Canberra Brickworks: Detailed Environmental and Geotechnical Site Investigation

Canberra Brickwork Precinct, Yarralumla, ACT

3002523

For: Land Development Agency



Project Name:	Canberra Brickworks Site Investigation, Yarralumla, ACT
Internal Reference:	3002523
Report prepared for:	Land Development Agency

REVIEWS AND APPROVALS FOR ISSUE

Revision	Date	Author	Reviewer	Approval
0	10/10/2016	Graham Ohmsen	Mechelle Swanepoel	Mechelle Swanepoel
1	24/10/2016	Graham Ohmsen	Mechelle Swanepoel	Mechelle Swanepoel
2	31/10/2016	Graham Ohmsen	Mechelle Swanepoel	Mechelle Swanepoel

Executive Summary

The Land Development Agency (LDA) commissioned SMEC to undertake an environmental and geotechnical site investigation (EGSI) of the Canberra Brickworks site, located at Denman Street, Yarralumla, ACT. The site operated as a brickworks from 1913 to 1975. The site currently occupies an area of approximately 9.6Ha. The investigation was conducted to determine the suitability of the site for the proposed land use as low to medium density residential housing.

The investigation scope of work involved the excavation of 63 test pits to a maximum depth of 3.0 m bgl, drilling of 18 soil bore holes to 3.0 m bgl, collection of 20 surface samples and installation of eight groundwater monitoring wells to a maximum depth of 15 m bgl. This work was complemented by a geotechnical investigation, associated seismic survey and a targeted investigation of four locations using ground-penetrating radar (GPR). Samples were analysed for the following chemicals of potential concern (CoPC):

- Benzene, toluene, ethylbenzene, total xylenes and naphthalene (BTEXN)
- Total petroleum hydrocarbons (TPH) (C_6-C_9, C_{10}-C_{14}, C_{15}-C_{28} and C_{29}-C_{36})
- Polycyclic aromatic hydrocarbons (PAH)
- Organophosphate and organochlorine pesticides (OPP, OCP)
- Polychlorinated biphenyls (PCB)
- Heavy metals (arsenic, cadmium, chromium, copper, mercury, lead, nickel, zinc)
- Asbestos

The results of the investigation showed FILL material, consisting predominantly of bricks (whole and fragments), with lesser amounts of concrete (slabs and fragments), ash, reworked material and trace amounts of metal pipe. Fill material encountered in test pits and bore holes ranged in thickness between 0.1-3.3 m.

Analytical results showed that CoPC across much of the site were low or below detection limits, with BTEXN, OPP, OCP and PCB being below analytical detection limits in all samples. The analytical results were screened against the NEPM (1999, amended 2013) Health Investigation Level (HIL-A) for low and medium density residential land use, NEPM (2013) Ecological investigation Levels (EIL) for Urban residential public open space. Petroleum hydrocarbons were screened against CRC CARE (2011) Screening Levels for Petroleum Hydrocarbons in Soil and Groundwater-dermal contact.

The CoPC identified in a limited number of samples included TPH (C_{15}-C_{28} and C_{29}-C_{36}), which was reported in 10 samples at a maximum concentration of 800 mg/kg in surface sample SS-10. PAH were reported in 16 samples, with the maximum concentration reported in TR-11_0.15m (6.7 mg/kg). All PAH results were below the NEPM HIL-A criteria of 300 mg/kg, with the benzo(a)pyrene TEQ below the criteria of 3 mg/kg. Total phenols were identified in 37 samples across the site, with a maximum concentration of 47 mg/kg reported for sample SS-10. The majority of the samples reported phenol concentrations less than 1.0 mg/kg. All samples were below the HIL-A criteria of 3, 000 mg/kg.

The main CoPC identified was lead, which exceeded the HIL-A criteria value of 300 mg/kg in four samples: SS-04 (1, 200 mg/kg), SS-06 (4, 300 mg/kg), SS-07 (1, 500 mg/kg) and TP12_01m (430 mg/kg). These samples were surface soil samples (SS-06, SS-07, TP-12_0.2m) and dust from inside the kiln building (SS-04). The lead results from SS-04, SS-06 and SS-07 also exceeded the EIL value of 1,100 mg/kg.

Zinc was reported above the EIL value of 1,100 mg/kg in SS-04 (2, 100 mg/kg), SS-06 (5, 400 mg/kg) and SS-07 (1, 800 mg/kg). The concentration of heavy metals was below the HIL-A and EIL criteria for all other samples.

The exceedances of the NEPM HIL-A and EIL criteria are summarised in the following table:

Sample	Exceed HIL-A	Exceed EIL
SS-04	lead(1200 mg/kg)	lead(1200 mg/kg), Zinc (2100 mg/kg)
SS-05	Chromium (110 mg/kg)	
SS-06	lead(4300 mg/kg)	lead (4300 mg/kg), Zinc (5400 mg/kg)
SS-07	lead (1500 mg/kg)	lead(1500 mg/kg), Zinc (1800 mg/kg)
TP-12_0.2	lead (430 mg/kg)	

The concentration of airborne asbestos was below detection limits of 0.01 fibres/ml in all samples collected during the field works. Non-friable asbestos fragments to 5 cm in size was identified on the ground covering an area of approximately 10m^2 adjacent to TP-34A. Asbestos fibres were identified in surface sample TP-61_0.2m. The total extent of the ACM is not known at present. These locations have been designated as AEC 9 and AEC 10 which will require further investigation to delineate the extent of the asbestos-impacted soil. Asbestos was not detected in any other soil samples.

No evidence of anthropological material other than bricks, concrete ash and reworked clay was identified in the test pits excavated in the areas of potential archaeological potential.

A number of environmental areas of concern (AEC) were identified as a result of the investigation. Recommendations concerning these are detailed below.

Areas of Environmental Concern		Recommendation
AEC-1	Interior of Kilns around SS-4: heavy metals	Further assessment to better understand extent (vertical and horizontal) of identified COPC in the area
AEC-2	Around surface soil samples SS-6 and SS-7: elevated heavy metals	Further assessment to better understand extent (vertical and horizontal) of identified COPC in the area
AEC-3	Interior of kilns around SS-10: Heavy metals, PAH, TRH	Further assessment to better understand extent (vertical and horizontal) of identified COPC in the area
AEC-4	Pit Area	Further assessment to better understand extent (vertical and horizontal) of identified COPC in the area
AEC-5	Area under slab and buildings	Further assessment to better understand extent (vertical and horizontal) of identified COPC in the area
AEC-6	Area under slab and buildings	Further assessment to better understand extent (vertical and horizontal) of identified COPC in the area
AEC-7	Buried UST, Soil: TRH	Tank Excavation Assessment and remediation. Validation of the area following tank removal. Additional groundwater wells may need to be installed if observations indicate presence of hydrocarbons.
AEC-8	Surface area near TP-34A: non-friable asbestos	Further assessment to better understand extent (vertical and horizontal) spread of ACM in the area.

AEC-9	Area around TP-12, Elevated Lead	Further assessment to better understand extent (vertical and horizontal) of identified COPC in the area
AEC 10	TP-61, Asbestos (chrysotile fibres) in soil	Further assessment to better understand extent (vertical and horizontal) spread of ACM in the area.

The results showed that the southern portion of the site is suitable for the proposed land use for low and medium density residential housing. Further investigation is recommended for the remainder of the site to provide sufficient information to determine the suitability for the proposed land use.

Although this investigation provided extensive coverage of the site, it was limited to accessible areas and the data produced has not fully captured the possible extent of the contamination (if present). It is suggested that further investigations be conducted in previously inaccessible areas and particularly in areas identified as AEC or where Ground Penetrating Radar (GRP) showed areas of disturbance where elevated levels of CoPC were identified (to identify the vertical and horizontal extent) in order to provide a comprehensive data set and allow effective decision making to be made by LDA.

SMEC also recommends that further investigation be conducted in the Pit area of the site as the current investigation were limited to sampling around the margins. The knowledge on the extent and type(s) of fill material within the Pit area is limited, and further investigation would serve to reduce the level of uncertainty through characterisation of the type of fill and the level of possible contamination.

Based on the findings from the Site investigation with respect to the proposed land use, it is considered that the southern portion of the site would appear to be suitable for residential development. The remainder of the site will need further investigation to delineate and assess the probability of contamination in the Pit area and in the identified AEC to enable an assessment as to the suitability or otherwise for the proposed land use.

SMEC notes that an Addendum to this report will be prepared and issued to the Auditor in relation to the Groundwater Investigation.

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LIST OF ABBREVIATIONS

General Terms used in this Report	
ACM	Asbestos Containing Material(s)
ACT	Australian Capital Territory
AEC	Area of Environmental Concern
AHD	Australian Height Datum
ANZECC	Australian and New Zealand Environment and Conservation Council
BaP	Benzo(a)pyrene
bgl	Below ground level
BTEX	Benzene, toluene, ethyl benzene and xylenes
CEC	Cation Exchange Capacity
CoPC	Contaminants of Potential Concern
CRC CARE	Cooperative Research Centre for Contamination Assessment and Remediation of the Environment
CSM	Conceptual Site Model
DQO / DQI	Data Quality Objective / Data Quality Indicator
EIL	Ecological Investigation Level
ESL	Ecological Screening Levels
EMP / SMP	Environmental Management Plan / Site Management Plan
GW	Groundwater
Heavy metals	Generally arsenic, cadmium, chromium, copper, mercury, nickel, lead and zinc
HSL	Health Screening Level
LNAPL	Light Non-Aqueous Phase Liquid
LOR	Limit of reporting
mbgl	Metres below ground level
mbtoc	Metres below top of casing
MW	Monitoring Well
NATA	National Association of Testing Authorities
NEHF / NEPC	National Environmental Health Forum / National Environment Protect Council
NEPM	National Environment Protection (Assessment of Site Contamination) Measure
OCP	Organochlorine pesticides
OPP	Organophosphorus pesticides
PAH	Polycyclic Aromatic Hydrocarbons
PCB	Polychlorinated biphenyls
PID	Photo-ionisation detector
QA/QC	Quality Assurance/Quality Control
SAC	Soil Assessment Criteria
SMEC	SMEC Australia Pty Ltd

SWL	Standing Water level
TEQ	Benzo(a)pyrene toxicity equivalent
TPH	Total petroleum hydrocarbons
TRH	Total Recoverable Hydrocarbons
UCL	Upper Confidence Limit (on mean)
uPVC	Unplasticised Poly Vinyl Chloride
USCS	Unified Soil Classification System
UST	Underground Storage Tank
VOC	Volatile Organic Compound
WQM	Water Quality Meter
Units of Measurement	
mg/L	Milligrams per litre
mg/kg	Milligrams per kilogram
µg/L	Micrograms per litre
ppm	Parts per million

1. INTRODUCTION

1.1 Preamble

Land Development Authority (LDA) engaged SMEC Australia Pty Ltd (SMEC) to conduct a Site Investigation (SI) for land parcels comprising the former Canberra Brickworks (the Site), located at Denman Street Yarralumla, ACT. The present investigation was conducted to provide LDA with information on the locations and concentrations of a number of targeted contaminants and to determine the depth and extent of fill material across the site. The information obtained from this investigation will provide a better understanding of the current status of the site and form the basis for a more targeted site investigation, if required.

1.2 Background

The Canberra brickworks was one of the first construction undertakings in Canberra. The available historical data indicates that the northern portion of the Site, was constructed circa 1913 and closed circa 1976. Its main purpose was to fabricate the bricks for the early settlements in the ACT. The infrastructure presently existing on the site consists of kilns, ancillary buildings and infrastructure which were used for the fabrication of the bricks. A disused quarry is located adjacent (to the east) and a demolished workers accommodation is located adjacent (south) to the brickworks. These areas all part of this investigation. The reminder of the Site (southern areas) were formerly used as grazing land, which had been developed to include road infrastructure (Cotter Road, Adelaide Avenue and Yarra Glen).

Parts of the brickworks are currently leased by Thor's Hammer, a wood recycling business. The potential for contamination attributed to current land uses is considered low, but will be verified as per the Sampling Analysis and Quality Plan prepared by AECOM (2016) The plan was altered by SMEC (2016) where access to locations was not feasible.

The site also includes an asbestos waste dump located on the western margin of the site. This area was excluded from the current investigation. There are a number of reports detailing the works carried out in this area. These reports were not reviewed as part of the current site investigation, however are noted below.

SMEC played an active role in the preparation of some of these documents and has therefore developed a good appreciation of the site. Studies previously undertaken for the Site include:

- AECOM (2016) Sampling Analysis and Quality Plan
- Lester Firth & Associates Pty Ltd (1986) Old Canberra Brickworks, Conservation Plan Connell & Wagner (February 2001) Brickworks Contamination Report
- Lovell, Chen (2010) Architects & Heritage Consultants Conservation Management Plan Canberra Brickworks, Denman Street, Yarralumla, Canberra
- Navin Officer (July 2016) Statement of Heritage Effects Canberra Brickworks Precinct (CBP) Yarralumla Canberra Central (South)
- PSISMEC (2014) Preliminary (Environmental) Site Investigation
- Robson Laboratories (2006) Environmental Investigation Audit Report Yarralumla Brickworks Block 1 Section 102 Yarralumla Canberra Central ACT
- Robson Laboratories Pty Ltd (March 2006), Survey to Determine the Extent and Condition of Hazardous Building Material at Yarralumla Brickworks, Yarralumla ACT
- Robson Environmental (2010) Hazardous Material Survey & Management Plan Canberra Brickworks Yarralumla ACT 2600
- Robson Environmental Pty Ltd (May 2010), Review of Past Site Works and Indicative Costings for Further Assessment and Remediation, Yarralumla Brickworks, Yarralumla, ACT
- Robson Environmental (2012) Hazardous Material Survey & Management Plan Canberra Brickworks Yarralumla ACT 2600

- Robson Environmental (2016) Contaminant Management Plan (CMP) Canberra Brickworks Remediation Project Portions of Blocks 1 and 20 Section 102 and Block 1, Section 127 Yarralumla, ACT 2600
- SMEC (2013) Canberra Brickworks Geotechnical

Robson (2006, 2010) identified six specific areas of environmental concern (AECs) during the Phase 1 (Site History) investigation. The identified AECs were as follows:

- AEC 1: Coal and oil storage bunkers (building NE5). This area was also initially used for the storage of coal and later the above ground storage of oil
- AEC 2: Forklift shed (building A6). This area was identified as a location for a 1,000 L underground storage tank (UST) and no records were available to suggest that the UST had been removed
- AEC 3: Model railway workshops. This area was also initially used for the storage of coal and later the above ground storage of oil
- AEC 4: Septic tank (ST)
- AEC 5: Blacksmiths shop
- AEC 6: Explosive storage area (ES).

1.3 Objectives

The objectives of the Site investigation were as follows:

1. Undertake an intrusive investigation of the Site to determine the lateral and vertical extent of historical fill material
2. Conduct a detailed sampling program of soil, fill material, sediment, surface and groundwater to ascertain the level of contamination in each media
3. Record any fill material or other material that was of archaeological interest
4. Provide a report detailing the results and the implications for the proposed land use.

As well as conducting the works stated above, a separate geotechnical investigation including a seismic survey was conducted concurrently to assess ground conditions in areas where no previous data was collected.

A further investigation of specific areas was conducted using ground penetrating radar (GPR) to ascertain the potential for buried items such as underground storage tanks and heritage artefacts.

SMEC engaged Commence Communications to carry out a Ground Penetrating Radar (GPR) survey of four areas indicated within the Canberra Brickworks. The GPR survey was conducted at four separate locations, three of which were within the Canberra Brickworks site and one outside the site, but still within the larger Site area. The three that were within the brick works site were surveyed to determine the possible location of underground storage tanks, if present. The fourth site was surveyed as a potential archaeological site, searching for structures and artefacts. The GPR survey report is provided as Appendix J.

A preliminary geotechnical investigation was conducted by WCC Engineers concurrently to the contamination investigation. The geotechnical investigation consisted of test pitting and drilling of bore holes with core collection to determine the properties of the site. A seismic survey was also undertaken with the objective of delineating the extent of fill material across the site. The geotechnical report, including the seismic survey, is reported separately.

1.4 Scope of Works

The following scope of work was undertaken to meet the objective of this detailed environmental and geotechnical investigation, as per the specifications within the Auditor endorsed SAQP. It is noted that small alterations to the original plan were made by SMEC to the AECOM SAQP, mainly due the impracticality of excavating in some of the defined locations. The following scope was restricted to a contamination and geotechnical investigation:

- Sub-surface clearance of Site underground utilities via Dial Before You Dig search and the cable locating services of a Telstra accredited cable locator
- Excavation of 63 test pits progressed to a maximum depth of 3 m bgl or until refusal using 20 tonne and 13 tonne excavators with a 900 mm wide bucket for contamination and geotechnical testing
- Logging of the test pits in accordance with the Unified Soil Classification System
- Collection of 20 surface soil and grab samples from stockpiles
- Drilling and sampling of 18 soil bore holes to a maximum depth of 3m bgl for contamination and geotechnical assessment
- Installation of eight groundwater monitoring wells to a maximum depth of 15.0 m bgl – it is noted that the reporting for the groundwater assessment will be provided as an addendum to this report
- Testing samples for volatile organic compounds (VOC) using a photo ionisation detector (PID)
- Location of each sampling point by GPS
- Collection of soil, sediment, groundwater and surface water samples targeting CoPC as per SAQP
- Excavation of eight geotechnical boreholes to 10 m depth
- Reporting any archaeological finds uncovered during the test pitting to Navin Officer
- Preparation of a report discussing the results and recommendations.

Several areas were designated as high, medium and low probability for archaeological discoveries. Excavations conducted within these areas involved removal of soil in 100 mm intervals, with any unusual (non-brick, concrete, ash) material to be documented. Where such material was encountered work was to cease and archaeologists from Navin Officer Heritage consultants were to be contacted. It is noted that no such areas were encountered.

1.5 Legislative Framework

The overall investigation will be undertaken in general accordance with the following ACT EPA endorsed legislation and guidance

- ACT Government, Environment Protection Act (1997)
- ACT Government, Environment Protection Regulation (2005)
- ACT EPA, Contaminated Sites Environmental Protection Policy (2009)

1.6 Environmental Standards and Guidelines

This report was prepared in general accordance with the requirements of the guidelines endorsed by the ACT Environment Protection Authority (EPA) which includes the following:

- ACT EPA Information Sheet No 4 Requirements for the Reuse and Disposal of Contaminated Soil in the ACT (June 2015)
- ACT EPA ACT Environmental Standards: Assessment & Classification of Liquid & Non-liquid Wastes (2000)
- ANZECC (2000) Australian and New Zealand Guidelines for Fresh and Marine Water Quality
- National Environment Protection Council National Environment Protection (*Assessment of Site Contamination*) Measure (1999, amended 2013) Schedule B(1) *Guideline on Investigation Levels for Soil and Groundwater*
- National Environment Protection Council National Environment Protection (*Assessment of Site Contamination*) Measure (1999, amended 2013) Schedule B(5a) *Ecological Risk Assessment*
- NSW EPA (2011) Guidelines for Consultants Reporting on Contaminated Sites
- Standards Australia (2005) AS 4482.1: Guide to the investigation and sampling of potentially contaminated soils: Part 1 Non-volatile and semi-volatile compounds
- Western Australian Department Health (2009) Guidelines for the Assessment, Remediation and Management of Asbestos Contaminated Sites in Western Australia

1.7 Report Limitations

This report was based on the Scope of Work outlined in Section 1.4. SMEC prepared this report in a manner consistent with the normal level of care and expertise exercised by members of the environmental profession.

This report relates only to the objectives stated and does not relate to any other work undertaken for the Client. Site conditions upon which inferences in this report are drawn may change with time and space. The absence of any identified hazardous or toxic materials on the subject property should not be interpreted as a guarantee that such materials do not exist on the Site.

All conclusions regarding the property area are the professional opinions of SMEC, subject to the qualifications in the report. While normal assessments of data reliability have been made, SMEC assumes no responsibility or liability for errors in any data obtained from regulatory agencies, statements from sources outside of SMEC, or developments resulting from situations outside the scope of this project.

The client acknowledges that this report is for the exclusive use of Land Development Authority.

2. SITE CHARACTERISTICS

2.1 Site Identification

The Site is located within the suburb of Yarralumla, ACT and is located on an approximately 16 hectare block. The site has two distinct areas: the eastern side, which is defined by the area of the former quarry, and the western side which is defined by the area containing the former brickworks kilns, workshop buildings and other associated facilities and infrastructure. Site plans, showing sampling locations, archaeological areas of potential and locations of geotechnical and seismic investigations are provided in Appendix A.

A description of the present and historical Site features is provided below.

2.1.1 Former Brickworks

The Canberra Brickworks is located adjacent to the suburb of Yarralumla and the Royal Canberra Golf Course. Access to the brickworks is via Denman St adjacent south. The brickworks were operational between 1913 and 1976 and a portion of the Site is currently used by Thor's Hammer, a wood recycling business.

Remnant buildings include 6 kilns, 4 stack houses, office building and amenities, 3 machinery sheds, workshops, boiler house, a substation, a power house (prior to 1915 was powered by a steam donkey engine), storage sheds and other minor buildings.

Demolished features include temporary kilns (south east), two explosive stores (180 m south and 130 m west respectively), a forklift shed (west), clay storage shed (quarry) and a weatherboard house (quarry).

2.1.2 Former Workers Accommodation

The former Workers Accommodation is located south of the brickworks. It comprises several demolished buildings with a former railway corridor to the west and south. The extent of the former buildings is unknown, inspection of this portion of the Site was limited by overgrown grass and woody weed species (blackberries).

2.1.3 Quarry

The quarry is a large levelled grassed area with several exposed natural siltstone bedrock features. The area contains an unknown amount of fill used to level the quarry and to form several large mounds located in the northern and western portions of the area. An artificial lake was also present in the northern portion of the quarry.

2.1.4 Southern Areas

The Southern areas of the Site is comprised of planted tree groves (predominately pine trees) and open grassed areas with several major roads (Dudley St, Cotter Rd and Yarra Glen) bisecting the Site east to west.

The site slopes to the west. It is understood that large areas of the site have been filled with either quarry tailings or brick waste generated from the brick manufacturing process.

Table 2.1 Allotment and Plan Details

Feature	Description
Block and Section	Yarralumla Block 1, 7, and 20 Section 102, Yarralumla Block 3 Section 94, Yarralumla Block 2 Section 103
Land Zoning	RZ1: Suburban CZ6: Leisure and Accommodation; PRZ2: Restricted Access Recreation Zone PRZ1: Urban Open Space
Proposed Land Use	Residential and mixed land use
Site Area	Approximately 16 Ha
Site Elevation / Topography	The topography of the Site is variable due to historical extraction works. The Site generally slopes to the west north-west.
Site Location and Layout	Figure 1 Appendix A

2.2 Current Land Use

The current uses of the Site are summarised below:

- Canberra Brickworks: leased by Thor's Hammer a wood recycler
- South eastern portion of the Site used for public open area, vehicle parking and Roads (Dudley St, Cotter Rd and Yarra Glen) and tracks (pedestrian and bicycle use).

The remainder areas of the Site included open grassed areas, forest and open urban space.

2.3 ACT Environment Protection Authority Search

A search of the EPA Contaminated Land Search database reported in the Preliminary Site Investigation undertaken by SMEC (2014) for the Site indicated that following blocks were recorded on the ACT EPA contaminated sites management database.

- Blocks 1, 7 and 20 Yarralumla Canberra Central (the brickworks, quarry and the former workers accommodation areas).

The search identified the presence of an abandoned commercial brickworks. The EPA had reviewed and gave their support to the recommendations made in the Phase 1 assessment report prepared by Connell and Wagner (2001). The Phase 1 recommended that further investigation, validation and remediation would be required.

The EPA stated 'it would oppose any change in land use from brickworks until the site is assessed and independently audited by a contaminated land auditor'.

The search indicated that the block 'may contain fuel storage facilities and asbestos containing materials'. It was recommended that Worksafe ACT should be contacted regarding the status of any fuel storage facilities and asbestos abatement plans. A search of the *Dangerous Goods Act* 1975 and *Dangerous Substances Act* 2004 maintained by Worksafe ACT did not indicate the presence of any stored

dangerous goods or underground storage tanks (USTs). However, it also indicated that tanks containing diesel less than 50 000 litres were not required to be licensed with Worksafe.

The ACT EPA Contaminated land search indicated that a draft remediation action plan for the remediation of identified asbestos material in soil was received by the EPA in 2007. The RAP was not available at the time of preparing the PSI report.

2.4 Surrounding Land Use

The land uses surrounding the Site are as follows:

Table 2.2 Surrounding Land Use

North	Lane Poole Place and Bentham Street, residential properties surrounding the roads and beyond
West	Several trees beyond which lies the Royal Canberra Golf Course to the west
South	Denman Street leads to and bisects the northern and southern portions of the Site, beyond which is Block 7 Section 102 comprising numerous trees and open spaces. Cotter Road lies beyond the trees.
East	Schomburgk Street, Woollis Street and Bentham Street with associated residential properties

2.5 Proposed land use

SMEC have been provided with a draft '*Canberra Brickworks and Environs Master Plan*' dated 2013. From the Plan it is understood that the former brickworks area would likely be redeveloped for low and density and medium density residential use, preserving some of the existing buildings for adaptive reuse.

The remainder of the Site (the former workers accommodation, quarry and southern area) is to be redeveloped to include a mix of high, medium and low density land use with park lands (West Bridge Park and the Quarry Park).

2.6 Site Plan and Historic Aerials

Historical aerial photographs were obtained and reviewed to investigate the former land uses and development at the site. Aerial photographs dated between 1951 and 2012 were obtained and reviewed. Aerial photography summary is provided in Table 2.3.

Table 2.3 Historical Aerial Photography

Year	Site Description
Figure 3a 1951 Run 2 Print 5102	The Site: Quarry, Power House, Staffordshire Kiln (Kiln 1), Fan House and Chimney Stack for Kiln 1, Offices, Hardy Patent Kiln (Kiln 2), Fan House and Chimney Stack for kiln 2, Amenities Block also present. There are some visible buildings and sheds surrounded by trees east, north and south (Workers Accommodation) of the Site. The railway line and several roads are visible including Denman St. Several unnamed roads leading to the brickworks, quarry and the former workers accommodation are also visible in the imagery.

	The Surrounding Area: to the north trees/orchids associated with early arboretum works including the Westbourne Woods to the west. Development of Yarralumla suburb to the east and vacant land to the south also observed.
Figure 3b 1958 **Run 7 Print 5060**	The Site: presence of new buildings. A third kiln has been established on the Site (Hardy patent Kiln), Chimney stack for Kiln 3, Machine Bays (I, II and III), Workshop building, Crusher Houses and the Elevator/Conveyor. Additional structures observed at the former brickworks workers accommodation, the quarry has also been expanded. Shed-like structure observed west of the brickworks and north of the railway line, possible location of the explosives store. Small building south and east of the brickworks, probable location of the Carpenters Shed. Exposed soils observed further south and east of this location.
	The Surrounding Area: further development of the surrounding areas.
Figure 3c 1968 **Run 9 Print 8708**	The Site: a large shed has been built on the west of Power House and became the Downdrafts Kilns (Kilns 4-6). The railway line is starting to be overgrown with vegetation. The quarrying activity is more evident. Appears to be some stockpiling of material west of the quarry. Clay storage shed observed in the quarry area Area of exposed soil south east of the brickworks previously noted (1968) remain, purpose is unclear however the area may have be used for the storage of materials. Cleared area 50m south east of the Power House, location of a former carpenter's workshop appears to be used as a carpark. Plantings of trees in the southern portion of the Site evident. Rows of trees also planted south adjacent to Denman St. Earthworks associated with the Cotter Road and Yarra Glen overpass observed.
	The Surrounding Area: further development of Yarralumla to the east, establishment of the Royal Canberra Golf Course to the west and the suburb Curtin to the south. Some buildings have been established north of the Site. Lake Burley Griffin has been filled.
Figure 3d 1978 **Run 15 Print 49**	The Site: removal of clay storage shed, workers accommodation buildings, forklift shed and several other buildings. The quarry appears to have been also been filled. Extrusion plant has been constructed. Disturbed soils observed in the north western portion of the Site, this is the location of the current asbestos dump. Cleared area south east of brickworks (noted 1958 and 1968) appears to be used for stockpiling. The vegetation around the former railway corridor and brickworks workers accommodation has increased. The railway corridor is barely visible in the image.
	The Surrounding Area: Consistent with 1968. Cotter Road and Yarra Glen overpass construction completed. CSIRO School of Forestry established (NE of the site).
Figure 3e 1988 **Run 15 Print 6251**	The Site: roofing material of the kilns and workshops has been upgraded. Tracks observed in the quarry, the carpark (formerly the carpenter's workshop) is disused and overgrown with grass. Former workers accommodation and railway corridor completed overgrown with vegetation.
	The Surrounding Area: No significant changes, housing constructed to the northern and eastern boundary of the Site
Figure 3f 1998 **Run 5 Print 0137**	The Site: asbestos dump appears covered with vegetation. Quarry area grassed and regrowth of trees. Some minor tracks (pedestrian) appear to bisect the central areas of the Site.
	The Surrounding Area: No significant changes.

Figure 3h 2012 Aerial Imagery ACTmapi	No significant changes from previous years.

2.7 Geology

The *Geology of Canberra 1:100, 000 Sheet 8287* (1992) shows that the Canberra brickworks is underlain by calcareous and tuffaceous mudstone and siltstone of the Late Silurian Yarralumla Formation. The formation outcrops within and adjacent to the pit area of the site.

2.8 Regional Hydrology and Hydrogeology

Review of the *1:100,000 Hydrology of the Australian Capital Territory and Environs* (1984) indicated that the groundwater beneath the Site is generally present in fractured rock. The quality tends to be variable and was described as 500-1, 000 mg/l TDS. The yield was described as approximately 1.0 l/s.

A search of the Environment and Sustainable Development Department (ESDD) Groundwater Bore database indicated that three registered abstraction and one investigation/monitoring groundwater were located within a 2 km radius of the Site. The details of these bores is presented in Table 2.4. No groundwater bores were located within the Site.

Table 2.4 Groundwater Bore Survey Details

Bore ID	Purpose	Construction Date	Depth (m)	Water Level
WU36	PRIVATE	Unknown	43	35
WU105	PRIVATE	Unknown		
WU609	PRIVATE	Unknown		
WODEN 3	PRIVATE	Unknown		

2.9 Acid Sulphate Soils

Review of the Australian Soil Resources Information System national acid sulphate probability map (www.asris.csiro.au) indicates that the potential for acid sulphate soils to occur on Site ranges from 'No Known Occurrence" to a "Low Probability of Occurrence".

2.10 Topography and Drainage

The topography of the Site is variable due to historical extraction works. The Site generally slopes to the west north-west.

SMEC (2013) identified a total of five catchments in the Site; the catchments and anticipated surface. A summary of the topological and drainage characteristics of the Site in relation to the catchments is provided below:

Catchments 1, 2, 3 and 4

The Southern Areas of the Site generally slope to the southwest, south, and southeast. The topography of this area has been modified to include the Cotter Road and Yarra Glen/Adelaide Avenue. Surface water flow has been mapped to generally flow south towards Yarralumla Creek which discharges into the Molonglo River.

Catchment 3

The brickworks, located adjacent west to the former quarry, is approximately 3m lower than the quarry with the quarry (having been backfilled) to an unknown depth below the natural surface on the north eastern site boundary.

It is expected that most surface water entering the quarry would either infiltrate fill material or drain towards the artificial lake. A drain located in the north western portion of the quarry suggests at least some water drains to the brickworks area.

The brickworks contain drainage infrastructure (including roof level guttering and surface open concrete lined, open stormwater drains) which are likely to receive majority of surface water in the area, possibly including the quarry and former workers accommodation.

The final discharge point is towards the Royal Canberra Golf Course, although water captured in the brickworks drainage infrastructure is likely to enter the municipal stormwater system, the discharge point is unknown.

2.11 Vegetation

The vegetation of the Site and surrounds was characterised by areas of tree plantings (pine and deciduous trees) and open grassland (native and modified grassland). Areas within the former brickworks, former quarry and former workers accommodation contained dense grass and woody weed species (blackberry bush) with pine trees. The vegetation appeared to be in good health with no obvious signs of stress.

2.12 Contaminants of Potential Concern

Based on the Site history and background data review, SMEC (in conjunction with the SAQP prepared by AECOM) have identified the following CoPC that may be present at the Site.

Table 2.5 Contaminants of Potential Concern

CoPC	Context
Asbestos Containing Material (ACM), Asbestos Fines (AF) and Fibrous Asbestos (FA)	May be present in buried building waste across the site and within the existing building structures
Organochlorine Pesticides (OCP), Organophosphorus Pesticides (OPP)	OCPs / OPPs are persistent and bio-accumulative in the environment. They were formerly used as pest control for crops, livestock and buildings. As the site was historically used for grazing, there may be OCP / OPPs present in the soils
Heavy metals	May be present on Site as a result of historical industrial activity. Some elevated background levels of metals are also known to be present naturally in the environment
Hydrocarbon related compounds	TRH (BTEX) associated with the use of fuels and lubricants and former UST

Polycyclic Aromatic Hydrocarbons (PAH), Phenols	Derived from partially combusted organic materials, also from coal used as fuel in the kilns and ash buried across the site
Polychlorinated biphenyl (PCB)	May be associated with buried wastes from buildings and potential transformers and associated oils
Explosives residues	Possible explosives residues in soil from historical storage on site

3. DATA QUALITY OBJECTIVES AND SAMPLING PLAN

The ASC NEPM mandates the application of the US EPA seven steps Data Quality Objective (DQO) process to the investigation of site contamination in Australia. The DQO process can range in complexity of application but the seven steps provide a frame work for the consideration of key aspects of the investigation planning and implementation process, and place an emphasis on ongoing planning and iterative refinement of the investigation process. In establishing Data Quality Objectives for this SAP, the following general processes have been applied[1]:

1. State the Problem
2. Identify the decision/Goal of the Study
3. Identify the Information Inputs
4. Define the Boundaries of the Study
5. Develop the Analytical Approach or Decision Rules
6. Specify Performance for Acceptance Criteria, and
7. Develop the Plan for Obtaining Data

3.1 STEP 1: State the Problem

The first point of the DQO process is to state the problem for which the current investigation was undertaken. Details addressing this point are presented in Table 3.1.

Table 3.1 Step 1: State the Problem

DQO – Step 1	
The objective of the proposed investigation	The objective of this investigation is to undertake further sampling and analysis to collate sufficient data that will facilitate the development of a comprehensive, defensible and robust data set for the Site. The data will either support the planned land use or require additional works to be undertaken for the Site
A problem statement: a brief summary of the contamination issue(s) at the site that are to be addressed in the project	The previous investigations undertaken for the Site identified the potential for contamination to be present within the fill material. Further investigation was therefore recommended
The reason the project is being undertaken	The project is being undertaken to determine the nature, level and extent of contamination at the Site and its suitability for the proposed development for residential use. The potential for risk to future construction workers and residents, existing residents in surrounding areas, groundwater and surface water associated ecosystems and the environment as a whole are to be explored.

[1] Adapted from the US EPA, Quality Assurance – QA/G-4, *Guidance for the Data Quality Objectives Process,* in accordance with consideration of Data Quality Objectives described in the *National Environmental Protection (Site Contamination) Measure, 1999* amended 2013 (NEPM).

Identify the project team and technical support experts, such as field manager, field personnel, toxicologists, risk assessors, statisticians, etc.	The project team will consist of: • Lange Jorstad (ACT EPA approved Auditor) • Mechelle Swanepoel (Project Director) • Graham Ohmsen (Project Manager / Technical Lead, health risk assessor) • Ryan O'Leary (Field Support) • Natasha Crook (Field Support) • SGS Environmental Laboratory • Eurofins Laboratory
Other matters such as the budget and community concern issues which may also be factors in designing and carrying out the environmental assessment	Potential for community concern during investigation works is considered to be moderate, as there are employees on site (Thor's Hammer) and residents in adjacent properties. The LDA is managing community expectations.
Identification of the regulatory authority(ies) and the local government area	The regulatory authorities relevant to this investigation will be the ACT EPA and the EPA approved auditor.

3.2 Step 2 Identify the Decisions

The decisions to be made based on the results of the investigation program are as follows:

- Do the findings of the investigation provide a higher level of understanding and certainty with respect to the source of identified contamination (if any)?
- Is there sufficient and definitive Site data to evaluate whether contamination at the Site could reasonably be expected to have been derived from historical and present use(s) of the Site?
- Is there sufficient and definitive Site data to assess the significance of contamination risk, with respect to suitability of the Site for the proposed land use?
- Is there sufficient and definitive Site data to indicate whether remediation and/or Site management works are required for the proposed land use?
- Is there sufficient information on the distribution and characteristics of soil and fill requiring remediation and/or management to allow remedial planning to progress?
- Do the findings of the investigation provide sufficient data that will enable an assessment of remedial options (if required) for contaminated soils and fill requiring remediation and/or management?
- Is there sufficient and definitive Site data to enable remedial cost estimates to be developed (if required)?

3.3 Step 3 Identify Inputs to the Decision

The inputs required to make the above decisions are detailed in Table 3.2.

Table 3.2 Step 3: Identify Inputs into the Decision

DQO – Step 3	
A list of information inputs needed to resolve the decision statement	Information provided directly by the Client Historical reports A review of publicly available information.

A list of environmental variables or characteristics that will be measured	Environmental variables that will be measured include: • Soils: soil type, odours, staining, water groundwater level (if contacted) and moisture • Fill material: chemistry, volume, location
Information required to allow informed, defensible decisions to be made	Once data on all environmental variables is acquired using appropriate QA/QC protocols this will be compared to specific NEPM HIL-A criteria (residential)
Identification of the sample media, such as fill, soil, groundwater, sediments and surface water	The investigation will include the collection of samples from each media from selected locations and depths and analysed for the COCs identified above.
Identification of the analytical methods that are required for chemicals of potential concern so that assessment can be made relative to the site criteria	Laboratory methods are detailed in the laboratory reports
Additional information required to make decisions	Concentrations of chemical of concern on different fill/soil types Vertical and lateral distribution of contamination In the event that groundwater is encountered, samples will be collected and stored at the laboratory for analysis

3.4 Step Four - Define the Boundaries of the Study

Table 3.3 Step Four: Define the Boundaries of the Study

DQO – Step 4	
The geographical extent of the proposed investigation, time and budget constraints	The entire site is to be sampled, with emphasis on the built area
The boundaries may be both spatial (property boundaries, accessibility to parts of the site, potential exposure areas) or temporal (the time frame of the investigation taking into account seasonal conditions, presence of near-surface groundwater or surface water and discharges, access restrictions, availability of key personnel.	Potential impact to groundwater will need to be explored. Anticipated depth to ground water is likely to be around 15 m bgl, based on regional groundwater information
Definitions of the segments of the site that are required to be investigated (consider the use proposed for the site which will influence required sample density i.e. ACT EPA guidelines, etc.)	The investigation is to be conducted over the entire site

Divide the site into strata in which contamination distribution is believed to be uniformly distributed	Soil samples will be collected from various depths along the soil profile. The assessment will also extend below ground level to collect representative material. Soil samples will also be collected from the proposed eight groundwater wells which extended to a maximum depth of 15 m bgl.
Consider the scale of required decisions: site-wide, each residential lot, etc.	The investigation will target the width and length of the known area of impact i.e. the location where fill material has been deposited.
Consider the presence of heterogeneous materials that require special sampling methods	Sampling procedures will be dependent upon soil conditions
Identify potential constraints to carrying out the investigation, such as access, health and safety issues	• Presence of underground utilities and/or storm water infrastructure • Presence of harmful material such as asbestos, heavy metals, unknown CoPC • Potential Site access restrictions; and • Weather / climatic conditions.

3.5 Step Five – Develop a Decision Rule

Table 3.4 Step 5: Develop a Decision Rule

DQO – Step 5	
Screening criteria for soil	Soil results will be screened against the NEPM (1999, amended 2013) HIL-A criteria for low density residential
Screening criteria for Groundwater	Groundwater results will be screened against NEPM (1999, amended 2013) Schedule B(1) investigation levels for Soil and Groundwater and ANZECC (2000) Water Quality Guidelines for Marine and Fresh Water
Screening criteria for sediment	Sediment results will be screened against the NEPM (1999, amended 2013) HIL-A criteria for low density residential as the water course is ephemeral
Chemicals of concern detected in field blanks, rinsate blanks, volatile-spiked trip samples, laboratory method blanks	Chemicals of concern should not be detected in field blanks, rinsate blanks or laboratory method blanks.
Recovery of matrix spike additions, surrogate spike additions, laboratory control samples	Acceptable limits for the recovery of these laboratory QA/QC samples will be defined by the laboratory in each report issued, where applicable.
RPDs of matrix spike and matrix spike duplicates	Acceptable limits for the recovery of these laboratory QA/QC samples will be defined by the laboratory in each report issued, where applicable.

3.6 Step 6 Specify the Limits on the Decision Errors

The tolerable limits on decision errors are as follows:

Table 3.5 Step 6: Specify the Limits on the Decision Errors

DQO – Step 6	
Determine the possible range of the parameter of interest	The criteria adopted for the Site are listed in the section above.
Identify the decision errors and choose the null hypothesis	Laboratory data will have to be within levels specified by laboratory methods, which are largely based on USEPA and APHA protocols. This also means achieving 50% Relative Percentage Difference (RPD) rates between intra- and inter–laboratory samples. The potential for significant decision errors are to be minimised by implementing a robust QA/QC program and by completing an investigation that has an appropriate sampling and analytical density for the purposes of the investigation and comprises representative sampling.
Specify a range of possible parameter values where the consequences of decision errors are relatively minor (grey region). Assign probability values to points above and below the action level that reflect the tolerable probability for the occurrence of decision errors	Furthermore, the standard deviation of the results must be less than 50% of the assessment criteria

3.7 Step 7 Optimise the Design for Obtaining Data

The investigation and assessment of contamination where developed and performed in accordance with the following guidance:

- ACT EPA Information Sheet No 4 Requirements for the Reuse and Disposal of Contaminated Soil in the ACT (June 2015)
- ACT EPA ACT Environmental Standards: Assessment & Classification of Liquid & Non-liquid Wastes (2000)
- ANZECC (2000) Australian and New Zealand Guidelines for Fresh and Marine Water Quality
- Australian Standard AS4482.1 (2005) *Guide to the investigation and sampling of sites with potentially contaminated soil. Part 1: Non-volatile and semi-volatile compounds*
- National Environment Protection Council National Environment Protection (*Assessment of Site Contamination*) Measure (1999, amended 2013) Schedule B(1) *Guideline on Investigation Levels for Soil and Groundwater*
- National Environment Protection Council National Environment Protection (*Assessment of Site Contamination*) Measure (1999, amended 2013) Schedule B(5a) *Ecological Risk Assessment*

- National Environment Protection Council National Environment Protection (*Assessment of Site Contamination*) Measure (1999, amended 2013) Schedule B(7) Appendix A2 *The Derivation of HILs for PAH and Phenols*
- Simpson SL, Batley GB and Chariton AA (2013). Revision of the ANZECC/ARMCANZ Sediment Quality Guidelines. CSIRO Land and Water Science Report 08/07. CSIRO Land and Water
- Western Australian Department Health (2009) Guidelines for the Assessment, Remediation and Management of Asbestos Contaminated Sites in Western Australia

4. METHOD

Prior to the commencement of the sampling program, all personnel attended pre-work meeting each day, where particular health and safety issues and other requirements associated with the tasks for the day were discussed. All personnel signed the daily work sheet and the safe work method statement (SWMS).

Toolbox meeting at the start of each day to discuss the work program for the day, highlight any safety issues and to ensure that all participants were aware of the requirements for diligence whist excavating test pits. Site figures were also utilised by staff to assist in the identification of sampling points which had been marked by pegs and recorded by GPS.

The sampling methods utilised for the Brickworks site consisted of the following approach.

4.1 Asbestos Air Monitoring

Staff conducting the sampling wore individual samplers attached to low flow pump to determine whether there had been any exposure to airborne asbestos fibres resulting from disturbance of soil. Filters were submitted to SGS for 1-day turn around analysis. The results for the asbestos air sampling are provided in Appendix K.

4.2 Test Pits

- Pits were dug by a 20 tonne and 13 tonne excavators. The larger excavator was replaced on 8/9/2016 with a 5 tonne excavator to enable access to areas which was restricted and the larger excavator could not access
- Pits were excavated through the surface soil and fill material to bedrock, which occurred at depths ranging between 0.1 m-2.9 m bgl
- Soil was removed at 100 mm intervals and placed directly onto the ground
- Soil samples were collected at 0.0, 0.2, 0.5, 1.0 and every 1.0 m thereafter or where signs of contamination were noted. Samples were collected directly into glass containers from the deposited soil
- All pits were visually inspected for indicators of contaminants
- Test pits were logged by experienced SMEC field scientists, recording features such as fill type(s), depths, colour, texture, grain size and any other notable properties using USCS approach
- Following sampling, logging and photographing, the test pits were backfilled and the site was recorded by GPS.

The approach to the excavation of test pits was dictated by the need for diligence, as there was a potential to uncover material of archaeological importance, particularly in areas identified prior to the commencement of the works by Navin Officer Heritage Consultants (July 2016). The areas of archaeological potential are shown in Figure 1 (Appendix A).

Samples were also collected from the upper 0.05-0.10 m of each sampling location for testing for asbestos. Samples were placed into double sealed clip seal bags and placed in the esky to be dispatched with the soil samples. Sample details were recorded on the CoC.

Sample dispatch was accompanied by a chain of custody (CoC) sheet to the laboratory, which issues a sample receipt notification (SRN) upon receipt. The CoC and SRN documents are provided in Appendix F.

Several sampling points (TP-06, TP-59, TP-63, BH-03, BH-17) were moved from their original locations. The relocation of these points was generally in the order of 5-10 m and was required for the following reasons:

- TP-06: Proximity of suspected sub-surface infrastructure
- TP-59: presence of fence precluding access by excavator
- TP-63: Proximity to building and potential blocking of vehicle access
- BH-03: No access for excavator due to fence
- BH-17: Proximity to vehicle access to buildings

4.3 Surface and Grab Samples

- Surface samples and grab samples were collected from the surface of the designated areas and stockpiles, respectively, by SMEC field scientists directly into laboratory provided glass containers
- All samples were collected wearing nitrile gloves, which were changed between each sample
- Soil characteristics, such as colour, grain size, moisture and any other notable properties were recorded
- Each sampling point was recorded by GPS
- Collected samples were placed into eskies for delivery by courier to the laboratory at the end of each day.

4.4 Bore holes

- Contamination boreholes were drilled by a vehicle mounted auger to a depth of 3.0 m bgl, or until refusal
- Where required, the surface concrete was cut by 150 mm circular cutter, resulting in the production of a concrete plug approximately 100-130 mm thick
- Samples were collected from the auger after extraction into laboratory provided glass containers and placed into chilled esky for delivery by courier to the laboratory
- Samples were collected wearing nitrile gloves, which were changed between sampling locations
- The lithology was recorded as the auger drilled and was confirmed upon extraction after completion of the bore hole
- Following completion, the concrete plug was re-instated and the location of the point recorded by GPS.

4.5 Hand Auger Holes

Four locations were sampled using a hand auger. This method was utilised in the locations where it was not possible to access the locations by other means. Hand auger holes were progressed to depths between to 0.4 m bgl, with a total of four samples collected for analysis.

Individual hand auger holes were logged in accordance with the USCS approach. The logs are presented in Appendix D.

4.6 Monitoring Wells

Eight groundwater monitoring wells were installed across the site, the locations are shown in Figure 1.

- Monitoring wells were installed to depths between 5.5-15 m bgl using mechanical augering and wash-boring methods
- Collection of eight soil samples for analysis
- Soil samples were collected wearing nitrile gloves, which were changed between sampling locations
- Following initial installation, monitoring wells were left for a period of one to three days before development
- Following development, wells were left for a period of seven days before purging and sampling
- Following completion, the location of the monitoring well recorded by GPS and a monument was installed on each well.

Wash boring was used to drill through the hard/fractured underlying siltstone. This (geotechnical) technique resulted in loss of samples from depth and had the potential to introduce water into the bore holes during drilling. This may also have the potential to impact on the resultant groundwater chemistry.

4.7 Sediment Samples

- Sediment samples were collected from the creek/water course in the Pit area
- Samples were collected wearing nitrile gloves, which were changed between sampling locations
- Following completion, the location of the sampling point recorded by GPS.

4.8 Field Screening

Following collection, samples placed in plastic bags were tested for volatile organic compounds using a photo-ionisation detector (PID). Results from the PID measurement were recorded on the field log sheets.

The process of excavation and subsequent deposition of the soil on the ground prior to sampling may have resulted in some disturbance and possible loss of volatile compounds. If present the VOCs would desorb from the clay soil prior to volatilising to the atmosphere. However, the consistently low PID readings suggest that if present, VOC concentrations in the soil were quite low. It cannot be discounted that the method of sampling and sample collection may have resulted in an underestimation of the concentration of VOCs as measured by PID.

4.9 Unexpected Finds Protocol

The objective of the Unexpected Finds Protocol (UFP) was to define a process that will be implemented in the event that unexpected finds are identified at the Site during the excavation works. It is also intended to provide guidance to workers at the Site in recognising potentially unacceptable or potentially archaeologically significant material including:

- Buried material indicating previous site occupation by indigenous people
- Buried material from historical site occupation, including material refuse landfills
- Visually contaminated or odorous soil and/or groundwater or underground storage containers
- Asbestos containing material (ACM) buried infrastructure such as old asbestos pipes sheeting, or tile, with fibres observable along breaks in material.

Should unexpected contamination or other unexpected find be identified during the works, the following general approach was adopted:

Table 4.1 Unexpected Finds: Action Protocol

Timing	Action	Responsibility
At Time of Identification	Unexpected Finds discovered STOP WORK. SMEC to advice LDA and Navin Officer archaeologists of potential unexpected find.	Principal, Contractor / Site Manager on the ground to supervise.
	Immediately cordon off the area and make the area safe.	Contractor
	Manage, remove or treat the item in accordance with the applicable EPA regulations, laws, guidelines and industry practice. Get EPA approval on the remediation and validation works, as required.	Contractor Representative
	Should the find be major, specific procedures may be deemed necessary.	Archaeologists and Environmental Scientist.
	Site deemed to be SAFE by Environmental Scientist and work to proceed. Upon conclusion, prepare an unexpected finds report for ACT Heritage and LDA.	Contractor and Environmental Scientist

4.10 Assessment Criteria

4.10.1 Adopted Assessment Criteria and Guidelines

The assessment was conducted in general accordance with the ACT Environmental Protection Authority (EPA), 2009 *Contaminated Sites Environmental Protection Policy*, which endorses the use following guidelines:

- ACT EPA (2000) ACT *Environmental Standards: Assessment & Classification of Liquid & Non-liquid Wastes*
- ACT EPA (2014) *Information Sheet 4 – Requirements for the reuse and disposal of contaminated soil*
- Australian Standard AS4482.1 (2005) *Guide to the Sampling and Investigation of Potentially Contaminated Soil*
- National Environment Protection Council (NEPC), 1999 – National Environmental Protection (Assessment of Site Contamination) Measure (Amended 2013) Schedule B(1) *Investigation Levels for Soil and Groundwater*
- National Environment Protection Council (NEPC), 1999 – National Environmental Protection (Assessment of Site Contamination) Measure (Amended 2013) Schedule B(5a) *Ecological Risk Assessment*

- Simpson SL, Batley GB and Chariton AA (2013). Revision of the ANZECC/ARMCANZ Sediment Quality Guidelines CSIRO Land and Water Science Report 08/07. CSIRO Land and Water

The guidelines to which soil analytical results are compared in the ACT (and nationally) present a range of Health-Based Investigation Levels (HILs), and Health Screening Levels or HSL's, sensitive land use thresholds and expected background concentration ranges for urban redevelopment sites. The application of these guidelines is summarised below.

4.10.2 Human Health Criteria

The results from the soil sampling and analysis were compared against the NEPM Health Investigation Levels (HIL-A) for residential with garden/accessible soil (home grown produce < 10% fruit and vegetable intake, (no poultry), also includes children's day care centres, preschools and primary schools. This is considered the most suitable assessment criteria as the proposed re-development of the site is to be primarily for residential housing.

The NEPM framework for the application of health investigation levels (HILs) is detailed below (NEPM Schedule B (1), *p5*):

> *HILs establish the concentration of a contaminant above which further appropriate health investigation and evaluation will be required. Levels slightly in excess of the HILs do not imply unacceptability or that a significant health risk is likely to be present. Exceeding a HIL means further investigation is required and not 'risk is present, clean-up required'.*
>
> "*The HILs are referred to by regulators, auditors and consultants in the process of assessing soil contamination. HILs apply generally to the top 3 m of soil for residential use. Site-specific conditions should determine the depth to which HILs apply for other land uses.*
>
> *HILs are not intended to be clean-up levels. The decision on whether clean-up is required, and to what extent, should be based on site-specific assessment triggered by an exceedance of the HIL. Health risk assessment is the primary driver for making site decisions. Other considerations such as practicality, timescale, effectiveness, cost, sustainability and associated ecological risk assessment are also relevant*."

The NEPM Schedule B(7) Appendix A2 (amended, 2013) has adopted the approach of determining the toxicity of all PAH by the application of the toxicity equivalence method, whereby the individual PAH are multiplied by a toxicity equivalence factor (TEF) compared against benzo(a)pyrene, which has a value of 1.0. The resultant values are combined to produce an overall equivalent toxicity (TEQ). The NEPM (2013) carcinogenic PaH screening value for benzo(a)pyrene is 3 mg/kg (TEQ).

The above criteria were selected based on the proposed end use of the Site for residential purposes.

Health Screening Levels (HSLs) are provided in the amended NEPM for petroleum hydrocarbon compounds, using the same land use settings as those prescribed by the HILs for metal and inorganic contaminants. Petroleum hydrocarbon impacted soil was compared against the criteria for dermal contact detailed in CRC CARE Technical Report No. 10, *Health Screening Levels for Petroleum Hydrocarbons in Soil and Groundwater*. This criteria was selected as the identified TPH was generally > EC16 which is considered non-volatile.

Where the identified TRH was C_{10}-C_{14} fraction, the results were compared against the NEPM (2013) criteria for soil vapour (0 to < 1.0 m, CLAY) to enable the assessment of the potential risk to be determined.

4.10.3 Ecological Based Investigation Levels (EILs) and Screening Levels (ESL)

The NEPM (amended, 2013) provide assessment criteria for ecological systems through the provision of Ecological Investigation Levels (EILs), which have been derived for the protection of terrestrial ecosystems for common contaminants in soil, based on a species sensitivity distribution (SSD) model developed for Australian conditions. EILs have been derived for As, Cu, Cr^{III}, DDT, naphthalene, Ni, Pb and Zn.

Ecological based soil investigation Levels (EILs) are provided in the amended NEPM for metal contaminants for a range of exposure settings, based on the current or proposed/approved use(s) of the land, including:

- Areas of ecological significance – this is where the planning provisions or land use designation is intended to be used for conserving and protecting the natural environment including national parks, state parks, wilderness areas and designated conservation areas
- Urban residential areas and public open space – this is broadly equivalent to the HIL-A, HIL-B and HIL-C land use scenarios
- Commercial and industrial uses.
- For this investigation, 'Urban Residential and Public Open Space' has been adopted as being the most appropriate assessment criteria for the proposed land use.
- Ecological screening Levels (ESL) have been derived for petroleum hydrocarbons, with particular emphasis on BTEXN compounds. These values have been applied for the current investigation.

For this assessment, 'Urban Residential and Public Open Space' has been adopted as being the most appropriate for the proposed end use with anticipated gardens.

A summary of the adopted assessment criteria is presented in the table below:

Adopted Criteria	CoPC
NEPM (amended 2013) HIL-A	Metals, PAH, Phenols, OCP, OPP, PCB, Bonded ACM and FA/AF
CRC CARE HSL A – Direct Contact	TRH, BTEXN and C_6 to C_{40}
NEPM (amended 2013) EIL/ESL Urban Residential and open space	As, Cu, Cr^{III}, Pb, Ni, Zn, hydrocarbons
Anthropogenic inclusions	0 %
Asbestos	Presence / Absence

4.10.4 Asbestos Screening Levels

The potential for exposure to airborne asbestos occurring during the site investigation was addressed through the measurement of airborne asbestos fibres, collected using low flow pumps and a cowl fitted with a filter. These were worn by staff during the intrusive works.

Samples were also collected during the intrusive works to assess the concentration of asbestos in soil. The laboratory results for the filters and soil samples were analysed and the results were compared against the following criteria detailed in Schedule B(1) of NEPM (2013).

Table 4.2. Health screening levels for asbestos contamination in soil

	Health Screening Level (w/w)			
Form of asbestos	**Residential A[1]**	**Residential B[2]**	**Recreational C[3]**	**Commercial/ Industrial D[4]**
Bonded ACM	0.01%	0.04%	0.02%	0.05%
FA and AF[5] (friable asbestos)	0.001%			
All forms of asbestos	No visible asbestos for surface soil			

1. Residential A with garden/accessible soil also includes children's day care centres, preschools and primary schools.
2. Residential B with minimal opportunities for soil access; includes dwellings with fully and permanently paved yard space such as high-rise buildings and apartments.
3. Recreational C includes public open space such as parks, playgrounds, playing fields (e.g. ovals), secondary schools and unpaved footpaths.
4. Commercial/industrial D includes premises such as shops, offices, factories and industrial sites.
5. The screening level of 0.001% w/w asbestos in soil for FA and AF (i.e. non-bonded/friable asbestos) only applies where the FA and AF are able to be quantified by gravimetric procedures. This screening level is not applicable to free fibres.

For this Site the Residential A criteria has been adopted.

4.10.5 Sediment Quality

The sediment from the ephemeral water body in the Pit area were compared against the revised Interim ANZECC/ARMCANZ (2013) *Sediment Quality Guidelines*. The revised guidelines provide updated values for a range of contaminants including petroleum hydrocarbons which incorporate further research since the initial Sediment Quality Guidelines released in 2000.

5. QUALITY ASSURANCE AND QUALITY CONTROL

Quality assurance (QA) is defined as the planning process and systematic actions undertaken to ensure the representativeness of a field sampling event. These processes are assessed against the Quality Controls (QC) which measures the success of the QA procedures against the data quality indicators (DQI).

The field and laboratory QA/QC, DQIs and data acceptability have been adopted from the ASC NEPM 2013. A review of the field and laboratory QA/QC performance is provided below.

Table 5.1 QA/QC Protocols and Specifications

Field DQI	Comment
Use of a suitably qualified and experienced samplers	The inspection and sampling activities were undertaken by SMEC Environmental Scientists, supervised by Graham Ohmsen, Ryan O'Leary and Natasha Crook between 5-23 September 2016
Appropriate decontamination of reusable equipment and use of blank (field and rinsate) samples	Rinsate samples were not collected as samples were collected directly from material deposited onto the ground following excavation. No tools were used for sampling. Rinsate samples were not collected as the sampling procedure consisted of collection of samples directly from excavated soil or directly from the auger stem by hand wearing fresh nitrile gloves for each sample to avoid contamination. Similarly for hand auguring, samples were collected directly from the hole rather than the auger itself, given that the holes were shallow
Fresh nitrile glove use between each sample	Soil samples were collected using a new disposable nitrile glove for each sample, to avoid risks from cross-contamination
Standard operating procedures and field documentation used	All field activities were undertaken in accordance with SMEC practices and ACT EPA approved guidelines
Samples kept under completed Chain of Custody (CoC) documentation	Samples were recorded and kept under a signed COC until receipt by the laboratory. A copy of the signed CoC is attached in Appendix E
Collection of field split samples at the appropriate rate for duplicate 1:20 and triplicate 1:20	A total of 12 intra-laboratory replicate samples and 3 inter-laboratory samples were analysed during the works. This constitutes a duplicate sample ratio of 1:11 and a triplicate sample ratio of 1:32.
Calibration of field equipment	The Photo-ionisation detectors (PID) were calibrated by Airmet Scientific prior to use. A copy of the calibration certificate is attached in Appendix F
Use of laboratory prepared trip spike for volatile analysis	Three trip spike samples were used during this investigation. The results of the trip spike recovery analysis do not indicate degradation of volatiles during sample transit. Trip spike recovery results are presented in Appendix E
Use of laboratory prepared trip blank for volatile analysis	Three trip blank samples were used during this investigation. The results of the trip spike recovery analysis do not indicate degradation of volatiles during sample transit. Trip spike recovery results are presented in Appendix E

Field DQI	Comment
Laboratory DQI	**Comment**
Appropriate laboratory supplied containers and preservatives used Samples received in a good condition	All samples were received in appropriately pre-treated and preserved containers.
Samples extracted within holding time	Soil samples were extracted with the prescribed analyte holding times as specified
Laboratory accreditation and analytical methods used	SGS is a NATA accredited laboratory for the analysis of the required CoPC. The analytical methods used are described in the attached laboratory certificate in Appendix E
Laboratory Limit of Reporting (LOR) to be less than the assessment criteria	The LOR is less than the adopted assessment criteria
Relative percent differences (RPDs) within the acceptable ranges. Acceptable RPDs: 80% (1-10 x LOR), 50% (10-30 x LOR) and 30% (>30 x LOR)	A review of the laboratory quality control report indicated that the rates and recoveries of the laboratory QC samples met the DQIs. A copy of the Laboratory Quality Control Report and Interpretive Quality Control Report is attached
Laboratory Control Spike (LCS) analysis at a rate of 1:20, recoveries to be within 70-130%	
Matrix Spike Recoveries (MSR) analysis at a rate of 1:20, recoveries to be within 70-130%	
Method Blank (MB) samples to less than the laboratory detection limit	
Surrogate Recoveries (SR) to be within 70-130%	
Laboratory duplicate samples analysis at one per process batch, or two if the process batch exceeds 10 samples	

5.1 QA/QC Summary

A review of the QA data from the laboratory indicated that the requirements detailed in AS4482.1 (2005) and NEPM (2013) Schedule B (2) were generally met. A summary of the main points from the QA/QC procedure is detailed below.

- Samples were received within appropriate holding times
- Samples were received in appropriate containers and chilled
- The number of duplicate samples (12) met the sampling requirement of 1:20
- The number of inter-laboratory triplicate samples (4) **did not** meet the requirement of 1:20
- Trip spike samples (3) were analysed for the investigation. This **did not** meet the requirement of one per day
- Trip blank samples (3) were analysed for the investigation. This **did not** meet the requirement of one per day

- RPD between primary and duplicate samples was generally between 0-30%. Where the RPD was outside this range, it was due to sample heterogeneity
- Laboratory surrogate samples were within the required range of 70-130%
- Laboratory internal duplicate samples were generally acceptable. Where samples did not meet the requirement, it was due to sample heterogeneity (metals) or the measured concentration being < 5 times LOR (phenols)
- Laboratory matrix spikes generally met the recovery value of 70-130%. Where the matrix spike did not meet the specified requirement, it was due to sample heterogeneity
- Laboratory LOR was less than the assessment criteria for all CoPC
- Rinsate samples were not collected as the sampling procedure consisted of collection of samples directly from excavated soil or directly from the auger stem by hand wearing fresh nitrile gloves for each sample to avoid contamination.

The lack of adequate trip blank and trip spike samples to each batch of samples was an oversight on behalf of field staff due to the large number of samples and the long working hours. This oversight was rectified with later sample delivery.

In summary, although there were some issues with respect to the correct number of triplicate and spike samples, overall the data from the analysis of soil samples is considered suitable for use.

6. CONCEPTUAL SITE MODEL

6.1 General

The conceptual site model (CSM) for the Site has been developed following site visits and completion of the investigation works and is based on the results of field observations and interpretation of analytical results. The CSM identifies potential sources of contamination, possible exposure pathways between contamination and receptors, and complete pollutant linkages.

6.2 Source – Pathway – Receptor model

The source-pathway-receptor model details the linkage between a hazard and possible receptor(s). The following SPR model is considered to best represent the site.

Source (hazard): ACM, lead, PAH, petroleum hydrocarbons (TRH)

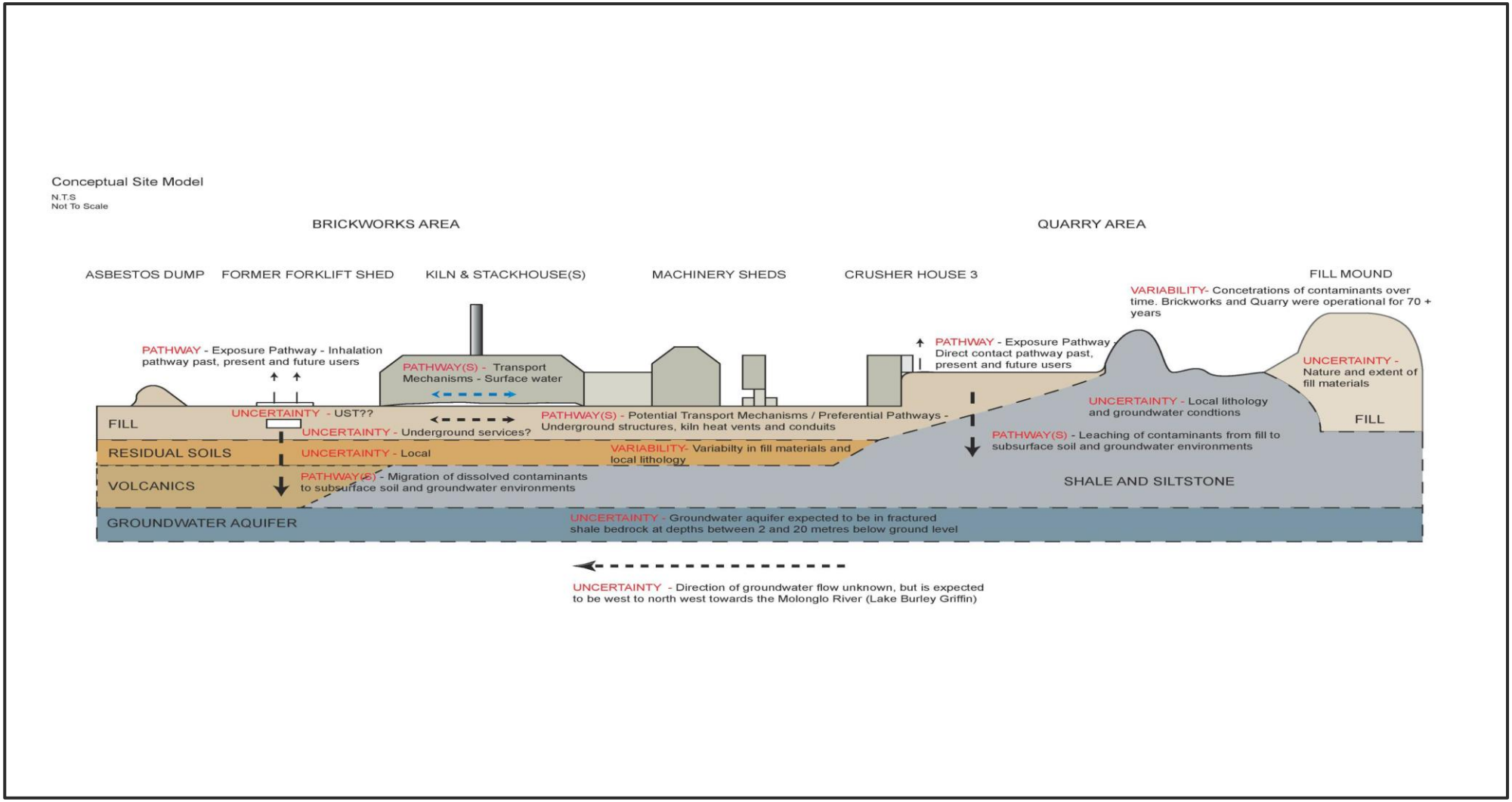
Pathway: The pathways considered viable for the transport are ingestion of soil, dust, inhalation of dust, leaching into adjacent surface waters and groundwater

Receptors: Based on the current and proposed land use, the following are considered to be receptors which may be adversely impacted by the identified CoPC material:

- Workers who may come in contact with impacted soil through the development phase of works on the Site
- Workers installing services (water, sewer, power, telecommunications)
- Employees of Thor's Hammer
- Residents in properties adjoining the site
- Future residents
- Freshwater ecological receptors through leachate drainage into nearby waterways.

The hazards stated above do not include material from the adjacent buried asbestos pit area. Should this area be disturbed as part of the proposed redevelopment, then a review of the CSM will need to be conducted to include asbestos as a hazard as part of the overall SPR model. The CSM is shown in Figure 6.1.

Figure 6.1 Conceptual Site Model



7. RESULTS

The excavation of test pits, trenches and boreholes across the site revealed fill material, consisting predominantly of bricks and lesser amounts of concrete, ash and reworked clay. The thickness of the fill material ranged from 0.0 m bgl (absent) to 3.3 m bgl (extent of pits).

The general lithology of the site consisted of a surface layer of topsoil approximately 10 cm thick, underlain by FILL material, red-brown silty CLAY, yellow-brown to grey-yellow CLAY and finally BEDROCK (indurated siltstone/phyllite).

The depth of test pits, trenches and boreholes was dictated by the depth of fill material and the associated depth to bedrock. These factors determined the extent of excavation, which varied in a number of locations from the original proposed depth of 3 m.

A register of test pits and bore holes detailing the final depth of excavation and the reason(s) as to why the excavations differed from the original depths specified in the SAQP is provided in Appendix C.

7.1 Material Descriptions

7.1.1 Surface Material

Surface samples were collected from 20 locations across the site. The surface material ranged between fine SAND to CLAY and gravelly Silt/CLAY. Dry sandy material occurred in the former kilns areas (SS-01 to SS-04), with soil and gravely silty clay occurring in stockpiles and ground samples.

7.1.2 Test Pits

The excavation of test pits uncovered a range of materials, from bricks and concrete to ash and coal to natural soil and bedrock. Bedrock, consisting of weathered to fresh siltstone, grey-yellow in colour, was intercepted at depths ranging between 0.0m (outcrop) and 3.3m bgl. The bedrock was commonly overlain by a silty CLAY of variable thickness, which was generally brown-yellow to yellow-grey in colour. In a number of locations, this was overlain by a red-brown to orange red silty CLAY, which was interpreted as resulting from prolonged weathering. The boundary between the red-brown and yellow-brown soils was gradational, with mottling commonly observed.

The ground conditions encountered within the quarry and brickworks area in previous investigations comprised fill overlying cohesive residual soil and siltstone bedrock. The fill was observed to vary significantly in thickness with some test pits encountering fill to depths of greater than 3 m. The fill typically comprised of whole and fragments of bricks, concrete, cobbles and boulders of siltstone, in addition to glass, bitumen, ash and other anthropogenic materials. The fill was uncompacted and prone to collapse upon disturbance.

The most widespread fill material encountered in the test pits was discarded brick material. This was the dominant component encountered in all test pits where fill material was identified. The bricks were red-brown in colour and were present as fragments from 5 cm to 15 cm in size and as complete bricks. Finer (2-10 mm) red brick fines (chit) was also widespread across the site. The appearance of the fill material was generally disordered, with voids up to 20 cm between bricks and concrete material being common.

Concrete blocks and fragments were also widespread in the fill material, though not as common as bricks. It constituted approximately 5-25% of the fill material and occurred as fragments (2-10 cm), blocks (10-30 cm) and less commonly as slabs up to 60 X 40 X 10 cm.

Ash material ranged from metallic grey to dark grey to pale cream-white colour, was generally angular to sub angular and 0.5-10 mm in size. The metallic grey material, which was encountered in TP-10, occurred as a layer approximately 20 mm thick. This material was porous, angular and had the appearance of coke. The dark grey-black and pale cream-white ash material was more widespread, being identified in many locations, generally as distinctive layer 2-5 cm thick associated with brick fill.

In a few locations, particularly to the western side of the site (TP-13, TP-24 and TP-25) the soil profile consisted of a brown to brown grey SILT overlying the red-brown and yellow-brown CLAY.

The depth of the excavations varied from the original depth of 3.0 m detailed in the proposal and the SAQP. The reason for the discrepancy between the proposed depth and the actual depth of excavation detailed in Table 7.1 was due to the depth of the underlying siltstone bedrock. Depth to bedrock was not known at the time of the site investigation, particularly in the areas around the existing buildings and structures.

A summary of the test pits and details of the fill material encountered in the test pits is provided in Table 7.1.

Table 7.1 Test Pit Lithologies

Test Pit	Depth (m)	Fill (m)	FILL - Description
TP-01	1.3	0.9	Brick
TP-02	3.0	0.8	Ash, minor reworked material
TP-03	0.6	0.5	Brick, ash, reworked material
TP-04	0.7	0.5	Ash, reworked material
TP-05	1.8*	1.8*	Ash, brick chit, *stopped when intercepted UST
TP-06A	0.85	0	No Fill material present, Bedrock
TP-07	3.0	3.0	Brick chit, brick, reworked material
TP-08	3.3	3.1	Bricks, reinforcement steel, concrete pipe, gravel
TP-09	0.2	0	No Fill material present, Bedrock
TP-10	0.4	0.3	Ash, small brick fragments
TP-11	1.7	0.6	Brick, gravel
TP-12	1.1	1.0	Road base, brick, reworked material
TP-13	1.9	0	No Fill material present, Bedrock
TP-14	1.5	1.0	Coal (0.3m), ash (0.8m)
TP-15	1.0	0	Bedrock
TP-16	1.8	0.4	Brick chit
TP-17	2.5	2.2	Bricks, brick fragments, reworked material
TP-18	3.0	2.5	Ash(layers to 5 cm thick), bricks and brick fragments, minor concrete fragments
TP-19			Decision not to excavate due to proximity to underground services and proximity to TP-14
TP-20			Unable to access the proposed sampling location
TP-21	2.0	2.0	Brick, ash, reworked material
TP-22	**Hand auger hole**		No Fill material present
TP-23	1.2	0.9	Bricks, rock fragments, brick chit, Coal (0.5 m)
TP-24	0.7	0.4	Wood, brick
TP-25	2.0	0	No Fill material present, Bedrock
TP-26	1.5	0	No Fill material present, Bedrock
TP-27	2.5	0.6	Brick, reworked material
TP-28	0.4	0.2	Brick fragments
TP-29	0.6	0.5	Coal (0.3m), brick chit
TP-30	1.8	0	No Fill material present, Bedrock

TP-31	0.5	0.3	Brick
TP-32	2.0	0.5	Ash, coal (0.4 m)
TP-33			Sample location in close proximity to TP23 and TP32, therefore this location was not considered further
TP-34A	2.0	1.5	Ash (5 cm thick, 0.5 m), brick fragments, brick chit, concrete slab
TP-35	2.5	1.0	Brick, concrete pipe, ash, tile fragments, reworked material
TP-36	1.9	0.2	Gravel, rock
TP-38	1.5	0.8	Gravel
TP-40	1.7	0.5	Ash, brick chit
TP-41	1.8	0.8	Bricks, ash (minor)
TP-42	0.5	0.3	Brick fragments (to 150 mm)
TP-43	3.0	1.2	Bricks, ash, minor concrete, reworked material
TP-44	2.0	0.8	Bricks
TP-45	1.6	0	No Fill material present, Bedrock
TP-46	1.5	0	No Fill material present, Bedrock
TP-47			Accidently omitted, marker peg removed prior to work by unknown person
TP-48	2.1	0	No Fill material present, Bedrock
TP-49	1.8	1.2	Bricks, reworked material
TP-50	1.5	0	No Fill material present, Bedrock
TP-51	1.6	0	No Fill material present, Bedrock
TP-52	0.4	0	No Fill material present, Bedrock
TP-53	0.3	0	No Fill material present, Bedrock
TP-54	1.5	0	No Fill material present, Bedrock
TP-55	1.5	0	No Fill material present, Bedrock
TP-56	1.3	0	No Fill material present, Bedrock
TP-57	2.6	1.3	Bitumen (upper 10 cm), brick fragments
TP-58	0.2	0.1	Bitumen (upper 10 cm)
TP-59	0.7	0	No Fill material present, Bedrock
TP-60			Access restrictions
TP-61	0.6	0	No Fill material present, Bedrock
TP-62	1.8	1.8**	Brick, concrete, ash (minor), reworked material **stopped when intercepted stormwater pipe
TP-63	0.6	0.2	gravel
****TP62: Work stopped at 1.8m due to interception of storm water pipe**			

A number of sampling locations were not excavated, as detailed in Table 7.1. These are detailed below in Table 7.2.

Table 7.2. Missing Test Pits

Test Pit	Reason
TP-19	Proximity to underground services and to TP-14
TP-20	Access restrictions
TP-33	Sample location in close proximity to TP23 and TP32, therefore this location was not considered further
TP-37	Accidently omitted, marker peg removed prior to work by unknown person
TP-39	Accidently omitted, marker peg removed prior to work by unknown person
TP-47	Accidently omitted, marker peg removed prior to work by unknown person
TP-60	Access restrictions

The removal of marker pegs at several locations was not immediately identified by field staff during the field works. This issue was identified following a review of field and analytical data.

7.1.3 Boreholes

A total of 18 boreholes were drilled across the site to depths between 0.3-10.0m bgl. Concrete coring (125mm) was required at all bore hole locations to enable drilling to be conducted. A summary of the borehole lithologies and the fill material encountered in the boreholes is provided in Table 7.3.

As shown in Table 7.3, a number of bore holes were not drilled to the proposed depth of 3.0m bgl. The reasons for this included refusal (BH-09, BH-15) and possible interception of unidentified sub-surface infrastructures (BH-17, BH-18) in the former kilns area. Boreholes BH-03 (1.2m), BH-05 (2.4m) and BH-14 (0.9m) were terminated in hard siltstone bedrock.

Table 7.3 Bore Hole Lithologies: Summary

Bore Hole	Depth (m)	Fill (m)	FILL - Description
BH-01	3	1.9	Black sandy material (0.36-0.46 m), gravel, ash, reworked material
BH-02	3	0.8	Gravel, clay, reworked material
BH-03	1.2	0.25	Gravel, reworked material
BH-04	3	0.6	Brown gravels (5-10 mm) reducing to 1-5mm at 0.3m
BH-05	2.4	0	No Fill material present, Bedrock
BH-06	3	0.9	Gravel (1-5 mm, angular)
BH-07	3	0	No Fill material present, Bedrock
BH-08	10	x	**GEOTECHNICAL ONLY**
BH-09	0.5	0.5	Gravel, Refusal at 0.5m
BH-10	3	0.35	Gravel, reworked material
BH-11	3	0	No Fill material present, Bedrock
BH-12	3	1.4	Gravel, dark brown, reworked material
BH-13	3	1	No Fill material present, Bedrock
BH-14	0.9	0.4	No Fill material present, Bedrock
BH-15	0.3	0.3*	Stopped due to metal piece in hole
BH-16	3	1.4	Gravel 1-5mm, reworked material
BH-17	0.3	0.3	Stopped due to possible concrete pipe
BH-18	1.6	1.6	Stopped due to possible sub-surface flue, brick, gravel

Fill material encountered in the boreholes varied in thickness, with a maximum thickness of 1.9 m recorded in BH-01, located on the northern perimeter of the site. Thickness of FILL material was generally less than 1m, although thicknesses greater than 1 metre being recorded in BH-13 (1.0m) and BH-12 and BH-16 (1.4m).

7.1.4 Monitoring Wells

Monitoring wells were installed using a combination of augering and wash boring. Wash boring was used for drilling through competent hard siltstone, which was encountered at varying depths across the site.

Due to wash boring being used to drill through the hard siltstone, groundwater levels were not able to be identified. Groundwater elevations ranged between 1.198-10.547 m bTOC. Wells MW-1 and MW-8 were dry (see Addendum report). The depth of the monitoring wells is provided in Table 7.4.

Table 7.4 Groundwater Monitoring Well Data

Monitoring Well	Depth (m)	FILL (m)	Depth to Groundwater (m TOC)
M1	8.5	1.3	N.D. (dry)
M2	15	0.8	4.091.
M3	5.5	0.8	2.741
M4	4	0.8	1.198
M5	5.5	0.3	1.965
M6	15	0.6	10.547
M7	14.7	0	8.565
M8	15	0	N.D. (dry)

7.1.5 Trenches

Five trenches were excavated across the site, with the thickness of fill material ranging between 0.3-1.6m. The fill material consisted mainly of brick fragments and chit, with minor ash and reworked clay. The material identified in the trenches did not appear to be different to that encountered in the test pits, with the dominant constituent being bricks (whole and fragments), with minor concrete, ash material and reworked soil. Details of the trench lithology are shown in Table 7.5.

Table 7.5 Trench Lithology: Summary

TRENCH	Depth (m)	FILL (m)	Description
TR-01	0.8	0.7	brick fragments 2-10 cm in size, reworked material
TR-03	0.8	0.6	Brick, chit, ash layer 20 mm thick at 0.2 m, reworked material
TR-04	1.6	0.4	Reworked material, sandy clay with minor stones 2-10 mm in size
TR-08	2.0	1.8	Brick, minor concrete, steel pipe, reworked material
TR-11	1.8	0.3	rd-bn clay, minor brick chit, 2cm thick layer of red-orange red material at 0.15 m

7.1.5 Hand Auger Holes

Hand auger holes were utilised in four locations. The reason for this method was due to restricted access to certain sampling locations or as part of the original sampling proposal. The individual hand auger holes were located in close proximity to other test pit or bore holes locations. The location of the hand auger holes is shown in Figure 2, Appendix A. The details of the hand auger sampling locations are provided in Table 7.6.

Table 7.6 Hand Auger Holes

Sample Location	Depth (m)	Description
HA-1	0.3	Brown-orange silty soil, Brick fragment at 0.15 m, moist
HA-7	0.4	Red-brown sandy clay, brick pieces to 50 mm in size at 0.2 m, moist
HA-8	0.3	Brown sandy Fill, gravel 1-5 mm, moist
HA-22	0.24	Sandy clay with gravel (1-7 mm), hit concrete at 0.23m

7.2 Unexpected Finds

The unexpected finds protocol was implemented during the excavation of TP-05 and TP-62. Details are described below.

TP-62: Interception of the (abandoned) storm water drain at a depth of approximately 1m bgl. The pipe (400 mm diameter, concrete) was not identified in the Dial Before You Dig plans or survey conducted during the initial sampling point location.

- The pipe was situated within fill material (brick and rock) and upon interception, work was immediately ceased.
- Personnel from SMEC (Mechelle Swanepoel, Project Director), LDA (Irena Sharp) and ACT Property Group (Peter Ozols, Manager) were contacted and informed of the incident. Enquiries as to the availability of plans showing the location of stormwater pipes indicated that plans were not available or did not exist. The area was demarcated and taped off, awaiting repair by a plumber.

TP-05: A buried UST was intercepted at a depth of approximately 1.8m bgl. There was existing information that the UST was present on the site, but no information as to the location (See photograph below).

- Upon interception, work ceased and the UFP was implemented. The SMEC project manager and LDA personnel were notified. The UST was found to be empty, apart from a small amount of water and residual hydrocarbons, which flowed from the corroded UST. The location and condition of the UST was documented and photographed and the test pit was backfilled.



UST uncovered during excavation of TP-05

Non-Friable Asbestos: Fragments of non-friable asbestos up to 5 cm in size were identified on the ground surface in the area adjacent to TP-34A (149.09178E -35.30936N). The impacted area covered approximately 10m^2. The presence of ACM was limited to the ground surface and no ACM was encountered in the nearest test pit. However, no test pit was excavated directly where the ACM was identified. A sample was collected for analysis, which identified asbestos. The ACM did not appear to be deteriorated and based on the criteria detailed in Western Australian Department Health (2009) *Guidelines for the Assessment, Remediation and Management of Asbestos Contaminated Sites in Western Australia* was considered to represent a low risk to human health in its current state.

Asbestos (chrysotile) was identified in soil sample from TP-61_0.2m (detect only). This was not identified in the field at the time of sampling. Analysis of soil reported the presence of chrysotile fibres (identified /detect only).

The laboratory report for the ACM is provided in Appendix F.

7.3 Ground Penetrating Radar (GPR): Summary

SMEC engaged Commence Communications to carry out a Ground Penetrating Radar (GPR) survey of four areas (shown Appendix I). Three areas were inside the Canberra brickworks site boundary and these were surveyed for identifying the presence of unmarked underground storage tanks (USTs) with archaeological areas within the fourth area outside the brickworks boundary. The fourth area was unsuitable for an extensive survey and therefore only an amount on the outskirts could be surveyed. Commence recommended that a GPR survey needs to be completed for this area.

Commence Communications concluded that there was no indication of USTs within the areas accessed by radar. Findings in most sections surveyed, indicated evidence of disturbance most consistent with holes that had been dug in the past and filled with debris and rubble including concrete and bricks. The results from the GPR survey in the selected locations (Figure 1 and 5) were not as successful as anticipated, however, the UST identified during this investigation around TP-05 coincides with a GPR location of disturbance (AEC7). Further areas of disturbance also coincide with the quarry AEC4.

Further investigation should include the asbestos area, south of the quarry site, which was not conducted during the current investigation.

7.4 Geotechnical Investigation

A Geotechnical Investigation was undertaken concurrently with the Environmental investigation over the 5th-23rd September 2016 and were supervised by a Senior Geotechnical Engineer from the WCC Engineers Canberra office.

The investigation comprised Geotechnical logging of 12 combined Engineering/Environmental Test Pits with adjacent Dynamic Cone Penetrometer (DCP) testing undertaken where ground conditions were suitable, Geotechnical logging of five Engineering Boreholes, and seven Seismic Geophysics lines.

The results from the seismic investigation revealed that fill material reached thickness of 5.5 m, and that the material was used to backfill the parts of the site from which material had been removed for use in the brick making process.

The details and results from the geotechnical and associated seismic investigation are contained within a separate report.

7.5 Analytical Results

The analytical results for the soil samples indicated that the soils were generally clean, with the concentrations of many contaminants (BTEX, OPP, OCP, PCB) below the analytical detection limits. Where the CoPC were reported, the levels of the identified contaminants were generally low and only marginally above the analytical detection limits (PAH, TRH, phenols). These CoPC did not exceed the NEPM (amended, 2013) HIL-A, EIL or HSL assessment criteria.

The highest concentrations of the CoPC were reported for heavy metals, particularly in the surface samples collected from within the former kilns areas (SS-04 and SS-10) and surface samples SS-06, SS-07 and TP-12. TRH, PAH and total Phenols were reported above analytical detection limits in a number of samples but below the HIL-A and EIL criteria. Lead in four surface samples exceeded the HIL-A and EIL (SS-04, SS-06 and SS-07), whilst zinc in the samples (SS-04, SS-06 and SS-07) also exceeded the EIL criteria.

The results from each of the sampling areas is detailed below.

7.6 Surface and Grab Samples

A total of 20 surface/grab samples were collected from the built area of the site. The results from the analysis of these samples indicated that a number of surface samples generally contained higher concentrations of CoPC than identified in other sample media. The results reported that asbestos, BTEXN, OPP, OCP and PCB were ***below*** the analytical limit of detection.

The main CoPC identified in the surface samples were heavy metals, particularly lead, which was detected at concentrations **above** the HIL-A value of 300 mg/kg in three samples. The highest lead concentrations were identified in sample SS-04 (1, 200 mg/kg), SS-06 (4, 300 mg/kg) and SS-07 (1,500 mg/kg).

These samples also contained elevated zinc (2, 100 mg/kg, 5, 400 mg/kg and 1, 800 mg/kg), respectively, although the reported concentrations for zinc were ***below*** the HIL-A value of 7, 400 mg/kg. Sample SS-04 also reported the maximum concentration of cadmium of 13 mg/kg, which was elevated compared to the other samples, but ***below*** the HIL-A value of 20 mg/kg.

The concentrations for lead and zinc SS-04, SS-06 and SS-07 were ***above*** the upper limit of the EIL values of 1, 100 mg/kg and 1, 300 mg/kg, respectively.

Chromium was detected in SS-05 (110 mg/kg) which exceeded the HIL-A criteria value of 100 mg/kg. The HIL-A value is for hexavalent chromium (Cr^{VI}) and the reported concentration must be considered above the HIL-A value as speciation to determine whether the reported concentration consisted of Cr^{VI}, Cr^{III} or a combination of both was not conducted.

All other heavy metal results were either below analytical detection or well below the HIL-A and EIL values.

TRH (C_{10}-C_{36}) was reported in samples SS-04 (580 mg/kg), SS-05 (120 mg/kg), SS-10 (800 mg/kg), SS-14 (53 mg/kg) and G-03 (140 mg/kg), with the predominant fraction being C_{15}-C_{28}. The TRH reported in sample G-03 was restricted to C_{29}-C_{36} fraction. TRH (C_{10}-C_{14}) was reported in samples SS-04 (40 mg/kg) and SS-10 (140 mg/kg). The results were below the relevant NEPM (amended, 2013) screening criteria for dermal contact and for soil vapour value of 280 mg/kg for >C_{10}-C_{16} fraction. Petroleum hydrocarbons were not detected in any other surface sample.

PAH were detected in samples SS-04 (1.2 mg/kg), SS-07 (0.7 mg/kg), SS-15 (0.5 mg/kg) and G-01 (0.2 mg/kg). Benzo(a)pyrene (BaP) was not detected in any of the samples where PAH were reported. The detected PAH concentrations were ***below*** the HIL-A criteria value of 300 mg/kg. TEQ (<0.2 mg/kg) was ***below*** the HIL-A criteria of 3 mg/kg.

Total phenols were detected in all samples at concentrations above the analytical detection limit. The levels ranged between 0.1-47 mg/kg, with all samples except SS-06 (17 mg/kg) and SS-10 (47 mg/kg) reporting concentrations less than 10 mg/kg. All results were however, well ***below*** the HIL-A criteria of 3, 000 mg/kg.

The results are presented in Appendix E.

7.7 Test Pits/Trenches

A total of 60 test pits were excavated across the site, with 61 samples submitted for analysis. The depth of excavation varied from 0.1 m to 3.3 m bgl, with the depth of excavation being influenced by the depth to bedrock. The concentrations of BTEXN, OCP, OPP and PCB were below analytical detection limits in all samples analysed.

TRH concentrations (C_{15}-C_{28}) were reported in four test pit samples, TP-10 (47 mg/kg), TP-27_0.2 m (65 mg/kg), TP-28_0.15 m (66 mg/kg) and TP-48_0.1 m (63 mg/kg). TRH was ***below*** analytical detection limit in all other samples. TRH (C_{15}-C_{28}) was detected in TR-03 (200 mg/kg) and TR-08 (49 mg/kg). The results were ***below*** the NEPM (amended, 2013) HSL criteria and the EIL criteria.

PAH were reported in 16 samples, with the maximum concentration reported in TR-11_0.15m (6.7 mg/kg). The presence of PAH was detected in samples from the upper 0.1-0.2 m of the test pits. BaP was identified in five of the samples at concentrations between 0.2 mg/kg (TP-03, TP-18) to 0.7 mg/kg (TP-48).

The total concentrations of PAH were ***below*** the HIL-A criteria of 300 mg/kg and the PAH TEQ was ***below*** the HIL-A criteria of 3 mg/kg.

Total phenols were reported for detected above analytical detection limit in 38 samples, with the reported concentrations ranging between 0.1-2.1 mg/kg. Phenols in trench samples ranged between 0.1-0.4 mg/kg. All results were ***below*** the HIL-A criteria of 3, 000 mg/kg.

Heavy metal concentrations were generally low, with lead in a single sample TP-12_0.1m (470 mg/kg) being above the HIL-A criteria value of 300 mg/kg. This was the only result from the test pits and trenches ***above*** the relevant HIL-A criteria. All reported concentrations for heavy metals were ***below*** the EIL assessment values. Asbestos (chrysotile) fibres were detected in sample TP-61_0.2m (detect only). Asbestos was not detected in any other sample.

The results are presented in Appendix E.

7.8 Bore Holes

A total of 18 soil boreholes were installed to a maximum depth of 3m bgl, resulting in 18 samples for analysis. The results indicated that the soils were relatively clean, with TPH (C_{15}-C_{28}, C_{29}-C_{36}) detected in sample BH-10_0.15-0.25 m at concentrations of 79 mg/kg and 75 mg/kg, respectively. TPH was not detected in any other sample.

The reported concentrations for asbestos, BTEXN, PAH, OPP, OCP and PCB were all ***below*** analytical detection limits.

Total phenols were reported in seven samples at concentrations between 0.1-0.2 mg/kg.

Heavy metals concentrations were generally low, with the maximum reported concentrations for Pb (110 mg/kg) and Zn (660 mg/kg) occurring in sample BH-18_0.2-0.3 m. All results were ***below*** their respective HIL-A and EIL criteria.

The results are presented in Appendix E.

7.9 Hand Auger Holes

Hand augering of holes was conducted where access to equipment was not possible. A total of four samples were collected. The results showed asbestos, BTEXN, OPP, OCP and PCB below analytical detection limits. Sample HA-7_0.2-0.3 m contained elevated zinc (460 mg/kg) and total phenols (6.1 mg/kg) and PAH (0.7 mg/kg). Sample HA-8_0.1-0.2 m reported elevated zinc (640 mg/kg) whilst HA22_0.0-0.1 m reported elevated zinc (470 mg/kg), lead (140 mg/kg) and TRH (C_{15}-C_{36}) concentration of 170 mg/kg.

Although the reported concentrations for lead and zinc were elevated relative to most of the samples, the results were well ***below*** the relevant HIL-A, EIL and HSL criteria.

The results are presented in Appendix E.

7.10 Monitoring Wells

Eight groundwater monitoring wells were installed across the site, with eight soil samples submitted for analysis. The results indicated that asbestos, BTEXN, TRH, PAH, OPP, OCP and PCB were below the analytical detection limits. Phenols were detected in three samples, with reported concentrations of 0.3-0.4 mg/kg.

The concentrations of heavy metals were generally low, with only lead (120 mg/kg) and zinc (640 mg/kg) in MW2_0.2-0.3 m being present at levels greater than 100 mg/kg. All metal concentrations were ***below*** HIL-A and EIL criteria.

At the time of writing, laboratory results for groundwater have not been received. Therefore it is not presently possible to make comment on the groundwater.

The results are presented in Appendix E.

7.11 Sediment Samples

Three sediment samples were collected from the ephemeral water body located in the Pit area. The results reported concentrations of asbestos, BTEXN, TRH, PAH, OPP, OCP and PCB below analytical detection limits. Heavy metals were reported above analytical detection limits, with the highest values for lead in W1 (33 mg/kg) and zinc (78 mg/kg). All metal concentrations were ***below*** the HIL-A and EIL criteria. Results were also ***below*** the ANZECC/ARMCANZ (2013) Sediment Quality Guideline values.

The results are presented in Appendix E.

7.12 Asbestos Air Monitoring

Asbestos air monitoring was conducted during the intrusive works. The results from the analysis of the filters indicated that the concentration of airborne asbestos was ***below*** the analytical level of detection of 0.01 fibres/ml during the works. The results from the asbestos air monitoring are presented in Appendix K.

7.13 Non-Friable Asbestos

Fragments of non-friable asbestos were identified on the ground surface near TP-34A. The fragments were up to 5cm in size and showed varying degrees of weathering. The presence of asbestos in this material was confirmed by the laboratory analysis.

Chrysotile asbestos fibres were also reported in sample TP-61_0.2. The fibres were identified in a soil sample with the reported concentration of > 0.01 %w/w. Further quantification of the volume of fibres was not reported by the laboratory.

The location of each of these positive ACM identifications is shown in Figure 5, Appendix A.

7.14 Results: Summary

The samples which exceeded the screening criteria in soil collected from across the site are summarised below.

Table 7.6 HIL-A and EIL Exceedances

Sample	Exceed HIL-A	Exceed EIL
SS-04	lead(1, 200 mg/kg)	lead(1, 200 mg/kg), Zinc (2, 100 mg/kg)
SS-05	Chromium (110 mg/kg)	
SS-06	lead(4, 300 mg/kg)	lead (4, 300 mg/kg), Zinc (5, 400 mg/kg)
SS-07	lead (1, 500 mg/kg)	lead(1, 500 mg/kg), Zinc (1, 800 mg/kg)
TP-12_0.2m	lead (430 mg/kg)	
TP-61_0.2m	Asbestos	Present

As can be seen in Table 7.6, there were only a limited number of samples where NEPM (amended 2013) HIL-A and/or EIL were exceeded. The remaining samples were found to be below the applicable screening criteria for all the COPC analysed as part of this site investigation.

8. DISCUSSION

The investigation conducted across the Canberra brickworks site revealed varying amounts of fill material, consisting predominantly of bricks, with lesser amounts of concrete, ash and clay. The distribution of the fill material appears have been utilised historically to level parts of the site where excavations had removed material for the manufacture of bricks, and to allow for construction of various buildings.

The thickness of the fill material encountered in the test pits and trenches was found to vary appreciably between sampling locations, from outcropping of bedrock and no fill to a thickness of over 3 m. The location and thickness of fill material was not restricted to particular areas of the Site, but appeared to be widespread, indicating that the use of this material had occurred over a period of time to backfill excavated areas or other uneven areas to level the site.

Excavations conducted in the areas designated as having potential for archaeological material also showed that the only identifiable anthropogenic material encountered consisted of bricks, with lesser amounts of concrete, ash and clay/soil. Whilst it cannot be concluded that there is no material in these areas of archaeological importance, the evidence obtained from the current investigation based on the discreet locations, does provide information on sub-surface conditions and the type of material that may be encountered. The limited excavations in the Pit area of the site can be used for indicative purposes and should allow the investigation of archaeological evidence to be focussed in areas that have not yet been investigated.

Analysis of soil was conducted with emphasis on samples collected where there was a clear difference in lithology and evidence of anthropogenic material. The results indicated that the level of contamination was relatively minor and limited in its areal extent, with a number of the selected CoPC (BTEXN, OPP, OCP, PCB) reporting concentrations below the analytical level of reporting. Other CoPC, such as TPH and PAH were detected in a limited number of samples, with the reported concentrations marginally above the analytical detection limit but below the HIL-A, EIL and NEPM (amended, 2013) HSL screening criteria.

The most widespread of the CoPC was heavy metals, particularly lead. The distribution and concentration of heavy metals varied across the site, with the highest concentrations of Pb, Zn and Cd recorded in the dusts/soil from within the former kilns buildings and surface soil samples.

The sample from the kilns (SS-04) contained 1, 200 mg/kg Pb, 2,100 mg/kg Zn and 13 mg/kg Cd. The reported lead value were above the HIL-A and EIL criteria, whilst the value for zinc exceeded the upper limit of the EIL criteria of 1, 300 mg/kg. Lead was also reported above the HIL-A criteria in sample TP-12_01m (470 mg/kg).

Surface soil samples SS-06 (4, 300 mg/kg Pb, 5, 400 mg/kg Zn) and SS-07 (1, 500 mg/kg Pb, 1, 800 mg/kg Zn) reported lead concentrations well above those for all other samples analysed from across the site. Lead was found to exceed both the HIL-A criteria value of 300 mg/kg, the HIL-D (Commercial/Industrial) criteria value of 1, 500 mg/kg and the EIL criteria value of 1, 100 mg/kg. The maximum reported concentrations for zinc and cadmium were below their HIL-A values of 7, 400 mg/kg and 20 mg/kg respectively.

The identification of elevated lead presents a potential problem should the locations be considered for development into low and medium density housing. The soil will need to be removed and the area validated in order to confirm that there is no residual contamination. At present, the risk to health is considered to be low, as the sample locations SS-06 and SS-07 are well grassed, limiting access to the soil. There is also little or no pedestrian traffic through the kilns, which also reduces the potential for exposure to the contaminated dust identified in sample SS-04. Sample location TP-12 has a cover of blue metal road base material which also serves to limit the access to the contaminated soil.

Non-Friable asbestos was also identified on the ground surface adjacent to TP-34A and in sample TP-61_0.2m. The ACM adjacent to TP-34A occurred as individual fragments up to 5cm in size, showing variable degrees of weathering. The material identified in TP-61_0.2 (chrysotile) was identified in the laboratory during analysis of soils for asbestos fibres. This was the only soil sample in which asbestos was identified.

8.1 Areas of Environmental Concern

There are a number of uncertainties associated with the site investigation, particularly the potential for contamination to be present outside the areas identified in the current site investigation including below the building and infrastructure footprints. These areas will require further investigation to more completely assess the (potential) contamination present across the site.

The results of the current investigation identified a number of areas of environmental concern (AEC). These are tabulated below and shown in Figure 5 (Appendix A). The AEC detailed in Table 8.1 represent both locations where elevated CoPC were identified (AEC-1, 2, 3, 7, 8, 9 and 10) and areas where there is insufficient information to indicate that there is no contamination present (AEC4, 5 and 6).

Table 8.1 Areas of Environmental Concern

Areas of Environmental Concern	
AEC-1	Interior of Kilns around SS-4: heavy metals
AEC-2	Around surface soil samples SS-6 and SS-7: elevated heavy metals
AEC-3	Interior of kilns around SS-10: Heavy metals, PAH, TRH
AEC-4	Pit Area
AEC-5	Area under slab and buildings
AEC-6	Area under slab and buildings
AEC-7	Buried UST, Soil: TRH
AEC-8	Surface area near TP-34A: non-friable asbestos
AEC-9	Area around TP-12, Elevated Lead
AEC 10	TP-61, Asbestos (chrysotile fibers) in soil

These areas will require further investigation to properly characterise the underlying soil as the current investigation has not provided sufficient information to enable a considered and informed assessment to be made.

8.2 Constraints and Limitations

All investigations contain inherent limitations and uncertainties and whilst every effort is made during the planning and execution stages to minimise these, they cannot be completely eliminated. Every effort was made to collect samples based on visual and olfactory evidence that represented the (potentially) most contaminated material with the objective of providing LDA with information on the extent and levels of contamination across the site. However, it is appreciated that the limited sampling and analysis

program represented by the site investigation conducted by SMEC did not identify all possible areas of contamination such as below existing infrastructure and buildings. The sampling density and sampling method was limited by both actual ground and soil conditions encountered during the test pitting and by accessibility to all proposed sampling locations. As a result, the majority of the samples were collected from the periphery of the buildings in accordance with the original sampling plan The approach also resulted in several sampling locations being moved from their original location. The reasons included:

- Potential to intercept stormwater pipe (SS-26)
- Unable to access original proposed sampling location with excavator (TP-22, BH-03)
- Potential for interception of underground structures (TP-06)
- To allow vehicle access for site employees (BH-17, TP-63)

The re-location of these sampling locations was not considered to appreciably influence the overall integrity of the investigation.

It is important to note that due to access restrictions within the buildings or below the hardstand, there remains potential for CoPC to be present in these areas. Based on these discreet sample locations, a definitive conclusion on a lack of contamination across the remainder of the Site cannot be made. However, the results from this investigation do provide a level of confidence that on the larger scale, the levels and extent of contamination within the built portion of the site appears to be limited to material within the former kilns exhibiting the highest concentrations of heavy metals and PAH.

The source(s) of the identified CoPC in this area is not known. The presence of PAH may be related to the use of coal as a fuel for the kilns, with some incompletely combusted material forming part of the soil present on the ground of the former kilns. The source(s) of lead, zinc and cadmium may be due to the original source material or components added to the bricks, such as glaze or other material.

The method of excavation and sampling and subsequent determination of VOC in the soil from various locations may have resulted in an under-estimation of the concentration of these CoPC. However, the corresponding laboratory analyses did not identify any residual VOCs in the soil. If appreciable quantities of VOC had been present in the soil prior to excavation, these chemicals would have to desorb from the clay matrix prior to volatilising to the atmosphere. The relatively short time between excavation and sampling, generally in the order of 30 seconds to one minute, would limit the time for such a phenomenon to attain completion.

Furthermore, whilst it cannot be discounted that there may have been a minor amount of VOCs still present, these concentrations were below the analytical detection limits. It is considered unlikely that VOCs would be present in appreciable quantities as the site has been inactive for over 40 years, during which time it is considered that volatile chemicals (C_6-C_{10}) would have volatilised.

8.3 Proposed Land Use Suitability

The results from the site investigation indicated that land characteristics varied quite markedly across the site, with the southern portion of the site containing little or no fill material or contamination.

- The results indicated that the southern portion of the site would appear to be suitable for low and medium density residential development. This area does however contain remnants of previous buildings with heritage listing which would need to be taken into consideration as part of any site development
- The lack of data on the contamination status of the remainder of the site precludes an assessment regarding the suitability or otherwise for the proposed residential development cannot be made at this time.

The issues arising from the site investigation concerning the remaining portions of the site are explained in detail below.

The central area of the site, containing the existing buildings, was subject to the greatest level of sampling along the periphery of the buildings. Samples from this area reported that BTEXN, OPP, OCP and PCB were below analytical detection limits in all samples analysed. Other CoPC such as PAH, petroleum hydrocarbons and Phenols were detected in a number of samples, with the reported concentrations all being well below the Health and Ecological screening criteria, indicating that these CoPC are not considered to represent a risk to either human health or environmental receptors.

Lead in surface dust within the former kilns was found to exceed the HIL-A criteria, whilst lead in adjacent surface samples was also found to exceed HIL-A, HIL-D (Commercial/Industrial) and EIL criteria for lead, whilst soil in the upper 10 cm soil in TP-12 was found to exceed HIL-A criteria. The extent of the identified contamination appears to be limited to surface material within the kilns (SS-04) and the upper 10 cm of soil in SS-06, SS-07 and TP-12. Management options to address this material should include further investigation to delineate the extent of the contamination identified in the surface soil samples SS-06, SS-07 and TP-12. The results of this will allow appropriate options to be determined based on proposed land use for each of these areas.

The presence of an underground storage tank (UST) encountered during the site investigation is an AEC that will require removal should this part of the site be developed. The UST was empty, but there may be residual hydrocarbon contamination in the surrounding soil. As this is a new discovery, further works will be required to assess and decommission the UST. This area may also require a management plan to ensure that any future excavation work conducted in the vicinity of the UST is conducted with due caution, that any soil with evidence of hydrocarbon impact is removed and the excavation validated to confirm that impacted soil has been completely removed.

The remaining and largest portion of the site, the Pit area, was found to contain appreciable levels of fill material (predominantly brick). The fill material was found to be up to 5.5 m thick in places. There was limited investigation conducted in the Pit area and as such there is limited knowledge on the potential contamination that may be present in this area.

The identification of non-friable asbestos will require further assessment and delineation to allow appropriate measures to be implemented to develop a suitable remediation plan (i.e. AEC 8). This would need to take into consideration the proposed land use for the locations where ACM has been identified to ensure the most cost effective method for remediation is developed and implemented with respect to removal of the risk to the health of and future residents.

8.4 Recommendations

The results of the current site investigation indicated that the level of contamination across the site was generally quite low, based on sampling in discreet locations. Although this investigation provided extensive coverage of the site, it was limited to accessible areas and that the data produced had not fully captured the possible extent of the contamination (if present).

It is suggested that further investigation be conducted in previously inaccessible areas and particularly in areas where elevated levels of CoPC were identified to determine the vertical and horizontal extent and to provide a comprehensive data set to allow effective decision making by LDA to be made.

It is also recommended that further investigation be conducted in the Pit area of the site. The present investigation was focused on the built area and the southern portion of the site, with investigations of the Pit area limited to sampling around the margins. The knowledge on the extent and type(s) of fill material within the Pit area is limited, and further investigation would serve to reduce the level of uncertainty through characterisation of the type of fill and the level of possible contamination.

Furthermore, it is recommended that any future investigations conducted at the site should be focussed on the AEC detailed in Table 8.2 (Figure 5). The investigation should contain a detailed sampling and analysis strategy to enable finer resolution of the lateral and vertical extent of contamination. Results from such an investigation will provide important information on the extent and levels of potential contamination in the targeted areas. The outcome of the recommended investigations will also be focussed on providing the best quality information for the proposed land use as low density residential development.

The information should also be used to develop appropriate management plans and strategies to enable effective removal and remediation of areas where hazards are identified, with the objective of providing a site suitable for the proposed land use.

A brief overview of recommendations for each area is presented in the Table 8.2 below:

Table 8.2 Recommendations for Areas of Environmental Concern

Areas of Environmental Concern		Recommendation
AEC-1	Interior of Kilns around SS-4: heavy metals	Further assessment to better understand extent (vertical and horizontal) of identified COPC in the area
AEC-2	Around surface soil samples SS-6 and SS-7: elevated heavy metals	Further assessment to better understand extent (vertical and horizontal) of identified COPC in the area
AEC-3	Interior of kilns around SS-10: Heavy metals, PAH, TRH	Further assessment to better understand extent (vertical and horizontal) of identified COPC in the area
AEC-4	Pit Area	Further assessment to better understand extent (vertical and horizontal) of identified COPC in the area
AEC-5	Area under slab and buildings	Further assessment to better understand extent (vertical and horizontal) of identified COPC in the area
AEC-6	Area under slab and buildings	Further assessment to better understand extent (vertical and horizontal) of identified COPC in the area
AEC-7	Buried UST, Soil: TRH	Tank Excavation Assessment and remediation. Validation of the area following tank removal. Additional groundwater wells may need to be installed if observations indicate presence of hydrocarbons.
AEC-8	Surface area near TP-34A: non-friable asbestos	Further assessment to better understand extent (vertical and horizontal) spread of ACM in the area.
AEC-9	Area around TP-12, Elevated Lead	Further assessment to better understand extent (vertical and horizontal) of identified COPC in the area
AEC 10	TP-61, Asbestos (chrysotile fibers) in soil	Further assessment to better understand extent (vertical and horizontal) spread of ACM in the area.

8.5 Conclusions

The LDA commissioned SMEC to undertake a SI of the Canberra brickworks site, located at Denman Street, Yarralumla, ACT. The site operated intermittently from 1913 to 1975, when it ceased operations. The site currently occupies an area of approximately 16Ha.

The site investigation involved the excavation of 63 test pits to a maximum depth of 3.3 m bgl, drilling of 18 soil bore holes to a maximum depth of 3.0 m bgl, collection of 20 surface samples, hand augering of four locations and collection of samples, installation of eight groundwater monitoring wells to a maximum depth of 15 m bgl and collection of three sediment and three water samples from the ephemeral water course in the Pit area. This work was complemented by a geotechnical investigation and associated seismic survey and a targeted investigation of three locations using ground penetrating radar. A total of 133 samples were analysed for the following chemicals of potential concern (CoPC):

- Benzene, toluene, ethylbenzene, total xylenes and naphthalene (BTEXN)
- Total Recoverable hydrocarbons (TRH) (C_6-C_9, C_{10}-C_{14}, C_{15}-C_{28} and C_{29}-C_{36})
- Polycyclic aromatic hydrocarbons (PAH)
- Organophosphate and organochlorine pesticides (OPP, OCP)
- Polychlorinated biphenyls (PCB)
- Heavy metals (arsenic, cadmium, chromium, copper, mercury, lead, nickel, zinc)
- Asbestos.

The results of the investigation showed FILL material, consisting predominantly of bricks (whole and fragments), with lesser amounts of concrete (slabs and fragments), ash material, reworked soil and trace amounts of metal pipe. Fill material encountered during the excavation works ranged in thickness between 0.1-3.3 m. Asbestos fibres were detected in one soil sample (TP-61_0.2m). This location has been designated as AEC-10 which will require further investigation to delineate the extent of the asbestos-impacted soil. Asbestos air monitoring undertaken during the works indicated that airborne asbestos fibres were below the detection limit in all samples.

The analytical results were screened against the NEPM (amended, 2013) Health Investigation Level (HIL-A) for low density residential land, NEPM (amended, 2013) ecological investigation levels (EIL) for urban residential and public open space and NEPM (amended, 2013) Health Screening Levels (HSL) – Dermal contact. Analytical results showed that much of the site was clean, with BTEXN, OPP, OCP and PCB being below analytical detection limits in all samples.

A number of CoPC were reported at concentrations above the laboratory detection (but below the adopted criteria) limits. TRH (C_{15}-C_{28} and C_{29}-C_{36}), was reported in 10 samples, with a maximum concentration of 800 mg/kg reported in surface sample SS-10. The levels of reported TRH were ***below*** the NEPM (2013) HSL-A and EIL assessment criteria.

PAH were reported in 16 samples, with the maximum concentration reported in TR-11_0.15m (6.7 mg/kg). All PAH results were below the NEPM HIL-A criteria of 300 mg/kg, with the benzo(a)pyrene TEQ below the criteria of 3 mg/kg. Total phenols were identified in 37 samples across the site, with a maximum concentration of 47 mg/kg reported for sample SS-10. The majority of the samples reported phenol concentrations < 1.0 mg/kg. All samples were ***below*** the HIL-A criteria of 3, 000 mg/kg.

The main CoPC identified was lead, which exceeded the HIL-A criteria value of 300 mg/kg in three surface samples: SS-04 (1, 200 mg/kg), SS-06 (4, 300 mg/kg), SS-07 (1, 500 mg/kg) and one test pit TP-12_0.1 m (430 mg/kg). The results from SS-04, SS-06 and SS-07 were ***above*** the EIL assessment criteria value of 1,100 mg/kg. Sample SS-06 was also ***above*** the HIL-D (industrial/commercial) value for lead of 1, 500 mg/kg.

The samples which exceeded the screening criteria in soil collected from across the site are summarised below.

Sample	Exceed HIL-A	Exceed EIL
SS-04	lead(1, 200 mg/kg)	lead(1, 200 mg/kg), Zinc (2, 100 mg/kg)
SS-05	Chromium (110 mg/kg)	
SS-06	lead(4, 300 mg/kg)	lead (4, 300 mg/kg), Zinc (5, 400 mg/kg)
SS-07	lead (1, 500 mg/kg)	lead(1, 500 mg/kg), Zinc (1, 800 mg/kg)
TP-12_0.2	lead (430 mg/kg)	

As can be seen, there were only a limited number of samples where NEPM (amended 2013) HIL-A and/or EIL were exceeded. The remaining samples were found to be below the applicable screening criteria for all the COPC analysed as part of this site investigation.

The results, with the exception of lead in samples from the kilns dust and surface samples, were below the relevant HIL-A and EIL screening criteria. Zinc levels in surface samples SS-06, SS-07 and kiln dust SS-04 ***exceeded*** the EIL criteria for urban residential public open spaces. The concentration of heavy metals were ***below*** the HIL-A criteria for all other samples. Overall, the analytical results indicated that all other CoPC were below the relevant human health and ecological criteria values.

Based on the findings from the Site investigation with respect to the proposed land use as low and medium density residential housing, it is considered that the southern portion of the site would appear to be suitable for low density residential development whilst the remainder of the site will need further investigation to enable an assessment as to the suitability or otherwise for the proposed land use.

It is noted that an Addendum to this report will be prepared and issued to the Auditor in relation to the Groundwater Investigation.

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Robson Laboratories (2006) Environmental Investigation – Audit Report Yarralumla Brickworks Block 1 Section 102 Yarralumla Canberra Central ACT

Robson Environmental (2010) Hazardous Material Survey & Management Plan Yarralumla Brickworks Denman St Yarralumla ACT 2600

Robson Environmental (2012) Hazardous Material Survey & Management Plan Canberra Brickworks Yarralumla ACT 2600SMEC (2013a) Canberra Brickworks – Geotechnical

Robson Environmental (2016) Contaminant Management Plan (CMP) Canberra Brickworks Remediation Project Portions of Blocks 1 and 20 Section 102 and Block 1, Section 127 Yarralumla, ACT 2600

SMEC (2014) Preliminary (Environmental) Site Investigation

Simpson SL, Batley GB and Chariton AA (2013). Revision of the ANZECC/ARMCANZ Sediment Quality Guidelines. CSIRO Land and Water Science Report 08/07. CSIRO Land and Water

Western Australian Department Health (2009) Guidelines for the Assessment, Remediation and Management of Asbestos Contaminated Sites in Western Australia

APPENDIX A – SITE FIGURES



FIG NO. 1	**FIGURE TITLE** Site Plan and Area of Archaeological Potential	**DATE** 31/10/2016	**PAGE SIZE** A4	**COORDINATE SYSTEM** GDA 1994 MGA Zone 55
PROJECT NO. 3002523	**PROJECT TITLE** Canberra Brickworks	**SOURCES** ACTMapi	**CREATED BY** N.Crook	

0 15 30 60 90
1:3,399 Meters

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Location: X:\PROJECT\3002523 Canberra Brickworks Phase 2 Contamination and Geotech\6 Delivery\6.2 Figures and Result Tables\6.2.1 GIS\Figure_1_Locality - Modified.mxd

Last updated by: AA10448 on 31/10/2016 at 14:52



FIG NO. 2	**FIGURE TITLE** Canberra Brickswork Sampling Plan Contamination	**DATE** 25/10/2016	0 15 30 60 90 Meters 1:3,355	**PAGE SIZE** A4	**COORDINATE SYSTEM** GDA 1994 MGA Zone 55
PROJECT NO. 3002523	**PROJECT TITLE** Canberra Brickworks	**SOURCES** ACTMapi		**CREATED BY** N.Crook	

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SMEC

Location: X:\PROJECT\3002523 Canberra Brickworks Phase 2 Contamination and Geotech\6 Delivery\6.2 Figures and Result Tables\6.2.1 GIS\Figure 2_Contam_Overall_131016.mxd

Last updated by: NC4747 on 25/10/2016 at 10:11



FIG NO. 3

FIGURE TITLE Canberra Brickswork Sampling Plan Contamination

DATE 25/10/2016

0 12.5 25 50
1:1,747 Meters

PAGE SIZE A4

COORDINATE SYSTEM GDA 1994 MGA Zone 55

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PROJECT NO. 3002523

PROJECT TITLE Canberra Brickworks

SOURCES ACTMapi

CREATED BY N.Crook

Location: X:\PROJECT\3002523 Canberra Brickworks Phase 2 Contamination and Geotech\6 Delivery\6.2 Figures and Result Tables\6.2.1 GIS\Figure 3_Contam_Close_up_131016.mxd

Last updated by: NC4747 on 25/10/2016 at 10:11

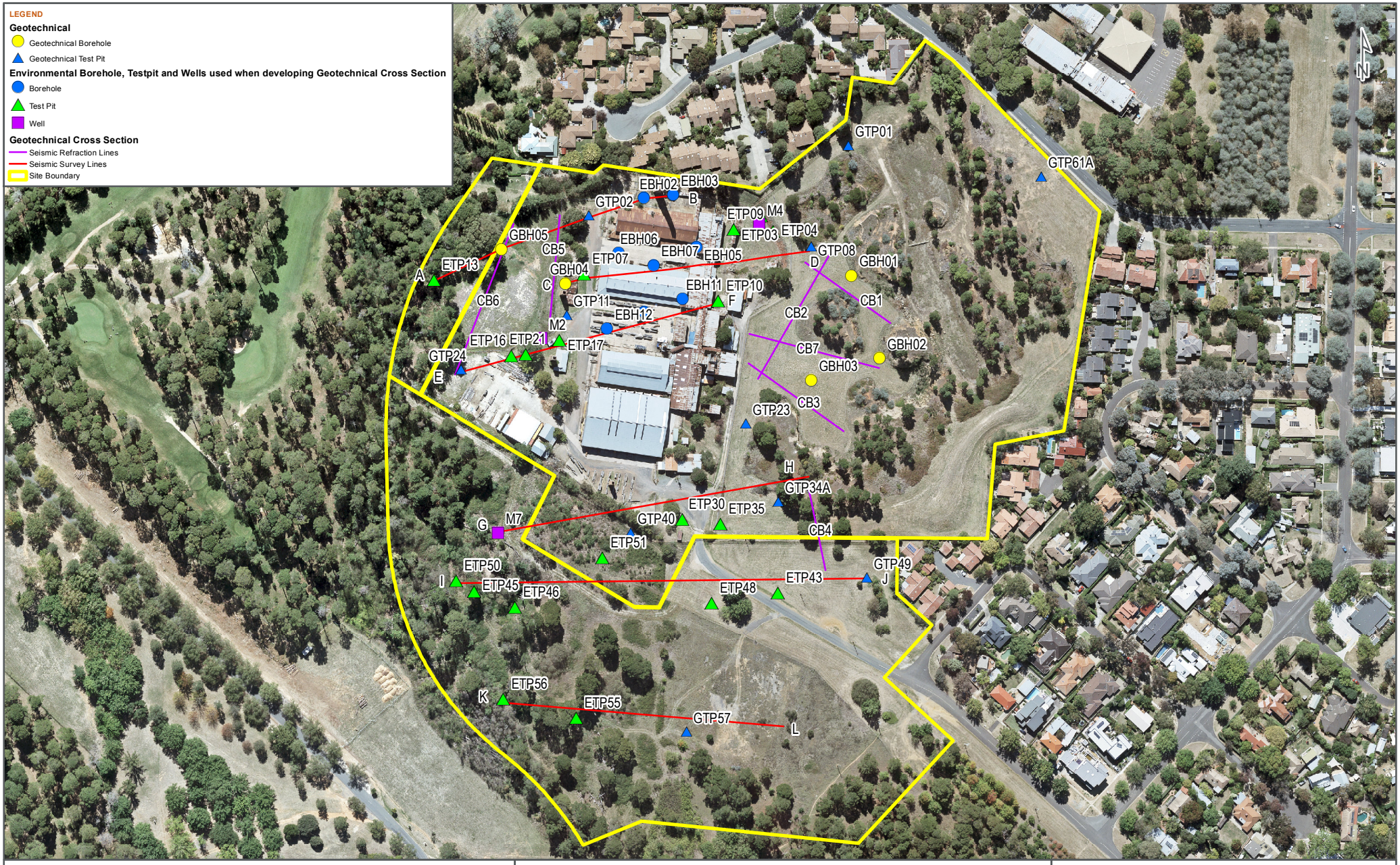


FIG NO. 3 **FIGURE TITLE** Canberra Brickworks Sampling Plan Geotechnical

DATE 20/10/2016

0 15 30 60 90
1:3,281 Meters

PAGE SIZE A3

COORDINATE SYSTEM GDA 1994 MGA Zone 55

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PROJECT NO. 3002523 **PROJECT TITLE** Canberra Brickworks

SOURCES ACTMapi© **CREATED BY** N.Crook

Location: X:\PROJECT\3002523 Canberra Brickworks Phase 2 Contamination and Geotech\6 Delivery\6.2 Figures and Result Tables\6.2.1 GIS\Geotechnical_201016_Chris.mxd

Last updated by: NC4747 on 20/10/2016 at 17:24



FIG NO. 5

FIGURE TITLE Canberra Brickswork Sampling Plan
Area of Environmental Concern

DATE 01/11/2016

0 25 50 100
1:3,492 Meters

PAGE SIZE A4

COORDINATE SYSTEM GDA 1994 MGA Zone 55

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PROJECT NO. 3002523

PROJECT TITLE Canberra Brickworks Phase 2

SOURCES ACTMapi

CREATED BY N.Crook

Location: X:\PROJECT\3002523 Canberra Brickworks Phase 2 Contamination and Geotech\6 Delivery\6.2 Figures and Result Tables\6.2.1 GIS\Figure 5_Sampling Plan10.2_2_AEC - New.mxd

Last updated by: AA10448 on 1/11/2016 at 13:05

APPENDIX B – SAMPLING LOCATIONS

The GPS coordinates of the sampling points are presented Tables A1-A5 below.

Table A1. Test Pit GPS Locations

Sample Point	Sample Type	Easting	Northing	Elevation
TP-01	Test pit	149.09036	-35.30923	
2	Test pit	149.09014	-35.30775	587
3	Test pit	149.09141	-35.30766	580
4	Test pit	149.09150	-35.30775	
5	Test pit	149.09012	-35.30801	578
6A	Test pit	149.09334	-35.30747	
7	Test pit	149.09017	-35.30802	576
8	Test pit	149.09175	-35.30783	589
9	Test pit	149.09122	-35.30774	580
10	Test pit	149.09112	-35.30816	580
11	Test pit	149.09007	-35.30828	580
12	Test pit	149.09126	-35.30828	580
13	Test pit	149.08911	-35.30807	593
14	Test pit	149.09126	-35.30843	
15	Test pit	149.08910	-35.30826	
16	Test pit	149.08967	-35.30850	
17	Test pit	149.09001	-35.30840	578
18	Test pit	149.09009	-35.30859	
21	Test pit	149.08977	-35.30849	
22	Test pit	149.09092	-35.30886	
23	Test pit	149.09132	-35.30894	
24	Test pit	149.08929	-35.30861	581
25	Test pit	149.08962	-35.30851	577
26	Test pit	149.09104	-35.30901	
27	Test pit	149.08958	-35.30894	588
28	Test pit	149.09000	-35.30903	584
29	Test pit	149.09037	-35.30925	
30	Test pit	149.09090	-35.30943	
31	Test pit	149.09097	-35.30917	590
32	Test pit	149.09112	-35.30912	588
34	Test pit	149.09135	-35.30937	592
34A	Test pit	149.09157	-35.30931	593
35	Test pit	149.09117	-35.30945	
36	Test pit	149.08970	-35.30944	
38	Test pit	149.08945	-35.30942	
40	Test pit	149.09051	-35.30952	588
41	Test pit	149.08946	-35.30942	589
42	Test pit	149.09199	-35.30940	
43	Test pit	149.09159	-35.30984	
44	Test pit	149.09150	-35.30981	587
45	Test pit	149.08944	-35.30987	
46	Test pit	149.08973	-35.30996	
48	Test pit	149.09112	-35.30991	

49	Test pit	149.09221	-35.30974	584
50	Test pit	149.08931	-35.30981	590
51	Test pit	149.09034	-35.30966	
52	Test pit	149.09129	-35.31037	
53	Test pit	149.09169	-35.31040	
54	Test pit	149.09238	-35.31021	
55	Test pit	149.09018	-35.31059	590
56	Test pit	149.08966	-35.31049	600
57	Test pit	149.09094	-35.31065	593
58	Test pit	149.09166	-35.31069	
59	Test pit	149.09094	-35.31065	
61	Test pit	149.09337	-35.30731	600
62	Test pit	149.08939	-35.30853	579
63	Test pit	149.09048	-35.30928	
ASBESTOS	**ON GROUND**	**149.09178**	**-35.30936**	**593**

Table A2. Surface Sample/Grab Sample GPS Locations

ID	Sampling_Type	Easting	Northing	Elevation
G1	Grab Sample	149.090677	-35.309428	589
G3	Grab Sample	149.090159	-35.308312	589
G4	Grab Sample	149.090836	-35.3076	594
G5	Grab Sample	149.091114	-35.307602	593
G6	Grab Sample	149.091173	-35.307619	594
G15	Grab Sample	149.090669	-35.309434	589
SS1	Surface Sample	149.09048	-35.30772	
SS2	Surface Sample	149.09085	-35.30775	
SS3	Surface Sample	149.09114	-35.307763	598
SS4	Surface Sample	149.09085	-35.30809	
SS5	Surface Sample	149.091093	-35.307984	599
SS6	Surface Sample	149.089974	-35.3082504	580
SS7	Surface Sample	149.09003	-35.30825	580
SS8	Surface Sample			
SS9	Surface Sample	149.09009	-35.3082	577
SS10	Surface Sample	149.09039	-35.30856	
SS11	Surface Sample	149.0907	-35.3086	
SS12	Surface Sample	149.091211	-35.308632	601
SS13	Surface Sample	149.090987	-35.308737	598
SS14	Surface Sample	149.091162	-35.308814	603
SS15	Surface Sample	149.09102	-35.30906	572
SS16	Surface Sample			
SS17	Surface Sample	149.090008	-35.308653	588
SS18	Surface Sample	149.09007	-35.308403	588

Table A3. Bore Hole GPS Locations

I.D.	TYPE	Easting	Northing	Elevation (m)
BH-01	Bore Hole	149.09042	-35.30749	580
BH-02	Bore Hole	149.09058	-35.30758	584
BH-03	Bore Hole	149.09074	-35.30763	582
BH-04	Bore Hole	149.09054	-35.30785	582
BH-05	Bore Hole	149.09083	-35.30787	578
BH-06	Bore Hole	149.09042	-35.30791	578
BH-07	Bore Hole	149.09068	-35.3079	578
BH-08	Bore Hole	149.09477	-35.29885	
BH-09	Bore Hole	149.0903	-35.30815	578
BH-10	Bore Hole	149.09056	-35.30816	577
BH-11	Bore Hole	149.0908	-35.30821	577
BH-12	Bore Hole	149.09031	-35.30839	581
BH-13	Bore Hole	149.0906	-35.30823	
BH-14	Bore Hole	149.09078	-35.30839	578
BH-15	Bore Hole	149.09059	-35.30902	
BH-16	Bore Hole	149.08995	-35.30888	586
BH-17	Bore Hole	149.09019	-35.30904	581
BH-18	Bore Hole	149.09056	-35.30907	580

Table A4. Monitoring Well GPS Locations

I.D.	TYPE	Easting	Northing	Elevation (m)
M1	Monitoring Well	149.09192	-35.30882	586
M2	Monitoring Well	149.08988	-35.3084	578
M3	Monitoring Well	149.09034	-35.3075	585
M4	Monitoring Well	149.914	-35.30771	580
M5	Monitoring Well	149.09258	-35.30693	588
M6	Monitoring Well	149.0934	-35.3081	592
M7	Monitoring Well	149.0896	-35.30953	593
M8	Monitoring Well	149.09071	-35.31027	590

Table A5. Hand Auger, Trench and Sediment Sample GPS Locations

I.D.	TYPE	Easting	Northing	Elevation
HA-01	HAND AUGER	149.09053	-35.30739	
HA-07	HAND AUGER	149.09013	-35.30816	583
HA-08	HAND AUGER	149.09015	-35.30806	583
HA-22	HAND AUGER	149.09097	-35.30888	585
TR1	Trench	149.091409	-35.307858	584
TR03	Trench	149.091326	-35.307844	601
TR-04	Trench	149.09143	-35.30773	580
TR-08	Trench	149.09288	-35.30891	589

TR11	Trench	149.091085	-35.310015	595
W1	Water/sediment sample	149.09214	-35.307283	598
W2	Water/sediment sample	149.09248	-35.30774	617
W3	Water/sediment sample	149.092712	-35.30824	589

APPENDIX C – TEST PIT AND BOREHOLE REGISTER

Test Pit	Planned Depth	Actual Depth (m)	Reason why not progressed to Planned Depth
TP-01	3.0	1.3	Bedrock
TP-02	3.0	3.0	Bedrock
TP-03	3.0	0.6	Bedrock
TP-04	3.0	0.7	Bedrock
TP-05	3.0	1.8*	Bedrock
TP-06A	3.0	0.85	Bedrock
TP-07	3.0	3.0	Bedrock
TP-08	3.0	3.3	Bedrock
TP-09	3.0	0.2	Bedrock
TP-10	3.0	0.4	Bedrock
TP-11	3.0	1.7	Bedrock
TP-12	3.0	1.1	Bedrock
TP-13	3.0	1.9	Bedrock
TP-14	3.0	1.5	Bedrock
TP-15	3.0	1.0	Bedrock
TP-16	3.0	1.8	Bedrock
TP-17	3.0	2.5	Bedrock
TP-18	3.0	3.0	Bedrock
TP-21	3.0	2.0	Bedrock
TP-22	3.0	No Fill material present	
TP-23	3.0	1.2	Bedrock
TP-24	3.0	0.7	Bedrock
TP-25	3.0	2.0	Bedrock
TP-26	3.0	1.5	Bedrock
TP-27	3.0	2.5	Bedrock
TP-28	3.0	0.4	Bedrock
TP-29	3.0	0.6	Bedrock
TP-30	3.0	1.8	Bedrock
TP-31	3.0	0.5	Bedrock
TP-32	3.0	2.0	Bedrock
TP-33	3.0	-	Bedrock
TP-34A	3.0	2.0	Bedrock
TP-35	3.0	2.5	Bedrock
TP-36	3.0	1.9	Bedrock
TP-38	3.0	1.5	Bedrock
TP-40	3.0	1.7	Bedrock
TP-41	3.0	1.8	Bedrock

TP-42	3.0	0.5	Bedrock
TP-43	3.0	3.0	Bedrock
TP-44	3.0	2.0	Bedrock
TP-45	3.0	1.6	Bedrock
TP-46	3.0	1.5	Bedrock
TP-47	3.0	-	Bedrock
TP-48	3.0	2.1	Bedrock
TP-49	3.0	1.8	Bedrock
TP-50	3.0	1.5	Bedrock
TP-51	3.0	1.6	Bedrock
TP-52	3.0	0.4	Bedrock
TP-53	3.0	0.3	Bedrock
TP-54	3.0	1.5	Bedrock
TP-55	3.0	1.5	Bedrock
TP-56	3.0	1.3	Bedrock
TP-57	3.0	2.6	Bedrock
TP-58	3.0	0.2	Bedrock
TP-59	3.0	0.7	Bedrock
TP-60	3.0	-	Bedrock
TP-61	3.0	0.6	Bedrock
TP-62	3.0	1.8	Bedrock
TP-63	3.0	0.6	Bedrock
Bore Hole	**Planned Depth (m)**	**Actual Depth (m)**	**Reason why not progressed to Planned Depth**
BH-01	3.0	3	Bedrock
BH-02	3.0	3	Bedrock
BH-03	3.0	1.2	Bedrock
BH-04	3.0	3	Bedrock
BH-05	3.0	2.4	Bedrock
BH-06	3.0	3	Bedrock
BH-07	3.0	3	Bedrock
BH-08	3.0	10	Bedrock
BH-09	3.0	0.5	Bedrock
BH-10	3.0	3	Bedrock
BH-11	3.0	3	Bedrock
BH-12	3.0	3	Bedrock
BH-13	3.0	3	Bedrock
BH-14	3.0	0.9	Bedrock
BH-15	3.0	0.3	Bedrock
BH-16	3.0	3	Bedrock
BH-17	3.0	0.3	Bedrock
BH-18	3.0	1.6	Bedrock

APPENDIX D - SOIL BORE LOGS

EXCAVATION - GEOLOGICAL LOG

PIT NO : BH1

PROJECT : 3002523 | CLIENT : Land Development Agency | FILE / JOB NO : ara
LOCATION : Canberra Brickworks Blocks 1, 7 and 20 of Section 102 | FEATURE : Environmental | SHEET : 1 OF 1

POSITION : | SURFACE ELEVATION :

EQUIPMENT TYPE : | METHOD :

DATE EXCAVATED : | LOGGED BY : RO | CHECKED BY : GO

EXCAVATION DIMENSIONS :

DRILLING | MATERIAL

VE / PENETRATION / E / F / H	SUPPORT	GROUND WATER LEVELS	SAMPLES & FIELD TESTS	ELEVATION (RL) DEPTH (m)	GRAPHIC LOG	CLASSIFICATION SYMBOL	MATERIAL DESCRIPTION Soil Type, Colour, Plasticity or Particle Characteristic Secondary and Minor Components	MOISTURE CONDITION	CONSISTENCY RELATIVE DENSITY	STRUCTURE & Other Observations
				0.0			CONCRETE			
				0.13m						
							LIGHT BROWN SAND PID 0.0 ppm			
				0.35m						
			0.36m RC-BH1_0.36-0.46				BLACK SANDY GRAVEL DRY - YELLOW MUTTLING - NO ODOUR NOTED - DRY SOIL			
				0.5						
				0.60m			SILTY CLAY - BROWN RED PLASTICITY NOTED - SMALL GRAVELS PID 0.1 ppm			
				1.0						
				1.5						
				1.90m			CLAYEY GRAVEL			
				2.0						
				2.5						
				2.60m			CLAYEY GRAVEL PID 0.1 ppm			
				3.00m						
				3.0			EXCAVATION BH1 TERMINATED AT 3.00 m			

PHOTOGRAPHS NOTES ☐ YES ☒ NO

METHOD
- N Natural Exposure
- E Existing Excavation
- BH Backhoe Bucket
- B Bulldozer Blade
- R Ripper

SUPPORT
- T Timbering

PENETRATION
VE E F H VH — No Resistance

WATER
- 10 Oct., 73 Water Level on Date shown
- water inflow
- water outflow

SAMPLES & FIELD TESTS
- U50 - Undisturbed Sample 50 mm diameter
- D - Disturbed Sample
- B - Bulk Disturbed Sample
- MC - Moisture Content
- HP - Hand Penetrometer (UCS kPa)
- VS - Vane Shear; P-Peak, R-Remouded (uncorrected kPa)
- PBT - Plate Bearing Test

CLASSIFICATION SYMBOLS & SOIL DESCRIPTION
Based on Unified Classification System

MOISTURE
- D - Dry
- M - Moist
- W - Wet

CONSISTENCY/ RELATIVE DENSITY

VS	- Very Soft
S	- Soft
F	- Firm
St	- Stiff
VSt	- Very Stiff
H	- Hard
VL	- Very Loose
L	- Loose
MD	- Medium Dense
D	- Dense
VD	- Very Dense

See Explanatory Notes for details of abbreviations & basis of descriptions.

SMEC AUSTRALIA

UPDATED SMEC LIBRARY_AGS 3_1 RTA 1_1 LIB 08_WITH FENCE TOOL_COLOUR.GLB Log SMEC EXCAVATION 3002523 CANBERRA BRICKWORKS.GPJ <<DrawingFile>> 20/10/2016 12:54 8.30.003

EXCAVATION - GEOLOGICAL LOG

PIT NO : BH2

PROJECT : 3002523 | CLIENT : Land Development Agency | FILE / JOB NO : ara
LOCATION : Canberra Brickworks Blocks 1, 7 and 20 of Section 102 | FEATURE : Environmental | SHEET : 1 OF 1

POSITION : | SURFACE ELEVATION :

EQUIPMENT TYPE : | METHOD :

DATE EXCAVATED : | LOGGED BY : RO | CHECKED BY : GO

EXCAVATION DIMENSIONS :

DRILLING | MATERIAL

VE / PENETRATION / E / F / H	SUPPORT	GROUND WATER LEVELS	SAMPLES & FIELD TESTS	ELEVATION (RL) DEPTH (m)	GRAPHIC LOG	CLASSIFICATION SYMBOL	MATERIAL DESCRIPTION Soil Type, Colour, Plasticity or Particle Characteristic Secondary and Minor Components	MOISTURE CONDITION	CONSISTENCY RELATIVE DENSITY	STRUCTURE & Other Observations
			0.15m RC-BH2_0.15-0.25	0.0			FILL MATERIAL - GRAVEL , CLAY PID 0.4 ppm			
				0.14m			GRAVELLY CLAY			
				0.5						
				0.80m			HIGH PLASTICITY CLAY PID 0.1 ppm			
				1.0						
				1.5						
				2.0						
				2.5						
				2.60m			HIGH PLASTICITY CLAY PID 0.1 ppm			
				3.00m						
				3.0			EXCAVATION BH2 TERMINATED AT 3.00 m			

PHOTOGRAPHS NOTES ☐ YES ☒ NO

METHOD
- N Natural Exposure
- E Existing Excavation
- BH Backhoe Bucket
- B Bulldozer Blade
- R Ripper

SUPPORT
- T Timbering

PENETRATION



No Resistance

WATER



10 Oct., 73 Water Level on Date shown
water inflow
water outflow

SAMPLES & FIELD TESTS
- U50 - Undisturbed Sample 50 mm diameter
- D - Disturbed Sample
- B - Bulk Disturbed Sample
- MC - Moisture Content
- HP - Hand Penetrometer (UCS kPa)
- VS - Vane Shear; P-Peak, R-Remouded (uncorrected kPa)
- PBT - Plate Bearing Test

CLASSIFICATION SYMBOLS & SOIL DESCRIPTION
Based on Unified Classification System

MOISTURE
- D - Dry
- M - Moist
- W - Wet

CONSISTENCY/ RELATIVE DENSITY

VS	- Very Soft
S	- Soft
F	- Firm
St	- Stiff
VSt	- Very Stiff
H	- Hard
VL	- Very Loose
L	- Loose
MD	- Medium Dense
D	- Dense
VD	- Very Dense

See Explanatory Notes for details of abbreviations & basis of descriptions.

SMEC AUSTRALIA

UPDATED SMEC LIBRARY_AGS 3_1 RTA 1_1 LIB 08_WITH FENCE TOOL_COLOUR.GLB Log SMEC EXCAVATION 3002523 CANBERRA BRICKWORKS.GPJ <<DrawingFile>> 20/10/2016 12:54 8.30.003

EXCAVATION - GEOLOGICAL LOG

PIT NO : BH3

PROJECT : 3002523 | CLIENT : Land Development Agency | FILE / JOB NO : ara
LOCATION : Canberra Brickworks Blocks 1, 7 and 20 of Section 102 | FEATURE : Environmental | SHEET : 1 OF 1

POSITION : | SURFACE ELEVATION :

EQUIPMENT TYPE : | METHOD :

DATE EXCAVATED : | LOGGED BY : RO | CHECKED BY : GO

EXCAVATION DIMENSIONS :

DRILLING | MATERIAL

VE / E / F / H (PENETRATION)	SUPPORT	GROUND WATER LEVELS	SAMPLES & FIELD TESTS	ELEVATION (RL) / DEPTH (m)	GRAPHIC LOG	CLASSIFICATION SYMBOL	MATERIAL DESCRIPTION (Soil Type, Colour, Plasticity or Particle Characteristic, Secondary and Minor Components)	MOISTURE CONDITION	CONSISTENCY / RELATIVE DENSITY	STRUCTURE & Other Observations
			0.14m BH3_0.14-0.24	0.0			CONRETE LAYER			
				0.14m			FILL GENERALLY CONSISTING OF SUBBASE MOIST SILT PID 0.4 ppm			
				0.25m			GRAVELLY SAND PID 0.1 ppm			
				0.5						
				1.00m			LIGHT BROWN HGH PLASTICITY SILTY CLAY			
				1.0						
				1.20m			EXCAVATION BH3 TERMINATED AT 1.20 m			
				1.5						
				2.0						
				2.5						
				3.0						

PHOTOGRAPHS NOTES ☐ YES ☒ NO

METHOD
- N Natural Exposure
- E Existing Excavation
- BH Backhoe Bucket
- B Bulldozer Blade
- R Ripper

SUPPORT
- T Timbering

PENETRATION



WATER



SAMPLES & FIELD TESTS
- U50 - Undisturbed Sample 50 mm diameter
- D - Disturbed Sample
- B - Bulk Disturbed Sample
- MC - Moisture Content
- HP - Hand Penetrometer (UCS kPa)
- VS - Vane Shear; P-Peak, R-Remouded (uncorrected kPa)
- PBT - Plate Bearing Test

CLASSIFICATION SYMBOLS & SOIL DESCRIPTION
Based on Unified Classification System

MOISTURE
- D - Dry
- M - Moist
- W - Wet

CONSISTENCY/ RELATIVE DENSITY

VS	- Very Soft
S	- Soft
F	- Firm
St	- Stiff
VSt	- Very Stiff
H	- Hard
VL	- Very Loose
L	- Loose
MD	- Medium Dense
D	- Dense
VD	- Very Dense

See Explanatory Notes for details of abbreviations & basis of descriptions.

SMEC AUSTRALIA

UPDATED SMEC LIBRARY_AGS 3_1 RTA 1_1 LIB 08_WITH FENCE TOOL_COLOUR.GLB Log SMEC EXCAVATION 3002523 CANBERRA BRICKWORKS.GPJ <<DrawingFile>> 20/10/2016 12:54 8.30.003

EXCAVATION - GEOLOGICAL LOG

PIT NO : BH4

PROJECT : 3002523 | CLIENT : Land Development Agency | FILE / JOB NO : ara
LOCATION : Canberra Brickworks Blocks 1, 7 and 20 of Section 102 | FEATURE : Environmental | SHEET : 1 OF 1

POSITION : | SURFACE ELEVATION :

EQUIPMENT TYPE : | METHOD :

DATE EXCAVATED : | LOGGED BY : RO | CHECKED BY : GO

EXCAVATION DIMENSIONS :

DRILLING | MATERIAL

VE / PENETRATION / F / H	SUPPORT	GROUND WATER LEVELS	SAMPLES & FIELD TESTS	ELEVATION (RL) / DEPTH (m)	GRAPHIC LOG	CLASSIFICATION SYMBOL	MATERIAL DESCRIPTION Soil Type, Colour, Plasticity or Particle Characteristic Secondary and Minor Components	MOISTURE CONDITION	CONSISTENCY RELATIVE DENSITY	STRUCTURE & Other Observations
				0.0			CONCRETE			
				0.15m			BROWN FILL WITH GRAVEL YELOW MUTTING NOTED PID 0.6 ppm			
			0.30m RC-BH4_0.3-0.4	0.30m			CLAYEY GRAVEL PID 0.2 ppm			
				0.5						
				0.60m			BROWN SILTY CLAY MED PLASTICITY			
				1.0						
				1.50m			GRAVELLY CLAY YELLOW BROWN MED PLASTICITY - FINE GRAVELS NOTED PID 0.2 ppm			
				1.5						
				2.0						
				2.5						
				2.60m			GRAVELLY CLAY PID 0.1 ppm			
				3.00m						
				3.0			EXCAVATION BH4 TERMINATED AT 3.00 m			

PHOTOGRAPHS NOTES ☐ YES ☒ NO

METHOD
- N Natural Exposure
- E Existing Excavation
- BH Backhoe Bucket
- B Bulldozer Blade
- R Ripper

SUPPORT
- T Timbering

PENETRATION
VE E F H VH — No Resistance

WATER
10 Oct., 73 Water Level on Date shown
water inflow
water outflow

SAMPLES & FIELD TESTS
- U50 - Undisturbed Sample 50 mm diameter
- D - Disturbed Sample
- B - Bulk Disturbed Sample
- MC - Moisture Content
- HP - Hand Penetrometer (UCS kPa)
- VS - Vane Shear; P-Peak, R-Remouded (uncorrected kPa)
- PBT - Plate Bearing Test

CLASSIFICATION SYMBOLS & SOIL DESCRIPTION
Based on Unified Classification System

MOISTURE
- D - Dry
- M - Moist
- W - Wet

CONSISTENCY/ RELATIVE DENSITY

VS	- Very Soft
S	- Soft
F	- Firm
St	- Stiff
VSt	- Very Stiff
H	- Hard
VL	- Very Loose
L	- Loose
MD	- Medium Dense
D	- Dense
VD	- Very Dense

See Explanatory Notes for details of abbreviations & basis of descriptions.

SMEC AUSTRALIA

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EXCAVATION - GEOLOGICAL LOG

PIT NO : BH5

PROJECT : 3002523
LOCATION : Canberra Brickworks Blocks 1, 7 and 20 of Section 102
CLIENT : Land Development Agency
FEATURE : Environmental
FILE / JOB NO : ara
SHEET : 1 OF 1

POSITION :
SURFACE ELEVATION :
EQUIPMENT TYPE :
METHOD :
DATE EXCAVATED :
LOGGED BY : RO
CHECKED BY : GO
EXCAVATION DIMENSIONS :

DRILLING | MATERIAL

VE / PENETRATION / E / F / H	SUPPORT	GROUND WATER LEVELS	SAMPLES & FIELD TESTS	ELEVATION (RL) DEPTH (m)	GRAPHIC LOG	CLASSIFICATION SYMBOL	MATERIAL DESCRIPTION Soil Type, Colour, Plasticity or Particle Characteristic Secondary and Minor Components	MOISTURE CONDITION	CONSISTENCY RELATIVE DENSITY	STRUCTURE & Other Observations
				0.0			CONCRETE			
			0.20m RC-BH5_0.2-0.3				0.14m GRAVELLY CLAY MED PLASTICITY PID 0.1 ppm			
				0.5						
				1.0			1.20m YELLOW GRAVELLY CLAY PID 0.0 ppm			
				1.5			1.60m YELLOW ORANGE CLAY WITH WEATHERED SILTSTONE PID 0.0 ppm			
				2.0			2.40m EXCAVATION BH5 TERMINATED AT 2.40 m			
				2.5						
				3.0						

PHOTOGRAPHS NOTES ☐ YES ☒ NO

METHOD
- N Natural Exposure
- E Existing Excavation
- BH Backhoe Bucket
- B Bulldozer Blade
- R Ripper

SUPPORT
- T Timbering

PENETRATION
VE E F H VH — No Resistance

WATER
10 Oct., 73 Water Level on Date shown
water inflow
water outflow

SAMPLES & FIELD TESTS
- U50 - Undisturbed Sample 50 mm diameter
- D - Disturbed Sample
- B - Bulk Disturbed Sample
- MC - Moisture Content
- HP - Hand Penetrometer (UCS kPa)
- VS - Vane Shear; P-Peak, R-Remouded (uncorrected kPa)
- PBT - Plate Bearing Test

CLASSIFICATION SYMBOLS & SOIL DESCRIPTION
Based on Unified Classification System

MOISTURE
- D - Dry
- M - Moist
- W - Wet

CONSISTENCY/ RELATIVE DENSITY

VS	- Very Soft
S	- Soft
F	- Firm
St	- Stiff
VSt	- Very Stiff
H	- Hard
VL	- Very Loose
L	- Loose
MD	- Medium Dense
D	- Dense
VD	- Very Dense

See Explanatory Notes for details of abbreviations & basis of descriptions.

SMEC AUSTRALIA

UPDATED SMEC LIBRARY_AGS 3_1 RTA 1_1 LIB 08_WITH FENCE TOOL_COLOUR.GLB Log SMEC EXCAVATION 3002523 CANBERRA BRICKWORKS.GPJ <<DrawingFile>> 20/10/2016 12:54 8.30.003

EXCAVATION - GEOLOGICAL LOG

PIT NO : BH6

PROJECT : 3002523 | CLIENT : Land Development Agency | FILE / JOB NO : ara
LOCATION : Canberra Brickworks Blocks 1, 7 and 20 of Section 102 | FEATURE : Environmental | SHEET : 1 OF 1

POSITION : | SURFACE ELEVATION :

EQUIPMENT TYPE : | METHOD :

DATE EXCAVATED : | LOGGED BY : RO | CHECKED BY : GO

EXCAVATION DIMENSIONS :

DRILLING | MATERIAL

VE / PENETRATION E F H	SUPPORT	GROUND WATER LEVELS	SAMPLES & FIELD TESTS	ELEVATION (RL) DEPTH (m)	GRAPHIC LOG	CLASSIFICATION SYMBOL	MATERIAL DESCRIPTION Soil Type, Colour, Plasticity or Particle Characteristic Secondary and Minor Components	MOISTURE CONDITION	CONSISTENCY RELATIVE DENSITY	STRUCTURE & Other Observations
			0.15m RC-BH6_0.15-0.25	0.0			CONCRETE			
							0.14m FILL - GRAVELLY CLAY PID 0.0 ppm			
				0.5			0.80m SITLY CLAY MEDIUM - HIGH PLASTICITY PID 0.0 ppm			
							0.90m SILTY CLAY - DARK BROWN MEDIUM TO HIGH PLASTICITY			
				1.0						
				1.5			1.80m BROWN GRAVELLY CLAY MED- HIGH PLASTICITY PID 0.0 ppm			
				2.0						
				2.5			2.60m BROWN GRAVELLY CLAY MED- HIGH PLASTICITY PID 0.0 ppm			
				3.0			3.00m EXCAVATION BH6 TERMINATED AT 3.00 m			

PHOTOGRAPHS NOTES ☐ YES ☒ NO

METHOD
- N Natural Exposure
- E Existing Excavation
- BH Backhoe Bucket
- B Bulldozer Blade
- R Ripper

SUPPORT
- T Timbering

PENETRATION
VE E F H VH — No Resistance

WATER
- 10 Oct., 73 Water Level on Date shown
- water inflow
- water outflow

SAMPLES & FIELD TESTS
- U50 - Undisturbed Sample 50 mm diameter
- D - Disturbed Sample
- B - Bulk Disturbed Sample
- MC - Moisture Content
- HP - Hand Penetrometer (UCS kPa)
- VS - Vane Shear; P-Peak, R-Remouded (uncorrected kPa)
- PBT - Plate Bearing Test

CLASSIFICATION SYMBOLS & SOIL DESCRIPTION
Based on Unified Classification System

MOISTURE
- D - Dry
- M - Moist
- W - Wet

CONSISTENCY/ RELATIVE DENSITY

VS	- Very Soft
S	- Soft
F	- Firm
St	- Stiff
VSt	- Very Stiff
H	- Hard
VL	- Very Loose
L	- Loose
MD	- Medium Dense
D	- Dense
VD	- Very Dense

See Explanatory Notes for details of abbreviations & basis of descriptions.

SMEC AUSTRALIA

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EXCAVATION - GEOLOGICAL LOG

PIT NO : BH7

PROJECT : 3002523 | CLIENT : Land Development Agency | FILE / JOB NO : ara

LOCATION : Canberra Brickworks Blocks 1, 7 and 20 of Section 102 | FEATURE : Environmental | SHEET : 1 OF 1

POSITION : | SURFACE ELEVATION :

EQUIPMENT TYPE : | METHOD :

DATE EXCAVATED : | LOGGED BY : RO | CHECKED BY : GO

EXCAVATION DIMENSIONS :

DRILLING | MATERIAL

VE / PENETRATION / F / H	SUPPORT	GROUND WATER LEVELS	SAMPLES & FIELD TESTS	ELEVATION (RL) DEPTH (m)	GRAPHIC LOG	CLASSIFICATION SYMBOL	MATERIAL DESCRIPTION Soil Type, Colour, Plasticity or Particle Characteristic Secondary and Minor Components	MOISTURE CONDITION	CONSISTENCY RELATIVE DENSITY	STRUCTURE & Other Observations
				0.0			CONCRETE			
				0.14m			BROWN SANDY CLAY WITH GRAVELS PID 0.0 ppm			
				0.50m			ORANGE BROWN GRAVELLY CLAY LOW-MED PLASTICITY PID 0.0 ppm			
			0.60m RC-BH7_0.6-0.7	0.5						
				0.90m			GRAVELLY SANDY CLAY PID 0.1 ppm			
				1.0						
				1.20m			GRAVELLY SANDY CLAY PID 0.0 ppm			
				1.5						
				1.70m			SANDY CLAY			
				2.0						
				2.40m			GRAVELLY SANDY CLAY PID 0.1 ppm			
				2.5						
				2.70m			SILSTONE WITH WEATERHED CLAY - ORANGE TO YELLOW PID 0.0 ppm			
				3.00m			EXCAVATION BH7 TERMINATED AT 3.00 m			
				3.0						

PHOTOGRAPHS NOTES ☐ YES ☒ NO

METHOD

N Natural Exposure
E Existing Excavation
BH Backhoe Bucket
B Bulldozer Blade
R Ripper

SUPPORT

T Timbering

PENETRATION

VE E F H VH — No Resistance

WATER

10 Oct., 73 Water Level on Date shown
water inflow
water outflow

SAMPLES & FIELD TESTS

U50 - Undisturbed Sample 50 mm diameter
D - Disturbed Sample
B - Bulk Disturbed Sample
MC - Moisture Content
HP - Hand Penetrometer (UCS kPa)
VS - Vane Shear; P-Peak, R-Remouded (uncorrected kPa)
PBT - Plate Bearing Test

CLASSIFICATION SYMBOLS & SOIL DESCRIPTION

Based on Unified Classification System

MOISTURE

D - Dry
M - Moist
W - Wet

CONSISTENCY/ RELATIVE DENSITY

VS	- Very Soft
S	- Soft
F	- Firm
St	- Stiff
VSt	- Very Stiff
H	- Hard
VL	- Very Loose
L	- Loose
MD	- Medium Dense
D	- Dense
VD	- Very Dense

See Explanatory Notes for details of abbreviations & basis of descriptions.

SMEC AUSTRALIA

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EXCAVATION - GEOLOGICAL LOG

PIT NO : BH9

PROJECT : 3002523 | CLIENT : Land Development Agency | FILE / JOB NO : ara
LOCATION : Canberra Brickworks Blocks 1, 7 and 20 of Section 102 | FEATURE : Environmental | SHEET : 1 OF 1

POSITION : | SURFACE ELEVATION :

EQUIPMENT TYPE : | METHOD :

DATE EXCAVATED : | LOGGED BY : RO | CHECKED BY : GO

EXCAVATION DIMENSIONS :

DRILLING						MATERIAL					
VE / E / F / H PENETRATION	SUPPORT	GROUND WATER LEVELS	SAMPLES & FIELD TESTS	ELEVATION (RL) DEPTH (m)	GRAPHIC LOG	CLASSIFICATION SYMBOL	MATERIAL DESCRIPTION Soil Type, Colour, Plasticity or Particle Characteristic Secondary and Minor Components	MOISTURE CONDITION	CONSISTENCY RELATIVE DENSITY	STRUCTURE & Other Observations
			0.15m RC-BH9_0.15-0.25	0.0			CONCRETE 0.15m			
				0.25			BASE MATERIAL SILTY SAND WITH SOME GRAVELS brown moist PID 0.1 ppm 0.50m			
				0.5			EXCAVATION BH9 TERMINATED AT 0.50 m			
				1.0						
				1.5						
				2.0						
				2.5						
				3.0						

PHOTOGRAPHS NOTES ☐ YES ☒ NO

METHOD
- N Natural Exposure
- E Existing Excavation
- BH Backhoe Bucket
- B Bulldozer Blade
- R Ripper

SUPPORT
- T Timbering

PENETRATION



WATER



SAMPLES & FIELD TESTS
- U50 - Undisturbed Sample 50 mm diameter
- D - Disturbed Sample
- B - Bulk Disturbed Sample
- MC - Moisture Content
- HP - Hand Penetrometer (UCS kPa)
- VS - Vane Shear; P-Peak, R-Remouded (uncorrected kPa)
- PBT - Plate Bearing Test

CLASSIFICATION SYMBOLS & SOIL DESCRIPTION
Based on Unified Classification System

MOISTURE
- D - Dry
- M - Moist
- W - Wet

CONSISTENCY/ RELATIVE DENSITY

VS	- Very Soft
S	- Soft
F	- Firm
St	- Stiff
VSt	- Very Stiff
H	- Hard
VL	- Very Loose
L	- Loose
MD	- Medium Dense
D	- Dense
VD	- Very Dense

See Explanatory Notes for details of abbreviations & basis of descriptions.

SMEC AUSTRALIA

UPDATED SMEC LIBRARY_AGS 3_1 RTA 1_1 LIB 08_WITH FENCE TOOL_COLOUR.GLB Log SMEC EXCAVATION 3002523 CANBERRA BRICKWORKS.GPJ <<DrawingFile>> 20/10/2016 12:54 8.30.003

EXCAVATION - GEOLOGICAL LOG

PIT NO : BH10

PROJECT : 3002523 | CLIENT : Land Development Agency | FILE / JOB NO : ara
LOCATION : Canberra Brickworks Blocks 1, 7 and 20 of Section 102 | FEATURE : Environmental | SHEET : 1 OF 1

POSITION : | SURFACE ELEVATION :

EQUIPMENT TYPE : | METHOD :

DATE EXCAVATED : | LOGGED BY : RO | CHECKED BY : GO

EXCAVATION DIMENSIONS :

DRILLING | MATERIAL

VE / PENETRATION / E / F / H	SUPPORT	GROUND WATER LEVELS	SAMPLES & FIELD TESTS	ELEVATION (RL) DEPTH (m)	GRAPHIC LOG	CLASSIFICATION SYMBOL	MATERIAL DESCRIPTION Soil Type, Colour, Plasticity or Particle Characteristic Secondary and Minor Components	MOISTURE CONDITION	CONSISTENCY RELATIVE DENSITY	STRUCTURE & Other Observations
			0.15m RC-BH10_0.15-0.25	0.0			CONCRETE 0.15m			
							FILL BASE MATERIAL - SILTY SAND WITH SOME GRAVELS PID 0.1 ppm 0.35m			
				0.5			GREY BROWN SANDY CLAY MED PLASTICITY PID 0.0 ppm			
				1.0						
				1.5			1.50m GREY-BROWN SANDY CLAY WITH MED PLASTICITY PID 0.0 ppm 1.80m			
				2.0			YELLOW BROWN GRAVELLY CLAY MEDIUM PLASTICITY WITH MINOR GRAVELS PID 0.0 ppm			
				2.5						
				3.0			3.00m			

PHOTOGRAPHS NOTES ☐ YES ☒ NO

EXCAVATION BH10 TERMINATED AT 3.00 m

METHOD
- N Natural Exposure
- E Existing Excavation
- BH Backhoe Bucket
- B Bulldozer Blade
- R Ripper

SUPPORT
- T Timbering

PENETRATION
VE E F H VH — No Resistance

WATER
10 Oct., 73 Water Level on Date shown
water inflow
water outflow

SAMPLES & FIELD TESTS
- U50 - Undisturbed Sample 50 mm diameter
- D - Disturbed Sample
- B - Bulk Disturbed Sample
- MC - Moisture Content
- HP - Hand Penetrometer (UCS kPa)
- VS - Vane Shear; P-Peak, R-Remouded (uncorrected kPa)
- PBT - Plate Bearing Test

CLASSIFICATION SYMBOLS & SOIL DESCRIPTION
Based on Unified Classification System

MOISTURE
- D - Dry
- M - Moist
- W - Wet

CONSISTENCY/ RELATIVE DENSITY

VS	- Very Soft
S	- Soft
F	- Firm
St	- Stiff
VSt	- Very Stiff
H	- Hard
VL	- Very Loose
L	- Loose
MD	- Medium Dense
D	- Dense
VD	- Very Dense

See Explanatory Notes for details of abbreviations & basis of descriptions.

SMEC AUSTRALIA

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EXCAVATION - GEOLOGICAL LOG

PIT NO : BH11

PROJECT : 3002523 | CLIENT : Land Development Agency | FILE / JOB NO : ara
LOCATION : Canberra Brickworks Blocks 1, 7 and 20 of Section 102 | FEATURE : Environmental | SHEET : 1 OF 1

POSITION : | SURFACE ELEVATION :

EQUIPMENT TYPE : | METHOD :

DATE EXCAVATED : | LOGGED BY : RO | CHECKED BY : GO

EXCAVATION DIMENSIONS :

DRILLING | MATERIAL

VE / PENETRATION / E / F / H	SUPPORT	GROUND WATER LEVELS	SAMPLES & FIELD TESTS	ELEVATION (RL) DEPTH (m)	GRAPHIC LOG	CLASSIFICATION SYMBOL	MATERIAL DESCRIPTION Soil Type, Colour, Plasticity or Particle Characteristic Secondary and Minor Components	MOISTURE CONDITION	CONSISTENCY RELATIVE DENSITY	STRUCTURE & Other Observations
			0.14m RC-BH11_0.14-0.24	0.0			CONCRETE 0.14m			
				0.5			BROWN ORANGE NATURAL SANDY CLAY MED PLASTICITY PID 0.0 ppm			
				1.0			1.20m LIGHT BROWN GRAVELLY CLAY MINOR GRAVELS LOW PLASTICITY PID 0.0 ppm 1.40m			
				1.5			SILTSTONE FRAGEMENTS - GRAVELLY CLAY PID 0.0 ppm			
				2.0			2.20m SILTSTONE AND GRAVEL			
				2.5						
				3.0			3.00m			

PHOTOGRAPHS NOTES ☐ YES ☒ NO

EXCAVATION BH11 TERMINATED AT 3.00 m

METHOD
- N Natural Exposure
- E Existing Excavation
- BH Backhoe Bucket
- B Bulldozer Blade
- R Ripper

SUPPORT
- T Timbering

PENETRATION
VE E F H VH — No Resistance

WATER
10 Oct., 73 Water Level on Date shown
water inflow
water outflow

SAMPLES & FIELD TESTS
- U50 - Undisturbed Sample 50 mm diameter
- D - Disturbed Sample
- B - Bulk Disturbed Sample
- MC - Moisture Content
- HP - Hand Penetrometer (UCS kPa)
- VS - Vane Shear; P-Peak, R-Remouded (uncorrected kPa)
- PBT - Plate Bearing Test

CLASSIFICATION SYMBOLS & SOIL DESCRIPTION
Based on Unified Classification System

MOISTURE
- D - Dry
- M - Moist
- W - Wet

CONSISTENCY/ RELATIVE DENSITY

VS	- Very Soft
S	- Soft
F	- Firm
St	- Stiff
VSt	- Very Stiff
H	- Hard
VL	- Very Loose
L	- Loose
MD	- Medium Dense
D	- Dense
VD	- Very Dense

See Explanatory Notes for details of abbreviations & basis of descriptions.

SMEC AUSTRALIA

UPDATED SMEC LIBRARY_AGS 3_1 RTA 1_1 LIB 08_WITH FENCE TOOL_COLOUR.GLB Log SMEC EXCAVATION 3002523 CANBERRA BRICKWORKS.GPJ <<DrawingFile>> 20/10/2016 12:54 8.30.003

EXCAVATION - GEOLOGICAL LOG

PIT NO : BH12

PROJECT : 3002523 | CLIENT : Land Development Agency | FILE / JOB NO : ara
LOCATION : Canberra Brickworks Blocks 1, 7 and 20 of Section 102 | FEATURE : Environmental | SHEET : 1 OF 1

POSITION : | SURFACE ELEVATION :

EQUIPMENT TYPE : | METHOD :

DATE EXCAVATED : | LOGGED BY : RO | CHECKED BY : GO

EXCAVATION DIMENSIONS :

DRILLING | MATERIAL

VE / PENETRATION / E / F / H	SUPPORT	GROUND WATER LEVELS	SAMPLES & FIELD TESTS	ELEVATION (RL) DEPTH (m)	GRAPHIC LOG	CLASSIFICATION SYMBOL	MATERIAL DESCRIPTION Soil Type, Colour, Plasticity or Particle Characteristic Secondary and Minor Components	MOISTURE CONDITION	CONSISTENCY RELATIVE DENSITY	STRUCTURE & Other Observations
				0.0			CONCRETE			
							0.14m FILL DARK BROWN GRAVELLY SANDY CLAY PID 0.0 ppm			
				0.5						
							0.90m LOOSE UNCONTROLLED FILL COARSE GRAVEL PID 0.0 ppm			
			1.00m RC-BH12_1.0-1.1	1.0						
							1.40m DARK BROWN SANDY CLAY LOW PLASTICITY PID 0.0 ppm			
				1.5			1.50m YELLOW GRAVELLY CLAY MED PLASTICITY PID 0.0 ppm			
				2.0						
				2.5			2.50m BROWN FINE CLAY MEDIUM PLASTICITY			
				3.0			3.00m EXCAVATION BH12 TERMINATED AT 3.00 m			

PHOTOGRAPHS NOTES ☐ YES ☒ NO

METHOD
- N Natural Exposure
- E Existing Excavation
- BH Backhoe Bucket
- B Bulldozer Blade
- R Ripper

SUPPORT
- T Timbering

PENETRATION



WATER



SAMPLES & FIELD TESTS
- U50 - Undisturbed Sample 50 mm diameter
- D - Disturbed Sample
- B - Bulk Disturbed Sample
- MC - Moisture Content
- HP - Hand Penetrometer (UCS kPa)
- VS - Vane Shear; P-Peak, R-Remouded (uncorrected kPa)
- PBT - Plate Bearing Test

CLASSIFICATION SYMBOLS & SOIL DESCRIPTION
Based on Unified Classification System

MOISTURE
- D - Dry
- M - Moist
- W - Wet

CONSISTENCY/ RELATIVE DENSITY

VS	- Very Soft
S	- Soft
F	- Firm
St	- Stiff
VSt	- Very Stiff
H	- Hard
VL	- Very Loose
L	- Loose
MD	- Medium Dense
D	- Dense
VD	- Very Dense

See Explanatory Notes for details of abbreviations & basis of descriptions.

SMEC AUSTRALIA

UPDATED SMEC LIBRARY_AGS 3_1 RTA 1_1 LIB 08_WITH FENCE TOOL_COLOUR.GLB Log SMEC EXCAVATION 3002523 CANBERRA BRICKWORKS.GPJ <<DrawingFile>> 20/10/2016 12:54 8.30.003

EXCAVATION - GEOLOGICAL LOG

PIT NO : BH13

PROJECT : 3002523 | CLIENT : Land Development Agency | FILE / JOB NO : ara
LOCATION : Canberra Brickworks Blocks 1, 7 and 20 of Section 102 | FEATURE : Environmental | SHEET : 1 OF 1

POSITION : | SURFACE ELEVATION :

EQUIPMENT TYPE : | METHOD :

DATE EXCAVATED : | LOGGED BY : RO | CHECKED BY : GO

EXCAVATION DIMENSIONS :

DRILLING | MATERIAL

VE / E / F / H PENETRATION	SUPPORT	GROUND WATER LEVELS	SAMPLES & FIELD TESTS	ELEVATION (RL) DEPTH (m)	GRAPHIC LOG	CLASSIFICATION SYMBOL	MATERIAL DESCRIPTION Soil Type, Colour, Plasticity or Particle Characteristic Secondary and Minor Components	MOISTURE CONDITION	CONSISTENCY RELATIVE DENSITY	STRUCTURE & Other Observations
				0.0			NATURAL			
				0.12m			SILTY CLAY WITH GRAVELLY SANDS PID 0.0 ppm			
				0.5						
				1.0						
				1.5						
				2.0						
				2.20m			BROWN SANDY CLAY MEDIUM PLASTICITY PID 0.1 ppm			
			2.30m RC-BH13_2.3-2.4	2.5						
				2.70m			LIGHT BROWN SILTSTONE PID 0.1 ppm			
				3.00m			EXCAVATION BH13 TERMINATED AT 3.00 m			

PHOTOGRAPHS NOTES ☐ YES ☒ NO

METHOD
- N Natural Exposure
- E Existing Excavation
- BH Backhoe Bucket
- B Bulldozer Blade
- R Ripper

SUPPORT
- T Timbering

PENETRATION



WATER



SAMPLES & FIELD TESTS
- U50 - Undisturbed Sample 50 mm diameter
- D - Disturbed Sample
- B - Bulk Disturbed Sample
- MC - Moisture Content
- HP - Hand Penetrometer (UCS kPa)
- VS - Vane Shear; P-Peak, R-Remouded (uncorrected kPa)
- PBT - Plate Bearing Test

CLASSIFICATION SYMBOLS & SOIL DESCRIPTION
Based on Unified Classification System

MOISTURE
- D - Dry
- M - Moist
- W - Wet

CONSISTENCY/ RELATIVE DENSITY

VS	- Very Soft
S	- Soft
F	- Firm
St	- Stiff
VSt	- Very Stiff
H	- Hard
VL	- Very Loose
L	- Loose
MD	- Medium Dense
D	- Dense
VD	- Very Dense

See Explanatory Notes for details of abbreviations & basis of descriptions.

SMEC AUSTRALIA

UPDATED SMEC LIBRARY_AGS 3_1 RTA 1_1 LIB 08_WITH FENCE TOOL_COLOUR.GLB Log SMEC EXCAVATION 3002523 CANBERRA BRICKWORKS.GPJ <<DrawingFile>> 20/10/2016 12:54 8.30.003

EXCAVATION - GEOLOGICAL LOG

PIT NO : BH14

PROJECT : 3002523 | CLIENT : Land Development Agency | FILE / JOB NO : ara
LOCATION : Canberra Brickworks Blocks 1, 7 and 20 of Section 102 | FEATURE : Environmental | SHEET : 1 OF 1

POSITION : | SURFACE ELEVATION :

EQUIPMENT TYPE : | METHOD :

DATE EXCAVATED : | LOGGED BY : RO | CHECKED BY : GO

EXCAVATION DIMENSIONS :

DRILLING | MATERIAL

VE / PENETRATION / E / F / H	SUPPORT	GROUND WATER LEVELS	SAMPLES & FIELD TESTS	ELEVATION (RL) DEPTH (m)	GRAPHIC LOG	CLASSIFICATION SYMBOL	MATERIAL DESCRIPTION Soil Type, Colour, Plasticity or Particle Characteristic Secondary and Minor Components	MOISTURE CONDITION	CONSISTENCY RELATIVE DENSITY	STRUCTURE & Other Observations
				0.0			CONCRETE			
							0.12m 0.13m BASE FILL MATERIAL CONSISTING OF BROWN GRAVELLY CLAYEY SAND PID 0.1 ppm			
			0.30m RC-BH14_0.3-0.4	0.5			BROWN ORANGE SANDY CLAY MATERIAL SOME GRAVELS NOTED PID 0.0 ppm			
							0.70m BEDROCK (SILTSTONE) WITH SOME WEATHERED BEDROCK MATERIAL			
							0.90m EXCAVATION BH14 TERMINATED AT 0.90 m			
				1.0						
				1.5						
				2.0						
				2.5						
				3.0						

PHOTOGRAPHS NOTES ☐ YES ☒ NO

METHOD
- N Natural Exposure
- E Existing Excavation
- BH Backhoe Bucket
- B Bulldozer Blade
- R Ripper

SUPPORT
- T Timbering

PENETRATION



WATER



SAMPLES & FIELD TESTS
- U50 - Undisturbed Sample 50 mm diameter
- D - Disturbed Sample
- B - Bulk Disturbed Sample
- MC - Moisture Content
- HP - Hand Penetrometer (UCS kPa)
- VS - Vane Shear; P-Peak, R-Remouded (uncorrected kPa)
- PBT - Plate Bearing Test

CLASSIFICATION SYMBOLS & SOIL DESCRIPTION
Based on Unified Classification System

MOISTURE
- D - Dry
- M - Moist
- W - Wet

CONSISTENCY/ RELATIVE DENSITY

VS	- Very Soft
S	- Soft
F	- Firm
St	- Stiff
VSt	- Very Stiff
H	- Hard
VL	- Very Loose
L	- Loose
MD	- Medium Dense
D	- Dense
VD	- Very Dense

See Explanatory Notes for details of abbreviations & basis of descriptions.

SMEC AUSTRALIA

UPDATED SMEC LIBRARY_AGS 3_1 RTA 1_1 LIB 08_WITH FENCE TOOL_COLOUR.GLB Log SMEC EXCAVATION 3002523 CANBERRA BRICKWORKS.GPJ <<DrawingFile>> 20/10/2016 12:54 8.30.003

EXCAVATION - GEOLOGICAL LOG

PIT NO : BH15

PROJECT : 3002523 | CLIENT : Land Development Agency | FILE / JOB NO : ara
LOCATION : Canberra Brickworks Blocks 1, 7 and 20 of Section 102 | FEATURE : Environmental | SHEET : 1 OF 1

POSITION : | SURFACE ELEVATION :

EQUIPMENT TYPE : | METHOD :

DATE EXCAVATED : | LOGGED BY : RO | CHECKED BY : GO

EXCAVATION DIMENSIONS :

DRILLING						MATERIAL					
PENETRATION (VE, E, F, H)	SUPPORT	GROUND WATER LEVELS	SAMPLES & FIELD TESTS	ELEVATION (RL) DEPTH (m)	GRAPHIC LOG	CLASSIFICATION SYMBOL	MATERIAL DESCRIPTION Soil Type, Colour, Plasticity or Particle Characteristic Secondary and Minor Components	MOISTURE CONDITION	CONSISTENCY RELATIVE DENSITY	STRUCTURE & Other Observations
				0.0			CONCRETE			
			0.20m RC-BH15_0.2	0.15m -0.3			BASE MATERIAL BROWN SANDY GRAVEL PID 0.0 ppm METAL PIECES ENCOUNTERED			
				0.5			0.70m EXCAVATION BH15 TERMINATED AT 0.50 m			
				1.0						
				1.5						
				2.0						
				2.5						
				3.0						

PHOTOGRAPHS NOTES ☐ YES ☒ NO

METHOD
- N Natural Exposure
- E Existing Excavation
- BH Backhoe Bucket
- B Bulldozer Blade
- R Ripper

SUPPORT
- T Timbering

PENETRATION



WATER



SAMPLES & FIELD TESTS
- U50 - Undisturbed Sample 50 mm diameter
- D - Disturbed Sample
- B - Bulk Disturbed Sample
- MC - Moisture Content
- HP - Hand Penetrometer (UCS kPa)
- VS - Vane Shear; P-Peak, R-Remouded (uncorrected kPa)
- PBT - Plate Bearing Test

CLASSIFICATION SYMBOLS & SOIL DESCRIPTION
Based on Unified Classification System

MOISTURE
- D - Dry
- M - Moist
- W - Wet

CONSISTENCY/ RELATIVE DENSITY

VS	- Very Soft
S	- Soft
F	- Firm
St	- Stiff
VSt	- Very Stiff
H	- Hard
VL	- Very Loose
L	- Loose
MD	- Medium Dense
D	- Dense
VD	- Very Dense

See Explanatory Notes for details of abbreviations & basis of descriptions.

SMEC AUSTRALIA

UPDATED SMEC LIBRARY_AGS 3_1 RTA 1_1 LIB 08_WITH FENCE TOOL_COLOUR.GLB Log SMEC EXCAVATION 3002523 CANBERRA BRICKWORKS.GPJ <<DrawingFile>> 20/10/2016 12:54 8.30.003

EXCAVATION - GEOLOGICAL LOG

PIT NO : BH16

PROJECT : 3002523 | CLIENT : Land Development Agency | FILE / JOB NO : ara
LOCATION : Canberra Brickworks Blocks 1, 7 and 20 of Section 102 | FEATURE : Environmental | SHEET : 1 OF 1

POSITION : | SURFACE ELEVATION :

EQUIPMENT TYPE : | METHOD :

DATE EXCAVATED : | LOGGED BY : RO | CHECKED BY : GO

EXCAVATION DIMENSIONS :

DRILLING | MATERIAL

VE / PENETRATION / E / F / H	SUPPORT	GROUND WATER LEVELS	SAMPLES & FIELD TESTS	ELEVATION (RL) DEPTH (m)	GRAPHIC LOG	CLASSIFICATION SYMBOL	MATERIAL DESCRIPTION Soil Type, Colour, Plasticity or Particle Characteristic Secondary and Minor Components	MOISTURE CONDITION	CONSISTENCY RELATIVE DENSITY	STRUCTURE & Other Observations
			0.11m RC-BH16_0.11-0.21	0.0			CONCRETE 0.11m			
							FILL CONSISTING OF GRAVELLY SANDY CLAY PID 0.0 ppm 0.21m			
				0.5			SANDY CLAY WITH GRAVELS			
				1.0						
							1.40m NATURALLY DRY SANDY CLAY WITH GRAVELS PID 0.1 ppm			
				1.5						
				2.0			2.20m NATURALLY DRY SANDY CLAY WITH GRAVELS PID 0.0 ppm			
				2.5			2.50m DRY CLAYEY SAND BROWN WEATHERD ROCK PID 0.0 ppm			
				3.0			3.00m EXCAVATION BH16 TERMINATED AT 3.00 m			

PHOTOGRAPHS NOTES ☐ YES ☒ NO

METHOD
- N Natural Exposure
- E Existing Excavation
- BH Backhoe Bucket
- B Bulldozer Blade
- R Ripper

SUPPORT
- T Timbering

PENETRATION
VE E F H VH — No Resistance

WATER
10 Oct., 73 Water Level on Date shown
water inflow
water outflow

SAMPLES & FIELD TESTS
- U50 - Undisturbed Sample 50 mm diameter
- D - Disturbed Sample
- B - Bulk Disturbed Sample
- MC - Moisture Content
- HP - Hand Penetrometer (UCS kPa)
- VS - Vane Shear; P-Peak, R-Remouded (uncorrected kPa)
- PBT - Plate Bearing Test

CLASSIFICATION SYMBOLS & SOIL DESCRIPTION
Based on Unified Classification System

MOISTURE
- D - Dry
- M - Moist
- W - Wet

CONSISTENCY/ RELATIVE DENSITY

VS	- Very Soft
S	- Soft
F	- Firm
St	- Stiff
VSt	- Very Stiff
H	- Hard
VL	- Very Loose
L	- Loose
MD	- Medium Dense
D	- Dense
VD	- Very Dense

See Explanatory Notes for details of abbreviations & basis of descriptions.

SMEC AUSTRALIA

UPDATED SMEC LIBRARY_AGS 3_1 RTA 1_1 LIB 08_WITH FENCE TOOL_COLOUR.GLB Log SMEC EXCAVATION 3002523 CANBERRA BRICKWORKS.GPJ <<DrawingFile>> 20/10/2016 12:54 8.30.003

EXCAVATION - GEOLOGICAL LOG

PIT NO : BH17

PROJECT : 3002523 | CLIENT : Land Development Agency | FILE / JOB NO : ara
LOCATION : Canberra Brickworks Blocks 1, 7 and 20 of Section 102 | FEATURE : Environmental | SHEET : 1 OF 1

POSITION : | SURFACE ELEVATION :

EQUIPMENT TYPE : | METHOD :

DATE EXCAVATED : | LOGGED BY : RO | CHECKED BY : GO

EXCAVATION DIMENSIONS :

DRILLING					MATERIAL					
PENETRATION (VE, E, F, H)	SUPPORT	GROUND WATER LEVELS	SAMPLES & FIELD TESTS	ELEVATION (RL) DEPTH (m)	GRAPHIC LOG	CLASSIFICATION SYMBOL	MATERIAL DESCRIPTION Soil Type, Colour, Plasticity or Particle Characteristic Secondary and Minor Components	MOISTURE CONDITION	CONSISTENCY RELATIVE DENSITY	STRUCTURE & Other Observations
				0.0			CONCRETE			
			0.20m RC-BH17_0.2-0.3				0.14m SANDY CLAY PID 0.0 ppm - HARD CONCRETE SERVICE FOUND - STOPPED AUGERING			
				0.5			0.40m			
				1.0			EXCAVATION BH17 TERMINATED AT 0.90 m			
				1.5						
				2.0						
				2.5						
				3.0						

PHOTOGRAPHS NOTES ☐ YES ☒ NO

METHOD
- N Natural Exposure
- E Existing Excavation
- BH Backhoe Bucket
- B Bulldozer Blade
- R Ripper

SUPPORT
- T Timbering

PENETRATION
VE E F H VH — No Resistance

WATER
10 Oct., 73 Water Level on Date shown
water inflow
water outflow

SAMPLES & FIELD TESTS
- U50 - Undisturbed Sample 50 mm diameter
- D - Disturbed Sample
- B - Bulk Disturbed Sample
- MC - Moisture Content
- HP - Hand Penetrometer (UCS kPa)
- VS - Vane Shear; P-Peak, R-Remouded (uncorrected kPa)
- PBT - Plate Bearing Test

CLASSIFICATION SYMBOLS & SOIL DESCRIPTION
Based on Unified Classification System

MOISTURE
- D - Dry
- M - Moist
- W - Wet

CONSISTENCY/ RELATIVE DENSITY

VS	- Very Soft
S	- Soft
F	- Firm
St	- Stiff
VSt	- Very Stiff
H	- Hard
VL	- Very Loose
L	- Loose
MD	- Medium Dense
D	- Dense
VD	- Very Dense

See Explanatory Notes for details of abbreviations & basis of descriptions.

SMEC AUSTRALIA

UPDATED SMEC LIBRARY_AGS 3_1 RTA 1_1 LIB 08_WITH FENCE TOOL_COLOUR.GLB Log SMEC EXCAVATION 3002523 CANBERRA BRICKWORKS.GPJ <<DrawingFile>> 20/10/2016 12:54 8.30.003

EXCAVATION - GEOLOGICAL LOG

PIT NO : BH18

PROJECT : 3002523 | CLIENT : Land Development Agency | FILE / JOB NO : ara
LOCATION : Canberra Brickworks Blocks 1, 7 and 20 of Section 102 | FEATURE : Environmental | SHEET : 1 OF 1

POSITION : | SURFACE ELEVATION :

EQUIPMENT TYPE : | METHOD :

DATE EXCAVATED : | LOGGED BY : RO | CHECKED BY : GO

EXCAVATION DIMENSIONS :

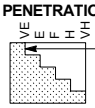
DRILLING					MATERIAL				
PENETRATION VE E F H	SUPPORT	GROUND WATER LEVELS	SAMPLES & FIELD TESTS	ELEVATION (RL) DEPTH (m)	GRAPHIC LOG	CLASSIFICATION SYMBOL	MATERIAL DESCRIPTION Soil Type, Colour, Plasticity or Particle Characteristic Secondary and Minor Components	MOISTURE CONDITION	CONSISTENCY RELATIVE DENSITY	STRUCTURE & Other Observations
				0.0			CONCRETE			
			0.20m RC-BH18_0.2-0.3	0.12m			FILL GENERALLY CONSISTING OF GRAVELLY SANDY CLAY - SUBANGULAR MEDIUM COARSE POORLY GRADED GRAVEL PID 0.0 ppm			
				0.5						
				1.0						
				1.40m			FILL GENERALLY CONSISTING OF BRICKS PID 0.0 ppm			
				1.5						
				1.60m			EXCAVATION BH18 TERMINATED AT 1.60 m			
				2.0						
				2.5						
				3.0						

PHOTOGRAPHS NOTES ☐ YES ☒ NO

METHOD
- N Natural Exposure
- E Existing Excavation
- BH Backhoe Bucket
- B Bulldozer Blade
- R Ripper

SUPPORT
- T Timbering

PENETRATION



WATER



SAMPLES & FIELD TESTS
- U50 - Undisturbed Sample 50 mm diameter
- D - Disturbed Sample
- B - Bulk Disturbed Sample
- MC - Moisture Content
- HP - Hand Penetrometer (UCS kPa)
- VS - Vane Shear; P-Peak, R-Remouded (uncorrected kPa)
- PBT - Plate Bearing Test

CLASSIFICATION SYMBOLS & SOIL DESCRIPTION
Based on Unified Classification System

MOISTURE
- D - Dry
- M - Moist
- W - Wet

CONSISTENCY/ RELATIVE DENSITY

VS	- Very Soft
S	- Soft
F	- Firm
St	- Stiff
VSt	- Very Stiff
H	- Hard
VL	- Very Loose
L	- Loose
MD	- Medium Dense
D	- Dense
VD	- Very Dense

See Explanatory Notes for details of abbreviations & basis of descriptions.

SMEC AUSTRALIA

UPDATED SMEC LIBRARY_AGS 3_1 RTA 1_1 LIB 08_WITH FENCE TOOL_COLOUR.GLB Log SMEC EXCAVATION 3002523 CANBERRA BRICKWORKS.GPJ <<DrawingFile>> 20/10/2016 12:54 8.30.003

EXCAVATION - GEOLOGICAL LOG

PIT NO : HA/GB1

PROJECT : 3002523 | CLIENT : Land Development Agency | FILE / JOB NO : ara
LOCATION : Canberra Brickworks Blocks 1, 7 and 20 of Section 102 | FEATURE : Environmental | SHEET : 1 OF 1

POSITION : | SURFACE ELEVATION :

EQUIPMENT TYPE : | METHOD :

DATE EXCAVATED : | LOGGED BY : RO | CHECKED BY : GO

EXCAVATION DIMENSIONS :

DRILLING						MATERIAL					
PENETRATION (VE, E, F, H)	SUPPORT	GROUND WATER LEVELS	SAMPLES & FIELD TESTS	ELEVATION (RL) DEPTH (m)	GRAPHIC LOG	CLASSIFICATION SYMBOL	MATERIAL DESCRIPTION Soil Type, Colour, Plasticity or Particle Characteristic Secondary and Minor Components	MOISTURE CONDITION	CONSISTENCY RELATIVE DENSITY	STRUCTURE & Other Observations
			0.15m GB-HA/GB1_0.15-0.2	0.0			Fill sand with gravel , light brown gravels 5-20mm(20%) PID 0.0 ppm 0.15m			
							Fill brown silty sandy sand with minor gravesl (10%) PID 0.0 ppm 0.30m			
							EXCAVATION HA/GB1 TERMINATED AT 0.30 m			
				0.5						
				1.0						
				1.5						
				2.0						
				2.5						
				3.0						

PHOTOGRAPHS NOTES ☐ YES ☒ NO

METHOD
- N Natural Exposure
- E Existing Excavation
- BH Backhoe Bucket
- B Bulldozer Blade
- R Ripper

SUPPORT
- T Timbering

PENETRATION
VE E F H VH — No Resistance

WATER
10 Oct., 73 Water Level on Date shown
water inflow
water outflow

SAMPLES & FIELD TESTS
- U50 - Undisturbed Sample 50 mm diameter
- D - Disturbed Sample
- B - Bulk Disturbed Sample
- MC - Moisture Content
- HP - Hand Penetrometer (UCS kPa)
- VS - Vane Shear; P-Peak, R-Remouded (uncorrected kPa)
- PBT - Plate Bearing Test

CLASSIFICATION SYMBOLS & SOIL DESCRIPTION
Based on Unified Classification System

MOISTURE
- D - Dry
- M - Moist
- W - Wet

CONSISTENCY/ RELATIVE DENSITY

VS	- Very Soft
S	- Soft
F	- Firm
St	- Stiff
VSt	- Very Stiff
H	- Hard
VL	- Very Loose
L	- Loose
MD	- Medium Dense
D	- Dense
VD	- Very Dense

See Explanatory Notes for details of abbreviations & basis of descriptions.

SMEC AUSTRALIA

UPDATED SMEC LIBRARY_AGS 3_1 RTA 1_1 LIB 08_WITH FENCE TOOL_COLOUR.GLB Log SMEC EXCAVATION 3002523 CANBERRA BRICKWORKS.GPJ <<DrawingFile>> 20/10/2016 12:54 8.30.003

EXCAVATION - GEOLOGICAL LOG

PIT NO : HA7

PROJECT : 3002523 | CLIENT : Land Development Agency | FILE / JOB NO : ara

LOCATION : Canberra Brickworks Blocks 1, 7 and 20 of Section 102 | FEATURE : Environmental | SHEET : 1 OF 1

POSITION : | SURFACE ELEVATION :

EQUIPMENT TYPE : | METHOD :

DATE EXCAVATED : | LOGGED BY : RO | CHECKED BY : GO

EXCAVATION DIMENSIONS :

DRILLING						MATERIAL					
VE / E / F / H PENETRATION	SUPPORT	GROUND WATER LEVELS	SAMPLES & FIELD TESTS	ELEVATION (RL) DEPTH (m)		GRAPHIC LOG	CLASSIFICATION SYMBOL	MATERIAL DESCRIPTION Soil Type, Colour, Plasticity or Particle Characteristic Secondary and Minor Components	MOISTURE CONDITION	CONSISTENCY RELATIVE DENSITY	STRUCTURE & Other Observations
			0.20m GB-HA_0.2	0.0				Fill red brown sandy clay , brick pieces, crushed gravel, 50% present , 5mm in diameter			
				0.3				0.40m			
				0.5				EXCAVATION HA7 TERMINATED AT 0.40 m			
				1.0							
				1.5							
				2.0							
				2.5							
				3.0							

PHOTOGRAPHS NOTES ☐ YES ☒ NO

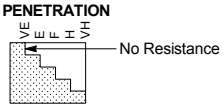
METHOD

- N Natural Exposure
- E Existing Excavation
- BH Backhoe Bucket
- B Bulldozer Blade
- R Ripper

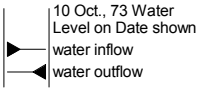
SUPPORT

- T Timbering

PENETRATION



WATER



SAMPLES & FIELD TESTS

- U50 - Undisturbed Sample 50 mm diameter
- D - Disturbed Sample
- B - Bulk Disturbed Sample
- MC - Moisture Content
- HP - Hand Penetrometer (UCS kPa)
- VS - Vane Shear; P-Peak, R-Remouded (uncorrected kPa)
- PBT - Plate Bearing Test

CLASSIFICATION SYMBOLS & SOIL DESCRIPTION

Based on Unified Classification System

MOISTURE

- D - Dry
- M - Moist
- W - Wet

CONSISTENCY/ RELATIVE DENSITY

VS	- Very Soft
S	- Soft
F	- Firm
St	- Stiff
VSt	- Very Stiff
H	- Hard
VL	- Very Loose
L	- Loose
MD	- Medium Dense
D	- Dense
VD	- Very Dense

See Explanatory Notes for details of abbreviations & basis of descriptions.

SMEC AUSTRALIA

UPDATED SMEC LIBRARY_AGS 3_1 RTA 1_1 LIB 08_WITH FENCE TOOL_COLOUR.GLB Log SMEC EXCAVATION 3002523 CANBERRA BRICKWORKS.GPJ <<DrawingFile>> 20/10/2016 12:54 8.30.003

EXCAVATION - GEOLOGICAL LOG

PIT NO : HA8

PROJECT : 3002523 | CLIENT : Land Development Agency | FILE / JOB NO : ara

LOCATION : Canberra Brickworks Blocks 1, 7 and 20 of Section 102 | FEATURE : Environmental | SHEET : 1 OF 1

POSITION : | SURFACE ELEVATION :

EQUIPMENT TYPE : | METHOD :

DATE EXCAVATED : | LOGGED BY : RO | CHECKED BY : GO

EXCAVATION DIMENSIONS :

DRILLING | MATERIAL

VE / E / F / H (PENETRATION)	SUPPORT	GROUND WATER LEVELS	SAMPLES & FIELD TESTS	ELEVATION (RL) DEPTH (m)	GRAPHIC LOG	CLASSIFICATION SYMBOL	MATERIAL DESCRIPTION Soil Type, Colour, Plasticity or Particle Characteristic Secondary and Minor Components	MOISTURE CONDITION	CONSISTENCY RELATIVE DENSITY	STRUCTURE & Other Observations
			0.10m GB-HA8_0.1	0.0 -0.2			Fill - brown sandy clay , rootlets present PID 0.0 ppm			
				0.20m			Fill - low to med plasticity clay, gravle present 1-5mm			
							EXCAVATION HA8 TERMINATED AT 0.30 m			
				0.5						
				1.0						
				1.5						
				2.0						
				2.5						
				3.0						

PHOTOGRAPHS NOTES ☐ YES ☒ NO

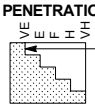
METHOD

- N Natural Exposure
- E Existing Excavation
- BH Backhoe Bucket
- B Bulldozer Blade
- R Ripper

SUPPORT

- T Timbering

PENETRATION



No Resistance

WATER



10 Oct., 73 Water Level on Date shown
water inflow
water outflow

SAMPLES & FIELD TESTS

- U50 - Undisturbed Sample 50 mm diameter
- D - Disturbed Sample
- B - Bulk Disturbed Sample
- MC - Moisture Content
- HP - Hand Penetrometer (UCS kPa)
- VS - Vane Shear; P-Peak, R-Remouded (uncorrected kPa)
- PBT - Plate Bearing Test

CLASSIFICATION SYMBOLS & SOIL DESCRIPTION

Based on Unified Classification System

MOISTURE

- D - Dry
- M - Moist
- W - Wet

CONSISTENCY/ RELATIVE DENSITY

VS	- Very Soft
S	- Soft
F	- Firm
St	- Stiff
VSt	- Very Stiff
H	- Hard
VL	- Very Loose
L	- Loose
MD	- Medium Dense
D	- Dense
VD	- Very Dense

See Explanatory Notes for details of abbreviations & basis of descriptions.

SMEC AUSTRALIA

UPDATED SMEC LIBRARY_AGS 3_1 RTA 1_1 LIB 08_WITH FENCE TOOL_COLOUR.GLB Log SMEC EXCAVATION 3002523 CANBERRA BRICKWORKS.GPJ <<DrawingFile>> 20/10/2016 12:54 8.30.003

EXCAVATION - GEOLOGICAL LOG

PIT NO : HA22

PROJECT : 3002523 | CLIENT : Land Development Agency | FILE / JOB NO : ara
LOCATION : Canberra Brickworks Blocks 1, 7 and 20 of Section 102 | FEATURE : Environmental | SHEET : 1 OF 1

POSITION : | SURFACE ELEVATION :

EQUIPMENT TYPE : | METHOD :

DATE EXCAVATED : | LOGGED BY : RO | CHECKED BY : GO

EXCAVATION DIMENSIONS :

DRILLING						MATERIAL					
PENETRATION VE	PENETRATION E	PENETRATION F	PENETRATION H	SUPPORT	GROUND WATER LEVELS	SAMPLES & FIELD TESTS	ELEVATION (RL) DEPTH (m)	GRAPHIC LOG	CLASSIFICATION SYMBOL	MATERIAL DESCRIPTION Soil Type, Colour, Plasticity or Particle Characteristic Secondary and Minor Components	MOISTURE CONDITION	CONSISTENCY RELATIVE DENSITY	STRUCTURE & Other Observations
						GB-HA22_0-0.1	0.0			Fill Clayey sandy clay with gravels (1-7mm) , brown black soil, sand is balc clay is brown ,			
							0.20m			Hit Concrete EXCAVATION HA22 TERMINATED AT 0.20 m			
							0.5						
							1.0						
							1.5						
							2.0						
							2.5						
							3.0						

PHOTOGRAPHS NOTES ☐ YES ☒ NO

METHOD
- N Natural Exposure
- E Existing Excavation
- BH Backhoe Bucket
- B Bulldozer Blade
- R Ripper

SUPPORT
- T Timbering

PENETRATION
VE E F H VH — No Resistance

WATER
10 Oct., 73 Water Level on Date shown
water inflow
water outflow

SAMPLES & FIELD TESTS
- U50 - Undisturbed Sample 50 mm diameter
- D - Disturbed Sample
- B - Bulk Disturbed Sample
- MC - Moisture Content
- HP - Hand Penetrometer (UCS kPa)
- VS - Vane Shear; P-Peak, R-Remouded (uncorrected kPa)
- PBT - Plate Bearing Test

CLASSIFICATION SYMBOLS & SOIL DESCRIPTION
Based on Unified Classification System

MOISTURE
- D - Dry
- M - Moist
- W - Wet

CONSISTENCY/ RELATIVE DENSITY

VS	- Very Soft
S	- Soft
F	- Firm
St	- Stiff
VSt	- Very Stiff
H	- Hard
VL	- Very Loose
L	- Loose
MD	- Medium Dense
D	- Dense
VD	- Very Dense

See Explanatory Notes for details of abbreviations & basis of descriptions.

SMEC AUSTRALIA

UPDATED SMEC LIBRARY_AGS 3_1 RTA 1_1 LIB 08_WITH FENCE TOOL_COLOUR.GLB Log SMEC EXCAVATION 3002523 CANBERRA BRICKWORKS.GPJ <<DrawingFile>> 20/10/2016 12:54 8.30.003

EXCAVATION - GEOLOGICAL LOG

PIT NO : M1

PROJECT : 3002523 | CLIENT : Land Development Agency | FILE / JOB NO : ara
LOCATION : Canberra Brickworks Blocks 1, 7 and 20 of Section 102 | FEATURE : Environmental | SHEET : 1 OF 2

POSITION : | SURFACE ELEVATION :

EQUIPMENT TYPE : | METHOD :

DATE EXCAVATED : | LOGGED BY : RO | CHECKED BY : GO

EXCAVATION DIMENSIONS :

DRILLING					MATERIAL					
PENETRATION (VE, E, F, H)	SUPPORT	GROUND WATER LEVELS	SAMPLES & FIELD TESTS	ELEVATION (RL) DEPTH (m)	GRAPHIC LOG	CLASSIFICATION SYMBOL	MATERIAL DESCRIPTION Soil Type, Colour, Plasticity or Particle Characteristic Secondary and Minor Components	MOISTURE CONDITION	CONSISTENCY RELATIVE DENSITY	STRUCTURE & Other Observations
				0.0			FILL GRAVELLY CLAYEY SAND WITH SOME GRAVELS			
							0.40m BROWN TO YELLOW GRAVELLY CLAYEY SAND			
				0.5						
				1.0			1.00m LIGHT BROWN COARSE GRAVEL			
			1.20m AU-M1_1.2	1.3						
				1.5			1.60m LIGHT BROWN COARSE GRAVEL			
				2.0						
				2.5			2.50m BEDROCK (40%) 1- 10MM SANDY GRAVELS , LIGHT BROWN FINE GRAVEL			
				3.0						

PHOTOGRAPHS NOTES ☐ YES ☒ NO

METHOD
- N Natural Exposure
- E Existing Excavation
- BH Backhoe Bucket
- B Bulldozer Blade
- R Ripper

SUPPORT
- T Timbering

PENETRATION
VE E F H VH — No Resistance

WATER
10 Oct., 73 Water Level on Date shown
water inflow
water outflow

SAMPLES & FIELD TESTS
- U50 - Undisturbed Sample 50 mm diameter
- D - Disturbed Sample
- B - Bulk Disturbed Sample
- MC - Moisture Content
- HP - Hand Penetrometer (UCS kPa)
- VS - Vane Shear; P-Peak, R-Remouded (uncorrected kPa)
- PBT - Plate Bearing Test

CLASSIFICATION SYMBOLS & SOIL DESCRIPTION
Based on Unified Classification System

MOISTURE
- D - Dry
- M - Moist
- W - Wet

CONSISTENCY/ RELATIVE DENSITY

VS	- Very Soft
S	- Soft
F	- Firm
St	- Stiff
VSt	- Very Stiff
H	- Hard
VL	- Very Loose
L	- Loose
MD	- Medium Dense
D	- Dense
VD	- Very Dense

See Explanatory Notes for details of abbreviations & basis of descriptions.

SMEC AUSTRALIA

UPDATED SMEC LIBRARY_AGS 3_1 RTA 1_1 LIB 08_WITH FENCE TOOL_COLOUR.GLB Log SMEC EXCAVATION 3002523 CANBERRA BRICKWORKS.GPJ <<DrawingFile>> 20/10/2016 12:54 8.30.003

EXCAVATION - GEOLOGICAL LOG

PIT NO : M1

PROJECT : 3002523 | CLIENT : Land Development Agency | FILE / JOB NO : ara
LOCATION : Canberra Brickworks Blocks 1, 7 and 20 of Section 102 | FEATURE : Environmental | SHEET : 2 OF 2

POSITION : | SURFACE ELEVATION :

EQUIPMENT TYPE : | METHOD :

DATE EXCAVATED : | LOGGED BY : RO | CHECKED BY : GO

EXCAVATION DIMENSIONS :

DRILLING | MATERIAL

VE / E / PENETRATION / F / H	SUPPORT	GROUND WATER LEVELS	SAMPLES & FIELD TESTS	ELEVATION (RL) DEPTH (m)	GRAPHIC LOG	CLASSIFICATION SYMBOL	MATERIAL DESCRIPTION Soil Type, Colour, Plasticity or Particle Characteristic Secondary and Minor Components	MOISTURE CONDITION	CONSISTENCY RELATIVE DENSITY	STRUCTURE & Other Observations
				3.0			BEDROCK (40%) 1- 10MM SANDY GRAVELS , LIGHT BROWN FINE GRAVEL *(continued)*			
				3.5						
				4.0			4.00m BEDROCK (15%) 1- 5MM SANDY GRAVELS			
				4.5						
				5.0			BEDROCK GRAVELLY SNAD (10%) COARSE 1-3MM IN DIAMETER, LIGHT BROWN FINE GRAVEL			
				5.5			5.50m			
				6.0			6.00m EXCAVATION M1 TERMINATED AT 6.00 m			

PHOTOGRAPHS NOTES ☐ YES ☒ NO

METHOD
- N Natural Exposure
- E Existing Excavation
- BH Backhoe Bucket
- B Bulldozer Blade
- R Ripper

SUPPORT
- T Timbering

PENETRATION
VE E F H VH — No Resistance

WATER
10 Oct., 73 Water Level on Date shown
water inflow
water outflow

SAMPLES & FIELD TESTS
- U50 - Undisturbed Sample 50 mm diameter
- D - Disturbed Sample
- B - Bulk Disturbed Sample
- MC - Moisture Content
- HP - Hand Penetrometer (UCS kPa)
- VS - Vane Shear; P-Peak, R-Remouded (uncorrected kPa)
- PBT - Plate Bearing Test

CLASSIFICATION SYMBOLS & SOIL DESCRIPTION
Based on Unified Classification System

MOISTURE
- D - Dry
- M - Moist
- W - Wet

CONSISTENCY/ RELATIVE DENSITY

VS	- Very Soft
S	- Soft
F	- Firm
St	- Stiff
VSt	- Very Stiff
H	- Hard
VL	- Very Loose
L	- Loose
MD	- Medium Dense
D	- Dense
VD	- Very Dense

See Explanatory Notes for details of abbreviations & basis of descriptions.

SMEC AUSTRALIA

UPDATED SMEC LIBRARY_AGS 3_1 RTA 1_1 LIB 08_WITH FENCE TOOL_COLOUR.GLB Log SMEC EXCAVATION 3002523 CANBERRA BRICKWORKS.GPJ <<DrawingFile>> 20/10/2016 12:54 8.30.003

EXCAVATION - GEOLOGICAL LOG

PIT NO : M2

PROJECT : 3002523 | CLIENT : Land Development Agency | FILE / JOB NO : ara
LOCATION : Canberra Brickworks Blocks 1, 7 and 20 of Section 102 | FEATURE : Environmental | SHEET : 1 OF 2

POSITION : | SURFACE ELEVATION :

EQUIPMENT TYPE : | METHOD :

DATE EXCAVATED : | LOGGED BY : RO | CHECKED BY : GO

EXCAVATION DIMENSIONS :

DRILLING | MATERIAL

VE / PENETRATION / E / F / H	SUPPORT	GROUND WATER LEVELS	SAMPLES & FIELD TESTS	ELEVATION (RL) / DEPTH (m)	GRAPHIC LOG	CLASSIFICATION SYMBOL	MATERIAL DESCRIPTION Soil Type, Colour, Plasticity or Particle Characteristic Secondary and Minor Components	MOISTURE CONDITION	CONSISTENCY RELATIVE DENSITY	STRUCTURE & Other Observations
			0.20m AU-M2_0.2-0.3	0.0			CONCRETE			
							0.13m GRAVELLY SANDY CLAY , SLIGHTLY MOIST PLASTICITY PID 0.0 ppm			
				0.5						
							0.80m DARK BROWN WET SILTY CLAY MED PLASTICITY			
							0.90m BROWN ORANGE SILTY CLAY MEDIUM PLASTICITY PID 0.0 ppm			
				1.0						
							1.30m LOW PLASTICITY SILTY CLAY			
				1.5						
							1.70m LOW PLASTICITY YELLOW SILTY CLAY			
				2.0						
							2.30m SANDY GRAVELLY CLAY GRAVELS UP TO 5MM IN DIAMETER - YELLOW MUTTING LOW PLASTICITY			
				2.5						
							2.70m CLAYEY SAND			
				3.0			3.00m			

PHOTOGRAPHS NOTES ☐ YES ☒ NO

METHOD
- N Natural Exposure
- E Existing Excavation
- BH Backhoe Bucket
- B Bulldozer Blade
- R Ripper

SUPPORT
- T Timbering

PENETRATION
VE E F H VH — No Resistance

WATER
10 Oct., 73 Water Level on Date shown
water inflow
water outflow

SAMPLES & FIELD TESTS
- U50 - Undisturbed Sample 50 mm diameter
- D - Disturbed Sample
- B - Bulk Disturbed Sample
- MC - Moisture Content
- HP - Hand Penetrometer (UCS kPa)
- VS - Vane Shear; P-Peak, R-Remouded (uncorrected kPa)
- PBT - Plate Bearing Test

CLASSIFICATION SYMBOLS & SOIL DESCRIPTION
Based on Unified Classification System

MOISTURE
- D - Dry
- M - Moist
- W - Wet

CONSISTENCY/ RELATIVE DENSITY

VS	- Very Soft
S	- Soft
F	- Firm
St	- Stiff
VSt	- Very Stiff
H	- Hard
VL	- Very Loose
L	- Loose
MD	- Medium Dense
D	- Dense
VD	- Very Dense

See Explanatory Notes for details of abbreviations & basis of descriptions.

SMEC AUSTRALIA

UPDATED SMEC LIBRARY_AGS 3_1 RTA 1_1 LIB 08_WITH FENCE TOOL_COLOUR.GLB Log SMEC EXCAVATION 3002523 CANBERRA BRICKWORKS.GPJ <<DrawingFile>> 20/10/2016 12:54 8.30.003

EXCAVATION - GEOLOGICAL LOG

PIT NO : M2

PROJECT : 3002523 | CLIENT : Land Development Agency | FILE / JOB NO : ara
LOCATION : Canberra Brickworks Blocks 1, 7 and 20 of Section 102 | FEATURE : Environmental | SHEET : 2 OF 2

POSITION : | SURFACE ELEVATION :

EQUIPMENT TYPE : | METHOD :

DATE EXCAVATED : | LOGGED BY : RO | CHECKED BY : GO

EXCAVATION DIMENSIONS :

DRILLING						MATERIAL					
VE / E / F / H PENETRATION	SUPPORT	GROUND WATER LEVELS	SAMPLES & FIELD TESTS	ELEVATION (RL) DEPTH (m)	GRAPHIC LOG	CLASSIFICATION SYMBOL	MATERIAL DESCRIPTION Soil Type, Colour, Plasticity or Particle Characteristic Secondary and Minor Components	MOISTURE CONDITION	CONSISTENCY RELATIVE DENSITY	STRUCTURE & Other Observations
				3.0			WEATHERED ROCK - QUARTZ - FINE GRAVEL PID 0.0 ppm			
				3.5						
				4.0			4.00m EXCAVATION M2 TERMINATED AT 4.00 m			
				4.5						
				5.0						
				5.5						
				6.0						

PHOTOGRAPHS NOTES ☐ YES ☒ NO

METHOD
- N Natural Exposure
- E Existing Excavation
- BH Backhoe Bucket
- B Bulldozer Blade
- R Ripper

SUPPORT
- T Timbering

PENETRATION



No Resistance

WATER



10 Oct., 73 Water Level on Date shown
water inflow
water outflow

SAMPLES & FIELD TESTS
- U50 - Undisturbed Sample 50 mm diameter
- D - Disturbed Sample
- B - Bulk Disturbed Sample
- MC - Moisture Content
- HP - Hand Penetrometer (UCS kPa)
- VS - Vane Shear; P-Peak, R-Remouded (uncorrected kPa)
- PBT - Plate Bearing Test

CLASSIFICATION SYMBOLS & SOIL DESCRIPTION
Based on Unified Classification System

MOISTURE
- D - Dry
- M - Moist
- W - Wet

CONSISTENCY/ RELATIVE DENSITY

VS	- Very Soft
S	- Soft
F	- Firm
St	- Stiff
VSt	- Very Stiff
H	- Hard
VL	- Very Loose
L	- Loose
MD	- Medium Dense
D	- Dense
VD	- Very Dense

See Explanatory Notes for details of abbreviations & basis of descriptions.

SMEC AUSTRALIA

UPDATED SMEC LIBRARY_AGS 3_1 RTA 1_1 LIB 08_WITH FENCE TOOL_COLOUR.GLB Log SMEC EXCAVATION 3002523 CANBERRA BRICKWORKS.GPJ <<DrawingFile>> 20/10/2016 12:54 8.30.003

EXCAVATION - GEOLOGICAL LOG

PIT NO : M3

PROJECT : 3002523 | CLIENT : Land Development Agency | FILE / JOB NO : ara
LOCATION : Canberra Brickworks Blocks 1, 7 and 20 of Section 102 | FEATURE : Environmental | SHEET : 1 OF 2

POSITION : | SURFACE ELEVATION :

EQUIPMENT TYPE : | METHOD :

DATE EXCAVATED : | LOGGED BY : RO | CHECKED BY : GO

EXCAVATION DIMENSIONS :

DRILLING | MATERIAL

VE / E / F / H PENETRATION	SUPPORT	GROUND WATER LEVELS	SAMPLES & FIELD TESTS	ELEVATION (RL) DEPTH (m)	GRAPHIC LOG	CLASSIFICATION SYMBOL	MATERIAL DESCRIPTION Soil Type, Colour, Plasticity or Particle Characteristic Secondary and Minor Components	MOISTURE CONDITION	CONSISTENCY RELATIVE DENSITY	STRUCTURE & Other Observations
			0.20m AU-M3_0.2-0.3	0.0			FILL TOPSOIL			
							0.10m GRAVELLY SANDY CLAY BRICKS CONCRETE PID 0.1 ppm			
				0.5			0.80m POORLY GRADED SANDY GRAVEL			
				1.0			1.40m SANDY CLAY YELLOW TO BROWN PID 0.0 ppm			
				1.5						
				2.0			2.10m WET CLAYEY SANDY GRAVEL			
				2.5			2.80m SANDY CLAY			
				3.0						

PHOTOGRAPHS NOTES ☐ YES ☒ NO

METHOD
- N Natural Exposure
- E Existing Excavation
- BH Backhoe Bucket
- B Bulldozer Blade
- R Ripper

SUPPORT
- T Timbering

PENETRATION
VE E F H VH — No Resistance

WATER
10 Oct., 73 Water Level on Date shown
water inflow
water outflow

SAMPLES & FIELD TESTS
- U50 - Undisturbed Sample 50 mm diameter
- D - Disturbed Sample
- B - Bulk Disturbed Sample
- MC - Moisture Content
- HP - Hand Penetrometer (UCS kPa)
- VS - Vane Shear; P-Peak, R-Remouded (uncorrected kPa)
- PBT - Plate Bearing Test

CLASSIFICATION SYMBOLS & SOIL DESCRIPTION
Based on Unified Classification System

MOISTURE
- D - Dry
- M - Moist
- W - Wet

CONSISTENCY/ RELATIVE DENSITY

VS	- Very Soft
S	- Soft
F	- Firm
St	- Stiff
VSt	- Very Stiff
H	- Hard
VL	- Very Loose
L	- Loose
MD	- Medium Dense
D	- Dense
VD	- Very Dense

See Explanatory Notes for details of abbreviations & basis of descriptions.

SMEC AUSTRALIA

UPDATED SMEC LIBRARY_AGS 3_1 RTA 1_1 LIB 08_WITH FENCE TOOL_COLOUR.GLB Log SMEC EXCAVATION 3002523 CANBERRA BRICKWORKS.GPJ <<DrawingFile>> 20/10/2016 12:54 8.30.003

EXCAVATION - GEOLOGICAL LOG

PIT NO : M3

PROJECT : 3002523 | CLIENT : Land Development Agency | FILE / JOB NO : ara
LOCATION : Canberra Brickworks Blocks 1, 7 and 20 of Section 102 | FEATURE : Environmental | SHEET : 2 OF 2

POSITION : | SURFACE ELEVATION :

EQUIPMENT TYPE : | METHOD :

DATE EXCAVATED : | LOGGED BY : RO | CHECKED BY : GO

EXCAVATION DIMENSIONS :

DRILLING						MATERIAL					
VE / E / F / H PENETRATION	SUPPORT	GROUND WATER LEVELS	SAMPLES & FIELD TESTS	ELEVATION (RL) DEPTH (m)	GRAPHIC LOG	CLASSIFICATION SYMBOL	MATERIAL DESCRIPTION Soil Type, Colour, Plasticity or Particle Characteristic Secondary and Minor Components	MOISTURE CONDITION	CONSISTENCY RELATIVE DENSITY	STRUCTURE & Other Observations
				3.0			SANDY CLAY *(continued)*			
				3.5						
				4.0						
				4.5						
				4.80m			CLAYEY SAND YELLOW TO BROWN SOME ROCK FRAGMENTS			
				5.0						
				5.50m			EXCAVATION M3 TERMINATED AT 5.50 m			
				5.5						
				6.0						

PHOTOGRAPHS NOTES ☐ YES ☒ NO

METHOD
- N Natural Exposure
- E Existing Excavation
- BH Backhoe Bucket
- B Bulldozer Blade
- R Ripper

SUPPORT
- T Timbering

PENETRATION
VE E F H VH — No Resistance

WATER
10 Oct., 73 Water Level on Date shown
water inflow
water outflow

SAMPLES & FIELD TESTS
- U50 - Undisturbed Sample 50 mm diameter
- D - Disturbed Sample
- B - Bulk Disturbed Sample
- MC - Moisture Content
- HP - Hand Penetrometer (UCS kPa)
- VS - Vane Shear; P-Peak, R-Remouded (uncorrected kPa)
- PBT - Plate Bearing Test

CLASSIFICATION SYMBOLS & SOIL DESCRIPTION
Based on Unified Classification System

MOISTURE
- D - Dry
- M - Moist
- W - Wet

CONSISTENCY/ RELATIVE DENSITY

VS	- Very Soft
S	- Soft
F	- Firm
St	- Stiff
VSt	- Very Stiff
H	- Hard
VL	- Very Loose
L	- Loose
MD	- Medium Dense
D	- Dense
VD	- Very Dense

See Explanatory Notes for details of abbreviations & basis of descriptions.

SMEC AUSTRALIA

UPDATED SMEC LIBRARY_AGS 3_1 RTA 1_1 LIB 08_WITH FENCE TOOL_COLOUR.GLB Log SMEC EXCAVATION 3002523 CANBERRA BRICKWORKS.GPJ <<DrawingFile>> 20/10/2016 12:54 8.30.003

EXCAVATION - GEOLOGICAL LOG

PIT NO : M4

PROJECT : 3002523 | CLIENT : Land Development Agency | FILE / JOB NO : ara
LOCATION : Canberra Brickworks Blocks 1, 7 and 20 of Section 102 | FEATURE : Environmental | SHEET : 1 OF 2

POSITION : | SURFACE ELEVATION :

EQUIPMENT TYPE : | METHOD :

DATE EXCAVATED : | LOGGED BY : RO | CHECKED BY : GO

EXCAVATION DIMENSIONS :

DRILLING | MATERIAL

VE / E / PENETRATION / F / H	SUPPORT	GROUND WATER LEVELS	SAMPLES & FIELD TESTS	ELEVATION (RL) DEPTH (m)	GRAPHIC LOG	CLASSIFICATION SYMBOL	MATERIAL DESCRIPTION Soil Type, Colour, Plasticity or Particle Characteristic Secondary and Minor Components	MOISTURE CONDITION	CONSISTENCY RELATIVE DENSITY	STRUCTURE & Other Observations
				0.0			Fill Grass cover , sandy clay wih gravels medium plasticity PID 0.0 ppm			
							0.40m Fill sandy clay with gravels 5-12mm , pieces of bolt in fill PID 0.0 ppm			
				0.5			0.80m Wet light brown clay PID 0.0 ppm			
				1.0						
				1.5						
				2.0						
				2.5						
				3.0						

PHOTOGRAPHS NOTES ☐ YES ☒ NO

METHOD
- N Natural Exposure
- E Existing Excavation
- BH Backhoe Bucket
- B Bulldozer Blade
- R Ripper

SUPPORT
- T Timbering

PENETRATION
VE E F H VH — No Resistance

WATER
10 Oct., 73 Water Level on Date shown
water inflow
water outflow

SAMPLES & FIELD TESTS
- U50 - Undisturbed Sample 50 mm diameter
- D - Disturbed Sample
- B - Bulk Disturbed Sample
- MC - Moisture Content
- HP - Hand Penetrometer (UCS kPa)
- VS - Vane Shear; P-Peak, R-Remouded (uncorrected kPa)
- PBT - Plate Bearing Test

CLASSIFICATION SYMBOLS & SOIL DESCRIPTION
Based on Unified Classification System

MOISTURE
- D - Dry
- M - Moist
- W - Wet

CONSISTENCY/ RELATIVE DENSITY

VS	- Very Soft
S	- Soft
F	- Firm
St	- Stiff
VSt	- Very Stiff
H	- Hard
VL	- Very Loose
L	- Loose
MD	- Medium Dense
D	- Dense
VD	- Very Dense

See Explanatory Notes for details of abbreviations & basis of descriptions.

SMEC AUSTRALIA

UPDATED SMEC LIBRARY_AGS 3_1 RTA 1_1 LIB 08_WITH FENCE TOOL_COLOUR.GLB Log SMEC EXCAVATION 3002523 CANBERRA BRICKWORKS.GPJ <<DrawingFile>> 20/10/2016 12:54 8.30.003

EXCAVATION - GEOLOGICAL LOG

PIT NO : M4

PROJECT : 3002523 | CLIENT : Land Development Agency | FILE / JOB NO : ara
LOCATION : Canberra Brickworks Blocks 1, 7 and 20 of Section 102 | FEATURE : Environmental | SHEET : 2 OF 2

POSITION : | SURFACE ELEVATION :

EQUIPMENT TYPE : | METHOD :

DATE EXCAVATED : | LOGGED BY : RO | CHECKED BY : GO

EXCAVATION DIMENSIONS :

DRILLING | MATERIAL

VE / E / PENETRATION / F / H	SUPPORT	GROUND WATER LEVELS	SAMPLES & FIELD TESTS	ELEVATION (RL) DEPTH (m)	GRAPHIC LOG	CLASSIFICATION SYMBOL	MATERIAL DESCRIPTION Soil Type, Colour, Plasticity or Particle Characteristic Secondary and Minor Components	MOISTURE CONDITION	CONSISTENCY RELATIVE DENSITY	STRUCTURE & Other Observations
				3.0			Wet light brown clay PID 0.0 ppm *(continued)*			
				3.5						
				4.0			4.00m EXCAVATION M4 TERMINATED AT 4.00 m			
				4.5						
				5.0						
				5.5						
				6.0						

PHOTOGRAPHS NOTES ☐ YES ☒ NO

METHOD
- N Natural Exposure
- E Existing Excavation
- BH Backhoe Bucket
- B Bulldozer Blade
- R Ripper

SUPPORT
- T Timbering

PENETRATION
VE E F H VH — No Resistance

WATER
10 Oct., 73 Water Level on Date shown
water inflow
water outflow

SAMPLES & FIELD TESTS
- U50 - Undisturbed Sample 50 mm diameter
- D - Disturbed Sample
- B - Bulk Disturbed Sample
- MC - Moisture Content
- HP - Hand Penetrometer (UCS kPa)
- VS - Vane Shear; P-Peak, R-Remouded (uncorrected kPa)
- PBT - Plate Bearing Test

CLASSIFICATION SYMBOLS & SOIL DESCRIPTION
Based on Unified Classification System

MOISTURE
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CONSISTENCY/ RELATIVE DENSITY

VS	- Very Soft
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VSt	- Very Stiff
H	- Hard
VL	- Very Loose
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VD	- Very Dense

See Explanatory Notes for details of abbreviations & basis of descriptions.

SMEC AUSTRALIA

UPDATED SMEC LIBRARY_AGS 3_1 RTA 1_1 LIB 08_WITH FENCE TOOL_COLOUR.GLB Log SMEC EXCAVATION 3002523 CANBERRA BRICKWORKS.GPJ <<DrawingFile>> 20/10/2016 12:54 8.30.003

EXCAVATION - GEOLOGICAL LOG

PIT NO : M5

PROJECT : 3002523 | CLIENT : Land Development Agency | FILE / JOB NO : ara
LOCATION : Canberra Brickworks Blocks 1, 7 and 20 of Section 102 | FEATURE : Environmental | SHEET : 1 OF 2

POSITION : | SURFACE ELEVATION :

EQUIPMENT TYPE : | METHOD :

DATE EXCAVATED : | LOGGED BY : RO | CHECKED BY : GO

EXCAVATION DIMENSIONS :

DRILLING | MATERIAL

VE / PENETRATION / E / F / H	SUPPORT	GROUND WATER LEVELS	SAMPLES & FIELD TESTS	ELEVATION (RL) DEPTH (m)	GRAPHIC LOG	CLASSIFICATION SYMBOL	MATERIAL DESCRIPTION Soil Type, Colour, Plasticity or Particle Characteristic Secondary and Minor Components	MOISTURE CONDITION	CONSISTENCY RELATIVE DENSITY	STRUCTURE & Other Observations
			0.40m AU-M5_0.4-0.5	0.0			Fill - sandy gravelly light brown clay , some gravel PID 0.0 ppm			
				0.30m			Fill - silty sandy clay , light brown medium plasticity PID 0.0 ppm			
				0.5						
				0.70m			Siltstone rock , very fine medium soft light grey brown			
				1.0						
				1.50m			Light grey limestone PID 0.0 ppm			
				1.5						
				2.0						
				2.20m			Siltstone , light brown, highly weathered , dry PID 0.0 ppm			
				2.5						
				3.0						

PHOTOGRAPHS NOTES ☐ YES ☒ NO

METHOD
- N Natural Exposure
- E Existing Excavation
- BH Backhoe Bucket
- B Bulldozer Blade
- R Ripper

SUPPORT
- T Timbering

PENETRATION
VE E F H VH — No Resistance

WATER
10 Oct., 73 Water Level on Date shown
water inflow
water outflow

SAMPLES & FIELD TESTS
- U50 - Undisturbed Sample 50 mm diameter
- D - Disturbed Sample
- B - Bulk Disturbed Sample
- MC - Moisture Content
- HP - Hand Penetrometer (UCS kPa)
- VS - Vane Shear; P-Peak, R-Remouded (uncorrected kPa)
- PBT - Plate Bearing Test

CLASSIFICATION SYMBOLS & SOIL DESCRIPTION
Based on Unified Classification System

MOISTURE
- D - Dry
- M - Moist
- W - Wet

CONSISTENCY/ RELATIVE DENSITY

VS	- Very Soft
S	- Soft
F	- Firm
St	- Stiff
VSt	- Very Stiff
H	- Hard
VL	- Very Loose
L	- Loose
MD	- Medium Dense
D	- Dense
VD	- Very Dense

See Explanatory Notes for details of abbreviations & basis of descriptions.

SMEC AUSTRALIA

UPDATED SMEC LIBRARY_AGS 3_1 RTA 1_1 LIB 08_WITH FENCE TOOL_COLOUR.GLB Log SMEC EXCAVATION 3002523 CANBERRA BRICKWORKS.GPJ <<DrawingFile>> 20/10/2016 12:54 8.30.003

EXCAVATION - GEOLOGICAL LOG

PIT NO : M5

PROJECT : 3002523 | CLIENT : Land Development Agency | FILE / JOB NO : ara
LOCATION : Canberra Brickworks Blocks 1, 7 and 20 of Section 102 | FEATURE : Environmental | SHEET : 2 OF 2

POSITION : | SURFACE ELEVATION :

EQUIPMENT TYPE : | METHOD :

DATE EXCAVATED : | LOGGED BY : RO | CHECKED BY : GO

EXCAVATION DIMENSIONS :

DRILLING | MATERIAL

VE / E / PENETRATION / F / H	SUPPORT	GROUND WATER LEVELS	SAMPLES & FIELD TESTS	ELEVATION (RL) DEPTH (m)	GRAPHIC LOG	CLASSIFICATION SYMBOL	MATERIAL DESCRIPTION Soil Type, Colour, Plasticity or Particle Characteristic Secondary and Minor Components	MOISTURE CONDITION	CONSISTENCY RELATIVE DENSITY	STRUCTURE & Other Observations
				3.0			Siltstone , light brown, highly weathered , dry PID 0.0 ppm *(continued)*			
				3.50m						
				3.5			Silty clay , brown moist, medium to high plasticity PID 0.0 ppm			
				4.0						
				4.5						
				5.0						
				5.50m						
				5.5			EXCAVATION M5 TERMINATED AT 5.50 m			
				6.0						

PHOTOGRAPHS NOTES ☐ YES ☒ NO

METHOD
- N Natural Exposure
- E Existing Excavation
- BH Backhoe Bucket
- B Bulldozer Blade
- R Ripper

SUPPORT
- T Timbering

PENETRATION



WATER



SAMPLES & FIELD TESTS
- U50 - Undisturbed Sample 50 mm diameter
- D - Disturbed Sample
- B - Bulk Disturbed Sample
- MC - Moisture Content
- HP - Hand Penetrometer (UCS kPa)
- VS - Vane Shear; P-Peak, R-Remouded (uncorrected kPa)
- PBT - Plate Bearing Test

CLASSIFICATION SYMBOLS & SOIL DESCRIPTION
Based on Unified Classification System

MOISTURE
- D - Dry
- M - Moist
- W - Wet

CONSISTENCY/ RELATIVE DENSITY

VS	- Very Soft
S	- Soft
F	- Firm
St	- Stiff
VSt	- Very Stiff
H	- Hard
VL	- Very Loose
L	- Loose
MD	- Medium Dense
D	- Dense
VD	- Very Dense

See Explanatory Notes for details of abbreviations & basis of descriptions.

SMEC AUSTRALIA

UPDATED SMEC LIBRARY_AGS 3_1 RTA 1_1 LIB 08_WITH FENCE TOOL_COLOUR.GLB Log SMEC EXCAVATION 3002523 CANBERRA BRICKWORKS.GPJ <<DrawingFile>> 20/10/2016 12:54 8.30.003

EXCAVATION - GEOLOGICAL LOG

PIT NO : M6

PROJECT : 3002523 | CLIENT : Land Development Agency | FILE / JOB NO : ara
LOCATION : Canberra Brickworks Blocks 1, 7 and 20 of Section 102 | FEATURE : Environmental | SHEET : 1 OF 5

POSITION : | SURFACE ELEVATION :

EQUIPMENT TYPE : | METHOD :

DATE EXCAVATED : | LOGGED BY : RO | CHECKED BY : GO

EXCAVATION DIMENSIONS :

DRILLING | MATERIAL

VE / PENETRATION / E / F / H	SUPPORT	GROUND WATER LEVELS	SAMPLES & FIELD TESTS	ELEVATION (RL) DEPTH (m)	GRAPHIC LOG	CLASSIFICATION SYMBOL	MATERIAL DESCRIPTION Soil Type, Colour, Plasticity or Particle Characteristic Secondary and Minor Components	MOISTURE CONDITION	CONSISTENCY RELATIVE DENSITY	STRUCTURE & Other Observations
			0.30m AU-M6_0.3-0.4	0.0			Fill - gravelly sandy clay , gravels 1-5mm PID 0.8 ppm			
				0.5			0.60m Brown siltstone			
				1.0						
				1.5			1.70m Extremely weathered shale PID 0.1 ppm			
				2.0						
				2.5						
				3.0						

PHOTOGRAPHS NOTES ☐ YES ☒ NO

METHOD
- N Natural Exposure
- E Existing Excavation
- BH Backhoe Bucket
- B Bulldozer Blade
- R Ripper

SUPPORT
- T Timbering

PENETRATION
VE E F H VH — No Resistance

WATER
10 Oct., 73 Water Level on Date shown
water inflow
water outflow

SAMPLES & FIELD TESTS
- U50 - Undisturbed Sample 50 mm diameter
- D - Disturbed Sample
- B - Bulk Disturbed Sample
- MC - Moisture Content
- HP - Hand Penetrometer (UCS kPa)
- VS - Vane Shear; P-Peak, R-Remouded (uncorrected kPa)
- PBT - Plate Bearing Test

CLASSIFICATION SYMBOLS & SOIL DESCRIPTION
Based on Unified Classification System

MOISTURE
- D - Dry
- M - Moist
- W - Wet

CONSISTENCY/ RELATIVE DENSITY

VS	- Very Soft
S	- Soft
F	- Firm
St	- Stiff
VSt	- Very Stiff
H	- Hard
VL	- Very Loose
L	- Loose
MD	- Medium Dense
D	- Dense
VD	- Very Dense

See Explanatory Notes for details of abbreviations & basis of descriptions.

SMEC AUSTRALIA

UPDATED SMEC LIBRARY_AGS 3_1 RTA 1_1 LIB 08_WITH FENCE TOOL_COLOUR.GLB Log SMEC EXCAVATION 3002523 CANBERRA BRICKWORKS.GPJ <<DrawingFile>> 20/10/2016 12:54 8.30.003

EXCAVATION - GEOLOGICAL LOG

PIT NO : M6

PROJECT : 3002523 | CLIENT : Land Development Agency | FILE / JOB NO : ara
LOCATION : Canberra Brickworks Blocks 1, 7 and 20 of Section 102 | FEATURE : Environmental | SHEET : 2 OF 5

POSITION : | SURFACE ELEVATION :

EQUIPMENT TYPE : | METHOD :

DATE EXCAVATED : | LOGGED BY : RO | CHECKED BY : GO

EXCAVATION DIMENSIONS :

DRILLING | MATERIAL

VE / E / PENETRATION / F / H	SUPPORT	GROUND WATER LEVELS	SAMPLES & FIELD TESTS	ELEVATION (RL) DEPTH (m)	GRAPHIC LOG	CLASSIFICATION SYMBOL	MATERIAL DESCRIPTION Soil Type, Colour, Plasticity or Particle Characteristic Secondary and Minor Components	MOISTURE CONDITION	CONSISTENCY RELATIVE DENSITY	STRUCTURE & Other Observations
				3.0			Extremely weathered shale PID 0.1 ppm *(continued)*			
				3.50m						
				3.5			Weathered siltstone , light brown PID 0.0 pppm			
				4.0						
				4.5						
				5.0						
				5.50m						
				5.5			Layers of limestone , wash box from 5.5m			
				6.0						

PHOTOGRAPHS NOTES ☐ YES ☒ NO

METHOD
- N Natural Exposure
- E Existing Excavation
- BH Backhoe Bucket
- B Bulldozer Blade
- R Ripper

SUPPORT
- T Timbering

PENETRATION



WATER



SAMPLES & FIELD TESTS
- U50 - Undisturbed Sample 50 mm diameter
- D - Disturbed Sample
- B - Bulk Disturbed Sample
- MC - Moisture Content
- HP - Hand Penetrometer (UCS kPa)
- VS - Vane Shear; P-Peak, R-Remouded (uncorrected kPa)
- PBT - Plate Bearing Test

CLASSIFICATION SYMBOLS & SOIL DESCRIPTION
Based on Unified Classification System

MOISTURE
- D - Dry
- M - Moist
- W - Wet

CONSISTENCY/ RELATIVE DENSITY

VS	- Very Soft
S	- Soft
F	- Firm
St	- Stiff
VSt	- Very Stiff
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L	- Loose
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D	- Dense
VD	- Very Dense

See Explanatory Notes for details of abbreviations & basis of descriptions.

SMEC AUSTRALIA

UPDATED SMEC LIBRARY_AGS 3_1 RTA 1_1 LIB 08_WITH FENCE TOOL_COLOUR.GLB Log SMEC EXCAVATION 3002523 CANBERRA BRICKWORKS.GPJ <<DrawingFile>> 20/10/2016 12:54 8.30.003

EXCAVATION - GEOLOGICAL LOG

PIT NO : M6

PROJECT : 3002523 | CLIENT : Land Development Agency | FILE / JOB NO : ara
LOCATION : Canberra Brickworks Blocks 1, 7 and 20 of Section 102 | FEATURE : Environmental | SHEET : 3 OF 5

POSITION : | SURFACE ELEVATION :

EQUIPMENT TYPE : | METHOD :

DATE EXCAVATED : | LOGGED BY : RO | CHECKED BY : GO

EXCAVATION DIMENSIONS :

DRILLING						MATERIAL					
VE / E / PENETRATION / F / H	SUPPORT	GROUND WATER LEVELS	SAMPLES & FIELD TESTS	ELEVATION (RL) DEPTH (m)	GRAPHIC LOG	CLASSIFICATION SYMBOL	MATERIAL DESCRIPTION Soil Type, Colour, Plasticity or Particle Characteristic Secondary and Minor Components	MOISTURE CONDITION	CONSISTENCY RELATIVE DENSITY	STRUCTURE & Other Observations
				6.0			Layers of limestone , wash box from 5.5m *(continued)*			
				6.5						
				7.0						
				7.5						
				8.0						
				8.5						
				9.0						

PHOTOGRAPHS NOTES ☐ YES ☒ NO

METHOD
- N Natural Exposure
- E Existing Excavation
- BH Backhoe Bucket
- B Bulldozer Blade
- R Ripper

SUPPORT
- T Timbering

PENETRATION
VE E F H VH — No Resistance

WATER
10 Oct., 73 Water Level on Date shown
water inflow
water outflow

SAMPLES & FIELD TESTS
- U50 - Undisturbed Sample 50 mm diameter
- D - Disturbed Sample
- B - Bulk Disturbed Sample
- MC - Moisture Content
- HP - Hand Penetrometer (UCS kPa)
- VS - Vane Shear; P-Peak, R-Remouded (uncorrected kPa)
- PBT - Plate Bearing Test

CLASSIFICATION SYMBOLS & SOIL DESCRIPTION
Based on Unified Classification System

MOISTURE
- D - Dry
- M - Moist
- W - Wet

CONSISTENCY/ RELATIVE DENSITY

VS	- Very Soft
S	- Soft
F	- Firm
St	- Stiff
VSt	- Very Stiff
H	- Hard
VL	- Very Loose
L	- Loose
MD	- Medium Dense
D	- Dense
VD	- Very Dense

See Explanatory Notes for details of abbreviations & basis of descriptions.

SMEC AUSTRALIA

UPDATED SMEC LIBRARY_AGS 3_1 RTA 1_1 LIB 08_WITH FENCE TOOL_COLOUR.GLB Log SMEC EXCAVATION 3002523 CANBERRA BRICKWORKS.GPJ <<DrawingFile>> 20/10/2016 12:54 8.30.003

EXCAVATION - GEOLOGICAL LOG

PIT NO : M6

PROJECT : 3002523 | CLIENT : Land Development Agency | FILE / JOB NO : ara
LOCATION : Canberra Brickworks Blocks 1, 7 and 20 of Section 102 | FEATURE : Environmental | SHEET : 4 OF 5

POSITION : | SURFACE ELEVATION :

EQUIPMENT TYPE : | METHOD :

DATE EXCAVATED : | LOGGED BY : RO | CHECKED BY : GO

EXCAVATION DIMENSIONS :

DRILLING					MATERIAL					
PENETRATION (VE, E, F, H)	SUPPORT	GROUND WATER LEVELS	SAMPLES & FIELD TESTS	ELEVATION (RL) DEPTH (m)	GRAPHIC LOG	CLASSIFICATION SYMBOL	MATERIAL DESCRIPTION Soil Type, Colour, Plasticity or Particle Characteristic Secondary and Minor Components	MOISTURE CONDITION	CONSISTENCY RELATIVE DENSITY	STRUCTURE & Other Observations
				9.0			Layers of limestone , wash box from 5.5m *(continued)*			
				9.5						
				10.0						
				10.5						
				11.0						
				11.5						
				12.0						

PHOTOGRAPHS NOTES ☐ YES ☒ NO

METHOD
- N Natural Exposure
- E Existing Excavation
- BH Backhoe Bucket
- B Bulldozer Blade
- R Ripper

SUPPORT
- T Timbering

PENETRATION
VE E F H VH — No Resistance

WATER
10 Oct., 73 Water Level on Date shown
water inflow
water outflow

SAMPLES & FIELD TESTS
- U50 - Undisturbed Sample 50 mm diameter
- D - Disturbed Sample
- B - Bulk Disturbed Sample
- MC - Moisture Content
- HP - Hand Penetrometer (UCS kPa)
- VS - Vane Shear; P-Peak, R-Remouded (uncorrected kPa)
- PBT - Plate Bearing Test

CLASSIFICATION SYMBOLS & SOIL DESCRIPTION
Based on Unified Classification System

MOISTURE
- D - Dry
- M - Moist
- W - Wet

CONSISTENCY/ RELATIVE DENSITY

VS	- Very Soft
S	- Soft
F	- Firm
St	- Stiff
VSt	- Very Stiff
H	- Hard
VL	- Very Loose
L	- Loose
MD	- Medium Dense
D	- Dense
VD	- Very Dense

See Explanatory Notes for details of abbreviations & basis of descriptions.

SMEC AUSTRALIA

UPDATED SMEC LIBRARY_AGS 3_1 RTA 1_1 LIB 08_WITH FENCE TOOL_COLOUR.GLB Log SMEC EXCAVATION 3002523 CANBERRA BRICKWORKS.GPJ <<DrawingFile>> 20/10/2016 12:54 8.30.003

EXCAVATION - GEOLOGICAL LOG

PIT NO : M6

PROJECT : 3002523 | CLIENT : Land Development Agency | FILE / JOB NO : ara
LOCATION : Canberra Brickworks Blocks 1, 7 and 20 of Section 102 | FEATURE : Environmental | SHEET : 5 OF 5

POSITION : | SURFACE ELEVATION :

EQUIPMENT TYPE : | METHOD :

DATE EXCAVATED : | LOGGED BY : RO | CHECKED BY : GO

EXCAVATION DIMENSIONS :

DRILLING					MATERIAL					
PENETRATION VE E F H	SUPPORT	GROUND WATER LEVELS	SAMPLES & FIELD TESTS	ELEVATION (RL) DEPTH (m)	GRAPHIC LOG	CLASSIFICATION SYMBOL	MATERIAL DESCRIPTION Soil Type, Colour, Plasticity or Particle Characteristic Secondary and Minor Components	MOISTURE CONDITION	CONSISTENCY RELATIVE DENSITY	STRUCTURE & Other Observations
				12.0			Layers of limestone , wash box from 5.5m *(continued)*			
				12.5						
				13.0						
				13.5						
				14.0						
				14.5						
				15.0			15.00m			

PHOTOGRAPHS NOTES ☐ YES ☒ NO

EXCAVATION M6 TERMINATED AT 15.00 m

METHOD

N Natural Exposure
E Existing Excavation
BH Backhoe Bucket
B Bulldozer Blade
R Ripper

SUPPORT

T Timbering

PENETRATION

VE E F H VH — No Resistance

WATER

10 Oct., 73 Water Level on Date shown
water inflow
water outflow

SAMPLES & FIELD TESTS

U50 - Undisturbed Sample 50 mm diameter
D - Disturbed Sample
B - Bulk Disturbed Sample
MC - Moisture Content
HP - Hand Penetrometer (UCS kPa)
VS - Vane Shear; P-Peak, R-Remouded (uncorrected kPa)
PBT - Plate Bearing Test

CLASSIFICATION SYMBOLS & SOIL DESCRIPTION

Based on Unified Classification System

MOISTURE

D - Dry
M - Moist
W - Wet

CONSISTENCY/ RELATIVE DENSITY

VS	- Very Soft
S	- Soft
F	- Firm
St	- Stiff
VSt	- Very Stiff
H	- Hard
VL	- Very Loose
L	- Loose
MD	- Medium Dense
D	- Dense
VD	- Very Dense

See Explanatory Notes for details of abbreviations & basis of descriptions.

SMEC AUSTRALIA

UPDATED SMEC LIBRARY_AGS 3_1 RTA 1_1 LIB 08_WITH FENCE TOOL_COLOUR.GLB Log SMEC EXCAVATION 3002523 CANBERRA BRICKWORKS.GPJ <<DrawingFile>> 20/10/2016 12:54 8.30.003

EXCAVATION - GEOLOGICAL LOG

PIT NO : M7

PROJECT : 3002523 | CLIENT : Land Development Agency | FILE / JOB NO : ara
LOCATION : Canberra Brickworks Blocks 1, 7 and 20 of Section 102 | FEATURE : Environmental | SHEET : 1 OF 5

POSITION : | SURFACE ELEVATION :

EQUIPMENT TYPE : | METHOD :

DATE EXCAVATED : | LOGGED BY : RO | CHECKED BY : GO

EXCAVATION DIMENSIONS :

DRILLING						MATERIAL					
VE / E / F / H PENETRATION	SUPPORT	GROUND WATER LEVELS	SAMPLES & FIELD TESTS	ELEVATION (RL) DEPTH (m)	GRAPHIC LOG	CLASSIFICATION SYMBOL	MATERIAL DESCRIPTION Soil Type, Colour, Plasticity or Particle Characteristic Secondary and Minor Components	MOISTURE CONDITION	CONSISTENCY RELATIVE DENSITY	STRUCTURE & Other Observations
			0.20m AU-M7_0.2-0.3	0.0			Orange brown , moist sandy clay medium plasticity PID 0.0 ppm			
				0.5						
							0.80m Brown silty sandy clay , moist medium plasticity PID 0.0 ppm			
				1.0						
				1.5			1.60m Rock			
				2.0						
				2.5						
				3.0						

PHOTOGRAPHS NOTES ☐ YES ☒ NO

METHOD
- N Natural Exposure
- E Existing Excavation
- BH Backhoe Bucket
- B Bulldozer Blade
- R Ripper

SUPPORT
- T Timbering

PENETRATION
VE E F H VH — No Resistance

WATER
10 Oct., 73 Water Level on Date shown
water inflow
water outflow

SAMPLES & FIELD TESTS
- U50 - Undisturbed Sample 50 mm diameter
- D - Disturbed Sample
- B - Bulk Disturbed Sample
- MC - Moisture Content
- HP - Hand Penetrometer (UCS kPa)
- VS - Vane Shear; P-Peak, R-Remouded (uncorrected kPa)
- PBT - Plate Bearing Test

CLASSIFICATION SYMBOLS & SOIL DESCRIPTION
Based on Unified Classification System

MOISTURE
- D - Dry
- M - Moist
- W - Wet

CONSISTENCY/ RELATIVE DENSITY

VS	- Very Soft
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VSt	- Very Stiff
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L	- Loose
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D	- Dense
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See Explanatory Notes for details of abbreviations & basis of descriptions.

SMEC AUSTRALIA

UPDATED SMEC LIBRARY_AGS 3_1 RTA 1_1 LIB 08_WITH FENCE TOOL_COLOUR.GLB Log SMEC EXCAVATION 3002523 CANBERRA BRICKWORKS.GPJ <<DrawingFile>> 20/10/2016 12:54 8.30.003

EXCAVATION - GEOLOGICAL LOG

PIT NO : M7

PROJECT : 3002523 | CLIENT : Land Development Agency | FILE / JOB NO : ara
LOCATION : Canberra Brickworks Blocks 1, 7 and 20 of Section 102 | FEATURE : Environmental | SHEET : 2 OF 5

POSITION : | SURFACE ELEVATION :

EQUIPMENT TYPE : | METHOD :

DATE EXCAVATED : | LOGGED BY : RO | CHECKED BY : GO

EXCAVATION DIMENSIONS :

DRILLING						MATERIAL					
VE / E / PENETRATION / F / H	SUPPORT	GROUND WATER LEVELS	SAMPLES & FIELD TESTS	ELEVATION (RL) DEPTH (m)	GRAPHIC LOG	CLASSIFICATION SYMBOL	MATERIAL DESCRIPTION Soil Type, Colour, Plasticity or Particle Characteristic Secondary and Minor Components	MOISTURE CONDITION	CONSISTENCY RELATIVE DENSITY	STRUCTURE & Other Observations	
				3.0			Rock *(continued)*				
				3.5							
				4.0							
				4.5							
				5.0							
				5.5							
				6.0							

PHOTOGRAPHS NOTES ☐ YES ☒ NO

METHOD
- N Natural Exposure
- E Existing Excavation
- BH Backhoe Bucket
- B Bulldozer Blade
- R Ripper

SUPPORT
- T Timbering

PENETRATION



No Resistance

WATER



10 Oct., 73 Water Level on Date shown
water inflow
water outflow

SAMPLES & FIELD TESTS
- U50 - Undisturbed Sample 50 mm diameter
- D - Disturbed Sample
- B - Bulk Disturbed Sample
- MC - Moisture Content
- HP - Hand Penetrometer (UCS kPa)
- VS - Vane Shear; P-Peak, R-Remouded (uncorrected kPa)
- PBT - Plate Bearing Test

CLASSIFICATION SYMBOLS & SOIL DESCRIPTION
Based on Unified Classification System

MOISTURE
- D - Dry
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CONSISTENCY/ RELATIVE DENSITY

VS	- Very Soft
S	- Soft
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See Explanatory Notes for details of abbreviations & basis of descriptions.

SMEC AUSTRALIA

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EXCAVATION - GEOLOGICAL LOG

PIT NO : M7

PROJECT : 3002523 | CLIENT : Land Development Agency | FILE / JOB NO : ara
LOCATION : Canberra Brickworks Blocks 1, 7 and 20 of Section 102 | FEATURE : Environmental | SHEET : 3 OF 5

POSITION : | SURFACE ELEVATION :

EQUIPMENT TYPE : | METHOD :

DATE EXCAVATED : | LOGGED BY : RO | CHECKED BY : GO

EXCAVATION DIMENSIONS :

DRILLING | MATERIAL

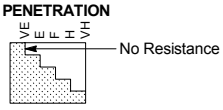
VE / E / PENETRATION / F / H	SUPPORT	GROUND WATER LEVELS	SAMPLES & FIELD TESTS	ELEVATION (RL) DEPTH (m)	GRAPHIC LOG	CLASSIFICATION SYMBOL	MATERIAL DESCRIPTION Soil Type, Colour, Plasticity or Particle Characteristic Secondary and Minor Components	MOISTURE CONDITION	CONSISTENCY RELATIVE DENSITY	STRUCTURE & Other Observations
				6.0			Rock *(continued)*			
				6.5						
				7.0						
				7.5						
				8.0						
				8.5						
				9.0						

PHOTOGRAPHS NOTES ☐ YES ☒ NO

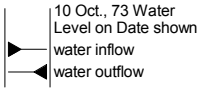
METHOD
- N Natural Exposure
- E Existing Excavation
- BH Backhoe Bucket
- B Bulldozer Blade
- R Ripper

SUPPORT
- T Timbering

PENETRATION



WATER



SAMPLES & FIELD TESTS
- U50 - Undisturbed Sample 50 mm diameter
- D - Disturbed Sample
- B - Bulk Disturbed Sample
- MC - Moisture Content
- HP - Hand Penetrometer (UCS kPa)
- VS - Vane Shear; P-Peak, R-Remouded (uncorrected kPa)
- PBT - Plate Bearing Test

CLASSIFICATION SYMBOLS & SOIL DESCRIPTION
Based on Unified Classification System

MOISTURE
- D - Dry
- M - Moist
- W - Wet

CONSISTENCY/ RELATIVE DENSITY

VS	- Very Soft
S	- Soft
F	- Firm
St	- Stiff
VSt	- Very Stiff
H	- Hard
VL	- Very Loose
L	- Loose
MD	- Medium Dense
D	- Dense
VD	- Very Dense

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SMEC AUSTRALIA

UPDATED SMEC LIBRARY_AGS 3_1 RTA 1_1 LIB 08_WITH FENCE TOOL_COLOUR.GLB Log SMEC EXCAVATION 3002523 CANBERRA BRICKWORKS.GPJ <<DrawingFile>> 20/10/2016 12:54 8.30.003

EXCAVATION - GEOLOGICAL LOG

PIT NO : M7

PROJECT : 3002523 | CLIENT : Land Development Agency | FILE / JOB NO : ara
LOCATION : Canberra Brickworks Blocks 1, 7 and 20 of Section 102 | FEATURE : Environmental | SHEET : 4 OF 5

POSITION : | SURFACE ELEVATION :

EQUIPMENT TYPE : | METHOD :

DATE EXCAVATED : | LOGGED BY : RO | CHECKED BY : GO

EXCAVATION DIMENSIONS :

DRILLING						MATERIAL					
VE / E / PENETRATION / F / H	SUPPORT	GROUND WATER LEVELS	SAMPLES & FIELD TESTS	ELEVATION (RL) DEPTH (m)	GRAPHIC LOG	CLASSIFICATION SYMBOL	MATERIAL DESCRIPTION Soil Type, Colour, Plasticity or Particle Characteristic Secondary and Minor Components	MOISTURE CONDITION	CONSISTENCY RELATIVE DENSITY	STRUCTURE & Other Observations
				9.0			Rock *(continued)*			
				9.5			9.50m Wash boring			
				10.0						
				10.5						
				11.0						
				11.5						
				12.0						

PHOTOGRAPHS NOTES ☐ YES ☒ NO

METHOD
- N Natural Exposure
- E Existing Excavation
- BH Backhoe Bucket
- B Bulldozer Blade
- R Ripper

SUPPORT
- T Timbering

PENETRATION



No Resistance

WATER



10 Oct., 73 Water Level on Date shown
water inflow
water outflow

SAMPLES & FIELD TESTS
- U50 - Undisturbed Sample 50 mm diameter
- D - Disturbed Sample
- B - Bulk Disturbed Sample
- MC - Moisture Content
- HP - Hand Penetrometer (UCS kPa)
- VS - Vane Shear; P-Peak, R-Remouded (uncorrected kPa)
- PBT - Plate Bearing Test

CLASSIFICATION SYMBOLS & SOIL DESCRIPTION
Based on Unified Classification System

MOISTURE
- D - Dry
- M - Moist
- W - Wet

CONSISTENCY/ RELATIVE DENSITY

VS	- Very Soft
S	- Soft
F	- Firm
St	- Stiff
VSt	- Very Stiff
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See Explanatory Notes for details of abbreviations & basis of descriptions.

SMEC AUSTRALIA

UPDATED SMEC LIBRARY_AGS 3_1 RTA 1_1 LIB 08_WITH FENCE TOOL_COLOUR.GLB Log SMEC EXCAVATION 3002523 CANBERRA BRICKWORKS.GPJ <<DrawingFile>> 20/10/2016 12:54 8.30.003

EXCAVATION - GEOLOGICAL LOG

PIT NO : M7

PROJECT : 3002523 | CLIENT : Land Development Agency | FILE / JOB NO : ara
LOCATION : Canberra Brickworks Blocks 1, 7 and 20 of Section 102 | FEATURE : Environmental | SHEET : 5 OF 5

POSITION : | SURFACE ELEVATION :

EQUIPMENT TYPE : | METHOD :

DATE EXCAVATED : | LOGGED BY : RO | CHECKED BY : GO

EXCAVATION DIMENSIONS :

DRILLING						MATERIAL				
VE / E / PENETRATION / F / H	SUPPORT	GROUND WATER LEVELS	SAMPLES & FIELD TESTS	ELEVATION (RL) DEPTH (m)	GRAPHIC LOG	CLASSIFICATION SYMBOL	MATERIAL DESCRIPTION Soil Type, Colour, Plasticity or Particle Characteristic Secondary and Minor Components	MOISTURE CONDITION	CONSISTENCY RELATIVE DENSITY	STRUCTURE & Other Observations
				12.0			Wash boring *(continued)*			
				12.5						
				13.0						
				13.5						
				14.0						
				14.5						
				15.0			15.00m			

PHOTOGRAPHS NOTES ☐ YES ☒ NO

EXCAVATION M7 TERMINATED AT 15.00 m

METHOD

N Natural Exposure
E Existing Excavation
BH Backhoe Bucket
B Bulldozer Blade
R Ripper

SUPPORT

T Timbering

PENETRATION

VE E F H VH — No Resistance

WATER

10 Oct., 73 Water Level on Date shown
water inflow
water outflow

SAMPLES & FIELD TESTS

U50 - Undisturbed Sample 50 mm diameter
D - Disturbed Sample
B - Bulk Disturbed Sample
MC - Moisture Content
HP - Hand Penetrometer (UCS kPa)
VS - Vane Shear; P-Peak, R-Remouded (uncorrected kPa)
PBT - Plate Bearing Test

CLASSIFICATION SYMBOLS & SOIL DESCRIPTION

Based on Unified Classification System

MOISTURE

D - Dry
M - Moist
W - Wet

CONSISTENCY/ RELATIVE DENSITY

VS	- Very Soft
S	- Soft
F	- Firm
St	- Stiff
VSt	- Very Stiff
H	- Hard
VL	- Very Loose
L	- Loose
MD	- Medium Dense
D	- Dense
VD	- Very Dense

See Explanatory Notes for details of abbreviations & basis of descriptions.

SMEC AUSTRALIA

UPDATED SMEC LIBRARY_AGS 3_1 RTA 1_1 LIB 08_WITH FENCE TOOL_COLOUR.GLB Log SMEC EXCAVATION 3002523 CANBERRA BRICKWORKS.GPJ <<DrawingFile>> 20/10/2016 12:55 8.30.003

EXCAVATION - GEOLOGICAL LOG

PIT NO : M8

PROJECT : 3002523 | CLIENT : Land Development Agency | FILE / JOB NO : ara
LOCATION : Canberra Brickworks Blocks 1, 7 and 20 of Section 102 | FEATURE : Environmental | SHEET : 1 OF 6

POSITION : | SURFACE ELEVATION :

EQUIPMENT TYPE : | METHOD :

DATE EXCAVATED : | LOGGED BY : RO | CHECKED BY : GO

EXCAVATION DIMENSIONS :

DRILLING | MATERIAL

VE / PENETRATION E F H	SUPPORT	GROUND WATER LEVELS	SAMPLES & FIELD TESTS	ELEVATION (RL) DEPTH (m)	GRAPHIC LOG	CLASSIFICATION SYMBOL	MATERIAL DESCRIPTION Soil Type, Colour, Plasticity or Particle Characteristic Secondary and Minor Components	MOISTURE CONDITION	CONSISTENCY RELATIVE DENSITY	STRUCTURE & Other Observations
			0.70m AU-M8_0.7-0.8	0.0			Dark brown sandy clay PID 0.0 ppm			
				0.50m 0.5			Dark brown sandy clay, some gravels 2.5mm diameter			
				1.00m 1.0			Filthy sandy clay PID 0.0ppm			
				1.50m 1.5			Sandy clay some rock			
				2.00m 2.0			Volcanic rock			
				2.5						
				3.0						

PHOTOGRAPHS NOTES ☐ YES ☒ NO

METHOD
- N Natural Exposure
- E Existing Excavation
- BH Backhoe Bucket
- B Bulldozer Blade
- R Ripper

SUPPORT
- T Timbering

PENETRATION
VE E F H VH — No Resistance

WATER
10 Oct., 73 Water Level on Date shown
water inflow
water outflow

SAMPLES & FIELD TESTS
- U50 - Undisturbed Sample 50 mm diameter
- D - Disturbed Sample
- B - Bulk Disturbed Sample
- MC - Moisture Content
- HP - Hand Penetrometer (UCS kPa)
- VS - Vane Shear; P-Peak, R-Remouded (uncorrected kPa)
- PBT - Plate Bearing Test

CLASSIFICATION SYMBOLS & SOIL DESCRIPTION
Based on Unified Classification System

MOISTURE
- D - Dry
- M - Moist
- W - Wet

CONSISTENCY/ RELATIVE DENSITY

VS	- Very Soft
S	- Soft
F	- Firm
St	- Stiff
VSt	- Very Stiff
H	- Hard
VL	- Very Loose
L	- Loose
MD	- Medium Dense
D	- Dense
VD	- Very Dense

See Explanatory Notes for details of abbreviations & basis of descriptions.

SMEC AUSTRALIA

UPDATED SMEC LIBRARY_AGS 3_1 RTA 1_1 LIB 08_WITH FENCE TOOL_COLOUR.GLB Log SMEC EXCAVATION 3002523 CANBERRA BRICKWORKS.GPJ <<DrawingFile>> 20/10/2016 12:55 8.30.003

EXCAVATION - GEOLOGICAL LOG

PIT NO : M8

PROJECT : 3002523 | CLIENT : Land Development Agency | FILE / JOB NO : ara
LOCATION : Canberra Brickworks Blocks 1, 7 and 20 of Section 102 | FEATURE : Environmental | SHEET : 2 OF 6

POSITION : | SURFACE ELEVATION :

EQUIPMENT TYPE : | METHOD :

DATE EXCAVATED : | LOGGED BY : RO | CHECKED BY : GO

EXCAVATION DIMENSIONS :

DRILLING | MATERIAL

VE / E / PENETRATION / F / H	SUPPORT	GROUND WATER LEVELS	SAMPLES & FIELD TESTS	ELEVATION (RL) DEPTH (m)	GRAPHIC LOG	CLASSIFICATION SYMBOL	MATERIAL DESCRIPTION Soil Type, Colour, Plasticity or Particle Characteristic Secondary and Minor Components	MOISTURE CONDITION	CONSISTENCY RELATIVE DENSITY	STRUCTURE & Other Observations
				3.0			Volcanic rock *(continued)*			
				3.5						
				4.0						
							4.10m Siltstone, start of wash broing			
				4.5						
				5.0						
				5.5			5.50m Harder rock			
				6.0						

PHOTOGRAPHS NOTES ☐ YES ☒ NO

METHOD
- N Natural Exposure
- E Existing Excavation
- BH Backhoe Bucket
- B Bulldozer Blade
- R Ripper

SUPPORT
- T Timbering

PENETRATION



No Resistance

WATER



10 Oct., 73 Water Level on Date shown
water inflow
water outflow

SAMPLES & FIELD TESTS
- U50 - Undisturbed Sample 50 mm diameter
- D - Disturbed Sample
- B - Bulk Disturbed Sample
- MC - Moisture Content
- HP - Hand Penetrometer (UCS kPa)
- VS - Vane Shear; P-Peak, R-Remouded (uncorrected kPa)
- PBT - Plate Bearing Test

CLASSIFICATION SYMBOLS & SOIL DESCRIPTION
Based on Unified Classification System

MOISTURE
- D - Dry
- M - Moist
- W - Wet

CONSISTENCY/ RELATIVE DENSITY

VS	- Very Soft
S	- Soft
F	- Firm
St	- Stiff
VSt	- Very Stiff
H	- Hard
VL	- Very Loose
L	- Loose
MD	- Medium Dense
D	- Dense
VD	- Very Dense

See Explanatory Notes for details of abbreviations & basis of descriptions.

SMEC AUSTRALIA

UPDATED SMEC LIBRARY_AGS 3_1 RTA 1_1 LIB 08_WITH FENCE TOOL_COLOUR.GLB Log SMEC EXCAVATION 3002523 CANBERRA BRICKWORKS.GPJ <<DrawingFile>> 20/10/2016 12:55 8.30.003

EXCAVATION - GEOLOGICAL LOG

PIT NO : M8

PROJECT : 3002523 | CLIENT : Land Development Agency | FILE / JOB NO : ara
LOCATION : Canberra Brickworks Blocks 1, 7 and 20 of Section 102 | FEATURE : Environmental | SHEET : 3 OF 6

POSITION : | SURFACE ELEVATION :

EQUIPMENT TYPE : | METHOD :

DATE EXCAVATED : | LOGGED BY : RO | CHECKED BY : GO

EXCAVATION DIMENSIONS :

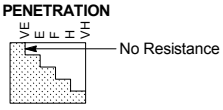
DRILLING						MATERIAL					
VE / E / PENETRATION / F / H	SUPPORT	GROUND WATER LEVELS	SAMPLES & FIELD TESTS	ELEVATION (RL) DEPTH (m)	GRAPHIC LOG	CLASSIFICATION SYMBOL	MATERIAL DESCRIPTION Soil Type, Colour, Plasticity or Particle Characteristic Secondary and Minor Components	MOISTURE CONDITION	CONSISTENCY RELATIVE DENSITY	STRUCTURE & Other Observations	
				6.0			Harder rock *(continued)*				
				6.5							
				7.0							
				7.5							
				8.0							
				8.5							
				9.0							

PHOTOGRAPHS NOTES ☐ YES ☒ NO

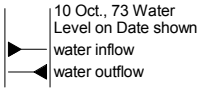
METHOD
- N Natural Exposure
- E Existing Excavation
- BH Backhoe Bucket
- B Bulldozer Blade
- R Ripper

SUPPORT
- T Timbering

PENETRATION



WATER



SAMPLES & FIELD TESTS
- U50 - Undisturbed Sample 50 mm diameter
- D - Disturbed Sample
- B - Bulk Disturbed Sample
- MC - Moisture Content
- HP - Hand Penetrometer (UCS kPa)
- VS - Vane Shear; P-Peak, R-Remouded (uncorrected kPa)
- PBT - Plate Bearing Test

CLASSIFICATION SYMBOLS & SOIL DESCRIPTION
Based on Unified Classification System

MOISTURE
- D - Dry
- M - Moist
- W - Wet

CONSISTENCY/ RELATIVE DENSITY

VS	- Very Soft
S	- Soft
F	- Firm
St	- Stiff
VSt	- Very Stiff
H	- Hard
VL	- Very Loose
L	- Loose
MD	- Medium Dense
D	- Dense
VD	- Very Dense

See Explanatory Notes for details of abbreviations & basis of descriptions.

SMEC AUSTRALIA

UPDATED SMEC LIBRARY_AGS 3_1 RTA 1_1 LIB 08_WITH FENCE TOOL_COLOUR.GLB Log SMEC EXCAVATION 3002523 CANBERRA BRICKWORKS.GPJ <<DrawingFile>> 20/10/2016 12:55 8.30.003

EXCAVATION - GEOLOGICAL LOG

PIT NO : M8

PROJECT : 3002523 | CLIENT : Land Development Agency | FILE / JOB NO : ara
LOCATION : Canberra Brickworks Blocks 1, 7 and 20 of Section 102 | FEATURE : Environmental | SHEET : 4 OF 6

POSITION : | SURFACE ELEVATION :

EQUIPMENT TYPE : | METHOD :

DATE EXCAVATED : | LOGGED BY : RO | CHECKED BY : GO

EXCAVATION DIMENSIONS :

DRILLING						MATERIAL				
PENETRATION (VE, E, F, H)	SUPPORT	GROUND WATER LEVELS	SAMPLES & FIELD TESTS	ELEVATION (RL) DEPTH (m)	GRAPHIC LOG	CLASSIFICATION SYMBOL	MATERIAL DESCRIPTION Soil Type, Colour, Plasticity or Particle Characteristic Secondary and Minor Components	MOISTURE CONDITION	CONSISTENCY RELATIVE DENSITY	STRUCTURE & Other Observations
				9.0			Harder rock *(continued)*			
				9.5						
				10.0						
				10.5						
				11.0						
				11.5						
				12.0						

PHOTOGRAPHS NOTES ☐ YES ☒ NO

METHOD
- N Natural Exposure
- E Existing Excavation
- BH Backhoe Bucket
- B Bulldozer Blade
- R Ripper

SUPPORT
- T Timbering

PENETRATION
VE E F H VH — No Resistance

WATER
10 Oct., 73 Water Level on Date shown
water inflow
water outflow

SAMPLES & FIELD TESTS
- U50 - Undisturbed Sample 50 mm diameter
- D - Disturbed Sample
- B - Bulk Disturbed Sample
- MC - Moisture Content
- HP - Hand Penetrometer (UCS kPa)
- VS - Vane Shear; P-Peak, R-Remouded (uncorrected kPa)
- PBT - Plate Bearing Test

CLASSIFICATION SYMBOLS & SOIL DESCRIPTION
Based on Unified Classification System

MOISTURE
- D - Dry
- M - Moist
- W - Wet

CONSISTENCY/ RELATIVE DENSITY

VS	- Very Soft
S	- Soft
F	- Firm
St	- Stiff
VSt	- Very Stiff
H	- Hard
VL	- Very Loose
L	- Loose
MD	- Medium Dense
D	- Dense
VD	- Very Dense

See Explanatory Notes for details of abbreviations & basis of descriptions.

SMEC AUSTRALIA

UPDATED SMEC LIBRARY_AGS 3_1 RTA 1_1 LIB 08_WITH FENCE TOOL_COLOUR.GLB Log SMEC EXCAVATION 3002523 CANBERRA BRICKWORKS.GPJ <<DrawingFile>> 20/10/2016 12:55 8.30.003

EXCAVATION - GEOLOGICAL LOG

PIT NO : M8

PROJECT : 3002523 | CLIENT : Land Development Agency | FILE / JOB NO : ara
LOCATION : Canberra Brickworks Blocks 1, 7 and 20 of Section 102 | FEATURE : Environmental | SHEET : 5 OF 6

POSITION : | SURFACE ELEVATION :

EQUIPMENT TYPE : | METHOD :

DATE EXCAVATED : | LOGGED BY : RO | CHECKED BY : GO

EXCAVATION DIMENSIONS :

DRILLING						MATERIAL					
VE / E / PENETRATION / F / H	SUPPORT	GROUND WATER LEVELS	SAMPLES & FIELD TESTS	ELEVATION (RL) DEPTH (m)	GRAPHIC LOG	CLASSIFICATION SYMBOL	MATERIAL DESCRIPTION Soil Type, Colour, Plasticity or Particle Characteristic Secondary and Minor Components	MOISTURE CONDITION	CONSISTENCY RELATIVE DENSITY	STRUCTURE & Other Observations
				12.0			Harder rock *(continued)*			
				12.5						
				13.0						
				13.5						
				14.0						
				14.5			14.50m			
				15.0						

PHOTOGRAPHS NOTES ☐ YES ☒ NO

METHOD
- N Natural Exposure
- E Existing Excavation
- BH Backhoe Bucket
- B Bulldozer Blade
- R Ripper

SUPPORT
- T Timbering

PENETRATION



WATER



SAMPLES & FIELD TESTS
- U50 - Undisturbed Sample 50 mm diameter
- D - Disturbed Sample
- B - Bulk Disturbed Sample
- MC - Moisture Content
- HP - Hand Penetrometer (UCS kPa)
- VS - Vane Shear; P-Peak, R-Remouded (uncorrected kPa)
- PBT - Plate Bearing Test

CLASSIFICATION SYMBOLS & SOIL DESCRIPTION
Based on Unified Classification System

MOISTURE
- D - Dry
- M - Moist
- W - Wet

CONSISTENCY/ RELATIVE DENSITY

VS	- Very Soft
S	- Soft
F	- Firm
St	- Stiff
VSt	- Very Stiff
H	- Hard
VL	- Very Loose
L	- Loose
MD	- Medium Dense
D	- Dense
VD	- Very Dense

See Explanatory Notes for details of abbreviations & basis of descriptions.

SMEC AUSTRALIA

UPDATED SMEC LIBRARY_AGS 3_1 RTA 1_1 LIB 08_WITH FENCE TOOL_COLOUR.GLB Log SMEC EXCAVATION 3002523 CANBERRA BRICKWORKS.GPJ <<DrawingFile>> 20/10/2016 12:55 8.30.003

EXCAVATION - GEOLOGICAL LOG

PIT NO : M8

PROJECT : 3002523 | CLIENT : Land Development Agency | FILE / JOB NO : ara
LOCATION : Canberra Brickworks Blocks 1, 7 and 20 of Section 102 | FEATURE : Environmental | SHEET : 6 OF 6

POSITION : | SURFACE ELEVATION :

EQUIPMENT TYPE : | METHOD :

DATE EXCAVATED : | LOGGED BY : RO | CHECKED BY : GO

EXCAVATION DIMENSIONS :

DRILLING						MATERIAL					
VE E PENETRATION F H	SUPPORT	GROUND WATER LEVELS	SAMPLES & FIELD TESTS	ELEVATION (RL) DEPTH (m)	GRAPHIC LOG	CLASSIFICATION SYMBOL	MATERIAL DESCRIPTION Soil Type, Colour, Plasticity or Particle Characteristic Secondary and Minor Components	MOISTURE CONDITION	CONSISTENCY RELATIVE DENSITY	STRUCTURE & Other Observations
				15.0			EXCAVATION M8 TERMINATED AT 15.00 m			
				15.5						
				16.0						
				16.5						
				17.0						
				17.5						
				18.0						

PHOTOGRAPHS NOTES ☐ YES ☒ NO

METHOD
- N Natural Exposure
- E Existing Excavation
- BH Backhoe Bucket
- B Bulldozer Blade
- R Ripper

SUPPORT
- T Timbering

PENETRATION



WATER



SAMPLES & FIELD TESTS
- U50 - Undisturbed Sample 50 mm diameter
- D - Disturbed Sample
- B - Bulk Disturbed Sample
- MC - Moisture Content
- HP - Hand Penetrometer (UCS kPa)
- VS - Vane Shear; P-Peak, R-Remouded (uncorrected kPa)
- PBT - Plate Bearing Test

CLASSIFICATION SYMBOLS & SOIL DESCRIPTION
Based on Unified Classification System

MOISTURE
- D - Dry
- M - Moist
- W - Wet

CONSISTENCY/ RELATIVE DENSITY

VS	- Very Soft
S	- Soft
F	- Firm
St	- Stiff
VSt	- Very Stiff
H	- Hard
VL	- Very Loose
L	- Loose
MD	- Medium Dense
D	- Dense
VD	- Very Dense

See Explanatory Notes for details of abbreviations & basis of descriptions.

SMEC AUSTRALIA

UPDATED SMEC LIBRARY_AGS 3_1 RTA 1_1 LIB 08_WITH FENCE TOOL_COLOUR.GLB Log SMEC EXCAVATION 3002523 CANBERRA BRICKWORKS.GPJ <<DrawingFile>> 20/10/2016 12:55 8.30.003

EXCAVATION - GEOLOGICAL LOG

PIT NO : TP01

PROJECT : 3002523 | CLIENT : Land Development Agency | FILE / JOB NO : ara
LOCATION : Canberra Brickworks Blocks 1, 7 and 20 of Section 102 | FEATURE : Environmental | SHEET : 1 OF 1

POSITION : | SURFACE ELEVATION :

EQUIPMENT TYPE : | METHOD :

DATE EXCAVATED : | LOGGED BY : RO | CHECKED BY : GO

EXCAVATION DIMENSIONS :

DRILLING | MATERIAL

VE / PENETRATION E F H	SUPPORT	GROUND WATER LEVELS	SAMPLES & FIELD TESTS	ELEVATION (RL) DEPTH (m)	GRAPHIC LOG	CLASSIFICATION SYMBOL	MATERIAL DESCRIPTION Soil Type, Colour, Plasticity or Particle Characteristic Secondary and Minor Components	MOISTURE CONDITION	CONSISTENCY RELATIVE DENSITY	STRUCTURE & Other Observations
			0.10m ES-TP1_0.1	0.0			0.05m Topsoil. PID: 0.0 ppm No obvious contaminants			
				0.2			Fill with bricks			
				0.5						
							0.90m Siltstone			
				1.0			1.30m EXCAVATION TP01 TERMINATED AT 1.30 m			
				1.5						
				2.0						
				2.5						
				3.0						

PHOTOGRAPHS NOTES ☐ YES ☒ NO

METHOD
- N Natural Exposure
- E Existing Excavation
- BH Backhoe Bucket
- B Bulldozer Blade
- R Ripper

SUPPORT
- T Timbering

PENETRATION
VE E F H VH — No Resistance

WATER
10 Oct., 73 Water Level on Date shown
water inflow
water outflow

SAMPLES & FIELD TESTS
- U50 - Undisturbed Sample 50 mm diameter
- D - Disturbed Sample
- B - Bulk Disturbed Sample
- MC - Moisture Content
- HP - Hand Penetrometer (UCS kPa)
- VS - Vane Shear; P-Peak, R-Remouded (uncorrected kPa)
- PBT - Plate Bearing Test

CLASSIFICATION SYMBOLS & SOIL DESCRIPTION
Based on Unified Classification System

MOISTURE
- D - Dry
- M - Moist
- W - Wet

CONSISTENCY/ RELATIVE DENSITY

VS	- Very Soft
S	- Soft
F	- Firm
St	- Stiff
VSt	- Very Stiff
H	- Hard
VL	- Very Loose
L	- Loose
MD	- Medium Dense
D	- Dense
VD	- Very Dense

See Explanatory Notes for details of abbreviations & basis of descriptions.

SMEC AUSTRALIA

UPDATED SMEC LIBRARY_AGS 3_1 RTA 1_1 LIB 08_WITH FENCE TOOL_COLOUR.GLB Log SMEC EXCAVATION 3002523 CANBERRA BRICKWORKS.GPJ <<DrawingFile>> 20/10/2016 12:55 8.30.003

EXCAVATION - GEOLOGICAL LOG

PIT NO : TP02

PROJECT : 3002523
LOCATION : Canberra Brickworks Blocks 1, 7 and 20 of Section 102
CLIENT : Land Development Agency
FEATURE : Environmental
FILE / JOB NO : ara
SHEET : 1 OF 1

POSITION :
SURFACE ELEVATION :
EQUIPMENT TYPE :
METHOD :
DATE EXCAVATED :
LOGGED BY : RO
CHECKED BY : GO
EXCAVATION DIMENSIONS :

DRILLING | MATERIAL

VE / PENETRATION / E / F / H	SUPPORT	GROUND WATER LEVELS	SAMPLES & FIELD TESTS	ELEVATION (RL) DEPTH (m)	GRAPHIC LOG	CLASSIFICATION SYMBOL	MATERIAL DESCRIPTION Soil Type, Colour, Plasticity or Particle Characteristic Secondary and Minor Components	MOISTURE CONDITION	CONSISTENCY RELATIVE DENSITY	STRUCTURE & Other Observations
				0.0			Fill with roots, mostly red brown. PID: 0.3 ppm No obvious contaminants			
				0.5						
							0.80m Light brown / red brown clay			
			1.50m ES-TP02_1.5	1.0						
				1.5						
						CI				
				2.0						
				2.5						
				3.0			3.00m EXCAVATION TP02 TERMINATED AT 3.00 m			

PHOTOGRAPHS NOTES ☐ YES ☒ NO

METHOD
- N Natural Exposure
- E Existing Excavation
- BH Backhoe Bucket
- B Bulldozer Blade
- R Ripper

SUPPORT
- T Timbering

PENETRATION
VE E F H VH — No Resistance

WATER
10 Oct., 73 Water Level on Date shown
water inflow
water outflow

SAMPLES & FIELD TESTS
- U50 - Undisturbed Sample 50 mm diameter
- D - Disturbed Sample
- B - Bulk Disturbed Sample
- MC - Moisture Content
- HP - Hand Penetrometer (UCS kPa)
- VS - Vane Shear; P-Peak, R-Remouded (uncorrected kPa)
- PBT - Plate Bearing Test

CLASSIFICATION SYMBOLS & SOIL DESCRIPTION
Based on Unified Classification System

MOISTURE
- D - Dry
- M - Moist
- W - Wet

CONSISTENCY/ RELATIVE DENSITY

VS	- Very Soft
S	- Soft
F	- Firm
St	- Stiff
VSt	- Very Stiff
H	- Hard
VL	- Very Loose
L	- Loose
MD	- Medium Dense
D	- Dense
VD	- Very Dense

See Explanatory Notes for details of abbreviations & basis of descriptions.

SMEC AUSTRALIA

UPDATED SMEC LIBRARY_AGS 3_1 RTA 1_1 LIB 08_WITH FENCE TOOL_COLOUR.GLB Log SMEC EXCAVATION 3002523 CANBERRA BRICKWORKS.GPJ <<DrawingFile>> 20/10/2016 12:55 8.30.003

EXCAVATION - GEOLOGICAL LOG

PIT NO : TP03

PROJECT : 3002523 | CLIENT : Land Development Agency | FILE / JOB NO : ara
LOCATION : Canberra Brickworks Blocks 1, 7 and 20 of Section 102 | FEATURE : Environmental | SHEET : 1 OF 1

POSITION : | SURFACE ELEVATION :

EQUIPMENT TYPE : | METHOD :

DATE EXCAVATED : | LOGGED BY : RO | CHECKED BY : GO

EXCAVATION DIMENSIONS :

DRILLING | MATERIAL

VE / PENETRATION / F / H	SUPPORT	GROUND WATER LEVELS	SAMPLES & FIELD TESTS	ELEVATION (RL) DEPTH (m)	GRAPHIC LOG	CLASSIFICATION SYMBOL	MATERIAL DESCRIPTION Soil Type, Colour, Plasticity or Particle Characteristic Secondary and Minor Components	MOISTURE CONDITION	CONSISTENCY RELATIVE DENSITY	STRUCTURE & Other Observations
			0.10m ES-TP03_0.1	0.0			Red brown fill. PID: 0.15 ppm . No obvious contaminants			
				0.5			0.50m Siltstone and bedrock 0.60m			
				1.0			EXCAVATION TP03 TERMINATED AT 0.60 m			
				1.5						
				2.0						
				2.5						
				3.0						

PHOTOGRAPHS NOTES ☐ YES ☒ NO

METHOD
- N Natural Exposure
- E Existing Excavation
- BH Backhoe Bucket
- B Bulldozer Blade
- R Ripper

SUPPORT
- T Timbering

PENETRATION
VE E F H VH — No Resistance

WATER
10 Oct., 73 Water Level on Date shown
water inflow
water outflow

SAMPLES & FIELD TESTS
- U50 - Undisturbed Sample 50 mm diameter
- D - Disturbed Sample
- B - Bulk Disturbed Sample
- MC - Moisture Content
- HP - Hand Penetrometer (UCS kPa)
- VS - Vane Shear; P-Peak, R-Remouded (uncorrected kPa)
- PBT - Plate Bearing Test

CLASSIFICATION SYMBOLS & SOIL DESCRIPTION
Based on Unified Classification System

MOISTURE
- D - Dry
- M - Moist
- W - Wet

CONSISTENCY/ RELATIVE DENSITY

VS	- Very Soft
S	- Soft
F	- Firm
St	- Stiff
VSt	- Very Stiff
H	- Hard
VL	- Very Loose
L	- Loose
MD	- Medium Dense
D	- Dense
VD	- Very Dense

See Explanatory Notes for details of abbreviations & basis of descriptions.

SMEC AUSTRALIA

UPDATED SMEC LIBRARY_AGS 3_1 RTA 1_1 LIB 08_WITH FENCE TOOL_COLOUR.GLB Log SMEC EXCAVATION 3002523 CANBERRA BRICKWORKS.GPJ <<DrawingFile>> 20/10/2016 12:55 8.30.003

EXCAVATION - GEOLOGICAL LOG

PIT NO : TP04

PROJECT : 3002523 | CLIENT : Land Development Agency | FILE / JOB NO : ara
LOCATION : Canberra Brickworks Blocks 1, 7 and 20 of Section 102 | FEATURE : Environmental | SHEET : 1 OF 1

POSITION : | SURFACE ELEVATION :

EQUIPMENT TYPE : | METHOD :

DATE EXCAVATED : | LOGGED BY : RO | CHECKED BY : GO

EXCAVATION DIMENSIONS :

DRILLING | MATERIAL

VE / PENETRATION / E / F / H	SUPPORT	GROUND WATER LEVELS	SAMPLES & FIELD TESTS	ELEVATION (RL) DEPTH (m)	GRAPHIC LOG	CLASSIFICATION SYMBOL	MATERIAL DESCRIPTION Soil Type, Colour, Plasticity or Particle Characteristic Secondary and Minor Components	MOISTURE CONDITION	CONSISTENCY RELATIVE DENSITY	STRUCTURE & Other Observations
			0.15m ES-TP04_0.15	0.0			Red brown soil, fill. PID: 0.0 ppm No obvious contaminants			
				0.5			0.50m Light brown bedrock 0.70m			
							EXCAVATION TP04 TERMINATED AT 0.90 m			
				1.0						
				1.5						
				2.0						
				2.5						
				3.0						

PHOTOGRAPHS NOTES ☐ YES ☒ NO

METHOD
- N Natural Exposure
- E Existing Excavation
- BH Backhoe Bucket
- B Bulldozer Blade
- R Ripper

SUPPORT
- T Timbering

PENETRATION
VE E F H VH — No Resistance

WATER
10 Oct., 73 Water Level on Date shown
water inflow
water outflow

SAMPLES & FIELD TESTS
- U50 - Undisturbed Sample 50 mm diameter
- D - Disturbed Sample
- B - Bulk Disturbed Sample
- MC - Moisture Content
- HP - Hand Penetrometer (UCS kPa)
- VS - Vane Shear; P-Peak, R-Remouded (uncorrected kPa)
- PBT - Plate Bearing Test

CLASSIFICATION SYMBOLS & SOIL DESCRIPTION
Based on Unified Classification System

MOISTURE
- D - Dry
- M - Moist
- W - Wet

CONSISTENCY/ RELATIVE DENSITY

VS	- Very Soft
S	- Soft
F	- Firm
St	- Stiff
VSt	- Very Stiff
H	- Hard
VL	- Very Loose
L	- Loose
MD	- Medium Dense
D	- Dense
VD	- Very Dense

See Explanatory Notes for details of abbreviations & basis of descriptions.

SMEC AUSTRALIA

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EXCAVATION - GEOLOGICAL LOG

PIT NO : TP05

PROJECT : 3002523 | CLIENT : Land Development Agency | FILE / JOB NO : ara
LOCATION : Canberra Brickworks Blocks 1, 7 and 20 of Section 102 | FEATURE : Environmental | SHEET : 1 OF 1

POSITION : | SURFACE ELEVATION :

EQUIPMENT TYPE : | METHOD :

DATE EXCAVATED : | LOGGED BY : RO | CHECKED BY : GO

EXCAVATION DIMENSIONS :

DRILLING | MATERIAL

VE / PENETRATION E F H	SUPPORT	GROUND WATER LEVELS	SAMPLES & FIELD TESTS	ELEVATION (RL) DEPTH (m)	GRAPHIC LOG	CLASSIFICATION SYMBOL	MATERIAL DESCRIPTION Soil Type, Colour, Plasticity or Particle Characteristic Secondary and Minor Components	MOISTURE CONDITION	CONSISTENCY RELATIVE DENSITY	STRUCTURE & Other Observations
				0.0			Red brown fill. PID: 0.1 ppm No obvious contaminants			
				0.10m			Light yellow brown			
				0.5						
				1.0						
				1.5						
			1.80m ES-TP5_1.8	1.80m			EXCAVATION TP05 TERMINATED AT 1.80 m			
				2.0						
				2.5						
				3.0						

PHOTOGRAPHS NOTES ☐ YES ☒ NO

METHOD
- N Natural Exposure
- E Existing Excavation
- BH Backhoe Bucket
- B Bulldozer Blade
- R Ripper

SUPPORT
- T Timbering

PENETRATION
VE E F H VH — No Resistance

WATER
10 Oct., 73 Water Level on Date shown
water inflow
water outflow

SAMPLES & FIELD TESTS
- U50 - Undisturbed Sample 50 mm diameter
- D - Disturbed Sample
- B - Bulk Disturbed Sample
- MC - Moisture Content
- HP - Hand Penetrometer (UCS kPa)
- VS - Vane Shear; P-Peak, R-Remouded (uncorrected kPa)
- PBT - Plate Bearing Test

CLASSIFICATION SYMBOLS & SOIL DESCRIPTION
Based on Unified Classification System

MOISTURE
- D - Dry
- M - Moist
- W - Wet

CONSISTENCY/ RELATIVE DENSITY

VS	- Very Soft
S	- Soft
F	- Firm
St	- Stiff
VSt	- Very Stiff
H	- Hard
VL	- Very Loose
L	- Loose
MD	- Medium Dense
D	- Dense
VD	- Very Dense

See Explanatory Notes for details of abbreviations & basis of descriptions.

SMEC AUSTRALIA

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EXCAVATION - GEOLOGICAL LOG

PIT NO : TP07

PROJECT : 3002523 | CLIENT : Land Development Agency | FILE / JOB NO : ara
LOCATION : Canberra Brickworks Blocks 1, 7 and 20 of Section 102 | FEATURE : Environmental | SHEET : 1 OF 1

POSITION : | SURFACE ELEVATION :

EQUIPMENT TYPE : | METHOD :

DATE EXCAVATED : | LOGGED BY : RO | CHECKED BY : GO

EXCAVATION DIMENSIONS :

DRILLING						MATERIAL					
PENETRATION VE E F H	SUPPORT	GROUND WATER LEVELS	SAMPLES & FIELD TESTS	ELEVATION (RL) DEPTH (m)	GRAPHIC LOG	CLASSIFICATION SYMBOL	MATERIAL DESCRIPTION Soil Type, Colour, Plasticity or Particle Characteristic Secondary and Minor Components	MOISTURE CONDITION	CONSISTENCY RELATIVE DENSITY	STRUCTURE & Other Observations
			0.15m ES-TP07_0.15	0.0			All fill with dark brown soil. PID: 0.2 ppm . No obvious contaminants			
							0.15m All fill Light brown/red soil			
				0.5						
				1.0						
				1.5						
				2.0						
				2.5						
				3.0			3.00m EXCAVATION TP07 TERMINATED AT 3.00 m			

PHOTOGRAPHS NOTES ☐ YES ☒ NO

METHOD
- N Natural Exposure
- E Existing Excavation
- BH Backhoe Bucket
- B Bulldozer Blade
- R Ripper

SUPPORT
- T Timbering

PENETRATION
VE E F H VH — No Resistance

WATER
10 Oct., 73 Water Level on Date shown
water inflow
water outflow

SAMPLES & FIELD TESTS
- U50 - Undisturbed Sample 50 mm diameter
- D - Disturbed Sample
- B - Bulk Disturbed Sample
- MC - Moisture Content
- HP - Hand Penetrometer (UCS kPa)
- VS - Vane Shear; P-Peak, R-Remouded (uncorrected kPa)
- PBT - Plate Bearing Test

CLASSIFICATION SYMBOLS & SOIL DESCRIPTION
Based on Unified Classification System

MOISTURE
- D - Dry
- M - Moist
- W - Wet

CONSISTENCY/ RELATIVE DENSITY

VS	- Very Soft
S	- Soft
F	- Firm
St	- Stiff
VSt	- Very Stiff
H	- Hard
VL	- Very Loose
L	- Loose
MD	- Medium Dense
D	- Dense
VD	- Very Dense

See Explanatory Notes for details of abbreviations & basis of descriptions.

SMEC AUSTRALIA

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EXCAVATION - GEOLOGICAL LOG

PIT NO : TP08

PROJECT : 3002523 | CLIENT : Land Development Agency | FILE / JOB NO : ara
LOCATION : Canberra Brickworks Blocks 1, 7 and 20 of Section 102 | FEATURE : Environmental | SHEET : 1 OF 2

POSITION : | SURFACE ELEVATION :

EQUIPMENT TYPE : | METHOD :

DATE EXCAVATED : | LOGGED BY : RO | CHECKED BY : GO

EXCAVATION DIMENSIONS :

DRILLING						MATERIAL					
PENETRATION (VE, E, F, H)	SUPPORT	GROUND WATER LEVELS	SAMPLES & FIELD TESTS	ELEVATION (RL) DEPTH (m)	GRAPHIC LOG	CLASSIFICATION SYMBOL	MATERIAL DESCRIPTION Soil Type, Colour, Plasticity or Particle Characteristic Secondary and Minor Components	MOISTURE CONDITION	CONSISTENCY RELATIVE DENSITY	STRUCTURE & Other Observations
			0.30m ES-TP8_0.3-0.4	0.0			Fill with bricks (30%) PID: 0.0 ppm No obvious contaminants			
				0.5						
							0.70m Fill with sandy gravel, pipes encountered, light brown			
				1.0						
				1.5			1.70m Fill yellow sandy gravel with yellow clay			
				2.0						
				2.5						
				3.0						

PHOTOGRAPHS ☐ YES ☒ NO
NOTES

METHOD
- N Natural Exposure
- E Existing Excavation
- BH Backhoe Bucket
- B Bulldozer Blade
- R Ripper

SUPPORT
- T Timbering

PENETRATION
VE E F H VH — No Resistance

WATER
10 Oct., 73 Water Level on Date shown
water inflow
water outflow

SAMPLES & FIELD TESTS
- U50 - Undisturbed Sample 50 mm diameter
- D - Disturbed Sample
- B - Bulk Disturbed Sample
- MC - Moisture Content
- HP - Hand Penetrometer (UCS kPa)
- VS - Vane Shear; P-Peak, R-Remouded (uncorrected kPa)
- PBT - Plate Bearing Test

CLASSIFICATION SYMBOLS & SOIL DESCRIPTION
Based on Unified Classification System

MOISTURE
- D - Dry
- M - Moist
- W - Wet

CONSISTENCY/ RELATIVE DENSITY

VS	- Very Soft
S	- Soft
F	- Firm
St	- Stiff
VSt	- Very Stiff
H	- Hard
VL	- Very Loose
L	- Loose
MD	- Medium Dense
D	- Dense
VD	- Very Dense

See Explanatory Notes for details of abbreviations & basis of descriptions.

SMEC AUSTRALIA

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EXCAVATION - GEOLOGICAL LOG

PIT NO : TP08

PROJECT : 3002523 | CLIENT : Land Development Agency | FILE / JOB NO : ara
LOCATION : Canberra Brickworks Blocks 1, 7 and 20 of Section 102 | FEATURE : Environmental | SHEET : 2 OF 2

POSITION : | SURFACE ELEVATION :

EQUIPMENT TYPE : | METHOD :

DATE EXCAVATED : | LOGGED BY : RO | CHECKED BY : GO

EXCAVATION DIMENSIONS :

DRILLING					MATERIAL					
PENETRATION (VE, E, F, H)	SUPPORT	GROUND WATER LEVELS	SAMPLES & FIELD TESTS	ELEVATION (RL) DEPTH (m)	GRAPHIC LOG	CLASSIFICATION SYMBOL	MATERIAL DESCRIPTION Soil Type, Colour, Plasticity or Particle Characteristic Secondary and Minor Components	MOISTURE CONDITION	CONSISTENCY RELATIVE DENSITY	STRUCTURE & Other Observations
				3.0			Fill yellow sandy gravel with yellow clay *(continued)*			
				3.30m			EXCAVATION TP08 TERMINATED AT 3.30 m			
				3.5						
				4.0						
				4.5						
				5.0						
				5.5						
				6.0						

PHOTOGRAPHS NOTES ☐ YES ☒ NO

METHOD
- N Natural Exposure
- E Existing Excavation
- BH Backhoe Bucket
- B Bulldozer Blade
- R Ripper

SUPPORT
- T Timbering

PENETRATION
VE E F H VH — No Resistance

WATER
10 Oct., 73 Water Level on Date shown
water inflow
water outflow

SAMPLES & FIELD TESTS
- U50 - Undisturbed Sample 50 mm diameter
- D - Disturbed Sample
- B - Bulk Disturbed Sample
- MC - Moisture Content
- HP - Hand Penetrometer (UCS kPa)
- VS - Vane Shear; P-Peak, R-Remouded (uncorrected kPa)
- PBT - Plate Bearing Test

CLASSIFICATION SYMBOLS & SOIL DESCRIPTION
Based on Unified Classification System

MOISTURE
- D - Dry
- M - Moist
- W - Wet

CONSISTENCY/ RELATIVE DENSITY

VS	- Very Soft
S	- Soft
F	- Firm
St	- Stiff
VSt	- Very Stiff
H	- Hard
VL	- Very Loose
L	- Loose
MD	- Medium Dense
D	- Dense
VD	- Very Dense

See Explanatory Notes for details of abbreviations & basis of descriptions.

SMEC AUSTRALIA

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EXCAVATION - GEOLOGICAL LOG

PIT NO : TP09

PROJECT : 3002523 | CLIENT : Land Development Agency | FILE / JOB NO : ara
LOCATION : Canberra Brickworks Blocks 1, 7 and 20 of Section 102 | FEATURE : Environmental | SHEET : 1 OF 1

POSITION : | SURFACE ELEVATION :

EQUIPMENT TYPE : | METHOD :

DATE EXCAVATED : | LOGGED BY : RO | CHECKED BY : GO

EXCAVATION DIMENSIONS :

DRILLING						MATERIAL					
VE / E / F / H PENETRATION	SUPPORT	GROUND WATER LEVELS	SAMPLES & FIELD TESTS	ELEVATION (RL) DEPTH (m)		GRAPHIC LOG	CLASSIFICATION SYMBOL	MATERIAL DESCRIPTION Soil Type, Colour, Plasticity or Particle Characteristic Secondary and Minor Components	MOISTURE CONDITION	CONSISTENCY RELATIVE DENSITY	STRUCTURE & Other Observations
			0.10m ES-TP09_0.1	0.0				Bedrock with wet soil. PID: 0.4 ppm . No obvious contaminants			
				0.20m				EXCAVATION TP09 TERMINATED AT 0.20 m			
				0.5							
				1.0							
				1.5							
				2.0							
				2.5							
				3.0							

PHOTOGRAPHS NOTES ☐ YES ☒ NO

METHOD
- N Natural Exposure
- E Existing Excavation
- BH Backhoe Bucket
- B Bulldozer Blade
- R Ripper

SUPPORT
- T Timbering

PENETRATION
VE E F H VH — No Resistance

WATER
10 Oct., 73 Water Level on Date shown
water inflow
water outflow

SAMPLES & FIELD TESTS
- U50 - Undisturbed Sample 50 mm diameter
- D - Disturbed Sample
- B - Bulk Disturbed Sample
- MC - Moisture Content
- HP - Hand Penetrometer (UCS kPa)
- VS - Vane Shear; P-Peak, R-Remouded (uncorrected kPa)
- PBT - Plate Bearing Test

CLASSIFICATION SYMBOLS & SOIL DESCRIPTION
Based on Unified Classification System

MOISTURE
- D - Dry
- M - Moist
- W - Wet

CONSISTENCY/ RELATIVE DENSITY

VS	- Very Soft
S	- Soft
F	- Firm
St	- Stiff
VSt	- Very Stiff
H	- Hard
VL	- Very Loose
L	- Loose
MD	- Medium Dense
D	- Dense
VD	- Very Dense

See Explanatory Notes for details of abbreviations & basis of descriptions.

SMEC AUSTRALIA

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EXCAVATION - GEOLOGICAL LOG

PIT NO : TP10

PROJECT : 3002523 | CLIENT : Land Development Agency | FILE / JOB NO : ara
LOCATION : Canberra Brickworks Blocks 1, 7 and 20 of Section 102 | FEATURE : Environmental | SHEET : 1 OF 1

POSITION : | SURFACE ELEVATION :

EQUIPMENT TYPE : | METHOD :

DATE EXCAVATED : | LOGGED BY : RO | CHECKED BY : GO

EXCAVATION DIMENSIONS :

DRILLING						MATERIAL					
VE / E / F / H PENETRATION	SUPPORT	GROUND WATER LEVELS	SAMPLES & FIELD TESTS	ELEVATION (RL) DEPTH (m)	GRAPHIC LOG	CLASSIFICATION SYMBOL	MATERIAL DESCRIPTION Soil Type, Colour, Plasticity or Particle Characteristic Secondary and Minor Components	MOISTURE CONDITION	CONSISTENCY RELATIVE DENSITY	STRUCTURE & Other Observations
			0.15m ES-TP10_0.15	0.0			Fill with dark red brown ash. PID:0.1 ppm . No obvious contaminants			
							0.40m EXCAVATION TP10 TERMINATED AT 0.40 m			
				0.5						
				1.0						
				1.5						
				2.0						
				2.5						
				3.0						

PHOTOGRAPHS NOTES ☐ YES ☒ NO

METHOD
- N Natural Exposure
- E Existing Excavation
- BH Backhoe Bucket
- B Bulldozer Blade
- R Ripper

SUPPORT
- T Timbering

PENETRATION
VE E F H VH — No Resistance

WATER
10 Oct., 73 Water Level on Date shown
water inflow
water outflow

SAMPLES & FIELD TESTS
- U50 - Undisturbed Sample 50 mm diameter
- D - Disturbed Sample
- B - Bulk Disturbed Sample
- MC - Moisture Content
- HP - Hand Penetrometer (UCS kPa)
- VS - Vane Shear; P-Peak, R-Remouded (uncorrected kPa)
- PBT - Plate Bearing Test

CLASSIFICATION SYMBOLS & SOIL DESCRIPTION
Based on Unified Classification System

MOISTURE
- D - Dry
- M - Moist
- W - Wet

CONSISTENCY/ RELATIVE DENSITY

VS	- Very Soft
S	- Soft
F	- Firm
St	- Stiff
VSt	- Very Stiff
H	- Hard
VL	- Very Loose
L	- Loose
MD	- Medium Dense
D	- Dense
VD	- Very Dense

See Explanatory Notes for details of abbreviations & basis of descriptions.

SMEC AUSTRALIA

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EXCAVATION - GEOLOGICAL LOG

PIT NO : TP11

PROJECT : 3002523 | CLIENT : Land Development Agency | FILE / JOB NO : ara
LOCATION : Canberra Brickworks Blocks 1, 7 and 20 of Section 102 | FEATURE : Environmental | SHEET : 1 OF 1

POSITION : | SURFACE ELEVATION :

EQUIPMENT TYPE : | METHOD :

DATE EXCAVATED : | LOGGED BY : RO | CHECKED BY : GO

EXCAVATION DIMENSIONS :

DRILLING | MATERIAL

VE / E / F / H PENETRATION	SUPPORT	GROUND WATER LEVELS	SAMPLES & FIELD TESTS	ELEVATION (RL) DEPTH (m)	GRAPHIC LOG	CLASSIFICATION SYMBOL	MATERIAL DESCRIPTION Soil Type, Colour, Plasticity or Particle Characteristic Secondary and Minor Components	MOISTURE CONDITION	CONSISTENCY RELATIVE DENSITY	STRUCTURE & Other Observations
				0.0			Silty sandy brick PID 0.1 ppm			
							0.15m Grey brown sandy gravel slightily			
			0.50m ES-TP11_0.5-0.6	0.5			0.50m Gravelly Clay PID 0.2 ppm			
							0.60m Rock refusal			
				1.0						
				1.5			1.60m EXCAVATION TP11 TERMINATED AT 1.60 m			
				2.0						
				2.5						
				3.0						

PHOTOGRAPHS NOTES ☐ YES ☒ NO

METHOD
- N Natural Exposure
- E Existing Excavation
- BH Backhoe Bucket
- B Bulldozer Blade
- R Ripper

SUPPORT
- T Timbering

PENETRATION
VE E F H VH — No Resistance

WATER
10 Oct., 73 Water Level on Date shown
water inflow
water outflow

SAMPLES & FIELD TESTS
- U50 - Undisturbed Sample 50 mm diameter
- D - Disturbed Sample
- B - Bulk Disturbed Sample
- MC - Moisture Content
- HP - Hand Penetrometer (UCS kPa)
- VS - Vane Shear; P-Peak, R-Remouded (uncorrected kPa)
- PBT - Plate Bearing Test

CLASSIFICATION SYMBOLS & SOIL DESCRIPTION
Based on Unified Classification System

MOISTURE
- D - Dry
- M - Moist
- W - Wet

CONSISTENCY/ RELATIVE DENSITY

VS	- Very Soft
S	- Soft
F	- Firm
St	- Stiff
VSt	- Very Stiff
H	- Hard
VL	- Very Loose
L	- Loose
MD	- Medium Dense
D	- Dense
VD	- Very Dense

See Explanatory Notes for details of abbreviations & basis of descriptions.

SMEC AUSTRALIA

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EXCAVATION - GEOLOGICAL LOG

PIT NO : TP12

PROJECT : 3002523 | CLIENT : Land Development Agency | FILE / JOB NO : ara
LOCATION : Canberra Brickworks Blocks 1, 7 and 20 of Section 102 | FEATURE : Environmental | SHEET : 1 OF 1

POSITION : | SURFACE ELEVATION :

EQUIPMENT TYPE : | METHOD :

DATE EXCAVATED : | LOGGED BY : RO | CHECKED BY : GO

EXCAVATION DIMENSIONS :

DRILLING | MATERIAL

VE / E / F / H PENETRATION	SUPPORT	GROUND WATER LEVELS	SAMPLES & FIELD TESTS	ELEVATION (RL) DEPTH (m)	GRAPHIC LOG	CLASSIFICATION SYMBOL	MATERIAL DESCRIPTION Soil Type, Colour, Plasticity or Particle Characteristic Secondary and Minor Components	MOISTURE CONDITION	CONSISTENCY RELATIVE DENSITY	STRUCTURE & Other Observations
			0.10m ES-TP12_0.1	0.0			0.05m Road Gravel 0.10m Light brown to red brown soil PID : 0.1 ppm Tree roots			
							0.30m Light brown - Pink soil			
				0.5						
				1.0			1.00m Bedrock / craked siltstone 1.10m EXCAVATION TP12 TERMINATED AT 1.10 m			
				1.5						
				2.0						
				2.5						
				3.0						

PHOTOGRAPHS NOTES ☐ YES ☒ NO

METHOD
- N Natural Exposure
- E Existing Excavation
- BH Backhoe Bucket
- B Bulldozer Blade
- R Ripper

SUPPORT
- T Timbering

PENETRATION
VE E F H VH — No Resistance

WATER
10 Oct., 73 Water Level on Date shown
water inflow
water outflow

SAMPLES & FIELD TESTS
- U50 - Undisturbed Sample 50 mm diameter
- D - Disturbed Sample
- B - Bulk Disturbed Sample
- MC - Moisture Content
- HP - Hand Penetrometer (UCS kPa)
- VS - Vane Shear; P-Peak, R-Remouded (uncorrected kPa)
- PBT - Plate Bearing Test

CLASSIFICATION SYMBOLS & SOIL DESCRIPTION
Based on Unified Classification System

MOISTURE
- D - Dry
- M - Moist
- W - Wet

CONSISTENCY/ RELATIVE DENSITY

VS	- Very Soft
S	- Soft
F	- Firm
St	- Stiff
VSt	- Very Stiff
H	- Hard
VL	- Very Loose
L	- Loose
MD	- Medium Dense
D	- Dense
VD	- Very Dense

See Explanatory Notes for details of abbreviations & basis of descriptions.

SMEC AUSTRALIA

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EXCAVATION - GEOLOGICAL LOG

PIT NO : TP13

PROJECT : 3002523 | CLIENT : Land Development Agency | FILE / JOB NO : ara
LOCATION : Canberra Brickworks Blocks 1, 7 and 20 of Section 102 | FEATURE : Environmental | SHEET : 1 OF 1

POSITION : | SURFACE ELEVATION :

EQUIPMENT TYPE : | METHOD :

DATE EXCAVATED : | LOGGED BY : RO | CHECKED BY : GO

EXCAVATION DIMENSIONS :

DRILLING | MATERIAL

VE / PENETRATION E F H	SUPPORT	GROUND WATER LEVELS	SAMPLES & FIELD TESTS	ELEVATION (RL) DEPTH (m)	GRAPHIC LOG	CLASSIFICATION SYMBOL	MATERIAL DESCRIPTION Soil Type, Colour, Plasticity or Particle Characteristic Secondary and Minor Components	MOISTURE CONDITION	CONSISTENCY RELATIVE DENSITY	STRUCTURE & Other Observations
				0.0			Brown to dark brown clayey soil PID: 0.1ppm			
							0.20m Brown to yellow clay			
			0.80m ES-TP13_0.8	0.5						
				1.0						
							1.20m Siltstone			
				1.5						
							1.90m EXCAVATION TP13 TERMINATED AT 1.90 m			
				2.0						
				2.5						
				3.0						

PHOTOGRAPHS NOTES ☐ YES ☒ NO

METHOD
- N Natural Exposure
- E Existing Excavation
- BH Backhoe Bucket
- B Bulldozer Blade
- R Ripper

SUPPORT
- T Timbering

PENETRATION
VE E F H VH — No Resistance

WATER
10 Oct., 73 Water Level on Date shown
water inflow
water outflow

SAMPLES & FIELD TESTS
- U50 - Undisturbed Sample 50 mm diameter
- D - Disturbed Sample
- B - Bulk Disturbed Sample
- MC - Moisture Content
- HP - Hand Penetrometer (UCS kPa)
- VS - Vane Shear; P-Peak, R-Remouded (uncorrected kPa)
- PBT - Plate Bearing Test

CLASSIFICATION SYMBOLS & SOIL DESCRIPTION
Based on Unified Classification System

MOISTURE
- D - Dry
- M - Moist
- W - Wet

CONSISTENCY/ RELATIVE DENSITY

VS	- Very Soft
S	- Soft
F	- Firm
St	- Stiff
VSt	- Very Stiff
H	- Hard
VL	- Very Loose
L	- Loose
MD	- Medium Dense
D	- Dense
VD	- Very Dense

See Explanatory Notes for details of abbreviations & basis of descriptions.

SMEC AUSTRALIA

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EXCAVATION - GEOLOGICAL LOG

PIT NO : TP14

PROJECT : 3002523 | CLIENT : Land Development Agency | FILE / JOB NO : ara
LOCATION : Canberra Brickworks Blocks 1, 7 and 20 of Section 102 | FEATURE : Environmental | SHEET : 1 OF 1

POSITION : | SURFACE ELEVATION :

EQUIPMENT TYPE : | METHOD :

DATE EXCAVATED : | LOGGED BY : RO | CHECKED BY : GO

EXCAVATION DIMENSIONS :

DRILLING | MATERIAL

VE / PENETRATION / E / F / H	SUPPORT	GROUND WATER LEVELS	SAMPLES & FIELD TESTS	ELEVATION (RL) DEPTH (m)	GRAPHIC LOG	CLASSIFICATION SYMBOL	MATERIAL DESCRIPTION Soil Type, Colour, Plasticity or Particle Characteristic Secondary and Minor Components	MOISTURE CONDITION	CONSISTENCY RELATIVE DENSITY	STRUCTURE & Other Observations
			0.10m ES-TP14_0.1	0.0			Light brown soil / Gravel (0-0.05) PID :0.2 ppm			
							0.30m Coal / yellow -brown soil			
				0.5						
							0.80m Ash - light -grey			
				1.0			1.00m Light brown / pink soil			
				1.5			1.50m Bedrock EXCAVATION TP14 TERMINATED AT 1.50 m			
				2.0						
				2.5						
				3.0						

PHOTOGRAPHS NOTES ☐ YES ☒ NO

METHOD
- N Natural Exposure
- E Existing Excavation
- BH Backhoe Bucket
- B Bulldozer Blade
- R Ripper

SUPPORT
- T Timbering

PENETRATION
VE E F H VH — No Resistance

WATER
- 10 Oct., 73 Water Level on Date shown
- water inflow
- water outflow

SAMPLES & FIELD TESTS
- U50 - Undisturbed Sample 50 mm diameter
- D - Disturbed Sample
- B - Bulk Disturbed Sample
- MC - Moisture Content
- HP - Hand Penetrometer (UCS kPa)
- VS - Vane Shear; P-Peak, R-Remouded (uncorrected kPa)
- PBT - Plate Bearing Test

CLASSIFICATION SYMBOLS & SOIL DESCRIPTION
Based on Unified Classification System

MOISTURE
- D - Dry
- M - Moist
- W - Wet

CONSISTENCY/ RELATIVE DENSITY

VS	- Very Soft
S	- Soft
F	- Firm
St	- Stiff
VSt	- Very Stiff
H	- Hard
VL	- Very Loose
L	- Loose
MD	- Medium Dense
D	- Dense
VD	- Very Dense

See Explanatory Notes for details of abbreviations & basis of descriptions.

SMEC AUSTRALIA

UPDATED SMEC LIBRARY_AGS 3_1 RTA 1_1 LIB 08_WITH FENCE TOOL_COLOUR.GLB Log SMEC EXCAVATION 3002523 CANBERRA BRICKWORKS.GPJ <<DrawingFile>> 20/10/2016 12:55 8.30.003

EXCAVATION - GEOLOGICAL LOG

PIT NO : TP15

PROJECT : 3002523 | CLIENT : Land Development Agency | FILE / JOB NO : ara
LOCATION : Canberra Brickworks Blocks 1, 7 and 20 of Section 102 | FEATURE : Environmental | SHEET : 1 OF 1

POSITION : | SURFACE ELEVATION :

EQUIPMENT TYPE : | METHOD :

DATE EXCAVATED : | LOGGED BY : RO | CHECKED BY : GO

EXCAVATION DIMENSIONS :

DRILLING | MATERIAL

VE / E / F / H PENETRATION	SUPPORT	GROUND WATER LEVELS	SAMPLES & FIELD TESTS	ELEVATION (RL) DEPTH (m)	GRAPHIC LOG	CLASSIFICATION SYMBOL	MATERIAL DESCRIPTION Soil Type, Colour, Plasticity or Particle Characteristic Secondary and Minor Components	MOISTURE CONDITION	CONSISTENCY RELATIVE DENSITY	STRUCTURE & Other Observations
				0.0			Brown clayey soil PID: 0.1 ppm			
			0.70m ES-TP15_0.7	0.5						
							0.70m Orange to red clay			
				1.0			1.00m Bedrock - Siltstone EXCAVATION TP15 TERMINATED AT 1.00 m			
				1.5						
				2.0						
				2.5						
				3.0						

PHOTOGRAPHS NOTES ☐ YES ☒ NO

METHOD
- N Natural Exposure
- E Existing Excavation
- BH Backhoe Bucket
- B Bulldozer Blade
- R Ripper

SUPPORT
- T Timbering

PENETRATION
VE E F H VH — No Resistance

WATER
10 Oct., 73 Water Level on Date shown
water inflow
water outflow

SAMPLES & FIELD TESTS
- U50 - Undisturbed Sample 50 mm diameter
- D - Disturbed Sample
- B - Bulk Disturbed Sample
- MC - Moisture Content
- HP - Hand Penetrometer (UCS kPa)
- VS - Vane Shear; P-Peak, R-Remouded (uncorrected kPa)
- PBT - Plate Bearing Test

CLASSIFICATION SYMBOLS & SOIL DESCRIPTION
Based on Unified Classification System

MOISTURE
- D - Dry
- M - Moist
- W - Wet

CONSISTENCY/ RELATIVE DENSITY

VS	- Very Soft
S	- Soft
F	- Firm
St	- Stiff
VSt	- Very Stiff
H	- Hard
VL	- Very Loose
L	- Loose
MD	- Medium Dense
D	- Dense
VD	- Very Dense

See Explanatory Notes for details of abbreviations & basis of descriptions.

SMEC AUSTRALIA

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EXCAVATION - GEOLOGICAL LOG

PIT NO : TP16

PROJECT : 3002523 | CLIENT : Land Development Agency | FILE / JOB NO : ara
LOCATION : Canberra Brickworks Blocks 1, 7 and 20 of Section 102 | FEATURE : Environmental | SHEET : 1 OF 1

POSITION : | SURFACE ELEVATION :

EQUIPMENT TYPE : | METHOD :

DATE EXCAVATED : | LOGGED BY : RO | CHECKED BY : GO

EXCAVATION DIMENSIONS :

DRILLING | MATERIAL

VE / PENETRATION / E / F / H	SUPPORT	GROUND WATER LEVELS	SAMPLES & FIELD TESTS	ELEVATION (RL) DEPTH (m)	GRAPHIC LOG	CLASSIFICATION SYMBOL	MATERIAL DESCRIPTION Soil Type, Colour, Plasticity or Particle Characteristic Secondary and Minor Components	MOISTURE CONDITION	CONSISTENCY RELATIVE DENSITY	STRUCTURE & Other Observations
			0.40m ES-TP16_0.4	0.0			Fill yellow to yellow brown clay PID:0.1ppm			
							0.30m FIll - yelllow clean clay layer over orange to brown sandy silt			
							0.40m Sandy silty clay- yellow to yellow brown			
				0.5						
				1.0			1.00m Yellow organic clay			
				1.5			1.60m Bedrock			
							1.80m EXCAVATION TP16 TERMINATED AT 1.80 m			
				2.0						
				2.5						
				3.0						

PHOTOGRAPHS NOTES ☐ YES ☒ NO

METHOD
- N Natural Exposure
- E Existing Excavation
- BH Backhoe Bucket
- B Bulldozer Blade
- R Ripper

SUPPORT
- T Timbering

PENETRATION
VE E F H VH — No Resistance

WATER
10 Oct., 73 Water Level on Date shown
water inflow
water outflow

SAMPLES & FIELD TESTS
- U50 - Undisturbed Sample 50 mm diameter
- D - Disturbed Sample
- B - Bulk Disturbed Sample
- MC - Moisture Content
- HP - Hand Penetrometer (UCS kPa)
- VS - Vane Shear; P-Peak, R-Remouded (uncorrected kPa)
- PBT - Plate Bearing Test

CLASSIFICATION SYMBOLS & SOIL DESCRIPTION
Based on Unified Classification System

MOISTURE
- D - Dry
- M - Moist
- W - Wet

CONSISTENCY/ RELATIVE DENSITY

VS	- Very Soft
S	- Soft
F	- Firm
St	- Stiff
VSt	- Very Stiff
H	- Hard
VL	- Very Loose
L	- Loose
MD	- Medium Dense
D	- Dense
VD	- Very Dense

See Explanatory Notes for details of abbreviations & basis of descriptions.

SMEC AUSTRALIA

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EXCAVATION - GEOLOGICAL LOG

PIT NO : TP17

PROJECT : 3002523 | CLIENT : Land Development Agency | FILE / JOB NO : ara
LOCATION : Canberra Brickworks Blocks 1, 7 and 20 of Section 102 | FEATURE : Environmental | SHEET : 1 OF 1

POSITION : | SURFACE ELEVATION :

EQUIPMENT TYPE : | METHOD :

DATE EXCAVATED : | LOGGED BY : RO | CHECKED BY : GO

EXCAVATION DIMENSIONS :

DRILLING | MATERIAL

VE / PENETRATION E F H	SUPPORT	GROUND WATER LEVELS	SAMPLES & FIELD TESTS	ELEVATION (RL) DEPTH (m)	GRAPHIC LOG	CLASSIFICATION SYMBOL	MATERIAL DESCRIPTION Soil Type, Colour, Plasticity or Particle Characteristic Secondary and Minor Components	MOISTURE CONDITION	CONSISTENCY RELATIVE DENSITY	STRUCTURE & Other Observations
				0.0			Filll yellow - black material PID: 0.3 ppm			
				0.15m			Fill - dark grey to medium grey material			
				0.5						
				0.50m			Fill - red brown chips			
				0.80m			Fill - loosely compacted brick , siltstone blocks			
				1.0						
				1.30m			Fill - medium - red bricks - yellow brown fill			
				1.50m			Dark grey - dark yellow soil			
			1.80m ES-TP17_1.8	1.5						
				2.0						
				2.20m			EXCAVATION TP17 TERMINATED AT 2.20 m			
				2.5						
				3.0						

PHOTOGRAPHS NOTES ☐ YES ☒ NO

METHOD
- N Natural Exposure
- E Existing Excavation
- BH Backhoe Bucket
- B Bulldozer Blade
- R Ripper

SUPPORT
- T Timbering

PENETRATION
VE E F H VH — No Resistance

WATER
10 Oct., 73 Water Level on Date shown
water inflow
water outflow

SAMPLES & FIELD TESTS
- U50 - Undisturbed Sample 50 mm diameter
- D - Disturbed Sample
- B - Bulk Disturbed Sample
- MC - Moisture Content
- HP - Hand Penetrometer (UCS kPa)
- VS - Vane Shear; P-Peak, R-Remouded (uncorrected kPa)
- PBT - Plate Bearing Test

CLASSIFICATION SYMBOLS & SOIL DESCRIPTION
Based on Unified Classification System

MOISTURE
- D - Dry
- M - Moist
- W - Wet

CONSISTENCY/ RELATIVE DENSITY

VS	- Very Soft
S	- Soft
F	- Firm
St	- Stiff
VSt	- Very Stiff
H	- Hard
VL	- Very Loose
L	- Loose
MD	- Medium Dense
D	- Dense
VD	- Very Dense

See Explanatory Notes for details of abbreviations & basis of descriptions.

SMEC AUSTRALIA

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EXCAVATION - GEOLOGICAL LOG

PIT NO : TP18

PROJECT : 3002523 | CLIENT : Land Development Agency | FILE / JOB NO : ara
LOCATION : Canberra Brickworks Blocks 1, 7 and 20 of Section 102 | FEATURE : Environmental | SHEET : 1 OF 1

POSITION : | SURFACE ELEVATION :

EQUIPMENT TYPE : | METHOD :

DATE EXCAVATED : | LOGGED BY : RO | CHECKED BY : GO

EXCAVATION DIMENSIONS :

DRILLING | MATERIAL

VE / PENETRATION E F H	SUPPORT	GROUND WATER LEVELS	SAMPLES & FIELD TESTS	ELEVATION (RL) DEPTH (m)	GRAPHIC LOG	CLASSIFICATION SYMBOL	MATERIAL DESCRIPTION Soil Type, Colour, Plasticity or Particle Characteristic Secondary and Minor Components	MOISTURE CONDITION	CONSISTENCY RELATIVE DENSITY	STRUCTURE & Other Observations
			0.10m ES-TP18_0.1	0.0			0.05m Fill - Gravel 0.10m Fill - dark brown soil PID: 0.0 ppm Fill - pink brown dark soil			
				0.5			0.50m Fill - ash to yellow soil			
				1.0						
				1.5			1.70m Fill - light brown soil clay			
				2.0						
				2.5			2.50m Fill - yellow brown clay soil - no rock			
				3.0			3.00m EXCAVATION TP18 TERMINATED AT 3.00 m			

PHOTOGRAPHS NOTES ☐ YES ☒ NO

METHOD
- N Natural Exposure
- E Existing Excavation
- BH Backhoe Bucket
- B Bulldozer Blade
- R Ripper

SUPPORT
- T Timbering

PENETRATION
VE E F H VH — No Resistance

WATER
10 Oct., 73 Water Level on Date shown
water inflow
water outflow

SAMPLES & FIELD TESTS
- U50 - Undisturbed Sample 50 mm diameter
- D - Disturbed Sample
- B - Bulk Disturbed Sample
- MC - Moisture Content
- HP - Hand Penetrometer (UCS kPa)
- VS - Vane Shear; P-Peak, R-Remouded (uncorrected kPa)
- PBT - Plate Bearing Test

CLASSIFICATION SYMBOLS & SOIL DESCRIPTION
Based on Unified Classification System

MOISTURE
- D - Dry
- M - Moist
- W - Wet

CONSISTENCY/ RELATIVE DENSITY

VS	- Very Soft
S	- Soft
F	- Firm
St	- Stiff
VSt	- Very Stiff
H	- Hard
VL	- Very Loose
L	- Loose
MD	- Medium Dense
D	- Dense
VD	- Very Dense

See Explanatory Notes for details of abbreviations & basis of descriptions.

SMEC AUSTRALIA

UPDATED SMEC LIBRARY_AGS 3_1 RTA 1_1 LIB 08_WITH FENCE TOOL_COLOUR.GLB Log SMEC EXCAVATION 3002523 CANBERRA BRICKWORKS.GPJ <<DrawingFile>> 20/10/2016 12:55 8.30.003

EXCAVATION - GEOLOGICAL LOG

PIT NO : TP21

PROJECT : 3002523
CLIENT : Land Development Agency
FILE / JOB NO : ara
LOCATION : Canberra Brickworks Blocks 1, 7 and 20 of Section 102
FEATURE : Environmental
SHEET : 1 OF 1

POSITION :
SURFACE ELEVATION :

EQUIPMENT TYPE :
METHOD :

DATE EXCAVATED :
LOGGED BY : RO
CHECKED BY : GO

EXCAVATION DIMENSIONS :

DRILLING | MATERIAL

VE / PENETRATION / E / F / H	SUPPORT	GROUND WATER LEVELS	SAMPLES & FIELD TESTS	ELEVATION (RL) DEPTH (m)	GRAPHIC LOG	CLASSIFICATION SYMBOL	MATERIAL DESCRIPTION Soil Type, Colour, Plasticity or Particle Characteristic Secondary and Minor Components	MOISTURE CONDITION	CONSISTENCY RELATIVE DENSITY	STRUCTURE & Other Observations
			0.10m ES-TP21_0.1-0.2	0.0			Fill - Tree roots - light brown soil PID: 0.6 ppm			
				0.30m			Fill - light grey soil			
				0.5						
				1.00m			Fill - water found pooling with bubbles			
				1.5						
				2.00m			Fill - Water level increased - work was stopped - stormwater pipe encountered EXCAVATION TP21 TERMINATED AT 2.00 m			
				2.5						
				3.0						

PHOTOGRAPHS NOTES ☐ YES ☒ NO

METHOD
- N Natural Exposure
- E Existing Excavation
- BH Backhoe Bucket
- B Bulldozer Blade
- R Ripper

SUPPORT
- T Timbering

PENETRATION
VE E F H VH — No Resistance

WATER
10 Oct., 73 Water Level on Date shown
water inflow
water outflow

SAMPLES & FIELD TESTS
- U50 - Undisturbed Sample 50 mm diameter
- D - Disturbed Sample
- B - Bulk Disturbed Sample
- MC - Moisture Content
- HP - Hand Penetrometer (UCS kPa)
- VS - Vane Shear; P-Peak, R-Remouded (uncorrected kPa)
- PBT - Plate Bearing Test

CLASSIFICATION SYMBOLS & SOIL DESCRIPTION
Based on Unified Classification System

MOISTURE
- D - Dry
- M - Moist
- W - Wet

CONSISTENCY/ RELATIVE DENSITY

VS	- Very Soft
S	- Soft
F	- Firm
St	- Stiff
VSt	- Very Stiff
H	- Hard
VL	- Very Loose
L	- Loose
MD	- Medium Dense
D	- Dense
VD	- Very Dense

See Explanatory Notes for details of abbreviations & basis of descriptions.

SMEC AUSTRALIA

UPDATED SMEC LIBRARY_AGS 3_1 RTA 1_1 LIB 08_WITH FENCE TOOL_COLOUR.GLB Log SMEC EXCAVATION 3002523 CANBERRA BRICKWORKS.GPJ <<DrawingFile>> 20/10/2016 12:55 8.30.003

EXCAVATION - GEOLOGICAL LOG

PIT NO : TP23

PROJECT : 3002523 | CLIENT : Land Development Agency | FILE / JOB NO : ara
LOCATION : Canberra Brickworks Blocks 1, 7 and 20 of Section 102 | FEATURE : Environmental | SHEET : 1 OF 1

POSITION : | SURFACE ELEVATION :

EQUIPMENT TYPE : | METHOD :

DATE EXCAVATED : | LOGGED BY : RO | CHECKED BY : GO

EXCAVATION DIMENSIONS :

DRILLING | MATERIAL

VE / PENETRATION E F H	SUPPORT	GROUND WATER LEVELS	SAMPLES & FIELD TESTS	ELEVATION (RL) DEPTH (m)	GRAPHIC LOG	CLASSIFICATION SYMBOL	MATERIAL DESCRIPTION Soil Type, Colour, Plasticity or Particle Characteristic Secondary and Minor Components	MOISTURE CONDITION	CONSISTENCY RELATIVE DENSITY	STRUCTURE & Other Observations
			0.10m ES-TP23_0.1-0.15	0.0			Topsoil rootlets noted			
							0.10m Silty sand with bricks slight moisture PID 0.1-0.15 ppm			
				0.5			0.70m Black layer of charcoal noted			
							0.80m Orange crushed bricks			
				1.0			1.20m Refusal on siltstone EXCAVATION TP23 TERMINATED AT 1.20 m			
				1.5						
				2.0						
				2.5						
				3.0						

PHOTOGRAPHS NOTES ☐ YES ☒ NO

METHOD
- N Natural Exposure
- E Existing Excavation
- BH Backhoe Bucket
- B Bulldozer Blade
- R Ripper

SUPPORT
- T Timbering

PENETRATION
VE E F H VH — No Resistance

WATER
10 Oct., 73 Water Level on Date shown
water inflow
water outflow

SAMPLES & FIELD TESTS
- U50 - Undisturbed Sample 50 mm diameter
- D - Disturbed Sample
- B - Bulk Disturbed Sample
- MC - Moisture Content
- HP - Hand Penetrometer (UCS kPa)
- VS - Vane Shear; P-Peak, R-Remouded (uncorrected kPa)
- PBT - Plate Bearing Test

CLASSIFICATION SYMBOLS & SOIL DESCRIPTION
Based on Unified Classification System

MOISTURE
- D - Dry
- M - Moist
- W - Wet

CONSISTENCY/ RELATIVE DENSITY

VS	- Very Soft
S	- Soft
F	- Firm
St	- Stiff
VSt	- Very Stiff
H	- Hard
VL	- Very Loose
L	- Loose
MD	- Medium Dense
D	- Dense
VD	- Very Dense

See Explanatory Notes for details of abbreviations & basis of descriptions.

SMEC AUSTRALIA

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EXCAVATION - GEOLOGICAL LOG

PIT NO : TP24

PROJECT : 3002523 | CLIENT : Land Development Agency | FILE / JOB NO : ara
LOCATION : Canberra Brickworks Blocks 1, 7 and 20 of Section 102 | FEATURE : Environmental | SHEET : 1 OF 1

POSITION : | SURFACE ELEVATION :

EQUIPMENT TYPE : | METHOD :

DATE EXCAVATED : | LOGGED BY : RO | CHECKED BY : GO

EXCAVATION DIMENSIONS :

DRILLING | MATERIAL

VE / E / F / H PENETRATION	SUPPORT	GROUND WATER LEVELS	SAMPLES & FIELD TESTS	ELEVATION (RL) DEPTH (m)	GRAPHIC LOG	CLASSIFICATION SYMBOL	MATERIAL DESCRIPTION Soil Type, Colour, Plasticity or Particle Characteristic Secondary and Minor Components	MOISTURE CONDITION	CONSISTENCY RELATIVE DENSITY	STRUCTURE & Other Observations
				0.0			roadchip - light grey clay PID : 0.2 ppm			
							0.15m Caly - brwon to red brown			
			0.50m ES-TP24_0.5	0.5			0.50m Bedrock			
							0.70m EXCAVATION TP24 TERMINATED AT 0.70 m			
				1.0						
				1.5						
				2.0						
				2.5						
				3.0						

PHOTOGRAPHS NOTES ☐ YES ☒ NO

METHOD
- N Natural Exposure
- E Existing Excavation
- BH Backhoe Bucket
- B Bulldozer Blade
- R Ripper

SUPPORT
- T Timbering

PENETRATION
VE E F H VH — No Resistance

WATER
10 Oct., 73 Water Level on Date shown
water inflow
water outflow

SAMPLES & FIELD TESTS
- U50 - Undisturbed Sample 50 mm diameter
- D - Disturbed Sample
- B - Bulk Disturbed Sample
- MC - Moisture Content
- HP - Hand Penetrometer (UCS kPa)
- VS - Vane Shear; P-Peak, R-Remouded (uncorrected kPa)
- PBT - Plate Bearing Test

CLASSIFICATION SYMBOLS & SOIL DESCRIPTION
Based on Unified Classification System

MOISTURE
- D - Dry
- M - Moist
- W - Wet

CONSISTENCY/ RELATIVE DENSITY

VS	- Very Soft
S	- Soft
F	- Firm
St	- Stiff
VSt	- Very Stiff
H	- Hard
VL	- Very Loose
L	- Loose
MD	- Medium Dense
D	- Dense
VD	- Very Dense

See Explanatory Notes for details of abbreviations & basis of descriptions.

SMEC AUSTRALIA

UPDATED SMEC LIBRARY_AGS 3_1 RTA 1_1 LIB 08_WITH FENCE TOOL_COLOUR.GLB Log SMEC EXCAVATION 3002523 CANBERRA BRICKWORKS.GPJ <<DrawingFile>> 20/10/2016 12:55 8.30.003

EXCAVATION - GEOLOGICAL LOG

PIT NO : TP25

PROJECT : 3002523 | CLIENT : Land Development Agency | FILE / JOB NO : ara
LOCATION : Canberra Brickworks Blocks 1, 7 and 20 of Section 102 | FEATURE : Environmental | SHEET : 1 OF 1

POSITION : | SURFACE ELEVATION :

EQUIPMENT TYPE : | METHOD :

DATE EXCAVATED : | LOGGED BY : RO | CHECKED BY : GO

EXCAVATION DIMENSIONS :

DRILLING						MATERIAL					
PENETRATION (VE, E, F, H)	SUPPORT	GROUND WATER LEVELS	SAMPLES & FIELD TESTS	ELEVATION (RL) DEPTH (m)	GRAPHIC LOG	CLASSIFICATION SYMBOL	MATERIAL DESCRIPTION Soil Type, Colour, Plasticity or Particle Characteristic Secondary and Minor Components	MOISTURE CONDITION	CONSISTENCY RELATIVE DENSITY	STRUCTURE & Other Observations
				0.0			0.05m Dark brown soil - rootlets noted PID: 0.1 ppm Sandy silt soil - dark brown			
				0.5						
							0.80m Dark brown yellow to yellow grey clay 0.90m			
			1.10m ES-TP25_1.1	1.0			Increasing yellow brown to yellow grey clay			
							1.40m Increasing red brown layer 1.60m			
				1.5			Siltstone			
							2.00m			
				2.0			EXCAVATION TP25 TERMINATED AT 2.00 m			
				2.5						
				3.0						

PHOTOGRAPHS NOTES ☐ YES ☒ NO

METHOD
- N Natural Exposure
- E Existing Excavation
- BH Backhoe Bucket
- B Bulldozer Blade
- R Ripper

SUPPORT
- T Timbering

PENETRATION
VE E F H VH — No Resistance

WATER
- 10 Oct., 73 Water Level on Date shown
- water inflow
- water outflow

SAMPLES & FIELD TESTS
- U50 - Undisturbed Sample 50 mm diameter
- D - Disturbed Sample
- B - Bulk Disturbed Sample
- MC - Moisture Content
- HP - Hand Penetrometer (UCS kPa)
- VS - Vane Shear; P-Peak, R-Remouded (uncorrected kPa)
- PBT - Plate Bearing Test

CLASSIFICATION SYMBOLS & SOIL DESCRIPTION
Based on Unified Classification System

MOISTURE
- D - Dry
- M - Moist
- W - Wet

CONSISTENCY/ RELATIVE DENSITY

VS	- Very Soft
S	- Soft
F	- Firm
St	- Stiff
VSt	- Very Stiff
H	- Hard
VL	- Very Loose
L	- Loose
MD	- Medium Dense
D	- Dense
VD	- Very Dense

See Explanatory Notes for details of abbreviations & basis of descriptions.

SMEC AUSTRALIA

UPDATED SMEC LIBRARY_AGS 3_1 RTA 1_1 LIB 08_WITH FENCE TOOL_COLOUR.GLB Log SMEC EXCAVATION 3002523 CANBERRA BRICKWORKS.GPJ <<DrawingFile>> 20/10/2016 12:55 8.30.003

EXCAVATION - GEOLOGICAL LOG

PIT NO : TP26

PROJECT : 3002523 | CLIENT : Land Development Agency | FILE / JOB NO : ara
LOCATION : Canberra Brickworks Blocks 1, 7 and 20 of Section 102 | FEATURE : Environmental | SHEET : 1 OF 1

POSITION : | SURFACE ELEVATION :

EQUIPMENT TYPE : | METHOD :

DATE EXCAVATED : | LOGGED BY : RO | CHECKED BY : GO

EXCAVATION DIMENSIONS :

DRILLING | MATERIAL

VE / PENETRATION / E / F / H	SUPPORT	GROUND WATER LEVELS	SAMPLES & FIELD TESTS	ELEVATION (RL) / DEPTH (m)	GRAPHIC LOG	CLASSIFICATION SYMBOL	MATERIAL DESCRIPTION Soil Type, Colour, Plasticity or Particle Characteristic Secondary and Minor Components	MOISTURE CONDITION	CONSISTENCY RELATIVE DENSITY	STRUCTURE & Other Observations
			0.10m ES-TP26_0.1	0.0			Fill - red to brown soil PID: 0.0 ppm			
				0.30m			Silt rock			
				0.5						
				1.0						
				1.50m			EXCAVATION TP26 TERMINATED AT 1.50 m			
				1.5						
				2.0						
				2.5						
				3.0						

PHOTOGRAPHS NOTES ☐ YES ☒ NO

METHOD
- N Natural Exposure
- E Existing Excavation
- BH Backhoe Bucket
- B Bulldozer Blade
- R Ripper

SUPPORT
- T Timbering

PENETRATION



WATER



SAMPLES & FIELD TESTS
- U50 - Undisturbed Sample 50 mm diameter
- D - Disturbed Sample
- B - Bulk Disturbed Sample
- MC - Moisture Content
- HP - Hand Penetrometer (UCS kPa)
- VS - Vane Shear; P-Peak, R-Remouded (uncorrected kPa)
- PBT - Plate Bearing Test

CLASSIFICATION SYMBOLS & SOIL DESCRIPTION
Based on Unified Classification System

MOISTURE
- D - Dry
- M - Moist
- W - Wet

CONSISTENCY/ RELATIVE DENSITY

VS	- Very Soft
S	- Soft
F	- Firm
St	- Stiff
VSt	- Very Stiff
H	- Hard
VL	- Very Loose
L	- Loose
MD	- Medium Dense
D	- Dense
VD	- Very Dense

See Explanatory Notes for details of abbreviations & basis of descriptions.

