GENERIC RISK ASSESSMENT

Of

MAITLAND PARK

For

PRICE & MYERS LLP

Giving our all

CONTENTS

PAGE No.

FIGURES

APPENDICES

APPROVAL & DISTRIBUTION SHEET

PROJECT DETAILS	
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JOB NAME	Maitland Park
CLIENT	Price & Myers LLP
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FOREWORD

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1. INTRODUCTION AND BACKGROUND

CET Infrastructure (CET) was instructed by Price and Myers, via email dated 6 January 2017, to undertake a Phase II Generic Risk Assessment (GRA) of the Maitland Park study site located at Maitland Villas, Camden, London, NW3 2HG. It is understood that the site is to be redeveloped into three multi storey residential apartment blocks with associated access and communal landscaped areas.

2. SUMMARY OF REVIEW OF EXISTING CONTAMINATED LAND ASSESSMENTS

CET carried out a review dated January 2017, of the existing reports by Ramboll (Geotechnical and Environmental Desk Study January 2013 and Contaminated Land letter report May 2014). The assessments included a desk study, limited site investigation and risk assessment. The site investigation comprised three cable percussion boreholes to a maximum depth of 35m below ground level (bgl), two of which were installed with monitoring wells. Five nominal soil samples and two groundwater samples were recovered for analysis. In addition, several rounds of ground gas monitoring were undertaken.

The Ramboll report concluded that potential sources of ground contamination identified at the site included vanadium in the natural soils and heavy metals and PAHs in the Made Ground. In addition the recorded concentrations of TPH were judged to have the potential to impact buried water supply pipes. The concentrations of the determinands in the groundwater samples recovered for testing were low and were not considered to pose a significant risk to controlled waters. With regards to ground gas a Characteristic Situation of CS1 was calculated from the gas data and as a result no specific ground gas protection measures were recommended by Ramboll.

Ramboll's updated conceptual site model recorded moderate risks from ground gas, which may require mitigation measures. Risks to end users, ground workers and buried services were assessed as moderate from the presence of elevated concentrations of heavy metals, PAHs and TPH. The risks to end users and groundworkers from elevated concentrations of vanadium were also assessed as moderate. The report recommended that further investigation would be required due to the three locations that were cancelled as a result of access issues. It was also recommended that further investigations should target the electrical substation.

CETs review of the reports indicated that the results were analysed against the soil guideline values (SGVs), and as these have now been superseded the results of the results of the chemical analysis were compared against available Suitable 4 Use Levels (S4ULs) and Category 4 Screening Levels (C4SLs). One concentration of lead in the Made Ground was recorded in excess of the corresponding S4UL and potentially significant concentrations of PAHs in excess of the corresponding S4ULs were detected in the two samples of Made Ground. However, none of the petroleum hydrocarbon compounds detected by the analysis exceeded the corresponding S4ULs.

CET concurred that based upon the findings of the supplied reports further sampling at the study site was required to increase the dataset and gain a better understanding of the spatial extent of the identified contamination with respect to human health. It was recommended the future investigation works should focus on the Made Ground and shallow soils that future site users and construction workers are most likely to

come into contact with. As the site is underlain by the London Clay Formation, Ramboll did not identify any sensitive water receptors within the vicinity of the site and no significant concentrations of determinands were recorded in the groundwater samples tested. It is therefore considered the risks to controlled waters are negligible and as such no further ground water monitoring was considered necessary.

It was not understood why Ramboll considered there to be a moderate risk from ground gases based on the results to date. The site has been classified as a Characteristic Situation 1 by Ramboll, for which no specific ground gas protection measures are considered necessary.

3. GROUND INVESTIGATION

Attention is drawn to the fact that whilst every effort has been made to ensure the accuracy of the data supplied and any analysis derived from it, there is a potential for variations in ground conditions and contamination between and beyond the specific locations investigated. No liability can be accepted for any such variations. Furthermore, any recommendations are specific to the client requirements and no liability will be accepted should these be used by third parties without prior consultation with CET.

The investigation commenced on the 23 January 2017 with the formation five window sample boreholes to a maximum depth of 5.0m bgl. In addition, eight hand dug trial pits, some extended by hand auger, were excavated to depths of up to 2.0m bgl.

The window sample boreholes and hand dug trial pits were situated to allow good spatial coverage across the site as the main source of contamination was considered to be the Made Ground. Additionally WS02 specifically targeted the electrical sub-station located on the southern boundary of the site.

Asphalt and concrete were present in WS05, TP03, TP04 and TP06 to a maximum depth of 0.16m bgl. From ground level at all other locations and underlying the concrete and asphalt, was Made Ground that was proven to a maximum depth of 2.0m bgl. The Made Ground comprised variable layers of brown/yellow/grey/black gravelly clay/sand and sandy gravel/cobbles. The gravels and cobbles were generally described as flint, red brick, clinker, concrete, asphalt, glass, shell, chalk, slate and wood. The Made Ground encountered in TP03 and TP04 was noted to be ashy.

Other than the anthropogenic materials noted above, no visual or olfactory evidence of contamination such as oily or odorous soils were observed within the Made Ground. Furthermore, the Made Ground did not contain significant amounts organic matter that could degrade and generate ground gases.

Beneath the Made Ground deposits of brown and blue/grey mottled clay considered to be representative of the weathered London Clay Formation. These deposits were proved to a maximum depth of 5.0m bgl.

Groundwater was not encountered in any of the locations during the field work.

WS01 and WS04 were installed with monitoring wells up to depths of 1.4m bgl. The installations comprised of 1.0m of slotted pipe within a gravel pack and 0.4m of plain pipe with a bentonite seal. The installations were finished with a gas tap and lockable flush cover.

An approximate exploratory hole location plan is attached as Figure 2. Detailed exploratory hole logs are attached in full as Appendix A.

4. LABORATORY CHEMICAL ANALYSIS

In order to test the pollutant linkages identified by during the earlier phase of investigation undertaken by Ramboll, and assess whether the soils beneath the site could pose a significant risk to human and environmental receptors, twelve samples of Made Ground were selected for chemical analysis. The samples were placed in laboratory prepared vessels with a minimum of headspace and labelled accordingly prior to being despatched to accredited analytical laboratory in cool boxes.

The suite of analysis was selected with reference to the findings of the PRA and on site observations and included the following determinands:

- A suite of metals comprising As, Cu, Cd, Cr, CrVI, Hg, Pb, Ni, Se, V and Zn;
- Speciated poly aromatic hydrocarbons (PAHs);
- Total petroleum hydrocarbons (CWG method);
- BTEX;
- Free cyanide;
- Phenols (total monohydric);
- Asbestos (identification only);
- pH; and
- Total Organic Carbon (TOC).

In addition one sample located near the electrical sub-station, recovered from WS02 at 0.5m, was tested for polychlorinated biphenyls (PCBs).

The results for this site are attached in full as laboratory reports 630102-1 included in Appendix B.

5. RESULTS OF SOIL ANALYSIS

The pH of the twelve tested soils ranged from 7.5 to 9.8 with an average of 8.3. The TOC content of the same twelve tested samples ranged from 0.2% to 3.9% with an average of 1.9%, which equates to a mean soil organic matter (SOM) concentration of 3.3%.

A summary of the metal concentrations recorded in the tested samples is presented in the below table:

Contaminant	Number of Samples Analysed	Range of Measured Concentration (mg/kg)	Location of Maximum Concentration and Depth bgl
Arsenic	12	13-30	WS02 @ 0.5m and TP09 @ 0.5m
Cadmium	12	<0.1-0.7	WS02 @ 0.5m and TP09 @ 0.5m
Chromium	12	27-44	TP04 @ 0.5m
Chromium VI	12	<1	-
Lead	12	22-8100	TP09 @ 0.5m
Mercury	12	<1.0-1.4	WS03 @ 0.5m
Nickel	12	18-42	TP04 @ 0.5m
Copper	12	22-200	WS02 @ 0.5m
Zinc	12	59-1100	TP09 @ 0.5m
Selenium	12	<3	-
Vanadium	12	46-76	TP04 @ 0.5m

Recordable concentrations of the sixteen PAH compounds analysed were encountered in ten of the twelve tested samples, with total concentrations ranging from 0.2mg/kg to 31mg/kg (TP05 at 0.5m). Eight of these samples also contained recordable concentrations of the PAH compound benzo(a)pyrene, with concentrations ranging from 0.1mg/kg to 2.3mg/kg (TP05 at 0.5m).

Asbestos was not identified in any of the tested samples.

Free cyanide was not detected any of the twelve soil samples tested by the laboratory. Monohydric phenols were detected in WS02 at 0.5m only at a concentration of 1mg/kg.

Petroleum hydrocarbons were encountered in nine of the tested samples with total concentrations ranging from 0.09mg/kg to 91mg/kg (TP05 at 0.5m). The majority of the hydrocarbon compounds encountered were noted to be from the heavier C16 to C35 diesel and mineral oil carbon ranges.

No PCBs were detected in the sample recovered from adjacent to the substation.

BTEX compounds were detected in the samples recovered from WS03 at 0.5m, TP03 at 0.5m and TP07 at 0.7m. However, the recorded concentrations were relatively low, ranging from 0.001mg/kg to 0.002mg/kg.

6. GENERIC HUMAN HEALTH RISK ASSESSMENT

Generic Risk Assessment

In order to provide an indication of whether the soils present beneath the study area could pose a risk to human health, CET subjected the aforementioned chemical data to a Generic Risk Assessment (GRA). The initial screen of the chemical data was made against available Suitable 4 Use Levels (S4ULs) developed by LQM/CIEH (2015) and Category 4 Screening Levels (C4SLs) as developed by DEFRA (2014). Exceedances of assessment criteria may require further detailed/semi detailed quantitative risk assessment.

For the purposes of this assessment S4ULs selected to perform an initial screen of the chemical data reflected a 'residential end use without home grown produce' (RwoHP). In this instance the most sensitive potential receptor is judged to be a female child between the age of 0 and 6 years. The consumption of contaminants via home grown fruit and vegetables has not been considered as an applicable pathway.

A comparison of the recorded concentrations of metals with the corresponding S4ULs is presented in the following table:

Contaminant	Key statistics				S4UL* (RwoHP)	
	Number of detects	Min. Value (mg/kg)	Max. Value (mg/kg)	Mean Value (mg/kg)	S4UL (mg/kg)	No. Samples exceeding assessment criteria
Arsenic	12	13	30	18.7	40	0
Cadmium	8	0.2	0.7	0.4	85	0
Chromium III	12	27	44	35.0	910	0
Lead[#]	12	22	**8100**	974.6	310	**4**
Nickel	12	18	42	27.8	180	0
Mercury	4	1.1	1.4	1.3	56	0
Copper	12	22	200	55.5	7100	0
Vanadium	12	46	76	62.7	1200	0
Zinc	12	59	1100	257.3	40 000	0
Notes to Table						
*	*Most appropriate screening values are Sustainable 4 Use Level (S4UL) for a residential end use without home grown produce, a sandy loam soil type, pH of 7 and a soil organic matter (SOM) of 6%.*					
#	*Category 4 Screening Level (2014) used in absence of suitable S4UL.*					

As the above table indicates, with the exception of lead, the concentrations of metals recorded by the analysis did not exceed the respective threshold criteria. However, four concentrations of lead in the Made Ground were recorded in excess of the corresponding S4UL and are therefore judged to have the potential to

pose a significant risk to future site users via the direct contact, ingestion and dust inhalation exposure pathways.

A summary of the PAH compounds recorded by the analysis are included in the following table:

Contaminant	Key statistics				S4UL* (RwoHP)	
	Number of detects	Min. Value (mg/kg)	Max. Value (mg/kg)	Mean Value (mg/kg)	S4UL (mg/kg)	No. Samples exceeding assessment criteria
Naphthalene	1	-	0.1	-	5.6	0
Acenaphthylene	2	0.1	0.7	0.4	4600	0
Acenaphthene	2	0.1	0.1	0.1	4700	0
Fluorene	2	0.1	0.3	0.2	3800	0
Phenanthrene	8	0.2	4.0	1.3	1500	0
Anthracene	7	0.1	1.0	0.3	35 000	0
Fluoranthene	10	0.1	5.5	1.7	1600	0
Pyrene	10	0.1	4.8	1.4	3800	0
B(a)A	9	0.1	2.4	1.0	14	0
Chrysene	9	0.1	2.1	0.9	31	0
B(b)F	8	0.1	1.9	0.7	4	0
B(k)F	8	0.1	1.9	0.7	110	0
B(a)P	8	0.1	2.3	0.8	3.2	0
I(123-cd)P	7	0.1	1.8	0.6	46	0
D(ah)A	3	0.2	**0.4**	0.3	0.32	**1**
B(ghi)P	8	0.1	2.1	0.6	360	0
Notes to Table						
*	*Most appropriate screening values are Sustainable 4 Use Level (S4UL) for a residential end use without home grown produce, a sandy loam soil type, pH of 7 and a soil organic matter (SOM) of 2.5%.*					

As the above table demonstrates only one of the PAH concentrations detected slightly exceeded the corresponding S4UL. It is therefore considered that there is a low potential of PAHs posing a significant risk to human receptors via the direct contact, ingestion, dust inhalation and volatilisation exposure pathways.

