MCERTS	0.4	0.8	0.3	1.2
Loss on Ignition @ 450oC	%	0.2	MCERTS	3.2	3.2	1.1	3.5

Total Phenols

Total Phenols (monohydric)	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0
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Speciated PAHs

Naphthalene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05
Acenaphthylene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05
Acenaphthene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05
Fluorene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05
Phenanthrene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05
Anthracene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05
Fluoranthene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05
Pyrene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05
Benzo(a)anthracene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05
Chrysene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05
Benzo(b)fluoranthene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05
Benzo(k)fluoranthene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05
Benzo(a)pyrene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05
Indeno(1,2,3-cd)pyrene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05
Dibenz(a,h)anthracene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05
Benzo(ghi)perylene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05

Total PAH

Speciated Total EPA-16 PAHs	mg/kg	0.8	MCERTS	< 0.80	< 0.80	< 0.80	< 0.80
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Environmental Science

Analytical Report Number: 20-27871
 Project / Site name: Rhoose School Site
 Your Order No: 12568

Lab Sample Number				1609561	1609562	1609563	1609564
Sample Reference				TP01	TP02	TP03	TP04
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				0.10	0.10	0.40	0.50
Date Sampled				01/09/2020	01/09/2020	01/09/2020	01/09/2020
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	Units	Limit of detection	Accreditation Status				

Heavy Metals / Metalloids

Element	Units	Limit of detection	Accreditation Status	1609561	1609562	1609563	1609564
Arsenic (aqua regia extractable)	mg/kg	1	MCERTS	9.3	8.1	6.9	11
Beryllium (aqua regia extractable)	mg/kg	0.06	MCERTS	1.1	0.79	0.6	1
Boron (water soluble)	mg/kg	0.2	MCERTS	0.7	0.8	0.3	0.5
Cadmium (aqua regia extractable)	mg/kg	0.2	MCERTS	0.3	0.3	0.3	0.4
Chromium (hexavalent)	mg/kg	4	MCERTS	< 4.0	< 4.0	< 4.0	< 4.0
Chromium (aqua regia extractable)	mg/kg	1	MCERTS	32	24	18	34
Copper (aqua regia extractable)	mg/kg	1	MCERTS	33	22	17	27
Lead (aqua regia extractable)	mg/kg	1	MCERTS	12	13	8.8	19
Mercury (aqua regia extractable)	mg/kg	0.3	MCERTS	< 0.3	< 0.3	< 0.3	< 0.3
Nickel (aqua regia extractable)	mg/kg	1	MCERTS	27	21	16	29
Selenium (aqua regia extractable)	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0
Vanadium (aqua regia extractable)	mg/kg	1	MCERTS	33	26	18	41
Zinc (aqua regia extractable)	mg/kg	1	MCERTS	100	53	43	60

Petroleum Hydrocarbons

Parameter	Units	Limit of detection	Accreditation Status	1609561	1609562	1609563	1609564
TPH-CWG - Aliphatic >EC5 - EC6	mg/kg	0.001	MCERTS	< 0.001	< 0.001	< 0.001	< 0.001
TPH-CWG - Aliphatic >EC6 - EC8	mg/kg	0.001	MCERTS	< 0.001	< 0.001	< 0.001	< 0.001
TPH-CWG - Aliphatic >EC8 - EC10	mg/kg	0.001	MCERTS	< 0.001	< 0.001	< 0.001	< 0.001
TPH-CWG - Aliphatic >EC10 - EC12	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0
TPH-CWG - Aliphatic >EC12 - EC16	mg/kg	2	MCERTS	< 2.0	< 2.0	< 2.0	< 2.0
TPH-CWG - Aliphatic >EC16 - EC21	mg/kg	8	MCERTS	< 8.0	< 8.0	< 8.0	< 8.0
TPH-CWG - Aliphatic >EC21 - EC35	mg/kg	8	MCERTS	< 8.0	< 8.0	< 8.0	< 8.0
TPH-CWG - Aliphatic >EC16 - EC35	mg/kg	10	MCERTS	< 10	< 10	< 10	< 10
TPH-CWG - Aliphatic > EC35 - EC44	mg/kg	8.4	NONE	< 8.4	< 8.4	< 8.4	< 8.4
TPH-CWG - Aliphatic (EC5 - EC35)	mg/kg	10	MCERTS	< 10	< 10	< 10	< 10
TPH-CWG - Aliphatic (EC5 - EC44)	mg/kg	10	NONE	< 10	< 10	< 10	< 10

Parameter	Units	Limit of detection	Accreditation Status	1609561	1609562	1609563	1609564
TPH-CWG - Aromatic >EC5 - EC7	mg/kg	0.001	MCERTS	< 0.001	< 0.001	< 0.001	< 0.001
TPH-CWG - Aromatic >EC7 - EC8	mg/kg	0.001	MCERTS	< 0.001	< 0.001	< 0.001	< 0.001
TPH-CWG - Aromatic >EC8 - EC10	mg/kg	0.001	MCERTS	< 0.001	< 0.001	< 0.001	< 0.001
TPH-CWG - Aromatic >EC10 - EC12	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0
TPH-CWG - Aromatic >EC12 - EC16	mg/kg	2	MCERTS	< 2.0	< 2.0	< 2.0	< 2.0
TPH-CWG - Aromatic >EC16 - EC21	mg/kg	10	MCERTS	< 10	< 10	< 10	< 10
TPH-CWG - Aromatic >EC21 - EC35	mg/kg	10	MCERTS	< 10	< 10	< 10	< 10
TPH-CWG - Aromatic >EC35 - EC40	mg/kg	10	NONE	< 10	< 10	< 10	< 10
TPH-CWG - Aromatic > EC35 - EC44	mg/kg	8.4	NONE	< 8.4	< 8.4	< 8.4	< 8.4
TPH-CWG - Aromatic (EC5 - EC35)	mg/kg	10	MCERTS	< 10	< 10	< 10	< 10
TPH-CWG - Aromatic (EC5 - EC44)	mg/kg	10	NONE	< 10	< 10	< 10	< 10

TPH Total C5 - C44	mg/kg	10	NONE	< 10	< 10	< 10	< 10
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U/S = Unsuitable Sample I/S = Insufficient Sample



Analytical Report Number: 20-27871
 Project / Site name: Rhoose School Site
 Your Order No: 12568

