



S A Hesford
Consultant Structural Engineer
Capital Programmes & Property
Growth & Neighbourhoods Directorate
Manchester City Council
PO Box 532. Town Hall
M60 2LA

Joe Teanby
Geotechnical Engineer
Amey OWR
27 Tanner Row
York
YO1 6JP

Our reference: New Moston Primary School
Your reference: -

Tuesday, 21 July 2015

Dear Steven

New Moston Primary School - Ground Investigation for Proposed Extension – FINAL Letter Report

I am pleased to provide herein a letter report detailing the findings and recommendations arising from the recent ground investigation at the named site.

1.0 Introduction / Brief

Manchester City Council (the Client) has proposed the construction of a new single storey kitchen extension to the existing building as depicted in Figure 1.

This report summarises the findings of a ground investigation at the named site and provides recommendations with respect to suitable foundations and further works required.

2.0 Ground Investigation

As per the specification provided by the client, the following ground investigation was undertaken on 2nd June 2015 by WYG Environment (WYG) under the supervision and direction of an Amey Engineer:

- 3no window sample holes - to depths of up to 6.45mbgl in the area of the proposed new kitchen extension. Standard Penetration Tests (SPT) and soil sampling were undertaken.
- 2no hand dug trial pits - to determine depth of foundations of the existing building.

All ground investigation locations are shown in Figure 1. All exploratory hole records and laboratory testing results are provided as attachments to this letter report.

A summary of ground conditions encountered is shown below:

Soil Stratum / number	Typical Description	Depth range
Made Ground (1)	Black Tarmacadam	0.07m to 0.19m
Made Ground (2)	Greyish black sandy roadstone, clinker, brick GRAVEL	0.07m to 0.51m
Made Ground (3)	Brick	0.14m to 0.30m (WS01 and WS03 only)
Made Ground (4)	Soft to firm dark brownish grey slightly sandy gravelly CLAY	0.14m to 1.90m
Possible Made Ground (5)	Soft to firm grey/brown slightly sandy slightly gravelly CLAY	0.60m to 2.00m (WS01 and WS02 only)
Natural (6)	Firm becoming stiff brown slightly sandy slightly gravelly CLAY	1.80m to >6.45m (WS01 to WS03 only)

Groundwater was not encountered in any of the exploratory holes, although the sandy clay in WS03 was noted as damp between 3.00m and 3.60mbgl.

2.1 Ground Conditions – Sub-surface

Assessment of ground conditions as observed in the investigation is provided below:

Existing Foundations

Two hand dug pits denoted TP01 and TP02 were excavated adjacent to the existing structure to determine the depth of the existing foundations, as shown in Figures 2 and 3 respectively.

- In TP01, excavated near the north east corner of the existing boys toilet, the brick foundations of the existing building were recorded to 1.05mbgl, which were placed on a 0.20m thick concrete footing, giving a total foundation depth of 1.25mbgl. The foundation was placed on Made Ground of soft to firm gravelly clay.
- In TP02, excavated near the north east corner of the existing Assembly Hall, the brick foundations of the existing building were recorded to 1.05mbgl, which were placed on a 0.30m thick concrete footing, giving a total foundation depth of 1.35mbgl. The pit was probed beneath the concrete foundations to prove its depth and the foundation was noted as being placed on Made Ground of soft to firm gravelly clay.

The actual foundation type of the existing structure cannot be ascertained for certain from these excavations, whether a concrete slab or concrete strip footing. With TP01 and TP02 identifying Made Ground of soft to firm clay at founding depth, it may be that deeper, possibly piled foundations have been used.

Soil Strength – Made Ground

The Made Ground was found to be generally comprised of brick, roadstone and clinker gravel over soft to firm clay. In WS01 and WS03 a layer of brick was encountered between these two strata.

SPT tests undertaken in the cohesive Made Ground encountered in WS01 to WS03 returned 'N' values of between 2 and 6, indicative of very soft to soft clay.

Geotechnical classification testing was undertaken on two samples of clay possible Made Ground recovered from WS02 at 1.20mbgl and WS03 at 0.75m. The samples returned a Plasticity Index of 19% and 13% respectively in relation to Liquid Limit of 40% and 33% respectively, classifying the strata as clay of intermediate and low plasticity.

On-site observations confirm the Made Ground materials are generally uniform in depth across the area of the ground investigation.

Soil Strength – Natural Ground

Firm becoming stiff brown clay was encountered below the Made Ground strata in all window sample holes at depths of between 1.80m and 2.00m. These natural clay deposits yielded SPT 'N' values ranging between 6 and 25 (generally increasing with depth) indicating the material to be generally firm becoming stiff. The lowest SPT 'N' value (of 6) was recorded in WS02 at 2.00m indicating softer material.

Hand vane tests undertaken between 2.50m and 4.50mbgl in WS01 and WS02 returned peak shear strengths of between 64kN/m² and 94kN/m² which increased with depth, indicative of firm and firm to stiff clay.

Geotechnical classification testing was undertaken on one sample of the natural clay, WS03 at 2.50mbgl. The sample from WS03 returned a Plasticity Index of 24% in relation to a Liquid Limit of 47%, classifying the strata as clay of intermediate plasticity.

Shrinkage and Swelling

After correction, where necessary, for their >425µm fraction, all samples tested are considered to have a shrinkable component susceptible to changes in moisture content according to the criteria of the National

House Building Council (NHBC) Standards, Chapter 4.2: 2008 Building Near Trees. Using the aforementioned criteria, the natural ground samples exhibit a low to medium potential for volume change.

Aggressive Ground

The Made Ground soils on-site exhibited pH results from pH7.4 to pH8.8, indicative of mildly alkaline conditions, and sulphate results of 15mg/l to 74mg/l (SO₄).

3.0 Recommendations

Foundations for the proposed extension

It is understood the structure to be built is a single storey building as an extension to the existing brick building, placed to the north east. The approximate location for placement is shown in Figure 1.

BS EN 1997-1:2004 (via referenced BS8004: 1986 Code of Practice for Foundation) gives presumed allowable bearing values under static loading for various types of rocks and soils for preliminary design purposes. The table below details the different allowable bearing values that can be used for foundation design.

NOTE These values are for preliminary design purposes only, and may need alteration upwards or downwards. No addition has been made for the depth of embedment of the foundation (see 2.1.2.3.2 and 2.1.2.3.3).				
Category	Types of rocks and soils	Presumed allowable bearing value		Remarks
		kN/m ² ^a	kgf/cm ² ^a tonf/ft ²	
Rocks	Strong igneous and gneissic rocks in sound condition	10 000	100	These values are based on the assumption that the foundations are taken down to unweathered rock. For weak, weathered and broken rock, see 2.2.2.3.1.12
	Strong limestones and strong sandstones	4 000	40	
	Schists and slates	3 000	30	
	Strong shales, strong mudstones and strong siltstones	2 000	20	
Non-cohesive soils	Dense gravel, or dense sand and gravel	> 600	> 6	Width of foundation not less than 1 m. Groundwater level assumed to be a depth not less than below the base of the foundation. For effect of relative density and groundwater level, see 2.2.2.3.2
	Medium dense gravel, or medium dense sand and gravel	< 200 to 600	< 2 to 6	
	Loose gravel, or loose sand and gravel	< 200	< 2	
	Compact sand	> 300	> 3	
	Medium dense sand	100 to 300	1 to 3	
	Loose sand	< 100	< 1	
Cohesive soils	Very stiff boulder clays and hard clays	300 to 600	3 to 6	Group 3 is susceptible to long-term consolidation settlement (see 2.1.2.3.3). For consistencies of clays, see Table 5
	Stiff clays	150 to 300	1.5 to 3	
	Firm clays	75 to 150	0.75 to 1.5	
	Soft clays and silts	<75	<0.75	
	Very soft clays and silts	Not applicable		
	Peat and organic soils	Not applicable		See 2.2.2.3.4
	Made ground or fill	Not applicable		See 2.2.2.3.5

^a 107.25 kN/m² = 1.094 kgf/cm² = 1 tonf/ft².

Allowable Bearing Values (Table 1 BS8004: 1986 Code of Practice for Foundations)

Based on this table, the ground conditions and SPT values encountered, it is considered that the soft and soft to firm clay (Made Ground), as encountered to a depth of between 1.80m and 2.00mbgl, would not provide suitable founding strata, with SPT 'N' values as low as 2 in the clay. As such, excavation would be required to remove and replace this unsuitable material, likely with concrete trench fill. Foundations would be recommended to be located at or below 2.0mbgl, below the Made Ground / soft clay and onto the natural firm clay. Competence of the final founding strata should be assessed during construction. This material would provide a minimum allowable bearing value in the order of 100kN/m² after preparation. An alternative would be to adopt a piled solution.

The soils encountered at the site are considered suitable for excavation by standard mechanical plant such as a wheeled backhoe excavator however, suitable breaking out equipment such as a pecker attachment should be available due to the presence of potential subsurface obstructions.

Although groundwater was not recorded in the boreholes during site works, based on information obtained from the monitoring, groundwater may be present in the excavations (see monitoring section of this report). Should foundation design deem it necessary to excavate below the depth of the groundwater (circa 2.37mbgl in WS01), then account should be taken of the effect of groundwater on allowable bearing values, which essentially results in allowable bearing values being halved. Groundwater levels will vary according to seasonal effects and local weather (rainfall) events. It is therefore recommended that suitable de-watering plant is available on site during excavation.

Advice on the safety of excavations can be found in Health and Safety in Construction (3rd edition): 2006, HSE Guidance Booklet 150.

Foundations / Buried Services / Service Connections

All trenches should be excavated as short a time as possible prior to completing foundations and installing services, and adequately supported to prevent instability of the trench and surrounding ground. The existing drainage in the area should be taken into account when designing the foundations, with 3 no. known drains in the area of the proposed extension at depths of up to 3.35mbgl. For further information see the David Rowell Ltd report dated 16/04/2015 held by Manchester City Council.

Aggressive Ground

With respect to buried concrete, chemical aggressiveness has been assessed with reference to the BRE Special Digest 1 (2005) entitled 'Concrete in Aggressive Ground'. Based on the soil pH values of between pH7.4 and pH8.8 and the maximum sulphate result of 74mg/l (in the Made Ground), then Design Sulphate Class for the site is DS-1. Assuming due to the presence of Made Ground, and assuming shallow groundwater is mobile, the site is classed as brownfield. Therefore in accordance with the Design Sulphate Class for the site together with the site and groundwater conditions an aggressive chemical environment for concrete (ACEC) classification of AC-1 should be applied to the soils on-site.

Groundwater

It is recommended that allowances are made for testing of any groundwater should it be encountered in excavations to ensure compliance with required standards before any trench dewatering is discharged to a drain or sewer network.

Monitoring

The standpipes were monitored at intervals of two weeks following site works (gas and groundwater), results of which are presented in this report and summarised below:

Installation		CH ₄	CO ₂	O ₂	H ₂ S	CO	Atm. Press.	Groundwater level (mbgl)
WS02 (depth 5.0m)	10/06/15	0.2%	3.2%	18.89%	0ppm	1ppm	1021	3.10
	24/06/15	0.2%	3.4%	18.10%	1ppm	0ppm	1007	2.87
	10/07/15	0.2%	4.6%	16.80%	1ppm	0ppm	1007	2.59
WS03 (depth 5.0m)	10/06/15	0.2%	5.7%	16.50%	1ppm	1ppm	1021	2.37
	24/06/15	0.0%	5.8%	16.10%	1ppm	1ppm	1009	2.27
	10/07/15	0.0%	4.8%	16.40%	1ppm	0ppm	1007	2.29

Waste Disposal

Any excavation works to be undertaken must be minimised to reduce the volume of waste soil arisings. Soil waste must be characterised and disposed of in accordance with current UK waste legislation.

4.0 Contamination Assessment

Waste Acceptance Criteria (WAC) testing was undertaken on 2 No. samples of the near surface Made Ground. The results of these tests are attached for information and an assessment made of the results is presented below.

Two samples were taken for analysis for human health and waste hazard classification/waste acceptance criteria testing. Both samples were diluted by the laboratory for analysis. This dilution occurred due to relatively high exceedances in the samples after preparation. This act of dilution may increase laboratory error, however the results stated are still to the laboratory's MCERTs and UKAS accreditation and so are still valid.

Waste Hazard Classification

Laboratory testing results from two samples were used to undertake an initial waste hazard categorisation. Classification results from the Hazwaste online assessment tool are attached. Both samples comprise made ground of variable nature at 0.40mbgl within WS02 and 0.40mbgl in WS03. The made ground varies from Macadam, fine to coarse roadstone, clinker, brick, to clayey fine to coarse sand with roadstone, limestone and macadam gravel.

Both samples may be classified as hazardous due to high levels of Poly Aromatic Hydrocarbon (PAH); specifically Benzo(a)anthracene concentrations of 114.48mg/kg and 44.76mg/kg in WS02 (0.40mbgl) and WS03 (0.40mbgl) respectively. Both samples are hazardous under HP 14: Ecotoxic "waste which presents or may present immediate or delayed risks for one or more sectors of the environment" with the Risk Phase R52/53 "Harmful to aquatic organisms, may cause long-term adverse effects in the aquatic environment". The risk appears when the concentration of Benzo(a)anthracene exceeds 0.0025% weight of the sample.

Both samples are likely to be classified as Hazardous Waste with the likely EWC code of 17 05 03 * (Soil and stones containing hazardous substances).

Waste Acceptance Criteria

Two Waste Acceptance Criteria (WAC) tests were undertaken using the eluate from CEN 10:1 leachate tests. The sample from WS02 at 0.40mbgl shows that the waste is suitable for Stable Non-reactive Hazardous Waste in Non-Hazardous Landfill (SNRHW) due to Total Petroleum Hydrocarbons and pH exceeding the limit for inert landfill and the waste hazard classifications above.

The sample from WS03 taken at 0.40mbgl is also suitable for Hazardous Waste Landfill due to pH, exceeding the limit for inert landfill and the loss of ignition exceeding the Hazardous Waste Landfill threshold of 10% with a value of 16.8%. The waste hazard classifications above and waste acceptance criteria testing confirm this sample to be considered hazardous waste.

