Core Project

Proposed Development

12 Stewart Avenue, Newcastle West

Site Contamination Assessment

Report No. RGS01102.1-AD

14 April 2016

REGIONAL
GEOTECHNICAL SOLUTIONS

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Manning-Great Lakes

Port Macquarie

Coffs Harbour

RGS01102.1-AD

14 April 2016

Core Project
122a Hannell Street
WICKHAM NSW 2293

Attention: Tom Elliot

Dear Tom

RE: Site Contamination Assessment

Proposed Development – 12 Stewart Avenue, Newcastle West

Regional Geotechnical Solutions Pty Ltd (RGS) has undertaken a preliminary site contamination assessment at 12 Stewart Avenue, Newcastle West where it is proposed to construct two commercial office buildings up to 8 Storeys and a six storey carpark.

Presented herein is a summary of the work undertaken, the findings of the site investigation, and a review of the laboratory test results compared to the NEPM (2013) guidelines. The assessment found friable asbestos at two locations and elevated lead concentrations in near surface soils at one location. All other contaminant concentrations were within the health based NEPM (2013) soil investigation guidelines for commercial/industrial land use. Evaluation of results against waste classification guidelines indicates some soils exceeding requirements for General Solid Waste and one instance of soil not meeting requirements for Restricted Solid Waste. Disposal of excavated soils off site is likely to be costly. It is recommended that offsite disposal of excavated soil be minimised.

If you have any questions regarding this project, please contact the undersigned.

For and on behalf of

Regional Geotechnical Solutions Pty Ltd

Steven Morton

Principal

Regional Geotechnical Solutions Pty Ltd
ABN 51141848820

44 Bent Street
Wingham NSW 2429
Ph. (02) 6553 5641

Email steve.m@regionalgeotech.com.au
Web: www.regionalgeotech.com.au

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1 INTRODUCTION

Regional Geotechnical Solutions Pty Ltd (RGS) has undertaken a site contamination assessment at 12 Stewart Avenue, Newcastle West (Lot 102 DP1191992). The proposed development is to consist of two commercial office buildings up to 8 Storeys with a six storey carpark.

The purpose of the site contamination assessment was to provide discussions and recommendations regarding:

- Evaluation of the analysis results against industry accepted criteria (NEPM 2013) for the proposed landuse;
- Provide a plan indicating the location and concentration of contamination across the site including the lateral extent (if found);
- Provide recommendations on site management, the need and options for remediation and any further detailed investigation and testing that is recommended / required; and
- Waste classification for materials to be removed from the site, the requirement for remediation, further investigation, or ongoing management of site contamination (if encountered).

RGS has been provided with a previous Phase 1 site contamination assessment undertaken at the site by Prensa (job no. 11128 dated August 2012). The results of the previous assessment have been reviewed as part of the current assessment.

2 METHODOLOGY

In accordance with the brief, the site was assessed using the following methodology:

- A review of the previous Phase 1 site contamination assessment undertaken by Prensa;
- Site walkover to assess visible surface conditions and identify any evidence of contamination, or past activities that may cause contamination;
- Drilling of seven boreholes (BHR1 to BHR7) to recover soil samples for subsequent laboratory testing; and
- Collection of near surface samples from six locations (S101, S102, S104, S105, S107, S111 and S112).

Sample locations are shown on Figure 1.

3 PREVIOUS SITE CONTAMINATION ASSESSMENT

The previous assessment included a review of historical documentation as well as undertaking soil and groundwater testing.

A review of the findings of the site history study indicates:

- The north-eastern and eastern sections of the site were used as a combination of commercial retail outlets and repair stores since the 1920s;
- Eight underground storage tanks were removed from the footpath to the east of the buildings in the northeast section of the site in 2000. A soil and groundwater investigation by RCA in 2002 found elevated concentrations of copper and Total Recoverable Hydrocarbons (TRH) in soil to the west of the excavations;
- A hazardous materials assessment was undertaken on buildings that previously existed in the northeast of the site in 2002 and identified asbestos, PCBs and lead based paint within the building materials;
- Concentrations of PAH and BaP from soil samples recovered from fill during the Prensa assessment exceeded the NEPM guidelines for a Commercial/Industrial site; and
- No 'significant' contamination was found within groundwater samples recovered and tested during the Prensa assessment.

4 SITE DESCRIPTION

4.1 Surface Conditions

The irregular shaped site is bound by Stewart Avenue to the southeast, Hunter Street to the northeast, and existing single and double storey industrial/commercial structures to the northwest and southwest.

The site is located within a region characterised by a flat alluvial plain associated with the Hunter River catchment. An aerial photograph from the NSW DPI '*Six Viewer*' is reproduced below.

The site location is outlined in red

The site is near level with minor slope variations of less than 2°, predominantly comprising a slight slope to the south towards Stewart Avenue. The southern half of the site is covered with existing hardstand pavements and remnants of the former structures that occupied the site. The northern half previously contained a building that has since been demolished. The area is vacant with sand exposed at the surface.

4.2 Subsurface Conditions

The 1:250,000 Geological Series Sheet of Newcastle indicates the site to be underlain by Quaternary marine and freshwater deposits comprising sand, silt, clay and gravel. The 100,000 Newcastle Coalfield Regional Geology Map indicates the Quaternary deposits are in turn underlain by the Lambton Subgroup (comprising the Borehole coal seam) and Waratah Sandstone which form the lower lithologies of the Newcastle Coal Measures.

The boreholes drilled during the current and previous site investigations encountered a profile that generally comprises between 0.5 and 1.6m of sand fill that contained some brick and rubble fragments. Sand fill was also encountered to depths of between 4.2 and 5.25m in the central portion of the site. The fill was underlain by natural sands. Groundwater levels at the site vary from between 2.2 to 3.1m below existing surface levels.

5 SAMPLING & ANALYSIS

5.1 Sample Media

The site history indicated the potential modes of contamination at this site to be:

- Surface spillage or leakage of fuels, oils or similar;
- Importation of contaminants in fill soils;
- Presence of asbestos, PCBs and lead in soils in the vicinity of the buildings in the northeast of the site;
- Dumping or scattering of asbestos in near surface soils;
- Leakage of fuels from nearby underground tanks;
- Leakage of fuel or oil from vehicles stored on site.

The groundwater table was encountered at 2.2 to 3.1m below the ground surface in this investigation and the previous assessments. The installation of groundwater monitoring wells and groundwater sampling by others in 2012 (i.e. after the removal of the fuel tanks) found that no 'significant contamination' was present. Further assessment of groundwater at the site is not considered necessary. It is recommended that copies of the validation reports of the tanks be sought.

The sampling plan was therefore aimed at assessment of contaminants within the soils, with a contingency to investigate potential groundwater impact only if significant soil-borne contamination was encountered.

5.2 Sampling Plan

Based on the identified areas of concern as outlined above, fourteen sampling locations were adopted as shown in Figure 1.

Sampling involved the drilling, logging, and sampling of a borehole at seven locations using a 4WD mounted auger rig and collection of near surface samples at an additional seven locations. Sampling equipment was decontaminated between sample locations and a clean pair of nitrile gloves used for the collection of each sample into laboratory supplied glass sampling jars.

Samples were placed on ice on site and maintained on ice during transport to the testing laboratories. The sampling was carried out in accordance with stringent protocols for decontamination, Quality Control, and sample preservation. Quality Control procedures included taking one duplicate samples to aid in the assessment of data quality.

5.3 Laboratory Analysis

Samples were transported under chain-of-custody to ALS, a NATA accredited specialist chemical testing laboratory. The samples were analysed for the following suite of contaminants:

- Total Recoverable Hydrocarbons (TRH)
- Polycyclic Aromatic Hydrocarbons (PAH)
- Pesticides
- Heavy Metals
- Asbestos
- BTEX Compounds

The results are presented in Appendix B.

5.4 Quality Control

Samples were obtained using industry accepted protocols for sample treatment, preservation, and equipment decontamination. One duplicate sample was submitted to the laboratory for analysis as shown below.

- Primary sample (S112 0.0 – 0.2m) and duplicate sample (S115 0.0 – 0.2m).

Comparison between the primary and duplicate samples show good correlation (See Table in Appendix B).

In addition to the field QC procedures, the laboratory conducted internal quality control testing including surrogates, blanks, and laboratory duplicate samples. The results are presented with the laboratory test results in Appendix B.

All laboratory quality control data is within acceptable limits for the tests carried out. Therefore, on the basis of the results of the field and laboratory quality control procedures and testing the data is considered to reasonably represent the concentrations of contaminants in the soils at the sample locations at the time of sampling and the results can be adopted for this assessment.

6 SITE CONTAMINATION ASSESSMENT

6.1 Guidelines and Assessment Criteria

The assessment was carried out in accordance with the National Environment Protection (Assessment of Site Contamination) Measure (NEPM 2013). The NEPM document provides a range of guidelines for assessment of contaminants for various land uses. It is proposed to construct a combined commercial and residential (upper units) development at the site. As the lower levels are to be used for commercial purposes, the investigation levels for "Commercial/Industrial" land use have been adopted as the primary investigation criteria. In accordance with the NEPM guidelines the following criteria were adopted for this assessment:

- Health Investigation Levels (HILs) for Commercial/Industrial land use were used to assess the potential human health impact of heavy metals and PAH;
- Health Screening Levels (HSLs) for coarse textured (sand or gravel) or fine textured (silt or clay) soils on a Commercial/Industrial site were adopted as appropriate for the soils encountered to assess the potential human health impact of petroleum hydrocarbons and BTEX compounds;
- Ecological Investigation Levels (EILs) for residential land use were used for evaluation of the potential ecological / environmental impact of heavy metals and PAH;
- Ecological Screening Levels (ESLs) for coarse textured (sand or gravel) or fine textured (silt or clay) soils on a Commercial/Industrial site were adopted as appropriate for the soils encountered, to assess the potential ecological / environmental impact of petroleum hydrocarbons and BTEX compounds;

The site is situated in a highly disturbed CBD location, with no sensitive ecological receptors on the site or immediate surrounding area. The nearest receptor off site would be the aquatic ecosystem of Newcastle Harbour located 350m to the northeast of the site. The land between the site and the harbour is highly developed, including the inner city commercial area and heavy rail corridor as well as former industrial port facilities. The site has been sealed for a number of decades and the future development will also result in the site surface being sealed by buildings or paving. Sediment run-off from the site to the harbour waterway is not considered feasible provided construction is undertaken in accordance with good sediment and erosion control practice.

Based on the above the assessment presented herein has been based on health based soil investigation criteria, except in cases where no health based criteria exists. In accordance with

NEPM 2013, exceedance of the criteria does not necessarily mean that remediation or clean-up is required, but is a trigger for further assessment of the extent of contamination and associated risks. The adopted criteria are presented in Table 1.

Table 1: Adopted Soil Investigation Criteria (mg/kg)

Analyte	Adopted Soil Investigation Criteria	Analyte	Adopted Soil Investigation Criteria
Benzene	3	Chlordane	530
Toluene	135(1)	Heptachlor	50
Ethyl-benzene	165(1)	Copper	240,000
Xylene	230	Lead	1,500
TPH C6 – C10 (F1)	215(1)	Zinc	400,000
TPH C10 – C16 (F2)	170(1)	Cadmium	900
TPH C16 – C34 (F3)	1,700(1)	Chromium (VI)	3,600
TPH C34 – C40 (F4)	3,300(1)	Arsenic	3,000
Benzo-a-pyrene	40	Nickel	6,000
Phenol	240,000	Mercury	730
DDT+DDE+DDD	3,600	Asbestos	Not Present
Aldrin / Dieldrin	45		

NOTES: *Based on ecological screening levels (ESL).*

6.2 Test Results

An evaluation of the laboratory test results against the adopted soil assessment criteria as presented in Table 1 is provided in the summary table in Appendix B. The findings are summarised below:

- Results of heavy metal analysis revealed that one sample (BHR4 0.0-0.4m) exceeded the adopted assessment criteria for lead. The sample also produced elevated concentrations of As, Cr, Cu, Ni and Zn, however, these concentrations were below the adopted assessment criteria. All other samples revealed concentrations well below the adopted assessment criteria;
- Results of BTEX analysis revealed concentrations below the limit of laboratory detection and hence well below the adopted assessment criteria;
- Results of TRH C6-C10 (F1) analysis revealed concentrations below the limit of laboratory detection and hence well below the adopted assessment criteria;
- Results of TRH C10-C16 (F2) analysis revealed some slightly elevated levels, however, the concentrations were well below the adopted health based assessment criteria;

- Results of TRH C16-C34 (F3) analysis revealed some elevated concentrations with two near surface samples (S102 and BHR4 0.0 – 0.4m) exceeding the adopted ecological screening value. All other samples were below the adopted assessment criteria;
- Results of TRH C34-C40 (F4) analysis revealed some slightly elevated levels, however, the concentrations were well below the adopted assessment criteria;
- Results of PAH analysis revealed some slightly elevated levels, however, the concentrations were well below the adopted health based assessment criteria;
- Results of Polychlorinated Biphenyls (PCB) analysis recorded values below level of recording for all samples tested;
- Results of organochlorine (OC) and organophosphorus (OP) pesticide analysis revealed some slightly elevated levels, however, the concentrations were well below the adopted assessment criteria; and
- Asbestos was detected in two near surface samples (S111 and S112).

It is noted that PAH concentrations twelve of the fourteen locations exceeded the ecological assessment criteria, but were well below the health based criteria, which were the criteria adopted for this assessment for reasons outlined in Section 6.1, except in cases where no health based criteria exists.

6.3 Assessment & Conclusions

For all samples tested the analysis found that:

- One near surface sample from the northeast of the site (to the west of the sewer line) exceeded health based assessment criteria for lead for commercial/industrial land use;
- Two near surface samples, one from the northeast and one from the east of the site, exceeded ecological assessment criteria for TRH C16-C34 (F3) for commercial/industrial land use; and
- Two near surface samples found the presence of friable asbestos.

For all other samples tested the analysis found that heavy metals, TPH, BTEX, PAH, OC/OP pesticides, PCBs and the presence of asbestos were either at concentrations below the laboratory detection limits or at concentrations below the adopted assessment criteria for commercial/industrial land use.

The encountered asbestos is likely to be present as a result of the demolition of the former structures at the site. Asbestos sheeting was not observed on the surface during the assessment. It is recommended that further quantitative testing be undertaken at the two locations to determine whether the percentage of asbestos present exceeds the health screening levels for contamination in soil. If concentrations exceed the adopted assessment criteria an asbestos management plan would be required which would provide further details on the required removal of affected soils as asbestos waste. An alternative may be to identify the affected soils and seal them beneath building slabs on the site to prevent exposure of, or contact with the asbestos post development.

The near surface soils around BHR4 where a high lead concentration was encountered will require remediation and a remedial action plan is required. Remediation will include removal and disposal of the lead affected soil at a licenced landfill. Elevated lead concentrations were not encountered at this location in a sample collected from 1.0-1.2m and therefore the lead appears to be confined to the upper fill layer. The borehole logs indicate that the base of the fill layer is at 0.5m, however, verification testing would be required at the base of the excavation to ensure that all of the contaminated soil has been removed. The estimated area around BHR4 that will require remediation is illustrated on Figure 2.

The two samples where concentrations of TRH C16-C34 exceed the adopted assessment criteria are below the management limit for TPH fractions in soil for a coarse grained soil (NEPM 2012 Table 1B(7)). As there are no sensitive ecological receptors on the site or immediate surrounding area and considering that the future development will also result in the site surface being sealed by buildings or pavements, further assessment or remediation at the site as a result TRH is not required.

The soils around the former underground fuel storage tanks and associated infrastructure along the eastern site boundary are likely to contain potentially small areas of contamination in the form of TPH, lead and PAH even if the tanks and infrastructure have been previously validated. Although the tanks were located outside the site boundary it is possible that some affected soil extends onto the site. If excavations such as basement excavation is to be undertaken adjacent to the site boundary a contingency should be provided for the possibility of encountering some hydrocarbon impacted soil that may require specific remediation or removal.

7 OFFSITE DISPOSAL OF SITE SOILS

7.1 Virgin Excavated Natural Material (VENM)

The Protection of the Environment Operations Act 1997 (POEO Act) defines virgin excavated natural material (VENM) as 'natural material (such as clay, gravel, sand, soil or rock fines):

- (a) that has been excavated or quarried from areas that are not contaminated with manufactured chemicals, or with process residues, as a result of industrial, commercial, mining or agricultural activities and
- (b) that does not contain any sulfidic ores or soils or any other waste

The existing fill at the site does not meet the requirements for VENM.

As detailed within the geotechnical report prepared for the site by RGS (Report RGS01102.1-AC), the natural soils below 2m depth at the site are considered to be acid sulfate soils. Accordingly, natural soils excavated from below this depth may be classified as Virgin Excavated Material (VENM) and may be disposed of accordingly.

7.2 Excavated Natural Material

The soils encountered at the site have been assessed in relation to the '*Resource Recovery Order under Part 9, Clause 93 of the Protection of the Environment Operations (Waste) Regulation 2014 - The excavated natural material order 2014*', with a view of granting an exemption under the '*Resource Recovery Exemption under Part 9, Clauses 91 and 92 of the Protection of the Environment Operations (Waste) Regulation 2014 - The excavated natural material exemption 2014*' to allow the potential re-use of the material for engineering fill or earthworks within the area.

The Excavated Natural Material (ENM) Exemption applies to naturally occurring soil and rock that has:

a) Been excavated from the ground;
b) Contains at least 98% (by weight) natural material; and
c) Does not meet the definition of Virgin Excavated Natural Material (VENM) in the Act.

The boreholes drilled during the investigation indicate that the predominantly sand and gravel fill material contains greater than 2% foreign materials (in the form of concrete, coal and slag). Based on the investigations undertaken to date, the fill material does not meet the requirements for Excavated Natural Material (ENM).

Further more detailed investigations and sampling can be undertaken which may delineate areas of fill that do and do not meet the requirements for ENM.

7.3 Waste Classification

Table 2 of the '*Waste Classification Guidelines (2009)*' nominates a suite of analytes to be tested (Column 1) and also provides the maximum concentration (CT1) allowable within the soil for classification without the need for additional toxicity characteristics leaching procedure (TCLP) testing for both general solid waste (Column 2) and restricted solid waste (Column 3) for each analyte. Should the CT1 values be exceeded, the guidelines provide a Specific Contaminant Concentration (SCC) value to allow further evaluation of contaminant concentrations in conjunction with TCLP testing.

The results of this assessment indicate:

- Total PAH - Two samples (S102 and BHR3) exceed the SCC for General solid waste;
- BaP - Twelve samples exceed the CT1 for General solid waste and three samples exceed the CT1 for Restricted solid waste. Two samples (S102 and BHR3) exceed the maximum SCC for restricted solid waste if they were to be used with TCLP results;
- Chromium (VI) - One sample exceeds the SCC for General solid waste if Chromium VI. Chromium speciation testing would be required to assess whether the materials encountered were chromium VI or the more common chromium III;
- Lead - Seven samples exceed the CT1 criteria for general solid waste and five samples exceed the CT1 for restricted solid waste. One sample exceeds the maximum SCC for general solid waste if it were to be used with TCLP results but is below the maximum SCC with TCLP level for restricted solid waste; and

- Nickel – Three samples exceed the CT1 for general solid waste and one sample exceeds the SCC for restricted solid waste. All samples are below the maximum SCC for general solid waste if they were to be used with TCLP results.