Lab Sample Number				1609565	1609566	1609567	1609568
Sample Reference				TP05	TP06	TP07	TP08
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				1.00	0.70	0.30	0.10
Date Sampled				01/09/2020	01/09/2020	01/09/2020	01/09/2020
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	Units	Limit of detection	Accreditation Status				

	Units	Limit of detection	Accreditation Status	1609565	1609566	1609567	1609568
Stone Content	%	0.1	NONE	< 0.1	< 0.1	< 0.1	< 0.1
Moisture Content	%	N/A	NONE	26	14	13	19
Total mass of sample received	kg	0.001	NONE	0.47	1.1	1	1

Asbestos in Soil	Type	N/A	ISO 17025	Not-detected	Not-detected	Not-detected	Not-detected

General Inorganics

	Units	Limit of detection	Accreditation Status	1609565	1609566	1609567	1609568
pH - Automated	pH Units	N/A	MCERTS	8	9.4	8.6	8.4
Total Cyanide	mg/kg	1	MCERTS	< 1	< 1	< 1	< 1
Total Sulphate as SO4	mg/kg	50	MCERTS	940	1000	560	870
Water Soluble SO4 16hr extraction (2:1 Leachate Equivalent)	g/l	0.00125	MCERTS	0.06	0.15	0.024	0.04
Sulphide	mg/kg	1	MCERTS	8	32	6.8	6.1
Total Sulphur	mg/kg	50	MCERTS	480	440	220	330
Total Organic Carbon (TOC)	%	0.1	MCERTS	2.9	0.7	0.3	1
Loss on Ignition @ 450oC	%	0.2	MCERTS	6.8	2.7	2	3.6

Total Phenols

Total Phenols (monohydric)	Units	Limit of detection	Accreditation Status	1609565	1609566	1609567	1609568
	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0

Speciated PAHs

	Units	Limit of detection	Accreditation Status	1609565	1609566	1609567	1609568
Naphthalene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05
Acenaphthylene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05
Acenaphthene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05
Fluorene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05
Phenanthrene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05
Anthracene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05
Fluoranthene	mg/kg	0.05	MCERTS	0.33	< 0.05	< 0.05	< 0.05
Pyrene	mg/kg	0.05	MCERTS	0.28	< 0.05	< 0.05	< 0.05
Benzo(a)anthracene	mg/kg	0.05	MCERTS	0.2	< 0.05	< 0.05	< 0.05
Chrysene	mg/kg	0.05	MCERTS	0.23	< 0.05	< 0.05	< 0.05
Benzo(b)fluoranthene	mg/kg	0.05	MCERTS	0.29	< 0.05	< 0.05	< 0.05
Benzo(k)fluoranthene	mg/kg	0.05	MCERTS	0.16	< 0.05	< 0.05	< 0.05
Benzo(a)pyrene	mg/kg	0.05	MCERTS	0.16	< 0.05	< 0.05	< 0.05
Indeno(1,2,3-cd)pyrene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05
Dibenz(a,h)anthracene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05
Benzo(ghi)perylene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05

Total PAH

Speciated Total EPA-16 PAHs	Units	Limit of detection	Accreditation Status	1609565	1609566	1609567	1609568
	mg/kg	0.8	MCERTS	1.65	< 0.80	< 0.80	< 0.80



Environmental Science

Analytical Report Number: 20-27871
 Project / Site name: Rhoose School Site
 Your Order No: 12568

Lab Sample Number				1609565	1609566	1609567	1609568
Sample Reference				TP05	TP06	TP07	TP08
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				1.00	0.70	0.30	0.10
Date Sampled				01/09/2020	01/09/2020	01/09/2020	01/09/2020
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	Units	Limit of detection	Accreditation Status				

Heavy Metals / Metalloids

Element	Units	Limit of detection	Accreditation Status	1609565	1609566	1609567	1609568
Arsenic (aqua regia extractable)	mg/kg	1	MCERTS	12	8.2	6.2	8.8
Beryllium (aqua regia extractable)	mg/kg	0.06	MCERTS	1	0.76	0.59	0.9
Boron (water soluble)	mg/kg	0.2	MCERTS	1.9	0.5	0.4	0.5
Cadmium (aqua regia extractable)	mg/kg	0.2	MCERTS	0.6	0.3	0.3	0.4
Chromium (hexavalent)	mg/kg	4	MCERTS	< 4.0	< 4.0	< 4.0	< 4.0
Chromium (aqua regia extractable)	mg/kg	1	MCERTS	32	23	17	26
Copper (aqua regia extractable)	mg/kg	1	MCERTS	27	22	18	23
Lead (aqua regia extractable)	mg/kg	1	MCERTS	30	13	9	13
Mercury (aqua regia extractable)	mg/kg	0.3	MCERTS	< 0.3	< 0.3	< 0.3	< 0.3
Nickel (aqua regia extractable)	mg/kg	1	MCERTS	26	20	17	20
Selenium (aqua regia extractable)	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0
Vanadium (aqua regia extractable)	mg/kg	1	MCERTS	34	23	18	27
Zinc (aqua regia extractable)	mg/kg	1	MCERTS	80	53	36	61

Petroleum Hydrocarbons

Parameter	Units	Limit of detection	Accreditation Status	1609565	1609566	1609567	1609568
TPH-CWG - Aliphatic >EC5 - EC6	mg/kg	0.001	MCERTS	< 0.001	< 0.001	< 0.001	< 0.001
TPH-CWG - Aliphatic >EC6 - EC8	mg/kg	0.001	MCERTS	< 0.001	< 0.001	< 0.001	< 0.001
TPH-CWG - Aliphatic >EC8 - EC10	mg/kg	0.001	MCERTS	< 0.001	< 0.001	< 0.001	< 0.001
TPH-CWG - Aliphatic >EC10 - EC12	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0
TPH-CWG - Aliphatic >EC12 - EC16	mg/kg	2	MCERTS	< 2.0	< 2.0	< 2.0	< 2.0
TPH-CWG - Aliphatic >EC16 - EC21	mg/kg	8	MCERTS	< 8.0	< 8.0	< 8.0	< 8.0
TPH-CWG - Aliphatic >EC21 - EC35	mg/kg	8	MCERTS	< 8.0	26	12	< 8.0
TPH-CWG - Aliphatic >EC16 - EC35	mg/kg	10	MCERTS	< 10	26	12	< 10
TPH-CWG - Aliphatic > EC35 - EC44	mg/kg	8.4	NONE	< 8.4	< 8.4	< 8.4	< 8.4
TPH-CWG - Aliphatic (EC5 - EC35)	mg/kg	10	MCERTS	< 10	26	12	< 10
TPH-CWG - Aliphatic (EC5 - EC44)	mg/kg	10	NONE	< 10	26	12	< 10