SMEC AUSTRALIA

UPDATED SMEC LIBRARY_AGS 3_1 RTA 1_1 LIB 08_WITH FENCE TOOL_COLOUR.GLB Log SMEC EXCAVATION 3002523 CANBERRA BRICKWORKS.GPJ <<DrawingFile>> 20/10/2016 12:55 8.30.003

EXCAVATION - GEOLOGICAL LOG

PIT NO : TP27

PROJECT : 3002523 | CLIENT : Land Development Agency | FILE / JOB NO : ara
LOCATION : Canberra Brickworks Blocks 1, 7 and 20 of Section 102 | FEATURE : Environmental | SHEET : 1 OF 1

POSITION : | SURFACE ELEVATION :

EQUIPMENT TYPE : | METHOD :

DATE EXCAVATED : | LOGGED BY : RO | CHECKED BY : GO

EXCAVATION DIMENSIONS :

DRILLING | MATERIAL

VE / PENETRATION / E / F / H	SUPPORT	GROUND WATER LEVELS	SAMPLES & FIELD TESTS	ELEVATION (RL) DEPTH (m)	GRAPHIC LOG	CLASSIFICATION SYMBOL	MATERIAL DESCRIPTION Soil Type, Colour, Plasticity or Particle Characteristic Secondary and Minor Components	MOISTURE CONDITION	CONSISTENCY RELATIVE DENSITY	STRUCTURE & Other Observations
			0.20m ES-TP27_0.2	0.0			Grey brown - clay soil PID: 0.0 ppm			
							0.20m Light brown yellow soil			
				0.5			0.60m Yellow brown sandy soil			
				1.0						
				1.5						
				2.0			2.00m			
				2.5			2.50m Bedrock EXCAVATION TP27 TERMINATED AT 2.50 m			
				3.0						

PHOTOGRAPHS NOTES ☐ YES ☒ NO

METHOD
- N Natural Exposure
- E Existing Excavation
- BH Backhoe Bucket
- B Bulldozer Blade
- R Ripper

SUPPORT
- T Timbering

PENETRATION
VE E F H VH — No Resistance

WATER
10 Oct., 73 Water Level on Date shown
water inflow
water outflow

SAMPLES & FIELD TESTS
- U50 - Undisturbed Sample 50 mm diameter
- D - Disturbed Sample
- B - Bulk Disturbed Sample
- MC - Moisture Content
- HP - Hand Penetrometer (UCS kPa)
- VS - Vane Shear; P-Peak, R-Remouded (uncorrected kPa)
- PBT - Plate Bearing Test

CLASSIFICATION SYMBOLS & SOIL DESCRIPTION
Based on Unified Classification System

MOISTURE
- D - Dry
- M - Moist
- W - Wet

CONSISTENCY/ RELATIVE DENSITY

VS	- Very Soft
S	- Soft
F	- Firm
St	- Stiff
VSt	- Very Stiff
H	- Hard
VL	- Very Loose
L	- Loose
MD	- Medium Dense
D	- Dense
VD	- Very Dense

See Explanatory Notes for details of abbreviations & basis of descriptions.

SMEC AUSTRALIA

UPDATED SMEC LIBRARY_AGS 3_1 RTA 1_1 LIB 08_WITH FENCE TOOL_COLOUR.GLB Log SMEC EXCAVATION 3002523 CANBERRA BRICKWORKS.GPJ <<DrawingFile>> 20/10/2016 12:55 8.30.003

EXCAVATION - GEOLOGICAL LOG

PIT NO : TP28

PROJECT : 3002523 | CLIENT : Land Development Agency | FILE / JOB NO : ara
LOCATION : Canberra Brickworks Blocks 1, 7 and 20 of Section 102 | FEATURE : Environmental | SHEET : 1 OF 1

POSITION : | SURFACE ELEVATION :

EQUIPMENT TYPE : | METHOD :

DATE EXCAVATED : | LOGGED BY : RO | CHECKED BY : GO

EXCAVATION DIMENSIONS :

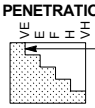
DRILLING						MATERIAL					
VE / E / F / H PENETRATION	SUPPORT	GROUND WATER LEVELS	SAMPLES & FIELD TESTS	ELEVATION (RL) DEPTH (m)	GRAPHIC LOG	CLASSIFICATION SYMBOL	MATERIAL DESCRIPTION Soil Type, Colour, Plasticity or Particle Characteristic Secondary and Minor Components	MOISTURE CONDITION	CONSISTENCY RELATIVE DENSITY	STRUCTURE & Other Observations
			0.15m ES-TP28_0.15	0.0			Fill - soil with brck fragments PID: 0.0 ppm			
							0.20m Brown to yellow siltstone - bedrock			
							0.40m EXCAVATION TP28 TERMINATED AT 0.40 m			
				0.5						
				1.0						
				1.5						
				2.0						
				2.5						
				3.0						

PHOTOGRAPHS NOTES ☐ YES ☒ NO

METHOD
- N Natural Exposure
- E Existing Excavation
- BH Backhoe Bucket
- B Bulldozer Blade
- R Ripper

SUPPORT
- T Timbering

PENETRATION



No Resistance

WATER



10 Oct., 73 Water Level on Date shown
water inflow
water outflow

SAMPLES & FIELD TESTS
- U50 - Undisturbed Sample 50 mm diameter
- D - Disturbed Sample
- B - Bulk Disturbed Sample
- MC - Moisture Content
- HP - Hand Penetrometer (UCS kPa)
- VS - Vane Shear; P-Peak, R-Remouded (uncorrected kPa)
- PBT - Plate Bearing Test

CLASSIFICATION SYMBOLS & SOIL DESCRIPTION
Based on Unified Classification System

MOISTURE
- D - Dry
- M - Moist
- W - Wet

CONSISTENCY/ RELATIVE DENSITY

VS	- Very Soft
S	- Soft
F	- Firm
St	- Stiff
VSt	- Very Stiff
H	- Hard
VL	- Very Loose
L	- Loose
MD	- Medium Dense
D	- Dense
VD	- Very Dense

See Explanatory Notes for details of abbreviations & basis of descriptions.

SMEC AUSTRALIA

UPDATED SMEC LIBRARY_AGS 3_1 RTA 1_1 LIB 08_WITH FENCE TOOL_COLOUR.GLB Log SMEC EXCAVATION 3002523 CANBERRA BRICKWORKS.GPJ <<DrawingFile>> 20/10/2016 12:55 8.30.003

EXCAVATION - GEOLOGICAL LOG

PIT NO : TP29

PROJECT : 3002523 | CLIENT : Land Development Agency | FILE / JOB NO : ara
LOCATION : Canberra Brickworks Blocks 1, 7 and 20 of Section 102 | FEATURE : Environmental | SHEET : 1 OF 1

POSITION : | SURFACE ELEVATION :

EQUIPMENT TYPE : | METHOD :

DATE EXCAVATED : | LOGGED BY : RO | CHECKED BY : GO

EXCAVATION DIMENSIONS :

DRILLING						MATERIAL					
VE / E / F / H PENETRATION	SUPPORT	GROUND WATER LEVELS	SAMPLES & FIELD TESTS	ELEVATION (RL) DEPTH (m)	GRAPHIC LOG	CLASSIFICATION SYMBOL	MATERIAL DESCRIPTION Soil Type, Colour, Plasticity or Particle Characteristic Secondary and Minor Components	MOISTURE CONDITION	CONSISTENCY RELATIVE DENSITY	STRUCTURE & Other Observations
			0.10m ES-TP29_0.1	0.0			Fill - red brown soil PID: 0.0 ppm			
							0.10m Fill - coal			
				0.5			0.30m Fill - bedrock			
							0.60m EXCAVATION TP29 TERMINATED AT 0.60 m			
				1.0						
				1.5						
				2.0						
				2.5						
				3.0						

PHOTOGRAPHS NOTES ☐ YES ☒ NO

METHOD
- N Natural Exposure
- E Existing Excavation
- BH Backhoe Bucket
- B Bulldozer Blade
- R Ripper

SUPPORT
- T Timbering

PENETRATION



No Resistance

WATER



10 Oct., 73 Water Level on Date shown
water inflow
water outflow

SAMPLES & FIELD TESTS
- U50 - Undisturbed Sample 50 mm diameter
- D - Disturbed Sample
- B - Bulk Disturbed Sample
- MC - Moisture Content
- HP - Hand Penetrometer (UCS kPa)
- VS - Vane Shear; P-Peak, R-Remouded (uncorrected kPa)
- PBT - Plate Bearing Test

CLASSIFICATION SYMBOLS & SOIL DESCRIPTION
Based on Unified Classification System

MOISTURE
- D - Dry
- M - Moist
- W - Wet

CONSISTENCY/ RELATIVE DENSITY

VS	- Very Soft
S	- Soft
F	- Firm
St	- Stiff
VSt	- Very Stiff
H	- Hard
VL	- Very Loose
L	- Loose
MD	- Medium Dense
D	- Dense
VD	- Very Dense

See Explanatory Notes for details of abbreviations & basis of descriptions.

SMEC AUSTRALIA

UPDATED SMEC LIBRARY_AGS 3_1 RTA 1_1 LIB 08_WITH FENCE TOOL_COLOUR.GLB Log SMEC EXCAVATION 3002523 CANBERRA BRICKWORKS.GPJ <<DrawingFile>> 20/10/2016 12:55 8.30.003

EXCAVATION - GEOLOGICAL LOG

PIT NO : TP30

PROJECT : 3002523 | CLIENT : Land Development Agency | FILE / JOB NO : ara
LOCATION : Canberra Brickworks Blocks 1, 7 and 20 of Section 102 | FEATURE : Environmental | SHEET : 1 OF 1

POSITION : | SURFACE ELEVATION :

EQUIPMENT TYPE : | METHOD :

DATE EXCAVATED : | LOGGED BY : RO | CHECKED BY : GO

EXCAVATION DIMENSIONS :

DRILLING					MATERIAL					
VE / PENETRATION / E / F / H	SUPPORT	GROUND WATER LEVELS	SAMPLES & FIELD TESTS	ELEVATION (RL) DEPTH (m)	GRAPHIC LOG	CLASSIFICATION SYMBOL	MATERIAL DESCRIPTION Soil Type, Colour, Plasticity or Particle Characteristic Secondary and Minor Components	MOISTURE CONDITION	CONSISTENCY RELATIVE DENSITY	STRUCTURE & Other Observations
			0.10m ES-TP30_0.1	0.0			Dark brown soil			
							0.30m Dark red-brown soil- clay and tree roots PID: 1.2 ppm			
				0.5			0.50m Yellow clay			
				1.0						
				1.5			1.50m Yellow clay			
							1.80m Yellow clay with shale rock EXCAVATION TP30 TERMINATED AT 1.80 m			
				2.0						
				2.5						
				3.0						

PHOTOGRAPHS NOTES ☐ YES ☒ NO

METHOD
- N Natural Exposure
- E Existing Excavation
- BH Backhoe Bucket
- B Bulldozer Blade
- R Ripper

SUPPORT
- T Timbering

PENETRATION
VE E F H VH — No Resistance

WATER
- 10 Oct., 73 Water Level on Date shown
- water inflow
- water outflow

SAMPLES & FIELD TESTS
- U50 - Undisturbed Sample 50 mm diameter
- D - Disturbed Sample
- B - Bulk Disturbed Sample
- MC - Moisture Content
- HP - Hand Penetrometer (UCS kPa)
- VS - Vane Shear; P-Peak, R-Remouded (uncorrected kPa)
- PBT - Plate Bearing Test

CLASSIFICATION SYMBOLS & SOIL DESCRIPTION
Based on Unified Classification System

MOISTURE
- D - Dry
- M - Moist
- W - Wet

CONSISTENCY/ RELATIVE DENSITY

VS	- Very Soft
S	- Soft
F	- Firm
St	- Stiff
VSt	- Very Stiff
H	- Hard
VL	- Very Loose
L	- Loose
MD	- Medium Dense
D	- Dense
VD	- Very Dense

See Explanatory Notes for details of abbreviations & basis of descriptions.

SMEC AUSTRALIA

UPDATED SMEC LIBRARY_AGS 3_1 RTA 1_1 LIB 08_WITH FENCE TOOL_COLOUR.GLB Log SMEC EXCAVATION 3002523 CANBERRA BRICKWORKS.GPJ <<DrawingFile>> 20/10/2016 12:55 8.30.003

EXCAVATION - GEOLOGICAL LOG

PIT NO : TP31

PROJECT : 3002523 | CLIENT : Land Development Agency | FILE / JOB NO : ara
LOCATION : Canberra Brickworks Blocks 1, 7 and 20 of Section 102 | FEATURE : Environmental | SHEET : 1 OF 1

POSITION : | SURFACE ELEVATION :

EQUIPMENT TYPE : | METHOD :

DATE EXCAVATED : | LOGGED BY : RO | CHECKED BY : GO

EXCAVATION DIMENSIONS :

DRILLING						MATERIAL					
VE / E / F / H PENETRATION	SUPPORT	GROUND WATER LEVELS	SAMPLES & FIELD TESTS	ELEVATION (RL) DEPTH (m)	GRAPHIC LOG	CLASSIFICATION SYMBOL	MATERIAL DESCRIPTION Soil Type, Colour, Plasticity or Particle Characteristic Secondary and Minor Components	MOISTURE CONDITION	CONSISTENCY RELATIVE DENSITY	STRUCTURE & Other Observations
				0.0			Fill - light brown soil			
			0.30m ES-TP31_0.3				0.30m Fill - Slate present - red brown soil			
				0.5			0.50m EXCAVATION TP31 TERMINATED AT 0.50 m			
				1.0						
				1.5						
				2.0						
				2.5						
				3.0						

PHOTOGRAPHS NOTES ☐ YES ☒ NO

METHOD
- N Natural Exposure
- E Existing Excavation
- BH Backhoe Bucket
- B Bulldozer Blade
- R Ripper

SUPPORT
- T Timbering

PENETRATION



No Resistance

WATER



10 Oct., 73 Water Level on Date shown
water inflow
water outflow

SAMPLES & FIELD TESTS
- U50 - Undisturbed Sample 50 mm diameter
- D - Disturbed Sample
- B - Bulk Disturbed Sample
- MC - Moisture Content
- HP - Hand Penetrometer (UCS kPa)
- VS - Vane Shear; P-Peak, R-Remouded (uncorrected kPa)
- PBT - Plate Bearing Test

CLASSIFICATION SYMBOLS & SOIL DESCRIPTION
Based on Unified Classification System

MOISTURE
- D - Dry
- M - Moist
- W - Wet

CONSISTENCY/ RELATIVE DENSITY

VS	- Very Soft
S	- Soft
F	- Firm
St	- Stiff
VSt	- Very Stiff
H	- Hard
VL	- Very Loose
L	- Loose
MD	- Medium Dense
D	- Dense
VD	- Very Dense

See Explanatory Notes for details of abbreviations & basis of descriptions.

SMEC AUSTRALIA

UPDATED SMEC LIBRARY_AGS 3_1 RTA 1_1 LIB 08_WITH FENCE TOOL_COLOUR.GLB Log SMEC EXCAVATION 3002523 CANBERRA BRICKWORKS.GPJ <<DrawingFile>> 20/10/2016 12:55 8.30.003

EXCAVATION - GEOLOGICAL LOG

PIT NO : TP32

PROJECT : 3002523 | CLIENT : Land Development Agency | FILE / JOB NO : ara
LOCATION : Canberra Brickworks Blocks 1, 7 and 20 of Section 102 | FEATURE : Environmental | SHEET : 1 OF 1

POSITION : | SURFACE ELEVATION :

EQUIPMENT TYPE : | METHOD :

DATE EXCAVATED : | LOGGED BY : RO | CHECKED BY : GO

EXCAVATION DIMENSIONS :

DRILLING | MATERIAL

VE / E / F / H PENETRATION	SUPPORT	GROUND WATER LEVELS	SAMPLES & FIELD TESTS	ELEVATION (RL) DEPTH (m)	GRAPHIC LOG	CLASSIFICATION SYMBOL	MATERIAL DESCRIPTION Soil Type, Colour, Plasticity or Particle Characteristic Secondary and Minor Components	MOISTURE CONDITION	CONSISTENCY RELATIVE DENSITY	STRUCTURE & Other Observations
			0.10m ES-TP32_0.1	0.0			Fill- Red brown soil PID: 0.0 ppm			
							0.10m Fill - ash with yellow soil			
				0.5			0.30m Fill - ash coal layer			
							0.40m Yellow brown clay with siltstone			
				1.0						
				1.5						
				2.0			2.00m EXCAVATION TP32 TERMINATED AT 2.00 m			
				2.5						
				3.0						

PHOTOGRAPHS NOTES ☐ YES ☒ NO

METHOD
- N Natural Exposure
- E Existing Excavation
- BH Backhoe Bucket
- B Bulldozer Blade
- R Ripper

SUPPORT
- T Timbering

PENETRATION
VE E F H VH — No Resistance

WATER
10 Oct., 73 Water Level on Date shown
water inflow
water outflow

SAMPLES & FIELD TESTS
- U50 - Undisturbed Sample 50 mm diameter
- D - Disturbed Sample
- B - Bulk Disturbed Sample
- MC - Moisture Content
- HP - Hand Penetrometer (UCS kPa)
- VS - Vane Shear; P-Peak, R-Remouded (uncorrected kPa)
- PBT - Plate Bearing Test

CLASSIFICATION SYMBOLS & SOIL DESCRIPTION
Based on Unified Classification System

MOISTURE
- D - Dry
- M - Moist
- W - Wet

CONSISTENCY/ RELATIVE DENSITY

VS	- Very Soft
S	- Soft
F	- Firm
St	- Stiff
VSt	- Very Stiff
H	- Hard
VL	- Very Loose
L	- Loose
MD	- Medium Dense
D	- Dense
VD	- Very Dense

See Explanatory Notes for details of abbreviations & basis of descriptions.

SMEC AUSTRALIA

UPDATED SMEC LIBRARY_AGS 3_1 RTA 1_1 LIB 08_WITH FENCE TOOL_COLOUR.GLB Log SMEC EXCAVATION 3002523 CANBERRA BRICKWORKS.GPJ <<DrawingFile>> 20/10/2016 12:55 8.30.003

EXCAVATION - GEOLOGICAL LOG

PIT NO : TP34-A

PROJECT : 3002523 | CLIENT : Land Development Agency | FILE / JOB NO : ara
LOCATION : Canberra Brickworks Blocks 1, 7 and 20 of Section 102 | FEATURE : Environmental | SHEET : 1 OF 1

POSITION : | SURFACE ELEVATION :

EQUIPMENT TYPE : | METHOD :

DATE EXCAVATED : | LOGGED BY : RO | CHECKED BY : GO

EXCAVATION DIMENSIONS :

DRILLING | MATERIAL

VE / E / F / H PENETRATION	SUPPORT	GROUND WATER LEVELS	SAMPLES & FIELD TESTS	ELEVATION (RL) DEPTH (m)	GRAPHIC LOG	CLASSIFICATION SYMBOL	MATERIAL DESCRIPTION Soil Type, Colour, Plasticity or Particle Characteristic Secondary and Minor Components	MOISTURE CONDITION	CONSISTENCY RELATIVE DENSITY	STRUCTURE & Other Observations
				0.0			Fill - mixed fill, ash brick chips			
			0.50m ES-TP34A_0.5	0.5			0.50m Fill - red brown fill , bricks, concrete slabs			
							0.80m Fill - bricks red brown clayey sand			
				1.0			1.40m Bedrock - siltstone			
				1.5			1.50m EXCAVATION TP34-A TERMINATED AT 1.50 m			
				2.0						
				2.5						
				3.0						

PHOTOGRAPHS NOTES ☐ YES ☒ NO

METHOD
- N Natural Exposure
- E Existing Excavation
- BH Backhoe Bucket
- B Bulldozer Blade
- R Ripper

SUPPORT
- T Timbering

PENETRATION



No Resistance

WATER



10 Oct., 73 Water Level on Date shown
water inflow
water outflow

SAMPLES & FIELD TESTS
- U50 - Undisturbed Sample 50 mm diameter
- D - Disturbed Sample
- B - Bulk Disturbed Sample
- MC - Moisture Content
- HP - Hand Penetrometer (UCS kPa)
- VS - Vane Shear; P-Peak, R-Remouded (uncorrected kPa)
- PBT - Plate Bearing Test

CLASSIFICATION SYMBOLS & SOIL DESCRIPTION
Based on Unified Classification System

MOISTURE
- D - Dry
- M - Moist
- W - Wet

CONSISTENCY/ RELATIVE DENSITY

VS	- Very Soft
S	- Soft
F	- Firm
St	- Stiff
VSt	- Very Stiff
H	- Hard
VL	- Very Loose
L	- Loose
MD	- Medium Dense
D	- Dense
VD	- Very Dense

See Explanatory Notes for details of abbreviations & basis of descriptions.

SMEC AUSTRALIA

UPDATED SMEC LIBRARY_AGS 3_1 RTA 1_1 LIB 08_WITH FENCE TOOL_COLOUR.GLB Log SMEC EXCAVATION 3002523 CANBERRA BRICKWORKS.GPJ <<DrawingFile>> 20/10/2016 12:55 8.30.003

EXCAVATION - GEOLOGICAL LOG

PIT NO : TP35

PROJECT : 3002523 | CLIENT : Land Development Agency | FILE / JOB NO : ara
LOCATION : Canberra Brickworks Blocks 1, 7 and 20 of Section 102 | FEATURE : Environmental | SHEET : 1 OF 1

POSITION : | SURFACE ELEVATION :

EQUIPMENT TYPE : | METHOD :

DATE EXCAVATED : | LOGGED BY : RO | CHECKED BY : GO

EXCAVATION DIMENSIONS :

DRILLING | MATERIAL

VE / PENETRATION E F H	SUPPORT	GROUND WATER LEVELS	SAMPLES & FIELD TESTS	ELEVATION (RL) DEPTH (m)	GRAPHIC LOG	CLASSIFICATION SYMBOL	MATERIAL DESCRIPTION Soil Type, Colour, Plasticity or Particle Characteristic Secondary and Minor Components	MOISTURE CONDITION	CONSISTENCY RELATIVE DENSITY	STRUCTURE & Other Observations
				0.0			Grass cover broken up , gravelly sand , bricls ash, old clay			
							0.10m Fill - concrete pipe, bricks, ash, clay			
				0.5						
			0.90m ES-TP35_0.9-1.0				0.90m Topsoil ? Silty Clay, brown slightly moist , low to medium plasticty			
				1.0			1.00m Low - medium plasticity orange to brown clay , mottled , balck and white Feldspar			
							1.20m Yellow to brown silty clay			
				1.5						
				2.0			2.20m			
				2.5			EXCAVATION TP35 TERMINATED AT 2.50 m			
				3.0						

PHOTOGRAPHS NOTES ☐ YES ☒ NO

METHOD
- N Natural Exposure
- E Existing Excavation
- BH Backhoe Bucket
- B Bulldozer Blade
- R Ripper

SUPPORT
- T Timbering

PENETRATION
VE E F H VH — No Resistance

WATER
10 Oct., 73 Water Level on Date shown
water inflow
water outflow

SAMPLES & FIELD TESTS
- U50 - Undisturbed Sample 50 mm diameter
- D - Disturbed Sample
- B - Bulk Disturbed Sample
- MC - Moisture Content
- HP - Hand Penetrometer (UCS kPa)
- VS - Vane Shear; P-Peak, R-Remouded (uncorrected kPa)
- PBT - Plate Bearing Test

CLASSIFICATION SYMBOLS & SOIL DESCRIPTION
Based on Unified Classification System

MOISTURE
- D - Dry
- M - Moist
- W - Wet

CONSISTENCY/ RELATIVE DENSITY

VS	- Very Soft
S	- Soft
F	- Firm
St	- Stiff
VSt	- Very Stiff
H	- Hard
VL	- Very Loose
L	- Loose
MD	- Medium Dense
D	- Dense
VD	- Very Dense

See Explanatory Notes for details of abbreviations & basis of descriptions.

SMEC AUSTRALIA

UPDATED SMEC LIBRARY_AGS 3_1 RTA 1_1 LIB 08_WITH FENCE TOOL_COLOUR.GLB Log SMEC EXCAVATION 3002523 CANBERRA BRICKWORKS.GPJ <<DrawingFile>> 20/10/2016 12:55 8.30.003

EXCAVATION - GEOLOGICAL LOG

PIT NO : TP36

PROJECT : 3002523 | CLIENT : Land Development Agency | FILE / JOB NO : ara
LOCATION : Canberra Brickworks Blocks 1, 7 and 20 of Section 102 | FEATURE : Environmental | SHEET : 1 OF 1

POSITION : | SURFACE ELEVATION :

EQUIPMENT TYPE : | METHOD :

DATE EXCAVATED : | LOGGED BY : RO | CHECKED BY : GO

EXCAVATION DIMENSIONS :

DRILLING | MATERIAL

VE / PENETRATION E F H	SUPPORT	GROUND WATER LEVELS	SAMPLES & FIELD TESTS	ELEVATION (RL) DEPTH (m)	GRAPHIC LOG	CLASSIFICATION SYMBOL	MATERIAL DESCRIPTION Soil Type, Colour, Plasticity or Particle Characteristic Secondary and Minor Components	MOISTURE CONDITION	CONSISTENCY RELATIVE DENSITY	STRUCTURE & Other Observations
				0.0			Topsoil			
			0.20m ES-TP36_0.2	0.2-0.3			0.15m Sandy orange clay with gravel (5-25mm)			
				0.5			0.40m Silty clay light brown			
				1.0			0.90m Red brown clay			
				1.5			1.90m			
				2.0			EXCAVATION TP36 TERMINATED AT 1.90 m			
				2.5						
				3.0						

PHOTOGRAPHS NOTES ☐ YES ☒ NO

METHOD
- N Natural Exposure
- E Existing Excavation
- BH Backhoe Bucket
- B Bulldozer Blade
- R Ripper

SUPPORT
- T Timbering

PENETRATION
VE E F H VH — No Resistance

WATER
10 Oct., 73 Water Level on Date shown
water inflow
water outflow

SAMPLES & FIELD TESTS
- U50 - Undisturbed Sample 50 mm diameter
- D - Disturbed Sample
- B - Bulk Disturbed Sample
- MC - Moisture Content
- HP - Hand Penetrometer (UCS kPa)
- VS - Vane Shear; P-Peak, R-Remouded (uncorrected kPa)
- PBT - Plate Bearing Test

CLASSIFICATION SYMBOLS & SOIL DESCRIPTION
Based on Unified Classification System

MOISTURE
- D - Dry
- M - Moist
- W - Wet

CONSISTENCY/ RELATIVE DENSITY

VS	- Very Soft
S	- Soft
F	- Firm
St	- Stiff
VSt	- Very Stiff
H	- Hard
VL	- Very Loose
L	- Loose
MD	- Medium Dense
D	- Dense
VD	- Very Dense

See Explanatory Notes for details of abbreviations & basis of descriptions.

SMEC AUSTRALIA

UPDATED SMEC LIBRARY_AGS 3_1 RTA 1_1 LIB 08_WITH FENCE TOOL_COLOUR.GLB Log SMEC EXCAVATION 3002523 CANBERRA BRICKWORKS.GPJ <<DrawingFile>> 20/10/2016 12:55 8.30.003

EXCAVATION - GEOLOGICAL LOG

PIT NO : TP38

PROJECT : 3002523 | CLIENT : Land Development Agency | FILE / JOB NO : ara
LOCATION : Canberra Brickworks Blocks 1, 7 and 20 of Section 102 | FEATURE : Environmental | SHEET : 1 OF 1

POSITION : | SURFACE ELEVATION :

EQUIPMENT TYPE : | METHOD :

DATE EXCAVATED : | LOGGED BY : RO | CHECKED BY : GO

EXCAVATION DIMENSIONS :

DRILLING | MATERIAL

VE / PENETRATION E F H	SUPPORT	GROUND WATER LEVELS	SAMPLES & FIELD TESTS	ELEVATION (RL) DEPTH (m)	GRAPHIC LOG	CLASSIFICATION SYMBOL	MATERIAL DESCRIPTION Soil Type, Colour, Plasticity or Particle Characteristic Secondary and Minor Components	MOISTURE CONDITION	CONSISTENCY RELATIVE DENSITY	STRUCTURE & Other Observations
				0.0			Natural topsoil			
				0.10m			Silty Sand, slight moisture , tree roots			
				0.50m			Red silty clay - slight moisture- minor gravels			
				0.90m			High plasticity red brwon clay high plasticity			
			1.30m ES-TP38_1.3-1.4	1.0						
				1.50m			EXCAVATION TP38 TERMINATED AT 1.50 m			
				2.0						
				2.5						
				3.0						

PHOTOGRAPHS NOTES ☐ YES ☒ NO

METHOD
- N Natural Exposure
- E Existing Excavation
- BH Backhoe Bucket
- B Bulldozer Blade
- R Ripper

SUPPORT
- T Timbering

PENETRATION
VE E F H VH — No Resistance

WATER
10 Oct., 73 Water Level on Date shown
water inflow
water outflow

SAMPLES & FIELD TESTS
- U50 - Undisturbed Sample 50 mm diameter
- D - Disturbed Sample
- B - Bulk Disturbed Sample
- MC - Moisture Content
- HP - Hand Penetrometer (UCS kPa)
- VS - Vane Shear; P-Peak, R-Remouded (uncorrected kPa)
- PBT - Plate Bearing Test

CLASSIFICATION SYMBOLS & SOIL DESCRIPTION
Based on Unified Classification System

MOISTURE
- D - Dry
- M - Moist
- W - Wet

CONSISTENCY/ RELATIVE DENSITY

VS	- Very Soft
S	- Soft
F	- Firm
St	- Stiff
VSt	- Very Stiff
H	- Hard
VL	- Very Loose
L	- Loose
MD	- Medium Dense
D	- Dense
VD	- Very Dense

See Explanatory Notes for details of abbreviations & basis of descriptions.

SMEC AUSTRALIA

UPDATED SMEC LIBRARY_AGS 3_1 RTA 1_1 LIB 08_WITH FENCE TOOL_COLOUR.GLB Log SMEC EXCAVATION 3002523 CANBERRA BRICKWORKS.GPJ <<DrawingFile>> 20/10/2016 12:55 8.30.003

EXCAVATION - GEOLOGICAL LOG

PIT NO : TP40

PROJECT : 3002523 | CLIENT : Land Development Agency | FILE / JOB NO : ara
LOCATION : Canberra Brickworks Blocks 1, 7 and 20 of Section 102 | FEATURE : Environmental | SHEET : 1 OF 1

POSITION : | SURFACE ELEVATION :

EQUIPMENT TYPE : | METHOD :

DATE EXCAVATED : | LOGGED BY : RO | CHECKED BY : GO

EXCAVATION DIMENSIONS :

DRILLING | MATERIAL

VE	E	F	H	PENETRATION	SUPPORT	GROUND WATER LEVELS	SAMPLES & FIELD TESTS	ELEVATION (RL) DEPTH (m)	GRAPHIC LOG	CLASSIFICATION SYMBOL	MATERIAL DESCRIPTION Soil Type, Colour, Plasticity or Particle Characteristic Secondary and Minor Components	MOISTURE CONDITION	CONSISTENCY RELATIVE DENSITY	STRUCTURE & Other Observations
							0.10m ES-TP40.2_0.1	0.0			Fill - red brown fill with ash, no odour noted			
								0.5			0.50m Fill - yellow brown clay with slate rock			
								1.0						
								1.5			1.50m Yellow brown clay with slate rock			
											1.70m EXCAVATION TP40 TERMINATED AT 1.70 m			
								2.0						
								2.5						
								3.0						

PHOTOGRAPHS NOTES ☐ YES ☒ NO

METHOD
- N Natural Exposure
- E Existing Excavation
- BH Backhoe Bucket
- B Bulldozer Blade
- R Ripper

SUPPORT
- T Timbering

PENETRATION



WATER



SAMPLES & FIELD TESTS
- U50 - Undisturbed Sample 50 mm diameter
- D - Disturbed Sample
- B - Bulk Disturbed Sample
- MC - Moisture Content
- HP - Hand Penetrometer (UCS kPa)
- VS - Vane Shear; P-Peak, R-Remouded (uncorrected kPa)
- PBT - Plate Bearing Test

CLASSIFICATION SYMBOLS & SOIL DESCRIPTION
Based on Unified Classification System

MOISTURE
- D - Dry
- M - Moist
- W - Wet

CONSISTENCY/ RELATIVE DENSITY

VS	- Very Soft
S	- Soft
F	- Firm
St	- Stiff
VSt	- Very Stiff
H	- Hard
VL	- Very Loose
L	- Loose
MD	- Medium Dense
D	- Dense
VD	- Very Dense

See Explanatory Notes for details of abbreviations & basis of descriptions.

SMEC AUSTRALIA

UPDATED SMEC LIBRARY_AGS 3_1 RTA 1_1 LIB 08_WITH FENCE TOOL_COLOUR.GLB Log SMEC EXCAVATION 3002523 CANBERRA BRICKWORKS.GPJ <<DrawingFile>> 20/10/2016 12:55 8.30.003

EXCAVATION - GEOLOGICAL LOG

PIT NO : TP41

PROJECT : 3002523 | CLIENT : Land Development Agency | FILE / JOB NO : ara
LOCATION : Canberra Brickworks Blocks 1, 7 and 20 of Section 102 | FEATURE : Environmental | SHEET : 1 OF 1

POSITION : | SURFACE ELEVATION :

EQUIPMENT TYPE : | METHOD :

DATE EXCAVATED : | LOGGED BY : RO | CHECKED BY : GO

EXCAVATION DIMENSIONS :

DRILLING | MATERIAL

VE / E / F / H PENETRATION	SUPPORT	GROUND WATER LEVELS	SAMPLES & FIELD TESTS	ELEVATION (RL) DEPTH (m)	GRAPHIC LOG	CLASSIFICATION SYMBOL	MATERIAL DESCRIPTION Soil Type, Colour, Plasticity or Particle Characteristic Secondary and Minor Components	MOISTURE CONDITION	CONSISTENCY RELATIVE DENSITY	STRUCTURE & Other Observations
			0.05m TP41_0.05-0.15	0.0			Natural topsoil - tree roots and rootlets present PID: 0.4 ppm			
				0.5						
				1.0			1.00m Clay - less dense red brown, med plasticity			
							1.30m Clay - less dense red brown, med plasticity, water surging PID: 0.5ppm 1.40m			
				1.5						
							EXCAVATION TP41 TERMINATED AT 1.80 m			
				2.0						
				2.5						
				3.0						

PHOTOGRAPHS NOTES ☐ YES ☒ NO

METHOD
- N Natural Exposure
- E Existing Excavation
- BH Backhoe Bucket
- B Bulldozer Blade
- R Ripper

SUPPORT
- T Timbering

PENETRATION
VE E F H VH — No Resistance

WATER
10 Oct., 73 Water Level on Date shown
water inflow
water outflow

SAMPLES & FIELD TESTS
- U50 - Undisturbed Sample 50 mm diameter
- D - Disturbed Sample
- B - Bulk Disturbed Sample
- MC - Moisture Content
- HP - Hand Penetrometer (UCS kPa)
- VS - Vane Shear; P-Peak, R-Remouded (uncorrected kPa)
- PBT - Plate Bearing Test

CLASSIFICATION SYMBOLS & SOIL DESCRIPTION
Based on Unified Classification System

MOISTURE
- D - Dry
- M - Moist
- W - Wet

CONSISTENCY/ RELATIVE DENSITY

VS	- Very Soft
S	- Soft
F	- Firm
St	- Stiff
VSt	- Very Stiff
H	- Hard
VL	- Very Loose
L	- Loose
MD	- Medium Dense
D	- Dense
VD	- Very Dense

See Explanatory Notes for details of abbreviations & basis of descriptions.

SMEC AUSTRALIA

UPDATED SMEC LIBRARY_AGS 3_1 RTA 1_1 LIB 08_WITH FENCE TOOL_COLOUR.GLB Log SMEC EXCAVATION 3002523 CANBERRA BRICKWORKS.GPJ <<DrawingFile>> 20/10/2016 12:55 8.30.003

EXCAVATION - GEOLOGICAL LOG

PIT NO : TP42

PROJECT : 3002523 | CLIENT : Land Development Agency | FILE / JOB NO : ara
LOCATION : Canberra Brickworks Blocks 1, 7 and 20 of Section 102 | FEATURE : Environmental | SHEET : 1 OF 1

POSITION : | SURFACE ELEVATION :

EQUIPMENT TYPE : | METHOD :

DATE EXCAVATED : | LOGGED BY : RO | CHECKED BY : GO

EXCAVATION DIMENSIONS :

DRILLING						MATERIAL					
VE / E / F / H PENETRATION	SUPPORT	GROUND WATER LEVELS	SAMPLES & FIELD TESTS	ELEVATION (RL) DEPTH (m)	GRAPHIC LOG	CLASSIFICATION SYMBOL	MATERIAL DESCRIPTION Soil Type, Colour, Plasticity or Particle Characteristic Secondary and Minor Components	MOISTURE CONDITION	CONSISTENCY RELATIVE DENSITY	STRUCTURE & Other Observations
				0.0			Fill - brown to dark brown soil PID: 0.2 ppm			
			0.30m ES-TP42_0.3				0.20m Bedrock - weathered slate / sandy silt yellow to brown slight moisture			
				0.5			0.50m EXCAVATION TP42 TERMINATED AT 0.50 m			
				1.0						
				1.5						
				2.0						
				2.5						
				3.0						

PHOTOGRAPHS NOTES ☐ YES ☒ NO

METHOD
- N Natural Exposure
- E Existing Excavation
- BH Backhoe Bucket
- B Bulldozer Blade
- R Ripper

SUPPORT
- T Timbering

PENETRATION



No Resistance

WATER



10 Oct., 73 Water Level on Date shown
water inflow
water outflow

SAMPLES & FIELD TESTS
- U50 - Undisturbed Sample 50 mm diameter
- D - Disturbed Sample
- B - Bulk Disturbed Sample
- MC - Moisture Content
- HP - Hand Penetrometer (UCS kPa)
- VS - Vane Shear; P-Peak, R-Remouded (uncorrected kPa)
- PBT - Plate Bearing Test

CLASSIFICATION SYMBOLS & SOIL DESCRIPTION
Based on Unified Classification System

MOISTURE
- D - Dry
- M - Moist
- W - Wet

CONSISTENCY/ RELATIVE DENSITY

VS	- Very Soft
S	- Soft
F	- Firm
St	- Stiff
VSt	- Very Stiff
H	- Hard
VL	- Very Loose
L	- Loose
MD	- Medium Dense
D	- Dense
VD	- Very Dense

See Explanatory Notes for details of abbreviations & basis of descriptions.

SMEC AUSTRALIA

UPDATED SMEC LIBRARY_AGS 3_1 RTA 1_1 LIB 08_WITH FENCE TOOL_COLOUR.GLB Log SMEC EXCAVATION 3002523 CANBERRA BRICKWORKS.GPJ <<DrawingFile>> 20/10/2016 12:55 8.30.003

EXCAVATION - GEOLOGICAL LOG

PIT NO : TP43

PROJECT : 3002523 | CLIENT : Land Development Agency | FILE / JOB NO : ara
LOCATION : Canberra Brickworks Blocks 1, 7 and 20 of Section 102 | FEATURE : Environmental | SHEET : 1 OF 1

POSITION : | SURFACE ELEVATION :

EQUIPMENT TYPE : | METHOD :

DATE EXCAVATED : | LOGGED BY : RO | CHECKED BY : GO

EXCAVATION DIMENSIONS :

DRILLING | MATERIAL

VE / E / F / H PENETRATION	SUPPORT	GROUND WATER LEVELS	SAMPLES & FIELD TESTS	ELEVATION (RL) DEPTH (m)	GRAPHIC LOG	CLASSIFICATION SYMBOL	MATERIAL DESCRIPTION Soil Type, Colour, Plasticity or Particle Characteristic Secondary and Minor Components	MOISTURE CONDITION	CONSISTENCY RELATIVE DENSITY	STRUCTURE & Other Observations
			0.10m ES-TP43_0.1	0.0			Fill - dark brown soil PID: 0.0 ppm			
							0.10m Fill- dark red brown soil			
							0.30m Fill - red brown soil			
			0.80m ES-TP43_0.8	0.5						
				1.0						
				1.5						
				2.0						
				2.5						
				3.0			3.00m			

PHOTOGRAPHS NOTES ☐ YES ☒ NO

EXCAVATION TP43 TERMINATED AT 3.00 m

METHOD
- N Natural Exposure
- E Existing Excavation
- BH Backhoe Bucket
- B Bulldozer Blade
- R Ripper

SUPPORT
- T Timbering

PENETRATION
VE E F H VH — No Resistance

WATER
10 Oct., 73 Water Level on Date shown
water inflow
water outflow

SAMPLES & FIELD TESTS
- U50 - Undisturbed Sample 50 mm diameter
- D - Disturbed Sample
- B - Bulk Disturbed Sample
- MC - Moisture Content
- HP - Hand Penetrometer (UCS kPa)
- VS - Vane Shear; P-Peak, R-Remouded (uncorrected kPa)
- PBT - Plate Bearing Test

CLASSIFICATION SYMBOLS & SOIL DESCRIPTION
Based on Unified Classification System

MOISTURE
- D - Dry
- M - Moist
- W - Wet

CONSISTENCY/ RELATIVE DENSITY

VS	- Very Soft
S	- Soft
F	- Firm
St	- Stiff
VSt	- Very Stiff
H	- Hard
VL	- Very Loose
L	- Loose
MD	- Medium Dense
D	- Dense
VD	- Very Dense

See Explanatory Notes for details of abbreviations & basis of descriptions.

SMEC AUSTRALIA

UPDATED SMEC LIBRARY_AGS 3_1 RTA 1_1 LIB 08_WITH FENCE TOOL_COLOUR.GLB Log SMEC EXCAVATION 3002523 CANBERRA BRICKWORKS.GPJ <<DrawingFile>> 20/10/2016 12:55 8.30.003

EXCAVATION - GEOLOGICAL LOG

PIT NO : TP44

PROJECT : 3002523 | CLIENT : Land Development Agency | FILE / JOB NO : ara
LOCATION : Canberra Brickworks Blocks 1, 7 and 20 of Section 102 | FEATURE : Environmental | SHEET : 1 OF 1

POSITION : | SURFACE ELEVATION :

EQUIPMENT TYPE : | METHOD :

DATE EXCAVATED : | LOGGED BY : RO | CHECKED BY : GO

EXCAVATION DIMENSIONS :

DRILLING | MATERIAL

VE / E / F / H PENETRATION	SUPPORT	GROUND WATER LEVELS	SAMPLES & FIELD TESTS	ELEVATION (RL) DEPTH (m)	GRAPHIC LOG	CLASSIFICATION SYMBOL	MATERIAL DESCRIPTION Soil Type, Colour, Plasticity or Particle Characteristic Secondary and Minor Components	MOISTURE CONDITION	CONSISTENCY RELATIVE DENSITY	STRUCTURE & Other Observations
			0.10m ES-TP44_0.1	0.0			Fill - dark brown soil PID: 0.7 ppm			
			0.50m ES-TP44_0.5	0.5			0.50m Fill - grey soil			
							0.80m Fill - dark brown soil			
				1.0						
							1.20m Yellow brown soil to bedrock			
				1.5						
				2.0			2.00m EXCAVATION TP44 TERMINATED AT 2.00 m			
				2.5						
				3.0						

PHOTOGRAPHS NOTES ☐ YES ☒ NO

METHOD
- N Natural Exposure
- E Existing Excavation
- BH Backhoe Bucket
- B Bulldozer Blade
- R Ripper

SUPPORT
- T Timbering

PENETRATION
VE E F H VH — No Resistance

WATER
- 10 Oct., 73 Water Level on Date shown
- water inflow
- water outflow

SAMPLES & FIELD TESTS
- U50 - Undisturbed Sample 50 mm diameter
- D - Disturbed Sample
- B - Bulk Disturbed Sample
- MC - Moisture Content
- HP - Hand Penetrometer (UCS kPa)
- VS - Vane Shear; P-Peak, R-Remouded (uncorrected kPa)
- PBT - Plate Bearing Test

CLASSIFICATION SYMBOLS & SOIL DESCRIPTION
Based on Unified Classification System

MOISTURE
- D - Dry
- M - Moist
- W - Wet

CONSISTENCY/ RELATIVE DENSITY

VS	- Very Soft
S	- Soft
F	- Firm
St	- Stiff
VSt	- Very Stiff
H	- Hard
VL	- Very Loose
L	- Loose
MD	- Medium Dense
D	- Dense
VD	- Very Dense

See Explanatory Notes for details of abbreviations & basis of descriptions.

SMEC AUSTRALIA

UPDATED SMEC LIBRARY_AGS 3_1 RTA 1_1 LIB 08_WITH FENCE TOOL_COLOUR.GLB Log SMEC EXCAVATION 3002523 CANBERRA BRICKWORKS.GPJ <<DrawingFile>> 20/10/2016 12:55 8.30.003

EXCAVATION - GEOLOGICAL LOG

PIT NO : TP45

PROJECT : 3002523 | CLIENT : Land Development Agency | FILE / JOB NO : ara
LOCATION : Canberra Brickworks Blocks 1, 7 and 20 of Section 102 | FEATURE : Environmental | SHEET : 1 OF 1

POSITION : | SURFACE ELEVATION :

EQUIPMENT TYPE : | METHOD :

DATE EXCAVATED : | LOGGED BY : RO | CHECKED BY : GO

EXCAVATION DIMENSIONS :

DRILLING						MATERIAL					
VE / E / F / H PENETRATION	SUPPORT	GROUND WATER LEVELS	SAMPLES & FIELD TESTS	ELEVATION (RL) DEPTH (m)	GRAPHIC LOG	CLASSIFICATION SYMBOL	MATERIAL DESCRIPTION Soil Type, Colour, Plasticity or Particle Characteristic Secondary and Minor Components	MOISTURE CONDITION	CONSISTENCY RELATIVE DENSITY	STRUCTURE & Other Observations
				0.0			Topsoil - grass			
							0.15m Silty sand , bricks , rootlets			
			0.30m ES-TP45_0.3-0.4							
				0.5			0.50m Red nutrient rich soil , soft silty sand			
				1.0			1.10m Red nutrient rich soil , soft silty sand, small gravels (5%)			
				1.5			1.60m EXCAVATION TP45 TERMINATED AT 1.60 m			
				2.0						
				2.5						
				3.0						

PHOTOGRAPHS NOTES ☐ YES ☒ NO

METHOD
- N Natural Exposure
- E Existing Excavation
- BH Backhoe Bucket
- B Bulldozer Blade
- R Ripper

SUPPORT
- T Timbering

PENETRATION



WATER



SAMPLES & FIELD TESTS
- U50 - Undisturbed Sample 50 mm diameter
- D - Disturbed Sample
- B - Bulk Disturbed Sample
- MC - Moisture Content
- HP - Hand Penetrometer (UCS kPa)
- VS - Vane Shear; P-Peak, R-Remouded (uncorrected kPa)
- PBT - Plate Bearing Test

CLASSIFICATION SYMBOLS & SOIL DESCRIPTION
Based on Unified Classification System

MOISTURE
- D - Dry
- M - Moist
- W - Wet

CONSISTENCY/ RELATIVE DENSITY

VS	- Very Soft
S	- Soft
F	- Firm
St	- Stiff
VSt	- Very Stiff
H	- Hard
VL	- Very Loose
L	- Loose
MD	- Medium Dense
D	- Dense
VD	- Very Dense

See Explanatory Notes for details of abbreviations & basis of descriptions.

SMEC AUSTRALIA

UPDATED SMEC LIBRARY_AGS 3_1 RTA 1_1 LIB 08_WITH FENCE TOOL_COLOUR.GLB Log SMEC EXCAVATION 3002523 CANBERRA BRICKWORKS.GPJ <<DrawingFile>> 20/10/2016 12:55 8.30.003

EXCAVATION - GEOLOGICAL LOG

PIT NO : TP46

PROJECT : 3002523 | CLIENT : Land Development Agency | FILE / JOB NO : ara
LOCATION : Canberra Brickworks Blocks 1, 7 and 20 of Section 102 | FEATURE : Environmental | SHEET : 1 OF 1

POSITION : | SURFACE ELEVATION :

EQUIPMENT TYPE : | METHOD :

DATE EXCAVATED : | LOGGED BY : RO | CHECKED BY : GO

EXCAVATION DIMENSIONS :

DRILLING | MATERIAL

VE / E / PENETRATION / F / H	SUPPORT	GROUND WATER LEVELS	SAMPLES & FIELD TESTS	ELEVATION (RL) DEPTH (m)	GRAPHIC LOG	CLASSIFICATION SYMBOL	MATERIAL DESCRIPTION Soil Type, Colour, Plasticity or Particle Characteristic Secondary and Minor Components	MOISTURE CONDITION	CONSISTENCY RELATIVE DENSITY	STRUCTURE & Other Observations
			0.10m ES-TP46_0.1-0.2	0.0			Grass, fine pine needles			
							0.10m			
				0.5			0.15m Topsoil - brown red silty sand, dry rootlets PID : 0.3ppm Topsoil - red nutrient rich soil , soft with small gravels PID: 0.2 ppm			
				1.0						
				1.5			1.50m EXCAVATION TP46 TERMINATED AT 1.50 m			
				2.0						
				2.5						
				3.0						

PHOTOGRAPHS NOTES ☐ YES ☒ NO

METHOD
- N Natural Exposure
- E Existing Excavation
- BH Backhoe Bucket
- B Bulldozer Blade
- R Ripper

SUPPORT
- T Timbering

PENETRATION
VE E F H VH — No Resistance

WATER
10 Oct., 73 Water Level on Date shown
water inflow
water outflow

SAMPLES & FIELD TESTS
- U50 - Undisturbed Sample 50 mm diameter
- D - Disturbed Sample
- B - Bulk Disturbed Sample
- MC - Moisture Content
- HP - Hand Penetrometer (UCS kPa)
- VS - Vane Shear; P-Peak, R-Remouded (uncorrected kPa)
- PBT - Plate Bearing Test

CLASSIFICATION SYMBOLS & SOIL DESCRIPTION
Based on Unified Classification System

MOISTURE
- D - Dry
- M - Moist
- W - Wet

CONSISTENCY/ RELATIVE DENSITY

VS	- Very Soft
S	- Soft
F	- Firm
St	- Stiff
VSt	- Very Stiff
H	- Hard
VL	- Very Loose
L	- Loose
MD	- Medium Dense
D	- Dense
VD	- Very Dense

See Explanatory Notes for details of abbreviations & basis of descriptions.

SMEC AUSTRALIA

UPDATED SMEC LIBRARY_AGS 3_1 RTA 1_1 LIB 08_WITH FENCE TOOL_COLOUR.GLB Log SMEC EXCAVATION 3002523 CANBERRA BRICKWORKS.GPJ <<DrawingFile>> 20/10/2016 12:55 8.30.003

EXCAVATION - GEOLOGICAL LOG

PIT NO : TP48

PROJECT : 3002523 | CLIENT : Land Development Agency | FILE / JOB NO : ara
LOCATION : Canberra Brickworks Blocks 1, 7 and 20 of Section 102 | FEATURE : Environmental | SHEET : 1 OF 1

POSITION : | SURFACE ELEVATION :

EQUIPMENT TYPE : | METHOD :

DATE EXCAVATED : | LOGGED BY : RO | CHECKED BY : GO

EXCAVATION DIMENSIONS :

DRILLING | MATERIAL

VE / E / F / H PENETRATION	SUPPORT	GROUND WATER LEVELS	SAMPLES & FIELD TESTS	ELEVATION (RL) / DEPTH (m)	GRAPHIC LOG	CLASSIFICATION SYMBOL	MATERIAL DESCRIPTION Soil Type, Colour, Plasticity or Particle Characteristic Secondary and Minor Components	MOISTURE CONDITION	CONSISTENCY RELATIVE DENSITY	STRUCTURE & Other Observations
			0.10m TP48 0.1-0.2	0.0			Dark brown moist soil with roots			
				0.15m			Mid brown to dark brown PID:0.2 ppm			
				0.40m			Brown fine soil with moisture			
				0.5						
				1.0						
				1.20m			Medium brown weathered sitlstone - bedrock			
				1.5						
				2.0						
				2.10m			EXCAVATION TP48 TERMINATED AT 2.10 m			
				2.5						
				3.0						

PHOTOGRAPHS NOTES ☐ YES ☒ NO

METHOD
- N Natural Exposure
- E Existing Excavation
- BH Backhoe Bucket
- B Bulldozer Blade
- R Ripper

SUPPORT
- T Timbering

PENETRATION
VE E F H VH — No Resistance

WATER
10 Oct., 73 Water Level on Date shown
water inflow
water outflow

SAMPLES & FIELD TESTS
- U50 - Undisturbed Sample 50 mm diameter
- D - Disturbed Sample
- B - Bulk Disturbed Sample
- MC - Moisture Content
- HP - Hand Penetrometer (UCS kPa)
- VS - Vane Shear; P-Peak, R-Remouded (uncorrected kPa)
- PBT - Plate Bearing Test

CLASSIFICATION SYMBOLS & SOIL DESCRIPTION
Based on Unified Classification System

MOISTURE
- D - Dry
- M - Moist
- W - Wet

CONSISTENCY/ RELATIVE DENSITY

VS	- Very Soft
S	- Soft
F	- Firm
St	- Stiff
VSt	- Very Stiff
H	- Hard
VL	- Very Loose
L	- Loose
MD	- Medium Dense
D	- Dense
VD	- Very Dense

See Explanatory Notes for details of abbreviations & basis of descriptions.

SMEC AUSTRALIA

UPDATED SMEC LIBRARY_AGS 3_1 RTA 1_1 LIB 08_WITH FENCE TOOL_COLOUR.GLB Log SMEC EXCAVATION 3002523 CANBERRA BRICKWORKS.GPJ <<DrawingFile>> 20/10/2016 12:55 8.30.003

EXCAVATION - GEOLOGICAL LOG

PIT NO : TP49

PROJECT : 3002523 | CLIENT : Land Development Agency | FILE / JOB NO : ara
LOCATION : Canberra Brickworks Blocks 1, 7 and 20 of Section 102 | FEATURE : Environmental | SHEET : 1 OF 1

POSITION : | SURFACE ELEVATION :

EQUIPMENT TYPE : | METHOD :

DATE EXCAVATED : | LOGGED BY : RO | CHECKED BY : GO

EXCAVATION DIMENSIONS :

DRILLING | MATERIAL

VE / PENETRATION / E / F / H	SUPPORT	GROUND WATER LEVELS	SAMPLES & FIELD TESTS	ELEVATION (RL) DEPTH (m)	GRAPHIC LOG	CLASSIFICATION SYMBOL	MATERIAL DESCRIPTION Soil Type, Colour, Plasticity or Particle Characteristic Secondary and Minor Components	MOISTURE CONDITION	CONSISTENCY RELATIVE DENSITY	STRUCTURE & Other Observations
				0.0			Grass cover			
				0.10m						
			0.20m TP49_0.2-0.3				Brown silty sand, small stones, rootlets , bricks, metal straps, concrete pebbles, sandstone			
				0.20m			Natural Clay, red brown , no odour			
				0.5						
				1.0						
				1.20m			Natural Clay, red brown , no odour			
				1.5						
				1.80m			EXCAVATION TP49 TERMINATED AT 1.80 m			
				2.0						
				2.5						
				3.0						

PHOTOGRAPHS NOTES ☐ YES ☒ NO

METHOD
- N Natural Exposure
- E Existing Excavation
- BH Backhoe Bucket
- B Bulldozer Blade
- R Ripper

SUPPORT
- T Timbering

PENETRATION
VE E F H VH — No Resistance

WATER
10 Oct., 73 Water Level on Date shown
water inflow
water outflow

SAMPLES & FIELD TESTS
- U50 - Undisturbed Sample 50 mm diameter
- D - Disturbed Sample
- B - Bulk Disturbed Sample
- MC - Moisture Content
- HP - Hand Penetrometer (UCS kPa)
- VS - Vane Shear; P-Peak, R-Remouded (uncorrected kPa)
- PBT - Plate Bearing Test

CLASSIFICATION SYMBOLS & SOIL DESCRIPTION
Based on Unified Classification System

MOISTURE
- D - Dry
- M - Moist
- W - Wet

CONSISTENCY/ RELATIVE DENSITY

VS	- Very Soft
S	- Soft
F	- Firm
St	- Stiff
VSt	- Very Stiff
H	- Hard
VL	- Very Loose
L	- Loose
MD	- Medium Dense
D	- Dense
VD	- Very Dense

See Explanatory Notes for details of abbreviations & basis of descriptions.

SMEC AUSTRALIA

UPDATED SMEC LIBRARY_AGS 3_1 RTA 1_1 LIB 08_WITH FENCE TOOL_COLOUR.GLB Log SMEC EXCAVATION 3002523 CANBERRA BRICKWORKS.GPJ <<DrawingFile>> 20/10/2016 12:55 8.30.003

EXCAVATION - GEOLOGICAL LOG

PIT NO : TP50

PROJECT : 3002523 | CLIENT : Land Development Agency | FILE / JOB NO : ara
LOCATION : Canberra Brickworks Blocks 1, 7 and 20 of Section 102 | FEATURE : Environmental | SHEET : 1 OF 1

POSITION : | SURFACE ELEVATION :

EQUIPMENT TYPE : | METHOD :

DATE EXCAVATED : | LOGGED BY : RO | CHECKED BY : GO

EXCAVATION DIMENSIONS :

DRILLING | MATERIAL

VE / PENETRATION E F H	SUPPORT	GROUND WATER LEVELS	SAMPLES & FIELD TESTS	ELEVATION (RL) DEPTH (m)	GRAPHIC LOG	CLASSIFICATION SYMBOL	MATERIAL DESCRIPTION Soil Type, Colour, Plasticity or Particle Characteristic Secondary and Minor Components	MOISTURE CONDITION	CONSISTENCY RELATIVE DENSITY	STRUCTURE & Other Observations
				0.0			Natural grass			
			0.20m ES-TP50_0.2	0.2-0.3			0.15m Red brown silty sandy clay - medium plasticity			
				0.5			0.40m Brown clay slight moisture			
				1.0						
				1.5			1.50m EXCAVATION TP50 TERMINATED AT 1.50 m			
				2.0						
				2.5						
				3.0						

PHOTOGRAPHS NOTES ☐ YES ☒ NO

METHOD
- N Natural Exposure
- E Existing Excavation
- BH Backhoe Bucket
- B Bulldozer Blade
- R Ripper

SUPPORT
- T Timbering

PENETRATION



WATER



SAMPLES & FIELD TESTS
- U50 - Undisturbed Sample 50 mm diameter
- D - Disturbed Sample
- B - Bulk Disturbed Sample
- MC - Moisture Content
- HP - Hand Penetrometer (UCS kPa)
- VS - Vane Shear; P-Peak, R-Remouded (uncorrected kPa)
- PBT - Plate Bearing Test

CLASSIFICATION SYMBOLS & SOIL DESCRIPTION
Based on Unified Classification System

MOISTURE
- D - Dry
- M - Moist
- W - Wet

CONSISTENCY/ RELATIVE DENSITY

VS	- Very Soft
S	- Soft
F	- Firm
St	- Stiff
VSt	- Very Stiff
H	- Hard
VL	- Very Loose
L	- Loose
MD	- Medium Dense
D	- Dense
VD	- Very Dense

See Explanatory Notes for details of abbreviations & basis of descriptions.

SMEC AUSTRALIA

UPDATED SMEC LIBRARY_AGS 3_1 RTA 1_1 LIB 08_WITH FENCE TOOL_COLOUR.GLB Log SMEC EXCAVATION 3002523 CANBERRA BRICKWORKS.GPJ <<DrawingFile>> 20/10/2016 12:55 8.30.003

EXCAVATION - GEOLOGICAL LOG

PIT NO : TP51

PROJECT : 3002523 | CLIENT : Land Development Agency | FILE / JOB NO : ara
LOCATION : Canberra Brickworks Blocks 1, 7 and 20 of Section 102 | FEATURE : Environmental | SHEET : 1 OF 1

POSITION : | SURFACE ELEVATION :

EQUIPMENT TYPE : | METHOD :

DATE EXCAVATED : | LOGGED BY : RO | CHECKED BY : GO

EXCAVATION DIMENSIONS :

DRILLING | MATERIAL

VE / E / F / H PENETRATION	SUPPORT	GROUND WATER LEVELS	SAMPLES & FIELD TESTS	ELEVATION (RL) DEPTH (m)	GRAPHIC LOG	CLASSIFICATION SYMBOL	MATERIAL DESCRIPTION Soil Type, Colour, Plasticity or Particle Characteristic Secondary and Minor Components	MOISTURE CONDITION	CONSISTENCY RELATIVE DENSITY	STRUCTURE & Other Observations
				0.0			Natural grass topsoil			
				0.15m			Sandy orange clay with gravel (5-25mm) PID: 0.2 ppm			
				0.40m			Red brown sandy clay			
				0.5						
				1.0						
			1.30m ES-TP51_1.3-1.4	1.40m			Sedimentary rock and hard clay PID: 0.1 ppm			
				1.5						
				1.60m			EXCAVATION TP51 TERMINATED AT 1.60 m			
				2.0						
				2.5						
				3.0						

PHOTOGRAPHS NOTES ☐ YES ☒ NO

METHOD
- N Natural Exposure
- E Existing Excavation
- BH Backhoe Bucket
- B Bulldozer Blade
- R Ripper

SUPPORT
- T Timbering

PENETRATION
VE E F H VH — No Resistance

WATER
- 10 Oct., 73 Water Level on Date shown
- water inflow
- water outflow

SAMPLES & FIELD TESTS
- U50 - Undisturbed Sample 50 mm diameter
- D - Disturbed Sample
- B - Bulk Disturbed Sample
- MC - Moisture Content
- HP - Hand Penetrometer (UCS kPa)
- VS - Vane Shear; P-Peak, R-Remouded (uncorrected kPa)
- PBT - Plate Bearing Test

CLASSIFICATION SYMBOLS & SOIL DESCRIPTION
Based on Unified Classification System

MOISTURE
- D - Dry
- M - Moist
- W - Wet

CONSISTENCY/ RELATIVE DENSITY

VS	- Very Soft
S	- Soft
F	- Firm
St	- Stiff
VSt	- Very Stiff
H	- Hard
VL	- Very Loose
L	- Loose
MD	- Medium Dense
D	- Dense
VD	- Very Dense

See Explanatory Notes for details of abbreviations & basis of descriptions.

SMEC AUSTRALIA

UPDATED SMEC LIBRARY_AGS 3_1 RTA 1_1 LIB 08_WITH FENCE TOOL_COLOUR.GLB Log SMEC EXCAVATION 3002523 CANBERRA BRICKWORKS.GPJ <<DrawingFile>> 20/10/2016 12:55 8.30.003

EXCAVATION - GEOLOGICAL LOG

PIT NO : TP52

PROJECT : 3002523 | CLIENT : Land Development Agency | FILE / JOB NO : ara
LOCATION : Canberra Brickworks Blocks 1, 7 and 20 of Section 102 | FEATURE : Environmental | SHEET : 1 OF 1

POSITION : | SURFACE ELEVATION :

EQUIPMENT TYPE : | METHOD :

DATE EXCAVATED : | LOGGED BY : RO | CHECKED BY : GO

EXCAVATION DIMENSIONS :

DRILLING | MATERIAL

VE / E / F / H PENETRATION	SUPPORT	GROUND WATER LEVELS	SAMPLES & FIELD TESTS	ELEVATION (RL) DEPTH (m)	GRAPHIC LOG	CLASSIFICATION SYMBOL	MATERIAL DESCRIPTION Soil Type, Colour, Plasticity or Particle Characteristic Secondary and Minor Components	MOISTURE CONDITION	CONSISTENCY RELATIVE DENSITY	STRUCTURE & Other Observations
			0.10m ES-TP51 0.1-0.2	0.0			Brown soil brown to red brown , roots PID : 0.1 PPM 0.10m			
							Bedrock - weathered siltstone - 0.40m			
							EXCAVATION TP52 TERMINATED AT 0.10 m			
				0.5						
				1.0						
				1.5						
				2.0						
				2.5						
				3.0						

PHOTOGRAPHS NOTES ☐ YES ☒ NO

METHOD
- N Natural Exposure
- E Existing Excavation
- BH Backhoe Bucket
- B Bulldozer Blade
- R Ripper

SUPPORT
- T Timbering

PENETRATION
VE E F H VH — No Resistance

WATER
10 Oct., 73 Water Level on Date shown
water inflow
water outflow

SAMPLES & FIELD TESTS
- U50 - Undisturbed Sample 50 mm diameter
- D - Disturbed Sample
- B - Bulk Disturbed Sample
- MC - Moisture Content
- HP - Hand Penetrometer (UCS kPa)
- VS - Vane Shear; P-Peak, R-Remouded (uncorrected kPa)
- PBT - Plate Bearing Test

CLASSIFICATION SYMBOLS & SOIL DESCRIPTION
Based on Unified Classification System

MOISTURE
- D - Dry
- M - Moist
- W - Wet

CONSISTENCY/ RELATIVE DENSITY

VS	- Very Soft
S	- Soft
F	- Firm
St	- Stiff
VSt	- Very Stiff
H	- Hard
VL	- Very Loose
L	- Loose
MD	- Medium Dense
D	- Dense
VD	- Very Dense

See Explanatory Notes for details of abbreviations & basis of descriptions.

SMEC AUSTRALIA

UPDATED SMEC LIBRARY_AGS 3_1 RTA 1_1 LIB 08_WITH FENCE TOOL_COLOUR.GLB Log SMEC EXCAVATION 3002523 CANBERRA BRICKWORKS.GPJ <<DrawingFile>> 20/10/2016 12:55 8.30.003

EXCAVATION - GEOLOGICAL LOG

PIT NO : TP53

PROJECT : 3002523 | CLIENT : Land Development Agency | FILE / JOB NO : ara
LOCATION : Canberra Brickworks Blocks 1, 7 and 20 of Section 102 | FEATURE : Environmental | SHEET : 1 OF 1

POSITION : | SURFACE ELEVATION :

EQUIPMENT TYPE : | METHOD :

DATE EXCAVATED : | LOGGED BY : RO | CHECKED BY : GO

EXCAVATION DIMENSIONS :

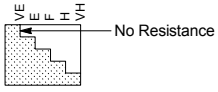
DRILLING						MATERIAL					
PENETRATION VE	E	F	H	SUPPORT	GROUND WATER LEVELS	SAMPLES & FIELD TESTS	ELEVATION (RL) DEPTH (m)	GRAPHIC LOG	CLASSIFICATION SYMBOL	MATERIAL DESCRIPTION Soil Type, Colour, Plasticity or Particle Characteristic Secondary and Minor Components	MOISTURE CONDITION	CONSISTENCY RELATIVE DENSITY	STRUCTURE & Other Observations
						ES-TP53_0-0.1	0.0			Gravelly sand , shale rock (Natural) brown / red PID: 0.3 ppm			
							0.10m			Refusal on rock			
							0.30m			EXCAVATION TP53 TERMINATED AT 0.30 m			
							0.5						
							1.0						
							1.5						
							2.0						
							2.5						
							3.0						

PHOTOGRAPHS NOTES ☐ YES ☒ NO

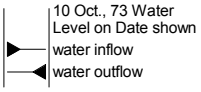
METHOD
- N Natural Exposure
- E Existing Excavation
- BH Backhoe Bucket
- B Bulldozer Blade
- R Ripper

SUPPORT
- T Timbering

PENETRATION



WATER



SAMPLES & FIELD TESTS
- U50 - Undisturbed Sample 50 mm diameter
- D - Disturbed Sample
- B - Bulk Disturbed Sample
- MC - Moisture Content
- HP - Hand Penetrometer (UCS kPa)
- VS - Vane Shear; P-Peak, R-Remouded (uncorrected kPa)
- PBT - Plate Bearing Test

CLASSIFICATION SYMBOLS & SOIL DESCRIPTION
Based on Unified Classification System

MOISTURE
- D - Dry
- M - Moist
- W - Wet

CONSISTENCY/ RELATIVE DENSITY

VS	- Very Soft
S	- Soft
F	- Firm
St	- Stiff
VSt	- Very Stiff
H	- Hard
VL	- Very Loose
L	- Loose
MD	- Medium Dense
D	- Dense
VD	- Very Dense

See Explanatory Notes for details of abbreviations & basis of descriptions.

SMEC AUSTRALIA

UPDATED SMEC LIBRARY_AGS 3_1 RTA 1_1 LIB 08_WITH FENCE TOOL_COLOUR.GLB Log SMEC EXCAVATION 3002523 CANBERRA BRICKWORKS.GPJ <<DrawingFile>> 20/10/2016 12:55 8.30.003

EXCAVATION - GEOLOGICAL LOG

PIT NO : TP54

PROJECT : 3002523 | CLIENT : Land Development Agency | FILE / JOB NO : ara
LOCATION : Canberra Brickworks Blocks 1, 7 and 20 of Section 102 | FEATURE : Environmental | SHEET : 1 OF 1

POSITION : | SURFACE ELEVATION :

EQUIPMENT TYPE : | METHOD :

DATE EXCAVATED : | LOGGED BY : RO | CHECKED BY : GO

EXCAVATION DIMENSIONS :

DRILLING | MATERIAL

VE / E / F / H PENETRATION	SUPPORT	GROUND WATER LEVELS	SAMPLES & FIELD TESTS	ELEVATION (RL) / DEPTH (m)	GRAPHIC LOG	CLASSIFICATION SYMBOL	MATERIAL DESCRIPTION Soil Type, Colour, Plasticity or Particle Characteristic Secondary and Minor Components	MOISTURE CONDITION	CONSISTENCY RELATIVE DENSITY	STRUCTURE & Other Observations
			0.10m ES-TP54_0.1	0.0			Dark brown soil PID: 1.2 ppm			
							0.30m Red brown soil to yellow silt rock			
				0.5						
				1.0						
				1.5			1.50m EXCAVATION TP54 TERMINATED AT 1.50 m			
				2.0						
				2.5						
				3.0						

PHOTOGRAPHS NOTES ☐ YES ☒ NO

METHOD
- N Natural Exposure
- E Existing Excavation
- BH Backhoe Bucket
- B Bulldozer Blade
- R Ripper

SUPPORT
- T Timbering

PENETRATION
VE E F H VH — No Resistance

WATER
- 10 Oct., 73 Water Level on Date shown
- water inflow
- water outflow

SAMPLES & FIELD TESTS
- U50 - Undisturbed Sample 50 mm diameter
- D - Disturbed Sample
- B - Bulk Disturbed Sample
- MC - Moisture Content
- HP - Hand Penetrometer (UCS kPa)
- VS - Vane Shear; P-Peak, R-Remouded (uncorrected kPa)
- PBT - Plate Bearing Test

CLASSIFICATION SYMBOLS & SOIL DESCRIPTION
Based on Unified Classification System

MOISTURE
- D - Dry
- M - Moist
- W - Wet

CONSISTENCY/ RELATIVE DENSITY

VS	- Very Soft
S	- Soft
F	- Firm
St	- Stiff
VSt	- Very Stiff
H	- Hard
VL	- Very Loose
L	- Loose
MD	- Medium Dense
D	- Dense
VD	- Very Dense

See Explanatory Notes for details of abbreviations & basis of descriptions.

SMEC AUSTRALIA

UPDATED SMEC LIBRARY_AGS 3_1 RTA 1_1 LIB 08_WITH FENCE TOOL_COLOUR.GLB Log SMEC EXCAVATION 3002523 CANBERRA BRICKWORKS.GPJ <<DrawingFile>> 20/10/2016 12:55 8.30.003

EXCAVATION - GEOLOGICAL LOG

PIT NO : TP55

PROJECT : 3002523 | CLIENT : Land Development Agency | FILE / JOB NO : ara
LOCATION : Canberra Brickworks Blocks 1, 7 and 20 of Section 102 | FEATURE : Environmental | SHEET : 1 OF 1

POSITION : | SURFACE ELEVATION :

EQUIPMENT TYPE : | METHOD :

DATE EXCAVATED : | LOGGED BY : RO | CHECKED BY : GO

EXCAVATION DIMENSIONS :

DRILLING | MATERIAL

VE / PENETRATION E F H	SUPPORT	GROUND WATER LEVELS	SAMPLES & FIELD TESTS	ELEVATION (RL) DEPTH (m)	GRAPHIC LOG	CLASSIFICATION SYMBOL	MATERIAL DESCRIPTION Soil Type, Colour, Plasticity or Particle Characteristic Secondary and Minor Components	MOISTURE CONDITION	CONSISTENCY RELATIVE DENSITY	STRUCTURE & Other Observations
				0.0			Natural grass, brown nutrient rich soil, silty sand , soft rootlets present, decomposed pine needles PID: 1.1 ppm			
				0.5						
				1.0						
			1.20m ES-TP55_1.2-1.3	1.2			1.20m Silty clay with shale rock , refusal on rock			
				1.5			1.50m EXCAVATION TP55 TERMINATED AT 1.50 m			
				2.0						
				2.5						
				3.0						

PHOTOGRAPHS NOTES ☐ YES ☒ NO

METHOD
- N Natural Exposure
- E Existing Excavation
- BH Backhoe Bucket
- B Bulldozer Blade
- R Ripper

SUPPORT
- T Timbering

PENETRATION
VE E F H VH — No Resistance

WATER
10 Oct., 73 Water Level on Date shown
water inflow
water outflow

SAMPLES & FIELD TESTS
- U50 - Undisturbed Sample 50 mm diameter
- D - Disturbed Sample
- B - Bulk Disturbed Sample
- MC - Moisture Content
- HP - Hand Penetrometer (UCS kPa)
- VS - Vane Shear; P-Peak, R-Remouded (uncorrected kPa)
- PBT - Plate Bearing Test

CLASSIFICATION SYMBOLS & SOIL DESCRIPTION
Based on Unified Classification System

MOISTURE
- D - Dry
- M - Moist
- W - Wet

CONSISTENCY/ RELATIVE DENSITY

VS	- Very Soft
S	- Soft
F	- Firm
St	- Stiff
VSt	- Very Stiff
H	- Hard
VL	- Very Loose
L	- Loose
MD	- Medium Dense
D	- Dense
VD	- Very Dense

See Explanatory Notes for details of abbreviations & basis of descriptions.

SMEC AUSTRALIA

UPDATED SMEC LIBRARY_AGS 3_1 RTA 1_1 LIB 08_WITH FENCE TOOL_COLOUR.GLB Log SMEC EXCAVATION 3002523 CANBERRA BRICKWORKS.GPJ <<DrawingFile>> 20/10/2016 12:55 8.30.003

EXCAVATION - GEOLOGICAL LOG

PIT NO : TP56

PROJECT : 3002523 | CLIENT : Land Development Agency | FILE / JOB NO : ara
LOCATION : Canberra Brickworks Blocks 1, 7 and 20 of Section 102 | FEATURE : Environmental | SHEET : 1 OF 1

POSITION : | SURFACE ELEVATION :

EQUIPMENT TYPE : | METHOD :

DATE EXCAVATED : | LOGGED BY : RO | CHECKED BY : GO

EXCAVATION DIMENSIONS :

DRILLING | MATERIAL

VE / PENETRATION / E / F / H	SUPPORT	GROUND WATER LEVELS	SAMPLES & FIELD TESTS	ELEVATION (RL) DEPTH (m)	GRAPHIC LOG	CLASSIFICATION SYMBOL	MATERIAL DESCRIPTION Soil Type, Colour, Plasticity or Particle Characteristic Secondary and Minor Components	MOISTURE CONDITION	CONSISTENCY RELATIVE DENSITY	STRUCTURE & Other Observations
			0.10m ES-TP56_0.1-0.2	0.0			Grassed topsoil PID 0.3 ppm			
				0.20m			Red brown nutrient rich soil sof, moisture noted			
				0.5						
				1.0						
				1.10m			Low - medium plasticity orange to brown clay , mottled , balck and white Feldspar PID 0.2 ppm			
				1.30m			EXCAVATION TP56 TERMINATED AT 1.30 m			
				1.5						
				2.0						
				2.5						
				3.0						

PHOTOGRAPHS NOTES ☐ YES ☒ NO

METHOD
- N Natural Exposure
- E Existing Excavation
- BH Backhoe Bucket
- B Bulldozer Blade
- R Ripper

SUPPORT
- T Timbering

PENETRATION
VE E F H VH — No Resistance

WATER
10 Oct., 73 Water Level on Date shown
water inflow
water outflow

SAMPLES & FIELD TESTS
- U50 - Undisturbed Sample 50 mm diameter
- D - Disturbed Sample
- B - Bulk Disturbed Sample
- MC - Moisture Content
- HP - Hand Penetrometer (UCS kPa)
- VS - Vane Shear; P-Peak, R-Remouded (uncorrected kPa)
- PBT - Plate Bearing Test

CLASSIFICATION SYMBOLS & SOIL DESCRIPTION
Based on Unified Classification System

MOISTURE
- D - Dry
- M - Moist
- W - Wet

CONSISTENCY/ RELATIVE DENSITY

VS	- Very Soft
S	- Soft
F	- Firm
St	- Stiff
VSt	- Very Stiff
H	- Hard
VL	- Very Loose
L	- Loose
MD	- Medium Dense
D	- Dense
VD	- Very Dense

See Explanatory Notes for details of abbreviations & basis of descriptions.

SMEC AUSTRALIA

UPDATED SMEC LIBRARY_AGS 3_1 RTA 1_1 LIB 08_WITH FENCE TOOL_COLOUR.GLB Log SMEC EXCAVATION 3002523 CANBERRA BRICKWORKS.GPJ <<DrawingFile>> 20/10/2016 12:55 8.30.003

EXCAVATION - GEOLOGICAL LOG

PIT NO : TP57

PROJECT : 3002523 | CLIENT : Land Development Agency | FILE / JOB NO : ara
LOCATION : Canberra Brickworks Blocks 1, 7 and 20 of Section 102 | FEATURE : Environmental | SHEET : 1 OF 1

POSITION : | SURFACE ELEVATION :

EQUIPMENT TYPE : | METHOD :

DATE EXCAVATED : | LOGGED BY : RO | CHECKED BY : GO

EXCAVATION DIMENSIONS :

DRILLING | MATERIAL

VE / PENETRATION E F H	SUPPORT	GROUND WATER LEVELS	SAMPLES & FIELD TESTS	ELEVATION (RL) DEPTH (m)	GRAPHIC LOG	CLASSIFICATION SYMBOL	MATERIAL DESCRIPTION Soil Type, Colour, Plasticity or Particle Characteristic Secondary and Minor Components	MOISTURE CONDITION	CONSISTENCY RELATIVE DENSITY	STRUCTURE & Other Observations
			ES-TP57_0-0.1	0.0			Grass, brown soft silty sand, rootlets present PID 0.3 ppm			
				0.30m			Black bitumen found PID 0.2 ppm			
				0.5						
				0.70m			red clay , soft, moisture, some bitumen			
				1.0						
				1.10m			Yellow fine grained silty clay , small rocks with shale, sandstone, rcosk 10-50mm boulders slight moisture PID 0.8 ppm			
				1.5						
				2.0						
				2.5						
				2.60m			EXCAVATION TP57 TERMINATED AT 2.60 m			
				3.0						

PHOTOGRAPHS NOTES ☐ YES ☒ NO

METHOD
- N Natural Exposure
- E Existing Excavation
- BH Backhoe Bucket
- B Bulldozer Blade
- R Ripper

SUPPORT
- T Timbering

PENETRATION
VE E F H VH — No Resistance

WATER
10 Oct., 73 Water Level on Date shown
water inflow
water outflow

SAMPLES & FIELD TESTS
- U50 - Undisturbed Sample 50 mm diameter
- D - Disturbed Sample
- B - Bulk Disturbed Sample
- MC - Moisture Content
- HP - Hand Penetrometer (UCS kPa)
- VS - Vane Shear; P-Peak, R-Remouded (uncorrected kPa)
- PBT - Plate Bearing Test

CLASSIFICATION SYMBOLS & SOIL DESCRIPTION
Based on Unified Classification System

MOISTURE
- D - Dry
- M - Moist
- W - Wet

CONSISTENCY/ RELATIVE DENSITY

VS	- Very Soft
S	- Soft
F	- Firm
St	- Stiff
VSt	- Very Stiff
H	- Hard
VL	- Very Loose
L	- Loose
MD	- Medium Dense
D	- Dense
VD	- Very Dense

See Explanatory Notes for details of abbreviations & basis of descriptions.

SMEC AUSTRALIA

UPDATED SMEC LIBRARY_AGS 3_1 RTA 1_1 LIB 08_WITH FENCE TOOL_COLOUR.GLB Log SMEC EXCAVATION 3002523 CANBERRA BRICKWORKS.GPJ <<DrawingFile>> 20/10/2016 12:55 8.30.003

EXCAVATION - GEOLOGICAL LOG

PIT NO : TP58

PROJECT : 3002523 | CLIENT : Land Development Agency | FILE / JOB NO : ara
LOCATION : Canberra Brickworks Blocks 1, 7 and 20 of Section 102 | FEATURE : Environmental | SHEET : 1 OF 1

POSITION : | SURFACE ELEVATION :

EQUIPMENT TYPE : | METHOD :

DATE EXCAVATED : | LOGGED BY : RO | CHECKED BY : GO

EXCAVATION DIMENSIONS :

DRILLING | MATERIAL

VE / PENETRATION E F H	SUPPORT	GROUND WATER LEVELS	SAMPLES & FIELD TESTS	ELEVATION (RL) DEPTH (m)	GRAPHIC LOG	CLASSIFICATION SYMBOL	MATERIAL DESCRIPTION Soil Type, Colour, Plasticity or Particle Characteristic Secondary and Minor Components	MOISTURE CONDITION	CONSISTENCY RELATIVE DENSITY	STRUCTURE & Other Observations
			0.05m ES-TP58_0.05-0.15	0.0			Grassed topsoil			
				0.10m			Sandy clay and rock , shale , terminated on shale rock			
				0.50m 0.5			EXCAVATION TP58 TERMINATED AT 0.50 m			
				1.0						
				1.5						
				2.0						
				2.5						
				3.0						

PHOTOGRAPHS NOTES ☐ YES ☒ NO

METHOD
- N Natural Exposure
- E Existing Excavation
- BH Backhoe Bucket
- B Bulldozer Blade
- R Ripper

SUPPORT
- T Timbering

PENETRATION
VE E F H VH — No Resistance

WATER
10 Oct., 73 Water Level on Date shown
water inflow
water outflow

SAMPLES & FIELD TESTS
- U50 - Undisturbed Sample 50 mm diameter
- D - Disturbed Sample
- B - Bulk Disturbed Sample
- MC - Moisture Content
- HP - Hand Penetrometer (UCS kPa)
- VS - Vane Shear; P-Peak, R-Remouded (uncorrected kPa)
- PBT - Plate Bearing Test

CLASSIFICATION SYMBOLS & SOIL DESCRIPTION
Based on Unified Classification System

MOISTURE
- D - Dry
- M - Moist
- W - Wet

CONSISTENCY/ RELATIVE DENSITY

VS	- Very Soft
S	- Soft
F	- Firm
St	- Stiff
VSt	- Very Stiff
H	- Hard
VL	- Very Loose
L	- Loose
MD	- Medium Dense
D	- Dense
VD	- Very Dense

See Explanatory Notes for details of abbreviations & basis of descriptions.

SMEC AUSTRALIA

UPDATED SMEC LIBRARY_AGS 3_1 RTA 1_1 LIB 08_WITH FENCE TOOL_COLOUR.GLB Log SMEC EXCAVATION 3002523 CANBERRA BRICKWORKS.GPJ <<DrawingFile>> 20/10/2016 12:55 8.30.003

EXCAVATION - GEOLOGICAL LOG

PIT NO : TP59

PROJECT : 3002523 | CLIENT : Land Development Agency | FILE / JOB NO : ara
LOCATION : Canberra Brickworks Blocks 1, 7 and 20 of Section 102 | FEATURE : Environmental | SHEET : 1 OF 1

POSITION : | SURFACE ELEVATION :

EQUIPMENT TYPE : | METHOD :

DATE EXCAVATED : | LOGGED BY : RO | CHECKED BY : GO

EXCAVATION DIMENSIONS :

DRILLING | MATERIAL

VE / PENETRATION / E / F / H	SUPPORT	GROUND WATER LEVELS	SAMPLES & FIELD TESTS	ELEVATION (RL) DEPTH (m)	GRAPHIC LOG	CLASSIFICATION SYMBOL	MATERIAL DESCRIPTION Soil Type, Colour, Plasticity or Particle Characteristic Secondary and Minor Components	MOISTURE CONDITION	CONSISTENCY RELATIVE DENSITY	STRUCTURE & Other Observations
				0.0			0.05m Grassed brown topsoil			
			0.20m ES-TP59_0.2	0.2-0.3			Sandy gravelly clay , orange/yellow/red , medium plasticity , medium stiffness PID 0.1ppm			
				0.5			0.60m Siltstone plus shale , terminated at siltstone rock			
							0.70m EXCAVATION TP59 TERMINATED AT 0.70 m			
				1.0						
				1.5						
				2.0						
				2.5						
				3.0						

PHOTOGRAPHS NOTES ☐ YES ☒ NO

METHOD
- N Natural Exposure
- E Existing Excavation
- BH Backhoe Bucket
- B Bulldozer Blade
- R Ripper

SUPPORT
- T Timbering

PENETRATION
VE E F H VH — No Resistance

WATER
10 Oct., 73 Water Level on Date shown
water inflow
water outflow

SAMPLES & FIELD TESTS
- U50 - Undisturbed Sample 50 mm diameter
- D - Disturbed Sample
- B - Bulk Disturbed Sample
- MC - Moisture Content
- HP - Hand Penetrometer (UCS kPa)
- VS - Vane Shear; P-Peak, R-Remouded (uncorrected kPa)
- PBT - Plate Bearing Test

CLASSIFICATION SYMBOLS & SOIL DESCRIPTION
Based on Unified Classification System

MOISTURE
- D - Dry
- M - Moist
- W - Wet

CONSISTENCY/ RELATIVE DENSITY

VS	- Very Soft
S	- Soft
F	- Firm
St	- Stiff
VSt	- Very Stiff
H	- Hard
VL	- Very Loose
L	- Loose
MD	- Medium Dense
D	- Dense
VD	- Very Dense

See Explanatory Notes for details of abbreviations & basis of descriptions.

SMEC AUSTRALIA

UPDATED SMEC LIBRARY_AGS 3_1 RTA 1_1 LIB 08_WITH FENCE TOOL_COLOUR.GLB Log SMEC EXCAVATION 3002523 CANBERRA BRICKWORKS.GPJ <<DrawingFile>> 20/10/2016 12:55 8.30.003

EXCAVATION - GEOLOGICAL LOG

PIT NO : TP61

PROJECT : 3002523 | CLIENT : Land Development Agency | FILE / JOB NO : ara
LOCATION : Canberra Brickworks Blocks 1, 7 and 20 of Section 102 | FEATURE : Environmental | SHEET : 1 OF 1

POSITION : | SURFACE ELEVATION :

EQUIPMENT TYPE : | METHOD :

DATE EXCAVATED : | LOGGED BY : RO | CHECKED BY : GO

EXCAVATION DIMENSIONS :

DRILLING					MATERIAL					
PENETRATION (VE, E, F, H)	SUPPORT	GROUND WATER LEVELS	SAMPLES & FIELD TESTS	ELEVATION (RL) DEPTH (m)	GRAPHIC LOG	CLASSIFICATION SYMBOL	MATERIAL DESCRIPTION Soil Type, Colour, Plasticity or Particle Characteristic Secondary and Minor Components	MOISTURE CONDITION	CONSISTENCY RELATIVE DENSITY	STRUCTURE & Other Observations
			0.20m ES-TP61_0.2	0.0			Sand PID: 0.2 ppm			
							0.10m Weatherd siltstone PID 0.4 ppm			
				0.5			0.60m EXCAVATION TP61 TERMINATED AT 0.60 m			
				1.0						
				1.5						
				2.0						
				2.5						
				3.0						

PHOTOGRAPHS NOTES ☐ YES ☒ NO

METHOD
- N Natural Exposure
- E Existing Excavation
- BH Backhoe Bucket
- B Bulldozer Blade
- R Ripper

SUPPORT
- T Timbering

PENETRATION
VE E F H VH — No Resistance

WATER
10 Oct., 73 Water Level on Date shown
water inflow
water outflow

SAMPLES & FIELD TESTS
- U50 - Undisturbed Sample 50 mm diameter
- D - Disturbed Sample
- B - Bulk Disturbed Sample
- MC - Moisture Content
- HP - Hand Penetrometer (UCS kPa)
- VS - Vane Shear; P-Peak, R-Remouded (uncorrected kPa)
- PBT - Plate Bearing Test

CLASSIFICATION SYMBOLS & SOIL DESCRIPTION
Based on Unified Classification System

MOISTURE
- D - Dry
- M - Moist
- W - Wet

CONSISTENCY/ RELATIVE DENSITY

VS	- Very Soft
S	- Soft
F	- Firm
St	- Stiff
VSt	- Very Stiff
H	- Hard
VL	- Very Loose
L	- Loose
MD	- Medium Dense
D	- Dense
VD	- Very Dense

See Explanatory Notes for details of abbreviations & basis of descriptions.

SMEC AUSTRALIA

UPDATED SMEC LIBRARY_AGS 3_1 RTA 1_1 LIB 08_WITH FENCE TOOL_COLOUR.GLB Log SMEC EXCAVATION 3002523 CANBERRA BRICKWORKS.GPJ <<DrawingFile>> 20/10/2016 12:55 8.30.003

EXCAVATION - GEOLOGICAL LOG

PIT NO : TP62

PROJECT : 3002523 | CLIENT : Land Development Agency | FILE / JOB NO : ara
LOCATION : Canberra Brickworks Blocks 1, 7 and 20 of Section 102 | FEATURE : Environmental | SHEET : 1 OF 1

POSITION : | SURFACE ELEVATION :

EQUIPMENT TYPE : | METHOD :

DATE EXCAVATED : | LOGGED BY : RO | CHECKED BY : GO

EXCAVATION DIMENSIONS :

DRILLING | MATERIAL

VE / E / F / H PENETRATION	SUPPORT	GROUND WATER LEVELS	SAMPLES & FIELD TESTS	ELEVATION (RL) DEPTH (m)	GRAPHIC LOG	CLASSIFICATION SYMBOL	MATERIAL DESCRIPTION Soil Type, Colour, Plasticity or Particle Characteristic Secondary and Minor Components	MOISTURE CONDITION	CONSISTENCY RELATIVE DENSITY	STRUCTURE & Other Observations
				0.0			Soil			
							0.25m Brown red mixed clay, minor rock fragements			
				0.5			0.50m Ash, yellow to white, 30mm thick , brick fill material with minor concrete fragments, mixed clay			
				1.0			1.00m Hit abandoned stormwater pipe - works stopped			
							EXCAVATION TP62 TERMINATED AT 1.20 m			
				1.5						
				2.0						
				2.5						
				3.0						

PHOTOGRAPHS NOTES ☐ YES ☒ NO

METHOD
- N Natural Exposure
- E Existing Excavation
- BH Backhoe Bucket
- B Bulldozer Blade
- R Ripper

SUPPORT
- T Timbering

PENETRATION
VE E F H VH — No Resistance

WATER
10 Oct., 73 Water Level on Date shown
water inflow
water outflow

SAMPLES & FIELD TESTS
- U50 - Undisturbed Sample 50 mm diameter
- D - Disturbed Sample
- B - Bulk Disturbed Sample
- MC - Moisture Content
- HP - Hand Penetrometer (UCS kPa)
- VS - Vane Shear; P-Peak, R-Remouded (uncorrected kPa)
- PBT - Plate Bearing Test

CLASSIFICATION SYMBOLS & SOIL DESCRIPTION
Based on Unified Classification System

MOISTURE
- D - Dry
- M - Moist
- W - Wet

CONSISTENCY/ RELATIVE DENSITY

VS	- Very Soft
S	- Soft
F	- Firm
St	- Stiff
VSt	- Very Stiff
H	- Hard
VL	- Very Loose
L	- Loose
MD	- Medium Dense
D	- Dense
VD	- Very Dense

See Explanatory Notes for details of abbreviations & basis of descriptions.

SMEC AUSTRALIA

UPDATED SMEC LIBRARY_AGS 3_1 RTA 1_1 LIB 08_WITH FENCE TOOL_COLOUR.GLB Log SMEC EXCAVATION 3002523 CANBERRA BRICKWORKS.GPJ <<DrawingFile>> 20/10/2016 12:55 8.30.003

EXCAVATION - GEOLOGICAL LOG

PIT NO : TP63

PROJECT : 3002523 | CLIENT : Land Development Agency | FILE / JOB NO : ara
LOCATION : Canberra Brickworks Blocks 1, 7 and 20 of Section 102 | FEATURE : Environmental | SHEET : 1 OF 1

POSITION : | SURFACE ELEVATION :

EQUIPMENT TYPE : | METHOD :

DATE EXCAVATED : | LOGGED BY : RO | CHECKED BY : GO

EXCAVATION DIMENSIONS :

DRILLING | MATERIAL

VE / E / F / H PENETRATION	SUPPORT	GROUND WATER LEVELS	SAMPLES & FIELD TESTS	ELEVATION (RL) DEPTH (m)	GRAPHIC LOG	CLASSIFICATION SYMBOL	MATERIAL DESCRIPTION Soil Type, Colour, Plasticity or Particle Characteristic Secondary and Minor Components	MOISTURE CONDITION	CONSISTENCY RELATIVE DENSITY	STRUCTURE & Other Observations
				0.0			Sandy gravel with rootlets organic smell noted PID 0.1ppm			
				0.10m						
			0.25m ES-TP63_0.4-0.25	0.5			Brown to yellow silty clay with rocks and shale PID 0.1ppm			
				0.60m			EXCAVATION TP63 TERMINATED AT 0.60 m			
				1.0						
				1.5						
				2.0						
				2.5						
				3.0						

PHOTOGRAPHS NOTES ☐ YES ☒ NO

METHOD
- N Natural Exposure
- E Existing Excavation
- BH Backhoe Bucket
- B Bulldozer Blade
- R Ripper

SUPPORT
- T Timbering

PENETRATION
VE E F H VH — No Resistance

WATER
10 Oct., 73 Water Level on Date shown
water inflow
water outflow

SAMPLES & FIELD TESTS
- U50 - Undisturbed Sample 50 mm diameter
- D - Disturbed Sample
- B - Bulk Disturbed Sample
- MC - Moisture Content
- HP - Hand Penetrometer (UCS kPa)
- VS - Vane Shear; P-Peak, R-Remouded (uncorrected kPa)
- PBT - Plate Bearing Test

CLASSIFICATION SYMBOLS & SOIL DESCRIPTION
Based on Unified Classification System

MOISTURE
- D - Dry
- M - Moist
- W - Wet

CONSISTENCY/ RELATIVE DENSITY

VS	- Very Soft
S	- Soft
F	- Firm
St	- Stiff
VSt	- Very Stiff
H	- Hard
VL	- Very Loose
L	- Loose
MD	- Medium Dense
D	- Dense
VD	- Very Dense

See Explanatory Notes for details of abbreviations & basis of descriptions.

SMEC AUSTRALIA

UPDATED SMEC LIBRARY_AGS 3_1 RTA 1_1 LIB 08_WITH FENCE TOOL_COLOUR.GLB Log SMEC EXCAVATION 3002523 CANBERRA BRICKWORKS.GPJ <<DrawingFile>> 20/10/2016 12:55 8.30.003

EXCAVATION - GEOLOGICAL LOG

PIT NO : TR01

PROJECT : 3002523 | CLIENT : Land Development Agency | FILE / JOB NO : ara
LOCATION : Canberra Brickworks Blocks 1, 7 and 20 of Section 102 | FEATURE : Environmental | SHEET : 1 OF 1

POSITION : | SURFACE ELEVATION :

EQUIPMENT TYPE : | METHOD :

DATE EXCAVATED : | LOGGED BY : GO | CHECKED BY : RO

EXCAVATION DIMENSIONS :

DRILLING | MATERIAL

VE / E / F / H	SUPPORT	GROUND WATER LEVELS	SAMPLES & FIELD TESTS	ELEVATION (RL) / DEPTH (m)	GRAPHIC LOG	CLASSIFICATION SYMBOL	MATERIAL DESCRIPTION Soil Type, Colour, Plasticity or Particle Characteristic Secondary and Minor Components	MOISTURE CONDITION	CONSISTENCY RELATIVE DENSITY	STRUCTURE & Other Observations
			0.10m AU-TR_0.1	0.0			Fill - ash , brick fragments PID 0.0ppm			
							0.10m Fill - brick fragments 2-10cm (5%)			
				0.5			0.20m Rock siltstone			
							0.80m EXCAVATION TR01 TERMINATED AT 0.80 m			
				1.0						
				1.5						
				2.0						
				2.5						
				3.0						

PHOTOGRAPHS NOTES ☐ YES ☒ NO

METHOD
- N Natural Exposure
- E Existing Excavation
- BH Backhoe Bucket
- B Bulldozer Blade
- R Ripper

SUPPORT
- T Timbering

PENETRATION



No Resistance

WATER



10 Oct., 73 Water Level on Date shown
water inflow
water outflow

SAMPLES & FIELD TESTS
- U50 - Undisturbed Sample 50 mm diameter
- D - Disturbed Sample
- B - Bulk Disturbed Sample
- MC - Moisture Content
- HP - Hand Penetrometer (UCS kPa)
- VS - Vane Shear; P-Peak, R-Remouded (uncorrected kPa)
- PBT - Plate Bearing Test

CLASSIFICATION SYMBOLS & SOIL DESCRIPTION
Based on Unified Classification System

MOISTURE
- D - Dry
- M - Moist
- W - Wet

CONSISTENCY/ RELATIVE DENSITY

VS	- Very Soft
S	- Soft
F	- Firm
St	- Stiff
VSt	- Very Stiff
H	- Hard
VL	- Very Loose
L	- Loose
MD	- Medium Dense
D	- Dense
VD	- Very Dense

See Explanatory Notes for details of abbreviations & basis of descriptions.

SMEC AUSTRALIA

UPDATED SMEC LIBRARY_AGS 3_1 RTA 1_1 LIB 08_WITH FENCE TOOL_COLOUR.GLB Log SMEC EXCAVATION 3002523 CANBERRA BRICKWORKS.GPJ <<DrawingFile>> 20/10/2016 12:55 8.30.003

EXCAVATION - GEOLOGICAL LOG

PIT NO : TR03

PROJECT : 3002523 | CLIENT : Land Development Agency | FILE / JOB NO : ara
LOCATION : Canberra Brickworks Blocks 1, 7 and 20 of Section 102 | FEATURE : Environmental | SHEET : 1 OF 1

POSITION : | SURFACE ELEVATION :

EQUIPMENT TYPE : | METHOD :

DATE EXCAVATED : | LOGGED BY : GO | CHECKED BY : RO

EXCAVATION DIMENSIONS :

DRILLING | MATERIAL

VE / E / PENETRATION / F / H	SUPPORT	GROUND WATER LEVELS	SAMPLES & FIELD TESTS	ELEVATION (RL) DEPTH (m)	GRAPHIC LOG	CLASSIFICATION SYMBOL	MATERIAL DESCRIPTION Soil Type, Colour, Plasticity or Particle Characteristic Secondary and Minor Components	MOISTURE CONDITION	CONSISTENCY RELATIVE DENSITY	STRUCTURE & Other Observations
			0.15m AU-TR_0.15	0.0			Fill - ash layer , 2cm thick PID 0.0 ppm			
							0.20m Weathered siltstone			
				0.5						
							0.80m EXCAVATION TR03 TERMINATED AT 0.80 m			
				1.0						
				1.5						
				2.0						
				2.5						
				3.0						

PHOTOGRAPHS NOTES ☐ YES ☒ NO

METHOD
- N Natural Exposure
- E Existing Excavation
- BH Backhoe Bucket
- B Bulldozer Blade
- R Ripper

SUPPORT
- T Timbering

PENETRATION



No Resistance

WATER



10 Oct., 73 Water Level on Date shown
water inflow
water outflow

SAMPLES & FIELD TESTS
- U50 - Undisturbed Sample 50 mm diameter
- D - Disturbed Sample
- B - Bulk Disturbed Sample
- MC - Moisture Content
- HP - Hand Penetrometer (UCS kPa)
- VS - Vane Shear; P-Peak, R-Remouded (uncorrected kPa)
- PBT - Plate Bearing Test

CLASSIFICATION SYMBOLS & SOIL DESCRIPTION
Based on Unified Classification System

MOISTURE
- D - Dry
- M - Moist
- W - Wet

CONSISTENCY/ RELATIVE DENSITY

VS	- Very Soft
S	- Soft
F	- Firm
St	- Stiff
VSt	- Very Stiff
H	- Hard
VL	- Very Loose
L	- Loose
MD	- Medium Dense
D	- Dense
VD	- Very Dense

See Explanatory Notes for details of abbreviations & basis of descriptions.

SMEC AUSTRALIA

UPDATED SMEC LIBRARY_AGS 3_1 RTA 1_1 LIB 08_WITH FENCE TOOL_COLOUR.GLB Log SMEC EXCAVATION 3002523 CANBERRA BRICKWORKS.GPJ <<DrawingFile>> 20/10/2016 12:55 8.30.003

EXCAVATION - GEOLOGICAL LOG

PIT NO : TR04

PROJECT : 3002523 | CLIENT : Land Development Agency | FILE / JOB NO : ara
LOCATION : Canberra Brickworks Blocks 1, 7 and 20 of Section 102 | FEATURE : Environmental | SHEET : 1 OF 1

POSITION : | SURFACE ELEVATION :

EQUIPMENT TYPE : | METHOD :

DATE EXCAVATED : | LOGGED BY : GO | CHECKED BY : RO

EXCAVATION DIMENSIONS :

DRILLING | MATERIAL

ELEVATION (RL) DEPTH (m)	GRAPHIC LOG	CLASSIFICATION SYMBOL	MATERIAL DESCRIPTION Soil Type, Colour, Plasticity or Particle Characteristic Secondary and Minor Components	MOISTURE CONDITION	CONSISTENCY RELATIVE DENSITY	STRUCTURE & Other Observations
0.0			Topsoil PID 0.2ppm			
0.40m			Sandy clay , orange with stones PID 0.3ppm			
0.5						
1.00m			Grey wet clay PID 0.3 ppm			
1.0						
1.60m			Red brown shale PID 0.3 ppm EXCAVATION TR04 TERMINATED AT 1.60 m			
1.5						
2.0						
2.5						
3.0						

PENETRATION: VE E F H

SUPPORT | GROUND WATER LEVELS | SAMPLES & FIELD TESTS

PHOTOGRAPHS NOTES ☐ YES ☒ NO

METHOD
- N Natural Exposure
- E Existing Excavation
- BH Backhoe Bucket
- B Bulldozer Blade
- R Ripper

SUPPORT
- T Timbering

PENETRATION
VE E F H VH — No Resistance

WATER
10 Oct., 73 Water Level on Date shown
water inflow
water outflow

SAMPLES & FIELD TESTS
- U50 - Undisturbed Sample 50 mm diameter
- D - Disturbed Sample
- B - Bulk Disturbed Sample
- MC - Moisture Content
- HP - Hand Penetrometer (UCS kPa)
- VS - Vane Shear; P-Peak, R-Remouded (uncorrected kPa)
- PBT - Plate Bearing Test

CLASSIFICATION SYMBOLS & SOIL DESCRIPTION
Based on Unified Classification System

MOISTURE
- D - Dry
- M - Moist
- W - Wet

CONSISTENCY/ RELATIVE DENSITY

VS	- Very Soft
S	- Soft
F	- Firm
St	- Stiff
VSt	- Very Stiff
H	- Hard
VL	- Very Loose
L	- Loose
MD	- Medium Dense
D	- Dense
VD	- Very Dense

See Explanatory Notes for details of abbreviations & basis of descriptions.

SMEC AUSTRALIA

UPDATED SMEC LIBRARY_AGS 3_1 RTA 1_1 LIB 08_WITH FENCE TOOL_COLOUR.GLB Log SMEC EXCAVATION 3002523 CANBERRA BRICKWORKS.GPJ <<DrawingFile>> 20/10/2016 12:55 8.30.003

EXCAVATION - GEOLOGICAL LOG

PIT NO : TR08

PROJECT : 3002523 | CLIENT : Land Development Agency | FILE / JOB NO : ara
LOCATION : Canberra Brickworks Blocks 1, 7 and 20 of Section 102 | FEATURE : Environmental | SHEET : 1 OF 1

POSITION : | SURFACE ELEVATION :

EQUIPMENT TYPE : | METHOD :

DATE EXCAVATED : | LOGGED BY : GO | CHECKED BY : RO

EXCAVATION DIMENSIONS :

DRILLING | MATERIAL

VE / PENETRATION / E / F / H	SUPPORT	GROUND WATER LEVELS	SAMPLES & FIELD TESTS	ELEVATION (RL) DEPTH (m)	GRAPHIC LOG	CLASSIFICATION SYMBOL	MATERIAL DESCRIPTION Soil Type, Colour, Plasticity or Particle Characteristic Secondary and Minor Components	MOISTURE CONDITION	CONSISTENCY RELATIVE DENSITY	STRUCTURE & Other Observations
				0.0			Topsoil PID 0.0 ppm			
				0.15m			Fill - brick fragments			
			1.00m AU-TR8_1.0	0.5						
				1.0						
				1.5						
				1.80m			Clay PID 0.0 ppm follwed by Bedrock grey to grey brown siltstone			
				2.00m			EXCAVATION TR08 TERMINATED AT 2.00 m			
				2.0						
				2.5						
				3.0						

PHOTOGRAPHS NOTES ☐ YES ☒ NO

METHOD
- N Natural Exposure
- E Existing Excavation
- BH Backhoe Bucket
- B Bulldozer Blade
- R Ripper

SUPPORT
- T Timbering

PENETRATION
VE E F H VH — No Resistance

WATER
10 Oct., 73 Water Level on Date shown
water inflow
water outflow

SAMPLES & FIELD TESTS
- U50 - Undisturbed Sample 50 mm diameter
- D - Disturbed Sample
- B - Bulk Disturbed Sample
- MC - Moisture Content
- HP - Hand Penetrometer (UCS kPa)
- VS - Vane Shear; P-Peak, R-Remouded (uncorrected kPa)
- PBT - Plate Bearing Test

CLASSIFICATION SYMBOLS & SOIL DESCRIPTION
Based on Unified Classification System

MOISTURE
- D - Dry
- M - Moist
- W - Wet

CONSISTENCY/ RELATIVE DENSITY

VS	- Very Soft
S	- Soft
F	- Firm
St	- Stiff
VSt	- Very Stiff
H	- Hard
VL	- Very Loose
L	- Loose
MD	- Medium Dense
D	- Dense
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See Explanatory Notes for details of abbreviations & basis of descriptions.

SMEC AUSTRALIA

UPDATED SMEC LIBRARY_AGS 3_1 RTA 1_1 LIB 08_WITH FENCE TOOL_COLOUR.GLB Log SMEC EXCAVATION 3002523 CANBERRA BRICKWORKS.GPJ <<DrawingFile>> 20/10/2016 12:55 8.30.003

EXCAVATION - GEOLOGICAL LOG

PIT NO : TR11

PROJECT : 3002523 | CLIENT : Land Development Agency | FILE / JOB NO : ara
LOCATION : Canberra Brickworks Blocks 1, 7 and 20 of Section 102 | FEATURE : Environmental | SHEET : 1 OF 1

POSITION : | SURFACE ELEVATION :

EQUIPMENT TYPE : | METHOD :

DATE EXCAVATED : | LOGGED BY : GO | CHECKED BY : RO

EXCAVATION DIMENSIONS :

DRILLING | MATERIAL

VE / PENETRATION / E / F / H	SUPPORT	GROUND WATER LEVELS	SAMPLES & FIELD TESTS	ELEVATION (RL) DEPTH (m)	GRAPHIC LOG	CLASSIFICATION SYMBOL	MATERIAL DESCRIPTION Soil Type, Colour, Plasticity or Particle Characteristic Secondary and Minor Components	MOISTURE CONDITION	CONSISTENCY RELATIVE DENSITY	STRUCTURE & Other Observations
			0.15m AUGER-TR11_0.15	0.0			Fill - dark brown soil			
				0.15m			Fill - 2cm thcik layer sand PID 1.6 ppm			
				0.30m			Yellow brown siltstone /clay			
				0.5						
				1.0						
				1.5						
				1.80m			EXCAVATION TR11 TERMINATED AT 1.80 m			
				2.0						
				2.5						
				3.0						

PHOTOGRAPHS NOTES ☐ YES ☒ NO

METHOD
- N Natural Exposure
- E Existing Excavation
- BH Backhoe Bucket
- B Bulldozer Blade
- R Ripper

SUPPORT
- T Timbering

PENETRATION



No Resistance

WATER



10 Oct., 73 Water Level on Date shown
water inflow
water outflow

SAMPLES & FIELD TESTS
- U50 - Undisturbed Sample 50 mm diameter
- D - Disturbed Sample
- B - Bulk Disturbed Sample
- MC - Moisture Content
- HP - Hand Penetrometer (UCS kPa)
- VS - Vane Shear; P-Peak, R-Remouded (uncorrected kPa)
- PBT - Plate Bearing Test

CLASSIFICATION SYMBOLS & SOIL DESCRIPTION
Based on Unified Classification System

MOISTURE
- D - Dry
- M - Moist
- W - Wet

CONSISTENCY/ RELATIVE DENSITY

VS	- Very Soft
S	- Soft
F	- Firm
St	- Stiff
VSt	- Very Stiff
H	- Hard
VL	- Very Loose
L	- Loose
MD	- Medium Dense
D	- Dense
VD	- Very Dense

See Explanatory Notes for details of abbreviations & basis of descriptions.

SMEC AUSTRALIA

UPDATED SMEC LIBRARY_AGS 3_1 RTA 1_1 LIB 08_WITH FENCE TOOL_COLOUR.GLB Log SMEC EXCAVATION 3002523 CANBERRA BRICKWORKS.GPJ <<DrawingFile>> 20/10/2016 12:56 8.30.003

APPENDIX E – RESULTS TABLES

TABLE 1: SOIL ANALYTICAL RESULTS

Land Development Agency, Canberra Brickworks Precinct

SMEC — Local People. Global Experience.

| | | | | Metals | | | | | | | | BTEX | | | | | | | Total Petroleum Hydrocarbons (TPHs) | | | | | | | |

				Metals								BTEX						
SMEC Local People. Global Experience.				Arsenic	Cadmium	Chromium	Copper	Lead	Mercury	Nickel	Zinc	Benzene	Toluene	Ethylbenzene	Xylene (m & p)	Xylene (o)	Xylene Total	Total BTEX
				mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
CRC CARE Direct Contact HSL-A Residential (Low Density)												100	14000	4500			12000	
NEPM 2013 HIL Residential A				100	20	100	6000	300	40	400	7400							
LOR				3	0.3	0.3	0.5	1	0.05	0.5	0.5	0.1	0.1	0.1	0.2	0.1	0.3	0.6
Sample ID	Sample Depth (m)	Sample Date	Matrix															
M1_1.2-1.3	1.2-1.3	15/09/2016	SOIL	**8**	<0.3	**20**	**29**	**20**	<0.05	**19**	**47**	<0.1	<0.1	<0.1	<0.2	<0.1	<0.3	<0.6
M2_0.2-0.3	0.2-0.3	13/09/2016	SOIL	**8**	**1.3**	**33**	**43**	**120**	<0.05	**17**	**640**	<0.1	<0.1	<0.1	<0.2	<0.1	<0.3	<0.6
M3_0.2-0.3	0.2-0.3	13/09/2016	SOIL	**7**	<0.3	**27**	**12**	**36**	<0.05	**14**	**52**	<0.1	<0.1	<0.1	<0.2	<0.1	<0.3	<0.6
M4_0.2-0.3	0.2-0.3	23/09/2016	SOIL	**10**	**0.3**	**20**	**83**	**34**	<0.05	**25**	**48**	<0.1	<0.1	<0.1	<0.2	<0.1	<0.3	<0.6
M4_0.5-0.6	0.5-0.6	23/09/2016	SOIL	**8**	**0.3**	**21**	**57**	**30**	<0.05	**22**	**56**	<0.1	<0.1	<0.1	<0.2	<0.1	<0.3	<0.6
M4_0.85-0.95	0.85-0.95	23/09/2016	SOIL	**10**	**0.4**	**21**	**24**	**25**	<0.05	**24**	**73**	<0.1	<0.1	<0.1	<0.2	<0.1	<0.3	<0.6
M4_1.3-1.4	1.3-1.4	23/09/2016	SOIL	**12**	**0.4**	**28**	**25**	**26**	<0.05	**29**	**83**	<0.1	<0.1	<0.1	<0.2	<0.1	<0.3	<0.6
M5_0.1-0.2	0.1-0.2	15/09/2016	SOIL	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
M5_0.4-0.5	0.4-0.5	15/09/2016	SOIL	**16**	**0.3**	**23**	**14**	**38**	<0.05	**16**	**41**	<0.1	<0.1	<0.1	<0.2	<0.1	<0.3	<0.6
M6_0.3-0.4	0.3-0.4	14/09/2016	SOIL	>3	>0.3	**1.7**	**1.4**	**4**	<0.05	**0.8**	**2.7**	<0.1	<0.1	<0.1	<0.2	<0.1	<0.3	<0.6
M7_0.2-0.3	0.2-0.3	22/09/2016	SOIL	**3**	<0.3	**33**	**13**	**19**	<0.05	**9.8**	**26**	<0.1	<0.1	<0.1	<0.2	<0.1	<0.3	<0.6
M8_0.7-0.8	0.7-0.8	22/09/2016	SOIL	**9**	<0.3	**24**	**12**	**54**	<0.05	**13**	**58**	<0.1	<0.1	<0.1	<0.2	<0.1	<0.3	<0.6
HA/GB1_0.15-0.25	0.15-0.25	22/09/2016	SOIL	**7**	<0.3	**14**	**14**	**28**	<0.05	**21**	**22**	<0.1	<0.1	<0.1	<0.2	<0.1	<0.3	<0.6
HA7_0-0.1	0-0.1	15/09/2016	SOIL	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
HA7_0.2-0.3	0.2-0.3	15/09/2016	SOIL	**15**	**0.6**	**39**	**15**	**52**	<0.05	**24**	**460**	<0.1	<0.1	<0.1	<0.2	<0.1	<0.3	<0.6
HA8_0.1-0.2	0.1-0.2	15/09/2016	SOIL	**8**	**0.3**	**17**	**16**	**34**	<0.05	**13**	**640**	<0.1	<0.1	<0.1	<0.2	<0.1	<0.3	<0.6
HA22_0-0.1	0-0.1	15/09/2016	SOIL	**12**	**0.6**	**25**	**28**	**140**	**0.05**	**18**	**470**	<0.1	<0.1	<0.1	<0.2	<0.1	<0.3	<0.6

| | | | | Total Petroleum Hydrocarbons (TPHs) | | | | | | | | | | | | | | |

TABLE 2: RESULTS OF QUALITY CONTROL

Land Development Agency, Canberra Brickworks Precinct

				Metals								BTEX							Total Petroleum Hydrocarbons (TPHs)												PAH																		Phenols
				Arsenic	Cadmium	Chromium	Copper	Lead	Mercury	Nickel	Zinc	Benzene	Toluene	Ethylbenzene	Xylene (m & p)	Xylene (o)	Xylene Total	Total BTEX	C6-C10	C6-C10 less BTEX (F1)	C10-C16 (F2)	C16-C34 (F3)	C34-C40 (F4)	F2-NAPHTHALENE	C10 - C36 (Sum of total)	C6 - C9	C10 - C14	C15 - C28	C29-C36	C37-C40	C10 - C40 (Sum of total)	1-Methylnaphthalene	2-methylnaphthalene	Acenaphthene	Acenaphthylene	Anthracene	Benz(a)anthracene	Benzo(a) pyrene	Benzo(b+j)fluoranthene	Benzo(g,h,i)perylene	Benzo(k)fluoranthene	Chrysene	Dibenz(a,h)anthracene	Fluoranthene	Fluorene	Indeno(1,2,3-c,d)pyrene	Naphthalene	Phenanthrene	Pyrene	Total PAHs	Total Phenols
				mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
Sample ID	**Sample Depth (m)**	**Sample Date**	**Matrix**																																														
TP59_0.2-0.3	0.2-0.3	8/09/2016	SOIL	12	0.3	19	13	22	<0.05	16	64	<0.1	<0.1	<0.1	<0.2	<0.1	<0.3	<0.6	<25	<25	<25	<90	<120	<25	<110	<20	<20	<45	<45	<100	<210	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.8	<0.1
QC1[1]		8/09/2016	SOIL	12	0.4	19	14	25	<0.05	19	71	<0.1	<0.1	<0.1	<0.2	<0.1	<0.3	<0.6	<25	<25	<25	<90	<120	<25	<110	<20	<20	<45	<45	<100	<210	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.8	<0.1
RPD (%)				0	14	0	4	6	nc	9	5	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc
TP58_0.05-0.15	0.05-0.15	8/09/2016	SOIL	10	<0.3	15	15	28	<0.05	13	50	<0.1	<0.1	<0.1	<0.2	<0.1	<0.3	<0.6	<25	<25	<25	<90	<120	<25	<110	<20	<20	<45	<45	<100	<210	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.8	0.1
QC2[1]		8/09/2016	SOIL	10	<0.3	16	12	27	<0.05	14	51	<0.1	<0.1	<0.1	<0.2	<0.1	<0.3	<0.6	<25	<25	<25	<90	<120	<25	<110	<20	<20	<45	<45	<100	<210	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.8	0.6
RPD (%)				0	nc	3	11	2	nc	4	1	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc
TP50_0.2-0.3	0.2-0.3	8/09/2016	SOIL	5	<0.3	38	16	31	<0.05	12	27	<0.1	<0.1	<0.1	<0.2	<0.1	<0.3	<0.6	<25	<25	<25	<90	<120	<25	<110	<20	<20	<45	<45	<100	<210	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.8	<0.1
QC3[1]		8/09/2016	SOIL	5	<0.3	55	14	22	<0.05	9.6	27	<0.1	<0.1	<0.1	<0.2	<0.1	<0.3	<0.6	<25	<25	<25	<90	<120	<25	<110	<20	<20	<45	<45	<100	<210	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.8	<0.1
RPD (%)				0	nc	18	7	17	nc	11	0	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc
BH01_0.13-0.23	0.13-0.23	8/09/2016	SOIL	4	<0.3	19	11	14	<0.05	14	24	<0.1	<0.1	<0.1	<0.2	<0.1	<0.3	<0.6	<25	<25	<25	<90	<120	<25	<110	<20	<20	<45	<45	<100	<210	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.8	<0.1
QC4[1]		8/09/2016	SOIL	<3	<0.3	23	8	20	<0.05	23	29	<0.1	<0.1	<0.1	<0.2	<0.1	<0.3	<0.6	<25	<25	<25	<90	<120	<25	<110	<20	<20	<45	<45	<100	<210	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.8	<0.1
RPD (%)				nc	nc	10	16	18	nc	24	9	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc
BH2_0.15-0.25	0.15-0.25	9/09/2016	SOIL	6	<0.3	20	25	15	<0.05	28	43	<0.1	<0.1	<0.1	<0.2	<0.1	<0.3	<0.6	<25	<25	<25	<90	<120	<25	<110	<20	<20	<45	<45	<100	<210	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.8	<0.1
QC5[1]		9/09/2016	SOIL	6	<0.3	22	19	19	<0.05	20	31	<0.1	<0.1	<0.1	<0.2	<0.1	<0.3	<0.6	<25	<25	<25	<90	<120	<25	<110	<20	<20	<45	<45	<100	<210	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.8	0.2
RPD %				0	nc	5	14	12	nc	17	16	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc
BH18_0.2-0.3	0.2-0.3	9/09/2016	SOIL	14	0.8	16	20	110	<0.05	21	660	<0.1	<0.1	<0.1	<0.2	<0.1	<0.3	<0.6	<25	<25	<25	<90	<120	<25	<110	<20	<20	<45	<45	<100	<210	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.8	<0.1
QC6[1]		9/09/2016	SOIL	13	0.7	20	19	97	<0.05	21	370	<0.1	<0.1	<0.1	<0.2	<0.1	<0.3	<0.6	<25	<25	<25	<90	<120	<25	<110	<20	<20	<45	<45	<100	<210	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.8	<0.1
RPD %				4	7	11	3	6	nc	0	28	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc
BH15_0.2-0.3	0.2-0.3	9/09/2016	SOIL	7	<0.3	10	15	17	<0.05	13	76	<0.1	<0.1	<0.1	<0.2	<0.1	<0.3	<0.6	<25	<25	<25	<90	<120	<25	<110	<20	<20	<45	<45	<100	<210	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.8	<0.1
QC7[1]		9/09/2016	SOIL	6	<0.3	9.6	13	17	<0.05	13	71	<0.1	<0.1	<0.1	<0.2	<0.1	<0.3	<0.6	<25	<25	<25	<90	<120	<25	<110	<20	<20	48	<45	<100	<210	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.8	<0.1
RPD %				8	nc	2	7	0	nc	0	3	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc
BH11_0.14-0.24	0.14-0.24	12/09/2016	SOIL	17	0.3	21	16	24	<0.05	16	64	<0.1	<0.1	<0.1	<0.2	<0.1	<0.3	<0.6	<25	<25	<25	<90	<120	<25	<110	<20	<20	<45	<45	<100	<210	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.8	<0.1
QC8[1]		12/09/2016	SOIL	17	0.3	23	16	24	<0.05	16	61	<0.1	<0.1	<0.1	<0.2	<0.1	<0.3	<0.6	<25	<25	<25	<90	<120	<25	<110	<20	<20	<45	<45	<100	<210	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.8	<0.1
RPD %				0	0	5	0	0	nc	0	2	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc
BH16_0.11-0.21	0.11-0.21	12/09/2016	SOIL	11	<0.3	24	17	110	<0.05	19	56	<0.1	<0.1	<0.1	<0.2	<0.1	<0.3	<0.6	<25	<25	<25	<90	<120	<25	<110	<20	<20	<45	<45	<100	<210	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.8	<0.1
QC9[1]		12/09/2016	SOIL	11	0.3	28	16	92	<0.05	14	56	<0.1	<0.1	<0.1	<0.2	<0.1	<0.3	<0.6	<25	<25	<25	<90	<120	<25	<110	<20	<20	<45	<45	<100	<210	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.8	<0.1
RPD %				0	nc	8	3	9	nc	15	0	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc
M6_0.3-0.4	0.3-0.4	14/09/2016	SOIL	<3	<0.3	1.7	1.4	4	<0.05	0.8	2.7	<0.1	<0.1	<0.1	<0.2	<0.1	<0.3	<0.6	<25	<25	<25	<90	<120	<25	<110	<20	<20	<45	<45	<100	<210	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.8	0.3
QC10[1]		14/09/2016	SOIL	<3	<0.3	1.0	<0.5	2.0	<0.05	<0.5	0.6	<0.1	<0.1	<0.1	<0.2	<0.1	<0.3	<0.6	<25	<25	<25	<90	<120	<25	<110	<20	<20	<45	<45	<100	<210	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.8	0.1
RPD %				nc	nc	26	nc	33	nc	nc	64	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	50
M6_0.3-0.4	0.3-0.4	14/09/2016	SOIL	>3	>0.3	1.7	1.4	4	<0.05	0.8	2.7	<0.1	<0.1	<0.1	<0.2	<0.1	<0.3	<0.6	<25	<25	<25	<90	<120	<25	<110	<20	<20	<45	<45	<100	<210	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.8	0.3
QC11[2]		14/09/2016	SOIL	<5	<1	16	10	17	<0.1	17	72	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.2	<10	<10	<50	<100	<100	<50	<50	<10	<50	<100	<100	-	<50	-	-	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	<0.5	<0.5	<0.5	-
RPD %				nc	nc	**81**	**75**	**62**	nc	**91**	**93**	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc
M5_0.4-0.5	0.4-0.5	15/09/2016	SOIL	16	0.3	23	14	38	<0.05	16	41	<0.1	<0.1	<0.1	<0.2	<0.1	<0.3	<0.6	<25	<25	<25	<90	<120	<25	<110	<20	<20	<45	<45	<100	<210	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.8	0.3
QC12[1]		15/09/2016	SOIL	14	<0.3	21	15	40	<0.05	18	50	<0.1	<0.1	<0.1	<0.2	<0.1	<0.3	<0.6	<25	<25	<25	<90	<120	<25	<110	<20	<20	<45	<45	<100	<210	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.8	0.2
RPD %				7	nc	5	3	3	nc	6	10	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	20
M5_0.4-0.5	0.4-0.5	15/09/2016	SOIL	16	0.3	23	14	38	<0.05	16	41	<0.1	<0.1	<0.1	<0.2	<0.1	<0.3	<0.6	<25	<25	<25	<90	<120	<25	<110	<20	<20	<45	<45	<100	<210	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.8	0.3
QC13[2]		15/09/2016	SOIL	16	<1	27	19	31	<0.1	24	72	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.2	<10	<10	<50	<100	<100	<50	<50	<10	<50	<100	<100	-	<50	-	-	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	<0.5	<0.5	<0.5	-
RPD %				0	nc	8	15	10	nc	20	27	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc
M1_1.2-1.3	1.2-1.3	15/09/2016	SOIL	8	<0.3	20	29	20	<0.05	19	47	<0.1	<0.1	<0.1	<0.2	<0.1	<0.3	<0.6	<25	<25	<25	<90	<120	<25	<110	<20	<20	<45	<45	<100	<210	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.8	0.3
QC14[1]		15/09/2016	SOIL	10	<0.3	18	29	20	<0.05	16	44	<0.1	<0.1	<0.1	<0.2	<0.1	<0.3	<0.6	<25	<25	<25	<90	<120	<25	<110	<20	<20	<45	<45	<100	<210	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.8	0.2
RPD %				11	nc	5	0	0	nc	9	3	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	20
M1_1.2-1.3	1.2-1.3	15/09/2016	SOIL	8	<0.3	20	29	20	<0.05	19	47	<0.1	<0.1	<0.1	<0.2	<0.1	<0.3	<0.6	<25	<25	<25	<90	<120	<25	<110	<20	<20	<45	<45	<100	<210	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.8	0.3
QC15[2]		15/09/2016	SOIL	10	<1	21	30	20	<0.1	18	44	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.2	<10	<10	<50	<100	<100	<50	<50	<10	<50	<100	<100	-	<50	-	-	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	<0.5	<0.5	<0.5	-
RPD %				11	nc	2	2	0	nc	3	3	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc
QC16 (Trip Blank)	-	15/09/2016	SOIL	-	-	-	-	-	-	-	-	<0.1	<0.1	<0.1	<0.2	<0.1	<0.3	<0.6	<25	<25	<25	<90	<120	<25	<110	<20	<20	<45	<45	<100	<210	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.8	-
QC17 (Trip Spike)	-	15/09/2016	SOIL	-	-	-	-	-	-	-	-	[91%]	[86%]	[79%]	[82%]	[79%]	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Notes:

RPDs that have been bolded and shaded exceed the acceptance criteria

nc- not calculated

[1] Denotes intra-laboratory duplicate sample analysed by primary laboratory (SGS Sydney)

Table 3: Field QC LOG

Job Name	**Canberra Brickworks**
Job no	**3002523**
Project Manager	**Mechelle Swanepoel**
Field Personnel	**Graham Ohmsen, Ryan O'Leary and Natasha Crook**

Field QC Sample ID	Field Primary Sample ID	Sample Receipt Advice #	Sampling Date	Duplicate (SGS)	Triplicate (ALS)	Trip Blank	Trip Spike	Description
QC1	TP59_0.2-0.3	SE157066	8/09/2016	X				Soil
QC2	TP58_0.05-0.15	SE157066 & SE157067	8/09/2016	X				Soil
QC3	TP50_0.2-0.3	SE157066	8/09/2016	X				Soil
QC4	BH1_0.13-0.23	SE157066	8/09/2016	X				Soil
QC5	BH2_0.15-0.25	SE157080 & SE157098	9/09/2016	X				Soil
QC6	BH18_0.2-0.3	SE157080 & SE157098	9/09/2016	X				Soil
QC7	BH15_0.2-0.3	SE157080 & SE157098	9/09/2016	X				Soil
QC8	BH11_0.14-0.24	SE157080 & SE157098	12/09/2016	X				Soil
QC9	BH16_0.11-0.21	SE157080 & SE157098	12/09/2016	X				Soil
QC10	M6_0.3-0.4	SE157198	14/09/2016	X				Soil
QC11	M6_0.3-0.4	ES1620843	14/09/2016		X			Soil
QC12	M5_0.4-0.5	SE157294	15/09/2016	X				Soil
QC13	M5_0.4-0.5	ES1621089	15/09/2016		X			Soil
QC14	M1_1.2-1.3	SE157294	15/09/2016	X				Soil
QC15	M1_1.2-1.3	ES1621089	15/09/2016		X			Soil
QC16	QC16 Trip Blank	SE157294	15/09/2016			X		Soil
QC17	QC17 Trip Spike	SE157294	15/09/2016				X	Soil
QC18	QC18 Trip Blank	SE157545	22/09/2016			X		Soil
QC19	QC19 Trip Spike	SE157545	22/09/2016				X	Soil
QC20	QC20 Trip Blank	TBC	22/09/2016			X		Soil
QC21	QC21 Trip Spike	TBC	22/09/2016				X	Soil
QC22	M2	SE157659	28/09/2016	X				Water
QC23	M2	SE157659	28/09/2016		X			Water

Table 4: Asbestos Air Monitoring Results

Date	Fibres/Fields	Concentration
5/09/2016	<1.0 Fibres/100 fields	<0.01
	2.0 Fibres/100 fields	<0.01
6/09/2016	<1.0 Fibres/100 fields	<0.01
	2.0 Fibres/100 fields	<0.01
7/09/2016	<1.0 Fibres/100 fields	<0.01
8/09/2016	4.0 Fibres/100 fields	<0.01
9/09/2016	2.0 Fibres/100 fields	<0.01
12/09/2016	4.5 Fibres/100 fields	<0.01
13/09/2016	<1.0 Fibres/100 fields	<0.01
14/09/2016	<1.0 Fibres/100 fields	<0.01
21/09/2016	<1.0 Fibres/100 fields	<0.01
22/09/2016	<1.0 Fibres/100 fields	<0.01

SMEC
Local People. Global Experience.

APPENDIX F – LABORATORY REPORTS

source: M630_SR_20160908115402.pdf page: 1 SGS Ref: SE156824_COC

SGS

CHAIN OF CUSTODY & ANALYSIS REQUEST

SGS Environmental Services
Unit 16, 33 Maddox Street
Alexandria NSW 2015
Telephone No: (02) 85940400
Facsimile No: (02) 85940499
Email: au.samplereceipt.sydney@sgs.com

Company Name:	SMEC	Project Name/No:	3002523 – Canberra Brickworks
Address:	Suite 2, Level 1, 243 Northbourne Avenue, Lyneham, ACT, 2602, Australia	Purchase Order No:	
		Results Required By:	Ryan O'Leary
		Telephone:	+61 2 6234 1963 / 0400 240 023
Contact Name:	Ryan O'Leary	Facsimile:	
		Email Results:	Ryan.O'Leary@smec.com

Client Sample ID	Date Sampled	Lab Sample ID	WATER	SOIL	PRESEVATIVE	NO OF CONTAINERS	Asbestos ID	BTEXN	OPPs	OCPs	PHAs/Phenols	8 Metals - As, Cd, Cr, Cu, Ni, Pb, Zn, Hg	TPH/TRH				
SS1	06-09-16	1		✓		1	✓	✓	✓	✓	✓	✓	✓				
SS2	06-09-16	2		✓		1	✓	✓	✓	✓	✓	✓	✓				
SS4	06-09-16	3		✓		1	✓	✓	✓	✓	✓	✓	✓				
SS3	06-09-16	4		✓		1	✓	✓	✓	✓	✓	✓	✓				
SS5	06-09-16	5		✓		1	✓	✓	✓	✓	✓	✓	✓				
SS6	06-09-16	6		✓		1	✓	✓	✓	✓	✓	✓	✓				
SS7	06-09-16	7		✓		1	✓	✓	✓	✓	✓	✓	✓				
SS10	06-09-16	8		✓		1	✓	✓	✓	✓	✓	✓	✓				

SGS EHS Alexandria Laboratory

SE156824 COC
Received: 07 – Sep – 2016

Relinquished By: Ryan O'Leary	Date/Time: 06/09/2016 14:00	Received By:	Date/Time 7/9/16 10:00
Relinquished By:	Date/Time:	Received By:	Date/Time
Samples Intact: Yes/ No	Temperature: Ambient / Chilled 14.3	Sample Cooler Sealed: Yes/ No	Laboratory Quotation No:
	Comments: AS PER SGS QUOTE NUMBER SY1 – 60413 – 2-IS DATED 13TH APRIL 2016	**STANDARD TA**	

SGS

CHAIN OF CUSTODY & ANALYSIS REQUEST

SGS Environmental Services
Unit 16, 33 Maddox Street
Alexandria NSW 2015
Telephone No: (02) 85940400
Facsimile No: (02) 85940499
Email: au.samplereceipt.sydney@sgs.com

Company Name:	SMEC	Project Name/No:	3002523 – Canberra Brickworks
Address:	Suite 2, Level 1, 243 Northbourne Avenue, Lyneham, ACT, 2602, Australia	Purchase Order No:	
		Results Required By:	Ryan O'Leary
		Telephone:	+61 2 6234 1963 / 0400 240 023
Contact Name:	Ryan O'Leary	Facsimile:	
		Email Results:	Ryan.O'Leary@smec.com

Client Sample ID	Date Sampled	Lab Sample ID	WATER	SOIL	PRESEVATIVE	NO OF CONTAINERS	Asbestos ID	BTEXN	OPPs	OCPs	PHAs/Phenols	8 Metals - As, Cd, Cr, Cu, Ni, Pb, Zn, Hg	TPH/TRH									
SS11	06-09-16	9		✓		1	✓	✓	✓	✓	✓	✓	✓									
SS12	06-09-16	10		✓		1	✓	✓	✓	✓	✓	✓	✓									
SS13	06-09-16	11		✓		1	✓	✓	✓	✓	✓	✓	✓									
SS15	06-09-16	12		✓		1	✓	✓	✓	✓	✓	✓	✓									
SS17	06-09-16	13		✓		1	✓	✓	✓	✓	✓	✓	✓									
G1	06-09-16	14		✓		1	✓	✓	✓	✓	✓	✓	✓									
G3	06-09-16	15		✓		1	✓	✓	✓	✓	✓	✓	✓									
G4	06-09-16	16		✓		1	✓	✓	✓	✓	✓	✓	✓									

Relinquished By: Ryan O'Leary	Date/Time:	Received By:	Date/Time 7/9/16 @ 10.50
Relinquished By:	Date/Time:	Received By:	Date/Time
Samples Intact: Yes/ No	Temperature: Ambient / Chilled	Sample Cooler Sealed: Yes/ No	Laboratory Quotation No:
	Comments:		

SGS

CHAIN OF CUSTODY & ANALYSIS REQUEST

SGS Environmental Services
Unit 16, 33 Maddox Street
Alexandria NSW 2015
Telephone No: (02) 85940400
Facsimile No: (02) 85940499
Email: au.samplereceipt.sydney@sgs.com

Company Name:	SMEC	Project Name/No:	3002523 – Canberra Brickworks
Address:	Suite 2, Level 1, 243 Northbourne Avenue, Lyneham, ACT, 2602, Australia	Purchase Order No:	
		Results Required By:	Ryan O'Leary
		Telephone:	+61 2 6234 1963 / 0400 240 023
Contact Name:	Ryan O'Leary	Facsimile:	
		Email Results:	Ryan.O'Leary@smec.com

Client Sample ID	Date Sampled	Lab Sample ID	WATER	SOIL	PRESEVATIVE	NO OF CONTAINERS	Asbestos ID	BTEXN	OPPs	OCPs	PHAs/Phenols	8 Metals - As, Cd, Cr, Cu, Ni, Pb, Zn, Hg	TPH/TRH	On Hold
G5	06-09-16	17		✓		1	✓	✓	✓	✓	✓	✓	✓	
G6	06-09-16	18		✓		1	✓	✓	✓	✓	✓	✓	✓	
TR8	06 -09-16	21		✓		1	✓	✓	✓	✓	✓	✓	✓	
TR11 - 0.15	06 -09-16	32		✓		1	✓	✓	✓	✓	✓	✓	✓	
TR11- 1.8	06 -09-16	33		✓		1								✓
TP3 0 -0.1	06 -09-16			✓		1	✓	✓	✓	✓	✓	✓	✓	
TP34 0 -0.1	06 -09-16			✓		1	✓	✓	✓	✓	✓	✓	✓	
TP34 1.3-1.4	06 -09-16	36		✓		1								✓

Relinquished By: Ryan O'Leary	Date/Time:	Received By:	Date/Time 7/9/16 @ 10.00
Relinquished By:	Date/Time:	Received By:	Date/Time
Samples Intact: Yes/ No	Temperature: Ambient / Chilled	Sample Cooler Sealed: Yes/ No	Laboratory Quotation No:
	Comments:		

SGS

CHAIN OF CUSTODY & ANALYSIS REQUEST

SGS Environmental Services
Unit 16, 33 Maddox Street
Alexandria NSW 2015
Telephone No: (02) 85940400
Facsimile No: (02) 85940499
Email: au.samplereceipt.sydney@sgs.com

Company Name:	SMEC	Project Name/No:	3002523 – Canberra Brickworks
Address:	Suite 2, Level 1, 243 Northbourne Avenue, Lyneham, ACT, 2602, Australia	Purchase Order No:	
		Results Required By:	Ryan O'Leary
		Telephone:	+61 2 6234 1963 / 0400 240 023
Contact Name:	Ryan O'Leary	Facsimile:	
		Email Results:	Ryan O'Leary@smec.com

Client Sample ID	Date Sampled	Lab Sample ID	WATER	SOIL	PRESEVATIVE	NO OF CONTAINERS	Asbestos ID	BTEXN	OPPs	OCPs	PHAs/Phenols	8 Metals - As, Cd, Cr, Cu, Ni, Pb, Zn, Hg	TPH/TRH	On Hold								
TP34 1.4 – 1.5	06 -09-16	36		✓		1								✓								
TP35 0.9-1.0	06 -09-16	23		✓		1	✓	✓	✓	✓	✓	✓	✓									
TP35 1.2-1.3	06 -09-16	20		✓		1								✓								
TP35 2.1-2.2	06 -09-16	28		✓		1								✓								
TP42	06 -09-16	22		✓		1	✓	✓	✓	✓	✓	✓	✓									
TP43	06 -09-16	29		✓		1	✓	✓	✓	✓	✓	✓	✓									
TP44	06 -09-16	34		✓		1	✓	✓	✓	✓	✓	✓	✓									
TP48 0.1 -0.2	06 -09-16	24		✓		1	✓	✓	✓	✓	✓	✓	✓									

Relinquished By: Ryan O'Leary	Date/Time:	Received By:	Date/Time 7/9/16 @ 10.50
Relinquished By:	Date/Time:	Received By:	Date/Time
Samples Intact: Yes/ No	Temperature: Ambient / Chilled	Sample Cooler Sealed: Yes/ No	Laboratory Quotation No:
	Comments:		

SGS

CHAIN OF CUSTODY & ANALYSIS REQUEST

SGS Environmental Services
Unit 16, 33 Maddox Street
Alexandria NSW 2015
Telephone No: (02) 85940400
Facsimile No: (02) 85940499
Email: au.samplereceipt.sydney@sgs.com

Company Name:	SMEC	Project Name/No:	3002523 – Canberra Brickworks
Address:	Suite 2, Level 1, 243 Northbourne Avenue, Lyneham, ACT, 2602, Australia	Purchase Order No:	
		Results Required By:	Ryan O'Leary
		Telephone:	+61 2 6234 1963 / 0400 240 023
Contact Name:	Ryan O'Leary	Facsimile:	
		Email Results:	Ryan O'Leary@smec com

Client Sample ID	Date Sampled	Lab Sample ID	WATER	SOIL	PRESEVATIVE	NO OF CONTAINERS	Asbestos ID	BTEXN	OPPs	OCPs	PHAs/Phenols	8 Metals - As, Cd, Cr, Cu, Ni, Pb, Zn Hg	TPH/TRH	On Hold
TP48 0.4	06 -09-16	25		✓		1								✓
TP48 -0.9	06 -09-16	19		✓		1								✓
TP48 1.2	06 -09-16	31		✓		1								✓
TP48 2.0-2.1	06 -09-16	27		✓		1								✓
TP52 0.1 – 0.2	06 -09-16	30		✓		1	✓	✓	✓	✓	✓	✓	✓	
TP61	06 -09-16	35		✓		1	✓	✓	✓	✓	✓	✓	✓	

Relinquished By: Ryan O'Leary	Date/Time:	Received By:	Date/Time 7/9/16 @ 10.50
Relinquished By:	Date/Time:	Received By:	Date/Time
Samples Intact: Yes/ No	Temperature: Ambient / Chilled	Sample Cooler Sealed: Yes/ No	Laboratory Quotation No:
	Comments:		

AU.SampleReceipt.Sydney (Sydney)

From: O'Leary, Ryan [Ryan.O'Leary@smec.com]
Sent: Thursday, 8 September 2016 11:33 AM
To: AU.SampleReceipt.Sydney (Sydney)
Subject: Re: SE156824 - 3002523

Hi Trent,

37 38 39

Please analyse SS14, 18 and TP35_0-0.1.

Don't worry about the missing/broken ones.

Thanks

Ryan

Sent from my iPhone

On 8 Sep 2016, at 10:14 AM, AU.SampleReceipt.Sydney (Sydney) <AU.SampleReceipt.Sydney@sgs.com> wrote:

> Dear Ryan,
>
> Thanks for the revised COC.
>
> TP3_0-0.1 not received and TP34_0-0.1 received broken and unsalvageable. Samples with "Red Dots " next to them. Do you want other samples analysed?
>
> Extra samples SS14, SS18 and TP35_0-0.1 received. Do you want them analysed?
>
> Please advise as soon as possible.
>
> Thank You.
>
> Kind Regards,
>
> Emily Yin
> Environment, Health & Safety
> Sample Administration Officer
>
> **SGS Australia Pty Ltd**
> Unit 16, 33 Maddox St
> Alexandria, NSW, 2015
>
> Phone: +61 (0)2 8594 0400
> Fax: +61 (0)2 8594 0499

Information in this email and any attachments is confidential and intended solely for the use of the individual(s) to whom it is addressed or otherwise directed. Please note that any views or opinions presented in this email are solely those of the author and do not necessarily represent those of the Company. Finally, the recipient should check this email and any attachments for the presence of viruses. The Company accepts no liability for any damage caused by any virus transmitted by this email. All SGS services are rendered in accordance with the applicable SGS conditions of service available on request and accessible at http://www.sgs.com/en/Terms-and-Conditions.aspx

SAMPLE RECEIPT ADVICE

SE156824

CLIENT DETAILS

Contact	Ryan O'Leary
Client	SMEC AUSTRALIA PTY LTD
Address	Sun Micro Building Suite 2, Level 1 243 Northbourne Avenue ACT 2602
Telephone	02 6234 1963
Facsimile	02 6234 1966
Email	Ryan.O'Leary@smec.com
Project	**3002523 - Canberra Brickworks**
Order Number	**SY1-604163-2-IS**
Samples	39

LABORATORY DETAILS

Manager	Huong Crawford
Laboratory	SGS Alexandria Environmental
Address	Unit 16, 33 Maddox St Alexandria NSW 2015
Telephone	+61 2 8594 0400
Facsimile	+61 2 8594 0499
Email	au.environmental.sydney@sgs.com
Samples Received	Wed 7/9/2016
Report Due	Wed 14/9/2016
SGS Reference	**SE156824**

SUBMISSION DETAILS

This is to confirm that 39 samples were received on Wednesday 7/9/2016. Results are expected to be ready by Wednesday 14/9/2016. Please quote SGS reference SE156824 when making enquiries. Refer below for details relating to sample integrity upon receipt.

Sample counts by matrix	39 Soil	Type of documentation received	COC
Date documentation received	7/9/2016	Samples received in good order	Yes
Samples received without headspace	Yes	Sample temperature upon receipt	14.3°C
Sample container provider	SGS	Turnaround time requested	Standard
Samples received in correct containers	Yes	Sufficient sample for analysis	Yes
Sample cooling method	Ice Bricks	Samples clearly labelled	Yes
Complete documentation received	Yes	Number of eskies/boxes received	

Unless otherwise instructed, water and bulk samples will be held for one month from date of report, and soil samples will be held for two months.

COMMENTS

TP3_0-0.1 not received and TP34_0-0.1 received broken and unsalvageable

To the extent not inconsistent with the other provisions of this document and unless specifically agreed otherwise in writing by SGS, all SGS services are rendered in accordance with the applicable SGS General Conditions of Service accessible at http://www.sgs.com/en/terms-and-conditions as at the date of this document. Attention is drawn to the limitations of liability and to the clauses of indemnification.

SAMPLE RECEIPT ADVICE

SE156824

CLIENT DETAILS

Client SMEC AUSTRALIA PTY LTD

Project 3002523 - Canberra Brickworks

SUMMARY OF ANALYSIS

No.	Sample ID	OC Pesticides in Soil	OP Pesticides in Soil	PAH (Polynuclear Aromatic Hydrocarbons) in Soil	Total Phenolics in Soil	Total Recoverable Metals in Soil/Waste	TRH (Total Recoverable Hydrocarbons) in Soil	VOC's in Soil	Volatile Petroleum Hydrocarbons in Soil
001	SS1	28	13	26	1	7	10	12	8
002	SS2	28	13	26	1	7	10	12	8
003	SS4	28	13	26	1	7	10	12	8
004	SS3	28	13	26	1	7	10	12	8
005	SS5	28	13	26	1	7	10	12	8
006	SS6	28	13	26	1	7	10	12	8
007	SS7	28	13	26	1	7	10	12	8
008	SS10	28	13	26	1	7	10	12	8
009	SS11	28	13	26	1	7	10	12	8
010	SS12	28	13	26	1	7	10	12	8
011	SS13	28	13	26	1	7	10	12	8
012	SS15	28	13	26	1	7	10	12	8
013	SS17	28	13	26	1	7	10	12	8
014	G1	28	13	26	1	7	10	12	8
015	G3	28	13	26	1	7	10	12	8
016	G4	28	13	26	1	7	10	12	8
017	G5	28	13	26	1	7	10	12	8
018	G6	28	13	26	1	7	10	12	8
021	TR8	28	13	26	1	7	10	12	8
022	TP42	28	13	26	1	7	10	12	8
023	TP35 0.9-1.0	28	13	26	1	7	10	12	8
024	TP48 0.1-0.2	28	13	26	1	7	10	12	8

CONTINUED OVERLEAF

The above table represents SGS' interpretation of the client-supplied Chain Of Custody document.
The numbers shown in the table indicate the number of results requested in each package.
Please indicate as soon as possible should your request differ from these details .
Testing as per this table shall commence immediately unless the client intervenes with a correction .

SAMPLE RECEIPT ADVICE

SE156824

CLIENT DETAILS

Client SMEC AUSTRALIA PTY LTD

Project 3002523 - Canberra Brickworks

SUMMARY OF ANALYSIS

No.	Sample ID	OC Pesticides in Soil	OP Pesticides in Soil	PAH (Polynuclear Aromatic Hydrocarbons) in Soil	Total Phenolics in Soil	Total Recoverable Metals in Soil/Waste	TRH (Total Recoverable Hydrocarbons) in Soil	VOC's in Soil	Volatile Petroleum Hydrocarbons in Soil
029	TP43	28	13	26	1	7	10	12	8
030	TP52 0.1-0.2	28	13	26	1	7	10	12	8
032	TR11 -0.15	28	13	26	1	7	10	12	8
034	TP44	28	13	26	1	7	10	12	8
035	TP61	28	13	26	1	7	10	12	8
037	SS14	28	13	26	1	7	10	12	8
038	SS18	28	13	26	1	7	10	12	8
039	TP35_0-0.1	28	13	26	1	7	10	12	8

CONTINUED OVERLEAF

The above table represents SGS' interpretation of the client-supplied Chain Of Custody document.
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Please indicate as soon as possible should your request differ from these details .
Testing as per this table shall commence immediately unless the client intervenes with a correction .

SAMPLE RECEIPT ADVICE

SE156824

CLIENT DETAILS

Client SMEC AUSTRALIA PTY LTD

Project 3002523 - Canberra Brickworks

SUMMARY OF ANALYSIS

No.	Sample ID	Fibre Identification in soil	Mercury in Soil	Moisture Content
001	SS1	2	1	1
002	SS2	2	1	1
003	SS4	2	1	1
004	SS3	2	1	1
005	SS5	2	1	1
006	SS6	2	1	1
007	SS7	2	1	1
008	SS10	2	1	1
009	SS11	2	1	1
010	SS12	2	1	1
011	SS13	2	1	1
012	SS15	2	1	1
013	SS17	2	1	1
014	G1	2	1	1
015	G3	2	1	1
016	G4	2	1	1
017	G5	2	1	1
018	G6	2	1	1
021	TR8	2	1	1
022	TP42	2	1	1
023	TP35 0.9-1.0	2	1	1
024	TP48 0.1-0.2	2	1	1

CONTINUED OVERLEAF

The above table represents SGS' interpretation of the client-supplied Chain Of Custody document.
The numbers shown in the table indicate the number of results requested in each package.
Please indicate as soon as possible should your request differ from these details .
Testing as per this table shall commence immediately unless the client intervenes with a correction .

SAMPLE RECEIPT ADVICE

SE156824

CLIENT DETAILS

Client SMEC AUSTRALIA PTY LTD

Project 3002523 - Canberra Brickworks

SUMMARY OF ANALYSIS

No.	Sample ID	Fibre Identification in soil	Mercury in Soil	Moisture Content
029	TP43	2	1	1
030	TP52 0.1-0.2	2	1	1
032	TR11 -0.15	2	1	1
034	TP44	2	1	1
035	TP61	2	1	1
037	SS14	2	1	1
038	SS18	2	1	1
039	TP35_0-0.1	2	1	1

The above table represents SGS' interpretation of the client-supplied Chain Of Custody document.
The numbers shown in the table indicate the number of results requested in each package.
Please indicate as soon as possible should your request differ from these details .
Testing as per this table shall commence immediately unless the client intervenes with a correction .

ANALYTICAL REPORT

Accreditation No. 2562

CLIENT DETAILS

Contact	Ryan O'Leary
Client	SMEC AUSTRALIA PTY LTD
Address	Sun Micro Building Suite 2, Level 1 243 Northbourne Avenue ACT 2602
Telephone	02 6234 1963
Facsimile	02 6234 1966
Email	Ryan.O'Leary@smec.com
Project	**3002523 - Canberra Brickworks**
Order Number	**SY1-604163-2-IS**
Samples	39

LABORATORY DETAILS

Manager	Huong Crawford
Laboratory	SGS Alexandria Environmental
Address	Unit 16, 33 Maddox St Alexandria NSW 2015
Telephone	+61 2 8594 0400
Facsimile	+61 2 8594 0499
Email	au.environmental.sydney@sgs.com
SGS Reference	**SE156824 R0**
Date Received	7/9/2016
Date Reported	14/9/2016

COMMENTS

Accredited for compliance with ISO/IEC 17025. NATA accredited laboratory 2562(4354).

No respirable fibres detected in all soil samples using trace analysis technique.

A portion of the sample supplied has been sub-sampled for asbestos according to SGS In-house procedures.
We therefore cannot guarantee that the sub-sample is representative of the entire sample supplied.
SGS Environment, Health and Safety recommends supplying approximately 50-100g of sample in a separate container.
Sample # 8-9: Insufficient sample for asbestos analysis.
Asbestos analysed by Approved Identifiers Yusuf Kuthpudin and Ravee Sivasubramaniam .

VOC/VPH/PAH/OP/TRH - Sample(s) received had insufficient amounts supplied by client. LORs will be raised to accommodate for testing scheme required.

SIGNATORIES

Andy Sutton
Senior Organic Chemist

Bennet Lo
Senior Organic Chemist/Metals Chemist

Dong Liang
Metals/Inorganics Team Leader

Kamrul Ahsan
Senior Chemist

Ly Kim Ha
Organic Section Head

Ravee Sivasubramaniam
Hygiene Team Leader

VOC's in Soil [AN433] Tested: 8/9/2016

PARAMETER	UOM	LOR	SS1 SOIL - 6/9/2016 SE156824.001	SS2 SOIL - 6/9/2016 SE156824.002	SS4 SOIL - 6/9/2016 SE156824.003	SS3 SOIL - 6/9/2016 SE156824.004	SS5 SOIL - 6/9/2016 SE156824.005
Benzene	mg/kg	0.1	<0.1	<0.1	<0.2↑	<0.1	<0.2↑
Toluene	mg/kg	0.1	<0.1	<0.1	<0.2↑	<0.1	<0.2↑
Ethylbenzene	mg/kg	0.1	<0.1	<0.1	<0.2↑	<0.1	<0.2↑
m/p-xylene	mg/kg	0.2	<0.2	<0.2	<0.4↑	<0.2	<0.4↑
o-xylene	mg/kg	0.1	<0.1	<0.1	<0.2↑	<0.1	<0.2↑
Total Xylenes*	mg/kg	0.3	<0.3	<0.3	<0.6↑	<0.3	<0.6↑
Total BTEX	mg/kg	0.6	<0.6	<0.6	<1.2↑	<0.6	<1.2↑
Naphthalene	mg/kg	0.1	<0.1	<0.1	<0.2↑	<0.1	<0.2↑

PARAMETER	UOM	LOR	SS6 SOIL - 6/9/2016 SE156824.006	SS7 SOIL - 6/9/2016 SE156824.007	SS10 SOIL - 6/9/2016 SE156824.008	SS11 SOIL - 6/9/2016 SE156824.009	SS12 SOIL - 6/9/2016 SE156824.010
Benzene	mg/kg	0.1	<0.2↑	<0.2↑	<0.3↑	<0.1	<0.1
Toluene	mg/kg	0.1	<0.2↑	<0.2↑	<0.3↑	<0.1	<0.1
Ethylbenzene	mg/kg	0.1	<0.2↑	<0.2↑	<0.3↑	<0.1	<0.1
m/p-xylene	mg/kg	0.2	<0.4↑	<0.4↑	<0.6↑	<0.2	<0.2
o-xylene	mg/kg	0.1	<0.2↑	<0.2↑	<0.3↑	<0.1	<0.1
Total Xylenes*	mg/kg	0.3	<0.6↑	<0.6↑	<0.9↑	<0.3	<0.3
Total BTEX	mg/kg	0.6	<1.2↑	<1.2↑	<1.8↑	<0.6	<0.6
Naphthalene	mg/kg	0.1	<0.2↑	<0.2↑	<0.3↑	<0.1	<0.1

PARAMETER	UOM	LOR	SS13 SOIL - 6/9/2016 SE156824.011	SS15 SOIL - 6/9/2016 SE156824.012	SS17 SOIL - 6/9/2016 SE156824.013	G1 SOIL - 6/9/2016 SE156824.014	G3 SOIL - 6/9/2016 SE156824.015
Benzene	mg/kg	0.1	<0.2↑	<0.1	<0.1	<0.1	<0.2↑
Toluene	mg/kg	0.1	<0.2↑	<0.1	<0.1	<0.1	<0.2↑
Ethylbenzene	mg/kg	0.1	<0.2↑	<0.1	<0.1	<0.1	<0.2↑
m/p-xylene	mg/kg	0.2	<0.4↑	<0.2	<0.2	<0.2	<0.4↑
o-xylene	mg/kg	0.1	<0.2↑	<0.1	<0.1	<0.1	<0.2↑
Total Xylenes*	mg/kg	0.3	<0.6↑	<0.3	<0.3	<0.3	<0.6↑
Total BTEX	mg/kg	0.6	<1.2↑	<0.6	<0.6	<0.6	<1.2↑
Naphthalene	mg/kg	0.1	<0.2↑	<0.1	<0.1	<0.1	<0.2↑

PARAMETER	UOM	LOR	G4 SOIL - 6/9/2016 SE156824.016	G5 SOIL - 6/9/2016 SE156824.017	G6 SOIL - 6/9/2016 SE156824.018	TR8 SOIL - 6/9/2016 SE156824.021	TP42 SOIL - 6/9/2016 SE156824.022
Benzene	mg/kg	0.1	<0.1	<0.2↑	<0.1	<0.1	<0.1
Toluene	mg/kg	0.1	<0.1	<0.2↑	<0.1	<0.1	<0.1
Ethylbenzene	mg/kg	0.1	<0.1	<0.2↑	<0.1	<0.1	<0.1
m/p-xylene	mg/kg	0.2	<0.2	<0.4↑	<0.2	<0.2	<0.2
o-xylene	mg/kg	0.1	<0.1	<0.2↑	<0.1	<0.1	<0.1
Total Xylenes*	mg/kg	0.3	<0.3	<0.6↑	<0.3	<0.3	<0.3
Total BTEX	mg/kg	0.6	<0.6	<1.2↑	<0.6	<0.6	<0.6
Naphthalene	mg/kg	0.1	<0.1	<0.2↑	<0.1	<0.1	<0.1

VOC's in Soil [AN433] Tested: 8/9/2016 (continued)

PARAMETER	UOM	LOR	TP35 0.9-1.0 SOIL - 6/9/2016 SE156824.023	TP48 0.1-0.2 SOIL - 6/9/2016 SE156824.024	TP43 SOIL - 6/9/2016 SE156824.029	TP52 0.1-0.2 SOIL - 6/9/2016 SE156824.030	TR11 -0.15 SOIL - 6/9/2016 SE156824.032
Benzene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Toluene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Ethylbenzene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
m/p-xylene	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
o-xylene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Total Xylenes*	mg/kg	0.3	<0.3	<0.3	<0.3	<0.3	<0.3
Total BTEX	mg/kg	0.6	<0.6	<0.6	<0.6	<0.6	<0.6
Naphthalene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1

PARAMETER	UOM	LOR	TP44 SOIL - 6/9/2016 SE156824.034	TP61 SOIL - 6/9/2016 SE156824.035	SS14 SOIL - 6/9/2016 SE156824.037	SS18 SOIL - 6/9/2016 SE156824.038	TP35_0-0.1 SOIL - 6/9/2016 SE156824.039
Benzene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Toluene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Ethylbenzene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
m/p-xylene	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
o-xylene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Total Xylenes*	mg/kg	0.3	<0.3	<0.3	<0.3	<0.3	<0.3
Total BTEX	mg/kg	0.6	<0.6	<0.6	<0.6	<0.6	<0.6
Naphthalene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1

Volatile Petroleum Hydrocarbons in Soil [AN433] Tested: 8/9/2016

PARAMETER	UOM	LOR	SS1 SOIL - 6/9/2016 SE156824.001	SS2 SOIL - 6/9/2016 SE156824.002	SS4 SOIL - 6/9/2016 SE156824.003	SS3 SOIL - 6/9/2016 SE156824.004	SS5 SOIL - 6/9/2016 SE156824.005
TRH C6-C9	mg/kg	20	<20	<20	<40↑	<20	<40↑
Benzene (F0)	mg/kg	0.1	<0.1	<0.1	<0.2↑	<0.1	<0.2↑
TRH C6-C10	mg/kg	25	<25	<25	<50↑	<25	<50↑
TRH C6-C10 minus BTEX (F1)	mg/kg	25	<25	<25	<50↑	<25	<50↑

PARAMETER	UOM	LOR	SS6 SOIL - 6/9/2016 SE156824.006	SS7 SOIL - 6/9/2016 SE156824.007	SS10 SOIL - 6/9/2016 SE156824.008	SS11 SOIL - 6/9/2016 SE156824.009	SS12 SOIL - 6/9/2016 SE156824.010
TRH C6-C9	mg/kg	20	<40↑	<40↑	<60↑	<20	<20
Benzene (F0)	mg/kg	0.1	<0.2↑	<0.2↑	<0.3↑	<0.1	<0.1
TRH C6-C10	mg/kg	25	<50↑	<50↑	<75↑	<25	<25
TRH C6-C10 minus BTEX (F1)	mg/kg	25	<50↑	<50↑	<75↑	<25	<25

PARAMETER	UOM	LOR	SS13 SOIL - 6/9/2016 SE156824.011	SS15 SOIL - 6/9/2016 SE156824.012	SS17 SOIL - 6/9/2016 SE156824.013	G1 SOIL - 6/9/2016 SE156824.014	G3 SOIL - 6/9/2016 SE156824.015
TRH C6-C9	mg/kg	20	<40↑	<20	<20	<20	<40↑
Benzene (F0)	mg/kg	0.1	<0.2↑	<0.1	<0.1	<0.1	<0.2↑
TRH C6-C10	mg/kg	25	<50↑	<25	<25	<25	<50↑
TRH C6-C10 minus BTEX (F1)	mg/kg	25	<50↑	<25	<25	<25	<50↑

PARAMETER	UOM	LOR	G4 SOIL - 6/9/2016 SE156824.016	G5 SOIL - 6/9/2016 SE156824.017	G6 SOIL - 6/9/2016 SE156824.018	TR8 SOIL - 6/9/2016 SE156824.021	TP42 SOIL - 6/9/2016 SE156824.022
TRH C6-C9	mg/kg	20	<20	<40↑	<20	<20	<20
Benzene (F0)	mg/kg	0.1	<0.1	<0.2↑	<0.1	<0.1	<0.1
TRH C6-C10	mg/kg	25	<25	<50↑	<25	<25	<25
TRH C6-C10 minus BTEX (F1)	mg/kg	25	<25	<50↑	<25	<25	<25

PARAMETER	UOM	LOR	TP35 0.9-1.0 SOIL - 6/9/2016 SE156824.023	TP48 0.1-0.2 SOIL - 6/9/2016 SE156824.024	TP43 SOIL - 6/9/2016 SE156824.029	TP52 0.1-0.2 SOIL - 6/9/2016 SE156824.030	TR11 -0.15 SOIL - 6/9/2016 SE156824.032
TRH C6-C9	mg/kg	20	<20	<20	<20	<20	<20
Benzene (F0)	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
TRH C6-C10	mg/kg	25	<25	<25	<25	<25	<25
TRH C6-C10 minus BTEX (F1)	mg/kg	25	<25	<25	<25	<25	<25

PARAMETER	UOM	LOR	TP44 SOIL - 6/9/2016 SE156824.034	TP61 SOIL - 6/9/2016 SE156824.035	SS14 SOIL - 6/9/2016 SE156824.037	SS18 SOIL - 6/9/2016 SE156824.038	TP35_0-0.1 SOIL - 6/9/2016 SE156824.039
TRH C6-C9	mg/kg	20	<20	<20	<20	<20	<20
Benzene (F0)	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
TRH C6-C10	mg/kg	25	<25	<25	<25	<25	<25
TRH C6-C10 minus BTEX (F1)	mg/kg	25	<25	<25	<25	<25	<25

TRH (Total Recoverable Hydrocarbons) in Soil [AN403] Tested: 8/9/2016

PARAMETER	UOM	LOR	SS1 SOIL - 6/9/2016 SE156824.001	SS2 SOIL - 6/9/2016 SE156824.002	SS4 SOIL - 6/9/2016 SE156824.003	SS3 SOIL - 6/9/2016 SE156824.004	SS5 SOIL - 6/9/2016 SE156824.005
TRH C10-C14	mg/kg	20	<20	<40↑	**40**	<20	<40↑
TRH C15-C28	mg/kg	45	<45	<90↑	**250**	<45	**120**
TRH C29-C36	mg/kg	45	<45	<90↑	**280**	<45	<90↑
TRH C37-C40	mg/kg	100	<100	<200↑	<200↑	<100	<200↑
TRH >C10-C16 (F2)	mg/kg	25	<25	<50↑	<50↑	<25	<50↑
TRH >C10-C16 (F2) - Naphthalene	mg/kg	25	<25	<50↑	<50↑	<25	<50↑
TRH >C16-C34 (F3)	mg/kg	90	<90	<180↑	**470**	<90	<180↑
TRH >C34-C40 (F4)	mg/kg	120	<120	<240↑	<240↑	<120	<240↑
TRH C10-C36 Total	mg/kg	110	<110	<220↑	**580**	<110	<220↑
TRH C10-C40 Total	mg/kg	210	<210	<420↑	**580**	<210	<420↑

PARAMETER	UOM	LOR	SS6 SOIL - 6/9/2016 SE156824.006	SS7 SOIL - 6/9/2016 SE156824.007	SS10 SOIL - 6/9/2016 SE156824.008	SS11 SOIL - 6/9/2016 SE156824.009	SS12 SOIL - 6/9/2016 SE156824.010
TRH C10-C14	mg/kg	20	<40↑	<40↑	**140**	<20	<40↑
TRH C15-C28	mg/kg	45	<90↑	<90↑	**430**	<45	<90↑
TRH C29-C36	mg/kg	45	<90↑	<90↑	**230**	<45	<90↑
TRH C37-C40	mg/kg	100	<200↑	<200↑	<500↑	<100	<200↑
TRH >C10-C16 (F2)	mg/kg	25	<50↑	<50↑	**150**	<25	<50↑
TRH >C10-C16 (F2) - Naphthalene	mg/kg	25	<50↑	<50↑	**150**	<25	<50↑
TRH >C16-C34 (F3)	mg/kg	90	<180↑	<180↑	**520**	<90	<180↑
TRH >C34-C40 (F4)	mg/kg	120	<240↑	<240↑	<600↑	<120	<240↑
TRH C10-C36 Total	mg/kg	110	<220↑	<220↑	**800**	<110	<220↑
TRH C10-C40 Total	mg/kg	210	<420↑	<420↑	<1100↑	<210	<420↑

PARAMETER	UOM	LOR	SS13 SOIL - 6/9/2016 SE156824.011	SS15 SOIL - 6/9/2016 SE156824.012	SS17 SOIL - 6/9/2016 SE156824.013	G1 SOIL - 6/9/2016 SE156824.014	G3 SOIL - 6/9/2016 SE156824.015
TRH C10-C14	mg/kg	20	<20	<20	<20	<20	<40↑
TRH C15-C28	mg/kg	45	<45	<45	<45	<45	<90↑
TRH C29-C36	mg/kg	45	<45	<45	<45	<45	**140**
TRH C37-C40	mg/kg	100	<100	<100	<100	<100	<200↑
TRH >C10-C16 (F2)	mg/kg	25	<25	<25	<25	<25	<50↑
TRH >C10-C16 (F2) - Naphthalene	mg/kg	25	<25	<25	<25	<25	<50↑
TRH >C16-C34 (F3)	mg/kg	90	<90	<90	<90	<90	<180↑
TRH >C34-C40 (F4)	mg/kg	120	<120	<120	<120	<120	<240↑
TRH C10-C36 Total	mg/kg	110	<110	<110	<110	<110	<220↑
TRH C10-C40 Total	mg/kg	210	<210	<210	<210	<210	<420↑

TRH (Total Recoverable Hydrocarbons) in Soil [AN403] Tested: 8/9/2016 (continued)

PARAMETER	UOM	LOR	G4 SOIL - 6/9/2016 SE156824.016	G5 SOIL - 6/9/2016 SE156824.017	G6 SOIL - 6/9/2016 SE156824.018	TR8 SOIL - 6/9/2016 SE156824.021	TP42 SOIL - 6/9/2016 SE156824.022
TRH C10-C14	mg/kg	20	<20	<40↑	<40↑	<20	<40↑
TRH C15-C28	mg/kg	45	<45	<90↑	<90↑	**49**	<90↑
TRH C29-C36	mg/kg	45	<45	<90↑	<90↑	<45	<90↑
TRH C37-C40	mg/kg	100	<100	<200↑	<200↑	<100	<200↑
TRH >C10-C16 (F2)	mg/kg	25	<25	<50↑	<50↑	<25	<50↑
TRH >C10-C16 (F2) - Naphthalene	mg/kg	25	<25	<50↑	<50↑	<25	<50↑
TRH >C16-C34 (F3)	mg/kg	90	<90	<180↑	<180↑	<90	<180↑
TRH >C34-C40 (F4)	mg/kg	120	<120	<240↑	<240↑	<120	<240↑
TRH C10-C36 Total	mg/kg	110	<110	<220↑	<220↑	<110	<220↑
TRH C10-C40 Total	mg/kg	210	<210	<420↑	<420↑	<210	<420↑

PARAMETER	UOM	LOR	TP35 0.9-1.0 SOIL - 6/9/2016 SE156824.023	TP48 0.1-0.2 SOIL - 6/9/2016 SE156824.024	TP43 SOIL - 6/9/2016 SE156824.029	TP52 0.1-0.2 SOIL - 6/9/2016 SE156824.030	TR11 -0.15 SOIL - 6/9/2016 SE156824.032
TRH C10-C14	mg/kg	20	<20	<20	<20	<20	<20
TRH C15-C28	mg/kg	45	<45	**63**	<45	<45	<45
TRH C29-C36	mg/kg	45	<45	<45	<45	<45	<45
TRH C37-C40	mg/kg	100	<100	<100	<100	<100	<100
TRH >C10-C16 (F2)	mg/kg	25	<25	<25	<25	<25	<25
TRH >C10-C16 (F2) - Naphthalene	mg/kg	25	<25	<25	<25	<25	<25
TRH >C16-C34 (F3)	mg/kg	90	<90	<90	<90	<90	<90
TRH >C34-C40 (F4)	mg/kg	120	<120	<120	<120	<120	<120
TRH C10-C36 Total	mg/kg	110	<110	<110	<110	<110	<110
TRH C10-C40 Total	mg/kg	210	<210	<210	<210	<210	<210

PARAMETER	UOM	LOR	TP44 SOIL - 6/9/2016 SE156824.034	TP61 SOIL - 6/9/2016 SE156824.035	SS14 SOIL - 6/9/2016 SE156824.037	SS18 SOIL - 6/9/2016 SE156824.038	TP35_0-0.1 SOIL - 6/9/2016 SE156824.039
TRH C10-C14	mg/kg	20	<20	<20	<20	<20	<20
TRH C15-C28	mg/kg	45	<45	<45	**53**	<45	<45
TRH C29-C36	mg/kg	45	<45	<45	<45	<45	<45
TRH C37-C40	mg/kg	100	<100	<100	<100	<100	<100
TRH >C10-C16 (F2)	mg/kg	25	<25	<25	<25	<25	<25
TRH >C10-C16 (F2) - Naphthalene	mg/kg	25	<25	<25	<25	<25	<25
TRH >C16-C34 (F3)	mg/kg	90	<90	<90	<90	<90	<90
TRH >C34-C40 (F4)	mg/kg	120	<120	<120	<120	<120	<120
TRH C10-C36 Total	mg/kg	110	<110	<110	<110	<110	<110
TRH C10-C40 Total	mg/kg	210	<210	<210	<210	<210	<210

PAH (Polynuclear Aromatic Hydrocarbons) in Soil [AN420] Tested: 8/9/2016

PARAMETER	UOM	LOR	SS1 SOIL - 6/9/2016 SE156824.001	SS2 SOIL - 6/9/2016 SE156824.002	SS4 SOIL - 6/9/2016 SE156824.003	SS3 SOIL - 6/9/2016 SE156824.004	SS5 SOIL - 6/9/2016 SE156824.005
Naphthalene	mg/kg	0.1	<0.1	<0.2↑	<0.2↑	<0.1	<0.2↑
2-methylnaphthalene	mg/kg	0.1	<0.1	<0.2↑	<0.2↑	<0.1	<0.2↑
1-methylnaphthalene	mg/kg	0.1	<0.1	<0.2↑	<0.2↑	<0.1	<0.2↑
Acenaphthylene	mg/kg	0.1	<0.1	<0.2↑	<0.2↑	<0.1	<0.2↑
Acenaphthene	mg/kg	0.1	<0.1	<0.2↑	<0.2↑	<0.1	<0.2↑
Fluorene	mg/kg	0.1	<0.1	<0.2↑	<0.2↑	<0.1	<0.2↑
Phenanthrene	mg/kg	0.1	<0.1	<0.2↑	**0.3**	<0.1	<0.2↑
Anthracene	mg/kg	0.1	<0.1	<0.2↑	<0.2↑	<0.1	<0.2↑
Fluoranthene	mg/kg	0.1	<0.1	<0.2↑	**0.4**	<0.1	<0.2↑
Pyrene	mg/kg	0.1	<0.1	<0.2↑	**0.5**	<0.1	<0.2↑
Benzo(a)anthracene	mg/kg	0.1	<0.1	<0.2↑	<0.2↑	<0.1	<0.2↑
Chrysene	mg/kg	0.1	<0.1	<0.2↑	<0.2↑	<0.1	<0.2↑
Benzo(b&j)fluoranthene	mg/kg	0.1	<0.1	<0.2↑	<0.2↑	<0.1	<0.2↑
Benzo(k)fluoranthene	mg/kg	0.1	<0.1	<0.2↑	<0.2↑	<0.1	<0.2↑
Benzo(a)pyrene	mg/kg	0.1	<0.1	<0.2↑	<0.2↑	<0.1	<0.2↑
Indeno(1,2,3-cd)pyrene	mg/kg	0.1	<0.1	<0.2↑	<0.2↑	<0.1	<0.2↑
Dibenzo(ah)anthracene	mg/kg	0.1	<0.1	<0.2↑	<0.2↑	<0.1	<0.2↑
Benzo(ghi)perylene	mg/kg	0.1	<0.1	<0.2↑	<0.2↑	<0.1	<0.2↑
Carcinogenic PAHs, BaP TEQ <LOR=0	TEQ	0.2	<0.2	<0.4↑	<0.4↑	<0.2	<0.4↑
Carcinogenic PAHs, BaP TEQ <LOR=LOR	TEQ (mg/kg)	0.3	<0.3	<0.6↑	<0.6↑	<0.3	<0.6↑
Carcinogenic PAHs, BaP TEQ <LOR=LOR/2	TEQ (mg/kg)	0.2	<0.2	<0.4↑	<0.4↑	<0.2	<0.4↑
Total PAH (18)	mg/kg	0.8	<0.8	<1.6↑	<1.6↑	<0.8	<1.6↑
Total PAH (NEPM/WHO 16)	mg/kg	0.8	<0.8	<1.6↑	<1.6↑	<0.8	<1.6↑

PARAMETER	UOM	LOR	SS6 SOIL - 6/9/2016 SE156824.006	SS7 SOIL - 6/9/2016 SE156824.007	SS10 SOIL - 6/9/2016 SE156824.008	SS11 SOIL - 6/9/2016 SE156824.009	SS12 SOIL - 6/9/2016 SE156824.010
Naphthalene	mg/kg	0.1	<0.2↑	<0.2↑	<0.5↑	<0.1	<0.2↑
2-methylnaphthalene	mg/kg	0.1	<0.2↑	<0.2↑	<0.5↑	<0.1	<0.2↑
1-methylnaphthalene	mg/kg	0.1	<0.2↑	<0.2↑	<0.5↑	<0.1	<0.2↑
Acenaphthylene	mg/kg	0.1	<0.2↑	<0.2↑	<0.5↑	<0.1	<0.2↑
Acenaphthene	mg/kg	0.1	<0.2↑	<0.2↑	<0.5↑	<0.1	<0.2↑
Fluorene	mg/kg	0.1	<0.2↑	<0.2↑	<0.5↑	<0.1	<0.2↑
Phenanthrene	mg/kg	0.1	<0.2↑	<0.2↑	<0.5↑	<0.1	<0.2↑
Anthracene	mg/kg	0.1	<0.2↑	<0.2↑	<0.5↑	<0.1	<0.2↑
Fluoranthene	mg/kg	0.1	<0.2↑	<0.2↑	<0.5↑	<0.1	<0.2↑
Pyrene	mg/kg	0.1	<0.2↑	**0.3**	<0.5↑	<0.1	<0.2↑
Benzo(a)anthracene	mg/kg	0.1	<0.2↑	<0.2↑	<0.5↑	<0.1	<0.2↑
Chrysene	mg/kg	0.1	<0.2↑	**0.2**	<0.5↑	<0.1	<0.2↑
Benzo(b&j)fluoranthene	mg/kg	0.1	<0.2↑	**0.3**	<0.5↑	<0.1	<0.2↑
Benzo(k)fluoranthene	mg/kg	0.1	<0.2↑	<0.2↑	<0.5↑	<0.1	<0.2↑
Benzo(a)pyrene	mg/kg	0.1	<0.2↑	<0.2↑	<0.5↑	<0.1	<0.2↑
Indeno(1,2,3-cd)pyrene	mg/kg	0.1	<0.2↑	<0.2↑	<0.5↑	<0.1	<0.2↑
Dibenzo(ah)anthracene	mg/kg	0.1	<0.2↑	<0.2↑	<0.5↑	<0.1	<0.2↑
Benzo(ghi)perylene	mg/kg	0.1	<0.2↑	<0.2↑	<0.5↑	<0.1	<0.2↑
Carcinogenic PAHs, BaP TEQ <LOR=0	TEQ	0.2	<0.4↑	<0.4↑	<1.0↑	<0.2	<0.4↑
Carcinogenic PAHs, BaP TEQ <LOR=LOR	TEQ (mg/kg)	0.3	<0.6↑	<0.6↑	<1.5↑	<0.3	<0.6↑
Carcinogenic PAHs, BaP TEQ <LOR=LOR/2	TEQ (mg/kg)	0.2	<0.4↑	<0.4↑	<1.0↑	<0.2	<0.4↑
Total PAH (18)	mg/kg	0.8	<1.6↑	**1.7**	<4.0↑	<0.8	<1.6↑
Total PAH (NEPM/WHO 16)	mg/kg	0.8	<1.6↑	**1.7**	<4.0↑	<0.8	<1.6↑

PAH (Polynuclear Aromatic Hydrocarbons) in Soil [AN420] Tested: 8/9/2016 (continued)

PARAMETER	UOM	LOR	SS13 SOIL - 6/9/2016 SE156824.011	SS15 SOIL - 6/9/2016 SE156824.012	SS17 SOIL - 6/9/2016 SE156824.013	G1 SOIL - 6/9/2016 SE156824.014	G3 SOIL - 6/9/2016 SE156824.015
Naphthalene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.2↑
2-methylnaphthalene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.2↑
1-methylnaphthalene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.2↑
Acenaphthylene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.2↑
Acenaphthene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.2↑
Fluorene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.2↑
Phenanthrene	mg/kg	0.1	<0.1	**0.2**	<0.1	**0.1**	<0.2↑
Anthracene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.2↑
Fluoranthene	mg/kg	0.1	<0.1	**0.1**	<0.1	<0.1	<0.2↑
Pyrene	mg/kg	0.1	<0.1	**0.2**	<0.1	**0.1**	<0.2↑
Benzo(a)anthracene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.2↑
Chrysene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.2↑
Benzo(b&j)fluoranthene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.2↑
Benzo(k)fluoranthene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.2↑
Benzo(a)pyrene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.2↑
Indeno(1,2,3-cd)pyrene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.2↑
Dibenzo(ah)anthracene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.2↑
Benzo(ghi)perylene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.2↑
Carcinogenic PAHs, BaP TEQ <LOR=0	TEQ	0.2	<0.2	<0.2	<0.2	<0.2	<0.4↑
Carcinogenic PAHs, BaP TEQ <LOR=LOR	TEQ (mg/kg)	0.3	<0.3	<0.3	<0.3	<0.3	<0.6↑
Carcinogenic PAHs, BaP TEQ <LOR=LOR/2	TEQ (mg/kg)	0.2	<0.2	<0.2	<0.2	<0.2	<0.4↑
Total PAH (18)	mg/kg	0.8	<0.8	<0.8	<0.8	<0.8	<1.6↑
Total PAH (NEPM/WHO 16)	mg/kg	0.8	<0.8	<0.8	<0.8	<0.8	<1.6↑

PARAMETER	UOM	LOR	G4 SOIL - 6/9/2016 SE156824.016	G5 SOIL - 6/9/2016 SE156824.017	G6 SOIL - 6/9/2016 SE156824.018	TR8 SOIL - 6/9/2016 SE156824.021	TP42 SOIL - 6/9/2016 SE156824.022
Naphthalene	mg/kg	0.1	<0.1	<0.2↑	<0.2↑	<0.1	<0.2↑
2-methylnaphthalene	mg/kg	0.1	<0.1	<0.2↑	<0.2↑	<0.1	<0.2↑
1-methylnaphthalene	mg/kg	0.1	<0.1	<0.2↑	<0.2↑	<0.1	<0.2↑
Acenaphthylene	mg/kg	0.1	<0.1	<0.2↑	<0.2↑	<0.1	<0.2↑
Acenaphthene	mg/kg	0.1	<0.1	<0.2↑	<0.2↑	<0.1	<0.2↑
Fluorene	mg/kg	0.1	<0.1	<0.2↑	<0.2↑	<0.1	<0.2↑
Phenanthrene	mg/kg	0.1	<0.1	<0.2↑	<0.2↑	<0.1	<0.2↑
Anthracene	mg/kg	0.1	<0.1	<0.2↑	<0.2↑	<0.1	<0.2↑
Fluoranthene	mg/kg	0.1	<0.1	<0.2↑	<0.2↑	<0.1	<0.2↑
Pyrene	mg/kg	0.1	<0.1	<0.2↑	<0.2↑	<0.1	<0.2↑
Benzo(a)anthracene	mg/kg	0.1	<0.1	<0.2↑	<0.2↑	<0.1	<0.2↑
Chrysene	mg/kg	0.1	<0.1	<0.2↑	<0.2↑	<0.1	<0.2↑
Benzo(b&j)fluoranthene	mg/kg	0.1	<0.1	<0.2↑	<0.2↑	<0.1	<0.2↑
Benzo(k)fluoranthene	mg/kg	0.1	<0.1	<0.2↑	<0.2↑	<0.1	<0.2↑
Benzo(a)pyrene	mg/kg	0.1	<0.1	<0.2↑	<0.2↑	<0.1	<0.2↑
Indeno(1,2,3-cd)pyrene	mg/kg	0.1	<0.1	<0.2↑	<0.2↑	<0.1	<0.2↑
Dibenzo(ah)anthracene	mg/kg	0.1	<0.1	<0.2↑	<0.2↑	<0.1	<0.2↑
Benzo(ghi)perylene	mg/kg	0.1	<0.1	<0.2↑	<0.2↑	<0.1	<0.2↑
Carcinogenic PAHs, BaP TEQ <LOR=0	TEQ	0.2	<0.2	<0.4↑	<0.4↑	<0.2	<0.4↑
Carcinogenic PAHs, BaP TEQ <LOR=LOR	TEQ (mg/kg)	0.3	<0.3	<0.6↑	<0.6↑	<0.3	<0.6↑
Carcinogenic PAHs, BaP TEQ <LOR=LOR/2	TEQ (mg/kg)	0.2	<0.2	<0.4↑	<0.4↑	<0.2	<0.4↑
Total PAH (18)	mg/kg	0.8	<0.8	<1.6↑	<1.6↑	<0.8	<1.6↑
Total PAH (NEPM/WHO 16)	mg/kg	0.8	<0.8	<1.6↑	<1.6↑	<0.8	<1.6↑

PAH (Polynuclear Aromatic Hydrocarbons) in Soil [AN420] Tested: 8/9/2016 (continued)

PARAMETER	UOM	LOR	TP35 0.9-1.0 SOIL - 6/9/2016 SE156824.023	TP48 0.1-0.2 SOIL - 6/9/2016 SE156824.024	TP43 SOIL - 6/9/2016 SE156824.029	TP52 0.1-0.2 SOIL - 6/9/2016 SE156824.030	TR11 -0.15 SOIL - 6/9/2016 SE156824.032
Naphthalene	mg/kg	0.1	<0.1	**0.3**	<0.1	<0.1	<0.1
2-methylnaphthalene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
1-methylnaphthalene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Acenaphthylene	mg/kg	0.1	<0.1	**0.2**	<0.1	<0.1	<0.1
Acenaphthene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Fluorene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Phenanthrene	mg/kg	0.1	<0.1	**0.4**	<0.1	<0.1	**0.4**
Anthracene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Fluoranthene	mg/kg	0.1	<0.1	**0.6**	<0.1	<0.1	**1.3**
Pyrene	mg/kg	0.1	<0.1	**1.0**	<0.1	<0.1	**1.2**
Benzo(a)anthracene	mg/kg	0.1	<0.1	**0.4**	<0.1	<0.1	**0.5**
Chrysene	mg/kg	0.1	<0.1	**0.6**	<0.1	<0.1	**0.5**
Benzo(b&j)fluoranthene	mg/kg	0.1	<0.1	**0.9**	<0.1	<0.1	**0.9**
Benzo(k)fluoranthene	mg/kg	0.1	<0.1	**0.3**	<0.1	<0.1	**0.3**
Benzo(a)pyrene	mg/kg	0.1	<0.1	**0.7**	<0.1	<0.1	**0.7**
Indeno(1,2,3-cd)pyrene	mg/kg	0.1	<0.1	**0.6**	<0.1	<0.1	**0.5**
Dibenzo(ah)anthracene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(ghi)perylene	mg/kg	0.1	<0.1	**0.7**	<0.1	<0.1	**0.5**
Carcinogenic PAHs, BaP TEQ <LOR=0	TEQ	0.2	<0.2	**1.0**	<0.2	<0.2	**0.9**
Carcinogenic PAHs, BaP TEQ <LOR=LOR	TEQ (mg/kg)	0.3	<0.3	**1.1**	<0.3	<0.3	**1.0**
Carcinogenic PAHs, BaP TEQ <LOR=LOR/2	TEQ (mg/kg)	0.2	<0.2	**1.0**	<0.2	<0.2	**1.0**
Total PAH (18)	mg/kg	0.8	<0.8	**6.5**	<0.8	<0.8	**6.7**
Total PAH (NEPM/WHO 16)	mg/kg	0.8	<0.8	**6.5**	<0.8	<0.8	**6.7**

PARAMETER	UOM	LOR	TP44 SOIL - 6/9/2016 SE156824.034	TP61 SOIL - 6/9/2016 SE156824.035	SS14 SOIL - 6/9/2016 SE156824.037	SS18 SOIL - 6/9/2016 SE156824.038	TP35_0-0.1 SOIL - 6/9/2016 SE156824.039
Naphthalene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
2-methylnaphthalene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
1-methylnaphthalene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Acenaphthylene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Acenaphthene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Fluorene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Phenanthrene	mg/kg	0.1	<0.1	<0.1	**0.3**	<0.1	<0.1
Anthracene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Fluoranthene	mg/kg	0.1	<0.1	<0.1	**0.2**	<0.1	<0.1
Pyrene	mg/kg	0.1	<0.1	<0.1	**0.2**	<0.1	<0.1
Benzo(a)anthracene	mg/kg	0.1	<0.1	<0.1	**0.1**	<0.1	<0.1
Chrysene	mg/kg	0.1	<0.1	<0.1	**0.1**	<0.1	<0.1
Benzo(b&j)fluoranthene	mg/kg	0.1	<0.1	<0.1	**0.1**	<0.1	<0.1
Benzo(k)fluoranthene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(a)pyrene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Indeno(1,2,3-cd)pyrene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Dibenzo(ah)anthracene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(ghi)perylene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Carcinogenic PAHs, BaP TEQ <LOR=0	TEQ	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Carcinogenic PAHs, BaP TEQ <LOR=LOR	TEQ (mg/kg)	0.3	<0.3	<0.3	<0.3	<0.3	<0.3
Carcinogenic PAHs, BaP TEQ <LOR=LOR/2	TEQ (mg/kg)	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Total PAH (18)	mg/kg	0.8	<0.8	<0.8	**0.9**	<0.8	<0.8
Total PAH (NEPM/WHO 16)	mg/kg	0.8	<0.8	<0.8	**0.9**	<0.8	<0.8

OC Pesticides in Soil [AN400/AN420] Tested: 8/9/2016

PARAMETER	UOM	LOR	SS1 SOIL - 6/9/2016 SE156824.001	SS2 SOIL - 6/9/2016 SE156824.002	SS4 SOIL - 6/9/2016 SE156824.003	SS3 SOIL - 6/9/2016 SE156824.004	SS5 SOIL - 6/9/2016 SE156824.005
Hexachlorobenzene (HCB)	mg/kg	0.1	<0.1	<0.2↑	<0.2↑	<0.1	<0.2↑
Alpha BHC	mg/kg	0.1	<0.1	<0.2↑	<0.2↑	<0.1	<0.2↑
Lindane	mg/kg	0.1	<0.1	<0.2↑	<0.2↑	<0.1	<0.2↑
Heptachlor	mg/kg	0.1	<0.1	<0.2↑	<0.2↑	<0.1	<0.2↑
Aldrin	mg/kg	0.1	<0.1	<0.2↑	<0.2↑	<0.1	<0.2↑
Beta BHC	mg/kg	0.1	<0.1	<0.2↑	<0.2↑	<0.1	<0.2↑
Delta BHC	mg/kg	0.1	<0.1	<0.2↑	<0.2↑	<0.1	<0.2↑
Heptachlor epoxide	mg/kg	0.1	<0.1	<0.2↑	<0.2↑	<0.1	<0.2↑
o,p'-DDE	mg/kg	0.1	<0.1	<0.2↑	<0.2↑	<0.1	<0.2↑
Alpha Endosulfan	mg/kg	0.2	<0.2	<0.4↑	<0.4↑	<0.2	<0.4↑
Gamma Chlordane	mg/kg	0.1	<0.1	<0.2↑	<0.2↑	<0.1	<0.2↑
Alpha Chlordane	mg/kg	0.1	<0.1	<0.2↑	<0.2↑	<0.1	<0.2↑
trans-Nonachlor	mg/kg	0.1	<0.1	<0.2↑	<0.2↑	<0.1	<0.2↑
p,p'-DDE	mg/kg	0.1	<0.1	<0.2↑	<0.2↑	<0.1	<0.2↑
Dieldrin	mg/kg	0.2	<0.2	<0.4↑	<0.4↑	<0.2	<0.4↑
Endrin	mg/kg	0.2	<0.2	<0.4↑	<0.4↑	<0.2	<0.4↑
o,p'-DDD	mg/kg	0.1	<0.1	<0.2↑	<0.2↑	<0.1	<0.2↑
o,p'-DDT	mg/kg	0.1	<0.1	<0.2↑	<0.2↑	<0.1	<0.2↑
Beta Endosulfan	mg/kg	0.2	<0.2	<0.4↑	<0.4↑	<0.2	<0.4↑
p,p'-DDD	mg/kg	0.1	<0.1	<0.2↑	<0.2↑	<0.1	<0.2↑
p,p'-DDT	mg/kg	0.1	<0.1	<0.2↑	<0.2↑	<0.1	<0.2↑
Endosulfan sulphate	mg/kg	0.1	<0.1	<0.2↑	<0.2↑	<0.1	<0.2↑
Endrin Aldehyde	mg/kg	0.1	<0.1	<0.2↑	<0.2↑	<0.1	<0.2↑
Methoxychlor	mg/kg	0.1	<0.1	<0.2↑	<0.2↑	<0.1	<0.2↑
Endrin Ketone	mg/kg	0.1	<0.1	<0.2↑	<0.2↑	<0.1	<0.2↑
Isodrin	mg/kg	0.1	<0.1	<0.2↑	<0.2↑	<0.1	<0.2↑
Mirex	mg/kg	0.1	<0.1	<0.2↑	<0.2↑	<0.1	<0.2↑

OC Pesticides in Soil [AN400/AN420] Tested: 8/9/2016 (continued)

PARAMETER	UOM	LOR	SS6 SOIL - 6/9/2016 SE156824.006	SS7 SOIL - 6/9/2016 SE156824.007	SS10 SOIL - 6/9/2016 SE156824.008	SS11 SOIL - 6/9/2016 SE156824.009	SS12 SOIL - 6/9/2016 SE156824.010
Hexachlorobenzene (HCB)	mg/kg	0.1	<0.2↑	<0.2↑	<0.5↑	<0.1	<0.2↑
Alpha BHC	mg/kg	0.1	<0.2↑	<0.2↑	<5.0↑	<0.1	<0.2↑
Lindane	mg/kg	0.1	<0.2↑	<0.2↑	<0.5↑	<0.1	<0.2↑
Heptachlor	mg/kg	0.1	<0.2↑	<0.2↑	<0.5↑	<0.1	<0.2↑
Aldrin	mg/kg	0.1	<0.2↑	<0.2↑	<0.5↑	<0.1	<0.2↑
Beta BHC	mg/kg	0.1	<0.2↑	<0.2↑	<0.5↑	<0.1	<0.2↑
Delta BHC	mg/kg	0.1	<0.2↑	<0.2↑	<0.5↑	<0.1	<0.2↑
Heptachlor epoxide	mg/kg	0.1	<0.2↑	<0.2↑	<0.5↑	<0.1	<0.2↑
o,p'-DDE	mg/kg	0.1	<0.2↑	<0.2↑	<0.5↑	<0.1	<0.2↑
Alpha Endosulfan	mg/kg	0.2	<0.4↑	<0.4↑	<1.0↑	<0.2	<0.4↑
Gamma Chlordane	mg/kg	0.1	<0.2↑	<0.2↑	<0.5↑	<0.1	<0.2↑
Alpha Chlordane	mg/kg	0.1	<0.2↑	<0.2↑	<0.5↑	<0.1	<0.2↑
trans-Nonachlor	mg/kg	0.1	<0.2↑	<0.2↑	<0.5↑	<0.1	<0.2↑
p,p'-DDE	mg/kg	0.1	<0.2↑	<0.2↑	<0.5↑	<0.1	<0.2↑
Dieldrin	mg/kg	0.2	<0.4↑	<0.4↑	<1.0↑	<0.2	<0.4↑
Endrin	mg/kg	0.2	<0.4↑	<0.4↑	<1.0↑	<0.2	<0.4↑
o,p'-DDD	mg/kg	0.1	<0.2↑	<0.2↑	<0.5↑	<0.1	<0.2↑
o,p'-DDT	mg/kg	0.1	<0.2↑	<0.2↑	<0.5↑	<0.1	<0.2↑
Beta Endosulfan	mg/kg	0.2	<0.4↑	<0.4↑	<1.0↑	<0.2	<0.4↑
p,p'-DDD	mg/kg	0.1	<0.2↑	<0.2↑	<0.5↑	<0.1	<0.2↑
p,p'-DDT	mg/kg	0.1	<0.2↑	<0.2↑	<0.5↑	<0.1	<0.2↑
Endosulfan sulphate	mg/kg	0.1	<0.2↑	<0.2↑	<0.5↑	<0.1	<0.2↑
Endrin Aldehyde	mg/kg	0.1	<0.2↑	<0.2↑	<0.5↑	<0.1	<0.2↑
Methoxychlor	mg/kg	0.1	<0.2↑	<0.2↑	<0.5↑	<0.1	<0.2↑
Endrin Ketone	mg/kg	0.1	<0.2↑	<0.2↑	<0.5↑	<0.1	<0.2↑
Isodrin	mg/kg	0.1	<0.2↑	<0.2↑	<0.5↑	<0.1	<0.2↑
Mirex	mg/kg	0.1	<0.2↑	<0.2↑	<0.5↑	<0.1	<0.2↑

OC Pesticides in Soil [AN400/AN420] Tested: 8/9/2016 (continued)

PARAMETER	UOM	LOR	SS13 SOIL - 6/9/2016 SE156824.011	SS15 SOIL - 6/9/2016 SE156824.012	SS17 SOIL - 6/9/2016 SE156824.013	G1 SOIL - 6/9/2016 SE156824.014	G3 SOIL - 6/9/2016 SE156824.015
Hexachlorobenzene (HCB)	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.2↑
Alpha BHC	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.2↑
Lindane	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.2↑
Heptachlor	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.2↑
Aldrin	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.2↑
Beta BHC	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.2↑
Delta BHC	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.2↑
Heptachlor epoxide	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.2↑
o,p'-DDE	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.2↑
Alpha Endosulfan	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.4↑
Gamma Chlordane	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.2↑
Alpha Chlordane	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.2↑
trans-Nonachlor	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.2↑
p,p'-DDE	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.2↑
Dieldrin	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.4↑
Endrin	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.4↑
o,p'-DDD	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.2↑
o,p'-DDT	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.2↑
Beta Endosulfan	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.4↑
p,p'-DDD	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.2↑
p,p'-DDT	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.2↑
Endosulfan sulphate	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.2↑
Endrin Aldehyde	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.2↑
Methoxychlor	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.2↑
Endrin Ketone	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.2↑
Isodrin	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.2↑
Mirex	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.2↑

OC Pesticides in Soil [AN400/AN420] Tested: 8/9/2016 (continued)

PARAMETER	UOM	LOR	G4 SOIL - 6/9/2016 SE156824.016	G5 SOIL - 6/9/2016 SE156824.017	G6 SOIL - 6/9/2016 SE156824.018	TR8 SOIL - 6/9/2016 SE156824.021	TP42 SOIL - 6/9/2016 SE156824.022
Hexachlorobenzene (HCB)	mg/kg	0.1	<0.1	<0.2↑	<0.2↑	<0.1	<0.2↑
Alpha BHC	mg/kg	0.1	<0.1	<0.2↑	<0.2↑	<0.1	<0.2↑
Lindane	mg/kg	0.1	<0.1	<0.2↑	<0.2↑	<0.1	<0.2↑
Heptachlor	mg/kg	0.1	<0.1	<0.2↑	<0.2↑	<0.1	<0.2↑
Aldrin	mg/kg	0.1	<0.1	<0.2↑	<0.2↑	<0.1	<0.2↑
Beta BHC	mg/kg	0.1	<0.1	<0.2↑	<0.2↑	<0.1	<0.2↑
Delta BHC	mg/kg	0.1	<0.1	<0.2↑	<0.2↑	<0.1	<0.2↑
Heptachlor epoxide	mg/kg	0.1	<0.1	<0.2↑	<0.2↑	<0.1	<0.2↑
o,p'-DDE	mg/kg	0.1	<0.1	<0.2↑	<0.2↑	<0.1	<0.2↑
Alpha Endosulfan	mg/kg	0.2	<0.2	<0.4↑	<0.4↑	<0.2	<0.4↑
Gamma Chlordane	mg/kg	0.1	<0.1	<0.2↑	<0.2↑	<0.1	<0.2↑
Alpha Chlordane	mg/kg	0.1	<0.1	<0.2↑	<0.2↑	<0.1	<0.2↑
trans-Nonachlor	mg/kg	0.1	<0.1	<0.2↑	<0.2↑	<0.1	<0.2↑
p,p'-DDE	mg/kg	0.1	<0.1	<0.2↑	<0.2↑	<0.1	<0.2↑
Dieldrin	mg/kg	0.2	<0.2	<0.4↑	<0.4↑	<0.2	<0.4↑
Endrin	mg/kg	0.2	<0.2	<0.4↑	<0.4↑	<0.2	<0.4↑
o,p'-DDD	mg/kg	0.1	<0.1	<0.2↑	<0.2↑	<0.1	<0.2↑
o,p'-DDT	mg/kg	0.1	<0.1	<0.2↑	<0.2↑	<0.1	<0.2↑
Beta Endosulfan	mg/kg	0.2	<0.2	<0.4↑	<0.4↑	<0.2	<0.4↑
p,p'-DDD	mg/kg	0.1	<0.1	<0.2↑	<0.2↑	<0.1	<0.2↑
p,p'-DDT	mg/kg	0.1	<0.1	<0.2↑	<0.2↑	<0.1	<0.2↑
Endosulfan sulphate	mg/kg	0.1	<0.1	<0.2↑	<0.2↑	<0.1	<0.2↑
Endrin Aldehyde	mg/kg	0.1	<0.1	<0.2↑	<0.2↑	<0.1	<0.2↑
Methoxychlor	mg/kg	0.1	<0.1	<0.2↑	<0.2↑	<0.1	<0.2↑
Endrin Ketone	mg/kg	0.1	<0.1	<0.2↑	<0.2↑	<0.1	<0.2↑
Isodrin	mg/kg	0.1	<0.1	<0.2↑	<0.2↑	<0.1	<0.2↑
Mirex	mg/kg	0.1	<0.1	<0.2↑	<0.2↑	<0.1	<0.2↑

OC Pesticides in Soil [AN400/AN420] Tested: 8/9/2016 (continued)

PARAMETER	UOM	LOR	TP35 0.9-1.0 SOIL - 6/9/2016 SE156824.023	TP48 0.1-0.2 SOIL - 6/9/2016 SE156824.024	TP43 SOIL - 6/9/2016 SE156824.029	TP52 0.1-0.2 SOIL - 6/9/2016 SE156824.030	TR11 -0.15 SOIL - 6/9/2016 SE156824.032
Hexachlorobenzene (HCB)	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Alpha BHC	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Lindane	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Heptachlor	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Aldrin	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Beta BHC	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Delta BHC	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Heptachlor epoxide	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
o,p'-DDE	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Alpha Endosulfan	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Gamma Chlordane	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Alpha Chlordane	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
trans-Nonachlor	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
p,p'-DDE	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Dieldrin	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Endrin	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
o,p'-DDD	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
o,p'-DDT	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Beta Endosulfan	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
p,p'-DDD	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
p,p'-DDT	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Endosulfan sulphate	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Endrin Aldehyde	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Methoxychlor	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Endrin Ketone	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Isodrin	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Mirex	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1

OC Pesticides in Soil [AN400/AN420] Tested: 8/9/2016 (continued)

PARAMETER	UOM	LOR	TP44 SOIL - 6/9/2016 SE156824.034	TP61 SOIL - 6/9/2016 SE156824.035	SS14 SOIL - 6/9/2016 SE156824.037	SS18 SOIL - 6/9/2016 SE156824.038	TP35_0-0.1 SOIL - 6/9/2016 SE156824.039
Hexachlorobenzene (HCB)	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Alpha BHC	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Lindane	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Heptachlor	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Aldrin	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Beta BHC	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Delta BHC	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Heptachlor epoxide	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
o,p'-DDE	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Alpha Endosulfan	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Gamma Chlordane	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Alpha Chlordane	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
trans-Nonachlor	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
p,p'-DDE	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Dieldrin	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Endrin	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
o,p'-DDD	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
o,p'-DDT	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Beta Endosulfan	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
p,p'-DDD	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
p,p'-DDT	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Endosulfan sulphate	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Endrin Aldehyde	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Methoxychlor	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Endrin Ketone	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Isodrin	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Mirex	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1

OP Pesticides in Soil [AN400/AN420] Tested: 8/9/2016

PARAMETER	UOM	LOR	SS1 SOIL - 6/9/2016 SE156824.001	SS2 SOIL - 6/9/2016 SE156824.002	SS4 SOIL - 6/9/2016 SE156824.003	SS3 SOIL - 6/9/2016 SE156824.004	SS5 SOIL - 6/9/2016 SE156824.005
Dichlorvos	mg/kg	0.5	<0.5	<1.0↑	<1.0↑	<0.5	<1.0↑
Dimethoate	mg/kg	0.5	<0.5	<1.0↑	<1.0↑	<0.5	<1.0↑
Diazinon (Dimpylate)	mg/kg	0.5	<0.5	<1.0↑	<1.0↑	<0.5	<1.0↑
Fenitrothion	mg/kg	0.2	<0.2	<0.4↑	<0.4↑	<0.2	<0.4↑
Malathion	mg/kg	0.2	<0.2	<0.4↑	<0.4↑	<0.2	<0.4↑
Chlorpyrifos (Chlorpyrifos Ethyl)	mg/kg	0.2	<0.2	<0.4↑	<0.4↑	<0.2	<0.4↑
Parathion-ethyl (Parathion)	mg/kg	0.2	<0.2	<0.4↑	<0.4↑	<0.2	<0.4↑
Bromophos Ethyl	mg/kg	0.2	<0.2	<0.4↑	<0.4↑	<0.2	<0.4↑
Methidathion	mg/kg	0.5	<0.5	<1.0↑	<1.0↑	<0.5	<1.0↑
Ethion	mg/kg	0.2	<0.2	<0.4↑	<0.4↑	<0.2	<0.4↑
Azinphos-methyl (Guthion)	mg/kg	0.2	<0.2	<0.4↑	<0.4↑	<0.2	<0.4↑

PARAMETER	UOM	LOR	SS6 SOIL - 6/9/2016 SE156824.006	SS7 SOIL - 6/9/2016 SE156824.007	SS10 SOIL - 6/9/2016 SE156824.008	SS11 SOIL - 6/9/2016 SE156824.009	SS12 SOIL - 6/9/2016 SE156824.010
Dichlorvos	mg/kg	0.5	<1.0↑	<1.0↑	<2.5↑	<0.5	<1.0↑
Dimethoate	mg/kg	0.5	<1.0↑	<1.0↑	<2.5↑	<0.5	<1.0↑
Diazinon (Dimpylate)	mg/kg	0.5	<1.0↑	<1.0↑	<2.5↑	<0.5	<1.0↑
Fenitrothion	mg/kg	0.2	<0.4↑	<0.4↑	<1.0↑	<0.2	<0.4↑
Malathion	mg/kg	0.2	<0.4↑	<0.4↑	<1.0↑	<0.2	<0.4↑
Chlorpyrifos (Chlorpyrifos Ethyl)	mg/kg	0.2	<0.4↑	<0.4↑	<1.0↑	<0.2	<0.4↑
Parathion-ethyl (Parathion)	mg/kg	0.2	<0.4↑	<0.4↑	<1.0↑	<0.2	<0.4↑
Bromophos Ethyl	mg/kg	0.2	<0.4↑	<0.4↑	<1.0↑	<0.2	<0.4↑
Methidathion	mg/kg	0.5	<1.0↑	<1.0↑	<2.5↑	<0.5	<1.0↑
Ethion	mg/kg	0.2	<0.4↑	<0.4↑	<1.0↑	<0.2	<0.4↑
Azinphos-methyl (Guthion)	mg/kg	0.2	<0.4↑	<0.4↑	<1.0↑	<0.2	<0.4↑

PARAMETER	UOM	LOR	SS13 SOIL - 6/9/2016 SE156824.011	SS15 SOIL - 6/9/2016 SE156824.012	SS17 SOIL - 6/9/2016 SE156824.013	G1 SOIL - 6/9/2016 SE156824.014	G3 SOIL - 6/9/2016 SE156824.015
Dichlorvos	mg/kg	0.5	<0.5	<0.5	<0.5	<0.5	<1.0↑
Dimethoate	mg/kg	0.5	<0.5	<0.5	<0.5	<0.5	<1.0↑
Diazinon (Dimpylate)	mg/kg	0.5	<0.5	<0.5	<0.5	<0.5	<1.0↑
Fenitrothion	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.4↑
Malathion	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.4↑
Chlorpyrifos (Chlorpyrifos Ethyl)	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.4↑
Parathion-ethyl (Parathion)	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.4↑
Bromophos Ethyl	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.4↑
Methidathion	mg/kg	0.5	<0.5	<0.5	<0.5	<0.5	<1.0↑
Ethion	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.4↑
Azinphos-methyl (Guthion)	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.4↑

OP Pesticides in Soil [AN400/AN420] Tested: 8/9/2016 (continued)

PARAMETER	UOM	LOR	G4 SOIL - 6/9/2016 SE156824.016	G5 SOIL - 6/9/2016 SE156824.017	G6 SOIL - 6/9/2016 SE156824.018	TR8 SOIL - 6/9/2016 SE156824.021	TP42 SOIL - 6/9/2016 SE156824.022
Dichlorvos	mg/kg	0.5	<0.5	<1.0↑	<1.0↑	<0.5	<1.0↑
Dimethoate	mg/kg	0.5	<0.5	<1.0↑	<1.0↑	<0.5	<1.0↑
Diazinon (Dimpylate)	mg/kg	0.5	<0.5	<1.0↑	<1.0↑	<0.5	<1.0↑
Fenitrothion	mg/kg	0.2	<0.2	<0.4↑	<0.4↑	<0.2	<0.4↑
Malathion	mg/kg	0.2	<0.2	<0.4↑	<0.4↑	<0.2	<0.4↑
Chlorpyrifos (Chlorpyrifos Ethyl)	mg/kg	0.2	<0.2	<0.4↑	<0.4↑	<0.2	<0.4↑
Parathion-ethyl (Parathion)	mg/kg	0.2	<0.2	<0.4↑	<0.4↑	<0.2	<0.4↑
Bromophos Ethyl	mg/kg	0.2	<0.2	<0.4↑	<0.4↑	<0.2	<0.4↑
Methidathion	mg/kg	0.5	<0.5	<1.0↑	<1.0↑	<0.5	<1.0↑
Ethion	mg/kg	0.2	<0.2	<0.4↑	<0.4↑	<0.2	<0.4↑
Azinphos-methyl (Guthion)	mg/kg	0.2	<0.2	<0.4↑	<0.4↑	<0.2	<0.4↑

PARAMETER	UOM	LOR	TP35 0.9-1.0 SOIL - 6/9/2016 SE156824.023	TP48 0.1-0.2 SOIL - 6/9/2016 SE156824.024	TP43 SOIL - 6/9/2016 SE156824.029	TP52 0.1-0.2 SOIL - 6/9/2016 SE156824.030	TR11 -0.15 SOIL - 6/9/2016 SE156824.032
Dichlorvos	mg/kg	0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Dimethoate	mg/kg	0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Diazinon (Dimpylate)	mg/kg	0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Fenitrothion	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Malathion	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Chlorpyrifos (Chlorpyrifos Ethyl)	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Parathion-ethyl (Parathion)	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Bromophos Ethyl	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Methidathion	mg/kg	0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Ethion	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Azinphos-methyl (Guthion)	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2

PARAMETER	UOM	LOR	TP44 SOIL - 6/9/2016 SE156824.034	TP61 SOIL - 6/9/2016 SE156824.035	SS14 SOIL - 6/9/2016 SE156824.037	SS18 SOIL - 6/9/2016 SE156824.038	TP35_0-0.1 SOIL - 6/9/2016 SE156824.039
Dichlorvos	mg/kg	0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Dimethoate	mg/kg	0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Diazinon (Dimpylate)	mg/kg	0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Fenitrothion	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Malathion	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Chlorpyrifos (Chlorpyrifos Ethyl)	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Parathion-ethyl (Parathion)	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Bromophos Ethyl	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Methidathion	mg/kg	0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Ethion	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Azinphos-methyl (Guthion)	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2

Total Phenolics in Soil [AN289] Tested: 12/9/2016

PARAMETER	UOM	LOR	SS1 SOIL - 6/9/2016 SE156824.001	SS2 SOIL - 6/9/2016 SE156824.002	SS4 SOIL - 6/9/2016 SE156824.003	SS3 SOIL - 6/9/2016 SE156824.004	SS5 SOIL - 6/9/2016 SE156824.005
Total Phenols	mg/kg	0.1	1.1	0.5	6.0	3.7	3.1

PARAMETER	UOM	LOR	SS6 SOIL - 6/9/2016 SE156824.006	SS7 SOIL - 6/9/2016 SE156824.007	SS10 SOIL - 6/9/2016 SE156824.008	SS11 SOIL - 6/9/2016 SE156824.009	SS12 SOIL - 6/9/2016 SE156824.010
Total Phenols	mg/kg	0.1	17	8.5	47	1.4	0.8

PARAMETER	UOM	LOR	SS13 SOIL - 6/9/2016 SE156824.011	SS15 SOIL - 6/9/2016 SE156824.012	SS17 SOIL - 6/9/2016 SE156824.013	G1 SOIL - 6/9/2016 SE156824.014	G3 SOIL - 6/9/2016 SE156824.015
Total Phenols	mg/kg	0.1	4.0	4.9	4.8	0.3	1.0

PARAMETER	UOM	LOR	G4 SOIL - 6/9/2016 SE156824.016	G5 SOIL - 6/9/2016 SE156824.017	G6 SOIL - 6/9/2016 SE156824.018	TR8 SOIL - 6/9/2016 SE156824.021	TP42 SOIL - 6/9/2016 SE156824.022
Total Phenols	mg/kg	0.1	0.1	0.3	0.2	0.4	0.3

PARAMETER	UOM	LOR	TP35 0.9-1.0 SOIL - 6/9/2016 SE156824.023	TP48 0.1-0.2 SOIL - 6/9/2016 SE156824.024	TP43 SOIL - 6/9/2016 SE156824.029	TP52 0.1-0.2 SOIL - 6/9/2016 SE156824.030	TR11 -0.15 SOIL - 6/9/2016 SE156824.032
Total Phenols	mg/kg	0.1	0.3	1.9	1.9	0.4	0.2

PARAMETER	UOM	LOR	TP44 SOIL - 6/9/2016 SE156824.034	TP61 SOIL - 6/9/2016 SE156824.035	SS14 SOIL - 6/9/2016 SE156824.037	SS18 SOIL - 6/9/2016 SE156824.038	TP35_0-0.1 SOIL - 6/9/2016 SE156824.039
Total Phenols	mg/kg	0.1	0.1	2.1	0.1	0.1	0.2

Total Recoverable Metals in Soil/Waste Solids/Materials by ICPOES [AN040/AN320] Tested: 13/9/2016

PARAMETER	UOM	LOR	SS1 SOIL - 6/9/2016 SE156824.001	SS2 SOIL - 6/9/2016 SE156824.002	SS4 SOIL - 6/9/2016 SE156824.003	SS3 SOIL - 6/9/2016 SE156824.004	SS5 SOIL - 6/9/2016 SE156824.005
Arsenic, As	mg/kg	3	<3	<3	16	6	11
Cadmium, Cd	mg/kg	0.3	<0.3	<0.3	13	0.4	2.4
Chromium, Cr	mg/kg	0.3	2.8	4.0	85	21	110
Copper, Cu	mg/kg	0.5	2.4	1.2	79	26	460
Lead, Pb	mg/kg	1	13	7	1200	27	240
Nickel, Ni	mg/kg	0.5	1.5	1.0	41	21	57
Zinc, Zn	mg/kg	0.5	49	28	2100	110	1000

PARAMETER	UOM	LOR	SS6 SOIL - 6/9/2016 SE156824.006	SS7 SOIL - 6/9/2016 SE156824.007	SS10 SOIL - 6/9/2016 SE156824.008	SS11 SOIL - 6/9/2016 SE156824.009	SS12 SOIL - 6/9/2016 SE156824.010
Arsenic, As	mg/kg	3	5	6	15	8	<3
Cadmium, Cd	mg/kg	0.3	0.7	0.9	0.5	<0.3	<0.3
Chromium, Cr	mg/kg	0.3	14	20	5.4	3.7	6.0
Copper, Cu	mg/kg	0.5	18	19	9.3	2.5	3.0
Lead, Pb	mg/kg	1	4300	1500	81	8	15
Nickel, Ni	mg/kg	0.5	15	12	6.9	1.6	2.8
Zinc, Zn	mg/kg	0.5	5400	1800	370	340	31

PARAMETER	UOM	LOR	SS13 SOIL - 6/9/2016 SE156824.011	SS15 SOIL - 6/9/2016 SE156824.012	SS17 SOIL - 6/9/2016 SE156824.013	G1 SOIL - 6/9/2016 SE156824.014	G3 SOIL - 6/9/2016 SE156824.015
Arsenic, As	mg/kg	3	12	10	6	<3	5
Cadmium, Cd	mg/kg	0.3	0.4	0.5	0.5	<0.3	<0.3
Chromium, Cr	mg/kg	0.3	17	19	24	7.8	19
Copper, Cu	mg/kg	0.5	25	15	18	6.3	23
Lead, Pb	mg/kg	1	26	44	84	27	84
Nickel, Ni	mg/kg	0.5	26	21	13	5.7	17
Zinc, Zn	mg/kg	0.5	190	87	200	150	130

PARAMETER	UOM	LOR	G4 SOIL - 6/9/2016 SE156824.016	G5 SOIL - 6/9/2016 SE156824.017	G6 SOIL - 6/9/2016 SE156824.018	TR8 SOIL - 6/9/2016 SE156824.021	TP42 SOIL - 6/9/2016 SE156824.022
Arsenic, As	mg/kg	3	8	7	7	6	12
Cadmium, Cd	mg/kg	0.3	0.4	<0.3	0.9	<0.3	0.6
Chromium, Cr	mg/kg	0.3	78	15	30	17	19
Copper, Cu	mg/kg	0.5	16	15	29	23	28
Lead, Pb	mg/kg	1	37	19	29	24	89
Nickel, Ni	mg/kg	0.5	8.3	14	24	18	18
Zinc, Zn	mg/kg	0.5	41	40	180	67	150

Total Recoverable Metals in Soil/Waste Solids/Materials by ICPOES [AN040/AN320] Tested: 13/9/2016 (continued)

PARAMETER	UOM	LOR	TP35 0.9-1.0 SOIL - 6/9/2016 SE156824.023	TP48 0.1-0.2 SOIL - 6/9/2016 SE156824.024	TP43 SOIL - 6/9/2016 SE156824.029	TP52 0.1-0.2 SOIL - 6/9/2016 SE156824.030	TR11 -0.15 SOIL - 6/9/2016 SE156824.032
Arsenic, As	mg/kg	3	6	8	34	16	11
Cadmium, Cd	mg/kg	0.3	<0.3	<0.3	0.3	0.3	<0.3
Chromium, Cr	mg/kg	0.3	20	14	23	28	24
Copper, Cu	mg/kg	0.5	10	9.8	14	13	12
Lead, Pb	mg/kg	1	31	24	25	24	26
Nickel, Ni	mg/kg	0.5	13	7.9	15	16	13
Zinc, Zn	mg/kg	0.5	31	54	63	40	47

PARAMETER	UOM	LOR	TP44 SOIL - 6/9/2016 SE156824.034	TP61 SOIL - 6/9/2016 SE156824.035	SS14 SOIL - 6/9/2016 SE156824.037	SS18 SOIL - 6/9/2016 SE156824.038	TP35_0-0.1 SOIL - 6/9/2016 SE156824.039
Arsenic, As	mg/kg	3	5	11	11	4	7
Cadmium, Cd	mg/kg	0.3	<0.3	<0.3	<0.3	<0.3	<0.3
Chromium, Cr	mg/kg	0.3	12	18	18	16	13
Copper, Cu	mg/kg	0.5	9.2	13	17	19	8.6
Lead, Pb	mg/kg	1	26	23	28	23	6
Nickel, Ni	mg/kg	0.5	15	10	19	7.4	7.9
Zinc, Zn	mg/kg	0.5	50	42	67	48	28

Mercury in Soil [AN312] Tested: 12/9/2016

PARAMETER	UOM	LOR	SS1 SOIL - 6/9/2016 SE156824.001	SS2 SOIL - 6/9/2016 SE156824.002	SS4 SOIL - 6/9/2016 SE156824.003	SS3 SOIL - 6/9/2016 SE156824.004	SS5 SOIL - 6/9/2016 SE156824.005
Mercury	mg/kg	0.05	<0.05	<0.05	**0.12**	<0.05	<0.05

PARAMETER	UOM	LOR	SS6 SOIL - 6/9/2016 SE156824.006	SS7 SOIL - 6/9/2016 SE156824.007	SS10 SOIL - 6/9/2016 SE156824.008	SS11 SOIL - 6/9/2016 SE156824.009	SS12 SOIL - 6/9/2016 SE156824.010
Mercury	mg/kg	0.05	**0.07**	<0.05	<0.05	<0.05	<0.05

PARAMETER	UOM	LOR	SS13 SOIL - 6/9/2016 SE156824.011	SS15 SOIL - 6/9/2016 SE156824.012	SS17 SOIL - 6/9/2016 SE156824.013	G1 SOIL - 6/9/2016 SE156824.014	G3 SOIL - 6/9/2016 SE156824.015
Mercury	mg/kg	0.05	<0.05	<0.05	<0.05	<0.05	<0.05

PARAMETER	UOM	LOR	G4 SOIL - 6/9/2016 SE156824.016	G5 SOIL - 6/9/2016 SE156824.017	G6 SOIL - 6/9/2016 SE156824.018	TR8 SOIL - 6/9/2016 SE156824.021	TP42 SOIL - 6/9/2016 SE156824.022
Mercury	mg/kg	0.05	<0.05	<0.05	<0.05	<0.05	<0.05

PARAMETER	UOM	LOR	TP35 0.9-1.0 SOIL - 6/9/2016 SE156824.023	TP48 0.1-0.2 SOIL - 6/9/2016 SE156824.024	TP43 SOIL - 6/9/2016 SE156824.029	TP52 0.1-0.2 SOIL - 6/9/2016 SE156824.030	TR11 -0.15 SOIL - 6/9/2016 SE156824.032
Mercury	mg/kg	0.05	<0.05	<0.05	<0.05	<0.05	<0.05

PARAMETER	UOM	LOR	TP44 SOIL - 6/9/2016 SE156824.034	TP61 SOIL - 6/9/2016 SE156824.035	SS14 SOIL - 6/9/2016 SE156824.037	SS18 SOIL - 6/9/2016 SE156824.038	TP35_0-0.1 SOIL - 6/9/2016 SE156824.039
Mercury	mg/kg	0.05	<0.05	<0.05	<0.05	<0.05	<0.05

Moisture Content [AN002] Tested: 9/9/2016

PARAMETER	UOM	LOR	SS1 SOIL - 6/9/2016 SE156824.001	SS2 SOIL - 6/9/2016 SE156824.002	SS4 SOIL - 6/9/2016 SE156824.003	SS3 SOIL - 6/9/2016 SE156824.004	SS5 SOIL - 6/9/2016 SE156824.005
% Moisture	%w/w	0.5	2.0	0.6	18	20	21

PARAMETER	UOM	LOR	SS6 SOIL - 6/9/2016 SE156824.006	SS7 SOIL - 6/9/2016 SE156824.007	SS10 SOIL - 6/9/2016 SE156824.008	SS11 SOIL - 6/9/2016 SE156824.009	SS12 SOIL - 6/9/2016 SE156824.010
% Moisture	%w/w	0.5	44	32	24	1.3	13

PARAMETER	UOM	LOR	SS13 SOIL - 6/9/2016 SE156824.011	SS15 SOIL - 6/9/2016 SE156824.012	SS17 SOIL - 6/9/2016 SE156824.013	G1 SOIL - 6/9/2016 SE156824.014	G3 SOIL - 6/9/2016 SE156824.015
% Moisture	%w/w	0.5	20	17	23	7.7	18

PARAMETER	UOM	LOR	G4 SOIL - 6/9/2016 SE156824.016	G5 SOIL - 6/9/2016 SE156824.017	G6 SOIL - 6/9/2016 SE156824.018	TR8 SOIL - 6/9/2016 SE156824.021	TP42 SOIL - 6/9/2016 SE156824.022
% Moisture	%w/w	0.5	19	18	18	15	17

PARAMETER	UOM	LOR	TP35 0.9-1.0 SOIL - 6/9/2016 SE156824.023	TP48 0.1-0.2 SOIL - 6/9/2016 SE156824.024	TP43 SOIL - 6/9/2016 SE156824.029	TP52 0.1-0.2 SOIL - 6/9/2016 SE156824.030	TR11 -0.15 SOIL - 6/9/2016 SE156824.032
% Moisture	%w/w	0.5	14	21	20	19	12

PARAMETER	UOM	LOR	TP44 SOIL - 6/9/2016 SE156824.034	TP61 SOIL - 6/9/2016 SE156824.035	SS14 SOIL - 6/9/2016 SE156824.037	SS18 SOIL - 6/9/2016 SE156824.038	TP35_0-0.1 SOIL - 6/9/2016 SE156824.039
% Moisture	%w/w	0.5	9.6	15	18	9.3	23

Fibre Identification in soil [AN602] Tested: 13/9/2016

PARAMETER	UOM	LOR	SS1 SOIL - 6/9/2016 SE156824.001	SS2 SOIL - 6/9/2016 SE156824.002	SS4 SOIL - 6/9/2016 SE156824.003	SS3 SOIL - 6/9/2016 SE156824.004	SS5 SOIL - 6/9/2016 SE156824.005
Asbestos Detected	No unit	-	No	No	No	No	No
Estimated Fibres*	%w/w	0.01	<0.01	<0.01	<0.01	<0.01	<0.01

PARAMETER	UOM	LOR	SS6 SOIL - 6/9/2016 SE156824.006	SS7 SOIL - 6/9/2016 SE156824.007	SS12 SOIL - 6/9/2016 SE156824.010	SS13 SOIL - 6/9/2016 SE156824.011	SS15 SOIL - 6/9/2016 SE156824.012
Asbestos Detected	No unit	-	No	No	No	No	No
Estimated Fibres*	%w/w	0.01	<0.01	<0.01	<0.01	<0.01	<0.01

PARAMETER	UOM	LOR	SS17 SOIL - 6/9/2016 SE156824.013	G1 SOIL - 6/9/2016 SE156824.014	G3 SOIL - 6/9/2016 SE156824.015	G4 SOIL - 6/9/2016 SE156824.016	G5 SOIL - 6/9/2016 SE156824.017
Asbestos Detected	No unit	-	No	No	No	No	No
Estimated Fibres*	%w/w	0.01	<0.01	<0.01	<0.01	<0.01	<0.01

PARAMETER	UOM	LOR	G6 SOIL - 6/9/2016 SE156824.018	TR8 SOIL - 6/9/2016 SE156824.021	TP42 SOIL - 6/9/2016 SE156824.022	TP35 0.9-1.0 SOIL - 6/9/2016 SE156824.023	TP48 0.1-0.2 SOIL - 6/9/2016 SE156824.024
Asbestos Detected	No unit	-	No	No	No	No	No
Estimated Fibres*	%w/w	0.01	<0.01	<0.01	<0.01	<0.01	<0.01

PARAMETER	UOM	LOR	TP43 SOIL - 6/9/2016 SE156824.029	TP52 0.1-0.2 SOIL - 6/9/2016 SE156824.030	TR11 -0.15 SOIL - 6/9/2016 SE156824.032	TP44 SOIL - 6/9/2016 SE156824.034	TP61 SOIL - 6/9/2016 SE156824.035
Asbestos Detected	No unit	-	No	No	No	No	No
Estimated Fibres*	%w/w	0.01	<0.01	<0.01	<0.01	<0.01	<0.01

PARAMETER	UOM	LOR	SS14 SOIL - 6/9/2016 SE156824.037	SS18 SOIL - 6/9/2016 SE156824.038	TP35_0-0.1 SOIL - 6/9/2016 SE156824.039
Asbestos Detected	No unit	-	No	No	No
Estimated Fibres*	%w/w	0.01	<0.01	<0.01	<0.01

METHOD	METHODOLOGY SUMMARY
AN002	The test is carried out by drying (at either 40°C or 105°C) a known mass of sample in a weighed evaporating basin. After fully dry the sample is re-weighed. Samples such as sludge and sediment having high percentages of moisture will take some time in a drying oven for complete removal of water.
AN040/AN320	A portion of sample is digested with nitric acid to decompose organic matter and hydrochloric acid to complete the digestion of metals. The digest is then analysed by ICP OES with metals results reported on the dried sample basis. Based on USEPA method 200.8 and 6010C.
AN040	A portion of sample is digested with Nitric acid to decompose organic matter and Hydrochloric acid to complete the digestion of metals and then filtered for analysis by ASS or ICP as per USEPA Method 200.8.
AN289	Analysis of Total Phenols in Soil Sediment and Water: Steam distillable phenols react with 4-aminoantipyrine at pH 7.9±0.1 in the presence of potassium ferricyanide to form a coloured antipyrine dye analysed by Discrete Analyser. Reference APHA 5530 B/D.
AN312	Mercury by Cold Vapour AAS in Soils: After digestion with nitric acid, hydrogen peroxide and hydrochloric acid , mercury ions are reduced by stannous chloride reagent in acidic solution to elemental mercury. This mercury vapour is purged by nitrogen into a cold cell in an atomic absorption spectrometer or mercury analyser . Quantification is made by comparing absorbances to those of the calibration standards. Reference APHA 3112/3500
AN400	OC and OP Pesticides by GC-ECD: The determination of organochlorine (OC) and organophosphorus (OP) pesticides and polychlorinated biphenyls (PCBs) in soils, sludges and groundwater. (Based on USEPA methods 3510, 3550, 8140 and 8080.)
AN403	Total Recoverable Hydrocarbons: Determination of Hydrocarbons by gas chromatography after a solvent extraction. Detection is by flame ionisation detector (FID) that produces an electronic signal in proportion to the combustible matter passing through it. Total Recoverable Hydrocarbons (TRH) are routinely reported as four alkane groupings based on the carbon chain length of the compounds: C6-C9, C10-C14, C15-C28 and C29-C36 and in recognition of the NEPM 1999 (2013), >C10-C16 (F2), >C16-C34 (F3) and >C34-C40 (F4). F2 is reported directly and also corrected by subtracting Naphthalene (from VOC method AN433) where available.
AN403	Additionally, the volatile C6-C9 fraction may be determined by a purge and trap technique and GC /MS because of the potential for volatiles loss. Total Petroleum Hydrocarbons (TPH) follows the same method of analysis after silica gel cleanup of the solvent extract. Aliphatic/Aromatic Speciation follows the same method of analysis after fractionation of the solvent extract over silica with differential polarity of the eluent solvents .
AN403	The GC/FID method is not well suited to the analysis of refined high boiling point materials (ie lubricating oils or greases) but is particularly suited for measuring diesel, kerosene and petrol if care to control volatility is taken. This method will detect naturally occurring hydrocarbons, lipids, animal fats, phenols and PAHs if they are present at sufficient levels, dependent on the use of specific cleanup /fractionation techniques. Reference USEPA 3510B, 8015B.
AN420	(SVOCs) including OC, OP, PCB, Herbicides, PAH, Phthalates and Speciated Phenols (etc) in soils, sediments and waters are determined by GCMS/ECD technique following appropriate solvent extraction process (Based on USEPA 3500C and 8270D).
AN420	SVOC Compounds: Semi-Volatile Organic Compounds (SVOCs) including OC, OP, PCB, Herbicides, PAH, Phthalates and Speciated Phenols in soils, sediments and waters are determined by GCMS /ECD technique following appropriate solvent extraction process (Based on USEPA 3500C and 8270D).
AN433	VOCs and C6-C9 Hydrocarbons by GC-MS P&T: VOC`s are volatile organic compounds. The sample is presented to a gas chromatograph via a purge and trap (P&T) concentrator and autosampler and is detected with a Mass Spectrometer (MSD). Solid samples are initially extracted with methanol whilst liquid samples are processed directly. References: USEPA 5030B, 8020A, 8260.
AN602	Qualitative identification of chrysotile, amosite and crocidolite in bulk samples by polarised light microscopy (PLM) in conjunction with dispersion staining (DS). AS4964 provides the basis for this document. Unequivocal identification of the asbestos minerals present is made by obtaining sufficient diagnostic `clues`, which provide a reasonable degree of certainty, dispersion staining is a mandatory `clue` for positive identification. If sufficient `clues` are absent, then positive identification of asbestos is not possible. This procedure requires removal of suspect fibres/bundles from the sample which cannot be returned.
AN602	Fibres/material that cannot be unequivocably identified as one of the three asbestos forms, will be reported as unknown mineral fibres (umf).
AN602	AS4964.2004 Method for the Qualitative Identification of Asbestos in Bulk Samples, Section 8.4, Trace Analysis Criteria, Note 4 states:"Depending upon sample condition and fibre type, the detection limit of this technique has been found to lie generally in the range of 1 in 1,000 to 1 in 10,000 parts by weight, equivalent to 1 to 0.1 g/kg."

AN602	The sample can be reported “no asbestos found at the reporting limit of 0.1 g/kg” (<0.01%w/w) where AN602 section 4.5 of this method has been followed, and if- (a) no trace asbestos fibres have been detected (i.e. no ‘respirable’ fibres): (b) the estimated weight of non-respirable asbestos fibre bundles and/or the estimated weight of asbestos in asbestos-containing materials are found to be less than 0.1g/kg: and (c) these non-respirable asbestos fibre bundles and/or the asbestos containing materials are only visible under stereo-microscope viewing conditions.

FOOTNOTES

*	NATA accreditation does not cover the performance of this service.	-	Not analysed.	UOM	Unit of Measure.
		NVL	Not validated.	LOR	Limit of Reporting.
**	Indicative data, theoretical holding time exceeded.	IS	Insufficient sample for analysis.	↑↓	Raised/lowered Limit of Reporting.
		LNR	Sample listed, but not received.		

Samples analysed as received.
Solid samples expressed on a dry weight basis.

Where "Total" analyte groups are reported (for example, Total PAHs, Total OC Pesticides) the total will be calculated as the sum of the individual analytes, with those analytes that are reported as <LOR being assumed to be zero. The summed (Total) limit of reporting is calculated by summing the individual analyte LORs and dividing by two. For example, where 16 individual analytes are being summed and each has an LOR of 0.1 mg/kg, the "Totals" LOR will be 1.6 / 2 (0.8 mg/kg). Where only 2 analytes are being summed, the " Total" LOR will be the sum of those two LORs.

Some totals may not appear to add up because the total is rounded after adding up the raw values.

If reported, measurement uncertainty follow the ± sign after the analytical result and is expressed as the expanded uncertainty calculated using a coverage factor of 2, providing a level of confidence of approximately 95%, unless stated otherwise in the comments section of this report.

Results reported for samples tested under test methods with codes starting with ARS-SOP, radionuclide or gross radioactivity concentrations are expressed in becquerel (Bq) per unit of mass or volume or per wipe as stated on the report. Becquerel is the SI unit for activity and equals one nuclear transformation per second.
Note that in terms of units of radioactivity:

a. 1 Bq is equivalent to 27 pCi
b. 37 MBq is equivalent to 1 mCi

For results reported for samples tested under test methods with codes starting with ARS-SOP, less than (<) values indicate the detection limit for each radionuclide or parameter for the measurement system used. The respective detection limits have been calculated in accordance with ISO 11929.

The QC criteria are subject to internal review according to the SGS QAQC plan and may be provided on request or alternatively can be found here : http://www.sgs.com.au/~/media/Local/Australia/Documents/Technical%20Documents/MP-AU-ENV-QU-022%20QA%20QC%20Plan.pdf

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Any other holder of this document is advised that information contained hereon reflects the Company's findings at the time of its intervention only and within the limits of Client's instructions, if any. The Company's sole responsibility is to its Client and this document does not exonerate parties to a transaction from exercising all their rights and obligations under the transaction documents.

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ANALYTICAL REPORT

Accreditation No. 2562

CLIENT DETAILS

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Facsimile	02 6234 1966
Email	Ryan.O'Leary@smec.com
Project	**3002523 - Canberra Brickworks**
Order Number	**SY1-604163-2-IS**
Samples	28

LABORATORY DETAILS

Manager	Huong Crawford
Laboratory	SGS Alexandria Environmental
Address	Unit 16, 33 Maddox St Alexandria NSW 2015
Telephone	+61 2 8594 0400
Facsimile	+61 2 8594 0499
Email	au.environmental.sydney@sgs.com
SGS Reference	**SE156824 R0**
Date Received	07 Sep 2016
Date Reported	14 Sep 2016

COMMENTS

Accredited for compliance with ISO/IEC 17025. NATA accredited laboratory 2562(4354).

No respirable fibres detected in all soil samples using trace analysis technique.

A portion of the sample supplied has been sub-sampled for asbestos according to SGS In-house procedures.
We therefore cannot guarantee that the sub-sample is representative of the entire sample supplied.
SGS Environment, Health and Safety recommends supplying approximately 50-100g of sample in a separate container.
Sample # 8-9: Insufficient sample for asbestos analysis.
Asbestos analysed by Approved Identifiers Yusuf Kuthpudin and Ravee Sivasubramaniam .

VOC/VPH/PAH/OP/TRH/OC - Sample(s) received had insufficient amounts supplied by client. LORs will be raised to accommodate for testing scheme required.

SIGNATORIES

Andy Sutton
Senior Organic Chemist

Bennet Lo
Senior Organic Chemist/Metals Chemis

Dong Liang
Metals/Inorganics Team Leader

Kamrul Ahsan
Senior Chemist

Ly Kim Ha
Organic Section Head

Ravee Sivasubramaniam
Hygiene Team Leader

RESULTS

Fibre Identification in soil — Method AN602

Laboratory Reference	Client Reference	Matrix	Sample Description	Date Sampled	Fibre Identification	Est.%w/w*
SE156824.001	SS1	Soil	11g Sand	06 Sep 2016	No Asbestos Found	<0.01
SE156824.002	SS2	Soil	25g Sand, Rocks	06 Sep 2016	No Asbestos Found	<0.01
SE156824.003	SS4	Soil	10g Sand, Rocks	06 Sep 2016	No Asbestos Found Synthetic Mineral Fibres Detected Organic Fibres Detected	<0.01
SE156824.004	SS3	Soil	15g Sand, Rocks	06 Sep 2016	No Asbestos Found	<0.01
SE156824.005	SS5	Soil	16g Clay, Sand, Rocks	06 Sep 2016	No Asbestos Found Organic Fibres Detected	<0.01
SE156824.006	SS6	Soil	3g Sand, Rocks, Plant Matter	06 Sep 2016	No Asbestos Found Organic Fibres Detected	<0.01
SE156824.007	SS7	Soil	4g Sand, Rocks, Plant Matter	06 Sep 2016	No Asbestos Found Organic Fibres Detected	<0.01
SE156824.010	SS12	Soil	36g Sand, Rocks	06 Sep 2016	No Asbestos Found	<0.01
SE156824.011	SS13	Soil	22g Sand, Rocks	06 Sep 2016	No Asbestos Found	<0.01
SE156824.012	SS15	Soil	21g Sand, Soil, Rocks	06 Sep 2016	No Asbestos Found Organic Fibres Detected	<0.01
SE156824.013	SS17	Soil	16g Sand, Soil, Rocks	06 Sep 2016	No Asbestos Found	<0.01
SE156824.014	G1	Soil	32g Sand, Rocks	06 Sep 2016	No Asbestos Found	<0.01
SE156824.015	G3	Soil	15g Sand, Rocks	06 Sep 2016	No Asbestos Found	<0.01
SE156824.016	G4	Soil	18g Sand, Rocks	06 Sep 2016	No Asbestos Found	<0.01
SE156824.017	G5	Soil	15g Clay, Sand, Rocks	06 Sep 2016	No Asbestos Found	<0.01
SE156824.018	G6	Soil	23g Clay, Sand, Rocks	06 Sep 2016	No Asbestos Found	<0.01
SE156824.021	TR8	Soil	29g Clay, Sand, Rocks	06 Sep 2016	No Asbestos Found Organic Fibres Detected	<0.01
SE156824.022	TP42	Soil	30g Clay, Sand, Soil, Rocks	06 Sep 2016	No Asbestos Found Organic Fibres Detected	<0.01
SE156824.023	TP35 0.9-1.0	Soil	35g Sand, Rocks	06 Sep 2016	No Asbestos Found	<0.01
SE156824.024	TP48 0.1-0.2	Soil	26g Sand, Soil, Rocks	06 Sep 2016	No Asbestos Found Organic Fibres Detected	<0.01
SE156824.029	TP43	Soil	36g Clay, Rocks	06 Sep 2016	No Asbestos Found	<0.01
SE156824.030	TP52 0.1-0.2	Soil	16g Clay, Rocks	06 Sep 2016	No Asbestos Found	<0.01
SE156824.032	TR11 -0.15	Soil	34g Clay	06 Sep 2016	No Asbestos Found	<0.01
SE156824.034	TP44	Soil	31g Clay, Sand, Rocks	06 Sep 2016	No Asbestos Found	<0.01
SE156824.035	TP61	Soil	18g Clay	06 Sep 2016	No Asbestos Found	<0.01
SE156824.037	SS14	Soil	16g Clay, Rocks	06 Sep 2016	No Asbestos Found	<0.01
SE156824.038	SS18	Soil	11g Sand, Rocks	06 Sep 2016	No Asbestos Found Organic Fibres Detected	<0.01
SE156824.039	TP35_0-0.1	Soil	25g Sand, Rocks	06 Sep 2016	No Asbestos Found	<0.01

RESULTS

Fibre Identification in soil	Method	AN602

METHOD SUMMARY

METHOD	METHODOLOGY SUMMARY
AN602	Qualitative identification of chrysotile, amosite and crocidolite in bulk samples by polarised light microscopy (PLM) in conjunction with dispersion staining (DS). AS4964 provides the basis for this document. Unequivocal identification of the asbestos minerals present is made by obtaining sufficient diagnostic `clues`, which provide a reasonable degree of certainty, dispersion staining is a mandatory `clue` for positive identification. If sufficient `clues` are absent, then positive identification of asbestos is not possible. This procedure requires removal of suspect fibres/bundles from the sample which cannot be returned.
AN602	Fibres/material that cannot be unequivocably identified as one of the three asbestos forms, will be reported as unknown mineral fibres (umf).
AN602	AS4964.2004 Method for the Qualitative Identification of Asbestos in Bulk Samples , Section 8.4, Trace Analysis Criteria, Note 4 states:"Depending upon sample condition and fibre type, the detection limit of this technique has been found to lie generally in the range of 1 in 1,000 to 1 in 10,000 parts by weight, equivalent to 1 to 0.1 g/kg."
AN602	The sample can be reported “no asbestos found at the reporting limit of 0.1 g/kg” (<0.01%w/w) where AN602 section 4.5 of this method has been followed, and if- (a) no trace asbestos fibres have been detected (i.e. no ‘respirable’ fibres): (b) the estimated weight of non-respirable asbestos fibre bundles and/or the estimated weight of asbestos in asbestos-containing materials are found to be less than 0.1g/kg: and (c) these non-respirable asbestos fibre bundles and/or the asbestos containing materials are only visible under stereo-microscope viewing conditions.

FOOTNOTES

Amosite	-	Brown Asbestos	NA	-	Not Analysed
Chrysotile	-	White Asbestos	LNR	-	Listed, Not Required
Crocidolite	-	Blue Asbestos	*	-	NATA accreditation does not cover the performance of this service .
Amphiboles	-	Amosite and/or Crocidolite	**	-	Indicative data, theoretical holding time exceeded.

(In reference to soil samples only) This report does not comply with the analytical reporting recommendations in the Western Australian Department of Health Guidelines for the Assessment and Remediation and Management of Asbestos Contaminated sites in Western Australia - May 2009.

Sampled by the client.

Where reported: 'Asbestos Detected': Asbestos detected by polarised light microscopy, including dispersion staining.
Where reported: 'No Asbestos Found': No Asbestos Found by polarised light microscopy, including dispersion staining.
Where reported: 'UMF Detected': Mineral fibres of unknown type detected by polarised light microscopy, including dispersion staining. Confirmation by another independent analytical technique may be necessary.

Even after disintegration it can be very difficult, or impossible, to detect the presence of asbestos in some asbestos -containing bulk materials using polarised light microscopy. This is due to the low grade or small length or diameter of asbestos fibres present in the material, or to the fact that very fine fibres have been distributed intimately throughout the materials.

The QC criteria are subject to internal review according to the SGS QAQC plan and may be provided on request or alternatively can be found here : http://www.sgs.com.au/~/media/Local/Australia/Documents/Technical%20Documents/MP-AU-ENV-QU-022%20QA%20QC%20Plan.pdf

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STATEMENT OF QA/QC PERFORMANCE

SE156824 R0

CLIENT DETAILS

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Project	**3002523 - Canberra Brickworks**
Order Number	**SY1-604163-2-IS**
Samples	39

LABORATORY DETAILS

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Email	au.environmental.sydney@sgs.com
SGS Reference	**SE156824 R0**
Date Received	07 Sep 2016
Date Reported	14 Sep 2016

COMMENTS

All the laboratory data for each environmental matrix was compared to SGS' stated Data Quality Objectives (DQO). Comments arising from the comparison were made and are reported below.

The data relating to sampling was taken from the Chain of Custody document and was supplied by the Client.
This QA/QC Statement must be read in conjunction with the referenced Analytical Report.
The Statement and the Analytical Report must not be reproduced except in full.

All Data Quality Objectives were met with the exception of the following:

Duplicate	Total Phenolics in Soil	1 item
	Total Phenolics in Soil	1 item
	Total Recoverable Metals in Soil/Waste Solids/Materials by ICPOES	2 items
	Total Recoverable Metals in Soil/Waste Solids/Materials by ICPOES	2 items
Matrix Spike	Total Recoverable Metals in Soil/Waste Solids/Materials by ICPOES	1 item

SAMPLE SUMMARY

Sample counts by matrix	39 Soil	Type of documentation received	COC
Date documentation received	7/9/2016	Samples received in good order	Yes
Samples received without headspace	Yes	Sample temperature upon receipt	14.3°C
Sample container provider	SGS	Turnaround time requested	Standard
Samples received in correct containers	Yes	Sufficient sample for analysis	Yes
Sample cooling method	Ice Bricks	Samples clearly labelled	Yes
Complete documentation received	Yes	Number of eskies/boxes received	

HOLDING TIME SUMMARY

SE156824 R0

SGS holding time criteria are drawn from current regulations and are highly dependent on sample container preservation as specified in the SGS “Field Sampling Guide for Containers and Holding Time” (ref: GU-(AU)-ENV.001). Soil samples guidelines are derived from NEPM "Schedule B(3) Guideline on Laboratory Analysis of Potentially Contaminated Soils". Water sample guidelines are derived from "AS/NZS 5667.1 : 1998 Water Quality - sampling part 1" and APHA "Standard Methods for the Examination of Water and Wastewater" 21st edition 2005.

Extraction and analysis holding time due dates listed are calculated from the date sampled, although holding times may be extended after laboratory extraction for some analytes. The due dates are the suggested dates that samples may be held before extraction or analysis and still be considered valid.

Extraction and analysis dates are shown in **Green** when within suggested criteria or **Red** with an appended dagger symbol (†) when outside suggested criteria. If the sampled date is not supplied then compliance with criteria cannot be determined. If the received date is after one or both due dates then holding time will fail by default.

Fibre Identification in soil

Method: ME-(AU)-[ENV]AN602

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
SS1	SE156824.001	LB109709	06 Sep 2016	07 Sep 2016	06 Sep 2017	13 Sep 2016	06 Sep 2017	14 Sep 2016
SS2	SE156824.002	LB109709	06 Sep 2016	07 Sep 2016	06 Sep 2017	13 Sep 2016	06 Sep 2017	14 Sep 2016
SS4	SE156824.003	LB109709	06 Sep 2016	07 Sep 2016	06 Sep 2017	13 Sep 2016	06 Sep 2017	14 Sep 2016
SS3	SE156824.004	LB109709	06 Sep 2016	07 Sep 2016	06 Sep 2017	13 Sep 2016	06 Sep 2017	14 Sep 2016
SS5	SE156824.005	LB109709	06 Sep 2016	07 Sep 2016	06 Sep 2017	13 Sep 2016	06 Sep 2017	14 Sep 2016
SS6	SE156824.006	LB109709	06 Sep 2016	07 Sep 2016	06 Sep 2017	13 Sep 2016	06 Sep 2017	14 Sep 2016
SS7	SE156824.007	LB109709	06 Sep 2016	07 Sep 2016	06 Sep 2017	13 Sep 2016	06 Sep 2017	14 Sep 2016
SS10	SE156824.008	LB109709	06 Sep 2016	07 Sep 2016	06 Sep 2017	13 Sep 2016	06 Sep 2017	14 Sep 2016
SS11	SE156824.009	LB109709	06 Sep 2016	07 Sep 2016	06 Sep 2017	13 Sep 2016	06 Sep 2017	14 Sep 2016
SS12	SE156824.010	LB109709	06 Sep 2016	07 Sep 2016	06 Sep 2017	13 Sep 2016	06 Sep 2017	14 Sep 2016
SS13	SE156824.011	LB109709	06 Sep 2016	07 Sep 2016	06 Sep 2017	13 Sep 2016	06 Sep 2017	14 Sep 2016
SS15	SE156824.012	LB109709	06 Sep 2016	07 Sep 2016	06 Sep 2017	13 Sep 2016	06 Sep 2017	14 Sep 2016
SS17	SE156824.013	LB109709	06 Sep 2016	07 Sep 2016	06 Sep 2017	13 Sep 2016	06 Sep 2017	14 Sep 2016
G1	SE156824.014	LB109709	06 Sep 2016	07 Sep 2016	06 Sep 2017	13 Sep 2016	06 Sep 2017	14 Sep 2016
G3	SE156824.015	LB109709	06 Sep 2016	07 Sep 2016	06 Sep 2017	13 Sep 2016	06 Sep 2017	14 Sep 2016
G4	SE156824.016	LB109709	06 Sep 2016	07 Sep 2016	06 Sep 2017	13 Sep 2016	06 Sep 2017	14 Sep 2016
G5	SE156824.017	LB109709	06 Sep 2016	07 Sep 2016	06 Sep 2017	13 Sep 2016	06 Sep 2017	14 Sep 2016
G6	SE156824.018	LB109709	06 Sep 2016	07 Sep 2016	06 Sep 2017	13 Sep 2016	06 Sep 2017	14 Sep 2016
TR8	SE156824.021	LB109709	06 Sep 2016	07 Sep 2016	06 Sep 2017	13 Sep 2016	06 Sep 2017	14 Sep 2016
TP42	SE156824.022	LB109709	06 Sep 2016	07 Sep 2016	06 Sep 2017	13 Sep 2016	06 Sep 2017	14 Sep 2016
TP35 0.9-1.0	SE156824.023	LB109709	06 Sep 2016	07 Sep 2016	06 Sep 2017	13 Sep 2016	06 Sep 2017	14 Sep 2016
TP48 0.1-0.2	SE156824.024	LB109709	06 Sep 2016	07 Sep 2016	06 Sep 2017	13 Sep 2016	06 Sep 2017	14 Sep 2016
TP43	SE156824.029	LB109709	06 Sep 2016	07 Sep 2016	06 Sep 2017	13 Sep 2016	06 Sep 2017	14 Sep 2016
TP52 0.1-0.2	SE156824.030	LB109709	06 Sep 2016	07 Sep 2016	06 Sep 2017	13 Sep 2016	06 Sep 2017	14 Sep 2016
TR11 -0.15	SE156824.032	LB109709	06 Sep 2016	07 Sep 2016	06 Sep 2017	13 Sep 2016	06 Sep 2017	14 Sep 2016
TP44	SE156824.034	LB109709	06 Sep 2016	07 Sep 2016	06 Sep 2017	13 Sep 2016	06 Sep 2017	14 Sep 2016
TP61	SE156824.035	LB109709	06 Sep 2016	07 Sep 2016	06 Sep 2017	13 Sep 2016	06 Sep 2017	14 Sep 2016
SS14	SE156824.037	LB109709	06 Sep 2016	07 Sep 2016	06 Sep 2017	13 Sep 2016	06 Sep 2017	14 Sep 2016
SS18	SE156824.038	LB109709	06 Sep 2016	07 Sep 2016	06 Sep 2017	13 Sep 2016	06 Sep 2017	14 Sep 2016
TP35_0-0.1	SE156824.039	LB109709	06 Sep 2016	07 Sep 2016	06 Sep 2017	13 Sep 2016	06 Sep 2017	14 Sep 2016

Mercury in Soil

Method: ME-(AU)-[ENV]AN312

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
SS1	SE156824.001	LB109619	06 Sep 2016	07 Sep 2016	04 Oct 2016	12 Sep 2016	04 Oct 2016	13 Sep 2016
SS2	SE156824.002	LB109619	06 Sep 2016	07 Sep 2016	04 Oct 2016	12 Sep 2016	04 Oct 2016	13 Sep 2016
SS4	SE156824.003	LB109619	06 Sep 2016	07 Sep 2016	04 Oct 2016	12 Sep 2016	04 Oct 2016	13 Sep 2016
SS3	SE156824.004	LB109619	06 Sep 2016	07 Sep 2016	04 Oct 2016	12 Sep 2016	04 Oct 2016	13 Sep 2016
SS5	SE156824.005	LB109619	06 Sep 2016	07 Sep 2016	04 Oct 2016	12 Sep 2016	04 Oct 2016	13 Sep 2016
SS6	SE156824.006	LB109619	06 Sep 2016	07 Sep 2016	04 Oct 2016	12 Sep 2016	04 Oct 2016	13 Sep 2016
SS7	SE156824.007	LB109619	06 Sep 2016	07 Sep 2016	04 Oct 2016	12 Sep 2016	04 Oct 2016	13 Sep 2016
SS10	SE156824.008	LB109619	06 Sep 2016	07 Sep 2016	04 Oct 2016	12 Sep 2016	04 Oct 2016	13 Sep 2016
SS11	SE156824.009	LB109619	06 Sep 2016	07 Sep 2016	04 Oct 2016	12 Sep 2016	04 Oct 2016	13 Sep 2016
SS12	SE156824.010	LB109619	06 Sep 2016	07 Sep 2016	04 Oct 2016	12 Sep 2016	04 Oct 2016	13 Sep 2016
SS13	SE156824.011	LB109619	06 Sep 2016	07 Sep 2016	04 Oct 2016	12 Sep 2016	04 Oct 2016	13 Sep 2016
SS15	SE156824.012	LB109619	06 Sep 2016	07 Sep 2016	04 Oct 2016	12 Sep 2016	04 Oct 2016	13 Sep 2016
SS17	SE156824.013	LB109619	06 Sep 2016	07 Sep 2016	04 Oct 2016	12 Sep 2016	04 Oct 2016	13 Sep 2016
G1	SE156824.014	LB109619	06 Sep 2016	07 Sep 2016	04 Oct 2016	12 Sep 2016	04 Oct 2016	13 Sep 2016
G3	SE156824.015	LB109619	06 Sep 2016	07 Sep 2016	04 Oct 2016	12 Sep 2016	04 Oct 2016	13 Sep 2016
G4	SE156824.016	LB109619	06 Sep 2016	07 Sep 2016	04 Oct 2016	12 Sep 2016	04 Oct 2016	13 Sep 2016
G5	SE156824.017	LB109619	06 Sep 2016	07 Sep 2016	04 Oct 2016	12 Sep 2016	04 Oct 2016	13 Sep 2016
G6	SE156824.018	LB109619	06 Sep 2016	07 Sep 2016	04 Oct 2016	12 Sep 2016	04 Oct 2016	13 Sep 2016
TR8	SE156824.021	LB109619	06 Sep 2016	07 Sep 2016	04 Oct 2016	12 Sep 2016	04 Oct 2016	13 Sep 2016
TP42	SE156824.022	LB109620	06 Sep 2016	07 Sep 2016	04 Oct 2016	12 Sep 2016	04 Oct 2016	13 Sep 2016
TP35 0.9-1.0	SE156824.023	LB109620	06 Sep 2016	07 Sep 2016	04 Oct 2016	12 Sep 2016	04 Oct 2016	13 Sep 2016
TP48 0.1-0.2	SE156824.024	LB109620	06 Sep 2016	07 Sep 2016	04 Oct 2016	12 Sep 2016	04 Oct 2016	13 Sep 2016
TP43	SE156824.029	LB109620	06 Sep 2016	07 Sep 2016	04 Oct 2016	12 Sep 2016	04 Oct 2016	13 Sep 2016
TP52 0.1-0.2	SE156824.030	LB109620	06 Sep 2016	07 Sep 2016	04 Oct 2016	12 Sep 2016	04 Oct 2016	13 Sep 2016
TR11 -0.15	SE156824.032	LB109620	06 Sep 2016	07 Sep 2016	04 Oct 2016	12 Sep 2016	04 Oct 2016	13 Sep 2016
TP44	SE156824.034	LB109620	06 Sep 2016	07 Sep 2016	04 Oct 2016	12 Sep 2016	04 Oct 2016	13 Sep 2016
TP61	SE156824.035	LB109620	06 Sep 2016	07 Sep 2016	04 Oct 2016	12 Sep 2016	04 Oct 2016	13 Sep 2016

SGS holding time criteria are drawn from current regulations and are highly dependent on sample container preservation as specified in the SGS "Field Sampling Guide for Containers and Holding Time" (ref: GU-(AU)-ENV.001). Soil samples guidelines are derived from NEPM "Schedule B(3) Guideline on Laboratory Analysis of Potentially Contaminated Soils". Water sample guidelines are derived from "AS/NZS 5667.1 : 1998 Water Quality - sampling part 1" and APHA "Standard Methods for the Examination of Water and Wastewater" 21st edition 2005.

Extraction and analysis holding time due dates listed are calculated from the date sampled, although holding times may be extended after laboratory extraction for some analytes. The due dates are the suggested dates that samples may be held before extraction or analysis and still be considered valid.

Extraction and analysis dates are shown in **Green** when within suggested criteria or **Red** with an appended dagger symbol (†) when outside suggested criteria. If the sampled date is not supplied then compliance with criteria cannot be determined. If the received date is after one or both due dates then holding time will fail by default.

Mercury in Soil (continued)

Method: ME-(AU)-[ENV]AN312

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
SS14	SE156824.037	LB109620	06 Sep 2016	07 Sep 2016	04 Oct 2016	12 Sep 2016	04 Oct 2016	13 Sep 2016
SS18	SE156824.038	LB109620	06 Sep 2016	07 Sep 2016	04 Oct 2016	12 Sep 2016	04 Oct 2016	13 Sep 2016
TP35_0-0.1	SE156824.039	LB109620	06 Sep 2016	07 Sep 2016	04 Oct 2016	12 Sep 2016	04 Oct 2016	13 Sep 2016

Moisture Content

Method: ME-(AU)-[ENV]AN002

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
SS1	SE156824.001	LB109491	06 Sep 2016	07 Sep 2016	20 Sep 2016	09 Sep 2016	14 Sep 2016	12 Sep 2016
SS2	SE156824.002	LB109491	06 Sep 2016	07 Sep 2016	20 Sep 2016	09 Sep 2016	14 Sep 2016	12 Sep 2016
SS4	SE156824.003	LB109491	06 Sep 2016	07 Sep 2016	20 Sep 2016	09 Sep 2016	14 Sep 2016	12 Sep 2016
SS3	SE156824.004	LB109491	06 Sep 2016	07 Sep 2016	20 Sep 2016	09 Sep 2016	14 Sep 2016	12 Sep 2016
SS5	SE156824.005	LB109491	06 Sep 2016	07 Sep 2016	20 Sep 2016	09 Sep 2016	14 Sep 2016	12 Sep 2016
SS6	SE156824.006	LB109491	06 Sep 2016	07 Sep 2016	20 Sep 2016	09 Sep 2016	14 Sep 2016	12 Sep 2016
SS7	SE156824.007	LB109491	06 Sep 2016	07 Sep 2016	20 Sep 2016	09 Sep 2016	14 Sep 2016	12 Sep 2016
SS10	SE156824.008	LB109491	06 Sep 2016	07 Sep 2016	20 Sep 2016	09 Sep 2016	14 Sep 2016	12 Sep 2016
SS11	SE156824.009	LB109491	06 Sep 2016	07 Sep 2016	20 Sep 2016	09 Sep 2016	14 Sep 2016	12 Sep 2016
SS12	SE156824.010	LB109491	06 Sep 2016	07 Sep 2016	20 Sep 2016	09 Sep 2016	14 Sep 2016	12 Sep 2016
SS13	SE156824.011	LB109491	06 Sep 2016	07 Sep 2016	20 Sep 2016	09 Sep 2016	14 Sep 2016	12 Sep 2016
SS15	SE156824.012	LB109491	06 Sep 2016	07 Sep 2016	20 Sep 2016	09 Sep 2016	14 Sep 2016	12 Sep 2016
SS17	SE156824.013	LB109491	06 Sep 2016	07 Sep 2016	20 Sep 2016	09 Sep 2016	14 Sep 2016	12 Sep 2016
G1	SE156824.014	LB109491	06 Sep 2016	07 Sep 2016	20 Sep 2016	09 Sep 2016	14 Sep 2016	12 Sep 2016
G3	SE156824.015	LB109491	06 Sep 2016	07 Sep 2016	20 Sep 2016	09 Sep 2016	14 Sep 2016	12 Sep 2016
G4	SE156824.016	LB109491	06 Sep 2016	07 Sep 2016	20 Sep 2016	09 Sep 2016	14 Sep 2016	12 Sep 2016
G5	SE156824.017	LB109491	06 Sep 2016	07 Sep 2016	20 Sep 2016	09 Sep 2016	14 Sep 2016	12 Sep 2016
G6	SE156824.018	LB109491	06 Sep 2016	07 Sep 2016	20 Sep 2016	09 Sep 2016	14 Sep 2016	12 Sep 2016
TR8	SE156824.021	LB109491	06 Sep 2016	07 Sep 2016	20 Sep 2016	09 Sep 2016	14 Sep 2016	12 Sep 2016
TP42	SE156824.022	LB109491	06 Sep 2016	07 Sep 2016	20 Sep 2016	09 Sep 2016	14 Sep 2016	12 Sep 2016
TP35 0.9-1.0	SE156824.023	LB109491	06 Sep 2016	07 Sep 2016	20 Sep 2016	09 Sep 2016	14 Sep 2016	12 Sep 2016
TP48 0.1-0.2	SE156824.024	LB109491	06 Sep 2016	07 Sep 2016	20 Sep 2016	09 Sep 2016	14 Sep 2016	12 Sep 2016
TP43	SE156824.029	LB109491	06 Sep 2016	07 Sep 2016	20 Sep 2016	09 Sep 2016	14 Sep 2016	12 Sep 2016
TP52 0.1-0.2	SE156824.030	LB109491	06 Sep 2016	07 Sep 2016	20 Sep 2016	09 Sep 2016	14 Sep 2016	12 Sep 2016
TR11 -0.15	SE156824.032	LB109491	06 Sep 2016	07 Sep 2016	20 Sep 2016	09 Sep 2016	14 Sep 2016	12 Sep 2016
TP44	SE156824.034	LB109491	06 Sep 2016	07 Sep 2016	20 Sep 2016	09 Sep 2016	14 Sep 2016	12 Sep 2016
TP61	SE156824.035	LB109491	06 Sep 2016	07 Sep 2016	20 Sep 2016	09 Sep 2016	14 Sep 2016	12 Sep 2016
SS14	SE156824.037	LB109491	06 Sep 2016	07 Sep 2016	20 Sep 2016	09 Sep 2016	14 Sep 2016	12 Sep 2016
SS18	SE156824.038	LB109491	06 Sep 2016	07 Sep 2016	20 Sep 2016	09 Sep 2016	14 Sep 2016	12 Sep 2016
TP35_0-0.1	SE156824.039	LB109491	06 Sep 2016	07 Sep 2016	20 Sep 2016	09 Sep 2016	14 Sep 2016	12 Sep 2016

OC Pesticides in Soil

Method: ME-(AU)-[ENV]AN400/AN420

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
SS1	SE156824.001	LB109467	06 Sep 2016	07 Sep 2016	20 Sep 2016	08 Sep 2016	18 Oct 2016	14 Sep 2016
SS2	SE156824.002	LB109467	06 Sep 2016	07 Sep 2016	20 Sep 2016	08 Sep 2016	18 Oct 2016	14 Sep 2016
SS4	SE156824.003	LB109467	06 Sep 2016	07 Sep 2016	20 Sep 2016	08 Sep 2016	18 Oct 2016	14 Sep 2016
SS3	SE156824.004	LB109467	06 Sep 2016	07 Sep 2016	20 Sep 2016	08 Sep 2016	18 Oct 2016	14 Sep 2016
SS5	SE156824.005	LB109467	06 Sep 2016	07 Sep 2016	20 Sep 2016	08 Sep 2016	18 Oct 2016	14 Sep 2016
SS6	SE156824.006	LB109467	06 Sep 2016	07 Sep 2016	20 Sep 2016	08 Sep 2016	18 Oct 2016	14 Sep 2016
SS7	SE156824.007	LB109467	06 Sep 2016	07 Sep 2016	20 Sep 2016	08 Sep 2016	18 Oct 2016	14 Sep 2016
SS10	SE156824.008	LB109467	06 Sep 2016	07 Sep 2016	20 Sep 2016	08 Sep 2016	18 Oct 2016	14 Sep 2016
SS11	SE156824.009	LB109467	06 Sep 2016	07 Sep 2016	20 Sep 2016	08 Sep 2016	18 Oct 2016	14 Sep 2016
SS12	SE156824.010	LB109467	06 Sep 2016	07 Sep 2016	20 Sep 2016	08 Sep 2016	18 Oct 2016	14 Sep 2016
SS13	SE156824.011	LB109467	06 Sep 2016	07 Sep 2016	20 Sep 2016	08 Sep 2016	18 Oct 2016	14 Sep 2016
SS15	SE156824.012	LB109467	06 Sep 2016	07 Sep 2016	20 Sep 2016	08 Sep 2016	18 Oct 2016	14 Sep 2016
SS17	SE156824.013	LB109467	06 Sep 2016	07 Sep 2016	20 Sep 2016	08 Sep 2016	18 Oct 2016	14 Sep 2016
G1	SE156824.014	LB109467	06 Sep 2016	07 Sep 2016	20 Sep 2016	08 Sep 2016	18 Oct 2016	14 Sep 2016
G3	SE156824.015	LB109467	06 Sep 2016	07 Sep 2016	20 Sep 2016	08 Sep 2016	18 Oct 2016	14 Sep 2016
G4	SE156824.016	LB109467	06 Sep 2016	07 Sep 2016	20 Sep 2016	08 Sep 2016	18 Oct 2016	14 Sep 2016
G5	SE156824.017	LB109467	06 Sep 2016	07 Sep 2016	20 Sep 2016	08 Sep 2016	18 Oct 2016	14 Sep 2016
G6	SE156824.018	LB109467	06 Sep 2016	07 Sep 2016	20 Sep 2016	08 Sep 2016	18 Oct 2016	14 Sep 2016
TR8	SE156824.021	LB109467	06 Sep 2016	07 Sep 2016	20 Sep 2016	08 Sep 2016	18 Oct 2016	14 Sep 2016
TP42	SE156824.022	LB109467	06 Sep 2016	07 Sep 2016	20 Sep 2016	08 Sep 2016	18 Oct 2016	14 Sep 2016
TP35 0.9-1.0	SE156824.023	LB109468	06 Sep 2016	07 Sep 2016	20 Sep 2016	08 Sep 2016	18 Oct 2016	14 Sep 2016
TP48 0.1-0.2	SE156824.024	LB109468	06 Sep 2016	07 Sep 2016	20 Sep 2016	08 Sep 2016	18 Oct 2016	14 Sep 2016

SGS holding time criteria are drawn from current regulations and are highly dependent on sample container preservation as specified in the SGS "Field Sampling Guide for Containers and Holding Time" (ref: GU-(AU)-ENV.001). Soil samples guidelines are derived from NEPM "Schedule B(3) Guideline on Laboratory Analysis of Potentially Contaminated Soils". Water sample guidelines are derived from "AS/NZS 5667.1 : 1998 Water Quality - sampling part 1" and APHA "Standard Methods for the Examination of Water and Wastewater" 21st edition 2005.

Extraction and analysis holding time due dates listed are calculated from the date sampled, although holding times may be extended after laboratory extraction for some analytes. The due dates are the suggested dates that samples may be held before extraction or analysis and still be considered valid.

Extraction and analysis dates are shown in **Green** when within suggested criteria or **Red** with an appended dagger symbol (†) when outside suggested criteria. If the sampled date is not supplied then compliance with criteria cannot be determined. If the received date is after one or both due dates then holding time will fail by default.

OC Pesticides in Soil (continued)

Method: ME-(AU)-[ENV]AN400/AN420

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
TP43	SE156824.029	LB109468	06 Sep 2016	07 Sep 2016	20 Sep 2016	08 Sep 2016	18 Oct 2016	14 Sep 2016
TP52 0.1-0.2	SE156824.030	LB109468	06 Sep 2016	07 Sep 2016	20 Sep 2016	08 Sep 2016	18 Oct 2016	14 Sep 2016
TR11 -0.15	SE156824.032	LB109468	06 Sep 2016	07 Sep 2016	20 Sep 2016	08 Sep 2016	18 Oct 2016	14 Sep 2016
TP44	SE156824.034	LB109468	06 Sep 2016	07 Sep 2016	20 Sep 2016	08 Sep 2016	18 Oct 2016	14 Sep 2016
TP61	SE156824.035	LB109468	06 Sep 2016	07 Sep 2016	20 Sep 2016	08 Sep 2016	18 Oct 2016	14 Sep 2016
SS14	SE156824.037	LB109468	06 Sep 2016	07 Sep 2016	20 Sep 2016	08 Sep 2016	18 Oct 2016	14 Sep 2016
SS18	SE156824.038	LB109468	06 Sep 2016	07 Sep 2016	20 Sep 2016	08 Sep 2016	18 Oct 2016	14 Sep 2016
TP35_0-0.1	SE156824.039	LB109468	06 Sep 2016	07 Sep 2016	20 Sep 2016	08 Sep 2016	18 Oct 2016	14 Sep 2016

OP Pesticides in Soil

Method: ME-(AU)-[ENV]AN400/AN420

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
SS1	SE156824.001	LB109467	06 Sep 2016	07 Sep 2016	20 Sep 2016	08 Sep 2016	18 Oct 2016	12 Sep 2016
SS2	SE156824.002	LB109467	06 Sep 2016	07 Sep 2016	20 Sep 2016	08 Sep 2016	18 Oct 2016	12 Sep 2016
SS4	SE156824.003	LB109467	06 Sep 2016	07 Sep 2016	20 Sep 2016	08 Sep 2016	18 Oct 2016	12 Sep 2016
SS3	SE156824.004	LB109467	06 Sep 2016	07 Sep 2016	20 Sep 2016	08 Sep 2016	18 Oct 2016	12 Sep 2016
SS5	SE156824.005	LB109467	06 Sep 2016	07 Sep 2016	20 Sep 2016	08 Sep 2016	18 Oct 2016	12 Sep 2016
SS6	SE156824.006	LB109467	06 Sep 2016	07 Sep 2016	20 Sep 2016	08 Sep 2016	18 Oct 2016	12 Sep 2016
SS7	SE156824.007	LB109467	06 Sep 2016	07 Sep 2016	20 Sep 2016	08 Sep 2016	18 Oct 2016	12 Sep 2016
SS10	SE156824.008	LB109467	06 Sep 2016	07 Sep 2016	20 Sep 2016	08 Sep 2016	18 Oct 2016	12 Sep 2016
SS11	SE156824.009	LB109467	06 Sep 2016	07 Sep 2016	20 Sep 2016	08 Sep 2016	18 Oct 2016	12 Sep 2016
SS12	SE156824.010	LB109467	06 Sep 2016	07 Sep 2016	20 Sep 2016	08 Sep 2016	18 Oct 2016	12 Sep 2016
SS13	SE156824.011	LB109467	06 Sep 2016	07 Sep 2016	20 Sep 2016	08 Sep 2016	18 Oct 2016	12 Sep 2016
SS15	SE156824.012	LB109467	06 Sep 2016	07 Sep 2016	20 Sep 2016	08 Sep 2016	18 Oct 2016	12 Sep 2016
SS17	SE156824.013	LB109467	06 Sep 2016	07 Sep 2016	20 Sep 2016	08 Sep 2016	18 Oct 2016	12 Sep 2016
G1	SE156824.014	LB109467	06 Sep 2016	07 Sep 2016	20 Sep 2016	08 Sep 2016	18 Oct 2016	12 Sep 2016
G3	SE156824.015	LB109467	06 Sep 2016	07 Sep 2016	20 Sep 2016	08 Sep 2016	18 Oct 2016	12 Sep 2016
G4	SE156824.016	LB109467	06 Sep 2016	07 Sep 2016	20 Sep 2016	08 Sep 2016	18 Oct 2016	12 Sep 2016
G5	SE156824.017	LB109467	06 Sep 2016	07 Sep 2016	20 Sep 2016	08 Sep 2016	18 Oct 2016	12 Sep 2016
G6	SE156824.018	LB109467	06 Sep 2016	07 Sep 2016	20 Sep 2016	08 Sep 2016	18 Oct 2016	12 Sep 2016
TR8	SE156824.021	LB109467	06 Sep 2016	07 Sep 2016	20 Sep 2016	08 Sep 2016	18 Oct 2016	12 Sep 2016
TP42	SE156824.022	LB109467	06 Sep 2016	07 Sep 2016	20 Sep 2016	08 Sep 2016	18 Oct 2016	12 Sep 2016
TP35 0.9-1.0	SE156824.023	LB109468	06 Sep 2016	07 Sep 2016	20 Sep 2016	08 Sep 2016	18 Oct 2016	14 Sep 2016
TP48 0.1-0.2	SE156824.024	LB109468	06 Sep 2016	07 Sep 2016	20 Sep 2016	08 Sep 2016	18 Oct 2016	14 Sep 2016
TP43	SE156824.029	LB109468	06 Sep 2016	07 Sep 2016	20 Sep 2016	08 Sep 2016	18 Oct 2016	14 Sep 2016
TP52 0.1-0.2	SE156824.030	LB109468	06 Sep 2016	07 Sep 2016	20 Sep 2016	08 Sep 2016	18 Oct 2016	14 Sep 2016
TR11 -0.15	SE156824.032	LB109468	06 Sep 2016	07 Sep 2016	20 Sep 2016	08 Sep 2016	18 Oct 2016	14 Sep 2016
TP44	SE156824.034	LB109468	06 Sep 2016	07 Sep 2016	20 Sep 2016	08 Sep 2016	18 Oct 2016	14 Sep 2016
TP61	SE156824.035	LB109468	06 Sep 2016	07 Sep 2016	20 Sep 2016	08 Sep 2016	18 Oct 2016	14 Sep 2016
SS14	SE156824.037	LB109468	06 Sep 2016	07 Sep 2016	20 Sep 2016	08 Sep 2016	18 Oct 2016	14 Sep 2016
SS18	SE156824.038	LB109468	06 Sep 2016	07 Sep 2016	20 Sep 2016	08 Sep 2016	18 Oct 2016	14 Sep 2016
TP35_0-0.1	SE156824.039	LB109468	06 Sep 2016	07 Sep 2016	20 Sep 2016	08 Sep 2016	18 Oct 2016	14 Sep 2016

PAH (Polynuclear Aromatic Hydrocarbons) in Soil

Method: ME-(AU)-[ENV]AN420

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
SS1	SE156824.001	LB109467	06 Sep 2016	07 Sep 2016	20 Sep 2016	08 Sep 2016	18 Oct 2016	12 Sep 2016
SS2	SE156824.002	LB109467	06 Sep 2016	07 Sep 2016	20 Sep 2016	08 Sep 2016	18 Oct 2016	12 Sep 2016
SS4	SE156824.003	LB109467	06 Sep 2016	07 Sep 2016	20 Sep 2016	08 Sep 2016	18 Oct 2016	12 Sep 2016
SS3	SE156824.004	LB109467	06 Sep 2016	07 Sep 2016	20 Sep 2016	08 Sep 2016	18 Oct 2016	12 Sep 2016
SS5	SE156824.005	LB109467	06 Sep 2016	07 Sep 2016	20 Sep 2016	08 Sep 2016	18 Oct 2016	12 Sep 2016
SS6	SE156824.006	LB109467	06 Sep 2016	07 Sep 2016	20 Sep 2016	08 Sep 2016	18 Oct 2016	12 Sep 2016
SS7	SE156824.007	LB109467	06 Sep 2016	07 Sep 2016	20 Sep 2016	08 Sep 2016	18 Oct 2016	12 Sep 2016
SS10	SE156824.008	LB109467	06 Sep 2016	07 Sep 2016	20 Sep 2016	08 Sep 2016	18 Oct 2016	12 Sep 2016
SS11	SE156824.009	LB109467	06 Sep 2016	07 Sep 2016	20 Sep 2016	08 Sep 2016	18 Oct 2016	12 Sep 2016
SS12	SE156824.010	LB109467	06 Sep 2016	07 Sep 2016	20 Sep 2016	08 Sep 2016	18 Oct 2016	12 Sep 2016
SS13	SE156824.011	LB109467	06 Sep 2016	07 Sep 2016	20 Sep 2016	08 Sep 2016	18 Oct 2016	12 Sep 2016
SS15	SE156824.012	LB109467	06 Sep 2016	07 Sep 2016	20 Sep 2016	08 Sep 2016	18 Oct 2016	12 Sep 2016
SS17	SE156824.013	LB109467	06 Sep 2016	07 Sep 2016	20 Sep 2016	08 Sep 2016	18 Oct 2016	12 Sep 2016
G1	SE156824.014	LB109467	06 Sep 2016	07 Sep 2016	20 Sep 2016	08 Sep 2016	18 Oct 2016	12 Sep 2016
G3	SE156824.015	LB109467	06 Sep 2016	07 Sep 2016	20 Sep 2016	08 Sep 2016	18 Oct 2016	12 Sep 2016
G4	SE156824.016	LB109467	06 Sep 2016	07 Sep 2016	20 Sep 2016	08 Sep 2016	18 Oct 2016	12 Sep 2016
G5	SE156824.017	LB109467	06 Sep 2016	07 Sep 2016	20 Sep 2016	08 Sep 2016	18 Oct 2016	12 Sep 2016

SGS holding time criteria are drawn from current regulations and are highly dependent on sample container preservation as specified in the SGS "Field Sampling Guide for Containers and Holding Time" (ref: GU-(AU)-ENV.001). Soil samples guidelines are derived from NEPM "Schedule B(3) Guideline on Laboratory Analysis of Potentially Contaminated Soils". Water sample guidelines are derived from "AS/NZS 5667.1 : 1998 Water Quality - sampling part 1" and APHA "Standard Methods for the Examination of Water and Wastewater" 21st edition 2005.

Extraction and analysis holding time due dates listed are calculated from the date sampled, although holding times may be extended after laboratory extraction for some analytes. The due dates are the suggested dates that samples may be held before extraction or analysis and still be considered valid.

Extraction and analysis dates are shown in **Green** when within suggested criteria or **Red** with an appended dagger symbol (†) when outside suggested criteria. If the sampled date is not supplied then compliance with criteria cannot be determined. If the received date is after one or both due dates then holding time will fail by default.

PAH (Polynuclear Aromatic Hydrocarbons) in Soil (continued)

Method: ME-(AU)-[ENV]AN420

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
G6	SE156824.018	LB109467	06 Sep 2016	07 Sep 2016	20 Sep 2016	08 Sep 2016	18 Oct 2016	12 Sep 2016
TR8	SE156824.021	LB109467	06 Sep 2016	07 Sep 2016	20 Sep 2016	08 Sep 2016	18 Oct 2016	12 Sep 2016
TP42	SE156824.022	LB109467	06 Sep 2016	07 Sep 2016	20 Sep 2016	08 Sep 2016	18 Oct 2016	12 Sep 2016
TP35 0.9-1.0	SE156824.023	LB109468	06 Sep 2016	07 Sep 2016	20 Sep 2016	08 Sep 2016	18 Oct 2016	14 Sep 2016
TP48 0.1-0.2	SE156824.024	LB109468	06 Sep 2016	07 Sep 2016	20 Sep 2016	08 Sep 2016	18 Oct 2016	14 Sep 2016
TP43	SE156824.029	LB109468	06 Sep 2016	07 Sep 2016	20 Sep 2016	08 Sep 2016	18 Oct 2016	14 Sep 2016
TP52 0.1-0.2	SE156824.030	LB109468	06 Sep 2016	07 Sep 2016	20 Sep 2016	08 Sep 2016	18 Oct 2016	14 Sep 2016
TR11 -0.15	SE156824.032	LB109468	06 Sep 2016	07 Sep 2016	20 Sep 2016	08 Sep 2016	18 Oct 2016	14 Sep 2016
TP44	SE156824.034	LB109468	06 Sep 2016	07 Sep 2016	20 Sep 2016	08 Sep 2016	18 Oct 2016	14 Sep 2016
TP61	SE156824.035	LB109468	06 Sep 2016	07 Sep 2016	20 Sep 2016	08 Sep 2016	18 Oct 2016	14 Sep 2016
SS14	SE156824.037	LB109468	06 Sep 2016	07 Sep 2016	20 Sep 2016	08 Sep 2016	18 Oct 2016	14 Sep 2016
SS18	SE156824.038	LB109468	06 Sep 2016	07 Sep 2016	20 Sep 2016	08 Sep 2016	18 Oct 2016	14 Sep 2016
TP35_0-0.1	SE156824.039	LB109468	06 Sep 2016	07 Sep 2016	20 Sep 2016	08 Sep 2016	18 Oct 2016	14 Sep 2016

Total Phenolics in Soil

Method: ME-(AU)-[ENV]AN289

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
SS1	SE156824.001	LB109627	06 Sep 2016	07 Sep 2016	20 Sep 2016	12 Sep 2016	20 Sep 2016	13 Sep 2016
SS2	SE156824.002	LB109627	06 Sep 2016	07 Sep 2016	20 Sep 2016	12 Sep 2016	20 Sep 2016	13 Sep 2016
SS4	SE156824.003	LB109627	06 Sep 2016	07 Sep 2016	20 Sep 2016	12 Sep 2016	20 Sep 2016	13 Sep 2016
SS3	SE156824.004	LB109627	06 Sep 2016	07 Sep 2016	20 Sep 2016	12 Sep 2016	20 Sep 2016	13 Sep 2016
SS5	SE156824.005	LB109627	06 Sep 2016	07 Sep 2016	20 Sep 2016	12 Sep 2016	20 Sep 2016	13 Sep 2016
SS6	SE156824.006	LB109627	06 Sep 2016	07 Sep 2016	20 Sep 2016	12 Sep 2016	20 Sep 2016	13 Sep 2016
SS7	SE156824.007	LB109627	06 Sep 2016	07 Sep 2016	20 Sep 2016	12 Sep 2016	20 Sep 2016	13 Sep 2016
SS10	SE156824.008	LB109627	06 Sep 2016	07 Sep 2016	20 Sep 2016	12 Sep 2016	20 Sep 2016	13 Sep 2016
SS11	SE156824.009	LB109627	06 Sep 2016	07 Sep 2016	20 Sep 2016	12 Sep 2016	20 Sep 2016	13 Sep 2016
SS12	SE156824.010	LB109627	06 Sep 2016	07 Sep 2016	20 Sep 2016	12 Sep 2016	20 Sep 2016	13 Sep 2016
SS13	SE156824.011	LB109627	06 Sep 2016	07 Sep 2016	20 Sep 2016	12 Sep 2016	20 Sep 2016	13 Sep 2016
SS15	SE156824.012	LB109627	06 Sep 2016	07 Sep 2016	20 Sep 2016	12 Sep 2016	20 Sep 2016	13 Sep 2016
SS17	SE156824.013	LB109627	06 Sep 2016	07 Sep 2016	20 Sep 2016	12 Sep 2016	20 Sep 2016	13 Sep 2016
G1	SE156824.014	LB109627	06 Sep 2016	07 Sep 2016	20 Sep 2016	12 Sep 2016	20 Sep 2016	13 Sep 2016
G3	SE156824.015	LB109627	06 Sep 2016	07 Sep 2016	20 Sep 2016	12 Sep 2016	20 Sep 2016	13 Sep 2016
G4	SE156824.016	LB109627	06 Sep 2016	07 Sep 2016	20 Sep 2016	12 Sep 2016	20 Sep 2016	13 Sep 2016
G5	SE156824.017	LB109633	06 Sep 2016	07 Sep 2016	20 Sep 2016	12 Sep 2016	20 Sep 2016	13 Sep 2016
G6	SE156824.018	LB109633	06 Sep 2016	07 Sep 2016	20 Sep 2016	12 Sep 2016	20 Sep 2016	13 Sep 2016
TR8	SE156824.021	LB109633	06 Sep 2016	07 Sep 2016	20 Sep 2016	12 Sep 2016	20 Sep 2016	13 Sep 2016
TP42	SE156824.022	LB109633	06 Sep 2016	07 Sep 2016	20 Sep 2016	12 Sep 2016	20 Sep 2016	13 Sep 2016
TP35 0.9-1.0	SE156824.023	LB109633	06 Sep 2016	07 Sep 2016	20 Sep 2016	12 Sep 2016	20 Sep 2016	13 Sep 2016
TP48 0.1-0.2	SE156824.024	LB109633	06 Sep 2016	07 Sep 2016	20 Sep 2016	12 Sep 2016	20 Sep 2016	13 Sep 2016
TP43	SE156824.029	LB109633	06 Sep 2016	07 Sep 2016	20 Sep 2016	12 Sep 2016	20 Sep 2016	13 Sep 2016
TP52 0.1-0.2	SE156824.030	LB109633	06 Sep 2016	07 Sep 2016	20 Sep 2016	12 Sep 2016	20 Sep 2016	13 Sep 2016
TR11 -0.15	SE156824.032	LB109633	06 Sep 2016	07 Sep 2016	20 Sep 2016	12 Sep 2016	20 Sep 2016	13 Sep 2016
TP44	SE156824.034	LB109633	06 Sep 2016	07 Sep 2016	20 Sep 2016	12 Sep 2016	20 Sep 2016	13 Sep 2016
TP61	SE156824.035	LB109633	06 Sep 2016	07 Sep 2016	20 Sep 2016	12 Sep 2016	20 Sep 2016	13 Sep 2016
SS14	SE156824.037	LB109633	06 Sep 2016	07 Sep 2016	20 Sep 2016	12 Sep 2016	20 Sep 2016	13 Sep 2016
SS18	SE156824.038	LB109633	06 Sep 2016	07 Sep 2016	20 Sep 2016	12 Sep 2016	20 Sep 2016	13 Sep 2016
TP35_0-0.1	SE156824.039	LB109633	06 Sep 2016	07 Sep 2016	20 Sep 2016	12 Sep 2016	20 Sep 2016	13 Sep 2016

Total Recoverable Metals in Soil/Waste Solids/Materials by ICPOES

Method: ME-(AU)-[ENV]AN040/AN320

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
SS1	SE156824.001	LB109694	06 Sep 2016	07 Sep 2016	05 Mar 2017	13 Sep 2016	05 Mar 2017	14 Sep 2016
SS2	SE156824.002	LB109694	06 Sep 2016	07 Sep 2016	05 Mar 2017	13 Sep 2016	05 Mar 2017	14 Sep 2016
SS4	SE156824.003	LB109694	06 Sep 2016	07 Sep 2016	05 Mar 2017	13 Sep 2016	05 Mar 2017	14 Sep 2016
SS3	SE156824.004	LB109694	06 Sep 2016	07 Sep 2016	05 Mar 2017	13 Sep 2016	05 Mar 2017	14 Sep 2016
SS5	SE156824.005	LB109694	06 Sep 2016	07 Sep 2016	05 Mar 2017	13 Sep 2016	05 Mar 2017	14 Sep 2016
SS6	SE156824.006	LB109694	06 Sep 2016	07 Sep 2016	05 Mar 2017	13 Sep 2016	05 Mar 2017	14 Sep 2016
SS7	SE156824.007	LB109694	06 Sep 2016	07 Sep 2016	05 Mar 2017	13 Sep 2016	05 Mar 2017	14 Sep 2016
SS10	SE156824.008	LB109694	06 Sep 2016	07 Sep 2016	05 Mar 2017	13 Sep 2016	05 Mar 2017	14 Sep 2016
SS11	SE156824.009	LB109694	06 Sep 2016	07 Sep 2016	05 Mar 2017	13 Sep 2016	05 Mar 2017	14 Sep 2016
SS12	SE156824.010	LB109694	06 Sep 2016	07 Sep 2016	05 Mar 2017	13 Sep 2016	05 Mar 2017	14 Sep 2016
SS13	SE156824.011	LB109694	06 Sep 2016	07 Sep 2016	05 Mar 2017	13 Sep 2016	05 Mar 2017	14 Sep 2016
SS15	SE156824.012	LB109694	06 Sep 2016	07 Sep 2016	05 Mar 2017	13 Sep 2016	05 Mar 2017	14 Sep 2016

SGS holding time criteria are drawn from current regulations and are highly dependent on sample container preservation as specified in the SGS "Field Sampling Guide for Containers and Holding Time" (ref: GU-(AU)-ENV.001). Soil samples guidelines are derived from NEPM "Schedule B(3) Guideline on Laboratory Analysis of Potentially Contaminated Soils". Water sample guidelines are derived from "AS/NZS 5667.1 : 1998 Water Quality - sampling part 1" and APHA "Standard Methods for the Examination of Water and Wastewater" 21st edition 2005.

Extraction and analysis holding time due dates listed are calculated from the date sampled, although holding times may be extended after laboratory extraction for some analytes. The due dates are the suggested dates that samples may be held before extraction or analysis and still be considered valid.

Extraction and analysis dates are shown in **Green** when within suggested criteria or **Red** with an appended dagger symbol (†) when outside suggested criteria. If the sampled date is not supplied then compliance with criteria cannot be determined. If the received date is after one or both due dates then holding time will fail by default.

Total Recoverable Metals in Soil/Waste Solids/Materials by ICPOES (continued)

Method: ME-(AU)-[ENV]AN040/AN320

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
SS17	SE156824.013	LB109694	06 Sep 2016	07 Sep 2016	05 Mar 2017	13 Sep 2016	05 Mar 2017	14 Sep 2016
G1	SE156824.014	LB109695	06 Sep 2016	07 Sep 2016	05 Mar 2017	13 Sep 2016	05 Mar 2017	14 Sep 2016
G3	SE156824.015	LB109695	06 Sep 2016	07 Sep 2016	05 Mar 2017	13 Sep 2016	05 Mar 2017	14 Sep 2016
G4	SE156824.016	LB109695	06 Sep 2016	07 Sep 2016	05 Mar 2017	13 Sep 2016	05 Mar 2017	14 Sep 2016
G5	SE156824.017	LB109695	06 Sep 2016	07 Sep 2016	05 Mar 2017	13 Sep 2016	05 Mar 2017	14 Sep 2016
G6	SE156824.018	LB109695	06 Sep 2016	07 Sep 2016	05 Mar 2017	13 Sep 2016	05 Mar 2017	14 Sep 2016
TR8	SE156824.021	LB109695	06 Sep 2016	07 Sep 2016	05 Mar 2017	13 Sep 2016	05 Mar 2017	14 Sep 2016
TP42	SE156824.022	LB109695	06 Sep 2016	07 Sep 2016	05 Mar 2017	13 Sep 2016	05 Mar 2017	14 Sep 2016
TP35 0.9-1.0	SE156824.023	LB109695	06 Sep 2016	07 Sep 2016	05 Mar 2017	13 Sep 2016	05 Mar 2017	14 Sep 2016
TP48 0.1-0.2	SE156824.024	LB109695	06 Sep 2016	07 Sep 2016	05 Mar 2017	13 Sep 2016	05 Mar 2017	14 Sep 2016
TP43	SE156824.029	LB109695	06 Sep 2016	07 Sep 2016	05 Mar 2017	13 Sep 2016	05 Mar 2017	14 Sep 2016
TP52 0.1-0.2	SE156824.030	LB109695	06 Sep 2016	07 Sep 2016	05 Mar 2017	13 Sep 2016	05 Mar 2017	14 Sep 2016
TR11 -0.15	SE156824.032	LB109695	06 Sep 2016	07 Sep 2016	05 Mar 2017	13 Sep 2016	05 Mar 2017	14 Sep 2016
TP44	SE156824.034	LB109695	06 Sep 2016	07 Sep 2016	05 Mar 2017	13 Sep 2016	05 Mar 2017	14 Sep 2016
TP61	SE156824.035	LB109695	06 Sep 2016	07 Sep 2016	05 Mar 2017	13 Sep 2016	05 Mar 2017	14 Sep 2016
SS14	SE156824.037	LB109695	06 Sep 2016	07 Sep 2016	05 Mar 2017	13 Sep 2016	05 Mar 2017	14 Sep 2016
SS18	SE156824.038	LB109695	06 Sep 2016	07 Sep 2016	05 Mar 2017	13 Sep 2016	05 Mar 2017	14 Sep 2016
TP35_0-0.1	SE156824.039	LB109695	06 Sep 2016	07 Sep 2016	05 Mar 2017	13 Sep 2016	05 Mar 2017	14 Sep 2016

TRH (Total Recoverable Hydrocarbons) in Soil

Method: ME-(AU)-[ENV]AN403

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
SS1	SE156824.001	LB109467	06 Sep 2016	07 Sep 2016	20 Sep 2016	08 Sep 2016	18 Oct 2016	12 Sep 2016
SS2	SE156824.002	LB109467	06 Sep 2016	07 Sep 2016	20 Sep 2016	08 Sep 2016	18 Oct 2016	12 Sep 2016
SS4	SE156824.003	LB109467	06 Sep 2016	07 Sep 2016	20 Sep 2016	08 Sep 2016	18 Oct 2016	12 Sep 2016
SS3	SE156824.004	LB109467	06 Sep 2016	07 Sep 2016	20 Sep 2016	08 Sep 2016	18 Oct 2016	12 Sep 2016
SS5	SE156824.005	LB109467	06 Sep 2016	07 Sep 2016	20 Sep 2016	08 Sep 2016	18 Oct 2016	12 Sep 2016
SS6	SE156824.006	LB109467	06 Sep 2016	07 Sep 2016	20 Sep 2016	08 Sep 2016	18 Oct 2016	12 Sep 2016
SS7	SE156824.007	LB109467	06 Sep 2016	07 Sep 2016	20 Sep 2016	08 Sep 2016	18 Oct 2016	12 Sep 2016
SS10	SE156824.008	LB109467	06 Sep 2016	07 Sep 2016	20 Sep 2016	08 Sep 2016	18 Oct 2016	12 Sep 2016
SS11	SE156824.009	LB109467	06 Sep 2016	07 Sep 2016	20 Sep 2016	08 Sep 2016	18 Oct 2016	12 Sep 2016
SS12	SE156824.010	LB109467	06 Sep 2016	07 Sep 2016	20 Sep 2016	08 Sep 2016	18 Oct 2016	12 Sep 2016
SS13	SE156824.011	LB109467	06 Sep 2016	07 Sep 2016	20 Sep 2016	08 Sep 2016	18 Oct 2016	12 Sep 2016
SS15	SE156824.012	LB109467	06 Sep 2016	07 Sep 2016	20 Sep 2016	08 Sep 2016	18 Oct 2016	12 Sep 2016
SS17	SE156824.013	LB109467	06 Sep 2016	07 Sep 2016	20 Sep 2016	08 Sep 2016	18 Oct 2016	12 Sep 2016
G1	SE156824.014	LB109467	06 Sep 2016	07 Sep 2016	20 Sep 2016	08 Sep 2016	18 Oct 2016	12 Sep 2016
G3	SE156824.015	LB109467	06 Sep 2016	07 Sep 2016	20 Sep 2016	08 Sep 2016	18 Oct 2016	12 Sep 2016
G4	SE156824.016	LB109467	06 Sep 2016	07 Sep 2016	20 Sep 2016	08 Sep 2016	18 Oct 2016	12 Sep 2016
G5	SE156824.017	LB109467	06 Sep 2016	07 Sep 2016	20 Sep 2016	08 Sep 2016	18 Oct 2016	12 Sep 2016
G6	SE156824.018	LB109467	06 Sep 2016	07 Sep 2016	20 Sep 2016	08 Sep 2016	18 Oct 2016	12 Sep 2016
TR8	SE156824.021	LB109467	06 Sep 2016	07 Sep 2016	20 Sep 2016	08 Sep 2016	18 Oct 2016	12 Sep 2016
TP42	SE156824.022	LB109467	06 Sep 2016	07 Sep 2016	20 Sep 2016	08 Sep 2016	18 Oct 2016	12 Sep 2016
TP35 0.9-1.0	SE156824.023	LB109468	06 Sep 2016	07 Sep 2016	20 Sep 2016	08 Sep 2016	18 Oct 2016	13 Sep 2016
TP48 0.1-0.2	SE156824.024	LB109468	06 Sep 2016	07 Sep 2016	20 Sep 2016	08 Sep 2016	18 Oct 2016	13 Sep 2016
TP43	SE156824.029	LB109468	06 Sep 2016	07 Sep 2016	20 Sep 2016	08 Sep 2016	18 Oct 2016	13 Sep 2016
TP52 0.1-0.2	SE156824.030	LB109468	06 Sep 2016	07 Sep 2016	20 Sep 2016	08 Sep 2016	18 Oct 2016	13 Sep 2016
TR11 -0.15	SE156824.032	LB109468	06 Sep 2016	07 Sep 2016	20 Sep 2016	08 Sep 2016	18 Oct 2016	13 Sep 2016
TP44	SE156824.034	LB109468	06 Sep 2016	07 Sep 2016	20 Sep 2016	08 Sep 2016	18 Oct 2016	13 Sep 2016
TP61	SE156824.035	LB109468	06 Sep 2016	07 Sep 2016	20 Sep 2016	08 Sep 2016	18 Oct 2016	13 Sep 2016
SS14	SE156824.037	LB109468	06 Sep 2016	07 Sep 2016	20 Sep 2016	08 Sep 2016	18 Oct 2016	13 Sep 2016
SS18	SE156824.038	LB109468	06 Sep 2016	07 Sep 2016	20 Sep 2016	08 Sep 2016	18 Oct 2016	13 Sep 2016
TP35_0-0.1	SE156824.039	LB109468	06 Sep 2016	07 Sep 2016	20 Sep 2016	08 Sep 2016	18 Oct 2016	13 Sep 2016

VOC's in Soil

Method: ME-(AU)-[ENV]AN433

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
SS1	SE156824.001	LB109424	06 Sep 2016	07 Sep 2016	20 Sep 2016	08 Sep 2016	18 Oct 2016	12 Sep 2016
SS2	SE156824.002	LB109424	06 Sep 2016	07 Sep 2016	20 Sep 2016	08 Sep 2016	18 Oct 2016	12 Sep 2016
SS4	SE156824.003	LB109424	06 Sep 2016	07 Sep 2016	20 Sep 2016	08 Sep 2016	18 Oct 2016	12 Sep 2016
SS3	SE156824.004	LB109424	06 Sep 2016	07 Sep 2016	20 Sep 2016	08 Sep 2016	18 Oct 2016	12 Sep 2016
SS5	SE156824.005	LB109424	06 Sep 2016	07 Sep 2016	20 Sep 2016	08 Sep 2016	18 Oct 2016	12 Sep 2016
SS6	SE156824.006	LB109424	06 Sep 2016	07 Sep 2016	20 Sep 2016	08 Sep 2016	18 Oct 2016	12 Sep 2016
SS7	SE156824.007	LB109424	06 Sep 2016	07 Sep 2016	20 Sep 2016	08 Sep 2016	18 Oct 2016	12 Sep 2016

HOLDING TIME SUMMARY

SE156824 R0

SGS holding time criteria are drawn from current regulations and are highly dependent on sample container preservation as specified in the SGS “Field Sampling Guide for Containers and Holding Time” (ref: GU-(AU)-ENV.001). Soil samples guidelines are derived from NEPM "Schedule B(3) Guideline on Laboratory Analysis of Potentially Contaminated Soils". Water sample guidelines are derived from "AS/NZS 5667.1 : 1998 Water Quality - sampling part 1" and APHA "Standard Methods for the Examination of Water and Wastewater" 21st edition 2005.

Extraction and analysis holding time due dates listed are calculated from the date sampled, although holding times may be extended after laboratory extraction for some analytes. The due dates are the suggested dates that samples may be held before extraction or analysis and still be considered valid.

Extraction and analysis dates are shown in **Green** when within suggested criteria or **Red** with an appended dagger symbol (†) when outside suggested criteria. If the sampled date is not supplied then compliance with criteria cannot be determined. If the received date is after one or both due dates then holding time will fail by default.

VOC's in Soil (continued)

Method: ME-(AU)-[ENV]AN433

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
SS10	SE156824.008	LB109424	06 Sep 2016	07 Sep 2016	20 Sep 2016	08 Sep 2016	18 Oct 2016	12 Sep 2016
SS11	SE156824.009	LB109424	06 Sep 2016	07 Sep 2016	20 Sep 2016	08 Sep 2016	18 Oct 2016	12 Sep 2016
SS12	SE156824.010	LB109424	06 Sep 2016	07 Sep 2016	20 Sep 2016	08 Sep 2016	18 Oct 2016	12 Sep 2016
SS13	SE156824.011	LB109424	06 Sep 2016	07 Sep 2016	20 Sep 2016	08 Sep 2016	18 Oct 2016	12 Sep 2016
SS15	SE156824.012	LB109424	06 Sep 2016	07 Sep 2016	20 Sep 2016	08 Sep 2016	18 Oct 2016	12 Sep 2016
SS17	SE156824.013	LB109424	06 Sep 2016	07 Sep 2016	20 Sep 2016	08 Sep 2016	18 Oct 2016	12 Sep 2016
G1	SE156824.014	LB109424	06 Sep 2016	07 Sep 2016	20 Sep 2016	08 Sep 2016	18 Oct 2016	12 Sep 2016
G3	SE156824.015	LB109424	06 Sep 2016	07 Sep 2016	20 Sep 2016	08 Sep 2016	18 Oct 2016	12 Sep 2016
G4	SE156824.016	LB109424	06 Sep 2016	07 Sep 2016	20 Sep 2016	08 Sep 2016	18 Oct 2016	12 Sep 2016
G5	SE156824.017	LB109424	06 Sep 2016	07 Sep 2016	20 Sep 2016	08 Sep 2016	18 Oct 2016	12 Sep 2016
G6	SE156824.018	LB109424	06 Sep 2016	07 Sep 2016	20 Sep 2016	08 Sep 2016	18 Oct 2016	12 Sep 2016
TR8	SE156824.021	LB109424	06 Sep 2016	07 Sep 2016	20 Sep 2016	08 Sep 2016	18 Oct 2016	12 Sep 2016
TP42	SE156824.022	LB109424	06 Sep 2016	07 Sep 2016	20 Sep 2016	08 Sep 2016	18 Oct 2016	12 Sep 2016
TP35 0.9-1.0	SE156824.023	LB109425	06 Sep 2016	07 Sep 2016	20 Sep 2016	08 Sep 2016	18 Oct 2016	13 Sep 2016
TP48 0.1-0.2	SE156824.024	LB109425	06 Sep 2016	07 Sep 2016	20 Sep 2016	08 Sep 2016	18 Oct 2016	13 Sep 2016
TP43	SE156824.029	LB109425	06 Sep 2016	07 Sep 2016	20 Sep 2016	08 Sep 2016	18 Oct 2016	13 Sep 2016
TP52 0.1-0.2	SE156824.030	LB109425	06 Sep 2016	07 Sep 2016	20 Sep 2016	08 Sep 2016	18 Oct 2016	13 Sep 2016
TR11 -0.15	SE156824.032	LB109425	06 Sep 2016	07 Sep 2016	20 Sep 2016	08 Sep 2016	18 Oct 2016	13 Sep 2016
TP44	SE156824.034	LB109425	06 Sep 2016	07 Sep 2016	20 Sep 2016	08 Sep 2016	18 Oct 2016	13 Sep 2016
TP61	SE156824.035	LB109425	06 Sep 2016	07 Sep 2016	20 Sep 2016	08 Sep 2016	18 Oct 2016	13 Sep 2016
SS14	SE156824.037	LB109466	06 Sep 2016	07 Sep 2016	20 Sep 2016	08 Sep 2016	18 Oct 2016	13 Sep 2016
SS18	SE156824.038	LB109466	06 Sep 2016	07 Sep 2016	20 Sep 2016	08 Sep 2016	18 Oct 2016	13 Sep 2016
TP35_0-0.1	SE156824.039	LB109466	06 Sep 2016	07 Sep 2016	20 Sep 2016	08 Sep 2016	18 Oct 2016	13 Sep 2016

Volatile Petroleum Hydrocarbons in Soil

Method: ME-(AU)-[ENV]AN433

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
SS1	SE156824.001	LB109424	06 Sep 2016	07 Sep 2016	20 Sep 2016	08 Sep 2016	18 Oct 2016	12 Sep 2016
SS2	SE156824.002	LB109424	06 Sep 2016	07 Sep 2016	20 Sep 2016	08 Sep 2016	18 Oct 2016	12 Sep 2016
SS4	SE156824.003	LB109424	06 Sep 2016	07 Sep 2016	20 Sep 2016	08 Sep 2016	18 Oct 2016	12 Sep 2016
SS3	SE156824.004	LB109424	06 Sep 2016	07 Sep 2016	20 Sep 2016	08 Sep 2016	18 Oct 2016	12 Sep 2016
SS5	SE156824.005	LB109424	06 Sep 2016	07 Sep 2016	20 Sep 2016	08 Sep 2016	18 Oct 2016	12 Sep 2016
SS6	SE156824.006	LB109424	06 Sep 2016	07 Sep 2016	20 Sep 2016	08 Sep 2016	18 Oct 2016	12 Sep 2016
SS7	SE156824.007	LB109424	06 Sep 2016	07 Sep 2016	20 Sep 2016	08 Sep 2016	18 Oct 2016	12 Sep 2016
SS10	SE156824.008	LB109424	06 Sep 2016	07 Sep 2016	20 Sep 2016	08 Sep 2016	18 Oct 2016	12 Sep 2016
SS11	SE156824.009	LB109424	06 Sep 2016	07 Sep 2016	20 Sep 2016	08 Sep 2016	18 Oct 2016	12 Sep 2016
SS12	SE156824.010	LB109424	06 Sep 2016	07 Sep 2016	20 Sep 2016	08 Sep 2016	18 Oct 2016	12 Sep 2016
SS13	SE156824.011	LB109424	06 Sep 2016	07 Sep 2016	20 Sep 2016	08 Sep 2016	18 Oct 2016	12 Sep 2016
SS15	SE156824.012	LB109424	06 Sep 2016	07 Sep 2016	20 Sep 2016	08 Sep 2016	18 Oct 2016	12 Sep 2016
SS17	SE156824.013	LB109424	06 Sep 2016	07 Sep 2016	20 Sep 2016	08 Sep 2016	18 Oct 2016	12 Sep 2016
G1	SE156824.014	LB109424	06 Sep 2016	07 Sep 2016	20 Sep 2016	08 Sep 2016	18 Oct 2016	12 Sep 2016
G3	SE156824.015	LB109424	06 Sep 2016	07 Sep 2016	20 Sep 2016	08 Sep 2016	18 Oct 2016	12 Sep 2016
G4	SE156824.016	LB109424	06 Sep 2016	07 Sep 2016	20 Sep 2016	08 Sep 2016	18 Oct 2016	12 Sep 2016
G5	SE156824.017	LB109424	06 Sep 2016	07 Sep 2016	20 Sep 2016	08 Sep 2016	18 Oct 2016	12 Sep 2016
G6	SE156824.018	LB109424	06 Sep 2016	07 Sep 2016	20 Sep 2016	08 Sep 2016	18 Oct 2016	12 Sep 2016
TR8	SE156824.021	LB109424	06 Sep 2016	07 Sep 2016	20 Sep 2016	08 Sep 2016	18 Oct 2016	12 Sep 2016
TP42	SE156824.022	LB109424	06 Sep 2016	07 Sep 2016	20 Sep 2016	08 Sep 2016	18 Oct 2016	12 Sep 2016
TP35 0.9-1.0	SE156824.023	LB109425	06 Sep 2016	07 Sep 2016	20 Sep 2016	08 Sep 2016	18 Oct 2016	13 Sep 2016
TP48 0.1-0.2	SE156824.024	LB109425	06 Sep 2016	07 Sep 2016	20 Sep 2016	08 Sep 2016	18 Oct 2016	13 Sep 2016
TP43	SE156824.029	LB109425	06 Sep 2016	07 Sep 2016	20 Sep 2016	08 Sep 2016	18 Oct 2016	13 Sep 2016
TP52 0.1-0.2	SE156824.030	LB109425	06 Sep 2016	07 Sep 2016	20 Sep 2016	08 Sep 2016	18 Oct 2016	13 Sep 2016
TR11 -0.15	SE156824.032	LB109425	06 Sep 2016	07 Sep 2016	20 Sep 2016	08 Sep 2016	18 Oct 2016	13 Sep 2016
TP44	SE156824.034	LB109425	06 Sep 2016	07 Sep 2016	20 Sep 2016	08 Sep 2016	18 Oct 2016	13 Sep 2016
TP61	SE156824.035	LB109425	06 Sep 2016	07 Sep 2016	20 Sep 2016	08 Sep 2016	18 Oct 2016	13 Sep 2016
SS14	SE156824.037	LB109466	06 Sep 2016	07 Sep 2016	20 Sep 2016	08 Sep 2016	18 Oct 2016	13 Sep 2016
SS18	SE156824.038	LB109466	06 Sep 2016	07 Sep 2016	20 Sep 2016	08 Sep 2016	18 Oct 2016	13 Sep 2016
TP35_0-0.1	SE156824.039	LB109466	06 Sep 2016	07 Sep 2016	20 Sep 2016	08 Sep 2016	18 Oct 2016	13 Sep 2016

Surrogate results are evaluated against upper and lower limit criteria established in the SGS QA /QC plan (Ref: MP-(AU)-[ENV]QU-022). At least two of three routine level soil sample surrogate spike recoveries for BTEX/VOC are to be within 70-130% where control charts have not been developed and within the established control limits for charted surrogates. Matrix effects may void this as an acceptance criterion. Water sample surrogate spike recoveries are to be within 40-130%. The presence of emulsions, surfactants and particulates may void this as an acceptance criterion.

Result is shown in **Green** when within suggested criteria or **Red** with an appended reason identifer when outside suggested criteria. Refer to the footnotes section at the end of this report for failure reasons.

OC Pesticides in Soil

Method: ME-(AU)-[ENV]AN400/AN420

Parameter	Sample Name	Sample Number	Units	Criteria	Recovery %
Tetrachloro-m-xylene (TCMX) (Surrogate)	SS1	SE156824.001	%	60 - 130%	81
	SS2	SE156824.002	%	60 - 130%	80
	SS4	SE156824.003	%	60 - 130%	84
	SS3	SE156824.004	%	60 - 130%	83
	SS5	SE156824.005	%	60 - 130%	82
	SS6	SE156824.006	%	60 - 130%	86
	SS7	SE156824.007	%	60 - 130%	83
	SS10	SE156824.008	%	60 - 130%	80
	SS11	SE156824.009	%	60 - 130%	80
	SS12	SE156824.010	%	60 - 130%	80
	SS13	SE156824.011	%	60 - 130%	80
	SS15	SE156824.012	%	60 - 130%	87
	SS17	SE156824.013	%	60 - 130%	89
	G1	SE156824.014	%	60 - 130%	81
	G3	SE156824.015	%	60 - 130%	85
	G4	SE156824.016	%	60 - 130%	92
	G5	SE156824.017	%	60 - 130%	87
	G6	SE156824.018	%	60 - 130%	83
	TR8	SE156824.021	%	60 - 130%	87
	TP42	SE156824.022	%	60 - 130%	83
	TP35 0.9-1.0	SE156824.023	%	60 - 130%	83
	TP48 0.1-0.2	SE156824.024	%	60 - 130%	93
	TP43	SE156824.029	%	60 - 130%	86
	TP52 0.1-0.2	SE156824.030	%	60 - 130%	87
	TR11 -0.15	SE156824.032	%	60 - 130%	91
	TP44	SE156824.034	%	60 - 130%	83
	TP61	SE156824.035	%	60 - 130%	84
	SS14	SE156824.037	%	60 - 130%	90
	SS18	SE156824.038	%	60 - 130%	79
	TP35_0-0.1	SE156824.039	%	60 - 130%	87

OP Pesticides in Soil

Method: ME-(AU)-[ENV]AN400/AN420

Parameter	Sample Name	Sample Number	Units	Criteria	Recovery %
2-fluorobiphenyl (Surrogate)	SS1	SE156824.001	%	60 - 130%	80
	SS2	SE156824.002	%	60 - 130%	82
	SS4	SE156824.003	%	60 - 130%	76
	SS3	SE156824.004	%	60 - 130%	84
	SS5	SE156824.005	%	60 - 130%	80
	SS6	SE156824.006	%	60 - 130%	80
	SS7	SE156824.007	%	60 - 130%	80
	SS10	SE156824.008	%	60 - 130%	80
	SS11	SE156824.009	%	60 - 130%	84
	SS12	SE156824.010	%	60 - 130%	82
	SS13	SE156824.011	%	60 - 130%	78
	SS15	SE156824.012	%	60 - 130%	80
	SS17	SE156824.013	%	60 - 130%	80
	G1	SE156824.014	%	60 - 130%	82
	G3	SE156824.015	%	60 - 130%	82
	G4	SE156824.016	%	60 - 130%	84
	G5	SE156824.017	%	60 - 130%	86
	G6	SE156824.018	%	60 - 130%	78
	TR8	SE156824.021	%	60 - 130%	82
	TP42	SE156824.022	%	60 - 130%	80
	TP35 0.9-1.0	SE156824.023	%	60 - 130%	82
	TP48 0.1-0.2	SE156824.024	%	60 - 130%	78
	TP43	SE156824.029	%	60 - 130%	80
	TP52 0.1-0.2	SE156824.030	%	60 - 130%	78
	TR11 -0.15	SE156824.032	%	60 - 130%	80
	TP44	SE156824.034	%	60 - 130%	78
	TP61	SE156824.035	%	60 - 130%	74
	SS14	SE156824.037	%	60 - 130%	72

Surrogate results are evaluated against upper and lower limit criteria established in the SGS QA /QC plan (Ref: MP-(AU)-[ENV]QU-022). At least two of three routine level soil sample surrogate spike recoveries for BTEX/VOC are to be within 70-130% where control charts have not been developed and within the established control limits for charted surrogates. Matrix effects may void this as an acceptance criterion. Water sample surrogate spike recoveries are to be within 40-130%. The presence of emulsions, surfactants and particulates may void this as an acceptance criterion.

Result is shown in **Green** when within suggested criteria or **Red** with an appended reason identifer when outside suggested criteria. Refer to the footnotes section at the end of this report for failure reasons.

OP Pesticides in Soil (continued)

Method: ME-(AU)-[ENV]AN400/AN420

Parameter	Sample Name	Sample Number	Units	Criteria	Recovery %
2-fluorobiphenyl (Surrogate)	SS18	SE156824.038	%	60 - 130%	82
	TP35_0-0.1	SE156824.039	%	60 - 130%	82
d14-p-terphenyl (Surrogate)	SS1	SE156824.001	%	60 - 130%	92
	SS2	SE156824.002	%	60 - 130%	94
	SS4	SE156824.003	%	60 - 130%	88
	SS3	SE156824.004	%	60 - 130%	98
	SS5	SE156824.005	%	60 - 130%	94
	SS6	SE156824.006	%	60 - 130%	92
	SS7	SE156824.007	%	60 - 130%	92
	SS10	SE156824.008	%	60 - 130%	90
	SS11	SE156824.009	%	60 - 130%	98
	SS12	SE156824.010	%	60 - 130%	94
	SS13	SE156824.011	%	60 - 130%	96
	SS15	SE156824.012	%	60 - 130%	94
	SS17	SE156824.013	%	60 - 130%	92
	G1	SE156824.014	%	60 - 130%	96
	G3	SE156824.015	%	60 - 130%	92
	G4	SE156824.016	%	60 - 130%	100
	G5	SE156824.017	%	60 - 130%	100
	G6	SE156824.018	%	60 - 130%	92
	TR8	SE156824.021	%	60 - 130%	94
	TP42	SE156824.022	%	60 - 130%	92
	TP35 0.9-1.0	SE156824.023	%	60 - 130%	92
	TP48 0.1-0.2	SE156824.024	%	60 - 130%	92
	TP43	SE156824.029	%	60 - 130%	92
	TP52 0.1-0.2	SE156824.030	%	60 - 130%	88
	TR11 -0.15	SE156824.032	%	60 - 130%	94
	TP44	SE156824.034	%	60 - 130%	88
	TP61	SE156824.035	%	60 - 130%	82
	SS14	SE156824.037	%	60 - 130%	84
	SS18	SE156824.038	%	60 - 130%	94
	TP35_0-0.1	SE156824.039	%	60 - 130%	94

PAH (Polynuclear Aromatic Hydrocarbons) in Soil

Method: ME-(AU)-[ENV]AN420

Parameter	Sample Name	Sample Number	Units	Criteria	Recovery %
2-fluorobiphenyl (Surrogate)	SS1	SE156824.001	%	70 - 130%	80
	SS2	SE156824.002	%	70 - 130%	82
	SS4	SE156824.003	%	70 - 130%	76
	SS3	SE156824.004	%	70 - 130%	84
	SS5	SE156824.005	%	70 - 130%	80
	SS6	SE156824.006	%	70 - 130%	80
	SS7	SE156824.007	%	70 - 130%	80
	SS10	SE156824.008	%	70 - 130%	80
	SS11	SE156824.009	%	70 - 130%	84
	SS12	SE156824.010	%	70 - 130%	82
	SS13	SE156824.011	%	70 - 130%	78
	SS15	SE156824.012	%	70 - 130%	80
	SS17	SE156824.013	%	70 - 130%	80
	G1	SE156824.014	%	70 - 130%	82
	G3	SE156824.015	%	70 - 130%	82
	G4	SE156824.016	%	70 - 130%	84
	G5	SE156824.017	%	70 - 130%	86
	G6	SE156824.018	%	70 - 130%	78
	TR8	SE156824.021	%	70 - 130%	82
	TP42	SE156824.022	%	70 - 130%	80
	TP35 0.9-1.0	SE156824.023	%	70 - 130%	82
	TP48 0.1-0.2	SE156824.024	%	70 - 130%	78
	TP43	SE156824.029	%	70 - 130%	80
	TP52 0.1-0.2	SE156824.030	%	70 - 130%	78
	TR11 -0.15	SE156824.032	%	70 - 130%	80
	TP44	SE156824.034	%	70 - 130%	78

Surrogate results are evaluated against upper and lower limit criteria established in the SGS QA /QC plan (Ref: MP-(AU)-[ENV]QU-022). At least two of three routine level soil sample surrogate spike recoveries for BTEX/VOC are to be within 70-130% where control charts have not been developed and within the established control limits for charted surrogates. Matrix effects may void this as an acceptance criterion. Water sample surrogate spike recoveries are to be within 40-130%. The presence of emulsions, surfactants and particulates may void this as an acceptance criterion.

Result is shown in **Green** when within suggested criteria or **Red** with an appended reason identifer when outside suggested criteria. Refer to the footnotes section at the end of this report for failure reasons.

PAH (Polynuclear Aromatic Hydrocarbons) in Soil (continued) — **Method: ME-(AU)-[ENV]AN420**

Parameter	Sample Name	Sample Number	Units	Criteria	Recovery %
2-fluorobiphenyl (Surrogate)	TP61	SE156824.035	%	70 - 130%	74
	SS14	SE156824.037	%	70 - 130%	72
	SS18	SE156824.038	%	70 - 130%	82
	TP35_0-0.1	SE156824.039	%	70 - 130%	82
d14-p-terphenyl (Surrogate)	SS1	SE156824.001	%	70 - 130%	92
	SS2	SE156824.002	%	70 - 130%	94
	SS4	SE156824.003	%	70 - 130%	88
	SS3	SE156824.004	%	70 - 130%	98
	SS5	SE156824.005	%	70 - 130%	94
	SS6	SE156824.006	%	70 - 130%	92
	SS7	SE156824.007	%	70 - 130%	92
	SS10	SE156824.008	%	70 - 130%	90
	SS11	SE156824.009	%	70 - 130%	98
	SS12	SE156824.010	%	70 - 130%	94
	SS13	SE156824.011	%	70 - 130%	96
	SS15	SE156824.012	%	70 - 130%	94
	SS17	SE156824.013	%	70 - 130%	92
	G1	SE156824.014	%	70 - 130%	96
	G3	SE156824.015	%	70 - 130%	92
	G4	SE156824.016	%	70 - 130%	100
	G5	SE156824.017	%	70 - 130%	100
	G6	SE156824.018	%	70 - 130%	92
	TR8	SE156824.021	%	70 - 130%	94
	TP42	SE156824.022	%	70 - 130%	92
	TP35 0.9-1.0	SE156824.023	%	70 - 130%	92
	TP48 0.1-0.2	SE156824.024	%	70 - 130%	92
	TP43	SE156824.029	%	70 - 130%	92
	TP52 0.1-0.2	SE156824.030	%	70 - 130%	88
	TR11 -0.15	SE156824.032	%	70 - 130%	94
	TP44	SE156824.034	%	70 - 130%	88
	TP61	SE156824.035	%	70 - 130%	82
	SS14	SE156824.037	%	70 - 130%	84
	SS18	SE156824.038	%	70 - 130%	94
	TP35_0-0.1	SE156824.039	%	70 - 130%	94
d5-nitrobenzene (Surrogate)	SS1	SE156824.001	%	70 - 130%	84
	SS2	SE156824.002	%	70 - 130%	86
	SS4	SE156824.003	%	70 - 130%	78
	SS3	SE156824.004	%	70 - 130%	90
	SS5	SE156824.005	%	70 - 130%	88
	SS6	SE156824.006	%	70 - 130%	86
	SS7	SE156824.007	%	70 - 130%	86
	SS10	SE156824.008	%	70 - 130%	86
	SS11	SE156824.009	%	70 - 130%	86
	SS12	SE156824.010	%	70 - 130%	88
	SS13	SE156824.011	%	70 - 130%	86
	SS15	SE156824.012	%	70 - 130%	88
	SS17	SE156824.013	%	70 - 130%	86
	G1	SE156824.014	%	70 - 130%	86
	G3	SE156824.015	%	70 - 130%	86
	G4	SE156824.016	%	70 - 130%	90
	G5	SE156824.017	%	70 - 130%	92
	G6	SE156824.018	%	70 - 130%	84
	TR8	SE156824.021	%	70 - 130%	86
	TP42	SE156824.022	%	70 - 130%	84
	TP35 0.9-1.0	SE156824.023	%	70 - 130%	74
	TP48 0.1-0.2	SE156824.024	%	70 - 130%	72
	TP43	SE156824.029	%	70 - 130%	78
	TP52 0.1-0.2	SE156824.030	%	70 - 130%	76
	TR11 -0.15	SE156824.032	%	70 - 130%	76
	TP44	SE156824.034	%	70 - 130%	74
	TP61	SE156824.035	%	70 - 130%	70

Surrogate results are evaluated against upper and lower limit criteria established in the SGS QA /QC plan (Ref: MP-(AU)-[ENV]QU-022). At least two of three routine level soil sample surrogate spike recoveries for BTEX/VOC are to be within 70-130% where control charts have not been developed and within the established control limits for charted surrogates. Matrix effects may void this as an acceptance criterion. Water sample surrogate spike recoveries are to be within 40-130%. The presence of emulsions, surfactants and particulates may void this as an acceptance criterion.

Result is shown in **Green** when within suggested criteria or **Red** with an appended reason identifer when outside suggested criteria. Refer to the footnotes section at the end of this report for failure reasons.

PAH (Polynuclear Aromatic Hydrocarbons) in Soil (continued)

Method: ME-(AU)-[ENV]AN420

Parameter	Sample Name	Sample Number	Units	Criteria	Recovery %
d5-nitrobenzene (Surrogate)	SS14	SE156824.037	%	70 - 130%	78
	SS18	SE156824.038	%	70 - 130%	82
	TP35_0-0.1	SE156824.039	%	70 - 130%	82

VOC's in Soil

Method: ME-(AU)-[ENV]AN433

Parameter	Sample Name	Sample Number	Units	Criteria	Recovery %
Bromofluorobenzene (Surrogate)	SS1	SE156824.001	%	60 - 130%	90
	SS2	SE156824.002	%	60 - 130%	85
	SS4	SE156824.003	%	60 - 130%	75
	SS3	SE156824.004	%	60 - 130%	77
	SS5	SE156824.005	%	60 - 130%	79
	SS6	SE156824.006	%	60 - 130%	75
	SS7	SE156824.007	%	60 - 130%	83
	SS10	SE156824.008	%	60 - 130%	86
	SS11	SE156824.009	%	60 - 130%	86
	SS12	SE156824.010	%	60 - 130%	80
	SS13	SE156824.011	%	60 - 130%	81
	SS15	SE156824.012	%	60 - 130%	80
	SS17	SE156824.013	%	60 - 130%	78
	G1	SE156824.014	%	60 - 130%	81
	G3	SE156824.015	%	60 - 130%	86
	G4	SE156824.016	%	60 - 130%	78
	G5	SE156824.017	%	60 - 130%	83
	G6	SE156824.018	%	60 - 130%	80
	TR8	SE156824.021	%	60 - 130%	84
	TP42	SE156824.022	%	60 - 130%	85
	TP35 0.9-1.0	SE156824.023	%	60 - 130%	84
	TP48 0.1-0.2	SE156824.024	%	60 - 130%	79
	TP43	SE156824.029	%	60 - 130%	81
	TP52 0.1-0.2	SE156824.030	%	60 - 130%	79
	TR11 -0.15	SE156824.032	%	60 - 130%	82
	TP44	SE156824.034	%	60 - 130%	87
	TP61	SE156824.035	%	60 - 130%	83
	SS14	SE156824.037	%	60 - 130%	77
	SS18	SE156824.038	%	60 - 130%	87
	TP35_0-0.1	SE156824.039	%	60 - 130%	79
d4-1,2-dichloroethane (Surrogate)	SS1	SE156824.001	%	60 - 130%	81
	SS2	SE156824.002	%	60 - 130%	78
	SS4	SE156824.003	%	60 - 130%	76
	SS3	SE156824.004	%	60 - 130%	88
	SS5	SE156824.005	%	60 - 130%	87
	SS6	SE156824.006	%	60 - 130%	82
	SS7	SE156824.007	%	60 - 130%	93
	SS10	SE156824.008	%	60 - 130%	82
	SS11	SE156824.009	%	60 - 130%	80
	SS12	SE156824.010	%	60 - 130%	92
	SS13	SE156824.011	%	60 - 130%	92
	SS15	SE156824.012	%	60 - 130%	87
	SS17	SE156824.013	%	60 - 130%	86
	G1	SE156824.014	%	60 - 130%	92
	G3	SE156824.015	%	60 - 130%	96
	G4	SE156824.016	%	60 - 130%	91
	G5	SE156824.017	%	60 - 130%	97
	G6	SE156824.018	%	60 - 130%	90
	TR8	SE156824.021	%	60 - 130%	97
	TP42	SE156824.022	%	60 - 130%	91
	TP35 0.9-1.0	SE156824.023	%	60 - 130%	96
	TP48 0.1-0.2	SE156824.024	%	60 - 130%	96
	TP43	SE156824.029	%	60 - 130%	90
	TP52 0.1-0.2	SE156824.030	%	60 - 130%	94
	TR11 -0.15	SE156824.032	%	60 - 130%	96

Surrogate results are evaluated against upper and lower limit criteria established in the SGS QA /QC plan (Ref: MP-(AU)-[ENV]QU-022). At least two of three routine level soil sample surrogate spike recoveries for BTEX/VOC are to be within 70-130% where control charts have not been developed and within the established control limits for charted surrogates. Matrix effects may void this as an acceptance criterion. Water sample surrogate spike recoveries are to be within 40-130%. The presence of emulsions, surfactants and particulates may void this as an acceptance criterion.

Result is shown in **Green** when within suggested criteria or **Red** with an appended reason identifer when outside suggested criteria. Refer to the footnotes section at the end of this report for failure reasons.

VOC's in Soil (continued) — Method: ME-(AU)-[ENV]AN433

Parameter	Sample Name	Sample Number	Units	Criteria	Recovery %
d4-1,2-dichloroethane (Surrogate)	TP44	SE156824.034	%	60 - 130%	95
	TP61	SE156824.035	%	60 - 130%	92
	SS14	SE156824.037	%	60 - 130%	75
	SS18	SE156824.038	%	60 - 130%	81
	TP35_0-0.1	SE156824.039	%	60 - 130%	77
d8-toluene (Surrogate)	SS1	SE156824.001	%	60 - 130%	87
	SS2	SE156824.002	%	60 - 130%	82
	SS4	SE156824.003	%	60 - 130%	72
	SS3	SE156824.004	%	60 - 130%	93
	SS5	SE156824.005	%	60 - 130%	92
	SS6	SE156824.006	%	60 - 130%	82
	SS7	SE156824.007	%	60 - 130%	93
	SS10	SE156824.008	%	60 - 130%	81
	SS11	SE156824.009	%	60 - 130%	80
	SS12	SE156824.010	%	60 - 130%	98
	SS13	SE156824.011	%	60 - 130%	99
	SS15	SE156824.012	%	60 - 130%	90
	SS17	SE156824.013	%	60 - 130%	93
	G1	SE156824.014	%	60 - 130%	97
	G3	SE156824.015	%	60 - 130%	95
	G4	SE156824.016	%	60 - 130%	91
	G5	SE156824.017	%	60 - 130%	101
	G6	SE156824.018	%	60 - 130%	96
	TR8	SE156824.021	%	60 - 130%	97
	TP42	SE156824.022	%	60 - 130%	92
	TP35 0.9-1.0	SE156824.023	%	60 - 130%	105
	TP48 0.1-0.2	SE156824.024	%	60 - 130%	105
	TP43	SE156824.029	%	60 - 130%	102
	TP52 0.1-0.2	SE156824.030	%	60 - 130%	98
	TR11 -0.15	SE156824.032	%	60 - 130%	106
	TP44	SE156824.034	%	60 - 130%	108
	TP61	SE156824.035	%	60 - 130%	101
	SS14	SE156824.037	%	60 - 130%	75
	SS18	SE156824.038	%	60 - 130%	79
	TP35_0-0.1	SE156824.039	%	60 - 130%	72
Dibromofluoromethane (Surrogate)	SS1	SE156824.001	%	60 - 130%	73
	SS2	SE156824.002	%	60 - 130%	71
	SS4	SE156824.003	%	60 - 130%	70
	SS3	SE156824.004	%	60 - 130%	78
	SS5	SE156824.005	%	60 - 130%	76
	SS6	SE156824.006	%	60 - 130%	75
	SS7	SE156824.007	%	60 - 130%	83
	SS10	SE156824.008	%	60 - 130%	73
	SS11	SE156824.009	%	60 - 130%	73
	SS12	SE156824.010	%	60 - 130%	81
	SS13	SE156824.011	%	60 - 130%	85
	SS15	SE156824.012	%	60 - 130%	77
	SS17	SE156824.013	%	60 - 130%	80
	G1	SE156824.014	%	60 - 130%	80
	G3	SE156824.015	%	60 - 130%	84
	G4	SE156824.016	%	60 - 130%	78
	G5	SE156824.017	%	60 - 130%	85
	G6	SE156824.018	%	60 - 130%	78
	TR8	SE156824.021	%	60 - 130%	83
	TP42	SE156824.022	%	60 - 130%	81
	TP35 0.9-1.0	SE156824.023	%	60 - 130%	79
	TP48 0.1-0.2	SE156824.024	%	60 - 130%	77
	TP43	SE156824.029	%	60 - 130%	70
	TP52 0.1-0.2	SE156824.030	%	60 - 130%	70
	TR11 -0.15	SE156824.032	%	60 - 130%	70
	TP44	SE156824.034	%	60 - 130%	70

Surrogate results are evaluated against upper and lower limit criteria established in the SGS QA /QC plan (Ref: MP-(AU)-[ENV]QU-022). At least two of three routine level soil sample surrogate spike recoveries for BTEX/VOC are to be within 70-130% where control charts have not been developed and within the established control limits for charted surrogates. Matrix effects may void this as an acceptance criterion. Water sample surrogate spike recoveries are to be within 40-130%. The presence of emulsions, surfactants and particulates may void this as an acceptance criterion.

Result is shown in **Green** when within suggested criteria or **Red** with an appended reason identifer when outside suggested criteria. Refer to the footnotes section at the end of this report for failure reasons.