Of the fourteen samples tested the results indicate that only one of the samples meets the requirement for general solid waste without TCLP testing. Two of the samples exceed the requirements for restricted solid waste, even if TCLP testing was undertaken. Based on these results the fill at the site is not considered to meet the requirements for either general solid waste and may not meet requirements for restricted solid waste.

Based on the above, more detailed assessment of areas requiring excavation would be required to further classify the soils. Based on the waste classification undertaken to date, removal and disposal of the soils would be costly, with some soils on site requiring disposal as restricted solid waste. The extent of these soils requires further determination if such excavation and disposal is proposed.

It is therefore recommended that the excavation and removal of soils from the site be minimised, and that existing site soils remain on site to the maximum extent possible. Where excavation is proposed, it is recommended that the extent of excavation be determined and additional assessment of the soils in those specific areas be undertaken to allow classification and disposal methods to be determined for the soils requiring disposal.

8 LIMITATIONS

The findings presented in the report and used as the basis for recommendations presented herein were obtained using normal, industry accepted geotechnical practises and standards. To our knowledge, they represent a reasonable interpretation of the general condition of the site. Under no circumstances, however, can it be considered that these findings represent the actual state of the site at all points. If site conditions encountered during construction vary significantly from those discussed in this report, Regional Geotechnical Solutions Pty Ltd should be contacted for further advice.

This report alone should not be used by contractors as the basis for preparation of tender documents or project estimates. Contractors using this report as a basis for preparation of tender documents should avail themselves of all relevant background information regarding the site before deciding on selection of construction materials and equipment.

If you have any questions regarding this project, or require any additional consultations, please contact the undersigned.

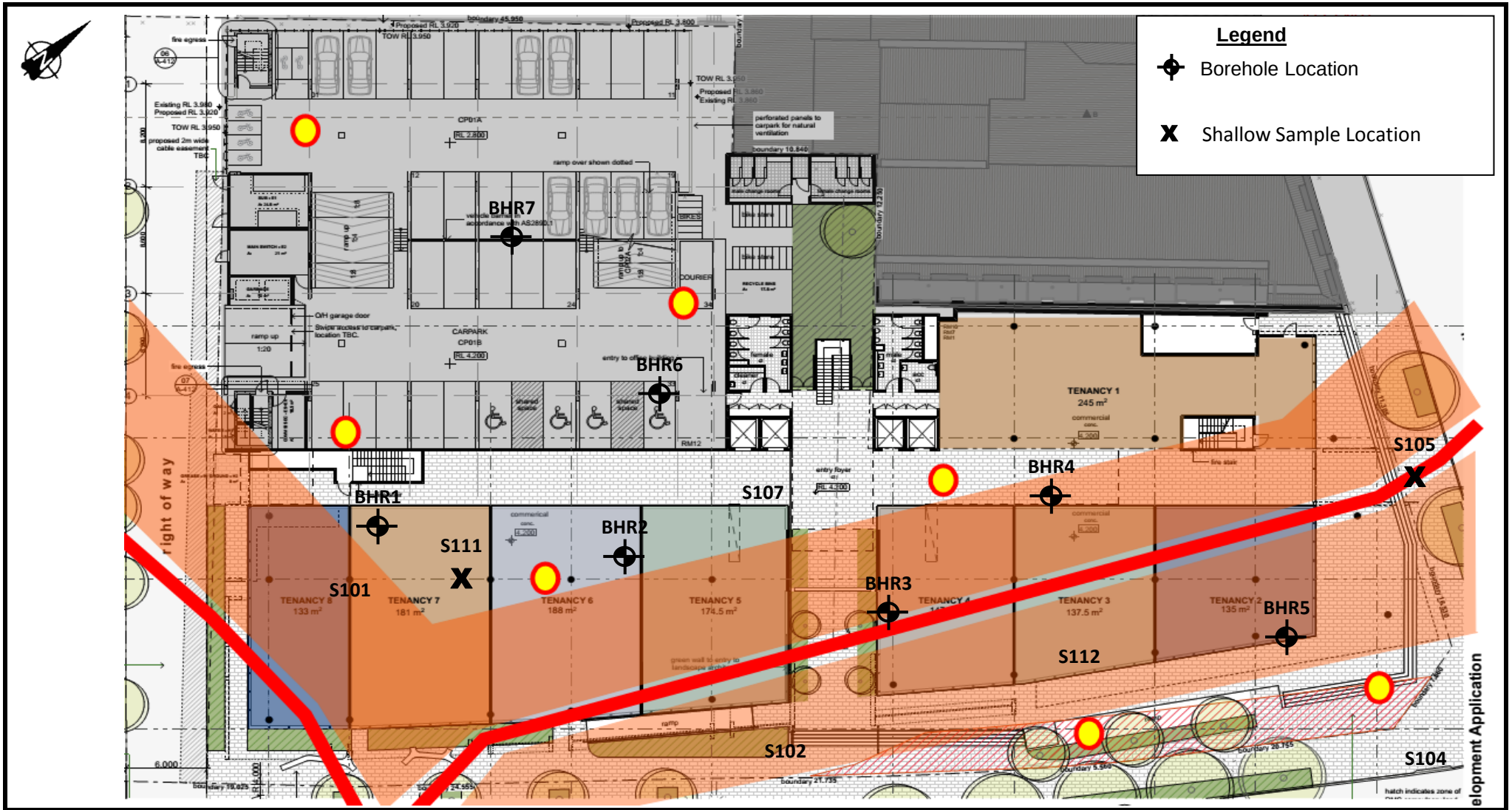
For and on behalf of

Regional Geotechnical Solutions Pty Ltd

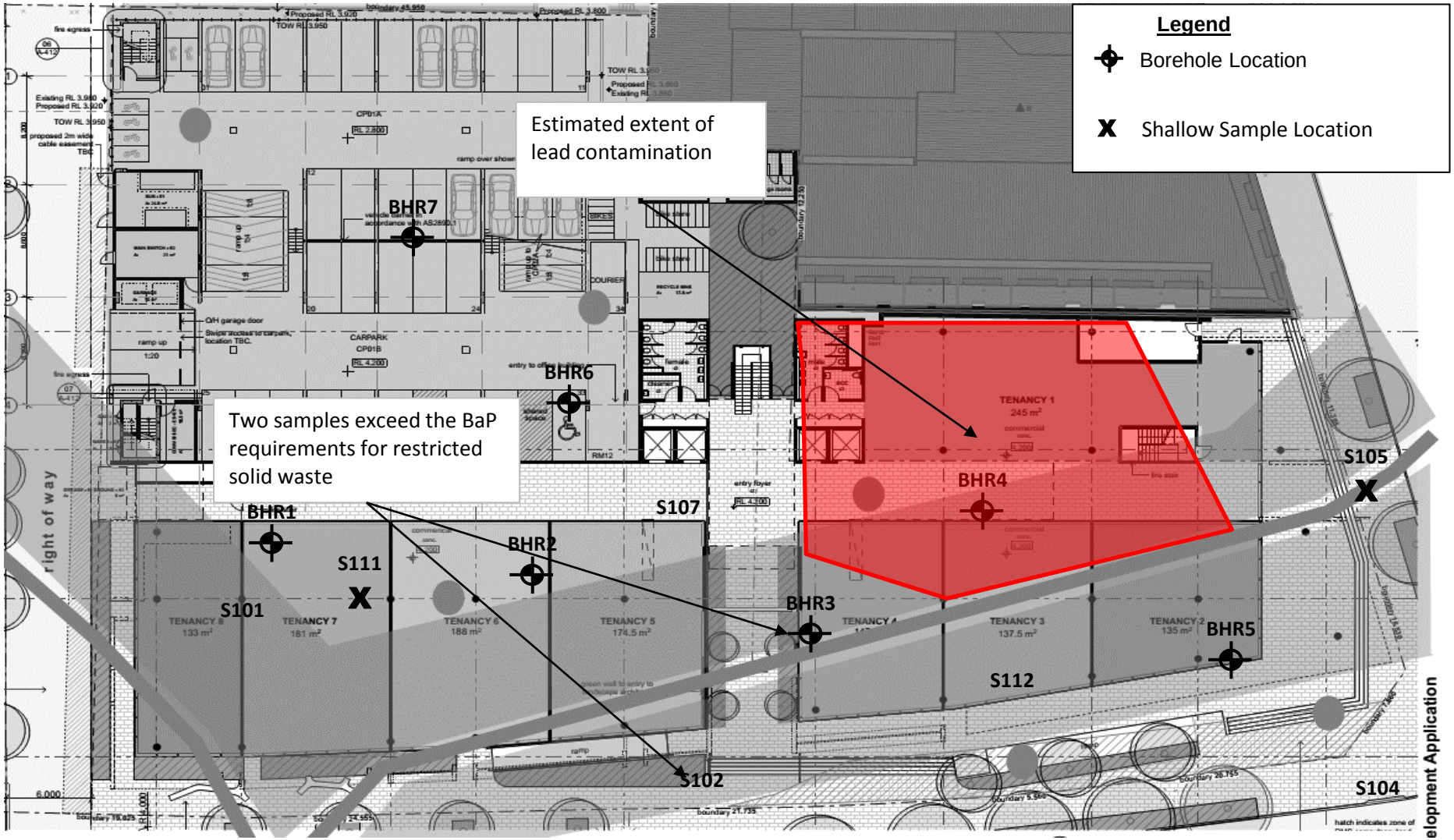
Steven Morton

Principal

Figures



REGIONAL GEOTECHNICAL SOLUTIONS	**Client:**	Core Project Group	Job No. RGS01102.1
	Project:	Proposed Multistorey Commercial Development & Carpark 12 Stewart Avenue, Newcastle West	Drawn By: SK Scale: As Shown Date: 13-Apr-16
	Title:	Sample Location Plan	Drawing No. **Figure 1**



REGIONAL GEOTECHNICAL SOLUTIONS	**Client:**	Core Project Group	Job No. RGS01102.1
	Project:	Proposed Multistorey Commercial Development & Carpark 12 Stewart Avenue, Newcastle West	Drawn By: SK Scale: As Shown Date: 13-Apr-16
	Title:	Estimated Extents of Lead Contamination	Drawing No. **Figure 2**

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Appendix A

Results of Field Investigations

REGIONAL GEOTECHNICAL SOLUTIONS

ENGINEERING LOG - BOREHOLE

BOREHOLE NO: BHR1

CLIENT: Core Project Group
PAGE: 1 of 1
PROJECT NAME:
JOB NO: RGS01102.1
SITE LOCATION: 12 Stewart Avenue, Newcastle
LOGGED BY: SRM
TEST LOCATION: See Figure 1
DATE: 24/2/16

DRILL TYPE: UMDR
EASTING:
SURFACE RL:
BOREHOLE DIAMETER: 100 mm
INCLINATION: 90°
NORTHING:
DATUM: AHD

Drilling and Sampling					Material description and profile information					Field Test		
METHOD	WATER	SAMPLES	RL (m)	DEPTH (m)	GRAPHIC LOG	CLASSIFICATION SYMBOL	MATERIAL DESCRIPTION: Soil type, plasticity/particle characteristics,colour,minor components	MOISTURE CONDITION	CONSISTENCY DENSITY	Test Type	Result	Structure and additional observations
ADT	Not Encountered	E 0.20m		0.5		SP	**FILL:** Gravelly SAND, fine to medium grained, dark grey, Gravel fine to coarse grained, some glass and chitter, some bricks and rubble 0.85m	M	VD			FILL
				1.0			Hole Terminated at 0.85 m Due to refusal on obstacle in fill					
				1.5								
				2.0								
				2.5								
				3.0								
				3.5								
				4.0								
				4.5								

LEGEND:

Water
- Water Level (Date and time shown)
- Water Inflow
- Water Outflow

Strata Changes
- Gradational or transitional strata
- Definitive or distict strata change

Notes, Samples and Tests

U_{50}	50mm Diameter tube sample
CBR	Bulk sample for CBR testing
E	Environmental sample
ASS	Acid Sulfate Soil Sample
B	Bulk Sample

Field Tests

PID	Photoionisation detector reading (ppm)
DCP(x-y)	Dynamic penetrometer test (test depth interval shown)
HP	Hand Penetrometer test (UCS kPa)

Consistency

		UCS (kPa)
VS	Very Soft	<25
S	Soft	25 - 50
F	Firm	50 - 100
St	Stiff	100 - 200
VSt	Very Stiff	200 - 400
H	Hard	>400
Fb	Friable	

Density

V	Very Loose	Density Index <15%
L	Loose	Density Index 15 - 35%
MD	Medium Dense	Density Index 35 - 65%
D	Dense	Density Index 65 - 85%
VD	Very Dense	Density Index 85 - 100%

Moisture Condition

D	Dry
M	Moist
W	Wet
W_p	Plastic Limit
W_L	Liquid Limit

ENGINEERING LOG - BOREHOLE

BOREHOLE NO: BHR2

CLIENT: Core Project Group
PAGE: 1 of 1
PROJECT NAME:
JOB NO: RGS01102.1
SITE LOCATION: 12 Stewart Avenue, Newcastle
LOGGED BY: SRM
TEST LOCATION: See Figure 1
DATE: 24/2/16

DRILL TYPE: UMDR
EASTING:
SURFACE RL:
BOREHOLE DIAMETER: 100 mm
INCLINATION: 90°
NORTHING:
DATUM: AHD

Drilling and Sampling					Material description and profile information					Field Test		
METHOD	WATER	SAMPLES	RL (m)	DEPTH (m)	GRAPHIC LOG	CLASSIFICATION SYMBOL	MATERIAL DESCRIPTION: Soil type, plasticity/particle characteristics,colour,minor components	MOISTURE CONDITION	CONSISTENCY DENSITY	Test Type	Result	Structure and additional observations
ADV		E 0.20m				SP	**FILL:** Gravelly SAND, fine to medium grained, grey, Gravel fine to coarse grained, some rubble	M				FILL
							0.30m					
		0.50m		0.5		SP	**FILL:** Silty SAND, fine to medium grained, dark grey, with some gravel					FILL - some rubble
		0.60m E					0.70m					
						SP	**SAND:** Fine to medium grained, dark grey-brown, some gravel, timber, glass					FILL
				1.0			1.10m					
		1.40m				SP	**SAND:** Fine to medium grained, pale brown	M				AEOLIAN
		ASS 1.60m		1.5								
				2.0			Becoming darker red-brown					
		2.40m						W				
		2.50m ASS		2.5								
				3.0								
		3.50m		3.5								
		3.60m ASS										
				4.0			4.20m					
				4.5			Hole Terminated at 4.20 m					

LEGEND:

Water
- Water Level (Date and time shown)
- Water Inflow
- Water Outflow

Strata Changes
- Gradational or transitional strata
- Definitive or distict strata change

Notes, Samples and Tests

U_{50}	50mm Diameter tube sample
CBR	Bulk sample for CBR testing
E	Environmental sample
ASS	Acid Sulfate Soil Sample
B	Bulk Sample

Field Tests

PID	Photoionisation detector reading (ppm)
DCP(x-y)	Dynamic penetrometer test (test depth interval shown)
HP	Hand Penetrometer test (UCS kPa)

Consistency

		UCS (kPa)
VS	Very Soft	<25
S	Soft	25 - 50
F	Firm	50 - 100
St	Stiff	100 - 200
VSt	Very Stiff	200 - 400
H	Hard	>400
Fb	Friable	

Density

V	Very Loose	Density Index <15%
L	Loose	Density Index 15 - 35%
MD	Medium Dense	Density Index 35 - 65%
D	Dense	Density Index 65 - 85%
VD	Very Dense	Density Index 85 - 100%

Moisture Condition

D	Dry
M	Moist
W	Wet
W_p	Plastic Limit
W_L	Liquid Limit

ENGINEERING LOG - BOREHOLE

BOREHOLE NO: BHR3

CLIENT: Core Project Group
PAGE: 1 of 1
PROJECT NAME:
JOB NO: RGS01102.1
SITE LOCATION: 12 Stewart Avenue, Newcastle
LOGGED BY: SRM
TEST LOCATION: See Figure 1
DATE: 24/2/16

DRILL TYPE: UMDR
EASTING:
SURFACE RL:
BOREHOLE DIAMETER: 100 mm
INCLINATION: 90°
NORTHING:
DATUM: AHD

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METHOD	WATER	SAMPLES	RL (m)	DEPTH (m)	GRAPHIC LOG	CLASSIFICATION SYMBOL	MATERIAL DESCRIPTION: Soil type, plasticity/particle characteristics,colour,minor components	MOISTURE CONDITION	CONSISTENCY DENSITY	Test Type	Result	Structure and additional observations
ADT	Not Encountered			0.5		SP	**FILL:** Gravelly SAND, fine to medium grained, dark grey, Gravel fine to coarse grained, some rubble, brick 0.50m	M				FILL
		0.80m ASS 1.00m 1.30m ASS 1.50m		1.0 1.5		SP	**SAND:** Fine to medium grained, pale brown 1.50m					AEOLIAN
				2.0 2.5 3.0 3.5 4.0 4.5			Hole Terminated at 1.50 m					

LEGEND:

Water
- Water Level (Date and time shown)
- Water Inflow
- Water Outflow

Strata Changes
- Gradational or transitional strata
- Definitive or distict strata change

Notes, Samples and Tests

U_{50}	50mm Diameter tube sample
CBR	Bulk sample for CBR testing
E	Environmental sample
ASS	Acid Sulfate Soil Sample
B	Bulk Sample

Field Tests

PID	Photoionisation detector reading (ppm)
DCP(x-y)	Dynamic penetrometer test (test depth interval shown)
HP	Hand Penetrometer test (UCS kPa)

Consistency

		UCS (kPa)
VS	Very Soft	<25
S	Soft	25 - 50
F	Firm	50 - 100
St	Stiff	100 - 200
VSt	Very Stiff	200 - 400
H	Hard	>400
Fb	Friable	

Density

V	Very Loose	Density Index <15%
L	Loose	Density Index 15 - 35%
MD	Medium Dense	Density Index 35 - 65%
D	Dense	Density Index 65 - 85%
VD	Very Dense	Density Index 85 - 100%

Moisture Condition

D	Dry
M	Moist
W	Wet
W_p	Plastic Limit
W_L	Liquid Limit

ENGINEERING LOG - BOREHOLE

BOREHOLE NO: BHR4

CLIENT: Core Project Group
PAGE: 1 of 1
PROJECT NAME:
JOB NO: RGS01102.1
SITE LOCATION: 12 Stewart Avenue, Newcastle
LOGGED BY: SRM
TEST LOCATION: See Figure 1
DATE: 24/2/16