Material from WS02 is suitable for disposal in a SNRHW cell in a non-hazardous landfill. Hazardous material from WS03 is suitable for disposal in a Hazardous landfill. Any excavation works to be undertaken must be minimised to reduce the volume of waste soil arisings. Soil waste must be characterised and disposed of in accordance with current UK waste legislation, and as such the waste will need to be pre-treated by sorting, screening etc. prior to disposal to reduce the volume of waste.

Relevant chemical test data along with material descriptions and EWC codes will need to be provided to the proposed landfill and confirmation sought as to the final classification and subsequent cost associated with disposal.

Human Health

Two samples were tested for a range of determinands to determine preliminary risk to human health. The samples were tested for; metals, TPH, PAH, PCBs and BTEX. Samples were screened against generic assessment criteria for a public open space to provide a conservative preliminary assessment for these determinands due to the sensitive land use. Samples were screened against C4SLs or LQM S4ULs. These provide an assessment of long term risks to human health and do not consider other receptors e.g. groundwater.

Testing shows that both WS02 (0.40mbgl) and WS03 (0.40mbgl) have elevated PAHs. Notably Benzo(a)anthracene, Benzo(a)pyrene, Dibenzo(ah)anthracene and Benzo(b)fluoranthene. Their concentrations and exceedances are shown below:

Exceedance contaminant	Sample (Depth mbgl)	Screening Value (mg/Kg) (Source)	Measured concentration (mg/Kg)
Benzo(a)anthracene	WS02(0.40) WS03(0.40)	29(LQM/CIEH S4ULs)	114.48 44.7
Benzo(a)pyrene	WS02(0.40) WS03(0.40)	10 (C4SL)	72.92 31.82
Dibenzo(ah)anthracene	WS02(0.40) WS03(0.40)	0.57 (LQM/CIEH S4ULs)	8.59 4.27
Benzo(b)fluoranthene	WS02(0.40) WS03(0.40)	7.1 (LQM/CIEH S4ULs)	92.01 39.22
Chrysene	WS02(0.40)	29 (LQM/CIEH S4ULs)	81.17

The made ground within both holes contains significant proportions of macadam and roadstone sub-base. The elevated PAH in the chemical samples reflect that roadstone and macadam materials are influencing the concentrations of contaminants. Although elevated, these determinands are unlikely to cause a risk to construction workers if appropriate protective equipment is worn, or human health of the site users after construction of the proposed extension.

Both samples showed that volatile contaminants from BTEX were below the limit of detection. The available results do not indicate that a gas risk is present from volatile contaminants.

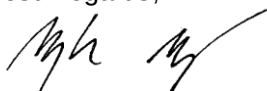
Ground gas was assessed using Claire Research Bulletin 17 and CIRIA C665. The available borehole logs for WS02 and WS03 indicate a measured maximum thickness of made ground of 2.00mbgl. There is little indication of a strong organic component to the made ground. As such the risk of ground gas is low. Monitoring results were screened against Gas Screening Values (GSVs). No gas screening values were breached over a Green level 1. This indicates that no further action is required with respect to monitoring ground gas with no special precautions in terms of gas protection assuming traditional building construction.

It is understood that the proposed end use will include hardstanding surfacing/new building construction which will ensure that any potential exposure pathways are broken and as such the risk of exposure to the end site users is considered to be low. However, additional assessment will be required if new soft landscaping is used. Soft landscaping will likely require a clean capping layer from imported fill and has not been considered as part of this letter report.

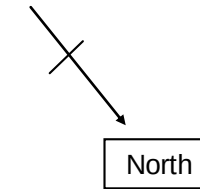
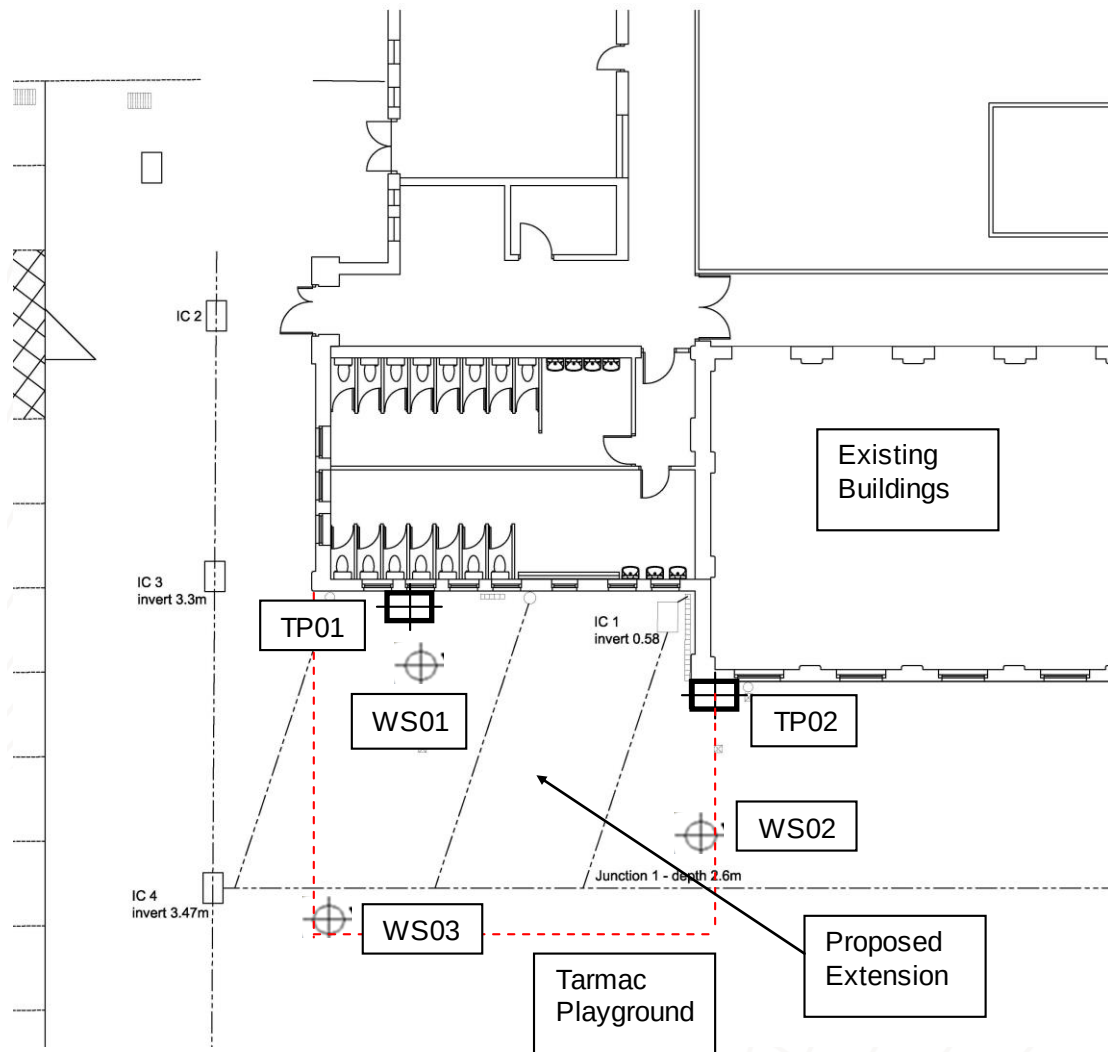
Site operatives should be advised that the site has the potential to be contaminated. As such operatives are required to wear hand protection, overalls/PPE and eye protection. This site should be designated under the Yellow Category Site under the British Drilling Association Guidelines. Should olfactory or visual, or gross contamination be encountered on site it should be deemed as contaminated and a Geo-Environmental Specialist should be consulted.

I trust the report herein is sufficient for your requirements. Should you have any queries please feel free to call me on 01904 601409.

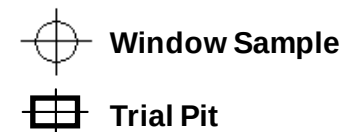
Best Regards,

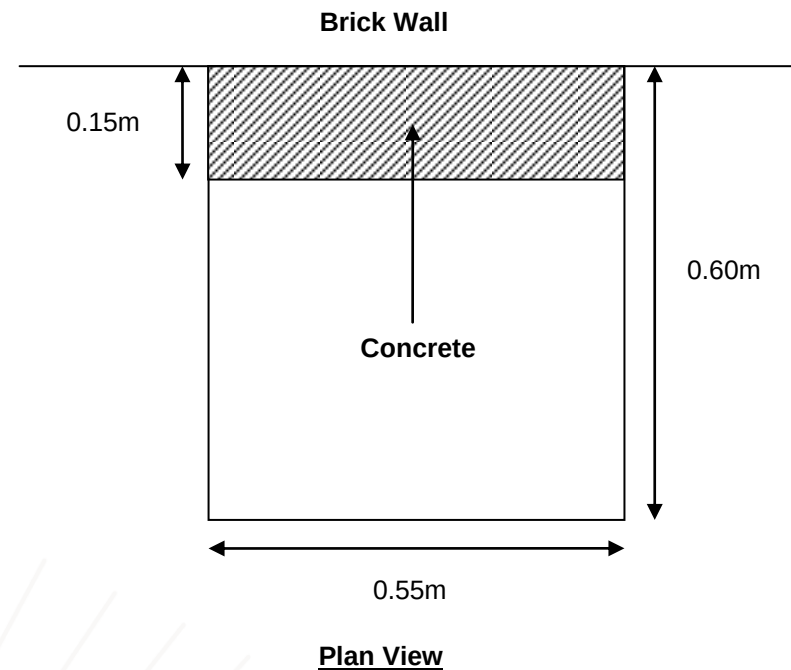
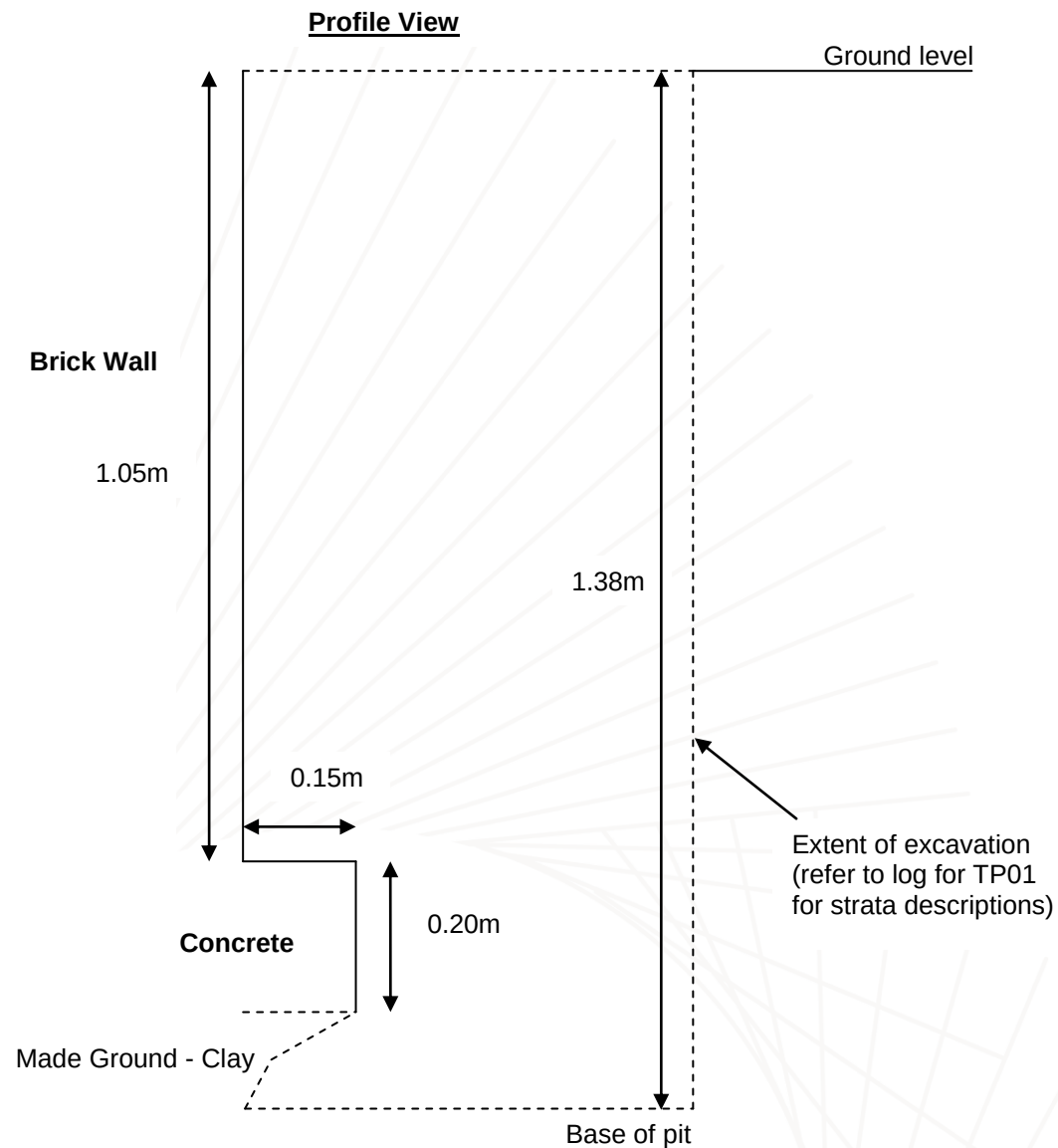