VOC's in Soil (continued)

Method: ME-(AU)-[ENV]AN433

Parameter	Sample Name	Sample Number	Units	Criteria	Recovery %
Dibromofluoromethane (Surrogate)	TP61	SE156824.035	%	60 - 130%	71
	SS14	SE156824.037	%	60 - 130%	74
	SS18	SE156824.038	%	60 - 130%	77
	TP35_0-0.1	SE156824.039	%	60 - 130%	75

Volatile Petroleum Hydrocarbons in Soil

Method: ME-(AU)-[ENV]AN433

Parameter	Sample Name	Sample Number	Units	Criteria	Recovery %
Bromofluorobenzene (Surrogate)	SS1	SE156824.001	%	60 - 130%	90
	SS2	SE156824.002	%	60 - 130%	85
	SS4	SE156824.003	%	60 - 130%	75
	SS3	SE156824.004	%	60 - 130%	77
	SS5	SE156824.005	%	60 - 130%	79
	SS6	SE156824.006	%	60 - 130%	75
	SS7	SE156824.007	%	60 - 130%	83
	SS10	SE156824.008	%	60 - 130%	86
	SS11	SE156824.009	%	60 - 130%	86
	SS12	SE156824.010	%	60 - 130%	80
	SS13	SE156824.011	%	60 - 130%	81
	SS15	SE156824.012	%	60 - 130%	80
	SS17	SE156824.013	%	60 - 130%	78
	G1	SE156824.014	%	60 - 130%	81
	G3	SE156824.015	%	60 - 130%	86
	G4	SE156824.016	%	60 - 130%	78
	G5	SE156824.017	%	60 - 130%	83
	G6	SE156824.018	%	60 - 130%	80
	TR8	SE156824.021	%	60 - 130%	84
	TP42	SE156824.022	%	60 - 130%	85
	TP35 0.9-1.0	SE156824.023	%	60 - 130%	84
	TP48 0.1-0.2	SE156824.024	%	60 - 130%	79
	TP43	SE156824.029	%	60 - 130%	81
	TP52 0.1-0.2	SE156824.030	%	60 - 130%	79
	TR11 -0.15	SE156824.032	%	60 - 130%	82
	TP44	SE156824.034	%	60 - 130%	87
	TP61	SE156824.035	%	60 - 130%	83
	SS14	SE156824.037	%	60 - 130%	77
	SS18	SE156824.038	%	60 - 130%	87
	TP35_0-0.1	SE156824.039	%	60 - 130%	79
d4-1,2-dichloroethane (Surrogate)	SS1	SE156824.001	%	60 - 130%	81
	SS2	SE156824.002	%	60 - 130%	78
	SS4	SE156824.003	%	60 - 130%	76
	SS3	SE156824.004	%	60 - 130%	88
	SS5	SE156824.005	%	60 - 130%	87
	SS6	SE156824.006	%	60 - 130%	82
	SS7	SE156824.007	%	60 - 130%	93
	SS10	SE156824.008	%	60 - 130%	82
	SS11	SE156824.009	%	60 - 130%	80
	SS12	SE156824.010	%	60 - 130%	92
	SS13	SE156824.011	%	60 - 130%	92
	SS15	SE156824.012	%	60 - 130%	87
	SS17	SE156824.013	%	60 - 130%	86
	G1	SE156824.014	%	60 - 130%	92
	G3	SE156824.015	%	60 - 130%	96
	G4	SE156824.016	%	60 - 130%	91
	G5	SE156824.017	%	60 - 130%	97
	G6	SE156824.018	%	60 - 130%	90
	TR8	SE156824.021	%	60 - 130%	97
	TP42	SE156824.022	%	60 - 130%	91
	TP35 0.9-1.0	SE156824.023	%	60 - 130%	96
	TP48 0.1-0.2	SE156824.024	%	60 - 130%	96
	TP43	SE156824.029	%	60 - 130%	90
	TP52 0.1-0.2	SE156824.030	%	60 - 130%	94

Surrogate results are evaluated against upper and lower limit criteria established in the SGS QA /QC plan (Ref: MP-(AU)-[ENV]QU-022). At least two of three routine level soil sample surrogate spike recoveries for BTEX/VOC are to be within 70-130% where control charts have not been developed and within the established control limits for charted surrogates. Matrix effects may void this as an acceptance criterion. Water sample surrogate spike recoveries are to be within 40-130%. The presence of emulsions, surfactants and particulates may void this as an acceptance criterion.

Result is shown in **Green** when within suggested criteria or **Red** with an appended reason identifer when outside suggested criteria. Refer to the footnotes section at the end of this report for failure reasons.

Volatile Petroleum Hydrocarbons in Soil (continued) — **Method: ME-(AU)-[ENV]AN433**

Parameter	Sample Name	Sample Number	Units	Criteria	Recovery %
d4-1,2-dichloroethane (Surrogate)	TR11 -0.15	SE156824.032	%	60 - 130%	96
	TP44	SE156824.034	%	60 - 130%	95
	TP61	SE156824.035	%	60 - 130%	92
	SS14	SE156824.037	%	60 - 130%	75
	SS18	SE156824.038	%	60 - 130%	81
	TP35_0-0.1	SE156824.039	%	60 - 130%	77
d8-toluene (Surrogate)	SS1	SE156824.001	%	60 - 130%	87
	SS2	SE156824.002	%	60 - 130%	82
	SS4	SE156824.003	%	60 - 130%	72
	SS3	SE156824.004	%	60 - 130%	93
	SS5	SE156824.005	%	60 - 130%	92
	SS6	SE156824.006	%	60 - 130%	82
	SS7	SE156824.007	%	60 - 130%	93
	SS10	SE156824.008	%	60 - 130%	81
	SS11	SE156824.009	%	60 - 130%	80
	SS12	SE156824.010	%	60 - 130%	98
	SS13	SE156824.011	%	60 - 130%	99
	SS15	SE156824.012	%	60 - 130%	90
	SS17	SE156824.013	%	60 - 130%	93
	G1	SE156824.014	%	60 - 130%	97
	G3	SE156824.015	%	60 - 130%	95
	G4	SE156824.016	%	60 - 130%	91
	G5	SE156824.017	%	60 - 130%	101
	G6	SE156824.018	%	60 - 130%	96
	TR8	SE156824.021	%	60 - 130%	97
	TP42	SE156824.022	%	60 - 130%	92
	TP35 0.9-1.0	SE156824.023	%	60 - 130%	105
	TP48 0.1-0.2	SE156824.024	%	60 - 130%	105
	TP43	SE156824.029	%	60 - 130%	102
	TP52 0.1-0.2	SE156824.030	%	60 - 130%	98
	TR11 -0.15	SE156824.032	%	60 - 130%	106
	TP44	SE156824.034	%	60 - 130%	108
	TP61	SE156824.035	%	60 - 130%	101
	SS14	SE156824.037	%	60 - 130%	75
	SS18	SE156824.038	%	60 - 130%	79
	TP35_0-0.1	SE156824.039	%	60 - 130%	72
Dibromofluoromethane (Surrogate)	SS1	SE156824.001	%	60 - 130%	73
	SS2	SE156824.002	%	60 - 130%	71
	SS4	SE156824.003	%	60 - 130%	70
	SS3	SE156824.004	%	60 - 130%	78
	SS5	SE156824.005	%	60 - 130%	76
	SS6	SE156824.006	%	60 - 130%	75
	SS7	SE156824.007	%	60 - 130%	83
	SS10	SE156824.008	%	60 - 130%	73
	SS11	SE156824.009	%	60 - 130%	73
	SS12	SE156824.010	%	60 - 130%	81
	SS13	SE156824.011	%	60 - 130%	85
	SS15	SE156824.012	%	60 - 130%	77
	SS17	SE156824.013	%	60 - 130%	80
	G1	SE156824.014	%	60 - 130%	80
	G3	SE156824.015	%	60 - 130%	84
	G4	SE156824.016	%	60 - 130%	78
	G5	SE156824.017	%	60 - 130%	85
	G6	SE156824.018	%	60 - 130%	78
	TR8	SE156824.021	%	60 - 130%	83
	TP42	SE156824.022	%	60 - 130%	81
	TP35 0.9-1.0	SE156824.023	%	60 - 130%	79
	TP48 0.1-0.2	SE156824.024	%	60 - 130%	77
	TP43	SE156824.029	%	60 - 130%	70
	TP52 0.1-0.2	SE156824.030	%	60 - 130%	70
	TR11 -0.15	SE156824.032	%	60 - 130%	70

Surrogate results are evaluated against upper and lower limit criteria established in the SGS QA /QC plan (Ref: MP-(AU)-[ENV]QU-022). At least two of three routine level soil sample surrogate spike recoveries for BTEX/VOC are to be within 70-130% where control charts have not been developed and within the established control limits for charted surrogates. Matrix effects may void this as an acceptance criterion. Water sample surrogate spike recoveries are to be within 40-130%. The presence of emulsions, surfactants and particulates may void this as an acceptance criterion.

Result is shown in **Green** when within suggested criteria or **Red** with an appended reason identifer when outside suggested criteria. Refer to the footnotes section at the end of this report for failure reasons.

Volatile Petroleum Hydrocarbons in Soil (continued) — **Method: ME-(AU)-[ENV]AN433**

Parameter	Sample Name	Sample Number	Units	Criteria	Recovery %
Dibromofluoromethane (Surrogate)	TP44	SE156824.034	%	60 - 130%	70
	TP61	SE156824.035	%	60 - 130%	71
	SS14	SE156824.037	%	60 - 130%	74
	SS18	SE156824.038	%	60 - 130%	77
	TP35_0-0.1	SE156824.039	%	60 - 130%	75

Blank results are evaluated against the limit of reporting (LOR), for the chosen method and its associated instrumentation, typically 2.5 times the statistically determined method detection limit (MDL).

Result is shown in **Green** when within suggested criteria or **Red** with an appended dagger symbol (†) when outside suggested criteria.

Mercury in Soil

Method: ME-(AU)-[ENV]AN312

Sample Number	Parameter	Units	LOR	Result
LB109619.001	Mercury	mg/kg	0.05	<0.05
LB109620.001	Mercury	mg/kg	0.05	<0.05

OC Pesticides in Soil

Method: ME-(AU)-[ENV]AN400/AN420

Sample Number		Parameter	Units	LOR	Result
LB109467.001		Hexachlorobenzene (HCB)	mg/kg	0.1	<0.1
		Alpha BHC	mg/kg	0.1	<0.1
		Lindane	mg/kg	0.1	<0.1
		Heptachlor	mg/kg	0.1	<0.1
		Aldrin	mg/kg	0.1	<0.1
		Beta BHC	mg/kg	0.1	<0.1
		Delta BHC	mg/kg	0.1	<0.1
		Heptachlor epoxide	mg/kg	0.1	<0.1
		Alpha Endosulfan	mg/kg	0.2	<0.2
		Gamma Chlordane	mg/kg	0.1	<0.1
		Alpha Chlordane	mg/kg	0.1	<0.1
		p,p'-DDE	mg/kg	0.1	<0.1
		Dieldrin	mg/kg	0.2	<0.2
		Endrin	mg/kg	0.2	<0.2
		Beta Endosulfan	mg/kg	0.2	<0.2
		p,p'-DDD	mg/kg	0.1	<0.1
		p,p'-DDT	mg/kg	0.1	<0.1
		Endosulfan sulphate	mg/kg	0.1	<0.1
		Endrin Aldehyde	mg/kg	0.1	<0.1
		Methoxychlor	mg/kg	0.1	<0.1
		Endrin Ketone	mg/kg	0.1	<0.1
		Isodrin	mg/kg	0.1	<0.1
		Mirex	mg/kg	0.1	<0.1
	Surrogates	Tetrachloro-m-xylene (TCMX) (Surrogate)	%	-	85
LB109468.001		Hexachlorobenzene (HCB)	mg/kg	0.1	<0.1
		Alpha BHC	mg/kg	0.1	<0.1
		Lindane	mg/kg	0.1	<0.1
		Heptachlor	mg/kg	0.1	<0.1
		Aldrin	mg/kg	0.1	<0.1
		Beta BHC	mg/kg	0.1	<0.1
		Delta BHC	mg/kg	0.1	<0.1
		Heptachlor epoxide	mg/kg	0.1	<0.1
		Alpha Endosulfan	mg/kg	0.2	<0.2
		Gamma Chlordane	mg/kg	0.1	<0.1
		Alpha Chlordane	mg/kg	0.1	<0.1
		p,p'-DDE	mg/kg	0.1	<0.1
		Dieldrin	mg/kg	0.2	<0.2
		Endrin	mg/kg	0.2	<0.2
		Beta Endosulfan	mg/kg	0.2	<0.2
		p,p'-DDD	mg/kg	0.1	<0.1
		p,p'-DDT	mg/kg	0.1	<0.1
		Endosulfan sulphate	mg/kg	0.1	<0.1
		Endrin Aldehyde	mg/kg	0.1	<0.1
		Methoxychlor	mg/kg	0.1	<0.1
		Endrin Ketone	mg/kg	0.1	<0.1
		Isodrin	mg/kg	0.1	<0.1
		Mirex	mg/kg	0.1	<0.1
	Surrogates	Tetrachloro-m-xylene (TCMX) (Surrogate)	%	-	85

OP Pesticides in Soil

Method: ME-(AU)-[ENV]AN400/AN420

Sample Number	Parameter	Units	LOR	Result
LB109467.001	Dichlorvos	mg/kg	0.5	<0.5
	Dimethoate	mg/kg	0.5	<0.5
	Diazinon (Dimpylate)	mg/kg	0.5	<0.5
	Fenitrothion	mg/kg	0.2	<0.2
	Malathion	mg/kg	0.2	<0.2

Blank results are evaluated against the limit of reporting (LOR), for the chosen method and its associated instrumentation, typically 2.5 times the statistically determined method detection limit (MDL).

Result is shown in **Green** when within suggested criteria or **Red** with an appended dagger symbol (†) when outside suggested criteria.

OP Pesticides in Soil (continued)

Method: ME-(AU)-[ENV]AN400/AN420

Sample Number		Parameter	Units	LOR	Result
LB109467.001		Chlorpyrifos (Chlorpyrifos Ethyl)	mg/kg	0.2	<0.2
		Parathion-ethyl (Parathion)	mg/kg	0.2	<0.2
		Bromophos Ethyl	mg/kg	0.2	<0.2
		Methidathion	mg/kg	0.5	<0.5
		Ethion	mg/kg	0.2	<0.2
		Azinphos-methyl (Guthion)	mg/kg	0.2	<0.2
	Surrogates	2-fluorobiphenyl (Surrogate)	%	-	90
		d14-p-terphenyl (Surrogate)	%	-	102
LB109468.001		Dichlorvos	mg/kg	0.5	<0.5
		Dimethoate	mg/kg	0.5	<0.5
		Diazinon (Dimpylate)	mg/kg	0.5	<0.5
		Fenitrothion	mg/kg	0.2	<0.2
		Malathion	mg/kg	0.2	<0.2
		Chlorpyrifos (Chlorpyrifos Ethyl)	mg/kg	0.2	<0.2
		Parathion-ethyl (Parathion)	mg/kg	0.2	<0.2
		Bromophos Ethyl	mg/kg	0.2	<0.2
		Methidathion	mg/kg	0.5	<0.5
		Ethion	mg/kg	0.2	<0.2
		Azinphos-methyl (Guthion)	mg/kg	0.2	<0.2
	Surrogates	2-fluorobiphenyl (Surrogate)	%	-	84
		d14-p-terphenyl (Surrogate)	%	-	100

PAH (Polynuclear Aromatic Hydrocarbons) in Soil

Method: ME-(AU)-[ENV]AN420

Sample Number		Parameter	Units	LOR	Result
LB109467.001		Naphthalene	mg/kg	0.1	<0.1
		2-methylnaphthalene	mg/kg	0.1	<0.1
		1-methylnaphthalene	mg/kg	0.1	<0.1
		Acenaphthylene	mg/kg	0.1	<0.1
		Acenaphthene	mg/kg	0.1	<0.1
		Fluorene	mg/kg	0.1	<0.1
		Phenanthrene	mg/kg	0.1	<0.1
		Anthracene	mg/kg	0.1	<0.1
		Fluoranthene	mg/kg	0.1	<0.1
		Pyrene	mg/kg	0.1	<0.1
		Benzo(a)anthracene	mg/kg	0.1	<0.1
		Chrysene	mg/kg	0.1	<0.1
		Benzo(a)pyrene	mg/kg	0.1	<0.1
		Indeno(1,2,3-cd)pyrene	mg/kg	0.1	<0.1
		Dibenzo(ah)anthracene	mg/kg	0.1	<0.1
		Benzo(ghi)perylene	mg/kg	0.1	<0.1
		Total PAH (18)	mg/kg	0.8	<0.8
	Surrogates	d5-nitrobenzene (Surrogate)	%	-	94
		2-fluorobiphenyl (Surrogate)	%	-	90
		d14-p-terphenyl (Surrogate)	%	-	102
LB109468.001		Naphthalene	mg/kg	0.1	<0.1
		2-methylnaphthalene	mg/kg	0.1	<0.1
		1-methylnaphthalene	mg/kg	0.1	<0.1
		Acenaphthylene	mg/kg	0.1	<0.1
		Acenaphthene	mg/kg	0.1	<0.1
		Fluorene	mg/kg	0.1	<0.1
		Phenanthrene	mg/kg	0.1	<0.1
		Anthracene	mg/kg	0.1	<0.1
		Fluoranthene	mg/kg	0.1	<0.1
		Pyrene	mg/kg	0.1	<0.1
		Benzo(a)anthracene	mg/kg	0.1	<0.1
		Chrysene	mg/kg	0.1	<0.1
		Benzo(a)pyrene	mg/kg	0.1	<0.1
		Indeno(1,2,3-cd)pyrene	mg/kg	0.1	<0.1
		Dibenzo(ah)anthracene	mg/kg	0.1	<0.1
		Benzo(ghi)perylene	mg/kg	0.1	<0.1
		Total PAH (18)	mg/kg	0.8	<0.8

Blank results are evaluated against the limit of reporting (LOR), for the chosen method and its associated instrumentation, typically 2.5 times the statistically determined method detection limit (MDL).

Result is shown in **Green** when within suggested criteria or **Red** with an appended dagger symbol (†) when outside suggested criteria.

PAH (Polynuclear Aromatic Hydrocarbons) in Soil (continued)

Method: ME-(AU)-[ENV]AN420

Sample Number		Parameter	Units	LOR	Result
LB109468.001	Surrogates	d5-nitrobenzene (Surrogate)	%	-	84
		2-fluorobiphenyl (Surrogate)	%	-	84
		d14-p-terphenyl (Surrogate)	%	-	100

Total Phenolics in Soil

Method: ME-(AU)-[ENV]AN289

Sample Number	Parameter	Units	LOR	Result
LB109627.001	Total Phenols	mg/kg	0.1	<0.1
LB109633.001	Total Phenols	mg/kg	0.1	<0.1

Total Recoverable Metals in Soil/Waste Solids/Materials by ICPOES

Method: ME-(AU)-[ENV]AN040/AN320

Sample Number	Parameter	Units	LOR	Result
LB109694.001	Arsenic, As	mg/kg	3	<3
	Cadmium, Cd	mg/kg	0.3	<0.3
	Chromium, Cr	mg/kg	0.3	<0.3
	Copper, Cu	mg/kg	0.5	<0.5
	Lead, Pb	mg/kg	1	<1
	Nickel, Ni	mg/kg	0.5	<0.5
	Zinc, Zn	mg/kg	0.5	<0.5
LB109695.001	Arsenic, As	mg/kg	3	<3
	Cadmium, Cd	mg/kg	0.3	<0.3
	Chromium, Cr	mg/kg	0.3	<0.3
	Copper, Cu	mg/kg	0.5	<0.5
	Lead, Pb	mg/kg	1	<1
	Nickel, Ni	mg/kg	0.5	<0.5
	Zinc, Zn	mg/kg	0.5	<0.5

TRH (Total Recoverable Hydrocarbons) in Soil

Method: ME-(AU)-[ENV]AN403

Sample Number	Parameter	Units	LOR	Result
LB109467.001	TRH C10-C14	mg/kg	20	<20
	TRH C15-C28	mg/kg	45	<45
	TRH C29-C36	mg/kg	45	<45
	TRH C37-C40	mg/kg	100	<100
	TRH C10-C36 Total	mg/kg	110	<110
LB109468.001	TRH C10-C14	mg/kg	20	<20
	TRH C15-C28	mg/kg	45	<45
	TRH C29-C36	mg/kg	45	<45
	TRH C37-C40	mg/kg	100	<100
	TRH C10-C36 Total	mg/kg	110	<110

VOC's in Soil

Method: ME-(AU)-[ENV]AN433

Sample Number		Parameter	Units	LOR	Result
LB109424.001	Monocyclic Aromatic	Benzene	mg/kg	0.1	<0.1
	Hydrocarbons	Toluene	mg/kg	0.1	<0.1
		Ethylbenzene	mg/kg	0.1	<0.1
		m/p-xylene	mg/kg	0.2	<0.2
		o-xylene	mg/kg	0.1	<0.1
	Polycyclic VOCs	Naphthalene	mg/kg	0.1	<0.1
	Surrogates	Dibromofluoromethane (Surrogate)	%	-	74
		d4-1,2-dichloroethane (Surrogate)	%	-	84
		d8-toluene (Surrogate)	%	-	92
		Bromofluorobenzene (Surrogate)	%	-	94
	Totals	Total BTEX	mg/kg	0.6	<0.3
LB109425.001	Monocyclic Aromatic	Benzene	mg/kg	0.1	<0.1
	Hydrocarbons	Toluene	mg/kg	0.1	<0.1
		Ethylbenzene	mg/kg	0.1	<0.1
		m/p-xylene	mg/kg	0.2	<0.2
		o-xylene	mg/kg	0.1	<0.1
	Polycyclic VOCs	Naphthalene	mg/kg	0.1	<0.1
	Surrogates	Dibromofluoromethane (Surrogate)	%	-	84
		d4-1,2-dichloroethane (Surrogate)	%	-	104
		d8-toluene (Surrogate)	%	-	117
		Bromofluorobenzene (Surrogate)	%	-	87

Blank results are evaluated against the limit of reporting (LOR), for the chosen method and its associated instrumentation, typically 2.5 times the statistically determined method detection limit (MDL).

Result is shown in **Green** when within suggested criteria or **Red** with an appended dagger symbol (†) when outside suggested criteria.

VOC's in Soil (continued)

Method: ME-(AU)-[ENV]AN433

Sample Number		Parameter	Units	LOR	Result
LB109425.001	Totals	Total BTEX	mg/kg	0.6	<0.6
LB109466.001	Monocyclic Aromatic	Benzene	mg/kg	0.1	<0.1
	Hydrocarbons	Toluene	mg/kg	0.1	<0.1
		Ethylbenzene	mg/kg	0.1	<0.1
		m/p-xylene	mg/kg	0.2	<0.2
		o-xylene	mg/kg	0.1	<0.1
	Polycyclic VOCs	Naphthalene	mg/kg	0.1	<0.1
	Surrogates	Dibromofluoromethane (Surrogate)	%	-	81
		d4-1,2-dichloroethane (Surrogate)	%	-	84
		d8-toluene (Surrogate)	%	-	82
		Bromofluorobenzene (Surrogate)	%	-	87
	Totals	Total BTEX	mg/kg	0.6	<0.6

Volatile Petroleum Hydrocarbons in Soil

Method: ME-(AU)-[ENV]AN433

Sample Number		Parameter	Units	LOR	Result
LB109424.001		TRH C6-C9	mg/kg	20	<20
	Surrogates	Dibromofluoromethane (Surrogate)	%	-	74
		d4-1,2-dichloroethane (Surrogate)	%	-	84
		d8-toluene (Surrogate)	%	-	92
LB109425.001		TRH C6-C9	mg/kg	20	<20
	Surrogates	Dibromofluoromethane (Surrogate)	%	-	84
		d4-1,2-dichloroethane (Surrogate)	%	-	104
		d8-toluene (Surrogate)	%	-	117
LB109466.001		TRH C6-C9	mg/kg	20	<20
	Surrogates	Dibromofluoromethane (Surrogate)	%	-	81
		d4-1,2-dichloroethane (Surrogate)	%	-	84
		d8-toluene (Surrogate)	%	-	82

Duplicates are calculated as Relative Percentage Difference (RPD) using the formula: RPD = | OriginalResult - ReplicateResult | x 100 / Mean

The RPD is evaluated against the Maximum Allowable Difference (MAD) criteria and can be graphically represented by a curve calculated from the Statistical Detection Limit (SDL) and Limiting Repeatability (LR) using the formula: MAD = 100 x SDL / Mean + LR

Where the Maximum Allowable Difference evaluates to a number larger than 200 it is displayed as 200.

RPD is shown in **Green** when within suggested criteria or **Red** with an appended reason identifer when outside suggested criteria. Refer to the footnotes section at the end of this report for failure reasons.

Mercury in Soil

Method: ME-(AU)-[ENV]AN312

Original	Duplicate	Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE156824.010	LB109619.014	Mercury	mg/kg	0.05	<0.05	<0.05	200	0
SE156824.021	LB109619.024	Mercury	mg/kg	0.05	<0.05	<0.05	200	0
SE156824.038	LB109620.014	Mercury	mg/kg	0.05	<0.05	<0.05	200	0
SE156847.008	LB109620.024	Mercury	mg/kg	0.05	<0.01	<0.01	200	0

Moisture Content

Method: ME-(AU)-[ENV]AN002

Original	Duplicate	Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE156824.010	LB109491.011	% Moisture	%w/w	0.5	13	13	38	0
SE156824.022	LB109491.022	% Moisture	%w/w	0.5	17	17	36	1
SE156824.039	LB109491.033	% Moisture	%w/w	0.5	23	21	34	11

OC Pesticides in Soil

Method: ME-(AU)-[ENV]AN400/AN420

Original	Duplicate		Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE156824.009	LB109467.027		Hexachlorobenzene (HCB)	mg/kg	0.1	<0.1	0	200	0
			Alpha BHC	mg/kg	0.1	<0.1	0	200	0
			Lindane	mg/kg	0.1	<0.1	0	200	0
			Heptachlor	mg/kg	0.1	<0.1	0	200	0
			Aldrin	mg/kg	0.1	<0.1	0	200	0
			Beta BHC	mg/kg	0.1	<0.1	0	200	0
			Delta BHC	mg/kg	0.1	<0.1	0	200	0
			Heptachlor epoxide	mg/kg	0.1	<0.1	0	200	0
			o,p'-DDE	mg/kg	0.1	<0.1	0	200	0
			Alpha Endosulfan	mg/kg	0.2	<0.2	0	200	0
			Gamma Chlordane	mg/kg	0.1	<0.1	0	200	0
			Alpha Chlordane	mg/kg	0.1	<0.1	0	200	0
			trans-Nonachlor	mg/kg	0.1	<0.1	0	200	0
			p,p'-DDE	mg/kg	0.1	<0.1	0	200	0
			Dieldrin	mg/kg	0.2	<0.2	0	200	0
			Endrin	mg/kg	0.2	<0.2	0	200	0
			o,p'-DDD	mg/kg	0.1	<0.1	0	200	0
			o,p'-DDT	mg/kg	0.1	<0.1	0	200	0
			Beta Endosulfan	mg/kg	0.2	<0.2	0	200	0
			p,p'-DDD	mg/kg	0.1	<0.1	0	200	0
			p,p'-DDT	mg/kg	0.1	<0.1	0	200	0
			Endosulfan sulphate	mg/kg	0.1	<0.1	0	200	0
			Endrin Aldehyde	mg/kg	0.1	<0.1	0	200	0
			Methoxychlor	mg/kg	0.1	<0.1	0	200	0
			Endrin Ketone	mg/kg	0.1	<0.1	0	200	0
			Isodrin	mg/kg	0.1	<0.1	0	200	0
			Mirex	mg/kg	0.1	<0.1	0	200	0
		Surrogates	Tetrachloro-m-xylene (TCMX) (Surrogate)	mg/kg	-	0.12	0.12	30	0
SE156824.022	LB109467.025		Hexachlorobenzene (HCB)	mg/kg	0.1	<0.2	<0.2	200	0
			Alpha BHC	mg/kg	0.1	<0.2	<0.2	200	0
			Lindane	mg/kg	0.1	<0.2	<0.2	200	0
			Heptachlor	mg/kg	0.1	<0.2	<0.2	200	0
			Aldrin	mg/kg	0.1	<0.2	<0.2	200	0
			Beta BHC	mg/kg	0.1	<0.2	<0.2	200	0
			Delta BHC	mg/kg	0.1	<0.2	<0.2	200	0
			Heptachlor epoxide	mg/kg	0.1	<0.2	<0.2	200	0
			o,p'-DDE	mg/kg	0.1	<0.2	<0.2	200	0
			Alpha Endosulfan	mg/kg	0.2	<0.4	<0.4	200	0
			Gamma Chlordane	mg/kg	0.1	<0.2	<0.2	200	0
			Alpha Chlordane	mg/kg	0.1	<0.2	<0.2	200	0
			trans-Nonachlor	mg/kg	0.1	<0.2	<0.2	200	0
			p,p'-DDE	mg/kg	0.1	<0.2	<0.2	200	0
			Dieldrin	mg/kg	0.2	<0.4	<0.4	200	0
			Endrin	mg/kg	0.2	<0.4	<0.4	200	0
			o,p'-DDD	mg/kg	0.1	<0.2	<0.2	200	0
			o,p'-DDT	mg/kg	0.1	<0.2	<0.2	200	0
			Beta Endosulfan	mg/kg	0.2	<0.4	<0.4	200	0
			p,p'-DDD	mg/kg	0.1	<0.2	<0.2	200	0

Duplicates are calculated as Relative Percentage Difference (RPD) using the formula: RPD = | OriginalResult - ReplicateResult | x 100 / Mean

The RPD is evaluated against the Maximum Allowable Difference (MAD) criteria and can be graphically represented by a curve calculated from the Statistical Detection Limit (SDL) and Limiting Repeatability (LR) using the formula: MAD = 100 x SDL / Mean + LR

Where the Maximum Allowable Difference evaluates to a number larger than 200 it is displayed as 200.

RPD is shown in **Green** when within suggested criteria or **Red** with an appended reason identifer when outside suggested criteria. Refer to the footnotes section at the end of this report for failure reasons.

OC Pesticides in Soil (continued)

Method: ME-(AU)-[ENV]AN400/AN420

Original	Duplicate		Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE156824.022	LB109467.025		p,p'-DDT	mg/kg	0.1	<0.2	<0.2	200	0
			Endosulfan sulphate	mg/kg	0.1	<0.2	<0.2	200	0
			Endrin Aldehyde	mg/kg	0.1	<0.2	<0.2	200	0
			Methoxychlor	mg/kg	0.1	<0.2	<0.2	200	0
			Endrin Ketone	mg/kg	0.1	<0.2	<0.2	200	0
			Isodrin	mg/kg	0.1	<0.2	<0.2	200	0
			Mirex	mg/kg	0.1	<0.2	<0.2	200	0
		Surrogates	Tetrachloro-m-xylene (TCMX) (Surrogate)	mg/kg	-	0.12	0.13	30	1
SE156824.039	LB109468.014		Hexachlorobenzene (HCB)	mg/kg	0.1	<0.1	<0.1	200	0
			Alpha BHC	mg/kg	0.1	<0.1	<0.1	200	0
			Lindane	mg/kg	0.1	<0.1	<0.1	200	0
			Heptachlor	mg/kg	0.1	<0.1	<0.1	200	0
			Aldrin	mg/kg	0.1	<0.1	<0.1	200	0
			Beta BHC	mg/kg	0.1	<0.1	<0.1	200	0
			Delta BHC	mg/kg	0.1	<0.1	<0.1	200	0
			Heptachlor epoxide	mg/kg	0.1	<0.1	<0.1	200	0
			o,p'-DDE	mg/kg	0.1	<0.1	<0.1	200	0
			Alpha Endosulfan	mg/kg	0.2	<0.2	<0.2	200	0
			Gamma Chlordane	mg/kg	0.1	<0.1	<0.1	200	0
			Alpha Chlordane	mg/kg	0.1	<0.1	<0.1	200	0
			trans-Nonachlor	mg/kg	0.1	<0.1	<0.1	200	0
			p,p'-DDE	mg/kg	0.1	<0.1	<0.1	200	0
			Dieldrin	mg/kg	0.2	<0.2	<0.2	200	0
			Endrin	mg/kg	0.2	<0.2	<0.2	200	0
			o,p'-DDD	mg/kg	0.1	<0.1	<0.1	200	0
			o,p'-DDT	mg/kg	0.1	<0.1	<0.1	200	0
			Beta Endosulfan	mg/kg	0.2	<0.2	<0.2	200	0
			p,p'-DDD	mg/kg	0.1	<0.1	<0.1	200	0
			p,p'-DDT	mg/kg	0.1	<0.1	<0.1	200	0
			Endosulfan sulphate	mg/kg	0.1	<0.1	<0.1	200	0
			Endrin Aldehyde	mg/kg	0.1	<0.1	<0.1	200	0
			Methoxychlor	mg/kg	0.1	<0.1	<0.1	200	0
			Endrin Ketone	mg/kg	0.1	<0.1	<0.1	200	0
			Isodrin	mg/kg	0.1	<0.1	<0.1	200	0
			Mirex	mg/kg	0.1	<0.1	<0.1	200	0
		Surrogates	Tetrachloro-m-xylene (TCMX) (Surrogate)	mg/kg	-	0.13	0.13	30	1

OP Pesticides in Soil

Method: ME-(AU)-[ENV]AN400/AN420

Original	Duplicate		Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE156824.009	LB109467.027		Dichlorvos	mg/kg	0.5	<0.5	0	200	0
			Dimethoate	mg/kg	0.5	<0.5	0	200	0
			Diazinon (Dimpylate)	mg/kg	0.5	<0.5	0.09	200	0
			Fenitrothion	mg/kg	0.2	<0.2	0	200	0
			Malathion	mg/kg	0.2	<0.2	0	200	0
			Chlorpyrifos (Chlorpyrifos Ethyl)	mg/kg	0.2	<0.2	0.01	200	0
			Parathion-ethyl (Parathion)	mg/kg	0.2	<0.2	0.01	200	0
			Bromophos Ethyl	mg/kg	0.2	<0.2	0	200	0
			Methidathion	mg/kg	0.5	<0.5	0.01	200	0
			Ethion	mg/kg	0.2	<0.2	0.01	200	0
			Azinphos-methyl (Guthion)	mg/kg	0.2	<0.2	0.01	200	0
		Surrogates	2-fluorobiphenyl (Surrogate)	mg/kg	-	0.4	0.4	30	5
			d14-p-terphenyl (Surrogate)	mg/kg	-	0.5	0.46	30	6
SE156824.022	LB109467.025		Dichlorvos	mg/kg	0.5	<1.0	<1.0	200	0
			Dimethoate	mg/kg	0.5	<1.0	<1.0	200	0
			Diazinon (Dimpylate)	mg/kg	0.5	<1.0	<1.0	200	0
			Fenitrothion	mg/kg	0.2	<0.4	<0.4	200	0
			Malathion	mg/kg	0.2	<0.4	<0.4	200	0
			Chlorpyrifos (Chlorpyrifos Ethyl)	mg/kg	0.2	<0.4	<0.4	200	0
			Parathion-ethyl (Parathion)	mg/kg	0.2	<0.4	<0.4	200	0
			Bromophos Ethyl	mg/kg	0.2	<0.4	<0.4	200	0
			Methidathion	mg/kg	0.5	<1.0	<1.0	200	0

Duplicates are calculated as Relative Percentage Difference (RPD) using the formula: RPD = | OriginalResult - ReplicateResult | x 100 / Mean

The RPD is evaluated against the Maximum Allowable Difference (MAD) criteria and can be graphically represented by a curve calculated from the Statistical Detection Limit (SDL) and Limiting Repeatability (LR) using the formula: MAD = 100 x SDL / Mean + LR

Where the Maximum Allowable Difference evaluates to a number larger than 200 it is displayed as 200.

RPD is shown in **Green** when within suggested criteria or **Red** with an appended reason identifer when outside suggested criteria. Refer to the footnotes section at the end of this report for failure reasons.

OP Pesticides in Soil (continued)

Method: ME-(AU)-[ENV]AN400/AN420

Original	Duplicate		Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE156824.022	LB109467.025		Ethion	mg/kg	0.2	<0.4	<0.4	200	0
			Azinphos-methyl (Guthion)	mg/kg	0.2	<0.4	<0.4	200	0
		Surrogates	2-fluorobiphenyl (Surrogate)	mg/kg	-	0.4	0.4	30	2
			d14-p-terphenyl (Surrogate)	mg/kg	-	0.5	0.5	30	4
SE156824.039	LB109468.014		Dichlorvos	mg/kg	0.5	<0.5	<0.5	200	0
			Dimethoate	mg/kg	0.5	<0.5	<0.5	200	0
			Diazinon (Dimpylate)	mg/kg	0.5	<0.5	<0.5	200	0
			Fenitrothion	mg/kg	0.2	<0.2	<0.2	200	0
			Malathion	mg/kg	0.2	<0.2	<0.2	200	0
			Chlorpyrifos (Chlorpyrifos Ethyl)	mg/kg	0.2	<0.2	<0.2	200	0
			Parathion-ethyl (Parathion)	mg/kg	0.2	<0.2	<0.2	200	0
			Bromophos Ethyl	mg/kg	0.2	<0.2	<0.2	200	0
			Methidathion	mg/kg	0.5	<0.5	<0.5	200	0
			Ethion	mg/kg	0.2	<0.2	<0.2	200	0
			Azinphos-methyl (Guthion)	mg/kg	0.2	<0.2	<0.2	200	0
		Surrogates	2-fluorobiphenyl (Surrogate)	mg/kg	-	0.4	0.4	30	5
			d14-p-terphenyl (Surrogate)	mg/kg	-	0.5	0.5	30	4

PAH (Polynuclear Aromatic Hydrocarbons) in Soil

Method: ME-(AU)-[ENV]AN420

Original	Duplicate		Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE156824.009	LB109467.027		Naphthalene	mg/kg	0.1	<0.1	0	200	0
			2-methylnaphthalene	mg/kg	0.1	<0.1	0.01	200	0
			1-methylnaphthalene	mg/kg	0.1	<0.1	0.01	200	0
			Acenaphthylene	mg/kg	0.1	<0.1	0	200	0
			Acenaphthene	mg/kg	0.1	<0.1	0	200	0
			Fluorene	mg/kg	0.1	<0.1	0	200	0
			Phenanthrene	mg/kg	0.1	<0.1	0.04	200	0
			Anthracene	mg/kg	0.1	<0.1	0	200	0
			Fluoranthene	mg/kg	0.1	<0.1	0.05	200	0
			Pyrene	mg/kg	0.1	<0.1	0.06	184	0
			Benzo(a)anthracene	mg/kg	0.1	<0.1	0.02	200	0
			Chrysene	mg/kg	0.1	<0.1	0.02	200	0
			Benzo(b&j)fluoranthene	mg/kg	0.1	<0.1	0.03	200	0
			Benzo(k)fluoranthene	mg/kg	0.1	<0.1	0.03	200	0
			Benzo(a)pyrene	mg/kg	0.1	<0.1	0.01	200	0
			Indeno(1,2,3-cd)pyrene	mg/kg	0.1	<0.1	0.01	200	0
			Dibenzo(ah)anthracene	mg/kg	0.1	<0.1	0	200	0
			Benzo(ghi)perylene	mg/kg	0.1	<0.1	0.01	200	0
			Carcinogenic PAHs, BaP TEQ <LOR=0	TEQ (mg/kg)	0.2	<0.2	0	200	0
			Carcinogenic PAHs, BaP TEQ <LOR=LOR	TEQ (mg/kg)	0.3	<0.3	0.242	134	0
			Carcinogenic PAHs, BaP TEQ <LOR=LOR/2	TEQ (mg/kg)	0.2	<0.2	0.121	175	0
			Total PAH (18)	mg/kg	0.8	<0.8	0	200	0
		Surrogates	d5-nitrobenzene (Surrogate)	mg/kg	-	0.4	0.41	30	5
			2-fluorobiphenyl (Surrogate)	mg/kg	-	0.4	0.4	30	5
			d14-p-terphenyl (Surrogate)	mg/kg	-	0.5	0.46	30	6
SE156824.022	LB109467.025		Naphthalene	mg/kg	0.1	<0.2	<0.2	200	0
			2-methylnaphthalene	mg/kg	0.1	<0.2	<0.2	200	0
			1-methylnaphthalene	mg/kg	0.1	<0.2	<0.2	200	0
			Acenaphthylene	mg/kg	0.1	<0.2	<0.2	200	0
			Acenaphthene	mg/kg	0.1	<0.2	<0.2	200	0
			Fluorene	mg/kg	0.1	<0.2	<0.2	200	0
			Phenanthrene	mg/kg	0.1	<0.2	<0.2	200	0
			Anthracene	mg/kg	0.1	<0.2	<0.2	200	0
			Fluoranthene	mg/kg	0.1	<0.2	<0.2	200	0
			Pyrene	mg/kg	0.1	<0.2	<0.2	200	0
			Benzo(a)anthracene	mg/kg	0.1	<0.2	<0.2	200	0
			Chrysene	mg/kg	0.1	<0.2	<0.2	200	0
			Benzo(b&j)fluoranthene	mg/kg	0.1	<0.2	<0.2	200	0
			Benzo(k)fluoranthene	mg/kg	0.1	<0.2	<0.2	200	0
			Benzo(a)pyrene	mg/kg	0.1	<0.2	<0.2	200	0
			Indeno(1,2,3-cd)pyrene	mg/kg	0.1	<0.2	<0.2	200	0

Duplicates are calculated as Relative Percentage Difference (RPD) using the formula: RPD = | OriginalResult - ReplicateResult | x 100 / Mean

The RPD is evaluated against the Maximum Allowable Difference (MAD) criteria and can be graphically represented by a curve calculated from the Statistical Detection Limit (SDL) and Limiting Repeatability (LR) using the formula: MAD = 100 x SDL / Mean + LR

Where the Maximum Allowable Difference evaluates to a number larger than 200 it is displayed as 200.

RPD is shown in **Green** when within suggested criteria or **Red** with an appended reason identifer when outside suggested criteria. Refer to the footnotes section at the end of this report for failure reasons.

PAH (Polynuclear Aromatic Hydrocarbons) in Soil (continued)

Method: ME-(AU)-[ENV]AN420

Original	Duplicate		Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE156824.022	LB109467.025		Dibenzo(ah)anthracene	mg/kg	0.1	<0.2	<0.2	200	0
			Benzo(ghi)perylene	mg/kg	0.1	<0.2	<0.2	200	0
			Carcinogenic PAHs, BaP TEQ <LOR=0	TEQ (mg/kg)	0.2	<0.4	<0.4	200	0
			Carcinogenic PAHs, BaP TEQ <LOR=LOR	TEQ (mg/kg)	0.3	<0.6	<0.6	134	0
			Carcinogenic PAHs, BaP TEQ <LOR=LOR/2	TEQ (mg/kg)	0.2	<0.4	<0.4	175	0
			Total PAH (18)	mg/kg	0.8	<1.6	<1.6	200	0
		Surrogates	d5-nitrobenzene (Surrogate)	mg/kg	-	0.4	0.4	30	5
			2-fluorobiphenyl (Surrogate)	mg/kg	-	0.4	0.4	30	2
			d14-p-terphenyl (Surrogate)	mg/kg	-	0.5	0.5	30	4
SE156824.039	LB109468.014		Naphthalene	mg/kg	0.1	<0.1	<0.1	200	0
			2-methylnaphthalene	mg/kg	0.1	<0.1	<0.1	200	0
			1-methylnaphthalene	mg/kg	0.1	<0.1	<0.1	200	0
			Acenaphthylene	mg/kg	0.1	<0.1	<0.1	200	0
			Acenaphthene	mg/kg	0.1	<0.1	<0.1	200	0
			Fluorene	mg/kg	0.1	<0.1	<0.1	200	0
			Phenanthrene	mg/kg	0.1	<0.1	<0.1	200	0
			Anthracene	mg/kg	0.1	<0.1	<0.1	200	0
			Fluoranthene	mg/kg	0.1	<0.1	<0.1	200	0
			Pyrene	mg/kg	0.1	<0.1	<0.1	200	0
			Benzo(a)anthracene	mg/kg	0.1	<0.1	<0.1	200	0
			Chrysene	mg/kg	0.1	<0.1	<0.1	200	0
			Benzo(b&j)fluoranthene	mg/kg	0.1	<0.1	<0.1	200	0
			Benzo(k)fluoranthene	mg/kg	0.1	<0.1	<0.1	200	0
			Benzo(a)pyrene	mg/kg	0.1	<0.1	<0.1	200	0
			Indeno(1,2,3-cd)pyrene	mg/kg	0.1	<0.1	<0.1	200	0
			Dibenzo(ah)anthracene	mg/kg	0.1	<0.1	<0.1	200	0
			Benzo(ghi)perylene	mg/kg	0.1	<0.1	<0.1	200	0
			Carcinogenic PAHs, BaP TEQ <LOR=0	TEQ (mg/kg)	0.2	<0.2	<0.2	200	0
			Carcinogenic PAHs, BaP TEQ <LOR=LOR	TEQ (mg/kg)	0.3	<0.3	<0.3	134	0
			Carcinogenic PAHs, BaP TEQ <LOR=LOR/2	TEQ (mg/kg)	0.2	<0.2	<0.2	175	0
			Total PAH (18)	mg/kg	0.8	<0.8	<0.8	200	0
		Surrogates	d5-nitrobenzene (Surrogate)	mg/kg	-	0.4	0.4	30	5
			2-fluorobiphenyl (Surrogate)	mg/kg	-	0.4	0.4	30	5
			d14-p-terphenyl (Surrogate)	mg/kg	-	0.5	0.5	30	4
SE156893.011	LB109468.027		Naphthalene	mg/kg	0.1	<0.1	0.02	200	0
			2-methylnaphthalene	mg/kg	0.1	<0.1	0.02	200	0
			1-methylnaphthalene	mg/kg	0.1	<0.1	0.02	200	0
			Acenaphthylene	mg/kg	0.1	<0.1	0	200	0
			Acenaphthene	mg/kg	0.1	<0.1	0	200	0
			Fluorene	mg/kg	0.1	<0.1	0	200	0
			Phenanthrene	mg/kg	0.1	<0.1	0.03	200	0
			Anthracene	mg/kg	0.1	<0.1	0	200	0
			Fluoranthene	mg/kg	0.1	<0.1	0.02	200	0
			Pyrene	mg/kg	0.1	<0.1	0.02	200	0
			Benzo(a)anthracene	mg/kg	0.1	<0.1	0.02	200	0
			Chrysene	mg/kg	0.1	<0.1	0.01	200	0
			Benzo(b&j)fluoranthene	mg/kg	0.1	<0.1	0.02	200	0
			Benzo(k)fluoranthene	mg/kg	0.1	<0.1	0.01	200	0
			Benzo(a)pyrene	mg/kg	0.1	<0.1	0.01	200	0
			Indeno(1,2,3-cd)pyrene	mg/kg	0.1	<0.1	0	200	0
			Dibenzo(ah)anthracene	mg/kg	0.1	<0.1	0	200	0
			Benzo(ghi)perylene	mg/kg	0.1	<0.1	0.01	200	0
			Carcinogenic PAHs, BaP TEQ <LOR=0	TEQ (mg/kg)	0.2	<0.2	0	200	0
			Carcinogenic PAHs, BaP TEQ <LOR=LOR	TEQ (mg/kg)	0.3	<0.3	0.242	134	0
			Carcinogenic PAHs, BaP TEQ <LOR=LOR/2	TEQ (mg/kg)	0.2	<0.2	0.121	175	0
			Total PAH (18)	mg/kg	0.8	<0.8	0	200	0
		Surrogates	d5-nitrobenzene (Surrogate)	mg/kg	-	0.4	0.41	30	13
			2-fluorobiphenyl (Surrogate)	mg/kg	-	0.4	0.43	30	10
			d14-p-terphenyl (Surrogate)	mg/kg	-	0.4	0.49	30	13

Duplicates are calculated as Relative Percentage Difference (RPD) using the formula: RPD = | OriginalResult - ReplicateResult | x 100 / Mean

The RPD is evaluated against the Maximum Allowable Difference (MAD) criteria and can be graphically represented by a curve calculated from the Statistical Detection Limit (SDL) and Limiting Repeatability (LR) using the formula: MAD = 100 x SDL / Mean + LR

Where the Maximum Allowable Difference evaluates to a number larger than 200 it is displayed as 200.

RPD is shown in **Green** when within suggested criteria or **Red** with an appended reason identifer when outside suggested criteria. Refer to the footnotes section at the end of this report for failure reasons.

Total Phenolics in Soil

Method: ME-(AU)-[ENV]AN289

Original	Duplicate	Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE156824.001	LB109627.004	Total Phenols	mg/kg	0.1	1.1	0.8	25	29 ②
SE156824.017	LB109633.004	Total Phenols	mg/kg	0.1	0.3	0.5	42	62 ③

Total Recoverable Metals in Soil/Waste Solids/Materials by ICPOES

Method: ME-(AU)-[ENV]AN040/AN320

Original	Duplicate	Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE156824.004	LB109694.014	Arsenic, As	mg/kg	3	6	6	47	9
		Cadmium, Cd	mg/kg	0.3	0.4	0.4	101	1
		Chromium, Cr	mg/kg	0.3	21	24	32	11
		Copper, Cu	mg/kg	0.5	26	26	32	1
		Lead, Pb	mg/kg	1	27	35	33	28
		Nickel, Ni	mg/kg	0.5	21	23	32	7
		Zinc, Zn	mg/kg	0.5	110	110	32	1
SE156824.013	LB109694.024	Arsenic, As	mg/kg	3	6	4	50	36
		Cadmium, Cd	mg/kg	0.3	0.5	<0.3	103	56
		Chromium, Cr	mg/kg	0.3	24	14	33	53 ②
		Copper, Cu	mg/kg	0.5	18	15	33	17
		Lead, Pb	mg/kg	1	84	69	31	20
		Nickel, Ni	mg/kg	0.5	13	7.7	35	48 ②
		Zinc, Zn	mg/kg	0.5	200	150	31	28
SE156824.029	LB109695.014	Arsenic, As	mg/kg	3	34	31	33	9
		Cadmium, Cd	mg/kg	0.3	0.3	0.3	128	2
		Chromium, Cr	mg/kg	0.3	23	23	32	1
		Copper, Cu	mg/kg	0.5	14	14	34	5
		Lead, Pb	mg/kg	1	25	25	34	3
		Nickel, Ni	mg/kg	0.5	15	15	33	4
		Zinc, Zn	mg/kg	0.5	63	61	33	2
SE156847.002	LB109695.024	Arsenic, As	mg/kg	3	4	3	60	17
		Cadmium, Cd	mg/kg	0.3	0.3	<0.3	141	13
		Chromium, Cr	mg/kg	0.3	1.7	2.0	57	20
		Copper, Cu	mg/kg	0.5	450	150	30	98 ②
		Lead, Pb	mg/kg	1	10	7	41	34
		Nickel, Ni	mg/kg	0.5	11	5.5	36	63 ②
		Zinc, Zn	mg/kg	0.5	35	30	36	16

TRH (Total Recoverable Hydrocarbons) in Soil

Method: ME-(AU)-[ENV]AN403

Original	Duplicate		Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE156824.009	LB109467.027		TRH C10-C14	mg/kg	20	<20	0	200	0
			TRH C15-C28	mg/kg	45	<45	0	200	0
			TRH C29-C36	mg/kg	45	<45	0	200	0
			TRH C37-C40	mg/kg	100	<100	0	200	0
			TRH C10-C36 Total	mg/kg	110	<110	0	200	0
			TRH C10-C40 Total	mg/kg	210	<210	0	200	0
		TRH F Bands	TRH >C10-C16 (F2)	mg/kg	25	<25	0	200	0
			TRH >C10-C16 (F2) - Naphthalene	mg/kg	25	<25	0	200	0
			TRH >C16-C34 (F3)	mg/kg	90	<90	0	200	0
			TRH >C34-C40 (F4)	mg/kg	120	<120	0	200	0
SE156824.022	LB109467.025		TRH C10-C14	mg/kg	20	<40	<40	200	0
			TRH C15-C28	mg/kg	45	<90	<90	200	0
			TRH C29-C36	mg/kg	45	<90	<90	200	0
			TRH C37-C40	mg/kg	100	<200	<200	200	0
			TRH C10-C36 Total	mg/kg	110	<220	<220	200	0
			TRH C10-C40 Total	mg/kg	210	<420	<420	200	0
		TRH F Bands	TRH >C10-C16 (F2)	mg/kg	25	<50	<50	200	0
			TRH >C10-C16 (F2) - Naphthalene	mg/kg	25	<50	<50	200	0
			TRH >C16-C34 (F3)	mg/kg	90	<180	<180	200	0
			TRH >C34-C40 (F4)	mg/kg	120	<240	<240	200	0
SE156824.039	LB109468.014		TRH C10-C14	mg/kg	20	<20	<20	200	0
			TRH C15-C28	mg/kg	45	<45	<45	200	0
			TRH C29-C36	mg/kg	45	<45	<45	200	0
			TRH C37-C40	mg/kg	100	<100	<100	200	0

Duplicates are calculated as Relative Percentage Difference (RPD) using the formula: RPD = | OriginalResult - ReplicateResult | x 100 / Mean

The RPD is evaluated against the Maximum Allowable Difference (MAD) criteria and can be graphically represented by a curve calculated from the Statistical Detection Limit (SDL) and Limiting Repeatability (LR) using the formula: MAD = 100 x SDL / Mean + LR

Where the Maximum Allowable Difference evaluates to a number larger than 200 it is displayed as 200.

RPD is shown in **Green** when within suggested criteria or **Red** with an appended reason identifer when outside suggested criteria. Refer to the footnotes section at the end of this report for failure reasons.

TRH (Total Recoverable Hydrocarbons) in Soil (continued)

Method: ME-(AU)-[ENV]AN403

Original	Duplicate		Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE156824.039	LB109468.014		TRH C10-C36 Total	mg/kg	110	<110	<110	200	0
			TRH C10-C40 Total	mg/kg	210	<210	<210	200	0
		TRH F Bands	TRH >C10-C16 (F2)	mg/kg	25	<25	<25	200	0
			TRH >C10-C16 (F2) - Naphthalene	mg/kg	25	<25	<25	200	0
			TRH >C16-C34 (F3)	mg/kg	90	<90	<90	200	0
			TRH >C34-C40 (F4)	mg/kg	120	<120	<120	200	0
SE156893.011	LB109468.027		TRH C10-C14	mg/kg	20	<20	0	200	0
			TRH C15-C28	mg/kg	45	<45	0	200	0
			TRH C29-C36	mg/kg	45	<45	0	200	0
			TRH C37-C40	mg/kg	100	<100	0	200	0
			TRH C10-C36 Total	mg/kg	110	<110	0	200	0
			TRH C10-C40 Total	mg/kg	210	<210	0	200	0
		TRH F Bands	TRH >C10-C16 (F2)	mg/kg	25	<25	0	200	0
			TRH >C10-C16 (F2) - Naphthalene	mg/kg	25	<25	0	200	0
			TRH >C16-C34 (F3)	mg/kg	90	<90	0	200	0
			TRH >C34-C40 (F4)	mg/kg	120	<120	0	200	0

VOC's in Soil

Method: ME-(AU)-[ENV]AN433

Original	Duplicate		Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE156824.010	LB109424.014	Monocyclic	Benzene	mg/kg	0.1	<0.1	<0.1	200	0
		Aromatic	Toluene	mg/kg	0.1	<0.1	<0.1	200	0
			Ethylbenzene	mg/kg	0.1	<0.1	<0.1	200	0
			m/p-xylene	mg/kg	0.2	<0.2	<0.2	200	0
			o-xylene	mg/kg	0.1	<0.1	<0.1	200	0
		Polycyclic	Naphthalene	mg/kg	0.1	<0.1	<0.1	200	0
		Surrogates	Dibromofluoromethane (Surrogate)	mg/kg	-	4.0	4.0	50	0
			d4-1,2-dichloroethane (Surrogate)	mg/kg	-	4.6	4.7	50	1
			d8-toluene (Surrogate)	mg/kg	-	4.9	4.9	50	0
			Bromofluorobenzene (Surrogate)	mg/kg	-	4.0	4.2	50	6
		Totals	Total Xylenes*	mg/kg	0.3	<0.3	<0.3	200	0
			Total BTEX	mg/kg	0.6	<0.6	<0.3	200	0
SE156824.022	LB109424.025	Monocyclic	Benzene	mg/kg	0.1	<0.1	<0.1	200	0
		Aromatic	Toluene	mg/kg	0.1	<0.1	<0.1	200	0
			Ethylbenzene	mg/kg	0.1	<0.1	<0.1	200	0
			m/p-xylene	mg/kg	0.2	<0.2	<0.2	200	0
			o-xylene	mg/kg	0.1	<0.1	<0.1	200	0
		Polycyclic	Naphthalene	mg/kg	0.1	<0.1	<0.1	200	0
		Surrogates	Dibromofluoromethane (Surrogate)	mg/kg	-	4.1	3.7	50	10
			d4-1,2-dichloroethane (Surrogate)	mg/kg	-	4.5	4.4	50	3
			d8-toluene (Surrogate)	mg/kg	-	4.6	4.2	50	9
			Bromofluorobenzene (Surrogate)	mg/kg	-	4.3	3.8	50	11
		Totals	Total Xylenes*	mg/kg	0.3	<0.3	<0.3	200	0
			Total BTEX	mg/kg	0.6	<0.6	<0.3	200	0
SE156878.002	LB109466.014	Monocyclic	Benzene	mg/kg	0.1	<0.1	<0.1	200	0
		Aromatic	Toluene	mg/kg	0.1	<0.1	<0.1	200	0
			Ethylbenzene	mg/kg	0.1	<0.1	<0.1	200	0
			m/p-xylene	mg/kg	0.2	<0.2	<0.2	200	0
			o-xylene	mg/kg	0.1	<0.1	<0.1	200	0
		Polycyclic	Naphthalene	mg/kg	0.1	<0.1	<0.1	200	0
		Surrogates	Dibromofluoromethane (Surrogate)	mg/kg	-	4.2	3.9	50	6
			d4-1,2-dichloroethane (Surrogate)	mg/kg	-	4.2	4.0	50	6
			d8-toluene (Surrogate)	mg/kg	-	3.8	3.6	50	4
			Bromofluorobenzene (Surrogate)	mg/kg	-	4.0	3.9	50	1
		Totals	Total Xylenes*	mg/kg	0.3	<0.3	<0.3	200	0
			Total BTEX	mg/kg	0.6	<0.6	<0.6	200	0
SE156880.005	LB109466.023	Monocyclic	Benzene	mg/kg	0.1	<0.1	<0.1	200	0
		Aromatic	Toluene	mg/kg	0.1	<0.1	<0.1	200	0
			Ethylbenzene	mg/kg	0.1	<0.1	<0.1	200	0
			m/p-xylene	mg/kg	0.2	<0.2	<0.2	200	0
			o-xylene	mg/kg	0.1	<0.1	<0.1	200	0
		Polycyclic	Naphthalene	mg/kg	0.1	<0.1	<0.1	200	0

Duplicates are calculated as Relative Percentage Difference (RPD) using the formula: RPD = | OriginalResult - ReplicateResult | x 100 / Mean

The RPD is evaluated against the Maximum Allowable Difference (MAD) criteria and can be graphically represented by a curve calculated from the Statistical Detection Limit (SDL) and Limiting Repeatability (LR) using the formula: MAD = 100 x SDL / Mean + LR

Where the Maximum Allowable Difference evaluates to a number larger than 200 it is displayed as 200.

RPD is shown in **Green** when within suggested criteria or **Red** with an appended reason identifer when outside suggested criteria. Refer to the footnotes section at the end of this report for failure reasons.

VOC's in Soil (continued)

Method: ME-(AU)-[ENV]AN433

Original	Duplicate		Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE156880.005	LB109466.023	Surrogates	Dibromofluoromethane (Surrogate)	mg/kg	-	4.0	3.9	50	2
			d4-1,2-dichloroethane (Surrogate)	mg/kg	-	4.0	3.8	50	4
			d8-toluene (Surrogate)	mg/kg	-	3.8	3.6	50	5
			Bromofluorobenzene (Surrogate)	mg/kg	-	3.8	3.7	50	3
		Totals	Total Xylenes*	mg/kg	0.3	<0.3	<0.3	200	0
			Total BTEX	mg/kg	0.6	<0.6	<0.6	200	0

Volatile Petroleum Hydrocarbons in Soil

Method: ME-(AU)-[ENV]AN433

Original	Duplicate		Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE156824.010	LB109424.014		TRH C6-C10	mg/kg	25	<25	<25	200	0
			TRH C6-C9	mg/kg	20	<20	<20	200	0
		Surrogates	Dibromofluoromethane (Surrogate)	mg/kg	-	4.0	4.0	30	0
			d4-1,2-dichloroethane (Surrogate)	mg/kg	-	4.6	4.7	30	1
			d8-toluene (Surrogate)	mg/kg	-	4.9	4.9	30	0
			Bromofluorobenzene (Surrogate)	mg/kg	-	4.0	4.2	30	6
		VPH F Bands	Benzene (F0)	mg/kg	0.1	<0.1	<0.1	200	0
			TRH C6-C10 minus BTEX (F1)	mg/kg	25	<25	<25	200	0
SE156824.022	LB109424.025		TRH C6-C10	mg/kg	25	<25	<25	200	0
			TRH C6-C9	mg/kg	20	<20	<20	200	0
		Surrogates	Dibromofluoromethane (Surrogate)	mg/kg	-	4.1	3.7	30	10
			d4-1,2-dichloroethane (Surrogate)	mg/kg	-	4.5	4.4	30	3
			d8-toluene (Surrogate)	mg/kg	-	4.6	4.2	30	9
			Bromofluorobenzene (Surrogate)	mg/kg	-	4.3	3.8	30	11
		VPH F Bands	Benzene (F0)	mg/kg	0.1	<0.1	<0.1	200	0
			TRH C6-C10 minus BTEX (F1)	mg/kg	25	<25	<25	200	0
SE156847.009	LB109425.014		TRH C6-C10	mg/kg	25	<25	<25	200	0
			TRH C6-C9	mg/kg	20	<20	<20	200	0
		Surrogates	Dibromofluoromethane (Surrogate)	mg/kg	-	4.3	4.1	30	5
			d4-1,2-dichloroethane (Surrogate)	mg/kg	-	4.5	4.2	30	6
			d8-toluene (Surrogate)	mg/kg	-	5.0	5.0	30	0
			Bromofluorobenzene (Surrogate)	mg/kg	-	4.3	4.3	30	0
		VPH F Bands	Benzene (F0)	mg/kg	0.1	<0.1	<0.1	200	0
			TRH C6-C10 minus BTEX (F1)	mg/kg	25	<25	<25	200	0
SE156847.029	LB109425.020		TRH C6-C10	mg/kg	25	<25	<25	200	0
			TRH C6-C9	mg/kg	20	<20	<20	200	0
		Surrogates	Dibromofluoromethane (Surrogate)	mg/kg	-	4.0	3.7	30	8
			d4-1,2-dichloroethane (Surrogate)	mg/kg	-	4.2	3.9	30	9
			d8-toluene (Surrogate)	mg/kg	-	4.9	4.7	30	5
			Bromofluorobenzene (Surrogate)	mg/kg	-	4.3	4.1	30	5
		VPH F Bands	Benzene (F0)	mg/kg	0.1	<0.1	<0.1	200	0
			TRH C6-C10 minus BTEX (F1)	mg/kg	25	<25	<25	200	0
SE156878.002	LB109466.014		TRH C6-C10	mg/kg	25	<25	<25	200	0
			TRH C6-C9	mg/kg	20	<20	<20	200	0
		Surrogates	Dibromofluoromethane (Surrogate)	mg/kg	-	4.2	3.9	30	6
			d4-1,2-dichloroethane (Surrogate)	mg/kg	-	4.2	4.0	30	6
			d8-toluene (Surrogate)	mg/kg	-	3.8	3.6	30	4
			Bromofluorobenzene (Surrogate)	mg/kg	-	4.0	3.9	30	1
		VPH F Bands	Benzene (F0)	mg/kg	0.1	<0.1	<0.1	200	0
			TRH C6-C10 minus BTEX (F1)	mg/kg	25	<25	<25	200	0
SE156880.005	LB109466.023		TRH C6-C10	mg/kg	25	<25	<25	200	0
			TRH C6-C9	mg/kg	20	<20	<20	200	0
		Surrogates	Dibromofluoromethane (Surrogate)	mg/kg	-	4.0	3.9	30	2
			d4-1,2-dichloroethane (Surrogate)	mg/kg	-	4.0	3.8	30	4
			d8-toluene (Surrogate)	mg/kg	-	3.8	3.6	30	5
			Bromofluorobenzene (Surrogate)	mg/kg	-	3.8	3.7	30	3
		VPH F Bands	Benzene (F0)	mg/kg	0.1	<0.1	<0.1	200	0
			TRH C6-C10 minus BTEX (F1)	mg/kg	25	<25	<25	200	0

Laboratory Control Standard (LCS) results are evaluated against an expected result, typically the concentration of analyte spiked into the control during the sample preparation stage, producing a percentage recovery. The criteria applied to the percentage recovery is established in the SGS QA /QC plan (Ref: MP-(AU)-[ENV]QU-022). For more information refer to the footnotes in the concluding page of this report.

Recovery is shown in **Green** when within suggested criteria or **Red** with an appended dagger symbol (†) when outside suggested criteria.

Mercury in Soil

Method: ME-(AU)-[ENV]AN312

Sample Number	Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB109619.002	Mercury	mg/kg	0.05	0.19	0.2	70 - 130	97
LB109620.002	Mercury	mg/kg	0.05	0.21	0.2	70 - 130	104

OC Pesticides in Soil

Method: ME-(AU)-[ENV]AN400/AN420

Sample Number		Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB109467.002		Heptachlor	mg/kg	0.1	0.2	0.2	60 - 140	100
		Aldrin	mg/kg	0.1	0.2	0.2	60 - 140	95
		Delta BHC	mg/kg	0.1	0.2	0.2	60 - 140	100
		Dieldrin	mg/kg	0.2	<0.2	0.2	60 - 140	90
		Endrin	mg/kg	0.2	0.3	0.2	60 - 140	134
		p,p'-DDT	mg/kg	0.1	0.2	0.2	60 - 140	120
	Surrogates	Tetrachloro-m-xylene (TCMX) (Surrogate)	mg/kg	-	0.12	0.15	40 - 130	78
LB109468.002		Heptachlor	mg/kg	0.1	0.2	0.2	60 - 140	105
		Aldrin	mg/kg	0.1	0.2	0.2	60 - 140	95
		Delta BHC	mg/kg	0.1	0.2	0.2	60 - 140	100
		Dieldrin	mg/kg	0.2	<0.2	0.2	60 - 140	85
		Endrin	mg/kg	0.2	0.2	0.2	60 - 140	110
		p,p'-DDT	mg/kg	0.1	0.2	0.2	60 - 140	115
	Surrogates	Tetrachloro-m-xylene (TCMX) (Surrogate)	mg/kg	-	0.12	0.15	40 - 130	81

OP Pesticides in Soil

Method: ME-(AU)-[ENV]AN400/AN420

Sample Number		Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB109467.002		Dichlorvos	mg/kg	0.5	2.1	2	60 - 140	104
		Diazinon (Dimpylate)	mg/kg	0.5	1.6	2	60 - 140	81
		Chlorpyrifos (Chlorpyrifos Ethyl)	mg/kg	0.2	2.0	2	60 - 140	102
		Ethion	mg/kg	0.2	2.0	2	60 - 140	100
	Surrogates	2-fluorobiphenyl (Surrogate)	mg/kg	-	0.4	0.5	40 - 130	82
		d14-p-terphenyl (Surrogate)	mg/kg	-	0.5	0.5	40 - 130	94
LB109468.002		Dichlorvos	mg/kg	0.5	1.5	2	60 - 140	76
		Diazinon (Dimpylate)	mg/kg	0.5	1.7	2	60 - 140	87
		Chlorpyrifos (Chlorpyrifos Ethyl)	mg/kg	0.2	1.6	2	60 - 140	79
		Ethion	mg/kg	0.2	1.7	2	60 - 140	87
	Surrogates	2-fluorobiphenyl (Surrogate)	mg/kg	-	0.4	0.5	40 - 130	84
		d14-p-terphenyl (Surrogate)	mg/kg	-	0.5	0.5	40 - 130	96

PAH (Polynuclear Aromatic Hydrocarbons) in Soil

Method: ME-(AU)-[ENV]AN420

Sample Number		Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB109467.002		Naphthalene	mg/kg	0.1	3.8	4	60 - 140	96
		Acenaphthylene	mg/kg	0.1	3.7	4	60 - 140	94
		Acenaphthene	mg/kg	0.1	3.7	4	60 - 140	94
		Phenanthrene	mg/kg	0.1	3.8	4	60 - 140	96
		Anthracene	mg/kg	0.1	3.8	4	60 - 140	95
		Fluoranthene	mg/kg	0.1	4.1	4	60 - 140	102
		Pyrene	mg/kg	0.1	4.0	4	60 - 140	101
		Benzo(a)pyrene	mg/kg	0.1	3.8	4	60 - 140	96
	Surrogates	d5-nitrobenzene (Surrogate)	mg/kg	-	0.4	0.5	40 - 130	86
		2-fluorobiphenyl (Surrogate)	mg/kg	-	0.4	0.5	40 - 130	82
		d14-p-terphenyl (Surrogate)	mg/kg	-	0.5	0.5	40 - 130	94
LB109468.002		Naphthalene	mg/kg	0.1	4.0	4	60 - 140	99
		Acenaphthylene	mg/kg	0.1	3.9	4	60 - 140	99
		Acenaphthene	mg/kg	0.1	4.0	4	60 - 140	99
		Phenanthrene	mg/kg	0.1	4.1	4	60 - 140	102
		Anthracene	mg/kg	0.1	4.1	4	60 - 140	102
		Fluoranthene	mg/kg	0.1	4.0	4	60 - 140	100
		Pyrene	mg/kg	0.1	4.0	4	60 - 140	100
		Benzo(a)pyrene	mg/kg	0.1	4.6	4	60 - 140	114
	Surrogates	d5-nitrobenzene (Surrogate)	mg/kg	-	0.4	0.5	40 - 130	80
		2-fluorobiphenyl (Surrogate)	mg/kg	-	0.4	0.5	40 - 130	84
		d14-p-terphenyl (Surrogate)	mg/kg	-	0.5	0.5	40 - 130	96

Total Phenolics in Soil

Method: ME-(AU)-[ENV]AN289

Sample Number	Parameter	Units	LOR

Laboratory Control Standard (LCS) results are evaluated against an expected result, typically the concentration of analyte spiked into the control during the sample preparation stage, producing a percentage recovery. The criteria applied to the percentage recovery is established in the SGS QA /QC plan (Ref: MP-(AU)-[ENV]QU-022). For more information refer to the footnotes in the concluding page of this report.

Recovery is shown in **Green** when within suggested criteria or **Red** with an appended dagger symbol (†) when outside suggested criteria.

Total Phenolics in Soil (continued)

Method: ME-(AU)-[ENV]AN289

Sample Number	Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB109627.002	Total Phenols	mg/kg	0.1	1.8	2.5	70 - 130	71
LB109633.002	Total Phenols	mg/kg	0.1	2.2	2.5	70 - 130	86

Total Recoverable Metals in Soil/Waste Solids/Materials by ICPOES

Method: ME-(AU)-[ENV]AN040/AN320

Sample Number	Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB109694.002	Arsenic, As	mg/kg	3	49	50	80 - 120	98
	Cadmium, Cd	mg/kg	0.3	52	50	80 - 120	104
	Chromium, Cr	mg/kg	0.3	50	50	80 - 120	100
	Copper, Cu	mg/kg	0.5	51	50	80 - 120	103
	Lead, Pb	mg/kg	1	50	50	80 - 120	101
	Nickel, Ni	mg/kg	0.5	50	50	80 - 120	100
	Zinc, Zn	mg/kg	0.5	51	50	80 - 120	102
LB109695.002	Arsenic, As	mg/kg	3	50	50	80 - 120	99
	Cadmium, Cd	mg/kg	0.3	50	50	80 - 120	99
	Chromium, Cr	mg/kg	0.3	50	50	80 - 120	100
	Copper, Cu	mg/kg	0.5	50	50	80 - 120	99
	Lead, Pb	mg/kg	1	50	50	80 - 120	99
	Nickel, Ni	mg/kg	0.5	50	50	80 - 120	99
	Zinc, Zn	mg/kg	0.5	50	50	80 - 120	100

TRH (Total Recoverable Hydrocarbons) in Soil

Method: ME-(AU)-[ENV]AN403

Sample Number		Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB109467.002		TRH C10-C14	mg/kg	20	39	40	60 - 140	98
		TRH C15-C28	mg/kg	45	45	40	60 - 140	113
		TRH C29-C36	mg/kg	45	<45	40	60 - 140	93
	TRH F Bands	TRH >C10-C16 (F2)	mg/kg	25	40	40	60 - 140	100
		TRH >C16-C34 (F3)	mg/kg	90	<90	40	60 - 140	115
		TRH >C34-C40 (F4)	mg/kg	120	<120	20	60 - 140	90
LB109468.002		TRH C10-C14	mg/kg	20	46	40	60 - 140	115
		TRH C15-C28	mg/kg	45	45	40	60 - 140	113
		TRH C29-C36	mg/kg	45	<45	40	60 - 140	95
	TRH F Bands	TRH >C10-C16 (F2)	mg/kg	25	46	40	60 - 140	115
		TRH >C16-C34 (F3)	mg/kg	90	<90	40	60 - 140	108
		TRH >C34-C40 (F4)	mg/kg	120	<120	20	60 - 140	95

VOC's in Soil

Method: ME-(AU)-[ENV]AN433

Sample Number		Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB109424.002	Monocyclic Aromatic	Benzene	mg/kg	0.1	1.8	2.9	60 - 140	63
		Toluene	mg/kg	0.1	1.9	2.9	60 - 140	67
		Ethylbenzene	mg/kg	0.1	2.2	2.9	60 - 140	74
		m/p-xylene	mg/kg	0.2	4.4	5.8	60 - 140	75
		o-xylene	mg/kg	0.1	2.2	2.9	60 - 140	76
	Surrogates	Dibromofluoromethane (Surrogate)	mg/kg	-	3.7	5	60 - 140	73
		d4-1,2-dichloroethane (Surrogate)	mg/kg	-	4.2	5	60 - 140	83
		d8-toluene (Surrogate)	mg/kg	-	4.5	5	60 - 140	89
		Bromofluorobenzene (Surrogate)	mg/kg	-	4.5	5	60 - 140	90
LB109425.002	Monocyclic Aromatic	Benzene	mg/kg	0.1	2.1	2.9	60 - 140	74
		Toluene	mg/kg	0.1	2.4	2.9	60 - 140	81
		Ethylbenzene	mg/kg	0.1	2.0	2.9	60 - 140	70
		m/p-xylene	mg/kg	0.2	4.1	5.8	60 - 140	70
		o-xylene	mg/kg	0.1	2.1	2.9	60 - 140	72
	Surrogates	Dibromofluoromethane (Surrogate)	mg/kg	-	4.1	5	60 - 140	81
		d4-1,2-dichloroethane (Surrogate)	mg/kg	-	5.0	5	60 - 140	100
		d8-toluene (Surrogate)	mg/kg	-	5.2	5	60 - 140	105
		Bromofluorobenzene (Surrogate)	mg/kg	-	4.5	5	60 - 140	90
LB109466.002	Monocyclic Aromatic	Benzene	mg/kg	0.1	1.9	2.9	60 - 140	64
		Toluene	mg/kg	0.1	2.1	2.9	60 - 140	71
		Ethylbenzene	mg/kg	0.1	2.0	2.9	60 - 140	68
		m/p-xylene	mg/kg	0.2	4.4	5.8	60 - 140	76
		o-xylene	mg/kg	0.1	2.1	2.9	60 - 140	73
	Surrogates	Dibromofluoromethane (Surrogate)	mg/kg	-	4.2	5	60 - 140	85

Laboratory Control Standard (LCS) results are evaluated against an expected result, typically the concentration of analyte spiked into the control during the sample preparation stage, producing a percentage recovery. The criteria applied to the percentage recovery is established in the SGS QA /QC plan (Ref: MP-(AU)-[ENV]QU-022). For more information refer to the footnotes in the concluding page of this report.

Recovery is shown in **Green** when within suggested criteria or **Red** with an appended dagger symbol (†) when outside suggested criteria.

VOC's in Soil (continued)

Method: ME-(AU)-[ENV]AN433

Sample Number		Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB109466.002	Surrogates	d4-1,2-dichloroethane (Surrogate)	mg/kg	-	4.4	5	60 - 140	87
		d8-toluene (Surrogate)	mg/kg	-	4.4	5	60 - 140	87
		Bromofluorobenzene (Surrogate)	mg/kg	-	5.3	5	60 - 140	106

Volatile Petroleum Hydrocarbons in Soil

Method: ME-(AU)-[ENV]AN433

Sample Number		Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB109424.002		TRH C6-C10	mg/kg	25	<25	24.65	60 - 140	88
		TRH C6-C9	mg/kg	20	<20	23.2	60 - 140	80
	Surrogates	Dibromofluoromethane (Surrogate)	mg/kg	-	3.7	5	60 - 140	73
		d4-1,2-dichloroethane (Surrogate)	mg/kg	-	4.2	5	60 - 140	83
		d8-toluene (Surrogate)	mg/kg	-	4.5	5	60 - 140	89
		Bromofluorobenzene (Surrogate)	mg/kg	-	4.5	5	60 - 140	90
	VPH F Bands	TRH C6-C10 minus BTEX (F1)	mg/kg	25	<25	7.25	60 - 140	128
LB109425.002		TRH C6-C10	mg/kg	25	<25	24.65	60 - 140	89
		TRH C6-C9	mg/kg	20	<20	23.2	60 - 140	80
	Surrogates	Dibromofluoromethane (Surrogate)	mg/kg	-	4.1	5	60 - 140	81
		d4-1,2-dichloroethane (Surrogate)	mg/kg	-	5.0	5	60 - 140	100
		d8-toluene (Surrogate)	mg/kg	-	5.2	5	60 - 140	105
		Bromofluorobenzene (Surrogate)	mg/kg	-	4.5	5	60 - 140	90
	VPH F Bands	TRH C6-C10 minus BTEX (F1)	mg/kg	25	<25	7.25	60 - 140	126
LB109466.002		TRH C6-C10	mg/kg	25	<25	24.65	60 - 140	86
		TRH C6-C9	mg/kg	20	<20	23.2	60 - 140	65
	Surrogates	Dibromofluoromethane (Surrogate)	mg/kg	-	4.2	5	60 - 140	85
		d4-1,2-dichloroethane (Surrogate)	mg/kg	-	4.4	5	60 - 140	87
		d8-toluene (Surrogate)	mg/kg	-	4.4	5	60 - 140	87
		Bromofluorobenzene (Surrogate)	mg/kg	-	5.3	5	60 - 140	106
	VPH F Bands	TRH C6-C10 minus BTEX (F1)	mg/kg	25	<25	7.25	60 - 140	123

Matrix Spike (MS) results are evaluated as the percentage recovery of an expected result, typically the concentration of analyte spiked into a field sub -sample during the sample preparation stage. The original sample's result is subtracted from the sub-sample result before determining the percentage recovery. The criteria applied to the percentage recovery is established in the SGS QA/QC plan (ref: MP-(AU)-[ENV]QU-022). For more information refer to the footnotes in the concluding page of this report.

Recovery is shown in **Green** when within suggested criteria or **Red** with an appended reason identifer when outside suggested criteria. Refer to the footnotes section at the end of this report for failure reasons.

Mercury in Soil

Method: ME-(AU)-[ENV]AN312

QC Sample	Sample Number	Parameter	Units	LOR	Result	Original	Spike	Recovery%
SE156824.001	LB109619.004	Mercury	mg/kg	0.05	0.19	<0.05	0.2	91
SE156824.022	LB109620.004	Mercury	mg/kg	0.05	0.22	<0.05	0.2	91

OC Pesticides in Soil

Method: ME-(AU)-[ENV]AN400/AN420

QC Sample	Sample Number		Parameter	Units	LOR	Original	Spike	Recovery%
SE156824.002	LB109467.026		Hexachlorobenzene (HCB)	mg/kg	0.1	<0.2	-	-
			Alpha BHC	mg/kg	0.1	<0.2	-	-
			Lindane	mg/kg	0.1	<0.2	-	-
			Heptachlor	mg/kg	0.1	<0.2	0.2	110
			Aldrin	mg/kg	0.1	<0.2	0.2	100
			Beta BHC	mg/kg	0.1	<0.2	-	-
			Delta BHC	mg/kg	0.1	<0.2	0.2	105
			Heptachlor epoxide	mg/kg	0.1	<0.2	-	-
			o,p'-DDE	mg/kg	0.1	<0.2	-	-
			Alpha Endosulfan	mg/kg	0.2	<0.4	-	-
			Gamma Chlordane	mg/kg	0.1	<0.2	-	-
			Alpha Chlordane	mg/kg	0.1	<0.2	-	-
			trans-Nonachlor	mg/kg	0.1	<0.2	-	-
			p,p'-DDE	mg/kg	0.1	<0.2	-	-
			Dieldrin	mg/kg	0.2	<0.4	0.2	95
			Endrin	mg/kg	0.2	<0.4	0.2	140
			o,p'-DDD	mg/kg	0.1	<0.2	-	-
			o,p'-DDT	mg/kg	0.1	<0.2	-	-
			Beta Endosulfan	mg/kg	0.2	<0.4	-	-
			p,p'-DDD	mg/kg	0.1	<0.2	-	-
			p,p'-DDT	mg/kg	0.1	<0.2	0.2	130
			Endosulfan sulphate	mg/kg	0.1	<0.2	-	-
			Endrin Aldehyde	mg/kg	0.1	<0.2	-	-
			Methoxychlor	mg/kg	0.1	<0.2	-	-
			Endrin Ketone	mg/kg	0.1	<0.2	-	-
			Isodrin	mg/kg	0.1	<0.2	-	-
			Mirex	mg/kg	0.1	<0.2	-	-
		Surrogates	Tetrachloro-m-xylene (TCMX) (Surrogate)	mg/kg	-	0.12	-	83
SE156824.023	LB109468.026		Hexachlorobenzene (HCB)	mg/kg	0.1	<0.1	-	-
			Alpha BHC	mg/kg	0.1	<0.1	-	-
			Lindane	mg/kg	0.1	<0.1	-	-
			Heptachlor	mg/kg	0.1	<0.1	0.2	105
			Aldrin	mg/kg	0.1	<0.1	0.2	100
			Beta BHC	mg/kg	0.1	<0.1	-	-
			Delta BHC	mg/kg	0.1	<0.1	0.2	105
			Heptachlor epoxide	mg/kg	0.1	<0.1	-	-
			o,p'-DDE	mg/kg	0.1	<0.1	-	-
			Alpha Endosulfan	mg/kg	0.2	<0.2	-	-
			Gamma Chlordane	mg/kg	0.1	<0.1	-	-
			Alpha Chlordane	mg/kg	0.1	<0.1	-	-
			trans-Nonachlor	mg/kg	0.1	<0.1	-	-
			p,p'-DDE	mg/kg	0.1	<0.1	-	-
			Dieldrin	mg/kg	0.2	<0.2	0.2	85
			Endrin	mg/kg	0.2	<0.2	0.2	110
			o,p'-DDD	mg/kg	0.1	<0.1	-	-
			o,p'-DDT	mg/kg	0.1	<0.1	-	-
			Beta Endosulfan	mg/kg	0.2	<0.2	-	-
			p,p'-DDD	mg/kg	0.1	<0.1	-	-
			p,p'-DDT	mg/kg	0.1	<0.1	0.2	115
			Endosulfan sulphate	mg/kg	0.1	<0.1	-	-
			Endrin Aldehyde	mg/kg	0.1	<0.1	-	-
			Methoxychlor	mg/kg	0.1	<0.1	-	-
			Endrin Ketone	mg/kg	0.1	<0.1	-	-
			Isodrin	mg/kg	0.1	<0.1	-	-
			Mirex	mg/kg	0.1	<0.1	-	-

Matrix Spike (MS) results are evaluated as the percentage recovery of an expected result, typically the concentration of analyte spiked into a field sub -sample during the sample preparation stage. The original sample's result is subtracted from the sub-sample result before determining the percentage recovery. The criteria applied to the percentage recovery is established in the SGS QA/QC plan (ref: MP-(AU)-[ENV]QU-022). For more information refer to the footnotes in the concluding page of this report.

Recovery is shown in **Green** when within suggested criteria or **Red** with an appended reason identifer when outside suggested criteria. Refer to the footnotes section at the end of this report for failure reasons.

OC Pesticides in Soil (continued)

Method: ME-(AU)-[ENV]AN400/AN420

QC Sample	Sample Number		Parameter	Units	LOR	Original	Spike	Recovery%
SE156824.023	LB109468.026	Surrogates	Tetrachloro-m-xylene (TCMX) (Surrogate)	mg/kg	-	0.12	-	83

OP Pesticides in Soil

Method: ME-(AU)-[ENV]AN400/AN420

QC Sample	Sample Number		Parameter	Units	LOR	Original	Spike	Recovery%
SE156824.002	LB109467.026		Dichlorvos	mg/kg	0.5	<1.0	2	108
			Dimethoate	mg/kg	0.5	<1.0	-	-
			Diazinon (Dimpylate)	mg/kg	0.5	<1.0	2	82
			Fenitrothion	mg/kg	0.2	<0.4	-	-
			Malathion	mg/kg	0.2	<0.4	-	-
			Chlorpyrifos (Chlorpyrifos Ethyl)	mg/kg	0.2	<0.4	2	102
			Parathion-ethyl (Parathion)	mg/kg	0.2	<0.4	-	-
			Bromophos Ethyl	mg/kg	0.2	<0.4	-	-
			Methidathion	mg/kg	0.5	<1.0	-	-
			Ethion	mg/kg	0.2	<0.4	2	102
			Azinphos-methyl (Guthion)	mg/kg	0.2	<0.4	-	-
		Surrogates	2-fluorobiphenyl (Surrogate)	mg/kg	-	0.4	-	80
			d14-p-terphenyl (Surrogate)	mg/kg	-	0.5	-	90
SE156824.023	LB109468.026		Dichlorvos	mg/kg	0.5	<0.5	2	77
			Dimethoate	mg/kg	0.5	<0.5	-	-
			Diazinon (Dimpylate)	mg/kg	0.5	<0.5	2	78
			Fenitrothion	mg/kg	0.2	<0.2	-	-
			Malathion	mg/kg	0.2	<0.2	-	-
			Chlorpyrifos (Chlorpyrifos Ethyl)	mg/kg	0.2	<0.2	2	73
			Parathion-ethyl (Parathion)	mg/kg	0.2	<0.2	-	-
			Bromophos Ethyl	mg/kg	0.2	<0.2	-	-
			Methidathion	mg/kg	0.5	<0.5	-	-
			Ethion	mg/kg	0.2	<0.2	2	78
			Azinphos-methyl (Guthion)	mg/kg	0.2	<0.2	-	-
		Surrogates	2-fluorobiphenyl (Surrogate)	mg/kg	-	0.4	-	76
			d14-p-terphenyl (Surrogate)	mg/kg	-	0.5	-	86

PAH (Polynuclear Aromatic Hydrocarbons) in Soil

Method: ME-(AU)-[ENV]AN420

QC Sample	Sample Number		Parameter	Units	LOR	Original	Spike	Recovery%
SE156824.002	LB109467.026		Naphthalene	mg/kg	0.1	<0.2	4	97
			2-methylnaphthalene	mg/kg	0.1	<0.2	-	-
			1-methylnaphthalene	mg/kg	0.1	<0.2	-	-
			Acenaphthylene	mg/kg	0.1	<0.2	4	95
			Acenaphthene	mg/kg	0.1	<0.2	4	96
			Fluorene	mg/kg	0.1	<0.2	-	-
			Phenanthrene	mg/kg	0.1	<0.2	4	95
			Anthracene	mg/kg	0.1	<0.2	4	95
			Fluoranthene	mg/kg	0.1	<0.2	4	103
			Pyrene	mg/kg	0.1	<0.2	4	98
			Benzo(a)anthracene	mg/kg	0.1	<0.2	-	-
			Chrysene	mg/kg	0.1	<0.2	-	-
			Benzo(b&j)fluoranthene	mg/kg	0.1	<0.2	-	-
			Benzo(k)fluoranthene	mg/kg	0.1	<0.2	-	-
			Benzo(a)pyrene	mg/kg	0.1	<0.2	4	97
			Indeno(1,2,3-cd)pyrene	mg/kg	0.1	<0.2	-	-
			Dibenzo(ah)anthracene	mg/kg	0.1	<0.2	-	-
			Benzo(ghi)perylene	mg/kg	0.1	<0.2	-	-
			Carcinogenic PAHs, BaP TEQ <LOR=0	TEQ	0.2	<0.4	-	-
			Carcinogenic PAHs, BaP TEQ <LOR=LOR	TEQ (mg/kg)	0.3	<0.6	-	-
			Carcinogenic PAHs, BaP TEQ <LOR=LOR/2	TEQ (mg/kg)	0.2	<0.4	-	-
			Total PAH (18)	mg/kg	0.8	<1.6	-	-
		Surrogates	d5-nitrobenzene (Surrogate)	mg/kg	-	0.4	-	82
			2-fluorobiphenyl (Surrogate)	mg/kg	-	0.4	-	80
			d14-p-terphenyl (Surrogate)	mg/kg	-	0.5	-	90
SE156824.023	LB109468.026		Naphthalene	mg/kg	0.1	<0.1	4	94
			2-methylnaphthalene	mg/kg	0.1	<0.1	-	-
			1-methylnaphthalene	mg/kg	0.1	<0.1	-	-
			Acenaphthylene	mg/kg	0.1	<0.1	4	90

Matrix Spike (MS) results are evaluated as the percentage recovery of an expected result, typically the concentration of analyte spiked into a field sub -sample during the sample preparation stage. The original sample's result is subtracted from the sub-sample result before determining the percentage recovery. The criteria applied to the percentage recovery is established in the SGS QA/QC plan (ref: MP-(AU)-[ENV]QU-022). For more information refer to the footnotes in the concluding page of this report.

Recovery is shown in **Green** when within suggested criteria or **Red** with an appended reason identifer when outside suggested criteria. Refer to the footnotes section at the end of this report for failure reasons.

PAH (Polynuclear Aromatic Hydrocarbons) in Soil (continued)

Method: ME-(AU)-[ENV]AN420

QC Sample	Sample Number		Parameter	Units	LOR	Original	Spike	Recovery%
SE156824.023	LB109468.026		Acenaphthene	mg/kg	0.1	<0.1	4	93
			Fluorene	mg/kg	0.1	<0.1	-	-
			Phenanthrene	mg/kg	0.1	<0.1	4	96
			Anthracene	mg/kg	0.1	<0.1	4	96
			Fluoranthene	mg/kg	0.1	<0.1	4	94
			Pyrene	mg/kg	0.1	<0.1	4	93
			Benzo(a)anthracene	mg/kg	0.1	<0.1	-	-
			Chrysene	mg/kg	0.1	<0.1	-	-
			Benzo(b&j)fluoranthene	mg/kg	0.1	<0.1	-	-
			Benzo(k)fluoranthene	mg/kg	0.1	<0.1	-	-
			Benzo(a)pyrene	mg/kg	0.1	<0.1	4	107
			Indeno(1,2,3-cd)pyrene	mg/kg	0.1	<0.1	-	-
			Dibenzo(ah)anthracene	mg/kg	0.1	<0.1	-	-
			Benzo(ghi)perylene	mg/kg	0.1	<0.1	-	-
			Carcinogenic PAHs, BaP TEQ <LOR=0	TEQ	0.2	<0.2	-	-
			Carcinogenic PAHs, BaP TEQ <LOR=LOR	TEQ (mg/kg)	0.3	<0.3	-	-
			Carcinogenic PAHs, BaP TEQ <LOR=LOR/2	TEQ (mg/kg)	0.2	<0.2	-	-
			Total PAH (18)	mg/kg	0.8	<0.8	-	-
		Surrogates	d5-nitrobenzene (Surrogate)	mg/kg	-	0.4	-	72
			2-fluorobiphenyl (Surrogate)	mg/kg	-	0.4	-	76
			d14-p-terphenyl (Surrogate)	mg/kg	-	0.5	-	86

Total Phenolics in Soil

Method: ME-(AU)-[ENV]AN289

QC Sample	Sample Number	Parameter	Units	LOR	Result	Original	Spike	Recovery%
SE156824.016	LB109627.021	Total Phenols	mg/kg	0.1	2.0	0.1	2.5	73
SE156824.039	LB109633.019	Total Phenols	mg/kg	0.1	3.1	0.2	2.5	117

Total Recoverable Metals in Soil/Waste Solids/Materials by ICPOES

Method: ME-(AU)-[ENV]AN040/AN320

QC Sample	Sample Number	Parameter	Units	LOR	Result	Original	Spike	Recovery%
SE156817.022	LB109694.004	Arsenic, As	mg/kg	3	45	6.72893936190	50	77
		Cadmium, Cd	mg/kg	0.3	45	0.42186297554	50	89
		Chromium, Cr	mg/kg	0.3	64	20.97852717304	50	86
		Copper, Cu	mg/kg	0.5	76	32.61228838274	50	87
		Lead, Pb	mg/kg	1	76	38.18598659939	50	16 ⑨
		Nickel, Ni	mg/kg	0.5	51	8.74533898861	50	84
		Zinc, Zn	mg/kg	0.5	100	53.87124958077	50	97
SE156824.014	LB109695.004	Arsenic, As	mg/kg	3	43	<3	50	80
		Cadmium, Cd	mg/kg	0.3	41	<0.3	50	81
		Chromium, Cr	mg/kg	0.3	49	7.8	50	82
		Copper, Cu	mg/kg	0.5	49	6.3	50	85
		Lead, Pb	mg/kg	1	68	27	50	82
		Nickel, Ni	mg/kg	0.5	46	5.7	50	81
		Zinc, Zn	mg/kg	0.5	200	150	50	112

TRH (Total Recoverable Hydrocarbons) in Soil

Method: ME-(AU)-[ENV]AN403

QC Sample	Sample Number		Parameter	Units	LOR	Original	Spike	Recovery%
SE156824.002	LB109467.026		TRH C10-C14	mg/kg	20	<40	40	85
			TRH C15-C28	mg/kg	45	<90	40	88
			TRH C29-C36	mg/kg	45	<90	40	93
			TRH C37-C40	mg/kg	100	<200	-	-
			TRH C10-C36 Total	mg/kg	110	<220	-	-
			TRH C10-C40 Total	mg/kg	210	<420	-	-
		TRH F Bands	TRH >C10-C16 (F2)	mg/kg	25	<50	40	88
			TRH >C10-C16 (F2) - Naphthalene	mg/kg	25	<50	-	-
			TRH >C16-C34 (F3)	mg/kg	90	<180	40	95
			TRH >C34-C40 (F4)	mg/kg	120	<240	-	-
SE156824.023	LB109468.026		TRH C10-C14	mg/kg	20	<20	40	120
			TRH C15-C28	mg/kg	45	<45	40	98
			TRH C29-C36	mg/kg	45	<45	40	98
			TRH C37-C40	mg/kg	100	<100	-	-
			TRH C10-C36 Total	mg/kg	110	<110	-	-

Matrix Spike (MS) results are evaluated as the percentage recovery of an expected result, typically the concentration of analyte spiked into a field sub -sample during the sample preparation stage. The original sample's result is subtracted from the sub-sample result before determining the percentage recovery. The criteria applied to the percentage recovery is established in the SGS QA/QC plan (ref: MP-(AU)-[ENV]QU-022). For more information refer to the footnotes in the concluding page of this report.

Recovery is shown in **Green** when within suggested criteria or **Red** with an appended reason identifer when outside suggested criteria. Refer to the footnotes section at the end of this report for failure reasons.

TRH (Total Recoverable Hydrocarbons) in Soil (continued)

Method: ME-(AU)-[ENV]AN403

QC Sample	Sample Number		Parameter	Units	LOR	Original	Spike	Recovery%
SE156824.023	LB109468.026		TRH C10-C40 Total	mg/kg	210	<210	-	-
		TRH F Bands	TRH >C10-C16 (F2)	mg/kg	25	<25	40	120
			TRH >C10-C16 (F2) - Naphthalene	mg/kg	25	<25	-	-
			TRH >C16-C34 (F3)	mg/kg	90	<90	40	83
			TRH >C34-C40 (F4)	mg/kg	120	<120	-	-

VOC's in Soil

Method: ME-(AU)-[ENV]AN433

QC Sample	Sample Number		Parameter	Units	LOR	Result	Original	Spike	Recovery%
SE156824.001	LB109424.004	Monocyclic Aromatic	Benzene	mg/kg	0.1	1.9	<0.1	2.9	64
			Toluene	mg/kg	0.1	2.0	<0.1	2.9	69
			Ethylbenzene	mg/kg	0.1	2.2	<0.1	2.9	75
			m/p-xylene	mg/kg	0.2	4.5	<0.2	5.8	76
			o-xylene	mg/kg	0.1	2.2	<0.1	2.9	76
		Polycyclic	Naphthalene	mg/kg	0.1	<0.1	<0.1	-	-
		Surrogates	Dibromofluoromethane (Surrogate)	mg/kg	-	3.6	3.6	-	71
			d4-1,2-dichloroethane (Surrogate)	mg/kg	-	3.9	4.1	-	77
			d8-toluene (Surrogate)	mg/kg	-	4.1	4.4	-	82
			Bromofluorobenzene (Surrogate)	mg/kg	-	4.5	4.5	-	89
		Totals	Total Xylenes*	mg/kg	0.3	6.7	<0.3	-	-
			Total BTEX	mg/kg	0.6	13	<0.6	-	-
SE156824.023	LB109425.004	Monocyclic Aromatic	Benzene	mg/kg	0.1	2.0	<0.1	2.9	69
			Toluene	mg/kg	0.1	2.1	<0.1	2.9	72
			Ethylbenzene	mg/kg	0.1	2.2	<0.1	2.9	76
			m/p-xylene	mg/kg	0.2	4.3	<0.2	5.8	74
			o-xylene	mg/kg	0.1	2.2	<0.1	2.9	77
		Polycyclic	Naphthalene	mg/kg	0.1	<0.1	<0.1	-	-
		Surrogates	Dibromofluoromethane (Surrogate)	mg/kg	-	3.6	3.9	-	72
			d4-1,2-dichloroethane (Surrogate)	mg/kg	-	4.4	4.8	-	89
			d8-toluene (Surrogate)	mg/kg	-	4.7	5.2	-	94
			Bromofluorobenzene (Surrogate)	mg/kg	-	4.8	4.2	-	96
		Totals	Total Xylenes*	mg/kg	0.3	6.6	<0.3	-	-
			Total BTEX	mg/kg	0.6	13	<0.6	-	-
SE156824.039	LB109466.024	Monocyclic Aromatic	Benzene	mg/kg	0.1		<0.1	2.9	63
			Toluene	mg/kg	0.1		<0.1	2.9	62
			Ethylbenzene	mg/kg	0.1		<0.1	2.9	69
			m/p-xylene	mg/kg	0.2		<0.2	5.8	78
			o-xylene	mg/kg	0.1		<0.1	2.9	77
		Polycyclic	Naphthalene	mg/kg	0.1		<0.1	-	-
		Surrogates	Dibromofluoromethane (Surrogate)	mg/kg	-		3.8	-	75
			d4-1,2-dichloroethane (Surrogate)	mg/kg	-		3.8	-	78
			d8-toluene (Surrogate)	mg/kg	-		3.6	-	73
			Bromofluorobenzene (Surrogate)	mg/kg	-		4.0	-	107
		Totals	Total Xylenes*	mg/kg	0.3		<0.3	-	-
			Total BTEX	mg/kg	0.6		<0.6	-	-

Volatile Petroleum Hydrocarbons in Soil

Method: ME-(AU)-[ENV]AN433

QC Sample	Sample Number		Parameter	Units	LOR	Result	Original	Spike	Recovery%
SE156824.001	LB109424.004		TRH C6-C10	mg/kg	25	<25	<25	24.65	90
			TRH C6-C9	mg/kg	20	<20	<20	23.2	80
		Surrogates	Dibromofluoromethane (Surrogate)	mg/kg	-	3.6	3.6	-	71
			d4-1,2-dichloroethane (Surrogate)	mg/kg	-	3.9	4.1	-	77
			d8-toluene (Surrogate)	mg/kg	-	4.1	4.4	-	82
			Bromofluorobenzene (Surrogate)	mg/kg	-	4.5	4.5	-	89
		VPH F Bands	Benzene (F0)	mg/kg	0.1	1.9	<0.1	-	-
			TRH C6-C10 minus BTEX (F1)	mg/kg	25	<25	<25	7.25	133
SE156824.023	LB109425.004		TRH C6-C10	mg/kg	25	<25	<25	24.65	83
			TRH C6-C9	mg/kg	20	<20	<20	23.2	76
		Surrogates	Dibromofluoromethane (Surrogate)	mg/kg	-	3.6	3.9	-	72
			d4-1,2-dichloroethane (Surrogate)	mg/kg	-	4.4	4.8	-	89
			d8-toluene (Surrogate)	mg/kg	-	4.7	5.2	-	94
			Bromofluorobenzene (Surrogate)	mg/kg	-	4.8	4.2	-	96
		VPH F	Benzene (F0)	mg/kg	0.1	2.0	<0.1	-	-

Matrix Spike (MS) results are evaluated as the percentage recovery of an expected result, typically the concentration of analyte spiked into a field sub -sample during the sample preparation stage. The original sample's result is subtracted from the sub-sample result before determining the percentage recovery. The criteria applied to the percentage recovery is established in the SGS QA/QC plan (ref: MP-(AU)-[ENV]QU-022). For more information refer to the footnotes in the concluding page of this report.

Recovery is shown in **Green** when within suggested criteria or **Red** with an appended reason identifer when outside suggested criteria. Refer to the footnotes section at the end of this report for failure reasons.

Volatile Petroleum Hydrocarbons in Soil (continued) — **Method: ME-(AU)-[ENV]AN433**

QC Sample	Sample Number		Parameter	Units	LOR	Result	Original	Spike	Recovery%
SE156824.023	LB109425.004	VPH F	TRH C6-C10 minus BTEX (F1)	mg/kg	25	<25	<25	7.25	106
SE156824.039	LB109466.024		TRH C6-C10	mg/kg	25		<25	24.65	85
			TRH C6-C9	mg/kg	20		<20	23.2	63
		Surrogates	Dibromofluoromethane (Surrogate)	mg/kg	-		3.8	-	75
			d4-1,2-dichloroethane (Surrogate)	mg/kg	-		3.8	-	78
			d8-toluene (Surrogate)	mg/kg	-		3.6	-	73
			Bromofluorobenzene (Surrogate)	mg/kg	-		4.0	-	107
		VPH F	Benzene (F0)	mg/kg	0.1		<0.1	-	-
		Bands	TRH C6-C10 minus BTEX (F1)	mg/kg	25		<25	7.25	119

MATRIX SPIKE DUPLICATES

SE156824 R0

Matrix spike duplicates are calculated as Relative Percent Difference (RPD) using the formula: RPD = | OriginalResult - ReplicateResult | x 100 / Mean

The original result is the analyte concentration of the matrix spike. The Duplicate result is the analyte concentration of the matrix spike duplicate.

The RPD is evaluated against the Maximum Allowable Difference (MAD) criteria and can be graphically represented by a curve calculated from the Statistical Detection Limit (SDL) and Limiting Repeatability (LR) using the formula: MAD = 100 x SDL / Mean + LR

Where the Maximum Allowable Difference evaluates to a number larger than 200 it is displayed as 200.

RPD is shown in **Green** when within suggested criteria or **Red** with an appended reason identifer when outside suggested criteria. Refer to the footnotes section at the end of this report for failure reasons.

No matrix spike duplicates were required for this job.

Samples analysed as received.

Solid samples expressed on a dry weight basis.

QC criteria are subject to internal review according to the SGS QA/QC plan and may be provided on request or alternatively can be found here: http://www.sgs.com.au/~/media/Local/Australia/Documents/Technical Documents/MP-AU-ENV-QU-022 QA QC Plan.pdf

*	NATA accreditation does not cover tthe performance of this service.
-	Sample not analysed for this analyte.
IS	Insufficient sample for analysis.
LNR	Sample listed, but not received.
LOR	Limit of reporting.
QFH	QC result is above the upper tolerance.
QFL	QC result is below the lower tolerance.
①	At least 2 of 3 surrogates are within acceptance criteria.
②	RPD failed acceptance criteria due to sample heterogeneity.
③	Results less than 5 times LOR preclude acceptance criteria for RPD.
④	Recovery failed acceptance criteria due to matrix interference.
⑤	Recovery failed acceptance criteria due to the presence of significant concentration of analyte (i.e. the concentration of analyte exceeds the spike level).
⑥	LOR was raised due to sample matrix interference.
⑦	LOR was raised due to dilution of significantly high concentration of analyte in sample.
⑧	Reanalysis of sample in duplicate confirmed sample heterogeneity and inconsistency of results.
⑨	Recovery failed acceptance criteria due to sample heterogeneity.
⑩	LOR was raised due to high conductivity of the sample (required dilution).
†	Refer to Analytical Report comments for further information.

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Any other holder of this document is advised that information contained herein reflects the Company's findings at the time of its intervention only and within the limits of Client's instructions, if any. The Company's sole responsibility is to its Client and this document does not exonerate parties to a transaction from exercising all their rights and obligations under the transaction documents.

This test report shall not be reproduced, except in full.

source: MI630_SR_20160908100537.pdf page: 3 SGS Ref: SE156861_COC

Asbestos Air Monitoring Field Sheet

SMEC Australia Pty Ltd
ABN 47 065475 149
Suite 2, level 1, 243 Northbourne Avenue, Lyneham 2602
02 6234 1900
Email: Mechelle.Swanepoel@smec.com

NOHSC: 3003(2005)			
Report Number:	Day 1	**Date:**	5-9-2016
Client:	LDA		
Site Address:	Canberra Brickworks Yarralumla		
Purpose of Test:	Asbestos Air Monitoring		
General Test Area:	Quarry Site near Test Pit 34		
Rotameter ID:	M474840		
Timer ID:	CASIO G-Shock		

Sample #	Pump #	S / P *	Location	Flow Start	Time On	Flow Stop	Time Off
1945787	120375	P	~~Excavator~~ ~~Lab~~ On Northern ~~Tower~~ ~~Excavator~~ crook	2	8:28am	2	5:15pm
1945787	74881	P	On Ryan O'Leary	2	9:30am	2	5:15pm

SGS EHS Alexandria Laboratory

SE156861 COC
Received: 08 – Sep – 2016

Note: * Static (control) or Personal (exposure) sampling.

Additional Notes:

Wind ~ 1-2 km/hr

Cold morning, warming up to 20°C.

24 HR TAT Please

Sampled by:	Ryan O'Leary
Signature:	
Date:	5 / 9 / 2016

SAMPLE RECEIPT ADVICE

SE156861

CLIENT DETAILS

Contact	Mechelle Swanepoel
Client	SMEC AUSTRALIA PTY LTD
Address	Sun Micro Building Suite 2, Level 1 243 Northbourne Avenue ACT 2602
Telephone	02 6234 1900
Facsimile	02 6234 1966
Email	mechelle.swanepoel@smec.com
Project	**M474840 - Quarry Site Near Test Pit 34**
Order Number	(Not specified)
Samples	2

LABORATORY DETAILS

Manager	Huong Crawford
Laboratory	SGS Alexandria Environmental
Address	Unit 16, 33 Maddox St Alexandria NSW 2015
Telephone	+61 2 8594 0400
Facsimile	+61 2 8594 0499
Email	au.environmental.sydney@sgs.com
Samples Received	Thu 8/9/2016
Report Due	Fri 9/9/2016
SGS Reference	**SE156861**

SUBMISSION DETAILS

This is to confirm that 2 samples were received on Thursday 8/9/2016. Results are expected to be ready by Friday 9/9/2016. Please quote SGS reference SE156861 when making enquiries. Refer below for details relating to sample integrity upon receipt.

Sample counts by matrix	2 Filters	Type of documentation received	COC
Date documentation received	8/9/2016	Samples received in good order	Yes
Samples received without headspace	N/A	Sample temperature upon receipt	20.2°C
Sample container provider	Client	Turnaround time requested	Next Day
Samples received in correct containers	Yes	Sufficient sample for analysis	Yes
Sample cooling method	None	Samples clearly labelled	Yes
Complete documentation received	Yes	Number of eskies/boxes received	

Unless otherwise instructed, water and bulk samples will be held for one month from date of report, and soil samples will be held for two months.

COMMENTS

To the extent not inconsistent with the other provisions of this document and unless specifically agreed otherwise in writing by SGS, all SGS services are rendered in accordance with the applicable SGS General Conditions of Service accessible at http://www.sgs.com/en/terms-and-conditions as at the date of this document. Attention is drawn to the limitations of liability and to the clauses of indemnification.

SAMPLE RECEIPT ADVICE

SE156861

CLIENT DETAILS

Client SMEC AUSTRALIA PTY LTD

Project M474840 - Quarry Site Near Test Pit 34

SUMMARY OF ANALYSIS

No.	Sample ID	Airborne Fibre Monitoring
001	19457877	3
002	19457871	3

The above table represents SGS' interpretation of the client-supplied Chain Of Custody document.
The numbers shown in the table indicate the number of results requested in each package.
Please indicate as soon as possible should your request differ from these details .
Testing as per this table shall commence immediately unless the client intervenes with a correction .

ANALYTICAL REPORT

Accreditation No. 2562

CLIENT DETAILS

Contact	Mechelle Swanepoel
Client	SMEC AUSTRALIA PTY LTD
Address	Sun Micro Building Suite 2, Level 1 243 Northbourne Avenue ACT 2602
Telephone	02 6234 1900
Facsimile	02 6234 1966
Email	mechelle.swanepoel@smec.com
Project	**M474840 - Quarry Site Near Test Pit 34**
Order Number	(Not specified)
Samples	2

LABORATORY DETAILS

Manager	Huong Crawford
Laboratory	SGS Alexandria Environmental
Address	Unit 16, 33 Maddox St Alexandria NSW 2015
Telephone	+61 2 8594 0400
Facsimile	+61 2 8594 0499
Email	au.environmental.sydney@sgs.com
SGS Reference	**SE156861 R0**
Date Received	08 Sep 2016
Date Reported	9/09/2016 12:59:36PM

COMMENTS

Accredited for compliance with ISO/IEC 17025. NATA accredited laboratory 2562(4354).

The reporting of Fibres/mL may only be done when volume measurements are conducted by a NATA accredited body. Where this report contains both Fibres/Field and a typical K factor which are NATA endorsed, these may be converted to Fibres/mL using this and your volume readings. Where sampling has been performed by SGS Environmental Services, or by a company that holds accreditation for air sampling volume measurement, results are reported as fibres/mL.

Asbestos analysed by Approved Counter Ravee Sivasubramaniam.
Air volume measurement was performed by Ryan O 'Leary and Natasha Crook of SMEC Australia Pty. Ltd. have has been formally trained and
assessed by SGSAlexandria who remain responsible for the data .

SIGNATORIES

S. Ravee Sivasubramaniam

Ravee Sivasubramaniam
Hygiene Team Leader

ANALYTICAL REPORT

RESULTS

Method AN601 Airborne Fibre Monitoring

Laboratory Reference	Client Reference and Description	Date Sampled	Fibres/Fields	Concentration Fibres/mL
SE156861.001	19457877 cowl	05 Sep 2016	<1.0 Fibres/100 fields	<0.01
SE156861.002	19457871 cowl	05 Sep 2016	2.0 Fibres/100 fields	<0.01

			K Factor*
SE156861.001	19457877 cowl	05 Sep 2016	49121
SE156861.002	19457871 cowl	05 Sep 2016	49121

METHOD SUMMARY

SE156861 R0

METHOD	METHODOLOGY SUMMARY
AN601	Airborne asbestos dust and synthetic mineral fibres (SMF) based on the NOHSC (April 2005) guidance note on the membrane filter method NOHSC:3003 (2005) exclusive of sampling. The sample is collected by drawing a volume of air through a membrane filter. The filter is then mounted on a glass slide and the fibres counted according to the specified criteria using phase contrast microscopy.

FOOTNOTES

IS	Insufficient sample for analysis.	LOR	Limit of Reporting
LNR	Sample listed, but not received.	QFH	QC result is above the upper tolerance
*	NATA accreditation does not cover the performance of this service.	QFL	QC result is below the lower tolerance
**	Indicative data, theoretical holding time exceeded.	NA	The sample was not analysed for this analyte

Limit of Reporting (LOR) for Fibre Counting by NOHSC:3003 is 0.01 Fibres per millilitre (Fibres/mL)
Concentration Fibres/mL only covered by the scope of accreditation if sampling performed by SGS .

The QC criteria are subject to internal review according to the SGS QAQC plan and may be provided on request or at this link : http://www.sgs.com.au/~/media/Local/Australia/Documents/Technical%20Documents/MP-AU-ENV-QU-022%20QA%20QC%20Plan.pdf

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Any other holder of this document is advised that information contained hereon reflects the Company 's findings at the time of its intervention only and within the limits of Client's instructions, if any. The Company's sole responsibility is to its Client and this document does not exonerate parties to a transaction from exercising all their rights and obligations under the transaction documents.

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source: M630_SR_20160908100537.pdf page: 1 SGS Ref: SE156862_COC

Asbestos Air Monitoring Field Sheet

SMEC Australia Pty Ltd
ABN 47 065475 149
Suite 2, level 1, 243 Northbourne Avenue, Lyneham 2602
02 6234 1900
Email: Mechelle.Swanepoel@smec.com

NOHSC: 3003(2005)			
Report Number:	Day 2	**Date:**	6/09/2016
Client:	LDA		
Site Address:	Canberra Brickworks		
Purpose of Test:	Asbestos Air Monitoring		
General Test Area:	CBR Brickworks (Various)		
Rotameter ID:	M474840		
Timer ID:	Casio G Shock		

Sample #	Pump #	S / P *	Location	Flow Start	Time On	Flow Stop	Time Off
1945786	74881	P	On Natasha Crook Start TP4	2	8:05am	2	4:28 pm
1945787	74145	P	On Ryan O'Leary Start TP3	2	8:12am	2	4:25 pm

SGS EHS Alexandria Laboratory
SE156862 COC
Received: 08 – Sep – 2016

Note: * Static (control) or Personal (exposure) sampling.

Additional Notes:

8am - No wind
12pm - No wind
3pm - Slight breeze ~0.5 km/hr
4:30pm - Slight breeze ~0.5km/hr

24 HR TAT Please

Sampled by:	RYAN O'LEARY & NATASHA CROOK
Signature:	
Date:	6 / 09 / 2016

SAMPLE RECEIPT ADVICE

SE156862

CLIENT DETAILS

Contact	Mechelle Swanepoel
Client	SMEC AUSTRALIA PTY LTD
Address	Sun Micro Building Suite 2, Level 1 243 Northbourne Avenue ACT 2602
Telephone	02 6234 1900
Facsimile	02 6234 1966
Email	mechelle.swanepoel@smec.com
Project	**M474840 - Canberra Brickworks Various**
Order Number	(Not specified)
Samples	2

LABORATORY DETAILS

Manager	Huong Crawford
Laboratory	SGS Alexandria Environmental
Address	Unit 16, 33 Maddox St Alexandria NSW 2015
Telephone	+61 2 8594 0400
Facsimile	+61 2 8594 0499
Email	au.environmental.sydney@sgs.com
Samples Received	Thu 8/9/2016
Report Due	Fri 9/9/2016
SGS Reference	**SE156862**

SUBMISSION DETAILS

This is to confirm that 2 samples were received on Thursday 8/9/2016. Results are expected to be ready by Friday 9/9/2016. Please quote SGS reference SE156862 when making enquiries. Refer below for details relating to sample integrity upon receipt.

Sample counts by matrix	2 Filters	Type of documentation received	COC
Date documentation received	8/9/2016	Samples received in good order	Yes
Samples received without headspace	N/A	Sample temperature upon receipt	20.2°C
Sample container provider	Client	Turnaround time requested	Next Day
Samples received in correct containers	Yes	Sufficient sample for analysis	Yes
Sample cooling method	None	Samples clearly labelled	Yes
Complete documentation received	Yes	Number of eskies/boxes received	

Unless otherwise instructed, water and bulk samples will be held for one month from date of report, and soil samples will be held for two months.

COMMENTS

To the extent not inconsistent with the other provisions of this document and unless specifically agreed otherwise in writing by SGS, all SGS services are rendered in accordance with the applicable SGS General Conditions of Service accessible at http://www.sgs.com/en/terms-and-conditions as at the date of this document. Attention is drawn to the limitations of liability and to the clauses of indemnification.

SAMPLE RECEIPT ADVICE

SE156862

CLIENT DETAILS

Client SMEC AUSTRALIA PTY LTD

Project M474840 - Canberra Brickworks Various

SUMMARY OF ANALYSIS

No.	Sample ID	Airborne Fibre Monitoring
001	19457862	3
002	19457867	3

The above table represents SGS' interpretation of the client-supplied Chain Of Custody document.
The numbers shown in the table indicate the number of results requested in each package.
Please indicate as soon as possible should your request differ from these details .
Testing as per this table shall commence immediately unless the client intervenes with a correction .

ANALYTICAL REPORT

Accreditation No. 2562

CLIENT DETAILS

Contact	Mechelle Swanepoel
Client	SMEC AUSTRALIA PTY LTD
Address	Sun Micro Building Suite 2, Level 1 243 Northbourne Avenue ACT 2602
Telephone	02 6234 1900
Facsimile	02 6234 1966
Email	mechelle.swanepoel@smec.com
Project	**M474840 - Canberra Brickworks Various**
Order Number	(Not specified)
Samples	2

LABORATORY DETAILS

Manager	Huong Crawford
Laboratory	SGS Alexandria Environmental
Address	Unit 16, 33 Maddox St Alexandria NSW 2015
Telephone	+61 2 8594 0400
Facsimile	+61 2 8594 0499
Email	au.environmental.sydney@sgs.com
SGS Reference	**SE156862 R0**
Date Received	08 Sep 2016
Date Reported	8/09/2016 5:12:29PM

COMMENTS

Accredited for compliance with ISO/IEC 17025. NATA accredited laboratory 2562(4354).

The reporting of Fibres/mL may only be done when volume measurements are conducted by a NATA accredited body. Where this report contains both Fibres/Field and a typical K factor which are NATA endorsed, these may be converted to Fibres/mL using this and your volume readings. Where sampling has been performed by SGS Environmental Services, or by a company that holds accreditation for air sampling volume measurement, results are reported as fibres/mL.

Air volume measurement was performed by Ryan O'Leary and Natasha Crook of SMEC Australia Pty. Ltd. have has been formally trained and assessed by SGS Alexandria who remain responsible for the data.

Asbestos analysed by Approved Counter Ravee Sivasubramaniam.

SIGNATORIES

S. Ravee Sivasubramaniam
Hygiene Team Leader

ANALYTICAL REPORT

SE156862 R0

RESULTS

Method AN601 Airborne Fibre Monitoring

Laboratory Reference	Client Reference and Description	Date Sampled	Fibres/Fields	Concentration Fibres/mL
SE156862.001	19457862 cowl	06 Sep 2016	<1.0 Fibres/100 fields	<0.01
SE156862.002	19457867 cowl	06 Sep 2016	2.0 Fibres/100 fields	<0.01

			K Factor*
SE156862.001	19457862 cowl	06 Sep 2016	49121
SE156862.002	19457867 cowl	06 Sep 2016	49121

METHOD SUMMARY

SE156862 R0

METHOD	METHODOLOGY SUMMARY
AN601	Airborne asbestos dust and synthetic mineral fibres (SMF) based on the NOHSC (April 2005) guidance note on the membrane filter method NOHSC:3003 (2005) exclusive of sampling. The sample is collected by drawing a volume of air through a membrane filter. The filter is then mounted on a glass slide and the fibres counted according to the specified criteria using phase contrast microscopy.

FOOTNOTES

IS	Insufficient sample for analysis.	LOR	Limit of Reporting
LNR	Sample listed, but not received.	QFH	QC result is above the upper tolerance
*	NATA accreditation does not cover the performance of this service.	QFL	QC result is below the lower tolerance
**	Indicative data, theoretical holding time exceeded.	NA	The sample was not analysed for this analyte

Limit of Reporting (LOR) for Fibre Counting by NOHSC:3003 is 0.01 Fibres per millilitre (Fibres/mL)
Concentration Fibres/mL only covered by the scope of accreditation if sampling performed by SGS .

The QC criteria are subject to internal review according to the SGS QAQC plan and may be provided on request or at this link : http://www.sgs.com.au/~/media/Local/Australia/Documents/Technical%20Documents/MP-AU-ENV-QU-022%20QA%20QC%20Plan.pdf

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source: M630_SR_20160908133127.pdf page: 1 SGS Ref: SE156902_COC

SGS

CHAIN OF CUSTODY & ANALYSIS REQUEST

SGS Environmental Services
Unit 16, 33 Maddox Street
Alexandria NSW 2015
Telephone No: (02) 85940400
Facsimile No: (02) 85940499
Email: au.samplereceipt.sydney@sgs.com

Company Name:	SMEC	Project Name/No:	3002523 – Canberra Brickworks
Address:	Suite 2, Level 1, 243 Northbourne Avenue, Lyneham, ACT, 2602, Australia	Purchase Order No:	
		Results Required By:	Ryan O'Leary
Contact Name:	Ryan O'Leary	Telephone:	+61 2 6234 1963 / 0400 240 023
		Facsimile:	
		Email Results:	Ryan.O'Leary@smec.com

Client Sample ID	Date Sampled	Lab Sample ID	WATER	SOIL	PRESERVATIVE	NO OF BAGS	Asbestos ID	On Hold
SS1	05-09-16	1		✓		1	✓	
SS2	05-09-16	2		✓		1	✓	
SS4	05-09-16	3		✓		1	✓	
SS3	05-09-16	4		✓		1	✓	
SS5	05-09-16	5		✓		1	✓	
SS6	06-09-16	6		✓		1	✓	
SS7	05-09-16	7		✓		1	✓	
SS10	05-09-16	8		✓		1	✓	

SGS EHS Alexandria Laboratory

SE156902 COC
Received: 08 – Sep – 2016

Relinquished By: Ryan O'Leary	Date/Time: 7/09/2016 16:00	Received By:	Date/Time 8/9/16 ~~17:00~~ 10:40
Relinquished By:	Date/Time:	Received By:	Date/Time
Samples Intact: Yes/ No	Temperature: Ambient / Chilled	Sample Cooler Sealed: Yes/ No	Laboratory Quotation No:
	Comments: AS PER SGS QUOTE NUMBER SY1 – 60413 – 2-IS DATED 13TH APRIL 2016	**STANDARD TA**	

SGS

CHAIN OF CUSTODY & ANALYSIS REQUEST

SGS Environmental Services
Unit 16, 33 Maddox Street
Alexandria NSW 2015
Telephone No: (02) 85940400
Facsimile No: (02) 85940499
Email: au.samplereceipt.sydney@sgs.com

Company Name:	SMEC	Project Name/No:	3002523 – Canberra Brickworks
Address:	Suite 2, Level 1, 243 Northbourne Avenue, Lyneham, ACT, 2602, Australia	Purchase Order No:	
		Results Required By:	Ryan O'Leary
Contact Name:	Ryan O'Leary	Telephone:	+61 2 6234 1963 / 0400 240 023
		Facsimile:	
		Email Results:	Ryan O'Leary@smec com

Client Sample ID	Date Sampled	Lab Sample ID	WATER	SOIL	PRESERVATIVE	NO OF BAGS	Asbestos ID	On Hold
SS11	05-09-16	9		✓		1	✓	
SS12	05-09-16	10		✓		1	✓	
SS13	05-09-16	11		✓		1	✓	
SS14	05-09-16	12		✓		1	✓	
SS15	05-09-16	13		✓			✓	
SS17	05-09-16	14		✓		1	✓	
SS18	05 -09-16	15		✓		1	✓	
G1	05-09-16	16		✓		1	✓	

Relinquished By: Ryan O'Leary	Date/Time:	Received By:	Date/Time
Relinquished By:	Date/Time:	Received By:	Date/Time 8/9/16 @ 10:40
Samples Intact: (Yes)/ No	Temperature: (Ambient) / Chilled	Sample Cooler Sealed: Yes/ No	Laboratory Quotation No:
	Comments:		

SGS

CHAIN OF CUSTODY & ANALYSIS REQUEST

SGS Environmental Services
Unit 16, 33 Maddox Street
Alexandria NSW 2015
Telephone No: (02) 85940400
Facsimile No: (02) 85940499
Email: au.samplereceipt.sydney@sgs.com

Company Name:	SMEC	Project Name/No:	3002523 – Canberra Brickworks
Address:	Suite 2, Level 1, 243 Northbourne Avenue, Lyneham, ACT, 2602, Australia	Purchase Order No:	
		Results Required By:	Ryan O'Leary
		Telephone:	+61 2 6234 1963 / 0400 240 023
Contact Name:	Ryan O'Leary	Facsimile:	
		Email Results:	Ryan.O'Leary@smec.com

Client Sample ID	Date Sampled	Lab Sample ID	WATER	SOIL	PRESERVATIVE	NO OF BAGS	Asbestos ID	On Hold
G3	05-09-16	17		✓		1	✓	
G4	06-09-16	18		✓		1	✓	
G5	05-09-16	19		✓		1	✓	
G6	05-09-16	20		✓		1	✓	
TR4 0.1 -0.2	05-09-16	21		✓			✓	
TR4 0.9 -1.0	05-09-16			✓				✓
TR4 0.5 -0.6	05-09-16			✓				✓
TR4 1.4-1.8	05-09-16			✓				✓

Relinquished By: Ryan O'Leary	Date/Time:	Received By:	Date/Time
Relinquished By:	Date/Time:	Received By:	Date/Time 8/9/16 @ 10:40
Samples Intact: Yes/ No	Temperature: Ambient / Chilled	Sample Cooler Sealed: Yes/ No	Laboratory Quotation No:
	Comments:		

SGS

CHAIN OF CUSTODY & ANALYSIS REQUEST

SGS Environmental Services
Unit 16, 33 Maddox Street
Alexandria NSW 2015
Telephone No: (02) 85940400
Facsimile No: (02) 85940499
Email: au.samplereceipt.sydney@sgs.com

Company Name:	SMEC	Project Name/No:	3002523 – Canberra Brickworks
Address:	Suite 2, Level 1, 243 Northbourne Avenue, Lyneham, ACT, 2602, Australia	Purchase Order No:	
		Results Required By:	Ryan O'Leary
		Telephone:	+61 2 6234 1963 / 0400 240 023
Contact Name:	Ryan O'Leary	Facsimile:	
		Email Results:	Ryan O'Leary@smec.com

Client Sample ID	Date Sampled	Lab Sample ID	WATER	SOIL	PRESERVATIVE	NO OF BAGS	Asbestos ID	On Hold
TR8 1.0-1.2	05 -09-16	22		✓		1	✓	
TR11 - 0.15	05-09-16			✓		1		✓
TP34 0 -0.1	05-09-16	23		✓		1	✓	
TP34 1.3-1.4	05-09-16			✓		1		✓
TP34 1.4 – 1.5	05-09-16			✓		1		✓
TP35 00- 0.1	05 -09-16	24		✓		1	✓	
TP35 0.9-1.0	05-09-16			✓				✓
TP35 1.25-1.3	06-09-16			✓		1		✓

Relinquished By: Ryan O'Leary	Date/Time:	Received By:	Date/Time
Relinquished By:	Date/Time:	Received By:	Date/Time 8/9/16 @ 10:40
Samples Intact: (Yes)/ No	Temperature: (Ambient) / Chilled	Sample Cooler Sealed: Yes/ No	Laboratory Quotation No:
	Comments:		

SGS

CHAIN OF CUSTODY & ANALYSIS REQUEST

SGS Environmental Services
Unit 16, 33 Maddox Street
Alexandria NSW 2015
Telephone No: (02) 85940400
Facsimile No: (02) 85940499
Email: au.samplereceipt.sydney@sgs.com

Company Name:	SMEC	Project Name/No:	3002523 – Canberra Brickworks
Address:	Suite 2, Level 1, 243 Northbourne Avenue, Lyneham, ACT, 2602, Australia	Purchase Order No:	
		Results Required By:	Ryan O'Leary
		Telephone:	+61 2 6234 1963 / 0400 240 023
Contact Name:	Ryan O'Leary	Facsimile:	
		Email Results:	Ryan.O'Leary@smec.com

Client Sample ID	Date Sampled	Lab Sample ID	WATER	SOIL	PRESERVATIVE	NO OF BAGS	Asbestos ID	On Hold
TP35 2.1-2.2	05-09-16			✓		1		✓
TP43 0-0.1	06-09-16	25		✓		1	✓	
TP44 0-0.1	06-09-16	26		✓		1	✓	
TP48 0.1 -0.15	05-09-16	27		✓		1	✓	
TP52 0.1 – 0.2	05-09-16	28		✓		1	✓	
TP61	05-09-16	29		✓		1	✓	

Relinquished By: Ryan O'Leary	Date/Time:	Received By:	Date/Time
Relinquished By:	Date/Time:	Received By: Dwight	Date/Time 8/9/16 @ 10:40
Samples Intact: Yes/ No	Temperature: Ambient / Chilled	Sample Cooler Sealed: Yes/ No	Laboratory Quotation No:
	Comments:		

SAMPLE RECEIPT ADVICE

SE156902

CLIENT DETAILS

Contact	Ryan O'Leary
Client	SMEC AUSTRALIA PTY LTD
Address	Sun Micro Building Suite 2, Level 1 243 Northbourne Avenue ACT 2602
Telephone	02 6234 1963
Facsimile	02 6234 1966
Email	Ryan.O'Leary@smec.com
Project	**3002523 - Canberra Brickworks**
Order Number	**SY1-60413-2-IS**
Samples	29

LABORATORY DETAILS

Manager	Huong Crawford
Laboratory	SGS Alexandria Environmental
Address	Unit 16, 33 Maddox St Alexandria NSW 2015
Telephone	+61 2 8594 0400
Facsimile	+61 2 8594 0499
Email	au.environmental.sydney@sgs.com
Samples Received	Thu 8/9/2016
Report Due	Thu 15/9/2016
SGS Reference	**SE156902**

SUBMISSION DETAILS

This is to confirm that 29 samples were received on Thursday 8/9/2016. Results are expected to be ready by Thursday 15/9/2016. Please quote SGS reference SE156902 when making enquiries. Refer below for details relating to sample integrity upon receipt.

Sample counts by matrix	29 Soil	Type of documentation received	COC
Date documentation received	8/9/2016	Samples received in good order	Yes
Samples received without headspace	N/A	Sample temperature upon receipt	20.3°C
Sample container provider	Client	Turnaround time requested	Standard
Samples received in correct containers	Yes	Sufficient sample for analysis	Yes
Sample cooling method	None	Samples clearly labelled	Yes
Complete documentation received	Yes	Number of eskies/boxes received	

Unless otherwise instructed, water and bulk samples will be held for one month from date of report, and soil samples will be held for two months.

COMMENTS

9 soil samples have been placed on hold.

To the extent not inconsistent with the other provisions of this document and unless specifically agreed otherwise in writing by SGS, all SGS services are rendered in accordance with the applicable SGS General Conditions of Service accessible at http://www.sgs.com/en/terms-and-conditions as at the date of this document. Attention is drawn to the limitations of liability and to the clauses of indemnification.

SAMPLE RECEIPT ADVICE

SE156902

CLIENT DETAILS

Client SMEC AUSTRALIA PTY LTD

Project 3002523 - Canberra Brickworks

SUMMARY OF ANALYSIS

No.	Sample ID	Fibre Identification in soil
001	SS1	2
002	SS2	2
003	SS4	2
004	SS3	2
005	SS5	2
006	SS6	2
007	SS7	2
008	SS10	2
009	SS11	2
010	SS12	2
011	SS13	2
012	SS14	2
013	SS15	2
014	SS17	2
015	SS18	2
016	G1	2
017	G3	2
018	G4	2
019	G5	2
020	G6	2
021	TR4 0.1-0.2	2
022	TR8 1.0-1.2	2
023	TP34 0-0.1	2
024	TP35 0.0-0.1	2

CONTINUED OVERLEAF

The above table represents SGS' interpretation of the client-supplied Chain Of Custody document.
The numbers shown in the table indicate the number of results requested in each package.
Please indicate as soon as possible should your request differ from these details .
Testing as per this table shall commence immediately unless the client intervenes with a correction .

SAMPLE RECEIPT ADVICE

SE156902

CLIENT DETAILS

Client SMEC AUSTRALIA PTY LTD

Project 3002523 - Canberra Brickworks

SUMMARY OF ANALYSIS

No.	Sample ID	Fibre Identification in soil
025	TP43 0-0.1	2
026	TP44 0-0.1	2
027	TP48 0.1-0.15	2
028	TP52 0.1-0.2	2
029	TP61	2

The above table represents SGS' interpretation of the client-supplied Chain Of Custody document.
The numbers shown in the table indicate the number of results requested in each package.
Please indicate as soon as possible should your request differ from these details .
Testing as per this table shall commence immediately unless the client intervenes with a correction .

ANALYTICAL REPORT

Accreditation No. 2562

CLIENT DETAILS

Contact	Ryan O'Leary
Client	SMEC AUSTRALIA PTY LTD
Address	Sun Micro Building Suite 2, Level 1 243 Northbourne Avenue ACT 2602
Telephone	02 6234 1963
Facsimile	02 6234 1966
Email	Ryan.O'Leary@smec.com
Project	**3002523 - Canberra Brickworks**
Order Number	**SY1-60413-2-IS**
Samples	29

LABORATORY DETAILS

Manager	Huong Crawford
Laboratory	SGS Alexandria Environmental
Address	Unit 16, 33 Maddox St Alexandria NSW 2015
Telephone	+61 2 8594 0400
Facsimile	+61 2 8594 0499
Email	au.environmental.sydney@sgs.com
SGS Reference	**SE156902 R0**
Date Received	08 Sep 2016
Date Reported	15 Sep 2016

COMMENTS

Accredited for compliance with ISO/IEC 17025. NATA accredited laboratory 2562(4354).

No respirable fibres detected in all soil samples using trace analysis technique.

Sample #29: 2-10mm length bundles found in 25x20x8mm cement sheet fragment.

Asbestos analysed by Approved Identifiers Yusuf Kuthpudin and Ravee Sivasubramaniam .

SIGNATORIES

Ravee Sivasubramaniam
Hygiene Team Leader

RESULTS

Fibre Identification in soil — Method AN602

Laboratory Reference	Client Reference	Matrix	Sample Description	Date Sampled	Fibre Identification	Est.%w/w*
SE156902.001	SS1	Soil	130g Sand, Rocks	05 Sep 2016	No Asbestos Found Organic Fibres Detected	<0.01
SE156902.002	SS2	Soil	143g Sand	05 Sep 2016	No Asbestos Found	<0.01
SE156902.003	SS4	Soil	48g Sand, Soil, Rocks	05 Sep 2016	No Asbestos Found Synthetic Mineral Fibres Detected Organic Fibres Detected	<0.01
SE156902.004	SS3	Soil	89g Clay, Sand, Rocks	05 Sep 2016	No Asbestos Found	<0.01
SE156902.005	SS5	Soil	143g Clay, Sand, Rocks	05 Sep 2016	No Asbestos Found Organic Fibres Detected	<0.01
SE156902.006	SS6	Soil	80g Sand, Soil, Rocks	05 Sep 2016	No Asbestos Found Synthetic Mineral Fibres Detected Organic Fibres Detected	<0.01
SE156902.007	SS7	Soil	35g Sand, Soil, Rocks,Plant matter	05 Sep 2016	No Asbestos Found Organic Fibres Detected	<0.01
SE156902.008	SS10	Soil	23g Sand, Soil, Plant Matter	05 Sep 2016	No Asbestos Found Organic Fibres Detected	<0.01
SE156902.009	SS11	Soil	70g Sand, Rocks	05 Sep 2016	No Asbestos Found Synthetic Mineral Fibres Detected Organic Fibres Detected	<0.01
SE156902.010	SS12	Soil	167g Clay, Sand, Rocks	05 Sep 2016	No Asbestos Found Organic Fibres Detected	<0.01
SE156902.011	SS13	Soil	104g Clay, Sand, Rocks	05 Sep 2016	No Asbestos Found	<0.01
SE156902.012	SS14	Soil	125g Clay, Sand, Soil, Rocks	05 Sep 2016	No Asbestos Found	<0.01
SE156902.013	SS15	Soil	129g Clay, Sand, Soil, Rocks	05 Sep 2016	No Asbestos Found Organic Fibres Detected	<0.01
SE156902.014	SS17	Soil	50g Clay, Sand, Soil, Rocks	05 Sep 2016	No Asbestos Found Organic Fibres Detected	<0.01
SE156902.015	SS18	Soil	130g Sand, Rocks	05 Sep 2016	No Asbestos Found Organic Fibres Detected	<0.01
SE156902.016	G1	Soil	287g Sand, Soil, Rocks	05 Sep 2016	No Asbestos Found	<0.01
SE156902.017	G3	Soil	141g Clay, Sand, Soil, Rocks	05 Sep 2016	No Asbestos Found Organic Fibres Detected	<0.01
SE156902.018	G4	Soil	115g Clay, Sand, Rocks	05 Sep 2016	No Asbestos Found	<0.01
SE156902.019	G5	Soil	123g Clay, Sand, Rocks	05 Sep 2016	No Asbestos Found	<0.01
SE156902.020	G6	Soil	94g Clay, Rocks	05 Sep 2016	No Asbestos Found	<0.01
SE156902.021	TR4 0.1-0.2	Soil	282g Clay, Sand, Rocks	05 Sep 2016	No Asbestos Found Organic Fibres Detected	<0.01
SE156902.022	TR8 1.0-1.2	Soil	302g Clay, Sand, Rocks	05 Sep 2016	No Asbestos Found	<0.01
SE156902.023	TP34 0-0.1	Soil	159g Clay, Rocks	05 Sep 2016	No Asbestos Found	<0.01
SE156902.024	TP35 0.0-0.1	Soil	63g Clay, Soil, Rocks	05 Sep 2016	No Asbestos Found	<0.01
SE156902.025	TP43 0-0.1	Soil	109g Clay, Rocks	06 Sep 2016	No Asbestos Found	<0.01

RESULTS

Fibre Identification in soil — Method AN602

Laboratory Reference	Client Reference	Matrix	Sample Description	Date Sampled	Fibre Identification	Est.%w/w*
SE156902.026	TP44 0-0.1	Soil	224g Clay, Sand, Rocks	06 Sep 2016	No Asbestos Found	<0.01
SE156902.027	TP48 0.1-0.15	Soil	166g Clay, Sand, Soil, Rocks	05 Sep 2016	No Asbestos Found	<0.01
SE156902.028	TP52 0.1-0.2	Soil	143g Clay, Rocks	05 Sep 2016	No Asbestos Found	<0.01
SE156902.029	TP61	Soil	244g Clay, Sand, Rocks	05 Sep 2016	Chrysotile Asbestos Found Organic Fibres Detected	>0.01

METHOD SUMMARY

METHOD	METHODOLOGY SUMMARY
AN602	Qualitative identification of chrysotile, amosite and crocidolite in bulk samples by polarised light microscopy (PLM) in conjunction with dispersion staining (DS). AS4964 provides the basis for this document. Unequivocal identification of the asbestos minerals present is made by obtaining sufficient diagnostic `clues`, which provide a reasonable degree of certainty, dispersion staining is a mandatory `clue` for positive identification. If sufficient `clues` are absent, then positive identification of asbestos is not possible. This procedure requires removal of suspect fibres/bundles from the sample which cannot be returned.
AN602	Fibres/material that cannot be unequivocably identified as one of the three asbestos forms, will be reported as unknown mineral fibres (umf).
AN602	AS4964.2004 Method for the Qualitative Identification of Asbestos in Bulk Samples , Section 8.4, Trace Analysis Criteria, Note 4 states:"Depending upon sample condition and fibre type, the detection limit of this technique has been found to lie generally in the range of 1 in 1,000 to 1 in 10,000 parts by weight, equivalent to 1 to 0.1 g/kg."
AN602	The sample can be reported “no asbestos found at the reporting limit of 0.1 g/kg” (<0.01%w/w) where AN602 section 4.5 of this method has been followed, and if- (a) no trace asbestos fibres have been detected (i.e. no ‘respirable’ fibres): (b) the estimated weight of non-respirable asbestos fibre bundles and/or the estimated weight of asbestos in asbestos-containing materials are found to be less than 0.1g/kg: and (c) these non-respirable asbestos fibre bundles and/or the asbestos containing materials are only visible under stereo-microscope viewing conditions.

FOOTNOTES

Amosite	-	Brown Asbestos	NA	-	Not Analysed
Chrysotile	-	White Asbestos	LNR	-	Listed, Not Required
Crocidolite	-	Blue Asbestos	*	-	NATA accreditation does not cover the performance of this service .
Amphiboles	-	Amosite and/or Crocidolite	**	-	Indicative data, theoretical holding time exceeded.

(In reference to soil samples only) This report does not comply with the analytical reporting recommendations in the Western Australian Department of Health Guidelines for the Assessment and Remediation and Management of Asbestos Contaminated sites in Western Australia - May 2009.

Sampled by the client.

Where reported: 'Asbestos Detected': Asbestos detected by polarised light microscopy, including dispersion staining.
Where reported: 'No Asbestos Found': No Asbestos Found by polarised light microscopy, including dispersion staining.
Where reported: 'UMF Detected': Mineral fibres of unknown type detected by polarised light microscopy, including dispersion staining. Confirmation by another independent analytical technique may be necessary.

Even after disintegration it can be very difficult, or impossible, to detect the presence of asbestos in some asbestos -containing bulk materials using polarised light microscopy. This is due to the low grade or small length or diameter of asbestos fibres present in the material, or to the fact that very fine fibres have been distributed intimately throughout the materials.

The QC criteria are subject to internal review according to the SGS QAQC plan and may be provided on request or alternatively can be found here : http://www.sgs.com.au/~/media/Local/Australia/Documents/Technical%20Documents/MP-AU-ENV-QU-022%20QA%20QC%20Plan.pdf

This document is issued, on the Client's behalf, by the Company under its General Conditions of Service available on request and accessible at http://www.sgs.com/en/terms-and-conditions. The Client's attention is drawn to the limitation of liability, indemnification and jurisdiction issues defined therein.

Any other holder of this document is advised that information contained hereon reflects the Company 's findings at the time of its intervention only and within the limits of Client's instructions, if any. The Company's sole responsibility is to its Client and this document does not exonerate parties to a transaction from exercising all their rights and obligations under the transaction documents.

This test report shall not be reproduced, except in full.

source: M630_SR_20160908161550.pdf page: 1 SGS Ref: SE156909_COC

SGS

CHAIN OF CUSTODY & ANALYSIS REQUEST

SGS Environmental Services
Unit 16, 33 Maddox Street
Alexandria NSW 2015
Telephone No: (02) 85940400
Facsimile No: (02) 85940499
Email: au.samplereceipt.sydney@sgs.com

Company Name:	SMEC	Project Name/No:	3002523 – Canberra Brickworks
Address:	Suite 2, Level 1, 243 Northbourne Avenue, Lyneham, ACT, 2602, Australia	Purchase Order No:	
		Results Required By:	Ryan O'Leary
		Telephone:	+61 2 6234 1963 / 0400 240 023
Contact Name:	Ryan O'Leary	Facsimile:	
		Email Results:	Ryan.O'Leary@smec.com

Client Sample ID	Date Sampled	Lab Sample ID	WATER	SOIL		NO OF CONTAINERS	Asbestos ID	BTEXN	OPPs	OCPs	PHAs/Phenols	8 Metals - As, Cd, Cr, Cu, Ni, Pb, Zn, Hg	TPH/TRH	On Hold				
TP1_0-0.05	07 -09-16	1 J, ZLB		✓		2	✓	✓	✓	✓	✓	✓	✓					
TP1_1.0-1.1	07 -09-16	J		✓		2								✓				
TP8_0.05-0.15	07 -09-16	2 J, ZLB		✓		2	✓											
TP8_1.6-1.7	07 -09-16	3 J		✓		2	✓	✓	✓	✓	✓	✓	✓					
TP8_3.1-3.2	07-09-16	J		✓		2								✓				
TP16_0-0.1	07 -09-16	4 J		✓		2	✓	✓	✓	✓	✓	✓	✓					
TP49_0-0.1	07-09-16	5 J, ZLB		✓		2	✓											
TP49_0.2-0.3	07-09-16	6 J		✓		2	✓	✓	✓	✓	✓	✓	✓					

SGS EHS Alexandria Laboratory

SE156909 COC
Received: 08 – Sep – 2016

Relinquished By: Ryan O'Leary	Date/Time: 07/09/2016 16:30	Received By:	Date/Time
Relinquished By:	Date/Time:	Received By:	Date/Time 8/9/16 10:40
Samples Intact: (Yes)/ No	Temperature: Ambient / (Chilled)	Sample Cooler Sealed: Yes/ No	Laboratory Quotation No:
	Comments: AS PER SGS QUOTE NUMBER SY1 – 60413 – 2-IS DATED 13TH APRIL 2016	**STANDARD TAT PLEASE (5 DAY)**	

SGS

CHAIN OF CUSTODY & ANALYSIS REQUEST

SGS Environmental Services
Unit 16, 33 Maddox Street
Alexandria NSW 2015
Telephone No: (02) 85940400
Facsimile No: (02) 85940499
Email: au samplereceipt sydney@sgs.com

Company Name:	SMEC	Project Name/No:	3002523 – Canberra Brickworks
Address:	Suite 2, Level 1, 243 Northbourne Avenue, Lyneham, ACT, 2602, Australia	Purchase Order No:	
		Results Required By:	Ryan O'Leary
		Telephone:	+61 2 6234 1963 / 0400 240 023
Contact Name:	Ryan O'Leary	Facsimile:	
		Email Results:	Ryan.O'Leary@smec.com

Client Sample ID	Date Sampled	Lab Sample ID	WATER	SOIL		NO OF CONTAINERS	Asbestos ID	BTEXN	OPPs	OCPs	PHAs/Phenols	8 Metals - As, Cd, Cr, Cu, Ni, Pb, Zn, Hg	TPH/TRH	On Hold								
TP49_1.2-1.3	07 -09-16	J		✓		2								✓								

Relinquished By: Ryan O'Leary	Date/Time:	Received By:	Date/Time
Relinquished By:	Date/Time:	Received By:	Date/Time 8/9/16 @ 10:40
Samples Intact: Yes/ No	Temperature: Ambient / Chilled	Sample Cooler Sealed: Yes/ No	Laboratory Quotation No:
	Comments: AS PER SGS QUOTE NUMBER SY1 – 60413 – 2-IS DATED 13TH APRIL 2016	**STANDARD TAT PLEASE (5 DAY)**	

SAMPLE RECEIPT ADVICE

SE156909

CLIENT DETAILS

Contact	Ryan O'Leary
Client	SMEC AUSTRALIA PTY LTD
Address	Sun Micro Building Suite 2, Level 1 243 Northbourne Avenue ACT 2602
Telephone	02 6234 1963
Facsimile	02 6234 1966
Email	Ryan.O'Leary@smec.com
Project	**3002523 - Canberra Brickworks**
Order Number	**SY1-60413-2-IS**
Samples	6

LABORATORY DETAILS

Manager	Huong Crawford
Laboratory	SGS Alexandria Environmental
Address	Unit 16, 33 Maddox St Alexandria NSW 2015
Telephone	+61 2 8594 0400
Facsimile	+61 2 8594 0499
Email	au.environmental.sydney@sgs.com
Samples Received	Thu 8/9/2016
Report Due	Thu 15/9/2016
SGS Reference	**SE156909**

SUBMISSION DETAILS

This is to confirm that 6 samples were received on Thursday 8/9/2016. Results are expected to be ready by Thursday 15/9/2016. Please quote SGS reference SE156909 when making enquiries. Refer below for details relating to sample integrity upon receipt.

Sample counts by matrix	6 Soil	Type of documentation received	COC
Date documentation received	8/9/2016	Samples received in good order	Yes
Samples received without headspace	Yes	Sample temperature upon receipt	13.1°C
Sample container provider	SGS	Turnaround time requested	Standard
Samples received in correct containers	Yes	Sufficient sample for analysis	Yes
Sample cooling method	Ice Bricks	Samples clearly labelled	Yes
Complete documentation received	Yes	Number of eskies/boxes received	

Unless otherwise instructed, water and bulk samples will be held for one month from date of report, and soil samples will be held for two months.

COMMENTS

3 soil samples have been placed on hold.
Samples with no bag provided, asbestos will be sub sampled from the jar provided.

To the extent not inconsistent with the other provisions of this document and unless specifically agreed otherwise in writing by SGS, all SGS services are rendered in accordance with the applicable SGS General Conditions of Service accessible at http://www.sgs.com/en/terms-and-conditions as at the date of this document. Attention is drawn to the limitations of liability and to the clauses of indemnification.

SAMPLE RECEIPT ADVICE

SE156909

CLIENT DETAILS

Client SMEC AUSTRALIA PTY LTD

Project 3002523 - Canberra Brickworks

SUMMARY OF ANALYSIS

No.	Sample ID	OC Pesticides in Soil	OP Pesticides in Soil	PAH (Polynuclear Aromatic Hydrocarbons) in Soil	Total Phenolics in Soil	Total Recoverable Metals in Soil/Waste	TRH (Total Recoverable Hydrocarbons) in Soil	VOC's in Soil	Volatile Petroleum Hydrocarbons in Soil
001	TP1_0-0.05	28	13	26	1	7	10	12	8
003	TP8_1.6-1.7	28	13	26	1	7	10	12	8
004	TP16_0-0.1	28	13	26	1	7	10	12	8
006	TP49_0.2-0.3	28	13	26	1	7	10	12	8

CONTINUED OVERLEAF

The above table represents SGS' interpretation of the client-supplied Chain Of Custody document.
The numbers shown in the table indicate the number of results requested in each package.
Please indicate as soon as possible should your request differ from these details .
Testing as per this table shall commence immediately unless the client intervenes with a correction .

SAMPLE RECEIPT ADVICE

SE156909

CLIENT DETAILS

Client SMEC AUSTRALIA PTY LTD

Project 3002523 - Canberra Brickworks

SUMMARY OF ANALYSIS

No.	Sample ID	Fibre Identification in soil	Mercury in Soil	Moisture Content
001	TP1_0-0.05	2	1	1
002	TP8_0.05-0.15	2	-	-
003	TP8_1.6-1.7	2	1	1
004	TP16_0-0.1	2	1	1
005	TP49_0-0.1	2	-	-
006	TP49_0.2-0.3	2	1	1

The above table represents SGS' interpretation of the client-supplied Chain Of Custody document.
The numbers shown in the table indicate the number of results requested in each package.
Please indicate as soon as possible should your request differ from these details .
Testing as per this table shall commence immediately unless the client intervenes with a correction .

ANALYTICAL REPORT

Accreditation No. 2562

CLIENT DETAILS

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Project	**3002523 - Canberra Brickworks**
Order Number	**SY1-60413-2-IS**
Samples	6

LABORATORY DETAILS

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SGS Reference	**SE156909 R0**
Date Received	8/9/2016
Date Reported	15/9/2016

COMMENTS

Accredited for compliance with ISO/IEC 17025. NATA accredited laboratory 2562(4354).

No respirable fibres detected in all soil samples using trace analysis technique.

Sample #3-4, 6: A portion of the sample supplied has been sub-sampled for asbestos according to SGS In-house procedures.
We therefore cannot guarantee that the sub-sample is representative of the entire sample supplied.
SGS Environment, Health and Safety recommends supplying approximately 50-100g of sample in a separate container.

Asbestos analysed by Approved Identifier Yusuf Kuthpudin.

SIGNATORIES

Andy Sutton
Senior Organic Chemist

Bennet Lo
Senior Organic Chemist/Metals Chemist

Dong Liang
Metals/Inorganics Team Leader

Kamrul Ahsan
Senior Chemist

Ly Kim Ha
Organic Section Head

Ravee Sivasubramaniam
Hygiene Team Leader

VOC's in Soil [AN433] Tested: 12/9/2016

PARAMETER	UOM	LOR	TP1_0-0.05 SOIL - 7/9/2016 SE156909.001	TP8_1.6-1.7 SOIL - 7/9/2016 SE156909.003	TP16_0-0.1 SOIL - 7/9/2016 SE156909.004	TP49_0.2-0.3 SOIL - 7/9/2016 SE156909.006
Benzene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1
Toluene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1
Ethylbenzene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1
m/p-xylene	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2
o-xylene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1
Total Xylenes*	mg/kg	0.3	<0.3	<0.3	<0.3	<0.3
Total BTEX	mg/kg	0.6	<0.6	<0.6	<0.6	<0.6
Naphthalene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1

Volatile Petroleum Hydrocarbons in Soil [AN433] Tested: 12/9/2016

PARAMETER	UOM	LOR	TP1_0-0.05 SOIL - 7/9/2016 SE156909.001	TP8_1.6-1.7 SOIL - 7/9/2016 SE156909.003	TP16_0-0.1 SOIL - 7/9/2016 SE156909.004	TP49_0.2-0.3 SOIL - 7/9/2016 SE156909.006
TRH C6-C9	mg/kg	20	<20	<20	<20	<20
Benzene (F0)	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1
TRH C6-C10	mg/kg	25	<25	<25	<25	<25
TRH C6-C10 minus BTEX (F1)	mg/kg	25	<25	<25	<25	<25

TRH (Total Recoverable Hydrocarbons) in Soil [AN403] Tested: 12/9/2016

PARAMETER	UOM	LOR	TP1_0-0.05 SOIL - 7/9/2016 SE156909.001	TP8_1.6-1.7 SOIL - 7/9/2016 SE156909.003	TP16_0-0.1 SOIL - 7/9/2016 SE156909.004	TP49_0.2-0.3 SOIL - 7/9/2016 SE156909.006
TRH C10-C14	mg/kg	20	<20	<20	<20	<20
TRH C15-C28	mg/kg	45	<45	<45	<45	<45
TRH C29-C36	mg/kg	45	<45	<45	<45	<45
TRH C37-C40	mg/kg	100	<100	<100	<100	<100
TRH >C10-C16 (F2)	mg/kg	25	<25	<25	<25	<25
TRH >C10-C16 (F2) - Naphthalene	mg/kg	25	<25	<25	<25	<25
TRH >C16-C34 (F3)	mg/kg	90	<90	<90	<90	<90
TRH >C34-C40 (F4)	mg/kg	120	<120	<120	<120	<120
TRH C10-C36 Total	mg/kg	110	<110	<110	<110	<110
TRH C10-C40 Total	mg/kg	210	<210	<210	<210	<210

PAH (Polynuclear Aromatic Hydrocarbons) in Soil [AN420] Tested: 12/9/2016

PARAMETER	UOM	LOR	TP1_0-0.05 SOIL - 7/9/2016 SE156909.001	TP8_1.6-1.7 SOIL - 7/9/2016 SE156909.003	TP16_0-0.1 SOIL - 7/9/2016 SE156909.004	TP49_0.2-0.3 SOIL - 7/9/2016 SE156909.006
Naphthalene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1
2-methylnaphthalene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1
1-methylnaphthalene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1
Acenaphthylene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1
Acenaphthene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1
Fluorene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1
Phenanthrene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1
Anthracene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1
Fluoranthene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1
Pyrene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1
Benzo(a)anthracene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1
Chrysene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1
Benzo(b&j)fluoranthene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1
Benzo(k)fluoranthene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1
Benzo(a)pyrene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1
Indeno(1,2,3-cd)pyrene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1
Dibenzo(ah)anthracene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1
Benzo(ghi)perylene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1
Carcinogenic PAHs, BaP TEQ <LOR=0	TEQ	0.2	<0.2	<0.2	<0.2	<0.2
Carcinogenic PAHs, BaP TEQ <LOR=LOR	TEQ (mg/kg)	0.3	<0.3	<0.3	<0.3	<0.3
Carcinogenic PAHs, BaP TEQ <LOR=LOR/2	TEQ (mg/kg)	0.2	<0.2	<0.2	<0.2	<0.2
Total PAH (18)	mg/kg	0.8	<0.8	<0.8	<0.8	<0.8
Total PAH (NEPM/WHO 16)	mg/kg	0.8	<0.8	<0.8	<0.8	<0.8

OC Pesticides in Soil [AN400/AN420] Tested: 12/9/2016

PARAMETER	UOM	LOR	TP1_0-0.05 SOIL - 7/9/2016 SE156909.001	TP8_1.6-1.7 SOIL - 7/9/2016 SE156909.003	TP16_0-0.1 SOIL - 7/9/2016 SE156909.004	TP49_0.2-0.3 SOIL - 7/9/2016 SE156909.006
Hexachlorobenzene (HCB)	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1
Alpha BHC	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1
Lindane	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1
Heptachlor	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1
Aldrin	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1
Beta BHC	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1
Delta BHC	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1
Heptachlor epoxide	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1
o,p'-DDE	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1
Alpha Endosulfan	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2
Gamma Chlordane	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1
Alpha Chlordane	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1
trans-Nonachlor	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1
p,p'-DDE	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1
Dieldrin	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2
Endrin	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2
o,p'-DDD	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1
o,p'-DDT	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1
Beta Endosulfan	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2
p,p'-DDD	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1
p,p'-DDT	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1
Endosulfan sulphate	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1
Endrin Aldehyde	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1
Methoxychlor	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1
Endrin Ketone	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1
Isodrin	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1
Mirex	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1

OP Pesticides in Soil [AN400/AN420] Tested: 12/9/2016

PARAMETER	UOM	LOR	TP1_0-0.05 SOIL - 7/9/2016 SE156909.001	TP8_1.6-1.7 SOIL - 7/9/2016 SE156909.003	TP16_0-0.1 SOIL - 7/9/2016 SE156909.004	TP49_0.2-0.3 SOIL - 7/9/2016 SE156909.006
Dichlorvos	mg/kg	0.5	<0.5	<0.5	<0.5	<0.5
Dimethoate	mg/kg	0.5	<0.5	<0.5	<0.5	<0.5
Diazinon (Dimpylate)	mg/kg	0.5	<0.5	<0.5	<0.5	<0.5
Fenitrothion	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2
Malathion	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2
Chlorpyrifos (Chlorpyrifos Ethyl)	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2
Parathion-ethyl (Parathion)	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2
Bromophos Ethyl	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2
Methidathion	mg/kg	0.5	<0.5	<0.5	<0.5	<0.5
Ethion	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2
Azinphos-methyl (Guthion)	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2

Total Phenolics in Soil [AN289] Tested: 14/9/2016

PARAMETER	UOM	LOR	TP1_0-0.05 SOIL - 7/9/2016 SE156909.001	TP8_1.6-1.7 SOIL - 7/9/2016 SE156909.003	TP16_0-0.1 SOIL - 7/9/2016 SE156909.004	TP49_0.2-0.3 SOIL - 7/9/2016 SE156909.006
Total Phenols	mg/kg	0.1	**1.3**	**0.3**	**0.4**	**0.3**

Total Recoverable Metals in Soil/Waste Solids/Materials by ICPOES [AN040/AN320] Tested: 14/9/2016

PARAMETER	UOM	LOR	TP1_0-0.05 SOIL - 7/9/2016 SE156909.001	TP8_1.6-1.7 SOIL - 7/9/2016 SE156909.003	TP16_0-0.1 SOIL - 7/9/2016 SE156909.004	TP49_0.2-0.3 SOIL - 7/9/2016 SE156909.006
Arsenic, As	mg/kg	3	5	6	7	11
Cadmium, Cd	mg/kg	0.3	<0.3	<0.3	0.3	0.3
Chromium, Cr	mg/kg	0.3	18	23	42	27
Copper, Cu	mg/kg	0.5	11	26	19	15
Lead, Pb	mg/kg	1	20	20	79	42
Nickel, Ni	mg/kg	0.5	10	21	13	13
Zinc, Zn	mg/kg	0.5	37	170	72	48

Mercury in Soil [AN312] Tested: 13/9/2016

PARAMETER	UOM	LOR	TP1_0-0.05 SOIL - 7/9/2016 SE156909.001	TP8_1.6-1.7 SOIL - 7/9/2016 SE156909.003	TP16_0-0.1 SOIL - 7/9/2016 SE156909.004	TP49_0.2-0.3 SOIL - 7/9/2016 SE156909.006
Mercury	mg/kg	0.05	<0.05	<0.05	<0.05	<0.05

Moisture Content [AN002] Tested: 9/9/2016

PARAMETER	UOM	LOR	TP1_0-0.05 SOIL - 7/9/2016 SE156909.001	TP8_1.6-1.7 SOIL - 7/9/2016 SE156909.003	TP16_0-0.1 SOIL - 7/9/2016 SE156909.004	TP49_0.2-0.3 SOIL - 7/9/2016 SE156909.006
% Moisture	%w/w	0.5	**15**	**14**	**16**	**16**

Fibre Identification in soil [AN602] Tested: 14/9/2016

PARAMETER	UOM	LOR	TP1_0-0.05 SOIL - 7/9/2016 SE156909.001	TP8_0.05-0.15 SOIL - 7/9/2016 SE156909.002	TP8_1.6-1.7 SOIL - 7/9/2016 SE156909.003	TP16_0-0.1 SOIL - 7/9/2016 SE156909.004	TP49_0-0.1 SOIL - 7/9/2016 SE156909.005
Asbestos Detected	No unit	-	No	No	No	No	No
Estimated Fibres*	%w/w	0.01	<0.01	<0.01	<0.01	<0.01	<0.01

PARAMETER	UOM	LOR	TP49_0.2-0.3 SOIL - 7/9/2016 SE156909.006
Asbestos Detected	No unit	-	No
Estimated Fibres*	%w/w	0.01	<0.01

METHOD	METHODOLOGY SUMMARY
AN002	The test is carried out by drying (at either 40°C or 105°C) a known mass of sample in a weighed evaporating basin. After fully dry the sample is re-weighed. Samples such as sludge and sediment having high percentages of moisture will take some time in a drying oven for complete removal of water.
AN040/AN320	A portion of sample is digested with nitric acid to decompose organic matter and hydrochloric acid to complete the digestion of metals. The digest is then analysed by ICP OES with metals results reported on the dried sample basis. Based on USEPA method 200.8 and 6010C.
AN040	A portion of sample is digested with Nitric acid to decompose organic matter and Hydrochloric acid to complete the digestion of metals and then filtered for analysis by ASS or ICP as per USEPA Method 200.8.
AN289	Analysis of Total Phenols in Soil Sediment and Water: Steam distillable phenols react with 4-aminoantipyrine at pH 7.9±0.1 in the presence of potassium ferricyanide to form a coloured antipyrine dye analysed by Discrete Analyser. Reference APHA 5530 B/D.
AN312	Mercury by Cold Vapour AAS in Soils: After digestion with nitric acid, hydrogen peroxide and hydrochloric acid , mercury ions are reduced by stannous chloride reagent in acidic solution to elemental mercury. This mercury vapour is purged by nitrogen into a cold cell in an atomic absorption spectrometer or mercury analyser . Quantification is made by comparing absorbances to those of the calibration standards. Reference APHA 3112/3500
AN400	OC and OP Pesticides by GC-ECD: The determination of organochlorine (OC) and organophosphorus (OP) pesticides and polychlorinated biphenyls (PCBs) in soils, sludges and groundwater. (Based on USEPA methods 3510, 3550, 8140 and 8080.)
AN403	Total Recoverable Hydrocarbons: Determination of Hydrocarbons by gas chromatography after a solvent extraction. Detection is by flame ionisation detector (FID) that produces an electronic signal in proportion to the combustible matter passing through it. Total Recoverable Hydrocarbons (TRH) are routinely reported as four alkane groupings based on the carbon chain length of the compounds: C6-C9, C10-C14, C15-C28 and C29-C36 and in recognition of the NEPM 1999 (2013), >C10-C16 (F2), >C16-C34 (F3) and >C34-C40 (F4). F2 is reported directly and also corrected by subtracting Naphthalene (from VOC method AN433) where available.
AN403	Additionally, the volatile C6-C9 fraction may be determined by a purge and trap technique and GC/MS because of the potential for volatiles loss. Total Petroleum Hydrocarbons (TPH) follows the same method of analysis after silica gel cleanup of the solvent extract. Aliphatic/Aromatic Speciation follows the same method of analysis after fractionation of the solvent extract over silica with differential polarity of the eluent solvents .
AN403	The GC/FID method is not well suited to the analysis of refined high boiling point materials (ie lubricating oils or greases) but is particularly suited for measuring diesel, kerosene and petrol if care to control volatility is taken. This method will detect naturally occurring hydrocarbons, lipids, animal fats, phenols and PAHs if they are present at sufficient levels, dependent on the use of specific cleanup/fractionation techniques. Reference USEPA 3510B, 8015B.
AN420	(SVOCs) including OC, OP, PCB, Herbicides, PAH, Phthalates and Speciated Phenols (etc) in soils, sediments and waters are determined by GCMS/ECD technique following appropriate solvent extraction process (Based on USEPA 3500C and 8270D).
AN420	SVOC Compounds: Semi-Volatile Organic Compounds (SVOCs) including OC, OP, PCB, Herbicides, PAH, Phthalates and Speciated Phenols in soils, sediments and waters are determined by GCMS/ECD technique following appropriate solvent extraction process (Based on USEPA 3500C and 8270D).
AN433	VOCs and C6-C9 Hydrocarbons by GC-MS P&T: VOC`s are volatile organic compounds. The sample is presented to a gas chromatograph via a purge and trap (P&T) concentrator and autosampler and is detected with a Mass Spectrometer (MSD). Solid samples are initially extracted with methanol whilst liquid samples are processed directly. References: USEPA 5030B, 8020A, 8260.
AN602	Qualitative identification of chrysotile, amosite and crocidolite in bulk samples by polarised light microscopy (PLM) in conjunction with dispersion staining (DS). AS4964 provides the basis for this document. Unequivocal identification of the asbestos minerals present is made by obtaining sufficient diagnostic `clues`, which provide a reasonable degree of certainty, dispersion staining is a mandatory `clue` for positive identification. If sufficient `clues` are absent, then positive identification of asbestos is not possible. This procedure requires removal of suspect fibres/bundles from the sample which cannot be returned.
AN602	Fibres/material that cannot be unequivocably identified as one of the three asbestos forms, will be reported as unknown mineral fibres (umf).
AN602	AS4964.2004 Method for the Qualitative Identification of Asbestos in Bulk Samples, Section 8.4, Trace Analysis Criteria, Note 4 states:"Depending upon sample condition and fibre type, the detection limit of this technique has been found to lie generally in the range of 1 in 1,000 to 1 in 10,000 parts by weight, equivalent to 1 to 0.1 g/kg."

AN602	The sample can be reported “no asbestos found at the reporting limit of 0.1 g/kg” (<0.01%w/w) where AN602 section 4.5 of this method has been followed, and if- (a) no trace asbestos fibres have been detected (i.e. no ‘respirable’ fibres): (b) the estimated weight of non-respirable asbestos fibre bundles and/or the estimated weight of asbestos in asbestos-containing materials are found to be less than 0.1g/kg: and (c) these non-respirable asbestos fibre bundles and/or the asbestos containing materials are only visible under stereo-microscope viewing conditions.

FOOTNOTES

*	NATA accreditation does not cover the performance of this service.	-	Not analysed.	UOM	Unit of Measure.
		NVL	Not validated.	LOR	Limit of Reporting.
**	Indicative data, theoretical holding time exceeded.	IS	Insufficient sample for analysis.	↑↓	Raised/lowered Limit of Reporting.
		LNR	Sample listed, but not received.		

Samples analysed as received.
Solid samples expressed on a dry weight basis.

Where "Total" analyte groups are reported (for example, Total PAHs, Total OC Pesticides) the total will be calculated as the sum of the individual analytes, with those analytes that are reported as <LOR being assumed to be zero. The summed (Total) limit of reporting is calculated by summing the individual analyte LORs and dividing by two. For example, where 16 individual analytes are being summed and each has an LOR of 0.1 mg/kg, the "Totals" LOR will be 1.6 / 2 (0.8 mg/kg). Where only 2 analytes are being summed, the " Total" LOR will be the sum of those two LORs.

Some totals may not appear to add up because the total is rounded after adding up the raw values.

If reported, measurement uncertainty follow the ± sign after the analytical result and is expressed as the expanded uncertainty calculated using a coverage factor of 2, providing a level of confidence of approximately 95%, unless stated otherwise in the comments section of this report.

Results reported for samples tested under test methods with codes starting with ARS-SOP, radionuclide or gross radioactivity concentrations are expressed in becquerel (Bq) per unit of mass or volume or per wipe as stated on the report. Becquerel is the SI unit for activity and equals one nuclear transformation per second.
Note that in terms of units of radioactivity:

a. 1 Bq is equivalent to 27 pCi
b. 37 MBq is equivalent to 1 mCi

For results reported for samples tested under test methods with codes starting with ARS-SOP, less than (<) values indicate the detection limit for each radionuclide or parameter for the measurement system used. The respective detection limits have been calculated in accordance with ISO 11929.

The QC criteria are subject to internal review according to the SGS QAQC plan and may be provided on request or alternatively can be found here : http://www.sgs.com.au/~/media/Local/Australia/Documents/Technical%20Documents/MP-AU-ENV-QU-022%20QA%20QC%20Plan.pdf

This document is issued, on the Client's behalf, by the Company under its General Conditions of Service available on request and accessible at http://www.sgs.com/en/terms-and-conditions. The Client's attention is drawn to the limitation of liability, indemnification and jurisdiction issues defined therein.

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ANALYTICAL REPORT

Accreditation No. 2562

CLIENT DETAILS

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Project	**3002523 - Canberra Brickworks**
Order Number	**SY1-60413-2-IS**
Samples	6

LABORATORY DETAILS

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SGS Reference	**SE156909 R0**
Date Received	08 Sep 2016
Date Reported	15 Sep 2016

COMMENTS

Accredited for compliance with ISO/IEC 17025. NATA accredited laboratory 2562(4354).

No respirable fibres detected in all soil samples using trace analysis technique.

Sample #3-4, 6: A portion of the sample supplied has been sub-sampled for asbestos according to SGS In-house procedures.
We therefore cannot guarantee that the sub-sample is representative of the entire sample supplied.
SGS Environment, Health and Safety recommends supplying approximately 50-100g of sample in a separate container.

Asbestos analysed by Approved Identifier Yusuf Kuthpudin.

SIGNATORIES

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Metals/Inorganics Team Leader

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Hygiene Team Leader

ANALYTICAL REPORT

RESULTS

Fibre Identification in soil — Method AN602

Laboratory Reference	Client Reference	Matrix	Sample Description	Date Sampled	Fibre Identification	
SE156909.001	TP1_0-0.05	Soil	35g Clay, Sand, Rocks	07 Sep 2016	No Asbestos Found	<0.01
SE156909.002	TP8_0.05-0.15	Soil	19g Clay, Sand, Rocks	07 Sep 2016	No Asbestos Found	<0.01
SE156909.003	TP8_1.6-1.7	Soil	68g Clay, Rocks	07 Sep 2016	No Asbestos Found	<0.01
SE156909.004	TP16_0-0.1	Soil	77g Clay, Sand, Rocks	07 Sep 2016	No Asbestos Found	<0.01
SE156909.005	TP49_0-0.1	Soil	165g Clay, Sand, Soil, Rocks	07 Sep 2016	No Asbestos Found Organic Fibres Detected	<0.01
SE156909.006	TP49_0.2-0.3	Soil	73g Clay, Rocks	07 Sep 2016	No Asbestos Found	<0.01

METHOD SUMMARY

SE156909 R0

METHOD	METHODOLOGY SUMMARY
AN602	Qualitative identification of chrysotile, amosite and crocidolite in bulk samples by polarised light microscopy (PLM) in conjunction with dispersion staining (DS). AS4964 provides the basis for this document. Unequivocal identification of the asbestos minerals present is made by obtaining sufficient diagnostic `clues`, which provide a reasonable degree of certainty, dispersion staining is a mandatory `clue` for positive identification. If sufficient `clues` are absent, then positive identification of asbestos is not possible. This procedure requires removal of suspect fibres/bundles from the sample which cannot be returned.
AN602	Fibres/material that cannot be unequivocably identified as one of the three asbestos forms, will be reported as unknown mineral fibres (umf).
AN602	AS4964.2004 Method for the Qualitative Identification of Asbestos in Bulk Samples , Section 8.4, Trace Analysis Criteria, Note 4 states:"Depending upon sample condition and fibre type, the detection limit of this technique has been found to lie generally in the range of 1 in 1,000 to 1 in 10,000 parts by weight, equivalent to 1 to 0.1 g/kg."
AN602	The sample can be reported “no asbestos found at the reporting limit of 0.1 g/kg” (<0.01%w/w) where AN602 section 4.5 of this method has been followed, and if- (a) no trace asbestos fibres have been detected (i.e. no ‘respirable’ fibres): (b) the estimated weight of non-respirable asbestos fibre bundles and/or the estimated weight of asbestos in asbestos-containing materials are found to be less than 0.1g/kg: and (c) these non-respirable asbestos fibre bundles and/or the asbestos containing materials are only visible under stereo-microscope viewing conditions.

FOOTNOTES

Amosite	-	Brown Asbestos	NA	-	Not Analysed
Chrysotile	-	White Asbestos	LNR	-	Listed, Not Required
Crocidolite	-	Blue Asbestos	*	-	NATA accreditation does not cover the performance of this service .
Amphiboles	-	Amosite and/or Crocidolite	**	-	Indicative data, theoretical holding time exceeded.

(In reference to soil samples only) This report does not comply with the analytical reporting recommendations in the Western Australian Department of Health Guidelines for the Assessment and Remediation and Management of Asbestos Contaminated sites in Western Australia - May 2009.

Sampled by the client.

Where reported: 'Asbestos Detected': Asbestos detected by polarised light microscopy, including dispersion staining.
Where reported: 'No Asbestos Found': No Asbestos Found by polarised light microscopy, including dispersion staining.
Where reported: 'UMF Detected': Mineral fibres of unknown type detected by polarised light microscopy, including dispersion staining. Confirmation by another independent analytical technique may be necessary.

Even after disintegration it can be very difficult, or impossible, to detect the presence of asbestos in some asbestos -containing bulk materials using polarised light microscopy. This is due to the low grade or small length or diameter of asbestos fibres present in the material, or to the fact that very fine fibres have been distributed intimately throughout the materials.

The QC criteria are subject to internal review according to the SGS QAQC plan and may be provided on request or alternatively can be found here : http://www.sgs.com.au/~/media/Local/Australia/Documents/Technical%20Documents/MP-AU-ENV-QU-022%20QA%20QC%20Plan.pdf

This document is issued, on the Client's behalf, by the Company under its General Conditions of Service available on request and accessible at http://www.sgs.com/en/terms-and-conditions. The Client's attention is drawn to the limitation of liability, indemnification and jurisdiction issues defined therein.

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STATEMENT OF QA/QC PERFORMANCE

SE156909 R0

CLIENT DETAILS

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Order Number	**SY1-60413-2-IS**
Samples	6

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SGS Reference	**SE156909 R0**
Date Received	08 Sep 2016
Date Reported	15 Sep 2016

COMMENTS

All the laboratory data for each environmental matrix was compared to SGS' stated Data Quality Objectives (DQO). Comments arising from the comparison were made and are reported below.

The data relating to sampling was taken from the Chain of Custody document and was supplied by the Client.
This QA/QC Statement must be read in conjunction with the referenced Analytical Report.
The Statement and the Analytical Report must not be reproduced except in full.

All Data Quality Objectives were met with the exception of the following:

Duplicate	Total Recoverable Metals in Soil/Waste Solids/Materials by ICPOES	1 item

SAMPLE SUMMARY

HOLDING TIME SUMMARY

SE156909 R0

SGS holding time criteria are drawn from current regulations and are highly dependent on sample container preservation as specified in the SGS "Field Sampling Guide for Containers and Holding Time" (ref: GU-(AU)-ENV.001). Soil samples guidelines are derived from NEPM "Schedule B(3) Guideline on Laboratory Analysis of Potentially Contaminated Soils". Water sample guidelines are derived from "AS/NZS 5667.1 : 1998 Water Quality - sampling part 1" and APHA "Standard Methods for the Examination of Water and Wastewater" 21st edition 2005.

Extraction and analysis holding time due dates listed are calculated from the date sampled, although holding times may be extended after laboratory extraction for some analytes. The due dates are the suggested dates that samples may be held before extraction or analysis and still be considered valid.

Extraction and analysis dates are shown in **Green** when within suggested criteria or **Red** with an appended dagger symbol (†) when outside suggested criteria. If the sampled date is not supplied then compliance with criteria cannot be determined. If the received date is after one or both due dates then holding time will fail by default.

Fibre Identification in soil

Method: ME-(AU)-[ENV]AN602

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
TP1_0-0.05	SE156909.001	LB109807	07 Sep 2016	08 Sep 2016	07 Sep 2017	14 Sep 2016	07 Sep 2017	15 Sep 2016
TP8_0.05-0.15	SE156909.002	LB109807	07 Sep 2016	08 Sep 2016	07 Sep 2017	14 Sep 2016	07 Sep 2017	15 Sep 2016
TP8_1.6-1.7	SE156909.003	LB109807	07 Sep 2016	08 Sep 2016	07 Sep 2017	14 Sep 2016	07 Sep 2017	15 Sep 2016
TP16_0-0.1	SE156909.004	LB109807	07 Sep 2016	08 Sep 2016	07 Sep 2017	14 Sep 2016	07 Sep 2017	15 Sep 2016
TP49_0-0.1	SE156909.005	LB109807	07 Sep 2016	08 Sep 2016	07 Sep 2017	14 Sep 2016	07 Sep 2017	15 Sep 2016
TP49_0.2-0.3	SE156909.006	LB109807	07 Sep 2016	08 Sep 2016	07 Sep 2017	14 Sep 2016	07 Sep 2017	15 Sep 2016

Mercury in Soil

Method: ME-(AU)-[ENV]AN312

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
TP1_0-0.05	SE156909.001	LB109719	07 Sep 2016	08 Sep 2016	05 Oct 2016	13 Sep 2016	05 Oct 2016	14 Sep 2016
TP8_1.6-1.7	SE156909.003	LB109719	07 Sep 2016	08 Sep 2016	05 Oct 2016	13 Sep 2016	05 Oct 2016	14 Sep 2016
TP16_0-0.1	SE156909.004	LB109719	07 Sep 2016	08 Sep 2016	05 Oct 2016	13 Sep 2016	05 Oct 2016	14 Sep 2016
TP49_0.2-0.3	SE156909.006	LB109719	07 Sep 2016	08 Sep 2016	05 Oct 2016	13 Sep 2016	05 Oct 2016	14 Sep 2016

Moisture Content

Method: ME-(AU)-[ENV]AN002

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
TP1_0-0.05	SE156909.001	LB109540	07 Sep 2016	08 Sep 2016	21 Sep 2016	09 Sep 2016	14 Sep 2016	14 Sep 2016
TP8_0.05-0.15	SE156909.002	LB109540	07 Sep 2016	08 Sep 2016	21 Sep 2016	09 Sep 2016	14 Sep 2016	14 Sep 2016
TP8_1.6-1.7	SE156909.003	LB109540	07 Sep 2016	08 Sep 2016	21 Sep 2016	09 Sep 2016	14 Sep 2016	14 Sep 2016
TP16_0-0.1	SE156909.004	LB109540	07 Sep 2016	08 Sep 2016	21 Sep 2016	09 Sep 2016	14 Sep 2016	14 Sep 2016
TP49_0-0.1	SE156909.005	LB109540	07 Sep 2016	08 Sep 2016	21 Sep 2016	09 Sep 2016	14 Sep 2016	14 Sep 2016
TP49_0.2-0.3	SE156909.006	LB109540	07 Sep 2016	08 Sep 2016	21 Sep 2016	09 Sep 2016	14 Sep 2016	14 Sep 2016

OC Pesticides in Soil

Method: ME-(AU)-[ENV]AN400/AN420

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
TP1_0-0.05	SE156909.001	LB109563	07 Sep 2016	08 Sep 2016	21 Sep 2016	12 Sep 2016	22 Oct 2016	14 Sep 2016
TP8_1.6-1.7	SE156909.003	LB109563	07 Sep 2016	08 Sep 2016	21 Sep 2016	12 Sep 2016	22 Oct 2016	14 Sep 2016
TP16_0-0.1	SE156909.004	LB109563	07 Sep 2016	08 Sep 2016	21 Sep 2016	12 Sep 2016	22 Oct 2016	14 Sep 2016
TP49_0.2-0.3	SE156909.006	LB109563	07 Sep 2016	08 Sep 2016	21 Sep 2016	12 Sep 2016	22 Oct 2016	14 Sep 2016

OP Pesticides in Soil

Method: ME-(AU)-[ENV]AN400/AN420

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
TP1_0-0.05	SE156909.001	LB109563	07 Sep 2016	08 Sep 2016	21 Sep 2016	12 Sep 2016	22 Oct 2016	14 Sep 2016
TP8_1.6-1.7	SE156909.003	LB109563	07 Sep 2016	08 Sep 2016	21 Sep 2016	12 Sep 2016	22 Oct 2016	14 Sep 2016
TP16_0-0.1	SE156909.004	LB109563	07 Sep 2016	08 Sep 2016	21 Sep 2016	12 Sep 2016	22 Oct 2016	14 Sep 2016
TP49_0.2-0.3	SE156909.006	LB109563	07 Sep 2016	08 Sep 2016	21 Sep 2016	12 Sep 2016	22 Oct 2016	14 Sep 2016

PAH (Polynuclear Aromatic Hydrocarbons) in Soil

Method: ME-(AU)-[ENV]AN420

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
TP1_0-0.05	SE156909.001	LB109563	07 Sep 2016	08 Sep 2016	21 Sep 2016	12 Sep 2016	22 Oct 2016	14 Sep 2016
TP8_1.6-1.7	SE156909.003	LB109563	07 Sep 2016	08 Sep 2016	21 Sep 2016	12 Sep 2016	22 Oct 2016	14 Sep 2016
TP16_0-0.1	SE156909.004	LB109563	07 Sep 2016	08 Sep 2016	21 Sep 2016	12 Sep 2016	22 Oct 2016	14 Sep 2016
TP49_0.2-0.3	SE156909.006	LB109563	07 Sep 2016	08 Sep 2016	21 Sep 2016	12 Sep 2016	22 Oct 2016	14 Sep 2016

Total Phenolics in Soil

Method: ME-(AU)-[ENV]AN289

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
TP1_0-0.05	SE156909.001	LB109780	07 Sep 2016	08 Sep 2016	21 Sep 2016	14 Sep 2016	21 Sep 2016	14 Sep 2016
TP8_1.6-1.7	SE156909.003	LB109780	07 Sep 2016	08 Sep 2016	21 Sep 2016	14 Sep 2016	21 Sep 2016	14 Sep 2016
TP16_0-0.1	SE156909.004	LB109780	07 Sep 2016	08 Sep 2016	21 Sep 2016	14 Sep 2016	21 Sep 2016	14 Sep 2016
TP49_0.2-0.3	SE156909.006	LB109780	07 Sep 2016	08 Sep 2016	21 Sep 2016	14 Sep 2016	21 Sep 2016	14 Sep 2016

Total Recoverable Metals in Soil/Waste Solids/Materials by ICPOES

Method: ME-(AU)-[ENV]AN040/AN320

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
TP1_0-0.05	SE156909.001	LB109761	07 Sep 2016	08 Sep 2016	06 Mar 2017	14 Sep 2016	06 Mar 2017	14 Sep 2016
TP8_1.6-1.7	SE156909.003	LB109761	07 Sep 2016	08 Sep 2016	06 Mar 2017	14 Sep 2016	06 Mar 2017	14 Sep 2016
TP16_0-0.1	SE156909.004	LB109761	07 Sep 2016	08 Sep 2016	06 Mar 2017	14 Sep 2016	06 Mar 2017	14 Sep 2016
TP49_0.2-0.3	SE156909.006	LB109761	07 Sep 2016	08 Sep 2016	06 Mar 2017	14 Sep 2016	06 Mar 2017	14 Sep 2016

TRH (Total Recoverable Hydrocarbons) in Soil

Method: ME-(AU)-[ENV]AN403

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
TP1_0-0.05	SE156909.001	LB109563	07 Sep 2016	08 Sep 2016	21 Sep 2016	12 Sep 2016	22 Oct 2016	14 Sep 2016
TP8_1.6-1.7	SE156909.003	LB109563	07 Sep 2016	08 Sep 2016	21 Sep 2016	12 Sep 2016	22 Oct 2016	14 Sep 2016
TP16_0-0.1	SE156909.004	LB109563	07 Sep 2016	08 Sep 2016	21 Sep 2016	12 Sep 2016	22 Oct 2016	14 Sep 2016
TP49_0.2-0.3	SE156909.006	LB109563	07 Sep 2016	08 Sep 2016	21 Sep 2016	12 Sep 2016	22 Oct 2016	14 Sep 2016

HOLDING TIME SUMMARY

SE156909 R0

SGS holding time criteria are drawn from current regulations and are highly dependent on sample container preservation as specified in the SGS “Field Sampling Guide for Containers and Holding Time” (ref: GU-(AU)-ENV.001). Soil samples guidelines are derived from NEPM "Schedule B(3) Guideline on Laboratory Analysis of Potentially Contaminated Soils". Water sample guidelines are derived from "AS/NZS 5667.1 : 1998 Water Quality - sampling part 1" and APHA "Standard Methods for the Examination of Water and Wastewater" 21st edition 2005.

Extraction and analysis holding time due dates listed are calculated from the date sampled, although holding times may be extended after laboratory extraction for some analytes. The due dates are the suggested dates that samples may be held before extraction or analysis and still be considered valid.

Extraction and analysis dates are shown in **Green** when within suggested criteria or **Red** with an appended dagger symbol (†) when outside suggested criteria. If the sampled date is not supplied then compliance with criteria cannot be determined. If the received date is after one or both due dates then holding time will fail by default.

VOC's in Soil

Method: ME-(AU)-[ENV]AN433

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
TP1_0-0.05	SE156909.001	LB109561	07 Sep 2016	08 Sep 2016	21 Sep 2016	12 Sep 2016	22 Oct 2016	14 Sep 2016
TP8_1.6-1.7	SE156909.003	LB109561	07 Sep 2016	08 Sep 2016	21 Sep 2016	12 Sep 2016	22 Oct 2016	14 Sep 2016
TP16_0-0.1	SE156909.004	LB109561	07 Sep 2016	08 Sep 2016	21 Sep 2016	12 Sep 2016	22 Oct 2016	14 Sep 2016
TP49_0.2-0.3	SE156909.006	LB109561	07 Sep 2016	08 Sep 2016	21 Sep 2016	12 Sep 2016	22 Oct 2016	14 Sep 2016

Volatile Petroleum Hydrocarbons in Soil

Method: ME-(AU)-[ENV]AN433

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
TP1_0-0.05	SE156909.001	LB109561	07 Sep 2016	08 Sep 2016	21 Sep 2016	12 Sep 2016	22 Oct 2016	14 Sep 2016
TP8_1.6-1.7	SE156909.003	LB109561	07 Sep 2016	08 Sep 2016	21 Sep 2016	12 Sep 2016	22 Oct 2016	14 Sep 2016
TP16_0-0.1	SE156909.004	LB109561	07 Sep 2016	08 Sep 2016	21 Sep 2016	12 Sep 2016	22 Oct 2016	14 Sep 2016
TP49_0.2-0.3	SE156909.006	LB109561	07 Sep 2016	08 Sep 2016	21 Sep 2016	12 Sep 2016	22 Oct 2016	14 Sep 2016

Surrogate results are evaluated against upper and lower limit criteria established in the SGS QA /QC plan (Ref: MP-(AU)-[ENV]QU-022). At least two of three routine level soil sample surrogate spike recoveries for BTEX/VOC are to be within 70-130% where control charts have not been developed and within the established control limits for charted surrogates. Matrix effects may void this as an acceptance criterion. Water sample surrogate spike recoveries are to be within 40-130%. The presence of emulsions, surfactants and particulates may void this as an acceptance criterion.

Result is shown in **Green** when within suggested criteria or **Red** with an appended reason identifer when outside suggested criteria. Refer to the footnotes section at the end of this report for failure reasons.

OC Pesticides in Soil

Method: ME-(AU)-[ENV]AN400/AN420

Parameter	Sample Name	Sample Number	Units	Criteria	Recovery %
Tetrachloro-m-xylene (TCMX) (Surrogate)	TP1_0-0.05	SE156909.001	%	60 - 130%	87
	TP8_1.6-1.7	SE156909.003	%	60 - 130%	86
	TP16_0-0.1	SE156909.004	%	60 - 130%	86
	TP49_0.2-0.3	SE156909.006	%	60 - 130%	84

OP Pesticides in Soil

Method: ME-(AU)-[ENV]AN400/AN420

Parameter	Sample Name	Sample Number	Units	Criteria	Recovery %
2-fluorobiphenyl (Surrogate)	TP1_0-0.05	SE156909.001	%	60 - 130%	76
	TP8_1.6-1.7	SE156909.003	%	60 - 130%	82
	TP16_0-0.1	SE156909.004	%	60 - 130%	82
	TP49_0.2-0.3	SE156909.006	%	60 - 130%	80
d14-p-terphenyl (Surrogate)	TP1_0-0.05	SE156909.001	%	60 - 130%	86
	TP8_1.6-1.7	SE156909.003	%	60 - 130%	92
	TP16_0-0.1	SE156909.004	%	60 - 130%	84
	TP49_0.2-0.3	SE156909.006	%	60 - 130%	92

PAH (Polynuclear Aromatic Hydrocarbons) in Soil

Method: ME-(AU)-[ENV]AN420

Parameter	Sample Name	Sample Number	Units	Criteria	Recovery %
2-fluorobiphenyl (Surrogate)	TP1_0-0.05	SE156909.001	%	70 - 130%	76
	TP8_1.6-1.7	SE156909.003	%	70 - 130%	82
	TP16_0-0.1	SE156909.004	%	70 - 130%	82
	TP49_0.2-0.3	SE156909.006	%	70 - 130%	80
d14-p-terphenyl (Surrogate)	TP1_0-0.05	SE156909.001	%	70 - 130%	86
	TP8_1.6-1.7	SE156909.003	%	70 - 130%	92
	TP16_0-0.1	SE156909.004	%	70 - 130%	84
	TP49_0.2-0.3	SE156909.006	%	70 - 130%	92
d5-nitrobenzene (Surrogate)	TP1_0-0.05	SE156909.001	%	70 - 130%	86
	TP8_1.6-1.7	SE156909.003	%	70 - 130%	82
	TP16_0-0.1	SE156909.004	%	70 - 130%	94
	TP49_0.2-0.3	SE156909.006	%	70 - 130%	82

VOC's in Soil

Method: ME-(AU)-[ENV]AN433

Parameter	Sample Name	Sample Number	Units	Criteria	Recovery %
Bromofluorobenzene (Surrogate)	TP1_0-0.05	SE156909.001	%	60 - 130%	76
	TP8_1.6-1.7	SE156909.003	%	60 - 130%	79
	TP16_0-0.1	SE156909.004	%	60 - 130%	76
	TP49_0.2-0.3	SE156909.006	%	60 - 130%	77
d4-1,2-dichloroethane (Surrogate)	TP1_0-0.05	SE156909.001	%	60 - 130%	84
	TP8_1.6-1.7	SE156909.003	%	60 - 130%	80
	TP16_0-0.1	SE156909.004	%	60 - 130%	82
	TP49_0.2-0.3	SE156909.006	%	60 - 130%	86
d8-toluene (Surrogate)	TP1_0-0.05	SE156909.001	%	60 - 130%	80
	TP8_1.6-1.7	SE156909.003	%	60 - 130%	77
	TP16_0-0.1	SE156909.004	%	60 - 130%	78
	TP49_0.2-0.3	SE156909.006	%	60 - 130%	80
Dibromofluoromethane (Surrogate)	TP1_0-0.05	SE156909.001	%	60 - 130%	81
	TP8_1.6-1.7	SE156909.003	%	60 - 130%	79
	TP16_0-0.1	SE156909.004	%	60 - 130%	81
	TP49_0.2-0.3	SE156909.006	%	60 - 130%	86

Volatile Petroleum Hydrocarbons in Soil

Method: ME-(AU)-[ENV]AN433

Parameter	Sample Name	Sample Number	Units	Criteria	Recovery %
Bromofluorobenzene (Surrogate)	TP1_0-0.05	SE156909.001	%	60 - 130%	76
	TP8_1.6-1.7	SE156909.003	%	60 - 130%	79
	TP16_0-0.1	SE156909.004	%	60 - 130%	76
	TP49_0.2-0.3	SE156909.006	%	60 - 130%	77
d4-1,2-dichloroethane (Surrogate)	TP1_0-0.05	SE156909.001	%	60 - 130%	84
	TP8_1.6-1.7	SE156909.003	%	60 - 130%	80
	TP16_0-0.1	SE156909.004	%	60 - 130%	82
	TP49_0.2-0.3	SE156909.006	%	60 - 130%	86
d8-toluene (Surrogate)	TP1_0-0.05	SE156909.001	%	60 - 130%	80
	TP8_1.6-1.7	SE156909.003	%	60 - 130%	77
	TP16_0-0.1	SE156909.004	%	60 - 130%	78

Surrogate results are evaluated against upper and lower limit criteria established in the SGS QA /QC plan (Ref: MP-(AU)-[ENV]QU-022). At least two of three routine level soil sample surrogate spike recoveries for BTEX/VOC are to be within 70-130% where control charts have not been developed and within the established control limits for charted surrogates. Matrix effects may void this as an acceptance criterion. Water sample surrogate spike recoveries are to be within 40-130%. The presence of emulsions, surfactants and particulates may void this as an acceptance criterion.

Result is shown in **Green** when within suggested criteria or **Red** with an appended reason identifer when outside suggested criteria. Refer to the footnotes section at the end of this report for failure reasons.

Volatile Petroleum Hydrocarbons in Soil (continued) — **Method: ME-(AU)-[ENV]AN433**

Parameter	Sample Name	Sample Number	Units	Criteria	Recovery %
d8-toluene (Surrogate)	TP49_0.2-0.3	SE156909.006	%	60 - 130%	80
Dibromofluoromethane (Surrogate)	TP1_0-0.05	SE156909.001	%	60 - 130%	81
	TP8_1.6-1.7	SE156909.003	%	60 - 130%	79
	TP16_0-0.1	SE156909.004	%	60 - 130%	81
	TP49_0.2-0.3	SE156909.006	%	60 - 130%	86

Blank results are evaluated against the limit of reporting (LOR), for the chosen method and its associated instrumentation, typically 2.5 times the statistically determined method detection limit (MDL).

Result is shown in **Green** when within suggested criteria or **Red** with an appended dagger symbol (†) when outside suggested criteria.

Mercury in Soil

Method: ME-(AU)-[ENV]AN312

Sample Number	Parameter	Units	LOR	Result
LB109719.001	Mercury	mg/kg	0.05	<0.05

OC Pesticides in Soil

Method: ME-(AU)-[ENV]AN400/AN420

Sample Number		Parameter	Units	LOR	Result
LB109563.001		Hexachlorobenzene (HCB)	mg/kg	0.1	<0.1
		Alpha BHC	mg/kg	0.1	<0.1
		Lindane	mg/kg	0.1	<0.1
		Heptachlor	mg/kg	0.1	<0.1
		Aldrin	mg/kg	0.1	<0.1
		Beta BHC	mg/kg	0.1	<0.1
		Delta BHC	mg/kg	0.1	<0.1
		Heptachlor epoxide	mg/kg	0.1	<0.1
		Alpha Endosulfan	mg/kg	0.2	<0.2
		Gamma Chlordane	mg/kg	0.1	<0.1
		Alpha Chlordane	mg/kg	0.1	<0.1
		p,p'-DDE	mg/kg	0.1	<0.1
		Dieldrin	mg/kg	0.2	<0.2
		Endrin	mg/kg	0.2	<0.2
		Beta Endosulfan	mg/kg	0.2	<0.2
		p,p'-DDD	mg/kg	0.1	<0.1
		p,p'-DDT	mg/kg	0.1	<0.1
		Endosulfan sulphate	mg/kg	0.1	<0.1
		Endrin Aldehyde	mg/kg	0.1	<0.1
		Methoxychlor	mg/kg	0.1	<0.1
		Endrin Ketone	mg/kg	0.1	<0.1
		Isodrin	mg/kg	0.1	<0.1
		Mirex	mg/kg	0.1	<0.1
	Surrogates	Tetrachloro-m-xylene (TCMX) (Surrogate)	%	-	87

OP Pesticides in Soil

Method: ME-(AU)-[ENV]AN400/AN420

Sample Number		Parameter	Units	LOR	Result
LB109563.001		Dichlorvos	mg/kg	0.5	<0.5
		Dimethoate	mg/kg	0.5	<0.5
		Diazinon (Dimpylate)	mg/kg	0.5	<0.5
		Fenitrothion	mg/kg	0.2	<0.2
		Malathion	mg/kg	0.2	<0.2
		Chlorpyrifos (Chlorpyrifos Ethyl)	mg/kg	0.2	<0.2
		Parathion-ethyl (Parathion)	mg/kg	0.2	<0.2
		Bromophos Ethyl	mg/kg	0.2	<0.2
		Methidathion	mg/kg	0.5	<0.5
		Ethion	mg/kg	0.2	<0.2
		Azinphos-methyl (Guthion)	mg/kg	0.2	<0.2
	Surrogates	2-fluorobiphenyl (Surrogate)	%	-	80
		d14-p-terphenyl (Surrogate)	%	-	86

PAH (Polynuclear Aromatic Hydrocarbons) in Soil

Method: ME-(AU)-[ENV]AN420

Sample Number	Parameter	Units	LOR	Result
LB109563.001	Naphthalene	mg/kg	0.1	<0.1
	2-methylnaphthalene	mg/kg	0.1	<0.1
	1-methylnaphthalene	mg/kg	0.1	<0.1
	Acenaphthylene	mg/kg	0.1	<0.1
	Acenaphthene	mg/kg	0.1	<0.1
	Fluorene	mg/kg	0.1	<0.1
	Phenanthrene	mg/kg	0.1	<0.1
	Anthracene	mg/kg	0.1	<0.1
	Fluoranthene	mg/kg	0.1	<0.1
	Pyrene	mg/kg	0.1	<0.1
	Benzo(a)anthracene	mg/kg	0.1	<0.1
	Chrysene	mg/kg	0.1	<0.1
	Benzo(a)pyrene	mg/kg	0.1	<0.1

Blank results are evaluated against the limit of reporting (LOR), for the chosen method and its associated instrumentation, typically 2.5 times the statistically determined method detection limit (MDL).

Result is shown in **Green** when within suggested criteria or **Red** with an appended dagger symbol (†) when outside suggested criteria.

PAH (Polynuclear Aromatic Hydrocarbons) in Soil (continued)

Method: ME-(AU)-[ENV]AN420

Sample Number		Parameter	Units	LOR	Result
LB109563.001		Indeno(1,2,3-cd)pyrene	mg/kg	0.1	<0.1
		Dibenzo(ah)anthracene	mg/kg	0.1	<0.1
		Benzo(ghi)perylene	mg/kg	0.1	<0.1
		Total PAH (18)	mg/kg	0.8	<0.8
	Surrogates	d5-nitrobenzene (Surrogate)	%	-	92
		2-fluorobiphenyl (Surrogate)	%	-	80
		d14-p-terphenyl (Surrogate)	%	-	86

Total Phenolics in Soil

Method: ME-(AU)-[ENV]AN289

Sample Number	Parameter	Units	LOR	Result
LB109780.001	Total Phenols	mg/kg	0.1	<0.1

Total Recoverable Metals in Soil/Waste Solids/Materials by ICPOES

Method: ME-(AU)-[ENV]AN040/AN320

Sample Number	Parameter	Units	LOR	Result
LB109761.001	Arsenic, As	mg/kg	3	<3
	Cadmium, Cd	mg/kg	0.3	<0.3
	Chromium, Cr	mg/kg	0.3	<0.3
	Copper, Cu	mg/kg	0.5	<0.5
	Lead, Pb	mg/kg	1	<1
	Nickel, Ni	mg/kg	0.5	<0.5
	Zinc, Zn	mg/kg	0.5	<0.5

TRH (Total Recoverable Hydrocarbons) in Soil

Method: ME-(AU)-[ENV]AN403

Sample Number	Parameter	Units	LOR	Result
LB109563.001	TRH C10-C14	mg/kg	20	<20
	TRH C15-C28	mg/kg	45	<45
	TRH C29-C36	mg/kg	45	<45
	TRH C37-C40	mg/kg	100	<100
	TRH C10-C36 Total	mg/kg	110	<110

VOC's in Soil

Method: ME-(AU)-[ENV]AN433

Sample Number		Parameter	Units	LOR	Result
LB109561.001	Monocyclic Aromatic	Benzene	mg/kg	0.1	<0.1
	Hydrocarbons	Toluene	mg/kg	0.1	<0.1
		Ethylbenzene	mg/kg	0.1	<0.1
		m/p-xylene	mg/kg	0.2	<0.2
		o-xylene	mg/kg	0.1	<0.1
	Polycyclic VOCs	Naphthalene	mg/kg	0.1	<0.1
	Surrogates	Dibromofluoromethane (Surrogate)	%	-	94
		d4-1,2-dichloroethane (Surrogate)	%	-	87
		d8-toluene (Surrogate)	%	-	107
		Bromofluorobenzene (Surrogate)	%	-	101
	Totals	Total BTEX	mg/kg	0.6	<0.6

Volatile Petroleum Hydrocarbons in Soil

Method: ME-(AU)-[ENV]AN433

Sample Number		Parameter	Units	LOR	Result
LB109561.001		TRH C6-C9	mg/kg	20	<20
	Surrogates	Dibromofluoromethane (Surrogate)	%	-	94
		d4-1,2-dichloroethane (Surrogate)	%	-	87
		d8-toluene (Surrogate)	%	-	107

Duplicates are calculated as Relative Percentage Difference (RPD) using the formula: RPD = | OriginalResult - ReplicateResult | x 100 / Mean

The RPD is evaluated against the Maximum Allowable Difference (MAD) criteria and can be graphically represented by a curve calculated from the Statistical Detection Limit (SDL) and Limiting Repeatability (LR) using the formula: MAD = 100 x SDL / Mean + LR

Where the Maximum Allowable Difference evaluates to a number larger than 200 it is displayed as 200.

RPD is shown in **Green** when within suggested criteria or **Red** with an appended reason identifer when outside suggested criteria. Refer to the footnotes section at the end of this report for failure reasons.

Mercury in Soil

Method: ME-(AU)-[ENV]AN312

Original	Duplicate	Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE156910.006	LB109719.014	Mercury	mg/kg	0.05	0.126084988	90.213445967	0	59	51
SE156934.006	LB109719.024	Mercury	mg/kg	0.05	0.001122690	10.000787743	9	200	0

Moisture Content

Method: ME-(AU)-[ENV]AN002

Original	Duplicate	Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE156909.001	LB109540.022	% Moisture	%w/w	0.5	15	15	37	2
SE156910.005	LB109540.033	% Moisture	%w/w	0.5	10.770913067	20.120608285	2	40	6

OC Pesticides in Soil

Method: ME-(AU)-[ENV]AN400/AN420

Original	Duplicate		Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE156910.002	LB109563.029		Hexachlorobenzene (HCB)	mg/kg	0.1	0	0	200	0
			Alpha BHC	mg/kg	0.1	0	0	200	0
			Lindane	mg/kg	0.1	0	0	200	0
			Heptachlor	mg/kg	0.1	0	0	200	0
			Aldrin	mg/kg	0.1	0	0	200	0
			Beta BHC	mg/kg	0.1	0	0	200	0
			Delta BHC	mg/kg	0.1	0	0	200	0
			Heptachlor epoxide	mg/kg	0.1	0	0	200	0
			o,p'-DDE	mg/kg	0.1	0	0	200	0
			Alpha Endosulfan	mg/kg	0.2	0	0	200	0
			Gamma Chlordane	mg/kg	0.1	0	0	200	0
			Alpha Chlordane	mg/kg	0.1	0	0	200	0
			trans-Nonachlor	mg/kg	0.1	0	0	200	0
			p,p'-DDE	mg/kg	0.1	0	0	200	0
			Dieldrin	mg/kg	0.2	0	0	200	0
			Endrin	mg/kg	0.2	0	0	200	0
			o,p'-DDD	mg/kg	0.1	0	0	200	0
			o,p'-DDT	mg/kg	0.1	0	0	200	0
			Beta Endosulfan	mg/kg	0.2	0	0	200	0
			p,p'-DDD	mg/kg	0.1	0	0	200	0
			p,p'-DDT	mg/kg	0.1	0	0	200	0
			Endosulfan sulphate	mg/kg	0.1	0	0	200	0
			Endrin Aldehyde	mg/kg	0.1	0	0	200	0
			Methoxychlor	mg/kg	0.1	0	0	200	0
			Endrin Ketone	mg/kg	0.1	0	0	200	0
			Isodrin	mg/kg	0.1	0	0	200	0
			Mirex	mg/kg	0.1	0	0	200	0
		Surrogates	Tetrachloro-m-xylene (TCMX) (Surrogate)	mg/kg	-	0.129	0.13	30	1
SE156910.006	LB109563.014		Hexachlorobenzene (HCB)	mg/kg	0.1	0	0	200	0
			Alpha BHC	mg/kg	0.1	0	0	200	0
			Lindane	mg/kg	0.1	0	0	200	0
			Heptachlor	mg/kg	0.1	0	0	200	0
			Aldrin	mg/kg	0.1	0	0	200	0
			Beta BHC	mg/kg	0.1	0	0	200	0
			Delta BHC	mg/kg	0.1	0	0	200	0
			Heptachlor epoxide	mg/kg	0.1	0	0	200	0
			o,p'-DDE	mg/kg	0.1	0	0	200	0
			Alpha Endosulfan	mg/kg	0.2	0	0	200	0
			Gamma Chlordane	mg/kg	0.1	0	0	200	0
			Alpha Chlordane	mg/kg	0.1	0	0	200	0
			trans-Nonachlor	mg/kg	0.1	0	0	200	0
			p,p'-DDE	mg/kg	0.1	0	0	200	0
			Dieldrin	mg/kg	0.2	0	0	200	0
			Endrin	mg/kg	0.2	0	0	200	0
			o,p'-DDD	mg/kg	0.1	0	0	200	0
			o,p'-DDT	mg/kg	0.1	0	0	200	0
			Beta Endosulfan	mg/kg	0.2	0	0	200	0
			p,p'-DDD	mg/kg	0.1	0	0	200	0
			p,p'-DDT	mg/kg	0.1	0	0	200	0

Duplicates are calculated as Relative Percentage Difference (RPD) using the formula: RPD = | OriginalResult - ReplicateResult | x 100 / Mean

The RPD is evaluated against the Maximum Allowable Difference (MAD) criteria and can be graphically represented by a curve calculated from the Statistical Detection Limit (SDL) and Limiting Repeatability (LR) using the formula: MAD = 100 x SDL / Mean + LR

Where the Maximum Allowable Difference evaluates to a number larger than 200 it is displayed as 200.

RPD is shown in **Green** when within suggested criteria or **Red** with an appended reason identifer when outside suggested criteria. Refer to the footnotes section at the end of this report for failure reasons.

OC Pesticides in Soil (continued)

Method: ME-(AU)-[ENV]AN400/AN420

Original	Duplicate		Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE156910.006	LB109563.014		Endosulfan sulphate	mg/kg	0.1	0	0	200	0
			Endrin Aldehyde	mg/kg	0.1	0	0	200	0
			Methoxychlor	mg/kg	0.1	0	0	200	0
			Endrin Ketone	mg/kg	0.1	0	0	200	0
			Isodrin	mg/kg	0.1	0	0	200	0
			Mirex	mg/kg	0.1	0	0	200	0
		Surrogates	Tetrachloro-m-xylene (TCMX) (Surrogate)	mg/kg	-	0.131	0.122	30	7

PAH (Polynuclear Aromatic Hydrocarbons) in Soil

Method: ME-(AU)-[ENV]AN420

Original	Duplicate		Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE156910.002	LB109563.027		Naphthalene	mg/kg	0.1	0.01	0.02	200	0
			2-methylnaphthalene	mg/kg	0.1	0	0.01	200	0
			1-methylnaphthalene	mg/kg	0.1	0	0.01	200	0
			Acenaphthylene	mg/kg	0.1	0.02	0.04	200	0
			Acenaphthene	mg/kg	0.1	0	0.01	200	0
			Fluorene	mg/kg	0.1	0.01	0.03	200	0
			Phenanthrene	mg/kg	0.1	0.22	0.34	66	43
			Anthracene	mg/kg	0.1	0.03	0.04	200	0
			Fluoranthene	mg/kg	0.1	0.61	0.63	46	3
			Pyrene	mg/kg	0.1	0.65	0.66	45	2
			Benzo(a)anthracene	mg/kg	0.1	0.36	0.39	57	8
			Chrysene	mg/kg	0.1	0.33	0.36	59	9
			Benzo(b&j)fluoranthene	mg/kg	0.1	0.48	0.43	52	11
			Benzo(k)fluoranthene	mg/kg	0.1	0.19	0.17	86	11
			Benzo(a)pyrene	mg/kg	0.1	0.4	0.4	55	0
			Indeno(1,2,3-cd)pyrene	mg/kg	0.1	0.16	0.19	87	17
			Dibenzo(ah)anthracene	mg/kg	0.1	0.03	0.03	200	0
			Benzo(ghi)perylene	mg/kg	0.1	0.21	0.24	74	13
			Carcinogenic PAHs, BaP TEQ <LOR=0	TEQ	0.2	0.5214	0.524	48	0
				TEQ (mg/kg)	0.2	0.5214	0.524	48	0
			Carcinogenic PAHs, BaP TEQ <LOR=LOR	TEQ (mg/kg)	0.3	0.6214	0.624	58	0
			Carcinogenic PAHs, BaP TEQ <LOR=LOR/2	TEQ (mg/kg)	0.2	0.5714	0.574	45	0
			Total PAH (18)	mg/kg	0.8	3.58	3.81	52	6
		Surrogates	d5-nitrobenzene (Surrogate)	mg/kg	-	0.42	0.42	30	0
			2-fluorobiphenyl (Surrogate)	mg/kg	-	0.37	0.37	30	0
			d14-p-terphenyl (Surrogate)	mg/kg	-	0.39	0.38	30	3
SE156910.006	LB109563.014		Naphthalene	mg/kg	0.1	0.16	0.21	84	27
			2-methylnaphthalene	mg/kg	0.1	0.04	0	200	0
			1-methylnaphthalene	mg/kg	0.1	0.04	0	200	0
			Acenaphthylene	mg/kg	0.1	0.43	0.46	52	7
			Acenaphthene	mg/kg	0.1	0.08	0.03	200	0
			Fluorene	mg/kg	0.1	0.07	0	200	0
			Phenanthrene	mg/kg	0.1	2.69	2.21	34	20
			Anthracene	mg/kg	0.1	0.77	0.73	43	5
			Fluoranthene	mg/kg	0.1	10.25	10.33	31	1
			Pyrene	mg/kg	0.1	10.04	10.29	31	2
			Benzo(a)anthracene	mg/kg	0.1	7.13	7.77	31	9
			Chrysene	mg/kg	0.1	5.66	5.66	32	0
			Benzo(b&j)fluoranthene	mg/kg	0.1	10.62	10.41	31	2
			Benzo(k)fluoranthene	mg/kg	0.1	3.29	2.96	33	11
			Benzo(a)pyrene	mg/kg	0.1	8.75	8.23	31	6
			Indeno(1,2,3-cd)pyrene	mg/kg	0.1	3.98	3.95	33	1
			Dibenzo(ah)anthracene	mg/kg	0.1	0.97	0.83	41	16
			Benzo(ghi)perylene	mg/kg	0.1	4.98	4.66	32	7
			Carcinogenic PAHs, BaP TEQ <LOR=0	TEQ (mg/kg)	0.2	12.2814	11.6502	12	5
			Carcinogenic PAHs, BaP TEQ <LOR=LOR	TEQ (mg/kg)	0.3	12.2814	11.6502	13	5
			Carcinogenic PAHs, BaP TEQ <LOR=LOR/2	TEQ (mg/kg)	0.2	12.2814	11.6502	12	5
			Total PAH (18)	mg/kg	0.8	69.25	68.48	31	1
		Surrogates	d5-nitrobenzene (Surrogate)	mg/kg	-	0.41	0.41	30	0
			2-fluorobiphenyl (Surrogate)	mg/kg	-	0.37	0.36	30	3
			d14-p-terphenyl (Surrogate)	mg/kg	-	0.37	0.49	30	28

Duplicates are calculated as Relative Percentage Difference (RPD) using the formula: RPD = | OriginalResult - ReplicateResult | x 100 / Mean

The RPD is evaluated against the Maximum Allowable Difference (MAD) criteria and can be graphically represented by a curve calculated from the Statistical Detection Limit (SDL) and Limiting Repeatability (LR) using the formula: MAD = 100 x SDL / Mean + LR

Where the Maximum Allowable Difference evaluates to a number larger than 200 it is displayed as 200.

RPD is shown in **Green** when within suggested criteria or **Red** with an appended reason identifer when outside suggested criteria. Refer to the footnotes section at the end of this report for failure reasons.

Total Recoverable Metals in Soil/Waste Solids/Materials by ICPOES

Method: ME-(AU)-[ENV]AN040/AN320

Original	Duplicate	Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE156900.003	LB109761.014	Arsenic, As	mg/kg	3	<3	<3	102	23
		Cadmium, Cd	mg/kg	0.3	<0.3	<0.3	200	0
		Chromium, Cr	mg/kg	0.3	6.4	7.0	37	10
		Copper, Cu	mg/kg	0.5	14	9.7	34	37 ②
		Lead, Pb	mg/kg	1	8	7	43	3
		Nickel, Ni	mg/kg	0.5	2.4	2.3	51	7
		Zinc, Zn	mg/kg	0.5	16	12	44	27
SE156910.002	LB109761.024	Arsenic, As	mg/kg	3	2.58756971182.8604630523		67	10
		Cadmium, Cd	mg/kg	0.3	0.20391731870.2053303435		177	0
		Chromium, Cr	mg/kg	0.3	5.06559098516.0511128095		39	18
		Copper, Cu	mg/kg	0.5	17.08515957248.441646119(		33	8
		Lead, Pb	mg/kg	1	57.52760687738.1484719047		32	17
		Nickel, Ni	mg/kg	0.5	5.22822583645.4007971190		39	3
		Zinc, Zn	mg/kg	0.5	33.14832899622.2176942857		32	10

TRH (Total Recoverable Hydrocarbons) in Soil

Method: ME-(AU)-[ENV]AN403

Original	Duplicate		Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE156910.002	LB109563.027		TRH C10-C14	mg/kg	20	0	0	200	0
			TRH C15-C28	mg/kg	45	0	0	200	0
			TRH C29-C36	mg/kg	45	0	0	200	0
			TRH C37-C40	mg/kg	100	0	0	200	0
			TRH C10-C36 Total	mg/kg	110	0	0	200	0
			TRH C10-C40 Total	mg/kg	210	0	0	200	0
		TRH F Bands	TRH >C10-C16 (F2)	mg/kg	25	0	0	200	0
			TRH >C10-C16 (F2) - Naphthalene	mg/kg	25	-0.02	0	200	0
			TRH >C16-C34 (F3)	mg/kg	90	0	0	200	0
			TRH >C34-C40 (F4)	mg/kg	120	0	0	200	0
SE156910.006	LB109563.014		TRH C10-C14	mg/kg	20	0	0	200	0
			TRH C15-C28	mg/kg	45	170	137	59	21
			TRH C29-C36	mg/kg	45	145	108	66	29
			TRH C37-C40	mg/kg	100	0	0	200	0
			TRH C10-C36 Total	mg/kg	110	315	245	69	25
			TRH C10-C40 Total	mg/kg	210	315	245	105	25
		TRH F Bands	TRH >C10-C16 (F2)	mg/kg	25	0	0	200	0
			TRH >C10-C16 (F2) - Naphthalene	mg/kg	25	-0.01	0	200	0
			TRH >C16-C34 (F3)	mg/kg	90	291	228	65	24
			TRH >C34-C40 (F4)	mg/kg	120	0	0	200	0

VOC's in Soil

Method: ME-(AU)-[ENV]AN433

Original	Duplicate		Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE156909.006	LB109561.014	Monocyclic Aromatic	Benzene	mg/kg	0.1	<0.1	<0.1	200	0
			Toluene	mg/kg	0.1	<0.1	<0.1	200	0
			Ethylbenzene	mg/kg	0.1	<0.1	<0.1	200	0
			m/p-xylene	mg/kg	0.2	<0.2	<0.2	200	0
			o-xylene	mg/kg	0.1	<0.1	<0.1	200	0
		Polycyclic	Naphthalene	mg/kg	0.1	<0.1	<0.1	200	0
		Surrogates	Dibromofluoromethane (Surrogate)	mg/kg	-	4.3	4.0	50	7
			d4-1,2-dichloroethane (Surrogate)	mg/kg	-	4.3	4.1	50	4
			d8-toluene (Surrogate)	mg/kg	-	4.0	3.8	50	5
			Bromofluorobenzene (Surrogate)	mg/kg	-	3.9	3.8	50	2
		Totals	Total Xylenes*	mg/kg	0.3	<0.3	<0.3	200	0
			Total BTEX	mg/kg	0.6	<0.6	<0.6	200	0

Volatile Petroleum Hydrocarbons in Soil

Method: ME-(AU)-[ENV]AN433

Original	Duplicate		Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE156909.006	LB109561.014		TRH C6-C10	mg/kg	25	<25	<25	200	0
			TRH C6-C9	mg/kg	20	<20	<20	200	0
		Surrogates	Dibromofluoromethane (Surrogate)	mg/kg	-	4.3	4.0	30	7
			d4-1,2-dichloroethane (Surrogate)	mg/kg	-	4.3	4.1	30	4
			d8-toluene (Surrogate)	mg/kg	-	4.0	3.8	30	5
			Bromofluorobenzene (Surrogate)	mg/kg	-	3.9	3.8	30	2
		VPH F Bands	Benzene (F0)	mg/kg	0.1	<0.1	<0.1	200	0

Duplicates are calculated as Relative Percentage Difference (RPD) using the formula: RPD = | OriginalResult - ReplicateResult | x 100 / Mean

The RPD is evaluated against the Maximum Allowable Difference (MAD) criteria and can be graphically represented by a curve calculated from the Statistical Detection Limit (SDL) and Limiting Repeatability (LR) using the formula: MAD = 100 x SDL / Mean + LR

Where the Maximum Allowable Difference evaluates to a number larger than 200 it is displayed as 200.

RPD is shown in **Green** when within suggested criteria or **Red** with an appended reason identifer when outside suggested criteria. Refer to the footnotes section at the end of this report for failure reasons.

Volatile Petroleum Hydrocarbons in Soil (continued) — **Method: ME-(AU)-[ENV]AN433**

Original	Duplicate		Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE156909.006	LB109561.014	VPH F Bands	TRH C6-C10 minus BTEX (F1)	mg/kg	25	<25	<25	200	0
SE156955.002	LB109561.024		TRH C6-C10	mg/kg	25	<25	<25	200	0
			TRH C6-C9	mg/kg	20	<20	<20	200	0
		Surrogates	Dibromofluoromethane (Surrogate)	mg/kg	-	4.0	3.6	30	10
			d4-1,2-dichloroethane (Surrogate)	mg/kg	-	4.1	3.7	30	12
			d8-toluene (Surrogate)	mg/kg	-	5.0	4.6	30	8
			Bromofluorobenzene (Surrogate)	mg/kg	-	4.9	4.9	30	1
		VPH F Bands	Benzene (F0)	mg/kg	0.1	<0.1	<0.1	200	0
			TRH C6-C10 minus BTEX (F1)	mg/kg	25	<25	<25	200	0

Laboratory Control Standard (LCS) results are evaluated against an expected result, typically the concentration of analyte spiked into the control during the sample preparation stage, producing a percentage recovery. The criteria applied to the percentage recovery is established in the SGS QA /QC plan (Ref: MP-(AU)-[ENV]QU-022). For more information refer to the footnotes in the concluding page of this report.

Recovery is shown in **Green** when within suggested criteria or **Red** with an appended dagger symbol (†) when outside suggested criteria.

Mercury in Soil

Method: ME-(AU)-[ENV]AN312

Sample Number	Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB109719.002	Mercury	mg/kg	0.05	0.18	0.2	70 - 130	90

OC Pesticides in Soil

Method: ME-(AU)-[ENV]AN400/AN420

Sample Number		Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB109563.002		Heptachlor	mg/kg	0.1	0.2	0.2	60 - 140	100
		Aldrin	mg/kg	0.1	0.2	0.2	60 - 140	100
		Delta BHC	mg/kg	0.1	0.2	0.2	60 - 140	100
		Dieldrin	mg/kg	0.2	<0.2	0.2	60 - 140	95
		Endrin	mg/kg	0.2	0.3	0.2	60 - 140	130
		p,p'-DDT	mg/kg	0.1	0.2	0.2	60 - 140	105
	Surrogates	Tetrachloro-m-xylene (TCMX) (Surrogate)	mg/kg	-	0.13	0.15	40 - 130	85

OP Pesticides in Soil

Method: ME-(AU)-[ENV]AN400/AN420

Sample Number		Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB109563.002		Dichlorvos	mg/kg	0.5	1.9	2	60 - 140	93
		Diazinon (Dimpylate)	mg/kg	0.5	2.0	2	60 - 140	98
		Chlorpyrifos (Chlorpyrifos Ethyl)	mg/kg	0.2	1.9	2	60 - 140	94
		Ethion	mg/kg	0.2	1.9	2	60 - 140	95
	Surrogates	2-fluorobiphenyl (Surrogate)	mg/kg	-	0.4	0.5	40 - 130	76
		d14-p-terphenyl (Surrogate)	mg/kg	-	0.4	0.5	40 - 130	82

PAH (Polynuclear Aromatic Hydrocarbons) in Soil

Method: ME-(AU)-[ENV]AN420

Sample Number		Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB109563.002		Naphthalene	mg/kg	0.1	4.3	4	60 - 140	107
		Acenaphthylene	mg/kg	0.1	4.3	4	60 - 140	108
		Acenaphthene	mg/kg	0.1	3.9	4	60 - 140	98
		Phenanthrene	mg/kg	0.1	4.6	4	60 - 140	115
		Anthracene	mg/kg	0.1	4.7	4	60 - 140	117
		Fluoranthene	mg/kg	0.1	4.9	4	60 - 140	123
		Pyrene	mg/kg	0.1	4.6	4	60 - 140	116
		Benzo(a)pyrene	mg/kg	0.1	4.6	4	60 - 140	116
	Surrogates	d5-nitrobenzene (Surrogate)	mg/kg	-	0.4	0.5	40 - 130	84
		2-fluorobiphenyl (Surrogate)	mg/kg	-	0.4	0.5	40 - 130	76
		d14-p-terphenyl (Surrogate)	mg/kg	-	0.4	0.5	40 - 130	82

Total Phenolics in Soil

Method: ME-(AU)-[ENV]AN289

Sample Number	Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB109780.002	Total Phenols	mg/kg	0.1	2.4	2.5	70 - 130	96

Total Recoverable Metals in Soil/Waste Solids/Materials by ICPOES

Method: ME-(AU)-[ENV]AN040/AN320

Sample Number	Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB109761.002	Arsenic, As	mg/kg	3	49	50	80 - 120	98
	Cadmium, Cd	mg/kg	0.3	51	50	80 - 120	101
	Chromium, Cr	mg/kg	0.3	49	50	80 - 120	99
	Copper, Cu	mg/kg	0.5	49	50	80 - 120	97
	Lead, Pb	mg/kg	1	49	50	80 - 120	98
	Nickel, Ni	mg/kg	0.5	49	50	80 - 120	99
	Zinc, Zn	mg/kg	0.5	50	50	80 - 120	100

TRH (Total Recoverable Hydrocarbons) in Soil

Method: ME-(AU)-[ENV]AN403

Sample Number		Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB109563.002		TRH C10-C14	mg/kg	20	34	40	60 - 140	85
		TRH C15-C28	mg/kg	45	<45	40	60 - 140	83
		TRH C29-C36	mg/kg	45	<45	40	60 - 140	80
	TRH F Bands	TRH >C10-C16 (F2)	mg/kg	25	34	40	60 - 140	85
		TRH >C16-C34 (F3)	mg/kg	90	<90	40	60 - 140	85
		TRH >C34-C40 (F4)	mg/kg	120	<120	20	60 - 140	80

VOC's in Soil

Method: ME-(AU)-[ENV]AN433

Sample Number	Parameter	Units	LOR

Laboratory Control Standard (LCS) results are evaluated against an expected result, typically the concentration of analyte spiked into the control during the sample preparation stage, producing a percentage recovery. The criteria applied to the percentage recovery is established in the SGS QA /QC plan (Ref: MP-(AU)-[ENV]QU-022). For more information refer to the footnotes in the concluding page of this report.

Recovery is shown in **Green** when within suggested criteria or **Red** with an appended dagger symbol (†) when outside suggested criteria.

VOC's in Soil (continued)

Method: ME-(AU)-[ENV]AN433

Sample Number		Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB109561.002	Monocyclic	Benzene	mg/kg	0.1	1.8	2.9	60 - 140	62
	Aromatic	Toluene	mg/kg	0.1	2.4	2.9	60 - 140	83
		Ethylbenzene	mg/kg	0.1	2.1	2.9	60 - 140	72
		m/p-xylene	mg/kg	0.2	4.4	5.8	60 - 140	76
		o-xylene	mg/kg	0.1	2.3	2.9	60 - 140	78
	Surrogates	Dibromofluoromethane (Surrogate)	mg/kg	-	3.5	5	60 - 140	71
		d4-1,2-dichloroethane (Surrogate)	mg/kg	-	3.8	5	60 - 140	75
		d8-toluene (Surrogate)	mg/kg	-	4.4	5	60 - 140	87
		Bromofluorobenzene (Surrogate)	mg/kg	-	4.8	5	60 - 140	96

Volatile Petroleum Hydrocarbons in Soil

Method: ME-(AU)-[ENV]AN433

Sample Number		Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB109561.002		TRH C6-C10	mg/kg	25	<25	24.65	60 - 140	90
		TRH C6-C9	mg/kg	20	<20	23.2	60 - 140	75
	Surrogates	Dibromofluoromethane (Surrogate)	mg/kg	-	3.5	5	60 - 140	71
		d4-1,2-dichloroethane (Surrogate)	mg/kg	-	3.8	5	60 - 140	75
		d8-toluene (Surrogate)	mg/kg	-	4.4	5	60 - 140	87
		Bromofluorobenzene (Surrogate)	mg/kg	-	4.8	5	60 - 140	96
	VPH F Bands	TRH C6-C10 minus BTEX (F1)	mg/kg	25	<25	7.25	60 - 140	127

Matrix Spike (MS) results are evaluated as the percentage recovery of an expected result, typically the concentration of analyte spiked into a field sub -sample during the sample preparation stage. The original sample's result is subtracted from the sub-sample result before determining the percentage recovery. The criteria applied to the percentage recovery is established in the SGS QA/QC plan (ref: MP-(AU)-[ENV]QU-022). For more information refer to the footnotes in the concluding page of this report.

Recovery is shown in **Green** when within suggested criteria or **Red** with an appended reason identifer when outside suggested criteria. Refer to the footnotes section at the end of this report for failure reasons.

Mercury in Soil

Method: ME-(AU)-[ENV]AN312

QC Sample	Sample Number	Parameter	Units	LOR	Result	Original	Spike	Recovery%
SE156909.001	LB109719.004	Mercury	mg/kg	0.05	0.19	<0.05	0.2	83

OC Pesticides in Soil

Method: ME-(AU)-[ENV]AN400/AN420

QC Sample	Sample Number		Parameter	Units	LOR	Original	Spike	Recovery%
SE156909.001	LB109563.028		Hexachlorobenzene (HCB)	mg/kg	0.1	<0.1	-	-
			Alpha BHC	mg/kg	0.1	<0.1	-	-
			Lindane	mg/kg	0.1	<0.1	-	-
			Heptachlor	mg/kg	0.1	<0.1	0.2	110
			Aldrin	mg/kg	0.1	<0.1	0.2	105
			Beta BHC	mg/kg	0.1	<0.1	-	-
			Delta BHC	mg/kg	0.1	<0.1	0.2	110
			Heptachlor epoxide	mg/kg	0.1	<0.1	-	-
			o,p'-DDE	mg/kg	0.1	<0.1	-	-
			Alpha Endosulfan	mg/kg	0.2	<0.2	-	-
			Gamma Chlordane	mg/kg	0.1	<0.1	-	-
			Alpha Chlordane	mg/kg	0.1	<0.1	-	-
			trans-Nonachlor	mg/kg	0.1	<0.1	-	-
			p,p'-DDE	mg/kg	0.1	<0.1	-	-
			Dieldrin	mg/kg	0.2	<0.2	0.2	100
			Endrin	mg/kg	0.2	<0.2	0.2	140
			o,p'-DDD	mg/kg	0.1	<0.1	-	-
			o,p'-DDT	mg/kg	0.1	<0.1	-	-
			Beta Endosulfan	mg/kg	0.2	<0.2	-	-
			p,p'-DDD	mg/kg	0.1	<0.1	-	-
			p,p'-DDT	mg/kg	0.1	<0.1	0.2	115
			Endosulfan sulphate	mg/kg	0.1	<0.1	-	-
			Endrin Aldehyde	mg/kg	0.1	<0.1	-	-
			Methoxychlor	mg/kg	0.1	<0.1	-	-
			Endrin Ketone	mg/kg	0.1	<0.1	-	-
			Isodrin	mg/kg	0.1	<0.1	-	-
			Mirex	mg/kg	0.1	<0.1	-	-
		Surrogates	Tetrachloro-m-xylene (TCMX) (Surrogate)	mg/kg	-	0.13	-	93

OP Pesticides in Soil

Method: ME-(AU)-[ENV]AN400/AN420

QC Sample	Sample Number		Parameter	Units	LOR	Original	Spike	Recovery%
SE156909.003	LB109563.026		Dichlorvos	mg/kg	0.5	<0.5	2	94
			Dimethoate	mg/kg	0.5	<0.5	-	-
			Diazinon (Dimpylate)	mg/kg	0.5	<0.5	2	98
			Fenitrothion	mg/kg	0.2	<0.2	-	-
			Malathion	mg/kg	0.2	<0.2	-	-
			Chlorpyrifos (Chlorpyrifos Ethyl)	mg/kg	0.2	<0.2	2	93
			Parathion-ethyl (Parathion)	mg/kg	0.2	<0.2	-	-
			Bromophos Ethyl	mg/kg	0.2	<0.2	-	-
			Methidathion	mg/kg	0.5	<0.5	-	-
			Ethion	mg/kg	0.2	<0.2	2	96
			Azinphos-methyl (Guthion)	mg/kg	0.2	<0.2	-	-
		Surrogates	2-fluorobiphenyl (Surrogate)	mg/kg	-	0.4	-	82
			d14-p-terphenyl (Surrogate)	mg/kg	-	0.5	-	88

PAH (Polynuclear Aromatic Hydrocarbons) in Soil

Method: ME-(AU)-[ENV]AN420

QC Sample	Sample Number	Parameter	Units	LOR	Original	Spike	Recovery%
SE156909.003	LB109563.026	Naphthalene	mg/kg	0.1	<0.1	4	96
		2-methylnaphthalene	mg/kg	0.1	<0.1	-	-
		1-methylnaphthalene	mg/kg	0.1	<0.1	-	-
		Acenaphthylene	mg/kg	0.1	<0.1	4	91
		Acenaphthene	mg/kg	0.1	<0.1	4	96
		Fluorene	mg/kg	0.1	<0.1	-	-
		Phenanthrene	mg/kg	0.1	<0.1	4	80
		Anthracene	mg/kg	0.1	<0.1	4	87
		Fluoranthene	mg/kg	0.1	<0.1	4	97

Matrix Spike (MS) results are evaluated as the percentage recovery of an expected result, typically the concentration of analyte spiked into a field sub -sample during the sample preparation stage. The original sample's result is subtracted from the sub-sample result before determining the percentage recovery. The criteria applied to the percentage recovery is established in the SGS QA/QC plan (ref: MP-(AU)-[ENV]QU-022). For more information refer to the footnotes in the concluding page of this report.

Recovery is shown in **Green** when within suggested criteria or **Red** with an appended reason identifer when outside suggested criteria. Refer to the footnotes section at the end of this report for failure reasons.

PAH (Polynuclear Aromatic Hydrocarbons) in Soil (continued)

Method: ME-(AU)-[ENV]AN420

QC Sample	Sample Number		Parameter	Units	LOR	Original	Spike	Recovery%
SE156909.003	LB109563.026		Pyrene	mg/kg	0.1	<0.1	4	96
			Benzo(a)anthracene	mg/kg	0.1	<0.1	-	-
			Chrysene	mg/kg	0.1	<0.1	-	-
			Benzo(b&j)fluoranthene	mg/kg	0.1	<0.1	-	-
			Benzo(k)fluoranthene	mg/kg	0.1	<0.1	-	-
			Benzo(a)pyrene	mg/kg	0.1	<0.1	4	114
			Indeno(1,2,3-cd)pyrene	mg/kg	0.1	<0.1	-	-
			Dibenzo(ah)anthracene	mg/kg	0.1	<0.1	-	-
			Benzo(ghi)perylene	mg/kg	0.1	<0.1	-	-
			Carcinogenic PAHs, BaP TEQ <LOR=0	TEQ	0.2	<0.2	-	-
			Carcinogenic PAHs, BaP TEQ <LOR=LOR	TEQ (mg/kg)	0.3	<0.3	-	-
			Carcinogenic PAHs, BaP TEQ <LOR=LOR/2	TEQ (mg/kg)	0.2	<0.2	-	-
			Total PAH (18)	mg/kg	0.8	<0.8	-	-
		Surrogates	d5-nitrobenzene (Surrogate)	mg/kg	-	0.4	-	84
			2-fluorobiphenyl (Surrogate)	mg/kg	-	0.4	-	82
			d14-p-terphenyl (Surrogate)	mg/kg	-	0.5	-	88

Total Recoverable Metals in Soil/Waste Solids/Materials by ICPOES

Method: ME-(AU)-[ENV]AN040/AN320

QC Sample	Sample Number	Parameter	Units	LOR	Result	Original	Spike	Recovery%
SE156877.001	LB109761.004	Zinc, Zn	mg/kg	0.5	73	34	50	78

TRH (Total Recoverable Hydrocarbons) in Soil

Method: ME-(AU)-[ENV]AN403

QC Sample	Sample Number		Parameter	Units	LOR	Original	Spike	Recovery%
SE156909.001	LB109563.026		TRH C10-C14	mg/kg	20	<20	40	83
			TRH C15-C28	mg/kg	45	<45	40	88
			TRH C29-C36	mg/kg	45	<45	40	93
			TRH C37-C40	mg/kg	100	<100	-	-
			TRH C10-C36 Total	mg/kg	110	<110	-	-
			TRH C10-C40 Total	mg/kg	210	<210	-	-
		TRH F Bands	TRH >C10-C16 (F2)	mg/kg	25	<25	40	83
			TRH >C10-C16 (F2) - Naphthalene	mg/kg	25	<25	-	-
			TRH >C16-C34 (F3)	mg/kg	90	<90	40	95
			TRH >C34-C40 (F4)	mg/kg	120	<120	-	-

VOC's in Soil

Method: ME-(AU)-[ENV]AN433

QC Sample	Sample Number		Parameter	Units	LOR	Result	Original	Spike	Recovery%
SE156900.001	LB109561.004	Monocyclic	Benzene	mg/kg	0.1	2.1	<0.1	2.9	73
		Aromatic	Toluene	mg/kg	0.1	1.9	<0.1	2.9	64
			Ethylbenzene	mg/kg	0.1	2.0	<0.1	2.9	70
			m/p-xylene	mg/kg	0.2	4.2	<0.2	5.8	72
			o-xylene	mg/kg	0.1	2.0	<0.1	2.9	68
		Polycyclic	Naphthalene	mg/kg	0.1	<0.1	<0.1	-	-
		Surrogates	Dibromofluoromethane (Surrogate)	mg/kg	-	5.5	4.4	-	111
			d4-1,2-dichloroethane (Surrogate)	mg/kg	-	5.5	4.4	-	109
			d8-toluene (Surrogate)	mg/kg	-	5.4	4.2	-	107
			Bromofluorobenzene (Surrogate)	mg/kg	-	5.8	3.5	-	116
		Totals	Total Xylenes*	mg/kg	0.3	6.2	<0.3	-	-
			Total BTEX	mg/kg	0.6	12	<0.6	-	-

Volatile Petroleum Hydrocarbons in Soil

Method: ME-(AU)-[ENV]AN433

QC Sample	Sample Number		Parameter	Units	LOR	Result	Original	Spike	Recovery%
SE156900.001	LB109561.004		TRH C6-C10	mg/kg	25	<25	<25	24.65	88
			TRH C6-C9	mg/kg	20	<20	<20	23.2	67
		Surrogates	Dibromofluoromethane (Surrogate)	mg/kg	-	5.5	4.4	-	111
			d4-1,2-dichloroethane (Surrogate)	mg/kg	-	5.5	4.4	-	109
			d8-toluene (Surrogate)	mg/kg	-	5.4	4.2	-	107
			Bromofluorobenzene (Surrogate)	mg/kg	-	5.8	3.5	-	116
		VPH F	Benzene (F0)	mg/kg	0.1	2.1	<0.1	-	-
		Bands	TRH C6-C10 minus BTEX (F1)	mg/kg	25	<25	<25	7.25	132

Matrix spike duplicates are calculated as Relative Percent Difference (RPD) using the formula: RPD = | OriginalResult - ReplicateResult | x 100 / Mean

The original result is the analyte concentration of the matrix spike. The Duplicate result is the analyte concentration of the matrix spike duplicate.

The RPD is evaluated against the Maximum Allowable Difference (MAD) criteria and can be graphically represented by a curve calculated from the Statistical Detection Limit (SDL) and Limiting Repeatability (LR) using the formula: MAD = 100 x SDL / Mean + LR

Where the Maximum Allowable Difference evaluates to a number larger than 200 it is displayed as 200.

RPD is shown in **Green** when within suggested criteria or **Red** with an appended reason identifer when outside suggested criteria. Refer to the footnotes section at the end of this report for failure reasons.

No matrix spike duplicates were required for this job.

Samples analysed as received.

Solid samples expressed on a dry weight basis.

QC criteria are subject to internal review according to the SGS QA/QC plan and may be provided on request or alternatively can be found here: http://www.sgs.com.au/~/media/Local/Australia/Documents/Technical Documents/MP-AU-ENV-QU-022 QA QC Plan.pdf

*	NATA accreditation does not cover tthe performance of this service.
-	Sample not analysed for this analyte.

IS	Insufficient sample for analysis.
LNR	Sample listed, but not received.
LOR	Limit of reporting.
QFH	QC result is above the upper tolerance.
QFL	QC result is below the lower tolerance.

①	At least 2 of 3 surrogates are within acceptance criteria.
②	RPD failed acceptance criteria due to sample heterogeneity.
③	Results less than 5 times LOR preclude acceptance criteria for RPD.
④	Recovery failed acceptance criteria due to matrix interference.
⑤	Recovery failed acceptance criteria due to the presence of significant concentration of analyte (i.e. the concentration of analyte exceeds the spike level).
⑥	LOR was raised due to sample matrix interference.
⑦	LOR was raised due to dilution of significantly high concentration of analyte in sample.
⑧	Reanalysis of sample in duplicate confirmed sample heterogeneity and inconsistency of results.
⑨	Recovery failed acceptance criteria due to sample heterogeneity.
⑩	LOR was raised due to high conductivity of the sample (required dilution).
†	Refer to Analytical Report comments for further information.

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source: M630_SR_20160909120509.pdf page: 1 SGS Ref: SE156934_COC

COC received 9/9/16 @ 10:50 am

SGS

CHAIN OF CUSTODY & ANALYSIS REQUEST

SGS Environmental Services
Unit 16, 33 Maddox Street
Alexandria NSW 2015
Telephone No: (02) 85940400
Facsimile No: (02) 85940499
Email:

Company Name:	SMEC	Project Name/No:	3002523 – Canberra Brickw orks
Address:	Suite 2, Level 1, 243 Northbourne Avenue, Lyneham,	Purchase Order No:	
	ACT, 2602, Australia	Results Required By:	Ryan O'Leary
		Telephone:	+61 2 6234 1963 / 0400 240 023
Contact Name:	Ryan O'Leary	Facsimile:	
		Email Results:	Ryan.O'Leary@smec.com

Client Sample ID	Date Sampled	Lab Sample ID	WATER	SOIL		NO OF CONTAINERS	Asbestos ID	BTEXN	OPPs	OCPs	PHAs/Phenols	8 Metals - As, Cd, Cr, Cu, Ni, Pb, Zn Hg	TPH/TRH	On Hold			
TR1_0.1	07 -09-16	1		✓		1 jar		✓	✓	✓	✓	✓	✓				
TR1_0.3	07 -09-16			✓		1 jar								✓			
TR3_0.15	07-09-16	2		✓		1 jar		✓	✓	✓	✓	✓	✓				
TP1_0.1-0.2	07 -09-16	3		✓		1 jar		✓	✓	✓	✓	✓	✓				
TP1_0.5-0.6	07 -09-16			✓		1 jar								✓			
TP1_0.9-1.0	07-09-16			✓		1 jar								✓			
TP1_1.4-1.5	07 -09-16			✓		1 jar								✓			
TP2_0.1	07-09-16			✓		1 jar								✓			

SGS EHS Alexandria Laboratory

SE156934 COC
Received: 08 – Sep – 2016

Relinquished By: Ryan O'Leary	Date/Time:	Received By:	Date/Time 8/9/16 @ 10:50
Relinquished By:	Date/Time:	Received By:	Date/Time
Samples Intact: Yes/ No	Temperature: Ambient / Chilled	Sample Cooler Sealed: Yes/ No	Laboratory Quotation No:
	Comments: AS PER SGS QUOTE NUMBER SY1 – 60413 – 2-IS DATED 13TH APRIL 2016	**STANDARD TAT PLEASE (5 DAY)**	

SGS

CHAIN OF CUSTODY & ANALYSIS REQUEST

SGS Environmental Services
Unit 16, 33 Maddox Street
Alexandria NSW 2015
Telephone No: (02) 85940400
Facsimile No: (02) 85940499
Email:

Company Name:	SMEC	Project Name/No:	3002523 – Canberra Brickw orks
Address:	Suite 2, Level 1, 243 Northbourne Avenue, Lyneham,	Purchase Order No:	
	ACT, 2602, Australia	Results Required By:	Ryan O'Leary
		Telephone:	+61 2 6234 1963 / 0400 240 023
Contact Name:	Ryan O'Leary	Facsimile:	
		Email Results:	Ryan.O'Leary@smec.com

Client Sample ID	Date Sampled	Lab Sample ID	WATER	SOIL		NO OF CONTAINERS	Asbestos ID	BTEXN	OPPs	OCPs	PHAs/Phenols	8 Metals - As, Cd, Cr, Cu, Ni, Pb, Zn, Hg	TPH/TRH	On Hold							
TP2_1.5	07 -09-16	4		✓		1 jar		✓	✓	✓	✓	✓	✓									
TP3	07 -09-16	5		✓		1 jar		✓	✓	✓	✓	✓	✓									
TP4_0.15	07-09-16	6		✓		1 jar		✓	✓	✓	✓	✓	✓									
TP4_0.7	07-09-16			✓		1 jar								✓								
TP5_0.5	07-09-16			✓		1 jar								✓								
TP5_1.8	07-09-16	7		✓		1 jar		✓	✓	✓	✓	✓	✓									
TP7_0.15	07-09-16	8		✓		1 jar		✓	✓	✓	✓	✓	✓									
TP8_0.3-0.4	07-09-16	9		✓		1 jar		✓	✓	✓	✓	✓	✓									

Relinquished By: Ryan O'Leary	Date/Time:	Received By:	Date/Time
Relinquished By:	Date/Time:	Received By:	Date/Time 9/9/16 @ 10:50
Samples Intact: (Yes)/ No	Temperature: (Ambient) / Chilled	Sample Cooler Sealed: Yes/ No	Laboratory Quotation No:
	Comments: AS PER SGS QUOTE NUMBER SY1 – 60413 – 2-IS DATED 13TH APRIL 2016	**STANDARD TAT PLEASE (5 DAY)**	

SGS

CHAIN OF CUSTODY & ANALYSIS REQUEST

SGS Environmental Services
Unit 16, 33 Maddox Street
Alexandria NSW 2015
Telephone No: (02) 85940400
Facsimile No: (02) 85940499
Email:

Company Name:	SMEC	Project Name/No:	3002523 – Canberra Brickw orks
Address:	Suite 2, Level 1, 243 Northbourne Avenue, Lyneham,	Purchase Order No:	
	ACT, 2602, Australia	Results Required By:	Ryan O'Leary
		Telephone:	+61 2 6234 1963 / 0400 240 023
Contact Name:	Ryan O'Leary	Facsimile:	
		Email Results:	Ryan.O'Leary@smec.com

Client Sample ID	Date Sampled	Lab Sample ID	WATER	SOIL		NO OF CONTAINERS	Asbestos ID	BTEXN	OPPs	OCPs	PHAs/Phenols	8 Metals - As, Cd, Cr, Cu, Ni, Pb, Zn, Hg	TPH/TRH	On Hold								
TP9	07 -09-16	10		✓		1 jar		✓	✓	✓	✓	✓	✓									
TP10	07 -09-16	11		✓		1 jar		✓	✓	✓	✓	✓	✓									
TP17_0.1-0.5	07-09-16			✓		1 jar								✓								
TP17_1.8	07-09-16	12		✓		1 jar		✓	✓	✓	✓	✓	✓									
TP17_2.5	07-09-16			✓		1 jar								✓								
TP21_0.1-0.2	07-09-16	13		✓		1 jar		✓	✓	✓	✓	✓	✓									
TP21_1.0	07-09-16			✓		1 jar								✓								
TP38_0.1-0.2	07-09-16			✓		1 jar								✓								

Relinquished By: Ryan O'Leary	Date/Time:	Received By:	Date/Time
Relinquished By:	Date/Time:	Received By:	Date/Time 8/9/16 @ 10:50
Samples Intact: (Yes) / No	Temperature: (Ambient) / Chilled	Sample Cooler Sealed: (Yes) / No	Laboratory Quotation No:
	Comments: AS PER SGS QUOTE NUMBER SY1 – 60413 – 2-IS DATED 13TH APRIL 2016	**STANDARD TAT PLEASE (5 DAY)**	

SGS

CHAIN OF CUSTODY & ANALYSIS REQUEST

SGS Environmental Services
Unit 16, 33 Maddox Street
Alexandria NSW 2015
Telephone No: (02) 85940400
Facsimile No: (02) 85940499
Email:

Company Name:	SMEC	Project Name/No:	3002523 – Canberra Brickworks
Address:	Suite 2, Level 1, 243 Northbourne Avenue, Lyneham,	Purchase Order No:	
	ACT, 2602, Australia	Results Required By:	Ryan O'Leary
		Telephone:	+61 2 6234 1963 / 0400 240 023
Contact Name:	Ryan O'Leary	Facsimile:	
		Email Results:	Ryan.O'Leary@smec.com

Client Sample ID	Date Sampled	Lab Sample ID	WATER	SOIL		NO OF CONTAINERS	Asbestos ID	BTEXN	OPPs	OCPs	PHAs/Phenols	8 Metals - As, Cd, Cr, Cu, Ni, Pb, Zn, Hg	TPH/TRH	On Hold								
TP38_0.7-0.8	07 -09-16			✓		1 jar								✓								
TP38_1.3-1.4	07 -09-16	14		✓		1 jar		✓	✓	✓	✓	✓	✓									
TP41_0.05-0.15	07-09-16	15		✓		1 jar		✓	✓	✓	✓	✓	✓									
TP41_0.7-0.8	07-09-16			✓		1 jar								✓								
TP41_1.3-1.4	07-09-16			✓		1 jar								✓								
TP45_0.05-0.15	07-09-16			✓		1 jar								✓								
TP45_0.3-0.4	07-09-16	16		✓		1 jar		✓	✓	✓	✓	✓	✓	✓								
TP45_1.3-1.4	07-09-16			✓		1 jar								✓								

Relinquished By: Ryan O'Leary	Date/Time:	Received By:	Date/Time
Relinquished By:	Date/Time:	Received By:	Date/Time 6/9/16 @10:50
Samples Intact: (Yes)/ No	Temperature: (Ambient) / Chilled	Sample Cooler Sealed: Yes/ No	Laboratory Quotation No:
	Comments: AS PER SGS QUOTE NUMBER SY1 – 60413 – 2-IS DATED 13TH APRIL 2016	**STANDARD TAT PLEASE (5 DAY)**	

SGS

CHAIN OF CUSTODY & ANALYSIS REQUEST

SGS Environmental Services
Unit 16, 33 Maddox Street
Alexandria NSW 2015
Telephone No: (02) 85940400
Facsimile No: (02) 85940499
Email:

Company Name:	SMEC	Project Name/No:	3002523 – Canberra Brickworks
Address:	Suite 2, Level 1, 243 Northbourne Avenue, Lyneham,	Purchase Order No:	
	ACT, 2602, Australia	Results Required By:	Ryan O'Leary
		Telephone:	+61 2 6234 1963 / 0400 240 023
Contact Name:	Ryan O'Leary	Facsimile:	
		Email Results:	Ryan.O'Leary@smec.com

Client Sample ID	Date Sampled	Lab Sample ID	WATER	SOIL		NO OF CONTAINERS	Asbestos ID	BTEXN	OPPs	OCPs	PHAs/Phenols	8 Metals - As, Cd, Cr, Cu, Ni, Pb, Zn, Hg	TPH/TRH	On Hold								
TP46_0.1-0.2	07 -09-16	17		✓		1 jar		✓	✓	✓	✓	✓	✓									
TP46_0.4-0.5	07 -09-16			✓		1 jar								✓								
TP53_0-0.1	07-09-16	18		✓		1 jar		✓	✓	✓	✓	✓	✓									
TP55_0-0.1	07-09-16			✓		1 jar								✓								
TP55_1.2-1.3	07-09-16	19		✓		1 jar		✓	✓	✓	✓	✓	✓									
TP56_0.1-0.2	07-09-16	20		✓		1 jar		✓	✓	✓	✓	✓	✓									
TP56_1.1-1.2	07-09-16			✓		1 jar								✓								
TP57_0-0.1	07-09-16	21		✓		1 jar		✓	✓	✓	✓	✓	✓									

Relinquished By: Ryan O'Leary	Date/Time:	Received By:	Date/Time
Relinquished By:	Date/Time:	Received By:	Date/Time 8/9/16 @ 10:50
Samples Intact: (Yes)/ No	Temperature: (Ambient)/ Chilled	Sample Cooler Sealed: Yes/ No	Laboratory Quotation No:
	Comments: AS PER SGS QUOTE NUMBER SY1 – 60413 – 2-IS DATED 13TH APRIL 2016	**STANDARD TAT PLEASE (5 DAY)**	

CHAIN OF CUSTODY & ANALYSIS REQUEST

SGS Environmental Services
Unit 16, 33 Maddox Street
Alexandria NSW 2015
Telephone No: (02) 85940400
Facsimile No: (02) 85940499
Email:

Company Name:	SMEC	Project Name/No:	3002523 – Canberra Brickworks
Address:	Suite 2, Level 1, 243 Northbourne Avenue, Lyneham,	Purchase Order No:	
	ACT, 2602, Australia	Results Required By:	Ryan O'Leary
		Telephone:	+61 2 6234 1963 / 0400 240 023
Contact Name:	Ryan O'Leary	Facsimile:	
		Email Results:	Ryan.O'Leary@smec.com

Client Sample ID	Date Sampled	Lab Sample ID	WATER	SOIL		NO OF CONTAINERS	Asbestos ID	BTEXN	OPPs	OCPs	PHAs/Phenols	8 Metals - As, Cd, Cr, Cu, Ni, Pb, Zn, Hg	TPH/TRH	On Hold								
TP57_0.3-0.4	07 -09-16			✓		1 jar								✓								
TP57_0.7-0.8	07 -09-16			✓		1 jar								✓								
TP57_1.2-1.3	07-09-16			✓		1 jar								✓								
TP42_0-0.1_ZLB	07-09-16	22		✓		1 bag	✓															
TP61_ZLB	07-09-16	23				1 bag	✓															

Relinquished By: Ryan O'Leary	Date/Time:	Received By:	Date/Time
Relinquished By:	Date/Time:	Received By:	Date/Time 8/9/16 @ 10:50
Samples Intact: (Yes) / No	Temperature: (Ambient) / Chilled	Sample Cooler Sealed: Yes/ No	Laboratory Quotation No:
	Comments: AS PER SGS QUOTE NUMBER SY1 – 60413 – 2-IS DATED 13TH APRIL 2016	**STANDARD TAT PLEASE (5 DAY)**	

AU.SampleReceipt.Sydney (Sydney)

From: Crook, Natasha [Natasha.Crook@smec.com]
Sent: Friday, 9 September 2016 10:01 AM
To: AU.SampleReceipt.Sydney (Sydney)
Subject: RE: Samples received without COC - 3002523

Hi Erin,

I have notice on the sheet you provided that you have TR1 0.1-0.2, TR1 0.5-0.6, TR10.9-1.0, TR1 1.4-1.5, these should be TP1. I will be writing this information on the COC.

Thanks

Natasha

Natasha Crook | Graduate Scientist
SMEC – Australia & New Zealand Division
T +61 2 6234 1946

From: AU.SampleReceipt.Sydney (Sydney) [mailto:AU.SampleReceipt.Sydney@sgs.com]
Sent: Friday, 9 September 2016 9:47 AM
To: Crook, Natasha <Natasha.Crook@smec.com>
Subject: RE: Samples received without COC - 3002523

Yes Natasha. All jars except TP42_0-0.1_ZLB and TP61_ZLB – bags - the last two samples.

Kind Regards,

Emily Yin
Environmental Services
Sample Administration Officer

Phone: +61 (0)2 8594 0400
Fax: +61 (0)2 8594 0499

From: Crook, Natasha [mailto:Natasha.Crook@smec.com]
Sent: Friday, 9 September 2016 9:36 AM
To: AU.SampleReceipt.Sydney (Sydney)
Subject: RE: Samples received without COC - 3002523

Hi Erin,

Are these samples that were sent off both the bags and the jars?

Thanks

Natasha

Natasha Crook | Graduate Scientist
SMEC – Australia & New Zealand Division
T +61 2 6234 1946

From: AU.SampleReceipt.Sydney (Sydney) [mailto:AU.SampleReceipt.Sydney@sgs.com]
Sent: Friday, 9 September 2016 9:15 AM

SAMPLE RECEIPT ADVICE

SE156934

CLIENT DETAILS

Contact	Ryan O'Leary
Client	SMEC AUSTRALIA PTY LTD
Address	Sun Micro Building Suite 2, Level 1 243 Northbourne Avenue ACT 2602
Telephone	02 6234 1963
Facsimile	02 6234 1966
Email	Ryan.O'Leary@smec.com
Project	**3002523 - Canberra Brickworks**
Order Number	**SY1-60413-2-IS**
Samples	23

LABORATORY DETAILS

Manager	Huong Crawford
Laboratory	SGS Alexandria Environmental
Address	Unit 16, 33 Maddox St Alexandria NSW 2015
Telephone	+61 2 8594 0400
Facsimile	+61 2 8594 0499
Email	au.environmental.sydney@sgs.com
Samples Received	Thu 8/9/2016
Report Due	Fri 16/9/2016
SGS Reference	**SE156934**

SUBMISSION DETAILS

This is to confirm that 23 samples were received on Thursday 8/9/2016. Results are expected to be ready by Friday 16/9/2016. Please quote SGS reference SE156934 when making enquiries. Refer below for details relating to sample integrity upon receipt.

Sample counts by matrix	23 Soil	Type of documentation received	COC
Date documentation received	9/9/16@10:51am	Samples received in good order	Yes
Samples received without headspace	Yes	Sample temperature upon receipt	20.3°C
Sample container provider	SGS	Turnaround time requested	Standard
Samples received in correct containers	Yes	Sufficient sample for analysis	Yes
Sample cooling method	None	Samples clearly labelled	Yes
Complete documentation received	Yes	Number of eskies/boxes received	

Unless otherwise instructed, water and bulk samples will be held for one month from date of report, and soil samples will be held for two months.

COMMENTS

COC received at 9/9/16 @ 10:51am. The turnaround time will be determined from the date the COC was received.
22 soil samples have been placed on hold.

To the extent not inconsistent with the other provisions of this document and unless specifically agreed otherwise in writing by SGS, all SGS services are rendered in accordance with the applicable SGS General Conditions of Service accessible at http://www.sgs.com/en/terms-and-conditions as at the date of this document. Attention is drawn to the limitations of liability and to the clauses of indemnification.

SAMPLE RECEIPT ADVICE

SE156934

CLIENT DETAILS

Client SMEC AUSTRALIA PTY LTD

Project 3002523 - Canberra Brickworks

SUMMARY OF ANALYSIS

No.	Sample ID	OC Pesticides in Soil	OP Pesticides in Soil	PAH (Polynuclear Aromatic Hydrocarbons) in Soil	Total Phenolics in Soil	Total Recoverable Metals in Soil/Waste	TRH (Total Recoverable Hydrocarbons) in Soil	VOC's in Soil	Volatile Petroleum Hydrocarbons in Soil
001	TR1_0.1	28	13	26	1	7	10	12	8
002	TR3_0.15	28	13	26	1	7	10	12	8
003	TP1_0.1-0.2	28	13	26	1	7	10	12	8
004	TP2_1.5	28	13	26	1	7	10	12	8
005	TP3	28	13	26	1	7	10	12	8
006	TP4_0.15	28	13	26	1	7	10	12	8
007	TP5_1.8	28	13	26	1	7	10	12	8
008	TP7_0.15	28	13	26	1	7	10	12	8
009	TP8_0.3-0.4	28	13	26	1	7	10	12	8
010	TP9	28	13	26	1	7	10	12	8
011	TP10	28	13	26	1	7	10	12	8
012	TP17_1.8	28	13	26	1	7	10	12	8
013	TP21_0.1-0.2	28	13	26	1	7	10	12	8
014	TP38_1.3-1.4	28	13	26	1	7	10	12	8
015	TP41_0.05-0.15	28	13	26	1	7	10	12	8
016	TP45_0.3-0.4	28	13	26	1	7	10	12	8
017	TP46_0.1-0.2	28	13	26	1	7	10	12	8
018	TP53_0-0.1	28	13	26	1	7	10	12	8
019	TP55_1.2-1.3	28	13	26	1	7	10	12	8
020	TP56_0.1-0.2	28	13	26	1	7	10	12	8
021	TP57_0-0.1	28	13	26	1	7	10	12	8

CONTINUED OVERLEAF

The above table represents SGS' interpretation of the client-supplied Chain Of Custody document.
The numbers shown in the table indicate the number of results requested in each package.
Please indicate as soon as possible should your request differ from these details .
Testing as per this table shall commence immediately unless the client intervenes with a correction .

SAMPLE RECEIPT ADVICE

SE156934

CLIENT DETAILS

Client SMEC AUSTRALIA PTY LTD

Project 3002523 - Canberra Brickworks

SUMMARY OF ANALYSIS

No.	Sample ID	Fibre Identification in soil	Mercury in Soil	Moisture Content
001	TR1_0.1	-	1	1
002	TR3_0.15	-	1	1
003	TP1_0.1-0.2	-	1	1
004	TP2_1.5	-	1	1
005	TP3	-	1	1
006	TP4_0.15	-	1	1
007	TP5_1.8	-	1	1
008	TP7_0.15	-	1	1
009	TP8_0.3-0.4	-	1	1
010	TP9	-	1	1
011	TP10	-	1	1
012	TP17_1.8	-	1	1
013	TP21_0.1-0.2	-	1	1
014	TP38_1.3-1.4	-	1	1
015	TP41_0.05-0.15	-	1	1
016	TP45_0.3-0.4	-	1	1
017	TP46_0.1-0.2	-	1	1
018	TP53_0-0.1	-	1	1
019	TP55_1.2-1.3	-	1	1
020	TP56_0.1-0.2	-	1	1
021	TP57_0-0.1	-	1	1
022	TP42_0-0.1_ZLB	2	-	-
023	TP61_ZLB	2	-	-

The above table represents SGS' interpretation of the client-supplied Chain Of Custody document.
The numbers shown in the table indicate the number of results requested in each package.
Please indicate as soon as possible should your request differ from these details .
Testing as per this table shall commence immediately unless the client intervenes with a correction .

ANALYTICAL REPORT

Accreditation No. 2562

CLIENT DETAILS

Contact	Ryan O'Leary
Client	SMEC AUSTRALIA PTY LTD
Address	Sun Micro Building Suite 2, Level 1 243 Northbourne Avenue ACT 2602
Telephone	02 6234 1963
Facsimile	02 6234 1966
Email	Ryan.O'Leary@smec.com
Project	**3002523 - Canberra Brickworks**
Order Number	**SY1-60413-2-IS**
Samples	23

LABORATORY DETAILS

Manager	Huong Crawford
Laboratory	SGS Alexandria Environmental
Address	Unit 16, 33 Maddox St Alexandria NSW 2015
Telephone	+61 2 8594 0400
Facsimile	+61 2 8594 0499
Email	au.environmental.sydney@sgs.com
SGS Reference	**SE156934 R0**
Date Received	8/9/2016
Date Reported	16/9/2016

COMMENTS

Accredited for compliance with ISO/IEC 17025. NATA accredited laboratory 2562(4354).

No respirable fibres detected in all soil samples using trace analysis technique.

Asbestos analysed by Approved Identifier Yusuf Kuthpudin .

PAH/OP/OC/TRH - The Limit of Reporting (LOR) has been raised due to limited sample used..

SIGNATORIES

Andy Sutton
Senior Organic Chemist

Bennet Lo
Senior Organic Chemist/Metals Chemist

Dong Liang
Metals/Inorganics Team Leader

Kamrul Ahsan
Senior Chemist

Ly Kim Ha
Organic Section Head

Ravee Sivasubramaniam
Hygiene Team Leader

VOC's in Soil [AN433] Tested: 12/9/2016

PARAMETER	UOM	LOR	TR1_0.1 SOIL - 7/9/2016 SE156934.001	TR3_0.15 SOIL - 7/9/2016 SE156934.002	TP1_0.1-0.2 SOIL - 7/9/2016 SE156934.003	TP2_1.5 SOIL - 7/9/2016 SE156934.004	TP3 SOIL - 7/9/2016 SE156934.005
Benzene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Toluene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Ethylbenzene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
m/p-xylene	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
o-xylene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Total Xylenes*	mg/kg	0.3	<0.3	<0.3	<0.3	<0.3	<0.3
Total BTEX	mg/kg	0.6	<0.6	<0.6	<0.6	<0.6	<0.6
Naphthalene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1

PARAMETER	UOM	LOR	TP4_0.15 SOIL - 7/9/2016 SE156934.006	TP5_1.8 SOIL - 7/9/2016 SE156934.007	TP7_0.15 SOIL - 7/9/2016 SE156934.008	TP8_0.3-0.4 SOIL - 7/9/2016 SE156934.009	TP9 SOIL - 7/9/2016 SE156934.010
Benzene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Toluene	mg/kg	0.1	<0.1	**0.1**	<0.1	<0.1	<0.1
Ethylbenzene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
m/p-xylene	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
o-xylene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Total Xylenes*	mg/kg	0.3	<0.3	<0.3	<0.3	<0.3	<0.3
Total BTEX	mg/kg	0.6	<0.6	<0.6	<0.6	<0.6	<0.6
Naphthalene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1

PARAMETER	UOM	LOR	TP10 SOIL - 7/9/2016 SE156934.011	TP17_1.8 SOIL - 7/9/2016 SE156934.012	TP21_0.1-0.2 SOIL - 7/9/2016 SE156934.013	TP38_1.3-1.4 SOIL - 7/9/2016 SE156934.014	TP41_0.05-0.15 SOIL - 7/9/2016 SE156934.015
Benzene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Toluene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Ethylbenzene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
m/p-xylene	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
o-xylene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Total Xylenes*	mg/kg	0.3	<0.3	<0.3	<0.3	<0.3	<0.3
Total BTEX	mg/kg	0.6	<0.6	<0.6	<0.6	<0.6	<0.6
Naphthalene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1

PARAMETER	UOM	LOR	TP45_0.3-0.4 SOIL - 7/9/2016 SE156934.016	TP46_0.1-0.2 SOIL - 7/9/2016 SE156934.017	TP53_0-0.1 SOIL - 7/9/2016 SE156934.018	TP55_1.2-1.3 SOIL - 7/9/2016 SE156934.019	TP56_0.1-0.2 SOIL - 7/9/2016 SE156934.020
Benzene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Toluene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Ethylbenzene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
m/p-xylene	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
o-xylene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Total Xylenes*	mg/kg	0.3	<0.3	<0.3	<0.3	<0.3	<0.3
Total BTEX	mg/kg	0.6	<0.6	<0.6	<0.6	<0.6	<0.6
Naphthalene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1

VOC's in Soil [AN433] Tested: 12/9/2016 (continued)

PARAMETER	UOM	LOR	TP57_0-0.1 SOIL - 7/9/2016 SE156934.021
Benzene	mg/kg	0.1	<0.1
Toluene	mg/kg	0.1	<0.1
Ethylbenzene	mg/kg	0.1	<0.1
m/p-xylene	mg/kg	0.2	<0.2
o-xylene	mg/kg	0.1	<0.1
Total Xylenes*	mg/kg	0.3	<0.3
Total BTEX	mg/kg	0.6	<0.6
Naphthalene	mg/kg	0.1	<0.1

Volatile Petroleum Hydrocarbons in Soil [AN433] Tested: 12/9/2016

PARAMETER	UOM	LOR	TR1_0.1 SOIL - 7/9/2016 SE156934.001	TR3_0.15 SOIL - 7/9/2016 SE156934.002	TP1_0.1-0.2 SOIL - 7/9/2016 SE156934.003	TP2_1.5 SOIL - 7/9/2016 SE156934.004	TP3 SOIL - 7/9/2016 SE156934.005
TRH C6-C9	mg/kg	20	<20	<20	<20	<20	<20
Benzene (F0)	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
TRH C6-C10	mg/kg	25	<25	<25	<25	<25	<25
TRH C6-C10 minus BTEX (F1)	mg/kg	25	<25	<25	<25	<25	<25

PARAMETER	UOM	LOR	TP4_0.15 SOIL - 7/9/2016 SE156934.006	TP5_1.8 SOIL - 7/9/2016 SE156934.007	TP7_0.15 SOIL - 7/9/2016 SE156934.008	TP8_0.3-0.4 SOIL - 7/9/2016 SE156934.009	TP9 SOIL - 7/9/2016 SE156934.010
TRH C6-C9	mg/kg	20	<20	<20	<20	<20	<20
Benzene (F0)	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
TRH C6-C10	mg/kg	25	<25	<25	<25	<25	<25
TRH C6-C10 minus BTEX (F1)	mg/kg	25	<25	<25	<25	<25	<25

PARAMETER	UOM	LOR	TP10 SOIL - 7/9/2016 SE156934.011	TP17_1.8 SOIL - 7/9/2016 SE156934.012	TP21_0.1-0.2 SOIL - 7/9/2016 SE156934.013	TP38_1.3-1.4 SOIL - 7/9/2016 SE156934.014	TP41_0.05-0.15 SOIL - 7/9/2016 SE156934.015
TRH C6-C9	mg/kg	20	<20	<20	<20	<20	<20
Benzene (F0)	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
TRH C6-C10	mg/kg	25	<25	<25	<25	<25	<25
TRH C6-C10 minus BTEX (F1)	mg/kg	25	<25	<25	<25	<25	<25

PARAMETER	UOM	LOR	TP45_0.3-0.4 SOIL - 7/9/2016 SE156934.016	TP46_0.1-0.2 SOIL - 7/9/2016 SE156934.017	TP53_0-0.1 SOIL - 7/9/2016 SE156934.018	TP55_1.2-1.3 SOIL - 7/9/2016 SE156934.019	TP56_0.1-0.2 SOIL - 7/9/2016 SE156934.020
TRH C6-C9	mg/kg	20	<20	<20	<20	<20	<20
Benzene (F0)	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
TRH C6-C10	mg/kg	25	<25	<25	<25	<25	<25
TRH C6-C10 minus BTEX (F1)	mg/kg	25	<25	<25	<25	<25	<25

PARAMETER	UOM	LOR	TP57_0-0.1 SOIL - 7/9/2016 SE156934.021
TRH C6-C9	mg/kg	20	<20
Benzene (F0)	mg/kg	0.1	<0.1
TRH C6-C10	mg/kg	25	<25
TRH C6-C10 minus BTEX (F1)	mg/kg	25	<25

TRH (Total Recoverable Hydrocarbons) in Soil [AN403] Tested: 12/9/2016

PARAMETER	UOM	LOR	TR1_0.1 SOIL - 7/9/2016 SE156934.001	TR3_0.15 SOIL - 7/9/2016 SE156934.002	TP1_0.1-0.2 SOIL - 7/9/2016 SE156934.003	TP2_1.5 SOIL - 7/9/2016 SE156934.004	TP3 SOIL - 7/9/2016 SE156934.005
TRH C10-C14	mg/kg	20	<20	<40↑	<20	<20	<20
TRH C15-C28	mg/kg	45	<45	**200**	<45	<45	<45
TRH C29-C36	mg/kg	45	<45	<90↑	<45	<45	<45
TRH C37-C40	mg/kg	100	<100	<200↑	<100	<100	<100
TRH >C10-C16 (F2)	mg/kg	25	<25	<50↑	<25	<25	<25
TRH >C10-C16 (F2) - Naphthalene	mg/kg	25	<25	<50↑	<25	<25	<25
TRH >C16-C34 (F3)	mg/kg	90	<90	**180**	<90	<90	<90
TRH >C34-C40 (F4)	mg/kg	120	<120	<240↑	<120	<120	<120
TRH C10-C36 Total	mg/kg	110	<110	**220**	<110	<110	<110
TRH C10-C40 Total	mg/kg	210	<210	<420↑	<210	<210	<210

PARAMETER	UOM	LOR	TP4_0.15 SOIL - 7/9/2016 SE156934.006	TP5_1.8 SOIL - 7/9/2016 SE156934.007	TP7_0.15 SOIL - 7/9/2016 SE156934.008	TP8_0.3-0.4 SOIL - 7/9/2016 SE156934.009	TP9 SOIL - 7/9/2016 SE156934.010
TRH C10-C14	mg/kg	20	<20	<20	<40↑	<20	<20
TRH C15-C28	mg/kg	45	<45	<45	<90↑	<45	<45
TRH C29-C36	mg/kg	45	<45	<45	<90↑	<45	<45
TRH C37-C40	mg/kg	100	<100	<100	<200↑	<100	<100
TRH >C10-C16 (F2)	mg/kg	25	<25	<25	<50↑	<25	<25
TRH >C10-C16 (F2) - Naphthalene	mg/kg	25	<25	<25	<50↑	<25	<25
TRH >C16-C34 (F3)	mg/kg	90	<90	<90	<180↑	<90	<90
TRH >C34-C40 (F4)	mg/kg	120	<120	<120	<240↑	<120	<120
TRH C10-C36 Total	mg/kg	110	<110	<110	<220↑	<110	<110
TRH C10-C40 Total	mg/kg	210	<210	<210	<420↑	<210	<210

PARAMETER	UOM	LOR	TP10 SOIL - 7/9/2016 SE156934.011	TP17_1.8 SOIL - 7/9/2016 SE156934.012	TP21_0.1-0.2 SOIL - 7/9/2016 SE156934.013	TP38_1.3-1.4 SOIL - 7/9/2016 SE156934.014	TP41_0.05-0.15 SOIL - 7/9/2016 SE156934.015
TRH C10-C14	mg/kg	20	<20	<20	<20	<20	<20
TRH C15-C28	mg/kg	45	**47**	<45	<45	<45	<45
TRH C29-C36	mg/kg	45	<45	<45	<45	<45	<45
TRH C37-C40	mg/kg	100	<100	<100	<100	<100	<100
TRH >C10-C16 (F2)	mg/kg	25	<25	<25	<25	<25	<25
TRH >C10-C16 (F2) - Naphthalene	mg/kg	25	<25	<25	<25	<25	<25
TRH >C16-C34 (F3)	mg/kg	90	<90	<90	<90	<90	<90
TRH >C34-C40 (F4)	mg/kg	120	<120	<120	<120	<120	<120
TRH C10-C36 Total	mg/kg	110	<110	<110	<110	<110	<110
TRH C10-C40 Total	mg/kg	210	<210	<210	<210	<210	<210

TRH (Total Recoverable Hydrocarbons) in Soil [AN403] Tested: 12/9/2016 (continued)

PARAMETER	UOM	LOR	TP45_0.3-0.4 SOIL - 7/9/2016 SE156934.016	TP46_0.1-0.2 SOIL - 7/9/2016 SE156934.017	TP53_0-0.1 SOIL - 7/9/2016 SE156934.018	TP55_1.2-1.3 SOIL - 7/9/2016 SE156934.019	TP56_0.1-0.2 SOIL - 7/9/2016 SE156934.020
TRH C10-C14	mg/kg	20	<20	<20	<20	<20	<20
TRH C15-C28	mg/kg	45	<45	<45	<45	<45	<45
TRH C29-C36	mg/kg	45	<45	<45	<45	<45	<45
TRH C37-C40	mg/kg	100	<100	<100	<100	<100	<100
TRH >C10-C16 (F2)	mg/kg	25	<25	<25	<25	<25	<25
TRH >C10-C16 (F2) - Naphthalene	mg/kg	25	<25	<25	<25	<25	<25
TRH >C16-C34 (F3)	mg/kg	90	<90	<90	<90	<90	<90
TRH >C34-C40 (F4)	mg/kg	120	<120	<120	<120	<120	<120
TRH C10-C36 Total	mg/kg	110	<110	<110	<110	<110	<110
TRH C10-C40 Total	mg/kg	210	<210	<210	<210	<210	<210

PARAMETER	UOM	LOR	TP57_0-0.1 SOIL - 7/9/2016 SE156934.021
TRH C10-C14	mg/kg	20	<20
TRH C15-C28	mg/kg	45	<45
TRH C29-C36	mg/kg	45	<45
TRH C37-C40	mg/kg	100	<100
TRH >C10-C16 (F2)	mg/kg	25	<25
TRH >C10-C16 (F2) - Naphthalene	mg/kg	25	<25
TRH >C16-C34 (F3)	mg/kg	90	<90
TRH >C34-C40 (F4)	mg/kg	120	<120
TRH C10-C36 Total	mg/kg	110	<110
TRH C10-C40 Total	mg/kg	210	<210

PAH (Polynuclear Aromatic Hydrocarbons) in Soil [AN420] Tested: 12/9/2016

PARAMETER	UOM	LOR	TR1_0.1 SOIL - 7/9/2016 SE156934.001	TR3_0.15 SOIL - 7/9/2016 SE156934.002	TP1_0.1-0.2 SOIL - 7/9/2016 SE156934.003	TP2_1.5 SOIL - 7/9/2016 SE156934.004	TP3 SOIL - 7/9/2016 SE156934.005
Naphthalene	mg/kg	0.1	<0.1	<0.2↑	<0.1	<0.1	<0.1
2-methylnaphthalene	mg/kg	0.1	<0.1	<0.2↑	<0.1	<0.1	<0.1
1-methylnaphthalene	mg/kg	0.1	<0.1	<0.2↑	<0.1	<0.1	<0.1
Acenaphthylene	mg/kg	0.1	<0.1	<0.2↑	<0.1	<0.1	<0.1
Acenaphthene	mg/kg	0.1	<0.1	<0.2↑	<0.1	<0.1	<0.1
Fluorene	mg/kg	0.1	<0.1	<0.2↑	<0.1	<0.1	<0.1
Phenanthrene	mg/kg	0.1	<0.1	<0.2↑	<0.1	<0.1	**0.2**
Anthracene	mg/kg	0.1	<0.1	<0.2↑	<0.1	<0.1	<0.1
Fluoranthene	mg/kg	0.1	<0.1	<0.2↑	<0.1	<0.1	**0.4**
Pyrene	mg/kg	0.1	<0.1	<0.2↑	<0.1	<0.1	**0.4**
Benzo(a)anthracene	mg/kg	0.1	<0.1	<0.2↑	<0.1	<0.1	**0.2**
Chrysene	mg/kg	0.1	<0.1	<0.2↑	<0.1	<0.1	**0.2**
Benzo(b&j)fluoranthene	mg/kg	0.1	<0.1	<0.2↑	<0.1	<0.1	**0.4**
Benzo(k)fluoranthene	mg/kg	0.1	<0.1	<0.2↑	<0.1	<0.1	**0.1**
Benzo(a)pyrene	mg/kg	0.1	<0.1	<0.2↑	<0.1	<0.1	**0.2**
Indeno(1,2,3-cd)pyrene	mg/kg	0.1	<0.1	<0.2↑	<0.1	<0.1	**0.2**
Dibenzo(ah)anthracene	mg/kg	0.1	<0.1	<0.2↑	<0.1	<0.1	<0.1
Benzo(ghi)perylene	mg/kg	0.1	<0.1	<0.2↑	<0.1	<0.1	**0.2**
Carcinogenic PAHs, BaP TEQ <LOR=0	TEQ	0.2	<0.2	<0.2	<0.2	<0.2	**0.2**
Carcinogenic PAHs, BaP TEQ <LOR=LOR	TEQ (mg/kg)	0.3	<0.3	<0.3	<0.3	<0.3	**0.3**
Carcinogenic PAHs, BaP TEQ <LOR=LOR/2	TEQ (mg/kg)	0.2	<0.2	<0.2	<0.2	<0.2	**0.3**
Total PAH (18)	mg/kg	0.8	<0.8	<0.8	<0.8	<0.8	**2.4**
Total PAH (NEPM/WHO 16)	mg/kg	0.8	<0.8	<0.8	<0.8	<0.8	**2.4**

PARAMETER	UOM	LOR	TP4_0.15 SOIL - 7/9/2016 SE156934.006	TP5_1.8 SOIL - 7/9/2016 SE156934.007	TP7_0.15 SOIL - 7/9/2016 SE156934.008	TP8_0.3-0.4 SOIL - 7/9/2016 SE156934.009	TP9 SOIL - 7/9/2016 SE156934.010
Naphthalene	mg/kg	0.1	<0.1	<0.1	<0.2↑	<0.1	<0.1
2-methylnaphthalene	mg/kg	0.1	<0.1	<0.1	<0.2↑	<0.1	<0.1
1-methylnaphthalene	mg/kg	0.1	<0.1	<0.1	<0.2↑	<0.1	<0.1
Acenaphthylene	mg/kg	0.1	<0.1	<0.1	<0.2↑	<0.1	<0.1
Acenaphthene	mg/kg	0.1	<0.1	<0.1	<0.2↑	<0.1	<0.1
Fluorene	mg/kg	0.1	<0.1	<0.1	<0.2↑	<0.1	<0.1
Phenanthrene	mg/kg	0.1	<0.1	<0.1	<0.2↑	<0.1	<0.1
Anthracene	mg/kg	0.1	<0.1	<0.1	<0.2↑	<0.1	<0.1
Fluoranthene	mg/kg	0.1	<0.1	<0.1	<0.2↑	<0.1	<0.1
Pyrene	mg/kg	0.1	<0.1	<0.1	<0.2↑	<0.1	<0.1
Benzo(a)anthracene	mg/kg	0.1	<0.1	<0.1	<0.2↑	<0.1	<0.1
Chrysene	mg/kg	0.1	<0.1	<0.1	<0.2↑	<0.1	<0.1
Benzo(b&j)fluoranthene	mg/kg	0.1	<0.1	<0.1	<0.2↑	<0.1	<0.1
Benzo(k)fluoranthene	mg/kg	0.1	<0.1	<0.1	<0.2↑	<0.1	<0.1
Benzo(a)pyrene	mg/kg	0.1	<0.1	<0.1	<0.2↑	<0.1	<0.1
Indeno(1,2,3-cd)pyrene	mg/kg	0.1	<0.1	<0.1	<0.2↑	<0.1	<0.1
Dibenzo(ah)anthracene	mg/kg	0.1	<0.1	<0.1	<0.2↑	<0.1	<0.1
Benzo(ghi)perylene	mg/kg	0.1	<0.1	<0.1	<0.2↑	<0.1	<0.1
Carcinogenic PAHs, BaP TEQ <LOR=0	TEQ	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Carcinogenic PAHs, BaP TEQ <LOR=LOR	TEQ (mg/kg)	0.3	<0.3	<0.3	<0.3	<0.3	<0.3
Carcinogenic PAHs, BaP TEQ <LOR=LOR/2	TEQ (mg/kg)	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Total PAH (18)	mg/kg	0.8	<0.8	<0.8	<0.8	<0.8	<0.8
Total PAH (NEPM/WHO 16)	mg/kg	0.8	<0.8	<0.8	<0.8	<0.8	<0.8

PAH (Polynuclear Aromatic Hydrocarbons) in Soil [AN420] Tested: 12/9/2016 (continued)

PARAMETER	UOM	LOR	TP10 SOIL - 7/9/2016 SE156934.011	TP17_1.8 SOIL - 7/9/2016 SE156934.012	TP21_0.1-0.2 SOIL - 7/9/2016 SE156934.013	TP38_1.3-1.4 SOIL - 7/9/2016 SE156934.014	TP41_0.05-0.15 SOIL - 7/9/2016 SE156934.015
Naphthalene	mg/kg	0.1	**0.1**	<0.1	<0.1	<0.1	<0.1
2-methylnaphthalene	mg/kg	0.1	**0.2**	<0.1	<0.1	<0.1	<0.1
1-methylnaphthalene	mg/kg	0.1	**0.1**	<0.1	<0.1	<0.1	<0.1
Acenaphthylene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Acenaphthene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Fluorene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Phenanthrene	mg/kg	0.1	**0.1**	<0.1	<0.1	<0.1	<0.1
Anthracene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Fluoranthene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Pyrene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(a)anthracene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Chrysene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(b&j)fluoranthene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(k)fluoranthene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(a)pyrene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Indeno(1,2,3-cd)pyrene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Dibenzo(ah)anthracene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(ghi)perylene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Carcinogenic PAHs, BaP TEQ <LOR=0	TEQ	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Carcinogenic PAHs, BaP TEQ <LOR=LOR	TEQ (mg/kg)	0.3	<0.3	<0.3	<0.3	<0.3	<0.3
Carcinogenic PAHs, BaP TEQ <LOR=LOR/2	TEQ (mg/kg)	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Total PAH (18)	mg/kg	0.8	<0.8	<0.8	<0.8	<0.8	<0.8
Total PAH (NEPM/WHO 16)	mg/kg	0.8	<0.8	<0.8	<0.8	<0.8	<0.8

PARAMETER	UOM	LOR	TP45_0.3-0.4 SOIL - 7/9/2016 SE156934.016	TP46_0.1-0.2 SOIL - 7/9/2016 SE156934.017	TP53_0-0.1 SOIL - 7/9/2016 SE156934.018	TP55_1.2-1.3 SOIL - 7/9/2016 SE156934.019	TP56_0.1-0.2 SOIL - 7/9/2016 SE156934.020
Naphthalene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
2-methylnaphthalene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
1-methylnaphthalene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Acenaphthylene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Acenaphthene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Fluorene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Phenanthrene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Anthracene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Fluoranthene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Pyrene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(a)anthracene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Chrysene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(b&j)fluoranthene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(k)fluoranthene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(a)pyrene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Indeno(1,2,3-cd)pyrene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Dibenzo(ah)anthracene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(ghi)perylene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Carcinogenic PAHs, BaP TEQ <LOR=0	TEQ	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Carcinogenic PAHs, BaP TEQ <LOR=LOR	TEQ (mg/kg)	0.3	<0.3	<0.3	<0.3	<0.3	<0.3
Carcinogenic PAHs, BaP TEQ <LOR=LOR/2	TEQ (mg/kg)	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Total PAH (18)	mg/kg	0.8	<0.8	<0.8	<0.8	<0.8	<0.8
Total PAH (NEPM/WHO 16)	mg/kg	0.8	<0.8	<0.8	<0.8	<0.8	<0.8

PAH (Polynuclear Aromatic Hydrocarbons) in Soil [AN420] Tested: 12/9/2016 (continued)

PARAMETER	UOM	LOR	TP57_0-0.1 SOIL - 7/9/2016 SE156934.021
Naphthalene	mg/kg	0.1	<0.1
2-methylnaphthalene	mg/kg	0.1	<0.1
1-methylnaphthalene	mg/kg	0.1	<0.1
Acenaphthylene	mg/kg	0.1	<0.1
Acenaphthene	mg/kg	0.1	<0.1
Fluorene	mg/kg	0.1	<0.1
Phenanthrene	mg/kg	0.1	<0.1
Anthracene	mg/kg	0.1	<0.1
Fluoranthene	mg/kg	0.1	<0.1
Pyrene	mg/kg	0.1	<0.1
Benzo(a)anthracene	mg/kg	0.1	<0.1
Chrysene	mg/kg	0.1	<0.1
Benzo(b&j)fluoranthene	mg/kg	0.1	<0.1
Benzo(k)fluoranthene	mg/kg	0.1	<0.1
Benzo(a)pyrene	mg/kg	0.1	<0.1
Indeno(1,2,3-cd)pyrene	mg/kg	0.1	<0.1
Dibenzo(ah)anthracene	mg/kg	0.1	<0.1
Benzo(ghi)perylene	mg/kg	0.1	<0.1
Carcinogenic PAHs, BaP TEQ <LOR=0	TEQ	0.2	<0.2
Carcinogenic PAHs, BaP TEQ <LOR=LOR	TEQ (mg/kg)	0.3	<0.3
Carcinogenic PAHs, BaP TEQ <LOR=LOR/2	TEQ (mg/kg)	0.2	<0.2
Total PAH (18)	mg/kg	0.8	<0.8
Total PAH (NEPM/WHO 16)	mg/kg	0.8	<0.8

OC Pesticides in Soil [AN400/AN420] Tested: 12/9/2016

PARAMETER	UOM	LOR	TR1_0.1 SOIL - 7/9/2016 SE156934.001	TR3_0.15 SOIL - 7/9/2016 SE156934.002	TP1_0.1-0.2 SOIL - 7/9/2016 SE156934.003	TP2_1.5 SOIL - 7/9/2016 SE156934.004	TP3 SOIL - 7/9/2016 SE156934.005
Hexachlorobenzene (HCB)	mg/kg	0.1	<0.1	<0.2↑	<0.1	<0.1	<0.1
Alpha BHC	mg/kg	0.1	<0.1	<0.2↑	<0.1	<0.1	<0.1
Lindane	mg/kg	0.1	<0.1	<0.2↑	<0.1	<0.1	<0.1
Heptachlor	mg/kg	0.1	<0.1	<0.2↑	<0.1	<0.1	<0.1
Aldrin	mg/kg	0.1	<0.1	<0.2↑	<0.1	<0.1	<0.1
Beta BHC	mg/kg	0.1	<0.1	<0.2↑	<0.1	<0.1	<0.1
Delta BHC	mg/kg	0.1	<0.1	<0.2↑	<0.1	<0.1	<0.1
Heptachlor epoxide	mg/kg	0.1	<0.1	<0.2↑	<0.1	<0.1	<0.1
o,p'-DDE	mg/kg	0.1	<0.1	<0.2↑	<0.1	<0.1	<0.1
Alpha Endosulfan	mg/kg	0.2	<0.2	<0.4↑	<0.2	<0.2	<0.2
Gamma Chlordane	mg/kg	0.1	<0.1	<0.2↑	<0.1	<0.1	<0.1
Alpha Chlordane	mg/kg	0.1	<0.1	<0.2↑	<0.1	<0.1	<0.1
trans-Nonachlor	mg/kg	0.1	<0.1	<0.2↑	<0.1	<0.1	<0.1
p,p'-DDE	mg/kg	0.1	<0.1	<0.2↑	<0.1	<0.1	<0.1
Dieldrin	mg/kg	0.2	<0.2	<0.4↑	<0.2	<0.2	<0.2
Endrin	mg/kg	0.2	<0.2	<0.4↑	<0.2	<0.2	<0.2
o,p'-DDD	mg/kg	0.1	<0.1	<0.2↑	<0.1	<0.1	<0.1
o,p'-DDT	mg/kg	0.1	<0.1	<0.2↑	<0.1	<0.1	<0.1
Beta Endosulfan	mg/kg	0.2	<0.2	<0.4↑	<0.2	<0.2	<0.2
p,p'-DDD	mg/kg	0.1	<0.1	<0.2↑	<0.1	<0.1	<0.1
p,p'-DDT	mg/kg	0.1	<0.1	<0.2↑	<0.1	<0.1	<0.1
Endosulfan sulphate	mg/kg	0.1	<0.1	<0.2↑	<0.1	<0.1	<0.1
Endrin Aldehyde	mg/kg	0.1	<0.1	<0.2↑	<0.1	<0.1	<0.1
Methoxychlor	mg/kg	0.1	<0.1	<0.2↑	<0.1	<0.1	<0.1
Endrin Ketone	mg/kg	0.1	<0.1	<0.2↑	<0.1	<0.1	<0.1
Isodrin	mg/kg	0.1	<0.1	<0.2↑	<0.1	<0.1	<0.1
Mirex	mg/kg	0.1	<0.1	<0.2↑	<0.1	<0.1	<0.1

OC Pesticides in Soil [AN400/AN420] Tested: 12/9/2016 (continued)

PARAMETER	UOM	LOR	TP4_0.15 SOIL - 7/9/2016 SE156934.006	TP5_1.8 SOIL - 7/9/2016 SE156934.007	TP7_0.15 SOIL - 7/9/2016 SE156934.008	TP8_0.3-0.4 SOIL - 7/9/2016 SE156934.009	TP9 SOIL - 7/9/2016 SE156934.010
Hexachlorobenzene (HCB)	mg/kg	0.1	<0.1	<0.1	<0.2↑	<0.1	<0.1
Alpha BHC	mg/kg	0.1	<0.1	<0.1	<0.2↑	<0.1	<0.1
Lindane	mg/kg	0.1	<0.1	<0.1	<0.2↑	<0.1	<0.1
Heptachlor	mg/kg	0.1	<0.1	<0.1	<0.2↑	<0.1	<0.1
Aldrin	mg/kg	0.1	<0.1	<0.1	<0.2↑	<0.1	<0.1
Beta BHC	mg/kg	0.1	<0.1	<0.1	<0.2↑	<0.1	<0.1
Delta BHC	mg/kg	0.1	<0.1	<0.1	<0.2↑	<0.1	<0.1
Heptachlor epoxide	mg/kg	0.1	<0.1	<0.1	<0.2↑	<0.1	<0.1
o,p'-DDE	mg/kg	0.1	<0.1	<0.1	<0.2↑	<0.1	<0.1
Alpha Endosulfan	mg/kg	0.2	<0.2	<0.2	<0.4↑	<0.2	<0.2
Gamma Chlordane	mg/kg	0.1	<0.1	<0.1	<0.2↑	<0.1	<0.1
Alpha Chlordane	mg/kg	0.1	<0.1	<0.1	<0.2↑	<0.1	<0.1
trans-Nonachlor	mg/kg	0.1	<0.1	<0.1	<0.2↑	<0.1	<0.1
p,p'-DDE	mg/kg	0.1	<0.1	<0.1	<0.2↑	<0.1	<0.1
Dieldrin	mg/kg	0.2	<0.2	<0.2	<0.4↑	<0.2	<0.2
Endrin	mg/kg	0.2	<0.2	<0.2	<0.4↑	<0.2	<0.2
o,p'-DDD	mg/kg	0.1	<0.1	<0.1	<0.2↑	<0.1	<0.1
o,p'-DDT	mg/kg	0.1	<0.1	<0.1	<0.2↑	<0.1	<0.1
Beta Endosulfan	mg/kg	0.2	<0.2	<0.2	<0.4↑	<0.2	<0.2
p,p'-DDD	mg/kg	0.1	<0.1	<0.1	<0.2↑	<0.1	<0.1
p,p'-DDT	mg/kg	0.1	<0.1	<0.1	<0.2↑	<0.1	<0.1
Endosulfan sulphate	mg/kg	0.1	<0.1	<0.1	<0.2↑	<0.1	<0.1
Endrin Aldehyde	mg/kg	0.1	<0.1	<0.1	<0.2↑	<0.1	<0.1
Methoxychlor	mg/kg	0.1	<0.1	<0.1	<0.2↑	<0.1	<0.1
Endrin Ketone	mg/kg	0.1	<0.1	<0.1	<0.2↑	<0.1	<0.1
Isodrin	mg/kg	0.1	<0.1	<0.1	<0.2↑	<0.1	<0.1
Mirex	mg/kg	0.1	<0.1	<0.1	<0.2↑	<0.1	<0.1

OC Pesticides in Soil [AN400/AN420] Tested: 12/9/2016 (continued)

PARAMETER	UOM	LOR	TP10 SOIL - 7/9/2016 SE156934.011	TP17_1.8 SOIL - 7/9/2016 SE156934.012	TP21_0.1-0.2 SOIL - 7/9/2016 SE156934.013	TP38_1.3-1.4 SOIL - 7/9/2016 SE156934.014	TP41_0.05-0.15 SOIL - 7/9/2016 SE156934.015
Hexachlorobenzene (HCB)	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Alpha BHC	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Lindane	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Heptachlor	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Aldrin	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Beta BHC	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Delta BHC	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Heptachlor epoxide	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
o,p'-DDE	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Alpha Endosulfan	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Gamma Chlordane	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Alpha Chlordane	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
trans-Nonachlor	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
p,p'-DDE	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Dieldrin	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Endrin	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
o,p'-DDD	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
o,p'-DDT	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Beta Endosulfan	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
p,p'-DDD	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
p,p'-DDT	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Endosulfan sulphate	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Endrin Aldehyde	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Methoxychlor	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Endrin Ketone	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Isodrin	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Mirex	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1

OC Pesticides in Soil [AN400/AN420] Tested: 12/9/2016 (continued)

PARAMETER	UOM	LOR	TP45_0.3-0.4 SOIL - 7/9/2016 SE156934.016	TP46_0.1-0.2 SOIL - 7/9/2016 SE156934.017	TP53_0-0.1 SOIL - 7/9/2016 SE156934.018	TP55_1.2-1.3 SOIL - 7/9/2016 SE156934.019	TP56_0.1-0.2 SOIL - 7/9/2016 SE156934.020
Hexachlorobenzene (HCB)	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Alpha BHC	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Lindane	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Heptachlor	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Aldrin	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Beta BHC	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Delta BHC	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Heptachlor epoxide	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
o,p'-DDE	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Alpha Endosulfan	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Gamma Chlordane	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Alpha Chlordane	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
trans-Nonachlor	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
p,p'-DDE	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Dieldrin	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Endrin	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
o,p'-DDD	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
o,p'-DDT	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Beta Endosulfan	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
p,p'-DDD	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
p,p'-DDT	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Endosulfan sulphate	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Endrin Aldehyde	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Methoxychlor	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Endrin Ketone	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Isodrin	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Mirex	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1

OC Pesticides in Soil [AN400/AN420] Tested: 12/9/2016 (continued)

PARAMETER	UOM	LOR	TP57_0-0.1 SOIL - 7/9/2016 SE156934.021
Hexachlorobenzene (HCB)	mg/kg	0.1	<0.1
Alpha BHC	mg/kg	0.1	<0.1
Lindane	mg/kg	0.1	<0.1
Heptachlor	mg/kg	0.1	<0.1
Aldrin	mg/kg	0.1	<0.1
Beta BHC	mg/kg	0.1	<0.1
Delta BHC	mg/kg	0.1	<0.1
Heptachlor epoxide	mg/kg	0.1	<0.1
o,p'-DDE	mg/kg	0.1	<0.1
Alpha Endosulfan	mg/kg	0.2	<0.2
Gamma Chlordane	mg/kg	0.1	<0.1
Alpha Chlordane	mg/kg	0.1	<0.1
trans-Nonachlor	mg/kg	0.1	<0.1
p,p'-DDE	mg/kg	0.1	<0.1
Dieldrin	mg/kg	0.2	<0.2
Endrin	mg/kg	0.2	<0.2
o,p'-DDD	mg/kg	0.1	<0.1
o,p'-DDT	mg/kg	0.1	<0.1
Beta Endosulfan	mg/kg	0.2	<0.2
p,p'-DDD	mg/kg	0.1	<0.1
p,p'-DDT	mg/kg	0.1	<0.1
Endosulfan sulphate	mg/kg	0.1	<0.1
Endrin Aldehyde	mg/kg	0.1	<0.1
Methoxychlor	mg/kg	0.1	<0.1
Endrin Ketone	mg/kg	0.1	<0.1
Isodrin	mg/kg	0.1	<0.1
Mirex	mg/kg	0.1	<0.1

OP Pesticides in Soil [AN400/AN420] Tested: 12/9/2016

PARAMETER	UOM	LOR	TR1_0.1 SOIL - 7/9/2016 SE156934.001	TR3_0.15 SOIL - 7/9/2016 SE156934.002	TP1_0.1-0.2 SOIL - 7/9/2016 SE156934.003	TP2_1.5 SOIL - 7/9/2016 SE156934.004	TP3 SOIL - 7/9/2016 SE156934.005
Dichlorvos	mg/kg	0.5	<0.5	<1.0↑	<0.5	<0.5	<0.5
Dimethoate	mg/kg	0.5	<0.5	<1.0↑	<0.5	<0.5	<0.5
Diazinon (Dimpylate)	mg/kg	0.5	<0.5	<1.0↑	<0.5	<0.5	<0.5
Fenitrothion	mg/kg	0.2	<0.2	<0.4↑	<0.2	<0.2	<0.2
Malathion	mg/kg	0.2	<0.2	<0.4↑	<0.2	<0.2	<0.2
Chlorpyrifos (Chlorpyrifos Ethyl)	mg/kg	0.2	<0.2	<0.4↑	<0.2	<0.2	<0.2
Parathion-ethyl (Parathion)	mg/kg	0.2	<0.2	<0.4↑	<0.2	<0.2	<0.2
Bromophos Ethyl	mg/kg	0.2	<0.2	<0.4↑	<0.2	<0.2	<0.2
Methidathion	mg/kg	0.5	<0.5	<1.0↑	<0.5	<0.5	<0.5
Ethion	mg/kg	0.2	<0.2	<0.4↑	<0.2	<0.2	<0.2
Azinphos-methyl (Guthion)	mg/kg	0.2	<0.2	<0.4↑	<0.2	<0.2	<0.2

PARAMETER	UOM	LOR	TP4_0.15 SOIL - 7/9/2016 SE156934.006	TP5_1.8 SOIL - 7/9/2016 SE156934.007	TP7_0.15 SOIL - 7/9/2016 SE156934.008	TP8_0.3-0.4 SOIL - 7/9/2016 SE156934.009	TP9 SOIL - 7/9/2016 SE156934.010
Dichlorvos	mg/kg	0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Dimethoate	mg/kg	0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Diazinon (Dimpylate)	mg/kg	0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Fenitrothion	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Malathion	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Chlorpyrifos (Chlorpyrifos Ethyl)	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Parathion-ethyl (Parathion)	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Bromophos Ethyl	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Methidathion	mg/kg	0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Ethion	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Azinphos-methyl (Guthion)	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2

PARAMETER	UOM	LOR	TP10 SOIL - 7/9/2016 SE156934.011	TP17_1.8 SOIL - 7/9/2016 SE156934.012	TP21_0.1-0.2 SOIL - 7/9/2016 SE156934.013	TP38_1.3-1.4 SOIL - 7/9/2016 SE156934.014	TP41_0.05-0.15 SOIL - 7/9/2016 SE156934.015
Dichlorvos	mg/kg	0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Dimethoate	mg/kg	0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Diazinon (Dimpylate)	mg/kg	0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Fenitrothion	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Malathion	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Chlorpyrifos (Chlorpyrifos Ethyl)	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Parathion-ethyl (Parathion)	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Bromophos Ethyl	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Methidathion	mg/kg	0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Ethion	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Azinphos-methyl (Guthion)	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2

OP Pesticides in Soil [AN400/AN420] Tested: 12/9/2016 (continued)

PARAMETER	UOM	LOR	TP45_0.3-0.4 SOIL - 7/9/2016 SE156934.016	TP46_0.1-0.2 SOIL - 7/9/2016 SE156934.017	TP53_0-0.1 SOIL - 7/9/2016 SE156934.018	TP55_1.2-1.3 SOIL - 7/9/2016 SE156934.019	TP56_0.1-0.2 SOIL - 7/9/2016 SE156934.020
Dichlorvos	mg/kg	0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Dimethoate	mg/kg	0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Diazinon (Dimpylate)	mg/kg	0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Fenitrothion	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Malathion	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Chlorpyrifos (Chlorpyrifos Ethyl)	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Parathion-ethyl (Parathion)	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Bromophos Ethyl	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Methidathion	mg/kg	0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Ethion	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Azinphos-methyl (Guthion)	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2

PARAMETER	UOM	LOR	TP57_0-0.1 SOIL - 7/9/2016 SE156934.021
Dichlorvos	mg/kg	0.5	<0.5
Dimethoate	mg/kg	0.5	<0.5
Diazinon (Dimpylate)	mg/kg	0.5	<0.5
Fenitrothion	mg/kg	0.2	<0.2
Malathion	mg/kg	0.2	<0.2
Chlorpyrifos (Chlorpyrifos Ethyl)	mg/kg	0.2	<0.2
Parathion-ethyl (Parathion)	mg/kg	0.2	<0.2
Bromophos Ethyl	mg/kg	0.2	<0.2
Methidathion	mg/kg	0.5	<0.5
Ethion	mg/kg	0.2	<0.2
Azinphos-methyl (Guthion)	mg/kg	0.2	<0.2

Total Phenolics in Soil [AN289] Tested: 14/9/2016

PARAMETER	UOM	LOR	TR1_0.1 SOIL - 7/9/2016 SE156934.001	TR3_0.15 SOIL - 7/9/2016 SE156934.002	TP1_0.1-0.2 SOIL - 7/9/2016 SE156934.003	TP2_1.5 SOIL - 7/9/2016 SE156934.004	TP3 SOIL - 7/9/2016 SE156934.005
Total Phenols	mg/kg	0.1	0.1	0.2	0.6	0.1	0.2

PARAMETER	UOM	LOR	TP4_0.15 SOIL - 7/9/2016 SE156934.006	TP5_1.8 SOIL - 7/9/2016 SE156934.007	TP7_0.15 SOIL - 7/9/2016 SE156934.008	TP8_0.3-0.4 SOIL - 7/9/2016 SE156934.009	TP9 SOIL - 7/9/2016 SE156934.010
Total Phenols	mg/kg	0.1	0.2	0.2	1.8	0.5	0.6

PARAMETER	UOM	LOR	TP10 SOIL - 7/9/2016 SE156934.011	TP17_1.8 SOIL - 7/9/2016 SE156934.012	TP21_0.1-0.2 SOIL - 7/9/2016 SE156934.013	TP38_1.3-1.4 SOIL - 7/9/2016 SE156934.014	TP41_0.05-0.15 SOIL - 7/9/2016 SE156934.015
Total Phenols	mg/kg	0.1	0.3	0.2	0.2	0.1	0.4

PARAMETER	UOM	LOR	TP45_0.3-0.4 SOIL - 7/9/2016 SE156934.016	TP46_0.1-0.2 SOIL - 7/9/2016 SE156934.017	TP53_0-0.1 SOIL - 7/9/2016 SE156934.018	TP55_1.2-1.3 SOIL - 7/9/2016 SE156934.019	TP56_0.1-0.2 SOIL - 7/9/2016 SE156934.020
Total Phenols	mg/kg	0.1	0.2	0.3	0.3	0.4	1.1

PARAMETER	UOM	LOR	TP57_0-0.1 SOIL - 7/9/2016 SE156934.021
Total Phenols	mg/kg	0.1	<0.1

Total Recoverable Metals in Soil/Waste Solids/Materials by ICPOES [AN040/AN320] Tested: 14/9/2016

PARAMETER	UOM	LOR	TR1_0.1 SOIL - 7/9/2016 SE156934.001	TR3_0.15 SOIL - 7/9/2016 SE156934.002	TP1_0.1-0.2 SOIL - 7/9/2016 SE156934.003	TP2_1.5 SOIL - 7/9/2016 SE156934.004	TP3 SOIL - 7/9/2016 SE156934.005
Arsenic, As	mg/kg	3	6	11	19	12	8
Cadmium, Cd	mg/kg	0.3	<0.3	<0.3	<0.3	0.3	<0.3
Chromium, Cr	mg/kg	0.3	21	19	19	28	16
Copper, Cu	mg/kg	0.5	22	53	12	13	23
Lead, Pb	mg/kg	1	16	30	24	20	29
Nickel, Ni	mg/kg	0.5	24	25	15	11	24
Zinc, Zn	mg/kg	0.5	47	68	71	40	52

PARAMETER	UOM	LOR	TP4_0.15 SOIL - 7/9/2016 SE156934.006	TP5_1.8 SOIL - 7/9/2016 SE156934.007	TP7_0.15 SOIL - 7/9/2016 SE156934.008	TP8_0.3-0.4 SOIL - 7/9/2016 SE156934.009	TP9 SOIL - 7/9/2016 SE156934.010
Arsenic, As	mg/kg	3	<3	12	13	10	16
Cadmium, Cd	mg/kg	0.3	<0.3	<0.3	0.3	0.4	0.6
Chromium, Cr	mg/kg	0.3	6.5	14	16	16	20
Copper, Cu	mg/kg	0.5	24	24	23	21	42
Lead, Pb	mg/kg	1	14	15	63	45	67
Nickel, Ni	mg/kg	0.5	43	38	30	21	27
Zinc, Zn	mg/kg	0.5	12	89	420	150	200

PARAMETER	UOM	LOR	TP10 SOIL - 7/9/2016 SE156934.011	TP17_1.8 SOIL - 7/9/2016 SE156934.012	TP21_0.1-0.2 SOIL - 7/9/2016 SE156934.013	TP38_1.3-1.4 SOIL - 7/9/2016 SE156934.014	TP41_0.05-0.15 SOIL - 7/9/2016 SE156934.015
Arsenic, As	mg/kg	3	10	12	6	<3	<3
Cadmium, Cd	mg/kg	0.3	<0.3	0.3	0.5	<0.3	<0.3
Chromium, Cr	mg/kg	0.3	18	32	21	28	28
Copper, Cu	mg/kg	0.5	19	15	34	11	11
Lead, Pb	mg/kg	1	27	47	57	15	15
Nickel, Ni	mg/kg	0.5	18	11	8.2	8.4	6.1
Zinc, Zn	mg/kg	0.5	59	54	55	19	33

PARAMETER	UOM	LOR	TP45_0.3-0.4 SOIL - 7/9/2016 SE156934.016	TP46_0.1-0.2 SOIL - 7/9/2016 SE156934.017	TP53_0-0.1 SOIL - 7/9/2016 SE156934.018	TP55_1.2-1.3 SOIL - 7/9/2016 SE156934.019	TP56_0.1-0.2 SOIL - 7/9/2016 SE156934.020
Arsenic, As	mg/kg	3	6	8	29	4	6
Cadmium, Cd	mg/kg	0.3	<0.3	<0.3	<0.3	<0.3	<0.3
Chromium, Cr	mg/kg	0.3	34	26	21	34	24
Copper, Cu	mg/kg	0.5	14	11	15	14	11
Lead, Pb	mg/kg	1	22	31	31	25	48
Nickel, Ni	mg/kg	0.5	11	17	20	9.4	8.6
Zinc, Zn	mg/kg	0.5	28	30	87	49	59

Total Recoverable Metals in Soil/Waste Solids/Materials by ICPOES [AN040/AN320] Tested: 14/9/2016 (continued)

PARAMETER	UOM	LOR	TP57_0-0.1 SOIL - 7/9/2016 SE156934.021
Arsenic, As	mg/kg	3	**5**
Cadmium, Cd	mg/kg	0.3	<0.3
Chromium, Cr	mg/kg	0.3	**20**
Copper, Cu	mg/kg	0.5	**16**
Lead, Pb	mg/kg	1	**53**
Nickel, Ni	mg/kg	0.5	**14**
Zinc, Zn	mg/kg	0.5	**44**

Mercury in Soil [AN312] Tested: 13/9/2016

PARAMETER	UOM	LOR	TR1_0.1 SOIL - 7/9/2016 SE156934.001	TR3_0.15 SOIL - 7/9/2016 SE156934.002	TP1_0.1-0.2 SOIL - 7/9/2016 SE156934.003	TP2_1.5 SOIL - 7/9/2016 SE156934.004	TP3 SOIL - 7/9/2016 SE156934.005
Mercury	mg/kg	0.05	<0.05	<0.05	0.05	<0.05	<0.05

PARAMETER	UOM	LOR	TP4_0.15 SOIL - 7/9/2016 SE156934.006	TP5_1.8 SOIL - 7/9/2016 SE156934.007	TP7_0.15 SOIL - 7/9/2016 SE156934.008	TP8_0.3-0.4 SOIL - 7/9/2016 SE156934.009	TP9 SOIL - 7/9/2016 SE156934.010
Mercury	mg/kg	0.05	<0.05	<0.05	<0.05	<0.05	<0.05

PARAMETER	UOM	LOR	TP10 SOIL - 7/9/2016 SE156934.011	TP17_1.8 SOIL - 7/9/2016 SE156934.012	TP21_0.1-0.2 SOIL - 7/9/2016 SE156934.013	TP38_1.3-1.4 SOIL - 7/9/2016 SE156934.014	TP41_0.05-0.15 SOIL - 7/9/2016 SE156934.015
Mercury	mg/kg	0.05	<0.05	<0.05	<0.05	<0.05	<0.05

PARAMETER	UOM	LOR	TP45_0.3-0.4 SOIL - 7/9/2016 SE156934.016	TP46_0.1-0.2 SOIL - 7/9/2016 SE156934.017	TP53_0-0.1 SOIL - 7/9/2016 SE156934.018	TP55_1.2-1.3 SOIL - 7/9/2016 SE156934.019	TP56_0.1-0.2 SOIL - 7/9/2016 SE156934.020
Mercury	mg/kg	0.05	<0.05	<0.05	<0.05	<0.05	<0.05

PARAMETER	UOM	LOR	TP57_0-0.1 SOIL - 7/9/2016 SE156934.021
Mercury	mg/kg	0.05	0.07

Moisture Content [AN002] Tested: 12/9/2016

PARAMETER	UOM	LOR	TR1_0.1 SOIL - 7/9/2016 SE156934.001	TR3_0.15 SOIL - 7/9/2016 SE156934.002	TP1_0.1-0.2 SOIL - 7/9/2016 SE156934.003	TP2_1.5 SOIL - 7/9/2016 SE156934.004	TP3 SOIL - 7/9/2016 SE156934.005
% Moisture	%w/w	0.5	12	13	16	12	13

PARAMETER	UOM	LOR	TP4_0.15 SOIL - 7/9/2016 SE156934.006	TP5_1.8 SOIL - 7/9/2016 SE156934.007	TP7_0.15 SOIL - 7/9/2016 SE156934.008	TP8_0.3-0.4 SOIL - 7/9/2016 SE156934.009	TP9 SOIL - 7/9/2016 SE156934.010
% Moisture	%w/w	0.5	25	22	16	14	28

PARAMETER	UOM	LOR	TP10 SOIL - 7/9/2016 SE156934.011	TP17_1.8 SOIL - 7/9/2016 SE156934.012	TP21_0.1-0.2 SOIL - 7/9/2016 SE156934.013	TP38_1.3-1.4 SOIL - 7/9/2016 SE156934.014	TP41_0.05-0.15 SOIL - 7/9/2016 SE156934.015
% Moisture	%w/w	0.5	17	17	17	19	15

PARAMETER	UOM	LOR	TP45_0.3-0.4 SOIL - 7/9/2016 SE156934.016	TP46_0.1-0.2 SOIL - 7/9/2016 SE156934.017	TP53_0-0.1 SOIL - 7/9/2016 SE156934.018	TP55_1.2-1.3 SOIL - 7/9/2016 SE156934.019	TP56_0.1-0.2 SOIL - 7/9/2016 SE156934.020
% Moisture	%w/w	0.5	18	14	19	9.3	20

PARAMETER	UOM	LOR	TP57_0-0.1 SOIL - 7/9/2016 SE156934.021
% Moisture	%w/w	0.5	20

Fibre Identification in soil [AN602] Tested: 14/9/2016

PARAMETER	UOM	LOR	TP42_0-0.1_ZLB SOIL - 7/9/2016 SE156934.022	TP61_ZLB SOIL - 7/9/2016 SE156934.023
Asbestos Detected	No unit	-	No	No
Estimated Fibres*	%w/w	0.01	<0.01	<0.01

METHOD	METHODOLOGY SUMMARY
AN002	The test is carried out by drying (at either 40°C or 105°C) a known mass of sample in a weighed evaporating basin. After fully dry the sample is re-weighed. Samples such as sludge and sediment having high percentages of moisture will take some time in a drying oven for complete removal of water.
AN040/AN320	A portion of sample is digested with nitric acid to decompose organic matter and hydrochloric acid to complete the digestion of metals. The digest is then analysed by ICP OES with metals results reported on the dried sample basis. Based on USEPA method 200.8 and 6010C.
AN040	A portion of sample is digested with Nitric acid to decompose organic matter and Hydrochloric acid to complete the digestion of metals and then filtered for analysis by ASS or ICP as per USEPA Method 200.8.
AN289	Analysis of Total Phenols in Soil Sediment and Water: Steam distillable phenols react with 4-aminoantipyrine at pH 7.9±0.1 in the presence of potassium ferricyanide to form a coloured antipyrine dye analysed by Discrete Analyser. Reference APHA 5530 B/D.
AN312	Mercury by Cold Vapour AAS in Soils: After digestion with nitric acid, hydrogen peroxide and hydrochloric acid , mercury ions are reduced by stannous chloride reagent in acidic solution to elemental mercury. This mercury vapour is purged by nitrogen into a cold cell in an atomic absorption spectrometer or mercury analyser . Quantification is made by comparing absorbances to those of the calibration standards. Reference APHA 3112/3500
AN400	OC and OP Pesticides by GC-ECD: The determination of organochlorine (OC) and organophosphorus (OP) pesticides and polychlorinated biphenyls (PCBs) in soils, sludges and groundwater. (Based on USEPA methods 3510, 3550, 8140 and 8080.)
AN403	Total Recoverable Hydrocarbons: Determination of Hydrocarbons by gas chromatography after a solvent extraction. Detection is by flame ionisation detector (FID) that produces an electronic signal in proportion to the combustible matter passing through it. Total Recoverable Hydrocarbons (TRH) are routinely reported as four alkane groupings based on the carbon chain length of the compounds: C6-C9, C10-C14, C15-C28 and C29-C36 and in recognition of the NEPM 1999 (2013), >C10-C16 (F2), >C16-C34 (F3) and >C34-C40 (F4). F2 is reported directly and also corrected by subtracting Naphthalene (from VOC method AN433) where available.
AN403	Additionally, the volatile C6-C9 fraction may be determined by a purge and trap technique and GC /MS because of the potential for volatiles loss. Total Petroleum Hydrocarbons (TPH) follows the same method of analysis after silica gel cleanup of the solvent extract. Aliphatic/Aromatic Speciation follows the same method of analysis after fractionation of the solvent extract over silica with differential polarity of the eluent solvents .
AN403	The GC/FID method is not well suited to the analysis of refined high boiling point materials (ie lubricating oils or greases) but is particularly suited for measuring diesel, kerosene and petrol if care to control volatility is taken. This method will detect naturally occurring hydrocarbons, lipids, animal fats, phenols and PAHs if they are present at sufficient levels, dependent on the use of specific cleanup /fractionation techniques. Reference USEPA 3510B, 8015B.
AN420	(SVOCs) including OC, OP, PCB, Herbicides, PAH, Phthalates and Speciated Phenols (etc) in soils, sediments and waters are determined by GCMS/ECD technique following appropriate solvent extraction process (Based on USEPA 3500C and 8270D).
AN420	SVOC Compounds: Semi-Volatile Organic Compounds (SVOCs) including OC, OP, PCB, Herbicides, PAH, Phthalates and Speciated Phenols in soils, sediments and waters are determined by GCMS /ECD technique following appropriate solvent extraction process (Based on USEPA 3500C and 8270D).
AN433	VOCs and C6-C9 Hydrocarbons by GC-MS P&T: VOC`s are volatile organic compounds. The sample is presented to a gas chromatograph via a purge and trap (P&T) concentrator and autosampler and is detected with a Mass Spectrometer (MSD). Solid samples are initially extracted with methanol whilst liquid samples are processed directly. References: USEPA 5030B, 8020A, 8260.
AN602	Qualitative identification of chrysotile, amosite and crocidolite in bulk samples by polarised light microscopy (PLM) in conjunction with dispersion staining (DS). AS4964 provides the basis for this document. Unequivocal identification of the asbestos minerals present is made by obtaining sufficient diagnostic `clues`, which provide a reasonable degree of certainty, dispersion staining is a mandatory `clue` for positive identification. If sufficient `clues` are absent, then positive identification of asbestos is not possible. This procedure requires removal of suspect fibres/bundles from the sample which cannot be returned.
AN602	Fibres/material that cannot be unequivocably identified as one of the three asbestos forms, will be reported as unknown mineral fibres (umf).
AN602	AS4964.2004 Method for the Qualitative Identification of Asbestos in Bulk Samples, Section 8.4, Trace Analysis Criteria, Note 4 states:"Depending upon sample condition and fibre type, the detection limit of this technique has been found to lie generally in the range of 1 in 1,000 to 1 in 10,000 parts by weight, equivalent to 1 to 0.1 g/kg."

AN602	The sample can be reported “no asbestos found at the reporting limit of 0.1 g/kg” (<0.01%w/w) where AN602 section 4.5 of this method has been followed, and if- (a) no trace asbestos fibres have been detected (i.e. no ‘respirable’ fibres): (b) the estimated weight of non-respirable asbestos fibre bundles and/or the estimated weight of asbestos in asbestos-containing materials are found to be less than 0.1g/kg: and (c) these non-respirable asbestos fibre bundles and/or the asbestos containing materials are only visible under stereo-microscope viewing conditions.

FOOTNOTES

*	NATA accreditation does not cover the performance of this service.	-	Not analysed.	UOM	Unit of Measure.
		NVL	Not validated.	LOR	Limit of Reporting.
**	Indicative data, theoretical holding time exceeded.	IS	Insufficient sample for analysis.	↑↓	Raised/lowered Limit of Reporting.
		LNR	Sample listed, but not received.		

Samples analysed as received.
Solid samples expressed on a dry weight basis.

Where "Total" analyte groups are reported (for example, Total PAHs, Total OC Pesticides) the total will be calculated as the sum of the individual analytes, with those analytes that are reported as <LOR being assumed to be zero. The summed (Total) limit of reporting is calculated by summing the individual analyte LORs and dividing by two. For example, where 16 individual analytes are being summed and each has an LOR of 0.1 mg/kg, the "Totals" LOR will be 1.6 / 2 (0.8 mg/kg). Where only 2 analytes are being summed, the " Total" LOR will be the sum of those two LORs.

Some totals may not appear to add up because the total is rounded after adding up the raw values.

If reported, measurement uncertainty follow the ± sign after the analytical result and is expressed as the expanded uncertainty calculated using a coverage factor of 2, providing a level of confidence of approximately 95%, unless stated otherwise in the comments section of this report.

Results reported for samples tested under test methods with codes starting with ARS-SOP, radionuclide or gross radioactivity concentrations are expressed in becquerel (Bq) per unit of mass or volume or per wipe as stated on the report. Becquerel is the SI unit for activity and equals one nuclear transformation per second.
Note that in terms of units of radioactivity:

a. 1 Bq is equivalent to 27 pCi
b. 37 MBq is equivalent to 1 mCi

For results reported for samples tested under test methods with codes starting with ARS-SOP, less than (<) values indicate the detection limit for each radionuclide or parameter for the measurement system used. The respective detection limits have been calculated in accordance with ISO 11929.

The QC criteria are subject to internal review according to the SGS QAQC plan and may be provided on request or alternatively can be found here : http://www.sgs.com.au/~/media/Local/Australia/Documents/Technical%20Documents/MP-AU-ENV-QU-022%20QA%20QC%20Plan.pdf

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ANALYTICAL REPORT

Accreditation No. 2562

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Project	**3002523 - Canberra Brickworks**
Order Number	**SY1-60413-2-IS**
Samples	2

LABORATORY DETAILS

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SGS Reference	**SE156934 R0**
Date Received	08 Sep 2016
Date Reported	16 Sep 2016

COMMENTS

Accredited for compliance with ISO/IEC 17025. NATA accredited laboratory 2562(4354).

No respirable fibres detected in all soil samples using trace analysis technique.

Asbestos analysed by Approved Identifier Yusuf Kuthpudin.

PAH/OP/OC/TRH - The Limit of Reporting (LOR) has been raised due to limited sample used..

SIGNATORIES

Andy Sutton
Senior Organic Chemist

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Senior Organic Chemist/Metals Chemis

Dong Liang
Metals/Inorganics Team Leader

Kamrul Ahsan
Senior Chemist

Ly Kim Ha
Organic Section Head

Ravee Sivasubramaniam
Hygiene Team Leader

ANALYTICAL REPORT

RESULTS

Fibre Identification in soil — Method AN602

Laboratory Reference	Client Reference	Matrix	Sample Description	Date Sampled	Fibre Identification	
SE156934.022	TP42_0-0.1_ZLB	Soil	199g Clay, Sand, Soil, Rocks	07 Sep 2016	No Asbestos Found	<0.01
SE156934.023	TP61_ZLB	Soil	203g Clay	07 Sep 2016	No Asbestos Found	<0.01

METHOD SUMMARY

SE156934 R0

METHOD	METHODOLOGY SUMMARY
AN602	Qualitative identification of chrysotile, amosite and crocidolite in bulk samples by polarised light microscopy (PLM) in conjunction with dispersion staining (DS). AS4964 provides the basis for this document. Unequivocal identification of the asbestos minerals present is made by obtaining sufficient diagnostic `clues`, which provide a reasonable degree of certainty, dispersion staining is a mandatory `clue` for positive identification. If sufficient `clues` are absent, then positive identification of asbestos is not possible. This procedure requires removal of suspect fibres/bundles from the sample which cannot be returned.
AN602	Fibres/material that cannot be unequivocably identified as one of the three asbestos forms, will be reported as unknown mineral fibres (umf).
AN602	AS4964.2004 Method for the Qualitative Identification of Asbestos in Bulk Samples , Section 8.4, Trace Analysis Criteria, Note 4 states:"Depending upon sample condition and fibre type, the detection limit of this technique has been found to lie generally in the range of 1 in 1,000 to 1 in 10,000 parts by weight, equivalent to 1 to 0.1 g/kg."
AN602	The sample can be reported “no asbestos found at the reporting limit of 0.1 g/kg” (<0.01%w/w) where AN602 section 4.5 of this method has been followed, and if- (a) no trace asbestos fibres have been detected (i.e. no ‘respirable’ fibres): (b) the estimated weight of non-respirable asbestos fibre bundles and/or the estimated weight of asbestos in asbestos-containing materials are found to be less than 0.1g/kg: and (c) these non-respirable asbestos fibre bundles and/or the asbestos containing materials are only visible under stereo-microscope viewing conditions.

FOOTNOTES

Amosite	-	Brown Asbestos	NA	-	Not Analysed
Chrysotile	-	White Asbestos	LNR	-	Listed, Not Required
Crocidolite	-	Blue Asbestos	*	-	NATA accreditation does not cover the performance of this service .
Amphiboles	-	Amosite and/or Crocidolite	**	-	Indicative data, theoretical holding time exceeded.

(In reference to soil samples only) This report does not comply with the analytical reporting recommendations in the Western Australian Department of Health Guidelines for the Assessment and Remediation and Management of Asbestos Contaminated sites in Western Australia - May 2009.

Sampled by the client.

Where reported: 'Asbestos Detected': Asbestos detected by polarised light microscopy, including dispersion staining.
Where reported: 'No Asbestos Found': No Asbestos Found by polarised light microscopy, including dispersion staining.
Where reported: 'UMF Detected': Mineral fibres of unknown type detected by polarised light microscopy, including dispersion staining. Confirmation by another independent analytical technique may be necessary.

Even after disintegration it can be very difficult, or impossible, to detect the presence of asbestos in some asbestos -containing bulk materials using polarised light microscopy. This is due to the low grade or small length or diameter of asbestos fibres present in the material, or to the fact that very fine fibres have been distributed intimately throughout the materials.

The QC criteria are subject to internal review according to the SGS QAQC plan and may be provided on request or alternatively can be found here : http://www.sgs.com.au/~/media/Local/Australia/Documents/Technical%20Documents/MP-AU-ENV-QU-022%20QA%20QC%20Plan.pdf

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STATEMENT OF QA/QC PERFORMANCE

SE156934 R0

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Project	**3002523 - Canberra Brickworks**
Order Number	**SY1-60413-2-IS**
Samples	23

LABORATORY DETAILS

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Email	au.environmental.sydney@sgs.com
SGS Reference	**SE156934 R0**
Date Received	08 Sep 2016
Date Reported	16 Sep 2016

COMMENTS

All the laboratory data for each environmental matrix was compared to SGS' stated Data Quality Objectives (DQO). Comments arising from the comparison were made and are reported below.

The data relating to sampling was taken from the Chain of Custody document and was supplied by the Client.
This QA/QC Statement must be read in conjunction with the referenced Analytical Report.
The Statement and the Analytical Report must not be reproduced except in full.

All Data Quality Objectives were met with the exception of the following:

Duplicate	Total Recoverable Metals in Soil/Waste Solids/Materials by ICPOES	1 item
Matrix Spike	Total Recoverable Metals in Soil/Waste Solids/Materials by ICPOES	2 items

SAMPLE SUMMARY

Sample counts by matrix	23 Soil	Type of documentation received	COC
Date documentation received	9/9/16@10:51am	Samples received in good order	Yes
Samples received without headspace	Yes	Sample temperature upon receipt	20.3°C
Sample container provider	SGS	Turnaround time requested	Standard
Samples received in correct containers	Yes	Sufficient sample for analysis	Yes
Sample cooling method	None	Samples clearly labelled	Yes
Complete documentation received	Yes	Number of eskies/boxes received	

HOLDING TIME SUMMARY

SE156934 R0

SGS holding time criteria are drawn from current regulations and are highly dependent on sample container preservation as specified in the SGS “Field Sampling Guide for Containers and Holding Time” (ref: GU-(AU)-ENV.001). Soil samples guidelines are derived from NEPM "Schedule B(3) Guideline on Laboratory Analysis of Potentially Contaminated Soils". Water sample guidelines are derived from "AS/NZS 5667.1 : 1998 Water Quality - sampling part 1" and APHA "Standard Methods for the Examination of Water and Wastewater" 21st edition 2005.

Extraction and analysis holding time due dates listed are calculated from the date sampled, although holding times may be extended after laboratory extraction for some analytes. The due dates are the suggested dates that samples may be held before extraction or analysis and still be considered valid.

Extraction and analysis dates are shown in **Green** when within suggested criteria or **Red** with an appended dagger symbol (†) when outside suggested criteria. If the sampled date is not supplied then compliance with criteria cannot be determined. If the received date is after one or both due dates then holding time will fail by default.

Fibre Identification in soil

Method: ME-(AU)-[ENV]AN602

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
TP42_0-0.1_ZLB	SE156934.022	LB109807	07 Sep 2016	08 Sep 2016	07 Sep 2017	14 Sep 2016	07 Sep 2017	16 Sep 2016
TP61_ZLB	SE156934.023	LB109807	07 Sep 2016	08 Sep 2016	07 Sep 2017	14 Sep 2016	07 Sep 2017	16 Sep 2016

Mercury in Soil

Method: ME-(AU)-[ENV]AN312

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
TR1_0.1	SE156934.001	LB109719	07 Sep 2016	08 Sep 2016	05 Oct 2016	13 Sep 2016	05 Oct 2016	14 Sep 2016
TR3_0.15	SE156934.002	LB109719	07 Sep 2016	08 Sep 2016	05 Oct 2016	13 Sep 2016	05 Oct 2016	14 Sep 2016
TP1_0.1-0.2	SE156934.003	LB109719	07 Sep 2016	08 Sep 2016	05 Oct 2016	13 Sep 2016	05 Oct 2016	14 Sep 2016
TP2_1.5	SE156934.004	LB109719	07 Sep 2016	08 Sep 2016	05 Oct 2016	13 Sep 2016	05 Oct 2016	14 Sep 2016
TP3	SE156934.005	LB109719	07 Sep 2016	08 Sep 2016	05 Oct 2016	13 Sep 2016	05 Oct 2016	14 Sep 2016
TP4_0.15	SE156934.006	LB109719	07 Sep 2016	08 Sep 2016	05 Oct 2016	13 Sep 2016	05 Oct 2016	14 Sep 2016
TP5_1.8	SE156934.007	LB109720	07 Sep 2016	08 Sep 2016	05 Oct 2016	13 Sep 2016	05 Oct 2016	14 Sep 2016
TP7_0.15	SE156934.008	LB109720	07 Sep 2016	08 Sep 2016	05 Oct 2016	13 Sep 2016	05 Oct 2016	14 Sep 2016
TP8_0.3-0.4	SE156934.009	LB109720	07 Sep 2016	08 Sep 2016	05 Oct 2016	13 Sep 2016	05 Oct 2016	14 Sep 2016
TP9	SE156934.010	LB109720	07 Sep 2016	08 Sep 2016	05 Oct 2016	13 Sep 2016	05 Oct 2016	14 Sep 2016
TP10	SE156934.011	LB109720	07 Sep 2016	08 Sep 2016	05 Oct 2016	13 Sep 2016	05 Oct 2016	14 Sep 2016
TP17_1.8	SE156934.012	LB109720	07 Sep 2016	08 Sep 2016	05 Oct 2016	13 Sep 2016	05 Oct 2016	14 Sep 2016
TP21_0.1-0.2	SE156934.013	LB109720	07 Sep 2016	08 Sep 2016	05 Oct 2016	13 Sep 2016	05 Oct 2016	14 Sep 2016
TP38_1.3-1.4	SE156934.014	LB109720	07 Sep 2016	08 Sep 2016	05 Oct 2016	13 Sep 2016	05 Oct 2016	14 Sep 2016
TP41_0.05-0.15	SE156934.015	LB109720	07 Sep 2016	08 Sep 2016	05 Oct 2016	13 Sep 2016	05 Oct 2016	14 Sep 2016
TP45_0.3-0.4	SE156934.016	LB109720	07 Sep 2016	08 Sep 2016	05 Oct 2016	13 Sep 2016	05 Oct 2016	14 Sep 2016
TP46_0.1-0.2	SE156934.017	LB109720	07 Sep 2016	08 Sep 2016	05 Oct 2016	13 Sep 2016	05 Oct 2016	14 Sep 2016
TP53_0-0.1	SE156934.018	LB109720	07 Sep 2016	08 Sep 2016	05 Oct 2016	13 Sep 2016	05 Oct 2016	14 Sep 2016
TP55_1.2-1.3	SE156934.019	LB109720	07 Sep 2016	08 Sep 2016	05 Oct 2016	13 Sep 2016	05 Oct 2016	14 Sep 2016
TP56_0.1-0.2	SE156934.020	LB109754	07 Sep 2016	08 Sep 2016	05 Oct 2016	14 Sep 2016	05 Oct 2016	14 Sep 2016
TP57_0-0.1	SE156934.021	LB109754	07 Sep 2016	08 Sep 2016	05 Oct 2016	14 Sep 2016	05 Oct 2016	14 Sep 2016

Moisture Content

Method: ME-(AU)-[ENV]AN002

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
TR1_0.1	SE156934.001	LB109565	07 Sep 2016	08 Sep 2016	21 Sep 2016	12 Sep 2016	17 Sep 2016	14 Sep 2016
TR3_0.15	SE156934.002	LB109565	07 Sep 2016	08 Sep 2016	21 Sep 2016	12 Sep 2016	17 Sep 2016	14 Sep 2016
TP1_0.1-0.2	SE156934.003	LB109565	07 Sep 2016	08 Sep 2016	21 Sep 2016	12 Sep 2016	17 Sep 2016	14 Sep 2016
TP2_1.5	SE156934.004	LB109565	07 Sep 2016	08 Sep 2016	21 Sep 2016	12 Sep 2016	17 Sep 2016	14 Sep 2016
TP3	SE156934.005	LB109565	07 Sep 2016	08 Sep 2016	21 Sep 2016	12 Sep 2016	17 Sep 2016	14 Sep 2016
TP4_0.15	SE156934.006	LB109565	07 Sep 2016	08 Sep 2016	21 Sep 2016	12 Sep 2016	17 Sep 2016	14 Sep 2016
TP5_1.8	SE156934.007	LB109565	07 Sep 2016	08 Sep 2016	21 Sep 2016	12 Sep 2016	17 Sep 2016	14 Sep 2016
TP7_0.15	SE156934.008	LB109565	07 Sep 2016	08 Sep 2016	21 Sep 2016	12 Sep 2016	17 Sep 2016	14 Sep 2016
TP8_0.3-0.4	SE156934.009	LB109565	07 Sep 2016	08 Sep 2016	21 Sep 2016	12 Sep 2016	17 Sep 2016	14 Sep 2016
TP9	SE156934.010	LB109565	07 Sep 2016	08 Sep 2016	21 Sep 2016	12 Sep 2016	17 Sep 2016	14 Sep 2016
TP10	SE156934.011	LB109565	07 Sep 2016	08 Sep 2016	21 Sep 2016	12 Sep 2016	17 Sep 2016	14 Sep 2016
TP17_1.8	SE156934.012	LB109565	07 Sep 2016	08 Sep 2016	21 Sep 2016	12 Sep 2016	17 Sep 2016	14 Sep 2016
TP21_0.1-0.2	SE156934.013	LB109565	07 Sep 2016	08 Sep 2016	21 Sep 2016	12 Sep 2016	17 Sep 2016	14 Sep 2016
TP38_1.3-1.4	SE156934.014	LB109565	07 Sep 2016	08 Sep 2016	21 Sep 2016	12 Sep 2016	17 Sep 2016	14 Sep 2016
TP41_0.05-0.15	SE156934.015	LB109565	07 Sep 2016	08 Sep 2016	21 Sep 2016	12 Sep 2016	17 Sep 2016	14 Sep 2016
TP45_0.3-0.4	SE156934.016	LB109565	07 Sep 2016	08 Sep 2016	21 Sep 2016	12 Sep 2016	17 Sep 2016	14 Sep 2016
TP46_0.1-0.2	SE156934.017	LB109565	07 Sep 2016	08 Sep 2016	21 Sep 2016	12 Sep 2016	17 Sep 2016	14 Sep 2016
TP53_0-0.1	SE156934.018	LB109565	07 Sep 2016	08 Sep 2016	21 Sep 2016	12 Sep 2016	17 Sep 2016	14 Sep 2016
TP55_1.2-1.3	SE156934.019	LB109565	07 Sep 2016	08 Sep 2016	21 Sep 2016	12 Sep 2016	17 Sep 2016	14 Sep 2016
TP56_0.1-0.2	SE156934.020	LB109565	07 Sep 2016	08 Sep 2016	21 Sep 2016	12 Sep 2016	17 Sep 2016	14 Sep 2016
TP57_0-0.1	SE156934.021	LB109565	07 Sep 2016	08 Sep 2016	21 Sep 2016	12 Sep 2016	17 Sep 2016	14 Sep 2016

OC Pesticides in Soil

Method: ME-(AU)-[ENV]AN400/AN420

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
TR1_0.1	SE156934.001	LB109563	07 Sep 2016	08 Sep 2016	21 Sep 2016	12 Sep 2016	22 Oct 2016	14 Sep 2016
TR3_0.15	SE156934.002	LB109563	07 Sep 2016	08 Sep 2016	21 Sep 2016	12 Sep 2016	22 Oct 2016	14 Sep 2016
TP1_0.1-0.2	SE156934.003	LB109563	07 Sep 2016	08 Sep 2016	21 Sep 2016	12 Sep 2016	22 Oct 2016	14 Sep 2016
TP2_1.5	SE156934.004	LB109563	07 Sep 2016	08 Sep 2016	21 Sep 2016	12 Sep 2016	22 Oct 2016	14 Sep 2016
TP3	SE156934.005	LB109563	07 Sep 2016	08 Sep 2016	21 Sep 2016	12 Sep 2016	22 Oct 2016	14 Sep 2016
TP4_0.15	SE156934.006	LB109564	07 Sep 2016	08 Sep 2016	21 Sep 2016	12 Sep 2016	22 Oct 2016	16 Sep 2016
TP5_1.8	SE156934.007	LB109564	07 Sep 2016	08 Sep 2016	21 Sep 2016	12 Sep 2016	22 Oct 2016	16 Sep 2016
TP7_0.15	SE156934.008	LB109564	07 Sep 2016	08 Sep 2016	21 Sep 2016	12 Sep 2016	22 Oct 2016	16 Sep 2016

HOLDING TIME SUMMARY

SE156934 R0

SGS holding time criteria are drawn from current regulations and are highly dependent on sample container preservation as specified in the SGS “Field Sampling Guide for Containers and Holding Time” (ref: GU-(AU)-ENV.001). Soil samples guidelines are derived from NEPM "Schedule B(3) Guideline on Laboratory Analysis of Potentially Contaminated Soils". Water sample guidelines are derived from "AS/NZS 5667.1 : 1998 Water Quality - sampling part 1" and APHA "Standard Methods for the Examination of Water and Wastewater" 21st edition 2005.