DRILL TYPE: UMDR
EASTING:
SURFACE RL:
BOREHOLE DIAMETER: 100 mm
INCLINATION: 90°
NORTHING:
DATUM: AHD

Drilling and Sampling					Material description and profile information					Field Test		
METHOD	WATER	SAMPLES	RL (m)	DEPTH (m)	GRAPHIC LOG	CLASSIFICATION SYMBOL	MATERIAL DESCRIPTION: Soil type, plasticity/particle characteristics,colour,minor components	MOISTURE CONDITION	CONSISTENCY DENSITY	Test Type	Result	Structure and additional observations
ADT	Not Encountered	E 0.40m		0.5		SP	**FILL:** Gravelly SAND, fine to medium grained, dark grey-brown, Gravel fine to coarse grained, some brick, trace glass, concrete	M	D			FILL
							0.50m					
						SP	**SAND:** Fine to medium grained, dark brown					
							0.90m					
		1.00m		1.0		SP	**FILL:** SAND, dark grey-brown, some black, trace of gravel	M - W				
		E 1.20m										
		1.50m		1.5								
		1.60m ASS										
							1.60m					
						SP	**SAND:** Fine to medium grained, grey/grey-brown					AEOLIAN
		2.00m		2.0								
		ASS 2.20m										
				2.5								
							2.80m					
							Hole Terminated at 2.80 m					
				3.0								
				3.5								
				4.0								
				4.5								

LEGEND:

Water
- Water Level (Date and time shown)
- Water Inflow
- Water Outflow

Strata Changes
- Gradational or transitional strata
- Definitive or distict strata change

Notes, Samples and Tests

U_{50}	50mm Diameter tube sample
CBR	Bulk sample for CBR testing
E	Environmental sample
ASS	Acid Sulfate Soil Sample
B	Bulk Sample

Field Tests

PID	Photoionisation detector reading (ppm)
DCP(x-y)	Dynamic penetrometer test (test depth interval shown)
HP	Hand Penetrometer test (UCS kPa)

Consistency

		UCS (kPa)
VS	Very Soft	<25
S	Soft	25 - 50
F	Firm	50 - 100
St	Stiff	100 - 200
VSt	Very Stiff	200 - 400
H	Hard	>400
Fb	Friable	

Density

V	Very Loose	Density Index <15%
L	Loose	Density Index 15 - 35%
MD	Medium Dense	Density Index 35 - 65%
D	Dense	Density Index 65 - 85%
VD	Very Dense	Density Index 85 - 100%

Moisture Condition

D	Dry
M	Moist
W	Wet
W_p	Plastic Limit
W_L	Liquid Limit

ENGINEERING LOG - BOREHOLE

BOREHOLE NO: BHR5

CLIENT: Core Project Group
PAGE: 1 of 1
PROJECT NAME:
JOB NO: RGS01102.1
SITE LOCATION: 12 Stewart Avenue, Newcastle
LOGGED BY: SRM
TEST LOCATION: See Figure 1
DATE: 24/2/16

DRILL TYPE: UMDR
EASTING:
SURFACE RL:
BOREHOLE DIAMETER: 100 mm
INCLINATION: 90°
NORTHING:
DATUM: AHD

Drilling and Sampling					Material description and profile information					Field Test		
METHOD	WATER	SAMPLES	RL (m)	DEPTH (m)	GRAPHIC LOG	CLASSIFICATION SYMBOL	MATERIAL DESCRIPTION: Soil type, plasticity/particle characteristics,colour,minor components	MOISTURE CONDITION	CONSISTENCY DENSITY	Test Type	Result	Structure and additional observations
ADT		E 0.40m		0.5		SP	**FILL:** Gravelly SAND, fine to coarse grained, some concrete, brick, glass	M	D			FILL
		0.90m		1.0		SP	**SAND:** Fine to medium grained, grey-brown (0.60m)					AEOLIAN
		ASS 1.10m										
		1.50m		1.5		SP	**SAND:** Fine to medium grained, dark grey-brown (1.30m)					LIGHTLY INDURATED SAND
		ASS 1.70m		2.0								
	▶			2.5		SP	**SAND:** Fine to medium grained, pale grey-brown (2.40m)	W				
				3.0			Hole Terminated at 2.70 m (2.70m)					
				3.5								
				4.0								
				4.5								

LEGEND:

Water
- Water Level (Date and time shown)
- Water Inflow
- Water Outflow

Strata Changes
- Gradational or transitional strata
- Definitive or distict strata change

Notes, Samples and Tests

U_{50}	50mm Diameter tube sample
CBR	Bulk sample for CBR testing
E	Environmental sample
ASS	Acid Sulfate Soil Sample
B	Bulk Sample

Field Tests

PID	Photoionisation detector reading (ppm)
DCP(x-y)	Dynamic penetrometer test (test depth interval shown)
HP	Hand Penetrometer test (UCS kPa)

Consistency

		UCS (kPa)
VS	Very Soft	<25
S	Soft	25 - 50
F	Firm	50 - 100
St	Stiff	100 - 200
VSt	Very Stiff	200 - 400
H	Hard	>400
Fb	Friable	

Density

V	Very Loose	Density Index <15%
L	Loose	Density Index 15 - 35%
MD	Medium Dense	Density Index 35 - 65%
D	Dense	Density Index 65 - 85%
VD	Very Dense	Density Index 85 - 100%

Moisture Condition

D	Dry
M	Moist
W	Wet
W_p	Plastic Limit
W_L	Liquid Limit

REGIONAL GEOTECHNICAL SOLUTIONS

ENGINEERING LOG - BOREHOLE

BOREHOLE NO: **BHR6**

CLIENT: Core Project Group
PAGE: 1 of 1
PROJECT NAME:
JOB NO: RGS01102.1
SITE LOCATION: 12 Stewart Avenue, Newcastle
LOGGED BY: SRM
TEST LOCATION: See Figure 1
DATE: 24/2/16

DRILL TYPE: UMDR
EASTING:
SURFACE RL:
BOREHOLE DIAMETER: 100 mm
INCLINATION: 90°
NORTHING:
DATUM: AHD

Drilling and Sampling					Material description and profile information					Field Test		
METHOD	WATER	SAMPLES	RL (m)	DEPTH (m)	GRAPHIC LOG	CLASSIFICATION SYMBOL	MATERIAL DESCRIPTION: Soil type, plasticity/particle characteristics,colour,minor components	MOISTURE CONDITION	CONSISTENCY DENSITY	Test Type	Result	Structure and additional observations
ADt	Not Encountered	0.20m					**FILL:** Silty Gravelly SAND, fine to medium grained, grey, Gravel fine to coarse grained	M				FILL - some aggregate
		E 0.40m					0.30m					
				0.5		SP	**FILL:** SAND, fine to medium grained, dark grey-brown, some gravel fine to medium grained, trace brick fragments					FILL
							0.90m					
				1.0		SP	**SAND:** Fine to medium grained, grey-brown, orange					AEOLIAN
				1.5								
				2.0			2.00m					
						SP	**SAND:** Fine to coarse grained, dark grey	W				MARINE
		2.50m		2.5								
		ASS 2.70m					2.70m					
							Hole Terminated at 2.70 m					
				3.0								
				3.5								
				4.0								
				4.5								

LEGEND:

Water
- Water Level (Date and time shown)
- Water Inflow
- Water Outflow

Strata Changes
- Gradational or transitional strata
- Definitive or distict strata change

Notes, Samples and Tests

U_{50}	50mm Diameter tube sample
CBR	Bulk sample for CBR testing
E	Environmental sample
ASS	Acid Sulfate Soil Sample
B	Bulk Sample

Field Tests

PID	Photoionisation detector reading (ppm)
DCP(x-y)	Dynamic penetrometer test (test depth interval shown)
HP	Hand Penetrometer test (UCS kPa)

Consistency		UCS (kPa)
VS	Very Soft	<25
S	Soft	25 - 50
F	Firm	50 - 100
St	Stiff	100 - 200
VSt	Very Stiff	200 - 400
H	Hard	>400
Fb	Friable	

Density		
V	Very Loose	Density Index <15%
L	Loose	Density Index 15 - 35%
MD	Medium Dense	Density Index 35 - 65%
D	Dense	Density Index 65 - 85%
VD	Very Dense	Density Index 85 - 100%

Moisture Condition	
D	Dry
M	Moist
W	Wet
W_p	Plastic Limit
W_L	Liquid Limit

ENGINEERING LOG - BOREHOLE

BOREHOLE NO: BHR7

CLIENT: Core Project Group
PAGE: 1 of 1
PROJECT NAME:
JOB NO: RGS01102.1
SITE LOCATION: 12 Stewart Avenue, Newcastle
LOGGED BY: SRM
TEST LOCATION: See Figure 1
DATE: 24/2/16

DRILL TYPE: UMDR
EASTING:
SURFACE RL:
BOREHOLE DIAMETER: 100 mm
INCLINATION: 90°
NORTHING:
DATUM: AHD

Drilling and Sampling					Material description and profile information					Field Test		
METHOD	WATER	SAMPLES	RL (m)	DEPTH (m)	GRAPHIC LOG	CLASSIFICATION SYMBOL	MATERIAL DESCRIPTION: Soil type, plasticity/particle characteristics,colour,minor components	MOISTURE CONDITION	CONSISTENCY DENSITY	Test Type	Result	Structure and additional observations
ADT		E 0.25m					**FILL:** SAND, fine to medium grained, grey	M				FILL - some aggregate and bricks
				0.5			0.20m **FILL:** Gravelly SAND, red-brown					FILL - crushed bricks
				1.0			0.80m **FILL:** Sandy CLAY, medium to high plasticity, pale grey-white, sand fine to coarse, some bricks					FILL - Clay, bricks
				1.5		SP	1.20m **SAND:** Fine to medium grained, pale grey					AEOLIAN
				2.0		SP	1.60m **SAND:** Fine to medium grained, brown and orange brown					
				2.5			2.70m					
							Hole Terminated at 2.70 m					
				3.0								
				3.5								
				4.0								
				4.5								

LEGEND:

Water
- Water Level (Date and time shown)
- Water Inflow
- Water Outflow

Strata Changes
- Gradational or transitional strata
- Definitive or distict strata change

Notes, Samples and Tests

U_{50}	50mm Diameter tube sample
CBR	Bulk sample for CBR testing
E	Environmental sample
ASS	Acid Sulfate Soil Sample
B	Bulk Sample

Field Tests

PID	Photoionisation detector reading (ppm)
DCP(x-y)	Dynamic penetrometer test (test depth interval shown)
HP	Hand Penetrometer test (UCS kPa)

Consistency

		UCS (kPa)
VS	Very Soft	<25
S	Soft	25 - 50
F	Firm	50 - 100
St	Stiff	100 - 200
VSt	Very Stiff	200 - 400
H	Hard	>400
Fb	Friable	

Density

V	Very Loose	Density Index <15%
L	Loose	Density Index 15 - 35%
MD	Medium Dense	Density Index 35 - 65%
D	Dense	Density Index 65 - 85%
VD	Very Dense	Density Index 85 - 100%

Moisture Condition

D	Dry
M	Moist
W	Wet
W_p	Plastic Limit
W_L	Liquid Limit

Appendix B

Laboratory Test Result Sheets

Summary Table - Comparison of Chemical Analysis Results (concentrations in mg/kg) **for a 'COMMERCIAL/INDUSTRIAL' Site.**

National Environment Protection (Assessment of Site Contamination) Measure (NEPM 2013)

REGIONAL GEOTECHNICAL SOLUTIONS

Client: Core Project Group
Job No. RGS01102.1-AD
Project: Proposed Development
Location: 12 Stewart Avenue, Newcastle West

Location	DEPTH (m)	MATERIAL	ASBESTOS PRESENCE	TOTAL RECOVERABLE HYDROCARBONS					PAH		OC-OP PESTICIDE	BTEX	PCB	HEAVY METALS							
				C6-C10	C10-C16	C16-C34	C34-C40	TOTAL 10-40	Total	b-a-p				As	Cd	Cr*	Cu	Pb	Ni	Zn	Hg
S101		Fill	No	<10	<50	<100	<100	<50	<0.5	<0.5	<0.05	<0.2	<0.1	<5	<1	9	18	28	8	83	<0.1
S102		Fill	No	<10	200	2620	300	3120	476	33.5	<0.25	<0.2	<0.1	<5	<1	12	104	94	8	273	<0.1
S105		Fill	No	<10	<50	<100	<100	<50	11.2	1.6	0.05	<0.2	<0.1	<5	<1	<2	<5	51	<2	31	<0.1
BHR2	0.0 - 0.2	Fill	No	<10	<50	300	<100	300	61	7.1	<0.05	<0.2	<0.1	<5	<1	4	18	112	6	110	<0.1
BHR3	0.0 - 0.2	Fill	No	<10	140	1630	340	2110	368	31.5	<0.25	<0.2	<0.1	<5	<1	9	166	448	28	283	0.1
BHR4	0.0 - 0.4	Fill	No	<10	<50	2860	580	3440	66.6	8.9	<0.05	<0.2	<0.1	51	4	273	18400	2530	249	4750	0.5
BHR4	1.0 - 1.2	Fill	No	<10	<50	180	<100	180	18.4	2.5	<0.05	<0.2	<0.1	<5	<1	6	132	92	10	110	0.1
BHR5	0.0 - 0.4	Fill	No	<10	<50	170	<100	170	9.5	1.3	<0.05	0.3	<0.1	<5	<1	7	64	81	14	127	0.1
BH6	0.2 - 0.4	Fill	No	<10	60	600	120	780	6.1	<0.5	0.48	<0.2	<0.1	6	<1	5	25	430	18	127	0.2
BH7	0.2 - 0.4	Fill	No	<10	<50	160	<100	160	6.7	0.8	0.34	<0.2	<0.1	<5	<1	4	15	69	5	93	<0.1
S107		Fill	No	<10	<50	310	100	410	29	3	0.1	<0.2	<0.1	<5	<1	6	29	89	7	117	0.1
S104		Fill	No	<10	70	1490	280	1840	166	13.2	<0.05	<0.2	<0.1	<5	<1	6	78	259	20	346	0.2
S111	0.0 - 0.2	Fill	Yes	<10	<50	310	<100	310	18.2	2.4	<0.05	<0.2	<0.1	5	<1	7	402	288	15	299	0.2
S112	0.0 - 0.2	Fill	Yes	<10	<50	680	230	910	14.5	1.9	<0.05	<0.2	<0.1	11	1	29	990	590	85	857	1.2
S115 (S112 Dupl.	0.0 - 0.2	Fill	Yes	<10	<50	570	200	770	15.7	2	<0.05	<0.2	<0.1	10	1	24	1430	747	54	874	0.2
Health Based Soil investigation Level:				1000	800				4000	40	45	NL	1	3000	900	3600	240000	1500	6000	400000	730
Ecological Investigation Level (EIL):																					
Ecological Screening Level (ESL):				215	170	1700	3300			0.7		75		**Coarse grained soil in mg/kg**							
				215	170	2500	6600			0.7		95		**Fine grained soil in mg/kg**							

NOTES:

Denotes concentration exceeds health based guideline for Industrial/Commercial land use

Denotes concentration exceeds ecological guideline for Industrial/ Commercial land use

Denotes concentration exceeds health and ecological based guideline for Industrial/ Commercial land use

NL No Limit available

LOR Limit of Reporting

TRH health based guidelines for upper 1m of soil

REGIONAL GEOTECHNICAL SOLUTIONS

Client: Core Project Group
Job No. RGS01102.1-AD
Project: Proposed Development
Location: 12 Stewart Avenue, Newcastle West

SAMPLE	DEPTH (m)	MATERIAL	TPH		PAH			PCBs (Total)	Pesticides (Total)	BTEX								HEAVY METALS											
			C6-C9	C10-C36	Total	BaP	TCLP			B	TCLP	T	TCLP	E	TCLP	X	TCLP	As	TCLP	Cd	TCLP	Cr*	TCLP	Pb	TCLP	Ni	TCLP	Hg	TCLP
S101		Fill	<10	<50	<0.5	<0.5		<0.1	<0.05	0.3		<0.5		<0.5		<0.5		<5		<1		9		28		8		<0.1	
S102		Fill	<10	2,820	476	**33.5**		<0.1	<0.25	<0.2		<0.5		<0.5		<0.5		<5		<1		12		94		8		<0.1	
S105		Fill	<10	<50	11	1.6		<0.1	0.05	<0.2		<0.5		<0.5		<0.5		<5		<1		<2		51		<2		<0.1	
BHR2	0.0 - 0.2	Fill	<10	310	61	**7.1**		<0.1	<0.05	<0.2		<0.5		<0.5		<0.5		<5		<1		4		112		6		<0.1	
BHR3	0.0 - 0.2	Fill	<10	1,880	368	**31.5**		<0.1	<0.25	<0.2		<0.5		<0.5		<0.5		<5		<1		9		**448**		28		0	
BHR4	0.0 - 0.4	Fill	<10	2,910	67	**8.9**		<0.1	<0.05	<0.2		<0.5		<0.5		<0.5		51		4		273		**2,530**		**249**		1	
BHR4	1.0 - 1.2	Fill	<10	120	18	2.5		<0.1	<0.05	<0.2		<0.5		<0.5		<0.5		<5		<1		6		92		10		0	
BHR5	0.0 - 0.4	Fill	<10	110	10	1.3		<0.1	<0.05	<0.2		<0.5		<0.5		<0.5		<5		<1		7		81		14		0	
BH6	0.2 - 0.4	Fill	<10	650	6	<0.5		<0.1	0.48	<0.2		<0.5		<0.5		<0.5		6		<1		5		**430**		18		0	
BH7	0.2 - 0.4	Fill	<10	<50	7	0.8		<0.1	0.34	<0.2		<0.5		<0.5		<0.5		<5		<1		4		69		5		<0.1	
S107		Fill	<10	360	29	3.0		<0.1	0.1	<0.2		<0.5		<0.5		<0.5		<5		<1		6		89		7		0	
S104		Fill	<10	1,570	166	**13.2**		<0.1	<0.05	<0.2		<0.5		<0.5		<0.5		<5		<1		6		259		20		0	
S111	0.0 - 0.2	Fill	<10	290	18	2.4		<0.1	<0.05	<0.2		<0.5		<0.5		<0.5		5		<1		7		288		15		0	
S112	0.0 - 0.2	Fill	<10	730	15	1.9		<0.1	<0.05	<0.2		<0.5		<0.5		<0.5		11		1		29		**590**		85		1	
S115 (S112 Dupl.)	0.0 - 0.2	Fill	<10	620	16	2.0		<0.1	<0.05	<0.2		<0.5		<0.5		<0.5		10		1		24		**747**		54		0	
THRESHOLD LIMITS																													
GENERAL SOLID WASTE		*CT1*	*650*	*10,000*	*200*	*0.8*		*<50*	*250*	*10*		*288*		*600*		*1,000*		*100*		*20*		*100**		*100*		*40*		*4*	
		SCC1	*650*	*10,000*		*10.0*		*<50*	*250*	*18*		*518*		*1,080*		*1,800*		*500*		*100*		*1,900*		*1,500*		*1,050*		*50*	
		TCLP1					*0.04*				*0.5*		*14.4*		*30*		*50*		*5*		*1*		*5*		*5*		*2*		*0.2*
RESTRICTED SOLID WASTE		*CT2*	*2,600*	*40,000*	*800*	*3.2*		*<50*	*1,000*	*40*		*1,152*		*2,400*		*4,000*		*400*		*80*		*400**		*400*		*160*		*16*	
		SCC2	*2,600*	*40,000*		*23.0*		*<50*	*1,000*	*72*		*2,073*		*4,320*		*7,200*		*2,000*		*400*		*7,600*		*6,000*		*4,200*		*200*	
		TCLP2					*0.16*				*2.0*		*57.6*		*120*		*200*		*20*		*4*		*20*		*20*		*8*		*0.8*

NOTES

CT	Contaminant Threshold (without TCLP)
SCC	Specific Contaminant Concentrations (used with TCLP)
TCLP	Toxicity Characteristics Leaching Procedure (used with SCC)
Shaded	Exceeds General Solid Waste Threshold = Restricted Solid Waste
BOLD and Shaded	Exceeds Restricted Solid Waste Threshold = Hazardous Waste

ALS Environmental

CERTIFICATE OF ANALYSIS

Work Order	: **ES1604423**	Page	: 1 of 28
Client	: **REGIONAL GEOTECHNICAL SOLUTION**	Laboratory	: Environmental Division Sydney
Contact	: MR SIMON KEEN	Contact	:
Address	: 44 BENT STREET WINGHAM NSW, AUSTRALIA 2429	Address	: 277-289 Woodpark Road Smithfield NSW Australia 2164
E-mail	: simon.k@regionalgeotech.com.au	E-mail	:
Telephone	: +61 02 6553 5641	Telephone	: +61-2-8784 8555
Facsimile	: ----	Facsimile	: +61-2-8784 8500
Project	: RGS01102.1 UNIT DEVELOPMENT	QC Level	: NEPM 2013 B3 & ALS QC Standard
Order number	: ----	Date Samples Received	: 29-Feb-2016 09:00
C-O-C number	: ----	Date Analysis Commenced	: 01-Mar-2016
Sampler	: ----	Issue Date	: 09-Mar-2016 20:28
Site	: ----		
		No. of samples received	: 26
Quote number	: ----	No. of samples analysed	: 21

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted.