A summary of the petroleum hydrocarbon and BTEX concentrations recorded by the analysis in included in the following table:

Contaminant	Key statistics				S4UL* (RwoHP)	
	Number of detects	Min. Value (mg/kg)	Max. Value (mg/kg)	Mean Value (mg/kg)	S4UL (mg/kg)	No. Samples exceeding assessment criteria
TPH C6-C8 ali	1	-	0.062	-	230	0
TPH C8-C10 ali	1	-	0.028	-	65	0
TPH C8-C10 aro	2	0.048	0.11	0.1	110	0
TPH C12-C16 aro	3	2.0	3.0	2.7	2300	0
TPH C16-C21 aro	8	4.0	32	12.6	1900	0
TPH C21-C35 aro	8	11	56	27.8	1900	0
MTBE	3	0.002	0.002	0.002	120	0
M/P Xylene	3	0.001	0.001	0.001	180	0
O Xylene	3	0.001	0.002	0.002	210	0
Toluene	2	0.001	0.001	0.001	1900	0
Phenols (mono)	1	-	1.0	-	1300	0
Notes to Table						
*	*Most appropriate screening values are Sustainable 4 Use Level (S4UL) for a residential end use without home grown produce, a sandy loam soil type, pH of 7 and a soil organic matter (SOM) of 6%.*					
#	*The most sensitive S4UL for aliphatic or aromatic hydrocarbons has been adopted for reference purposes.*					

As the above table demonstrates, none of the petroleum hydrocarbon, BTEX/MTBE or phenol compounds detected by the analysis exceeded the corresponding S4ULs and as such it is considered that they are likely to pose a negligible risk to human receptors.

Ground Gas Assessment

The previous investigation undertaken by Ramboll included ground gas monitoring that classified the site as a Characteristic Situation 1, for which no specific ground gas protection measures are considered necessary. However, Ramboll assessed the ground gas risks as moderate based on this data.

Notwithstanding the above, no on or off site sources of ground gas were identified by Ramboll during the desk study. The tested soils have a relatively low total organic carbon content, with a maximum concentration of 3.9%. There was no visible or olfactory evidence of ground gases during the site investigation, such as bands of peat or sulphurous odours. Based on this assessment it is considered that there is no appreciable source of ground gas at the site and as such the associated risks are judged to be negligible.

7. SUMMARY & CONCLUSIONS

CET was commissioned to carry out a ground investigation of the Maitland Park study site located at Maitland Villas, Camden, London NW3 2HG, that it is proposed to redeveloped into three multi storey residential apartment blocks. Initially CET undertook a review of existing contaminated land reports prior to carrying out a site investigation in January 2017.

The CET investigation comprised the formation of a series of window sample boreholes, hand excavated trial pits, and the recovery of soil samples for laboratory chemical analysis. The results of the various phases of analysis were subsequently used to carry out a generic risk assessment so that comments could be made on the potential risks to human and environmental receptors

Generic Risk Assessment

The concentrations of the majority of determinands tested were less than the respective S4ULs that considered a residential end use without home grown produce and are therefore not considered to have the potential to pose a significant risk to human receptors. However, elevated concentrations of PAHs and lead were identified in the Made Ground. Such contaminants are judged to have the potential to pose a risk to future site occupants from the direct contact, ingestion and dust inhalation exposure pathways.

As a result of the presence of lead and PAHs in the Made Ground remedial measures will be required to ameliorate the risks posed to human receptors. Based on the nature of the pollutant linkages established to date, the most appropriate technique is likely to be the excavation of an appropriate depth of Made Ground and replacement with clean, imported cover soils within the soft landscaped areas. Any such works would need to be agreed with the regulatory authorities prior to implementation and subject to appropriate inspection and verification. It would also be prudent to lay new services in 'clean' imported material to protect them from potential degradation resulting from the concentrations of PAHs detected during the previous site investigation. As no volatile contaminants have been identified at the site it is considered that there is a negligible risk posed by any soils located beneath buildings or hard standing post development.

Construction workers could be exposed to contaminated ground by the aforementioned exposure pathways, but based on the nature of the identified contamination it is considered that the use of appropriate personal protective equipment (PPE) and health and hygiene practices would effectively ameliorate the identified risks. Dust suppression measures should also be adopted to ensure that constructions workers and off site human receptors are not exposed to lead and PAH impacted dust generated during the demolition and construction processes.

Should any visual and/or olfactory evidence of contamination, such as oily or odorous soils, be encountered during the progress of the works is recommended that further sampling, testing and assessment is carried out so the nature of the associated risks can be ascertained.

Based on this assessment CET would concur with the previously established CS1 classification and as such it is considered that there a negligible risk of the site being impacted by ground gases that could adversely impact on site receptor. In the absence of an identified receptor the risks to controlled waters are also considered to be negligible.

FIGURES

CET INFRASTRUCTURE
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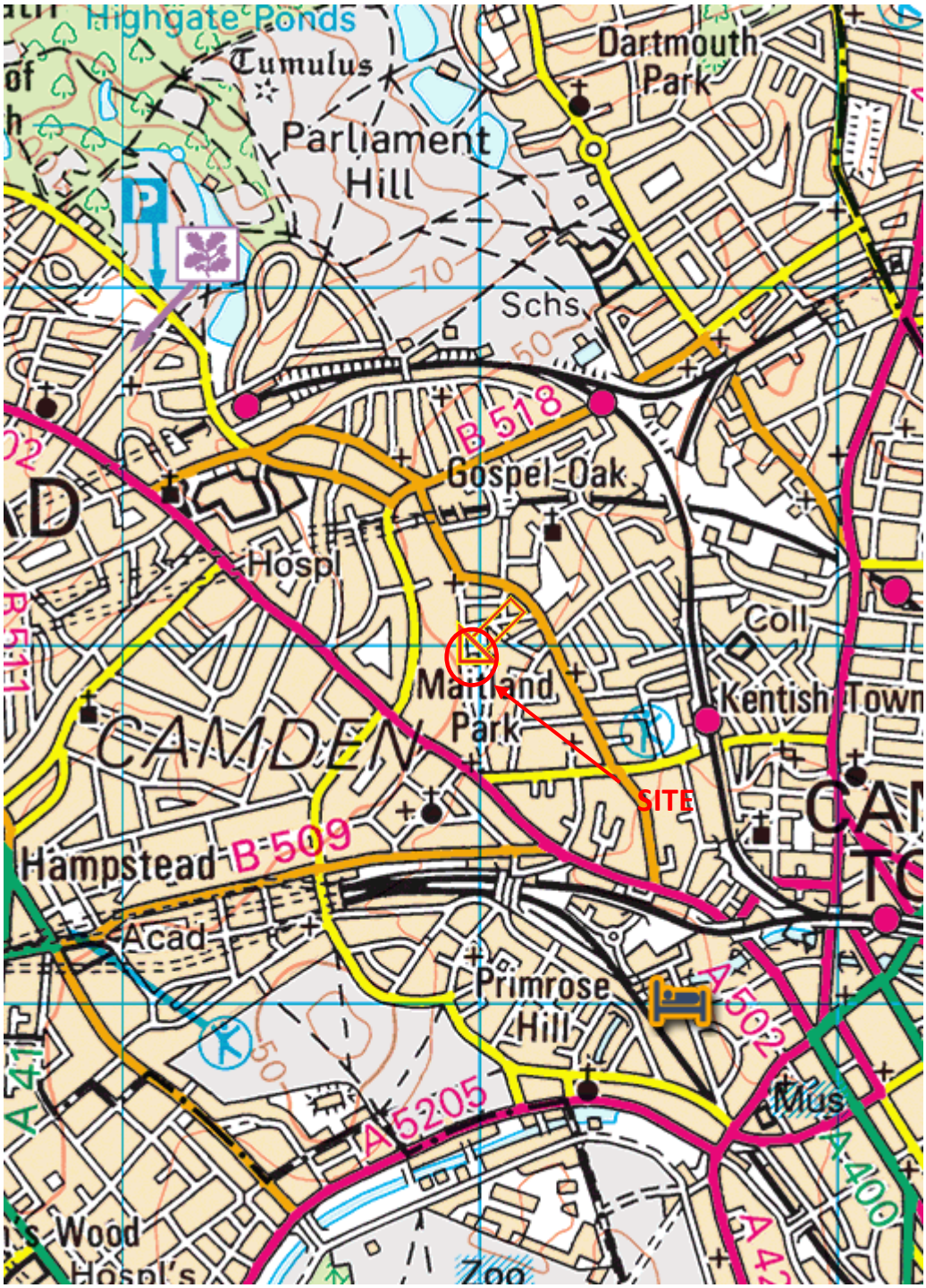
FIGURE 1
SITE LOCATION PLAN
Maitland Park
351221



CET INFRASTRUCTURE
Giving our all

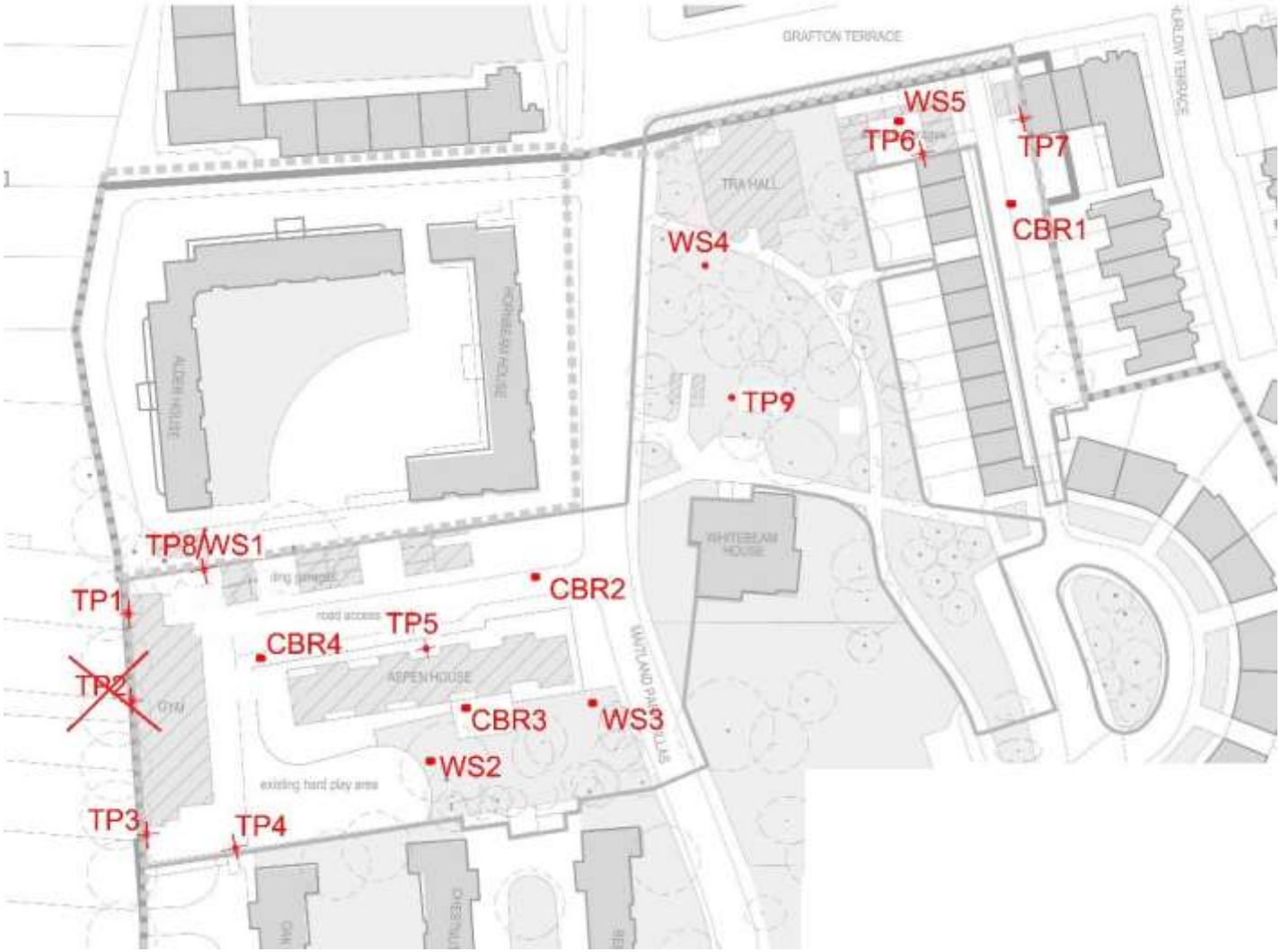
FIGURE 2

APPROXIMATE EXPLORATORY HOLE LOCATION PLAN

Maitland Park, Camden

351221

N



APPENDIX A

Exploratory Hole Logs

INFRASTRUCTURE
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KEY TO BOREHOLE AND TRIAL PIT LOGS

Samples

D	Small disturbed sample
U	Undisturbed sample, 100mm nominal diameter
UT	Undisturbed thin walled sample, 100mm nominal diameter
B	Bulk disturbed samples (bar indicates sample range)
U38	Hand driven 'undisturbed' sample, 38mm nominal diameter
P	Undisturbed piston sample (bar indicates sample range)
W	Water sample
ICBR	In-situ California Bearing Ratio sample
*	No recovery sample
T	Tub sample
V	Vial sample
J	Jar sample