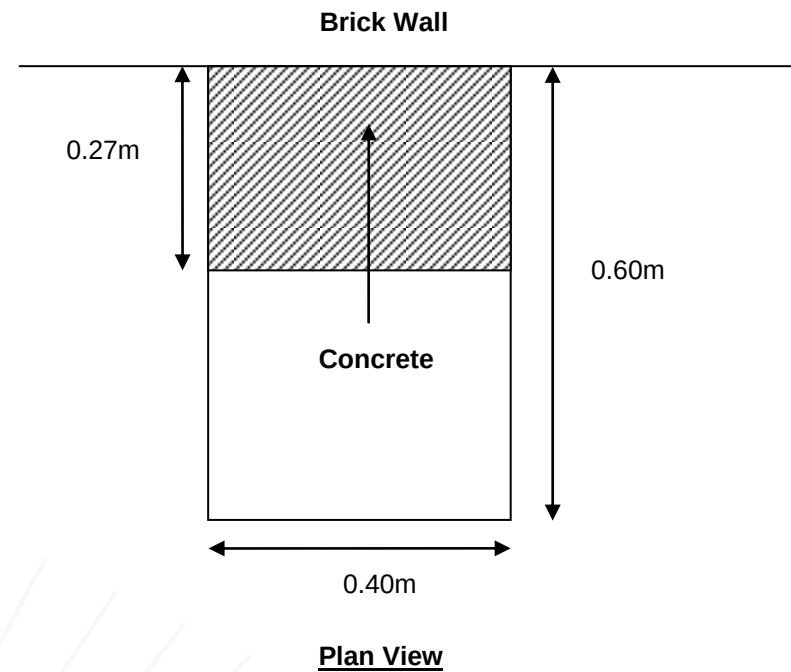
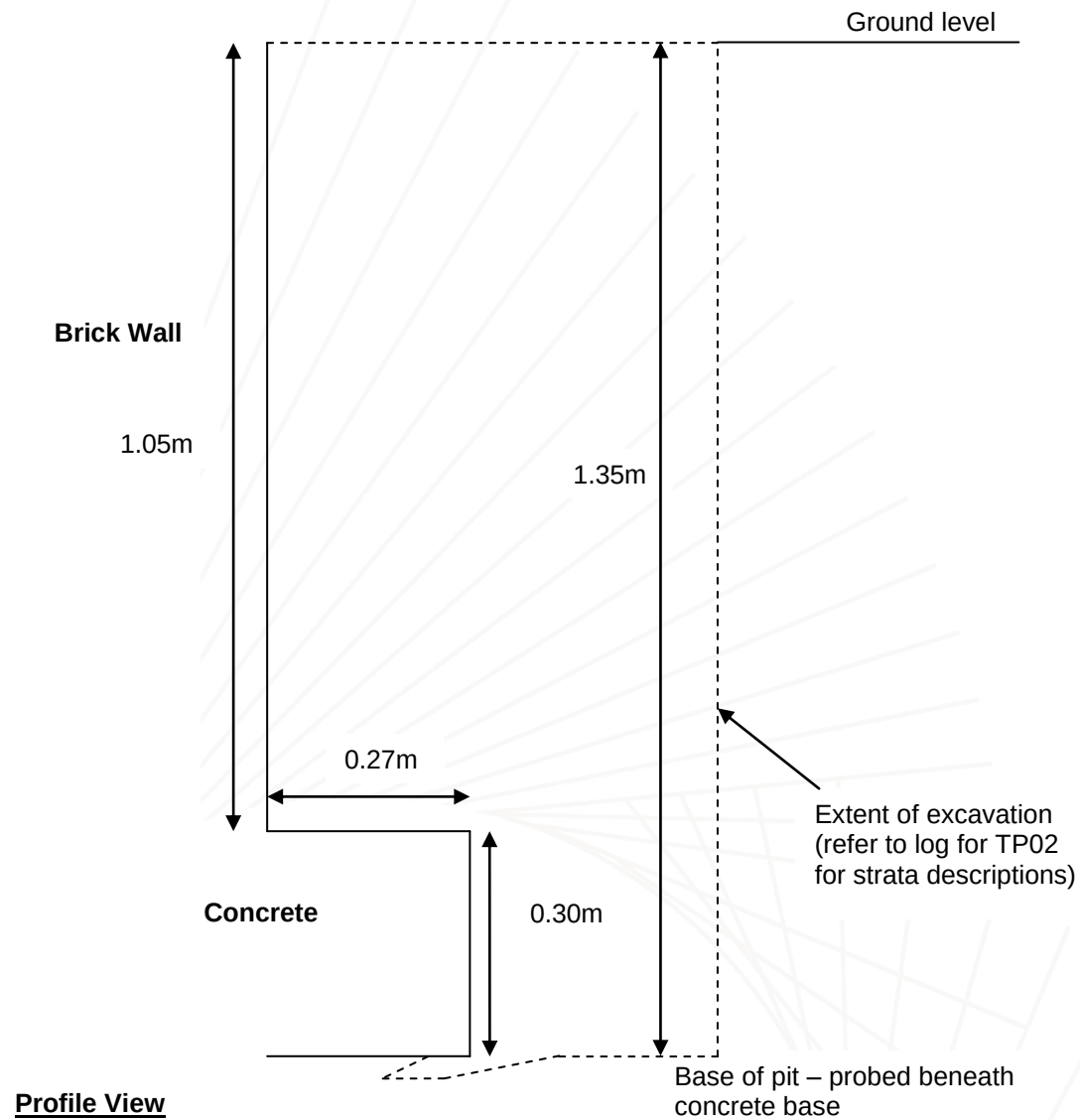
Joe Teanby
Geotechnical Engineer
For and on behalf of Amey OWR Limited

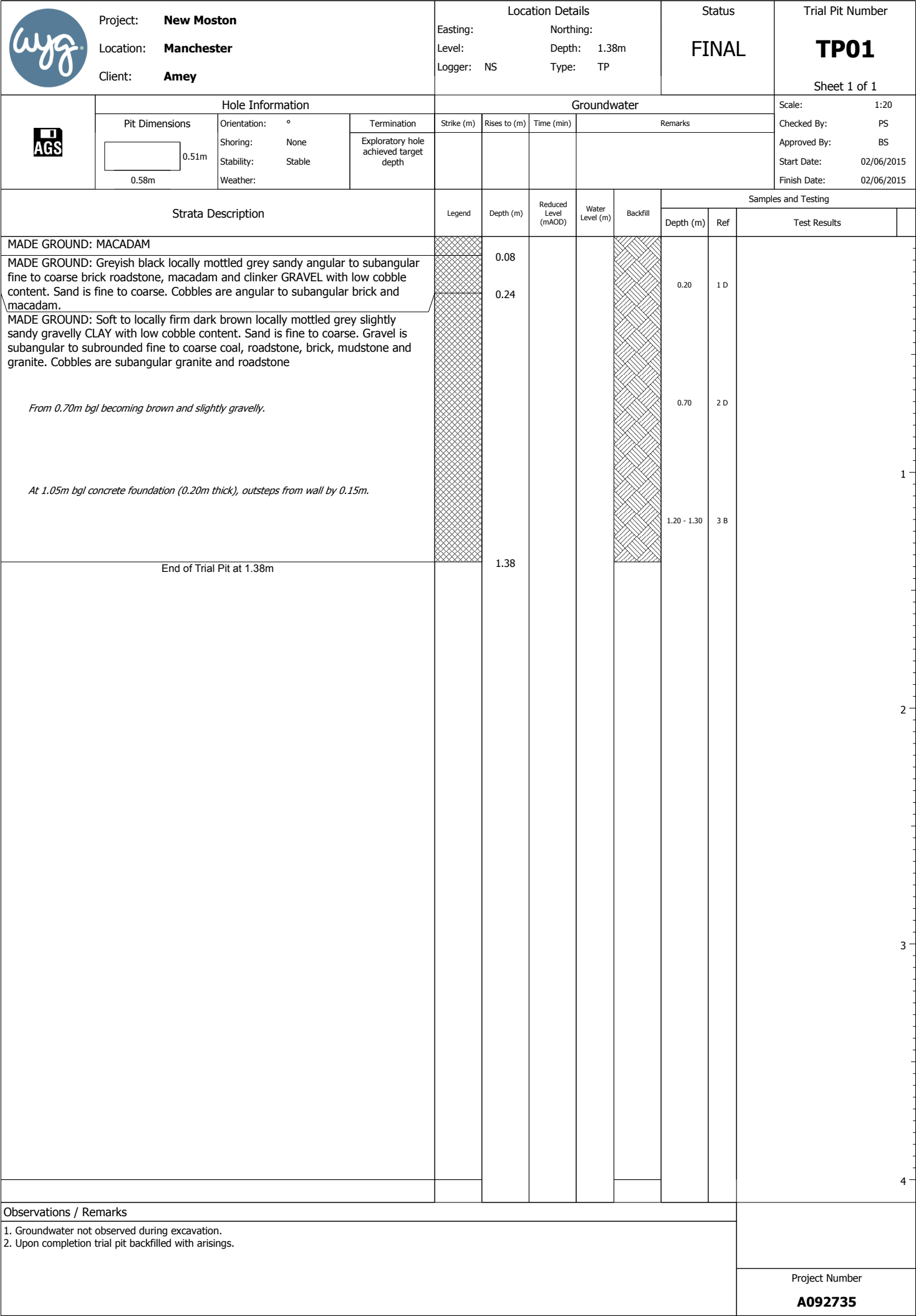


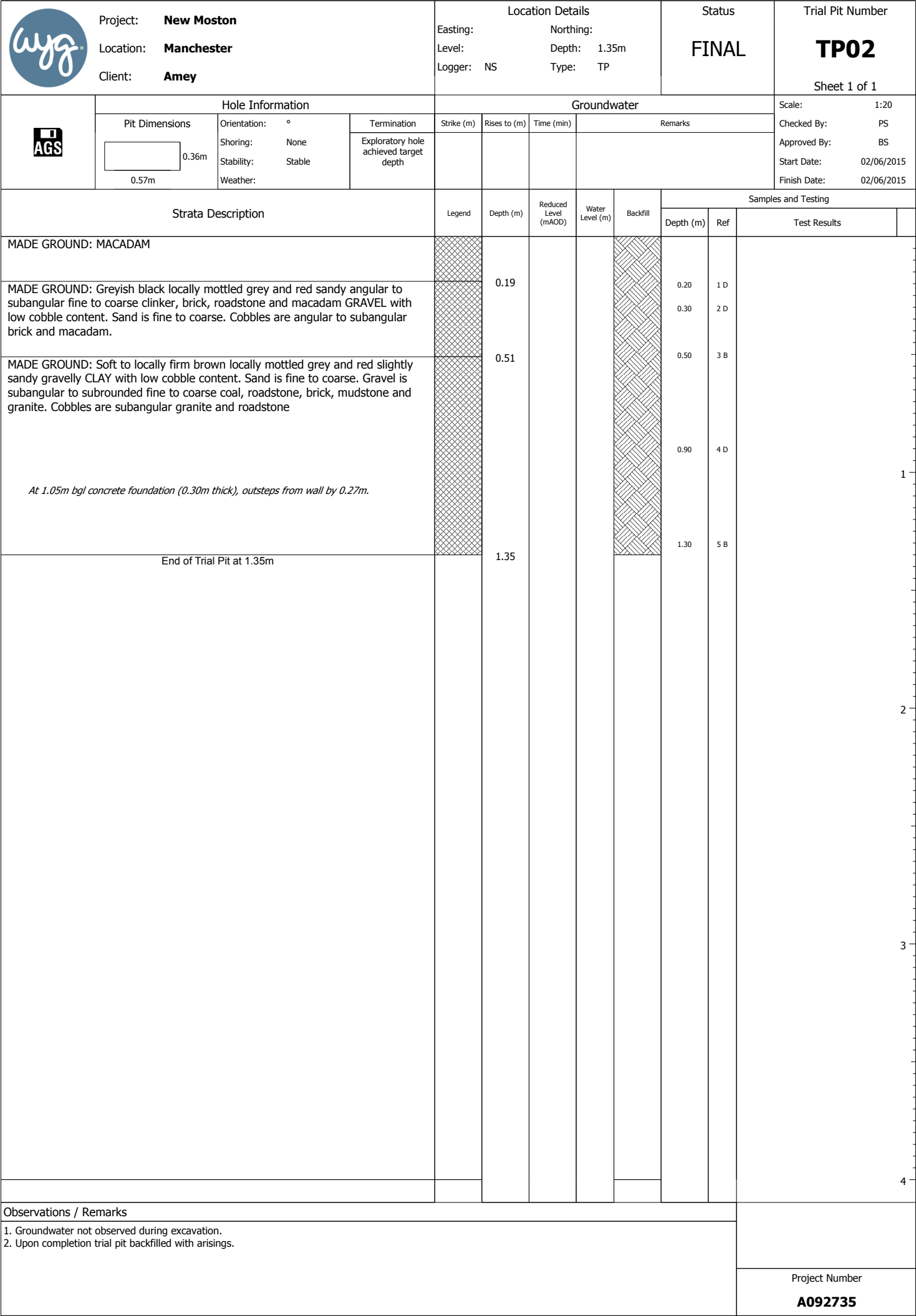
Not to Scale











	Project: New Moston		Location Details				Status		Borehole Number					
	Location: Manchester		Easting: Northing: Level: Depth: 5.45m Logger: NS Type: WS				FINAL		WS01					
	Client: Amey													
	Hole Information				Groundwater					Scale: 1:50				
	From (m)	To (m)	Type	Termination	Strike (m)	Rises to (m)	Time (min)	Remarks		Checked By: PS				
	0.00 1.20	1.20 5.45	Inspection Pit Window Sampler	Exploratory hole achieved target depth						Approved By: BS				
										Start Date: 02/06/2015				
										Finish Date: 02/06/2015				
Strata Description					Legend	Depth (m)	Reduced Level (mAOD)	Casing Ø (mm) Depth (m)	Water Level (m)	Installation / Backfill	Samples & Testing			
											Depth (m)	Ref	Test Results	
MADE GROUND: MACADAM						0.07					0.10	1 D	N=6 (0,1/1,1,2,2)	
MADE GROUND: Greyish black locally mottled grey sandy angular to subangular fine to coarse brick, roadstone, macadam and clinker GRAVEL with low cobble content. Sand is fine to coarse. Cobbles are angular to subangular brick and macadam.						0.14					0.20 - 0.40	2 B		
MADE GROUND: Brick.						0.25					0.40	3 D		
MADE GROUND: Soft to locally firm dark brownish grey slightly sandy gravelly CLAY with low cobble content. Sand is fine to coarse including ash. Gravel is subangular to subrounded fine to coarse clinker, mudstone, coal and granite. Cobbles are subangular granite and roadstone.						0.60					0.50	4 ES		
Possible MADE GROUND: Soft to firm brown locally mottled orange and grey slightly sandy gravelly silty CLAY. Sand is fine to coarse. Gravel is subrounded to rounded fine to coarse granite, mudstone, coal and sandstone.											0.70	5 D		
Firm medium strength dark brown slightly gravelly slightly sandy CLAY. Sand is fine to coarse. Gravel is subrounded to rounded fine to coarse granite, mudstone and sandstone.											1.00 - 1.20	6 B		
											1.20	7 D		
											1.20	SPT(S)		
											1.50	8 D		
						1.80					2.00	9 D	N=14 (2,2/3,3,4,4)	2
											2.00	SPT(S)		
											2.50	10 D	(p)=64kPa, (r)=17kPa	
											2.50	HV		
											3.00	11 D	N=19 (3,4/4,4,5,6)	3
											3.00	SPT(S)		
											3.50	12 D	(p)=71kPa, (r)=21kPa	
											3.50	HV		
											4.00	13 D	N=17 (3,3/3,4,4,6)	4
											4.00	SPT(S)		
											4.50	HV	(p)=72kPa, (r)=20kPa	
										5.00	SPT(C)	N=17 (4,3/4,4,4,5)	5	