Parameter	Units	Limit of detection	Accreditation Status	1609565	1609566	1609567	1609568
TPH-CWG - Aromatic >EC5 - EC7	mg/kg	0.001	MCERTS	< 0.001	< 0.001	< 0.001	< 0.001
TPH-CWG - Aromatic >EC7 - EC8	mg/kg	0.001	MCERTS	< 0.001	< 0.001	< 0.001	< 0.001
TPH-CWG - Aromatic >EC8 - EC10	mg/kg	0.001	MCERTS	< 0.001	< 0.001	< 0.001	< 0.001
TPH-CWG - Aromatic >EC10 - EC12	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0
TPH-CWG - Aromatic >EC12 - EC16	mg/kg	2	MCERTS	< 2.0	< 2.0	< 2.0	< 2.0
TPH-CWG - Aromatic >EC16 - EC21	mg/kg	10	MCERTS	< 10	< 10	< 10	< 10
TPH-CWG - Aromatic >EC21 - EC35	mg/kg	10	MCERTS	< 10	12	< 10	< 10
TPH-CWG - Aromatic >EC35 - EC40	mg/kg	10	NONE	< 10	< 10	< 10	< 10
TPH-CWG - Aromatic > EC35 - EC44	mg/kg	8.4	NONE	< 8.4	< 8.4	< 8.4	< 8.4
TPH-CWG - Aromatic (EC5 - EC35)	mg/kg	10	MCERTS	< 10	14	< 10	< 10
TPH-CWG - Aromatic (EC5 - EC44)	mg/kg	10	NONE	< 10	14	< 10	< 10

TPH Total C5 - C44	mg/kg	10	NONE	< 10	40	12	< 10
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U/S = Unsuitable Sample I/S = Insufficient Sample



Environmental Science

Analytical Report Number: 20-27871
 Project / Site name: Rhoose School Site
 Your Order No: 12568

Lab Sample Number	1609569	1609570	1609571	1609572
Sample Reference	TP09	TP10	TP11	TP12
Sample Number	None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)	0.30	0.40	0.10	0.10
Date Sampled	01/09/2020	01/09/2020	01/09/2020	01/09/2020
Time Taken	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	Units	Limit of detection	Accreditation Status	

Stone Content	%	0.1	NONE	< 0.1	< 0.1	< 0.1	< 0.1
Moisture Content	%	N/A	NONE	15	11	21	12
Total mass of sample received	kg	0.001	NONE	1	1.4	1.2	0.9

Asbestos in Soil	Type	N/A	ISO 17025	Not-detected	Not-detected	Not-detected	Not-detected
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General Inorganics

pH - Automated	pH Units	N/A	MCERTS	8.5	8.5	7.9	8.3
Total Cyanide	mg/kg	1	MCERTS	< 1	< 1	< 1	< 1
Total Sulphate as SO4	mg/kg	50	MCERTS	800	740	1000	930
Water Soluble SO4 16hr extraction (2:1 Leachate Equivalent)	g/l	0.00125	MCERTS	0.065	0.051	0.041	0.053
Sulphide	mg/kg	1	MCERTS	9.7	18	2.2	1.4
Total Sulphur	mg/kg	50	MCERTS	340	370	490	370
Total Organic Carbon (TOC)	%	0.1	MCERTS	0.6	1	3.1	0.8
Loss on Ignition @ 450oC	%	0.2	MCERTS	2.5	2.7	7.2	3.2

Total Phenols

Total Phenols (monohydric)	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0
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Speciated PAHs

Naphthalene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05
Acenaphthylene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05
Acenaphthene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05
Fluorene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05
Phenanthrene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05
Anthracene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05
Fluoranthene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05
Pyrene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05
Benzo(a)anthracene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05
Chrysene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05
Benzo(b)fluoranthene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05
Benzo(k)fluoranthene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05
Benzo(a)pyrene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05
Indeno(1,2,3-cd)pyrene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05
Dibenz(a,h)anthracene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05
Benzo(ghi)perylene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05

Total PAH

Speciated Total EPA-16 PAHs	mg/kg	0.8	MCERTS	< 0.80	< 0.80	< 0.80	< 0.80
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Environmental Science

Analytical Report Number: 20-27871
 Project / Site name: Rhoose School Site
 Your Order No: 12568

Lab Sample Number				1609569	1609570	1609571	1609572
Sample Reference				TP09	TP10	TP11	TP12
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				0.30	0.40	0.10	0.10
Date Sampled				01/09/2020	01/09/2020	01/09/2020	01/09/2020
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	Units	Limit of detection	Accreditation Status				

Heavy Metals / Metalloids

Element	Units	Limit of detection	Accreditation Status	1609569	1609570	1609571	1609572
Arsenic (aqua regia extractable)	mg/kg	1	MCERTS	7.6	12	15	8
Beryllium (aqua regia extractable)	mg/kg	0.06	MCERTS	0.66	0.44	1	0.82
Boron (water soluble)	mg/kg	0.2	MCERTS	0.8	0.5	1.1	1
Cadmium (aqua regia extractable)	mg/kg	0.2	MCERTS	0.4	0.4	0.6	0.3
Chromium (hexavalent)	mg/kg	4	MCERTS	< 4.0	< 4.0	< 4.0	< 4.0
Chromium (aqua regia extractable)	mg/kg	1	MCERTS	20	12	34	25
Copper (aqua regia extractable)	mg/kg	1	MCERTS	21	19	29	19
Lead (aqua regia extractable)	mg/kg	1	MCERTS	14	15	28	13
Mercury (aqua regia extractable)	mg/kg	0.3	MCERTS	< 0.3	< 0.3	< 0.3	< 0.3
Nickel (aqua regia extractable)	mg/kg	1	MCERTS	18	11	24	20
Selenium (aqua regia extractable)	mg/kg	1	MCERTS	1.8	< 1.0	1.8	< 1.0
Vanadium (aqua regia extractable)	mg/kg	1	MCERTS	21	13	45	28
Zinc (aqua regia extractable)	mg/kg	1	MCERTS	53	69	80	51