Extraction and analysis holding time due dates listed are calculated from the date sampled, although holding times may be extended after laboratory extraction for some analytes. The due dates are the suggested dates that samples may be held before extraction or analysis and still be considered valid.

Extraction and analysis dates are shown in **Green** when within suggested criteria or **Red** with an appended dagger symbol (†) when outside suggested criteria. If the sampled date is not supplied then compliance with criteria cannot be determined. If the received date is after one or both due dates then holding time will fail by default.

OC Pesticides in Soil (continued)

Method: ME-(AU)-[ENV]AN400/AN420

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
TP8_0.3-0.4	SE156934.009	LB109564	07 Sep 2016	08 Sep 2016	21 Sep 2016	12 Sep 2016	22 Oct 2016	16 Sep 2016
TP9	SE156934.010	LB109564	07 Sep 2016	08 Sep 2016	21 Sep 2016	12 Sep 2016	22 Oct 2016	16 Sep 2016
TP10	SE156934.011	LB109564	07 Sep 2016	08 Sep 2016	21 Sep 2016	12 Sep 2016	22 Oct 2016	16 Sep 2016
TP17_1.8	SE156934.012	LB109564	07 Sep 2016	08 Sep 2016	21 Sep 2016	12 Sep 2016	22 Oct 2016	16 Sep 2016
TP21_0.1-0.2	SE156934.013	LB109564	07 Sep 2016	08 Sep 2016	21 Sep 2016	12 Sep 2016	22 Oct 2016	16 Sep 2016
TP38_1.3-1.4	SE156934.014	LB109564	07 Sep 2016	08 Sep 2016	21 Sep 2016	12 Sep 2016	22 Oct 2016	16 Sep 2016
TP41_0.05-0.15	SE156934.015	LB109564	07 Sep 2016	08 Sep 2016	21 Sep 2016	12 Sep 2016	22 Oct 2016	16 Sep 2016
TP45_0.3-0.4	SE156934.016	LB109564	07 Sep 2016	08 Sep 2016	21 Sep 2016	12 Sep 2016	22 Oct 2016	16 Sep 2016
TP46_0.1-0.2	SE156934.017	LB109564	07 Sep 2016	08 Sep 2016	21 Sep 2016	12 Sep 2016	22 Oct 2016	16 Sep 2016
TP53_0-0.1	SE156934.018	LB109564	07 Sep 2016	08 Sep 2016	21 Sep 2016	12 Sep 2016	22 Oct 2016	16 Sep 2016
TP55_1.2-1.3	SE156934.019	LB109564	07 Sep 2016	08 Sep 2016	21 Sep 2016	12 Sep 2016	22 Oct 2016	16 Sep 2016
TP56_0.1-0.2	SE156934.020	LB109564	07 Sep 2016	08 Sep 2016	21 Sep 2016	12 Sep 2016	22 Oct 2016	16 Sep 2016
TP57_0-0.1	SE156934.021	LB109564	07 Sep 2016	08 Sep 2016	21 Sep 2016	12 Sep 2016	22 Oct 2016	16 Sep 2016

OP Pesticides in Soil

Method: ME-(AU)-[ENV]AN400/AN420

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
TR1_0.1	SE156934.001	LB109563	07 Sep 2016	08 Sep 2016	21 Sep 2016	12 Sep 2016	22 Oct 2016	14 Sep 2016
TR3_0.15	SE156934.002	LB109563	07 Sep 2016	08 Sep 2016	21 Sep 2016	12 Sep 2016	22 Oct 2016	14 Sep 2016
TP1_0.1-0.2	SE156934.003	LB109563	07 Sep 2016	08 Sep 2016	21 Sep 2016	12 Sep 2016	22 Oct 2016	14 Sep 2016
TP2_1.5	SE156934.004	LB109563	07 Sep 2016	08 Sep 2016	21 Sep 2016	12 Sep 2016	22 Oct 2016	14 Sep 2016
TP3	SE156934.005	LB109563	07 Sep 2016	08 Sep 2016	21 Sep 2016	12 Sep 2016	22 Oct 2016	14 Sep 2016
TP4_0.15	SE156934.006	LB109564	07 Sep 2016	08 Sep 2016	21 Sep 2016	12 Sep 2016	22 Oct 2016	14 Sep 2016
TP5_1.8	SE156934.007	LB109564	07 Sep 2016	08 Sep 2016	21 Sep 2016	12 Sep 2016	22 Oct 2016	14 Sep 2016
TP7_0.15	SE156934.008	LB109564	07 Sep 2016	08 Sep 2016	21 Sep 2016	12 Sep 2016	22 Oct 2016	14 Sep 2016
TP8_0.3-0.4	SE156934.009	LB109564	07 Sep 2016	08 Sep 2016	21 Sep 2016	12 Sep 2016	22 Oct 2016	14 Sep 2016
TP9	SE156934.010	LB109564	07 Sep 2016	08 Sep 2016	21 Sep 2016	12 Sep 2016	22 Oct 2016	14 Sep 2016
TP10	SE156934.011	LB109564	07 Sep 2016	08 Sep 2016	21 Sep 2016	12 Sep 2016	22 Oct 2016	14 Sep 2016
TP17_1.8	SE156934.012	LB109564	07 Sep 2016	08 Sep 2016	21 Sep 2016	12 Sep 2016	22 Oct 2016	14 Sep 2016
TP21_0.1-0.2	SE156934.013	LB109564	07 Sep 2016	08 Sep 2016	21 Sep 2016	12 Sep 2016	22 Oct 2016	14 Sep 2016
TP38_1.3-1.4	SE156934.014	LB109564	07 Sep 2016	08 Sep 2016	21 Sep 2016	12 Sep 2016	22 Oct 2016	14 Sep 2016
TP41_0.05-0.15	SE156934.015	LB109564	07 Sep 2016	08 Sep 2016	21 Sep 2016	12 Sep 2016	22 Oct 2016	14 Sep 2016
TP45_0.3-0.4	SE156934.016	LB109564	07 Sep 2016	08 Sep 2016	21 Sep 2016	12 Sep 2016	22 Oct 2016	14 Sep 2016
TP46_0.1-0.2	SE156934.017	LB109564	07 Sep 2016	08 Sep 2016	21 Sep 2016	12 Sep 2016	22 Oct 2016	14 Sep 2016
TP53_0-0.1	SE156934.018	LB109564	07 Sep 2016	08 Sep 2016	21 Sep 2016	12 Sep 2016	22 Oct 2016	14 Sep 2016
TP55_1.2-1.3	SE156934.019	LB109564	07 Sep 2016	08 Sep 2016	21 Sep 2016	12 Sep 2016	22 Oct 2016	14 Sep 2016
TP56_0.1-0.2	SE156934.020	LB109564	07 Sep 2016	08 Sep 2016	21 Sep 2016	12 Sep 2016	22 Oct 2016	14 Sep 2016
TP57_0-0.1	SE156934.021	LB109564	07 Sep 2016	08 Sep 2016	21 Sep 2016	12 Sep 2016	22 Oct 2016	14 Sep 2016

PAH (Polynuclear Aromatic Hydrocarbons) in Soil

Method: ME-(AU)-[ENV]AN420

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
TR1_0.1	SE156934.001	LB109563	07 Sep 2016	08 Sep 2016	21 Sep 2016	12 Sep 2016	22 Oct 2016	14 Sep 2016
TR3_0.15	SE156934.002	LB109563	07 Sep 2016	08 Sep 2016	21 Sep 2016	12 Sep 2016	22 Oct 2016	14 Sep 2016
TP1_0.1-0.2	SE156934.003	LB109563	07 Sep 2016	08 Sep 2016	21 Sep 2016	12 Sep 2016	22 Oct 2016	14 Sep 2016
TP2_1.5	SE156934.004	LB109563	07 Sep 2016	08 Sep 2016	21 Sep 2016	12 Sep 2016	22 Oct 2016	14 Sep 2016
TP3	SE156934.005	LB109563	07 Sep 2016	08 Sep 2016	21 Sep 2016	12 Sep 2016	22 Oct 2016	14 Sep 2016
TP4_0.15	SE156934.006	LB109564	07 Sep 2016	08 Sep 2016	21 Sep 2016	12 Sep 2016	22 Oct 2016	14 Sep 2016
TP5_1.8	SE156934.007	LB109564	07 Sep 2016	08 Sep 2016	21 Sep 2016	12 Sep 2016	22 Oct 2016	14 Sep 2016
TP7_0.15	SE156934.008	LB109564	07 Sep 2016	08 Sep 2016	21 Sep 2016	12 Sep 2016	22 Oct 2016	14 Sep 2016
TP8_0.3-0.4	SE156934.009	LB109564	07 Sep 2016	08 Sep 2016	21 Sep 2016	12 Sep 2016	22 Oct 2016	14 Sep 2016
TP9	SE156934.010	LB109564	07 Sep 2016	08 Sep 2016	21 Sep 2016	12 Sep 2016	22 Oct 2016	14 Sep 2016
TP10	SE156934.011	LB109564	07 Sep 2016	08 Sep 2016	21 Sep 2016	12 Sep 2016	22 Oct 2016	14 Sep 2016
TP17_1.8	SE156934.012	LB109564	07 Sep 2016	08 Sep 2016	21 Sep 2016	12 Sep 2016	22 Oct 2016	14 Sep 2016
TP21_0.1-0.2	SE156934.013	LB109564	07 Sep 2016	08 Sep 2016	21 Sep 2016	12 Sep 2016	22 Oct 2016	14 Sep 2016
TP38_1.3-1.4	SE156934.014	LB109564	07 Sep 2016	08 Sep 2016	21 Sep 2016	12 Sep 2016	22 Oct 2016	14 Sep 2016
TP41_0.05-0.15	SE156934.015	LB109564	07 Sep 2016	08 Sep 2016	21 Sep 2016	12 Sep 2016	22 Oct 2016	14 Sep 2016
TP45_0.3-0.4	SE156934.016	LB109564	07 Sep 2016	08 Sep 2016	21 Sep 2016	12 Sep 2016	22 Oct 2016	14 Sep 2016
TP46_0.1-0.2	SE156934.017	LB109564	07 Sep 2016	08 Sep 2016	21 Sep 2016	12 Sep 2016	22 Oct 2016	14 Sep 2016
TP53_0-0.1	SE156934.018	LB109564	07 Sep 2016	08 Sep 2016	21 Sep 2016	12 Sep 2016	22 Oct 2016	14 Sep 2016
TP55_1.2-1.3	SE156934.019	LB109564	07 Sep 2016	08 Sep 2016	21 Sep 2016	12 Sep 2016	22 Oct 2016	14 Sep 2016
TP56_0.1-0.2	SE156934.020	LB109564	07 Sep 2016	08 Sep 2016	21 Sep 2016	12 Sep 2016	22 Oct 2016	14 Sep 2016
TP57_0-0.1	SE156934.021	LB109564	07 Sep 2016	08 Sep 2016	21 Sep 2016	12 Sep 2016	22 Oct 2016	14 Sep 2016

HOLDING TIME SUMMARY

SE156934 R0

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Extraction and analysis holding time due dates listed are calculated from the date sampled, although holding times may be extended after laboratory extraction for some analytes. The due dates are the suggested dates that samples may be held before extraction or analysis and still be considered valid.

Extraction and analysis dates are shown in **Green** when within suggested criteria or **Red** with an appended dagger symbol (†) when outside suggested criteria. If the sampled date is not supplied then compliance with criteria cannot be determined. If the received date is after one or both due dates then holding time will fail by default.

Total Phenolics in Soil

Method: ME-(AU)-[ENV]AN289

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
TR1_0.1	SE156934.001	LB109780	07 Sep 2016	08 Sep 2016	21 Sep 2016	14 Sep 2016	21 Sep 2016	14 Sep 2016
TR3_0.15	SE156934.002	LB109780	07 Sep 2016	08 Sep 2016	21 Sep 2016	14 Sep 2016	21 Sep 2016	14 Sep 2016
TP1_0.1-0.2	SE156934.003	LB109780	07 Sep 2016	08 Sep 2016	21 Sep 2016	14 Sep 2016	21 Sep 2016	14 Sep 2016
TP2_1.5	SE156934.004	LB109780	07 Sep 2016	08 Sep 2016	21 Sep 2016	14 Sep 2016	21 Sep 2016	14 Sep 2016
TP3	SE156934.005	LB109826	07 Sep 2016	08 Sep 2016	21 Sep 2016	14 Sep 2016	21 Sep 2016	15 Sep 2016
TP4_0.15	SE156934.006	LB109826	07 Sep 2016	08 Sep 2016	21 Sep 2016	14 Sep 2016	21 Sep 2016	15 Sep 2016
TP5_1.8	SE156934.007	LB109826	07 Sep 2016	08 Sep 2016	21 Sep 2016	14 Sep 2016	21 Sep 2016	15 Sep 2016
TP7_0.15	SE156934.008	LB109826	07 Sep 2016	08 Sep 2016	21 Sep 2016	14 Sep 2016	21 Sep 2016	15 Sep 2016
TP8_0.3-0.4	SE156934.009	LB109826	07 Sep 2016	08 Sep 2016	21 Sep 2016	14 Sep 2016	21 Sep 2016	15 Sep 2016
TP9	SE156934.010	LB109826	07 Sep 2016	08 Sep 2016	21 Sep 2016	14 Sep 2016	21 Sep 2016	15 Sep 2016
TP10	SE156934.011	LB109826	07 Sep 2016	08 Sep 2016	21 Sep 2016	14 Sep 2016	21 Sep 2016	15 Sep 2016
TP17_1.8	SE156934.012	LB109826	07 Sep 2016	08 Sep 2016	21 Sep 2016	14 Sep 2016	21 Sep 2016	15 Sep 2016
TP21_0.1-0.2	SE156934.013	LB109826	07 Sep 2016	08 Sep 2016	21 Sep 2016	14 Sep 2016	21 Sep 2016	15 Sep 2016
TP38_1.3-1.4	SE156934.014	LB109826	07 Sep 2016	08 Sep 2016	21 Sep 2016	14 Sep 2016	21 Sep 2016	15 Sep 2016
TP41_0.05-0.15	SE156934.015	LB109826	07 Sep 2016	08 Sep 2016	21 Sep 2016	14 Sep 2016	21 Sep 2016	15 Sep 2016
TP45_0.3-0.4	SE156934.016	LB109826	07 Sep 2016	08 Sep 2016	21 Sep 2016	14 Sep 2016	21 Sep 2016	15 Sep 2016
TP46_0.1-0.2	SE156934.017	LB109826	07 Sep 2016	08 Sep 2016	21 Sep 2016	14 Sep 2016	21 Sep 2016	15 Sep 2016
TP53_0-0.1	SE156934.018	LB109826	07 Sep 2016	08 Sep 2016	21 Sep 2016	14 Sep 2016	21 Sep 2016	15 Sep 2016
TP55_1.2-1.3	SE156934.019	LB109826	07 Sep 2016	08 Sep 2016	21 Sep 2016	14 Sep 2016	21 Sep 2016	15 Sep 2016
TP56_0.1-0.2	SE156934.020	LB109826	07 Sep 2016	08 Sep 2016	21 Sep 2016	14 Sep 2016	21 Sep 2016	15 Sep 2016
TP57_0-0.1	SE156934.021	LB109827	07 Sep 2016	08 Sep 2016	21 Sep 2016	14 Sep 2016	21 Sep 2016	15 Sep 2016

Total Recoverable Metals in Soil/Waste Solids/Materials by ICPOES

Method: ME-(AU)-[ENV]AN040/AN320

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
TR1_0.1	SE156934.001	LB109762	07 Sep 2016	08 Sep 2016	06 Mar 2017	14 Sep 2016	06 Mar 2017	14 Sep 2016
TR3_0.15	SE156934.002	LB109762	07 Sep 2016	08 Sep 2016	06 Mar 2017	14 Sep 2016	06 Mar 2017	14 Sep 2016
TP1_0.1-0.2	SE156934.003	LB109762	07 Sep 2016	08 Sep 2016	06 Mar 2017	14 Sep 2016	06 Mar 2017	14 Sep 2016
TP2_1.5	SE156934.004	LB109762	07 Sep 2016	08 Sep 2016	06 Mar 2017	14 Sep 2016	06 Mar 2017	14 Sep 2016
TP3	SE156934.005	LB109762	07 Sep 2016	08 Sep 2016	06 Mar 2017	14 Sep 2016	06 Mar 2017	14 Sep 2016
TP4_0.15	SE156934.006	LB109762	07 Sep 2016	08 Sep 2016	06 Mar 2017	14 Sep 2016	06 Mar 2017	14 Sep 2016
TP5_1.8	SE156934.007	LB109762	07 Sep 2016	08 Sep 2016	06 Mar 2017	14 Sep 2016	06 Mar 2017	14 Sep 2016
TP7_0.15	SE156934.008	LB109762	07 Sep 2016	08 Sep 2016	06 Mar 2017	14 Sep 2016	06 Mar 2017	14 Sep 2016
TP8_0.3-0.4	SE156934.009	LB109762	07 Sep 2016	08 Sep 2016	06 Mar 2017	14 Sep 2016	06 Mar 2017	14 Sep 2016
TP9	SE156934.010	LB109762	07 Sep 2016	08 Sep 2016	06 Mar 2017	14 Sep 2016	06 Mar 2017	14 Sep 2016
TP10	SE156934.011	LB109762	07 Sep 2016	08 Sep 2016	06 Mar 2017	14 Sep 2016	06 Mar 2017	14 Sep 2016
TP17_1.8	SE156934.012	LB109762	07 Sep 2016	08 Sep 2016	06 Mar 2017	14 Sep 2016	06 Mar 2017	14 Sep 2016
TP21_0.1-0.2	SE156934.013	LB109789	07 Sep 2016	08 Sep 2016	06 Mar 2017	14 Sep 2016	06 Mar 2017	15 Sep 2016
TP38_1.3-1.4	SE156934.014	LB109789	07 Sep 2016	08 Sep 2016	06 Mar 2017	14 Sep 2016	06 Mar 2017	15 Sep 2016
TP41_0.05-0.15	SE156934.015	LB109789	07 Sep 2016	08 Sep 2016	06 Mar 2017	14 Sep 2016	06 Mar 2017	15 Sep 2016
TP45_0.3-0.4	SE156934.016	LB109789	07 Sep 2016	08 Sep 2016	06 Mar 2017	14 Sep 2016	06 Mar 2017	15 Sep 2016
TP46_0.1-0.2	SE156934.017	LB109789	07 Sep 2016	08 Sep 2016	06 Mar 2017	14 Sep 2016	06 Mar 2017	15 Sep 2016
TP53_0-0.1	SE156934.018	LB109789	07 Sep 2016	08 Sep 2016	06 Mar 2017	14 Sep 2016	06 Mar 2017	15 Sep 2016
TP55_1.2-1.3	SE156934.019	LB109789	07 Sep 2016	08 Sep 2016	06 Mar 2017	14 Sep 2016	06 Mar 2017	15 Sep 2016
TP56_0.1-0.2	SE156934.020	LB109789	07 Sep 2016	08 Sep 2016	06 Mar 2017	14 Sep 2016	06 Mar 2017	15 Sep 2016
TP57_0-0.1	SE156934.021	LB109789	07 Sep 2016	08 Sep 2016	06 Mar 2017	14 Sep 2016	06 Mar 2017	15 Sep 2016

TRH (Total Recoverable Hydrocarbons) in Soil

Method: ME-(AU)-[ENV]AN403

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
TR1_0.1	SE156934.001	LB109563	07 Sep 2016	08 Sep 2016	21 Sep 2016	12 Sep 2016	22 Oct 2016	14 Sep 2016
TR3_0.15	SE156934.002	LB109563	07 Sep 2016	08 Sep 2016	21 Sep 2016	12 Sep 2016	22 Oct 2016	14 Sep 2016
TP1_0.1-0.2	SE156934.003	LB109563	07 Sep 2016	08 Sep 2016	21 Sep 2016	12 Sep 2016	22 Oct 2016	14 Sep 2016
TP2_1.5	SE156934.004	LB109563	07 Sep 2016	08 Sep 2016	21 Sep 2016	12 Sep 2016	22 Oct 2016	14 Sep 2016
TP3	SE156934.005	LB109563	07 Sep 2016	08 Sep 2016	21 Sep 2016	12 Sep 2016	22 Oct 2016	14 Sep 2016
TP4_0.15	SE156934.006	LB109564	07 Sep 2016	08 Sep 2016	21 Sep 2016	12 Sep 2016	22 Oct 2016	14 Sep 2016
TP5_1.8	SE156934.007	LB109564	07 Sep 2016	08 Sep 2016	21 Sep 2016	12 Sep 2016	22 Oct 2016	14 Sep 2016
TP7_0.15	SE156934.008	LB109564	07 Sep 2016	08 Sep 2016	21 Sep 2016	12 Sep 2016	22 Oct 2016	14 Sep 2016
TP8_0.3-0.4	SE156934.009	LB109564	07 Sep 2016	08 Sep 2016	21 Sep 2016	12 Sep 2016	22 Oct 2016	14 Sep 2016
TP9	SE156934.010	LB109564	07 Sep 2016	08 Sep 2016	21 Sep 2016	12 Sep 2016	22 Oct 2016	14 Sep 2016
TP10	SE156934.011	LB109564	07 Sep 2016	08 Sep 2016	21 Sep 2016	12 Sep 2016	22 Oct 2016	14 Sep 2016
TP17_1.8	SE156934.012	LB109564	07 Sep 2016	08 Sep 2016	21 Sep 2016	12 Sep 2016	22 Oct 2016	14 Sep 2016
TP21_0.1-0.2	SE156934.013	LB109564	07 Sep 2016	08 Sep 2016	21 Sep 2016	12 Sep 2016	22 Oct 2016	14 Sep 2016

HOLDING TIME SUMMARY

SE156934 R0

SGS holding time criteria are drawn from current regulations and are highly dependent on sample container preservation as specified in the SGS “Field Sampling Guide for Containers and Holding Time” (ref: GU-(AU)-ENV.001). Soil samples guidelines are derived from NEPM "Schedule B(3) Guideline on Laboratory Analysis of Potentially Contaminated Soils". Water sample guidelines are derived from "AS/NZS 5667.1 : 1998 Water Quality - sampling part 1" and APHA "Standard Methods for the Examination of Water and Wastewater" 21st edition 2005.

Extraction and analysis holding time due dates listed are calculated from the date sampled, although holding times may be extended after laboratory extraction for some analytes. The due dates are the suggested dates that samples may be held before extraction or analysis and still be considered valid.

Extraction and analysis dates are shown in **Green** when within suggested criteria or **Red** with an appended dagger symbol (†) when outside suggested criteria. If the sampled date is not supplied then compliance with criteria cannot be determined. If the received date is after one or both due dates then holding time will fail by default.

TRH (Total Recoverable Hydrocarbons) in Soil (continued)

Method: ME-(AU)-[ENV]AN403

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
TP38_1.3-1.4	SE156934.014	LB109564	07 Sep 2016	08 Sep 2016	21 Sep 2016	12 Sep 2016	22 Oct 2016	14 Sep 2016
TP41_0.05-0.15	SE156934.015	LB109564	07 Sep 2016	08 Sep 2016	21 Sep 2016	12 Sep 2016	22 Oct 2016	14 Sep 2016
TP45_0.3-0.4	SE156934.016	LB109564	07 Sep 2016	08 Sep 2016	21 Sep 2016	12 Sep 2016	22 Oct 2016	14 Sep 2016
TP46_0.1-0.2	SE156934.017	LB109564	07 Sep 2016	08 Sep 2016	21 Sep 2016	12 Sep 2016	22 Oct 2016	14 Sep 2016
TP53_0-0.1	SE156934.018	LB109564	07 Sep 2016	08 Sep 2016	21 Sep 2016	12 Sep 2016	22 Oct 2016	14 Sep 2016
TP55_1.2-1.3	SE156934.019	LB109564	07 Sep 2016	08 Sep 2016	21 Sep 2016	12 Sep 2016	22 Oct 2016	14 Sep 2016
TP56_0.1-0.2	SE156934.020	LB109564	07 Sep 2016	08 Sep 2016	21 Sep 2016	12 Sep 2016	22 Oct 2016	14 Sep 2016
TP57_0-0.1	SE156934.021	LB109564	07 Sep 2016	08 Sep 2016	21 Sep 2016	12 Sep 2016	22 Oct 2016	14 Sep 2016

VOC's in Soil

Method: ME-(AU)-[ENV]AN433

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
TR1_0.1	SE156934.001	LB109562	07 Sep 2016	08 Sep 2016	21 Sep 2016	12 Sep 2016	22 Oct 2016	15 Sep 2016
TR3_0.15	SE156934.002	LB109562	07 Sep 2016	08 Sep 2016	21 Sep 2016	12 Sep 2016	22 Oct 2016	15 Sep 2016
TP1_0.1-0.2	SE156934.003	LB109562	07 Sep 2016	08 Sep 2016	21 Sep 2016	12 Sep 2016	22 Oct 2016	15 Sep 2016
TP2_1.5	SE156934.004	LB109562	07 Sep 2016	08 Sep 2016	21 Sep 2016	12 Sep 2016	22 Oct 2016	15 Sep 2016
TP3	SE156934.005	LB109562	07 Sep 2016	08 Sep 2016	21 Sep 2016	12 Sep 2016	22 Oct 2016	15 Sep 2016
TP4_0.15	SE156934.006	LB109562	07 Sep 2016	08 Sep 2016	21 Sep 2016	12 Sep 2016	22 Oct 2016	15 Sep 2016
TP5_1.8	SE156934.007	LB109562	07 Sep 2016	08 Sep 2016	21 Sep 2016	12 Sep 2016	22 Oct 2016	15 Sep 2016
TP7_0.15	SE156934.008	LB109562	07 Sep 2016	08 Sep 2016	21 Sep 2016	12 Sep 2016	22 Oct 2016	15 Sep 2016
TP8_0.3-0.4	SE156934.009	LB109562	07 Sep 2016	08 Sep 2016	21 Sep 2016	12 Sep 2016	22 Oct 2016	15 Sep 2016
TP9	SE156934.010	LB109562	07 Sep 2016	08 Sep 2016	21 Sep 2016	12 Sep 2016	22 Oct 2016	15 Sep 2016
TP10	SE156934.011	LB109562	07 Sep 2016	08 Sep 2016	21 Sep 2016	12 Sep 2016	22 Oct 2016	15 Sep 2016
TP17_1.8	SE156934.012	LB109562	07 Sep 2016	08 Sep 2016	21 Sep 2016	12 Sep 2016	22 Oct 2016	15 Sep 2016
TP21_0.1-0.2	SE156934.013	LB109562	07 Sep 2016	08 Sep 2016	21 Sep 2016	12 Sep 2016	22 Oct 2016	15 Sep 2016
TP38_1.3-1.4	SE156934.014	LB109562	07 Sep 2016	08 Sep 2016	21 Sep 2016	12 Sep 2016	22 Oct 2016	15 Sep 2016
TP41_0.05-0.15	SE156934.015	LB109562	07 Sep 2016	08 Sep 2016	21 Sep 2016	12 Sep 2016	22 Oct 2016	15 Sep 2016
TP45_0.3-0.4	SE156934.016	LB109562	07 Sep 2016	08 Sep 2016	21 Sep 2016	12 Sep 2016	22 Oct 2016	15 Sep 2016
TP46_0.1-0.2	SE156934.017	LB109562	07 Sep 2016	08 Sep 2016	21 Sep 2016	12 Sep 2016	22 Oct 2016	15 Sep 2016
TP53_0-0.1	SE156934.018	LB109562	07 Sep 2016	08 Sep 2016	21 Sep 2016	12 Sep 2016	22 Oct 2016	15 Sep 2016
TP55_1.2-1.3	SE156934.019	LB109628	07 Sep 2016	08 Sep 2016	21 Sep 2016	12 Sep 2016	22 Oct 2016	14 Sep 2016
TP56_0.1-0.2	SE156934.020	LB109628	07 Sep 2016	08 Sep 2016	21 Sep 2016	12 Sep 2016	22 Oct 2016	14 Sep 2016
TP57_0-0.1	SE156934.021	LB109628	07 Sep 2016	08 Sep 2016	21 Sep 2016	12 Sep 2016	22 Oct 2016	14 Sep 2016

Volatile Petroleum Hydrocarbons in Soil

Method: ME-(AU)-[ENV]AN433

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
TR1_0.1	SE156934.001	LB109562	07 Sep 2016	08 Sep 2016	21 Sep 2016	12 Sep 2016	22 Oct 2016	15 Sep 2016
TR3_0.15	SE156934.002	LB109562	07 Sep 2016	08 Sep 2016	21 Sep 2016	12 Sep 2016	22 Oct 2016	15 Sep 2016
TP1_0.1-0.2	SE156934.003	LB109562	07 Sep 2016	08 Sep 2016	21 Sep 2016	12 Sep 2016	22 Oct 2016	15 Sep 2016
TP2_1.5	SE156934.004	LB109562	07 Sep 2016	08 Sep 2016	21 Sep 2016	12 Sep 2016	22 Oct 2016	15 Sep 2016
TP3	SE156934.005	LB109562	07 Sep 2016	08 Sep 2016	21 Sep 2016	12 Sep 2016	22 Oct 2016	15 Sep 2016
TP4_0.15	SE156934.006	LB109562	07 Sep 2016	08 Sep 2016	21 Sep 2016	12 Sep 2016	22 Oct 2016	15 Sep 2016
TP5_1.8	SE156934.007	LB109562	07 Sep 2016	08 Sep 2016	21 Sep 2016	12 Sep 2016	22 Oct 2016	15 Sep 2016
TP7_0.15	SE156934.008	LB109562	07 Sep 2016	08 Sep 2016	21 Sep 2016	12 Sep 2016	22 Oct 2016	15 Sep 2016
TP8_0.3-0.4	SE156934.009	LB109562	07 Sep 2016	08 Sep 2016	21 Sep 2016	12 Sep 2016	22 Oct 2016	15 Sep 2016
TP9	SE156934.010	LB109562	07 Sep 2016	08 Sep 2016	21 Sep 2016	12 Sep 2016	22 Oct 2016	15 Sep 2016
TP10	SE156934.011	LB109562	07 Sep 2016	08 Sep 2016	21 Sep 2016	12 Sep 2016	22 Oct 2016	15 Sep 2016
TP17_1.8	SE156934.012	LB109562	07 Sep 2016	08 Sep 2016	21 Sep 2016	12 Sep 2016	22 Oct 2016	15 Sep 2016
TP21_0.1-0.2	SE156934.013	LB109562	07 Sep 2016	08 Sep 2016	21 Sep 2016	12 Sep 2016	22 Oct 2016	15 Sep 2016
TP38_1.3-1.4	SE156934.014	LB109562	07 Sep 2016	08 Sep 2016	21 Sep 2016	12 Sep 2016	22 Oct 2016	15 Sep 2016
TP41_0.05-0.15	SE156934.015	LB109562	07 Sep 2016	08 Sep 2016	21 Sep 2016	12 Sep 2016	22 Oct 2016	15 Sep 2016
TP45_0.3-0.4	SE156934.016	LB109562	07 Sep 2016	08 Sep 2016	21 Sep 2016	12 Sep 2016	22 Oct 2016	15 Sep 2016
TP46_0.1-0.2	SE156934.017	LB109562	07 Sep 2016	08 Sep 2016	21 Sep 2016	12 Sep 2016	22 Oct 2016	15 Sep 2016
TP53_0-0.1	SE156934.018	LB109562	07 Sep 2016	08 Sep 2016	21 Sep 2016	12 Sep 2016	22 Oct 2016	15 Sep 2016
TP55_1.2-1.3	SE156934.019	LB109628	07 Sep 2016	08 Sep 2016	21 Sep 2016	12 Sep 2016	22 Oct 2016	14 Sep 2016
TP56_0.1-0.2	SE156934.020	LB109628	07 Sep 2016	08 Sep 2016	21 Sep 2016	12 Sep 2016	22 Oct 2016	14 Sep 2016
TP57_0-0.1	SE156934.021	LB109628	07 Sep 2016	08 Sep 2016	21 Sep 2016	12 Sep 2016	22 Oct 2016	14 Sep 2016

Surrogate results are evaluated against upper and lower limit criteria established in the SGS QA /QC plan (Ref: MP-(AU)-[ENV]QU-022). At least two of three routine level soil sample surrogate spike recoveries for BTEX/VOC are to be within 70-130% where control charts have not been developed and within the established control limits for charted surrogates. Matrix effects may void this as an acceptance criterion. Water sample surrogate spike recoveries are to be within 40-130%. The presence of emulsions, surfactants and particulates may void this as an acceptance criterion.

Result is shown in **Green** when within suggested criteria or **Red** with an appended reason identifer when outside suggested criteria. Refer to the footnotes section at the end of this report for failure reasons.

OC Pesticides in Soil

Method: ME-(AU)-[ENV]AN400/AN420

Parameter	Sample Name	Sample Number	Units	Criteria	Recovery %
Tetrachloro-m-xylene (TCMX) (Surrogate)	TR1_0.1	SE156934.001	%	60 - 130%	79
	TR3_0.15	SE156934.002	%	60 - 130%	79
	TP1_0.1-0.2	SE156934.003	%	60 - 130%	103
	TP2_1.5	SE156934.004	%	60 - 130%	86
	TP3	SE156934.005	%	60 - 130%	83
	TP4_0.15	SE156934.006	%	60 - 130%	88
	TP5_1.8	SE156934.007	%	60 - 130%	86
	TP7_0.15	SE156934.008	%	60 - 130%	85
	TP8_0.3-0.4	SE156934.009	%	60 - 130%	91
	TP9	SE156934.010	%	60 - 130%	85
	TP10	SE156934.011	%	60 - 130%	95
	TP17_1.8	SE156934.012	%	60 - 130%	98
	TP21_0.1-0.2	SE156934.013	%	60 - 130%	87
	TP38_1.3-1.4	SE156934.014	%	60 - 130%	85
	TP41_0.05-0.15	SE156934.015	%	60 - 130%	85
	TP45_0.3-0.4	SE156934.016	%	60 - 130%	85
	TP46_0.1-0.2	SE156934.017	%	60 - 130%	85
	TP53_0-0.1	SE156934.018	%	60 - 130%	89
	TP55_1.2-1.3	SE156934.019	%	60 - 130%	85
	TP56_0.1-0.2	SE156934.020	%	60 - 130%	83
	TP57_0-0.1	SE156934.021	%	60 - 130%	78

OP Pesticides in Soil

Method: ME-(AU)-[ENV]AN400/AN420

Parameter	Sample Name	Sample Number	Units	Criteria	Recovery %
2-fluorobiphenyl (Surrogate)	TR1_0.1	SE156934.001	%	60 - 130%	74
	TR3_0.15	SE156934.002	%	60 - 130%	76
	TP1_0.1-0.2	SE156934.003	%	60 - 130%	80
	TP2_1.5	SE156934.004	%	60 - 130%	74
	TP3	SE156934.005	%	60 - 130%	74
	TP4_0.15	SE156934.006	%	60 - 130%	82
	TP5_1.8	SE156934.007	%	60 - 130%	80
	TP7_0.15	SE156934.008	%	60 - 130%	74
	TP8_0.3-0.4	SE156934.009	%	60 - 130%	72
	TP9	SE156934.010	%	60 - 130%	74
	TP10	SE156934.011	%	60 - 130%	74
	TP17_1.8	SE156934.012	%	60 - 130%	72
	TP21_0.1-0.2	SE156934.013	%	60 - 130%	72
	TP38_1.3-1.4	SE156934.014	%	60 - 130%	76
	TP41_0.05-0.15	SE156934.015	%	60 - 130%	76
	TP45_0.3-0.4	SE156934.016	%	60 - 130%	78
	TP46_0.1-0.2	SE156934.017	%	60 - 130%	74
	TP53_0-0.1	SE156934.018	%	60 - 130%	74
	TP55_1.2-1.3	SE156934.019	%	60 - 130%	78
	TP56_0.1-0.2	SE156934.020	%	60 - 130%	78
	TP57_0-0.1	SE156934.021	%	60 - 130%	76
d14-p-terphenyl (Surrogate)	TR1_0.1	SE156934.001	%	60 - 130%	106
	TR3_0.15	SE156934.002	%	60 - 130%	80
	TP1_0.1-0.2	SE156934.003	%	60 - 130%	106
	TP2_1.5	SE156934.004	%	60 - 130%	114
	TP3	SE156934.005	%	60 - 130%	110
	TP4_0.15	SE156934.006	%	60 - 130%	102
	TP5_1.8	SE156934.007	%	60 - 130%	104
	TP7_0.15	SE156934.008	%	60 - 130%	108
	TP8_0.3-0.4	SE156934.009	%	60 - 130%	86
	TP9	SE156934.010	%	60 - 130%	74
	TP10	SE156934.011	%	60 - 130%	100
	TP17_1.8	SE156934.012	%	60 - 130%	92
	TP21_0.1-0.2	SE156934.013	%	60 - 130%	78
	TP38_1.3-1.4	SE156934.014	%	60 - 130%	76
	TP41_0.05-0.15	SE156934.015	%	60 - 130%	80
	TP45_0.3-0.4	SE156934.016	%	60 - 130%	78

Surrogate results are evaluated against upper and lower limit criteria established in the SGS QA /QC plan (Ref: MP-(AU)-[ENV]QU-022). At least two of three routine level soil sample surrogate spike recoveries for BTEX/VOC are to be within 70-130% where control charts have not been developed and within the established control limits for charted surrogates. Matrix effects may void this as an acceptance criterion. Water sample surrogate spike recoveries are to be within 40-130%. The presence of emulsions, surfactants and particulates may void this as an acceptance criterion.

Result is shown in **Green** when within suggested criteria or **Red** with an appended reason identifer when outside suggested criteria. Refer to the footnotes section at the end of this report for failure reasons.

OP Pesticides in Soil (continued)

Method: ME-(AU)-[ENV]AN400/AN420

Parameter	Sample Name	Sample Number	Units	Criteria	Recovery %
d14-p-terphenyl (Surrogate)	TP46_0.1-0.2	SE156934.017	%	60 - 130%	76
	TP53_0-0.1	SE156934.018	%	60 - 130%	94
	TP55_1.2-1.3	SE156934.019	%	60 - 130%	94
	TP56_0.1-0.2	SE156934.020	%	60 - 130%	106
	TP57_0-0.1	SE156934.021	%	60 - 130%	110

PAH (Polynuclear Aromatic Hydrocarbons) in Soil

Method: ME-(AU)-[ENV]AN420

Parameter	Sample Name	Sample Number	Units	Criteria	Recovery %
2-fluorobiphenyl (Surrogate)	TR1_0.1	SE156934.001	%	70 - 130%	74
	TR3_0.15	SE156934.002	%	70 - 130%	76
	TP1_0.1-0.2	SE156934.003	%	70 - 130%	80
	TP2_1.5	SE156934.004	%	70 - 130%	74
	TP3	SE156934.005	%	70 - 130%	74
	TP4_0.15	SE156934.006	%	70 - 130%	82
	TP5_1.8	SE156934.007	%	70 - 130%	80
	TP7_0.15	SE156934.008	%	70 - 130%	74
	TP8_0.3-0.4	SE156934.009	%	70 - 130%	72
	TP9	SE156934.010	%	70 - 130%	74
	TP10	SE156934.011	%	70 - 130%	74
	TP17_1.8	SE156934.012	%	70 - 130%	72
	TP21_0.1-0.2	SE156934.013	%	70 - 130%	72
	TP38_1.3-1.4	SE156934.014	%	70 - 130%	76
	TP41_0.05-0.15	SE156934.015	%	70 - 130%	76
	TP45_0.3-0.4	SE156934.016	%	70 - 130%	78
	TP46_0.1-0.2	SE156934.017	%	70 - 130%	74
	TP53_0-0.1	SE156934.018	%	70 - 130%	74
	TP55_1.2-1.3	SE156934.019	%	70 - 130%	78
	TP56_0.1-0.2	SE156934.020	%	70 - 130%	78
	TP57_0-0.1	SE156934.021	%	70 - 130%	76
d14-p-terphenyl (Surrogate)	TR1_0.1	SE156934.001	%	70 - 130%	106
	TR3_0.15	SE156934.002	%	70 - 130%	80
	TP1_0.1-0.2	SE156934.003	%	70 - 130%	106
	TP2_1.5	SE156934.004	%	70 - 130%	114
	TP3	SE156934.005	%	70 - 130%	110
	TP4_0.15	SE156934.006	%	70 - 130%	102
	TP5_1.8	SE156934.007	%	70 - 130%	104
	TP7_0.15	SE156934.008	%	70 - 130%	108
	TP8_0.3-0.4	SE156934.009	%	70 - 130%	86
	TP9	SE156934.010	%	70 - 130%	74
	TP10	SE156934.011	%	70 - 130%	100
	TP17_1.8	SE156934.012	%	70 - 130%	92
	TP21_0.1-0.2	SE156934.013	%	70 - 130%	78
	TP38_1.3-1.4	SE156934.014	%	70 - 130%	76
	TP41_0.05-0.15	SE156934.015	%	70 - 130%	80
	TP45_0.3-0.4	SE156934.016	%	70 - 130%	78
	TP46_0.1-0.2	SE156934.017	%	70 - 130%	76
	TP53_0-0.1	SE156934.018	%	70 - 130%	94
	TP55_1.2-1.3	SE156934.019	%	70 - 130%	94
	TP56_0.1-0.2	SE156934.020	%	70 - 130%	106
	TP57_0-0.1	SE156934.021	%	70 - 130%	110
d5-nitrobenzene (Surrogate)	TR1_0.1	SE156934.001	%	70 - 130%	80
	TR3_0.15	SE156934.002	%	70 - 130%	92
	TP1_0.1-0.2	SE156934.003	%	70 - 130%	84
	TP2_1.5	SE156934.004	%	70 - 130%	84
	TP3	SE156934.005	%	70 - 130%	84
	TP4_0.15	SE156934.006	%	70 - 130%	72
	TP5_1.8	SE156934.007	%	70 - 130%	84
	TP7_0.15	SE156934.008	%	70 - 130%	78
	TP8_0.3-0.4	SE156934.009	%	70 - 130%	78
	TP9	SE156934.010	%	70 - 130%	82
	TP10	SE156934.011	%	70 - 130%	80

Surrogate results are evaluated against upper and lower limit criteria established in the SGS QA /QC plan (Ref: MP-(AU)-[ENV]QU-022). At least two of three routine level soil sample surrogate spike recoveries for BTEX/VOC are to be within 70-130% where control charts have not been developed and within the established control limits for charted surrogates. Matrix effects may void this as an acceptance criterion. Water sample surrogate spike recoveries are to be within 40-130%. The presence of emulsions, surfactants and particulates may void this as an acceptance criterion.

Result is shown in **Green** when within suggested criteria or **Red** with an appended reason identifer when outside suggested criteria. Refer to the footnotes section at the end of this report for failure reasons.

PAH (Polynuclear Aromatic Hydrocarbons) in Soil (continued)

Method: ME-(AU)-[ENV]AN420

Parameter	Sample Name	Sample Number	Units	Criteria	Recovery %
d5-nitrobenzene (Surrogate)	TP17_1.8	SE156934.012	%	70 - 130%	80
	TP21_0.1-0.2	SE156934.013	%	70 - 130%	80
	TP38_1.3-1.4	SE156934.014	%	70 - 130%	78
	TP41_0.05-0.15	SE156934.015	%	70 - 130%	78
	TP45_0.3-0.4	SE156934.016	%	70 - 130%	76
	TP46_0.1-0.2	SE156934.017	%	70 - 130%	76
	TP53_0-0.1	SE156934.018	%	70 - 130%	82
	TP55_1.2-1.3	SE156934.019	%	70 - 130%	76
	TP56_0.1-0.2	SE156934.020	%	70 - 130%	76
	TP57_0-0.1	SE156934.021	%	70 - 130%	82

VOC's in Soil

Method: ME-(AU)-[ENV]AN433

Parameter	Sample Name	Sample Number	Units	Criteria	Recovery %
Bromofluorobenzene (Surrogate)	TR1_0.1	SE156934.001	%	60 - 130%	83
	TR3_0.15	SE156934.002	%	60 - 130%	82
	TP1_0.1-0.2	SE156934.003	%	60 - 130%	81
	TP2_1.5	SE156934.004	%	60 - 130%	80
	TP3	SE156934.005	%	60 - 130%	80
	TP4_0.15	SE156934.006	%	60 - 130%	73
	TP5_1.8	SE156934.007	%	60 - 130%	70
	TP7_0.15	SE156934.008	%	60 - 130%	85
	TP8_0.3-0.4	SE156934.009	%	60 - 130%	80
	TP9	SE156934.010	%	60 - 130%	77
	TP10	SE156934.011	%	60 - 130%	84
	TP17_1.8	SE156934.012	%	60 - 130%	82
	TP21_0.1-0.2	SE156934.013	%	60 - 130%	77
	TP38_1.3-1.4	SE156934.014	%	60 - 130%	78
	TP41_0.05-0.15	SE156934.015	%	60 - 130%	81
	TP45_0.3-0.4	SE156934.016	%	60 - 130%	77
	TP46_0.1-0.2	SE156934.017	%	60 - 130%	85
	TP53_0-0.1	SE156934.018	%	60 - 130%	84
	TP55_1.2-1.3	SE156934.019	%	60 - 130%	83
	TP56_0.1-0.2	SE156934.020	%	60 - 130%	74
	TP57_0-0.1	SE156934.021	%	60 - 130%	82
d4-1,2-dichloroethane (Surrogate)	TR1_0.1	SE156934.001	%	60 - 130%	86
	TR3_0.15	SE156934.002	%	60 - 130%	86
	TP1_0.1-0.2	SE156934.003	%	60 - 130%	82
	TP2_1.5	SE156934.004	%	60 - 130%	80
	TP3	SE156934.005	%	60 - 130%	74
	TP4_0.15	SE156934.006	%	60 - 130%	75
	TP5_1.8	SE156934.007	%	60 - 130%	78
	TP7_0.15	SE156934.008	%	60 - 130%	86
	TP8_0.3-0.4	SE156934.009	%	60 - 130%	77
	TP9	SE156934.010	%	60 - 130%	77
	TP10	SE156934.011	%	60 - 130%	83
	TP17_1.8	SE156934.012	%	60 - 130%	85
	TP21_0.1-0.2	SE156934.013	%	60 - 130%	80
	TP38_1.3-1.4	SE156934.014	%	60 - 130%	77
	TP41_0.05-0.15	SE156934.015	%	60 - 130%	85
	TP45_0.3-0.4	SE156934.016	%	60 - 130%	77
	TP46_0.1-0.2	SE156934.017	%	60 - 130%	84
	TP53_0-0.1	SE156934.018	%	60 - 130%	84
	TP55_1.2-1.3	SE156934.019	%	60 - 130%	88
	TP56_0.1-0.2	SE156934.020	%	60 - 130%	84
	TP57_0-0.1	SE156934.021	%	60 - 130%	87
d8-toluene (Surrogate)	TR1_0.1	SE156934.001	%	60 - 130%	94
	TR3_0.15	SE156934.002	%	60 - 130%	93
	TP1_0.1-0.2	SE156934.003	%	60 - 130%	89
	TP2_1.5	SE156934.004	%	60 - 130%	90
	TP3	SE156934.005	%	60 - 130%	85
	TP4_0.15	SE156934.006	%	60 - 130%	79

Surrogate results are evaluated against upper and lower limit criteria established in the SGS QA /QC plan (Ref: MP-(AU)-[ENV]QU-022). At least two of three routine level soil sample surrogate spike recoveries for BTEX/VOC are to be within 70-130% where control charts have not been developed and within the established control limits for charted surrogates. Matrix effects may void this as an acceptance criterion. Water sample surrogate spike recoveries are to be within 40-130%. The presence of emulsions, surfactants and particulates may void this as an acceptance criterion.

Result is shown in **Green** when within suggested criteria or **Red** with an appended reason identifer when outside suggested criteria. Refer to the footnotes section at the end of this report for failure reasons.

VOC's in Soil (continued)

Method: ME-(AU)-[ENV]AN433

Parameter	Sample Name	Sample Number	Units	Criteria	Recovery %
d8-toluene (Surrogate)	TP5_1.8	SE156934.007	%	60 - 130%	80
	TP7_0.15	SE156934.008	%	60 - 130%	90
	TP8_0.3-0.4	SE156934.009	%	60 - 130%	77
	TP9	SE156934.010	%	60 - 130%	80
	TP10	SE156934.011	%	60 - 130%	92
	TP17_1.8	SE156934.012	%	60 - 130%	89
	TP21_0.1-0.2	SE156934.013	%	60 - 130%	86
	TP38_1.3-1.4	SE156934.014	%	60 - 130%	80
	TP41_0.05-0.15	SE156934.015	%	60 - 130%	84
	TP45_0.3-0.4	SE156934.016	%	60 - 130%	78
	TP46_0.1-0.2	SE156934.017	%	60 - 130%	85
	TP53_0-0.1	SE156934.018	%	60 - 130%	79
	TP55_1.2-1.3	SE156934.019	%	60 - 130%	85
	TP56_0.1-0.2	SE156934.020	%	60 - 130%	82
	TP57_0-0.1	SE156934.021	%	60 - 130%	82
Dibromofluoromethane (Surrogate)	TR1_0.1	SE156934.001	%	60 - 130%	76
	TR3_0.15	SE156934.002	%	60 - 130%	77
	TP1_0.1-0.2	SE156934.003	%	60 - 130%	74
	TP2_1.5	SE156934.004	%	60 - 130%	72
	TP3	SE156934.005	%	60 - 130%	72
	TP4_0.15	SE156934.006	%	60 - 130%	73
	TP5_1.8	SE156934.007	%	60 - 130%	79
	TP7_0.15	SE156934.008	%	60 - 130%	74
	TP8_0.3-0.4	SE156934.009	%	60 - 130%	71
	TP9	SE156934.010	%	60 - 130%	76
	TP10	SE156934.011	%	60 - 130%	72
	TP17_1.8	SE156934.012	%	60 - 130%	71
	TP21_0.1-0.2	SE156934.013	%	60 - 130%	74
	TP38_1.3-1.4	SE156934.014	%	60 - 130%	73
	TP41_0.05-0.15	SE156934.015	%	60 - 130%	73
	TP45_0.3-0.4	SE156934.016	%	60 - 130%	74
	TP46_0.1-0.2	SE156934.017	%	60 - 130%	72
	TP53_0-0.1	SE156934.018	%	60 - 130%	72
	TP55_1.2-1.3	SE156934.019	%	60 - 130%	87
	TP56_0.1-0.2	SE156934.020	%	60 - 130%	82
	TP57_0-0.1	SE156934.021	%	60 - 130%	84

Volatile Petroleum Hydrocarbons in Soil

Method: ME-(AU)-[ENV]AN433

Parameter	Sample Name	Sample Number	Units	Criteria	Recovery %
Bromofluorobenzene (Surrogate)	TR1_0.1	SE156934.001	%	60 - 130%	83
	TR3_0.15	SE156934.002	%	60 - 130%	82
	TP1_0.1-0.2	SE156934.003	%	60 - 130%	81
	TP2_1.5	SE156934.004	%	60 - 130%	80
	TP3	SE156934.005	%	60 - 130%	80
	TP4_0.15	SE156934.006	%	60 - 130%	73
	TP5_1.8	SE156934.007	%	60 - 130%	70
	TP7_0.15	SE156934.008	%	60 - 130%	85
	TP8_0.3-0.4	SE156934.009	%	60 - 130%	80
	TP9	SE156934.010	%	60 - 130%	77
	TP10	SE156934.011	%	60 - 130%	84
	TP17_1.8	SE156934.012	%	60 - 130%	82
	TP21_0.1-0.2	SE156934.013	%	60 - 130%	77
	TP38_1.3-1.4	SE156934.014	%	60 - 130%	78
	TP41_0.05-0.15	SE156934.015	%	60 - 130%	81
	TP45_0.3-0.4	SE156934.016	%	60 - 130%	77
	TP46_0.1-0.2	SE156934.017	%	60 - 130%	85
	TP53_0-0.1	SE156934.018	%	60 - 130%	84
	TP55_1.2-1.3	SE156934.019	%	60 - 130%	83
	TP56_0.1-0.2	SE156934.020	%	60 - 130%	74
	TP57_0-0.1	SE156934.021	%	60 - 130%	82
d4-1,2-dichloroethane (Surrogate)	TR1_0.1	SE156934.001	%	60 - 130%	86

Surrogate results are evaluated against upper and lower limit criteria established in the SGS QA /QC plan (Ref: MP-(AU)-[ENV]QU-022). At least two of three routine level soil sample surrogate spike recoveries for BTEX/VOC are to be within 70-130% where control charts have not been developed and within the established control limits for charted surrogates. Matrix effects may void this as an acceptance criterion. Water sample surrogate spike recoveries are to be within 40-130%. The presence of emulsions, surfactants and particulates may void this as an acceptance criterion.

Result is shown in **Green** when within suggested criteria or **Red** with an appended reason identifer when outside suggested criteria. Refer to the footnotes section at the end of this report for failure reasons.

Volatile Petroleum Hydrocarbons in Soil (continued) — **Method: ME-(AU)-[ENV]AN433**

Parameter	Sample Name	Sample Number	Units	Criteria	Recovery %
d4-1,2-dichloroethane (Surrogate)	TR3_0.15	SE156934.002	%	60 - 130%	86
	TP1_0.1-0.2	SE156934.003	%	60 - 130%	82
	TP2_1.5	SE156934.004	%	60 - 130%	80
	TP3	SE156934.005	%	60 - 130%	74
	TP4_0.15	SE156934.006	%	60 - 130%	75
	TP5_1.8	SE156934.007	%	60 - 130%	78
	TP7_0.15	SE156934.008	%	60 - 130%	86
	TP8_0.3-0.4	SE156934.009	%	60 - 130%	77
	TP9	SE156934.010	%	60 - 130%	77
	TP10	SE156934.011	%	60 - 130%	83
	TP17_1.8	SE156934.012	%	60 - 130%	85
	TP21_0.1-0.2	SE156934.013	%	60 - 130%	80
	TP38_1.3-1.4	SE156934.014	%	60 - 130%	77
	TP41_0.05-0.15	SE156934.015	%	60 - 130%	85
	TP45_0.3-0.4	SE156934.016	%	60 - 130%	77
	TP46_0.1-0.2	SE156934.017	%	60 - 130%	84
	TP53_0-0.1	SE156934.018	%	60 - 130%	84
	TP55_1.2-1.3	SE156934.019	%	60 - 130%	88
	TP56_0.1-0.2	SE156934.020	%	60 - 130%	84
	TP57_0-0.1	SE156934.021	%	60 - 130%	87
d8-toluene (Surrogate)	TR1_0.1	SE156934.001	%	60 - 130%	94
	TR3_0.15	SE156934.002	%	60 - 130%	93
	TP1_0.1-0.2	SE156934.003	%	60 - 130%	89
	TP2_1.5	SE156934.004	%	60 - 130%	90
	TP3	SE156934.005	%	60 - 130%	85
	TP4_0.15	SE156934.006	%	60 - 130%	79
	TP5_1.8	SE156934.007	%	60 - 130%	80
	TP7_0.15	SE156934.008	%	60 - 130%	90
	TP8_0.3-0.4	SE156934.009	%	60 - 130%	77
	TP9	SE156934.010	%	60 - 130%	80
	TP10	SE156934.011	%	60 - 130%	92
	TP17_1.8	SE156934.012	%	60 - 130%	89
	TP21_0.1-0.2	SE156934.013	%	60 - 130%	86
	TP38_1.3-1.4	SE156934.014	%	60 - 130%	80
	TP41_0.05-0.15	SE156934.015	%	60 - 130%	84
	TP45_0.3-0.4	SE156934.016	%	60 - 130%	78
	TP46_0.1-0.2	SE156934.017	%	60 - 130%	85
	TP53_0-0.1	SE156934.018	%	60 - 130%	79
	TP55_1.2-1.3	SE156934.019	%	60 - 130%	85
	TP56_0.1-0.2	SE156934.020	%	60 - 130%	82
	TP57_0-0.1	SE156934.021	%	60 - 130%	82
Dibromofluoromethane (Surrogate)	TR1_0.1	SE156934.001	%	60 - 130%	76
	TR3_0.15	SE156934.002	%	60 - 130%	77
	TP1_0.1-0.2	SE156934.003	%	60 - 130%	74
	TP2_1.5	SE156934.004	%	60 - 130%	72
	TP3	SE156934.005	%	60 - 130%	72
	TP4_0.15	SE156934.006	%	60 - 130%	73
	TP5_1.8	SE156934.007	%	60 - 130%	79
	TP7_0.15	SE156934.008	%	60 - 130%	74
	TP8_0.3-0.4	SE156934.009	%	60 - 130%	71
	TP9	SE156934.010	%	60 - 130%	76
	TP10	SE156934.011	%	60 - 130%	72
	TP17_1.8	SE156934.012	%	60 - 130%	71
	TP21_0.1-0.2	SE156934.013	%	60 - 130%	74
	TP38_1.3-1.4	SE156934.014	%	60 - 130%	73
	TP41_0.05-0.15	SE156934.015	%	60 - 130%	73
	TP45_0.3-0.4	SE156934.016	%	60 - 130%	74
	TP46_0.1-0.2	SE156934.017	%	60 - 130%	72
	TP53_0-0.1	SE156934.018	%	60 - 130%	72
	TP55_1.2-1.3	SE156934.019	%	60 - 130%	87
	TP56_0.1-0.2	SE156934.020	%	60 - 130%	82

Surrogate results are evaluated against upper and lower limit criteria established in the SGS QA /QC plan (Ref: MP-(AU)-[ENV]QU-022). At least two of three routine level soil sample surrogate spike recoveries for BTEX/VOC are to be within 70-130% where control charts have not been developed and within the established control limits for charted surrogates. Matrix effects may void this as an acceptance criterion. Water sample surrogate spike recoveries are to be within 40-130%. The presence of emulsions, surfactants and particulates may void this as an acceptance criterion.

Result is shown in **Green** when within suggested criteria or **Red** with an appended reason identifer when outside suggested criteria. Refer to the footnotes section at the end of this report for failure reasons.

Volatile Petroleum Hydrocarbons in Soil (continued) — **Method: ME-(AU)-[ENV]AN433**

Parameter	Sample Name	Sample Number	Units	Criteria	Recovery %
Dibromofluoromethane (Surrogate)	TP57_0-0.1	SE156934.021	%	60 - 130%	84

Blank results are evaluated against the limit of reporting (LOR), for the chosen method and its associated instrumentation, typically 2.5 times the statistically determined method detection limit (MDL).

Result is shown in **Green** when within suggested criteria or **Red** with an appended dagger symbol (†) when outside suggested criteria.

Mercury in Soil

Method: ME-(AU)-[ENV]AN312

Sample Number	Parameter	Units	LOR	Result
LB109719.001	Mercury	mg/kg	0.05	<0.05
LB109720.001	Mercury	mg/kg	0.05	<0.05
LB109754.001	Mercury	mg/kg	0.05	<0.05

OC Pesticides in Soil

Method: ME-(AU)-[ENV]AN400/AN420

Sample Number		Parameter	Units	LOR	Result
LB109563.001		Hexachlorobenzene (HCB)	mg/kg	0.1	<0.1
		Alpha BHC	mg/kg	0.1	<0.1
		Lindane	mg/kg	0.1	<0.1
		Heptachlor	mg/kg	0.1	<0.1
		Aldrin	mg/kg	0.1	<0.1
		Beta BHC	mg/kg	0.1	<0.1
		Delta BHC	mg/kg	0.1	<0.1
		Heptachlor epoxide	mg/kg	0.1	<0.1
		Alpha Endosulfan	mg/kg	0.2	<0.2
		Gamma Chlordane	mg/kg	0.1	<0.1
		Alpha Chlordane	mg/kg	0.1	<0.1
		p,p'-DDE	mg/kg	0.1	<0.1
		Dieldrin	mg/kg	0.2	<0.2
		Endrin	mg/kg	0.2	<0.2
		Beta Endosulfan	mg/kg	0.2	<0.2
		p,p'-DDD	mg/kg	0.1	<0.1
		p,p'-DDT	mg/kg	0.1	<0.1
		Endosulfan sulphate	mg/kg	0.1	<0.1
		Endrin Aldehyde	mg/kg	0.1	<0.1
		Methoxychlor	mg/kg	0.1	<0.1
		Endrin Ketone	mg/kg	0.1	<0.1
		Isodrin	mg/kg	0.1	<0.1
		Mirex	mg/kg	0.1	<0.1
	Surrogates	Tetrachloro-m-xylene (TCMX) (Surrogate)	%	-	87
LB109564.001		Hexachlorobenzene (HCB)	mg/kg	0.1	<0.1
		Alpha BHC	mg/kg	0.1	<0.1
		Lindane	mg/kg	0.1	<0.1
		Heptachlor	mg/kg	0.1	<0.1
		Aldrin	mg/kg	0.1	<0.1
		Beta BHC	mg/kg	0.1	<0.1
		Delta BHC	mg/kg	0.1	<0.1
		Heptachlor epoxide	mg/kg	0.1	<0.1
		Alpha Endosulfan	mg/kg	0.2	<0.2
		Gamma Chlordane	mg/kg	0.1	<0.1
		Alpha Chlordane	mg/kg	0.1	<0.1
		p,p'-DDE	mg/kg	0.1	<0.1
		Dieldrin	mg/kg	0.2	<0.2
		Endrin	mg/kg	0.2	<0.2
		Beta Endosulfan	mg/kg	0.2	<0.2
		p,p'-DDD	mg/kg	0.1	<0.1
		p,p'-DDT	mg/kg	0.1	<0.1
		Endosulfan sulphate	mg/kg	0.1	<0.1
		Endrin Aldehyde	mg/kg	0.1	<0.1
		Methoxychlor	mg/kg	0.1	<0.1
		Endrin Ketone	mg/kg	0.1	<0.1
		Isodrin	mg/kg	0.1	<0.1
		Mirex	mg/kg	0.1	<0.1
	Surrogates	Tetrachloro-m-xylene (TCMX) (Surrogate)	%	-	87

OP Pesticides in Soil

Method: ME-(AU)-[ENV]AN400/AN420

Sample Number	Parameter	Units	LOR	Result
LB109563.001	Dichlorvos	mg/kg	0.5	<0.5
	Dimethoate	mg/kg	0.5	<0.5
	Diazinon (Dimpylate)	mg/kg	0.5	<0.5
	Fenitrothion	mg/kg	0.2	<0.2
	Malathion	mg/kg	0.2	<0.2

Blank results are evaluated against the limit of reporting (LOR), for the chosen method and its associated instrumentation, typically 2.5 times the statistically determined method detection limit (MDL).

Result is shown in **Green** when within suggested criteria or **Red** with an appended dagger symbol (†) when outside suggested criteria.

OP Pesticides in Soil (continued)

Method: ME-(AU)-[ENV]AN400/AN420

Sample Number		Parameter	Units	LOR	Result
LB109563.001		Chlorpyrifos (Chlorpyrifos Ethyl)	mg/kg	0.2	<0.2
		Parathion-ethyl (Parathion)	mg/kg	0.2	<0.2
		Bromophos Ethyl	mg/kg	0.2	<0.2
		Methidathion	mg/kg	0.5	<0.5
		Ethion	mg/kg	0.2	<0.2
		Azinphos-methyl (Guthion)	mg/kg	0.2	<0.2
	Surrogates	2-fluorobiphenyl (Surrogate)	%	-	80
		d14-p-terphenyl (Surrogate)	%	-	86
LB109564.001		Dichlorvos	mg/kg	0.5	<0.5
		Dimethoate	mg/kg	0.5	<0.5
		Diazinon (Dimpylate)	mg/kg	0.5	<0.5
		Fenitrothion	mg/kg	0.2	<0.2
		Malathion	mg/kg	0.2	<0.2
		Chlorpyrifos (Chlorpyrifos Ethyl)	mg/kg	0.2	<0.2
		Parathion-ethyl (Parathion)	mg/kg	0.2	<0.2
		Bromophos Ethyl	mg/kg	0.2	<0.2
		Methidathion	mg/kg	0.5	<0.5
		Ethion	mg/kg	0.2	<0.2
		Azinphos-methyl (Guthion)	mg/kg	0.2	<0.2
	Surrogates	2-fluorobiphenyl (Surrogate)	%	-	78
		d14-p-terphenyl (Surrogate)	%	-	112

PAH (Polynuclear Aromatic Hydrocarbons) in Soil

Method: ME-(AU)-[ENV]AN420

Sample Number		Parameter	Units	LOR	Result
LB109563.001		Naphthalene	mg/kg	0.1	<0.1
		2-methylnaphthalene	mg/kg	0.1	<0.1
		1-methylnaphthalene	mg/kg	0.1	<0.1
		Acenaphthylene	mg/kg	0.1	<0.1
		Acenaphthene	mg/kg	0.1	<0.1
		Fluorene	mg/kg	0.1	<0.1
		Phenanthrene	mg/kg	0.1	<0.1
		Anthracene	mg/kg	0.1	<0.1
		Fluoranthene	mg/kg	0.1	<0.1
		Pyrene	mg/kg	0.1	<0.1
		Benzo(a)anthracene	mg/kg	0.1	<0.1
		Chrysene	mg/kg	0.1	<0.1
		Benzo(a)pyrene	mg/kg	0.1	<0.1
		Indeno(1,2,3-cd)pyrene	mg/kg	0.1	<0.1
		Dibenzo(ah)anthracene	mg/kg	0.1	<0.1
		Benzo(ghi)perylene	mg/kg	0.1	<0.1
		Total PAH (18)	mg/kg	0.8	<0.8
	Surrogates	d5-nitrobenzene (Surrogate)	%	-	92
		2-fluorobiphenyl (Surrogate)	%	-	80
		d14-p-terphenyl (Surrogate)	%	-	86
LB109564.001		Naphthalene	mg/kg	0.1	<0.1
		2-methylnaphthalene	mg/kg	0.1	<0.1
		1-methylnaphthalene	mg/kg	0.1	<0.1
		Acenaphthylene	mg/kg	0.1	<0.1
		Acenaphthene	mg/kg	0.1	<0.1
		Fluorene	mg/kg	0.1	<0.1
		Phenanthrene	mg/kg	0.1	<0.1
		Anthracene	mg/kg	0.1	<0.1
		Fluoranthene	mg/kg	0.1	<0.1
		Pyrene	mg/kg	0.1	<0.1
		Benzo(a)anthracene	mg/kg	0.1	<0.1
		Chrysene	mg/kg	0.1	<0.1
		Benzo(a)pyrene	mg/kg	0.1	<0.1
		Indeno(1,2,3-cd)pyrene	mg/kg	0.1	<0.1
		Dibenzo(ah)anthracene	mg/kg	0.1	<0.1
		Benzo(ghi)perylene	mg/kg	0.1	<0.1
		Total PAH (18)	mg/kg	0.8	<0.8

Blank results are evaluated against the limit of reporting (LOR), for the chosen method and its associated instrumentation, typically 2.5 times the statistically determined method detection limit (MDL).

Result is shown in **Green** when within suggested criteria or **Red** with an appended dagger symbol (†) when outside suggested criteria.

PAH (Polynuclear Aromatic Hydrocarbons) in Soil (continued)

Method: ME-(AU)-[ENV]AN420

Sample Number		Parameter	Units	LOR	Result
LB109564.001	Surrogates	d5-nitrobenzene (Surrogate)	%	-	90
		2-fluorobiphenyl (Surrogate)	%	-	78
		d14-p-terphenyl (Surrogate)	%	-	112

Total Phenolics in Soil

Method: ME-(AU)-[ENV]AN289

Sample Number	Parameter	Units	LOR	Result
LB109780.001	Total Phenols	mg/kg	0.1	<0.1
LB109826.001	Total Phenols	mg/kg	0.1	<0.1
LB109827.001	Total Phenols	mg/kg	0.1	<0.1

Total Recoverable Metals in Soil/Waste Solids/Materials by ICPOES

Method: ME-(AU)-[ENV]AN040/AN320

Sample Number	Parameter	Units	LOR	Result
LB109762.001	Arsenic, As	mg/kg	3	<3
	Cadmium, Cd	mg/kg	0.3	<0.3
	Chromium, Cr	mg/kg	0.3	<0.3
	Copper, Cu	mg/kg	0.5	<0.5
	Lead, Pb	mg/kg	1	<1
	Nickel, Ni	mg/kg	0.5	<0.5
	Zinc, Zn	mg/kg	0.5	<0.5
LB109789.001	Arsenic, As	mg/kg	3	<3
	Cadmium, Cd	mg/kg	0.3	<0.3
	Chromium, Cr	mg/kg	0.3	<0.3
	Copper, Cu	mg/kg	0.5	<0.5
	Lead, Pb	mg/kg	1	<1
	Nickel, Ni	mg/kg	0.5	<0.5
	Zinc, Zn	mg/kg	0.5	<0.5

TRH (Total Recoverable Hydrocarbons) in Soil

Method: ME-(AU)-[ENV]AN403

Sample Number	Parameter	Units	LOR	Result
LB109563.001	TRH C10-C14	mg/kg	20	<20
	TRH C15-C28	mg/kg	45	<45
	TRH C29-C36	mg/kg	45	<45
	TRH C37-C40	mg/kg	100	<100
	TRH C10-C36 Total	mg/kg	110	<110
LB109564.001	TRH C10-C14	mg/kg	20	<20
	TRH C15-C28	mg/kg	45	<45
	TRH C29-C36	mg/kg	45	<45
	TRH C37-C40	mg/kg	100	<100
	TRH C10-C36 Total	mg/kg	110	<110

VOC's in Soil

Method: ME-(AU)-[ENV]AN433

Sample Number		Parameter	Units	LOR	Result
LB109562.001	Monocyclic Aromatic Hydrocarbons	Benzene	mg/kg	0.1	<0.1
		Toluene	mg/kg	0.1	<0.1
		Ethylbenzene	mg/kg	0.1	<0.1
		m/p-xylene	mg/kg	0.2	<0.2
		o-xylene	mg/kg	0.1	<0.1
	Polycyclic VOCs	Naphthalene	mg/kg	0.1	<0.1
	Surrogates	Dibromofluoromethane (Surrogate)	%	-	80
		d4-1,2-dichloroethane (Surrogate)	%	-	89
		d8-toluene (Surrogate)	%	-	98
		Bromofluorobenzene (Surrogate)	%	-	86
	Totals	Total BTEX	mg/kg	0.6	<0.6
LB109628.001	Monocyclic Aromatic Hydrocarbons	Benzene	mg/kg	0.1	<0.1
		Toluene	mg/kg	0.1	<0.1
		Ethylbenzene	mg/kg	0.1	<0.1
		m/p-xylene	mg/kg	0.2	<0.2
		o-xylene	mg/kg	0.1	<0.1
	Polycyclic VOCs	Naphthalene	mg/kg	0.1	<0.1
	Surrogates	Dibromofluoromethane (Surrogate)	%	-	91
		d4-1,2-dichloroethane (Surrogate)	%	-	89
		d8-toluene (Surrogate)	%	-	87
		Bromofluorobenzene (Surrogate)	%	-	84

Blank results are evaluated against the limit of reporting (LOR), for the chosen method and its associated instrumentation, typically 2.5 times the statistically determined method detection limit (MDL).

Result is shown in **Green** when within suggested criteria or **Red** with an appended dagger symbol (†) when outside suggested criteria.

VOC's in Soil (continued)

Method: ME-(AU)-[ENV]AN433

Sample Number		Parameter	Units	LOR	Result
LB109628.001	Totals	Total BTEX	mg/kg	0.6	<0.6

Volatile Petroleum Hydrocarbons in Soil

Method: ME-(AU)-[ENV]AN433

Sample Number		Parameter	Units	LOR	Result
LB109562.001		TRH C6-C9	mg/kg	20	<20
	Surrogates	Dibromofluoromethane (Surrogate)	%	-	80
		d4-1,2-dichloroethane (Surrogate)	%	-	89
		d8-toluene (Surrogate)	%	-	98
LB109628.001		TRH C6-C9	mg/kg	20	<20
	Surrogates	Dibromofluoromethane (Surrogate)	%	-	91
		d4-1,2-dichloroethane (Surrogate)	%	-	89
		d8-toluene (Surrogate)	%	-	87

Duplicates are calculated as Relative Percentage Difference (RPD) using the formula: RPD = | OriginalResult - ReplicateResult | x 100 / Mean

The RPD is evaluated against the Maximum Allowable Difference (MAD) criteria and can be graphically represented by a curve calculated from the Statistical Detection Limit (SDL) and Limiting Repeatability (LR) using the formula: MAD = 100 x SDL / Mean + LR

Where the Maximum Allowable Difference evaluates to a number larger than 200 it is displayed as 200.

RPD is shown in **Green** when within suggested criteria or **Red** with an appended reason identifer when outside suggested criteria. Refer to the footnotes section at the end of this report for failure reasons.

Mercury in Soil

Method: ME-(AU)-[ENV]AN312

Original	Duplicate	Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE156910.006	LB109719.014	Mercury	mg/kg	0.05	0.13	0.21	59	51
SE156934.006	LB109719.024	Mercury	mg/kg	0.05	<0.05	<0.05	200	0
SE156934.010	LB109720.014	Mercury	mg/kg	0.05	<0.05	<0.05	200	0
SE156934.019	LB109720.024	Mercury	mg/kg	0.05	<0.05	<0.05	200	0
SE156934.021	LB109754.006	Mercury	mg/kg	0.05	0.07	<0.05	128	26

Moisture Content

Method: ME-(AU)-[ENV]AN002

Original	Duplicate	Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE156934.008	LB109565.011	% Moisture	%w/w	0.5	16	18	36	12
SE156934.018	LB109565.022	% Moisture	%w/w	0.5	19	18	35	2
SE156934.021	LB109565.026	% Moisture	%w/w	0.5	20	19	35	5

OC Pesticides in Soil

Method: ME-(AU)-[ENV]AN400/AN420

Original	Duplicate		Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE156910.002	LB109563.029		Hexachlorobenzene (HCB)	mg/kg	0.1	<0.1	<0.1	200	0
			Alpha BHC	mg/kg	0.1	<0.1	<0.1	200	0
			Lindane	mg/kg	0.1	<0.1	<0.1	200	0
			Heptachlor	mg/kg	0.1	<0.1	<0.1	200	0
			Aldrin	mg/kg	0.1	<0.1	<0.1	200	0
			Beta BHC	mg/kg	0.1	<0.1	<0.1	200	0
			Delta BHC	mg/kg	0.1	<0.1	<0.1	200	0
			Heptachlor epoxide	mg/kg	0.1	<0.1	<0.1	200	0
			o,p'-DDE	mg/kg	0.1	<0.1	<0.1	200	0
			Alpha Endosulfan	mg/kg	0.2	<0.2	<0.2	200	0
			Gamma Chlordane	mg/kg	0.1	<0.1	<0.1	200	0
			Alpha Chlordane	mg/kg	0.1	<0.1	<0.1	200	0
			trans-Nonachlor	mg/kg	0.1	<0.1	<0.1	200	0
			p,p'-DDE	mg/kg	0.1	<0.1	<0.1	200	0
			Dieldrin	mg/kg	0.2	<0.05	<0.05	200	0
			Endrin	mg/kg	0.2	<0.2	<0.2	200	0
			o,p'-DDD	mg/kg	0.1	<0.1	<0.1	200	0
			o,p'-DDT	mg/kg	0.1	<0.1	<0.1	200	0
			Beta Endosulfan	mg/kg	0.2	<0.2	<0.2	200	0
			p,p'-DDD	mg/kg	0.1	<0.1	<0.1	200	0
			p,p'-DDT	mg/kg	0.1	<0.1	<0.1	200	0
			Endosulfan sulphate	mg/kg	0.1	<0.1	<0.1	200	0
			Endrin Aldehyde	mg/kg	0.1	<0.1	<0.1	200	0
			Methoxychlor	mg/kg	0.1	<0.1	<0.1	200	0
			Endrin Ketone	mg/kg	0.1	<0.1	<0.1	200	0
			Isodrin	mg/kg	0.1	<0.1	<0.1	200	0
			Mirex	mg/kg	0.1	<0.1	<0.1	200	0
		Surrogates	Tetrachloro-m-xylene (TCMX) (Surrogate)	mg/kg	-	0.13	0.13	30	1
SE156910.006	LB109563.014		Hexachlorobenzene (HCB)	mg/kg	0.1	<0.1	<0.1	200	0
			Alpha BHC	mg/kg	0.1	<0.1	<0.1	200	0
			Lindane	mg/kg	0.1	<0.1	<0.1	200	0
			Heptachlor	mg/kg	0.1	<0.1	<0.1	200	0
			Aldrin	mg/kg	0.1	<0.1	<0.1	200	0
			Beta BHC	mg/kg	0.1	<0.1	<0.1	200	0
			Delta BHC	mg/kg	0.1	<0.1	<0.1	200	0
			Heptachlor epoxide	mg/kg	0.1	<0.1	<0.1	200	0
			o,p'-DDE	mg/kg	0.1	<0.1	<0.1	200	0
			Alpha Endosulfan	mg/kg	0.2	<0.2	<0.2	200	0
			Gamma Chlordane	mg/kg	0.1	<0.1	<0.1	200	0
			Alpha Chlordane	mg/kg	0.1	<0.1	<0.1	200	0
			trans-Nonachlor	mg/kg	0.1	<0.1	<0.1	200	0
			p,p'-DDE	mg/kg	0.1	<0.1	<0.1	200	0
			Dieldrin	mg/kg	0.2	<0.05	<0.05	200	0
			Endrin	mg/kg	0.2	<0.2	<0.2	200	0
			o,p'-DDD	mg/kg	0.1	<0.1	<0.1	200	0
			o,p'-DDT	mg/kg	0.1	<0.1	<0.1	200	0
			Beta Endosulfan	mg/kg	0.2	<0.2	<0.2	200	0

Duplicates are calculated as Relative Percentage Difference (RPD) using the formula: RPD = | OriginalResult - ReplicateResult | x 100 / Mean

The RPD is evaluated against the Maximum Allowable Difference (MAD) criteria and can be graphically represented by a curve calculated from the Statistical Detection Limit (SDL) and Limiting Repeatability (LR) using the formula: MAD = 100 x SDL / Mean + LR

Where the Maximum Allowable Difference evaluates to a number larger than 200 it is displayed as 200.

RPD is shown in **Green** when within suggested criteria or **Red** with an appended reason identifer when outside suggested criteria. Refer to the footnotes section at the end of this report for failure reasons.

OC Pesticides in Soil (continued) — **Method: ME-(AU)-[ENV]AN400/AN420**

Original	Duplicate		Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE156910.006	LB109563.014		p,p'-DDD	mg/kg	0.1	<0.1	<0.1	200	0
			p,p'-DDT	mg/kg	0.1	<0.1	<0.1	200	0
			Endosulfan sulphate	mg/kg	0.1	<0.1	<0.1	200	0
			Endrin Aldehyde	mg/kg	0.1	<0.1	<0.1	200	0
			Methoxychlor	mg/kg	0.1	<0.1	<0.1	200	0
			Endrin Ketone	mg/kg	0.1	<0.1	<0.1	200	0
			Isodrin	mg/kg	0.1	<0.1	<0.1	200	0
			Mirex	mg/kg	0.1	<0.1	<0.1	200	0
		Surrogates	Tetrachloro-m-xylene (TCMX) (Surrogate)	mg/kg	-	0.13	0.12	30	7
SE156934.015	LB109564.014		Hexachlorobenzene (HCB)	mg/kg	0.1	<0.1	<0.1	200	0
			Alpha BHC	mg/kg	0.1	<0.1	<0.1	200	0
			Lindane	mg/kg	0.1	<0.1	<0.1	200	0
			Heptachlor	mg/kg	0.1	<0.1	<0.1	200	0
			Aldrin	mg/kg	0.1	<0.1	<0.1	200	0
			Beta BHC	mg/kg	0.1	<0.1	<0.1	200	0
			Delta BHC	mg/kg	0.1	<0.1	<0.1	200	0
			Heptachlor epoxide	mg/kg	0.1	<0.1	<0.1	200	0
			o,p'-DDE	mg/kg	0.1	<0.1	<0.1	200	0
			Alpha Endosulfan	mg/kg	0.2	<0.2	<0.2	200	0
			Gamma Chlordane	mg/kg	0.1	<0.1	<0.1	200	0
			Alpha Chlordane	mg/kg	0.1	<0.1	<0.1	200	0
			trans-Nonachlor	mg/kg	0.1	<0.1	<0.1	200	0
			p,p'-DDE	mg/kg	0.1	<0.1	<0.1	200	0
			Dieldrin	mg/kg	0.2	<0.2	<0.2	200	0
			Endrin	mg/kg	0.2	<0.2	<0.2	200	0
			o,p'-DDD	mg/kg	0.1	<0.1	<0.1	200	0
			o,p'-DDT	mg/kg	0.1	<0.1	<0.1	200	0
			Beta Endosulfan	mg/kg	0.2	<0.2	<0.2	200	0
			p,p'-DDD	mg/kg	0.1	<0.1	<0.1	200	0
			p,p'-DDT	mg/kg	0.1	<0.1	<0.1	200	0
			Endosulfan sulphate	mg/kg	0.1	<0.1	<0.1	200	0
			Endrin Aldehyde	mg/kg	0.1	<0.1	<0.1	200	0
			Methoxychlor	mg/kg	0.1	<0.1	<0.1	200	0
			Endrin Ketone	mg/kg	0.1	<0.1	<0.1	200	0
			Isodrin	mg/kg	0.1	<0.1	<0.1	200	0
			Mirex	mg/kg	0.1	<0.1	<0.1	200	0
		Surrogates	Tetrachloro-m-xylene (TCMX) (Surrogate)	mg/kg	-	0.13	0.14	30	6
SE156934.019	LB109564.022		Hexachlorobenzene (HCB)	mg/kg	0.1	<0.1	0	200	0
			Alpha BHC	mg/kg	0.1	<0.1	0	200	0
			Lindane	mg/kg	0.1	<0.1	0	200	0
			Heptachlor	mg/kg	0.1	<0.1	0	200	0
			Aldrin	mg/kg	0.1	<0.1	0	200	0
			Beta BHC	mg/kg	0.1	<0.1	0	200	0
			Delta BHC	mg/kg	0.1	<0.1	0	200	0
			Heptachlor epoxide	mg/kg	0.1	<0.1	0	200	0
			o,p'-DDE	mg/kg	0.1	<0.1	0	200	0
			Alpha Endosulfan	mg/kg	0.2	<0.2	0	200	0
			Gamma Chlordane	mg/kg	0.1	<0.1	0	200	0
			Alpha Chlordane	mg/kg	0.1	<0.1	0	200	0
			trans-Nonachlor	mg/kg	0.1	<0.1	0	200	0
			p,p'-DDE	mg/kg	0.1	<0.1	0	200	0
			Dieldrin	mg/kg	0.2	<0.2	0	200	0
			Endrin	mg/kg	0.2	<0.2	0	200	0
			o,p'-DDD	mg/kg	0.1	<0.1	0	200	0
			o,p'-DDT	mg/kg	0.1	<0.1	0	200	0
			Beta Endosulfan	mg/kg	0.2	<0.2	0	200	0
			p,p'-DDD	mg/kg	0.1	<0.1	0	200	0
			p,p'-DDT	mg/kg	0.1	<0.1	0	200	0
			Endosulfan sulphate	mg/kg	0.1	<0.1	0	200	0
			Endrin Aldehyde	mg/kg	0.1	<0.1	0	200	0
			Methoxychlor	mg/kg	0.1	<0.1	0	200	0

Duplicates are calculated as Relative Percentage Difference (RPD) using the formula: RPD = | OriginalResult - ReplicateResult | x 100 / Mean

The RPD is evaluated against the Maximum Allowable Difference (MAD) criteria and can be graphically represented by a curve calculated from the Statistical Detection Limit (SDL) and Limiting Repeatability (LR) using the formula: MAD = 100 x SDL / Mean + LR

Where the Maximum Allowable Difference evaluates to a number larger than 200 it is displayed as 200.

RPD is shown in **Green** when within suggested criteria or **Red** with an appended reason identifer when outside suggested criteria. Refer to the footnotes section at the end of this report for failure reasons.

OC Pesticides in Soil (continued)

Method: ME-(AU)-[ENV]AN400/AN420

Original	Duplicate		Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE156934.019	LB109564.022		Endrin Ketone	mg/kg	0.1	<0.1	0	200	0
			Isodrin	mg/kg	0.1	<0.1	0	200	0
			Mirex	mg/kg	0.1	<0.1	0	200	0
		Surrogates	Tetrachloro-m-xylene (TCMX) (Surrogate)	mg/kg	-	0.13	0.121	30	5

OP Pesticides in Soil

Method: ME-(AU)-[ENV]AN400/AN420

Original	Duplicate		Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE156934.015	LB109564.014		Dichlorvos	mg/kg	0.5	<0.5	<0.5	200	0
			Dimethoate	mg/kg	0.5	<0.5	<0.5	200	0
			Diazinon (Dimpylate)	mg/kg	0.5	<0.5	<0.5	200	0
			Fenitrothion	mg/kg	0.2	<0.2	<0.2	200	0
			Malathion	mg/kg	0.2	<0.2	<0.2	200	0
			Chlorpyrifos (Chlorpyrifos Ethyl)	mg/kg	0.2	<0.2	<0.2	200	0
			Parathion-ethyl (Parathion)	mg/kg	0.2	<0.2	<0.2	200	0
			Bromophos Ethyl	mg/kg	0.2	<0.2	<0.2	200	0
			Methidathion	mg/kg	0.5	<0.5	<0.5	200	0
			Ethion	mg/kg	0.2	<0.2	<0.2	200	0
			Azinphos-methyl (Guthion)	mg/kg	0.2	<0.2	<0.2	200	0
		Surrogates	2-fluorobiphenyl (Surrogate)	mg/kg	-	0.4	0.4	30	0
			d14-p-terphenyl (Surrogate)	mg/kg	-	0.4	0.4	30	7
SE156934.019	LB109564.022		Dichlorvos	mg/kg	0.5	<0.5	0.01	200	0
			Dimethoate	mg/kg	0.5	<0.5	0	200	0
			Diazinon (Dimpylate)	mg/kg	0.5	<0.5	0.05	200	0
			Fenitrothion	mg/kg	0.2	<0.2	0	200	0
			Malathion	mg/kg	0.2	<0.2	0	200	0
			Chlorpyrifos (Chlorpyrifos Ethyl)	mg/kg	0.2	<0.2	0.02	200	0
			Parathion-ethyl (Parathion)	mg/kg	0.2	<0.2	0	200	0
			Bromophos Ethyl	mg/kg	0.2	<0.2	0	200	0
			Methidathion	mg/kg	0.5	<0.5	0	200	0
			Ethion	mg/kg	0.2	<0.2	0	200	0
			Azinphos-methyl (Guthion)	mg/kg	0.2	<0.2	0	200	0
		Surrogates	2-fluorobiphenyl (Surrogate)	mg/kg	-	0.4	0.38	30	3
			d14-p-terphenyl (Surrogate)	mg/kg	-	0.5	0.45	30	4

PAH (Polynuclear Aromatic Hydrocarbons) in Soil

Method: ME-(AU)-[ENV]AN420

Original	Duplicate		Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE156910.002	LB109563.027		Naphthalene	mg/kg	0.1	<0.1	<0.1	200	0
			2-methylnaphthalene	mg/kg	0.1	<0.1	<0.1	200	0
			1-methylnaphthalene	mg/kg	0.1	<0.1	<0.1	200	0
			Acenaphthylene	mg/kg	0.1	<0.1	<0.1	200	0
			Acenaphthene	mg/kg	0.1	<0.1	<0.1	200	0
			Fluorene	mg/kg	0.1	<0.1	<0.1	200	0
			Phenanthrene	mg/kg	0.1	0.2	0.3	66	43
			Anthracene	mg/kg	0.1	<0.1	<0.1	200	0
			Fluoranthene	mg/kg	0.1	0.6	0.6	46	3
			Pyrene	mg/kg	0.1	0.7	0.7	45	2
			Benzo(a)anthracene	mg/kg	0.1	0.4	0.4	57	8
			Chrysene	mg/kg	0.1	0.3	0.4	59	9
			Benzo(b&j)fluoranthene	mg/kg	0.1	0.5	0.4	52	11
			Benzo(k)fluoranthene	mg/kg	0.1	0.2	0.2	86	11
			Benzo(a)pyrene	mg/kg	0.1	0.4	0.4	55	0
			Indeno(1,2,3-cd)pyrene	mg/kg	0.1	0.2	0.2	87	17
			Dibenzo(ah)anthracene	mg/kg	0.1	<0.1	<0.1	200	0
			Benzo(ghi)perylene	mg/kg	0.1	0.2	0.2	74	13
			Carcinogenic PAHs, BaP TEQ <LOR=0	TEQ	0.2	0.5	0.5	48	0
				TEQ (mg/kg)	0.2	0.5	0.5	48	0
			Carcinogenic PAHs, BaP TEQ <LOR=LOR	TEQ (mg/kg)	0.3	0.6	0.6	58	0
			Carcinogenic PAHs, BaP TEQ <LOR=LOR/2	TEQ (mg/kg)	0.2	0.6	0.6	45	0
			Total PAH (18)	mg/kg	0.8	3.6	3.8	52	6
		Surrogates	d5-nitrobenzene (Surrogate)	mg/kg	-	0.4	0.4	30	0
			2-fluorobiphenyl (Surrogate)	mg/kg	-	0.4	0.4	30	0
			d14-p-terphenyl (Surrogate)	mg/kg	-	0.4	0.4	30	3

Duplicates are calculated as Relative Percentage Difference (RPD) using the formula: RPD = | OriginalResult - ReplicateResult | x 100 / Mean

The RPD is evaluated against the Maximum Allowable Difference (MAD) criteria and can be graphically represented by a curve calculated from the Statistical Detection Limit (SDL) and Limiting Repeatability (LR) using the formula: MAD = 100 x SDL / Mean + LR

Where the Maximum Allowable Difference evaluates to a number larger than 200 it is displayed as 200.

RPD is shown in **Green** when within suggested criteria or **Red** with an appended reason identifer when outside suggested criteria. Refer to the footnotes section at the end of this report for failure reasons.

PAH (Polynuclear Aromatic Hydrocarbons) in Soil (continued) — Method: ME-(AU)-[ENV]AN420

Original	Duplicate		Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE156910.006	LB109563.014		Naphthalene	mg/kg	0.1	0.2	0.2	84	27
			2-methylnaphthalene	mg/kg	0.1	<0.1	<0.1	200	0
			1-methylnaphthalene	mg/kg	0.1	<0.1	<0.1	200	0
			Acenaphthylene	mg/kg	0.1	0.4	0.5	52	7
			Acenaphthene	mg/kg	0.1	<0.1	<0.1	200	0
			Fluorene	mg/kg	0.1	<0.1	<0.1	200	0
			Phenanthrene	mg/kg	0.1	2.7	2.2	34	20
			Anthracene	mg/kg	0.1	0.8	0.7	43	5
			Fluoranthene	mg/kg	0.1	10	10	31	1
			Pyrene	mg/kg	0.1	10	10	31	2
			Benzo(a)anthracene	mg/kg	0.1	7.1	7.8	31	9
			Chrysene	mg/kg	0.1	5.7	5.7	32	0
			Benzo(b&j)fluoranthene	mg/kg	0.1	11	10	31	2
			Benzo(k)fluoranthene	mg/kg	0.1	3.3	3.0	33	11
			Benzo(a)pyrene	mg/kg	0.1	8.8	8.2	31	6
			Indeno(1,2,3-cd)pyrene	mg/kg	0.1	4.0	4.0	33	1
			Dibenzo(ah)anthracene	mg/kg	0.1	1.0	0.8	41	16
			Benzo(ghi)perylene	mg/kg	0.1	5.0	4.7	32	7
			Carcinogenic PAHs, BaP TEQ <LOR=0	TEQ (mg/kg)	0.2	12	12	12	5
			Carcinogenic PAHs, BaP TEQ <LOR=LOR	TEQ (mg/kg)	0.3	12	12	13	5
			Carcinogenic PAHs, BaP TEQ <LOR=LOR/2	TEQ (mg/kg)	0.2	12	12	12	5
			Total PAH (18)	mg/kg	0.8	69	68	31	1
		Surrogates	d5-nitrobenzene (Surrogate)	mg/kg	-	0.4	0.4	30	0
			2-fluorobiphenyl (Surrogate)	mg/kg	-	0.4	0.4	30	3
			d14-p-terphenyl (Surrogate)	mg/kg	-	0.4	0.5	30	28
SE156934.015	LB109564.014		Naphthalene	mg/kg	0.1	<0.1	<0.1	200	0
			2-methylnaphthalene	mg/kg	0.1	<0.1	<0.1	200	0
			1-methylnaphthalene	mg/kg	0.1	<0.1	<0.1	200	0
			Acenaphthylene	mg/kg	0.1	<0.1	<0.1	200	0
			Acenaphthene	mg/kg	0.1	<0.1	<0.1	200	0
			Fluorene	mg/kg	0.1	<0.1	<0.1	200	0
			Phenanthrene	mg/kg	0.1	<0.1	<0.1	200	0
			Anthracene	mg/kg	0.1	<0.1	<0.1	200	0
			Fluoranthene	mg/kg	0.1	<0.1	<0.1	200	0
			Pyrene	mg/kg	0.1	<0.1	<0.1	200	0
			Benzo(a)anthracene	mg/kg	0.1	<0.1	<0.1	200	0
			Chrysene	mg/kg	0.1	<0.1	<0.1	200	0
			Benzo(b&j)fluoranthene	mg/kg	0.1	<0.1	<0.1	200	0
			Benzo(k)fluoranthene	mg/kg	0.1	<0.1	<0.1	200	0
			Benzo(a)pyrene	mg/kg	0.1	<0.1	<0.1	200	0
			Indeno(1,2,3-cd)pyrene	mg/kg	0.1	<0.1	<0.1	200	0
			Dibenzo(ah)anthracene	mg/kg	0.1	<0.1	<0.1	200	0
			Benzo(ghi)perylene	mg/kg	0.1	<0.1	<0.1	200	0
			Carcinogenic PAHs, BaP TEQ <LOR=0	TEQ (mg/kg)	0.2	<0.2	<0.2	200	0
			Carcinogenic PAHs, BaP TEQ <LOR=LOR	TEQ (mg/kg)	0.3	<0.3	<0.3	134	0
			Carcinogenic PAHs, BaP TEQ <LOR=LOR/2	TEQ (mg/kg)	0.2	<0.2	<0.2	175	0
			Total PAH (18)	mg/kg	0.8	<0.8	<0.8	200	0
		Surrogates	d5-nitrobenzene (Surrogate)	mg/kg	-	0.4	0.4	30	3
			2-fluorobiphenyl (Surrogate)	mg/kg	-	0.4	0.4	30	0
			d14-p-terphenyl (Surrogate)	mg/kg	-	0.4	0.4	30	7
SE156934.019	LB109564.022		Naphthalene	mg/kg	0.1	<0.1	0	200	0
			2-methylnaphthalene	mg/kg	0.1	<0.1	0	200	0
			1-methylnaphthalene	mg/kg	0.1	<0.1	0	200	0
			Acenaphthylene	mg/kg	0.1	<0.1	0	200	0
			Acenaphthene	mg/kg	0.1	<0.1	0	200	0
			Fluorene	mg/kg	0.1	<0.1	0	200	0
			Phenanthrene	mg/kg	0.1	<0.1	0	200	0
			Anthracene	mg/kg	0.1	<0.1	0	200	0
			Fluoranthene	mg/kg	0.1	<0.1	0	200	0
			Pyrene	mg/kg	0.1	<0.1	0	200	0
			Benzo(a)anthracene	mg/kg	0.1	<0.1	0	200	0

Duplicates are calculated as Relative Percentage Difference (RPD) using the formula: RPD = | OriginalResult - ReplicateResult | x 100 / Mean

The RPD is evaluated against the Maximum Allowable Difference (MAD) criteria and can be graphically represented by a curve calculated from the Statistical Detection Limit (SDL) and Limiting Repeatability (LR) using the formula: MAD = 100 x SDL / Mean + LR

Where the Maximum Allowable Difference evaluates to a number larger than 200 it is displayed as 200.

RPD is shown in **Green** when within suggested criteria or **Red** with an appended reason identifer when outside suggested criteria. Refer to the footnotes section at the end of this report for failure reasons.

PAH (Polynuclear Aromatic Hydrocarbons) in Soil (continued)

Method: ME-(AU)-[ENV]AN420

Original	Duplicate		Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE156934.019	LB109564.022		Chrysene	mg/kg	0.1	<0.1	0	200	0
			Benzo(b&j)fluoranthene	mg/kg	0.1	<0.1	0	200	0
			Benzo(k)fluoranthene	mg/kg	0.1	<0.1	0	200	0
			Benzo(a)pyrene	mg/kg	0.1	<0.1	0	200	0
			Indeno(1,2,3-cd)pyrene	mg/kg	0.1	<0.1	0	200	0
			Dibenzo(ah)anthracene	mg/kg	0.1	<0.1	0	200	0
			Benzo(ghi)perylene	mg/kg	0.1	<0.1	0	200	0
			Carcinogenic PAHs, BaP TEQ <LOR=0	TEQ (mg/kg)	0.2	<0.2	0	200	0
			Carcinogenic PAHs, BaP TEQ <LOR=LOR	TEQ (mg/kg)	0.3	<0.3	0.242	134	0
			Carcinogenic PAHs, BaP TEQ <LOR=LOR/2	TEQ (mg/kg)	0.2	<0.2	0.121	175	0
			Total PAH (18)	mg/kg	0.8	<0.8	0	200	0
		Surrogates	d5-nitrobenzene (Surrogate)	mg/kg	-	0.4	0.39	30	3
			2-fluorobiphenyl (Surrogate)	mg/kg	-	0.4	0.38	30	3
			d14-p-terphenyl (Surrogate)	mg/kg	-	0.5	0.45	30	4

Total Recoverable Metals in Soil/Waste Solids/Materials by ICPOES

Method: ME-(AU)-[ENV]AN040/AN320

Original	Duplicate	Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE156934.003	LB109762.014	Arsenic, As	mg/kg	3	19	19	35	0
		Cadmium, Cd	mg/kg	0.3	<0.3	<0.3	141	0
		Chromium, Cr	mg/kg	0.3	19	18	33	3
		Copper, Cu	mg/kg	0.5	12	12	34	6
		Lead, Pb	mg/kg	1	24	20	35	16
		Nickel, Ni	mg/kg	0.5	15	16	33	8
		Zinc, Zn	mg/kg	0.5	71	65	33	8
SE156934.012	LB109762.024	Arsenic, As	mg/kg	3	12	13	38	8
		Cadmium, Cd	mg/kg	0.3	0.3	<0.3	132	3
		Chromium, Cr	mg/kg	0.3	32	29	32	8
		Copper, Cu	mg/kg	0.5	15	14	33	6
		Lead, Pb	mg/kg	1	47	31	33	41 ②
		Nickel, Ni	mg/kg	0.5	11	12	34	6
		Zinc, Zn	mg/kg	0.5	54	59	34	9
SE157065.006	LB109789.019	Arsenic, As	mg/kg	3	10	8	41	21
		Cadmium, Cd	mg/kg	0.3	0.4	0.4	103	10
		Chromium, Cr	mg/kg	0.3	25	23	32	11
		Copper, Cu	mg/kg	0.5	17	17	33	0
		Lead, Pb	mg/kg	1	21	20	35	7
		Nickel, Ni	mg/kg	0.5	11	13	34	17
		Zinc, Zn	mg/kg	0.5	36	35	36	2

TRH (Total Recoverable Hydrocarbons) in Soil

Method: ME-(AU)-[ENV]AN403

Original	Duplicate		Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE156910.002	LB109563.027		TRH C10-C14	mg/kg	20	<20	<20	200	0
			TRH C15-C28	mg/kg	45	<45	<45	200	0
			TRH C29-C36	mg/kg	45	<45	<45	200	0
			TRH C37-C40	mg/kg	100	<100	<100	200	0
			TRH C10-C36 Total	mg/kg	110	<110	<110	200	0
			TRH C10-C40 Total	mg/kg	210	<210	<210	200	0
		TRH F Bands	TRH >C10-C16 (F2)	mg/kg	25	<25	<25	200	0
			TRH >C10-C16 (F2) - Naphthalene	mg/kg	25	<25	<25	200	0
			TRH >C16-C34 (F3)	mg/kg	90	<90	<90	200	0
			TRH >C34-C40 (F4)	mg/kg	120	<120	<120	200	0
SE156910.006	LB109563.014		TRH C10-C14	mg/kg	20	<20	<20	200	0
			TRH C15-C28	mg/kg	45	170	140	59	21
			TRH C29-C36	mg/kg	45	150	110	66	29
			TRH C37-C40	mg/kg	100	<100	<100	200	0
			TRH C10-C36 Total	mg/kg	110	320	250	69	25
			TRH C10-C40 Total	mg/kg	210	320	250	105	25
		TRH F Bands	TRH >C10-C16 (F2)	mg/kg	25	<25	<25	200	0
			TRH >C10-C16 (F2) - Naphthalene	mg/kg	25	<25	<25	200	0
			TRH >C16-C34 (F3)	mg/kg	90	290	230	65	24
			TRH >C34-C40 (F4)	mg/kg	120	<120	<120	200	0
SE156934.015	LB109564.014		TRH C10-C14	mg/kg	20	<20	<20	200	0

Duplicates are calculated as Relative Percentage Difference (RPD) using the formula: RPD = | OriginalResult - ReplicateResult | x 100 / Mean

The RPD is evaluated against the Maximum Allowable Difference (MAD) criteria and can be graphically represented by a curve calculated from the Statistical Detection Limit (SDL) and Limiting Repeatability (LR) using the formula: MAD = 100 x SDL / Mean + LR

Where the Maximum Allowable Difference evaluates to a number larger than 200 it is displayed as 200.

RPD is shown in **Green** when within suggested criteria or **Red** with an appended reason identifer when outside suggested criteria. Refer to the footnotes section at the end of this report for failure reasons.

TRH (Total Recoverable Hydrocarbons) in Soil (continued)

Method: ME-(AU)-[ENV]AN403

Original	Duplicate		Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE156934.015	LB109564.014		TRH C15-C28	mg/kg	45	<45	<45	200	0
			TRH C29-C36	mg/kg	45	<45	<45	200	0
			TRH C37-C40	mg/kg	100	<100	<100	200	0
			TRH C10-C36 Total	mg/kg	110	<110	<110	200	0
			TRH C10-C40 Total	mg/kg	210	<210	<210	200	0
		TRH F Bands	TRH >C10-C16 (F2)	mg/kg	25	<25	<25	200	0
			TRH >C10-C16 (F2) - Naphthalene	mg/kg	25	<25	<25	200	0
			TRH >C16-C34 (F3)	mg/kg	90	<90	<90	200	0
			TRH >C34-C40 (F4)	mg/kg	120	<120	<120	200	0
SE156934.019	LB109564.023		TRH C10-C14	mg/kg	20	<20	0	200	0
			TRH C15-C28	mg/kg	45	<45	0	200	0
			TRH C29-C36	mg/kg	45	<45	0	200	0
			TRH C37-C40	mg/kg	100	<100	0	200	0
			TRH C10-C36 Total	mg/kg	110	<110	0	200	0
			TRH C10-C40 Total	mg/kg	210	<210	0	200	0
		TRH F Bands	TRH >C10-C16 (F2)	mg/kg	25	<25	0	200	0
			TRH >C10-C16 (F2) - Naphthalene	mg/kg	25	<25	0	200	0
			TRH >C16-C34 (F3)	mg/kg	90	<90	0	200	0
			TRH >C34-C40 (F4)	mg/kg	120	<120	0	200	0

VOC's in Soil

Method: ME-(AU)-[ENV]AN433

Original	Duplicate		Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE156934.008	LB109562.014	Monocyclic	Benzene	mg/kg	0.1	<0.1	<0.1	200	0
		Aromatic	Toluene	mg/kg	0.1	<0.1	<0.1	200	0
			Ethylbenzene	mg/kg	0.1	<0.1	<0.1	200	0
			m/p-xylene	mg/kg	0.2	<0.2	<0.2	200	0
			o-xylene	mg/kg	0.1	<0.1	<0.1	200	0
		Polycyclic	Naphthalene	mg/kg	0.1	<0.1	<0.1	200	0
		Surrogates	Dibromofluoromethane (Surrogate)	mg/kg	-	3.7	3.6	50	4
			d4-1,2-dichloroethane (Surrogate)	mg/kg	-	4.3	4.1	50	5
			d8-toluene (Surrogate)	mg/kg	-	4.5	4.2	50	7
			Bromofluorobenzene (Surrogate)	mg/kg	-	4.3	3.9	50	10
		Totals	Total Xylenes*	mg/kg	0.3	<0.3	<0.3	200	0
			Total BTEX	mg/kg	0.6	<0.6	<0.6	200	0
SE156934.018	LB109562.025	Monocyclic	Benzene	mg/kg	0.1	<0.1	<0.1	200	0
		Aromatic	Toluene	mg/kg	0.1	<0.1	<0.1	200	0
			Ethylbenzene	mg/kg	0.1	<0.1	<0.1	200	0
			m/p-xylene	mg/kg	0.2	<0.2	<0.2	200	0
			o-xylene	mg/kg	0.1	<0.1	<0.1	200	0
		Polycyclic	Naphthalene	mg/kg	0.1	<0.1	<0.1	200	0
		Surrogates	Dibromofluoromethane (Surrogate)	mg/kg	-	3.6	3.8	50	5
			d4-1,2-dichloroethane (Surrogate)	mg/kg	-	4.2	4.1	50	3
			d8-toluene (Surrogate)	mg/kg	-	3.9	4.0	50	0
			Bromofluorobenzene (Surrogate)	mg/kg	-	4.2	4.0	50	6
		Totals	Total Xylenes*	mg/kg	0.3	<0.3	<0.3	200	0
			Total BTEX	mg/kg	0.6	<0.6	<0.6	200	0
SE156961.002	LB109628.014	Monocyclic	Benzene	mg/kg	0.1	<0.1	<0.1	200	0
		Aromatic	Toluene	mg/kg	0.1	<0.1	<0.1	200	0
			Ethylbenzene	mg/kg	0.1	<0.1	<0.1	200	0
			m/p-xylene	mg/kg	0.2	<0.2	<0.2	200	0
			o-xylene	mg/kg	0.1	<0.1	<0.1	200	0
		Polycyclic	Naphthalene	mg/kg	0.1	<0.1	<0.1	200	0
		Surrogates	Dibromofluoromethane (Surrogate)	mg/kg	-	3.8	3.6	50	8
			d4-1,2-dichloroethane (Surrogate)	mg/kg	-	4.4	4.3	50	1
			d8-toluene (Surrogate)	mg/kg	-	4.4	4.1	50	7
			Bromofluorobenzene (Surrogate)	mg/kg	-	4.1	3.7	50	9
		Totals	Total Xylenes*	mg/kg	0.3	<0.3	<0.3	200	0
			Total BTEX	mg/kg	0.6	<0.6	<0.6	200	0
SE156987.003	LB109628.018	Monocyclic	Benzene	mg/kg	0.1	<0.1	<0.1	200	0
		Aromatic	Toluene	mg/kg	0.1	<0.1	<0.1	200	0
			Ethylbenzene	mg/kg	0.1	<0.1	<0.1	200	0

Duplicates are calculated as Relative Percentage Difference (RPD) using the formula: RPD = | OriginalResult - ReplicateResult | x 100 / Mean

The RPD is evaluated against the Maximum Allowable Difference (MAD) criteria and can be graphically represented by a curve calculated from the Statistical Detection Limit (SDL) and Limiting Repeatability (LR) using the formula: MAD = 100 x SDL / Mean + LR

Where the Maximum Allowable Difference evaluates to a number larger than 200 it is displayed as 200.

RPD is shown in **Green** when within suggested criteria or **Red** with an appended reason identifer when outside suggested criteria. Refer to the footnotes section at the end of this report for failure reasons.

VOC's in Soil (continued)

Method: ME-(AU)-[ENV]AN433

Original	Duplicate		Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE156987.003	LB109628.018	Monocyclic	m/p-xylene	mg/kg	0.2	<0.2	<0.2	200	0
		Aromatic	o-xylene	mg/kg	0.1	<0.1	<0.1	200	0
		Polycyclic	Naphthalene	mg/kg	0.1	<0.1	<0.1	200	0
		Surrogates	Dibromofluoromethane (Surrogate)	mg/kg	-	4.6	4.2	50	10
			d4-1,2-dichloroethane (Surrogate)	mg/kg	-	4.7	4.2	50	11
			d8-toluene (Surrogate)	mg/kg	-	4.8	3.9	50	20
			Bromofluorobenzene (Surrogate)	mg/kg	-	4.1	4.1	50	1
		Totals	Total Xylenes*	mg/kg	0.3	<0.3	<0.3	200	0
			Total BTEX	mg/kg	0.6	<0.6	<0.6	200	0

Volatile Petroleum Hydrocarbons in Soil

Method: ME-(AU)-[ENV]AN433

Original	Duplicate		Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE156934.008	LB109562.014		TRH C6-C10	mg/kg	25	<25	<25	200	0
			TRH C6-C9	mg/kg	20	<20	<20	200	0
		Surrogates	Dibromofluoromethane (Surrogate)	mg/kg	-	3.7	3.6	30	4
			d4-1,2-dichloroethane (Surrogate)	mg/kg	-	4.3	4.1	30	5
			d8-toluene (Surrogate)	mg/kg	-	4.5	4.2	30	7
			Bromofluorobenzene (Surrogate)	mg/kg	-	4.3	3.9	30	10
		VPH F Bands	Benzene (F0)	mg/kg	0.1	<0.1	<0.1	200	0
			TRH C6-C10 minus BTEX (F1)	mg/kg	25	<25	<25	200	0
SE156934.018	LB109562.025		TRH C6-C10	mg/kg	25	<25	<25	200	0
			TRH C6-C9	mg/kg	20	<20	<20	200	0
		Surrogates	Dibromofluoromethane (Surrogate)	mg/kg	-	3.6	3.8	30	5
			d4-1,2-dichloroethane (Surrogate)	mg/kg	-	4.2	4.1	30	3
			d8-toluene (Surrogate)	mg/kg	-	3.9	4.0	30	0
			Bromofluorobenzene (Surrogate)	mg/kg	-	4.2	4.0	30	6
		VPH F Bands	Benzene (F0)	mg/kg	0.1	<0.1	<0.1	200	0
			TRH C6-C10 minus BTEX (F1)	mg/kg	25	<25	<25	200	0
SE156961.002	LB109628.014		TRH C6-C10	mg/kg	25	<25	<25	200	0
			TRH C6-C9	mg/kg	20	<20	<20	200	0
		Surrogates	Dibromofluoromethane (Surrogate)	mg/kg	-	3.8	3.6	30	8
			d4-1,2-dichloroethane (Surrogate)	mg/kg	-	4.4	4.3	30	1
			d8-toluene (Surrogate)	mg/kg	-	4.4	4.1	30	7
			Bromofluorobenzene (Surrogate)	mg/kg	-	4.1	3.7	30	9
		VPH F Bands	Benzene (F0)	mg/kg	0.1	<0.1	<0.1	200	0
			TRH C6-C10 minus BTEX (F1)	mg/kg	25	<25	<25	200	0
SE156987.003	LB109628.018		TRH C6-C10	mg/kg	25	<25	<25	200	0
			TRH C6-C9	mg/kg	20	<20	<20	200	0
		Surrogates	Dibromofluoromethane (Surrogate)	mg/kg	-	4.6	4.2	30	10
			d4-1,2-dichloroethane (Surrogate)	mg/kg	-	4.7	4.2	30	11
			d8-toluene (Surrogate)	mg/kg	-	4.8	3.9	30	20
			Bromofluorobenzene (Surrogate)	mg/kg	-	4.1	4.1	30	1
		VPH F Bands	Benzene (F0)	mg/kg	0.1	<0.1	<0.1	200	0
			TRH C6-C10 minus BTEX (F1)	mg/kg	25	<25	<25	200	0

Laboratory Control Standard (LCS) results are evaluated against an expected result, typically the concentration of analyte spiked into the control during the sample preparation stage, producing a percentage recovery. The criteria applied to the percentage recovery is established in the SGS QA /QC plan (Ref: MP-(AU)-[ENV]QU-022). For more information refer to the footnotes in the concluding page of this report.

Recovery is shown in **Green** when within suggested criteria or **Red** with an appended dagger symbol (†) when outside suggested criteria.

Mercury in Soil

Method: ME-(AU)-[ENV]AN312

Sample Number		Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB109719.002		Mercury	mg/kg	0.05	0.18	0.2	70 - 130	90
LB109720.002		Mercury	mg/kg	0.05	0.18	0.2	70 - 130	90
LB109754.002		Mercury	mg/kg	0.05	0.18	0.2	70 - 130	89

OC Pesticides in Soil

Method: ME-(AU)-[ENV]AN400/AN420

Sample Number		Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB109563.002		Heptachlor	mg/kg	0.1	0.2	0.2	60 - 140	100
		Aldrin	mg/kg	0.1	0.2	0.2	60 - 140	100
		Delta BHC	mg/kg	0.1	0.2	0.2	60 - 140	100
		Dieldrin	mg/kg	0.2	<0.2	0.2	60 - 140	95
		Endrin	mg/kg	0.2	0.3	0.2	60 - 140	130
		p,p'-DDT	mg/kg	0.1	0.2	0.2	60 - 140	105
	Surrogates	Tetrachloro-m-xylene (TCMX) (Surrogate)	mg/kg	-	0.13	0.15	40 - 130	85
LB109564.002		Heptachlor	mg/kg	0.1	0.2	0.2	60 - 140	110
		Aldrin	mg/kg	0.1	0.2	0.2	60 - 140	105
		Delta BHC	mg/kg	0.1	0.2	0.2	60 - 140	110
		Dieldrin	mg/kg	0.2	<0.2	0.2	60 - 140	90
		Endrin	mg/kg	0.2	0.2	0.2	60 - 140	115
		p,p'-DDT	mg/kg	0.1	0.3	0.2	60 - 140	125
	Surrogates	Tetrachloro-m-xylene (TCMX) (Surrogate)	mg/kg	-	0.13	0.15	40 - 130	89

OP Pesticides in Soil

Method: ME-(AU)-[ENV]AN400/AN420

Sample Number		Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB109563.002		Dichlorvos	mg/kg	0.5	1.9	2	60 - 140	93
		Diazinon (Dimpylate)	mg/kg	0.5	2.0	2	60 - 140	98
		Chlorpyrifos (Chlorpyrifos Ethyl)	mg/kg	0.2	1.9	2	60 - 140	94
		Ethion	mg/kg	0.2	1.9	2	60 - 140	95
	Surrogates	2-fluorobiphenyl (Surrogate)	mg/kg	-	0.4	0.5	40 - 130	76
		d14-p-terphenyl (Surrogate)	mg/kg	-	0.4	0.5	40 - 130	82
LB109564.002		Dichlorvos	mg/kg	0.5	1.8	2	60 - 140	88
		Diazinon (Dimpylate)	mg/kg	0.5	1.8	2	60 - 140	92
		Chlorpyrifos (Chlorpyrifos Ethyl)	mg/kg	0.2	1.5	2	60 - 140	77
		Ethion	mg/kg	0.2	2.0	2	60 - 140	98
	Surrogates	2-fluorobiphenyl (Surrogate)	mg/kg	-	0.4	0.5	40 - 130	72
		d14-p-terphenyl (Surrogate)	mg/kg	-	0.5	0.5	40 - 130	106

PAH (Polynuclear Aromatic Hydrocarbons) in Soil

Method: ME-(AU)-[ENV]AN420

Sample Number		Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB109563.002		Naphthalene	mg/kg	0.1	4.3	4	60 - 140	107
		Acenaphthylene	mg/kg	0.1	4.3	4	60 - 140	108
		Acenaphthene	mg/kg	0.1	3.9	4	60 - 140	98
		Phenanthrene	mg/kg	0.1	4.6	4	60 - 140	115
		Anthracene	mg/kg	0.1	4.7	4	60 - 140	117
		Fluoranthene	mg/kg	0.1	4.9	4	60 - 140	123
		Pyrene	mg/kg	0.1	4.6	4	60 - 140	116
		Benzo(a)pyrene	mg/kg	0.1	4.6	4	60 - 140	116
	Surrogates	d5-nitrobenzene (Surrogate)	mg/kg	-	0.4	0.5	40 - 130	84
		2-fluorobiphenyl (Surrogate)	mg/kg	-	0.4	0.5	40 - 130	76
		d14-p-terphenyl (Surrogate)	mg/kg	-	0.4	0.5	40 - 130	82
LB109564.002		Naphthalene	mg/kg	0.1	3.7	4	60 - 140	94
		Acenaphthylene	mg/kg	0.1	3.4	4	60 - 140	86
		Acenaphthene	mg/kg	0.1	3.7	4	60 - 140	93
		Phenanthrene	mg/kg	0.1	3.7	4	60 - 140	92
		Anthracene	mg/kg	0.1	3.9	4	60 - 140	97
		Fluoranthene	mg/kg	0.1	4.3	4	60 - 140	107
		Pyrene	mg/kg	0.1	4.8	4	60 - 140	121
		Benzo(a)pyrene	mg/kg	0.1	4.0	4	60 - 140	100
	Surrogates	d5-nitrobenzene (Surrogate)	mg/kg	-	0.4	0.5	40 - 130	78
		2-fluorobiphenyl (Surrogate)	mg/kg	-	0.4	0.5	40 - 130	72
		d14-p-terphenyl (Surrogate)	mg/kg	-	0.5	0.5	40 - 130	106

Total Phenolics in Soil

Method: ME-(AU)-[ENV]AN289

Sample Number	Parameter	Units	LOR

Laboratory Control Standard (LCS) results are evaluated against an expected result, typically the concentration of analyte spiked into the control during the sample preparation stage, producing a percentage recovery. The criteria applied to the percentage recovery is established in the SGS QA /QC plan (Ref: MP-(AU)-[ENV]QU-022). For more information refer to the footnotes in the concluding page of this report.

Recovery is shown in **Green** when within suggested criteria or **Red** with an appended dagger symbol (†) when outside suggested criteria.

Total Phenolics in Soil (continued)

Method: ME-(AU)-[ENV]AN289

Sample Number	Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB109780.002	Total Phenols	mg/kg	0.1	2.4	2.5	70 - 130	96
LB109826.002	Total Phenols	mg/kg	0.1	2.2	2.5	70 - 130	86
LB109827.002	Total Phenols	mg/kg	0.1	2.2	2.5	70 - 130	86

Total Recoverable Metals in Soil/Waste Solids/Materials by ICPOES

Method: ME-(AU)-[ENV]AN040/AN320

Sample Number	Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB109762.002	Arsenic, As	mg/kg	3	48	50	80 - 120	96
	Cadmium, Cd	mg/kg	0.3	50	50	80 - 120	99
	Chromium, Cr	mg/kg	0.3	49	50	80 - 120	99
	Copper, Cu	mg/kg	0.5	47	50	80 - 120	94
	Lead, Pb	mg/kg	1	48	50	80 - 120	96
	Nickel, Ni	mg/kg	0.5	49	50	80 - 120	97
	Zinc, Zn	mg/kg	0.5	49	50	80 - 120	98
LB109789.002	Arsenic, As	mg/kg	3	48	50	80 - 120	96
	Cadmium, Cd	mg/kg	0.3	49	50	80 - 120	98
	Chromium, Cr	mg/kg	0.3	48	50	80 - 120	96
	Copper, Cu	mg/kg	0.5	49	50	80 - 120	97
	Lead, Pb	mg/kg	1	49	50	80 - 120	98
	Nickel, Ni	mg/kg	0.5	49	50	80 - 120	98
	Zinc, Zn	mg/kg	0.5	50	50	80 - 120	99

TRH (Total Recoverable Hydrocarbons) in Soil

Method: ME-(AU)-[ENV]AN403

Sample Number		Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB109563.002		TRH C10-C14	mg/kg	20	34	40	60 - 140	85
		TRH C15-C28	mg/kg	45	<45	40	60 - 140	83
		TRH C29-C36	mg/kg	45	<45	40	60 - 140	80
	TRH F Bands	TRH >C10-C16 (F2)	mg/kg	25	34	40	60 - 140	85
		TRH >C16-C34 (F3)	mg/kg	90	<90	40	60 - 140	85
		TRH >C34-C40 (F4)	mg/kg	120	<120	20	60 - 140	80
LB109564.002		TRH C10-C14	mg/kg	20	39	40	60 - 140	98
		TRH C15-C28	mg/kg	45	<45	40	60 - 140	95
		TRH C29-C36	mg/kg	45	<45	40	60 - 140	98
	TRH F Bands	TRH >C10-C16 (F2)	mg/kg	25	39	40	60 - 140	98
		TRH >C16-C34 (F3)	mg/kg	90	<90	40	60 - 140	90
		TRH >C34-C40 (F4)	mg/kg	120	<120	20	60 - 140	110

VOC's in Soil

Method: ME-(AU)-[ENV]AN433

Sample Number		Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB109562.002	Monocyclic Aromatic	Benzene	mg/kg	0.1	1.8	2.9	60 - 140	63
		Toluene	mg/kg	0.1	2.0	2.9	60 - 140	69
		Ethylbenzene	mg/kg	0.1	2.2	2.9	60 - 140	75
		m/p-xylene	mg/kg	0.2	4.3	5.8	60 - 140	75
		o-xylene	mg/kg	0.1	2.3	2.9	60 - 140	78
	Surrogates	Dibromofluoromethane (Surrogate)	mg/kg	-	4.3	5	60 - 140	85
		d4-1,2-dichloroethane (Surrogate)	mg/kg	-	4.6	5	60 - 140	92
		d8-toluene (Surrogate)	mg/kg	-	4.9	5	60 - 140	99
		Bromofluorobenzene (Surrogate)	mg/kg	-	4.9	5	60 - 140	98
LB109628.002	Monocyclic Aromatic	Benzene	mg/kg	0.1	2.0	2.9	60 - 140	67
		Toluene	mg/kg	0.1	2.2	2.9	60 - 140	77
		Ethylbenzene	mg/kg	0.1	2.0	2.9	60 - 140	68
		m/p-xylene	mg/kg	0.2	4.4	5.8	60 - 140	75
		o-xylene	mg/kg	0.1	2.1	2.9	60 - 140	73
	Surrogates	Dibromofluoromethane (Surrogate)	mg/kg	-	5.4	5	60 - 140	107
		d4-1,2-dichloroethane (Surrogate)	mg/kg	-	5.4	5	60 - 140	107
		d8-toluene (Surrogate)	mg/kg	-	5.4	5	60 - 140	108
		Bromofluorobenzene (Surrogate)	mg/kg	-	5.6	5	60 - 140	111

Volatile Petroleum Hydrocarbons in Soil

Method: ME-(AU)-[ENV]AN433

Sample Number		Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB109562.002		TRH C6-C10	mg/kg	25	<25	24.65	60 - 140	89
		TRH C6-C9	mg/kg	20	<20	23.2	60 - 140	70
	Surrogates	Dibromofluoromethane (Surrogate)	mg/kg	-	4.3	5	60 - 140	85
		d4-1,2-dichloroethane (Surrogate)	mg/kg	-	4.6	5	60 - 140	92

Laboratory Control Standard (LCS) results are evaluated against an expected result, typically the concentration of analyte spiked into the control during the sample preparation stage, producing a percentage recovery. The criteria applied to the percentage recovery is established in the SGS QA /QC plan (Ref: MP-(AU)-[ENV]QU-022). For more information refer to the footnotes in the concluding page of this report.

Recovery is shown in **Green** when within suggested criteria or **Red** with an appended dagger symbol (†) when outside suggested criteria.

Volatile Petroleum Hydrocarbons in Soil (continued) — **Method: ME-(AU)-[ENV]AN433**

Sample Number		Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB109562.002	Surrogates	d8-toluene (Surrogate)	mg/kg	-	4.9	5	60 - 140	99
		Bromofluorobenzene (Surrogate)	mg/kg	-	4.9	5	60 - 140	98
	VPH F Bands	TRH C6-C10 minus BTEX (F1)	mg/kg	25	<25	7.25	60 - 140	129
LB109628.002		TRH C6-C10	mg/kg	25	<25	24.65	60 - 140	87
		TRH C6-C9	mg/kg	20	<20	23.2	60 - 140	65
	Surrogates	Dibromofluoromethane (Surrogate)	mg/kg	-	5.4	5	60 - 140	107
		d4-1,2-dichloroethane (Surrogate)	mg/kg	-	5.4	5	60 - 140	107
		d8-toluene (Surrogate)	mg/kg	-	5.4	5	60 - 140	108
		Bromofluorobenzene (Surrogate)	mg/kg	-	5.6	5	60 - 140	111
	VPH F Bands	TRH C6-C10 minus BTEX (F1)	mg/kg	25	<25	7.25	60 - 140	120

Matrix Spike (MS) results are evaluated as the percentage recovery of an expected result, typically the concentration of analyte spiked into a field sub -sample during the sample preparation stage. The original sample's result is subtracted from the sub-sample result before determining the percentage recovery. The criteria applied to the percentage recovery is established in the SGS QA/QC plan (ref: MP-(AU)-[ENV]QU-022). For more information refer to the footnotes in the concluding page of this report.

Recovery is shown in **Green** when within suggested criteria or **Red** with an appended reason identifer when outside suggested criteria. Refer to the footnotes section at the end of this report for failure reasons.

Mercury in Soil

Method: ME-(AU)-[ENV]AN312

QC Sample	Sample Number	Parameter	Units	LOR	Result	Original	Spike	Recovery%
SE156900.001	LB109720.004	Mercury	mg/kg	0.05	0.21	<0.05	0.2	89
SE156909.001	LB109719.004	Mercury	mg/kg	0.05	0.19	<0.05	0.2	83
SE156934.020	LB109754.004	Mercury	mg/kg	0.05	0.22	<0.05	0.2	86

OC Pesticides in Soil

Method: ME-(AU)-[ENV]AN400/AN420

QC Sample	Sample Number		Parameter	Units	LOR	Result	Original	Spike	Recovery%
SE156909.001	LB109563.028		Hexachlorobenzene (HCB)	mg/kg	0.1	<0.1	<0.1	-	-
			Alpha BHC	mg/kg	0.1	<0.1	<0.1	-	-
			Lindane	mg/kg	0.1	<0.1	<0.1	-	-
			Heptachlor	mg/kg	0.1	0.2	<0.1	0.2	110
			Aldrin	mg/kg	0.1	0.2	<0.1	0.2	105
			Beta BHC	mg/kg	0.1	<0.1	<0.1	-	-
			Delta BHC	mg/kg	0.1	0.2	<0.1	0.2	110
			Heptachlor epoxide	mg/kg	0.1	<0.1	<0.1	-	-
			o,p'-DDE	mg/kg	0.1	<0.1	<0.1	-	-
			Alpha Endosulfan	mg/kg	0.2	<0.2	<0.2	-	-
			Gamma Chlordane	mg/kg	0.1	<0.1	<0.1	-	-
			Alpha Chlordane	mg/kg	0.1	<0.1	<0.1	-	-
			trans-Nonachlor	mg/kg	0.1	<0.1	<0.1	-	-
			p,p'-DDE	mg/kg	0.1	<0.1	<0.1	-	-
			Dieldrin	mg/kg	0.2	0.2	<0.2	0.2	100
			Endrin	mg/kg	0.2	0.3	<0.2	0.2	140
			o,p'-DDD	mg/kg	0.1	<0.1	<0.1	-	-
			o,p'-DDT	mg/kg	0.1	<0.1	<0.1	-	-
			Beta Endosulfan	mg/kg	0.2	<0.2	<0.2	-	-
			p,p'-DDD	mg/kg	0.1	<0.1	<0.1	-	-
			p,p'-DDT	mg/kg	0.1	0.2	<0.1	0.2	115
			Endosulfan sulphate	mg/kg	0.1	<0.1	<0.1	-	-
			Endrin Aldehyde	mg/kg	0.1	<0.1	<0.1	-	-
			Methoxychlor	mg/kg	0.1	<0.1	<0.1	-	-
			Endrin Ketone	mg/kg	0.1	<0.1	<0.1	-	-
			Isodrin	mg/kg	0.1	<0.1	<0.1	-	-
			Mirex	mg/kg	0.1	<0.1	<0.1	-	-
		Surrogates	Tetrachloro-m-xylene (TCMX) (Surrogate)	mg/kg	-	0.14	0.13	-	93
SE156934.009	LB109564.023		Hexachlorobenzene (HCB)	mg/kg	0.1		<0.1	-	-
			Alpha BHC	mg/kg	0.1		<0.1	-	-
			Lindane	mg/kg	0.1		<0.1	-	-
			Heptachlor	mg/kg	0.1		<0.1	0.2	120
			Aldrin	mg/kg	0.1		<0.1	0.2	105
			Beta BHC	mg/kg	0.1		<0.1	-	-
			Delta BHC	mg/kg	0.1		<0.1	0.2	115
			Heptachlor epoxide	mg/kg	0.1		<0.1	-	-
			o,p'-DDE	mg/kg	0.1		<0.1	-	-
			Alpha Endosulfan	mg/kg	0.2		<0.2	-	-
			Gamma Chlordane	mg/kg	0.1		<0.1	-	-
			Alpha Chlordane	mg/kg	0.1		<0.1	-	-
			trans-Nonachlor	mg/kg	0.1		<0.1	-	-
			p,p'-DDE	mg/kg	0.1		<0.1	-	-
			Dieldrin	mg/kg	0.2		<0.2	0.2	95
			Endrin	mg/kg	0.2		<0.2	0.2	120
			o,p'-DDD	mg/kg	0.1		<0.1	-	-
			o,p'-DDT	mg/kg	0.1		<0.1	-	-
			Beta Endosulfan	mg/kg	0.2		<0.2	-	-
			p,p'-DDD	mg/kg	0.1		<0.1	-	-
			p,p'-DDT	mg/kg	0.1		<0.1	0.2	130
			Endosulfan sulphate	mg/kg	0.1		<0.1	-	-
			Endrin Aldehyde	mg/kg	0.1		<0.1	-	-
			Methoxychlor	mg/kg	0.1		<0.1	-	-
			Endrin Ketone	mg/kg	0.1		<0.1	-	-
			Isodrin	mg/kg	0.1		<0.1	-	-
			Mirex	mg/kg	0.1		<0.1	-	-

Matrix Spike (MS) results are evaluated as the percentage recovery of an expected result, typically the concentration of analyte spiked into a field sub -sample during the sample preparation stage. The original sample's result is subtracted from the sub-sample result before determining the percentage recovery. The criteria applied to the percentage recovery is established in the SGS QA/QC plan (ref: MP-(AU)-[ENV]QU-022). For more information refer to the footnotes in the concluding page of this report.

Recovery is shown in **Green** when within suggested criteria or **Red** with an appended reason identifer when outside suggested criteria. Refer to the footnotes section at the end of this report for failure reasons.

OC Pesticides in Soil (continued)

Method: ME-(AU)-[ENV]AN400/AN420

QC Sample	Sample Number		Parameter	Units	LOR	Result	Original	Spike	Recovery%
SE156934.009	LB109564.023	Surrogates	Tetrachloro-m-xylene (TCMX) (Surrogate)	mg/kg	-		0.14	-	92

OP Pesticides in Soil

Method: ME-(AU)-[ENV]AN400/AN420

QC Sample	Sample Number		Parameter	Units	LOR	Result	Original	Spike	Recovery%
SE156909.003	LB109563.026		Dichlorvos	mg/kg	0.5	1.9	<0.5	2	94
			Dimethoate	mg/kg	0.5	<0.5	<0.5	-	-
			Diazinon (Dimpylate)	mg/kg	0.5	2.0	<0.5	2	98
			Fenitrothion	mg/kg	0.2	<0.2	<0.2	-	-
			Malathion	mg/kg	0.2	<0.2	<0.2	-	-
			Chlorpyrifos (Chlorpyrifos Ethyl)	mg/kg	0.2	1.9	<0.2	2	93
			Parathion-ethyl (Parathion)	mg/kg	0.2	<0.2	<0.2	-	-
			Bromophos Ethyl	mg/kg	0.2	<0.2	<0.2	-	-
			Methidathion	mg/kg	0.5	<0.5	<0.5	-	-
			Ethion	mg/kg	0.2	1.9	<0.2	2	96
			Azinphos-methyl (Guthion)	mg/kg	0.2	<0.2	<0.2	-	-
		Surrogates	2-fluorobiphenyl (Surrogate)	mg/kg	-	0.4	0.4	-	82
			d14-p-terphenyl (Surrogate)	mg/kg	-	0.4	0.5	-	88
SE156934.009	LB109564.023		Dichlorvos	mg/kg	0.5		<0.5	2	82
			Dimethoate	mg/kg	0.5		<0.5	-	-
			Diazinon (Dimpylate)	mg/kg	0.5		<0.5	2	97
			Fenitrothion	mg/kg	0.2		<0.2	-	-
			Malathion	mg/kg	0.2		<0.2	-	-
			Chlorpyrifos (Chlorpyrifos Ethyl)	mg/kg	0.2		<0.2	2	94
			Parathion-ethyl (Parathion)	mg/kg	0.2		<0.2	-	-
			Bromophos Ethyl	mg/kg	0.2		<0.2	-	-
			Methidathion	mg/kg	0.5		<0.5	-	-
			Ethion	mg/kg	0.2		<0.2	2	99
			Azinphos-methyl (Guthion)	mg/kg	0.2		<0.2	-	-
		Surrogates	2-fluorobiphenyl (Surrogate)	mg/kg	-		0.4	-	76
			d14-p-terphenyl (Surrogate)	mg/kg	-		0.4	-	108

PAH (Polynuclear Aromatic Hydrocarbons) in Soil

Method: ME-(AU)-[ENV]AN420

QC Sample	Sample Number		Parameter	Units	LOR	Result	Original	Spike	Recovery%
SE156909.003	LB109563.026		Naphthalene	mg/kg	0.1	3.9	<0.1	4	96
			2-methylnaphthalene	mg/kg	0.1	<0.1	<0.1	-	-
			1-methylnaphthalene	mg/kg	0.1	<0.1	<0.1	-	-
			Acenaphthylene	mg/kg	0.1	3.6	<0.1	4	91
			Acenaphthene	mg/kg	0.1	3.8	<0.1	4	96
			Fluorene	mg/kg	0.1	<0.1	<0.1	-	-
			Phenanthrene	mg/kg	0.1	3.2	<0.1	4	80
			Anthracene	mg/kg	0.1	3.5	<0.1	4	87
			Fluoranthene	mg/kg	0.1	3.9	<0.1	4	97
			Pyrene	mg/kg	0.1	3.8	<0.1	4	96
			Benzo(a)anthracene	mg/kg	0.1	<0.1	<0.1	-	-
			Chrysene	mg/kg	0.1	<0.1	<0.1	-	-
			Benzo(b&j)fluoranthene	mg/kg	0.1	<0.1	<0.1	-	-
			Benzo(k)fluoranthene	mg/kg	0.1	<0.1	<0.1	-	-
			Benzo(a)pyrene	mg/kg	0.1	4.5	<0.1	4	114
			Indeno(1,2,3-cd)pyrene	mg/kg	0.1	<0.1	<0.1	-	-
			Dibenzo(ah)anthracene	mg/kg	0.1	<0.1	<0.1	-	-
			Benzo(ghi)perylene	mg/kg	0.1	<0.1	<0.1	-	-
			Carcinogenic PAHs, BaP TEQ <LOR=0	TEQ	0.2	4.5	<0.2	-	-
			Carcinogenic PAHs, BaP TEQ <LOR=LOR	TEQ (mg/kg)	0.3	4.7	<0.3	-	-
			Carcinogenic PAHs, BaP TEQ <LOR=LOR/2	TEQ (mg/kg)	0.2	4.6	<0.2	-	-
			Total PAH (18)	mg/kg	0.8	30	<0.8	-	-
		Surrogates	d5-nitrobenzene (Surrogate)	mg/kg	-	0.4	0.4	-	84
			2-fluorobiphenyl (Surrogate)	mg/kg	-	0.4	0.4	-	82
			d14-p-terphenyl (Surrogate)	mg/kg	-	0.4	0.5	-	88
SE156934.009	LB109564.023		Naphthalene	mg/kg	0.1		<0.1	4	83
			2-methylnaphthalene	mg/kg	0.1		<0.1	-	-
			1-methylnaphthalene	mg/kg	0.1		<0.1	-	-
			Acenaphthylene	mg/kg	0.1		<0.1	4	87

Matrix Spike (MS) results are evaluated as the percentage recovery of an expected result, typically the concentration of analyte spiked into a field sub -sample during the sample preparation stage. The original sample's result is subtracted from the sub-sample result before determining the percentage recovery. The criteria applied to the percentage recovery is established in the SGS QA/QC plan (ref: MP-(AU)-[ENV]QU-022). For more information refer to the footnotes in the concluding page of this report.

Recovery is shown in **Green** when within suggested criteria or **Red** with an appended reason identifer when outside suggested criteria. Refer to the footnotes section at the end of this report for failure reasons.

PAH (Polynuclear Aromatic Hydrocarbons) in Soil (continued)

Method: ME-(AU)-[ENV]AN420

QC Sample	Sample Number		Parameter	Units	LOR	Result	Original	Spike	Recovery%
SE156934.009	LB109564.023		Acenaphthene	mg/kg	0.1		<0.1	4	85
			Fluorene	mg/kg	0.1		<0.1	-	-
			Phenanthrene	mg/kg	0.1		<0.1	4	103
			Anthracene	mg/kg	0.1		<0.1	4	100
			Fluoranthene	mg/kg	0.1		<0.1	4	110
			Pyrene	mg/kg	0.1		<0.1	4	107
			Benzo(a)anthracene	mg/kg	0.1		<0.1	-	-
			Chrysene	mg/kg	0.1		<0.1	-	-
			Benzo(b&j)fluoranthene	mg/kg	0.1		<0.1	-	-
			Benzo(k)fluoranthene	mg/kg	0.1		<0.1	-	-
			Benzo(a)pyrene	mg/kg	0.1		<0.1	4	90
			Indeno(1,2,3-cd)pyrene	mg/kg	0.1		<0.1	-	-
			Dibenzo(ah)anthracene	mg/kg	0.1		<0.1	-	-
			Benzo(ghi)perylene	mg/kg	0.1		<0.1	-	-
			Carcinogenic PAHs, BaP TEQ <LOR=0	TEQ	0.2		<0.2	-	-
			Carcinogenic PAHs, BaP TEQ <LOR=LOR	TEQ (mg/kg)	0.3		<0.3	-	-
			Carcinogenic PAHs, BaP TEQ <LOR=LOR/2	TEQ (mg/kg)	0.2		<0.2	-	-
			Total PAH (18)	mg/kg	0.8		<0.8	-	-
		Surrogates	d5-nitrobenzene (Surrogate)	mg/kg	-		0.4	-	72
			2-fluorobiphenyl (Surrogate)	mg/kg	-		0.4	-	76
			d14-p-terphenyl (Surrogate)	mg/kg	-		0.4	-	108

Total Recoverable Metals in Soil/Waste Solids/Materials by ICPOES

Method: ME-(AU)-[ENV]AN040/AN320

QC Sample	Sample Number	Parameter	Units	LOR	Result	Original	Spike	Recovery%
SE156910.003	LB109762.004	Arsenic, As	mg/kg	3	49	6	50	85
		Cadmium, Cd	mg/kg	0.3	46	1.6	50	88
		Chromium, Cr	mg/kg	0.3	60	13	50	94
		Copper, Cu	mg/kg	0.5	100	56	50	91
		Lead, Pb	mg/kg	1	480	380	50	203 ⑤
		Nickel, Ni	mg/kg	0.5	110	39	50	142 ⑨
		Zinc, Zn	mg/kg	0.5	710	650	50	117

TRH (Total Recoverable Hydrocarbons) in Soil

Method: ME-(AU)-[ENV]AN403

QC Sample	Sample Number		Parameter	Units	LOR	Result	Original	Spike	Recovery%
SE156909.001	LB109563.026		TRH C10-C14	mg/kg	20	33	<20	40	83
			TRH C15-C28	mg/kg	45	<45	<45	40	88
			TRH C29-C36	mg/kg	45	<45	<45	40	93
			TRH C37-C40	mg/kg	100	<100	<100	-	-
			TRH C10-C36 Total	mg/kg	110	<110	<110	-	-
			TRH C10-C40 Total	mg/kg	210	<210	<210	-	-
		TRH F Bands	TRH >C10-C16 (F2)	mg/kg	25	33	<25	40	83
			TRH >C10-C16 (F2) - Naphthalene	mg/kg	25	33	<25	-	-
			TRH >C16-C34 (F3)	mg/kg	90	<90	<90	40	95
			TRH >C34-C40 (F4)	mg/kg	120	<120	<120	-	-
SE156934.009	LB109564.022		TRH C10-C14	mg/kg	20		<20	40	90
			TRH C15-C28	mg/kg	45		<45	40	108
			TRH C29-C36	mg/kg	45		<45	40	93
			TRH C37-C40	mg/kg	100		<100	-	-
			TRH C10-C36 Total	mg/kg	110		<110	-	-
			TRH C10-C40 Total	mg/kg	210		<210	-	-
		TRH F Bands	TRH >C10-C16 (F2)	mg/kg	25		<25	40	93
			TRH >C10-C16 (F2) - Naphthalene	mg/kg	25		<25	-	-
			TRH >C16-C34 (F3)	mg/kg	90		<90	40	105
			TRH >C34-C40 (F4)	mg/kg	120		<120	-	-

VOC's in Soil

Method: ME-(AU)-[ENV]AN433

QC Sample	Sample Number		Parameter	Units	LOR	Result	Original	Spike	Recovery%
SE156915.001	LB109562.004	Monocyclic Aromatic	Benzene	mg/kg	0.1	1.8	<0.1	2.9	62
			Toluene	mg/kg	0.1	1.9	<0.1	2.9	64
			Ethylbenzene	mg/kg	0.1	2.0	<0.1	2.9	70
			m/p-xylene	mg/kg	0.2	4.1	<0.2	5.8	71
			o-xylene	mg/kg	0.1	2.1	<0.1	2.9	71

Matrix Spike (MS) results are evaluated as the percentage recovery of an expected result, typically the concentration of analyte spiked into a field sub -sample during the sample preparation stage. The original sample's result is subtracted from the sub-sample result before determining the percentage recovery. The criteria applied to the percentage recovery is established in the SGS QA/QC plan (ref: MP-(AU)-[ENV]QU-022). For more information refer to the footnotes in the concluding page of this report.

Recovery is shown in **Green** when within suggested criteria or **Red** with an appended reason identifer when outside suggested criteria. Refer to the footnotes section at the end of this report for failure reasons.

VOC's in Soil (continued)

Method: ME-(AU)-[ENV]AN433

QC Sample	Sample Number		Parameter	Units	LOR	Result	Original	Spike	Recovery%
SE156915.001	LB109562.004	Polycyclic	Naphthalene	mg/kg	0.1	<0.1	<0.1	-	-
		Surrogates	Dibromofluoromethane (Surrogate)	mg/kg	-	4.2	4.1	-	84
			d4-1,2-dichloroethane (Surrogate)	mg/kg	-	4.6	4.5	-	92
			d8-toluene (Surrogate)	mg/kg	-	4.9	4.8	-	98
			Bromofluorobenzene (Surrogate)	mg/kg	-	4.7	4.3	-	94
		Totals	Total Xylenes*	mg/kg	0.3	6.2	<0.3	-	-
			Total BTEX	mg/kg	0.6	12	<0.6	-	-
SE156934.019	LB109628.004	Monocyclic	Benzene	mg/kg	0.1	2.0	<0.1	2.9	70
		Aromatic	Toluene	mg/kg	0.1	2.0	<0.1	2.9	67
			Ethylbenzene	mg/kg	0.1	2.2	<0.1	2.9	77
			m/p-xylene	mg/kg	0.2	4.9	<0.2	5.8	84
			o-xylene	mg/kg	0.1	2.5	<0.1	2.9	84
		Polycyclic	Naphthalene	mg/kg	0.1	<0.1	<0.1	-	-
		Surrogates	Dibromofluoromethane (Surrogate)	mg/kg	-	5.7	4.4	-	114
			d4-1,2-dichloroethane (Surrogate)	mg/kg	-	5.7	4.4	-	115
			d8-toluene (Surrogate)	mg/kg	-	5.7	4.2	-	113
			Bromofluorobenzene (Surrogate)	mg/kg	-	5.9	4.1	-	118
		Totals	Total Xylenes*	mg/kg	0.3	7.3	<0.3	-	-
			Total BTEX	mg/kg	0.6	14	<0.6	-	-

Volatile Petroleum Hydrocarbons in Soil

Method: ME-(AU)-[ENV]AN433

QC Sample	Sample Number		Parameter	Units	LOR	Result	Original	Spike	Recovery%
SE156915.001	LB109562.004		TRH C6-C10	mg/kg	25	<25	<25	24.65	86
			TRH C6-C9	mg/kg	20	<20	<20	23.2	62
		Surrogates	Dibromofluoromethane (Surrogate)	mg/kg	-	4.2	4.1	-	84
			d4-1,2-dichloroethane (Surrogate)	mg/kg	-	4.6	4.5	-	92
			d8-toluene (Surrogate)	mg/kg	-	4.9	4.8	-	98
			Bromofluorobenzene (Surrogate)	mg/kg	-	4.7	4.3	-	94
		VPH F	Benzene (F0)	mg/kg	0.1	1.8	<0.1	-	-
		Bands	TRH C6-C10 minus BTEX (F1)	mg/kg	25	<25	<25	7.25	129
SE156934.019	LB109628.004		TRH C6-C10	mg/kg	25	<25	<25	24.65	80
			TRH C6-C9	mg/kg	20	<20	<20	23.2	62
		Surrogates	Dibromofluoromethane (Surrogate)	mg/kg	-	5.7	4.4	-	114
			d4-1,2-dichloroethane (Surrogate)	mg/kg	-	5.7	4.4	-	115
			d8-toluene (Surrogate)	mg/kg	-	5.7	4.2	-	113
			Bromofluorobenzene (Surrogate)	mg/kg	-	5.9	4.1	-	118
		VPH F	Benzene (F0)	mg/kg	0.1	2.0	<0.1	-	-
		Bands	TRH C6-C10 minus BTEX (F1)	mg/kg	25	<25	<25	7.25	87

Matrix spike duplicates are calculated as Relative Percent Difference (RPD) using the formula: RPD = | OriginalResult - ReplicateResult | x 100 / Mean

The original result is the analyte concentration of the matrix spike. The Duplicate result is the analyte concentration of the matrix spike duplicate.

The RPD is evaluated against the Maximum Allowable Difference (MAD) criteria and can be graphically represented by a curve calculated from the Statistical Detection Limit (SDL) and Limiting Repeatability (LR) using the formula: MAD = 100 x SDL / Mean + LR

Where the Maximum Allowable Difference evaluates to a number larger than 200 it is displayed as 200.

RPD is shown in **Green** when within suggested criteria or **Red** with an appended reason identifer when outside suggested criteria. Refer to the footnotes section at the end of this report for failure reasons.

No matrix spike duplicates were required for this job.

Samples analysed as received.

Solid samples expressed on a dry weight basis.

QC criteria are subject to internal review according to the SGS QA/QC plan and may be provided on request or alternatively can be found here: http://www.sgs.com.au/~/media/Local/Australia/Documents/Technical Documents/MP-AU-ENV-QU-022 QA QC Plan.pdf

*	NATA accreditation does not cover tthe performance of this service.
-	Sample not analysed for this analyte.

IS	Insufficient sample for analysis.
LNR	Sample listed, but not received.
LOR	Limit of reporting.
QFH	QC result is above the upper tolerance.
QFL	QC result is below the lower tolerance.

①	At least 2 of 3 surrogates are within acceptance criteria.
②	RPD failed acceptance criteria due to sample heterogeneity.
③	Results less than 5 times LOR preclude acceptance criteria for RPD.
④	Recovery failed acceptance criteria due to matrix interference.
⑤	Recovery failed acceptance criteria due to the presence of significant concentration of analyte (i.e. the concentration of analyte exceeds the spike level).
⑥	LOR was raised due to sample matrix interference.
⑦	LOR was raised due to dilution of significantly high concentration of analyte in sample.
⑧	Reanalysis of sample in duplicate confirmed sample heterogeneity and inconsistency of results.
⑨	Recovery failed acceptance criteria due to sample heterogeneity.
⑩	LOR was raised due to high conductivity of the sample (required dilution).
†	Refer to Analytical Report comments for further information.

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Any other holder of this document is advised that information contained herein reflects the Company's findings at the time of its intervention only and within the limits of Client's instructions, if any. The Company's sole responsibility is to its Client and this document does not exonerate parties to a transaction from exercising all their rights and obligations under the transaction documents.

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source: M630_SR_20160909131926.pdf page: 1 SGS Ref: SE156944_COC

Asbestos Air Monitoring Field Sheet

SMEC Australia Pty Ltd
ABN 47 065475 149
Suite 2, level 1, 243 Northbourne Avenue, Lyneham 2602
02 6234 1900
Email: Mechelle.Swanepoel@smec.com

NOHSC: 3003(2005)			
Report Number:	Day 3	**Date:**	7/09/2016
Client:	LBA		
Site Address:	Canberra Brickworks		
Purpose of Test:	Asbestos Air Monitoring		
General Test Area:	LBR Brickworks (Around various test pits)		
Rotameter ID:	ML74840		
Timer ID:	Casio & Shock		

Sample #	Pump #	S / P *	Location	Flow Start	Time On	Flow Stop	Time Off
1745874	120375	P	With Ryan O'Leary Start TP16, then TP1,	3	9:00am	3	2.30pm

Note: * Static (control) or Personal (exposure) sampling.

Additional Notes:

No wind

24 HR TAT Please

SGS EHS Alexandria Laboratory

SE156944 COC
Received: 09 – Sep – 2016

Sampled by:	RYAN O'LEARY
Signature:	R. O'Leary @ 1145 09/09/16
Date:	07 / 09 / 2016

SAMPLE RECEIPT ADVICE

SE156944

CLIENT DETAILS

Contact	Mechelle Swanepoel
Client	SMEC AUSTRALIA PTY LTD
Address	Sun Micro Building Suite 2, Level 1 243 Northbourne Avenue ACT 2602
Telephone	02 6234 1900
Facsimile	02 6234 1966
Email	mechelle.swanepoel@smec.com
Project	**M474840 CBR Brickworks Various Test Pits**
Order Number	(Not specified)
Samples	1

LABORATORY DETAILS

Manager	Huong Crawford
Laboratory	SGS Alexandria Environmental
Address	Unit 16, 33 Maddox St Alexandria NSW 2015
Telephone	+61 2 8594 0400
Facsimile	+61 2 8594 0499
Email	au.environmental.sydney@sgs.com
Samples Received	Fri 9/9/2016
Report Due	Mon 12/9/2016
SGS Reference	**SE156944**

SUBMISSION DETAILS

This is to confirm that 1 sample was received on Friday 9/9/2016. Results are expected to be ready by Monday 12/9/2016. Please quote SGS reference SE156944 when making enquiries. Refer below for details relating to sample integrity upon receipt.

Sample counts by matrix	1 Filter	Type of documentation received	COC
Date documentation received	9/9/2016	Samples received in good order	Yes
Samples received without headspace	N/A	Sample temperature upon receipt	20.5°C
Sample container provider	Client	Turnaround time requested	Next Day
Samples received in correct containers	Yes	Sufficient sample for analysis	Yes
Sample cooling method	None	Samples clearly labelled	Yes
Complete documentation received	Yes	Number of eskies/boxes received	

Unless otherwise instructed, water and bulk samples will be held for one month from date of report, and soil samples will be held for two months.

COMMENTS

To the extent not inconsistent with the other provisions of this document and unless specifically agreed otherwise in writing by SGS, all SGS services are rendered in accordance with the applicable SGS General Conditions of Service accessible at http://www.sgs.com/en/terms-and-conditions as at the date of this document. Attention is drawn to the limitations of liability and to the clauses of indemnification.

SAMPLE RECEIPT ADVICE

SE156944

CLIENT DETAILS

Client SMEC AUSTRALIA PTY LTD

Project M474840 CBR Brickworks Various Test Pits

SUMMARY OF ANALYSIS

No.	Sample ID	Airborne Fibre Monitoring
001	19457874	3

The above table represents SGS' interpretation of the client-supplied Chain Of Custody document.
The numbers shown in the table indicate the number of results requested in each package.
Please indicate as soon as possible should your request differ from these details .
Testing as per this table shall commence immediately unless the client intervenes with a correction .

ANALYTICAL REPORT

Accreditation No. 2562

CLIENT DETAILS

Contact	Mechelle Swanepoel
Client	SMEC AUSTRALIA PTY LTD
Address	Sun Micro Building Suite 2, Level 1 243 Northbourne Avenue ACT 2602
Telephone	02 6234 1900
Facsimile	02 6234 1966
Email	mechelle.swanepoel@smec.com
Project	**M474840 CBR Brickworks Various Test Pits**
Order Number	(Not specified)
Samples	1

LABORATORY DETAILS

Manager	Huong Crawford
Laboratory	SGS Alexandria Environmental
Address	Unit 16, 33 Maddox St Alexandria NSW 2015
Telephone	+61 2 8594 0400
Facsimile	+61 2 8594 0499
Email	au.environmental.sydney@sgs.com
SGS Reference	**SE156944 R0**
Date Received	09 Sep 2016
Date Reported	12/09/2016 5:01:25PM

COMMENTS

Accredited for compliance with ISO/IEC 17025. NATA accredited laboratory 2562(4354).

The reporting of Fibres/mL may only be done when volume measurements are conducted by a NATA accredited body. Where this report contains both Fibres/Field and a typical K factor which are NATA endorsed, these may be converted to Fibres/mL using this and your volume readings. Where sampling has been performed by SGS Environmental Services, or by a company that holds accreditation for air sampling volume measurement, results are reported as fibres/mL.

Air volume measurement was performed by Ryan O'Leary of SMEC Australia Pty. Ltd. who has been formally trained and assessed by SGS Alexandria who remain responsible for the data.

Asbestos analysed by Approved Counter Ravee Sivasubramaniam.

SIGNATORIES

Ravee Sivasubramaniam
Hygiene Team Leader

ANALYTICAL REPORT

RESULTS

Method AN601 Airborne Fibre Monitoring

Laboratory Reference	Client Reference and Description	Date Sampled	Fibres/Fields	Concentration Fibres/mL
SE156944.001	19457874 cowl	07 Sep 2016	<1.0 Fibres/100 fields	<0.01

METHOD SUMMARY

SE156944 R0

METHOD	METHODOLOGY SUMMARY
AN601	Airborne asbestos dust and synthetic mineral fibres (SMF) based on the NOHSC (April 2005) guidance note on the membrane filter method NOHSC:3003 (2005) exclusive of sampling. The sample is collected by drawing a volume of air through a membrane filter. The filter is then mounted on a glass slide and the fibres counted according to the specified criteria using phase contrast microscopy.

FOOTNOTES

IS	Insufficient sample for analysis.	LOR	Limit of Reporting
LNR	Sample listed, but not received.	QFH	QC result is above the upper tolerance
*	NATA accreditation does not cover the performance of this service.	QFL	QC result is below the lower tolerance
**	Indicative data, theoretical holding time exceeded.	NA	The sample was not analysed for this analyte

Limit of Reporting (LOR) for Fibre Counting by NOHSC:3003 is 0.01 Fibres per millilitre (Fibres/mL)
Concentration Fibres/mL only covered by the scope of accreditation if sampling performed by SGS .

The QC criteria are subject to internal review according to the SGS QAQC plan and may be provided on request or at this link : http://www.sgs.com.au/~/media/Local/Australia/Documents/Technical%20Documents/MP-AU-ENV-QU-022%20QA%20QC%20Plan.pdf

This document is issued, on the Client's behalf, by the Company under its General Conditions of Service available on request and accessible at http://www.sgs.com/en/terms-and-conditions. The Client's attention is drawn to the limitation of liability, indemnification and jurisdiction issues defined therein.

Any other holder of this document is advised that information contained hereon reflects the Company 's findings at the time of its intervention only and within the limits of Client's instructions, if any. The Company's sole responsibility is to its Client and this document does not exonerate parties to a transaction from exercising all their rights and obligations under the transaction documents.

This test report shall not be reproduced, except in full.

source: M630_SR_20160912091224.pdf page: 1 SGS Ref: SE156973_COC

Asbestos Air Monitoring Field Sheet

SMEC Australia Pty Ltd
ABN 47 065475 149
Suite 2, level 1, 243 Northbourne Avenue, Lyneham 2602
02 6234 1900
Email: Mechelle.Swanepoel@smec.com

NOHSC: 3003(2005)			
Report Number:	Day 5	**Date:**	9/9/2016
Client:	LDA		
Site Address:	CBR BRICKWORKS		
Purpose of Test:	Asbestos		
General Test Area:	BH2 - start BH15 - end		
Rotameter ID:	M474840		
Timer ID:	Casio & Shark		

Sample #	Pump #	S / P *	Location	Flow Start	Time On	Flow Stop	Time Off
19611994	120947	P	BH2 - Start BH15-end	2	8:30am	2	4:30pm

SGS EHS Alexandria Laboratory
SE156973 COC
Received: 12 – Sep – 2016

Note: * Static (control) or Personal (exposure) sampling.

Additional Notes:

No wind

24HR TAT Please

Sampled by:	Ryan O'Leary		12/09/16 @ 9:45
Signature:			
Date:	9 / 9 / 2016		

SAMPLE RECEIPT ADVICE

SE156973

CLIENT DETAILS

Contact	Mechelle Swanepoel
Client	SMEC AUSTRALIA PTY LTD
Address	Sun Micro Building Suite 2, Level 1 243 Northbourne Avenue ACT 2602
Telephone	02 6234 1900
Facsimile	02 6234 1966
Email	mechelle.swanepoel@smec.com
Project	**M474840 CBR Brickworks BH2 Strt BH15 End**
Order Number	(Not specified)
Samples	1

LABORATORY DETAILS

Manager	Huong Crawford
Laboratory	SGS Alexandria Environmental
Address	Unit 16, 33 Maddox St Alexandria NSW 2015
Telephone	+61 2 8594 0400
Facsimile	+61 2 8594 0499
Email	au.environmental.sydney@sgs.com
Samples Received	Mon 12/9/2016
Report Due	Tue 13/9/2016
SGS Reference	**SE156973**

SUBMISSION DETAILS

This is to confirm that 1 sample was received on Monday 12/9/2016. Results are expected to be ready by Tuesday 13/9/2016. Please quote SGS reference SE156973 when making enquiries. Refer below for details relating to sample integrity upon receipt.

Sample counts by matrix	1 Filter	Type of documentation received	COC
Date documentation received	12/9/2016	Samples received in good order	Yes
Samples received without headspace	N/A	Sample temperature upon receipt	18.3°C
Sample container provider	Client	Turnaround time requested	Next Day
Samples received in correct containers	Yes	Sufficient sample for analysis	Yes
Sample cooling method	None	Samples clearly labelled	Yes
Complete documentation received	Yes	Number of eskies/boxes received	

Unless otherwise instructed, water and bulk samples will be held for one month from date of report, and soil samples will be held for two months.

COMMENTS

To the extent not inconsistent with the other provisions of this document and unless specifically agreed otherwise in writing by SGS, all SGS services are rendered in accordance with the applicable SGS General Conditions of Service accessible at http://www.sgs.com/en/terms-and-conditions as at the date of this document. Attention is drawn to the limitations of liability and to the clauses of indemnification.

SAMPLE RECEIPT ADVICE

SE156973

CLIENT DETAILS

Client SMEC AUSTRALIA PTY LTD

Project M474840 CBR Brickworks BH2 Strt BH15 End

SUMMARY OF ANALYSIS

No.	Sample ID	Airborne Fibre Monitoring
001	19611994	3

The above table represents SGS' interpretation of the client-supplied Chain Of Custody document.
The numbers shown in the table indicate the number of results requested in each package.
Please indicate as soon as possible should your request differ from these details .
Testing as per this table shall commence immediately unless the client intervenes with a correction .

ANALYTICAL REPORT

Accreditation No. 2562

CLIENT DETAILS

Contact	Mechelle Swanepoel
Client	SMEC AUSTRALIA PTY LTD
Address	Sun Micro Building Suite 2, Level 1 243 Northbourne Avenue ACT 2602
Telephone	02 6234 1900
Facsimile	02 6234 1966
Email	mechelle.swanepoel@smec.com
Project	**M474840 CBR Brickworks BH2 Strt BH15 End**
Order Number	(Not specified)
Samples	1

LABORATORY DETAILS

Manager	Huong Crawford
Laboratory	SGS Alexandria Environmental
Address	Unit 16, 33 Maddox St Alexandria NSW 2015
Telephone	+61 2 8594 0400
Facsimile	+61 2 8594 0499
Email	au.environmental.sydney@sgs.com
SGS Reference	**SE156973 R0**
Date Received	12 Sep 2016
Date Reported	13/09/2016 4:04:07PM

COMMENTS

Accredited for compliance with ISO/IEC 17025. NATA accredited laboratory 2562(4354).

The reporting of Fibres/mL may only be done when volume measurements are conducted by a NATA accredited body. Where this report contains both Fibres/Field and a typical K factor which are NATA endorsed, these may be converted to Fibres/mL using this and your volume readings. Where sampling has been performed by SGS Environmental Services, or by a company that holds accreditation for air sampling volume measurement, results are reported as fibres/mL.

Air volume measurement was performed by Ryan O'Leary of SMEC Australia Pty. Ltd. who has been formally trained and assessed by SGS Alexandria who remain responsible for the data.

Asbestos analysed by Approved Counter Ravee Sivasubramaniam.

SIGNATORIES

Ravee Sivasubramaniam
Hygiene Team Leader

ANALYTICAL REPORT

SE156973 R0

RESULTS

Method AN601 Airborne Fibre Monitoring

Laboratory Reference	Client Reference and Description	Date Sampled	Fibres/Fields	Concentration Fibres/mL
SE156973.001	19611994 cowl	09 Sep 2016	2.0 Fibres/100 fields	<0.01

METHOD SUMMARY

SE156973 R0

METHOD	METHODOLOGY SUMMARY
AN601	Airborne asbestos dust and synthetic mineral fibres (SMF) based on the NOHSC (April 2005) guidance note on the membrane filter method NOHSC:3003 (2005) exclusive of sampling. The sample is collected by drawing a volume of air through a membrane filter. The filter is then mounted on a glass slide and the fibres counted according to the specified criteria using phase contrast microscopy.

FOOTNOTES

IS	Insufficient sample for analysis.	LOR	Limit of Reporting
LNR	Sample listed, but not received.	QFH	QC result is above the upper tolerance
*	NATA accreditation does not cover the performance of this service.	QFL	QC result is below the lower tolerance
**	Indicative data, theoretical holding time exceeded.	NA	The sample was not analysed for this analyte

Limit of Reporting (LOR) for Fibre Counting by NOHSC:3003 is 0.01 Fibres per millilitre (Fibres/mL)
Concentration Fibres/mL only covered by the scope of accreditation if sampling performed by SGS .

The QC criteria are subject to internal review according to the SGS QAQC plan and may be provided on request or at this link : http://www.sgs.com.au/~/media/Local/Australia/Documents/Technical%20Documents/MP-AU-ENV-QU-022%20QA%20QC%20Plan.pdf

This document is issued, on the Client's behalf, by the Company under its General Conditions of Service available on request and accessible at http://www.sgs.com/en/terms-and-conditions. The Client's attention is drawn to the limitation of liability, indemnification and jurisdiction issues defined therein.

Any other holder of this document is advised that information contained hereon reflects the Company's findings at the time of its intervention only and within the limits of Client's instructions, if any. The Company's sole responsibility is to its Client and this document does not exonerate parties to a transaction from exercising all their rights and obligations under the transaction documents.

This test report shall not be reproduced, except in full.

source: M630_SR_20160914100602.pdf page: 1 SGS Ref: SE157066_COC

La received 13/9/16 @ 4:38 pm

SGS

CHAIN OF CUSTODY & ANALYSIS REQUEST

SGS Environmental Services
Unit 16, 33 Maddox Street
Alexandria NSW 2015
Telephone No: (02) 85940400
Facsimile No: (02) 85940499
Email:

Company Name:	SMEC	Project Name/No:	3002523 – Canberra Brickworks
Address:	Suite 2, Level 1, 243 Northbourne Avenue, Lyneham, ACT, 2602, Australia	Purchase Order No:	
		Results Required By:	Ryan O'Leary
Contact Name:	Ryan O'Leary	Telephone:	+61 2 6234 1963 / 0400 240 023
		Facsimile:	
		Email Results:	Ryan.O'Leary@smec.com

Client Sample ID	Date Sampled	Lab Sample ID	WATER	SOIL		NO OF CONTAINERS	Asbestos ID	BTEXN	OPPs	OCPs	PHAs/Phenols	8 Metals - As, Cd, Cr, Cu, Ni, Pb, Zn, Hg	TPH/TRH	On Hold
TP13_0.8	07 -09-16	1		✓		1 jar		✓	✓	✓	✓	✓	✓	
TP15_0.7	07 -09-16	2		✓		1 jar		✓	✓	✓	✓	✓	✓	
TP16_0.4	07 -09-16	3		✓		1 jar		✓	✓	✓	✓	✓	✓	
TP16_1.2	07 -09-16			✓		1 jar								✓
TP24_0.3	07-09-16			✓		1 jar								✓
TP24_0.5	07 -09-16	4		✓		1 jar		✓	✓	✓	✓	✓	✓	
TP25_1.1	07-09-16	5		✓		1 jar		✓	✓	✓	✓	✓	✓	
TP25_1.5	07-09-16			✓		1 jar								✓

SGS EHS Alexandria Laboratory
SE157066 COC
Received: 12 – Sep – 2016

Relinquished By: Natasha Lee	Date/Time: 13/09/16 3.45pm	Received By:	Date/Time 12/09/16 @ 10.45
Relinquished By:	Date/Time:	Received By:	Date/Time
Samples Intact: (Yes) No	Temperature: Ambient / (Chilled)	Sample Cooler Sealed: Yes/ No	Laboratory Quotation No:
	Comments: AS PER SGS QUOTE NUMBER SY1 – 60413 – 2-IS DATED 13TH APRIL 2016	**STANDARD TAT PLEASE (5 DAY)**	

SGS

CHAIN OF CUSTODY & ANALYSIS REQUEST

SGS Environmental Services
Unit 16, 33 Maddox Street
Alexandria NSW 2015
Telephone No: (02) 85940400
Facsimile No: (02) 85940499
Email:

Company Name:	SMEC	Project Name/No:	3002523 – Canberra Brickworks
Address:	Suite 2, Level 1, 243 Northbourne Avenue, Lyneham,	Purchase Order No:	
	ACT, 2602, Australia	Results Required By:	Ryan O'Leary
		Telephone:	+61 2 6234 1963 / 0400 240 023
Contact Name:	Ryan O'Leary	Facsimile:	
		Email Results:	Ryan.O'Leary@smec.com

Client Sample ID	Date Sampled	Lab Sample ID	WATER	SOIL		NO OF CONTAINERS	Asbestos ID	BTEXN	OPPs	OCPs	PHAs/Phenols	8 Metals - As, Cd, Cr, Cu, Ni, Pb, Zn, Hg	TPH/TRH	On Hold								
TP28_0.15	08 -09-16	6		✓		1 jar		✓	✓	✓	✓	✓	✓									
TP34A_0.5	08 -09-16	7		✓		1 jar		✓	✓	✓	✓	✓	✓									
TP12_0.1	08 -09-16	8		✓		1 jar		✓	✓	✓	✓	✓	✓									
TP12_1.0	08 -09-16			✓		1 jar								✓								
TP14_0.1	08 -09-16	9		✓		1 jar		✓	✓	✓	✓	✓	✓									
TP18_0.1	08 -09-16	10		✓		1 jar		✓	✓	✓	✓	✓	✓									
TP23_0.1-0.15	08 -09-16	11		✓		1 jar		✓	✓	✓	✓	✓	✓									
TP29_0.1	08 -09-16	12		✓		1 jar		✓	✓	✓	✓	✓	✓									

Relinquished By: Natasha Crook	Date/Time: 13/09/16 3:41pm	Received By:	Date/Time 12/09/16 @ 10:45
Relinquished By:	Date/Time:	Received By:	Date/Time
Samples Intact: Yes/No	Temperature: Ambient / Chilled	Sample Cooler Sealed: Yes/ No	Laboratory Quotation No:
	Comments: AS PER SGS QUOTE NUMBER SY1 – 60413 – 2-IS DATED 13TH APRIL 2016	**STANDARD TAT PLEASE (5 DAY)**	

SGS

CHAIN OF CUSTODY & ANALYSIS REQUEST

SGS Environmental Services
Unit 16, 33 Maddox Street
Alexandria NSW 2015
Telephone No: (02) 85940400
Facsimile No: (02) 85940499
Email:

Company Name:	SMEC	Project Name/No:	3002523 – Canberra Brickw orks
Address:	Suite 2, Level 1, 243 Northbourne Avenue, Lyneham, ACT, 2602, Australia	Purchase Order No:	
		Results Required By:	Ryan O'Leary
		Telephone:	+61 2 6234 1963 / 0400 240 023
Contact Name:	Ryan O'Leary	Facsimile:	
		Email Results:	Ryan.O'Leary@smec.com

Client Sample ID	Date Sampled	Lab Sample ID	WATER	SOIL		NO OF CONTAINERS	Asbestos ID	BTEXN	OPPs	OCPs	PHAs/Phenols	8 Metals - As, Cd, Cr, Cu, Ni, Pb, Zn, Hg	TPH/TRH	On Hold									
TP26_0.1	08 -09-16	13		✓		1 jar		✓	✓	✓	✓	✓	✓										
TP27_0.2	08 -09-16	14		✓		1 jar		✓	✓	✓	✓	✓	✓										
TP30_0.1	08 -09-16	15		✓		1 jar		✓	✓	✓	✓	✓	✓										
TP31_0.1	08 -09-16			✓		1 jar								✓									
TP31_0.3	08 -09-16	16		✓		1 jar		✓	✓	✓	✓	✓	✓										
TP32_0.1	08 -09-16	17		✓		1 jar		✓	✓	✓	✓	✓	✓										
TP40.2_0.1	08 -09-16	18		✓		1 jar		✓	✓	✓	✓	✓	✓										
TP43_0.1	08 -09-16	19		✓		1 jar		✓	✓	✓	✓	✓	✓										

Relinquished By: Natasha Trail	Date/Time: 13/09/16 3:45pm	Received By:	Date/Time 12/09/16 @ 10:45
Relinquished By:	Date/Time:	Received By:	Date/Time
Samples Intact: (Yes) No	Temperature: Ambient / Chilled	Sample Cooler Sealed: Yes/ No	Laboratory Quotation No:
	Comments: AS PER SGS QUOTE NUMBER SY1 – 60413 – 2-IS DATED 13TH APRIL 2016	**STANDARD TAT PLEASE (5 DAY)**	

SGS

CHAIN OF CUSTODY & ANALYSIS REQUEST

SGS Environmental Services
Unit 16, 33 Maddox Street
Alexandria NSW 2015
Telephone No: (02) 85940400
Facsimile No: (02) 85940499
Email:

Company Name:	SMEC	Project Name/No:	3002523 – Canberra Brickworks
Address:	Suite 2, Level 1, 243 Northbourne Avenue, Lyneham,	Purchase Order No:	
	ACT, 2602, Australia	Results Required By:	Ryan O'Leary
		Telephone:	+61 2 6234 1963 / 0400 240 023
Contact Name:	Ryan O'Leary	Facsimile:	
		Email Results:	Ryan.O'Leary@smec.com

Client Sample ID	Date Sampled	Lab Sample ID	WATER	SOIL		NO OF CONTAINERS	Asbestos ID	BTEXN	OPPs	OCPs	PHAs/Phenols	8 Metals - As, Cd, Cr, Cu, Ni, Pb, Zn, Hg	TPH/TRH	On Hold								
TP43_0.8	08 -09-16			✓		1 jar								✓								
TP44_0.1	08 -09-16	20		✓		1 jar		✓	✓	✓	✓	✓	✓									
TP44_0.5	08 -09-16			✓		1 jar								✓								
TP54_0.1	08 -09-16	21		✓		1 jar		✓	✓	✓	✓	✓	✓									
TP23_0.05-0.15	08 -09-16			✓		1 jar								✓								
TP23_0.7-0.8	08 -09-16			✓		1 jar								✓								
BH01_0.13-0.23	08 -09-16			✓		1 jar								✓								
BH01_0.36-0.46	08 -09-16	22		✓		1 jar		✓	✓	✓	✓	✓	✓									

Relinquished By:	Date/Time: 13/09/16 3:41pm	Received By:	Date/Time 12/09/16 @ 10:45
Relinquished By:	Date/Time:	Received By:	Date/Time
Samples Intact: (Yes) / No	Temperature: Ambient / (Chilled)	Sample Cooler Sealed: Yes/ No	Laboratory Quotation No:
	Comments: AS PER SGS QUOTE NUMBER SY1 – 60413 – 2-IS DATED 13TH APRIL 2016	**STANDARD TAT PLEASE (5 DAY)**	

SGS

CHAIN OF CUSTODY & ANALYSIS REQUEST

SGS Environmental Services
Unit 16, 33 Maddox Street
Alexandria NSW 2015
Telephone No: (02) 85940400
Facsimile No: (02) 85940499
Email:

Company Name: SMEC
Address: Suite 2, Level 1, 243 Northbourne Avenue, Lyneham, ACT, 2602, Australia
Contact Name: Ryan O'Leary

Project Name/No: 3002523 – Canberra Brickworks
Purchase Order No:
Results Required By: Ryan O'Leary
Telephone: +61 2 6234 1963 / 0400 240 023
Facsimile:
Email Results: Ryan.O'Leary@smec.com

Client Sample ID	Date Sampled	Lab Sample ID	WATER	SOIL		NO OF CONTAINERS	Asbestos ID	BTEXN	OPPs	OCPs	PHAs/Phenols	8 Metals - As, Cd, Cr, Cu, Ni, Pb, Zn, Hg	TPH/TRH	On Hold								
BH01_0.6-0.7	08 -09-16			✓		1 jar								✓								
BH01_2.0-2.1	08 -09-16			✓		1 jar								✓								
BH01_2.7-2.8	08 -09-16			✓		1 jar								✓								
TP63_0.4-2.5	08 -09-16	23		✓		1 jar		✓	✓	✓	✓	✓	✓									
TP51_1.3-1.4	08 -09-16	24		✓		1 jar		✓	✓	✓	✓	✓	✓									
QC4	08 -09-16	25		✓		1 jar		✓	✓	✓	✓	✓	✓									
TP51_0.4-0.5	08 -09-16			✓		1 jar								✓								
QC1	08 -09-16	26		✓		1 jar		✓	✓	✓	✓	✓	✓									

Relinquished By: Natasha Crabb
Date/Time: 13/09/16 2:45pm
Received By: B. Quy
Date/Time: 12/09/16 @ 10:45

Relinquished By:
Date/Time:
Received By:
Date/Time

Samples Intact: (Yes) / No
Temperature: Ambient / (Chilled)
Sample Cooler Sealed: Yes / No
Laboratory Quotation No:

Comments: AS PER SGS QUOTE NUMBER SY1 – 60413 – 2-IS DATED 13TH APRIL 2016

STANDARD TAT PLEASE (5 DAY)

AU.SampleReceipt.Sydney (Sydney)

From: Swanepoel, Mechelle [Mechelle.Swanepoel@smec.com]
Sent: Tuesday, 13 September 2016 5:38 PM
To: Ellerington, Trent (Sydney); AU.SampleReceipt.Sydney (Sydney); Crook, Natasha
Cc: O'Leary, Ryan
Subject: RE: SMEC COC 9/09/16 (project 3002523) and COC 13/09/16

Hi Trent, please can you arrange for 48hr TA.

Another lot will be leaving here tomorrow morning for same job.

Thanks

Regards

Mechelle Swanepoel | ACT / SNSW Environment Manager / National Sector Leader – Contamination
SMEC – Australia & New Zealand Division
T +61 2 6234 1944 | M +61 429 156 662

From: Ellerington, Trent (Sydney)
Sent: 13/09/2016 4:40 PM
To: AU.SampleReceipt.Sydney (Sydney); Crook, Natasha
Cc: Swanepoel, Mechelle; O'Leary, Ryan
Subject: FW: SMEC COC 9/09/16 (project 3002523) and COC 13/09/16

Thanks Natasha,

Work will start on the job tomorrow, and we will package the analysis into Suites when invoicing.

Warm Regards,

Trent Ellerington
Environment, Health & Safety
Customer Service Team Leader

Phone: +61 (0)2 8594 0400
Direct: +61 (0)2 8594 0449
Mobile: +61 (0)4 0797 2867

From: Crook, Natasha [mailto:Natasha.Crook@smec.com]
Sent: Tuesday, 13 September 2016 4:01 PM
To: Ellerington, Trent (Sydney)
Cc: Swanepoel, Mechelle; O'Leary, Ryan
Subject: SMEC COC 9/09/16 (project 3002523) and COC 13/09/16

Hello Trent,
Please see the attachment of the COC for the sample jars and bags that was sent to you on Friday 9th and you would of received on Monday 12th.

Five eskys with samples have been sent to you today. With the COC from the project number '3002092 CLR Depot', the testing for the jar samples is from the suite pricing – CL17 TRH/BTEX/PAH/OC/OP/PCB/8 Metals – please group the jar samples into CL17.

If you have any questions please feel free to contact us.

SAMPLE RECEIPT ADVICE

SE157066

CLIENT DETAILS

Contact	Ryan O'Leary
Client	SMEC AUSTRALIA PTY LTD
Address	Sun Micro Building Suite 2, Level 1 243 Northbourne Avenue ACT 2602
Telephone	02 6234 1963
Facsimile	02 6234 1966
Email	Ryan.O'Leary@smec.com
Project	**3002523 - Canberra Brickworks**
Order Number	**SY1-60413-2-IS**
Samples	32

LABORATORY DETAILS

Manager	Huong Crawford
Laboratory	SGS Alexandria Environmental
Address	Unit 16, 33 Maddox St Alexandria NSW 2015
Telephone	+61 2 8594 0400
Facsimile	+61 2 8594 0499
Email	au.environmental.sydney@sgs.com
Samples Received	Mon 12/9/2016
Report Due	Fri 16/9/2016
SGS Reference	**SE157066**

SUBMISSION DETAILS

This is to confirm that 32 samples were received on Monday 12/9/2016. Results are expected to be ready by Friday 16/9/2016. Please quote SGS reference SE157066 when making enquiries. Refer below for details relating to sample integrity upon receipt.

Sample counts by matrix	32 Soil	Type of documentation received	COC
Date documentation received	13/9/16@4:38pm	Samples received in good order	Yes
Samples received without headspace	Yes	Sample temperature upon receipt	14.3°C
Sample container provider	SGS	Turnaround time requested	Two Days
Samples received in correct containers	Yes	Sufficient sample for analysis	Yes
Sample cooling method	None	Samples clearly labelled	Yes
Complete documentation received	Yes	Number of eskies/boxes received	

Unless otherwise instructed, water and bulk samples will be held for one month from date of report, and soil samples will be held for two months.

COMMENTS

COC received at 13/9/16 @ 4:38pm. Request was not registered until the next business day.
14 soil samples have been placed on hold.

To the extent not inconsistent with the other provisions of this document and unless specifically agreed otherwise in writing by SGS, all SGS services are rendered in accordance with the applicable SGS General Conditions of Service accessible at http://www.sgs.com/en/terms-and-conditions as at the date of this document. Attention is drawn to the limitations of liability and to the clauses of indemnification.

SAMPLE RECEIPT ADVICE

SE157066

CLIENT DETAILS

Client SMEC AUSTRALIA PTY LTD

Project 3002523 - Canberra Brickworks

SUMMARY OF ANALYSIS

No.	Sample ID	OC Pesticides in Soil	OP Pesticides in Soil	PAH (Polynuclear Aromatic Hydrocarbons) in Soil	Total Phenolics in Soil	Total Recoverable Metals in Soil/Waste	TRH (Total Recoverable Hydrocarbons) in Soil	VOC's in Soil	Volatile Petroleum Hydrocarbons in Soil
001	TP13_0.8	28	13	26	1	7	10	12	8
002	TP15_0.7	28	13	26	1	7	10	12	8
003	TP16_0.4	28	13	26	1	7	10	12	8
004	TP24_0.5	28	13	26	1	7	10	12	8
005	TP25_1.1	28	13	26	1	7	10	12	8
006	TP28_0.15	28	13	26	1	7	10	12	8
007	TP34A_0.5	28	13	26	1	7	10	12	8
008	TP12_0.1	28	13	26	1	7	10	12	8
009	TP14_0.1	28	13	26	1	7	10	12	8
010	TP18_0.1	28	13	26	1	7	10	12	8
011	TP23_0.1-0.15	28	13	26	1	7	10	12	8
012	TP29_0.1	28	13	26	1	7	10	12	8
013	TP26_0.1	28	13	26	1	7	10	12	8
014	TP27_0.2	28	13	26	1	7	10	12	8
015	TP30_0.1	28	13	26	1	7	10	12	8
016	TP31_0.3	28	13	26	1	7	10	12	8
017	TP32_0.1	28	13	26	1	7	10	12	8
018	TP40.2_0.1	28	13	26	1	7	10	12	8
019	TP43_0.1	28	13	26	1	7	10	12	8
020	TP44_0.1	28	13	26	1	7	10	12	8
021	TP54_0.1	28	13	26	1	7	10	12	8
022	BH01_0.36-0.46	28	13	26	1	7	10	12	8
023	TP63_0.4-0.25	28	13	26	1	7	10	12	8
024	TP51_1.3-1.4	28	13	26	1	7	10	12	8

CONTINUED OVERLEAF

The above table represents SGS' interpretation of the client-supplied Chain Of Custody document.
The numbers shown in the table indicate the number of results requested in each package.
Please indicate as soon as possible should your request differ from these details .
Testing as per this table shall commence immediately unless the client intervenes with a correction .

SAMPLE RECEIPT ADVICE

SE157066

CLIENT DETAILS

Client SMEC AUSTRALIA PTY LTD

Project 3002523 - Canberra Brickworks

SUMMARY OF ANALYSIS

No.	Sample ID	OC Pesticides in Soil	OP Pesticides in Soil	PAH (Polynuclear Aromatic Hydrocarbons) in Soil	Total Phenolics in Soil	Total Recoverable Metals in Soil/Waste	TRH (Total Recoverable Hydrocarbons) in Soil	VOC's in Soil	Volatile Petroleum Hydrocarbons in Soil
025	QC4	28	13	26	1	7	10	12	8
026	QC1	28	13	26	1	7	10	12	8
027	TP36_0.2-0.3	28	13	26	1	7	10	12	8
028	TP50_0.2-0.3	28	13	26	1	7	10	12	8
029	TP58_0.05-0.15	28	13	26	1	7	10	12	8
030	TP59_0.2-0.3	28	13	26	1	7	10	12	8
031	QC2	28	13	26	1	7	10	12	8
032	QC3	28	13	26	1	7	10	12	8

CONTINUED OVERLEAF

The above table represents SGS' interpretation of the client-supplied Chain Of Custody document.
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Please indicate as soon as possible should your request differ from these details .
Testing as per this table shall commence immediately unless the client intervenes with a correction .

SAMPLE RECEIPT ADVICE

SE157066

CLIENT DETAILS

Client SMEC AUSTRALIA PTY LTD

Project 3002523 - Canberra Brickworks

SUMMARY OF ANALYSIS

No.	Sample ID	Mercury in Soil	Moisture Content
001	TP13_0.8	1	1
002	TP15_0.7	1	1
003	TP16_0.4	1	1
004	TP24_0.5	1	1
005	TP25_1.1	1	1
006	TP28_0.15	1	1
007	TP34A_0.5	1	1
008	TP12_0.1	1	1
009	TP14_0.1	1	1
010	TP18_0.1	1	1
011	TP23_0.1-0.15	1	1
012	TP29_0.1	1	1
013	TP26_0.1	1	1
014	TP27_0.2	1	1
015	TP30_0.1	1	1
016	TP31_0.3	1	1
017	TP32_0.1	1	1
018	TP40.2_0.1	1	1
019	TP43_0.1	1	1
020	TP44_0.1	1	1
021	TP54_0.1	1	1
022	BH01_0.36-0.46	1	1
023	TP63_0.4-0.25	1	1
024	TP51_1.3-1.4	1	1

CONTINUED OVERLEAF

The above table represents SGS' interpretation of the client-supplied Chain Of Custody document.
The numbers shown in the table indicate the number of results requested in each package.
Please indicate as soon as possible should your request differ from these details .
Testing as per this table shall commence immediately unless the client intervenes with a correction .

SAMPLE RECEIPT ADVICE

SE157066

CLIENT DETAILS

Client SMEC AUSTRALIA PTY LTD

Project 3002523 - Canberra Brickworks

SUMMARY OF ANALYSIS

No.	Sample ID	Mercury in Soil	Moisture Content
025	QC4	1	1
026	QC1	1	1
027	TP36_0.2-0.3	1	1
028	TP50_0.2-0.3	1	1
029	TP58_0.05-0.15	1	1
030	TP59_0.2-0.3	1	1
031	QC2	1	1
032	QC3	1	1

The above table represents SGS' interpretation of the client-supplied Chain Of Custody document.
The numbers shown in the table indicate the number of results requested in each package.
Please indicate as soon as possible should your request differ from these details .
Testing as per this table shall commence immediately unless the client intervenes with a correction .

ANALYTICAL REPORT

Accreditation No. 2562

CLIENT DETAILS

Contact	Ryan O'Leary
Client	SMEC AUSTRALIA PTY LTD
Address	Sun Micro Building Suite 2, Level 1 243 Northbourne Avenue ACT 2602
Telephone	02 6234 1963
Facsimile	02 6234 1966
Email	Ryan.O'Leary@smec.com
Project	**3002523 - Canberra Brickworks**
Order Number	**SY1-60413-2-IS**
Samples	32

LABORATORY DETAILS

Manager	Huong Crawford
Laboratory	SGS Alexandria Environmental
Address	Unit 16, 33 Maddox St Alexandria NSW 2015
Telephone	+61 2 8594 0400
Facsimile	+61 2 8594 0499
Email	au.environmental.sydney@sgs.com
SGS Reference	**SE157066 R0**
Date Received	12/9/2016
Date Reported	16/9/2016

COMMENTS

Accredited for compliance with ISO/IEC 17025. NATA accredited laboratory 2562(4354).

PAH/OP/TRH/OC -The Limit of Reporting (LOR) has been raised due to limited sample used.

SIGNATORIES

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VOC's in Soil [AN433] Tested: 14/9/2016

PARAMETER	UOM	LOR	TP13_0.8 SOIL - 7/9/2016 SE157066.001	TP15_0.7 SOIL - 7/9/2016 SE157066.002	TP16_0.4 SOIL - 7/9/2016 SE157066.003	TP24_0.5 SOIL - 7/9/2016 SE157066.004	TP25_1.1 SOIL - 7/9/2016 SE157066.005
Benzene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Toluene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Ethylbenzene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
m/p-xylene	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
o-xylene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Total Xylenes*	mg/kg	0.3	<0.3	<0.3	<0.3	<0.3	<0.3
Total BTEX	mg/kg	0.6	<0.6	<0.6	<0.6	<0.6	<0.6
Naphthalene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1

PARAMETER	UOM	LOR	TP28_0.15 SOIL - 8/9/2016 SE157066.006	TP34A_0.5 SOIL - 8/9/2016 SE157066.007	TP12_0.1 SOIL - 8/9/2016 SE157066.008	TP14_0.1 SOIL - 8/9/2016 SE157066.009	TP18_0.1 SOIL - 8/9/2016 SE157066.010
Benzene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Toluene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Ethylbenzene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
m/p-xylene	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
o-xylene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Total Xylenes*	mg/kg	0.3	<0.3	<0.3	<0.3	<0.3	<0.3
Total BTEX	mg/kg	0.6	<0.6	<0.6	<0.6	<0.6	<0.6
Naphthalene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1

PARAMETER	UOM	LOR	TP23_0.1-0.15 SOIL - 8/9/2016 SE157066.011	TP29_0.1 SOIL - 8/9/2016 SE157066.012	TP26_0.1 SOIL - 8/9/2016 SE157066.013	TP27_0.2 SOIL - 8/9/2016 SE157066.014	TP30_0.1 SOIL - 8/9/2016 SE157066.015
Benzene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Toluene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Ethylbenzene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
m/p-xylene	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
o-xylene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Total Xylenes*	mg/kg	0.3	<0.3	<0.3	<0.3	<0.3	<0.3
Total BTEX	mg/kg	0.6	<0.6	<0.6	<0.6	<0.6	<0.6
Naphthalene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1

PARAMETER	UOM	LOR	TP31_0.3 SOIL - 8/9/2016 SE157066.016	TP32_0.1 SOIL - 8/9/2016 SE157066.017	TP40.2_0.1 SOIL - 8/9/2016 SE157066.018	TP43_0.1 SOIL - 8/9/2016 SE157066.019	TP44_0.1 SOIL - 8/9/2016 SE157066.020
Benzene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Toluene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Ethylbenzene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
m/p-xylene	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
o-xylene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Total Xylenes*	mg/kg	0.3	<0.3	<0.3	<0.3	<0.3	<0.3
Total BTEX	mg/kg	0.6	<0.6	<0.6	<0.6	<0.6	<0.6
Naphthalene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1

VOC's in Soil [AN433] Tested: 14/9/2016 (continued)

PARAMETER	UOM	LOR	TP54_0.1 SOIL - 8/9/2016 SE157066.021	BH01_0.36-0.46 SOIL - 8/9/2016 SE157066.022	TP63_0.4-0.25 SOIL - 8/9/2016 SE157066.023	TP51_1.3-1.4 SOIL - 8/9/2016 SE157066.024	QC4 SOIL - 8/9/2016 SE157066.025
Benzene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Toluene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Ethylbenzene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
m/p-xylene	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
o-xylene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Total Xylenes*	mg/kg	0.3	<0.3	<0.3	<0.3	<0.3	<0.3
Total BTEX	mg/kg	0.6	<0.6	<0.6	<0.6	<0.6	<0.6
Naphthalene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1

PARAMETER	UOM	LOR	QC1 SOIL - 8/9/2016 SE157066.026	TP36_0.2-0.3 SOIL - 8/9/2016 SE157066.027	TP50_0.2-0.3 SOIL - 8/9/2016 SE157066.028	TP58_0.05-0.15 SOIL - 8/9/2016 SE157066.029	TP59_0.2-0.3 SOIL - 8/9/2016 SE157066.030
Benzene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Toluene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Ethylbenzene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
m/p-xylene	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
o-xylene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Total Xylenes*	mg/kg	0.3	<0.3	<0.3	<0.3	<0.3	<0.3
Total BTEX	mg/kg	0.6	<0.6	<0.6	<0.6	<0.6	<0.6
Naphthalene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1

PARAMETER	UOM	LOR	QC2 SOIL - 8/9/2016 SE157066.031	QC3 SOIL - 8/9/2016 SE157066.032
Benzene	mg/kg	0.1	<0.1	<0.1
Toluene	mg/kg	0.1	<0.1	<0.1
Ethylbenzene	mg/kg	0.1	<0.1	<0.1
m/p-xylene	mg/kg	0.2	<0.2	<0.2
o-xylene	mg/kg	0.1	<0.1	<0.1
Total Xylenes*	mg/kg	0.3	<0.3	<0.3
Total BTEX	mg/kg	0.6	<0.6	<0.6
Naphthalene	mg/kg	0.1	<0.1	<0.1

Volatile Petroleum Hydrocarbons in Soil [AN433] Tested: 14/9/2016

PARAMETER	UOM	LOR	TP13_0.8 SOIL - 7/9/2016 SE157066.001	TP15_0.7 SOIL - 7/9/2016 SE157066.002	TP16_0.4 SOIL - 7/9/2016 SE157066.003	TP24_0.5 SOIL - 7/9/2016 SE157066.004	TP25_1.1 SOIL - 7/9/2016 SE157066.005
TRH C6-C9	mg/kg	20	<20	<20	<20	<20	<20
Benzene (F0)	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
TRH C6-C10	mg/kg	25	<25	<25	<25	<25	<25
TRH C6-C10 minus BTEX (F1)	mg/kg	25	<25	<25	<25	<25	<25

PARAMETER	UOM	LOR	TP28_0.15 SOIL - 8/9/2016 SE157066.006	TP34A_0.5 SOIL - 8/9/2016 SE157066.007	TP12_0.1 SOIL - 8/9/2016 SE157066.008	TP14_0.1 SOIL - 8/9/2016 SE157066.009	TP18_0.1 SOIL - 8/9/2016 SE157066.010
TRH C6-C9	mg/kg	20	<20	<20	<20	<20	<20
Benzene (F0)	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
TRH C6-C10	mg/kg	25	<25	<25	<25	<25	<25
TRH C6-C10 minus BTEX (F1)	mg/kg	25	<25	<25	<25	<25	<25

PARAMETER	UOM	LOR	TP23_0.1-0.15 SOIL - 8/9/2016 SE157066.011	TP29_0.1 SOIL - 8/9/2016 SE157066.012	TP26_0.1 SOIL - 8/9/2016 SE157066.013	TP27_0.2 SOIL - 8/9/2016 SE157066.014	TP30_0.1 SOIL - 8/9/2016 SE157066.015
TRH C6-C9	mg/kg	20	<20	<20	<20	<20	<20
Benzene (F0)	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
TRH C6-C10	mg/kg	25	<25	<25	<25	<25	<25
TRH C6-C10 minus BTEX (F1)	mg/kg	25	<25	<25	<25	<25	<25

PARAMETER	UOM	LOR	TP31_0.3 SOIL - 8/9/2016 SE157066.016	TP32_0.1 SOIL - 8/9/2016 SE157066.017	TP40.2_0.1 SOIL - 8/9/2016 SE157066.018	TP43_0.1 SOIL - 8/9/2016 SE157066.019	TP44_0.1 SOIL - 8/9/2016 SE157066.020
TRH C6-C9	mg/kg	20	<20	<20	<20	<20	<20
Benzene (F0)	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
TRH C6-C10	mg/kg	25	<25	<25	<25	<25	<25
TRH C6-C10 minus BTEX (F1)	mg/kg	25	<25	<25	<25	<25	<25

PARAMETER	UOM	LOR	TP54_0.1 SOIL - 8/9/2016 SE157066.021	BH01_0.36-0.46 SOIL - 8/9/2016 SE157066.022	TP63_0.4-0.25 SOIL - 8/9/2016 SE157066.023	TP51_1.3-1.4 SOIL - 8/9/2016 SE157066.024	QC4 SOIL - 8/9/2016 SE157066.025
TRH C6-C9	mg/kg	20	<20	<20	<20	<20	<20
Benzene (F0)	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
TRH C6-C10	mg/kg	25	<25	<25	<25	<25	<25
TRH C6-C10 minus BTEX (F1)	mg/kg	25	<25	<25	<25	<25	<25

PARAMETER	UOM	LOR	QC1 SOIL - 8/9/2016 SE157066.026	TP36_0.2-0.3 SOIL - 8/9/2016 SE157066.027	TP50_0.2-0.3 SOIL - 8/9/2016 SE157066.028	TP58_0.05-0.15 SOIL - 8/9/2016 SE157066.029	TP59_0.2-0.3 SOIL - 8/9/2016 SE157066.030
TRH C6-C9	mg/kg	20	<20	<20	<20	<20	<20
Benzene (F0)	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
TRH C6-C10	mg/kg	25	<25	<25	<25	<25	<25
TRH C6-C10 minus BTEX (F1)	mg/kg	25	<25	<25	<25	<25	<25

Volatile Petroleum Hydrocarbons in Soil [AN433] Tested: 14/9/2016 (continued)

PARAMETER	UOM	LOR	QC2 SOIL - 8/9/2016 SE157066.031	QC3 SOIL - 8/9/2016 SE157066.032
TRH C6-C9	mg/kg	20	<20	<20
Benzene (F0)	mg/kg	0.1	<0.1	<0.1
TRH C6-C10	mg/kg	25	<25	<25
TRH C6-C10 minus BTEX (F1)	mg/kg	25	<25	<25

TRH (Total Recoverable Hydrocarbons) in Soil [AN403] Tested: 14/9/2016

PARAMETER	UOM	LOR	TP13_0.8 SOIL - 7/9/2016 SE157066.001	TP15_0.7 SOIL - 7/9/2016 SE157066.002	TP16_0.4 SOIL - 7/9/2016 SE157066.003	TP24_0.5 SOIL - 7/9/2016 SE157066.004	TP25_1.1 SOIL - 7/9/2016 SE157066.005
TRH C10-C14	mg/kg	20	<20	<20	<20	<20	<20
TRH C15-C28	mg/kg	45	<45	<45	<45	<45	<45
TRH C29-C36	mg/kg	45	<45	<45	<45	<45	<45
TRH C37-C40	mg/kg	100	<100	<100	<100	<100	<100
TRH >C10-C16 (F2)	mg/kg	25	<25	<25	<25	<25	<25
TRH >C10-C16 (F2) - Naphthalene	mg/kg	25	<25	<25	<25	<25	<25
TRH >C16-C34 (F3)	mg/kg	90	<90	<90	<90	<90	<90
TRH >C34-C40 (F4)	mg/kg	120	<120	<120	<120	<120	<120
TRH C10-C36 Total	mg/kg	110	<110	<110	<110	<110	<110
TRH C10-C40 Total	mg/kg	210	<210	<210	<210	<210	<210

PARAMETER	UOM	LOR	TP28_0.15 SOIL - 8/9/2016 SE157066.006	TP34A_0.5 SOIL - 8/9/2016 SE157066.007	TP12_0.1 SOIL - 8/9/2016 SE157066.008	TP14_0.1 SOIL - 8/9/2016 SE157066.009	TP18_0.1 SOIL - 8/9/2016 SE157066.010
TRH C10-C14	mg/kg	20	<20	<20	<40↑	<40↑	<20
TRH C15-C28	mg/kg	45	**66**	<45	<90↑	<90↑	<45
TRH C29-C36	mg/kg	45	<45	<45	<90↑	<90↑	<45
TRH C37-C40	mg/kg	100	<100	<100	<200↑	<200↑	<100
TRH >C10-C16 (F2)	mg/kg	25	<25	<25	<50↑	<50↑	<25
TRH >C10-C16 (F2) - Naphthalene	mg/kg	25	<25	<25	<50↑	<50↑	<25
TRH >C16-C34 (F3)	mg/kg	90	<90	<90	<180↑	<180↑	<90
TRH >C34-C40 (F4)	mg/kg	120	<120	<120	<240↑	<240↑	<120
TRH C10-C36 Total	mg/kg	110	<110	<110	<220↑	<220↑	<110
TRH C10-C40 Total	mg/kg	210	<210	<210	<420↑	<420↑	<210

PARAMETER	UOM	LOR	TP23_0.1-0.15 SOIL - 8/9/2016 SE157066.011	TP29_0.1 SOIL - 8/9/2016 SE157066.012	TP26_0.1 SOIL - 8/9/2016 SE157066.013	TP27_0.2 SOIL - 8/9/2016 SE157066.014	TP30_0.1 SOIL - 8/9/2016 SE157066.015
TRH C10-C14	mg/kg	20	<20	<20	<20	<20	<20
TRH C15-C28	mg/kg	45	<45	<45	<45	**65**	<45
TRH C29-C36	mg/kg	45	<45	<45	<45	<45	<45
TRH C37-C40	mg/kg	100	<100	<100	<100	<100	<100
TRH >C10-C16 (F2)	mg/kg	25	<25	<25	<25	<25	<25
TRH >C10-C16 (F2) - Naphthalene	mg/kg	25	<25	<25	<25	<25	<25
TRH >C16-C34 (F3)	mg/kg	90	<90	<90	<90	<90	<90
TRH >C34-C40 (F4)	mg/kg	120	<120	<120	<120	<120	<120
TRH C10-C36 Total	mg/kg	110	<110	<110	<110	<110	<110
TRH C10-C40 Total	mg/kg	210	<210	<210	<210	<210	<210

TRH (Total Recoverable Hydrocarbons) in Soil [AN403] Tested: 14/9/2016 (continued)

PARAMETER	UOM	LOR	TP31_0.3 SOIL - 8/9/2016 SE157066.016	TP32_0.1 SOIL - 8/9/2016 SE157066.017	TP40.2_0.1 SOIL - 8/9/2016 SE157066.018	TP43_0.1 SOIL - 8/9/2016 SE157066.019	TP44_0.1 SOIL - 8/9/2016 SE157066.020
TRH C10-C14	mg/kg	20	<40↑	<40↑	<40↑	<40↑	<20
TRH C15-C28	mg/kg	45	<90↑	<90↑	<90↑	<90↑	<45
TRH C29-C36	mg/kg	45	<90↑	<90↑	<90↑	<90↑	<45
TRH C37-C40	mg/kg	100	<200↑	<200↑	<200↑	<200↑	<100
TRH >C10-C16 (F2)	mg/kg	25	<50↑	<50↑	<50↑	<50↑	<25
TRH >C10-C16 (F2) - Naphthalene	mg/kg	25	<50↑	<50↑	<50↑	<50↑	<25
TRH >C16-C34 (F3)	mg/kg	90	<180↑	<180↑	<180↑	<180↑	<90
TRH >C34-C40 (F4)	mg/kg	120	<240↑	<240↑	<240↑	<240↑	<120
TRH C10-C36 Total	mg/kg	110	<220↑	<220↑	<220↑	<220↑	<110
TRH C10-C40 Total	mg/kg	210	<420↑	<420↑	<420↑	<420↑	<210

PARAMETER	UOM	LOR	TP54_0.1 SOIL - 8/9/2016 SE157066.021	BH01_0.36-0.46 SOIL - 8/9/2016 SE157066.022	TP63_0.4-0.25 SOIL - 8/9/2016 SE157066.023	TP51_1.3-1.4 SOIL - 8/9/2016 SE157066.024	QC4 SOIL - 8/9/2016 SE157066.025
TRH C10-C14	mg/kg	20	<20	<20	<20	<20	<20
TRH C15-C28	mg/kg	45	<45	<45	<45	<45	<45
TRH C29-C36	mg/kg	45	<45	<45	<45	<45	<45
TRH C37-C40	mg/kg	100	<100	<100	<100	<100	<100
TRH >C10-C16 (F2)	mg/kg	25	<25	<25	<25	<25	<25
TRH >C10-C16 (F2) - Naphthalene	mg/kg	25	<25	<25	<25	<25	<25
TRH >C16-C34 (F3)	mg/kg	90	<90	<90	<90	<90	<90
TRH >C34-C40 (F4)	mg/kg	120	<120	<120	<120	<120	<120
TRH C10-C36 Total	mg/kg	110	<110	<110	<110	<110	<110
TRH C10-C40 Total	mg/kg	210	<210	<210	<210	<210	<210

PARAMETER	UOM	LOR	QC1 SOIL - 8/9/2016 SE157066.026	TP36_0.2-0.3 SOIL - 8/9/2016 SE157066.027	TP50_0.2-0.3 SOIL - 8/9/2016 SE157066.028	TP58_0.05-0.15 SOIL - 8/9/2016 SE157066.029	TP59_0.2-0.3 SOIL - 8/9/2016 SE157066.030
TRH C10-C14	mg/kg	20	<20	<20	<20	<20	<20
TRH C15-C28	mg/kg	45	<45	<45	<45	<45	<45
TRH C29-C36	mg/kg	45	<45	<45	<45	<45	<45
TRH C37-C40	mg/kg	100	<100	<100	<100	<100	<100
TRH >C10-C16 (F2)	mg/kg	25	<25	<25	<25	<25	<25
TRH >C10-C16 (F2) - Naphthalene	mg/kg	25	<25	<25	<25	<25	<25
TRH >C16-C34 (F3)	mg/kg	90	<90	<90	<90	<90	<90
TRH >C34-C40 (F4)	mg/kg	120	<120	<120	<120	<120	<120
TRH C10-C36 Total	mg/kg	110	<110	<110	<110	<110	<110
TRH C10-C40 Total	mg/kg	210	<210	<210	<210	<210	<210

TRH (Total Recoverable Hydrocarbons) in Soil [AN403] Tested: 14/9/2016 (continued)

PARAMETER	UOM	LOR	QC2 SOIL - 8/9/2016 SE157066.031	QC3 SOIL - 8/9/2016 SE157066.032
TRH C10-C14	mg/kg	20	<20	<20
TRH C15-C28	mg/kg	45	<45	<45
TRH C29-C36	mg/kg	45	<45	<45
TRH C37-C40	mg/kg	100	<100	<100
TRH >C10-C16 (F2)	mg/kg	25	<25	<25
TRH >C10-C16 (F2) - Naphthalene	mg/kg	25	<25	<25
TRH >C16-C34 (F3)	mg/kg	90	<90	<90
TRH >C34-C40 (F4)	mg/kg	120	<120	<120
TRH C10-C36 Total	mg/kg	110	<110	<110
TRH C10-C40 Total	mg/kg	210	<210	<210

PAH (Polynuclear Aromatic Hydrocarbons) in Soil [AN420] Tested: 14/9/2016

PARAMETER	UOM	LOR	TP13_0.8 SOIL - 7/9/2016 SE157066.001	TP15_0.7 SOIL - 7/9/2016 SE157066.002	TP16_0.4 SOIL - 7/9/2016 SE157066.003	TP24_0.5 SOIL - 7/9/2016 SE157066.004	TP25_1.1 SOIL - 7/9/2016 SE157066.005
Naphthalene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
2-methylnaphthalene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
1-methylnaphthalene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Acenaphthylene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Acenaphthene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Fluorene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Phenanthrene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Anthracene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Fluoranthene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Pyrene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(a)anthracene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Chrysene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(b&j)fluoranthene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(k)fluoranthene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(a)pyrene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Indeno(1,2,3-cd)pyrene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Dibenzo(ah)anthracene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(ghi)perylene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Carcinogenic PAHs, BaP TEQ <LOR=0	TEQ	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Carcinogenic PAHs, BaP TEQ <LOR=LOR	TEQ (mg/kg)	0.3	<0.3	<0.3	<0.3	<0.3	<0.3
Carcinogenic PAHs, BaP TEQ <LOR=LOR/2	TEQ (mg/kg)	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Total PAH (18)	mg/kg	0.8	<0.8	<0.8	<0.8	<0.8	<0.8
Total PAH (NEPM/WHO 16)	mg/kg	0.8	<0.8	<0.8	<0.8	<0.8	<0.8

PARAMETER	UOM	LOR	TP28_0.15 SOIL - 8/9/2016 SE157066.006	TP34A_0.5 SOIL - 8/9/2016 SE157066.007	TP12_0.1 SOIL - 8/9/2016 SE157066.008	TP14_0.1 SOIL - 8/9/2016 SE157066.009	TP18_0.1 SOIL - 8/9/2016 SE157066.010
Naphthalene	mg/kg	0.1	<0.1	<0.1	<0.2↑	<0.2↑	<0.1
2-methylnaphthalene	mg/kg	0.1	<0.1	<0.1	<0.2↑	<0.2↑	<0.1
1-methylnaphthalene	mg/kg	0.1	<0.1	<0.1	<0.2↑	<0.2↑	<0.1
Acenaphthylene	mg/kg	0.1	<0.1	<0.1	<0.2↑	<0.2↑	<0.1
Acenaphthene	mg/kg	0.1	<0.1	<0.1	<0.2↑	<0.2↑	<0.1
Fluorene	mg/kg	0.1	<0.1	<0.1	<0.2↑	<0.2↑	<0.1
Phenanthrene	mg/kg	0.1	<0.1	<0.1	**0.4**	<0.2↑	**0.1**
Anthracene	mg/kg	0.1	<0.1	<0.1	<0.2↑	<0.2↑	<0.1
Fluoranthene	mg/kg	0.1	<0.1	<0.1	**1.2**	<0.2↑	**0.2**
Pyrene	mg/kg	0.1	<0.1	**0.1**	**1.4**	<0.2↑	**0.4**
Benzo(a)anthracene	mg/kg	0.1	<0.1	<0.1	**0.5**	<0.2↑	**0.1**
Chrysene	mg/kg	0.1	<0.1	<0.1	**0.5**	<0.2↑	**0.2**
Benzo(b&j)fluoranthene	mg/kg	0.1	<0.1	<0.1	**0.6**	<0.2↑	**0.2**
Benzo(k)fluoranthene	mg/kg	0.1	<0.1	<0.1	**0.2**	<0.2↑	<0.1
Benzo(a)pyrene	mg/kg	0.1	<0.1	<0.1	**0.4**	<0.2↑	**0.2**
Indeno(1,2,3-cd)pyrene	mg/kg	0.1	<0.1	<0.1	**0.3**	<0.2↑	**0.1**
Dibenzo(ah)anthracene	mg/kg	0.1	<0.1	<0.1	<0.2↑	<0.2↑	<0.1
Benzo(ghi)perylene	mg/kg	0.1	<0.1	<0.1	**0.3**	<0.2↑	**0.2**
Carcinogenic PAHs, BaP TEQ <LOR=0	TEQ	0.2	<0.2	<0.2	**0.6**	<0.2	**0.2**
Carcinogenic PAHs, BaP TEQ <LOR=LOR	TEQ (mg/kg)	0.3	<0.3	<0.3	**0.7**	<0.3	**0.3**
Carcinogenic PAHs, BaP TEQ <LOR=LOR/2	TEQ (mg/kg)	0.2	<0.2	<0.2	**0.6**	<0.2	**0.3**
Total PAH (18)	mg/kg	0.8	<0.8	<0.8	**5.7**	<0.8	**1.8**
Total PAH (NEPM/WHO 16)	mg/kg	0.8	<0.8	<0.8	**5.7**	<0.8	**1.8**

PAH (Polynuclear Aromatic Hydrocarbons) in Soil [AN420] Tested: 14/9/2016 (continued)

PARAMETER	UOM	LOR	TP23_0.1-0.15 SOIL - 8/9/2016 SE157066.011	TP29_0.1 SOIL - 8/9/2016 SE157066.012	TP26_0.1 SOIL - 8/9/2016 SE157066.013	TP27_0.2 SOIL - 8/9/2016 SE157066.014	TP30_0.1 SOIL - 8/9/2016 SE157066.015
Naphthalene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
2-methylnaphthalene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
1-methylnaphthalene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Acenaphthylene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Acenaphthene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Fluorene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Phenanthrene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Anthracene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Fluoranthene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Pyrene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(a)anthracene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Chrysene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(b&j)fluoranthene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(k)fluoranthene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(a)pyrene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Indeno(1,2,3-cd)pyrene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Dibenzo(ah)anthracene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(ghi)perylene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Carcinogenic PAHs, BaP TEQ <LOR=0	TEQ	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Carcinogenic PAHs, BaP TEQ <LOR=LOR	TEQ (mg/kg)	0.3	<0.3	<0.3	<0.3	<0.3	<0.3
Carcinogenic PAHs, BaP TEQ <LOR=LOR/2	TEQ (mg/kg)	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Total PAH (18)	mg/kg	0.8	<0.8	<0.8	<0.8	<0.8	<0.8
Total PAH (NEPM/WHO 16)	mg/kg	0.8	<0.8	<0.8	<0.8	<0.8	<0.8

PARAMETER	UOM	LOR	TP31_0.3 SOIL - 8/9/2016 SE157066.016	TP32_0.1 SOIL - 8/9/2016 SE157066.017	TP40.2_0.1 SOIL - 8/9/2016 SE157066.018	TP43_0.1 SOIL - 8/9/2016 SE157066.019	TP44_0.1 SOIL - 8/9/2016 SE157066.020
Naphthalene	mg/kg	0.1	<0.2↑	<0.2↑	<0.2↑	<0.2↑	<0.1
2-methylnaphthalene	mg/kg	0.1	<0.2↑	<0.2↑	<0.2↑	<0.2↑	<0.1
1-methylnaphthalene	mg/kg	0.1	<0.2↑	<0.2↑	<0.2↑	<0.2↑	<0.1
Acenaphthylene	mg/kg	0.1	<0.2↑	<0.2↑	<0.2↑	<0.2↑	<0.1
Acenaphthene	mg/kg	0.1	<0.2↑	<0.2↑	<0.2↑	<0.2↑	<0.1
Fluorene	mg/kg	0.1	<0.2↑	<0.2↑	<0.2↑	<0.2↑	<0.1
Phenanthrene	mg/kg	0.1	<0.2↑	**0.3**	<0.2↑	**0.3**	<0.1
Anthracene	mg/kg	0.1	<0.2↑	<0.2↑	<0.2↑	<0.2↑	<0.1
Fluoranthene	mg/kg	0.1	<0.2↑	**0.5**	<0.2↑	**0.3**	<0.1
Pyrene	mg/kg	0.1	<0.2↑	**0.8**	<0.2↑	**0.3**	<0.1
Benzo(a)anthracene	mg/kg	0.1	<0.2↑	**0.3**	<0.2↑	<0.2↑	<0.1
Chrysene	mg/kg	0.1	<0.2↑	**0.3**	<0.2↑	<0.2↑	<0.1
Benzo(b&j)fluoranthene	mg/kg	0.1	<0.2↑	**0.3**	<0.2↑	<0.2↑	<0.1
Benzo(k)fluoranthene	mg/kg	0.1	<0.2↑	<0.2↑	<0.2↑	<0.2↑	<0.1
Benzo(a)pyrene	mg/kg	0.1	<0.2↑	**0.3**	<0.2↑	<0.2↑	<0.1
Indeno(1,2,3-cd)pyrene	mg/kg	0.1	<0.2↑	<0.2↑	<0.2↑	<0.2↑	<0.1
Dibenzo(ah)anthracene	mg/kg	0.1	<0.2↑	<0.2↑	<0.2↑	<0.2↑	<0.1
Benzo(ghi)perylene	mg/kg	0.1	<0.2↑	<0.2↑	<0.2↑	<0.2↑	<0.1
Carcinogenic PAHs, BaP TEQ <LOR=0	TEQ	0.2	<0.2	**0.4**	<0.2	<0.2	<0.2
Carcinogenic PAHs, BaP TEQ <LOR=LOR	TEQ (mg/kg)	0.3	<0.3	**0.5**	<0.3	<0.3	<0.3
Carcinogenic PAHs, BaP TEQ <LOR=LOR/2	TEQ (mg/kg)	0.2	<0.2	**0.4**	<0.2	<0.2	<0.2
Total PAH (18)	mg/kg	0.8	<0.8	**3.2**	<0.8	**1.5**	<0.8
Total PAH (NEPM/WHO 16)	mg/kg	0.8	<0.8	**3.2**	<0.8	**1.5**	<0.8

PAH (Polynuclear Aromatic Hydrocarbons) in Soil [AN420] Tested: 14/9/2016 (continued)

PARAMETER	UOM	LOR	TP54_0.1 SOIL - 8/9/2016 SE157066.021	BH01_0.36-0.46 SOIL - 8/9/2016 SE157066.022	TP63_0.4-0.25 SOIL - 8/9/2016 SE157066.023	TP51_1.3-1.4 SOIL - 8/9/2016 SE157066.024	QC4 SOIL - 8/9/2016 SE157066.025
Naphthalene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
2-methylnaphthalene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
1-methylnaphthalene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Acenaphthylene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Acenaphthene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Fluorene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Phenanthrene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Anthracene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Fluoranthene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Pyrene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(a)anthracene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Chrysene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(b&j)fluoranthene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(k)fluoranthene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(a)pyrene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Indeno(1,2,3-cd)pyrene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Dibenzo(ah)anthracene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(ghi)perylene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Carcinogenic PAHs, BaP TEQ <LOR=0	TEQ	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Carcinogenic PAHs, BaP TEQ <LOR=LOR	TEQ (mg/kg)	0.3	<0.3	<0.3	<0.3	<0.3	<0.3
Carcinogenic PAHs, BaP TEQ <LOR=LOR/2	TEQ (mg/kg)	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Total PAH (18)	mg/kg	0.8	<0.8	<0.8	<0.8	<0.8	<0.8
Total PAH (NEPM/WHO 16)	mg/kg	0.8	<0.8	<0.8	<0.8	<0.8	<0.8

PARAMETER	UOM	LOR	QC1 SOIL - 8/9/2016 SE157066.026	TP36_0.2-0.3 SOIL - 8/9/2016 SE157066.027	TP50_0.2-0.3 SOIL - 8/9/2016 SE157066.028	TP58_0.05-0.15 SOIL - 8/9/2016 SE157066.029	TP59_0.2-0.3 SOIL - 8/9/2016 SE157066.030
Naphthalene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
2-methylnaphthalene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
1-methylnaphthalene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Acenaphthylene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Acenaphthene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Fluorene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Phenanthrene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Anthracene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Fluoranthene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Pyrene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(a)anthracene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Chrysene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(b&j)fluoranthene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(k)fluoranthene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(a)pyrene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Indeno(1,2,3-cd)pyrene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Dibenzo(ah)anthracene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(ghi)perylene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Carcinogenic PAHs, BaP TEQ <LOR=0	TEQ	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Carcinogenic PAHs, BaP TEQ <LOR=LOR	TEQ (mg/kg)	0.3	<0.3	<0.3	<0.3	<0.3	<0.3
Carcinogenic PAHs, BaP TEQ <LOR=LOR/2	TEQ (mg/kg)	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Total PAH (18)	mg/kg	0.8	<0.8	<0.8	<0.8	<0.8	<0.8
Total PAH (NEPM/WHO 16)	mg/kg	0.8	<0.8	<0.8	<0.8	<0.8	<0.8

PAH (Polynuclear Aromatic Hydrocarbons) in Soil [AN420] Tested: 14/9/2016 (continued)

PARAMETER	UOM	LOR	QC2 SOIL - 8/9/2016 SE157066.031	QC3 SOIL - 8/9/2016 SE157066.032
Naphthalene	mg/kg	0.1	<0.1	<0.1
2-methylnaphthalene	mg/kg	0.1	<0.1	<0.1
1-methylnaphthalene	mg/kg	0.1	<0.1	<0.1
Acenaphthylene	mg/kg	0.1	<0.1	<0.1
Acenaphthene	mg/kg	0.1	<0.1	<0.1
Fluorene	mg/kg	0.1	<0.1	<0.1
Phenanthrene	mg/kg	0.1	<0.1	<0.1
Anthracene	mg/kg	0.1	<0.1	<0.1
Fluoranthene	mg/kg	0.1	<0.1	<0.1
Pyrene	mg/kg	0.1	<0.1	<0.1
Benzo(a)anthracene	mg/kg	0.1	<0.1	<0.1
Chrysene	mg/kg	0.1	<0.1	<0.1
Benzo(b&j)fluoranthene	mg/kg	0.1	<0.1	<0.1
Benzo(k)fluoranthene	mg/kg	0.1	<0.1	<0.1
Benzo(a)pyrene	mg/kg	0.1	<0.1	<0.1
Indeno(1,2,3-cd)pyrene	mg/kg	0.1	<0.1	<0.1
Dibenzo(ah)anthracene	mg/kg	0.1	<0.1	<0.1
Benzo(ghi)perylene	mg/kg	0.1	<0.1	<0.1
Carcinogenic PAHs, BaP TEQ <LOR=0	TEQ	0.2	<0.2	<0.2
Carcinogenic PAHs, BaP TEQ <LOR=LOR	TEQ (mg/kg)	0.3	<0.3	<0.3
Carcinogenic PAHs, BaP TEQ <LOR=LOR/2	TEQ (mg/kg)	0.2	<0.2	<0.2
Total PAH (18)	mg/kg	0.8	<0.8	<0.8
Total PAH (NEPM/WHO 16)	mg/kg	0.8	<0.8	<0.8

OC Pesticides in Soil [AN400/AN420] Tested: 14/9/2016

PARAMETER	UOM	LOR	TP13_0.8 SOIL - 7/9/2016 SE157066.001	TP15_0.7 SOIL - 7/9/2016 SE157066.002	TP16_0.4 SOIL - 7/9/2016 SE157066.003	TP24_0.5 SOIL - 7/9/2016 SE157066.004	TP25_1.1 SOIL - 7/9/2016 SE157066.005
Hexachlorobenzene (HCB)	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Alpha BHC	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Lindane	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Heptachlor	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Aldrin	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Beta BHC	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Delta BHC	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Heptachlor epoxide	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
o,p'-DDE	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Alpha Endosulfan	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Gamma Chlordane	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Alpha Chlordane	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
trans-Nonachlor	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
p,p'-DDE	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Dieldrin	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Endrin	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
o,p'-DDD	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
o,p'-DDT	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Beta Endosulfan	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
p,p'-DDD	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
p,p'-DDT	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Endosulfan sulphate	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Endrin Aldehyde	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Methoxychlor	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Endrin Ketone	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Isodrin	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Mirex	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1

OC Pesticides in Soil [AN400/AN420] Tested: 14/9/2016 (continued)

PARAMETER	UOM	LOR	TP28_0.15 SOIL - 8/9/2016 SE157066.006	TP34A_0.5 SOIL - 8/9/2016 SE157066.007	TP12_0.1 SOIL - 8/9/2016 SE157066.008	TP14_0.1 SOIL - 8/9/2016 SE157066.009	TP18_0.1 SOIL - 8/9/2016 SE157066.010
Hexachlorobenzene (HCB)	mg/kg	0.1	<0.1	<0.1	<0.2↑	<0.2↑	<0.1
Alpha BHC	mg/kg	0.1	<0.1	<0.1	<0.2↑	<0.2↑	<0.1
Lindane	mg/kg	0.1	<0.1	<0.1	<0.2↑	<0.2↑	<0.1
Heptachlor	mg/kg	0.1	<0.1	<0.1	<0.2↑	<0.2↑	<0.1
Aldrin	mg/kg	0.1	<0.1	<0.1	<0.2↑	<0.2↑	<0.1
Beta BHC	mg/kg	0.1	<0.1	<0.1	<0.2↑	<0.2↑	<0.1
Delta BHC	mg/kg	0.1	<0.1	<0.1	<0.2↑	<0.2↑	<0.1
Heptachlor epoxide	mg/kg	0.1	<0.1	<0.1	<0.2↑	<0.2↑	<0.1
o,p'-DDE	mg/kg	0.1	<0.1	<0.1	<0.2↑	<0.2↑	<0.1
Alpha Endosulfan	mg/kg	0.2	<0.2	<0.2	<0.4↑	<0.4↑	<0.2
Gamma Chlordane	mg/kg	0.1	<0.1	<0.1	<0.2↑	<0.2↑	<0.1
Alpha Chlordane	mg/kg	0.1	<0.1	<0.1	<0.2↑	<0.2↑	<0.1
trans-Nonachlor	mg/kg	0.1	<0.1	<0.1	<0.2↑	<0.2↑	<0.1
p,p'-DDE	mg/kg	0.1	<0.1	<0.1	<0.2↑	<0.2↑	<0.1
Dieldrin	mg/kg	0.2	<0.2	<0.2	<0.4↑	<0.4↑	<0.2
Endrin	mg/kg	0.2	<0.2	<0.2	<0.4↑	<0.4↑	<0.2
o,p'-DDD	mg/kg	0.1	<0.1	<0.1	<0.2↑	<0.2↑	<0.1
o,p'-DDT	mg/kg	0.1	<0.1	<0.1	<0.2↑	<0.2↑	<0.1
Beta Endosulfan	mg/kg	0.2	<0.2	<0.2	<0.4↑	<0.4↑	<0.2
p,p'-DDD	mg/kg	0.1	<0.1	<0.1	<0.2↑	<0.2↑	<0.1
p,p'-DDT	mg/kg	0.1	<0.1	<0.1	<0.2↑	<0.2↑	<0.1
Endosulfan sulphate	mg/kg	0.1	<0.1	<0.1	<0.2↑	<0.2↑	<0.1
Endrin Aldehyde	mg/kg	0.1	<0.1	<0.1	<0.2↑	<0.2↑	<0.1
Methoxychlor	mg/kg	0.1	<0.1	<0.1	<0.2↑	<0.2↑	<0.1
Endrin Ketone	mg/kg	0.1	<0.1	<0.1	<0.2↑	<0.2↑	<0.1
Isodrin	mg/kg	0.1	<0.1	<0.1	<0.2↑	<0.2↑	<0.1
Mirex	mg/kg	0.1	<0.1	<0.1	<0.2↑	<0.2↑	<0.1

OC Pesticides in Soil [AN400/AN420] Tested: 14/9/2016 (continued)

PARAMETER	UOM	LOR	TP23_0.1-0.15 SOIL - 8/9/2016 SE157066.011	TP29_0.1 SOIL - 8/9/2016 SE157066.012	TP26_0.1 SOIL - 8/9/2016 SE157066.013	TP27_0.2 SOIL - 8/9/2016 SE157066.014	TP30_0.1 SOIL - 8/9/2016 SE157066.015
Hexachlorobenzene (HCB)	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Alpha BHC	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Lindane	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Heptachlor	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Aldrin	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Beta BHC	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Delta BHC	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Heptachlor epoxide	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
o,p'-DDE	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Alpha Endosulfan	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Gamma Chlordane	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Alpha Chlordane	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
trans-Nonachlor	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
p,p'-DDE	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Dieldrin	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Endrin	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
o,p'-DDD	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
o,p'-DDT	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Beta Endosulfan	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
p,p'-DDD	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
p,p'-DDT	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Endosulfan sulphate	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Endrin Aldehyde	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Methoxychlor	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Endrin Ketone	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Isodrin	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Mirex	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1

OC Pesticides in Soil [AN400/AN420] Tested: 14/9/2016 (continued)

PARAMETER	UOM	LOR	TP31_0.3 SOIL - 8/9/2016 SE157066.016	TP32_0.1 SOIL - 8/9/2016 SE157066.017	TP40.2_0.1 SOIL - 8/9/2016 SE157066.018	TP43_0.1 SOIL - 8/9/2016 SE157066.019	TP44_0.1 SOIL - 8/9/2016 SE157066.020
Hexachlorobenzene (HCB)	mg/kg	0.1	<0.2↑	<0.2↑	<0.2↑	<0.2↑	<0.1
Alpha BHC	mg/kg	0.1	<0.2↑	<0.2↑	<0.2↑	<0.2↑	<0.1
Lindane	mg/kg	0.1	<0.2↑	<0.2↑	<0.2↑	<0.2↑	<0.1
Heptachlor	mg/kg	0.1	<0.2↑	<0.2↑	<0.2↑	<0.2↑	<0.1
Aldrin	mg/kg	0.1	<0.2↑	<0.2↑	<0.2↑	<0.2↑	<0.1
Beta BHC	mg/kg	0.1	<0.2↑	<0.2↑	<0.2↑	<0.2↑	<0.1
Delta BHC	mg/kg	0.1	<0.2↑	<0.2↑	<0.2↑	<0.2↑	<0.1
Heptachlor epoxide	mg/kg	0.1	<0.2↑	<0.2↑	<0.2↑	<0.2↑	<0.1
o,p'-DDE	mg/kg	0.1	<0.2↑	<0.2↑	<0.2↑	<0.2↑	<0.1
Alpha Endosulfan	mg/kg	0.2	<0.4↑	<0.4↑	<0.4↑	<0.4↑	<0.2
Gamma Chlordane	mg/kg	0.1	<0.2↑	<0.2↑	<0.2↑	<0.2↑	<0.1
Alpha Chlordane	mg/kg	0.1	<0.2↑	<0.2↑	<0.2↑	<0.2↑	<0.1
trans-Nonachlor	mg/kg	0.1	<0.2↑	<0.2↑	<0.2↑	<0.2↑	<0.1
p,p'-DDE	mg/kg	0.1	<0.2↑	<0.2↑	<0.2↑	<0.2↑	<0.1
Dieldrin	mg/kg	0.2	<0.4↑	<0.4↑	<0.4↑	<0.4↑	<0.2
Endrin	mg/kg	0.2	<0.4↑	<0.4↑	<0.4↑	<0.4↑	<0.2
o,p'-DDD	mg/kg	0.1	<0.2↑	<0.2↑	<0.2↑	<0.2↑	<0.1
o,p'-DDT	mg/kg	0.1	<0.2↑	<0.2↑	<0.2↑	<0.2↑	<0.1
Beta Endosulfan	mg/kg	0.2	<0.4↑	<0.4↑	<0.4↑	<0.4↑	<0.2
p,p'-DDD	mg/kg	0.1	<0.2↑	<0.2↑	<0.2↑	<0.2↑	<0.1
p,p'-DDT	mg/kg	0.1	<0.2↑	<0.2↑	<0.2↑	<0.2↑	<0.1
Endosulfan sulphate	mg/kg	0.1	<0.2↑	<0.2↑	<0.2↑	<0.2↑	<0.1
Endrin Aldehyde	mg/kg	0.1	<0.2↑	<0.2↑	<0.2↑	<0.2↑	<0.1
Methoxychlor	mg/kg	0.1	<0.2↑	<0.2↑	<0.2↑	<0.2↑	<0.1
Endrin Ketone	mg/kg	0.1	<0.2↑	<0.2↑	<0.2↑	<0.2↑	<0.1
Isodrin	mg/kg	0.1	<0.2↑	<0.2↑	<0.2↑	<0.2↑	<0.1
Mirex	mg/kg	0.1	<0.2↑	<0.2↑	<0.2↑	<0.2↑	<0.1

OC Pesticides in Soil [AN400/AN420] Tested: 14/9/2016 (continued)

PARAMETER	UOM	LOR	TP54_0.1 SOIL - 8/9/2016 SE157066.021	BH01_0.36-0.46 SOIL - 8/9/2016 SE157066.022	TP63_0.4-0.25 SOIL - 8/9/2016 SE157066.023	TP51_1.3-1.4 SOIL - 8/9/2016 SE157066.024	QC4 SOIL - 8/9/2016 SE157066.025
Hexachlorobenzene (HCB)	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Alpha BHC	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Lindane	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Heptachlor	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Aldrin	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Beta BHC	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Delta BHC	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Heptachlor epoxide	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
o,p'-DDE	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Alpha Endosulfan	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Gamma Chlordane	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Alpha Chlordane	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
trans-Nonachlor	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
p,p'-DDE	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Dieldrin	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Endrin	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
o,p'-DDD	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
o,p'-DDT	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Beta Endosulfan	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
p,p'-DDD	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
p,p'-DDT	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Endosulfan sulphate	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Endrin Aldehyde	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Methoxychlor	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Endrin Ketone	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Isodrin	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Mirex	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1

OC Pesticides in Soil [AN400/AN420] Tested: 14/9/2016 (continued)

PARAMETER	UOM	LOR	QC1 SOIL - 8/9/2016 SE157066.026	TP36_0.2-0.3 SOIL - 8/9/2016 SE157066.027	TP50_0.2-0.3 SOIL - 8/9/2016 SE157066.028	TP58_0.05-0.15 SOIL - 8/9/2016 SE157066.029	TP59_0.2-0.3 SOIL - 8/9/2016 SE157066.030
Hexachlorobenzene (HCB)	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Alpha BHC	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Lindane	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Heptachlor	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Aldrin	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Beta BHC	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Delta BHC	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Heptachlor epoxide	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
o,p'-DDE	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Alpha Endosulfan	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Gamma Chlordane	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Alpha Chlordane	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
trans-Nonachlor	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
p,p'-DDE	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Dieldrin	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Endrin	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
o,p'-DDD	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
o,p'-DDT	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Beta Endosulfan	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
p,p'-DDD	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
p,p'-DDT	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Endosulfan sulphate	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Endrin Aldehyde	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Methoxychlor	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Endrin Ketone	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Isodrin	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Mirex	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1

OC Pesticides in Soil [AN400/AN420] Tested: 14/9/2016 (continued)

PARAMETER	UOM	LOR	QC2 SOIL - 8/9/2016 SE157066.031	QC3 SOIL - 8/9/2016 SE157066.032
Hexachlorobenzene (HCB)	mg/kg	0.1	<0.1	<0.1
Alpha BHC	mg/kg	0.1	<0.1	<0.1
Lindane	mg/kg	0.1	<0.1	<0.1
Heptachlor	mg/kg	0.1	<0.1	<0.1
Aldrin	mg/kg	0.1	<0.1	<0.1
Beta BHC	mg/kg	0.1	<0.1	<0.1
Delta BHC	mg/kg	0.1	<0.1	<0.1
Heptachlor epoxide	mg/kg	0.1	<0.1	<0.1
o,p'-DDE	mg/kg	0.1	<0.1	<0.1
Alpha Endosulfan	mg/kg	0.2	<0.2	<0.2
Gamma Chlordane	mg/kg	0.1	<0.1	<0.1
Alpha Chlordane	mg/kg	0.1	<0.1	<0.1
trans-Nonachlor	mg/kg	0.1	<0.1	<0.1
p,p'-DDE	mg/kg	0.1	<0.1	<0.1
Dieldrin	mg/kg	0.2	<0.2	<0.2
Endrin	mg/kg	0.2	<0.2	<0.2
o,p'-DDD	mg/kg	0.1	<0.1	<0.1
o,p'-DDT	mg/kg	0.1	<0.1	<0.1
Beta Endosulfan	mg/kg	0.2	<0.2	<0.2
p,p'-DDD	mg/kg	0.1	<0.1	<0.1
p,p'-DDT	mg/kg	0.1	<0.1	<0.1
Endosulfan sulphate	mg/kg	0.1	<0.1	<0.1
Endrin Aldehyde	mg/kg	0.1	<0.1	<0.1
Methoxychlor	mg/kg	0.1	<0.1	<0.1
Endrin Ketone	mg/kg	0.1	<0.1	<0.1
Isodrin	mg/kg	0.1	<0.1	<0.1
Mirex	mg/kg	0.1	<0.1	<0.1

OP Pesticides in Soil [AN400/AN420] Tested: 14/9/2016

PARAMETER	UOM	LOR	TP13_0.8 SOIL - 7/9/2016 SE157066.001	TP15_0.7 SOIL - 7/9/2016 SE157066.002	TP16_0.4 SOIL - 7/9/2016 SE157066.003	TP24_0.5 SOIL - 7/9/2016 SE157066.004	TP25_1.1 SOIL - 7/9/2016 SE157066.005
Dichlorvos	mg/kg	0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Dimethoate	mg/kg	0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Diazinon (Dimpylate)	mg/kg	0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Fenitrothion	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Malathion	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Chlorpyrifos (Chlorpyrifos Ethyl)	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Parathion-ethyl (Parathion)	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Bromophos Ethyl	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Methidathion	mg/kg	0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Ethion	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Azinphos-methyl (Guthion)	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2

PARAMETER	UOM	LOR	TP28_0.15 SOIL - 8/9/2016 SE157066.006	TP34A_0.5 SOIL - 8/9/2016 SE157066.007	TP12_0.1 SOIL - 8/9/2016 SE157066.008	TP14_0.1 SOIL - 8/9/2016 SE157066.009	TP18_0.1 SOIL - 8/9/2016 SE157066.010
Dichlorvos	mg/kg	0.5	<0.5	<0.5	<1.0↑	<1.0↑	<0.5
Dimethoate	mg/kg	0.5	<0.5	<0.5	<1.0↑	<1.0↑	<0.5
Diazinon (Dimpylate)	mg/kg	0.5	<0.5	<0.5	<1.0↑	<1.0↑	<0.5
Fenitrothion	mg/kg	0.2	<0.2	<0.2	<0.4↑	<0.4↑	<0.2
Malathion	mg/kg	0.2	<0.2	<0.2	<0.4↑	<0.4↑	<0.2
Chlorpyrifos (Chlorpyrifos Ethyl)	mg/kg	0.2	<0.2	<0.2	<0.4↑	<0.4↑	<0.2
Parathion-ethyl (Parathion)	mg/kg	0.2	<0.2	<0.2	<0.4↑	<0.4↑	<0.2
Bromophos Ethyl	mg/kg	0.2	<0.2	<0.2	<0.4↑	<0.4↑	<0.2
Methidathion	mg/kg	0.5	<0.5	<0.5	<1.0↑	<1.0↑	<0.5
Ethion	mg/kg	0.2	<0.2	<0.2	<0.4↑	<0.4↑	<0.2
Azinphos-methyl (Guthion)	mg/kg	0.2	<0.2	<0.2	<0.4↑	<0.4↑	<0.2

PARAMETER	UOM	LOR	TP23_0.1-0.15 SOIL - 8/9/2016 SE157066.011	TP29_0.1 SOIL - 8/9/2016 SE157066.012	TP26_0.1 SOIL - 8/9/2016 SE157066.013	TP27_0.2 SOIL - 8/9/2016 SE157066.014	TP30_0.1 SOIL - 8/9/2016 SE157066.015
Dichlorvos	mg/kg	0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Dimethoate	mg/kg	0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Diazinon (Dimpylate)	mg/kg	0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Fenitrothion	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Malathion	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Chlorpyrifos (Chlorpyrifos Ethyl)	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Parathion-ethyl (Parathion)	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Bromophos Ethyl	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Methidathion	mg/kg	0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Ethion	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Azinphos-methyl (Guthion)	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2

OP Pesticides in Soil [AN400/AN420] Tested: 14/9/2016 (continued)

PARAMETER	UOM	LOR	TP31_0.3 SOIL - 8/9/2016 SE157066.016	TP32_0.1 SOIL - 8/9/2016 SE157066.017	TP40.2_0.1 SOIL - 8/9/2016 SE157066.018	TP43_0.1 SOIL - 8/9/2016 SE157066.019	TP44_0.1 SOIL - 8/9/2016 SE157066.020
Dichlorvos	mg/kg	0.5	<1.0↑	<1.0↑	<0.5	<0.5	<0.5
Dimethoate	mg/kg	0.5	<1.0↑	<1.0↑	<0.5	<0.5	<0.5
Diazinon (Dimpylate)	mg/kg	0.5	<1.0↑	<1.0↑	<0.5	<0.5	<0.5
Fenitrothion	mg/kg	0.2	<0.4↑	<0.4↑	<0.2	<0.2	<0.2
Malathion	mg/kg	0.2	<0.4↑	<0.4↑	<0.2	<0.2	<0.2
Chlorpyrifos (Chlorpyrifos Ethyl)	mg/kg	0.2	<0.4↑	<0.4↑	<0.2	<0.2	<0.2
Parathion-ethyl (Parathion)	mg/kg	0.2	<0.4↑	<0.4↑	<0.2	<0.2	<0.2
Bromophos Ethyl	mg/kg	0.2	<0.4↑	<0.4↑	<0.2	<0.2	<0.2
Methidathion	mg/kg	0.5	<1.0↑	<1.0↑	<0.5	<0.5	<0.5
Ethion	mg/kg	0.2	<0.4↑	<0.4↑	<0.2	<0.2	<0.2
Azinphos-methyl (Guthion)	mg/kg	0.2	<0.4↑	<0.4↑	<0.2	<0.2	<0.2

PARAMETER	UOM	LOR	TP54_0.1 SOIL - 8/9/2016 SE157066.021	BH01_0.36-0.46 SOIL - 8/9/2016 SE157066.022	TP63_0.4-0.25 SOIL - 8/9/2016 SE157066.023	TP51_1.3-1.4 SOIL - 8/9/2016 SE157066.024	QC4 SOIL - 8/9/2016 SE157066.025
Dichlorvos	mg/kg	0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Dimethoate	mg/kg	0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Diazinon (Dimpylate)	mg/kg	0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Fenitrothion	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Malathion	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Chlorpyrifos (Chlorpyrifos Ethyl)	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Parathion-ethyl (Parathion)	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Bromophos Ethyl	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Methidathion	mg/kg	0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Ethion	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Azinphos-methyl (Guthion)	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2

PARAMETER	UOM	LOR	QC1 SOIL - 8/9/2016 SE157066.026	TP36_0.2-0.3 SOIL - 8/9/2016 SE157066.027	TP50_0.2-0.3 SOIL - 8/9/2016 SE157066.028	TP58_0.05-0.15 SOIL - 8/9/2016 SE157066.029	TP59_0.2-0.3 SOIL - 8/9/2016 SE157066.030
Dichlorvos	mg/kg	0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Dimethoate	mg/kg	0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Diazinon (Dimpylate)	mg/kg	0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Fenitrothion	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Malathion	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Chlorpyrifos (Chlorpyrifos Ethyl)	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Parathion-ethyl (Parathion)	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Bromophos Ethyl	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Methidathion	mg/kg	0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Ethion	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Azinphos-methyl (Guthion)	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2

OP Pesticides in Soil [AN400/AN420] Tested: 14/9/2016 (continued)

PARAMETER	UOM	LOR	QC2 SOIL - 8/9/2016 SE157066.031	QC3 SOIL - 8/9/2016 SE157066.032
Dichlorvos	mg/kg	0.5	<0.5	<0.5
Dimethoate	mg/kg	0.5	<0.5	<0.5
Diazinon (Dimpylate)	mg/kg	0.5	<0.5	<0.5
Fenitrothion	mg/kg	0.2	<0.2	<0.2
Malathion	mg/kg	0.2	<0.2	<0.2
Chlorpyrifos (Chlorpyrifos Ethyl)	mg/kg	0.2	<0.2	<0.2
Parathion-ethyl (Parathion)	mg/kg	0.2	<0.2	<0.2
Bromophos Ethyl	mg/kg	0.2	<0.2	<0.2
Methidathion	mg/kg	0.5	<0.5	<0.5
Ethion	mg/kg	0.2	<0.2	<0.2
Azinphos-methyl (Guthion)	mg/kg	0.2	<0.2	<0.2

Total Phenolics in Soil [AN289] Tested: 15/9/2016

PARAMETER	UOM	LOR	TP13_0.8 SOIL - 7/9/2016 SE157066.001	TP15_0.7 SOIL - 7/9/2016 SE157066.002	TP16_0.4 SOIL - 7/9/2016 SE157066.003	TP24_0.5 SOIL - 7/9/2016 SE157066.004	TP25_1.1 SOIL - 7/9/2016 SE157066.005
Total Phenols	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1

PARAMETER	UOM	LOR	TP28_0.15 SOIL - 8/9/2016 SE157066.006	TP34A_0.5 SOIL - 8/9/2016 SE157066.007	TP12_0.1 SOIL - 8/9/2016 SE157066.008	TP14_0.1 SOIL - 8/9/2016 SE157066.009	TP18_0.1 SOIL - 8/9/2016 SE157066.010
Total Phenols	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	**0.8**

PARAMETER	UOM	LOR	TP23_0.1-0.15 SOIL - 8/9/2016 SE157066.011	TP29_0.1 SOIL - 8/9/2016 SE157066.012	TP26_0.1 SOIL - 8/9/2016 SE157066.013	TP27_0.2 SOIL - 8/9/2016 SE157066.014	TP30_0.1 SOIL - 8/9/2016 SE157066.015
Total Phenols	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	**0.8**

PARAMETER	UOM	LOR	TP31_0.3 SOIL - 8/9/2016 SE157066.016	TP32_0.1 SOIL - 8/9/2016 SE157066.017	TP40.2_0.1 SOIL - 8/9/2016 SE157066.018	TP43_0.1 SOIL - 8/9/2016 SE157066.019	TP44_0.1 SOIL - 8/9/2016 SE157066.020
Total Phenols	mg/kg	0.1	<0.1	**0.9**	**0.3**	**3.1**	**0.2**

PARAMETER	UOM	LOR	TP54_0.1 SOIL - 8/9/2016 SE157066.021	BH01_0.36-0.46 SOIL - 8/9/2016 SE157066.022	TP63_0.4-0.25 SOIL - 8/9/2016 SE157066.023	TP51_1.3-1.4 SOIL - 8/9/2016 SE157066.024	QC4 SOIL - 8/9/2016 SE157066.025
Total Phenols	mg/kg	0.1	**1.5**	<0.1	<0.1	<0.1	<0.1

PARAMETER	UOM	LOR	QC1 SOIL - 8/9/2016 SE157066.026	TP36_0.2-0.3 SOIL - 8/9/2016 SE157066.027	TP50_0.2-0.3 SOIL - 8/9/2016 SE157066.028	TP58_0.05-0.15 SOIL - 8/9/2016 SE157066.029	TP59_0.2-0.3 SOIL - 8/9/2016 SE157066.030
Total Phenols	mg/kg	0.1	<0.1	<0.1	<0.1	**0.1**	<0.1

PARAMETER	UOM	LOR	QC2 SOIL - 8/9/2016 SE157066.031	QC3 SOIL - 8/9/2016 SE157066.032
Total Phenols	mg/kg	0.1	**0.6**	<0.1

Total Recoverable Metals in Soil/Waste Solids/Materials by ICPOES [AN040/AN320] Tested: 14/9/2016

PARAMETER	UOM	LOR	TP13_0.8 SOIL - 7/9/2016 SE157066.001	TP15_0.7 SOIL - 7/9/2016 SE157066.002	TP16_0.4 SOIL - 7/9/2016 SE157066.003	TP24_0.5 SOIL - 7/9/2016 SE157066.004	TP25_1.1 SOIL - 7/9/2016 SE157066.005
Arsenic, As	mg/kg	3	5	10	4	9	5
Cadmium, Cd	mg/kg	0.3	<0.3	<0.3	<0.3	0.3	<0.3
Chromium, Cr	mg/kg	0.3	27	26	5.3	26	43
Copper, Cu	mg/kg	0.5	15	15	17	59	17
Lead, Pb	mg/kg	1	45	28	5	47	31
Nickel, Ni	mg/kg	0.5	9.0	9.4	7.2	15	12
Zinc, Zn	mg/kg	0.5	39	110	16	120	27

PARAMETER	UOM	LOR	TP28_0.15 SOIL - 8/9/2016 SE157066.006	TP34A_0.5 SOIL - 8/9/2016 SE157066.007	TP12_0.1 SOIL - 8/9/2016 SE157066.008	TP14_0.1 SOIL - 8/9/2016 SE157066.009	TP18_0.1 SOIL - 8/9/2016 SE157066.010
Arsenic, As	mg/kg	3	7	7	5	6	7
Cadmium, Cd	mg/kg	0.3	<0.3	0.5	1.1	0.3	0.6
Chromium, Cr	mg/kg	0.3	19	9.3	12	8.3	15
Copper, Cu	mg/kg	0.5	13	23	12	8.3	35
Lead, Pb	mg/kg	1	29	170	430	57	150
Nickel, Ni	mg/kg	0.5	13	13	6.2	5.7	16
Zinc, Zn	mg/kg	0.5	92	830	210	50	390

PARAMETER	UOM	LOR	TP23_0.1-0.15 SOIL - 8/9/2016 SE157066.011	TP29_0.1 SOIL - 8/9/2016 SE157066.012	TP26_0.1 SOIL - 8/9/2016 SE157066.013	TP27_0.2 SOIL - 8/9/2016 SE157066.014	TP30_0.1 SOIL - 8/9/2016 SE157066.015
Arsenic, As	mg/kg	3	3	4	12	4	6
Cadmium, Cd	mg/kg	0.3	<0.3	<0.3	<0.3	<0.3	<0.3
Chromium, Cr	mg/kg	0.3	15	13	28	21	21
Copper, Cu	mg/kg	0.5	4.8	4.0	15	12	9.8
Lead, Pb	mg/kg	1	12	13	26	16	21
Nickel, Ni	mg/kg	0.5	7.3	3.7	19	13	9.1
Zinc, Zn	mg/kg	0.5	28	13	57	99	45

PARAMETER	UOM	LOR	TP31_0.3 SOIL - 8/9/2016 SE157066.016	TP32_0.1 SOIL - 8/9/2016 SE157066.017	TP40.2_0.1 SOIL - 8/9/2016 SE157066.018	TP43_0.1 SOIL - 8/9/2016 SE157066.019	TP44_0.1 SOIL - 8/9/2016 SE157066.020
Arsenic, As	mg/kg	3	11	10	7	6	13
Cadmium, Cd	mg/kg	0.3	<0.3	<0.3	0.5	<0.3	0.4
Chromium, Cr	mg/kg	0.3	13	15	37	13	20
Copper, Cu	mg/kg	0.5	12	14	35	13	15
Lead, Pb	mg/kg	1	16	33	50	31	47
Nickel, Ni	mg/kg	0.5	12	12	27	13	12
Zinc, Zn	mg/kg	0.5	51	99	270	49	120

Total Recoverable Metals in Soil/Waste Solids/Materials by ICPOES [AN040/AN320] Tested: 14/9/2016 (continued)

PARAMETER	UOM	LOR	TP54_0.1 SOIL - 8/9/2016 SE157066.021	BH01_0.36-0.46 SOIL - 8/9/2016 SE157066.022	TP63_0.4-0.25 SOIL - 8/9/2016 SE157066.023	TP51_1.3-1.4 SOIL - 8/9/2016 SE157066.024	QC4 SOIL - 8/9/2016 SE157066.025
Arsenic, As	mg/kg	3	10	4	21	10	<3
Cadmium, Cd	mg/kg	0.3	<0.3	<0.3	0.3	<0.3	<0.3
Chromium, Cr	mg/kg	0.3	18	19	20	25	23
Copper, Cu	mg/kg	0.5	13	11	12	14	8.0
Lead, Pb	mg/kg	1	24	16	29	74	20
Nickel, Ni	mg/kg	0.5	11	14	14	11	23
Zinc, Zn	mg/kg	0.5	57	24	67	140	29

PARAMETER	UOM	LOR	QC1 SOIL - 8/9/2016 SE157066.026	TP36_0.2-0.3 SOIL - 8/9/2016 SE157066.027	TP50_0.2-0.3 SOIL - 8/9/2016 SE157066.028	TP58_0.05-0.15 SOIL - 8/9/2016 SE157066.029	TP59_0.2-0.3 SOIL - 8/9/2016 SE157066.030
Arsenic, As	mg/kg	3	12	4	5	10	12
Cadmium, Cd	mg/kg	0.3	0.4	<0.3	<0.3	<0.3	0.3
Chromium, Cr	mg/kg	0.3	19	46	38	15	19
Copper, Cu	mg/kg	0.5	14	10	16	15	13
Lead, Pb	mg/kg	1	25	16	31	28	22
Nickel, Ni	mg/kg	0.5	19	6.6	12	13	16
Zinc, Zn	mg/kg	0.5	71	21	27	50	64

PARAMETER	UOM	LOR	QC2 SOIL - 8/9/2016 SE157066.031	QC3 SOIL - 8/9/2016 SE157066.032
Arsenic, As	mg/kg	3	10	5
Cadmium, Cd	mg/kg	0.3	<0.3	<0.3
Chromium, Cr	mg/kg	0.3	16	55
Copper, Cu	mg/kg	0.5	12	14
Lead, Pb	mg/kg	1	27	22
Nickel, Ni	mg/kg	0.5	14	9.6
Zinc, Zn	mg/kg	0.5	51	27

Mercury in Soil [AN312] Tested: 14/9/2016

PARAMETER	UOM	LOR	TP13_0.8 SOIL - 7/9/2016 SE157066.001	TP15_0.7 SOIL - 7/9/2016 SE157066.002	TP16_0.4 SOIL - 7/9/2016 SE157066.003	TP24_0.5 SOIL - 7/9/2016 SE157066.004	TP25_1.1 SOIL - 7/9/2016 SE157066.005
Mercury	mg/kg	0.05	0.08	<0.05	<0.05	<0.05	<0.05

PARAMETER	UOM	LOR	TP28_0.15 SOIL - 8/9/2016 SE157066.006	TP34A_0.5 SOIL - 8/9/2016 SE157066.007	TP12_0.1 SOIL - 8/9/2016 SE157066.008	TP14_0.1 SOIL - 8/9/2016 SE157066.009	TP18_0.1 SOIL - 8/9/2016 SE157066.010
Mercury	mg/kg	0.05	<0.05	<0.05	0.05	<0.05	<0.05

PARAMETER	UOM	LOR	TP23_0.1-0.15 SOIL - 8/9/2016 SE157066.011	TP29_0.1 SOIL - 8/9/2016 SE157066.012	TP26_0.1 SOIL - 8/9/2016 SE157066.013	TP27_0.2 SOIL - 8/9/2016 SE157066.014	TP30_0.1 SOIL - 8/9/2016 SE157066.015
Mercury	mg/kg	0.05	<0.05	<0.05	<0.05	<0.05	<0.05

PARAMETER	UOM	LOR	TP31_0.3 SOIL - 8/9/2016 SE157066.016	TP32_0.1 SOIL - 8/9/2016 SE157066.017	TP40.2_0.1 SOIL - 8/9/2016 SE157066.018	TP43_0.1 SOIL - 8/9/2016 SE157066.019	TP44_0.1 SOIL - 8/9/2016 SE157066.020
Mercury	mg/kg	0.05	<0.05	<0.05	<0.05	<0.05	<0.05

PARAMETER	UOM	LOR	TP54_0.1 SOIL - 8/9/2016 SE157066.021	BH01_0.36-0.46 SOIL - 8/9/2016 SE157066.022	TP63_0.4-0.25 SOIL - 8/9/2016 SE157066.023	TP51_1.3-1.4 SOIL - 8/9/2016 SE157066.024	QC4 SOIL - 8/9/2016 SE157066.025
Mercury	mg/kg	0.05	<0.05	<0.05	<0.05	<0.05	<0.05

PARAMETER	UOM	LOR	QC1 SOIL - 8/9/2016 SE157066.026	TP36_0.2-0.3 SOIL - 8/9/2016 SE157066.027	TP50_0.2-0.3 SOIL - 8/9/2016 SE157066.028	TP58_0.05-0.15 SOIL - 8/9/2016 SE157066.029	TP59_0.2-0.3 SOIL - 8/9/2016 SE157066.030
Mercury	mg/kg	0.05	<0.05	<0.05	<0.05	<0.05	<0.05

PARAMETER	UOM	LOR	QC2 SOIL - 8/9/2016 SE157066.031	QC3 SOIL - 8/9/2016 SE157066.032
Mercury	mg/kg	0.05	<0.05	<0.05

Moisture Content [AN002] Tested: 14/9/2016

PARAMETER	UOM	LOR	TP13_0.8 SOIL - 7/9/2016 SE157066.001	TP15_0.7 SOIL - 7/9/2016 SE157066.002	TP16_0.4 SOIL - 7/9/2016 SE157066.003	TP24_0.5 SOIL - 7/9/2016 SE157066.004	TP25_1.1 SOIL - 7/9/2016 SE157066.005
% Moisture	%w/w	0.5	18	17	16	18	17

PARAMETER	UOM	LOR	TP28_0.15 SOIL - 8/9/2016 SE157066.006	TP34A_0.5 SOIL - 8/9/2016 SE157066.007	TP12_0.1 SOIL - 8/9/2016 SE157066.008	TP14_0.1 SOIL - 8/9/2016 SE157066.009	TP18_0.1 SOIL - 8/9/2016 SE157066.010
% Moisture	%w/w	0.5	11	27	5.7	8.2	16

PARAMETER	UOM	LOR	TP23_0.1-0.15 SOIL - 8/9/2016 SE157066.011	TP29_0.1 SOIL - 8/9/2016 SE157066.012	TP26_0.1 SOIL - 8/9/2016 SE157066.013	TP27_0.2 SOIL - 8/9/2016 SE157066.014	TP30_0.1 SOIL - 8/9/2016 SE157066.015
% Moisture	%w/w	0.5	7.8	6.8	16	11	21

PARAMETER	UOM	LOR	TP31_0.3 SOIL - 8/9/2016 SE157066.016	TP32_0.1 SOIL - 8/9/2016 SE157066.017	TP40.2_0.1 SOIL - 8/9/2016 SE157066.018	TP43_0.1 SOIL - 8/9/2016 SE157066.019	TP44_0.1 SOIL - 8/9/2016 SE157066.020
% Moisture	%w/w	0.5	7.7	10	20	13	18

PARAMETER	UOM	LOR	TP54_0.1 SOIL - 8/9/2016 SE157066.021	BH01_0.36-0.46 SOIL - 8/9/2016 SE157066.022	TP63_0.4-0.25 SOIL - 8/9/2016 SE157066.023	TP51_1.3-1.4 SOIL - 8/9/2016 SE157066.024	QC4 SOIL - 8/9/2016 SE157066.025
% Moisture	%w/w	0.5	19	13	14	14	6.8

PARAMETER	UOM	LOR	QC1 SOIL - 8/9/2016 SE157066.026	TP36_0.2-0.3 SOIL - 8/9/2016 SE157066.027	TP50_0.2-0.3 SOIL - 8/9/2016 SE157066.028	TP58_0.05-0.15 SOIL - 8/9/2016 SE157066.029	TP59_0.2-0.3 SOIL - 8/9/2016 SE157066.030
% Moisture	%w/w	0.5	20	16	17	16	19

PARAMETER	UOM	LOR	QC2 SOIL - 8/9/2016 SE157066.031	QC3 SOIL - 8/9/2016 SE157066.032
% Moisture	%w/w	0.5	16	17

METHOD	METHODOLOGY SUMMARY
AN002	The test is carried out by drying (at either 40°C or 105°C) a known mass of sample in a weighed evaporating basin. After fully dry the sample is re-weighed. Samples such as sludge and sediment having high percentages of moisture will take some time in a drying oven for complete removal of water.
AN040/AN320	A portion of sample is digested with nitric acid to decompose organic matter and hydrochloric acid to complete the digestion of metals. The digest is then analysed by ICP OES with metals results reported on the dried sample basis. Based on USEPA method 200.8 and 6010C.
AN040	A portion of sample is digested with Nitric acid to decompose organic matter and Hydrochloric acid to complete the digestion of metals and then filtered for analysis by ASS or ICP as per USEPA Method 200.8.
AN289	Analysis of Total Phenols in Soil Sediment and Water: Steam distillable phenols react with 4-aminoantipyrine at pH 7.9±0.1 in the presence of potassium ferricyanide to form a coloured antipyrine dye analysed by Discrete Analyser. Reference APHA 5530 B/D.
AN312	Mercury by Cold Vapour AAS in Soils: After digestion with nitric acid, hydrogen peroxide and hydrochloric acid , mercury ions are reduced by stannous chloride reagent in acidic solution to elemental mercury. This mercury vapour is purged by nitrogen into a cold cell in an atomic absorption spectrometer or mercury analyser . Quantification is made by comparing absorbances to those of the calibration standards. Reference APHA 3112/3500
AN400	OC and OP Pesticides by GC-ECD: The determination of organochlorine (OC) and organophosphorus (OP) pesticides and polychlorinated biphenyls (PCBs) in soils, sludges and groundwater. (Based on USEPA methods 3510, 3550, 8140 and 8080.)
AN403	Total Recoverable Hydrocarbons: Determination of Hydrocarbons by gas chromatography after a solvent extraction. Detection is by flame ionisation detector (FID) that produces an electronic signal in proportion to the combustible matter passing through it. Total Recoverable Hydrocarbons (TRH) are routinely reported as four alkane groupings based on the carbon chain length of the compounds: C6-C9, C10-C14, C15-C28 and C29-C36 and in recognition of the NEPM 1999 (2013), >C10-C16 (F2), >C16-C34 (F3) and >C34-C40 (F4). F2 is reported directly and also corrected by subtracting Naphthalene (from VOC method AN433) where available.
AN403	Additionally, the volatile C6-C9 fraction may be determined by a purge and trap technique and GC/MS because of the potential for volatiles loss. Total Petroleum Hydrocarbons (TPH) follows the same method of analysis after silica gel cleanup of the solvent extract. Aliphatic/Aromatic Speciation follows the same method of analysis after fractionation of the solvent extract over silica with differential polarity of the eluent solvents .
AN403	The GC/FID method is not well suited to the analysis of refined high boiling point materials (ie lubricating oils or greases) but is particularly suited for measuring diesel, kerosene and petrol if care to control volatility is taken. This method will detect naturally occurring hydrocarbons, lipids, animal fats, phenols and PAHs if they are present at sufficient levels, dependent on the use of specific cleanup/fractionation techniques. Reference USEPA 3510B, 8015B.
AN420	(SVOCs) including OC, OP, PCB, Herbicides, PAH, Phthalates and Speciated Phenols (etc) in soils, sediments and waters are determined by GCMS/ECD technique following appropriate solvent extraction process (Based on USEPA 3500C and 8270D).
AN420	SVOC Compounds: Semi-Volatile Organic Compounds (SVOCs) including OC, OP, PCB, Herbicides, PAH, Phthalates and Speciated Phenols in soils, sediments and waters are determined by GCMS/ECD technique following appropriate solvent extraction process (Based on USEPA 3500C and 8270D).
AN433	VOCs and C6-C9 Hydrocarbons by GC-MS P&T: VOC`s are volatile organic compounds. The sample is presented to a gas chromatograph via a purge and trap (P&T) concentrator and autosampler and is detected with a Mass Spectrometer (MSD). Solid samples are initially extracted with methanol whilst liquid samples are processed directly. References: USEPA 5030B, 8020A, 8260.

FOOTNOTES

*	NATA accreditation does not cover the performance of this service.	-	Not analysed.	UOM	Unit of Measure.
		NVL	Not validated.	LOR	Limit of Reporting.
**	Indicative data, theoretical holding time exceeded.	IS	Insufficient sample for analysis.	↑↓	Raised/lowered Limit of Reporting.
		LNR	Sample listed, but not received.		

Samples analysed as received.
Solid samples expressed on a dry weight basis.

Where "Total" analyte groups are reported (for example, Total PAHs, Total OC Pesticides) the total will be calculated as the sum of the individual analytes, with those analytes that are reported as <LOR being assumed to be zero. The summed (Total) limit of reporting is calculated by summing the individual analyte LORs and dividing by two. For example, where 16 individual analytes are being summed and each has an LOR of 0.1 mg/kg, the "Totals" LOR will be 1.6 / 2 (0.8 mg/kg). Where only 2 analytes are being summed, the " Total" LOR will be the sum of those two LORs.

Some totals may not appear to add up because the total is rounded after adding up the raw values.

If reported, measurement uncertainty follow the ± sign after the analytical result and is expressed as the expanded uncertainty calculated using a coverage factor of 2, providing a level of confidence of approximately 95%, unless stated otherwise in the comments section of this report.

Results reported for samples tested under test methods with codes starting with ARS-SOP, radionuclide or gross radioactivity concentrations are expressed in becquerel (Bq) per unit of mass or volume or per wipe as stated on the report. Becquerel is the SI unit for activity and equals one nuclear transformation per second.
Note that in terms of units of radioactivity:

a. 1 Bq is equivalent to 27 pCi
b. 37 MBq is equivalent to 1 mCi

For results reported for samples tested under test methods with codes starting with ARS-SOP, less than (<) values indicate the detection limit for each radionuclide or parameter for the measurement system used. The respective detection limits have been calculated in accordance with ISO 11929.

The QC criteria are subject to internal review according to the SGS QAQC plan and may be provided on request or alternatively can be found here : http://www.sgs.com.au/~/media/Local/Australia/Documents/Technical%20Documents/MP-AU-ENV-QU-022%20QA%20QC%20Plan.pdf

This document is issued, on the Client's behalf, by the Company under its General Conditions of Service available on request and accessible at http://www.sgs.com/en/terms-and-conditions. The Client's attention is drawn to the limitation of liability, indemnification and jurisdiction issues defined therein.

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STATEMENT OF QA/QC PERFORMANCE

SE157066 R0

CLIENT DETAILS

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Project	**3002523 - Canberra Brickworks**
Order Number	**SY1-60413-2-IS**
Samples	32

LABORATORY DETAILS

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SGS Reference	**SE157066 R0**
Date Received	12 Sep 2016
Date Reported	16 Sep 2016

COMMENTS

All the laboratory data for each environmental matrix was compared to SGS' stated Data Quality Objectives (DQO). Comments arising from the comparison were made and are reported below.

The data relating to sampling was taken from the Chain of Custody document and was supplied by the Client.
This QA/QC Statement must be read in conjunction with the referenced Analytical Report.
The Statement and the Analytical Report must not be reproduced except in full.

All Data Quality Objectives were met with the exception of the following:

Matrix Spike	Mercury in Soil	1 item
	Total Recoverable Metals in Soil/Waste Solids/Materials by ICPOES	2 items
	Total Recoverable Metals in Soil/Waste Solids/Materials by ICPOES	3 items

SAMPLE SUMMARY

Sample counts by matrix	32 Soil	Type of documentation received	COC
Date documentation received	13/9/16@4:38pm	Samples received in good order	Yes
Samples received without headspace	Yes	Sample temperature upon receipt	14.3°C
Sample container provider	SGS	Turnaround time requested	Two Days
Samples received in correct containers	Yes	Sufficient sample for analysis	Yes
Sample cooling method	None	Samples clearly labelled	Yes
Complete documentation received	Yes	Number of eskies/boxes received	

HOLDING TIME SUMMARY

SE157066 R0

SGS holding time criteria are drawn from current regulations and are highly dependent on sample container preservation as specified in the SGS “Field Sampling Guide for Containers and Holding Time” (ref: GU-(AU)-ENV.001). Soil samples guidelines are derived from NEPM "Schedule B(3) Guideline on Laboratory Analysis of Potentially Contaminated Soils". Water sample guidelines are derived from "AS/NZS 5667.1 : 1998 Water Quality - sampling part 1" and APHA "Standard Methods for the Examination of Water and Wastewater" 21st edition 2005.

Extraction and analysis holding time due dates listed are calculated from the date sampled, although holding times may be extended after laboratory extraction for some analytes. The due dates are the suggested dates that samples may be held before extraction or analysis and still be considered valid.

Extraction and analysis dates are shown in **Green** when within suggested criteria or **Red** with an appended dagger symbol (†) when outside suggested criteria. If the sampled date is not supplied then compliance with criteria cannot be determined. If the received date is after one or both due dates then holding time will fail by default.

Mercury in Soil

Method: ME-(AU)-[ENV]AN312

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
TP13_0.8	SE157066.001	LB109817	07 Sep 2016	12 Sep 2016	05 Oct 2016	14 Sep 2016	05 Oct 2016	16 Sep 2016
TP15_0.7	SE157066.002	LB109817	07 Sep 2016	12 Sep 2016	05 Oct 2016	14 Sep 2016	05 Oct 2016	16 Sep 2016
TP16_0.4	SE157066.003	LB109817	07 Sep 2016	12 Sep 2016	05 Oct 2016	14 Sep 2016	05 Oct 2016	16 Sep 2016
TP24_0.5	SE157066.004	LB109817	07 Sep 2016	12 Sep 2016	05 Oct 2016	14 Sep 2016	05 Oct 2016	16 Sep 2016
TP25_1.1	SE157066.005	LB109817	07 Sep 2016	12 Sep 2016	05 Oct 2016	14 Sep 2016	05 Oct 2016	16 Sep 2016
TP28_0.15	SE157066.006	LB109817	08 Sep 2016	12 Sep 2016	06 Oct 2016	14 Sep 2016	06 Oct 2016	16 Sep 2016
TP34A_0.5	SE157066.007	LB109817	08 Sep 2016	12 Sep 2016	06 Oct 2016	14 Sep 2016	06 Oct 2016	16 Sep 2016
TP12_0.1	SE157066.008	LB109817	08 Sep 2016	12 Sep 2016	06 Oct 2016	14 Sep 2016	06 Oct 2016	16 Sep 2016
TP14_0.1	SE157066.009	LB109817	08 Sep 2016	12 Sep 2016	06 Oct 2016	14 Sep 2016	06 Oct 2016	16 Sep 2016
TP18_0.1	SE157066.010	LB109817	08 Sep 2016	12 Sep 2016	06 Oct 2016	14 Sep 2016	06 Oct 2016	16 Sep 2016
TP23_0.1-0.15	SE157066.011	LB109817	08 Sep 2016	12 Sep 2016	06 Oct 2016	14 Sep 2016	06 Oct 2016	16 Sep 2016
TP29_0.1	SE157066.012	LB109817	08 Sep 2016	12 Sep 2016	06 Oct 2016	14 Sep 2016	06 Oct 2016	16 Sep 2016
TP26_0.1	SE157066.013	LB109817	08 Sep 2016	12 Sep 2016	06 Oct 2016	14 Sep 2016	06 Oct 2016	16 Sep 2016
TP27_0.2	SE157066.014	LB109817	08 Sep 2016	12 Sep 2016	06 Oct 2016	14 Sep 2016	06 Oct 2016	16 Sep 2016
TP30_0.1	SE157066.015	LB109817	08 Sep 2016	12 Sep 2016	06 Oct 2016	14 Sep 2016	06 Oct 2016	16 Sep 2016
TP31_0.3	SE157066.016	LB109817	08 Sep 2016	12 Sep 2016	06 Oct 2016	14 Sep 2016	06 Oct 2016	16 Sep 2016
TP32_0.1	SE157066.017	LB109817	08 Sep 2016	12 Sep 2016	06 Oct 2016	14 Sep 2016	06 Oct 2016	16 Sep 2016
TP40.2_0.1	SE157066.018	LB109817	08 Sep 2016	12 Sep 2016	06 Oct 2016	14 Sep 2016	06 Oct 2016	16 Sep 2016
TP43_0.1	SE157066.019	LB109817	08 Sep 2016	12 Sep 2016	06 Oct 2016	14 Sep 2016	06 Oct 2016	16 Sep 2016
TP44_0.1	SE157066.020	LB109818	08 Sep 2016	12 Sep 2016	06 Oct 2016	15 Sep 2016	06 Oct 2016	16 Sep 2016
TP54_0.1	SE157066.021	LB109818	08 Sep 2016	12 Sep 2016	06 Oct 2016	15 Sep 2016	06 Oct 2016	16 Sep 2016
BH01_0.36-0.46	SE157066.022	LB109818	08 Sep 2016	12 Sep 2016	06 Oct 2016	15 Sep 2016	06 Oct 2016	16 Sep 2016
TP63_0.4-0.25	SE157066.023	LB109818	08 Sep 2016	12 Sep 2016	06 Oct 2016	15 Sep 2016	06 Oct 2016	16 Sep 2016
TP51_1.3-1.4	SE157066.024	LB109818	08 Sep 2016	12 Sep 2016	06 Oct 2016	15 Sep 2016	06 Oct 2016	16 Sep 2016
QC4	SE157066.025	LB109818	08 Sep 2016	12 Sep 2016	06 Oct 2016	15 Sep 2016	06 Oct 2016	16 Sep 2016
QC1	SE157066.026	LB109818	08 Sep 2016	12 Sep 2016	06 Oct 2016	15 Sep 2016	06 Oct 2016	16 Sep 2016
TP36_0.2-0.3	SE157066.027	LB109818	08 Sep 2016	12 Sep 2016	06 Oct 2016	15 Sep 2016	06 Oct 2016	16 Sep 2016
TP50_0.2-0.3	SE157066.028	LB109818	08 Sep 2016	12 Sep 2016	06 Oct 2016	15 Sep 2016	06 Oct 2016	16 Sep 2016
TP58_0.05-0.15	SE157066.029	LB109818	08 Sep 2016	12 Sep 2016	06 Oct 2016	15 Sep 2016	06 Oct 2016	16 Sep 2016
TP59_0.2-0.3	SE157066.030	LB109818	08 Sep 2016	12 Sep 2016	06 Oct 2016	15 Sep 2016	06 Oct 2016	16 Sep 2016
QC2	SE157066.031	LB109818	08 Sep 2016	12 Sep 2016	06 Oct 2016	15 Sep 2016	06 Oct 2016	16 Sep 2016
QC3	SE157066.032	LB109818	08 Sep 2016	12 Sep 2016	06 Oct 2016	15 Sep 2016	06 Oct 2016	16 Sep 2016

Moisture Content

Method: ME-(AU)-[ENV]AN002

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
TP13_0.8	SE157066.001	LB109800	07 Sep 2016	12 Sep 2016	21 Sep 2016	14 Sep 2016	19 Sep 2016	15 Sep 2016
TP15_0.7	SE157066.002	LB109800	07 Sep 2016	12 Sep 2016	21 Sep 2016	14 Sep 2016	19 Sep 2016	15 Sep 2016
TP16_0.4	SE157066.003	LB109800	07 Sep 2016	12 Sep 2016	21 Sep 2016	14 Sep 2016	19 Sep 2016	15 Sep 2016
TP24_0.5	SE157066.004	LB109800	07 Sep 2016	12 Sep 2016	21 Sep 2016	14 Sep 2016	19 Sep 2016	15 Sep 2016
TP25_1.1	SE157066.005	LB109800	07 Sep 2016	12 Sep 2016	21 Sep 2016	14 Sep 2016	19 Sep 2016	15 Sep 2016
TP28_0.15	SE157066.006	LB109800	08 Sep 2016	12 Sep 2016	22 Sep 2016	14 Sep 2016	19 Sep 2016	15 Sep 2016
TP34A_0.5	SE157066.007	LB109800	08 Sep 2016	12 Sep 2016	22 Sep 2016	14 Sep 2016	19 Sep 2016	15 Sep 2016
TP12_0.1	SE157066.008	LB109800	08 Sep 2016	12 Sep 2016	22 Sep 2016	14 Sep 2016	19 Sep 2016	15 Sep 2016
TP14_0.1	SE157066.009	LB109800	08 Sep 2016	12 Sep 2016	22 Sep 2016	14 Sep 2016	19 Sep 2016	15 Sep 2016
TP18_0.1	SE157066.010	LB109800	08 Sep 2016	12 Sep 2016	22 Sep 2016	14 Sep 2016	19 Sep 2016	15 Sep 2016
TP23_0.1-0.15	SE157066.011	LB109800	08 Sep 2016	12 Sep 2016	22 Sep 2016	14 Sep 2016	19 Sep 2016	15 Sep 2016
TP29_0.1	SE157066.012	LB109800	08 Sep 2016	12 Sep 2016	22 Sep 2016	14 Sep 2016	19 Sep 2016	15 Sep 2016
TP26_0.1	SE157066.013	LB109800	08 Sep 2016	12 Sep 2016	22 Sep 2016	14 Sep 2016	19 Sep 2016	15 Sep 2016
TP27_0.2	SE157066.014	LB109800	08 Sep 2016	12 Sep 2016	22 Sep 2016	14 Sep 2016	19 Sep 2016	15 Sep 2016
TP30_0.1	SE157066.015	LB109800	08 Sep 2016	12 Sep 2016	22 Sep 2016	14 Sep 2016	19 Sep 2016	15 Sep 2016
TP31_0.3	SE157066.016	LB109800	08 Sep 2016	12 Sep 2016	22 Sep 2016	14 Sep 2016	19 Sep 2016	15 Sep 2016
TP32_0.1	SE157066.017	LB109800	08 Sep 2016	12 Sep 2016	22 Sep 2016	14 Sep 2016	19 Sep 2016	15 Sep 2016
TP40.2_0.1	SE157066.018	LB109800	08 Sep 2016	12 Sep 2016	22 Sep 2016	14 Sep 2016	19 Sep 2016	15 Sep 2016
TP43_0.1	SE157066.019	LB109800	08 Sep 2016	12 Sep 2016	22 Sep 2016	14 Sep 2016	19 Sep 2016	15 Sep 2016
TP44_0.1	SE157066.020	LB109800	08 Sep 2016	12 Sep 2016	22 Sep 2016	14 Sep 2016	19 Sep 2016	15 Sep 2016
TP54_0.1	SE157066.021	LB109800	08 Sep 2016	12 Sep 2016	22 Sep 2016	14 Sep 2016	19 Sep 2016	15 Sep 2016
BH01_0.36-0.46	SE157066.022	LB109800	08 Sep 2016	12 Sep 2016	22 Sep 2016	14 Sep 2016	19 Sep 2016	15 Sep 2016
TP63_0.4-0.25	SE157066.023	LB109800	08 Sep 2016	12 Sep 2016	22 Sep 2016	14 Sep 2016	19 Sep 2016	15 Sep 2016
TP51_1.3-1.4	SE157066.024	LB109800	08 Sep 2016	12 Sep 2016	22 Sep 2016	14 Sep 2016	19 Sep 2016	15 Sep 2016
QC4	SE157066.025	LB109800	08 Sep 2016	12 Sep 2016	22 Sep 2016	14 Sep 2016	19 Sep 2016	15 Sep 2016

HOLDING TIME SUMMARY

SE157066 R0

SGS holding time criteria are drawn from current regulations and are highly dependent on sample container preservation as specified in the SGS “Field Sampling Guide for Containers and Holding Time” (ref: GU-(AU)-ENV.001). Soil samples guidelines are derived from NEPM "Schedule B(3) Guideline on Laboratory Analysis of Potentially Contaminated Soils". Water sample guidelines are derived from "AS/NZS 5667.1 : 1998 Water Quality - sampling part 1" and APHA "Standard Methods for the Examination of Water and Wastewater" 21st edition 2005.

Extraction and analysis holding time due dates listed are calculated from the date sampled, although holding times may be extended after laboratory extraction for some analytes. The due dates are the suggested dates that samples may be held before extraction or analysis and still be considered valid.

Extraction and analysis dates are shown in **Green** when within suggested criteria or **Red** with an appended dagger symbol (†) when outside suggested criteria. If the sampled date is not supplied then compliance with criteria cannot be determined. If the received date is after one or both due dates then holding time will fail by default.

Moisture Content (continued)

Method: ME-(AU)-[ENV]AN002

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
QC1	SE157066.026	LB109800	08 Sep 2016	12 Sep 2016	22 Sep 2016	14 Sep 2016	19 Sep 2016	15 Sep 2016
TP36_0.2-0.3	SE157066.027	LB109861	08 Sep 2016	12 Sep 2016	22 Sep 2016	15 Sep 2016	20 Sep 2016	15 Sep 2016
TP50_0.2-0.3	SE157066.028	LB109861	08 Sep 2016	12 Sep 2016	22 Sep 2016	15 Sep 2016	20 Sep 2016	15 Sep 2016
TP58_0.05-0.15	SE157066.029	LB109861	08 Sep 2016	12 Sep 2016	22 Sep 2016	15 Sep 2016	20 Sep 2016	15 Sep 2016
TP59_0.2-0.3	SE157066.030	LB109861	08 Sep 2016	12 Sep 2016	22 Sep 2016	15 Sep 2016	20 Sep 2016	15 Sep 2016
QC2	SE157066.031	LB109861	08 Sep 2016	12 Sep 2016	22 Sep 2016	15 Sep 2016	20 Sep 2016	15 Sep 2016
QC3	SE157066.032	LB109861	08 Sep 2016	12 Sep 2016	22 Sep 2016	15 Sep 2016	20 Sep 2016	15 Sep 2016

OC Pesticides in Soil

Method: ME-(AU)-[ENV]AN400/AN420

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
TP13_0.8	SE157066.001	LB109805	07 Sep 2016	12 Sep 2016	21 Sep 2016	14 Sep 2016	24 Oct 2016	16 Sep 2016
TP15_0.7	SE157066.002	LB109805	07 Sep 2016	12 Sep 2016	21 Sep 2016	14 Sep 2016	24 Oct 2016	16 Sep 2016
TP16_0.4	SE157066.003	LB109805	07 Sep 2016	12 Sep 2016	21 Sep 2016	14 Sep 2016	24 Oct 2016	16 Sep 2016
TP24_0.5	SE157066.004	LB109805	07 Sep 2016	12 Sep 2016	21 Sep 2016	14 Sep 2016	24 Oct 2016	16 Sep 2016
TP25_1.1	SE157066.005	LB109805	07 Sep 2016	12 Sep 2016	21 Sep 2016	14 Sep 2016	24 Oct 2016	16 Sep 2016
TP28_0.15	SE157066.006	LB109805	08 Sep 2016	12 Sep 2016	22 Sep 2016	14 Sep 2016	24 Oct 2016	16 Sep 2016
TP34A_0.5	SE157066.007	LB109805	08 Sep 2016	12 Sep 2016	22 Sep 2016	14 Sep 2016	24 Oct 2016	16 Sep 2016
TP12_0.1	SE157066.008	LB109805	08 Sep 2016	12 Sep 2016	22 Sep 2016	14 Sep 2016	24 Oct 2016	16 Sep 2016
TP14_0.1	SE157066.009	LB109805	08 Sep 2016	12 Sep 2016	22 Sep 2016	14 Sep 2016	24 Oct 2016	16 Sep 2016
TP18_0.1	SE157066.010	LB109805	08 Sep 2016	12 Sep 2016	22 Sep 2016	14 Sep 2016	24 Oct 2016	16 Sep 2016
TP23_0.1-0.15	SE157066.011	LB109805	08 Sep 2016	12 Sep 2016	22 Sep 2016	14 Sep 2016	24 Oct 2016	16 Sep 2016
TP29_0.1	SE157066.012	LB109805	08 Sep 2016	12 Sep 2016	22 Sep 2016	14 Sep 2016	24 Oct 2016	16 Sep 2016
TP26_0.1	SE157066.013	LB109805	08 Sep 2016	12 Sep 2016	22 Sep 2016	14 Sep 2016	24 Oct 2016	16 Sep 2016
TP27_0.2	SE157066.014	LB109805	08 Sep 2016	12 Sep 2016	22 Sep 2016	14 Sep 2016	24 Oct 2016	16 Sep 2016
TP30_0.1	SE157066.015	LB109805	08 Sep 2016	12 Sep 2016	22 Sep 2016	14 Sep 2016	24 Oct 2016	16 Sep 2016
TP31_0.3	SE157066.016	LB109805	08 Sep 2016	12 Sep 2016	22 Sep 2016	14 Sep 2016	24 Oct 2016	16 Sep 2016
TP32_0.1	SE157066.017	LB109805	08 Sep 2016	12 Sep 2016	22 Sep 2016	14 Sep 2016	24 Oct 2016	16 Sep 2016
TP40.2_0.1	SE157066.018	LB109806	08 Sep 2016	12 Sep 2016	22 Sep 2016	14 Sep 2016	24 Oct 2016	16 Sep 2016
TP43_0.1	SE157066.019	LB109806	08 Sep 2016	12 Sep 2016	22 Sep 2016	14 Sep 2016	24 Oct 2016	16 Sep 2016
TP44_0.1	SE157066.020	LB109806	08 Sep 2016	12 Sep 2016	22 Sep 2016	14 Sep 2016	24 Oct 2016	16 Sep 2016
TP54_0.1	SE157066.021	LB109806	08 Sep 2016	12 Sep 2016	22 Sep 2016	14 Sep 2016	24 Oct 2016	16 Sep 2016
BH01_0.36-0.46	SE157066.022	LB109806	08 Sep 2016	12 Sep 2016	22 Sep 2016	14 Sep 2016	24 Oct 2016	16 Sep 2016
TP63_0.4-0.25	SE157066.023	LB109806	08 Sep 2016	12 Sep 2016	22 Sep 2016	14 Sep 2016	24 Oct 2016	16 Sep 2016
TP51_1.3-1.4	SE157066.024	LB109806	08 Sep 2016	12 Sep 2016	22 Sep 2016	14 Sep 2016	24 Oct 2016	16 Sep 2016
QC4	SE157066.025	LB109806	08 Sep 2016	12 Sep 2016	22 Sep 2016	14 Sep 2016	24 Oct 2016	16 Sep 2016
QC1	SE157066.026	LB109806	08 Sep 2016	12 Sep 2016	22 Sep 2016	14 Sep 2016	24 Oct 2016	16 Sep 2016
TP36_0.2-0.3	SE157066.027	LB109906	08 Sep 2016	12 Sep 2016	22 Sep 2016	15 Sep 2016	25 Oct 2016	16 Sep 2016
TP50_0.2-0.3	SE157066.028	LB109906	08 Sep 2016	12 Sep 2016	22 Sep 2016	15 Sep 2016	25 Oct 2016	16 Sep 2016
TP58_0.05-0.15	SE157066.029	LB109906	08 Sep 2016	12 Sep 2016	22 Sep 2016	15 Sep 2016	25 Oct 2016	16 Sep 2016
TP59_0.2-0.3	SE157066.030	LB109906	08 Sep 2016	12 Sep 2016	22 Sep 2016	15 Sep 2016	25 Oct 2016	16 Sep 2016
QC2	SE157066.031	LB109906	08 Sep 2016	12 Sep 2016	22 Sep 2016	15 Sep 2016	25 Oct 2016	16 Sep 2016
QC3	SE157066.032	LB109906	08 Sep 2016	12 Sep 2016	22 Sep 2016	15 Sep 2016	25 Oct 2016	16 Sep 2016

OP Pesticides in Soil

Method: ME-(AU)-[ENV]AN400/AN420

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
TP13_0.8	SE157066.001	LB109805	07 Sep 2016	12 Sep 2016	21 Sep 2016	14 Sep 2016	24 Oct 2016	16 Sep 2016
TP15_0.7	SE157066.002	LB109805	07 Sep 2016	12 Sep 2016	21 Sep 2016	14 Sep 2016	24 Oct 2016	16 Sep 2016
TP16_0.4	SE157066.003	LB109805	07 Sep 2016	12 Sep 2016	21 Sep 2016	14 Sep 2016	24 Oct 2016	16 Sep 2016
TP24_0.5	SE157066.004	LB109805	07 Sep 2016	12 Sep 2016	21 Sep 2016	14 Sep 2016	24 Oct 2016	16 Sep 2016
TP25_1.1	SE157066.005	LB109805	07 Sep 2016	12 Sep 2016	21 Sep 2016	14 Sep 2016	24 Oct 2016	16 Sep 2016
TP28_0.15	SE157066.006	LB109805	08 Sep 2016	12 Sep 2016	22 Sep 2016	14 Sep 2016	24 Oct 2016	16 Sep 2016
TP34A_0.5	SE157066.007	LB109805	08 Sep 2016	12 Sep 2016	22 Sep 2016	14 Sep 2016	24 Oct 2016	16 Sep 2016
TP12_0.1	SE157066.008	LB109805	08 Sep 2016	12 Sep 2016	22 Sep 2016	14 Sep 2016	24 Oct 2016	16 Sep 2016
TP14_0.1	SE157066.009	LB109805	08 Sep 2016	12 Sep 2016	22 Sep 2016	14 Sep 2016	24 Oct 2016	16 Sep 2016
TP18_0.1	SE157066.010	LB109805	08 Sep 2016	12 Sep 2016	22 Sep 2016	14 Sep 2016	24 Oct 2016	16 Sep 2016
TP23_0.1-0.15	SE157066.011	LB109805	08 Sep 2016	12 Sep 2016	22 Sep 2016	14 Sep 2016	24 Oct 2016	16 Sep 2016
TP29_0.1	SE157066.012	LB109805	08 Sep 2016	12 Sep 2016	22 Sep 2016	14 Sep 2016	24 Oct 2016	16 Sep 2016
TP26_0.1	SE157066.013	LB109805	08 Sep 2016	12 Sep 2016	22 Sep 2016	14 Sep 2016	24 Oct 2016	16 Sep 2016
TP27_0.2	SE157066.014	LB109805	08 Sep 2016	12 Sep 2016	22 Sep 2016	14 Sep 2016	24 Oct 2016	16 Sep 2016
TP30_0.1	SE157066.015	LB109805	08 Sep 2016	12 Sep 2016	22 Sep 2016	14 Sep 2016	24 Oct 2016	16 Sep 2016
TP31_0.3	SE157066.016	LB109805	08 Sep 2016	12 Sep 2016	22 Sep 2016	14 Sep 2016	24 Oct 2016	16 Sep 2016

HOLDING TIME SUMMARY

SE157066 R0

SGS holding time criteria are drawn from current regulations and are highly dependent on sample container preservation as specified in the SGS “Field Sampling Guide for Containers and Holding Time” (ref: GU-(AU)-ENV.001). Soil samples guidelines are derived from NEPM "Schedule B(3) Guideline on Laboratory Analysis of Potentially Contaminated Soils". Water sample guidelines are derived from "AS/NZS 5667.1 : 1998 Water Quality - sampling part 1" and APHA "Standard Methods for the Examination of Water and Wastewater" 21st edition 2005.

Extraction and analysis holding time due dates listed are calculated from the date sampled, although holding times may be extended after laboratory extraction for some analytes. The due dates are the suggested dates that samples may be held before extraction or analysis and still be considered valid.

Extraction and analysis dates are shown in **Green** when within suggested criteria or **Red** with an appended dagger symbol (†) when outside suggested criteria. If the sampled date is not supplied then compliance with criteria cannot be determined. If the received date is after one or both due dates then holding time will fail by default.

OP Pesticides in Soil (continued)

Method: ME-(AU)-[ENV]AN400/AN420

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
TP32_0.1	SE157066.017	LB109805	08 Sep 2016	12 Sep 2016	22 Sep 2016	14 Sep 2016	24 Oct 2016	16 Sep 2016
TP40.2_0.1	SE157066.018	LB109806	08 Sep 2016	12 Sep 2016	22 Sep 2016	14 Sep 2016	24 Oct 2016	16 Sep 2016
TP43_0.1	SE157066.019	LB109806	08 Sep 2016	12 Sep 2016	22 Sep 2016	14 Sep 2016	24 Oct 2016	16 Sep 2016
TP44_0.1	SE157066.020	LB109806	08 Sep 2016	12 Sep 2016	22 Sep 2016	14 Sep 2016	24 Oct 2016	16 Sep 2016
TP54_0.1	SE157066.021	LB109806	08 Sep 2016	12 Sep 2016	22 Sep 2016	14 Sep 2016	24 Oct 2016	16 Sep 2016
BH01_0.36-0.46	SE157066.022	LB109806	08 Sep 2016	12 Sep 2016	22 Sep 2016	14 Sep 2016	24 Oct 2016	16 Sep 2016
TP63_0.4-0.25	SE157066.023	LB109806	08 Sep 2016	12 Sep 2016	22 Sep 2016	14 Sep 2016	24 Oct 2016	16 Sep 2016
TP51_1.3-1.4	SE157066.024	LB109806	08 Sep 2016	12 Sep 2016	22 Sep 2016	14 Sep 2016	24 Oct 2016	16 Sep 2016
QC4	SE157066.025	LB109806	08 Sep 2016	12 Sep 2016	22 Sep 2016	14 Sep 2016	24 Oct 2016	16 Sep 2016
QC1	SE157066.026	LB109806	08 Sep 2016	12 Sep 2016	22 Sep 2016	14 Sep 2016	24 Oct 2016	16 Sep 2016
TP36_0.2-0.3	SE157066.027	LB109906	08 Sep 2016	12 Sep 2016	22 Sep 2016	15 Sep 2016	25 Oct 2016	16 Sep 2016
TP50_0.2-0.3	SE157066.028	LB109906	08 Sep 2016	12 Sep 2016	22 Sep 2016	15 Sep 2016	25 Oct 2016	16 Sep 2016
TP58_0.05-0.15	SE157066.029	LB109906	08 Sep 2016	12 Sep 2016	22 Sep 2016	15 Sep 2016	25 Oct 2016	16 Sep 2016
TP59_0.2-0.3	SE157066.030	LB109906	08 Sep 2016	12 Sep 2016	22 Sep 2016	15 Sep 2016	25 Oct 2016	16 Sep 2016
QC2	SE157066.031	LB109906	08 Sep 2016	12 Sep 2016	22 Sep 2016	15 Sep 2016	25 Oct 2016	16 Sep 2016
QC3	SE157066.032	LB109906	08 Sep 2016	12 Sep 2016	22 Sep 2016	15 Sep 2016	25 Oct 2016	16 Sep 2016

PAH (Polynuclear Aromatic Hydrocarbons) in Soil

Method: ME-(AU)-[ENV]AN420

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
TP13_0.8	SE157066.001	LB109805	07 Sep 2016	12 Sep 2016	21 Sep 2016	14 Sep 2016	24 Oct 2016	16 Sep 2016
TP15_0.7	SE157066.002	LB109805	07 Sep 2016	12 Sep 2016	21 Sep 2016	14 Sep 2016	24 Oct 2016	16 Sep 2016
TP16_0.4	SE157066.003	LB109805	07 Sep 2016	12 Sep 2016	21 Sep 2016	14 Sep 2016	24 Oct 2016	16 Sep 2016
TP24_0.5	SE157066.004	LB109805	07 Sep 2016	12 Sep 2016	21 Sep 2016	14 Sep 2016	24 Oct 2016	16 Sep 2016
TP25_1.1	SE157066.005	LB109805	07 Sep 2016	12 Sep 2016	21 Sep 2016	14 Sep 2016	24 Oct 2016	16 Sep 2016
TP28_0.15	SE157066.006	LB109805	08 Sep 2016	12 Sep 2016	22 Sep 2016	14 Sep 2016	24 Oct 2016	16 Sep 2016
TP34A_0.5	SE157066.007	LB109805	08 Sep 2016	12 Sep 2016	22 Sep 2016	14 Sep 2016	24 Oct 2016	16 Sep 2016
TP12_0.1	SE157066.008	LB109805	08 Sep 2016	12 Sep 2016	22 Sep 2016	14 Sep 2016	24 Oct 2016	16 Sep 2016
TP14_0.1	SE157066.009	LB109805	08 Sep 2016	12 Sep 2016	22 Sep 2016	14 Sep 2016	24 Oct 2016	16 Sep 2016
TP18_0.1	SE157066.010	LB109805	08 Sep 2016	12 Sep 2016	22 Sep 2016	14 Sep 2016	24 Oct 2016	16 Sep 2016
TP23_0.1-0.15	SE157066.011	LB109805	08 Sep 2016	12 Sep 2016	22 Sep 2016	14 Sep 2016	24 Oct 2016	16 Sep 2016
TP29_0.1	SE157066.012	LB109805	08 Sep 2016	12 Sep 2016	22 Sep 2016	14 Sep 2016	24 Oct 2016	16 Sep 2016
TP26_0.1	SE157066.013	LB109805	08 Sep 2016	12 Sep 2016	22 Sep 2016	14 Sep 2016	24 Oct 2016	16 Sep 2016
TP27_0.2	SE157066.014	LB109805	08 Sep 2016	12 Sep 2016	22 Sep 2016	14 Sep 2016	24 Oct 2016	16 Sep 2016
TP30_0.1	SE157066.015	LB109805	08 Sep 2016	12 Sep 2016	22 Sep 2016	14 Sep 2016	24 Oct 2016	16 Sep 2016
TP31_0.3	SE157066.016	LB109805	08 Sep 2016	12 Sep 2016	22 Sep 2016	14 Sep 2016	24 Oct 2016	16 Sep 2016
TP32_0.1	SE157066.017	LB109805	08 Sep 2016	12 Sep 2016	22 Sep 2016	14 Sep 2016	24 Oct 2016	16 Sep 2016
TP40.2_0.1	SE157066.018	LB109806	08 Sep 2016	12 Sep 2016	22 Sep 2016	14 Sep 2016	24 Oct 2016	16 Sep 2016
TP43_0.1	SE157066.019	LB109806	08 Sep 2016	12 Sep 2016	22 Sep 2016	14 Sep 2016	24 Oct 2016	16 Sep 2016
TP44_0.1	SE157066.020	LB109806	08 Sep 2016	12 Sep 2016	22 Sep 2016	14 Sep 2016	24 Oct 2016	16 Sep 2016
TP54_0.1	SE157066.021	LB109806	08 Sep 2016	12 Sep 2016	22 Sep 2016	14 Sep 2016	24 Oct 2016	16 Sep 2016
BH01_0.36-0.46	SE157066.022	LB109806	08 Sep 2016	12 Sep 2016	22 Sep 2016	14 Sep 2016	24 Oct 2016	16 Sep 2016
TP63_0.4-0.25	SE157066.023	LB109806	08 Sep 2016	12 Sep 2016	22 Sep 2016	14 Sep 2016	24 Oct 2016	16 Sep 2016
TP51_1.3-1.4	SE157066.024	LB109806	08 Sep 2016	12 Sep 2016	22 Sep 2016	14 Sep 2016	24 Oct 2016	16 Sep 2016
QC4	SE157066.025	LB109806	08 Sep 2016	12 Sep 2016	22 Sep 2016	14 Sep 2016	24 Oct 2016	16 Sep 2016
QC1	SE157066.026	LB109806	08 Sep 2016	12 Sep 2016	22 Sep 2016	14 Sep 2016	24 Oct 2016	16 Sep 2016
TP36_0.2-0.3	SE157066.027	LB109906	08 Sep 2016	12 Sep 2016	22 Sep 2016	15 Sep 2016	25 Oct 2016	16 Sep 2016
TP50_0.2-0.3	SE157066.028	LB109906	08 Sep 2016	12 Sep 2016	22 Sep 2016	15 Sep 2016	25 Oct 2016	16 Sep 2016
TP58_0.05-0.15	SE157066.029	LB109906	08 Sep 2016	12 Sep 2016	22 Sep 2016	15 Sep 2016	25 Oct 2016	16 Sep 2016
TP59_0.2-0.3	SE157066.030	LB109906	08 Sep 2016	12 Sep 2016	22 Sep 2016	15 Sep 2016	25 Oct 2016	16 Sep 2016
QC2	SE157066.031	LB109906	08 Sep 2016	12 Sep 2016	22 Sep 2016	15 Sep 2016	25 Oct 2016	16 Sep 2016
QC3	SE157066.032	LB109906	08 Sep 2016	12 Sep 2016	22 Sep 2016	15 Sep 2016	25 Oct 2016	16 Sep 2016

Total Phenolics in Soil

Method: ME-(AU)-[ENV]AN289

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
TP13_0.8	SE157066.001	LB109905	07 Sep 2016	12 Sep 2016	21 Sep 2016	15 Sep 2016	21 Sep 2016	16 Sep 2016
TP15_0.7	SE157066.002	LB109905	07 Sep 2016	12 Sep 2016	21 Sep 2016	15 Sep 2016	21 Sep 2016	16 Sep 2016
TP16_0.4	SE157066.003	LB109905	07 Sep 2016	12 Sep 2016	21 Sep 2016	15 Sep 2016	21 Sep 2016	16 Sep 2016
TP24_0.5	SE157066.004	LB109905	07 Sep 2016	12 Sep 2016	21 Sep 2016	15 Sep 2016	21 Sep 2016	16 Sep 2016
TP25_1.1	SE157066.005	LB109905	07 Sep 2016	12 Sep 2016	21 Sep 2016	15 Sep 2016	21 Sep 2016	16 Sep 2016
TP28_0.15	SE157066.006	LB109905	08 Sep 2016	12 Sep 2016	22 Sep 2016	15 Sep 2016	22 Sep 2016	16 Sep 2016
TP34A_0.5	SE157066.007	LB109905	08 Sep 2016	12 Sep 2016	22 Sep 2016	15 Sep 2016	22 Sep 2016	16 Sep 2016

SGS holding time criteria are drawn from current regulations and are highly dependent on sample container preservation as specified in the SGS "Field Sampling Guide for Containers and Holding Time" (ref: GU-(AU)-ENV.001). Soil samples guidelines are derived from NEPM "Schedule B(3) Guideline on Laboratory Analysis of Potentially Contaminated Soils". Water sample guidelines are derived from "AS/NZS 5667.1 : 1998 Water Quality - sampling part 1" and APHA "Standard Methods for the Examination of Water and Wastewater" 21st edition 2005.

Extraction and analysis holding time due dates listed are calculated from the date sampled, although holding times may be extended after laboratory extraction for some analytes. The due dates are the suggested dates that samples may be held before extraction or analysis and still be considered valid.

Extraction and analysis dates are shown in **Green** when within suggested criteria or **Red** with an appended dagger symbol (†) when outside suggested criteria. If the sampled date is not supplied then compliance with criteria cannot be determined. If the received date is after one or both due dates then holding time will fail by default.

Total Phenolics in Soil (continued) — **Method: ME-(AU)-[ENV]AN289**

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
TP12_0.1	SE157066.008	LB109905	08 Sep 2016	12 Sep 2016	22 Sep 2016	15 Sep 2016	22 Sep 2016	16 Sep 2016
TP14_0.1	SE157066.009	LB109905	08 Sep 2016	12 Sep 2016	22 Sep 2016	15 Sep 2016	22 Sep 2016	16 Sep 2016
TP18_0.1	SE157066.010	LB109905	08 Sep 2016	12 Sep 2016	22 Sep 2016	15 Sep 2016	22 Sep 2016	16 Sep 2016
TP23_0.1-0.15	SE157066.011	LB109905	08 Sep 2016	12 Sep 2016	22 Sep 2016	15 Sep 2016	22 Sep 2016	16 Sep 2016
TP29_0.1	SE157066.012	LB109905	08 Sep 2016	12 Sep 2016	22 Sep 2016	15 Sep 2016	22 Sep 2016	16 Sep 2016
TP26_0.1	SE157066.013	LB109905	08 Sep 2016	12 Sep 2016	22 Sep 2016	15 Sep 2016	22 Sep 2016	16 Sep 2016
TP27_0.2	SE157066.014	LB109905	08 Sep 2016	12 Sep 2016	22 Sep 2016	15 Sep 2016	22 Sep 2016	16 Sep 2016
TP30_0.1	SE157066.015	LB109905	08 Sep 2016	12 Sep 2016	22 Sep 2016	15 Sep 2016	22 Sep 2016	16 Sep 2016
TP31_0.3	SE157066.016	LB109905	08 Sep 2016	12 Sep 2016	22 Sep 2016	15 Sep 2016	22 Sep 2016	16 Sep 2016
TP32_0.1	SE157066.017	LB109907	08 Sep 2016	12 Sep 2016	22 Sep 2016	15 Sep 2016	22 Sep 2016	16 Sep 2016
TP40.2_0.1	SE157066.018	LB109907	08 Sep 2016	12 Sep 2016	22 Sep 2016	15 Sep 2016	22 Sep 2016	16 Sep 2016
TP43_0.1	SE157066.019	LB109907	08 Sep 2016	12 Sep 2016	22 Sep 2016	15 Sep 2016	22 Sep 2016	16 Sep 2016
TP44_0.1	SE157066.020	LB109907	08 Sep 2016	12 Sep 2016	22 Sep 2016	15 Sep 2016	22 Sep 2016	16 Sep 2016
TP54_0.1	SE157066.021	LB109907	08 Sep 2016	12 Sep 2016	22 Sep 2016	15 Sep 2016	22 Sep 2016	16 Sep 2016
BH01_0.36-0.46	SE157066.022	LB109907	08 Sep 2016	12 Sep 2016	22 Sep 2016	15 Sep 2016	22 Sep 2016	16 Sep 2016
TP63_0.4-0.25	SE157066.023	LB109907	08 Sep 2016	12 Sep 2016	22 Sep 2016	15 Sep 2016	22 Sep 2016	16 Sep 2016
TP51_1.3-1.4	SE157066.024	LB109907	08 Sep 2016	12 Sep 2016	22 Sep 2016	15 Sep 2016	22 Sep 2016	16 Sep 2016
QC4	SE157066.025	LB109907	08 Sep 2016	12 Sep 2016	22 Sep 2016	15 Sep 2016	22 Sep 2016	16 Sep 2016
QC1	SE157066.026	LB109907	08 Sep 2016	12 Sep 2016	22 Sep 2016	15 Sep 2016	22 Sep 2016	16 Sep 2016
TP36_0.2-0.3	SE157066.027	LB109907	08 Sep 2016	12 Sep 2016	22 Sep 2016	15 Sep 2016	22 Sep 2016	16 Sep 2016
TP50_0.2-0.3	SE157066.028	LB109907	08 Sep 2016	12 Sep 2016	22 Sep 2016	15 Sep 2016	22 Sep 2016	16 Sep 2016
TP58_0.05-0.15	SE157066.029	LB109907	08 Sep 2016	12 Sep 2016	22 Sep 2016	15 Sep 2016	22 Sep 2016	16 Sep 2016
TP59_0.2-0.3	SE157066.030	LB109907	08 Sep 2016	12 Sep 2016	22 Sep 2016	15 Sep 2016	22 Sep 2016	16 Sep 2016
QC2	SE157066.031	LB109907	08 Sep 2016	12 Sep 2016	22 Sep 2016	15 Sep 2016	22 Sep 2016	16 Sep 2016
QC3	SE157066.032	LB109907	08 Sep 2016	12 Sep 2016	22 Sep 2016	15 Sep 2016	22 Sep 2016	16 Sep 2016

Total Recoverable Metals in Soil/Waste Solids/Materials by ICPOES — **Method: ME-(AU)-[ENV]AN040/AN320**

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
TP13_0.8	SE157066.001	LB109811	07 Sep 2016	12 Sep 2016	06 Mar 2017	14 Sep 2016	06 Mar 2017	16 Sep 2016
TP15_0.7	SE157066.002	LB109811	07 Sep 2016	12 Sep 2016	06 Mar 2017	14 Sep 2016	06 Mar 2017	16 Sep 2016
TP16_0.4	SE157066.003	LB109811	07 Sep 2016	12 Sep 2016	06 Mar 2017	14 Sep 2016	06 Mar 2017	16 Sep 2016
TP24_0.5	SE157066.004	LB109811	07 Sep 2016	12 Sep 2016	06 Mar 2017	14 Sep 2016	06 Mar 2017	16 Sep 2016
TP25_1.1	SE157066.005	LB109811	07 Sep 2016	12 Sep 2016	06 Mar 2017	14 Sep 2016	06 Mar 2017	16 Sep 2016
TP28_0.15	SE157066.006	LB109811	08 Sep 2016	12 Sep 2016	07 Mar 2017	14 Sep 2016	07 Mar 2017	16 Sep 2016
TP34A_0.5	SE157066.007	LB109811	08 Sep 2016	12 Sep 2016	07 Mar 2017	14 Sep 2016	07 Mar 2017	16 Sep 2016
TP12_0.1	SE157066.008	LB109811	08 Sep 2016	12 Sep 2016	07 Mar 2017	14 Sep 2016	07 Mar 2017	16 Sep 2016
TP14_0.1	SE157066.009	LB109811	08 Sep 2016	12 Sep 2016	07 Mar 2017	14 Sep 2016	07 Mar 2017	16 Sep 2016
TP18_0.1	SE157066.010	LB109811	08 Sep 2016	12 Sep 2016	07 Mar 2017	14 Sep 2016	07 Mar 2017	16 Sep 2016
TP23_0.1-0.15	SE157066.011	LB109811	08 Sep 2016	12 Sep 2016	07 Mar 2017	14 Sep 2016	07 Mar 2017	16 Sep 2016
TP29_0.1	SE157066.012	LB109811	08 Sep 2016	12 Sep 2016	07 Mar 2017	14 Sep 2016	07 Mar 2017	16 Sep 2016
TP26_0.1	SE157066.013	LB109811	08 Sep 2016	12 Sep 2016	07 Mar 2017	14 Sep 2016	07 Mar 2017	16 Sep 2016
TP27_0.2	SE157066.014	LB109811	08 Sep 2016	12 Sep 2016	07 Mar 2017	14 Sep 2016	07 Mar 2017	16 Sep 2016
TP30_0.1	SE157066.015	LB109811	08 Sep 2016	12 Sep 2016	07 Mar 2017	14 Sep 2016	07 Mar 2017	16 Sep 2016
TP31_0.3	SE157066.016	LB109811	08 Sep 2016	12 Sep 2016	07 Mar 2017	14 Sep 2016	07 Mar 2017	16 Sep 2016
TP32_0.1	SE157066.017	LB109811	08 Sep 2016	12 Sep 2016	07 Mar 2017	14 Sep 2016	07 Mar 2017	16 Sep 2016
TP40.2_0.1	SE157066.018	LB109811	08 Sep 2016	12 Sep 2016	07 Mar 2017	14 Sep 2016	07 Mar 2017	16 Sep 2016
TP43_0.1	SE157066.019	LB109811	08 Sep 2016	12 Sep 2016	07 Mar 2017	14 Sep 2016	07 Mar 2017	16 Sep 2016
TP44_0.1	SE157066.020	LB109812	08 Sep 2016	12 Sep 2016	07 Mar 2017	14 Sep 2016	07 Mar 2017	16 Sep 2016
TP54_0.1	SE157066.021	LB109812	08 Sep 2016	12 Sep 2016	07 Mar 2017	14 Sep 2016	07 Mar 2017	16 Sep 2016
BH01_0.36-0.46	SE157066.022	LB109812	08 Sep 2016	12 Sep 2016	07 Mar 2017	14 Sep 2016	07 Mar 2017	16 Sep 2016
TP63_0.4-0.25	SE157066.023	LB109812	08 Sep 2016	12 Sep 2016	07 Mar 2017	14 Sep 2016	07 Mar 2017	16 Sep 2016
TP51_1.3-1.4	SE157066.024	LB109812	08 Sep 2016	12 Sep 2016	07 Mar 2017	14 Sep 2016	07 Mar 2017	16 Sep 2016
QC4	SE157066.025	LB109812	08 Sep 2016	12 Sep 2016	07 Mar 2017	14 Sep 2016	07 Mar 2017	16 Sep 2016
QC1	SE157066.026	LB109812	08 Sep 2016	12 Sep 2016	07 Mar 2017	14 Sep 2016	07 Mar 2017	16 Sep 2016
TP36_0.2-0.3	SE157066.027	LB109852	08 Sep 2016	12 Sep 2016	07 Mar 2017	15 Sep 2016	07 Mar 2017	16 Sep 2016
TP50_0.2-0.3	SE157066.028	LB109852	08 Sep 2016	12 Sep 2016	07 Mar 2017	15 Sep 2016	07 Mar 2017	16 Sep 2016
TP58_0.05-0.15	SE157066.029	LB109852	08 Sep 2016	12 Sep 2016	07 Mar 2017	15 Sep 2016	07 Mar 2017	16 Sep 2016
TP59_0.2-0.3	SE157066.030	LB109852	08 Sep 2016	12 Sep 2016	07 Mar 2017	15 Sep 2016	07 Mar 2017	16 Sep 2016
QC2	SE157066.031	LB109852	08 Sep 2016	12 Sep 2016	07 Mar 2017	15 Sep 2016	07 Mar 2017	16 Sep 2016
QC3	SE157066.032	LB109852	08 Sep 2016	12 Sep 2016	07 Mar 2017	15 Sep 2016	07 Mar 2017	16 Sep 2016

HOLDING TIME SUMMARY

SE157066 R0

SGS holding time criteria are drawn from current regulations and are highly dependent on sample container preservation as specified in the SGS “Field Sampling Guide for Containers and Holding Time” (ref: GU-(AU)-ENV.001). Soil samples guidelines are derived from NEPM "Schedule B(3) Guideline on Laboratory Analysis of Potentially Contaminated Soils". Water sample guidelines are derived from "AS/NZS 5667.1 : 1998 Water Quality - sampling part 1" and APHA "Standard Methods for the Examination of Water and Wastewater" 21st edition 2005.

Extraction and analysis holding time due dates listed are calculated from the date sampled, although holding times may be extended after laboratory extraction for some analytes. The due dates are the suggested dates that samples may be held before extraction or analysis and still be considered valid.

Extraction and analysis dates are shown in **Green** when within suggested criteria or **Red** with an appended dagger symbol (†) when outside suggested criteria. If the sampled date is not supplied then compliance with criteria cannot be determined. If the received date is after one or both due dates then holding time will fail by default.

TRH (Total Recoverable Hydrocarbons) in Soil

Method: ME-(AU)-[ENV]AN403

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
TP13_0.8	SE157066.001	LB109805	07 Sep 2016	12 Sep 2016	21 Sep 2016	14 Sep 2016	24 Oct 2016	15 Sep 2016
TP15_0.7	SE157066.002	LB109805	07 Sep 2016	12 Sep 2016	21 Sep 2016	14 Sep 2016	24 Oct 2016	15 Sep 2016
TP16_0.4	SE157066.003	LB109805	07 Sep 2016	12 Sep 2016	21 Sep 2016	14 Sep 2016	24 Oct 2016	15 Sep 2016
TP24_0.5	SE157066.004	LB109805	07 Sep 2016	12 Sep 2016	21 Sep 2016	14 Sep 2016	24 Oct 2016	15 Sep 2016
TP25_1.1	SE157066.005	LB109805	07 Sep 2016	12 Sep 2016	21 Sep 2016	14 Sep 2016	24 Oct 2016	15 Sep 2016
TP28_0.15	SE157066.006	LB109805	08 Sep 2016	12 Sep 2016	22 Sep 2016	14 Sep 2016	24 Oct 2016	15 Sep 2016
TP34A_0.5	SE157066.007	LB109805	08 Sep 2016	12 Sep 2016	22 Sep 2016	14 Sep 2016	24 Oct 2016	15 Sep 2016
TP12_0.1	SE157066.008	LB109805	08 Sep 2016	12 Sep 2016	22 Sep 2016	14 Sep 2016	24 Oct 2016	15 Sep 2016
TP14_0.1	SE157066.009	LB109805	08 Sep 2016	12 Sep 2016	22 Sep 2016	14 Sep 2016	24 Oct 2016	16 Sep 2016
TP18_0.1	SE157066.010	LB109805	08 Sep 2016	12 Sep 2016	22 Sep 2016	14 Sep 2016	24 Oct 2016	16 Sep 2016
TP23_0.1-0.15	SE157066.011	LB109805	08 Sep 2016	12 Sep 2016	22 Sep 2016	14 Sep 2016	24 Oct 2016	16 Sep 2016
TP29_0.1	SE157066.012	LB109805	08 Sep 2016	12 Sep 2016	22 Sep 2016	14 Sep 2016	24 Oct 2016	16 Sep 2016
TP26_0.1	SE157066.013	LB109805	08 Sep 2016	12 Sep 2016	22 Sep 2016	14 Sep 2016	24 Oct 2016	16 Sep 2016
TP27_0.2	SE157066.014	LB109805	08 Sep 2016	12 Sep 2016	22 Sep 2016	14 Sep 2016	24 Oct 2016	16 Sep 2016
TP30_0.1	SE157066.015	LB109805	08 Sep 2016	12 Sep 2016	22 Sep 2016	14 Sep 2016	24 Oct 2016	16 Sep 2016
TP31_0.3	SE157066.016	LB109805	08 Sep 2016	12 Sep 2016	22 Sep 2016	14 Sep 2016	24 Oct 2016	16 Sep 2016
TP32_0.1	SE157066.017	LB109805	08 Sep 2016	12 Sep 2016	22 Sep 2016	14 Sep 2016	24 Oct 2016	16 Sep 2016
TP40.2_0.1	SE157066.018	LB109806	08 Sep 2016	12 Sep 2016	22 Sep 2016	14 Sep 2016	24 Oct 2016	16 Sep 2016
TP43_0.1	SE157066.019	LB109806	08 Sep 2016	12 Sep 2016	22 Sep 2016	14 Sep 2016	24 Oct 2016	16 Sep 2016
TP44_0.1	SE157066.020	LB109806	08 Sep 2016	12 Sep 2016	22 Sep 2016	14 Sep 2016	24 Oct 2016	16 Sep 2016
TP54_0.1	SE157066.021	LB109806	08 Sep 2016	12 Sep 2016	22 Sep 2016	14 Sep 2016	24 Oct 2016	16 Sep 2016
BH01_0.36-0.46	SE157066.022	LB109806	08 Sep 2016	12 Sep 2016	22 Sep 2016	14 Sep 2016	24 Oct 2016	16 Sep 2016
TP63_0.4-0.25	SE157066.023	LB109806	08 Sep 2016	12 Sep 2016	22 Sep 2016	14 Sep 2016	24 Oct 2016	16 Sep 2016
TP51_1.3-1.4	SE157066.024	LB109806	08 Sep 2016	12 Sep 2016	22 Sep 2016	14 Sep 2016	24 Oct 2016	16 Sep 2016
QC4	SE157066.025	LB109806	08 Sep 2016	12 Sep 2016	22 Sep 2016	14 Sep 2016	24 Oct 2016	16 Sep 2016
QC1	SE157066.026	LB109806	08 Sep 2016	12 Sep 2016	22 Sep 2016	14 Sep 2016	24 Oct 2016	16 Sep 2016
TP36_0.2-0.3	SE157066.027	LB109906	08 Sep 2016	12 Sep 2016	22 Sep 2016	15 Sep 2016	25 Oct 2016	16 Sep 2016
TP50_0.2-0.3	SE157066.028	LB109906	08 Sep 2016	12 Sep 2016	22 Sep 2016	15 Sep 2016	25 Oct 2016	16 Sep 2016
TP58_0.05-0.15	SE157066.029	LB109906	08 Sep 2016	12 Sep 2016	22 Sep 2016	15 Sep 2016	25 Oct 2016	16 Sep 2016
TP59_0.2-0.3	SE157066.030	LB109906	08 Sep 2016	12 Sep 2016	22 Sep 2016	15 Sep 2016	25 Oct 2016	16 Sep 2016
QC2	SE157066.031	LB109906	08 Sep 2016	12 Sep 2016	22 Sep 2016	15 Sep 2016	25 Oct 2016	16 Sep 2016
QC3	SE157066.032	LB109906	08 Sep 2016	12 Sep 2016	22 Sep 2016	15 Sep 2016	25 Oct 2016	16 Sep 2016

VOC's in Soil

Method: ME-(AU)-[ENV]AN433

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
TP13_0.8	SE157066.001	LB109802	07 Sep 2016	12 Sep 2016	21 Sep 2016	14 Sep 2016	24 Oct 2016	16 Sep 2016
TP15_0.7	SE157066.002	LB109802	07 Sep 2016	12 Sep 2016	21 Sep 2016	14 Sep 2016	24 Oct 2016	16 Sep 2016
TP16_0.4	SE157066.003	LB109802	07 Sep 2016	12 Sep 2016	21 Sep 2016	14 Sep 2016	24 Oct 2016	16 Sep 2016
TP24_0.5	SE157066.004	LB109802	07 Sep 2016	12 Sep 2016	21 Sep 2016	14 Sep 2016	24 Oct 2016	16 Sep 2016
TP25_1.1	SE157066.005	LB109802	07 Sep 2016	12 Sep 2016	21 Sep 2016	14 Sep 2016	24 Oct 2016	16 Sep 2016
TP28_0.15	SE157066.006	LB109802	08 Sep 2016	12 Sep 2016	22 Sep 2016	14 Sep 2016	24 Oct 2016	16 Sep 2016
TP34A_0.5	SE157066.007	LB109802	08 Sep 2016	12 Sep 2016	22 Sep 2016	14 Sep 2016	24 Oct 2016	16 Sep 2016
TP12_0.1	SE157066.008	LB109802	08 Sep 2016	12 Sep 2016	22 Sep 2016	14 Sep 2016	24 Oct 2016	16 Sep 2016
TP14_0.1	SE157066.009	LB109802	08 Sep 2016	12 Sep 2016	22 Sep 2016	14 Sep 2016	24 Oct 2016	16 Sep 2016
TP18_0.1	SE157066.010	LB109802	08 Sep 2016	12 Sep 2016	22 Sep 2016	14 Sep 2016	24 Oct 2016	16 Sep 2016
TP23_0.1-0.15	SE157066.011	LB109802	08 Sep 2016	12 Sep 2016	22 Sep 2016	14 Sep 2016	24 Oct 2016	16 Sep 2016
TP29_0.1	SE157066.012	LB109802	08 Sep 2016	12 Sep 2016	22 Sep 2016	14 Sep 2016	24 Oct 2016	16 Sep 2016
TP26_0.1	SE157066.013	LB109802	08 Sep 2016	12 Sep 2016	22 Sep 2016	14 Sep 2016	24 Oct 2016	16 Sep 2016
TP27_0.2	SE157066.014	LB109802	08 Sep 2016	12 Sep 2016	22 Sep 2016	14 Sep 2016	24 Oct 2016	16 Sep 2016
TP30_0.1	SE157066.015	LB109802	08 Sep 2016	12 Sep 2016	22 Sep 2016	14 Sep 2016	24 Oct 2016	16 Sep 2016
TP31_0.3	SE157066.016	LB109802	08 Sep 2016	12 Sep 2016	22 Sep 2016	14 Sep 2016	24 Oct 2016	16 Sep 2016
TP32_0.1	SE157066.017	LB109802	08 Sep 2016	12 Sep 2016	22 Sep 2016	14 Sep 2016	24 Oct 2016	16 Sep 2016
TP40.2_0.1	SE157066.018	LB109803	08 Sep 2016	12 Sep 2016	22 Sep 2016	14 Sep 2016	24 Oct 2016	16 Sep 2016
TP43_0.1	SE157066.019	LB109803	08 Sep 2016	12 Sep 2016	22 Sep 2016	14 Sep 2016	24 Oct 2016	16 Sep 2016
TP44_0.1	SE157066.020	LB109803	08 Sep 2016	12 Sep 2016	22 Sep 2016	14 Sep 2016	24 Oct 2016	16 Sep 2016
TP54_0.1	SE157066.021	LB109803	08 Sep 2016	12 Sep 2016	22 Sep 2016	14 Sep 2016	24 Oct 2016	16 Sep 2016
BH01_0.36-0.46	SE157066.022	LB109803	08 Sep 2016	12 Sep 2016	22 Sep 2016	14 Sep 2016	24 Oct 2016	16 Sep 2016
TP63_0.4-0.25	SE157066.023	LB109803	08 Sep 2016	12 Sep 2016	22 Sep 2016	14 Sep 2016	24 Oct 2016	16 Sep 2016
TP51_1.3-1.4	SE157066.024	LB109803	08 Sep 2016	12 Sep 2016	22 Sep 2016	14 Sep 2016	24 Oct 2016	16 Sep 2016
QC4	SE157066.025	LB109803	08 Sep 2016	12 Sep 2016	22 Sep 2016	14 Sep 2016	24 Oct 2016	16 Sep 2016

SGS holding time criteria are drawn from current regulations and are highly dependent on sample container preservation as specified in the SGS "Field Sampling Guide for Containers and Holding Time" (ref: GU-(AU)-ENV.001). Soil samples guidelines are derived from NEPM "Schedule B(3) Guideline on Laboratory Analysis of Potentially Contaminated Soils". Water sample guidelines are derived from "AS/NZS 5667.1 : 1998 Water Quality - sampling part 1" and APHA "Standard Methods for the Examination of Water and Wastewater" 21st edition 2005.

Extraction and analysis holding time due dates listed are calculated from the date sampled, although holding times may be extended after laboratory extraction for some analytes. The due dates are the suggested dates that samples may be held before extraction or analysis and still be considered valid.

Extraction and analysis dates are shown in **Green** when within suggested criteria or **Red** with an appended dagger symbol (†) when outside suggested criteria. If the sampled date is not supplied then compliance with criteria cannot be determined. If the received date is after one or both due dates then holding time will fail by default.

VOC's in Soil (continued)

Method: ME-(AU)-[ENV]AN433

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
QC1	SE157066.026	LB109803	08 Sep 2016	12 Sep 2016	22 Sep 2016	14 Sep 2016	24 Oct 2016	16 Sep 2016
TP36_0.2-0.3	SE157066.027	LB109836	08 Sep 2016	12 Sep 2016	22 Sep 2016	15 Sep 2016	25 Oct 2016	16 Sep 2016
TP50_0.2-0.3	SE157066.028	LB109836	08 Sep 2016	12 Sep 2016	22 Sep 2016	15 Sep 2016	25 Oct 2016	16 Sep 2016
TP58_0.05-0.15	SE157066.029	LB109836	08 Sep 2016	12 Sep 2016	22 Sep 2016	15 Sep 2016	25 Oct 2016	16 Sep 2016
TP59_0.2-0.3	SE157066.030	LB109836	08 Sep 2016	12 Sep 2016	22 Sep 2016	15 Sep 2016	25 Oct 2016	16 Sep 2016
QC2	SE157066.031	LB109836	08 Sep 2016	12 Sep 2016	22 Sep 2016	15 Sep 2016	25 Oct 2016	16 Sep 2016
QC3	SE157066.032	LB109836	08 Sep 2016	12 Sep 2016	22 Sep 2016	15 Sep 2016	25 Oct 2016	16 Sep 2016

Volatile Petroleum Hydrocarbons in Soil

Method: ME-(AU)-[ENV]AN433

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
TP13_0.8	SE157066.001	LB109802	07 Sep 2016	12 Sep 2016	21 Sep 2016	14 Sep 2016	24 Oct 2016	16 Sep 2016
TP15_0.7	SE157066.002	LB109802	07 Sep 2016	12 Sep 2016	21 Sep 2016	14 Sep 2016	24 Oct 2016	16 Sep 2016
TP16_0.4	SE157066.003	LB109802	07 Sep 2016	12 Sep 2016	21 Sep 2016	14 Sep 2016	24 Oct 2016	16 Sep 2016
TP24_0.5	SE157066.004	LB109802	07 Sep 2016	12 Sep 2016	21 Sep 2016	14 Sep 2016	24 Oct 2016	16 Sep 2016
TP25_1.1	SE157066.005	LB109802	07 Sep 2016	12 Sep 2016	21 Sep 2016	14 Sep 2016	24 Oct 2016	16 Sep 2016
TP28_0.15	SE157066.006	LB109802	08 Sep 2016	12 Sep 2016	22 Sep 2016	14 Sep 2016	24 Oct 2016	16 Sep 2016
TP34A_0.5	SE157066.007	LB109802	08 Sep 2016	12 Sep 2016	22 Sep 2016	14 Sep 2016	24 Oct 2016	16 Sep 2016
TP12_0.1	SE157066.008	LB109802	08 Sep 2016	12 Sep 2016	22 Sep 2016	14 Sep 2016	24 Oct 2016	16 Sep 2016
TP14_0.1	SE157066.009	LB109802	08 Sep 2016	12 Sep 2016	22 Sep 2016	14 Sep 2016	24 Oct 2016	16 Sep 2016
TP18_0.1	SE157066.010	LB109802	08 Sep 2016	12 Sep 2016	22 Sep 2016	14 Sep 2016	24 Oct 2016	16 Sep 2016
TP23_0.1-0.15	SE157066.011	LB109802	08 Sep 2016	12 Sep 2016	22 Sep 2016	14 Sep 2016	24 Oct 2016	16 Sep 2016
TP29_0.1	SE157066.012	LB109802	08 Sep 2016	12 Sep 2016	22 Sep 2016	14 Sep 2016	24 Oct 2016	16 Sep 2016
TP26_0.1	SE157066.013	LB109802	08 Sep 2016	12 Sep 2016	22 Sep 2016	14 Sep 2016	24 Oct 2016	16 Sep 2016
TP27_0.2	SE157066.014	LB109802	08 Sep 2016	12 Sep 2016	22 Sep 2016	14 Sep 2016	24 Oct 2016	16 Sep 2016
TP30_0.1	SE157066.015	LB109802	08 Sep 2016	12 Sep 2016	22 Sep 2016	14 Sep 2016	24 Oct 2016	16 Sep 2016
TP31_0.3	SE157066.016	LB109802	08 Sep 2016	12 Sep 2016	22 Sep 2016	14 Sep 2016	24 Oct 2016	16 Sep 2016
TP32_0.1	SE157066.017	LB109802	08 Sep 2016	12 Sep 2016	22 Sep 2016	14 Sep 2016	24 Oct 2016	16 Sep 2016
TP40.2_0.1	SE157066.018	LB109803	08 Sep 2016	12 Sep 2016	22 Sep 2016	14 Sep 2016	24 Oct 2016	16 Sep 2016
TP43_0.1	SE157066.019	LB109803	08 Sep 2016	12 Sep 2016	22 Sep 2016	14 Sep 2016	24 Oct 2016	16 Sep 2016
TP44_0.1	SE157066.020	LB109803	08 Sep 2016	12 Sep 2016	22 Sep 2016	14 Sep 2016	24 Oct 2016	16 Sep 2016
TP54_0.1	SE157066.021	LB109803	08 Sep 2016	12 Sep 2016	22 Sep 2016	14 Sep 2016	24 Oct 2016	16 Sep 2016
BH01_0.36-0.46	SE157066.022	LB109803	08 Sep 2016	12 Sep 2016	22 Sep 2016	14 Sep 2016	24 Oct 2016	16 Sep 2016
TP63_0.4-0.25	SE157066.023	LB109803	08 Sep 2016	12 Sep 2016	22 Sep 2016	14 Sep 2016	24 Oct 2016	16 Sep 2016
TP51_1.3-1.4	SE157066.024	LB109803	08 Sep 2016	12 Sep 2016	22 Sep 2016	14 Sep 2016	24 Oct 2016	16 Sep 2016
QC4	SE157066.025	LB109803	08 Sep 2016	12 Sep 2016	22 Sep 2016	14 Sep 2016	24 Oct 2016	16 Sep 2016
QC1	SE157066.026	LB109803	08 Sep 2016	12 Sep 2016	22 Sep 2016	14 Sep 2016	24 Oct 2016	16 Sep 2016
TP36_0.2-0.3	SE157066.027	LB109836	08 Sep 2016	12 Sep 2016	22 Sep 2016	15 Sep 2016	25 Oct 2016	16 Sep 2016
TP50_0.2-0.3	SE157066.028	LB109836	08 Sep 2016	12 Sep 2016	22 Sep 2016	15 Sep 2016	25 Oct 2016	16 Sep 2016
TP58_0.05-0.15	SE157066.029	LB109836	08 Sep 2016	12 Sep 2016	22 Sep 2016	15 Sep 2016	25 Oct 2016	16 Sep 2016
TP59_0.2-0.3	SE157066.030	LB109836	08 Sep 2016	12 Sep 2016	22 Sep 2016	15 Sep 2016	25 Oct 2016	16 Sep 2016
QC2	SE157066.031	LB109836	08 Sep 2016	12 Sep 2016	22 Sep 2016	15 Sep 2016	25 Oct 2016	16 Sep 2016
QC3	SE157066.032	LB109836	08 Sep 2016	12 Sep 2016	22 Sep 2016	15 Sep 2016	25 Oct 2016	16 Sep 2016

Surrogate results are evaluated against upper and lower limit criteria established in the SGS QA /QC plan (Ref: MP-(AU)-[ENV]QU-022). At least two of three routine level soil sample surrogate spike recoveries for BTEX/VOC are to be within 70-130% where control charts have not been developed and within the established control limits for charted surrogates. Matrix effects may void this as an acceptance criterion. Water sample surrogate spike recoveries are to be within 40-130%. The presence of emulsions, surfactants and particulates may void this as an acceptance criterion.