	Project: New Moston		Location Details				Status		Borehole Number								
	Location: Manchester		Easting: Northing:				FINAL		WS02								
	Client: Amey		Level: Depth: 5.45m Logger: NS Type: WS														
Hole Information					Groundwater					Scale: 1:50							
	From (m)	To (m)	Type	Termination	Strike (m)	Rises to (m)	Time (min)	Remarks				Checked By: PS					
	0.00 1.20	1.20 5.45	Inspection Pit Window Sampler	Exploratory hole achieved target depth								Approved By: BS Start Date: 02/06/2015 Finish Date: 02/06/2015					
Strata Description					Legend	Depth (m)	Reduced Level (mAOD)	Casing Ø (mm) Depth (m)	Water Level (m)	Installation / Backfill	Samples & Testing						
MADE GROUND: MACADAM MADE GROUND: Greyish black locally mottled grey sandy angular to subangular fine to coarse brick roadstone, macadam and clinker GRAVEL with low cobble content. Sand is fine to coarse. Cobbles are angular to subangular brick. MADE GROUND: Soft to locally firm brown locally mottled grey slightly sandy gravelly silty CLAY with low cobble content. Sand is fine to coarse. Gravel is subangular to subrounded fine to coarse mudstone, coal, granite and limestone. Cobbles are subangular granite. Possible MADE GROUND: Soft to firm dark greyish brown slightly gravelly slightly sandy silty CLAY. Sand is fine to coarse. Gravel is subrounded to rounded fine to coarse granite, mudstone, coal and sandstone. Possible MADE GROUND: Soft to firm greyish brown locally mottled grey slightly gravelly slightly sandy CLAY. Sand is fine to coarse. Gravel is subangular to subrounded fine to coarse granite, mudstone, coal, sandstone and limestone. <i>From 1.90m to 2.00m bgl becoming firm.</i> Firm medium strength locally laminated brown slightly gravelly slightly sandy CLAY. Sand is fine to coarse. Gravel is subangular to subrounded fine to coarse coal, mudstone and sandstone.						0.10						0.10 0.20 0.20 - 0.40 0.40 0.50 0.65 0.70 - 0.80 0.90 1.00 - 1.20	1 D 2 D 3 B 4 ES 5 D 6 D 7 B 8 D 9 B				
						0.40											
						0.60											
						0.80											
						2.00											
End of Borehole at 5.45m						5.45											
Observations / Remarks					Sampling Runs					SPT Information							
1. Inspection pit hand excavated to 1.20m bgl prior to sampling. 2. Groundwater not observed during excavation. 3. HV = Hand Vane Test - (p) = peak, (r) = residual. 4. Upon completion window sample backfilled with arisings.					From (m)	To (m)	Diam (mm)	Recovery (%)	Remarks		Hammer Serial No.		Energy Ratio %				
					1.20	2.00	87	100			110.44SM		84				
					2.00	3.00	77	100									
					3.00	4.00	77	90									
					4.00	5.00	67	80									
									Project Number		A092735						

 Project: New Moston Location: Manchester Client: Amey				Location Details Easting: Northing: Level: Depth: 6.45m Logger: NS Type: WS				Status FINAL		Borehole Number WS03				
								Sheet 1 of 1						
	Hole Information				Groundwater				Scale: 1:50					
	From (m)	To (m)	Type	Termination	Strike (m)	Rises to (m)	Time (min)	Remarks		Checked By: PS				
	0.00 1.20	1.20 6.45	Inspection Pit Window Sampler	Exploratory hole achieved target depth						Approved By: BS				
								Start Date: 02/06/2015		Finish Date: 02/06/2015				
Strata Description				Legend	Depth (m)	Reduced Level (mAOD)	Casing Ø (mm) Depth (m)	Water Level (m)	Installation / Backfill	Samples & Testing				
MADE GROUND: MACADAM MADE GROUND: Greyish black locally mottled grey sandy angular to subangular fine to coarse brick roadstone, macadam and clinker GRAVEL with low cobble content. Sand is fine to coarse. Cobbles are angular to subangular brick and macadam. MADE GROUND: Brick. MADE GROUND: Soft to locally firm dark brownish grey slightly sandy gravelly CLAY with low cobble content. Sand is fine to coarse including ash. Gravel is subangular to subrounded fine to coarse clinker, mudstone, coal and granite. Cobbles are subangular granite and roadstone. MADE GROUND: Soft to firm grey mottled brown slightly gravelly slightly sandy CLAY. Sand is fine to coarse. Gravel is subangular to subrounded fine to coarse granite, mudstone, coal and sandstone. MADE GROUND: Firm locally soft brown mottled brown grey slightly gravelly slightly sandy CLAY with rare organics. Sand is fine to coarse. Gravel is subangular to subrounded fine to coarse sandstone, brick, coal and mudstone. Soft to firm light brown to brown slightly gravelly sandy CLAY. Sand is fine to coarse. Gravel is subangular to subrounded fine to coarse sandstone, coal and mudstone. From 2.80m bgl becoming firm. From 3.00m to 3.60m bgl with thin to thick laminations of sand becoming damp. From 3.60m to 6.45m bgl becoming slightly sandy. From 5.80m bgl becoming stiff.					0.08					0.15	1 D	N=2 (0,0/1,0,0,1)		
					0.23						0.20		2 B	
					0.30						0.20		3 ES	
					0.55						0.40		4 D	
											0.40		5 ES	
											0.75		6 D	
											1.00		7 B	
					1.20						1.20		SPT(C)	
											1.50		8 D	

WYG GEO-ENVIRONMENT

Arndale Court, Headingley, LEEDS, LS6 2UJ

Tel: 0113 278 7111 Fax: 0113 275 0623

Email: enviro.leeds@wyg.com



GROUND GAS MONITORING RECORD SHEET

Client: Amey			Job No: A092735								Instruments Used: Gas monitor and dip read									
Project Name: New Moston Primary School			Date: 10/06/2015								Make / Model : GA5000									
Weather: Sunny			Monitored By: N. Stephens								Serial Number: G502069									
Exploratory Hole No.	Peak ¹		Time to reach steady concentration (secs)	Steady ²						Flow Rate Peak (L/hr)	Time to reach steady flow (secs)	Flow Rate Steady (L/hr)	Relative pressure (mb)	Atmospheric Pressure (mbar)	Gas screening value	Characteristic situation	Water Depth (m bgl)	Base Depth (m bgl)	Water Level (mAOD)	Remarks
	CH ₄	CO ₂		CH ₄	CO ₂	O ₂	H ₂ S ³	CO ³	PID											
	(% vol)	(% vol)		(% vol)	(% vol)	(% vol)	(ppm)	(ppm)	(ppm)											
WS02	0.3	3.2	240	0.2	3.2	18.89	0	1	n/a	0.1	54	0.1	0	1021			3.1	5		
WS03	0.2	5.7	360	0.2	5.7	16.5	1	1	n/a	0.1	69	0.1	0.09	1021			2.37	5		

Ambient Gas Levels:

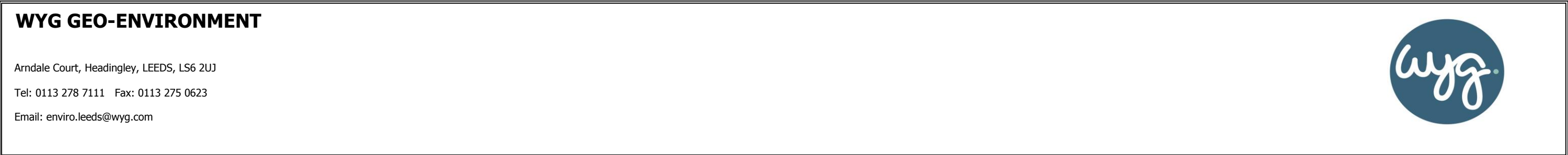
Day 1

		CH ₄ (%)	CO ₂ (%)	O ₂ (%)	H ₂ S (%)	CO (%)	PID ppm	Atmos (mbar)
Before Monitoring		0.3	0.1	21.3	0.0	0.0	n/a	1021
After Monitoring		0.2	0.1	19.7	0.0	0.0	n/a	1021

1 The peak reading is the maximum recorded level during a monitoring event.
2 The steady reading is the level which remained constant after approximately 1 minute.
3 Recorded values are calculated from the Ambient Gas readings (live zero)

WYG GEO-ENVIRONMENT

Arndale Court, Headingley, LEEDS, LS6 2UJ
Tel: 0113 278 7111 Fax: 0113 275 0623
Email: enviro.leeds@wyg.com



GROUND GAS MONITORING RECORD SHEET

[illegible]

Ambient Gas Levels:

		CH ₄ (%)	CO ₂ (%)	O ₂ (%)	H ₂ S (%)	CO (%)	PID ppm	Atmos (mbar)
Before Monitoring		0.2	0.1	20.6	0.0	0.0	N/A	1007
After Monitoring		0.0	0.1	19.0	0.0	0.0	N/A	1009

Day 1

- 1 The peak reading is the maximum recorded level during a monitoring event.
- 2 The steady reading is the level which remained constant after approximately 1 minute.
- 3 Recorded values are calculated from the Ambient Gas readings (live zero)

WYG GEO-ENVIRONMENT

Arndale Court, Headingley, LEEDS, LS6 2UJ
Tel: 0113 278 7111 Fax: 0113 275 0623
Email: enviro.leeds@wyg.com



GROUND GAS MONITORING RECORD SHEET

Client: Amey			Job No: A092735								Instruments Used: Gas monitor and dip read									
Project Name: New Moston Primary School			Date: 10/07/2015								Make / Model : GA5000									
Weather: Sunny			Monitored By: N. Stephens								Serial Number: G502069									
Exploratory Hole No.	Peak ¹		Time to reach steady concentration (secs)	Steady ²					Flow Rate Peak (L/hr)	Time to reach steady flow (secs)	Flow Rate Steady (L/hr)	Relative pressure (mb)	Atmospheric Pressure (mbar)	Gas screening value	Characteristic situation	Water Depth (m bgl)	Base Depth (m bgl)	Water Level (mAOD)	Remarks	
	CH ₄	CO ₂		CH ₄	CO ₂	O ₂	H ₂ S ³	CO ³												PID
	(% vol)	(% vol)		(% vol)	(% vol)	(% vol)	(ppm)	(ppm)												(ppm)
WS02	0	4.6	360	0.2	4.6	16.8	1	0	0.1	0	0	0	1007			2.59	5			
WS03	0	4.8	372	0	4.8	16.4	1	0	0.1	34	0	0	1007			2.29	5			

Ambient Gas Levels:

Day 1

		CH ₄ (%)	CO ₂ (%)	O ₂ (%)	H ₂ S (%)	CO (%)	PID ppm	Atmos (mbar)
Before Monitoring		0.0	0.1	20.6	0.0	0.0		1007
After Monitoring		0.0	0.1	19.6	0.0	0.0		1007

1 The peak reading is the maximum recorded level during a monitoring event.
2 The steady reading is the level which remained constant after approximately 1 minute.
3 Recorded values are calculated from the Ambient Gas readings (live zero)



LABORATORY REPORT



4043

Contract Number: PSL15/2876

Client's Reference: A092735

Report Date: 19 June 2015

Client Name: WYG Leeds
Arndale Court
Headingley
Leeds
LS6 2UJ

For the attention of: Steve Marwood

Contract Title: New Moston, Manchester

Date Received: 15/06/2015

Date Commenced: 15/06/2015

Date Completed: 19/06/2015

Notes: Opinions and Interpretations are outside the UKAS Accreditation

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

Checked and Approved Signatories:

R Gunson
(Director)

D Lambe
(Senior Technician)

A Watkins
(Director)

S Royle
(Senior Technician)

M Beastall
(Laboratory Manager)

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

Page 1 of

SUMMARY OF LABORATORY SOIL DESCRIPTIONS

[illegible]

Professional Soils Laboratory

Compiled by	Date	Checked by	Date	Approved by	Date
	19/06/15		19/06/15		19/06/15
NEW MOSTON MANCHESTER.				Contract No:	PSL15/2876
				Client Ref:	A092735

SUMMARY OF SOIL CLASSIFICATION TESTS

(B.S. 1377 : PART 2 : 1990)

[illegible]