Petroleum Hydrocarbons

Parameter	Units	Limit of detection	Accreditation Status	1609569	1609570	1609571	1609572
TPH-CWG - Aliphatic >EC5 - EC6	mg/kg	0.001	MCERTS	< 0.001	< 0.001	< 0.001	< 0.001
TPH-CWG - Aliphatic >EC6 - EC8	mg/kg	0.001	MCERTS	< 0.001	< 0.001	< 0.001	< 0.001
TPH-CWG - Aliphatic >EC8 - EC10	mg/kg	0.001	MCERTS	< 0.001	< 0.001	< 0.001	< 0.001
TPH-CWG - Aliphatic >EC10 - EC12	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0
TPH-CWG - Aliphatic >EC12 - EC16	mg/kg	2	MCERTS	< 2.0	< 2.0	< 2.0	< 2.0
TPH-CWG - Aliphatic >EC16 - EC21	mg/kg	8	MCERTS	< 8.0	< 8.0	< 8.0	< 8.0
TPH-CWG - Aliphatic >EC21 - EC35	mg/kg	8	MCERTS	< 8.0	< 8.0	< 8.0	< 8.0
TPH-CWG - Aliphatic >EC16 - EC35	mg/kg	10	MCERTS	< 10	< 10	< 10	< 10
TPH-CWG - Aliphatic > EC35 - EC44	mg/kg	8.4	NONE	< 8.4	< 8.4	< 8.4	< 8.4
TPH-CWG - Aliphatic (EC5 - EC35)	mg/kg	10	MCERTS	< 10	< 10	< 10	< 10
TPH-CWG - Aliphatic (EC5 - EC44)	mg/kg	10	NONE	< 10	< 10	< 10	< 10

Parameter	Units	Limit of detection	Accreditation Status	1609569	1609570	1609571	1609572
TPH-CWG - Aromatic >EC5 - EC7	mg/kg	0.001	MCERTS	< 0.001	< 0.001	< 0.001	< 0.001
TPH-CWG - Aromatic >EC7 - EC8	mg/kg	0.001	MCERTS	< 0.001	< 0.001	< 0.001	< 0.001
TPH-CWG - Aromatic >EC8 - EC10	mg/kg	0.001	MCERTS	< 0.001	< 0.001	< 0.001	< 0.001
TPH-CWG - Aromatic >EC10 - EC12	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0
TPH-CWG - Aromatic >EC12 - EC16	mg/kg	2	MCERTS	< 2.0	< 2.0	< 2.0	< 2.0
TPH-CWG - Aromatic >EC16 - EC21	mg/kg	10	MCERTS	< 10	< 10	< 10	< 10
TPH-CWG - Aromatic >EC21 - EC35	mg/kg	10	MCERTS	< 10	< 10	< 10	< 10
TPH-CWG - Aromatic >EC35 - EC40	mg/kg	10	NONE	< 10	< 10	< 10	< 10
TPH-CWG - Aromatic > EC35 - EC44	mg/kg	8.4	NONE	< 8.4	< 8.4	< 8.4	< 8.4
TPH-CWG - Aromatic (EC5 - EC35)	mg/kg	10	MCERTS	< 10	< 10	< 10	< 10
TPH-CWG - Aromatic (EC5 - EC44)	mg/kg	10	NONE	< 10	< 10	< 10	< 10

TPH Total C5 - C44	mg/kg	10	NONE	< 10	< 10	< 10	< 10
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U/S = Unsuitable Sample I/S = Insufficient Sample



Analytical Report Number: 20-27871
 Project / Site name: Rhoose School Site
 Your Order No: 12568

Lab Sample Number				1609573	1609574	1609575	1609576
Sample Reference				TP13	TP14	TP15	TP16
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				0.10	0.10	0.10	0.10
Date Sampled				01/09/2020	01/09/2020	01/09/2020	01/09/2020
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	Units	Limit of detection	Accreditation Status				

Stone Content	%	0.1	NONE	< 0.1	< 0.1	< 0.1	< 0.1
Moisture Content	%	N/A	NONE	15	17	18	13
Total mass of sample received	kg	0.001	NONE	1.2	1	1.2	0.8

Asbestos in Soil	Type	N/A	ISO 17025	Not-detected	Not-detected	Not-detected	Not-detected
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General Inorganics

pH - Automated	pH Units	N/A	MCERTS	8.2	8.4	8.3	8.4
Total Cyanide	mg/kg	1	MCERTS	< 1	< 1	< 1	< 1
Total Sulphate as SO4	mg/kg	50	MCERTS	1700	780	1200	960
Water Soluble SO4 16hr extraction (2:1 Leachate Equivalent)	g/l	0.00125	MCERTS	0.051	0.05	0.13	0.049
Sulphide	mg/kg	1	MCERTS	6.9	4.3	12	18
Total Sulphur	mg/kg	50	MCERTS	560	300	590	450
Total Organic Carbon (TOC)	%	0.1	MCERTS	1.5	1	1.4	1.8
Loss on Ignition @ 450oC	%	0.2	MCERTS	4.6	3.1	4.2	4.4

Total Phenols

Total Phenols (monohydric)	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0
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Speciated PAHs

Naphthalene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05
Acenaphthylene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05
Acenaphthene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05
Fluorene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05
Phenanthrene	mg/kg	0.05	MCERTS	0.65	< 0.05	< 0.05	0.48
Anthracene	mg/kg	0.05	MCERTS	0.15	< 0.05	< 0.05	0.16
Fluoranthene	mg/kg	0.05	MCERTS	0.69	< 0.05	0.28	1.3
Pyrene	mg/kg	0.05	MCERTS	0.54	< 0.05	0.25	1.1
Benzo(a)anthracene	mg/kg	0.05	MCERTS	0.39	< 0.05	0.21	1.5
Chrysene	mg/kg	0.05	MCERTS	0.31	< 0.05	0.23	1.3
Benzo(b)fluoranthene	mg/kg	0.05	MCERTS	0.39	< 0.05	0.25	2
Benzo(k)fluoranthene	mg/kg	0.05	MCERTS	0.15	< 0.05	0.2	0.67
Benzo(a)pyrene	mg/kg	0.05	MCERTS	0.27	< 0.05	0.21	1.1
Indeno(1,2,3-cd)pyrene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	0.76
Dibenz(a,h)anthracene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05
Benzo(ghi)perylene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	0.71