Result is shown in **Green** when within suggested criteria or **Red** with an appended reason identifer when outside suggested criteria. Refer to the footnotes section at the end of this report for failure reasons.

OC Pesticides in Soil

Method: ME-(AU)-[ENV]AN400/AN420

Parameter	Sample Name	Sample Number	Units	Criteria	Recovery %
Tetrachloro-m-xylene (TCMX) (Surrogate)	TP13_0.8	SE157066.001	%	60 - 130%	107
	TP15_0.7	SE157066.002	%	60 - 130%	107
	TP16_0.4	SE157066.003	%	60 - 130%	80
	TP24_0.5	SE157066.004	%	60 - 130%	107
	TP25_1.1	SE157066.005	%	60 - 130%	93
	TP28_0.15	SE157066.006	%	60 - 130%	107
	TP34A_0.5	SE157066.007	%	60 - 130%	113
	TP12_0.1	SE157066.008	%	60 - 130%	107
	TP14_0.1	SE157066.009	%	60 - 130%	107
	TP18_0.1	SE157066.010	%	60 - 130%	101
	TP23_0.1-0.15	SE157066.011	%	60 - 130%	107
	TP29_0.1	SE157066.012	%	60 - 130%	100
	TP26_0.1	SE157066.013	%	60 - 130%	107
	TP27_0.2	SE157066.014	%	60 - 130%	113
	TP30_0.1	SE157066.015	%	60 - 130%	113
	TP31_0.3	SE157066.016	%	60 - 130%	107
	TP32_0.1	SE157066.017	%	60 - 130%	113
	TP40.2_0.1	SE157066.018	%	60 - 130%	107
	TP43_0.1	SE157066.019	%	60 - 130%	113
	TP44_0.1	SE157066.020	%	60 - 130%	113
	TP54_0.1	SE157066.021	%	60 - 130%	113
	BH01_0.36-0.46	SE157066.022	%	60 - 130%	113
	TP63_0.4-0.25	SE157066.023	%	60 - 130%	113
	TP51_1.3-1.4	SE157066.024	%	60 - 130%	93
	QC4	SE157066.025	%	60 - 130%	100
	QC1	SE157066.026	%	60 - 130%	103
	TP36_0.2-0.3	SE157066.027	%	60 - 130%	109
	TP50_0.2-0.3	SE157066.028	%	60 - 130%	95
	TP58_0.05-0.15	SE157066.029	%	60 - 130%	101
	TP59_0.2-0.3	SE157066.030	%	60 - 130%	102
	QC2	SE157066.031	%	60 - 130%	97
	QC3	SE157066.032	%	60 - 130%	96

OP Pesticides in Soil

Method: ME-(AU)-[ENV]AN400/AN420

Parameter	Sample Name	Sample Number	Units	Criteria	Recovery %
2-fluorobiphenyl (Surrogate)	TP13_0.8	SE157066.001	%	60 - 130%	80
	TP15_0.7	SE157066.002	%	60 - 130%	72
	TP16_0.4	SE157066.003	%	60 - 130%	82
	TP24_0.5	SE157066.004	%	60 - 130%	82
	TP25_1.1	SE157066.005	%	60 - 130%	82
	TP28_0.15	SE157066.006	%	60 - 130%	82
	TP34A_0.5	SE157066.007	%	60 - 130%	84
	TP12_0.1	SE157066.008	%	60 - 130%	76
	TP14_0.1	SE157066.009	%	60 - 130%	84
	TP18_0.1	SE157066.010	%	60 - 130%	78
	TP23_0.1-0.15	SE157066.011	%	60 - 130%	82
	TP29_0.1	SE157066.012	%	60 - 130%	78
	TP26_0.1	SE157066.013	%	60 - 130%	84
	TP27_0.2	SE157066.014	%	60 - 130%	86
	TP30_0.1	SE157066.015	%	60 - 130%	82
	TP31_0.3	SE157066.016	%	60 - 130%	80
	TP32_0.1	SE157066.017	%	60 - 130%	82
	TP40.2_0.1	SE157066.018	%	60 - 130%	78
	TP43_0.1	SE157066.019	%	60 - 130%	82
	TP44_0.1	SE157066.020	%	60 - 130%	80
	TP54_0.1	SE157066.021	%	60 - 130%	76
	BH01_0.36-0.46	SE157066.022	%	60 - 130%	74
	TP63_0.4-0.25	SE157066.023	%	60 - 130%	80
	TP51_1.3-1.4	SE157066.024	%	60 - 130%	78
	QC4	SE157066.025	%	60 - 130%	78
	QC1	SE157066.026	%	60 - 130%	80

Surrogate results are evaluated against upper and lower limit criteria established in the SGS QA /QC plan (Ref: MP-(AU)-[ENV]QU-022). At least two of three routine level soil sample surrogate spike recoveries for BTEX/VOC are to be within 70-130% where control charts have not been developed and within the established control limits for charted surrogates. Matrix effects may void this as an acceptance criterion. Water sample surrogate spike recoveries are to be within 40-130%. The presence of emulsions, surfactants and particulates may void this as an acceptance criterion.

Result is shown in **Green** when within suggested criteria or **Red** with an appended reason identifer when outside suggested criteria. Refer to the footnotes section at the end of this report for failure reasons.

OP Pesticides in Soil (continued)

Method: ME-(AU)-[ENV]AN400/AN420

Parameter	Sample Name	Sample Number	Units	Criteria	Recovery %
2-fluorobiphenyl (Surrogate)	TP36_0.2-0.3	SE157066.027	%	60 - 130%	78
	TP50_0.2-0.3	SE157066.028	%	60 - 130%	74
	TP58_0.05-0.15	SE157066.029	%	60 - 130%	72
	TP59_0.2-0.3	SE157066.030	%	60 - 130%	72
	QC2	SE157066.031	%	60 - 130%	72
	QC3	SE157066.032	%	60 - 130%	82
d14-p-terphenyl (Surrogate)	TP13_0.8	SE157066.001	%	60 - 130%	92
	TP15_0.7	SE157066.002	%	60 - 130%	74
	TP16_0.4	SE157066.003	%	60 - 130%	92
	TP24_0.5	SE157066.004	%	60 - 130%	94
	TP25_1.1	SE157066.005	%	60 - 130%	92
	TP28_0.15	SE157066.006	%	60 - 130%	96
	TP34A_0.5	SE157066.007	%	60 - 130%	84
	TP12_0.1	SE157066.008	%	60 - 130%	86
	TP14_0.1	SE157066.009	%	60 - 130%	96
	TP18_0.1	SE157066.010	%	60 - 130%	90
	TP23_0.1-0.15	SE157066.011	%	60 - 130%	94
	TP29_0.1	SE157066.012	%	60 - 130%	90
	TP26_0.1	SE157066.013	%	60 - 130%	92
	TP27_0.2	SE157066.014	%	60 - 130%	98
	TP30_0.1	SE157066.015	%	60 - 130%	96
	TP31_0.3	SE157066.016	%	60 - 130%	90
	TP32_0.1	SE157066.017	%	60 - 130%	96
	TP40.2_0.1	SE157066.018	%	60 - 130%	90
	TP43_0.1	SE157066.019	%	60 - 130%	96
	TP44_0.1	SE157066.020	%	60 - 130%	90
	TP54_0.1	SE157066.021	%	60 - 130%	86
	BH01_0.36-0.46	SE157066.022	%	60 - 130%	82
	TP63_0.4-0.25	SE157066.023	%	60 - 130%	92
	TP51_1.3-1.4	SE157066.024	%	60 - 130%	86
	QC4	SE157066.025	%	60 - 130%	82
	QC1	SE157066.026	%	60 - 130%	88
	TP36_0.2-0.3	SE157066.027	%	60 - 130%	82
	TP50_0.2-0.3	SE157066.028	%	60 - 130%	72
	TP58_0.05-0.15	SE157066.029	%	60 - 130%	74
	TP59_0.2-0.3	SE157066.030	%	60 - 130%	72
	QC2	SE157066.031	%	60 - 130%	74
	QC3	SE157066.032	%	60 - 130%	94

PAH (Polynuclear Aromatic Hydrocarbons) in Soil

Method: ME-(AU)-[ENV]AN420

Parameter	Sample Name	Sample Number	Units	Criteria	Recovery %
2-fluorobiphenyl (Surrogate)	TP13_0.8	SE157066.001	%	70 - 130%	80
	TP15_0.7	SE157066.002	%	70 - 130%	72
	TP16_0.4	SE157066.003	%	70 - 130%	82
	TP24_0.5	SE157066.004	%	70 - 130%	82
	TP25_1.1	SE157066.005	%	70 - 130%	82
	TP28_0.15	SE157066.006	%	70 - 130%	82
	TP34A_0.5	SE157066.007	%	70 - 130%	84
	TP12_0.1	SE157066.008	%	70 - 130%	76
	TP14_0.1	SE157066.009	%	70 - 130%	84
	TP18_0.1	SE157066.010	%	70 - 130%	78
	TP23_0.1-0.15	SE157066.011	%	70 - 130%	82
	TP29_0.1	SE157066.012	%	70 - 130%	78
	TP26_0.1	SE157066.013	%	70 - 130%	84
	TP27_0.2	SE157066.014	%	70 - 130%	86
	TP30_0.1	SE157066.015	%	70 - 130%	82
	TP31_0.3	SE157066.016	%	70 - 130%	80
	TP32_0.1	SE157066.017	%	70 - 130%	82
	TP40.2_0.1	SE157066.018	%	70 - 130%	78
	TP43_0.1	SE157066.019	%	70 - 130%	82
	TP44_0.1	SE157066.020	%	70 - 130%	80

Surrogate results are evaluated against upper and lower limit criteria established in the SGS QA /QC plan (Ref: MP-(AU)-[ENV]QU-022). At least two of three routine level soil sample surrogate spike recoveries for BTEX/VOC are to be within 70-130% where control charts have not been developed and within the established control limits for charted surrogates. Matrix effects may void this as an acceptance criterion. Water sample surrogate spike recoveries are to be within 40-130%. The presence of emulsions, surfactants and particulates may void this as an acceptance criterion.

Result is shown in **Green** when within suggested criteria or **Red** with an appended reason identifer when outside suggested criteria. Refer to the footnotes section at the end of this report for failure reasons.

PAH (Polynuclear Aromatic Hydrocarbons) in Soil (continued) **Method: ME-(AU)-[ENV]AN420**

Parameter	Sample Name	Sample Number	Units	Criteria	Recovery %
2-fluorobiphenyl (Surrogate)	TP54_0.1	SE157066.021	%	70 - 130%	76
	BH01_0.36-0.46	SE157066.022	%	70 - 130%	74
	TP63_0.4-0.25	SE157066.023	%	70 - 130%	80
	TP51_1.3-1.4	SE157066.024	%	70 - 130%	78
	QC4	SE157066.025	%	70 - 130%	78
	QC1	SE157066.026	%	70 - 130%	80
	TP36_0.2-0.3	SE157066.027	%	70 - 130%	78
	TP50_0.2-0.3	SE157066.028	%	70 - 130%	74
	TP58_0.05-0.15	SE157066.029	%	70 - 130%	72
	TP59_0.2-0.3	SE157066.030	%	70 - 130%	72
	QC2	SE157066.031	%	70 - 130%	72
	QC3	SE157066.032	%	70 - 130%	82
d14-p-terphenyl (Surrogate)	TP13_0.8	SE157066.001	%	70 - 130%	92
	TP15_0.7	SE157066.002	%	70 - 130%	74
	TP16_0.4	SE157066.003	%	70 - 130%	92
	TP24_0.5	SE157066.004	%	70 - 130%	94
	TP25_1.1	SE157066.005	%	70 - 130%	92
	TP28_0.15	SE157066.006	%	70 - 130%	96
	TP34A_0.5	SE157066.007	%	70 - 130%	84
	TP12_0.1	SE157066.008	%	70 - 130%	86
	TP14_0.1	SE157066.009	%	70 - 130%	96
	TP18_0.1	SE157066.010	%	70 - 130%	90
	TP23_0.1-0.15	SE157066.011	%	70 - 130%	94
	TP29_0.1	SE157066.012	%	70 - 130%	90
	TP26_0.1	SE157066.013	%	70 - 130%	92
	TP27_0.2	SE157066.014	%	70 - 130%	98
	TP30_0.1	SE157066.015	%	70 - 130%	96
	TP31_0.3	SE157066.016	%	70 - 130%	90
	TP32_0.1	SE157066.017	%	70 - 130%	96
	TP40.2_0.1	SE157066.018	%	70 - 130%	90
	TP43_0.1	SE157066.019	%	70 - 130%	96
	TP44_0.1	SE157066.020	%	70 - 130%	90
	TP54_0.1	SE157066.021	%	70 - 130%	86
	BH01_0.36-0.46	SE157066.022	%	70 - 130%	82
	TP63_0.4-0.25	SE157066.023	%	70 - 130%	92
	TP51_1.3-1.4	SE157066.024	%	70 - 130%	86
	QC4	SE157066.025	%	70 - 130%	82
	QC1	SE157066.026	%	70 - 130%	88
	TP36_0.2-0.3	SE157066.027	%	70 - 130%	82
	TP50_0.2-0.3	SE157066.028	%	70 - 130%	72
	TP58_0.05-0.15	SE157066.029	%	70 - 130%	74
	TP59_0.2-0.3	SE157066.030	%	70 - 130%	72
	QC2	SE157066.031	%	70 - 130%	74
	QC3	SE157066.032	%	70 - 130%	94
d5-nitrobenzene (Surrogate)	TP13_0.8	SE157066.001	%	70 - 130%	84
	TP15_0.7	SE157066.002	%	70 - 130%	76
	TP16_0.4	SE157066.003	%	70 - 130%	82
	TP24_0.5	SE157066.004	%	70 - 130%	82
	TP25_1.1	SE157066.005	%	70 - 130%	82
	TP28_0.15	SE157066.006	%	70 - 130%	82
	TP34A_0.5	SE157066.007	%	70 - 130%	84
	TP12_0.1	SE157066.008	%	70 - 130%	78
	TP14_0.1	SE157066.009	%	70 - 130%	86
	TP18_0.1	SE157066.010	%	70 - 130%	82
	TP23_0.1-0.15	SE157066.011	%	70 - 130%	86
	TP29_0.1	SE157066.012	%	70 - 130%	84
	TP26_0.1	SE157066.013	%	70 - 130%	88
	TP27_0.2	SE157066.014	%	70 - 130%	90
	TP30_0.1	SE157066.015	%	70 - 130%	88
	TP31_0.3	SE157066.016	%	70 - 130%	84
	TP32_0.1	SE157066.017	%	70 - 130%	88

Surrogate results are evaluated against upper and lower limit criteria established in the SGS QA /QC plan (Ref: MP-(AU)-[ENV]QU-022). At least two of three routine level soil sample surrogate spike recoveries for BTEX/VOC are to be within 70-130% where control charts have not been developed and within the established control limits for charted surrogates. Matrix effects may void this as an acceptance criterion. Water sample surrogate spike recoveries are to be within 40-130%. The presence of emulsions, surfactants and particulates may void this as an acceptance criterion.

Result is shown in **Green** when within suggested criteria or **Red** with an appended reason identifer when outside suggested criteria. Refer to the footnotes section at the end of this report for failure reasons.

PAH (Polynuclear Aromatic Hydrocarbons) in Soil (continued) — Method: ME-(AU)-[ENV]AN420

Parameter	Sample Name	Sample Number	Units	Criteria	Recovery %
d5-nitrobenzene (Surrogate)	TP40.2_0.1	SE157066.018	%	70 - 130%	78
	TP43_0.1	SE157066.019	%	70 - 130%	82
	TP44_0.1	SE157066.020	%	70 - 130%	82
	TP54_0.1	SE157066.021	%	70 - 130%	78
	BH01_0.36-0.46	SE157066.022	%	70 - 130%	72
	TP63_0.4-0.25	SE157066.023	%	70 - 130%	80
	TP51_1.3-1.4	SE157066.024	%	70 - 130%	76
	QC4	SE157066.025	%	70 - 130%	72
	QC1	SE157066.026	%	70 - 130%	76
	TP36_0.2-0.3	SE157066.027	%	70 - 130%	76
	TP50_0.2-0.3	SE157066.028	%	70 - 130%	72
	TP58_0.05-0.15	SE157066.029	%	70 - 130%	72
	TP59_0.2-0.3	SE157066.030	%	70 - 130%	74
	QC2	SE157066.031	%	70 - 130%	80
	QC3	SE157066.032	%	70 - 130%	86

VOC's in Soil — Method: ME-(AU)-[ENV]AN433

Parameter	Sample Name	Sample Number	Units	Criteria	Recovery %
Bromofluorobenzene (Surrogate)	TP13_0.8	SE157066.001	%	60 - 130%	86
	TP15_0.7	SE157066.002	%	60 - 130%	82
	TP16_0.4	SE157066.003	%	60 - 130%	83
	TP24_0.5	SE157066.004	%	60 - 130%	77
	TP25_1.1	SE157066.005	%	60 - 130%	81
	TP28_0.15	SE157066.006	%	60 - 130%	89
	TP34A_0.5	SE157066.007	%	60 - 130%	80
	TP12_0.1	SE157066.008	%	60 - 130%	84
	TP14_0.1	SE157066.009	%	60 - 130%	84
	TP18_0.1	SE157066.010	%	60 - 130%	88
	TP23_0.1-0.15	SE157066.011	%	60 - 130%	83
	TP29_0.1	SE157066.012	%	60 - 130%	88
	TP26_0.1	SE157066.013	%	60 - 130%	83
	TP27_0.2	SE157066.014	%	60 - 130%	82
	TP30_0.1	SE157066.015	%	60 - 130%	85
	TP31_0.3	SE157066.016	%	60 - 130%	86
	TP32_0.1	SE157066.017	%	60 - 130%	83
	TP40.2_0.1	SE157066.018	%	60 - 130%	88
	TP43_0.1	SE157066.019	%	60 - 130%	83
	TP44_0.1	SE157066.020	%	60 - 130%	90
	TP54_0.1	SE157066.021	%	60 - 130%	92
	BH01_0.36-0.46	SE157066.022	%	60 - 130%	90
	TP63_0.4-0.25	SE157066.023	%	60 - 130%	85
	TP51_1.3-1.4	SE157066.024	%	60 - 130%	85
	QC4	SE157066.025	%	60 - 130%	85
	QC1	SE157066.026	%	60 - 130%	88
	TP36_0.2-0.3	SE157066.027	%	60 - 130%	98
	TP50_0.2-0.3	SE157066.028	%	60 - 130%	92
	TP58_0.05-0.15	SE157066.029	%	60 - 130%	96
	TP59_0.2-0.3	SE157066.030	%	60 - 130%	91
	QC2	SE157066.031	%	60 - 130%	93
	QC3	SE157066.032	%	60 - 130%	91
d4-1,2-dichloroethane (Surrogate)	TP13_0.8	SE157066.001	%	60 - 130%	81
	TP15_0.7	SE157066.002	%	60 - 130%	80
	TP16_0.4	SE157066.003	%	60 - 130%	78
	TP24_0.5	SE157066.004	%	60 - 130%	91
	TP25_1.1	SE157066.005	%	60 - 130%	80
	TP28_0.15	SE157066.006	%	60 - 130%	84
	TP34A_0.5	SE157066.007	%	60 - 130%	82
	TP12_0.1	SE157066.008	%	60 - 130%	82
	TP14_0.1	SE157066.009	%	60 - 130%	77
	TP18_0.1	SE157066.010	%	60 - 130%	82
	TP23_0.1-0.15	SE157066.011	%	60 - 130%	78

Surrogate results are evaluated against upper and lower limit criteria established in the SGS QA /QC plan (Ref: MP-(AU)-[ENV]QU-022). At least two of three routine level soil sample surrogate spike recoveries for BTEX/VOC are to be within 70-130% where control charts have not been developed and within the established control limits for charted surrogates. Matrix effects may void this as an acceptance criterion. Water sample surrogate spike recoveries are to be within 40-130%. The presence of emulsions, surfactants and particulates may void this as an acceptance criterion.

Result is shown in **Green** when within suggested criteria or **Red** with an appended reason identifer when outside suggested criteria. Refer to the footnotes section at the end of this report for failure reasons.

VOC's in Soil (continued) **Method: ME-(AU)-[ENV]AN433**

Parameter	Sample Name	Sample Number	Units	Criteria	Recovery %
d4-1,2-dichloroethane (Surrogate)	TP29_0.1	SE157066.012	%	60 - 130%	83
	TP26_0.1	SE157066.013	%	60 - 130%	84
	TP27_0.2	SE157066.014	%	60 - 130%	79
	TP30_0.1	SE157066.015	%	60 - 130%	85
	TP31_0.3	SE157066.016	%	60 - 130%	82
	TP32_0.1	SE157066.017	%	60 - 130%	76
	TP40.2_0.1	SE157066.018	%	60 - 130%	74
	TP43_0.1	SE157066.019	%	60 - 130%	71
	TP44_0.1	SE157066.020	%	60 - 130%	71
	TP54_0.1	SE157066.021	%	60 - 130%	74
	BH01_0.36-0.46	SE157066.022	%	60 - 130%	76
	TP63_0.4-0.25	SE157066.023	%	60 - 130%	85
	TP51_1.3-1.4	SE157066.024	%	60 - 130%	71
	QC4	SE157066.025	%	60 - 130%	71
	QC1	SE157066.026	%	60 - 130%	88
	TP36_0.2-0.3	SE157066.027	%	60 - 130%	79
	TP50_0.2-0.3	SE157066.028	%	60 - 130%	75
	TP58_0.05-0.15	SE157066.029	%	60 - 130%	83
	TP59_0.2-0.3	SE157066.030	%	60 - 130%	72
	QC2	SE157066.031	%	60 - 130%	80
	QC3	SE157066.032	%	60 - 130%	77
d8-toluene (Surrogate)	TP13_0.8	SE157066.001	%	60 - 130%	76
	TP15_0.7	SE157066.002	%	60 - 130%	92
	TP16_0.4	SE157066.003	%	60 - 130%	91
	TP24_0.5	SE157066.004	%	60 - 130%	103
	TP25_1.1	SE157066.005	%	60 - 130%	94
	TP28_0.15	SE157066.006	%	60 - 130%	103
	TP34A_0.5	SE157066.007	%	60 - 130%	95
	TP12_0.1	SE157066.008	%	60 - 130%	100
	TP14_0.1	SE157066.009	%	60 - 130%	89
	TP18_0.1	SE157066.010	%	60 - 130%	100
	TP23_0.1-0.15	SE157066.011	%	60 - 130%	94
	TP29_0.1	SE157066.012	%	60 - 130%	100
	TP26_0.1	SE157066.013	%	60 - 130%	94
	TP27_0.2	SE157066.014	%	60 - 130%	89
	TP30_0.1	SE157066.015	%	60 - 130%	98
	TP31_0.3	SE157066.016	%	60 - 130%	88
	TP32_0.1	SE157066.017	%	60 - 130%	90
	TP40.2_0.1	SE157066.018	%	60 - 130%	79
	TP43_0.1	SE157066.019	%	60 - 130%	86
	TP44_0.1	SE157066.020	%	60 - 130%	89
	TP54_0.1	SE157066.021	%	60 - 130%	71
	BH01_0.36-0.46	SE157066.022	%	60 - 130%	90
	TP63_0.4-0.25	SE157066.023	%	60 - 130%	72
	TP51_1.3-1.4	SE157066.024	%	60 - 130%	71
	QC4	SE157066.025	%	60 - 130%	70
	QC1	SE157066.026	%	60 - 130%	79
	TP36_0.2-0.3	SE157066.027	%	60 - 130%	92
	TP50_0.2-0.3	SE157066.028	%	60 - 130%	89
	TP58_0.05-0.15	SE157066.029	%	60 - 130%	96
	TP59_0.2-0.3	SE157066.030	%	60 - 130%	91
	QC2	SE157066.031	%	60 - 130%	95
	QC3	SE157066.032	%	60 - 130%	81
Dibromofluoromethane (Surrogate)	TP13_0.8	SE157066.001	%	60 - 130%	75
	TP15_0.7	SE157066.002	%	60 - 130%	71
	TP16_0.4	SE157066.003	%	60 - 130%	71
	TP24_0.5	SE157066.004	%	60 - 130%	81
	TP25_1.1	SE157066.005	%	60 - 130%	72
	TP28_0.15	SE157066.006	%	60 - 130%	77
	TP34A_0.5	SE157066.007	%	60 - 130%	73
	TP12_0.1	SE157066.008	%	60 - 130%	76

Surrogate results are evaluated against upper and lower limit criteria established in the SGS QA /QC plan (Ref: MP-(AU)-[ENV]QU-022). At least two of three routine level soil sample surrogate spike recoveries for BTEX/VOC are to be within 70-130% where control charts have not been developed and within the established control limits for charted surrogates. Matrix effects may void this as an acceptance criterion. Water sample surrogate spike recoveries are to be within 40-130%. The presence of emulsions, surfactants and particulates may void this as an acceptance criterion.

Result is shown in **Green** when within suggested criteria or **Red** with an appended reason identifer when outside suggested criteria. Refer to the footnotes section at the end of this report for failure reasons.

VOC's in Soil (continued)

Method: ME-(AU)-[ENV]AN433

Parameter	Sample Name	Sample Number	Units	Criteria	Recovery %
Dibromofluoromethane (Surrogate)	TP14_0.1	SE157066.009	%	60 - 130%	71
	TP18_0.1	SE157066.010	%	60 - 130%	74
	TP23_0.1-0.15	SE157066.011	%	60 - 130%	72
	TP29_0.1	SE157066.012	%	60 - 130%	75
	TP26_0.1	SE157066.013	%	60 - 130%	72
	TP27_0.2	SE157066.014	%	60 - 130%	71
	TP30_0.1	SE157066.015	%	60 - 130%	77
	TP31_0.3	SE157066.016	%	60 - 130%	74
	TP32_0.1	SE157066.017	%	60 - 130%	70
	TP40.2_0.1	SE157066.018	%	60 - 130%	76
	TP43_0.1	SE157066.019	%	60 - 130%	70
	TP44_0.1	SE157066.020	%	60 - 130%	76
	TP54_0.1	SE157066.021	%	60 - 130%	72
	BH01_0.36-0.46	SE157066.022	%	60 - 130%	80
	TP63_0.4-0.25	SE157066.023	%	60 - 130%	84
	TP51_1.3-1.4	SE157066.024	%	60 - 130%	78
	QC4	SE157066.025	%	60 - 130%	76
	QC1	SE157066.026	%	60 - 130%	90
	TP36_0.2-0.3	SE157066.027	%	60 - 130%	77
	TP50_0.2-0.3	SE157066.028	%	60 - 130%	85
	TP58_0.05-0.15	SE157066.029	%	60 - 130%	80
	TP59_0.2-0.3	SE157066.030	%	60 - 130%	75
	QC2	SE157066.031	%	60 - 130%	83
	QC3	SE157066.032	%	60 - 130%	83

Volatile Petroleum Hydrocarbons in Soil

Method: ME-(AU)-[ENV]AN433

Parameter	Sample Name	Sample Number	Units	Criteria	Recovery %
Bromofluorobenzene (Surrogate)	TP13_0.8	SE157066.001	%	60 - 130%	86
	TP15_0.7	SE157066.002	%	60 - 130%	82
	TP16_0.4	SE157066.003	%	60 - 130%	83
	TP24_0.5	SE157066.004	%	60 - 130%	77
	TP25_1.1	SE157066.005	%	60 - 130%	81
	TP28_0.15	SE157066.006	%	60 - 130%	89
	TP34A_0.5	SE157066.007	%	60 - 130%	80
	TP12_0.1	SE157066.008	%	60 - 130%	84
	TP14_0.1	SE157066.009	%	60 - 130%	84
	TP18_0.1	SE157066.010	%	60 - 130%	88
	TP23_0.1-0.15	SE157066.011	%	60 - 130%	83
	TP29_0.1	SE157066.012	%	60 - 130%	88
	TP26_0.1	SE157066.013	%	60 - 130%	83
	TP27_0.2	SE157066.014	%	60 - 130%	82
	TP30_0.1	SE157066.015	%	60 - 130%	85
	TP31_0.3	SE157066.016	%	60 - 130%	86
	TP32_0.1	SE157066.017	%	60 - 130%	83
	TP40.2_0.1	SE157066.018	%	60 - 130%	88
	TP43_0.1	SE157066.019	%	60 - 130%	83
	TP44_0.1	SE157066.020	%	60 - 130%	90
	TP54_0.1	SE157066.021	%	60 - 130%	92
	BH01_0.36-0.46	SE157066.022	%	60 - 130%	90
	TP63_0.4-0.25	SE157066.023	%	60 - 130%	85
	TP51_1.3-1.4	SE157066.024	%	60 - 130%	85
	QC4	SE157066.025	%	60 - 130%	85
	QC1	SE157066.026	%	60 - 130%	88
	TP36_0.2-0.3	SE157066.027	%	60 - 130%	98
	TP50_0.2-0.3	SE157066.028	%	60 - 130%	92
	TP58_0.05-0.15	SE157066.029	%	60 - 130%	96
	TP59_0.2-0.3	SE157066.030	%	60 - 130%	91
	QC2	SE157066.031	%	60 - 130%	93
	QC3	SE157066.032	%	60 - 130%	91
d4-1,2-dichloroethane (Surrogate)	TP13_0.8	SE157066.001	%	60 - 130%	81
	TP15_0.7	SE157066.002	%	60 - 130%	80

Surrogate results are evaluated against upper and lower limit criteria established in the SGS QA /QC plan (Ref: MP-(AU)-[ENV]QU-022). At least two of three routine level soil sample surrogate spike recoveries for BTEX/VOC are to be within 70-130% where control charts have not been developed and within the established control limits for charted surrogates. Matrix effects may void this as an acceptance criterion. Water sample surrogate spike recoveries are to be within 40-130%. The presence of emulsions, surfactants and particulates may void this as an acceptance criterion.

Result is shown in **Green** when within suggested criteria or **Red** with an appended reason identifer when outside suggested criteria. Refer to the footnotes section at the end of this report for failure reasons.

Volatile Petroleum Hydrocarbons in Soil (continued) — **Method: ME-(AU)-[ENV]AN433**

Parameter	Sample Name	Sample Number	Units	Criteria	Recovery %
d4-1,2-dichloroethane (Surrogate)	TP16_0.4	SE157066.003	%	60 - 130%	78
	TP24_0.5	SE157066.004	%	60 - 130%	91
	TP25_1.1	SE157066.005	%	60 - 130%	80
	TP28_0.15	SE157066.006	%	60 - 130%	84
	TP34A_0.5	SE157066.007	%	60 - 130%	82
	TP12_0.1	SE157066.008	%	60 - 130%	82
	TP14_0.1	SE157066.009	%	60 - 130%	77
	TP18_0.1	SE157066.010	%	60 - 130%	82
	TP23_0.1-0.15	SE157066.011	%	60 - 130%	78
	TP29_0.1	SE157066.012	%	60 - 130%	83
	TP26_0.1	SE157066.013	%	60 - 130%	84
	TP27_0.2	SE157066.014	%	60 - 130%	79
	TP30_0.1	SE157066.015	%	60 - 130%	85
	TP31_0.3	SE157066.016	%	60 - 130%	82
	TP32_0.1	SE157066.017	%	60 - 130%	76
	TP40.2_0.1	SE157066.018	%	60 - 130%	74
	TP43_0.1	SE157066.019	%	60 - 130%	71
	TP44_0.1	SE157066.020	%	60 - 130%	71
	TP54_0.1	SE157066.021	%	60 - 130%	74
	BH01_0.36-0.46	SE157066.022	%	60 - 130%	76
	TP63_0.4-0.25	SE157066.023	%	60 - 130%	85
	TP51_1.3-1.4	SE157066.024	%	60 - 130%	71
	QC4	SE157066.025	%	60 - 130%	71
	QC1	SE157066.026	%	60 - 130%	88
	TP36_0.2-0.3	SE157066.027	%	60 - 130%	79
	TP50_0.2-0.3	SE157066.028	%	60 - 130%	75
	TP58_0.05-0.15	SE157066.029	%	60 - 130%	83
	TP59_0.2-0.3	SE157066.030	%	60 - 130%	72
	QC2	SE157066.031	%	60 - 130%	80
	QC3	SE157066.032	%	60 - 130%	77
d8-toluene (Surrogate)	TP13_0.8	SE157066.001	%	60 - 130%	76
	TP15_0.7	SE157066.002	%	60 - 130%	92
	TP16_0.4	SE157066.003	%	60 - 130%	91
	TP24_0.5	SE157066.004	%	60 - 130%	103
	TP25_1.1	SE157066.005	%	60 - 130%	94
	TP28_0.15	SE157066.006	%	60 - 130%	103
	TP34A_0.5	SE157066.007	%	60 - 130%	95
	TP12_0.1	SE157066.008	%	60 - 130%	100
	TP14_0.1	SE157066.009	%	60 - 130%	89
	TP18_0.1	SE157066.010	%	60 - 130%	100
	TP23_0.1-0.15	SE157066.011	%	60 - 130%	94
	TP29_0.1	SE157066.012	%	60 - 130%	100
	TP26_0.1	SE157066.013	%	60 - 130%	94
	TP27_0.2	SE157066.014	%	60 - 130%	89
	TP30_0.1	SE157066.015	%	60 - 130%	98
	TP31_0.3	SE157066.016	%	60 - 130%	88
	TP32_0.1	SE157066.017	%	60 - 130%	90
	TP40.2_0.1	SE157066.018	%	60 - 130%	79
	TP43_0.1	SE157066.019	%	60 - 130%	86
	TP44_0.1	SE157066.020	%	60 - 130%	89
	TP54_0.1	SE157066.021	%	60 - 130%	71
	BH01_0.36-0.46	SE157066.022	%	60 - 130%	90
	TP63_0.4-0.25	SE157066.023	%	60 - 130%	72
	TP51_1.3-1.4	SE157066.024	%	60 - 130%	71
	QC4	SE157066.025	%	60 - 130%	70
	QC1	SE157066.026	%	60 - 130%	79
	TP36_0.2-0.3	SE157066.027	%	60 - 130%	92
	TP50_0.2-0.3	SE157066.028	%	60 - 130%	89
	TP58_0.05-0.15	SE157066.029	%	60 - 130%	96
	TP59_0.2-0.3	SE157066.030	%	60 - 130%	91
	QC2	SE157066.031	%	60 - 130%	95

Surrogate results are evaluated against upper and lower limit criteria established in the SGS QA /QC plan (Ref: MP-(AU)-[ENV]QU-022). At least two of three routine level soil sample surrogate spike recoveries for BTEX/VOC are to be within 70-130% where control charts have not been developed and within the established control limits for charted surrogates. Matrix effects may void this as an acceptance criterion. Water sample surrogate spike recoveries are to be within 40-130%. The presence of emulsions, surfactants and particulates may void this as an acceptance criterion.

Result is shown in **Green** when within suggested criteria or **Red** with an appended reason identifer when outside suggested criteria. Refer to the footnotes section at the end of this report for failure reasons.

Volatile Petroleum Hydrocarbons in Soil (continued) — **Method: ME-(AU)-[ENV]AN433**

Parameter	Sample Name	Sample Number	Units	Criteria	Recovery %
d8-toluene (Surrogate)	QC3	SE157066.032	%	60 - 130%	81
Dibromofluoromethane (Surrogate)	TP13_0.8	SE157066.001	%	60 - 130%	75
	TP15_0.7	SE157066.002	%	60 - 130%	71
	TP16_0.4	SE157066.003	%	60 - 130%	71
	TP24_0.5	SE157066.004	%	60 - 130%	81
	TP25_1.1	SE157066.005	%	60 - 130%	72
	TP28_0.15	SE157066.006	%	60 - 130%	77
	TP34A_0.5	SE157066.007	%	60 - 130%	73
	TP12_0.1	SE157066.008	%	60 - 130%	76
	TP14_0.1	SE157066.009	%	60 - 130%	71
	TP18_0.1	SE157066.010	%	60 - 130%	74
	TP23_0.1-0.15	SE157066.011	%	60 - 130%	72
	TP29_0.1	SE157066.012	%	60 - 130%	75
	TP26_0.1	SE157066.013	%	60 - 130%	72
	TP27_0.2	SE157066.014	%	60 - 130%	71
	TP30_0.1	SE157066.015	%	60 - 130%	77
	TP31_0.3	SE157066.016	%	60 - 130%	74
	TP32_0.1	SE157066.017	%	60 - 130%	70
	TP40.2_0.1	SE157066.018	%	60 - 130%	76
	TP43_0.1	SE157066.019	%	60 - 130%	70
	TP44_0.1	SE157066.020	%	60 - 130%	76
	TP54_0.1	SE157066.021	%	60 - 130%	72
	BH01_0.36-0.46	SE157066.022	%	60 - 130%	80
	TP63_0.4-0.25	SE157066.023	%	60 - 130%	84
	TP51_1.3-1.4	SE157066.024	%	60 - 130%	78
	QC4	SE157066.025	%	60 - 130%	76
	QC1	SE157066.026	%	60 - 130%	90
	TP36_0.2-0.3	SE157066.027	%	60 - 130%	77
	TP50_0.2-0.3	SE157066.028	%	60 - 130%	85
	TP58_0.05-0.15	SE157066.029	%	60 - 130%	80
	TP59_0.2-0.3	SE157066.030	%	60 - 130%	75
	QC2	SE157066.031	%	60 - 130%	83
	QC3	SE157066.032	%	60 - 130%	83

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Result is shown in **Green** when within suggested criteria or **Red** with an appended dagger symbol (†) when outside suggested criteria.

Mercury in Soil

Method: ME-(AU)-[ENV]AN312

Sample Number	Parameter	Units	LOR	Result
LB109817.001	Mercury	mg/kg	0.05	<0.05
LB109818.001	Mercury	mg/kg	0.05	<0.05

OC Pesticides in Soil

Method: ME-(AU)-[ENV]AN400/AN420

Sample Number		Parameter	Units	LOR	Result
LB109805.001		Hexachlorobenzene (HCB)	mg/kg	0.1	<0.1
		Alpha BHC	mg/kg	0.1	<0.1
		Lindane	mg/kg	0.1	<0.1
		Heptachlor	mg/kg	0.1	<0.1
		Aldrin	mg/kg	0.1	<0.1
		Beta BHC	mg/kg	0.1	<0.1
		Delta BHC	mg/kg	0.1	<0.1
		Heptachlor epoxide	mg/kg	0.1	<0.1
		Alpha Endosulfan	mg/kg	0.2	<0.2
		Gamma Chlordane	mg/kg	0.1	<0.1
		Alpha Chlordane	mg/kg	0.1	<0.1
		p,p'-DDE	mg/kg	0.1	<0.1
		Dieldrin	mg/kg	0.2	<0.2
		Endrin	mg/kg	0.2	<0.2
		Beta Endosulfan	mg/kg	0.2	<0.2
		p,p'-DDD	mg/kg	0.1	<0.1
		p,p'-DDT	mg/kg	0.1	<0.1
		Endosulfan sulphate	mg/kg	0.1	<0.1
		Endrin Aldehyde	mg/kg	0.1	<0.1
		Methoxychlor	mg/kg	0.1	<0.1
		Endrin Ketone	mg/kg	0.1	<0.1
		Isodrin	mg/kg	0.1	<0.1
		Mirex	mg/kg	0.1	<0.1
	Surrogates	Tetrachloro-m-xylene (TCMX) (Surrogate)	%	-	95
LB109806.001		Hexachlorobenzene (HCB)	mg/kg	0.1	<0.1
		Alpha BHC	mg/kg	0.1	<0.1
		Lindane	mg/kg	0.1	<0.1
		Heptachlor	mg/kg	0.1	<0.1
		Aldrin	mg/kg	0.1	<0.1
		Beta BHC	mg/kg	0.1	<0.1
		Delta BHC	mg/kg	0.1	<0.1
		Heptachlor epoxide	mg/kg	0.1	<0.1
		Alpha Endosulfan	mg/kg	0.2	<0.2
		Gamma Chlordane	mg/kg	0.1	<0.1
		Alpha Chlordane	mg/kg	0.1	<0.1
		p,p'-DDE	mg/kg	0.1	<0.1
		Dieldrin	mg/kg	0.2	<0.2
		Endrin	mg/kg	0.2	<0.2
		Beta Endosulfan	mg/kg	0.2	<0.2
		p,p'-DDD	mg/kg	0.1	<0.1
		p,p'-DDT	mg/kg	0.1	<0.1
		Endosulfan sulphate	mg/kg	0.1	<0.1
		Endrin Aldehyde	mg/kg	0.1	<0.1
		Methoxychlor	mg/kg	0.1	<0.1
		Endrin Ketone	mg/kg	0.1	<0.1
		Isodrin	mg/kg	0.1	<0.1
		Mirex	mg/kg	0.1	<0.1
	Surrogates	Tetrachloro-m-xylene (TCMX) (Surrogate)	%	-	107
LB109906.001		Hexachlorobenzene (HCB)	mg/kg	0.1	<0.1
		Alpha BHC	mg/kg	0.1	<0.1
		Lindane	mg/kg	0.1	<0.1
		Heptachlor	mg/kg	0.1	<0.1
		Aldrin	mg/kg	0.1	<0.1
		Beta BHC	mg/kg	0.1	<0.1
		Delta BHC	mg/kg	0.1	<0.1

Blank results are evaluated against the limit of reporting (LOR), for the chosen method and its associated instrumentation, typically 2.5 times the statistically determined method detection limit (MDL).

Result is shown in **Green** when within suggested criteria or **Red** with an appended dagger symbol (†) when outside suggested criteria.

OC Pesticides in Soil (continued)

Method: ME-(AU)-[ENV]AN400/AN420

Sample Number		Parameter	Units	LOR	Result
LB109906.001		Heptachlor epoxide	mg/kg	0.1	<0.1
		Alpha Endosulfan	mg/kg	0.2	<0.2
		Gamma Chlordane	mg/kg	0.1	<0.1
		Alpha Chlordane	mg/kg	0.1	<0.1
		p,p'-DDE	mg/kg	0.1	<0.1
		Dieldrin	mg/kg	0.2	<0.2
		Endrin	mg/kg	0.2	<0.2
		Beta Endosulfan	mg/kg	0.2	<0.2
		p,p'-DDD	mg/kg	0.1	<0.1
		p,p'-DDT	mg/kg	0.1	<0.1
		Endosulfan sulphate	mg/kg	0.1	<0.1
		Endrin Aldehyde	mg/kg	0.1	<0.1
		Methoxychlor	mg/kg	0.1	<0.1
		Endrin Ketone	mg/kg	0.1	<0.1
		Isodrin	mg/kg	0.1	<0.1
		Mirex	mg/kg	0.1	<0.1
	Surrogates	Tetrachloro-m-xylene (TCMX) (Surrogate)	%	-	106

OP Pesticides in Soil

Method: ME-(AU)-[ENV]AN400/AN420

Sample Number		Parameter	Units	LOR	Result
LB109805.001		Dichlorvos	mg/kg	0.5	<0.5
		Dimethoate	mg/kg	0.5	<0.5
		Diazinon (Dimpylate)	mg/kg	0.5	<0.5
		Fenitrothion	mg/kg	0.2	<0.2
		Malathion	mg/kg	0.2	<0.2
		Chlorpyrifos (Chlorpyrifos Ethyl)	mg/kg	0.2	<0.2
		Parathion-ethyl (Parathion)	mg/kg	0.2	<0.2
		Bromophos Ethyl	mg/kg	0.2	<0.2
		Methidathion	mg/kg	0.5	<0.5
		Ethion	mg/kg	0.2	<0.2
		Azinphos-methyl (Guthion)	mg/kg	0.2	<0.2
	Surrogates	2-fluorobiphenyl (Surrogate)	%	-	82
		d14-p-terphenyl (Surrogate)	%	-	94
LB109806.001		Dichlorvos	mg/kg	0.5	<0.5
		Dimethoate	mg/kg	0.5	<0.5
		Diazinon (Dimpylate)	mg/kg	0.5	<0.5
		Fenitrothion	mg/kg	0.2	<0.2
		Malathion	mg/kg	0.2	<0.2
		Chlorpyrifos (Chlorpyrifos Ethyl)	mg/kg	0.2	<0.2
		Parathion-ethyl (Parathion)	mg/kg	0.2	<0.2
		Bromophos Ethyl	mg/kg	0.2	<0.2
		Methidathion	mg/kg	0.5	<0.5
		Ethion	mg/kg	0.2	<0.2
		Azinphos-methyl (Guthion)	mg/kg	0.2	<0.2
	Surrogates	2-fluorobiphenyl (Surrogate)	%	-	88
		d14-p-terphenyl (Surrogate)	%	-	108
LB109906.001		Dichlorvos	mg/kg	0.5	<0.5
		Dimethoate	mg/kg	0.5	<0.5
		Diazinon (Dimpylate)	mg/kg	0.5	<0.5
		Fenitrothion	mg/kg	0.2	<0.2
		Malathion	mg/kg	0.2	<0.2
		Chlorpyrifos (Chlorpyrifos Ethyl)	mg/kg	0.2	<0.2
		Parathion-ethyl (Parathion)	mg/kg	0.2	<0.2
		Bromophos Ethyl	mg/kg	0.2	<0.2
		Methidathion	mg/kg	0.5	<0.5
		Ethion	mg/kg	0.2	<0.2
		Azinphos-methyl (Guthion)	mg/kg	0.2	<0.2
	Surrogates	2-fluorobiphenyl (Surrogate)	%	-	82
		d14-p-terphenyl (Surrogate)	%	-	98

PAH (Polynuclear Aromatic Hydrocarbons) in Soil

Method: ME-(AU)-[ENV]AN420

Sample Number	Parameter	Units	LOR

Blank results are evaluated against the limit of reporting (LOR), for the chosen method and its associated instrumentation, typically 2.5 times the statistically determined method detection limit (MDL).

Result is shown in **Green** when within suggested criteria or **Red** with an appended dagger symbol (†) when outside suggested criteria.

PAH (Polynuclear Aromatic Hydrocarbons) in Soil (continued) — Method: ME-(AU)-[ENV]AN420

Sample Number		Parameter	Units	LOR	Result
LB109805.001		Naphthalene	mg/kg	0.1	<0.1
		2-methylnaphthalene	mg/kg	0.1	<0.1
		1-methylnaphthalene	mg/kg	0.1	<0.1
		Acenaphthylene	mg/kg	0.1	<0.1
		Acenaphthene	mg/kg	0.1	<0.1
		Fluorene	mg/kg	0.1	<0.1
		Phenanthrene	mg/kg	0.1	<0.1
		Anthracene	mg/kg	0.1	<0.1
		Fluoranthene	mg/kg	0.1	<0.1
		Pyrene	mg/kg	0.1	<0.1
		Benzo(a)anthracene	mg/kg	0.1	<0.1
		Chrysene	mg/kg	0.1	<0.1
		Benzo(a)pyrene	mg/kg	0.1	<0.1
		Indeno(1,2,3-cd)pyrene	mg/kg	0.1	<0.1
		Dibenzo(ah)anthracene	mg/kg	0.1	<0.1
		Benzo(ghi)perylene	mg/kg	0.1	<0.1
		Total PAH (18)	mg/kg	0.8	<0.8
	Surrogates	d5-nitrobenzene (Surrogate)	%	-	88
		2-fluorobiphenyl (Surrogate)	%	-	82
		d14-p-terphenyl (Surrogate)	%	-	94
LB109806.001		Naphthalene	mg/kg	0.1	<0.1
		2-methylnaphthalene	mg/kg	0.1	<0.1
		1-methylnaphthalene	mg/kg	0.1	<0.1
		Acenaphthylene	mg/kg	0.1	<0.1
		Acenaphthene	mg/kg	0.1	<0.1
		Fluorene	mg/kg	0.1	<0.1
		Phenanthrene	mg/kg	0.1	<0.1
		Anthracene	mg/kg	0.1	<0.1
		Fluoranthene	mg/kg	0.1	<0.1
		Pyrene	mg/kg	0.1	<0.1
		Benzo(a)anthracene	mg/kg	0.1	<0.1
		Chrysene	mg/kg	0.1	<0.1
		Benzo(a)pyrene	mg/kg	0.1	<0.1
		Indeno(1,2,3-cd)pyrene	mg/kg	0.1	<0.1
		Dibenzo(ah)anthracene	mg/kg	0.1	<0.1
		Benzo(ghi)perylene	mg/kg	0.1	<0.1
		Total PAH (18)	mg/kg	0.8	<0.8
	Surrogates	d5-nitrobenzene (Surrogate)	%	-	100
		2-fluorobiphenyl (Surrogate)	%	-	88
		d14-p-terphenyl (Surrogate)	%	-	108
LB109906.001		Naphthalene	mg/kg	0.1	<0.1
		2-methylnaphthalene	mg/kg	0.1	<0.1
		1-methylnaphthalene	mg/kg	0.1	<0.1
		Acenaphthylene	mg/kg	0.1	<0.1
		Acenaphthene	mg/kg	0.1	<0.1
		Fluorene	mg/kg	0.1	<0.1
		Phenanthrene	mg/kg	0.1	<0.1
		Anthracene	mg/kg	0.1	<0.1
		Fluoranthene	mg/kg	0.1	<0.1
		Pyrene	mg/kg	0.1	<0.1
		Benzo(a)anthracene	mg/kg	0.1	<0.1
		Chrysene	mg/kg	0.1	<0.1
		Benzo(a)pyrene	mg/kg	0.1	<0.1
		Indeno(1,2,3-cd)pyrene	mg/kg	0.1	<0.1
		Dibenzo(ah)anthracene	mg/kg	0.1	<0.1
		Benzo(ghi)perylene	mg/kg	0.1	<0.1
		Total PAH (18)	mg/kg	0.8	<0.8
	Surrogates	d5-nitrobenzene (Surrogate)	%	-	92
		2-fluorobiphenyl (Surrogate)	%	-	82
		d14-p-terphenyl (Surrogate)	%	-	98

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Result is shown in **Green** when within suggested criteria or **Red** with an appended dagger symbol (†) when outside suggested criteria.

Total Phenolics in Soil

Method: ME-(AU)-[ENV]AN289

Sample Number	Parameter	Units	LOR	Result
LB109905.001	Total Phenols	mg/kg	0.1	<0.1
LB109907.001	Total Phenols	mg/kg	0.1	<0.1

Total Recoverable Metals in Soil/Waste Solids/Materials by ICPOES

Method: ME-(AU)-[ENV]AN040/AN320

Sample Number	Parameter	Units	LOR	Result
LB109811.001	Arsenic, As	mg/kg	3	<3
	Cadmium, Cd	mg/kg	0.3	<0.3
	Chromium, Cr	mg/kg	0.3	<0.3
	Copper, Cu	mg/kg	0.5	<0.5
	Lead, Pb	mg/kg	1	<1
	Nickel, Ni	mg/kg	0.5	<0.5
	Zinc, Zn	mg/kg	0.5	<0.5
LB109812.001	Arsenic, As	mg/kg	3	<3
	Cadmium, Cd	mg/kg	0.3	<0.3
	Chromium, Cr	mg/kg	0.3	<0.3
	Copper, Cu	mg/kg	0.5	<0.5
	Lead, Pb	mg/kg	1	<1
	Nickel, Ni	mg/kg	0.5	<0.5
	Zinc, Zn	mg/kg	0.5	<0.5
LB109852.001	Arsenic, As	mg/kg	3	<3
	Cadmium, Cd	mg/kg	0.3	<0.3
	Chromium, Cr	mg/kg	0.3	<0.3
	Copper, Cu	mg/kg	0.5	<0.5
	Lead, Pb	mg/kg	1	<1
	Nickel, Ni	mg/kg	0.5	<0.5
	Zinc, Zn	mg/kg	0.5	<0.5

TRH (Total Recoverable Hydrocarbons) in Soil

Method: ME-(AU)-[ENV]AN403

Sample Number	Parameter	Units	LOR	Result
LB109805.001	TRH C10-C14	mg/kg	20	<20
	TRH C15-C28	mg/kg	45	<45
	TRH C29-C36	mg/kg	45	<45
	TRH C37-C40	mg/kg	100	<100
	TRH C10-C36 Total	mg/kg	110	<110
LB109806.001	TRH C10-C14	mg/kg	20	<20
	TRH C15-C28	mg/kg	45	<45
	TRH C29-C36	mg/kg	45	<45
	TRH C37-C40	mg/kg	100	<100
	TRH C10-C36 Total	mg/kg	110	<110
LB109906.001	TRH C10-C14	mg/kg	20	<20
	TRH C15-C28	mg/kg	45	<45
	TRH C29-C36	mg/kg	45	<45
	TRH C37-C40	mg/kg	100	<100
	TRH C10-C36 Total	mg/kg	110	<110

VOC's in Soil

Method: ME-(AU)-[ENV]AN433

Sample Number		Parameter	Units	LOR	Result
LB109802.001	Monocyclic Aromatic Hydrocarbons	Benzene	mg/kg	0.1	<0.1
		Toluene	mg/kg	0.1	<0.1
		Ethylbenzene	mg/kg	0.1	<0.1
		m/p-xylene	mg/kg	0.2	<0.2
		o-xylene	mg/kg	0.1	<0.1
	Polycyclic VOCs	Naphthalene	mg/kg	0.1	<0.1
	Surrogates	Dibromofluoromethane (Surrogate)	%	-	108
		d4-1,2-dichloroethane (Surrogate)	%	-	105
		d8-toluene (Surrogate)	%	-	122
		Bromofluorobenzene (Surrogate)	%	-	114
	Totals	Total BTEX	mg/kg	0.6	<0.6
LB109803.001	Monocyclic Aromatic Hydrocarbons	Benzene	mg/kg	0.1	<0.1
		Toluene	mg/kg	0.1	<0.1
		Ethylbenzene	mg/kg	0.1	<0.1

Blank results are evaluated against the limit of reporting (LOR), for the chosen method and its associated instrumentation, typically 2.5 times the statistically determined method detection limit (MDL).

Result is shown in **Green** when within suggested criteria or **Red** with an appended dagger symbol (†) when outside suggested criteria.

VOC's in Soil (continued)

Method: ME-(AU)-[ENV]AN433

Sample Number		Parameter	Units	LOR	Result
LB109803.001	Monocyclic Aromatic	m/p-xylene	mg/kg	0.2	<0.2
	Hydrocarbons	o-xylene	mg/kg	0.1	<0.1
	Polycyclic VOCs	Naphthalene	mg/kg	0.1	<0.1
	Surrogates	Dibromofluoromethane (Surrogate)	%	-	77
		d4-1,2-dichloroethane (Surrogate)	%	-	71
		d8-toluene (Surrogate)	%	-	88
		Bromofluorobenzene (Surrogate)	%	-	103
	Totals	Total BTEX	mg/kg	0.6	<0.6
LB109836.001	Monocyclic Aromatic	Benzene	mg/kg	0.1	<0.1
	Hydrocarbons	Toluene	mg/kg	0.1	<0.1
		Ethylbenzene	mg/kg	0.1	<0.1
		m/p-xylene	mg/kg	0.2	<0.2
		o-xylene	mg/kg	0.1	<0.1
	Polycyclic VOCs	Naphthalene	mg/kg	0.1	<0.1
	Surrogates	Dibromofluoromethane (Surrogate)	%	-	77
		d4-1,2-dichloroethane (Surrogate)	%	-	72
		d8-toluene (Surrogate)	%	-	91
		Bromofluorobenzene (Surrogate)	%	-	106
	Totals	Total BTEX	mg/kg	0.6	<0.6

Volatile Petroleum Hydrocarbons in Soil

Method: ME-(AU)-[ENV]AN433

Sample Number		Parameter	Units	LOR	Result
LB109802.001		TRH C6-C9	mg/kg	20	<20
	Surrogates	Dibromofluoromethane (Surrogate)	%	-	108
		d4-1,2-dichloroethane (Surrogate)	%	-	105
		d8-toluene (Surrogate)	%	-	122
LB109803.001		TRH C6-C9	mg/kg	20	<20
	Surrogates	Dibromofluoromethane (Surrogate)	%	-	77
		d4-1,2-dichloroethane (Surrogate)	%	-	71
		d8-toluene (Surrogate)	%	-	88
LB109836.001		TRH C6-C9	mg/kg	20	<20
	Surrogates	Dibromofluoromethane (Surrogate)	%	-	77
		d4-1,2-dichloroethane (Surrogate)	%	-	72
		d8-toluene (Surrogate)	%	-	91

Duplicates are calculated as Relative Percentage Difference (RPD) using the formula: RPD = | OriginalResult - ReplicateResult | x 100 / Mean

The RPD is evaluated against the Maximum Allowable Difference (MAD) criteria and can be graphically represented by a curve calculated from the Statistical Detection Limit (SDL) and Limiting Repeatability (LR) using the formula: MAD = 100 x SDL / Mean + LR

Where the Maximum Allowable Difference evaluates to a number larger than 200 it is displayed as 200.

RPD is shown in **Green** when within suggested criteria or **Red** with an appended reason identifer when outside suggested criteria. Refer to the footnotes section at the end of this report for failure reasons.

Mercury in Soil

Method: ME-(AU)-[ENV]AN312

Original	Duplicate	Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE157066.010	LB109817.014	Mercury	mg/kg	0.05	<0.05	<0.05	153	0
SE157066.019	LB109817.024	Mercury	mg/kg	0.05	<0.05	<0.05	200	0
SE157087.001	LB109818.012	Mercury	mg/kg	0.05	<0.01	<0.01	200	0

Moisture Content

Method: ME-(AU)-[ENV]AN002

Original	Duplicate	Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE157066.010	LB109800.011	% Moisture	%w/w	0.5	16	14	37	15
SE157066.020	LB109800.022	% Moisture	%w/w	0.5	18	16	36	11
SE157066.026	LB109800.029	% Moisture	%w/w	0.5	20	20	35	4
SE157110.001	LB109861.008	% Moisture	%w/w	0.5	13.774104683	11.2637362637	38	20

OC Pesticides in Soil

Method: ME-(AU)-[ENV]AN400/AN420

Original	Duplicate		Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE157066.008	LB109805.026		Hexachlorobenzene (HCB)	mg/kg	0.1	<0.2	0	200	0
			Alpha BHC	mg/kg	0.1	<0.2	0	200	0
			Lindane	mg/kg	0.1	<0.2	0	200	0
			Heptachlor	mg/kg	0.1	<0.2	0	200	0
			Aldrin	mg/kg	0.1	<0.2	0	200	0
			Beta BHC	mg/kg	0.1	<0.2	0	200	0
			Delta BHC	mg/kg	0.1	<0.2	0	200	0
			Heptachlor epoxide	mg/kg	0.1	<0.2	0	200	0
			o,p'-DDE	mg/kg	0.1	<0.2	0	200	0
			Alpha Endosulfan	mg/kg	0.2	<0.4	0	200	0
			Gamma Chlordane	mg/kg	0.1	<0.2	0	200	0
			Alpha Chlordane	mg/kg	0.1	<0.2	0	200	0
			trans-Nonachlor	mg/kg	0.1	<0.2	0	200	0
			p,p'-DDE	mg/kg	0.1	<0.2	0	200	0
			Dieldrin	mg/kg	0.2	<0.4	0	200	0
			Endrin	mg/kg	0.2	<0.4	0	200	0
			o,p'-DDD	mg/kg	0.1	<0.2	0	200	0
			o,p'-DDT	mg/kg	0.1	<0.2	0	200	0
			Beta Endosulfan	mg/kg	0.2	<0.4	0	200	0
			p,p'-DDD	mg/kg	0.1	<0.2	0	200	0
			p,p'-DDT	mg/kg	0.1	<0.2	0	200	0
			Endosulfan sulphate	mg/kg	0.1	<0.2	0	200	0
			Endrin Aldehyde	mg/kg	0.1	<0.2	0	200	0
			Methoxychlor	mg/kg	0.1	<0.2	0	200	0
			Endrin Ketone	mg/kg	0.1	<0.2	0	200	0
			Isodrin	mg/kg	0.1	<0.2	0	200	0
			Mirex	mg/kg	0.1	<0.2	0	200	0
		Surrogates	Tetrachloro-m-xylene (TCMX) (Surrogate)	mg/kg	-	0.16	0.16	30	0
SE157066.017	LB109805.025		Hexachlorobenzene (HCB)	mg/kg	0.1	<0.2	<0.2	200	0
			Alpha BHC	mg/kg	0.1	<0.2	<0.2	200	0
			Lindane	mg/kg	0.1	<0.2	<0.2	200	0
			Heptachlor	mg/kg	0.1	<0.2	<0.2	200	0
			Aldrin	mg/kg	0.1	<0.2	<0.2	200	0
			Beta BHC	mg/kg	0.1	<0.2	<0.2	200	0
			Delta BHC	mg/kg	0.1	<0.2	<0.2	200	0
			Heptachlor epoxide	mg/kg	0.1	<0.2	<0.2	200	0
			o,p'-DDE	mg/kg	0.1	<0.2	<0.2	200	0
			Alpha Endosulfan	mg/kg	0.2	<0.4	<0.4	200	0
			Gamma Chlordane	mg/kg	0.1	<0.2	<0.2	200	0
			Alpha Chlordane	mg/kg	0.1	<0.2	<0.2	200	0
			trans-Nonachlor	mg/kg	0.1	<0.2	<0.2	200	0
			p,p'-DDE	mg/kg	0.1	<0.2	<0.2	200	0
			Dieldrin	mg/kg	0.2	<0.4	<0.4	200	0
			Endrin	mg/kg	0.2	<0.4	<0.4	200	0
			o,p'-DDD	mg/kg	0.1	<0.2	<0.2	200	0
			o,p'-DDT	mg/kg	0.1	<0.2	<0.2	200	0
			Beta Endosulfan	mg/kg	0.2	<0.4	<0.4	200	0
			p,p'-DDD	mg/kg	0.1	<0.2	<0.2	200	0

Duplicates are calculated as Relative Percentage Difference (RPD) using the formula: RPD = | OriginalResult - ReplicateResult | x 100 / Mean

The RPD is evaluated against the Maximum Allowable Difference (MAD) criteria and can be graphically represented by a curve calculated from the Statistical Detection Limit (SDL) and Limiting Repeatability (LR) using the formula: MAD = 100 x SDL / Mean + LR

Where the Maximum Allowable Difference evaluates to a number larger than 200 it is displayed as 200.

RPD is shown in **Green** when within suggested criteria or **Red** with an appended reason identifer when outside suggested criteria. Refer to the footnotes section at the end of this report for failure reasons.

OC Pesticides in Soil (continued)

Method: ME-(AU)-[ENV]AN400/AN420

Original	Duplicate		Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE157066.017	LB109805.025		p,p'-DDT	mg/kg	0.1	<0.2	<0.2	200	0
			Endosulfan sulphate	mg/kg	0.1	<0.2	<0.2	200	0
			Endrin Aldehyde	mg/kg	0.1	<0.2	<0.2	200	0
			Methoxychlor	mg/kg	0.1	<0.2	<0.2	200	0
			Endrin Ketone	mg/kg	0.1	<0.2	<0.2	200	0
			Isodrin	mg/kg	0.1	<0.2	<0.2	200	0
			Mirex	mg/kg	0.1	<0.2	<0.2	200	0
		Surrogates	Tetrachloro-m-xylene (TCMX) (Surrogate)	mg/kg	-	0.17	0.16	30	6
SE157066.026	LB109806.020		Hexachlorobenzene (HCB)	mg/kg	0.1	<0.1	0	200	0
			Alpha BHC	mg/kg	0.1	<0.1	0	200	0
			Lindane	mg/kg	0.1	<0.1	0	200	0
			Heptachlor	mg/kg	0.1	<0.1	0	200	0
			Aldrin	mg/kg	0.1	<0.1	0	200	0
			Beta BHC	mg/kg	0.1	<0.1	0	200	0
			Delta BHC	mg/kg	0.1	<0.1	0	200	0
			Heptachlor epoxide	mg/kg	0.1	<0.1	0	200	0
			o,p'-DDE	mg/kg	0.1	<0.1	0	200	0
			Alpha Endosulfan	mg/kg	0.2	<0.2	0	200	0
			Gamma Chlordane	mg/kg	0.1	<0.1	0	200	0
			Alpha Chlordane	mg/kg	0.1	<0.1	0	200	0
			trans-Nonachlor	mg/kg	0.1	<0.1	0	200	0
			p,p'-DDE	mg/kg	0.1	<0.1	0	200	0
			Dieldrin	mg/kg	0.2	<0.2	0	200	0
			Endrin	mg/kg	0.2	<0.2	0	200	0
			o,p'-DDD	mg/kg	0.1	<0.1	0	200	0
			o,p'-DDT	mg/kg	0.1	<0.1	0	200	0
			Beta Endosulfan	mg/kg	0.2	<0.2	0	200	0
			p,p'-DDD	mg/kg	0.1	<0.1	0	200	0
			p,p'-DDT	mg/kg	0.1	<0.1	0	200	0
			Endosulfan sulphate	mg/kg	0.1	<0.1	0	200	0
			Endrin Aldehyde	mg/kg	0.1	<0.1	0	200	0
			Methoxychlor	mg/kg	0.1	<0.1	0	200	0
			Endrin Ketone	mg/kg	0.1	<0.1	0	200	0
			Isodrin	mg/kg	0.1	<0.1	0	200	0
			Mirex	mg/kg	0.1	<0.1	0	200	0
		Surrogates	Tetrachloro-m-xylene (TCMX) (Surrogate)	mg/kg	-	0.15	0.148	30	4

OP Pesticides in Soil

Method: ME-(AU)-[ENV]AN400/AN420

Original	Duplicate		Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE157066.008	LB109805.026		Dichlorvos	mg/kg	0.5	<1.0	0	200	0
			Dimethoate	mg/kg	0.5	<1.0	0	200	0
			Diazinon (Dimpylate)	mg/kg	0.5	<1.0	0.06	200	0
			Fenitrothion	mg/kg	0.2	<0.4	0	200	0
			Malathion	mg/kg	0.2	<0.4	0	200	0
			Chlorpyrifos (Chlorpyrifos Ethyl)	mg/kg	0.2	<0.4	0	200	0
			Parathion-ethyl (Parathion)	mg/kg	0.2	<0.4	0.01	200	0
			Bromophos Ethyl	mg/kg	0.2	<0.4	0	200	0
			Methidathion	mg/kg	0.5	<1.0	0	200	0
			Ethion	mg/kg	0.2	<0.4	0	200	0
			Azinphos-methyl (Guthion)	mg/kg	0.2	<0.4	0	200	0
		Surrogates	2-fluorobiphenyl (Surrogate)	mg/kg	-	0.4	0.39	30	3
			d14-p-terphenyl (Surrogate)	mg/kg	-	0.4	0.45	30	5
SE157066.017	LB109805.027		Dichlorvos	mg/kg	0.5	<1.0	0	200	0
			Dimethoate	mg/kg	0.5	<1.0	0.01	200	0
			Diazinon (Dimpylate)	mg/kg	0.5	<1.0	0	200	0
			Fenitrothion	mg/kg	0.2	<0.4	0	200	0
			Malathion	mg/kg	0.2	<0.4	0.01	200	0
			Chlorpyrifos (Chlorpyrifos Ethyl)	mg/kg	0.2	<0.4	0.03	200	0
			Parathion-ethyl (Parathion)	mg/kg	0.2	<0.4	0.03	200	0
			Bromophos Ethyl	mg/kg	0.2	<0.4	0	200	0
			Methidathion	mg/kg	0.5	<1.0	0	200	0

Duplicates are calculated as Relative Percentage Difference (RPD) using the formula: RPD = | OriginalResult - ReplicateResult | x 100 / Mean

The RPD is evaluated against the Maximum Allowable Difference (MAD) criteria and can be graphically represented by a curve calculated from the Statistical Detection Limit (SDL) and Limiting Repeatability (LR) using the formula: MAD = 100 x SDL / Mean + LR

Where the Maximum Allowable Difference evaluates to a number larger than 200 it is displayed as 200.

RPD is shown in **Green** when within suggested criteria or **Red** with an appended reason identifer when outside suggested criteria. Refer to the footnotes section at the end of this report for failure reasons.

OP Pesticides in Soil (continued)

Method: ME-(AU)-[ENV]AN400/AN420

Original	Duplicate		Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE157066.017	LB109805.027		Ethion	mg/kg	0.2	<0.4	0	200	0
			Azinphos-methyl (Guthion)	mg/kg	0.2	<0.4	0	200	0
		Surrogates	2-fluorobiphenyl (Surrogate)	mg/kg	-	0.4	0.4	30	2
			d14-p-terphenyl (Surrogate)	mg/kg	-	0.5	0.47	30	2
SE157066.026	LB109806.020		Dichlorvos	mg/kg	0.5	<0.5	0	200	0
			Dimethoate	mg/kg	0.5	<0.5	0	200	0
			Diazinon (Dimpylate)	mg/kg	0.5	<0.5	0.03	200	0
			Fenitrothion	mg/kg	0.2	<0.2	0	200	0
			Malathion	mg/kg	0.2	<0.2	0	200	0
			Chlorpyrifos (Chlorpyrifos Ethyl)	mg/kg	0.2	<0.2	0.02	200	0
			Parathion-ethyl (Parathion)	mg/kg	0.2	<0.2	0	200	0
			Bromophos Ethyl	mg/kg	0.2	<0.2	0	200	0
			Methidathion	mg/kg	0.5	<0.5	0	200	0
			Ethion	mg/kg	0.2	<0.2	0	200	0
			Azinphos-methyl (Guthion)	mg/kg	0.2	<0.2	0	200	0
		Surrogates	2-fluorobiphenyl (Surrogate)	mg/kg	-	0.4	0.38	30	5
			d14-p-terphenyl (Surrogate)	mg/kg	-	0.4	0.42	30	5

PAH (Polynuclear Aromatic Hydrocarbons) in Soil

Method: ME-(AU)-[ENV]AN420

Original	Duplicate		Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE157066.008	LB109805.026		Naphthalene	mg/kg	0.1	<0.2	0	200	0
			2-methylnaphthalene	mg/kg	0.1	<0.2	0.01	200	0
			1-methylnaphthalene	mg/kg	0.1	<0.2	0	200	0
			Acenaphthylene	mg/kg	0.1	<0.2	0	200	0
			Acenaphthene	mg/kg	0.1	<0.2	0.01	200	0
			Fluorene	mg/kg	0.1	<0.2	0	200	0
			Phenanthrene	mg/kg	0.1	0.4	0.27	61	31
			Anthracene	mg/kg	0.1	<0.2	0.03	200	0
			Fluoranthene	mg/kg	0.1	1.2	0.85	40	32
			Pyrene	mg/kg	0.1	1.4	0.99	39	31
			Benzo(a)anthracene	mg/kg	0.1	0.5	0.33	56	31
			Chrysene	mg/kg	0.1	0.5	0.34	55	30
			Benzo(b&j)fluoranthene	mg/kg	0.1	0.6	0.47	49	26
			Benzo(k)fluoranthene	mg/kg	0.1	0.2	0.19	77	18
			Benzo(a)pyrene	mg/kg	0.1	0.4	0.28	59	35
			Indeno(1,2,3-cd)pyrene	mg/kg	0.1	0.3	0.23	68	26
			Dibenzo(ah)anthracene	mg/kg	0.1	<0.2	0.02	200	0
			Benzo(ghi)perylene	mg/kg	0.1	0.3	0.23	68	26
			Carcinogenic PAHs, BaP TEQ <LOR=0	TEQ (mg/kg)	0.2	0.6	0.4087	51	33
			Carcinogenic PAHs, BaP TEQ <LOR=LOR	TEQ (mg/kg)	0.3	0.7	0.5087	61	27
			Carcinogenic PAHs, BaP TEQ <LOR=LOR/2	TEQ (mg/kg)	0.2	0.6	0.4587	47	30
			Total PAH (18)	mg/kg	0.8	5.7	4.19	46	30
		Surrogates	d5-nitrobenzene (Surrogate)	mg/kg	-	0.4	0.4	30	3
			2-fluorobiphenyl (Surrogate)	mg/kg	-	0.4	0.39	30	3
			d14-p-terphenyl (Surrogate)	mg/kg	-	0.4	0.45	30	5
SE157066.017	LB109805.027		Naphthalene	mg/kg	0.1	<0.2	0.01	200	0
			2-methylnaphthalene	mg/kg	0.1	<0.2	0.01	200	0
			1-methylnaphthalene	mg/kg	0.1	<0.2	0.01	200	0
			Acenaphthylene	mg/kg	0.1	<0.2	0.02	200	0
			Acenaphthene	mg/kg	0.1	<0.2	0	200	0
			Fluorene	mg/kg	0.1	<0.2	0.01	200	0
			Phenanthrene	mg/kg	0.1	0.3	0.24	68	19
			Anthracene	mg/kg	0.1	<0.2	0.02	200	0
			Fluoranthene	mg/kg	0.1	0.5	0.47	51	4
			Pyrene	mg/kg	0.1	0.8	0.77	43	3
			Benzo(a)anthracene	mg/kg	0.1	0.3	0.36	59	9
			Chrysene	mg/kg	0.1	0.3	0.34	60	6
			Benzo(b&j)fluoranthene	mg/kg	0.1	0.3	0.39	57	14
			Benzo(k)fluoranthene	mg/kg	0.1	<0.2	0.15	97	0
			Benzo(a)pyrene	mg/kg	0.1	0.3	0.34	62	16
			Indeno(1,2,3-cd)pyrene	mg/kg	0.1	<0.2	0.17	93	0

Duplicates are calculated as Relative Percentage Difference (RPD) using the formula: RPD = | OriginalResult - ReplicateResult | x 100 / Mean

The RPD is evaluated against the Maximum Allowable Difference (MAD) criteria and can be graphically represented by a curve calculated from the Statistical Detection Limit (SDL) and Limiting Repeatability (LR) using the formula: MAD = 100 x SDL / Mean + LR

Where the Maximum Allowable Difference evaluates to a number larger than 200 it is displayed as 200.

RPD is shown in **Green** when within suggested criteria or **Red** with an appended reason identifer when outside suggested criteria. Refer to the footnotes section at the end of this report for failure reasons.

PAH (Polynuclear Aromatic Hydrocarbons) in Soil (continued)

Method: ME-(AU)-[ENV]AN420

Original	Duplicate		Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE157066.017	LB109805.027		Dibenzo(ah)anthracene	mg/kg	0.1	<0.2	0.02	200	0
			Benzo(ghi)perylene	mg/kg	0.1	<0.2	0.16	97	0
			Carcinogenic PAHs, BaP TEQ <LOR=0	TEQ	0.2	0.4	0.453	57	15
				TEQ (mg/kg)	0.2	0.4	0.453	57	15
			Carcinogenic PAHs, BaP TEQ <LOR=LOR	TEQ (mg/kg)	0.3	0.5	0.553	67	12
			Carcinogenic PAHs, BaP TEQ <LOR=LOR/2	TEQ (mg/kg)	0.2	0.4	0.503	52	13
			Total PAH (18)	mg/kg	0.8	3.2	3.4	54	5
		Surrogates	d5-nitrobenzene (Surrogate)	mg/kg	-	0.4	0.43	30	2
			2-fluorobiphenyl (Surrogate)	mg/kg	-	0.4	0.4	30	2
			d14-p-terphenyl (Surrogate)	mg/kg	-	0.5	0.47	30	2
SE157066.026	LB109806.020		Naphthalene	mg/kg	0.1	<0.1	0	200	0
			2-methylnaphthalene	mg/kg	0.1	<0.1	0.01	200	0
			1-methylnaphthalene	mg/kg	0.1	<0.1	0	200	0
			Acenaphthylene	mg/kg	0.1	<0.1	0	200	0
			Acenaphthene	mg/kg	0.1	<0.1	0	200	0
			Fluorene	mg/kg	0.1	<0.1	0	200	0
			Phenanthrene	mg/kg	0.1	<0.1	0.01	200	0
			Anthracene	mg/kg	0.1	<0.1	0.01	200	0
			Fluoranthene	mg/kg	0.1	<0.1	0	200	0
			Pyrene	mg/kg	0.1	<0.1	0	200	0
			Benzo(a)anthracene	mg/kg	0.1	<0.1	0.01	200	0
			Chrysene	mg/kg	0.1	<0.1	0.01	200	0
			Benzo(b&j)fluoranthene	mg/kg	0.1	<0.1	0	200	0
			Benzo(k)fluoranthene	mg/kg	0.1	<0.1	0	200	0
			Benzo(a)pyrene	mg/kg	0.1	<0.1	0	200	0
			Indeno(1,2,3-cd)pyrene	mg/kg	0.1	<0.1	0	200	0
			Dibenzo(ah)anthracene	mg/kg	0.1	<0.1	0	200	0
			Benzo(ghi)perylene	mg/kg	0.1	<0.1	0	200	0
			Carcinogenic PAHs, BaP TEQ <LOR=0	TEQ (mg/kg)	0.2	<0.2	0	200	0
			Carcinogenic PAHs, BaP TEQ <LOR=LOR	TEQ (mg/kg)	0.3	<0.3	0.242	134	0
			Carcinogenic PAHs, BaP TEQ <LOR=LOR/2	TEQ (mg/kg)	0.2	<0.2	0.121	175	0
			Total PAH (18)	mg/kg	0.8	<0.8	0	200	0
		Surrogates	d5-nitrobenzene (Surrogate)	mg/kg	-	0.4	0.36	30	5
			2-fluorobiphenyl (Surrogate)	mg/kg	-	0.4	0.38	30	5
			d14-p-terphenyl (Surrogate)	mg/kg	-	0.4	0.42	30	5

Total Phenolics in Soil

Method: ME-(AU)-[ENV]AN289

Original	Duplicate	Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE157066.001	LB109905.004	Total Phenols	mg/kg	0.1	<0.1	<0.1	200	0
SE157066.027	LB109907.016	Total Phenols	mg/kg	0.1	<0.1	<0.1	200	0

Total Recoverable Metals in Soil/Waste Solids/Materials by ICPOES

Method: ME-(AU)-[ENV]AN040/AN320

Original	Duplicate	Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE157066.010	LB109811.014	Arsenic, As	mg/kg	3	7	8	43	4
		Cadmium, Cd	mg/kg	0.3	0.6	0.6	83	1
		Chromium, Cr	mg/kg	0.3	15	15	33	1
		Copper, Cu	mg/kg	0.5	35	33	31	6
		Lead, Pb	mg/kg	1	150	140	31	7
		Nickel, Ni	mg/kg	0.5	16	13	33	17
		Zinc, Zn	mg/kg	0.5	390	330	31	18
SE157066.019	LB109811.024	Arsenic, As	mg/kg	3	6	6	48	0
		Cadmium, Cd	mg/kg	0.3	<0.3	<0.3	200	0
		Chromium, Cr	mg/kg	0.3	13	13	34	3
		Copper, Cu	mg/kg	0.5	13	13	34	2
		Lead, Pb	mg/kg	1	31	31	33	1
		Nickel, Ni	mg/kg	0.5	13	12	34	3
		Zinc, Zn	mg/kg	0.5	49	48	34	3
SE157066.026	LB109812.011	Arsenic, As	mg/kg	3	12	12	38	1
		Cadmium, Cd	mg/kg	0.3	0.4	0.3	118	12
		Chromium, Cr	mg/kg	0.3	19	19	33	2

Duplicates are calculated as Relative Percentage Difference (RPD) using the formula: RPD = | OriginalResult - ReplicateResult | x 100 / Mean

The RPD is evaluated against the Maximum Allowable Difference (MAD) criteria and can be graphically represented by a curve calculated from the Statistical Detection Limit (SDL) and Limiting Repeatability (LR) using the formula: MAD = 100 x SDL / Mean + LR

Where the Maximum Allowable Difference evaluates to a number larger than 200 it is displayed as 200.

RPD is shown in **Green** when within suggested criteria or **Red** with an appended reason identifer when outside suggested criteria. Refer to the footnotes section at the end of this report for failure reasons.

Total Recoverable Metals in Soil/Waste Solids/Materials by ICPOES (continued)

Method: ME-(AU)-[ENV]AN040/AN320

Original	Duplicate		Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE157066.026	LB109812.011		Copper, Cu	mg/kg	0.5	14	14	34	1
			Lead, Pb	mg/kg	1	25	22	34	12
			Nickel, Ni	mg/kg	0.5	19	18	33	3
			Zinc, Zn	mg/kg	0.5	71	73	33	2
SE157087.001	LB109852.011		Arsenic, As	mg/kg	3	<1	<1	200	0
			Cadmium, Cd	mg/kg	0.3	<0.1	<0.1	200	0
			Chromium, Cr	mg/kg	0.3	9.9	7.7	36	26
			Copper, Cu	mg/kg	0.5	72	70	31	3
			Lead, Pb	mg/kg	1	3	2	68	10
			Nickel, Ni	mg/kg	0.5	2.5	2.5	50	0
			Zinc, Zn	mg/kg	0.5	43	40	35	7

TRH (Total Recoverable Hydrocarbons) in Soil

Method: ME-(AU)-[ENV]AN403

Original	Duplicate		Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE157066.008	LB109805.027		TRH C10-C14	mg/kg	20	<40	0	200	0
			TRH C15-C28	mg/kg	45	<90	0	200	0
			TRH C29-C36	mg/kg	45	<90	0	200	0
			TRH C37-C40	mg/kg	100	<200	0	200	0
			TRH C10-C36 Total	mg/kg	110	<220	0	200	0
			TRH C10-C40 Total	mg/kg	210	<420	0	200	0
		TRH F Bands	TRH >C10-C16 (F2)	mg/kg	25	<50	0	200	0
			TRH >C10-C16 (F2) - Naphthalene	mg/kg	25	<50	0	200	0
			TRH >C16-C34 (F3)	mg/kg	90	<180	0	200	0
			TRH >C34-C40 (F4)	mg/kg	120	<240	0	200	0
SE157066.017	LB109805.025		TRH C10-C14	mg/kg	20	<40	<40	200	0
			TRH C15-C28	mg/kg	45	<90	<90	200	0
			TRH C29-C36	mg/kg	45	<90	<90	200	0
			TRH C37-C40	mg/kg	100	<200	<200	200	0
			TRH C10-C36 Total	mg/kg	110	<220	<220	200	0
			TRH C10-C40 Total	mg/kg	210	<420	<420	200	0
		TRH F Bands	TRH >C10-C16 (F2)	mg/kg	25	<50	<50	200	0
			TRH >C10-C16 (F2) - Naphthalene	mg/kg	25	<50	<50	200	0
			TRH >C16-C34 (F3)	mg/kg	90	<180	<180	200	0
			TRH >C34-C40 (F4)	mg/kg	120	<240	<240	200	0
SE157066.026	LB109806.020		TRH C10-C14	mg/kg	20	<20	0	200	0
			TRH C15-C28	mg/kg	45	<45	0	200	0
			TRH C29-C36	mg/kg	45	<45	0	200	0
			TRH C37-C40	mg/kg	100	<100	0	200	0
			TRH C10-C36 Total	mg/kg	110	<110	0	200	0
			TRH C10-C40 Total	mg/kg	210	<210	0	200	0
		TRH F Bands	TRH >C10-C16 (F2)	mg/kg	25	<25	0	200	0
			TRH >C10-C16 (F2) - Naphthalene	mg/kg	25	<25	0	200	0
			TRH >C16-C34 (F3)	mg/kg	90	<90	0	200	0
			TRH >C34-C40 (F4)	mg/kg	120	<120	0	200	0
SE157097.004	LB109806.018		TRH C10-C14	mg/kg	20	<20	<20	200	0
			TRH C15-C28	mg/kg	45	<45	<45	200	0
			TRH C29-C36	mg/kg	45	<45	<45	200	0
			TRH C37-C40	mg/kg	100	<100	<100	200	0
			TRH C10-C36 Total	mg/kg	110	<110	<110	200	0
			TRH C10-C40 Total	mg/kg	210	<210	<210	200	0
		TRH F Bands	TRH >C10-C16 (F2)	mg/kg	25	<25	<25	200	0
			TRH >C10-C16 (F2) - Naphthalene	mg/kg	25	<25	<25	200	0
			TRH >C16-C34 (F3)	mg/kg	90	<90	<90	200	0
			TRH >C34-C40 (F4)	mg/kg	120	<120	<120	200	0

VOC's in Soil

Method: ME-(AU)-[ENV]AN433

Original	Duplicate		Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE157066.007	LB109802.014	Monocyclic	Benzene	mg/kg	0.1	<0.1	<0.1	200	0
		Aromatic	Toluene	mg/kg	0.1	<0.1	<0.1	200	0
			Ethylbenzene	mg/kg	0.1	<0.1	<0.1	200	0
			m/p-xylene	mg/kg	0.2	<0.2	<0.2	200	0
			o-xylene	mg/kg	0.1	<0.1	<0.1	200	0

Duplicates are calculated as Relative Percentage Difference (RPD) using the formula: RPD = | OriginalResult - ReplicateResult | x 100 / Mean

The RPD is evaluated against the Maximum Allowable Difference (MAD) criteria and can be graphically represented by a curve calculated from the Statistical Detection Limit (SDL) and Limiting Repeatability (LR) using the formula: MAD = 100 x SDL / Mean + LR

Where the Maximum Allowable Difference evaluates to a number larger than 200 it is displayed as 200.

RPD is shown in **Green** when within suggested criteria or **Red** with an appended reason identifer when outside suggested criteria. Refer to the footnotes section at the end of this report for failure reasons.

VOC's in Soil (continued)

Method: ME-(AU)-[ENV]AN433

Original	Duplicate		Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE157066.007	LB109802.014	Polycyclic	Naphthalene	mg/kg	0.1	<0.1	<0.1	200	0
		Surrogates	Dibromofluoromethane (Surrogate)	mg/kg	-	3.7	4.2	50	13
			d4-1,2-dichloroethane (Surrogate)	mg/kg	-	4.1	4.5	50	9
			d8-toluene (Surrogate)	mg/kg	-	4.8	5.2	50	9
			Bromofluorobenzene (Surrogate)	mg/kg	-	4.0	3.4	50	16
		Totals	Total Xylenes*	mg/kg	0.3	<0.3	<0.3	200	0
			Total BTEX	mg/kg	0.6	<0.6	<0.6	200	0
SE157066.017	LB109802.025	Monocyclic	Benzene	mg/kg	0.1	<0.1	<0.1	200	0
		Aromatic	Toluene	mg/kg	0.1	<0.1	<0.1	200	0
			Ethylbenzene	mg/kg	0.1	<0.1	<0.1	200	0
			m/p-xylene	mg/kg	0.2	<0.2	<0.2	200	0
			o-xylene	mg/kg	0.1	<0.1	<0.1	200	0
		Polycyclic	Naphthalene	mg/kg	0.1	<0.1	<0.1	200	0
		Surrogates	Dibromofluoromethane (Surrogate)	mg/kg	-	3.5	3.6	50	3
			d4-1,2-dichloroethane (Surrogate)	mg/kg	-	3.8	3.8	50	1
			d8-toluene (Surrogate)	mg/kg	-	4.5	3.7	50	20
			Bromofluorobenzene (Surrogate)	mg/kg	-	4.1	3.6	50	15
		Totals	Total Xylenes*	mg/kg	0.3	<0.3	<0.3	200	0
			Total BTEX	mg/kg	0.6	<0.6	<0.6	200	0
SE157066.026	LB109803.024	Monocyclic	Benzene	mg/kg	0.1	<0.1	<0.1	200	0
		Aromatic	Toluene	mg/kg	0.1	<0.1	<0.1	200	0
			Ethylbenzene	mg/kg	0.1	<0.1	<0.1	200	0
			m/p-xylene	mg/kg	0.2	<0.2	<0.2	200	0
			o-xylene	mg/kg	0.1	<0.1	<0.1	200	0
		Polycyclic	Naphthalene	mg/kg	0.1	<0.1	<0.1	200	0
		Surrogates	Dibromofluoromethane (Surrogate)	mg/kg	-	4.5	4.4	50	3
			d4-1,2-dichloroethane (Surrogate)	mg/kg	-	4.4	4.6	50	4
			d8-toluene (Surrogate)	mg/kg	-	4.0	3.5	50	12
			Bromofluorobenzene (Surrogate)	mg/kg	-	4.4	4.2	50	5
		Totals	Total Xylenes*	mg/kg	0.3	<0.3	<0.3	200	0
			Total BTEX	mg/kg	0.6	<0.6	<0.6	200	0
SE157104.004	LB109836.014	Monocyclic	Benzene	mg/kg	0.1	0.01	0.01	200	0
		Aromatic	Toluene	mg/kg	0.1	0.02	0.03	200	0
			Ethylbenzene	mg/kg	0.1	0.01	0.01	200	0
			m/p-xylene	mg/kg	0.2	0.04	0.04	200	0
			o-xylene	mg/kg	0.1	0.01	0.01	200	0
		Polycyclic	Naphthalene	mg/kg	0.1	0	0	200	0
		Surrogates	Dibromofluoromethane (Surrogate)	mg/kg	-	3.77	4.13	50	9
			d4-1,2-dichloroethane (Surrogate)	mg/kg	-	3.92	3.93	50	0
			d8-toluene (Surrogate)	mg/kg	-	3.67	4.39	50	18
			Bromofluorobenzene (Surrogate)	mg/kg	-	4.92	4.56	50	8
		Totals	Total Xylenes*	mg/kg	0.3	0.05	0.05	200	0
			Total BTEX	mg/kg	0.6	0.09	0.1	200	0
SE157110.001	LB109836.018	Monocyclic	Benzene	mg/kg	0.1	0.01	0.01	200	0
		Aromatic	Toluene	mg/kg	0.1	0.03	0.03	200	0
			Ethylbenzene	mg/kg	0.1	0.01	0.01	200	0
			m/p-xylene	mg/kg	0.2	0.03	0.03	200	0
			o-xylene	mg/kg	0.1	0.01	0.01	200	0
		Polycyclic	Naphthalene	mg/kg	0.1	0	0	200	0
		Surrogates	Dibromofluoromethane (Surrogate)	mg/kg	-	3.57	3.62	50	1
			d4-1,2-dichloroethane (Surrogate)	mg/kg	-	3.73	3.56	50	5
			d8-toluene (Surrogate)	mg/kg	-	4.45	4.37	50	2
			Bromofluorobenzene (Surrogate)	mg/kg	-	4.46	4.36	50	2
		Totals	Total Xylenes*	mg/kg	0.3	0.04	0.04	200	0
			Total BTEX	mg/kg	0.6	0.09	0.09	200	0

Volatile Petroleum Hydrocarbons in Soil

Method: ME-(AU)-[ENV]AN433

Original	Duplicate		Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE157066.007	LB109802.014		TRH C6-C10	mg/kg	25	<25	<25	200	0
			TRH C6-C9	mg/kg	20	<20	<20	200	0
		Surrogates	Dibromofluoromethane (Surrogate)	mg/kg	-	3.7	4.2	30	13

Duplicates are calculated as Relative Percentage Difference (RPD) using the formula: RPD = | OriginalResult - ReplicateResult | x 100 / Mean

The RPD is evaluated against the Maximum Allowable Difference (MAD) criteria and can be graphically represented by a curve calculated from the Statistical Detection Limit (SDL) and Limiting Repeatability (LR) using the formula: MAD = 100 x SDL / Mean + LR

Where the Maximum Allowable Difference evaluates to a number larger than 200 it is displayed as 200.

RPD is shown in **Green** when within suggested criteria or **Red** with an appended reason identifer when outside suggested criteria. Refer to the footnotes section at the end of this report for failure reasons.

Volatile Petroleum Hydrocarbons in Soil (continued) — **Method: ME-(AU)-[ENV]AN433**

Original	Duplicate		Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE157066.007	LB109802.014	Surrogates	d4-1,2-dichloroethane (Surrogate)	mg/kg	-	4.1	4.5	30	9
			d8-toluene (Surrogate)	mg/kg	-	4.8	5.2	30	9
			Bromofluorobenzene (Surrogate)	mg/kg	-	4.0	3.4	30	16
		VPH F Bands	Benzene (F0)	mg/kg	0.1	<0.1	<0.1	200	0
			TRH C6-C10 minus BTEX (F1)	mg/kg	25	<25	<25	200	0
SE157066.017	LB109802.025		TRH C6-C10	mg/kg	25	<25	<25	200	0
			TRH C6-C9	mg/kg	20	<20	<20	200	0
		Surrogates	Dibromofluoromethane (Surrogate)	mg/kg	-	3.5	3.6	30	3
			d4-1,2-dichloroethane (Surrogate)	mg/kg	-	3.8	3.8	30	1
			d8-toluene (Surrogate)	mg/kg	-	4.5	3.7	30	20
			Bromofluorobenzene (Surrogate)	mg/kg	-	4.1	3.6	30	15
		VPH F Bands	Benzene (F0)	mg/kg	0.1	<0.1	<0.1	200	0
			TRH C6-C10 minus BTEX (F1)	mg/kg	25	<25	<25	200	0
SE157066.026	LB109803.024		TRH C6-C10	mg/kg	25	<25	<25	200	0
			TRH C6-C9	mg/kg	20	<20	<20	200	0
		Surrogates	Dibromofluoromethane (Surrogate)	mg/kg	-	4.5	4.4	30	3
			d4-1,2-dichloroethane (Surrogate)	mg/kg	-	4.4	4.6	30	4
			d8-toluene (Surrogate)	mg/kg	-	4.0	3.5	30	12
			Bromofluorobenzene (Surrogate)	mg/kg	-	4.4	4.2	30	5
		VPH F Bands	Benzene (F0)	mg/kg	0.1	<0.1	<0.1	200	0
			TRH C6-C10 minus BTEX (F1)	mg/kg	25	<25	<25	200	0
SE157104.004	LB109836.014		TRH C6-C10	mg/kg	25	0.01	0.08	200	0
			TRH C6-C9	mg/kg	20	0.01	0.06	200	0
		Surrogates	Dibromofluoromethane (Surrogate)	mg/kg	-	3.77	4.13	30	9
			d4-1,2-dichloroethane (Surrogate)	mg/kg	-	3.92	3.93	30	0
			d8-toluene (Surrogate)	mg/kg	-	3.67	4.39	30	18
			Bromofluorobenzene (Surrogate)	mg/kg	-	4.92	4.56	30	8
		VPH F Bands	Benzene (F0)	mg/kg	0.1	0.01	0.01	200	0
			TRH C6-C10 minus BTEX (F1)	mg/kg	25	-0.08	-0.02	200	0
SE157110.001	LB109836.018		TRH C6-C10	mg/kg	25	0.16	0.4	200	0
			TRH C6-C9	mg/kg	20	0.11	0.34	200	0
		Surrogates	Dibromofluoromethane (Surrogate)	mg/kg	-	3.57	3.62	30	1
			d4-1,2-dichloroethane (Surrogate)	mg/kg	-	3.73	3.56	30	5
			d8-toluene (Surrogate)	mg/kg	-	4.45	4.37	30	2
			Bromofluorobenzene (Surrogate)	mg/kg	-	4.46	4.36	30	2
		VPH F Bands	Benzene (F0)	mg/kg	0.1	0.01	0.01	200	0
			TRH C6-C10 minus BTEX (F1)	mg/kg	25	0.07	0.31	200	0

Laboratory Control Standard (LCS) results are evaluated against an expected result, typically the concentration of analyte spiked into the control during the sample preparation stage, producing a percentage recovery. The criteria applied to the percentage recovery is established in the SGS QA /QC plan (Ref: MP-(AU)-[ENV]QU-022). For more information refer to the footnotes in the concluding page of this report.

Recovery is shown in **Green** when within suggested criteria or **Red** with an appended dagger symbol (†) when outside suggested criteria.

Mercury in Soil

Method: ME-(AU)-[ENV]AN312

Sample Number	Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB109817.002	Mercury	mg/kg	0.05	0.19	0.2	70 - 130	96
LB109818.002	Mercury	mg/kg	0.05	0.19	0.2	70 - 130	93

OC Pesticides in Soil

Method: ME-(AU)-[ENV]AN400/AN420

Sample Number		Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB109805.002		Heptachlor	mg/kg	0.1	0.2	0.2	60 - 140	108
		Aldrin	mg/kg	0.1	0.2	0.2	60 - 140	100
		Delta BHC	mg/kg	0.1	0.2	0.2	60 - 140	105
		Dieldrin	mg/kg	0.2	0.2	0.2	60 - 140	100
		Endrin	mg/kg	0.2	0.3	0.2	60 - 140	140
		p,p'-DDT	mg/kg	0.1	0.3	0.2	60 - 140	130
	Surrogates	Tetrachloro-m-xylene (TCMX) (Surrogate)	mg/kg	-	0.14	0.15	40 - 130	90
LB109806.002		Heptachlor	mg/kg	0.1	0.2	0.2	60 - 140	90
		Aldrin	mg/kg	0.1	0.2	0.2	60 - 140	100
		Delta BHC	mg/kg	0.1	0.2	0.2	60 - 140	110
		Dieldrin	mg/kg	0.2	0.2	0.2	60 - 140	105
		Endrin	mg/kg	0.2	<0.2	0.2	60 - 140	95
		p,p'-DDT	mg/kg	0.1	0.2	0.2	60 - 140	85
	Surrogates	Tetrachloro-m-xylene (TCMX) (Surrogate)	mg/kg	-	0.15	0.15	40 - 130	100
LB109906.002		Heptachlor	mg/kg	0.1	0.2	0.2	60 - 140	120
		Aldrin	mg/kg	0.1	0.2	0.2	60 - 140	110
		Delta BHC	mg/kg	0.1	0.2	0.2	60 - 140	115
		Dieldrin	mg/kg	0.2	<0.2	0.2	60 - 140	95
		Endrin	mg/kg	0.2	0.2	0.2	60 - 140	120
		p,p'-DDT	mg/kg	0.1	0.3	0.2	60 - 140	130
	Surrogates	Tetrachloro-m-xylene (TCMX) (Surrogate)	mg/kg	-	0.14	0.15	40 - 130	90

OP Pesticides in Soil

Method: ME-(AU)-[ENV]AN400/AN420

Sample Number		Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB109805.002		Dichlorvos	mg/kg	0.5	1.9	2	60 - 140	94
		Diazinon (Dimpylate)	mg/kg	0.5	1.9	2	60 - 140	93
		Chlorpyrifos (Chlorpyrifos Ethyl)	mg/kg	0.2	2.0	2	60 - 140	100
		Ethion	mg/kg	0.2	2.0	2	60 - 140	101
	Surrogates	2-fluorobiphenyl (Surrogate)	mg/kg	-	0.4	0.5	40 - 130	78
		d14-p-terphenyl (Surrogate)	mg/kg	-	0.5	0.5	40 - 130	90
LB109806.002		Dichlorvos	mg/kg	0.5	1.7	2	60 - 140	85
		Diazinon (Dimpylate)	mg/kg	0.5	1.8	2	60 - 140	88
		Chlorpyrifos (Chlorpyrifos Ethyl)	mg/kg	0.2	1.5	2	60 - 140	77
		Ethion	mg/kg	0.2	1.8	2	60 - 140	91
	Surrogates	2-fluorobiphenyl (Surrogate)	mg/kg	-	0.4	0.5	40 - 130	74
		d14-p-terphenyl (Surrogate)	mg/kg	-	0.4	0.5	40 - 130	86
LB109906.002		Dichlorvos	mg/kg	0.5	1.8	2	60 - 140	89
		Diazinon (Dimpylate)	mg/kg	0.5	1.8	2	60 - 140	90
		Chlorpyrifos (Chlorpyrifos Ethyl)	mg/kg	0.2	1.9	2	60 - 140	97
		Ethion	mg/kg	0.2	2.3	2	60 - 140	116
	Surrogates	2-fluorobiphenyl (Surrogate)	mg/kg	-	0.4	0.5	40 - 130	78
		d14-p-terphenyl (Surrogate)	mg/kg	-	0.4	0.5	40 - 130	80

PAH (Polynuclear Aromatic Hydrocarbons) in Soil

Method: ME-(AU)-[ENV]AN420

Sample Number		Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB109805.002		Naphthalene	mg/kg	0.1	3.8	4	60 - 140	96
		Acenaphthylene	mg/kg	0.1	3.8	4	60 - 140	95
		Acenaphthene	mg/kg	0.1	3.8	4	60 - 140	95
		Phenanthrene	mg/kg	0.1	3.8	4	60 - 140	96
		Anthracene	mg/kg	0.1	3.9	4	60 - 140	97
		Fluoranthene	mg/kg	0.1	4.2	4	60 - 140	105
		Pyrene	mg/kg	0.1	4.1	4	60 - 140	103
		Benzo(a)pyrene	mg/kg	0.1	3.8	4	60 - 140	95
	Surrogates	d5-nitrobenzene (Surrogate)	mg/kg	-	0.4	0.5	40 - 130	84
		2-fluorobiphenyl (Surrogate)	mg/kg	-	0.4	0.5	40 - 130	78
		d14-p-terphenyl (Surrogate)	mg/kg	-	0.5	0.5	40 - 130	90

Laboratory Control Standard (LCS) results are evaluated against an expected result, typically the concentration of analyte spiked into the control during the sample preparation stage, producing a percentage recovery. The criteria applied to the percentage recovery is established in the SGS QA /QC plan (Ref: MP-(AU)-[ENV]QU-022). For more information refer to the footnotes in the concluding page of this report.

Recovery is shown in **Green** when within suggested criteria or **Red** with an appended dagger symbol (†) when outside suggested criteria.

PAH (Polynuclear Aromatic Hydrocarbons) in Soil (continued)

Method: ME-(AU)-[ENV]AN420

Sample Number		Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB109806.002		Naphthalene	mg/kg	0.1	3.6	4	60 - 140	91
		Acenaphthylene	mg/kg	0.1	3.6	4	60 - 140	90
		Acenaphthene	mg/kg	0.1	3.6	4	60 - 140	91
		Phenanthrene	mg/kg	0.1	3.7	4	60 - 140	92
		Anthracene	mg/kg	0.1	3.7	4	60 - 140	93
		Fluoranthene	mg/kg	0.1	3.8	4	60 - 140	94
		Pyrene	mg/kg	0.1	3.7	4	60 - 140	92
		Benzo(a)pyrene	mg/kg	0.1	4.2	4	60 - 140	106
	Surrogates	d5-nitrobenzene (Surrogate)	mg/kg	-	0.4	0.5	40 - 130	76
		2-fluorobiphenyl (Surrogate)	mg/kg	-	0.4	0.5	40 - 130	74
		d14-p-terphenyl (Surrogate)	mg/kg	-	0.4	0.5	40 - 130	86
LB109906.002		Naphthalene	mg/kg	0.1	4.0	4	60 - 140	99
		Acenaphthylene	mg/kg	0.1	3.8	4	60 - 140	95
		Acenaphthene	mg/kg	0.1	3.7	4	60 - 140	94
		Phenanthrene	mg/kg	0.1	3.6	4	60 - 140	90
		Anthracene	mg/kg	0.1	3.2	4	60 - 140	81
		Fluoranthene	mg/kg	0.1	3.6	4	60 - 140	89
		Pyrene	mg/kg	0.1	4.7	4	60 - 140	117
		Benzo(a)pyrene	mg/kg	0.1	4.0	4	60 - 140	101
	Surrogates	d5-nitrobenzene (Surrogate)	mg/kg	-	0.5	0.5	40 - 130	92
		2-fluorobiphenyl (Surrogate)	mg/kg	-	0.4	0.5	40 - 130	78
		d14-p-terphenyl (Surrogate)	mg/kg	-	0.4	0.5	40 - 130	80

Total Phenolics in Soil

Method: ME-(AU)-[ENV]AN289

Sample Number	Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB109905.002	Total Phenols	mg/kg	0.1	2.1	2.5	70 - 130	86
LB109907.002	Total Phenols	mg/kg	0.1	2.3	2.5	70 - 130	94

Total Recoverable Metals in Soil/Waste Solids/Materials by ICPOES

Method: ME-(AU)-[ENV]AN040/AN320

Sample Number	Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB109811.002	Arsenic, As	mg/kg	3	47	50	80 - 120	93
	Cadmium, Cd	mg/kg	0.3	48	50	80 - 120	96
	Chromium, Cr	mg/kg	0.3	47	50	80 - 120	95
	Copper, Cu	mg/kg	0.5	48	50	80 - 120	95
	Lead, Pb	mg/kg	1	47	50	80 - 120	95
	Nickel, Ni	mg/kg	0.5	48	50	80 - 120	96
	Zinc, Zn	mg/kg	0.5	48	50	80 - 120	97
LB109812.002	Arsenic, As	mg/kg	3	46	50	80 - 120	93
	Cadmium, Cd	mg/kg	0.3	48	50	80 - 120	95
	Chromium, Cr	mg/kg	0.3	47	50	80 - 120	94
	Copper, Cu	mg/kg	0.5	48	50	80 - 120	95
	Lead, Pb	mg/kg	1	47	50	80 - 120	95
	Nickel, Ni	mg/kg	0.5	47	50	80 - 120	94
	Zinc, Zn	mg/kg	0.5	48	50	80 - 120	95
LB109852.002	Arsenic, As	mg/kg	3	47	50	80 - 120	95
	Cadmium, Cd	mg/kg	0.3	49	50	80 - 120	98
	Chromium, Cr	mg/kg	0.3	48	50	80 - 120	96
	Copper, Cu	mg/kg	0.5	49	50	80 - 120	97
	Lead, Pb	mg/kg	1	48	50	80 - 120	96
	Nickel, Ni	mg/kg	0.5	48	50	80 - 120	96
	Zinc, Zn	mg/kg	0.5	48	50	80 - 120	97

TRH (Total Recoverable Hydrocarbons) in Soil

Method: ME-(AU)-[ENV]AN403

Sample Number		Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB109805.002		TRH C10-C14	mg/kg	20	37	40	60 - 140	93
		TRH C15-C28	mg/kg	45	<45	40	60 - 140	93
		TRH C29-C36	mg/kg	45	<45	40	60 - 140	85
	TRH F Bands	TRH >C10-C16 (F2)	mg/kg	25	37	40	60 - 140	93
		TRH >C16-C34 (F3)	mg/kg	90	<90	40	60 - 140	90
		TRH >C34-C40 (F4)	mg/kg	120	<120	20	60 - 140	90
LB109806.002		TRH C10-C14	mg/kg	20	41	40	60 - 140	103

Laboratory Control Standard (LCS) results are evaluated against an expected result, typically the concentration of analyte spiked into the control during the sample preparation stage, producing a percentage recovery. The criteria applied to the percentage recovery is established in the SGS QA /QC plan (Ref: MP-(AU)-[ENV]QU-022). For more information refer to the footnotes in the concluding page of this report.

Recovery is shown in **Green** when within suggested criteria or **Red** with an appended dagger symbol (†) when outside suggested criteria.

TRH (Total Recoverable Hydrocarbons) in Soil (continued)

Method: ME-(AU)-[ENV]AN403

Sample Number		Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB109806.002		TRH C15-C28	mg/kg	45	<45	40	60 - 140	103
		TRH C29-C36	mg/kg	45	<45	40	60 - 140	93
	TRH F Bands	TRH >C10-C16 (F2)	mg/kg	25	41	40	60 - 140	103
		TRH >C16-C34 (F3)	mg/kg	90	<90	40	60 - 140	105
		TRH >C34-C40 (F4)	mg/kg	120	<120	20	60 - 140	85
LB109906.002		TRH C10-C14	mg/kg	20	41	40	60 - 140	103
		TRH C15-C28	mg/kg	45	<45	40	60 - 140	103
		TRH C29-C36	mg/kg	45	<45	40	60 - 140	93
	TRH F Bands	TRH >C10-C16 (F2)	mg/kg	25	41	40	60 - 140	103
		TRH >C16-C34 (F3)	mg/kg	90	<90	40	60 - 140	105
		TRH >C34-C40 (F4)	mg/kg	120	<120	20	60 - 140	85

VOC's in Soil

Method: ME-(AU)-[ENV]AN433

Sample Number		Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB109802.002	Monocyclic	Benzene	mg/kg	0.1	2.3	2.9	60 - 140	80
	Aromatic	Toluene	mg/kg	0.1	2.2	2.9	60 - 140	77
		Ethylbenzene	mg/kg	0.1	2.3	2.9	60 - 140	81
		m/p-xylene	mg/kg	0.2	4.8	5.8	60 - 140	82
		o-xylene	mg/kg	0.1	2.4	2.9	60 - 140	81
	Surrogates	Dibromofluoromethane (Surrogate)	mg/kg	-	4.6	5	60 - 140	91
		d4-1,2-dichloroethane (Surrogate)	mg/kg	-	4.6	5	60 - 140	91
		d8-toluene (Surrogate)	mg/kg	-	5.5	5	60 - 140	109
		Bromofluorobenzene (Surrogate)	mg/kg	-	5.0	5	60 - 140	100
LB109803.002	Monocyclic	Benzene	mg/kg	0.1	2.2	2.9	60 - 140	76
	Aromatic	Toluene	mg/kg	0.1	3.4	2.9	60 - 140	117
		Ethylbenzene	mg/kg	0.1	2.3	2.9	60 - 140	79
		m/p-xylene	mg/kg	0.2	4.7	5.8	60 - 140	81
		o-xylene	mg/kg	0.1	2.4	2.9	60 - 140	82
	Surrogates	Dibromofluoromethane (Surrogate)	mg/kg	-	4.5	5	60 - 140	90
		d4-1,2-dichloroethane (Surrogate)	mg/kg	-	4.5	5	60 - 140	90
		d8-toluene (Surrogate)	mg/kg	-	6.1	5	60 - 140	121
		Bromofluorobenzene (Surrogate)	mg/kg	-	4.9	5	60 - 140	98
LB109836.002	Monocyclic	Benzene	mg/kg	0.1	2.1	2.9	60 - 140	73
	Aromatic	Toluene	mg/kg	0.1	2.8	2.9	60 - 140	95
		Ethylbenzene	mg/kg	0.1	2.2	2.9	60 - 140	76
		m/p-xylene	mg/kg	0.2	4.6	5.8	60 - 140	79
		o-xylene	mg/kg	0.1	2.3	2.9	60 - 140	80
	Surrogates	Dibromofluoromethane (Surrogate)	mg/kg	-	4.1	5	60 - 140	82
		d4-1,2-dichloroethane (Surrogate)	mg/kg	-	4.0	5	60 - 140	81
		d8-toluene (Surrogate)	mg/kg	-	5.1	5	60 - 140	101
		Bromofluorobenzene (Surrogate)	mg/kg	-	5.1	5	60 - 140	101

Volatile Petroleum Hydrocarbons in Soil

Method: ME-(AU)-[ENV]AN433

Sample Number		Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB109802.002		TRH C6-C10	mg/kg	25	<25	24.65	60 - 140	89
		TRH C6-C9	mg/kg	20	<20	23.2	60 - 140	69
	Surrogates	Dibromofluoromethane (Surrogate)	mg/kg	-	4.6	5	60 - 140	91
		d4-1,2-dichloroethane (Surrogate)	mg/kg	-	4.6	5	60 - 140	91
		d8-toluene (Surrogate)	mg/kg	-	5.5	5	60 - 140	109
		Bromofluorobenzene (Surrogate)	mg/kg	-	5.0	5	60 - 140	100
	VPH F Bands	TRH C6-C10 minus BTEX (F1)	mg/kg	25	<25	7.25	60 - 140	109
LB109803.002		TRH C6-C10	mg/kg	25	<25	24.65	60 - 140	85
		TRH C6-C9	mg/kg	20	<20	23.2	60 - 140	71
	Surrogates	Dibromofluoromethane (Surrogate)	mg/kg	-	4.5	5	60 - 140	90
		d4-1,2-dichloroethane (Surrogate)	mg/kg	-	4.5	5	60 - 140	90
		d8-toluene (Surrogate)	mg/kg	-	6.1	5	60 - 140	121
		Bromofluorobenzene (Surrogate)	mg/kg	-	4.9	5	60 - 140	98
	VPH F Bands	TRH C6-C10 minus BTEX (F1)	mg/kg	25	<25	7.25	60 - 140	84
LB109836.002		TRH C6-C10	mg/kg	25	<25	24.65	60 - 140	76
		TRH C6-C9	mg/kg	20	<20	23.2	60 - 140	69
	Surrogates	Dibromofluoromethane (Surrogate)	mg/kg	-	4.1	5	60 - 140	82
		d4-1,2-dichloroethane (Surrogate)	mg/kg	-	4.0	5	60 - 140	81

Laboratory Control Standard (LCS) results are evaluated against an expected result, typically the concentration of analyte spiked into the control during the sample preparation stage, producing a percentage recovery. The criteria applied to the percentage recovery is established in the SGS QA /QC plan (Ref: MP-(AU)-[ENV]QU-022). For more information refer to the footnotes in the concluding page of this report.

Recovery is shown in **Green** when within suggested criteria or **Red** with an appended dagger symbol (†) when outside suggested criteria.

Volatile Petroleum Hydrocarbons in Soil (continued) — **Method: ME-(AU)-[ENV]AN433**

Sample Number		Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB109836.002	Surrogates	d8-toluene (Surrogate)	mg/kg	-	5.1	5	60 - 140	101
		Bromofluorobenzene (Surrogate)	mg/kg	-	5.1	5	60 - 140	101
	VPH F Bands	TRH C6-C10 minus BTEX (F1)	mg/kg	25	<25	7.25	60 - 140	65

Matrix Spike (MS) results are evaluated as the percentage recovery of an expected result, typically the concentration of analyte spiked into a field sub -sample during the sample preparation stage. The original sample's result is subtracted from the sub-sample result before determining the percentage recovery. The criteria applied to the percentage recovery is established in the SGS QA/QC plan (ref: MP-(AU)-[ENV]QU-022). For more information refer to the footnotes in the concluding page of this report.

Recovery is shown in **Green** when within suggested criteria or **Red** with an appended reason identifer when outside suggested criteria. Refer to the footnotes section at the end of this report for failure reasons.

Mercury in Soil

Method: ME-(AU)-[ENV]AN312

QC Sample	Sample Number	Parameter	Units	LOR	Result	Original	Spike	Recovery%
SE157066.001	LB109817.004	Mercury	mg/kg	0.05	0.21	0.08	0.2	65 ④
SE157066.020	LB109818.004	Mercury	mg/kg	0.05	0.18	<0.05	0.2	76

OC Pesticides in Soil

Method: ME-(AU)-[ENV]AN400/AN420

QC Sample	Sample Number		Parameter	Units	LOR	Original	Spike	Recovery%
SE157066.001	LB109805.029		Hexachlorobenzene (HCB)	mg/kg	0.1	<0.1	-	-
			Alpha BHC	mg/kg	0.1	<0.1	-	-
			Lindane	mg/kg	0.1	<0.1	-	-
			Heptachlor	mg/kg	0.1	<0.1	0.2	90
			Aldrin	mg/kg	0.1	<0.1	0.2	100
			Beta BHC	mg/kg	0.1	<0.1	-	-
			Delta BHC	mg/kg	0.1	<0.1	0.2	115
			Heptachlor epoxide	mg/kg	0.1	<0.1	-	-
			o,p'-DDE	mg/kg	0.1	<0.1	-	-
			Alpha Endosulfan	mg/kg	0.2	<0.2	-	-
			Gamma Chlordane	mg/kg	0.1	<0.1	-	-
			Alpha Chlordane	mg/kg	0.1	<0.1	-	-
			trans-Nonachlor	mg/kg	0.1	<0.1	-	-
			p,p'-DDE	mg/kg	0.1	<0.1	-	-
			Dieldrin	mg/kg	0.2	<0.2	0.2	90
			Endrin	mg/kg	0.2	<0.2	0.2	95
			o,p'-DDD	mg/kg	0.1	<0.1	-	-
			o,p'-DDT	mg/kg	0.1	<0.1	-	-
			Beta Endosulfan	mg/kg	0.2	<0.2	-	-
			p,p'-DDD	mg/kg	0.1	<0.1	-	-
			p,p'-DDT	mg/kg	0.1	<0.1	0.2	85
			Endosulfan sulphate	mg/kg	0.1	<0.1	-	-
			Endrin Aldehyde	mg/kg	0.1	<0.1	-	-
			Methoxychlor	mg/kg	0.1	<0.1	-	-
			Endrin Ketone	mg/kg	0.1	<0.1	-	-
			Isodrin	mg/kg	0.1	<0.1	-	-
			Mirex	mg/kg	0.1	<0.1	-	-
		Surrogates	Tetrachloro-m-xylene (TCMX) (Surrogate)	mg/kg	-	0.16	-	107
SE157066.023	LB109806.019		Hexachlorobenzene (HCB)	mg/kg	0.1	<0.1	-	-
			Alpha BHC	mg/kg	0.1	<0.1	-	-
			Lindane	mg/kg	0.1	<0.1	-	-
			Heptachlor	mg/kg	0.1	<0.1	0.2	95
			Aldrin	mg/kg	0.1	<0.1	0.2	115
			Beta BHC	mg/kg	0.1	<0.1	-	-
			Delta BHC	mg/kg	0.1	<0.1	0.2	120
			Heptachlor epoxide	mg/kg	0.1	<0.1	-	-
			o,p'-DDE	mg/kg	0.1	<0.1	-	-
			Alpha Endosulfan	mg/kg	0.2	<0.2	-	-
			Gamma Chlordane	mg/kg	0.1	<0.1	-	-
			Alpha Chlordane	mg/kg	0.1	<0.1	-	-
			trans-Nonachlor	mg/kg	0.1	<0.1	-	-
			p,p'-DDE	mg/kg	0.1	<0.1	-	-
			Dieldrin	mg/kg	0.2	<0.2	0.2	105
			Endrin	mg/kg	0.2	<0.2	0.2	105
			o,p'-DDD	mg/kg	0.1	<0.1	-	-
			o,p'-DDT	mg/kg	0.1	<0.1	-	-
			Beta Endosulfan	mg/kg	0.2	<0.2	-	-
			p,p'-DDD	mg/kg	0.1	<0.1	-	-
			p,p'-DDT	mg/kg	0.1	<0.1	0.2	95
			Endosulfan sulphate	mg/kg	0.1	<0.1	-	-
			Endrin Aldehyde	mg/kg	0.1	<0.1	-	-
			Methoxychlor	mg/kg	0.1	<0.1	-	-
			Endrin Ketone	mg/kg	0.1	<0.1	-	-
			Isodrin	mg/kg	0.1	<0.1	-	-
			Mirex	mg/kg	0.1	<0.1	-	-

Matrix Spike (MS) results are evaluated as the percentage recovery of an expected result, typically the concentration of analyte spiked into a field sub -sample during the sample preparation stage. The original sample's result is subtracted from the sub-sample result before determining the percentage recovery. The criteria applied to the percentage recovery is established in the SGS QA/QC plan (ref: MP-(AU)-[ENV]QU-022). For more information refer to the footnotes in the concluding page of this report.

Recovery is shown in **Green** when within suggested criteria or **Red** with an appended reason identifer when outside suggested criteria. Refer to the footnotes section at the end of this report for failure reasons.

OC Pesticides in Soil (continued)

Method: ME-(AU)-[ENV]AN400/AN420

QC Sample	Sample Number		Parameter	Units	LOR	Original	Spike	Recovery%
SE157066.023	LB109806.019	Surrogates	Tetrachloro-m-xylene (TCMX) (Surrogate)	mg/kg	-	0.17	-	113

OP Pesticides in Soil

Method: ME-(AU)-[ENV]AN400/AN420

QC Sample	Sample Number		Parameter	Units	LOR	Original	Spike	Recovery%
SE157066.002	LB109805.028		Dichlorvos	mg/kg	0.5	<0.5	2	93
			Dimethoate	mg/kg	0.5	<0.5	-	-
			Diazinon (Dimpylate)	mg/kg	0.5	<0.5	2	89
			Fenitrothion	mg/kg	0.2	<0.2	-	-
			Malathion	mg/kg	0.2	<0.2	-	-
			Chlorpyrifos (Chlorpyrifos Ethyl)	mg/kg	0.2	<0.2	2	100
			Parathion-ethyl (Parathion)	mg/kg	0.2	<0.2	-	-
			Bromophos Ethyl	mg/kg	0.2	<0.2	-	-
			Methidathion	mg/kg	0.5	<0.5	-	-
			Ethion	mg/kg	0.2	<0.2	2	99
			Azinphos-methyl (Guthion)	mg/kg	0.2	<0.2	-	-
		Surrogates	2-fluorobiphenyl (Surrogate)	mg/kg	-	0.4	-	84
			d14-p-terphenyl (Surrogate)	mg/kg	-	0.4	-	94
SE157066.023	LB109806.019		Dichlorvos	mg/kg	0.5	<0.5	2	93
			Dimethoate	mg/kg	0.5	<0.5	-	-
			Diazinon (Dimpylate)	mg/kg	0.5	<0.5	2	91
			Fenitrothion	mg/kg	0.2	<0.2	-	-
			Malathion	mg/kg	0.2	<0.2	-	-
			Chlorpyrifos (Chlorpyrifos Ethyl)	mg/kg	0.2	<0.2	2	85
			Parathion-ethyl (Parathion)	mg/kg	0.2	<0.2	-	-
			Bromophos Ethyl	mg/kg	0.2	<0.2	-	-
			Methidathion	mg/kg	0.5	<0.5	-	-
			Ethion	mg/kg	0.2	<0.2	2	101
			Azinphos-methyl (Guthion)	mg/kg	0.2	<0.2	-	-
		Surrogates	2-fluorobiphenyl (Surrogate)	mg/kg	-	0.4	-	72
			d14-p-terphenyl (Surrogate)	mg/kg	-	0.5	-	82

PAH (Polynuclear Aromatic Hydrocarbons) in Soil

Method: ME-(AU)-[ENV]AN420

QC Sample	Sample Number		Parameter	Units	LOR	Original	Spike	Recovery%
SE157066.002	LB109805.028		Naphthalene	mg/kg	0.1	<0.1	4	100
			2-methylnaphthalene	mg/kg	0.1	<0.1	-	-
			1-methylnaphthalene	mg/kg	0.1	<0.1	-	-
			Acenaphthylene	mg/kg	0.1	<0.1	4	96
			Acenaphthene	mg/kg	0.1	<0.1	4	101
			Fluorene	mg/kg	0.1	<0.1	-	-
			Phenanthrene	mg/kg	0.1	<0.1	4	100
			Anthracene	mg/kg	0.1	<0.1	4	101
			Fluoranthene	mg/kg	0.1	<0.1	4	104
			Pyrene	mg/kg	0.1	<0.1	4	106
			Benzo(a)anthracene	mg/kg	0.1	<0.1	-	-
			Chrysene	mg/kg	0.1	<0.1	-	-
			Benzo(b&j)fluoranthene	mg/kg	0.1	<0.1	-	-
			Benzo(k)fluoranthene	mg/kg	0.1	<0.1	-	-
			Benzo(a)pyrene	mg/kg	0.1	<0.1	4	99
			Indeno(1,2,3-cd)pyrene	mg/kg	0.1	<0.1	-	-
			Dibenzo(ah)anthracene	mg/kg	0.1	<0.1	-	-
			Benzo(ghi)perylene	mg/kg	0.1	<0.1	-	-
			Carcinogenic PAHs, BaP TEQ <LOR=0	TEQ	0.2	<0.2	-	-
			Carcinogenic PAHs, BaP TEQ <LOR=LOR	TEQ (mg/kg)	0.3	<0.3	-	-
			Carcinogenic PAHs, BaP TEQ <LOR=LOR/2	TEQ (mg/kg)	0.2	<0.2	-	-
			Total PAH (18)	mg/kg	0.8	<0.8	-	-
		Surrogates	d5-nitrobenzene (Surrogate)	mg/kg	-	0.4	-	86
			2-fluorobiphenyl (Surrogate)	mg/kg	-	0.4	-	84
			d14-p-terphenyl (Surrogate)	mg/kg	-	0.4	-	94
SE157066.023	LB109806.019		Naphthalene	mg/kg	0.1	<0.1	4	106
			2-methylnaphthalene	mg/kg	0.1	<0.1	-	-
			1-methylnaphthalene	mg/kg	0.1	<0.1	-	-
			Acenaphthylene	mg/kg	0.1	<0.1	4	103

Matrix Spike (MS) results are evaluated as the percentage recovery of an expected result, typically the concentration of analyte spiked into a field sub -sample during the sample preparation stage. The original sample's result is subtracted from the sub-sample result before determining the percentage recovery. The criteria applied to the percentage recovery is established in the SGS QA/QC plan (ref: MP-(AU)-[ENV]QU-022). For more information refer to the footnotes in the concluding page of this report.

Recovery is shown in **Green** when within suggested criteria or **Red** with an appended reason identifer when outside suggested criteria. Refer to the footnotes section at the end of this report for failure reasons.

PAH (Polynuclear Aromatic Hydrocarbons) in Soil (continued)

Method: ME-(AU)-[ENV]AN420

QC Sample	Sample Number		Parameter	Units	LOR	Original	Spike	Recovery%
SE157066.023	LB109806.019		Acenaphthene	mg/kg	0.1	<0.1	4	105
			Fluorene	mg/kg	0.1	<0.1	-	-
			Phenanthrene	mg/kg	0.1	<0.1	4	109
			Anthracene	mg/kg	0.1	<0.1	4	109
			Fluoranthene	mg/kg	0.1	<0.1	4	111
			Pyrene	mg/kg	0.1	<0.1	4	106
			Benzo(a)anthracene	mg/kg	0.1	<0.1	-	-
			Chrysene	mg/kg	0.1	<0.1	-	-
			Benzo(b&j)fluoranthene	mg/kg	0.1	<0.1	-	-
			Benzo(k)fluoranthene	mg/kg	0.1	<0.1	-	-
			Benzo(a)pyrene	mg/kg	0.1	<0.1	4	120
			Indeno(1,2,3-cd)pyrene	mg/kg	0.1	<0.1	-	-
			Dibenzo(ah)anthracene	mg/kg	0.1	<0.1	-	-
			Benzo(ghi)perylene	mg/kg	0.1	<0.1	-	-
			Carcinogenic PAHs, BaP TEQ <LOR=0	TEQ	0.2	<0.2	-	-
			Carcinogenic PAHs, BaP TEQ <LOR=LOR	TEQ (mg/kg)	0.3	<0.3	-	-
			Carcinogenic PAHs, BaP TEQ <LOR=LOR/2	TEQ (mg/kg)	0.2	<0.2	-	-
			Total PAH (18)	mg/kg	0.8	<0.8	-	-
		Surrogates	d5-nitrobenzene (Surrogate)	mg/kg	-	0.4	-	70
			2-fluorobiphenyl (Surrogate)	mg/kg	-	0.4	-	72
			d14-p-terphenyl (Surrogate)	mg/kg	-	0.5	-	82

Total Phenolics in Soil

Method: ME-(AU)-[ENV]AN289

QC Sample	Sample Number	Parameter	Units	LOR	Result	Original	Spike	Recovery%
SE157066.016	LB109905.021	Total Phenols	mg/kg	0.1	2.2	<0.1	2.5	86
SE157066.032	LB109907.021	Total Phenols	mg/kg	0.1	2.2	<0.1	2.5	86

Total Recoverable Metals in Soil/Waste Solids/Materials by ICPOES

Method: ME-(AU)-[ENV]AN040/AN320

QC Sample	Sample Number	Parameter	Units	LOR	Result	Original	Spike	Recovery%
SE157066.020	LB109812.004	Arsenic, As	mg/kg	3	51	13	50	77
		Cadmium, Cd	mg/kg	0.3	41	0.4	50	82
		Chromium, Cr	mg/kg	0.3	56	20	50	72
		Copper, Cu	mg/kg	0.5	56	15	50	81
		Lead, Pb	mg/kg	1	82	47	50	69 ⑨
		Nickel, Ni	mg/kg	0.5	51	12	50	77
		Zinc, Zn	mg/kg	0.5	150	120	50	58 ⑨
SE157066.027	LB109852.004	Arsenic, As	mg/kg	3	38	4	50	69 ④
		Cadmium, Cd	mg/kg	0.3	39	<0.3	50	77
		Chromium, Cr	mg/kg	0.3	62	46	50	31 ⑨
		Copper, Cu	mg/kg	0.5	48	10	50	75
		Lead, Pb	mg/kg	1	48	16	50	65 ⑨
		Nickel, Ni	mg/kg	0.5	44	6.6	50	74
		Zinc, Zn	mg/kg	0.5	59	21	50	76

TRH (Total Recoverable Hydrocarbons) in Soil

Method: ME-(AU)-[ENV]AN403

QC Sample	Sample Number		Parameter	Units	LOR	Result	Original	Spike	Recovery%
SE157065.001	LB109805.026		TRH C10-C14	mg/kg	20		<20	40	90
			TRH C15-C28	mg/kg	45		<45	40	88
			TRH C29-C36	mg/kg	45		<45	40	93
			TRH C37-C40	mg/kg	100		<100	-	-
			TRH C10-C36 Total	mg/kg	110		<110	-	-
			TRH C10-C40 Total	mg/kg	210		<210	-	-
		TRH F Bands	TRH >C10-C16 (F2)	mg/kg	25		<25	40	88
			TRH >C10-C16 (F2) - Naphthalene	mg/kg	25		<25	-	-
			TRH >C16-C34 (F3)	mg/kg	90		<90	40	95
			TRH >C34-C40 (F4)	mg/kg	120		<120	-	-
SE157066.023	LB109806.019		TRH C10-C14	mg/kg	20	38	<20	40	95
			TRH C15-C28	mg/kg	45	<45	<45	40	90
			TRH C29-C36	mg/kg	45	<45	<45	40	80
			TRH C37-C40	mg/kg	100	<100	<100	-	-
			TRH C10-C36 Total	mg/kg	110	<110	<110	-	-

Matrix Spike (MS) results are evaluated as the percentage recovery of an expected result, typically the concentration of analyte spiked into a field sub -sample during the sample preparation stage. The original sample's result is subtracted from the sub-sample result before determining the percentage recovery. The criteria applied to the percentage recovery is established in the SGS QA/QC plan (ref: MP-(AU)-[ENV]QU-022). For more information refer to the footnotes in the concluding page of this report.

Recovery is shown in **Green** when within suggested criteria or **Red** with an appended reason identifer when outside suggested criteria. Refer to the footnotes section at the end of this report for failure reasons.

TRH (Total Recoverable Hydrocarbons) in Soil (continued)

Method: ME-(AU)-[ENV]AN403

QC Sample	Sample Number		Parameter	Units	LOR	Result	Original	Spike	Recovery%
SE157066.023	LB109806.019		TRH C10-C40 Total	mg/kg	210	<210	<210	-	-
		TRH F Bands	TRH >C10-C16 (F2)	mg/kg	25	38	<25	40	95
			TRH >C10-C16 (F2) - Naphthalene	mg/kg	25	38	<25	-	-
			TRH >C16-C34 (F3)	mg/kg	90	<90	<90	40	88
			TRH >C34-C40 (F4)	mg/kg	120	<120	<120	-	-

VOC's in Soil

Method: ME-(AU)-[ENV]AN433

QC Sample	Sample Number		Parameter	Units	LOR	Result	Original	Spike	Recovery%
SE157051.001	LB109803.004	Monocyclic	Benzene	mg/kg	0.1	1.8	0.01	2.9	62
		Aromatic	Toluene	mg/kg	0.1	2.3	0.03	2.9	78
			Ethylbenzene	mg/kg	0.1	1.9	0.01	2.9	65
			m/p-xylene	mg/kg	0.2	4.0	0.05	5.8	68
			o-xylene	mg/kg	0.1	2.1	0.02	2.9	71
		Polycyclic	Naphthalene	mg/kg	0.1	<0.1	0.02	-	-
		Surrogates	Dibromofluoromethane (Surrogate)	mg/kg	-	3.6	3.74	-	72
			d4-1,2-dichloroethane (Surrogate)	mg/kg	-	3.8	3.88	-	76
			d8-toluene (Surrogate)	mg/kg	-	4.6	3.58	-	92
			Bromofluorobenzene (Surrogate)	mg/kg	-	5.1	4.48	-	101
		Totals	Total Xylenes*	mg/kg	0.3	6.1	0.07	-	-
			Total BTEX	mg/kg	0.6	12	0.12	-	-
SE157065.001	LB109802.004	Monocyclic	Benzene	mg/kg	0.1	2.2	<0.1	2.9	76
		Aromatic	Toluene	mg/kg	0.1	2.2	<0.1	2.9	73
			Ethylbenzene	mg/kg	0.1	2.3	<0.1	2.9	77
			m/p-xylene	mg/kg	0.2	4.7	<0.2	5.8	80
			o-xylene	mg/kg	0.1	2.4	<0.1	2.9	81
		Polycyclic	Naphthalene	mg/kg	0.1	<0.1	<0.1	-	-
		Surrogates	Dibromofluoromethane (Surrogate)	mg/kg	-	4.2	4.3	-	83
			d4-1,2-dichloroethane (Surrogate)	mg/kg	-	4.1	4.4	-	83
			d8-toluene (Surrogate)	mg/kg	-	4.9	5.5	-	98
			Bromofluorobenzene (Surrogate)	mg/kg	-	4.6	5.0	-	92
		Totals	Total Xylenes*	mg/kg	0.3	7.0	<0.3	-	-
			Total BTEX	mg/kg	0.6	14	<0.6	-	-
SE157066.027	LB109836.004	Monocyclic	Benzene	mg/kg	0.1	1.8	<0.1	2.9	63
		Aromatic	Toluene	mg/kg	0.1	2.2	<0.1	2.9	74
			Ethylbenzene	mg/kg	0.1	2.1	<0.1	2.9	72
			m/p-xylene	mg/kg	0.2	4.4	<0.2	5.8	76
			o-xylene	mg/kg	0.1	2.3	<0.1	2.9	79
		Polycyclic	Naphthalene	mg/kg	0.1	<0.1	<0.1	-	-
		Surrogates	Dibromofluoromethane (Surrogate)	mg/kg	-	3.8	3.8	-	76
			d4-1,2-dichloroethane (Surrogate)	mg/kg	-	3.7	4.0	-	75
			d8-toluene (Surrogate)	mg/kg	-	4.5	4.6	-	91
			Bromofluorobenzene (Surrogate)	mg/kg	-	5.8	4.9	-	115
		Totals	Total Xylenes*	mg/kg	0.3	6.7	<0.3	-	-
			Total BTEX	mg/kg	0.6	13	<0.6	-	-

Volatile Petroleum Hydrocarbons in Soil

Method: ME-(AU)-[ENV]AN433

QC Sample	Sample Number		Parameter	Units	LOR	Result	Original	Spike	Recovery%
SE157051.001	LB109803.004		TRH C6-C10	mg/kg	25	<25	0.46	24.65	82
			TRH C6-C9	mg/kg	20	<20	0.37	23.2	84
		Surrogates	Dibromofluoromethane (Surrogate)	mg/kg	-	3.6	3.74	-	72
			d4-1,2-dichloroethane (Surrogate)	mg/kg	-	3.8	3.88	-	76
			d8-toluene (Surrogate)	mg/kg	-	4.6	3.58	-	92
			Bromofluorobenzene (Surrogate)	mg/kg	-	5.1	4.48	-	101
		VPH F	Benzene (F0)	mg/kg	0.1	1.8	0.01	-	-
		Bands	TRH C6-C10 minus BTEX (F1)	mg/kg	25	<25	0.34	7.25	112
SE157065.001	LB109802.004		TRH C6-C10	mg/kg	25	<25	<25	24.65	83
			TRH C6-C9	mg/kg	20	<20	<20	23.2	64
		Surrogates	Dibromofluoromethane (Surrogate)	mg/kg	-	4.2	4.3	-	83
			d4-1,2-dichloroethane (Surrogate)	mg/kg	-	4.1	4.4	-	83
			d8-toluene (Surrogate)	mg/kg	-	4.9	5.5	-	98
			Bromofluorobenzene (Surrogate)	mg/kg	-	4.6	5.0	-	92
		VPH F	Benzene (F0)	mg/kg	0.1	2.2	<0.1	-	-

Matrix Spike (MS) results are evaluated as the percentage recovery of an expected result, typically the concentration of analyte spiked into a field sub -sample during the sample preparation stage. The original sample's result is subtracted from the sub-sample result before determining the percentage recovery. The criteria applied to the percentage recovery is established in the SGS QA/QC plan (ref: MP-(AU)-[ENV]QU-022). For more information refer to the footnotes in the concluding page of this report.

Recovery is shown in **Green** when within suggested criteria or **Red** with an appended reason identifer when outside suggested criteria. Refer to the footnotes section at the end of this report for failure reasons.

Volatile Petroleum Hydrocarbons in Soil (continued) — **Method: ME-(AU)-[ENV]AN433**

QC Sample	Sample Number		Parameter	Units	LOR	Result	Original	Spike	Recovery%
SE157065.001	LB109802.004	VPH F	TRH C6-C10 minus BTEX (F1)	mg/kg	25	<25	<25	7.25	94
SE157066.027	LB109836.004		TRH C6-C10	mg/kg	25	<25	<25	24.65	77
			TRH C6-C9	mg/kg	20	<20	<20	23.2	69
		Surrogates	Dibromofluoromethane (Surrogate)	mg/kg	-	3.8	3.8	-	76
			d4-1,2-dichloroethane (Surrogate)	mg/kg	-	3.7	4.0	-	75
			d8-toluene (Surrogate)	mg/kg	-	4.5	4.6	-	91
			Bromofluorobenzene (Surrogate)	mg/kg	-	5.8	4.9	-	115
		VPH F	Benzene (F0)	mg/kg	0.1	1.8	<0.1	-	-
		Bands	TRH C6-C10 minus BTEX (F1)	mg/kg	25	<25	<25	7.25	85

MATRIX SPIKE DUPLICATES

SE157066 R0

Matrix spike duplicates are calculated as Relative Percent Difference (RPD) using the formula: RPD = | OriginalResult - ReplicateResult | x 100 / Mean

The original result is the analyte concentration of the matrix spike. The Duplicate result is the analyte concentration of the matrix spike duplicate.

The RPD is evaluated against the Maximum Allowable Difference (MAD) criteria and can be graphically represented by a curve calculated from the Statistical Detection Limit (SDL) and Limiting Repeatability (LR) using the formula: MAD = 100 x SDL / Mean + LR

Where the Maximum Allowable Difference evaluates to a number larger than 200 it is displayed as 200.

RPD is shown in **Green** when within suggested criteria or **Red** with an appended reason identifer when outside suggested criteria. Refer to the footnotes section at the end of this report for failure reasons.

No matrix spike duplicates were required for this job.

Samples analysed as received.

Solid samples expressed on a dry weight basis.

QC criteria are subject to internal review according to the SGS QA/QC plan and may be provided on request or alternatively can be found here: http://www.sgs.com.au/~/media/Local/Australia/Documents/Technical Documents/MP-AU-ENV-QU-022 QA QC Plan.pdf

*	NATA accreditation does not cover tthe performance of this service.
-	Sample not analysed for this analyte.
IS	Insufficient sample for analysis.
LNR	Sample listed, but not received.
LOR	Limit of reporting.
QFH	QC result is above the upper tolerance.
QFL	QC result is below the lower tolerance.
①	At least 2 of 3 surrogates are within acceptance criteria.
②	RPD failed acceptance criteria due to sample heterogeneity.
③	Results less than 5 times LOR preclude acceptance criteria for RPD.
④	Recovery failed acceptance criteria due to matrix interference.
⑤	Recovery failed acceptance criteria due to the presence of significant concentration of analyte (i.e. the concentration of analyte exceeds the spike level).
⑥	LOR was raised due to sample matrix interference.
⑦	LOR was raised due to dilution of significantly high concentration of analyte in sample.
⑧	Reanalysis of sample in duplicate confirmed sample heterogeneity and inconsistency of results.
⑨	Recovery failed acceptance criteria due to sample heterogeneity.
⑩	LOR was raised due to high conductivity of the sample (required dilution).
†	Refer to Analytical Report comments for further information.

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source: M630_SR_20160914193427.pdf page: 1 SGS Ref: SE157067_COC

COC received 13/9/16 @ 1:38pm

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CHAIN OF CUSTODY & ANALYSIS REQUEST

SGS Environmental Services
Unit 16, 33 Maddox Street
Alexandria NSW 2015
Telephone No: (02) 85940400
Facsimile No: (02) 85940499
Email: au.samplereceipt.sydney@sgs.com

Company Name:	SMEC	Project Name/No:	3002523 – Canberra Brickworks
Address:	Suite 2, Level 1, 243 Northbourne Avenue, Lyneham, ACT, 2602, Australia	Purchase Order No:	
		Results Required By:	Ryan O'Leary
Contact Name:	Ryan O'Leary	Telephone:	+61 2 6234 1963 / 0400 240 023
		Facsimile:	
		Email Results:	Ryan.O'Leary@smec.com

Client Sample ID	Date Sampled	Lab Sample ID	WATER	SOIL		NO OF CONTAINERS	Asbestos ID	BTEXN	OPPs	OCPs	PHAs/Phenols	8 Metals - As, Cd, Cr, Cu, Ni, Pb, Zn, Hg	TPH/TRH	On Hold									
TP2_0.1	06 -09-16	1		✓		1 bag	✓																
TP3_0.1	06 -09-16	2		✓		1 bag	✓																
TP4_0.2	06 -09-16	3		✓		1 bag	✓																
TP5_0.5	06 -09-16	4		✓		1 bag	✓																
TP7	06 -09-16	5		✓		1 bag	✓																
TP9_0.1	06 -09-16	6		✓		1 bag	✓																
TP10_0.15	06 -09-16	7		✓		1 bag	✓																
TP21	06 -09-16	8		✓		1 bag	✓																

SGS EHS Alexandria Laboratory
SE157067 COC
Received: 12 – Sep – 2016

Relinquished By: Michelle Cook	Date/Time: 13/09/16 3:45pm	Received By:	Date/Time
Relinquished By:	Date/Time:	Received By: Darren	Date/Time 12/9/16 @ 10:45
Samples Intact: (Yes) No	Temperature: Ambient / (Chilled)	Sample Cooler Sealed: Yes/ No	Laboratory Quotation No:
	Comments: AS PER SGS QUOTE NUMBER SY1 – 60413 – 2-IS DATED 13TH APRIL 2016	**STANDARD TAT PLEASE (5 DAY)**	

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CHAIN OF CUSTODY & ANALYSIS REQUEST

SGS Environmental Services
Unit 16, 33 Maddox Street
Alexandria NSW 2015
Telephone No: (02) 85940400
Facsimile No: (02) 85940499
Email: au.samplereceipt.sydney@sgs.com

Company Name:	SMEC	Project Name/No:	3002523 – Canberra Brickworks
Address:	Suite 2, Level 1, 243 Northbourne Avenue, Lyneham, ACT, 2602, Australia	Purchase Order No:	
		Results Required By:	Ryan O'Leary
		Telephone:	+61 2 6234 1963 / 0400 240 023
Contact Name:	Ryan O'Leary	Facsimile:	
		Email Results:	Ryan.O'Leary@smec.com

Client Sample ID	Date Sampled	Lab Sample ID	WATER	SOIL		NO OF CONTAINERS	Asbestos ID	BTEXN	OPPs	OCPs	PHAs/Phenols	8 Metals - As, Cd, Cr, Cu, Ni, Pb, Zn, Hg	TPH/TRH	On Hold								
TP21	06 -09-16	9		✓		1 bag	✓															
TP38_1.3-1.4	06 -09-16	10 9		✓		1 bag	✓															
TR3_0.15	06 -09-16	10		✓		1 bag	✓															
TR3	06 -09-16			✓		1 bag								✓								
TP13_0.1	07-09-16	11		✓		1 bag	✓															
TP15_0.1	07-09-16	12		✓		1 bag	✓															
TP16_0.1	07-09-16	13		✓		1 bag	✓															
TP24_0.1	07-09-16	14		✓		1 bag	✓															

Relinquished By: Natalie Cook	Date/Time: 13/09/16 5:45 pm	Received By:	Date/Time
Relinquished By:	Date/Time:	Received By:	Date/Time 12/9/16 @ 10:45
Samples Intact: (Yes)/ No	Temperature: Ambient / (Chilled)	Sample Cooler Sealed: Yes/ No	Laboratory Quotation No:
	Comments: AS PER SGS QUOTE NUMBER SY1 – 60413 – 2-IS DATED 13TH APRIL 2016	**STANDARD TAT PLEASE (5 DAY)**	

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Company Name:	SMEC	Project Name/No:	3002523 – Canberra Brickworks
Address:	Suite 2, Level 1, 243 Northbourne Avenue, Lyneham, ACT, 2602, Australia	Purchase Order No:	
		Results Required By:	Ryan O'Leary
Contact Name:	Ryan O'Leary	Telephone:	+61 2 6234 1963 / 0400 240 023
		Facsimile:	
		Email Results:	Ryan.O'Leary@smec.com

Client Sample ID	Date Sampled	Lab Sample ID	WATER	SOIL		NO OF CONTAINERS	Asbestos ID	BTEXN	OPPs	OCPs	PHAs/Phenols	8 Metals - As, Cd, Cr, Cu, Ni, Pb, Zn, Hg	TPH/TRH	On Hold								
TP25_0-0.1	07-09-16	15		✓		1 bag	✓															
TP28_0.1	07-09-16	16		✓		1 bag	✓															
TP34A_0.1	07-09-16	17		✓		1 bag	✓															
TP38_0.1-0.2	07-09-16	18		✓		1 bag	✓															
TP38_0.7-0.8	07-09-16			✓		1 bag								✓								
TP40_0.7-0.8	07-09-16	19		✓		1 bag	✓															
TP41_0.05-0.15	07-09-16			✓		1 bag								✓								
TP41_1.3-1.4	07-09-16	20		✓		1 bag	✓															

Relinquished By:	Date/Time: 13/09/16 5:45pm	Received By:	Date/Time
Relinquished By:	Date/Time:	Received By:	Date/Time 12/9/16 @ 10:45
Samples Intact: Yes/ No	Temperature: Ambient / Chilled	Sample Cooler Sealed: Yes/ No	Laboratory Quotation No:
	Comments: AS PER SGS QUOTE NUMBER SY1 – 60413 – 2-IS DATED 13TH APRIL 2016	**STANDARD TAT PLEASE (5 DAY)**	

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Company Name:	SMEC	Project Name/No:	3002523 – Canberra Brickworks
Address:	Suite 2, Level 1, 243 Northbourne Avenue, Lyneham,	Purchase Order No:	
	ACT, 2602, Australia	Results Required By:	Ryan O'Leary
		Telephone:	+61 2 6234 1963 / 0400 240 023
Contact Name:	Ryan O'Leary	Facsimile:	
		Email Results:	Ryan.O'Leary@smec.com

Client Sample ID	Date Sampled	Lab Sample ID	WATER	SOIL		NO OF CONTAINERS	Asbestos ID	BTEXN	OPPs	OCPs	PHAs/Phenols	8 Metals - As, Cd, Cr, Cu, Ni, Pb, Zn, Hg	TPH/TRH	On Hold								
TP45_1.3-1.4	07-09-16	21		✓		1 bag	✓															
TP46_0.1-0.2	07-09-16	22		✓		1 bag	✓															
TP46_0.4-0.5	07-09-16			✓		1 bag								✓								
TP55_0-0.1	07-09-16			✓		1 bag								✓								
TP55_1.2-1.3	07-09-16	23		✓		1 bag	✓															
TP56_0.1-0.2	07-09-16	24		✓		1 bag	✓															
TP56_1.1-1.2	07-09-16			✓		1 bag								✓								
TP57_0-0.1	07-09-16	25		✓		1 bag	✓															

Relinquished By: Natasha Cook	Date/Time: 13/09/16 3:45pm	Received By:	Date/Time
Relinquished By:	Date/Time:	Received By:	Date/Time 13/9/16 @ 10:45
Samples Intact: Yes/ No	Temperature: Ambient / Chilled	Sample Cooler Sealed: Yes/ No	Laboratory Quotation No:
	Comments: AS PER SGS QUOTE NUMBER SY1 – 60413 – 2-IS DATED 13TH APRIL 2016	**STANDARD TAT PLEASE (5 DAY)**	

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Facsimile No: (02) 85940499
Email: au.samplereceipt.sydney@sgs.com

Company Name: SMEC
Address: Suite 2, Level 1, 243 Northbourne Avenue, Lyneham, ACT, 2602, Australia
Contact Name: Ryan O'Leary

Project Name/No: 3002523 – Canberra Brickworks
Purchase Order No:
Results Required By: Ryan O'Leary
Telephone: +61 2 6234 1963 / 0400 240 023
Facsimile:
Email Results: Ryan.O'Leary@smec.com

Client Sample ID	Date Sampled	Lab Sample ID	WATER	SOIL		NO OF CONTAINERS	Asbestos ID	BTEXN	OPPs	OCPs	PHAs/Phenols	8 Metals - As, Cd, Cr, Cu, Ni, Pb, Zn, Hg	TPH/TRH	On Hold									
TP14	08-09-16	26		✓		1 bag	✓																
TP43	08-09-16	27		✓		1 bag	✓																
TP29	08-09-16	28		✓		1 bag	✓																
TP27	08-09-16	29		✓		1 bag	✓																
TP12	08-09-16	30		✓		1 bag	✓																
TP44	08-09-16	31		✓		1 bag	✓																
TP23	08-09-16	32		✓		1 bag	✓																
TP18	08-09-16	33		✓		1 bag	✓																

Relinquished By: [signature]
Date/Time: 13/09/16 3:45pm
Received By:
Date/Time

Relinquished By:
Date/Time:
Received By: [signature]
Date/Time 12/9/16 @ 10:45

Samples Intact: (Yes)/ No
Temperature: Ambient / (Chilled)
Sample Cooler Sealed: Yes/ No
Laboratory Quotation No:

Comments: AS PER SGS QUOTE NUMBER SY1 – 60413 – 2-IS DATED 13TH APRIL 2016

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Email: au.samplereceipt.sydney@sgs.com

Company Name:	SMEC	Project Name/No:	3002523 – Canberra Brickworks
Address:	Suite 2, Level 1, 243 Northbourne Avenue, Lyneham, ACT, 2602, Australia	Purchase Order No:	
		Results Required By:	Ryan O'Leary
		Telephone:	+61 2 6234 1963 / 0400 240 023
Contact Name:	Ryan O'Leary	Facsimile:	
		Email Results:	Ryan.O'Leary@smec.com

Client Sample ID	Date Sampled	Lab Sample ID	WATER	SOIL		NO OF CONTAINERS	Asbestos ID	BTEXN	OPPs	OCPs	PHAs/Phenols	8 Metals - As, Cd, Cr, Cu, Ni, Pb, Zn, Hg	TPH/TRH	On Hold								
TP59	08-09-16	~~35~~ 34		✓		1 bag	✓															
BH01_0.15-0.2	08-09-16			✓		1 bag								✓								
TP58	08-09-16	~~36~~ 35		✓		1 bag	✓															
QC4	08-09-16	~~37~~ 36		✓		1 bag	✓															
TP23_0.05-0.15	08-09-16	~~38~~ 37		✓		1 bag	✓															
TP26	08-09-16	~~39~~ 38		✓		1 bag	✓															
TP54	08-09-16	40 39		✓		1 bag	✓															
TP31	08-09-16	41 40		✓		1 bag	✓															

Relinquished By: Nicole Cook	Date/Time: 13/09/16 3:45pm	Received By:	Date/Time
Relinquished By:	Date/Time:	Received By: courier	Date/Time 12/9/16 @ 10:45
Samples Intact: Yes/ No	Temperature: Ambient / Chilled	Sample Cooler Sealed: Yes/ No	Laboratory Quotation No:

Comments: AS PER SGS QUOTE NUMBER SY1 – 60413 – 2-IS DATED 13TH APRIL 2016

STANDARD TAT PLEASE (5 DAY)

SGS

CHAIN OF CUSTODY & ANALYSIS REQUEST

SGS Environmental Services
Unit 16, 33 Maddox Street
Alexandria NSW 2015
Telephone No: (02) 85940400
Facsimile No: (02) 85940499
Email: au.samplereceipt.sydney@sgs.com

Company Name: SMEC
Address: Suite 2, Level 1, 243 Northbourne Avenue, Lyneham, ACT, 2602, Australia
Contact Name: Ryan O'Leary

Project Name/No: 3002523 – Canberra Brickworks
Purchase Order No:
Results Required By: Ryan O'Leary
Telephone: +61 2 6234 1963 / 0400 240 023
Facsimile:
Email Results: Ryan.O'Leary@smec.com

Client Sample ID	Date Sampled	Lab Sample ID	WATER	SOIL		NO OF CONTAINERS	Asbestos ID	BTEXN	OPPs	OCPs	PHAs/Phenols	8 Metals - As, Cd, Cr, Cu, Ni, Pb, Zn, Hg	TPH/TRH	On Hold								
BH01_2-2.1	08-09-16	42 41		✓		1 bag	✓															
TP50	08-09-16	43 42		✓		1 bag	✓															
BH10	08-09-16	44 43		✓		1 bag	✓															
BH01_0.36-0.46	08-09-16			✓		1 bag								✓								
TP63	08-09-16	45 44		✓		1 bag	✓															
TP51	08-09-16	46 45		✓		1 bag	✓															
TP30	08-09-16	47 46		✓		1 bag	✓															
QC2	08-09-16	48 47		✓		1 bag	✓															

Relinquished By: Nicholas Crook	Date/Time: 12/09/16 3:47pm	Received By:	Date/Time
Relinquished By:	Date/Time:	Received By:	Date/Time 12/9/16 @ 10:45
Samples Intact: Yes/ No	Temperature: Ambient / Chilled	Sample Cooler Sealed: Yes/ No	Laboratory Quotation No:
	Comments: AS PER SGS QUOTE NUMBER SY1 – 60413 – 2-IS DATED 13TH APRIL 2016	**STANDARD TAT PLEASE (5 DAY)**	

SGS

CHAIN OF CUSTODY & ANALYSIS REQUEST

SGS Environmental Services
Unit 16, 33 Maddox Street
Alexandria NSW 2015
Telephone No: (02) 85940400
Facsimile No: (02) 85940499
Email: au.samplereceipt.sydney@sgs.com

Company Name:	SMEC	Project Name/No:	3002523 – Canberra Brickworks
Address:	Suite 2, Level 1, 243 Northbourne Avenue, Lyneham, ACT, 2602, Australia	Purchase Order No:	
		Results Required By:	Ryan O'Leary
		Telephone:	+61 2 6234 1963 / 0400 240 023
Contact Name:	Ryan O'Leary	Facsimile:	
		Email Results:	Ryan.O'Leary@smec.com

Client Sample ID	Date Sampled	Lab Sample ID	WATER	SOIL		NO OF CONTAINERS	Asbestos ID	BTEXN	OPPs	OCPs	PHAs/Phenols	8 Metals - As, Cd, Cr, Cu, Ni, Pb, Zn, Hg	TPH/TRH	On Hold								
TP30	08-09-16			✓		1 bag	✓															
TP40.2	08-09-16	49 48		✓		1 bag	✓															
TP32	08-09-16	8049.		✓		1 bag	✓															

Relinquished By: Stephanie Leith	Date/Time: 13/09/16 3.41pm	Received By:	Date/Time
Relinquished By:	Date/Time:	Received By:	Date/Time 12/9/16 @ 10:45
Samples Intact: Yes/ No	Temperature: Ambient / Chilled	Sample Cooler Sealed: Yes/ No	Laboratory Quotation No:
	Comments: AS PER SGS QUOTE NUMBER SY1 – 60413 – 2-IS DATED 13TH APRIL 2016	**STANDARD TAT PLEASE (5 DAY)**	

AU.SampleReceipt.Sydney (Sydney)

From: AU.SampleReceipt.Sydney (Sydney)
Sent: Wednesday, 14 September 2016 5:12 PM
To: 'Crook, Natasha'
Subject: RE: SMEC - 3002092 response to extra samples
Attachments: SE157066_COC.pdf; SE157067_COC.pdf

Dear Natasha,

Jar samples-Will be added to SE157066

- TP36_0.2-0.3 – Analyse (BTEXN/OPPs/OCPs/PHA/Phenols/8Metals/TPH/TRH)
- TP50_0.2-0.3 – Analyse (BTEXN/OPPs/OCPs/PHA/Phenols/8Metals/TPH/TRH)
- TP58_0.05-0.15 – Analyse (BTEXN/OPPs/OCPs/PHA/Phenols/8Metals/TPH/TRH)
- TP59_0.2-0.3 – Analyse (BTEXN/OPPs/OCPs/PHA/Phenols/8Metals/TPH/TRH)
- QC2 – Analyse (BTEXN/OPPs/OCPs/PHA/Phenols/8Metals/TPH/TRH)
- QC3 – Analyse (BTEXN/OPPs/OCPs/PHA/Phenols/8Metals/TPH/TRH)

PHA will be analysed as PAH.

Bag samples – Will be added to SE157067 – Samples with red dots are just duplication of samples on COC

- TP17_0.1-0.15 – On Hold
- TP36_0.05-0.15 – On Hold
- TP57_0.3-0.4 – Analyse (BTEXN/OPPs/OCPs/PHA/Phenols/8Metals/TPH/TRH)-only Asbestos will be done
- TP57 – Analyse for Asbestos only
- TP57_0.7-0.8 – On Hold

Kind Regards,

Emily Yin
Environmental Services
Sample Administration Officer

Phone: +61 (0)2 8594 0400
Fax: +61 (0)2 8594 0499

From: Crook, Natasha [mailto:Natasha.Crook@smec.com]
Sent: Wednesday, 14 September 2016 4:51 PM
To: AU.SampleReceipt.Sydney (Sydney)
Subject: RE: SMEC - 3002092 response to extra samples

Hi Emily,
If the sample is only a bag, then it should only be analyse for Asbestos. If so then could you analyse the TP57_0.7-0.8 for (BTEXN/OPPs/OCPs/PHA/Phenols/8Metals/TPH/TRH) instead and put TP57 on hold please.
Hope this makes sense
Thanks
Natasha

Natasha Crook | Graduate Scientist
SMEC – Australia & New Zealand Division
T +61 2 6234 1946

From: AU.SampleReceipt.Sydney (Sydney) [mailto:AU.SampleReceipt.Sydney@sgs.com]
Sent: Wednesday, 14 September 2016 4:47 PM

SAMPLE RECEIPT ADVICE

SE157067

CLIENT DETAILS

Contact	Ryan O'Leary
Client	SMEC AUSTRALIA PTY LTD
Address	Sun Micro Building Suite 2, Level 1 243 Northbourne Avenue ACT 2602
Telephone	02 6234 1963
Facsimile	02 6234 1966
Email	Ryan.O'Leary@smec.com
Project	**3002523 - Canberra Brickworks- Asbestos**
Order Number	**SY1-60413-2-IS**
Samples	51

LABORATORY DETAILS

Manager	Huong Crawford
Laboratory	SGS Alexandria Environmental
Address	Unit 16, 33 Maddox St Alexandria NSW 2015
Telephone	+61 2 8594 0400
Facsimile	+61 2 8594 0499
Email	au.environmental.sydney@sgs.com
Samples Received	Mon 12/9/2016
Report Due	Fri 16/9/2016
SGS Reference	**SE157067**

SUBMISSION DETAILS

This is to confirm that 51 samples were received on Monday 12/9/2016. Results are expected to be ready by Friday 16/9/2016. Please quote SGS reference SE157067 when making enquiries. Refer below for details relating to sample integrity upon receipt.

Sample counts by matrix	51 Soil	Type of documentation received	COC
Date documentation received	13/9/16@4:38pm	Samples received in good order	Yes
Samples received without headspace	N/A	Sample temperature upon receipt	14.5°C
Sample container provider	Client	Turnaround time requested	Two Days
Samples received in correct containers	Yes	Sufficient sample for analysis	Yes
Sample cooling method	None	Samples clearly labelled	Yes
Complete documentation received	Yes	Number of eskies/boxes received	

Unless otherwise instructed, water and bulk samples will be held for one month from date of report, and soil samples will be held for two months.

COMMENTS

11 soil samples have been placed on hold.

To the extent not inconsistent with the other provisions of this document and unless specifically agreed otherwise in writing by SGS, all SGS services are rendered in accordance with the applicable SGS General Conditions of Service accessible at http://www.sgs.com/en/terms-and-conditions as at the date of this document. Attention is drawn to the limitations of liability and to the clauses of indemnification.

SAMPLE RECEIPT ADVICE

SE157067

CLIENT DETAILS

Client SMEC AUSTRALIA PTY LTD

Project 3002523 - Canberra Brickworks- Asbestos

SUMMARY OF ANALYSIS

No.	Sample ID	Fibre Identification in soil
001	TP2_0.1	2
002	TP3_0.1	2
003	TP4_0.2	2
004	TP5_0.5	2
005	TP7	2
006	TP9_0.1	2
007	TP10_0.15	2
008	TP21	2
009	TP38_1.3-1.4	2
010	TR3_0.15	2
011	TP13_0.1	2
012	TP15_0.1	2
013	TP16_0.1	2
014	TP24_0.1	2
015	TP25_0-0.1	2
016	TP28_0.1	2
017	TP34A_0.1	2
018	TP38_0.1-0.2	2
019	TP40_0.7-0.8	2
020	TP41_1.3-1.4	2
021	TP45_1.3-1.4	2
022	TP46_0.1-0.2	2
023	TP55_1.2-1.3	2
024	TP56_0.1-0.2	2

CONTINUED OVERLEAF

The above table represents SGS' interpretation of the client-supplied Chain Of Custody document.
The numbers shown in the table indicate the number of results requested in each package.
Please indicate as soon as possible should your request differ from these details .
Testing as per this table shall commence immediately unless the client intervenes with a correction .

SAMPLE RECEIPT ADVICE

SE157067

CLIENT DETAILS

Client SMEC AUSTRALIA PTY LTD

Project 3002523 - Canberra Brickworks- Asbestos

SUMMARY OF ANALYSIS

No.	Sample ID	Fibre Identification in soil
025	TP57_0-0.1	2
026	TP14	2
027	TP43	2
028	TP29	2
029	TP27	2
030	TP12	2
031	TP44	2
032	TP23	2
033	TP18	2
034	TP59	2
035	TP58	2
036	QC4	2
037	TP23_0.05-0.15	2
038	TP26	2
039	TP54	2
040	TP31	2
041	BH01_2-2.1	2
042	TP50	2
043	BH10	2
044	TP63	2
045	TP51	2
046	TP30	2
047	QC2	2
048	TP40.2	2

CONTINUED OVERLEAF

The above table represents SGS' interpretation of the client-supplied Chain Of Custody document.
The numbers shown in the table indicate the number of results requested in each package.
Please indicate as soon as possible should your request differ from these details .
Testing as per this table shall commence immediately unless the client intervenes with a correction .

SAMPLE RECEIPT ADVICE

SE157067

CLIENT DETAILS

Client SMEC AUSTRALIA PTY LTD

Project 3002523 - Canberra Brickworks- Asbestos

SUMMARY OF ANALYSIS

No.	Sample ID	Fibre Identification in soil
049	TP32	2
050	TP57_0.3-0.4	2
051	TP57	2

The above table represents SGS' interpretation of the client-supplied Chain Of Custody document.
The numbers shown in the table indicate the number of results requested in each package.
Please indicate as soon as possible should your request differ from these details .
Testing as per this table shall commence immediately unless the client intervenes with a correction .

ANALYTICAL REPORT

Accreditation No. 2562

CLIENT DETAILS

Contact	Ryan O'Leary
Client	SMEC AUSTRALIA PTY LTD
Address	Sun Micro Building Suite 2, Level 1 243 Northbourne Avenue ACT 2602
Telephone	02 6234 1963
Facsimile	02 6234 1966
Email	Ryan.O'Leary@smec.com
Project	**3002523 - Canberra Brickworks- Asbestos**
Order Number	**SY1-60413-2-IS**
Samples	51

LABORATORY DETAILS

Manager	Huong Crawford
Laboratory	SGS Alexandria Environmental
Address	Unit 16, 33 Maddox St Alexandria NSW 2015
Telephone	+61 2 8594 0400
Facsimile	+61 2 8594 0499
Email	au.environmental.sydney@sgs.com
SGS Reference	**SE157067 R0**
Date Received	12 Sep 2016
Date Reported	16 Sep 2016

COMMENTS

Accredited for compliance with ISO/IEC 17025. NATA accredited laboratory 2562(4354).

No respirable fibres detected in all soil samples using trace analysis technique.

Sample #29: 2-5mm length fibre bundles found in 7x4mm cement sheet fragments.

Asbestos analysed by Approved Identifiers Ravee Sivasubramaniam and Yusuf Kuthpudin .

SIGNATORIES

S. Ravensdale

Ravee Sivasubramaniam
Hygiene Team Leader

RESULTS

Fibre Identification in soil — Method AN602

Laboratory Reference	Client Reference	Matrix	Sample Description	Date Sampled	Fibre Identification	Est.%w/w*
SE157067.001	TP2_0.1	Soil	145g Clay, Sand, Soil, Rocks	06 Sep 2016	No Asbestos Found	<0.01
SE157067.002	TP3_0.1	Soil	249g Clay, Sand, Rocks	06 Sep 2016	No Asbestos Found	<0.01
SE157067.003	TP4_0.2	Soil	186g Soil, Rocks	06 Sep 2016	No Asbestos Found	<0.01
SE157067.004	TP5_0.5	Soil	116g Clay, Sand, Soil, Rocks	06 Sep 2016	No Asbestos Found	<0.01
SE157067.005	TP7	Soil	118g Clay, Sand, Soil, Rocks	06 Sep 2016	No Asbestos Found Organic Fibres Detected	<0.01
SE157067.006	TP9_0.1	Soil	143g Clay, Sand, Rocks	06 Sep 2016	No Asbestos Found	<0.01
SE157067.007	TP10_0.15	Soil	309g Clay, Sand, Rocks	06 Sep 2016	No Asbestos Found	<0.01
SE157067.008	TP21	Soil	146g Clay, Rocks	06 Sep 2016	No Asbestos Found	<0.01
SE157067.009	TP38_1.3-1.4	Soil	165g Clay, Sand	06 Sep 2016	No Asbestos Found	<0.01
SE157067.010	TR3_0.15	Soil	143g Clay, Sand, Soil, Rocks	06 Sep 2016	No Asbestos Found	<0.01
SE157067.011	TP13_0.1	Soil	202g Clay, Rocks	07 Sep 2016	No Asbestos Found	<0.01
SE157067.012	TP15_0.1	Soil	135g Clay, Rocks	07 Sep 2016	No Asbestos Found	<0.01
SE157067.013	TP16_0.1	Soil	212g Clay, Sand, Rocks	07 Sep 2016	No Asbestos Found Organic Fibres Detected	<0.01
SE157067.014	TP24_0.1	Soil	211g Clay, Sand, Rocks	07 Sep 2016	No Asbestos Found Organic Fibres Detected	<0.01
SE157067.015	TP25_0-0.1	Soil	213g Clay, Sand, Soil, Rocks	07 Sep 2016	No Asbestos Found	<0.01
SE157067.016	TP28_0.1	Soil	227g Clay, Sand, Rocks	07 Sep 2016	No Asbestos Found Organic Fibres Detected	<0.01
SE157067.017	TP34A_0.1	Soil	113g Clay, Sand, Rocks	07 Sep 2016	No Asbestos Found	<0.01
SE157067.018	TP38_0.1-0.2	Soil	213g Clay, Sand, Rocks	07 Sep 2016	No Asbestos Found	<0.01
SE157067.019	TP40_0.7-0.8	Soil	205g Clay, Sand, Rocks	07 Sep 2016	No Asbestos Found	<0.01
SE157067.020	TP41_1.3-1.4	Soil	237g Clay, Sand, Rocks	07 Sep 2016	No Asbestos Found	<0.01
SE157067.021	TP45_1.3-1.4	Soil	224g Clay, Sand, Rocks	07 Sep 2016	No Asbestos Found	<0.01
SE157067.022	TP46_0.1-0.2	Soil	240g Clay, Sand, Rocks	07 Sep 2016	No Asbestos Found	<0.01
SE157067.023	TP55_1.2-1.3	Soil	235g Clay, Sand, Rocks	07 Sep 2016	No Asbestos Found	<0.01
SE157067.024	TP56_0.1-0.2	Soil	269g Clay, Sand, Rocks	07 Sep 2016	No Asbestos Found	<0.01
SE157067.025	TP57_0-0.1	Soil	222g Clay, Sand, Rocks	07 Sep 2016	No Asbestos Found Organic Fibres Detected	<0.01

RESULTS

Fibre Identification in soil — Method AN602

Laboratory Reference	Client Reference	Matrix	Sample Description	Date Sampled	Fibre Identification	Est.%w/w*
SE157067.026	TP14	Soil	179g Clay, Sand, Rocks	08 Sep 2016	No Asbestos Found Organic Fibres Detected	<0.01
SE157067.027	TP43	Soil	107g Sand, Soil, Rocks	08 Sep 2016	No Asbestos Found	<0.01
SE157067.028	TP29	Soil	213g Sand, Rocks	08 Sep 2016	No Asbestos Found	<0.01
SE157067.029	TP27	Soil	169g Clay, Sand, Rocks	08 Sep 2016	Chrysotile Asbestos Found	<0.01
SE157067.030	TP12	Soil	149g Sand, Rocks	08 Sep 2016	No Asbestos Found	<0.01
SE157067.031	TP44	Soil	182g Clay, Sand, Soil, Rocks	08 Sep 2016	No Asbestos Found Organic Fibres Detected	<0.01
SE157067.032	TP23	Soil	117g Clay, Sand, Rocks	08 Sep 2016	No Asbestos Found	<0.01
SE157067.033	TP18	Soil	138g Sand, Soil, Rocks	08 Sep 2016	No Asbestos Found Organic Fibres Detected	<0.01
SE157067.034	TP59	Soil	150g Clay, Sand, Soil, Rocks	08 Sep 2016	No Asbestos Found	<0.01
SE157067.035	TP58	Soil	102g Clay, Sand, Rocks	08 Sep 2016	No Asbestos Found	<0.01
SE157067.036	QC4	Soil	110g Clay, Sand, Rocks	08 Sep 2016	No Asbestos Found	<0.01
SE157067.037	TP23_0.05-0.15	Soil	138g Sand, Soil, Rocks	08 Sep 2016	No Asbestos Found Organic Fibres Detected	<0.01
SE157067.038	TP26	Soil	124g Clay, Sand, Rocks	08 Sep 2016	No Asbestos Found	<0.01
SE157067.039	TP54	Soil	169g Clay, Sand, Soil, Rocks	08 Sep 2016	No Asbestos Found	<0.01
SE157067.040	TP31	Soil	135g Clay, Sand, Rocks	08 Sep 2016	No Asbestos Found	<0.01
SE157067.041	BH01_2-2.1	Soil	38g Clay, Sand	08 Sep 2016	No Asbestos Found	<0.01
SE157067.042	TP50	Soil	242g Clay, Sand, Rocks	08 Sep 2016	No Asbestos Found	<0.01
SE157067.043	BH10	Soil	58g Clay, Sand, Rocks	08 Sep 2016	No Asbestos Found	<0.01
SE157067.044	TP63	Soil	166g Sand, Soil, Rocks	08 Sep 2016	No Asbestos Found Organic Fibres Detected	<0.01
SE157067.045	TP51	Soil	153g Clay, Sand, Rocks	08 Sep 2016	No Asbestos Found Organic Fibres Detected	<0.01
SE157067.046	TP30	Soil	161g Clay, Sand, Soil, Rocks	08 Sep 2016	No Asbestos Found	<0.01
SE157067.047	QC2	Soil	121g Clay, Sand, Rocks	08 Sep 2016	No Asbestos Found	<0.01
SE157067.048	TP40.2	Soil	169g Clay, Sand, Rocks	08 Sep 2016	No Asbestos Found	<0.01
SE157067.049	TP32	Soil	221g Clay, Sand, Rocks	08 Sep 2016	No Asbestos Found	<0.01
SE157067.050	TP57_0.3-0.4	Soil	220g Sand, Soil, Rocks, Bitumin	08 Sep 2016	No Asbestos Found	<0.01
SE157067.051	TP57	Soil	190g Clay, Sand, Rocks	08 Sep 2016	No Asbestos Found	<0.01

RESULTS

Fibre Identification in soil	Method	AN602

METHOD SUMMARY

METHOD	METHODOLOGY SUMMARY
AN602	Qualitative identification of chrysotile, amosite and crocidolite in bulk samples by polarised light microscopy (PLM) in conjunction with dispersion staining (DS). AS4964 provides the basis for this document. Unequivocal identification of the asbestos minerals present is made by obtaining sufficient diagnostic `clues`, which provide a reasonable degree of certainty, dispersion staining is a mandatory `clue` for positive identification. If sufficient `clues` are absent, then positive identification of asbestos is not possible. This procedure requires removal of suspect fibres/bundles from the sample which cannot be returned.
AN602	Fibres/material that cannot be unequivocably identified as one of the three asbestos forms, will be reported as unknown mineral fibres (umf).
AN602	AS4964.2004 Method for the Qualitative Identification of Asbestos in Bulk Samples , Section 8.4, Trace Analysis Criteria, Note 4 states:"Depending upon sample condition and fibre type, the detection limit of this technique has been found to lie generally in the range of 1 in 1,000 to 1 in 10,000 parts by weight, equivalent to 1 to 0.1 g/kg."
AN602	The sample can be reported “no asbestos found at the reporting limit of 0.1 g/kg” (<0.01%w/w) where AN602 section 4.5 of this method has been followed, and if- (a) no trace asbestos fibres have been detected (i.e. no ‘respirable’ fibres): (b) the estimated weight of non-respirable asbestos fibre bundles and/or the estimated weight of asbestos in asbestos-containing materials are found to be less than 0.1g/kg: and (c) these non-respirable asbestos fibre bundles and/or the asbestos containing materials are only visible under stereo-microscope viewing conditions.

FOOTNOTES

Amosite	-	Brown Asbestos	NA	-	Not Analysed
Chrysotile	-	White Asbestos	LNR	-	Listed, Not Required
Crocidolite	-	Blue Asbestos	*	-	NATA accreditation does not cover the performance of this service .
Amphiboles	-	Amosite and/or Crocidolite	**	-	Indicative data, theoretical holding time exceeded.

(In reference to soil samples only) This report does not comply with the analytical reporting recommendations in the Western Australian Department of Health Guidelines for the Assessment and Remediation and Management of Asbestos Contaminated sites in Western Australia - May 2009.

Sampled by the client.

Where reported: 'Asbestos Detected': Asbestos detected by polarised light microscopy, including dispersion staining.
Where reported: 'No Asbestos Found': No Asbestos Found by polarised light microscopy, including dispersion staining.
Where reported: 'UMF Detected': Mineral fibres of unknown type detected by polarised light microscopy, including dispersion staining. Confirmation by another independent analytical technique may be necessary.

Even after disintegration it can be very difficult, or impossible, to detect the presence of asbestos in some asbestos -containing bulk materials using polarised light microscopy. This is due to the low grade or small length or diameter of asbestos fibres present in the material, or to the fact that very fine fibres have been distributed intimately throughout the materials.

The QC criteria are subject to internal review according to the SGS QAQC plan and may be provided on request or alternatively can be found here : http://www.sgs.com.au/~/media/Local/Australia/Documents/Technical%20Documents/MP-AU-ENV-QU-022%20QA%20QC%20Plan.pdf

This document is issued, on the Client's behalf, by the Company under its General Conditions of Service available on request and accessible at http://www.sgs.com/en/terms-and-conditions. The Client's attention is drawn to the limitation of liability, indemnification and jurisdiction issues defined therein.

Any other holder of this document is advised that information contained hereon reflects the Company 's findings at the time of its intervention only and within the limits of Client's instructions, if any. The Company's sole responsibility is to its Client and this document does not exonerate parties to a transaction from exercising all their rights and obligations under the transaction documents.

This test report shall not be reproduced, except in full.

source: M630_SR_20160915152511.pdf page: 1 SGS Ref: SE157080_COC

SGS

CHAIN OF CUSTODY & ANALYSIS REQUEST

SGS Environmental Services
Unit 16, 33 Maddox Street
Alexandria NSW 2015
Telephone No: (02) 85940400
Facsimile No: (02) 85940499
Email:

Company Name:	SMEC	Project Name/No:	3002523 – Canberra Brickworks
Address:	Suite 2, Level 1, 243 Northbourne Avenue, Lyneham,	Purchase Order No:	
	ACT, 2602, Australia	Results Required By:	Ryan O'Leary
		Telephone:	+61 2 6234 1963 / 0400 240 023
Contact Name:	Ryan O'Leary	Facsimile:	
		Email Results:	Ryan.O'Leary@smec.com

Client Sample ID	Date Sampled	Lab Sample ID	WATER	SOIL		NO OF BAGS	Asbestos ID	BTEXN	OPPs	OCPs	PHAs/Phenols	8 Metals - As, Cd, Cr, Cu, Ni, Pb, Zn, Hg	TPH/TRH	On Hold								
BH2_0.15-0.25	9-09-16	1		✓		1 bag	✓															
QC5	9-09-16	2		✓		1 bag	✓															
BH3_0.14-0.24	9-09-16	3		✓		1 bag	✓															
BH4_0.15-0.25	9-09-16	4		✓		1 bag	✓															
BH5_0.2-0.3	9-09-16	5		✓		1 bag	✓															
BH6_0.15-0.25	9-09-16	6		✓		1 bag	✓															
BH7_0.15-0.25	9-09-16	7		✓		1 bag	✓															
BH9_0.15-0.25	9-09-16	8		✓		1 bag	✓															

SGS EHS Alexandria Laboratory
SE157080 COC
Received: 14 – Sep – 2016

Relinquished By:	Date/Time:	Received By:	Date/Time
Relinquished By:	Date/Time:	Received By:	Date/Time 14/9/16 @ 10:45
Samples Intact: Yes/ No	Temperature: Ambient / Chilled	Sample Cooler Sealed: Yes/ No	Laboratory Quotation No:
	Comments: AS PER SGS QUOTE NUMBER SY1 – 60413 – 2-IS DATED 13TH APRIL 2016	**STANDARD TAT PLEASE (5 DAY)**	

SGS

CHAIN OF CUSTODY & ANALYSIS REQUEST

SGS Environmental Services
Unit 16, 33 Maddox Street
Alexandria NSW 2015
Telephone No: (02) 85940400
Facsimile No: (02) 85940499
Email:

Company Name:	SMEC	Project Name/No:	3002523 – Canberra Brickworks
Address:	Suite 2, Level 1, 243 Northbourne Avenue, Lyneham, ACT, 2602, Australia	Purchase Order No:	
		Results Required By:	Ryan O'Leary
		Telephone:	+61 2 6234 1963 / 0400 240 023
Contact Name:	Ryan O'Leary	Facsimile:	
		Email Results:	Ryan.O'Leary@smec.com

Client Sample ID	Date Sampled	Lab Sample ID	WATER	SOIL		NO OF CONTAINERS	Asbestos ID	BTEXN	OPPs	OCPs	PHAs/Phenols	8 Metals - As, Cd, Cr, Cu, Ni, Pb, Zn, Hg	TPH/TRH	On Hold								
BH15_0.2-0.3	9-09-16	9		✓		1 bag	✓															
BH17_0.2-0.3	9-09-16	10		✓		1 bag	✓															
QC7	9-09-16	11		✓		1 bag	✓															
BH18_0.2-0.3	9-09-16	12		✓		1 bag	✓															
QC6	9-09-16	13		✓		1 bag	✓															
BH10_0.15-0.25	12-09-16	14		✓		1 bag	✓															
BH11_0.14-0.24	12-09-16	15		✓		1 bag	✓															
QC8	12-09-16	16		✓		1 bag	✓															

Relinquished By:	Date/Time:	Received By:	Date/Time
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BH12_0.3-0.4	12-09-16	17		✓		1 bag	✓															
BH13_0.2-0.3	12-09-16	18		✓		1 bag	✓															
BH14_0.15-0.25	12-09-16	19		✓		1 bag	✓															
BH16_0.11-0.21	12-09-16	20		✓		1 bag	✓															
QC9	12-09-16	21		✓		1 bag	✓															
TP11_0-0.1		22																				

Relinquished By:	Date/Time:	Received By:	Date/Time
Relinquished By:	Date/Time:	Received By:	Date/Time 14/9/16 @ 1045
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AU.SampleReceipt.Sydney (Sydney)

From: Crook, Natasha [Natasha.Crook@smec.com]
Sent: Thursday, 15 September 2016 3:20 PM
To: AU.SampleReceipt.Sydney (Sydney)
Subject: RE: SE157098 - 3002523

Hi Emily,
For TP11_0.5-0.6 sample BTEXN, OPPs, OCPS, PAH/Phenols, 8 metals, TPH/TRH. If you want I can provide you with an updated COC with this information?
Thanks
Natasha

Natasha Crook | Graduate Scientist
SMEC – Australia & New Zealand Division
T +61 2 6234 1946

From: AU.SampleReceipt.Sydney (Sydney) [mailto:AU.SampleReceipt.Sydney@sgs.com]
Sent: Thursday, 15 September 2016 3:16 PM
To: Crook, Natasha <Natasha.Crook@smec.com>
Subject: RE: SE157098 - 3002523

Dear Natasha,

All these samples are jars and will all be placed on hold including TP11_0-0.1.

22 TP11_0-0.1 On hold (but if there is a bag – please test for asbestos) will be reported in SE157080.

There are no TP11 samples on both COC.

Kind Regards,

Emily Yin
Environmental Services
Sample Administration Officer

Phone: +61 (0)2 8594 0400
Fax: +61 (0)2 8594 0499

From: Crook, Natasha [mailto:Natasha.Crook@smec.com]
Sent: Thursday, 15 September 2016 2:48 PM
To: AU.SampleReceipt.Sydney (Sydney)
Subject: RE: SE157098 - 3002523

Hi Emily

As these are all jars please undertake the following:

BH12_0.3-0.4 - On hold

BH7_0.15-0.25 – On hold (but if it is a bag – please test for asbestos)

BH7_1.2-1.3 – On hold

SAMPLE RECEIPT ADVICE

SE157080

CLIENT DETAILS

Contact	Ryan O'Leary
Client	SMEC AUSTRALIA PTY LTD
Address	Sun Micro Building Suite 2, Level 1 243 Northbourne Avenue ACT 2602
Telephone	02 6234 1963
Facsimile	02 6234 1966
Email	Ryan.O'Leary@smec.com
Project	**3002523 - Canberra Brickworks**
Order Number	**SY1-60413-2-IS**
Samples	22

LABORATORY DETAILS

Manager	Huong Crawford
Laboratory	SGS Alexandria Environmental
Address	Unit 16, 33 Maddox St Alexandria NSW 2015
Telephone	+61 2 8594 0400
Facsimile	+61 2 8594 0499
Email	au.environmental.sydney@sgs.com
Samples Received	Wed 14/9/2016
Report Due	Wed 21/9/2016
SGS Reference	**SE157080**

SUBMISSION DETAILS

This is to confirm that 22 samples were received on Wednesday 14/9/2016. Results are expected to be ready by Wednesday 21/9/2016. Please quote SGS reference SE157080 when making enquiries. Refer below for details relating to sample integrity upon receipt.

Sample counts by matrix	22 Soil	Type of documentation received	COC
Date documentation received	14/9/2016	Samples received in good order	Yes
Samples received without headspace	N/A	Sample temperature upon receipt	20.3°C
Sample container provider	Client	Turnaround time requested	Standard
Samples received in correct containers	Yes	Sufficient sample for analysis	Yes
Sample cooling method	None	Samples clearly labelled	Yes
Complete documentation received	Yes	Number of eskies/boxes received	

Unless otherwise instructed, water and bulk samples will be held for one month from date of report, and soil samples will be held for two months.

COMMENTS

To the extent not inconsistent with the other provisions of this document and unless specifically agreed otherwise in writing by SGS, all SGS services are rendered in accordance with the applicable SGS General Conditions of Service accessible at http://www.sgs.com/en/terms-and-conditions as at the date of this document. Attention is drawn to the limitations of liability and to the clauses of indemnification.

SAMPLE RECEIPT ADVICE

SE157080

CLIENT DETAILS

Client SMEC AUSTRALIA PTY LTD

Project 3002523 - Canberra Brickworks

SUMMARY OF ANALYSIS

No.	Sample ID	Fibre Identification in soil
001	BH2_0.15-0.25	2
002	QC5	2
003	BH3_0.14-0.24	2
004	BH4_0.15-0.25	2
005	BH5_0.2-0.3	2
006	BH6_0.15-0.25	2
007	BH7_0.15-0.25	2
008	BH9_0.15-0.25	2
009	BH15_0.2-0.3	2
010	BH17_0.2-0.3	2
011	QC7	2
012	BH18_0.2-0.3	2
013	QC6	2
014	BH10_0.15-0.25	2
015	BH11_0.14-0.24	2
016	QC8	2
017	BH12_0.3-0.4	2
018	BH13_0.2-0.3	2
019	BH14_0.15-0.25	2
020	BH16_0.11-0.21	2
021	QC9	2
022	TP11_0-0.1	2

The above table represents SGS' interpretation of the client-supplied Chain Of Custody document.
The numbers shown in the table indicate the number of results requested in each package.
Please indicate as soon as possible should your request differ from these details .
Testing as per this table shall commence immediately unless the client intervenes with a correction .

ANALYTICAL REPORT

Accreditation No. 2562

CLIENT DETAILS

Contact	Ryan O'Leary
Client	SMEC AUSTRALIA PTY LTD
Address	Sun Micro Building Suite 2, Level 1 243 Northbourne Avenue ACT 2602
Telephone	02 6234 1963
Facsimile	02 6234 1966
Email	Ryan.O'Leary@smec.com
Project	**3002523 - Canberra Brickworks**
Order Number	**SY1-60413-2-IS**
Samples	22

LABORATORY DETAILS

Manager	Huong Crawford
Laboratory	SGS Alexandria Environmental
Address	Unit 16, 33 Maddox St Alexandria NSW 2015
Telephone	+61 2 8594 0400
Facsimile	+61 2 8594 0499
Email	au.environmental.sydney@sgs.com
SGS Reference	**SE157080 R0**
Date Received	14 Sep 2016
Date Reported	21 Sep 2016

COMMENTS

Accredited for compliance with ISO/IEC 17025. NATA accredited laboratory 2562(4354).

No respirable fibres detected in all soil samples using trace analysis technique.

Asbestos analysed by Approved Identifiers Ravee Sivasubramaniam and Yusuf Kuthpudin .

SIGNATORIES

S. Ravensdale.

Ravee Sivasubramaniam
Hygiene Team Leader

RESULTS

Fibre Identification in soil — Method AN602

Laboratory Reference	Client Reference	Matrix	Sample Description	Date Sampled	Fibre Identification	Est.%w/w*
SE157080.001	BH2_0.15-0.25	Soil	111g Clay, Sand, Soil, Rocks	09 Sep 2016	No Asbestos Found	<0.01
SE157080.002	QC5	Soil	86g Clay, Sand, Soil, Rocks	09 Sep 2016	No Asbestos Found	<0.01
SE157080.003	BH3_0.14-0.24	Soil	141g Clay, Rocks	09 Sep 2016	No Asbestos Found	<0.01
SE157080.004	BH4_0.15-0.25	Soil	35g Sand, Soil, Rocks	09 Sep 2016	No Asbestos Found	<0.01
SE157080.005	BH5_0.2-0.3	Soil	131g Clay, Rocks	09 Sep 2016	No Asbestos Found	<0.01
SE157080.006	BH6_0.15-0.25	Soil	278g Clay, Rocks	09 Sep 2016	No Asbestos Found	<0.01
SE157080.007	BH7_0.15-0.25	Soil	85g Clay, Rocks	09 Sep 2016	No Asbestos Found	<0.01
SE157080.008	BH9_0.15-0.25	Soil	169g Clay, Soil, Rocks	09 Sep 2016	No Asbestos Found	<0.01
SE157080.009	BH15_0.2-0.3	Soil	35g Sand, Soil, Rocks	09 Sep 2016	No Asbestos Found	<0.01
SE157080.010	BH17_0.2-0.3	Soil	70g Clay, Sand, Rocks	09 Sep 2016	No Asbestos Found	<0.01
SE157080.011	QC7	Soil	27g Sand, Soil, Rocks	09 Sep 2016	No Asbestos Found	<0.01
SE157080.012	BH18_0.2-0.3	Soil	159g Clay, Sand, Rocks	09 Sep 2016	No Asbestos Found	<0.01
SE157080.013	QC6	Soil	82g Clay, Sand, Rocks	09 Sep 2016	No Asbestos Found	<0.01
SE157080.014	BH10_0.15-0.25	Soil	213g Clay, Sand, Rocks	12 Sep 2016	No Asbestos Found	<0.01
SE157080.015	BH11_0.14-0.24	Soil	211g Clay, Rocks	12 Sep 2016	No Asbestos Found	<0.01
SE157080.016	QC8	Soil	156g Clay, Rocks	12 Sep 2016	No Asbestos Found	<0.01
SE157080.017	BH12_0.3-0.4	Soil	238g Clay, Sand, Rocks	12 Sep 2016	No Asbestos Found	<0.01
SE157080.018	BH13_0.2-0.3	Soil	138g Clay, Rocks	12 Sep 2016	No Asbestos Found	<0.01
SE157080.019	BH14_0.15-0.25	Soil	106g Clay, Rocks	12 Sep 2016	No Asbestos Found	<0.01
SE157080.020	BH16_0.11-0.21	Soil	138g Clay, Rocks	12 Sep 2016	No Asbestos Found	<0.01
SE157080.021	QC9	Soil	140g Clay, Rocks	12 Sep 2016	No Asbestos Found	<0.01
SE157080.022	TP11_0-0.1	Soil	165g Clay, Rocks	09 Sep 2016	No Asbestos Found	<0.01

METHOD SUMMARY

METHOD	METHODOLOGY SUMMARY
AN602	Qualitative identification of chrysotile, amosite and crocidolite in bulk samples by polarised light microscopy (PLM) in conjunction with dispersion staining (DS). AS4964 provides the basis for this document. Unequivocal identification of the asbestos minerals present is made by obtaining sufficient diagnostic `clues`, which provide a reasonable degree of certainty, dispersion staining is a mandatory `clue` for positive identification. If sufficient `clues` are absent, then positive identification of asbestos is not possible. This procedure requires removal of suspect fibres/bundles from the sample which cannot be returned.
AN602	Fibres/material that cannot be unequivocably identified as one of the three asbestos forms, will be reported as unknown mineral fibres (umf).
AN602	AS4964.2004 Method for the Qualitative Identification of Asbestos in Bulk Samples , Section 8.4, Trace Analysis Criteria, Note 4 states:"Depending upon sample condition and fibre type, the detection limit of this technique has been found to lie generally in the range of 1 in 1,000 to 1 in 10,000 parts by weight, equivalent to 1 to 0.1 g/kg."
AN602	The sample can be reported “no asbestos found at the reporting limit of 0.1 g/kg” (<0.01%w/w) where AN602 section 4.5 of this method has been followed, and if- (a) no trace asbestos fibres have been detected (i.e. no ‘respirable’ fibres): (b) the estimated weight of non-respirable asbestos fibre bundles and/or the estimated weight of asbestos in asbestos-containing materials are found to be less than 0.1g/kg: and (c) these non-respirable asbestos fibre bundles and/or the asbestos containing materials are only visible under stereo-microscope viewing conditions.

FOOTNOTES

Amosite	-	Brown Asbestos	NA	-	Not Analysed
Chrysotile	-	White Asbestos	LNR	-	Listed, Not Required
Crocidolite	-	Blue Asbestos	*	-	NATA accreditation does not cover the performance of this service .
Amphiboles	-	Amosite and/or Crocidolite	**	-	Indicative data, theoretical holding time exceeded.

(In reference to soil samples only) This report does not comply with the analytical reporting recommendations in the Western Australian Department of Health Guidelines for the Assessment and Remediation and Management of Asbestos Contaminated sites in Western Australia - May 2009.

Sampled by the client.

Where reported: 'Asbestos Detected': Asbestos detected by polarised light microscopy, including dispersion staining.
Where reported: 'No Asbestos Found': No Asbestos Found by polarised light microscopy, including dispersion staining.
Where reported: 'UMF Detected': Mineral fibres of unknown type detected by polarised light microscopy, including dispersion staining. Confirmation by another independent analytical technique may be necessary.

Even after disintegration it can be very difficult, or impossible, to detect the presence of asbestos in some asbestos -containing bulk materials using polarised light microscopy. This is due to the low grade or small length or diameter of asbestos fibres present in the material, or to the fact that very fine fibres have been distributed intimately throughout the materials.

The QC criteria are subject to internal review according to the SGS QAQC plan and may be provided on request or alternatively can be found here : http://www.sgs.com.au/~/media/Local/Australia/Documents/Technical%20Documents/MP-AU-ENV-QU-022%20QA%20QC%20Plan.pdf

This document is issued, on the Client's behalf, by the Company under its General Conditions of Service available on request and accessible at http://www.sgs.com/en/terms-and-conditions. The Client's attention is drawn to the limitation of liability, indemnification and jurisdiction issues defined therein.

Any other holder of this document is advised that information contained hereon reflects the Company 's findings at the time of its intervention only and within the limits of Client's instructions, if any. The Company's sole responsibility is to its Client and this document does not exonerate parties to a transaction from exercising all their rights and obligations under the transaction documents.

This test report shall not be reproduced, except in full.

source: M630_SR_20160915152747.pdf page: 1 SGS Ref: SE157098_COC

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Client Sample ID	Date Sampled	Lab Sample ID	WATER	SOIL		NO OF CONTAINERS	Asbestos ID	BTEXN	OPPs	OCPs	PHAs/Phenols	8 Metals - As, Cd, Cr, Cu, Ni, Pb, Zn, Hg	TPH/TRH	On Hold
BH2_0.15-0.25	09-09-16	1		✓		1 jar		✓	✓	✓	✓	✓	✓	
QC5	09-09-16	2		✓		1 jar		✓	✓	✓	✓	✓	✓	
BH2_0.8-0.9	09-09-16			✓		1 jar								✓
BH2_2.6-2.7	09-09-16			✓		1 jar								✓
BH3_0.14-0.24	09-09-16	3		✓		1 jar		✓	✓	✓	✓	✓	✓	
BH3_1.1-1.2	09-09-16			✓		1 jar								✓
BH4_0.3-0.4	09-09-16	4		✓		1 jar		✓	✓	✓	✓	✓	✓	
BH4_0.6-0.7	09-09-16			✓		1 jar								✓

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BH4_0.6-0.7 0.15-0.25	09-09-16			✓		1 jar								✓								
BH4_1.6-1.7	09-09-16			✓		1 jar								✓								
BH4_2.7-2.8	09-09-16			✓		1 jar								✓								
BH5_0.2-0.3	09-09-16	5		✓		1 jar		✓	✓	✓	✓	✓	✓									
BH5_1.3-1.4	09-09-16			✓		1 jar								✓								
BH5_1.7-1.8	09-09-16			✓		1 jar								✓								
BH6_0.15-0.25	09-09-16	6		✓		1 jar		✓	✓	✓	✓	✓	✓									
BH6_1.0-1.1	09-09-16			✓		1 jar								✓								

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BH6_2.7-2.8	09-09-16			✓		1 jar								✓								
BH7_0.6-0.7	09-09-16	7		✓		1 jar		✓	✓	✓	✓	✓	✓									
BH7_1.0-1.1	09-09-16			✓		1 jar								✓								
BH7_1.8-1.9	09-09-16			✓		1 jar								✓								
BH7_2.4-2.5	09-09-16			✓		1 jar								✓								
BH7_2.8-2.9	09-09-16			✓		1 jar								✓								
BH9_0.15-0.25	09-09-16	8		✓		1 jar		✓	✓	✓	✓	✓	✓									

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BH17_0.2-0.3	09-09-16	11		✓		1 jar		✓	✓	✓	✓	✓	✓									
BH18_0.2-0.3	09-09-16	12		✓		1 jar		✓	✓	✓	✓	✓	✓									
QC6	09-09-16	13		✓		1 jar		✓	✓	✓	✓	✓	✓									
BH18_1.4-1.5	09-09-16			✓		1 jar								✓								
BH10_0.15-0.25	12-09-16	14		✓		1 jar		✓	✓	✓	✓	✓	✓									
BH10_0.4-0.5	12-09-16			✓		1 jar								✓								

Relinquished By:	Date/Time:	Received By:	Date/Time
Relinquished By:	Date/Time:	Received By: Overnight.	Date/Time 14/9/16 @ 10:25
Samples Intact: (Yes)/ No	Temperature: Ambient / (Chilled)	Sample Cooler Sealed: (Yes)/ No	Laboratory Quotation No:
	Comments: AS PER SGS QUOTE NUMBER SY1 – 60413 – 2-IS DATED 13TH APRIL 2016	**STANDARD TAT PLEASE (5 DAY)**	

SGS

CHAIN OF CUSTODY & ANALYSIS REQUEST

SGS Environmental Services
Unit 16, 33 Maddox Street
Alexandria NSW 2015
Telephone No: (02) 85940400
Facsimile No: (02) 85940499
Email:

Company Name:	SMEC	Project Name/No:	3002523 – Canberra Brickworks
Address:	Suite 2, Level 1, 243 Northbourne Avenue, Lyneham,	Purchase Order No:	
	ACT, 2602, Australia	Results Required By:	Ryan O'Leary
		Telephone:	+61 2 6234 1963 / 0400 240 023
Contact Name:	Ryan O'Leary	Facsimile:	
		Email Results:	Ryan.O'Leary@smec.com

Client Sample ID	Date Sampled	Lab Sample ID	WATER	SOIL		NO OF CONTAINERS	Asbestos ID	BTEXN	OPPs	OCPs	PHAs/Phenols	8 Metals - As, Cd, Cr, Cu, Ni, Pb, Zn, Hg	TPH/TRH	On Hold								
BH10_1.5-1.6	12-09-16			✓		1 jar								✓								
BH10_1.8-1.9	12-09-16			✓		1 jar								✓								
BH11_0.14-0.24	12-09-16	15		✓		1 jar		✓	✓	✓	✓	✓	✓									
QC8	12-09-16	16		✓		1 jar		✓	✓	✓	✓	✓	✓									
BH11_1.3-1.4	12-09-16			✓		1 jar								✓								
BH11_2.3-2.4	12-09-16			✓		1 jar								✓								
BH12_1.0-1.1	12-09-16	17		✓		1 jar		✓	✓	✓	✓	✓	✓									
BH12_1.7-1.8	12-09-16			✓		1 jar								✓								

Relinquished By:	Date/Time:	Received By:	Date/Time
Relinquished By:	Date/Time:	Received By: @ [illegible]	Date/Time 14/9/16 @ 10:15
Samples Intact: Yes/ No	Temperature: Ambient / Chilled	Sample Cooler Sealed: Yes/ No	Laboratory Quotation No:
	Comments: AS PER SGS QUOTE NUMBER SY1 – 60413 – 2-IS DATED 13TH APRIL 2016	**STANDARD TAT PLEASE (5 DAY)**	

SGS

CHAIN OF CUSTODY & ANALYSIS REQUEST

SGS Environmental Services
Unit 16, 33 Maddox Street
Alexandria NSW 2015
Telephone No: (02) 85940400
Facsimile No: (02) 85940499
Email:

Company Name: SMEC
Address: Suite 2, Level 1, 243 Northbourne Avenue, Lyneham, ACT, 2602, Australia
Contact Name: Ryan O'Leary

Project Name/No: 3002523 – Canberra Brickworks
Purchase Order No:
Results Required By: Ryan O'Leary
Telephone: +61 2 6234 1963 / 0400 240 023
Facsimile:
Email Results: Ryan.O'Leary@smec.com

Client Sample ID	Date Sampled	Lab Sample ID	WATER	SOIL		NO OF CONTAINERS	Asbestos ID	BTEXN	OPPs	OCPs	PHAs/Phenols	8 Metals - As, Cd, Cr, Cu, Ni, Pb, Zn, Hg	TPH/TRH	On Hold								
BH12_2.6-2.7	12-09-16			✓		1 jar								✓								
BH13_0.2-0.3	12-09-16			✓		1 jar								✓								
BH13_2.3-2.4	12-09-16	18		✓		1 jar		✓	✓	✓	✓	✓	✓									
BH13_2.7-2.8	12-09-16			✓		1 jar								✓								
BH14_0.15-0.25	12-09-16			✓		1 jar								✓								
BH14_0.3-0.4	12-09-16	19		✓		1 jar		✓	✓	✓	✓	✓	✓									
BH16_0.11-0.21	12-09-16	20		✓		1 jar		✓	✓	✓	✓	✓	✓									
QC9	12-09-16	21		✓		1 jar		✓	✓	✓	✓	✓	✓									

Relinquished By:	Date/Time:	Received By:	Date/Time
Relinquished By:	Date/Time:	Received By:	Date/Time 14/9/16 @ 10:25
Samples Intact: Yes/ No	Temperature: Ambient / Chilled	Sample Cooler Sealed: Yes/ No	Laboratory Quotation No:

Comments: AS PER SGS QUOTE NUMBER SY1 – 60413 – 2-IS DATED 13TH APRIL 2016

STANDARD TAT PLEASE (5 DAY)

SGS

CHAIN OF CUSTODY & ANALYSIS REQUEST

SGS Environmental Services
Unit 16, 33 Maddox Street
Alexandria NSW 2015
Telephone No: (02) 85940400
Facsimile No: (02) 85940499
Email:

Company Name:	SMEC	Project Name/No:	3002523 – Canberra Brickworks
Address:	Suite 2, Level 1, 243 Northbourne Avenue, Lyneham, ACT, 2602, Australia	Purchase Order No:	
		Results Required By:	Ryan O'Leary
		Telephone:	+61 2 6234 1963 / 0400 240 023
Contact Name:	Ryan O'Leary	Facsimile:	
		Email Results:	Ryan.O'Leary@smec.com

Client Sample ID	Date Sampled	Lab Sample ID	WATER	SOIL		NO OF CONTAINERS	Asbestos ID	BTEXN	OPPs	OCPs	PHAs/Phenols	8 Metals - As, Cd, Cr, Cu, Ni, Pb, Zn, Hg	TPH/TRH	On Hold								
BH16_0.4-0.5	12-09-16			✓		1 jar								✓								
BH16_1.5-1.6	12-09-16			✓		1 jar								✓								
BH16_2.6-2.7	12-09-16			✓		1 jar								✓								
TP11_0.5-0.6	9.9.16.	22																				

Relinquished By:	Date/Time:	Received By:	Date/Time
Relinquished By:	Date/Time:	Received By: Quality.	Date/Time 14/9/16 @ 10:23
Samples Intact: Yes/ No	Temperature: Ambient / Chilled	Sample Cooler Sealed: Yes/ No	Laboratory Quotation No:
	Comments: AS PER SGS QUOTE NUMBER SY1 – 60413 – 2-IS DATED 13TH APRIL 2016	**STANDARD TAT PLEASE (5 DAY)**	

AU.SampleReceipt.Sydney (Sydney)

From: Crook, Natasha [Natasha.Crook@smec.com]
Sent: Thursday, 15 September 2016 3:20 PM
To: AU.SampleReceipt.Sydney (Sydney)
Subject: RE: SE157098 - 3002523

Hi Emily, *22
For TP11_0.5-0.6 sample BTEXN, OPPs, OCPS, PAH/Phenols, 8 metals, TPH/TRH. If you want I can provide you with an updated COC with this information?
Thanks
Natasha

Natasha Crook | Graduate Scientist
SMEC – Australia & New Zealand Division
T +61 2 6234 1946

From: AU.SampleReceipt.Sydney (Sydney) [mailto:AU.SampleReceipt.Sydney@sgs.com]
Sent: Thursday, 15 September 2016 3:16 PM
To: Crook, Natasha <Natasha.Crook@smec.com>
Subject: RE: SE157098 - 3002523

Dear Natasha,

All these samples are jars and will all be placed on hold including TP11_0-0.1.

TP11_0-0.1 On hold (but if there is a bag – please test for asbestos) will be reported in SE157080.

There are no TP11 samples on both COC.

Kind Regards,

Emily Yin
Environmental Services
Sample Administration Officer

Phone: +61 (0)2 8594 0400
Fax: +61 (0)2 8594 0499

From: Crook, Natasha [mailto:Natasha.Crook@smec.com]
Sent: Thursday, 15 September 2016 2:48 PM
To: AU.SampleReceipt.Sydney (Sydney)
Subject: RE: SE157098 - 3002523

Hi Emily

As these are all jars please undertake the following:

BH12_0.3-0.4 - On hold

BH7_0.15-0.25 – On hold (but if it is a bag – please test for asbestos)

BH7_1.2-1.3 – On hold

SAMPLE RECEIPT ADVICE

SE157098

CLIENT DETAILS

Contact	Ryan O'Leary
Client	SMEC AUSTRALIA PTY LTD
Address	Sun Micro Building Suite 2, Level 1 243 Northbourne Avenue ACT 2602
Telephone	02 6234 1963
Facsimile	02 6234 1966
Email	Ryan.O'Leary@smec.com
Project	**3002523 - Canberra Brickworks**
Order Number	**SY1-60413-2-IS**
Samples	22

LABORATORY DETAILS

Manager	Huong Crawford
Laboratory	SGS Alexandria Environmental
Address	Unit 16, 33 Maddox St Alexandria NSW 2015
Telephone	+61 2 8594 0400
Facsimile	+61 2 8594 0499
Email	au.environmental.sydney@sgs.com
Samples Received	Wed 14/9/2016
Report Due	Wed 21/9/2016
SGS Reference	**SE157098**

SUBMISSION DETAILS

This is to confirm that 22 samples were received on Wednesday 14/9/2016. Results are expected to be ready by Wednesday 21/9/2016. Please quote SGS reference SE157098 when making enquiries. Refer below for details relating to sample integrity upon receipt.

Sample counts by matrix	22 Soil	Type of documentation received	COC
Date documentation received	14/9/2016	Samples received in good order	Yes
Samples received without headspace	Yes	Sample temperature upon receipt	1.2°C
Sample container provider	SGS	Turnaround time requested	Standard
Samples received in correct containers	Yes	Sufficient sample for analysis	Yes
Sample cooling method	Ice	Samples clearly labelled	Yes
Complete documentation received	Yes	Number of eskies/boxes received	

Unless otherwise instructed, water and bulk samples will be held for one month from date of report, and soil samples will be held for two months.

COMMENTS

35 soil samples have been placed on hold.

To the extent not inconsistent with the other provisions of this document and unless specifically agreed otherwise in writing by SGS, all SGS services are rendered in accordance with the applicable SGS General Conditions of Service accessible at http://www.sgs.com/en/terms-and-conditions as at the date of this document. Attention is drawn to the limitations of liability and to the clauses of indemnification.

SAMPLE RECEIPT ADVICE

SE157098

CLIENT DETAILS

Client SMEC AUSTRALIA PTY LTD

Project 3002523 - Canberra Brickworks

SUMMARY OF ANALYSIS

No.	Sample ID	OC Pesticides in Soil	OP Pesticides in Soil	PAH (Polynuclear Aromatic Hydrocarbons) in Soil	Total Phenolics in Soil	Total Recoverable Metals in Soil/Waste	TRH (Total Recoverable Hydrocarbons) in Soil	VOC's in Soil	Volatile Petroleum Hydrocarbons in Soil
001	BH2_0.15-0.25	28	13	26	1	7	10	12	8
002	QC5	28	13	26	1	7	10	12	8
003	BH3_0.14-0.24	28	13	26	1	7	10	12	8
004	BH4_0.3-0.4	28	13	26	1	7	10	12	8
005	BH5_0.2-0.3	28	13	26	1	7	10	12	8
006	BH6_0.15-0.25	28	13	26	1	7	10	12	8
007	BH7_0.6-0.7	28	13	26	1	7	10	12	8
008	BH9_0.15-0.25	28	13	26	1	7	10	12	8
009	BH15_0.2-0.3	28	13	26	1	7	10	12	8
010	QC7	28	13	26	1	7	10	12	8
011	BH17_0.2-0.3	28	13	26	1	7	10	12	8
012	BH18_0.2-0.3	28	13	26	1	7	10	12	8
013	QC6	28	13	26	1	7	10	12	8
014	BH10_0.15-0.25	28	13	26	1	7	10	12	8
015	BH11_0.14-0.24	28	13	26	1	7	10	12	8
016	QC8	28	13	26	1	7	10	12	8
017	BH12_1.0-1.1	28	13	26	1	7	10	12	8
018	BH13_2.3-2.4	28	13	26	1	7	10	12	8
019	BH14_0.3-0.4	28	13	26	1	7	10	12	8
020	BH16_0.11-0.21	28	13	26	1	7	10	12	8
021	QC9	28	13	26	1	7	10	12	8
022	TP11_0.5-0.6	28	13	26	1	7	10	12	8

CONTINUED OVERLEAF

The above table represents SGS' interpretation of the client-supplied Chain Of Custody document.
The numbers shown in the table indicate the number of results requested in each package.
Please indicate as soon as possible should your request differ from these details .
Testing as per this table shall commence immediately unless the client intervenes with a correction .

SAMPLE RECEIPT ADVICE

SE157098

CLIENT DETAILS

Client SMEC AUSTRALIA PTY LTD

Project 3002523 - Canberra Brickworks

SUMMARY OF ANALYSIS

No.	Sample ID	Mercury in Soil	Moisture Content
001	BH2_0.15-0.25	1	1
002	QC5	1	1
003	BH3_0.14-0.24	1	1
004	BH4_0.3-0.4	1	1
005	BH5_0.2-0.3	1	1
006	BH6_0.15-0.25	1	1
007	BH7_0.6-0.7	1	1
008	BH9_0.15-0.25	1	1
009	BH15_0.2-0.3	1	1
010	QC7	1	1
011	BH17_0.2-0.3	1	1
012	BH18_0.2-0.3	1	1
013	QC6	1	1
014	BH10_0.15-0.25	1	1
015	BH11_0.14-0.24	1	1
016	QC8	1	1
017	BH12_1.0-1.1	1	1
018	BH13_2.3-2.4	1	1
019	BH14_0.3-0.4	1	1
020	BH16_0.11-0.21	1	1
021	QC9	1	1
022	TP11_0.5-0.6	1	1

The above table represents SGS' interpretation of the client-supplied Chain Of Custody document.
The numbers shown in the table indicate the number of results requested in each package.
Please indicate as soon as possible should your request differ from these details .
Testing as per this table shall commence immediately unless the client intervenes with a correction .

ANALYTICAL REPORT

Accreditation No. 2562

CLIENT DETAILS

Contact	Ryan O'Leary
Client	SMEC AUSTRALIA PTY LTD
Address	Sun Micro Building Suite 2, Level 1 243 Northbourne Avenue ACT 2602
Telephone	02 6234 1963
Facsimile	02 6234 1966
Email	Ryan.O'Leary@smec.com
Project	**3002523 - Canberra Brickworks**
Order Number	**SY1-60413-2-IS**
Samples	22

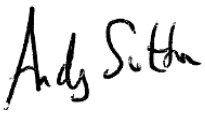
LABORATORY DETAILS

Manager	Huong Crawford
Laboratory	SGS Alexandria Environmental
Address	Unit 16, 33 Maddox St Alexandria NSW 2015
Telephone	+61 2 8594 0400
Facsimile	+61 2 8594 0499
Email	au.environmental.sydney@sgs.com
SGS Reference	**SE157098 R0**
Date Received	14/9/2016
Date Reported	21/9/2016

COMMENTS

Accredited for compliance with ISO/IEC 17025. NATA accredited laboratory 2562(4354).

SIGNATORIES



Andy Sutton
Senior Organic Chemist



Bennet Lo
Senior Organic Chemist/Metals Chemist



Dong Liang
Metals/Inorganics Team Leader



Kamrul Ahsan
Senior Chemist



Ly Kim Ha
Organic Section Head

VOC's in Soil [AN433] Tested: 16/9/2016

PARAMETER	UOM	LOR	BH2_0.15-0.25 SOIL - 9/9/2016 SE157098.001	QC5 SOIL - 9/9/2016 SE157098.002	BH3_0.14-0.24 SOIL - 9/9/2016 SE157098.003	BH4_0.3-0.4 SOIL - 9/9/2016 SE157098.004	BH5_0.2-0.3 SOIL - 9/9/2016 SE157098.005
Benzene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Toluene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Ethylbenzene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
m/p-xylene	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
o-xylene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Total Xylenes*	mg/kg	0.3	<0.3	<0.3	<0.3	<0.3	<0.3
Total BTEX	mg/kg	0.6	<0.6	<0.6	<0.6	<0.6	<0.6
Naphthalene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1

PARAMETER	UOM	LOR	BH6_0.15-0.25 SOIL - 9/9/2016 SE157098.006	BH7_0.6-0.7 SOIL - 9/9/2016 SE157098.007	BH9_0.15-0.25 SOIL - 9/9/2016 SE157098.008	BH15_0.2-0.3 SOIL - 9/9/2016 SE157098.009	QC7 SOIL - 9/9/2016 SE157098.010
Benzene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Toluene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Ethylbenzene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
m/p-xylene	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
o-xylene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Total Xylenes*	mg/kg	0.3	<0.3	<0.3	<0.3	<0.3	<0.3
Total BTEX	mg/kg	0.6	<0.6	<0.6	<0.6	<0.6	<0.6
Naphthalene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1

PARAMETER	UOM	LOR	BH17_0.2-0.3 SOIL - 9/9/2016 SE157098.011	BH18_0.2-0.3 SOIL - 9/9/2016 SE157098.012	QC6 SOIL - 9/9/2016 SE157098.013	BH10_0.15-0.25 SOIL - 12/9/2016 SE157098.014	BH11_0.14-0.24 SOIL - 12/9/2016 SE157098.015
Benzene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Toluene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Ethylbenzene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
m/p-xylene	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
o-xylene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Total Xylenes*	mg/kg	0.3	<0.3	<0.3	<0.3	<0.3	<0.3
Total BTEX	mg/kg	0.6	<0.6	<0.6	<0.6	<0.6	<0.6
Naphthalene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1

PARAMETER	UOM	LOR	QC8 SOIL - 12/9/2016 SE157098.016	BH12_1.0-1.1 SOIL - 12/9/2016 SE157098.017	BH13_2.3-2.4 SOIL - 12/9/2016 SE157098.018	BH14_0.3-0.4 SOIL - 12/9/2016 SE157098.019	BH16_0.11-0.21 SOIL - 12/9/2016 SE157098.020
Benzene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Toluene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Ethylbenzene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
m/p-xylene	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
o-xylene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Total Xylenes*	mg/kg	0.3	<0.3	<0.3	<0.3	<0.3	<0.3
Total BTEX	mg/kg	0.6	<0.6	<0.6	<0.6	<0.6	<0.6
Naphthalene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1

VOC's in Soil [AN433] Tested: 16/9/2016 (continued)

PARAMETER	UOM	LOR	QC9 SOIL - 12/9/2016 SE157098.021	TP11_0.5-0.6 SOIL - 9/9/2016 SE157098.022
Benzene	mg/kg	0.1	<0.1	<0.1
Toluene	mg/kg	0.1	<0.1	<0.1
Ethylbenzene	mg/kg	0.1	<0.1	<0.1
m/p-xylene	mg/kg	0.2	<0.2	<0.2
o-xylene	mg/kg	0.1	<0.1	<0.1
Total Xylenes*	mg/kg	0.3	<0.3	<0.3
Total BTEX	mg/kg	0.6	<0.6	<0.6
Naphthalene	mg/kg	0.1	<0.1	<0.1

Volatile Petroleum Hydrocarbons in Soil [AN433] Tested: 16/9/2016

PARAMETER	UOM	LOR	BH2_0.15-0.25 SOIL - 9/9/2016 SE157098.001	QC5 SOIL - 9/9/2016 SE157098.002	BH3_0.14-0.24 SOIL - 9/9/2016 SE157098.003	BH4_0.3-0.4 SOIL - 9/9/2016 SE157098.004	BH5_0.2-0.3 SOIL - 9/9/2016 SE157098.005
TRH C6-C9	mg/kg	20	<20	<20	<20	<20	<20
Benzene (F0)	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
TRH C6-C10	mg/kg	25	<25	<25	<25	<25	<25
TRH C6-C10 minus BTEX (F1)	mg/kg	25	<25	<25	<25	<25	<25

PARAMETER	UOM	LOR	BH6_0.15-0.25 SOIL - 9/9/2016 SE157098.006	BH7_0.6-0.7 SOIL - 9/9/2016 SE157098.007	BH9_0.15-0.25 SOIL - 9/9/2016 SE157098.008	BH15_0.2-0.3 SOIL - 9/9/2016 SE157098.009	QC7 SOIL - 9/9/2016 SE157098.010
TRH C6-C9	mg/kg	20	<20	<20	<20	<20	<20
Benzene (F0)	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
TRH C6-C10	mg/kg	25	<25	<25	<25	<25	<25
TRH C6-C10 minus BTEX (F1)	mg/kg	25	<25	<25	<25	<25	<25

PARAMETER	UOM	LOR	BH17_0.2-0.3 SOIL - 9/9/2016 SE157098.011	BH18_0.2-0.3 SOIL - 9/9/2016 SE157098.012	QC6 SOIL - 9/9/2016 SE157098.013	BH10_0.15-0.25 SOIL - 12/9/2016 SE157098.014	BH11_0.14-0.24 SOIL - 12/9/2016 SE157098.015
TRH C6-C9	mg/kg	20	<20	<20	<20	<20	<20
Benzene (F0)	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
TRH C6-C10	mg/kg	25	<25	<25	<25	<25	<25
TRH C6-C10 minus BTEX (F1)	mg/kg	25	<25	<25	<25	<25	<25

PARAMETER	UOM	LOR	QC8 SOIL - 12/9/2016 SE157098.016	BH12_1.0-1.1 SOIL - 12/9/2016 SE157098.017	BH13_2.3-2.4 SOIL - 12/9/2016 SE157098.018	BH14_0.3-0.4 SOIL - 12/9/2016 SE157098.019	BH16_0.11-0.21 SOIL - 12/9/2016 SE157098.020
TRH C6-C9	mg/kg	20	<20	<20	<20	<20	<20
Benzene (F0)	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
TRH C6-C10	mg/kg	25	<25	<25	<25	<25	<25
TRH C6-C10 minus BTEX (F1)	mg/kg	25	<25	<25	<25	<25	<25

PARAMETER	UOM	LOR	QC9 SOIL - 12/9/2016 SE157098.021	TP11_0.5-0.6 SOIL - 9/9/2016 SE157098.022
TRH C6-C9	mg/kg	20	<20	<20
Benzene (F0)	mg/kg	0.1	<0.1	<0.1
TRH C6-C10	mg/kg	25	<25	<25
TRH C6-C10 minus BTEX (F1)	mg/kg	25	<25	<25

TRH (Total Recoverable Hydrocarbons) in Soil [AN403] Tested: 16/9/2016

PARAMETER	UOM	LOR	BH2_0.15-0.25 SOIL - 9/9/2016 SE157098.001	QC5 SOIL - 9/9/2016 SE157098.002	BH3_0.14-0.24 SOIL - 9/9/2016 SE157098.003	BH4_0.3-0.4 SOIL - 9/9/2016 SE157098.004	BH5_0.2-0.3 SOIL - 9/9/2016 SE157098.005
TRH C10-C14	mg/kg	20	<20	<20	<20	<20	<20
TRH C15-C28	mg/kg	45	<45	<45	<45	<45	<45
TRH C29-C36	mg/kg	45	<45	<45	<45	<45	<45
TRH C37-C40	mg/kg	100	<100	<100	<100	<100	<100
TRH >C10-C16 (F2)	mg/kg	25	<25	<25	<25	<25	<25
TRH >C10-C16 (F2) - Naphthalene	mg/kg	25	<25	<25	<25	<25	<25
TRH >C16-C34 (F3)	mg/kg	90	<90	<90	<90	<90	<90
TRH >C34-C40 (F4)	mg/kg	120	<120	<120	<120	<120	<120
TRH C10-C36 Total	mg/kg	110	<110	<110	<110	<110	<110
TRH C10-C40 Total	mg/kg	210	<210	<210	<210	<210	<210

PARAMETER	UOM	LOR	BH6_0.15-0.25 SOIL - 9/9/2016 SE157098.006	BH7_0.6-0.7 SOIL - 9/9/2016 SE157098.007	BH9_0.15-0.25 SOIL - 9/9/2016 SE157098.008	BH15_0.2-0.3 SOIL - 9/9/2016 SE157098.009	QC7 SOIL - 9/9/2016 SE157098.010
TRH C10-C14	mg/kg	20	<20	<20	<20	<20	<20
TRH C15-C28	mg/kg	45	<45	<45	<45	<45	**48**
TRH C29-C36	mg/kg	45	<45	<45	<45	<45	<45
TRH C37-C40	mg/kg	100	<100	<100	<100	<100	<100
TRH >C10-C16 (F2)	mg/kg	25	<25	<25	<25	<25	<25
TRH >C10-C16 (F2) - Naphthalene	mg/kg	25	<25	<25	<25	<25	<25
TRH >C16-C34 (F3)	mg/kg	90	<90	<90	<90	<90	<90
TRH >C34-C40 (F4)	mg/kg	120	<120	<120	<120	<120	<120
TRH C10-C36 Total	mg/kg	110	<110	<110	<110	<110	<110
TRH C10-C40 Total	mg/kg	210	<210	<210	<210	<210	<210

PARAMETER	UOM	LOR	BH17_0.2-0.3 SOIL - 9/9/2016 SE157098.011	BH18_0.2-0.3 SOIL - 9/9/2016 SE157098.012	QC6 SOIL - 9/9/2016 SE157098.013	BH10_0.15-0.25 SOIL - 12/9/2016 SE157098.014	BH11_0.14-0.24 SOIL - 12/9/2016 SE157098.015
TRH C10-C14	mg/kg	20	<20	<20	<20	<20	<20
TRH C15-C28	mg/kg	45	<45	<45	<45	**79**	<45
TRH C29-C36	mg/kg	45	<45	<45	<45	**75**	<45
TRH C37-C40	mg/kg	100	<100	<100	<100	<100	<100
TRH >C10-C16 (F2)	mg/kg	25	<25	<25	<25	<25	<25
TRH >C10-C16 (F2) - Naphthalene	mg/kg	25	<25	<25	<25	<25	<25
TRH >C16-C34 (F3)	mg/kg	90	<90	<90	<90	**150**	<90
TRH >C34-C40 (F4)	mg/kg	120	<120	<120	<120	<120	<120
TRH C10-C36 Total	mg/kg	110	<110	<110	<110	**150**	<110
TRH C10-C40 Total	mg/kg	210	<210	<210	<210	<210	<210

TRH (Total Recoverable Hydrocarbons) in Soil [AN403] Tested: 16/9/2016 (continued)

PARAMETER	UOM	LOR	QC8 SOIL - 12/9/2016 SE157098.016	BH12_1.0-1.1 SOIL - 12/9/2016 SE157098.017	BH13_2.3-2.4 SOIL - 12/9/2016 SE157098.018	BH14_0.3-0.4 SOIL - 12/9/2016 SE157098.019	BH16_0.11-0.21 SOIL - 12/9/2016 SE157098.020
TRH C10-C14	mg/kg	20	<20	<20	<20	<20	<20
TRH C15-C28	mg/kg	45	<45	<45	<45	<45	<45
TRH C29-C36	mg/kg	45	<45	<45	<45	<45	<45
TRH C37-C40	mg/kg	100	<100	<100	<100	<100	<100
TRH >C10-C16 (F2)	mg/kg	25	<25	<25	<25	<25	<25
TRH >C10-C16 (F2) - Naphthalene	mg/kg	25	<25	<25	<25	<25	<25
TRH >C16-C34 (F3)	mg/kg	90	<90	<90	<90	<90	<90
TRH >C34-C40 (F4)	mg/kg	120	<120	<120	<120	<120	<120
TRH C10-C36 Total	mg/kg	110	<110	<110	<110	<110	<110
TRH C10-C40 Total	mg/kg	210	<210	<210	<210	<210	<210

PARAMETER	UOM	LOR	QC9 SOIL - 12/9/2016 SE157098.021	TP11_0.5-0.6 SOIL - 9/9/2016 SE157098.022
TRH C10-C14	mg/kg	20	<20	<20
TRH C15-C28	mg/kg	45	<45	<45
TRH C29-C36	mg/kg	45	<45	<45
TRH C37-C40	mg/kg	100	<100	<100
TRH >C10-C16 (F2)	mg/kg	25	<25	<25
TRH >C10-C16 (F2) - Naphthalene	mg/kg	25	<25	<25
TRH >C16-C34 (F3)	mg/kg	90	<90	<90
TRH >C34-C40 (F4)	mg/kg	120	<120	<120
TRH C10-C36 Total	mg/kg	110	<110	<110
TRH C10-C40 Total	mg/kg	210	<210	<210

PAH (Polynuclear Aromatic Hydrocarbons) in Soil [AN420] Tested: 16/9/2016

PARAMETER	UOM	LOR	BH2_0.15-0.25 SOIL - 9/9/2016 SE157098.001	QC5 SOIL - 9/9/2016 SE157098.002	BH3_0.14-0.24 SOIL - 9/9/2016 SE157098.003	BH4_0.3-0.4 SOIL - 9/9/2016 SE157098.004	BH5_0.2-0.3 SOIL - 9/9/2016 SE157098.005
Naphthalene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
2-methylnaphthalene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
1-methylnaphthalene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Acenaphthylene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Acenaphthene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Fluorene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Phenanthrene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Anthracene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Fluoranthene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Pyrene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(a)anthracene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Chrysene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(b&j)fluoranthene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(k)fluoranthene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(a)pyrene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Indeno(1,2,3-cd)pyrene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Dibenzo(ah)anthracene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(ghi)perylene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Carcinogenic PAHs, BaP TEQ <LOR=0	TEQ	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Carcinogenic PAHs, BaP TEQ <LOR=LOR	TEQ (mg/kg)	0.3	<0.3	<0.3	<0.3	<0.3	<0.3
Carcinogenic PAHs, BaP TEQ <LOR=LOR/2	TEQ (mg/kg)	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Total PAH (18)	mg/kg	0.8	<0.8	<0.8	<0.8	<0.8	<0.8
Total PAH (NEPM/WHO 16)	mg/kg	0.8	<0.8	<0.8	<0.8	<0.8	<0.8

PARAMETER	UOM	LOR	BH6_0.15-0.25 SOIL - 9/9/2016 SE157098.006	BH7_0.6-0.7 SOIL - 9/9/2016 SE157098.007	BH9_0.15-0.25 SOIL - 9/9/2016 SE157098.008	BH15_0.2-0.3 SOIL - 9/9/2016 SE157098.009	QC7 SOIL - 9/9/2016 SE157098.010
Naphthalene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
2-methylnaphthalene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
1-methylnaphthalene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Acenaphthylene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Acenaphthene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Fluorene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Phenanthrene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Anthracene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Fluoranthene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Pyrene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(a)anthracene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Chrysene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(b&j)fluoranthene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(k)fluoranthene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(a)pyrene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Indeno(1,2,3-cd)pyrene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Dibenzo(ah)anthracene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(ghi)perylene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Carcinogenic PAHs, BaP TEQ <LOR=0	TEQ	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Carcinogenic PAHs, BaP TEQ <LOR=LOR	TEQ (mg/kg)	0.3	<0.3	<0.3	<0.3	<0.3	<0.3
Carcinogenic PAHs, BaP TEQ <LOR=LOR/2	TEQ (mg/kg)	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Total PAH (18)	mg/kg	0.8	<0.8	<0.8	<0.8	<0.8	<0.8
Total PAH (NEPM/WHO 16)	mg/kg	0.8	<0.8	<0.8	<0.8	<0.8	<0.8

PAH (Polynuclear Aromatic Hydrocarbons) in Soil [AN420] Tested: 16/9/2016 (continued)

PARAMETER	UOM	LOR	BH17_0.2-0.3 SOIL - 9/9/2016 SE157098.011	BH18_0.2-0.3 SOIL - 9/9/2016 SE157098.012	QC6 SOIL - 9/9/2016 SE157098.013	BH10_0.15-0.25 SOIL - 12/9/2016 SE157098.014	BH11_0.14-0.24 SOIL - 12/9/2016 SE157098.015
Naphthalene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
2-methylnaphthalene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
1-methylnaphthalene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Acenaphthylene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Acenaphthene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Fluorene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Phenanthrene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Anthracene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Fluoranthene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Pyrene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(a)anthracene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Chrysene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(b&j)fluoranthene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(k)fluoranthene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(a)pyrene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Indeno(1,2,3-cd)pyrene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Dibenzo(ah)anthracene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(ghi)perylene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Carcinogenic PAHs, BaP TEQ <LOR=0	TEQ	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Carcinogenic PAHs, BaP TEQ <LOR=LOR	TEQ (mg/kg)	0.3	<0.3	<0.3	<0.3	<0.3	<0.3
Carcinogenic PAHs, BaP TEQ <LOR=LOR/2	TEQ (mg/kg)	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Total PAH (18)	mg/kg	0.8	<0.8	<0.8	<0.8	<0.8	<0.8
Total PAH (NEPM/WHO 16)	mg/kg	0.8	<0.8	<0.8	<0.8	<0.8	<0.8

PARAMETER	UOM	LOR	QC8 SOIL - 12/9/2016 SE157098.016	BH12_1.0-1.1 SOIL - 12/9/2016 SE157098.017	BH13_2.3-2.4 SOIL - 12/9/2016 SE157098.018	BH14_0.3-0.4 SOIL - 12/9/2016 SE157098.019	BH16_0.11-0.21 SOIL - 12/9/2016 SE157098.020
Naphthalene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
2-methylnaphthalene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
1-methylnaphthalene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Acenaphthylene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Acenaphthene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Fluorene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Phenanthrene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Anthracene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Fluoranthene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Pyrene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(a)anthracene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Chrysene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(b&j)fluoranthene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(k)fluoranthene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(a)pyrene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Indeno(1,2,3-cd)pyrene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Dibenzo(ah)anthracene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(ghi)perylene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Carcinogenic PAHs, BaP TEQ <LOR=0	TEQ	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Carcinogenic PAHs, BaP TEQ <LOR=LOR	TEQ (mg/kg)	0.3	<0.3	<0.3	<0.3	<0.3	<0.3
Carcinogenic PAHs, BaP TEQ <LOR=LOR/2	TEQ (mg/kg)	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Total PAH (18)	mg/kg	0.8	<0.8	<0.8	<0.8	<0.8	<0.8
Total PAH (NEPM/WHO 16)	mg/kg	0.8	<0.8	<0.8	<0.8	<0.8	<0.8

PAH (Polynuclear Aromatic Hydrocarbons) in Soil [AN420] Tested: 16/9/2016 (continued)

PARAMETER	UOM	LOR	QC9 SOIL - 12/9/2016 SE157098.021	TP11_0.5-0.6 SOIL - 9/9/2016 SE157098.022
Naphthalene	mg/kg	0.1	<0.1	<0.1
2-methylnaphthalene	mg/kg	0.1	<0.1	<0.1
1-methylnaphthalene	mg/kg	0.1	<0.1	<0.1
Acenaphthylene	mg/kg	0.1	<0.1	<0.1
Acenaphthene	mg/kg	0.1	<0.1	<0.1
Fluorene	mg/kg	0.1	<0.1	<0.1
Phenanthrene	mg/kg	0.1	<0.1	<0.1
Anthracene	mg/kg	0.1	<0.1	<0.1
Fluoranthene	mg/kg	0.1	<0.1	<0.1
Pyrene	mg/kg	0.1	<0.1	<0.1
Benzo(a)anthracene	mg/kg	0.1	<0.1	<0.1
Chrysene	mg/kg	0.1	<0.1	<0.1
Benzo(b&j)fluoranthene	mg/kg	0.1	<0.1	<0.1
Benzo(k)fluoranthene	mg/kg	0.1	<0.1	<0.1
Benzo(a)pyrene	mg/kg	0.1	<0.1	<0.1
Indeno(1,2,3-cd)pyrene	mg/kg	0.1	<0.1	<0.1
Dibenzo(ah)anthracene	mg/kg	0.1	<0.1	<0.1
Benzo(ghi)perylene	mg/kg	0.1	<0.1	<0.1
Carcinogenic PAHs, BaP TEQ <LOR=0	TEQ	0.2	<0.2	<0.2
Carcinogenic PAHs, BaP TEQ <LOR=LOR	TEQ (mg/kg)	0.3	<0.3	<0.3
Carcinogenic PAHs, BaP TEQ <LOR=LOR/2	TEQ (mg/kg)	0.2	<0.2	<0.2
Total PAH (18)	mg/kg	0.8	<0.8	<0.8
Total PAH (NEPM/WHO 16)	mg/kg	0.8	<0.8	<0.8

OC Pesticides in Soil [AN400/AN420] Tested: 16/9/2016

PARAMETER	UOM	LOR	BH2_0.15-0.25 SOIL - 9/9/2016 SE157098.001	QC5 SOIL - 9/9/2016 SE157098.002	BH3_0.14-0.24 SOIL - 9/9/2016 SE157098.003	BH4_0.3-0.4 SOIL - 9/9/2016 SE157098.004	BH5_0.2-0.3 SOIL - 9/9/2016 SE157098.005
Hexachlorobenzene (HCB)	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Alpha BHC	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Lindane	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Heptachlor	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Aldrin	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Beta BHC	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Delta BHC	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Heptachlor epoxide	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
o,p'-DDE	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Alpha Endosulfan	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Gamma Chlordane	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Alpha Chlordane	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
trans-Nonachlor	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
p,p'-DDE	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Dieldrin	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Endrin	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
o,p'-DDD	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
o,p'-DDT	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Beta Endosulfan	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
p,p'-DDD	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
p,p'-DDT	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Endosulfan sulphate	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Endrin Aldehyde	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Methoxychlor	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Endrin Ketone	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Isodrin	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Mirex	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1

OC Pesticides in Soil [AN400/AN420] Tested: 16/9/2016 (continued)

PARAMETER	UOM	LOR	BH6_0.15-0.25 SOIL - 9/9/2016 SE157098.006	BH7_0.6-0.7 SOIL - 9/9/2016 SE157098.007	BH9_0.15-0.25 SOIL - 9/9/2016 SE157098.008	BH15_0.2-0.3 SOIL - 9/9/2016 SE157098.009	QC7 SOIL - 9/9/2016 SE157098.010
Hexachlorobenzene (HCB)	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Alpha BHC	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Lindane	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Heptachlor	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Aldrin	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Beta BHC	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Delta BHC	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Heptachlor epoxide	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
o,p'-DDE	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Alpha Endosulfan	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Gamma Chlordane	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Alpha Chlordane	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
trans-Nonachlor	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
p,p'-DDE	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Dieldrin	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Endrin	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
o,p'-DDD	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
o,p'-DDT	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Beta Endosulfan	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
p,p'-DDD	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
p,p'-DDT	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Endosulfan sulphate	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Endrin Aldehyde	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Methoxychlor	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Endrin Ketone	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Isodrin	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Mirex	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1

OC Pesticides in Soil [AN400/AN420] Tested: 16/9/2016 (continued)

PARAMETER	UOM	LOR	BH17_0.2-0.3 SOIL - 9/9/2016 SE157098.011	BH18_0.2-0.3 SOIL - 9/9/2016 SE157098.012	QC6 SOIL - 9/9/2016 SE157098.013	BH10_0.15-0.25 SOIL - 12/9/2016 SE157098.014	BH11_0.14-0.24 SOIL - 12/9/2016 SE157098.015
Hexachlorobenzene (HCB)	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Alpha BHC	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Lindane	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Heptachlor	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Aldrin	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Beta BHC	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Delta BHC	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Heptachlor epoxide	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
o,p'-DDE	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Alpha Endosulfan	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Gamma Chlordane	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Alpha Chlordane	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
trans-Nonachlor	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
p,p'-DDE	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Dieldrin	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Endrin	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
o,p'-DDD	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
o,p'-DDT	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Beta Endosulfan	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
p,p'-DDD	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
p,p'-DDT	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Endosulfan sulphate	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Endrin Aldehyde	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Methoxychlor	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Endrin Ketone	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Isodrin	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Mirex	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1

OC Pesticides in Soil [AN400/AN420] Tested: 16/9/2016 (continued)

PARAMETER	UOM	LOR	QC8 SOIL - 12/9/2016 SE157098.016	BH12_1.0-1.1 SOIL - 12/9/2016 SE157098.017	BH13_2.3-2.4 SOIL - 12/9/2016 SE157098.018	BH14_0.3-0.4 SOIL - 12/9/2016 SE157098.019	BH16_0.11-0.21 SOIL - 12/9/2016 SE157098.020
Hexachlorobenzene (HCB)	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Alpha BHC	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Lindane	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Heptachlor	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Aldrin	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Beta BHC	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Delta BHC	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Heptachlor epoxide	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
o,p'-DDE	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Alpha Endosulfan	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Gamma Chlordane	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Alpha Chlordane	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
trans-Nonachlor	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
p,p'-DDE	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Dieldrin	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Endrin	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
o,p'-DDD	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
o,p'-DDT	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Beta Endosulfan	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
p,p'-DDD	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
p,p'-DDT	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Endosulfan sulphate	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Endrin Aldehyde	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Methoxychlor	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Endrin Ketone	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Isodrin	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Mirex	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1

OC Pesticides in Soil [AN400/AN420] Tested: 16/9/2016 (continued)

PARAMETER	UOM	LOR	QC9 SOIL - 12/9/2016 SE157098.021	TP11_0.5-0.6 SOIL - 9/9/2016 SE157098.022
Hexachlorobenzene (HCB)	mg/kg	0.1	<0.1	<0.1
Alpha BHC	mg/kg	0.1	<0.1	<0.1
Lindane	mg/kg	0.1	<0.1	<0.1
Heptachlor	mg/kg	0.1	<0.1	<0.1
Aldrin	mg/kg	0.1	<0.1	<0.1
Beta BHC	mg/kg	0.1	<0.1	<0.1
Delta BHC	mg/kg	0.1	<0.1	<0.1
Heptachlor epoxide	mg/kg	0.1	<0.1	<0.1
o,p'-DDE	mg/kg	0.1	<0.1	<0.1
Alpha Endosulfan	mg/kg	0.2	<0.2	<0.2
Gamma Chlordane	mg/kg	0.1	<0.1	<0.1
Alpha Chlordane	mg/kg	0.1	<0.1	<0.1
trans-Nonachlor	mg/kg	0.1	<0.1	<0.1
p,p'-DDE	mg/kg	0.1	<0.1	<0.1
Dieldrin	mg/kg	0.2	<0.2	<0.2
Endrin	mg/kg	0.2	<0.2	<0.2
o,p'-DDD	mg/kg	0.1	<0.1	<0.1
o,p'-DDT	mg/kg	0.1	<0.1	<0.1
Beta Endosulfan	mg/kg	0.2	<0.2	<0.2
p,p'-DDD	mg/kg	0.1	<0.1	<0.1
p,p'-DDT	mg/kg	0.1	<0.1	<0.1
Endosulfan sulphate	mg/kg	0.1	<0.1	<0.1
Endrin Aldehyde	mg/kg	0.1	<0.1	<0.1
Methoxychlor	mg/kg	0.1	<0.1	<0.1
Endrin Ketone	mg/kg	0.1	<0.1	<0.1
Isodrin	mg/kg	0.1	<0.1	<0.1
Mirex	mg/kg	0.1	<0.1	<0.1

OP Pesticides in Soil [AN400/AN420] Tested: 16/9/2016

PARAMETER	UOM	LOR	BH2_0.15-0.25 SOIL - 9/9/2016 SE157098.001	QC5 SOIL - 9/9/2016 SE157098.002	BH3_0.14-0.24 SOIL - 9/9/2016 SE157098.003	BH4_0.3-0.4 SOIL - 9/9/2016 SE157098.004	BH5_0.2-0.3 SOIL - 9/9/2016 SE157098.005
Dichlorvos	mg/kg	0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Dimethoate	mg/kg	0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Diazinon (Dimpylate)	mg/kg	0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Fenitrothion	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Malathion	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Chlorpyrifos (Chlorpyrifos Ethyl)	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Parathion-ethyl (Parathion)	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Bromophos Ethyl	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Methidathion	mg/kg	0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Ethion	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Azinphos-methyl (Guthion)	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2

PARAMETER	UOM	LOR	BH6_0.15-0.25 SOIL - 9/9/2016 SE157098.006	BH7_0.6-0.7 SOIL - 9/9/2016 SE157098.007	BH9_0.15-0.25 SOIL - 9/9/2016 SE157098.008	BH15_0.2-0.3 SOIL - 9/9/2016 SE157098.009	QC7 SOIL - 9/9/2016 SE157098.010
Dichlorvos	mg/kg	0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Dimethoate	mg/kg	0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Diazinon (Dimpylate)	mg/kg	0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Fenitrothion	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Malathion	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Chlorpyrifos (Chlorpyrifos Ethyl)	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Parathion-ethyl (Parathion)	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Bromophos Ethyl	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Methidathion	mg/kg	0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Ethion	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Azinphos-methyl (Guthion)	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2

PARAMETER	UOM	LOR	BH17_0.2-0.3 SOIL - 9/9/2016 SE157098.011	BH18_0.2-0.3 SOIL - 9/9/2016 SE157098.012	QC6 SOIL - 9/9/2016 SE157098.013	BH10_0.15-0.25 SOIL - 12/9/2016 SE157098.014	BH11_0.14-0.24 SOIL - 12/9/2016 SE157098.015
Dichlorvos	mg/kg	0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Dimethoate	mg/kg	0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Diazinon (Dimpylate)	mg/kg	0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Fenitrothion	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Malathion	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Chlorpyrifos (Chlorpyrifos Ethyl)	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Parathion-ethyl (Parathion)	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Bromophos Ethyl	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Methidathion	mg/kg	0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Ethion	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Azinphos-methyl (Guthion)	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2

OP Pesticides in Soil [AN400/AN420] Tested: 16/9/2016 (continued)

PARAMETER	UOM	LOR	QC8 SOIL - 12/9/2016 SE157098.016	BH12_1.0-1.1 SOIL - 12/9/2016 SE157098.017	BH13_2.3-2.4 SOIL - 12/9/2016 SE157098.018	BH14_0.3-0.4 SOIL - 12/9/2016 SE157098.019	BH16_0.11-0.21 SOIL - 12/9/2016 SE157098.020
Dichlorvos	mg/kg	0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Dimethoate	mg/kg	0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Diazinon (Dimpylate)	mg/kg	0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Fenitrothion	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Malathion	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Chlorpyrifos (Chlorpyrifos Ethyl)	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Parathion-ethyl (Parathion)	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Bromophos Ethyl	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Methidathion	mg/kg	0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Ethion	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Azinphos-methyl (Guthion)	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2

PARAMETER	UOM	LOR	QC9 SOIL - 12/9/2016 SE157098.021	TP11_0.5-0.6 SOIL - 9/9/2016 SE157098.022
Dichlorvos	mg/kg	0.5	<0.5	<0.5
Dimethoate	mg/kg	0.5	<0.5	<0.5
Diazinon (Dimpylate)	mg/kg	0.5	<0.5	<0.5
Fenitrothion	mg/kg	0.2	<0.2	<0.2
Malathion	mg/kg	0.2	<0.2	<0.2
Chlorpyrifos (Chlorpyrifos Ethyl)	mg/kg	0.2	<0.2	<0.2
Parathion-ethyl (Parathion)	mg/kg	0.2	<0.2	<0.2
Bromophos Ethyl	mg/kg	0.2	<0.2	<0.2
Methidathion	mg/kg	0.5	<0.5	<0.5
Ethion	mg/kg	0.2	<0.2	<0.2
Azinphos-methyl (Guthion)	mg/kg	0.2	<0.2	<0.2

Total Phenolics in Soil [AN289] Tested: 20/9/2016

PARAMETER	UOM	LOR	BH2_0.15-0.25 SOIL - 9/9/2016 SE157098.001	QC5 SOIL - 9/9/2016 SE157098.002	BH3_0.14-0.24 SOIL - 9/9/2016 SE157098.003	BH4_0.3-0.4 SOIL - 9/9/2016 SE157098.004	BH5_0.2-0.3 SOIL - 9/9/2016 SE157098.005
Total Phenols	mg/kg	0.1	<0.1	0.2	0.1	0.1	0.2

PARAMETER	UOM	LOR	BH6_0.15-0.25 SOIL - 9/9/2016 SE157098.006	BH7_0.6-0.7 SOIL - 9/9/2016 SE157098.007	BH9_0.15-0.25 SOIL - 9/9/2016 SE157098.008	BH15_0.2-0.3 SOIL - 9/9/2016 SE157098.009	QC7 SOIL - 9/9/2016 SE157098.010
Total Phenols	mg/kg	0.1	0.1	0.2	0.2	<0.1	<0.1

PARAMETER	UOM	LOR	BH17_0.2-0.3 SOIL - 9/9/2016 SE157098.011	BH18_0.2-0.3 SOIL - 9/9/2016 SE157098.012	QC6 SOIL - 9/9/2016 SE157098.013	BH10_0.15-0.25 SOIL - 12/9/2016 SE157098.014	BH11_0.14-0.24 SOIL - 12/9/2016 SE157098.015
Total Phenols	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1

PARAMETER	UOM	LOR	QC8 SOIL - 12/9/2016 SE157098.016	BH12_1.0-1.1 SOIL - 12/9/2016 SE157098.017	BH13_2.3-2.4 SOIL - 12/9/2016 SE157098.018	BH14_0.3-0.4 SOIL - 12/9/2016 SE157098.019	BH16_0.11-0.21 SOIL - 12/9/2016 SE157098.020
Total Phenols	mg/kg	0.1	<0.1	0.1	<0.1	<0.1	<0.1

PARAMETER	UOM	LOR	QC9 SOIL - 12/9/2016 SE157098.021	TP11_0.5-0.6 SOIL - 9/9/2016 SE157098.022
Total Phenols	mg/kg	0.1	<0.1	<0.1

Total Recoverable Metals in Soil/Waste Solids/Materials by ICPOES [AN040/AN320] Tested: 16/9/2016

PARAMETER	UOM	LOR	BH2_0.15-0.25 SOIL - 9/9/2016 SE157098.001	QC5 SOIL - 9/9/2016 SE157098.002	BH3_0.14-0.24 SOIL - 9/9/2016 SE157098.003	BH4_0.3-0.4 SOIL - 9/9/2016 SE157098.004	BH5_0.2-0.3 SOIL - 9/9/2016 SE157098.005
Arsenic, As	mg/kg	3	6	6	6	11	12
Cadmium, Cd	mg/kg	0.3	<0.3	<0.3	<0.3	0.4	0.3
Chromium, Cr	mg/kg	0.3	20	22	26	26	23
Copper, Cu	mg/kg	0.5	25	19	14	16	18
Lead, Pb	mg/kg	1	15	19	42	32	35
Nickel, Ni	mg/kg	0.5	28	20	15	17	16
Zinc, Zn	mg/kg	0.5	43	31	38	40	54

PARAMETER	UOM	LOR	BH6_0.15-0.25 SOIL - 9/9/2016 SE157098.006	BH7_0.6-0.7 SOIL - 9/9/2016 SE157098.007	BH9_0.15-0.25 SOIL - 9/9/2016 SE157098.008	BH15_0.2-0.3 SOIL - 9/9/2016 SE157098.009	QC7 SOIL - 9/9/2016 SE157098.010
Arsenic, As	mg/kg	3	12	7	12	7	6
Cadmium, Cd	mg/kg	0.3	0.4	<0.3	<0.3	<0.3	<0.3
Chromium, Cr	mg/kg	0.3	28	28	15	10	9.6
Copper, Cu	mg/kg	0.5	13	11	22	15	13
Lead, Pb	mg/kg	1	37	17	28	17	17
Nickel, Ni	mg/kg	0.5	18	9.7	20	13	13
Zinc, Zn	mg/kg	0.5	43	31	110	76	71

PARAMETER	UOM	LOR	BH17_0.2-0.3 SOIL - 9/9/2016 SE157098.011	BH18_0.2-0.3 SOIL - 9/9/2016 SE157098.012	QC6 SOIL - 9/9/2016 SE157098.013	BH10_0.15-0.25 SOIL - 12/9/2016 SE157098.014	BH11_0.14-0.24 SOIL - 12/9/2016 SE157098.015
Arsenic, As	mg/kg	3	10	14	13	14	17
Cadmium, Cd	mg/kg	0.3	<0.3	0.8	0.7	<0.3	0.3
Chromium, Cr	mg/kg	0.3	31	16	20	12	21
Copper, Cu	mg/kg	0.5	12	20	19	21	16
Lead, Pb	mg/kg	1	36	110	97	14	24
Nickel, Ni	mg/kg	0.5	10	21	21	20	16
Zinc, Zn	mg/kg	0.5	47	660	370	66	64

PARAMETER	UOM	LOR	QC8 SOIL - 12/9/2016 SE157098.016	BH12_1.0-1.1 SOIL - 12/9/2016 SE157098.017	BH13_2.3-2.4 SOIL - 12/9/2016 SE157098.018	BH14_0.3-0.4 SOIL - 12/9/2016 SE157098.019	BH16_0.11-0.21 SOIL - 12/9/2016 SE157098.020
Arsenic, As	mg/kg	3	17	11	26	36	11
Cadmium, Cd	mg/kg	0.3	0.3	<0.3	1.1	0.3	<0.3
Chromium, Cr	mg/kg	0.3	23	24	14	21	24
Copper, Cu	mg/kg	0.5	16	14	18	16	17
Lead, Pb	mg/kg	1	24	33	50	19	110
Nickel, Ni	mg/kg	0.5	16	13	54	20	19
Zinc, Zn	mg/kg	0.5	61	33	100	78	56

Total Recoverable Metals in Soil/Waste Solids/Materials by ICPOES [AN040/AN320] Tested: 16/9/2016 (continued)

PARAMETER	UOM	LOR	QC9 SOIL - 12/9/2016 SE157098.021	TP11_0.5-0.6 SOIL - 9/9/2016 SE157098.022
Arsenic, As	mg/kg	3	**11**	**13**
Cadmium, Cd	mg/kg	0.3	**0.3**	<0.3
Chromium, Cr	mg/kg	0.3	**28**	**21**
Copper, Cu	mg/kg	0.5	**16**	**26**
Lead, Pb	mg/kg	1	**92**	**21**
Nickel, Ni	mg/kg	0.5	**14**	**25**
Zinc, Zn	mg/kg	0.5	**56**	**60**

Mercury in Soil [AN312] Tested: 16/9/2016

PARAMETER	UOM	LOR	BH2_0.15-0.25 SOIL - 9/9/2016 SE157098.001	QC5 SOIL - 9/9/2016 SE157098.002	BH3_0.14-0.24 SOIL - 9/9/2016 SE157098.003	BH4_0.3-0.4 SOIL - 9/9/2016 SE157098.004	BH5_0.2-0.3 SOIL - 9/9/2016 SE157098.005
Mercury	mg/kg	0.05	<0.05	<0.05	<0.05	**0.12**	<0.05

PARAMETER	UOM	LOR	BH6_0.15-0.25 SOIL - 9/9/2016 SE157098.006	BH7_0.6-0.7 SOIL - 9/9/2016 SE157098.007	BH9_0.15-0.25 SOIL - 9/9/2016 SE157098.008	BH15_0.2-0.3 SOIL - 9/9/2016 SE157098.009	QC7 SOIL - 9/9/2016 SE157098.010
Mercury	mg/kg	0.05	<0.05	<0.05	<0.05	<0.05	<0.05

PARAMETER	UOM	LOR	BH17_0.2-0.3 SOIL - 9/9/2016 SE157098.011	BH18_0.2-0.3 SOIL - 9/9/2016 SE157098.012	QC6 SOIL - 9/9/2016 SE157098.013	BH10_0.15-0.25 SOIL - 12/9/2016 SE157098.014	BH11_0.14-0.24 SOIL - 12/9/2016 SE157098.015
Mercury	mg/kg	0.05	<0.05	<0.05	<0.05	<0.05	<0.05

PARAMETER	UOM	LOR	QC8 SOIL - 12/9/2016 SE157098.016	BH12_1.0-1.1 SOIL - 12/9/2016 SE157098.017	BH13_2.3-2.4 SOIL - 12/9/2016 SE157098.018	BH14_0.3-0.4 SOIL - 12/9/2016 SE157098.019	BH16_0.11-0.21 SOIL - 12/9/2016 SE157098.020
Mercury	mg/kg	0.05	<0.05	<0.05	<0.05	<0.05	<0.05

PARAMETER	UOM	LOR	QC9 SOIL - 12/9/2016 SE157098.021	TP11_0.5-0.6 SOIL - 9/9/2016 SE157098.022
Mercury	mg/kg	0.05	<0.05	<0.05

Moisture Content [AN002] Tested: 16/9/2016

PARAMETER	UOM	LOR	BH2_0.15-0.25 SOIL - 9/9/2016 SE157098.001	QC5 SOIL - 9/9/2016 SE157098.002	BH3_0.14-0.24 SOIL - 9/9/2016 SE157098.003	BH4_0.3-0.4 SOIL - 9/9/2016 SE157098.004	BH5_0.2-0.3 SOIL - 9/9/2016 SE157098.005
% Moisture	%w/w	0.5	17	19	17	16	13

PARAMETER	UOM	LOR	BH6_0.15-0.25 SOIL - 9/9/2016 SE157098.006	BH7_0.6-0.7 SOIL - 9/9/2016 SE157098.007	BH9_0.15-0.25 SOIL - 9/9/2016 SE157098.008	BH15_0.2-0.3 SOIL - 9/9/2016 SE157098.009	QC7 SOIL - 9/9/2016 SE157098.010
% Moisture	%w/w	0.5	16	17	19	19	19

PARAMETER	UOM	LOR	BH17_0.2-0.3 SOIL - 9/9/2016 SE157098.011	BH18_0.2-0.3 SOIL - 9/9/2016 SE157098.012	QC6 SOIL - 9/9/2016 SE157098.013	BH10_0.15-0.25 SOIL - 12/9/2016 SE157098.014	BH11_0.14-0.24 SOIL - 12/9/2016 SE157098.015
% Moisture	%w/w	0.5	21	17	17	16	14

PARAMETER	UOM	LOR	QC8 SOIL - 12/9/2016 SE157098.016	BH12_1.0-1.1 SOIL - 12/9/2016 SE157098.017	BH13_2.3-2.4 SOIL - 12/9/2016 SE157098.018	BH14_0.3-0.4 SOIL - 12/9/2016 SE157098.019	BH16_0.11-0.21 SOIL - 12/9/2016 SE157098.020
% Moisture	%w/w	0.5	13	16	22	17	24

PARAMETER	UOM	LOR	QC9 SOIL - 12/9/2016 SE157098.021	TP11_0.5-0.6 SOIL - 9/9/2016 SE157098.022
% Moisture	%w/w	0.5	23	16

METHOD	METHODOLOGY SUMMARY
AN002	The test is carried out by drying (at either 40°C or 105°C) a known mass of sample in a weighed evaporating basin. After fully dry the sample is re-weighed. Samples such as sludge and sediment having high percentages of moisture will take some time in a drying oven for complete removal of water.
AN040/AN320	A portion of sample is digested with nitric acid to decompose organic matter and hydrochloric acid to complete the digestion of metals. The digest is then analysed by ICP OES with metals results reported on the dried sample basis. Based on USEPA method 200.8 and 6010C.
AN040	A portion of sample is digested with Nitric acid to decompose organic matter and Hydrochloric acid to complete the digestion of metals and then filtered for analysis by ASS or ICP as per USEPA Method 200.8.
AN289	Analysis of Total Phenols in Soil Sediment and Water: Steam distillable phenols react with 4-aminoantipyrine at pH 7.9±0.1 in the presence of potassium ferricyanide to form a coloured antipyrine dye analysed by Discrete Analyser. Reference APHA 5530 B/D.
AN312	Mercury by Cold Vapour AAS in Soils: After digestion with nitric acid, hydrogen peroxide and hydrochloric acid , mercury ions are reduced by stannous chloride reagent in acidic solution to elemental mercury. This mercury vapour is purged by nitrogen into a cold cell in an atomic absorption spectrometer or mercury analyser . Quantification is made by comparing absorbances to those of the calibration standards. Reference APHA 3112/3500
AN400	OC and OP Pesticides by GC-ECD: The determination of organochlorine (OC) and organophosphorus (OP) pesticides and polychlorinated biphenyls (PCBs) in soils, sludges and groundwater. (Based on USEPA methods 3510, 3550, 8140 and 8080.)
AN403	Total Recoverable Hydrocarbons: Determination of Hydrocarbons by gas chromatography after a solvent extraction. Detection is by flame ionisation detector (FID) that produces an electronic signal in proportion to the combustible matter passing through it. Total Recoverable Hydrocarbons (TRH) are routinely reported as four alkane groupings based on the carbon chain length of the compounds: C6-C9, C10-C14, C15-C28 and C29-C36 and in recognition of the NEPM 1999 (2013), >C10-C16 (F2), >C16-C34 (F3) and >C34-C40 (F4). F2 is reported directly and also corrected by subtracting Naphthalene (from VOC method AN433) where available.
AN403	Additionally, the volatile C6-C9 fraction may be determined by a purge and trap technique and GC /MS because of the potential for volatiles loss. Total Petroleum Hydrocarbons (TPH) follows the same method of analysis after silica gel cleanup of the solvent extract. Aliphatic/Aromatic Speciation follows the same method of analysis after fractionation of the solvent extract over silica with differential polarity of the eluent solvents .
AN403	The GC/FID method is not well suited to the analysis of refined high boiling point materials (ie lubricating oils or greases) but is particularly suited for measuring diesel, kerosene and petrol if care to control volatility is taken. This method will detect naturally occurring hydrocarbons, lipids, animal fats, phenols and PAHs if they are present at sufficient levels, dependent on the use of specific cleanup /fractionation techniques. Reference USEPA 3510B, 8015B.
AN420	(SVOCs) including OC, OP, PCB, Herbicides, PAH, Phthalates and Speciated Phenols (etc) in soils, sediments and waters are determined by GCMS/ECD technique following appropriate solvent extraction process (Based on USEPA 3500C and 8270D).
AN420	SVOC Compounds: Semi-Volatile Organic Compounds (SVOCs) including OC, OP, PCB, Herbicides, PAH, Phthalates and Speciated Phenols in soils, sediments and waters are determined by GCMS /ECD technique following appropriate solvent extraction process (Based on USEPA 3500C and 8270D).
AN433	VOCs and C6-C9 Hydrocarbons by GC-MS P&T: VOC`s are volatile organic compounds. The sample is presented to a gas chromatograph via a purge and trap (P&T) concentrator and autosampler and is detected with a Mass Spectrometer (MSD). Solid samples are initially extracted with methanol whilst liquid samples are processed directly. References: USEPA 5030B, 8020A, 8260.

FOOTNOTES

*	NATA accreditation does not cover the performance of this service.	-	Not analysed.	UOM	Unit of Measure.
		NVL	Not validated.	LOR	Limit of Reporting.
**	Indicative data, theoretical holding time exceeded.	IS	Insufficient sample for analysis.	↑↓	Raised/lowered Limit of Reporting.
		LNR	Sample listed, but not received.		

Samples analysed as received.
Solid samples expressed on a dry weight basis.

Where "Total" analyte groups are reported (for example, Total PAHs, Total OC Pesticides) the total will be calculated as the sum of the individual analytes, with those analytes that are reported as <LOR being assumed to be zero. The summed (Total) limit of reporting is calculated by summing the individual analyte LORs and dividing by two. For example, where 16 individual analytes are being summed and each has an LOR of 0.1 mg/kg, the "Totals" LOR will be 1.6 / 2 (0.8 mg/kg). Where only 2 analytes are being summed, the " Total" LOR will be the sum of those two LORs.

Some totals may not appear to add up because the total is rounded after adding up the raw values.

If reported, measurement uncertainty follow the ± sign after the analytical result and is expressed as the expanded uncertainty calculated using a coverage factor of 2, providing a level of confidence of approximately 95%, unless stated otherwise in the comments section of this report.

Results reported for samples tested under test methods with codes starting with ARS-SOP, radionuclide or gross radioactivity concentrations are expressed in becquerel (Bq) per unit of mass or volume or per wipe as stated on the report. Becquerel is the SI unit for activity and equals one nuclear transformation per second.
Note that in terms of units of radioactivity:

a. 1 Bq is equivalent to 27 pCi
b. 37 MBq is equivalent to 1 mCi

For results reported for samples tested under test methods with codes starting with ARS-SOP, less than (<) values indicate the detection limit for each radionuclide or parameter for the measurement system used. The respective detection limits have been calculated in accordance with ISO 11929.

The QC criteria are subject to internal review according to the SGS QAQC plan and may be provided on request or alternatively can be found here : http://www.sgs.com.au/~/media/Local/Australia/Documents/Technical%20Documents/MP-AU-ENV-QU-022%20QA%20QC%20Plan.pdf

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STATEMENT OF QA/QC PERFORMANCE

SE157098 R0

CLIENT DETAILS

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Project	**3002523 - Canberra Brickworks**
Order Number	**SY1-60413-2-IS**
Samples	22

LABORATORY DETAILS

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SGS Reference	**SE157098 R0**
Date Received	14 Sep 2016
Date Reported	21 Sep 2016

COMMENTS

All the laboratory data for each environmental matrix was compared to SGS' stated Data Quality Objectives (DQO). Comments arising from the comparison were made and are reported below.

The data relating to sampling was taken from the Chain of Custody document and was supplied by the Client.
This QA/QC Statement must be read in conjunction with the referenced Analytical Report.
The Statement and the Analytical Report must not be reproduced except in full.

All Data Quality Objectives were met (within the SGS Alexandria Environmental laboratory).

SAMPLE SUMMARY

Sample counts by matrix	22 Soil	Type of documentation received	COC
Date documentation received	14/9/2016	Samples received in good order	Yes
Samples received without headspace	Yes	Sample temperature upon receipt	1.2°C
Sample container provider	SGS	Turnaround time requested	Standard
Samples received in correct containers	Yes	Sufficient sample for analysis	Yes
Sample cooling method	Ice	Samples clearly labelled	Yes
Complete documentation received	Yes	Number of eskies/boxes received	

HOLDING TIME SUMMARY

SE157098 R0

SGS holding time criteria are drawn from current regulations and are highly dependent on sample container preservation as specified in the SGS “Field Sampling Guide for Containers and Holding Time” (ref: GU-(AU)-ENV.001). Soil samples guidelines are derived from NEPM "Schedule B(3) Guideline on Laboratory Analysis of Potentially Contaminated Soils". Water sample guidelines are derived from "AS/NZS 5667.1 : 1998 Water Quality - sampling part 1" and APHA "Standard Methods for the Examination of Water and Wastewater" 21st edition 2005.

Extraction and analysis holding time due dates listed are calculated from the date sampled, although holding times may be extended after laboratory extraction for some analytes. The due dates are the suggested dates that samples may be held before extraction or analysis and still be considered valid.

Extraction and analysis dates are shown in **Green** when within suggested criteria or **Red** with an appended dagger symbol (†) when outside suggested criteria. If the sampled date is not supplied then compliance with criteria cannot be determined. If the received date is after one or both due dates then holding time will fail by default.

Mercury in Soil

Method: ME-(AU)-[ENV]AN312

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
BH2_0.15-0.25	SE157098.001	LB109942	09 Sep 2016	14 Sep 2016	07 Oct 2016	16 Sep 2016	07 Oct 2016	21 Sep 2016
QC5	SE157098.002	LB109942	09 Sep 2016	14 Sep 2016	07 Oct 2016	16 Sep 2016	07 Oct 2016	21 Sep 2016
BH3_0.14-0.24	SE157098.003	LB109942	09 Sep 2016	14 Sep 2016	07 Oct 2016	16 Sep 2016	07 Oct 2016	21 Sep 2016
BH4_0.3-0.4	SE157098.004	LB109942	09 Sep 2016	14 Sep 2016	07 Oct 2016	16 Sep 2016	07 Oct 2016	21 Sep 2016
BH5_0.2-0.3	SE157098.005	LB109942	09 Sep 2016	14 Sep 2016	07 Oct 2016	16 Sep 2016	07 Oct 2016	21 Sep 2016
BH6_0.15-0.25	SE157098.006	LB109942	09 Sep 2016	14 Sep 2016	07 Oct 2016	16 Sep 2016	07 Oct 2016	21 Sep 2016
BH7_0.6-0.7	SE157098.007	LB109942	09 Sep 2016	14 Sep 2016	07 Oct 2016	16 Sep 2016	07 Oct 2016	21 Sep 2016
BH9_0.15-0.25	SE157098.008	LB109942	09 Sep 2016	14 Sep 2016	07 Oct 2016	16 Sep 2016	07 Oct 2016	21 Sep 2016
BH15_0.2-0.3	SE157098.009	LB109942	09 Sep 2016	14 Sep 2016	07 Oct 2016	16 Sep 2016	07 Oct 2016	21 Sep 2016
QC7	SE157098.010	LB109942	09 Sep 2016	14 Sep 2016	07 Oct 2016	16 Sep 2016	07 Oct 2016	21 Sep 2016
BH17_0.2-0.3	SE157098.011	LB109942	09 Sep 2016	14 Sep 2016	07 Oct 2016	16 Sep 2016	07 Oct 2016	21 Sep 2016
BH18_0.2-0.3	SE157098.012	LB109942	09 Sep 2016	14 Sep 2016	07 Oct 2016	16 Sep 2016	07 Oct 2016	21 Sep 2016
QC6	SE157098.013	LB109942	09 Sep 2016	14 Sep 2016	07 Oct 2016	16 Sep 2016	07 Oct 2016	21 Sep 2016
BH10_0.15-0.25	SE157098.014	LB109942	12 Sep 2016	14 Sep 2016	10 Oct 2016	16 Sep 2016	10 Oct 2016	21 Sep 2016
BH11_0.14-0.24	SE157098.015	LB109942	12 Sep 2016	14 Sep 2016	10 Oct 2016	16 Sep 2016	10 Oct 2016	21 Sep 2016
QC8	SE157098.016	LB109942	12 Sep 2016	14 Sep 2016	10 Oct 2016	16 Sep 2016	10 Oct 2016	21 Sep 2016
BH12_1.0-1.1	SE157098.017	LB109942	12 Sep 2016	14 Sep 2016	10 Oct 2016	16 Sep 2016	10 Oct 2016	21 Sep 2016
BH13_2.3-2.4	SE157098.018	LB109942	12 Sep 2016	14 Sep 2016	10 Oct 2016	16 Sep 2016	10 Oct 2016	21 Sep 2016
BH14_0.3-0.4	SE157098.019	LB109943	12 Sep 2016	14 Sep 2016	10 Oct 2016	16 Sep 2016	10 Oct 2016	21 Sep 2016
BH16_0.11-0.21	SE157098.020	LB109943	12 Sep 2016	14 Sep 2016	10 Oct 2016	16 Sep 2016	10 Oct 2016	21 Sep 2016
QC9	SE157098.021	LB109943	12 Sep 2016	14 Sep 2016	10 Oct 2016	16 Sep 2016	10 Oct 2016	21 Sep 2016
TP11_0.5-0.6	SE157098.022	LB109943	09 Sep 2016	14 Sep 2016	07 Oct 2016	16 Sep 2016	07 Oct 2016	21 Sep 2016

Moisture Content

Method: ME-(AU)-[ENV]AN002

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
BH2_0.15-0.25	SE157098.001	LB109976	09 Sep 2016	14 Sep 2016	23 Sep 2016	16 Sep 2016	21 Sep 2016	21 Sep 2016
QC5	SE157098.002	LB109976	09 Sep 2016	14 Sep 2016	23 Sep 2016	16 Sep 2016	21 Sep 2016	21 Sep 2016
BH3_0.14-0.24	SE157098.003	LB109976	09 Sep 2016	14 Sep 2016	23 Sep 2016	16 Sep 2016	21 Sep 2016	21 Sep 2016
BH4_0.3-0.4	SE157098.004	LB109976	09 Sep 2016	14 Sep 2016	23 Sep 2016	16 Sep 2016	21 Sep 2016	21 Sep 2016
BH5_0.2-0.3	SE157098.005	LB109976	09 Sep 2016	14 Sep 2016	23 Sep 2016	16 Sep 2016	21 Sep 2016	21 Sep 2016
BH6_0.15-0.25	SE157098.006	LB109976	09 Sep 2016	14 Sep 2016	23 Sep 2016	16 Sep 2016	21 Sep 2016	21 Sep 2016
BH7_0.6-0.7	SE157098.007	LB109976	09 Sep 2016	14 Sep 2016	23 Sep 2016	16 Sep 2016	21 Sep 2016	21 Sep 2016
BH9_0.15-0.25	SE157098.008	LB109976	09 Sep 2016	14 Sep 2016	23 Sep 2016	16 Sep 2016	21 Sep 2016	21 Sep 2016
BH15_0.2-0.3	SE157098.009	LB109976	09 Sep 2016	14 Sep 2016	23 Sep 2016	16 Sep 2016	21 Sep 2016	21 Sep 2016
QC7	SE157098.010	LB109976	09 Sep 2016	14 Sep 2016	23 Sep 2016	16 Sep 2016	21 Sep 2016	21 Sep 2016
BH17_0.2-0.3	SE157098.011	LB109976	09 Sep 2016	14 Sep 2016	23 Sep 2016	16 Sep 2016	21 Sep 2016	21 Sep 2016
BH18_0.2-0.3	SE157098.012	LB109976	09 Sep 2016	14 Sep 2016	23 Sep 2016	16 Sep 2016	21 Sep 2016	21 Sep 2016
QC6	SE157098.013	LB109976	09 Sep 2016	14 Sep 2016	23 Sep 2016	16 Sep 2016	21 Sep 2016	21 Sep 2016
BH10_0.15-0.25	SE157098.014	LB109976	12 Sep 2016	14 Sep 2016	26 Sep 2016	16 Sep 2016	21 Sep 2016	21 Sep 2016
BH11_0.14-0.24	SE157098.015	LB109976	12 Sep 2016	14 Sep 2016	26 Sep 2016	16 Sep 2016	21 Sep 2016	21 Sep 2016
QC8	SE157098.016	LB109976	12 Sep 2016	14 Sep 2016	26 Sep 2016	16 Sep 2016	21 Sep 2016	21 Sep 2016
BH12_1.0-1.1	SE157098.017	LB109976	12 Sep 2016	14 Sep 2016	26 Sep 2016	16 Sep 2016	21 Sep 2016	21 Sep 2016
BH13_2.3-2.4	SE157098.018	LB109976	12 Sep 2016	14 Sep 2016	26 Sep 2016	16 Sep 2016	21 Sep 2016	21 Sep 2016
BH14_0.3-0.4	SE157098.019	LB109976	12 Sep 2016	14 Sep 2016	26 Sep 2016	16 Sep 2016	21 Sep 2016	21 Sep 2016
BH16_0.11-0.21	SE157098.020	LB109976	12 Sep 2016	14 Sep 2016	26 Sep 2016	16 Sep 2016	21 Sep 2016	21 Sep 2016
QC9	SE157098.021	LB109976	12 Sep 2016	14 Sep 2016	26 Sep 2016	16 Sep 2016	21 Sep 2016	21 Sep 2016
TP11_0.5-0.6	SE157098.022	LB109976	09 Sep 2016	14 Sep 2016	23 Sep 2016	16 Sep 2016	21 Sep 2016	21 Sep 2016

OC Pesticides in Soil

Method: ME-(AU)-[ENV]AN400/AN420

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
BH2_0.15-0.25	SE157098.001	LB109995	09 Sep 2016	14 Sep 2016	23 Sep 2016	16 Sep 2016	26 Oct 2016	21 Sep 2016
QC5	SE157098.002	LB109995	09 Sep 2016	14 Sep 2016	23 Sep 2016	16 Sep 2016	26 Oct 2016	21 Sep 2016
BH3_0.14-0.24	SE157098.003	LB109995	09 Sep 2016	14 Sep 2016	23 Sep 2016	16 Sep 2016	26 Oct 2016	21 Sep 2016
BH4_0.3-0.4	SE157098.004	LB109995	09 Sep 2016	14 Sep 2016	23 Sep 2016	16 Sep 2016	26 Oct 2016	21 Sep 2016
BH5_0.2-0.3	SE157098.005	LB109995	09 Sep 2016	14 Sep 2016	23 Sep 2016	16 Sep 2016	26 Oct 2016	21 Sep 2016
BH6_0.15-0.25	SE157098.006	LB109995	09 Sep 2016	14 Sep 2016	23 Sep 2016	16 Sep 2016	26 Oct 2016	21 Sep 2016
BH7_0.6-0.7	SE157098.007	LB109995	09 Sep 2016	14 Sep 2016	23 Sep 2016	16 Sep 2016	26 Oct 2016	21 Sep 2016
BH9_0.15-0.25	SE157098.008	LB109995	09 Sep 2016	14 Sep 2016	23 Sep 2016	16 Sep 2016	26 Oct 2016	21 Sep 2016
BH15_0.2-0.3	SE157098.009	LB109995	09 Sep 2016	14 Sep 2016	23 Sep 2016	16 Sep 2016	26 Oct 2016	21 Sep 2016
QC7	SE157098.010	LB109995	09 Sep 2016	14 Sep 2016	23 Sep 2016	16 Sep 2016	26 Oct 2016	21 Sep 2016
BH17_0.2-0.3	SE157098.011	LB109995	09 Sep 2016	14 Sep 2016	23 Sep 2016	16 Sep 2016	26 Oct 2016	21 Sep 2016

HOLDING TIME SUMMARY

SE157098 R0

SGS holding time criteria are drawn from current regulations and are highly dependent on sample container preservation as specified in the SGS “Field Sampling Guide for Containers and Holding Time” (ref: GU-(AU)-ENV.001). Soil samples guidelines are derived from NEPM "Schedule B(3) Guideline on Laboratory Analysis of Potentially Contaminated Soils". Water sample guidelines are derived from "AS/NZS 5667.1 : 1998 Water Quality - sampling part 1" and APHA "Standard Methods for the Examination of Water and Wastewater" 21st edition 2005.

Extraction and analysis holding time due dates listed are calculated from the date sampled, although holding times may be extended after laboratory extraction for some analytes. The due dates are the suggested dates that samples may be held before extraction or analysis and still be considered valid.

Extraction and analysis dates are shown in **Green** when within suggested criteria or **Red** with an appended dagger symbol (†) when outside suggested criteria. If the sampled date is not supplied then compliance with criteria cannot be determined. If the received date is after one or both due dates then holding time will fail by default.

OC Pesticides in Soil (continued)

Method: ME-(AU)-[ENV]AN400/AN420

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
BH18_0.2-0.3	SE157098.012	LB109995	09 Sep 2016	14 Sep 2016	23 Sep 2016	16 Sep 2016	26 Oct 2016	21 Sep 2016
QC6	SE157098.013	LB109995	09 Sep 2016	14 Sep 2016	23 Sep 2016	16 Sep 2016	26 Oct 2016	21 Sep 2016
BH10_0.15-0.25	SE157098.014	LB109995	12 Sep 2016	14 Sep 2016	26 Sep 2016	16 Sep 2016	26 Oct 2016	21 Sep 2016
BH11_0.14-0.24	SE157098.015	LB109995	12 Sep 2016	14 Sep 2016	26 Sep 2016	16 Sep 2016	26 Oct 2016	21 Sep 2016
QC8	SE157098.016	LB109995	12 Sep 2016	14 Sep 2016	26 Sep 2016	16 Sep 2016	26 Oct 2016	21 Sep 2016
BH12_1.0-1.1	SE157098.017	LB109995	12 Sep 2016	14 Sep 2016	26 Sep 2016	16 Sep 2016	26 Oct 2016	21 Sep 2016
BH13_2.3-2.4	SE157098.018	LB109995	12 Sep 2016	14 Sep 2016	26 Sep 2016	16 Sep 2016	26 Oct 2016	21 Sep 2016
BH14_0.3-0.4	SE157098.019	LB109995	12 Sep 2016	14 Sep 2016	26 Sep 2016	16 Sep 2016	26 Oct 2016	21 Sep 2016
BH16_0.11-0.21	SE157098.020	LB109995	12 Sep 2016	14 Sep 2016	26 Sep 2016	16 Sep 2016	26 Oct 2016	21 Sep 2016
QC9	SE157098.021	LB109995	12 Sep 2016	14 Sep 2016	26 Sep 2016	16 Sep 2016	26 Oct 2016	21 Sep 2016
TP11_0.5-0.6	SE157098.022	LB109995	09 Sep 2016	14 Sep 2016	23 Sep 2016	16 Sep 2016	26 Oct 2016	21 Sep 2016

OP Pesticides in Soil

Method: ME-(AU)-[ENV]AN400/AN420

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
BH2_0.15-0.25	SE157098.001	LB109995	09 Sep 2016	14 Sep 2016	23 Sep 2016	16 Sep 2016	26 Oct 2016	20 Sep 2016
QC5	SE157098.002	LB109995	09 Sep 2016	14 Sep 2016	23 Sep 2016	16 Sep 2016	26 Oct 2016	20 Sep 2016
BH3_0.14-0.24	SE157098.003	LB109995	09 Sep 2016	14 Sep 2016	23 Sep 2016	16 Sep 2016	26 Oct 2016	20 Sep 2016
BH4_0.3-0.4	SE157098.004	LB109995	09 Sep 2016	14 Sep 2016	23 Sep 2016	16 Sep 2016	26 Oct 2016	20 Sep 2016
BH5_0.2-0.3	SE157098.005	LB109995	09 Sep 2016	14 Sep 2016	23 Sep 2016	16 Sep 2016	26 Oct 2016	20 Sep 2016
BH6_0.15-0.25	SE157098.006	LB109995	09 Sep 2016	14 Sep 2016	23 Sep 2016	16 Sep 2016	26 Oct 2016	20 Sep 2016
BH7_0.6-0.7	SE157098.007	LB109995	09 Sep 2016	14 Sep 2016	23 Sep 2016	16 Sep 2016	26 Oct 2016	20 Sep 2016
BH9_0.15-0.25	SE157098.008	LB109995	09 Sep 2016	14 Sep 2016	23 Sep 2016	16 Sep 2016	26 Oct 2016	20 Sep 2016
BH15_0.2-0.3	SE157098.009	LB109995	09 Sep 2016	14 Sep 2016	23 Sep 2016	16 Sep 2016	26 Oct 2016	20 Sep 2016
QC7	SE157098.010	LB109995	09 Sep 2016	14 Sep 2016	23 Sep 2016	16 Sep 2016	26 Oct 2016	20 Sep 2016
BH17_0.2-0.3	SE157098.011	LB109995	09 Sep 2016	14 Sep 2016	23 Sep 2016	16 Sep 2016	26 Oct 2016	20 Sep 2016
BH18_0.2-0.3	SE157098.012	LB109995	09 Sep 2016	14 Sep 2016	23 Sep 2016	16 Sep 2016	26 Oct 2016	20 Sep 2016
QC6	SE157098.013	LB109995	09 Sep 2016	14 Sep 2016	23 Sep 2016	16 Sep 2016	26 Oct 2016	20 Sep 2016
BH10_0.15-0.25	SE157098.014	LB109995	12 Sep 2016	14 Sep 2016	26 Sep 2016	16 Sep 2016	26 Oct 2016	20 Sep 2016
BH11_0.14-0.24	SE157098.015	LB109995	12 Sep 2016	14 Sep 2016	26 Sep 2016	16 Sep 2016	26 Oct 2016	20 Sep 2016
QC8	SE157098.016	LB109995	12 Sep 2016	14 Sep 2016	26 Sep 2016	16 Sep 2016	26 Oct 2016	20 Sep 2016
BH12_1.0-1.1	SE157098.017	LB109995	12 Sep 2016	14 Sep 2016	26 Sep 2016	16 Sep 2016	26 Oct 2016	20 Sep 2016
BH13_2.3-2.4	SE157098.018	LB109995	12 Sep 2016	14 Sep 2016	26 Sep 2016	16 Sep 2016	26 Oct 2016	20 Sep 2016
BH14_0.3-0.4	SE157098.019	LB109995	12 Sep 2016	14 Sep 2016	26 Sep 2016	16 Sep 2016	26 Oct 2016	20 Sep 2016
BH16_0.11-0.21	SE157098.020	LB109995	12 Sep 2016	14 Sep 2016	26 Sep 2016	16 Sep 2016	26 Oct 2016	20 Sep 2016
QC9	SE157098.021	LB109995	12 Sep 2016	14 Sep 2016	26 Sep 2016	16 Sep 2016	26 Oct 2016	20 Sep 2016
TP11_0.5-0.6	SE157098.022	LB109995	09 Sep 2016	14 Sep 2016	23 Sep 2016	16 Sep 2016	26 Oct 2016	20 Sep 2016

PAH (Polynuclear Aromatic Hydrocarbons) in Soil

Method: ME-(AU)-[ENV]AN420

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
BH2_0.15-0.25	SE157098.001	LB109995	09 Sep 2016	14 Sep 2016	23 Sep 2016	16 Sep 2016	26 Oct 2016	20 Sep 2016
QC5	SE157098.002	LB109995	09 Sep 2016	14 Sep 2016	23 Sep 2016	16 Sep 2016	26 Oct 2016	20 Sep 2016
BH3_0.14-0.24	SE157098.003	LB109995	09 Sep 2016	14 Sep 2016	23 Sep 2016	16 Sep 2016	26 Oct 2016	20 Sep 2016
BH4_0.3-0.4	SE157098.004	LB109995	09 Sep 2016	14 Sep 2016	23 Sep 2016	16 Sep 2016	26 Oct 2016	20 Sep 2016
BH5_0.2-0.3	SE157098.005	LB109995	09 Sep 2016	14 Sep 2016	23 Sep 2016	16 Sep 2016	26 Oct 2016	20 Sep 2016
BH6_0.15-0.25	SE157098.006	LB109995	09 Sep 2016	14 Sep 2016	23 Sep 2016	16 Sep 2016	26 Oct 2016	20 Sep 2016
BH7_0.6-0.7	SE157098.007	LB109995	09 Sep 2016	14 Sep 2016	23 Sep 2016	16 Sep 2016	26 Oct 2016	20 Sep 2016
BH9_0.15-0.25	SE157098.008	LB109995	09 Sep 2016	14 Sep 2016	23 Sep 2016	16 Sep 2016	26 Oct 2016	20 Sep 2016
BH15_0.2-0.3	SE157098.009	LB109995	09 Sep 2016	14 Sep 2016	23 Sep 2016	16 Sep 2016	26 Oct 2016	20 Sep 2016
QC7	SE157098.010	LB109995	09 Sep 2016	14 Sep 2016	23 Sep 2016	16 Sep 2016	26 Oct 2016	20 Sep 2016
BH17_0.2-0.3	SE157098.011	LB109995	09 Sep 2016	14 Sep 2016	23 Sep 2016	16 Sep 2016	26 Oct 2016	20 Sep 2016
BH18_0.2-0.3	SE157098.012	LB109995	09 Sep 2016	14 Sep 2016	23 Sep 2016	16 Sep 2016	26 Oct 2016	20 Sep 2016
QC6	SE157098.013	LB109995	09 Sep 2016	14 Sep 2016	23 Sep 2016	16 Sep 2016	26 Oct 2016	20 Sep 2016
BH10_0.15-0.25	SE157098.014	LB109995	12 Sep 2016	14 Sep 2016	26 Sep 2016	16 Sep 2016	26 Oct 2016	20 Sep 2016
BH11_0.14-0.24	SE157098.015	LB109995	12 Sep 2016	14 Sep 2016	26 Sep 2016	16 Sep 2016	26 Oct 2016	20 Sep 2016
QC8	SE157098.016	LB109995	12 Sep 2016	14 Sep 2016	26 Sep 2016	16 Sep 2016	26 Oct 2016	20 Sep 2016
BH12_1.0-1.1	SE157098.017	LB109995	12 Sep 2016	14 Sep 2016	26 Sep 2016	16 Sep 2016	26 Oct 2016	20 Sep 2016
BH13_2.3-2.4	SE157098.018	LB109995	12 Sep 2016	14 Sep 2016	26 Sep 2016	16 Sep 2016	26 Oct 2016	20 Sep 2016
BH14_0.3-0.4	SE157098.019	LB109995	12 Sep 2016	14 Sep 2016	26 Sep 2016	16 Sep 2016	26 Oct 2016	20 Sep 2016
BH16_0.11-0.21	SE157098.020	LB109995	12 Sep 2016	14 Sep 2016	26 Sep 2016	16 Sep 2016	26 Oct 2016	20 Sep 2016
QC9	SE157098.021	LB109995	12 Sep 2016	14 Sep 2016	26 Sep 2016	16 Sep 2016	26 Oct 2016	20 Sep 2016
TP11_0.5-0.6	SE157098.022	LB109995	09 Sep 2016	14 Sep 2016	23 Sep 2016	16 Sep 2016	26 Oct 2016	20 Sep 2016

HOLDING TIME SUMMARY

SE157098 R0

SGS holding time criteria are drawn from current regulations and are highly dependent on sample container preservation as specified in the SGS “Field Sampling Guide for Containers and Holding Time” (ref: GU-(AU)-ENV.001). Soil samples guidelines are derived from NEPM "Schedule B(3) Guideline on Laboratory Analysis of Potentially Contaminated Soils". Water sample guidelines are derived from "AS/NZS 5667.1 : 1998 Water Quality - sampling part 1" and APHA "Standard Methods for the Examination of Water and Wastewater" 21st edition 2005.

Extraction and analysis holding time due dates listed are calculated from the date sampled, although holding times may be extended after laboratory extraction for some analytes. The due dates are the suggested dates that samples may be held before extraction or analysis and still be considered valid.

Extraction and analysis dates are shown in **Green** when within suggested criteria or **Red** with an appended dagger symbol (†) when outside suggested criteria. If the sampled date is not supplied then compliance with criteria cannot be determined. If the received date is after one or both due dates then holding time will fail by default.

Total Phenolics in Soil

Method: ME-(AU)-[ENV]AN289

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
BH2_0.15-0.25	SE157098.001	LB110162	09 Sep 2016	14 Sep 2016	23 Sep 2016	20 Sep 2016	23 Sep 2016	21 Sep 2016
QC5	SE157098.002	LB110162	09 Sep 2016	14 Sep 2016	23 Sep 2016	20 Sep 2016	23 Sep 2016	21 Sep 2016
BH3_0.14-0.24	SE157098.003	LB110162	09 Sep 2016	14 Sep 2016	23 Sep 2016	20 Sep 2016	23 Sep 2016	21 Sep 2016
BH4_0.3-0.4	SE157098.004	LB110162	09 Sep 2016	14 Sep 2016	23 Sep 2016	20 Sep 2016	23 Sep 2016	21 Sep 2016
BH5_0.2-0.3	SE157098.005	LB110162	09 Sep 2016	14 Sep 2016	23 Sep 2016	20 Sep 2016	23 Sep 2016	21 Sep 2016
BH6_0.15-0.25	SE157098.006	LB110162	09 Sep 2016	14 Sep 2016	23 Sep 2016	20 Sep 2016	23 Sep 2016	21 Sep 2016
BH7_0.6-0.7	SE157098.007	LB110162	09 Sep 2016	14 Sep 2016	23 Sep 2016	20 Sep 2016	23 Sep 2016	21 Sep 2016
BH9_0.15-0.25	SE157098.008	LB110162	09 Sep 2016	14 Sep 2016	23 Sep 2016	20 Sep 2016	23 Sep 2016	21 Sep 2016
BH15_0.2-0.3	SE157098.009	LB110175	09 Sep 2016	14 Sep 2016	23 Sep 2016	20 Sep 2016	23 Sep 2016	21 Sep 2016
QC7	SE157098.010	LB110175	09 Sep 2016	14 Sep 2016	23 Sep 2016	20 Sep 2016	23 Sep 2016	21 Sep 2016
BH17_0.2-0.3	SE157098.011	LB110175	09 Sep 2016	14 Sep 2016	23 Sep 2016	20 Sep 2016	23 Sep 2016	21 Sep 2016
BH18_0.2-0.3	SE157098.012	LB110175	09 Sep 2016	14 Sep 2016	23 Sep 2016	20 Sep 2016	23 Sep 2016	21 Sep 2016
QC6	SE157098.013	LB110175	09 Sep 2016	14 Sep 2016	23 Sep 2016	20 Sep 2016	23 Sep 2016	21 Sep 2016
BH10_0.15-0.25	SE157098.014	LB110175	12 Sep 2016	14 Sep 2016	26 Sep 2016	20 Sep 2016	26 Sep 2016	21 Sep 2016
BH11_0.14-0.24	SE157098.015	LB110175	12 Sep 2016	14 Sep 2016	26 Sep 2016	20 Sep 2016	26 Sep 2016	21 Sep 2016
QC8	SE157098.016	LB110175	12 Sep 2016	14 Sep 2016	26 Sep 2016	20 Sep 2016	26 Sep 2016	21 Sep 2016
BH12_1.0-1.1	SE157098.017	LB110175	12 Sep 2016	14 Sep 2016	26 Sep 2016	20 Sep 2016	26 Sep 2016	21 Sep 2016
BH13_2.3-2.4	SE157098.018	LB110175	12 Sep 2016	14 Sep 2016	26 Sep 2016	20 Sep 2016	26 Sep 2016	21 Sep 2016
BH14_0.3-0.4	SE157098.019	LB110175	12 Sep 2016	14 Sep 2016	26 Sep 2016	20 Sep 2016	26 Sep 2016	21 Sep 2016
BH16_0.11-0.21	SE157098.020	LB110175	12 Sep 2016	14 Sep 2016	26 Sep 2016	20 Sep 2016	26 Sep 2016	21 Sep 2016
QC9	SE157098.021	LB110175	12 Sep 2016	14 Sep 2016	26 Sep 2016	20 Sep 2016	26 Sep 2016	21 Sep 2016
TP11_0.5-0.6	SE157098.022	LB110175	09 Sep 2016	14 Sep 2016	23 Sep 2016	20 Sep 2016	23 Sep 2016	21 Sep 2016

Total Recoverable Metals in Soil/Waste Solids/Materials by ICPOES

Method: ME-(AU)-[ENV]AN040/AN320

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
BH2_0.15-0.25	SE157098.001	LB110007	09 Sep 2016	14 Sep 2016	08 Mar 2017	16 Sep 2016	08 Mar 2017	21 Sep 2016
QC5	SE157098.002	LB110007	09 Sep 2016	14 Sep 2016	08 Mar 2017	16 Sep 2016	08 Mar 2017	21 Sep 2016
BH3_0.14-0.24	SE157098.003	LB110007	09 Sep 2016	14 Sep 2016	08 Mar 2017	16 Sep 2016	08 Mar 2017	21 Sep 2016
BH4_0.3-0.4	SE157098.004	LB110007	09 Sep 2016	14 Sep 2016	08 Mar 2017	16 Sep 2016	08 Mar 2017	21 Sep 2016
BH5_0.2-0.3	SE157098.005	LB110007	09 Sep 2016	14 Sep 2016	08 Mar 2017	16 Sep 2016	08 Mar 2017	21 Sep 2016
BH6_0.15-0.25	SE157098.006	LB110007	09 Sep 2016	14 Sep 2016	08 Mar 2017	16 Sep 2016	08 Mar 2017	21 Sep 2016
BH7_0.6-0.7	SE157098.007	LB110007	09 Sep 2016	14 Sep 2016	08 Mar 2017	16 Sep 2016	08 Mar 2017	21 Sep 2016
BH9_0.15-0.25	SE157098.008	LB110007	09 Sep 2016	14 Sep 2016	08 Mar 2017	16 Sep 2016	08 Mar 2017	21 Sep 2016
BH15_0.2-0.3	SE157098.009	LB110007	09 Sep 2016	14 Sep 2016	08 Mar 2017	16 Sep 2016	08 Mar 2017	21 Sep 2016
QC7	SE157098.010	LB110007	09 Sep 2016	14 Sep 2016	08 Mar 2017	16 Sep 2016	08 Mar 2017	21 Sep 2016
BH17_0.2-0.3	SE157098.011	LB110007	09 Sep 2016	14 Sep 2016	08 Mar 2017	16 Sep 2016	08 Mar 2017	21 Sep 2016
BH18_0.2-0.3	SE157098.012	LB110007	09 Sep 2016	14 Sep 2016	08 Mar 2017	16 Sep 2016	08 Mar 2017	21 Sep 2016
QC6	SE157098.013	LB110007	09 Sep 2016	14 Sep 2016	08 Mar 2017	16 Sep 2016	08 Mar 2017	21 Sep 2016
BH10_0.15-0.25	SE157098.014	LB110007	12 Sep 2016	14 Sep 2016	11 Mar 2017	16 Sep 2016	11 Mar 2017	21 Sep 2016
BH11_0.14-0.24	SE157098.015	LB110007	12 Sep 2016	14 Sep 2016	11 Mar 2017	16 Sep 2016	11 Mar 2017	21 Sep 2016
QC8	SE157098.016	LB110007	12 Sep 2016	14 Sep 2016	11 Mar 2017	16 Sep 2016	11 Mar 2017	21 Sep 2016
BH12_1.0-1.1	SE157098.017	LB110007	12 Sep 2016	14 Sep 2016	11 Mar 2017	16 Sep 2016	11 Mar 2017	21 Sep 2016
BH13_2.3-2.4	SE157098.018	LB110007	12 Sep 2016	14 Sep 2016	11 Mar 2017	16 Sep 2016	11 Mar 2017	21 Sep 2016
BH14_0.3-0.4	SE157098.019	LB110008	12 Sep 2016	14 Sep 2016	11 Mar 2017	16 Sep 2016	11 Mar 2017	21 Sep 2016
BH16_0.11-0.21	SE157098.020	LB110008	12 Sep 2016	14 Sep 2016	11 Mar 2017	16 Sep 2016	11 Mar 2017	21 Sep 2016
QC9	SE157098.021	LB110008	12 Sep 2016	14 Sep 2016	11 Mar 2017	16 Sep 2016	11 Mar 2017	21 Sep 2016
TP11_0.5-0.6	SE157098.022	LB110008	09 Sep 2016	14 Sep 2016	08 Mar 2017	16 Sep 2016	08 Mar 2017	21 Sep 2016

TRH (Total Recoverable Hydrocarbons) in Soil

Method: ME-(AU)-[ENV]AN403

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
BH2_0.15-0.25	SE157098.001	LB109995	09 Sep 2016	14 Sep 2016	23 Sep 2016	16 Sep 2016	26 Oct 2016	20 Sep 2016
QC5	SE157098.002	LB109995	09 Sep 2016	14 Sep 2016	23 Sep 2016	16 Sep 2016	26 Oct 2016	20 Sep 2016
BH3_0.14-0.24	SE157098.003	LB109995	09 Sep 2016	14 Sep 2016	23 Sep 2016	16 Sep 2016	26 Oct 2016	20 Sep 2016
BH4_0.3-0.4	SE157098.004	LB109995	09 Sep 2016	14 Sep 2016	23 Sep 2016	16 Sep 2016	26 Oct 2016	20 Sep 2016
BH5_0.2-0.3	SE157098.005	LB109995	09 Sep 2016	14 Sep 2016	23 Sep 2016	16 Sep 2016	26 Oct 2016	20 Sep 2016
BH6_0.15-0.25	SE157098.006	LB109995	09 Sep 2016	14 Sep 2016	23 Sep 2016	16 Sep 2016	26 Oct 2016	20 Sep 2016
BH7_0.6-0.7	SE157098.007	LB109995	09 Sep 2016	14 Sep 2016	23 Sep 2016	16 Sep 2016	26 Oct 2016	20 Sep 2016
BH9_0.15-0.25	SE157098.008	LB109995	09 Sep 2016	14 Sep 2016	23 Sep 2016	16 Sep 2016	26 Oct 2016	20 Sep 2016
BH15_0.2-0.3	SE157098.009	LB109995	09 Sep 2016	14 Sep 2016	23 Sep 2016	16 Sep 2016	26 Oct 2016	20 Sep 2016
QC7	SE157098.010	LB109995	09 Sep 2016	14 Sep 2016	23 Sep 2016	16 Sep 2016	26 Oct 2016	21 Sep 2016
BH17_0.2-0.3	SE157098.011	LB109995	09 Sep 2016	14 Sep 2016	23 Sep 2016	16 Sep 2016	26 Oct 2016	20 Sep 2016

HOLDING TIME SUMMARY

SE157098 R0

SGS holding time criteria are drawn from current regulations and are highly dependent on sample container preservation as specified in the SGS “Field Sampling Guide for Containers and Holding Time” (ref: GU-(AU)-ENV.001). Soil samples guidelines are derived from NEPM "Schedule B(3) Guideline on Laboratory Analysis of Potentially Contaminated Soils". Water sample guidelines are derived from "AS/NZS 5667.1 : 1998 Water Quality - sampling part 1" and APHA "Standard Methods for the Examination of Water and Wastewater" 21st edition 2005.

Extraction and analysis holding time due dates listed are calculated from the date sampled, although holding times may be extended after laboratory extraction for some analytes. The due dates are the suggested dates that samples may be held before extraction or analysis and still be considered valid.

Extraction and analysis dates are shown in **Green** when within suggested criteria or **Red** with an appended dagger symbol (†) when outside suggested criteria. If the sampled date is not supplied then compliance with criteria cannot be determined. If the received date is after one or both due dates then holding time will fail by default.

TRH (Total Recoverable Hydrocarbons) in Soil (continued)

Method: ME-(AU)-[ENV]AN403

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
BH18_0.2-0.3	SE157098.012	LB109995	09 Sep 2016	14 Sep 2016	23 Sep 2016	16 Sep 2016	26 Oct 2016	20 Sep 2016
QC6	SE157098.013	LB109995	09 Sep 2016	14 Sep 2016	23 Sep 2016	16 Sep 2016	26 Oct 2016	20 Sep 2016
BH10_0.15-0.25	SE157098.014	LB109995	12 Sep 2016	14 Sep 2016	26 Sep 2016	16 Sep 2016	26 Oct 2016	21 Sep 2016
BH11_0.14-0.24	SE157098.015	LB109995	12 Sep 2016	14 Sep 2016	26 Sep 2016	16 Sep 2016	26 Oct 2016	20 Sep 2016
QC8	SE157098.016	LB109995	12 Sep 2016	14 Sep 2016	26 Sep 2016	16 Sep 2016	26 Oct 2016	20 Sep 2016
BH12_1.0-1.1	SE157098.017	LB109995	12 Sep 2016	14 Sep 2016	26 Sep 2016	16 Sep 2016	26 Oct 2016	20 Sep 2016
BH13_2.3-2.4	SE157098.018	LB109995	12 Sep 2016	14 Sep 2016	26 Sep 2016	16 Sep 2016	26 Oct 2016	20 Sep 2016
BH14_0.3-0.4	SE157098.019	LB109995	12 Sep 2016	14 Sep 2016	26 Sep 2016	16 Sep 2016	26 Oct 2016	20 Sep 2016
BH16_0.11-0.21	SE157098.020	LB109995	12 Sep 2016	14 Sep 2016	26 Sep 2016	16 Sep 2016	26 Oct 2016	20 Sep 2016
QC9	SE157098.021	LB109995	12 Sep 2016	14 Sep 2016	26 Sep 2016	16 Sep 2016	26 Oct 2016	20 Sep 2016
TP11_0.5-0.6	SE157098.022	LB109995	09 Sep 2016	14 Sep 2016	23 Sep 2016	16 Sep 2016	26 Oct 2016	20 Sep 2016

VOC's in Soil

Method: ME-(AU)-[ENV]AN433

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
BH2_0.15-0.25	SE157098.001	LB109924	09 Sep 2016	14 Sep 2016	23 Sep 2016	16 Sep 2016	26 Oct 2016	19 Sep 2016
QC5	SE157098.002	LB109924	09 Sep 2016	14 Sep 2016	23 Sep 2016	16 Sep 2016	26 Oct 2016	19 Sep 2016
BH3_0.14-0.24	SE157098.003	LB109924	09 Sep 2016	14 Sep 2016	23 Sep 2016	16 Sep 2016	26 Oct 2016	19 Sep 2016
BH4_0.3-0.4	SE157098.004	LB109924	09 Sep 2016	14 Sep 2016	23 Sep 2016	16 Sep 2016	26 Oct 2016	19 Sep 2016
BH5_0.2-0.3	SE157098.005	LB109924	09 Sep 2016	14 Sep 2016	23 Sep 2016	16 Sep 2016	26 Oct 2016	19 Sep 2016
BH6_0.15-0.25	SE157098.006	LB109924	09 Sep 2016	14 Sep 2016	23 Sep 2016	16 Sep 2016	26 Oct 2016	19 Sep 2016
BH7_0.6-0.7	SE157098.007	LB109924	09 Sep 2016	14 Sep 2016	23 Sep 2016	16 Sep 2016	26 Oct 2016	19 Sep 2016
BH9_0.15-0.25	SE157098.008	LB109924	09 Sep 2016	14 Sep 2016	23 Sep 2016	16 Sep 2016	26 Oct 2016	19 Sep 2016
BH15_0.2-0.3	SE157098.009	LB109924	09 Sep 2016	14 Sep 2016	23 Sep 2016	16 Sep 2016	26 Oct 2016	19 Sep 2016
QC7	SE157098.010	LB109924	09 Sep 2016	14 Sep 2016	23 Sep 2016	16 Sep 2016	26 Oct 2016	19 Sep 2016
BH17_0.2-0.3	SE157098.011	LB109924	09 Sep 2016	14 Sep 2016	23 Sep 2016	16 Sep 2016	26 Oct 2016	19 Sep 2016
BH18_0.2-0.3	SE157098.012	LB109924	09 Sep 2016	14 Sep 2016	23 Sep 2016	16 Sep 2016	26 Oct 2016	19 Sep 2016
QC6	SE157098.013	LB109924	09 Sep 2016	14 Sep 2016	23 Sep 2016	16 Sep 2016	26 Oct 2016	19 Sep 2016
BH10_0.15-0.25	SE157098.014	LB109924	12 Sep 2016	14 Sep 2016	26 Sep 2016	16 Sep 2016	26 Oct 2016	19 Sep 2016
BH11_0.14-0.24	SE157098.015	LB109924	12 Sep 2016	14 Sep 2016	26 Sep 2016	16 Sep 2016	26 Oct 2016	19 Sep 2016
QC8	SE157098.016	LB109924	12 Sep 2016	14 Sep 2016	26 Sep 2016	16 Sep 2016	26 Oct 2016	19 Sep 2016
BH12_1.0-1.1	SE157098.017	LB109924	12 Sep 2016	14 Sep 2016	26 Sep 2016	16 Sep 2016	26 Oct 2016	19 Sep 2016
BH13_2.3-2.4	SE157098.018	LB109924	12 Sep 2016	14 Sep 2016	26 Sep 2016	16 Sep 2016	26 Oct 2016	19 Sep 2016
BH14_0.3-0.4	SE157098.019	LB109924	12 Sep 2016	14 Sep 2016	26 Sep 2016	16 Sep 2016	26 Oct 2016	19 Sep 2016
BH16_0.11-0.21	SE157098.020	LB109925	12 Sep 2016	14 Sep 2016	26 Sep 2016	16 Sep 2016	26 Oct 2016	19 Sep 2016
QC9	SE157098.021	LB109925	12 Sep 2016	14 Sep 2016	26 Sep 2016	16 Sep 2016	26 Oct 2016	19 Sep 2016
TP11_0.5-0.6	SE157098.022	LB109925	09 Sep 2016	14 Sep 2016	23 Sep 2016	16 Sep 2016	26 Oct 2016	19 Sep 2016

Volatile Petroleum Hydrocarbons in Soil

Method: ME-(AU)-[ENV]AN433

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
BH2_0.15-0.25	SE157098.001	LB109924	09 Sep 2016	14 Sep 2016	23 Sep 2016	16 Sep 2016	26 Oct 2016	19 Sep 2016
QC5	SE157098.002	LB109924	09 Sep 2016	14 Sep 2016	23 Sep 2016	16 Sep 2016	26 Oct 2016	19 Sep 2016
BH3_0.14-0.24	SE157098.003	LB109924	09 Sep 2016	14 Sep 2016	23 Sep 2016	16 Sep 2016	26 Oct 2016	19 Sep 2016
BH4_0.3-0.4	SE157098.004	LB109924	09 Sep 2016	14 Sep 2016	23 Sep 2016	16 Sep 2016	26 Oct 2016	19 Sep 2016
BH5_0.2-0.3	SE157098.005	LB109924	09 Sep 2016	14 Sep 2016	23 Sep 2016	16 Sep 2016	26 Oct 2016	19 Sep 2016
BH6_0.15-0.25	SE157098.006	LB109924	09 Sep 2016	14 Sep 2016	23 Sep 2016	16 Sep 2016	26 Oct 2016	19 Sep 2016
BH7_0.6-0.7	SE157098.007	LB109924	09 Sep 2016	14 Sep 2016	23 Sep 2016	16 Sep 2016	26 Oct 2016	19 Sep 2016
BH9_0.15-0.25	SE157098.008	LB109924	09 Sep 2016	14 Sep 2016	23 Sep 2016	16 Sep 2016	26 Oct 2016	19 Sep 2016
BH15_0.2-0.3	SE157098.009	LB109924	09 Sep 2016	14 Sep 2016	23 Sep 2016	16 Sep 2016	26 Oct 2016	19 Sep 2016
QC7	SE157098.010	LB109924	09 Sep 2016	14 Sep 2016	23 Sep 2016	16 Sep 2016	26 Oct 2016	19 Sep 2016
BH17_0.2-0.3	SE157098.011	LB109924	09 Sep 2016	14 Sep 2016	23 Sep 2016	16 Sep 2016	26 Oct 2016	19 Sep 2016
BH18_0.2-0.3	SE157098.012	LB109924	09 Sep 2016	14 Sep 2016	23 Sep 2016	16 Sep 2016	26 Oct 2016	19 Sep 2016
QC6	SE157098.013	LB109924	09 Sep 2016	14 Sep 2016	23 Sep 2016	16 Sep 2016	26 Oct 2016	19 Sep 2016
BH10_0.15-0.25	SE157098.014	LB109924	12 Sep 2016	14 Sep 2016	26 Sep 2016	16 Sep 2016	26 Oct 2016	19 Sep 2016
BH11_0.14-0.24	SE157098.015	LB109924	12 Sep 2016	14 Sep 2016	26 Sep 2016	16 Sep 2016	26 Oct 2016	19 Sep 2016
QC8	SE157098.016	LB109924	12 Sep 2016	14 Sep 2016	26 Sep 2016	16 Sep 2016	26 Oct 2016	19 Sep 2016
BH12_1.0-1.1	SE157098.017	LB109924	12 Sep 2016	14 Sep 2016	26 Sep 2016	16 Sep 2016	26 Oct 2016	19 Sep 2016
BH13_2.3-2.4	SE157098.018	LB109924	12 Sep 2016	14 Sep 2016	26 Sep 2016	16 Sep 2016	26 Oct 2016	19 Sep 2016
BH14_0.3-0.4	SE157098.019	LB109924	12 Sep 2016	14 Sep 2016	26 Sep 2016	16 Sep 2016	26 Oct 2016	19 Sep 2016
BH16_0.11-0.21	SE157098.020	LB109925	12 Sep 2016	14 Sep 2016	26 Sep 2016	16 Sep 2016	26 Oct 2016	19 Sep 2016
QC9	SE157098.021	LB109925	12 Sep 2016	14 Sep 2016	26 Sep 2016	16 Sep 2016	26 Oct 2016	19 Sep 2016
TP11_0.5-0.6	SE157098.022	LB109925	09 Sep 2016	14 Sep 2016	23 Sep 2016	16 Sep 2016	26 Oct 2016	19 Sep 2016

HOLDING TIME SUMMARY

SE157098 R0

SGS holding time criteria are drawn from current regulations and are highly dependent on sample container preservation as specified in the SGS “Field Sampling Guide for Containers and Holding Time” (ref: GU-(AU)-ENV.001). Soil samples guidelines are derived from NEPM "Schedule B(3) Guideline on Laboratory Analysis of Potentially Contaminated Soils". Water sample guidelines are derived from "AS/NZS 5667.1 : 1998 Water Quality - sampling part 1" and APHA "Standard Methods for the Examination of Water and Wastewater" 21st edition 2005.

Extraction and analysis holding time due dates listed are calculated from the date sampled, although holding times may be extended after laboratory extraction for some analytes. The due dates are the suggested dates that samples may be held before extraction or analysis and still be considered valid.

Extraction and analysis dates are shown in **Green** when within suggested criteria or **Red** with an appended dagger symbol (†) when outside suggested criteria. If the sampled date is not supplied then compliance with criteria cannot be determined. If the received date is after one or both due dates then holding time will fail by default.

Surrogate results are evaluated against upper and lower limit criteria established in the SGS QA /QC plan (Ref: MP-(AU)-[ENV]QU-022). At least two of three routine level soil sample surrogate spike recoveries for BTEX/VOC are to be within 70-130% where control charts have not been developed and within the established control limits for charted surrogates. Matrix effects may void this as an acceptance criterion. Water sample surrogate spike recoveries are to be within 40-130%. The presence of emulsions, surfactants and particulates may void this as an acceptance criterion.

Result is shown in **Green** when within suggested criteria or **Red** with an appended reason identifer when outside suggested criteria. Refer to the footnotes section at the end of this report for failure reasons.

OC Pesticides in Soil

Method: ME-(AU)-[ENV]AN400/AN420

Parameter	Sample Name	Sample Number	Units	Criteria	Recovery %
Tetrachloro-m-xylene (TCMX) (Surrogate)	BH2_0.15-0.25	SE157098.001	%	60 - 130%	89
	QC5	SE157098.002	%	60 - 130%	89
	BH3_0.14-0.24	SE157098.003	%	60 - 130%	91
	BH4_0.3-0.4	SE157098.004	%	60 - 130%	81
	BH5_0.2-0.3	SE157098.005	%	60 - 130%	85
	BH6_0.15-0.25	SE157098.006	%	60 - 130%	90
	BH7_0.6-0.7	SE157098.007	%	60 - 130%	85
	BH9_0.15-0.25	SE157098.008	%	60 - 130%	89
	BH15_0.2-0.3	SE157098.009	%	60 - 130%	87
	QC7	SE157098.010	%	60 - 130%	90
	BH17_0.2-0.3	SE157098.011	%	60 - 130%	78
	BH18_0.2-0.3	SE157098.012	%	60 - 130%	91
	QC6	SE157098.013	%	60 - 130%	87
	BH10_0.15-0.25	SE157098.014	%	60 - 130%	90
	BH11_0.14-0.24	SE157098.015	%	60 - 130%	89
	QC8	SE157098.016	%	60 - 130%	83
	BH12_1.0-1.1	SE157098.017	%	60 - 130%	101
	BH13_2.3-2.4	SE157098.018	%	60 - 130%	101
	BH14_0.3-0.4	SE157098.019	%	60 - 130%	100
	BH16_0.11-0.21	SE157098.020	%	60 - 130%	97
	QC9	SE157098.021	%	60 - 130%	101
	TP11_0.5-0.6	SE157098.022	%	60 - 130%	99

OP Pesticides in Soil

Method: ME-(AU)-[ENV]AN400/AN420

Parameter	Sample Name	Sample Number	Units	Criteria	Recovery %
2-fluorobiphenyl (Surrogate)	BH2_0.15-0.25	SE157098.001	%	60 - 130%	86
	QC5	SE157098.002	%	60 - 130%	84
	BH3_0.14-0.24	SE157098.003	%	60 - 130%	90
	BH4_0.3-0.4	SE157098.004	%	60 - 130%	86
	BH5_0.2-0.3	SE157098.005	%	60 - 130%	84
	BH6_0.15-0.25	SE157098.006	%	60 - 130%	82
	BH7_0.6-0.7	SE157098.007	%	60 - 130%	84
	BH9_0.15-0.25	SE157098.008	%	60 - 130%	84
	BH15_0.2-0.3	SE157098.009	%	60 - 130%	88
	QC7	SE157098.010	%	60 - 130%	88
	BH17_0.2-0.3	SE157098.011	%	60 - 130%	84
	BH18_0.2-0.3	SE157098.012	%	60 - 130%	84
	QC6	SE157098.013	%	60 - 130%	86
	BH10_0.15-0.25	SE157098.014	%	60 - 130%	84
	BH11_0.14-0.24	SE157098.015	%	60 - 130%	86
	QC8	SE157098.016	%	60 - 130%	88
	BH12_1.0-1.1	SE157098.017	%	60 - 130%	78
	BH13_2.3-2.4	SE157098.018	%	60 - 130%	80
	BH14_0.3-0.4	SE157098.019	%	60 - 130%	82
	BH16_0.11-0.21	SE157098.020	%	60 - 130%	82
	QC9	SE157098.021	%	60 - 130%	82
	TP11_0.5-0.6	SE157098.022	%	60 - 130%	80
d14-p-terphenyl (Surrogate)	BH2_0.15-0.25	SE157098.001	%	60 - 130%	106
	QC5	SE157098.002	%	60 - 130%	108
	BH3_0.14-0.24	SE157098.003	%	60 - 130%	110
	BH4_0.3-0.4	SE157098.004	%	60 - 130%	106
	BH5_0.2-0.3	SE157098.005	%	60 - 130%	104
	BH6_0.15-0.25	SE157098.006	%	60 - 130%	104
	BH7_0.6-0.7	SE157098.007	%	60 - 130%	104
	BH9_0.15-0.25	SE157098.008	%	60 - 130%	110
	BH15_0.2-0.3	SE157098.009	%	60 - 130%	112
	QC7	SE157098.010	%	60 - 130%	112
	BH17_0.2-0.3	SE157098.011	%	60 - 130%	108
	BH18_0.2-0.3	SE157098.012	%	60 - 130%	106
	QC6	SE157098.013	%	60 - 130%	110
	BH10_0.15-0.25	SE157098.014	%	60 - 130%	112

Surrogate results are evaluated against upper and lower limit criteria established in the SGS QA /QC plan (Ref: MP-(AU)-[ENV]QU-022). At least two of three routine level soil sample surrogate spike recoveries for BTEX/VOC are to be within 70-130% where control charts have not been developed and within the established control limits for charted surrogates. Matrix effects may void this as an acceptance criterion. Water sample surrogate spike recoveries are to be within 40-130%. The presence of emulsions, surfactants and particulates may void this as an acceptance criterion.

Result is shown in **Green** when within suggested criteria or **Red** with an appended reason identifer when outside suggested criteria. Refer to the footnotes section at the end of this report for failure reasons.

OP Pesticides in Soil (continued)

Method: ME-(AU)-[ENV]AN400/AN420

Parameter	Sample Name	Sample Number	Units	Criteria	Recovery %
d14-p-terphenyl (Surrogate)	BH11_0.14-0.24	SE157098.015	%	60 - 130%	112
	QC8	SE157098.016	%	60 - 130%	112
	BH12_1.0-1.1	SE157098.017	%	60 - 130%	96
	BH13_2.3-2.4	SE157098.018	%	60 - 130%	100
	BH14_0.3-0.4	SE157098.019	%	60 - 130%	104
	BH16_0.11-0.21	SE157098.020	%	60 - 130%	102
	QC9	SE157098.021	%	60 - 130%	100
	TP11_0.5-0.6	SE157098.022	%	60 - 130%	104

PAH (Polynuclear Aromatic Hydrocarbons) in Soil

Method: ME-(AU)-[ENV]AN420

Parameter	Sample Name	Sample Number	Units	Criteria	Recovery %
2-fluorobiphenyl (Surrogate)	BH2_0.15-0.25	SE157098.001	%	70 - 130%	86
	QC5	SE157098.002	%	70 - 130%	84
	BH3_0.14-0.24	SE157098.003	%	70 - 130%	90
	BH4_0.3-0.4	SE157098.004	%	70 - 130%	86
	BH5_0.2-0.3	SE157098.005	%	70 - 130%	84
	BH6_0.15-0.25	SE157098.006	%	70 - 130%	82
	BH7_0.6-0.7	SE157098.007	%	70 - 130%	84
	BH9_0.15-0.25	SE157098.008	%	70 - 130%	84
	BH15_0.2-0.3	SE157098.009	%	70 - 130%	88
	QC7	SE157098.010	%	70 - 130%	88
	BH17_0.2-0.3	SE157098.011	%	70 - 130%	84
	BH18_0.2-0.3	SE157098.012	%	70 - 130%	84
	QC6	SE157098.013	%	70 - 130%	86
	BH10_0.15-0.25	SE157098.014	%	70 - 130%	84
	BH11_0.14-0.24	SE157098.015	%	70 - 130%	86
	QC8	SE157098.016	%	70 - 130%	88
	BH12_1.0-1.1	SE157098.017	%	70 - 130%	78
	BH13_2.3-2.4	SE157098.018	%	70 - 130%	80
	BH14_0.3-0.4	SE157098.019	%	70 - 130%	82
	BH16_0.11-0.21	SE157098.020	%	70 - 130%	82
	QC9	SE157098.021	%	70 - 130%	82
	TP11_0.5-0.6	SE157098.022	%	70 - 130%	80
d14-p-terphenyl (Surrogate)	BH2_0.15-0.25	SE157098.001	%	70 - 130%	106
	QC5	SE157098.002	%	70 - 130%	108
	BH3_0.14-0.24	SE157098.003	%	70 - 130%	110
	BH4_0.3-0.4	SE157098.004	%	70 - 130%	106
	BH5_0.2-0.3	SE157098.005	%	70 - 130%	104
	BH6_0.15-0.25	SE157098.006	%	70 - 130%	104
	BH7_0.6-0.7	SE157098.007	%	70 - 130%	104
	BH9_0.15-0.25	SE157098.008	%	70 - 130%	110
	BH15_0.2-0.3	SE157098.009	%	70 - 130%	112
	QC7	SE157098.010	%	70 - 130%	112
	BH17_0.2-0.3	SE157098.011	%	70 - 130%	108
	BH18_0.2-0.3	SE157098.012	%	70 - 130%	106
	QC6	SE157098.013	%	70 - 130%	110
	BH10_0.15-0.25	SE157098.014	%	70 - 130%	112
	BH11_0.14-0.24	SE157098.015	%	70 - 130%	112
	QC8	SE157098.016	%	70 - 130%	112
	BH12_1.0-1.1	SE157098.017	%	70 - 130%	96
	BH13_2.3-2.4	SE157098.018	%	70 - 130%	100
	BH14_0.3-0.4	SE157098.019	%	70 - 130%	104
	BH16_0.11-0.21	SE157098.020	%	70 - 130%	102
	QC9	SE157098.021	%	70 - 130%	100
	TP11_0.5-0.6	SE157098.022	%	70 - 130%	104
d5-nitrobenzene (Surrogate)	BH2_0.15-0.25	SE157098.001	%	70 - 130%	88
	QC5	SE157098.002	%	70 - 130%	86
	BH3_0.14-0.24	SE157098.003	%	70 - 130%	96
	BH4_0.3-0.4	SE157098.004	%	70 - 130%	90
	BH5_0.2-0.3	SE157098.005	%	70 - 130%	86
	BH6_0.15-0.25	SE157098.006	%	70 - 130%	86

Surrogate results are evaluated against upper and lower limit criteria established in the SGS QA /QC plan (Ref: MP-(AU)-[ENV]QU-022). At least two of three routine level soil sample surrogate spike recoveries for BTEX/VOC are to be within 70-130% where control charts have not been developed and within the established control limits for charted surrogates. Matrix effects may void this as an acceptance criterion. Water sample surrogate spike recoveries are to be within 40-130%. The presence of emulsions, surfactants and particulates may void this as an acceptance criterion.

Result is shown in **Green** when within suggested criteria or **Red** with an appended reason identifer when outside suggested criteria. Refer to the footnotes section at the end of this report for failure reasons.

PAH (Polynuclear Aromatic Hydrocarbons) in Soil (continued)

Method: ME-(AU)-[ENV]AN420

Parameter	Sample Name	Sample Number	Units	Criteria	Recovery %
d5-nitrobenzene (Surrogate)	BH7_0.6-0.7	SE157098.007	%	70 - 130%	86
	BH9_0.15-0.25	SE157098.008	%	70 - 130%	82
	BH15_0.2-0.3	SE157098.009	%	70 - 130%	92
	QC7	SE157098.010	%	70 - 130%	90
	BH17_0.2-0.3	SE157098.011	%	70 - 130%	90
	BH18_0.2-0.3	SE157098.012	%	70 - 130%	88
	QC6	SE157098.013	%	70 - 130%	90
	BH10_0.15-0.25	SE157098.014	%	70 - 130%	86
	BH11_0.14-0.24	SE157098.015	%	70 - 130%	92
	QC8	SE157098.016	%	70 - 130%	92
	BH12_1.0-1.1	SE157098.017	%	70 - 130%	82
	BH13_2.3-2.4	SE157098.018	%	70 - 130%	84
	BH14_0.3-0.4	SE157098.019	%	70 - 130%	86
	BH16_0.11-0.21	SE157098.020	%	70 - 130%	84
	QC9	SE157098.021	%	70 - 130%	84
	TP11_0.5-0.6	SE157098.022	%	70 - 130%	82

VOC's in Soil

Method: ME-(AU)-[ENV]AN433

Parameter	Sample Name	Sample Number	Units	Criteria	Recovery %
Bromofluorobenzene (Surrogate)	BH2_0.15-0.25	SE157098.001	%	60 - 130%	70
	QC5	SE157098.002	%	60 - 130%	71
	BH3_0.14-0.24	SE157098.003	%	60 - 130%	70
	BH4_0.3-0.4	SE157098.004	%	60 - 130%	79
	BH5_0.2-0.3	SE157098.005	%	60 - 130%	78
	BH6_0.15-0.25	SE157098.006	%	60 - 130%	74
	BH7_0.6-0.7	SE157098.007	%	60 - 130%	71
	BH9_0.15-0.25	SE157098.008	%	60 - 130%	70
	BH15_0.2-0.3	SE157098.009	%	60 - 130%	72
	QC7	SE157098.010	%	60 - 130%	74
	BH17_0.2-0.3	SE157098.011	%	60 - 130%	73
	BH18_0.2-0.3	SE157098.012	%	60 - 130%	70
	QC6	SE157098.013	%	60 - 130%	76
	BH10_0.15-0.25	SE157098.014	%	60 - 130%	80
	BH11_0.14-0.24	SE157098.015	%	60 - 130%	76
	QC8	SE157098.016	%	60 - 130%	77
	BH12_1.0-1.1	SE157098.017	%	60 - 130%	90
	BH13_2.3-2.4	SE157098.018	%	60 - 130%	75
	BH14_0.3-0.4	SE157098.019	%	60 - 130%	77
	BH16_0.11-0.21	SE157098.020	%	60 - 130%	72
	QC9	SE157098.021	%	60 - 130%	89
	TP11_0.5-0.6	SE157098.022	%	60 - 130%	95
d4-1,2-dichloroethane (Surrogate)	BH2_0.15-0.25	SE157098.001	%	60 - 130%	83
	QC5	SE157098.002	%	60 - 130%	88
	BH3_0.14-0.24	SE157098.003	%	60 - 130%	89
	BH4_0.3-0.4	SE157098.004	%	60 - 130%	87
	BH5_0.2-0.3	SE157098.005	%	60 - 130%	90
	BH6_0.15-0.25	SE157098.006	%	60 - 130%	92
	BH7_0.6-0.7	SE157098.007	%	60 - 130%	85
	BH9_0.15-0.25	SE157098.008	%	60 - 130%	84
	BH15_0.2-0.3	SE157098.009	%	60 - 130%	93
	QC7	SE157098.010	%	60 - 130%	80
	BH17_0.2-0.3	SE157098.011	%	60 - 130%	82
	BH18_0.2-0.3	SE157098.012	%	60 - 130%	88
	QC6	SE157098.013	%	60 - 130%	84
	BH10_0.15-0.25	SE157098.014	%	60 - 130%	88
	BH11_0.14-0.24	SE157098.015	%	60 - 130%	92
	QC8	SE157098.016	%	60 - 130%	94
	BH12_1.0-1.1	SE157098.017	%	60 - 130%	93
	BH13_2.3-2.4	SE157098.018	%	60 - 130%	89
	BH14_0.3-0.4	SE157098.019	%	60 - 130%	83
	BH16_0.11-0.21	SE157098.020	%	60 - 130%	75

Surrogate results are evaluated against upper and lower limit criteria established in the SGS QA /QC plan (Ref: MP-(AU)-[ENV]QU-022). At least two of three routine level soil sample surrogate spike recoveries for BTEX/VOC are to be within 70-130% where control charts have not been developed and within the established control limits for charted surrogates. Matrix effects may void this as an acceptance criterion. Water sample surrogate spike recoveries are to be within 40-130%. The presence of emulsions, surfactants and particulates may void this as an acceptance criterion.

Result is shown in **Green** when within suggested criteria or **Red** with an appended reason identifer when outside suggested criteria. Refer to the footnotes section at the end of this report for failure reasons.

VOC's in Soil (continued)

Method: ME-(AU)-[ENV]AN433

Parameter	Sample Name	Sample Number	Units	Criteria	Recovery %
d4-1,2-dichloroethane (Surrogate)	QC9	SE157098.021	%	60 - 130%	87
	TP11_0.5-0.6	SE157098.022	%	60 - 130%	71
d8-toluene (Surrogate)	BH2_0.15-0.25	SE157098.001	%	60 - 130%	96
	QC5	SE157098.002	%	60 - 130%	98
	BH3_0.14-0.24	SE157098.003	%	60 - 130%	104
	BH4_0.3-0.4	SE157098.004	%	60 - 130%	92
	BH5_0.2-0.3	SE157098.005	%	60 - 130%	104
	BH6_0.15-0.25	SE157098.006	%	60 - 130%	105
	BH7_0.6-0.7	SE157098.007	%	60 - 130%	100
	BH9_0.15-0.25	SE157098.008	%	60 - 130%	91
	BH15_0.2-0.3	SE157098.009	%	60 - 130%	100
	QC7	SE157098.010	%	60 - 130%	83
	BH17_0.2-0.3	SE157098.011	%	60 - 130%	88
	BH18_0.2-0.3	SE157098.012	%	60 - 130%	90
	QC6	SE157098.013	%	60 - 130%	91
	BH10_0.15-0.25	SE157098.014	%	60 - 130%	93
	BH11_0.14-0.24	SE157098.015	%	60 - 130%	100
	QC8	SE157098.016	%	60 - 130%	98
	BH12_1.0-1.1	SE157098.017	%	60 - 130%	100
	BH13_2.3-2.4	SE157098.018	%	60 - 130%	92
	BH14_0.3-0.4	SE157098.019	%	60 - 130%	86
	BH16_0.11-0.21	SE157098.020	%	60 - 130%	80
	QC9	SE157098.021	%	60 - 130%	77
	TP11_0.5-0.6	SE157098.022	%	60 - 130%	79
Dibromofluoromethane (Surrogate)	BH2_0.15-0.25	SE157098.001	%	60 - 130%	71
	QC5	SE157098.002	%	60 - 130%	70
	BH3_0.14-0.24	SE157098.003	%	60 - 130%	71
	BH4_0.3-0.4	SE157098.004	%	60 - 130%	72
	BH5_0.2-0.3	SE157098.005	%	60 - 130%	72
	BH6_0.15-0.25	SE157098.006	%	60 - 130%	75
	BH7_0.6-0.7	SE157098.007	%	60 - 130%	70
	BH9_0.15-0.25	SE157098.008	%	60 - 130%	70
	BH15_0.2-0.3	SE157098.009	%	60 - 130%	74
	QC7	SE157098.010	%	60 - 130%	70
	BH17_0.2-0.3	SE157098.011	%	60 - 130%	70
	BH18_0.2-0.3	SE157098.012	%	60 - 130%	73
	QC6	SE157098.013	%	60 - 130%	71
	BH10_0.15-0.25	SE157098.014	%	60 - 130%	78
	BH11_0.14-0.24	SE157098.015	%	60 - 130%	73
	QC8	SE157098.016	%	60 - 130%	71
	BH12_1.0-1.1	SE157098.017	%	60 - 130%	73
	BH13_2.3-2.4	SE157098.018	%	60 - 130%	75
	BH14_0.3-0.4	SE157098.019	%	60 - 130%	74
	BH16_0.11-0.21	SE157098.020	%	60 - 130%	94
	QC9	SE157098.021	%	60 - 130%	90
	TP11_0.5-0.6	SE157098.022	%	60 - 130%	81

Volatile Petroleum Hydrocarbons in Soil

Method: ME-(AU)-[ENV]AN433

Parameter	Sample Name	Sample Number	Units	Criteria	Recovery %
Bromofluorobenzene (Surrogate)	BH2_0.15-0.25	SE157098.001	%	60 - 130%	70
	QC5	SE157098.002	%	60 - 130%	71
	BH3_0.14-0.24	SE157098.003	%	60 - 130%	70
	BH4_0.3-0.4	SE157098.004	%	60 - 130%	79
	BH5_0.2-0.3	SE157098.005	%	60 - 130%	78
	BH6_0.15-0.25	SE157098.006	%	60 - 130%	74
	BH7_0.6-0.7	SE157098.007	%	60 - 130%	71
	BH9_0.15-0.25	SE157098.008	%	60 - 130%	70
	BH15_0.2-0.3	SE157098.009	%	60 - 130%	72
	QC7	SE157098.010	%	60 - 130%	74
	BH17_0.2-0.3	SE157098.011	%	60 - 130%	73
	BH18_0.2-0.3	SE157098.012	%	60 - 130%	70

Surrogate results are evaluated against upper and lower limit criteria established in the SGS QA /QC plan (Ref: MP-(AU)-[ENV]QU-022). At least two of three routine level soil sample surrogate spike recoveries for BTEX/VOC are to be within 70-130% where control charts have not been developed and within the established control limits for charted surrogates. Matrix effects may void this as an acceptance criterion. Water sample surrogate spike recoveries are to be within 40-130%. The presence of emulsions, surfactants and particulates may void this as an acceptance criterion.

Result is shown in **Green** when within suggested criteria or **Red** with an appended reason identifer when outside suggested criteria. Refer to the footnotes section at the end of this report for failure reasons.

Volatile Petroleum Hydrocarbons in Soil (continued) — **Method: ME-(AU)-[ENV]AN433**

Parameter	Sample Name	Sample Number	Units	Criteria	Recovery %
Bromofluorobenzene (Surrogate)	QC6	SE157098.013	%	60 - 130%	76
	BH10_0.15-0.25	SE157098.014	%	60 - 130%	80
	BH11_0.14-0.24	SE157098.015	%	60 - 130%	76
	QC8	SE157098.016	%	60 - 130%	77
	BH12_1.0-1.1	SE157098.017	%	60 - 130%	90
	BH13_2.3-2.4	SE157098.018	%	60 - 130%	75
	BH14_0.3-0.4	SE157098.019	%	60 - 130%	77
	BH16_0.11-0.21	SE157098.020	%	60 - 130%	72
	QC9	SE157098.021	%	60 - 130%	89
	TP11_0.5-0.6	SE157098.022	%	60 - 130%	95
d4-1,2-dichloroethane (Surrogate)	BH2_0.15-0.25	SE157098.001	%	60 - 130%	83
	QC5	SE157098.002	%	60 - 130%	88
	BH3_0.14-0.24	SE157098.003	%	60 - 130%	89
	BH4_0.3-0.4	SE157098.004	%	60 - 130%	87
	BH5_0.2-0.3	SE157098.005	%	60 - 130%	90
	BH6_0.15-0.25	SE157098.006	%	60 - 130%	92
	BH7_0.6-0.7	SE157098.007	%	60 - 130%	85
	BH9_0.15-0.25	SE157098.008	%	60 - 130%	84
	BH15_0.2-0.3	SE157098.009	%	60 - 130%	93
	QC7	SE157098.010	%	60 - 130%	80
	BH17_0.2-0.3	SE157098.011	%	60 - 130%	82
	BH18_0.2-0.3	SE157098.012	%	60 - 130%	88
	QC6	SE157098.013	%	60 - 130%	84
	BH10_0.15-0.25	SE157098.014	%	60 - 130%	88
	BH11_0.14-0.24	SE157098.015	%	60 - 130%	92
	QC8	SE157098.016	%	60 - 130%	94
	BH12_1.0-1.1	SE157098.017	%	60 - 130%	93
	BH13_2.3-2.4	SE157098.018	%	60 - 130%	89
	BH14_0.3-0.4	SE157098.019	%	60 - 130%	83
	BH16_0.11-0.21	SE157098.020	%	60 - 130%	75
	QC9	SE157098.021	%	60 - 130%	87
	TP11_0.5-0.6	SE157098.022	%	60 - 130%	71
d8-toluene (Surrogate)	BH2_0.15-0.25	SE157098.001	%	60 - 130%	96
	QC5	SE157098.002	%	60 - 130%	98
	BH3_0.14-0.24	SE157098.003	%	60 - 130%	104
	BH4_0.3-0.4	SE157098.004	%	60 - 130%	92
	BH5_0.2-0.3	SE157098.005	%	60 - 130%	104
	BH6_0.15-0.25	SE157098.006	%	60 - 130%	105
	BH7_0.6-0.7	SE157098.007	%	60 - 130%	100
	BH9_0.15-0.25	SE157098.008	%	60 - 130%	91
	BH15_0.2-0.3	SE157098.009	%	60 - 130%	100
	QC7	SE157098.010	%	60 - 130%	83
	BH17_0.2-0.3	SE157098.011	%	60 - 130%	88
	BH18_0.2-0.3	SE157098.012	%	60 - 130%	90
	QC6	SE157098.013	%	60 - 130%	91
	BH10_0.15-0.25	SE157098.014	%	60 - 130%	93
	BH11_0.14-0.24	SE157098.015	%	60 - 130%	100
	QC8	SE157098.016	%	60 - 130%	98
	BH12_1.0-1.1	SE157098.017	%	60 - 130%	100
	BH13_2.3-2.4	SE157098.018	%	60 - 130%	92
	BH14_0.3-0.4	SE157098.019	%	60 - 130%	86
	BH16_0.11-0.21	SE157098.020	%	60 - 130%	80
	QC9	SE157098.021	%	60 - 130%	77
	TP11_0.5-0.6	SE157098.022	%	60 - 130%	79
Dibromofluoromethane (Surrogate)	BH2_0.15-0.25	SE157098.001	%	60 - 130%	71
	QC5	SE157098.002	%	60 - 130%	70
	BH3_0.14-0.24	SE157098.003	%	60 - 130%	71
	BH4_0.3-0.4	SE157098.004	%	60 - 130%	72
	BH5_0.2-0.3	SE157098.005	%	60 - 130%	72
	BH6_0.15-0.25	SE157098.006	%	60 - 130%	75
	BH7_0.6-0.7	SE157098.007	%	60 - 130%	70

Surrogate results are evaluated against upper and lower limit criteria established in the SGS QA /QC plan (Ref: MP-(AU)-[ENV]QU-022). At least two of three routine level soil sample surrogate spike recoveries for BTEX/VOC are to be within 70-130% where control charts have not been developed and within the established control limits for charted surrogates. Matrix effects may void this as an acceptance criterion. Water sample surrogate spike recoveries are to be within 40-130%. The presence of emulsions, surfactants and particulates may void this as an acceptance criterion.