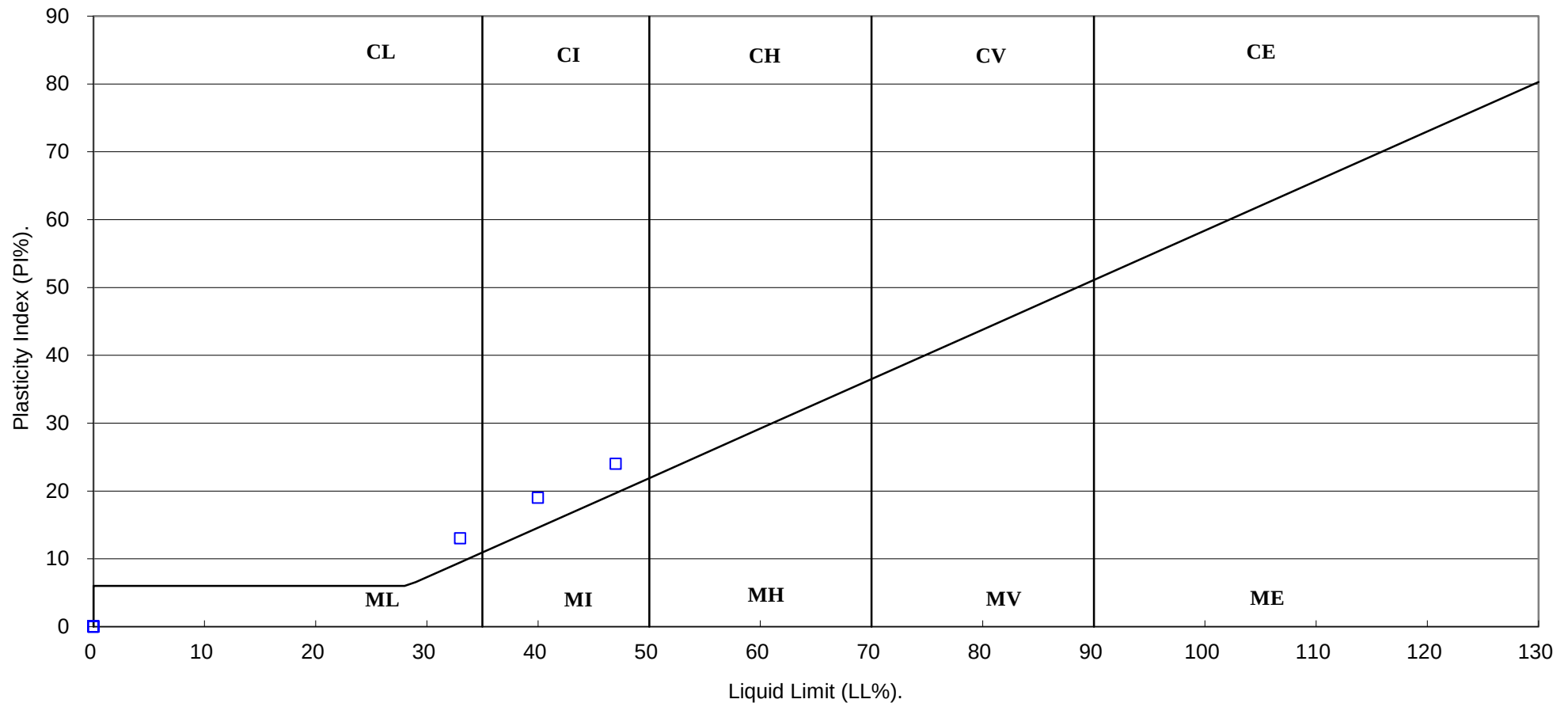
SYMBOLS : NP : Non Plastic

*** : Liquid Limit and Plastic Limit Wet Sieved.**

 Professional Soils Laboratory	Compiled by	Date	Checked by	Date	Approved by	Date
		19/06/15		19/06/15		19/06/15
	NEW MOSTON MANCHESTER.				Contract No:	PSL15/2876
					Client Ref:	A092735

PLASTICITY CHART FOR CASAGRANDE CLASSIFICATION.

(B.S.5930 : 1999)



PSL

Professional Soils Laboratory

Compiled by	Date	Checked by	Date	Approved by	Date
	19/06/15		19/06/15		19/06/15
NEW MOSTON MANCHESTER.				Contract No:	PSL15/2876
				Client Ref:	A092735



Jones Environmental Laboratory

Registered Address : Unit 3 Deeside Point, Zone 3, Deeside Industrial Park, Deeside, CH5 2UA. UK

Unit 3 Deeside Point
Zone 3
Deeside Industrial Park
Deeside
CH5 2UA

WYG
Arndale Court
Arndale Centre
Otley Road
Leeds
LS6 2UJ

Tel: +44 (0) 1244 833780

Fax: +44 (0) 1244 833781



Attention : Stephen Marwood
Date : 25th June, 2015
Your reference : A092735
Our reference : Test Report 15/8287 Batch 1
Location : New Moston School
Date samples received : 5th June, 2015
Status : Final report
Issue : 2

Four samples were received for analysis on 5th June, 2015 of which two were scheduled for analysis. Please find attached our Test Report which should be read with notes at the end of the report and should include all sections if reproduced. Interpretations and opinions are outside the scope of any accreditation, and all results relate only to samples supplied.

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

Compiled By:

Phil Sommerton
Project Manager

Bob Millward BSc FRSC
Principal Chemist

Jones Environmental Laboratory

Client Name: WYG
Reference: A092735
Location: New Moston School
Contact: Stephen Marwood
JE Job No.: 15/8287

Report : Solid

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

J E Sample No.	4-6	10-12									Please see attached notes for all abbreviations and acronyms		
Sample ID	WS02	WS03											
Depth	0.40	0.40											
COC No / misc													
Containers	V J T	V J T											
Sample Date	02/06/2015	02/06/2015											
Sample Type	Soil	Soil											
Batch Number	1	1											
Date of Receipt	05/06/2015	05/06/2015									LOD/LOR	Units	Method No.
Arsenic ^{#M}	4.1	14.8									<0.5	mg/kg	TM30/PM15
Cadmium ^{#M}	0.6	0.3									<0.1	mg/kg	TM30/PM15
Chromium ^{#M}	12.9	53.4									<0.5	mg/kg	TM30/PM15
Copper ^{#M}	6	35									<1	mg/kg	TM30/PM15
Lead ^{#M}	31	63									<5	mg/kg	TM30/PM15
Mercury ^{#M}	<0.1	<0.1									<0.1	mg/kg	TM30/PM15
Nickel ^{#M}	5.5	20.5									<0.7	mg/kg	TM30/PM15
Selenium ^{#M}	<1	1									<1	mg/kg	TM30/PM15
Sulphur	0.05	0.05									<0.01	%	TM30/PM15
Total Sulphate BRE	0.03	0.05									<0.01	%	TM50/PM15
Zinc ^{#M}	35	66									<5	mg/kg	TM30/PM15
Magnesium	0.0009	0.0030									<0.0001	g/l	TM30/PM20
PAH MS													
Naphthalene ^{#M}	1.46 ^{AC}	0.68 ^{AB}									<0.04	mg/kg	TM4/PM8
Acenaphthylene	3.66 ^{AC}	1.31 ^{AB}									<0.03	mg/kg	TM4/PM8
Acenaphthene ^{#M}	23.24 ^{AC}	10.56 ^{AB}									<0.05	mg/kg	TM4/PM8
Fluorene ^{#M}	22.32 ^{AC}	8.60 ^{AB}									<0.04	mg/kg	TM4/PM8
Phenanthrene ^{#M}	167.26 ^{AC}	90.18 ^{AB}									<0.03	mg/kg	TM4/PM8
Anthracene [#]	61.72 ^{AC}	18.18 ^{AB}									<0.04	mg/kg	TM4/PM8
Fluoranthene ^{#M}	256.00 ^{AC}	108.19 ^{AB}									<0.03	mg/kg	TM4/PM8
Pyrene [#]	196.18 ^{AC}	81.20 ^{AB}									<0.03	mg/kg	TM4/PM8
Benzo(a)anthracene [#]	114.48 ^{AC}	44.70 ^{AB}									<0.06	mg/kg	TM4/PM8
Chrysene ^{#M}	81.17 ^{AC}	34.01 ^{AB}									<0.02	mg/kg	TM4/PM8
Benzo(bk)fluoranthene ^{#M}	127.79 ^{AC}	54.47 ^{AB}									<0.07	mg/kg	TM4/PM8
Benzo(a)pyrene [#]	72.92 ^{AC}	31.82 ^{AB}									<0.04	mg/kg	TM4/PM8
Indeno(123cd)pyrene ^{#M}	45.84 ^{AC}	19.94 ^{AB}									<0.04	mg/kg	TM4/PM8
Dibenzo(ah)anthracene [#]	8.59 ^{AC}	4.27 ^{AB}									<0.04	mg/kg	TM4/PM8
Benzo(ghi)perylene [#]	37.16 ^{AC}	19.72 ^{AB}									<0.04	mg/kg	TM4/PM8
Coronene	6.91 ^{AC}	2.97 ^{AB}									<0.04	mg/kg	TM4/PM8
PAH 17 Total	1226.70 ^{AC}	530.80 ^{AB}									<0.64	mg/kg	TM4/PM8
Benzo(b)fluoranthene	92.01 ^{AC}	39.22 ^{AB}									<0.05	mg/kg	TM4/PM8
Benzo(k)fluoranthene	35.78 ^{AC}	15.25 ^{AB}									<0.02	mg/kg	TM4/PM8
PAH Surrogate % Recovery	93 ^{AC}	100 ^{AB}									<0	%	TM4/PM8
Mineral Oil (C10-C40)	839	117									<30	mg/kg	TM5/PM16
MTBE [#]	<25 ^{AA}	<25 ^{AA}									<5	ug/kg	TM31/PM12
Benzene [#]	<25 ^{AA}	<25 ^{AA}									<5	ug/kg	TM31/PM12
Toluene [#]	<25 ^{AA}	<25 ^{AA}									<5	ug/kg	TM31/PM12
Ethylbenzene [#]	<25 ^{AA}	<25 ^{AA}									<5	ug/kg	TM31/PM12
m/p-Xylene [#]	<25 ^{AA}	<25 ^{AA}									<5	ug/kg	TM31/PM12
o-Xylene [#]	<25 ^{AA}	<25 ^{AA}									<5	ug/kg	TM31/PM12

Please see attached notes for all abbreviations and acronyms

Mass of sample taken (kg)	-	Moisture Content Ratio (%) =	8.9					
Mass of dry sample (kg) =	0.09	Dry Matter Content Ratio (%) =	91.9					
Particle Size <4mm =	>95%							
JEFL Job No	15/8287		Landfill Waste Acceptance Criteria Limits					
Sample No	6							
Client Sample No	WS02							
Depth/Other	0.40							
Sample Date	02/06/2015							
Batch No	1							
Solid Waste Analysis			Inert Waste Landfill	Stable Non-reactive Hazardous Waste in Non-Hazardous Landfill	Hazardous Waste Landfill			
Total Organic Carbon (%)	4.12					3	5	6
Loss on Ignition (%)	3.9					-	-	10
Sum of BTEX (mg/kg)	<0.125					6	-	-
Sum of 7 PCBs (mg/kg)	<0.700					1	-	-
Mineral Oil (mg/kg)	839					500	-	-
PAH Sum of 17(mg/kg)	1226.70					100	-	-
pH (pH Units)	8.84					-	>6	-
ANC to pH 7 (mol/kg)	<0.03					-	to be evaluated	to be evaluated
ANC to pH 4 (mol/kg)	0.53					-	to be evaluated	to be evaluated
Eluate Analysis	10:1 conc ⁿ leached		Limit values for compliance leaching test using BS EN 12457-2 at L/S 10 l/kg					
	C ₁₀	A ₁₀						
	mg/l	mg/kg						
Arsenic	0.0066	0.066	0.5	2	25			
Barium	0.035	0.35	20	100	300			
Cadmium	<0.0005	<0.005	0.04	1	5			
Chromium	0.0043	0.043	0.5	10	70			
Copper	<0.007	<0.07	2	50	100			
Mercury	<0.001	<0.01	0.01	0.2	2			
Molybdenum	<0.002	<0.02	0.5	10	30			
Nickel	<0.002	<0.02	0.4	10	40			
Lead	<0.005	<0.05	0.5	10	50			
Antimony	<0.002	<0.02	0.06	0.7	5			
Selenium	<0.003	<0.03	0.1	0.5	7			
Zinc	0.004	0.04	4	50	200			
Chloride	<0.3	<3	800	15000	25000			
Fluoride	<0.3	<3	10	150	500			
Sulphate as SO4	2.50	25.0	1000	20000	50000			
Total Dissolved Solids	37	370	4000	60000	100000			
Phenol	<0.01	<0.1	1	-	-			
Dissolved Organic Carbon	6	60	500	800	1000			

Mass of sample taken (kg)	-	Moisture Content Ratio (%) =	32.6
Mass of dry sample (kg) =	0.09	Dry Matter Content Ratio (%) =	75.4
Particle Size <4mm =	>95%		
JEFL Job No	15/8287	Landfill Waste Acceptance Criteria Limits	
Sample No	12		
Client Sample No	WS03		
Depth/Other	0.40		
Sample Date	02/06/2015		
Batch No	1		
Solid Waste Analysis		Inert Waste Landfill	Stable Non-reactive Hazardous Waste in Non- Hazardous Landfill
Total Organic Carbon (%)	4.15	3	5
Loss on Ignition (%)	16.8	-	10
Sum of BTEX (mg/kg)	<0.125	6	-
Sum of 7 PCBs (mg/kg)	<0.035	1	-
Mineral Oil (mg/kg)	117	500	-
PAH Sum of 17(mg/kg)	530.80	100	-
pH (pH Units)	7.41	-	>6
ANC to pH 7 (mol/kg)	<0.03	-	to be evaluated
ANC to pH 4 (mol/kg)	0.12	-	to be evaluated
Eluate Analysis	10:1 conc ⁿ leached		Limit values for compliance leaching test using BS EN 12457-2 at L/S 10 l/kg
	C ₁₀ mg/l	A ₁₀ mg/kg	
Arsenic	0.0030	0.030	0.5
Barium	0.032	0.32	20
Cadmium	<0.0005	<0.005	0.04
Chromium	<0.0015	<0.015	0.5
Copper	<0.007	<0.07	2
Mercury	<0.001	<0.01	0.01
Molybdenum	0.015	0.15	0.5
Nickel	<0.002	<0.02	0.4
Lead	<0.005	<0.05	0.5
Antimony	0.004	0.04	0.06
Selenium	<0.003	<0.03	0.1
Zinc	0.003	0.03	4
Chloride	0.5	5	800
Fluoride	0.5	5	10
Sulphate as SO ₄	44.78	448.0	1000
Total Dissolved Solids	188	1881	4000
Phenol	<0.01	<0.1	1
Dissolved Organic Carbon	8	80	500

Client Name: WYG
Reference: A092735
Location: New Moston School
Contact: Stephen Marwood

[illegible]

Please note that only samples that are deviating are mentioned in this report. If no samples are listed it is because none were deviating. Only analyses which are accredited are recorded as deviating if set criteria are not met.