Tests

S	Standard penetration test
C	Cone penetration tests
N =	SPT/CPT 'N' Value (number of blows for 300mm full penetration)
80/150	Number of blows/total penetration(mm) for SPT/CPT test
25/25SP	As above for seating drive only
*	N value obtained over 450mm penetration
U =	Blows to achieve 450mm penetration for a U sample
V_h =	In-situ hand vane test in kN/m^2
m	In-situ CBR test by Mexe probe
V =	In-situ field vane test in kN/m^2
ppm =	Parts per million of flammable gas as methane equivalents
pp =	Pocket Penetrometer in kg/cm^2

Observations, Backfill and Installations

▼	Water strike – depth shown in metres below ground level.		
	Gravel backfill		Bentonite backfill
	Arisings backfill		Concrete
	Plain Pipe		Slotted Pipe

Client: **Price & Myers**	Hole Diameter (mm):	**BOREHOLE NUMBER**
Method: Window Sampler		**WS01**
Date: 24/01/17	Co-ordinates E N	Ground Level (m AOD)	Ref. No: 351221	Sheet 1 of 1

Backfill/Well		Water	Samples		In Situ Tests	Reduced	Depth &		
(m)	Legend	Depth (m)	Depth (m)	Type	Results	Level (m AOD)	*(Thickness)* (m)	Description of Strata	Legend
							(0.20)	Brown, fine to coarse sandy, slightly gravelly, organic CLAY. Gravel is angular and very angular, fine to coarse, glass, brick and flint. (Made Ground)	
0.30							0.20		
0.40							*(0.35)*		
			0.50	TJV			0.55	Yellowish brown, slightly clayey, very gravelly, fine to coarse SAND. Gravel is angular and very angular, fine to coarse, brick, flint, slate and glass. Low cobble content of brick. (Made Ground)	
							(1.05)	Brown, slightly fine to coarse sandy, slightly gravelly CLAY. Gravel is sub-angular and angular, fine to coarse, brick, concrete and wood. (Made Ground)	
1.40									
1.50							1.60		
			1.75	D	pp = 3.5		*(0.40)*	Stiff, brown CLAY. Very thick roots and occasional orange, fine sandy partings noted. (Weathered London Clay Formation)	
			2.00		Vh = 124 pp = 3.6		2.00		
			2.25	D	pp = 3.5			Stiff, brown and orange CLAY with selenite crystals typically measuring >5mm length. Bluish grey gleying noted from 2.5m below ground level. (Weathered London Clay Formation)	
			2.50		pp = 3.7				
			2.75	D	pp = 3.2				
			3.00		Vh = 104 pp = 3.2				
			3.25	D	pp = 2.5				
			3.50		pp = 3.2		*(3.00)*		
			3.75	D	pp = 4.5				
			4.00		Vh = 106 pp = 3.9				
			4.25	D	pp = 3.9				
			4.50		pp = 3.3				
			4.75	D	pp = 2.8				

End of Borehole at 5.00 m

General Remarks:
1. Borehole remained dry and stable.
2. Borehole carried out through the base of TP08.
3. Roots noted to 3.0m below ground level.

Driller:	CB	BOREHOLE RECORD	CET INFRASTRUCTURE Giving our all
Logged:	GC	Scale 1:25	
Chked:		See Key Sheet for explanation of symbols, etc.	
Appr'd:		Maitland Park	**FIG A1**

Client: **Price & Myers**			Hole Diameter (mm):		**BOREHOLE NUMBER**
Method: Window Sampler					**WS02**
Date: 25/01/17	Co-ordinates E N		Ground Level (m AOD)	Ref. No: 351221	Sheet 1 of 1

Backfill/Well		Water	Samples		In Situ Tests	Reduced	Depth &	Description of Strata	Legend
(m)	Legend	Depth (m)	Depth (m)	Type	Results	Level (m AOD)	*(Thickness)* (m)		
			0.50	TJV			*(1.50)*	Dark brown, becoming light brown with depth, fine to coarse sandy, gravelly, organic CLAY. Gravel is sub-rounded to angular, fine to coarse brick, flint and concrete. (Made Ground)	
			1.50		pp = 4.6		1.50		
			1.75	D	pp = 3.0			Firm to stiff, brown, with bluish grey gleying from 2.5m, CLAY with selenite noted from 2.5m below ground level. (Weathered London Clay Formation)	
			2.00		Vh = 64 pp = 3.0				
			2.25	D	pp = 3.0				
			2.50		pp = 2.7				
			2.75	D	pp = 2.7				
			3.00		Vh = 88 pp = 2.8				
			3.25	D	pp = 3.2		*(3.50)*		
			3.50		pp = 3.5				
			3.75	D	pp = 4.0				
			4.00		Vh = 122 pp = 4.5				
			4.25	D	pp = 4.0				
			4.50		pp = 4.0				
			4.75	D	pp = 3.5				

End of Borehole at 5.00 m

General Remarks:
1. Borehole remained dry and stable.
2. Roots noted to 4.0m below ground level.

Driller:	CB	BOREHOLE RECORD	CET INFRASTRUCTURE Giving our all
Logged:	GC	Scale 1:25	
Chked:		See Key Sheet for explanation of symbols, etc.	
Appr'd:		Maitland Park	**FIG A2**

Client: **Price & Myers**			Hole Diameter (mm):		**BOREHOLE NUMBER**
Method: Window Sampler					**WS03**
Date: 25/01/17	Co-ordinates E N		Ground Level (m AOD)	Ref. No: 351221	Sheet 1 of 1

Backfill/Well		Water	Samples		In Situ Tests	Reduced	Depth &	Description of Strata	Legend
(m)	Legend	Depth (m)	Depth (m)	Type	Results	Level (m AOD)	*(Thickness)* (m)		
			0.50	TJV			*(1.50)*	Brown, fine to coarse sandy, gravelly, organic CLAY. Gravel is sub-angular and angular, fine to coarse, brick, concrete and clinker. (Made Ground)	
			1.50		pp = 4.4		1.50		
			1.75	D	pp = 6.0			Firm to very stiff, brown CLAY with occasional orange, fine and medium sandy partings from 2.5m. (Weathered London Clay Formation)	
			2.00		pp = 6.0				
			2.25	D	pp = 6.0				
			2.50		pp = 6.0		*(2.00)*		
			2.75	D	pp = 4.9				
			3.00		Vh = 100 pp = 4.0				
			3.25	D	pp = 3.5				
			3.50		pp = 4.0		3.50		
			3.75	D	pp = 3.0			Firm to stiff, brown with bluish grey and orange gleying CLAY. (Weathered London Clay Formation)	
			4.00		Vh = 124 pp = 3.4				
			4.25	D	pp = 3.5		*(1.50)*		
			4.50		pp = 3.7				
			4.75	D	pp = 3.7				
								End of Borehole at 5.00 m	

General Remarks:
1. Borehole remained dry and stable.
2. Roots noted to 3.0m below ground level.

Driller:	CB	BOREHOLE RECORD	CET INFRASTRUCTURE Giving our all
Logged:	GC	Scale 1:25 See Key Sheet for explanation of symbols, etc.	
Chked:		Maitland Park	**FIG A3**
Appr'd:			

Client: **Price & Myers**

Hole Diameter (mm):

BOREHOLE NUMBER

WS04

Sheet 1 of 1

Method: Window Sampler

Date: 24/01/17

Co-ordinates E N

Ground Level (m AOD)

Ref. No: 351221

Backfill/Well		Water	Samples		In Situ Tests	Reduced	Depth &		
(m)	Legend	Depth (m)	Depth (m)	Type	Results	Level (m AOD)	*(Thickness)* (m)	Description of Strata	Legend
0.10			0.50	TJV			*(1.40)*	Brown, fine to coarse sandy, slightly gravelly, organic CLAY. Gravel is sub-rounded to angular, fine to coarse, brick, shell, wood, chalk and flint. Low cobble content of brick. (Made Ground)	
1.40							1.40		
1.50			1.50	D	pp = 5.1			Very stiff, brown, friable CLAY. (Weathered London Clay Formation)	
			1.70		Vh = 140				
			1.75		pp = 6.0				
			2.00	D	pp = 6.0		*(1.60)*		
			2.25		pp = 6.0				
			2.50	D	Vh = 140 pp = 6.0				
			2.75		pp = 6.0				
			3.00	D	pp = 6.0		3.00		
			3.25		pp = 6.0			Very stiff becoming stiff with depth, brown, mottled blue and grey CLAY with selenite noted from 3.2m. (Weathered London Clay Formation)	
			3.50	D	Vh = 140 pp = 6.0				
			3.75		pp = 5.0		*(1.50)*		
			4.00	D	pp = 4.0				
			4.25		pp = 3.2				
4.50			4.50	D	Vh = 98 pp = 3.8		4.50	*End of Borehole at 4.50 m*	

General Remarks:
1. Borehole remained dry and stable.
2. Borehole terminated at 4.5m below ground level due to the 'dense' nature of the underlying material.
3. Roots noted to 4.5m below ground level.

Driller: CB

Logged: GC

Chked:

Appr'd:

BOREHOLE RECORD

Scale 1:25

See Key Sheet for explanation of symbols, etc.

CET INFRASTRUCTURE Giving our all

Maitland Park

FIG A4

Client: **Price & Myers**	Hole Diameter (mm):	**BOREHOLE NUMBER**
Method: Window Sampler		**WS05**
Date: 26/01/17	Co-ordinates E N	Ground Level (m AOD)	Ref. No: 351221	Sheet 1 of 1

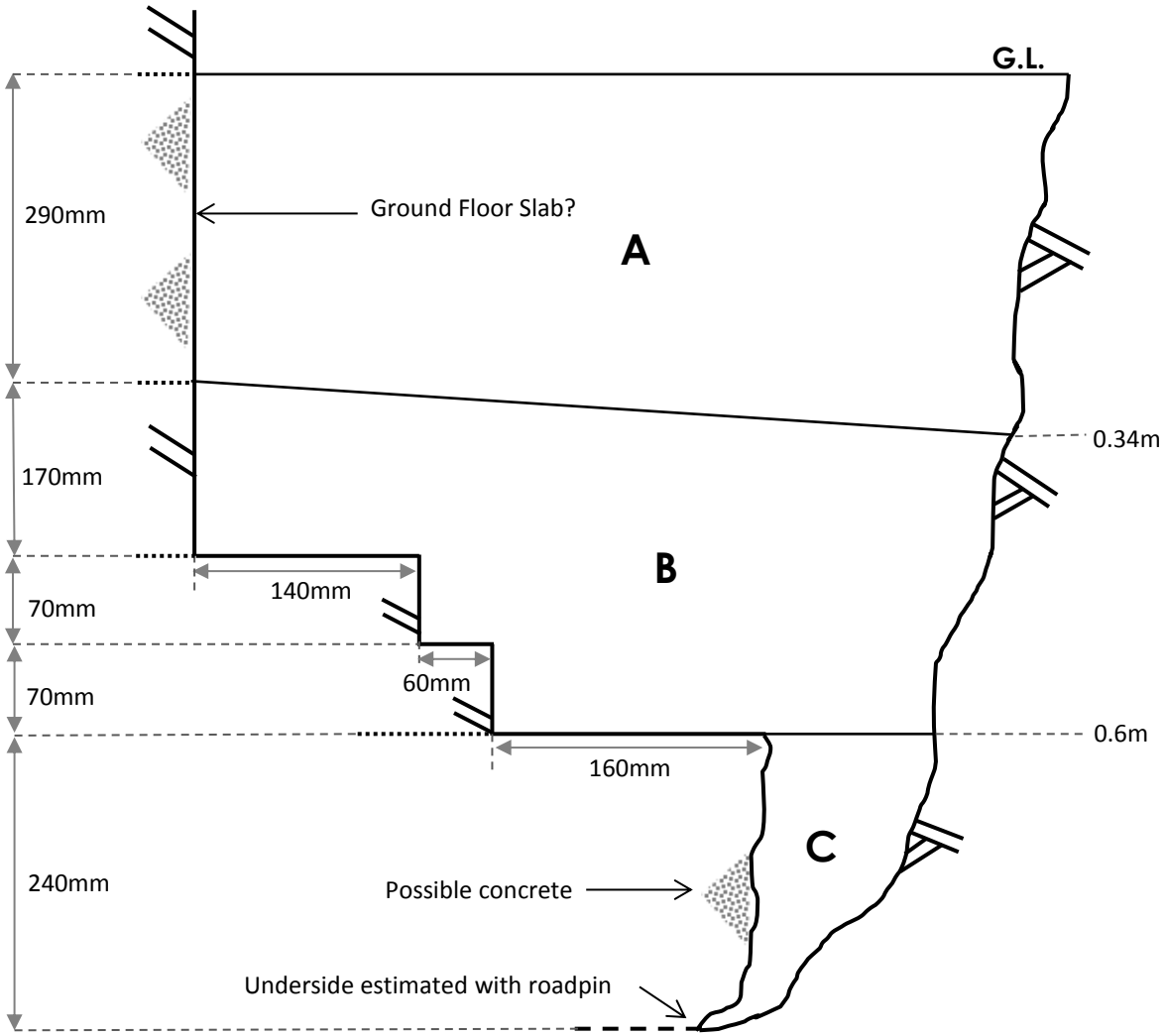
Backfill/Well		Water	Samples		In Situ Tests	Reduced	Depth &	Description of Strata	Legend
(m)	Legend	Depth (m)	Depth (m)	Type	Results	Level (m AOD)	*(Thickness)* (m)		
							(0.10) 0.10	Concrete.	
			0.30	TJV			*(0.30)* 0.40	Yellow, fine to coarse sandy, slightly gravelly CLAY. Gravel is sub-angular and angular, fine to coarse, brick, concrete, asphalt and clinker. (Made Ground)	
			0.70	TJV			*(0.60)* 1.00	Grey and black, slightly fine to coarse sandy, slightly gravelly CLAY. Gravel is sub-angular and angular, fine to coarse, brick, concrete and clinker. (Made Ground)	
			1.25	D	pp = 1.4		*(0.70)*	Soft to firm, brown CLAY. (Weathered London Clay Formation)	
			1.50		pp = 1.5				
			1.75	D	pp = 2.0		1.70	Soft to stiff, brown, mottled bluish grey CLAY with selenite noted from 4.0m. (Weathered London Clay Formation)	
			2.00		Vh = 62 pp = 2.2				
			2.25	D	pp = 2.6				
			2.50		pp = 2.9				
			2.75	D	pp = 2.7				
			3.00		Vh = 94 pp = 2.7				
			3.25	D	pp = 3.2		*(3.30)*		
			3.50		pp = 2.7				
			3.75	D	pp = 3.2				
			4.00		Vh = 92 pp = 3.5				
			4.25	D	pp = 2.8				
			4.50		pp = 3.2				
			4.75	D	pp = 4.6				