This Certificate of Analysis contains the following information:

- General Comments
- Analytical Results
- Descriptive Results

NATA Accredited Laboratory 825

Accredited for compliance with ISO/IEC 17025.

Signatories

This document has been electronically signed by the authorized signatories indicated below. Electronic signing has been carried out in compliance with procedures specified in 21 CFR Part 11.

Signatories	*Position*	*Accreditation Category*
Ben Felgendrejeris		Brisbane Acid Sulphate Soils, Stafford, QLD
Celine Conceicao	Senior Spectroscopist	Sydney Inorganics, Smithfield, NSW
Kim McCabe	Senior Inorganic Chemist	Brisbane Acid Sulphate Soils, Stafford, QLD
Pabi Subba	Senior Organic Chemist	Brisbane Inorganics, Stafford, QLD Sydney Inorganics, Smithfield, NSW Sydney Organics, Smithfield, NSW
Shaun Spooner	Asbestos Identifier	Newcastle - Asbestos, Mayfield West, NSW

General Comments

The analytical procedures used by the Environmental Division have been developed from established internationally recognized procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are employed in the absence of documented standards or by client request.

Where moisture determination has been performed, results are reported on a dry weight basis.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis.

Where the LOR of a reported result differs from standard LOR, this may be due to high moisture content, insufficient sample (reduced weight employed) or matrix interference.

When sampling time information is not provided by the client, sampling dates are shown without a time component. In these instances, the time component has been assumed by the laboratory for processing purposes.

Key : CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.
LOR = Limit of reporting
^ = This result is computed from individual analyte detections at or above the level of reporting
ø = ALS is not NATA accredited for these tests.

- EP068: Positive results have been confirmed by re-extraction and re-analysis.
- **EA200: As only one sample container was submitted for multiple tests, sub sampling was conducted prior to Asbestos analysis. As this has the potential to understate detection, results should be scrutinised accordingly and NATA accreditation does not apply to analysis on these samples.**
- ASS: EA037 (Rapid Field and F(ox) screening): pH F(ox) Reaction Rate: 1 - Slight; 2 - Moderate; 3 - Strong; 4 - Extreme
- EA037 ASS Field Screening: NATA accreditation does not cover performance of this service.
- EA200 'Am' Amosite (brown asbestos)
- EA200 'Cr' Crocidolite (blue asbestos)
- EA200 'Trace' - Asbestos fibres ("Free Fibres") detected by trace analysis per AS4964. The result can be interpreted that the sample contains detectable 'respirable' asbestos fibres
- EA200: Asbestos Identification Samples were analysed by Polarised Light Microscopy including dispersion staining.
- EA200 Legend
- EA200 'Ch' Chrysotile (white asbestos)
- EA200: 'UMF' Unknown Mineral Fibres. "-" indicates fibres detected may or may not be asbestos fibres. Confirmation by alternative techniques is recommended.
- EA200: Negative results for vinyl tiles should be confirmed by an independent analytical technique.
- Benzo(a)pyrene Toxicity Equivalent Quotient (TEQ) is the sum total of the concentration of the eight carcinogenic PAHs multiplied by their Toxicity Equivalence Factor (TEF) relative to Benzo(a)pyrene. TEF values are provided in brackets as follows: Benz(a)anthracene (0.1), Chrysene (0.01), Benzo(b+j) & Benzo(k)fluoranthene (0.1), Benzo(a)pyrene (1.0), Indeno(1.2.3.cd)pyrene (0.1), Dibenz(a.h)anthracene (1.0), Benzo(g.h.i)perylene (0.01). Less than LOR results for 'TEQ Zero' are treated as zero, for 'TEQ 1/2LOR' are treated as half the reported LOR, and for 'TEQ LOR' are treated as being equal to the reported LOR. Note: TEQ 1/2LOR and TEQ LOR will calculate as 0.6mg/Kg and 1.2mg/Kg respectively for samples with non-detects for all of the eight TEQ PAHs.
- EA200: For samples larger than 30g, the <2mm fraction may be sub-sampled prior to trace analysis as outlined in ISO23909:2008(E) Sect 6.3.2-2

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)			Client sample ID	S101	S102	S105	BHR2 0-0.2	BHR3 0-0.2
			Client sampling date / time	[26-Feb-2016]	[26-Feb-2016]	[26-Feb-2016]	[26-Feb-2016]	[26-Feb-2016]
Compound	CAS Number	LOR	Unit	ES1604423-001	ES1604423-002	ES1604423-004	ES1604423-006	ES1604423-007
				Result	Result	Result	Result	Result
EA002 : pH (Soils)								
pH Value	----	0.1	pH Unit	----	----	----	----	----
EA026 : Chromium Reducible Sulfur								
Chromium Reducible Sulphur	----	0.005	%	----	----	----	----	----
EA037: Ass Field Screening Analysis								
pH (F)	----	0.1	pH Unit	----	----	----	----	----
pH (Fox)	----	0.1	pH Unit	----	----	----	----	----
Reaction Rate	----	1	-	----	----	----	----	----
EA055: Moisture Content								
Moisture Content (dried @ 103°C)	----	1	%	1.3	3.0	3.5	2.8	9.3
EA200: AS 4964 - 2004 Identification of Asbestos in Soils								
Asbestos Detected	1332-21-4	0.1	g/kg	No	No	No	No	No
Asbestos Type	1332-21-4	-	--	-	-	-	-	-
Sample weight (dry)	----	0.01	g	37.0	30.6	36.5	37.9	37.2
APPROVED IDENTIFIER:	----	-	--	S.SPOONER	S.SPOONER	S.SPOONER	S.SPOONER	S.SPOONER
ED040S : Soluble Sulfate by ICPAES								
Sulfate as SO4 2-	14808-79-8	10	mg/kg	----	----	----	----	----
ED045G: Chloride by Discrete Analyser								
Chloride	16887-00-6	10	mg/kg	----	----	----	----	----
EG005T: Total Metals by ICP-AES								
Arsenic	7440-38-2	5	mg/kg	<5	<5	<5	<5	<5
Cadmium	7440-43-9	1	mg/kg	<1	<1	<1	<1	<1
Chromium	7440-47-3	2	mg/kg	9	12	<2	4	9
Copper	7440-50-8	5	mg/kg	18	104	<5	18	166
Lead	7439-92-1	5	mg/kg	28	94	51	112	448
Nickel	7440-02-0	2	mg/kg	8	8	<2	6	28
Zinc	7440-66-6	5	mg/kg	83	273	31	110	283
EG035T: Total Recoverable Mercury by FIMS								
Mercury	7439-97-6	0.1	mg/kg	<0.1	<0.1	<0.1	<0.1	0.1
EP066: Polychlorinated Biphenyls (PCB)								
Total Polychlorinated biphenyls	----	0.1	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
EP068A: Organochlorine Pesticides (OC)								
alpha-BHC	319-84-6	0.05	mg/kg	<0.05	<0.25	<0.05	<0.05	<0.25
Hexachlorobenzene (HCB)	118-74-1	0.05	mg/kg	<0.05	<0.25	<0.05	<0.05	<0.25

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)			Client sample ID	S101	S102	S105	BHR2 0-0.2	BHR3 0-0.2
			Client sampling date / time	[26-Feb-2016]	[26-Feb-2016]	[26-Feb-2016]	[26-Feb-2016]	[26-Feb-2016]
Compound	CAS Number	LOR	Unit	ES1604423-001	ES1604423-002	ES1604423-004	ES1604423-006	ES1604423-007
				Result	Result	Result	Result	Result
EP068A: Organochlorine Pesticides (OC) - Continued								
beta-BHC	319-85-7	0.05	mg/kg	<0.05	<0.25	<0.05	<0.05	<0.25
gamma-BHC	58-89-9	0.05	mg/kg	<0.05	<0.25	<0.05	<0.05	<0.25
delta-BHC	319-86-8	0.05	mg/kg	<0.05	<0.25	<0.05	<0.05	<0.25
Heptachlor	76-44-8	0.05	mg/kg	<0.05	<0.25	<0.05	<0.05	<0.25
Aldrin	309-00-2	0.05	mg/kg	<0.05	<0.25	<0.05	<0.05	<0.25
Heptachlor epoxide	1024-57-3	0.05	mg/kg	<0.05	<0.25	<0.05	<0.05	<0.25
^ Total Chlordane (sum)	----	0.05	mg/kg	<0.05	<0.25	<0.05	<0.05	<0.25
trans-Chlordane	5103-74-2	0.05	mg/kg	<0.05	<0.25	<0.05	<0.05	<0.25
alpha-Endosulfan	959-98-8	0.05	mg/kg	<0.05	<0.25	<0.05	<0.05	<0.25
cis-Chlordane	5103-71-9	0.05	mg/kg	<0.05	<0.25	<0.05	<0.05	<0.25
Dieldrin	60-57-1	0.05	mg/kg	<0.05	<0.25	**0.05**	<0.05	<0.25
4.4`-DDE	72-55-9	0.05	mg/kg	<0.05	<0.25	<0.05	<0.05	<0.25
Endrin	72-20-8	0.05	mg/kg	<0.05	<0.25	<0.05	<0.05	<0.25
beta-Endosulfan	33213-65-9	0.05	mg/kg	<0.05	<0.25	<0.05	<0.05	<0.25
^ Endosulfan (sum)	115-29-7	0.05	mg/kg	<0.05	<0.25	<0.05	<0.05	<0.25
4.4`-DDD	72-54-8	0.05	mg/kg	<0.05	<0.25	<0.05	<0.05	<0.25
Endrin aldehyde	7421-93-4	0.05	mg/kg	<0.05	<0.25	<0.05	<0.05	<0.25
Endosulfan sulfate	1031-07-8	0.05	mg/kg	<0.05	<0.25	<0.05	<0.05	<0.25
4.4`-DDT	50-29-3	0.2	mg/kg	<0.2	<1.0	<0.2	<0.2	<1.0
Endrin ketone	53494-70-5	0.05	mg/kg	<0.05	<0.25	<0.05	<0.05	<0.25
Methoxychlor	72-43-5	0.2	mg/kg	<0.2	<1.0	<0.2	<0.2	<1.0
^ Sum of Aldrin + Dieldrin	309-00-2/60-57-1	0.05	mg/kg	<0.05	<0.25	**0.05**	<0.05	<0.25
^ Sum of DDD + DDE + DDT	72-54-8/72-55-9/50-2	0.05	mg/kg	<0.05	<0.25	<0.05	<0.05	<0.25
EP068B: Organophosphorus Pesticides (OP)								
Dichlorvos	62-73-7	0.05	mg/kg	<0.05	<0.25	<0.05	<0.05	<0.25
Demeton-S-methyl	919-86-8	0.05	mg/kg	<0.05	<0.25	<0.05	<0.05	<0.25
Monocrotophos	6923-22-4	0.2	mg/kg	<0.2	<1.0	<0.2	<0.2	<1.0
Dimethoate	60-51-5	0.05	mg/kg	<0.05	<0.25	<0.05	<0.05	<0.25
Diazinon	333-41-5	0.05	mg/kg	<0.05	<0.25	<0.05	<0.05	<0.25
Chlorpyrifos-methyl	5598-13-0	0.05	mg/kg	<0.05	<0.25	<0.05	<0.05	<0.25
Parathion-methyl	298-00-0	0.2	mg/kg	<0.2	<1.0	<0.2	<0.2	<1.0
Malathion	121-75-5	0.05	mg/kg	<0.05	<0.25	<0.05	<0.05	<0.25
Fenthion	55-38-9	0.05	mg/kg	<0.05	<0.25	<0.05	<0.05	<0.25
Chlorpyrifos	2921-88-2	0.05	mg/kg	<0.05	<0.25	<0.05	<0.05	<0.25

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Client sample ID	S101	S102	S105	BHR2 0-0.2	BHR3 0-0.2
				Client sampling date / time	[26-Feb-2016]	[26-Feb-2016]	[26-Feb-2016]	[26-Feb-2016]	[26-Feb-2016]
Compound	CAS Number	LOR	Unit		ES1604423-001	ES1604423-002	ES1604423-004	ES1604423-006	ES1604423-007
					Result	Result	Result	Result	Result
EP068B: Organophosphorus Pesticides (OP) - Continued									
Parathion	56-38-2	0.2	mg/kg		<0.2	<1.0	<0.2	<0.2	<1.0
Pirimphos-ethyl	23505-41-1	0.05	mg/kg		<0.05	<0.25	<0.05	<0.05	<0.25
Chlorfenvinphos	470-90-6	0.05	mg/kg		<0.05	<0.25	<0.05	<0.05	<0.25
Bromophos-ethyl	4824-78-6	0.05	mg/kg		<0.05	<0.25	<0.05	<0.05	<0.25
Fenamiphos	22224-92-6	0.05	mg/kg		<0.05	<0.25	<0.05	<0.05	<0.25
Prothiofos	34643-46-4	0.05	mg/kg		<0.05	<0.25	<0.05	<0.05	<0.25
Ethion	563-12-2	0.05	mg/kg		<0.05	<0.25	<0.05	<0.05	<0.25
Carbophenothion	786-19-6	0.05	mg/kg		<0.05	<0.25	<0.05	<0.05	<0.25
Azinphos Methyl	86-50-0	0.05	mg/kg		<0.05	<0.25	<0.05	<0.05	<0.25
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons									
Naphthalene	91-20-3	0.5	mg/kg		<0.5	**4.0**	<0.5	**0.6**	**2.1**
Acenaphthylene	208-96-8	0.5	mg/kg		<0.5	**25.6**	<0.5	**0.8**	**11.9**
Acenaphthene	83-32-9	0.5	mg/kg		<0.5	**4.2**	<0.5	<0.5	**1.8**
Fluorene	86-73-7	0.5	mg/kg		<0.5	**20.7**	<0.5	<0.5	**8.3**
Phenanthrene	85-01-8	0.5	mg/kg		<0.5	**113**	**0.8**	**6.6**	**66.0**
Anthracene	120-12-7	0.5	mg/kg		<0.5	**27.5**	<0.5	**2.0**	**16.9**
Fluoranthene	206-44-0	0.5	mg/kg		<0.5	**72.0**	**2.1**	**11.6**	**67.1**
Pyrene	129-00-0	0.5	mg/kg		<0.5	**67.9**	**2.0**	**10.2**	**67.5**
Benz(a)anthracene	56-55-3	0.5	mg/kg		<0.5	**34.8**	**1.4**	**6.1**	**28.3**
Chrysene	218-01-9	0.5	mg/kg		<0.5	**28.4**	**1.0**	**4.7**	**23.0**
Benzo(b+j)fluoranthene	205-99-2 205-82-3	0.5	mg/kg		<0.5	**24.2**	**1.6**	**6.6**	**23.1**
Benzo(k)fluoranthene	207-08-9	0.5	mg/kg		<0.5	**11.3**	**0.6**	**2.4**	**10.0**
Benzo(a)pyrene	50-32-8	0.5	mg/kg		<0.5	**23.1**	**1.2**	**4.8**	**22.1**
Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg		<0.5	**7.9**	<0.5	**1.9**	**7.8**
Dibenz(a.h)anthracene	53-70-3	0.5	mg/kg		<0.5	**2.2**	<0.5	**0.5**	**2.2**
Benzo(g.h.i)perylene	191-24-2	0.5	mg/kg		<0.5	**8.8**	**0.5**	**2.2**	**9.4**
^ Sum of polycyclic aromatic hydrocarbons	----	0.5	mg/kg		<0.5	**476**	**11.2**	**61.0**	**368**
^ Benzo(a)pyrene TEQ (zero)	----	0.5	mg/kg		<0.5	**33.5**	**1.6**	**7.1**	**31.5**
^ Benzo(a)pyrene TEQ (half LOR)	----	0.5	mg/kg		**0.6**	**33.5**	**1.8**	**7.1**	**31.5**
^ Benzo(a)pyrene TEQ (LOR)	----	0.5	mg/kg		**1.2**	**33.5**	**2.1**	**7.1**	**31.5**
EP080/071: Total Petroleum Hydrocarbons									
C6 - C9 Fraction	----	10	mg/kg		<10	<10	<10	<10	<10
C10 - C14 Fraction	----	50	mg/kg		<50	**50**	<50	<50	<50
C15 - C28 Fraction	----	100	mg/kg		<100	**2100**	<100	**190**	**1280**