NOTES TO ACCOMPANY ALL SCHEDULES AND REPORTS

JE Job No.: 15/8287

SOILS

Please note we are only MCERTS accredited (UK soils only) for sand, loam and clay and any other matrix is outside our scope of accreditation.

Where an MCERTS report has been requested, you will be notified within 48 hours of any samples that have been identified as being outside our MCERTS scope. As validation has been performed on clay, sand and loam, only samples that are predominantly these matrices, or combinations of them will be within our MCERTS scope. If samples are not one of a combination of the above matrices they will not be marked as MCERTS accredited.

It is assumed that you have taken representative samples on site and require analysis on a representative subsample. Stones will generally be included unless we are requested to remove them.

All samples will be discarded one month after the date of reporting, unless we are instructed to the contrary.

If you have not already done so, please send us a purchase order if this is required by your company.

Where appropriate please make sure that our detection limits are suitable for your needs, if they are not, please notify us immediately.

All analysis is reported on a dry weight basis unless stated otherwise. Results are not surrogate corrected. Samples are dried at 35°C ±5°C unless otherwise stated. Moisture content for CEN Leachate tests are dried at 105°C ±5°C.

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

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

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

WATERS

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

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

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

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

DEVIATING SAMPLES

Samples must be received in a condition appropriate to the requested analyses. All samples should be submitted to the laboratory in suitable containers with sufficient ice packs to sustain an appropriate temperature for the requested analysis. If this is not the case you will be informed and any test results that may be compromised highlighted on your deviating samples report.

SURROGATES

Surrogate compounds are added during the preparation process to monitor recovery of analytes. However low recovery in soils is often due to peat, clay or other organic rich matrices. For waters this can be due to oxidants, surfactants, organic rich sediments or remediation fluids. Acceptable limits for most organic methods are 70 - 130% and for VOCs are 50 - 150%. When surrogate recoveries are outside the performance criteria but the associated AQC passes this is assumed to be due to matrix effect. Results are not surrogate corrected.

DILUTIONS

A dilution suffix indicates a dilution has been performed and the reported result takes this into account. No further calculation is required.

NOTE

Data is only reported if the laboratory is confident that the data is a true reflection of the samples analysed. Data is only reported as accredited when all the requirements of our Quality System have been met. In certain circumstances where all the requirements of the Quality System have not been met, for instance if the associated AQC has failed, the reason is fully investigated and documented. The sample data is then evaluated alongside the other quality control checks performed during analysis to determine its suitability. Following this evaluation, provided the sample results have not been effected, the data is reported but accreditation is removed. It is a UKAS requirement for data not reported as accredited to be considered indicative only, but this does not mean the data is not valid.

Where possible, and if requested, samples will be re-extracted and a revised report issued with accredited results. Please do not hesitate to contact the laboratory if further details are required of the circumstances which have led to the removal of accreditation.

ABBREVIATIONS and ACRONYMS USED

#	ISO17025 (UKAS) accredited - UK.
B	Indicates analyte found in associated method blank.
DR	Dilution required.
M	MCERTS accredited.
NA	Not applicable
NAD	No Asbestos Detected.
ND	None Detected (usually refers to VOC and/SVOC TICs).
NDP	No Determination Possible
SS	Calibrated against a single substance
SV	Surrogate recovery outside performance criteria. This may be due to a matrix effect.
W	Results expressed on as received basis.
+	AQC failure, accreditation has been removed from this result, if appropriate, see 'Note' on previous page.
++	Result outside calibration range, results should be considered as indicative only and are not accredited.
*	Analysis subcontracted to a Jones Environmental approved laboratory.
AD	Samples are dried at 35°C ±5°C
CO	Suspected carry over
LOD/LOR	Limit of Detection (Limit of Reporting) in line with ISO 17025 and MCERTS
ME	Matrix Effect
NFD	No Fibres Detected
BS	AQC Sample
LB	Blank Sample
N	Client Sample
TB	Trip Blank Sample
OC	Outside Calibration Range
AA	x5 Dilution
AB	x10 Dilution
AC	x20 Dilution

JE Job No: 15/8287

Test Method No.	Description	Prep Method No. (if appropriate)	Description	ISO 17025 (UKAS)	MCERTS (UK soils only)	Analysis done on As Received (AR) or Dried (AD)	Reported on dry weight basis
PM4	Gravimetric measurement of Natural Moisture Content and % Moisture Content at either 35°C or 105°C. Calculation based on ISO 11465 and BS1377.	PM0	No preparation is required.				
TM4	Modified USEPA 8270 method for the solvent extraction and determination of 16 PAHs by GC-MS.	PM8	End over end extraction of solid samples for organic analysis. The solvent mix varies depending on analysis required.			AR	Yes
TM4	Modified USEPA 8270 method for the solvent extraction and determination of 16 PAHs by GC-MS.	PM8	End over end extraction of solid samples for organic analysis. The solvent mix varies depending on analysis required.	Yes		AR	Yes
TM4	Modified USEPA 8270 method for the solvent extraction and determination of 16 PAHs by GC-MS.	PM8	End over end extraction of solid samples for organic analysis. The solvent mix varies depending on analysis required.	Yes	Yes	AR	Yes
TM5	Modified USEPA 8015B method for the determination of solvent Extractable Petroleum Hydrocarbons (EPH) with carbon banding within the range C8-C40 GC-FID.	PM16	Fractionation into aliphatic and aromatic fractions using a Rapid Trace SPE.			AR	Yes
TM17	Modified US EPA method 8270. Determination of specific Polychlorinated Biphenyl congeners by GC-MS.	PM8	End over end extraction of solid samples for organic analysis. The solvent mix varies depending on analysis required.	Yes		AR	Yes
TM20	Modified USEPA 8163. Gravimetric determination of Total Dissolved Solids/Total Solids	PM0	No preparation is required.			AR	Yes
TM21	Modified USEPA 415.1. Determination of Total Organic Carbon or Total Carbon by combustion in an Eltra TOC furnace/analyser in the presence of oxygen. The CO ₂ generated is quantified using infra-red detection.	PM24	Dried and ground solid samples are washed with hydrochloric acid, then rinsed with deionised water to remove the mineral carbon before TOC analysis.	Yes		AD	Yes
TM22	Modified USEPA 160.4. Gravimetric determination of Loss on Ignition by temperature controlled Muffle Furnace (450°C)	PM0	No preparation is required.	Yes		AD	Yes
TM26	Determination of phenols by Reversed Phased High Performance Liquid Chromatography and Electro-Chemical Detection.	PM0	No preparation is required.			AR	Yes

JE Job No: 15/8287

Test Method No.	Description	Prep Method No. (if appropriate)	Description	ISO 17025 (UKAS)	MCERTS (UK soils only)	Analysis done on As Received (AR) or Dried (AD)	Reported on dry weight basis
TM27	Modified US EPA method 9056.Determination of water soluble anions using Dionex (Ion-Chromatography).	PM0	No preparation is required.			AR	Yes
TM30	Determination of Trace Metal elements by ICP-OES (Inductively Coupled Plasma - Optical Emission Spectrometry). Modified US EPA Method 200.7	PM15	Acid digestion of dried and ground solid samples using Aqua Regia refluxed at 112.5 °C. Samples containing asbestos are not dried and ground.			AD	Yes
TM30	Determination of Trace Metal elements by ICP-OES (Inductively Coupled Plasma - Optical Emission Spectrometry). Modified US EPA Method 200.7	PM15	Acid digestion of dried and ground solid samples using Aqua Regia refluxed at 112.5 °C. Samples containing asbestos are not dried and ground.	Yes	Yes	AD	Yes
TM30	Determination of Trace Metal elements by ICP-OES (Inductively Coupled Plasma - Optical Emission Spectrometry). Modified US EPA Method 200.7	PM17	Modified method EN12457-2 As received solid samples are leached with water in a 10:1 water to soil ratio for 24 hours, the moisture content of the sample is included in the ratio.	Yes		AR	Yes
TM30	Determination of Trace Metal elements by ICP-OES (Inductively Coupled Plasma - Optical Emission Spectrometry). Modified US EPA Method 200.7	PM20	Extraction of dried and ground samples with deionised water in a 2:1 water to solid ratio for anions. Extraction of as received samples with deionised water in a 2:1 water to solid ratio for ammoniacal nitrogen. Samples are extracted using an orbital shaker.			AD	Yes
TM31	Modified USEPA 8015B. Determination of Methyltertbutylether, Benzene, Toluene, Ethylbenzene and Xylene by headspace GC-FID.	PM12	Modified US EPA method 5021. Preparation of solid and liquid samples for GC headspace analysis.			AR	Yes
TM31	Modified USEPA 8015B. Determination of Methyltertbutylether, Benzene, Toluene, Ethylbenzene and Xylene by headspace GC-FID.	PM12	Modified US EPA method 5021. Preparation of solid and liquid samples for GC headspace analysis.	Yes		AR	Yes
TM38	Soluble Ion analysis using the Thermo Aquakem Photometric Automatic Analyser. Modified US EPA methods 325.2, 375.4, 365.2, 353.1, 354.1	PM0	No preparation is required.	Yes		AR	Yes
TM38	Soluble Ion analysis using the Thermo Aquakem Photometric Automatic Analyser. Modified US EPA methods 325.2, 375.4, 365.2, 353.1, 354.1	PM20	Extraction of dried and ground samples with deionised water in a 2:1 water to solid ratio for anions. Extraction of as received samples with deionised water in a 2:1 water to solid ratio for ammoniacal nitrogen. Samples are extracted using an orbital shaker.	Yes	Yes	AD	Yes
TM38	Soluble Ion analysis using the Thermo Aquakem Photometric Automatic Analyser. Modified US EPA methods 325.2, 375.4, 365.2, 353.1, 354.1	PM20	Extraction of dried and ground samples with deionised water in a 2:1 water to solid ratio for anions. Extraction of as received samples with deionised water in a 2:1 water to solid ratio for ammoniacal nitrogen. Samples are extracted using an orbital shaker.			AR	Yes

JE Job No: 15/8287

Test Method No.	Description	Prep Method No. (if appropriate)	Description	ISO 17025 (UKAS)	MCERTS (UK soils only)	Analysis done on As Received (AR) or Dried (AD)	Reported on dry weight basis
TM50	Acid soluble sulphate analysed by ICP-OES	PM15	Acid digestion of dried and ground solid samples using Aqua Regia refluxed at 112.5 °C. Samples containing asbestos are not dried and ground.			AD	Yes
TM60	Modified USEPA 9060. Determination of TOC by calculation from Total Carbon and Inorganic Carbon using a TOC analyser, the carbon in the sample is converted to CO ₂ and then passed through a non-dispersive infrared gas analyser (NDIR).	PM0	No preparation is required.			AR	Yes
TM73	Modified US EPA methods 150.1 and 9045D. Determination of pH by Metrohm automated probe analyser.	PM11	Extraction of as received solid samples using one part solid to 2.5 parts deionised water.	Yes	Yes	AR	No
TM77	Modified DDCEN/TS method 15364:2006. Determination of Acid Neutralization Capacity by Metrohm automated probe analyser.	PM0	No preparation is required.			AR	No
NONE	No Method Code	PM4	Gravimetric measurement of Natural Moisture Content and % Moisture Content at either 35°C or 105°C. Calculation based on ISO 11465 and BS1377.			AR	

Waste Classification Report



7WSD4-6XGBG-799PJ

Job name

New Moston Primary School

Waste Stream

Default Contaminated Land

Comments

Investigation for proposed single storey kitchen extension for New Moston Primary school over existing hardstanding. Analysis of two samples obtained from made ground containing roadstone and macadam among other constituents: clinker, brick, ash, coal etc.

Project

Site

Manchester

Classified by

Name:
Levick, Thomas
Date:
13/07/2015 16:00 UTC
Telephone:
0121 2125360

Company:
Amey plc
International Design Hub, Colmore Plaza
20 Colmore Circus Queensway
Birmingham
B4 6AT

Report

Created by: Levick, Thomas
Created date: 13/07/2015 16:00 UTC

Job summary

#	Sample Name	Depth [m]	Classification Result	Hazardous properties	Page
1	WS02	0.4	Hazardous	HP 3(i), HP 14	2
2	WS03	0.4	Hazardous	HP 3(i), HP 14	5

Appendices	Page
Appendix A: Classifier defined and non CLP determinands	7
Appendix B: Notes	8
Appendix C: Version	10

Classification of sample: WS02



Hazardous Waste
Classified as **17 05 03 ***
in the European Waste Catalogue

Sample details

Sample Name:	EWC Code:
WS02	Chapter: 17: Construction and Demolition Wastes (including excavated soil from contaminated sites)
Sample Depth:	Entry: 17 05 03 * (Soil and stones containing hazardous substances)
0.4 m	
Moisture content: 3.8% (no correction)	

Hazard properties

HP 14: Ecotoxic "waste which presents or may present immediate or delayed risks for one or more sectors of the environment"

Risk phrases hit:

R52/53 "Harmful to aquatic organisms, may cause long-term adverse effects in the aquatic environment"

Because of determinand:

benzo[a]anthracene: (conc.: 0.0114%)

Hazard properties (substances considered hazardous until shown otherwise)

HP 3(i): Flammable "flammable liquid waste: liquid waste having a flash point below 60°C or waste gas oil, diesel and light heating oils having a flash point > 55°C and ≤ 75°C"

Hazard Statements hit:

Flam. Liq. 3; H226 "Flammable liquid and vapour."