Result is shown in **Green** when within suggested criteria or **Red** with an appended reason identifer when outside suggested criteria. Refer to the footnotes section at the end of this report for failure reasons.

Volatile Petroleum Hydrocarbons in Soil (continued) — **Method: ME-(AU)-[ENV]AN433**

Parameter	Sample Name	Sample Number	Units	Criteria	Recovery %
Dibromofluoromethane (Surrogate)	BH9_0.15-0.25	SE157098.008	%	60 - 130%	70
	BH15_0.2-0.3	SE157098.009	%	60 - 130%	74
	QC7	SE157098.010	%	60 - 130%	70
	BH17_0.2-0.3	SE157098.011	%	60 - 130%	70
	BH18_0.2-0.3	SE157098.012	%	60 - 130%	73
	QC6	SE157098.013	%	60 - 130%	71
	BH10_0.15-0.25	SE157098.014	%	60 - 130%	78
	BH11_0.14-0.24	SE157098.015	%	60 - 130%	73
	QC8	SE157098.016	%	60 - 130%	71
	BH12_1.0-1.1	SE157098.017	%	60 - 130%	73
	BH13_2.3-2.4	SE157098.018	%	60 - 130%	75
	BH14_0.3-0.4	SE157098.019	%	60 - 130%	74
	BH16_0.11-0.21	SE157098.020	%	60 - 130%	94
	QC9	SE157098.021	%	60 - 130%	90
	TP11_0.5-0.6	SE157098.022	%	60 - 130%	81

Blank results are evaluated against the limit of reporting (LOR), for the chosen method and its associated instrumentation, typically 2.5 times the statistically determined method detection limit (MDL).

Result is shown in **Green** when within suggested criteria or **Red** with an appended dagger symbol (†) when outside suggested criteria.

Mercury in Soil

Method: ME-(AU)-[ENV]AN312

Sample Number	Parameter	Units	LOR	Result
LB109942.001	Mercury	mg/kg	0.05	<0.05
LB109943.001	Mercury	mg/kg	0.05	<0.05

OC Pesticides in Soil

Method: ME-(AU)-[ENV]AN400/AN420

Sample Number		Parameter	Units	LOR	Result
LB109995.001		Hexachlorobenzene (HCB)	mg/kg	0.1	<0.1
		Alpha BHC	mg/kg	0.1	<0.1
		Lindane	mg/kg	0.1	<0.1
		Heptachlor	mg/kg	0.1	<0.1
		Aldrin	mg/kg	0.1	<0.1
		Beta BHC	mg/kg	0.1	<0.1
		Delta BHC	mg/kg	0.1	<0.1
		Heptachlor epoxide	mg/kg	0.1	<0.1
		Alpha Endosulfan	mg/kg	0.2	<0.2
		Gamma Chlordane	mg/kg	0.1	<0.1
		Alpha Chlordane	mg/kg	0.1	<0.1
		p,p'-DDE	mg/kg	0.1	<0.1
		Dieldrin	mg/kg	0.2	<0.2
		Endrin	mg/kg	0.2	<0.2
		Beta Endosulfan	mg/kg	0.2	<0.2
		p,p'-DDD	mg/kg	0.1	<0.1
		p,p'-DDT	mg/kg	0.1	<0.1
		Endosulfan sulphate	mg/kg	0.1	<0.1
		Endrin Aldehyde	mg/kg	0.1	<0.1
		Methoxychlor	mg/kg	0.1	<0.1
		Endrin Ketone	mg/kg	0.1	<0.1
		Isodrin	mg/kg	0.1	<0.1
		Mirex	mg/kg	0.1	<0.1
	Surrogates	Tetrachloro-m-xylene (TCMX) (Surrogate)	%	-	77

OP Pesticides in Soil

Method: ME-(AU)-[ENV]AN400/AN420

Sample Number		Parameter	Units	LOR	Result
LB109995.001		Dichlorvos	mg/kg	0.5	<0.5
		Dimethoate	mg/kg	0.5	<0.5
		Diazinon (Dimpylate)	mg/kg	0.5	<0.5
		Fenitrothion	mg/kg	0.2	<0.2
		Malathion	mg/kg	0.2	<0.2
		Chlorpyrifos (Chlorpyrifos Ethyl)	mg/kg	0.2	<0.2
		Parathion-ethyl (Parathion)	mg/kg	0.2	<0.2
		Bromophos Ethyl	mg/kg	0.2	<0.2
		Methidathion	mg/kg	0.5	<0.5
		Ethion	mg/kg	0.2	<0.2
		Azinphos-methyl (Guthion)	mg/kg	0.2	<0.2
	Surrogates	2-fluorobiphenyl (Surrogate)	%	-	92
		d14-p-terphenyl (Surrogate)	%	-	112

PAH (Polynuclear Aromatic Hydrocarbons) in Soil

Method: ME-(AU)-[ENV]AN420

Sample Number	Parameter	Units	LOR	Result
LB109995.001	Naphthalene	mg/kg	0.1	<0.1
	2-methylnaphthalene	mg/kg	0.1	<0.1
	1-methylnaphthalene	mg/kg	0.1	<0.1
	Acenaphthylene	mg/kg	0.1	<0.1
	Acenaphthene	mg/kg	0.1	<0.1
	Fluorene	mg/kg	0.1	<0.1
	Phenanthrene	mg/kg	0.1	<0.1
	Anthracene	mg/kg	0.1	<0.1
	Fluoranthene	mg/kg	0.1	<0.1
	Pyrene	mg/kg	0.1	<0.1
	Benzo(a)anthracene	mg/kg	0.1	<0.1
	Chrysene	mg/kg	0.1	<0.1
	Benzo(a)pyrene	mg/kg	0.1	<0.1

Blank results are evaluated against the limit of reporting (LOR), for the chosen method and its associated instrumentation, typically 2.5 times the statistically determined method detection limit (MDL).

Result is shown in **Green** when within suggested criteria or **Red** with an appended dagger symbol (†) when outside suggested criteria.

PAH (Polynuclear Aromatic Hydrocarbons) in Soil (continued)

Method: ME-(AU)-[ENV]AN420

Sample Number		Parameter	Units	LOR	Result
LB109995.001		Indeno(1,2,3-cd)pyrene	mg/kg	0.1	<0.1
		Dibenzo(ah)anthracene	mg/kg	0.1	<0.1
		Benzo(ghi)perylene	mg/kg	0.1	<0.1
		Total PAH (18)	mg/kg	0.8	<0.8
	Surrogates	d5-nitrobenzene (Surrogate)	%	-	96
		2-fluorobiphenyl (Surrogate)	%	-	92
		d14-p-terphenyl (Surrogate)	%	-	112

Total Phenolics in Soil

Method: ME-(AU)-[ENV]AN289

Sample Number	Parameter	Units	LOR	Result
LB110162.001	Total Phenols	mg/kg	0.1	<0.1
LB110175.001	Total Phenols	mg/kg	0.1	<0.1

Total Recoverable Metals in Soil/Waste Solids/Materials by ICPOES

Method: ME-(AU)-[ENV]AN040/AN320

Sample Number	Parameter	Units	LOR	Result
LB110007.001	Arsenic, As	mg/kg	3	<3
	Cadmium, Cd	mg/kg	0.3	<0.3
	Chromium, Cr	mg/kg	0.3	<0.3
	Copper, Cu	mg/kg	0.5	<0.5
	Lead, Pb	mg/kg	1	<1
	Nickel, Ni	mg/kg	0.5	<0.5
	Zinc, Zn	mg/kg	0.5	<0.5
LB110008.001	Arsenic, As	mg/kg	3	<3
	Cadmium, Cd	mg/kg	0.3	<0.3
	Chromium, Cr	mg/kg	0.3	<0.3
	Copper, Cu	mg/kg	0.5	<0.5
	Lead, Pb	mg/kg	1	<1
	Nickel, Ni	mg/kg	0.5	<0.5
	Zinc, Zn	mg/kg	0.5	<0.5

TRH (Total Recoverable Hydrocarbons) in Soil

Method: ME-(AU)-[ENV]AN403

Sample Number	Parameter	Units	LOR	Result
LB109995.001	TRH C10-C14	mg/kg	20	<20
	TRH C15-C28	mg/kg	45	<45
	TRH C29-C36	mg/kg	45	<45
	TRH C37-C40	mg/kg	100	<100
	TRH C10-C36 Total	mg/kg	110	<110

VOC's in Soil

Method: ME-(AU)-[ENV]AN433

Sample Number		Parameter	Units	LOR	Result
LB109924.001	Monocyclic Aromatic	Benzene	mg/kg	0.1	<0.1
	Hydrocarbons	Toluene	mg/kg	0.1	<0.1
		Ethylbenzene	mg/kg	0.1	<0.1
		m/p-xylene	mg/kg	0.2	<0.2
		o-xylene	mg/kg	0.1	<0.1
	Polycyclic VOCs	Naphthalene	mg/kg	0.1	<0.1
	Surrogates	Dibromofluoromethane (Surrogate)	%	-	71
		d4-1,2-dichloroethane (Surrogate)	%	-	86
		d8-toluene (Surrogate)	%	-	110
		Bromofluorobenzene (Surrogate)	%	-	77
	Totals	Total BTEX	mg/kg	0.6	<0.6
LB109925.001	Monocyclic Aromatic	Benzene	mg/kg	0.1	<0.1
	Hydrocarbons	Toluene	mg/kg	0.1	<0.1
		Ethylbenzene	mg/kg	0.1	<0.1
		m/p-xylene	mg/kg	0.2	<0.2
		o-xylene	mg/kg	0.1	<0.1
	Polycyclic VOCs	Naphthalene	mg/kg	0.1	<0.1
	Surrogates	Dibromofluoromethane (Surrogate)	%	-	70
		d4-1,2-dichloroethane (Surrogate)	%	-	79
		d8-toluene (Surrogate)	%	-	100
		Bromofluorobenzene (Surrogate)	%	-	98
	Totals	Total BTEX	mg/kg	0.6	<0.6

Blank results are evaluated against the limit of reporting (LOR), for the chosen method and its associated instrumentation, typically 2.5 times the statistically determined method detection limit (MDL).

Result is shown in **Green** when within suggested criteria or **Red** with an appended dagger symbol (†) when outside suggested criteria.

Volatile Petroleum Hydrocarbons in Soil — **Method: ME-(AU)-[ENV]AN433**

Sample Number		Parameter	Units	LOR	Result
LB109924.001		TRH C6-C9	mg/kg	20	<20
	Surrogates	Dibromofluoromethane (Surrogate)	%	-	71
		d4-1,2-dichloroethane (Surrogate)	%	-	86
		d8-toluene (Surrogate)	%	-	110
LB109925.001		TRH C6-C9	mg/kg	20	<20
	Surrogates	Dibromofluoromethane (Surrogate)	%	-	70
		d4-1,2-dichloroethane (Surrogate)	%	-	79
		d8-toluene (Surrogate)	%	-	100

Duplicates are calculated as Relative Percentage Difference (RPD) using the formula: RPD = | OriginalResult - ReplicateResult | x 100 / Mean

The RPD is evaluated against the Maximum Allowable Difference (MAD) criteria and can be graphically represented by a curve calculated from the Statistical Detection Limit (SDL) and Limiting Repeatability (LR) using the formula: MAD = 100 x SDL / Mean + LR

Where the Maximum Allowable Difference evaluates to a number larger than 200 it is displayed as 200.

RPD is shown in **Green** when within suggested criteria or **Red** with an appended reason identifer when outside suggested criteria. Refer to the footnotes section at the end of this report for failure reasons.

Mercury in Soil

Method: ME-(AU)-[ENV]AN312

Original	Duplicate	Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE157098.009	LB109942.014	Mercury	mg/kg	0.05	<0.05	<0.05	200	0
SE157098.018	LB109942.024	Mercury	mg/kg	0.05	<0.05	<0.05	178	0
SE157105.009	LB109943.014	Mercury	mg/kg	0.05	<0.05	<0.05	200	0
SE157105.023	LB109943.024	Mercury	mg/kg	0.05	<0.05	<0.05	150	0

Moisture Content

Method: ME-(AU)-[ENV]AN002

Original	Duplicate	Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE157098.009	LB109976.011	% Moisture	%w/w	0.5	19	20	35	6
SE157098.019	LB109976.022	% Moisture	%w/w	0.5	17	17	36	0
SE157098.022	LB109976.026	% Moisture	%w/w	0.5	16	17	36	6

OC Pesticides in Soil

Method: ME-(AU)-[ENV]AN400/AN420

Original	Duplicate		Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE157098.007	LB109995.033		Hexachlorobenzene (HCB)	mg/kg	0.1	<0.1	0	200	0
			Alpha BHC	mg/kg	0.1	<0.1	0	200	0
			Lindane	mg/kg	0.1	<0.1	0	200	0
			Heptachlor	mg/kg	0.1	<0.1	0	200	0
			Aldrin	mg/kg	0.1	<0.1	0	200	0
			Beta BHC	mg/kg	0.1	<0.1	0	200	0
			Delta BHC	mg/kg	0.1	<0.1	0	200	0
			Heptachlor epoxide	mg/kg	0.1	<0.1	0	200	0
			o,p'-DDE	mg/kg	0.1	<0.1	0	200	0
			Alpha Endosulfan	mg/kg	0.2	<0.2	0	200	0
			Gamma Chlordane	mg/kg	0.1	<0.1	0	200	0
			Alpha Chlordane	mg/kg	0.1	<0.1	0	200	0
			trans-Nonachlor	mg/kg	0.1	<0.1	0	200	0
			p,p'-DDE	mg/kg	0.1	<0.1	0	200	0
			Dieldrin	mg/kg	0.2	<0.2	0	200	0
			Endrin	mg/kg	0.2	<0.2	0	200	0
			o,p'-DDD	mg/kg	0.1	<0.1	0	200	0
			o,p'-DDT	mg/kg	0.1	<0.1	0	200	0
			Beta Endosulfan	mg/kg	0.2	<0.2	0	200	0
			p,p'-DDD	mg/kg	0.1	<0.1	0	200	0
			p,p'-DDT	mg/kg	0.1	<0.1	0	200	0
			Endosulfan sulphate	mg/kg	0.1	<0.1	0	200	0
			Endrin Aldehyde	mg/kg	0.1	<0.1	0	200	0
			Methoxychlor	mg/kg	0.1	<0.1	0	200	0
			Endrin Ketone	mg/kg	0.1	<0.1	0	200	0
			Isodrin	mg/kg	0.1	<0.1	0	200	0
			Mirex	mg/kg	0.1	<0.1	0	200	0
		Surrogates	Tetrachloro-m-xylene (TCMX) (Surrogate)	mg/kg	-	0.13	0.146	30	14
SE157098.016	LB109995.034		Hexachlorobenzene (HCB)	mg/kg	0.1	<0.1	0	200	0
			Alpha BHC	mg/kg	0.1	<0.1	0	200	0
			Lindane	mg/kg	0.1	<0.1	0	200	0
			Heptachlor	mg/kg	0.1	<0.1	0	200	0
			Aldrin	mg/kg	0.1	<0.1	0	200	0
			Beta BHC	mg/kg	0.1	<0.1	0	200	0
			Delta BHC	mg/kg	0.1	<0.1	0	200	0
			Heptachlor epoxide	mg/kg	0.1	<0.1	0	200	0
			o,p'-DDE	mg/kg	0.1	<0.1	0	200	0
			Alpha Endosulfan	mg/kg	0.2	<0.2	0	200	0
			Gamma Chlordane	mg/kg	0.1	<0.1	0	200	0
			Alpha Chlordane	mg/kg	0.1	<0.1	0	200	0
			trans-Nonachlor	mg/kg	0.1	<0.1	0	200	0
			p,p'-DDE	mg/kg	0.1	<0.1	0	200	0
			Dieldrin	mg/kg	0.2	<0.2	0	200	0
			Endrin	mg/kg	0.2	<0.2	0	200	0
			o,p'-DDD	mg/kg	0.1	<0.1	0	200	0
			o,p'-DDT	mg/kg	0.1	<0.1	0	200	0
			Beta Endosulfan	mg/kg	0.2	<0.2	0	200	0
			p,p'-DDD	mg/kg	0.1	<0.1	0	200	0

Duplicates are calculated as Relative Percentage Difference (RPD) using the formula: RPD = | OriginalResult - ReplicateResult | x 100 / Mean

The RPD is evaluated against the Maximum Allowable Difference (MAD) criteria and can be graphically represented by a curve calculated from the Statistical Detection Limit (SDL) and Limiting Repeatability (LR) using the formula: MAD = 100 x SDL / Mean + LR

Where the Maximum Allowable Difference evaluates to a number larger than 200 it is displayed as 200.

RPD is shown in **Green** when within suggested criteria or **Red** with an appended reason identifer when outside suggested criteria. Refer to the footnotes section at the end of this report for failure reasons.

OC Pesticides in Soil (continued)

Method: ME-(AU)-[ENV]AN400/AN420

Original	Duplicate		Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE157098.016	LB109995.034		p,p'-DDT	mg/kg	0.1	<0.1	0	200	0
			Endosulfan sulphate	mg/kg	0.1	<0.1	0	200	0
			Endrin Aldehyde	mg/kg	0.1	<0.1	0	200	0
			Methoxychlor	mg/kg	0.1	<0.1	0	200	0
			Endrin Ketone	mg/kg	0.1	<0.1	0	200	0
			Isodrin	mg/kg	0.1	<0.1	0	200	0
			Mirex	mg/kg	0.1	<0.1	0	200	0
		Surrogates	Tetrachloro-m-xylene (TCMX) (Surrogate)	mg/kg	-	0.13	0.158	30	23

OP Pesticides in Soil

Method: ME-(AU)-[ENV]AN400/AN420

Original	Duplicate		Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE157098.007	LB109995.033		Dichlorvos	mg/kg	0.5	<0.5	0.01	200	0
			Dimethoate	mg/kg	0.5	<0.5	0	200	0
			Diazinon (Dimpylate)	mg/kg	0.5	<0.5	0.02	200	0
			Fenitrothion	mg/kg	0.2	<0.2	0	200	0
			Malathion	mg/kg	0.2	<0.2	0.03	200	0
			Chlorpyrifos (Chlorpyrifos Ethyl)	mg/kg	0.2	<0.2	0.01	200	0
			Parathion-ethyl (Parathion)	mg/kg	0.2	<0.2	0	200	0
			Bromophos Ethyl	mg/kg	0.2	<0.2	0.04	200	0
			Methidathion	mg/kg	0.5	<0.5	0	200	0
			Ethion	mg/kg	0.2	<0.2	0	200	0
			Azinphos-methyl (Guthion)	mg/kg	0.2	<0.2	0	200	0
		Surrogates	2-fluorobiphenyl (Surrogate)	mg/kg	-	0.4	0.42	30	0
			d14-p-terphenyl (Surrogate)	mg/kg	-	0.5	0.52	30	0
SE157098.016	LB109995.034		Dichlorvos	mg/kg	0.5	<0.5	0	200	0
			Dimethoate	mg/kg	0.5	<0.5	0	200	0
			Diazinon (Dimpylate)	mg/kg	0.5	<0.5	0.02	200	0
			Fenitrothion	mg/kg	0.2	<0.2	0	200	0
			Malathion	mg/kg	0.2	<0.2	0	200	0
			Chlorpyrifos (Chlorpyrifos Ethyl)	mg/kg	0.2	<0.2	0.02	200	0
			Parathion-ethyl (Parathion)	mg/kg	0.2	<0.2	0	200	0
			Bromophos Ethyl	mg/kg	0.2	<0.2	0.04	200	0
			Methidathion	mg/kg	0.5	<0.5	0	200	0
			Ethion	mg/kg	0.2	<0.2	0	200	0
			Azinphos-methyl (Guthion)	mg/kg	0.2	<0.2	0	200	0
		Surrogates	2-fluorobiphenyl (Surrogate)	mg/kg	-	0.4	0.41	30	7
			d14-p-terphenyl (Surrogate)	mg/kg	-	0.6	0.51	30	9

PAH (Polynuclear Aromatic Hydrocarbons) in Soil

Method: ME-(AU)-[ENV]AN420

Original	Duplicate	Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE157098.007	LB109995.033	Naphthalene	mg/kg	0.1	<0.1	0	200	0
		2-methylnaphthalene	mg/kg	0.1	<0.1	0	200	0
		1-methylnaphthalene	mg/kg	0.1	<0.1	0	200	0
		Acenaphthylene	mg/kg	0.1	<0.1	0	200	0
		Acenaphthene	mg/kg	0.1	<0.1	0	200	0
		Fluorene	mg/kg	0.1	<0.1	0	200	0
		Phenanthrene	mg/kg	0.1	<0.1	0	200	0
		Anthracene	mg/kg	0.1	<0.1	0	200	0
		Fluoranthene	mg/kg	0.1	<0.1	0	200	0
		Pyrene	mg/kg	0.1	<0.1	0	200	0
		Benzo(a)anthracene	mg/kg	0.1	<0.1	0.01	200	0
		Chrysene	mg/kg	0.1	<0.1	0.01	200	0
		Benzo(b&j)fluoranthene	mg/kg	0.1	<0.1	0	200	0
		Benzo(k)fluoranthene	mg/kg	0.1	<0.1	0	200	0
		Benzo(a)pyrene	mg/kg	0.1	<0.1	0	200	0
		Indeno(1,2,3-cd)pyrene	mg/kg	0.1	<0.1	0	200	0
		Dibenzo(ah)anthracene	mg/kg	0.1	<0.1	0	200	0
		Benzo(ghi)perylene	mg/kg	0.1	<0.1	0	200	0
		Carcinogenic PAHs, BaP TEQ <LOR=0	TEQ (mg/kg)	0.2	<0.2	0	200	0
		Carcinogenic PAHs, BaP TEQ <LOR=LOR	TEQ (mg/kg)	0.3	<0.3	0.242	134	0
		Carcinogenic PAHs, BaP TEQ <LOR=LOR/2	TEQ (mg/kg)	0.2	<0.2	0.121	175	0
		Total PAH (18)	mg/kg	0.8	<0.8	0	200	0

Duplicates are calculated as Relative Percentage Difference (RPD) using the formula: RPD = | OriginalResult - ReplicateResult | x 100 / Mean

The RPD is evaluated against the Maximum Allowable Difference (MAD) criteria and can be graphically represented by a curve calculated from the Statistical Detection Limit (SDL) and Limiting Repeatability (LR) using the formula: MAD = 100 x SDL / Mean + LR

Where the Maximum Allowable Difference evaluates to a number larger than 200 it is displayed as 200.

RPD is shown in **Green** when within suggested criteria or **Red** with an appended reason identifer when outside suggested criteria. Refer to the footnotes section at the end of this report for failure reasons.

PAH (Polynuclear Aromatic Hydrocarbons) in Soil (continued)

Method: ME-(AU)-[ENV]AN420

Original	Duplicate		Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE157098.007	LB109995.033	Surrogates	d5-nitrobenzene (Surrogate)	mg/kg	-	0.4	0.44	30	2
			2-fluorobiphenyl (Surrogate)	mg/kg	-	0.4	0.42	30	0
			d14-p-terphenyl (Surrogate)	mg/kg	-	0.5	0.52	30	0
SE157098.016	LB109995.034		Naphthalene	mg/kg	0.1	<0.1	0	200	0
			2-methylnaphthalene	mg/kg	0.1	<0.1	0	200	0
			1-methylnaphthalene	mg/kg	0.1	<0.1	0	200	0
			Acenaphthylene	mg/kg	0.1	<0.1	0	200	0
			Acenaphthene	mg/kg	0.1	<0.1	0	200	0
			Fluorene	mg/kg	0.1	<0.1	0	200	0
			Phenanthrene	mg/kg	0.1	<0.1	0	200	0
			Anthracene	mg/kg	0.1	<0.1	0	200	0
			Fluoranthene	mg/kg	0.1	<0.1	0	200	0
			Pyrene	mg/kg	0.1	<0.1	0	200	0
			Benzo(a)anthracene	mg/kg	0.1	<0.1	0.01	200	0
			Chrysene	mg/kg	0.1	<0.1	0	200	0
			Benzo(b&j)fluoranthene	mg/kg	0.1	<0.1	0	200	0
			Benzo(k)fluoranthene	mg/kg	0.1	<0.1	0	200	0
			Benzo(a)pyrene	mg/kg	0.1	<0.1	0	200	0
			Indeno(1,2,3-cd)pyrene	mg/kg	0.1	<0.1	0	200	0
			Dibenzo(ah)anthracene	mg/kg	0.1	<0.1	0	200	0
			Benzo(ghi)perylene	mg/kg	0.1	<0.1	0	200	0
			Carcinogenic PAHs, BaP TEQ <LOR=0	TEQ (mg/kg)	0.2	<0.2	0	200	0
			Carcinogenic PAHs, BaP TEQ <LOR=LOR	TEQ (mg/kg)	0.3	<0.3	0.242	134	0
			Carcinogenic PAHs, BaP TEQ <LOR=LOR/2	TEQ (mg/kg)	0.2	<0.2	0.121	175	0
			Total PAH (18)	mg/kg	0.8	<0.8	0	200	0
		Surrogates	d5-nitrobenzene (Surrogate)	mg/kg	-	0.5	0.43	30	7
			2-fluorobiphenyl (Surrogate)	mg/kg	-	0.4	0.41	30	7
			d14-p-terphenyl (Surrogate)	mg/kg	-	0.6	0.51	30	9

Total Recoverable Metals in Soil/Waste Solids/Materials by ICPOES

Method: ME-(AU)-[ENV]AN040/AN320

Original	Duplicate	Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE157098.009	LB110007.014	Arsenic, As	mg/kg	3	7	6	45	5
		Cadmium, Cd	mg/kg	0.3	<0.3	<0.3	200	0
		Chromium, Cr	mg/kg	0.3	10	9.3	35	10
		Copper, Cu	mg/kg	0.5	15	14	33	3
		Lead, Pb	mg/kg	1	17	17	36	4
		Nickel, Ni	mg/kg	0.5	13	13	34	3
		Zinc, Zn	mg/kg	0.5	76	78	33	2
SE157098.018	LB110007.024	Arsenic, As	mg/kg	3	26	27	34	5
		Cadmium, Cd	mg/kg	0.3	1.1	1.1	58	2
		Chromium, Cr	mg/kg	0.3	14	15	34	6
		Copper, Cu	mg/kg	0.5	18	18	33	1
		Lead, Pb	mg/kg	1	50	50	32	0
		Nickel, Ni	mg/kg	0.5	54	64	31	16
		Zinc, Zn	mg/kg	0.5	100	110	32	3
SE157105.009	LB110008.014	Arsenic, As	mg/kg	3	6	7	45	11
		Cadmium, Cd	mg/kg	0.3	<0.3	<0.3	167	0
		Chromium, Cr	mg/kg	0.3	21	22	32	6
		Copper, Cu	mg/kg	0.5	12	13	34	8
		Lead, Pb	mg/kg	1	18	20	35	7
		Nickel, Ni	mg/kg	0.5	7.6	8.2	36	8
		Zinc, Zn	mg/kg	0.5	24	26	38	7
SE157105.023	LB110008.024	Arsenic, As	mg/kg	3	14	11	38	27
		Cadmium, Cd	mg/kg	0.3	0.4	0.3	113	19
		Chromium, Cr	mg/kg	0.3	48	39	31	19
		Copper, Cu	mg/kg	0.5	24	19	32	26
		Lead, Pb	mg/kg	1	22	22	34	2
		Nickel, Ni	mg/kg	0.5	19	14	33	31
		Zinc, Zn	mg/kg	0.5	34	25	37	30

TRH (Total Recoverable Hydrocarbons) in Soil

Method: ME-(AU)-[ENV]AN403

Original	Duplicate	Parameter	Units	LOR

Duplicates are calculated as Relative Percentage Difference (RPD) using the formula: RPD = | OriginalResult - ReplicateResult | x 100 / Mean

The RPD is evaluated against the Maximum Allowable Difference (MAD) criteria and can be graphically represented by a curve calculated from the Statistical Detection Limit (SDL) and Limiting Repeatability (LR) using the formula: MAD = 100 x SDL / Mean + LR

Where the Maximum Allowable Difference evaluates to a number larger than 200 it is displayed as 200.

RPD is shown in **Green** when within suggested criteria or **Red** with an appended reason identifer when outside suggested criteria. Refer to the footnotes section at the end of this report for failure reasons.

TRH (Total Recoverable Hydrocarbons) in Soil (continued)

Method: ME-(AU)-[ENV]AN403

Original	Duplicate		Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE157098.007	LB109995.034		TRH C10-C14	mg/kg	20	<20	0	200	0
			TRH C15-C28	mg/kg	45	<45	0	200	0
			TRH C29-C36	mg/kg	45	<45	0	200	0
			TRH C37-C40	mg/kg	100	<100	0	200	0
			TRH C10-C36 Total	mg/kg	110	<110	0	200	0
			TRH C10-C40 Total	mg/kg	210	<210	0	200	0
		TRH F Bands	TRH >C10-C16 (F2)	mg/kg	25	<25	0	200	0
			TRH >C10-C16 (F2) - Naphthalene	mg/kg	25	<25	0	200	0
			TRH >C16-C34 (F3)	mg/kg	90	<90	0	200	0
			TRH >C34-C40 (F4)	mg/kg	120	<120	0	200	0
SE157098.016	LB109995.032		TRH C10-C14	mg/kg	20	<20	0	200	0
			TRH C15-C28	mg/kg	45	<45	0	200	0
			TRH C29-C36	mg/kg	45	<45	0	200	0
			TRH C37-C40	mg/kg	100	<100	0	200	0
			TRH C10-C36 Total	mg/kg	110	<110	0	200	0
			TRH C10-C40 Total	mg/kg	210	<210	0	200	0
		TRH F Bands	TRH >C10-C16 (F2)	mg/kg	25	<25	0	200	0
			TRH >C10-C16 (F2) - Naphthalene	mg/kg	25	<25	0	200	0
			TRH >C16-C34 (F3)	mg/kg	90	<90	0	200	0
			TRH >C34-C40 (F4)	mg/kg	120	<120	0	200	0

VOC's in Soil

Method: ME-(AU)-[ENV]AN433

Original	Duplicate		Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE157098.009	LB109924.014	Monocyclic	Benzene	mg/kg	0.1	<0.1	<0.1	200	0
		Aromatic	Toluene	mg/kg	0.1	<0.1	<0.1	200	0
			Ethylbenzene	mg/kg	0.1	<0.1	<0.1	200	0
			m/p-xylene	mg/kg	0.2	<0.2	<0.2	200	0
			o-xylene	mg/kg	0.1	<0.1	<0.1	200	0
		Polycyclic	Naphthalene	mg/kg	0.1	<0.1	<0.1	200	0
		Surrogates	Dibromofluoromethane (Surrogate)	mg/kg	-	3.7	3.6	50	2
			d4-1,2-dichloroethane (Surrogate)	mg/kg	-	4.6	4.4	50	6
			d8-toluene (Surrogate)	mg/kg	-	5.0	4.7	50	6
			Bromofluorobenzene (Surrogate)	mg/kg	-	3.6	3.5	50	1
		Totals	Total Xylenes*	mg/kg	0.3	<0.3	<0.3	200	0
			Total BTEX	mg/kg	0.6	<0.6	<0.6	200	0
SE157098.019	LB109924.025	Monocyclic	Benzene	mg/kg	0.1	<0.1	<0.1	200	0
		Aromatic	Toluene	mg/kg	0.1	<0.1	<0.1	200	0
			Ethylbenzene	mg/kg	0.1	<0.1	<0.1	200	0
			m/p-xylene	mg/kg	0.2	<0.2	<0.2	200	0
			o-xylene	mg/kg	0.1	<0.1	<0.1	200	0
		Polycyclic	Naphthalene	mg/kg	0.1	<0.1	<0.1	200	0
		Surrogates	Dibromofluoromethane (Surrogate)	mg/kg	-	3.7	3.6	50	4
			d4-1,2-dichloroethane (Surrogate)	mg/kg	-	4.2	4.2	50	0
			d8-toluene (Surrogate)	mg/kg	-	4.3	4.3	50	1
			Bromofluorobenzene (Surrogate)	mg/kg	-	3.8	3.5	50	9
		Totals	Total Xylenes*	mg/kg	0.3	<0.3	<0.3	200	0
			Total BTEX	mg/kg	0.6	<0.6	<0.6	200	0
SE157105.011	LB109925.014	Monocyclic	Benzene	mg/kg	0.1	<0.1	<0.1	200	0
		Aromatic	Toluene	mg/kg	0.1	<0.1	<0.1	200	0
			Ethylbenzene	mg/kg	0.1	<0.1	<0.1	200	0
			m/p-xylene	mg/kg	0.2	<0.2	<0.2	200	0
			o-xylene	mg/kg	0.1	<0.1	<0.1	200	0
		Polycyclic	Naphthalene	mg/kg	0.1	<0.1	<0.1	200	0
		Surrogates	Dibromofluoromethane (Surrogate)	mg/kg	-	4.0	4.2	50	6
			d4-1,2-dichloroethane (Surrogate)	mg/kg	-	4.0	4.2	50	6
			d8-toluene (Surrogate)	mg/kg	-	4.0	4.2	50	6
			Bromofluorobenzene (Surrogate)	mg/kg	-	4.5	4.7	50	3
		Totals	Total Xylenes*	mg/kg	0.3	<0.3	<0.3	200	0
			Total BTEX	mg/kg	0.6	<0.6	<0.6	200	0
SE157105.026	LB109925.025	Monocyclic	Benzene	mg/kg	0.1	<0.1	<0.1	200	0
		Aromatic	Toluene	mg/kg	0.1	<0.1	<0.1	200	0

Duplicates are calculated as Relative Percentage Difference (RPD) using the formula: RPD = | OriginalResult - ReplicateResult | x 100 / Mean

The RPD is evaluated against the Maximum Allowable Difference (MAD) criteria and can be graphically represented by a curve calculated from the Statistical Detection Limit (SDL) and Limiting Repeatability (LR) using the formula: MAD = 100 x SDL / Mean + LR

Where the Maximum Allowable Difference evaluates to a number larger than 200 it is displayed as 200.

RPD is shown in **Green** when within suggested criteria or **Red** with an appended reason identifer when outside suggested criteria. Refer to the footnotes section at the end of this report for failure reasons.

VOC's in Soil (continued)

Method: ME-(AU)-[ENV]AN433

Original	Duplicate		Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE157105.026	LB109925.025	Monocyclic	Ethylbenzene	mg/kg	0.1	<0.1	<0.1	200	0
		Aromatic	m/p-xylene	mg/kg	0.2	<0.2	<0.2	200	0
			o-xylene	mg/kg	0.1	<0.1	<0.1	200	0
		Polycyclic	Naphthalene	mg/kg	0.1	<0.1	<0.1	200	0
		Surrogates	Dibromofluoromethane (Surrogate)	mg/kg	-	3.7	3.6	50	2
			d4-1,2-dichloroethane (Surrogate)	mg/kg	-	4.7	4.7	50	1
			d8-toluene (Surrogate)	mg/kg	-	4.5	4.7	50	5
			Bromofluorobenzene (Surrogate)	mg/kg	-	4.8	4.4	50	10
		Totals	Total Xylenes*	mg/kg	0.3	<0.3	<0.3	200	0
			Total BTEX	mg/kg	0.6	<0.6	<0.6	200	0

Volatile Petroleum Hydrocarbons in Soil

Method: ME-(AU)-[ENV]AN433

Original	Duplicate		Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE157098.009	LB109924.014		TRH C6-C10	mg/kg	25	<25	<25	200	0
			TRH C6-C9	mg/kg	20	<20	<20	200	0
		Surrogates	Dibromofluoromethane (Surrogate)	mg/kg	-	3.7	3.6	30	2
			d4-1,2-dichloroethane (Surrogate)	mg/kg	-	4.6	4.4	30	6
			d8-toluene (Surrogate)	mg/kg	-	5.0	4.7	30	6
			Bromofluorobenzene (Surrogate)	mg/kg	-	3.6	3.5	30	1
		VPH F Bands	Benzene (F0)	mg/kg	0.1	<0.1	<0.1	200	0
			TRH C6-C10 minus BTEX (F1)	mg/kg	25	<25	<25	200	0
SE157098.019	LB109924.025		TRH C6-C10	mg/kg	25	<25	<25	200	0
			TRH C6-C9	mg/kg	20	<20	<20	200	0
		Surrogates	Dibromofluoromethane (Surrogate)	mg/kg	-	3.7	3.6	30	4
			d4-1,2-dichloroethane (Surrogate)	mg/kg	-	4.2	4.2	30	0
			d8-toluene (Surrogate)	mg/kg	-	4.3	4.3	30	1
			Bromofluorobenzene (Surrogate)	mg/kg	-	3.8	3.5	30	9
		VPH F Bands	Benzene (F0)	mg/kg	0.1	<0.1	<0.1	200	0
			TRH C6-C10 minus BTEX (F1)	mg/kg	25	<25	<25	200	0
SE157105.011	LB109925.014		TRH C6-C10	mg/kg	25	<25	<25	200	0
			TRH C6-C9	mg/kg	20	<20	<20	200	0
		Surrogates	Dibromofluoromethane (Surrogate)	mg/kg	-	4.0	4.2	30	6
			d4-1,2-dichloroethane (Surrogate)	mg/kg	-	4.0	4.2	30	6
			d8-toluene (Surrogate)	mg/kg	-	4.0	4.2	30	6
			Bromofluorobenzene (Surrogate)	mg/kg	-	4.5	4.7	30	3
		VPH F Bands	Benzene (F0)	mg/kg	0.1	<0.1	<0.1	200	0
			TRH C6-C10 minus BTEX (F1)	mg/kg	25	<25	<25	200	0
SE157105.026	LB109925.025		TRH C6-C10	mg/kg	25	<25	<25	200	0
			TRH C6-C9	mg/kg	20	<20	<20	200	0
		Surrogates	Dibromofluoromethane (Surrogate)	mg/kg	-	3.7	3.6	30	2
			d4-1,2-dichloroethane (Surrogate)	mg/kg	-	4.7	4.7	30	1
			d8-toluene (Surrogate)	mg/kg	-	4.5	4.7	30	5
			Bromofluorobenzene (Surrogate)	mg/kg	-	4.8	4.4	30	10
		VPH F Bands	Benzene (F0)	mg/kg	0.1	<0.1	<0.1	200	0
			TRH C6-C10 minus BTEX (F1)	mg/kg	25	<25	<25	200	0

Laboratory Control Standard (LCS) results are evaluated against an expected result, typically the concentration of analyte spiked into the control during the sample preparation stage, producing a percentage recovery. The criteria applied to the percentage recovery is established in the SGS QA /QC plan (Ref: MP-(AU)-[ENV]QU-022). For more information refer to the footnotes in the concluding page of this report.

Recovery is shown in **Green** when within suggested criteria or **Red** with an appended dagger symbol (†) when outside suggested criteria.

Mercury in Soil

Method: ME-(AU)-[ENV]AN312

Sample Number	Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB109942.002	Mercury	mg/kg	0.05	0.20	0.2	70 - 130	99
LB109943.002	Mercury	mg/kg	0.05	0.20	0.2	70 - 130	100

OC Pesticides in Soil

Method: ME-(AU)-[ENV]AN400/AN420

Sample Number		Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB109995.002		Heptachlor	mg/kg	0.1	0.2	0.2	60 - 140	101
		Aldrin	mg/kg	0.1	0.2	0.2	60 - 140	77
		Delta BHC	mg/kg	0.1	0.2	0.2	60 - 140	75
		Dieldrin	mg/kg	0.2	<0.2	0.2	60 - 140	84
		Endrin	mg/kg	0.2	<0.2	0.2	60 - 140	80
		p,p'-DDT	mg/kg	0.1	0.2	0.2	60 - 140	115
	Surrogates	Tetrachloro-m-xylene (TCMX) (Surrogate)	mg/kg	-	0.12	0.15	40 - 130	79

OP Pesticides in Soil

Method: ME-(AU)-[ENV]AN400/AN420

Sample Number		Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB109995.002		Dichlorvos	mg/kg	0.5	2.2	2	60 - 140	110
		Diazinon (Dimpylate)	mg/kg	0.5	2.2	2	60 - 140	109
		Chlorpyrifos (Chlorpyrifos Ethyl)	mg/kg	0.2	1.8	2	60 - 140	92
		Ethion	mg/kg	0.2	2.5	2	60 - 140	123
	Surrogates	2-fluorobiphenyl (Surrogate)	mg/kg	-	0.4	0.5	40 - 130	84
		d14-p-terphenyl (Surrogate)	mg/kg	-	0.5	0.5	40 - 130	104

PAH (Polynuclear Aromatic Hydrocarbons) in Soil

Method: ME-(AU)-[ENV]AN420

Sample Number		Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB109995.002		Naphthalene	mg/kg	0.1	4.1	4	60 - 140	102
		Acenaphthylene	mg/kg	0.1	4.5	4	60 - 140	113
		Acenaphthene	mg/kg	0.1	4.0	4	60 - 140	101
		Phenanthrene	mg/kg	0.1	4.2	4	60 - 140	104
		Anthracene	mg/kg	0.1	4.4	4	60 - 140	109
		Fluoranthene	mg/kg	0.1	4.4	4	60 - 140	109
		Pyrene	mg/kg	0.1	4.4	4	60 - 140	109
		Benzo(a)pyrene	mg/kg	0.1	5.2	4	60 - 140	130
	Surrogates	d5-nitrobenzene (Surrogate)	mg/kg	-	0.4	0.5	40 - 130	88
		2-fluorobiphenyl (Surrogate)	mg/kg	-	0.4	0.5	40 - 130	84
		d14-p-terphenyl (Surrogate)	mg/kg	-	0.5	0.5	40 - 130	104

Total Phenolics in Soil

Method: ME-(AU)-[ENV]AN289

Sample Number	Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB110162.002	Total Phenols	mg/kg	0.1	2.2	2.5	70 - 130	90
LB110175.002	Total Phenols	mg/kg	0.1	2.2	2.5	70 - 130	90

Total Recoverable Metals in Soil/Waste Solids/Materials by ICPOES

Method: ME-(AU)-[ENV]AN040/AN320

Sample Number	Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB110007.002	Arsenic, As	mg/kg	3	49	50	80 - 120	98
	Cadmium, Cd	mg/kg	0.3	50	50	80 - 120	99
	Chromium, Cr	mg/kg	0.3	49	50	80 - 120	99
	Copper, Cu	mg/kg	0.5	50	50	80 - 120	99
	Lead, Pb	mg/kg	1	50	50	80 - 120	100
	Nickel, Ni	mg/kg	0.5	50	50	80 - 120	99
	Zinc, Zn	mg/kg	0.5	50	50	80 - 120	100
LB110008.002	Arsenic, As	mg/kg	3	47	50	80 - 120	95
	Cadmium, Cd	mg/kg	0.3	48	50	80 - 120	97
	Chromium, Cr	mg/kg	0.3	48	50	80 - 120	97
	Copper, Cu	mg/kg	0.5	47	50	80 - 120	95
	Lead, Pb	mg/kg	1	48	50	80 - 120	96
	Nickel, Ni	mg/kg	0.5	48	50	80 - 120	96
	Zinc, Zn	mg/kg	0.5	49	50	80 - 120	97

TRH (Total Recoverable Hydrocarbons) in Soil

Method: ME-(AU)-[ENV]AN403

Sample Number	Parameter	Units	LOR

Laboratory Control Standard (LCS) results are evaluated against an expected result, typically the concentration of analyte spiked into the control during the sample preparation stage, producing a percentage recovery. The criteria applied to the percentage recovery is established in the SGS QA /QC plan (Ref: MP-(AU)-[ENV]QU-022). For more information refer to the footnotes in the concluding page of this report.

Recovery is shown in **Green** when within suggested criteria or **Red** with an appended dagger symbol (†) when outside suggested criteria.

TRH (Total Recoverable Hydrocarbons) in Soil (continued)

Method: ME-(AU)-[ENV]AN403

Sample Number		Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB109995.002		TRH C10-C14	mg/kg	20	33	40	60 - 140	83
		TRH C15-C28	mg/kg	45	<45	40	60 - 140	80
		TRH C29-C36	mg/kg	45	<45	40	60 - 140	83
	TRH F Bands	TRH >C10-C16 (F2)	mg/kg	25	32	40	60 - 140	80
		TRH >C16-C34 (F3)	mg/kg	90	<90	40	60 - 140	83
		TRH >C34-C40 (F4)	mg/kg	120	<120	20	60 - 140	80

VOC's in Soil

Method: ME-(AU)-[ENV]AN433

Sample Number		Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB109924.002	Monocyclic	Benzene	mg/kg	0.1	2.4	2.9	60 - 140	84
	Aromatic	Toluene	mg/kg	0.1	2.5	2.9	60 - 140	84
		Ethylbenzene	mg/kg	0.1	2.1	2.9	60 - 140	73
		m/p-xylene	mg/kg	0.2	4.6	5.8	60 - 140	79
		o-xylene	mg/kg	0.1	2.3	2.9	60 - 140	79
	Surrogates	Dibromofluoromethane (Surrogate)	mg/kg	-	4.0	5	60 - 140	80
		d4-1,2-dichloroethane (Surrogate)	mg/kg	-	4.6	5	60 - 140	91
		d8-toluene (Surrogate)	mg/kg	-	5.9	5	60 - 140	118
		Bromofluorobenzene (Surrogate)	mg/kg	-	5.1	5	60 - 140	102
LB109925.002	Monocyclic	Benzene	mg/kg	0.1	2.4	2.9	60 - 140	83
	Aromatic	Toluene	mg/kg	0.1	2.9	2.9	60 - 140	101
		Ethylbenzene	mg/kg	0.1	2.3	2.9	60 - 140	78
		m/p-xylene	mg/kg	0.2	4.7	5.8	60 - 140	81
		o-xylene	mg/kg	0.1	2.4	2.9	60 - 140	83
	Surrogates	Dibromofluoromethane (Surrogate)	mg/kg	-	4.0	5	60 - 140	80
		d4-1,2-dichloroethane (Surrogate)	mg/kg	-	3.5	5	60 - 140	71
		d8-toluene (Surrogate)	mg/kg	-	4.5	5	60 - 140	90
		Bromofluorobenzene (Surrogate)	mg/kg	-	5.2	5	60 - 140	104

Volatile Petroleum Hydrocarbons in Soil

Method: ME-(AU)-[ENV]AN433

Sample Number		Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB109924.002		TRH C6-C10	mg/kg	25	<25	24.65	60 - 140	88
		TRH C6-C9	mg/kg	20	<20	23.2	60 - 140	78
	Surrogates	Dibromofluoromethane (Surrogate)	mg/kg	-	4.0	5	60 - 140	80
		d4-1,2-dichloroethane (Surrogate)	mg/kg	-	4.6	5	60 - 140	91
		d8-toluene (Surrogate)	mg/kg	-	5.9	5	60 - 140	118
		Bromofluorobenzene (Surrogate)	mg/kg	-	5.1	5	60 - 140	102
	VPH F Bands	TRH C6-C10 minus BTEX (F1)	mg/kg	25	<25	7.25	60 - 140	108
LB109925.002		TRH C6-C10	mg/kg	25	<25	24.65	60 - 140	88
		TRH C6-C9	mg/kg	20	<20	23.2	60 - 140	74
	Surrogates	Dibromofluoromethane (Surrogate)	mg/kg	-	4.0	5	60 - 140	80
		d4-1,2-dichloroethane (Surrogate)	mg/kg	-	3.5	5	60 - 140	71
		d8-toluene (Surrogate)	mg/kg	-	4.5	5	60 - 140	90
		Bromofluorobenzene (Surrogate)	mg/kg	-	5.2	5	60 - 140	104
	VPH F Bands	TRH C6-C10 minus BTEX (F1)	mg/kg	25	<25	7.25	60 - 140	98

Matrix Spike (MS) results are evaluated as the percentage recovery of an expected result, typically the concentration of analyte spiked into a field sub -sample during the sample preparation stage. The original sample's result is subtracted from the sub-sample result before determining the percentage recovery. The criteria applied to the percentage recovery is established in the SGS QA/QC plan (ref: MP-(AU)-[ENV]QU-022). For more information refer to the footnotes in the concluding page of this report.

Recovery is shown in **Green** when within suggested criteria or **Red** with an appended reason identifer when outside suggested criteria. Refer to the footnotes section at the end of this report for failure reasons.

Mercury in Soil

Method: ME-(AU)-[ENV]AN312

QC Sample	Sample Number	Parameter	Units	LOR	Result	Original	Spike	Recovery%
SE156997A.05	LB109942.004	Mercury	mg/kg	0.05	0.19	<0.05	0.2	95
SE157098.019	LB109943.004	Mercury	mg/kg	0.05	0.20	<0.05	0.2	95

OC Pesticides in Soil

Method: ME-(AU)-[ENV]AN400/AN420

QC Sample	Sample Number		Parameter	Units	LOR	Original	Spike	Recovery%
SE157098.005	LB109995.032		Hexachlorobenzene (HCB)	mg/kg	0.1	<0.1	-	-
			Alpha BHC	mg/kg	0.1	<0.1	-	-
			Lindane	mg/kg	0.1	<0.1	-	-
			Heptachlor	mg/kg	0.1	<0.1	0.2	108
			Aldrin	mg/kg	0.1	<0.1	0.2	83
			Beta BHC	mg/kg	0.1	<0.1	-	-
			Delta BHC	mg/kg	0.1	<0.1	0.2	79
			Heptachlor epoxide	mg/kg	0.1	<0.1	-	-
			o,p'-DDE	mg/kg	0.1	<0.1	-	-
			Alpha Endosulfan	mg/kg	0.2	<0.2	-	-
			Gamma Chlordane	mg/kg	0.1	<0.1	-	-
			Alpha Chlordane	mg/kg	0.1	<0.1	-	-
			trans-Nonachlor	mg/kg	0.1	<0.1	-	-
			p,p'-DDE	mg/kg	0.1	<0.1	-	-
			Dieldrin	mg/kg	0.2	<0.2	0.2	90
			Endrin	mg/kg	0.2	<0.2	0.2	88
			o,p'-DDD	mg/kg	0.1	<0.1	-	-
			o,p'-DDT	mg/kg	0.1	<0.1	-	-
			Beta Endosulfan	mg/kg	0.2	<0.2	-	-
			p,p'-DDD	mg/kg	0.1	<0.1	-	-
			p,p'-DDT	mg/kg	0.1	<0.1	0.2	122
			Endosulfan sulphate	mg/kg	0.1	<0.1	-	-
			Endrin Aldehyde	mg/kg	0.1	<0.1	-	-
			Methoxychlor	mg/kg	0.1	<0.1	-	-
			Endrin Ketone	mg/kg	0.1	<0.1	-	-
			Isodrin	mg/kg	0.1	<0.1	-	-
			Mirex	mg/kg	0.1	<0.1	-	-
		Surrogates	Tetrachloro-m-xylene (TCMX) (Surrogate)	mg/kg	-	0.13	-	85

OP Pesticides in Soil

Method: ME-(AU)-[ENV]AN400/AN420

QC Sample	Sample Number		Parameter	Units	LOR	Original	Spike	Recovery%
SE157098.005	LB109995.032		Dichlorvos	mg/kg	0.5	<0.5	2	106
			Dimethoate	mg/kg	0.5	<0.5	-	-
			Diazinon (Dimpylate)	mg/kg	0.5	<0.5	2	105
			Fenitrothion	mg/kg	0.2	<0.2	-	-
			Malathion	mg/kg	0.2	<0.2	-	-
			Chlorpyrifos (Chlorpyrifos Ethyl)	mg/kg	0.2	<0.2	2	85
			Parathion-ethyl (Parathion)	mg/kg	0.2	<0.2	-	-
			Bromophos Ethyl	mg/kg	0.2	<0.2	-	-
			Methidathion	mg/kg	0.5	<0.5	-	-
			Ethion	mg/kg	0.2	<0.2	2	119
			Azinphos-methyl (Guthion)	mg/kg	0.2	<0.2	-	-
		Surrogates	2-fluorobiphenyl (Surrogate)	mg/kg	-	0.4	-	82
			d14-p-terphenyl (Surrogate)	mg/kg	-	0.5	-	104

PAH (Polynuclear Aromatic Hydrocarbons) in Soil

Method: ME-(AU)-[ENV]AN420

QC Sample	Sample Number	Parameter	Units	LOR	Original	Spike	Recovery%
SE157098.005	LB109995.032	Naphthalene	mg/kg	0.1	<0.1	4	99
		2-methylnaphthalene	mg/kg	0.1	<0.1	-	-
		1-methylnaphthalene	mg/kg	0.1	<0.1	-	-
		Acenaphthylene	mg/kg	0.1	<0.1	4	108
		Acenaphthene	mg/kg	0.1	<0.1	4	99
		Fluorene	mg/kg	0.1	<0.1	-	-
		Phenanthrene	mg/kg	0.1	<0.1	4	101
		Anthracene	mg/kg	0.1	<0.1	4	105
		Fluoranthene	mg/kg	0.1	<0.1	4	105

Matrix Spike (MS) results are evaluated as the percentage recovery of an expected result, typically the concentration of analyte spiked into a field sub -sample during the sample preparation stage. The original sample's result is subtracted from the sub-sample result before determining the percentage recovery. The criteria applied to the percentage recovery is established in the SGS QA/QC plan (ref: MP-(AU)-[ENV]QU-022). For more information refer to the footnotes in the concluding page of this report.

Recovery is shown in **Green** when within suggested criteria or **Red** with an appended reason identifer when outside suggested criteria. Refer to the footnotes section at the end of this report for failure reasons.

PAH (Polynuclear Aromatic Hydrocarbons) in Soil (continued)

Method: ME-(AU)-[ENV]AN420

QC Sample	Sample Number		Parameter	Units	LOR	Original	Spike	Recovery%
SE157098.005	LB109995.032		Pyrene	mg/kg	0.1	<0.1	4	106
			Benzo(a)anthracene	mg/kg	0.1	<0.1	-	-
			Chrysene	mg/kg	0.1	<0.1	-	-
			Benzo(b&j)fluoranthene	mg/kg	0.1	<0.1	-	-
			Benzo(k)fluoranthene	mg/kg	0.1	<0.1	-	-
			Benzo(a)pyrene	mg/kg	0.1	<0.1	4	120
			Indeno(1,2,3-cd)pyrene	mg/kg	0.1	<0.1	-	-
			Dibenzo(ah)anthracene	mg/kg	0.1	<0.1	-	-
			Benzo(ghi)perylene	mg/kg	0.1	<0.1	-	-
			Carcinogenic PAHs, BaP TEQ <LOR=0	TEQ	0.2	<0.2	-	-
			Carcinogenic PAHs, BaP TEQ <LOR=LOR	TEQ (mg/kg)	0.3	<0.3	-	-
			Carcinogenic PAHs, BaP TEQ <LOR=LOR/2	TEQ (mg/kg)	0.2	<0.2	-	-
			Total PAH (18)	mg/kg	0.8	<0.8	-	-
		Surrogates	d5-nitrobenzene (Surrogate)	mg/kg	-	0.4	-	86
			2-fluorobiphenyl (Surrogate)	mg/kg	-	0.4	-	82
			d14-p-terphenyl (Surrogate)	mg/kg	-	0.5	-	104

Total Phenolics in Soil

Method: ME-(AU)-[ENV]AN289

QC Sample	Sample Number	Parameter	Units	LOR	Result	Original	Spike	Recovery%
SE157098.022	LB110175.019	Total Phenols	mg/kg	0.1	1.8	<0.1	2.5	74

Total Recoverable Metals in Soil/Waste Solids/Materials by ICPOES

Method: ME-(AU)-[ENV]AN040/AN320

QC Sample	Sample Number	Parameter	Units	LOR	Result	Original	Spike	Recovery%
SE156997A.05	LB110007.004	Arsenic, As	mg/kg	3	50	<3	50	99
2		Cadmium, Cd	mg/kg	0.3	50	<0.3	50	100
		Chromium, Cr	mg/kg	0.3	50	1.8	50	96
		Copper, Cu	mg/kg	0.5	53	3.0	50	99
		Lead, Pb	mg/kg	1	51	2	50	99
		Nickel, Ni	mg/kg	0.5	50	0.9	50	98
		Zinc, Zn	mg/kg	0.5	54	4.0	50	100

TRH (Total Recoverable Hydrocarbons) in Soil

Method: ME-(AU)-[ENV]AN403

QC Sample	Sample Number		Parameter	Units	LOR	Original	Spike	Recovery%
SE157098.005	LB109995.033		TRH C10-C14	mg/kg	20	<20	40	90
			TRH C15-C28	mg/kg	45	<45	40	88
			TRH C29-C36	mg/kg	45	<45	40	85
			TRH C37-C40	mg/kg	100	<100	-	-
			TRH C10-C36 Total	mg/kg	110	<110	-	-
			TRH C10-C40 Total	mg/kg	210	<210	-	-
		TRH F Bands	TRH >C10-C16 (F2)	mg/kg	25	<25	40	90
			TRH >C10-C16 (F2) - Naphthalene	mg/kg	25	<25	-	-
			TRH >C16-C34 (F3)	mg/kg	90	<90	40	88
			TRH >C34-C40 (F4)	mg/kg	120	<120	-	-

VOC's in Soil

Method: ME-(AU)-[ENV]AN433

QC Sample	Sample Number		Parameter	Units	LOR	Result	Original	Spike	Recovery%
SE156997A.05	LB109924.004	Monocyclic	Benzene	mg/kg	0.1	2.8	<0.1	2.9	96
2		Aromatic	Toluene	mg/kg	0.1	2.9	<0.1	2.9	97
			Ethylbenzene	mg/kg	0.1	2.3	<0.1	2.9	77
			m/p-xylene	mg/kg	0.2	4.8	<0.2	5.8	83
			o-xylene	mg/kg	0.1	2.3	<0.1	2.9	80
		Polycyclic	Naphthalene	mg/kg	0.1	<0.1	<0.1	-	-
		Surrogates	Dibromofluoromethane (Surrogate)	mg/kg	-	3.6	3.5	-	72
			d4-1,2-dichloroethane (Surrogate)	mg/kg	-	3.9	4.6	-	78
			d8-toluene (Surrogate)	mg/kg	-	5.2	6.2	-	103
			Bromofluorobenzene (Surrogate)	mg/kg	-	4.3	4.1	-	87
		Totals	Total Xylenes*	mg/kg	0.3	7.2	<0.3	-	-
			Total BTEX	mg/kg	0.6	15	<0.6	-	-
SE157098.020	LB109925.004	Monocyclic	Benzene	mg/kg	0.1	2.2	<0.1	2.9	74
		Aromatic	Toluene	mg/kg	0.1	2.8	<0.1	2.9	94

Matrix Spike (MS) results are evaluated as the percentage recovery of an expected result, typically the concentration of analyte spiked into a field sub -sample during the sample preparation stage. The original sample's result is subtracted from the sub-sample result before determining the percentage recovery. The criteria applied to the percentage recovery is established in the SGS QA/QC plan (ref: MP-(AU)-[ENV]QU-022). For more information refer to the footnotes in the concluding page of this report.

Recovery is shown in **Green** when within suggested criteria or **Red** with an appended reason identifer when outside suggested criteria. Refer to the footnotes section at the end of this report for failure reasons.

VOC's in Soil (continued)

Method: ME-(AU)-[ENV]AN433

QC Sample	Sample Number		Parameter	Units	LOR	Result	Original	Spike	Recovery%
SE157098.020	LB109925.004	Monocyclic	Ethylbenzene	mg/kg	0.1	2.1	<0.1	2.9	71
		Aromatic	m/p-xylene	mg/kg	0.2	4.3	<0.2	5.8	74
			o-xylene	mg/kg	0.1	2.2	<0.1	2.9	76
		Polycyclic	Naphthalene	mg/kg	0.1	<0.1	<0.1	-	-
		Surrogates	Dibromofluoromethane (Surrogate)	mg/kg	-	3.6	4.7	-	72
			d4-1,2-dichloroethane (Surrogate)	mg/kg	-	4.6	3.7	-	92
			d8-toluene (Surrogate)	mg/kg	-	4.1	4.0	-	82
			Bromofluorobenzene (Surrogate)	mg/kg	-	3.9	3.6	-	77
		Totals	Total Xylenes*	mg/kg	0.3	6.6	<0.3	-	-
			Total BTEX	mg/kg	0.6	14	<0.6	-	-

Volatile Petroleum Hydrocarbons in Soil

Method: ME-(AU)-[ENV]AN433

QC Sample	Sample Number		Parameter	Units	LOR	Result	Original	Spike	Recovery%
SE156997A.05	LB109924.004		TRH C6-C10	mg/kg	25	<25	<25	24.65	92
2			TRH C6-C9	mg/kg	20	<20	<20	23.2	80
		Surrogates	Dibromofluoromethane (Surrogate)	mg/kg	-	3.6	3.5	-	72
			d4-1,2-dichloroethane (Surrogate)	mg/kg	-	3.9	4.6	-	78
			d8-toluene (Surrogate)	mg/kg	-	5.2	6.2	-	103
			Bromofluorobenzene (Surrogate)	mg/kg	-	4.3	4.1	-	87
		VPH F	Benzene (F0)	mg/kg	0.1	2.8	<0.1	-	-
		Bands	TRH C6-C10 minus BTEX (F1)	mg/kg	25	<25	<25	7.25	106
SE157098.020	LB109925.004		TRH C6-C10	mg/kg	25	<25	<25	24.65	86
			TRH C6-C9	mg/kg	20	<20	<20	23.2	61
		Surrogates	Dibromofluoromethane (Surrogate)	mg/kg	-	3.6	4.7	-	72
			d4-1,2-dichloroethane (Surrogate)	mg/kg	-	4.6	3.7	-	92
			d8-toluene (Surrogate)	mg/kg	-	4.1	4.0	-	82
			Bromofluorobenzene (Surrogate)	mg/kg	-	3.9	3.6	-	77
		VPH F	Benzene (F0)	mg/kg	0.1	2.2	<0.1	-	-
		Bands	TRH C6-C10 minus BTEX (F1)	mg/kg	25	<25	<25	7.25	108

MATRIX SPIKE DUPLICATES

SE157098 R0

Matrix spike duplicates are calculated as Relative Percent Difference (RPD) using the formula: RPD = | OriginalResult - ReplicateResult | x 100 / Mean

The original result is the analyte concentration of the matrix spike. The Duplicate result is the analyte concentration of the matrix spike duplicate.

The RPD is evaluated against the Maximum Allowable Difference (MAD) criteria and can be graphically represented by a curve calculated from the Statistical Detection Limit (SDL) and Limiting Repeatability (LR) using the formula: MAD = 100 x SDL / Mean + LR

Where the Maximum Allowable Difference evaluates to a number larger than 200 it is displayed as 200.

RPD is shown in **Green** when within suggested criteria or **Red** with an appended reason identifer when outside suggested criteria. Refer to the footnotes section at the end of this report for failure reasons.

No matrix spike duplicates were required for this job.

Samples analysed as received.

Solid samples expressed on a dry weight basis.

QC criteria are subject to internal review according to the SGS QA/QC plan and may be provided on request or alternatively can be found here: http://www.sgs.com.au/~/media/Local/Australia/Documents/Technical Documents/MP-AU-ENV-QU-022 QA QC Plan.pdf

*	NATA accreditation does not cover tthe performance of this service.
-	Sample not analysed for this analyte.

IS	Insufficient sample for analysis.
LNR	Sample listed, but not received.
LOR	Limit of reporting.
QFH	QC result is above the upper tolerance.
QFL	QC result is below the lower tolerance.

①	At least 2 of 3 surrogates are within acceptance criteria.
②	RPD failed acceptance criteria due to sample heterogeneity.
③	Results less than 5 times LOR preclude acceptance criteria for RPD.
④	Recovery failed acceptance criteria due to matrix interference.
⑤	Recovery failed acceptance criteria due to the presence of significant concentration of analyte (i.e. the concentration of analyte exceeds the spike level).
⑥	LOR was raised due to sample matrix interference.
⑦	LOR was raised due to dilution of significantly high concentration of analyte in sample.
⑧	Reanalysis of sample in duplicate confirmed sample heterogeneity and inconsistency of results.
⑨	Recovery failed acceptance criteria due to sample heterogeneity.
⑩	LOR was raised due to high conductivity of the sample (required dilution).
†	Refer to Analytical Report comments for further information.

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source: M630_SR_20160916125156.pdf page: 7 SGS Ref: SE157197_COC

SGS

CHAIN OF CUSTODY & ANALYSIS REQUEST

SGS Environmental Services
Unit 16, 33 Maddox Street
Alexandria NSW 2015
Telephone No: (02) 85940400
Facsimile No: (02) 85940499
Email:

Company Name:	SMEC	Project Name/No:	3002523 – Canberra Brickworks
Address:	Suite 2, Level 1, 243 Northbourne Avenue, Lyneham, ACT, 2602, Australia	Purchase Order No:	
		Results Required By:	Ryan O'Leary
		Telephone:	+61 2 6234 1963 / 0400 240 023
Contact Name:	Ryan O'Leary	Facsimile:	
		Email Results:	Ryan.O'Leary@smec.com

Client Sample ID	Date Sampled	Lab Sample ID	WATER	SOIL		NO OF BAGS	Asbestos ID	BTEXN	OPPs	OCPs	PHAs/Phenols	8 Metals - As, Cd, Cr, Cu, Ni, Pb, Zn, Hg	TPH/TRH	On Hold
M2_0.2-0.3	13-09-16	1		✓		1 Jar		✓	✓	✓	✓	✓	✓	
M2_0.2-0.3	13-09-16	2		✓		1 bag	✓							
M2_1.0-1.1	13-09-16			✓		1 jar								✓
M2_3.8-3.9	13-09-16			✓		1 jar								✓
M3_0.2-0.3	13-09-16	3		✓		1 jar		✓	✓	✓	✓	✓	✓	
M3_0.2-0.3	13-09-16			✓		1 bag								✓
M3_1.5-1.6	13-09-16			✓		1 jar								✓
HA/GB1_0-0.1	13-09-16			✓		1 jar		✗	✗	✗	✗	✗	✗	✓

SGS EHS Alexandria Laboratory
SE157197 COC
Received: 15 – Sep – 2016

Please put on hold.

Relinquished By: Natalia Crook	Date/Time: 14/09/16 12:00	Received By:	Date/Time
Relinquished By:	Date/Time:	Received By:	Date/Time 11:45 @ 15/09/16
Samples Intact: Yes/ No	Temperature: Ambient / Chilled 14.6	Sample Cooler Sealed: Yes/ No	Laboratory Quotation No:
	Comments: AS PER SGS QUOTE NUMBER SY1 – 60413 – 2-IS DATED 13TH APRIL 2016	**STANDARD TAT PLEASE (5 DAY)**	

SGS

CHAIN OF CUSTODY & ANALYSIS REQUEST

SGS Environmental Services
Unit 16, 33 Maddox Street
Alexandria NSW 2015
Telephone No: (02) 85940400
Facsimile No: (02) 85940499
Email:

Company Name:	SMEC	Project Name/No:	3002523 – Canberra Brickworks
Address:	Suite 2, Level 1, 243 Northbourne Avenue, Lyneham, ACT, 2602, Australia	Purchase Order No:	
		Results Required By:	Ryan O'Leary
		Telephone:	+61 2 6234 1963 / 0400 240 023
Contact Name:	Ryan O'Leary	Facsimile:	
		Email Results:	Ryan.O'Leary@smec.com

Client Sample ID	Date Sampled	Lab Sample ID	WATER	SOIL		NO OF CONTAINERS	Asbestos ID	BTEXN	OPPs	OCPs	PHAs/Phenols	8 Metals - As, Cd, Cr, Cu, Ni, Pb, Zn, Hg	TPH/TRH	On Hold								
HA/GB1_0-0.1	13-09-16	4		✓		1 bag	✓															
ACM1	13-09-16	5		✓		1 bag	✓															

Relinquished By:	Date/Time:	Received By:	Date/Time 15/09/16 @ 11:45
Relinquished By:	Date/Time:	Received By:	Date/Time
Samples Intact: Yes/ No	Temperature: Ambient / Chilled	Sample Cooler Sealed: Yes/ No	Laboratory Quotation No:

Comments: AS PER SGS QUOTE NUMBER SY1 – 60413 – 2-IS DATED 13TH APRIL 2016

STANDARD TAT PLEASE (5 DAY)

SAMPLE RECEIPT ADVICE

SE157197

CLIENT DETAILS

Contact	Ryan O'Leary
Client	SMEC AUSTRALIA PTY LTD
Address	Sun Micro Building Suite 2, Level 1 243 Northbourne Avenue ACT 2602
Telephone	02 6234 1963
Facsimile	02 6234 1966
Email	Ryan.O'Leary@smec.com
Project	**3002523 - Canberra Brickworks**
Order Number	**SY1-60413-2-IS**
Samples	5

LABORATORY DETAILS

Manager	Huong Crawford
Laboratory	SGS Alexandria Environmental
Address	Unit 16, 33 Maddox St Alexandria NSW 2015
Telephone	+61 2 8594 0400
Facsimile	+61 2 8594 0499
Email	au.environmental.sydney@sgs.com
Samples Received	Thu 15/9/2016
Report Due	Thu 22/9/2016
SGS Reference	**SE157197**

SUBMISSION DETAILS

This is to confirm that 5 samples were received on Thursday 15/9/2016. Results are expected to be ready by Thursday 22/9/2016. Please quote SGS reference SE157197 when making enquiries. Refer below for details relating to sample integrity upon receipt.

Sample counts by matrix	3 Soil, 1 Material	Type of documentation received	COC
Date documentation received	15/9/2016	Samples received in good order	Yes
Samples received without headspace	Yes	Sample temperature upon receipt	14.6°C
Sample container provider	SGS	Turnaround time requested	Standard
Samples received in correct containers	Yes	Sufficient sample for analysis	Yes
Sample cooling method	Ice Bricks	Samples clearly labelled	Yes
Complete documentation received	Yes	Number of eskies/boxes received	

Unless otherwise instructed, water and bulk samples will be held for one month from date of report, and soil samples will be held for two months.

COMMENTS

6 soil samples have been placed on hold.

To the extent not inconsistent with the other provisions of this document and unless specifically agreed otherwise in writing by SGS, all SGS services are rendered in accordance with the applicable SGS General Conditions of Service accessible at http://www.sgs.com/en/terms-and-conditions as at the date of this document. Attention is drawn to the limitations of liability and to the clauses of indemnification.

SAMPLE RECEIPT ADVICE

SE157197

CLIENT DETAILS

Client SMEC AUSTRALIA PTY LTD

Project 3002523 - Canberra Brickworks

SUMMARY OF ANALYSIS

No.	Sample ID	OC Pesticides in Soil	OP Pesticides in Soil	PAH (Polynuclear Aromatic Hydrocarbons) in Soil	Total Phenolics in Soil	Total Recoverable Metals in Soil/Waste	TRH (Total Recoverable Hydrocarbons) in Soil	VOC's in Soil	Volatile Petroleum Hydrocarbons in Soil
001	TV_W1	28	13	26	1	7	10	12	8
003	TV_W3	28	13	26	1	7	10	12	8

CONTINUED OVERLEAF

The above table represents SGS' interpretation of the client-supplied Chain Of Custody document.
The numbers shown in the table indicate the number of results requested in each package.
Please indicate as soon as possible should your request differ from these details .
Testing as per this table shall commence immediately unless the client intervenes with a correction .

SAMPLE RECEIPT ADVICE

SE157197

CLIENT DETAILS

Client SMEC AUSTRALIA PTY LTD

Project 3002523 - Canberra Brickworks

SUMMARY OF ANALYSIS

No.	Sample ID	Fibre ID in bulk materials	Fibre Identification in soil	Mercury in Soil	Moisture Content
001	TV_W1	-	-	1	1
002	TV_W2	-	2	-	-
003	TV_W3	-	-	1	1
005	TV_B	1	-	-	-

The above table represents SGS' interpretation of the client-supplied Chain Of Custody document.
The numbers shown in the table indicate the number of results requested in each package.
Please indicate as soon as possible should your request differ from these details .
Testing as per this table shall commence immediately unless the client intervenes with a correction .

ANALYTICAL REPORT

Accreditation No. 2562

CLIENT DETAILS

Contact	Ryan O'Leary
Client	SMEC AUSTRALIA PTY LTD
Address	Sun Micro Building Suite 2, Level 1 243 Northbourne Avenue ACT 2602
Telephone	02 6234 1963
Facsimile	02 6234 1966
Email	Ryan.O'Leary@smec.com
Project	**3002523 - Canberra Brickworks**
Order Number	**SY1-60413-2-IS**
Samples	5

LABORATORY DETAILS

Manager	Huong Crawford
Laboratory	SGS Alexandria Environmental
Address	Unit 16, 33 Maddox St Alexandria NSW 2015
Telephone	+61 2 8594 0400
Facsimile	+61 2 8594 0499
Email	au.environmental.sydney@sgs.com
SGS Reference	**SE157197 R0**
Date Received	15/9/2016
Date Reported	22/9/2016

COMMENTS

Accredited for compliance with ISO/IEC 17025. NATA accredited laboratory 2562(4354).

No respirable fibres detected in all soil samples using trace analysis technique.

Asbestos analysed by Approved Identifiers Ravee Sivasubramaniam and Yusuf Kuthpudin .

SIGNATORIES

Andy Sutton
Senior Organic Chemist

Bennet Lo
Senior Organic Chemist/Metals Chemist

Dong Liang
Metals/Inorganics Team Leader

Huong Crawford
Production Manager

Ly Kim Ha
Organic Section Head

Ravee Sivasubramaniam
Hygiene Team Leader

VOC's in Soil [AN433] Tested: 19/9/2016

PARAMETER	UOM	LOR	M2_0.2-0.3 SOIL - 13/9/2016 SE157197.001	M3_0.2-0.3 SOIL - 13/9/2016 SE157197.003
Benzene	mg/kg	0.1	<0.1	<0.1
Toluene	mg/kg	0.1	<0.1	<0.1
Ethylbenzene	mg/kg	0.1	<0.1	<0.1
m/p-xylene	mg/kg	0.2	<0.2	<0.2
o-xylene	mg/kg	0.1	<0.1	<0.1
Total Xylenes*	mg/kg	0.3	<0.3	<0.3
Total BTEX	mg/kg	0.6	<0.6	<0.6
Naphthalene	mg/kg	0.1	<0.1	<0.1

Volatile Petroleum Hydrocarbons in Soil [AN433] Tested: 19/9/2016

PARAMETER	UOM	LOR	M2_0.2-0.3 SOIL - 13/9/2016 SE157197.001	M3_0.2-0.3 SOIL - 13/9/2016 SE157197.003
TRH C6-C9	mg/kg	20	<20	<20
Benzene (F0)	mg/kg	0.1	<0.1	<0.1
TRH C6-C10	mg/kg	25	<25	<25
TRH C6-C10 minus BTEX (F1)	mg/kg	25	<25	<25

TRH (Total Recoverable Hydrocarbons) in Soil [AN403] Tested: 19/9/2016

PARAMETER	UOM	LOR	M2_0.2-0.3 SOIL - 13/9/2016 SE157197.001	M3_0.2-0.3 SOIL - 13/9/2016 SE157197.003
TRH C10-C14	mg/kg	20	<20	<20
TRH C15-C28	mg/kg	45	<45	<45
TRH C29-C36	mg/kg	45	<45	<45
TRH C37-C40	mg/kg	100	<100	<100
TRH >C10-C16 (F2)	mg/kg	25	<25	<25
TRH >C10-C16 (F2) - Naphthalene	mg/kg	25	<25	<25
TRH >C16-C34 (F3)	mg/kg	90	<90	<90
TRH >C34-C40 (F4)	mg/kg	120	<120	<120
TRH C10-C36 Total	mg/kg	110	<110	<110
TRH C10-C40 Total	mg/kg	210	<210	<210

PAH (Polynuclear Aromatic Hydrocarbons) in Soil [AN420] Tested: 19/9/2016

PARAMETER	UOM	LOR	M2_0.2-0.3 SOIL - 13/9/2016 SE157197.001	M3_0.2-0.3 SOIL - 13/9/2016 SE157197.003
Naphthalene	mg/kg	0.1	<0.1	<0.1
2-methylnaphthalene	mg/kg	0.1	<0.1	<0.1
1-methylnaphthalene	mg/kg	0.1	<0.1	<0.1
Acenaphthylene	mg/kg	0.1	<0.1	<0.1
Acenaphthene	mg/kg	0.1	<0.1	<0.1
Fluorene	mg/kg	0.1	<0.1	<0.1
Phenanthrene	mg/kg	0.1	<0.1	<0.1
Anthracene	mg/kg	0.1	<0.1	<0.1
Fluoranthene	mg/kg	0.1	<0.1	<0.1
Pyrene	mg/kg	0.1	<0.1	<0.1
Benzo(a)anthracene	mg/kg	0.1	<0.1	<0.1
Chrysene	mg/kg	0.1	<0.1	<0.1
Benzo(b&j)fluoranthene	mg/kg	0.1	<0.1	<0.1
Benzo(k)fluoranthene	mg/kg	0.1	<0.1	<0.1
Benzo(a)pyrene	mg/kg	0.1	<0.1	<0.1
Indeno(1,2,3-cd)pyrene	mg/kg	0.1	<0.1	<0.1
Dibenzo(ah)anthracene	mg/kg	0.1	<0.1	<0.1
Benzo(ghi)perylene	mg/kg	0.1	<0.1	<0.1
Carcinogenic PAHs, BaP TEQ <LOR=0	TEQ	0.2	<0.2	<0.2
Carcinogenic PAHs, BaP TEQ <LOR=LOR	TEQ (mg/kg)	0.3	<0.3	<0.3
Carcinogenic PAHs, BaP TEQ <LOR=LOR/2	TEQ (mg/kg)	0.2	<0.2	<0.2
Total PAH (18)	mg/kg	0.8	<0.8	<0.8
Total PAH (NEPM/WHO 16)	mg/kg	0.8	<0.8	<0.8

OC Pesticides in Soil [AN400/AN420] Tested: 19/9/2016

PARAMETER	UOM	LOR	M2_0.2-0.3 SOIL - 13/9/2016 SE157197.001	M3_0.2-0.3 SOIL - 13/9/2016 SE157197.003
Hexachlorobenzene (HCB)	mg/kg	0.1	<0.1	<0.1
Alpha BHC	mg/kg	0.1	<0.1	<0.1
Lindane	mg/kg	0.1	<0.1	<0.1
Heptachlor	mg/kg	0.1	<0.1	<0.1
Aldrin	mg/kg	0.1	<0.1	<0.1
Beta BHC	mg/kg	0.1	<0.1	<0.1
Delta BHC	mg/kg	0.1	<0.1	<0.1
Heptachlor epoxide	mg/kg	0.1	<0.1	<0.1
o,p'-DDE	mg/kg	0.1	<0.1	<0.1
Alpha Endosulfan	mg/kg	0.2	<0.2	<0.2
Gamma Chlordane	mg/kg	0.1	<0.1	<0.1
Alpha Chlordane	mg/kg	0.1	<0.1	<0.1
trans-Nonachlor	mg/kg	0.1	<0.1	<0.1
p,p'-DDE	mg/kg	0.1	<0.1	<0.1
Dieldrin	mg/kg	0.2	<0.2	<0.2
Endrin	mg/kg	0.2	<0.2	<0.2
o,p'-DDD	mg/kg	0.1	<0.1	<0.1
o,p'-DDT	mg/kg	0.1	<0.1	<0.1
Beta Endosulfan	mg/kg	0.2	<0.2	<0.2
p,p'-DDD	mg/kg	0.1	<0.1	<0.1
p,p'-DDT	mg/kg	0.1	<0.1	<0.1
Endosulfan sulphate	mg/kg	0.1	<0.1	<0.1
Endrin Aldehyde	mg/kg	0.1	<0.1	<0.1
Methoxychlor	mg/kg	0.1	<0.1	<0.1
Endrin Ketone	mg/kg	0.1	<0.1	<0.1
Isodrin	mg/kg	0.1	<0.1	<0.1
Mirex	mg/kg	0.1	<0.1	<0.1

OP Pesticides in Soil [AN400/AN420] Tested: 19/9/2016

PARAMETER	UOM	LOR	M2_0.2-0.3 SOIL - 13/9/2016 SE157197.001	M3_0.2-0.3 SOIL - 13/9/2016 SE157197.003
Dichlorvos	mg/kg	0.5	<0.5	<0.5
Dimethoate	mg/kg	0.5	<0.5	<0.5
Diazinon (Dimpylate)	mg/kg	0.5	<0.5	<0.5
Fenitrothion	mg/kg	0.2	<0.2	<0.2
Malathion	mg/kg	0.2	<0.2	<0.2
Chlorpyrifos (Chlorpyrifos Ethyl)	mg/kg	0.2	<0.2	<0.2
Parathion-ethyl (Parathion)	mg/kg	0.2	<0.2	<0.2
Bromophos Ethyl	mg/kg	0.2	<0.2	<0.2
Methidathion	mg/kg	0.5	<0.5	<0.5
Ethion	mg/kg	0.2	<0.2	<0.2
Azinphos-methyl (Guthion)	mg/kg	0.2	<0.2	<0.2

Total Phenolics in Soil [AN289] Tested: 22/9/2016

PARAMETER	UOM	LOR	M2_0.2-0.3 SOIL - 13/9/2016 SE157197.001	M3_0.2-0.3 SOIL - 13/9/2016 SE157197.003
Total Phenols	mg/kg	0.1	**0.4**	<0.1

Total Recoverable Metals in Soil/Waste Solids/Materials by ICPOES [AN040/AN320] Tested: 21/9/2016

PARAMETER	UOM	LOR	M2_0.2-0.3 SOIL - 13/9/2016 SE157197.001	M3_0.2-0.3 SOIL - 13/9/2016 SE157197.003
Arsenic, As	mg/kg	3	**8**	**7**
Cadmium, Cd	mg/kg	0.3	**1.3**	<0.3
Chromium, Cr	mg/kg	0.3	**33**	**27**
Copper, Cu	mg/kg	0.5	**43**	**12**
Lead, Pb	mg/kg	1	**120**	**36**
Nickel, Ni	mg/kg	0.5	**17**	**14**
Zinc, Zn	mg/kg	0.5	**640**	**52**

Mercury in Soil [AN312] Tested: 20/9/2016

PARAMETER	UOM	LOR	M2_0.2-0.3 SOIL - 13/9/2016 SE157197.001	M3_0.2-0.3 SOIL - 13/9/2016 SE157197.003
Mercury	mg/kg	0.05	<0.05	<0.05

Moisture Content [AN002] Tested: 21/9/2016

PARAMETER	UOM	LOR	M2_0.2-0.3 SOIL - 13/9/2016 SE157197.001	M3_0.2-0.3 SOIL - 13/9/2016 SE157197.003
% Moisture	%w/w	0.5	**15**	**17**

Fibre Identification in soil [AN602] Tested: 21/9/2016

PARAMETER	UOM	LOR	M2_0.2-0.3 SOIL - 13/9/2016 SE157197.002
Asbestos Detected	No unit	-	No
Estimated Fibres*	%w/w	0.01	<0.01

Fibre ID in bulk materials [AN602] Tested: 21/9/2016

PARAMETER	UOM	LOR	ACM1 MATERIAL - 13/9/2016 SE157197.005
Asbestos Detected	No unit	-	Yes

METHOD	METHODOLOGY SUMMARY
AN002	The test is carried out by drying (at either 40°C or 105°C) a known mass of sample in a weighed evaporating basin. After fully dry the sample is re-weighed. Samples such as sludge and sediment having high percentages of moisture will take some time in a drying oven for complete removal of water.
AN040/AN320	A portion of sample is digested with nitric acid to decompose organic matter and hydrochloric acid to complete the digestion of metals. The digest is then analysed by ICP OES with metals results reported on the dried sample basis. Based on USEPA method 200.8 and 6010C.
AN040	A portion of sample is digested with Nitric acid to decompose organic matter and Hydrochloric acid to complete the digestion of metals and then filtered for analysis by ASS or ICP as per USEPA Method 200.8.
AN289	Analysis of Total Phenols in Soil Sediment and Water: Steam distillable phenols react with 4-aminoantipyrine at pH 7.9±0.1 in the presence of potassium ferricyanide to form a coloured antipyrine dye analysed by Discrete Analyser. Reference APHA 5530 B/D.
AN312	Mercury by Cold Vapour AAS in Soils: After digestion with nitric acid, hydrogen peroxide and hydrochloric acid , mercury ions are reduced by stannous chloride reagent in acidic solution to elemental mercury. This mercury vapour is purged by nitrogen into a cold cell in an atomic absorption spectrometer or mercury analyser . Quantification is made by comparing absorbances to those of the calibration standards. Reference APHA 3112/3500
AN400	OC and OP Pesticides by GC-ECD: The determination of organochlorine (OC) and organophosphorus (OP) pesticides and polychlorinated biphenyls (PCBs) in soils, sludges and groundwater. (Based on USEPA methods 3510, 3550, 8140 and 8080.)
AN403	Total Recoverable Hydrocarbons: Determination of Hydrocarbons by gas chromatography after a solvent extraction. Detection is by flame ionisation detector (FID) that produces an electronic signal in proportion to the combustible matter passing through it. Total Recoverable Hydrocarbons (TRH) are routinely reported as four alkane groupings based on the carbon chain length of the compounds: C6-C9, C10-C14, C15-C28 and C29-C36 and in recognition of the NEPM 1999 (2013), >C10-C16 (F2), >C16-C34 (F3) and >C34-C40 (F4). F2 is reported directly and also corrected by subtracting Naphthalene (from VOC method AN433) where available.
AN403	Additionally, the volatile C6-C9 fraction may be determined by a purge and trap technique and GC/MS because of the potential for volatiles loss. Total Petroleum Hydrocarbons (TPH) follows the same method of analysis after silica gel cleanup of the solvent extract. Aliphatic/Aromatic Speciation follows the same method of analysis after fractionation of the solvent extract over silica with differential polarity of the eluent solvents .
AN403	The GC/FID method is not well suited to the analysis of refined high boiling point materials (ie lubricating oils or greases) but is particularly suited for measuring diesel, kerosene and petrol if care to control volatility is taken. This method will detect naturally occurring hydrocarbons, lipids, animal fats, phenols and PAHs if they are present at sufficient levels, dependent on the use of specific cleanup/fractionation techniques. Reference USEPA 3510B, 8015B.
AN420	(SVOCs) including OC, OP, PCB, Herbicides, PAH, Phthalates and Speciated Phenols (etc) in soils, sediments and waters are determined by GCMS/ECD technique following appropriate solvent extraction process (Based on USEPA 3500C and 8270D).
AN420	SVOC Compounds: Semi-Volatile Organic Compounds (SVOCs) including OC, OP, PCB, Herbicides, PAH, Phthalates and Speciated Phenols in soils, sediments and waters are determined by GCMS/ECD technique following appropriate solvent extraction process (Based on USEPA 3500C and 8270D).
AN433	VOCs and C6-C9 Hydrocarbons by GC-MS P&T: VOC`s are volatile organic compounds. The sample is presented to a gas chromatograph via a purge and trap (P&T) concentrator and autosampler and is detected with a Mass Spectrometer (MSD). Solid samples are initially extracted with methanol whilst liquid samples are processed directly. References: USEPA 5030B, 8020A, 8260.
AN602	Qualitative identification of chrysotile, amosite and crocidolite in bulk samples by polarised light microscopy (PLM) in conjunction with dispersion staining (DS). AS4964 provides the basis for this document. Unequivocal identification of the asbestos minerals present is made by obtaining sufficient diagnostic `clues`, which provide a reasonable degree of certainty, dispersion staining is a mandatory `clue` for positive identification. If sufficient `clues` are absent, then positive identification of asbestos is not possible. This procedure requires removal of suspect fibres/bundles from the sample which cannot be returned.
AN602	Fibres/material that cannot be unequivocably identified as one of the three asbestos forms, will be reported as unknown mineral fibres (umf).
AN602	AS4964.2004 Method for the Qualitative Identification of Asbestos in Bulk Samples, Section 8.4, Trace Analysis Criteria, Note 4 states:"Depending upon sample condition and fibre type, the detection limit of this technique has been found to lie generally in the range of 1 in 1,000 to 1 in 10,000 parts by weight, equivalent to 1 to 0.1 g/kg."

AN602	The sample can be reported “no asbestos found at the reporting limit of 0.1 g/kg” (<0.01%w/w) where AN602 section 4.5 of this method has been followed, and if- (a) no trace asbestos fibres have been detected (i.e. no ‘respirable’ fibres): (b) the estimated weight of non-respirable asbestos fibre bundles and/or the estimated weight of asbestos in asbestos-containing materials are found to be less than 0.1g/kg: and (c) these non-respirable asbestos fibre bundles and/or the asbestos containing materials are only visible under stereo-microscope viewing conditions.

FOOTNOTES

*	NATA accreditation does not cover the performance of this service.	-	Not analysed.	UOM	Unit of Measure.
		NVL	Not validated.	LOR	Limit of Reporting.
**	Indicative data, theoretical holding time exceeded.	IS	Insufficient sample for analysis.	↑↓	Raised/lowered Limit of Reporting.
		LNR	Sample listed, but not received.		

Samples analysed as received.
Solid samples expressed on a dry weight basis.

Where "Total" analyte groups are reported (for example, Total PAHs, Total OC Pesticides) the total will be calculated as the sum of the individual analytes, with those analytes that are reported as <LOR being assumed to be zero. The summed (Total) limit of reporting is calculated by summing the individual analyte LORs and dividing by two. For example, where 16 individual analytes are being summed and each has an LOR of 0.1 mg/kg, the "Totals" LOR will be 1.6 / 2 (0.8 mg/kg). Where only 2 analytes are being summed, the " Total" LOR will be the sum of those two LORs.

Some totals may not appear to add up because the total is rounded after adding up the raw values.

If reported, measurement uncertainty follow the ± sign after the analytical result and is expressed as the expanded uncertainty calculated using a coverage factor of 2, providing a level of confidence of approximately 95%, unless stated otherwise in the comments section of this report.

Results reported for samples tested under test methods with codes starting with ARS-SOP, radionuclide or gross radioactivity concentrations are expressed in becquerel (Bq) per unit of mass or volume or per wipe as stated on the report. Becquerel is the SI unit for activity and equals one nuclear transformation per second.
Note that in terms of units of radioactivity:

a. 1 Bq is equivalent to 27 pCi
b. 37 MBq is equivalent to 1 mCi

For results reported for samples tested under test methods with codes starting with ARS-SOP, less than (<) values indicate the detection limit for each radionuclide or parameter for the measurement system used. The respective detection limits have been calculated in accordance with ISO 11929.

The QC criteria are subject to internal review according to the SGS QAQC plan and may be provided on request or alternatively can be found here : http://www.sgs.com.au/~/media/Local/Australia/Documents/Technical%20Documents/MP-AU-ENV-QU-022%20QA%20QC%20Plan.pdf

This document is issued, on the Client's behalf, by the Company under its General Conditions of Service available on request and accessible at http://www.sgs.com/en/terms-and-conditions. The Client's attention is drawn to the limitation of liability, indemnification and jurisdiction issues defined therein.

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ANALYTICAL REPORT

Accreditation No. 2562

CLIENT DETAILS

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Telephone	02 6234 1963
Facsimile	02 6234 1966
Email	Ryan.O'Leary@smec.com
Project	**3002523 - Canberra Brickworks**
Order Number	**SY1-60413-2-IS**
Samples	2

LABORATORY DETAILS

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Facsimile	+61 2 8594 0499
Email	au.environmental.sydney@sgs.com
SGS Reference	**SE157197 R0**
Date Received	15 Sep 2016
Date Reported	22 Sep 2016

COMMENTS

Accredited for compliance with ISO/IEC 17025. NATA accredited laboratory 2562(4354).

No respirable fibres detected in all soil samples using trace analysis technique.

Asbestos analysed by Approved Identifiers Ravee Sivasubramaniam and Yusuf Kuthpudin .

SIGNATORIES

Andy Sutton
Senior Organic Chemist

Bennet Lo
Senior Organic Chemist/Metals Chemis

Dong Liang
Metals/Inorganics Team Leader

Huong Crawford
Production Manager

Ly Kim Ha
Organic Section Head

Ravee Sivasubramaniam
Hygiene Team Leader

ANALYTICAL REPORT

RESULTS

Fibre Identification in soil — Method AN602

Laboratory Reference	Client Reference	Matrix	Sample Description	Date Sampled	Fibre Identification	
SE157197.002	M2_0.2-0.3	Soil	118g Clay, Sand, Rocks	13 Sep 2016	No Asbestos Found	<0.01

RESULTS

Fibre ID in bulk materials — Method AN602

Laboratory Reference	Client Reference	Matrix	Sample Description	Date Sampled	Fibre Identification
SE157197.005	ACM1	Other	90x50x5mm cement sheet fragments	13 Sep 2016	Amosite, Chrysotile & Crocidolite Asbestos Detected

METHOD SUMMARY

METHOD	METHODOLOGY SUMMARY
AN602	Qualitative identification of chrysotile, amosite and crocidolite in bulk samples by polarised light microscopy (PLM) in conjunction with dispersion staining (DS). AS4964 provides the basis for this document. Unequivocal identification of the asbestos minerals present is made by obtaining sufficient diagnostic `clues`, which provide a reasonable degree of certainty, dispersion staining is a mandatory `clue` for positive identification. If sufficient `clues` are absent, then positive identification of asbestos is not possible. This procedure requires removal of suspect fibres/bundles from the sample which cannot be returned.
AN602	Fibres/material that cannot be unequivocably identified as one of the three asbestos forms, will be reported as unknown mineral fibres (umf).
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AN602	The sample can be reported “no asbestos found at the reporting limit of 0.1 g/kg” (<0.01%w/w) where AN602 section 4.5 of this method has been followed, and if- (a) no trace asbestos fibres have been detected (i.e. no ‘respirable’ fibres): (b) the estimated weight of non-respirable asbestos fibre bundles and/or the estimated weight of asbestos in asbestos-containing materials are found to be less than 0.1g/kg: and (c) these non-respirable asbestos fibre bundles and/or the asbestos containing materials are only visible under stereo-microscope viewing conditions.

FOOTNOTES

Amosite	-	Brown Asbestos	NA	-	Not Analysed
Chrysotile	-	White Asbestos	LNR	-	Listed, Not Required
Crocidolite	-	Blue Asbestos	*	-	NATA accreditation does not cover the performance of this service .
Amphiboles	-	Amosite and/or Crocidolite	**	-	Indicative data, theoretical holding time exceeded.

(In reference to soil samples only) This report does not comply with the analytical reporting recommendations in the Western Australian Department of Health Guidelines for the Assessment and Remediation and Management of Asbestos Contaminated sites in Western Australia - May 2009.

Sampled by the client.

Where reported: 'Asbestos Detected': Asbestos detected by polarised light microscopy, including dispersion staining.
Where reported: 'No Asbestos Found': No Asbestos Found by polarised light microscopy, including dispersion staining.
Where reported: 'UMF Detected': Mineral fibres of unknown type detected by polarised light microscopy, including dispersion staining. Confirmation by another independent analytical technique may be necessary.

Even after disintegration it can be very difficult, or impossible, to detect the presence of asbestos in some asbestos -containing bulk materials using polarised light microscopy. This is due to the low grade or small length or diameter of asbestos fibres present in the material, or to the fact that very fine fibres have been distributed intimately throughout the materials.

The QC criteria are subject to internal review according to the SGS QAQC plan and may be provided on request or alternatively can be found here : http://www.sgs.com.au/~/media/Local/Australia/Documents/Technical%20Documents/MP-AU-ENV-QU-022%20QA%20QC%20Plan.pdf

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STATEMENT OF QA/QC PERFORMANCE

SE157197 R0

CLIENT DETAILS

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Email	Ryan.O'Leary@smec.com
Project	**3002523 - Canberra Brickworks**
Order Number	**SY1-60413-2-IS**
Samples	5

LABORATORY DETAILS

Manager	Huong Crawford
Laboratory	SGS Alexandria Environmental
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Facsimile	+61 2 8594 0499
Email	au.environmental.sydney@sgs.com
SGS Reference	**SE157197 R0**
Date Received	15 Sep 2016
Date Reported	22 Sep 2016

COMMENTS

All the laboratory data for each environmental matrix was compared to SGS' stated Data Quality Objectives (DQO). Comments arising from the comparison were made and are reported below.

The data relating to sampling was taken from the Chain of Custody document and was supplied by the Client.
This QA/QC Statement must be read in conjunction with the referenced Analytical Report.
The Statement and the Analytical Report must not be reproduced except in full.

All Data Quality Objectives were met (within the SGS Alexandria Environmental laboratory).

SAMPLE SUMMARY

Sample counts by matrix	3 Soil, 1 Material	Type of documentation received	COC
Date documentation received	15/9/2016	Samples received in good order	Yes
Samples received without headspace	Yes	Sample temperature upon receipt	14.6°C
Sample container provider	SGS	Turnaround time requested	Standard
Samples received in correct containers	Yes	Sufficient sample for analysis	Yes
Sample cooling method	Ice Bricks	Samples clearly labelled	Yes
Complete documentation received	Yes	Number of eskies/boxes received	

HOLDING TIME SUMMARY

SE157197 R0

SGS holding time criteria are drawn from current regulations and are highly dependent on sample container preservation as specified in the SGS “Field Sampling Guide for Containers and Holding Time” (ref: GU-(AU)-ENV.001). Soil samples guidelines are derived from NEPM "Schedule B(3) Guideline on Laboratory Analysis of Potentially Contaminated Soils". Water sample guidelines are derived from "AS/NZS 5667.1 : 1998 Water Quality - sampling part 1" and APHA "Standard Methods for the Examination of Water and Wastewater" 21st edition 2005.

Extraction and analysis holding time due dates listed are calculated from the date sampled, although holding times may be extended after laboratory extraction for some analytes. The due dates are the suggested dates that samples may be held before extraction or analysis and still be considered valid.

Extraction and analysis dates are shown in **Green** when within suggested criteria or **Red** with an appended dagger symbol (†) when outside suggested criteria. If the sampled date is not supplied then compliance with criteria cannot be determined. If the received date is after one or both due dates then holding time will fail by default.

Fibre ID in bulk materials

Method: ME-(AU)-[ENV]AN602

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
ACM1	SE157197.005	LB110249	13 Sep 2016	15 Sep 2016	13 Sep 2017	21 Sep 2016	13 Sep 2017	22 Sep 2016

Fibre Identification in soil

Method: ME-(AU)-[ENV]AN602

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
M2_0.2-0.3	SE157197.002	LB110243	13 Sep 2016	15 Sep 2016	13 Sep 2017	21 Sep 2016	13 Sep 2017	22 Sep 2016

Mercury in Soil

Method: ME-(AU)-[ENV]AN312

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
M2_0.2-0.3	SE157197.001	LB110152	13 Sep 2016	15 Sep 2016	11 Oct 2016	20 Sep 2016	11 Oct 2016	22 Sep 2016
M3_0.2-0.3	SE157197.003	LB110152	13 Sep 2016	15 Sep 2016	11 Oct 2016	20 Sep 2016	11 Oct 2016	22 Sep 2016

Moisture Content

Method: ME-(AU)-[ENV]AN002

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
M2_0.2-0.3	SE157197.001	LB110201	13 Sep 2016	15 Sep 2016	27 Sep 2016	21 Sep 2016	26 Sep 2016	22 Sep 2016
M3_0.2-0.3	SE157197.003	LB110201	13 Sep 2016	15 Sep 2016	27 Sep 2016	21 Sep 2016	26 Sep 2016	22 Sep 2016

OC Pesticides in Soil

Method: ME-(AU)-[ENV]AN400/AN420

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
M2_0.2-0.3	SE157197.001	LB110120	13 Sep 2016	15 Sep 2016	27 Sep 2016	19 Sep 2016	29 Oct 2016	22 Sep 2016
M3_0.2-0.3	SE157197.003	LB110120	13 Sep 2016	15 Sep 2016	27 Sep 2016	19 Sep 2016	29 Oct 2016	22 Sep 2016

OP Pesticides in Soil

Method: ME-(AU)-[ENV]AN400/AN420

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
M2_0.2-0.3	SE157197.001	LB110120	13 Sep 2016	15 Sep 2016	27 Sep 2016	19 Sep 2016	29 Oct 2016	22 Sep 2016
M3_0.2-0.3	SE157197.003	LB110120	13 Sep 2016	15 Sep 2016	27 Sep 2016	19 Sep 2016	29 Oct 2016	22 Sep 2016

PAH (Polynuclear Aromatic Hydrocarbons) in Soil

Method: ME-(AU)-[ENV]AN420

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
M2_0.2-0.3	SE157197.001	LB110120	13 Sep 2016	15 Sep 2016	27 Sep 2016	19 Sep 2016	29 Oct 2016	22 Sep 2016
M3_0.2-0.3	SE157197.003	LB110120	13 Sep 2016	15 Sep 2016	27 Sep 2016	19 Sep 2016	29 Oct 2016	22 Sep 2016

Total Phenolics in Soil

Method: ME-(AU)-[ENV]AN289

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
M2_0.2-0.3	SE157197.001	LB110297	13 Sep 2016	15 Sep 2016	27 Sep 2016	22 Sep 2016	27 Sep 2016	22 Sep 2016
M3_0.2-0.3	SE157197.003	LB110297	13 Sep 2016	15 Sep 2016	27 Sep 2016	22 Sep 2016	27 Sep 2016	22 Sep 2016

Total Recoverable Metals in Soil/Waste Solids/Materials by ICPOES

Method: ME-(AU)-[ENV]AN040/AN320

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
M2_0.2-0.3	SE157197.001	LB110227	13 Sep 2016	15 Sep 2016	12 Mar 2017	21 Sep 2016	12 Mar 2017	22 Sep 2016
M3_0.2-0.3	SE157197.003	LB110227	13 Sep 2016	15 Sep 2016	12 Mar 2017	21 Sep 2016	12 Mar 2017	22 Sep 2016

TRH (Total Recoverable Hydrocarbons) in Soil

Method: ME-(AU)-[ENV]AN403

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
M2_0.2-0.3	SE157197.001	LB110120	13 Sep 2016	15 Sep 2016	27 Sep 2016	19 Sep 2016	29 Oct 2016	22 Sep 2016
M3_0.2-0.3	SE157197.003	LB110120	13 Sep 2016	15 Sep 2016	27 Sep 2016	19 Sep 2016	29 Oct 2016	22 Sep 2016

VOC's in Soil

Method: ME-(AU)-[ENV]AN433

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
M2_0.2-0.3	SE157197.001	LB110103	13 Sep 2016	15 Sep 2016	27 Sep 2016	19 Sep 2016	29 Oct 2016	21 Sep 2016
M3_0.2-0.3	SE157197.003	LB110103	13 Sep 2016	15 Sep 2016	27 Sep 2016	19 Sep 2016	29 Oct 2016	21 Sep 2016

Volatile Petroleum Hydrocarbons in Soil

Method: ME-(AU)-[ENV]AN433

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
M2_0.2-0.3	SE157197.001	LB110103	13 Sep 2016	15 Sep 2016	27 Sep 2016	19 Sep 2016	29 Oct 2016	21 Sep 2016
M3_0.2-0.3	SE157197.003	LB110103	13 Sep 2016	15 Sep 2016	27 Sep 2016	19 Sep 2016	29 Oct 2016	21 Sep 2016

Surrogate results are evaluated against upper and lower limit criteria established in the SGS QA /QC plan (Ref: MP-(AU)-[ENV]QU-022). At least two of three routine level soil sample surrogate spike recoveries for BTEX/VOC are to be within 70-130% where control charts have not been developed and within the established control limits for charted surrogates. Matrix effects may void this as an acceptance criterion. Water sample surrogate spike recoveries are to be within 40-130%. The presence of emulsions, surfactants and particulates may void this as an acceptance criterion.

Result is shown in **Green** when within suggested criteria or **Red** with an appended reason identifer when outside suggested criteria. Refer to the footnotes section at the end of this report for failure reasons.

OC Pesticides in Soil

Method: ME-(AU)-[ENV]AN400/AN420

Parameter	Sample Name	Sample Number	Units	Criteria	Recovery %
Tetrachloro-m-xylene (TCMX) (Surrogate)	M2_0.2-0.3	SE157197.001	%	60 - 130%	93
	M3_0.2-0.3	SE157197.003	%	60 - 130%	93

OP Pesticides in Soil

Method: ME-(AU)-[ENV]AN400/AN420

Parameter	Sample Name	Sample Number	Units	Criteria	Recovery %
2-fluorobiphenyl (Surrogate)	M2_0.2-0.3	SE157197.001	%	60 - 130%	80
	M3_0.2-0.3	SE157197.003	%	60 - 130%	78
d14-p-terphenyl (Surrogate)	M2_0.2-0.3	SE157197.001	%	60 - 130%	92
	M3_0.2-0.3	SE157197.003	%	60 - 130%	90

PAH (Polynuclear Aromatic Hydrocarbons) in Soil

Method: ME-(AU)-[ENV]AN420

Parameter	Sample Name	Sample Number	Units	Criteria	Recovery %
2-fluorobiphenyl (Surrogate)	M2_0.2-0.3	SE157197.001	%	70 - 130%	80
	M3_0.2-0.3	SE157197.003	%	70 - 130%	78
d14-p-terphenyl (Surrogate)	M2_0.2-0.3	SE157197.001	%	70 - 130%	92
	M3_0.2-0.3	SE157197.003	%	70 - 130%	90
d5-nitrobenzene (Surrogate)	M2_0.2-0.3	SE157197.001	%	70 - 130%	86
	M3_0.2-0.3	SE157197.003	%	70 - 130%	84

VOC's in Soil

Method: ME-(AU)-[ENV]AN433

Parameter	Sample Name	Sample Number	Units	Criteria	Recovery %
Bromofluorobenzene (Surrogate)	M2_0.2-0.3	SE157197.001	%	60 - 130%	71
	M3_0.2-0.3	SE157197.003	%	60 - 130%	75
d4-1,2-dichloroethane (Surrogate)	M2_0.2-0.3	SE157197.001	%	60 - 130%	84
	M3_0.2-0.3	SE157197.003	%	60 - 130%	93
d8-toluene (Surrogate)	M2_0.2-0.3	SE157197.001	%	60 - 130%	83
	M3_0.2-0.3	SE157197.003	%	60 - 130%	85
Dibromofluoromethane (Surrogate)	M2_0.2-0.3	SE157197.001	%	60 - 130%	70
	M3_0.2-0.3	SE157197.003	%	60 - 130%	73

Volatile Petroleum Hydrocarbons in Soil

Method: ME-(AU)-[ENV]AN433

Parameter	Sample Name	Sample Number	Units	Criteria	Recovery %
Bromofluorobenzene (Surrogate)	M2_0.2-0.3	SE157197.001	%	60 - 130%	71
	M3_0.2-0.3	SE157197.003	%	60 - 130%	75
d4-1,2-dichloroethane (Surrogate)	M2_0.2-0.3	SE157197.001	%	60 - 130%	84
	M3_0.2-0.3	SE157197.003	%	60 - 130%	93
d8-toluene (Surrogate)	M2_0.2-0.3	SE157197.001	%	60 - 130%	83
	M3_0.2-0.3	SE157197.003	%	60 - 130%	85
Dibromofluoromethane (Surrogate)	M2_0.2-0.3	SE157197.001	%	60 - 130%	70
	M3_0.2-0.3	SE157197.003	%	60 - 130%	73

Blank results are evaluated against the limit of reporting (LOR), for the chosen method and its associated instrumentation, typically 2.5 times the statistically determined method detection limit (MDL).

Result is shown in **Green** when within suggested criteria or **Red** with an appended dagger symbol (†) when outside suggested criteria.

Mercury in Soil

Method: ME-(AU)-[ENV]AN312

Sample Number	Parameter	Units	LOR	Result
LB110152.001	Mercury	mg/kg	0.05	<0.05

OC Pesticides in Soil

Method: ME-(AU)-[ENV]AN400/AN420

Sample Number		Parameter	Units	LOR	Result
LB110120.001		Hexachlorobenzene (HCB)	mg/kg	0.1	<0.1
		Alpha BHC	mg/kg	0.1	<0.1
		Lindane	mg/kg	0.1	<0.1
		Heptachlor	mg/kg	0.1	<0.1
		Aldrin	mg/kg	0.1	<0.1
		Beta BHC	mg/kg	0.1	<0.1
		Delta BHC	mg/kg	0.1	<0.1
		Heptachlor epoxide	mg/kg	0.1	<0.1
		Alpha Endosulfan	mg/kg	0.2	<0.2
		Gamma Chlordane	mg/kg	0.1	<0.1
		Alpha Chlordane	mg/kg	0.1	<0.1
		p,p'-DDE	mg/kg	0.1	<0.1
		Dieldrin	mg/kg	0.2	<0.2
		Endrin	mg/kg	0.2	<0.2
		Beta Endosulfan	mg/kg	0.2	<0.2
		p,p'-DDD	mg/kg	0.1	<0.1
		p,p'-DDT	mg/kg	0.1	<0.1
		Endosulfan sulphate	mg/kg	0.1	<0.1
		Endrin Aldehyde	mg/kg	0.1	<0.1
		Methoxychlor	mg/kg	0.1	<0.1
		Endrin Ketone	mg/kg	0.1	<0.1
		Isodrin	mg/kg	0.1	<0.1
		Mirex	mg/kg	0.1	<0.1
	Surrogates	Tetrachloro-m-xylene (TCMX) (Surrogate)	%	-	72

OP Pesticides in Soil

Method: ME-(AU)-[ENV]AN400/AN420

Sample Number		Parameter	Units	LOR	Result
LB110120.001		Dichlorvos	mg/kg	0.5	<0.5
		Dimethoate	mg/kg	0.5	<0.5
		Diazinon (Dimpylate)	mg/kg	0.5	<0.5
		Fenitrothion	mg/kg	0.2	<0.2
		Malathion	mg/kg	0.2	<0.2
		Chlorpyrifos (Chlorpyrifos Ethyl)	mg/kg	0.2	<0.2
		Parathion-ethyl (Parathion)	mg/kg	0.2	<0.2
		Bromophos Ethyl	mg/kg	0.2	<0.2
		Methidathion	mg/kg	0.5	<0.5
		Ethion	mg/kg	0.2	<0.2
		Azinphos-methyl (Guthion)	mg/kg	0.2	<0.2
	Surrogates	2-fluorobiphenyl (Surrogate)	%	-	76
		d14-p-terphenyl (Surrogate)	%	-	88

PAH (Polynuclear Aromatic Hydrocarbons) in Soil

Method: ME-(AU)-[ENV]AN420

Sample Number	Parameter	Units	LOR	Result
LB110120.001	Naphthalene	mg/kg	0.1	<0.1
	2-methylnaphthalene	mg/kg	0.1	<0.1
	1-methylnaphthalene	mg/kg	0.1	<0.1
	Acenaphthylene	mg/kg	0.1	<0.1
	Acenaphthene	mg/kg	0.1	<0.1
	Fluorene	mg/kg	0.1	<0.1
	Phenanthrene	mg/kg	0.1	<0.1
	Anthracene	mg/kg	0.1	<0.1
	Fluoranthene	mg/kg	0.1	<0.1
	Pyrene	mg/kg	0.1	<0.1
	Benzo(a)anthracene	mg/kg	0.1	<0.1
	Chrysene	mg/kg	0.1	<0.1
	Benzo(a)pyrene	mg/kg	0.1	<0.1

Blank results are evaluated against the limit of reporting (LOR), for the chosen method and its associated instrumentation, typically 2.5 times the statistically determined method detection limit (MDL).

Result is shown in **Green** when within suggested criteria or **Red** with an appended dagger symbol (†) when outside suggested criteria.

PAH (Polynuclear Aromatic Hydrocarbons) in Soil (continued)

Method: ME-(AU)-[ENV]AN420

Sample Number		Parameter	Units	LOR	Result
LB110120.001		Indeno(1,2,3-cd)pyrene	mg/kg	0.1	<0.1
		Dibenzo(ah)anthracene	mg/kg	0.1	<0.1
		Benzo(ghi)perylene	mg/kg	0.1	<0.1
		Total PAH (18)	mg/kg	0.8	<0.8
	Surrogates	d5-nitrobenzene (Surrogate)	%	-	78
		2-fluorobiphenyl (Surrogate)	%	-	76
		d14-p-terphenyl (Surrogate)	%	-	88

Total Phenolics in Soil

Method: ME-(AU)-[ENV]AN289

Sample Number	Parameter	Units	LOR	Result
LB110297.001	Total Phenols	mg/kg	0.1	<0.1

Total Recoverable Metals in Soil/Waste Solids/Materials by ICPOES

Method: ME-(AU)-[ENV]AN040/AN320

Sample Number	Parameter	Units	LOR	Result
LB110227.001	Arsenic, As	mg/kg	3	<3
	Cadmium, Cd	mg/kg	0.3	<0.3
	Chromium, Cr	mg/kg	0.3	<0.3
	Copper, Cu	mg/kg	0.5	<0.5
	Lead, Pb	mg/kg	1	<1
	Nickel, Ni	mg/kg	0.5	<0.5
	Zinc, Zn	mg/kg	0.5	<0.5

TRH (Total Recoverable Hydrocarbons) in Soil

Method: ME-(AU)-[ENV]AN403

Sample Number	Parameter	Units	LOR	Result
LB110120.001	TRH C10-C14	mg/kg	20	<20
	TRH C15-C28	mg/kg	45	<45
	TRH C29-C36	mg/kg	45	<45
	TRH C37-C40	mg/kg	100	<100
	TRH C10-C36 Total	mg/kg	110	<110

VOC's in Soil

Method: ME-(AU)-[ENV]AN433

Sample Number		Parameter	Units	LOR	Result
LB110103.001	Monocyclic Aromatic	Benzene	mg/kg	0.1	<0.1
	Hydrocarbons	Toluene	mg/kg	0.1	<0.1
		Ethylbenzene	mg/kg	0.1	<0.1
		m/p-xylene	mg/kg	0.2	<0.2
		o-xylene	mg/kg	0.1	<0.1
	Polycyclic VOCs	Naphthalene	mg/kg	0.1	<0.1
	Surrogates	Dibromofluoromethane (Surrogate)	%	-	81
		d4-1,2-dichloroethane (Surrogate)	%	-	111
		d8-toluene (Surrogate)	%	-	87
		Bromofluorobenzene (Surrogate)	%	-	106
	Totals	Total BTEX	mg/kg	0.6	<0.6

Volatile Petroleum Hydrocarbons in Soil

Method: ME-(AU)-[ENV]AN433

Sample Number		Parameter	Units	LOR	Result
LB110103.001		TRH C6-C9	mg/kg	20	<20
	Surrogates	Dibromofluoromethane (Surrogate)	%	-	81
		d4-1,2-dichloroethane (Surrogate)	%	-	111
		d8-toluene (Surrogate)	%	-	87

Duplicates are calculated as Relative Percentage Difference (RPD) using the formula: RPD = | OriginalResult - ReplicateResult | x 100 / Mean

The RPD is evaluated against the Maximum Allowable Difference (MAD) criteria and can be graphically represented by a curve calculated from the Statistical Detection Limit (SDL) and Limiting Repeatability (LR) using the formula: MAD = 100 x SDL / Mean + LR

Where the Maximum Allowable Difference evaluates to a number larger than 200 it is displayed as 200.

RPD is shown in **Green** when within suggested criteria or **Red** with an appended reason identifer when outside suggested criteria. Refer to the footnotes section at the end of this report for failure reasons.

Mercury in Soil

Method: ME-(AU)-[ENV]AN312

Original	Duplicate	Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE157211.004	LB110152.014	Mercury	mg/kg	0.05	<0.05	<0.05	200	0
SE157211.005	LB110152.016	Mercury	mg/kg	0.05	<0.05	<0.05	200	0

Moisture Content

Method: ME-(AU)-[ENV]AN002

Original	Duplicate	Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE157140.014	LB110201.011	% Moisture	%w/w	0.5	18.955732122	20.5533596837	35	8
SE157153.004	LB110201.022	% Moisture	%w/w	0.5	28	32	33	12
SE157211.001	LB110201.033	% Moisture	%w/w	0.5	13.1	13.9	37	6
SE157310.001	LB110201.039	% Moisture	%w/w	0.5	41.1	33.3	33	21

OC Pesticides in Soil

Method: ME-(AU)-[ENV]AN400/AN420

Original	Duplicate		Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE157197.003	LB110120.021		Hexachlorobenzene (HCB)	mg/kg	0.1	<0.1	<0.1	200	0
			Alpha BHC	mg/kg	0.1	<0.1	<0.1	200	0
			Lindane	mg/kg	0.1	<0.1	<0.1	200	0
			Heptachlor	mg/kg	0.1	<0.1	<0.1	200	0
			Aldrin	mg/kg	0.1	<0.1	<0.1	200	0
			Beta BHC	mg/kg	0.1	<0.1	<0.1	200	0
			Delta BHC	mg/kg	0.1	<0.1	<0.1	200	0
			Heptachlor epoxide	mg/kg	0.1	<0.1	<0.1	200	0
			o,p'-DDE	mg/kg	0.1	<0.1	<0.1	200	0
			Alpha Endosulfan	mg/kg	0.2	<0.2	<0.2	200	0
			Gamma Chlordane	mg/kg	0.1	<0.1	<0.1	200	0
			Alpha Chlordane	mg/kg	0.1	<0.1	<0.1	200	0
			trans-Nonachlor	mg/kg	0.1	<0.1	<0.1	200	0
			p,p'-DDE	mg/kg	0.1	<0.1	<0.1	200	0
			Dieldrin	mg/kg	0.2	<0.2	<0.2	200	0
			Endrin	mg/kg	0.2	<0.2	<0.2	200	0
			o,p'-DDD	mg/kg	0.1	<0.1	<0.1	200	0
			o,p'-DDT	mg/kg	0.1	<0.1	<0.1	200	0
			Beta Endosulfan	mg/kg	0.2	<0.2	<0.2	200	0
			p,p'-DDD	mg/kg	0.1	<0.1	<0.1	200	0
			p,p'-DDT	mg/kg	0.1	<0.1	<0.1	200	0
			Endosulfan sulphate	mg/kg	0.1	<0.1	<0.1	200	0
			Endrin Aldehyde	mg/kg	0.1	<0.1	<0.1	200	0
			Methoxychlor	mg/kg	0.1	<0.1	<0.1	200	0
			Endrin Ketone	mg/kg	0.1	<0.1	<0.1	200	0
			Isodrin	mg/kg	0.1	<0.1	<0.1	200	0
			Mirex	mg/kg	0.1	<0.1	<0.1	200	0
		Surrogates	Tetrachloro-m-xylene (TCMX) (Surrogate)	mg/kg	-	0.14	0.14	30	2

OP Pesticides in Soil

Method: ME-(AU)-[ENV]AN400/AN420

Original	Duplicate		Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE157197.003	LB110120.021		Dichlorvos	mg/kg	0.5	<0.5	<0.5	200	0
			Dimethoate	mg/kg	0.5	<0.5	<0.5	200	0
			Diazinon (Dimpylate)	mg/kg	0.5	<0.5	<0.5	200	0
			Fenitrothion	mg/kg	0.2	<0.2	<0.2	200	0
			Malathion	mg/kg	0.2	<0.2	<0.2	200	0
			Chlorpyrifos (Chlorpyrifos Ethyl)	mg/kg	0.2	<0.2	<0.2	200	0
			Parathion-ethyl (Parathion)	mg/kg	0.2	<0.2	<0.2	200	0
			Bromophos Ethyl	mg/kg	0.2	<0.2	<0.2	200	0
			Methidathion	mg/kg	0.5	<0.5	<0.5	200	0
			Ethion	mg/kg	0.2	<0.2	<0.2	200	0
			Azinphos-methyl (Guthion)	mg/kg	0.2	<0.2	<0.2	200	0
		Surrogates	2-fluorobiphenyl (Surrogate)	mg/kg	-	0.4	0.4	30	3
			d14-p-terphenyl (Surrogate)	mg/kg	-	0.5	0.5	30	4

PAH (Polynuclear Aromatic Hydrocarbons) in Soil

Method: ME-(AU)-[ENV]AN420

Original	Duplicate	Parameter	Units	LOR

Duplicates are calculated as Relative Percentage Difference (RPD) using the formula: RPD = | OriginalResult - ReplicateResult | x 100 / Mean

The RPD is evaluated against the Maximum Allowable Difference (MAD) criteria and can be graphically represented by a curve calculated from the Statistical Detection Limit (SDL) and Limiting Repeatability (LR) using the formula: MAD = 100 x SDL / Mean + LR

Where the Maximum Allowable Difference evaluates to a number larger than 200 it is displayed as 200.

RPD is shown in **Green** when within suggested criteria or **Red** with an appended reason identifer when outside suggested criteria. Refer to the footnotes section at the end of this report for failure reasons.

PAH (Polynuclear Aromatic Hydrocarbons) in Soil (continued)

Method: ME-(AU)-[ENV]AN420

Original	Duplicate		Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE157197.003	LB110120.021		Naphthalene	mg/kg	0.1	<0.1	<0.1	200	0
			2-methylnaphthalene	mg/kg	0.1	<0.1	<0.1	200	0
			1-methylnaphthalene	mg/kg	0.1	<0.1	<0.1	200	0
			Acenaphthylene	mg/kg	0.1	<0.1	<0.1	200	0
			Acenaphthene	mg/kg	0.1	<0.1	<0.1	200	0
			Fluorene	mg/kg	0.1	<0.1	<0.1	200	0
			Phenanthrene	mg/kg	0.1	<0.1	<0.1	200	0
			Anthracene	mg/kg	0.1	<0.1	<0.1	200	0
			Fluoranthene	mg/kg	0.1	<0.1	<0.1	200	0
			Pyrene	mg/kg	0.1	<0.1	<0.1	200	0
			Benzo(a)anthracene	mg/kg	0.1	<0.1	<0.1	200	0
			Chrysene	mg/kg	0.1	<0.1	<0.1	200	0
			Benzo(b&j)fluoranthene	mg/kg	0.1	<0.1	<0.1	200	0
			Benzo(k)fluoranthene	mg/kg	0.1	<0.1	<0.1	200	0
			Benzo(a)pyrene	mg/kg	0.1	<0.1	<0.1	200	0
			Indeno(1,2,3-cd)pyrene	mg/kg	0.1	<0.1	<0.1	200	0
			Dibenzo(ah)anthracene	mg/kg	0.1	<0.1	<0.1	200	0
			Benzo(ghi)perylene	mg/kg	0.1	<0.1	<0.1	200	0
			Carcinogenic PAHs, BaP TEQ <LOR=0	TEQ (mg/kg)	0.2	<0.2	<0.2	200	0
			Carcinogenic PAHs, BaP TEQ <LOR=LOR	TEQ (mg/kg)	0.3	<0.3	<0.3	134	0
			Carcinogenic PAHs, BaP TEQ <LOR=LOR/2	TEQ (mg/kg)	0.2	<0.2	<0.2	175	0
			Total PAH (18)	mg/kg	0.8	<0.8	<0.8	200	0
		Surrogates	d5-nitrobenzene (Surrogate)	mg/kg	-	0.4	0.4	30	0
			2-fluorobiphenyl (Surrogate)	mg/kg	-	0.4	0.4	30	3
			d14-p-terphenyl (Surrogate)	mg/kg	-	0.5	0.5	30	4

Total Recoverable Metals in Soil/Waste Solids/Materials by ICPOES

Method: ME-(AU)-[ENV]AN040/AN320

Original	Duplicate	Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE157200.006	LB110227.014	Arsenic, As	mg/kg	3	<3	<3	120	8
		Cadmium, Cd	mg/kg	0.3	<0.3	<0.3	200	0
		Chromium, Cr	mg/kg	0.3	2.3	2.1	53	10
		Copper, Cu	mg/kg	0.5	<0.5	<0.5	139	0
		Lead, Pb	mg/kg	1	2	2	72	7
		Nickel, Ni	mg/kg	0.5	0.8	0.7	93	12
		Zinc, Zn	mg/kg	0.5	2.2	1.9	127	10
SE157310.001	LB110227.021	Arsenic, As	mg/kg	3	<1	<1	192	0
		Cadmium, Cd	mg/kg	0.3	<0.1	<0.1	200	0
		Chromium, Cr	mg/kg	0.3	6.9	6.8	37	2
		Copper, Cu	mg/kg	0.5	50	51	31	2
		Lead, Pb	mg/kg	1	2	2	81	3
		Nickel, Ni	mg/kg	0.5	2.3	2.1	53	10
		Zinc, Zn	mg/kg	0.5	33	32	36	2

TRH (Total Recoverable Hydrocarbons) in Soil

Method: ME-(AU)-[ENV]AN403

Original	Duplicate		Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE157197.003	LB110120.021		TRH C10-C14	mg/kg	20	<20	<20	200	0
			TRH C15-C28	mg/kg	45	<45	<45	200	0
			TRH C29-C36	mg/kg	45	<45	<45	200	0
			TRH C37-C40	mg/kg	100	<100	<100	200	0
			TRH C10-C36 Total	mg/kg	110	<110	<110	200	0
			TRH C10-C40 Total	mg/kg	210	<210	<210	200	0
		TRH F Bands	TRH >C10-C16 (F2)	mg/kg	25	<25	<25	200	0
			TRH >C10-C16 (F2) - Naphthalene	mg/kg	25	<25	<25	200	0
			TRH >C16-C34 (F3)	mg/kg	90	<90	<90	200	0
			TRH >C34-C40 (F4)	mg/kg	120	<120	<120	200	0

VOC's in Soil

Method: ME-(AU)-[ENV]AN433

Original	Duplicate		Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE157197.003	LB110103.014	Monocyclic	Benzene	mg/kg	0.1	<0.1	<0.1	200	0
		Aromatic	Toluene	mg/kg	0.1	<0.1	<0.1	200	0
			Ethylbenzene	mg/kg	0.1	<0.1	<0.1	200	0
			m/p-xylene	mg/kg	0.2	<0.2	<0.2	200	0

Duplicates are calculated as Relative Percentage Difference (RPD) using the formula: RPD = | OriginalResult - ReplicateResult | x 100 / Mean

The RPD is evaluated against the Maximum Allowable Difference (MAD) criteria and can be graphically represented by a curve calculated from the Statistical Detection Limit (SDL) and Limiting Repeatability (LR) using the formula: MAD = 100 x SDL / Mean + LR

Where the Maximum Allowable Difference evaluates to a number larger than 200 it is displayed as 200.

RPD is shown in **Green** when within suggested criteria or **Red** with an appended reason identifer when outside suggested criteria. Refer to the footnotes section at the end of this report for failure reasons.

VOC's in Soil (continued)

Method: ME-(AU)-[ENV]AN433

Original	Duplicate		Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE157197.003	LB110103.014	Monocyclic	o-xylene	mg/kg	0.1	<0.1	<0.1	200	0
		Polycyclic	Naphthalene	mg/kg	0.1	<0.1	<0.1	200	0
		Surrogates	Dibromofluoromethane (Surrogate)	mg/kg	-	3.7	4.1	50	11
			d4-1,2-dichloroethane (Surrogate)	mg/kg	-	4.6	5.1	50	9
			d8-toluene (Surrogate)	mg/kg	-	4.3	5.1	50	18
			Bromofluorobenzene (Surrogate)	mg/kg	-	3.8	3.9	50	5
		Totals	Total Xylenes*	mg/kg	0.3	<0.3	<0.3	200	0
			Total BTEX	mg/kg	0.6	<0.6	<0.6	200	0
SE157210.001	LB110103.020	Monocyclic	Benzene	mg/kg	0.1	<0.1	<0.1	200	0
		Aromatic	Toluene	mg/kg	0.1	<0.1	<0.1	200	0
			Ethylbenzene	mg/kg	0.1	<0.1	<0.1	200	0
			m/p-xylene	mg/kg	0.2	<0.2	<0.2	200	0
			o-xylene	mg/kg	0.1	<0.1	<0.1	200	0
		Polycyclic	Naphthalene	mg/kg	0.1	<0.1	<0.1	200	0
		Surrogates	Dibromofluoromethane (Surrogate)	mg/kg	-	4.1	4.0	50	1
			d4-1,2-dichloroethane (Surrogate)	mg/kg	-	5.4	5.5	50	2
			d8-toluene (Surrogate)	mg/kg	-	4.3	4.2	50	3
			Bromofluorobenzene (Surrogate)	mg/kg	-	5.3	5.0	50	5
		Totals	Total Xylenes*	mg/kg	0.3	<0.3	<0.3	200	0
			Total BTEX	mg/kg	0.6	<0.6	<0.6	200	0

Volatile Petroleum Hydrocarbons in Soil

Method: ME-(AU)-[ENV]AN433

Original	Duplicate		Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE157197.003	LB110103.014		TRH C6-C10	mg/kg	25	<25	<25	200	0
			TRH C6-C9	mg/kg	20	<20	<20	200	0
		Surrogates	Dibromofluoromethane (Surrogate)	mg/kg	-	3.7	4.1	30	11
			d4-1,2-dichloroethane (Surrogate)	mg/kg	-	4.6	5.1	30	9
			d8-toluene (Surrogate)	mg/kg	-	4.3	5.1	30	18
			Bromofluorobenzene (Surrogate)	mg/kg	-	3.8	3.9	30	5
		VPH F Bands	Benzene (F0)	mg/kg	0.1	<0.1	<0.1	200	0
			TRH C6-C10 minus BTEX (F1)	mg/kg	25	<25	<25	200	0
SE157210.001	LB110103.020		TRH C6-C10	mg/kg	25	<25	<25	200	0
			TRH C6-C9	mg/kg	20	<20	<20	200	0
		Surrogates	Dibromofluoromethane (Surrogate)	mg/kg	-	4.1	4.0	30	1
			d4-1,2-dichloroethane (Surrogate)	mg/kg	-	5.4	5.5	30	2
			d8-toluene (Surrogate)	mg/kg	-	4.3	4.2	30	3
			Bromofluorobenzene (Surrogate)	mg/kg	-	5.3	5.0	30	5
		VPH F Bands	Benzene (F0)	mg/kg	0.1	<0.1	<0.1	200	0
			TRH C6-C10 minus BTEX (F1)	mg/kg	25	<25	<25	200	0

Laboratory Control Standard (LCS) results are evaluated against an expected result, typically the concentration of analyte spiked into the control during the sample preparation stage, producing a percentage recovery. The criteria applied to the percentage recovery is established in the SGS QA /QC plan (Ref: MP-(AU)-[ENV]QU-022). For more information refer to the footnotes in the concluding page of this report.

Recovery is shown in **Green** when within suggested criteria or **Red** with an appended dagger symbol (†) when outside suggested criteria.

Mercury in Soil

Method: ME-(AU)-[ENV]AN312

Sample Number	Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB110152.002	Mercury	mg/kg	0.05	0.19	0.2	70 - 130	97

OC Pesticides in Soil

Method: ME-(AU)-[ENV]AN400/AN420

Sample Number		Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB110120.002		Heptachlor	mg/kg	0.1	0.2	0.2	60 - 140	122
		Aldrin	mg/kg	0.1	0.2	0.2	60 - 140	118
		Delta BHC	mg/kg	0.1	0.2	0.2	60 - 140	98
		Dieldrin	mg/kg	0.2	0.2	0.2	60 - 140	108
		Endrin	mg/kg	0.2	0.2	0.2	60 - 140	124
		p,p'-DDT	mg/kg	0.1	0.2	0.2	60 - 140	122
	Surrogates	Tetrachloro-m-xylene (TCMX) (Surrogate)	mg/kg	-	0.14	0.15	40 - 130	90

OP Pesticides in Soil

Method: ME-(AU)-[ENV]AN400/AN420

Sample Number		Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB110120.002		Dichlorvos	mg/kg	0.5	1.7	2	60 - 140	83
		Diazinon (Dimpylate)	mg/kg	0.5	2.4	2	60 - 140	121
		Chlorpyrifos (Chlorpyrifos Ethyl)	mg/kg	0.2	1.6	2	60 - 140	81
		Ethion	mg/kg	0.2	1.7	2	60 - 140	83
	Surrogates	2-fluorobiphenyl (Surrogate)	mg/kg	-	0.4	0.5	40 - 130	74
		d14-p-terphenyl (Surrogate)	mg/kg	-	0.4	0.5	40 - 130	82

PAH (Polynuclear Aromatic Hydrocarbons) in Soil

Method: ME-(AU)-[ENV]AN420

Sample Number		Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB110120.002		Naphthalene	mg/kg	0.1	3.5	4	60 - 140	89
		Acenaphthylene	mg/kg	0.1	3.5	4	60 - 140	89
		Acenaphthene	mg/kg	0.1	3.5	4	60 - 140	87
		Phenanthrene	mg/kg	0.1	3.5	4	60 - 140	86
		Anthracene	mg/kg	0.1	3.5	4	60 - 140	88
		Fluoranthene	mg/kg	0.1	3.6	4	60 - 140	89
		Pyrene	mg/kg	0.1	3.4	4	60 - 140	84
		Benzo(a)pyrene	mg/kg	0.1	3.6	4	60 - 140	89
	Surrogates	d5-nitrobenzene (Surrogate)	mg/kg	-	0.4	0.5	40 - 130	76
		2-fluorobiphenyl (Surrogate)	mg/kg	-	0.4	0.5	40 - 130	74
		d14-p-terphenyl (Surrogate)	mg/kg	-	0.4	0.5	40 - 130	82

Total Phenolics in Soil

Method: ME-(AU)-[ENV]AN289

Sample Number	Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB110297.002	Total Phenols	mg/kg	0.1	2.1	2.5	70 - 130	84

Total Recoverable Metals in Soil/Waste Solids/Materials by ICPOES

Method: ME-(AU)-[ENV]AN040/AN320

Sample Number	Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB110227.002	Arsenic, As	mg/kg	3	49	50	80 - 120	98
	Cadmium, Cd	mg/kg	0.3	49	50	80 - 120	98
	Chromium, Cr	mg/kg	0.3	50	50	80 - 120	100
	Copper, Cu	mg/kg	0.5	49	50	80 - 120	99
	Lead, Pb	mg/kg	1	49	50	80 - 120	99
	Nickel, Ni	mg/kg	0.5	49	50	80 - 120	99
	Zinc, Zn	mg/kg	0.5	49	50	80 - 120	99

TRH (Total Recoverable Hydrocarbons) in Soil

Method: ME-(AU)-[ENV]AN403

Sample Number		Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB110120.002		TRH C10-C14	mg/kg	20	42	40	60 - 140	105
		TRH C15-C28	mg/kg	45	<45	40	60 - 140	103
		TRH C29-C36	mg/kg	45	<45	40	60 - 140	103
	TRH F Bands	TRH >C10-C16 (F2)	mg/kg	25	43	40	60 - 140	108
		TRH >C16-C34 (F3)	mg/kg	90	<90	40	60 - 140	103
		TRH >C34-C40 (F4)	mg/kg	120	<120	20	60 - 140	105

VOC's in Soil

Method: ME-(AU)-[ENV]AN433

Sample Number	Parameter	Units	LOR

Laboratory Control Standard (LCS) results are evaluated against an expected result, typically the concentration of analyte spiked into the control during the sample preparation stage, producing a percentage recovery. The criteria applied to the percentage recovery is established in the SGS QA /QC plan (Ref: MP-(AU)-[ENV]QU-022). For more information refer to the footnotes in the concluding page of this report.

Recovery is shown in **Green** when within suggested criteria or **Red** with an appended dagger symbol (†) when outside suggested criteria.

VOC's in Soil (continued)

Method: ME-(AU)-[ENV]AN433

Sample Number		Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB110103.002	Monocyclic	Benzene	mg/kg	0.1	2.2	2.9	60 - 140	76
	Aromatic	Toluene	mg/kg	0.1	2.2	2.9	60 - 140	74
		Ethylbenzene	mg/kg	0.1	2.2	2.9	60 - 140	76
		m/p-xylene	mg/kg	0.2	4.8	5.8	60 - 140	82
		o-xylene	mg/kg	0.1	2.3	2.9	60 - 140	80
	Surrogates	Dibromofluoromethane (Surrogate)	mg/kg	-	3.8	5	60 - 140	76
		d4-1,2-dichloroethane (Surrogate)	mg/kg	-	5.3	5	60 - 140	107
		d8-toluene (Surrogate)	mg/kg	-	4.2	5	60 - 140	85
		Bromofluorobenzene (Surrogate)	mg/kg	-	5.1	5	60 - 140	102

Volatile Petroleum Hydrocarbons in Soil

Method: ME-(AU)-[ENV]AN433

Sample Number		Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB110103.002		TRH C6-C10	mg/kg	25	<25	24.65	60 - 140	89
		TRH C6-C9	mg/kg	20	<20	23.2	60 - 140	83
	Surrogates	Dibromofluoromethane (Surrogate)	mg/kg	-	3.8	5	60 - 140	76
		d4-1,2-dichloroethane (Surrogate)	mg/kg	-	5.3	5	60 - 140	107
		d8-toluene (Surrogate)	mg/kg	-	4.2	5	60 - 140	85
		Bromofluorobenzene (Surrogate)	mg/kg	-	5.1	5	60 - 140	102
	VPH F Bands	TRH C6-C10 minus BTEX (F1)	mg/kg	25	<25	7.25	60 - 140	113

Matrix Spike (MS) results are evaluated as the percentage recovery of an expected result, typically the concentration of analyte spiked into a field sub -sample during the sample preparation stage. The original sample's result is subtracted from the sub-sample result before determining the percentage recovery. The criteria applied to the percentage recovery is established in the SGS QA/QC plan (ref: MP-(AU)-[ENV]QU-022). For more information refer to the footnotes in the concluding page of this report.

Recovery is shown in **Green** when within suggested criteria or **Red** with an appended reason identifer when outside suggested criteria. Refer to the footnotes section at the end of this report for failure reasons.

Mercury in Soil

Method: ME-(AU)-[ENV]AN312

QC Sample	Sample Number	Parameter	Units	LOR	Result	Original	Spike	Recovery%
SE157197.001	LB110152.004	Mercury	mg/kg	0.05	0.21	<0.05	0.2	83

OC Pesticides in Soil

Method: ME-(AU)-[ENV]AN400/AN420

QC Sample	Sample Number		Parameter	Units	LOR	Original	Spike	Recovery%
SE157197.001	LB110120.022		Hexachlorobenzene (HCB)	mg/kg	0.1	<0.1	-	-
			Alpha BHC	mg/kg	0.1	<0.1	-	-
			Lindane	mg/kg	0.1	<0.1	-	-
			Heptachlor	mg/kg	0.1	<0.1	0.2	95
			Aldrin	mg/kg	0.1	<0.1	0.2	119
			Beta BHC	mg/kg	0.1	<0.1	-	-
			Delta BHC	mg/kg	0.1	<0.1	0.2	124
			Heptachlor epoxide	mg/kg	0.1	<0.1	-	-
			o,p'-DDE	mg/kg	0.1	<0.1	-	-
			Alpha Endosulfan	mg/kg	0.2	<0.2	-	-
			Gamma Chlordane	mg/kg	0.1	<0.1	-	-
			Alpha Chlordane	mg/kg	0.1	<0.1	-	-
			trans-Nonachlor	mg/kg	0.1	<0.1	-	-
			p,p'-DDE	mg/kg	0.1	<0.1	-	-
			Dieldrin	mg/kg	0.2	<0.2	0.2	102
			Endrin	mg/kg	0.2	<0.2	0.2	99
			o,p'-DDD	mg/kg	0.1	<0.1	-	-
			o,p'-DDT	mg/kg	0.1	<0.1	-	-
			Beta Endosulfan	mg/kg	0.2	<0.2	-	-
			p,p'-DDD	mg/kg	0.1	<0.1	-	-
			p,p'-DDT	mg/kg	0.1	<0.1	0.2	76
			Endosulfan sulphate	mg/kg	0.1	<0.1	-	-
			Endrin Aldehyde	mg/kg	0.1	<0.1	-	-
			Methoxychlor	mg/kg	0.1	<0.1	-	-
			Endrin Ketone	mg/kg	0.1	<0.1	-	-
			Isodrin	mg/kg	0.1	<0.1	-	-
			Mirex	mg/kg	0.1	<0.1	-	-
		Surrogates	Tetrachloro-m-xylene (TCMX) (Surrogate)	mg/kg	-	0.14	-	95

PAH (Polynuclear Aromatic Hydrocarbons) in Soil

Method: ME-(AU)-[ENV]AN420

QC Sample	Sample Number		Parameter	Units	LOR	Original	Spike	Recovery%
SE157133.020	LB110120.022		Naphthalene	mg/kg	0.1	<0.1	4	92
			2-methylnaphthalene	mg/kg	0.1	<0.1	-	-
			1-methylnaphthalene	mg/kg	0.1	<0.1	-	-
			Acenaphthylene	mg/kg	0.1	<0.1	4	94
			Acenaphthene	mg/kg	0.1	<0.1	4	89
			Fluorene	mg/kg	0.1	<0.1	-	-
			Phenanthrene	mg/kg	0.1	<0.1	4	91
			Anthracene	mg/kg	0.1	<0.1	4	94
			Fluoranthene	mg/kg	0.1	<0.1	4	95
			Pyrene	mg/kg	0.1	<0.1	4	88
			Benzo(a)anthracene	mg/kg	0.1	<0.1	-	-
			Chrysene	mg/kg	0.1	<0.1	-	-
			Benzo(b&j)fluoranthene	mg/kg	0.1	<0.1	-	-
			Benzo(k)fluoranthene	mg/kg	0.1	<0.1	-	-
			Benzo(a)pyrene	mg/kg	0.1	<0.1	4	73
			Indeno(1,2,3-cd)pyrene	mg/kg	0.1	<0.1	-	-
			Dibenzo(ah)anthracene	mg/kg	0.1	<0.1	-	-
			Benzo(ghi)perylene	mg/kg	0.1	<0.1	-	-
			Carcinogenic PAHs, BaP TEQ <LOR=0	TEQ	0.2	<0.2	-	-
			Carcinogenic PAHs, BaP TEQ <LOR=LOR	TEQ (mg/kg)	0.3	<0.3	-	-
			Carcinogenic PAHs, BaP TEQ <LOR=LOR/2	TEQ (mg/kg)	0.2	<0.2	-	-
			Total PAH (18)	mg/kg	0.8	<0.8	-	-
		Surrogates	d5-nitrobenzene (Surrogate)	mg/kg	-	0.4	-	80
			2-fluorobiphenyl (Surrogate)	mg/kg	-	0.4	-	78

Matrix Spike (MS) results are evaluated as the percentage recovery of an expected result, typically the concentration of analyte spiked into a field sub -sample during the sample preparation stage. The original sample's result is subtracted from the sub-sample result before determining the percentage recovery. The criteria applied to the percentage recovery is established in the SGS QA/QC plan (ref: MP-(AU)-[ENV]QU-022). For more information refer to the footnotes in the concluding page of this report.

Recovery is shown in **Green** when within suggested criteria or **Red** with an appended reason identifer when outside suggested criteria. Refer to the footnotes section at the end of this report for failure reasons.

PAH (Polynuclear Aromatic Hydrocarbons) in Soil (continued)

Method: ME-(AU)-[ENV]AN420

QC Sample	Sample Number		Parameter	Units	LOR	Original	Spike	Recovery%
SE157133.020	LB110120.022	Surrogates	d14-p-terphenyl (Surrogate)	mg/kg	-	0.5	-	90

TRH (Total Recoverable Hydrocarbons) in Soil

Method: ME-(AU)-[ENV]AN403

QC Sample	Sample Number		Parameter	Units	LOR	Original	Spike	Recovery%
SE157133.020	LB110120.022		TRH C10-C14	mg/kg	20	<20	40	108
			TRH C15-C28	mg/kg	45	<45	40	118
			TRH C29-C36	mg/kg	45	<45	40	93
			TRH C37-C40	mg/kg	100	<100	-	-
			TRH C10-C36 Total	mg/kg	110	<110	-	-
			TRH C10-C40 Total	mg/kg	210	<210	-	-
		TRH F Bands	TRH >C10-C16 (F2)	mg/kg	25	<25	40	110
			TRH >C10-C16 (F2) - Naphthalene	mg/kg	25	<25	-	-
			TRH >C16-C34 (F3)	mg/kg	90	<90	40	110
			TRH >C34-C40 (F4)	mg/kg	120	<120	-	-

VOC's in Soil

Method: ME-(AU)-[ENV]AN433

QC Sample	Sample Number		Parameter	Units	LOR	Result	Original	Spike	Recovery%
SE157058.059	LB110103.004	Monocyclic	Benzene	mg/kg	0.1	2.3	<0.1	2.9	79
		Aromatic	Toluene	mg/kg	0.1	2.3	<0.1	2.9	79
			Ethylbenzene	mg/kg	0.1	1.9	<0.1	2.9	67
			m/p-xylene	mg/kg	0.2	4.0	<0.2	5.8	70
			o-xylene	mg/kg	0.1	2.0	<0.1	2.9	68
		Polycyclic	Naphthalene	mg/kg	0.1	<0.1	<0.1	-	-
		Surrogates	Dibromofluoromethane (Surrogate)	mg/kg	-	3.5	3.8	-	71
			d4-1,2-dichloroethane (Surrogate)	mg/kg	-	4.7	4.9	-	93
			d8-toluene (Surrogate)	mg/kg	-	4.9	4.9	-	99
			Bromofluorobenzene (Surrogate)	mg/kg	-	4.2	4.2	-	83
		Totals	Total Xylenes*	mg/kg	0.3	6.0	<0.3	-	-
			Total BTEX	mg/kg	0.6	13	<0.6	-	-

Volatile Petroleum Hydrocarbons in Soil

Method: ME-(AU)-[ENV]AN433

QC Sample	Sample Number		Parameter	Units	LOR	Result	Original	Spike	Recovery%
SE157058.059	LB110103.004		TRH C6-C10	mg/kg	25	<25	<25	24.65	84
			TRH C6-C9	mg/kg	20	<20	<20	23.2	73
		Surrogates	Dibromofluoromethane (Surrogate)	mg/kg	-	3.5	3.8	-	71
			d4-1,2-dichloroethane (Surrogate)	mg/kg	-	4.7	4.9	-	93
			d8-toluene (Surrogate)	mg/kg	-	4.9	4.9	-	99
			Bromofluorobenzene (Surrogate)	mg/kg	-	4.2	4.2	-	83
		VPH F	Benzene (F0)	mg/kg	0.1	2.3	<0.1	-	-
		Bands	TRH C6-C10 minus BTEX (F1)	mg/kg	25	<25	<25	7.25	113

Matrix spike duplicates are calculated as Relative Percent Difference (RPD) using the formula: RPD = | OriginalResult - ReplicateResult | x 100 / Mean

The original result is the analyte concentration of the matrix spike. The Duplicate result is the analyte concentration of the matrix spike duplicate.

The RPD is evaluated against the Maximum Allowable Difference (MAD) criteria and can be graphically represented by a curve calculated from the Statistical Detection Limit (SDL) and Limiting Repeatability (LR) using the formula: MAD = 100 x SDL / Mean + LR

Where the Maximum Allowable Difference evaluates to a number larger than 200 it is displayed as 200.

RPD is shown in **Green** when within suggested criteria or **Red** with an appended reason identifer when outside suggested criteria. Refer to the footnotes section at the end of this report for failure reasons.

No matrix spike duplicates were required for this job.

Samples analysed as received.

Solid samples expressed on a dry weight basis.

QC criteria are subject to internal review according to the SGS QA/QC plan and may be provided on request or alternatively can be found here: http://www.sgs.com.au/~/media/Local/Australia/Documents/Technical Documents/MP-AU-ENV-QU-022 QA QC Plan.pdf

*	NATA accreditation does not cover tthe performance of this service.
-	Sample not analysed for this analyte.

IS	Insufficient sample for analysis.
LNR	Sample listed, but not received.
LOR	Limit of reporting.
QFH	QC result is above the upper tolerance.
QFL	QC result is below the lower tolerance.

①	At least 2 of 3 surrogates are within acceptance criteria.
②	RPD failed acceptance criteria due to sample heterogeneity.
③	Results less than 5 times LOR preclude acceptance criteria for RPD.
④	Recovery failed acceptance criteria due to matrix interference.
⑤	Recovery failed acceptance criteria due to the presence of significant concentration of analyte (i.e. the concentration of analyte exceeds the spike level).
⑥	LOR was raised due to sample matrix interference.
⑦	LOR was raised due to dilution of significantly high concentration of analyte in sample.
⑧	Reanalysis of sample in duplicate confirmed sample heterogeneity and inconsistency of results.
⑨	Recovery failed acceptance criteria due to sample heterogeneity.
⑩	LOR was raised due to high conductivity of the sample (required dilution).
†	Refer to Analytical Report comments for further information.

This document is issued, on the Client's behalf, by the Company under its General Conditions of Service, available on request and accessible at http://www.sgs.com/en/terms-and-conditions. The Client's attention is drawn to the limitation of liability, indemnification and jurisdiction issues defined therein.

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source: M630_SR_20160916131413.pdf page: 7 SGS Ref: SE157198_COC

SGS

CHAIN OF CUSTODY & ANALYSIS REQUEST

SGS Environmental Services
Unit 16, 33 Maddox Street
Alexandria NSW 2015
Telephone No: (02) 85940400
Facsimile No: (02) 85940499
Email:

Company Name:	SMEC	Project Name/No:	3002523 – Canberra Brickworks
Address:	Suite 2, Level 1, 243 Northbourne Avenue, Lyneham,	Purchase Order No:	
	ACT, 2602, Australia	Results Required By:	Ryan O'Leary
		Telephone:	+61 2 6234 1963 / 0400 240 023
Contact Name:	Ryan O'Leary	Facsimile:	
		Email Results:	Ryan.O'Leary@smec.com

Client Sample ID	Date Sampled	Lab Sample ID	WATER	SOIL		NO OF BAGS	Asbestos ID	BTEXN	OPPs	OCPs	PHAs/Phenols	8 Metals - As, Cd, Cr, Cu, Ni, Pb, Zn, Hg	TPH/TRH	On Hold
M6_0.3-0.4	14-09-16	1		✓		1 jar		✓	✓	✓	✓	✓	✓	
M6_0.3-0.4	14-09-16	2		✓		1 bag	✓							
M6_0.8-0.9	14-09-16			✓		1 jar								✓
M6_1.8-1.9	14-09-16			✓		1 jar								✓
M6_3.6-3.7	14-09-16			✓		1 jar								✓
M6_5.3-5.4	14-09-16			✓		1 jar								✓
QC10	14-09-16	3		✓		1 jar		✓	✓	✓	✓	✓	✓	
QC10	14-09-16	4		✓		1 bag	✓							

SGS EHS Alexandria Laboratory
SE157198 COC
Received: 16 – Sep – 2016

Relinquished By: Natasha Crook	Date/Time: 15/09/16 10:00AM	Received By:	Date/Time 16/09/16 @ 11.~
Relinquished By:	Date/Time:	Received By:	Date/Time
Samples Intact: Yes/ No	Temperature: Ambient / Chilled	Sample Cooler Sealed: Yes/ No	Laboratory Quotation No:
	Comments: AS PER SGS QUOTE NUMBER SY1 – 60413 – 2-IS DATED 13TH APRIL 2016	**STANDARD TAT PLEASE (5 DAY)**	

SGS

CHAIN OF CUSTODY & ANALYSIS REQUEST

SGS Environmental Services
Unit 16, 33 Maddox Street
Alexandria NSW 2015
Telephone No: (02) 85940400
Facsimile No: (02) 85940499
Email:

Company Name:	SMEC	Project Name/No:	3002523 – Canberra Brickworks
Address:	Suite 2, Level 1, 243 Northbourne Avenue, Lyneham, ACT, 2602, Australia	Purchase Order No:	
		Results Required By:	Ryan O'Leary
		Telephone:	+61 2 6234 1963 / 0400 240 023
Contact Name:	Ryan O'Leary	Facsimile:	
		Email Results:	Ryan.O'Leary@smec.com

Client Sample ID	Date Sampled	Lab Sample ID	WATER	SOIL		NO OF CONTAINERS	Asbestos ID	BTEXN	OPPs	OCPs	PHAs/Phenols	8 Metals - As, Cd, Cr, Cu, Ni, Pb, Zn, Hg	TPH/TRH	On Hold								
QC11						1 jar		✓	✓	✓	✓	✓	✓									Send to ALS Sydney
QC11						1 bag	✓															Send to ALS Sydney

Relinquished By:	Date/Time:	Received By:	Date/Time
Relinquished By:	Date/Time:	Received By:	Date/Time
Samples Intact: Yes/ No	Temperature: Ambient / Chilled	Sample Cooler Sealed: Yes/ No	Laboratory Quotation No:
	Comments: AS PER SGS QUOTE NUMBER SY1 – 60413 – 2-IS DATED 13TH APRIL 2016	**STANDARD TAT PLEASE (5 DAY)**	

SAMPLE RECEIPT ADVICE

SE157198

CLIENT DETAILS

Contact	Ryan O'Leary
Client	SMEC AUSTRALIA PTY LTD
Address	Sun Micro Building Suite 2, Level 1 243 Northbourne Avenue ACT 2602
Telephone	02 6234 1963
Facsimile	02 6234 1966
Email	Ryan.O'Leary@smec.com
Project	**3002523 - Canberra Brickworks**
Order Number	**SY1-60413-2-IS**
Samples	4

LABORATORY DETAILS

Manager	Huong Crawford
Laboratory	SGS Alexandria Environmental
Address	Unit 16, 33 Maddox St Alexandria NSW 2015
Telephone	+61 2 8594 0400
Facsimile	+61 2 8594 0499
Email	au.environmental.sydney@sgs.com
Samples Received	Fri 16/9/2016
Report Due	Fri 23/9/2016
SGS Reference	**SE157198**

SUBMISSION DETAILS

This is to confirm that 4 samples were received on Friday 16/9/2016. Results are expected to be ready by Friday 23/9/2016. Please quote SGS reference SE157198 when making enquiries. Refer below for details relating to sample integrity upon receipt.

Sample counts by matrix	4 Soil	Type of documentation received	COC
Date documentation received	16/9/2016	Samples received in good order	Yes
Samples received without headspace	Yes	Sample temperature upon receipt	15.3°C
Sample container provider	SGS	Turnaround time requested	Standard
Samples received in correct containers	Yes	Sufficient sample for analysis	Yes
Sample cooling method	Ice Bricks	Samples clearly labelled	Yes
Complete documentation received	Yes	Number of eskies/boxes received	

Unless otherwise instructed, water and bulk samples will be held for one month from date of report, and soil samples will be held for two months.

COMMENTS

4 soil samples have been placed on hold.
QC11 jar and bag has been forwarded to ALS Sydney.

To the extent not inconsistent with the other provisions of this document and unless specifically agreed otherwise in writing by SGS, all SGS services are rendered in accordance with the applicable SGS General Conditions of Service accessible at http://www.sgs.com/en/terms-and-conditions as at the date of this document. Attention is drawn to the limitations of liability and to the clauses of indemnification.

SAMPLE RECEIPT ADVICE

SE157198

CLIENT DETAILS

Client SMEC AUSTRALIA PTY LTD

Project 3002523 - Canberra Brickworks

SUMMARY OF ANALYSIS

No.	Sample ID	OC Pesticides in Soil	OP Pesticides in Soil	PAH (Polynuclear Aromatic Hydrocarbons) in Soil	Total Phenolics in Soil	Total Recoverable Metals in Soil/Waste	TRH (Total Recoverable Hydrocarbons) in Soil	VOC's in Soil	Volatile Petroleum Hydrocarbons in Soil
001	M6_0.3-0.4	28	13	26	1	7	10	12	8
003	QC10	28	13	26	1	7	10	12	8

CONTINUED OVERLEAF

The above table represents SGS' interpretation of the client-supplied Chain Of Custody document.
The numbers shown in the table indicate the number of results requested in each package.
Please indicate as soon as possible should your request differ from these details .
Testing as per this table shall commence immediately unless the client intervenes with a correction .

SAMPLE RECEIPT ADVICE

SE157198

CLIENT DETAILS

Client SMEC AUSTRALIA PTY LTD

Project 3002523 - Canberra Brickworks

SUMMARY OF ANALYSIS

No.	Sample ID	Fibre Identification in soil	Mercury in Soil	Moisture Content
001	M6_0.3-0.4	-	1	1
002	M6_0.3-0.4_ZLB	2	-	-
003	QC10	-	1	1
004	QC10_ZLB	2	-	-

The above table represents SGS' interpretation of the client-supplied Chain Of Custody document.
The numbers shown in the table indicate the number of results requested in each package.
Please indicate as soon as possible should your request differ from these details .
Testing as per this table shall commence immediately unless the client intervenes with a correction .

ANALYTICAL REPORT

Accreditation No. 2562

CLIENT DETAILS

Contact	Ryan O'Leary
Client	SMEC AUSTRALIA PTY LTD
Address	Sun Micro Building Suite 2, Level 1 243 Northbourne Avenue ACT 2602
Telephone	02 6234 1963
Facsimile	02 6234 1966
Email	Ryan.O'Leary@smec.com
Project	**3002523 - Canberra Brickworks**
Order Number	**SY1-60413-2-IS**
Samples	4

LABORATORY DETAILS

Manager	Huong Crawford
Laboratory	SGS Alexandria Environmental
Address	Unit 16, 33 Maddox St Alexandria NSW 2015
Telephone	+61 2 8594 0400
Facsimile	+61 2 8594 0499
Email	au.environmental.sydney@sgs.com
SGS Reference	**SE157198 R0**
Date Received	16/9/2016
Date Reported	23/9/2016

COMMENTS

Accredited for compliance with ISO/IEC 17025. NATA accredited laboratory 2562(4354).

No respirable fibres detected in all soil samples using trace analysis technique.

Asbestos analysed by Approved Identifier Yusuf Kuthpudin.

SIGNATORIES

Andy Sutton
Senior Organic Chemist

Bennet Lo
Senior Organic Chemist/Metals Chemist

Dong Liang
Metals/Inorganics Team Leader

Kamrul Ahsan
Senior Chemist

Ravee Sivasubramaniam
Hygiene Team Leader

VOC's in Soil [AN433] Tested: 19/9/2016

PARAMETER	UOM	LOR	M6_0.3-0.4 SOIL - 14/9/2016 SE157198.001	QC10 SOIL - 14/9/2016 SE157198.003
Benzene	mg/kg	0.1	<0.1	<0.1
Toluene	mg/kg	0.1	<0.1	<0.1
Ethylbenzene	mg/kg	0.1	<0.1	<0.1
m/p-xylene	mg/kg	0.2	<0.2	<0.2
o-xylene	mg/kg	0.1	<0.1	<0.1
Total Xylenes*	mg/kg	0.3	<0.3	<0.3
Total BTEX	mg/kg	0.6	<0.6	<0.6
Naphthalene	mg/kg	0.1	<0.1	<0.1

Volatile Petroleum Hydrocarbons in Soil [AN433] Tested: 19/9/2016

PARAMETER	UOM	LOR	M6_0.3-0.4 SOIL - 14/9/2016 SE157198.001	QC10 SOIL - 14/9/2016 SE157198.003
TRH C6-C9	mg/kg	20	<20	<20
Benzene (F0)	mg/kg	0.1	<0.1	<0.1
TRH C6-C10	mg/kg	25	<25	<25
TRH C6-C10 minus BTEX (F1)	mg/kg	25	<25	<25

TRH (Total Recoverable Hydrocarbons) in Soil [AN403] Tested: 20/9/2016

PARAMETER	UOM	LOR	M6_0.3-0.4 SOIL - 14/9/2016 SE157198.001	QC10 SOIL - 14/9/2016 SE157198.003
TRH C10-C14	mg/kg	20	<20	<20
TRH C15-C28	mg/kg	45	<45	<45
TRH C29-C36	mg/kg	45	<45	<45
TRH C37-C40	mg/kg	100	<100	<100
TRH >C10-C16 (F2)	mg/kg	25	<25	<25
TRH >C10-C16 (F2) - Naphthalene	mg/kg	25	<25	<25
TRH >C16-C34 (F3)	mg/kg	90	<90	<90
TRH >C34-C40 (F4)	mg/kg	120	<120	<120
TRH C10-C36 Total	mg/kg	110	<110	<110
TRH C10-C40 Total	mg/kg	210	<210	<210

PAH (Polynuclear Aromatic Hydrocarbons) in Soil [AN420] Tested: 20/9/2016

PARAMETER	UOM	LOR	M6_0.3-0.4 SOIL - 14/9/2016 SE157198.001	QC10 SOIL - 14/9/2016 SE157198.003
Naphthalene	mg/kg	0.1	<0.1	<0.1
2-methylnaphthalene	mg/kg	0.1	<0.1	<0.1
1-methylnaphthalene	mg/kg	0.1	<0.1	<0.1
Acenaphthylene	mg/kg	0.1	<0.1	<0.1
Acenaphthene	mg/kg	0.1	<0.1	<0.1
Fluorene	mg/kg	0.1	<0.1	<0.1
Phenanthrene	mg/kg	0.1	<0.1	<0.1
Anthracene	mg/kg	0.1	<0.1	<0.1
Fluoranthene	mg/kg	0.1	<0.1	<0.1
Pyrene	mg/kg	0.1	<0.1	<0.1
Benzo(a)anthracene	mg/kg	0.1	<0.1	<0.1
Chrysene	mg/kg	0.1	<0.1	<0.1
Benzo(b&j)fluoranthene	mg/kg	0.1	<0.1	<0.1
Benzo(k)fluoranthene	mg/kg	0.1	<0.1	<0.1
Benzo(a)pyrene	mg/kg	0.1	<0.1	<0.1
Indeno(1,2,3-cd)pyrene	mg/kg	0.1	<0.1	<0.1
Dibenzo(ah)anthracene	mg/kg	0.1	<0.1	<0.1
Benzo(ghi)perylene	mg/kg	0.1	<0.1	<0.1
Carcinogenic PAHs, BaP TEQ <LOR=0	TEQ	0.2	<0.2	<0.2
Carcinogenic PAHs, BaP TEQ <LOR=LOR	TEQ (mg/kg)	0.3	<0.3	<0.3
Carcinogenic PAHs, BaP TEQ <LOR=LOR/2	TEQ (mg/kg)	0.2	<0.2	<0.2
Total PAH (18)	mg/kg	0.8	<0.8	<0.8
Total PAH (NEPM/WHO 16)	mg/kg	0.8	<0.8	<0.8

OC Pesticides in Soil [AN400/AN420] Tested: 20/9/2016

PARAMETER	UOM	LOR	M6_0.3-0.4 SOIL - 14/9/2016 SE157198.001	QC10 SOIL - 14/9/2016 SE157198.003
Hexachlorobenzene (HCB)	mg/kg	0.1	<0.1	<0.1
Alpha BHC	mg/kg	0.1	<0.1	<0.1
Lindane	mg/kg	0.1	<0.1	<0.1
Heptachlor	mg/kg	0.1	<0.1	<0.1
Aldrin	mg/kg	0.1	<0.1	<0.1
Beta BHC	mg/kg	0.1	<0.1	<0.1
Delta BHC	mg/kg	0.1	<0.1	<0.1
Heptachlor epoxide	mg/kg	0.1	<0.1	<0.1
o,p'-DDE	mg/kg	0.1	<0.1	<0.1
Alpha Endosulfan	mg/kg	0.2	<0.2	<0.2
Gamma Chlordane	mg/kg	0.1	<0.1	<0.1
Alpha Chlordane	mg/kg	0.1	<0.1	<0.1
trans-Nonachlor	mg/kg	0.1	<0.1	<0.1
p,p'-DDE	mg/kg	0.1	<0.1	<0.1
Dieldrin	mg/kg	0.2	<0.2	<0.2
Endrin	mg/kg	0.2	<0.2	<0.2
o,p'-DDD	mg/kg	0.1	<0.1	<0.1
o,p'-DDT	mg/kg	0.1	<0.1	<0.1
Beta Endosulfan	mg/kg	0.2	<0.2	<0.2
p,p'-DDD	mg/kg	0.1	<0.1	<0.1
p,p'-DDT	mg/kg	0.1	<0.1	<0.1
Endosulfan sulphate	mg/kg	0.1	<0.1	<0.1
Endrin Aldehyde	mg/kg	0.1	<0.1	<0.1
Methoxychlor	mg/kg	0.1	<0.1	<0.1
Endrin Ketone	mg/kg	0.1	<0.1	<0.1
Isodrin	mg/kg	0.1	<0.1	<0.1
Mirex	mg/kg	0.1	<0.1	<0.1

OP Pesticides in Soil [AN400/AN420] Tested: 20/9/2016

PARAMETER	UOM	LOR	M6_0.3-0.4 SOIL - 14/9/2016 SE157198.001	QC10 SOIL - 14/9/2016 SE157198.003
Dichlorvos	mg/kg	0.5	<0.5	<0.5
Dimethoate	mg/kg	0.5	<0.5	<0.5
Diazinon (Dimpylate)	mg/kg	0.5	<0.5	<0.5
Fenitrothion	mg/kg	0.2	<0.2	<0.2
Malathion	mg/kg	0.2	<0.2	<0.2
Chlorpyrifos (Chlorpyrifos Ethyl)	mg/kg	0.2	<0.2	<0.2
Parathion-ethyl (Parathion)	mg/kg	0.2	<0.2	<0.2
Bromophos Ethyl	mg/kg	0.2	<0.2	<0.2
Methidathion	mg/kg	0.5	<0.5	<0.5
Ethion	mg/kg	0.2	<0.2	<0.2
Azinphos-methyl (Guthion)	mg/kg	0.2	<0.2	<0.2

Total Phenolics in Soil [AN289] Tested: 22/9/2016

PARAMETER	UOM	LOR	M6_0.3-0.4 SOIL - 14/9/2016 SE157198.001	QC10 SOIL - 14/9/2016 SE157198.003
Total Phenols	mg/kg	0.1	**0.3**	**0.1**

Total Recoverable Metals in Soil/Waste Solids/Materials by ICPOES [AN040/AN320] Tested: 21/9/2016

PARAMETER	UOM	LOR	M6_0.3-0.4 SOIL - 14/9/2016 SE157198.001	QC10 SOIL - 14/9/2016 SE157198.003
Arsenic, As	mg/kg	3	<3	<3
Cadmium, Cd	mg/kg	0.3	<0.3	<0.3
Chromium, Cr	mg/kg	0.3	**1.7**	**1.0**
Copper, Cu	mg/kg	0.5	**1.4**	<0.5
Lead, Pb	mg/kg	1	**4**	**2**
Nickel, Ni	mg/kg	0.5	**0.8**	<0.5
Zinc, Zn	mg/kg	0.5	**2.7**	**0.6**

Mercury in Soil [AN312] Tested: 21/9/2016

PARAMETER	UOM	LOR	M6_0.3-0.4 SOIL - 14/9/2016 SE157198.001	QC10 SOIL - 14/9/2016 SE157198.003
Mercury	mg/kg	0.05	<0.05	<0.05

Moisture Content [AN002] Tested: 21/9/2016

PARAMETER	UOM	LOR	M6_0.3-0.4 SOIL - 14/9/2016 SE157198.001	QC10 SOIL - 14/9/2016 SE157198.003
% Moisture	%w/w	0.5	**13**	**14**

Fibre Identification in soil [AN602] Tested: 22/9/2016

PARAMETER	UOM	LOR	M6_0.3-0.4_ZLB SOIL - 14/9/2016 SE157198.002	QC10_ZLB SOIL - 14/9/2016 SE157198.004
Asbestos Detected	No unit	-	No	No
Estimated Fibres*	%w/w	0.01	<0.01	<0.01

METHOD	METHODOLOGY SUMMARY
AN002	The test is carried out by drying (at either 40°C or 105°C) a known mass of sample in a weighed evaporating basin. After fully dry the sample is re-weighed. Samples such as sludge and sediment having high percentages of moisture will take some time in a drying oven for complete removal of water.
AN040/AN320	A portion of sample is digested with nitric acid to decompose organic matter and hydrochloric acid to complete the digestion of metals. The digest is then analysed by ICP OES with metals results reported on the dried sample basis. Based on USEPA method 200.8 and 6010C.
AN040	A portion of sample is digested with Nitric acid to decompose organic matter and Hydrochloric acid to complete the digestion of metals and then filtered for analysis by ASS or ICP as per USEPA Method 200.8.
AN289	Analysis of Total Phenols in Soil Sediment and Water: Steam distillable phenols react with 4-aminoantipyrine at pH 7.9±0.1 in the presence of potassium ferricyanide to form a coloured antipyrine dye analysed by Discrete Analyser. Reference APHA 5530 B/D.
AN312	Mercury by Cold Vapour AAS in Soils: After digestion with nitric acid, hydrogen peroxide and hydrochloric acid , mercury ions are reduced by stannous chloride reagent in acidic solution to elemental mercury. This mercury vapour is purged by nitrogen into a cold cell in an atomic absorption spectrometer or mercury analyser . Quantification is made by comparing absorbances to those of the calibration standards. Reference APHA 3112/3500
AN400	OC and OP Pesticides by GC-ECD: The determination of organochlorine (OC) and organophosphorus (OP) pesticides and polychlorinated biphenyls (PCBs) in soils, sludges and groundwater. (Based on USEPA methods 3510, 3550, 8140 and 8080.)
AN403	Total Recoverable Hydrocarbons: Determination of Hydrocarbons by gas chromatography after a solvent extraction. Detection is by flame ionisation detector (FID) that produces an electronic signal in proportion to the combustible matter passing through it. Total Recoverable Hydrocarbons (TRH) are routinely reported as four alkane groupings based on the carbon chain length of the compounds: C6-C9, C10-C14, C15-C28 and C29-C36 and in recognition of the NEPM 1999 (2013), >C10-C16 (F2), >C16-C34 (F3) and >C34-C40 (F4). F2 is reported directly and also corrected by subtracting Naphthalene (from VOC method AN433) where available.
AN403	Additionally, the volatile C6-C9 fraction may be determined by a purge and trap technique and GC/MS because of the potential for volatiles loss. Total Petroleum Hydrocarbons (TPH) follows the same method of analysis after silica gel cleanup of the solvent extract. Aliphatic/Aromatic Speciation follows the same method of analysis after fractionation of the solvent extract over silica with differential polarity of the eluent solvents .
AN403	The GC/FID method is not well suited to the analysis of refined high boiling point materials (ie lubricating oils or greases) but is particularly suited for measuring diesel, kerosene and petrol if care to control volatility is taken. This method will detect naturally occurring hydrocarbons, lipids, animal fats, phenols and PAHs if they are present at sufficient levels, dependent on the use of specific cleanup/fractionation techniques. Reference USEPA 3510B, 8015B.
AN420	(SVOCs) including OC, OP, PCB, Herbicides, PAH, Phthalates and Speciated Phenols (etc) in soils, sediments and waters are determined by GCMS/ECD technique following appropriate solvent extraction process (Based on USEPA 3500C and 8270D).
AN420	SVOC Compounds: Semi-Volatile Organic Compounds (SVOCs) including OC, OP, PCB, Herbicides, PAH, Phthalates and Speciated Phenols in soils, sediments and waters are determined by GCMS/ECD technique following appropriate solvent extraction process (Based on USEPA 3500C and 8270D).
AN433	VOCs and C6-C9 Hydrocarbons by GC-MS P&T: VOC`s are volatile organic compounds. The sample is presented to a gas chromatograph via a purge and trap (P&T) concentrator and autosampler and is detected with a Mass Spectrometer (MSD). Solid samples are initially extracted with methanol whilst liquid samples are processed directly. References: USEPA 5030B, 8020A, 8260.
AN602	Qualitative identification of chrysotile, amosite and crocidolite in bulk samples by polarised light microscopy (PLM) in conjunction with dispersion staining (DS). AS4964 provides the basis for this document. Unequivocal identification of the asbestos minerals present is made by obtaining sufficient diagnostic `clues`, which provide a reasonable degree of certainty, dispersion staining is a mandatory `clue` for positive identification. If sufficient `clues` are absent, then positive identification of asbestos is not possible. This procedure requires removal of suspect fibres/bundles from the sample which cannot be returned.
AN602	Fibres/material that cannot be unequivocably identified as one of the three asbestos forms, will be reported as unknown mineral fibres (umf).
AN602	AS4964.2004 Method for the Qualitative Identification of Asbestos in Bulk Samples, Section 8.4, Trace Analysis Criteria, Note 4 states:"Depending upon sample condition and fibre type, the detection limit of this technique has been found to lie generally in the range of 1 in 1,000 to 1 in 10,000 parts by weight, equivalent to 1 to 0.1 g/kg."

AN602	The sample can be reported “no asbestos found at the reporting limit of 0.1 g/kg” (<0.01%w/w) where AN602 section 4.5 of this method has been followed, and if- (a) no trace asbestos fibres have been detected (i.e. no ‘respirable’ fibres): (b) the estimated weight of non-respirable asbestos fibre bundles and/or the estimated weight of asbestos in asbestos-containing materials are found to be less than 0.1g/kg: and (c) these non-respirable asbestos fibre bundles and/or the asbestos containing materials are only visible under stereo-microscope viewing conditions.

FOOTNOTES

*	NATA accreditation does not cover the performance of this service.	-	Not analysed.	UOM	Unit of Measure.
		NVL	Not validated.	LOR	Limit of Reporting.
**	Indicative data, theoretical holding time exceeded.	IS	Insufficient sample for analysis.	↑↓	Raised/lowered Limit of Reporting.
		LNR	Sample listed, but not received.		

Samples analysed as received.
Solid samples expressed on a dry weight basis.

Where "Total" analyte groups are reported (for example, Total PAHs, Total OC Pesticides) the total will be calculated as the sum of the individual analytes, with those analytes that are reported as <LOR being assumed to be zero. The summed (Total) limit of reporting is calculated by summing the individual analyte LORs and dividing by two. For example, where 16 individual analytes are being summed and each has an LOR of 0.1 mg/kg, the "Totals" LOR will be 1.6 / 2 (0.8 mg/kg). Where only 2 analytes are being summed, the " Total" LOR will be the sum of those two LORs.

Some totals may not appear to add up because the total is rounded after adding up the raw values.

If reported, measurement uncertainty follow the ± sign after the analytical result and is expressed as the expanded uncertainty calculated using a coverage factor of 2, providing a level of confidence of approximately 95%, unless stated otherwise in the comments section of this report.

Results reported for samples tested under test methods with codes starting with ARS-SOP, radionuclide or gross radioactivity concentrations are expressed in becquerel (Bq) per unit of mass or volume or per wipe as stated on the report. Becquerel is the SI unit for activity and equals one nuclear transformation per second.
Note that in terms of units of radioactivity:

a. 1 Bq is equivalent to 27 pCi
b. 37 MBq is equivalent to 1 mCi

For results reported for samples tested under test methods with codes starting with ARS-SOP, less than (<) values indicate the detection limit for each radionuclide or parameter for the measurement system used. The respective detection limits have been calculated in accordance with ISO 11929.

The QC criteria are subject to internal review according to the SGS QAQC plan and may be provided on request or alternatively can be found here : http://www.sgs.com.au/~/media/Local/Australia/Documents/Technical%20Documents/MP-AU-ENV-QU-022%20QA%20QC%20Plan.pdf

This document is issued, on the Client's behalf, by the Company under its General Conditions of Service available on request and accessible at http://www.sgs.com/en/terms-and-conditions. The Client's attention is drawn to the limitation of liability, indemnification and jurisdiction issues defined therein.

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ANALYTICAL REPORT

Accreditation No. 2562

CLIENT DETAILS

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Project	**3002523 - Canberra Brickworks**
Order Number	**SY1-60413-2-IS**
Samples	2

LABORATORY DETAILS

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SGS Reference	**SE157198 R0**
Date Received	16 Sep 2016
Date Reported	23 Sep 2016

COMMENTS

Accredited for compliance with ISO/IEC 17025. NATA accredited laboratory 2562(4354).

No respirable fibres detected in all soil samples using trace analysis technique.

Asbestos analysed by Approved Identifier Yusuf Kuthpudin.

SIGNATORIES

Andy Sutton
Senior Organic Chemist

Bennet Lo
Senior Organic Chemist/Metals Chemis

Dong Liang
Metals/Inorganics Team Leader

Kamrul Ahsan
Senior Chemist

Ravee Sivasubramaniam
Hygiene Team Leader

ANALYTICAL REPORT

RESULTS

Fibre Identification in soil — Method AN602

Laboratory Reference	Client Reference	Matrix	Sample Description	Date Sampled	Fibre Identification	
SE157198.002	M6_0.3-0.4_ZLB	Soil	101g Clay, Sand, Rocks	14 Sep 2016	No Asbestos Found	<0.01
SE157198.004	QC10_ZLB	Soil	115g Clay, Sand, Rocks	14 Sep 2016	No Asbestos Found	<0.01

METHOD SUMMARY

METHOD	METHODOLOGY SUMMARY
AN602	Qualitative identification of chrysotile, amosite and crocidolite in bulk samples by polarised light microscopy (PLM) in conjunction with dispersion staining (DS). AS4964 provides the basis for this document. Unequivocal identification of the asbestos minerals present is made by obtaining sufficient diagnostic `clues`, which provide a reasonable degree of certainty, dispersion staining is a mandatory `clue` for positive identification. If sufficient `clues` are absent, then positive identification of asbestos is not possible. This procedure requires removal of suspect fibres/bundles from the sample which cannot be returned.
AN602	Fibres/material that cannot be unequivocably identified as one of the three asbestos forms, will be reported as unknown mineral fibres (umf).
AN602	AS4964.2004 Method for the Qualitative Identification of Asbestos in Bulk Samples , Section 8.4, Trace Analysis Criteria, Note 4 states:"Depending upon sample condition and fibre type, the detection limit of this technique has been found to lie generally in the range of 1 in 1,000 to 1 in 10,000 parts by weight, equivalent to 1 to 0.1 g/kg."
AN602	The sample can be reported “no asbestos found at the reporting limit of 0.1 g/kg” (<0.01%w/w) where AN602 section 4.5 of this method has been followed, and if- (a) no trace asbestos fibres have been detected (i.e. no ‘respirable’ fibres): (b) the estimated weight of non-respirable asbestos fibre bundles and/or the estimated weight of asbestos in asbestos-containing materials are found to be less than 0.1g/kg: and (c) these non-respirable asbestos fibre bundles and/or the asbestos containing materials are only visible under stereo-microscope viewing conditions.

FOOTNOTES

Amosite	-	Brown Asbestos	NA	-	Not Analysed
Chrysotile	-	White Asbestos	LNR	-	Listed, Not Required
Crocidolite	-	Blue Asbestos	*	-	NATA accreditation does not cover the performance of this service .
Amphiboles	-	Amosite and/or Crocidolite	**	-	Indicative data, theoretical holding time exceeded.

(In reference to soil samples only) This report does not comply with the analytical reporting recommendations in the Western Australian Department of Health Guidelines for the Assessment and Remediation and Management of Asbestos Contaminated sites in Western Australia - May 2009.

Sampled by the client.

Where reported: 'Asbestos Detected': Asbestos detected by polarised light microscopy, including dispersion staining.
Where reported: 'No Asbestos Found': No Asbestos Found by polarised light microscopy, including dispersion staining.
Where reported: 'UMF Detected': Mineral fibres of unknown type detected by polarised light microscopy, including dispersion staining. Confirmation by another independent analytical technique may be necessary.

Even after disintegration it can be very difficult, or impossible, to detect the presence of asbestos in some asbestos -containing bulk materials using polarised light microscopy. This is due to the low grade or small length or diameter of asbestos fibres present in the material, or to the fact that very fine fibres have been distributed intimately throughout the materials.

The QC criteria are subject to internal review according to the SGS QAQC plan and may be provided on request or alternatively can be found here : http://www.sgs.com.au/~/media/Local/Australia/Documents/Technical%20Documents/MP-AU-ENV-QU-022%20QA%20QC%20Plan.pdf

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STATEMENT OF QA/QC PERFORMANCE

SE157198 R0

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Project	**3002523 - Canberra Brickworks**
Order Number	**SY1-60413-2-IS**
Samples	4

LABORATORY DETAILS

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SGS Reference	**SE157198 R0**
Date Received	16 Sep 2016
Date Reported	23 Sep 2016

COMMENTS

All the laboratory data for each environmental matrix was compared to SGS' stated Data Quality Objectives (DQO). Comments arising from the comparison were made and are reported below.

The data relating to sampling was taken from the Chain of Custody document and was supplied by the Client.
This QA/QC Statement must be read in conjunction with the referenced Analytical Report.
The Statement and the Analytical Report must not be reproduced except in full.

All Data Quality Objectives were met with the exception of the following:

Matrix Spike	Total Phenolics in Soil	1 item

SAMPLE SUMMARY

Sample counts by matrix	4 Soil	Type of documentation received	COC
Date documentation received	16/9/2016	Samples received in good order	Yes
Samples received without headspace	Yes	Sample temperature upon receipt	15.3°C
Sample container provider	SGS	Turnaround time requested	Standard
Samples received in correct containers	Yes	Sufficient sample for analysis	Yes
Sample cooling method	Ice Bricks	Samples clearly labelled	Yes
Complete documentation received	Yes	Number of eskies/boxes received	

HOLDING TIME SUMMARY

SE157198 R0

SGS holding time criteria are drawn from current regulations and are highly dependent on sample container preservation as specified in the SGS “Field Sampling Guide for Containers and Holding Time” (ref: GU-(AU)-ENV.001). Soil samples guidelines are derived from NEPM "Schedule B(3) Guideline on Laboratory Analysis of Potentially Contaminated Soils". Water sample guidelines are derived from "AS/NZS 5667.1 : 1998 Water Quality - sampling part 1" and APHA "Standard Methods for the Examination of Water and Wastewater" 21st edition 2005.

Extraction and analysis holding time due dates listed are calculated from the date sampled, although holding times may be extended after laboratory extraction for some analytes. The due dates are the suggested dates that samples may be held before extraction or analysis and still be considered valid.

Extraction and analysis dates are shown in **Green** when within suggested criteria or **Red** with an appended dagger symbol (†) when outside suggested criteria. If the sampled date is not supplied then compliance with criteria cannot be determined. If the received date is after one or both due dates then holding time will fail by default.

Fibre Identification in soil

Method: ME-(AU)-[ENV]AN602

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
M6_0.3-0.4_ZLB	SE157198.002	LB110332	14 Sep 2016	16 Sep 2016	14 Sep 2017	22 Sep 2016	14 Sep 2017	23 Sep 2016
QC10_ZLB	SE157198.004	LB110332	14 Sep 2016	16 Sep 2016	14 Sep 2017	22 Sep 2016	14 Sep 2017	23 Sep 2016

Mercury in Soil

Method: ME-(AU)-[ENV]AN312

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
M6_0.3-0.4	SE157198.001	LB110221	14 Sep 2016	16 Sep 2016	12 Oct 2016	21 Sep 2016	12 Oct 2016	23 Sep 2016
QC10	SE157198.003	LB110221	14 Sep 2016	16 Sep 2016	12 Oct 2016	21 Sep 2016	12 Oct 2016	23 Sep 2016

Moisture Content

Method: ME-(AU)-[ENV]AN002

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
M6_0.3-0.4	SE157198.001	LB110239	14 Sep 2016	16 Sep 2016	28 Sep 2016	21 Sep 2016	26 Sep 2016	23 Sep 2016
QC10	SE157198.003	LB110239	14 Sep 2016	16 Sep 2016	28 Sep 2016	21 Sep 2016	26 Sep 2016	23 Sep 2016

OC Pesticides in Soil

Method: ME-(AU)-[ENV]AN400/AN420

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
M6_0.3-0.4	SE157198.001	LB110146	14 Sep 2016	16 Sep 2016	28 Sep 2016	20 Sep 2016	30 Oct 2016	23 Sep 2016
QC10	SE157198.003	LB110146	14 Sep 2016	16 Sep 2016	28 Sep 2016	20 Sep 2016	30 Oct 2016	23 Sep 2016

OP Pesticides in Soil

Method: ME-(AU)-[ENV]AN400/AN420

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
M6_0.3-0.4	SE157198.001	LB110146	14 Sep 2016	16 Sep 2016	28 Sep 2016	20 Sep 2016	30 Oct 2016	23 Sep 2016
QC10	SE157198.003	LB110146	14 Sep 2016	16 Sep 2016	28 Sep 2016	20 Sep 2016	30 Oct 2016	23 Sep 2016

PAH (Polynuclear Aromatic Hydrocarbons) in Soil

Method: ME-(AU)-[ENV]AN420

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
M6_0.3-0.4	SE157198.001	LB110146	14 Sep 2016	16 Sep 2016	28 Sep 2016	20 Sep 2016	30 Oct 2016	23 Sep 2016
QC10	SE157198.003	LB110146	14 Sep 2016	16 Sep 2016	28 Sep 2016	20 Sep 2016	30 Oct 2016	23 Sep 2016

Total Phenolics in Soil

Method: ME-(AU)-[ENV]AN289

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
M6_0.3-0.4	SE157198.001	LB110297	14 Sep 2016	16 Sep 2016	28 Sep 2016	22 Sep 2016	28 Sep 2016	23 Sep 2016
QC10	SE157198.003	LB110297	14 Sep 2016	16 Sep 2016	28 Sep 2016	22 Sep 2016	28 Sep 2016	23 Sep 2016

Total Recoverable Metals in Soil/Waste Solids/Materials by ICPOES

Method: ME-(AU)-[ENV]AN040/AN320

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
M6_0.3-0.4	SE157198.001	LB110247	14 Sep 2016	16 Sep 2016	13 Mar 2017	21 Sep 2016	13 Mar 2017	23 Sep 2016
QC10	SE157198.003	LB110247	14 Sep 2016	16 Sep 2016	13 Mar 2017	21 Sep 2016	13 Mar 2017	23 Sep 2016

TRH (Total Recoverable Hydrocarbons) in Soil

Method: ME-(AU)-[ENV]AN403

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
M6_0.3-0.4	SE157198.001	LB110146	14 Sep 2016	16 Sep 2016	28 Sep 2016	20 Sep 2016	30 Oct 2016	22 Sep 2016
QC10	SE157198.003	LB110146	14 Sep 2016	16 Sep 2016	28 Sep 2016	20 Sep 2016	30 Oct 2016	22 Sep 2016

VOC's in Soil

Method: ME-(AU)-[ENV]AN433

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
M6_0.3-0.4	SE157198.001	LB110110	14 Sep 2016	16 Sep 2016	28 Sep 2016	19 Sep 2016	29 Oct 2016	22 Sep 2016
QC10	SE157198.003	LB110110	14 Sep 2016	16 Sep 2016	28 Sep 2016	19 Sep 2016	29 Oct 2016	22 Sep 2016

Volatile Petroleum Hydrocarbons in Soil

Method: ME-(AU)-[ENV]AN433

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
M6_0.3-0.4	SE157198.001	LB110110	14 Sep 2016	16 Sep 2016	28 Sep 2016	19 Sep 2016	29 Oct 2016	22 Sep 2016
QC10	SE157198.003	LB110110	14 Sep 2016	16 Sep 2016	28 Sep 2016	19 Sep 2016	29 Oct 2016	22 Sep 2016

Surrogate results are evaluated against upper and lower limit criteria established in the SGS QA /QC plan (Ref: MP-(AU)-[ENV]QU-022). At least two of three routine level soil sample surrogate spike recoveries for BTEX/VOC are to be within 70-130% where control charts have not been developed and within the established control limits for charted surrogates. Matrix effects may void this as an acceptance criterion. Water sample surrogate spike recoveries are to be within 40-130%. The presence of emulsions, surfactants and particulates may void this as an acceptance criterion.

Result is shown in **Green** when within suggested criteria or **Red** with an appended reason identifer when outside suggested criteria. Refer to the footnotes section at the end of this report for failure reasons.

OC Pesticides in Soil

Method: ME-(AU)-[ENV]AN400/AN420

Parameter	Sample Name	Sample Number	Units	Criteria	Recovery %
Tetrachloro-m-xylene (TCMX) (Surrogate)	M6_0.3-0.4	SE157198.001	%	60 - 130%	75
	QC10	SE157198.003	%	60 - 130%	77

OP Pesticides in Soil

Method: ME-(AU)-[ENV]AN400/AN420

Parameter	Sample Name	Sample Number	Units	Criteria	Recovery %
2-fluorobiphenyl (Surrogate)	M6_0.3-0.4	SE157198.001	%	60 - 130%	78
	QC10	SE157198.003	%	60 - 130%	78
d14-p-terphenyl (Surrogate)	M6_0.3-0.4	SE157198.001	%	60 - 130%	98
	QC10	SE157198.003	%	60 - 130%	98

PAH (Polynuclear Aromatic Hydrocarbons) in Soil

Method: ME-(AU)-[ENV]AN420

Parameter	Sample Name	Sample Number	Units	Criteria	Recovery %
2-fluorobiphenyl (Surrogate)	M6_0.3-0.4	SE157198.001	%	70 - 130%	78
	QC10	SE157198.003	%	70 - 130%	78
d14-p-terphenyl (Surrogate)	M6_0.3-0.4	SE157198.001	%	70 - 130%	98
	QC10	SE157198.003	%	70 - 130%	98
d5-nitrobenzene (Surrogate)	M6_0.3-0.4	SE157198.001	%	70 - 130%	84
	QC10	SE157198.003	%	70 - 130%	82

VOC's in Soil

Method: ME-(AU)-[ENV]AN433

Parameter	Sample Name	Sample Number	Units	Criteria	Recovery %
Bromofluorobenzene (Surrogate)	M6_0.3-0.4	SE157198.001	%	60 - 130%	77
	QC10	SE157198.003	%	60 - 130%	74
d4-1,2-dichloroethane (Surrogate)	M6_0.3-0.4	SE157198.001	%	60 - 130%	78
	QC10	SE157198.003	%	60 - 130%	86
d8-toluene (Surrogate)	M6_0.3-0.4	SE157198.001	%	60 - 130%	118
	QC10	SE157198.003	%	60 - 130%	107
Dibromofluoromethane (Surrogate)	M6_0.3-0.4	SE157198.001	%	60 - 130%	73
	QC10	SE157198.003	%	60 - 130%	76

Volatile Petroleum Hydrocarbons in Soil

Method: ME-(AU)-[ENV]AN433

Parameter	Sample Name	Sample Number	Units	Criteria	Recovery %
Bromofluorobenzene (Surrogate)	M6_0.3-0.4	SE157198.001	%	60 - 130%	77
	QC10	SE157198.003	%	60 - 130%	74
d4-1,2-dichloroethane (Surrogate)	M6_0.3-0.4	SE157198.001	%	60 - 130%	78
	QC10	SE157198.003	%	60 - 130%	86
d8-toluene (Surrogate)	M6_0.3-0.4	SE157198.001	%	60 - 130%	118
	QC10	SE157198.003	%	60 - 130%	107
Dibromofluoromethane (Surrogate)	M6_0.3-0.4	SE157198.001	%	60 - 130%	73
	QC10	SE157198.003	%	60 - 130%	76

Blank results are evaluated against the limit of reporting (LOR), for the chosen method and its associated instrumentation, typically 2.5 times the statistically determined method detection limit (MDL).

Result is shown in **Green** when within suggested criteria or **Red** with an appended dagger symbol (†) when outside suggested criteria.

Mercury in Soil

Method: ME-(AU)-[ENV]AN312

Sample Number	Parameter	Units	LOR	Result
LB110221.001	Mercury	mg/kg	0.05	<0.05

OC Pesticides in Soil

Method: ME-(AU)-[ENV]AN400/AN420

Sample Number		Parameter	Units	LOR	Result
LB110146.001		Hexachlorobenzene (HCB)	mg/kg	0.1	<0.1
		Alpha BHC	mg/kg	0.1	<0.1
		Lindane	mg/kg	0.1	<0.1
		Heptachlor	mg/kg	0.1	<0.1
		Aldrin	mg/kg	0.1	<0.1
		Beta BHC	mg/kg	0.1	<0.1
		Delta BHC	mg/kg	0.1	<0.1
		Heptachlor epoxide	mg/kg	0.1	<0.1
		Alpha Endosulfan	mg/kg	0.2	<0.2
		Gamma Chlordane	mg/kg	0.1	<0.1
		Alpha Chlordane	mg/kg	0.1	<0.1
		p,p'-DDE	mg/kg	0.1	<0.1
		Dieldrin	mg/kg	0.2	<0.2
		Endrin	mg/kg	0.2	<0.2
		Beta Endosulfan	mg/kg	0.2	<0.2
		p,p'-DDD	mg/kg	0.1	<0.1
		p,p'-DDT	mg/kg	0.1	<0.1
		Endosulfan sulphate	mg/kg	0.1	<0.1
		Endrin Aldehyde	mg/kg	0.1	<0.1
		Methoxychlor	mg/kg	0.1	<0.1
		Endrin Ketone	mg/kg	0.1	<0.1
		Isodrin	mg/kg	0.1	<0.1
		Mirex	mg/kg	0.1	<0.1
	Surrogates	Tetrachloro-m-xylene (TCMX) (Surrogate)	%	-	79

OP Pesticides in Soil

Method: ME-(AU)-[ENV]AN400/AN420

Sample Number		Parameter	Units	LOR	Result
LB110146.001		Dichlorvos	mg/kg	0.5	<0.5
		Dimethoate	mg/kg	0.5	<0.5
		Diazinon (Dimpylate)	mg/kg	0.5	<0.5
		Fenitrothion	mg/kg	0.2	<0.2
		Malathion	mg/kg	0.2	<0.2
		Chlorpyrifos (Chlorpyrifos Ethyl)	mg/kg	0.2	<0.2
		Parathion-ethyl (Parathion)	mg/kg	0.2	<0.2
		Bromophos Ethyl	mg/kg	0.2	<0.2
		Methidathion	mg/kg	0.5	<0.5
		Ethion	mg/kg	0.2	<0.2
		Azinphos-methyl (Guthion)	mg/kg	0.2	<0.2
	Surrogates	2-fluorobiphenyl (Surrogate)	%	-	78
		d14-p-terphenyl (Surrogate)	%	-	104

PAH (Polynuclear Aromatic Hydrocarbons) in Soil

Method: ME-(AU)-[ENV]AN420

Sample Number	Parameter	Units	LOR	Result
LB110146.001	Naphthalene	mg/kg	0.1	<0.1
	2-methylnaphthalene	mg/kg	0.1	<0.1
	1-methylnaphthalene	mg/kg	0.1	<0.1
	Acenaphthylene	mg/kg	0.1	<0.1
	Acenaphthene	mg/kg	0.1	<0.1
	Fluorene	mg/kg	0.1	<0.1
	Phenanthrene	mg/kg	0.1	<0.1
	Anthracene	mg/kg	0.1	<0.1
	Fluoranthene	mg/kg	0.1	<0.1
	Pyrene	mg/kg	0.1	<0.1
	Benzo(a)anthracene	mg/kg	0.1	<0.1
	Chrysene	mg/kg	0.1	<0.1
	Benzo(a)pyrene	mg/kg	0.1	<0.1

Blank results are evaluated against the limit of reporting (LOR), for the chosen method and its associated instrumentation, typically 2.5 times the statistically determined method detection limit (MDL).

Result is shown in **Green** when within suggested criteria or **Red** with an appended dagger symbol (†) when outside suggested criteria.

PAH (Polynuclear Aromatic Hydrocarbons) in Soil (continued)

Method: ME-(AU)-[ENV]AN420

Sample Number		Parameter	Units	LOR	Result
LB110146.001		Indeno(1,2,3-cd)pyrene	mg/kg	0.1	<0.1
		Dibenzo(ah)anthracene	mg/kg	0.1	<0.1
		Benzo(ghi)perylene	mg/kg	0.1	<0.1
		Total PAH (18)	mg/kg	0.8	<0.8
	Surrogates	d5-nitrobenzene (Surrogate)	%	-	90
		2-fluorobiphenyl (Surrogate)	%	-	78
		d14-p-terphenyl (Surrogate)	%	-	104

Total Phenolics in Soil

Method: ME-(AU)-[ENV]AN289

Sample Number	Parameter	Units	LOR	Result
LB110297.001	Total Phenols	mg/kg	0.1	<0.1

Total Recoverable Metals in Soil/Waste Solids/Materials by ICPOES

Method: ME-(AU)-[ENV]AN040/AN320

Sample Number	Parameter	Units	LOR	Result
LB110247.001	Arsenic, As	mg/kg	3	<3
	Cadmium, Cd	mg/kg	0.3	<0.3
	Chromium, Cr	mg/kg	0.3	<0.3
	Copper, Cu	mg/kg	0.5	<0.5
	Lead, Pb	mg/kg	1	<1
	Nickel, Ni	mg/kg	0.5	<0.5
	Zinc, Zn	mg/kg	0.5	<0.5

TRH (Total Recoverable Hydrocarbons) in Soil

Method: ME-(AU)-[ENV]AN403

Sample Number	Parameter	Units	LOR	Result
LB110146.001	TRH C10-C14	mg/kg	20	<20
	TRH C15-C28	mg/kg	45	<45
	TRH C29-C36	mg/kg	45	<45
	TRH C37-C40	mg/kg	100	<100
	TRH C10-C36 Total	mg/kg	110	<110

VOC's in Soil

Method: ME-(AU)-[ENV]AN433

Sample Number		Parameter	Units	LOR	Result
LB110110.001	Monocyclic Aromatic	Benzene	mg/kg	0.1	<0.1
	Hydrocarbons	Toluene	mg/kg	0.1	<0.1
		Ethylbenzene	mg/kg	0.1	<0.1
		m/p-xylene	mg/kg	0.2	<0.2
		o-xylene	mg/kg	0.1	<0.1
	Polycyclic VOCs	Naphthalene	mg/kg	0.1	<0.1
	Surrogates	Dibromofluoromethane (Surrogate)	%	-	83
		d4-1,2-dichloroethane (Surrogate)	%	-	90
		d8-toluene (Surrogate)	%	-	102
		Bromofluorobenzene (Surrogate)	%	-	111
	Totals	Total BTEX	mg/kg	0.6	<0.6

Volatile Petroleum Hydrocarbons in Soil

Method: ME-(AU)-[ENV]AN433

Sample Number		Parameter	Units	LOR	Result
LB110110.001		TRH C6-C9	mg/kg	20	<20
	Surrogates	Dibromofluoromethane (Surrogate)	%	-	83
		d4-1,2-dichloroethane (Surrogate)	%	-	90
		d8-toluene (Surrogate)	%	-	102

Duplicates are calculated as Relative Percentage Difference (RPD) using the formula: RPD = | OriginalResult - ReplicateResult | x 100 / Mean

The RPD is evaluated against the Maximum Allowable Difference (MAD) criteria and can be graphically represented by a curve calculated from the Statistical Detection Limit (SDL) and Limiting Repeatability (LR) using the formula: MAD = 100 x SDL / Mean + LR

Where the Maximum Allowable Difference evaluates to a number larger than 200 it is displayed as 200.

RPD is shown in **Green** when within suggested criteria or **Red** with an appended reason identifer when outside suggested criteria. Refer to the footnotes section at the end of this report for failure reasons.

Mercury in Soil

Method: ME-(AU)-[ENV]AN312

Original	Duplicate	Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE157202.003	LB110221.014	Mercury	mg/kg	0.05	0.014178311	40.0185856289	200	0
SE157202.012	LB110221.024	Mercury	mg/kg	0.05	0.018977638	30.0181654120	200	0

Moisture Content

Method: ME-(AU)-[ENV]AN002

Original	Duplicate	Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE157191.001	LB110239.011	% Moisture	%w/w	0.5	11.2	9.2	40	20
SE157198.001	LB110239.022	% Moisture	%w/w	0.5	13	14	37	2
SE157261.008	LB110239.033	% Moisture	%w/w	0.5	16.9	17.0	36	1
SE157299.010	LB110239.044	% Moisture	%w/w	0.5	24	27	34	12
SE157318.004	LB110239.050	% Moisture	%w/w	0.5	32.81210592682.843866171(		31	0

OC Pesticides in Soil

Method: ME-(AU)-[ENV]AN400/AN420

Original	Duplicate		Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE157202.004	LB110146.014		Hexachlorobenzene (HCB)	mg/kg	0.1	0	0	200	0
			Alpha BHC	mg/kg	0.1	0	0	200	0
			Lindane	mg/kg	0.1	0	0	200	0
			Heptachlor	mg/kg	0.1	0	0	200	0
			Aldrin	mg/kg	0.1	0	0	200	0
			Beta BHC	mg/kg	0.1	0	0	200	0
			Delta BHC	mg/kg	0.1	0	0	200	0
			Heptachlor epoxide	mg/kg	0.1	0	0	200	0
			o,p'-DDE	mg/kg	0.1	0	0	200	0
			Alpha Endosulfan	mg/kg	0.2	0	0	200	0
			Gamma Chlordane	mg/kg	0.1	0	0	200	0
			Alpha Chlordane	mg/kg	0.1	0	0	200	0
			trans-Nonachlor	mg/kg	0.1	0	0	200	0
			p,p'-DDE	mg/kg	0.1	0	0	200	0
			Dieldrin	mg/kg	0.2	0	0	200	0
			Endrin	mg/kg	0.2	0	0	200	0
			o,p'-DDD	mg/kg	0.1	0	0	200	0
			o,p'-DDT	mg/kg	0.1	0	0	200	0
			Beta Endosulfan	mg/kg	0.2	0	0	200	0
			p,p'-DDD	mg/kg	0.1	0	0	200	0
			p,p'-DDT	mg/kg	0.1	0	0	200	0
			Endosulfan sulphate	mg/kg	0.1	0	0	200	0
			Endrin Aldehyde	mg/kg	0.1	0	0	200	0
			Methoxychlor	mg/kg	0.1	0	0	200	0
			Endrin Ketone	mg/kg	0.1	0	0	200	0
			Isodrin	mg/kg	0.1	0	0	200	0
			Mirex	mg/kg	0.1	0	0	200	0
		Surrogates	Tetrachloro-m-xylene (TCMX) (Surrogate)	mg/kg	-	0.13	0.124	30	5
SE157202.014	LB110146.025		Hexachlorobenzene (HCB)	mg/kg	0.1	0	0	200	0
			Alpha BHC	mg/kg	0.1	0	0	200	0
			Lindane	mg/kg	0.1	0	0	200	0
			Heptachlor	mg/kg	0.1	0	0	200	0
			Aldrin	mg/kg	0.1	0	0	200	0
			Beta BHC	mg/kg	0.1	0	0	200	0
			Delta BHC	mg/kg	0.1	0	0	200	0
			Heptachlor epoxide	mg/kg	0.1	0	0	200	0
			o,p'-DDE	mg/kg	0.1	0	0	200	0
			Alpha Endosulfan	mg/kg	0.2	0	0	200	0
			Gamma Chlordane	mg/kg	0.1	0	0	200	0
			Alpha Chlordane	mg/kg	0.1	0	0	200	0
			trans-Nonachlor	mg/kg	0.1	0	0	200	0
			p,p'-DDE	mg/kg	0.1	0	0	200	0
			Dieldrin	mg/kg	0.2	0	0	200	0
			Endrin	mg/kg	0.2	0	0	200	0
			o,p'-DDD	mg/kg	0.1	0	0	200	0
			o,p'-DDT	mg/kg	0.1	0	0	200	0
			Beta Endosulfan	mg/kg	0.2	0	0	200	0

Duplicates are calculated as Relative Percentage Difference (RPD) using the formula: RPD = | OriginalResult - ReplicateResult | x 100 / Mean

The RPD is evaluated against the Maximum Allowable Difference (MAD) criteria and can be graphically represented by a curve calculated from the Statistical Detection Limit (SDL) and Limiting Repeatability (LR) using the formula: MAD = 100 x SDL / Mean + LR

Where the Maximum Allowable Difference evaluates to a number larger than 200 it is displayed as 200.

RPD is shown in **Green** when within suggested criteria or **Red** with an appended reason identifer when outside suggested criteria. Refer to the footnotes section at the end of this report for failure reasons.

OC Pesticides in Soil (continued)

Method: ME-(AU)-[ENV]AN400/AN420

Original	Duplicate		Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE157202.014	LB110146.025		p,p'-DDD	mg/kg	0.1	0	0	200	0
			p,p'-DDT	mg/kg	0.1	0	0	200	0
			Endosulfan sulphate	mg/kg	0.1	0	0	200	0
			Endrin Aldehyde	mg/kg	0.1	0	0	200	0
			Methoxychlor	mg/kg	0.1	0	0	200	0
			Endrin Ketone	mg/kg	0.1	0	0	200	0
			Isodrin	mg/kg	0.1	0	0	200	0
			Mirex	mg/kg	0.1	0	0	200	0
		Surrogates	Tetrachloro-m-xylene (TCMX) (Surrogate)	mg/kg	-	0.124	0.124	30	0

OP Pesticides in Soil

Method: ME-(AU)-[ENV]AN400/AN420

Original	Duplicate		Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE157202.004	LB110146.014		Dichlorvos	mg/kg	0.5	0	0.01	200	0
			Dimethoate	mg/kg	0.5	0	0	200	0
			Diazinon (Dimpylate)	mg/kg	0.5	0.02	0.02	200	0
			Fenitrothion	mg/kg	0.2	0	0	200	0
			Malathion	mg/kg	0.2	0	0.02	200	0
			Chlorpyrifos (Chlorpyrifos Ethyl)	mg/kg	0.2	0.01	0.01	200	0
			Parathion-ethyl (Parathion)	mg/kg	0.2	0	0	200	0
			Bromophos Ethyl	mg/kg	0.2	0.01	0	200	0
			Methidathion	mg/kg	0.5	0	0	200	0
			Ethion	mg/kg	0.2	0	0	200	0
			Azinphos-methyl (Guthion)	mg/kg	0.2	0	0	200	0
		Surrogates	2-fluorobiphenyl (Surrogate)	mg/kg	-	0.4	0.39	30	3
			d14-p-terphenyl (Surrogate)	mg/kg	-	0.46	0.44	30	4
SE157202.014	LB110146.025		Dichlorvos	mg/kg	0.5	0	0	200	0
			Dimethoate	mg/kg	0.5	0	0	200	0
			Diazinon (Dimpylate)	mg/kg	0.5	0.01	0.01	200	0
			Fenitrothion	mg/kg	0.2	0	0	200	0
			Malathion	mg/kg	0.2	0.02	0.02	200	0
			Chlorpyrifos (Chlorpyrifos Ethyl)	mg/kg	0.2	0.01	0.01	200	0
			Parathion-ethyl (Parathion)	mg/kg	0.2	0	0	200	0
			Bromophos Ethyl	mg/kg	0.2	0.01	0.02	200	0
			Methidathion	mg/kg	0.5	0	0	200	0
			Ethion	mg/kg	0.2	0	0	200	0
			Azinphos-methyl (Guthion)	mg/kg	0.2	0	0	200	0
		Surrogates	2-fluorobiphenyl (Surrogate)	mg/kg	-	0.38	0.39	30	3
			d14-p-terphenyl (Surrogate)	mg/kg	-	0.42	0.43	30	2

PAH (Polynuclear Aromatic Hydrocarbons) in Soil

Method: ME-(AU)-[ENV]AN420

Original	Duplicate	Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE157202.004	LB110146.014	Naphthalene	mg/kg	0.1	0	0	200	0
		2-methylnaphthalene	mg/kg	0.1	0	0	200	0
		1-methylnaphthalene	mg/kg	0.1	0	0	200	0
		Acenaphthylene	mg/kg	0.1	0	0	200	0
		Acenaphthene	mg/kg	0.1	0	0	200	0
		Fluorene	mg/kg	0.1	0	0	200	0
		Phenanthrene	mg/kg	0.1	0	0	200	0
		Anthracene	mg/kg	0.1	0	0	200	0
		Fluoranthene	mg/kg	0.1	0	0	200	0
		Pyrene	mg/kg	0.1	0	0	200	0
		Benzo(a)anthracene	mg/kg	0.1	0	0.01	200	0
		Chrysene	mg/kg	0.1	0	0.01	200	0
		Benzo(b&j)fluoranthene	mg/kg	0.1	0	0	200	0
		Benzo(k)fluoranthene	mg/kg	0.1	0	0	200	0
		Benzo(a)pyrene	mg/kg	0.1	0	0	200	0
		Indeno(1,2,3-cd)pyrene	mg/kg	0.1	0	0	200	0
		Dibenzo(ah)anthracene	mg/kg	0.1	0	0	200	0
		Benzo(ghi)perylene	mg/kg	0.1	0	0	200	0
		Carcinogenic PAHs, BaP TEQ <LOR=0	TEQ (mg/kg)	0.2	0	0	200	0
		Carcinogenic PAHs, BaP TEQ <LOR=LOR	TEQ (mg/kg)	0.3	0.242	0.242	134	0
		Carcinogenic PAHs, BaP TEQ <LOR=LOR/2	TEQ (mg/kg)	0.2	0.121	0.121	175	0

Duplicates are calculated as Relative Percentage Difference (RPD) using the formula: RPD = | OriginalResult - ReplicateResult | x 100 / Mean

The RPD is evaluated against the Maximum Allowable Difference (MAD) criteria and can be graphically represented by a curve calculated from the Statistical Detection Limit (SDL) and Limiting Repeatability (LR) using the formula: MAD = 100 x SDL / Mean + LR

Where the Maximum Allowable Difference evaluates to a number larger than 200 it is displayed as 200.

RPD is shown in **Green** when within suggested criteria or **Red** with an appended reason identifer when outside suggested criteria. Refer to the footnotes section at the end of this report for failure reasons.

PAH (Polynuclear Aromatic Hydrocarbons) in Soil (continued)

Method: ME-(AU)-[ENV]AN420

Original	Duplicate		Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE157202.004	LB110146.014		Total PAH (18)	mg/kg	0.8	0	0	200	0
		Surrogates	d5-nitrobenzene (Surrogate)	mg/kg	-	0.42	0.4	30	5
			2-fluorobiphenyl (Surrogate)	mg/kg	-	0.4	0.39	30	3
			d14-p-terphenyl (Surrogate)	mg/kg	-	0.46	0.44	30	4
SE157202.014	LB110146.025		Naphthalene	mg/kg	0.1	0	0	200	0
			2-methylnaphthalene	mg/kg	0.1	0	0	200	0
			1-methylnaphthalene	mg/kg	0.1	0	0	200	0
			Acenaphthylene	mg/kg	0.1	0	0	200	0
			Acenaphthene	mg/kg	0.1	0	0	200	0
			Fluorene	mg/kg	0.1	0	0	200	0
			Phenanthrene	mg/kg	0.1	0	0	200	0
			Anthracene	mg/kg	0.1	0	0	200	0
			Fluoranthene	mg/kg	0.1	0	0	200	0
			Pyrene	mg/kg	0.1	0	0	200	0
			Benzo(a)anthracene	mg/kg	0.1	0	0	200	0
			Chrysene	mg/kg	0.1	0	0	200	0
			Benzo(b&j)fluoranthene	mg/kg	0.1	0	0	200	0
			Benzo(k)fluoranthene	mg/kg	0.1	0	0	200	0
			Benzo(a)pyrene	mg/kg	0.1	0	0	200	0
			Indeno(1,2,3-cd)pyrene	mg/kg	0.1	0	0	200	0
			Dibenzo(ah)anthracene	mg/kg	0.1	0	0	200	0
			Benzo(ghi)perylene	mg/kg	0.1	0	0	200	0
			Carcinogenic PAHs, BaP TEQ <LOR=0	TEQ (mg/kg)	0.2	0	0	200	0
			Carcinogenic PAHs, BaP TEQ <LOR=LOR	TEQ (mg/kg)	0.3	0.242	0.242	134	0
			Carcinogenic PAHs, BaP TEQ <LOR=LOR/2	TEQ (mg/kg)	0.2	0.121	0.121	175	0
			Total PAH (18)	mg/kg	0.8	0	0	200	0
		Surrogates	d5-nitrobenzene (Surrogate)	mg/kg	-	0.37	0.38	30	3
			2-fluorobiphenyl (Surrogate)	mg/kg	-	0.38	0.39	30	3
			d14-p-terphenyl (Surrogate)	mg/kg	-	0.42	0.43	30	2

Total Phenolics in Soil

Method: ME-(AU)-[ENV]AN289

Original	Duplicate	Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE157205.007	LB110297.016	Total Phenols	mg/kg	0.1	0.21015663600	0.1423779237	72	38

Total Recoverable Metals in Soil/Waste Solids/Materials by ICPOES

Method: ME-(AU)-[ENV]AN040/AN320

Original	Duplicate	Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE157202.003	LB110247.014	Arsenic, As	mg/kg	3	2.615067200	32.6068646745	68	0
		Cadmium, Cd	mg/kg	0.3	0.051759865	70.0261321379	200	0
		Chromium, Cr	mg/kg	0.3	3.711734999	13.5542564113	44	4
		Copper, Cu	mg/kg	0.5	3.425740336	43.0592811636	45	11
		Lead, Pb	mg/kg	1	4.589053048	64.4034660956	52	4
		Nickel, Ni	mg/kg	0.5	0.937898107	70.8636649508	86	8
		Zinc, Zn	mg/kg	0.5	15.2022383958	2.798718013€	44	17
SE157202.012	LB110247.024	Arsenic, As	mg/kg	3	0.418188323	40.5137805781	200	0
		Cadmium, Cd	mg/kg	0.3	-0.020186533	30.0392376457	200	0
		Chromium, Cr	mg/kg	0.3	1.561509585	51.5299053505	62	2
		Copper, Cu	mg/kg	0.5	0.311439366	10.3222404182	188	0
		Lead, Pb	mg/kg	1	1.084911559	21.1234097908	121	3
		Nickel, Ni	mg/kg	0.5	0.910691701	70.9256741820	84	2
		Zinc, Zn	mg/kg	0.5	1.922347092	33.8994570725	99	64

TRH (Total Recoverable Hydrocarbons) in Soil

Method: ME-(AU)-[ENV]AN403

Original	Duplicate		Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE157202.004	LB110146.014		TRH C10-C14	mg/kg	20	0	0	200	0
			TRH C15-C28	mg/kg	45	0	0	200	0
			TRH C29-C36	mg/kg	45	0	0	200	0
			TRH C37-C40	mg/kg	100	0	0	200	0
			TRH C10-C36 Total	mg/kg	110	0	0	200	0
			TRH C10-C40 Total	mg/kg	210	0	0	200	0
		TRH F Bands	TRH >C10-C16 (F2)	mg/kg	25	0	0	200	0

Duplicates are calculated as Relative Percentage Difference (RPD) using the formula: RPD = | OriginalResult - ReplicateResult | x 100 / Mean

The RPD is evaluated against the Maximum Allowable Difference (MAD) criteria and can be graphically represented by a curve calculated from the Statistical Detection Limit (SDL) and Limiting Repeatability (LR) using the formula: MAD = 100 x SDL / Mean + LR

Where the Maximum Allowable Difference evaluates to a number larger than 200 it is displayed as 200.

RPD is shown in **Green** when within suggested criteria or **Red** with an appended reason identifer when outside suggested criteria. Refer to the footnotes section at the end of this report for failure reasons.

TRH (Total Recoverable Hydrocarbons) in Soil (continued)

Method: ME-(AU)-[ENV]AN403

Original	Duplicate		Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE157202.004	LB110146.014	TRH F Bands	TRH >C10-C16 (F2) - Naphthalene	mg/kg	25	0	0	200	0
			TRH >C16-C34 (F3)	mg/kg	90	0	0	200	0
			TRH >C34-C40 (F4)	mg/kg	120	0	0	200	0
SE157202.014	LB110146.025		TRH C10-C14	mg/kg	20	0	0	200	0
			TRH C15-C28	mg/kg	45	0	0	200	0
			TRH C29-C36	mg/kg	45	0	0	200	0
			TRH C37-C40	mg/kg	100	0	0	200	0
			TRH C10-C36 Total	mg/kg	110	0	0	200	0
			TRH C10-C40 Total	mg/kg	210	0	0	200	0
		TRH F Bands	TRH >C10-C16 (F2)	mg/kg	25	0	0	200	0
			TRH >C10-C16 (F2) - Naphthalene	mg/kg	25	0	0	200	0
			TRH >C16-C34 (F3)	mg/kg	90	0	0	200	0
			TRH >C34-C40 (F4)	mg/kg	120	0	0	200	0

VOC's in Soil

Method: ME-(AU)-[ENV]AN433

Original	Duplicate		Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE157202.007	LB110110.014	Monocyclic Aromatic	Benzene	mg/kg	0.1	0	0	200	0
			Toluene	mg/kg	0.1	0	0	200	0
			Ethylbenzene	mg/kg	0.1	0	0	200	0
			m/p-xylene	mg/kg	0.2	0	0	200	0
			o-xylene	mg/kg	0.1	0	0	200	0
		Polycyclic	Naphthalene	mg/kg	0.1	0	0	200	0
		Surrogates	Dibromofluoromethane (Surrogate)	mg/kg	-	3.61	3.54	50	2
			d4-1,2-dichloroethane (Surrogate)	mg/kg	-	4.15	3.99	50	4
			d8-toluene (Surrogate)	mg/kg	-	5.02	5.04	50	0
			Bromofluorobenzene (Surrogate)	mg/kg	-	3.67	3.51	50	4
		Totals	Total Xylenes*	mg/kg	0.3	0	0	200	0
			Total BTEX	mg/kg	0.6	0	0	200	0
SE157202.017	LB110110.025	Monocyclic Aromatic	Benzene	mg/kg	0.1	0	0	200	0
			Toluene	mg/kg	0.1	0	0	200	0
			Ethylbenzene	mg/kg	0.1	0	0	200	0
			m/p-xylene	mg/kg	0.2	0	0	200	0
			o-xylene	mg/kg	0.1	0	0	200	0
		Polycyclic	Naphthalene	mg/kg	0.1	0	0	200	0
		Surrogates	Dibromofluoromethane (Surrogate)	mg/kg	-	4.1	3.73	50	9
			d4-1,2-dichloroethane (Surrogate)	mg/kg	-	4.72	4.51	50	5
			d8-toluene (Surrogate)	mg/kg	-	5.48	5.21	50	5
			Bromofluorobenzene (Surrogate)	mg/kg	-	3.91	4.13	50	5
		Totals	Total Xylenes*	mg/kg	0.3	0	0	200	0
			Total BTEX	mg/kg	0.6	0	0	200	0

Volatile Petroleum Hydrocarbons in Soil

Method: ME-(AU)-[ENV]AN433

Original	Duplicate		Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE157202.007	LB110110.014		TRH C6-C10	mg/kg	25	0	0	200	0
			TRH C6-C9	mg/kg	20	0	0	200	0
		Surrogates	Dibromofluoromethane (Surrogate)	mg/kg	-	3.61	3.54	30	2
			d4-1,2-dichloroethane (Surrogate)	mg/kg	-	4.15	3.99	30	4
			d8-toluene (Surrogate)	mg/kg	-	5.02	5.04	30	0
			Bromofluorobenzene (Surrogate)	mg/kg	-	3.67	3.51	30	4
		VPH F Bands	Benzene (F0)	mg/kg	0.1	0	0	200	0
			TRH C6-C10 minus BTEX (F1)	mg/kg	25	0	0	200	0
SE157202.017	LB110110.025		TRH C6-C10	mg/kg	25	0	0	200	0
			TRH C6-C9	mg/kg	20	0	0	200	0
		Surrogates	Dibromofluoromethane (Surrogate)	mg/kg	-	4.1	3.73	30	9
			d4-1,2-dichloroethane (Surrogate)	mg/kg	-	4.72	4.51	30	5
			d8-toluene (Surrogate)	mg/kg	-	5.48	5.21	30	5
			Bromofluorobenzene (Surrogate)	mg/kg	-	3.91	4.13	30	5
		VPH F Bands	Benzene (F0)	mg/kg	0.1	0	0	200	0
			TRH C6-C10 minus BTEX (F1)	mg/kg	25	0	0	200	0

Laboratory Control Standard (LCS) results are evaluated against an expected result, typically the concentration of analyte spiked into the control during the sample preparation stage, producing a percentage recovery. The criteria applied to the percentage recovery is established in the SGS QA /QC plan (Ref: MP-(AU)-[ENV]QU-022). For more information refer to the footnotes in the concluding page of this report.

Recovery is shown in **Green** when within suggested criteria or **Red** with an appended dagger symbol (†) when outside suggested criteria.

Mercury in Soil

Method: ME-(AU)-[ENV]AN312

Sample Number	Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB110221.002	Mercury	mg/kg	0.05	0.15	0.2	70 - 130	73

OC Pesticides in Soil

Method: ME-(AU)-[ENV]AN400/AN420

Sample Number		Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB110146.002		Heptachlor	mg/kg	0.1	0.2	0.2	60 - 140	107
		Aldrin	mg/kg	0.1	0.2	0.2	60 - 140	97
		Delta BHC	mg/kg	0.1	0.2	0.2	60 - 140	102
		Dieldrin	mg/kg	0.2	<0.2	0.2	60 - 140	90
		Endrin	mg/kg	0.2	0.2	0.2	60 - 140	110
		p,p'-DDT	mg/kg	0.1	0.2	0.2	60 - 140	119
	Surrogates	Tetrachloro-m-xylene (TCMX) (Surrogate)	mg/kg	-	0.13	0.15	40 - 130	83

OP Pesticides in Soil

Method: ME-(AU)-[ENV]AN400/AN420

Sample Number		Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB110146.002		Dichlorvos	mg/kg	0.5	2.3	2	60 - 140	116
		Diazinon (Dimpylate)	mg/kg	0.5	2.4	2	60 - 140	122
		Chlorpyrifos (Chlorpyrifos Ethyl)	mg/kg	0.2	2.2	2	60 - 140	108
		Ethion	mg/kg	0.2	1.9	2	60 - 140	97
	Surrogates	2-fluorobiphenyl (Surrogate)	mg/kg	-	0.4	0.5	40 - 130	88
		d14-p-terphenyl (Surrogate)	mg/kg	-	0.6	0.5	40 - 130	110

PAH (Polynuclear Aromatic Hydrocarbons) in Soil

Method: ME-(AU)-[ENV]AN420

Sample Number		Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB110146.002		Naphthalene	mg/kg	0.1	3.9	4	60 - 140	98
		Acenaphthylene	mg/kg	0.1	4.4	4	60 - 140	110
		Acenaphthene	mg/kg	0.1	3.8	4	60 - 140	96
		Phenanthrene	mg/kg	0.1	3.9	4	60 - 140	98
		Anthracene	mg/kg	0.1	4.1	4	60 - 140	103
		Fluoranthene	mg/kg	0.1	4.3	4	60 - 140	107
		Pyrene	mg/kg	0.1	4.2	4	60 - 140	104
		Benzo(a)pyrene	mg/kg	0.1	3.1	4	60 - 140	78
	Surrogates	d5-nitrobenzene (Surrogate)	mg/kg	-	0.5	0.5	40 - 130	98
		2-fluorobiphenyl (Surrogate)	mg/kg	-	0.4	0.5	40 - 130	88
		d14-p-terphenyl (Surrogate)	mg/kg	-	0.6	0.5	40 - 130	110

Total Phenolics in Soil

Method: ME-(AU)-[ENV]AN289

Sample Number	Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB110297.002	Total Phenols	mg/kg	0.1	2.1	2.5	70 - 130	84

Total Recoverable Metals in Soil/Waste Solids/Materials by ICPOES

Method: ME-(AU)-[ENV]AN040/AN320

Sample Number	Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB110247.002	Arsenic, As	mg/kg	3	48	50	80 - 120	96
	Cadmium, Cd	mg/kg	0.3	49	50	80 - 120	97
	Chromium, Cr	mg/kg	0.3	49	50	80 - 120	98
	Copper, Cu	mg/kg	0.5	49	50	80 - 120	97
	Lead, Pb	mg/kg	1	49	50	80 - 120	98
	Nickel, Ni	mg/kg	0.5	49	50	80 - 120	99
	Zinc, Zn	mg/kg	0.5	49	50	80 - 120	97

TRH (Total Recoverable Hydrocarbons) in Soil

Method: ME-(AU)-[ENV]AN403

Sample Number		Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB110146.002		TRH C10-C14	mg/kg	20	42	40	60 - 140	105
		TRH C15-C28	mg/kg	45	45	40	60 - 140	113
		TRH C29-C36	mg/kg	45	<45	40	60 - 140	108
	TRH F Bands	TRH >C10-C16 (F2)	mg/kg	25	43	40	60 - 140	108
		TRH >C16-C34 (F3)	mg/kg	90	<90	40	60 - 140	115
		TRH >C34-C40 (F4)	mg/kg	120	<120	20	60 - 140	105

VOC's in Soil

Method: ME-(AU)-[ENV]AN433

Sample Number	Parameter	Units	LOR

Laboratory Control Standard (LCS) results are evaluated against an expected result, typically the concentration of analyte spiked into the control during the sample preparation stage, producing a percentage recovery. The criteria applied to the percentage recovery is established in the SGS QA /QC plan (Ref: MP-(AU)-[ENV]QU-022). For more information refer to the footnotes in the concluding page of this report.

Recovery is shown in **Green** when within suggested criteria or **Red** with an appended dagger symbol (†) when outside suggested criteria.

VOC's in Soil (continued)

Method: ME-(AU)-[ENV]AN433

Sample Number		Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB110110.002	Monocyclic	Benzene	mg/kg	0.1	2.2	2.9	60 - 140	75
	Aromatic	Toluene	mg/kg	0.1	2.2	2.9	60 - 140	74
		Ethylbenzene	mg/kg	0.1	2.1	2.9	60 - 140	72
		m/p-xylene	mg/kg	0.2	4.4	5.8	60 - 140	76
		o-xylene	mg/kg	0.1	2.1	2.9	60 - 140	72
	Surrogates	Dibromofluoromethane (Surrogate)	mg/kg	-	3.6	5	60 - 140	71
		d4-1,2-dichloroethane (Surrogate)	mg/kg	-	4.1	5	60 - 140	83
		d8-toluene (Surrogate)	mg/kg	-	4.7	5	60 - 140	94
		Bromofluorobenzene (Surrogate)	mg/kg	-	4.3	5	60 - 140	86

Volatile Petroleum Hydrocarbons in Soil

Method: ME-(AU)-[ENV]AN433

Sample Number		Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB110110.002		TRH C6-C10	mg/kg	25	<25	24.65	60 - 140	86
		TRH C6-C9	mg/kg	20	<20	23.2	60 - 140	78
	Surrogates	Dibromofluoromethane (Surrogate)	mg/kg	-	3.6	5	60 - 140	71
		d4-1,2-dichloroethane (Surrogate)	mg/kg	-	4.1	5	60 - 140	83
		d8-toluene (Surrogate)	mg/kg	-	4.7	5	60 - 140	94
		Bromofluorobenzene (Surrogate)	mg/kg	-	4.3	5	60 - 140	86
	VPH F Bands	TRH C6-C10 minus BTEX (F1)	mg/kg	25	<25	7.25	60 - 140	115

Matrix Spike (MS) results are evaluated as the percentage recovery of an expected result, typically the concentration of analyte spiked into a field sub -sample during the sample preparation stage. The original sample's result is subtracted from the sub-sample result before determining the percentage recovery. The criteria applied to the percentage recovery is established in the SGS QA/QC plan (ref: MP-(AU)-[ENV]QU-022). For more information refer to the footnotes in the concluding page of this report.

Recovery is shown in **Green** when within suggested criteria or **Red** with an appended reason identifer when outside suggested criteria. Refer to the footnotes section at the end of this report for failure reasons.

Mercury in Soil

Method: ME-(AU)-[ENV]AN312

QC Sample	Sample Number	Parameter	Units	LOR	Result	Original	Spike	Recovery%
SE157192.001	LB110221.004	Mercury	mg/kg	0.05	0.17	<0.01	0.2	81

OC Pesticides in Soil

Method: ME-(AU)-[ENV]AN400/AN420

QC Sample	Sample Number		Parameter	Units	LOR	Original	Spike	Recovery%
SE157202.002	LB110146.027		Hexachlorobenzene (HCB)	mg/kg	0.1	0	-	-
			Alpha BHC	mg/kg	0.1	0	-	-
			Lindane	mg/kg	0.1	0	-	-
			Heptachlor	mg/kg	0.1	0	0.2	118
			Aldrin	mg/kg	0.1	0	0.2	106
			Beta BHC	mg/kg	0.1	0	-	-
			Delta BHC	mg/kg	0.1	0	0.2	112
			Heptachlor epoxide	mg/kg	0.1	0	-	-
			o,p'-DDE	mg/kg	0.1	0	-	-
			Alpha Endosulfan	mg/kg	0.2	0	-	-
			Gamma Chlordane	mg/kg	0.1	0	-	-
			Alpha Chlordane	mg/kg	0.1	0	-	-
			trans-Nonachlor	mg/kg	0.1	0	-	-
			p,p'-DDE	mg/kg	0.1	0	-	-
			Dieldrin	mg/kg	0.2	0	0.2	98
			Endrin	mg/kg	0.2	0	0.2	120
			o,p'-DDD	mg/kg	0.1	0	-	-
			o,p'-DDT	mg/kg	0.1	0	-	-
			Beta Endosulfan	mg/kg	0.2	0	-	-
			p,p'-DDD	mg/kg	0.1	0	-	-
			p,p'-DDT	mg/kg	0.1	0	0.2	124
			Endosulfan sulphate	mg/kg	0.1	0	-	-
			Endrin Aldehyde	mg/kg	0.1	0	-	-
			Methoxychlor	mg/kg	0.1	0	-	-
			Endrin Ketone	mg/kg	0.1	0	-	-
			Isodrin	mg/kg	0.1	0	-	-
			Mirex	mg/kg	0.1	0	-	-
		Surrogates	Tetrachloro-m-xylene (TCMX) (Surrogate)	mg/kg	-	0.126	-	87

OP Pesticides in Soil

Method: ME-(AU)-[ENV]AN400/AN420

QC Sample	Sample Number		Parameter	Units	LOR	Original	Spike	Recovery%
SE157202.001	LB110146.026		Dichlorvos	mg/kg	0.5	0	2	91
			Dimethoate	mg/kg	0.5	0	-	-
			Diazinon (Dimpylate)	mg/kg	0.5	0.02	2	94
			Fenitrothion	mg/kg	0.2	0	-	-
			Malathion	mg/kg	0.2	0.02	-	-
			Chlorpyrifos (Chlorpyrifos Ethyl)	mg/kg	0.2	0	2	84
			Parathion-ethyl (Parathion)	mg/kg	0.2	0	-	-
			Bromophos Ethyl	mg/kg	0.2	0	-	-
			Methidathion	mg/kg	0.5	0.03	-	-
			Ethion	mg/kg	0.2	0	2	96
			Azinphos-methyl (Guthion)	mg/kg	0.2	0	-	-
		Surrogates	2-fluorobiphenyl (Surrogate)	mg/kg	-	0.43	-	80
			d14-p-terphenyl (Surrogate)	mg/kg	-	0.54	-	110

PAH (Polynuclear Aromatic Hydrocarbons) in Soil

Method: ME-(AU)-[ENV]AN420

QC Sample	Sample Number	Parameter	Units	LOR	Original	Spike	Recovery%
SE157202.001	LB110146.026	Naphthalene	mg/kg	0.1	0	4	97
		2-methylnaphthalene	mg/kg	0.1	0	-	-
		1-methylnaphthalene	mg/kg	0.1	0	-	-
		Acenaphthylene	mg/kg	0.1	0	4	98
		Acenaphthene	mg/kg	0.1	0	4	96
		Fluorene	mg/kg	0.1	0	-	-
		Phenanthrene	mg/kg	0.1	0	4	97
		Anthracene	mg/kg	0.1	0	4	99
		Fluoranthene	mg/kg	0.1	0	4	101

Matrix Spike (MS) results are evaluated as the percentage recovery of an expected result, typically the concentration of analyte spiked into a field sub -sample during the sample preparation stage. The original sample's result is subtracted from the sub-sample result before determining the percentage recovery. The criteria applied to the percentage recovery is established in the SGS QA/QC plan (ref: MP-(AU)-[ENV]QU-022). For more information refer to the footnotes in the concluding page of this report.

Recovery is shown in **Green** when within suggested criteria or **Red** with an appended reason identifer when outside suggested criteria. Refer to the footnotes section at the end of this report for failure reasons.

PAH (Polynuclear Aromatic Hydrocarbons) in Soil (continued)

Method: ME-(AU)-[ENV]AN420

QC Sample	Sample Number		Parameter	Units	LOR	Original	Spike	Recovery%
SE157202.001	LB110146.026		Pyrene	mg/kg	0.1	0	4	96
			Benzo(a)anthracene	mg/kg	0.1	0.01	-	-
			Chrysene	mg/kg	0.1	0.01	-	-
			Benzo(b&j)fluoranthene	mg/kg	0.1	0	-	-
			Benzo(k)fluoranthene	mg/kg	0.1	0	-	-
			Benzo(a)pyrene	mg/kg	0.1	0	4	116
			Indeno(1,2,3-cd)pyrene	mg/kg	0.1	0	-	-
			Dibenzo(ah)anthracene	mg/kg	0.1	0	-	-
			Benzo(ghi)perylene	mg/kg	0.1	0	-	-
			Carcinogenic PAHs, BaP TEQ <LOR=0	TEQ	0.2	0	-	-
			Carcinogenic PAHs, BaP TEQ <LOR=LOR	TEQ (mg/kg)	0.3	0.242	-	-
			Carcinogenic PAHs, BaP TEQ <LOR=LOR/2	TEQ (mg/kg)	0.2	0.121	-	-
			Total PAH (18)	mg/kg	0.8	0	-	-
		Surrogates	d5-nitrobenzene (Surrogate)	mg/kg	-	0.48	-	90
			2-fluorobiphenyl (Surrogate)	mg/kg	-	0.43	-	80
			d14-p-terphenyl (Surrogate)	mg/kg	-	0.54	-	110

Total Phenolics in Soil

Method: ME-(AU)-[ENV]AN289

QC Sample	Sample Number	Parameter	Units	LOR	Result	Original	Spike	Recovery%
SE157205.010	LB110297.017	Total Phenols	mg/kg	0.1	2.1	0.50486772009	2.5	62 ④

Total Recoverable Metals in Soil/Waste Solids/Materials by ICPOES

Method: ME-(AU)-[ENV]AN040/AN320

QC Sample	Sample Number	Parameter	Units	LOR	Result	Original	Spike	Recovery%
SE157192.001	LB110247.004	Arsenic, As	mg/kg	3	44	7	50	74
		Cadmium, Cd	mg/kg	0.3	38	0.3	50	76
		Chromium, Cr	mg/kg	0.3	52	17	50	70
		Copper, Cu	mg/kg	0.5	56	15	50	81
		Lead, Pb	mg/kg	1	59	23	50	72
		Nickel, Ni	mg/kg	0.5	49	8.0	50	81
		Zinc, Zn	mg/kg	0.5	93	50	50	88

TRH (Total Recoverable Hydrocarbons) in Soil

Method: ME-(AU)-[ENV]AN403

QC Sample	Sample Number		Parameter	Units	LOR	Original	Spike	Recovery%
SE157202.001	LB110146.026		TRH C10-C14	mg/kg	20	0	40	85
			TRH C15-C28	mg/kg	45	0	40	95
			TRH C29-C36	mg/kg	45	0	40	90
			TRH C37-C40	mg/kg	100	0	-	-
			TRH C10-C36 Total	mg/kg	110	0	-	-
			TRH C10-C40 Total	mg/kg	210	0	-	-
		TRH F Bands	TRH >C10-C16 (F2)	mg/kg	25	0	40	88
			TRH >C10-C16 (F2) - Naphthalene	mg/kg	25	0	-	-
			TRH >C16-C34 (F3)	mg/kg	90	0	40	103
			TRH >C34-C40 (F4)	mg/kg	120	0	-	-

VOC's in Soil

Method: ME-(AU)-[ENV]AN433

QC Sample	Sample Number		Parameter	Units	LOR	Result	Original	Spike	Recovery%
SE157174.001	LB110110.004	Monocyclic Aromatic	Benzene	mg/kg	0.1	2.5	<0.1	2.9	84
			Toluene	mg/kg	0.1	2.5	<0.1	2.9	83
			Ethylbenzene	mg/kg	0.1	2.2	0.1	2.9	71
			m/p-xylene	mg/kg	0.2	4.5	0.2	5.8	73
			o-xylene	mg/kg	0.1	2.2	<0.1	2.9	73
		Polycyclic	Naphthalene	mg/kg	0.1	1.3	2.4	-	-
		Surrogates	Dibromofluoromethane (Surrogate)	mg/kg	-	3.9	3.6	-	78
			d4-1,2-dichloroethane (Surrogate)	mg/kg	-	4.1	3.7	-	82
			d8-toluene (Surrogate)	mg/kg	-	5.8	4.5	-	116
			Bromofluorobenzene (Surrogate)	mg/kg	-	6.0	5.5	-	121
		Totals	Total Xylenes*	mg/kg	0.3	6.7	0.3	-	-
			Total BTEX	mg/kg	0.6	14	<0.6	-	-

Volatile Petroleum Hydrocarbons in Soil

Method: ME-(AU)-[ENV]AN433

QC Sample	Sample Number	Parameter	Units	LOR

Matrix Spike (MS) results are evaluated as the percentage recovery of an expected result, typically the concentration of analyte spiked into a field sub -sample during the sample preparation stage. The original sample's result is subtracted from the sub-sample result before determining the percentage recovery. The criteria applied to the percentage recovery is established in the SGS QA/QC plan (ref: MP-(AU)-[ENV]QU-022). For more information refer to the footnotes in the concluding page of this report.

Recovery is shown in **Green** when within suggested criteria or **Red** with an appended reason identifer when outside suggested criteria. Refer to the footnotes section at the end of this report for failure reasons.

Volatile Petroleum Hydrocarbons in Soil (continued) — **Method: ME-(AU)-[ENV]AN433**

QC Sample	Sample Number		Parameter	Units	LOR	Result	Original	Spike	Recovery%
SE157174.001	LB110110.004		TRH C6-C10	mg/kg	25	42	<25	24.65	78
			TRH C6-C9	mg/kg	20	29	<20	23.2	68
		Surrogates	Dibromofluoromethane (Surrogate)	mg/kg	-	3.9	3.6	-	78
			d4-1,2-dichloroethane (Surrogate)	mg/kg	-	4.1	3.7	-	82
			d8-toluene (Surrogate)	mg/kg	-	5.8	4.5	-	116
			Bromofluorobenzene (Surrogate)	mg/kg	-	6.0	5.5	-	121
		VPH F	Benzene (F0)	mg/kg	0.1	2.5	<0.1	-	-
		Bands	TRH C6-C10 minus BTEX (F1)	mg/kg	25	29	<25	7.25	81

MATRIX SPIKE DUPLICATES

SE157198 R0

Matrix spike duplicates are calculated as Relative Percent Difference (RPD) using the formula: RPD = | OriginalResult - ReplicateResult | x 100 / Mean

The original result is the analyte concentration of the matrix spike. The Duplicate result is the analyte concentration of the matrix spike duplicate.

The RPD is evaluated against the Maximum Allowable Difference (MAD) criteria and can be graphically represented by a curve calculated from the Statistical Detection Limit (SDL) and Limiting Repeatability (LR) using the formula: MAD = 100 x SDL / Mean + LR

Where the Maximum Allowable Difference evaluates to a number larger than 200 it is displayed as 200.

RPD is shown in **Green** when within suggested criteria or **Red** with an appended reason identifer when outside suggested criteria. Refer to the footnotes section at the end of this report for failure reasons.

No matrix spike duplicates were required for this job.

Samples analysed as received.

Solid samples expressed on a dry weight basis.

QC criteria are subject to internal review according to the SGS QA/QC plan and may be provided on request or alternatively can be found here: http://www.sgs.com.au/~/media/Local/Australia/Documents/Technical Documents/MP-AU-ENV-QU-022 QA QC Plan.pdf

*	NATA accreditation does not cover tthe performance of this service.
-	Sample not analysed for this analyte.

IS	Insufficient sample for analysis.
LNR	Sample listed, but not received.
LOR	Limit of reporting.
QFH	QC result is above the upper tolerance.
QFL	QC result is below the lower tolerance.

①	At least 2 of 3 surrogates are within acceptance criteria.
②	RPD failed acceptance criteria due to sample heterogeneity.
③	Results less than 5 times LOR preclude acceptance criteria for RPD.
④	Recovery failed acceptance criteria due to matrix interference.
⑤	Recovery failed acceptance criteria due to the presence of significant concentration of analyte (i.e. the concentration of analyte exceeds the spike level).
⑥	LOR was raised due to sample matrix interference.
⑦	LOR was raised due to dilution of significantly high concentration of analyte in sample.
⑧	Reanalysis of sample in duplicate confirmed sample heterogeneity and inconsistency of results.
⑨	Recovery failed acceptance criteria due to sample heterogeneity.
⑩	LOR was raised due to high conductivity of the sample (required dilution).
†	Refer to Analytical Report comments for further information.

This document is issued, on the Client's behalf, by the Company under its General Conditions of Service, available on request and accessible at http://www.sgs.com/en/terms-and-conditions. The Client's attention is drawn to the limitation of liability, indemnification and jurisdiction issues defined therein.

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This test report shall not be reproduced, except in full.

source: M630_SR_20160920150644.pdf page: 3 SGS Ref: SE157294_COC

CHAIN OF CUSTODY & ANALYSIS REQUEST

SGS Environmental Services
Unit 16, 33 Maddox Street
Alexandria NSW 2015
Telephone No: (02) 85940400
Facsimile No: (02) 85940499
Email: au.samplereceipt.sydney@sgs.com

Company Name:	SMEC	Project Name/No:	3002523 – Canberra Brickworks
Address:	Suite 2, Level 1, 243 Northbourne Avenue, Lyneham,	Purchase Order No:	
	ACT, 2602, Australia	Results Required By:	Ryan O'Leary
		Telephone:	+61 2 6234 1963 / 0400 240 023
Contact Name:	Ryan O'Leary	Facsimile:	
		Email Results:	Ryan.O'Leary@smec.com

Client Sample ID	Date Sampled	Lab Sample ID	WATER	SOIL		NO OF BAGS	Asbestos ID	BTEXN	OPPs	OCPs	PHAs/Phenols	8 Metals - As, Cd, Cr, Cu, Ni, Pb, Zn, Hg	TPH/TRH	On Hold	Comment
M1_0.2-0.3	15/9/2016	1		✓		jar & bag	✓								
M1_0.5-0.6	15/9/2016			✓		jar								✓	
M1_1.2-1.3	15/9/2016	2		✓		jar		✓	✓	✓	✓	✓	✓		
M1_1.8-1.9	15/9/2016			✓		jar								✓	
M1_3.2-3.3	15/9/2016			✓		jar								✓	
M1_4.8-4.9	15/9/2016			✓		jar								✓	
M5_0.1-0.2	15/9/2016	3		✓		jar & bag	✓								
M5_0.4-0.5	15/9/2016	4		✓		jar		✓	✓	✓	✓	✓	✓		

SGS EHS Alexandria Laboratory
SE157294 COC
Received: 20 – Sep – 2016

Relinquished By: Ryan O'Leary	Date/Time: 19/9/2016 14:00	Received By:	Date/Time 20/9/16 11:30
Relinquished By:	Date/Time:	Received By:	Date/Time
Samples Intact: Yes/ No	Temperature: Ambient / Chilled 12.2	Sample Cooler Sealed: Yes/ No	Laboratory Quotation No:
	Comments: AS PER SGS QUOTE NUMBER SY1 – 60413 – 2-IS DATED 13TH APRIL 2016	**STANDARD TAT PLEASE (5 DAY)**	

CHAIN OF CUSTODY & ANALYSIS REQUEST

SGS Environmental Services
Unit 16, 33 Maddox Street
Alexandria NSW 2015
Telephone No: (02) 85940400
Facsimile No: (02) 85940499
Email: au.samplereceipt.sydney@sgs.com

Company Name:	SMEC	Project Name/No:	3002523 – Canberra Brickworks
Address:	Suite 2, Level 1, 243 Northbourne Avenue, Lyneham,	Purchase Order No:	
	ACT, 2602, Australia	Results Required By:	Ryan O'Leary
		Telephone:	+61 2 6234 1963 / 0400 240 023
Contact Name:	Ryan O'Leary	Facsimile:	
		Email Results:	Ryan.O'Leary@smec.com

Client Sample ID	Date Sampled	Lab Sample ID	WATER	SOIL		NO OF CONTAINERS	Asbestos ID	BTEXN	OPPs	OCPs	PHAs/Phenols	8 Metals - As, Cd, Cr, Cu, Ni, Pb, Zn, Hg	TPH/TRH	On Hold								Comment
M5_0.9-1.0	15/9/2016			✓		jar								✓								
M5_1.7-1.8	15/9/2016			✓		jar								✓								
M5_3.3-3.4	15/9/2016			✓		jar								✓								
M5_3.5-3.6	15/9/2016			✓		jar								✓								
M5_4.2-4.3	15/9/2016			✓		jar								✓								
QC12	15/9/2016	5		✓		jar		✓	✓	✓	✓	✓	✓									
QC13	15/9/2016	[illegible]		✓		jar		✓	✓	✓	✓	✓	✓									**Please send to ALS Sydney**
QC14	15/9/2016	6		✓		jar		✓	✓	✓	✓	✓	✓									

Relinquished By: Ryan O'Leary	Date/Time: 19/9/2016 14:00	Received By:	Date/Time 20/9/16 @ 11.30
Relinquished By:	Date/Time:	Received By:	Date/Time
Samples Intact: Yes/ No	Temperature: Ambient / Chilled	Sample Cooler Sealed: Yes/ No	Laboratory Quotation No:
	Comments: AS PER SGS QUOTE NUMBER SY1 – 60413 – 2-IS DATED 13TH APRIL 2016	**STANDARD TAT PLEASE (5 DAY)**	

SGS

CHAIN OF CUSTODY & ANALYSIS REQUEST

SGS Environmental Services
Unit 16, 33 Maddox Street
Alexandria NSW 2015
Telephone No: (02) 85940400
Facsimile No: (02) 85940499
Email: au.samplereceipt sydney@sgs.com

Company Name:	SMEC	Project Name/No:	3002523 – Canberra Brickworks
Address:	Suite 2, Level 1, 243 Northbourne Avenue, Lyneham, ACT, 2602, Australia	Purchase Order No:	
		Results Required By:	Ryan O'Leary
		Telephone:	+61 2 6234 1963 / 0400 240 023
Contact Name:	Ryan O'Leary	Facsimile:	
		Email Results:	Ryan.O'Leary@smec.com

Client Sample ID	Date Sampled	Lab Sample ID	WATER	SOIL		NO OF CONTAINERS	Asbestos ID	BTEXN	OPPs	OCPs	PHAs/Phenols	8 Metals - As, Cd, Cr, Cu, Ni, Pb, Zn, Hg	TPH/TRH	On Hold	PAH							Comment
QC15	15/9/2016	6		✓		jar		✓	✓	✓	✓	✓	✓									**Please send to ALS Sydney**
HA7_0-0.1	15/9/2016	7		✓		[illegible] & bag	✓															
HA7_0.2-0.3	15/9/2016	8		✓		jar		✓	✓	✓	✓	✓	✓									
HA8_0.1-0.2	15/9/2016	9		✓		jar & bag	✓	✓	✓	✓	✓	✓	✓									
HA22_0-0.1	15/9/2016	10		✓		jar & bag	✓	✓	✓	✓	✓	✓	✓									
QC16 (Trip Blank)	15/9/2016	11		✓		vial							✓		✓							
QC17 (Trip Spike)	15/9/2016	12		✓		vial							✓		✓							

Relinquished By: Ryan O'Leary	Date/Time: 19/9/2016 14:00	Received By:	Date/Time 20/9/16 @ 11:30
Relinquished By:	Date/Time:	Received By:	Date/Time
Samples Intact: Yes/ No	Temperature: Ambient / Chilled	Sample Cooler Sealed: Yes/ No	Laboratory Quotation No:
	Comments: AS PER SGS QUOTE NUMBER SY1 – 60413 – 2-IS DATED 13TH APRIL 2016	**STANDARD TAT PLEASE (5 DAY)**	

AU.SampleReceipt.Sydney (Sydney)

From: Ellerington, Trent (Sydney)
Sent: Monday, 19 September 2016 4:01 PM
To: AU.SampleReceipt.Sydney (Sydney); Ryan.O'Leary@smec.com
Subject: FW: 3002523 - Canberra Brickworks - COC Page 3 Replacement
Attachments: COC_19092016_Bags_jars_page3_updated.pdf

Hi Ryan,

No worries, we will include Page 3 of the COC when we receive the samples.

Warm Regards,

Trent Ellerington
Environment, Health & Safety
Customer Service Team Leader

Phone: +61 (0)2 8594 0400
Direct: +61 (0)2 8594 0449
Mobile: +61 (0)4 0797 2867

From: O'Leary, Ryan [mailto:Ryan.O'Leary@smec.com]
Sent: Monday, 19 September 2016 3:58 PM
To: Ellerington, Trent (Sydney)
Subject: 3002523 - Canberra Brickworks - COC Page 3 Replacement

Hi Trent,

I forgot to put analysis for the trip blank and spike on the COC. Please find attached the replacement page 3. This is to go with pages 1 and 2 already in the esky that is on it's way.

Thanks
Ryan

Ryan O'Leary | Environmental Scientist
SMEC – Australia & New Zealand Division
Suite 2, Level 1, 243 Northbourne Avenue, Lyneham, ACT, 2602, Australia
T +61 2 6234 1963 | **F**
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SMEC SNOWY MOUNTAINS ENGINEERING CORPORATION

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SAMPLE RECEIPT ADVICE

SE157294

CLIENT DETAILS

Contact	Ryan O'Leary
Client	SMEC AUSTRALIA PTY LTD
Address	Sun Micro Building Suite 2, Level 1 243 Northbourne Avenue ACT 2602
Telephone	02 6234 1963
Facsimile	02 6234 1966
Email	Ryan.O'Leary@smec.com
Project	**3002523 - Canberra Brickworks**
Order Number	**SY1-60413-2-IS**
Samples	12

LABORATORY DETAILS

Manager	Huong Crawford
Laboratory	SGS Alexandria Environmental
Address	Unit 16, 33 Maddox St Alexandria NSW 2015
Telephone	+61 2 8594 0400
Facsimile	+61 2 8594 0499
Email	au.environmental.sydney@sgs.com
Samples Received	Tue 20/9/2016
Report Due	Tue 27/9/2016
SGS Reference	**SE157294**

SUBMISSION DETAILS

This is to confirm that 12 samples were received on Tuesday 20/9/2016. Results are expected to be ready by Tuesday 27/9/2016. Please quote SGS reference SE157294 when making enquiries. Refer below for details relating to sample integrity upon receipt.

Sample counts by matrix	12 Soil	Type of documentation received	COC
Date documentation received	20/9/2016	Samples received in good order	Yes
Samples received without headspace	Yes	Sample temperature upon receipt	12.2°C
Sample container provider	SGS	Turnaround time requested	Standard
Samples received in correct containers	Yes	Sufficient sample for analysis	Yes
Sample cooling method	Ice Bricks	Samples clearly labelled	Yes
Complete documentation received	Yes	Number of eskies/boxes received	

Unless otherwise instructed, water and bulk samples will be held for one month from date of report, and soil samples will be held for two months.

COMMENTS

9 soil samples have been placed on hold.
QC13 and QC15 have been forwarded to ALS.
QC17(Trip Spike) will be analyzed for BTEX only.

To the extent not inconsistent with the other provisions of this document and unless specifically agreed otherwise in writing by SGS, all SGS services are rendered in accordance with the applicable SGS General Conditions of Service accessible at http://www.sgs.com/en/terms-and-conditions as at the date of this document. Attention is drawn to the limitations of liability and to the clauses of indemnification.

SAMPLE RECEIPT ADVICE

SE157294

CLIENT DETAILS

Client SMEC AUSTRALIA PTY LTD

Project 3002523 - Canberra Brickworks

SUMMARY OF ANALYSIS

No.	Sample ID	OC Pesticides in Soil	OP Pesticides in Soil	PAH (Polynuclear Aromatic Hydrocarbons) in Soil	Total Phenolics in Soil	Total Recoverable Metals in Soil/Waste	TRH (Total Recoverable Hydrocarbons) in Soil	VOC's in Soil	Volatile Petroleum Hydrocarbons in Soil
002	M1_1.2-1.3	28	13	26	1	7	10	12	8
004	M5_0.4-0.5	28	13	26	1	7	10	12	8
005	QC12	28	13	26	1	7	10	12	8
006	QC14	28	13	26	1	7	10	12	8
008	HA7_0.2-0.3	28	13	26	1	7	10	12	8
009	HA8_0.1-0.2	28	13	26	1	7	10	12	8
010	HA22_0-0.1	28	13	26	1	7	10	12	8
011	QC16 (Trip Blank)	-	-	26	-	-	10	12	8
012	QC17 (Trip Spike	-	-	-	-	-	-	12	-

CONTINUED OVERLEAF

The above table represents SGS' interpretation of the client-supplied Chain Of Custody document.
The numbers shown in the table indicate the number of results requested in each package.
Please indicate as soon as possible should your request differ from these details .
Testing as per this table shall commence immediately unless the client intervenes with a correction .

SAMPLE RECEIPT ADVICE

SE157294

CLIENT DETAILS

Client SMEC AUSTRALIA PTY LTD

Project 3002523 - Canberra Brickworks

SUMMARY OF ANALYSIS

No.	Sample ID	Fibre Identification in soil	Mercury in Soil	Moisture Content
001	M1_0.2-0.3	2	-	-
002	M1_1.2-1.3	-	1	1
003	M5_0.1-0.2	2	-	-
004	M5_0.4-0.5	-	1	1
005	QC12	-	1	1
006	QC14	-	1	1
007	HA7_0-0.1	2	-	-
008	HA7_0.2-0.3	-	1	1
009	HA8_0.1-0.2	2	1	1
010	HA22_0-0.1	2	1	1
011	QC16 (Trip Blank)	-	-	1

The above table represents SGS' interpretation of the client-supplied Chain Of Custody document.
The numbers shown in the table indicate the number of results requested in each package.
Please indicate as soon as possible should your request differ from these details .
Testing as per this table shall commence immediately unless the client intervenes with a correction .

ANALYTICAL REPORT

Accreditation No. 2562

CLIENT DETAILS

Contact	Ryan O'Leary
Client	SMEC AUSTRALIA PTY LTD
Address	Sun Micro Building Suite 2, Level 1 243 Northbourne Avenue ACT 2602
Telephone	02 6234 1963
Facsimile	02 6234 1966
Email	Ryan.O'Leary@smec.com
Project	**3002523 - Canberra Brickworks**
Order Number	**SY1-60413-2-IS**
Samples	12

LABORATORY DETAILS

Manager	Huong Crawford
Laboratory	SGS Alexandria Environmental
Address	Unit 16, 33 Maddox St Alexandria NSW 2015
Telephone	+61 2 8594 0400
Facsimile	+61 2 8594 0499
Email	au.environmental.sydney@sgs.com
SGS Reference	**SE157294 R0**
Date Received	20/9/2016
Date Reported	27/9/2016

COMMENTS

Accredited for compliance with ISO/IEC 17025. NATA accredited laboratory 2562(4354).

No respirable fibres detected in all soil samples using trace analysis technique.

Asbestos analysed by Approved Identifier Yusuf Kuthpudin.

SIGNATORIES

Andy Sutton
Senior Organic Chemist

Bennet Lo
Senior Organic Chemist/Metals Chemist

Dong Liang
Metals/Inorganics Team Leader

Kamrul Ahsan
Senior Chemist

Ly Kim Ha
Organic Section Head

Ravee Sivasubramaniam
Hygiene Team Leader

VOC's in Soil [AN433] Tested: 21/9/2016

PARAMETER	UOM	LOR	M1_1.2-1.3 SOIL - 15/9/2016 SE157294.002	M5_0.4-0.5 SOIL - 15/9/2016 SE157294.004	QC12 SOIL - 15/9/2016 SE157294.005	QC14 SOIL - 15/9/2016 SE157294.006	HA7_0.2-0.3 SOIL - 15/9/2016 SE157294.008
Benzene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Toluene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Ethylbenzene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
m/p-xylene	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
o-xylene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Total Xylenes*	mg/kg	0.3	<0.3	<0.3	<0.3	<0.3	<0.3
Total BTEX	mg/kg	0.6	<0.6	<0.6	<0.6	<0.6	<0.6
Naphthalene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1

PARAMETER	UOM	LOR	HA8_0.1-0.2 SOIL - 15/9/2016 SE157294.009	HA22_0-0.1 SOIL - 15/9/2016 SE157294.010	QC16 (Trip Blank) SOIL - 15/9/2016 SE157294.011	QC17 (Trip Spike SOIL - 15/9/2016 SE157294.012
Benzene	mg/kg	0.1	<0.1	<0.1	<0.1	[91%]
Toluene	mg/kg	0.1	<0.1	<0.1	<0.1	[86%]
Ethylbenzene	mg/kg	0.1	<0.1	<0.1	<0.1	[79%]
m/p-xylene	mg/kg	0.2	<0.2	<0.2	<0.2	[82%]
o-xylene	mg/kg	0.1	<0.1	<0.1	<0.1	[79%]
Total Xylenes*	mg/kg	0.3	<0.3	<0.3	<0.3	-
Total BTEX	mg/kg	0.6	<0.6	<0.6	<0.6	-
Naphthalene	mg/kg	0.1	<0.1	<0.1	<0.1	-

Volatile Petroleum Hydrocarbons in Soil [AN433] Tested: 21/9/2016

PARAMETER	UOM	LOR	M1_1.2-1.3 SOIL - 15/9/2016 SE157294.002	M5_0.4-0.5 SOIL - 15/9/2016 SE157294.004	QC12 SOIL - 15/9/2016 SE157294.005	QC14 SOIL - 15/9/2016 SE157294.006	HA7_0.2-0.3 SOIL - 15/9/2016 SE157294.008
TRH C6-C9	mg/kg	20	<20	<20	<20	<20	<20
Benzene (F0)	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
TRH C6-C10	mg/kg	25	<25	<25	<25	<25	<25
TRH C6-C10 minus BTEX (F1)	mg/kg	25	<25	<25	<25	<25	<25

PARAMETER	UOM	LOR	HA8_0.1-0.2 SOIL - 15/9/2016 SE157294.009	HA22_0-0.1 SOIL - 15/9/2016 SE157294.010	QC16 (Trip Blank) SOIL - 15/9/2016 SE157294.011
TRH C6-C9	mg/kg	20	<20	<20	<20
Benzene (F0)	mg/kg	0.1	<0.1	<0.1	<0.1
TRH C6-C10	mg/kg	25	<25	<25	<25
TRH C6-C10 minus BTEX (F1)	mg/kg	25	<25	<25	<25

TRH (Total Recoverable Hydrocarbons) in Soil [AN403] Tested: 21/9/2016

PARAMETER	UOM	LOR	M1_1.2-1.3 SOIL - 15/9/2016 SE157294.002	M5_0.4-0.5 SOIL - 15/9/2016 SE157294.004	QC12 SOIL - 15/9/2016 SE157294.005	QC14 SOIL - 15/9/2016 SE157294.006	HA7_0.2-0.3 SOIL - 15/9/2016 SE157294.008
TRH C10-C14	mg/kg	20	<20	<20	<20	<20	<20
TRH C15-C28	mg/kg	45	<45	<45	<45	<45	<45
TRH C29-C36	mg/kg	45	<45	<45	<45	<45	<45
TRH C37-C40	mg/kg	100	<100	<100	<100	<100	<100
TRH >C10-C16 (F2)	mg/kg	25	<25	<25	<25	<25	<25
TRH >C10-C16 (F2) - Naphthalene	mg/kg	25	<25	<25	<25	<25	<25
TRH >C16-C34 (F3)	mg/kg	90	<90	<90	<90	<90	<90
TRH >C34-C40 (F4)	mg/kg	120	<120	<120	<120	<120	<120
TRH C10-C36 Total	mg/kg	110	<110	<110	<110	<110	<110
TRH C10-C40 Total	mg/kg	210	<210	<210	<210	<210	<210

PARAMETER	UOM	LOR	HA8_0.1-0.2 SOIL - 15/9/2016 SE157294.009	HA22_0-0.1 SOIL - 15/9/2016 SE157294.010	QC16 (Trip Blank) SOIL - 15/9/2016 SE157294.011
TRH C10-C14	mg/kg	20	<20	<20	<20
TRH C15-C28	mg/kg	45	<45	**80**	<45
TRH C29-C36	mg/kg	45	<45	**89**	<45
TRH C37-C40	mg/kg	100	<100	<100	<100
TRH >C10-C16 (F2)	mg/kg	25	<25	<25	<25
TRH >C10-C16 (F2) - Naphthalene	mg/kg	25	<25	<25	<25
TRH >C16-C34 (F3)	mg/kg	90	<90	**160**	<90
TRH >C34-C40 (F4)	mg/kg	120	<120	<120	<120
TRH C10-C36 Total	mg/kg	110	<110	**170**	<110
TRH C10-C40 Total	mg/kg	210	<210	<210	<210

PAH (Polynuclear Aromatic Hydrocarbons) in Soil [AN420] Tested: 21/9/2016

PARAMETER	UOM	LOR	M1_1.2-1.3 SOIL - 15/9/2016 SE157294.002	M5_0.4-0.5 SOIL - 15/9/2016 SE157294.004	QC12 SOIL - 15/9/2016 SE157294.005	QC14 SOIL - 15/9/2016 SE157294.006	HA7_0.2-0.3 SOIL - 15/9/2016 SE157294.008
Naphthalene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
2-methylnaphthalene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	**0.4**
1-methylnaphthalene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	**0.2**
Acenaphthylene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Acenaphthene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Fluorene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Phenanthrene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	**0.1**
Anthracene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Fluoranthene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Pyrene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(a)anthracene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Chrysene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(b&j)fluoranthene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(k)fluoranthene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(a)pyrene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Indeno(1,2,3-cd)pyrene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Dibenzo(ah)anthracene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(ghi)perylene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Carcinogenic PAHs, BaP TEQ <LOR=0	TEQ	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Carcinogenic PAHs, BaP TEQ <LOR=LOR	TEQ (mg/kg)	0.3	<0.3	<0.3	<0.3	<0.3	<0.3
Carcinogenic PAHs, BaP TEQ <LOR=LOR/2	TEQ (mg/kg)	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Total PAH (18)	mg/kg	0.8	<0.8	<0.8	<0.8	<0.8	<0.8
Total PAH (NEPM/WHO 16)	mg/kg	0.8	<0.8	<0.8	<0.8	<0.8	<0.8

PARAMETER	UOM	LOR	HA8_0.1-0.2 SOIL - 15/9/2016 SE157294.009	HA22_0-0.1 SOIL - 15/9/2016 SE157294.010	QC16 (Trip Blank) SOIL - 15/9/2016 SE157294.011
Naphthalene	mg/kg	0.1	<0.1	<0.1	<0.1
2-methylnaphthalene	mg/kg	0.1	<0.1	<0.1	<0.1
1-methylnaphthalene	mg/kg	0.1	<0.1	<0.1	<0.1
Acenaphthylene	mg/kg	0.1	<0.1	<0.1	<0.1
Acenaphthene	mg/kg	0.1	<0.1	<0.1	<0.1
Fluorene	mg/kg	0.1	<0.1	<0.1	<0.1
Phenanthrene	mg/kg	0.1	<0.1	<0.1	<0.1
Anthracene	mg/kg	0.1	<0.1	<0.1	<0.1
Fluoranthene	mg/kg	0.1	<0.1	**0.2**	<0.1
Pyrene	mg/kg	0.1	<0.1	**0.3**	<0.1
Benzo(a)anthracene	mg/kg	0.1	<0.1	<0.1	<0.1
Chrysene	mg/kg	0.1	<0.1	**0.1**	<0.1
Benzo(b&j)fluoranthene	mg/kg	0.1	<0.1	**0.1**	<0.1
Benzo(k)fluoranthene	mg/kg	0.1	<0.1	<0.1	<0.1
Benzo(a)pyrene	mg/kg	0.1	<0.1	<0.1	<0.1
Indeno(1,2,3-cd)pyrene	mg/kg	0.1	<0.1	<0.1	<0.1
Dibenzo(ah)anthracene	mg/kg	0.1	<0.1	<0.1	<0.1
Benzo(ghi)perylene	mg/kg	0.1	<0.1	<0.1	<0.1
Carcinogenic PAHs, BaP TEQ <LOR=0	TEQ	0.2	<0.2	<0.2	<0.2
Carcinogenic PAHs, BaP TEQ <LOR=LOR	TEQ (mg/kg)	0.3	<0.3	<0.3	<0.3
Carcinogenic PAHs, BaP TEQ <LOR=LOR/2	TEQ (mg/kg)	0.2	<0.2	<0.2	<0.2
Total PAH (18)	mg/kg	0.8	<0.8	<0.8	<0.8
Total PAH (NEPM/WHO 16)	mg/kg	0.8	<0.8	<0.8	<0.8

OC Pesticides in Soil [AN400/AN420] Tested: 21/9/2016

PARAMETER	UOM	LOR	M1_1.2-1.3 SOIL - 15/9/2016 SE157294.002	M5_0.4-0.5 SOIL - 15/9/2016 SE157294.004	QC12 SOIL - 15/9/2016 SE157294.005	QC14 SOIL - 15/9/2016 SE157294.006	HA7_0.2-0.3 SOIL - 15/9/2016 SE157294.008
Hexachlorobenzene (HCB)	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Alpha BHC	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Lindane	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Heptachlor	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Aldrin	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Beta BHC	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Delta BHC	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Heptachlor epoxide	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
o,p'-DDE	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Alpha Endosulfan	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Gamma Chlordane	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Alpha Chlordane	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
trans-Nonachlor	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
p,p'-DDE	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Dieldrin	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Endrin	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
o,p'-DDD	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
o,p'-DDT	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Beta Endosulfan	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
p,p'-DDD	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
p,p'-DDT	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Endosulfan sulphate	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Endrin Aldehyde	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Methoxychlor	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Endrin Ketone	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Isodrin	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Mirex	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1

OC Pesticides in Soil [AN400/AN420] Tested: 21/9/2016 (continued)

PARAMETER	UOM	LOR	HA8_0.1-0.2 SOIL - 15/9/2016 SE157294.009	HA22_0-0.1 SOIL - 15/9/2016 SE157294.010
Hexachlorobenzene (HCB)	mg/kg	0.1	<0.1	<0.1
Alpha BHC	mg/kg	0.1	<0.1	<0.1
Lindane	mg/kg	0.1	<0.1	<0.1
Heptachlor	mg/kg	0.1	<0.1	<0.1
Aldrin	mg/kg	0.1	<0.1	<0.1
Beta BHC	mg/kg	0.1	<0.1	<0.1
Delta BHC	mg/kg	0.1	<0.1	<0.1
Heptachlor epoxide	mg/kg	0.1	<0.1	<0.1
o,p'-DDE	mg/kg	0.1	<0.1	<0.1
Alpha Endosulfan	mg/kg	0.2	<0.2	<0.2
Gamma Chlordane	mg/kg	0.1	<0.1	<0.1
Alpha Chlordane	mg/kg	0.1	<0.1	<0.1
trans-Nonachlor	mg/kg	0.1	<0.1	<0.1
p,p'-DDE	mg/kg	0.1	<0.1	<0.1
Dieldrin	mg/kg	0.2	<0.2	<0.2
Endrin	mg/kg	0.2	<0.2	<0.2
o,p'-DDD	mg/kg	0.1	<0.1	<0.1
o,p'-DDT	mg/kg	0.1	<0.1	<0.1
Beta Endosulfan	mg/kg	0.2	<0.2	<0.2
p,p'-DDD	mg/kg	0.1	<0.1	<0.1
p,p'-DDT	mg/kg	0.1	<0.1	<0.1
Endosulfan sulphate	mg/kg	0.1	<0.1	<0.1
Endrin Aldehyde	mg/kg	0.1	<0.1	<0.1
Methoxychlor	mg/kg	0.1	<0.1	<0.1
Endrin Ketone	mg/kg	0.1	<0.1	<0.1
Isodrin	mg/kg	0.1	<0.1	<0.1
Mirex	mg/kg	0.1	<0.1	<0.1

OP Pesticides in Soil [AN400/AN420] Tested: 21/9/2016

PARAMETER	UOM	LOR	M1_1.2-1.3 SOIL - 15/9/2016 SE157294.002	M5_0.4-0.5 SOIL - 15/9/2016 SE157294.004	QC12 SOIL - 15/9/2016 SE157294.005	QC14 SOIL - 15/9/2016 SE157294.006	HA7_0.2-0.3 SOIL - 15/9/2016 SE157294.008
Dichlorvos	mg/kg	0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Dimethoate	mg/kg	0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Diazinon (Dimpylate)	mg/kg	0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Fenitrothion	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Malathion	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Chlorpyrifos (Chlorpyrifos Ethyl)	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Parathion-ethyl (Parathion)	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Bromophos Ethyl	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Methidathion	mg/kg	0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Ethion	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Azinphos-methyl (Guthion)	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2

PARAMETER	UOM	LOR	HA8_0.1-0.2 SOIL - 15/9/2016 SE157294.009	HA22_0-0.1 SOIL - 15/9/2016 SE157294.010
Dichlorvos	mg/kg	0.5	<0.5	<0.5
Dimethoate	mg/kg	0.5	<0.5	<0.5
Diazinon (Dimpylate)	mg/kg	0.5	<0.5	<0.5
Fenitrothion	mg/kg	0.2	<0.2	<0.2
Malathion	mg/kg	0.2	<0.2	<0.2
Chlorpyrifos (Chlorpyrifos Ethyl)	mg/kg	0.2	<0.2	<0.2
Parathion-ethyl (Parathion)	mg/kg	0.2	<0.2	<0.2
Bromophos Ethyl	mg/kg	0.2	<0.2	<0.2
Methidathion	mg/kg	0.5	<0.5	<0.5
Ethion	mg/kg	0.2	<0.2	<0.2
Azinphos-methyl (Guthion)	mg/kg	0.2	<0.2	<0.2

Total Phenolics in Soil [AN289] Tested: 26/9/2016

PARAMETER	UOM	LOR	M1_1.2-1.3 SOIL - 15/9/2016 SE157294.002	M5_0.4-0.5 SOIL - 15/9/2016 SE157294.004	QC12 SOIL - 15/9/2016 SE157294.005	QC14 SOIL - 15/9/2016 SE157294.006	HA7_0.2-0.3 SOIL - 15/9/2016 SE157294.008
Total Phenols	mg/kg	0.1	0.3	0.3	0.2	0.2	6.1

PARAMETER	UOM	LOR	HA8_0.1-0.2 SOIL - 15/9/2016 SE157294.009	HA22_0-0.1 SOIL - 15/9/2016 SE157294.010
Total Phenols	mg/kg	0.1	2.2	2.0

Total Recoverable Metals in Soil/Waste Solids/Materials by ICPOES [AN040/AN320] Tested: 23/9/2016

PARAMETER	UOM	LOR	M1_1.2-1.3 SOIL - 15/9/2016 SE157294.002	M5_0.4-0.5 SOIL - 15/9/2016 SE157294.004	QC12 SOIL - 15/9/2016 SE157294.005	QC14 SOIL - 15/9/2016 SE157294.006	HA7_0.2-0.3 SOIL - 15/9/2016 SE157294.008
Arsenic, As	mg/kg	3	8	16	14	10	15
Cadmium, Cd	mg/kg	0.3	<0.3	0.3	<0.3	<0.3	0.6
Chromium, Cr	mg/kg	0.3	20	23	21	18	39
Copper, Cu	mg/kg	0.5	29	14	15	29	15
Lead, Pb	mg/kg	1	20	38	40	20	52
Nickel, Ni	mg/kg	0.5	19	16	18	16	24
Zinc, Zn	mg/kg	0.5	47	41	50	44	460

PARAMETER	UOM	LOR	HA8_0.1-0.2 SOIL - 15/9/2016 SE157294.009	HA22_0-0.1 SOIL - 15/9/2016 SE157294.010
Arsenic, As	mg/kg	3	8	12
Cadmium, Cd	mg/kg	0.3	0.3	0.6
Chromium, Cr	mg/kg	0.3	17	25
Copper, Cu	mg/kg	0.5	16	28
Lead, Pb	mg/kg	1	34	140
Nickel, Ni	mg/kg	0.5	13	18
Zinc, Zn	mg/kg	0.5	640	470

Mercury in Soil [AN312] Tested: 26/9/2016

PARAMETER	UOM	LOR	M1_1.2-1.3 SOIL - 15/9/2016 SE157294.002	M5_0.4-0.5 SOIL - 15/9/2016 SE157294.004	QC12 SOIL - 15/9/2016 SE157294.005	QC14 SOIL - 15/9/2016 SE157294.006	HA7_0.2-0.3 SOIL - 15/9/2016 SE157294.008
Mercury	mg/kg	0.05	<0.05	<0.05	<0.05	<0.05	<0.05

PARAMETER	UOM	LOR	HA8_0.1-0.2 SOIL - 15/9/2016 SE157294.009	HA22_0-0.1 SOIL - 15/9/2016 SE157294.010
Mercury	mg/kg	0.05	<0.05	**0.05**

Moisture Content [AN002] Tested: 22/9/2016

PARAMETER	UOM	LOR	M1_1.2-1.3 SOIL - 15/9/2016 SE157294.002	M5_0.4-0.5 SOIL - 15/9/2016 SE157294.004	QC12 SOIL - 15/9/2016 SE157294.005	QC14 SOIL - 15/9/2016 SE157294.006	HA7_0.2-0.3 SOIL - 15/9/2016 SE157294.008
% Moisture	%w/w	0.5	10	18	17	11	21

PARAMETER	UOM	LOR	HA8_0.1-0.2 SOIL - 15/9/2016 SE157294.009	HA22_0-0.1 SOIL - 15/9/2016 SE157294.010	QC16 (Trip Blank) SOIL - 15/9/2016 SE157294.011
% Moisture	%w/w	0.5	21	28	<0.5

Fibre Identification in soil [AN602] Tested: 26/9/2016

PARAMETER	UOM	LOR	M1_0.2-0.3 SOIL - 15/9/2016 SE157294.001	M5_0.1-0.2 SOIL - 15/9/2016 SE157294.003	HA7_0-0.1 SOIL - 15/9/2016 SE157294.007	HA8_0.1-0.2 SOIL - 15/9/2016 SE157294.009	HA22_0-0.1 SOIL - 15/9/2016 SE157294.010
Asbestos Detected	No unit	-	No	No	No	No	No
Estimated Fibres*	%w/w	0.01	<0.01	<0.01	<0.01	<0.01	<0.01

METHOD	METHODOLOGY SUMMARY
AN002	The test is carried out by drying (at either 40°C or 105°C) a known mass of sample in a weighed evaporating basin. After fully dry the sample is re-weighed. Samples such as sludge and sediment having high percentages of moisture will take some time in a drying oven for complete removal of water.
AN040/AN320	A portion of sample is digested with nitric acid to decompose organic matter and hydrochloric acid to complete the digestion of metals. The digest is then analysed by ICP OES with metals results reported on the dried sample basis. Based on USEPA method 200.8 and 6010C.
AN040	A portion of sample is digested with Nitric acid to decompose organic matter and Hydrochloric acid to complete the digestion of metals and then filtered for analysis by ASS or ICP as per USEPA Method 200.8.
AN289	Analysis of Total Phenols in Soil Sediment and Water: Steam distillable phenols react with 4-aminoantipyrine at pH 7.9±0.1 in the presence of potassium ferricyanide to form a coloured antipyrine dye analysed by Discrete Analyser. Reference APHA 5530 B/D.
AN312	Mercury by Cold Vapour AAS in Soils: After digestion with nitric acid, hydrogen peroxide and hydrochloric acid , mercury ions are reduced by stannous chloride reagent in acidic solution to elemental mercury. This mercury vapour is purged by nitrogen into a cold cell in an atomic absorption spectrometer or mercury analyser . Quantification is made by comparing absorbances to those of the calibration standards. Reference APHA 3112/3500
AN400	OC and OP Pesticides by GC-ECD: The determination of organochlorine (OC) and organophosphorus (OP) pesticides and polychlorinated biphenyls (PCBs) in soils, sludges and groundwater. (Based on USEPA methods 3510, 3550, 8140 and 8080.)
AN403	Total Recoverable Hydrocarbons: Determination of Hydrocarbons by gas chromatography after a solvent extraction. Detection is by flame ionisation detector (FID) that produces an electronic signal in proportion to the combustible matter passing through it. Total Recoverable Hydrocarbons (TRH) are routinely reported as four alkane groupings based on the carbon chain length of the compounds: C6-C9, C10-C14, C15-C28 and C29-C36 and in recognition of the NEPM 1999 (2013), >C10-C16 (F2), >C16-C34 (F3) and >C34-C40 (F4). F2 is reported directly and also corrected by subtracting Naphthalene (from VOC method AN433) where available.
AN403	Additionally, the volatile C6-C9 fraction may be determined by a purge and trap technique and GC/MS because of the potential for volatiles loss. Total Petroleum Hydrocarbons (TPH) follows the same method of analysis after silica gel cleanup of the solvent extract. Aliphatic/Aromatic Speciation follows the same method of analysis after fractionation of the solvent extract over silica with differential polarity of the eluent solvents .
AN403	The GC/FID method is not well suited to the analysis of refined high boiling point materials (ie lubricating oils or greases) but is particularly suited for measuring diesel, kerosene and petrol if care to control volatility is taken. This method will detect naturally occurring hydrocarbons, lipids, animal fats, phenols and PAHs if they are present at sufficient levels, dependent on the use of specific cleanup/fractionation techniques. Reference USEPA 3510B, 8015B.
AN420	(SVOCs) including OC, OP, PCB, Herbicides, PAH, Phthalates and Speciated Phenols (etc) in soils, sediments and waters are determined by GCMS/ECD technique following appropriate solvent extraction process (Based on USEPA 3500C and 8270D).
AN420	SVOC Compounds: Semi-Volatile Organic Compounds (SVOCs) including OC, OP, PCB, Herbicides, PAH, Phthalates and Speciated Phenols in soils, sediments and waters are determined by GCMS /ECD technique following appropriate solvent extraction process (Based on USEPA 3500C and 8270D).
AN433	VOCs and C6-C9 Hydrocarbons by GC-MS P&T: VOC`s are volatile organic compounds. The sample is presented to a gas chromatograph via a purge and trap (P&T) concentrator and autosampler and is detected with a Mass Spectrometer (MSD). Solid samples are initially extracted with methanol whilst liquid samples are processed directly. References: USEPA 5030B, 8020A, 8260.
AN602	Qualitative identification of chrysotile, amosite and crocidolite in bulk samples by polarised light microscopy (PLM) in conjunction with dispersion staining (DS). AS4964 provides the basis for this document. Unequivocal identification of the asbestos minerals present is made by obtaining sufficient diagnostic `clues`, which provide a reasonable degree of certainty, dispersion staining is a mandatory `clue` for positive identification. If sufficient `clues` are absent, then positive identification of asbestos is not possible. This procedure requires removal of suspect fibres/bundles from the sample which cannot be returned.
AN602	Fibres/material that cannot be unequivocably identified as one of the three asbestos forms, will be reported as unknown mineral fibres (umf).
AN602	AS4964.2004 Method for the Qualitative Identification of Asbestos in Bulk Samples, Section 8.4, Trace Analysis Criteria, Note 4 states:"Depending upon sample condition and fibre type, the detection limit of this technique has been found to lie generally in the range of 1 in 1,000 to 1 in 10,000 parts by weight, equivalent to 1 to 0.1 g/kg."

AN602	The sample can be reported “no asbestos found at the reporting limit of 0.1 g/kg” (<0.01%w/w) where AN602 section 4.5 of this method has been followed, and if- (a) no trace asbestos fibres have been detected (i.e. no ‘respirable’ fibres): (b) the estimated weight of non-respirable asbestos fibre bundles and/or the estimated weight of asbestos in asbestos-containing materials are found to be less than 0.1g/kg: and (c) these non-respirable asbestos fibre bundles and/or the asbestos containing materials are only visible under stereo-microscope viewing conditions.

FOOTNOTES

*	NATA accreditation does not cover the performance of this service.	-	Not analysed.	UOM	Unit of Measure.
		NVL	Not validated.	LOR	Limit of Reporting.
**	Indicative data, theoretical holding time exceeded.	IS	Insufficient sample for analysis.	↑↓	Raised/lowered Limit of Reporting.
		LNR	Sample listed, but not received.		

Samples analysed as received.
Solid samples expressed on a dry weight basis.

Where "Total" analyte groups are reported (for example, Total PAHs, Total OC Pesticides) the total will be calculated as the sum of the individual analytes, with those analytes that are reported as <LOR being assumed to be zero. The summed (Total) limit of reporting is calculated by summing the individual analyte LORs and dividing by two. For example, where 16 individual analytes are being summed and each has an LOR of 0.1 mg/kg, the "Totals" LOR will be 1.6 / 2 (0.8 mg/kg). Where only 2 analytes are being summed, the " Total" LOR will be the sum of those two LORs.

Some totals may not appear to add up because the total is rounded after adding up the raw values.

If reported, measurement uncertainty follow the ± sign after the analytical result and is expressed as the expanded uncertainty calculated using a coverage factor of 2, providing a level of confidence of approximately 95%, unless stated otherwise in the comments section of this report.

Results reported for samples tested under test methods with codes starting with ARS-SOP, radionuclide or gross radioactivity concentrations are expressed in becquerel (Bq) per unit of mass or volume or per wipe as stated on the report. Becquerel is the SI unit for activity and equals one nuclear transformation per second.
Note that in terms of units of radioactivity:

a. 1 Bq is equivalent to 27 pCi
b. 37 MBq is equivalent to 1 mCi

For results reported for samples tested under test methods with codes starting with ARS-SOP, less than (<) values indicate the detection limit for each radionuclide or parameter for the measurement system used. The respective detection limits have been calculated in accordance with ISO 11929.

The QC criteria are subject to internal review according to the SGS QAQC plan and may be provided on request or alternatively can be found here : http://www.sgs.com.au/~/media/Local/Australia/Documents/Technical%20Documents/MP-AU-ENV-QU-022%20QA%20QC%20Plan.pdf

This document is issued, on the Client's behalf, by the Company under its General Conditions of Service available on request and accessible at http://www.sgs.com/en/terms-and-conditions. The Client's attention is drawn to the limitation of liability, indemnification and jurisdiction issues defined therein.

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ANALYTICAL REPORT

Accreditation No. 2562

CLIENT DETAILS

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Project	**3002523 - Canberra Brickworks**
Order Number	**SY1-60413-2-IS**
Samples	5

LABORATORY DETAILS

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SGS Reference	**SE157294 R0**
Date Received	20 Sep 2016
Date Reported	27 Sep 2016

COMMENTS

Accredited for compliance with ISO/IEC 17025. NATA accredited laboratory 2562(4354).

No respirable fibres detected in all soil samples using trace analysis technique.

Asbestos analysed by Approved Identifier Yusuf Kuthpudin.

SIGNATORIES

Andy Sutton
Senior Organic Chemist

Bennet Lo
Senior Organic Chemist/Metals Chemis

Dong Liang
Metals/Inorganics Team Leader

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Ly Kim Ha
Organic Section Head

Ravee Sivasubramaniam
Hygiene Team Leader

ANALYTICAL REPORT

RESULTS

Fibre Identification in soil — Method AN602

Laboratory Reference	Client Reference	Matrix	Sample Description	Date Sampled	Fibre Identification	
SE157294.001	M1_0.2-0.3	Soil	118g Clay, Rocks	15 Sep 2016	No Asbestos Found	<0.01
SE157294.003	M5_0.1-0.2	Soil	50g Clay, Rocks	15 Sep 2016	No Asbestos Found	<0.01
SE157294.007	HA7_0-0.1	Soil	117g Clay, Sand, Rocks	15 Sep 2016	No Asbestos Found	<0.01
SE157294.009	HA8_0.1-0.2	Soil	90g Clay, Sand, Soil, Rocks	15 Sep 2016	No Asbestos Found	<0.01
SE157294.010	HA22_0-0.1	Soil	34g Clay, Rocks	15 Sep 2016	No Asbestos Found Organic Fibres Detected	<0.01

METHOD SUMMARY

METHOD	METHODOLOGY SUMMARY
AN602	Qualitative identification of chrysotile, amosite and crocidolite in bulk samples by polarised light microscopy (PLM) in conjunction with dispersion staining (DS). AS4964 provides the basis for this document. Unequivocal identification of the asbestos minerals present is made by obtaining sufficient diagnostic `clues`, which provide a reasonable degree of certainty, dispersion staining is a mandatory `clue` for positive identification. If sufficient `clues` are absent, then positive identification of asbestos is not possible. This procedure requires removal of suspect fibres/bundles from the sample which cannot be returned.
AN602	Fibres/material that cannot be unequivocably identified as one of the three asbestos forms, will be reported as unknown mineral fibres (umf).
AN602	AS4964.2004 Method for the Qualitative Identification of Asbestos in Bulk Samples , Section 8.4, Trace Analysis Criteria, Note 4 states:"Depending upon sample condition and fibre type, the detection limit of this technique has been found to lie generally in the range of 1 in 1,000 to 1 in 10,000 parts by weight, equivalent to 1 to 0.1 g/kg."
AN602	The sample can be reported “no asbestos found at the reporting limit of 0.1 g/kg” (<0.01%w/w) where AN602 section 4.5 of this method has been followed, and if- (a) no trace asbestos fibres have been detected (i.e. no ‘respirable’ fibres): (b) the estimated weight of non-respirable asbestos fibre bundles and/or the estimated weight of asbestos in asbestos-containing materials are found to be less than 0.1g/kg: and (c) these non-respirable asbestos fibre bundles and/or the asbestos containing materials are only visible under stereo-microscope viewing conditions.

FOOTNOTES

Amosite	-	Brown Asbestos	NA	-	Not Analysed
Chrysotile	-	White Asbestos	LNR	-	Listed, Not Required
Crocidolite	-	Blue Asbestos	*	-	NATA accreditation does not cover the performance of this service .
Amphiboles	-	Amosite and/or Crocidolite	**	-	Indicative data, theoretical holding time exceeded.

(In reference to soil samples only) This report does not comply with the analytical reporting recommendations in the Western Australian Department of Health Guidelines for the Assessment and Remediation and Management of Asbestos Contaminated sites in Western Australia - May 2009.

Sampled by the client.

Where reported: 'Asbestos Detected': Asbestos detected by polarised light microscopy, including dispersion staining.
Where reported: 'No Asbestos Found': No Asbestos Found by polarised light microscopy, including dispersion staining.
Where reported: 'UMF Detected': Mineral fibres of unknown type detected by polarised light microscopy, including dispersion staining. Confirmation by another independent analytical technique may be necessary.

Even after disintegration it can be very difficult, or impossible, to detect the presence of asbestos in some asbestos -containing bulk materials using polarised light microscopy. This is due to the low grade or small length or diameter of asbestos fibres present in the material, or to the fact that very fine fibres have been distributed intimately throughout the materials.

The QC criteria are subject to internal review according to the SGS QAQC plan and may be provided on request or alternatively can be found here : http://www.sgs.com.au/~/media/Local/Australia/Documents/Technical%20Documents/MP-AU-ENV-QU-022%20QA%20QC%20Plan.pdf

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STATEMENT OF QA/QC PERFORMANCE

SE157294 R0

CLIENT DETAILS

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Project	**3002523 - Canberra Brickworks**
Order Number	**SY1-60413-2-IS**
Samples	12

LABORATORY DETAILS

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Email	au.environmental.sydney@sgs.com
SGS Reference	**SE157294 R0**
Date Received	20 Sep 2016
Date Reported	27 Sep 2016

COMMENTS

All the laboratory data for each environmental matrix was compared to SGS' stated Data Quality Objectives (DQO). Comments arising from the comparison were made and are reported below.

The data relating to sampling was taken from the Chain of Custody document and was supplied by the Client.
This QA/QC Statement must be read in conjunction with the referenced Analytical Report.
The Statement and the Analytical Report must not be reproduced except in full.

All Data Quality Objectives were met with the exception of the following:

Duplicate	Total Recoverable Metals in Soil/Waste Solids/Materials by ICPOES	1 item
Matrix Spike	Total Phenolics in Soil	1 item
	Total Recoverable Metals in Soil/Waste Solids/Materials by ICPOES	1 item
	Total Recoverable Metals in Soil/Waste Solids/Materials by ICPOES	2 items

SAMPLE SUMMARY

Sample counts by matrix	12 Soil	Type of documentation received	COC
Date documentation received	20/9/2016	Samples received in good order	Yes
Samples received without headspace	Yes	Sample temperature upon receipt	12.2°C
Sample container provider	SGS	Turnaround time requested	Standard
Samples received in correct containers	Yes	Sufficient sample for analysis	Yes
Sample cooling method	Ice Bricks	Samples clearly labelled	Yes
Complete documentation received	Yes	Number of eskies/boxes received	

HOLDING TIME SUMMARY

SE157294 R0

SGS holding time criteria are drawn from current regulations and are highly dependent on sample container preservation as specified in the SGS “Field Sampling Guide for Containers and Holding Time” (ref: GU-(AU)-ENV.001). Soil samples guidelines are derived from NEPM "Schedule B(3) Guideline on Laboratory Analysis of Potentially Contaminated Soils". Water sample guidelines are derived from "AS/NZS 5667.1 : 1998 Water Quality - sampling part 1" and APHA "Standard Methods for the Examination of Water and Wastewater" 21st edition 2005.

Extraction and analysis holding time due dates listed are calculated from the date sampled, although holding times may be extended after laboratory extraction for some analytes. The due dates are the suggested dates that samples may be held before extraction or analysis and still be considered valid.

Extraction and analysis dates are shown in **Green** when within suggested criteria or **Red** with an appended dagger symbol (†) when outside suggested criteria. If the sampled date is not supplied then compliance with criteria cannot be determined. If the received date is after one or both due dates then holding time will fail by default.

Fibre Identification in soil

Method: ME-(AU)-[ENV]AN602

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
M1_0.2-0.3	SE157294.001	LB110488	15 Sep 2016	20 Sep 2016	15 Sep 2017	26 Sep 2016	15 Sep 2017	27 Sep 2016
M5_0.1-0.2	SE157294.003	LB110488	15 Sep 2016	20 Sep 2016	15 Sep 2017	26 Sep 2016	15 Sep 2017	27 Sep 2016
HA7_0-0.1	SE157294.007	LB110488	15 Sep 2016	20 Sep 2016	15 Sep 2017	26 Sep 2016	15 Sep 2017	27 Sep 2016
HA8_0.1-0.2	SE157294.009	LB110488	15 Sep 2016	20 Sep 2016	15 Sep 2017	26 Sep 2016	15 Sep 2017	27 Sep 2016
HA22_0-0.1	SE157294.010	LB110488	15 Sep 2016	20 Sep 2016	15 Sep 2017	26 Sep 2016	15 Sep 2017	27 Sep 2016

Mercury in Soil

Method: ME-(AU)-[ENV]AN312

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
M1_1.2-1.3	SE157294.002	LB110461	15 Sep 2016	20 Sep 2016	13 Oct 2016	26 Sep 2016	13 Oct 2016	27 Sep 2016
M5_0.4-0.5	SE157294.004	LB110461	15 Sep 2016	20 Sep 2016	13 Oct 2016	26 Sep 2016	13 Oct 2016	27 Sep 2016
QC12	SE157294.005	LB110461	15 Sep 2016	20 Sep 2016	13 Oct 2016	26 Sep 2016	13 Oct 2016	27 Sep 2016
QC14	SE157294.006	LB110461	15 Sep 2016	20 Sep 2016	13 Oct 2016	26 Sep 2016	13 Oct 2016	27 Sep 2016
HA7_0.2-0.3	SE157294.008	LB110461	15 Sep 2016	20 Sep 2016	13 Oct 2016	26 Sep 2016	13 Oct 2016	27 Sep 2016
HA8_0.1-0.2	SE157294.009	LB110462	15 Sep 2016	20 Sep 2016	13 Oct 2016	26 Sep 2016	13 Oct 2016	27 Sep 2016
HA22_0-0.1	SE157294.010	LB110462	15 Sep 2016	20 Sep 2016	13 Oct 2016	26 Sep 2016	13 Oct 2016	27 Sep 2016

Moisture Content

Method: ME-(AU)-[ENV]AN002

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
M1_1.2-1.3	SE157294.002	LB110320	15 Sep 2016	20 Sep 2016	29 Sep 2016	22 Sep 2016	27 Sep 2016	27 Sep 2016
M5_0.4-0.5	SE157294.004	LB110320	15 Sep 2016	20 Sep 2016	29 Sep 2016	22 Sep 2016	27 Sep 2016	27 Sep 2016
QC12	SE157294.005	LB110320	15 Sep 2016	20 Sep 2016	29 Sep 2016	22 Sep 2016	27 Sep 2016	27 Sep 2016
QC14	SE157294.006	LB110320	15 Sep 2016	20 Sep 2016	29 Sep 2016	22 Sep 2016	27 Sep 2016	27 Sep 2016
HA7_0.2-0.3	SE157294.008	LB110320	15 Sep 2016	20 Sep 2016	29 Sep 2016	22 Sep 2016	27 Sep 2016	27 Sep 2016
HA8_0.1-0.2	SE157294.009	LB110320	15 Sep 2016	20 Sep 2016	29 Sep 2016	22 Sep 2016	27 Sep 2016	27 Sep 2016
HA22_0-0.1	SE157294.010	LB110320	15 Sep 2016	20 Sep 2016	29 Sep 2016	22 Sep 2016	27 Sep 2016	27 Sep 2016
QC16 (Trip Blank)	SE157294.011	LB110320	15 Sep 2016	20 Sep 2016	29 Sep 2016	22 Sep 2016	27 Sep 2016	27 Sep 2016

OC Pesticides in Soil

Method: ME-(AU)-[ENV]AN400/AN420

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
M1_1.2-1.3	SE157294.002	LB110272	15 Sep 2016	20 Sep 2016	29 Sep 2016	21 Sep 2016	31 Oct 2016	27 Sep 2016
M5_0.4-0.5	SE157294.004	LB110272	15 Sep 2016	20 Sep 2016	29 Sep 2016	21 Sep 2016	31 Oct 2016	27 Sep 2016
QC12	SE157294.005	LB110272	15 Sep 2016	20 Sep 2016	29 Sep 2016	21 Sep 2016	31 Oct 2016	27 Sep 2016
QC14	SE157294.006	LB110272	15 Sep 2016	20 Sep 2016	29 Sep 2016	21 Sep 2016	31 Oct 2016	27 Sep 2016
HA7_0.2-0.3	SE157294.008	LB110272	15 Sep 2016	20 Sep 2016	29 Sep 2016	21 Sep 2016	31 Oct 2016	27 Sep 2016
HA8_0.1-0.2	SE157294.009	LB110272	15 Sep 2016	20 Sep 2016	29 Sep 2016	21 Sep 2016	31 Oct 2016	27 Sep 2016
HA22_0-0.1	SE157294.010	LB110272	15 Sep 2016	20 Sep 2016	29 Sep 2016	21 Sep 2016	31 Oct 2016	27 Sep 2016
QC16 (Trip Blank)	SE157294.011	LB110272	15 Sep 2016	20 Sep 2016	29 Sep 2016	21 Sep 2016	31 Oct 2016	27 Sep 2016

OP Pesticides in Soil

Method: ME-(AU)-[ENV]AN400/AN420

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
M1_1.2-1.3	SE157294.002	LB110272	15 Sep 2016	20 Sep 2016	29 Sep 2016	21 Sep 2016	31 Oct 2016	27 Sep 2016
M5_0.4-0.5	SE157294.004	LB110272	15 Sep 2016	20 Sep 2016	29 Sep 2016	21 Sep 2016	31 Oct 2016	27 Sep 2016
QC12	SE157294.005	LB110272	15 Sep 2016	20 Sep 2016	29 Sep 2016	21 Sep 2016	31 Oct 2016	27 Sep 2016
QC14	SE157294.006	LB110272	15 Sep 2016	20 Sep 2016	29 Sep 2016	21 Sep 2016	31 Oct 2016	27 Sep 2016
HA7_0.2-0.3	SE157294.008	LB110272	15 Sep 2016	20 Sep 2016	29 Sep 2016	21 Sep 2016	31 Oct 2016	27 Sep 2016
HA8_0.1-0.2	SE157294.009	LB110272	15 Sep 2016	20 Sep 2016	29 Sep 2016	21 Sep 2016	31 Oct 2016	27 Sep 2016
HA22_0-0.1	SE157294.010	LB110272	15 Sep 2016	20 Sep 2016	29 Sep 2016	21 Sep 2016	31 Oct 2016	27 Sep 2016
QC16 (Trip Blank)	SE157294.011	LB110272	15 Sep 2016	20 Sep 2016	29 Sep 2016	21 Sep 2016	31 Oct 2016	27 Sep 2016

PAH (Polynuclear Aromatic Hydrocarbons) in Soil

Method: ME-(AU)-[ENV]AN420

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
M1_1.2-1.3	SE157294.002	LB110272	15 Sep 2016	20 Sep 2016	29 Sep 2016	21 Sep 2016	31 Oct 2016	27 Sep 2016
M5_0.4-0.5	SE157294.004	LB110272	15 Sep 2016	20 Sep 2016	29 Sep 2016	21 Sep 2016	31 Oct 2016	27 Sep 2016
QC12	SE157294.005	LB110272	15 Sep 2016	20 Sep 2016	29 Sep 2016	21 Sep 2016	31 Oct 2016	27 Sep 2016
QC14	SE157294.006	LB110272	15 Sep 2016	20 Sep 2016	29 Sep 2016	21 Sep 2016	31 Oct 2016	27 Sep 2016
HA7_0.2-0.3	SE157294.008	LB110272	15 Sep 2016	20 Sep 2016	29 Sep 2016	21 Sep 2016	31 Oct 2016	27 Sep 2016
HA8_0.1-0.2	SE157294.009	LB110272	15 Sep 2016	20 Sep 2016	29 Sep 2016	21 Sep 2016	31 Oct 2016	27 Sep 2016
HA22_0-0.1	SE157294.010	LB110272	15 Sep 2016	20 Sep 2016	29 Sep 2016	21 Sep 2016	31 Oct 2016	27 Sep 2016
QC16 (Trip Blank)	SE157294.011	LB110272	15 Sep 2016	20 Sep 2016	29 Sep 2016	21 Sep 2016	31 Oct 2016	27 Sep 2016

Total Phenolics in Soil

Method: ME-(AU)-[ENV]AN289

Sample Name	Sample No.	QC Ref

HOLDING TIME SUMMARY

SE157294 R0

SGS holding time criteria are drawn from current regulations and are highly dependent on sample container preservation as specified in the SGS “Field Sampling Guide for Containers and Holding Time” (ref: GU-(AU)-ENV.001). Soil samples guidelines are derived from NEPM "Schedule B(3) Guideline on Laboratory Analysis of Potentially Contaminated Soils". Water sample guidelines are derived from "AS/NZS 5667.1 : 1998 Water Quality - sampling part 1" and APHA "Standard Methods for the Examination of Water and Wastewater" 21st edition 2005.

Extraction and analysis holding time due dates listed are calculated from the date sampled, although holding times may be extended after laboratory extraction for some analytes. The due dates are the suggested dates that samples may be held before extraction or analysis and still be considered valid.

Extraction and analysis dates are shown in **Green** when within suggested criteria or **Red** with an appended dagger symbol (†) when outside suggested criteria. If the sampled date is not supplied then compliance with criteria cannot be determined. If the received date is after one or both due dates then holding time will fail by default.

Total Phenolics in Soil (continued)

Method: ME-(AU)-[ENV]AN289

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
M1_1.2-1.3	SE157294.002	LB110514	15 Sep 2016	20 Sep 2016	29 Sep 2016	26 Sep 2016	29 Sep 2016	27 Sep 2016
M5_0.4-0.5	SE157294.004	LB110514	15 Sep 2016	20 Sep 2016	29 Sep 2016	26 Sep 2016	29 Sep 2016	27 Sep 2016
QC12	SE157294.005	LB110514	15 Sep 2016	20 Sep 2016	29 Sep 2016	26 Sep 2016	29 Sep 2016	27 Sep 2016
QC14	SE157294.006	LB110514	15 Sep 2016	20 Sep 2016	29 Sep 2016	26 Sep 2016	29 Sep 2016	27 Sep 2016
HA7_0.2-0.3	SE157294.008	LB110514	15 Sep 2016	20 Sep 2016	29 Sep 2016	26 Sep 2016	29 Sep 2016	27 Sep 2016
HA8_0.1-0.2	SE157294.009	LB110514	15 Sep 2016	20 Sep 2016	29 Sep 2016	26 Sep 2016	29 Sep 2016	27 Sep 2016
HA22_0-0.1	SE157294.010	LB110514	15 Sep 2016	20 Sep 2016	29 Sep 2016	26 Sep 2016	29 Sep 2016	27 Sep 2016

Total Recoverable Metals in Soil/Waste Solids/Materials by ICPOES

Method: ME-(AU)-[ENV]AN040/AN320

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
M1_1.2-1.3	SE157294.002	LB110411	15 Sep 2016	20 Sep 2016	14 Mar 2017	23 Sep 2016	14 Mar 2017	27 Sep 2016
M5_0.4-0.5	SE157294.004	LB110411	15 Sep 2016	20 Sep 2016	14 Mar 2017	23 Sep 2016	14 Mar 2017	27 Sep 2016
QC12	SE157294.005	LB110411	15 Sep 2016	20 Sep 2016	14 Mar 2017	23 Sep 2016	14 Mar 2017	27 Sep 2016
QC14	SE157294.006	LB110411	15 Sep 2016	20 Sep 2016	14 Mar 2017	23 Sep 2016	14 Mar 2017	27 Sep 2016
HA7_0.2-0.3	SE157294.008	LB110411	15 Sep 2016	20 Sep 2016	14 Mar 2017	23 Sep 2016	14 Mar 2017	27 Sep 2016
HA8_0.1-0.2	SE157294.009	LB110411	15 Sep 2016	20 Sep 2016	14 Mar 2017	23 Sep 2016	14 Mar 2017	27 Sep 2016
HA22_0-0.1	SE157294.010	LB110412	15 Sep 2016	20 Sep 2016	14 Mar 2017	23 Sep 2016	14 Mar 2017	27 Sep 2016

TRH (Total Recoverable Hydrocarbons) in Soil

Method: ME-(AU)-[ENV]AN403

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
M1_1.2-1.3	SE157294.002	LB110272	15 Sep 2016	20 Sep 2016	29 Sep 2016	21 Sep 2016	31 Oct 2016	27 Sep 2016
M5_0.4-0.5	SE157294.004	LB110272	15 Sep 2016	20 Sep 2016	29 Sep 2016	21 Sep 2016	31 Oct 2016	27 Sep 2016
QC12	SE157294.005	LB110272	15 Sep 2016	20 Sep 2016	29 Sep 2016	21 Sep 2016	31 Oct 2016	27 Sep 2016
QC14	SE157294.006	LB110272	15 Sep 2016	20 Sep 2016	29 Sep 2016	21 Sep 2016	31 Oct 2016	27 Sep 2016
HA7_0.2-0.3	SE157294.008	LB110272	15 Sep 2016	20 Sep 2016	29 Sep 2016	21 Sep 2016	31 Oct 2016	27 Sep 2016
HA8_0.1-0.2	SE157294.009	LB110272	15 Sep 2016	20 Sep 2016	29 Sep 2016	21 Sep 2016	31 Oct 2016	27 Sep 2016
HA22_0-0.1	SE157294.010	LB110272	15 Sep 2016	20 Sep 2016	29 Sep 2016	21 Sep 2016	31 Oct 2016	27 Sep 2016
QC16 (Trip Blank)	SE157294.011	LB110272	15 Sep 2016	20 Sep 2016	29 Sep 2016	21 Sep 2016	31 Oct 2016	27 Sep 2016

VOC's in Soil

Method: ME-(AU)-[ENV]AN433

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
M1_1.2-1.3	SE157294.002	LB110261	15 Sep 2016	20 Sep 2016	29 Sep 2016	21 Sep 2016	31 Oct 2016	27 Sep 2016
M5_0.4-0.5	SE157294.004	LB110261	15 Sep 2016	20 Sep 2016	29 Sep 2016	21 Sep 2016	31 Oct 2016	27 Sep 2016
QC12	SE157294.005	LB110261	15 Sep 2016	20 Sep 2016	29 Sep 2016	21 Sep 2016	31 Oct 2016	27 Sep 2016
QC14	SE157294.006	LB110261	15 Sep 2016	20 Sep 2016	29 Sep 2016	21 Sep 2016	31 Oct 2016	27 Sep 2016
HA7_0.2-0.3	SE157294.008	LB110261	15 Sep 2016	20 Sep 2016	29 Sep 2016	21 Sep 2016	31 Oct 2016	27 Sep 2016
HA8_0.1-0.2	SE157294.009	LB110261	15 Sep 2016	20 Sep 2016	29 Sep 2016	21 Sep 2016	31 Oct 2016	27 Sep 2016
HA22_0-0.1	SE157294.010	LB110261	15 Sep 2016	20 Sep 2016	29 Sep 2016	21 Sep 2016	31 Oct 2016	27 Sep 2016
QC16 (Trip Blank)	SE157294.011	LB110261	15 Sep 2016	20 Sep 2016	29 Sep 2016	21 Sep 2016	31 Oct 2016	27 Sep 2016
QC17 (Trip Spike	SE157294.012	LB110261	15 Sep 2016	20 Sep 2016	29 Sep 2016	21 Sep 2016	31 Oct 2016	27 Sep 2016

Volatile Petroleum Hydrocarbons in Soil

Method: ME-(AU)-[ENV]AN433

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
M1_1.2-1.3	SE157294.002	LB110261	15 Sep 2016	20 Sep 2016	29 Sep 2016	21 Sep 2016	31 Oct 2016	27 Sep 2016
M5_0.4-0.5	SE157294.004	LB110261	15 Sep 2016	20 Sep 2016	29 Sep 2016	21 Sep 2016	31 Oct 2016	27 Sep 2016
QC12	SE157294.005	LB110261	15 Sep 2016	20 Sep 2016	29 Sep 2016	21 Sep 2016	31 Oct 2016	27 Sep 2016
QC14	SE157294.006	LB110261	15 Sep 2016	20 Sep 2016	29 Sep 2016	21 Sep 2016	31 Oct 2016	27 Sep 2016
HA7_0.2-0.3	SE157294.008	LB110261	15 Sep 2016	20 Sep 2016	29 Sep 2016	21 Sep 2016	31 Oct 2016	27 Sep 2016
HA8_0.1-0.2	SE157294.009	LB110261	15 Sep 2016	20 Sep 2016	29 Sep 2016	21 Sep 2016	31 Oct 2016	27 Sep 2016
HA22_0-0.1	SE157294.010	LB110261	15 Sep 2016	20 Sep 2016	29 Sep 2016	21 Sep 2016	31 Oct 2016	27 Sep 2016
QC16 (Trip Blank)	SE157294.011	LB110261	15 Sep 2016	20 Sep 2016	29 Sep 2016	21 Sep 2016	31 Oct 2016	27 Sep 2016
QC17 (Trip Spike	SE157294.012	LB110261	15 Sep 2016	20 Sep 2016	29 Sep 2016	21 Sep 2016	31 Oct 2016	27 Sep 2016

Surrogate results are evaluated against upper and lower limit criteria established in the SGS QA /QC plan (Ref: MP-(AU)-[ENV]QU-022). At least two of three routine level soil sample surrogate spike recoveries for BTEX/VOC are to be within 70-130% where control charts have not been developed and within the established control limits for charted surrogates. Matrix effects may void this as an acceptance criterion. Water sample surrogate spike recoveries are to be within 40-130%. The presence of emulsions, surfactants and particulates may void this as an acceptance criterion.

Result is shown in **Green** when within suggested criteria or **Red** with an appended reason identifer when outside suggested criteria. Refer to the footnotes section at the end of this report for failure reasons.

OC Pesticides in Soil

Method: ME-(AU)-[ENV]AN400/AN420

Parameter	Sample Name	Sample Number	Units	Criteria	Recovery %
Tetrachloro-m-xylene (TCMX) (Surrogate)	M1_1.2-1.3	SE157294.002	%	60 - 130%	88
	M5_0.4-0.5	SE157294.004	%	60 - 130%	86
	QC12	SE157294.005	%	60 - 130%	96
	QC14	SE157294.006	%	60 - 130%	101
	HA7_0.2-0.3	SE157294.008	%	60 - 130%	101
	HA8_0.1-0.2	SE157294.009	%	60 - 130%	119
	HA22_0-0.1	SE157294.010	%	60 - 130%	92

OP Pesticides in Soil

Method: ME-(AU)-[ENV]AN400/AN420

Parameter	Sample Name	Sample Number	Units	Criteria	Recovery %
2-fluorobiphenyl (Surrogate)	M1_1.2-1.3	SE157294.002	%	60 - 130%	88
	M5_0.4-0.5	SE157294.004	%	60 - 130%	90
	QC12	SE157294.005	%	60 - 130%	86
	QC14	SE157294.006	%	60 - 130%	92
	HA7_0.2-0.3	SE157294.008	%	60 - 130%	90
	HA8_0.1-0.2	SE157294.009	%	60 - 130%	84
	HA22_0-0.1	SE157294.010	%	60 - 130%	88
d14-p-terphenyl (Surrogate)	M1_1.2-1.3	SE157294.002	%	60 - 130%	102
	M5_0.4-0.5	SE157294.004	%	60 - 130%	78
	QC12	SE157294.005	%	60 - 130%	74
	QC14	SE157294.006	%	60 - 130%	114
	HA7_0.2-0.3	SE157294.008	%	60 - 130%	106
	HA8_0.1-0.2	SE157294.009	%	60 - 130%	104
	HA22_0-0.1	SE157294.010	%	60 - 130%	76

PAH (Polynuclear Aromatic Hydrocarbons) in Soil

Method: ME-(AU)-[ENV]AN420

Parameter	Sample Name	Sample Number	Units	Criteria	Recovery %
2-fluorobiphenyl (Surrogate)	M1_1.2-1.3	SE157294.002	%	70 - 130%	88
	M5_0.4-0.5	SE157294.004	%	70 - 130%	90
	QC12	SE157294.005	%	70 - 130%	86
	QC14	SE157294.006	%	70 - 130%	92
	HA7_0.2-0.3	SE157294.008	%	70 - 130%	90
	HA8_0.1-0.2	SE157294.009	%	70 - 130%	84
	HA22_0-0.1	SE157294.010	%	70 - 130%	88
	QC16 (Trip Blank)	SE157294.011	%	70 - 130%	88
d14-p-terphenyl (Surrogate)	M1_1.2-1.3	SE157294.002	%	70 - 130%	102
	M5_0.4-0.5	SE157294.004	%	70 - 130%	78
	QC12	SE157294.005	%	70 - 130%	74
	QC14	SE157294.006	%	70 - 130%	114
	HA7_0.2-0.3	SE157294.008	%	70 - 130%	106
	HA8_0.1-0.2	SE157294.009	%	70 - 130%	104
	HA22_0-0.1	SE157294.010	%	70 - 130%	76
	QC16 (Trip Blank)	SE157294.011	%	70 - 130%	74
d5-nitrobenzene (Surrogate)	M1_1.2-1.3	SE157294.002	%	70 - 130%	82
	M5_0.4-0.5	SE157294.004	%	70 - 130%	90
	QC12	SE157294.005	%	70 - 130%	84
	QC14	SE157294.006	%	70 - 130%	88
	HA7_0.2-0.3	SE157294.008	%	70 - 130%	86
	HA8_0.1-0.2	SE157294.009	%	70 - 130%	84
	HA22_0-0.1	SE157294.010	%	70 - 130%	92
	QC16 (Trip Blank)	SE157294.011	%	70 - 130%	94

VOC's in Soil

Method: ME-(AU)-[ENV]AN433

Parameter	Sample Name	Sample Number	Units	Criteria	Recovery %
Bromofluorobenzene (Surrogate)	M1_1.2-1.3	SE157294.002	%	60 - 130%	99
	M5_0.4-0.5	SE157294.004	%	60 - 130%	87
	QC12	SE157294.005	%	60 - 130%	83
	QC14	SE157294.006	%	60 - 130%	90
	HA7_0.2-0.3	SE157294.008	%	60 - 130%	86
	HA8_0.1-0.2	SE157294.009	%	60 - 130%	87
	HA22_0-0.1	SE157294.010	%	60 - 130%	75
	QC16 (Trip Blank)	SE157294.011	%	60 - 130%	90

Surrogate results are evaluated against upper and lower limit criteria established in the SGS QA /QC plan (Ref: MP-(AU)-[ENV]QU-022). At least two of three routine level soil sample surrogate spike recoveries for BTEX/VOC are to be within 70-130% where control charts have not been developed and within the established control limits for charted surrogates. Matrix effects may void this as an acceptance criterion. Water sample surrogate spike recoveries are to be within 40-130%. The presence of emulsions, surfactants and particulates may void this as an acceptance criterion.

Result is shown in **Green** when within suggested criteria or **Red** with an appended reason identifer when outside suggested criteria. Refer to the footnotes section at the end of this report for failure reasons.

VOC's in Soil (continued)

Method: ME-(AU)-[ENV]AN433

Parameter	Sample Name	Sample Number	Units	Criteria	Recovery %
Bromofluorobenzene (Surrogate)	QC17 (Trip Spike	SE157294.012	%	60 - 130%	88
d4-1,2-dichloroethane (Surrogate)	M1_1.2-1.3	SE157294.002	%	60 - 130%	93
	M5_0.4-0.5	SE157294.004	%	60 - 130%	82
	QC12	SE157294.005	%	60 - 130%	80
	QC14	SE157294.006	%	60 - 130%	81
	HA7_0.2-0.3	SE157294.008	%	60 - 130%	85
	HA8_0.1-0.2	SE157294.009	%	60 - 130%	77
	HA22_0-0.1	SE157294.010	%	60 - 130%	81
	QC16 (Trip Blank)	SE157294.011	%	60 - 130%	79
	QC17 (Trip Spike	SE157294.012	%	60 - 130%	82
d8-toluene (Surrogate)	M1_1.2-1.3	SE157294.002	%	60 - 130%	97
	M5_0.4-0.5	SE157294.004	%	60 - 130%	86
	QC12	SE157294.005	%	60 - 130%	82
	QC14	SE157294.006	%	60 - 130%	82
	HA7_0.2-0.3	SE157294.008	%	60 - 130%	81
	HA8_0.1-0.2	SE157294.009	%	60 - 130%	78
	HA22_0-0.1	SE157294.010	%	60 - 130%	93
	QC16 (Trip Blank)	SE157294.011	%	60 - 130%	93
	QC17 (Trip Spike	SE157294.012	%	60 - 130%	96
Dibromofluoromethane (Surrogate)	M1_1.2-1.3	SE157294.002	%	60 - 130%	88
	M5_0.4-0.5	SE157294.004	%	60 - 130%	73
	QC12	SE157294.005	%	60 - 130%	72
	QC14	SE157294.006	%	60 - 130%	75
	HA7_0.2-0.3	SE157294.008	%	60 - 130%	75
	HA8_0.1-0.2	SE157294.009	%	60 - 130%	95
	HA22_0-0.1	SE157294.010	%	60 - 130%	78
	QC16 (Trip Blank)	SE157294.011	%	60 - 130%	71
	QC17 (Trip Spike	SE157294.012	%	60 - 130%	73

Volatile Petroleum Hydrocarbons in Soil

Method: ME-(AU)-[ENV]AN433

Parameter	Sample Name	Sample Number	Units	Criteria	Recovery %
Bromofluorobenzene (Surrogate)	M1_1.2-1.3	SE157294.002	%	60 - 130%	99
	M5_0.4-0.5	SE157294.004	%	60 - 130%	87
	QC12	SE157294.005	%	60 - 130%	83
	QC14	SE157294.006	%	60 - 130%	90
	HA7_0.2-0.3	SE157294.008	%	60 - 130%	86
	HA8_0.1-0.2	SE157294.009	%	60 - 130%	87
	HA22_0-0.1	SE157294.010	%	60 - 130%	75
	QC16 (Trip Blank)	SE157294.011	%	60 - 130%	90
d4-1,2-dichloroethane (Surrogate)	M1_1.2-1.3	SE157294.002	%	60 - 130%	93
	M5_0.4-0.5	SE157294.004	%	60 - 130%	82
	QC12	SE157294.005	%	60 - 130%	80
	QC14	SE157294.006	%	60 - 130%	81
	HA7_0.2-0.3	SE157294.008	%	60 - 130%	85
	HA8_0.1-0.2	SE157294.009	%	60 - 130%	77
	HA22_0-0.1	SE157294.010	%	60 - 130%	81
	QC16 (Trip Blank)	SE157294.011	%	60 - 130%	79
d8-toluene (Surrogate)	M1_1.2-1.3	SE157294.002	%	60 - 130%	97
	M5_0.4-0.5	SE157294.004	%	60 - 130%	86
	QC12	SE157294.005	%	60 - 130%	82
	QC14	SE157294.006	%	60 - 130%	82
	HA7_0.2-0.3	SE157294.008	%	60 - 130%	81
	HA8_0.1-0.2	SE157294.009	%	60 - 130%	78
	HA22_0-0.1	SE157294.010	%	60 - 130%	93
	QC16 (Trip Blank)	SE157294.011	%	60 - 130%	93
Dibromofluoromethane (Surrogate)	M1_1.2-1.3	SE157294.002	%	60 - 130%	88
	M5_0.4-0.5	SE157294.004	%	60 - 130%	73
	QC12	SE157294.005	%	60 - 130%	72
	QC14	SE157294.006	%	60 - 130%	75
	HA7_0.2-0.3	SE157294.008	%	60 - 130%	75
	HA8_0.1-0.2	SE157294.009	%	60 - 130%	95

Surrogate results are evaluated against upper and lower limit criteria established in the SGS QA /QC plan (Ref: MP-(AU)-[ENV]QU-022). At least two of three routine level soil sample surrogate spike recoveries for BTEX/VOC are to be within 70-130% where control charts have not been developed and within the established control limits for charted surrogates. Matrix effects may void this as an acceptance criterion. Water sample surrogate spike recoveries are to be within 40-130%. The presence of emulsions, surfactants and particulates may void this as an acceptance criterion.

Result is shown in **Green** when within suggested criteria or **Red** with an appended reason identifer when outside suggested criteria. Refer to the footnotes section at the end of this report for failure reasons.

Volatile Petroleum Hydrocarbons in Soil (continued) — **Method: ME-(AU)-[ENV]AN433**

Parameter	Sample Name	Sample Number	Units	Criteria	Recovery %
Dibromofluoromethane (Surrogate)	HA22_0-0.1	SE157294.010	%	60 - 130%	78
	QC16 (Trip Blank)	SE157294.011	%	60 - 130%	71

Blank results are evaluated against the limit of reporting (LOR), for the chosen method and its associated instrumentation, typically 2.5 times the statistically determined method detection limit (MDL).

Result is shown in **Green** when within suggested criteria or **Red** with an appended dagger symbol (†) when outside suggested criteria.

Mercury in Soil

Method: ME-(AU)-[ENV]AN312

Sample Number	Parameter	Units	LOR	Result
LB110461.001	Mercury	mg/kg	0.05	<0.05
LB110462.001	Mercury	mg/kg	0.05	<0.05

OC Pesticides in Soil

Method: ME-(AU)-[ENV]AN400/AN420

Sample Number		Parameter	Units	LOR	Result
LB110272.001		Hexachlorobenzene (HCB)	mg/kg	0.1	<0.1
		Alpha BHC	mg/kg	0.1	<0.1
		Lindane	mg/kg	0.1	<0.1
		Heptachlor	mg/kg	0.1	<0.1
		Aldrin	mg/kg	0.1	<0.1
		Beta BHC	mg/kg	0.1	<0.1
		Delta BHC	mg/kg	0.1	<0.1
		Heptachlor epoxide	mg/kg	0.1	<0.1
		Alpha Endosulfan	mg/kg	0.2	<0.2
		Gamma Chlordane	mg/kg	0.1	<0.1
		Alpha Chlordane	mg/kg	0.1	<0.1
		p,p'-DDE	mg/kg	0.1	<0.1
		Dieldrin	mg/kg	0.2	<0.2
		Endrin	mg/kg	0.2	<0.2
		Beta Endosulfan	mg/kg	0.2	<0.2
		p,p'-DDD	mg/kg	0.1	<0.1
		p,p'-DDT	mg/kg	0.1	<0.1
		Endosulfan sulphate	mg/kg	0.1	<0.1
		Endrin Aldehyde	mg/kg	0.1	<0.1
		Methoxychlor	mg/kg	0.1	<0.1
		Endrin Ketone	mg/kg	0.1	<0.1
		Isodrin	mg/kg	0.1	<0.1
		Mirex	mg/kg	0.1	<0.1
	Surrogates	Tetrachloro-m-xylene (TCMX) (Surrogate)	%	-	83

OP Pesticides in Soil

Method: ME-(AU)-[ENV]AN400/AN420

Sample Number		Parameter	Units	LOR	Result
LB110272.001		Dichlorvos	mg/kg	0.5	<0.5
		Dimethoate	mg/kg	0.5	<0.5
		Diazinon (Dimpylate)	mg/kg	0.5	<0.5
		Fenitrothion	mg/kg	0.2	<0.2
		Malathion	mg/kg	0.2	<0.2
		Chlorpyrifos (Chlorpyrifos Ethyl)	mg/kg	0.2	<0.2
		Parathion-ethyl (Parathion)	mg/kg	0.2	<0.2
		Bromophos Ethyl	mg/kg	0.2	<0.2
		Methidathion	mg/kg	0.5	<0.5
		Ethion	mg/kg	0.2	<0.2
		Azinphos-methyl (Guthion)	mg/kg	0.2	<0.2
	Surrogates	2-fluorobiphenyl (Surrogate)	%	-	88
		d14-p-terphenyl (Surrogate)	%	-	102

PAH (Polynuclear Aromatic Hydrocarbons) in Soil

Method: ME-(AU)-[ENV]AN420

Sample Number	Parameter	Units	LOR	Result
LB110272.001	Naphthalene	mg/kg	0.1	<0.1
	2-methylnaphthalene	mg/kg	0.1	<0.1
	1-methylnaphthalene	mg/kg	0.1	<0.1
	Acenaphthylene	mg/kg	0.1	<0.1
	Acenaphthene	mg/kg	0.1	<0.1
	Fluorene	mg/kg	0.1	<0.1
	Phenanthrene	mg/kg	0.1	<0.1
	Anthracene	mg/kg	0.1	<0.1
	Fluoranthene	mg/kg	0.1	<0.1
	Pyrene	mg/kg	0.1	<0.1
	Benzo(a)anthracene	mg/kg	0.1	<0.1
	Chrysene	mg/kg	0.1	<0.1
	Benzo(a)pyrene	mg/kg	0.1	<0.1

Blank results are evaluated against the limit of reporting (LOR), for the chosen method and its associated instrumentation, typically 2.5 times the statistically determined method detection limit (MDL).

Result is shown in **Green** when within suggested criteria or **Red** with an appended dagger symbol (†) when outside suggested criteria.

PAH (Polynuclear Aromatic Hydrocarbons) in Soil (continued)

Method: ME-(AU)-[ENV]AN420

Sample Number		Parameter	Units	LOR	Result
LB110272.001		Indeno(1,2,3-cd)pyrene	mg/kg	0.1	<0.1
		Dibenzo(ah)anthracene	mg/kg	0.1	<0.1
		Benzo(ghi)perylene	mg/kg	0.1	<0.1
		Total PAH (18)	mg/kg	0.8	<0.8
	Surrogates	d5-nitrobenzene (Surrogate)	%	-	82
		2-fluorobiphenyl (Surrogate)	%	-	88
		d14-p-terphenyl (Surrogate)	%	-	102

Total Phenolics in Soil

Method: ME-(AU)-[ENV]AN289

Sample Number	Parameter	Units	LOR	Result
LB110514.001	Total Phenols	mg/kg	0.1	<0.1

Total Recoverable Metals in Soil/Waste Solids/Materials by ICPOES

Method: ME-(AU)-[ENV]AN040/AN320

Sample Number	Parameter	Units	LOR	Result
LB110411.001	Arsenic, As	mg/kg	3	<3
	Cadmium, Cd	mg/kg	0.3	<0.3
	Chromium, Cr	mg/kg	0.3	<0.3
	Copper, Cu	mg/kg	0.5	<0.5
	Lead, Pb	mg/kg	1	<1
	Nickel, Ni	mg/kg	0.5	<0.5
	Zinc, Zn	mg/kg	0.5	<0.5
LB110412.001	Arsenic, As	mg/kg	3	<3
	Cadmium, Cd	mg/kg	0.3	<0.3
	Chromium, Cr	mg/kg	0.3	<0.3
	Copper, Cu	mg/kg	0.5	<0.5
	Lead, Pb	mg/kg	1	<1
	Nickel, Ni	mg/kg	0.5	<0.5
	Zinc, Zn	mg/kg	0.5	<0.5

TRH (Total Recoverable Hydrocarbons) in Soil

Method: ME-(AU)-[ENV]AN403

Sample Number	Parameter	Units	LOR	Result
LB110272.001	TRH C10-C14	mg/kg	20	<20
	TRH C15-C28	mg/kg	45	<45
	TRH C29-C36	mg/kg	45	<45
	TRH C37-C40	mg/kg	100	<100
	TRH C10-C36 Total	mg/kg	110	<110

VOC's in Soil

Method: ME-(AU)-[ENV]AN433

Sample Number		Parameter	Units	LOR	Result
LB110261.001	Monocyclic Aromatic	Benzene	mg/kg	0.1	<0.1
	Hydrocarbons	Toluene	mg/kg	0.1	<0.1
		Ethylbenzene	mg/kg	0.1	<0.1
		m/p-xylene	mg/kg	0.2	<0.2
		o-xylene	mg/kg	0.1	<0.1
	Polycyclic VOCs	Naphthalene	mg/kg	0.1	<0.1
	Surrogates	Dibromofluoromethane (Surrogate)	%	-	87
		d4-1,2-dichloroethane (Surrogate)	%	-	92
		d8-toluene (Surrogate)	%	-	90
		Bromofluorobenzene (Surrogate)	%	-	104
	Totals	Total BTEX	mg/kg	0.6	<0.6

Volatile Petroleum Hydrocarbons in Soil

Method: ME-(AU)-[ENV]AN433

Sample Number		Parameter	Units	LOR	Result
LB110261.001		TRH C6-C9	mg/kg	20	<20
	Surrogates	Dibromofluoromethane (Surrogate)	%	-	87
		d4-1,2-dichloroethane (Surrogate)	%	-	92
		d8-toluene (Surrogate)	%	-	90

Duplicates are calculated as Relative Percentage Difference (RPD) using the formula: RPD = | OriginalResult - ReplicateResult | x 100 / Mean

The RPD is evaluated against the Maximum Allowable Difference (MAD) criteria and can be graphically represented by a curve calculated from the Statistical Detection Limit (SDL) and Limiting Repeatability (LR) using the formula: MAD = 100 x SDL / Mean + LR

Where the Maximum Allowable Difference evaluates to a number larger than 200 it is displayed as 200.

RPD is shown in **Green** when within suggested criteria or **Red** with an appended reason identifer when outside suggested criteria. Refer to the footnotes section at the end of this report for failure reasons.

Mercury in Soil

Method: ME-(AU)-[ENV]AN312

Original	Duplicate	Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE157293.032	LB110461.014	Mercury	mg/kg	0.05	0.018437412	50.0167338387	200	0
SE157294.008	LB110461.024	Mercury	mg/kg	0.05	<0.05	<0.05	200	0
SE157305.032	LB110462.014	Mercury	mg/kg	0.05	0.030935688	40.0332523532	186	0
SE157312.001	LB110462.022	Mercury	mg/kg	0.05	0.06	0.08	106	30

Moisture Content

Method: ME-(AU)-[ENV]AN002

Original	Duplicate	Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE157293.010	LB110320.011	% Moisture	%w/w	0.5	10.64073226540.701545778		39	1
SE157293.020	LB110320.022	% Moisture	%w/w	0.5	10.81395348831.124260355(		39	3
SE157293.030	LB110320.033	% Moisture	%w/w	0.5	15.68862275444.6464646464		37	7
SE157294.006	LB110320.044	% Moisture	%w/w	0.5	11	11	39	4
SE157294.011	LB110320.049	% Moisture	%w/w	0.5	<0.5	<0.5	200	0

OC Pesticides in Soil

Method: ME-(AU)-[ENV]AN400/AN420

Original	Duplicate		Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE157322.008	LB110272.021		Hexachlorobenzene (HCB)	mg/kg	0.1	0	0	200	0
			Alpha BHC	mg/kg	0.1	0	0	200	0
			Lindane	mg/kg	0.1	0	0	200	0
			Heptachlor	mg/kg	0.1	0	0	200	0
			Aldrin	mg/kg	0.1	0	0	200	0
			Beta BHC	mg/kg	0.1	0	0	200	0
			Delta BHC	mg/kg	0.1	0	0	200	0
			Heptachlor epoxide	mg/kg	0.1	0	0	200	0
			o,p'-DDE	mg/kg	0.1	0	0	200	0
			Alpha Endosulfan	mg/kg	0.2	0	0	200	0
			Gamma Chlordane	mg/kg	0.1	0	0	200	0
			Alpha Chlordane	mg/kg	0.1	0	0	200	0
			trans-Nonachlor	mg/kg	0.1	0	0	200	0
			p,p'-DDE	mg/kg	0.1	0	0	200	0
			Dieldrin	mg/kg	0.2	0	0	200	0
			Endrin	mg/kg	0.2	0	0	200	0
			o,p'-DDD	mg/kg	0.1	0	0	200	0
			o,p'-DDT	mg/kg	0.1	0	0	200	0
			Beta Endosulfan	mg/kg	0.2	0	0	200	0
			p,p'-DDD	mg/kg	0.1	0	0	200	0
			p,p'-DDT	mg/kg	0.1	0	0	200	0
			Endosulfan sulphate	mg/kg	0.1	0	0	200	0
			Endrin Aldehyde	mg/kg	0.1	0	0	200	0
			Methoxychlor	mg/kg	0.1	0	0	200	0
			Endrin Ketone	mg/kg	0.1	0	0	200	0
			Isodrin	mg/kg	0.1	0	0	200	0
			Mirex	mg/kg	0.1	0	0	200	0
		Surrogates	Tetrachloro-m-xylene (TCMX) (Surrogate)	mg/kg	-	0.133	0.142	30	7

OP Pesticides in Soil

Method: ME-(AU)-[ENV]AN400/AN420

Original	Duplicate		Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE157322.008	LB110272.021		Dichlorvos	mg/kg	0.5	0.03	0.01	200	0
			Dimethoate	mg/kg	0.5	0.02	0.01	200	0
			Diazinon (Dimpylate)	mg/kg	0.5	0.08	0	200	0
			Fenitrothion	mg/kg	0.2	0.05	0.03	200	0
			Malathion	mg/kg	0.2	0	0.02	200	0
			Chlorpyrifos (Chlorpyrifos Ethyl)	mg/kg	0.2	0.06	0.06	200	0
			Parathion-ethyl (Parathion)	mg/kg	0.2	0.01	0.02	200	0
			Bromophos Ethyl	mg/kg	0.2	0.08	0.09	200	0
			Methidathion	mg/kg	0.5	0.01	0.01	200	0
			Ethion	mg/kg	0.2	0	0.01	200	0
			Azinphos-methyl (Guthion)	mg/kg	0.2	0	0	200	0
		Surrogates	2-fluorobiphenyl (Surrogate)	mg/kg	-	0.4	0.47	30	16
			d14-p-terphenyl (Surrogate)	mg/kg	-	0.5	0.4	30	22

PAH (Polynuclear Aromatic Hydrocarbons) in Soil

Method: ME-(AU)-[ENV]AN420

Original	Duplicate	Parameter	Units	LOR

Duplicates are calculated as Relative Percentage Difference (RPD) using the formula: RPD = | OriginalResult - ReplicateResult | x 100 / Mean

The RPD is evaluated against the Maximum Allowable Difference (MAD) criteria and can be graphically represented by a curve calculated from the Statistical Detection Limit (SDL) and Limiting Repeatability (LR) using the formula: MAD = 100 x SDL / Mean + LR

Where the Maximum Allowable Difference evaluates to a number larger than 200 it is displayed as 200.

RPD is shown in **Green** when within suggested criteria or **Red** with an appended reason identifer when outside suggested criteria. Refer to the footnotes section at the end of this report for failure reasons.