End of Borehole at 5.00 m

General Remarks:
1. Borehole remained dry and stable.
2. Roots noted to 4.0m below ground level.

Driller:	CB	BOREHOLE RECORD	CET INFRASTRUCTURE Giving our all
Logged:	GC	Scale 1:25	
Chked:		See Key Sheet for explanation of symbols, etc.	
Appr'd:		Maitland Park	**FIG A5**

Lead No:	351221	Scale:	N.T.S	Date:	Drawn by:	Checked:	Approved:
Project:	MAITLAND PARK			23/01/2017	GC	PTE	PTE



Material Description

A. Reinforced concrete.

B. Brown, fine to coarse sandy, gravelly CLAY. Gravel is sub-angular and angular, fine to coarse, brick, concrete and clinker. (Made Ground)

C. Firm, brown CLAY. (Made Ground)

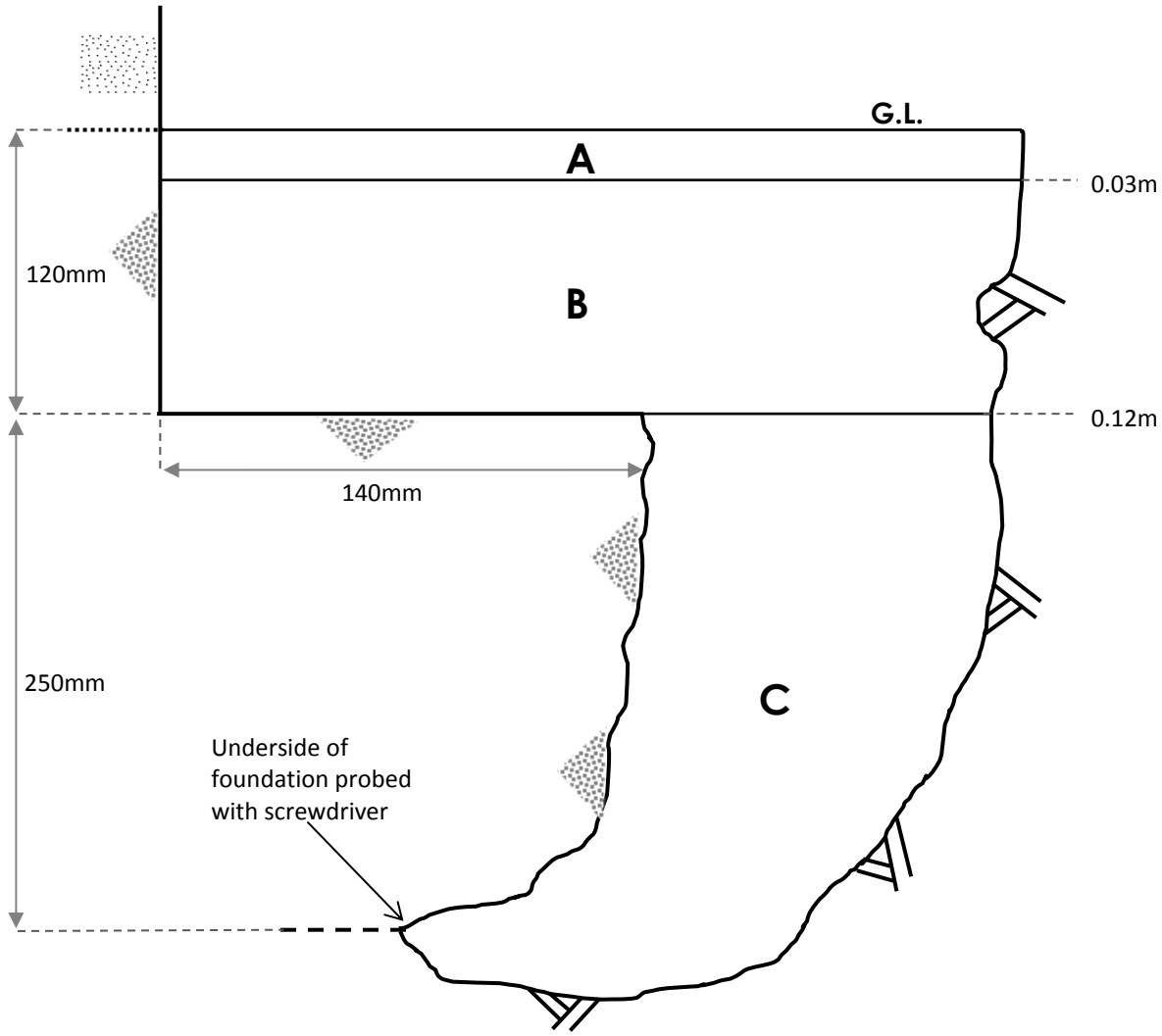
Notes

1. Exploratory hole remained stable and dry during excavation.

2. Underside of foundation estimated using a road pin.

TP01	A6	CET INFRASTRUCTURE Giving our all

Lead No:	351221	Scale:	N.T.S	Date:	Drawn by:	Checked:	Approved:
Project:	MAITLAND PARK			23/01/2017	GC	PTE	PTE



Material Description

A. Asphalt.

B. Concrete.

C. Brown, very gravelly, very clayey, fine to coarse SAND. Gravel is sub-angular to rounded, fine to coarse brick, concrete, clinker and ash. (Made Ground)

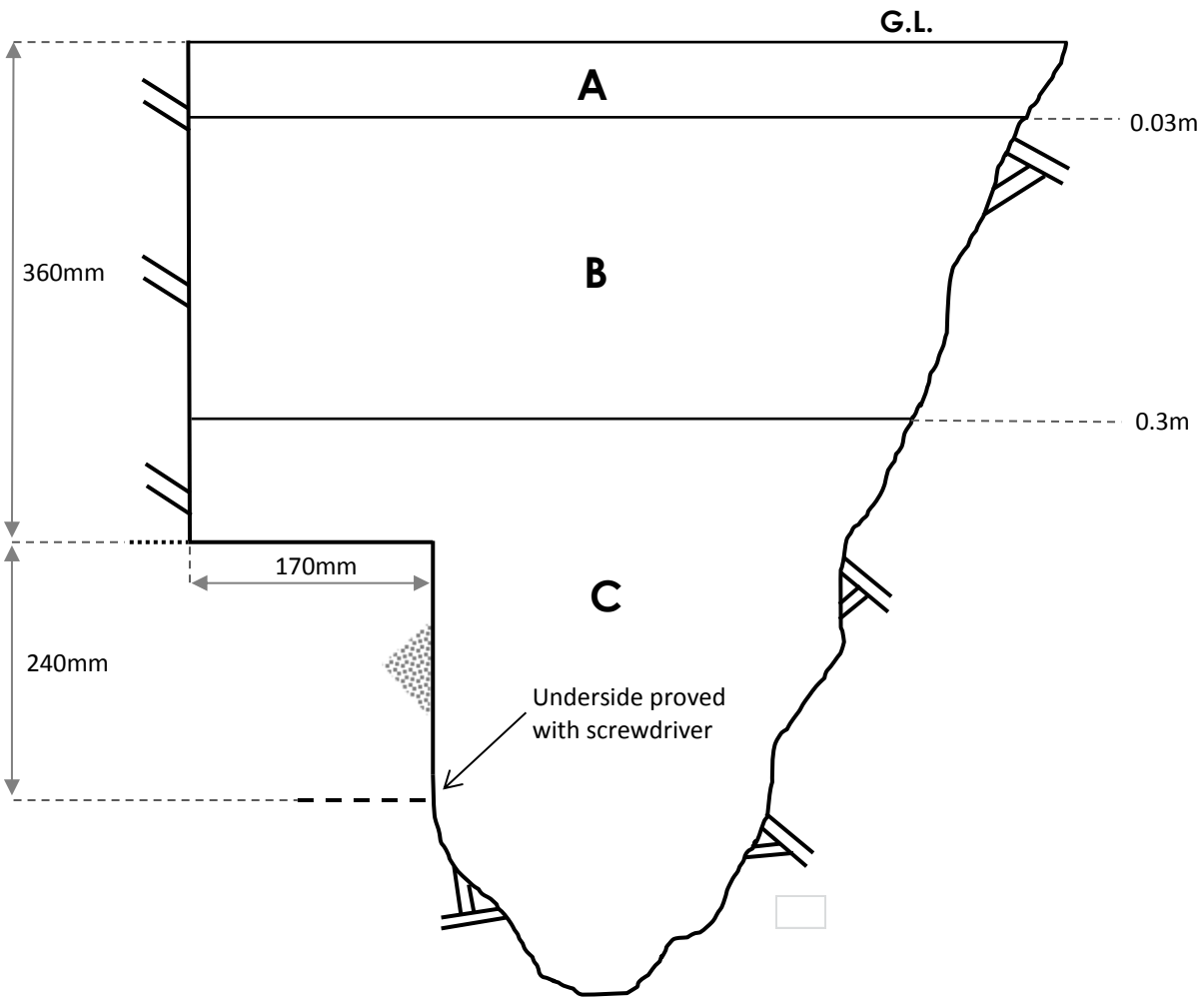
Notes

1. Exploratory hole remained stable and dry during excavation.

2. Underside of foundation estimated using a screwdriver.

TP03	A7	CET INFRASTRUCTURE Giving our all

Lead No:	351221	Scale:	N.T.S	Date:	Drawn by:	Checked:	Approved:
Project:	MAITLAND PARK			23/01/2017	GC	PTE	PTE



Material Description

A. Asphalt.

B. Black, fine to coarse sandy, sub-angular and angular, fine to coarse GRAVEL of ash, tarmac, clinker, brick, concrete and flint. (Made Ground)

C. Brown, slightly gravelly CLAY. Gravel is sub-angular and angular, fine to coarse brick, ash and concrete. (Made Ground)