Because of determinand:

TPH (C6 to C40) petroleum group: (conc.: 0.0839%)

Determinands (Moisture content: 3.8%, no correction)

acenaphthene: (Whole conc. entered as: 23.24 mg/kg or 0.00232%)
 acenaphthylene: (Whole conc. entered as: 3.66 mg/kg or 0.000366%)
 anthracene: (Whole conc. entered as: 61.72 mg/kg or 0.00617%)
 arsenic trioxide: (Cation conc. entered: 4.1 mg/kg, converted to compound conc.: 5.413 mg/kg or 0.000541%)
 benzene: (Whole conc. entered as: <25 mg/kg or <0.0025%) **IGNORED Because: "<LOD"**
 benzo[a]anthracene: (Whole conc. entered as: 114.48 mg/kg or 0.0114%)
 benzo[a]pyrene; benzo[def]chrysene: (Whole conc. entered as: 72.92 mg/kg or 0.00729%)
 benzo[b]fluoranthene: (Whole conc. entered as: 92.01 mg/kg or 0.0092%)
 benzo[ghi]perylene: (Whole conc. entered as: 37.16 mg/kg or 0.00372%)
 benzo[k]fluoranthene: (Whole conc. entered as: 35.78 mg/kg or 0.00358%)
 cadmium sulfide: (Cation conc. entered: 0.6 mg/kg, converted to compound conc.: 0.771 mg/kg or 0.0000771%, Note 1 conc.: 0.00006%)
 chromium(III) oxide: (Cation conc. entered: 12.9 mg/kg, converted to compound conc.: 18.854 mg/kg or 0.00189%)
 chrysene: (Whole conc. entered as: 81.17 mg/kg or 0.00812%)
 copper (I) oxide: (Cation conc. entered: 6 mg/kg, converted to compound conc.: 6.755 mg/kg or 0.000676%)
 dibenz[a,h]anthracene: (Whole conc. entered as: 8.59 mg/kg or 0.000859%)
 ethylbenzene: (Whole conc. entered as: <25 mg/kg or <0.0025%) **IGNORED Because: "<LOD"**
 fluoranthene: (Whole conc. entered as: 256 mg/kg or 0.0256%)
 fluorene: (Whole conc. entered as: 22.32 mg/kg or 0.00223%)

indeno[123-cd]pyrene: (Whole conc. entered as: 45.84 mg/kg or 0.00458%)
lead chromate: (Cation conc. entered: 31 mg/kg, converted to compound conc.:48.354 mg/kg or 0.00484%, Note 1 conc.: 0.0031%)
mercury dichloride: (Cation conc. entered: 0.1 mg/kg, converted to compound conc.:0.135 mg/kg or 0.0000135%)
naphthalene: (Whole conc. entered as: 1.46 mg/kg or 0.000146%)
nickel dihydroxide: (Cation conc. entered: 5.5 mg/kg, converted to compound conc.:8.687 mg/kg or 0.000869%)
pH: (Whole conc. entered as: 8.84 pH, converted to conc.:8.84 pH or 8.84 pH)
phenanthrene: (Whole conc. entered as: 167.26 mg/kg or 0.0167%)
pyrene: (Whole conc. entered as: 196.18 mg/kg or 0.0196%)
toluene: (Whole conc. entered as: <25 mg/kg or <0.0025%) **IGNORED Because: "<LOD"**
TPH (C6 to C40) petroleum group: (Whole conc. entered as: 839 mg/kg or 0.0839%)
xylene: (Whole conc. entered as: <25 mg/kg or <0.0025%) **IGNORED Because: "<LOD"**
zinc chromate: (Cation conc. entered: 35 mg/kg, converted to compound conc.:97.095 mg/kg or 0.00971%)

Notes utilised in assessment

C14: Step 4

"identify whether any individual ecotoxic substance is given a substance specific concentration limit in Annex VI, Table 3.2 to the CLP,...", used on:

Test: "HP 14 on R50, R52, R53, R50/53, R51/53, R52/53" for determinand: "benzo[a]anthracene"

C14: Step 5

"identify whether any individual ecotoxic substance is present at or above a cut-off value ...", used on:

Test: "HP 14 on R50, R52, R53, R50/53, R51/53, R52/53" for determinand: "cadmium sulfide"
Test: "HP 14 on R50, R52, R53, R50/53, R51/53, R52/53" for determinand: "fluorene"
Test: "HP 14 on R50, R52, R53, R50/53, R51/53, R52/53" for determinand: "acenaphthene"
Test: "HP 14 on R50, R52, R53, R50/53, R51/53, R52/53" for determinand: "anthracene"
Test: "HP 14 on R50, R52, R53, R50/53, R51/53, R52/53" for determinand: "arsenic trioxide"
Test: "HP 14 on R50, R52, R53, R50/53, R51/53, R52/53" for determinand: "benzo[a]pyrene; benzo[def]chrysene"
Test: "HP 14 on R50, R52, R53, R50/53, R51/53, R52/53" for determinand: "benzo[b]fluoranthene"
Test: "HP 14 on R50, R52, R53, R50/53, R51/53, R52/53" for determinand: "benzo[ghi]perylene"
Test: "HP 14 on R50, R52, R53, R50/53, R51/53, R52/53" for determinand: "benzo[k]fluoranthene"
Test: "HP 14 on R50, R52, R53, R50/53, R51/53, R52/53" for determinand: "chromium(III) oxide"
Test: "HP 14 on R50, R52, R53, R50/53, R51/53, R52/53" for determinand: "chrysene"
Test: "HP 14 on R50, R52, R53, R50/53, R51/53, R52/53" for determinand: "copper (I) oxide"
Test: "HP 14 on R50, R52, R53, R50/53, R51/53, R52/53" for determinand: "dibenz[a,h]anthracene"
Test: "HP 14 on R50, R52, R53, R50/53, R51/53, R52/53" for determinand: "fluoranthene"
Test: "HP 14 on R50, R52, R53, R50/53, R51/53, R52/53" for determinand: "lead chromate"
Test: "HP 14 on R50, R52, R53, R50/53, R51/53, R52/53" for determinand: "mercury dichloride"
Test: "HP 14 on R50, R52, R53, R50/53, R51/53, R52/53" for determinand: "naphthalene"
Test: "HP 14 on R50, R52, R53, R50/53, R51/53, R52/53" for determinand: "nickel dihydroxide"
Test: "HP 14 on R50, R52, R53, R50/53, R51/53, R52/53" for determinand: "phenanthrene"
Test: "HP 14 on R50, R52, R53, R50/53, R51/53, R52/53" for determinand: "pyrene"
Test: "HP 14 on R50, R52, R53, R50/53, R51/53, R52/53" for determinand: "zinc chromate"
Test: "HP 14 on R50, R52, R53, R50/53, R51/53, R52/53" for determinand: "TPH (C6 to C40) petroleum group"

Note 1 , used on:

Test: "HP 5 on STOT SE 1; H370, STOT RE 1; H372" for determinand: "cadmium sulfide"
Test: "HP 5 on STOT SE 2; H371, STOT RE 2; H373" for determinand: "cadmium sulfide"
Test: "HP 6 on Acute Tox. 4; H302" for determinand: "cadmium sulfide"
Test: "HP 7 on Carc. 1B; H350, Carc. 1A; H350, Carc. 1B; H350i, Carc. 1A; H350i" for determinand: "cadmium sulfide"
Test: "HP 10 on Repr. 1A; H360, Repr. 1B; H360, Repr. 1B; H360F, Repr. 1A; H360F, Repr. 1A; H360D, Repr. 1B; H360D, Repr. 1B; H360FD, Repr. 1A; H360FD, Repr. 1A; H360Fd, Repr. 1B; H360Fd, Repr. 1B; H360Df, Repr. 1A; H360Df" for determinand: "lead chromate"
Test: "HP 10 on Repr. 2; H361, Repr. 2; H361f, Repr. 2; H361d, Repr. 2; H361fd" for determinand: "cadmium sulfide"
Test: "HP 11 on Muta. 2; H341" for determinand: "cadmium sulfide"
Test: "HP 14 on R50, R52, R53, R50/53, R51/53, R52/53" for determinand: "cadmium sulfide"

Determinand notes

Note 1 , used on:

determinand: "cadmium sulfide"
determinand: "lead chromate"

Note A , used on:

determinand: "zinc chromate"

WM3: Unknown oil , used on:

determinand: "TPH (C6 to C40) petroleum group"

Classification of sample: WS03

 **Hazardous Waste**
 Classified as **17 05 03 ***
 in the European Waste Catalogue

Sample details

Sample Name:	EWC Code:
WS03	Chapter: 17: Construction and Demolition Wastes (including excavated soil from contaminated sites)
Sample Depth:	Entry: 17 05 03 * (Soil and stones containing hazardous substances)
0.4 m	
Moisture content: 18% (no correction)	

Hazard properties

HP 14: Ecotoxic "waste which presents or may present immediate or delayed risks for one or more sectors of the environment"

Risk phrases hit:

R52/53 "Harmful to aquatic organisms, may cause long-term adverse effects in the aquatic environment"

Because of determinand:

benzo[a]anthracene: (conc.: 0.00447%)

Hazard properties (substances considered hazardous until shown otherwise)

HP 3(i): Flammable "flammable liquid waste: liquid waste having a flash point below 60°C or waste gas oil, diesel and light heating oils having a flash point > 55°C and ≤ 75°C"

Hazard Statements hit:

Flam. Liq. 3; H226 "Flammable liquid and vapour."

Because of determinand:

TPH (C6 to C40) petroleum group: (conc.: 0.0117%)

Determinands (Moisture content: 18%, no correction)

acenaphthene: (Whole conc. entered as: 10.56 mg/kg or 0.00106%)
 acenaphthylene: (Whole conc. entered as: 1.31 mg/kg or 0.000131%)
 anthracene: (Whole conc. entered as: 18.18 mg/kg or 0.00182%)
 arsenic trioxide: (Cation conc. entered: 14.8 mg/kg, converted to compound conc.: 19.541 mg/kg or 0.00195%)
 benzene: (Whole conc. entered as: <25 mg/kg or <0.0025%) **IGNORED Because: "<LOD"**
 benzo[a]anthracene: (Whole conc. entered as: 44.7 mg/kg or 0.00447%)
 benzo[a]pyrene; benzo[def]chrysene: (Whole conc. entered as: 31.82 mg/kg or 0.00318%)
 benzo[b]fluoranthene: (Whole conc. entered as: 39.22 mg/kg or 0.00392%)
 benzo[ghi]perylene: (Whole conc. entered as: 19.72 mg/kg or 0.00197%)
 benzo[k]fluoranthene: (Whole conc. entered as: 15.25 mg/kg or 0.00153%)
 cadmium sulfide: (Cation conc. entered: 0.3 mg/kg, converted to compound conc.: 0.386 mg/kg or 0.0000386%, Note 1 conc.: 0.00003%)
 chromium(III) oxide: (Cation conc. entered: 53.4 mg/kg, converted to compound conc.: 78.047 mg/kg or 0.0078%)
 chrysene: (Whole conc. entered as: 34.01 mg/kg or 0.0034%)
 copper (I) oxide: (Cation conc. entered: 35 mg/kg, converted to compound conc.: 39.406 mg/kg or 0.00394%)
 dibenz[a,h]anthracene: (Whole conc. entered as: 4.27 mg/kg or 0.000427%)
 ethylbenzene: (Whole conc. entered as: <25 mg/kg or <0.0025%) **IGNORED Because: "<LOD"**
 fluoranthene: (Whole conc. entered as: 108.19 mg/kg or 0.0108%)
 fluorene: (Whole conc. entered as: 8.6 mg/kg or 0.00086%)

indeno[123-cd]pyrene: (Whole conc. entered as: 19.94 mg/kg or 0.00199%)
lead chromate: (Cation conc. entered: 63 mg/kg, converted to compound conc.:98.268 mg/kg or 0.00983%, Note 1 conc.: 0.0063%)
mercury dichloride: (Cation conc. entered: 0.1 mg/kg, converted to compound conc.:0.135 mg/kg or 0.0000135%)
naphthalene: (Whole conc. entered as: 0.68 mg/kg or 0.000068%)
nickel dihydroxide: (Cation conc. entered: 20.5 mg/kg, converted to compound conc.:32.38 mg/kg or 0.00324%)
pH: (Whole conc. entered as: 7.41 pH, converted to conc.:7.41 pH or 7.41 pH)
phenanthrene: (Whole conc. entered as: 90.18 mg/kg or 0.00902%)
pyrene: (Whole conc. entered as: 81.2 mg/kg or 0.00812%)
toluene: (Whole conc. entered as: <25 mg/kg or <0.0025%) **IGNORED Because: "<LOD"**
TPH (C6 to C40) petroleum group: (Whole conc. entered as: 117 mg/kg or 0.0117%)
xylene: (Whole conc. entered as: <25 mg/kg or <0.0025%) **IGNORED Because: "<LOD"**
zinc chromate: (Cation conc. entered: 66 mg/kg, converted to compound conc.:183.094 mg/kg or 0.0183%)

Notes utilised in assessment

C14: Step 4

"identify whether any individual ecotoxic substance is given a substance specific concentration limit in Annex VI, Table 3.2 to the CLP,...", used on:

Test: "HP 14 on R50, R52, R53, R50/53, R51/53, R52/53" for determinand: "benzo[a]anthracene"

C14: Step 5

"identify whether any individual ecotoxic substance is present at or above a cut-off value ...", used on:

Test: "HP 14 on R50, R52, R53, R50/53, R51/53, R52/53" for determinand: "cadmium sulfide"
Test: "HP 14 on R50, R52, R53, R50/53, R51/53, R52/53" for determinand: "fluorene"
Test: "HP 14 on R50, R52, R53, R50/53, R51/53, R52/53" for determinand: "acenaphthene"
Test: "HP 14 on R50, R52, R53, R50/53, R51/53, R52/53" for determinand: "anthracene"
Test: "HP 14 on R50, R52, R53, R50/53, R51/53, R52/53" for determinand: "arsenic trioxide"
Test: "HP 14 on R50, R52, R53, R50/53, R51/53, R52/53" for determinand: "benzo[a]pyrene; benzo[def]chrysene"
Test: "HP 14 on R50, R52, R53, R50/53, R51/53, R52/53" for determinand: "benzo[b]fluoranthene"
Test: "HP 14 on R50, R52, R53, R50/53, R51/53, R52/53" for determinand: "benzo[ghi]perylene"
Test: "HP 14 on R50, R52, R53, R50/53, R51/53, R52/53" for determinand: "benzo[k]fluoranthene"
Test: "HP 14 on R50, R52, R53, R50/53, R51/53, R52/53" for determinand: "chromium(III) oxide"
Test: "HP 14 on R50, R52, R53, R50/53, R51/53, R52/53" for determinand: "chrysene"
Test: "HP 14 on R50, R52, R53, R50/53, R51/53, R52/53" for determinand: "copper (I) oxide"
Test: "HP 14 on R50, R52, R53, R50/53, R51/53, R52/53" for determinand: "dibenz[a,h]anthracene"
Test: "HP 14 on R50, R52, R53, R50/53, R51/53, R52/53" for determinand: "fluoranthene"
Test: "HP 14 on R50, R52, R53, R50/53, R51/53, R52/53" for determinand: "lead chromate"
Test: "HP 14 on R50, R52, R53, R50/53, R51/53, R52/53" for determinand: "mercury dichloride"
Test: "HP 14 on R50, R52, R53, R50/53, R51/53, R52/53" for determinand: "naphthalene"
Test: "HP 14 on R50, R52, R53, R50/53, R51/53, R52/53" for determinand: "nickel dihydroxide"
Test: "HP 14 on R50, R52, R53, R50/53, R51/53, R52/53" for determinand: "phenanthrene"
Test: "HP 14 on R50, R52, R53, R50/53, R51/53, R52/53" for determinand: "pyrene"
Test: "HP 14 on R50, R52, R53, R50/53, R51/53, R52/53" for determinand: "zinc chromate"
Test: "HP 14 on R50, R52, R53, R50/53, R51/53, R52/53" for determinand: "TPH (C6 to C40) petroleum group"