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Client sample ID	S101	S102	S105	BHR2 0-0.2	BHR3 0-0.2
				Client sampling date / time	[26-Feb-2016]	[26-Feb-2016]	[26-Feb-2016]	[26-Feb-2016]	[26-Feb-2016]
Compound	CAS Number	LOR	Unit		ES1604423-001	ES1604423-002	ES1604423-004	ES1604423-006	ES1604423-007
					Result	Result	Result	Result	Result
EP080/071: Total Petroleum Hydrocarbons - Continued									
C29 - C36 Fraction	----	100	mg/kg		<100	**670**	<100	**120**	**600**
^ C10 - C36 Fraction (sum)	----	50	mg/kg		<50	**2820**	<50	**310**	**1880**
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions									
C6 - C10 Fraction	C6_C10	10	mg/kg		<10	<10	<10	<10	<10
^ C6 - C10 Fraction minus BTEX (F1)	C6_C10-BTEX	10	mg/kg		<10	<10	<10	<10	<10
>C10 - C16 Fraction	----	50	mg/kg		<50	**200**	<50	<50	**140**
>C16 - C34 Fraction	----	100	mg/kg		<100	**2620**	<100	**300**	**1630**
>C34 - C40 Fraction	----	100	mg/kg		<100	**300**	<100	<100	**340**
^ >C10 - C40 Fraction (sum)	----	50	mg/kg		<50	**3120**	<50	**300**	**2110**
^ >C10 - C16 Fraction minus Naphthalene (F2)	----	50	mg/kg		<50	**200**	<50	<50	**140**
EP080: BTEXN									
Benzene	71-43-2	0.2	mg/kg		<0.2	<0.2	<0.2	<0.2	<0.2
Toluene	108-88-3	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Ethylbenzene	100-41-4	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
ortho-Xylene	95-47-6	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
^ Sum of BTEX	----	0.2	mg/kg		<0.2	<0.2	<0.2	<0.2	<0.2
^ Total Xylenes	1330-20-7	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Naphthalene	91-20-3	1	mg/kg		<1	<1	<1	<1	**2**
EP066S: PCB Surrogate									
Decachlorobiphenyl	2051-24-3	0.1	%		**61.0**	**96.0**	**62.0**	**65.0**	**65.0**
EP068S: Organochlorine Pesticide Surrogate									
Dibromo-DDE	21655-73-2	0.05	%		**108**	**97.0**	**79.5**	**96.6**	**76.1**
EP068T: Organophosphorus Pesticide Surrogate									
DEF	78-48-8	0.05	%		**88.0**	**116**	**94.4**	**92.9**	**85.9**
EP075(SIM)S: Phenolic Compound Surrogates									
Phenol-d6	13127-88-3	0.5	%		**123**	**126**	**122**	**126**	**127**
2-Chlorophenol-D4	93951-73-6	0.5	%		**111**	**115**	**116**	**112**	**115**
2.4.6-Tribromophenol	118-79-6	0.5	%		**85.5**	**118**	**116**	**111**	**122**
EP075(SIM)T: PAH Surrogates									
2-Fluorobiphenyl	321-60-8	0.5	%		**124**	**120**	**122**	**116**	**118**
Anthracene-d10	1719-06-8	0.5	%		**112**	**113**	**117**	**111**	**112**

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Client sample ID	S101	S102	S105	BHR2 0-0.2	BHR3 0-0.2
				Client sampling date / time	[26-Feb-2016]	[26-Feb-2016]	[26-Feb-2016]	[26-Feb-2016]	[26-Feb-2016]
Compound	CAS Number	LOR	Unit		ES1604423-001	ES1604423-002	ES1604423-004	ES1604423-006	ES1604423-007
					Result	Result	Result	Result	Result
EP075(SIM)T: PAH Surrogates - Continued									
4-Terphenyl-d14	1718-51-0	0.5	%		117	114	127	122	114
EP080S: TPH(V)/BTEX Surrogates									
1.2-Dichloroethane-D4	17060-07-0	0.2	%		90.2	87.9	99.2	91.6	90.6
Toluene-D8	2037-26-5	0.2	%		85.5	91.9	95.7	93.7	94.4
4-Bromofluorobenzene	460-00-4	0.2	%		87.4	88.3	96.6	91.5	91.0

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)			Client sample ID	BHR4 0-0.4	BHR5 0-0.4	BH6 0.2-0.4	BH7 0.2-0.4	S107
			Client sampling date / time	[26-Feb-2016]	[26-Feb-2016]	[26-Feb-2016]	[26-Feb-2016]	[26-Feb-2016]
Compound	CAS Number	LOR	Unit	ES1604423-008	ES1604423-009	ES1604423-010	ES1604423-011	ES1604423-012
				Result	Result	Result	Result	Result
EA002 : pH (Soils)								
pH Value	----	0.1	pH Unit	----	----	----	----	----
EA026 : Chromium Reducible Sulfur								
Chromium Reducible Sulphur	----	0.005	%	----	----	----	----	----
EA037: Ass Field Screening Analysis								
pH (F)	----	0.1	pH Unit	----	----	----	----	----
pH (Fox)	----	0.1	pH Unit	----	----	----	----	----
Reaction Rate	----	1	-	----	----	----	----	----
EA055: Moisture Content								
Moisture Content (dried @ 103°C)	----	1	%	10.1	6.1	16.7	7.9	5.6
EA200: AS 4964 - 2004 Identification of Asbestos in Soils								
Asbestos Detected	1332-21-4	0.1	g/kg	No	No	No	No	No
Asbestos Type	1332-21-4	-	--	-	-	-	-	-
Sample weight (dry)	----	0.01	g	40.5	42.1	29.2	32.8	34.4
APPROVED IDENTIFIER:	----	-	--	S.SPOONER	S.SPOONER	S.SPOONER	S.SPOONER	S.SPOONER
ED040S : Soluble Sulfate by ICPAES								
Sulfate as SO4 2-	14808-79-8	10	mg/kg	----	----	----	----	----
ED045G: Chloride by Discrete Analyser								
Chloride	16887-00-6	10	mg/kg	----	----	----	----	----
EG005T: Total Metals by ICP-AES								
Arsenic	7440-38-2	5	mg/kg	51	<5	6	<5	<5
Cadmium	7440-43-9	1	mg/kg	4	<1	<1	<1	<1
Chromium	7440-47-3	2	mg/kg	273	7	5	4	6
Copper	7440-50-8	5	mg/kg	18400	64	25	15	29
Lead	7439-92-1	5	mg/kg	2530	81	430	69	89
Nickel	7440-02-0	2	mg/kg	249	14	18	5	7
Zinc	7440-66-6	5	mg/kg	4750	127	127	93	117
EG035T: Total Recoverable Mercury by FIMS								
Mercury	7439-97-6	0.1	mg/kg	0.5	0.1	0.2	<0.1	0.1
EP066: Polychlorinated Biphenyls (PCB)								
Total Polychlorinated biphenyls	----	0.1	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
EP068A: Organochlorine Pesticides (OC)								
alpha-BHC	319-84-6	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
Hexachlorobenzene (HCB)	118-74-1	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)			Client sample ID	BHR4 0-0.4	BHR5 0-0.4	BH6 0.2-0.4	BH7 0.2-0.4	S107
			Client sampling date / time	[26-Feb-2016]	[26-Feb-2016]	[26-Feb-2016]	[26-Feb-2016]	[26-Feb-2016]
Compound	CAS Number	LOR	Unit	ES1604423-008	ES1604423-009	ES1604423-010	ES1604423-011	ES1604423-012
				Result	Result	Result	Result	Result
EP068A: Organochlorine Pesticides (OC) - Continued								
beta-BHC	319-85-7	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
gamma-BHC	58-89-9	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
delta-BHC	319-86-8	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
Heptachlor	76-44-8	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
Aldrin	309-00-2	0.05	mg/kg	<0.05	<0.05	**0.08**	**0.06**	<0.05
Heptachlor epoxide	1024-57-3	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
^ Total Chlordane (sum)	----	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
trans-Chlordane	5103-74-2	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
alpha-Endosulfan	959-98-8	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
cis-Chlordane	5103-71-9	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
Dieldrin	60-57-1	0.05	mg/kg	<0.05	<0.05	**0.40**	**0.28**	**0.10**
4.4`-DDE	72-55-9	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
Endrin	72-20-8	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
beta-Endosulfan	33213-65-9	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
^ Endosulfan (sum)	115-29-7	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
4.4`-DDD	72-54-8	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
Endrin aldehyde	7421-93-4	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
Endosulfan sulfate	1031-07-8	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
4.4`-DDT	50-29-3	0.2	mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
Endrin ketone	53494-70-5	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
Methoxychlor	72-43-5	0.2	mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
^ Sum of Aldrin + Dieldrin	309-00-2/60-57-1	0.05	mg/kg	<0.05	<0.05	**0.48**	**0.34**	**0.10**
^ Sum of DDD + DDE + DDT	72-54-8/72-55-9/50-29-3	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
EP068B: Organophosphorus Pesticides (OP)								
Dichlorvos	62-73-7	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
Demeton-S-methyl	919-86-8	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
Monocrotophos	6923-22-4	0.2	mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
Dimethoate	60-51-5	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
Diazinon	333-41-5	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
Chlorpyrifos-methyl	5598-13-0	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
Parathion-methyl	298-00-0	0.2	mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
Malathion	121-75-5	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
Fenthion	55-38-9	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
Chlorpyrifos	2921-88-2	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Client sample ID	BHR4 0-0.4	BHR5 0-0.4	BH6 0.2-0.4	BH7 0.2-0.4	S107
				Client sampling date / time	[26-Feb-2016]	[26-Feb-2016]	[26-Feb-2016]	[26-Feb-2016]	[26-Feb-2016]
Compound	CAS Number	LOR	Unit		ES1604423-008	ES1604423-009	ES1604423-010	ES1604423-011	ES1604423-012
					Result	Result	Result	Result	Result
EP068B: Organophosphorus Pesticides (OP) - Continued									
Parathion	56-38-2	0.2	mg/kg		<0.2	<0.2	<0.2	<0.2	<0.2
Pirimphos-ethyl	23505-41-1	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
Chlorfenvinphos	470-90-6	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
Bromophos-ethyl	4824-78-6	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
Fenamiphos	22224-92-6	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
Prothiofos	34643-46-4	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
Ethion	563-12-2	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
Carbophenothion	786-19-6	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
Azinphos Methyl	86-50-0	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons									
Naphthalene	91-20-3	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	**0.6**
Acenaphthylene	208-96-8	0.5	mg/kg		**1.4**	<0.5	<0.5	<0.5	**0.8**
Acenaphthene	83-32-9	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Fluorene	86-73-7	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Phenanthrene	85-01-8	0.5	mg/kg		**5.2**	**0.8**	**1.0**	**0.9**	**2.6**
Anthracene	120-12-7	0.5	mg/kg		**1.7**	<0.5	<0.5	<0.5	**0.9**
Fluoranthene	206-44-0	0.5	mg/kg		**10.6**	**1.7**	**1.4**	**1.4**	**5.4**
Pyrene	129-00-0	0.5	mg/kg		**11.0**	**1.6**	**1.4**	**1.4**	**5.0**
Benz(a)anthracene	56-55-3	0.5	mg/kg		**6.4**	**1.0**	**0.8**	**0.8**	**2.9**
Chrysene	218-01-9	0.5	mg/kg		**5.7**	**0.9**	**0.7**	**0.7**	**2.3**
Benzo(b+j)fluoranthene	205-99-2 205-82-3	0.5	mg/kg		**8.4**	**1.4**	**0.8**	**0.9**	**3.0**
Benzo(k)fluoranthene	207-08-9	0.5	mg/kg		**2.8**	**0.5**	<0.5	<0.5	**1.4**
Benzo(a)pyrene	50-32-8	0.5	mg/kg		**6.1**	**1.0**	<0.5	**0.6**	**2.2**
Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg		**2.9**	<0.5	<0.5	<0.5	**0.9**
Dibenz(a.h)anthracene	53-70-3	0.5	mg/kg		**0.7**	<0.5	<0.5	<0.5	<0.5
Benzo(g.h.i)perylene	191-24-2	0.5	mg/kg		**3.7**	**0.6**	<0.5	<0.5	**1.0**
^ Sum of polycyclic aromatic hydrocarbons	----	0.5	mg/kg		**66.6**	**9.5**	**6.1**	**6.7**	**29.0**
^ Benzo(a)pyrene TEQ (zero)	----	0.5	mg/kg		**8.9**	**1.3**	<0.5	**0.8**	**3.0**
^ Benzo(a)pyrene TEQ (half LOR)	----	0.5	mg/kg		**8.9**	**1.6**	**0.7**	**1.1**	**3.3**
^ Benzo(a)pyrene TEQ (LOR)	----	0.5	mg/kg		**8.9**	**1.8**	**1.3**	**1.4**	**3.6**
EP080/071: Total Petroleum Hydrocarbons									
C6 - C9 Fraction	----	10	mg/kg		<10	<10	<10	<10	<10
C10 - C14 Fraction	----	50	mg/kg		<50	<50	<50	<50	<50
C15 - C28 Fraction	----	100	mg/kg		**1540**	**110**	**430**	<100	**200**

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Client sample ID	BHR4 0-0.4	BHR5 0-0.4	BH6 0.2-0.4	BH7 0.2-0.4	S107
				Client sampling date / time	[26-Feb-2016]	[26-Feb-2016]	[26-Feb-2016]	[26-Feb-2016]	[26-Feb-2016]
Compound	CAS Number	LOR	Unit		ES1604423-008	ES1604423-009	ES1604423-010	ES1604423-011	ES1604423-012
					Result	Result	Result	Result	Result
EP080/071: Total Petroleum Hydrocarbons - Continued									
C29 - C36 Fraction	----	100	mg/kg		1370	<100	220	<100	160
^ C10 - C36 Fraction (sum)	----	50	mg/kg		2910	110	650	<50	360
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions									
C6 - C10 Fraction	C6_C10	10	mg/kg		<10	<10	<10	<10	<10
^ C6 - C10 Fraction minus BTEX (F1)	C6_C10-BTEX	10	mg/kg		<10	<10	<10	<10	<10
>C10 - C16 Fraction	----	50	mg/kg		<50	<50	60	<50	<50
>C16 - C34 Fraction	----	100	mg/kg		2860	170	600	160	310
>C34 - C40 Fraction	----	100	mg/kg		580	<100	120	<100	100
^ >C10 - C40 Fraction (sum)	----	50	mg/kg		3440	170	780	160	410
^ >C10 - C16 Fraction minus Naphthalene (F2)	----	50	mg/kg		<50	<50	60	<50	<50
EP080: BTEXN									
Benzene	71-43-2	0.2	mg/kg		<0.2	0.3	<0.2	<0.2	<0.2
Toluene	108-88-3	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Ethylbenzene	100-41-4	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
ortho-Xylene	95-47-6	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
^ Sum of BTEX	----	0.2	mg/kg		<0.2	0.3	<0.2	<0.2	<0.2
^ Total Xylenes	1330-20-7	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Naphthalene	91-20-3	1	mg/kg		<1	<1	<1	<1	<1
EP066S: PCB Surrogate									
Decachlorobiphenyl	2051-24-3	0.1	%		61.0	60.0	79.0	67.0	63.0
EP068S: Organochlorine Pesticide Surrogate									
Dibromo-DDE	21655-73-2	0.05	%		100	92.1	103	70.6	117
EP068T: Organophosphorus Pesticide Surrogate									
DEF	78-48-8	0.05	%		110	94.7	108	70.1	117
EP075(SIM)S: Phenolic Compound Surrogates									
Phenol-d6	13127-88-3	0.5	%		118	114	117	118	115
2-Chlorophenol-D4	93951-73-6	0.5	%		114	112	99.2	116	117
2.4.6-Tribromophenol	118-79-6	0.5	%		117	118	116	111	110
EP075(SIM)T: PAH Surrogates									
2-Fluorobiphenyl	321-60-8	0.5	%		120	117	118	118	118
Anthracene-d10	1719-06-8	0.5	%		116	114	108	117	115

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Client sample ID	BHR4 0-0.4	BHR5 0-0.4	BH6 0.2-0.4	BH7 0.2-0.4	S107
				Client sampling date / time	[26-Feb-2016]	[26-Feb-2016]	[26-Feb-2016]	[26-Feb-2016]	[26-Feb-2016]
Compound	CAS Number	LOR	Unit		ES1604423-008	ES1604423-009	ES1604423-010	ES1604423-011	ES1604423-012
					Result	Result	Result	Result	Result
EP075(SIM)T: PAH Surrogates - Continued									
4-Terphenyl-d14	1718-51-0	0.5	%		113	122	121	127	125
EP080S: TPH(V)/BTEX Surrogates									
1.2-Dichloroethane-D4	17060-07-0	0.2	%		94.0	89.1	82.2	90.3	84.7
Toluene-D8	2037-26-5	0.2	%		100	86.9	85.4	89.2	91.4
4-Bromofluorobenzene	460-00-4	0.2	%		94.8	88.7	80.0	90.0	88.2

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)			Client sample ID	S104	BHR4 1-1.2	BHR2 2.4-2.5	BHR2 3.5-3.6	BHR2 4.1-4.2
			Client sampling date / time	[26-Feb-2016]	[26-Feb-2016]	[26-Feb-2016]	[26-Feb-2016]	[26-Feb-2016]
Compound	CAS Number	LOR	Unit	ES1604423-013	ES1604423-014	ES1604423-015	ES1604423-016	ES1604423-017
				Result	Result	Result	Result	Result
EA002 : pH (Soils)								
pH Value	----	0.1	pH Unit	----	----	----	----	7.8
EA026 : Chromium Reducible Sulfur								
Chromium Reducible Sulphur	----	0.005	%	----	----	----	<0.005	<0.005
EA037: Ass Field Screening Analysis								
pH (F)	----	0.1	pH Unit	----	----	5.8	6.4	7.0
pH (Fox)	----	0.1	pH Unit	----	----	5.0	5.0	5.0
Reaction Rate	----	1	-	----	----	1	1	1
EA055: Moisture Content								
Moisture Content (dried @ 103°C)	----	1	%	14.0	9.7	----	----	20.0
EA200: AS 4964 - 2004 Identification of Asbestos in Soils								
Asbestos Detected	1332-21-4	0.1	g/kg	No	No	----	----	----
Asbestos Type	1332-21-4	-	--	-	-	----	----	----
Sample weight (dry)	----	0.01	g	29.4	30.8	----	----	----
APPROVED IDENTIFIER:	----	-	--	S.SPOONER	S.SPOONER	----	----	----
ED040S : Soluble Sulfate by ICPAES								
Sulfate as SO4 2-	14808-79-8	10	mg/kg	----	----	----	----	60
ED045G: Chloride by Discrete Analyser								
Chloride	16887-00-6	10	mg/kg	----	----	----	----	<10
EG005T: Total Metals by ICP-AES								
Arsenic	7440-38-2	5	mg/kg	<5	<5	----	----	----
Cadmium	7440-43-9	1	mg/kg	<1	<1	----	----	----
Chromium	7440-47-3	2	mg/kg	6	6	----	----	----
Copper	7440-50-8	5	mg/kg	78	132	----	----	----
Lead	7439-92-1	5	mg/kg	259	92	----	----	----
Nickel	7440-02-0	2	mg/kg	20	10	----	----	----
Zinc	7440-66-6	5	mg/kg	346	110	----	----	----
EG035T: Total Recoverable Mercury by FIMS								
Mercury	7439-97-6	0.1	mg/kg	0.2	0.1	----	----	----
EP066: Polychlorinated Biphenyls (PCB)								
Total Polychlorinated biphenyls	----	0.1	mg/kg	<0.1	<0.1	----	----	----
EP068A: Organochlorine Pesticides (OC)								
alpha-BHC	319-84-6	0.05	mg/kg	<0.05	<0.05	----	----	----
Hexachlorobenzene (HCB)	118-74-1	0.05	mg/kg	<0.05	<0.05	----	----	----