Total PAH

Speciated Total EPA-16 PAHs	mg/kg	0.8	MCERTS	3.54	< 0.80	1.63	11.1
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Analytical Report Number: 20-27871
 Project / Site name: Rhoose School Site
 Your Order No: 12568

Lab Sample Number				1609573	1609574	1609575	1609576
Sample Reference				TP13	TP14	TP15	TP16
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				0.10	0.10	0.10	0.10
Date Sampled				01/09/2020	01/09/2020	01/09/2020	01/09/2020
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	Units	Limit of detection	Accreditation Status				

Heavy Metals / Metalloids

Element	Units	Limit of detection	Accreditation Status	1609573	1609574	1609575	1609576
Arsenic (aqua regia extractable)	mg/kg	1	MCERTS	9.2	8.3	14	13
Beryllium (aqua regia extractable)	mg/kg	0.06	MCERTS	0.76	0.72	0.87	0.63
Boron (water soluble)	mg/kg	0.2	MCERTS	0.7	0.5	0.7	0.6
Cadmium (aqua regia extractable)	mg/kg	0.2	MCERTS	0.2	0.4	1.1	0.4
Chromium (hexavalent)	mg/kg	4	MCERTS	< 4.0	< 4.0	< 4.0	< 4.0
Chromium (aqua regia extractable)	mg/kg	1	MCERTS	23	20	26	19
Copper (aqua regia extractable)	mg/kg	1	MCERTS	21	22	36	26
Lead (aqua regia extractable)	mg/kg	1	MCERTS	15	14	32	29
Mercury (aqua regia extractable)	mg/kg	0.3	MCERTS	< 0.3	< 0.3	< 0.3	< 0.3
Nickel (aqua regia extractable)	mg/kg	1	MCERTS	18	19	22	16
Selenium (aqua regia extractable)	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0
Vanadium (aqua regia extractable)	mg/kg	1	MCERTS	28	22	28	20
Zinc (aqua regia extractable)	mg/kg	1	MCERTS	47	60	120	88

Petroleum Hydrocarbons

Parameter	Units	Limit of detection	Accreditation Status	1609573	1609574	1609575	1609576
TPH-CWG - Aliphatic >EC5 - EC6	mg/kg	0.001	MCERTS	< 0.001	< 0.001	< 0.001	< 0.001
TPH-CWG - Aliphatic >EC6 - EC8	mg/kg	0.001	MCERTS	< 0.001	< 0.001	< 0.001	< 0.001
TPH-CWG - Aliphatic >EC8 - EC10	mg/kg	0.001	MCERTS	< 0.001	< 0.001	< 0.001	< 0.001
TPH-CWG - Aliphatic >EC10 - EC12	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	6.8
TPH-CWG - Aliphatic >EC12 - EC16	mg/kg	2	MCERTS	< 2.0	6.9	7.2	23
TPH-CWG - Aliphatic >EC16 - EC21	mg/kg	8	MCERTS	< 8.0	< 8.0	< 8.0	< 8.0
TPH-CWG - Aliphatic >EC21 - EC35	mg/kg	8	MCERTS	18	< 8.0	< 8.0	< 8.0
TPH-CWG - Aliphatic >EC16 - EC35	mg/kg	10	MCERTS	18	< 10	< 10	< 10
TPH-CWG - Aliphatic > EC35 - EC44	mg/kg	8.4	NONE	< 8.4	< 8.4	< 8.4	< 8.4
TPH-CWG - Aliphatic (EC5 - EC35)	mg/kg	10	MCERTS	18	< 10	< 10	32
TPH-CWG - Aliphatic (EC5 - EC44)	mg/kg	10	NONE	18	< 10	< 10	32

Parameter	Units	Limit of detection	Accreditation Status	1609573	1609574	1609575	1609576
TPH-CWG - Aromatic >EC5 - EC7	mg/kg	0.001	MCERTS	< 0.001	< 0.001	< 0.001	< 0.001
TPH-CWG - Aromatic >EC7 - EC8	mg/kg	0.001	MCERTS	< 0.001	< 0.001	< 0.001	< 0.001
TPH-CWG - Aromatic >EC8 - EC10	mg/kg	0.001	MCERTS	< 0.001	< 0.001	< 0.001	< 0.001
TPH-CWG - Aromatic >EC10 - EC12	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0
TPH-CWG - Aromatic >EC12 - EC16	mg/kg	2	MCERTS	< 2.0	< 2.0	< 2.0	7
TPH-CWG - Aromatic >EC16 - EC21	mg/kg	10	MCERTS	< 10	< 10	< 10	< 10
TPH-CWG - Aromatic >EC21 - EC35	mg/kg	10	MCERTS	< 10	< 10	< 10	13
TPH-CWG - Aromatic >EC35 - EC40	mg/kg	10	NONE	< 10	< 10	< 10	< 10
TPH-CWG - Aromatic > EC35 - EC44	mg/kg	8.4	NONE	< 8.4	< 8.4	< 8.4	< 8.4
TPH-CWG - Aromatic (EC5 - EC35)	mg/kg	10	MCERTS	< 10	< 10	< 10	28
TPH-CWG - Aromatic (EC5 - EC44)	mg/kg	10	NONE	< 10	< 10	< 10	28

TPH Total C5 - C44	mg/kg	10	NONE	18	< 10	< 10	59
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U/S = Unsuitable Sample I/S = Insufficient Sample



Analytical Report Number : 20-27871
Project / Site name: Rhoose School Site

* These descriptions are only intended to act as a cross check if sample identities are questioned. The major constituent of the sample is intended to act with respect to MCERTS validation. The laboratory is accredited for sand, clay and loam (MCERTS) soil types. Data for unaccredited types of solid should be interpreted with care.

Stone content of a sample is calculated as the % weight of the stones not passing a 10 mm sieve. Results are not corrected for stone content.

Lab Sample Number	Sample Reference	Sample Number	Depth (m)	Sample Description *
1609561	TP01	None Supplied	0.1	Light brown clay with gravel.
1609562	TP02	None Supplied	0.1	Light brown clay with gravel.
1609563	TP03	None Supplied	0.4	Light brown clay with gravel.
1609564	TP04	None Supplied	0.5	Grey clay with gravel.
1609565	TP05	None Supplied	1	Grey clay with vegetation.
1609566	TP06	None Supplied	0.7	Brown clay with gravel.
1609567	TP07	None Supplied	0.3	Brown clay with gravel.
1609568	TP08	None Supplied	0.1	Brown clay with gravel.
1609569	TP09	None Supplied	0.3	Brown clay with gravel.
1609570	TP10	None Supplied	0.4	Brown clay with gravel.
1609571	TP11	None Supplied	0.1	Brown sandy clay with vegetation.
1609572	TP12	None Supplied	0.1	Brown clay with gravel.
1609573	TP13	None Supplied	0.1	Brown clay with vegetation and gravel
1609574	TP14	None Supplied	0.1	Brown clay with gravel.
1609575	TP15	None Supplied	0.1	Brown clay with gravel.
1609576	TP16	None Supplied	0.1	Brown clay with gravel and vegetation.