Determinand notes

Note 1 , used on:

determinand: "cadmium sulfide"
determinand: "lead chromate"

Note A , used on:

determinand: "zinc chromate"

WM3: Unknown oil , used on:

determinand: "TPH (C6 to C40) petroleum group"

Appendix A: Classifier defined and non CLP determinands

acenaphthene (CAS Number: 83-32-9)

Comments: Risk phrase data taken from European Chemicals Agency's Classification & Labelling Inventory

Data source:

<http://clp-inventory.echa.europa.eu/SummaryOfClassAndLabelling.aspx?SubstanceID=133563&HarmOnly=no>

Data source date: 16/07/2012

Risk Phrases: R36, R37, R38, N; R50/53, N; R51/53

Hazard Statements: Eye Irrit. 2; H319, STOT SE 3; H335, Skin Irrit. 2; H315, Aquatic Acute 1; H400, Aquatic Chronic 1; H410, Aquatic Chronic 2; H411

acenaphthylene (CAS Number: 208-96-8)

Comments: Risk phrase data taken from European Chemicals Agency's Classification & Labelling Inventory

Data source:

<http://clp-inventory.echa.europa.eu/SummaryOfClassAndLabelling.aspx?SubstanceID=59285&HarmOnly=no>

Data source date: 16/07/2012

Risk Phrases: R22, R26, R27, R36, R37, R38

Hazard Statements: Acute Tox. 4; H302, Acute Tox. 1; H330, Acute Tox. 1; H310, Eye Irrit. 2; H319, STOT SE 3; H335, Skin Irrit. 2; H315

anthracene (CAS Number: 120-12-7)

Comments: Risk phrase data taken from European Chemicals Agency's Classification & Labelling Inventory

Data source:

<http://clp-inventory.echa.europa.eu/SummaryOfClassAndLabelling.aspx?SubstanceID=101102&HarmOnly=no>

Data source date: 08/03/2013

Risk Phrases: R36, R37, R38, R43, N; R50/53

Hazard Statements: Eye Irrit. 2; H319, STOT SE 3; H335, Skin Irrit. 2; H315, Skin Sens. 1; H317, Aquatic Acute 1; H400, Aquatic Chronic 1; H410

benzo[ghi]perylene (CAS Number: 191-24-2)

Comments: Risk phrase data taken from European Chemicals Agency's Classification & Labelling Inventory

Data source:

<http://clp-inventory.echa.europa.eu/SummaryOfClassAndLabelling.aspx?SubstanceID=15793&HarmOnly=no>

Data source date: 16/07/2012

Risk Phrases: N; R50/53

Hazard Statements: Aquatic Acute 1; H400, Aquatic Chronic 1; H410

chromium(III) oxide (CAS Number: 1308-38-9)

Comments: Risk phrase data taken from European Chemicals Agency's Classification & Labelling Inventory

Data source:

<http://clp-inventory.echa.europa.eu/SummaryOfClassAndLabelling.aspx?SubstanceID=33806&HarmOnly=no?fc=true&lang=en>

Data source date: 26/11/2012

Risk Phrases: R20, R22, R36, R37, R38, R42, R43, R50/53, R60, R61

Hazard Statements: Acute Tox. 4; H332, Acute Tox. 4; H302, Eye Irrit. 2; H319, STOT SE 3; H335, Skin Irrit. 2; H315, Resp. Sens. 1; H334, Skin Sens. 1; H317, Repr. 1B; H360FD, Aquatic Acute 1; H400, Aquatic Chronic 1; H410

fluoranthene (CAS Number: 206-44-0)

Comments: Risk phrase data taken from European Chemicals Agency's Classification & Labelling Inventory

Data source:

<http://clp-inventory.echa.europa.eu/SummaryOfClassAndLabelling.aspx?SubstanceID=56375&HarmOnly=no>

Data source date: 16/07/2012

Risk Phrases: R20, R22, R36, N; R50/53

Hazard Statements: Acute Tox. 4; H302, Acute Tox. 4; H332, Eye Irrit. 2; H319, Aquatic Acute 1; H400, Aquatic Chronic 1; H410

fluorene (CAS Number: 86-73-7)

Comments: Risk phrase data taken from European Chemicals Agency's Classification & Labelling Inventory

Data source:

<http://clp-inventory.echa.europa.eu/SummaryOfClassAndLabelling.aspx?SubstanceID=81845&HarmOnly=no>

Data source date: 16/07/2012

Risk Phrases: N; R50/53, R53

Hazard Statements: Aquatic Acute 1; H400, Aquatic Chronic 1; H410, Aquatic Chronic 4; H413

indeno[123-cd]pyrene (CAS Number: 193-39-5)

Comments: Risk phrase data taken from European Chemicals Agency's Classification & Labelling Inventory

Data source:

<http://clp-inventory.echa.europa.eu/SummaryOfClassAndLabelling.aspx?SubstanceID=128806&HarmOnly=no>

Data source date: 08/03/2013

Risk Phrases: R40

Hazard Statements: Carc. 2; H351

pH

Comments: Appendix C, C4.5

Data source: WM2 - Interpretation of the definition and classification of hazardous waste (Second Edition, version2.2), Environment Agency

Data source date: 30/05/2008

Risk Phrases: None.

Hazard Statements: None.

phenanthrene (CAS Number: 85-01-8)

Comments: Risk phrase data taken from European Chemicals Agency's Classification & Labelling Inventory

Data source:

<http://clp-inventory.echa.europa.eu/SummaryOfClassAndLabelling.aspx?SubstanceID=109754&HarmOnly=no>

Data source date: 16/07/2012

Risk Phrases: R22, R36, R37, R38, R40, R43, N; R50/53

Hazard Statements: Acute Tox. 4; H302, Eye Irrit. 2; H319, STOT SE 3; H335, Carc. 2; H351, Skin Sens. 1; H317, Aquatic Acute 1; H400, Aquatic Chronic 1; H410, Skin Irrit. 2; H315

pyrene (CAS Number: 129-00-0)

Comments: Risk phrase data taken from European Chemicals Agency's Classification & Labelling Inventory

Data source:

<http://clp-inventory.echa.europa.eu/SummaryOfClassAndLabelling.aspx?SubstanceID=87484&HarmOnly=no>

Data source date: 16/07/2012

Risk Phrases: R23, N; R50/53

Hazard Statements: Acute Tox. 3; H331, Aquatic Acute 1; H400, Aquatic Chronic 1; H410

TPH (C6 to C40) petroleum group

Comments: Risk phrase data given on page A41

Data source: WM2 3rd edition, 2013

Data source date: 01/08/2013

Risk Phrases: R10, R45, R46, R51/53, R63, R65

Hazard Statements: Flam. Liq. 3; H226, Asp. Tox. 1; H304, STOT RE 2; H373, Muta. 1B; H340, Carc. 1B; H350, Repr. 2; H361d, Aquatic Chronic 2; H411

Appendix B: Notes

C14: Step 4

from section: WM3: C14 in the document: "[WM3 - Waste Classification](#)"

"identify whether any individual ecotoxic substance is given a substance specific concentration limit in Annex VI, Table 3.2 to the CLP,..."

C14: Step 5

from section: WM3: C14 in the document: "[WM3 - Waste Classification](#)"

"identify whether any individual ecotoxic substance is present at or above a cut-off value ..."

Note 1

from section: 1.1.3.2, Annex VI in the document: "[CLP Regulations](#)"

"The concentration stated or, in the absence of such concentrations, the generic concentrations of this Regulation (Table 3.1) or the generic concentrations of Directive 1999/45/EC (Table 3.2), are the percentages by weight of the metallic element calculated with reference to the total weight of the mixture."

Note A

from section: 1.1.3.1, Annex VI in the document: "[CLP Regulations](#)"

"Without prejudice to Article 17(2), the name of the substance must appear on the label in the form of one of the designations given in Part 3. In Part 3, use is sometimes made of a general description such as '... compounds' or '... salts'. In this case, the supplier is required to state on the label the correct name, due account being taken of section 1.1.1.4."

WM3: Unknown oil

from section: Chapter 3: 4. Waste oils and other wastes containing or contaminated with oil in the document: "[WM3 - Waste Classification](#)"

"If the identity of the oil is unknown, and the petroleum group cannot be established, then the oil contaminating the waste can be classified as non-carcinogenic due to the presence of oil if all three of the following criteria are met:

- the waste contains **benzo[a]pyrene (BaP)** at a concentration of less than 0.01% (1/10,000th) of the TPH concentration (This is the carcinogenic limit specified in table 3.2 of the CLP for BaP)
- this has been determined by an appropriate and representative sampling approach in accordance with the principles set out in Appendix D, and
- the analysis clearly demonstrates, for example by carbon bands or chromatograph, and the laboratory has reasonably concluded that the hydrocarbons present have not arisen from petrol or diesel

"

Appendix C: Version

Classification utilises the following:

- **CLP Regulations - Regulation 1272/2008/EC of 16 December 2008**
REGULATION (EC) No 1272/2008 OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL of 16 December 2008 on classification, labelling and packaging of substances and mixtures, amending and repealing Directives 67/548/EEC and 1999/45/EC, and amending Regulation (EC) No 1907/2006
- **1st ATP - Regulation 790/2009/EC of 10 August 2009**
COMMISSION REGULATION (EC) No 790/2009 of 10 August 2009 amending, for the purposes of its adaptation to technical and scientific progress, Regulation (EC) No 1272/2008 of the European Parliament and of the Council on classification, labelling and packaging of substances and mixtures
- **2nd ATP - Regulation 286/2011/EC of 10 March 2011**
COMMISSION REGULATION (EU) No 286/2011 of 10 March 2011 amending, for the purposes of its adaptation to technical and scientific progress, Regulation (EC) No 1272/2008 of the European Parliament and of the Council on classification, labelling and packaging of substances and mixtures
- **3rd ATP - Regulation 618/2012/EU of 10 July 2012**
COMMISSION REGULATION (EU) No 618/2012 of 10 July 2012 amending, for the purposes of its adaptation to technical and scientific progress, Regulation (EC) No 1272/2008 of the European Parliament and of the Council on classification, labelling and packaging of substances and mixtures
- **4th ATP - Regulation 487/2013/EU of 8 May 2013**
COMMISSION REGULATION (EU) No 487/2013 of 8 May 2013 amending, for the purposes of its adaptation to technical and scientific progress, Regulation (EC) No 1272/2008 of the European Parliament and of the Council on classification, labelling and packaging of substances and mixtures
- **Correction to 1st ATP - Regulation 758/2013/EU of 7 August 2013**
COMMISSION REGULATION (EU) No 758/2013 of 7 August 2013 correcting Annex VI to Regulation (EC) No 1272/2008 of the European Parliament and of the Council on classification, labelling and packaging of substances and mixtures
- **5th ATP - Regulation 944/2013/EU of 2 October 2013**
COMMISSION REGULATION (EU) No 944/2013 of 2 October 2013 amending, for the purposes of its adaptation to technical and scientific progress, Regulation (EC) No 1272/2008 of the European Parliament and of the Council on classification, labelling and packaging of substances and mixtures
- **6th ATP - Regulation 605/2014/EU of 5 June 2014**
COMMISSION REGULATION (EU) No 605/2014 of 5 June 2014 amending, for the purposes of introducing hazard and precautionary statements in the Croatian language and its adaptation to technical and scientific progress, Regulation (EC) No 1272/2008 of the European Parliament and of the Council on classification, labelling and packaging of substances and mixtures
- **WFD Annex III replacement - Regulation 1357/2014/EU of 18 December 2014**
COMMISSION REGULATION (EU) No 1357/2014 of 18 December 2014 replacing Annex III to Directive 2008/98/EC of the European Parliament and of the Council on waste and repealing certain Directives
- **Revised List of Wastes 2014 - Decision 2014/955/EU of 18 December 2014**
COMMISSION DECISION of 18 December 2014 amending Decision 2000/532/EC on the list of waste pursuant to Directive 2008/98/EC of the European Parliament and of the Council (2014/955/EU)
- **WM3 - Waste Classification - May 2015**
Technical Guidance WM3 - Guidance on the classification and assessment of waste (1st edition 2015)
- **POPs Regulation 2004 - Regulation 850/2004/EC of 29 April 2004**
REGULATION (EC) No 850/2004 OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL of 29 April 2004 on persistent organic pollutants and amending Directive 79/117/EEC
- **1st ATP to POPs Regulation - Regulation 756/2010/EU of 24 August 2010**
COMMISSION REGULATION (EU) No 756/2010 of 24 August 2010 amending Regulation (EC) No 850/2004 of the European Parliament and of the Council on persistent organic pollutants as regards Annexes IV and V
- **2nd ATP to POPs Regulation - Regulation 757/2010/EU of 24 August 2010**
COMMISSION REGULATION (EU) No 757/2010 of 24 August 2010 amending Regulation (EC) No 850/2004 of the European Parliament and of the Council on persistent organic pollutants as regards Annexes I and III

HazWasteOnline Engine: WM3 1st Edition, May 2015

HazWasteOnline Engine Version: 2015.169.2852.5804 (18 Jun 2015)

HazWasteOnline Database: 2015.169.2852.5804 (18 Jun 2015)