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)			Client sample ID	S104	BHR4 1-1.2	BHR2 2.4-2.5	BHR2 3.5-3.6	BHR2 4.1-4.2
			Client sampling date / time	[26-Feb-2016]	[26-Feb-2016]	[26-Feb-2016]	[26-Feb-2016]	[26-Feb-2016]
Compound	CAS Number	LOR	Unit	ES1604423-013	ES1604423-014	ES1604423-015	ES1604423-016	ES1604423-017
				Result	Result	Result	Result	Result
EP068A: Organochlorine Pesticides (OC) - Continued								
beta-BHC	319-85-7	0.05	mg/kg	<0.05	<0.05	----	----	----
gamma-BHC	58-89-9	0.05	mg/kg	<0.05	<0.05	----	----	----
delta-BHC	319-86-8	0.05	mg/kg	<0.05	<0.05	----	----	----
Heptachlor	76-44-8	0.05	mg/kg	<0.05	<0.05	----	----	----
Aldrin	309-00-2	0.05	mg/kg	<0.05	<0.05	----	----	----
Heptachlor epoxide	1024-57-3	0.05	mg/kg	<0.05	<0.05	----	----	----
^ Total Chlordane (sum)	----	0.05	mg/kg	<0.05	<0.05	----	----	----
trans-Chlordane	5103-74-2	0.05	mg/kg	<0.05	<0.05	----	----	----
alpha-Endosulfan	959-98-8	0.05	mg/kg	<0.05	<0.05	----	----	----
cis-Chlordane	5103-71-9	0.05	mg/kg	<0.05	<0.05	----	----	----
Dieldrin	60-57-1	0.05	mg/kg	<0.05	<0.05	----	----	----
4.4`-DDE	72-55-9	0.05	mg/kg	<0.05	<0.05	----	----	----
Endrin	72-20-8	0.05	mg/kg	<0.05	<0.05	----	----	----
beta-Endosulfan	33213-65-9	0.05	mg/kg	<0.05	<0.05	----	----	----
^ Endosulfan (sum)	115-29-7	0.05	mg/kg	<0.05	<0.05	----	----	----
4.4`-DDD	72-54-8	0.05	mg/kg	<0.05	<0.05	----	----	----
Endrin aldehyde	7421-93-4	0.05	mg/kg	<0.05	<0.05	----	----	----
Endosulfan sulfate	1031-07-8	0.05	mg/kg	<0.05	<0.05	----	----	----
4.4`-DDT	50-29-3	0.2	mg/kg	<0.2	<0.2	----	----	----
Endrin ketone	53494-70-5	0.05	mg/kg	<0.05	<0.05	----	----	----
Methoxychlor	72-43-5	0.2	mg/kg	<0.2	<0.2	----	----	----
^ Sum of Aldrin + Dieldrin	309-00-2/60-57-1	0.05	mg/kg	<0.05	<0.05	----	----	----
^ Sum of DDD + DDE + DDT	72-54-8/72-55-9/50-2	0.05	mg/kg	<0.05	<0.05	----	----	----
EP068B: Organophosphorus Pesticides (OP)								
Dichlorvos	62-73-7	0.05	mg/kg	<0.05	<0.05	----	----	----
Demeton-S-methyl	919-86-8	0.05	mg/kg	<0.05	<0.05	----	----	----
Monocrotophos	6923-22-4	0.2	mg/kg	<0.2	<0.2	----	----	----
Dimethoate	60-51-5	0.05	mg/kg	<0.05	<0.05	----	----	----
Diazinon	333-41-5	0.05	mg/kg	<0.05	<0.05	----	----	----
Chlorpyrifos-methyl	5598-13-0	0.05	mg/kg	<0.05	<0.05	----	----	----
Parathion-methyl	298-00-0	0.2	mg/kg	<0.2	<0.2	----	----	----
Malathion	121-75-5	0.05	mg/kg	<0.05	<0.05	----	----	----
Fenthion	55-38-9	0.05	mg/kg	<0.05	<0.05	----	----	----
Chlorpyrifos	2921-88-2	0.05	mg/kg	<0.05	<0.05	----	----	----

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Client sample ID	S104	BHR4 1-1.2	BHR2 2.4-2.5	BHR2 3.5-3.6	BHR2 4.1-4.2
				Client sampling date / time	[26-Feb-2016]	[26-Feb-2016]	[26-Feb-2016]	[26-Feb-2016]	[26-Feb-2016]
Compound	CAS Number	LOR	Unit		ES1604423-013	ES1604423-014	ES1604423-015	ES1604423-016	ES1604423-017
					Result	Result	Result	Result	Result
EP068B: Organophosphorus Pesticides (OP) - Continued									
Parathion	56-38-2	0.2	mg/kg		<0.2	<0.2	----	----	----
Pirimphos-ethyl	23505-41-1	0.05	mg/kg		<0.05	<0.05	----	----	----
Chlorfenvinphos	470-90-6	0.05	mg/kg		<0.05	<0.05	----	----	----
Bromophos-ethyl	4824-78-6	0.05	mg/kg		<0.05	<0.05	----	----	----
Fenamiphos	22224-92-6	0.05	mg/kg		<0.05	<0.05	----	----	----
Prothiofos	34643-46-4	0.05	mg/kg		<0.05	<0.05	----	----	----
Ethion	563-12-2	0.05	mg/kg		<0.05	<0.05	----	----	----
Carbophenothion	786-19-6	0.05	mg/kg		<0.05	<0.05	----	----	----
Azinphos Methyl	86-50-0	0.05	mg/kg		<0.05	<0.05	----	----	----
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons									
Naphthalene	91-20-3	0.5	mg/kg		**0.9**	<0.5	----	----	----
Acenaphthylene	208-96-8	0.5	mg/kg		**4.6**	<0.5	----	----	----
Acenaphthene	83-32-9	0.5	mg/kg		**0.7**	<0.5	----	----	----
Fluorene	86-73-7	0.5	mg/kg		**2.9**	<0.5	----	----	----
Phenanthrene	85-01-8	0.5	mg/kg		**33.8**	**1.5**	----	----	----
Anthracene	120-12-7	0.5	mg/kg		**7.8**	<0.5	----	----	----
Fluoranthene	206-44-0	0.5	mg/kg		**32.5**	**3.4**	----	----	----
Pyrene	129-00-0	0.5	mg/kg		**26.0**	**3.0**	----	----	----
Benz(a)anthracene	56-55-3	0.5	mg/kg		**13.1**	**1.9**	----	----	----
Chrysene	218-01-9	0.5	mg/kg		**10.1**	**1.5**	----	----	----
Benzo(b+j)fluoranthene	205-99-2 205-82-3	0.5	mg/kg		**12.2**	**2.3**	----	----	----
Benzo(k)fluoranthene	207-08-9	0.5	mg/kg		**4.6**	**0.9**	----	----	----
Benzo(a)pyrene	50-32-8	0.5	mg/kg		**8.8**	**1.9**	----	----	----
Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg		**3.1**	**1.0**	----	----	----
Dibenz(a.h)anthracene	53-70-3	0.5	mg/kg		**1.0**	<0.5	----	----	----
Benzo(g.h.i)perylene	191-24-2	0.5	mg/kg		**3.4**	**1.0**	----	----	----
^ Sum of polycyclic aromatic hydrocarbons	----	0.5	mg/kg		**166**	**18.4**	----	----	----
^ Benzo(a)pyrene TEQ (zero)	----	0.5	mg/kg		**13.2**	**2.5**	----	----	----
^ Benzo(a)pyrene TEQ (half LOR)	----	0.5	mg/kg		**13.2**	**2.8**	----	----	----
^ Benzo(a)pyrene TEQ (LOR)	----	0.5	mg/kg		**13.2**	**3.0**	----	----	----
EP080/071: Total Petroleum Hydrocarbons									
C6 - C9 Fraction	----	10	mg/kg		<10	<10	----	----	----
C10 - C14 Fraction	----	50	mg/kg		<50	<50	----	----	----
C15 - C28 Fraction	----	100	mg/kg		**1070**	**120**	----	----	----

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Client sample ID	S104	BHR4 1-1.2	BHR2 2.4-2.5	BHR2 3.5-3.6	BHR2 4.1-4.2
				Client sampling date / time	[26-Feb-2016]	[26-Feb-2016]	[26-Feb-2016]	[26-Feb-2016]	[26-Feb-2016]
Compound	CAS Number	LOR	Unit		ES1604423-013	ES1604423-014	ES1604423-015	ES1604423-016	ES1604423-017
					Result	Result	Result	Result	Result
EP080/071: Total Petroleum Hydrocarbons - Continued									
C29 - C36 Fraction	----	100	mg/kg		**500**	<100	----	----	----
^ C10 - C36 Fraction (sum)	----	50	mg/kg		**1570**	**120**	----	----	----
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions									
C6 - C10 Fraction	C6_C10	10	mg/kg		<10	<10	----	----	----
^ C6 - C10 Fraction minus BTEX (F1)	C6_C10-BTEX	10	mg/kg		<10	<10	----	----	----
>C10 - C16 Fraction	----	50	mg/kg		**70**	<50	----	----	----
>C16 - C34 Fraction	----	100	mg/kg		**1490**	**180**	----	----	----
>C34 - C40 Fraction	----	100	mg/kg		**280**	<100	----	----	----
^ >C10 - C40 Fraction (sum)	----	50	mg/kg		**1840**	**180**	----	----	----
^ >C10 - C16 Fraction minus Naphthalene (F2)	----	50	mg/kg		**70**	<50	----	----	----
EP080: BTEXN									
Benzene	71-43-2	0.2	mg/kg		<0.2	<0.2	----	----	----
Toluene	108-88-3	0.5	mg/kg		<0.5	<0.5	----	----	----
Ethylbenzene	100-41-4	0.5	mg/kg		<0.5	<0.5	----	----	----
meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg		<0.5	<0.5	----	----	----
ortho-Xylene	95-47-6	0.5	mg/kg		<0.5	<0.5	----	----	----
^ Sum of BTEX	----	0.2	mg/kg		<0.2	<0.2	----	----	----
^ Total Xylenes	1330-20-7	0.5	mg/kg		<0.5	<0.5	----	----	----
Naphthalene	91-20-3	1	mg/kg		<1	<1	----	----	----
EP066S: PCB Surrogate									
Decachlorobiphenyl	2051-24-3	0.1	%		**70.0**	**64.0**	----	----	----
EP068S: Organochlorine Pesticide Surrogate									
Dibromo-DDE	21655-73-2	0.05	%		**105**	**97.2**	----	----	----
EP068T: Organophosphorus Pesticide Surrogate									
DEF	78-48-8	0.05	%		**79.4**	**96.8**	----	----	----
EP075(SIM)S: Phenolic Compound Surrogates									
Phenol-d6	13127-88-3	0.5	%		**102**	**123**	----	----	----
2-Chlorophenol-D4	93951-73-6	0.5	%		**94.3**	**114**	----	----	----
2.4.6-Tribromophenol	118-79-6	0.5	%		**102**	**112**	----	----	----
EP075(SIM)T: PAH Surrogates									
2-Fluorobiphenyl	321-60-8	0.5	%		**121**	**128**	----	----	----
Anthracene-d10	1719-06-8	0.5	%		**109**	**119**	----	----	----

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Client sample ID	S104	BHR4 1-1.2	BHR2 2.4-2.5	BHR2 3.5-3.6	BHR2 4.1-4.2
				Client sampling date / time	[26-Feb-2016]	[26-Feb-2016]	[26-Feb-2016]	[26-Feb-2016]	[26-Feb-2016]
Compound	CAS Number	LOR	Unit		ES1604423-013	ES1604423-014	ES1604423-015	ES1604423-016	ES1604423-017
					Result	Result	Result	Result	Result
EP075(SIM)T: PAH Surrogates - Continued									
4-Terphenyl-d14	1718-51-0	0.5	%		120	126	----	----	----
EP080S: TPH(V)/BTEX Surrogates									
1.2-Dichloroethane-D4	17060-07-0	0.2	%		86.2	91.6	----	----	----
Toluene-D8	2037-26-5	0.2	%		84.4	93.2	----	----	----
4-Bromofluorobenzene	460-00-4	0.2	%		81.6	90.0	----	----	----

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)			Client sample ID	BHR3 0.8-1.0	BHR3 1.3-1.5	BHR4 1.5-1.6	BHR4 2.0-2.2	BHR5 0.9-1.1
			Client sampling date / time	[26-Feb-2016]	[26-Feb-2016]	[26-Feb-2016]	[26-Feb-2016]	[26-Feb-2016]
Compound	CAS Number	LOR	Unit	ES1604423-018	ES1604423-019	ES1604423-020	ES1604423-021	ES1604423-022
				Result	Result	Result	Result	Result
EA002 : pH (Soils)								
pH Value	----	0.1	pH Unit	----	----	----	----	----
EA026 : Chromium Reducible Sulfur								
Chromium Reducible Sulphur	----	0.005	%	----	----	----	<0.005	----
EA037: Ass Field Screening Analysis								
pH (F)	----	0.1	pH Unit	4.7	5.0	6.4	6.6	6.2
pH (Fox)	----	0.1	pH Unit	3.4	3.8	4.3	4.3	4.0
Reaction Rate	----	1	-	1	1	1	1	1
EA055: Moisture Content								
Moisture Content (dried @ 103°C)	----	1	%	----	----	----	----	----
EA200: AS 4964 - 2004 Identification of Asbestos in Soils								
Asbestos Detected	1332-21-4	0.1	g/kg	----	----	----	----	----
Asbestos Type	1332-21-4	-	--	----	----	----	----	----
Sample weight (dry)	----	0.01	g	----	----	----	----	----
APPROVED IDENTIFIER:	----	-	--	----	----	----	----	----
ED040S : Soluble Sulfate by ICPAES								
Sulfate as SO4 2-	14808-79-8	10	mg/kg	----	----	----	----	----
ED045G: Chloride by Discrete Analyser								
Chloride	16887-00-6	10	mg/kg	----	----	----	----	----
EG005T: Total Metals by ICP-AES								
Arsenic	7440-38-2	5	mg/kg	----	----	----	----	----
Cadmium	7440-43-9	1	mg/kg	----	----	----	----	----
Chromium	7440-47-3	2	mg/kg	----	----	----	----	----
Copper	7440-50-8	5	mg/kg	----	----	----	----	----
Lead	7439-92-1	5	mg/kg	----	----	----	----	----
Nickel	7440-02-0	2	mg/kg	----	----	----	----	----
Zinc	7440-66-6	5	mg/kg	----	----	----	----	----
EG035T: Total Recoverable Mercury by FIMS								
Mercury	7439-97-6	0.1	mg/kg	----	----	----	----	----
EP066: Polychlorinated Biphenyls (PCB)								
Total Polychlorinated biphenyls	----	0.1	mg/kg	----	----	----	----	----
EP068A: Organochlorine Pesticides (OC)								
alpha-BHC	319-84-6	0.05	mg/kg	----	----	----	----	----
Hexachlorobenzene (HCB)	118-74-1	0.05	mg/kg	----	----	----	----	----

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)			Client sample ID	BHR3 0.8-1.0	BHR3 1.3-1.5	BHR4 1.5-1.6	BHR4 2.0-2.2	BHR5 0.9-1.1
			Client sampling date / time	[26-Feb-2016]	[26-Feb-2016]	[26-Feb-2016]	[26-Feb-2016]	[26-Feb-2016]
Compound	CAS Number	LOR	Unit	ES1604423-018	ES1604423-019	ES1604423-020	ES1604423-021	ES1604423-022
				Result	Result	Result	Result	Result
EP068A: Organochlorine Pesticides (OC) - Continued								
beta-BHC	319-85-7	0.05	mg/kg	----	----	----	----	----
gamma-BHC	58-89-9	0.05	mg/kg	----	----	----	----	----
delta-BHC	319-86-8	0.05	mg/kg	----	----	----	----	----
Heptachlor	76-44-8	0.05	mg/kg	----	----	----	----	----
Aldrin	309-00-2	0.05	mg/kg	----	----	----	----	----
Heptachlor epoxide	1024-57-3	0.05	mg/kg	----	----	----	----	----
^ Total Chlordane (sum)	----	0.05	mg/kg	----	----	----	----	----
trans-Chlordane	5103-74-2	0.05	mg/kg	----	----	----	----	----
alpha-Endosulfan	959-98-8	0.05	mg/kg	----	----	----	----	----
cis-Chlordane	5103-71-9	0.05	mg/kg	----	----	----	----	----
Dieldrin	60-57-1	0.05	mg/kg	----	----	----	----	----
4.4`-DDE	72-55-9	0.05	mg/kg	----	----	----	----	----
Endrin	72-20-8	0.05	mg/kg	----	----	----	----	----
beta-Endosulfan	33213-65-9	0.05	mg/kg	----	----	----	----	----
^ Endosulfan (sum)	115-29-7	0.05	mg/kg	----	----	----	----	----
4.4`-DDD	72-54-8	0.05	mg/kg	----	----	----	----	----
Endrin aldehyde	7421-93-4	0.05	mg/kg	----	----	----	----	----
Endosulfan sulfate	1031-07-8	0.05	mg/kg	----	----	----	----	----
4.4`-DDT	50-29-3	0.2	mg/kg	----	----	----	----	----
Endrin ketone	53494-70-5	0.05	mg/kg	----	----	----	----	----
Methoxychlor	72-43-5	0.2	mg/kg	----	----	----	----	----
^ Sum of Aldrin + Dieldrin	309-00-2/60-57-1	0.05	mg/kg	----	----	----	----	----
^ Sum of DDD + DDE + DDT	72-54-8/72-55-9/50-2	0.05	mg/kg	----	----	----	----	----
EP068B: Organophosphorus Pesticides (OP)								
Dichlorvos	62-73-7	0.05	mg/kg	----	----	----	----	----
Demeton-S-methyl	919-86-8	0.05	mg/kg	----	----	----	----	----
Monocrotophos	6923-22-4	0.2	mg/kg	----	----	----	----	----
Dimethoate	60-51-5	0.05	mg/kg	----	----	----	----	----
Diazinon	333-41-5	0.05	mg/kg	----	----	----	----	----
Chlorpyrifos-methyl	5598-13-0	0.05	mg/kg	----	----	----	----	----
Parathion-methyl	298-00-0	0.2	mg/kg	----	----	----	----	----
Malathion	121-75-5	0.05	mg/kg	----	----	----	----	----
Fenthion	55-38-9	0.05	mg/kg	----	----	----	----	----
Chlorpyrifos	2921-88-2	0.05	mg/kg	----	----	----	----	----