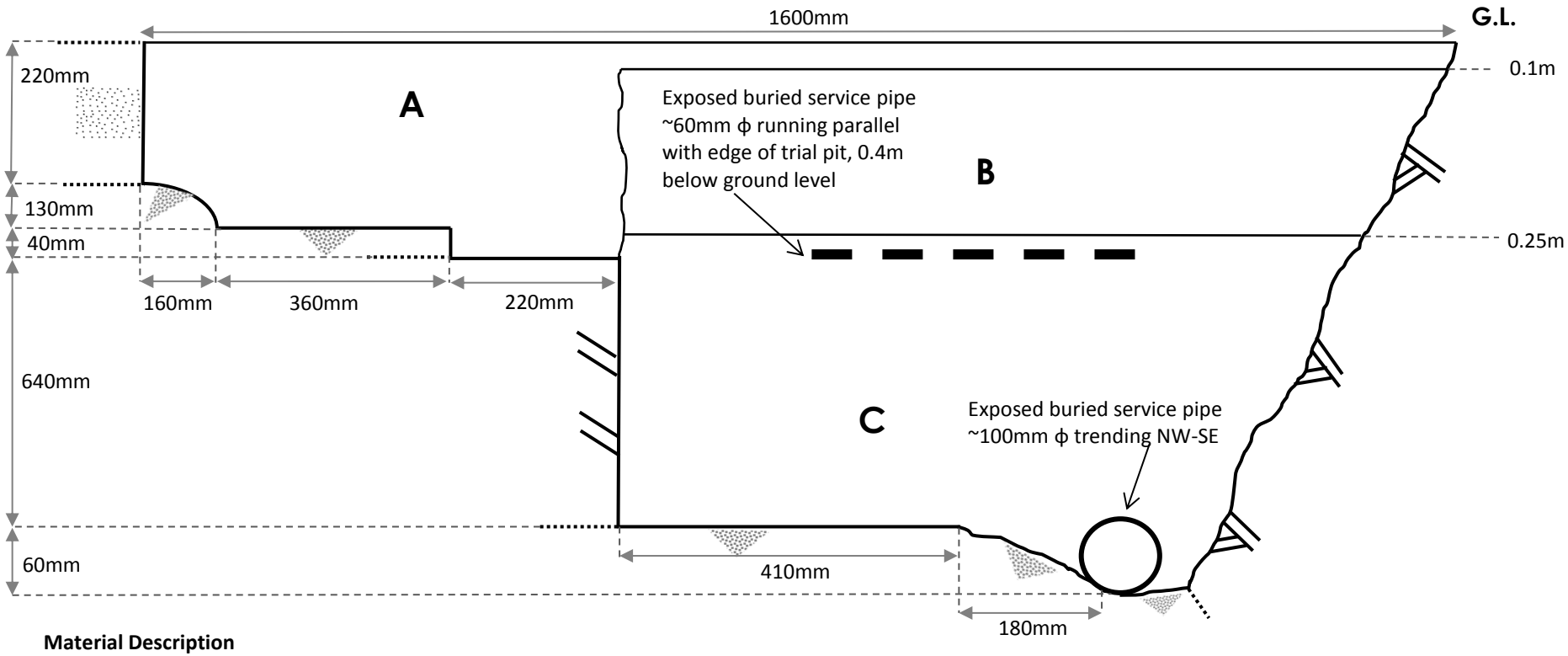
Notes

1. Exploratory hole remained stable and dry during excavation.

2. Underside of foundation proved with screwdriver.

TP04	A8	CET INFRASTRUCTURE Giving our all

Lead No:	351221	Scale:	N.T.S	Date:	Drawn by:	Checked:	Approved:
Project:	MAITLAND PARK			23/01/2017	GC	PTE	PTE



Material Description

A. Yellow, gravelly, medium and coarse SAND. Gravel is sub-rounded and sub-angular, fine to coarse flint. (Made Ground)

B. Brown, slightly fine to coarse sandy, gravelly CLAY. Gravel is sub-angular to rounded, fine to coarse flint, brick and concrete. Low cobble content of brick and concrete. (Made Ground)

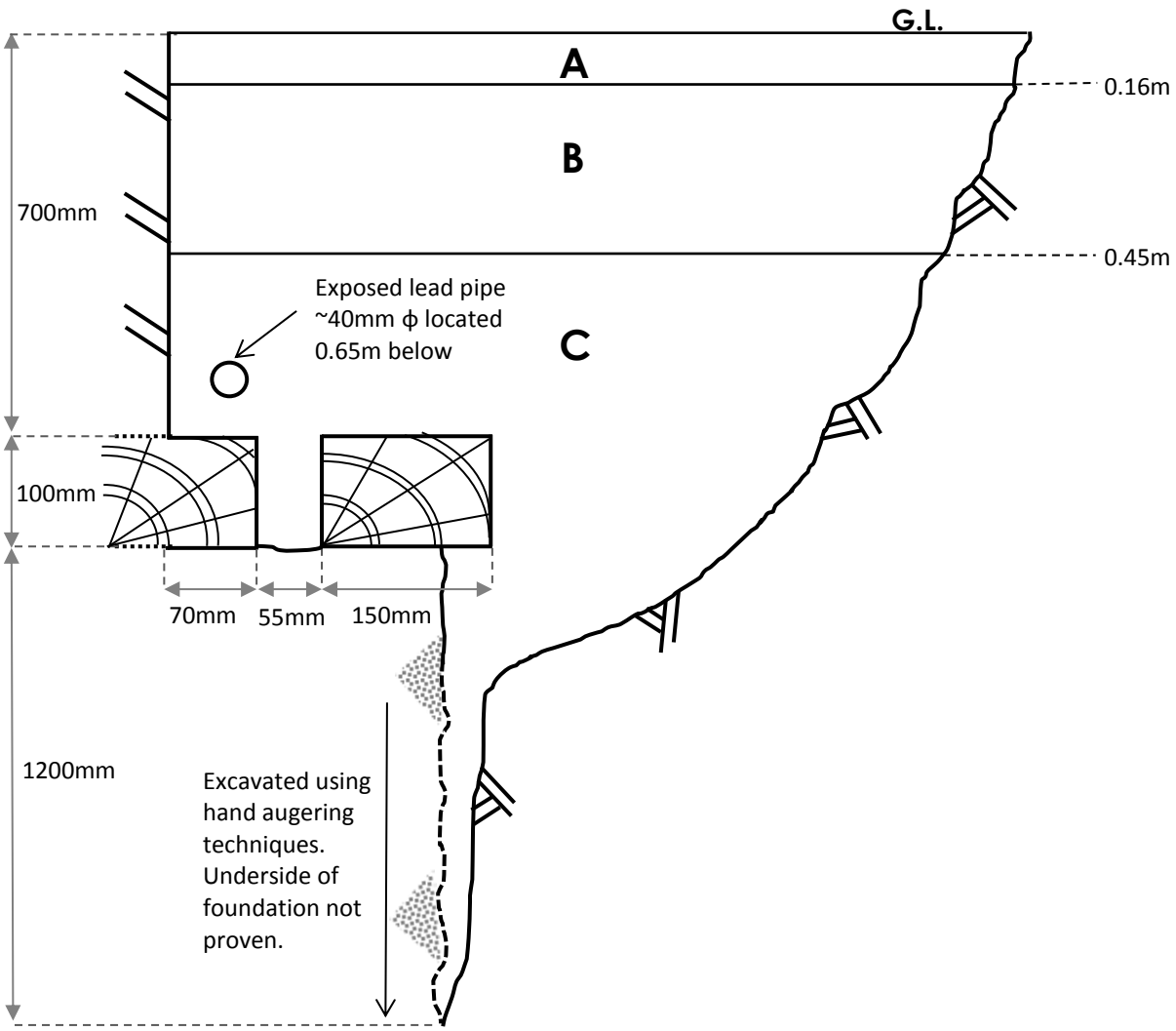
C. Brown, slightly fine to coarse sandy, very gravelly CLAY. Gravel is rounded to angular, fine to coarse, brick, concrete, flint and clinker. Medium cobble content of brick and concrete. (Made Ground)

Notes

1. Underside of foundation not proven due to inability to hand auger around pipe as it is flanked by concrete.
2. Unable to excavate pit further back due to the presence of buried services.

TP03	A9	CET INFRASTRUCTURE Giving our all

Lead No:	351221	Scale:	N.T.S	Date:	Drawn by:	Checked:	Approved:
Project:	MAITLAND PARK			23/01/2017	GC	PTE	PTE



Material Description

A. Reinforced concrete.

B. COBBLES of concrete and brick with a little finer material of fine to coarse sand and angular and sub-angular, fine to coarse gravel of brick, concrete and asphalt. (Made Ground)

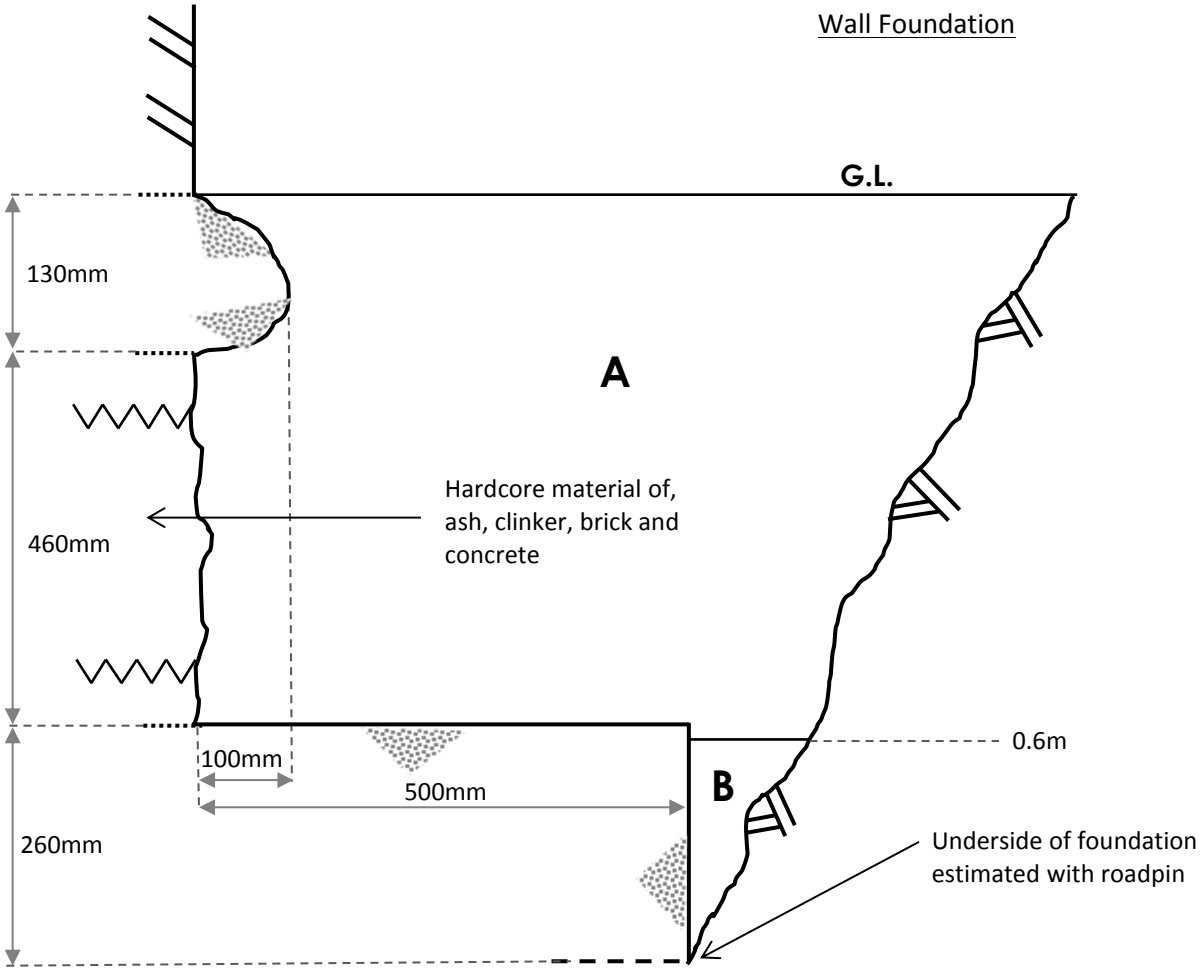
C. Brown, fine to coarse sandy, gravelly CLAY. Gravel is angular and sub-angular, fine to coarse, brick, concrete and clinker. Medium cobble content of brick and concrete. (Made Ground)

Notes

1. Exploratory hole remained stable and dry during excavation.
2. Underside of foundation not proven due to depth of excavation and presence of cobbles at depth.
3. Ground level noted to be 1.0m higher than the adjacent side of the building.