PAH (Polynuclear Aromatic Hydrocarbons) in Soil (continued)

Method: ME-(AU)-[ENV]AN420

Original	Duplicate		Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE157322.002	LB110272.014		Naphthalene	mg/kg	0.1	0	0	200	0
			2-methylnaphthalene	mg/kg	0.1	0	0	200	0
			1-methylnaphthalene	mg/kg	0.1	0	0	200	0
			Acenaphthylene	mg/kg	0.1	0	0	200	0
			Acenaphthene	mg/kg	0.1	0	0	200	0
			Fluorene	mg/kg	0.1	0	0	200	0
			Phenanthrene	mg/kg	0.1	0	0	200	0
			Anthracene	mg/kg	0.1	0	0	200	0
			Fluoranthene	mg/kg	0.1	0	0	200	0
			Pyrene	mg/kg	0.1	0	0	200	0
			Benzo(a)anthracene	mg/kg	0.1	0	0	200	0
			Chrysene	mg/kg	0.1	0.01	0	200	0
			Benzo(b&j)fluoranthene	mg/kg	0.1	0	0	200	0
			Benzo(k)fluoranthene	mg/kg	0.1	0	0	200	0
			Benzo(a)pyrene	mg/kg	0.1	0	0	200	0
			Indeno(1,2,3-cd)pyrene	mg/kg	0.1	0	0	200	0
			Dibenzo(ah)anthracene	mg/kg	0.1	0	0	200	0
			Benzo(ghi)perylene	mg/kg	0.1	0	0	200	0
			Carcinogenic PAHs, BaP TEQ <LOR=0	TEQ (mg/kg)	0.2	0	0	200	0
			Carcinogenic PAHs, BaP TEQ <LOR=LOR	TEQ (mg/kg)	0.3	0.242	0.242	134	0
			Carcinogenic PAHs, BaP TEQ <LOR=LOR/2	TEQ (mg/kg)	0.2	0.121	0.121	175	0
			Total PAH (18)	mg/kg	0.8	0	0	200	0
		Surrogates	d5-nitrobenzene (Surrogate)	mg/kg	-	0.44	0.47	30	7
			2-fluorobiphenyl (Surrogate)	mg/kg	-	0.44	0.47	30	7
			d14-p-terphenyl (Surrogate)	mg/kg	-	0.35	0.39	30	11
SE157322.008	LB110272.021		Naphthalene	mg/kg	0.1	0.45	0.45	52	0
			2-methylnaphthalene	mg/kg	0.1	1.1	1.14	39	4
			1-methylnaphthalene	mg/kg	0.1	0.64	0.66	45	3
			Acenaphthylene	mg/kg	0.1	0.01	0.01	200	0
			Acenaphthene	mg/kg	0.1	0.06	0.06	197	0
			Fluorene	mg/kg	0.1	0.09	0.11	130	10
			Phenanthrene	mg/kg	0.1	0.12	0.13	110	8
			Anthracene	mg/kg	0.1	0.02	0.02	200	0
			Fluoranthene	mg/kg	0.1	0.09	0.09	141	0
			Pyrene	mg/kg	0.1	0.09	0.13	121	26
			Benzo(a)anthracene	mg/kg	0.1	0.04	0.04	200	0
			Chrysene	mg/kg	0.1	0.04	0.04	200	0
			Benzo(b&j)fluoranthene	mg/kg	0.1	0.08	0.07	163	0
			Benzo(k)fluoranthene	mg/kg	0.1	0.07	0.07	173	0
			Benzo(a)pyrene	mg/kg	0.1	0.02	0.03	200	0
			Indeno(1,2,3-cd)pyrene	mg/kg	0.1	0.04	0.03	200	0
			Dibenzo(ah)anthracene	mg/kg	0.1	0	0	200	0
			Benzo(ghi)perylene	mg/kg	0.1	0.04	0.03	200	0
			Carcinogenic PAHs, BaP TEQ <LOR=0	TEQ (mg/kg)	0.2	0	0	200	0
			Carcinogenic PAHs, BaP TEQ <LOR=LOR	TEQ (mg/kg)	0.3	0.242	0.242	134	0
			Carcinogenic PAHs, BaP TEQ <LOR=LOR/2	TEQ (mg/kg)	0.2	0.121	0.121	175	0
			Total PAH (18)	mg/kg	0.8	2.31	2.62	62	13
		Surrogates	d5-nitrobenzene (Surrogate)	mg/kg	-	0.4	0.48	30	18
			2-fluorobiphenyl (Surrogate)	mg/kg	-	0.4	0.47	30	16
			d14-p-terphenyl (Surrogate)	mg/kg	-	0.5	0.4	30	22

Total Recoverable Metals in Soil/Waste Solids/Materials by ICPOES

Method: ME-(AU)-[ENV]AN040/AN320

Original	Duplicate	Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE157293.033	LB110411.014	Arsenic, As	mg/kg	3	2.09178351302.8976663897		70	32
		Cadmium, Cd	mg/kg	0.3	0.1578539098	0.1528337665	200	0
		Chromium, Cr	mg/kg	0.3	13.955344761	12.4044307941	34	12
		Copper, Cu	mg/kg	0.5	6.3039291217	7.2125173014	37	13
		Lead, Pb	mg/kg	1	11.5314811248	1.948811242	39	4
		Nickel, Ni	mg/kg	0.5	7.7630489214	7.5106012867	37	3
		Zinc, Zn	mg/kg	0.5	10.7958397534	1.9770315441	35	3
SE157294.009	LB110411.024	Arsenic, As	mg/kg	3	8	9	42	7

Duplicates are calculated as Relative Percentage Difference (RPD) using the formula: RPD = | OriginalResult - ReplicateResult | x 100 / Mean

The RPD is evaluated against the Maximum Allowable Difference (MAD) criteria and can be graphically represented by a curve calculated from the Statistical Detection Limit (SDL) and Limiting Repeatability (LR) using the formula: MAD = 100 x SDL / Mean + LR

Where the Maximum Allowable Difference evaluates to a number larger than 200 it is displayed as 200.

RPD is shown in **Green** when within suggested criteria or **Red** with an appended reason identifer when outside suggested criteria. Refer to the footnotes section at the end of this report for failure reasons.

Total Recoverable Metals in Soil/Waste Solids/Materials by ICPOES (continued)

Method: ME-(AU)-[ENV]AN040/AN320

Original	Duplicate	Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE157294.009	LB110411.024	Cadmium, Cd	mg/kg	0.3	0.3	0.4	118	21
		Chromium, Cr	mg/kg	0.3	17	18	33	3
		Copper, Cu	mg/kg	0.5	16	17	33	2
		Lead, Pb	mg/kg	1	34	71	32	69 ②
		Nickel, Ni	mg/kg	0.5	13	14	34	2
		Zinc, Zn	mg/kg	0.5	640	670	30	5
SE157305.034	LB110412.014	Arsenic, As	mg/kg	3	1.98662201761	1.9057488206	81	4
		Cadmium, Cd	mg/kg	0.3	0.038257580	4 0.0212437830	200	0
		Chromium, Cr	mg/kg	0.3	2.020039323	1 1.9804871320	55	2
		Copper, Cu	mg/kg	0.5	6.153127224	06.5067795665	38	6
		Lead, Pb	mg/kg	1	4.550672064	14.5782749064	52	1
		Nickel, Ni	mg/kg	0.5	1.732081966	01.7143253142	59	1
		Zinc, Zn	mg/kg	0.5	6.032949129	4.8536937339	67	22
SE157313.003	LB110412.024	Arsenic, As	mg/kg	3	11.68220212332	.4907648774	38	7
		Cadmium, Cd	mg/kg	0.3	0.585746861	30.6824699343	77	15
		Chromium, Cr	mg/kg	0.3	20.321418911	23.5248569567	32	15
		Copper, Cu	mg/kg	0.5	38.471102784	41.064868173(	31	21
		Lead, Pb	mg/kg	1	26.744395632	29.4418657668	34	10
		Nickel, Ni	mg/kg	0.5	11.127789621	70.558803622[	35	5
		Zinc, Zn	mg/kg	0.5	72.796985162	66.417764278[	33	9

VOC's in Soil

Method: ME-(AU)-[ENV]AN433

Original	Duplicate		Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE157305.002	LB110261.014	Monocyclic Aromatic	Benzene	mg/kg	0.1	0.02	0.02	200	0
			Toluene	mg/kg	0.1	0.01	0.01	200	0
			Ethylbenzene	mg/kg	0.1	0.01	0.01	200	0
			m/p-xylene	mg/kg	0.2	0.05	0.05	200	0
			o-xylene	mg/kg	0.1	0.02	0.02	200	0
		Polycyclic	Naphthalene	mg/kg	0.1	0.02	0.02	200	0
		Surrogates	Dibromofluoromethane (Surrogate)	mg/kg	-	4.9	5.23	50	7
			d4-1,2-dichloroethane (Surrogate)	mg/kg	-	3.87	3.98	50	3
			d8-toluene (Surrogate)	mg/kg	-	3.91	4.03	50	3
			Bromofluorobenzene (Surrogate)	mg/kg	-	4.55	4.23	50	7
		Totals	Total Xylenes*	mg/kg	0.3	0.07	0.07	200	0
			Total BTEX	mg/kg	0.6	0.11	0.11	200	0
SE157305.035	LB110261.026	Monocyclic Aromatic	Benzene	mg/kg	0.1	0.01	0.01	200	0
			Toluene	mg/kg	0.1	0.01	0.01	200	0
			Ethylbenzene	mg/kg	0.1	0	0	200	0
			m/p-xylene	mg/kg	0.2	0.01	0.01	200	0
			o-xylene	mg/kg	0.1	0	0	200	0
		Polycyclic	Naphthalene	mg/kg	0.1	0.05	0.03	200	0
		Surrogates	Dibromofluoromethane (Surrogate)	mg/kg	-	4.41	4.24	50	4
			d4-1,2-dichloroethane (Surrogate)	mg/kg	-	3.95	4.06	50	3
			d8-toluene (Surrogate)	mg/kg	-	3.93	4.49	50	13
			Bromofluorobenzene (Surrogate)	mg/kg	-	4.61	4.41	50	4
		Totals	Total Xylenes*	mg/kg	0.3	0.01	0.01	200	0
			Total BTEX	mg/kg	0.6	0.03	0.03	200	0

Volatile Petroleum Hydrocarbons in Soil

Method: ME-(AU)-[ENV]AN433

Original	Duplicate		Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE157305.002	LB110261.014		TRH C6-C10	mg/kg	25	0	0	200	0
			TRH C6-C9	mg/kg	20	0	0	200	0
		Surrogates	Dibromofluoromethane (Surrogate)	mg/kg	-	4.9	5.23	30	7
			d4-1,2-dichloroethane (Surrogate)	mg/kg	-	3.87	3.98	30	3
			d8-toluene (Surrogate)	mg/kg	-	3.91	4.03	30	3
			Bromofluorobenzene (Surrogate)	mg/kg	-	4.55	4.23	30	7
		VPH F Bands	Benzene (F0)	mg/kg	0.1	0.02	0.02	200	0
			TRH C6-C10 minus BTEX (F1)	mg/kg	25	-0.11	-0.11	200	0
SE157305.035	LB110261.026		TRH C6-C10	mg/kg	25	0	0	200	0
			TRH C6-C9	mg/kg	20	0	0	200	0
		Surrogates	Dibromofluoromethane (Surrogate)	mg/kg	-	4.41	4.24	30	4
			d4-1,2-dichloroethane (Surrogate)	mg/kg	-	3.95	4.06	30	3

Duplicates are calculated as Relative Percentage Difference (RPD) using the formula: RPD = | OriginalResult - ReplicateResult | x 100 / Mean

The RPD is evaluated against the Maximum Allowable Difference (MAD) criteria and can be graphically represented by a curve calculated from the Statistical Detection Limit (SDL) and Limiting Repeatability (LR) using the formula: MAD = 100 x SDL / Mean + LR

Where the Maximum Allowable Difference evaluates to a number larger than 200 it is displayed as 200.

RPD is shown in **Green** when within suggested criteria or **Red** with an appended reason identifer when outside suggested criteria. Refer to the footnotes section at the end of this report for failure reasons.

Volatile Petroleum Hydrocarbons in Soil (continued) — **Method: ME-(AU)-[ENV]AN433**

Original	Duplicate		Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE157305.035	LB110261.026	Surrogates	d8-toluene (Surrogate)	mg/kg	-	3.93	4.49	30	13
			Bromofluorobenzene (Surrogate)	mg/kg	-	4.61	4.41	30	4
		VPH F Bands	Benzene (F0)	mg/kg	0.1	0.01	0.01	200	0
			TRH C6-C10 minus BTEX (F1)	mg/kg	25	-0.03	-0.03	200	0

Laboratory Control Standard (LCS) results are evaluated against an expected result, typically the concentration of analyte spiked into the control during the sample preparation stage, producing a percentage recovery. The criteria applied to the percentage recovery is established in the SGS QA /QC plan (Ref: MP-(AU)-[ENV]QU-022). For more information refer to the footnotes in the concluding page of this report.

Recovery is shown in **Green** when within suggested criteria or **Red** with an appended dagger symbol (†) when outside suggested criteria.

Mercury in Soil

Method: ME-(AU)-[ENV]AN312

Sample Number	Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB110461.002	Mercury	mg/kg	0.05	0.19	0.2	70 - 130	95
LB110462.002	Mercury	mg/kg	0.05	0.19	0.2	70 - 130	95

OC Pesticides in Soil

Method: ME-(AU)-[ENV]AN400/AN420

Sample Number		Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB110272.002		Heptachlor	mg/kg	0.1	0.2	0.2	60 - 140	97
		Aldrin	mg/kg	0.1	0.2	0.2	60 - 140	95
		Delta BHC	mg/kg	0.1	0.2	0.2	60 - 140	102
		Dieldrin	mg/kg	0.2	<0.2	0.2	60 - 140	83
		Endrin	mg/kg	0.2	<0.2	0.2	60 - 140	99
		p,p'-DDT	mg/kg	0.1	0.2	0.2	60 - 140	77
	Surrogates	Tetrachloro-m-xylene (TCMX) (Surrogate)	mg/kg	-	0.13	0.15	40 - 130	84

OP Pesticides in Soil

Method: ME-(AU)-[ENV]AN400/AN420

Sample Number		Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB110272.002		Dichlorvos	mg/kg	0.5	1.9	2	60 - 140	95
		Diazinon (Dimpylate)	mg/kg	0.5	1.8	2	60 - 140	89
		Chlorpyrifos (Chlorpyrifos Ethyl)	mg/kg	0.2	1.7	2	60 - 140	84
		Ethion	mg/kg	0.2	1.7	2	60 - 140	83
	Surrogates	2-fluorobiphenyl (Surrogate)	mg/kg	-	0.4	0.5	40 - 130	84
		d14-p-terphenyl (Surrogate)	mg/kg	-	0.5	0.5	40 - 130	92

PAH (Polynuclear Aromatic Hydrocarbons) in Soil

Method: ME-(AU)-[ENV]AN420

Sample Number		Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB110272.002		Naphthalene	mg/kg	0.1	3.9	4	60 - 140	98
		Acenaphthylene	mg/kg	0.1	4.2	4	60 - 140	105
		Acenaphthene	mg/kg	0.1	3.5	4	60 - 140	88
		Phenanthrene	mg/kg	0.1	3.9	4	60 - 140	97
		Anthracene	mg/kg	0.1	4.1	4	60 - 140	102
		Fluoranthene	mg/kg	0.1	4.2	4	60 - 140	104
		Pyrene	mg/kg	0.1	3.8	4	60 - 140	94
		Benzo(a)pyrene	mg/kg	0.1	4.4	4	60 - 140	111
	Surrogates	d5-nitrobenzene (Surrogate)	mg/kg	-	0.4	0.5	40 - 130	80
		2-fluorobiphenyl (Surrogate)	mg/kg	-	0.4	0.5	40 - 130	84
		d14-p-terphenyl (Surrogate)	mg/kg	-	0.5	0.5	40 - 130	92

Total Phenolics in Soil

Method: ME-(AU)-[ENV]AN289

Sample Number	Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB110514.002	Total Phenols	mg/kg	0.1	2.1	2.5	70 - 130	85

Total Recoverable Metals in Soil/Waste Solids/Materials by ICPOES

Method: ME-(AU)-[ENV]AN040/AN320

Sample Number	Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB110411.002	Arsenic, As	mg/kg	3	49	50	80 - 120	98
	Cadmium, Cd	mg/kg	0.3	50	50	80 - 120	99
	Chromium, Cr	mg/kg	0.3	50	50	80 - 120	100
	Copper, Cu	mg/kg	0.5	50	50	80 - 120	100
	Lead, Pb	mg/kg	1	49	50	80 - 120	99
	Nickel, Ni	mg/kg	0.5	50	50	80 - 120	100
	Zinc, Zn	mg/kg	0.5	50	50	80 - 120	100
LB110412.002	Arsenic, As	mg/kg	3	49	50	80 - 120	97
	Cadmium, Cd	mg/kg	0.3	50	50	80 - 120	99
	Chromium, Cr	mg/kg	0.3	50	50	80 - 120	100
	Copper, Cu	mg/kg	0.5	50	50	80 - 120	99
	Lead, Pb	mg/kg	1	50	50	80 - 120	99
	Nickel, Ni	mg/kg	0.5	50	50	80 - 120	99
	Zinc, Zn	mg/kg	0.5	50	50	80 - 120	101

TRH (Total Recoverable Hydrocarbons) in Soil

Method: ME-(AU)-[ENV]AN403

Sample Number	Parameter	Units	LOR

Laboratory Control Standard (LCS) results are evaluated against an expected result, typically the concentration of analyte spiked into the control during the sample preparation stage, producing a percentage recovery. The criteria applied to the percentage recovery is established in the SGS QA /QC plan (Ref: MP-(AU)-[ENV]QU-022). For more information refer to the footnotes in the concluding page of this report.

Recovery is shown in **Green** when within suggested criteria or **Red** with an appended dagger symbol (†) when outside suggested criteria.

TRH (Total Recoverable Hydrocarbons) in Soil (continued)

Method: ME-(AU)-[ENV]AN403

Sample Number		Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB110272.002		TRH C10-C14	mg/kg	20	46	40	60 - 140	115
		TRH C15-C28	mg/kg	45	<45	40	60 - 140	100
		TRH C29-C36	mg/kg	45	<45	40	60 - 140	88
	TRH F Bands	TRH >C10-C16 (F2)	mg/kg	25	46	40	60 - 140	115
		TRH >C16-C34 (F3)	mg/kg	90	<90	40	60 - 140	93
		TRH >C34-C40 (F4)	mg/kg	120	<120	20	60 - 140	80

VOC's in Soil

Method: ME-(AU)-[ENV]AN433

Sample Number		Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB110261.002	Monocyclic	Benzene	mg/kg	0.1	2.0	2.9	60 - 140	67
	Aromatic	Toluene	mg/kg	0.1	1.9	2.9	60 - 140	65
		Ethylbenzene	mg/kg	0.1	1.9	2.9	60 - 140	67
		m/p-xylene	mg/kg	0.2	3.8	5.8	60 - 140	65
		o-xylene	mg/kg	0.1	1.8	2.9	60 - 140	63
	Surrogates	Dibromofluoromethane (Surrogate)	mg/kg	-	4.4	5	60 - 140	88
		d4-1,2-dichloroethane (Surrogate)	mg/kg	-	4.7	5	60 - 140	94
		d8-toluene (Surrogate)	mg/kg	-	4.8	5	60 - 140	97
		Bromofluorobenzene (Surrogate)	mg/kg	-	4.8	5	60 - 140	97

Volatile Petroleum Hydrocarbons in Soil

Method: ME-(AU)-[ENV]AN433

Sample Number		Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB110261.002		TRH C6-C10	mg/kg	25	<25	24.65	60 - 140	81
		TRH C6-C9	mg/kg	20	<20	23.2	60 - 140	74
	Surrogates	Dibromofluoromethane (Surrogate)	mg/kg	-	4.4	5	60 - 140	88
		d4-1,2-dichloroethane (Surrogate)	mg/kg	-	4.7	5	60 - 140	94
		d8-toluene (Surrogate)	mg/kg	-	4.8	5	60 - 140	97
		Bromofluorobenzene (Surrogate)	mg/kg	-	4.8	5	60 - 140	97
	VPH F Bands	TRH C6-C10 minus BTEX (F1)	mg/kg	25	<25	7.25	60 - 140	119

Matrix Spike (MS) results are evaluated as the percentage recovery of an expected result, typically the concentration of analyte spiked into a field sub -sample during the sample preparation stage. The original sample's result is subtracted from the sub-sample result before determining the percentage recovery. The criteria applied to the percentage recovery is established in the SGS QA/QC plan (ref: MP-(AU)-[ENV]QU-022). For more information refer to the footnotes in the concluding page of this report.

Recovery is shown in **Green** when within suggested criteria or **Red** with an appended reason identifer when outside suggested criteria. Refer to the footnotes section at the end of this report for failure reasons.

Mercury in Soil

Method: ME-(AU)-[ENV]AN312

QC Sample	Sample Number	Parameter	Units	LOR	Result	Original	Spike	Recovery%
SE157293.023	LB110461.004	Mercury	mg/kg	0.05	0.20	0.01773295227	0.2	91
SE157294.009	LB110462.004	Mercury	mg/kg	0.05	0.19	<0.05	0.2	86

OC Pesticides in Soil

Method: ME-(AU)-[ENV]AN400/AN420

QC Sample	Sample Number		Parameter	Units	LOR	Original	Spike	Recovery%
SE157294.002	LB110272.022		Hexachlorobenzene (HCB)	mg/kg	0.1	<0.1	-	-
			Alpha BHC	mg/kg	0.1	<0.1	-	-
			Lindane	mg/kg	0.1	<0.1	-	-
			Heptachlor	mg/kg	0.1	<0.1	0.2	107
			Aldrin	mg/kg	0.1	<0.1	0.2	102
			Beta BHC	mg/kg	0.1	<0.1	-	-
			Delta BHC	mg/kg	0.1	<0.1	0.2	109
			Heptachlor epoxide	mg/kg	0.1	<0.1	-	-
			o,p'-DDE	mg/kg	0.1	<0.1	-	-
			Alpha Endosulfan	mg/kg	0.2	<0.2	-	-
			Gamma Chlordane	mg/kg	0.1	<0.1	-	-
			Alpha Chlordane	mg/kg	0.1	<0.1	-	-
			trans-Nonachlor	mg/kg	0.1	<0.1	-	-
			p,p'-DDE	mg/kg	0.1	<0.1	-	-
			Dieldrin	mg/kg	0.2	<0.2	0.2	89
			Endrin	mg/kg	0.2	<0.2	0.2	107
			o,p'-DDD	mg/kg	0.1	<0.1	-	-
			o,p'-DDT	mg/kg	0.1	<0.1	-	-
			Beta Endosulfan	mg/kg	0.2	<0.2	-	-
			p,p'-DDD	mg/kg	0.1	<0.1	-	-
			p,p'-DDT	mg/kg	0.1	<0.1	0.2	90
			Endosulfan sulphate	mg/kg	0.1	<0.1	-	-
			Endrin Aldehyde	mg/kg	0.1	<0.1	-	-
			Methoxychlor	mg/kg	0.1	<0.1	-	-
			Endrin Ketone	mg/kg	0.1	<0.1	-	-
			Isodrin	mg/kg	0.1	<0.1	-	-
			Mirex	mg/kg	0.1	<0.1	-	-
		Surrogates	Tetrachloro-m-xylene (TCMX) (Surrogate)	mg/kg	-	0.13	-	93

OP Pesticides in Soil

Method: ME-(AU)-[ENV]AN400/AN420

QC Sample	Sample Number		Parameter	Units	LOR	Original	Spike	Recovery%
SE157294.002	LB110272.022		Dichlorvos	mg/kg	0.5	<0.5	2	95
			Dimethoate	mg/kg	0.5	<0.5	-	-
			Diazinon (Dimpylate)	mg/kg	0.5	<0.5	2	93
			Fenitrothion	mg/kg	0.2	<0.2	-	-
			Malathion	mg/kg	0.2	<0.2	-	-
			Chlorpyrifos (Chlorpyrifos Ethyl)	mg/kg	0.2	<0.2	2	88
			Parathion-ethyl (Parathion)	mg/kg	0.2	<0.2	-	-
			Bromophos Ethyl	mg/kg	0.2	<0.2	-	-
			Methidathion	mg/kg	0.5	<0.5	-	-
			Ethion	mg/kg	0.2	<0.2	2	116
			Azinphos-methyl (Guthion)	mg/kg	0.2	<0.2	-	-
		Surrogates	2-fluorobiphenyl (Surrogate)	mg/kg	-	0.4	-	84
			d14-p-terphenyl (Surrogate)	mg/kg	-	0.5	-	70

PAH (Polynuclear Aromatic Hydrocarbons) in Soil

Method: ME-(AU)-[ENV]AN420

QC Sample	Sample Number	Parameter	Units	LOR	Original	Spike	Recovery%
SE157294.002	LB110272.022	Naphthalene	mg/kg	0.1	<0.1	4	94
		2-methylnaphthalene	mg/kg	0.1	<0.1	-	-
		1-methylnaphthalene	mg/kg	0.1	<0.1	-	-
		Acenaphthylene	mg/kg	0.1	<0.1	4	106
		Acenaphthene	mg/kg	0.1	<0.1	4	91
		Fluorene	mg/kg	0.1	<0.1	-	-
		Phenanthrene	mg/kg	0.1	<0.1	4	90
		Anthracene	mg/kg	0.1	<0.1	4	98
		Fluoranthene	mg/kg	0.1	<0.1	4	97

Matrix Spike (MS) results are evaluated as the percentage recovery of an expected result, typically the concentration of analyte spiked into a field sub -sample during the sample preparation stage. The original sample's result is subtracted from the sub-sample result before determining the percentage recovery. The criteria applied to the percentage recovery is established in the SGS QA/QC plan (ref: MP-(AU)-[ENV]QU-022). For more information refer to the footnotes in the concluding page of this report.

Recovery is shown in **Green** when within suggested criteria or **Red** with an appended reason identifer when outside suggested criteria. Refer to the footnotes section at the end of this report for failure reasons.

PAH (Polynuclear Aromatic Hydrocarbons) in Soil (continued)

Method: ME-(AU)-[ENV]AN420

QC Sample	Sample Number		Parameter	Units	LOR	Original	Spike	Recovery%
SE157294.002	LB110272.022		Pyrene	mg/kg	0.1	<0.1	4	119
			Benzo(a)anthracene	mg/kg	0.1	<0.1	-	-
			Chrysene	mg/kg	0.1	<0.1	-	-
			Benzo(b&j)fluoranthene	mg/kg	0.1	<0.1	-	-
			Benzo(k)fluoranthene	mg/kg	0.1	<0.1	-	-
			Benzo(a)pyrene	mg/kg	0.1	<0.1	4	113
			Indeno(1,2,3-cd)pyrene	mg/kg	0.1	<0.1	-	-
			Dibenzo(ah)anthracene	mg/kg	0.1	<0.1	-	-
			Benzo(ghi)perylene	mg/kg	0.1	<0.1	-	-
			Carcinogenic PAHs, BaP TEQ <LOR=0	TEQ	0.2	<0.2	-	-
			Carcinogenic PAHs, BaP TEQ <LOR=LOR	TEQ (mg/kg)	0.3	<0.3	-	-
			Carcinogenic PAHs, BaP TEQ <LOR=LOR/2	TEQ (mg/kg)	0.2	<0.2	-	-
			Total PAH (18)	mg/kg	0.8	<0.8	-	-
		Surrogates	d5-nitrobenzene (Surrogate)	mg/kg	-	0.4	-	82
			2-fluorobiphenyl (Surrogate)	mg/kg	-	0.4	-	84
			d14-p-terphenyl (Surrogate)	mg/kg	-	0.5	-	70

Total Phenolics in Soil

Method: ME-(AU)-[ENV]AN289

QC Sample	Sample Number	Parameter	Units	LOR	Result	Original	Spike	Recovery%
SE157312.001	LB110514.017	Total Phenols	mg/kg	0.1	1.4	0.1	2.5	53 ④

Total Recoverable Metals in Soil/Waste Solids/Materials by ICPOES

Method: ME-(AU)-[ENV]AN040/AN320

QC Sample	Sample Number	Parameter	Units	LOR	Result	Original	Spike	Recovery%
SE157293.024	LB110411.004	Arsenic, As	mg/kg	3	39	1.72053033676	50	75
		Cadmium, Cd	mg/kg	0.3	40	0.13715611305	50	80
		Chromium, Cr	mg/kg	0.3	54	12.93059009631	50	82
		Copper, Cu	mg/kg	0.5	62	27.81392186731	50	69 ⑨
		Lead, Pb	mg/kg	1	46	7.79599446931	50	76
		Nickel, Ni	mg/kg	0.5	44	4.08109512315	50	80
		Zinc, Zn	mg/kg	0.5	54	11.7281612804[illegible]	50	85
SE157294.010	LB110412.004	Arsenic, As	mg/kg	3	53	12	50	82
		Cadmium, Cd	mg/kg	0.3	42	0.6	50	83
		Chromium, Cr	mg/kg	0.3	68	25	50	87
		Copper, Cu	mg/kg	0.5	66	28	50	75
		Lead, Pb	mg/kg	1	150	140	50	13 ⑨
		Nickel, Ni	mg/kg	0.5	59	18	50	81
		Zinc, Zn	mg/kg	0.5	380	470	50	-174 ⑨

TRH (Total Recoverable Hydrocarbons) in Soil

Method: ME-(AU)-[ENV]AN403

QC Sample	Sample Number		Parameter	Units	LOR	Original	Spike	Recovery%
SE157294.002	LB110272.022		TRH C10-C14	mg/kg	20	<20	40	113
			TRH C15-C28	mg/kg	45	<45	40	95
			TRH C29-C36	mg/kg	45	<45	40	103
			TRH C37-C40	mg/kg	100	<100	-	-
			TRH C10-C36 Total	mg/kg	110	<110	-	-
			TRH C10-C40 Total	mg/kg	210	<210	-	-
		TRH F Bands	TRH >C10-C16 (F2)	mg/kg	25	<25	40	110
			TRH >C10-C16 (F2) - Naphthalene	mg/kg	25	<25	-	-
			TRH >C16-C34 (F3)	mg/kg	90	<90	40	88
			TRH >C34-C40 (F4)	mg/kg	120	<120	-	-

VOC's in Soil

Method: ME-(AU)-[ENV]AN433

QC Sample	Sample Number		Parameter	Units	LOR	Result	Original	Spike	Recovery%
SE157294.002	LB110261.004	Monocyclic	Benzene	mg/kg	0.1	2.5	<0.1	2.9	87
		Aromatic	Toluene	mg/kg	0.1	2.2	<0.1	2.9	75
			Ethylbenzene	mg/kg	0.1	1.8	<0.1	2.9	63
			m/p-xylene	mg/kg	0.2	3.8	<0.2	5.8	65
			o-xylene	mg/kg	0.1	1.9	<0.1	2.9	64
		Polycyclic	Naphthalene	mg/kg	0.1	<0.1	<0.1	-	-
		Surrogates	Dibromofluoromethane (Surrogate)	mg/kg	-	5.8	4.4	-	115

Matrix Spike (MS) results are evaluated as the percentage recovery of an expected result, typically the concentration of analyte spiked into a field sub -sample during the sample preparation stage. The original sample's result is subtracted from the sub-sample result before determining the percentage recovery. The criteria applied to the percentage recovery is established in the SGS QA/QC plan (ref: MP-(AU)-[ENV]QU-022). For more information refer to the footnotes in the concluding page of this report.

Recovery is shown in **Green** when within suggested criteria or **Red** with an appended reason identifer when outside suggested criteria. Refer to the footnotes section at the end of this report for failure reasons.

VOC's in Soil (continued)

Method: ME-(AU)-[ENV]AN433

QC Sample	Sample Number		Parameter	Units	LOR	Result	Original	Spike	Recovery%
SE157294.002	LB110261.004	Surrogates	d4-1,2-dichloroethane (Surrogate)	mg/kg	-	5.5	4.7	-	111
			d8-toluene (Surrogate)	mg/kg	-	6.1	4.9	-	121
			Bromofluorobenzene (Surrogate)	mg/kg	-	4.8	4.9	-	95
		Totals	Total Xylenes*	mg/kg	0.3	5.7	<0.3	-	-
			Total BTEX	mg/kg	0.6	12	<0.6	-	-

Volatile Petroleum Hydrocarbons in Soil

Method: ME-(AU)-[ENV]AN433

QC Sample	Sample Number		Parameter	Units	LOR	Result	Original	Spike	Recovery%
SE157294.002	LB110261.004		TRH C6-C10	mg/kg	25	<25	<25	24.65	81
			TRH C6-C9	mg/kg	20	<20	<20	23.2	74
		Surrogates	Dibromofluoromethane (Surrogate)	mg/kg	-	5.8	4.4	-	115
			d4-1,2-dichloroethane (Surrogate)	mg/kg	-	5.5	4.7	-	111
			d8-toluene (Surrogate)	mg/kg	-	6.1	4.9	-	121
			Bromofluorobenzene (Surrogate)	mg/kg	-	4.8	4.9	-	95
		VPH F	Benzene (F0)	mg/kg	0.1	2.5	<0.1	-	-
		Bands	TRH C6-C10 minus BTEX (F1)	mg/kg	25	<25	<25	7.25	107

MATRIX SPIKE DUPLICATES

SE157294 R0

Matrix spike duplicates are calculated as Relative Percent Difference (RPD) using the formula: RPD = | OriginalResult - ReplicateResult | x 100 / Mean

The original result is the analyte concentration of the matrix spike. The Duplicate result is the analyte concentration of the matrix spike duplicate.

The RPD is evaluated against the Maximum Allowable Difference (MAD) criteria and can be graphically represented by a curve calculated from the Statistical Detection Limit (SDL) and Limiting Repeatability (LR) using the formula: MAD = 100 x SDL / Mean + LR

Where the Maximum Allowable Difference evaluates to a number larger than 200 it is displayed as 200.

RPD is shown in **Green** when within suggested criteria or **Red** with an appended reason identifer when outside suggested criteria. Refer to the footnotes section at the end of this report for failure reasons.

No matrix spike duplicates were required for this job.

Samples analysed as received.

Solid samples expressed on a dry weight basis.

QC criteria are subject to internal review according to the SGS QA/QC plan and may be provided on request or alternatively can be found here: http://www.sgs.com.au/~/media/Local/Australia/Documents/Technical Documents/MP-AU-ENV-QU-022 QA QC Plan.pdf

*	NATA accreditation does not cover tthe performance of this service.
-	Sample not analysed for this analyte.

IS	Insufficient sample for analysis.
LNR	Sample listed, but not received.
LOR	Limit of reporting.
QFH	QC result is above the upper tolerance.
QFL	QC result is below the lower tolerance.

①	At least 2 of 3 surrogates are within acceptance criteria.
②	RPD failed acceptance criteria due to sample heterogeneity.
③	Results less than 5 times LOR preclude acceptance criteria for RPD.
④	Recovery failed acceptance criteria due to matrix interference.
⑤	Recovery failed acceptance criteria due to the presence of significant concentration of analyte (i.e. the concentration of analyte exceeds the spike level).
⑥	LOR was raised due to sample matrix interference.
⑦	LOR was raised due to dilution of significantly high concentration of analyte in sample.
⑧	Reanalysis of sample in duplicate confirmed sample heterogeneity and inconsistency of results.
⑨	Recovery failed acceptance criteria due to sample heterogeneity.
⑩	LOR was raised due to high conductivity of the sample (required dilution).
†	Refer to Analytical Report comments for further information.

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Any other holder of this document is advised that information contained herein reflects the Company's findings at the time of its intervention only and within the limits of Client's instructions, if any. The Company's sole responsibility is to its Client and this document does not exonerate parties to a transaction from exercising all their rights and obligations under the transaction documents.

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source: M630_SR_20160923091055.pdf page: 1 SGS Ref: SE157400_COC

Asbestos Air Monitoring Field Sheet

SMEC Australia Pty Ltd
ABN 47 065475 149
Suite 2, level 1, 243 Northbourne Avenue, Lyneham 2602
02 6234 1900
Email: Mechelle.Swanepoel@smec.com

NOHSC: 3003(2005)			
Report Number:	Day 10	**Date:**	21/9/16
Client:	LDA		
Site Address:	Canberra Brickworks		
Purpose of Test:	Asbestos Air Monitoring		
General Test Area:	M8 start, M7 finish		
Rotameter ID:	M474840		
Timer ID:	Casio G Shock		

Sample #	Pump #	S / P *	Location	Flow Start	Time On	Flow Stop	Time Off
19612019	120947	P	M8 start, M7 finish	2	8:20am	2	4:20pm

SGS EHS Alexandria Laboratory

SE157400 COC
Received: 23 – Sep – 2016

Note: * Static (control) or Personal (exposure) sampling.

Additional Notes:

Slight breeze, rain all day.

24 HR TAT PLEASE

Sampled by:	Ryan O'Leary	D. Dubey	22/09/16 @ 5:00
Signature:			
Date:	21 / 9 / 2016		

SAMPLE RECEIPT ADVICE

SE157400

CLIENT DETAILS

Contact	Mechelle Swanepoel
Client	SMEC AUSTRALIA PTY LTD
Address	Sun Micro Building Suite 2, Level 1 243 Northbourne Avenue ACT 2602
Telephone	02 6234 1900
Facsimile	02 6234 1966
Email	mechelle.swanepoel@smec.com
Project	**M474840 CBR Brickwork M8 Start M7 End**
Order Number	(Not specified)
Samples	1

LABORATORY DETAILS

Manager	Huong Crawford
Laboratory	SGS Alexandria Environmental
Address	Unit 16, 33 Maddox St Alexandria NSW 2015
Telephone	+61 2 8594 0400
Facsimile	+61 2 8594 0499
Email	au.environmental.sydney@sgs.com
Samples Received	Thu 22/9/2016
Report Due	Fri 23/9/2016
SGS Reference	**SE157400**

SUBMISSION DETAILS

This is to confirm that 1 sample was received on Thursday 22/9/2016. Results are expected to be ready by Friday 23/9/2016. Please quote SGS reference SE157400 when making enquiries. Refer below for details relating to sample integrity upon receipt.

Sample counts by matrix	1 Filter	Type of documentation received	COC
Date documentation received	22/9/2016	Samples received in good order	Yes
Samples received without headspace	N/A	Sample temperature upon receipt	18.5°C
Sample container provider	Client	Turnaround time requested	Next Day
Samples received in correct containers	Yes	Sufficient sample for analysis	Yes
Sample cooling method	None	Samples clearly labelled	Yes
Complete documentation received	Yes	Number of eskies/boxes received	

Unless otherwise instructed, water and bulk samples will be held for one month from date of report, and soil samples will be held for two months.

COMMENTS

To the extent not inconsistent with the other provisions of this document and unless specifically agreed otherwise in writing by SGS, all SGS services are rendered in accordance with the applicable SGS General Conditions of Service accessible at http://www.sgs.com/en/terms-and-conditions as at the date of this document. Attention is drawn to the limitations of liability and to the clauses of indemnification.

SAMPLE RECEIPT ADVICE

SE157400

CLIENT DETAILS

Client SMEC AUSTRALIA PTY LTD

Project M474840 CBR Brickwork M8 Start M7 End

SUMMARY OF ANALYSIS

No.	Sample ID	Airborne Fibre Monitoring
001	19612019	2

The above table represents SGS' interpretation of the client-supplied Chain Of Custody document.
The numbers shown in the table indicate the number of results requested in each package.
Please indicate as soon as possible should your request differ from these details .
Testing as per this table shall commence immediately unless the client intervenes with a correction .

ANALYTICAL REPORT

Accreditation No. 2562

CLIENT DETAILS

Contact	Mechelle Swanepoel
Client	SMEC AUSTRALIA PTY LTD
Address	Sun Micro Building Suite 2, Level 1 243 Northbourne Avenue ACT 2602
Telephone	02 6234 1900
Facsimile	02 6234 1966
Email	mechelle.swanepoel@smec.com
Project	**M474840 CBR Brickwork M8 Start M7 End**
Order Number	(Not specified)
Samples	1

LABORATORY DETAILS

Manager	Huong Crawford
Laboratory	SGS Alexandria Environmental
Address	Unit 16, 33 Maddox St Alexandria NSW 2015
Telephone	+61 2 8594 0400
Facsimile	+61 2 8594 0499
Email	au.environmental.sydney@sgs.com
SGS Reference	**SE157400 R0**
Date Received	22 Sep 2016
Date Reported	23/09/2016 10:47:11AM

COMMENTS

Accredited for compliance with ISO/IEC 17025. NATA accredited laboratory 2562(4354).

The reporting of Fibres/mL may only be done when volume measurements are conducted by a NATA accredited body. Where this report contains both Fibres/Field and a typical K factor which are NATA endorsed, these may be converted to Fibres/mL using this and your volume readings. Where sampling has been performed by SGS Environmental Services, or by a company that holds accreditation for air sampling volume measurement, results are reported as fibres/mL.

Air volume measurement was performed by Ryan O'Leary of SMEC Australia Pty. Ltd. have has been formally trained and assessed by SGS Alexandria who remain responsible for the data.

Asbestos analysed by Approved Counter Ravee Sivasubramaniam.

SIGNATORIES

S. Ravee Sivasubramaniam
Hygiene Team Leader

ANALYTICAL REPORT

SE157400 R0

RESULTS

Method AN601 Airborne Fibre Monitoring

Laboratory Reference	Client Reference and Description	Date Sampled	Fibres/Fields	Concentration Fibres/mL
SE157400.001	19612019 Cowl	21 Sep 2016	<1.0 Fibres/100 fields	<0.01

METHOD SUMMARY

SE157400 R0

METHOD	METHODOLOGY SUMMARY
AN601	Airborne asbestos dust and synthetic mineral fibres (SMF) based on the NOHSC (April 2005) guidance note on the membrane filter method NOHSC:3003 (2005) exclusive of sampling. The sample is collected by drawing a volume of air through a membrane filter. The filter is then mounted on a glass slide and the fibres counted according to the specified criteria using phase contrast microscopy.

FOOTNOTES

IS	Insufficient sample for analysis.	LOR	Limit of Reporting
LNR	Sample listed, but not received.	QFH	QC result is above the upper tolerance
*	NATA accreditation does not cover the performance of this service.	QFL	QC result is below the lower tolerance
**	Indicative data, theoretical holding time exceeded.	NA	The sample was not analysed for this analyte

Limit of Reporting (LOR) for Fibre Counting by NOHSC:3003 is 0.01 Fibres per millilitre (Fibres/mL)
Concentration Fibres/mL only covered by the scope of accreditation if sampling performed by SGS .

The QC criteria are subject to internal review according to the SGS QAQC plan and may be provided on request or at this link : http://www.sgs.com.au/~/media/Local/Australia/Documents/Technical%20Documents/MP-AU-ENV-QU-022%20QA%20QC%20Plan.pdf

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Asbestos Air Monitoring Field Sheet

SMEC Australia Pty Ltd
ABN 47 065475 149
Suite 2, level 1, 243 Northbourne Avenue, Lyneham 2602
02 6234 1900
Email: Mechelle.Swanepoel@smec.com

NOHSC: 3003(2005)			
Report Number:	Day 10	**Date:**	22/9/16
Client:	LDA		
Site Address:	CBR BRICKWORKS		
Purpose of Test:	Asbestos Air Monitoring		
General Test Area:	Start at M7, then M6, end at M1		
Rotameter ID:	M474840		
Timer ID:	Casio & Shock		

Sample #	Pump #	S / P *	Location	Flow Start	Time On	Flow Stop	Time Off
19137297	120947	P	Start at M7, then M4, end at M1	2	8:30am	2	5:00pm

SGS EHS Alexandria Laboratory
SE157451 COC
Received: 26 – Sep – 2016

Note: * Static (control) or Personal (exposure) sampling.

Additional Notes:

No wind all day.

24 HR TAT Please

Sampled by:	RYAN O'LEARY
Signature:	
Date:	22 / 9 / 2016

26/09/16 @ 8:2

SAMPLE RECEIPT ADVICE

SE157451

CLIENT DETAILS

Contact	Mechelle Swanepoel
Client	SMEC AUSTRALIA PTY LTD
Address	Sun Micro Building Suite 2, Level 1 243 Northbourne Avenue ACT 2602
Telephone	02 6234 1900
Facsimile	02 6234 1966
Email	mechelle.swanepoel@smec.com
Project	**M474840 CBR Brkwrk M7 Start, M4, M1 End**
Order Number	(Not specified)
Samples	1

LABORATORY DETAILS

Manager	Huong Crawford
Laboratory	SGS Alexandria Environmental
Address	Unit 16, 33 Maddox St Alexandria NSW 2015
Telephone	+61 2 8594 0400
Facsimile	+61 2 8594 0499
Email	au.environmental.sydney@sgs.com
Samples Received	Mon 26/9/2016
Report Due	Mon 26/9/2016
SGS Reference	**SE157451**

SUBMISSION DETAILS

This is to confirm that 1 sample was received on Monday 26/9/2016. Results are expected to be ready by Monday 26/9/2016. Please quote SGS reference SE157451 when making enquiries. Refer below for details relating to sample integrity upon receipt.

Sample counts by matrix	1 Filter	Type of documentation received	COC
Date documentation received	26/9/2016	Samples received in good order	Yes
Samples received without headspace	N/A	Sample temperature upon receipt	18.5°C
Sample container provider	Client	Turnaround time requested	Next Day
Samples received in correct containers	Yes	Sufficient sample for analysis	Yes
Sample cooling method	19.5°C	Samples clearly labelled	Yes
Complete documentation received	Yes	Number of eskies/boxes received	

Unless otherwise instructed, water and bulk samples will be held for one month from date of report, and soil samples will be held for two months.

COMMENTS

To the extent not inconsistent with the other provisions of this document and unless specifically agreed otherwise in writing by SGS, all SGS services are rendered in accordance with the applicable SGS General Conditions of Service accessible at http://www.sgs.com/en/terms-and-conditions as at the date of this document. Attention is drawn to the limitations of liability and to the clauses of indemnification.

SAMPLE RECEIPT ADVICE

SE157451

CLIENT DETAILS

Client SMEC AUSTRALIA PTY LTD

Project M474840 CBR Brkwrk M7 Start, M4, M1 End

SUMMARY OF ANALYSIS

No.	Sample ID	Airborne Fibre Monitoring
001	19137297	2

The above table represents SGS' interpretation of the client-supplied Chain Of Custody document.
The numbers shown in the table indicate the number of results requested in each package.
Please indicate as soon as possible should your request differ from these details .
Testing as per this table shall commence immediately unless the client intervenes with a correction .

ANALYTICAL REPORT

Accreditation No. 2562

CLIENT DETAILS

Contact	Mechelle Swanepoel
Client	SMEC AUSTRALIA PTY LTD
Address	Sun Micro Building Suite 2, Level 1 243 Northbourne Avenue ACT 2602
Telephone	02 6234 1900
Facsimile	02 6234 1966
Email	mechelle.swanepoel@smec.com
Project	**M474840 CBR Brkwrk M7 Start, M4, M1 End**
Order Number	(Not specified)
Samples	1

LABORATORY DETAILS

Manager	Huong Crawford
Laboratory	SGS Alexandria Environmental
Address	Unit 16, 33 Maddox St Alexandria NSW 2015
Telephone	+61 2 8594 0400
Facsimile	+61 2 8594 0499
Email	au.environmental.sydney@sgs.com
SGS Reference	**SE157451 R0**
Date Received	26 Sep 2016
Date Reported	26/09/2016 2:04:43PM

COMMENTS

Accredited for compliance with ISO/IEC 17025. NATA accredited laboratory 2562(4354).

The reporting of Fibres/mL may only be done when volume measurements are conducted by a NATA accredited body. Where this report contains both Fibres/Field and a typical K factor which are NATA endorsed, these may be converted to Fibres/mL using this and your volume readings. Where sampling has been performed by SGS Environmental Services, or by a company that holds accreditation for air sampling volume measurement, results are reported as fibres/mL.

Air volume measurement was performed by Ryan O'Leary of SMEC Australia Pty. Ltd. have has been formally trained and assessed by SGS Alexandria who remain responsible for the data.
Asbestos analysed by Approved Counter Ravee Sivasubramaniam.

SIGNATORIES

Ravee Sivasubramaniam
Hygiene Team Leader

ANALYTICAL REPORT

RESULTS

Method AN601 Airborne Fibre Monitoring

Laboratory Reference	Client Reference and Description	Date Sampled	Fibres/Fields	Concentration Fibres/mL
SE157451.001	19137297 Cowl	22 Sep 2016	<1.0 Fibres/100 fields	<0.01

METHOD SUMMARY

SE157451 R0

METHOD	METHODOLOGY SUMMARY
AN601	Airborne asbestos dust and synthetic mineral fibres (SMF) based on the NOHSC (April 2005) guidance note on the membrane filter method NOHSC:3003 (2005) exclusive of sampling. The sample is collected by drawing a volume of air through a membrane filter. The filter is then mounted on a glass slide and the fibres counted according to the specified criteria using phase contrast microscopy.

FOOTNOTES

IS	Insufficient sample for analysis.	LOR	Limit of Reporting
LNR	Sample listed, but not received.	QFH	QC result is above the upper tolerance
*	NATA accreditation does not cover the performance of this service.	QFL	QC result is below the lower tolerance
**	Indicative data, theoretical holding time exceeded.	NA	The sample was not analysed for this analyte

Limit of Reporting (LOR) for Fibre Counting by NOHSC:3003 is 0.01 Fibres per millilitre (Fibres/mL)
Concentration Fibres/mL only covered by the scope of accreditation if sampling performed by SGS .

The QC criteria are subject to internal review according to the SGS QAQC plan and may be provided on request or at this link : http://www.sgs.com.au/~/media/Local/Australia/Documents/Technical%20Documents/MP-AU-ENV-QU-022%20QA%20QC%20Plan.pdf

This document is issued, on the Client's behalf, by the Company under its General Conditions of Service available on request and accessible at http://www.sgs.com/en/terms-and-conditions. The Client's attention is drawn to the limitation of liability, indemnification and jurisdiction issues defined therein.

Any other holder of this document is advised that information contained hereon reflects the Company's findings at the time of its intervention only and within the limits of Client's instructions, if any. The Company's sole responsibility is to its Client and this document does not exonerate parties to a transaction from exercising all their rights and obligations under the transaction documents.

This test report shall not be reproduced, except in full.

source: M630_SR_20160928105238.pdf page: 1 SGS Ref: SE157545_COC

E-MAILED
27/9/16 @ T: 09

SGS

CHAIN OF CUSTODY & ANALYSIS REQUEST

SGS Environmental Services
Unit 16, 33 Maddox Street
Alexandria NSW 2015
Telephone No: (02) 85940400
Facsimile No: (02) 85940499
Email: au.samplereceipt.sydney@sgs.com

Company Name:	SMEC	Project Name/No:	3002523 – Canberra Brickworks
Address:	Suite 2, Level 1, 243 Northbourne Avenue, Lyneham,	Purchase Order No:	
	ACT, 2602, Australia	Results Required By:	Ryan O'Leary
		Telephone:	+61 2 6234 1963 / 0400 240 023
Contact Name:	Ryan O'Leary	Facsimile:	
		Email Results:	Ryan.O'Leary@smec.com

Client Sample ID	Date Sampled	Lab Sample ID	WATER	SOIL		NO OF CONTAINERS	Asbestos ID	BTEXN	OPPs	OCPs	PHAs/Phenols	8 Metals - As, Cd, Cr, Cu, Ni, Pb, Zn, Hg	TPH/TRH	On Hold								Comment
M7_0.2-0.3	22/9/2016	1		✓		Jar & Bag	√	√	√	√	√	√	√									
M7_0.9-1.0	22/9/2016			✓		Jar								√								
M8_0.2-0.3	22/9/2016	2		✓		Jar & bag	√															
M8_0.7-0.8	22/9/2016	3		✓		Jar		√	√	√	√	√	√									
M8_1.1-1.2	22/9/2016			✓		Jar								√								
M8_1.6-1.7	22/9/2016			✓		Jar								√								
M8_2.2-2.3	22/9/2016			✓		Jar								√								
M8_4.2-4.3	22/9/2016			✓		Jar								√								
HA/GB1_0.15-0.25	22/9/2016	4		✓		Jar		√	√	√	√	√	√									
W1	22/9/2016	5		✓		Jar & bag	√	√	√	√	√	√	√									

SGS EHS Alexandria Laboratory

SE157545 COC
Received: 23 – Sep – 2016

Relinquished By: Ryan O'Leary	Date/Time: 22/9/2016 16:00	Received By:	Date/Time 23/09/16 @ 10:50
Relinquished By:	Date/Time:	Received By:	Date/Time
Samples Intact: Yes/ No	Temperature: Ambient / Chilled	Sample Cooler Sealed: Yes/ No	Laboratory Quotation No:
	Comments: AS PER SGS QUOTE NUMBER SY1 – 60413 – 2-IS DATED 13TH APRIL 2016	**STANDARD TAT PLEASE (5 DAY)**	

SGS

CHAIN OF CUSTODY & ANALYSIS REQUEST

SGS Environmental Services
Unit 16, 33 Maddox Street
Alexandria NSW 2015
Telephone No: (02) 85940400
Facsimile No: (02) 85940499
Email: au.samplereceipt.sydney@sgs.com

Company Name:	SMEC	Project Name/No:	3002523 – Canberra Brickworks
Address:	Suite 2, Level 1, 243 Northbourne Avenue, Lyneham, ACT, 2602, Australia	Purchase Order No:	
		Results Required By:	Ryan O'Leary
		Telephone:	+61 2 6234 1963 / 0400 240 023
Contact Name:	Ryan O'Leary	Facsimile:	
		Email Results:	Ryan.O'Leary@smec.com

Client Sample ID	Date Sampled	Lab Sample ID	WATER	SOIL		NO OF CONTAINERS	Asbestos ID	BTEXN	OPPs	OCPs	PAHs/Phenols	8H Metals - As, Cd, Cr, Cu, Ni, Pb, Zn, Hg	TPH/TRH	On Hold	PAH							Comment
W2	22/9/2016	6		✓		Jar & bag	√	√	√	√	√	√	√									
W3	22/9/2016	7		✓		Jar & bag	√	√	√	√	√	√	√									
W1	22/9/2016	8	✓			Bottles		√	√	√	√	√	√									
W2	22/9/2016	9	✓			Bottles		√	√	√	√	√	√									
W3	22/9/2016	10	✓			Bottles		√	√	√	√	√	√									
QC 18 (Trip Blank)	22/9/2016	11				Vial							√		√							
QC 19 (Trip Spike)	22/9/2016	12				Vial							√		√							

Relinquished By: Ryan O'Leary	Date/Time: 22/9/2016 16:00	Received By:	Date/Time 23/09/16 @ 10:50
Relinquished By:	Date/Time:	Received By:	Date/Time
Samples Intact: Yes/ No	Temperature: Ambient / Chilled	Sample Cooler Sealed: Yes/ No	Laboratory Quotation No:
	Comments: AS PER SGS QUOTE NUMBER SY1 – 60413 – 2-IS DATED 13TH APRIL 2016	**STANDARD TAT PLEASE (5 DAY)**	

SAMPLE RECEIPT ADVICE

SE157545

CLIENT DETAILS

Contact	Ryan O'Leary
Client	SMEC AUSTRALIA PTY LTD
Address	Sun Micro Building Suite 2, Level 1 243 Northbourne Avenue ACT 2602
Telephone	02 6234 1963
Facsimile	02 6234 1966
Email	Ryan.O'Leary@smec.com
Project	**3002523 - Canberra Brickworks**
Order Number	**SY1-60413-2-IS**
Samples	12

LABORATORY DETAILS

Manager	Huong Crawford
Laboratory	SGS Alexandria Environmental
Address	Unit 16, 33 Maddox St Alexandria NSW 2015
Telephone	+61 2 8594 0400
Facsimile	+61 2 8594 0499
Email	au.environmental.sydney@sgs.com
Samples Received	Fri 23/9/2016
Report Due	Wed 5/10/2016
SGS Reference	**SE157545**

SUBMISSION DETAILS

This is to confirm that 12 samples were received on Friday 23/9/2016. Results are expected to be ready by Wednesday 5/10/2016. Please quote SGS reference SE157545 when making enquiries. Refer below for details relating to sample integrity upon receipt.

Sample counts by matrix	9 Soil, 3 Water	Type of documentation received	COC
Date documentation received	27/9/16@5:09pm	Samples received in good order	Yes
Samples received without headspace	Yes	Sample temperature upon receipt	8.3°C
Sample container provider	SGS	Turnaround time requested	Standard
Samples received in correct containers	Yes	Sufficient sample for analysis	Yes
Sample cooling method	Ice Bricks	Samples clearly labelled	Yes
Complete documentation received	Yes	Number of eskies/boxes received	

Unless otherwise instructed, water and bulk samples will be held for one month from date of report, and soil samples will be held for two months.

COMMENTS

COC received at 27/9/16 @ 5:09pm. Request was not registered until the next business day.
5 soil samples have been placed on hold.
For W3, 125mL H2SO4 P/B was not received. Total Phenols will not be analysed.
One vial received broken for W2.
Trip Blank and Spike will only be analyzed for TRH/BTEX and BTEX respectively.

To the extent not inconsistent with the other provisions of this document and unless specifically agreed otherwise in writing by SGS, all SGS services are rendered in accordance with the applicable SGS General Conditions of Service accessible at http://www.sgs.com/en/terms-and-conditions as at the date of this document. Attention is drawn to the limitations of liability and to the clauses of indemnification.

SAMPLE RECEIPT ADVICE

SE157545

CLIENT DETAILS

Client SMEC AUSTRALIA PTY LTD

Project 3002523 - Canberra Brickworks

SUMMARY OF ANALYSIS

No.	Sample ID	OC Pesticides in Soil	OP Pesticides in Soil	PAH (Polynuclear Aromatic Hydrocarbons) in Soil	Total Phenolics in Soil	Total Recoverable Metals in Soil/Waste	TRH (Total Recoverable Hydrocarbons) in Soil	VOC's in Soil	Volatile Petroleum Hydrocarbons in Soil
001	M7_0.2-0.3	28	13	26	1	7	10	12	8
003	M8_0.7-0.8	28	13	26	1	7	10	12	8
004	HA/GB1_0.15-0.25	28	13	26	1	7	10	12	8
005	W1	28	13	26	1	7	10	12	8
006	W2	28	13	26	1	7	10	12	8
007	W3	28	13	26	1	7	10	12	8
011	QC18 (Trip Blank)	-	-	-	-	-	10	12	8
012	QC19 (Trip Spike)	-	-	-	-	-	-	12	-

CONTINUED OVERLEAF

The above table represents SGS' interpretation of the client-supplied Chain Of Custody document.
The numbers shown in the table indicate the number of results requested in each package.
Please indicate as soon as possible should your request differ from these details .
Testing as per this table shall commence immediately unless the client intervenes with a correction .

SAMPLE RECEIPT ADVICE

SE157545

CLIENT DETAILS

Client SMEC AUSTRALIA PTY LTD

Project 3002523 - Canberra Brickworks

SUMMARY OF ANALYSIS

No.	Sample ID	Fibre Identification in soil	Mercury in Soil	Moisture Content	VOCs in Water	Volatile Petroleum Hydrocarbons in Water
001	M7_0.2-0.3	2	1	1	-	-
002	M8_0.2-0.3	2	-	-	-	-
003	M8_0.7-0.8	-	1	1	-	-
004	HA/GB1_0.15-0.25	-	1	1	-	-
005	W1	2	1	1	-	-
006	W2	2	1	1	-	-
007	W3	2	1	1	-	-
008	W1	-	-	-	12	8
009	W2	-	-	-	12	8
010	W3	-	-	-	12	8
011	QC18 (Trip Blank)	-	-	1	-	-

CONTINUED OVERLEAF

The above table represents SGS' interpretation of the client-supplied Chain Of Custody document.
The numbers shown in the table indicate the number of results requested in each package.
Please indicate as soon as possible should your request differ from these details .
Testing as per this table shall commence immediately unless the client intervenes with a correction .

SAMPLE RECEIPT ADVICE

SE157545

CLIENT DETAILS

Client SMEC AUSTRALIA PTY LTD

Project 3002523 - Canberra Brickworks

SUMMARY OF ANALYSIS

No.	Sample ID	Mercury (dissolved) in Water	OC Pesticides in Water	OP Pesticides in Water	PAH (Polynuclear Aromatic Hydrocarbons) in Water	Total Phenolics in Water	Trace Metals (Dissolved) in Water by ICPMS	TRH (Total Recoverable Hydrocarbons) in Water
008	W1	1	28	13	22	1	7	9
009	W2	1	28	13	22	1	7	9
010	W3	1	28	13	22	-	7	9

The above table represents SGS' interpretation of the client-supplied Chain Of Custody document.
The numbers shown in the table indicate the number of results requested in each package.
Please indicate as soon as possible should your request differ from these details .
Testing as per this table shall commence immediately unless the client intervenes with a correction .

ANALYTICAL REPORT

Accreditation No. 2562

CLIENT DETAILS

Contact	Ryan O'Leary
Client	SMEC AUSTRALIA PTY LTD
Address	Sun Micro Building Suite 2, Level 1 243 Northbourne Avenue ACT 2602
Telephone	02 6234 1963
Facsimile	02 6234 1966
Email	Ryan.O'Leary@smec.com
Project	**3002523 - Canberra Brickworks**
Order Number	**SY1-60413-2-IS**
Samples	12

LABORATORY DETAILS

Manager	Huong Crawford
Laboratory	SGS Alexandria Environmental
Address	Unit 16, 33 Maddox St Alexandria NSW 2015
Telephone	+61 2 8594 0400
Facsimile	+61 2 8594 0499
Email	au.environmental.sydney@sgs.com
SGS Reference	**SE157545 R0**
Date Received	23/9/2016
Date Reported	11/10/2016

COMMENTS

Accredited for compliance with ISO/IEC 17025. NATA accredited laboratory 2562(4354).

No respirable fibres detected in all soil samples using trace analysis technique.

Asbestos analysed by Approved Identifier Ravee Sivasubramaniam .

SIGNATORIES

Andy Sutton
Senior Organic Chemist

Bennet Lo
Senior Organic Chemist/Metals Chemist

Dong Liang
Metals/Inorganics Team Leader

Kamrul Ahsan
Senior Chemist

Ly Kim Ha
Organic Section Head

Ravee Sivasubramaniam
Hygiene Team Leader

VOC's in Soil [AN433] Tested: 29/9/2016

PARAMETER	UOM	LOR	M7_0.2-0.3 SOIL - 22/9/2016 SE157545.001	M8_0.7-0.8 SOIL - 22/9/2016 SE157545.003	HA/GB1_0.15-0.25 SOIL - 22/9/2016 SE157545.004	W1 SOIL - 22/9/2016 SE157545.005	W2 SOIL - 22/9/2016 SE157545.006
Benzene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Toluene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Ethylbenzene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
m/p-xylene	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
o-xylene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Total Xylenes*	mg/kg	0.3	<0.3	<0.3	<0.3	<0.3	<0.3
Total BTEX	mg/kg	0.6	<0.6	<0.6	<0.6	<0.6	<0.6
Naphthalene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1

PARAMETER	UOM	LOR	W3 SOIL - 22/9/2016 SE157545.007	QC18 (Trip Blank) SOIL - 22/9/2016 SE157545.011	QC19 (Trip Spike) SOIL - 22/9/2016 SE157545.012
Benzene	mg/kg	0.1	<0.1	<0.1	[79%]
Toluene	mg/kg	0.1	<0.1	<0.1	[80%]
Ethylbenzene	mg/kg	0.1	<0.1	<0.1	[93%]
m/p-xylene	mg/kg	0.2	<0.2	<0.2	[84%]
o-xylene	mg/kg	0.1	<0.1	<0.1	[98%]
Total Xylenes*	mg/kg	0.3	<0.3	<0.3	-
Total BTEX	mg/kg	0.6	<0.6	<0.6	-
Naphthalene	mg/kg	0.1	<0.1	<0.1	-

Volatile Petroleum Hydrocarbons in Soil [AN433] Tested: 29/9/2016

PARAMETER	UOM	LOR	M7_0.2-0.3 SOIL - 22/9/2016 SE157545.001	M8_0.7-0.8 SOIL - 22/9/2016 SE157545.003	HA/GB1_0.15-0.25 SOIL - 22/9/2016 SE157545.004	W1 SOIL - 22/9/2016 SE157545.005	W2 SOIL - 22/9/2016 SE157545.006
TRH C6-C9	mg/kg	20	<20	<20	<20	<20	<20
Benzene (F0)	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
TRH C6-C10	mg/kg	25	<25	<25	<25	<25	<25
TRH C6-C10 minus BTEX (F1)	mg/kg	25	<25	<25	<25	<25	<25

PARAMETER	UOM	LOR	W3 SOIL - 22/9/2016 SE157545.007	QC18 (Trip Blank) SOIL - 22/9/2016 SE157545.011
TRH C6-C9	mg/kg	20	<20	<20
Benzene (F0)	mg/kg	0.1	<0.1	<0.1
TRH C6-C10	mg/kg	25	<25	<25
TRH C6-C10 minus BTEX (F1)	mg/kg	25	<25	<25

TRH (Total Recoverable Hydrocarbons) in Soil [AN403] Tested: 29/9/2016

PARAMETER	UOM	LOR	M7_0.2-0.3 SOIL - 22/9/2016 SE157545.001	M8_0.7-0.8 SOIL - 22/9/2016 SE157545.003	HA/GB1_0.15-0.25 SOIL - 22/9/2016 SE157545.004	W1 SOIL - 22/9/2016 SE157545.005	W2 SOIL - 22/9/2016 SE157545.006
TRH C10-C14	mg/kg	20	<20	<20	<20	<20	<20
TRH C15-C28	mg/kg	45	<45	<45	<45	<45	<45
TRH C29-C36	mg/kg	45	<45	<45	<45	<45	<45
TRH C37-C40	mg/kg	100	<100	<100	<100	<100	<100
TRH >C10-C16 (F2)	mg/kg	25	<25	<25	<25	<25	<25
TRH >C10-C16 (F2) - Naphthalene	mg/kg	25	<25	<25	<25	<25	<25
TRH >C16-C34 (F3)	mg/kg	90	<90	<90	<90	<90	<90
TRH >C34-C40 (F4)	mg/kg	120	<120	<120	<120	<120	<120
TRH C10-C36 Total	mg/kg	110	<110	<110	<110	<110	<110
TRH C10-C40 Total	mg/kg	210	<210	<210	<210	<210	<210

PARAMETER	UOM	LOR	W3 SOIL - 22/9/2016 SE157545.007	QC18 (Trip Blank) SOIL - 22/9/2016 SE157545.011
TRH C10-C14	mg/kg	20	<20	<20
TRH C15-C28	mg/kg	45	<45	<45
TRH C29-C36	mg/kg	45	<45	<45
TRH C37-C40	mg/kg	100	<100	<100
TRH >C10-C16 (F2)	mg/kg	25	<25	<25
TRH >C10-C16 (F2) - Naphthalene	mg/kg	25	<25	<25
TRH >C16-C34 (F3)	mg/kg	90	<90	<90
TRH >C34-C40 (F4)	mg/kg	120	<120	<120
TRH C10-C36 Total	mg/kg	110	<110	<110
TRH C10-C40 Total	mg/kg	210	<210	<210

PAH (Polynuclear Aromatic Hydrocarbons) in Soil [AN420] Tested: 29/9/2016

PARAMETER	UOM	LOR	M7_0.2-0.3 SOIL - 22/9/2016 SE157545.001	M8_0.7-0.8 SOIL - 22/9/2016 SE157545.003	HA/GB1_0.15-0.25 SOIL - 22/9/2016 SE157545.004	W1 SOIL - 22/9/2016 SE157545.005	W2 SOIL - 22/9/2016 SE157545.006
Naphthalene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
2-methylnaphthalene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
1-methylnaphthalene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Acenaphthylene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Acenaphthene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Fluorene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Phenanthrene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Anthracene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Fluoranthene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Pyrene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(a)anthracene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Chrysene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(b&j)fluoranthene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(k)fluoranthene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(a)pyrene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Indeno(1,2,3-cd)pyrene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Dibenzo(ah)anthracene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(ghi)perylene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Carcinogenic PAHs, BaP TEQ <LOR=0	TEQ	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Carcinogenic PAHs, BaP TEQ <LOR=LOR	TEQ (mg/kg)	0.3	<0.3	<0.3	<0.3	<0.3	<0.3
Carcinogenic PAHs, BaP TEQ <LOR=LOR/2	TEQ (mg/kg)	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Total PAH (18)	mg/kg	0.8	<0.8	<0.8	<0.8	<0.8	<0.8
Total PAH (NEPM/WHO 16)	mg/kg	0.8	<0.8	<0.8	<0.8	<0.8	<0.8

PARAMETER	UOM	LOR	W3 SOIL - 22/9/2016 SE157545.007
Naphthalene	mg/kg	0.1	<0.1
2-methylnaphthalene	mg/kg	0.1	<0.1
1-methylnaphthalene	mg/kg	0.1	<0.1
Acenaphthylene	mg/kg	0.1	<0.1
Acenaphthene	mg/kg	0.1	<0.1
Fluorene	mg/kg	0.1	<0.1
Phenanthrene	mg/kg	0.1	<0.1
Anthracene	mg/kg	0.1	<0.1
Fluoranthene	mg/kg	0.1	<0.1
Pyrene	mg/kg	0.1	<0.1
Benzo(a)anthracene	mg/kg	0.1	<0.1
Chrysene	mg/kg	0.1	<0.1
Benzo(b&j)fluoranthene	mg/kg	0.1	<0.1
Benzo(k)fluoranthene	mg/kg	0.1	<0.1
Benzo(a)pyrene	mg/kg	0.1	<0.1
Indeno(1,2,3-cd)pyrene	mg/kg	0.1	<0.1
Dibenzo(ah)anthracene	mg/kg	0.1	<0.1
Benzo(ghi)perylene	mg/kg	0.1	<0.1
Carcinogenic PAHs, BaP TEQ <LOR=0	TEQ	0.2	<0.2
Carcinogenic PAHs, BaP TEQ <LOR=LOR	TEQ (mg/kg)	0.3	<0.3
Carcinogenic PAHs, BaP TEQ <LOR=LOR/2	TEQ (mg/kg)	0.2	<0.2
Total PAH (18)	mg/kg	0.8	<0.8
Total PAH (NEPM/WHO 16)	mg/kg	0.8	<0.8

OC Pesticides in Soil [AN400/AN420] Tested: 29/9/2016

PARAMETER	UOM	LOR	M7_0.2-0.3 SOIL - 22/9/2016 SE157545.001	M8_0.7-0.8 SOIL - 22/9/2016 SE157545.003	HA/GB1_0.15-0.25 SOIL - 22/9/2016 SE157545.004	W1 SOIL - 22/9/2016 SE157545.005	W2 SOIL - 22/9/2016 SE157545.006
Hexachlorobenzene (HCB)	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Alpha BHC	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Lindane	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Heptachlor	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Aldrin	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Beta BHC	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Delta BHC	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Heptachlor epoxide	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
o,p'-DDE	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Alpha Endosulfan	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Gamma Chlordane	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Alpha Chlordane	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
trans-Nonachlor	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
p,p'-DDE	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Dieldrin	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Endrin	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
o,p'-DDD	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
o,p'-DDT	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Beta Endosulfan	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
p,p'-DDD	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
p,p'-DDT	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Endosulfan sulphate	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Endrin Aldehyde	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Methoxychlor	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Endrin Ketone	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Isodrin	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Mirex	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1

OC Pesticides in Soil [AN400/AN420] Tested: 29/9/2016 (continued)

PARAMETER	UOM	LOR	W3 SOIL - 22/9/2016 SE157545.007
Hexachlorobenzene (HCB)	mg/kg	0.1	<0.1
Alpha BHC	mg/kg	0.1	<0.1
Lindane	mg/kg	0.1	<0.1
Heptachlor	mg/kg	0.1	<0.1
Aldrin	mg/kg	0.1	<0.1
Beta BHC	mg/kg	0.1	<0.1
Delta BHC	mg/kg	0.1	<0.1
Heptachlor epoxide	mg/kg	0.1	<0.1
o,p'-DDE	mg/kg	0.1	<0.1
Alpha Endosulfan	mg/kg	0.2	<0.2
Gamma Chlordane	mg/kg	0.1	<0.1
Alpha Chlordane	mg/kg	0.1	<0.1
trans-Nonachlor	mg/kg	0.1	<0.1
p,p'-DDE	mg/kg	0.1	<0.1
Dieldrin	mg/kg	0.2	<0.2
Endrin	mg/kg	0.2	<0.2
o,p'-DDD	mg/kg	0.1	<0.1
o,p'-DDT	mg/kg	0.1	<0.1
Beta Endosulfan	mg/kg	0.2	<0.2
p,p'-DDD	mg/kg	0.1	<0.1
p,p'-DDT	mg/kg	0.1	<0.1
Endosulfan sulphate	mg/kg	0.1	<0.1
Endrin Aldehyde	mg/kg	0.1	<0.1
Methoxychlor	mg/kg	0.1	<0.1
Endrin Ketone	mg/kg	0.1	<0.1
Isodrin	mg/kg	0.1	<0.1
Mirex	mg/kg	0.1	<0.1

OP Pesticides in Soil [AN400/AN420] Tested: 29/9/2016

PARAMETER	UOM	LOR	M7_0.2-0.3 SOIL - 22/9/2016 SE157545.001	M8_0.7-0.8 SOIL - 22/9/2016 SE157545.003	HA/GB1_0.15-0.25 SOIL - 22/9/2016 SE157545.004	W1 SOIL - 22/9/2016 SE157545.005	W2 SOIL - 22/9/2016 SE157545.006
Dichlorvos	mg/kg	0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Dimethoate	mg/kg	0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Diazinon (Dimpylate)	mg/kg	0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Fenitrothion	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Malathion	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Chlorpyrifos (Chlorpyrifos Ethyl)	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Parathion-ethyl (Parathion)	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Bromophos Ethyl	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Methidathion	mg/kg	0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Ethion	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Azinphos-methyl (Guthion)	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2

PARAMETER	UOM	LOR	W3 SOIL - 22/9/2016 SE157545.007
Dichlorvos	mg/kg	0.5	<0.5
Dimethoate	mg/kg	0.5	<0.5
Diazinon (Dimpylate)	mg/kg	0.5	<0.5
Fenitrothion	mg/kg	0.2	<0.2
Malathion	mg/kg	0.2	<0.2
Chlorpyrifos (Chlorpyrifos Ethyl)	mg/kg	0.2	<0.2
Parathion-ethyl (Parathion)	mg/kg	0.2	<0.2
Bromophos Ethyl	mg/kg	0.2	<0.2
Methidathion	mg/kg	0.5	<0.5
Ethion	mg/kg	0.2	<0.2
Azinphos-methyl (Guthion)	mg/kg	0.2	<0.2

Total Phenolics in Soil [AN289] Tested: 29/9/2016

PARAMETER	UOM	LOR	M7_0.2-0.3 SOIL - 22/9/2016 SE157545.001	M8_0.7-0.8 SOIL - 22/9/2016 SE157545.003	HA/GB1_0.15-0.25 SOIL - 22/9/2016 SE157545.004	W1 SOIL - 22/9/2016 SE157545.005	W2 SOIL - 22/9/2016 SE157545.006
Total Phenols	mg/kg	0.1	**2.3**	<0.1	<0.1	<0.1	**0.4**

PARAMETER	UOM	LOR	W3 SOIL - 22/9/2016 SE157545.007
Total Phenols	mg/kg	0.1	**1.8**

Total Recoverable Metals in Soil/Waste Solids/Materials by ICPOES [AN040/AN320] Tested: 4/10/2016

PARAMETER	UOM	LOR	M7_0.2-0.3 SOIL - 22/9/2016 SE157545.001	M8_0.7-0.8 SOIL - 22/9/2016 SE157545.003	HA/GB1_0.15-0.25 SOIL - 22/9/2016 SE157545.004	W1 SOIL - 22/9/2016 SE157545.005	W2 SOIL - 22/9/2016 SE157545.006
Arsenic, As	mg/kg	3	3	9	7	12	5
Cadmium, Cd	mg/kg	0.3	<0.3	<0.3	<0.3	<0.3	<0.3
Chromium, Cr	mg/kg	0.3	33	24	14	17	9.7
Copper, Cu	mg/kg	0.5	13	12	14	15	12
Lead, Pb	mg/kg	1	19	54	28	33	22
Nickel, Ni	mg/kg	0.5	9.8	13	21	16	7.9
Zinc, Zn	mg/kg	0.5	26	58	22	78	34

PARAMETER	UOM	LOR	W3 SOIL - 22/9/2016 SE157545.007
Arsenic, As	mg/kg	3	5
Cadmium, Cd	mg/kg	0.3	<0.3
Chromium, Cr	mg/kg	0.3	14
Copper, Cu	mg/kg	0.5	11
Lead, Pb	mg/kg	1	25
Nickel, Ni	mg/kg	0.5	9.4
Zinc, Zn	mg/kg	0.5	44

Mercury in Soil [AN312] Tested: 4/10/2016

PARAMETER	UOM	LOR	M7_0.2-0.3 SOIL - 22/9/2016 SE157545.001	M8_0.7-0.8 SOIL - 22/9/2016 SE157545.003	HA/GB1_0.15-0.25 SOIL - 22/9/2016 SE157545.004	W1 SOIL - 22/9/2016 SE157545.005	W2 SOIL - 22/9/2016 SE157545.006
Mercury	mg/kg	0.05	<0.05	<0.05	<0.05	<0.05	<0.05

PARAMETER	UOM	LOR	W3 SOIL - 22/9/2016 SE157545.007
Mercury	mg/kg	0.05	<0.05

Moisture Content [AN002] Tested: 30/9/2016

PARAMETER	UOM	LOR	M7_0.2-0.3 SOIL - 22/9/2016 SE157545.001	M8_0.7-0.8 SOIL - 22/9/2016 SE157545.003	HA/GB1_0.15-0.25 SOIL - 22/9/2016 SE157545.004	W1 SOIL - 22/9/2016 SE157545.005	W2 SOIL - 22/9/2016 SE157545.006
% Moisture	%w/w	0.5	20	16	8.9	26	20

PARAMETER	UOM	LOR	W3 SOIL - 22/9/2016 SE157545.007	QC18 (Trip Blank) SOIL - 22/9/2016 SE157545.011
% Moisture	%w/w	0.5	24	<0.5

Fibre Identification in soil [AN602] Tested: 4/10/2016

PARAMETER	UOM	LOR	M7_0.2-0.3 SOIL - 22/9/2016 SE157545.001	M8_0.2-0.3 SOIL - 22/9/2016 SE157545.002	W1 SOIL - 22/9/2016 SE157545.005	W2 SOIL - 22/9/2016 SE157545.006	W3 SOIL - 22/9/2016 SE157545.007
Asbestos Detected	No unit	-	No	No	No	No	No
Estimated Fibres*	%w/w	0.01	<0.01	<0.01	<0.01	<0.01	<0.01

VOCs in Water [AN433] Tested: 30/9/2016

PARAMETER	UOM	LOR	W1 WATER - 22/9/2016 SE157545.008	W2 WATER - 22/9/2016 SE157545.009	W3 WATER - 22/9/2016 SE157545.010
Benzene	µg/L	0.5	<0.5	<0.5	<0.5
Toluene	µg/L	0.5	<0.5	<0.5	<0.5
Ethylbenzene	µg/L	0.5	<0.5	<0.5	<0.5
m/p-xylene	µg/L	1	<1	<1	<1
o-xylene	µg/L	0.5	<0.5	<0.5	<0.5
Total Xylenes	µg/L	1.5	<1.5	<1.5	<1.5
Total BTEX	µg/L	3	<3	<3	<3
Naphthalene	µg/L	0.5	<0.5	<0.5	<0.5

Volatile Petroleum Hydrocarbons in Water [AN433] Tested: 30/9/2016

PARAMETER	UOM	LOR	W1 WATER - 22/9/2016 SE157545.008	W2 WATER - 22/9/2016 SE157545.009	W3 WATER - 22/9/2016 SE157545.010
TRH C6-C9	µg/L	40	<40	<40	<40
Benzene (F0)	µg/L	0.5	<0.5	<0.5	<0.5
TRH C6-C10	µg/L	50	<50	<50	<50
TRH C6-C10 minus BTEX (F1)	µg/L	50	<50	<50	<50

TRH (Total Recoverable Hydrocarbons) in Water [AN403] Tested: 29/9/2016

PARAMETER	UOM	LOR	W1 WATER - 22/9/2016 SE157545.008	W2 WATER - 22/9/2016 SE157545.009	W3 WATER - 22/9/2016 SE157545.010
TRH C10-C14	µg/L	50	<50	<50	<50
TRH C15-C28	µg/L	200	<200	<200	<200
TRH C29-C36	µg/L	200	<200	<200	<200
TRH C37-C40	µg/L	200	<200	<200	<200
TRH >C10-C16 (F2)	µg/L	60	<60	<60	<60
TRH >C16-C34 (F3)	µg/L	500	<500	<500	<500
TRH >C34-C40 (F4)	µg/L	500	<500	<500	<500
TRH C10-C36	µg/L	450	<450	<450	<450
TRH C10-C40	µg/L	650	<650	<650	<650

PAH (Polynuclear Aromatic Hydrocarbons) in Water [AN420] Tested: 29/9/2016

PARAMETER	UOM	LOR	W1 WATER - 22/9/2016 SE157545.008	W2 WATER - 22/9/2016 SE157545.009	W3 WATER - 22/9/2016 SE157545.010
Naphthalene	µg/L	0.1	<0.1	<0.1	<0.1
2-methylnaphthalene	µg/L	0.1	<0.1	<0.1	<0.1
1-methylnaphthalene	µg/L	0.1	<0.1	<0.1	<0.1
Acenaphthylene	µg/L	0.1	<0.1	<0.1	<0.1
Acenaphthene	µg/L	0.1	<0.1	<0.1	<0.1
Fluorene	µg/L	0.1	<0.1	<0.1	<0.1
Phenanthrene	µg/L	0.1	<0.1	<0.1	<0.1
Anthracene	µg/L	0.1	<0.1	<0.1	<0.1
Fluoranthene	µg/L	0.1	<0.1	<0.1	<0.1
Pyrene	µg/L	0.1	<0.1	<0.1	<0.1
Benzo(a)anthracene	µg/L	0.1	<0.1	<0.1	<0.1
Chrysene	µg/L	0.1	<0.1	<0.1	<0.1
Benzo(b&j)fluoranthene	µg/L	0.1	<0.1	<0.1	<0.1
Benzo(k)fluoranthene	µg/L	0.1	<0.1	<0.1	<0.1
Benzo(a)pyrene	µg/L	0.1	<0.1	<0.1	<0.1
Indeno(1,2,3-cd)pyrene	µg/L	0.1	<0.1	<0.1	<0.1
Dibenzo(ah)anthracene	µg/L	0.1	<0.1	<0.1	<0.1
Benzo(ghi)perylene	µg/L	0.1	<0.1	<0.1	<0.1
Total PAH (18)	µg/L	1	<1	<1	<1

OC Pesticides in Water [AN400/AN420] Tested: 29/9/2016

PARAMETER	UOM	LOR	W1 WATER - 22/9/2016 SE157545.008	W2 WATER - 22/9/2016 SE157545.009	W3 WATER - 22/9/2016 SE157545.010
Hexachlorobenzene (HCB)	µg/L	0.1	<0.1	<0.1	<0.1
Alpha BHC	µg/L	0.1	<0.1	<0.1	<0.1
Lindane (gamma BHC)	µg/L	0.1	<0.1	<0.1	<0.1
Heptachlor	µg/L	0.1	<0.1	<0.1	<0.1
Aldrin	µg/L	0.1	<0.1	<0.1	<0.1
Beta BHC	µg/L	0.1	<0.1	<0.1	<0.1
Delta BHC	µg/L	0.1	<0.1	<0.1	<0.1
Heptachlor epoxide	µg/L	0.1	<0.1	<0.1	<0.1
o,p'-DDE	µg/L	0.1	<0.1	<0.1	<0.1
Alpha Endosulfan	µg/L	0.1	<0.1	<0.1	<0.1
Gamma Chlordane	µg/L	0.1	<0.1	<0.1	<0.1
Alpha Chlordane	µg/L	0.1	<0.1	<0.1	<0.1
trans-Nonachlor	µg/L	0.1	<0.1	<0.1	<0.1
p,p'-DDE	µg/L	0.1	<0.1	<0.1	<0.1
Dieldrin	µg/L	0.1	<0.1	<0.1	<0.1
Endrin	µg/L	0.1	<0.1	<0.1	<0.1
o,p'-DDD	µg/L	0.1	<0.1	<0.1	<0.1
o,p'-DDT	µg/L	0.1	<0.1	<0.1	<0.1
Beta Endosulfan	µg/L	0.1	<0.1	<0.1	<0.1
p,p'-DDD	µg/L	0.1	<0.1	<0.1	<0.1
p,p'-DDT	µg/L	0.1	<0.1	<0.1	<0.1
Endosulfan sulphate	µg/L	0.1	<0.1	<0.1	<0.1
Endrin aldehyde	µg/L	0.1	<0.1	<0.1	<0.1
Methoxychlor	µg/L	0.1	<0.1	<0.1	<0.1
Endrin ketone	µg/L	0.1	<0.1	<0.1	<0.1
Isodrin	µg/L	0.1	<0.1	<0.1	<0.1
Mirex	µg/L	0.1	<0.1	<0.1	<0.1

OP Pesticides in Water [AN400/AN420] Tested: 29/9/2016

PARAMETER	UOM	LOR	W1 WATER - 22/9/2016 SE157545.008	W2 WATER - 22/9/2016 SE157545.009	W3 WATER - 22/9/2016 SE157545.010
Dichlorvos	µg/L	0.5	<0.5	<0.5	<0.5
Dimethoate	µg/L	0.5	<0.5	<0.5	<0.5
Diazinon (Dimpylate)	µg/L	0.5	<0.5	<0.5	<0.5
Fenitrothion	µg/L	0.2	<0.2	<0.2	<0.2
Malathion	µg/L	0.2	<0.2	<0.2	<0.2
Chlorpyrifos (Chlorpyrifos Ethyl)	µg/L	0.2	<0.2	<0.2	<0.2
Parathion-ethyl (Parathion)	µg/L	0.2	<0.2	<0.2	<0.2
Bromophos Ethyl	µg/L	0.2	<0.2	<0.2	<0.2
Methidathion	µg/L	0.5	<0.5	<0.5	<0.5
Ethion	µg/L	0.2	<0.2	<0.2	<0.2
Azinphos-methyl	µg/L	0.2	<0.2	<0.2	<0.2

Total Phenolics in Water [AN289] Tested: 30/9/2016

PARAMETER	UOM	LOR	W1 WATER - 22/9/2016 SE157545.008	W2 WATER - 22/9/2016 SE157545.009	W3 WATER - 22/9/2016 SE157545.010
Total Phenols	mg/L	0.01	<0.01	<0.01	IS

Trace Metals (Dissolved) in Water by ICPMS [AN318] Tested: 29/9/2016

PARAMETER	UOM	LOR	W1 WATER - 22/9/2016 SE157545.008	W2 WATER - 22/9/2016 SE157545.009	W3 WATER - 22/9/2016 SE157545.010
Arsenic, As	µg/L	1	1	<1	<1
Cadmium, Cd	µg/L	0.1	<0.1	<0.1	<0.1
Chromium, Cr	µg/L	1	<1	<1	<1
Copper, Cu	µg/L	1	<1	1	1
Lead, Pb	µg/L	1	<1	<1	<1
Nickel, Ni	µg/L	1	1	<1	1
Zinc, Zn	µg/L	5	25	5	22

Mercury (dissolved) in Water [AN311(Perth)/AN312] Tested: 4/10/2016

PARAMETER	UOM	LOR	W1 WATER - 22/9/2016 SE157545.008	W2 WATER - 22/9/2016 SE157545.009	W3 WATER - 22/9/2016 SE157545.010
Mercury	mg/L	0.0001	<0.0001	<0.0001	<0.0001

METHOD	METHODOLOGY SUMMARY
AN002	The test is carried out by drying (at either 40°C or 105°C) a known mass of sample in a weighed evaporating basin. After fully dry the sample is re-weighed. Samples such as sludge and sediment having high percentages of moisture will take some time in a drying oven for complete removal of water.
AN020	Unpreserved water sample is filtered through a 0.45µm membrane filter and acidified with nitric acid similar to APHA3030B.
AN040/AN320	A portion of sample is digested with nitric acid to decompose organic matter and hydrochloric acid to complete the digestion of metals. The digest is then analysed by ICP OES with metals results reported on the dried sample basis. Based on USEPA method 200.8 and 6010C.
AN040	A portion of sample is digested with Nitric acid to decompose organic matter and Hydrochloric acid to complete the digestion of metals and then filtered for analysis by ASS or ICP as per USEPA Method 200.8.
AN289	Analysis of Total Phenols in Soil Sediment and Water: Steam distillable phenols react with 4-aminoantipyrine at pH 7.9±0.1 in the presence of potassium ferricyanide to form a coloured antipyrine dye analysed by Discrete Analyser. Reference APHA 5530 B/D.
AN311(Perth)/AN312	Mercury by Cold Vapour AAS in Waters: Mercury ions are reduced by stannous chloride reagent in acidic solution to elemental mercury. This mercury vapour is purged by nitrogen into a cold cell in an atomic absorption spectrometer or mercury analyser. Quantification is made by comparing absorbances to those of the calibration standards. Reference APHA 3112/3500.
AN312	Mercury by Cold Vapour AAS in Soils: After digestion with nitric acid, hydrogen peroxide and hydrochloric acid , mercury ions are reduced by stannous chloride reagent in acidic solution to elemental mercury. This mercury vapour is purged by nitrogen into a cold cell in an atomic absorption spectrometer or mercury analyser . Quantification is made by comparing absorbances to those of the calibration standards. Reference APHA 3112/3500
AN318	Determination of elements at trace level in waters by ICP-MS technique, in accordance with USEPA 6020A.
AN400	OC and OP Pesticides by GC-ECD: The determination of organochlorine (OC) and organophosphorus (OP) pesticides and polychlorinated biphenyls (PCBs) in soils, sludges and groundwater. (Based on USEPA methods 3510, 3550, 8140 and 8080.)
AN403	Total Recoverable Hydrocarbons: Determination of Hydrocarbons by gas chromatography after a solvent extraction. Detection is by flame ionisation detector (FID) that produces an electronic signal in proportion to the combustible matter passing through it. Total Recoverable Hydrocarbons (TRH) are routinely reported as four alkane groupings based on the carbon chain length of the compounds: C6-C9, C10-C14, C15-C28 and C29-C36 and in recognition of the NEPM 1999 (2013), >C10-C16 (F2), >C16-C34 (F3) and >C34-C40 (F4). F2 is reported directly and also corrected by subtracting Naphthalene (from VOC method AN433) where available.
AN403	Additionally, the volatile C6-C9 fraction may be determined by a purge and trap technique and GC/MS because of the potential for volatiles loss. Total Petroleum Hydrocarbons (TPH) follows the same method of analysis after silica gel cleanup of the solvent extract. Aliphatic/Aromatic Speciation follows the same method of analysis after fractionation of the solvent extract over silica with differential polarity of the eluent solvents .
AN403	The GC/FID method is not well suited to the analysis of refined high boiling point materials (ie lubricating oils or greases) but is particularly suited for measuring diesel, kerosene and petrol if care to control volatility is taken. This method will detect naturally occurring hydrocarbons, lipids, animal fats, phenols and PAHs if they are present at sufficient levels, dependent on the use of specific cleanup /fractionation techniques. Reference USEPA 3510B, 8015B.
AN420	(SVOCs) including OC, OP, PCB, Herbicides, PAH, Phthalates and Speciated Phenols (etc) in soils, sediments and waters are determined by GCMS/ECD technique following appropriate solvent extraction process (Based on USEPA 3500C and 8270D).
AN420	SVOC Compounds: Semi-Volatile Organic Compounds (SVOCs) including OC, OP, PCB, Herbicides, PAH, Phthalates and Speciated Phenols in soils, sediments and waters are determined by GCMS /ECD technique following appropriate solvent extraction process (Based on USEPA 3500C and 8270D).
AN433	VOCs and C6-C9 Hydrocarbons by GC-MS P&T: VOC`s are volatile organic compounds. The sample is presented to a gas chromatograph via a purge and trap (P&T) concentrator and autosampler and is detected with a Mass Spectrometer (MSD). Solid samples are initially extracted with methanol whilst liquid samples are processed directly. References: USEPA 5030B, 8020A, 8260.
AN602	Qualitative identification of chrysotile, amosite and crocidolite in bulk samples by polarised light microscopy (PLM) in conjunction with dispersion staining (DS). AS4964 provides the basis for this document. Unequivocal identification of the asbestos minerals present is made by obtaining sufficient diagnostic `clues`, which provide a reasonable degree of certainty, dispersion staining is a mandatory `clue` for positive identification. If sufficient `clues` are absent, then positive identification of asbestos is not possible. This procedure requires removal of suspect fibres/bundles from the sample which cannot be returned.
AN602	Fibres/material that cannot be unequivocably identified as one of the three asbestos forms, will be reported as unknown mineral fibres (umf).

AN602	AS4964.2004 Method for the Qualitative Identification of Asbestos in Bulk Samples, Section 8.4, Trace Analysis Criteria, Note 4 states:"Depending upon sample condition and fibre type, the detection limit of this technique has been found to lie generally in the range of 1 in 1,000 to 1 in 10,000 parts by weight, equivalent to 1 to 0.1 g/kg."
AN602	The sample can be reported “no asbestos found at the reporting limit of 0.1 g/kg” (<0.01%w/w) where AN602 section 4.5 of this method has been followed, and if- (a) no trace asbestos fibres have been detected (i.e. no ‘respirable’ fibres): (b) the estimated weight of non-respirable asbestos fibre bundles and/or the estimated weight of asbestos in asbestos-containing materials are found to be less than 0.1g/kg: and (c) these non-respirable asbestos fibre bundles and/or the asbestos containing materials are only visible under stereo-microscope viewing conditions.

FOOTNOTES

*	NATA accreditation does not cover the performance of this service.	-	Not analysed.	UOM	Unit of Measure.
		NVL	Not validated.	LOR	Limit of Reporting.
**	Indicative data, theoretical holding time exceeded.	IS	Insufficient sample for analysis.	↑↓	Raised/lowered Limit of Reporting.
		LNR	Sample listed, but not received.		

Samples analysed as received.
Solid samples expressed on a dry weight basis.

Where "Total" analyte groups are reported (for example, Total PAHs, Total OC Pesticides) the total will be calculated as the sum of the individual analytes, with those analytes that are reported as <LOR being assumed to be zero. The summed (Total) limit of reporting is calculated by summing the individual analyte LORs and dividing by two. For example, where 16 individual analytes are being summed and each has an LOR of 0.1 mg/kg, the "Totals" LOR will be 1.6 / 2 (0.8 mg/kg). Where only 2 analytes are being summed, the " Total" LOR will be the sum of those two LORs.

Some totals may not appear to add up because the total is rounded after adding up the raw values.

If reported, measurement uncertainty follow the ± sign after the analytical result and is expressed as the expanded uncertainty calculated using a coverage factor of 2, providing a level of confidence of approximately 95%, unless stated otherwise in the comments section of this report.

Results reported for samples tested under test methods with codes starting with ARS-SOP, radionuclide or gross radioactivity concentrations are expressed in becquerel (Bq) per unit of mass or volume or per wipe as stated on the report. Becquerel is the SI unit for activity and equals one nuclear transformation per second.
Note that in terms of units of radioactivity:

a. 1 Bq is equivalent to 27 pCi
b. 37 MBq is equivalent to 1 mCi

For results reported for samples tested under test methods with codes starting with ARS-SOP, less than (<) values indicate the detection limit for each radionuclide or parameter for the measurement system used. The respective detection limits have been calculated in accordance with ISO 11929.

The QC criteria are subject to internal review according to the SGS QAQC plan and may be provided on request or alternatively can be found here : http://www.sgs.com.au/~/media/Local/Australia/Documents/Technical%20Documents/MP-AU-ENV-QU-022%20QA%20QC%20Plan.pdf

This document is issued, on the Client's behalf, by the Company under its General Conditions of Service available on request and accessible at http://www.sgs.com/en/terms-and-conditions. The Client's attention is drawn to the limitation of liability, indemnification and jurisdiction issues defined therein.

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ANALYTICAL REPORT

Accreditation No. 2562

CLIENT DETAILS

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Project	**3002523 - Canberra Brickworks**
Order Number	**SY1-60413-2-IS**
Samples	5

LABORATORY DETAILS

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SGS Reference	**SE157545 R0**
Date Received	23 Sep 2016
Date Reported	11 Oct 2016

COMMENTS

Accredited for compliance with ISO/IEC 17025. NATA accredited laboratory 2562(4354).

No respirable fibres detected in all soil samples using trace analysis technique.

Asbestos analysed by Approved Identifier Ravee Sivasubramaniam .

SIGNATORIES

Andy Sutton
Senior Organic Chemist

Bennet Lo
Senior Organic Chemist/Metals Chemis

Dong Liang
Metals/Inorganics Team Leader

Kamrul Ahsan
Senior Chemist

Ly Kim Ha
Organic Section Head

Ravee Sivasubramaniam
Hygiene Team Leader

ANALYTICAL REPORT

RESULTS

Fibre Identification in soil — Method AN602

Laboratory Reference	Client Reference	Matrix	Sample Description	Date Sampled	Fibre Identification	Est.%w/w*
SE157545.001	M7_0.2-0.3	Soil	115g Clay, Sand, Soil, Rocks	22 Sep 2016	No Asbestos Found Organic Fibres Detected	<0.01
SE157545.002	M8_0.2-0.3	Soil	117g Clay, Sand, Rocks	22 Sep 2016	No Asbestos Found	<0.01
SE157545.005	W1	Soil	200g Clay, Sand, Rocks	22 Sep 2016	No Asbestos Found	<0.01
SE157545.006	W2	Soil	67g Clay, Rocks	22 Sep 2016	No Asbestos Found	<0.01
SE157545.007	W3	Soil	169g Clay, Sand, Soil, Rocks	22 Sep 2016	No Asbestos Found Organic Fibres Detected	<0.01

METHOD SUMMARY

METHOD	METHODOLOGY SUMMARY
AN602	Qualitative identification of chrysotile, amosite and crocidolite in bulk samples by polarised light microscopy (PLM) in conjunction with dispersion staining (DS). AS4964 provides the basis for this document. Unequivocal identification of the asbestos minerals present is made by obtaining sufficient diagnostic `clues`, which provide a reasonable degree of certainty, dispersion staining is a mandatory `clue` for positive identification. If sufficient `clues` are absent, then positive identification of asbestos is not possible. This procedure requires removal of suspect fibres/bundles from the sample which cannot be returned.
AN602	Fibres/material that cannot be unequivocably identified as one of the three asbestos forms, will be reported as unknown mineral fibres (umf).
AN602	AS4964.2004 Method for the Qualitative Identification of Asbestos in Bulk Samples , Section 8.4, Trace Analysis Criteria, Note 4 states:"Depending upon sample condition and fibre type, the detection limit of this technique has been found to lie generally in the range of 1 in 1,000 to 1 in 10,000 parts by weight, equivalent to 1 to 0.1 g/kg."
AN602	The sample can be reported “no asbestos found at the reporting limit of 0.1 g/kg” (<0.01%w/w) where AN602 section 4.5 of this method has been followed, and if- (a) no trace asbestos fibres have been detected (i.e. no ‘respirable’ fibres): (b) the estimated weight of non-respirable asbestos fibre bundles and/or the estimated weight of asbestos in asbestos-containing materials are found to be less than 0.1g/kg: and (c) these non-respirable asbestos fibre bundles and/or the asbestos containing materials are only visible under stereo-microscope viewing conditions.

FOOTNOTES

Amosite	-	Brown Asbestos	NA	-	Not Analysed
Chrysotile	-	White Asbestos	LNR	-	Listed, Not Required
Crocidolite	-	Blue Asbestos	*	-	NATA accreditation does not cover the performance of this service .
Amphiboles	-	Amosite and/or Crocidolite	**	-	Indicative data, theoretical holding time exceeded.

(In reference to soil samples only) This report does not comply with the analytical reporting recommendations in the Western Australian Department of Health Guidelines for the Assessment and Remediation and Management of Asbestos Contaminated sites in Western Australia - May 2009.

Sampled by the client.

Where reported: 'Asbestos Detected': Asbestos detected by polarised light microscopy, including dispersion staining.
Where reported: 'No Asbestos Found': No Asbestos Found by polarised light microscopy, including dispersion staining.
Where reported: 'UMF Detected': Mineral fibres of unknown type detected by polarised light microscopy, including dispersion staining. Confirmation by another independent analytical technique may be necessary.

Even after disintegration it can be very difficult, or impossible, to detect the presence of asbestos in some asbestos -containing bulk materials using polarised light microscopy. This is due to the low grade or small length or diameter of asbestos fibres present in the material, or to the fact that very fine fibres have been distributed intimately throughout the materials.

The QC criteria are subject to internal review according to the SGS QAQC plan and may be provided on request or alternatively can be found here : http://www.sgs.com.au/~/media/Local/Australia/Documents/Technical%20Documents/MP-AU-ENV-QU-022%20QA%20QC%20Plan.pdf

This document is issued, on the Client's behalf, by the Company under its General Conditions of Service available on request and accessible at http://www.sgs.com/en/terms-and-conditions. The Client's attention is drawn to the limitation of liability, indemnification and jurisdiction issues defined therein.

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STATEMENT OF QA/QC PERFORMANCE

SE157545 R0

CLIENT DETAILS

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Project	**3002523 - Canberra Brickworks**
Order Number	**SY1-60413-2-IS**
Samples	12

LABORATORY DETAILS

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SGS Reference	**SE157545 R0**
Date Received	23 Sep 2016
Date Reported	11 Oct 2016

COMMENTS

All the laboratory data for each environmental matrix was compared to SGS' stated Data Quality Objectives (DQO). Comments arising from the comparison were made and are reported below.

The data relating to sampling was taken from the Chain of Custody document and was supplied by the Client.
This QA/QC Statement must be read in conjunction with the referenced Analytical Report.
The Statement and the Analytical Report must not be reproduced except in full.

All Data Quality Objectives were met with the exception of the following:

Extraction Date	VOCs in Water	3 items
	Volatile Petroleum Hydrocarbons in Water	3 items
Duplicate	VOCs in Water	1 item
	Volatile Petroleum Hydrocarbons in Water	1 item

SAMPLE SUMMARY

Sample counts by matrix	9 Soil, 3 Water	Type of documentation received	COC
Date documentation received	27/9/16@5:09pm	Samples received in good order	Yes
Samples received without headspace	Yes	Sample temperature upon receipt	8.3°C
Sample container provider	SGS	Turnaround time requested	Standard
Samples received in correct containers	Yes	Sufficient sample for analysis	Yes
Sample cooling method	Ice Bricks	Samples clearly labelled	Yes
Complete documentation received	Yes	Number of eskies/boxes received	

HOLDING TIME SUMMARY

SE157545 R0

SGS holding time criteria are drawn from current regulations and are highly dependent on sample container preservation as specified in the SGS “Field Sampling Guide for Containers and Holding Time” (ref: GU-(AU)-ENV.001). Soil samples guidelines are derived from NEPM "Schedule B(3) Guideline on Laboratory Analysis of Potentially Contaminated Soils". Water sample guidelines are derived from "AS/NZS 5667.1 : 1998 Water Quality - sampling part 1" and APHA "Standard Methods for the Examination of Water and Wastewater" 21st edition 2005.

Extraction and analysis holding time due dates listed are calculated from the date sampled, although holding times may be extended after laboratory extraction for some analytes. The due dates are the suggested dates that samples may be held before extraction or analysis and still be considered valid.

Extraction and analysis dates are shown in **Green** when within suggested criteria or **Red** with an appended dagger symbol (†) when outside suggested criteria. If the sampled date is not supplied then compliance with criteria cannot be determined. If the received date is after one or both due dates then holding time will fail by default.

Fibre Identification in soil

Method: ME-(AU)-[ENV]AN602

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
M7_0.2-0.3	SE157545.001	LB111013	22 Sep 2016	23 Sep 2016	22 Sep 2017	04 Oct 2016	22 Sep 2017	05 Oct 2016
M8_0.2-0.3	SE157545.002	LB111013	22 Sep 2016	23 Sep 2016	22 Sep 2017	04 Oct 2016	22 Sep 2017	05 Oct 2016
W1	SE157545.005	LB111013	22 Sep 2016	23 Sep 2016	22 Sep 2017	04 Oct 2016	22 Sep 2017	05 Oct 2016
W2	SE157545.006	LB111013	22 Sep 2016	23 Sep 2016	22 Sep 2017	04 Oct 2016	22 Sep 2017	05 Oct 2016
W3	SE157545.007	LB111013	22 Sep 2016	23 Sep 2016	22 Sep 2017	04 Oct 2016	22 Sep 2017	05 Oct 2016

Mercury (dissolved) in Water

Method: ME-(AU)-[ENV]AN311(Perth)/AN312

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
W1	SE157545.008	LB110970	22 Sep 2016	23 Sep 2016	20 Oct 2016	04 Oct 2016	20 Oct 2016	05 Oct 2016
W2	SE157545.009	LB110970	22 Sep 2016	23 Sep 2016	20 Oct 2016	04 Oct 2016	20 Oct 2016	05 Oct 2016
W3	SE157545.010	LB110970	22 Sep 2016	23 Sep 2016	20 Oct 2016	04 Oct 2016	20 Oct 2016	05 Oct 2016

Mercury in Soil

Method: ME-(AU)-[ENV]AN312

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
M7_0.2-0.3	SE157545.001	LB110977	22 Sep 2016	23 Sep 2016	20 Oct 2016	04 Oct 2016	20 Oct 2016	05 Oct 2016
M8_0.7-0.8	SE157545.003	LB110977	22 Sep 2016	23 Sep 2016	20 Oct 2016	04 Oct 2016	20 Oct 2016	05 Oct 2016
HA/GB1_0.15-0.25	SE157545.004	LB110977	22 Sep 2016	23 Sep 2016	20 Oct 2016	04 Oct 2016	20 Oct 2016	05 Oct 2016
W1	SE157545.005	LB110977	22 Sep 2016	23 Sep 2016	20 Oct 2016	04 Oct 2016	20 Oct 2016	05 Oct 2016
W2	SE157545.006	LB110977	22 Sep 2016	23 Sep 2016	20 Oct 2016	04 Oct 2016	20 Oct 2016	05 Oct 2016
W3	SE157545.007	LB110977	22 Sep 2016	23 Sep 2016	20 Oct 2016	04 Oct 2016	20 Oct 2016	05 Oct 2016

Moisture Content

Method: ME-(AU)-[ENV]AN002

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
M7_0.2-0.3	SE157545.001	LB110857	22 Sep 2016	23 Sep 2016	06 Oct 2016	30 Sep 2016	05 Oct 2016	05 Oct 2016
M8_0.7-0.8	SE157545.003	LB110857	22 Sep 2016	23 Sep 2016	06 Oct 2016	30 Sep 2016	05 Oct 2016	05 Oct 2016
HA/GB1_0.15-0.25	SE157545.004	LB110857	22 Sep 2016	23 Sep 2016	06 Oct 2016	30 Sep 2016	05 Oct 2016	05 Oct 2016
W1	SE157545.005	LB110857	22 Sep 2016	23 Sep 2016	06 Oct 2016	30 Sep 2016	05 Oct 2016	05 Oct 2016
W2	SE157545.006	LB110857	22 Sep 2016	23 Sep 2016	06 Oct 2016	30 Sep 2016	05 Oct 2016	05 Oct 2016
W3	SE157545.007	LB110857	22 Sep 2016	23 Sep 2016	06 Oct 2016	30 Sep 2016	05 Oct 2016	05 Oct 2016
QC18 (Trip Blank)	SE157545.011	LB110857	22 Sep 2016	23 Sep 2016	06 Oct 2016	30 Sep 2016	05 Oct 2016	05 Oct 2016

OC Pesticides in Soil

Method: ME-(AU)-[ENV]AN400/AN420

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
M7_0.2-0.3	SE157545.001	LB110824	22 Sep 2016	23 Sep 2016	06 Oct 2016	29 Sep 2016	08 Nov 2016	05 Oct 2016
M8_0.7-0.8	SE157545.003	LB110824	22 Sep 2016	23 Sep 2016	06 Oct 2016	29 Sep 2016	08 Nov 2016	05 Oct 2016
HA/GB1_0.15-0.25	SE157545.004	LB110824	22 Sep 2016	23 Sep 2016	06 Oct 2016	29 Sep 2016	08 Nov 2016	05 Oct 2016
W1	SE157545.005	LB110824	22 Sep 2016	23 Sep 2016	06 Oct 2016	29 Sep 2016	08 Nov 2016	05 Oct 2016
W2	SE157545.006	LB110824	22 Sep 2016	23 Sep 2016	06 Oct 2016	29 Sep 2016	08 Nov 2016	05 Oct 2016
W3	SE157545.007	LB110824	22 Sep 2016	23 Sep 2016	06 Oct 2016	29 Sep 2016	08 Nov 2016	05 Oct 2016
QC18 (Trip Blank)	SE157545.011	LB110824	22 Sep 2016	23 Sep 2016	06 Oct 2016	29 Sep 2016	08 Nov 2016	05 Oct 2016

OC Pesticides in Water

Method: ME-(AU)-[ENV]AN400/AN420

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
W1	SE157545.008	LB110738	22 Sep 2016	23 Sep 2016	29 Sep 2016	29 Sep 2016	08 Nov 2016	05 Oct 2016
W2	SE157545.009	LB110738	22 Sep 2016	23 Sep 2016	29 Sep 2016	29 Sep 2016	08 Nov 2016	05 Oct 2016
W3	SE157545.010	LB110738	22 Sep 2016	23 Sep 2016	29 Sep 2016	29 Sep 2016	08 Nov 2016	05 Oct 2016

OP Pesticides in Soil

Method: ME-(AU)-[ENV]AN400/AN420

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
M7_0.2-0.3	SE157545.001	LB110824	22 Sep 2016	23 Sep 2016	06 Oct 2016	29 Sep 2016	08 Nov 2016	05 Oct 2016
M8_0.7-0.8	SE157545.003	LB110824	22 Sep 2016	23 Sep 2016	06 Oct 2016	29 Sep 2016	08 Nov 2016	05 Oct 2016
HA/GB1_0.15-0.25	SE157545.004	LB110824	22 Sep 2016	23 Sep 2016	06 Oct 2016	29 Sep 2016	08 Nov 2016	05 Oct 2016
W1	SE157545.005	LB110824	22 Sep 2016	23 Sep 2016	06 Oct 2016	29 Sep 2016	08 Nov 2016	05 Oct 2016
W2	SE157545.006	LB110824	22 Sep 2016	23 Sep 2016	06 Oct 2016	29 Sep 2016	08 Nov 2016	05 Oct 2016
W3	SE157545.007	LB110824	22 Sep 2016	23 Sep 2016	06 Oct 2016	29 Sep 2016	08 Nov 2016	05 Oct 2016
QC18 (Trip Blank)	SE157545.011	LB110824	22 Sep 2016	23 Sep 2016	06 Oct 2016	29 Sep 2016	08 Nov 2016	05 Oct 2016

OP Pesticides in Water

Method: ME-(AU)-[ENV]AN400/AN420

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
W1	SE157545.008	LB110738	22 Sep 2016	23 Sep 2016	29 Sep 2016	29 Sep 2016	08 Nov 2016	30 Sep 2016
W2	SE157545.009	LB110738	22 Sep 2016	23 Sep 2016	29 Sep 2016	29 Sep 2016	08 Nov 2016	30 Sep 2016
W3	SE157545.010	LB110738	22 Sep 2016	23 Sep 2016	29 Sep 2016	29 Sep 2016	08 Nov 2016	30 Sep 2016

HOLDING TIME SUMMARY

SE157545 R0

SGS holding time criteria are drawn from current regulations and are highly dependent on sample container preservation as specified in the SGS “Field Sampling Guide for Containers and Holding Time” (ref: GU-(AU)-ENV.001). Soil samples guidelines are derived from NEPM "Schedule B(3) Guideline on Laboratory Analysis of Potentially Contaminated Soils". Water sample guidelines are derived from "AS/NZS 5667.1 : 1998 Water Quality - sampling part 1" and APHA "Standard Methods for the Examination of Water and Wastewater" 21st edition 2005.

Extraction and analysis holding time due dates listed are calculated from the date sampled, although holding times may be extended after laboratory extraction for some analytes. The due dates are the suggested dates that samples may be held before extraction or analysis and still be considered valid.

Extraction and analysis dates are shown in **Green** when within suggested criteria or **Red** with an appended dagger symbol (†) when outside suggested criteria. If the sampled date is not supplied then compliance with criteria cannot be determined. If the received date is after one or both due dates then holding time will fail by default.

PAH (Polynuclear Aromatic Hydrocarbons) in Soil

Method: ME-(AU)-[ENV]AN420

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
M7_0.2-0.3	SE157545.001	LB110824	22 Sep 2016	23 Sep 2016	06 Oct 2016	29 Sep 2016	08 Nov 2016	05 Oct 2016
M8_0.7-0.8	SE157545.003	LB110824	22 Sep 2016	23 Sep 2016	06 Oct 2016	29 Sep 2016	08 Nov 2016	05 Oct 2016
HA/GB1_0.15-0.25	SE157545.004	LB110824	22 Sep 2016	23 Sep 2016	06 Oct 2016	29 Sep 2016	08 Nov 2016	05 Oct 2016
W1	SE157545.005	LB110824	22 Sep 2016	23 Sep 2016	06 Oct 2016	29 Sep 2016	08 Nov 2016	05 Oct 2016
W2	SE157545.006	LB110824	22 Sep 2016	23 Sep 2016	06 Oct 2016	29 Sep 2016	08 Nov 2016	05 Oct 2016
W3	SE157545.007	LB110824	22 Sep 2016	23 Sep 2016	06 Oct 2016	29 Sep 2016	08 Nov 2016	05 Oct 2016
QC18 (Trip Blank)	SE157545.011	LB110824	22 Sep 2016	23 Sep 2016	06 Oct 2016	29 Sep 2016	08 Nov 2016	05 Oct 2016

PAH (Polynuclear Aromatic Hydrocarbons) in Water

Method: ME-(AU)-[ENV]AN420

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
W1	SE157545.008	LB110738	22 Sep 2016	23 Sep 2016	29 Sep 2016	29 Sep 2016	08 Nov 2016	30 Sep 2016
W2	SE157545.009	LB110738	22 Sep 2016	23 Sep 2016	29 Sep 2016	29 Sep 2016	08 Nov 2016	30 Sep 2016
W3	SE157545.010	LB110738	22 Sep 2016	23 Sep 2016	29 Sep 2016	29 Sep 2016	08 Nov 2016	30 Sep 2016

Total Phenolics in Soil

Method: ME-(AU)-[ENV]AN289

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
M7_0.2-0.3	SE157545.001	LB110743	22 Sep 2016	23 Sep 2016	06 Oct 2016	29 Sep 2016	06 Oct 2016	05 Oct 2016
M8_0.7-0.8	SE157545.003	LB110743	22 Sep 2016	23 Sep 2016	06 Oct 2016	29 Sep 2016	06 Oct 2016	05 Oct 2016
HA/GB1_0.15-0.25	SE157545.004	LB110743	22 Sep 2016	23 Sep 2016	06 Oct 2016	29 Sep 2016	06 Oct 2016	05 Oct 2016
W1	SE157545.005	LB110743	22 Sep 2016	23 Sep 2016	06 Oct 2016	29 Sep 2016	06 Oct 2016	05 Oct 2016
W2	SE157545.006	LB110743	22 Sep 2016	23 Sep 2016	06 Oct 2016	29 Sep 2016	06 Oct 2016	05 Oct 2016
W3	SE157545.007	LB110743	22 Sep 2016	23 Sep 2016	06 Oct 2016	29 Sep 2016	06 Oct 2016	05 Oct 2016

Total Phenolics in Water

Method: ME-(AU)-[ENV]AN289

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
W1	SE157545.008	LB110849	22 Sep 2016	23 Sep 2016	20 Oct 2016	30 Sep 2016	20 Oct 2016	30 Sep 2016
W2	SE157545.009	LB110849	22 Sep 2016	23 Sep 2016	20 Oct 2016	30 Sep 2016	20 Oct 2016	30 Sep 2016

Total Recoverable Metals in Soil/Waste Solids/Materials by ICPOES

Method: ME-(AU)-[ENV]AN040/AN320

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
M7_0.2-0.3	SE157545.001	LB111001	22 Sep 2016	23 Sep 2016	21 Mar 2017	04 Oct 2016	21 Mar 2017	11 Oct 2016
M8_0.7-0.8	SE157545.003	LB111001	22 Sep 2016	23 Sep 2016	21 Mar 2017	04 Oct 2016	21 Mar 2017	11 Oct 2016
HA/GB1_0.15-0.25	SE157545.004	LB111001	22 Sep 2016	23 Sep 2016	21 Mar 2017	04 Oct 2016	21 Mar 2017	11 Oct 2016
W1	SE157545.005	LB111001	22 Sep 2016	23 Sep 2016	21 Mar 2017	04 Oct 2016	21 Mar 2017	11 Oct 2016
W2	SE157545.006	LB111001	22 Sep 2016	23 Sep 2016	21 Mar 2017	04 Oct 2016	21 Mar 2017	11 Oct 2016
W3	SE157545.007	LB111001	22 Sep 2016	23 Sep 2016	21 Mar 2017	04 Oct 2016	21 Mar 2017	11 Oct 2016

Trace Metals (Dissolved) in Water by ICPMS

Method: ME-(AU)-[ENV]AN318

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
W1	SE157545.008	LB110745	22 Sep 2016	23 Sep 2016	21 Mar 2017	29 Sep 2016	21 Mar 2017	29 Sep 2016
W2	SE157545.009	LB110745	22 Sep 2016	23 Sep 2016	21 Mar 2017	29 Sep 2016	21 Mar 2017	29 Sep 2016
W3	SE157545.010	LB110745	22 Sep 2016	23 Sep 2016	21 Mar 2017	29 Sep 2016	21 Mar 2017	29 Sep 2016

TRH (Total Recoverable Hydrocarbons) in Soil

Method: ME-(AU)-[ENV]AN403

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
M7_0.2-0.3	SE157545.001	LB110824	22 Sep 2016	23 Sep 2016	06 Oct 2016	29 Sep 2016	08 Nov 2016	05 Oct 2016
M8_0.7-0.8	SE157545.003	LB110824	22 Sep 2016	23 Sep 2016	06 Oct 2016	29 Sep 2016	08 Nov 2016	05 Oct 2016
HA/GB1_0.15-0.25	SE157545.004	LB110824	22 Sep 2016	23 Sep 2016	06 Oct 2016	29 Sep 2016	08 Nov 2016	05 Oct 2016
W1	SE157545.005	LB110824	22 Sep 2016	23 Sep 2016	06 Oct 2016	29 Sep 2016	08 Nov 2016	05 Oct 2016
W2	SE157545.006	LB110824	22 Sep 2016	23 Sep 2016	06 Oct 2016	29 Sep 2016	08 Nov 2016	05 Oct 2016
W3	SE157545.007	LB110824	22 Sep 2016	23 Sep 2016	06 Oct 2016	29 Sep 2016	08 Nov 2016	05 Oct 2016
QC18 (Trip Blank)	SE157545.011	LB110824	22 Sep 2016	23 Sep 2016	06 Oct 2016	29 Sep 2016	08 Nov 2016	05 Oct 2016

TRH (Total Recoverable Hydrocarbons) in Water

Method: ME-(AU)-[ENV]AN403

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
W1	SE157545.008	LB110738	22 Sep 2016	23 Sep 2016	29 Sep 2016	29 Sep 2016	08 Nov 2016	30 Sep 2016
W2	SE157545.009	LB110738	22 Sep 2016	23 Sep 2016	29 Sep 2016	29 Sep 2016	08 Nov 2016	30 Sep 2016
W3	SE157545.010	LB110738	22 Sep 2016	23 Sep 2016	29 Sep 2016	29 Sep 2016	08 Nov 2016	30 Sep 2016

VOC's in Soil

Method: ME-(AU)-[ENV]AN433

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
M7_0.2-0.3	SE157545.001	LB110735	22 Sep 2016	23 Sep 2016	06 Oct 2016	29 Sep 2016	08 Nov 2016	30 Sep 2016
M8_0.7-0.8	SE157545.003	LB110735	22 Sep 2016	23 Sep 2016	06 Oct 2016	29 Sep 2016	08 Nov 2016	30 Sep 2016
HA/GB1_0.15-0.25	SE157545.004	LB110735	22 Sep 2016	23 Sep 2016	06 Oct 2016	29 Sep 2016	08 Nov 2016	30 Sep 2016

HOLDING TIME SUMMARY

SE157545 R0

SGS holding time criteria are drawn from current regulations and are highly dependent on sample container preservation as specified in the SGS “Field Sampling Guide for Containers and Holding Time” (ref: GU-(AU)-ENV.001). Soil samples guidelines are derived from NEPM "Schedule B(3) Guideline on Laboratory Analysis of Potentially Contaminated Soils". Water sample guidelines are derived from "AS/NZS 5667.1 : 1998 Water Quality - sampling part 1" and APHA "Standard Methods for the Examination of Water and Wastewater" 21st edition 2005.

Extraction and analysis holding time due dates listed are calculated from the date sampled, although holding times may be extended after laboratory extraction for some analytes. The due dates are the suggested dates that samples may be held before extraction or analysis and still be considered valid.

Extraction and analysis dates are shown in **Green** when within suggested criteria or **Red** with an appended dagger symbol (†) when outside suggested criteria. If the sampled date is not supplied then compliance with criteria cannot be determined. If the received date is after one or both due dates then holding time will fail by default.

VOC's in Soil (continued)

Method: ME-(AU)-[ENV]AN433

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
W1	SE157545.005	LB110735	22 Sep 2016	23 Sep 2016	06 Oct 2016	29 Sep 2016	08 Nov 2016	30 Sep 2016
W2	SE157545.006	LB110735	22 Sep 2016	23 Sep 2016	06 Oct 2016	29 Sep 2016	08 Nov 2016	30 Sep 2016
W3	SE157545.007	LB110735	22 Sep 2016	23 Sep 2016	06 Oct 2016	29 Sep 2016	08 Nov 2016	30 Sep 2016
QC18 (Trip Blank)	SE157545.011	LB110735	22 Sep 2016	23 Sep 2016	06 Oct 2016	29 Sep 2016	08 Nov 2016	30 Sep 2016
QC19 (Trip Spike)	SE157545.012	LB110735	22 Sep 2016	23 Sep 2016	06 Oct 2016	29 Sep 2016	08 Nov 2016	30 Sep 2016

VOCs in Water

Method: ME-(AU)-[ENV]AN433

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
W1	SE157545.008	LB110850	22 Sep 2016	23 Sep 2016	29 Sep 2016	30 Sep 2016†	09 Nov 2016	04 Oct 2016
W2	SE157545.009	LB110850	22 Sep 2016	23 Sep 2016	29 Sep 2016	30 Sep 2016†	09 Nov 2016	04 Oct 2016
W3	SE157545.010	LB110850	22 Sep 2016	23 Sep 2016	29 Sep 2016	30 Sep 2016†	09 Nov 2016	04 Oct 2016

Volatile Petroleum Hydrocarbons in Soil

Method: ME-(AU)-[ENV]AN433

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
M7_0.2-0.3	SE157545.001	LB110735	22 Sep 2016	23 Sep 2016	06 Oct 2016	29 Sep 2016	08 Nov 2016	30 Sep 2016
M8_0.7-0.8	SE157545.003	LB110735	22 Sep 2016	23 Sep 2016	06 Oct 2016	29 Sep 2016	08 Nov 2016	30 Sep 2016
HA/GB1_0.15-0.25	SE157545.004	LB110735	22 Sep 2016	23 Sep 2016	06 Oct 2016	29 Sep 2016	08 Nov 2016	30 Sep 2016
W1	SE157545.005	LB110735	22 Sep 2016	23 Sep 2016	06 Oct 2016	29 Sep 2016	08 Nov 2016	30 Sep 2016
W2	SE157545.006	LB110735	22 Sep 2016	23 Sep 2016	06 Oct 2016	29 Sep 2016	08 Nov 2016	30 Sep 2016
W3	SE157545.007	LB110735	22 Sep 2016	23 Sep 2016	06 Oct 2016	29 Sep 2016	08 Nov 2016	30 Sep 2016
QC18 (Trip Blank)	SE157545.011	LB110735	22 Sep 2016	23 Sep 2016	06 Oct 2016	29 Sep 2016	08 Nov 2016	30 Sep 2016
QC19 (Trip Spike)	SE157545.012	LB110735	22 Sep 2016	23 Sep 2016	06 Oct 2016	29 Sep 2016	08 Nov 2016	30 Sep 2016

Volatile Petroleum Hydrocarbons in Water

Method: ME-(AU)-[ENV]AN433

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
W1	SE157545.008	LB110850	22 Sep 2016	23 Sep 2016	29 Sep 2016	30 Sep 2016†	09 Nov 2016	04 Oct 2016
W2	SE157545.009	LB110850	22 Sep 2016	23 Sep 2016	29 Sep 2016	30 Sep 2016†	09 Nov 2016	04 Oct 2016
W3	SE157545.010	LB110850	22 Sep 2016	23 Sep 2016	29 Sep 2016	30 Sep 2016†	09 Nov 2016	04 Oct 2016

Surrogate results are evaluated against upper and lower limit criteria established in the SGS QA /QC plan (Ref: MP-(AU)-[ENV]QU-022). At least two of three routine level soil sample surrogate spike recoveries for BTEX/VOC are to be within 70-130% where control charts have not been developed and within the established control limits for charted surrogates. Matrix effects may void this as an acceptance criterion. Water sample surrogate spike recoveries are to be within 40-130%. The presence of emulsions, surfactants and particulates may void this as an acceptance criterion.

Result is shown in **Green** when within suggested criteria or **Red** with an appended reason identifer when outside suggested criteria. Refer to the footnotes section at the end of this report for failure reasons.

OC Pesticides in Soil

Method: ME-(AU)-[ENV]AN400/AN420

Parameter	Sample Name	Sample Number	Units	Criteria	Recovery %
Tetrachloro-m-xylene (TCMX) (Surrogate)	M7_0.2-0.3	SE157545.001	%	60 - 130%	85
	M8_0.7-0.8	SE157545.003	%	60 - 130%	82
	HA/GB1_0.15-0.25	SE157545.004	%	60 - 130%	79
	W1	SE157545.005	%	60 - 130%	88
	W2	SE157545.006	%	60 - 130%	85
	W3	SE157545.007	%	60 - 130%	91

OC Pesticides in Water

Method: ME-(AU)-[ENV]AN400/AN420

Parameter	Sample Name	Sample Number	Units	Criteria	Recovery %
Tetrachloro-m-xylene (TCMX) (Surrogate)	W1	SE157545.008	%	40 - 130%	59
	W2	SE157545.009	%	40 - 130%	61
	W3	SE157545.010	%	40 - 130%	40

OP Pesticides in Soil

Method: ME-(AU)-[ENV]AN400/AN420

Parameter	Sample Name	Sample Number	Units	Criteria	Recovery %
2-fluorobiphenyl (Surrogate)	M7_0.2-0.3	SE157545.001	%	60 - 130%	76
	M8_0.7-0.8	SE157545.003	%	60 - 130%	80
	HA/GB1_0.15-0.25	SE157545.004	%	60 - 130%	78
	W1	SE157545.005	%	60 - 130%	80
	W2	SE157545.006	%	60 - 130%	80
	W3	SE157545.007	%	60 - 130%	80
d14-p-terphenyl (Surrogate)	M7_0.2-0.3	SE157545.001	%	60 - 130%	86
	M8_0.7-0.8	SE157545.003	%	60 - 130%	90
	HA/GB1_0.15-0.25	SE157545.004	%	60 - 130%	96
	W1	SE157545.005	%	60 - 130%	92
	W2	SE157545.006	%	60 - 130%	92
	W3	SE157545.007	%	60 - 130%	92

OP Pesticides in Water

Method: ME-(AU)-[ENV]AN400/AN420

Parameter	Sample Name	Sample Number	Units	Criteria	Recovery %
2-fluorobiphenyl (Surrogate)	W1	SE157545.008	%	40 - 130%	52
	W2	SE157545.009	%	40 - 130%	68
	W3	SE157545.010	%	40 - 130%	40
d14-p-terphenyl (Surrogate)	W1	SE157545.008	%	40 - 130%	82
	W2	SE157545.009	%	40 - 130%	62
	W3	SE157545.010	%	40 - 130%	48

PAH (Polynuclear Aromatic Hydrocarbons) in Soil

Method: ME-(AU)-[ENV]AN420

Parameter	Sample Name	Sample Number	Units	Criteria	Recovery %
2-fluorobiphenyl (Surrogate)	M7_0.2-0.3	SE157545.001	%	70 - 130%	76
	M8_0.7-0.8	SE157545.003	%	70 - 130%	80
	HA/GB1_0.15-0.25	SE157545.004	%	70 - 130%	78
	W1	SE157545.005	%	70 - 130%	80
	W2	SE157545.006	%	70 - 130%	80
	W3	SE157545.007	%	70 - 130%	80
d14-p-terphenyl (Surrogate)	M7_0.2-0.3	SE157545.001	%	70 - 130%	86
	M8_0.7-0.8	SE157545.003	%	70 - 130%	90
	HA/GB1_0.15-0.25	SE157545.004	%	70 - 130%	96
	W1	SE157545.005	%	70 - 130%	92
	W2	SE157545.006	%	70 - 130%	92
	W3	SE157545.007	%	70 - 130%	92
d5-nitrobenzene (Surrogate)	M7_0.2-0.3	SE157545.001	%	70 - 130%	76
	M8_0.7-0.8	SE157545.003	%	70 - 130%	78
	HA/GB1_0.15-0.25	SE157545.004	%	70 - 130%	76
	W1	SE157545.005	%	70 - 130%	78
	W2	SE157545.006	%	70 - 130%	76
	W3	SE157545.007	%	70 - 130%	78

PAH (Polynuclear Aromatic Hydrocarbons) in Water

Method: ME-(AU)-[ENV]AN420

Parameter	Sample Name	Sample Number	Units	Criteria	Recovery %
2-fluorobiphenyl (Surrogate)	W1	SE157545.008	%	40 - 130%	52
	W2	SE157545.009	%	40 - 130%	68
	W3	SE157545.010	%	40 - 130%	40

Surrogate results are evaluated against upper and lower limit criteria established in the SGS QA /QC plan (Ref: MP-(AU)-[ENV]QU-022). At least two of three routine level soil sample surrogate spike recoveries for BTEX/VOC are to be within 70-130% where control charts have not been developed and within the established control limits for charted surrogates. Matrix effects may void this as an acceptance criterion. Water sample surrogate spike recoveries are to be within 40-130%. The presence of emulsions, surfactants and particulates may void this as an acceptance criterion.

Result is shown in **Green** when within suggested criteria or **Red** with an appended reason identifer when outside suggested criteria. Refer to the footnotes section at the end of this report for failure reasons.

PAH (Polynuclear Aromatic Hydrocarbons) in Water (continued)

Method: ME-(AU)-[ENV]AN420

Parameter	Sample Name	Sample Number	Units	Criteria	Recovery %
d14-p-terphenyl (Surrogate)	W1	SE157545.008	%	40 - 130%	82
	W2	SE157545.009	%	40 - 130%	62
	W3	SE157545.010	%	40 - 130%	48
d5-nitrobenzene (Surrogate)	W1	SE157545.008	%	40 - 130%	52
	W2	SE157545.009	%	40 - 130%	64
	W3	SE157545.010	%	40 - 130%	46

VOC's in Soil

Method: ME-(AU)-[ENV]AN433

Parameter	Sample Name	Sample Number	Units	Criteria	Recovery %
Bromofluorobenzene (Surrogate)	M7_0.2-0.3	SE157545.001	%	60 - 130%	108
	M8_0.7-0.8	SE157545.003	%	60 - 130%	107
	HA/GB1_0.15-0.25	SE157545.004	%	60 - 130%	106
	W1	SE157545.005	%	60 - 130%	109
	W2	SE157545.006	%	60 - 130%	116
	W3	SE157545.007	%	60 - 130%	109
	QC18 (Trip Blank)	SE157545.011	%	60 - 130%	108
	QC19 (Trip Spike)	SE157545.012	%	60 - 130%	108
d4-1,2-dichloroethane (Surrogate)	M7_0.2-0.3	SE157545.001	%	60 - 130%	82
	M8_0.7-0.8	SE157545.003	%	60 - 130%	93
	HA/GB1_0.15-0.25	SE157545.004	%	60 - 130%	106
	W1	SE157545.005	%	60 - 130%	99
	W2	SE157545.006	%	60 - 130%	102
	W3	SE157545.007	%	60 - 130%	102
	QC18 (Trip Blank)	SE157545.011	%	60 - 130%	117
	QC19 (Trip Spike)	SE157545.012	%	60 - 130%	121
d8-toluene (Surrogate)	M7_0.2-0.3	SE157545.001	%	60 - 130%	105
	M8_0.7-0.8	SE157545.003	%	60 - 130%	78
	HA/GB1_0.15-0.25	SE157545.004	%	60 - 130%	89
	W1	SE157545.005	%	60 - 130%	76
	W2	SE157545.006	%	60 - 130%	84
	W3	SE157545.007	%	60 - 130%	77
	QC18 (Trip Blank)	SE157545.011	%	60 - 130%	89
	QC19 (Trip Spike)	SE157545.012	%	60 - 130%	72
Dibromofluoromethane (Surrogate)	M7_0.2-0.3	SE157545.001	%	60 - 130%	79
	M8_0.7-0.8	SE157545.003	%	60 - 130%	108
	HA/GB1_0.15-0.25	SE157545.004	%	60 - 130%	79
	W1	SE157545.005	%	60 - 130%	72
	W2	SE157545.006	%	60 - 130%	74
	W3	SE157545.007	%	60 - 130%	76
	QC18 (Trip Blank)	SE157545.011	%	60 - 130%	91
	QC19 (Trip Spike)	SE157545.012	%	60 - 130%	92

VOCs in Water

Method: ME-(AU)-[ENV]AN433

Parameter	Sample Name	Sample Number	Units	Criteria	Recovery %
Bromofluorobenzene (Surrogate)	W1	SE157545.008	%	40 - 130%	93
	W2	SE157545.009	%	40 - 130%	93
	W3	SE157545.010	%	40 - 130%	91
d4-1,2-dichloroethane (Surrogate)	W1	SE157545.008	%	40 - 130%	97
	W2	SE157545.009	%	40 - 130%	96
	W3	SE157545.010	%	40 - 130%	98
d8-toluene (Surrogate)	W1	SE157545.008	%	40 - 130%	93
	W2	SE157545.009	%	40 - 130%	95
	W3	SE157545.010	%	40 - 130%	93
Dibromofluoromethane (Surrogate)	W1	SE157545.008	%	40 - 130%	103
	W2	SE157545.009	%	40 - 130%	103
	W3	SE157545.010	%	40 - 130%	105

Volatile Petroleum Hydrocarbons in Soil

Method: ME-(AU)-[ENV]AN433

Parameter	Sample Name	Sample Number	Units	Criteria	Recovery %
Bromofluorobenzene (Surrogate)	M7_0.2-0.3	SE157545.001	%	60 - 130%	108
	M8_0.7-0.8	SE157545.003	%	60 - 130%	107
	HA/GB1_0.15-0.25	SE157545.004	%	60 - 130%	106

Surrogate results are evaluated against upper and lower limit criteria established in the SGS QA /QC plan (Ref: MP-(AU)-[ENV]QU-022). At least two of three routine level soil sample surrogate spike recoveries for BTEX/VOC are to be within 70-130% where control charts have not been developed and within the established control limits for charted surrogates. Matrix effects may void this as an acceptance criterion. Water sample surrogate spike recoveries are to be within 40-130%. The presence of emulsions, surfactants and particulates may void this as an acceptance criterion.

Result is shown in **Green** when within suggested criteria or **Red** with an appended reason identifer when outside suggested criteria. Refer to the footnotes section at the end of this report for failure reasons.

Volatile Petroleum Hydrocarbons in Soil (continued)

Method: ME-(AU)-[ENV]AN433

Parameter	Sample Name	Sample Number	Units	Criteria	Recovery %
Bromofluorobenzene (Surrogate)	W1	SE157545.005	%	60 - 130%	109
	W2	SE157545.006	%	60 - 130%	116
	W3	SE157545.007	%	60 - 130%	109
	QC18 (Trip Blank)	SE157545.011	%	60 - 130%	108
d4-1,2-dichloroethane (Surrogate)	M7_0.2-0.3	SE157545.001	%	60 - 130%	82
	M8_0.7-0.8	SE157545.003	%	60 - 130%	93
	HA/GB1_0.15-0.25	SE157545.004	%	60 - 130%	106
	W1	SE157545.005	%	60 - 130%	99
	W2	SE157545.006	%	60 - 130%	102
	W3	SE157545.007	%	60 - 130%	102
	QC18 (Trip Blank)	SE157545.011	%	60 - 130%	117
d8-toluene (Surrogate)	M7_0.2-0.3	SE157545.001	%	60 - 130%	105
	M8_0.7-0.8	SE157545.003	%	60 - 130%	78
	HA/GB1_0.15-0.25	SE157545.004	%	60 - 130%	89
	W1	SE157545.005	%	60 - 130%	76
	W2	SE157545.006	%	60 - 130%	84
	W3	SE157545.007	%	60 - 130%	77
	QC18 (Trip Blank)	SE157545.011	%	60 - 130%	89
Dibromofluoromethane (Surrogate)	M7_0.2-0.3	SE157545.001	%	60 - 130%	79
	M8_0.7-0.8	SE157545.003	%	60 - 130%	108
	HA/GB1_0.15-0.25	SE157545.004	%	60 - 130%	79
	W1	SE157545.005	%	60 - 130%	72
	W2	SE157545.006	%	60 - 130%	74
	W3	SE157545.007	%	60 - 130%	76
	QC18 (Trip Blank)	SE157545.011	%	60 - 130%	91

Volatile Petroleum Hydrocarbons in Water

Method: ME-(AU)-[ENV]AN433

Parameter	Sample Name	Sample Number	Units	Criteria	Recovery %
Bromofluorobenzene (Surrogate)	W1	SE157545.008	%	40 - 130%	93
	W2	SE157545.009	%	40 - 130%	93
	W3	SE157545.010	%	40 - 130%	91
d4-1,2-dichloroethane (Surrogate)	W1	SE157545.008	%	60 - 130%	97
	W2	SE157545.009	%	60 - 130%	96
	W3	SE157545.010	%	60 - 130%	98
d8-toluene (Surrogate)	W1	SE157545.008	%	40 - 130%	93
	W2	SE157545.009	%	40 - 130%	95
	W3	SE157545.010	%	40 - 130%	93
Dibromofluoromethane (Surrogate)	W1	SE157545.008	%	40 - 130%	103
	W2	SE157545.009	%	40 - 130%	103
	W3	SE157545.010	%	40 - 130%	105

Blank results are evaluated against the limit of reporting (LOR), for the chosen method and its associated instrumentation, typically 2.5 times the statistically determined method detection limit (MDL).

Result is shown in **Green** when within suggested criteria or **Red** with an appended dagger symbol (†) when outside suggested criteria.

Mercury (dissolved) in Water

Method: ME-(AU)-[ENV]AN311(Perth)/AN312

Sample Number	Parameter	Units	LOR	Result
LB110970.001	Mercury	mg/L	0.0001	<0.0001

Mercury in Soil

Method: ME-(AU)-[ENV]AN312

Sample Number	Parameter	Units	LOR	Result
LB110977.001	Mercury	mg/kg	0.05	<0.05

OC Pesticides in Soil

Method: ME-(AU)-[ENV]AN400/AN420

Sample Number		Parameter	Units	LOR	Result
LB110824.001		Hexachlorobenzene (HCB)	mg/kg	0.1	<0.1
		Alpha BHC	mg/kg	0.1	<0.1
		Lindane	mg/kg	0.1	<0.1
		Heptachlor	mg/kg	0.1	<0.1
		Aldrin	mg/kg	0.1	<0.1
		Beta BHC	mg/kg	0.1	<0.1
		Delta BHC	mg/kg	0.1	<0.1
		Heptachlor epoxide	mg/kg	0.1	<0.1
		Alpha Endosulfan	mg/kg	0.2	<0.2
		Gamma Chlordane	mg/kg	0.1	<0.1
		Alpha Chlordane	mg/kg	0.1	<0.1
		p,p'-DDE	mg/kg	0.1	<0.1
		Dieldrin	mg/kg	0.2	<0.2
		Endrin	mg/kg	0.2	<0.2
		Beta Endosulfan	mg/kg	0.2	<0.2
		p,p'-DDD	mg/kg	0.1	<0.1
		p,p'-DDT	mg/kg	0.1	<0.1
		Endosulfan sulphate	mg/kg	0.1	<0.1
		Endrin Aldehyde	mg/kg	0.1	<0.1
		Methoxychlor	mg/kg	0.1	<0.1
		Endrin Ketone	mg/kg	0.1	<0.1
		Isodrin	mg/kg	0.1	<0.1
		Mirex	mg/kg	0.1	<0.1
	Surrogates	Tetrachloro-m-xylene (TCMX) (Surrogate)	%	-	85

OC Pesticides in Water

Method: ME-(AU)-[ENV]AN400/AN420

Sample Number	Parameter	Units	LOR	Result
LB110738.001	Hexachlorobenzene (HCB)	µg/L	0.1	<0.1
	Alpha BHC	µg/L	0.1	<0.1
	Lindane (gamma BHC)	µg/L	0.1	<0.1
	Heptachlor	µg/L	0.1	<0.1
	Aldrin	µg/L	0.1	<0.1
	Beta BHC	µg/L	0.1	<0.1
	Delta BHC	µg/L	0.1	<0.1
	Heptachlor epoxide	µg/L	0.1	<0.1
	Alpha Endosulfan	µg/L	0.1	<0.1
	Gamma Chlordane	µg/L	0.1	<0.1
	Alpha Chlordane	µg/L	0.1	<0.1
	p,p'-DDE	µg/L	0.1	<0.1
	Dieldrin	µg/L	0.1	<0.1
	Endrin	µg/L	0.1	<0.1
	Beta Endosulfan	µg/L	0.1	<0.1
	p,p'-DDD	µg/L	0.1	<0.1
	p,p'-DDT	µg/L	0.1	<0.1
	Endosulfan sulphate	µg/L	0.1	<0.1
	Endrin aldehyde	µg/L	0.1	<0.1
	Methoxychlor	µg/L	0.1	<0.1
	Endrin ketone	µg/L	0.1	<0.1
	Isodrin	µg/L	0.1	<0.1
	Mirex	µg/L	0.1	<0.1

Blank results are evaluated against the limit of reporting (LOR), for the chosen method and its associated instrumentation, typically 2.5 times the statistically determined method detection limit (MDL).

Result is shown in **Green** when within suggested criteria or **Red** with an appended dagger symbol (†) when outside suggested criteria.

OC Pesticides in Water (continued)

Method: ME-(AU)-[ENV]AN400/AN420

Sample Number		Parameter	Units	LOR	Result
LB110738.001	Surrogates	Tetrachloro-m-xylene (TCMX) (Surrogate)	%	-	78

OP Pesticides in Soil

Method: ME-(AU)-[ENV]AN400/AN420

Sample Number		Parameter	Units	LOR	Result
LB110824.001		Dichlorvos	mg/kg	0.5	<0.5
		Dimethoate	mg/kg	0.5	<0.5
		Diazinon (Dimpylate)	mg/kg	0.5	<0.5
		Fenitrothion	mg/kg	0.2	<0.2
		Malathion	mg/kg	0.2	<0.2
		Chlorpyrifos (Chlorpyrifos Ethyl)	mg/kg	0.2	<0.2
		Parathion-ethyl (Parathion)	mg/kg	0.2	<0.2
		Bromophos Ethyl	mg/kg	0.2	<0.2
		Methidathion	mg/kg	0.5	<0.5
		Ethion	mg/kg	0.2	<0.2
		Azinphos-methyl (Guthion)	mg/kg	0.2	<0.2
	Surrogates	2-fluorobiphenyl (Surrogate)	%	-	80
		d14-p-terphenyl (Surrogate)	%	-	94

OP Pesticides in Water

Method: ME-(AU)-[ENV]AN400/AN420

Sample Number		Parameter	Units	LOR	Result
LB110738.001		Dichlorvos	µg/L	0.5	<0.5
		Dimethoate	µg/L	0.5	<0.5
		Diazinon (Dimpylate)	µg/L	0.5	<0.5
		Fenitrothion	µg/L	0.2	<0.2
		Malathion	µg/L	0.2	<0.2
		Chlorpyrifos (Chlorpyrifos Ethyl)	µg/L	0.2	<0.2
		Parathion-ethyl (Parathion)	µg/L	0.2	<0.2
		Bromophos Ethyl	µg/L	0.2	<0.2
		Methidathion	µg/L	0.5	<0.5
		Ethion	µg/L	0.2	<0.2
		Azinphos-methyl	µg/L	0.2	<0.2
	Surrogates	2-fluorobiphenyl (Surrogate)	%	-	72
		d14-p-terphenyl (Surrogate)	%	-	110

PAH (Polynuclear Aromatic Hydrocarbons) in Soil

Method: ME-(AU)-[ENV]AN420

Sample Number		Parameter	Units	LOR	Result
LB110824.001		Naphthalene	mg/kg	0.1	<0.1
		2-methylnaphthalene	mg/kg	0.1	<0.1
		1-methylnaphthalene	mg/kg	0.1	<0.1
		Acenaphthylene	mg/kg	0.1	<0.1
		Acenaphthene	mg/kg	0.1	<0.1
		Fluorene	mg/kg	0.1	<0.1
		Phenanthrene	mg/kg	0.1	<0.1
		Anthracene	mg/kg	0.1	<0.1
		Fluoranthene	mg/kg	0.1	<0.1
		Pyrene	mg/kg	0.1	<0.1
		Benzo(a)anthracene	mg/kg	0.1	<0.1
		Chrysene	mg/kg	0.1	<0.1
		Benzo(a)pyrene	mg/kg	0.1	<0.1
		Indeno(1,2,3-cd)pyrene	mg/kg	0.1	<0.1
		Dibenzo(ah)anthracene	mg/kg	0.1	<0.1
		Benzo(ghi)perylene	mg/kg	0.1	<0.1
		Total PAH (18)	mg/kg	0.8	<0.8
	Surrogates	d5-nitrobenzene (Surrogate)	%	-	84
		2-fluorobiphenyl (Surrogate)	%	-	80
		d14-p-terphenyl (Surrogate)	%	-	94

PAH (Polynuclear Aromatic Hydrocarbons) in Water

Method: ME-(AU)-[ENV]AN420

Sample Number		Parameter	Units	LOR	Result
LB110738.001		Naphthalene	µg/L	0.1	<0.1
		2-methylnaphthalene	µg/L	0.1	<0.1
		1-methylnaphthalene	µg/L	0.1	<0.1
		Acenaphthylene	µg/L	0.1	<0.1

Blank results are evaluated against the limit of reporting (LOR), for the chosen method and its associated instrumentation, typically 2.5 times the statistically determined method detection limit (MDL).

Result is shown in **Green** when within suggested criteria or **Red** with an appended dagger symbol (†) when outside suggested criteria.

PAH (Polynuclear Aromatic Hydrocarbons) in Water (continued)

Method: ME-(AU)-[ENV]AN420

Sample Number		Parameter	Units	LOR	Result
LB110738.001		Acenaphthene	µg/L	0.1	<0.1
		Fluorene	µg/L	0.1	<0.1
		Phenanthrene	µg/L	0.1	<0.1
		Anthracene	µg/L	0.1	<0.1
		Fluoranthene	µg/L	0.1	<0.1
		Pyrene	µg/L	0.1	<0.1
		Benzo(a)anthracene	µg/L	0.1	<0.1
		Chrysene	µg/L	0.1	<0.1
		Benzo(a)pyrene	µg/L	0.1	<0.1
		Indeno(1,2,3-cd)pyrene	µg/L	0.1	<0.1
		Dibenzo(ah)anthracene	µg/L	0.1	<0.1
		Benzo(ghi)perylene	µg/L	0.1	<0.1
	Surrogates	d5-nitrobenzene (Surrogate)	%	-	76
		2-fluorobiphenyl (Surrogate)	%	-	72
		d14-p-terphenyl (Surrogate)	%	-	110

Total Phenolics in Soil

Method: ME-(AU)-[ENV]AN289

Sample Number	Parameter	Units	LOR	Result
LB110743.001	Total Phenols	mg/kg	0.1	<0.1

Total Phenolics in Water

Method: ME-(AU)-[ENV]AN289

Sample Number	Parameter	Units	LOR	Result
LB110849.001	Total Phenols	mg/L	0.01	<0.01

Total Recoverable Metals in Soil/Waste Solids/Materials by ICPOES

Method: ME-(AU)-[ENV]AN040/AN320

Sample Number	Parameter	Units	LOR	Result
LB111001.001	Arsenic, As	mg/kg	3	<3
	Cadmium, Cd	mg/kg	0.3	<0.3
	Chromium, Cr	mg/kg	0.3	<0.3
	Copper, Cu	mg/kg	0.5	<0.5
	Lead, Pb	mg/kg	1	<1
	Nickel, Ni	mg/kg	0.5	<0.5
	Zinc, Zn	mg/kg	0.5	<0.5

Trace Metals (Dissolved) in Water by ICPMS

Method: ME-(AU)-[ENV]AN318

Sample Number	Parameter	Units	LOR	Result
LB110745.001	Arsenic, As	µg/L	1	<1
	Cadmium, Cd	µg/L	0.1	<0.1
	Chromium, Cr	µg/L	1	<1
	Copper, Cu	µg/L	1	<1
	Lead, Pb	µg/L	1	<1
	Nickel, Ni	µg/L	1	<1
	Zinc, Zn	µg/L	5	<5

TRH (Total Recoverable Hydrocarbons) in Soil

Method: ME-(AU)-[ENV]AN403

Sample Number	Parameter	Units	LOR	Result
LB110824.001	TRH C10-C14	mg/kg	20	<20
	TRH C15-C28	mg/kg	45	<45
	TRH C29-C36	mg/kg	45	<45
	TRH C37-C40	mg/kg	100	<100
	TRH C10-C36 Total	mg/kg	110	<110

TRH (Total Recoverable Hydrocarbons) in Water

Method: ME-(AU)-[ENV]AN403

Sample Number	Parameter	Units	LOR	Result
LB110738.001	TRH C10-C14	µg/L	50	<50
	TRH C15-C28	µg/L	200	<200
	TRH C29-C36	µg/L	200	<200
	TRH C37-C40	µg/L	200	<200

Blank results are evaluated against the limit of reporting (LOR), for the chosen method and its associated instrumentation, typically 2.5 times the statistically determined method detection limit (MDL).

Result is shown in **Green** when within suggested criteria or **Red** with an appended dagger symbol (†) when outside suggested criteria.

VOC's in Soil

Method: ME-(AU)-[ENV]AN433

Sample Number		Parameter	Units	LOR	Result
LB110735.001	Monocyclic Aromatic	Benzene	mg/kg	0.1	<0.1
	Hydrocarbons	Toluene	mg/kg	0.1	<0.1
		Ethylbenzene	mg/kg	0.1	<0.1
		m/p-xylene	mg/kg	0.2	<0.2
		o-xylene	mg/kg	0.1	<0.1
	Polycyclic VOCs	Naphthalene	mg/kg	0.1	<0.1
	Surrogates	Dibromofluoromethane (Surrogate)	%	-	97
		d4-1,2-dichloroethane (Surrogate)	%	-	129
		d8-toluene (Surrogate)	%	-	74
		Bromofluorobenzene (Surrogate)	%	-	114
	Totals	Total BTEX	mg/kg	0.6	<0.6

VOCs in Water

Method: ME-(AU)-[ENV]AN433

Sample Number		Parameter	Units	LOR	Result
LB110850.001	Monocyclic Aromatic	Benzene	µg/L	0.5	<0.5
	Hydrocarbons	Toluene	µg/L	0.5	<0.5
		Ethylbenzene	µg/L	0.5	<0.5
		m/p-xylene	µg/L	1	<1
		o-xylene	µg/L	0.5	<0.5
	Polycyclic VOCs	Naphthalene	µg/L	0.5	<0.5
	Surrogates	Dibromofluoromethane (Surrogate)	%	-	99
		d4-1,2-dichloroethane (Surrogate)	%	-	91
		d8-toluene (Surrogate)	%	-	99
		Bromofluorobenzene (Surrogate)	%	-	93

Volatile Petroleum Hydrocarbons in Soil

Method: ME-(AU)-[ENV]AN433

Sample Number		Parameter	Units	LOR	Result
LB110735.001		TRH C6-C9	mg/kg	20	<20
	Surrogates	Dibromofluoromethane (Surrogate)	%	-	97
		d4-1,2-dichloroethane (Surrogate)	%	-	129
		d8-toluene (Surrogate)	%	-	74

Volatile Petroleum Hydrocarbons in Water

Method: ME-(AU)-[ENV]AN433

Sample Number		Parameter	Units	LOR	Result
LB110850.001		TRH C6-C9	µg/L	40	<40
	Surrogates	Dibromofluoromethane (Surrogate)	%	-	99
		d4-1,2-dichloroethane (Surrogate)	%	-	91
		d8-toluene (Surrogate)	%	-	99
		Bromofluorobenzene (Surrogate)	%	-	93

Duplicates are calculated as Relative Percentage Difference (RPD) using the formula: RPD = | OriginalResult - ReplicateResult | x 100 / Mean

The RPD is evaluated against the Maximum Allowable Difference (MAD) criteria and can be graphically represented by a curve calculated from the Statistical Detection Limit (SDL) and Limiting Repeatability (LR) using the formula: MAD = 100 x SDL / Mean + LR

Where the Maximum Allowable Difference evaluates to a number larger than 200 it is displayed as 200.

RPD is shown in **Green** when within suggested criteria or **Red** with an appended reason identifer when outside suggested criteria. Refer to the footnotes section at the end of this report for failure reasons.

Mercury (dissolved) in Water

Method: ME-(AU)-[ENV]AN311(Perth)/AN312

Original	Duplicate	Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE157544.005	LB110970.014	Mercury	µg/L	0.0001	<0.0001	0.0000	200	24

Mercury in Soil

Method: ME-(AU)-[ENV]AN312

Original	Duplicate	Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE157535.001	LB110977.014	Mercury	mg/kg	0.05	<0.01	<0.01	200	0
SE157545.007	LB110977.024	Mercury	mg/kg	0.05	<0.05	<0.05	200	0

Moisture Content

Method: ME-(AU)-[ENV]AN002

Original	Duplicate	Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE157527.002	LB110857.011	% Moisture	%w/w	0.5	5.9	5.6	47	5
SE157533.002	LB110857.022	% Moisture	%w/w	0.5	43.7	41.7	32	5
SE157545.001	LB110857.033	% Moisture	%w/w	0.5	20	21	35	3
SE157545.011	LB110857.040	% Moisture	%w/w	0.5	<0.5	<0.5	200	0

PAH (Polynuclear Aromatic Hydrocarbons) in Soil

Method: ME-(AU)-[ENV]AN420

Original	Duplicate		Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE157527.008	LB110824.024		Naphthalene	mg/kg	0.1	<0.1	0.01	200	0
			2-methylnaphthalene	mg/kg	0.1	<0.1	0	200	0
			1-methylnaphthalene	mg/kg	0.1	<0.1	0	200	0
			Acenaphthylene	mg/kg	0.1	<0.1	0.02	200	0
			Acenaphthene	mg/kg	0.1	<0.1	0	200	0
			Fluorene	mg/kg	0.1	<0.1	0	200	0
			Phenanthrene	mg/kg	0.1	0.2	0.12	99	34
			Anthracene	mg/kg	0.1	<0.1	0.02	200	0
			Fluoranthene	mg/kg	0.1	0.5	0.34	54	36
			Pyrene	mg/kg	0.1	0.5	0.42	52	15
			Benzo(a)anthracene	mg/kg	0.1	0.3	0.2	69	43
			Chrysene	mg/kg	0.1	0.2	0.15	81	46
			Benzo(b&j)fluoranthene	mg/kg	0.1	0.3	0.18	75	36
			Benzo(k)fluoranthene	mg/kg	0.1	0.1	0.07	125	33
			Benzo(a)pyrene	mg/kg	0.1	0.2	0.13	87	51
			Indeno(1,2,3-cd)pyrene	mg/kg	0.1	0.1	0.07	141	10
			Dibenzo(ah)anthracene	mg/kg	0.1	<0.1	0.01	200	0
			Benzo(ghi)perylene	mg/kg	0.1	0.1	0.06	155	0
			Carcinogenic PAHs, BaP TEQ <LOR=0	TEQ (mg/kg)	0.2	0.3	0.1765	93	42
			Carcinogenic PAHs, BaP TEQ <LOR=LOR	TEQ (mg/kg)	0.3	0.4	0.2875	96	30
			Carcinogenic PAHs, BaP TEQ <LOR=LOR/2	TEQ (mg/kg)	0.2	0.4	0.232	78	42
			Total PAH (18)	mg/kg	0.8	2.5	1.61	69	45
		Surrogates	d5-nitrobenzene (Surrogate)	mg/kg	-	0.4	0.41	30	5
			2-fluorobiphenyl (Surrogate)	mg/kg	-	0.4	0.43	30	2
			d14-p-terphenyl (Surrogate)	mg/kg	-	0.5	0.4	30	16

Total Phenolics in Soil

Method: ME-(AU)-[ENV]AN289

Original	Duplicate	Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE157545.001	LB110743.004	Total Phenols	mg/kg	0.1	2.3	2.3	19	0

Total Recoverable Metals in Soil/Waste Solids/Materials by ICPOES

Method: ME-(AU)-[ENV]AN040/AN320

Original	Duplicate	Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE157605.009	LB111001.024	Arsenic, As	mg/kg	3	3.44071258054	.5183056029	55	27
		Cadmium, Cd	mg/kg	0.3	0.39559060230	.4120273720	104	4
		Chromium, Cr	mg/kg	0.3	26.284316075	24.831465617	32	6
		Copper, Cu	mg/kg	0.5	27.283889000	24.719703352	32	10
		Lead, Pb	mg/kg	1	18.707944198	20.038330323	35	7
		Nickel, Ni	mg/kg	0.5	28.220406929	26.748952411	32	5
		Zinc, Zn	mg/kg	0.5	00.190743352	08.957737647	32	8

Trace Metals (Dissolved) in Water by ICPMS

Method: ME-(AU)-[ENV]AN318

Original	Duplicate	Parameter	Units	LOR

Duplicates are calculated as Relative Percentage Difference (RPD) using the formula: RPD = | OriginalResult - ReplicateResult | x 100 / Mean

The RPD is evaluated against the Maximum Allowable Difference (MAD) criteria and can be graphically represented by a curve calculated from the Statistical Detection Limit (SDL) and Limiting Repeatability (LR) using the formula: MAD = 100 x SDL / Mean + LR

Where the Maximum Allowable Difference evaluates to a number larger than 200 it is displayed as 200.

RPD is shown in **Green** when within suggested criteria or **Red** with an appended reason identifer when outside suggested criteria. Refer to the footnotes section at the end of this report for failure reasons.

Trace Metals (Dissolved) in Water by ICPMS (continued)

Method: ME-(AU)-[ENV]AN318

Original	Duplicate		Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE157499.003	LB110745.014		Arsenic, As	µg/L	1	<1	<1	200	0
			Cadmium, Cd	µg/L	0.1	<0.1	<0.1	200	0
			Chromium, Cr	µg/L	1	<1	<1	200	0
			Copper, Cu	µg/L	1	<1	<1	200	0
			Lead, Pb	µg/L	1	<1	<1	200	0
			Nickel, Ni	µg/L	1	<1	<1	200	0
			Zinc, Zn	µg/L	5	<5	<5	200	0
SE157566.002	LB110745.028		Arsenic, As	µg/L	1	2	2	70	1
			Cadmium, Cd	µg/L	0.1	<0.1	<0.1	200	0
			Chromium, Cr	µg/L	1	<1	<1	200	0
			Copper, Cu	µg/L	1	2	2	79	6
			Lead, Pb	µg/L	1	<1	<1	200	0
			Nickel, Ni	µg/L	1	36	36	18	0
			Zinc, Zn	µg/L	5	35	34	29	2
SE157580.032	LB110745.031		Arsenic, As	µg/L	1	<1	<1	200	0
			Cadmium, Cd	µg/L	0.1	<0.1	<0.1	200	0
			Chromium, Cr	µg/L	1	<1	<1	200	0
			Copper, Cu	µg/L	1	<1	<1	166	0
			Lead, Pb	µg/L	1	<1	<1	200	0
			Nickel, Ni	µg/L	1	<1	<1	200	0
			Zinc, Zn	µg/L	5	<5	<5	152	0

TRH (Total Recoverable Hydrocarbons) in Soil

Method: ME-(AU)-[ENV]AN403

Original	Duplicate		Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE157527.008	LB110824.024		TRH C10-C14	mg/kg	20	<20	0	200	0
			TRH C15-C28	mg/kg	45	<45	0	200	0
			TRH C29-C36	mg/kg	45	<45	0	200	0
			TRH C37-C40	mg/kg	100	<100	0	200	0
			TRH C10-C36 Total	mg/kg	110	<110	0	200	0
			TRH C10-C40 Total	mg/kg	210	<210	0	200	0
		TRH F Bands	TRH >C10-C16 (F2)	mg/kg	25	<25	0	200	0
			TRH >C10-C16 (F2) - Naphthalene	mg/kg	25	<25	0	200	0
			TRH >C16-C34 (F3)	mg/kg	90	<90	0	200	0
			TRH >C34-C40 (F4)	mg/kg	120	<120	0	200	0
SE157545.011	LB110824.022		TRH C10-C14	mg/kg	20	<20	<20	200	0
			TRH C15-C28	mg/kg	45	<45	<45	200	0
			TRH C29-C36	mg/kg	45	<45	<45	200	0
			TRH C37-C40	mg/kg	100	<100	<100	200	0
			TRH C10-C36 Total	mg/kg	110	<110	<110	200	0
			TRH C10-C40 Total	mg/kg	210	<210	<210	200	0
		TRH F Bands	TRH >C10-C16 (F2)	mg/kg	25	<25	<25	200	0
			TRH >C10-C16 (F2) - Naphthalene	mg/kg	25	<25	<25	200	0
			TRH >C16-C34 (F3)	mg/kg	90	<90	<90	200	0
			TRH >C34-C40 (F4)	mg/kg	120	<120	<120	200	0

VOC's in Soil

Method: ME-(AU)-[ENV]AN433

Original	Duplicate		Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE157559.002	LB110735.014	Monocyclic	Benzene	mg/kg	0.1	<0.1	<0.1	200	0
		Aromatic	Toluene	mg/kg	0.1	<0.1	<0.1	200	0
			Ethylbenzene	mg/kg	0.1	<0.1	<0.1	200	0
			m/p-xylene	mg/kg	0.2	<0.2	<0.2	200	0
			o-xylene	mg/kg	0.1	<0.1	<0.1	200	0
		Polycyclic	Naphthalene	mg/kg	0.1	<0.1	<0.1	200	0
		Surrogates	Dibromofluoromethane (Surrogate)	mg/kg	-	4.4	4.2	50	4
			d4-1,2-dichloroethane (Surrogate)	mg/kg	-	5.8	5.6	50	4
			d8-toluene (Surrogate)	mg/kg	-	4.4	3.9	50	12
			Bromofluorobenzene (Surrogate)	mg/kg	-	5.5	5.4	50	3
		Totals	Total Xylenes*	mg/kg	0.3	<0.3	<0.3	200	0
			Total BTEX	mg/kg	0.6	<0.6	<0.6	200	0
SE157567.004	LB110735.020	Monocyclic	Benzene	mg/kg	0.1	<0.1	<0.1	200	0
		Aromatic	Toluene	mg/kg	0.1	<0.1	<0.1	200	0
			Ethylbenzene	mg/kg	0.1	<0.1	<0.1	200	0

Duplicates are calculated as Relative Percentage Difference (RPD) using the formula: RPD = | OriginalResult - ReplicateResult | x 100 / Mean

The RPD is evaluated against the Maximum Allowable Difference (MAD) criteria and can be graphically represented by a curve calculated from the Statistical Detection Limit (SDL) and Limiting Repeatability (LR) using the formula: MAD = 100 x SDL / Mean + LR

Where the Maximum Allowable Difference evaluates to a number larger than 200 it is displayed as 200.

RPD is shown in **Green** when within suggested criteria or **Red** with an appended reason identifer when outside suggested criteria. Refer to the footnotes section at the end of this report for failure reasons.

VOC's in Soil (continued)

Method: ME-(AU)-[ENV]AN433

Original	Duplicate		Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE157567.004	LB110735.020	Monocyclic	m/p-xylene	mg/kg	0.2	<0.2	<0.2	200	0
		Aromatic	o-xylene	mg/kg	0.1	<0.1	<0.1	200	0
		Polycyclic	Naphthalene	mg/kg	0.1	<0.1	<0.1	200	0
		Surrogates	Dibromofluoromethane (Surrogate)	mg/kg	-	4.2	3.9	50	6
			d4-1,2-dichloroethane (Surrogate)	mg/kg	-	4.2	3.7	50	14
			d8-toluene (Surrogate)	mg/kg	-	4.5	3.9	50	13
			Bromofluorobenzene (Surrogate)	mg/kg	-	4.3	4.6	50	7
		Totals	Total Xylenes*	mg/kg	0.3	<0.3	<0.3	200	0
			Total BTEX	mg/kg	0.6	<0.6	<0.6	200	0

VOCs in Water

Method: ME-(AU)-[ENV]AN433

Original	Duplicate		Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE157560.001	LB110850.018	Monocyclic	Benzene	µg/L	0.5	1.0	2.0	63	64 ③
		Aromatic	Toluene	µg/L	0.5	<0.5	<0.5	200	0
			Ethylbenzene	µg/L	0.5	<0.5	<0.5	200	0
			m/p-xylene	µg/L	1	<1	<1	200	0
			o-xylene	µg/L	0.5	<0.5	<0.5	200	0
		Polycyclic	Naphthalene	µg/L	0.5	<0.5	<0.5	200	0
		Surrogates	Dibromofluoromethane (Surrogate)	µg/L	-	5.1	4.8	30	6
			d4-1,2-dichloroethane (Surrogate)	µg/L	-	4.7	4.8	30	3
			d8-toluene (Surrogate)	µg/L	-	4.5	5.2	30	13
			Bromofluorobenzene (Surrogate)	µg/L	-	4.8	5.0	30	5

Volatile Petroleum Hydrocarbons in Soil

Method: ME-(AU)-[ENV]AN433

Original	Duplicate		Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE157559.002	LB110735.014		TRH C6-C10	mg/kg	25	<25	<25	200	0
			TRH C6-C9	mg/kg	20	<20	<20	200	0
		Surrogates	Dibromofluoromethane (Surrogate)	mg/kg	-	4.4	4.2	30	4
			d4-1,2-dichloroethane (Surrogate)	mg/kg	-	5.8	5.6	30	4
			d8-toluene (Surrogate)	mg/kg	-	4.4	3.9	30	12
			Bromofluorobenzene (Surrogate)	mg/kg	-	5.5	5.4	30	3
		VPH F Bands	Benzene (F0)	mg/kg	0.1	<0.1	<0.1	200	0
			TRH C6-C10 minus BTEX (F1)	mg/kg	25	<25	<25	200	0
SE157567.004	LB110735.020		TRH C6-C10	mg/kg	25	120	89	54	31
			TRH C6-C9	mg/kg	20	72	54	62	30
		Surrogates	Dibromofluoromethane (Surrogate)	mg/kg	-	4.2	3.9	30	6
			d4-1,2-dichloroethane (Surrogate)	mg/kg	-	4.2	3.7	30	14
			d8-toluene (Surrogate)	mg/kg	-	4.5	3.9	30	13
			Bromofluorobenzene (Surrogate)	mg/kg	-	4.3	4.6	30	7
		VPH F Bands	Benzene (F0)	mg/kg	0.1	<0.1	<0.1	200	0
			TRH C6-C10 minus BTEX (F1)	mg/kg	25	120	89	54	31

Volatile Petroleum Hydrocarbons in Water

Method: ME-(AU)-[ENV]AN433

Original	Duplicate		Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE157560.001	LB110850.018		TRH C6-C10	µg/L	50	66	80	99	19
			TRH C6-C9	µg/L	40	66	80	85	19
		Surrogates	Dibromofluoromethane (Surrogate)	µg/L	-	5.1	4.8	30	6
			d4-1,2-dichloroethane (Surrogate)	µg/L	-	4.7	4.8	30	3
			d8-toluene (Surrogate)	µg/L	-	4.5	5.2	30	13
			Bromofluorobenzene (Surrogate)	µg/L	-	4.8	5.0	30	5
		VPH F Bands	Benzene (F0)	µg/L	0.5	1.0	2.0	63	64 ③
			TRH C6-C10 minus BTEX (F1)	µg/L	50	65	78	100	18

Laboratory Control Standard (LCS) results are evaluated against an expected result, typically the concentration of analyte spiked into the control during the sample preparation stage, producing a percentage recovery. The criteria applied to the percentage recovery is established in the SGS QA /QC plan (Ref: MP-(AU)-[ENV]QU-022). For more information refer to the footnotes in the concluding page of this report.

Recovery is shown in **Green** when within suggested criteria or **Red** with an appended dagger symbol (†) when outside suggested criteria.

Mercury in Soil

Method: ME-(AU)-[ENV]AN312

Sample Number	Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB110977.002	Mercury	mg/kg	0.05	0.20	0.2	70 - 130	102

OC Pesticides in Soil

Method: ME-(AU)-[ENV]AN400/AN420

Sample Number		Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB110824.002		Heptachlor	mg/kg	0.1	0.2	0.2	60 - 140	112
		Aldrin	mg/kg	0.1	0.2	0.2	60 - 140	104
		Delta BHC	mg/kg	0.1	0.2	0.2	60 - 140	108
		Dieldrin	mg/kg	0.2	<0.2	0.2	60 - 140	92
		Endrin	mg/kg	0.2	0.2	0.2	60 - 140	115
		p,p'-DDT	mg/kg	0.1	0.2	0.2	60 - 140	125
	Surrogates	Tetrachloro-m-xylene (TCMX) (Surrogate)	mg/kg	-	0.13	0.15	40 - 130	83

OC Pesticides in Water

Method: ME-(AU)-[ENV]AN400/AN420

Sample Number		Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB110738.002		Heptachlor	µg/L	0.1	0.3	0.2	60 - 140	125
		Aldrin	µg/L	0.1	0.2	0.2	60 - 140	118
		Delta BHC	µg/L	0.1	0.2	0.2	60 - 140	117
		Dieldrin	µg/L	0.1	0.2	0.2	60 - 140	119
		Endrin	µg/L	0.1	0.3	0.2	60 - 140	125
		p,p'-DDT	µg/L	0.1	0.2	0.2	60 - 140	117
	Surrogates	Tetrachloro-m-xylene (TCMX) (Surrogate)	µg/L	-	0.14	0.15	40 - 130	96

OP Pesticides in Soil

Method: ME-(AU)-[ENV]AN400/AN420

Sample Number		Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB110824.002		Dichlorvos	mg/kg	0.5	1.7	2	60 - 140	85
		Diazinon (Dimpylate)	mg/kg	0.5	1.7	2	60 - 140	83
		Chlorpyrifos (Chlorpyrifos Ethyl)	mg/kg	0.2	1.7	2	60 - 140	87
		Ethion	mg/kg	0.2	1.5	2	60 - 140	76
	Surrogates	2-fluorobiphenyl (Surrogate)	mg/kg	-	0.4	0.5	40 - 130	74
		d14-p-terphenyl (Surrogate)	mg/kg	-	0.4	0.5	40 - 130	82

OP Pesticides in Water

Method: ME-(AU)-[ENV]AN400/AN420

Sample Number		Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB110738.002		Dichlorvos	µg/L	0.5	8.6	8	60 - 140	107
		Diazinon (Dimpylate)	µg/L	0.5	8.6	8	60 - 140	107
		Chlorpyrifos (Chlorpyrifos Ethyl)	µg/L	0.2	8.7	8	60 - 140	109
		Ethion	µg/L	0.2	8.2	8	60 - 140	103
	Surrogates	2-fluorobiphenyl (Surrogate)	µg/L	-	0.4	0.5	40 - 130	76
		d14-p-terphenyl (Surrogate)	µg/L	-	0.4	0.5	40 - 130	72

PAH (Polynuclear Aromatic Hydrocarbons) in Soil

Method: ME-(AU)-[ENV]AN420

Sample Number		Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB110824.002		Naphthalene	mg/kg	0.1	3.6	4	60 - 140	90
		Acenaphthylene	mg/kg	0.1	3.5	4	60 - 140	88
		Acenaphthene	mg/kg	0.1	3.5	4	60 - 140	88
		Phenanthrene	mg/kg	0.1	3.6	4	60 - 140	89
		Anthracene	mg/kg	0.1	3.6	4	60 - 140	89
		Fluoranthene	mg/kg	0.1	3.6	4	60 - 140	90
		Pyrene	mg/kg	0.1	3.5	4	60 - 140	87
		Benzo(a)pyrene	mg/kg	0.1	3.8	4	60 - 140	95
	Surrogates	d5-nitrobenzene (Surrogate)	mg/kg	-	0.4	0.5	40 - 130	74
		2-fluorobiphenyl (Surrogate)	mg/kg	-	0.4	0.5	40 - 130	74
		d14-p-terphenyl (Surrogate)	mg/kg	-	0.4	0.5	40 - 130	82

PAH (Polynuclear Aromatic Hydrocarbons) in Water

Method: ME-(AU)-[ENV]AN420

Sample Number	Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB110738.002	Naphthalene	µg/L	0.1	32	40	60 - 140	79
	Acenaphthylene	µg/L	0.1	36	40	60 - 140	89
	Acenaphthene	µg/L	0.1	35	40	60 - 140	88
	Phenanthrene	µg/L	0.1	36	40	60 - 140	89
	Anthracene	µg/L	0.1	33	40	60 - 140	81
	Fluoranthene	µg/L	0.1	36	40	60 - 140	91

Laboratory Control Standard (LCS) results are evaluated against an expected result, typically the concentration of analyte spiked into the control during the sample preparation stage, producing a percentage recovery. The criteria applied to the percentage recovery is established in the SGS QA /QC plan (Ref: MP-(AU)-[ENV]QU-022). For more information refer to the footnotes in the concluding page of this report.

Recovery is shown in **Green** when within suggested criteria or **Red** with an appended dagger symbol (†) when outside suggested criteria.

PAH (Polynuclear Aromatic Hydrocarbons) in Water (continued)

Method: ME-(AU)-[ENV]AN420

Sample Number		Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB110738.002		Pyrene	µg/L	0.1	34	40	60 - 140	86
		Benzo(a)pyrene	µg/L	0.1	33	40	60 - 140	82
	Surrogates	d5-nitrobenzene (Surrogate)	µg/L	-	0.4	0.5	40 - 130	70
		2-fluorobiphenyl (Surrogate)	µg/L	-	0.4	0.5	40 - 130	76
		d14-p-terphenyl (Surrogate)	µg/L	-	0.4	0.5	40 - 130	72

Total Phenolics in Soil

Method: ME-(AU)-[ENV]AN289

Sample Number	Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB110743.002	Total Phenols	mg/kg	0.1	2.2	2.5	70 - 130	87

Total Phenolics in Water

Method: ME-(AU)-[ENV]AN289

Sample Number	Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB110849.002	Total Phenols	mg/L	0.01	0.22	0.25	80 - 120	88

Total Recoverable Metals in Soil/Waste Solids/Materials by ICPOES

Method: ME-(AU)-[ENV]AN040/AN320

Sample Number	Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB111001.002	Arsenic, As	mg/kg	3	49	50	80 - 120	99
	Cadmium, Cd	mg/kg	0.3	51	50	80 - 120	102
	Chromium, Cr	mg/kg	0.3	50	50	80 - 120	99
	Copper, Cu	mg/kg	0.5	51	50	80 - 120	101
	Lead, Pb	mg/kg	1	50	50	80 - 120	101
	Nickel, Ni	mg/kg	0.5	50	50	80 - 120	100
	Zinc, Zn	mg/kg	0.5	51	50	80 - 120	101

Trace Metals (Dissolved) in Water by ICPMS

Method: ME-(AU)-[ENV]AN318

Sample Number	Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB110745.002	Arsenic, As	µg/L	1	20	20	80 - 120	101
	Cadmium, Cd	µg/L	0.1	22	20	80 - 120	110
	Chromium, Cr	µg/L	1	23	20	80 - 120	113
	Copper, Cu	µg/L	1	23	20	80 - 120	114
	Lead, Pb	µg/L	1	23	20	80 - 120	113
	Nickel, Ni	µg/L	1	21	20	80 - 120	105
	Zinc, Zn	µg/L	5	20	20	80 - 120	100

TRH (Total Recoverable Hydrocarbons) in Soil

Method: ME-(AU)-[ENV]AN403

Sample Number		Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB110824.002		TRH C10-C14	mg/kg	20	38	40	60 - 140	95
		TRH C15-C28	mg/kg	45	<45	40	60 - 140	100
		TRH C29-C36	mg/kg	45	<45	40	60 - 140	103
	TRH F Bands	TRH >C10-C16 (F2)	mg/kg	25	39	40	60 - 140	98
		TRH >C16-C34 (F3)	mg/kg	90	<90	40	60 - 140	108
		TRH >C34-C40 (F4)	mg/kg	120	<120	20	60 - 140	100

TRH (Total Recoverable Hydrocarbons) in Water

Method: ME-(AU)-[ENV]AN403

Sample Number		Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB110738.002		TRH C10-C14	µg/L	50	920	1200	60 - 140	77
		TRH C15-C28	µg/L	200	1200	1200	60 - 140	103
		TRH C29-C36	µg/L	200	1400	1200	60 - 140	119
	TRH F Bands	TRH >C10-C16 (F2)	µg/L	60	1100	1200	60 - 140	88
		TRH >C16-C34 (F3)	µg/L	500	1400	1200	60 - 140	115
		TRH >C34-C40 (F4)	µg/L	500	740	600	60 - 140	123

VOC's in Soil

Method: ME-(AU)-[ENV]AN433

Sample Number		Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB110735.002	Monocyclic	Benzene	mg/kg	0.1	2.5	2.9	60 - 140	86
	Aromatic	Toluene	mg/kg	0.1	2.1	2.9	60 - 140	72
		Ethylbenzene	mg/kg	0.1	2.2	2.9	60 - 140	76
		m/p-xylene	mg/kg	0.2	5.8	5.8	60 - 140	101
		o-xylene	mg/kg	0.1	2.6	2.9	60 - 140	90
	Surrogates	Dibromofluoromethane (Surrogate)	mg/kg	-	4.7	5	60 - 140	94

Laboratory Control Standard (LCS) results are evaluated against an expected result, typically the concentration of analyte spiked into the control during the sample preparation stage, producing a percentage recovery. The criteria applied to the percentage recovery is established in the SGS QA /QC plan (Ref: MP-(AU)-[ENV]QU-022). For more information refer to the footnotes in the concluding page of this report.

Recovery is shown in **Green** when within suggested criteria or **Red** with an appended dagger symbol (†) when outside suggested criteria.

VOC's in Soil (continued)

Method: ME-(AU)-[ENV]AN433

Sample Number		Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB110735.002	Surrogates	d4-1,2-dichloroethane (Surrogate)	mg/kg	-	6.0	5	60 - 140	119
		d8-toluene (Surrogate)	mg/kg	-	3.5	5	60 - 140	70
		Bromofluorobenzene (Surrogate)	mg/kg	-	5.6	5	60 - 140	113

VOCs in Water

Method: ME-(AU)-[ENV]AN433

Sample Number		Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB110850.002	Monocyclic	Benzene	µg/L	0.5	50	45.45	60 - 140	110
	Aromatic	Toluene	µg/L	0.5	50	45.45	60 - 140	110
		Ethylbenzene	µg/L	0.5	50	45.45	60 - 140	110
		m/p-xylene	µg/L	1	100	90.9	60 - 140	110
		o-xylene	µg/L	0.5	50	45.45	60 - 140	109
	Surrogates	Dibromofluoromethane (Surrogate)	µg/L	-	5.0	5	60 - 140	99
		d4-1,2-dichloroethane (Surrogate)	µg/L	-	5.0	5	60 - 140	100
		d8-toluene (Surrogate)	µg/L	-	4.7	5	60 - 140	93
		Bromofluorobenzene (Surrogate)	µg/L	-	4.7	5	60 - 140	94

Volatile Petroleum Hydrocarbons in Soil

Method: ME-(AU)-[ENV]AN433

Sample Number		Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB110735.002		TRH C6-C10	mg/kg	25	<25	24.65	60 - 140	97
		TRH C6-C9	mg/kg	20	20	23.2	60 - 140	87
	Surrogates	Dibromofluoromethane (Surrogate)	mg/kg	-	4.7	5	60 - 140	94
		d4-1,2-dichloroethane (Surrogate)	mg/kg	-	6.0	5	60 - 140	119
		d8-toluene (Surrogate)	mg/kg	-	3.5	5	60 - 140	70
		Bromofluorobenzene (Surrogate)	mg/kg	-	5.6	5	60 - 140	113
	VPH F Bands	TRH C6-C10 minus BTEX (F1)	mg/kg	25	<25	7.25	60 - 140	121

Volatile Petroleum Hydrocarbons in Water

Method: ME-(AU)-[ENV]AN433

Sample Number		Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB110850.002		TRH C6-C10	µg/L	50	940	946.63	60 - 140	99
		TRH C6-C9	µg/L	40	770	818.71	60 - 140	94
	Surrogates	Dibromofluoromethane (Surrogate)	µg/L	-	4.9	5	60 - 140	98
		d4-1,2-dichloroethane (Surrogate)	µg/L	-	5.0	5	60 - 140	101
		d8-toluene (Surrogate)	µg/L	-	5.1	5	60 - 140	102
		Bromofluorobenzene (Surrogate)	µg/L	-	5.0	5	60 - 140	101
	VPH F Bands	TRH C6-C10 minus BTEX (F1)	µg/L	50	630	639.67	60 - 140	99

Matrix Spike (MS) results are evaluated as the percentage recovery of an expected result, typically the concentration of analyte spiked into a field sub -sample during the sample preparation stage. The original sample's result is subtracted from the sub-sample result before determining the percentage recovery. The criteria applied to the percentage recovery is established in the SGS QA/QC plan (ref: MP-(AU)-[ENV]QU-022). For more information refer to the footnotes in the concluding page of this report.

Recovery is shown in **Green** when within suggested criteria or **Red** with an appended reason identifer when outside suggested criteria. Refer to the footnotes section at the end of this report for failure reasons.

Mercury in Soil

Method: ME-(AU)-[ENV]AN312

QC Sample	Sample Number	Parameter	Units	LOR	Result	Original	Spike	Recovery%
SE157527.001	LB110977.004	Mercury	mg/kg	0.05	0.26	0.09	0.2	85

OC Pesticides in Soil

Method: ME-(AU)-[ENV]AN400/AN420

QC Sample	Sample Number		Parameter	Units	LOR	Original	Spike	Recovery%
SE157527.001	LB110824.023		Hexachlorobenzene (HCB)	mg/kg	0.1	<0.1	-	-
			Alpha BHC	mg/kg	0.1	<0.1	-	-
			Lindane	mg/kg	0.1	<0.1	-	-
			Heptachlor	mg/kg	0.1	<0.1	0.2	119
			Aldrin	mg/kg	0.1	<0.1	0.2	110
			Beta BHC	mg/kg	0.1	<0.1	-	-
			Delta BHC	mg/kg	0.1	<0.1	0.2	119
			Heptachlor epoxide	mg/kg	0.1	<0.1	-	-
			o,p'-DDE	mg/kg	0.1	<0.1	-	-
			Alpha Endosulfan	mg/kg	0.2	<0.2	-	-
			Gamma Chlordane	mg/kg	0.1	<0.1	-	-
			Alpha Chlordane	mg/kg	0.1	<0.1	-	-
			trans-Nonachlor	mg/kg	0.1	<0.1	-	-
			p,p'-DDE	mg/kg	0.1	<0.1	-	-
			Dieldrin	mg/kg	0.2	<0.2	0.2	89
			Endrin	mg/kg	0.2	<0.2	0.2	120
			o,p'-DDD	mg/kg	0.1	<0.1	-	-
			o,p'-DDT	mg/kg	0.1	<0.1	-	-
			Beta Endosulfan	mg/kg	0.2	<0.2	-	-
			p,p'-DDD	mg/kg	0.1	<0.1	-	-
			p,p'-DDT	mg/kg	0.1	<0.1	0.2	124
			Endosulfan sulphate	mg/kg	0.1	<0.1	-	-
			Endrin Aldehyde	mg/kg	0.1	<0.1	-	-
			Methoxychlor	mg/kg	0.1	<0.1	-	-
			Endrin Ketone	mg/kg	0.1	<0.1	-	-
			Isodrin	mg/kg	0.1	<0.1	-	-
			Mirex	mg/kg	0.1	<0.1	-	-
		Surrogates	Tetrachloro-m-xylene (TCMX) (Surrogate)	mg/kg	-	0.13	-	83

OP Pesticides in Soil

Method: ME-(AU)-[ENV]AN400/AN420

QC Sample	Sample Number		Parameter	Units	LOR	Original	Spike	Recovery%
SE157527.001	LB110824.023		Dichlorvos	mg/kg	0.5	<0.5	2	85
			Dimethoate	mg/kg	0.5	<0.5	-	-
			Diazinon (Dimpylate)	mg/kg	0.5	<0.5	2	77
			Fenitrothion	mg/kg	0.2	<0.2	-	-
			Malathion	mg/kg	0.2	<0.2	-	-
			Chlorpyrifos (Chlorpyrifos Ethyl)	mg/kg	0.2	<0.2	2	89
			Parathion-ethyl (Parathion)	mg/kg	0.2	<0.2	-	-
			Bromophos Ethyl	mg/kg	0.2	<0.2	-	-
			Methidathion	mg/kg	0.5	<0.5	-	-
			Ethion	mg/kg	0.2	<0.2	2	73
			Azinphos-methyl (Guthion)	mg/kg	0.2	<0.2	-	-
		Surrogates	2-fluorobiphenyl (Surrogate)	mg/kg	-	0.4	-	84
			d14-p-terphenyl (Surrogate)	mg/kg	-	0.4	-	96

PAH (Polynuclear Aromatic Hydrocarbons) in Soil

Method: ME-(AU)-[ENV]AN420

QC Sample	Sample Number	Parameter	Units	LOR	Original	Spike	Recovery%
SE157527.001	LB110824.023	Naphthalene	mg/kg	0.1	<0.1	4	101
		2-methylnaphthalene	mg/kg	0.1	<0.1	-	-
		1-methylnaphthalene	mg/kg	0.1	<0.1	-	-
		Acenaphthylene	mg/kg	0.1	<0.1	4	98
		Acenaphthene	mg/kg	0.1	<0.1	4	101
		Fluorene	mg/kg	0.1	<0.1	-	-
		Phenanthrene	mg/kg	0.1	<0.1	4	103
		Anthracene	mg/kg	0.1	<0.1	4	101
		Fluoranthene	mg/kg	0.1	0.3	4	114

Matrix Spike (MS) results are evaluated as the percentage recovery of an expected result, typically the concentration of analyte spiked into a field sub -sample during the sample preparation stage. The original sample's result is subtracted from the sub-sample result before determining the percentage recovery. The criteria applied to the percentage recovery is established in the SGS QA/QC plan (ref: MP-(AU)-[ENV]QU-022). For more information refer to the footnotes in the concluding page of this report.

Recovery is shown in **Green** when within suggested criteria or **Red** with an appended reason identifer when outside suggested criteria. Refer to the footnotes section at the end of this report for failure reasons.

PAH (Polynuclear Aromatic Hydrocarbons) in Soil (continued)

Method: ME-(AU)-[ENV]AN420

QC Sample	Sample Number		Parameter	Units	LOR	Original	Spike	Recovery%
SE157527.001	LB110824.023		Pyrene	mg/kg	0.1	0.2	4	102
			Benzo(a)anthracene	mg/kg	0.1	0.2	-	-
			Chrysene	mg/kg	0.1	0.1	-	-
			Benzo(b&j)fluoranthene	mg/kg	0.1	0.2	-	-
			Benzo(k)fluoranthene	mg/kg	0.1	0.1	-	-
			Benzo(a)pyrene	mg/kg	0.1	0.2	4	105
			Indeno(1,2,3-cd)pyrene	mg/kg	0.1	0.1	-	-
			Dibenzo(ah)anthracene	mg/kg	0.1	<0.1	-	-
			Benzo(ghi)perylene	mg/kg	0.1	0.1	-	-
			Carcinogenic PAHs, BaP TEQ <LOR=0	TEQ	0.2	0.2	-	-
			Carcinogenic PAHs, BaP TEQ <LOR=LOR	TEQ (mg/kg)	0.3	0.3	-	-
			Carcinogenic PAHs, BaP TEQ <LOR=LOR/2	TEQ (mg/kg)	0.2	0.3	-	-
			Total PAH (18)	mg/kg	0.8	1.5	-	-
		Surrogates	d5-nitrobenzene (Surrogate)	mg/kg	-	0.4	-	84
			2-fluorobiphenyl (Surrogate)	mg/kg	-	0.4	-	84
			d14-p-terphenyl (Surrogate)	mg/kg	-	0.4	-	96

Total Phenolics in Soil

Method: ME-(AU)-[ENV]AN289

QC Sample	Sample Number	Parameter	Units	LOR	Result	Original	Spike	Recovery%
SE157443.013	LB110743.015	Total Phenols	mg/kg	0.1	2.4	<0.1	2.5	95

Total Phenolics in Water

Method: ME-(AU)-[ENV]AN289

QC Sample	Sample Number	Parameter	Units	LOR	Result	Original	Spike	Recovery%
SE155387.002	LB110849.010	Total Phenols	mg/L	0.01	0.22	<0.01	0.25	86

Trace Metals (Dissolved) in Water by ICPMS

Method: ME-(AU)-[ENV]AN318

QC Sample	Sample Number	Parameter	Units	LOR	Result	Original	Spike	Recovery%
SE157471.013	LB110745.004	Arsenic, As	µg/L	1	20	<1	20	102
		Cadmium, Cd	µg/L	0.1	22	<0.1	20	112
		Chromium, Cr	µg/L	1	23	<1	20	114
		Copper, Cu	µg/L	1	23	<1	20	115
		Lead, Pb	µg/L	1	22	<1	20	112
		Nickel, Ni	µg/L	1	21	<1	20	105
		Zinc, Zn	µg/L	5	22	<5	20	101

TRH (Total Recoverable Hydrocarbons) in Soil

Method: ME-(AU)-[ENV]AN403

QC Sample	Sample Number		Parameter	Units	LOR	Original	Spike	Recovery%
SE157526.001	LB110824.023		TRH C10-C14	mg/kg	20	<20	40	95
			TRH C15-C28	mg/kg	45	<45	40	120
			TRH C29-C36	mg/kg	45	<45	40	108
			TRH C37-C40	mg/kg	100	<100	-	-
			TRH C10-C36 Total	mg/kg	110	<110	-	-
			TRH C10-C40 Total	mg/kg	210	<210	-	-
		TRH F Bands	TRH >C10-C16 (F2)	mg/kg	25	<25	40	95
			TRH >C10-C16 (F2) - Naphthalene	mg/kg	25	<25	-	-
			TRH >C16-C34 (F3)	mg/kg	90	<90	40	133
			TRH >C34-C40 (F4)	mg/kg	120	<120	-	-

VOC's in Soil

Method: ME-(AU)-[ENV]AN433

QC Sample	Sample Number		Parameter	Units	LOR	Result	Original	Spike	Recovery%
SE157545.001	LB110735.004	Monocyclic	Benzene	mg/kg	0.1	2.1	<0.1	2.9	73
		Aromatic	Toluene	mg/kg	0.1	1.9	<0.1	2.9	65
			Ethylbenzene	mg/kg	0.1	1.9	<0.1	2.9	64
			m/p-xylene	mg/kg	0.2	4.7	<0.2	5.8	81
			o-xylene	mg/kg	0.1	2.2	<0.1	2.9	74
		Polycyclic	Naphthalene	mg/kg	0.1	<0.1	<0.1	-	-
		Surrogates	Dibromofluoromethane (Surrogate)	mg/kg	-	4.9	4.0	-	97
			d4-1,2-dichloroethane (Surrogate)	mg/kg	-	4.5	4.1	-	91

Matrix Spike (MS) results are evaluated as the percentage recovery of an expected result, typically the concentration of analyte spiked into a field sub -sample during the sample preparation stage. The original sample's result is subtracted from the sub-sample result before determining the percentage recovery. The criteria applied to the percentage recovery is established in the SGS QA/QC plan (ref: MP-(AU)-[ENV]QU-022). For more information refer to the footnotes in the concluding page of this report.

Recovery is shown in **Green** when within suggested criteria or **Red** with an appended reason identifer when outside suggested criteria. Refer to the footnotes section at the end of this report for failure reasons.

VOC's in Soil (continued)

Method: ME-(AU)-[ENV]AN433

QC Sample	Sample Number		Parameter	Units	LOR	Result	Original	Spike	Recovery%
SE157545.001	LB110735.004	Surrogates	d8-toluene (Surrogate)	mg/kg	-	4.0	5.3	-	80
			Bromofluorobenzene (Surrogate)	mg/kg	-	5.3	5.4	-	107
		Totals	Total Xylenes*	mg/kg	0.3	6.8	<0.3	-	-
			Total BTEX	mg/kg	0.6	13	<0.6	-	-

Volatile Petroleum Hydrocarbons in Soil

Method: ME-(AU)-[ENV]AN433

QC Sample	Sample Number		Parameter	Units	LOR	Result	Original	Spike	Recovery%
SE157545.001	LB110735.004		TRH C6-C10	mg/kg	25	<25	<25	24.65	83
			TRH C6-C9	mg/kg	20	<20	<20	23.2	80
		Surrogates	Dibromofluoromethane (Surrogate)	mg/kg	-	4.9	4.0	-	97
			d4-1,2-dichloroethane (Surrogate)	mg/kg	-	4.5	4.1	-	91
			d8-toluene (Surrogate)	mg/kg	-	4.0	5.3	-	80
			Bromofluorobenzene (Surrogate)	mg/kg	-	5.3	5.4	-	107
		VPH F	Benzene (F0)	mg/kg	0.1	2.1	<0.1	-	-
		Bands	TRH C6-C10 minus BTEX (F1)	mg/kg	25	<25	<25	7.25	108

MATRIX SPIKE DUPLICATES

SE157545 R0

Matrix spike duplicates are calculated as Relative Percent Difference (RPD) using the formula: RPD = | OriginalResult - ReplicateResult | x 100 / Mean

The original result is the analyte concentration of the matrix spike. The Duplicate result is the analyte concentration of the matrix spike duplicate.

The RPD is evaluated against the Maximum Allowable Difference (MAD) criteria and can be graphically represented by a curve calculated from the Statistical Detection Limit (SDL) and Limiting Repeatability (LR) using the formula: MAD = 100 x SDL / Mean + LR

Where the Maximum Allowable Difference evaluates to a number larger than 200 it is displayed as 200.

RPD is shown in **Green** when within suggested criteria or **Red** with an appended reason identifer when outside suggested criteria. Refer to the footnotes section at the end of this report for failure reasons.

No matrix spike duplicates were required for this job.

Samples analysed as received.

Solid samples expressed on a dry weight basis.

QC criteria are subject to internal review according to the SGS QA/QC plan and may be provided on request or alternatively can be found here: http://www.sgs.com.au/~/media/Local/Australia/Documents/Technical Documents/MP-AU-ENV-QU-022 QA QC Plan.pdf

*	NATA accreditation does not cover tthe performance of this service.
-	Sample not analysed for this analyte.

IS	Insufficient sample for analysis.
LNR	Sample listed, but not received.
LOR	Limit of reporting.
QFH	QC result is above the upper tolerance.
QFL	QC result is below the lower tolerance.

①	At least 2 of 3 surrogates are within acceptance criteria.
②	RPD failed acceptance criteria due to sample heterogeneity.
③	Results less than 5 times LOR preclude acceptance criteria for RPD.
④	Recovery failed acceptance criteria due to matrix interference.
⑤	Recovery failed acceptance criteria due to the presence of significant concentration of analyte (i.e. the concentration of analyte exceeds the spike level).
⑥	LOR was raised due to sample matrix interference.
⑦	LOR was raised due to dilution of significantly high concentration of analyte in sample.
⑧	Reanalysis of sample in duplicate confirmed sample heterogeneity and inconsistency of results.
⑨	Recovery failed acceptance criteria due to sample heterogeneity.
⑩	LOR was raised due to high conductivity of the sample (required dilution).
†	Refer to Analytical Report comments for further information.

This document is issued, on the Client's behalf, by the Company under its General Conditions of Service, available on request and accessible at http://www.sgs.com/en/terms-and-conditions. The Client's attention is drawn to the limitation of liability, indemnification and jurisdiction issues defined therein.

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source: M630_SR_20160928154024.pdf page: 1 SGS Ref: SE157562_COC

SGS

CHAIN OF CUSTODY & ANALYSIS REQUEST

SGS Environmental Services
Unit 16, 33 Maddox Street
Alexandria NSW 2015
Telephone No: (02) 85940400
Facsimile No: (02) 85940499
Email: au.samplereceipt.sydney@sgs.com

Company Name:	SMEC Australia Pty Ltd	Project Name/No:	3002092
Address:	Oracle Building, Suite 2, Level 1	Purchase Order No:	
	243 Northbourne Avenue, Lyneham, ACT 2602	Results Required By:	STANDARD TAT
		Telephone:	026234 1907
Contact Name:	Graham Ohmsen	Facsimile:	
		Email Results:	Graham.ohmsen@smec.com

Client Sample ID	Date Sampled	Lab Sample ID	WATER	SOIL	PRESERVATIVE	NO OF CONTAINERS	CL17 SUITE	ASBESTOS (BAGS ONLY)
ASP-01_SV01	23/09/2016	1 J, ZB		X		1	X	X
ASP-01_SV02	23/09/2016	2 J,		X		1	X	X
ASP-01_SV03	23/09/2016	3 J, ZB		X		1	X	X
ASP-01_SV04	23/09/2016	4 J, ZB		X		1	X	X
ASP-01_SV05	23/09/2016	5 J, ZB		X		1	X	X
ASP-01_SV06	23/09/2016	6 J, ZB		X		1	X	X
ASP-02_SV01	23/09/2016	7 J, ZB		X		1	X	X
ASP-02_SV02	23/09/2016	8 J, ZB		X		1	X	X
ASP-02_SV03	23/09/2016	9 J, ZB		X		1	X	X

SGS EHS Alexandria Laboratory

SE157562 COC
Received: 28 – Sep – 2016

Relinquished By: Ryan O'Leary	Date/Time: 27/9/16 16:00	Received By:	Date/Time
Relinquished By:	Date/Time:	Received By:	Date/Time 28/9/16 @ 11:00
Samples Intact: ~~Yes~~/ No	Temperature: Ambient / ~~Chilled~~ 14.5	Sample Cooler Sealed: ~~Yes~~/ No	Laboratory Quotation No:
	Comments:		

Ref: SGS_COC Asbestos Stockpile validation 23 Sept

SGS

CHAIN OF CUSTODY & ANALYSIS REQUEST

SGS Environmental Services
Unit 16, 33 Maddox Street
Alexandria NSW 2015
Telephone No: (02) 85940400
Facsimile No: (02) 85940499
Email: au.samplereceipt.sydney@sgs.com

Company Name:	SMEC Australia Pty Ltd	Project Name/No:	3002092
Address:	Oracle Building, Suite 2, Level 1	Purchase Order No:	
	243 Northbourne Avenue, Lyneham, ACT 2602	Results Required By:	Standard TAT
		Telephone:	026234 1907
Contact Name:	Graham Ohmsen	Facsimile:	
		Email Results:	Graham.ohmsen@smec.com

Client Sample ID	Date Sampled	Lab Sample ID	WATER	SOIL	PRESERVATIVE	NO OF CONTAINERS	CL17 SUITE	ASBESTOS (BAGS ONLY)
ASP-02_SV04	23/09/2016	10 J		X			X	X
ASP-02_SV05	23/09/2016	11 J,ZLB		X			X	X
ASP-03_SV01	23/09/2016	12 J,ZLB		X			X	X
ASP-03_SV02	23/09/2016	13 J,ZLB		X			X	X
ASP-03_SV03	23/09/2016	14 J,ZLB		X			X	X
ASP-03_SV04	23/09/2016	15 J ZLB		X			X	X
ASP-03_SV05	23/09/2016	16 J',ZLB		X			X	X
ASP-03_SV06	23/09/2016	17 J,ZLB		X			X	X
ASP-03_SV07	23/09/2016	18 J,ZLB		X			X	X

Relinquished By: Ryan O'Leary	Date/Time: 27/9/16 16:00	Received By:	Date/Time
Relinquished By:	Date/Time:	Received By:	Date/Time 28/9/16 @ 11:00
Samples Intact: (Yes) No	Temperature: Ambient / (Chilled)	Sample Cooler Sealed: (Yes) No	Laboratory Quotation No:
	Comments:		

Ref: SGS_COC Asbestos Stockpile validation 23 Sept

SGS

CHAIN OF CUSTODY & ANALYSIS REQUEST

SGS Environmental Services
Unit 16, 33 Maddox Street
Alexandria NSW 2015
Telephone No: (02) 85940400
Facsimile No: (02) 85940499
Email: au.samplereceipt.sydney@sgs.com

Company Name:	SMEC Australia Pty Ltd	Project Name/No:	3002092
Address:	Oracle Building, Suite 2, Level 1	Purchase Order No:	
	243 Northbourne Avenue, Lyneham, ACT 2602	Results Required By:	STANDARD TAT
		Telephone:	026234 1907
Contact Name:	Graham Ohmsen	Facsimile:	
		Email Results:	Graham.ohmsen@smec.com

Client Sample ID	Date Sampled	Lab Sample ID	WATER	SOIL	PRESERVATIVE	NO OF CONTAINERS	CL17 SUITE	ASBESTOS (BAGS ONLY)
ASP-03_SV08	23/09/2016	19 J,ZLB		X		1	X	X
ASP-03_SV09	23/09/2016	20 J,ZLB		X		1	X	X
ASP-03_SV10	23/09/2016	21 J,ZLB		X		1	X	X
ASP-04_SV01	23/09/2016	22 J,ZLB		X		1	X	X
ASP-04_SV02	23/09/2016	23 J,ZLB		X		1	X	X
ASP-04_SV03	23/09/2016	24 J,ZLB		X		1	X	X
ASP-04_SV04	23/09/2016	25 J,ZLB		X		1	X	X
ASP-04_SV05	23/09/2016	26 J,ZLB		X		1	X	X
ASP-04_SV06	23/09/2016	27 J,ZLB		X		1	X	X

Relinquished By: Ryan O'Leary	Date/Time: 27/9/16 16:00	Received By:	Date/Time
Relinquished By: Whitney	Date/Time:	Received By: Amara	Date/Time 28/9/16 @ 11:00
Samples Intact: (Yes)/ No	Temperature: Ambient / (Chilled)	Sample Cooler Sealed: (Yes)/ No	Laboratory Quotation No:
	Comments:		

Ref: SGS_COC Asbestos Stockpile validation 23 Sept

SGS

CHAIN OF CUSTODY & ANALYSIS REQUEST

SGS Environmental Services
Unit 16, 33 Maddox Street
Alexandria NSW 2015
Telephone No: (02) 85940400
Facsimile No: (02) 85940499
Email: au.samplereceipt.sydney@sgs.com

Company Name: SMEC Australia Pty Ltd
Address: Oracle Building, Suite 2, Level 1
243 Northbourne Avenue, Lyneham, ACT 2602
Contact Name: Graham Ohmsen

Project Name/No: 3002092
Purchase Order No:
Results Required By: Standard TAT
Telephone: 026234 1907
Facsimile:
Email Results: Graham.ohmsen@smec.com

Client Sample ID	Date Sampled	Lab Sample ID	WATER	SOIL	PRESERVATIVE	NO OF CONTAINERS	CL17 SUITE	ASBESTOS (BAGS ONLY)
ASP-04_SV07	23/09/2016	28 J,ZLB		X			X	X
ASP-04_SV08	23/09/2016	29 J,ZLB		X			X	X
ASP-04_SV09	23/09/2016	30 J,ZLB		X			X	X
ASP-04_SV10	23/09/2016	31 J,ZLB		X			X	X
QA-01	23/09/2016	32 J		X			X	
QA-02	23/09/2016	33 J		X			X	

Relinquished By: Ryan O'Leary
Date/Time: 27/9/16 16:00
Received By:
Date/Time
Relinquished By:
Date/Time:
Received By:
Date/Time 28/9/16 @ 11:00
Samples Intact: (Yes) No
Temperature: Ambient / (Chilled)
Sample Cooler Sealed: Yes/ No
Laboratory Quotation No:
Comments:

Ref: SGS_COC Asbestos Stockpile validation 23 Sept

CHAIN OF CUSTODY & ANALYSIS REQUEST

Page ____ of ____

SGS Environmental Services Sydney
Unit 16, 33 Maddox Street
Alexandria NSW 2015
Telephone No: (02) 85940400
Facsimile No: (02) 85940499
Email: au.samplereceipt.sydney@sgs.com

Lab ID Number: *(please quote on correspondence)*

Company Name:		Project Name/No:	
Address:		Purchase Order No:	
		Results Required Date:	
		Telephone:	Fax:
Contact Name:		Email Results to:	@
Quotation No:			@

SGS ID	Client Sample ID	Sampling Date/ Time	Matrix (Tick as appropriate) Soil Sample	Water Sample	Other ____	NO. OF CONTAINERS	ANALYSIS REQUESTED
34	M4_0.2-0.3	J, 2 B					
35	M4_0.5-0.6	J					
36	M4_0.85-0.95	J					
37	M4_1.3-1.4	J					
38	SPV5_01	J, 2 B					
39	TB QC20						
40	TS QC21						
41	TB 13/9/16						
42	TS 13/9/16						

Additional Report Formats

- ☐ NEPM
- ☐ CSV
- ☐ ESDAT
- ☐ DQO
- ☐ GO, Guidelines --------
- ☐ Others _____

Notes/Guidelines/LOR/ Special instructions

Relinquished By:	Date/Time:	Received By:	Date/Time:
Relinquished By:	Date/Time:	Received By:	Date/Time: 28/9/16 @ 11:00
Samples Intact: (Yes) / No	Temperature: 14.5 °C	Sample Security Sealed: *Yes / No*	Hazards: *e.g. may contain Asbestos*
Comments / Subcontracting details:			

RE: SE157562 - 3002092

Ohmsen, Graham <Graham.Ohmsen@smec.com>

Wed 28/09/2016 2:52 PM

To: AU.SampleReceipt.Sydney (Sydney) <AU.SampleReceipt.Sydney@sgs.com>;

Hi Emily,

Thanks for this. Yes these additional samples should be analysed.

Cheers,

Graham Ohmsen | Principal Scientist - Contamination
SMEC – Australia & New Zealand Division
T +61 2 6234 1907

From: AU.SampleReceipt.Sydney (Sydney) [mailto:AU.SampleReceipt.Sydney@sgs.com]
Sent: Wednesday, 28 September 2016 2:38 PM
To: Ohmsen, Graham <Graham.Ohmsen@smec.com>
Subject: SE157562 - 3002092

Dear Graham,

SGS has received these samples.
Extra samples listed on the sample info sheet attached.
Please advise if analysis are required for them.
Thank You.

Kind Regards,

Emily Yin
Environmental Services
Sample Administration Officer

Phone: +61 (0)2 8594 0400
Fax: +61 (0)2 8594 0499

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SAMPLE RECEIPT ADVICE

SE157562

CLIENT DETAILS

Contact	Graham Ohmsen
Client	SMEC AUSTRALIA PTY LTD
Address	Sun Micro Building Suite 2, Level 1 243 Northbourne Avenue ACT 2602
Telephone	02 6234 1907
Facsimile	02 6234 1966
Email	graham.ohmsen@smec.com
Project	**3002092**
Order Number	(Not specified)
Samples	42

LABORATORY DETAILS

Manager	Huong Crawford
Laboratory	SGS Alexandria Environmental
Address	Unit 16, 33 Maddox St Alexandria NSW 2015
Telephone	+61 2 8594 0400
Facsimile	+61 2 8594 0499
Email	au.environmental.sydney@sgs.com
Samples Received	Wed 28/9/2016
Report Due	Thu 6/10/2016
SGS Reference	**SE157562**

SUBMISSION DETAILS

This is to confirm that 42 samples were received on Wednesday 28/9/2016. Results are expected to be ready by Thursday 6/10/2016. Please quote SGS reference SE157562 when making enquiries. Refer below for details relating to sample integrity upon receipt.

Sample counts by matrix	42 Soil	Type of documentation received	COC
Date documentation received	28/9/2016	Samples received in good order	Yes
Samples received without headspace	Yes	Sample temperature upon receipt	14.5°C
Sample container provider	SGS	Turnaround time requested	Standard
Samples received in correct containers	Yes	Sufficient sample for analysis	Yes
Sample cooling method	Ice Bricks	Samples clearly labelled	Yes
Complete documentation received	Yes	Number of eskies/boxes received	

Unless otherwise instructed, water and bulk samples will be held for one month from date of report, and soil samples will be held for two months.

COMMENTS

Asbestos will be sub sampled from the jar provided for some samples as a separate bag was not supplied for analysis.
Trip Blank and Spike will only be analyzed for TRH(C6-C9)/BTEX and BTEX respectively.

To the extent not inconsistent with the other provisions of this document and unless specifically agreed otherwise in writing by SGS, all SGS services are rendered in accordance with the applicable SGS General Conditions of Service accessible at http://www.sgs.com/en/terms-and-conditions as at the date of this document. Attention is drawn to the limitations of liability and to the clauses of indemnification.

SAMPLE RECEIPT ADVICE

SE157562

CLIENT DETAILS

Client SMEC AUSTRALIA PTY LTD

Project 3002092

SUMMARY OF ANALYSIS

No.	Sample ID	OC Pesticides in Soil	OP Pesticides in Soil	PAH (Polynuclear Aromatic Hydrocarbons) in Soil	PCBs in Soil	Total Recoverable Metals in Soil/Waste	TRH (Total Recoverable Hydrocarbons) in Soil	VOC's in Soil	Volatile Petroleum Hydrocarbons in Soil
001	ASP-01_SV01	28	13	26	11	7	10	12	8
002	ASP-01_SV02	28	13	26	11	7	10	12	8
003	ASP-01_SV03	28	13	26	11	7	10	12	8
004	ASP-01_SV04	28	13	26	11	7	10	12	8
005	ASP-01_SV05	28	13	26	11	7	10	12	8
006	ASP-01_SV06	28	13	26	11	7	10	12	8
007	ASP-02_SV01	28	13	26	11	7	10	12	8
008	ASP-02_SV02	28	13	26	11	7	10	12	8
009	ASP-02_SV03	28	13	26	11	7	10	12	8
010	ASP-02_SV04	28	13	26	11	7	10	12	8
011	ASP-02_SV05	28	13	26	11	7	10	12	8
012	ASP-03_SV01	28	13	26	11	7	10	12	8
013	ASP-03_SV02	28	13	26	11	7	10	12	8
014	ASP-03_SV03	28	13	26	11	7	10	12	8
015	ASP-03_SV04	28	13	26	11	7	10	12	8
016	ASP-03_SV05	28	13	26	11	7	10	12	8
017	ASP-03_SV06	28	13	26	11	7	10	12	8
018	ASP-03_SV07	28	13	26	11	7	10	12	8
019	ASP-03_SV08	28	13	26	11	7	10	12	8
020	ASP-03_SV09	28	13	26	11	7	10	12	8
021	ASP-03_SV10	28	13	26	11	7	10	12	8
022	ASP-04_SV01	28	13	26	11	7	10	12	8
023	ASP-04_SV02	28	13	26	11	7	10	12	8
024	ASP-04_SV03	28	13	26	11	7	10	12	8

CONTINUED OVERLEAF

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SAMPLE RECEIPT ADVICE

SE157562

CLIENT DETAILS

Client SMEC AUSTRALIA PTY LTD

Project 3002092

SUMMARY OF ANALYSIS

No.	Sample ID	OC Pesticides in Soil	OP Pesticides in Soil	PAH (Polynuclear Aromatic Hydrocarbons) in Soil	PCBs in Soil	Total Recoverable Metals in Soil/Waste	TRH (Total Recoverable Hydrocarbons) in Soil	VOC's in Soil	Volatile Petroleum Hydrocarbons in Soil
025	ASP-04_SV04	28	13	26	11	7	10	12	8
026	ASP-04_SV05	28	13	26	11	7	10	12	8
027	ASP-04_SV06	28	13	26	11	7	10	12	8
028	ASP-04_SV07	28	13	26	11	7	10	12	8
029	ASP-04_SV08	28	13	26	11	7	10	12	8
030	ASP-04_SV09	28	13	26	11	7	10	12	8
031	ASP-04_SV10	28	13	26	11	7	10	12	8
032	QA-01	28	13	26	11	7	10	12	8
033	QA-02	28	13	26	11	7	10	12	8
034	M4_0.2-0.3	28	13	26	11	7	10	12	8
035	M4_0.5-0.6	28	13	26	11	7	10	12	8
036	M4_0.85-0.95	28	13	26	11	7	10	12	8
037	M4_1.3-1.4	28	13	26	11	7	10	12	8
038	SPV5_0.1	28	13	26	11	7	10	12	8
039	TBQC20	-	-	-	-	-	-	12	8
040	TSQC21	-	-	-	-	-	-	12	-
041	TB 13/9/16	-	-	-	-	-	-	12	8
042	TS 13/9/16	-	-	-	-	-	-	12	-

CONTINUED OVERLEAF

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SAMPLE RECEIPT ADVICE

SE157562

CLIENT DETAILS

Client SMEC AUSTRALIA PTY LTD

Project 3002092

SUMMARY OF ANALYSIS

No.	Sample ID	Fibre Identification in soil	Mercury in Soil	Moisture Content
001	ASP-01_SV01	2	1	1
002	ASP-01_SV02	2	1	1
003	ASP-01_SV03	2	1	1
004	ASP-01_SV04	2	1	1
005	ASP-01_SV05	2	1	1
006	ASP-01_SV06	2	1	1
007	ASP-02_SV01	2	1	1
008	ASP-02_SV02	2	1	1
009	ASP-02_SV03	2	1	1
010	ASP-02_SV04	2	1	1
011	ASP-02_SV05	2	1	1
012	ASP-03_SV01	2	1	1
013	ASP-03_SV02	2	1	1
014	ASP-03_SV03	2	1	1
015	ASP-03_SV04	2	1	1
016	ASP-03_SV05	2	1	1
017	ASP-03_SV06	2	1	1
018	ASP-03_SV07	2	1	1
019	ASP-03_SV08	2	1	1
020	ASP-03_SV09	2	1	1
021	ASP-03_SV10	2	1	1
022	ASP-04_SV01	2	1	1
023	ASP-04_SV02	2	1	1
024	ASP-04_SV03	2	1	1

CONTINUED OVERLEAF

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SAMPLE RECEIPT ADVICE

SE157562

CLIENT DETAILS

Client SMEC AUSTRALIA PTY LTD

Project 3002092

SUMMARY OF ANALYSIS

No.	Sample ID	Fibre Identification in soil	Mercury in Soil	Moisture Content
025	ASP-04_SV04	2	1	1
026	ASP-04_SV05	2	1	1
027	ASP-04_SV06	2	1	1
028	ASP-04_SV07	2	1	1
029	ASP-04_SV08	2	1	1
030	ASP-04_SV09	2	1	1
031	ASP-04_SV10	2	1	1
032	QA-01	-	1	1
033	QA-02	-	1	1
034	M4_0.2-0.3	2	1	1
035	M4_0.5-0.6	2	1	1
036	M4_0.85-0.95	2	1	1
037	M4_1.3-1.4	2	1	1
038	SPV5_0.1	2	1	1
039	TBQC20	-	-	1
041	TB 13/9/16	-	-	1

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ANALYTICAL REPORT

Accreditation No. 2562

CLIENT DETAILS

Contact	Graham Ohmsen
Client	SMEC AUSTRALIA PTY LTD
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Telephone	02 6234 1907
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Email	graham.ohmsen@smec.com
Project	**3002092**
Order Number	(Not specified)
Samples	42

LABORATORY DETAILS

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Laboratory	SGS Alexandria Environmental
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SGS Reference	**SE157562 R2**
Date Received	28/9/2016
Date Reported	13/10/2016

COMMENTS

Accredited for compliance with ISO/IEC 17025. NATA accredited laboratory 2562(4354).

This report cancels and supersedes the report No.SE157562 R1 issued by SGS Environment, Health and Safety due to report being split as requested.

No respirable fibres detected in all soil samples using trace analysis technique.

Sample #2, 10, 25-37: A portion of the sample supplied has been sub-sampled for asbestos according to SGS In-house procedures.
We therefore cannot guarantee that the sub-sample is representative of the entire sample supplied.
SGS Environment, Health and Safety recommends supplying approximately 50-100g of sample in a separate container.

Asbestos analysed by Approved Identifiers Ravee Sivasubramaniam and Yusuf Kuthpudin .

SIGNATORIES

Andy Sutton
Senior Organic Chemist

Dong Liang
Metals/Inorganics Team Leader

Kamrul Ahsan
Senior Chemist

Ly Kim Ha
Organic Section Head

Ravee Sivasubramaniam
Hygiene Team Leader

VOC's in Soil [AN433] Tested: 29/9/2016

PARAMETER	UOM	LOR	M4_0.2-0.3 SOIL - 23/9/2016 SE157562.034	M4_0.5-0.6 SOIL - 23/9/2016 SE157562.035	M4_0.85-0.95 SOIL - 23/9/2016 SE157562.036	M4_1.3-1.4 SOIL - 23/9/2016 SE157562.037	TBQC20 SOIL - 23/9/2016 SE157562.039
Benzene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Toluene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Ethylbenzene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
m/p-xylene	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
o-xylene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Total Xylenes*	mg/kg	0.3	<0.3	<0.3	<0.3	<0.3	<0.3
Total BTEX	mg/kg	0.6	<0.6	<0.6	<0.6	<0.6	<0.6
Naphthalene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1

PARAMETER	UOM	LOR	TSQC21 SOIL - 23/9/2016 SE157562.040	TB 13/9/16 SOIL - 13/9/2016 SE157562.041	TS 13/9/16 SOIL - 13/9/2016 SE157562.042
Benzene	mg/kg	0.1	[77%]	<0.1	[81%]
Toluene	mg/kg	0.1	[83%]	<0.1	[80%]
Ethylbenzene	mg/kg	0.1	[79%]	<0.1	[83%]
m/p-xylene	mg/kg	0.2	[90%]	<0.2	[83%]
o-xylene	mg/kg	0.1	[88%]	<0.1	[90%]
Total Xylenes*	mg/kg	0.3	-	<0.3	-
Total BTEX	mg/kg	0.6	-	<0.6	-
Naphthalene	mg/kg	0.1	<0.1	<0.1	-

Volatile Petroleum Hydrocarbons in Soil [AN433] Tested: 29/9/2016

PARAMETER	UOM	LOR	M4_0.2-0.3 SOIL - 23/9/2016 SE157562.034	M4_0.5-0.6 SOIL - 23/9/2016 SE157562.035	M4_0.85-0.95 SOIL - 23/9/2016 SE157562.036	M4_1.3-1.4 SOIL - 23/9/2016 SE157562.037	TBQC20 SOIL - 23/9/2016 SE157562.039
TRH C6-C9	mg/kg	20	<20	<20	<20	<20	<20
Benzene (F0)	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
TRH C6-C10	mg/kg	25	<25	<25	<25	<25	<25
TRH C6-C10 minus BTEX (F1)	mg/kg	25	<25	<25	<25	<25	<25

PARAMETER	UOM	LOR	TB 13/9/16 SOIL - 13/9/2016 SE157562.041
TRH C6-C9	mg/kg	20	<20
Benzene (F0)	mg/kg	0.1	<0.1
TRH C6-C10	mg/kg	25	<25
TRH C6-C10 minus BTEX (F1)	mg/kg	25	<25

TRH (Total Recoverable Hydrocarbons) in Soil [AN403] Tested: 29/9/2016

PARAMETER	UOM	LOR	M4_0.2-0.3 SOIL - 23/9/2016 SE157562.034	M4_0.5-0.6 SOIL - 23/9/2016 SE157562.035	M4_0.85-0.95 SOIL - 23/9/2016 SE157562.036	M4_1.3-1.4 SOIL - 23/9/2016 SE157562.037
TRH C10-C14	mg/kg	20	<20	<20	<20	<20
TRH C15-C28	mg/kg	45	**110**	<45	<45	<45
TRH C29-C36	mg/kg	45	<45	<45	<45	<45
TRH C37-C40	mg/kg	100	<100	<100	<100	<100
TRH >C10-C16 (F2)	mg/kg	25	**25**	<25	<25	<25
TRH >C10-C16 (F2) - Naphthalene	mg/kg	25	**25**	<25	<25	<25
TRH >C16-C34 (F3)	mg/kg	90	**100**	<90	<90	<90
TRH >C34-C40 (F4)	mg/kg	120	<120	<120	<120	<120
TRH C10-C36 Total	mg/kg	110	<110	<110	<110	<110
TRH C10-C40 Total	mg/kg	210	<210	<210	<210	<210

PAH (Polynuclear Aromatic Hydrocarbons) in Soil [AN420] Tested: 29/9/2016

PARAMETER	UOM	LOR	M4_0.2-0.3 SOIL - 23/9/2016 SE157562.034	M4_0.5-0.6 SOIL - 23/9/2016 SE157562.035	M4_0.85-0.95 SOIL - 23/9/2016 SE157562.036	M4_1.3-1.4 SOIL - 23/9/2016 SE157562.037
Naphthalene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1
2-methylnaphthalene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1
1-methylnaphthalene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1
Acenaphthylene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1
Acenaphthene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1
Fluorene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1
Phenanthrene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1
Anthracene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1
Fluoranthene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1
Pyrene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1
Benzo(a)anthracene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1
Chrysene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1
Benzo(b&j)fluoranthene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1
Benzo(k)fluoranthene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1
Benzo(a)pyrene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1
Indeno(1,2,3-cd)pyrene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1
Dibenzo(ah)anthracene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1
Benzo(ghi)perylene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1
Carcinogenic PAHs, BaP TEQ <LOR=0	TEQ	0.2	<0.2	<0.2	<0.2	<0.2
Carcinogenic PAHs, BaP TEQ <LOR=LOR	TEQ (mg/kg)	0.3	<0.3	<0.3	<0.3	<0.3
Carcinogenic PAHs, BaP TEQ <LOR=LOR/2	TEQ (mg/kg)	0.2	<0.2	<0.2	<0.2	<0.2
Total PAH (18)	mg/kg	0.8	<0.8	<0.8	<0.8	<0.8
Total PAH (NEPM/WHO 16)	mg/kg	0.8	<0.8	<0.8	<0.8	<0.8

OC Pesticides in Soil [AN400/AN420] Tested: 29/9/2016

PARAMETER	UOM	LOR	M4_0.2-0.3 SOIL - 23/9/2016 SE157562.034	M4_0.5-0.6 SOIL - 23/9/2016 SE157562.035	M4_0.85-0.95 SOIL - 23/9/2016 SE157562.036	M4_1.3-1.4 SOIL - 23/9/2016 SE157562.037
Hexachlorobenzene (HCB)	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1
Alpha BHC	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1
Lindane	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1
Heptachlor	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1
Aldrin	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1
Beta BHC	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1
Delta BHC	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1
Heptachlor epoxide	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1
o,p'-DDE	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1
Alpha Endosulfan	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2
Gamma Chlordane	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1
Alpha Chlordane	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1
trans-Nonachlor	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1
p,p'-DDE	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1
Dieldrin	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2
Endrin	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2
o,p'-DDD	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1
o,p'-DDT	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1
Beta Endosulfan	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2
p,p'-DDD	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1
p,p'-DDT	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1
Endosulfan sulphate	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1
Endrin Aldehyde	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1
Methoxychlor	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1
Endrin Ketone	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1
Isodrin	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1
Mirex	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1

OP Pesticides in Soil [AN400/AN420] Tested: 29/9/2016

PARAMETER	UOM	LOR	M4_0.2-0.3 SOIL - 23/9/2016 SE157562.034	M4_0.5-0.6 SOIL - 23/9/2016 SE157562.035	M4_0.85-0.95 SOIL - 23/9/2016 SE157562.036	M4_1.3-1.4 SOIL - 23/9/2016 SE157562.037
Dichlorvos	mg/kg	0.5	<0.5	<0.5	<0.5	<0.5
Dimethoate	mg/kg	0.5	<0.5	<0.5	<0.5	<0.5
Diazinon (Dimpylate)	mg/kg	0.5	<0.5	<0.5	<0.5	<0.5
Fenitrothion	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2
Malathion	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2
Chlorpyrifos (Chlorpyrifos Ethyl)	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2
Parathion-ethyl (Parathion)	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2
Bromophos Ethyl	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2
Methidathion	mg/kg	0.5	<0.5	<0.5	<0.5	<0.5
Ethion	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2
Azinphos-methyl (Guthion)	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2

PCBs in Soil [AN400/AN420] Tested: 29/9/2016

PARAMETER	UOM	LOR	M4_0.2-0.3 SOIL - 23/9/2016 SE157562.034	M4_0.5-0.6 SOIL - 23/9/2016 SE157562.035	M4_0.85-0.95 SOIL - 23/9/2016 SE157562.036	M4_1.3-1.4 SOIL - 23/9/2016 SE157562.037
Arochlor 1016	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2
Arochlor 1221	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2
Arochlor 1232	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2
Arochlor 1242	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2
Arochlor 1248	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2
Arochlor 1254	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2
Arochlor 1260	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2
Arochlor 1262	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2
Arochlor 1268	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2
Total PCBs (Arochlors)	mg/kg	1	<1	<1	<1	<1

Total Recoverable Metals in Soil/Waste Solids/Materials by ICPOES [AN040/AN320] Tested: 5/10/2016

PARAMETER	UOM	LOR	M4_0.2-0.3 SOIL - 23/9/2016 SE157562.034	M4_0.5-0.6 SOIL - 23/9/2016 SE157562.035	M4_0.85-0.95 SOIL - 23/9/2016 SE157562.036	M4_1.3-1.4 SOIL - 23/9/2016 SE157562.037
Arsenic, As	mg/kg	3	10	8	10	12
Cadmium, Cd	mg/kg	0.3	0.3	0.3	0.4	0.4
Chromium, Cr	mg/kg	0.3	20	21	21	28
Copper, Cu	mg/kg	0.5	83	57	24	25
Lead, Pb	mg/kg	1	34	30	25	26
Nickel, Ni	mg/kg	0.5	25	22	24	29
Zinc, Zn	mg/kg	0.5	48	56	73	83

Mercury in Soil [AN312] Tested: 4/10/2016

PARAMETER	UOM	LOR	M4_0.2-0.3 SOIL - 23/9/2016 SE157562.034	M4_0.5-0.6 SOIL - 23/9/2016 SE157562.035	M4_0.85-0.95 SOIL - 23/9/2016 SE157562.036	M4_1.3-1.4 SOIL - 23/9/2016 SE157562.037
Mercury	mg/kg	0.05	<0.05	<0.05	<0.05	<0.05

Moisture Content [AN002] Tested: 4/10/2016

PARAMETER	UOM	LOR	M4_0.2-0.3 SOIL - 23/9/2016 SE157562.034	M4_0.5-0.6 SOIL - 23/9/2016 SE157562.035	M4_0.85-0.95 SOIL - 23/9/2016 SE157562.036	M4_1.3-1.4 SOIL - 23/9/2016 SE157562.037	TBQC20 SOIL - 23/9/2016 SE157562.039
% Moisture	%w/w	0.5	**15**	**16**	**18**	**19**	<0.5

PARAMETER	UOM	LOR	TB 13/9/16 SOIL - 13/9/2016 SE157562.041
% Moisture	%w/w	0.5	<0.5

Fibre Identification in soil [AN602] Tested: 5/10/2016

PARAMETER	UOM	LOR	M4_0.2-0.3 SOIL - 23/9/2016 SE157562.034	M4_0.5-0.6 SOIL - 23/9/2016 SE157562.035	M4_0.85-0.95 SOIL - 23/9/2016 SE157562.036	M4_1.3-1.4 SOIL - 23/9/2016 SE157562.037
Asbestos Detected	No unit	-	No	No	No	No
Estimated Fibres*	%w/w	0.01	<0.01	<0.01	<0.01	<0.01

METHOD	METHODOLOGY SUMMARY
AN002	The test is carried out by drying (at either 40°C or 105°C) a known mass of sample in a weighed evaporating basin. After fully dry the sample is re-weighed. Samples such as sludge and sediment having high percentages of moisture will take some time in a drying oven for complete removal of water.
AN040/AN320	A portion of sample is digested with nitric acid to decompose organic matter and hydrochloric acid to complete the digestion of metals. The digest is then analysed by ICP OES with metals results reported on the dried sample basis. Based on USEPA method 200.8 and 6010C.
AN040	A portion of sample is digested with Nitric acid to decompose organic matter and Hydrochloric acid to complete the digestion of metals and then filtered for analysis by ASS or ICP as per USEPA Method 200.8.
AN312	Mercury by Cold Vapour AAS in Soils: After digestion with nitric acid, hydrogen peroxide and hydrochloric acid , mercury ions are reduced by stannous chloride reagent in acidic solution to elemental mercury. This mercury vapour is purged by nitrogen into a cold cell in an atomic absorption spectrometer or mercury analyser . Quantification is made by comparing absorbances to those of the calibration standards. Reference APHA 3112/3500
AN400	OC and OP Pesticides by GC-ECD: The determination of organochlorine (OC) and organophosphorus (OP) pesticides and polychlorinated biphenyls (PCBs) in soils, sludges and groundwater. (Based on USEPA methods 3510, 3550, 8140 and 8080.)
AN403	Total Recoverable Hydrocarbons: Determination of Hydrocarbons by gas chromatography after a solvent extraction. Detection is by flame ionisation detector (FID) that produces an electronic signal in proportion to the combustible matter passing through it. Total Recoverable Hydrocarbons (TRH) are routinely reported as four alkane groupings based on the carbon chain length of the compounds: C6-C9, C10-C14, C15-C28 and C29-C36 and in recognition of the NEPM 1999 (2013), >C10-C16 (F2), >C16-C34 (F3) and >C34-C40 (F4). F2 is reported directly and also corrected by subtracting Naphthalene (from VOC method AN433) where available.
AN403	Additionally, the volatile C6-C9 fraction may be determined by a purge and trap technique and GC /MS because of the potential for volatiles loss. Total Petroleum Hydrocarbons (TPH) follows the same method of analysis after silica gel cleanup of the solvent extract. Aliphatic/Aromatic Speciation follows the same method of analysis after fractionation of the solvent extract over silica with differential polarity of the eluent solvents .
AN403	The GC/FID method is not well suited to the analysis of refined high boiling point materials (ie lubricating oils or greases) but is particularly suited for measuring diesel, kerosene and petrol if care to control volatility is taken. This method will detect naturally occurring hydrocarbons, lipids, animal fats, phenols and PAHs if they are present at sufficient levels, dependent on the use of specific cleanup /fractionation techniques. Reference USEPA 3510B, 8015B.
AN420	(SVOCs) including OC, OP, PCB, Herbicides, PAH, Phthalates and Speciated Phenols (etc) in soils, sediments and waters are determined by GCMS/ECD technique following appropriate solvent extraction process (Based on USEPA 3500C and 8270D).
AN420	SVOC Compounds: Semi-Volatile Organic Compounds (SVOCs) including OC, OP, PCB, Herbicides, PAH, Phthalates and Speciated Phenols in soils, sediments and waters are determined by GCMS /ECD technique following appropriate solvent extraction process (Based on USEPA 3500C and 8270D).
AN433	VOCs and C6-C9 Hydrocarbons by GC-MS P&T: VOC`s are volatile organic compounds. The sample is presented to a gas chromatograph via a purge and trap (P&T) concentrator and autosampler and is detected with a Mass Spectrometer (MSD). Solid samples are initially extracted with methanol whilst liquid samples are processed directly. References: USEPA 5030B, 8020A, 8260.
AN602	Qualitative identification of chrysotile, amosite and crocidolite in bulk samples by polarised light microscopy (PLM) in conjunction with dispersion staining (DS). AS4964 provides the basis for this document. Unequivocal identification of the asbestos minerals present is made by obtaining sufficient diagnostic `clues`, which provide a reasonable degree of certainty, dispersion staining is a mandatory `clue` for positive identification. If sufficient `clues` are absent, then positive identification of asbestos is not possible. This procedure requires removal of suspect fibres/bundles from the sample which cannot be returned.
AN602	Fibres/material that cannot be unequivocably identified as one of the three asbestos forms, will be reported as unknown mineral fibres (umf).
AN602	AS4964.2004 Method for the Qualitative Identification of Asbestos in Bulk Samples, Section 8.4, Trace Analysis Criteria, Note 4 states:"Depending upon sample condition and fibre type, the detection limit of this technique has been found to lie generally in the range of 1 in 1,000 to 1 in 10,000 parts by weight, equivalent to 1 to 0.1 g/kg."
AN602	The sample can be reported “no asbestos found at the reporting limit of 0.1 g/kg” (<0.01%w/w) where AN602 section 4.5 of this method has been followed, and if- (a) no trace asbestos fibres have been detected (i.e. no ‘respirable’ fibres): (b) the estimated weight of non-respirable asbestos fibre bundles and/or the estimated weight of asbestos in asbestos-containing materials are found to be less than 0.1g/kg: and (c) these non-respirable asbestos fibre bundles and/or the asbestos containing materials are only visible under stereo-microscope viewing conditions.

FOOTNOTES

*	NATA accreditation does not cover the performance of this service.	-	Not analysed.	UOM	Unit of Measure.
		NVL	Not validated.	LOR	Limit of Reporting.
**	Indicative data, theoretical holding time exceeded.	IS	Insufficient sample for analysis.	↑↓	Raised/lowered Limit of Reporting.
		LNR	Sample listed, but not received.		

Samples analysed as received.
Solid samples expressed on a dry weight basis.

Where "Total" analyte groups are reported (for example, Total PAHs, Total OC Pesticides) the total will be calculated as the sum of the individual analytes, with those analytes that are reported as <LOR being assumed to be zero. The summed (Total) limit of reporting is calculated by summing the individual analyte LORs and dividing by two. For example, where 16 individual analytes are being summed and each has an LOR of 0.1 mg/kg, the "Totals" LOR will be 1.6 / 2 (0.8 mg/kg). Where only 2 analytes are being summed, the " Total" LOR will be the sum of those two LORs.

Some totals may not appear to add up because the total is rounded after adding up the raw values.

If reported, measurement uncertainty follow the ± sign after the analytical result and is expressed as the expanded uncertainty calculated using a coverage factor of 2, providing a level of confidence of approximately 95%, unless stated otherwise in the comments section of this report.

Results reported for samples tested under test methods with codes starting with ARS-SOP, radionuclide or gross radioactivity concentrations are expressed in becquerel (Bq) per unit of mass or volume or per wipe as stated on the report. Becquerel is the SI unit for activity and equals one nuclear transformation per second.
Note that in terms of units of radioactivity:

a. 1 Bq is equivalent to 27 pCi
b. 37 MBq is equivalent to 1 mCi

For results reported for samples tested under test methods with codes starting with ARS-SOP, less than (<) values indicate the detection limit for each radionuclide or parameter for the measurement system used. The respective detection limits have been calculated in accordance with ISO 11929.

The QC criteria are subject to internal review according to the SGS QAQC plan and may be provided on request or alternatively can be found here : http://www.sgs.com.au/~/media/Local/Australia/Documents/Technical%20Documents/MP-AU-ENV-QU-022%20QA%20QC%20Plan.pdf

This document is issued, on the Client's behalf, by the Company under its General Conditions of Service available on request and accessible at http://www.sgs.com/en/terms-and-conditions. The Client's attention is drawn to the limitation of liability, indemnification and jurisdiction issues defined therein.

Any other holder of this document is advised that information contained hereon reflects the Company's findings at the time of its intervention only and within the limits of Client's instructions, if any. The Company's sole responsibility is to its Client and this document does not exonerate parties to a transaction from exercising all their rights and obligations under the transaction documents.

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ANALYTICAL REPORT

Accreditation No. 2562

CLIENT DETAILS

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Telephone	02 6234 1907
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Email	graham.ohmsen@smec.com
Project	**3002092**
Order Number	(Not specified)
Samples	4

LABORATORY DETAILS

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Email	au.environmental.sydney@sgs.com
SGS Reference	**SE157562 R2**
Date Received	28 Sep 2016
Date Reported	13 Oct 2016

COMMENTS

Accredited for compliance with ISO/IEC 17025. NATA accredited laboratory 2562(4354).

This report cancels and supersedes the report No.SE157562 R1 issued by SGS Environment, Health and Safety due to report being split as requested.

No respirable fibres detected in all soil samples using trace analysis technique.

Sample #2, 10, 25-37: A portion of the sample supplied has been sub-sampled for asbestos according to SGS In-house procedures.
We therefore cannot guarantee that the sub-sample is representative of the entire sample supplied.
SGS Environment, Health and Safety recommends supplying approximately 50-100g of sample in a separate container.

Asbestos analysed by Approved Identifiers Ravee Sivasubramaniam and Yusuf Kuthpudin .

SIGNATORIES

Andy Sutton
Senior Organic Chemist

Dong Liang
Metals/Inorganics Team Leader

Kamrul Ahsan
Senior Chemist

Ly Kim Ha
Organic Section Head

Ravee Sivasubramaniam
Hygiene Team Leader

ANALYTICAL REPORT

RESULTS

Fibre Identification in soil — Method AN602

Laboratory Reference	Client Reference	Matrix	Sample Description	Date Sampled	Fibre Identification	Est.%w/w*
SE157562.034	M4_0.2-0.3	Soil	48g Clay, Sand, Rocks	23 Sep 2016	No Asbestos Found	<0.01
SE157562.035	M4_0.5-0.6	Soil	54g Clay, Sand, Rocks	23 Sep 2016	No Asbestos Found	<0.01
SE157562.036	M4_0.85-0.95	Soil	61g Clay, Rocks	23 Sep 2016	No Asbestos Found	<0.01
SE157562.037	M4_1.3-1.4	Soil	67g Clay, Rocks	23 Sep 2016	No Asbestos Found	<0.01

METHOD SUMMARY

SE157562 R2

METHOD	METHODOLOGY SUMMARY
AN602	Qualitative identification of chrysotile, amosite and crocidolite in bulk samples by polarised light microscopy (PLM) in conjunction with dispersion staining (DS). AS4964 provides the basis for this document. Unequivocal identification of the asbestos minerals present is made by obtaining sufficient diagnostic `clues`, which provide a reasonable degree of certainty, dispersion staining is a mandatory `clue` for positive identification. If sufficient `clues` are absent, then positive identification of asbestos is not possible. This procedure requires removal of suspect fibres/bundles from the sample which cannot be returned.
AN602	Fibres/material that cannot be unequivocably identified as one of the three asbestos forms, will be reported as unknown mineral fibres (umf).
AN602	AS4964.2004 Method for the Qualitative Identification of Asbestos in Bulk Samples , Section 8.4, Trace Analysis Criteria, Note 4 states:"Depending upon sample condition and fibre type, the detection limit of this technique has been found to lie generally in the range of 1 in 1,000 to 1 in 10,000 parts by weight, equivalent to 1 to 0.1 g/kg."
AN602	The sample can be reported “no asbestos found at the reporting limit of 0.1 g/kg” (<0.01%w/w) where AN602 section 4.5 of this method has been followed, and if- (a) no trace asbestos fibres have been detected (i.e. no ‘respirable’ fibres): (b) the estimated weight of non-respirable asbestos fibre bundles and/or the estimated weight of asbestos in asbestos-containing materials are found to be less than 0.1g/kg: and (c) these non-respirable asbestos fibre bundles and/or the asbestos containing materials are only visible under stereo-microscope viewing conditions.

FOOTNOTES

Amosite	-	Brown Asbestos	NA	-	Not Analysed
Chrysotile	-	White Asbestos	LNR	-	Listed, Not Required
Crocidolite	-	Blue Asbestos	*	-	NATA accreditation does not cover the performance of this service .
Amphiboles	-	Amosite and/or Crocidolite	**	-	Indicative data, theoretical holding time exceeded.

(In reference to soil samples only) This report does not comply with the analytical reporting recommendations in the Western Australian Department of Health Guidelines for the Assessment and Remediation and Management of Asbestos Contaminated sites in Western Australia - May 2009.

Sampled by the client.

Where reported: 'Asbestos Detected': Asbestos detected by polarised light microscopy, including dispersion staining.
Where reported: 'No Asbestos Found': No Asbestos Found by polarised light microscopy, including dispersion staining.
Where reported: 'UMF Detected': Mineral fibres of unknown type detected by polarised light microscopy, including dispersion staining. Confirmation by another independent analytical technique may be necessary.

Even after disintegration it can be very difficult, or impossible, to detect the presence of asbestos in some asbestos -containing bulk materials using polarised light microscopy. This is due to the low grade or small length or diameter of asbestos fibres present in the material, or to the fact that very fine fibres have been distributed intimately throughout the materials.

The QC criteria are subject to internal review according to the SGS QAQC plan and may be provided on request or alternatively can be found here : http://www.sgs.com.au/~/media/Local/Australia/Documents/Technical%20Documents/MP-AU-ENV-QU-022%20QA%20QC%20Plan.pdf

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STATEMENT OF QA/QC PERFORMANCE

SE157562 R2

CLIENT DETAILS

Contact	Graham Ohmsen
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Project	**3002092**
Order Number	(Not specified)
Samples	42

LABORATORY DETAILS

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Email	au.environmental.sydney@sgs.com
SGS Reference	**SE157562 R2**
Date Received	28 Sep 2016
Date Reported	13 Oct 2016

COMMENTS

All the laboratory data for each environmental matrix was compared to SGS' stated Data Quality Objectives (DQO). Comments arising from the comparison were made and are reported below.

The data relating to sampling was taken from the Chain of Custody document and was supplied by the Client.
This QA/QC Statement must be read in conjunction with the referenced Analytical Report.
The Statement and the Analytical Report must not be reproduced except in full.

All Data Quality Objectives were met with the exception of the following:

Extraction Date	Moisture Content	1 item
	VOC's in Soil	2 items
	Volatile Petroleum Hydrocarbons in Soil	1 item
Matrix Spike	Total Recoverable Metals in Soil/Waste Solids/Materials by ICPOES	6 items

SAMPLE SUMMARY

Sample counts by matrix	42 Soil	Type of documentation received	COC
Date documentation received	28/9/2016	Samples received in good order	Yes
Samples received without headspace	Yes	Sample temperature upon receipt	14.5°C
Sample container provider	SGS	Turnaround time requested	Standard
Samples received in correct containers	Yes	Sufficient sample for analysis	Yes
Sample cooling method	Ice Bricks	Samples clearly labelled	Yes
Complete documentation received	Yes	Number of eskies/boxes received	

HOLDING TIME SUMMARY

SE157562 R2

SGS holding time criteria are drawn from current regulations and are highly dependent on sample container preservation as specified in the SGS “Field Sampling Guide for Containers and Holding Time” (ref: GU-(AU)-ENV.001). Soil samples guidelines are derived from NEPM "Schedule B(3) Guideline on Laboratory Analysis of Potentially Contaminated Soils". Water sample guidelines are derived from "AS/NZS 5667.1 : 1998 Water Quality - sampling part 1" and APHA "Standard Methods for the Examination of Water and Wastewater" 21st edition 2005.

Extraction and analysis holding time due dates listed are calculated from the date sampled, although holding times may be extended after laboratory extraction for some analytes. The due dates are the suggested dates that samples may be held before extraction or analysis and still be considered valid.

Extraction and analysis dates are shown in **Green** when within suggested criteria or **Red** with an appended dagger symbol (†) when outside suggested criteria. If the sampled date is not supplied then compliance with criteria cannot be determined. If the received date is after one or both due dates then holding time will fail by default.

Fibre Identification in soil

Method: ME-(AU)-[ENV]AN602

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
M4_0.2-0.3	SE157562.034	LB111085	23 Sep 2016	28 Sep 2016	23 Sep 2017	05 Oct 2016	23 Sep 2017	06 Oct 2016
M4_0.5-0.6	SE157562.035	LB111085	23 Sep 2016	28 Sep 2016	23 Sep 2017	05 Oct 2016	23 Sep 2017	06 Oct 2016
M4_0.85-0.95	SE157562.036	LB111085	23 Sep 2016	28 Sep 2016	23 Sep 2017	05 Oct 2016	23 Sep 2017	06 Oct 2016
M4_1.3-1.4	SE157562.037	LB111085	23 Sep 2016	28 Sep 2016	23 Sep 2017	05 Oct 2016	23 Sep 2017	06 Oct 2016

Mercury in Soil

Method: ME-(AU)-[ENV]AN312

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
M4_0.2-0.3	SE157562.034	LB111017	23 Sep 2016	28 Sep 2016	21 Oct 2016	04 Oct 2016	21 Oct 2016	06 Oct 2016
M4_0.5-0.6	SE157562.035	LB111017	23 Sep 2016	28 Sep 2016	21 Oct 2016	04 Oct 2016	21 Oct 2016	06 Oct 2016
M4_0.85-0.95	SE157562.036	LB111017	23 Sep 2016	28 Sep 2016	21 Oct 2016	04 Oct 2016	21 Oct 2016	06 Oct 2016
M4_1.3-1.4	SE157562.037	LB111017	23 Sep 2016	28 Sep 2016	21 Oct 2016	04 Oct 2016	21 Oct 2016	06 Oct 2016

Moisture Content

Method: ME-(AU)-[ENV]AN002

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
M4_0.2-0.3	SE157562.034	LB111007	23 Sep 2016	28 Sep 2016	07 Oct 2016	04 Oct 2016	09 Oct 2016	06 Oct 2016
M4_0.5-0.6	SE157562.035	LB111007	23 Sep 2016	28 Sep 2016	07 Oct 2016	04 Oct 2016	09 Oct 2016	06 Oct 2016
M4_0.85-0.95	SE157562.036	LB111007	23 Sep 2016	28 Sep 2016	07 Oct 2016	04 Oct 2016	09 Oct 2016	06 Oct 2016
M4_1.3-1.4	SE157562.037	LB111007	23 Sep 2016	28 Sep 2016	07 Oct 2016	04 Oct 2016	09 Oct 2016	06 Oct 2016
TBQC20	SE157562.039	LB111007	23 Sep 2016	28 Sep 2016	07 Oct 2016	04 Oct 2016	09 Oct 2016	06 Oct 2016
TB 13/9/16	SE157562.041	LB111007	13 Sep 2016	28 Sep 2016	27 Sep 2016	04 Oct 2016†	09 Oct 2016	06 Oct 2016

OC Pesticides in Soil

Method: ME-(AU)-[ENV]AN400/AN420

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
M4_0.2-0.3	SE157562.034	LB110829	23 Sep 2016	28 Sep 2016	07 Oct 2016	29 Sep 2016	08 Nov 2016	05 Oct 2016
M4_0.5-0.6	SE157562.035	LB110829	23 Sep 2016	28 Sep 2016	07 Oct 2016	29 Sep 2016	08 Nov 2016	05 Oct 2016
M4_0.85-0.95	SE157562.036	LB110829	23 Sep 2016	28 Sep 2016	07 Oct 2016	29 Sep 2016	08 Nov 2016	05 Oct 2016
M4_1.3-1.4	SE157562.037	LB110829	23 Sep 2016	28 Sep 2016	07 Oct 2016	29 Sep 2016	08 Nov 2016	05 Oct 2016

OP Pesticides in Soil

Method: ME-(AU)-[ENV]AN400/AN420

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
M4_0.2-0.3	SE157562.034	LB110829	23 Sep 2016	28 Sep 2016	07 Oct 2016	29 Sep 2016	08 Nov 2016	06 Oct 2016
M4_0.5-0.6	SE157562.035	LB110829	23 Sep 2016	28 Sep 2016	07 Oct 2016	29 Sep 2016	08 Nov 2016	06 Oct 2016
M4_0.85-0.95	SE157562.036	LB110829	23 Sep 2016	28 Sep 2016	07 Oct 2016	29 Sep 2016	08 Nov 2016	06 Oct 2016
M4_1.3-1.4	SE157562.037	LB110829	23 Sep 2016	28 Sep 2016	07 Oct 2016	29 Sep 2016	08 Nov 2016	06 Oct 2016

PAH (Polynuclear Aromatic Hydrocarbons) in Soil

Method: ME-(AU)-[ENV]AN420

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
M4_0.2-0.3	SE157562.034	LB110829	23 Sep 2016	28 Sep 2016	07 Oct 2016	29 Sep 2016	08 Nov 2016	06 Oct 2016
M4_0.5-0.6	SE157562.035	LB110829	23 Sep 2016	28 Sep 2016	07 Oct 2016	29 Sep 2016	08 Nov 2016	06 Oct 2016
M4_0.85-0.95	SE157562.036	LB110829	23 Sep 2016	28 Sep 2016	07 Oct 2016	29 Sep 2016	08 Nov 2016	06 Oct 2016
M4_1.3-1.4	SE157562.037	LB110829	23 Sep 2016	28 Sep 2016	07 Oct 2016	29 Sep 2016	08 Nov 2016	06 Oct 2016

PCBs in Soil

Method: ME-(AU)-[ENV]AN400/AN420

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
M4_0.2-0.3	SE157562.034	LB110829	23 Sep 2016	28 Sep 2016	07 Oct 2016	29 Sep 2016	08 Nov 2016	05 Oct 2016
M4_0.5-0.6	SE157562.035	LB110829	23 Sep 2016	28 Sep 2016	07 Oct 2016	29 Sep 2016	08 Nov 2016	05 Oct 2016
M4_0.85-0.95	SE157562.036	LB110829	23 Sep 2016	28 Sep 2016	07 Oct 2016	29 Sep 2016	08 Nov 2016	05 Oct 2016
M4_1.3-1.4	SE157562.037	LB110829	23 Sep 2016	28 Sep 2016	07 Oct 2016	29 Sep 2016	08 Nov 2016	05 Oct 2016

Total Recoverable Metals in Soil/Waste Solids/Materials by ICPOES

Method: ME-(AU)-[ENV]AN040/AN320

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
M4_0.2-0.3	SE157562.034	LB111056	23 Sep 2016	28 Sep 2016	22 Mar 2017	05 Oct 2016	22 Mar 2017	11 Oct 2016
M4_0.5-0.6	SE157562.035	LB111056	23 Sep 2016	28 Sep 2016	22 Mar 2017	05 Oct 2016	22 Mar 2017	11 Oct 2016
M4_0.85-0.95	SE157562.036	LB111056	23 Sep 2016	28 Sep 2016	22 Mar 2017	05 Oct 2016	22 Mar 2017	11 Oct 2016
M4_1.3-1.4	SE157562.037	LB111056	23 Sep 2016	28 Sep 2016	22 Mar 2017	05 Oct 2016	22 Mar 2017	11 Oct 2016

TRH (Total Recoverable Hydrocarbons) in Soil

Method: ME-(AU)-[ENV]AN403

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
M4_0.2-0.3	SE157562.034	LB110829	23 Sep 2016	28 Sep 2016	07 Oct 2016	29 Sep 2016	08 Nov 2016	06 Oct 2016
M4_0.5-0.6	SE157562.035	LB110829	23 Sep 2016	28 Sep 2016	07 Oct 2016	29 Sep 2016	08 Nov 2016	06 Oct 2016
M4_0.85-0.95	SE157562.036	LB110829	23 Sep 2016	28 Sep 2016	07 Oct 2016	29 Sep 2016	08 Nov 2016	05 Oct 2016
M4_1.3-1.4	SE157562.037	LB110829	23 Sep 2016	28 Sep 2016	07 Oct 2016	29 Sep 2016	08 Nov 2016	05 Oct 2016

HOLDING TIME SUMMARY

SE157562 R2

SGS holding time criteria are drawn from current regulations and are highly dependent on sample container preservation as specified in the SGS “Field Sampling Guide for Containers and Holding Time” (ref: GU-(AU)-ENV.001). Soil samples guidelines are derived from NEPM "Schedule B(3) Guideline on Laboratory Analysis of Potentially Contaminated Soils". Water sample guidelines are derived from "AS/NZS 5667.1 : 1998 Water Quality - sampling part 1" and APHA "Standard Methods for the Examination of Water and Wastewater" 21st edition 2005.

Extraction and analysis holding time due dates listed are calculated from the date sampled, although holding times may be extended after laboratory extraction for some analytes. The due dates are the suggested dates that samples may be held before extraction or analysis and still be considered valid.

Extraction and analysis dates are shown in **Green** when within suggested criteria or **Red** with an appended dagger symbol (†) when outside suggested criteria. If the sampled date is not supplied then compliance with criteria cannot be determined. If the received date is after one or both due dates then holding time will fail by default.

VOC's in Soil

Method: ME-(AU)-[ENV]AN433

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
M4_0.2-0.3	SE157562.034	LB110810	23 Sep 2016	28 Sep 2016	07 Oct 2016	29 Sep 2016	08 Nov 2016	05 Oct 2016
M4_0.5-0.6	SE157562.035	LB110810	23 Sep 2016	28 Sep 2016	07 Oct 2016	29 Sep 2016	08 Nov 2016	05 Oct 2016
M4_0.85-0.95	SE157562.036	LB110810	23 Sep 2016	28 Sep 2016	07 Oct 2016	29 Sep 2016	08 Nov 2016	05 Oct 2016
M4_1.3-1.4	SE157562.037	LB110810	23 Sep 2016	28 Sep 2016	07 Oct 2016	29 Sep 2016	08 Nov 2016	05 Oct 2016
TBQC20	SE157562.039	LB110810	23 Sep 2016	28 Sep 2016	07 Oct 2016	29 Sep 2016	08 Nov 2016	05 Oct 2016
TSQC21	SE157562.040	LB110810	23 Sep 2016	28 Sep 2016	07 Oct 2016	29 Sep 2016	08 Nov 2016	05 Oct 2016
TB 13/9/16	SE157562.041	LB110813	13 Sep 2016	28 Sep 2016	27 Sep 2016	29 Sep 2016†	08 Nov 2016	05 Oct 2016
TS 13/9/16	SE157562.042	LB110813	13 Sep 2016	28 Sep 2016	27 Sep 2016	29 Sep 2016†	08 Nov 2016	05 Oct 2016

Volatile Petroleum Hydrocarbons in Soil

Method: ME-(AU)-[ENV]AN433

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
M4_0.2-0.3	SE157562.034	LB110810	23 Sep 2016	28 Sep 2016	07 Oct 2016	29 Sep 2016	08 Nov 2016	05 Oct 2016
M4_0.5-0.6	SE157562.035	LB110810	23 Sep 2016	28 Sep 2016	07 Oct 2016	29 Sep 2016	08 Nov 2016	05 Oct 2016
M4_0.85-0.95	SE157562.036	LB110810	23 Sep 2016	28 Sep 2016	07 Oct 2016	29 Sep 2016	08 Nov 2016	05 Oct 2016
M4_1.3-1.4	SE157562.037	LB110810	23 Sep 2016	28 Sep 2016	07 Oct 2016	29 Sep 2016	08 Nov 2016	05 Oct 2016
TBQC20	SE157562.039	LB110810	23 Sep 2016	28 Sep 2016	07 Oct 2016	29 Sep 2016	08 Nov 2016	05 Oct 2016
TSQC21	SE157562.040	LB110810	23 Sep 2016	28 Sep 2016	07 Oct 2016	29 Sep 2016	08 Nov 2016	06 Oct 2016
TB 13/9/16	SE157562.041	LB110813	13 Sep 2016	28 Sep 2016	27 Sep 2016	29 Sep 2016†	08 Nov 2016	05 Oct 2016
TS 13/9/16	SE157562.042	LB110813	13 Sep 2016	28 Sep 2016	27 Sep 2016	29 Sep 2016†	08 Nov 2016	06 Oct 2016

Surrogate results are evaluated against upper and lower limit criteria established in the SGS QA /QC plan (Ref: MP-(AU)-[ENV]QU-022). At least two of three routine level soil sample surrogate spike recoveries for BTEX/VOC are to be within 70-130% where control charts have not been developed and within the established control limits for charted surrogates. Matrix effects may void this as an acceptance criterion. Water sample surrogate spike recoveries are to be within 40-130%. The presence of emulsions, surfactants and particulates may void this as an acceptance criterion.

Result is shown in **Green** when within suggested criteria or **Red** with an appended reason identifer when outside suggested criteria. Refer to the footnotes section at the end of this report for failure reasons.

OC Pesticides in Soil

Method: ME-(AU)-[ENV]AN400/AN420

Parameter	Sample Name	Sample Number	Units	Criteria	Recovery %
Tetrachloro-m-xylene (TCMX) (Surrogate)	ASP-01_SV01	SE157562.001	%	60 - 130%	89
	ASP-01_SV02	SE157562.002	%	60 - 130%	89
	ASP-01_SV03	SE157562.003	%	60 - 130%	87
	ASP-01_SV04	SE157562.004	%	60 - 130%	87
	ASP-01_SV05	SE157562.005	%	60 - 130%	88
	ASP-01_SV06	SE157562.006	%	60 - 130%	82
	ASP-02_SV01	SE157562.007	%	60 - 130%	87
	ASP-02_SV02	SE157562.008	%	60 - 130%	83
	ASP-02_SV03	SE157562.009	%	60 - 130%	89
	ASP-02_SV04	SE157562.010	%	60 - 130%	82
	ASP-02_SV05	SE157562.011	%	60 - 130%	85
	ASP-03_SV01	SE157562.012	%	60 - 130%	86
	ASP-03_SV02	SE157562.013	%	60 - 130%	85
	ASP-03_SV03	SE157562.014	%	60 - 130%	83
	ASP-03_SV04	SE157562.015	%	60 - 130%	83
	ASP-03_SV05	SE157562.016	%	60 - 130%	83
	ASP-03_SV06	SE157562.017	%	60 - 130%	83
	ASP-03_SV07	SE157562.018	%	60 - 130%	90
	ASP-03_SV08	SE157562.019	%	60 - 130%	87
	ASP-03_SV09	SE157562.020	%	60 - 130%	85
	ASP-03_SV10	SE157562.021	%	60 - 130%	95
	ASP-04_SV01	SE157562.022	%	60 - 130%	89
	ASP-04_SV02	SE157562.023	%	60 - 130%	93
	ASP-04_SV03	SE157562.024	%	60 - 130%	88
	ASP-04_SV04	SE157562.025	%	60 - 130%	89
	ASP-04_SV05	SE157562.026	%	60 - 130%	88
	ASP-04_SV06	SE157562.027	%	60 - 130%	85
	ASP-04_SV07	SE157562.028	%	60 - 130%	85
	ASP-04_SV08	SE157562.029	%	60 - 130%	86
	ASP-04_SV09	SE157562.030	%	60 - 130%	85
	ASP-04_SV10	SE157562.031	%	60 - 130%	90
	QA-01	SE157562.032	%	60 - 130%	85
	QA-02	SE157562.033	%	60 - 130%	85
	M4_0.2-0.3	SE157562.034	%	60 - 130%	83
	M4_0.5-0.6	SE157562.035	%	60 - 130%	80
	M4_0.85-0.95	SE157562.036	%	60 - 130%	89
	M4_1.3-1.4	SE157562.037	%	60 - 130%	86
	SPV5_0.1	SE157562.038	%	60 - 130%	91

OP Pesticides in Soil

Method: ME-(AU)-[ENV]AN400/AN420

Parameter	Sample Name	Sample Number	Units	Criteria	Recovery %
2-fluorobiphenyl (Surrogate)	ASP-01_SV01	SE157562.001	%	60 - 130%	80
	ASP-01_SV02	SE157562.002	%	60 - 130%	80
	ASP-01_SV03	SE157562.003	%	60 - 130%	78
	ASP-01_SV04	SE157562.004	%	60 - 130%	76
	ASP-01_SV05	SE157562.005	%	60 - 130%	78
	ASP-01_SV06	SE157562.006	%	60 - 130%	76
	ASP-02_SV01	SE157562.007	%	60 - 130%	78
	ASP-02_SV02	SE157562.008	%	60 - 130%	78
	ASP-02_SV03	SE157562.009	%	60 - 130%	78
	ASP-02_SV04	SE157562.010	%	60 - 130%	76
	ASP-02_SV05	SE157562.011	%	60 - 130%	76
	ASP-03_SV01	SE157562.012	%	60 - 130%	78
	ASP-03_SV02	SE157562.013	%	60 - 130%	80
	ASP-03_SV03	SE157562.014	%	60 - 130%	78
	ASP-03_SV04	SE157562.015	%	60 - 130%	76
	ASP-03_SV05	SE157562.016	%	60 - 130%	76
	ASP-03_SV06	SE157562.017	%	60 - 130%	82
	ASP-03_SV07	SE157562.018	%	60 - 130%	78
	ASP-03_SV08	SE157562.019	%	60 - 130%	82
	ASP-03_SV09	SE157562.020	%	60 - 130%	78

Surrogate results are evaluated against upper and lower limit criteria established in the SGS QA /QC plan (Ref: MP-(AU)-[ENV]QU-022). At least two of three routine level soil sample surrogate spike recoveries for BTEX/VOC are to be within 70-130% where control charts have not been developed and within the established control limits for charted surrogates. Matrix effects may void this as an acceptance criterion. Water sample surrogate spike recoveries are to be within 40-130%. The presence of emulsions, surfactants and particulates may void this as an acceptance criterion.

Result is shown in **Green** when within suggested criteria or **Red** with an appended reason identifer when outside suggested criteria. Refer to the footnotes section at the end of this report for failure reasons.

OP Pesticides in Soil (continued)

Method: ME-(AU)-[ENV]AN400/AN420

Parameter	Sample Name	Sample Number	Units	Criteria	Recovery %
2-fluorobiphenyl (Surrogate)	ASP-03_SV10	SE157562.021	%	60 - 130%	76
	ASP-04_SV01	SE157562.022	%	60 - 130%	80
	ASP-04_SV02	SE157562.023	%	60 - 130%	76
	ASP-04_SV03	SE157562.024	%	60 - 130%	80
	ASP-04_SV04	SE157562.025	%	60 - 130%	76
	ASP-04_SV05	SE157562.026	%	60 - 130%	74
	ASP-04_SV06	SE157562.027	%	60 - 130%	76
	ASP-04_SV07	SE157562.028	%	60 - 130%	82
	ASP-04_SV08	SE157562.029	%	60 - 130%	80
	ASP-04_SV09	SE157562.030	%	60 - 130%	74
	ASP-04_SV10	SE157562.031	%	60 - 130%	82
	QA-01	SE157562.032	%	60 - 130%	76
	QA-02	SE157562.033	%	60 - 130%	78
	M4_0.2-0.3	SE157562.034	%	60 - 130%	82
	M4_0.5-0.6	SE157562.035	%	60 - 130%	78
	M4_0.85-0.95	SE157562.036	%	60 - 130%	82
	M4_1.3-1.4	SE157562.037	%	60 - 130%	78
	SPV5_0.1	SE157562.038	%	60 - 130%	80
d14-p-terphenyl (Surrogate)	ASP-01_SV01	SE157562.001	%	60 - 130%	86
	ASP-01_SV02	SE157562.002	%	60 - 130%	90
	ASP-01_SV03	SE157562.003	%	60 - 130%	90
	ASP-01_SV04	SE157562.004	%	60 - 130%	84
	ASP-01_SV05	SE157562.005	%	60 - 130%	86
	ASP-01_SV06	SE157562.006	%	60 - 130%	84
	ASP-02_SV01	SE157562.007	%	60 - 130%	86
	ASP-02_SV02	SE157562.008	%	60 - 130%	88
	ASP-02_SV03	SE157562.009	%	60 - 130%	86
	ASP-02_SV04	SE157562.010	%	60 - 130%	86
	ASP-02_SV05	SE157562.011	%	60 - 130%	82
	ASP-03_SV01	SE157562.012	%	60 - 130%	88
	ASP-03_SV02	SE157562.013	%	60 - 130%	88
	ASP-03_SV03	SE157562.014	%	60 - 130%	86
	ASP-03_SV04	SE157562.015	%	60 - 130%	86
	ASP-03_SV05	SE157562.016	%	60 - 130%	84
	ASP-03_SV06	SE157562.017	%	60 - 130%	90
	ASP-03_SV07	SE157562.018	%	60 - 130%	86
	ASP-03_SV08	SE157562.019	%	60 - 130%	90
	ASP-03_SV09	SE157562.020	%	60 - 130%	86
	ASP-03_SV10	SE157562.021	%	60 - 130%	72
	ASP-04_SV01	SE157562.022	%	60 - 130%	76
	ASP-04_SV02	SE157562.023	%	60 - 130%	74
	ASP-04_SV03	SE157562.024	%	60 - 130%	72
	ASP-04_SV04	SE157562.025	%	60 - 130%	74
	ASP-04_SV05	SE157562.026	%	60 - 130%	72
	ASP-04_SV06	SE157562.027	%	60 - 130%	74
	ASP-04_SV07	SE157562.028	%	60 - 130%	74
	ASP-04_SV08	SE157562.029	%	60 - 130%	74
	ASP-04_SV09	SE157562.030	%	60 - 130%	72
	ASP-04_SV10	SE157562.031	%	60 - 130%	74
	QA-01	SE157562.032	%	60 - 130%	72
	QA-02	SE157562.033	%	60 - 130%	74
	M4_0.2-0.3	SE157562.034	%	60 - 130%	76
	M4_0.5-0.6	SE157562.035	%	60 - 130%	76
	M4_0.85-0.95	SE157562.036	%	60 - 130%	80
	M4_1.3-1.4	SE157562.037	%	60 - 130%	76
	SPV5_0.1	SE157562.038	%	60 - 130%	74

PAH (Polynuclear Aromatic Hydrocarbons) in Soil

Method: ME-(AU)-[ENV]AN420

Parameter	Sample Name	Sample Number	Units	Criteria	Recovery %
2-fluorobiphenyl (Surrogate)	ASP-01_SV01	SE157562.001	%	70 - 130%	80
	ASP-01_SV02	SE157562.002	%	70 - 130%	80

Surrogate results are evaluated against upper and lower limit criteria established in the SGS QA /QC plan (Ref: MP-(AU)-[ENV]QU-022). At least two of three routine level soil sample surrogate spike recoveries for BTEX/VOC are to be within 70-130% where control charts have not been developed and within the established control limits for charted surrogates. Matrix effects may void this as an acceptance criterion. Water sample surrogate spike recoveries are to be within 40-130%. The presence of emulsions, surfactants and particulates may void this as an acceptance criterion.

Result is shown in **Green** when within suggested criteria or **Red** with an appended reason identifer when outside suggested criteria. Refer to the footnotes section at the end of this report for failure reasons.

PAH (Polynuclear Aromatic Hydrocarbons) in Soil (continued) — **Method: ME-(AU)-[ENV]AN420**

Parameter	Sample Name	Sample Number	Units	Criteria	Recovery %
2-fluorobiphenyl (Surrogate)	ASP-01_SV03	SE157562.003	%	70 - 130%	78
	ASP-01_SV04	SE157562.004	%	70 - 130%	76
	ASP-01_SV05	SE157562.005	%	70 - 130%	78
	ASP-01_SV06	SE157562.006	%	70 - 130%	76
	ASP-02_SV01	SE157562.007	%	70 - 130%	78
	ASP-02_SV02	SE157562.008	%	70 - 130%	78
	ASP-02_SV03	SE157562.009	%	70 - 130%	78
	ASP-02_SV04	SE157562.010	%	70 - 130%	76
	ASP-02_SV05	SE157562.011	%	70 - 130%	76
	ASP-03_SV01	SE157562.012	%	70 - 130%	78
	ASP-03_SV02	SE157562.013	%	70 - 130%	80
	ASP-03_SV03	SE157562.014	%	70 - 130%	78
	ASP-03_SV04	SE157562.015	%	70 - 130%	76
	ASP-03_SV05	SE157562.016	%	70 - 130%	76
	ASP-03_SV06	SE157562.017	%	70 - 130%	82
	ASP-03_SV07	SE157562.018	%	70 - 130%	78
	ASP-03_SV08	SE157562.019	%	70 - 130%	82
	ASP-03_SV09	SE157562.020	%	70 - 130%	78
	ASP-03_SV10	SE157562.021	%	70 - 130%	76
	ASP-04_SV01	SE157562.022	%	70 - 130%	80
	ASP-04_SV02	SE157562.023	%	70 - 130%	76
	ASP-04_SV03	SE157562.024	%	70 - 130%	80
	ASP-04_SV04	SE157562.025	%	70 - 130%	76
	ASP-04_SV05	SE157562.026	%	70 - 130%	74
	ASP-04_SV06	SE157562.027	%	70 - 130%	76
	ASP-04_SV07	SE157562.028	%	70 - 130%	82
	ASP-04_SV08	SE157562.029	%	70 - 130%	80
	ASP-04_SV09	SE157562.030	%	70 - 130%	74
	ASP-04_SV10	SE157562.031	%	70 - 130%	82
	QA-01	SE157562.032	%	70 - 130%	76
	QA-02	SE157562.033	%	70 - 130%	78
	M4_0.2-0.3	SE157562.034	%	70 - 130%	82
	M4_0.5-0.6	SE157562.035	%	70 - 130%	78
	M4_0.85-0.95	SE157562.036	%	70 - 130%	82
	M4_1.3-1.4	SE157562.037	%	70 - 130%	78
	SPV5_0.1	SE157562.038	%	70 - 130%	80
d14-p-terphenyl (Surrogate)	ASP-01_SV01	SE157562.001	%	70 - 130%	86
	ASP-01_SV02	SE157562.002	%	70 - 130%	90
	ASP-01_SV03	SE157562.003	%	70 - 130%	90
	ASP-01_SV04	SE157562.004	%	70 - 130%	84
	ASP-01_SV05	SE157562.005	%	70 - 130%	86
	ASP-01_SV06	SE157562.006	%	70 - 130%	84
	ASP-02_SV01	SE157562.007	%	70 - 130%	86
	ASP-02_SV02	SE157562.008	%	70 - 130%	88
	ASP-02_SV03	SE157562.009	%	70 - 130%	86
	ASP-02_SV04	SE157562.010	%	70 - 130%	86
	ASP-02_SV05	SE157562.011	%	70 - 130%	82
	ASP-03_SV01	SE157562.012	%	70 - 130%	88
	ASP-03_SV02	SE157562.013	%	70 - 130%	88
	ASP-03_SV03	SE157562.014	%	70 - 130%	86
	ASP-03_SV04	SE157562.015	%	70 - 130%	86
	ASP-03_SV05	SE157562.016	%	70 - 130%	84
	ASP-03_SV06	SE157562.017	%	70 - 130%	90
	ASP-03_SV07	SE157562.018	%	70 - 130%	86
	ASP-03_SV08	SE157562.019	%	70 - 130%	90
	ASP-03_SV09	SE157562.020	%	70 - 130%	86
	ASP-03_SV10	SE157562.021	%	70 - 130%	72
	ASP-04_SV01	SE157562.022	%	70 - 130%	76
	ASP-04_SV02	SE157562.023	%	70 - 130%	74
	ASP-04_SV03	SE157562.024	%	70 - 130%	72
	ASP-04_SV04	SE157562.025	%	70 - 130%	74

Surrogate results are evaluated against upper and lower limit criteria established in the SGS QA /QC plan (Ref: MP-(AU)-[ENV]QU-022). At least two of three routine level soil sample surrogate spike recoveries for BTEX/VOC are to be within 70-130% where control charts have not been developed and within the established control limits for charted surrogates. Matrix effects may void this as an acceptance criterion. Water sample surrogate spike recoveries are to be within 40-130%. The presence of emulsions, surfactants and particulates may void this as an acceptance criterion.

Result is shown in **Green** when within suggested criteria or **Red** with an appended reason identifer when outside suggested criteria. Refer to the footnotes section at the end of this report for failure reasons.

PAH (Polynuclear Aromatic Hydrocarbons) in Soil (continued)

Method: ME-(AU)-[ENV]AN420

Parameter	Sample Name	Sample Number	Units	Criteria	Recovery %
d14-p-terphenyl (Surrogate)	ASP-04_SV05	SE157562.026	%	70 - 130%	72
	ASP-04_SV06	SE157562.027	%	70 - 130%	74
	ASP-04_SV07	SE157562.028	%	70 - 130%	74
	ASP-04_SV08	SE157562.029	%	70 - 130%	74
	ASP-04_SV09	SE157562.030	%	70 - 130%	72
	ASP-04_SV10	SE157562.031	%	70 - 130%	74
	QA-01	SE157562.032	%	70 - 130%	72
	QA-02	SE157562.033	%	70 - 130%	74
	M4_0.2-0.3	SE157562.034	%	70 - 130%	76
	M4_0.5-0.6	SE157562.035	%	70 - 130%	76
	M4_0.85-0.95	SE157562.036	%	70 - 130%	80
	M4_1.3-1.4	SE157562.037	%	70 - 130%	76
	SPV5_0.1	SE157562.038	%	70 - 130%	74
d5-nitrobenzene (Surrogate)	ASP-01_SV01	SE157562.001	%	70 - 130%	80
	ASP-01_SV02	SE157562.002	%	70 - 130%	82
	ASP-01_SV03	SE157562.003	%	70 - 130%	82
	ASP-01_SV04	SE157562.004	%	70 - 130%	78
	ASP-01_SV05	SE157562.005	%	70 - 130%	78
	ASP-01_SV06	SE157562.006	%	70 - 130%	76
	ASP-02_SV01	SE157562.007	%	70 - 130%	78
	ASP-02_SV02	SE157562.008	%	70 - 130%	78
	ASP-02_SV03	SE157562.009	%	70 - 130%	80
	ASP-02_SV04	SE157562.010	%	70 - 130%	78
	ASP-02_SV05	SE157562.011	%	70 - 130%	76
	ASP-03_SV01	SE157562.012	%	70 - 130%	78
	ASP-03_SV02	SE157562.013	%	70 - 130%	80
	ASP-03_SV03	SE157562.014	%	70 - 130%	78
	ASP-03_SV04	SE157562.015	%	70 - 130%	78
	ASP-03_SV05	SE157562.016	%	70 - 130%	76
	ASP-03_SV06	SE157562.017	%	70 - 130%	82
	ASP-03_SV07	SE157562.018	%	70 - 130%	76
	ASP-03_SV08	SE157562.019	%	70 - 130%	80
	ASP-03_SV09	SE157562.020	%	70 - 130%	76
	ASP-03_SV10	SE157562.021	%	70 - 130%	86
	ASP-04_SV01	SE157562.022	%	70 - 130%	88
	ASP-04_SV02	SE157562.023	%	70 - 130%	84
	ASP-04_SV03	SE157562.024	%	70 - 130%	84
	ASP-04_SV04	SE157562.025	%	70 - 130%	80
	ASP-04_SV05	SE157562.026	%	70 - 130%	80
	ASP-04_SV06	SE157562.027	%	70 - 130%	78
	ASP-04_SV07	SE157562.028	%	70 - 130%	86
	ASP-04_SV08	SE157562.029	%	70 - 130%	80
	ASP-04_SV09	SE157562.030	%	70 - 130%	74
	ASP-04_SV10	SE157562.031	%	70 - 130%	82
	QA-01	SE157562.032	%	70 - 130%	80
	QA-02	SE157562.033	%	70 - 130%	78
	M4_0.2-0.3	SE157562.034	%	70 - 130%	78
	M4_0.5-0.6	SE157562.035	%	70 - 130%	82
	M4_0.85-0.95	SE157562.036	%	70 - 130%	88
	M4_1.3-1.4	SE157562.037	%	70 - 130%	82
	SPV5_0.1	SE157562.038	%	70 - 130%	82

PCBs in Soil

Method: ME-(AU)-[ENV]AN400/AN420

Parameter	Sample Name	Sample Number	Units	Criteria	Recovery %
Tetrachloro-m-xylene (TCMX) (Surrogate)	ASP-01_SV01	SE157562.001	%	60 - 130%	89
	ASP-01_SV02	SE157562.002	%	60 - 130%	89
	ASP-01_SV03	SE157562.003	%	60 - 130%	87
	ASP-01_SV04	SE157562.004	%	60 - 130%	87
	ASP-01_SV05	SE157562.005	%	60 - 130%	88
	ASP-01_SV06	SE157562.006	%	60 - 130%	82
	ASP-02_SV01	SE157562.007	%	60 - 130%	87

Surrogate results are evaluated against upper and lower limit criteria established in the SGS QA /QC plan (Ref: MP-(AU)-[ENV]QU-022). At least two of three routine level soil sample surrogate spike recoveries for BTEX/VOC are to be within 70-130% where control charts have not been developed and within the established control limits for charted surrogates. Matrix effects may void this as an acceptance criterion. Water sample surrogate spike recoveries are to be within 40-130%. The presence of emulsions, surfactants and particulates may void this as an acceptance criterion.

Result is shown in **Green** when within suggested criteria or **Red** with an appended reason identifer when outside suggested criteria. Refer to the footnotes section at the end of this report for failure reasons.

PCBs in Soil (continued)

Method: ME-(AU)-[ENV]AN400/AN420

Parameter	Sample Name	Sample Number	Units	Criteria	Recovery %
Tetrachloro-m-xylene (TCMX) (Surrogate)	ASP-02_SV02	SE157562.008	%	60 - 130%	83
	ASP-02_SV03	SE157562.009	%	60 - 130%	89
	ASP-02_SV04	SE157562.010	%	60 - 130%	82
	ASP-02_SV05	SE157562.011	%	60 - 130%	85
	ASP-03_SV01	SE157562.012	%	60 - 130%	86
	ASP-03_SV02	SE157562.013	%	60 - 130%	85
	ASP-03_SV03	SE157562.014	%	60 - 130%	83
	ASP-03_SV04	SE157562.015	%	60 - 130%	83
	ASP-03_SV05	SE157562.016	%	60 - 130%	83
	ASP-03_SV06	SE157562.017	%	60 - 130%	83
	ASP-03_SV07	SE157562.018	%	60 - 130%	90
	ASP-03_SV08	SE157562.019	%	60 - 130%	87
	ASP-03_SV09	SE157562.020	%	60 - 130%	85
	ASP-03_SV10	SE157562.021	%	60 - 130%	95
	ASP-04_SV01	SE157562.022	%	60 - 130%	89
	ASP-04_SV02	SE157562.023	%	60 - 130%	93
	ASP-04_SV03	SE157562.024	%	60 - 130%	88
	ASP-04_SV04	SE157562.025	%	60 - 130%	89
	ASP-04_SV05	SE157562.026	%	60 - 130%	88
	ASP-04_SV06	SE157562.027	%	60 - 130%	85
	ASP-04_SV07	SE157562.028	%	60 - 130%	85
	ASP-04_SV08	SE157562.029	%	60 - 130%	86
	ASP-04_SV09	SE157562.030	%	60 - 130%	85
	ASP-04_SV10	SE157562.031	%	60 - 130%	90
	QA-01	SE157562.032	%	60 - 130%	85
	QA-02	SE157562.033	%	60 - 130%	85
	M4_0.2-0.3	SE157562.034	%	60 - 130%	83
	M4_0.5-0.6	SE157562.035	%	60 - 130%	80
	M4_0.85-0.95	SE157562.036	%	60 - 130%	89
	M4_1.3-1.4	SE157562.037	%	60 - 130%	86
	SPV5_0.1	SE157562.038	%	60 - 130%	91

VOC's in Soil

Method: ME-(AU)-[ENV]AN433

Parameter	Sample Name	Sample Number	Units	Criteria	Recovery %
Bromofluorobenzene (Surrogate)	ASP-01_SV01	SE157562.001	%	60 - 130%	73
	ASP-01_SV02	SE157562.002	%	60 - 130%	87
	ASP-01_SV03	SE157562.003	%	60 - 130%	84
	ASP-01_SV04	SE157562.004	%	60 - 130%	82
	ASP-01_SV05	SE157562.005	%	60 - 130%	74
	ASP-01_SV06	SE157562.006	%	60 - 130%	73
	ASP-02_SV01	SE157562.007	%	60 - 130%	72
	ASP-02_SV02	SE157562.008	%	60 - 130%	87
	ASP-02_SV03	SE157562.009	%	60 - 130%	81
	ASP-02_SV04	SE157562.010	%	60 - 130%	80
	ASP-02_SV05	SE157562.011	%	60 - 130%	71
	ASP-03_SV01	SE157562.012	%	60 - 130%	78
	ASP-03_SV02	SE157562.013	%	60 - 130%	84
	ASP-03_SV03	SE157562.014	%	60 - 130%	85
	ASP-03_SV04	SE157562.015	%	60 - 130%	82
	ASP-03_SV05	SE157562.016	%	60 - 130%	80
	ASP-03_SV06	SE157562.017	%	60 - 130%	74
	ASP-03_SV07	SE157562.018	%	60 - 130%	86
	ASP-03_SV08	SE157562.019	%	60 - 130%	85
	ASP-03_SV09	SE157562.020	%	60 - 130%	80
	ASP-03_SV10	SE157562.021	%	60 - 130%	86
	ASP-04_SV01	SE157562.022	%	60 - 130%	83
	ASP-04_SV02	SE157562.023	%	60 - 130%	77
	ASP-04_SV03	SE157562.024	%	60 - 130%	78
	ASP-04_SV04	SE157562.025	%	60 - 130%	79
	ASP-04_SV05	SE157562.026	%	60 - 130%	80
	ASP-04_SV06	SE157562.027	%	60 - 130%	91

Surrogate results are evaluated against upper and lower limit criteria established in the SGS QA /QC plan (Ref: MP-(AU)-[ENV]QU-022). At least two of three routine level soil sample surrogate spike recoveries for BTEX/VOC are to be within 70-130% where control charts have not been developed and within the established control limits for charted surrogates. Matrix effects may void this as an acceptance criterion. Water sample surrogate spike recoveries are to be within 40-130%. The presence of emulsions, surfactants and particulates may void this as an acceptance criterion.

Result is shown in **Green** when within suggested criteria or **Red** with an appended reason identifer when outside suggested criteria. Refer to the footnotes section at the end of this report for failure reasons.

VOC's in Soil (continued) — **Method: ME-(AU)-[ENV]AN433**

Parameter	Sample Name	Sample Number	Units	Criteria	Recovery %
Bromofluorobenzene (Surrogate)	ASP-04_SV07	SE157562.028	%	60 - 130%	84
	ASP-04_SV08	SE157562.029	%	60 - 130%	83
	ASP-04_SV09	SE157562.030	%	60 - 130%	80
	ASP-04_SV10	SE157562.031	%	60 - 130%	84
	QA-01	SE157562.032	%	60 - 130%	80
	QA-02	SE157562.033	%	60 - 130%	83
	M4_0.2-0.3	SE157562.034	%	60 - 130%	76
	M4_0.5-0.6	SE157562.035	%	60 - 130%	70
	M4_0.85-0.95	SE157562.036	%	60 - 130%	78
	M4_1.3-1.4	SE157562.037	%	60 - 130%	77
	SPV5_0.1	SE157562.038	%	60 - 130%	83
	TBQC20	SE157562.039	%	60 - 130%	83
	TSQC21	SE157562.040	%	60 - 130%	83
	TB 13/9/16	SE157562.041	%	60 - 130%	86
	TS 13/9/16	SE157562.042	%	60 - 130%	92
d4-1,2-dichloroethane (Surrogate)	ASP-01_SV01	SE157562.001	%	60 - 130%	71
	ASP-01_SV02	SE157562.002	%	60 - 130%	76
	ASP-01_SV03	SE157562.003	%	60 - 130%	78
	ASP-01_SV04	SE157562.004	%	60 - 130%	79
	ASP-01_SV05	SE157562.005	%	60 - 130%	75
	ASP-01_SV06	SE157562.006	%	60 - 130%	79
	ASP-02_SV01	SE157562.007	%	60 - 130%	72
	ASP-02_SV02	SE157562.008	%	60 - 130%	79
	ASP-02_SV03	SE157562.009	%	60 - 130%	76
	ASP-02_SV04	SE157562.010	%	60 - 130%	73
	ASP-02_SV05	SE157562.011	%	60 - 130%	75
	ASP-03_SV01	SE157562.012	%	60 - 130%	71
	ASP-03_SV02	SE157562.013	%	60 - 130%	77
	ASP-03_SV03	SE157562.014	%	60 - 130%	77
	ASP-03_SV04	SE157562.015	%	60 - 130%	74
	ASP-03_SV05	SE157562.016	%	60 - 130%	77
	ASP-03_SV06	SE157562.017	%	60 - 130%	76
	ASP-03_SV07	SE157562.018	%	60 - 130%	71
	ASP-03_SV08	SE157562.019	%	60 - 130%	70
	ASP-03_SV09	SE157562.020	%	60 - 130%	72
	ASP-03_SV10	SE157562.021	%	60 - 130%	72
	ASP-04_SV01	SE157562.022	%	60 - 130%	76
	ASP-04_SV02	SE157562.023	%	60 - 130%	83
	ASP-04_SV03	SE157562.024	%	60 - 130%	73
	ASP-04_SV04	SE157562.025	%	60 - 130%	70
	ASP-04_SV05	SE157562.026	%	60 - 130%	73
	ASP-04_SV06	SE157562.027	%	60 - 130%	89
	ASP-04_SV07	SE157562.028	%	60 - 130%	93
	ASP-04_SV08	SE157562.029	%	60 - 130%	75
	ASP-04_SV09	SE157562.030	%	60 - 130%	99
	ASP-04_SV10	SE157562.031	%	60 - 130%	90
	QA-01	SE157562.032	%	60 - 130%	88
	QA-02	SE157562.033	%	60 - 130%	86
	M4_0.2-0.3	SE157562.034	%	60 - 130%	95
	M4_0.5-0.6	SE157562.035	%	60 - 130%	85
	M4_0.85-0.95	SE157562.036	%	60 - 130%	90
	M4_1.3-1.4	SE157562.037	%	60 - 130%	98
	SPV5_0.1	SE157562.038	%	60 - 130%	95
	TBQC20	SE157562.039	%	60 - 130%	86
	TSQC21	SE157562.040	%	60 - 130%	100
	TB 13/9/16	SE157562.041	%	60 - 130%	81
	TS 13/9/16	SE157562.042	%	60 - 130%	98
d8-toluene (Surrogate)	ASP-01_SV01	SE157562.001	%	60 - 130%	71
	ASP-01_SV02	SE157562.002	%	60 - 130%	78
	ASP-01_SV03	SE157562.003	%	60 - 130%	74
	ASP-01_SV04	SE157562.004	%	60 - 130%	71

Surrogate results are evaluated against upper and lower limit criteria established in the SGS QA /QC plan (Ref: MP-(AU)-[ENV]QU-022). At least two of three routine level soil sample surrogate spike recoveries for BTEX/VOC are to be within 70-130% where control charts have not been developed and within the established control limits for charted surrogates. Matrix effects may void this as an acceptance criterion. Water sample surrogate spike recoveries are to be within 40-130%. The presence of emulsions, surfactants and particulates may void this as an acceptance criterion.

Result is shown in **Green** when within suggested criteria or **Red** with an appended reason identifer when outside suggested criteria. Refer to the footnotes section at the end of this report for failure reasons.

VOC's in Soil (continued)

Method: ME-(AU)-[ENV]AN433

Parameter	Sample Name	Sample Number	Units	Criteria	Recovery %
d8-toluene (Surrogate)	ASP-01_SV05	SE157562.005	%	60 - 130%	72
	ASP-01_SV06	SE157562.006	%	60 - 130%	72
	ASP-02_SV01	SE157562.007	%	60 - 130%	70
	ASP-02_SV02	SE157562.008	%	60 - 130%	83
	ASP-02_SV03	SE157562.009	%	60 - 130%	79
	ASP-02_SV04	SE157562.010	%	60 - 130%	70
	ASP-02_SV05	SE157562.011	%	60 - 130%	77
	ASP-03_SV01	SE157562.012	%	60 - 130%	72
	ASP-03_SV02	SE157562.013	%	60 - 130%	79
	ASP-03_SV03	SE157562.014	%	60 - 130%	82
	ASP-03_SV04	SE157562.015	%	60 - 130%	75
	ASP-03_SV05	SE157562.016	%	60 - 130%	82
	ASP-03_SV06	SE157562.017	%	60 - 130%	72
	ASP-03_SV07	SE157562.018	%	60 - 130%	75
	ASP-03_SV08	SE157562.019	%	60 - 130%	82
	ASP-03_SV09	SE157562.020	%	60 - 130%	77
	ASP-03_SV10	SE157562.021	%	60 - 130%	77
	ASP-04_SV01	SE157562.022	%	60 - 130%	76
	ASP-04_SV02	SE157562.023	%	60 - 130%	72
	ASP-04_SV03	SE157562.024	%	60 - 130%	71
	ASP-04_SV04	SE157562.025	%	60 - 130%	76
	ASP-04_SV05	SE157562.026	%	60 - 130%	77
	ASP-04_SV06	SE157562.027	%	60 - 130%	90
	ASP-04_SV07	SE157562.028	%	60 - 130%	73
	ASP-04_SV08	SE157562.029	%	60 - 130%	82
	ASP-04_SV09	SE157562.030	%	60 - 130%	71
	ASP-04_SV10	SE157562.031	%	60 - 130%	70
	QA-01	SE157562.032	%	60 - 130%	70
	QA-02	SE157562.033	%	60 - 130%	73
	M4_0.2-0.3	SE157562.034	%	60 - 130%	74
	M4_0.5-0.6	SE157562.035	%	60 - 130%	74
	M4_0.85-0.95	SE157562.036	%	60 - 130%	75
	M4_1.3-1.4	SE157562.037	%	60 - 130%	71
	SPV5_0.1	SE157562.038	%	60 - 130%	77
	TBQC20	SE157562.039	%	60 - 130%	77
	TSQC21	SE157562.040	%	60 - 130%	82
	TB 13/9/16	SE157562.041	%	60 - 130%	88
	TS 13/9/16	SE157562.042	%	60 - 130%	105
Dibromofluoromethane (Surrogate)	ASP-01_SV01	SE157562.001	%	60 - 130%	72
	ASP-01_SV02	SE157562.002	%	60 - 130%	78
	ASP-01_SV03	SE157562.003	%	60 - 130%	72
	ASP-01_SV04	SE157562.004	%	60 - 130%	74
	ASP-01_SV05	SE157562.005	%	60 - 130%	73
	ASP-01_SV06	SE157562.006	%	60 - 130%	72
	ASP-02_SV01	SE157562.007	%	60 - 130%	72
	ASP-02_SV02	SE157562.008	%	60 - 130%	74
	ASP-02_SV03	SE157562.009	%	60 - 130%	70
	ASP-02_SV04	SE157562.010	%	60 - 130%	72
	ASP-02_SV05	SE157562.011	%	60 - 130%	70
	ASP-03_SV01	SE157562.012	%	60 - 130%	75
	ASP-03_SV02	SE157562.013	%	60 - 130%	73
	ASP-03_SV03	SE157562.014	%	60 - 130%	72
	ASP-03_SV04	SE157562.015	%	60 - 130%	73
	ASP-03_SV05	SE157562.016	%	60 - 130%	71
	ASP-03_SV06	SE157562.017	%	60 - 130%	71
	ASP-03_SV07	SE157562.018	%	60 - 130%	74
	ASP-03_SV08	SE157562.019	%	60 - 130%	74
	ASP-03_SV09	SE157562.020	%	60 - 130%	70
	ASP-03_SV10	SE157562.021	%	60 - 130%	88
	ASP-04_SV01	SE157562.022	%	60 - 130%	78
	ASP-04_SV02	SE157562.023	%	60 - 130%	77

Surrogate results are evaluated against upper and lower limit criteria established in the SGS QA /QC plan (Ref: MP-(AU)-[ENV]QU-022). At least two of three routine level soil sample surrogate spike recoveries for BTEX/VOC are to be within 70-130% where control charts have not been developed and within the established control limits for charted surrogates. Matrix effects may void this as an acceptance criterion. Water sample surrogate spike recoveries are to be within 40-130%. The presence of emulsions, surfactants and particulates may void this as an acceptance criterion.

Result is shown in **Green** when within suggested criteria or **Red** with an appended reason identifer when outside suggested criteria. Refer to the footnotes section at the end of this report for failure reasons.

VOC's in Soil (continued)

Method: ME-(AU)-[ENV]AN433

Parameter	Sample Name	Sample Number	Units	Criteria	Recovery %
Dibromofluoromethane (Surrogate)	ASP-04_SV03	SE157562.024	%	60 - 130%	87
	ASP-04_SV04	SE157562.025	%	60 - 130%	91
	ASP-04_SV05	SE157562.026	%	60 - 130%	95
	ASP-04_SV06	SE157562.027	%	60 - 130%	82
	ASP-04_SV07	SE157562.028	%	60 - 130%	76
	ASP-04_SV08	SE157562.029	%	60 - 130%	71
	ASP-04_SV09	SE157562.030	%	60 - 130%	87
	ASP-04_SV10	SE157562.031	%	60 - 130%	79
	QA-01	SE157562.032	%	60 - 130%	74
	QA-02	SE157562.033	%	60 - 130%	79
	M4_0.2-0.3	SE157562.034	%	60 - 130%	82
	M4_0.5-0.6	SE157562.035	%	60 - 130%	76
	M4_0.85-0.95	SE157562.036	%	60 - 130%	95
	M4_1.3-1.4	SE157562.037	%	60 - 130%	100
	SPV5_0.1	SE157562.038	%	60 - 130%	89
	TBQC20	SE157562.039	%	60 - 130%	90
	TSQC21	SE157562.040	%	60 - 130%	89
	TB 13/9/16	SE157562.041	%	60 - 130%	90
	TS 13/9/16	SE157562.042	%	60 - 130%	82

Volatile Petroleum Hydrocarbons in Soil

Method: ME-(AU)-[ENV]AN433

Parameter	Sample Name	Sample Number	Units	Criteria	Recovery %
Bromofluorobenzene (Surrogate)	ASP-01_SV01	SE157562.001	%	60 - 130%	73
	ASP-01_SV02	SE157562.002	%	60 - 130%	87
	ASP-01_SV03	SE157562.003	%	60 - 130%	84
	ASP-01_SV04	SE157562.004	%	60 - 130%	82
	ASP-01_SV05	SE157562.005	%	60 - 130%	74
	ASP-01_SV06	SE157562.006	%	60 - 130%	73
	ASP-02_SV01	SE157562.007	%	60 - 130%	72
	ASP-02_SV02	SE157562.008	%	60 - 130%	87
	ASP-02_SV03	SE157562.009	%	60 - 130%	81
	ASP-02_SV04	SE157562.010	%	60 - 130%	80
	ASP-02_SV05	SE157562.011	%	60 - 130%	71
	ASP-03_SV01	SE157562.012	%	60 - 130%	78
	ASP-03_SV02	SE157562.013	%	60 - 130%	84
	ASP-03_SV03	SE157562.014	%	60 - 130%	85
	ASP-03_SV04	SE157562.015	%	60 - 130%	82
	ASP-03_SV05	SE157562.016	%	60 - 130%	80
	ASP-03_SV06	SE157562.017	%	60 - 130%	74
	ASP-03_SV07	SE157562.018	%	60 - 130%	86
	ASP-03_SV08	SE157562.019	%	60 - 130%	85
	ASP-03_SV09	SE157562.020	%	60 - 130%	80
	ASP-03_SV10	SE157562.021	%	60 - 130%	86
	ASP-04_SV01	SE157562.022	%	60 - 130%	83
	ASP-04_SV02	SE157562.023	%	60 - 130%	77
	ASP-04_SV03	SE157562.024	%	60 - 130%	78
	ASP-04_SV04	SE157562.025	%	60 - 130%	79
	ASP-04_SV05	SE157562.026	%	60 - 130%	80
	ASP-04_SV06	SE157562.027	%	60 - 130%	91
	ASP-04_SV07	SE157562.028	%	60 - 130%	84
	ASP-04_SV08	SE157562.029	%	60 - 130%	83
	ASP-04_SV09	SE157562.030	%	60 - 130%	80
	ASP-04_SV10	SE157562.031	%	60 - 130%	84
	QA-01	SE157562.032	%	60 - 130%	80
	QA-02	SE157562.033	%	60 - 130%	83
	M4_0.2-0.3	SE157562.034	%	60 - 130%	76
	M4_0.5-0.6	SE157562.035	%	60 - 130%	70
	M4_0.85-0.95	SE157562.036	%	60 - 130%	78
	M4_1.3-1.4	SE157562.037	%	60 - 130%	77
	SPV5_0.1	SE157562.038	%	60 - 130%	83
	TBQC20	SE157562.039	%	60 - 130%	83

Surrogate results are evaluated against upper and lower limit criteria established in the SGS QA /QC plan (Ref: MP-(AU)-[ENV]QU-022). At least two of three routine level soil sample surrogate spike recoveries for BTEX/VOC are to be within 70-130% where control charts have not been developed and within the established control limits for charted surrogates. Matrix effects may void this as an acceptance criterion. Water sample surrogate spike recoveries are to be within 40-130%. The presence of emulsions, surfactants and particulates may void this as an acceptance criterion.

Result is shown in **Green** when within suggested criteria or **Red** with an appended reason identifer when outside suggested criteria. Refer to the footnotes section at the end of this report for failure reasons.

Volatile Petroleum Hydrocarbons in Soil (continued) — **Method: ME-(AU)-[ENV]AN433**

Parameter	Sample Name	Sample Number	Units	Criteria	Recovery %
Bromofluorobenzene (Surrogate)	TB 13/9/16	SE157562.041	%	60 - 130%	86
d4-1,2-dichloroethane (Surrogate)	ASP-01_SV01	SE157562.001	%	60 - 130%	71
	ASP-01_SV02	SE157562.002	%	60 - 130%	76
	ASP-01_SV03	SE157562.003	%	60 - 130%	78
	ASP-01_SV04	SE157562.004	%	60 - 130%	79
	ASP-01_SV05	SE157562.005	%	60 - 130%	75
	ASP-01_SV06	SE157562.006	%	60 - 130%	79
	ASP-02_SV01	SE157562.007	%	60 - 130%	72
	ASP-02_SV02	SE157562.008	%	60 - 130%	79
	ASP-02_SV03	SE157562.009	%	60 - 130%	76
	ASP-02_SV04	SE157562.010	%	60 - 130%	73
	ASP-02_SV05	SE157562.011	%	60 - 130%	75
	ASP-03_SV01	SE157562.012	%	60 - 130%	71
	ASP-03_SV02	SE157562.013	%	60 - 130%	77
	ASP-03_SV03	SE157562.014	%	60 - 130%	77
	ASP-03_SV04	SE157562.015	%	60 - 130%	74
	ASP-03_SV05	SE157562.016	%	60 - 130%	77
	ASP-03_SV06	SE157562.017	%	60 - 130%	76
	ASP-03_SV07	SE157562.018	%	60 - 130%	71
	ASP-03_SV08	SE157562.019	%	60 - 130%	70
	ASP-03_SV09	SE157562.020	%	60 - 130%	72
	ASP-03_SV10	SE157562.021	%	60 - 130%	72
	ASP-04_SV01	SE157562.022	%	60 - 130%	76
	ASP-04_SV02	SE157562.023	%	60 - 130%	83
	ASP-04_SV03	SE157562.024	%	60 - 130%	73
	ASP-04_SV04	SE157562.025	%	60 - 130%	70
	ASP-04_SV05	SE157562.026	%	60 - 130%	73
	ASP-04_SV06	SE157562.027	%	60 - 130%	89
	ASP-04_SV07	SE157562.028	%	60 - 130%	93
	ASP-04_SV08	SE157562.029	%	60 - 130%	75
	ASP-04_SV09	SE157562.030	%	60 - 130%	99
	ASP-04_SV10	SE157562.031	%	60 - 130%	90
	QA-01	SE157562.032	%	60 - 130%	88
	QA-02	SE157562.033	%	60 - 130%	86
	M4_0.2-0.3	SE157562.034	%	60 - 130%	95
	M4_0.5-0.6	SE157562.035	%	60 - 130%	85
	M4_0.85-0.95	SE157562.036	%	60 - 130%	90
	M4_1.3-1.4	SE157562.037	%	60 - 130%	98
	SPV5_0.1	SE157562.038	%	60 - 130%	95
	TBQC20	SE157562.039	%	60 - 130%	86
	TB 13/9/16	SE157562.041	%	60 - 130%	81
d8-toluene (Surrogate)	ASP-01_SV01	SE157562.001	%	60 - 130%	71
	ASP-01_SV02	SE157562.002	%	60 - 130%	78
	ASP-01_SV03	SE157562.003	%	60 - 130%	74
	ASP-01_SV04	SE157562.004	%	60 - 130%	71
	ASP-01_SV05	SE157562.005	%	60 - 130%	72
	ASP-01_SV06	SE157562.006	%	60 - 130%	72
	ASP-02_SV01	SE157562.007	%	60 - 130%	70
	ASP-02_SV02	SE157562.008	%	60 - 130%	83
	ASP-02_SV03	SE157562.009	%	60 - 130%	79
	ASP-02_SV04	SE157562.010	%	60 - 130%	70
	ASP-02_SV05	SE157562.011	%	60 - 130%	77
	ASP-03_SV01	SE157562.012	%	60 - 130%	72
	ASP-03_SV02	SE157562.013	%	60 - 130%	79
	ASP-03_SV03	SE157562.014	%	60 - 130%	82
	ASP-03_SV04	SE157562.015	%	60 - 130%	75
	ASP-03_SV05	SE157562.016	%	60 - 130%	82
	ASP-03_SV06	SE157562.017	%	60 - 130%	72
	ASP-03_SV07	SE157562.018	%	60 - 130%	75
	ASP-03_SV08	SE157562.019	%	60 - 130%	82
	ASP-03_SV09	SE157562.020	%	60 - 130%	77

Surrogate results are evaluated against upper and lower limit criteria established in the SGS QA /QC plan (Ref: MP-(AU)-[ENV]QU-022). At least two of three routine level soil sample surrogate spike recoveries for BTEX/VOC are to be within 70-130% where control charts have not been developed and within the established control limits for charted surrogates. Matrix effects may void this as an acceptance criterion. Water sample surrogate spike recoveries are to be within 40-130%. The presence of emulsions, surfactants and particulates may void this as an acceptance criterion.

Result is shown in **Green** when within suggested criteria or **Red** with an appended reason identifer when outside suggested criteria. Refer to the footnotes section at the end of this report for failure reasons.

Volatile Petroleum Hydrocarbons in Soil (continued) — **Method: ME-(AU)-[ENV]AN433**

Parameter	Sample Name	Sample Number	Units	Criteria	Recovery %
d8-toluene (Surrogate)	ASP-03_SV10	SE157562.021	%	60 - 130%	77
	ASP-04_SV01	SE157562.022	%	60 - 130%	76
	ASP-04_SV02	SE157562.023	%	60 - 130%	72
	ASP-04_SV03	SE157562.024	%	60 - 130%	71
	ASP-04_SV04	SE157562.025	%	60 - 130%	76
	ASP-04_SV05	SE157562.026	%	60 - 130%	77
	ASP-04_SV06	SE157562.027	%	60 - 130%	90
	ASP-04_SV07	SE157562.028	%	60 - 130%	73
	ASP-04_SV08	SE157562.029	%	60 - 130%	82
	ASP-04_SV09	SE157562.030	%	60 - 130%	71
	ASP-04_SV10	SE157562.031	%	60 - 130%	70
	QA-01	SE157562.032	%	60 - 130%	70
	QA-02	SE157562.033	%	60 - 130%	73
	M4_0.2-0.3	SE157562.034	%	60 - 130%	74
	M4_0.5-0.6	SE157562.035	%	60 - 130%	74
	M4_0.85-0.95	SE157562.036	%	60 - 130%	75
	M4_1.3-1.4	SE157562.037	%	60 - 130%	71
	SPV5_0.1	SE157562.038	%	60 - 130%	77
	TBQC20	SE157562.039	%	60 - 130%	77
	TB 13/9/16	SE157562.041	%	60 - 130%	88
Dibromofluoromethane (Surrogate)	ASP-01_SV01	SE157562.001	%	60 - 130%	72
	ASP-01_SV02	SE157562.002	%	60 - 130%	78
	ASP-01_SV03	SE157562.003	%	60 - 130%	72
	ASP-01_SV04	SE157562.004	%	60 - 130%	74
	ASP-01_SV05	SE157562.005	%	60 - 130%	73
	ASP-01_SV06	SE157562.006	%	60 - 130%	72
	ASP-02_SV01	SE157562.007	%	60 - 130%	72
	ASP-02_SV02	SE157562.008	%	60 - 130%	74
	ASP-02_SV03	SE157562.009	%	60 - 130%	70
	ASP-02_SV04	SE157562.010	%	60 - 130%	72
	ASP-02_SV05	SE157562.011	%	60 - 130%	70
	ASP-03_SV01	SE157562.012	%	60 - 130%	75
	ASP-03_SV02	SE157562.013	%	60 - 130%	73
	ASP-03_SV03	SE157562.014	%	60 - 130%	72
	ASP-03_SV04	SE157562.015	%	60 - 130%	73
	ASP-03_SV05	SE157562.016	%	60 - 130%	71
	ASP-03_SV06	SE157562.017	%	60 - 130%	71
	ASP-03_SV07	SE157562.018	%	60 - 130%	74
	ASP-03_SV08	SE157562.019	%	60 - 130%	74
	ASP-03_SV09	SE157562.020	%	60 - 130%	70
	ASP-03_SV10	SE157562.021	%	60 - 130%	88
	ASP-04_SV01	SE157562.022	%	60 - 130%	78
	ASP-04_SV02	SE157562.023	%	60 - 130%	77
	ASP-04_SV03	SE157562.024	%	60 - 130%	87
	ASP-04_SV04	SE157562.025	%	60 - 130%	91
	ASP-04_SV05	SE157562.026	%	60 - 130%	95
	ASP-04_SV06	SE157562.027	%	60 - 130%	82
	ASP-04_SV07	SE157562.028	%	60 - 130%	76
	ASP-04_SV08	SE157562.029	%	60 - 130%	71
	ASP-04_SV09	SE157562.030	%	60 - 130%	87
	ASP-04_SV10	SE157562.031	%	60 - 130%	79
	QA-01	SE157562.032	%	60 - 130%	74
	QA-02	SE157562.033	%	60 - 130%	79
	M4_0.2-0.3	SE157562.034	%	60 - 130%	82
	M4_0.5-0.6	SE157562.035	%	60 - 130%	76
	M4_0.85-0.95	SE157562.036	%	60 - 130%	95
	M4_1.3-1.4	SE157562.037	%	60 - 130%	100
	SPV5_0.1	SE157562.038	%	60 - 130%	89
	TBQC20	SE157562.039	%	60 - 130%	90
	TB 13/9/16	SE157562.041	%	60 - 130%	90

Blank results are evaluated against the limit of reporting (LOR), for the chosen method and its associated instrumentation, typically 2.5 times the statistically determined method detection limit (MDL).

Result is shown in **Green** when within suggested criteria or **Red** with an appended dagger symbol (†) when outside suggested criteria.

Mercury in Soil

Method: ME-(AU)-[ENV]AN312

Sample Number	Parameter	Units	LOR	Result
LB111016.001	Mercury	mg/kg	0.05	<0.05
LB111017.001	Mercury	mg/kg	0.05	<0.05

OC Pesticides in Soil

Method: ME-(AU)-[ENV]AN400/AN420

Sample Number		Parameter	Units	LOR	Result
LB110828.001		Hexachlorobenzene (HCB)	mg/kg	0.1	<0.1
		Alpha BHC	mg/kg	0.1	<0.1
		Lindane	mg/kg	0.1	<0.1
		Heptachlor	mg/kg	0.1	<0.1
		Aldrin	mg/kg	0.1	<0.1
		Beta BHC	mg/kg	0.1	<0.1
		Delta BHC	mg/kg	0.1	<0.1
		Heptachlor epoxide	mg/kg	0.1	<0.1
		Alpha Endosulfan	mg/kg	0.2	<0.2
		Gamma Chlordane	mg/kg	0.1	<0.1
		Alpha Chlordane	mg/kg	0.1	<0.1
		p,p'-DDE	mg/kg	0.1	<0.1
		Dieldrin	mg/kg	0.2	<0.2
		Endrin	mg/kg	0.2	<0.2
		Beta Endosulfan	mg/kg	0.2	<0.2
		p,p'-DDD	mg/kg	0.1	<0.1
		p,p'-DDT	mg/kg	0.1	<0.1
		Endosulfan sulphate	mg/kg	0.1	<0.1
		Endrin Aldehyde	mg/kg	0.1	<0.1
		Methoxychlor	mg/kg	0.1	<0.1
		Endrin Ketone	mg/kg	0.1	<0.1
		Isodrin	mg/kg	0.1	<0.1
		Mirex	mg/kg	0.1	<0.1
	Surrogates	Tetrachloro-m-xylene (TCMX) (Surrogate)	%	-	84
LB110829.001		Hexachlorobenzene (HCB)	mg/kg	0.1	<0.1
		Alpha BHC	mg/kg	0.1	<0.1
		Lindane	mg/kg	0.1	<0.1
		Heptachlor	mg/kg	0.1	<0.1
		Aldrin	mg/kg	0.1	<0.1
		Beta BHC	mg/kg	0.1	<0.1
		Delta BHC	mg/kg	0.1	<0.1
		Heptachlor epoxide	mg/kg	0.1	<0.1
		Alpha Endosulfan	mg/kg	0.2	<0.2
		Gamma Chlordane	mg/kg	0.1	<0.1
		Alpha Chlordane	mg/kg	0.1	<0.1
		p,p'-DDE	mg/kg	0.1	<0.1
		Dieldrin	mg/kg	0.2	<0.2
		Endrin	mg/kg	0.2	<0.2
		Beta Endosulfan	mg/kg	0.2	<0.2
		p,p'-DDD	mg/kg	0.1	<0.1
		p,p'-DDT	mg/kg	0.1	<0.1
		Endosulfan sulphate	mg/kg	0.1	<0.1
		Endrin Aldehyde	mg/kg	0.1	<0.1
		Methoxychlor	mg/kg	0.1	<0.1
		Endrin Ketone	mg/kg	0.1	<0.1
		Isodrin	mg/kg	0.1	<0.1
		Mirex	mg/kg	0.1	<0.1
	Surrogates	Tetrachloro-m-xylene (TCMX) (Surrogate)	%	-	87

OP Pesticides in Soil

Method: ME-(AU)-[ENV]AN400/AN420

Sample Number	Parameter	Units	LOR	Result
LB110828.001	Dichlorvos	mg/kg	0.5	<0.5
	Dimethoate	mg/kg	0.5	<0.5
	Diazinon (Dimpylate)	mg/kg	0.5	<0.5
	Fenitrothion	mg/kg	0.2	<0.2
	Malathion	mg/kg	0.2	<0.2

Blank results are evaluated against the limit of reporting (LOR), for the chosen method and its associated instrumentation, typically 2.5 times the statistically determined method detection limit (MDL).

Result is shown in **Green** when within suggested criteria or **Red** with an appended dagger symbol (†) when outside suggested criteria.

OP Pesticides in Soil (continued)

Method: ME-(AU)-[ENV]AN400/AN420

Sample Number		Parameter	Units	LOR	Result
LB110828.001		Chlorpyrifos (Chlorpyrifos Ethyl)	mg/kg	0.2	<0.2
		Parathion-ethyl (Parathion)	mg/kg	0.2	<0.2
		Bromophos Ethyl	mg/kg	0.2	<0.2
		Methidathion	mg/kg	0.5	<0.5
		Ethion	mg/kg	0.2	<0.2
		Azinphos-methyl (Guthion)	mg/kg	0.2	<0.2
	Surrogates	2-fluorobiphenyl (Surrogate)	%	-	76
		d14-p-terphenyl (Surrogate)	%	-	86
LB110829.001		Dichlorvos	mg/kg	0.5	<0.5
		Dimethoate	mg/kg	0.5	<0.5
		Diazinon (Dimpylate)	mg/kg	0.5	<0.5
		Fenitrothion	mg/kg	0.2	<0.2
		Malathion	mg/kg	0.2	<0.2
		Chlorpyrifos (Chlorpyrifos Ethyl)	mg/kg	0.2	<0.2
		Parathion-ethyl (Parathion)	mg/kg	0.2	<0.2
		Bromophos Ethyl	mg/kg	0.2	<0.2
		Methidathion	mg/kg	0.5	<0.5
		Ethion	mg/kg	0.2	<0.2
		Azinphos-methyl (Guthion)	mg/kg	0.2	<0.2
	Surrogates	2-fluorobiphenyl (Surrogate)	%	-	76
		d14-p-terphenyl (Surrogate)	%	-	76

PAH (Polynuclear Aromatic Hydrocarbons) in Soil

Method: ME-(AU)-[ENV]AN420

Sample Number		Parameter	Units	LOR	Result
LB110828.001		Naphthalene	mg/kg	0.1	<0.1
		2-methylnaphthalene	mg/kg	0.1	<0.1
		1-methylnaphthalene	mg/kg	0.1	<0.1
		Acenaphthylene	mg/kg	0.1	<0.1
		Acenaphthene	mg/kg	0.1	<0.1
		Fluorene	mg/kg	0.1	<0.1
		Phenanthrene	mg/kg	0.1	<0.1
		Anthracene	mg/kg	0.1	<0.1
		Fluoranthene	mg/kg	0.1	<0.1
		Pyrene	mg/kg	0.1	<0.1
		Benzo(a)anthracene	mg/kg	0.1	<0.1
		Chrysene	mg/kg	0.1	<0.1
		Benzo(a)pyrene	mg/kg	0.1	<0.1
		Indeno(1,2,3-cd)pyrene	mg/kg	0.1	<0.1
		Dibenzo(ah)anthracene	mg/kg	0.1	<0.1
		Benzo(ghi)perylene	mg/kg	0.1	<0.1
		Total PAH (18)	mg/kg	0.8	<0.8
	Surrogates	d5-nitrobenzene (Surrogate)	%	-	80
		2-fluorobiphenyl (Surrogate)	%	-	76
		d14-p-terphenyl (Surrogate)	%	-	86
LB110829.001		Naphthalene	mg/kg	0.1	<0.1
		2-methylnaphthalene	mg/kg	0.1	<0.1
		1-methylnaphthalene	mg/kg	0.1	<0.1
		Acenaphthylene	mg/kg	0.1	<0.1
		Acenaphthene	mg/kg	0.1	<0.1
		Fluorene	mg/kg	0.1	<0.1
		Phenanthrene	mg/kg	0.1	<0.1
		Anthracene	mg/kg	0.1	<0.1
		Fluoranthene	mg/kg	0.1	<0.1
		Pyrene	mg/kg	0.1	<0.1
		Benzo(a)anthracene	mg/kg	0.1	<0.1
		Chrysene	mg/kg	0.1	<0.1
		Benzo(a)pyrene	mg/kg	0.1	<0.1
		Indeno(1,2,3-cd)pyrene	mg/kg	0.1	<0.1
		Dibenzo(ah)anthracene	mg/kg	0.1	<0.1
		Benzo(ghi)perylene	mg/kg	0.1	<0.1
		Total PAH (18)	mg/kg	0.8	<0.8

Blank results are evaluated against the limit of reporting (LOR), for the chosen method and its associated instrumentation, typically 2.5 times the statistically determined method detection limit (MDL).

Result is shown in **Green** when within suggested criteria or **Red** with an appended dagger symbol (†) when outside suggested criteria.

PAH (Polynuclear Aromatic Hydrocarbons) in Soil (continued)

Method: ME-(AU)-[ENV]AN420

Sample Number		Parameter	Units	LOR	Result
LB110829.001	Surrogates	d5-nitrobenzene (Surrogate)	%	-	88
		2-fluorobiphenyl (Surrogate)	%	-	76
		d14-p-terphenyl (Surrogate)	%	-	76

PCBs in Soil

Method: ME-(AU)-[ENV]AN400/AN420

Sample Number		Parameter	Units	LOR	Result
LB110828.001		Arochlor 1016	mg/kg	0.2	<0.2
		Arochlor 1221	mg/kg	0.2	<0.2
		Arochlor 1232	mg/kg	0.2	<0.2
		Arochlor 1242	mg/kg	0.2	<0.2
		Arochlor 1248	mg/kg	0.2	<0.2
		Arochlor 1254	mg/kg	0.2	<0.2
		Arochlor 1260	mg/kg	0.2	<0.2
		Arochlor 1262	mg/kg	0.2	<0.2
		Arochlor 1268	mg/kg	0.2	<0.2
		Total PCBs (Arochlors)	mg/kg	1	<1
	Surrogates	Tetrachloro-m-xylene (TCMX) (Surrogate)	%	-	84
LB110829.001		Arochlor 1016	mg/kg	0.2	<0.2
		Arochlor 1221	mg/kg	0.2	<0.2
		Arochlor 1232	mg/kg	0.2	<0.2
		Arochlor 1242	mg/kg	0.2	<0.2
		Arochlor 1248	mg/kg	0.2	<0.2
		Arochlor 1254	mg/kg	0.2	<0.2
		Arochlor 1260	mg/kg	0.2	<0.2
		Arochlor 1262	mg/kg	0.2	<0.2
		Arochlor 1268	mg/kg	0.2	<0.2
		Total PCBs (Arochlors)	mg/kg	1	<1
	Surrogates	Tetrachloro-m-xylene (TCMX) (Surrogate)	%	-	87

Total Recoverable Metals in Soil/Waste Solids/Materials by ICPOES

Method: ME-(AU)-[ENV]AN040/AN320

Sample Number	Parameter	Units	LOR	Result
LB111055.001	Arsenic, As	mg/kg	3	<3
	Cadmium, Cd	mg/kg	0.3	<0.3
	Chromium, Cr	mg/kg	0.3	<0.3
	Copper, Cu	mg/kg	0.5	<0.5
	Lead, Pb	mg/kg	1	<1
	Nickel, Ni	mg/kg	0.5	<0.5
	Zinc, Zn	mg/kg	0.5	<0.5
LB111056.001	Arsenic, As	mg/kg	3	<3
	Cadmium, Cd	mg/kg	0.3	<0.3
	Chromium, Cr	mg/kg	0.3	<0.3
	Copper, Cu	mg/kg	0.5	<0.5
	Lead, Pb	mg/kg	1	<1
	Nickel, Ni	mg/kg	0.5	<0.5
	Zinc, Zn	mg/kg	0.5	<0.5

TRH (Total Recoverable Hydrocarbons) in Soil

Method: ME-(AU)-[ENV]AN403

Sample Number	Parameter	Units	LOR	Result
LB110828.001	TRH C10-C14	mg/kg	20	<20
	TRH C15-C28	mg/kg	45	<45
	TRH C29-C36	mg/kg	45	<45
	TRH C37-C40	mg/kg	100	<100
	TRH C10-C36 Total	mg/kg	110	<110
LB110829.001	TRH C10-C14	mg/kg	20	<20
	TRH C15-C28	mg/kg	45	<45
	TRH C29-C36	mg/kg	45	<45
	TRH C37-C40	mg/kg	100	<100
	TRH C10-C36 Total	mg/kg	110	<110

VOC's in Soil

Method: ME-(AU)-[ENV]AN433

Sample Number	Parameter	Units	LOR

Blank results are evaluated against the limit of reporting (LOR), for the chosen method and its associated instrumentation, typically 2.5 times the statistically determined method detection limit (MDL).

Result is shown in **Green** when within suggested criteria or **Red** with an appended dagger symbol (†) when outside suggested criteria.

VOC's in Soil (continued)

Method: ME-(AU)-[ENV]AN433

Sample Number		Parameter	Units	LOR	Result
LB110808.001	Monocyclic Aromatic	Benzene	mg/kg	0.1	<0.1
	Hydrocarbons	Toluene	mg/kg	0.1	<0.1
		Ethylbenzene	mg/kg	0.1	<0.1
		m/p-xylene	mg/kg	0.2	<0.2
		o-xylene	mg/kg	0.1	<0.1
	Polycyclic VOCs	Naphthalene	mg/kg	0.1	<0.1
	Surrogates	Dibromofluoromethane (Surrogate)	%	-	73
		d4-1,2-dichloroethane (Surrogate)	%	-	75
		d8-toluene (Surrogate)	%	-	90
		Bromofluorobenzene (Surrogate)	%	-	90
	Totals	Total BTEX	mg/kg	0.6	<0.6
LB110810.001	Monocyclic Aromatic	Benzene	mg/kg	0.1	<0.1
	Hydrocarbons	Toluene	mg/kg	0.1	<0.1
		Ethylbenzene	mg/kg	0.1	<0.1
		m/p-xylene	mg/kg	0.2	<0.2
		o-xylene	mg/kg	0.1	<0.1
	Polycyclic VOCs	Naphthalene	mg/kg	0.1	<0.1
	Surrogates	Dibromofluoromethane (Surrogate)	%	-	71
		d4-1,2-dichloroethane (Surrogate)	%	-	79
		d8-toluene (Surrogate)	%	-	80
		Bromofluorobenzene (Surrogate)	%	-	83
	Totals	Total BTEX	mg/kg	0.6	<0.6
LB110813.001	Monocyclic Aromatic	Benzene	mg/kg	0.1	<0.1
	Hydrocarbons	Toluene	mg/kg	0.1	<0.1
		Ethylbenzene	mg/kg	0.1	<0.1
		m/p-xylene	mg/kg	0.2	<0.2
		o-xylene	mg/kg	0.1	<0.1
	Polycyclic VOCs	Naphthalene	mg/kg	0.1	<0.1
	Surrogates	Dibromofluoromethane (Surrogate)	%	-	71
		d4-1,2-dichloroethane (Surrogate)	%	-	86
		d8-toluene (Surrogate)	%	-	91
		Bromofluorobenzene (Surrogate)	%	-	88
	Totals	Total BTEX	mg/kg	0.6	<0.6

Volatile Petroleum Hydrocarbons in Soil

Method: ME-(AU)-[ENV]AN433

Sample Number		Parameter	Units	LOR	Result
LB110808.001		TRH C6-C9	mg/kg	20	<20
	Surrogates	Dibromofluoromethane (Surrogate)	%	-	73
		d4-1,2-dichloroethane (Surrogate)	%	-	75
		d8-toluene (Surrogate)	%	-	90
LB110810.001		TRH C6-C9	mg/kg	20	<20
	Surrogates	Dibromofluoromethane (Surrogate)	%	-	71
		d4-1,2-dichloroethane (Surrogate)	%	-	79
		d8-toluene (Surrogate)	%	-	80
LB110813.001		TRH C6-C9	mg/kg	20	<20
	Surrogates	Dibromofluoromethane (Surrogate)	%	-	71
		d4-1,2-dichloroethane (Surrogate)	%	-	86
		d8-toluene (Surrogate)	%	-	91

Duplicates are calculated as Relative Percentage Difference (RPD) using the formula: RPD = | OriginalResult - ReplicateResult | x 100 / Mean

The RPD is evaluated against the Maximum Allowable Difference (MAD) criteria and can be graphically represented by a curve calculated from the Statistical Detection Limit (SDL) and Limiting Repeatability (LR) using the formula: MAD = 100 x SDL / Mean + LR

Where the Maximum Allowable Difference evaluates to a number larger than 200 it is displayed as 200.

RPD is shown in **Green** when within suggested criteria or **Red** with an appended reason identifer when outside suggested criteria. Refer to the footnotes section at the end of this report for failure reasons.

Mercury in Soil

Method: ME-(AU)-[ENV]AN312

Original	Duplicate	Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE157562.010	LB111016.014	Mercury	mg/kg	0.05	<0.05	<0.05	200	0
SE157562.019	LB111016.024	Mercury	mg/kg	0.05	<0.05	<0.05	200	0
SE157562.029	LB111017.014	Mercury	mg/kg	0.05	<0.05	<0.05	200	0
SE157562.038	LB111017.024	Mercury	mg/kg	0.05	0.05	<0.05	129	5

Moisture Content

Method: ME-(AU)-[ENV]AN002

Original	Duplicate	Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE157562.010	LB111007.011	% Moisture	%w/w	0.5	16	16	36	1
SE157562.020	LB111007.022	% Moisture	%w/w	0.5	16	15	36	1
SE157562.030	LB111007.033	% Moisture	%w/w	0.5	14	14	37	2
SE157562.041	LB111007.044	% Moisture	%w/w	0.5	<0.5	<0.5	200	0

OC Pesticides in Soil

Method: ME-(AU)-[ENV]AN400/AN420

Original	Duplicate		Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE157562.008	LB110828.027		Hexachlorobenzene (HCB)	mg/kg	0.1	<0.1	<0.1	200	0
			Alpha BHC	mg/kg	0.1	<0.1	<0.1	200	0
			Lindane	mg/kg	0.1	<0.1	<0.1	200	0
			Heptachlor	mg/kg	0.1	<0.1	<0.1	200	0
			Aldrin	mg/kg	0.1	<0.1	<0.1	200	0
			Beta BHC	mg/kg	0.1	<0.1	<0.1	200	0
			Delta BHC	mg/kg	0.1	<0.1	<0.1	200	0
			Heptachlor epoxide	mg/kg	0.1	<0.1	<0.1	200	0
			o,p'-DDE	mg/kg	0.1	<0.1	<0.1	200	0
			Alpha Endosulfan	mg/kg	0.2	<0.2	<0.2	200	0
			Gamma Chlordane	mg/kg	0.1	<0.1	<0.1	200	0
			Alpha Chlordane	mg/kg	0.1	<0.1	<0.1	200	0
			trans-Nonachlor	mg/kg	0.1	<0.1	<0.1	200	0
			p,p'-DDE	mg/kg	0.1	<0.1	<0.1	200	0
			Dieldrin	mg/kg	0.2	<0.2	<0.2	200	0
			Endrin	mg/kg	0.2	<0.2	<0.2	200	0
			o,p'-DDD	mg/kg	0.1	<0.1	<0.1	200	0
			o,p'-DDT	mg/kg	0.1	<0.1	<0.1	200	0
			Beta Endosulfan	mg/kg	0.2	<0.2	<0.2	200	0
			p,p'-DDD	mg/kg	0.1	<0.1	<0.1	200	0
			p,p'-DDT	mg/kg	0.1	<0.1	<0.1	200	0
			Endosulfan sulphate	mg/kg	0.1	<0.1	<0.1	200	0
			Endrin Aldehyde	mg/kg	0.1	<0.1	<0.1	200	0
			Methoxychlor	mg/kg	0.1	<0.1	<0.1	200	0
			Endrin Ketone	mg/kg	0.1	<0.1	<0.1	200	0
			Isodrin	mg/kg	0.1	<0.1	<0.1	200	0
			Mirex	mg/kg	0.1	<0.1	<0.1	200	0
		Surrogates	Tetrachloro-m-xylene (TCMX) (Surrogate)	mg/kg	-	0.13	0.13	30	2
SE157562.020	LB110828.025		Hexachlorobenzene (HCB)	mg/kg	0.1	<0.1	<0.1	200	0
			Alpha BHC	mg/kg	0.1	<0.1	<0.1	200	0
			Lindane	mg/kg	0.1	<0.1	<0.1	200	0
			Heptachlor	mg/kg	0.1	<0.1	<0.1	200	0
			Aldrin	mg/kg	0.1	<0.1	<0.1	200	0
			Beta BHC	mg/kg	0.1	<0.1	<0.1	200	0
			Delta BHC	mg/kg	0.1	<0.1	<0.1	200	0
			Heptachlor epoxide	mg/kg	0.1	<0.1	<0.1	200	0
			o,p'-DDE	mg/kg	0.1	<0.1	<0.1	200	0
			Alpha Endosulfan	mg/kg	0.2	<0.2	<0.2	200	0
			Gamma Chlordane	mg/kg	0.1	<0.1	<0.1	200	0
			Alpha Chlordane	mg/kg	0.1	<0.1	<0.1	200	0
			trans-Nonachlor	mg/kg	0.1	<0.1	<0.1	200	0
			p,p'-DDE	mg/kg	0.1	<0.1	<0.1	200	0
			Dieldrin	mg/kg	0.2	<0.2	<0.2	200	0
			Endrin	mg/kg	0.2	<0.2	<0.2	200	0
			o,p'-DDD	mg/kg	0.1	<0.1	<0.1	200	0
			o,p'-DDT	mg/kg	0.1	<0.1	<0.1	200	0
			Beta Endosulfan	mg/kg	0.2	<0.2	<0.2	200	0
			p,p'-DDD	mg/kg	0.1	<0.1	<0.1	200	0

Duplicates are calculated as Relative Percentage Difference (RPD) using the formula: RPD = | OriginalResult - ReplicateResult | x 100 / Mean

The RPD is evaluated against the Maximum Allowable Difference (MAD) criteria and can be graphically represented by a curve calculated from the Statistical Detection Limit (SDL) and Limiting Repeatability (LR) using the formula: MAD = 100 x SDL / Mean + LR

Where the Maximum Allowable Difference evaluates to a number larger than 200 it is displayed as 200.

RPD is shown in **Green** when within suggested criteria or **Red** with an appended reason identifer when outside suggested criteria. Refer to the footnotes section at the end of this report for failure reasons.

OC Pesticides in Soil (continued) — **Method: ME-(AU)-[ENV]AN400/AN420**

Original	Duplicate		Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE157562.020	LB110828.025		p,p'-DDT	mg/kg	0.1	<0.1	<0.1	200	0
			Endosulfan sulphate	mg/kg	0.1	<0.1	<0.1	200	0
			Endrin Aldehyde	mg/kg	0.1	<0.1	<0.1	200	0
			Methoxychlor	mg/kg	0.1	<0.1	<0.1	200	0
			Endrin Ketone	mg/kg	0.1	<0.1	<0.1	200	0
			Isodrin	mg/kg	0.1	<0.1	<0.1	200	0
			Mirex	mg/kg	0.1	<0.1	<0.1	200	0
		Surrogates	Tetrachloro-m-xylene (TCMX) (Surrogate)	mg/kg	-	0.13	0.14	30	10
SE157562.030	LB110829.014		Hexachlorobenzene (HCB)	mg/kg	0.1	<0.1	<0.1	200	0
			Alpha BHC	mg/kg	0.1	<0.1	<0.1	200	0
			Lindane	mg/kg	0.1	<0.1	<0.1	200	0
			Heptachlor	mg/kg	0.1	<0.1	<0.1	200	0
			Aldrin	mg/kg	0.1	<0.1	<0.1	200	0
			Beta BHC	mg/kg	0.1	<0.1	<0.1	200	0
			Delta BHC	mg/kg	0.1	<0.1	<0.1	200	0
			Heptachlor epoxide	mg/kg	0.1	<0.1	<0.1	200	0
			o,p'-DDE	mg/kg	0.1	<0.1	<0.1	200	0
			Alpha Endosulfan	mg/kg	0.2	<0.2	<0.2	200	0
			Gamma Chlordane	mg/kg	0.1	<0.1	<0.1	200	0
			Alpha Chlordane	mg/kg	0.1	<0.1	<0.1	200	0
			trans-Nonachlor	mg/kg	0.1	<0.1	<0.1	200	0
			p,p'-DDE	mg/kg	0.1	<0.1	<0.1	200	0
			Dieldrin	mg/kg	0.2	<0.2	<0.2	200	0
			Endrin	mg/kg	0.2	<0.2	<0.2	200	0
			o,p'-DDD	mg/kg	0.1	<0.1	<0.1	200	0
			o,p'-DDT	mg/kg	0.1	<0.1	<0.1	200	0
			Beta Endosulfan	mg/kg	0.2	<0.2	<0.2	200	0
			p,p'-DDD	mg/kg	0.1	<0.1	<0.1	200	0
			p,p'-DDT	mg/kg	0.1	<0.1	<0.1	200	0
			Endosulfan sulphate	mg/kg	0.1	<0.1	<0.1	200	0
			Endrin Aldehyde	mg/kg	0.1	<0.1	<0.1	200	0
			Methoxychlor	mg/kg	0.1	<0.1	<0.1	200	0
			Endrin Ketone	mg/kg	0.1	<0.1	<0.1	200	0
			Isodrin	mg/kg	0.1	<0.1	<0.1	200	0
			Mirex	mg/kg	0.1	<0.1	<0.1	200	0
		Surrogates	Tetrachloro-m-xylene (TCMX) (Surrogate)	mg/kg	-	0.13	0.13	30	2
SE157562.038	LB110829.023		Hexachlorobenzene (HCB)	mg/kg	0.1	<0.1	<0.1	200	0
			Alpha BHC	mg/kg	0.1	<0.1	<0.1	200	0
			Lindane	mg/kg	0.1	<0.1	<0.1	200	0
			Heptachlor	mg/kg	0.1	<0.1	<0.1	200	0
			Aldrin	mg/kg	0.1	<0.1	<0.1	200	0
			Beta BHC	mg/kg	0.1	<0.1	<0.1	200	0
			Delta BHC	mg/kg	0.1	<0.1	<0.1	200	0
			Heptachlor epoxide	mg/kg	0.1	<0.1	<0.1	200	0
			o,p'-DDE	mg/kg	0.1	<0.1	<0.1	200	0
			Alpha Endosulfan	mg/kg	0.2	<0.2	<0.2	200	0
			Gamma Chlordane	mg/kg	0.1	<0.1	<0.1	200	0
			Alpha Chlordane	mg/kg	0.1	<0.1	<0.1	200	0
			trans-Nonachlor	mg/kg	0.1	<0.1	<0.1	200	0
			p,p'-DDE	mg/kg	0.1	<0.1	<0.1	200	0
			Dieldrin	mg/kg	0.2	<0.2	<0.2	200	0
			Endrin	mg/kg	0.2	<0.2	<0.2	200	0
			o,p'-DDD	mg/kg	0.1	<0.1	<0.1	200	0
			o,p'-DDT	mg/kg	0.1	<0.1	<0.1	200	0
			Beta Endosulfan	mg/kg	0.2	<0.2	<0.2	200	0
			p,p'-DDD	mg/kg	0.1	<0.1	<0.1	200	0
			p,p'-DDT	mg/kg	0.1	<0.1	<0.1	200	0
			Endosulfan sulphate	mg/kg	0.1	<0.1	<0.1	200	0
			Endrin Aldehyde	mg/kg	0.1	<0.1	<0.1	200	0
			Methoxychlor	mg/kg	0.1	<0.1	<0.1	200	0
			Endrin Ketone	mg/kg	0.1	<0.1	<0.1	200	0

Duplicates are calculated as Relative Percentage Difference (RPD) using the formula: RPD = | OriginalResult - ReplicateResult | x 100 / Mean

The RPD is evaluated against the Maximum Allowable Difference (MAD) criteria and can be graphically represented by a curve calculated from the Statistical Detection Limit (SDL) and Limiting Repeatability (LR) using the formula: MAD = 100 x SDL / Mean + LR

Where the Maximum Allowable Difference evaluates to a number larger than 200 it is displayed as 200.