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Client sample ID	BHR3 0.8-1.0	BHR3 1.3-1.5	BHR4 1.5-1.6	BHR4 2.0-2.2	BHR5 0.9-1.1
				Client sampling date / time	[26-Feb-2016]	[26-Feb-2016]	[26-Feb-2016]	[26-Feb-2016]	[26-Feb-2016]
Compound	CAS Number	LOR	Unit		ES1604423-018	ES1604423-019	ES1604423-020	ES1604423-021	ES1604423-022
					Result	Result	Result	Result	Result
EP068B: Organophosphorus Pesticides (OP) - Continued									
Parathion	56-38-2	0.2	mg/kg		----	----	----	----	----
Pirimphos-ethyl	23505-41-1	0.05	mg/kg		----	----	----	----	----
Chlorfenvinphos	470-90-6	0.05	mg/kg		----	----	----	----	----
Bromophos-ethyl	4824-78-6	0.05	mg/kg		----	----	----	----	----
Fenamiphos	22224-92-6	0.05	mg/kg		----	----	----	----	----
Prothiofos	34643-46-4	0.05	mg/kg		----	----	----	----	----
Ethion	563-12-2	0.05	mg/kg		----	----	----	----	----
Carbophenothion	786-19-6	0.05	mg/kg		----	----	----	----	----
Azinphos Methyl	86-50-0	0.05	mg/kg		----	----	----	----	----
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons									
Naphthalene	91-20-3	0.5	mg/kg		----	----	----	----	----
Acenaphthylene	208-96-8	0.5	mg/kg		----	----	----	----	----
Acenaphthene	83-32-9	0.5	mg/kg		----	----	----	----	----
Fluorene	86-73-7	0.5	mg/kg		----	----	----	----	----
Phenanthrene	85-01-8	0.5	mg/kg		----	----	----	----	----
Anthracene	120-12-7	0.5	mg/kg		----	----	----	----	----
Fluoranthene	206-44-0	0.5	mg/kg		----	----	----	----	----
Pyrene	129-00-0	0.5	mg/kg		----	----	----	----	----
Benz(a)anthracene	56-55-3	0.5	mg/kg		----	----	----	----	----
Chrysene	218-01-9	0.5	mg/kg		----	----	----	----	----
Benzo(b+j)fluoranthene	205-99-2 205-82-3	0.5	mg/kg		----	----	----	----	----
Benzo(k)fluoranthene	207-08-9	0.5	mg/kg		----	----	----	----	----
Benzo(a)pyrene	50-32-8	0.5	mg/kg		----	----	----	----	----
Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg		----	----	----	----	----
Dibenz(a.h)anthracene	53-70-3	0.5	mg/kg		----	----	----	----	----
Benzo(g.h.i)perylene	191-24-2	0.5	mg/kg		----	----	----	----	----
^ Sum of polycyclic aromatic hydrocarbons	----	0.5	mg/kg		----	----	----	----	----
^ Benzo(a)pyrene TEQ (zero)	----	0.5	mg/kg		----	----	----	----	----
^ Benzo(a)pyrene TEQ (half LOR)	----	0.5	mg/kg		----	----	----	----	----
^ Benzo(a)pyrene TEQ (LOR)	----	0.5	mg/kg		----	----	----	----	----
EP080/071: Total Petroleum Hydrocarbons									
C6 - C9 Fraction	----	10	mg/kg		----	----	----	----	----
C10 - C14 Fraction	----	50	mg/kg		----	----	----	----	----
C15 - C28 Fraction	----	100	mg/kg		----	----	----	----	----

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Client sample ID	BHR3 0.8-1.0	BHR3 1.3-1.5	BHR4 1.5-1.6	BHR4 2.0-2.2	BHR5 0.9-1.1
				Client sampling date / time	[26-Feb-2016]	[26-Feb-2016]	[26-Feb-2016]	[26-Feb-2016]	[26-Feb-2016]
Compound	CAS Number	LOR	Unit		ES1604423-018	ES1604423-019	ES1604423-020	ES1604423-021	ES1604423-022
					Result	Result	Result	Result	Result
EP080/071: Total Petroleum Hydrocarbons - Continued									
C29 - C36 Fraction	----	100	mg/kg		----	----	----	----	----
^ C10 - C36 Fraction (sum)	----	50	mg/kg		----	----	----	----	----
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions									
C6 - C10 Fraction	C6_C10	10	mg/kg		----	----	----	----	----
^ C6 - C10 Fraction minus BTEX (F1)	C6_C10-BTEX	10	mg/kg		----	----	----	----	----
>C10 - C16 Fraction	----	50	mg/kg		----	----	----	----	----
>C16 - C34 Fraction	----	100	mg/kg		----	----	----	----	----
>C34 - C40 Fraction	----	100	mg/kg		----	----	----	----	----
^ >C10 - C40 Fraction (sum)	----	50	mg/kg		----	----	----	----	----
^ >C10 - C16 Fraction minus Naphthalene (F2)	----	50	mg/kg		----	----	----	----	----
EP080: BTEXN									
Benzene	71-43-2	0.2	mg/kg		----	----	----	----	----
Toluene	108-88-3	0.5	mg/kg		----	----	----	----	----
Ethylbenzene	100-41-4	0.5	mg/kg		----	----	----	----	----
meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg		----	----	----	----	----
ortho-Xylene	95-47-6	0.5	mg/kg		----	----	----	----	----
^ Sum of BTEX	----	0.2	mg/kg		----	----	----	----	----
^ Total Xylenes	1330-20-7	0.5	mg/kg		----	----	----	----	----
Naphthalene	91-20-3	1	mg/kg		----	----	----	----	----
EP066S: PCB Surrogate									
Decachlorobiphenyl	2051-24-3	0.1	%		----	----	----	----	----
EP068S: Organochlorine Pesticide Surrogate									
Dibromo-DDE	21655-73-2	0.05	%		----	----	----	----	----
EP068T: Organophosphorus Pesticide Surrogate									
DEF	78-48-8	0.05	%		----	----	----	----	----
EP075(SIM)S: Phenolic Compound Surrogates									
Phenol-d6	13127-88-3	0.5	%		----	----	----	----	----
2-Chlorophenol-D4	93951-73-6	0.5	%		----	----	----	----	----
2.4.6-Tribromophenol	118-79-6	0.5	%		----	----	----	----	----
EP075(SIM)T: PAH Surrogates									
2-Fluorobiphenyl	321-60-8	0.5	%		----	----	----	----	----
Anthracene-d10	1719-06-8	0.5	%		----	----	----	----	----

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Client sample ID	BHR3 0.8-1.0	BHR3 1.3-1.5	BHR4 1.5-1.6	BHR4 2.0-2.2	BHR5 0.9-1.1
				Client sampling date / time	[26-Feb-2016]	[26-Feb-2016]	[26-Feb-2016]	[26-Feb-2016]	[26-Feb-2016]
Compound	CAS Number	LOR	Unit		ES1604423-018	ES1604423-019	ES1604423-020	ES1604423-021	ES1604423-022
					Result	Result	Result	Result	Result
EP075(SIM)T: PAH Surrogates - Continued									
4-Terphenyl-d14	1718-51-0	0.5	%		----	----	----	----	----
EP080S: TPH(V)/BTEX Surrogates									
1.2-Dichloroethane-D4	17060-07-0	0.2	%		----	----	----	----	----
Toluene-D8	2037-26-5	0.2	%		----	----	----	----	----
4-Bromofluorobenzene	460-00-4	0.2	%		----	----	----	----	----

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)			Client sample ID	BHR5 2.5-2.7	----	----	----	----
			Client sampling date / time	[26-Feb-2016]	----	----	----	----
Compound	CAS Number	LOR	Unit	ES1604423-023	--------	--------	--------	--------
				Result	Result	Result	Result	Result
EA002 : pH (Soils)								
pH Value	----	0.1	pH Unit	----	----	----	----	----
EA026 : Chromium Reducible Sulfur								
Chromium Reducible Sulphur	----	0.005	%	<0.005	----	----	----	----
EA037: Ass Field Screening Analysis								
pH (F)	----	0.1	pH Unit	**5.9**	----	----	----	----
pH (Fox)	----	0.1	pH Unit	**5.0**	----	----	----	----
Reaction Rate	----	1	-	**1**	----	----	----	----
EA055: Moisture Content								
Moisture Content (dried @ 103°C)	----	1	%	----	----	----	----	----
EA200: AS 4964 - 2004 Identification of Asbestos in Soils								
Asbestos Detected	1332-21-4	0.1	g/kg	----	----	----	----	----
Asbestos Type	1332-21-4	-	--	----	----	----	----	----
Sample weight (dry)	----	0.01	g	----	----	----	----	----
APPROVED IDENTIFIER:	----	-	--	----	----	----	----	----
ED040S : Soluble Sulfate by ICPAES								
Sulfate as SO4 2-	14808-79-8	10	mg/kg	----	----	----	----	----
ED045G: Chloride by Discrete Analyser								
Chloride	16887-00-6	10	mg/kg	----	----	----	----	----
EG005T: Total Metals by ICP-AES								
Arsenic	7440-38-2	5	mg/kg	----	----	----	----	----
Cadmium	7440-43-9	1	mg/kg	----	----	----	----	----
Chromium	7440-47-3	2	mg/kg	----	----	----	----	----
Copper	7440-50-8	5	mg/kg	----	----	----	----	----
Lead	7439-92-1	5	mg/kg	----	----	----	----	----
Nickel	7440-02-0	2	mg/kg	----	----	----	----	----
Zinc	7440-66-6	5	mg/kg	----	----	----	----	----
EG035T: Total Recoverable Mercury by FIMS								
Mercury	7439-97-6	0.1	mg/kg	----	----	----	----	----
EP066: Polychlorinated Biphenyls (PCB)								
Total Polychlorinated biphenyls	----	0.1	mg/kg	----	----	----	----	----
EP068A: Organochlorine Pesticides (OC)								
alpha-BHC	319-84-6	0.05	mg/kg	----	----	----	----	----
Hexachlorobenzene (HCB)	118-74-1	0.05	mg/kg	----	----	----	----	----

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)			Client sample ID	BHR5 2.5-2.7	----	----	----	----
			Client sampling date / time	[26-Feb-2016]	----	----	----	----
Compound	CAS Number	LOR	Unit	ES1604423-023	--------	--------	--------	--------
				Result	Result	Result	Result	Result
EP068A: Organochlorine Pesticides (OC) - Continued								
beta-BHC	319-85-7	0.05	mg/kg	----	----	----	----	----
gamma-BHC	58-89-9	0.05	mg/kg	----	----	----	----	----
delta-BHC	319-86-8	0.05	mg/kg	----	----	----	----	----
Heptachlor	76-44-8	0.05	mg/kg	----	----	----	----	----
Aldrin	309-00-2	0.05	mg/kg	----	----	----	----	----
Heptachlor epoxide	1024-57-3	0.05	mg/kg	----	----	----	----	----
^ Total Chlordane (sum)	----	0.05	mg/kg	----	----	----	----	----
trans-Chlordane	5103-74-2	0.05	mg/kg	----	----	----	----	----
alpha-Endosulfan	959-98-8	0.05	mg/kg	----	----	----	----	----
cis-Chlordane	5103-71-9	0.05	mg/kg	----	----	----	----	----
Dieldrin	60-57-1	0.05	mg/kg	----	----	----	----	----
4.4`-DDE	72-55-9	0.05	mg/kg	----	----	----	----	----
Endrin	72-20-8	0.05	mg/kg	----	----	----	----	----
beta-Endosulfan	33213-65-9	0.05	mg/kg	----	----	----	----	----
^ Endosulfan (sum)	115-29-7	0.05	mg/kg	----	----	----	----	----
4.4`-DDD	72-54-8	0.05	mg/kg	----	----	----	----	----
Endrin aldehyde	7421-93-4	0.05	mg/kg	----	----	----	----	----
Endosulfan sulfate	1031-07-8	0.05	mg/kg	----	----	----	----	----
4.4`-DDT	50-29-3	0.2	mg/kg	----	----	----	----	----
Endrin ketone	53494-70-5	0.05	mg/kg	----	----	----	----	----
Methoxychlor	72-43-5	0.2	mg/kg	----	----	----	----	----
^ Sum of Aldrin + Dieldrin	309-00-2/60-57-1	0.05	mg/kg	----	----	----	----	----
^ Sum of DDD + DDE + DDT	72-54-8/72-55-9/50-29-3	0.05	mg/kg	----	----	----	----	----
EP068B: Organophosphorus Pesticides (OP)								
Dichlorvos	62-73-7	0.05	mg/kg	----	----	----	----	----
Demeton-S-methyl	919-86-8	0.05	mg/kg	----	----	----	----	----
Monocrotophos	6923-22-4	0.2	mg/kg	----	----	----	----	----
Dimethoate	60-51-5	0.05	mg/kg	----	----	----	----	----
Diazinon	333-41-5	0.05	mg/kg	----	----	----	----	----
Chlorpyrifos-methyl	5598-13-0	0.05	mg/kg	----	----	----	----	----
Parathion-methyl	298-00-0	0.2	mg/kg	----	----	----	----	----
Malathion	121-75-5	0.05	mg/kg	----	----	----	----	----
Fenthion	55-38-9	0.05	mg/kg	----	----	----	----	----
Chlorpyrifos	2921-88-2	0.05	mg/kg	----	----	----	----	----

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Client sample ID	BHR5 2.5-2.7	----	----	----	----
				Client sampling date / time	[26-Feb-2016]	----	----	----	----
Compound	CAS Number	LOR	Unit		ES1604423-023	--------	--------	--------	--------
					Result	Result	Result	Result	Result
EP068B: Organophosphorus Pesticides (OP) - Continued									
Parathion	56-38-2	0.2	mg/kg		----	----	----	----	----
Pirimphos-ethyl	23505-41-1	0.05	mg/kg		----	----	----	----	----
Chlorfenvinphos	470-90-6	0.05	mg/kg		----	----	----	----	----
Bromophos-ethyl	4824-78-6	0.05	mg/kg		----	----	----	----	----
Fenamiphos	22224-92-6	0.05	mg/kg		----	----	----	----	----
Prothiofos	34643-46-4	0.05	mg/kg		----	----	----	----	----
Ethion	563-12-2	0.05	mg/kg		----	----	----	----	----
Carbophenothion	786-19-6	0.05	mg/kg		----	----	----	----	----
Azinphos Methyl	86-50-0	0.05	mg/kg		----	----	----	----	----
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons									
Naphthalene	91-20-3	0.5	mg/kg		----	----	----	----	----
Acenaphthylene	208-96-8	0.5	mg/kg		----	----	----	----	----
Acenaphthene	83-32-9	0.5	mg/kg		----	----	----	----	----
Fluorene	86-73-7	0.5	mg/kg		----	----	----	----	----
Phenanthrene	85-01-8	0.5	mg/kg		----	----	----	----	----
Anthracene	120-12-7	0.5	mg/kg		----	----	----	----	----
Fluoranthene	206-44-0	0.5	mg/kg		----	----	----	----	----
Pyrene	129-00-0	0.5	mg/kg		----	----	----	----	----
Benz(a)anthracene	56-55-3	0.5	mg/kg		----	----	----	----	----
Chrysene	218-01-9	0.5	mg/kg		----	----	----	----	----
Benzo(b+j)fluoranthene	205-99-2 205-82-3	0.5	mg/kg		----	----	----	----	----
Benzo(k)fluoranthene	207-08-9	0.5	mg/kg		----	----	----	----	----
Benzo(a)pyrene	50-32-8	0.5	mg/kg		----	----	----	----	----
Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg		----	----	----	----	----
Dibenz(a.h)anthracene	53-70-3	0.5	mg/kg		----	----	----	----	----
Benzo(g.h.i)perylene	191-24-2	0.5	mg/kg		----	----	----	----	----
^ Sum of polycyclic aromatic hydrocarbons	----	0.5	mg/kg		----	----	----	----	----
^ Benzo(a)pyrene TEQ (zero)	----	0.5	mg/kg		----	----	----	----	----
^ Benzo(a)pyrene TEQ (half LOR)	----	0.5	mg/kg		----	----	----	----	----
^ Benzo(a)pyrene TEQ (LOR)	----	0.5	mg/kg		----	----	----	----	----
EP080/071: Total Petroleum Hydrocarbons									
C6 - C9 Fraction	----	10	mg/kg		----	----	----	----	----
C10 - C14 Fraction	----	50	mg/kg		----	----	----	----	----
C15 - C28 Fraction	----	100	mg/kg		----	----	----	----	----

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)			Client sample ID	BHR5 2.5-2.7	----	----	----	----
			Client sampling date / time	[26-Feb-2016]	----	----	----	----
Compound	CAS Number	LOR	Unit	ES1604423-023	--------	--------	--------	--------
				Result	Result	Result	Result	Result
EP080/071: Total Petroleum Hydrocarbons - Continued								
C29 - C36 Fraction	----	100	mg/kg	----	----	----	----	----
^ C10 - C36 Fraction (sum)	----	50	mg/kg	----	----	----	----	----
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions								
C6 - C10 Fraction	C6_C10	10	mg/kg	----	----	----	----	----
^ C6 - C10 Fraction minus BTEX (F1)	C6_C10-BTEX	10	mg/kg	----	----	----	----	----
>C10 - C16 Fraction	----	50	mg/kg	----	----	----	----	----
>C16 - C34 Fraction	----	100	mg/kg	----	----	----	----	----
>C34 - C40 Fraction	----	100	mg/kg	----	----	----	----	----
^ >C10 - C40 Fraction (sum)	----	50	mg/kg	----	----	----	----	----
^ >C10 - C16 Fraction minus Naphthalene (F2)	----	50	mg/kg	----	----	----	----	----
EP080: BTEXN								
Benzene	71-43-2	0.2	mg/kg	----	----	----	----	----
Toluene	108-88-3	0.5	mg/kg	----	----	----	----	----
Ethylbenzene	100-41-4	0.5	mg/kg	----	----	----	----	----
meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	----	----	----	----	----
ortho-Xylene	95-47-6	0.5	mg/kg	----	----	----	----	----
^ Sum of BTEX	----	0.2	mg/kg	----	----	----	----	----
^ Total Xylenes	1330-20-7	0.5	mg/kg	----	----	----	----	----
Naphthalene	91-20-3	1	mg/kg	----	----	----	----	----
EP066S: PCB Surrogate								
Decachlorobiphenyl	2051-24-3	0.1	%	----	----	----	----	----
EP068S: Organochlorine Pesticide Surrogate								
Dibromo-DDE	21655-73-2	0.05	%	----	----	----	----	----
EP068T: Organophosphorus Pesticide Surrogate								
DEF	78-48-8	0.05	%	----	----	----	----	----
EP075(SIM)S: Phenolic Compound Surrogates								
Phenol-d6	13127-88-3	0.5	%	----	----	----	----	----
2-Chlorophenol-D4	93951-73-6	0.5	%	----	----	----	----	----
2.4.6-Tribromophenol	118-79-6	0.5	%	----	----	----	----	----
EP075(SIM)T: PAH Surrogates								
2-Fluorobiphenyl	321-60-8	0.5	%	----	----	----	----	----
Anthracene-d10	1719-06-8	0.5	%	----	----	----	----	----

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Client sample ID	BHR5 2.5-2.7	----	----	----	----
				Client sampling date / time	[26-Feb-2016]	----	----	----	----
Compound	CAS Number	LOR	Unit		ES1604423-023	--------	--------	--------	--------
					Result	Result	Result	Result	Result
EP075(SIM)T: PAH Surrogates - Continued									
4-Terphenyl-d14	1718-51-0	0.5	%		----	----	----	----	----
EP080S: TPH(V)/BTEX Surrogates									
1.2-Dichloroethane-D4	17060-07-0	0.2	%		----	----	----	----	----
Toluene-D8	2037-26-5	0.2	%		----	----	----	----	----
4-Bromofluorobenzene	460-00-4	0.2	%		----	----	----	----	----

Analytical Results

Descriptive Results

Sub-Matrix: **SOIL**

Method: Compound	Client sample ID - Client sampling date / time	Analytical Results
EA200: AS 4964 - 2004 Identification of Asbestos in Soils		
EA200: Description	S101 - [26-Feb-2016]	Mid brown clay soil with grey rocks.
EA200: Description	S102 - [26-Feb-2016]	Mid brown sandy soil with grey rocks.
EA200: Description	S105 - [26-Feb-2016]	Mid grey sandy soil with grey rocks.
EA200: Description	BHR2 0-0.2 - [26-Feb-2016]	Pale brown sandy soil with grey rocks.
EA200: Description	BHR3 0-0.2 - [26-Feb-2016]	Mid brown sandy soil with grey rocks.
EA200: Description	BHR4 0-0.4 - [26-Feb-2016]	Mid brown sandy soil with grey rocks.
EA200: Description	BHR5 0-0.4 - [26-Feb-2016]	Mid grey sandy soil with grey rocks.
EA200: Description	BH6 0.2-0.4 - [26-Feb-2016]	Dark grey sandy soil with grey rocks.
EA200: Description	BH7 0.2-0.4 - [26-Feb-2016]	Mid grey sandy soil with crushed brick debris.
EA200: Description	S107 - [26-Feb-2016]	Mid brown sandy soil with grey rocks.
EA200: Description	S104 - [26-Feb-2016]	Dark grey sandy soil with grey rocks.
EA200: Description	BHR4 1-1.2 - [26-Feb-2016]	Mid grey sandy soil with grey rocks.