TP06	A10	CET INFRASTRUCTURE Giving our all

Lead No:	351221	Scale:	N.T.S	Date:	Drawn by:	Checked:	Approved:
Project:	MAITLAND PARK			23/01/2017	GC	PTE	PTE



Material Description

A. Grey and brown COBBLES of brick and concrete with a little finer material of fine to coarse sand and angular and sub-angular, fine to coarse gravel of brick and concrete. (Made Ground)

B. Brown, slightly gravelly, fine to coarse sandy CLAY. Gravel is angular and sub-angular, fine to coarse brick, concrete and flint. (Made Ground)

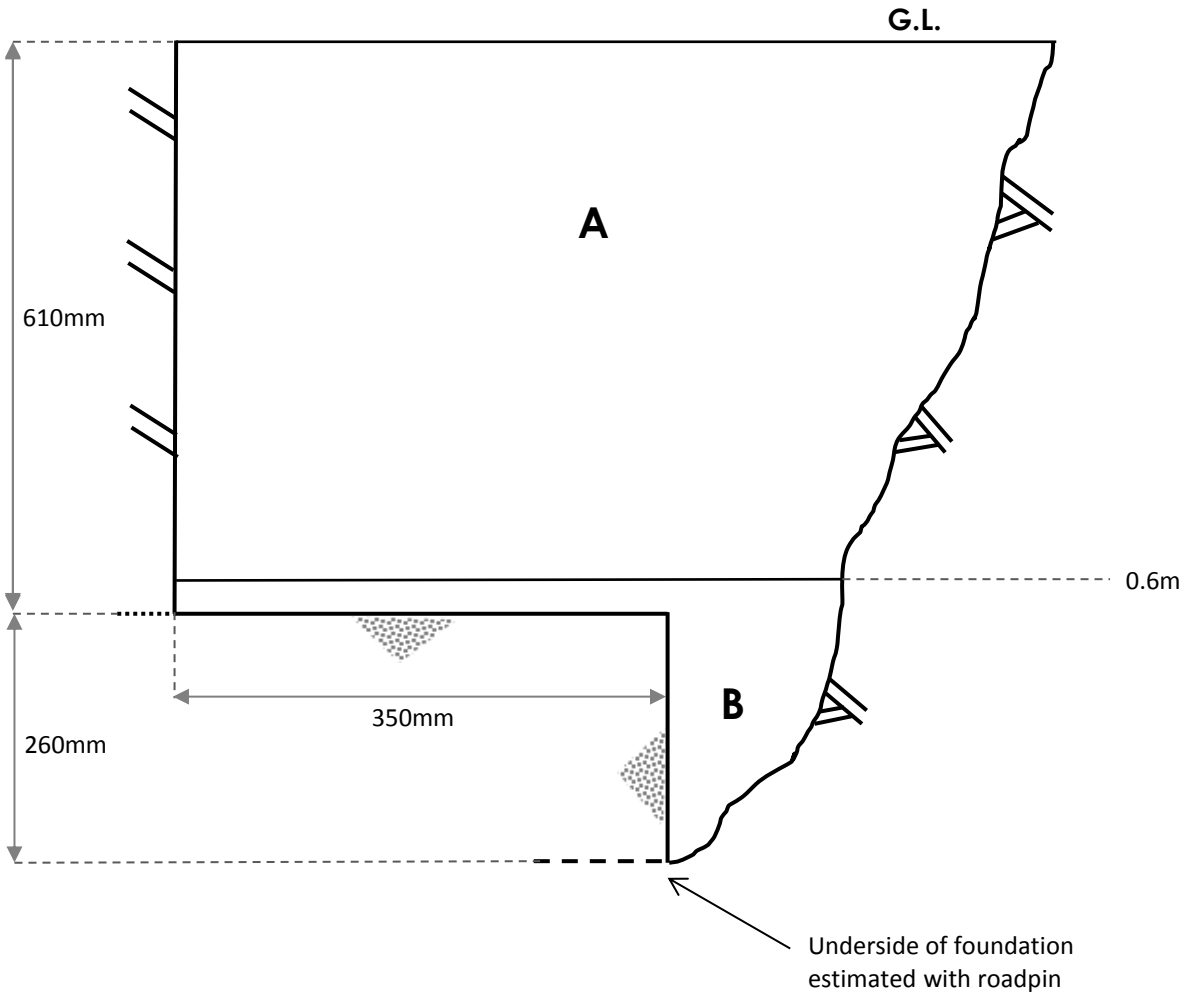
Notes

1. Exploratory hole remained stable and dry during excavation.
2. Underside of foundation estimated using a road pin.
3. Foundations shown are that of the brick wall in front of the house. Foundations of house cannot be fully exposed without severly undermining the brick wall however the foundations of the house comprise brickwork down to at least the depth of the concrete footing of the wall/garage.

TP07(a)	A11	CET INFRASTRUCTURE Giving our all

Lead No:	351221	Scale:	N.T.S	Date:	Drawn by:	Checked:	Approved:
Project:	MAITLAND PARK			23/01/2017	GC	PTE	PTE

Garage Foundation



Material Description

A. See TP07(a)

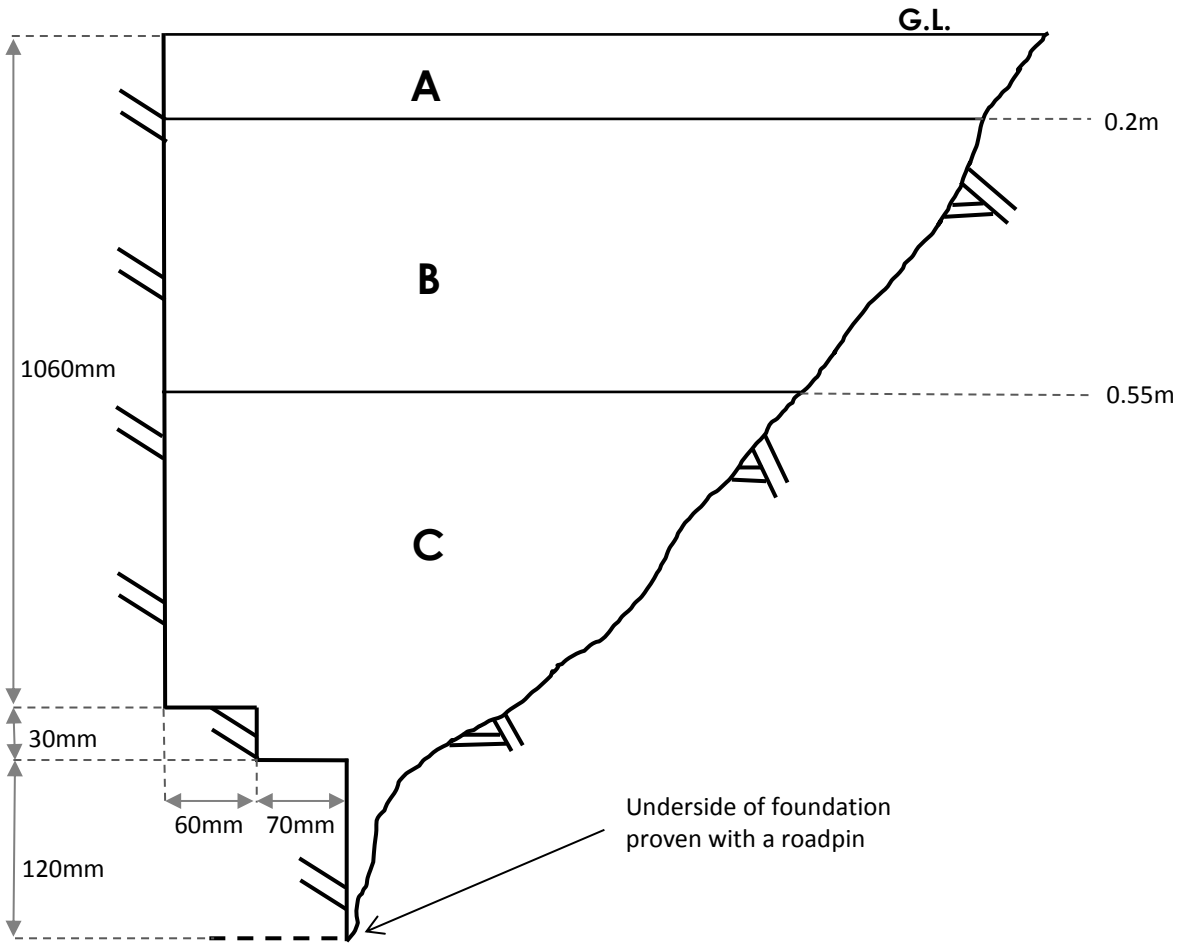
B. See TP07

Notes

1. Exploratory hole remained stable and dry during excavation.
2. Underside of foundation estimated using a road pin.
3. Cast concrete foundation appears to be the same cast concrete foundation encountered on the adjacent brick wall.

TP07(b)	A12	CET INFRASTRUCTURE Giving our all

Lead No:	351221	Scale:	N.T.S	Date:	Drawn by:	Checked:	Approved:
Project:	MAITLAND PARK			23/01/2017	GC	PTE	PTE



Material Description

A. Brown, fine to coarse sandy, slightly gravelly, organic CLAY. Gravel is very angular and angular, fine to coarse, glass, brick and flint. Roots. (Made Ground)

B. Yellowish brown, slightly clayey, very gravelly, fine to coarse SAND. Gravel is very angular and angular, fine to coarse, brick, flint, slate and glass. Low cobble content of brick. Roots. (Made Ground)

C. Brown, slightly fine to coarse sandy, slightly gravelly CLAY. Gravel is angular and sub-angular, fine to coarse brick, concrete and wood. Roots. (Made Ground)

Notes

1. Exploratory hole remained stable and dry during excavation.
2. Underside of foundation estimated using a road pin.
3. Ground level is 0.65m lower than the ground level to the south of the wall next to the gym.
4. WS01 carried out through base of trial pit.

TP08	A13	CET INFRASTRUCTURE Giving our all

APPENDIX B

Results of Laboratory Chemical Analysis

SCIENTIFIC ANALYSIS LABORATORIES
DELIVERING SCIENCE

Scientific Analysis Laboratories is a limited company registered in England and Wales (No 2514788) whose address is at Hadfield House, Hadfield Street, Manchester M16 9FE

Scientific Analysis Laboratories Ltd

Certificate of Analysis

3 Crittall Drive
Springwood Industrial Estate
Braintree
Essex
CM7 2RT
Tel : 01376 560120
Fax : 01376 552923

Report Number: 630102-1

Date of Report: 06-Feb-2017

Customer: CET Infrastructure
Northdown House
Harrietsham Maidstone Kent
ME17 1QW

Customer Contact: Ms Catherine Tame

Customer Job Reference: 351221
Customer Purchase Order: 900511/G2
Customer Site Reference: Maitland Park
Date Job Received at SAL: 26-Jan-2017
Date Analysis Started: 31-Jan-2017
Date Analysis Completed: 06-Feb-2017

The results reported relate to samples received in the laboratory and may not be representative of a whole batch.
Opinions and interpretations expressed herein are outside the scope of UKAS accreditation
This report should not be reproduced except in full without the written approval of the laboratory
Tests covered by this certificate were conducted in accordance with SAL SOPs
All results have been reviewed in accordance with Section 25 of the SAL Quality Manual

UKAS TESTING
1549

Report checked and authorised by :
Aislinn Arthey
Trainee Project Manager

Issued by :
Aislinn Arthey
Trainee Project Manager

SAL Reference: 630102
Project Site: Maitland Park
Customer Reference: 351221

Soil Analysed as Soil
Miscellaneous

				SAL Reference	**630102 001**	**630102 002**	**630102 003**	**630102 004**	**630102 005**
				Customer Sample Reference	**WS02 @ 0.50m**	**WS03 @ 0.50m**	**WS04 @ 0.50m**	**TP01 @ 0.50m**	**TP03 @ 0.50m**
				Date Sampled	**23-JAN-2017**	**23-JAN-2017**	**24-JAN-2017**	**23-JAN-2017**	**23-JAN-2017**
Determinand	**Method**	**Test Sample**	**LOD**	**Units**					
Arsenic	T257	A40	2.0	mg/kg	**30**	**19**	**21**	**13**	**15**
Cadmium	T257	A40	0.1	mg/kg	**0.7**	**0.6**	**0.3**	<0.1	<0.1
Chromium	T257	A40	0.5	mg/kg	**34**	**35**	**32**	**40**	**35**
Copper	T257	A40	2	mg/kg	**200**	**71**	**53**	**29**	**40**
Lead	T257	A40	2	mg/kg	**970**	**340**	**1100**	**22**	**170**
Mercury	T245	A40	1.0	mg/kg	**1.2**	**1.4**	<1.0	<1.0	<1.0
Nickel	T257	A40	0.5	mg/kg	**26**	**27**	**23**	**40**	**26**
Selenium	T257	A40	3	mg/kg	<3	<3	<3	<3	<3
Vanadium	T257	A40	0.1	mg/kg	**62**	**62**	**64**	**68**	**65**
Zinc	T257	A40	2	mg/kg	**400**	**300**	**270**	**78**	**120**
Asbestos ID	T27	A40			Asbestos not detected	Asbestos not detected	Asbestos not detected	Asbestos not detected	Asbestos not detected
Chromium VI	T6	A40	1	mg/kg	<1	<1	<1	<1	<1
Total Organic Carbon	T21	A40	0.1	%	**3.9**	**2.7**	**2.6**	**0.2**	**2.8**
pH	T7	A40			**7.5**	**7.9**	**7.6**	**7.8**	**9.8**
Cyanide(free)	T546	AR	1	mg/kg	<1	<1	<1	<1	<1
Phenols(Mono)	T546	AR	1	mg/kg	**1**	<1	<1	<1	<1