Environmental Science

Analytical Report Number : 20-27871
Project / Site name: Rhoose School Site

Water matrix abbreviations: Surface Water (SW) Potable Water (PW) Ground Water (GW)

Analytical Test Name	Analytical Method Description	Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status
Sulphate, water soluble, in soil (16hr extraction)	Determination of water soluble sulphate by ICP-OES. Results reported directly (leachate equivalent) and corrected for extraction ratio (soil equivalent).	In house method.	L038-PL	D	MCERTS
Metals in soil by ICP-OES	Determination of metals in soil by aqua-regia digestion followed by ICP-OES.	In-house method based on MEWAM 2006 Methods for the Determination of Metals in Soil.	L038-PL	D	MCERTS
Asbestos identification in soil	Asbestos Identification with the use of polarised light microscopy in conjunction with disperion staining techniques.	In house method based on HSG 248	A001-PL	D	ISO 17025
Boron, water soluble, in soil	Determination of water soluble boron in soil by hot water extract followed by ICP-OES.	In-house method based on Second Site Properties version 3	L038-PL	D	MCERTS
Hexavalent chromium in soil	Determination of hexavalent chromium in soil by extraction in water then by acidification, addition of 1,5 diphenylcarbazine followed by colorimetry.	In-house method	L080-PL	W	MCERTS
Loss on ignition of soil @ 450oC	Determination of loss on ignition in soil by gravimetrically with the sample being ignited in a muffle furnace.	In house method.	L047-PL	D	MCERTS
Moisture Content	Moisture content, determined gravimetrically. (30 oC)	In house method.	L019-UK/PL	W	NONE
Monohydric phenols in soil	Determination of phenols in soil by extraction with sodium hydroxide followed by distillation followed by colorimetry.	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton (skalar)	L080-PL	W	MCERTS
Speciated EPA-16 PAHs in soil	Determination of PAH compounds in soil by extraction in dichloromethane and hexane followed by GC-MS with the use of surrogate and internal standards.	In-house method based on USEPA 8270	L064-PL	D	MCERTS
pH in soil (automated)	Determination of pH in soil by addition of water followed by automated electrometric measurement.	In house method.	L099-PL	D	MCERTS
Sulphide in soil	Determination of sulphide in soil by acidification and heating to liberate hydrogen sulphide, trapped in an alkaline solution then assayed by ion selective electrode.	In-house method	L010-PL	D	MCERTS
Total sulphate (as SO4 in soil)	Determination of total sulphate in soil by extraction with 10% HCl followed by ICP-OES.	In house method.	L038-PL	D	MCERTS
Total Sulphur in soil	Determination of total sulphur in soil by extraction with aqua-regia, potassium bromide/bromate followed by ICP-OES.	In house method.	L038-PL	D	MCERTS
Total cyanide in soil	Determination of total cyanide by distillation followed by colorimetry.	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton (Skalar)	L080-PL	W	MCERTS
Total organic carbon (Automated) in soil	Determination of organic matter in soil by oxidising with potassium dichromate followed by titration with iron (II) sulphate.	In house method.	L009-PL	D	MCERTS
TPHCWG (Soil)	Determination of hexane extractable hydrocarbons in soil by GC-MS/GC-FID.	In-house method with silica gel split/clean up.	L088/76-PL	W	MCERTS
TPH in (Soil)	Determination of TPH bands by HS-GC-MS/GC-FID	In-house method, TPH with carbon banding and silica gel split/cleanup.	L076-PL	D	NONE



Analytical Report Number : 20-27871
Project / Site name: Rhoose School Site

Water matrix abbreviations: Surface Water (SW) Potable Water (PW) Ground Water (GW)

Analytical Test Name	Analytical Method Description	Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status
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For method numbers ending in 'UK' analysis have been carried out in our laboratory in the United Kingdom.
 For method numbers ending in 'PL' analysis have been carried out in our laboratory in Poland.
 Soil analytical results are expressed on a dry weight basis. Where analysis is carried out on as-received the results obtained are multiplied by a moisture correction factor that is determined gravimetrically using the moisture content which is carried out at a maximum of 30oC.

Appendix C

Summary of Chemical Test Results

SUMMARY OF LABORATORY SOIL TEST RESULTS

METALS AND SEMI-METALS

Job No.: 12658
 Site: Rhoose School Site
 Soil Type: Made Ground/Fill
 Soil Organic Matter: 1%