ALS Environmental

CERTIFICATE OF ANALYSIS

Work Order	: **ES1604828**	Page	: 1 of 7
Client	: **REGIONAL GEOTECHNICAL SOLUTION**	Laboratory	: Environmental Division Sydney
Contact	: MR STEVE MORTON	Contact	:
Address	: 44 BENT STREET WINGHAM NSW, AUSTRALIA 2429	Address	: 277-289 Woodpark Road Smithfield NSW Australia 2164
E-mail	: steve.m@regionalgeotech.com.au	E-mail	:
Telephone	: +61 02 6553 5641	Telephone	: +61-2-8784 8555
Facsimile	: ----	Facsimile	: +61-2-8784 8500
Project	: MNC16P-0001	QC Level	: NEPM 2013 B3 & ALS QC Standard
Order number	: ----	Date Samples Received	: 03-Mar-2016 15:10
C-O-C number	: ----	Date Analysis Commenced	: 04-Mar-2016
Sampler	: ----	Issue Date	: 10-Mar-2016 15:42
Site	: 12 STEWART STREET, NSW		
		No. of samples received	: 3
Quote number	: ----	No. of samples analysed	: 3

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted.

This Certificate of Analysis contains the following information:

- General Comments
- Analytical Results
- Descriptive Results

NATA Accredited Laboratory 825

Accredited for compliance with ISO/IEC 17025.

Signatories

This document has been electronically signed by the authorized signatories indicated below. Electronic signing has been carried out in compliance with procedures specified in 21 CFR Part 11.

Signatories	*Position*	*Accreditation Category*
Celine Conceicao	Senior Spectroscopist	Sydney Inorganics, Smithfield, NSW
Pabi Subba	Senior Organic Chemist	Sydney Inorganics, Smithfield, NSW
Pabi Subba	Senior Organic Chemist	Sydney Organics, Smithfield, NSW
Shaun Spooner	Asbestos Identifier	Newcastle - Asbestos, Mayfield West, NSW

General Comments

The analytical procedures used by the Environmental Division have been developed from established internationally recognized procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are employed in the absence of documented standards or by client request.

Where moisture determination has been performed, results are reported on a dry weight basis.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis.

Where the LOR of a reported result differs from standard LOR, this may be due to high moisture content, insufficient sample (reduced weight employed) or matrix interference.

When sampling time information is not provided by the client, sampling dates are shown without a time component. In these instances, the time component has been assumed by the laboratory for processing purposes.

Key : CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.
LOR = Limit of reporting
^ = This result is computed from individual analyte detections at or above the level of reporting
ø = ALS is not NATA accredited for these tests.

- EA200 'Am' Amosite (brown asbestos)
- EA200 'Cr' Crocidolite (blue asbestos)
- EA200 'Trace' - Asbestos fibres ("Free Fibres") detected by trace analysis per AS4964. The result can be interpreted that the sample contains detectable 'respirable' asbestos fibres
- EA200: Asbestos Identification Samples were analysed by Polarised Light Microscopy including dispersion staining.
- EA200 Legend
- EA200 'Ch' Chrysotile (white asbestos)
- EA200: 'UMF' Unknown Mineral Fibres. "-" indicates fibres detected may or may not be asbestos fibres. Confirmation by alternative techniques is recommended.
- EA200: Negative results for vinyl tiles should be confirmed by an independent analytical technique.
- Benzo(a)pyrene Toxicity Equivalent Quotient (TEQ) is the sum total of the concentration of the eight carcinogenic PAHs multiplied by their Toxicity Equivalence Factor (TEF) relative to Benzo(a)pyrene. TEF values are provided in brackets as follows: Benz(a)anthracene (0.1), Chrysene (0.01), Benzo(b+j) & Benzo(k)fluoranthene (0.1), Benzo(a)pyrene (1.0), Indeno(1.2.3.cd)pyrene (0.1), Dibenz(a.h)anthracene (1.0), Benzo(g.h.i)perylene (0.01). Less than LOR results for 'TEQ Zero' are treated as zero, for 'TEQ 1/2LOR' are treated as half the reported LOR, and for 'TEQ LOR' are treated as being equal to the reported LOR. Note: TEQ 1/2LOR and TEQ LOR will calculate as 0.6mg/Kg and 1.2mg/Kg respectively for samples with non-detects for all of the eight TEQ PAHs.
- EA200: For samples larger than 30g, the <2mm fraction may be sub-sampled prior to trace analysis as outlined in ISO23909:2008(E) Sect 6.3.2-2

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Client sample ID	S111	S112	S115	----	----
				Client sampling date / time	[02-Mar-2016]	[02-Mar-2016]	[02-Mar-2016]	----	----
Compound	CAS Number	LOR	Unit		ES1604828-001	ES1604828-002	ES1604828-003	--------	--------
					Result	Result	Result	Result	Result
EA055: Moisture Content									
Moisture Content (dried @ 103°C)	----	1	%		4.0	6.9	6.8	----	----
EA200: AS 4964 - 2004 Identification of Asbestos in Soils									
Asbestos Detected	1332-21-4	0.1	g/kg		Yes	Yes	Yes	----	----
Asbestos Type	1332-21-4	-	--		Cr	Ch	Ch	----	----
Sample weight (dry)	----	0.01	g		34.4	53.9	30.9	----	----
APPROVED IDENTIFIER:	----	-	--		S.SPOONER	S.SPOONER	S.SPOONER	----	----
EG005T: Total Metals by ICP-AES									
Arsenic	7440-38-2	5	mg/kg		5	11	10	----	----
Cadmium	7440-43-9	1	mg/kg		<1	1	1	----	----
Chromium	7440-47-3	2	mg/kg		7	29	24	----	----
Copper	7440-50-8	5	mg/kg		402	990	1430	----	----
Lead	7439-92-1	5	mg/kg		288	590	747	----	----
Nickel	7440-02-0	2	mg/kg		15	85	54	----	----
Zinc	7440-66-6	5	mg/kg		299	857	874	----	----
EG035T: Total Recoverable Mercury by FIMS									
Mercury	7439-97-6	0.1	mg/kg		0.2	1.2	0.2	----	----
EP066: Polychlorinated Biphenyls (PCB)									
Total Polychlorinated biphenyls	----	0.1	mg/kg		<0.1	<0.1	<0.1	----	----
EP068A: Organochlorine Pesticides (OC)									
alpha-BHC	319-84-6	0.05	mg/kg		<0.05	<0.05	<0.05	----	----
Hexachlorobenzene (HCB)	118-74-1	0.05	mg/kg		<0.05	<0.05	<0.05	----	----
beta-BHC	319-85-7	0.05	mg/kg		<0.05	<0.05	<0.05	----	----
gamma-BHC	58-89-9	0.05	mg/kg		<0.05	<0.05	<0.05	----	----
delta-BHC	319-86-8	0.05	mg/kg		<0.05	<0.05	<0.05	----	----
Heptachlor	76-44-8	0.05	mg/kg		<0.05	<0.05	<0.05	----	----
Aldrin	309-00-2	0.05	mg/kg		<0.05	<0.05	<0.05	----	----
Heptachlor epoxide	1024-57-3	0.05	mg/kg		<0.05	<0.05	<0.05	----	----
^ Total Chlordane (sum)	----	0.05	mg/kg		<0.05	<0.05	<0.05	----	----
trans-Chlordane	5103-74-2	0.05	mg/kg		<0.05	<0.05	<0.05	----	----
alpha-Endosulfan	959-98-8	0.05	mg/kg		<0.05	<0.05	<0.05	----	----
cis-Chlordane	5103-71-9	0.05	mg/kg		<0.05	<0.05	<0.05	----	----
Dieldrin	60-57-1	0.05	mg/kg		<0.05	<0.05	<0.05	----	----
4.4`-DDE	72-55-9	0.05	mg/kg		<0.05	<0.05	<0.05	----	----
Endrin	72-20-8	0.05	mg/kg		<0.05	<0.05	<0.05	----	----

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Client sample ID	S111	S112	S115	----	----
				Client sampling date / time	[02-Mar-2016]	[02-Mar-2016]	[02-Mar-2016]	----	----
Compound	CAS Number	LOR	Unit		ES1604828-001	ES1604828-002	ES1604828-003	--------	--------
					Result	Result	Result	Result	Result
EP068A: Organochlorine Pesticides (OC) - Continued									
beta-Endosulfan	33213-65-9	0.05	mg/kg		<0.05	<0.05	<0.05	----	----
^ Endosulfan (sum)	115-29-7	0.05	mg/kg		<0.05	<0.05	<0.05	----	----
4.4`-DDD	72-54-8	0.05	mg/kg		<0.05	<0.05	<0.05	----	----
Endrin aldehyde	7421-93-4	0.05	mg/kg		<0.05	<0.05	<0.05	----	----
Endosulfan sulfate	1031-07-8	0.05	mg/kg		<0.05	<0.05	<0.05	----	----
4.4`-DDT	50-29-3	0.2	mg/kg		<0.2	<0.2	<0.2	----	----
Endrin ketone	53494-70-5	0.05	mg/kg		<0.05	<0.05	<0.05	----	----
Methoxychlor	72-43-5	0.2	mg/kg		<0.2	<0.2	<0.2	----	----
^ Sum of Aldrin + Dieldrin	309-00-2/60-57-1	0.05	mg/kg		<0.05	<0.05	<0.05	----	----
^ Sum of DDD + DDE + DDT	72-54-8/72-55-9/50-2	0.05	mg/kg		<0.05	<0.05	<0.05	----	----
EP068B: Organophosphorus Pesticides (OP)									
Dichlorvos	62-73-7	0.05	mg/kg		<0.05	<0.05	<0.05	----	----
Demeton-S-methyl	919-86-8	0.05	mg/kg		<0.05	<0.05	<0.05	----	----
Monocrotophos	6923-22-4	0.2	mg/kg		<0.2	<0.2	<0.2	----	----
Dimethoate	60-51-5	0.05	mg/kg		<0.05	<0.05	<0.05	----	----
Diazinon	333-41-5	0.05	mg/kg		<0.05	<0.05	<0.05	----	----
Chlorpyrifos-methyl	5598-13-0	0.05	mg/kg		<0.05	<0.05	<0.05	----	----
Parathion-methyl	298-00-0	0.2	mg/kg		<0.2	<0.2	<0.2	----	----
Malathion	121-75-5	0.05	mg/kg		<0.05	<0.05	<0.05	----	----
Fenthion	55-38-9	0.05	mg/kg		<0.05	<0.05	<0.05	----	----
Chlorpyrifos	2921-88-2	0.05	mg/kg		<0.05	<0.05	<0.05	----	----
Parathion	56-38-2	0.2	mg/kg		<0.2	<0.2	<0.2	----	----
Pirimphos-ethyl	23505-41-1	0.05	mg/kg		<0.05	<0.05	<0.05	----	----
Chlorfenvinphos	470-90-6	0.05	mg/kg		<0.05	<0.05	<0.05	----	----
Bromophos-ethyl	4824-78-6	0.05	mg/kg		<0.05	<0.05	<0.05	----	----
Fenamiphos	22224-92-6	0.05	mg/kg		<0.05	<0.05	<0.05	----	----
Prothiofos	34643-46-4	0.05	mg/kg		<0.05	<0.05	<0.05	----	----
Ethion	563-12-2	0.05	mg/kg		<0.05	<0.05	<0.05	----	----
Carbophenothion	786-19-6	0.05	mg/kg		<0.05	<0.05	<0.05	----	----
Azinphos Methyl	86-50-0	0.05	mg/kg		<0.05	<0.05	<0.05	----	----
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons									
Naphthalene	91-20-3	0.5	mg/kg		<0.5	<0.5	<0.5	----	----
Acenaphthylene	208-96-8	0.5	mg/kg		<0.5	<0.5	<0.5	----	----
Acenaphthene	83-32-9	0.5	mg/kg		<0.5	<0.5	<0.5	----	----

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)			Client sample ID	S111	S112	S115	----	----
			Client sampling date / time	[02-Mar-2016]	[02-Mar-2016]	[02-Mar-2016]	----	----
Compound	CAS Number	LOR	Unit	ES1604828-001	ES1604828-002	ES1604828-003	--------	--------
				Result	Result	Result	Result	Result
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons - Continued								
Fluorene	86-73-7	0.5	mg/kg	<0.5	<0.5	<0.5	----	----
Phenanthrene	85-01-8	0.5	mg/kg	1.2	1.2	1.2	----	----
Anthracene	120-12-7	0.5	mg/kg	<0.5	<0.5	<0.5	----	----
Fluoranthene	206-44-0	0.5	mg/kg	3.1	2.4	2.7	----	----
Pyrene	129-00-0	0.5	mg/kg	3.0	2.4	2.7	----	----
Benz(a)anthracene	56-55-3	0.5	mg/kg	2.0	1.6	1.7	----	----
Chrysene	218-01-9	0.5	mg/kg	1.8	1.4	1.5	----	----
Benzo(b+j)fluoranthene	205-99-2 205-82-3	0.5	mg/kg	2.4	1.9	2.0	----	----
Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	1.1	0.7	0.8	----	----
Benzo(a)pyrene	50-32-8	0.5	mg/kg	1.8	1.4	1.5	----	----
Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	0.8	0.6	0.7	----	----
Dibenz(a.h)anthracene	53-70-3	0.5	mg/kg	<0.5	<0.5	<0.5	----	----
Benzo(g.h.i)perylene	191-24-2	0.5	mg/kg	1.0	0.9	0.9	----	----
^ Sum of polycyclic aromatic hydrocarbons	----	0.5	mg/kg	18.2	14.5	15.7	----	----
^ Benzo(a)pyrene TEQ (zero)	----	0.5	mg/kg	2.4	1.9	2.0	----	----
^ Benzo(a)pyrene TEQ (half LOR)	----	0.5	mg/kg	2.7	2.2	2.3	----	----
^ Benzo(a)pyrene TEQ (LOR)	----	0.5	mg/kg	3.0	2.4	2.5	----	----
EP080/071: Total Petroleum Hydrocarbons								
C6 - C9 Fraction	----	10	mg/kg	<10	<10	<10	----	----
C10 - C14 Fraction	----	50	mg/kg	<50	<50	<50	----	----
C15 - C28 Fraction	----	100	mg/kg	170	300	250	----	----
C29 - C36 Fraction	----	100	mg/kg	120	430	370	----	----
^ C10 - C36 Fraction (sum)	----	50	mg/kg	290	730	620	----	----
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions								
C6 - C10 Fraction	C6_C10	10	mg/kg	<10	<10	<10	----	----
^ C6 - C10 Fraction minus BTEX (F1)	C6_C10-BTEX	10	mg/kg	<10	<10	<10	----	----
>C10 - C16 Fraction	----	50	mg/kg	<50	<50	<50	----	----
>C16 - C34 Fraction	----	100	mg/kg	310	680	570	----	----
>C34 - C40 Fraction	----	100	mg/kg	<100	230	200	----	----
^ >C10 - C40 Fraction (sum)	----	50	mg/kg	310	910	770	----	----
^ >C10 - C16 Fraction minus Naphthalene (F2)	----	50	mg/kg	<50	<50	<50	----	----
EP080: BTEXN								

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Client sample ID	S111	S112	S115	----	----
				Client sampling date / time	[02-Mar-2016]	[02-Mar-2016]	[02-Mar-2016]	----	----
Compound	CAS Number	LOR	Unit		ES1604828-001	ES1604828-002	ES1604828-003	--------	--------
					Result	Result	Result	Result	Result
EP080: BTEXN - Continued									
Benzene	71-43-2	0.2	mg/kg		<0.2	<0.2	<0.2	----	----
Toluene	108-88-3	0.5	mg/kg		<0.5	<0.5	<0.5	----	----
Ethylbenzene	100-41-4	0.5	mg/kg		<0.5	<0.5	<0.5	----	----
meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg		<0.5	<0.5	<0.5	----	----
ortho-Xylene	95-47-6	0.5	mg/kg		<0.5	<0.5	<0.5	----	----
^ Sum of BTEX	----	0.2	mg/kg		<0.2	<0.2	<0.2	----	----
^ Total Xylenes	1330-20-7	0.5	mg/kg		<0.5	<0.5	<0.5	----	----
Naphthalene	91-20-3	1	mg/kg		<1	<1	<1	----	----
EP066S: PCB Surrogate									
Decachlorobiphenyl	2051-24-3	0.1	%		113	105	113	----	----
EP068S: Organochlorine Pesticide Surrogate									
Dibromo-DDE	21655-73-2	0.05	%		118	101	113	----	----
EP068T: Organophosphorus Pesticide Surrogate									
DEF	78-48-8	0.05	%		115	113	106	----	----
EP075(SIM)S: Phenolic Compound Surrogates									
Phenol-d6	13127-88-3	0.5	%		104	95.9	100	----	----
2-Chlorophenol-D4	93951-73-6	0.5	%		104	95.8	98.7	----	----
2.4.6-Tribromophenol	118-79-6	0.5	%		80.4	89.4	92.5	----	----
EP075(SIM)T: PAH Surrogates									
2-Fluorobiphenyl	321-60-8	0.5	%		98.3	98.2	106	----	----
Anthracene-d10	1719-06-8	0.5	%		109	104	107	----	----
4-Terphenyl-d14	1718-51-0	0.5	%		101	89.5	100	----	----
EP080S: TPH(V)/BTEX Surrogates									
1.2-Dichloroethane-D4	17060-07-0	0.2	%		102	110	112	----	----
Toluene-D8	2037-26-5	0.2	%		121	129	130	----	----
4-Bromofluorobenzene	460-00-4	0.2	%		114	116	125	----	----

Analytical Results

Descriptive Results

Sub-Matrix: **SOIL**

Method: Compound	Client sample ID - Client sampling date / time	Analytical Results
EA200: AS 4964 - 2004 Identification of Asbestos in Soils		
EA200: Description	S111 - [02-Mar-2016]	Mid grey sandy soil with one loose bundle of friable asbestos fibres approx 3 x 1 x 0.5 mm.
EA200: Description	S112 - [02-Mar-2016]	Mid grey - brown sandy soil with one loose bundle of friable asbestos fibres approx 3 x 1 x 0.5 mm.
EA200: Description	S115 - [02-Mar-2016]	Mid brown sandy soil with one loose bundle of friable asbestos fibres approx 3 x 1 x 0.5 mm.