SAL Reference: 630102
Project Site: Maitland Park
Customer Reference: 351221

Soil Analysed as Soil
Miscellaneous

				SAL Reference	**630102 006**	**630102 007**	**630102 008**	**630102 009**	**630102 011**
				Customer Sample Reference	**TP04 @ 0.50m**	**TP05 @ 0.50m**	**TP08 @ 0.50m**	**TP09 @ 0.50m**	**TP07 @ 0.70m**
				Date Sampled	**23-JAN-2017**	**24-JAN-2017**	**24-JAN-2017**	**24-JAN-2017**	**25-JAN-2017**
Determinand	**Method**	**Test Sample**	**LOD**	**Units**					
Arsenic	T257	A40	2.0	mg/kg	**17**	**18**	**14**	**30**	**19**
Cadmium	T257	A40	0.1	mg/kg	**0.2**	**0.2**	**0.3**	**0.7**	**0.2**
Chromium	T257	A40	0.5	mg/kg	**44**	**38**	**27**	**35**	**34**
Copper	T257	A40	2	mg/kg	**40**	**37**	**24**	**93**	**22**
Lead	T257	A40	2	mg/kg	**170**	**200**	**83**	**8100**	**250**
Mercury	T245	A40	1.0	mg/kg	<1.0	<1.0	<1.0	**1.1**	<1.0
Nickel	T257	A40	0.5	mg/kg	**42**	**39**	**26**	**21**	**23**
Selenium	T257	A40	3	mg/kg	<3	<3	<3	<3	<3
Vanadium	T257	A40	0.1	mg/kg	**76**	**69**	**46**	**51**	**62**
Zinc	T257	A40	2	mg/kg	**120**	**140**	**310**	**1100**	**93**
Asbestos ID	T27	A40			Asbestos not detected	Asbestos not detected	Asbestos not detected	Asbestos not detected	Asbestos not detected
Chromium VI	T6	A40	1	mg/kg	<1	<1	<1	<1	<1
Total Organic Carbon	T21	A40	0.1	%	**1.9**	**1.3**	**0.8**	**2.9**	**0.4**
pH	T7	A40			**8.0**	**8.2**	**8.1**	**8.3**	**9.5**
Cyanide(free)	T546	AR	1	mg/kg	<1	<1	<1	<1	<1
Phenols(Mono)	T546	AR	1	mg/kg	<1	<1	<1	<1	<1

SAL Reference: 630102
Project Site: Maitland Park
Customer Reference: 351221

Soil Analysed as Soil
Miscellaneous

				SAL Reference	**630102 012**	**630102 013**
				Customer Sample Reference	**WS05 @ 0.30m**	**WS05 @ 0.70m**
				Date Sampled	**25-JAN-2017**	**25-JAN-2017**
Determinand	**Method**	**Test Sample**	**LOD**	**Units**		
Arsenic	T257	A40	2.0	mg/kg	**15**	**13**
Cadmium	T257	A40	0.1	mg/kg	<0.1	<0.1
Chromium	T257	A40	0.5	mg/kg	**36**	**30**
Copper	T257	A40	2	mg/kg	**28**	**29**
Lead	T257	A40	2	mg/kg	**150**	**140**
Mercury	T245	A40	1.0	mg/kg	<1.0	**1.3**
Nickel	T257	A40	0.5	mg/kg	**22**	**18**
Selenium	T257	A40	3	mg/kg	<3	<3
Vanadium	T257	A40	0.1	mg/kg	**66**	**61**
Zinc	T257	A40	2	mg/kg	**97**	**59**
Asbestos ID	T27	A40			Asbestos not detected	Asbestos not detected
Chromium VI	T6	A40	1	mg/kg	<1	<1
Total Organic Carbon	T21	A40	0.1	%	**1.0**	**1.7**
pH	T7	A40			**9.1**	**7.7**
Cyanide(free)	T546	AR	1	mg/kg	<1	<1
Phenols(Mono)	T546	AR	1	mg/kg	<1	<1

SAL Reference: 630102
Project Site: Maitland Park
Customer Reference: 351221

Soil Analysed as Soil
Total and Speciated USEPA16 PAH (SE)

				SAL Reference	**630102 001**	**630102 002**	**630102 003**	**630102 004**	**630102 005**
				Customer Sample Reference	**WS02 @ 0.50m**	**WS03 @ 0.50m**	**WS04 @ 0.50m**	**TP01 @ 0.50m**	**TP03 @ 0.50m**
				Date Sampled	**23-JAN-2017**	**23-JAN-2017**	**24-JAN-2017**	**23-JAN-2017**	**23-JAN-2017**
Determinand	**Method**	**Test Sample**	**LOD**	**Units**					
Naphthalene	T16	AR	0.1	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Acenaphthylene	T16	AR	0.1	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Acenaphthene	T16	AR	0.1	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Fluorene	T16	AR	0.1	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Phenanthrene	T16	AR	0.1	mg/kg	**0.8**	**0.5**	**0.2**	<0.1	**0.8**
Anthracene	T16	AR	0.1	mg/kg	**0.1**	**0.1**	<0.1	<0.1	**0.2**
Fluoranthene	T16	AR	0.1	mg/kg	**2.1**	**1.2**	**0.4**	<0.1	**1.3**
Pyrene	T16	AR	0.1	mg/kg	**1.7**	**0.9**	**0.3**	<0.1	**1.0**
Benzo(a)Anthracene	T16	AR	0.1	mg/kg	**1.1**	**0.6**	**0.2**	<0.1	**0.6**
Chrysene	T16	AR	0.1	mg/kg	**1.1**	**0.5**	**0.2**	<0.1	**0.5**
Benzo(b)fluoranthene	T16	AR	0.1	mg/kg	**0.4**	**0.2**	<0.1	<0.1	**0.2**
Benzo(k)fluoranthene	T16	AR	0.1	mg/kg	**0.4**	**0.2**	<0.1	<0.1	**0.2**
Benzo(a)Pyrene	T16	AR	0.1	mg/kg	**0.3**	**0.1**	<0.1	<0.1	**0.2**
Indeno(123-cd)Pyrene	T16	AR	0.1	mg/kg	**0.3**	**0.1**	<0.1	<0.1	**0.1**
Dibenzo(ah)Anthracene	T16	AR	0.1	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(ghi)Perylene	T16	AR	0.1	mg/kg	**0.3**	**0.1**	<0.1	<0.1	**0.1**
PAH(total)	T16	AR	0.1	mg/kg	**8.6**	**4.6**	**1.4**	<0.1	**5.4**

SAL Reference: 630102
Project Site: Maitland Park
Customer Reference: 351221

Soil Analysed as Soil
Total and Speciated USEPA16 PAH (SE)

				SAL Reference	**630102 006**	**630102 007**	**630102 008**	**630102 009**	**630102 011**
				Customer Sample Reference	**TP04 @ 0.50m**	**TP05 @ 0.50m**	**TP08 @ 0.50m**	**TP09 @ 0.50m**	**TP07 @ 0.70m**
				Date Sampled	**23-JAN-2017**	**24-JAN-2017**	**24-JAN-2017**	**24-JAN-2017**	**25-JAN-2017**
Determinand	**Method**	**Test Sample**	**LOD**	**Units**					
Naphthalene	T16	AR	0.1	mg/kg	<0.1	**0.1**	<0.1	<0.1	<0.1
Acenaphthylene	T16	AR	0.1	mg/kg	<0.1	**0.7**	**0.1**	<0.1	<0.1
Acenaphthene	T16	AR	0.1	mg/kg	**0.1**	**0.1**	<0.1	<0.1	<0.1
Fluorene	T16	AR	0.1	mg/kg	**0.1**	**0.3**	<0.1	<0.1	<0.1
Phenanthrene	T16	AR	0.1	mg/kg	**2.1**	**4.0**	**1.1**	**0.8**	<0.1
Anthracene	T16	AR	0.1	mg/kg	**0.6**	**1.0**	**0.3**	**0.1**	<0.1
Fluoranthene	T16	AR	0.1	mg/kg	**2.6**	**5.5**	**2.1**	**2.0**	**0.1**
Pyrene	T16	AR	0.1	mg/kg	**2.0**	**4.8**	**1.5**	**1.7**	**0.1**
Benzo(a)Anthracene	T16	AR	0.1	mg/kg	**1.3**	**2.4**	**1.7**	**1.0**	**0.1**
Chrysene	T16	AR	0.1	mg/kg	**1.1**	**2.1**	**1.5**	**1.1**	**0.1**
Benzo(b)fluoranthene	T16	AR	0.1	mg/kg	**0.4**	**1.9**	**1.5**	**1.1**	**0.1**
Benzo(k)fluoranthene	T16	AR	0.1	mg/kg	**0.3**	**1.9**	**1.3**	**1.0**	**0.1**
Benzo(a)Pyrene	T16	AR	0.1	mg/kg	**0.3**	**2.3**	**1.5**	**1.2**	**0.2**
Indeno(123-cd)Pyrene	T16	AR	0.1	mg/kg	**0.2**	**1.8**	**0.8**	**0.6**	<0.1
Dibenzo(ah)Anthracene	T16	AR	0.1	mg/kg	<0.1	**0.4**	**0.3**	**0.2**	<0.1
Benzo(ghi)Perylene	T16	AR	0.1	mg/kg	**0.2**	**2.1**	**0.8**	**0.7**	**0.1**
PAH(total)	T16	AR	0.1	mg/kg	**11**	**31**	**15**	**12**	**1.0**

SAL Reference: 630102
Project Site: Maitland Park
Customer Reference: 351221

Soil Analysed as Soil
Total and Speciated USEPA16 PAH (SE)

				SAL Reference	**630102 012**	**630102 013**
				Customer Sample Reference	**WS05 @ 0.30m**	**WS05 @ 0.70m**
				Date Sampled	**25-JAN-2017**	**25-JAN-2017**
Determinand	**Method**	**Test Sample**	**LOD**	**Units**		
Naphthalene	T16	AR	0.1	mg/kg	<0.1	<0.1
Acenaphthylene	T16	AR	0.1	mg/kg	<0.1	<0.1
Acenaphthene	T16	AR	0.1	mg/kg	<0.1	<0.1
Fluorene	T16	AR	0.1	mg/kg	<0.1	<0.1
Phenanthrene	T16	AR	0.1	mg/kg	<0.1	<0.1
Anthracene	T16	AR	0.1	mg/kg	<0.1	<0.1
Fluoranthene	T16	AR	0.1	mg/kg	**0.1**	<0.1
Pyrene	T16	AR	0.1	mg/kg	**0.1**	<0.1
Benzo(a)Anthracene	T16	AR	0.1	mg/kg	<0.1	<0.1
Chrysene	T16	AR	0.1	mg/kg	<0.1	<0.1
Benzo(b)fluoranthene	T16	AR	0.1	mg/kg	<0.1	<0.1
Benzo(k)fluoranthene	T16	AR	0.1	mg/kg	<0.1	<0.1
Benzo(a)Pyrene	T16	AR	0.1	mg/kg	<0.1	<0.1
Indeno(123-cd)Pyrene	T16	AR	0.1	mg/kg	<0.1	<0.1
Dibenzo(ah)Anthracene	T16	AR	0.1	mg/kg	<0.1	<0.1
Benzo(ghi)Perylene	T16	AR	0.1	mg/kg	<0.1	<0.1
PAH(total)	T16	AR	0.1	mg/kg	**0.2**	<0.1

SAL Reference: 630102
Project Site: Maitland Park
Customer Reference: 351221

Soil Analysed as Soil
TPH UKCWG

				SAL Reference	**630102 001**	**630102 002**	**630102 003**	**630102 004**	**630102 005**
				Customer Sample Reference	**WS02 @ 0.50m**	**WS03 @ 0.50m**	**WS04 @ 0.50m**	**TP01 @ 0.50m**	**TP03 @ 0.50m**
				Date Sampled	**23-JAN-2017**	**23-JAN-2017**	**24-JAN-2017**	**23-JAN-2017**	**23-JAN-2017**
Determinand	**Method**	**Test Sample**	**LOD**	**Units**					
Benzene	T54	AR	1	µg/kg	<1	<1	<1	<1	<1
Toluene	T54	AR	1	µg/kg	<1	**1**	<1	<1	<1
EthylBenzene	T54	AR	1	µg/kg	<1	<1	<1	<1	<1
M/P Xylene	T54	AR	1	µg/kg	<1	**1**	<1	<1	**1**
O Xylene	T54	AR	1	µg/kg	<1	**2**	<1	<1	**1**
Methyl tert-Butyl Ether	T54	AR	1	µg/kg	<1	**2**	<1	<1	**2**
TPH (C5-C6 aliphatic)	T54	AR	0.010	mg/kg	<0.010	<0.010	<0.010	<0.010	<0.010
TPH (C6-C7 aromatic)	T54	AR	0.010	mg/kg	<0.010	<0.010	<0.010	<0.010	<0.010
TPH (C6-C8 aliphatic)	T54	AR	0.010	mg/kg	<0.010	<0.010	<0.010	<0.010	<0.010
TPH (C7-C8 aromatic)	T54	AR	0.010	mg/kg	<0.010	<0.010	<0.010	<0.010	<0.010
TPH (C8-C10 aliphatic)	T54	AR	0.010	mg/kg	<0.010	<0.010	<0.010	<0.010	<0.010
TPH (C8-C10 aromatic)	T54	AR	0.010	mg/kg	**0.048**	<0.010	<0.010	<0.010	<0.010
TPH (C10-C12 aliphatic)	T219	AR	2	mg/kg	<2	<2	<2	<2	<2
TPH (C10-C12 aromatic)	T219	AR	2	mg/kg	<2	<2	<2	<2	<2
TPH (C12-C16 aliphatic)	T219	AR	2	mg/kg	<2	<2	<2	<2	<2
TPH (C12-C16 aromatic)	T219	AR	2	mg/kg	<2	<2	<2	<2	**2**
TPH (C16-C21 aliphatic)	T219	AR	2	mg/kg	<2	<2	<2	<2	<2
TPH (C16-C21 aromatic)	T219	AR	2	mg/kg	**9**	**5**	**4**	<2	**6**
TPH (C21-C35 aliphatic)	T219	AR	2	mg/kg	<2	<2	<2	<2	<2
TPH (C21-C35 aromatic)	T219	AR	2	mg/kg	**26**	**12**	**11**	<2	**12**