No.	Location	Depth (m)	Arsenic (mg/kg)	Boron (mg/kg)	Beryllium (mg/kg)	Cadmium (mg/kg)	Chromium (mg/kg)	Chromium (VI) (mg/kg)	Copper (mg/kg)	Lead (mg/kg)	Mercury (Elemental) (mg/kg)	Nickel (mg/kg)	Selenium (mg/kg)	Vanadium (mg/kg)	Zinc (mg/kg)
1	TP01	0.10	9.3	0.7	1.1	0.3	32	< 4.0	33	12	< 0.3	27	< 1.0	33	100
2	TP02	0.10	8.1	0.8	0.79	0.3	24	< 4.0	22	13	< 0.3	21	< 1.0	26	53
3	TP03	0.40	6.9	0.3	0.6	0.3	18	< 4.0	17	8.8	< 0.3	16	< 1.0	18	43
4	TP04	0.50	11	0.5	1	0.4	34	< 4.0	27	19	< 0.3	29	< 1.0	41	60
5	TP05	1.00	12	1.9	1	0.6	32	< 4.0	27	30	< 0.3	26	< 1.0	34	80
6	TP06	0.70	8.2	0.5	0.76	0.3	23	< 4.0	22	13	< 0.3	20	< 1.0	23	53
7	TP07	0.30	6.2	0.4	0.59	0.3	17	< 4.0	18	9	< 0.3	17	< 1.0	18	36
8	TP08	0.10	8.8	0.5	0.9	0.4	26	< 4.0	23	13	< 0.3	20	< 1.0	27	61
9	TP09	0.30	7.6	0.8	0.66	0.4	20	< 4.0	21	14	< 0.3	18	1.8	21	53
10	TP10	0.40	12	0.5	0.44	0.4	12	< 4.0	19	15	< 0.3	11	< 1.0	13	69
11	TP11	0.10	15	1.1	1	0.6	34	< 4.0	29	28	< 0.3	24	1.8	45	80
12	TP12	0.10	8	1	0.82	0.3	25	< 4.0	19	13	< 0.3	20	< 1.0	28	51
13	TP13	0.10	9.2	0.7	0.76	0.2	23	< 4.0	21	15	< 0.3	18	< 1.0	28	47
14	TP14	0.10	8.3	0.5	0.72	0.4	20	< 4.0	22	14	< 0.3	19	< 1.0	22	60
15	TP15	0.10	14	0.7	0.87	1.1	26	< 4.0	36	32	< 0.3	22	< 1.0	28	120
16	TP16	0.10	13	0.6	0.63	0.4	19	< 4.0	26	29	< 0.3	16	< 1.0	20	88
Screening Criteria Value			37.0	290.0	1.7	11.0	-	6.0	2400.0	200.0	1.2	130.0	250.0	410.0	3700.0
Source of Screening Criteria Value			S4UL	S4UL	S4UL	S4UL	-	S4UL	S4UL	C4SL	S4UL	S4UL	S4UL	S4UL	S4UL

SUMMARY OF LABORATORY SOIL TEST RESULTS

INORGANIC CHEMICALS & OTHERS

Job No.: 12658
 Site: Rhoose School Site
 Soil Type: Made Ground/Fill
 Soil Organic Matter: 1%

No.	Location	Depth (m)	Cyanide (mg/kg)	Loss on ignition, dried solids (%)	Moisture content at 30 C (%)	Phenol (mg/kg)	pH (pH units)	Water Soluble Sulphate (g/l)	Sulphate Total as SO4 (mg/kg)	Sulphide (mg/kg)	Total Sulphur (mg/kg)	TOC by Ignition in O2 (%)	Equivalent SOM (%)	Asbestos in Soil	Asbestos Quantification (%)
1	TP01	0.10	< 1	3.20	16.00	< 1.0	8.50	0.01	610.00	6.90	230.00	0.40	0.69	Not-detected	-
2	TP02	0.10	< 1	3.20	14.00	< 1.0	8.40	0.03	880.00	9.10	380.00	0.80	1.38	Not-detected	-
3	TP03	0.40	< 1	1.10	12.00	< 1.0	8.50	0.03	630.00	11.00	280.00	0.30	0.52	Not-detected	-
4	TP04	0.50	< 1	3.50	23.00	< 1.0	8.10	0.04	610.00	17.00	330.00	1.20	2.06	Not-detected	-
5	TP05	1.00	< 1	6.80	26.00	< 1.0	8.00	0.06	940.00	8.00	480.00	2.90	4.99	Not-detected	-
6	TP06	0.70	< 1	2.70	14.00	< 1.0	9.40	0.15	1000.00	32.00	440.00	0.70	1.20	Not-detected	-
7	TP07	0.30	< 1	2.00	13.00	< 1.0	8.60	0.02	560.00	6.80	220.00	0.30	0.52	Not-detected	-
8	TP08	0.10	< 1	3.60	19.00	< 1.0	8.40	0.04	870.00	6.10	330.00	1.00	1.72	Not-detected	-
9	TP09	0.30	< 1	2.50	15.00	< 1.0	8.50	0.07	800.00	9.70	340.00	0.60	1.03	Not-detected	-
10	TP10	0.40	< 1	2.70	11.00	< 1.0	8.50	0.05	740.00	18.00	370.00	1.00	1.72	Not-detected	-
11	TP11	0.10	< 1	7.20	21.00	< 1.0	7.90	0.04	1000.00	2.20	490.00	3.10	5.33	Not-detected	-
12	TP12	0.10	< 1	3.20	12.00	< 1.0	8.30	0.05	930.00	1.40	370.00	0.80	1.38	Not-detected	-
13	TP13	0.10	< 1	4.60	15.00	< 1.0	8.20	0.05	1700.00	6.90	560.00	1.50	2.58	Not-detected	-
14	TP14	0.10	< 1	3.10	17.00	< 1.0	8.40	0.05	780.00	4.30	300.00	1.00	1.72	Not-detected	-
15	TP15	0.10	< 1	4.20	18.00	< 1.0	8.30	0.13	1200.00	12.00	590.00	1.40	2.41	Not-detected	-
16	TP16	0.10	< 1	4.40	13.00	< 1.0	8.40	0.05	960.00	18.00	450.00	1.80	3.10	Not-detected	-
Screening Criteria Value			34.0	-	-	120.0	-	-	-	-	-	-	-	-	0.001
Source of Screening Criteria Value			ATRISK	-	-	S4UL	-	-	-	-	-	-	-	-	IOM

SUMMARY OF LABORATORY SOIL TEST RESULTS

POLYAROMATIC HYDROCARBONS (PAH)

Job No.: 12658
 Site: Rhoose School Site
 Soil Type: Made Ground/Fill
 Soil Organic Matter: 1%