SAL Reference: 630102
Project Site: Maitland Park
Customer Reference: 351221

Soil Analysed as Soil
TPH UKCWG

				SAL Reference	**630102 006**	**630102 007**	**630102 008**	**630102 009**	**630102 011**
				Customer Sample Reference	**TP04 @ 0.50m**	**TP05 @ 0.50m**	**TP08 @ 0.50m**	**TP09 @ 0.50m**	**TP07 @ 0.70m**
				Date Sampled	**23-JAN-2017**	**24-JAN-2017**	**24-JAN-2017**	**24-JAN-2017**	**25-JAN-2017**
Determinand	**Method**	**Test Sample**	**LOD**	**Units**					
Benzene	T54	AR	1	µg/kg	<1	<1	<1	<1	<1
Toluene	T54	AR	1	µg/kg	<1	<1	<1	<1	**1**
EthylBenzene	T54	AR	1	µg/kg	<1	<1	<1	<1	<1
M/P Xylene	T54	AR	1	µg/kg	<1	<1	<1	<1	**1**
O Xylene	T54	AR	1	µg/kg	<1	<1	<1	<1	**2**
Methyl tert-Butyl Ether	T54	AR	1	µg/kg	<1	<1	<1	<1	<1
TPH (C5-C6 aliphatic)	T54	AR	0.010	mg/kg	<0.010	<0.010	<0.010	<0.010	<0.010
TPH (C6-C7 aromatic)	T54	AR	0.010	mg/kg	<0.010	<0.010	<0.010	<0.010	<0.010
TPH (C6-C8 aliphatic)	T54	AR	0.010	mg/kg	<0.010	<0.010	<0.010	<0.010	<0.010
TPH (C7-C8 aromatic)	T54	AR	0.010	mg/kg	<0.010	<0.010	<0.010	<0.010	<0.010
TPH (C8-C10 aliphatic)	T54	AR	0.010	mg/kg	<0.010	<0.010	<0.010	<0.010	<0.010
TPH (C8-C10 aromatic)	T54	AR	0.010	mg/kg	**0.11**	<0.010	<0.010	<0.010	<0.010
TPH (C10-C12 aliphatic)	T219	AR	2	mg/kg	<2	<2	<2	<2	<2
TPH (C10-C12 aromatic)	T219	AR	2	mg/kg	<2	<2	<2	<2	<2
TPH (C12-C16 aliphatic)	T219	AR	2	mg/kg	<2	<2	<2	<2	<2
TPH (C12-C16 aromatic)	T219	AR	2	mg/kg	**3**	**3**	<2	<2	<2
TPH (C16-C21 aliphatic)	T219	AR	2	mg/kg	<2	<2	<2	<2	<2
TPH (C16-C21 aromatic)	T219	AR	2	mg/kg	**22**	**32**	**10**	**13**	<2
TPH (C21-C35 aliphatic)	T219	AR	2	mg/kg	<2	<2	<2	<2	<2
TPH (C21-C35 aromatic)	T219	AR	2	mg/kg	**36**	**56**	**28**	**41**	<2

SAL Reference: 630102
Project Site: Maitland Park
Customer Reference: 351221

Soil Analysed as Soil
TPH UKCWG

				SAL Reference	**630102 012**	**630102 013**
				Customer Sample Reference	**WS05 @ 0.30m**	**WS05 @ 0.70m**
				Date Sampled	**25-JAN-2017**	**25-JAN-2017**
Determinand	**Method**	**Test Sample**	**LOD**	**Units**		
Benzene	T54	AR	1	µg/kg	<1	<1
Toluene	T54	AR	1	µg/kg	<1	<1
EthylBenzene	T54	AR	1	µg/kg	<1	<1
M/P Xylene	T54	AR	1	µg/kg	<1	<1
O Xylene	T54	AR	1	µg/kg	<1	<1
Methyl tert-Butyl Ether	T54	AR	1	µg/kg	<1	<1
TPH (C5-C6 aliphatic)	T54	AR	0.010	mg/kg	<0.010	<0.010
TPH (C6-C7 aromatic)	T54	AR	0.010	mg/kg	<0.010	<0.010
TPH (C6-C8 aliphatic)	T54	AR	0.010	mg/kg	<0.010	**0.062**
TPH (C7-C8 aromatic)	T54	AR	0.010	mg/kg	<0.010	<0.010
TPH (C8-C10 aliphatic)	T54	AR	0.010	mg/kg	<0.010	**0.028**
TPH (C8-C10 aromatic)	T54	AR	0.010	mg/kg	<0.010	<0.010
TPH (C10-C12 aliphatic)	T219	AR	2	mg/kg	<2	<2
TPH (C10-C12 aromatic)	T219	AR	2	mg/kg	<2	<2
TPH (C12-C16 aliphatic)	T219	AR	2	mg/kg	<2	<2
TPH (C12-C16 aromatic)	T219	AR	2	mg/kg	<2	<2
TPH (C16-C21 aliphatic)	T219	AR	2	mg/kg	<2	<2
TPH (C16-C21 aromatic)	T219	AR	2	mg/kg	<2	<2
TPH (C21-C35 aliphatic)	T219	AR	2	mg/kg	<2	<2
TPH (C21-C35 aromatic)	T219	AR	2	mg/kg	<2	<2

SAL Reference: 630102
Project Site: Maitland Park
Customer Reference: 351221

Soil Analysed as Soil
PCBs EC7 (SE)

				SAL Reference	**630102 001**
				Customer Sample Reference	**WS02 @ 0.50m**
				Date Sampled	**23-JAN-2017**
Determinand	**Method**	**Test Sample**	**LOD**	**Units**	
PCB BZ#28	T16	AR	20	µg/kg	<20
PCB BZ#52	T16	AR	20	µg/kg	<20
PCB BZ#101	T16	AR	20	µg/kg	<20
PCB BZ#118	T16	AR	20	µg/kg	<20
PCB BZ#153	T16	AR	20	µg/kg	<20
PCB BZ#138	T16	AR	20	µg/kg	<20
PCB BZ#180	T16	AR	20	µg/kg	<20

Index to symbols used in 630102-1

Value	Description
AR	As Received
A40	Assisted dried < 40C
S	Analysis was subcontracted
U	Analysis is UKAS accredited
N	Analysis is not UKAS accredited

Notes

012: Samples submitted for GC/MS (Headspace) analysis were submitted in inappropriate containers. It is possible therefore that the results provided may be compromised.

Asbestos subcontracted to REC Limited

Method Index

Value	Description
T7	Probe
T546	Colorimetry (CF)
T245	ICP/OES (Aqua Regia Extraction)
T16	GC/MS
T6	ICP/OES
T219	GC/FID (SE)
T21	OX/IR
T257	ICP/OES (SIM) (Aqua Regia Extraction)
T27	PLM
T54	GC/MS (Headspace)

Accreditation Summary

Determinand	Method	Test Sample	LOD	Units	Symbol	SAL References
Arsenic	T257	A40	2.0	mg/kg	U	001-009,011-013
Cadmium	T257	A40	0.1	mg/kg	U	001-009,011-013
Chromium	T257	A40	0.5	mg/kg	U	001-009,011-013
Copper	T257	A40	2	mg/kg	U	001-009,011-013
Lead	T257	A40	2	mg/kg	U	001-009,011-013
Mercury	T245	A40	1.0	mg/kg	U	001-009,011-013
Nickel	T257	A40	0.5	mg/kg	U	001-009,011-013
Selenium	T257	A40	3	mg/kg	U	001-009,011-013
Vanadium	T257	A40	0.1	mg/kg	U	001-009,011-013
Zinc	T257	A40	2	mg/kg	U	001-009,011-013
Asbestos ID	T27	A40			SU	001-009,011-013
Chromium VI	T6	A40	1	mg/kg	N	001-009,011-013
Total Organic Carbon	T21	A40	0.1	%	N	001-009,011-013
pH	T7	A40			U	001-009,011-013
Cyanide(free)	T546	AR	1	mg/kg	U	001-009,011-013
Phenols(Mono)	T546	AR	1	mg/kg	U	001-009,011-013
PCB BZ#28	T16	AR	20	µg/kg	U	001
PCB BZ#52	T16	AR	20	µg/kg	U	001
PCB BZ#101	T16	AR	20	µg/kg	U	001
PCB BZ#118	T16	AR	20	µg/kg	U	001
PCB BZ#153	T16	AR	20	µg/kg	U	001
PCB BZ#138	T16	AR	20	µg/kg	U	001
PCB BZ#180	T16	AR	20	µg/kg	U	001
Benzene	T54	AR	1	µg/kg	U	001-009,011-013
Toluene	T54	AR	1	µg/kg	U	001-009,011-013
EthylBenzene	T54	AR	1	µg/kg	U	001-009,011-013
M/P Xylene	T54	AR	1	µg/kg	U	001-009,011-013
O Xylene	T54	AR	1	µg/kg	U	001-009,011-013
Methyl tert-Butyl Ether	T54	AR	1	µg/kg	U	001-009,011-013
TPH (C5-C6 aliphatic)	T54	AR	0.010	mg/kg	N	001-009,011-013
TPH (C6-C7 aromatic)	T54	AR	0.010	mg/kg	N	001-009,011-013
TPH (C6-C8 aliphatic)	T54	AR	0.010	mg/kg	N	001-009,011-013
TPH (C7-C8 aromatic)	T54	AR	0.010	mg/kg	N	001-009,011-013
TPH (C8-C10 aliphatic)	T54	AR	0.010	mg/kg	N	001-009,011-013
TPH (C8-C10 aromatic)	T54	AR	0.010	mg/kg	N	001-009,011-013
TPH (C10-C12 aliphatic)	T219	AR	2	mg/kg	N	001-009,011-013
TPH (C10-C12 aromatic)	T219	AR	2	mg/kg	N	001-009,011-013
TPH (C12-C16 aliphatic)	T219	AR	2	mg/kg	N	001-009,011-013
TPH (C12-C16 aromatic)	T219	AR	2	mg/kg	N	001-009,011-013
TPH (C16-C21 aliphatic)	T219	AR	2	mg/kg	N	001-009,011-013
TPH (C16-C21 aromatic)	T219	AR	2	mg/kg	N	001-009,011-013
TPH (C21-C35 aliphatic)	T219	AR	2	mg/kg	N	001-009,011-013
TPH (C21-C35 aromatic)	T219	AR	2	mg/kg	N	001-009,011-013
Naphthalene	T16	AR	0.1	mg/kg	U	001-009,011-013
Acenaphthylene	T16	AR	0.1	mg/kg	U	001-009,011-013
Acenaphthene	T16	AR	0.1	mg/kg	U	001-009,011-013
Fluorene	T16	AR	0.1	mg/kg	U	001-009,011-013
Phenanthrene	T16	AR	0.1	mg/kg	U	001-009,011-013
Anthracene	T16	AR	0.1	mg/kg	U	001-009,011-013
Fluoranthene	T16	AR	0.1	mg/kg	N	001-009,011-013
Pyrene	T16	AR	0.1	mg/kg	N	001-009,011-013
Benzo(a)Anthracene	T16	AR	0.1	mg/kg	U	001-009,011-013

Determinand	Method	Test Sample	LOD	Units	Symbol	SAL References
Chrysene	T16	AR	0.1	mg/kg	U	001-009,011-013
Benzo(b)fluoranthene	T16	AR	0.1	mg/kg	U	001-009,011-013
Benzo(k)fluoranthene	T16	AR	0.1	mg/kg	N	001-009,011-013
Benzo(a)Pyrene	T16	AR	0.1	mg/kg	U	001-009,011-013
Indeno(123-cd)Pyrene	T16	AR	0.1	mg/kg	U	001-009,011-013
Dibenzo(ah)Anthracene	T16	AR	0.1	mg/kg	U	001-009,011-013
Benzo(ghi)Perylene	T16	AR	0.1	mg/kg	U	001-009,011-013
PAH(total)	T16	AR	0.1	mg/kg	U	001-009,011-013