No.	Location	Depth (m)	Acenaphthene (mg/kg)	Acenaphthylene (mg/kg)	Anthracene (mg/kg)	Benzo(a)anthracene (mg/kg)	Benzo(a)pyrene (mg/kg)	Benzo(b)fluoranthene (mg/kg)	Benzo(ghi)perylene (mg/kg)	Benzo(k)fluoranthene (mg/kg)	Chrysene (mg/kg)	Dibenzo(ah)anthracene (mg/kg)	Fluoranthene (mg/kg)	Fluorene (mg/kg)	Indeno(123cd)pyrene (mg/kg)	Naphthalene (mg/kg)	Phenanthrene (mg/kg)	Pyrene (mg/kg)
1	TP01	0.10	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
2	TP02	0.10	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
3	TP03	0.40	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
4	TP04	0.50	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
5	TP05	1.00	< 0.05	< 0.05	< 0.05	0.2	0.16	0.29	< 0.05	0.16	0.23	< 0.05	0.33	< 0.05	< 0.05	< 0.05	< 0.05	0.28
8	TP08	0.10	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
9	TP09	0.30	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
10	TP10	0.40	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
11	TP11	0.10	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
12	TP12	0.10	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
13	TP13	0.10	< 0.05	< 0.05	0.15	0.39	0.27	0.39	< 0.05	0.15	0.31	< 0.05	0.69	< 0.05	< 0.05	< 0.05	0.65	0.54
14	TP14	0.10	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
15	TP15	0.10	< 0.05	< 0.05	< 0.05	0.21	0.21	0.25	< 0.05	0.2	0.23	< 0.05	0.28	< 0.05	< 0.05	< 0.05	< 0.05	0.25
16	TP16	0.10	< 0.05	< 0.05	0.16	1.5	1.1	2	0.71	0.67	1.3	< 0.05	1.3	< 0.05	0.76	< 0.05	0.48	1.1
Screening Criteria Value			210.0	170.0	2400.0	7.2	2.2	2.6	320.0	77.0	15.0	0.2	280.0	170.0	27.0	2.3	95.0	620.0
Source of Screening Criteria Value			S4UL	S4UL	S4UL	S4UL	S4UL	S4UL	S4UL	S4UL	S4UL	S4UL	S4UL	S4UL	S4UL	S4UL	S4UL	S4UL

SUMMARY OF LABORATORY SOIL TEST RESULTS

PETROLEUM HYDROCARBONS

Job No.: 12658
 Site: Rhoose School Site
 Soil Type: Made Ground/Fill
 Soil Organic Matter: 1%

No.	Location	Depth (m)	Aliphatic C5-C6 (mg/kg)	Aliphatic C6-C8 (mg/kg)	Aliphatic C8-C10 (mg/kg)	Aliphatic C10- C12 EPH (mg/kg)	Aliphatic C12- C16 EPH (mg/kg)	Aliphatic C16-C35 EPH (mg/kg)	Aliphatic C35- C44 EPH (mg/kg)	Aromatic C5-C7 (mg/kg)	Aromatic C7-C8 (mg/kg)	Aromatic C8-C10 (mg/kg)	Aromatic C10- C12 EPH (mg/kg)	Aromatic C12- C16 EPH (mg/kg)	Aromatic C16- C21 EPH (mg/kg)	Aromatic C21- C35 EPH (mg/kg)	Aromatic C35- C40 EPH (mg/kg)
1	TP01	0.10	< 0.001	< 0.001	< 0.001	< 1.0	< 2.0	< 10	< 8.4	< 0.001	< 0.001	< 0.001	< 1.0	< 2.0	< 10	< 10	< 8.4
2	TP02	0.10	< 0.001	< 0.001	< 0.001	< 1.0	< 2.0	< 10	< 8.4	< 0.001	< 0.001	< 0.001	< 1.0	< 2.0	< 10	< 10	< 8.4
3	TP03	0.40	< 0.001	< 0.001	< 0.001	< 1.0	< 2.0	< 10	< 8.4	< 0.001	< 0.001	< 0.001	< 1.0	< 2.0	< 10	< 10	< 8.4
4	TP04	0.50	< 0.001	< 0.001	< 0.001	< 1.0	< 2.0	< 10	< 8.4	< 0.001	< 0.001	< 0.001	< 1.0	< 2.0	< 10	< 10	< 8.4
5	TP05	1.00	< 0.001	< 0.001	< 0.001	< 1.0	< 2.0	< 10	< 8.4	< 0.001	< 0.001	< 0.001	< 1.0	< 2.0	< 10	< 10	< 8.4
6	TP06	0.70	< 0.001	< 0.001	< 0.001	< 1.0	< 2.0	26	< 8.4	< 0.001	< 0.001	< 0.001	< 1.0	< 2.0	< 10	12	< 8.4
7	TP07	0.30	< 0.001	< 0.001	< 0.001	< 1.0	< 2.0	12	< 8.4	< 0.001	< 0.001	< 0.001	< 1.0	< 2.0	< 10	< 10	< 8.4
8	TP08	0.10	< 0.001	< 0.001	< 0.001	< 1.0	< 2.0	< 10	< 8.4	< 0.001	< 0.001	< 0.001	< 1.0	< 2.0	< 10	< 10	< 8.4
9	TP09	0.30	< 0.001	< 0.001	< 0.001	< 1.0	< 2.0	< 10	< 8.4	< 0.001	< 0.001	< 0.001	< 1.0	< 2.0	< 10	< 10	< 8.4
10	TP10	0.40	< 0.001	< 0.001	< 0.001	< 1.0	< 2.0	< 10	< 8.4	< 0.001	< 0.001	< 0.001	< 1.0	< 2.0	< 10	< 10	< 8.4
11	TP11	0.10	< 0.001	< 0.001	< 0.001	< 1.0	< 2.0	< 10	< 8.4	< 0.001	< 0.001	< 0.001	< 1.0	< 2.0	< 10	< 10	< 8.4
12	TP12	0.10	< 0.001	< 0.001	< 0.001	< 1.0	< 2.0	< 10	< 8.4	< 0.001	< 0.001	< 0.001	< 1.0	< 2.0	< 10	< 10	< 8.4
13	TP13	0.10	< 0.001	< 0.001	< 0.001	< 1.0	< 2.0	18	< 8.4	< 0.001	< 0.001	< 0.001	< 1.0	< 2.0	< 10	< 10	< 8.4
14	TP14	0.10	< 0.001	< 0.001	< 0.001	< 1.0	6.9	< 10	< 8.4	< 0.001	< 0.001	< 0.001	< 1.0	< 2.0	< 10	< 10	< 8.4
15	TP15	0.10	< 0.001	< 0.001	< 0.001	< 1.0	7.2	< 10	< 8.4	< 0.001	< 0.001	< 0.001	< 1.0	< 2.0	< 10	< 10	< 8.4
16	TP16	0.10	< 0.001	< 0.001	< 0.001	6.8	23	< 10	< 8.4	< 0.001	< 0.001	< 0.001	< 1.0	7	< 10	13	< 8.4
Screening Criteria Value			42.0	100.0	27.0	130.0	1100.0	65000.0	65000.0	0.1	130.0	34.0	74.0	140.0	260.0	1100.0	1100.0
Source of Screening Criteria Value			S4UL	S4UL	S4UL	S4UL	S4UL	S4UL	S4UL	S4UL	S4UL	S4UL	S4UL	S4UL	S4UL	S4UL	S4UL

Figure



Figure 1: Grid Sampling Locations

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