RPD is shown in **Green** when within suggested criteria or **Red** with an appended reason identifer when outside suggested criteria. Refer to the footnotes section at the end of this report for failure reasons.

OC Pesticides in Soil (continued)

Method: ME-(AU)-[ENV]AN400/AN420

Original	Duplicate		Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE157562.038	LB110829.023		Isodrin	mg/kg	0.1	<0.1	<0.1	200	0
			Mirex	mg/kg	0.1	<0.1	<0.1	200	0
		Surrogates	Tetrachloro-m-xylene (TCMX) (Surrogate)	mg/kg	-	0.14	0.13	30	4

OP Pesticides in Soil

Method: ME-(AU)-[ENV]AN400/AN420

Original	Duplicate		Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE157562.008	LB110828.027		Dichlorvos	mg/kg	0.5	<0.5	<0.5	200	0
			Dimethoate	mg/kg	0.5	<0.5	<0.5	200	0
			Diazinon (Dimpylate)	mg/kg	0.5	<0.5	<0.5	200	0
			Fenitrothion	mg/kg	0.2	<0.2	<0.2	200	0
			Malathion	mg/kg	0.2	<0.2	<0.2	200	0
			Chlorpyrifos (Chlorpyrifos Ethyl)	mg/kg	0.2	<0.2	<0.2	200	0
			Parathion-ethyl (Parathion)	mg/kg	0.2	<0.2	<0.2	200	0
			Bromophos Ethyl	mg/kg	0.2	<0.2	<0.2	200	0
			Methidathion	mg/kg	0.5	<0.5	<0.5	200	0
			Ethion	mg/kg	0.2	<0.2	<0.2	200	0
			Azinphos-methyl (Guthion)	mg/kg	0.2	<0.2	<0.2	200	0
		Surrogates	2-fluorobiphenyl (Surrogate)	mg/kg	-	0.4	0.4	30	3
			d14-p-terphenyl (Surrogate)	mg/kg	-	0.4	0.5	30	2
SE157562.020	LB110828.025		Dichlorvos	mg/kg	0.5	<0.5	<0.5	200	0
			Dimethoate	mg/kg	0.5	<0.5	<0.5	200	0
			Diazinon (Dimpylate)	mg/kg	0.5	<0.5	<0.5	200	0
			Fenitrothion	mg/kg	0.2	<0.2	<0.2	200	0
			Malathion	mg/kg	0.2	<0.2	<0.2	200	0
			Chlorpyrifos (Chlorpyrifos Ethyl)	mg/kg	0.2	<0.2	<0.2	200	0
			Parathion-ethyl (Parathion)	mg/kg	0.2	<0.2	<0.2	200	0
			Bromophos Ethyl	mg/kg	0.2	<0.2	<0.2	200	0
			Methidathion	mg/kg	0.5	<0.5	<0.5	200	0
			Ethion	mg/kg	0.2	<0.2	<0.2	200	0
			Azinphos-methyl (Guthion)	mg/kg	0.2	<0.2	<0.2	200	0
		Surrogates	2-fluorobiphenyl (Surrogate)	mg/kg	-	0.4	0.4	30	3
			d14-p-terphenyl (Surrogate)	mg/kg	-	0.4	0.5	30	5
SE157562.030	LB110829.014		Dichlorvos	mg/kg	0.5	<0.5	<0.5	200	0
			Dimethoate	mg/kg	0.5	<0.5	<0.5	200	0
			Diazinon (Dimpylate)	mg/kg	0.5	<0.5	<0.5	200	0
			Fenitrothion	mg/kg	0.2	<0.2	<0.2	200	0
			Malathion	mg/kg	0.2	<0.2	<0.2	200	0
			Chlorpyrifos (Chlorpyrifos Ethyl)	mg/kg	0.2	<0.2	<0.2	200	0
			Parathion-ethyl (Parathion)	mg/kg	0.2	<0.2	<0.2	200	0
			Bromophos Ethyl	mg/kg	0.2	<0.2	<0.2	200	0
			Methidathion	mg/kg	0.5	<0.5	<0.5	200	0
			Ethion	mg/kg	0.2	<0.2	<0.2	200	0
			Azinphos-methyl (Guthion)	mg/kg	0.2	<0.2	<0.2	200	0
		Surrogates	2-fluorobiphenyl (Surrogate)	mg/kg	-	0.4	0.4	30	10
			d14-p-terphenyl (Surrogate)	mg/kg	-	0.4	0.4	30	0
SE157562.038	LB110829.023		Dichlorvos	mg/kg	0.5	<0.5	<0.5	200	0
			Dimethoate	mg/kg	0.5	<0.5	<0.5	200	0
			Diazinon (Dimpylate)	mg/kg	0.5	<0.5	<0.5	200	0
			Fenitrothion	mg/kg	0.2	<0.2	<0.2	200	0
			Malathion	mg/kg	0.2	<0.2	<0.2	200	0
			Chlorpyrifos (Chlorpyrifos Ethyl)	mg/kg	0.2	<0.2	<0.2	200	0
			Parathion-ethyl (Parathion)	mg/kg	0.2	<0.2	<0.2	200	0
			Bromophos Ethyl	mg/kg	0.2	<0.2	<0.2	200	0
			Methidathion	mg/kg	0.5	<0.5	<0.5	200	0
			Ethion	mg/kg	0.2	<0.2	<0.2	200	0
			Azinphos-methyl (Guthion)	mg/kg	0.2	<0.2	<0.2	200	0
		Surrogates	2-fluorobiphenyl (Surrogate)	mg/kg	-	0.4	0.4	30	0
			d14-p-terphenyl (Surrogate)	mg/kg	-	0.4	0.4	30	5

PAH (Polynuclear Aromatic Hydrocarbons) in Soil

Method: ME-(AU)-[ENV]AN420

Original	Duplicate		Parameter	Units	LOR

Duplicates are calculated as Relative Percentage Difference (RPD) using the formula: RPD = | OriginalResult - ReplicateResult | x 100 / Mean

The RPD is evaluated against the Maximum Allowable Difference (MAD) criteria and can be graphically represented by a curve calculated from the Statistical Detection Limit (SDL) and Limiting Repeatability (LR) using the formula: MAD = 100 x SDL / Mean + LR

Where the Maximum Allowable Difference evaluates to a number larger than 200 it is displayed as 200.

RPD is shown in **Green** when within suggested criteria or **Red** with an appended reason identifer when outside suggested criteria. Refer to the footnotes section at the end of this report for failure reasons.

PAH (Polynuclear Aromatic Hydrocarbons) in Soil (continued) — **Method: ME-(AU)-[ENV]AN420**

Original	Duplicate		Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE157562.008	LB110828.027		Naphthalene	mg/kg	0.1	<0.1	<0.1	200	0
			2-methylnaphthalene	mg/kg	0.1	<0.1	<0.1	200	0
			1-methylnaphthalene	mg/kg	0.1	<0.1	<0.1	200	0
			Acenaphthylene	mg/kg	0.1	<0.1	<0.1	200	0
			Acenaphthene	mg/kg	0.1	<0.1	<0.1	200	0
			Fluorene	mg/kg	0.1	<0.1	<0.1	200	0
			Phenanthrene	mg/kg	0.1	<0.1	<0.1	200	0
			Anthracene	mg/kg	0.1	<0.1	<0.1	200	0
			Fluoranthene	mg/kg	0.1	<0.1	<0.1	200	0
			Pyrene	mg/kg	0.1	<0.1	<0.1	200	0
			Benzo(a)anthracene	mg/kg	0.1	<0.1	<0.1	200	0
			Chrysene	mg/kg	0.1	<0.1	<0.1	200	0
			Benzo(b&j)fluoranthene	mg/kg	0.1	<0.1	<0.1	200	0
			Benzo(k)fluoranthene	mg/kg	0.1	<0.1	<0.1	200	0
			Benzo(a)pyrene	mg/kg	0.1	<0.1	<0.1	200	0
			Indeno(1,2,3-cd)pyrene	mg/kg	0.1	<0.1	<0.1	200	0
			Dibenzo(ah)anthracene	mg/kg	0.1	<0.1	<0.1	200	0
			Benzo(ghi)perylene	mg/kg	0.1	<0.1	<0.1	200	0
			Carcinogenic PAHs, BaP TEQ <LOR=0	TEQ (mg/kg)	0.2	<0.2	<0.2	200	0
			Carcinogenic PAHs, BaP TEQ <LOR=LOR	TEQ (mg/kg)	0.3	<0.3	<0.3	134	0
			Carcinogenic PAHs, BaP TEQ <LOR=LOR/2	TEQ (mg/kg)	0.2	<0.2	<0.2	175	0
			Total PAH (18)	mg/kg	0.8	<0.8	<0.8	200	0
		Surrogates	d5-nitrobenzene (Surrogate)	mg/kg	-	0.4	0.4	30	5
			2-fluorobiphenyl (Surrogate)	mg/kg	-	0.4	0.4	30	3
			d14-p-terphenyl (Surrogate)	mg/kg	-	0.4	0.5	30	2
SE157562.020	LB110828.025		Naphthalene	mg/kg	0.1	<0.1	<0.1	200	0
			2-methylnaphthalene	mg/kg	0.1	<0.1	<0.1	200	0
			1-methylnaphthalene	mg/kg	0.1	<0.1	<0.1	200	0
			Acenaphthylene	mg/kg	0.1	<0.1	<0.1	200	0
			Acenaphthene	mg/kg	0.1	<0.1	<0.1	200	0
			Fluorene	mg/kg	0.1	<0.1	<0.1	200	0
			Phenanthrene	mg/kg	0.1	<0.1	<0.1	200	0
			Anthracene	mg/kg	0.1	<0.1	<0.1	200	0
			Fluoranthene	mg/kg	0.1	<0.1	<0.1	200	0
			Pyrene	mg/kg	0.1	<0.1	<0.1	200	0
			Benzo(a)anthracene	mg/kg	0.1	<0.1	<0.1	200	0
			Chrysene	mg/kg	0.1	<0.1	<0.1	200	0
			Benzo(b&j)fluoranthene	mg/kg	0.1	<0.1	<0.1	200	0
			Benzo(k)fluoranthene	mg/kg	0.1	<0.1	<0.1	200	0
			Benzo(a)pyrene	mg/kg	0.1	<0.1	<0.1	200	0
			Indeno(1,2,3-cd)pyrene	mg/kg	0.1	<0.1	<0.1	200	0
			Dibenzo(ah)anthracene	mg/kg	0.1	<0.1	<0.1	200	0
			Benzo(ghi)perylene	mg/kg	0.1	<0.1	<0.1	200	0
			Carcinogenic PAHs, BaP TEQ <LOR=0	TEQ (mg/kg)	0.2	<0.2	<0.2	200	0
			Carcinogenic PAHs, BaP TEQ <LOR=LOR	TEQ (mg/kg)	0.3	<0.3	<0.3	134	0
			Carcinogenic PAHs, BaP TEQ <LOR=LOR/2	TEQ (mg/kg)	0.2	<0.2	<0.2	175	0
			Total PAH (18)	mg/kg	0.8	<0.8	<0.8	200	0
		Surrogates	d5-nitrobenzene (Surrogate)	mg/kg	-	0.4	0.4	30	5
			2-fluorobiphenyl (Surrogate)	mg/kg	-	0.4	0.4	30	3
			d14-p-terphenyl (Surrogate)	mg/kg	-	0.4	0.5	30	5
SE157562.030	LB110829.014		Naphthalene	mg/kg	0.1	<0.1	<0.1	200	0
			2-methylnaphthalene	mg/kg	0.1	<0.1	<0.1	200	0
			1-methylnaphthalene	mg/kg	0.1	<0.1	<0.1	200	0
			Acenaphthylene	mg/kg	0.1	<0.1	<0.1	200	0
			Acenaphthene	mg/kg	0.1	<0.1	<0.1	200	0
			Fluorene	mg/kg	0.1	<0.1	<0.1	200	0
			Phenanthrene	mg/kg	0.1	<0.1	<0.1	200	0
			Anthracene	mg/kg	0.1	<0.1	<0.1	200	0
			Fluoranthene	mg/kg	0.1	<0.1	<0.1	200	0
			Pyrene	mg/kg	0.1	<0.1	<0.1	200	0
			Benzo(a)anthracene	mg/kg	0.1	<0.1	<0.1	200	0

Duplicates are calculated as Relative Percentage Difference (RPD) using the formula: RPD = | OriginalResult - ReplicateResult | x 100 / Mean

The RPD is evaluated against the Maximum Allowable Difference (MAD) criteria and can be graphically represented by a curve calculated from the Statistical Detection Limit (SDL) and Limiting Repeatability (LR) using the formula: MAD = 100 x SDL / Mean + LR

Where the Maximum Allowable Difference evaluates to a number larger than 200 it is displayed as 200.

RPD is shown in **Green** when within suggested criteria or **Red** with an appended reason identifer when outside suggested criteria. Refer to the footnotes section at the end of this report for failure reasons.

PAH (Polynuclear Aromatic Hydrocarbons) in Soil (continued)

Method: ME-(AU)-[ENV]AN420

Original	Duplicate		Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE157562.030	LB110829.014		Chrysene	mg/kg	0.1	<0.1	<0.1	200	0
			Benzo(b&j)fluoranthene	mg/kg	0.1	<0.1	<0.1	200	0
			Benzo(k)fluoranthene	mg/kg	0.1	<0.1	<0.1	200	0
			Benzo(a)pyrene	mg/kg	0.1	<0.1	<0.1	200	0
			Indeno(1,2,3-cd)pyrene	mg/kg	0.1	<0.1	<0.1	200	0
			Dibenzo(ah)anthracene	mg/kg	0.1	<0.1	<0.1	200	0
			Benzo(ghi)perylene	mg/kg	0.1	<0.1	<0.1	200	0
			Carcinogenic PAHs, BaP TEQ <LOR=0	TEQ (mg/kg)	0.2	<0.2	<0.2	200	0
			Carcinogenic PAHs, BaP TEQ <LOR=LOR	TEQ (mg/kg)	0.3	<0.3	<0.3	134	0
			Carcinogenic PAHs, BaP TEQ <LOR=LOR/2	TEQ (mg/kg)	0.2	<0.2	<0.2	175	0
			Total PAH (18)	mg/kg	0.8	<0.8	<0.8	200	0
		Surrogates	d5-nitrobenzene (Surrogate)	mg/kg	-	0.4	0.4	30	8
			2-fluorobiphenyl (Surrogate)	mg/kg	-	0.4	0.4	30	10
			d14-p-terphenyl (Surrogate)	mg/kg	-	0.4	0.4	30	0
SE157562.038	LB110829.023		Naphthalene	mg/kg	0.1	<0.1	<0.1	200	0
			2-methylnaphthalene	mg/kg	0.1	<0.1	<0.1	200	0
			1-methylnaphthalene	mg/kg	0.1	<0.1	<0.1	200	0
			Acenaphthylene	mg/kg	0.1	<0.1	<0.1	200	0
			Acenaphthene	mg/kg	0.1	<0.1	<0.1	200	0
			Fluorene	mg/kg	0.1	<0.1	<0.1	200	0
			Phenanthrene	mg/kg	0.1	<0.1	<0.1	200	0
			Anthracene	mg/kg	0.1	<0.1	<0.1	200	0
			Fluoranthene	mg/kg	0.1	<0.1	<0.1	200	0
			Pyrene	mg/kg	0.1	<0.1	<0.1	200	0
			Benzo(a)anthracene	mg/kg	0.1	<0.1	<0.1	200	0
			Chrysene	mg/kg	0.1	<0.1	<0.1	200	0
			Benzo(b&j)fluoranthene	mg/kg	0.1	<0.1	<0.1	200	0
			Benzo(k)fluoranthene	mg/kg	0.1	<0.1	<0.1	200	0
			Benzo(a)pyrene	mg/kg	0.1	<0.1	<0.1	200	0
			Indeno(1,2,3-cd)pyrene	mg/kg	0.1	<0.1	<0.1	200	0
			Dibenzo(ah)anthracene	mg/kg	0.1	<0.1	<0.1	200	0
			Benzo(ghi)perylene	mg/kg	0.1	<0.1	<0.1	200	0
			Carcinogenic PAHs, BaP TEQ <LOR=0	TEQ (mg/kg)	0.2	<0.2	<0.2	200	0
			Carcinogenic PAHs, BaP TEQ <LOR=LOR	TEQ (mg/kg)	0.3	<0.3	<0.3	134	0
			Carcinogenic PAHs, BaP TEQ <LOR=LOR/2	TEQ (mg/kg)	0.2	<0.2	<0.2	175	0
			Total PAH (18)	mg/kg	0.8	<0.8	<0.8	200	0
		Surrogates	d5-nitrobenzene (Surrogate)	mg/kg	-	0.4	0.4	30	5
			2-fluorobiphenyl (Surrogate)	mg/kg	-	0.4	0.4	30	0
			d14-p-terphenyl (Surrogate)	mg/kg	-	0.4	0.4	30	5

PCBs in Soil

Method: ME-(AU)-[ENV]AN400/AN420

Original	Duplicate		Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE157562.008	LB110828.027		Arochlor 1016	mg/kg	0.2	<0.2	<0.2	200	0
			Arochlor 1221	mg/kg	0.2	<0.2	<0.2	200	0
			Arochlor 1232	mg/kg	0.2	<0.2	<0.2	200	0
			Arochlor 1242	mg/kg	0.2	<0.2	<0.2	200	0
			Arochlor 1248	mg/kg	0.2	<0.2	<0.2	200	0
			Arochlor 1254	mg/kg	0.2	<0.2	<0.2	200	0
			Arochlor 1260	mg/kg	0.2	<0.2	<0.2	200	0
			Arochlor 1262	mg/kg	0.2	<0.2	<0.2	200	0
			Arochlor 1268	mg/kg	0.2	<0.2	<0.2	200	0
			Total PCBs (Arochlors)	mg/kg	1	<1	<1	200	0
		Surrogates	Tetrachloro-m-xylene (TCMX) (Surrogate)	mg/kg	-	0	0	30	2
SE157562.020	LB110828.025		Arochlor 1016	mg/kg	0.2	<0.2	<0.2	200	0
			Arochlor 1221	mg/kg	0.2	<0.2	<0.2	200	0
			Arochlor 1232	mg/kg	0.2	<0.2	<0.2	200	0
			Arochlor 1242	mg/kg	0.2	<0.2	<0.2	200	0
			Arochlor 1248	mg/kg	0.2	<0.2	<0.2	200	0
			Arochlor 1254	mg/kg	0.2	<0.2	<0.2	200	0
			Arochlor 1260	mg/kg	0.2	<0.2	<0.2	200	0
			Arochlor 1262	mg/kg	0.2	<0.2	<0.2	200	0

Duplicates are calculated as Relative Percentage Difference (RPD) using the formula: RPD = | OriginalResult - ReplicateResult | x 100 / Mean

The RPD is evaluated against the Maximum Allowable Difference (MAD) criteria and can be graphically represented by a curve calculated from the Statistical Detection Limit (SDL) and Limiting Repeatability (LR) using the formula: MAD = 100 x SDL / Mean + LR

Where the Maximum Allowable Difference evaluates to a number larger than 200 it is displayed as 200.

RPD is shown in **Green** when within suggested criteria or **Red** with an appended reason identifer when outside suggested criteria. Refer to the footnotes section at the end of this report for failure reasons.

PCBs in Soil (continued)

Method: ME-(AU)-[ENV]AN400/AN420

Original	Duplicate		Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE157562.020	LB110828.025		Arochlor 1268	mg/kg	0.2	<0.2	<0.2	200	0
			Total PCBs (Arochlors)	mg/kg	1	<1	<1	200	0
		Surrogates	Tetrachloro-m-xylene (TCMX) (Surrogate)	mg/kg	-	0	0	30	10
SE157562.030	LB110829.014		Arochlor 1016	mg/kg	0.2	<0.2	<0.2	200	0
			Arochlor 1221	mg/kg	0.2	<0.2	<0.2	200	0
			Arochlor 1232	mg/kg	0.2	<0.2	<0.2	200	0
			Arochlor 1242	mg/kg	0.2	<0.2	<0.2	200	0
			Arochlor 1248	mg/kg	0.2	<0.2	<0.2	200	0
			Arochlor 1254	mg/kg	0.2	<0.2	<0.2	200	0
			Arochlor 1260	mg/kg	0.2	<0.2	<0.2	200	0
			Arochlor 1262	mg/kg	0.2	<0.2	<0.2	200	0
			Arochlor 1268	mg/kg	0.2	<0.2	<0.2	200	0
			Total PCBs (Arochlors)	mg/kg	1	<1	<1	200	0
		Surrogates	Tetrachloro-m-xylene (TCMX) (Surrogate)	mg/kg	-	0	0	30	2
SE157562.038	LB110829.023		Arochlor 1016	mg/kg	0.2	<0.2	<0.2	200	0
			Arochlor 1221	mg/kg	0.2	<0.2	<0.2	200	0
			Arochlor 1232	mg/kg	0.2	<0.2	<0.2	200	0
			Arochlor 1242	mg/kg	0.2	<0.2	<0.2	200	0
			Arochlor 1248	mg/kg	0.2	<0.2	<0.2	200	0
			Arochlor 1254	mg/kg	0.2	<0.2	<0.2	200	0
			Arochlor 1260	mg/kg	0.2	<0.2	<0.2	200	0
			Arochlor 1262	mg/kg	0.2	<0.2	<0.2	200	0
			Arochlor 1268	mg/kg	0.2	<0.2	<0.2	200	0
			Total PCBs (Arochlors)	mg/kg	1	<1	<1	200	0
		Surrogates	Tetrachloro-m-xylene (TCMX) (Surrogate)	mg/kg	-	0	0	30	4

Total Recoverable Metals in Soil/Waste Solids/Materials by ICPOES

Method: ME-(AU)-[ENV]AN040/AN320

Original	Duplicate	Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE157562.010	LB111055.014	Arsenic, As	mg/kg	3	8	11	40	31
		Cadmium, Cd	mg/kg	0.3	0.4	0.4	103	15
		Chromium, Cr	mg/kg	0.3	32	32	32	1
		Copper, Cu	mg/kg	0.5	16	16	33	1
		Lead, Pb	mg/kg	1	29	23	34	23
		Nickel, Ni	mg/kg	0.5	12	11	34	14
		Zinc, Zn	mg/kg	0.5	49	46	34	7
SE157562.019	LB111055.024	Arsenic, As	mg/kg	3	4	4	53	1
		Cadmium, Cd	mg/kg	0.3	<0.3	<0.3	162	0
		Chromium, Cr	mg/kg	0.3	14	16	33	10
		Copper, Cu	mg/kg	0.5	9.6	9.8	35	1
		Lead, Pb	mg/kg	1	13	14	37	7
		Nickel, Ni	mg/kg	0.5	7.5	7.6	37	1
		Zinc, Zn	mg/kg	0.5	27	27	37	0
SE157562.029	LB111056.014	Arsenic, As	mg/kg	3	11	10	39	5
		Cadmium, Cd	mg/kg	0.3	0.4	0.4	105	10
		Chromium, Cr	mg/kg	0.3	35	38	31	7
		Copper, Cu	mg/kg	0.5	20	19	33	2
		Lead, Pb	mg/kg	1	27	28	34	3
		Nickel, Ni	mg/kg	0.5	17	15	33	8
		Zinc, Zn	mg/kg	0.5	39	36	35	9
SE157562.038	LB111056.024	Arsenic, As	mg/kg	3	5	5	50	15
		Cadmium, Cd	mg/kg	0.3	0.4	0.3	114	19
		Chromium, Cr	mg/kg	0.3	29	22	32	29
		Copper, Cu	mg/kg	0.5	12	11	34	8
		Lead, Pb	mg/kg	1	23	20	35	14
		Nickel, Ni	mg/kg	0.5	12	9.7	35	20
		Zinc, Zn	mg/kg	0.5	33	32	36	2

TRH (Total Recoverable Hydrocarbons) in Soil

Method: ME-(AU)-[ENV]AN403

Original	Duplicate	Parameter	Units	LOR

Duplicates are calculated as Relative Percentage Difference (RPD) using the formula: RPD = | OriginalResult - ReplicateResult | x 100 / Mean

The RPD is evaluated against the Maximum Allowable Difference (MAD) criteria and can be graphically represented by a curve calculated from the Statistical Detection Limit (SDL) and Limiting Repeatability (LR) using the formula: MAD = 100 x SDL / Mean + LR

Where the Maximum Allowable Difference evaluates to a number larger than 200 it is displayed as 200.

RPD is shown in **Green** when within suggested criteria or **Red** with an appended reason identifer when outside suggested criteria. Refer to the footnotes section at the end of this report for failure reasons.

TRH (Total Recoverable Hydrocarbons) in Soil (continued)

Method: ME-(AU)-[ENV]AN403

Original	Duplicate		Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE157562.008	LB110828.027		TRH C10-C14	mg/kg	20	<20	<20	200	0
			TRH C15-C28	mg/kg	45	<45	<45	200	0
			TRH C29-C36	mg/kg	45	<45	<45	200	0
			TRH C37-C40	mg/kg	100	<100	<100	200	0
			TRH C10-C36 Total	mg/kg	110	<110	<110	200	0
			TRH C10-C40 Total	mg/kg	210	<210	<210	200	0
		TRH F Bands	TRH >C10-C16 (F2)	mg/kg	25	<25	<25	200	0
			TRH >C10-C16 (F2) - Naphthalene	mg/kg	25	<25	<25	200	0
			TRH >C16-C34 (F3)	mg/kg	90	<90	<90	200	0
			TRH >C34-C40 (F4)	mg/kg	120	<120	<120	200	0
SE157562.020	LB110828.025		TRH C10-C14	mg/kg	20	<20	<20	200	0
			TRH C15-C28	mg/kg	45	<45	<45	200	0
			TRH C29-C36	mg/kg	45	<45	<45	200	0
			TRH C37-C40	mg/kg	100	<100	<100	200	0
			TRH C10-C36 Total	mg/kg	110	<110	<110	200	0
			TRH C10-C40 Total	mg/kg	210	<210	<210	200	0
		TRH F Bands	TRH >C10-C16 (F2)	mg/kg	25	<25	<25	200	0
			TRH >C10-C16 (F2) - Naphthalene	mg/kg	25	<25	<25	200	0
			TRH >C16-C34 (F3)	mg/kg	90	<90	<90	200	0
			TRH >C34-C40 (F4)	mg/kg	120	<120	<120	200	0
SE157562.030	LB110829.014		TRH C10-C14	mg/kg	20	<20	<20	200	0
			TRH C15-C28	mg/kg	45	<45	<45	200	0
			TRH C29-C36	mg/kg	45	<45	<45	200	0
			TRH C37-C40	mg/kg	100	<100	<100	200	0
			TRH C10-C36 Total	mg/kg	110	<110	<110	200	0
			TRH C10-C40 Total	mg/kg	210	<210	<210	200	0
		TRH F Bands	TRH >C10-C16 (F2)	mg/kg	25	<25	<25	200	0
			TRH >C10-C16 (F2) - Naphthalene	mg/kg	25	<25	<25	200	0
			TRH >C16-C34 (F3)	mg/kg	90	<90	<90	200	0
			TRH >C34-C40 (F4)	mg/kg	120	<120	<120	200	0
SE157562.038	LB110829.023		TRH C10-C14	mg/kg	20	<20	<20	200	0
			TRH C15-C28	mg/kg	45	<45	<45	200	0
			TRH C29-C36	mg/kg	45	<45	<45	200	0
			TRH C37-C40	mg/kg	100	<100	<100	200	0
			TRH C10-C36 Total	mg/kg	110	<110	<110	200	0
			TRH C10-C40 Total	mg/kg	210	<210	<210	200	0
		TRH F Bands	TRH >C10-C16 (F2)	mg/kg	25	<25	<25	200	0
			TRH >C10-C16 (F2) - Naphthalene	mg/kg	25	<25	<25	200	0
			TRH >C16-C34 (F3)	mg/kg	90	<90	<90	200	0
			TRH >C34-C40 (F4)	mg/kg	120	<120	<120	200	0

VOC's in Soil

Method: ME-(AU)-[ENV]AN433

Original	Duplicate		Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE157562.010	LB110808.014	Monocyclic Aromatic	Benzene	mg/kg	0.1	<0.1	<0.1	200	0
			Toluene	mg/kg	0.1	<0.1	<0.1	200	0
			Ethylbenzene	mg/kg	0.1	<0.1	<0.1	200	0
			m/p-xylene	mg/kg	0.2	<0.2	<0.2	200	0
			o-xylene	mg/kg	0.1	<0.1	<0.1	200	0
		Polycyclic	Naphthalene	mg/kg	0.1	<0.1	<0.1	200	0
		Surrogates	Dibromofluoromethane (Surrogate)	mg/kg	-	3.6	3.7	50	3
			d4-1,2-dichloroethane (Surrogate)	mg/kg	-	3.6	3.8	50	5
			d8-toluene (Surrogate)	mg/kg	-	3.5	3.7	50	6
			Bromofluorobenzene (Surrogate)	mg/kg	-	4.0	4.0	50	0
		Totals	Total Xylenes*	mg/kg	0.3	<0.3	<0.3	200	0
			Total BTEX	mg/kg	0.6	<0.6	<0.6	200	0
SE157562.020	LB110808.025	Monocyclic Aromatic	Benzene	mg/kg	0.1	<0.1	<0.1	200	0
			Toluene	mg/kg	0.1	<0.1	<0.1	200	0
			Ethylbenzene	mg/kg	0.1	<0.1	<0.1	200	0
			m/p-xylene	mg/kg	0.2	<0.2	<0.2	200	0
			o-xylene	mg/kg	0.1	<0.1	<0.1	200	0
		Polycyclic	Naphthalene	mg/kg	0.1	<0.1	<0.1	200	0

Duplicates are calculated as Relative Percentage Difference (RPD) using the formula: RPD = | OriginalResult - ReplicateResult | x 100 / Mean

The RPD is evaluated against the Maximum Allowable Difference (MAD) criteria and can be graphically represented by a curve calculated from the Statistical Detection Limit (SDL) and Limiting Repeatability (LR) using the formula: MAD = 100 x SDL / Mean + LR

Where the Maximum Allowable Difference evaluates to a number larger than 200 it is displayed as 200.

RPD is shown in **Green** when within suggested criteria or **Red** with an appended reason identifer when outside suggested criteria. Refer to the footnotes section at the end of this report for failure reasons.

VOC's in Soil (continued)

Method: ME-(AU)-[ENV]AN433

Original	Duplicate		Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE157562.020	LB110808.025	Surrogates	Dibromofluoromethane (Surrogate)	mg/kg	-	3.5	3.5	50	1
			d4-1,2-dichloroethane (Surrogate)	mg/kg	-	3.6	3.6	50	1
			d8-toluene (Surrogate)	mg/kg	-	3.8	3.8	50	2
			Bromofluorobenzene (Surrogate)	mg/kg	-	4.0	4.1	50	1
		Totals	Total Xylenes*	mg/kg	0.3	<0.3	<0.3	200	0
			Total BTEX	mg/kg	0.6	<0.6	<0.6	200	0
SE157562.030	LB110810.014	Monocyclic	Benzene	mg/kg	0.1	<0.1	<0.1	200	0
		Aromatic	Toluene	mg/kg	0.1	<0.1	<0.1	200	0
			Ethylbenzene	mg/kg	0.1	<0.1	<0.1	200	0
			m/p-xylene	mg/kg	0.2	<0.2	<0.2	200	0
			o-xylene	mg/kg	0.1	<0.1	<0.1	200	0
		Polycyclic	Naphthalene	mg/kg	0.1	<0.1	<0.1	200	0
		Surrogates	Dibromofluoromethane (Surrogate)	mg/kg	-	4.4	4.3	50	1
			d4-1,2-dichloroethane (Surrogate)	mg/kg	-	4.9	4.7	50	5
			d8-toluene (Surrogate)	mg/kg	-	3.5	4.0	50	13
			Bromofluorobenzene (Surrogate)	mg/kg	-	4.0	4.4	50	10
		Totals	Total Xylenes*	mg/kg	0.3	<0.3	<0.3	200	0
			Total BTEX	mg/kg	0.6	<0.6	<0.6	200	0
SE157562.038	LB110810.026	Monocyclic	Benzene	mg/kg	0.1	<0.1	<0.1	200	0
		Aromatic	Toluene	mg/kg	0.1	<0.1	<0.1	200	0
			Ethylbenzene	mg/kg	0.1	<0.1	<0.1	200	0
			m/p-xylene	mg/kg	0.2	0.5	0.4	75	2
			o-xylene	mg/kg	0.1	0.2	0.2	74	4
		Polycyclic	Naphthalene	mg/kg	0.1	<0.1	<0.1	200	0
		Surrogates	Dibromofluoromethane (Surrogate)	mg/kg	-	4.4	4.9	50	10
			d4-1,2-dichloroethane (Surrogate)	mg/kg	-	4.8	3.8	50	24
			d8-toluene (Surrogate)	mg/kg	-	3.8	4.1	50	6
			Bromofluorobenzene (Surrogate)	mg/kg	-	4.2	4.3	50	4
		Totals	Total Xylenes*	mg/kg	0.3	0.7	0.7	75	3
			Total BTEX	mg/kg	0.6	0.7	0.7	71	3
SE157573.008	LB110813.014	Monocyclic	Benzene	mg/kg	0.1	<0.1	<0.1	200	0
		Aromatic	Toluene	mg/kg	0.1	<0.1	<0.1	200	0
			Ethylbenzene	mg/kg	0.1	<0.1	<0.1	200	0
			m/p-xylene	mg/kg	0.2	<0.2	<0.2	200	0
			o-xylene	mg/kg	0.1	<0.1	<0.1	200	0
		Polycyclic	Naphthalene	mg/kg	0.1	<0.1	<0.1	200	0
		Surrogates	Dibromofluoromethane (Surrogate)	mg/kg	-	4.3	3.9	50	11
			d4-1,2-dichloroethane (Surrogate)	mg/kg	-	5.1	4.3	50	17
			d8-toluene (Surrogate)	mg/kg	-	5.4	4.9	50	11
			Bromofluorobenzene (Surrogate)	mg/kg	-	5.1	4.9	50	4
		Totals	Total Xylenes*	mg/kg	0.3	<0.3	<0.3	200	0
			Total BTEX	mg/kg	0.6	<0.6	<0.6	200	0
SE157574.009	LB110813.021	Monocyclic	Benzene	mg/kg	0.1	<0.1	<0.1	200	0
		Aromatic	Toluene	mg/kg	0.1	<0.1	<0.1	200	0
			Ethylbenzene	mg/kg	0.1	<0.1	<0.1	200	0
			m/p-xylene	mg/kg	0.2	<0.2	<0.2	200	0
			o-xylene	mg/kg	0.1	<0.1	<0.1	200	0
		Polycyclic	Naphthalene	mg/kg	0.1	<0.1	<0.1	200	0
		Surrogates	Dibromofluoromethane (Surrogate)	mg/kg	-	4.6	3.7	50	23
			d4-1,2-dichloroethane (Surrogate)	mg/kg	-	4.2	4.0	50	4
			d8-toluene (Surrogate)	mg/kg	-	4.0	4.5	50	12
			Bromofluorobenzene (Surrogate)	mg/kg	-	4.1	4.6	50	10
		Totals	Total Xylenes*	mg/kg	0.3	<0.3	<0.3	200	0
			Total BTEX	mg/kg	0.6	<0.6	<0.6	200	0

Volatile Petroleum Hydrocarbons in Soil

Method: ME-(AU)-[ENV]AN433

Original	Duplicate		Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE157562.010	LB110808.014		TRH C6-C10	mg/kg	25	<25	<25	200	0
			TRH C6-C9	mg/kg	20	<20	<20	200	0
		Surrogates	Dibromofluoromethane (Surrogate)	mg/kg	-	3.6	3.7	30	3
			d4-1,2-dichloroethane (Surrogate)	mg/kg	-	3.6	3.8	30	5

Duplicates are calculated as Relative Percentage Difference (RPD) using the formula: RPD = | OriginalResult - ReplicateResult | x 100 / Mean

The RPD is evaluated against the Maximum Allowable Difference (MAD) criteria and can be graphically represented by a curve calculated from the Statistical Detection Limit (SDL) and Limiting Repeatability (LR) using the formula: MAD = 100 x SDL / Mean + LR

Where the Maximum Allowable Difference evaluates to a number larger than 200 it is displayed as 200.

RPD is shown in **Green** when within suggested criteria or **Red** with an appended reason identifer when outside suggested criteria. Refer to the footnotes section at the end of this report for failure reasons.

Volatile Petroleum Hydrocarbons in Soil (continued) — Method: ME-(AU)-[ENV]AN433

Original	Duplicate		Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE157562.010	LB110808.014	Surrogates	d8-toluene (Surrogate)	mg/kg	-	3.5	3.7	30	6
			Bromofluorobenzene (Surrogate)	mg/kg	-	4.0	4.0	30	0
		VPH F Bands	Benzene (F0)	mg/kg	0.1	<0.1	<0.1	200	0
			TRH C6-C10 minus BTEX (F1)	mg/kg	25	<25	<25	200	0
SE157562.020	LB110808.025		TRH C6-C10	mg/kg	25	<25	<25	200	0
			TRH C6-C9	mg/kg	20	<20	<20	200	0
		Surrogates	Dibromofluoromethane (Surrogate)	mg/kg	-	3.5	3.5	30	1
			d4-1,2-dichloroethane (Surrogate)	mg/kg	-	3.6	3.6	30	1
			d8-toluene (Surrogate)	mg/kg	-	3.8	3.8	30	2
			Bromofluorobenzene (Surrogate)	mg/kg	-	4.0	4.1	30	1
		VPH F Bands	Benzene (F0)	mg/kg	0.1	<0.1	<0.1	200	0
			TRH C6-C10 minus BTEX (F1)	mg/kg	25	<25	<25	200	0
SE157562.030	LB110810.014		TRH C6-C10	mg/kg	25	<25	<25	200	0
			TRH C6-C9	mg/kg	20	<20	<20	200	0
		Surrogates	Dibromofluoromethane (Surrogate)	mg/kg	-	4.4	4.3	30	1
			d4-1,2-dichloroethane (Surrogate)	mg/kg	-	4.9	4.7	30	5
			d8-toluene (Surrogate)	mg/kg	-	3.5	4.0	30	13
			Bromofluorobenzene (Surrogate)	mg/kg	-	4.0	4.4	30	10
		VPH F Bands	Benzene (F0)	mg/kg	0.1	<0.1	<0.1	200	0
			TRH C6-C10 minus BTEX (F1)	mg/kg	25	<25	<25	200	0
SE157562.038	LB110810.026		TRH C6-C10	mg/kg	25	<25	<25	200	0
			TRH C6-C9	mg/kg	20	<20	<20	200	0
		Surrogates	Dibromofluoromethane (Surrogate)	mg/kg	-	4.4	4.9	30	10
			d4-1,2-dichloroethane (Surrogate)	mg/kg	-	4.8	3.8	30	24
			d8-toluene (Surrogate)	mg/kg	-	3.8	4.1	30	6
			Bromofluorobenzene (Surrogate)	mg/kg	-	4.2	4.3	30	4
		VPH F Bands	Benzene (F0)	mg/kg	0.1	<0.1	<0.1	200	0
			TRH C6-C10 minus BTEX (F1)	mg/kg	25	<25	<25	200	0
SE157573.008	LB110813.014		TRH C6-C10	mg/kg	25	<25	<25	200	0
			TRH C6-C9	mg/kg	20	<20	<20	200	0
		Surrogates	Dibromofluoromethane (Surrogate)	mg/kg	-	4.3	3.9	30	11
			d4-1,2-dichloroethane (Surrogate)	mg/kg	-	5.1	4.3	30	17
			d8-toluene (Surrogate)	mg/kg	-	5.4	4.9	30	11
			Bromofluorobenzene (Surrogate)	mg/kg	-	5.1	4.9	30	4
		VPH F Bands	Benzene (F0)	mg/kg	0.1	<0.1	<0.1	200	0
			TRH C6-C10 minus BTEX (F1)	mg/kg	25	<25	<25	200	0
SE157574.009	LB110813.021		TRH C6-C10	mg/kg	25	<25	<25	200	0
			TRH C6-C9	mg/kg	20	<20	<20	200	0
		Surrogates	Dibromofluoromethane (Surrogate)	mg/kg	-	4.6	3.7	30	23
			d4-1,2-dichloroethane (Surrogate)	mg/kg	-	4.2	4.0	30	4
			d8-toluene (Surrogate)	mg/kg	-	4.0	4.5	30	12
			Bromofluorobenzene (Surrogate)	mg/kg	-	4.1	4.6	30	10
		VPH F Bands	Benzene (F0)	mg/kg	0.1	<0.1	<0.1	200	0
			TRH C6-C10 minus BTEX (F1)	mg/kg	25	<25	<25	200	0

Laboratory Control Standard (LCS) results are evaluated against an expected result, typically the concentration of analyte spiked into the control during the sample preparation stage, producing a percentage recovery. The criteria applied to the percentage recovery is established in the SGS QA /QC plan (Ref: MP-(AU)-[ENV]QU-022). For more information refer to the footnotes in the concluding page of this report.

Recovery is shown in **Green** when within suggested criteria or **Red** with an appended dagger symbol (†) when outside suggested criteria.

Mercury in Soil

Method: ME-(AU)-[ENV]AN312

Sample Number	Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB111016.002	Mercury	mg/kg	0.05	0.20	0.2	70 - 130	98
LB111017.002	Mercury	mg/kg	0.05	0.19	0.2	70 - 130	97

OC Pesticides in Soil

Method: ME-(AU)-[ENV]AN400/AN420

Sample Number		Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB110828.002		Heptachlor	mg/kg	0.1	0.2	0.2	60 - 140	91
		Aldrin	mg/kg	0.1	0.2	0.2	60 - 140	103
		Delta BHC	mg/kg	0.1	0.2	0.2	60 - 140	97
		Dieldrin	mg/kg	0.2	<0.2	0.2	60 - 140	94
		Endrin	mg/kg	0.2	<0.2	0.2	60 - 140	90
		p,p'-DDT	mg/kg	0.1	0.2	0.2	60 - 140	83
	Surrogates	Tetrachloro-m-xylene (TCMX) (Surrogate)	mg/kg	-	0.12	0.15	40 - 130	81
LB110829.002		Heptachlor	mg/kg	0.1	0.2	0.2	60 - 140	115
		Aldrin	mg/kg	0.1	0.2	0.2	60 - 140	107
		Delta BHC	mg/kg	0.1	0.2	0.2	60 - 140	116
		Dieldrin	mg/kg	0.2	<0.2	0.2	60 - 140	94
		Endrin	mg/kg	0.2	0.2	0.2	60 - 140	120
		p,p'-DDT	mg/kg	0.1	0.2	0.2	60 - 140	116
	Surrogates	Tetrachloro-m-xylene (TCMX) (Surrogate)	mg/kg	-	0.13	0.15	40 - 130	89

OP Pesticides in Soil

Method: ME-(AU)-[ENV]AN400/AN420

Sample Number		Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB110828.002		Dichlorvos	mg/kg	0.5	1.7	2	60 - 140	87
		Diazinon (Dimpylate)	mg/kg	0.5	2.3	2	60 - 140	115
		Chlorpyrifos (Chlorpyrifos Ethyl)	mg/kg	0.2	1.7	2	60 - 140	84
		Ethion	mg/kg	0.2	1.6	2	60 - 140	80
	Surrogates	2-fluorobiphenyl (Surrogate)	mg/kg	-	0.4	0.5	40 - 130	80
		d14-p-terphenyl (Surrogate)	mg/kg	-	0.4	0.5	40 - 130	86
LB110829.002		Dichlorvos	mg/kg	0.5	1.7	2	60 - 140	85
		Diazinon (Dimpylate)	mg/kg	0.5	1.5	2	60 - 140	75
		Chlorpyrifos (Chlorpyrifos Ethyl)	mg/kg	0.2	2.2	2	60 - 140	109
		Ethion	mg/kg	0.2	1.7	2	60 - 140	87
	Surrogates	2-fluorobiphenyl (Surrogate)	mg/kg	-	0.4	0.5	40 - 130	76
		d14-p-terphenyl (Surrogate)	mg/kg	-	0.5	0.5	40 - 130	104

PAH (Polynuclear Aromatic Hydrocarbons) in Soil

Method: ME-(AU)-[ENV]AN420

Sample Number		Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB110828.002		Naphthalene	mg/kg	0.1	4.1	4	60 - 140	102
		Acenaphthylene	mg/kg	0.1	3.9	4	60 - 140	99
		Acenaphthene	mg/kg	0.1	4.1	4	60 - 140	102
		Phenanthrene	mg/kg	0.1	4.1	4	60 - 140	103
		Anthracene	mg/kg	0.1	4.1	4	60 - 140	103
		Fluoranthene	mg/kg	0.1	4.0	4	60 - 140	99
		Pyrene	mg/kg	0.1	3.9	4	60 - 140	97
		Benzo(a)pyrene	mg/kg	0.1	4.3	4	60 - 140	109
	Surrogates	d5-nitrobenzene (Surrogate)	mg/kg	-	0.4	0.5	40 - 130	82
		2-fluorobiphenyl (Surrogate)	mg/kg	-	0.4	0.5	40 - 130	80
		d14-p-terphenyl (Surrogate)	mg/kg	-	0.4	0.5	40 - 130	86
LB110829.002		Naphthalene	mg/kg	0.1	4.0	4	60 - 140	101
		Acenaphthylene	mg/kg	0.1	4.0	4	60 - 140	100
		Acenaphthene	mg/kg	0.1	3.9	4	60 - 140	96
		Phenanthrene	mg/kg	0.1	5.0	4	60 - 140	124
		Anthracene	mg/kg	0.1	4.4	4	60 - 140	110
		Fluoranthene	mg/kg	0.1	4.7	4	60 - 140	119
		Pyrene	mg/kg	0.1	4.8	4	60 - 140	120
		Benzo(a)pyrene	mg/kg	0.1	4.2	4	60 - 140	105
	Surrogates	d5-nitrobenzene (Surrogate)	mg/kg	-	0.4	0.5	40 - 130	88
		2-fluorobiphenyl (Surrogate)	mg/kg	-	0.4	0.5	40 - 130	76
		d14-p-terphenyl (Surrogate)	mg/kg	-	0.5	0.5	40 - 130	104

PCBs in Soil

Method: ME-(AU)-[ENV]AN400/AN420

Sample Number	Parameter	Units	LOR

Laboratory Control Standard (LCS) results are evaluated against an expected result, typically the concentration of analyte spiked into the control during the sample preparation stage, producing a percentage recovery. The criteria applied to the percentage recovery is established in the SGS QA /QC plan (Ref: MP-(AU)-[ENV]QU-022). For more information refer to the footnotes in the concluding page of this report.

Recovery is shown in **Green** when within suggested criteria or **Red** with an appended dagger symbol (†) when outside suggested criteria.

PCBs in Soil (continued)

Method: ME-(AU)-[ENV]AN400/AN420

Sample Number	Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB110828.002	Arochlor 1260	mg/kg	0.2	0.5	0.4	60 - 140	117
LB110829.002	Arochlor 1260	mg/kg	0.2	0.4	0.4	60 - 140	94

Total Recoverable Metals in Soil/Waste Solids/Materials by ICPOES

Method: ME-(AU)-[ENV]AN040/AN320

Sample Number	Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB111055.002	Arsenic, As	mg/kg	3	49	50	80 - 120	98
	Cadmium, Cd	mg/kg	0.3	48	50	80 - 120	97
	Chromium, Cr	mg/kg	0.3	49	50	80 - 120	99
	Copper, Cu	mg/kg	0.5	47	50	80 - 120	95
	Lead, Pb	mg/kg	1	48	50	80 - 120	97
	Nickel, Ni	mg/kg	0.5	49	50	80 - 120	98
	Zinc, Zn	mg/kg	0.5	48	50	80 - 120	95
LB111056.002	Arsenic, As	mg/kg	3	50	50	80 - 120	99
	Cadmium, Cd	mg/kg	0.3	49	50	80 - 120	98
	Chromium, Cr	mg/kg	0.3	50	50	80 - 120	101
	Copper, Cu	mg/kg	0.5	49	50	80 - 120	98
	Lead, Pb	mg/kg	1	49	50	80 - 120	99
	Nickel, Ni	mg/kg	0.5	50	50	80 - 120	100
	Zinc, Zn	mg/kg	0.5	48	50	80 - 120	97

TRH (Total Recoverable Hydrocarbons) in Soil

Method: ME-(AU)-[ENV]AN403

Sample Number		Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB110828.002		TRH C10-C14	mg/kg	20	34	40	60 - 140	85
		TRH C15-C28	mg/kg	45	<45	40	60 - 140	78
		TRH C29-C36	mg/kg	45	<45	40	60 - 140	80
	TRH F Bands	TRH >C10-C16 (F2)	mg/kg	25	33	40	60 - 140	83
		TRH >C16-C34 (F3)	mg/kg	90	<90	40	60 - 140	80
		TRH >C34-C40 (F4)	mg/kg	120	<120	20	60 - 140	75
LB110829.002		TRH C10-C14	mg/kg	20	35	40	60 - 140	88
		TRH C15-C28	mg/kg	45	<45	40	60 - 140	90
		TRH C29-C36	mg/kg	45	<45	40	60 - 140	93
	TRH F Bands	TRH >C10-C16 (F2)	mg/kg	25	36	40	60 - 140	90
		TRH >C16-C34 (F3)	mg/kg	90	<90	40	60 - 140	95
		TRH >C34-C40 (F4)	mg/kg	120	<120	20	60 - 140	95

VOC's in Soil

Method: ME-(AU)-[ENV]AN433

Sample Number		Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB110808.002	Monocyclic	Benzene	mg/kg	0.1	2.0	2.9	60 - 140	67
	Aromatic	Toluene	mg/kg	0.1	1.9	2.9	60 - 140	65
		Ethylbenzene	mg/kg	0.1	2.0	2.9	60 - 140	69
		m/p-xylene	mg/kg	0.2	3.9	5.8	60 - 140	68
		o-xylene	mg/kg	0.1	2.0	2.9	60 - 140	69
	Surrogates	Dibromofluoromethane (Surrogate)	mg/kg	-	4.0	5	60 - 140	81
		d4-1,2-dichloroethane (Surrogate)	mg/kg	-	4.2	5	60 - 140	84
		d8-toluene (Surrogate)	mg/kg	-	5.0	5	60 - 140	101
		Bromofluorobenzene (Surrogate)	mg/kg	-	4.8	5	60 - 140	96
LB110810.002	Monocyclic	Benzene	mg/kg	0.1	1.9	2.9	60 - 140	64
	Aromatic	Toluene	mg/kg	0.1	1.9	2.9	60 - 140	66
		Ethylbenzene	mg/kg	0.1	1.8	2.9	60 - 140	62
		m/p-xylene	mg/kg	0.2	3.8	5.8	60 - 140	65
		o-xylene	mg/kg	0.1	1.9	2.9	60 - 140	64
	Surrogates	Dibromofluoromethane (Surrogate)	mg/kg	-	4.3	5	60 - 140	85
		d4-1,2-dichloroethane (Surrogate)	mg/kg	-	4.2	5	60 - 140	83
		d8-toluene (Surrogate)	mg/kg	-	4.7	5	60 - 140	93
		Bromofluorobenzene (Surrogate)	mg/kg	-	4.4	5	60 - 140	88
LB110813.002	Monocyclic	Benzene	mg/kg	0.1	1.8	2.9	60 - 140	63
	Aromatic	Toluene	mg/kg	0.1	2.1	2.9	60 - 140	73
		Ethylbenzene	mg/kg	0.1	2.0	2.9	60 - 140	70
		m/p-xylene	mg/kg	0.2	4.2	5.8	60 - 140	72
		o-xylene	mg/kg	0.1	2.1	2.9	60 - 140	71
	Surrogates	Dibromofluoromethane (Surrogate)	mg/kg	-	4.2	5	60 - 140	84

Laboratory Control Standard (LCS) results are evaluated against an expected result, typically the concentration of analyte spiked into the control during the sample preparation stage, producing a percentage recovery. The criteria applied to the percentage recovery is established in the SGS QA /QC plan (Ref: MP-(AU)-[ENV]QU-022). For more information refer to the footnotes in the concluding page of this report.

Recovery is shown in **Green** when within suggested criteria or **Red** with an appended dagger symbol (†) when outside suggested criteria.

VOC's in Soil (continued)

Method: ME-(AU)-[ENV]AN433

Sample Number		Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB110813.002	Surrogates	d4-1,2-dichloroethane (Surrogate)	mg/kg	-	5.0	5	60 - 140	100
		d8-toluene (Surrogate)	mg/kg	-	5.4	5	60 - 140	107
		Bromofluorobenzene (Surrogate)	mg/kg	-	4.8	5	60 - 140	95

Volatile Petroleum Hydrocarbons in Soil

Method: ME-(AU)-[ENV]AN433

Sample Number		Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB110808.002		TRH C6-C10	mg/kg	25	<25	24.65	60 - 140	87
		TRH C6-C9	mg/kg	20	<20	23.2	60 - 140	70
	Surrogates	Dibromofluoromethane (Surrogate)	mg/kg	-	4.0	5	60 - 140	81
		d4-1,2-dichloroethane (Surrogate)	mg/kg	-	4.2	5	60 - 140	84
		d8-toluene (Surrogate)	mg/kg	-	5.0	5	60 - 140	101
		Bromofluorobenzene (Surrogate)	mg/kg	-	4.8	5	60 - 140	96
	VPH F Bands	TRH C6-C10 minus BTEX (F1)	mg/kg	25	<25	7.25	60 - 140	132
LB110810.002		TRH C6-C10	mg/kg	25	<25	24.65	60 - 140	85
		TRH C6-C9	mg/kg	20	<20	23.2	60 - 140	79
	Surrogates	Dibromofluoromethane (Surrogate)	mg/kg	-	4.3	5	60 - 140	85
		d4-1,2-dichloroethane (Surrogate)	mg/kg	-	4.2	5	60 - 140	83
		d8-toluene (Surrogate)	mg/kg	-	4.7	5	60 - 140	93
		Bromofluorobenzene (Surrogate)	mg/kg	-	4.4	5	60 - 140	88
	VPH F Bands	TRH C6-C10 minus BTEX (F1)	mg/kg	25	<25	7.25	60 - 140	135
LB110813.002		TRH C6-C10	mg/kg	25	<25	24.65	60 - 140	87
		TRH C6-C9	mg/kg	20	<20	23.2	60 - 140	80
	Surrogates	Dibromofluoromethane (Surrogate)	mg/kg	-	4.2	5	60 - 140	84
		d4-1,2-dichloroethane (Surrogate)	mg/kg	-	5.0	5	60 - 140	100
		d8-toluene (Surrogate)	mg/kg	-	5.4	5	60 - 140	107
		Bromofluorobenzene (Surrogate)	mg/kg	-	4.8	5	60 - 140	95
	VPH F Bands	TRH C6-C10 minus BTEX (F1)	mg/kg	25	<25	7.25	60 - 140	128

Matrix Spike (MS) results are evaluated as the percentage recovery of an expected result, typically the concentration of analyte spiked into a field sub -sample during the sample preparation stage. The original sample's result is subtracted from the sub-sample result before determining the percentage recovery. The criteria applied to the percentage recovery is established in the SGS QA/QC plan (ref: MP-(AU)-[ENV]QU-022). For more information refer to the footnotes in the concluding page of this report.

Recovery is shown in **Green** when within suggested criteria or **Red** with an appended reason identifer when outside suggested criteria. Refer to the footnotes section at the end of this report for failure reasons.

Mercury in Soil

Method: ME-(AU)-[ENV]AN312

QC Sample	Sample Number	Parameter	Units	LOR	Result	Original	Spike	Recovery%
SE157562.001	LB111016.004	Mercury	mg/kg	0.05	0.22	0.06	0.2	78
SE157562.020	LB111017.004	Mercury	mg/kg	0.05	0.17	<0.05	0.2	75

OC Pesticides in Soil

Method: ME-(AU)-[ENV]AN400/AN420

QC Sample	Sample Number		Parameter	Units	LOR	Result	Original	Spike	Recovery%
SE157562.002	LB110828.026		Hexachlorobenzene (HCB)	mg/kg	0.1	<0.1	<0.1	-	-
			Alpha BHC	mg/kg	0.1	<0.1	<0.1	-	-
			Lindane	mg/kg	0.1	<0.1	<0.1	-	-
			Heptachlor	mg/kg	0.1	0.2	<0.1	0.2	97
			Aldrin	mg/kg	0.1	0.2	<0.1	0.2	101
			Beta BHC	mg/kg	0.1	<0.1	<0.1	-	-
			Delta BHC	mg/kg	0.1	0.2	<0.1	0.2	100
			Heptachlor epoxide	mg/kg	0.1	<0.1	<0.1	-	-
			o,p'-DDE	mg/kg	0.1	<0.1	<0.1	-	-
			Alpha Endosulfan	mg/kg	0.2	<0.2	<0.2	-	-
			Gamma Chlordane	mg/kg	0.1	<0.1	<0.1	-	-
			Alpha Chlordane	mg/kg	0.1	<0.1	<0.1	-	-
			trans-Nonachlor	mg/kg	0.1	<0.1	<0.1	-	-
			p,p'-DDE	mg/kg	0.1	<0.1	<0.1	-	-
			Dieldrin	mg/kg	0.2	<0.2	<0.2	0.2	96
			Endrin	mg/kg	0.2	<0.2	<0.2	0.2	91
			o,p'-DDD	mg/kg	0.1	<0.1	<0.1	-	-
			o,p'-DDT	mg/kg	0.1	<0.1	<0.1	-	-
			Beta Endosulfan	mg/kg	0.2	<0.2	<0.2	-	-
			p,p'-DDD	mg/kg	0.1	<0.1	<0.1	-	-
			p,p'-DDT	mg/kg	0.1	0.2	<0.1	0.2	102
			Endosulfan sulphate	mg/kg	0.1	<0.1	<0.1	-	-
			Endrin Aldehyde	mg/kg	0.1	<0.1	<0.1	-	-
			Methoxychlor	mg/kg	0.1	<0.1	<0.1	-	-
			Endrin Ketone	mg/kg	0.1	<0.1	<0.1	-	-
			Isodrin	mg/kg	0.1	<0.1	<0.1	-	-
			Mirex	mg/kg	0.1	<0.1	<0.1	-	-
		Surrogates	Tetrachloro-m-xylene (TCMX) (Surrogate)	mg/kg	-	0.12	0.13	-	83
SE157562.021	LB110829.024		Hexachlorobenzene (HCB)	mg/kg	0.1	<0.1	<0.1	-	-
			Alpha BHC	mg/kg	0.1	<0.1	<0.1	-	-
			Lindane	mg/kg	0.1	<0.1	<0.1	-	-
			Heptachlor	mg/kg	0.1	0.2	<0.1	0.2	124
			Aldrin	mg/kg	0.1	0.2	<0.1	0.2	107
			Beta BHC	mg/kg	0.1	<0.1	<0.1	-	-
			Delta BHC	mg/kg	0.1	0.2	<0.1	0.2	107
			Heptachlor epoxide	mg/kg	0.1	<0.1	<0.1	-	-
			o,p'-DDE	mg/kg	0.1	<0.1	<0.1	-	-
			Alpha Endosulfan	mg/kg	0.2	<0.2	<0.2	-	-
			Gamma Chlordane	mg/kg	0.1	<0.1	<0.1	-	-
			Alpha Chlordane	mg/kg	0.1	<0.1	<0.1	-	-
			trans-Nonachlor	mg/kg	0.1	<0.1	<0.1	-	-
			p,p'-DDE	mg/kg	0.1	<0.1	<0.1	-	-
			Dieldrin	mg/kg	0.2	0.2	<0.2	0.2	106
			Endrin	mg/kg	0.2	0.2	<0.2	0.2	123
			o,p'-DDD	mg/kg	0.1	<0.1	<0.1	-	-
			o,p'-DDT	mg/kg	0.1	<0.1	<0.1	-	-
			Beta Endosulfan	mg/kg	0.2	<0.2	<0.2	-	-
			p,p'-DDD	mg/kg	0.1	<0.1	<0.1	-	-
			p,p'-DDT	mg/kg	0.1	0.2	<0.1	0.2	124
			Endosulfan sulphate	mg/kg	0.1	<0.1	<0.1	-	-
			Endrin Aldehyde	mg/kg	0.1	<0.1	<0.1	-	-
			Methoxychlor	mg/kg	0.1	<0.1	<0.1	-	-
			Endrin Ketone	mg/kg	0.1	<0.1	<0.1	-	-
			Isodrin	mg/kg	0.1	<0.1	<0.1	-	-
			Mirex	mg/kg	0.1	<0.1	<0.1	-	-

Matrix Spike (MS) results are evaluated as the percentage recovery of an expected result, typically the concentration of analyte spiked into a field sub -sample during the sample preparation stage. The original sample's result is subtracted from the sub-sample result before determining the percentage recovery. The criteria applied to the percentage recovery is established in the SGS QA/QC plan (ref: MP-(AU)-[ENV]QU-022). For more information refer to the footnotes in the concluding page of this report.

Recovery is shown in **Green** when within suggested criteria or **Red** with an appended reason identifer when outside suggested criteria. Refer to the footnotes section at the end of this report for failure reasons.

OC Pesticides in Soil (continued)

Method: ME-(AU)-[ENV]AN400/AN420

QC Sample	Sample Number		Parameter	Units	LOR	Result	Original	Spike	Recovery%
SE157562.021	LB110829.024	Surrogates	Tetrachloro-m-xylene (TCMX) (Surrogate)	mg/kg	-	0.14	0.14	-	94

OP Pesticides in Soil

Method: ME-(AU)-[ENV]AN400/AN420

QC Sample	Sample Number		Parameter	Units	LOR	Result	Original	Spike	Recovery%
SE157562.003	LB110828.026		Dichlorvos	mg/kg	0.5	1.5	<0.5	2	77
			Dimethoate	mg/kg	0.5	<0.5	<0.5	-	-
			Diazinon (Dimpylate)	mg/kg	0.5	1.6	<0.5	2	80
			Fenitrothion	mg/kg	0.2	<0.2	<0.2	-	-
			Malathion	mg/kg	0.2	<0.2	<0.2	-	-
			Chlorpyrifos (Chlorpyrifos Ethyl)	mg/kg	0.2	1.4	<0.2	2	71
			Parathion-ethyl (Parathion)	mg/kg	0.2	<0.2	<0.2	-	-
			Bromophos Ethyl	mg/kg	0.2	<0.2	<0.2	-	-
			Methidathion	mg/kg	0.5	<0.5	<0.5	-	-
			Ethion	mg/kg	0.2	1.5	<0.2	2	73
			Azinphos-methyl (Guthion)	mg/kg	0.2	<0.2	<0.2	-	-
		Surrogates	2-fluorobiphenyl (Surrogate)	mg/kg	-	0.4	0.4	-	78
			d14-p-terphenyl (Surrogate)	mg/kg	-	0.4	0.5	-	86
SE157562.023	LB110829.024		Dichlorvos	mg/kg	0.5	1.7	<0.5	2	83
			Dimethoate	mg/kg	0.5	<0.5	<0.5	-	-
			Diazinon (Dimpylate)	mg/kg	0.5	1.5	<0.5	2	75
			Fenitrothion	mg/kg	0.2	<0.2	<0.2	-	-
			Malathion	mg/kg	0.2	<0.2	<0.2	-	-
			Chlorpyrifos (Chlorpyrifos Ethyl)	mg/kg	0.2	1.8	<0.2	2	89
			Parathion-ethyl (Parathion)	mg/kg	0.2	<0.2	<0.2	-	-
			Bromophos Ethyl	mg/kg	0.2	<0.2	<0.2	-	-
			Methidathion	mg/kg	0.5	<0.5	<0.5	-	-
			Ethion	mg/kg	0.2	1.8	<0.2	2	88
			Azinphos-methyl (Guthion)	mg/kg	0.2	<0.2	<0.2	-	-
		Surrogates	2-fluorobiphenyl (Surrogate)	mg/kg	-	0.4	0.4	-	76
			d14-p-terphenyl (Surrogate)	mg/kg	-	0.4	0.4	-	78

PAH (Polynuclear Aromatic Hydrocarbons) in Soil

Method: ME-(AU)-[ENV]AN420

QC Sample	Sample Number		Parameter	Units	LOR	Result	Original	Spike	Recovery%
SE157562.003	LB110828.026		Naphthalene	mg/kg	0.1	4.0	<0.1	4	100
			2-methylnaphthalene	mg/kg	0.1	<0.1	<0.1	-	-
			1-methylnaphthalene	mg/kg	0.1	<0.1	<0.1	-	-
			Acenaphthylene	mg/kg	0.1	3.9	<0.1	4	97
			Acenaphthene	mg/kg	0.1	4.0	<0.1	4	100
			Fluorene	mg/kg	0.1	<0.1	<0.1	-	-
			Phenanthrene	mg/kg	0.1	3.9	<0.1	4	99
			Anthracene	mg/kg	0.1	4.0	<0.1	4	101
			Fluoranthene	mg/kg	0.1	4.0	<0.1	4	99
			Pyrene	mg/kg	0.1	3.8	<0.1	4	96
			Benzo(a)anthracene	mg/kg	0.1	<0.1	<0.1	-	-
			Chrysene	mg/kg	0.1	<0.1	<0.1	-	-
			Benzo(b&j)fluoranthene	mg/kg	0.1	<0.1	<0.1	-	-
			Benzo(k)fluoranthene	mg/kg	0.1	<0.1	<0.1	-	-
			Benzo(a)pyrene	mg/kg	0.1	4.2	<0.1	4	104
			Indeno(1,2,3-cd)pyrene	mg/kg	0.1	<0.1	<0.1	-	-
			Dibenzo(ah)anthracene	mg/kg	0.1	<0.1	<0.1	-	-
			Benzo(ghi)perylene	mg/kg	0.1	<0.1	<0.1	-	-
			Carcinogenic PAHs, BaP TEQ <LOR=0	TEQ	0.2	4.2	<0.2	-	-
			Carcinogenic PAHs, BaP TEQ <LOR=LOR	TEQ (mg/kg)	0.3	4.3	<0.3	-	-
			Carcinogenic PAHs, BaP TEQ <LOR=LOR/2	TEQ (mg/kg)	0.2	4.2	<0.2	-	-
			Total PAH (18)	mg/kg	0.8	32	<0.8	-	-
		Surrogates	d5-nitrobenzene (Surrogate)	mg/kg	-	0.4	0.4	-	80
			2-fluorobiphenyl (Surrogate)	mg/kg	-	0.4	0.4	-	78
			d14-p-terphenyl (Surrogate)	mg/kg	-	0.4	0.5	-	86
SE157562.023	LB110829.024		Naphthalene	mg/kg	0.1	3.8	<0.1	4	94
			2-methylnaphthalene	mg/kg	0.1	<0.1	<0.1	-	-
			1-methylnaphthalene	mg/kg	0.1	<0.1	<0.1	-	-
			Acenaphthylene	mg/kg	0.1	3.5	<0.1	4	88

Matrix Spike (MS) results are evaluated as the percentage recovery of an expected result, typically the concentration of analyte spiked into a field sub -sample during the sample preparation stage. The original sample's result is subtracted from the sub-sample result before determining the percentage recovery. The criteria applied to the percentage recovery is established in the SGS QA/QC plan (ref: MP-(AU)-[ENV]QU-022). For more information refer to the footnotes in the concluding page of this report.

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PAH (Polynuclear Aromatic Hydrocarbons) in Soil (continued)

Method: ME-(AU)-[ENV]AN420

QC Sample	Sample Number		Parameter	Units	LOR	Result	Original	Spike	Recovery%
SE157562.023	LB110829.024		Acenaphthene	mg/kg	0.1	3.9	<0.1	4	97
			Fluorene	mg/kg	0.1	<0.1	<0.1	-	-
			Phenanthrene	mg/kg	0.1	4.9	<0.1	4	121
			Anthracene	mg/kg	0.1	4.4	<0.1	4	109
			Fluoranthene	mg/kg	0.1	3.5	<0.1	4	88
			Pyrene	mg/kg	0.1	4.1	<0.1	4	103
			Benzo(a)anthracene	mg/kg	0.1	<0.1	<0.1	-	-
			Chrysene	mg/kg	0.1	<0.1	<0.1	-	-
			Benzo(b&j)fluoranthene	mg/kg	0.1	<0.1	<0.1	-	-
			Benzo(k)fluoranthene	mg/kg	0.1	<0.1	<0.1	-	-
			Benzo(a)pyrene	mg/kg	0.1	4.0	<0.1	4	100
			Indeno(1,2,3-cd)pyrene	mg/kg	0.1	<0.1	<0.1	-	-
			Dibenzo(ah)anthracene	mg/kg	0.1	<0.1	<0.1	-	-
			Benzo(ghi)perylene	mg/kg	0.1	<0.1	<0.1	-	-
			Carcinogenic PAHs, BaP TEQ <LOR=0	TEQ	0.2	4.0	<0.2	-	-
			Carcinogenic PAHs, BaP TEQ <LOR=LOR	TEQ (mg/kg)	0.3	4.1	<0.3	-	-
			Carcinogenic PAHs, BaP TEQ <LOR=LOR/2	TEQ (mg/kg)	0.2	4.1	<0.2	-	-
			Total PAH (18)	mg/kg	0.8	32	<0.8	-	-
		Surrogates	d5-nitrobenzene (Surrogate)	mg/kg	-	0.4	0.4	-	80
			2-fluorobiphenyl (Surrogate)	mg/kg	-	0.4	0.4	-	76
			d14-p-terphenyl (Surrogate)	mg/kg	-	0.4	0.4	-	78

PCBs in Soil

Method: ME-(AU)-[ENV]AN400/AN420

QC Sample	Sample Number		Parameter	Units	LOR	Result	Original	Spike	Recovery%
SE157562.005	LB110828.026		Arochlor 1016	mg/kg	0.2	<0.2	<0.2	-	-
			Arochlor 1221	mg/kg	0.2	<0.2	<0.2	-	-
			Arochlor 1232	mg/kg	0.2	<0.2	<0.2	-	-
			Arochlor 1242	mg/kg	0.2	<0.2	<0.2	-	-
			Arochlor 1248	mg/kg	0.2	<0.2	<0.2	-	-
			Arochlor 1254	mg/kg	0.2	<0.2	<0.2	-	-
			Arochlor 1260	mg/kg	0.2	0.4	<0.2	0.4	106
			Arochlor 1262	mg/kg	0.2	<0.2	<0.2	-	-
			Arochlor 1268	mg/kg	0.2	<0.2	<0.2	-	-
			Total PCBs (Arochlors)	mg/kg	1	<1	<1	-	-
		Surrogates	Tetrachloro-m-xylene (TCMX) (Surrogate)	mg/kg	-	0	0	-	87
SE157562.023	LB110829.024		Arochlor 1016	mg/kg	0.2	<0.2	<0.2	-	-
			Arochlor 1221	mg/kg	0.2	<0.2	<0.2	-	-
			Arochlor 1232	mg/kg	0.2	<0.2	<0.2	-	-
			Arochlor 1242	mg/kg	0.2	<0.2	<0.2	-	-
			Arochlor 1248	mg/kg	0.2	<0.2	<0.2	-	-
			Arochlor 1254	mg/kg	0.2	<0.2	<0.2	-	-
			Arochlor 1260	mg/kg	0.2	0.4	<0.2	0.4	96
			Arochlor 1262	mg/kg	0.2	<0.2	<0.2	-	-
			Arochlor 1268	mg/kg	0.2	<0.2	<0.2	-	-
			Total PCBs (Arochlors)	mg/kg	1	<1	<1	-	-
		Surrogates	Tetrachloro-m-xylene (TCMX) (Surrogate)	mg/kg	-	0	0	-	86

Total Recoverable Metals in Soil/Waste Solids/Materials by ICPOES

Method: ME-(AU)-[ENV]AN040/AN320

QC Sample	Sample Number	Parameter	Units	LOR	Result	Original	Spike	Recovery%
SE157562.001	LB111055.004	Arsenic, As	mg/kg	3	48	18	50	59 ④
		Cadmium, Cd	mg/kg	0.3	37	1.1	50	72
		Chromium, Cr	mg/kg	0.3	62	34	50	55 ④
		Copper, Cu	mg/kg	0.5	59	30	50	58 ④
		Lead, Pb	mg/kg	1	140	140	50	-1 ④
		Nickel, Ni	mg/kg	0.5	47	15	50	66 ④
		Zinc, Zn	mg/kg	0.5	330	490	50	-318 ④
SE157562.020	LB111056.004	Arsenic, As	mg/kg	3	44	5	50	78
		Cadmium, Cd	mg/kg	0.3	40	<0.3	50	80
		Chromium, Cr	mg/kg	0.3	53	15	50	75
		Copper, Cu	mg/kg	0.5	53	11	50	83
		Lead, Pb	mg/kg	1	51	14	50	75
		Nickel, Ni	mg/kg	0.5	49	9.2	50	80

Matrix Spike (MS) results are evaluated as the percentage recovery of an expected result, typically the concentration of analyte spiked into a field sub -sample during the sample preparation stage. The original sample's result is subtracted from the sub-sample result before determining the percentage recovery. The criteria applied to the percentage recovery is established in the SGS QA/QC plan (ref: MP-(AU)-[ENV]QU-022). For more information refer to the footnotes in the concluding page of this report.

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Total Recoverable Metals in Soil/Waste Solids/Materials by ICPOES (continued)

Method: ME-(AU)-[ENV]AN040/AN320

QC Sample	Sample Number	Parameter	Units	LOR	Result	Original	Spike	Recovery%
SE157562.020	LB111056.004	Zinc, Zn	mg/kg	0.5	67	29	50	77

TRH (Total Recoverable Hydrocarbons) in Soil

Method: ME-(AU)-[ENV]AN403

QC Sample	Sample Number		Parameter	Units	LOR	Result	Original	Spike	Recovery%
SE157562.002	LB110828.026		TRH C10-C14	mg/kg	20	35	<20	40	88
			TRH C15-C28	mg/kg	45	<45	<45	40	88
			TRH C29-C36	mg/kg	45	<45	<45	40	110
			TRH C37-C40	mg/kg	100	<100	<100	-	-
			TRH C10-C36 Total	mg/kg	110	110	<110	-	-
			TRH C10-C40 Total	mg/kg	210	<210	<210	-	-
		TRH F Bands	TRH >C10-C16 (F2)	mg/kg	25	36	<25	40	90
			TRH >C10-C16 (F2) - Naphthalene	mg/kg	25	36	<25	-	-
			TRH >C16-C34 (F3)	mg/kg	90	<90	<90	40	100
			TRH >C34-C40 (F4)	mg/kg	120	<120	<120	-	-
SE157562.021	LB110829.024		TRH C10-C14	mg/kg	20	50	<20	40	125
			TRH C15-C28	mg/kg	45	<45	<45	40	108
			TRH C29-C36	mg/kg	45	<45	<45	40	80
			TRH C37-C40	mg/kg	100	<100	<100	-	-
			TRH C10-C36 Total	mg/kg	110	130	<110	-	-
			TRH C10-C40 Total	mg/kg	210	<210	<210	-	-
		TRH F Bands	TRH >C10-C16 (F2)	mg/kg	25	49	<25	40	123
			TRH >C10-C16 (F2) - Naphthalene	mg/kg	25	49	<25	-	-
			TRH >C16-C34 (F3)	mg/kg	90	<90	<90	40	98
			TRH >C34-C40 (F4)	mg/kg	120	<120	<120	-	-

VOC's in Soil

Method: ME-(AU)-[ENV]AN433

QC Sample	Sample Number		Parameter	Units	LOR	Result	Original	Spike	Recovery%
SE157562.001	LB110808.004	Monocyclic Aromatic	Benzene	mg/kg	0.1	2.1	<0.1	2.9	73
			Toluene	mg/kg	0.1	2.2	<0.1	2.9	74
			Ethylbenzene	mg/kg	0.1	2.4	<0.1	2.9	81
			m/p-xylene	mg/kg	0.2	4.8	<0.2	5.8	83
			o-xylene	mg/kg	0.1	2.5	<0.1	2.9	86
		Polycyclic	Naphthalene	mg/kg	0.1	<0.1	<0.1	-	-
		Surrogates	Dibromofluoromethane (Surrogate)	mg/kg	-	3.8	3.6	-	75
			d4-1,2-dichloroethane (Surrogate)	mg/kg	-	3.9	3.6	-	78
			d8-toluene (Surrogate)	mg/kg	-	3.8	3.6	-	76
			Bromofluorobenzene (Surrogate)	mg/kg	-	4.1	3.6	-	81
		Totals	Total Xylenes*	mg/kg	0.3	7.3	<0.3	-	-
			Total BTEX	mg/kg	0.6	14	<0.6	-	-
SE157562.021	LB110810.004	Monocyclic Aromatic	Benzene	mg/kg	0.1	2.0	<0.1	2.9	68
			Toluene	mg/kg	0.1	2.0	<0.1	2.9	67
			Ethylbenzene	mg/kg	0.1	2.0	<0.1	2.9	69
			m/p-xylene	mg/kg	0.2	4.3	<0.2	5.8	74
			o-xylene	mg/kg	0.1	2.2	<0.1	2.9	74
		Polycyclic	Naphthalene	mg/kg	0.1	<0.1	<0.1	-	-
		Surrogates	Dibromofluoromethane (Surrogate)	mg/kg	-	4.4	4.4	-	88
			d4-1,2-dichloroethane (Surrogate)	mg/kg	-	5.2	3.6	-	103
			d8-toluene (Surrogate)	mg/kg	-	5.2	3.8	-	104
			Bromofluorobenzene (Surrogate)	mg/kg	-	5.6	4.3	-	113
		Totals	Total Xylenes*	mg/kg	0.3	6.4	<0.3	-	-
			Total BTEX	mg/kg	0.6	12	<0.6	-	-
SE157573.001	LB110813.022	Monocyclic Aromatic	Benzene	mg/kg	0.1	2.0	<0.1	2.9	68
			Toluene	mg/kg	0.1	2.0	<0.1	2.9	70
			Ethylbenzene	mg/kg	0.1	1.8	<0.1	2.9	61
			m/p-xylene	mg/kg	0.2	3.7	<0.2	5.8	64
			o-xylene	mg/kg	0.1	1.9	<0.1	2.9	63
		Polycyclic	Naphthalene	mg/kg	0.1	<0.1	<0.1	-	-
		Surrogates	Dibromofluoromethane (Surrogate)	mg/kg	-	4.3	4.0	-	86
			d4-1,2-dichloroethane (Surrogate)	mg/kg	-	4.9	4.5	-	98
			d8-toluene (Surrogate)	mg/kg	-	5.2	4.9	-	103
			Bromofluorobenzene (Surrogate)	mg/kg	-	4.5	5.0	-	90
		Totals	Total Xylenes*	mg/kg	0.3	5.6	<0.3	-	-

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VOC's in Soil (continued)

Method: ME-(AU)-[ENV]AN433

QC Sample	Sample Number		Parameter	Units	LOR	Result	Original	Spike	Recovery%
SE157573.001	LB110813.022	Totals	Total BTEX	mg/kg	0.6	11	<0.6	-	-

Volatile Petroleum Hydrocarbons in Soil

Method: ME-(AU)-[ENV]AN433

QC Sample	Sample Number		Parameter	Units	LOR	Result	Original	Spike	Recovery%
SE157562.001	LB110808.004		TRH C6-C10	mg/kg	25	<25	<25	24.65	89
			TRH C6-C9	mg/kg	20	<20	<20	23.2	70
		Surrogates	Dibromofluoromethane (Surrogate)	mg/kg	-	3.8	3.6	-	75
			d4-1,2-dichloroethane (Surrogate)	mg/kg	-	3.9	3.6	-	78
			d8-toluene (Surrogate)	mg/kg	-	3.8	3.6	-	76
			Bromofluorobenzene (Surrogate)	mg/kg	-	4.1	3.6	-	81
		VPH F	Benzene (F0)	mg/kg	0.1	2.1	<0.1	-	-
		Bands	TRH C6-C10 minus BTEX (F1)	mg/kg	25	<25	<25	7.25	111
SE157562.021	LB110810.004		TRH C6-C10	mg/kg	25	<25	<25	24.65	85
			TRH C6-C9	mg/kg	20	<20	<20	23.2	77
		Surrogates	Dibromofluoromethane (Surrogate)	mg/kg	-	4.4	4.4	-	88
			d4-1,2-dichloroethane (Surrogate)	mg/kg	-	5.2	3.6	-	103
			d8-toluene (Surrogate)	mg/kg	-	5.2	3.8	-	104
			Bromofluorobenzene (Surrogate)	mg/kg	-	5.6	4.3	-	113
		VPH F	Benzene (F0)	mg/kg	0.1	2.0	<0.1	-	-
		Bands	TRH C6-C10 minus BTEX (F1)	mg/kg	25	<25	<25	7.25	120
SE157573.001	LB110813.022		TRH C6-C10	mg/kg	25	<25	<25	24.65	85
			TRH C6-C9	mg/kg	20	<20	<20	23.2	83
		Surrogates	Dibromofluoromethane (Surrogate)	mg/kg	-	4.3	4.0	-	86
			d4-1,2-dichloroethane (Surrogate)	mg/kg	-	4.9	4.5	-	98
			d8-toluene (Surrogate)	mg/kg	-	5.2	4.9	-	103
			Bromofluorobenzene (Surrogate)	mg/kg	-	4.5	5.0	-	90
		VPH F	Benzene (F0)	mg/kg	0.1	2.0	<0.1	-	-
		Bands	TRH C6-C10 minus BTEX (F1)	mg/kg	25	<25	<25	7.25	133

MATRIX SPIKE DUPLICATES

SE157562 R2

Matrix spike duplicates are calculated as Relative Percent Difference (RPD) using the formula: RPD = | OriginalResult - ReplicateResult | x 100 / Mean

The original result is the analyte concentration of the matrix spike. The Duplicate result is the analyte concentration of the matrix spike duplicate.

The RPD is evaluated against the Maximum Allowable Difference (MAD) criteria and can be graphically represented by a curve calculated from the Statistical Detection Limit (SDL) and Limiting Repeatability (LR) using the formula: MAD = 100 x SDL / Mean + LR

Where the Maximum Allowable Difference evaluates to a number larger than 200 it is displayed as 200.

RPD is shown in **Green** when within suggested criteria or **Red** with an appended reason identifer when outside suggested criteria. Refer to the footnotes section at the end of this report for failure reasons.

No matrix spike duplicates were required for this job.

Samples analysed as received.

Solid samples expressed on a dry weight basis.

QC criteria are subject to internal review according to the SGS QA/QC plan and may be provided on request or alternatively can be found here: http://www.sgs.com.au/~/media/Local/Australia/Documents/Technical Documents/MP-AU-ENV-QU-022 QA QC Plan.pdf

*	NATA accreditation does not cover tthe performance of this service.
-	Sample not analysed for this analyte.

IS	Insufficient sample for analysis.
LNR	Sample listed, but not received.
LOR	Limit of reporting.
QFH	QC result is above the upper tolerance.
QFL	QC result is below the lower tolerance.

①	At least 2 of 3 surrogates are within acceptance criteria.
②	RPD failed acceptance criteria due to sample heterogeneity.
③	Results less than 5 times LOR preclude acceptance criteria for RPD.
④	Recovery failed acceptance criteria due to matrix interference.
⑤	Recovery failed acceptance criteria due to the presence of significant concentration of analyte (i.e. the concentration of analyte exceeds the spike level).
⑥	LOR was raised due to sample matrix interference.
⑦	LOR was raised due to dilution of significantly high concentration of analyte in sample.
⑧	Reanalysis of sample in duplicate confirmed sample heterogeneity and inconsistency of results.
⑨	Recovery failed acceptance criteria due to sample heterogeneity.
⑩	LOR was raised due to high conductivity of the sample (required dilution).
†	Refer to Analytical Report comments for further information.

This document is issued, on the Client's behalf, by the Company under its General Conditions of Service, available on request and accessible at http://www.sgs.com/en/terms-and-conditions. The Client's attention is drawn to the limitation of liability, indemnification and jurisdiction issues defined therein.

Any other holder of this document is advised that information contained herein reflects the Company's findings at the time of its intervention only and within the limits of Client's instructions, if any. The Company's sole responsibility is to its Client and this document does not exonerate parties to a transaction from exercising all their rights and obligations under the transaction documents.

This test report shall not be reproduced, except in full.

SGS

CHAIN OF CUSTODY & ANALYSIS REQUEST

SGS Environmental Services
Unit 16, 33 Maddox Street
Alexandria NSW 2015
Telephone No: (02) 85940400
Facsimile No: (02) 85940499
Email:

Company Name:	SMEC	Project Name/No:	3002523 – Canberra Brickworks
Address:	Suite 2, Level 1, 243 Northbourne Avenue, Lyneham, ACT, 2602, Australia	Purchase Order No:	
		Results Required By:	Ryan O'Leary
		Telephone:	+61 2 6234 1963 / 0400 240 023
Contact Name:	Ryan O'Leary	Facsimile:	
		Email Results:	Ryan.O'Leary@smec.com.b / Split WO

Subcontract Lab / Analysis: (1) – Newcastle
Organised By / Date: Asbestos
Relinquished By / Date:
Connote / Courier:
WO No:
Attach By PO / Internal Sheet:

Client Sample ID	Date Sampled	Lab Sample ID	WATER	SOIL		NO OF CONTAINERS	Asbestos ID	BTEXN	OPPs	OCPs	PHAs/Phenols	8 Metals - As, Cd, Cr, Cu, Ni, Pb, Zn Hg	TPH/TRH	On Hold	
QC11						1 jar		✓	✓	✓	✓	✓	✓		Send to ALS Sydney
QC11						1 bag	✓								Send to ALS Sydney

Environmental Division
Sydney
Work Order Reference
ES1620843

Telephone : +61-2-8784 8555

Relinquished By:	Date/Time:	Received By: MGould	Date/Time 16.9.16 18:00
Relinquished By:	Date/Time:	Received By:	Date/Time
Samples Intact: Yes/ No	Temperature: Ambient / Chilled	Sample Cooler Sealed: Yes/ No	Laboratory Quotation No:
	Comments: AS PER SGS QUOTE NUMBER SY1 – 60413 – 2-IS DATED 13TH APRIL 2016	**STANDARD TAT PLEASE (5 DAY)**	

SAMPLE RECEIPT NOTIFICATION (SRN)

Work Order : **ES1620843**

Client	: **SMEC AUSTRALIA PTY LTD**	Laboratory	: Environmental Division Sydney
Contact	: RYAN O'LEARY	Contact	:
Address	: LEVEL 5, 20 BERRY STREET P O BOX 1052 NORTH SYDNEY NSW, AUSTRALIA 2060	Address	: 277-289 Woodpark Road Smithfield NSW Australia 2164
E-mail	: ryan.o'leary@smec.com	E-mail	:
Telephone	: +61 02 9925 5555	Telephone	: +61-2-8784 8555
Facsimile	: +61 02 9925 5566	Facsimile	: +61-2-8784 8500
Project	: 3002523-CANBERRA BRICKW ORKS	Page	: 1 of 2
Order number	: ----	Quote number	: ES2015SMEAUS0024 (EN/025/15)
C-O-C number	: ----	QC Level	: NEPM 2013 B3 & ALS QC Standard
Site	: ----		
Sampler	:		

Dates

Date Samples Received	: 16-Sep-2016 6:00 PM	Issue Date	: 17-Sep-2016
Client Requested Due Date	: 23-Sep-2016	Scheduled Reporting Date	: **23-Sep-2016**

Delivery Details

Mode of Delivery	: Undefined	Security Seal	: Not Available
No. of coolers/boxes	: 1	Temperature	: 15.9'C - Ice Bricks present
Receipt Detail	:	No. of samples received / analysed	: 1 / 1

General Comments

- This report contains the following information:
  - Sample Container(s)/Preservation Non-Compliances
  - Summary of Sample(s) and Requested Analysis
  - Proactive Holding Time Report
  - Requested Deliverables
- **Please refer to the Proactive Holding Time Report table below which summarises breaches of recommended holding times that have occurred prior to samples/instructions being received at the laboratory. The absence of this summary table indicates that all samples have been received within the recommended holding times for the analysis requested.**
- **Sample(s) requiring volatile organic compound analysis received in airtight containers (ZHE).**
- **Asbestos analysis will be conducted by ALS Newcastle.**
- Please direct any queries you have regarding this work order to the above ALS laboratory contact.
- Analytical work for this work order will be conducted at ALS Sydney.
- Sample Disposal - Aqueous (14 days), Solid (60 days) from date of completion of work order.

Sample Container(s)/Preservation Non-Compliances

All comparisons are made against pretreatment/preservation AS, APHA, USEPA standards.

Method / Client sample ID	Sample Container Received	Preferred Sample Container for Analysis
PAH/Phenols (SIM) : EP075(SIM)		
QC11	- Miscellaneous Glass Bottle - unpreserved	- Soil Glass Jar - Unpreserved
Pesticides by GCMS : EP068		
QC11	- Miscellaneous Glass Bottle - unpreserved	- Soil Glass Jar - Unpreserved
TRH - Semivolatile Fraction : EP071		
QC11	- Miscellaneous Glass Bottle - unpreserved	- Soil Glass Jar - Unpreserved
TRH Volatiles/BTEX : EP080		
QC11	- Miscellaneous Glass Bottle - unpreserved	- Soil Glass Jar - Unpreserved

Summary of Sample(s) and Requested Analysis

Some items described below may be part of a laboratory process necessary for the execution of client requested tasks. Packages may contain additional analyses, such as the determination of moisture content and preparation tasks, that are included in the package.
If no sampling time is provided, the sampling time will default to 15:00 on the date of sampling. If no sampling date is provided, the sampling date will be assumed by the laboratory for processing purposes and will be shown bracketed without a time component.

Matrix: **SOIL**

Laboratory sample ID	Client sampling date / time	Client sample ID	SOIL - EA055-103 Moisture Content	SOIL - EA200 Asbestos Identification in Soils -	SOIL - S-12 OC/OP Pesticides	SOIL - S-27 TRH/BTEXN/PAH/Phenols/8Metals
ES1620843-001	[17-Sep-2016]	QC11	✓	✓	✓	✓

Proactive Holding Time Report

Sample(s) have been received within the recommended holding times for the requested analysis.

Requested Deliverables

RYAN O'LEARY

- *AU Certificate of Analysis - NATA (COA)	Email	ryan.o'leary@smec.com
- *AU Interpretive QC Report - DEFAULT (Anon QCI Rep) (QCI)	Email	ryan.o'leary@smec.com
- *AU QC Report - DEFAULT (Anon QC Rep) - NATA (QC)	Email	ryan.o'leary@smec.com
- A4 - AU Sample Receipt Notification - Environmental HT (SRN)	Email	ryan.o'leary@smec.com
- A4 - AU Tax Invoice (INV)	Email	ryan.o'leary@smec.com
- Chain of Custody (CoC) (COC)	Email	ryan.o'leary@smec.com
- EDI Format - ESDAT (ESDAT)	Email	ryan.o'leary@smec.com

ALS Environmental

CERTIFICATE OF ANALYSIS

Work Order	: **ES1620843**	Page	: 1 of 8
Client	: **SMEC AUSTRALIA PTY LTD**	Laboratory	: Environmental Division Sydney
Contact	: RYAN O'LEARY	Contact	:
Address	: LEVEL 5, 20 BERRY STREET P O BOX 1052 NORTH SYDNEY NSW, AUSTRALIA 2060	Address	: 277-289 Woodpark Road Smithfield NSW Australia 2164
Telephone	: +61 02 9925 5555	Telephone	: +61-2-8784 8555
Project	: 3002523-CANBERRA BRICKW ORKS	Date Samples Received	: 16-Sep-2016 18:00
Order number	: ----	Date Analysis Commenced	: 19-Sep-2016
C-O-C number	: ----	Issue Date	: 23-Sep-2016 15:27
Sampler	: ----		
Site	: ----		
Quote number	: ----		
No. of samples received	: 1		
No. of samples analysed	: 1		

Accreditation No. 825
Accredited for compliance with
ISO/IEC 17025 - Testing

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. This document shall not be reproduced, except in full.

This Certificate of Analysis contains the following information:

- General Comments
- Analytical Results
- Descriptive Results
- Surrogate Control Limits

Additional information pertinent to this report will be found in the following separate attachments: Quality Control Report, QA/QC Compliance Assessment to assist with Quality Review and Sample Receipt Notification.

Signatories

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

Signatories	*Position*	*Accreditation Category*
Celine Conceicao	Senior Spectroscopist	Sydney Inorganics, Smithfield, NSW
Edwandy Fadjar	Organic Coordinator	Sydney Organics, Smithfield, NSW
Gerrad Morgan	Asbestos Identifier	Newcastle - Asbestos, Mayfield West, NSW
Peter Wu		Sydney Inorganics, Smithfield, 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.

Where a result is required to meet compliance limits the associated uncertainty must be considered. Refer to the ALS Contact for details.

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.
~ = Indicates an estimated value.

- 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
- EA200: 'Yes' - Asbestos detected by polarised light microscopy including dispersion staining.
- EA200: 'No*' - No asbestos found, at the reporting limit of 0.1g/kg, by polarised light microscopy including dispersion staining. Asbestos material was detected and positively identified at concentrations estimated to be below 0.1g/kg.
- EA200: 'No' - No asbestos found at the reporting limit 0.1g/kg, by polarised light microscopy including dispersion staining.

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Client sample ID	QC11	----	----	----	----
				Client sampling date / time	[17-Sep-2016]	----	----	----	----
Compound	CAS Number	LOR	Unit		ES1620843-001	--------	--------	--------	--------
					Result	----	----	----	----
EA055: Moisture Content									
Moisture Content (dried @ 103°C)	----	1	%		12.8	----	----	----	----
EA200: AS 4964 - 2004 Identification of Asbestos in Soils									
Asbestos Detected	1332-21-4	0.1	g/kg		No	----	----	----	----
Asbestos Type	1332-21-4	-	--		-	----	----	----	----
Sample weight (dry)	----	0.01	g		190	----	----	----	----
APPROVED IDENTIFIER:	----	-	--		C.OWLER	----	----	----	----
EG005T: Total Metals by ICP-AES									
Arsenic	7440-38-2	5	mg/kg		<5	----	----	----	----
Cadmium	7440-43-9	1	mg/kg		<1	----	----	----	----
Chromium	7440-47-3	2	mg/kg		16	----	----	----	----
Copper	7440-50-8	5	mg/kg		10	----	----	----	----
Lead	7439-92-1	5	mg/kg		17	----	----	----	----
Nickel	7440-02-0	2	mg/kg		17	----	----	----	----
Zinc	7440-66-6	5	mg/kg		72	----	----	----	----
EG035T: Total Recoverable Mercury by FIMS									
Mercury	7439-97-6	0.1	mg/kg		<0.1	----	----	----	----
EP068A: Organochlorine Pesticides (OC)									
alpha-BHC	319-84-6	0.05	mg/kg		<0.05	----	----	----	----
Hexachlorobenzene (HCB)	118-74-1	0.05	mg/kg		<0.05	----	----	----	----
beta-BHC	319-85-7	0.05	mg/kg		<0.05	----	----	----	----
gamma-BHC	58-89-9	0.05	mg/kg		<0.05	----	----	----	----
delta-BHC	319-86-8	0.05	mg/kg		<0.05	----	----	----	----
Heptachlor	76-44-8	0.05	mg/kg		<0.05	----	----	----	----
Aldrin	309-00-2	0.05	mg/kg		<0.05	----	----	----	----
Heptachlor epoxide	1024-57-3	0.05	mg/kg		<0.05	----	----	----	----
^ Total Chlordane (sum)	----	0.05	mg/kg		<0.05	----	----	----	----
trans-Chlordane	5103-74-2	0.05	mg/kg		<0.05	----	----	----	----
alpha-Endosulfan	959-98-8	0.05	mg/kg		<0.05	----	----	----	----
cis-Chlordane	5103-71-9	0.05	mg/kg		<0.05	----	----	----	----
Dieldrin	60-57-1	0.05	mg/kg		<0.05	----	----	----	----
4.4`-DDE	72-55-9	0.05	mg/kg		<0.05	----	----	----	----
Endrin	72-20-8	0.05	mg/kg		<0.05	----	----	----	----
beta-Endosulfan	33213-65-9	0.05	mg/kg		<0.05	----	----	----	----
^ Endosulfan (sum)	115-29-7	0.05	mg/kg		<0.05	----	----	----	----

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Client sample ID	QC11	----	----	----	----
				Client sampling date / time	[17-Sep-2016]	----	----	----	----
Compound	CAS Number	LOR	Unit		ES1620843-001	--------	--------	--------	--------
					Result	----	----	----	----
EP068A: Organochlorine Pesticides (OC) - Continued									
4.4`-DDD	72-54-8	0.05	mg/kg		<0.05	----	----	----	----
Endrin aldehyde	7421-93-4	0.05	mg/kg		<0.05	----	----	----	----
Endosulfan sulfate	1031-07-8	0.05	mg/kg		<0.05	----	----	----	----
4.4`-DDT	50-29-3	0.2	mg/kg		<0.2	----	----	----	----
Endrin ketone	53494-70-5	0.05	mg/kg		<0.05	----	----	----	----
Methoxychlor	72-43-5	0.2	mg/kg		<0.2	----	----	----	----
^ Sum of Aldrin + Dieldrin	309-00-2/60-57-1	0.05	mg/kg		<0.05	----	----	----	----
^ Sum of DDD + DDE + DDT	72-54-8/72-55-9/50-2	0.05	mg/kg		<0.05	----	----	----	----
EP068B: Organophosphorus Pesticides (OP)									
Dichlorvos	62-73-7	0.05	mg/kg		<0.05	----	----	----	----
Demeton-S-methyl	919-86-8	0.05	mg/kg		<0.05	----	----	----	----
Monocrotophos	6923-22-4	0.2	mg/kg		<0.2	----	----	----	----
Dimethoate	60-51-5	0.05	mg/kg		<0.05	----	----	----	----
Diazinon	333-41-5	0.05	mg/kg		<0.05	----	----	----	----
Chlorpyrifos-methyl	5598-13-0	0.05	mg/kg		<0.05	----	----	----	----
Parathion-methyl	298-00-0	0.2	mg/kg		<0.2	----	----	----	----
Malathion	121-75-5	0.05	mg/kg		<0.05	----	----	----	----
Fenthion	55-38-9	0.05	mg/kg		<0.05	----	----	----	----
Chlorpyrifos	2921-88-2	0.05	mg/kg		<0.05	----	----	----	----
Parathion	56-38-2	0.2	mg/kg		<0.2	----	----	----	----
Pirimphos-ethyl	23505-41-1	0.05	mg/kg		<0.05	----	----	----	----
Chlorfenvinphos	470-90-6	0.05	mg/kg		<0.05	----	----	----	----
Bromophos-ethyl	4824-78-6	0.05	mg/kg		<0.05	----	----	----	----
Fenamiphos	22224-92-6	0.05	mg/kg		<0.05	----	----	----	----
Prothiofos	34643-46-4	0.05	mg/kg		<0.05	----	----	----	----
Ethion	563-12-2	0.05	mg/kg		<0.05	----	----	----	----
Carbophenothion	786-19-6	0.05	mg/kg		<0.05	----	----	----	----
Azinphos Methyl	86-50-0	0.05	mg/kg		<0.05	----	----	----	----
EP075(SIM)A: Phenolic Compounds									
Phenol	108-95-2	0.5	mg/kg		<0.5	----	----	----	----
2-Chlorophenol	95-57-8	0.5	mg/kg		<0.5	----	----	----	----
2-Methylphenol	95-48-7	0.5	mg/kg		<0.5	----	----	----	----
3- & 4-Methylphenol	1319-77-3	1	mg/kg		<1	----	----	----	----
2-Nitrophenol	88-75-5	0.5	mg/kg		<0.5	----	----	----	----

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Client sample ID	QC11	----	----	----	----
				Client sampling date / time	[17-Sep-2016]	----	----	----	----
Compound	CAS Number	LOR	Unit		ES1620843-001	--------	--------	--------	--------
					Result	----	----	----	----
EP075(SIM)A: Phenolic Compounds - Continued									
2.4-Dimethylphenol	105-67-9	0.5	mg/kg		<0.5	----	----	----	----
2.4-Dichlorophenol	120-83-2	0.5	mg/kg		<0.5	----	----	----	----
2.6-Dichlorophenol	87-65-0	0.5	mg/kg		<0.5	----	----	----	----
4-Chloro-3-methylphenol	59-50-7	0.5	mg/kg		<0.5	----	----	----	----
2.4.6-Trichlorophenol	88-06-2	0.5	mg/kg		<0.5	----	----	----	----
2.4.5-Trichlorophenol	95-95-4	0.5	mg/kg		<0.5	----	----	----	----
Pentachlorophenol	87-86-5	2	mg/kg		<2	----	----	----	----
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons									
Naphthalene	91-20-3	0.5	mg/kg		<0.5	----	----	----	----
Acenaphthylene	208-96-8	0.5	mg/kg		<0.5	----	----	----	----
Acenaphthene	83-32-9	0.5	mg/kg		<0.5	----	----	----	----
Fluorene	86-73-7	0.5	mg/kg		<0.5	----	----	----	----
Phenanthrene	85-01-8	0.5	mg/kg		<0.5	----	----	----	----
Anthracene	120-12-7	0.5	mg/kg		<0.5	----	----	----	----
Fluoranthene	206-44-0	0.5	mg/kg		<0.5	----	----	----	----
Pyrene	129-00-0	0.5	mg/kg		<0.5	----	----	----	----
Benz(a)anthracene	56-55-3	0.5	mg/kg		<0.5	----	----	----	----
Chrysene	218-01-9	0.5	mg/kg		<0.5	----	----	----	----
Benzo(b+j)fluoranthene	205-99-2 205-82-3	0.5	mg/kg		<0.5	----	----	----	----
Benzo(k)fluoranthene	207-08-9	0.5	mg/kg		<0.5	----	----	----	----
Benzo(a)pyrene	50-32-8	0.5	mg/kg		<0.5	----	----	----	----
Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg		<0.5	----	----	----	----
Dibenz(a.h)anthracene	53-70-3	0.5	mg/kg		<0.5	----	----	----	----
Benzo(g.h.i)perylene	191-24-2	0.5	mg/kg		<0.5	----	----	----	----
^ **Sum of polycyclic aromatic hydrocarbons**	----	0.5	mg/kg		<0.5	----	----	----	----
^ **Benzo(a)pyrene TEQ (zero)**	----	0.5	mg/kg		<0.5	----	----	----	----
^ **Benzo(a)pyrene TEQ (half LOR)**	----	0.5	mg/kg		**0.6**	----	----	----	----
^ **Benzo(a)pyrene TEQ (LOR)**	----	0.5	mg/kg		**1.2**	----	----	----	----
EP080/071: Total Petroleum Hydrocarbons									
C6 - C9 Fraction	----	10	mg/kg		<10	----	----	----	----
C10 - C14 Fraction	----	50	mg/kg		<50	----	----	----	----
C15 - C28 Fraction	----	100	mg/kg		<100	----	----	----	----
C29 - C36 Fraction	----	100	mg/kg		<100	----	----	----	----
^ **C10 - C36 Fraction (sum)**	----	50	mg/kg		<50	----	----	----	----

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Client sample ID	QC11	----	----	----	----
				Client sampling date / time	[17-Sep-2016]	----	----	----	----
Compound	CAS Number	LOR	Unit		ES1620843-001	--------	--------	--------	--------
					Result	----	----	----	----
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions									
C6 - C10 Fraction	C6_C10	10	mg/kg		<10	----	----	----	----
^ **C6 - C10 Fraction minus BTEX (F1)**	C6_C10-BTEX	10	mg/kg		<10	----	----	----	----
>C10 - C16 Fraction	----	50	mg/kg		<50	----	----	----	----
>C16 - C34 Fraction	----	100	mg/kg		<100	----	----	----	----
>C34 - C40 Fraction	----	100	mg/kg		<100	----	----	----	----
^ **>C10 - C40 Fraction (sum)**	----	50	mg/kg		<50	----	----	----	----
^ **>C10 - C16 Fraction minus Naphthalene (F2)**	----	50	mg/kg		<50	----	----	----	----
EP080: BTEXN									
Benzene	71-43-2	0.2	mg/kg		<0.2	----	----	----	----
Toluene	108-88-3	0.5	mg/kg		<0.5	----	----	----	----
Ethylbenzene	100-41-4	0.5	mg/kg		<0.5	----	----	----	----
meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg		<0.5	----	----	----	----
ortho-Xylene	95-47-6	0.5	mg/kg		<0.5	----	----	----	----
^ **Sum of BTEX**	----	0.2	mg/kg		<0.2	----	----	----	----
^ **Total Xylenes**	1330-20-7	0.5	mg/kg		<0.5	----	----	----	----
Naphthalene	91-20-3	1	mg/kg		<1	----	----	----	----
EP068S: Organochlorine Pesticide Surrogate									
Dibromo-DDE	21655-73-2	0.05	%		**114**	----	----	----	----
EP068T: Organophosphorus Pesticide Surrogate									
DEF	78-48-8	0.05	%		**95.7**	----	----	----	----
EP075(SIM)S: Phenolic Compound Surrogates									
Phenol-d6	13127-88-3	0.5	%		**83.2**	----	----	----	----
2-Chlorophenol-D4	93951-73-6	0.5	%		**85.0**	----	----	----	----
2.4.6-Tribromophenol	118-79-6	0.5	%		**80.2**	----	----	----	----
EP075(SIM)T: PAH Surrogates									
2-Fluorobiphenyl	321-60-8	0.5	%		**82.3**	----	----	----	----
Anthracene-d10	1719-06-8	0.5	%		**103**	----	----	----	----
4-Terphenyl-d14	1718-51-0	0.5	%		**95.7**	----	----	----	----
EP080S: TPH(V)/BTEX Surrogates									
1.2-Dichloroethane-D4	17060-07-0	0.2	%		**106**	----	----	----	----
Toluene-D8	2037-26-5	0.2	%		**107**	----	----	----	----
4-Bromofluorobenzene	460-00-4	0.2	%		**117**	----	----	----	----

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	QC11 - [17-Sep-2016]	Pale brown sandy soil

Surrogate Control Limits

Sub-Matrix: **SOIL**

Compound	CAS Number	Recovery Limits (%) Low	High
EP068S: Organochlorine Pesticide Surrogate			
Dibromo-DDE	21655-73-2	49	147
EP068T: Organophosphorus Pesticide Surrogate			
DEF	78-48-8	35	143
EP075(SIM)S: Phenolic Compound Surrogates			
Phenol-d6	13127-88-3	63	123
2-Chlorophenol-D4	93951-73-6	66	122
2.4.6-Tribromophenol	118-79-6	40	138
EP075(SIM)T: PAH Surrogates			
2-Fluorobiphenyl	321-60-8	70	122
Anthracene-d10	1719-06-8	66	128
4-Terphenyl-d14	1718-51-0	65	129
EP080S: TPH(V)/BTEX Surrogates			
1.2-Dichloroethane-D4	17060-07-0	73	133
Toluene-D8	2037-26-5	74	132
4-Bromofluorobenzene	460-00-4	72	130

QUALITY CONTROL REPORT

Work Order	: **ES1620843**	Page	: 1 of 12
Client	: **SMEC AUSTRALIA PTY LTD**	Laboratory	: Environmental Division Sydney
Contact	: RYAN O'LEARY	Contact	:
Address	: LEVEL 5, 20 BERRY STREET P O BOX 1052 NORTH SYDNEY NSW, AUSTRALIA 2060	Address	: 277-289 Woodpark Road Smithfield NSW Australia 2164
Telephone	: +61 02 9925 5555	Telephone	: +61-2-8784 8555
Project	: 3002523-CANBERRA BRICKW ORKS	Date Samples Received	: 16-Sep-2016
Order number	: ----	Date Analysis Commenced	: 19-Sep-2016
C-O-C number	: ----	Issue Date	: 23-Sep-2016
Sampler	: ----		
Site	: ----		
Quote number	: ----		
No. of samples received	: 1		
No. of samples analysed	: 1		

Accreditation No. 825
Accredited for compliance with
ISO/IEC 17025 - Testing

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. This document shall not be reproduced, except in full.

This Quality Control Report contains the following information:

- Laboratory Duplicate (DUP) Report; Relative Percentage Difference (RPD) and Acceptance Limits
- Method Blank (MB) and Laboratory Control Spike (LCS) Report; Recovery and Acceptance Limits
- Matrix Spike (MS) Report; Recovery and Acceptance Limits

Signatories

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

Signatories	*Position*	*Accreditation Category*
Celine Conceicao	Senior Spectroscopist	Sydney Inorganics, Smithfield, NSW
Edwandy Fadjar	Organic Coordinator	Sydney Organics, Smithfield, NSW
Gerrad Morgan	Asbestos Identifier	Newcastle - Asbestos, Mayfield West, NSW
Peter Wu		Sydney Inorganics, Smithfield, 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

Key : Anonymous = Refers to samples which are not specifically part of this work order but formed part of the QC process lot
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
RPD = Relative Percentage Difference
# = Indicates failed QC

Laboratory Duplicate (DUP) Report

The quality control term Laboratory Duplicate refers to a randomly selected intralaboratory split. Laboratory duplicates provide information regarding method precision and sample heterogeneity. The permitted ranges for the Relative Percent Deviation (RPD) of Laboratory Duplicates are specified in ALS Method QWI-EN/38 and are dependent on the magnitude of results in comparison to the level of reporting: Result < 10 times LOR: No Limit; Result between 10 and 20 times LOR: 0% - 50%; Result > 20 times LOR: 0% - 20%.

Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Client sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Recovery Limits (%)*
EA055: Moisture Content (QC Lot: 590176)									
ES1620822-003	Anonymous	EA055-103: Moisture Content (dried @ 103°C)	----	1	%	11.2	10.0	11.4	0% - 50%
ES1620827-002	Anonymous	EA055-103: Moisture Content (dried @ 103°C)	----	1	%	9.5	10.0	4.78	No Limit
EG005T: Total Metals by ICP-AES (QC Lot: 591017)									
EB1622440-001	Anonymous	EG005T: Cadmium	7440-43-9	1	mg/kg	<1	<1	0.00	No Limit
		EG005T: Chromium	7440-47-3	2	mg/kg	7	9	24.9	No Limit
		EG005T: Nickel	7440-02-0	2	mg/kg	9	10	0.00	No Limit
		EG005T: Arsenic	7440-38-2	5	mg/kg	<5	8	41.8	No Limit
		EG005T: Copper	7440-50-8	5	mg/kg	14	16	10.7	No Limit
		EG005T: Lead	7439-92-1	5	mg/kg	<5	<5	0.00	No Limit
		EG005T: Zinc	7440-66-6	5	mg/kg	19	20	7.38	No Limit
EB1622440-011	Anonymous	EG005T: Cadmium	7440-43-9	1	mg/kg	<1	<1	0.00	No Limit
		EG005T: Chromium	7440-47-3	2	mg/kg	31	27	12.8	0% - 50%
		EG005T: Nickel	7440-02-0	2	mg/kg	57	61	7.14	0% - 20%
		EG005T: Arsenic	7440-38-2	5	mg/kg	<5	<5	0.00	No Limit
		EG005T: Copper	7440-50-8	5	mg/kg	31	26	15.6	No Limit
		EG005T: Lead	7439-92-1	5	mg/kg	<5	<5	0.00	No Limit
		EG005T: Zinc	7440-66-6	5	mg/kg	48	44	9.94	No Limit
EG035T: Total Recoverable Mercury by FIMS (QC Lot: 591018)									
EB1622440-001	Anonymous	EG035T: Mercury	7439-97-6	0.1	mg/kg	<0.1	<0.1	0.00	No Limit
EB1622440-011	Anonymous	EG035T: Mercury	7439-97-6	0.1	mg/kg	<0.1	<0.1	0.00	No Limit
EP068A: Organochlorine Pesticides (OC) (QC Lot: 589498)									
ES1620779-041	Anonymous	EP068: alpha-BHC	319-84-6	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Hexachlorobenzene (HCB)	118-74-1	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: beta-BHC	319-85-7	0.05	mg/kg	<0.05	<0.05	0.00	No Limit

Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Client sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Recovery Limits (%)*
EP068A: Organochlorine Pesticides (OC) (QC Lot: 589498) - continued									
ES1620779-041	Anonymous	EP068: gamma-BHC	58-89-9	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: delta-BHC	319-86-8	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Heptachlor	76-44-8	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Aldrin	309-00-2	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Heptachlor epoxide	1024-57-3	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: trans-Chlordane	5103-74-2	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: alpha-Endosulfan	959-98-8	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: cis-Chlordane	5103-71-9	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Dieldrin	60-57-1	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: 4.4`-DDE	72-55-9	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Endrin	72-20-8	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: beta-Endosulfan	33213-65-9	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: 4.4`-DDD	72-54-8	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Endrin aldehyde	7421-93-4	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Endosulfan sulfate	1031-07-8	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Endrin ketone	53494-70-5	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: 4.4`-DDT	50-29-3	0.2	mg/kg	<0.2	<0.2	0.00	No Limit
		EP068: Methoxychlor	72-43-5	0.2	mg/kg	<0.2	<0.2	0.00	No Limit
ES1620761-009	Anonymous	EP068: alpha-BHC	319-84-6	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Hexachlorobenzene (HCB)	118-74-1	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: beta-BHC	319-85-7	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: gamma-BHC	58-89-9	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: delta-BHC	319-86-8	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Heptachlor	76-44-8	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Aldrin	309-00-2	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Heptachlor epoxide	1024-57-3	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: trans-Chlordane	5103-74-2	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: alpha-Endosulfan	959-98-8	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: cis-Chlordane	5103-71-9	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Dieldrin	60-57-1	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: 4.4`-DDE	72-55-9	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Endrin	72-20-8	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: beta-Endosulfan	33213-65-9	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: 4.4`-DDD	72-54-8	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Endrin aldehyde	7421-93-4	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Endosulfan sulfate	1031-07-8	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Endrin ketone	53494-70-5	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: 4.4`-DDT	50-29-3	0.2	mg/kg	<0.2	<0.2	0.00	No Limit
		EP068: Methoxychlor	72-43-5	0.2	mg/kg	<0.2	<0.2	0.00	No Limit
EP068B: Organophosphorus Pesticides (OP) (QC Lot: 589498)									

Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Client sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Recovery Limits (%)*
EP068B: Organophosphorus Pesticides (OP) (QC Lot: 589498) - continued									
ES1620779-041	Anonymous	EP068: Dichlorvos	62-73-7	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Demeton-S-methyl	919-86-8	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Dimethoate	60-51-5	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Diazinon	333-41-5	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Chlorpyrifos-methyl	5598-13-0	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Malathion	121-75-5	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Fenthion	55-38-9	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Chlorpyrifos	2921-88-2	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Pirimphos-ethyl	23505-41-1	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Chlorfenvinphos	470-90-6	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Bromophos-ethyl	4824-78-6	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Fenamiphos	22224-92-6	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Prothiofos	34643-46-4	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Ethion	563-12-2	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Carbophenothion	786-19-6	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Azinphos Methyl	86-50-0	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Monocrotophos	6923-22-4	0.2	mg/kg	<0.2	<0.2	0.00	No Limit
		EP068: Parathion-methyl	298-00-0	0.2	mg/kg	<0.2	<0.2	0.00	No Limit
		EP068: Parathion	56-38-2	0.2	mg/kg	<0.2	<0.2	0.00	No Limit
ES1620761-009	Anonymous	EP068: Dichlorvos	62-73-7	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Demeton-S-methyl	919-86-8	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Dimethoate	60-51-5	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Diazinon	333-41-5	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Chlorpyrifos-methyl	5598-13-0	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Malathion	121-75-5	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Fenthion	55-38-9	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Chlorpyrifos	2921-88-2	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Pirimphos-ethyl	23505-41-1	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Chlorfenvinphos	470-90-6	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Bromophos-ethyl	4824-78-6	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Fenamiphos	22224-92-6	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Prothiofos	34643-46-4	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Ethion	563-12-2	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Carbophenothion	786-19-6	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Azinphos Methyl	86-50-0	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Monocrotophos	6923-22-4	0.2	mg/kg	<0.2	<0.2	0.00	No Limit
		EP068: Parathion-methyl	298-00-0	0.2	mg/kg	<0.2	<0.2	0.00	No Limit
		EP068: Parathion	56-38-2	0.2	mg/kg	<0.2	<0.2	0.00	No Limit
EP075(SIM)A: Phenolic Compounds (QC Lot: 589496)									
ES1620779-041	Anonymous	EP075(SIM): Phenol	108-95-2	0.5	mg/kg	<0.5	<0.5	0.00	No Limit

Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Client sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Recovery Limits (%)*
EP075(SIM)A: Phenolic Compounds (QC Lot: 589496) - continued									
ES1620779-041	Anonymous	EP075(SIM): 2-Chlorophenol	95-57-8	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): 2-Methylphenol	95-48-7	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): 2-Nitrophenol	88-75-5	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): 2.4-Dimethylphenol	105-67-9	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): 2.4-Dichlorophenol	120-83-2	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): 2.6-Dichlorophenol	87-65-0	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): 4-Chloro-3-methylphenol	59-50-7	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): 2.4.6-Trichlorophenol	88-06-2	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): 2.4.5-Trichlorophenol	95-95-4	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): 3- & 4-Methylphenol	1319-77-3	1	mg/kg	<1	<1	0.00	No Limit
		EP075(SIM): Pentachlorophenol	87-86-5	2	mg/kg	<2	<2	0.00	No Limit
ES1620761-009	Anonymous	EP075(SIM): Phenol	108-95-2	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): 2-Chlorophenol	95-57-8	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): 2-Methylphenol	95-48-7	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): 2-Nitrophenol	88-75-5	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): 2.4-Dimethylphenol	105-67-9	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): 2.4-Dichlorophenol	120-83-2	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): 2.6-Dichlorophenol	87-65-0	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): 4-Chloro-3-methylphenol	59-50-7	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): 2.4.6-Trichlorophenol	88-06-2	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): 2.4.5-Trichlorophenol	95-95-4	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): 3- & 4-Methylphenol	1319-77-3	1	mg/kg	<1	<1	0.00	No Limit
		EP075(SIM): Pentachlorophenol	87-86-5	2	mg/kg	<2	<2	0.00	No Limit
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QC Lot: 589496)									
ES1620779-041	Anonymous	EP075(SIM): Naphthalene	91-20-3	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Acenaphthylene	208-96-8	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Acenaphthene	83-32-9	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Fluorene	86-73-7	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Phenanthrene	85-01-8	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Anthracene	120-12-7	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Fluoranthene	206-44-0	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Pyrene	129-00-0	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Benz(a)anthracene	56-55-3	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Chrysene	218-01-9	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Benzo(b+j)fluoranthene	205-99-2 205-82-3	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Benzo(a)pyrene	50-32-8	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Dibenz(a.h)anthracene	53-70-3	0.5	mg/kg	<0.5	<0.5	0.00	No Limit

Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Client sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Recovery Limits (%)*
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QC Lot: 589496) - continued									
ES1620779-041	Anonymous	EP075(SIM): Benzo(g.h.i)perylene	191-24-2	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Sum of polycyclic aromatic hydrocarbons	----	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Benzo(a)pyrene TEQ (zero)	----	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
ES1620761-009	Anonymous	EP075(SIM): Naphthalene	91-20-3	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Acenaphthylene	208-96-8	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Acenaphthene	83-32-9	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Fluorene	86-73-7	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Phenanthrene	85-01-8	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Anthracene	120-12-7	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Fluoranthene	206-44-0	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Pyrene	129-00-0	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Benz(a)anthracene	56-55-3	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Chrysene	218-01-9	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Benzo(b+j)fluoranthene	205-99-2 205-82-3	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Benzo(a)pyrene	50-32-8	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Dibenz(a.h)anthracene	53-70-3	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Benzo(g.h.i)perylene	191-24-2	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Sum of polycyclic aromatic hydrocarbons	----	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Benzo(a)pyrene TEQ (zero)	----	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
EP080/071: Total Petroleum Hydrocarbons (QC Lot: 587976)									
ES1620580-001	Anonymous	EP080: C6 - C9 Fraction	----	10	mg/kg	<10	<10	0.00	No Limit
ES1620580-008	Anonymous	EP080: C6 - C9 Fraction	----	10	mg/kg	<10	<10	0.00	No Limit
EP080/071: Total Petroleum Hydrocarbons (QC Lot: 589495)									
ES1620779-041	Anonymous	EP071: C15 - C28 Fraction	----	100	mg/kg	<100	<100	0.00	No Limit
		EP071: C29 - C36 Fraction	----	100	mg/kg	<100	<100	0.00	No Limit
		EP071: C10 - C14 Fraction	----	50	mg/kg	<50	<50	0.00	No Limit
ES1620761-009	Anonymous	EP071: C15 - C28 Fraction	----	100	mg/kg	<100	<100	0.00	No Limit
		EP071: C29 - C36 Fraction	----	100	mg/kg	<100	<100	0.00	No Limit
		EP071: C10 - C14 Fraction	----	50	mg/kg	<50	<50	0.00	No Limit
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QC Lot: 587976)									
ES1620580-001	Anonymous	EP080: C6 - C10 Fraction	C6_C10	10	mg/kg	<10	<10	0.00	No Limit
ES1620580-008	Anonymous	EP080: C6 - C10 Fraction	C6_C10	10	mg/kg	<10	<10	0.00	No Limit
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QC Lot: 589495)									
ES1620779-041	Anonymous	EP071: >C16 - C34 Fraction	----	100	mg/kg	<100	<100	0.00	No Limit
		EP071: >C34 - C40 Fraction	----	100	mg/kg	<100	<100	0.00	No Limit

Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Client sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Recovery Limits (%)*
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QC Lot: 589495) - continued									
ES1620779-041	Anonymous	EP071: >C10 - C16 Fraction	----	50	mg/kg	<50	<50	0.00	No Limit
ES1620761-009	Anonymous	EP071: >C16 - C34 Fraction	----	100	mg/kg	<100	<100	0.00	No Limit
		EP071: >C34 - C40 Fraction	----	100	mg/kg	<100	<100	0.00	No Limit
		EP071: >C10 - C16 Fraction	----	50	mg/kg	<50	<50	0.00	No Limit
EP080: BTEXN (QC Lot: 587976)									
ES1620580-001	Anonymous	EP080: Benzene	71-43-2	0.2	mg/kg	<0.2	<0.2	0.00	No Limit
		EP080: Toluene	108-88-3	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP080: Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP080: meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP080: ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP080: Naphthalene	91-20-3	1	mg/kg	<1	<1	0.00	No Limit
ES1620580-008	Anonymous	EP080: Benzene	71-43-2	0.2	mg/kg	<0.2	<0.2	0.00	No Limit
		EP080: Toluene	108-88-3	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP080: Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP080: meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP080: ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP080: Naphthalene	91-20-3	1	mg/kg	<1	<1	0.00	No Limit

Method Blank (MB) and Laboratory Control Spike (LCS) Report

The quality control term Method / Laboratory Blank refers to an analyte free matrix to which all reagents are added in the same volumes or proportions as used in standard sample preparation. The purpose of this QC parameter is to monitor potential laboratory contamination. The quality control term Laboratory Control Spike (LCS) refers to a certified reference material, or a known interference free matrix spiked with target analytes. The purpose of this QC parameter is to monitor method precision and accuracy independent of sample matrix. Dynamic Recovery Limits are based on statistical evaluation of processed LCS.

Sub-Matrix: **SOIL**

				Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike	Spike Recovery (%)	Recovery Limits (%)	
Method: Compound	CAS Number	LOR	Unit	Result	Concentration	LCS	Low	High
EG005T: Total Metals by ICP-AES (QCLot: 591017)								
EG005T: Arsenic	7440-38-2	5	mg/kg	<5	21.7 mg/kg	120	86	126
EG005T: Cadmium	7440-43-9	1	mg/kg	<1	4.64 mg/kg	92.1	83	113
EG005T: Chromium	7440-47-3	2	mg/kg	<2	43.9 mg/kg	95.4	76	128
EG005T: Copper	7440-50-8	5	mg/kg	<5	32 mg/kg	93.9	86	120
EG005T: Lead	7439-92-1	5	mg/kg	<5	40 mg/kg	87.1	80	114
EG005T: Nickel	7440-02-0	2	mg/kg	<2	55 mg/kg	102	87	123
EG005T: Zinc	7440-66-6	5	mg/kg	<5	60.8 mg/kg	101	80	122
EG035T: Total Recoverable Mercury by FIMS (QCLot: 591018)								
EG035T: Mercury	7439-97-6	0.1	mg/kg	<0.1	2.57 mg/kg	80.4	70	105
EP068A: Organochlorine Pesticides (OC) (QCLot: 589498)								
EP068: alpha-BHC	319-84-6	0.05	mg/kg	<0.05	0.5 mg/kg	88.2	69	113
EP068: Hexachlorobenzene (HCB)	118-74-1	0.05	mg/kg	<0.05	0.5 mg/kg	87.7	65	117
EP068: beta-BHC	319-85-7	0.05	mg/kg	<0.05	0.5 mg/kg	102	67	119
EP068: gamma-BHC	58-89-9	0.05	mg/kg	<0.05	0.5 mg/kg	102	68	116
EP068: delta-BHC	319-86-8	0.05	mg/kg	<0.05	0.5 mg/kg	106	65	117
EP068: Heptachlor	76-44-8	0.05	mg/kg	<0.05	0.5 mg/kg	104	67	115
EP068: Aldrin	309-00-2	0.05	mg/kg	<0.05	0.5 mg/kg	108	69	115
EP068: Heptachlor epoxide	1024-57-3	0.05	mg/kg	<0.05	0.5 mg/kg	104	62	118
EP068: trans-Chlordane	5103-74-2	0.05	mg/kg	<0.05	0.5 mg/kg	106	63	117
EP068: alpha-Endosulfan	959-98-8	0.05	mg/kg	<0.05	0.5 mg/kg	105	66	116
EP068: cis-Chlordane	5103-71-9	0.05	mg/kg	<0.05	0.5 mg/kg	107	64	116
EP068: Dieldrin	60-57-1	0.05	mg/kg	<0.05	0.5 mg/kg	106	66	116
EP068: 4.4`-DDE	72-55-9	0.05	mg/kg	<0.05	0.5 mg/kg	109	67	115
EP068: Endrin	72-20-8	0.05	mg/kg	<0.05	0.5 mg/kg	109	67	123
EP068: beta-Endosulfan	33213-65-9	0.05	mg/kg	<0.05	0.5 mg/kg	108	69	115
EP068: 4.4`-DDD	72-54-8	0.05	mg/kg	<0.05	0.5 mg/kg	109	69	121
EP068: Endrin aldehyde	7421-93-4	0.05	mg/kg	<0.05	0.5 mg/kg	95.2	56	120
EP068: Endosulfan sulfate	1031-07-8	0.05	mg/kg	<0.05	0.5 mg/kg	101	62	124
EP068: 4.4`-DDT	50-29-3	0.2	mg/kg	<0.2	0.5 mg/kg	85.5	66	120
EP068: Endrin ketone	53494-70-5	0.05	mg/kg	<0.05	0.5 mg/kg	103	64	122
EP068: Methoxychlor	72-43-5	0.2	mg/kg	<0.2	0.5 mg/kg	107	54	130
EP068B: Organophosphorus Pesticides (OP) (QCLot: 589498)								
EP068: Dichlorvos	62-73-7	0.05	mg/kg	<0.05	0.5 mg/kg	106	59	119
EP068: Demeton-S-methyl	919-86-8	0.05	mg/kg	<0.05	0.5 mg/kg	94.4	62	128

Sub-Matrix: **SOIL**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike	Spike Recovery (%)	Recovery Limits (%)	
				Result	Concentration	LCS	Low	High
EP068B: Organophosphorus Pesticides (OP) (QCLot: 589498) - continued								
EP068: Monocrotophos	6923-22-4	0.2	mg/kg	<0.2	0.5 mg/kg	89.3	54	126
EP068: Dimethoate	60-51-5	0.05	mg/kg	<0.05	0.5 mg/kg	98.2	67	119
EP068: Diazinon	333-41-5	0.05	mg/kg	<0.05	0.5 mg/kg	99.8	70	120
EP068: Chlorpyrifos-methyl	5598-13-0	0.05	mg/kg	<0.05	0.5 mg/kg	108	72	120
EP068: Parathion-methyl	298-00-0	0.2	mg/kg	<0.2	0.5 mg/kg	107	68	120
EP068: Malathion	121-75-5	0.05	mg/kg	<0.05	0.5 mg/kg	107	68	122
EP068: Fenthion	55-38-9	0.05	mg/kg	<0.05	0.5 mg/kg	101	69	117
EP068: Chlorpyrifos	2921-88-2	0.05	mg/kg	<0.05	0.5 mg/kg	107	76	118
EP068: Parathion	56-38-2	0.2	mg/kg	<0.2	0.5 mg/kg	108	64	122
EP068: Pirimphos-ethyl	23505-41-1	0.05	mg/kg	<0.05	0.5 mg/kg	103	70	116
EP068: Chlorfenvinphos	470-90-6	0.05	mg/kg	<0.05	0.5 mg/kg	108	69	121
EP068: Bromophos-ethyl	4824-78-6	0.05	mg/kg	<0.05	0.5 mg/kg	105	66	118
EP068: Fenamiphos	22224-92-6	0.05	mg/kg	<0.05	0.5 mg/kg	108	68	124
EP068: Prothiofos	34643-46-4	0.05	mg/kg	<0.05	0.5 mg/kg	109	62	112
EP068: Ethion	563-12-2	0.05	mg/kg	<0.05	0.5 mg/kg	107	68	120
EP068: Carbophenothion	786-19-6	0.05	mg/kg	<0.05	0.5 mg/kg	90.4	65	127
EP068: Azinphos Methyl	86-50-0	0.05	mg/kg	<0.05	0.5 mg/kg	105	41	123
EP075(SIM)A: Phenolic Compounds (QCLot: 589496)								
EP075(SIM): Phenol	108-95-2	0.5	mg/kg	<0.5	6 mg/kg	92.6	71	125
EP075(SIM): 2-Chlorophenol	95-57-8	0.5	mg/kg	<0.5	6 mg/kg	92.0	72	124
EP075(SIM): 2-Methylphenol	95-48-7	0.5	mg/kg	<0.5	6 mg/kg	88.4	71	123
EP075(SIM): 3- & 4-Methylphenol	1319-77-3	1	mg/kg	<1	12 mg/kg	92.5	67	127
EP075(SIM): 2-Nitrophenol	88-75-5	0.5	mg/kg	<0.5	6 mg/kg	90.2	54	114
EP075(SIM): 2.4-Dimethylphenol	105-67-9	0.5	mg/kg	<0.5	6 mg/kg	91.0	68	126
EP075(SIM): 2.4-Dichlorophenol	120-83-2	0.5	mg/kg	<0.5	6 mg/kg	91.0	66	120
EP075(SIM): 2.6-Dichlorophenol	87-65-0	0.5	mg/kg	<0.5	6 mg/kg	89.2	70	120
EP075(SIM): 4-Chloro-3-methylphenol	59-50-7	0.5	mg/kg	<0.5	6 mg/kg	95.0	70	116
EP075(SIM): 2.4.6-Trichlorophenol	88-06-2	0.5	mg/kg	<0.5	6 mg/kg	93.4	54	114
EP075(SIM): 2.4.5-Trichlorophenol	95-95-4	0.5	mg/kg	<0.5	6 mg/kg	89.6	60	114
EP075(SIM): Pentachlorophenol	87-86-5	2	mg/kg	<2	12 mg/kg	24.8	10	57
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 589496)								
EP075(SIM): Naphthalene	91-20-3	0.5	mg/kg	<0.5	6 mg/kg	91.9	77	125
EP075(SIM): Acenaphthylene	208-96-8	0.5	mg/kg	<0.5	6 mg/kg	90.2	72	124
EP075(SIM): Acenaphthene	83-32-9	0.5	mg/kg	<0.5	6 mg/kg	88.4	73	127
EP075(SIM): Fluorene	86-73-7	0.5	mg/kg	<0.5	6 mg/kg	90.5	72	126
EP075(SIM): Phenanthrene	85-01-8	0.5	mg/kg	<0.5	6 mg/kg	90.1	75	127
EP075(SIM): Anthracene	120-12-7	0.5	mg/kg	<0.5	6 mg/kg	90.8	77	127
EP075(SIM): Fluoranthene	206-44-0	0.5	mg/kg	<0.5	6 mg/kg	96.0	73	127
EP075(SIM): Pyrene	129-00-0	0.5	mg/kg	<0.5	6 mg/kg	92.9	74	128

Sub-Matrix: **SOIL**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report: Result	Laboratory Control Spike (LCS) Report: Spike Concentration	Spike Recovery (%): LCS	Recovery Limits (%): Low	Recovery Limits (%): High
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 589496) - continued								
EP075(SIM): Benz(a)anthracene	56-55-3	0.5	mg/kg	<0.5	6 mg/kg	94.2	69	123
EP075(SIM): Chrysene	218-01-9	0.5	mg/kg	<0.5	6 mg/kg	94.4	75	127
EP075(SIM): Benzo(b+j)fluoranthene	205-99-2 205-82-3	0.5	mg/kg	<0.5	6 mg/kg	90.9	68	116
EP075(SIM): Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	<0.5	6 mg/kg	90.6	74	126
EP075(SIM): Benzo(a)pyrene	50-32-8	0.5	mg/kg	<0.5	6 mg/kg	91.3	70	126
EP075(SIM): Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	<0.5	6 mg/kg	89.8	61	121
EP075(SIM): Dibenz(a.h)anthracene	53-70-3	0.5	mg/kg	<0.5	6 mg/kg	93.3	62	118
EP075(SIM): Benzo(g.h.i)perylene	191-24-2	0.5	mg/kg	<0.5	6 mg/kg	90.2	63	121
EP080/071: Total Petroleum Hydrocarbons (QCLot: 587976)								
EP080: C6 - C9 Fraction	----	10	mg/kg	<10	26 mg/kg	107	68	128
EP080/071: Total Petroleum Hydrocarbons (QCLot: 589495)								
EP071: C10 - C14 Fraction	----	50	mg/kg	<50	200 mg/kg	112	75	129
EP071: C15 - C28 Fraction	----	100	mg/kg	<100	300 mg/kg	114	77	131
EP071: C29 - C36 Fraction	----	100	mg/kg	<100	200 mg/kg	108	71	129
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 587976)								
EP080: C6 - C10 Fraction	C6_C10	10	mg/kg	<10	31 mg/kg	104	68	128
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 589495)								
EP071: >C10 - C16 Fraction	----	50	mg/kg	<50	250 mg/kg	114	77	125
EP071: >C16 - C34 Fraction	----	100	mg/kg	<100	350 mg/kg	117	74	138
EP071: >C34 - C40 Fraction	----	100	mg/kg	<100	150 mg/kg	94.2	63	131
EP080: BTEXN (QCLot: 587976)								
EP080: Benzene	71-43-2	0.2	mg/kg	<0.2	1 mg/kg	93.4	62	116
EP080: Toluene	108-88-3	0.5	mg/kg	<0.5	1 mg/kg	94.4	67	121
EP080: Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	1 mg/kg	84.0	65	117
EP080: meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	<0.5	2 mg/kg	89.2	66	118
EP080: ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	1 mg/kg	83.9	68	120
EP080: Naphthalene	91-20-3	1	mg/kg	<1	1 mg/kg	102	63	119

Matrix Spike (MS) Report

The quality control term Matrix Spike (MS) refers to an intralaboratory split sample spiked with a representative set of target analytes. The purpose of this QC parameter is to monitor potential matrix effects on analyte recoveries. Static Recovery Limits as per laboratory Data Quality Objectives (DQOs). Ideal recovery ranges stated may be waived in the event of sample matrix interference.

Sub-Matrix: **SOIL**

Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Matrix Spike (MS) Report: Spike Concentration	SpikeRecovery(%): MS	Recovery Limits (%): Low	Recovery Limits (%): High
EG005T: Total Metals by ICP-AES (QCLot: 591017)							

Sub-Matrix: **SOIL**

				Matrix Spike (MS) Report			
				Spike	SpikeRecovery(%)	Recovery Limits (%)	
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Concentration	MS	Low	High
EG005T: Total Metals by ICP-AES (QCLot: 591017) - continued							
EB1622440-001	Anonymous	EG005T: Arsenic	7440-38-2	50 mg/kg	116	70	130
		EG005T: Cadmium	7440-43-9	50 mg/kg	98.4	70	130
		EG005T: Chromium	7440-47-3	50 mg/kg	99.8	70	130
		EG005T: Copper	7440-50-8	250 mg/kg	99.6	70	130
		EG005T: Lead	7439-92-1	250 mg/kg	109	70	130
		EG005T: Nickel	7440-02-0	50 mg/kg	98.8	70	130
		EG005T: Zinc	7440-66-6	250 mg/kg	102	70	130
EG035T: Total Recoverable Mercury by FIMS (QCLot: 591018)							
EB1622440-001	Anonymous	EG035T: Mercury	7439-97-6	5 mg/kg	86.8	70	130
EP068A: Organochlorine Pesticides (OC) (QCLot: 589498)							
ES1620761-009	Anonymous	EP068: gamma-BHC	58-89-9	0.5 mg/kg	106	70	130
		EP068: Heptachlor	76-44-8	0.5 mg/kg	108	70	130
		EP068: Aldrin	309-00-2	0.5 mg/kg	103	70	130
		EP068: Dieldrin	60-57-1	0.5 mg/kg	101	70	130
		EP068: Endrin	72-20-8	2 mg/kg	102	70	130
		EP068: 4.4`-DDT	50-29-3	2 mg/kg	95.8	70	130
EP068B: Organophosphorus Pesticides (OP) (QCLot: 589498)							
ES1620761-009	Anonymous	EP068: Diazinon	333-41-5	0.5 mg/kg	97.1	70	130
		EP068: Chlorpyrifos-methyl	5598-13-0	0.5 mg/kg	102	70	130
		EP068: Pirimphos-ethyl	23505-41-1	0.5 mg/kg	95.0	70	130
		EP068: Bromophos-ethyl	4824-78-6	0.5 mg/kg	100	70	130
		EP068: Prothiofos	34643-46-4	0.5 mg/kg	101	70	130
EP075(SIM)A: Phenolic Compounds (QCLot: 589496)							
ES1620761-009	Anonymous	EP075(SIM): Phenol	108-95-2	10 mg/kg	83.5	70	130
		EP075(SIM): 2-Chlorophenol	95-57-8	10 mg/kg	81.5	70	130
		EP075(SIM): 2-Nitrophenol	88-75-5	10 mg/kg	80.9	60	130
		EP075(SIM): 4-Chloro-3-methylphenol	59-50-7	10 mg/kg	85.9	70	130
		EP075(SIM): Pentachlorophenol	87-86-5	10 mg/kg	44.2	20	130
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 589496)							
ES1620761-009	Anonymous	EP075(SIM): Acenaphthene	83-32-9	10 mg/kg	80.6	70	130
		EP075(SIM): Pyrene	129-00-0	10 mg/kg	86.0	70	130
EP080/071: Total Petroleum Hydrocarbons (QCLot: 587976)							
ES1620580-001	Anonymous	EP080: C6 - C9 Fraction	----	32.5 mg/kg	103	70	130
EP080/071: Total Petroleum Hydrocarbons (QCLot: 589495)							
ES1620761-009	Anonymous	EP071: C10 - C14 Fraction	----	523 mg/kg	85.6	73	137
		EP071: C15 - C28 Fraction	----	2319 mg/kg	102	53	131
		EP071: C29 - C36 Fraction	----	1714 mg/kg	122	52	132

Sub-Matrix: **SOIL**

				Matrix Spike (MS) Report			
				Spike	SpikeRecovery(%)	Recovery Limits (%)	
Laboratory sample ID	*Client sample ID*	*Method: Compound*	*CAS Number*	*Concentration*	*MS*	*Low*	*High*
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 587976)							
ES1620580-001	Anonymous	EP080: C6 - C10 Fraction	C6_C10	37.5 mg/kg	97.1	70	130
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 589495)							
ES1620761-009	Anonymous	EP071: >C10 - C16 Fraction	----	860 mg/kg	88.9	73	137
		EP071: >C16 - C34 Fraction	----	3223 mg/kg	108	53	131
		EP071: >C34 - C40 Fraction	----	1058 mg/kg	121	52	132
EP080: BTEXN (QCLot: 587976)							
ES1620580-001	Anonymous	EP080: Benzene	71-43-2	2.5 mg/kg	100	70	130
		EP080: Toluene	108-88-3	2.5 mg/kg	95.1	70	130
		EP080: Ethylbenzene	100-41-4	2.5 mg/kg	91.2	70	130
		EP080: meta- & para-Xylene	108-38-3 106-42-3	2.5 mg/kg	88.6	70	130
		EP080: ortho-Xylene	95-47-6	2.5 mg/kg	93.3	70	130
		EP080: Naphthalene	91-20-3	2.5 mg/kg	88.4	70	130

ALS Environmental

QA/QC Compliance Assessment to assist with Quality Review

Work Order	: **ES1620843**	Page	: 1 of 5
Client	: **SMEC AUSTRALIA PTY LTD**	Laboratory	: Environmental Division Sydney
Contact	: RYAN O'LEARY	Telephone	: +61-2-8784 8555
Project	: 3002523-CANBERRA BRICKW ORKS	Date Samples Received	: 16-Sep-2016
Site	: ----	Issue Date	: 23-Sep-2016
Sampler	: ----	No. of samples received	: 1
Order number	: ----	No. of samples analysed	: 1

This report is automatically generated by the ALS LIMS through interpretation of the ALS Quality Control Report and several Quality Assurance parameters measured by ALS. This automated reporting highlights any non-conformances, facilitates faster and more accurate data validation and is designed to assist internal expert and external Auditor review. Many components of this report contribute to the overall DQO assessment and reporting for guideline compliance.

Brief method summaries and references are also provided to assist in traceability.

Summary of Outliers

Outliers : Quality Control Samples

This report highlights outliers flagged in the Quality Control (QC) Report.

- **NO Method Blank value outliers occur.**
- **NO Duplicate outliers occur.**
- **NO Laboratory Control outliers occur.**
- **NO Matrix Spike outliers occur.**
- **For all regular sample matrices, NO surrogate recovery outliers occur.**

Outliers : Analysis Holding Time Compliance

- **NO Analysis Holding Time Outliers exist.**

Outliers : Frequency of Quality Control Samples

- **NO Quality Control Sample Frequency Outliers exist.**

Analysis Holding Time Compliance

If samples are identified below as having been analysed or extracted outside of recommended holding times, this should be taken into consideration when interpreting results.

This report summarizes extraction / preparation and analysis times and compares each with ALS recommended holding times (referencing USEPA SW 846, APHA, AS and NEPM) based on the sample container provided. Dates reported represent first date of extraction or analysis and preclude subsequent dilutions and reruns. A listing of breaches (if any) is provided herein.

Holding time for leachate methods (e.g. TCLP) vary according to the analytes reported. Assessment compares the leach date with the shortest analyte holding time for the equivalent soil method. These are: organics 14 days, mercury 28 days & other metals 180 days. A recorded breach does not guarantee a breach for all non-volatile parameters.

Holding times for ***VOC in soils*** vary according to analytes of interest. Vinyl Chloride and Styrene holding time is 7 days; others 14 days. A recorded breach does not guarantee a breach for all VOC analytes and should be verified in case the reported breach is a false positive or Vinyl Chloride and Styrene are not key analytes of interest/concern.

Matrix: **SOIL**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EA055: Moisture Content							
Miscellaneous Glass Bottle - unpreserved (EA055-103)							
QC11	**17-Sep-2016**	**----**	----	----	**20-Sep-2016**	01-Oct-2016	✓
EA200: AS 4964 - 2004 Identification of Asbestos in Soils							
Snap Lock Bag: Separate bag received (EA200)							
QC11	**17-Sep-2016**	**----**	----	----	**22-Sep-2016**	16-Mar-2017	✓
EG005T: Total Metals by ICP-AES							
Miscellaneous Glass Bottle - unpreserved (EG005T)							
QC11	**17-Sep-2016**	**21-Sep-2016**	16-Mar-2017	✓	**21-Sep-2016**	16-Mar-2017	✓
EG035T: Total Recoverable Mercury by FIMS							
Miscellaneous Glass Bottle - unpreserved (EG035T)							
QC11	**17-Sep-2016**	**21-Sep-2016**	15-Oct-2016	✓	**21-Sep-2016**	15-Oct-2016	✓
EP068A: Organochlorine Pesticides (OC)							
Miscellaneous Glass Bottle - unpreserved (EP068)							
QC11	**17-Sep-2016**	**20-Sep-2016**	01-Oct-2016	✓	**20-Sep-2016**	30-Oct-2016	✓
EP068B: Organophosphorus Pesticides (OP)							
Miscellaneous Glass Bottle - unpreserved (EP068)							
QC11	**17-Sep-2016**	**20-Sep-2016**	01-Oct-2016	✓	**20-Sep-2016**	30-Oct-2016	✓
EP075(SIM)A: Phenolic Compounds							
Miscellaneous Glass Bottle - unpreserved (EP075(SIM))							
QC11	**17-Sep-2016**	**20-Sep-2016**	01-Oct-2016	✓	**20-Sep-2016**	30-Oct-2016	✓
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons							
Miscellaneous Glass Bottle - unpreserved (EP075(SIM))							
QC11	**17-Sep-2016**	**20-Sep-2016**	01-Oct-2016	✓	**20-Sep-2016**	30-Oct-2016	✓
EP080/071: Total Petroleum Hydrocarbons							
Miscellaneous Glass Bottle - unpreserved (EP080)							
QC11	**17-Sep-2016**	**19-Sep-2016**	01-Oct-2016	✓	**20-Sep-2016**	01-Oct-2016	✓
Miscellaneous Glass Bottle - unpreserved (EP071)							
QC11	**17-Sep-2016**	**20-Sep-2016**	01-Oct-2016	✓	**20-Sep-2016**	30-Oct-2016	✓

Matrix: **SOIL**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions							
Miscellaneous Glass Bottle - unpreserved (EP080)							
QC11	**17-Sep-2016**	**19-Sep-2016**	01-Oct-2016	✓	**20-Sep-2016**	01-Oct-2016	✓
Miscellaneous Glass Bottle - unpreserved (EP071)							
QC11	**17-Sep-2016**	**20-Sep-2016**	01-Oct-2016	✓	**20-Sep-2016**	30-Oct-2016	✓
EP080: BTEXN							
Miscellaneous Glass Bottle - unpreserved (EP080)							
QC11	**17-Sep-2016**	**19-Sep-2016**	01-Oct-2016	✓	**20-Sep-2016**	01-Oct-2016	✓

Quality Control Parameter Frequency Compliance

The following report summarises the frequency of laboratory QC samples analysed within the analytical lot(s) in which the submitted sample(s) was(were) processed. Actual rate should be greater than or equal to the expected rate. A listing of breaches is provided in the Summary of Outliers.

Matrix: **SOIL**

Evaluation: × = Quality Control frequency not within specification ; ✓ = Quality Control frequency within specification.

Quality Control Sample Type		Count		Rate (%)			Quality Control Specification
Analytical Methods	*Method*	*QC*	*Regular*	***Actual***	***Expected***	*Evaluation*	
Laboratory Duplicates (DUP)							
Moisture Content	EA055-103	2	20	**10.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
PAH/Phenols (SIM)	EP075(SIM)	2	19	**10.53**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Pesticides by GCMS	EP068	2	19	**10.53**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Mercury by FIMS	EG035T	2	20	**10.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-AES	EG005T	2	20	**10.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	2	20	**10.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	2	19	**10.53**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Laboratory Control Samples (LCS)							
PAH/Phenols (SIM)	EP075(SIM)	1	19	**5.26**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Pesticides by GCMS	EP068	1	19	**5.26**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Mercury by FIMS	EG035T	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-AES	EG005T	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	1	19	**5.26**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Method Blanks (MB)							
PAH/Phenols (SIM)	EP075(SIM)	1	19	**5.26**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Pesticides by GCMS	EP068	1	19	**5.26**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Mercury by FIMS	EG035T	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-AES	EG005T	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	1	19	**5.26**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Matrix Spikes (MS)							
PAH/Phenols (SIM)	EP075(SIM)	1	19	**5.26**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Pesticides by GCMS	EP068	1	19	**5.26**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Mercury by FIMS	EG035T	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-AES	EG005T	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	1	19	**5.26**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard

Brief Method Summaries

The analytical procedures used by the Environmental Division have been developed from established internationally recognized procedures such as those published by the US EPA, APHA, AS and NEPM. In house developed procedures are employed in the absence of documented standards or by client request. The following report provides brief descriptions of the analytical procedures employed for results reported in the Certificate of Analysis. Sources from which ALS methods have been developed are provided within the Method Descriptions.

Analytical Methods	Method	Matrix	Method Descriptions
Moisture Content	EA055-103	SOIL	In house: A gravimetric procedure based on weight loss over a 12 hour drying period at 103-105 degrees C. This method is compliant with NEPM (2013) Schedule B(3) Section 7.1 and Table 1 (14 day holding time).
Asbestos Identification in Soils	EA200	SOIL	AS 4964 - 2004 Method for the qualitative identification of asbestos in bulk samples Analysis by Polarised Light Microscopy including dispersion staining
Total Metals by ICP-AES	EG005T	SOIL	In house: Referenced to APHA 3120; USEPA SW 846 - 6010. Metals are determined following an appropriate acid digestion of the soil. The ICPAES technique ionises samples in a plasma, emitting a characteristic spectrum based on metals present. Intensities at selected wavelengths are compared against those of matrix matched standards. This method is compliant with NEPM (2013) Schedule B(3)
Total Mercury by FIMS	EG035T	SOIL	In house: Referenced to AS 3550, APHA 3112 Hg - B (Flow-injection (SnCl2)(Cold Vapour generation) AAS) FIM-AAS is an automated flameless atomic absorption technique. Mercury in solids are determined following an appropriate acid digestion. Ionic mercury is reduced online to atomic mercury vapour by SnCl2 which is then purged into a heated quartz cell. Quantification is by comparing absorbance against a calibration curve. This method is compliant with NEPM (2013) Schedule B(3)
Pesticides by GCMS	EP068	SOIL	In house: Referenced to USEPA SW 846 - 8270D Extracts are analysed by Capillary GC/MS and quantification is by comparison against an established 5 point calibration curve. This technique is compliant with NEPM (2013) Schedule B(3) (Method 504,505)
TRH - Semivolatile Fraction	EP071	SOIL	In house: Referenced to USEPA SW 846 - 8015A Sample extracts are analysed by Capillary GC/FID and quantified against alkane standards over the range C10 - C40.
PAH/Phenols (SIM)	EP075(SIM)	SOIL	In house: Referenced to USEPA SW 846 - 8270D Extracts are analysed by Capillary GC/MS in Selective Ion Mode (SIM) and quantification is by comparison against an established 5 point calibration curve. This method is compliant with NEPM (2013) Schedule B(3) (Method 502 and 507)
TRH Volatiles/BTEX	EP080	SOIL	In house: Referenced to USEPA SW 846 - 8260B Extracts are analysed by Purge and Trap, Capillary GC/MS. Quantification is by comparison against an established 5 point calibration curve.

Preparation Methods	Method	Matrix	Method Descriptions
Hot Block Digest for metals in soils sediments and sludges	EN69	SOIL	In house: Referenced to USEPA 200.2. Hot Block Acid Digestion 1.0g of sample is heated with Nitric and Hydrochloric acids, then cooled. Peroxide is added and samples heated and cooled again before being filtered and bulked to volume for analysis. Digest is appropriate for determination of selected metals in sludge, sediments, and soils. This method is compliant with NEPM (2013) Schedule B(3) (Method 202)
Methanolic Extraction of Soils for Purge and Trap	* ORG16	SOIL	In house: Referenced to USEPA SW 846 - 5030A. 5g of solid is shaken with surrogate and 10mL methanol prior to analysis by Purge and Trap - GC/MS.
Tumbler Extraction of Solids	ORG17	SOIL	In house: Mechanical agitation (tumbler). 10g of sample, Na2SO4 and surrogate are extracted with 30mL 1:1 DCM/Acetone by end over end tumble. The solvent is decanted, dehydrated and concentrated (by KD) to the desired volume for analysis.

SGS

CHAIN OF CUSTODY & ANALYSIS REQUEST

SGS Environmental Services
Unit 16, 33 Maddox Street
Alexandria NSW 2015
Telephone No: (02) 85940400
Facsimile No: (02) 85940499
Email: [illegible]

Company Name:	SMEC	Project Name/No:	3002523 – Canberra Brickworks
Address:	Suite 2, Level 1, 243 Northbourne Avenue, Lyneham,	Purchase Order No:	
	ACT, 2602, Australia	Results Required By:	Ryan O'Leary
		Telephone:	+61 2 6234 1963 / 0400 240 023
Contact Name:	Ryan O'Leary	Facsimile:	
		Email Results:	Ryan.O'Leary@smec.com

Client Sample ID	Date Sampled	Lab Sample ID	WATER	SOIL		NO OF CONTAINERS	Asbestos ID	BTEXN	OPPs	OCPs	PHAs/Phenols	8 Metals - As, Cd, Cr, Cu, Ni, Pb, Zn, Hg	TPH/TRH	On Hold			Comment
M5_0.9-1.0	15/9/2016			✓		jar								✓			
M5_1.7-1.8	15/9/2016			✓		jar								✓			
M5_3.3-3.4	15/9/2016			✓		jar								✓			
M5_3.5-3.6	15/9/2016			✓		jar								✓			
M5_4.2-4.3	15/9/2016			✓		jar								✓			
QC12	15/9/2016			✓		jar		✓	✓	✓	✓	✓	✓				
QC13	15/9/2016			✓		jar		✓	✓	✓	✓	✓	✓				**Please send to ALS Sydney**
QC14	15/9/2016			✓		jar		✓	✓	✓	✓	✓	✓				

Environmental Division
Sydney
Work Order Reference
ES1621089

Telephone : +61-2-8784 8555

Relinquished By: Ryan O'Leary	Date/Time: 19/9/2016 14:00	Received By: Frank AGS	Date/Time 20-9-16 0800
Relinquished By:	Date/Time:	Received By:	Date/Time
Samples Intact: Yes/ No	Temperature: Ambient / Chilled	Sample Cooler Sealed: Yes/ No	Laboratory Quotation No:
	Comments: AS PER SGS QUOTE NUMBER SY1 – 60413 – 2-IS DATED 13TH APRIL 2016	**STANDARD TAT PLEASE (5 DAY)**	

ES1621089

SGS

CHAIN OF CUSTODY & ANALYSIS REQUEST

SGS Environmental Services
Unit 16, 33 Maddox Street
Alexandria NSW 2015
Telephone No: (02) 85940400
Facsimile No: (02) 85940499
Email: au.samplereceipt.sydney@sgs.com

Company Name:	SMEC	Project Name/No:	3002523 – Canberra Brickworks
Address:	Suite 2, Level 1, 243 Northbourne Avenue, Lyneham,	Purchase Order No:	
	ACT, 2602, Australia	Results Required By:	Ryan O'Leary
		Telephone:	+61 2 6234 1963 / 0400 240 023
Contact Name:	Ryan O'Leary	Facsimile:	
		Email Results:	Ryan.O'Leary@smec.com

Client Sample ID	Date Sampled	Lab Sample ID	WATER	SOIL		NO OF CONTAINERS	Asbestos ID	BTEXN	OPPs	OCPs	PHAs/Phenols	8 Metals - As, Cd, Cr, Cu, Ni, Pb, Zn, Hg	TPH/TRH	On Hold								Comment
QC15 2	15/9/2016			✓		jar		✓	✓	✓	✓	✓	✓									**Please send to ALS Sydney**
HA7_0-0.1	15/9/2016			✓		jar & bag	✓															
HA7_0.2-0.3	15/9/2016			✓		jar		✓	✓	✓	✓	✓	✓									
HA8_0.1-0.2	15/9/2016			✓		jar & bag	✓	✓	✓	✓	✓	✓	✓									
HA22_0-0.1	15/9/2016			✓		jar & bag	✓	✓	✓	✓	✓	✓	✓									

Relinquished By: Ryan O'Leary	Date/Time: 19/9/2016 14:00	Received By: Frank ALS	Date/Time 20-9-16 1600
Relinquished By:	Date/Time:	Received By:	Date/Time
Samples Intact: Yes/ No	Temperature: Ambient / Chilled	Sample Cooler Sealed: Yes/ No	Laboratory Quotation No:
	Comments: AS PER SGS QUOTE NUMBER **SY1 – 60413 – 2-IS DATED 13TH APRIL 2016**	**STANDARD TAT PLEASE (5 DAY)**	

ALS Environmental

SAMPLE RECEIPT NOTIFICATION (SRN)

Work Order : **ES1621089**

Client	: **SMEC AUSTRALIA PTY LTD**	Laboratory	: Environmental Division Sydney
Contact	: RYAN O'LEARY	Contact	:
Address	: P O BOX 1654 FYSHWICK ACT, AUSTRALIA 2609	Address	: 277-289 Woodpark Road Smithfield NSW Australia 2164
E-mail	: ryan.o'leary@smec.com	E-mail	:
Telephone	: +61 02 9925 5555	Telephone	: +61-2-8784 8555
Facsimile	: +61 02 9925 5566	Facsimile	: +61-2-8784 8500
Project	: 3002523 - CANBERRA BRICKWORKS	Page	: 1 of 2
Order number	: ----	Quote number	: ES2015SMEAUS0024 (EN/025/15)
C-O-C number	: ----	QC Level	: NEPM 2013 B3 & ALS QC Standard
Site	: ----		
Sampler	:		

Dates

Date Samples Received	: 20-Sep-2016 4:00 PM	Issue Date	: 21-Sep-2016
Client Requested Due Date	: 27-Sep-2016	Scheduled Reporting Date	: **27-Sep-2016**

Delivery Details

Mode of Delivery	: Undefined	Security Seal	: Intact.
No. of coolers/boxes	: 1	Temperature	: 16.3' C - Ice Bricks present
Receipt Detail	:	No. of samples received / analysed	: 2 / 2

General Comments

- This report contains the following information:
  - Sample Container(s)/Preservation Non-Compliances
  - Summary of Sample(s) and Requested Analysis
  - Proactive Holding Time Report
  - Requested Deliverables
- **Please refer to the Proactive Holding Time Report table below which summarises breaches of recommended holding times that have occurred prior to samples/instructions being received at the laboratory. The absence of this summary table indicates that all samples have been received within the recommended holding times for the analysis requested.**
- **Sample(s) requiring volatile organic compound analysis received in airtight containers (ZHE).**
- Please direct any queries you have regarding this work order to the above ALS laboratory contact.
- Analytical work for this work order will be conducted at ALS Sydney.
- Sample Disposal - Aqueous (14 days), Solid (60 days) from date of completion of work order.

Sample Container(s)/Preservation Non-Compliances

All comparisons are made against pretreatment/preservation AS, APHA, USEPA standards.

- **No sample container / preservation non-compliance exists.**

Summary of Sample(s) and Requested Analysis

Some items described below may be part of a laboratory process necessary for the execution of client requested tasks. Packages may contain additional analyses, such as the determination of moisture content and preparation tasks, that are included in the package.
If no sampling time is provided, the sampling time will default to 15:00 on the date of sampling. If no sampling date is provided, the sampling date will be assumed by the laboratory for processing purposes and will be shown bracketed without a time component.

Matrix: **SOIL**

Laboratory sample ID	Client sampling date / time	Client sample ID	SOIL - EA055-103 Moisture Content	SOIL - S-12 OC/OP Pesticides	SOIL - S-27 TRH/BTEXN/PAH/Phenols/8Metals
ES1621089-001	[15-Sep-2016]	QC13	✓	✓	✓
ES1621089-002	[15-Sep-2016]	QC15	✓	✓	✓

Proactive Holding Time Report

Sample(s) have been received within the recommended holding times for the requested analysis.

Requested Deliverables

RYAN O'LEARY

- *AU Certificate of Analysis - NATA (COA)	Email	ryan.o'leary@smec.com
- *AU Interpretive QC Report - DEFAULT (Anon QCI Rep) (QCI)	Email	ryan.o'leary@smec.com
- *AU QC Report - DEFAULT (Anon QC Rep) - NATA (QC)	Email	ryan.o'leary@smec.com
- A4 - AU Sample Receipt Notification - Environmental HT (SRN)	Email	ryan.o'leary@smec.com
- A4 - AU Tax Invoice (INV)	Email	ryan.o'leary@smec.com
- Chain of Custody (CoC) (COC)	Email	ryan.o'leary@smec.com
- EDI Format - ESDAT (ESDAT)	Email	ryan.o'leary@smec.com

ALS Environmental

CERTIFICATE OF ANALYSIS

Work Order	: **ES1621089**	Page	: 1 of 7
Client	: **SMEC AUSTRALIA PTY LTD**	Laboratory	: Environmental Division Sydney
Contact	: RYAN O'LEARY	Contact	:
Address	: P O BOX 1654 FYSHWICK ACT, AUSTRALIA 2609	Address	: 277-289 Woodpark Road Smithfield NSW Australia 2164
Telephone	: +61 02 9925 5555	Telephone	: +61-2-8784 8555
Project	: 3002523 - CANBERRA BRICKWORKS	Date Samples Received	: 20-Sep-2016 16:00
Order number	: ----	Date Analysis Commenced	: 21-Sep-2016
C-O-C number	: ----	Issue Date	: 27-Sep-2016 15:44
Sampler	: ----		
Site	: ----		
Quote number	: ----		
No. of samples received	: 2		
No. of samples analysed	: 2		

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ISO/IEC 17025 - Testing

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. This document shall not be reproduced, except in full.

This Certificate of Analysis contains the following information:

- General Comments
- Analytical Results
- Surrogate Control Limits

Additional information pertinent to this report will be found in the following separate attachments: Quality Control Report, QA/QC Compliance Assessment to assist with Quality Review and Sample Receipt Notification.

Signatories

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

Signatories	*Position*	*Accreditation Category*
Edwandy Fadjar	Organic Coordinator	Sydney Inorganics, Smithfield, NSW
Edwandy Fadjar	Organic Coordinator	Sydney Organics, Smithfield, NSW
RICHARD TEA	Lab technician	Sydney Inorganics, Smithfield, 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.

Where a result is required to meet compliance limits the associated uncertainty must be considered. Refer to the ALS Contact for details.

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.
~ = Indicates an estimated value.

- 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.

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Client sample ID	QC13	QC15	----	----	----
				Client sampling date / time	[15-Sep-2016]	[15-Sep-2016]	----	----	----
Compound	CAS Number	LOR	Unit		ES1621089-001	ES1621089-002	--------	--------	--------
					Result	Result	----	----	----
EA055: Moisture Content									
Moisture Content (dried @ 103°C)	----	1	%		16.9	10.6	----	----	----
EG005T: Total Metals by ICP-AES									
Arsenic	7440-38-2	5	mg/kg		16	10	----	----	----
Cadmium	7440-43-9	1	mg/kg		<1	<1	----	----	----
Chromium	7440-47-3	2	mg/kg		27	21	----	----	----
Copper	7440-50-8	5	mg/kg		19	30	----	----	----
Lead	7439-92-1	5	mg/kg		31	20	----	----	----
Nickel	7440-02-0	2	mg/kg		24	18	----	----	----
Zinc	7440-66-6	5	mg/kg		72	44	----	----	----
EG035T: Total Recoverable Mercury by FIMS									
Mercury	7439-97-6	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	----	----	----
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	----	----	----

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Client sample ID	QC13	QC15	----	----	----
				Client sampling date / time	[15-Sep-2016]	[15-Sep-2016]	----	----	----
Compound	CAS Number	LOR	Unit		ES1621089-001	ES1621089-002	--------	--------	--------
					Result	Result	----	----	----
EP068A: Organochlorine Pesticides (OC) - Continued									
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	----	----	----
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)A: Phenolic Compounds									
Phenol	108-95-2	0.5	mg/kg		<0.5	<0.5	----	----	----
2-Chlorophenol	95-57-8	0.5	mg/kg		<0.5	<0.5	----	----	----
2-Methylphenol	95-48-7	0.5	mg/kg		<0.5	<0.5	----	----	----
3- & 4-Methylphenol	1319-77-3	1	mg/kg		<1	<1	----	----	----
2-Nitrophenol	88-75-5	0.5	mg/kg		<0.5	<0.5	----	----	----
2.4-Dimethylphenol	105-67-9	0.5	mg/kg		<0.5	<0.5	----	----	----
2.4-Dichlorophenol	120-83-2	0.5	mg/kg		<0.5	<0.5	----	----	----
2.6-Dichlorophenol	87-65-0	0.5	mg/kg		<0.5	<0.5	----	----	----
4-Chloro-3-methylphenol	59-50-7	0.5	mg/kg		<0.5	<0.5	----	----	----
2.4.6-Trichlorophenol	88-06-2	0.5	mg/kg		<0.5	<0.5	----	----	----

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Client sample ID	QC13	QC15	----	----	----
				Client sampling date / time	[15-Sep-2016]	[15-Sep-2016]	----	----	----
Compound	CAS Number	LOR	Unit		ES1621089-001	ES1621089-002	--------	--------	--------
					Result	Result	----	----	----
EP075(SIM)A: Phenolic Compounds - Continued									
2.4.5-Trichlorophenol	95-95-4	0.5	mg/kg		<0.5	<0.5	----	----	----
Pentachlorophenol	87-86-5	2	mg/kg		<2	<2	----	----	----
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons									
Naphthalene	91-20-3	0.5	mg/kg		<0.5	<0.5	----	----	----
Acenaphthylene	208-96-8	0.5	mg/kg		<0.5	<0.5	----	----	----
Acenaphthene	83-32-9	0.5	mg/kg		<0.5	<0.5	----	----	----
Fluorene	86-73-7	0.5	mg/kg		<0.5	<0.5	----	----	----
Phenanthrene	85-01-8	0.5	mg/kg		<0.5	<0.5	----	----	----
Anthracene	120-12-7	0.5	mg/kg		<0.5	<0.5	----	----	----
Fluoranthene	206-44-0	0.5	mg/kg		<0.5	<0.5	----	----	----
Pyrene	129-00-0	0.5	mg/kg		<0.5	<0.5	----	----	----
Benz(a)anthracene	56-55-3	0.5	mg/kg		<0.5	<0.5	----	----	----
Chrysene	218-01-9	0.5	mg/kg		<0.5	<0.5	----	----	----
Benzo(b+j)fluoranthene	205-99-2 205-82-3	0.5	mg/kg		<0.5	<0.5	----	----	----
Benzo(k)fluoranthene	207-08-9	0.5	mg/kg		<0.5	<0.5	----	----	----
Benzo(a)pyrene	50-32-8	0.5	mg/kg		<0.5	<0.5	----	----	----
Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg		<0.5	<0.5	----	----	----
Dibenz(a.h)anthracene	53-70-3	0.5	mg/kg		<0.5	<0.5	----	----	----
Benzo(g.h.i)perylene	191-24-2	0.5	mg/kg		<0.5	<0.5	----	----	----
^ **Sum of polycyclic aromatic hydrocarbons**	----	0.5	mg/kg		<0.5	<0.5	----	----	----
^ **Benzo(a)pyrene TEQ (zero)**	----	0.5	mg/kg		<0.5	<0.5	----	----	----
^ **Benzo(a)pyrene TEQ (half LOR)**	----	0.5	mg/kg		**0.6**	**0.6**	----	----	----
^ **Benzo(a)pyrene TEQ (LOR)**	----	0.5	mg/kg		**1.2**	**1.2**	----	----	----
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		<100	<100	----	----	----
C29 - C36 Fraction	----	100	mg/kg		<100	<100	----	----	----
^ **C10 - C36 Fraction (sum)**	----	50	mg/kg		<50	<50	----	----	----
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		<50	<50	----	----	----

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Client sample ID	QC13	QC15	----	----	----
				Client sampling date / time	[15-Sep-2016]	[15-Sep-2016]	----	----	----
Compound	CAS Number	LOR	Unit		ES1621089-001	ES1621089-002	--------	--------	--------
					Result	Result	----	----	----
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions - Continued									
>C16 - C34 Fraction	----	100	mg/kg		<100	<100	----	----	----
>C34 - C40 Fraction	----	100	mg/kg		<100	<100	----	----	----
^ **>C10 - C40 Fraction (sum)**	----	50	mg/kg		<50	<50	----	----	----
^ **>C10 - C16 Fraction minus Naphthalene (F2)**	----	50	mg/kg		<50	<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	----	----	----
EP068S: Organochlorine Pesticide Surrogate									
Dibromo-DDE	21655-73-2	0.05	%		**127**	**125**	----	----	----
EP068T: Organophosphorus Pesticide Surrogate									
DEF	78-48-8	0.05	%		**64.1**	**63.2**	----	----	----
EP075(SIM)S: Phenolic Compound Surrogates									
Phenol-d6	13127-88-3	0.5	%		**91.5**	**87.8**	----	----	----
2-Chlorophenol-D4	93951-73-6	0.5	%		**80.4**	**83.3**	----	----	----
2.4.6-Tribromophenol	118-79-6	0.5	%		**71.2**	**62.9**	----	----	----
EP075(SIM)T: PAH Surrogates									
2-Fluorobiphenyl	321-60-8	0.5	%		**79.1**	**78.7**	----	----	----
Anthracene-d10	1719-06-8	0.5	%		**106**	**102**	----	----	----
4-Terphenyl-d14	1718-51-0	0.5	%		**96.0**	**92.8**	----	----	----
EP080S: TPH(V)/BTEX Surrogates									
1.2-Dichloroethane-D4	17060-07-0	0.2	%		**95.7**	**101**	----	----	----
Toluene-D8	2037-26-5	0.2	%		**96.8**	**101**	----	----	----
4-Bromofluorobenzene	460-00-4	0.2	%		**87.9**	**93.3**	----	----	----

Surrogate Control Limits

Sub-Matrix: **SOIL**

Compound	CAS Number	Recovery Limits (%) Low	High
EP068S: Organochlorine Pesticide Surrogate			
Dibromo-DDE	21655-73-2	49	147
EP068T: Organophosphorus Pesticide Surrogate			
DEF	78-48-8	35	143
EP075(SIM)S: Phenolic Compound Surrogates			
Phenol-d6	13127-88-3	63	123
2-Chlorophenol-D4	93951-73-6	66	122
2.4.6-Tribromophenol	118-79-6	40	138
EP075(SIM)T: PAH Surrogates			
2-Fluorobiphenyl	321-60-8	70	122
Anthracene-d10	1719-06-8	66	128
4-Terphenyl-d14	1718-51-0	65	129
EP080S: TPH(V)/BTEX Surrogates			
1.2-Dichloroethane-D4	17060-07-0	73	133
Toluene-D8	2037-26-5	74	132
4-Bromofluorobenzene	460-00-4	72	130

ALS Environmental

QUALITY CONTROL REPORT

Work Order	: **ES1621089**	Page	: 1 of 11
Client	: **SMEC AUSTRALIA PTY LTD**	Laboratory	: Environmental Division Sydney
Contact	: RYAN O'LEARY	Contact	:
Address	: P O BOX 1654 FYSHWICK ACT, AUSTRALIA 2609	Address	: 277-289 Woodpark Road Smithfield NSW Australia 2164
Telephone	: +61 02 9925 5555	Telephone	: +61-2-8784 8555
Project	: 3002523 - CANBERRA BRICKWORKS	Date Samples Received	: 20-Sep-2016
Order number	: ----	Date Analysis Commenced	: 21-Sep-2016
C-O-C number	: ----	Issue Date	: 27-Sep-2016
Sampler	: ----		
Site	: ----		
Quote number	: ----		
No. of samples received	: 2		
No. of samples analysed	: 2		

ilac-MRA NATA
Accreditation No. 825
Accredited for compliance with
ISO/IEC 17025 - Testing

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. This document shall not be reproduced, except in full.

This Quality Control Report contains the following information:

- Laboratory Duplicate (DUP) Report; Relative Percentage Difference (RPD) and Acceptance Limits
- Method Blank (MB) and Laboratory Control Spike (LCS) Report; Recovery and Acceptance Limits
- Matrix Spike (MS) Report; Recovery and Acceptance Limits

Signatories

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

Signatories	*Position*	*Accreditation Category*
Edwandy Fadjar	Organic Coordinator	Sydney Inorganics, Smithfield, NSW
Edwandy Fadjar	Organic Coordinator	Sydney Organics, Smithfield, NSW
RICHARD TEA	Lab technician	Sydney Inorganics, Smithfield, 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

Key : Anonymous = Refers to samples which are not specifically part of this work order but formed part of the QC process lot
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
RPD = Relative Percentage Difference
# = Indicates failed QC

Laboratory Duplicate (DUP) Report

The quality control term Laboratory Duplicate refers to a randomly selected intralaboratory split. Laboratory duplicates provide information regarding method precision and sample heterogeneity. The permitted ranges for the Relative Percent Deviation (RPD) of Laboratory Duplicates are specified in ALS Method QWI-EN/38 and are dependent on the magnitude of results in comparison to the level of reporting: Result < 10 times LOR: No Limit; Result between 10 and 20 times LOR: 0% - 50%; Result > 20 times LOR: 0% - 20%.

Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Client sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Recovery Limits (%)*
EA055: Moisture Content (QC Lot: 592940)									
ES1621089-002	QC15	EA055-103: Moisture Content (dried @ 103°C)	----	1	%	10.6	10.7	0.00	0% - 50%
ES1621198-002	Anonymous	EA055-103: Moisture Content (dried @ 103°C)	----	1	%	22.8	21.0	8.09	0% - 20%
EG005T: Total Metals by ICP-AES (QC Lot: 593633)									
ES1620920-027	Anonymous	EG005T: Cadmium	7440-43-9	1	mg/kg	<1	1	0.00	No Limit
		EG005T: Chromium	7440-47-3	2	mg/kg	18	22	20.4	0% - 50%
		EG005T: Nickel	7440-02-0	2	mg/kg	11	12	0.00	No Limit
		EG005T: Arsenic	7440-38-2	5	mg/kg	<5	<5	0.00	No Limit
		EG005T: Copper	7440-50-8	5	mg/kg	97	113	15.8	0% - 20%
		EG005T: Lead	7439-92-1	5	mg/kg	230	250	8.01	0% - 20%
		EG005T: Zinc	7440-66-6	5	mg/kg	467	388	18.4	0% - 20%
ES1620971-015	Anonymous	EG005T: Cadmium	7440-43-9	1	mg/kg	4	4	0.00	No Limit
		EG005T: Chromium	7440-47-3	2	mg/kg	264	257	2.48	0% - 20%
		EG005T: Nickel	7440-02-0	2	mg/kg	82	84	1.68	0% - 20%
		EG005T: Arsenic	7440-38-2	5	mg/kg	21	29	33.2	No Limit
		EG005T: Copper	7440-50-8	5	mg/kg	390	354	9.59	0% - 20%
		EG005T: Lead	7439-92-1	5	mg/kg	4200	4550	7.81	0% - 20%
		EG005T: Zinc	7440-66-6	5	mg/kg	3270	3320	1.47	0% - 20%
EG035T: Total Recoverable Mercury by FIMS (QC Lot: 593634)									
ES1620920-027	Anonymous	EG035T: Mercury	7439-97-6	0.1	mg/kg	0.3	0.3	0.00	No Limit
ES1620971-015	Anonymous	EG035T: Mercury	7439-97-6	0.1	mg/kg	3.0	2.6	16.7	0% - 20%
EP068A: Organochlorine Pesticides (OC) (QC Lot: 590994)									
ES1620971-001	Anonymous	EP068: alpha-BHC	319-84-6	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Hexachlorobenzene (HCB)	118-74-1	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: beta-BHC	319-85-7	0.05	mg/kg	<0.05	<0.05	0.00	No Limit

Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Client sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Recovery Limits (%)*
EP068A: Organochlorine Pesticides (OC) (QC Lot: 590994) - continued									
ES1620971-001	Anonymous	EP068: gamma-BHC	58-89-9	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: delta-BHC	319-86-8	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Heptachlor	76-44-8	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Aldrin	309-00-2	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Heptachlor epoxide	1024-57-3	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: trans-Chlordane	5103-74-2	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: alpha-Endosulfan	959-98-8	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: cis-Chlordane	5103-71-9	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Dieldrin	60-57-1	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: 4.4`-DDE	72-55-9	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Endrin	72-20-8	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: beta-Endosulfan	33213-65-9	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: 4.4`-DDD	72-54-8	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Endrin aldehyde	7421-93-4	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Endosulfan sulfate	1031-07-8	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Endrin ketone	53494-70-5	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: 4.4`-DDT	50-29-3	0.2	mg/kg	<0.2	<0.2	0.00	No Limit
		EP068: Methoxychlor	72-43-5	0.2	mg/kg	<0.2	<0.2	0.00	No Limit
EP068B: Organophosphorus Pesticides (OP) (QC Lot: 590994)									
ES1620971-001	Anonymous	EP068: Dichlorvos	62-73-7	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Demeton-S-methyl	919-86-8	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Dimethoate	60-51-5	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Diazinon	333-41-5	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Chlorpyrifos-methyl	5598-13-0	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Malathion	121-75-5	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Fenthion	55-38-9	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Chlorpyrifos	2921-88-2	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Pirimphos-ethyl	23505-41-1	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Chlorfenvinphos	470-90-6	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Bromophos-ethyl	4824-78-6	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Fenamiphos	22224-92-6	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Prothiofos	34643-46-4	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Ethion	563-12-2	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Carbophenothion	786-19-6	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Azinphos Methyl	86-50-0	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Monocrotophos	6923-22-4	0.2	mg/kg	<0.2	<0.2	0.00	No Limit
		EP068: Parathion-methyl	298-00-0	0.2	mg/kg	<0.2	<0.2	0.00	No Limit
		EP068: Parathion	56-38-2	0.2	mg/kg	<0.2	<0.2	0.00	No Limit
EP075(SIM)A: Phenolic Compounds (QC Lot: 590991)									
ES1621050-001	Anonymous	EP075(SIM): Phenol	108-95-2	0.5	mg/kg	<0.5	<0.5	0.00	No Limit

Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Client sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Recovery Limits (%)*
EP075(SIM)A: Phenolic Compounds (QC Lot: 590991) - continued									
ES1621050-001	Anonymous	EP075(SIM): 2-Chlorophenol	95-57-8	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): 2-Methylphenol	95-48-7	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): 2-Nitrophenol	88-75-5	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): 2.4-Dimethylphenol	105-67-9	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): 2.4-Dichlorophenol	120-83-2	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): 2.6-Dichlorophenol	87-65-0	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): 4-Chloro-3-methylphenol	59-50-7	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): 2.4.6-Trichlorophenol	88-06-2	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): 2.4.5-Trichlorophenol	95-95-4	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): 3- & 4-Methylphenol	1319-77-3	1	mg/kg	<1	<1	0.00	No Limit
		EP075(SIM): Pentachlorophenol	87-86-5	2	mg/kg	<2	<2	0.00	No Limit
ES1620971-001	Anonymous	EP075(SIM): Phenol	108-95-2	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): 2-Chlorophenol	95-57-8	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): 2-Methylphenol	95-48-7	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): 2-Nitrophenol	88-75-5	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): 2.4-Dimethylphenol	105-67-9	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): 2.4-Dichlorophenol	120-83-2	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): 2.6-Dichlorophenol	87-65-0	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): 4-Chloro-3-methylphenol	59-50-7	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): 2.4.6-Trichlorophenol	88-06-2	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): 2.4.5-Trichlorophenol	95-95-4	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): 3- & 4-Methylphenol	1319-77-3	1	mg/kg	<1	<1	0.00	No Limit
		EP075(SIM): Pentachlorophenol	87-86-5	2	mg/kg	<2	<2	0.00	No Limit
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QC Lot: 590991)									
ES1621050-001	Anonymous	EP075(SIM): Naphthalene	91-20-3	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Acenaphthylene	208-96-8	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Acenaphthene	83-32-9	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Fluorene	86-73-7	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Phenanthrene	85-01-8	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Anthracene	120-12-7	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Fluoranthene	206-44-0	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Pyrene	129-00-0	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Benz(a)anthracene	56-55-3	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Chrysene	218-01-9	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Benzo(b+j)fluoranthene	205-99-2 205-82-3	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Benzo(a)pyrene	50-32-8	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Dibenz(a.h)anthracene	53-70-3	0.5	mg/kg	<0.5	<0.5	0.00	No Limit

Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Client sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Recovery Limits (%)*
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QC Lot: 590991) - continued									
ES1621050-001	Anonymous	EP075(SIM): Benzo(g.h.i)perylene	191-24-2	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Sum of polycyclic aromatic hydrocarbons	----	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Benzo(a)pyrene TEQ (zero)	----	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
ES1620971-001	Anonymous	EP075(SIM): Naphthalene	91-20-3	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Acenaphthylene	208-96-8	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Acenaphthene	83-32-9	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Fluorene	86-73-7	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Phenanthrene	85-01-8	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Anthracene	120-12-7	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Fluoranthene	206-44-0	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Pyrene	129-00-0	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Benz(a)anthracene	56-55-3	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Chrysene	218-01-9	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Benzo(b+j)fluoranthene	205-99-2 205-82-3	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Benzo(a)pyrene	50-32-8	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Dibenz(a.h)anthracene	53-70-3	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Benzo(g.h.i)perylene	191-24-2	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Sum of polycyclic aromatic hydrocarbons	----	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Benzo(a)pyrene TEQ (zero)	----	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
EP080/071: Total Petroleum Hydrocarbons (QC Lot: 590990)									
ES1621050-001	Anonymous	EP071: C15 - C28 Fraction	----	100	mg/kg	<100	<100	0.00	No Limit
		EP071: C29 - C36 Fraction	----	100	mg/kg	<100	<100	0.00	No Limit
		EP071: C10 - C14 Fraction	----	50	mg/kg	<50	<50	0.00	No Limit
ES1620971-001	Anonymous	EP071: C15 - C28 Fraction	----	100	mg/kg	<100	<100	0.00	No Limit
		EP071: C29 - C36 Fraction	----	100	mg/kg	<100	<100	0.00	No Limit
		EP071: C10 - C14 Fraction	----	50	mg/kg	<50	<50	0.00	No Limit
EP080/071: Total Petroleum Hydrocarbons (QC Lot: 592479)									
ES1620921-027	Anonymous	EP080: C6 - C9 Fraction	----	10	mg/kg	<10	<10	0.00	No Limit
ES1621151-002	Anonymous	EP080: C6 - C9 Fraction	----	10	mg/kg	<10	<10	0.00	No Limit
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QC Lot: 590990)									
ES1621050-001	Anonymous	EP071: >C16 - C34 Fraction	----	100	mg/kg	<100	<100	0.00	No Limit
		EP071: >C34 - C40 Fraction	----	100	mg/kg	<100	<100	0.00	No Limit
		EP071: >C10 - C16 Fraction	----	50	mg/kg	<50	<50	0.00	No Limit
ES1620971-001	Anonymous	EP071: >C16 - C34 Fraction	----	100	mg/kg	<100	<100	0.00	No Limit
		EP071: >C34 - C40 Fraction	----	100	mg/kg	<100	<100	0.00	No Limit

Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Client sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Recovery Limits (%)*
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QC Lot: 590990) - continued									
ES1620971-001	Anonymous	EP071: >C10 - C16 Fraction	----	50	mg/kg	<50	<50	0.00	No Limit
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QC Lot: 592479)									
ES1620921-027	Anonymous	EP080: C6 - C10 Fraction	C6_C10	10	mg/kg	<10	<10	0.00	No Limit
ES1621151-002	Anonymous	EP080: C6 - C10 Fraction	C6_C10	10	mg/kg	<10	<10	0.00	No Limit
EP080: BTEXN (QC Lot: 592479)									
ES1620921-027	Anonymous	EP080: Benzene	71-43-2	0.2	mg/kg	<0.2	<0.2	0.00	No Limit
		EP080: Toluene	108-88-3	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP080: Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP080: meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP080: ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP080: Naphthalene	91-20-3	1	mg/kg	<1	<1	0.00	No Limit
ES1621151-002	Anonymous	EP080: Benzene	71-43-2	0.2	mg/kg	<0.2	<0.2	0.00	No Limit
		EP080: Toluene	108-88-3	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP080: Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP080: meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP080: ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP080: Naphthalene	91-20-3	1	mg/kg	<1	<1	0.00	No Limit

Method Blank (MB) and Laboratory Control Spike (LCS) Report

The quality control term Method / Laboratory Blank refers to an analyte free matrix to which all reagents are added in the same volumes or proportions as used in standard sample preparation. The purpose of this QC parameter is to monitor potential laboratory contamination. The quality control term Laboratory Control Spike (LCS) refers to a certified reference material, or a known interference free matrix spiked with target analytes. The purpose of this QC parameter is to monitor method precision and accuracy independent of sample matrix. Dynamic Recovery Limits are based on statistical evaluation of processed LCS.

Sub-Matrix: **SOIL**

				Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike	Spike Recovery (%)	Recovery Limits (%)	
Method: Compound	CAS Number	LOR	Unit	Result	Concentration	LCS	Low	High
EG005T: Total Metals by ICP-AES (QCLot: 593633)								
EG005T: Arsenic	7440-38-2	5	mg/kg	<5	21.7 mg/kg	104	86	126
EG005T: Cadmium	7440-43-9	1	mg/kg	<1	4.64 mg/kg	99.3	83	113
EG005T: Chromium	7440-47-3	2	mg/kg	<2	43.9 mg/kg	97.5	76	128
EG005T: Copper	7440-50-8	5	mg/kg	<5	32 mg/kg	102	86	120
EG005T: Lead	7439-92-1	5	mg/kg	<5	40 mg/kg	97.5	80	114
EG005T: Nickel	7440-02-0	2	mg/kg	<2	55 mg/kg	104	87	123
EG005T: Zinc	7440-66-6	5	mg/kg	<5	60.8 mg/kg	110	80	122
EG035T: Total Recoverable Mercury by FIMS (QCLot: 593634)								
EG035T: Mercury	7439-97-6	0.1	mg/kg	<0.1	2.57 mg/kg	77.1	70	105
EP068A: Organochlorine Pesticides (OC) (QCLot: 590994)								
EP068: alpha-BHC	319-84-6	0.05	mg/kg	<0.05	0.5 mg/kg	98.8	69	113
EP068: Hexachlorobenzene (HCB)	118-74-1	0.05	mg/kg	<0.05	0.5 mg/kg	105	65	117
EP068: beta-BHC	319-85-7	0.05	mg/kg	<0.05	0.5 mg/kg	97.1	67	119
EP068: gamma-BHC	58-89-9	0.05	mg/kg	<0.05	0.5 mg/kg	104	68	116
EP068: delta-BHC	319-86-8	0.05	mg/kg	<0.05	0.5 mg/kg	98.0	65	117
EP068: Heptachlor	76-44-8	0.05	mg/kg	<0.05	0.5 mg/kg	93.3	67	115
EP068: Aldrin	309-00-2	0.05	mg/kg	<0.05	0.5 mg/kg	84.3	69	115
EP068: Heptachlor epoxide	1024-57-3	0.05	mg/kg	<0.05	0.5 mg/kg	88.5	62	118
EP068: trans-Chlordane	5103-74-2	0.05	mg/kg	<0.05	0.5 mg/kg	95.8	63	117
EP068: alpha-Endosulfan	959-98-8	0.05	mg/kg	<0.05	0.5 mg/kg	98.8	66	116
EP068: cis-Chlordane	5103-71-9	0.05	mg/kg	<0.05	0.5 mg/kg	99.4	64	116
EP068: Dieldrin	60-57-1	0.05	mg/kg	<0.05	0.5 mg/kg	103	66	116
EP068: 4.4`-DDE	72-55-9	0.05	mg/kg	<0.05	0.5 mg/kg	104	67	115
EP068: Endrin	72-20-8	0.05	mg/kg	<0.05	0.5 mg/kg	99.0	67	123
EP068: beta-Endosulfan	33213-65-9	0.05	mg/kg	<0.05	0.5 mg/kg	100	69	115
EP068: 4.4`-DDD	72-54-8	0.05	mg/kg	<0.05	0.5 mg/kg	106	69	121
EP068: Endrin aldehyde	7421-93-4	0.05	mg/kg	<0.05	0.5 mg/kg	103	56	120
EP068: Endosulfan sulfate	1031-07-8	0.05	mg/kg	<0.05	0.5 mg/kg	80.4	62	124
EP068: 4.4`-DDT	50-29-3	0.2	mg/kg	<0.2	0.5 mg/kg	103	66	120
EP068: Endrin ketone	53494-70-5	0.05	mg/kg	<0.05	0.5 mg/kg	103	64	122
EP068: Methoxychlor	72-43-5	0.2	mg/kg	<0.2	0.5 mg/kg	108	54	130
EP068B: Organophosphorus Pesticides (OP) (QCLot: 590994)								
EP068: Dichlorvos	62-73-7	0.05	mg/kg	<0.05	0.5 mg/kg	95.6	59	119
EP068: Demeton-S-methyl	919-86-8	0.05	mg/kg	<0.05	0.5 mg/kg	100	62	128

Sub-Matrix: **SOIL**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike	Spike Recovery (%)	Recovery Limits (%)	
				Result	Concentration	LCS	Low	High
EP068B: Organophosphorus Pesticides (OP) (QCLot: 590994) - continued								
EP068: Monocrotophos	6923-22-4	0.2	mg/kg	<0.2	0.5 mg/kg	100	54	126
EP068: Dimethoate	60-51-5	0.05	mg/kg	<0.05	0.5 mg/kg	89.3	67	119
EP068: Diazinon	333-41-5	0.05	mg/kg	<0.05	0.5 mg/kg	97.7	70	120
EP068: Chlorpyrifos-methyl	5598-13-0	0.05	mg/kg	<0.05	0.5 mg/kg	103	72	120
EP068: Parathion-methyl	298-00-0	0.2	mg/kg	<0.2	0.5 mg/kg	99.2	68	120
EP068: Malathion	121-75-5	0.05	mg/kg	<0.05	0.5 mg/kg	86.8	68	122
EP068: Fenthion	55-38-9	0.05	mg/kg	<0.05	0.5 mg/kg	87.0	69	117
EP068: Chlorpyrifos	2921-88-2	0.05	mg/kg	<0.05	0.5 mg/kg	92.2	76	118
EP068: Parathion	56-38-2	0.2	mg/kg	<0.2	0.5 mg/kg	82.9	64	122
EP068: Pirimphos-ethyl	23505-41-1	0.05	mg/kg	<0.05	0.5 mg/kg	82.9	70	116
EP068: Chlorfenvinphos	470-90-6	0.05	mg/kg	<0.05	0.5 mg/kg	84.6	69	121
EP068: Bromophos-ethyl	4824-78-6	0.05	mg/kg	<0.05	0.5 mg/kg	96.2	66	118
EP068: Fenamiphos	22224-92-6	0.05	mg/kg	<0.05	0.5 mg/kg	95.8	68	124
EP068: Prothiofos	34643-46-4	0.05	mg/kg	<0.05	0.5 mg/kg	100	62	112
EP068: Ethion	563-12-2	0.05	mg/kg	<0.05	0.5 mg/kg	104	68	120
EP068: Carbophenothion	786-19-6	0.05	mg/kg	<0.05	0.5 mg/kg	92.4	65	127
EP068: Azinphos Methyl	86-50-0	0.05	mg/kg	<0.05	0.5 mg/kg	93.2	41	123
EP075(SIM)A: Phenolic Compounds (QCLot: 590991)								
EP075(SIM): Phenol	108-95-2	0.5	mg/kg	<0.5	6 mg/kg	86.4	71	125
EP075(SIM): 2-Chlorophenol	95-57-8	0.5	mg/kg	<0.5	6 mg/kg	97.2	72	124
EP075(SIM): 2-Methylphenol	95-48-7	0.5	mg/kg	<0.5	6 mg/kg	86.4	71	123
EP075(SIM): 3- & 4-Methylphenol	1319-77-3	1	mg/kg	<1	12 mg/kg	89.5	67	127
EP075(SIM): 2-Nitrophenol	88-75-5	0.5	mg/kg	<0.5	6 mg/kg	64.6	54	114
EP075(SIM): 2.4-Dimethylphenol	105-67-9	0.5	mg/kg	<0.5	6 mg/kg	95.4	68	126
EP075(SIM): 2.4-Dichlorophenol	120-83-2	0.5	mg/kg	<0.5	6 mg/kg	94.9	66	120
EP075(SIM): 2.6-Dichlorophenol	87-65-0	0.5	mg/kg	<0.5	6 mg/kg	91.0	70	120
EP075(SIM): 4-Chloro-3-methylphenol	59-50-7	0.5	mg/kg	<0.5	6 mg/kg	96.4	70	116
EP075(SIM): 2.4.6-Trichlorophenol	88-06-2	0.5	mg/kg	<0.5	6 mg/kg	73.6	54	114
EP075(SIM): 2.4.5-Trichlorophenol	95-95-4	0.5	mg/kg	<0.5	6 mg/kg	77.9	60	114
EP075(SIM): Pentachlorophenol	87-86-5	2	mg/kg	<2	12 mg/kg	15.8	10	57
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 590991)								
EP075(SIM): Naphthalene	91-20-3	0.5	mg/kg	<0.5	6 mg/kg	102	77	125
EP075(SIM): Acenaphthylene	208-96-8	0.5	mg/kg	<0.5	6 mg/kg	96.8	72	124
EP075(SIM): Acenaphthene	83-32-9	0.5	mg/kg	<0.5	6 mg/kg	101	73	127
EP075(SIM): Fluorene	86-73-7	0.5	mg/kg	<0.5	6 mg/kg	98.6	72	126
EP075(SIM): Phenanthrene	85-01-8	0.5	mg/kg	<0.5	6 mg/kg	102	75	127
EP075(SIM): Anthracene	120-12-7	0.5	mg/kg	<0.5	6 mg/kg	101	77	127
EP075(SIM): Fluoranthene	206-44-0	0.5	mg/kg	<0.5	6 mg/kg	102	73	127
EP075(SIM): Pyrene	129-00-0	0.5	mg/kg	<0.5	6 mg/kg	102	74	128

Sub-Matrix: **SOIL**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report: Result	Laboratory Control Spike (LCS) Report: Spike Concentration	Spike Recovery (%): LCS	Recovery Limits (%): Low	Recovery Limits (%): High
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 590991) - continued								
EP075(SIM): Benz(a)anthracene	56-55-3	0.5	mg/kg	<0.5	6 mg/kg	100	69	123
EP075(SIM): Chrysene	218-01-9	0.5	mg/kg	<0.5	6 mg/kg	104	75	127
EP075(SIM): Benzo(b+j)fluoranthene	205-99-2 205-82-3	0.5	mg/kg	<0.5	6 mg/kg	95.6	68	116
EP075(SIM): Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	<0.5	6 mg/kg	103	74	126
EP075(SIM): Benzo(a)pyrene	50-32-8	0.5	mg/kg	<0.5	6 mg/kg	103	70	126
EP075(SIM): Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	<0.5	6 mg/kg	83.7	61	121
EP075(SIM): Dibenz(a.h)anthracene	53-70-3	0.5	mg/kg	<0.5	6 mg/kg	82.7	62	118
EP075(SIM): Benzo(g.h.i)perylene	191-24-2	0.5	mg/kg	<0.5	6 mg/kg	75.6	63	121
EP080/071: Total Petroleum Hydrocarbons (QCLot: 590990)								
EP071: C10 - C14 Fraction	----	50	mg/kg	<50	200 mg/kg	97.3	75	129
EP071: C15 - C28 Fraction	----	100	mg/kg	<100	300 mg/kg	106	77	131
EP071: C29 - C36 Fraction	----	100	mg/kg	<100	200 mg/kg	105	71	129
EP080/071: Total Petroleum Hydrocarbons (QCLot: 592479)								
EP080: C6 - C9 Fraction	----	10	mg/kg	<10	26 mg/kg	72.3	68	128
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 590990)								
EP071: >C10 - C16 Fraction	----	50	mg/kg	<50	250 mg/kg	108	77	125
EP071: >C16 - C34 Fraction	----	100	mg/kg	<100	350 mg/kg	106	74	138
EP071: >C34 - C40 Fraction	----	100	mg/kg	<100	150 mg/kg	98.1	63	131
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 592479)								
EP080: C6 - C10 Fraction	C6_C10	10	mg/kg	<10	31 mg/kg	71.8	68	128
EP080: BTEXN (QCLot: 592479)								
EP080: Benzene	71-43-2	0.2	mg/kg	<0.2	1 mg/kg	76.1	62	116
EP080: Toluene	108-88-3	0.5	mg/kg	<0.5	1 mg/kg	73.5	67	121
EP080: Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	1 mg/kg	75.9	65	117
EP080: meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	<0.5	2 mg/kg	77.7	66	118
EP080: ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	1 mg/kg	79.7	68	120
EP080: Naphthalene	91-20-3	1	mg/kg	<1	1 mg/kg	112	63	119

Matrix Spike (MS) Report

The quality control term Matrix Spike (MS) refers to an intralaboratory split sample spiked with a representative set of target analytes. The purpose of this QC parameter is to monitor potential matrix effects on analyte recoveries. Static Recovery Limits as per laboratory Data Quality Objectives (DQOs). Ideal recovery ranges stated may be waived in the event of sample matrix interference.

Sub-Matrix: **SOIL**

Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Matrix Spike (MS) Report: Spike Concentration	SpikeRecovery(%): MS	Recovery Limits (%): Low	Recovery Limits (%): High
EG005T: Total Metals by ICP-AES (QCLot: 593633)							

Sub-Matrix: **SOIL**

				Matrix Spike (MS) Report			
				Spike	SpikeRecovery(%)	Recovery Limits (%)	
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Concentration	MS	Low	High
EG005T: Total Metals by ICP-AES (QCLot: 593633) - continued							
ES1620920-027	Anonymous	EG005T: Arsenic	7440-38-2	50 mg/kg	98.7	70	130
		EG005T: Cadmium	7440-43-9	50 mg/kg	97.5	70	130
		EG005T: Chromium	7440-47-3	50 mg/kg	96.3	70	130
		EG005T: Copper	7440-50-8	250 mg/kg	110	70	130
		EG005T: Lead	7439-92-1	250 mg/kg	92.0	70	130
		EG005T: Nickel	7440-02-0	50 mg/kg	97.7	70	130
		EG005T: Zinc	7440-66-6	250 mg/kg	70.9	70	130
EG035T: Total Recoverable Mercury by FIMS (QCLot: 593634)							
ES1620920-027	Anonymous	EG035T: Mercury	7439-97-6	5 mg/kg	78.3	70	130
EP068A: Organochlorine Pesticides (OC) (QCLot: 590994)							
ES1620971-001	Anonymous	EP068: gamma-BHC	58-89-9	0.5 mg/kg	103	70	130
		EP068: Heptachlor	76-44-8	0.5 mg/kg	104	70	130
		EP068: Aldrin	309-00-2	0.5 mg/kg	97.3	70	130
		EP068: Dieldrin	60-57-1	0.5 mg/kg	102	70	130
		EP068: Endrin	72-20-8	2 mg/kg	102	70	130
		EP068: 4.4`-DDT	50-29-3	2 mg/kg	102	70	130
EP068B: Organophosphorus Pesticides (OP) (QCLot: 590994)							
ES1620971-001	Anonymous	EP068: Diazinon	333-41-5	0.5 mg/kg	100	70	130
		EP068: Chlorpyrifos-methyl	5598-13-0	0.5 mg/kg	106	70	130
		EP068: Pirimphos-ethyl	23505-41-1	0.5 mg/kg	103	70	130
		EP068: Bromophos-ethyl	4824-78-6	0.5 mg/kg	105	70	130
		EP068: Prothiofos	34643-46-4	0.5 mg/kg	102	70	130
EP075(SIM)A: Phenolic Compounds (QCLot: 590991)							
ES1620971-001	Anonymous	EP075(SIM): Phenol	108-95-2	10 mg/kg	87.9	70	130
		EP075(SIM): 2-Chlorophenol	95-57-8	10 mg/kg	90.2	70	130
		EP075(SIM): 2-Nitrophenol	88-75-5	10 mg/kg	79.2	60	130
		EP075(SIM): 4-Chloro-3-methylphenol	59-50-7	10 mg/kg	93.0	70	130
		EP075(SIM): Pentachlorophenol	87-86-5	10 mg/kg	42.1	20	130
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 590991)							
ES1620971-001	Anonymous	EP075(SIM): Acenaphthene	83-32-9	10 mg/kg	89.2	70	130
		EP075(SIM): Pyrene	129-00-0	10 mg/kg	95.8	70	130
EP080/071: Total Petroleum Hydrocarbons (QCLot: 590990)							
ES1620971-001	Anonymous	EP071: C10 - C14 Fraction	----	523 mg/kg	84.1	73	137
		EP071: C15 - C28 Fraction	----	2319 mg/kg	95.0	53	131
		EP071: C29 - C36 Fraction	----	1714 mg/kg	112	52	132
EP080/071: Total Petroleum Hydrocarbons (QCLot: 592479)							
ES1620921-027	Anonymous	EP080: C6 - C9 Fraction	----	32.5 mg/kg	79.0	70	130

Sub-Matrix: **SOIL**

				Matrix Spike (MS) Report			
				Spike	SpikeRecovery(%)	Recovery Limits (%)	
Laboratory sample ID	*Client sample ID*	*Method: Compound*	*CAS Number*	*Concentration*	*MS*	*Low*	*High*
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 590990)							
ES1620971-001	Anonymous	EP071: >C10 - C16 Fraction	----	860 mg/kg	93.0	73	137
		EP071: >C16 - C34 Fraction	----	3223 mg/kg	103	53	131
		EP071: >C34 - C40 Fraction	----	1058 mg/kg	109	52	132
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 592479)							
ES1620921-027	Anonymous	EP080: C6 - C10 Fraction	C6_C10	37.5 mg/kg	78.0	70	130
EP080: BTEXN (QCLot: 592479)							
ES1620921-027	Anonymous	EP080: Benzene	71-43-2	2.5 mg/kg	79.3	70	130
		EP080: Toluene	108-88-3	2.5 mg/kg	70.7	70	130
		EP080: Ethylbenzene	100-41-4	2.5 mg/kg	81.0	70	130
		EP080: meta- & para-Xylene	108-38-3 106-42-3	2.5 mg/kg	80.3	70	130
		EP080: ortho-Xylene	95-47-6	2.5 mg/kg	84.6	70	130
		EP080: Naphthalene	91-20-3	2.5 mg/kg	82.6	70	130

ALS Environmental

QA/QC Compliance Assessment to assist with Quality Review

Work Order	: **ES1621089**	Page	: 1 of 5
Client	: **SMEC AUSTRALIA PTY LTD**	Laboratory	: Environmental Division Sydney
Contact	: RYAN O'LEARY	Telephone	: +61-2-8784 8555
Project	: 3002523 - CANBERRA BRICKWORKS	Date Samples Received	: 20-Sep-2016
Site	: ----	Issue Date	: 27-Sep-2016
Sampler	: ----	No. of samples received	: 2
Order number	: ----	No. of samples analysed	: 2

This report is automatically generated by the ALS LIMS through interpretation of the ALS Quality Control Report and several Quality Assurance parameters measured by ALS. This automated reporting highlights any non-conformances, facilitates faster and more accurate data validation and is designed to assist internal expert and external Auditor review. Many components of this report contribute to the overall DQO assessment and reporting for guideline compliance.

Brief method summaries and references are also provided to assist in traceability.

Summary of Outliers

Outliers : Quality Control Samples

This report highlights outliers flagged in the Quality Control (QC) Report.

- **NO Method Blank value outliers occur.**
- **NO Duplicate outliers occur.**
- **NO Laboratory Control outliers occur.**
- **NO Matrix Spike outliers occur.**
- **For all regular sample matrices, NO surrogate recovery outliers occur.**

Outliers : Analysis Holding Time Compliance

- **NO Analysis Holding Time Outliers exist.**

Outliers : Frequency of Quality Control Samples

- **NO Quality Control Sample Frequency Outliers exist.**

Analysis Holding Time Compliance

If samples are identified below as having been analysed or extracted outside of recommended holding times, this should be taken into consideration when interpreting results.

This report summarizes extraction / preparation and analysis times and compares each with ALS recommended holding times (referencing USEPA SW 846, APHA, AS and NEPM) based on the sample container provided. Dates reported represent first date of extraction or analysis and preclude subsequent dilutions and reruns. A listing of breaches (if any) is provided herein.

Holding time for leachate methods (e.g. TCLP) vary according to the analytes reported. Assessment compares the leach date with the shortest analyte holding time for the equivalent soil method. These are: organics 14 days, mercury 28 days & other metals 180 days. A recorded breach does not guarantee a breach for all non-volatile parameters.

Holding times for ***VOC in soils*** vary according to analytes of interest. Vinyl Chloride and Styrene holding time is 7 days; others 14 days. A recorded breach does not guarantee a breach for all VOC analytes and should be verified in case the reported breach is a false positive or Vinyl Chloride and Styrene are not key analytes of interest/concern.

Matrix: **SOIL**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / Container / Client Sample ID(s)		Sample Date	Extraction / Preparation			Analysis		
			Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EA055: Moisture Content								
Soil Glass Jar - Unpreserved (EA055-103)								
QC13,	QC15	**15-Sep-2016**	**----**	----	----	**22-Sep-2016**	29-Sep-2016	✓
EG005T: Total Metals by ICP-AES								
Soil Glass Jar - Unpreserved (EG005T)								
QC13,	QC15	**15-Sep-2016**	**22-Sep-2016**	14-Mar-2017	✓	**23-Sep-2016**	14-Mar-2017	✓
EG035T: Total Recoverable Mercury by FIMS								
Soil Glass Jar - Unpreserved (EG035T)								
QC13,	QC15	**15-Sep-2016**	**22-Sep-2016**	13-Oct-2016	✓	**23-Sep-2016**	13-Oct-2016	✓
EP068A: Organochlorine Pesticides (OC)								
Soil Glass Jar - Unpreserved (EP068)								
QC13,	QC15	**15-Sep-2016**	**21-Sep-2016**	29-Sep-2016	✓	**22-Sep-2016**	31-Oct-2016	✓
EP068B: Organophosphorus Pesticides (OP)								
Soil Glass Jar - Unpreserved (EP068)								
QC13,	QC15	**15-Sep-2016**	**21-Sep-2016**	29-Sep-2016	✓	**22-Sep-2016**	31-Oct-2016	✓
EP075(SIM)A: Phenolic Compounds								
Soil Glass Jar - Unpreserved (EP075(SIM))								
QC13,	QC15	**15-Sep-2016**	**21-Sep-2016**	29-Sep-2016	✓	**22-Sep-2016**	31-Oct-2016	✓
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons								
Soil Glass Jar - Unpreserved (EP075(SIM))								
QC13,	QC15	**15-Sep-2016**	**21-Sep-2016**	29-Sep-2016	✓	**22-Sep-2016**	31-Oct-2016	✓
EP080/071: Total Petroleum Hydrocarbons								
Soil Glass Jar - Unpreserved (EP071)								
QC13,	QC15	**15-Sep-2016**	**21-Sep-2016**	29-Sep-2016	✓	**22-Sep-2016**	31-Oct-2016	✓
Soil Glass Jar - Unpreserved (EP080)								
QC13,	QC15	**15-Sep-2016**	**22-Sep-2016**	29-Sep-2016	✓	**23-Sep-2016**	29-Sep-2016	✓
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions								
Soil Glass Jar - Unpreserved (EP071)								
QC13,	QC15	**15-Sep-2016**	**21-Sep-2016**	29-Sep-2016	✓	**22-Sep-2016**	31-Oct-2016	✓
Soil Glass Jar - Unpreserved (EP080)								
QC13,	QC15	**15-Sep-2016**	**22-Sep-2016**	29-Sep-2016	✓	**23-Sep-2016**	29-Sep-2016	✓

Matrix: **SOIL**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EP080: BTEXN							
Soil Glass Jar - Unpreserved (EP080)							
QC13, QC15	**15-Sep-2016**	**22-Sep-2016**	29-Sep-2016	✓	**23-Sep-2016**	29-Sep-2016	✓

Quality Control Parameter Frequency Compliance

The following report summarises the frequency of laboratory QC samples analysed within the analytical lot(s) in which the submitted sample(s) was(were) processed. Actual rate should be greater than or equal to the expected rate. A listing of breaches is provided in the Summary of Outliers.

Matrix: **SOIL**

Evaluation: × = Quality Control frequency not within specification ; ✓ = Quality Control frequency within specification.

Quality Control Sample Type		Count		Rate (%)			Quality Control Specification
Analytical Methods	*Method*	*QC*	*Regular*	***Actual***	***Expected***	*Evaluation*	
Laboratory Duplicates (DUP)							
Moisture Content	EA055-103	2	15	**13.33**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
PAH/Phenols (SIM)	EP075(SIM)	2	14	**14.29**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Pesticides by GCMS	EP068	1	8	**12.50**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Mercury by FIMS	EG035T	2	18	**11.11**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-AES	EG005T	2	19	**10.53**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	2	14	**14.29**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	2	14	**14.29**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Laboratory Control Samples (LCS)							
PAH/Phenols (SIM)	EP075(SIM)	1	14	**7.14**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Pesticides by GCMS	EP068	1	8	**12.50**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Mercury by FIMS	EG035T	1	18	**5.56**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-AES	EG005T	1	19	**5.26**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	1	14	**7.14**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	1	14	**7.14**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Method Blanks (MB)							
PAH/Phenols (SIM)	EP075(SIM)	1	14	**7.14**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Pesticides by GCMS	EP068	1	8	**12.50**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Mercury by FIMS	EG035T	1	18	**5.56**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-AES	EG005T	1	19	**5.26**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	1	14	**7.14**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	1	14	**7.14**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Matrix Spikes (MS)							
PAH/Phenols (SIM)	EP075(SIM)	1	14	**7.14**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Pesticides by GCMS	EP068	1	8	**12.50**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Mercury by FIMS	EG035T	1	18	**5.56**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-AES	EG005T	1	19	**5.26**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	1	14	**7.14**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	1	14	**7.14**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard

Brief Method Summaries

The analytical procedures used by the Environmental Division have been developed from established internationally recognized procedures such as those published by the US EPA, APHA, AS and NEPM. In house developed procedures are employed in the absence of documented standards or by client request. The following report provides brief descriptions of the analytical procedures employed for results reported in the Certificate of Analysis. Sources from which ALS methods have been developed are provided within the Method Descriptions.

Analytical Methods	Method	Matrix	Method Descriptions
Moisture Content	EA055-103	SOIL	In house: A gravimetric procedure based on weight loss over a 12 hour drying period at 103-105 degrees C. This method is compliant with NEPM (2013) Schedule B(3) Section 7.1 and Table 1 (14 day holding time).
Total Metals by ICP-AES	EG005T	SOIL	In house: Referenced to APHA 3120; USEPA SW 846 - 6010. Metals are determined following an appropriate acid digestion of the soil. The ICPAES technique ionises samples in a plasma, emitting a characteristic spectrum based on metals present. Intensities at selected wavelengths are compared against those of matrix matched standards. This method is compliant with NEPM (2013) Schedule B(3)
Total Mercury by FIMS	EG035T	SOIL	In house: Referenced to AS 3550, APHA 3112 Hg - B (Flow-injection (SnCl2)(Cold Vapour generation) AAS) FIM-AAS is an automated flameless atomic absorption technique. Mercury in solids are determined following an appropriate acid digestion. Ionic mercury is reduced online to atomic mercury vapour by SnCl2 which is then purged into a heated quartz cell. Quantification is by comparing absorbance against a calibration curve. This method is compliant with NEPM (2013) Schedule B(3)
Pesticides by GCMS	EP068	SOIL	In house: Referenced to USEPA SW 846 - 8270D Extracts are analysed by Capillary GC/MS and quantification is by comparison against an established 5 point calibration curve. This technique is compliant with NEPM (2013) Schedule B(3) (Method 504,505)
TRH - Semivolatile Fraction	EP071	SOIL	In house: Referenced to USEPA SW 846 - 8015A Sample extracts are analysed by Capillary GC/FID and quantified against alkane standards over the range C10 - C40.
PAH/Phenols (SIM)	EP075(SIM)	SOIL	In house: Referenced to USEPA SW 846 - 8270D Extracts are analysed by Capillary GC/MS in Selective Ion Mode (SIM) and quantification is by comparison against an established 5 point calibration curve. This method is compliant with NEPM (2013) Schedule B(3) (Method 502 and 507)
TRH Volatiles/BTEX	EP080	SOIL	In house: Referenced to USEPA SW 846 - 8260B Extracts are analysed by Purge and Trap, Capillary GC/MS. Quantification is by comparison against an established 5 point calibration curve.

Preparation Methods	Method	Matrix	Method Descriptions
Hot Block Digest for metals in soils sediments and sludges	EN69	SOIL	In house: Referenced to USEPA 200.2. Hot Block Acid Digestion 1.0g of sample is heated with Nitric and Hydrochloric acids, then cooled. Peroxide is added and samples heated and cooled again before being filtered and bulked to volume for analysis. Digest is appropriate for determination of selected metals in sludge, sediments, and soils. This method is compliant with NEPM (2013) Schedule B(3) (Method 202)
Methanolic Extraction of Soils for Purge and Trap	* ORG16	SOIL	In house: Referenced to USEPA SW 846 - 5030A. 5g of solid is shaken with surrogate and 10mL methanol prior to analysis by Purge and Trap - GC/MS.
Tumbler Extraction of Solids	ORG17	SOIL	In house: Mechanical agitation (tumbler). 10g of sample, Na2SO4 and surrogate are extracted with 30mL 1:1 DCM/Acetone by end over end tumble. The solvent is decanted, dehydrated and concentrated (by KD) to the desired volume for analysis.

SGS

CHAIN OF CUSTODY & ANALYSIS REQUEST

SGS Environmental Services
Unit 16, 33 Maddox Street
Alexandria NSW 2015
Telephone No: (02) 85940400
Facsimile No: (02) 85940499
Email: au.samplereceipt.sydney@sgs.com

Company Name:	SMEC	Project Name/No:	3002523 – Canberra Brickworks
Address:	Suite 2, Level 1, 243 Northbourne Avenue, Lyneham, ACT, 2602, Australia	Purchase Order No:	
		Results Required By:	Ryan O'Leary
Contact Name:	Ryan O'Leary	Telephone:	+61 2 6234 1963 / 0400 240 023
		Facsimile:	
		Email Results:	Ryan.O'Leary@smec.com

Client Sample ID	Date Sampled	Lab Sample ID	WATER	SOIL		NO OF CONTAINERS	BTEXN	OPPs	OCPs	PAHs/Phenols	8H Metals - As, Cd, Cr, Cu, Ni, Pb, Zn, Hg	TPH/TRH	Comment
M2	28/9/2016		✓			5	√	√	√	√	√	√	
M3	28/9/2016		✓			5	√	√	√	√	√	√	
QC22	28/9/2016		✓			5	√	√	√	√	√	√	
QC23	28/9/2016		✓			5	√	√	√	√	√	√	Please send to ALS Sydney

Environmental Division
Sydney
Work Order Reference
ES1622123

Telephone : + 61-2-8784 8555

Relinquished By: Ryan O'Leary	Date/Time: 29/9/2016 16:00	Received By: Jessie	Date/Time 30/9/16 15:50
Relinquished By:	Date/Time:	Received By:	Date/Time 30/9/16 @ 10:00
Samples Intact: Yes/ No	Temperature: Ambient / Chilled 16.9	Sample Cooler Sealed: Yes/ No	Laboratory Quotation No:
	Comments: AS PER SGS QUOTE NUMBER SY1 – 60413 – 2-IS DATED 13TH APRIL 2016 **Laboratory to filter metals and report as dissolved**	**STANDARD TAT PLEASE (5 DAY)**	confirmed total Phenols as per Ryan. 4/10/16 cwe. ES1622123

SAMPLE RECEIPT NOTIFICATION (SRN)

Work Order : **ES1622123**

Client	: **SMEC AUSTRALIA PTY LTD**	Laboratory	: Environmental Division Sydney
Contact	: RYAN O'LEARY	Contact	:
Address	: P O BOX 1654 FYSHWICK ACT, AUSTRALIA 2609	Address	: 277-289 Woodpark Road Smithfield NSW Australia 2164
E-mail	: ryan.o'leary@smec.com	E-mail	:
Telephone	: +61 02 9925 5555	Telephone	: +61-2-8784 8555
Facsimile	: +61 02 9925 5566	Facsimile	: +61-2-8784 8500
Project	: 3002523 - CANBERRA BRICKWORKS	Page	: 1 of 2
Order number	: ----	Quote number	: ES2015SMEAUS0024 (EN/025/15)
C-O-C number	: ----	QC Level	: NEPM 2013 B3 & ALS QC Standard
Site	: ----		
Sampler	:		

Dates

Date Samples Received	: 30-Sep-2016 3:50 PM	Issue Date	: 04-Oct-2016
Client Requested Due Date	: 10-Oct-2016	Scheduled Reporting Date	: **10-Oct-2016**

Delivery Details

Mode of Delivery	: Undefined	Security Seal	: Not intact.
No. of coolers/boxes	: ----	Temperature	: 1.0' C - Ice Bricks present
Receipt Detail	:	No. of samples received / analysed	: 1 / 1

General Comments

- This report contains the following information:
  - Sample Container(s)/Preservation Non-Compliances
  - Summary of Sample(s) and Requested Analysis
  - Proactive Holding Time Report
  - Requested Deliverables
- **Please refer to the Proactive Holding Time Report table below which summarises breaches of recommended holding times that have occurred prior to samples/instructions being received at the laboratory. The absence of this summary table indicates that all samples have been received within the recommended holding times for the analysis requested.**
- **Sample(s) requiring volatile organic compound analysis received in airtight containers (ZHE).**
- Please direct any queries you have regarding this work order to the above ALS laboratory contact.
- Analytical work for this work order will be conducted at ALS Sydney.
- Sample Disposal - Aqueous (14 days), Solid (60 days) from date of completion of work order.

Sample Container(s)/Preservation Non-Compliances

All comparisons are made against pretreatment/preservation AS, APHA, USEPA standards.

- **No sample container / preservation non-compliance exists.**

Summary of Sample(s) and Requested Analysis

Some items described below may be part of a laboratory process necessary for the execution of client requested tasks. Packages may contain additional analyses, such as the determination of moisture content and preparation tasks, that are included in the package.
If no sampling time is provided, the sampling time will default to 15:00 on the date of sampling. If no sampling date is provided, the sampling date will be assumed by the laboratory for processing purposes and will be shown bracketed without a time component.

Matrix: **WATER**

Laboratory sample ID	*Client sampling date / time*	*Client sample ID*	WATER - EP035G Total Phenol by Discrete Analyser	WATER - W-12 OC/OP Pesticides	WATER - W-26 TRH/BTEXN/PAH/8 Metals
ES1622123-001	[28-Sep-2016]	QC23	✓	✓	✓

Proactive Holding Time Report

Sample(s) have been received within the recommended holding times for the requested analysis.

Requested Deliverables

RYAN O'LEARY

- *AU Certificate of Analysis - NATA (COA)	Email	ryan.o'leary@smec.com
- *AU Interpretive QC Report - DEFAULT (Anon QCI Rep) (QCI)	Email	ryan.o'leary@smec.com
- *AU QC Report - DEFAULT (Anon QC Rep) - NATA (QC)	Email	ryan.o'leary@smec.com
- A4 - AU Sample Receipt Notification - Environmental HT (SRN)	Email	ryan.o'leary@smec.com
- A4 - AU Tax Invoice (INV)	Email	ryan.o'leary@smec.com
- Chain of Custody (CoC) (COC)	Email	ryan.o'leary@smec.com
- EDI Format - ESDAT (ESDAT)	Email	ryan.o'leary@smec.com

ALS Environmental

CERTIFICATE OF ANALYSIS

Work Order	: **ES1622123**	Page	: 1 of 7
Client	: **SMEC AUSTRALIA PTY LTD**	Laboratory	: Environmental Division Sydney
Contact	: RYAN O'LEARY	Contact	:
Address	: P O BOX 1654 FYSHWICK ACT, AUSTRALIA 2609	Address	: 277-289 Woodpark Road Smithfield NSW Australia 2164
Telephone	: +61 02 9925 5555	Telephone	: +61-2-8784 8555
Project	: 3002523 - CANBERRA BRICKWORKS	Date Samples Received	: 30-Sep-2016 15:50
Order number	: ----	Date Analysis Commenced	: 04-Oct-2016
C-O-C number	: ----	Issue Date	: 10-Oct-2016 16:08
Sampler	: ----		
Site	: ----		
Quote number	: ----		
No. of samples received	: 1		
No. of samples analysed	: 1		

Accreditation No. 825
Accredited for compliance with
ISO/IEC 17025 - Testing

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. This document shall not be reproduced, except in full.

This Certificate of Analysis contains the following information:

- General Comments
- Analytical Results
- Surrogate Control Limits

Additional information pertinent to this report will be found in the following separate attachments: Quality Control Report, QA/QC Compliance Assessment to assist with Quality Review and Sample Receipt Notification.

Signatories

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

Signatories	*Position*	*Accreditation Category*
Ankit Joshi	Inorganic Chemist	Sydney Inorganics, Smithfield, NSW
Edwandy Fadjar	Organic Coordinator	Sydney Organics, Smithfield, NSW
Wisam Marassa	Inorganics Coordinator	Sydney Inorganics, Smithfield, 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.

Where a result is required to meet compliance limits the associated uncertainty must be considered. Refer to the ALS Contact for details.

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.
~ = Indicates an estimated value.

- 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.

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)				Client sample ID	QC23	----	----	----	----
				Client sampling date / time	[28-Sep-2016]	----	----	----	----
Compound	CAS Number	LOR	Unit		ES1622123-001	--------	--------	--------	--------
					Result	----	----	----	----
EG020F: Dissolved Metals by ICP-MS									
Arsenic	7440-38-2	0.001	mg/L		<0.001	----	----	----	----
Cadmium	7440-43-9	0.0001	mg/L		**0.0014**	----	----	----	----
Chromium	7440-47-3	0.001	mg/L		<0.001	----	----	----	----
Copper	7440-50-8	0.001	mg/L		**0.005**	----	----	----	----
Lead	7439-92-1	0.001	mg/L		<0.001	----	----	----	----
Nickel	7440-02-0	0.001	mg/L		**0.020**	----	----	----	----
Zinc	7440-66-6	0.005	mg/L		**0.072**	----	----	----	----
EG035F: Dissolved Mercury by FIMS									
Mercury	7439-97-6	0.0001	mg/L		<0.0001	----	----	----	----
EP035G: Total Phenol by Discrete Analyser									
Phenols (Total)	----	0.05	mg/L		<0.05	----	----	----	----
EP068A: Organochlorine Pesticides (OC)									
alpha-BHC	319-84-6	0.5	µg/L		<0.5	----	----	----	----
Hexachlorobenzene (HCB)	118-74-1	0.5	µg/L		<0.5	----	----	----	----
beta-BHC	319-85-7	0.5	µg/L		<0.5	----	----	----	----
gamma-BHC	58-89-9	0.5	µg/L		<0.5	----	----	----	----
delta-BHC	319-86-8	0.5	µg/L		<0.5	----	----	----	----
Heptachlor	76-44-8	0.5	µg/L		<0.5	----	----	----	----
Aldrin	309-00-2	0.5	µg/L		<0.5	----	----	----	----
Heptachlor epoxide	1024-57-3	0.5	µg/L		<0.5	----	----	----	----
trans-Chlordane	5103-74-2	0.5	µg/L		<0.5	----	----	----	----
alpha-Endosulfan	959-98-8	0.5	µg/L		<0.5	----	----	----	----
cis-Chlordane	5103-71-9	0.5	µg/L		<0.5	----	----	----	----
Dieldrin	60-57-1	0.5	µg/L		<0.5	----	----	----	----
4.4`-DDE	72-55-9	0.5	µg/L		<0.5	----	----	----	----
Endrin	72-20-8	0.5	µg/L		<0.5	----	----	----	----
beta-Endosulfan	33213-65-9	0.5	µg/L		<0.5	----	----	----	----
4.4`-DDD	72-54-8	0.5	µg/L		<0.5	----	----	----	----
Endrin aldehyde	7421-93-4	0.5	µg/L		<0.5	----	----	----	----
Endosulfan sulfate	1031-07-8	0.5	µg/L		<0.5	----	----	----	----
4.4`-DDT	50-29-3	2	µg/L		<2.0	----	----	----	----
Endrin ketone	53494-70-5	0.5	µg/L		<0.5	----	----	----	----
Methoxychlor	72-43-5	2	µg/L		<2.0	----	----	----	----
^ **Total Chlordane (sum)**	----	0.5	µg/L		<0.5	----	----	----	----

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)				Client sample ID	QC23	----	----	----	----
				Client sampling date / time	[28-Sep-2016]	----	----	----	----
Compound	CAS Number	LOR	Unit		ES1622123-001	--------	--------	--------	--------
					Result	----	----	----	----
EP068A: Organochlorine Pesticides (OC) - Continued									
^ Sum of DDD + DDE + DDT	72-54-8/72-55-9/50-2	0.5	µg/L		<0.5	----	----	----	----
^ Sum of Aldrin + Dieldrin	309-00-2/60-57-1	0.5	µg/L		<0.5	----	----	----	----
EP068B: Organophosphorus Pesticides (OP)									
Dichlorvos	62-73-7	0.5	µg/L		<0.5	----	----	----	----
Demeton-S-methyl	919-86-8	0.5	µg/L		<0.5	----	----	----	----
Monocrotophos	6923-22-4	2	µg/L		<2.0	----	----	----	----
Dimethoate	60-51-5	0.5	µg/L		<0.5	----	----	----	----
Diazinon	333-41-5	0.5	µg/L		<0.5	----	----	----	----
Chlorpyrifos-methyl	5598-13-0	0.5	µg/L		<0.5	----	----	----	----
Parathion-methyl	298-00-0	2	µg/L		<2.0	----	----	----	----
Malathion	121-75-5	0.5	µg/L		<0.5	----	----	----	----
Fenthion	55-38-9	0.5	µg/L		<0.5	----	----	----	----
Chlorpyrifos	2921-88-2	0.5	µg/L		<0.5	----	----	----	----
Parathion	56-38-2	2	µg/L		<2.0	----	----	----	----
Pirimphos-ethyl	23505-41-1	0.5	µg/L		<0.5	----	----	----	----
Chlorfenvinphos	470-90-6	0.5	µg/L		<0.5	----	----	----	----
Bromophos-ethyl	4824-78-6	0.5	µg/L		<0.5	----	----	----	----
Fenamiphos	22224-92-6	0.5	µg/L		<0.5	----	----	----	----
Prothiofos	34643-46-4	0.5	µg/L		<0.5	----	----	----	----
Ethion	563-12-2	0.5	µg/L		<0.5	----	----	----	----
Carbophenothion	786-19-6	0.5	µg/L		<0.5	----	----	----	----
Azinphos Methyl	86-50-0	0.5	µg/L		<0.5	----	----	----	----
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons									
Naphthalene	91-20-3	1	µg/L		<1.0	----	----	----	----
Acenaphthylene	208-96-8	1	µg/L		<1.0	----	----	----	----
Acenaphthene	83-32-9	1	µg/L		<1.0	----	----	----	----
Fluorene	86-73-7	1	µg/L		<1.0	----	----	----	----
Phenanthrene	85-01-8	1	µg/L		<1.0	----	----	----	----
Anthracene	120-12-7	1	µg/L		<1.0	----	----	----	----
Fluoranthene	206-44-0	1	µg/L		<1.0	----	----	----	----
Pyrene	129-00-0	1	µg/L		<1.0	----	----	----	----
Benz(a)anthracene	56-55-3	1	µg/L		<1.0	----	----	----	----
Chrysene	218-01-9	1	µg/L		<1.0	----	----	----	----
Benzo(b+j)fluoranthene	205-99-2 205-82-3	1	µg/L		<1.0	----	----	----	----

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)				Client sample ID	QC23	----	----	----	----
				Client sampling date / time	[28-Sep-2016]	----	----	----	----
Compound	CAS Number	LOR	Unit		ES1622123-001	--------	--------	--------	--------
					Result	----	----	----	----
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons - Continued									
Benzo(k)fluoranthene	207-08-9	1	µg/L		<1.0	----	----	----	----
Benzo(a)pyrene	50-32-8	0.5	µg/L		<0.5	----	----	----	----
Indeno(1.2.3.cd)pyrene	193-39-5	1	µg/L		<1.0	----	----	----	----
Dibenz(a.h)anthracene	53-70-3	1	µg/L		<1.0	----	----	----	----
Benzo(g.h.i)perylene	191-24-2	1	µg/L		<1.0	----	----	----	----
^ **Sum of polycyclic aromatic hydrocarbons**	----	0.5	µg/L		<0.5	----	----	----	----
^ **Benzo(a)pyrene TEQ (zero)**	----	0.5	µg/L		<0.5	----	----	----	----
EP080/071: Total Petroleum Hydrocarbons									
C6 - C9 Fraction	----	20	µg/L		<20	----	----	----	----
C10 - C14 Fraction	----	50	µg/L		<50	----	----	----	----
C15 - C28 Fraction	----	100	µg/L		<100	----	----	----	----
C29 - C36 Fraction	----	50	µg/L		<50	----	----	----	----
^ **C10 - C36 Fraction (sum)**	----	50	µg/L		<50	----	----	----	----
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions									
C6 - C10 Fraction	C6_C10	20	µg/L		<20	----	----	----	----
^ **C6 - C10 Fraction minus BTEX (F1)**	C6_C10-BTEX	20	µg/L		<20	----	----	----	----
>C10 - C16 Fraction	----	100	µg/L		<100	----	----	----	----
>C16 - C34 Fraction	----	100	µg/L		<100	----	----	----	----
>C34 - C40 Fraction	----	100	µg/L		<100	----	----	----	----
^ **>C10 - C40 Fraction (sum)**	----	100	µg/L		<100	----	----	----	----
^ **>C10 - C16 Fraction minus Naphthalene (F2)**	----	100	µg/L		<100	----	----	----	----
EP080: BTEXN									
Benzene	71-43-2	1	µg/L		<1	----	----	----	----
Toluene	108-88-3	2	µg/L		<2	----	----	----	----
Ethylbenzene	100-41-4	2	µg/L		<2	----	----	----	----
meta- & para-Xylene	108-38-3 106-42-3	2	µg/L		<2	----	----	----	----
ortho-Xylene	95-47-6	2	µg/L		<2	----	----	----	----
^ **Total Xylenes**	1330-20-7	2	µg/L		<2	----	----	----	----
^ **Sum of BTEX**	----	1	µg/L		<1	----	----	----	----
Naphthalene	91-20-3	5	µg/L		<5	----	----	----	----
EP068S: Organochlorine Pesticide Surrogate									
Dibromo-DDE	21655-73-2	0.5	%		**113**	----	----	----	----

Analytical Results

Sub-Matrix: **WATER** (Matrix: **WATER**)				Client sample ID	QC23	----	----	----	----
				Client sampling date / time	[28-Sep-2016]	----	----	----	----
Compound	*CAS Number*	*LOR*	*Unit*		ES1622123-001	--------	--------	--------	--------
					Result	----	----	----	----
EP068T: Organophosphorus Pesticide Surrogate									
DEF	78-48-8	0.5	%		**117**	----	----	----	----
EP075(SIM)S: Phenolic Compound Surrogates									
Phenol-d6	13127-88-3	1	%		**25.8**	----	----	----	----
2-Chlorophenol-D4	93951-73-6	1	%		**60.6**	----	----	----	----
2.4.6-Tribromophenol	118-79-6	1	%		**44.0**	----	----	----	----
EP075(SIM)T: PAH Surrogates									
2-Fluorobiphenyl	321-60-8	1	%		**75.9**	----	----	----	----
Anthracene-d10	1719-06-8	1	%		**71.4**	----	----	----	----
4-Terphenyl-d14	1718-51-0	1	%		**84.1**	----	----	----	----
EP080S: TPH(V)/BTEX Surrogates									
1.2-Dichloroethane-D4	17060-07-0	2	%		**110**	----	----	----	----
Toluene-D8	2037-26-5	2	%		**115**	----	----	----	----
4-Bromofluorobenzene	460-00-4	2	%		**111**	----	----	----	----

Surrogate Control Limits

Sub-Matrix: **WATER**

Compound	CAS Number	Recovery Limits (%) Low	High
EP068S: Organochlorine Pesticide Surrogate			
Dibromo-DDE	21655-73-2	30	120
EP068T: Organophosphorus Pesticide Surrogate			
DEF	78-48-8	27	129
EP075(SIM)S: Phenolic Compound Surrogates			
Phenol-d6	13127-88-3	10	44
2-Chlorophenol-D4	93951-73-6	14	94
2.4.6-Tribromophenol	118-79-6	17	125
EP075(SIM)T: PAH Surrogates			
2-Fluorobiphenyl	321-60-8	20	104
Anthracene-d10	1719-06-8	27	113
4-Terphenyl-d14	1718-51-0	32	112
EP080S: TPH(V)/BTEX Surrogates			
1.2-Dichloroethane-D4	17060-07-0	71	137
Toluene-D8	2037-26-5	79	131
4-Bromofluorobenzene	460-00-4	70	128

ALS Environmental

QUALITY CONTROL REPORT

Work Order	: **ES1622123**	Page	: 1 of 7
Client	: **SMEC AUSTRALIA PTY LTD**	Laboratory	: Environmental Division Sydney
Contact	: RYAN O'LEARY	Contact	:
Address	: P O BOX 1654 FYSHWICK ACT, AUSTRALIA 2609	Address	: 277-289 Woodpark Road Smithfield NSW Australia 2164
Telephone	: +61 02 9925 5555	Telephone	: +61-2-8784 8555
Project	: 3002523 - CANBERRA BRICKWORKS	Date Samples Received	: 30-Sep-2016
Order number	: ----	Date Analysis Commenced	: 04-Oct-2016
C-O-C number	: ----	Issue Date	: 10-Oct-2016
Sampler	: ----		
Site	: ----		
Quote number	: ----		
No. of samples received	: 1		
No. of samples analysed	: 1		

Accreditation No. 825
Accredited for compliance with
ISO/IEC 17025 - Testing

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. This document shall not be reproduced, except in full.

This Quality Control Report contains the following information:

- Laboratory Duplicate (DUP) Report; Relative Percentage Difference (RPD) and Acceptance Limits
- Method Blank (MB) and Laboratory Control Spike (LCS) Report; Recovery and Acceptance Limits
- Matrix Spike (MS) Report; Recovery and Acceptance Limits

Signatories

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

Signatories	*Position*	*Accreditation Category*
Ankit Joshi	Inorganic Chemist	Sydney Inorganics, Smithfield, NSW
Edwandy Fadjar	Organic Coordinator	Sydney Organics, Smithfield, NSW
Wisam Marassa	Inorganics Coordinator	Sydney Inorganics, Smithfield, 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

Key : Anonymous = Refers to samples which are not specifically part of this work order but formed part of the QC process lot
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
RPD = Relative Percentage Difference
# = Indicates failed QC

Laboratory Duplicate (DUP) Report

The quality control term Laboratory Duplicate refers to a randomly selected intralaboratory split. Laboratory duplicates provide information regarding method precision and sample heterogeneity. The permitted ranges for the Relative Percent Deviation (RPD) of Laboratory Duplicates are specified in ALS Method QWI-EN/38 and are dependent on the magnitude of results in comparison to the level of reporting: Result < 10 times LOR: No Limit; Result between 10 and 20 times LOR: 0% - 50%; Result > 20 times LOR: 0% - 20%.

Sub-Matrix: **WATER**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Client sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Recovery Limits (%)*
EG020F: Dissolved Metals by ICP-MS (QC Lot: 608766)									
ES1622054-002	Anonymous	EG020A-F: Cadmium	7440-43-9	0.0001	mg/L	0.0004	0.0003	34.2	No Limit
		EG020A-F: Arsenic	7440-38-2	0.001	mg/L	0.001	<0.001	0.00	No Limit
		EG020A-F: Chromium	7440-47-3	0.001	mg/L	<0.001	<0.001	0.00	No Limit
		EG020A-F: Copper	7440-50-8	0.001	mg/L	0.023	0.023	0.00	0% - 20%
		EG020A-F: Lead	7439-92-1	0.001	mg/L	<0.001	<0.001	0.00	No Limit
		EG020A-F: Nickel	7440-02-0	0.001	mg/L	0.025	0.025	0.00	0% - 20%
		EG020A-F: Zinc	7440-66-6	0.005	mg/L	0.269	0.267	0.924	0% - 20%
ES1622287-001	Anonymous	EG020A-F: Cadmium	7440-43-9	0.0001	mg/L	<0.0010	<0.0010	0.00	No Limit
		EG020A-F: Arsenic	7440-38-2	0.001	mg/L	<0.010	<0.010	0.00	No Limit
		EG020A-F: Chromium	7440-47-3	0.001	mg/L	0.106	0.117	9.42	0% - 50%
		EG020A-F: Copper	7440-50-8	0.001	mg/L	<0.010	<0.010	0.00	No Limit
		EG020A-F: Lead	7439-92-1	0.001	mg/L	<0.010	<0.010	0.00	No Limit
		EG020A-F: Nickel	7440-02-0	0.001	mg/L	0.011	<0.010	10.2	No Limit
		EG020A-F: Zinc	7440-66-6	0.005	mg/L	4.43	4.80	7.92	0% - 20%
EG035F: Dissolved Mercury by FIMS (QC Lot: 608765)									
ES1622059-108	Anonymous	EG035F: Mercury	7439-97-6	0.0001	mg/L	<0.0001	<0.0001	0.00	No Limit
ES1622054-002	Anonymous	EG035F: Mercury	7439-97-6	0.0001	mg/L	<0.0001	<0.0001	0.00	No Limit
EP035G: Total Phenol by Discrete Analyser (QC Lot: 606179)									
EP1609290-001	Anonymous	EP035G: Phenols (Total)	----	0.05	mg/L	<0.05	<0.05	0.00	No Limit
ES1622162-001	Anonymous	EP035G: Phenols (Total)	----	0.05	mg/L	<0.05	0.30	143	No Limit
EP080/071: Total Petroleum Hydrocarbons (QC Lot: 608112)									
ES1622090-006	Anonymous	EP080: C6 - C9 Fraction	----	20	µg/L	<20	<20	0.00	No Limit
ES1622090-019	Anonymous	EP080: C6 - C9 Fraction	----	20	µg/L	<20	<20	0.00	No Limit
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QC Lot: 608112)									

Sub-Matrix: **WATER**

Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Laboratory Duplicate (DUP) Report					
				LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QC Lot: 608112) - continued									
ES1622090-006	Anonymous	EP080: C6 - C10 Fraction	C6_C10	20	µg/L	<20	<20	0.00	No Limit
ES1622090-019	Anonymous	EP080: C6 - C10 Fraction	C6_C10	20	µg/L	<20	<20	0.00	No Limit
EP080: BTEXN (QC Lot: 608112)									
ES1622090-006	Anonymous	EP080: Benzene	71-43-2	1	µg/L	<1	<1	0.00	No Limit
		EP080: Toluene	108-88-3	2	µg/L	<2	<2	0.00	No Limit
		EP080: Ethylbenzene	100-41-4	2	µg/L	<2	<2	0.00	No Limit
		EP080: meta- & para-Xylene	108-38-3 106-42-3	2	µg/L	<2	<2	0.00	No Limit
		EP080: ortho-Xylene	95-47-6	2	µg/L	<2	<2	0.00	No Limit
		EP080: Naphthalene	91-20-3	5	µg/L	<5	<5	0.00	No Limit
ES1622090-019	Anonymous	EP080: Benzene	71-43-2	1	µg/L	<1	<1	0.00	No Limit
		EP080: Toluene	108-88-3	2	µg/L	<2	<2	0.00	No Limit
		EP080: Ethylbenzene	100-41-4	2	µg/L	<2	<2	0.00	No Limit
		EP080: meta- & para-Xylene	108-38-3 106-42-3	2	µg/L	<2	<2	0.00	No Limit
		EP080: ortho-Xylene	95-47-6	2	µg/L	<2	<2	0.00	No Limit
		EP080: Naphthalene	91-20-3	5	µg/L	<5	<5	0.00	No Limit

Method Blank (MB) and Laboratory Control Spike (LCS) Report

The quality control term Method / Laboratory Blank refers to an analyte free matrix to which all reagents are added in the same volumes or proportions as used in standard sample preparation. The purpose of this QC parameter is to monitor potential laboratory contamination. The quality control term Laboratory Control Spike (LCS) refers to a certified reference material, or a known interference free matrix spiked with target analytes. The purpose of this QC parameter is to monitor method precision and accuracy independent of sample matrix. Dynamic Recovery Limits are based on statistical evaluation of processed LCS.

Sub-Matrix: **WATER**

				Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike	Spike Recovery (%)	Recovery Limits (%)	
Method: Compound	CAS Number	LOR	Unit	Result	Concentration	LCS	Low	High
EG020F: Dissolved Metals by ICP-MS (QCLot: 608766)								
EG020A-F: Arsenic	7440-38-2	0.001	mg/L	<0.001	0.1 mg/L	104	85	114
EG020A-F: Cadmium	7440-43-9	0.0001	mg/L	<0.0001	0.1 mg/L	100	84	110
EG020A-F: Chromium	7440-47-3	0.001	mg/L	<0.001	0.1 mg/L	95.8	85	111
EG020A-F: Copper	7440-50-8	0.001	mg/L	<0.001	0.1 mg/L	97.8	81	111
EG020A-F: Lead	7439-92-1	0.001	mg/L	<0.001	0.1 mg/L	93.8	83	111
EG020A-F: Nickel	7440-02-0	0.001	mg/L	<0.001	0.1 mg/L	92.4	82	112
EG020A-F: Zinc	7440-66-6	0.005	mg/L	<0.005	0.1 mg/L	96.2	81	117
EG035F: Dissolved Mercury by FIMS (QCLot: 608765)								
EG035F: Mercury	7439-97-6	0.0001	mg/L	<0.0001	0.01 mg/L	98.7	83	105
EP035G: Total Phenol by Discrete Analyser (QCLot: 606179)								
EP035G: Phenols (Total)	----	0.05	mg/L	<0.05	0.5 mg/L	85.0	64	98
EP068A: Organochlorine Pesticides (OC) (QCLot: 604843)								
EP068: alpha-BHC	319-84-6	0.5	µg/L	<0.5	5 µg/L	87.1	65	113
EP068: Hexachlorobenzene (HCB)	118-74-1	0.5	µg/L	<0.5	5 µg/L	83.6	54	114
EP068: beta-BHC	319-85-7	0.5	µg/L	<0.5	5 µg/L	88.3	69	117
EP068: gamma-BHC	58-89-9	0.5	µg/L	<0.5	5 µg/L	88.4	70	112
EP068: delta-BHC	319-86-8	0.5	µg/L	<0.5	5 µg/L	92.5	67	117
EP068: Heptachlor	76-44-8	0.5	µg/L	<0.5	5 µg/L	88.7	63	113
EP068: Aldrin	309-00-2	0.5	µg/L	<0.5	5 µg/L	93.5	66	116
EP068: Heptachlor epoxide	1024-57-3	0.5	µg/L	<0.5	5 µg/L	97.8	59	123
EP068: trans-Chlordane	5103-74-2	0.5	µg/L	<0.5	5 µg/L	100	61	121
EP068: alpha-Endosulfan	959-98-8	0.5	µg/L	<0.5	5 µg/L	101	66	120
EP068: cis-Chlordane	5103-71-9	0.5	µg/L	<0.5	5 µg/L	100	64	120
EP068: Dieldrin	60-57-1	0.5	µg/L	<0.5	5 µg/L	102	66	120
EP068: 4.4`-DDE	72-55-9	0.5	µg/L	<0.5	5 µg/L	106	67	119
EP068: Endrin	72-20-8	0.5	µg/L	<0.5	5 µg/L	95.1	66	122
EP068: beta-Endosulfan	33213-65-9	0.5	µg/L	<0.5	5 µg/L	104	71	119
EP068: 4.4`-DDD	72-54-8	0.5	µg/L	<0.5	5 µg/L	107	72	122
EP068: Endrin aldehyde	7421-93-4	0.5	µg/L	<0.5	5 µg/L	97.3	64	116
EP068: Endosulfan sulfate	1031-07-8	0.5	µg/L	<0.5	5 µg/L	95.4	60	126
EP068: 4.4`-DDT	50-29-3	2	µg/L	<2.0	5 µg/L	82.8	60	122
EP068: Endrin ketone	53494-70-5	0.5	µg/L	<0.5	5 µg/L	97.7	62	124
EP068: Methoxychlor	72-43-5	2	µg/L	<2.0	5 µg/L	89.8	53	127
EP068B: Organophosphorus Pesticides (OP) (QCLot: 604843)								

Sub-Matrix: **WATER**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike	Spike Recovery (%)	Recovery Limits (%)	
				Result	Concentration	LCS	Low	High
EP068B: Organophosphorus Pesticides (OP) (QCLot: 604843) - continued								
EP068: Dichlorvos	62-73-7	0.5	µg/L	<0.5	5 µg/L	97.4	69	119
EP068: Demeton-S-methyl	919-86-8	0.5	µg/L	<0.5	5 µg/L	97.0	62	124
EP068: Monocrotophos	6923-22-4	2	µg/L	<2.0	5 µg/L	24.5	20	48
EP068: Dimethoate	60-51-5	0.5	µg/L	<0.5	5 µg/L	97.8	65	121
EP068: Diazinon	333-41-5	0.5	µg/L	<0.5	5 µg/L	97.9	70	120
EP068: Chlorpyrifos-methyl	5598-13-0	0.5	µg/L	<0.5	5 µg/L	91.0	77	119
EP068: Parathion-methyl	298-00-0	2	µg/L	<2.0	5 µg/L	86.7	70	124
EP068: Malathion	121-75-5	0.5	µg/L	<0.5	5 µg/L	104	70	124
EP068: Fenthion	55-38-9	0.5	µg/L	<0.5	5 µg/L	101	68	122
EP068: Chlorpyrifos	2921-88-2	0.5	µg/L	<0.5	5 µg/L	103	75	1196
EP068: Parathion	56-38-2	2	µg/L	<2.0	5 µg/L	94.1	67	121
EP068: Pirimphos-ethyl	23505-41-1	0.5	µg/L	<0.5	5 µg/L	104	69	121
EP068: Chlorfenvinphos	470-90-6	0.5	µg/L	<0.5	5 µg/L	99.3	69	119
EP068: Bromophos-ethyl	4824-78-6	0.5	µg/L	<0.5	5 µg/L	103	63	125
EP068: Fenamiphos	22224-92-6	0.5	µg/L	<0.5	5 µg/L	106	69	125
EP068: Prothiofos	34643-46-4	0.5	µg/L	<0.5	5 µg/L	107	61	111231
EP068: Ethion	563-12-2	0.5	µg/L	<0.5	5 µg/L	108	74	120
EP068: Carbophenothion	786-19-6	0.5	µg/L	<0.5	5 µg/L	98.9	68	124
EP068: Azinphos Methyl	86-50-0	0.5	µg/L	<0.5	5 µg/L	90.7	44	130
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 604842)								
EP075(SIM): Naphthalene	91-20-3	1	µg/L	<1.0	5 µg/L	66.0	50	94
EP075(SIM): Acenaphthylene	208-96-8	1	µg/L	<1.0	5 µg/L	70.2	64	114
EP075(SIM): Acenaphthene	83-32-9	1	µg/L	<1.0	5 µg/L	72.2	62	113
EP075(SIM): Fluorene	86-73-7	1	µg/L	<1.0	5 µg/L	70.0	64	115
EP075(SIM): Phenanthrene	85-01-8	1	µg/L	<1.0	5 µg/L	88.6	63	116
EP075(SIM): Anthracene	120-12-7	1	µg/L	<1.0	5 µg/L	84.8	64	116
EP075(SIM): Fluoranthene	206-44-0	1	µg/L	<1.0	5 µg/L	85.9	64	118
EP075(SIM): Pyrene	129-00-0	1	µg/L	<1.0	5 µg/L	96.3	63	118
EP075(SIM): Benz(a)anthracene	56-55-3	1	µg/L	<1.0	5 µg/L	70.8	64	117
EP075(SIM): Chrysene	218-01-9	1	µg/L	<1.0	5 µg/L	87.8	63	116
EP075(SIM): Benzo(b+j)fluoranthene	205-99-2 205-82-3	1	µg/L	<1.0	5 µg/L	71.4	62	119
EP075(SIM): Benzo(k)fluoranthene	207-08-9	1	µg/L	<1.0	5 µg/L	83.0	63	115
EP075(SIM): Benzo(a)pyrene	50-32-8	0.5	µg/L	<0.5	5 µg/L	76.9	63	117
EP075(SIM): Indeno(1.2.3.cd)pyrene	193-39-5	1	µg/L	<1.0	5 µg/L	77.2	60	118
EP075(SIM): Dibenz(a.h)anthracene	53-70-3	1	µg/L	<1.0	5 µg/L	77.4	61	117
EP075(SIM): Benzo(g.h.i)perylene	191-24-2	1	µg/L	<1.0	5 µg/L	75.5	59	118
EP080/071: Total Petroleum Hydrocarbons (QCLot: 604841)								
EP071: C10 - C14 Fraction	----	50	µg/L	<50	2000 µg/L	94.2	76	116

Sub-Matrix: **WATER**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report: Result	Laboratory Control Spike (LCS) Report: Spike Concentration	Spike Recovery (%): LCS	Recovery Limits (%): Low	Recovery Limits (%): High
EP080/071: Total Petroleum Hydrocarbons (QCLot: 604841) - continued								
EP071: C15 - C28 Fraction	----	100	µg/L	<100	3000 µg/L	99.5	83	109
EP071: C29 - C36 Fraction	----	50	µg/L	<50	2000 µg/L	93.7	75	113
EP080/071: Total Petroleum Hydrocarbons (QCLot: 608112)								
EP080: C6 - C9 Fraction	----	20	µg/L	<20	260 µg/L	83.2	75	127
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 604841)								
EP071: >C10 - C16 Fraction	----	100	µg/L	<100	2500 µg/L	99.4	76	114
EP071: >C16 - C34 Fraction	----	100	µg/L	<100	3500 µg/L	95.3	81	111
EP071: >C34 - C40 Fraction	----	100	µg/L	<100	1500 µg/L	101	77	119
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 608112)								
EP080: C6 - C10 Fraction	C6_C10	20	µg/L	<20	310 µg/L	86.9	75	127
EP080: BTEXN (QCLot: 608112)								
EP080: Benzene	71-43-2	1	µg/L	<1	10 µg/L	88.6	70	122
EP080: Toluene	108-88-3	2	µg/L	<2	10 µg/L	89.1	69	123
EP080: Ethylbenzene	100-41-4	2	µg/L	<2	10 µg/L	91.4	70	120
EP080: meta- & para-Xylene	108-38-3 106-42-3	2	µg/L	<2	10 µg/L	89.4	69	121
EP080: ortho-Xylene	95-47-6	2	µg/L	<2	10 µg/L	88.0	72	122
EP080: Naphthalene	91-20-3	5	µg/L	<5	10 µg/L	100	70	120

Matrix Spike (MS) Report

The quality control term Matrix Spike (MS) refers to an intralaboratory split sample spiked with a representative set of target analytes. The purpose of this QC parameter is to monitor potential matrix effects on analyte recoveries. Static Recovery Limits as per laboratory Data Quality Objectives (DQOs). Ideal recovery ranges stated may be waived in the event of sample matrix interference.

Sub-Matrix: **WATER**

Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Matrix Spike (MS) Report: Spike Concentration	SpikeRecovery(%): MS	Recovery Limits (%): Low	Recovery Limits (%): High
EG020F: Dissolved Metals by ICP-MS (QCLot: 608766)							
ES1622054-003	Anonymous	EG020A-F: Arsenic	7440-38-2	1 mg/L	107	70	130
		EG020A-F: Cadmium	7440-43-9	0.25 mg/L	107	70	130
		EG020A-F: Chromium	7440-47-3	1 mg/L	102	70	130
		EG020A-F: Copper	7440-50-8	1 mg/L	104	70	130
		EG020A-F: Lead	7439-92-1	1 mg/L	104	70	130
		EG020A-F: Nickel	7440-02-0	1 mg/L	98.8	70	130
		EG020A-F: Zinc	7440-66-6	1 mg/L	108	70	130
EG035F: Dissolved Mercury by FIMS (QCLot: 608765)							
ES1622054-001	Anonymous	EG035F: Mercury	7439-97-6	0.01 mg/L	88.7	70	130
EP035G: Total Phenol by Discrete Analyser (QCLot: 606179)							

Sub-Matrix: **WATER**

				Matrix Spike (MS) Report			
				Spike	SpikeRecovery(%)	Recovery Limits (%)	
Laboratory sample ID	*Client sample ID*	*Method: Compound*	*CAS Number*	*Concentration*	*MS*	*Low*	*High*
EP035G: Total Phenol by Discrete Analyser (QCLot: 606179) - continued							
EP1609290-001	Anonymous	EP035G: Phenols (Total)	----	0.42 mg/L	86.2	70	130
EP080/071: Total Petroleum Hydrocarbons (QCLot: 608112)							
ES1622090-006	Anonymous	EP080: C6 - C9 Fraction	----	325 µg/L	84.6	70	130
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 608112)							
ES1622090-006	Anonymous	EP080: C6 - C10 Fraction	C6_C10	375 µg/L	85.4	70	130
EP080: BTEXN (QCLot: 608112)							
ES1622090-006	Anonymous	EP080: Benzene	71-43-2	25 µg/L	76.8	70	130
		EP080: Toluene	108-88-3	25 µg/L	84.2	70	130
		EP080: Ethylbenzene	100-41-4	25 µg/L	91.1	70	130
		EP080: meta- & para-Xylene	108-38-3 106-42-3	25 µg/L	89.3	70	130
		EP080: ortho-Xylene	95-47-6	25 µg/L	92.3	70	130
		EP080: Naphthalene	91-20-3	25 µg/L	91.4	70	130

ALS Environmental

QA/QC Compliance Assessment to assist with Quality Review

Work Order	: **ES1622123**	Page	: 1 of 5
Client	: **SMEC AUSTRALIA PTY LTD**	Laboratory	: Environmental Division Sydney
Contact	: RYAN O'LEARY	Telephone	: +61-2-8784 8555
Project	: 3002523 - CANBERRA BRICKWORKS	Date Samples Received	: 30-Sep-2016
Site	: ----	Issue Date	: 10-Oct-2016
Sampler	: ----	No. of samples received	: 1
Order number	: ----	No. of samples analysed	: 1

This report is automatically generated by the ALS LIMS through interpretation of the ALS Quality Control Report and several Quality Assurance parameters measured by ALS. This automated reporting highlights any non-conformances, facilitates faster and more accurate data validation and is designed to assist internal expert and external Auditor review. Many components of this report contribute to the overall DQO assessment and reporting for guideline compliance.

Brief method summaries and references are also provided to assist in traceability.

Summary of Outliers

Outliers : Quality Control Samples

This report highlights outliers flagged in the Quality Control (QC) Report.

- **NO Method Blank value outliers occur.**
- **NO Duplicate outliers occur.**
- **NO Laboratory Control outliers occur.**
- **NO Matrix Spike outliers occur.**
- **For all regular sample matrices, NO surrogate recovery outliers occur.**

Outliers : Analysis Holding Time Compliance

- **NO Analysis Holding Time Outliers exist.**

Outliers : Frequency of Quality Control Samples

- **Quality Control Sample Frequency Outliers exist - please see following pages for full details.**

Outliers : Frequency of Quality Control Samples

Matrix: **WATER**

Quality Control Sample Type / Method	Count QC	Count Regular	Rate (%) Actual	Rate (%) Expected	Quality Control Specification
Laboratory Duplicates (DUP)					
PAH/Phenols (GC/MS - SIM)	0	8	0.00	10.00	NEPM 2013 B3 & ALS QC Standard
Pesticides by GCMS	0	1	0.00	10.00	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	0	12	0.00	10.00	NEPM 2013 B3 & ALS QC Standard
Matrix Spikes (MS)					
PAH/Phenols (GC/MS - SIM)	0	8	0.00	5.00	NEPM 2013 B3 & ALS QC Standard
Pesticides by GCMS	0	1	0.00	5.00	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	0	12	0.00	5.00	NEPM 2013 B3 & ALS QC Standard

Analysis Holding Time Compliance

If samples are identified below as having been analysed or extracted outside of recommended holding times, this should be taken into consideration when interpreting results.

This report summarizes extraction / preparation and analysis times and compares each with ALS recommended holding times (referencing USEPA SW 846, APHA, AS and NEPM) based on the sample container provided. Dates reported represent first date of extraction or analysis and preclude subsequent dilutions and reruns. A listing of breaches (if any) is provided herein.

Holding time for leachate methods (e.g. TCLP) vary according to the analytes reported. Assessment compares the leach date with the shortest analyte holding time for the equivalent soil method. These are: organics 14 days, mercury 28 days & other metals 180 days. A recorded breach does not guarantee a breach for all non-volatile parameters.

Holding times for ***VOC in soils*** vary according to analytes of interest. Vinyl Chloride and Styrene holding time is 7 days; others 14 days. A recorded breach does not guarantee a breach for all VOC analytes and should be verified in case the reported breach is a false positive or Vinyl Chloride and Styrene are not key analytes of interest/concern.

Matrix: **WATER**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / ***Container*** / Client Sample ID(s)	***Sample Date***	*Extraction / Preparation* ***Date extracted***	*Due for extraction*	*Evaluation*	*Analysis* ***Date analysed***	*Due for analysis*	*Evaluation*
EG020F: Dissolved Metals by ICP-MS							
Clear Plastic Bottle - Nitric Acid; Filtered (EG020A-F)							
QC23	**28-Sep-2016**	**----**	----	----	**07-Oct-2016**	27-Mar-2017	✓
EG035F: Dissolved Mercury by FIMS							
Clear Plastic Bottle - Nitric Acid; Filtered (EG035F)							
QC23	**28-Sep-2016**	**----**	----	----	**10-Oct-2016**	26-Oct-2016	✓
EP035G: Total Phenol by Discrete Analyser							
Clear Plastic Bottle - Sulfuric Acid (EP035G)							
QC23	**28-Sep-2016**	**05-Oct-2016**	26-Oct-2016	✓	**05-Oct-2016**	26-Oct-2016	✓
EP068A: Organochlorine Pesticides (OC)							
Amber Glass Bottle - Unpreserved (EP068)							
QC23	**28-Sep-2016**	**04-Oct-2016**	05-Oct-2016	✓	**06-Oct-2016**	13-Nov-2016	✓
EP068B: Organophosphorus Pesticides (OP)							
Amber Glass Bottle - Unpreserved (EP068)							
QC23	**28-Sep-2016**	**04-Oct-2016**	05-Oct-2016	✓	**06-Oct-2016**	13-Nov-2016	✓
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons							
Amber Glass Bottle - Unpreserved (EP075(SIM))							
QC23	**28-Sep-2016**	**04-Oct-2016**	05-Oct-2016	✓	**06-Oct-2016**	13-Nov-2016	✓

Matrix: **WATER**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EP080/071: Total Petroleum Hydrocarbons							
Amber Glass Bottle - Unpreserved (EP071)							
QC23	**28-Sep-2016**	**04-Oct-2016**	05-Oct-2016	✓	**06-Oct-2016**	13-Nov-2016	✓
Clear glass VOC vial - HCl (EP080)							
QC23	**28-Sep-2016**	**07-Oct-2016**	12-Oct-2016	✓	**07-Oct-2016**	12-Oct-2016	✓
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions							
Amber Glass Bottle - Unpreserved (EP071)							
QC23	**28-Sep-2016**	**04-Oct-2016**	05-Oct-2016	✓	**06-Oct-2016**	13-Nov-2016	✓
Clear glass VOC vial - HCl (EP080)							
QC23	**28-Sep-2016**	**07-Oct-2016**	12-Oct-2016	✓	**07-Oct-2016**	12-Oct-2016	✓
EP080: BTEXN							
Clear glass VOC vial - HCl (EP080)							
QC23	**28-Sep-2016**	**07-Oct-2016**	12-Oct-2016	✓	**07-Oct-2016**	12-Oct-2016	✓

Quality Control Parameter Frequency Compliance

The following report summarises the frequency of laboratory QC samples analysed within the analytical lot(s) in which the submitted sample(s) was(were) processed. Actual rate should be greater than or equal to the expected rate. A listing of breaches is provided in the Summary of Outliers.

Matrix: **WATER**

Evaluation: × = Quality Control frequency not within specification ; ✓ = Quality Control frequency within specification.

Quality Control Sample Type		Count		Rate (%)			Quality Control Specification
Analytical Methods	*Method*	*QC*	*Regular*	***Actual***	***Expected***	*Evaluation*	
Laboratory Duplicates (DUP)							
Dissolved Mercury by FIMS	EG035F	2	16	**12.50**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Dissolved Metals by ICP-MS - Suite A	EG020A-F	2	16	**12.50**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
PAH/Phenols (GC/MS - SIM)	EP075(SIM)	0	8	**0.00**	**10.00**	×	NEPM 2013 B3 & ALS QC Standard
Pesticides by GCMS	EP068	0	1	**0.00**	**10.00**	×	NEPM 2013 B3 & ALS QC Standard
Total Phenol by Discrete Analyser	EP035G	2	9	**22.22**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	0	12	**0.00**	**10.00**	×	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	2	20	**10.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Laboratory Control Samples (LCS)							
Dissolved Mercury by FIMS	EG035F	1	16	**6.25**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Dissolved Metals by ICP-MS - Suite A	EG020A-F	1	16	**6.25**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
PAH/Phenols (GC/MS - SIM)	EP075(SIM)	1	8	**12.50**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Pesticides by GCMS	EP068	1	1	**100.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Phenol by Discrete Analyser	EP035G	1	9	**11.11**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	1	12	**8.33**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Method Blanks (MB)							
Dissolved Mercury by FIMS	EG035F	1	16	**6.25**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Dissolved Metals by ICP-MS - Suite A	EG020A-F	1	16	**6.25**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
PAH/Phenols (GC/MS - SIM)	EP075(SIM)	1	8	**12.50**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Pesticides by GCMS	EP068	1	1	**100.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Phenol by Discrete Analyser	EP035G	1	9	**11.11**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	1	12	**8.33**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Matrix Spikes (MS)							
Dissolved Mercury by FIMS	EG035F	1	16	**6.25**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Dissolved Metals by ICP-MS - Suite A	EG020A-F	1	16	**6.25**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
PAH/Phenols (GC/MS - SIM)	EP075(SIM)	0	8	**0.00**	**5.00**	×	NEPM 2013 B3 & ALS QC Standard
Pesticides by GCMS	EP068	0	1	**0.00**	**5.00**	×	NEPM 2013 B3 & ALS QC Standard
Total Phenol by Discrete Analyser	EP035G	1	9	**11.11**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	0	12	**0.00**	**5.00**	×	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard

Brief Method Summaries

The analytical procedures used by the Environmental Division have been developed from established internationally recognized procedures such as those published by the US EPA, APHA, AS and NEPM. In house developed procedures are employed in the absence of documented standards or by client request. The following report provides brief descriptions of the analytical procedures employed for results reported in the Certificate of Analysis. Sources from which ALS methods have been developed are provided within the Method Descriptions.

Analytical Methods	Method	Matrix	Method Descriptions
Dissolved Metals by ICP-MS - Suite A	EG020A-F	WATER	In house: Referenced to APHA 3125; USEPA SW846 - 6020, ALS QWI-EN/EG020. Samples are 0.45µm filtered prior to analysis. The ICPMS technique utilizes a highly efficient argon plasma to ionize selected elements. Ions are then passed into a high vacuum mass spectrometer, which separates the analytes based on their distinct mass to charge ratios prior to their measurement by a discrete dynode ion detector.
Dissolved Mercury by FIMS	EG035F	WATER	In house: Referenced to AS 3550, APHA 3112 Hg - B (Flow-injection (SnCl2)(Cold Vapour generation) AAS) Samples are 0.45µm filtered prior to analysis. FIM-AAS is an automated flameless atomic absorption technique. A bromate/bromide reagent is used to oxidise any organic mercury compounds in the filtered sample. The ionic mercury is reduced online to atomic mercury vapour by SnCl2 which is then purged into a heated quartz cell. Quantification is by comparing absorbance against a calibration curve. This method is compliant with NEPM (2013) Schedule B(3)
Total Phenol by Discrete Analyser	EP035G	WATER	In house: Referenced to APHA 5530 B&D. Steam distillable Phenols are reacted with 4-aminoantipyrine. The resultant colour intensity is measured by Seal. This method is compliant with NEPM (2013) Schedule B(3)
Pesticides by GCMS	EP068	WATER	In house: Referenced to USEPA SW 846 - 8270D Sample extracts are analysed by Capillary GC/MS and quantification is by comparison against an established 5 point calibration curve. This method is compliant with NEPM (2013) Schedule B(3)
TRH - Semivolatile Fraction	EP071	WATER	In house: Referenced to USEPA SW 846 - 8015A The sample extract is analysed by Capillary GC/FID and quantification is by comparison against an established 5 point calibration curve of n-Alkane standards. This method is compliant with the QC requirements of NEPM (2013) Schedule B(3)
PAH/Phenols (GC/MS - SIM)	EP075(SIM)	WATER	In house: Referenced to USEPA SW 846 - 8270D Sample extracts are analysed by Capillary GC/MS in SIM Mode and quantification is by comparison against an established 5 point calibration curve. This method is compliant with NEPM (2013) Schedule B(3)
TRH Volatiles/BTEX	EP080	WATER	In house: Referenced to USEPA SW 846 - 8260B Water samples are directly purged prior to analysis by Capillary GC/MS and quantification is by comparison against an established 5 point calibration curve. Alternatively, a sample is equilibrated in a headspace vial and a portion of the headspace determined by GCMS analysis. This method is compliant with the QC requirements of NEPM (2013) Schedule B(3)

Preparation Methods	Method	Matrix	Method Descriptions
Phenols After Microdistillation	EP035D	WATER	In house: Referenced to APHA 5530 A, B&D pH adjusted Steam distillable Phenolic compounds. The resultant colour intensity is measured by Discrete Analyser.
Separatory Funnel Extraction of Liquids	ORG14	WATER	In house: Referenced to USEPA SW 846 - 3510B 100 mL to 1L of sample is transferred to a separatory funnel and serially extracted three times using 60mL DCM for each extract. The resultant extracts are combined, dehydrated and concentrated for analysis. This method is compliant with NEPM (2013) Schedule B(3) . ALS default excludes sediment which may be resident in the container.
Volatiles Water Preparation	ORG16-W	WATER	A 5 mL aliquot or 5 mL of a diluted sample is added to a 40 mL VOC vial for sparging.

APPENDIX G – CALIBRATION DOCUMENT

PID Calibration Certificate

Instrument PhoCheck Tiger
Serial No. T-105423

airmet

Air-Met Scientific Pty Ltd
1300 137 067

Item	Test	Pass	Comments
Battery	Charge Condition	✓	
	Fuses	✓	
	Capacity	✓	
	Recharge OK?	✓	
Switch/keypad	Operation	✓	
Display	Intensity	✓	
	Operation (segments)	✓	
Grill Filter	Condition	✓	
	Seal	✓	
Pump	Operation	✓	
	Filter	✓	
	Flow	✓	
	Valves, Diaphragm	✓	
PCB	Condition	✓	
Connectors	Condition	✓	
Sensor	PID	✓	10.6 ev
Alarms	Beeper	✓	Low: 50ppm; High: 100ppm; TWA: N/A; STEL: N/A
	Settings	✓	
Software	Version	✓	
Data logger	Operation	✓	
Download	Operation	✓	
Other tests:			

Certificate of Calibration

This is to certify that the above instrument has been calibrated to the following specifications:

Sensor	Serial no	Calibration gas and concentration	Certified	Gas bottle No		Instrument Reading
PID Lamp		98ppm Isobutylene	NATA	SY137		98.9ppm

Calibrated by:  **Lin Wang**

Calibration date: **1/09/2016**

Next calibration due: **1/10/2016**

APPENDIX H – FIELD SHEETS

Daily Sheet

Project:	Canberra Brickworks
Date:	5/9/16
SMEC Personnel / Sampler:	N Crook, G Ohmsen
Weather Conditions:	Cloudy,

Field Notes:

08:30 - Cloudy, cool

PID: 0.3ppm

G-1 : asbestos sample/soil sample, no odour PID: 0.0

SS-17 : hard brown soil, small (2-5mm) brick frags GPS loc taken

PID : 0.3

SS18 : 1+ bags concrete blocks/gravel 10-400mm cobble pile GPS Taken

PID: 0.4

G-2 : no sample - small pile only - photo evidence PID 0.0

SS-7 : Soil, brick frags 5-8cm long

PID: 0.3

SS-6 : Soil, no obvious brick frags small PID : 0.2 GPS taken

G-3 : surface soil gravelly (10-40mm) PID: 0.6.

SS-10 : Fine bage/brown sand, loose, dry PID: 0.2

SS-11 : Fine sand bage/orange PID: 0.1

SS-4 : Soil, brown, moist PID: 0.5

SS-1 : bage sand med grained, dry, minor brick frags 5-15mm PID: 0.0

SS-2 : dry bage med sand PID: 0.0.

G-4 : Hebe soil, brick frags, waste PID: 0.1

G-5 : soil stockpile, brick fragments to 2-15cm PID: 0.3

11:00 - weather, Sunny

GG6 - Soil, wet Sand, no odour PID: 0.0

SS3 : wet, no order soil, brown soil. PID: 0.3

SS5 : Wet brown soil, brick fragments 5-15mm, no odour PID: 0.4

SS13 : Wet sand, med grained, brown soil PID: 4.7

SS12 : Granite gravelly soil, wet, no odour, PID: 0.3

SS14 : Stockpile, brick frgmt 5-15mm, loose dry brown soil. PID. 0.3

Equipment Calibration			
PID		LEL	
Calibration Standard		Calibration Standard	
Calibration Reading		Calibration Reading	
Result		Result	

SS15 : Wet dark brown soil, no odour PID: 0.4

Finish Sample 13:00.

* PID equipment - didn't go back to zero!

SMEC

Daily Sheet

Project:	Canberra Brickworks
Date:	6/9/16
SMEC Personnel / Sampler:	C Johnson, N. Crook D'Oleary, C. Ward
Weather Conditions:	Fine

Field Notes:

Arrive on Site 07:10 am

Toolbox @ 8.45 am. start work @ 8.15

Drillers Excavator Drivers on-site.

2 - excavators working. 20T W GO, NC, 13T W RO.

- Test pitting, site OK.

-

-TP-05: hit UST @ 1.5m @ 2.00 pm Stop Work awaiting to see if pipe or UST, little water trickling out of UST.

- Marked GPS loc, backfilled and continued work after informing MS. IS (LDA)

No further problems

Equipment Calibration			
PID		LEL	
Calibration Standard		Calibration Standard	
Calibration Reading		Calibration Reading	
Result		Result	

SMEC

Daily Sheet

Project:	3002123 Canberra Brickworks
Date:	7/9/16
SMEC Personnel / Sampler:	G Olmsen, N. Crook, R Oleary
Weather Conditions:	Fine, Sunny

Field Notes:

On Site 07:00 other crowd 7.15-7.30

7.45 Toolbox, discuss being aware of buried things after yesterday's encounter

- Be aware when excavating in areas defined by archaeologists - 100mm cut only

Start 8.10 am

TP goes well, no issues

TP62: hit stormwater pipe in pit / fill @ ~ 1.4m bgl water from pipe, why?

Stopped, informed MS, JS, Content Rule Ogols from ACT property Group, also Thor

Continued on to Further Tpitty, moved TP 76 off projected pipe line

Finish 5.15 pm, leave site 5.45 pm

Equipment Calibration

PID		LEL	
Calibration Standard		Calibration Standard	
Calibration Reading		Calibration Reading	
Result		Result	

Daily Sheet

Project:	3002523
Date:	4/09/16
SMEC Personnel / Sampler:	RYAN O'LEARY
Weather Conditions:	Cloudy, chance of light shower Light Rain @ 10am stopped @10:45 am Light breeze ~1km/hr

Field Notes:

7:30 am Ryan - toolbox

8:20 am BH 2, ~~BH 4~~, BH 3, TP 11, BH 4, BH 5

10:15 am Dunmore Plumbing (Kris) arrived

10:30 am Inspect broken SW pipe. ~~[illegible]~~. Will give quote.

10:30 am Finished BH 5, BH 6

12 pm BH 7, Issue with rig 12:40 pm 1:00 pm Rig working again

1:40 pm Chris W left site.

1 pm Moved to BH 9 to set up. BH 9 water level 1.35 pm

BH 10 Refusal @ 0.4m Then BH 8.

3:24 pm Spoke to Gordon re BH 10. Moving equip out the way. Spoke to Ant re: contacts etc.

3:30 pm BH 15

4:20 pm Ryan left site

BH 8 - asbestos dump area *

Equipment Calibration			
PID		LEL	
Calibration Standard		Calibration Standard	
Calibration Reading		Calibration Reading	
Result		Result	

Daily Sheet

Project:	3002523 CBR Brickworks
Date:	12/9/16
SMEC Personnel / Sampler:	RYAN O'LEARY
Weather Conditions:	@ 8am Sunny, no wind.

Field Notes:

7:30am Met Graham + James. Graham provided me hand auger. Go left.
8:00 am Drill rig set up by James at BH10. Toolbox talk conducted.
8.30 am First sample taken at BH10. 9:20 am Finished BH10.
9:20 am - Issues with Rig. James called Mobile Mechanic (AAA) to fix
11:00 am carburator. Adjusting gap points in distributor (VW engines).
11:00 am BH 11. Spoke to Chris Ward who called about seismic survey
12:00 pm BH14. Tomorrow and samples that require analysis.
12:55 pm Moved to BH13. AAA Mobile Mechanic back out. Issue with valve
Fixed.
1.35 pm Recommenced with BH13.
1:55 pm Finished @ BH13. Started on BH12
2:50 pm Finished on BH12 Started on BH16. Called Graham to check
location of BH12. All cleared by Bruce. Gravel at BH12
3:00 pm Started BH16
4:20 ~~pm~~ pm Finished BH16
4:30 pm ~~Ryan + James left Site~~ Manned out MW3 order
M3, M2, M1, M6, M5, M4, M8 & M7
M3 - auger to ~4m, 3m casing down to 1m bgl. Bentonite to surface &
put well in. James set-up for M3.

4:40 pm Ryan + James left site.

Equipment Calibration			
PID		LEL	
Calibration Standard		Calibration Standard	
Calibration Reading		Calibration Reading	
Result		Result	

BHs 1, 2, 3, 4, 5, 6, 7, 9, 15, 17, 18, 10, 11, 14, 13

5 3 8 2 1 6

Daily Sheet

Project:	3002523
Date:	13/9/16
SMEC Personnel / Sampler:	RYAN O'GARRY
Weather Conditions:	Cloudy 13°C

Field Notes:

7:30 am Met Chris, Bruce + Sam onsite. Went through inductions & toolbox talk. (Seismic survey)

8:10 am Inducted Chris (Testsonde) + held toolbox talk with drillers

8:25 am Started on MW3. Took 2 soil samples (2 jars + 1 bag). MW3 started installation.

9:35 am Chris reported to Ryan re: asbestos sheeting lying on ground at TP 36A (just uphill from it) in the track surface. Seismic guys were looking for outcropping rock and came across it

10:40 am finished MW3. Moved to MW2.

11:50 am Spoke to Thor (PM) two test pits (TP63 + 28). Need to add gravel subbase on (refer to photo) + blue metal. Compact with bobcat. Clay is on road for TP63. Also make boreholes flush where cored. cement grout below BH. Make as was before. Compact with excavator. ACT Property received minor complaints from residents re: noise. Sent to CDA. Thor sent email to CDA re: TP's 63 + 28. Border post stuck in clay. Junk in. Need to fix.

11:10 am set up at MW2.

3:30 Checked & HA locations with Michelle. 1 was covered 2 magnets must be in kids.

4:00 called Damians Plumbing re stormwater pipe quotation They are still trying to source stormwater plans for the site. Damians Plumbing will get back to us later this week.

4:40 Started HA (HA, GB)

5:00 Driller + Ryan left site

* Case was left in MW. Pizza slid inside case. Left overnight

Equipment Calibration			
PID		LEL	
Calibration Standard		Calibration Standard	
Calibration Reading		Calibration Reading	
Result		Result	

Daily Sheet

Project:	3002523
Date:	14-9-2016
SMEC Personnel / Sampler:	RYAN O'LEARY
Weather Conditions:	CLOUDY WITH LIGHT RAIN Max 12°C

Field Notes:

7:30am Went through toolbox talk with seismic surveyors & driller's.
- Hard drill - limestone - no way can work with hand drill
- silt/sand/shale in gamma would go quicker
- No g/w intercepted on M2.

9:00 am Finished at M2. Moved to M6.

9:30 am Started on M6

12:15pm Still a drain that's used or not. Will give me a call. Next week if have everything

11:00 am Sitting out samples to be analysed by Lab Trent sent in email.

3:00 pm Finished M6. Confirmed with radiator re: 12-15m screen. + screening only natural material. Ok see email.

3:15 pm Spoke to Dony re: sand bags to divert s/w around excavation area. Dony will look into sandbags + let me know. Dony will also call Thor.

3:40 pm GE Drilling (James + Chris) left site to get switch. Called Blackwoods re. sandbags. Dony called to say had sandbags.

3:50pm Dony arrived with sandbags for stormwater pipe in hole. Placed these around the excavation area to divert/prevent polluted runoff from entering the excavation area. Met with Thor from Thor Plumber. Showed Dony area (two test pits to be sealed and gravel from stockpile to be placed. Blue material - not in the report. Michelle spoke to Irena Skaya.

4:30pm Ryan + Dony left site.

Equipment Calibration

PID		LEL	
Calibration Standard		Calibration Standard	
Calibration Reading		Calibration Reading	
Result		Result	

42 m
37 m water level

SMEC

Daily Sheet

Project:	Canberra Brickworks
Date:	15-9-2016
SMEC Personnel / Sampler:	RYAN O'LEARY
Weather Conditions:	Cloudy with rain 11°C

Field Notes:

7:30am Inductions / Toolbox
8:10 am Continued MS
9:00am Placed matting entry around excavation where SW pipe broken
Spoke to Duncans Plumbing Ashley (can't do work) early water plan 1928-1971 no stormwater plans. Gave me no. of Dr Dominic.
Spoke to Michelle, Doug Thomas redundant. MS spoke to
10:00am MS finished
Drove to M1. Waited for seismic survey guys to finish up
11:15 am started on M1.
1:00 pm Lost to 6m Governor blew. Had to replace part - went off to get key work
2:00 pm Met Chris Ward CPT regarding
3:00 pm Moved augers HA 22, HA 7 & HA 8. drillers
4:00pm
4:00pm left site

Equipment Calibration			
PID		LEL	
Calibration Standard		Calibration Standard	
Calibration Reading		Calibration Reading	
Result		Result	

APPENDIX I – SITE PHOTOGRAPHS



TP-45 (ABOVE, BELOW)




Date & Time: Tue Sep 6 14:15:47 AEST 2016
Position: -035.30942° / +149.08945°
Altitude: 573m
Datum: WGS-84
Azimuth/Bearing: 321° N39W 5707mils (True)
Elevation Angle: -51.1°
Horizon Angle: -01.6°
Zoom: 1X

TP-38


Date & Time: Thu Sep 8 08:54:40 AEST 2016
Position: -035.31069° / +149.09166°
Altitude: 594m
Datum: WGS-84
Azimuth/Bearing: 131° S49E 2329mils (True)
Elevation Angle: -45.0°
Horizon Angle: +07.8°
Zoom: 1X

TP-59


Date & Time: Thu Sep 8 14:03:05 AEST 2016
Position: -035.30928° / +149.09048°
Altitude: 578m
Datum: WGS-84
Azimuth/Bearing: 011° N11E 0196mils (True)
Elevation Angle: -46.3°
Horizon Angle: -00.9°
Zoom: 1X

TP-63


Date & Time: Thu Sep 8 17:14:41 AEST 2016
Position: -035.30894° / +149.09131°
Altitude: 576m
Datum: WGS-84
Azimuth/Bearing: 358° N02W 6364mils (True)
Elevation Angle: -58.0°
Horizon Angle: -04.7°
Zoom: 1X

TP-23


Date & Time: Thu Sep 8 17:14:57 AEST 2016
Position: -035.30889° / +149.09127°
Altitude: 584m
Datum: WGS-84
Azimuth/Bearing: 175° S05E 3111mils (True)
Elevation Angle: -56.5°
Horizon Angle: -02.9°
Zoom: 1X

TP-23


Date & Time: Thu Sep 8 08:54:40 AEST 2016
Position: -035.31069° / +149.09166°
Altitude: 594m
Datum: WGS-84
Azimuth/Bearing: 131° S49E 2329mils (True)
Elevation Angle: -45.0°
Horizon Angle: +07.8°
Zoom: 1X

TP-58


Date & Time: Thu Sep 8 10:45:10 AEST 2016
Position: -035.30982° / +149.08924°
Altitude: 590m
Datum: WGS-84
Azimuth/Bearing: 316° N44W 5618mils (True)
Elevation Angle: -44.8°
Horizon Angle: -03.1°
Zoom: 1X

TP-50


Date & Time: Thu Sep 8 12:05:34 AEST 2016
Position: -035.30972° / +149.09034°
Altitude: 586m
Datum: WGS-84
Azimuth/Bearing: 073° N73E 1298mils (True)
Elevation Angle: -57.4°
Horizon Angle: -08.5°
Zoom: 1X
TP51 _0-1.6
mbgs
8/9/16

TP-51



TP-11



ACM Fragments



TP-08 (above and below)




TP35_ 0-0.1
5/9/2016


SMEC
SMEC Interim Investigation
TP35_ 0-2.5 m bgl
5/9/2016
Canberra Brickworks
3002523


SMEC
SMEC Enviro Investigation
TP34_0-1.8 mbg
Date: 5/9/2016
Project: Canberra Brickworks
Project Number: 3002523

TP-34


Date & Time: Mon Sep 5 11:55:43 AEST 2016
Position: -035.30944° / +149.09240°
Altitude: 592m
Datum: WGS-84
Azimuth/Bearing: 347° N13W 6169mils (True)
Elevation Angle: -32.6°
Horizon Angle: -01.1°
Zoom: 1X

TP-34


Date & Time: Tue Sep 6 08:42:24 AEST 2016
Position: -035.31041° / +149.09169°
Altitude: 596m
Datum: WGS-84
Azimuth/Bearing: 026° N26E 0462mils (True)
Elevation Angle: -46.0°
Horizon Angle: -00.1°
Zoom: 1X

TP-53


Date & Time: Tue Sep 6 09:33:11 AEST 2016
Position: -035.31064° / +149.09091°
Altitude: 603m
Datum: WGS-84
Azimuth/Bearing: 058° N58E 1031mils (True)
Elevation Angle: -42.1°
Horizon Angle: +01.0°
Zoom: 1X

TP-57


Date & Time: Tue Sep 6 10:11:30 AEST 2016
Position: -035.31059° / +149.09018°
Altitude: 586m
Datum: WGS-84
Azimuth/Bearing: 025° N25E 0444mils (True)
Elevation Angle: -51.1°
Horizon Angle: -03.4°
Zoom: 1X

TP-55


Date & Time: Tue Sep 6 10:49:19 AEST 2016
Position: -035.31054° / +149.08969°
Altitude: 587m
Datum: WGS-84
Azimuth/Bearing: 252° S72W 4480mils (True)
Elevation Angle: -58.6°
Horizon Angle: -05.4°
Zoom: 1X

TP-56


Date & Time: Tue Sep 6 14:52:32 AEST 2016
Position: -035.30961° / +149.08947°
Altitude: 559m
Datum: WGS-84
Azimuth/Bearing: 290° N70W 5156mils (True)
Elevation Angle: -55.9°
Horizon Angle: -01.2°
Zoom: 1X

TP-41


Date & Time: Tue Sep 6 15:56:46 AEST 2016
Position: -035.30908° / +149.08979°
Altitude: 580m
Datum: WGS-84
Azimuth/Bearing: 211° S31W 3751mils (True)
Elevation Angle: -56.1°
Horizon Angle: -05.5°
Zoom: 1X

TR-01


Date & Time: Wed Sep 7 10:28:57 AEST 2016
Position: -035.30981° / +149.09220°
Altitude: 593m
Datum: WGS-84
Azimuth/Bearing: 199° S19W 3538mils (True)
Elevation Angle: -89.7°
Horizon Angle: -89.7°
Zoom: 1X
TP49_0-18
7/9/16

TP-49


Date & Time: Wed Sep 7 10:29:53 AEST 2016
Position: -035.30975° / +149.09222°
Altitude: 594m
Datum: WGS-84
Azimuth/Bearing: 202° S22W 3591mils (True)
Elevation Angle: -41.5°
Horizon Angle: +04.6°
Zoom: 1X
TP49_0-18
7/9/16

TP-49



TR-08


Date & Time: Wed Sep 7 14:07:48 AEST 2016
Position: -035.30741° / +149.09340°
Altitude: 598m
Datum: WGS-84
Azimuth/Bearing: 214° S34W 3804mils (True)
Elevation Angle: -49.3°
Horizon Angle: -03.2°
Zoom: 1X
TP6A 0 - 0.85
m bgl
7/9/16

TP-6A



TP-6A



TP-36



BORE HOLE 01



BORE HOLE 02



BORE HOLE 03



BORE HOLE 05



BORE HOLE 06



BORE HOLE 07



BORE HOLE 09


Date & Time: Fri Sep 9 14:46:42 AEST 2016
Position: -035.30900° / +149.09010°
Altitude: 565m
Datum: WGS-84
Azimuth/Bearing: 349° N11W 6204mils (True)
Elevation Angle: -62.1°
Horizon Angle: -05.9°
Zoom: 1X
BH17 0-0.4 mbgl
9/9/16


Date & Time: Fri Sep 9 15:27:54 AEST 2016
Position: -035.30912° / +149.09056°
Altitude: 574m
Datum: WGS-84
Azimuth/Bearing: 000° N00E 0000mils (True)
Elevation Angle: -53.5°
Horizon Angle: -02.8°
Zoom: 1X
BH18 0-1.6 mbgl
9/9/16

BORE HOLE 18


Date & Time: Fri Sep 9 16:11:08 AEST 2016
Position: -035.30902° / +149.09059°
Altitude: 589m
Datum: WGS-84
Azimuth/Bearing: 003° N03E 0053mils (True)
Elevation Angle: -66.0°
Horizon Angle: -05.0°
Zoom: 1X
BH15_0-0.5
9/9/16


Date & Time: Mon Sep 12 11:02:48 AEST 2016
Position: -035.30819° / +149.09059°
Altitude: 590m
Datum: WGS-84
Azimuth/Bearing: 351° N09W 6240mils (True)
Elevation Angle: -61.0°
Horizon Angle: +01.2°
Zoom: 1X
BH10_0-3.0
12/9/16

BORE HOLE 10


Date & Time: Mon Sep 12 11:57:27 AEST 2016
Position: -035.30816° / +149.09087°
Altitude: 582m
Datum: WGS-84
Azimuth/Bearing: 347° N13W 6169mils (True)
Elevation Angle: -68.6°
Horizon Angle: -07.0°
Zoom: 1X
BH11_0-3.0 m bgs
12/9/16
Canberra Brickworks
3002523



BORE HOLE 14



BORE HOLE 13



BORE HOLE 12


Date & Time: Mon Sep 12 16:54:53 AEST 2016
Position: -035.30884° / +149.09006°
Altitude: 598m
Datum: WGS-84
Azimuth/Bearing: 275° N85W 4889mils (True)
Elevation Angle: -40.1°
Horizon Angle: -01.9°
Zoom: 1X
BH16 - 0 - 3.0

BORE HOLE 16



NON-FRIABLE ASBESTOS FRAGMENTS






Date & Time: Tue Sep 13 09:51:14 AEST 2016
Position: -035.30941° / +149.09172°
Altitude: 579m
Datum: WGS-84
Azimuth/Bearing: 031° N31E 0551mils (True)
Elevation Angle: -69.9°
Horizon Angle: +12.5°
Zoom: 1X


Date & Time: Tue Sep 13 09:51:24 AEST 2016
Position: -035.30939° / +149.09166°
Altitude: 578m
Datum: WGS-84
Azimuth/Bearing: 004° N04E 0071mils (True)
Elevation Angle: -69.8°
Horizon Angle: +13.7°
Zoom: 1X

APPENDIX J - GROUND PENETRATING RADAR REPORT

GPR Report for SMEC for the Canberra Brickworks Phase 2 Project – September 2016

Report written by Jeff Wullaert

Commence Communications

Report submitted to Mechelle Swanepoel from SMEC 21.09.2016

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ABN 19 168 241 727

Project Summary

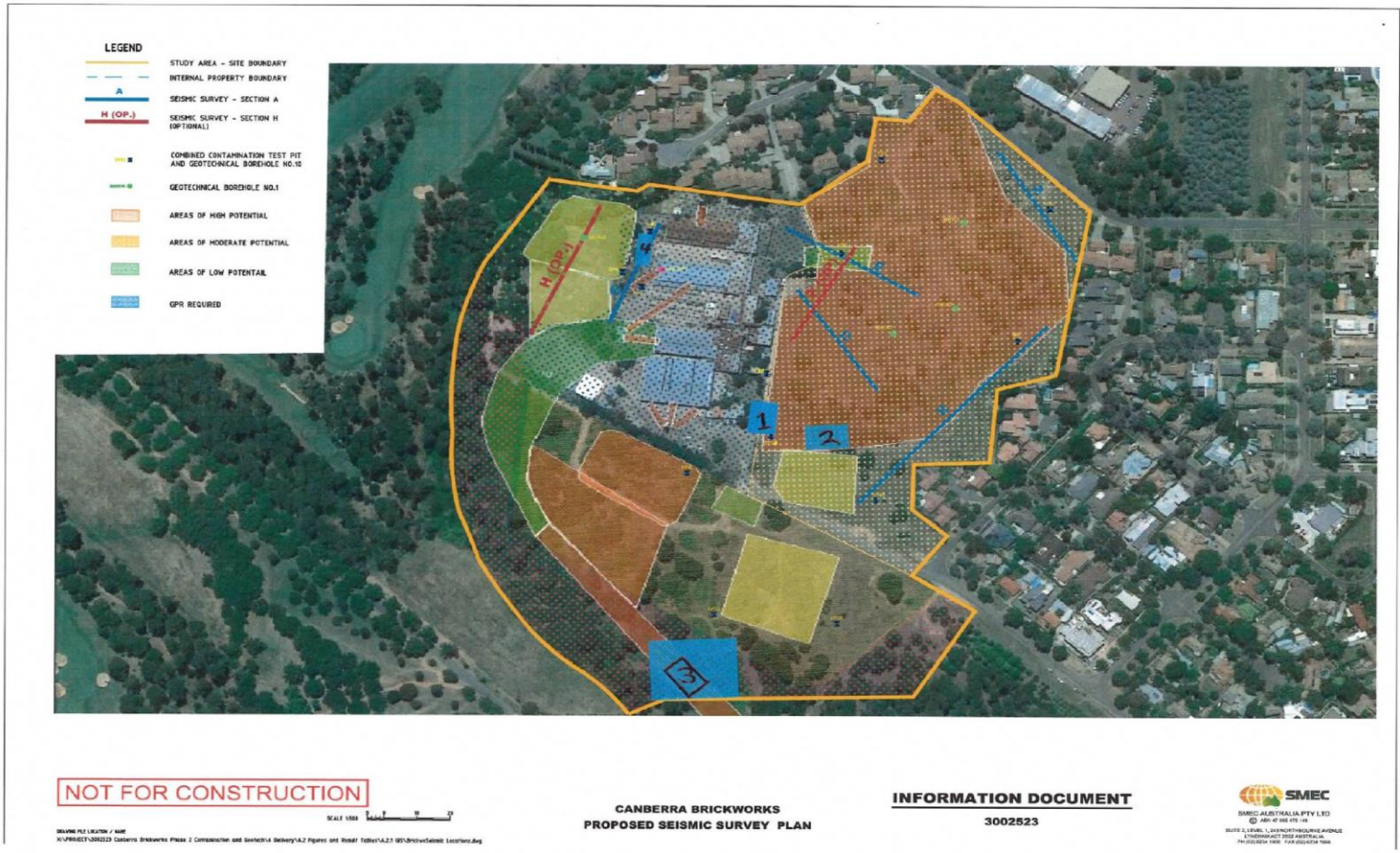
SMEC engaged Commence Communications to carry out a Ground Penetrating Radar (GPR) survey of four areas indicated within the supplied plan at the Canberra Brickworks. The brief was to carry out a GPR survey of four separate locations, three of which were within the Canberra brick works site and one outside the site. The three that were within the brick works site were surveyed to determine if any have underground storage tanks were present. The fourth site was surveyed as a potential archaeological site, searching for structures and artefacts. Figure 1 shows the overall site plan with the four areas surveyed by GPR indicated in blue and numbered 1 to 4 on page 3 of this report.

A GPR survey has been implemented to image the subsurface with the intent of identifying unmarked underground storage tanks within three areas of interest and structures, and archaeological artefacts within the fourth area.

Equipment utilised

Commence Communications carried out this survey using the UtilityScan DF GSSI's premium GPR unit for utility locating. It incorporates innovative digital dual-frequency antenna (300 and 800 MHz) and an easy-to-use touchscreen interface to view shallow and deep targets simultaneously in a single scan.

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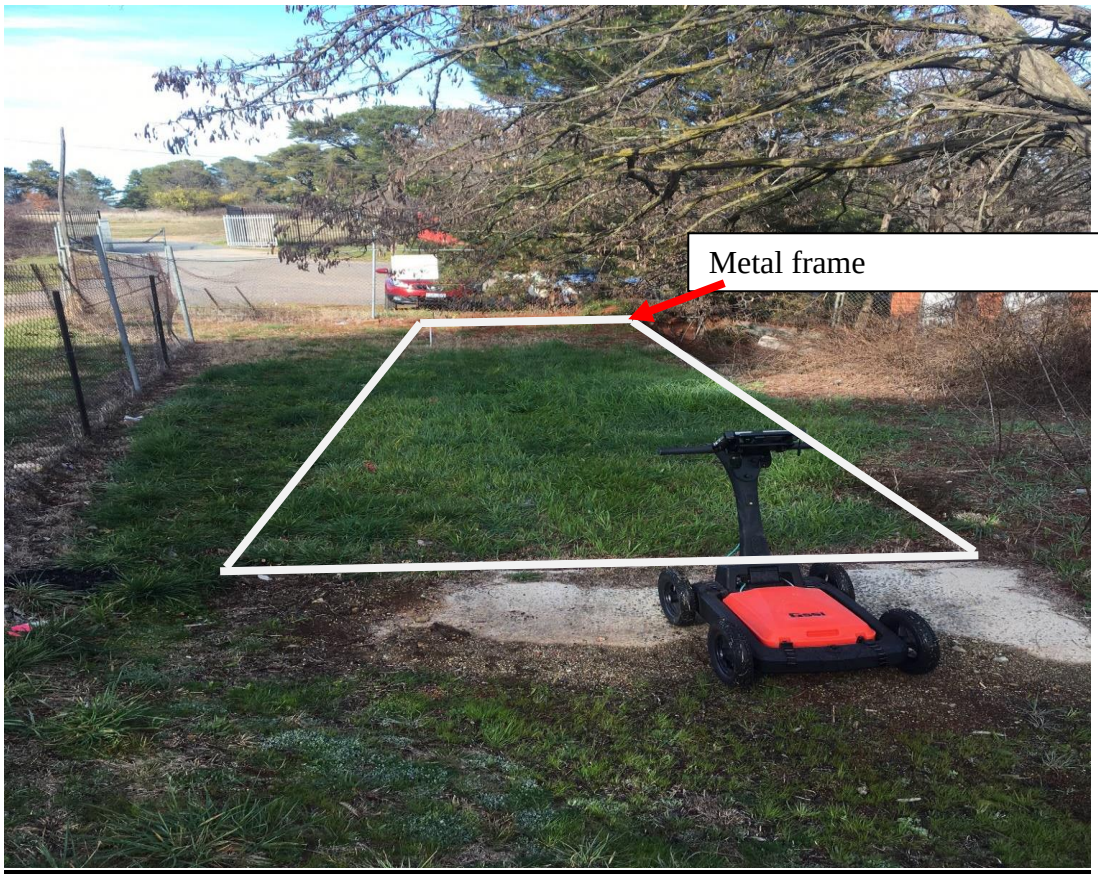
Overall site plan

Figure 1 overall site plan with the 4 sites surveyed via GPR labelled 1 to 4 and shown in blue. As detailed throughout this report, not all areas in the sections 1 to 4 were suitable vegetation to access using the GPR. Surveys were conducted in the sections of sites 1 to 4 (shown in blue) where GPR access and use was possible.

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Site 1

Image 1



Site one was an area of approximately 15 metres x 10 metres adjacent to the dirt entrance track. The area was scanned with a blend of both the 300 and 800 MHz antennas. A visible surface metal frame was evident within the site that was suspected to be part of an old storage tank site. However no evidence of an existing tank was found during the GPR survey. The ground within the framed area did appear to have been disturbed however.

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Site 2

Image 1



Site 2 was a larger site, approximately 60 metres by 40 metres. The area had experienced a lot of disturbance as the site has been utilised to dig large holes and fill them with debris such as broken bricks, concrete and general waste in various locations. No evidence of buried underground storage tanks was found within this area.

On site, we recommended further investigation be carried out in several locations, by marking the indicated areas with a pink circle with a cross through it, as shown above. These areas were identified as anomalies throughout the survey.

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Site 2

Image 2



This image shows an example of large construction waste e.g. bricks/concrete on the surface, consistent with the type of disturbance found in the GPR images throughout site two.

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Site 2

Image 3



This image is another example of construction waste e.g. bricks/concrete on the surface, consistent with the type of disturbance found in the GPR images throughout site two.

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Site 2

Image 4



The above screenshot is a scan path within site two showing lots of disturbance throughout the site. We are scanning to approximately 1.5metres in depth (shown by the green line). It was evident throughout the survey, that the majority of site two had been utilised as landfill.

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Site 2

Image 5



The above image identifies an item for further investigation and another example of construction waste found throughout site two.

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Site 3

Image 1



Due to the heavy vegetation within the indicated area identified by SMEC at site three, we only surveyed the section of site three that was accessible and identified as an old railway line. Within this section of site three, multiple areas of interest were identified, interestingly, all items identified were consistently located at a depth of approximately 2-300mm.

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Site 3

Image 2



Further investigation is recommended to identify these targets marked in pink within the rail corridor.

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Site 3

Image 3



Further investigation is recommended to identify these targets marked in pink.

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Site 3

Image 4



Further investigation is recommended to identify these targets marked in pink.

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Site 3

Image 5



The fallen tree in the distance, was the boundary of the search area within the suspected rail corridor.

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Site 4

Image 1



The above image shows an overview of the terrain encountered within site 4. The majority of site 4 was unsuitable for an extensive survey, therefore only a small amount of the outskirts of site 4 could be surveyed. Clearance of this area is recommended if a GPR survey needs to be completed in this area.

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Site 4

Image 2



The above image identifies in pink, an area that is consistent with a disturbed area, potentially a hole that has been filled with bricks and rubble.

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Site 4

Image 3

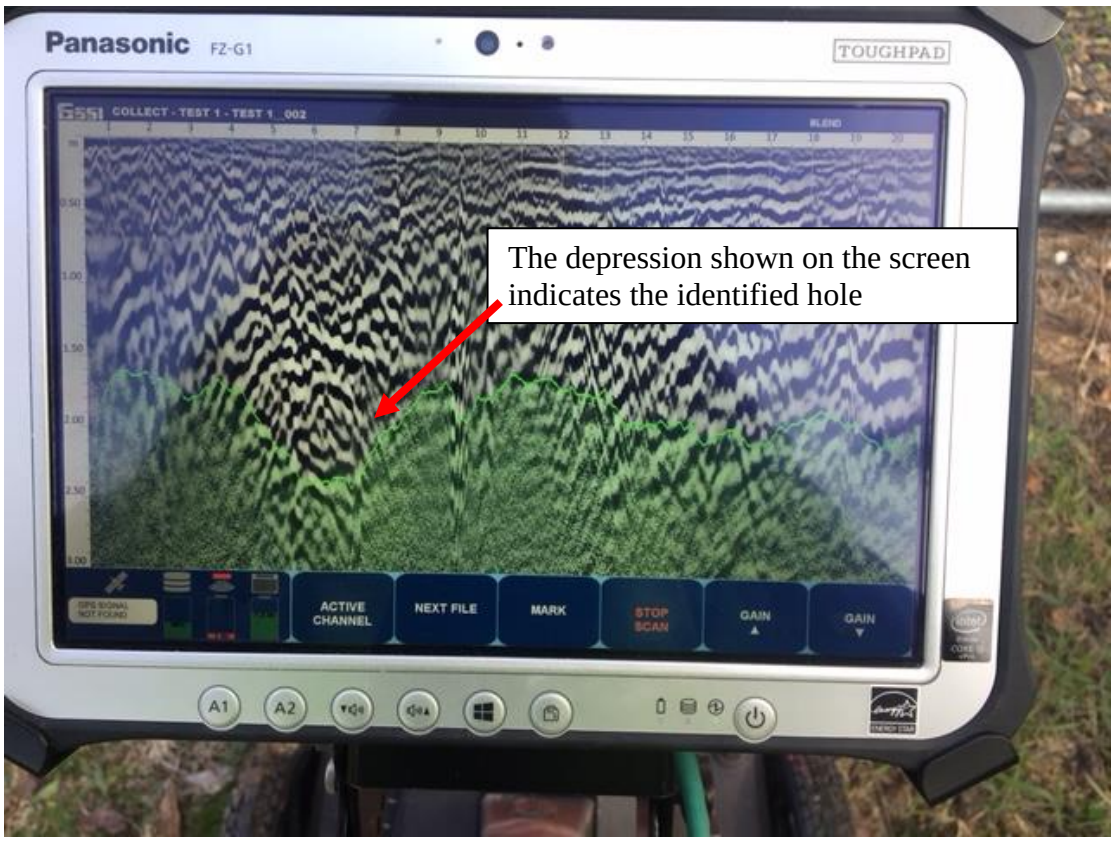


The above image shows an area identified using the radar of another large hole that has been potentially filled with rubble and waste. An exploratory dig is recommended to identify the materials within this area.

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Site 4

Image 4



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Report Summary – Key Findings

In summary, within the four areas surveyed at the Canberra Brickworks site there was no indication of an underground storage tank within the areas that could be accessed with radar. Findings in most sections surveyed, indicated evidence of disturbance most consistent with holes that had been dug in the past and filled with debris and rubble including concrete and bricks.

It is recommended that clearing of the four proposed survey sites, in particular sites three and four where access was impossible in some sections, take place to enable a more comprehensive survey to be carried out where it can be accessed with radar.

Several potential sites were identified and marked with pink marker paint and it is suggested excavation takes place in these areas to identify the items that were indicated as being present during the GPR survey.

Should you require any further information or clarification, please do not hesitate to call me on 0428 595 620.

Regards



Jeff Wullaert

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APPENDIX K - ASBESTOS AIR MONITORING RESULTS

Asbestos Air Monitoring Field Sheet

SMEC Australia Pty Ltd
ABN 47 065475 149
Suite 2, level 1, 243 Northbourne Avenue, Lyneham 2602
02 6234 1900
Email: Mechelle.Swanepoel@smec.com

NOHSC: 3003(2005)			
Report Number:	Day 1	**Date:**	5-9-2016
Client:	LDA		
Site Address:	Canberra Brickworks Yarralumla		
Purpose of Test:	Asbestos Air Monitoring		
General Test Area:	Quarry Site near Test Pit 34		
Rotameter ID:	M474840		
Timer ID:	CASIO G-Shock		

Sample #	Pump #	S / P *	Location	Flow Start	Time On	Flow Stop	Time Off
19457877	120375	P	~~Excavator~~ ~~Dozer~~ ~~Truck~~ ~~Excavator~~ On Natasha crook	2	8:28am	2	5:15pm
19457876	74881	P	On Ryan O'Leary	2	9:30am	2	5:15pm

Note: * Static (control) or Personal (exposure) sampling.

Additional Notes:

Wind ~ 1-2 km/hr

Cold morning, warming up to 20°C.

24 HR TAT Please

Sampled by:	Ryan O'Leary
Signature:	
Date:	5 / 9 / 2016

ANALYTICAL REPORT

Accreditation No. 2562

CLIENT DETAILS

Contact	Mechelle Swanepoel
Client	SMEC AUSTRALIA PTY LTD
Address	Sun Micro Building Suite 2, Level 1 243 Northbourne Avenue ACT 2602
Telephone	02 6234 1900
Facsimile	02 6234 1966
Email	mechelle.swanepoel@smec.com
Project	**M474840 - Quarry Site Near Test Pit 34**
Order Number	(Not specified)
Samples	2

LABORATORY DETAILS

Manager	Huong Crawford
Laboratory	SGS Alexandria Environmental
Address	Unit 16, 33 Maddox St Alexandria NSW 2015
Telephone	+61 2 8594 0400
Facsimile	+61 2 8594 0499
Email	au.environmental.sydney@sgs.com
SGS Reference	**SE156861 R0**
Date Received	08 Sep 2016
Date Reported	9/09/2016 12:59:36PM

COMMENTS

Accredited for compliance with ISO/IEC 17025. NATA accredited laboratory 2562(4354).

The reporting of Fibres/mL may only be done when volume measurements are conducted by a NATA accredited body. Where this report contains both Fibres/Field and a typical K factor which are NATA endorsed, these may be converted to Fibres/mL using this and your volume readings. Where sampling has been performed by SGS Environmental Services, or by a company that holds accreditation for air sampling volume measurement, results are reported as fibres/mL.

Asbestos analysed by Approved Counter Ravee Sivasubramaniam.
Air volume measurement was performed by Ryan O 'Leary and Natasha Crook of SMEC Australia Pty. Ltd. have has been formally trained and
assessed by SGSAlexandria who remain responsible for the data .

SIGNATORIES

S. Ravee Sivasubramaniam

Ravee Sivasubramaniam
Hygiene Team Leader

ANALYTICAL REPORT

RESULTS

Method AN601 Airborne Fibre Monitoring

Laboratory Reference	Client Reference and Description	Date Sampled	Fibres/Fields	Concentration Fibres/mL
SE156861.001	19457877 cowl	05 Sep 2016	<1.0 Fibres/100 fields	<0.01
SE156861.002	19457871 cowl	05 Sep 2016	2.0 Fibres/100 fields	<0.01

			K Factor*
SE156861.001	19457877 cowl	05 Sep 2016	49121
SE156861.002	19457871 cowl	05 Sep 2016	49121

METHOD SUMMARY

SE156861 R0

METHOD	METHODOLOGY SUMMARY
AN601	Airborne asbestos dust and synthetic mineral fibres (SMF) based on the NOHSC (April 2005) guidance note on the membrane filter method NOHSC:3003 (2005) exclusive of sampling. The sample is collected by drawing a volume of air through a membrane filter. The filter is then mounted on a glass slide and the fibres counted according to the specified criteria using phase contrast microscopy.

FOOTNOTES

IS	Insufficient sample for analysis.	LOR	Limit of Reporting
LNR	Sample listed, but not received.	QFH	QC result is above the upper tolerance
*	NATA accreditation does not cover the performance of this service.	QFL	QC result is below the lower tolerance
**	Indicative data, theoretical holding time exceeded.	NA	The sample was not analysed for this analyte

Limit of Reporting (LOR) for Fibre Counting by NOHSC:3003 is 0.01 Fibres per millilitre (Fibres/mL)
Concentration Fibres/mL only covered by the scope of accreditation if sampling performed by SGS .

The QC criteria are subject to internal review according to the SGS QAQC plan and may be provided on request or at this link : http://www.sgs.com.au/~/media/Local/Australia/Documents/Technical%20Documents/MP-AU-ENV-QU-022%20QA%20QC%20Plan.pdf

This document is issued, on the Client's behalf, by the Company under its General Conditions of Service available on request and accessible at http://www.sgs.com/en/terms-and-conditions. The Client's attention is drawn to the limitation of liability, indemnification and jurisdiction issues defined therein.

Any other holder of this document is advised that information contained hereon reflects the Company 's findings at the time of its intervention only and within the limits of Client's instructions, if any. The Company's sole responsibility is to its Client and this document does not exonerate parties to a transaction from exercising all their rights and obligations under the transaction documents.

This test report shall not be reproduced, except in full.

Asbestos Air Monitoring Field Sheet

SMEC Australia Pty Ltd
ABN 47 065475 149
Suite 2, level 1, 243 Northbourne Avenue, Lyneham 2602
02 6234 1900
Email: Mechelle.Swanepoel@smec.com

NOHSC: 3003(2005)

Report Number:	Day 2		
Client:	LDA	**Date:**	6/09/2016
Site Address:	Canberra Brickworks		
Purpose of Test:	Asbestos Air Monitoring		
General Test Area:	CBR Brickworks (Various)		
Rotameter ID:	M 474840		
Timer ID:	Casio & Shock		

Sample #	Pump #	S / P *	Location	Flow Start	Time On	Flow Stop	Time Off
1945786	74881	P	On Natasha Crook Start TP4	2	8:05am	2	4:28 pm
1945787	74145	P	On Ryan O'Leary Start TP3	2	8:12am	2	4:25 pm

Note: * Static (control) or Personal (exposure) sampling.

Additional Notes:

8am - No wind

12pm - No wind

3pm - Slight breeze ~0.5 km/hr

4:30pm - Slight breeze ~0.5km/hr

24 HR TAT Please

Sampled by:	RYAN O'LEARY & NATASHA CROOK
Signature:	
Date:	6 / 09 / 2016

ANALYTICAL REPORT

Accreditation No. 2562

CLIENT DETAILS

Contact	Mechelle Swanepoel
Client	SMEC AUSTRALIA PTY LTD
Address	Sun Micro Building Suite 2, Level 1 243 Northbourne Avenue ACT 2602
Telephone	02 6234 1900
Facsimile	02 6234 1966
Email	mechelle.swanepoel@smec.com
Project	**M474840 - Canberra Brickworks Various**
Order Number	(Not specified)
Samples	2

LABORATORY DETAILS

Manager	Huong Crawford
Laboratory	SGS Alexandria Environmental
Address	Unit 16, 33 Maddox St Alexandria NSW 2015
Telephone	+61 2 8594 0400
Facsimile	+61 2 8594 0499
Email	au.environmental.sydney@sgs.com
SGS Reference	**SE156862 R0**
Date Received	08 Sep 2016
Date Reported	8/09/2016 5:12:29PM

COMMENTS

Accredited for compliance with ISO/IEC 17025. NATA accredited laboratory 2562(4354).

The reporting of Fibres/mL may only be done when volume measurements are conducted by a NATA accredited body. Where this report contains both Fibres/Field and a typical K factor which are NATA endorsed, these may be converted to Fibres/mL using this and your volume readings. Where sampling has been performed by SGS Environmental Services, or by a company that holds accreditation for air sampling volume measurement, results are reported as fibres/mL.

Air volume measurement was performed by Ryan O'Leary and Natasha Crook of SMEC Australia Pty. Ltd. have has been formally trained and assessed by SGS Alexandria who remain responsible for the data.

Asbestos analysed by Approved Counter Ravee Sivasubramaniam.

SIGNATORIES

S. Ravee Sivasubramaniam
Hygiene Team Leader

ANALYTICAL REPORT

SE156862 R0

RESULTS

Method AN601 Airborne Fibre Monitoring

Laboratory Reference	Client Reference and Description	Date Sampled	Fibres/Fields	Concentration Fibres/mL
SE156862.001	19457862 cowl	06 Sep 2016	<1.0 Fibres/100 fields	<0.01
SE156862.002	19457867 cowl	06 Sep 2016	2.0 Fibres/100 fields	<0.01

			K Factor*
SE156862.001	19457862 cowl	06 Sep 2016	49121
SE156862.002	19457867 cowl	06 Sep 2016	49121

METHOD SUMMARY

SE156862 R0

METHOD	METHODOLOGY SUMMARY
AN601	Airborne asbestos dust and synthetic mineral fibres (SMF) based on the NOHSC (April 2005) guidance note on the membrane filter method NOHSC:3003 (2005) exclusive of sampling. The sample is collected by drawing a volume of air through a membrane filter. The filter is then mounted on a glass slide and the fibres counted according to the specified criteria using phase contrast microscopy.

FOOTNOTES

IS	Insufficient sample for analysis.	LOR	Limit of Reporting
LNR	Sample listed, but not received.	QFH	QC result is above the upper tolerance
*	NATA accreditation does not cover the performance of this service.	QFL	QC result is below the lower tolerance
**	Indicative data, theoretical holding time exceeded.	NA	The sample was not analysed for this analyte

Limit of Reporting (LOR) for Fibre Counting by NOHSC:3003 is 0.01 Fibres per millilitre (Fibres/mL)
Concentration Fibres/mL only covered by the scope of accreditation if sampling performed by SGS .

The QC criteria are subject to internal review according to the SGS QAQC plan and may be provided on request or at this link : http://www.sgs.com.au/~/media/Local/Australia/Documents/Technical%20Documents/MP-AU-ENV-QU-022%20QA%20QC%20Plan.pdf

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Asbestos Air Monitoring Field Sheet

SMEC Australia Pty Ltd
ABN 47 065475 149
Suite 2, level 1, 243 Northbourne Avenue, Lyneham 2602
02 6234 1900
Email: Mechelle.Swanepoel@smec.com

NOHSC: 3003(2005)			
Report Number:	Day 3	**Date:**	7/09/2016
Client:	LDA		
Site Address:	Canberra Brickworks		
Purpose of Test:	Asbestos Air Monitoring		
General Test Area:	CBR Brickworks (Around various test pits)		
Rotameter ID:	M474840		
Timer ID:	Casio & Shock		

Sample #	Pump #	S / P *	Location	Flow Start	Time On	Flow Stop	Time Off
19457874	120375	P	With Ryan O'Leary start TP16, then TP1,	3	9:00am	[illegible] 3	2:30pm

Note: * Static (control) or Personal (exposure) sampling.

Additional Notes:

No wind

24 HR TAT Please

Sampled by:	RYAN O'LEARY
Signature:	[signature]
Date:	07 / 09 / 2016

ANALYTICAL REPORT

Accreditation No. 2562

CLIENT DETAILS

Contact	Mechelle Swanepoel
Client	SMEC AUSTRALIA PTY LTD
Address	Sun Micro Building Suite 2, Level 1 243 Northbourne Avenue ACT 2602
Telephone	02 6234 1900
Facsimile	02 6234 1966
Email	mechelle.swanepoel@smec.com
Project	**M474840 CBR Brickworks Various Test Pits**
Order Number	(Not specified)
Samples	1

LABORATORY DETAILS

Manager	Huong Crawford
Laboratory	SGS Alexandria Environmental
Address	Unit 16, 33 Maddox St Alexandria NSW 2015
Telephone	+61 2 8594 0400
Facsimile	+61 2 8594 0499
Email	au.environmental.sydney@sgs.com
SGS Reference	**SE156944 R0**
Date Received	09 Sep 2016
Date Reported	12/09/2016 5:01:25PM

COMMENTS

Accredited for compliance with ISO/IEC 17025. NATA accredited laboratory 2562(4354).

The reporting of Fibres/mL may only be done when volume measurements are conducted by a NATA accredited body. Where this report contains both Fibres/Field and a typical K factor which are NATA endorsed, these may be converted to Fibres/mL using this and your volume readings. Where sampling has been performed by SGS Environmental Services, or by a company that holds accreditation for air sampling volume measurement, results are reported as fibres/mL.

Air volume measurement was performed by Ryan O'Leary of SMEC Australia Pty. Ltd. who has been formally trained and assessed by SGS Alexandria who remain responsible for the data.

Asbestos analysed by Approved Counter Ravee Sivasubramaniam.

SIGNATORIES

Ravee Sivasubramaniam
Hygiene Team Leader

ANALYTICAL REPORT

RESULTS

Method AN601 Airborne Fibre Monitoring

Laboratory Reference	Client Reference and Description	Date Sampled	Fibres/Fields	Concentration Fibres/mL
SE156944.001	19457874 cowl	07 Sep 2016	<1.0 Fibres/100 fields	<0.01

METHOD SUMMARY

SE156944 R0

METHOD	METHODOLOGY SUMMARY
AN601	Airborne asbestos dust and synthetic mineral fibres (SMF) based on the NOHSC (April 2005) guidance note on the membrane filter method NOHSC:3003 (2005) exclusive of sampling. The sample is collected by drawing a volume of air through a membrane filter. The filter is then mounted on a glass slide and the fibres counted according to the specified criteria using phase contrast microscopy.

FOOTNOTES

IS	Insufficient sample for analysis.	LOR	Limit of Reporting
LNR	Sample listed, but not received.	QFH	QC result is above the upper tolerance
*	NATA accreditation does not cover the performance of this service.	QFL	QC result is below the lower tolerance
**	Indicative data, theoretical holding time exceeded.	NA	The sample was not analysed for this analyte

Limit of Reporting (LOR) for Fibre Counting by NOHSC:3003 is 0.01 Fibres per millilitre (Fibres/mL)
Concentration Fibres/mL only covered by the scope of accreditation if sampling performed by SGS .

The QC criteria are subject to internal review according to the SGS QAQC plan and may be provided on request or at this link : http://www.sgs.com.au/~/media/Local/Australia/Documents/Technical%20Documents/MP-AU-ENV-QU-022%20QA%20QC%20Plan.pdf

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Asbestos Air Monitoring Field Sheet

SMEC Australia Pty Ltd
ABN 47 065475 149
Suite 2, level 1, 243 Northbourne Avenue, Lyneham 2602
02 6234 1900
Email: Mechelle.Swanepoel@smec.com

NOHSC: 3003(2005)			
Report Number:	Day 4	**Date:**	8/9/16
Client:	LDA		
Site Address:	CBR BRICKWORKS		
Purpose of Test:	Asbestos Air Monitoring		
General Test Area:	Various Test Pitting		
Rotameter ID:	M474840		
Timer ID:	Casio & Shock		

Sample #	Pump #	S / P *	Location	Flow Start	Time On	Flow Stop	Time Off
19457878	120947	P	Various Test Pits Starting at TP59, ending TP63	2	8:20am	2	4:20pm

Note: * Static (control) or Personal (exposure) sampling.

Additional Notes:

@ 9am No wind

@ 3pm ~1km/hr wind

24 HR TAT Please

Sampled by:	Ryan O'Leary
Signature:	
Date:	8 / 9 / 2016

ANALYTICAL REPORT

Accreditation No. 2562

CLIENT DETAILS

Contact	Mechelle Swanepoel
Client	SMEC AUSTRALIA PTY LTD
Address	Sun Micro Building Suite 2, Level 1 243 Northbourne Avenue ACT 2602
Telephone	02 6234 1900
Facsimile	02 6234 1966
Email	mechelle.swanepoel@smec.com
Project	**M474840 CBR Brickworks Various Test Pits**
Order Number	(Not specified)
Samples	1

LABORATORY DETAILS

Manager	Huong Crawford
Laboratory	SGS Alexandria Environmental
Address	Unit 16, 33 Maddox St Alexandria NSW 2015
Telephone	+61 2 8594 0400
Facsimile	+61 2 8594 0499
Email	au.environmental.sydney@sgs.com
SGS Reference	**SE157020 R0**
Date Received	13 Sep 2016
Date Reported	14/09/2016 1:44:57PM

COMMENTS

Accredited for compliance with ISO/IEC 17025. NATA accredited laboratory 2562(4354).

The reporting of Fibres/mL may only be done when volume measurements are conducted by a NATA accredited body. Where this report contains both Fibres/Field and a typical K factor which are NATA endorsed, these may be converted to Fibres/mL using this and your volume readings. Where sampling has been performed by SGS Environmental Services, or by a company that holds accreditation for air sampling volume measurement, results are reported as fibres/mL.

Air volume measurement was performed by Ryan O'Leary of SMEC Australia Pty. Ltd. who has been formally trained and assessed by SGS Alexandria who remain responsible for the data.

Asbestos analysed by Approved Counter Ravee Sivasubramaniam.

SIGNATORIES

Ravee Sivasubramaniam
Hygiene Team Leader

ANALYTICAL REPORT

RESULTS

Method AN601 Airborne Fibre Monitoring

Laboratory Reference	Client Reference and Description	Date Sampled	Fibres/Fields	Concentration Fibres/mL
SE157020.001	19457878 cowl	08 Sep 2016	4.0 Fibres/100 fields	<0.01

METHOD SUMMARY

SE157020 R0

METHOD	METHODOLOGY SUMMARY
AN601	Airborne asbestos dust and synthetic mineral fibres (SMF) based on the NOHSC (April 2005) guidance note on the membrane filter method NOHSC:3003 (2005) exclusive of sampling. The sample is collected by drawing a volume of air through a membrane filter. The filter is then mounted on a glass slide and the fibres counted according to the specified criteria using phase contrast microscopy.

FOOTNOTES

IS	Insufficient sample for analysis.	LOR	Limit of Reporting
LNR	Sample listed, but not received.	QFH	QC result is above the upper tolerance
*	NATA accreditation does not cover the performance of this service.	QFL	QC result is below the lower tolerance
**	Indicative data, theoretical holding time exceeded.	NA	The sample was not analysed for this analyte

Limit of Reporting (LOR) for Fibre Counting by NOHSC:3003 is 0.01 Fibres per millilitre (Fibres/mL)
Concentration Fibres/mL only covered by the scope of accreditation if sampling performed by SGS .

The QC criteria are subject to internal review according to the SGS QAQC plan and may be provided on request or at this link : http://www.sgs.com.au/~/media/Local/Australia/Documents/Technical%20Documents/MP-AU-ENV-QU-022%20QA%20QC%20Plan.pdf

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Asbestos Air Monitoring Field Sheet

SMEC Australia Pty Ltd
ABN 47 065475 149
uite 2, level 1, 243 Northbourne Avenue, Lyneham 2602
02 6234 1900
Email: Mechelle.Swanepoel@smec.com

Sender to keep
606 22745048 097

NOHSC: 3003(2005)		Date: 9/9/2016
Report Number:	Day 5	
Client:	LDA	
Site Address:	CBR BRICKWORKS	
Purpose of Test:	Asbestos	
General Test Area:	BH2 - start BH15 - end	
Rotameter ID:	M474840	
Timer ID:	Casio & Shak	

Sample #	Pump #	S / P *	Location	Flow Start	Time On	Flow Stop	Time Off
19611996	120947	P	BH2 - start BH15-end	2	8:30am	2	4:30pm

Note: * Static (control) or Personal (exposure) sampling.

Additional Notes:

No wind

24HR TAT Please

Sampled by:	Ryan O'Leary
Signature:	
Date:	9 / 9 / 2016

ANALYTICAL REPORT

Accreditation No. 2562

CLIENT DETAILS

Contact	Mechelle Swanepoel
Client	SMEC AUSTRALIA PTY LTD
Address	Sun Micro Building Suite 2, Level 1 243 Northbourne Avenue ACT 2602
Telephone	02 6234 1900
Facsimile	02 6234 1966
Email	mechelle.swanepoel@smec.com
Project	**M474840 CBR Brickworks BH2 Strt BH15 End**
Order Number	(Not specified)
Samples	1

LABORATORY DETAILS

Manager	Huong Crawford
Laboratory	SGS Alexandria Environmental
Address	Unit 16, 33 Maddox St Alexandria NSW 2015
Telephone	+61 2 8594 0400
Facsimile	+61 2 8594 0499
Email	au.environmental.sydney@sgs.com
SGS Reference	**SE156973 R0**
Date Received	12 Sep 2016
Date Reported	13/09/2016 4:04:07PM

COMMENTS

Accredited for compliance with ISO/IEC 17025. NATA accredited laboratory 2562(4354).

The reporting of Fibres/mL may only be done when volume measurements are conducted by a NATA accredited body. Where this report contains both Fibres/Field and a typical K factor which are NATA endorsed, these may be converted to Fibres/mL using this and your volume readings. Where sampling has been performed by SGS Environmental Services, or by a company that holds accreditation for air sampling volume measurement, results are reported as fibres/mL.

Air volume measurement was performed by Ryan O'Leary of SMEC Australia Pty. Ltd. who has been formally trained and assessed by SGS Alexandria who remain responsible for the data.

Asbestos analysed by Approved Counter Ravee Sivasubramaniam.

SIGNATORIES

Ravee Sivasubramaniam
Hygiene Team Leader

ANALYTICAL REPORT

SE156973 R0

RESULTS

Method AN601 Airborne Fibre Monitoring

Laboratory Reference	Client Reference and Description	Date Sampled	Fibres/Fields	Concentration Fibres/mL
SE156973.001	19611994 cowl	09 Sep 2016	2.0 Fibres/100 fields	<0.01

METHOD SUMMARY

SE156973 R0

METHOD	METHODOLOGY SUMMARY
AN601	Airborne asbestos dust and synthetic mineral fibres (SMF) based on the NOHSC (April 2005) guidance note on the membrane filter method NOHSC:3003 (2005) exclusive of sampling. The sample is collected by drawing a volume of air through a membrane filter. The filter is then mounted on a glass slide and the fibres counted according to the specified criteria using phase contrast microscopy.

FOOTNOTES

IS	Insufficient sample for analysis.	LOR	Limit of Reporting
LNR	Sample listed, but not received.	QFH	QC result is above the upper tolerance
*	NATA accreditation does not cover the performance of this service.	QFL	QC result is below the lower tolerance
**	Indicative data, theoretical holding time exceeded.	NA	The sample was not analysed for this analyte

Limit of Reporting (LOR) for Fibre Counting by NOHSC:3003 is 0.01 Fibres per millilitre (Fibres/mL)
Concentration Fibres/mL only covered by the scope of accreditation if sampling performed by SGS .

The QC criteria are subject to internal review according to the SGS QAQC plan and may be provided on request or at this link : http://www.sgs.com.au/~/media/Local/Australia/Documents/Technical%20Documents/MP-AU-ENV-QU-022%20QA%20QC%20Plan.pdf

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Asbestos Air Monitoring Field Sheet

SMEC Australia Pty Ltd
ABN 47 065475 149
Suite 2, level 1, 243 Northbourne Avenue, Lyneham 2602
02 6234 1900
Email: Mechelle.Swanepoel@smec.com

NOHSC: 3003(2005)		Date: 12/09/2016
Report Number:	Day 6	
Client:	LDA	
Site Address:	CANBERRA BRICKWORKS	
Purpose of Test:	Asbestos Air Monitoring	
General Test Area:	Start at BH 10. Ended at BH16.	
Rotameter ID:	M474840	
Timer ID:	[redacted] Casio G Shock	

Sample #	Pump #	S / P *	Location	Flow Start	Time On	Flow Stop	Time Off
19611982	120947	P	Various BH locations (Start at BH10)(Ended at BH16)	2	8:23am	[redacted] 2	4:30pm

Note: * Static (control) or Personal (exposure) sampling.

Additional Notes:

@ 8:30 am No wind

@ 3:00pm No wind

24 HR TAT Please

Sampled by:	RYAN O'LEARY
Signature:	[signature]
Date:	12 / 09 / 2016

ANALYTICAL REPORT

Accreditation No. 2562

CLIENT DETAILS

Contact	Mechelle Swanepoel
Client	SMEC AUSTRALIA PTY LTD
Address	Sun Micro Building Suite 2, Level 1 243 Northbourne Avenue ACT 2602
Telephone	02 6234 1900
Facsimile	02 6234 1966
Email	mechelle.swanepoel@smec.com
Project	**M474840 CBR Brickwork BH10 Strt BH16 End**
Order Number	(Not specified)
Samples	1

LABORATORY DETAILS

Manager	Huong Crawford
Laboratory	SGS Alexandria Environmental
Address	Unit 16, 33 Maddox St Alexandria NSW 2015
Telephone	+61 2 8594 0400
Facsimile	+61 2 8594 0499
Email	au.environmental.sydney@sgs.com
SGS Reference	**SE157021 R0**
Date Received	13 Sep 2016
Date Reported	14/09/2016 1:45:54PM

COMMENTS

Accredited for compliance with ISO/IEC 17025. NATA accredited laboratory 2562(4354).

The reporting of Fibres/mL may only be done when volume measurements are conducted by a NATA accredited body. Where this report contains both Fibres/Field and a typical K factor which are NATA endorsed, these may be converted to Fibres/mL using this and your volume readings. Where sampling has been performed by SGS Environmental Services, or by a company that holds accreditation for air sampling volume measurement, results are reported as fibres/mL.

Air volume measurement was performed by Ryan O'Leary of SMEC Australia Pty. Ltd. who has been formally trained and assessed by SGS Alexandria who remain responsible for the data.

Asbestos analysed by Approved Counter Ravee Sivasubramaniam.

SIGNATORIES

Ravee Sivasubramaniam
Hygiene Team Leader

ANALYTICAL REPORT

RESULTS

Method AN601 Airborne Fibre Monitoring

Laboratory Reference	Client Reference and Description	Date Sampled	Fibres/Fields	Concentration Fibres/mL
SE157021.001	19611982 cowl	12 Sep 2016	4.5 Fibres/100 fields	<0.01

METHOD SUMMARY

SE157021 R0

METHOD	METHODOLOGY SUMMARY
AN601	Airborne asbestos dust and synthetic mineral fibres (SMF) based on the NOHSC (April 2005) guidance note on the membrane filter method NOHSC:3003 (2005) exclusive of sampling. The sample is collected by drawing a volume of air through a membrane filter. The filter is then mounted on a glass slide and the fibres counted according to the specified criteria using phase contrast microscopy.

FOOTNOTES

IS	Insufficient sample for analysis.	LOR	Limit of Reporting
LNR	Sample listed, but not received.	QFH	QC result is above the upper tolerance
*	NATA accreditation does not cover the performance of this service.	QFL	QC result is below the lower tolerance
**	Indicative data, theoretical holding time exceeded.	NA	The sample was not analysed for this analyte

Limit of Reporting (LOR) for Fibre Counting by NOHSC:3003 is 0.01 Fibres per millilitre (Fibres/mL)
Concentration Fibres/mL only covered by the scope of accreditation if sampling performed by SGS .

The QC criteria are subject to internal review according to the SGS QAQC plan and may be provided on request or at this link : http://www.sgs.com.au/~/media/Local/Australia/Documents/Technical%20Documents/MP-AU-ENV-QU-022%20QA%20QC%20Plan.pdf

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Asbestos Air Monitoring Field Sheet

SMEC Australia Pty Ltd
ABN 47 065475 149
Suite 2, level 1, 243 Northbourne Avenue, Lyneham 2602
02 6234 1900
Email: Mechelle.Swanepoel@smec.com

NOHSC: 3003(2005)			
Report Number:	Day 7	**Date:**	13/9/2016
Client:	LDA		
Site Address:	CANBERRA BRICKWORKS		
Purpose of Test:	Asbestos Air Monitoring		
General Test Area:	Start at M3, finished at M2		
Rotameter ID:	M474840		
Timer ID:	Casio & Shock		

Sample #	Pump #	S / P *	Location	Flow Start	Time On	Flow Stop	Time Off
19612031	120947	P	Various M locations (Start at M3, finished at M2)	8:30am	2	2	4:40pm

Note: * Static (control) or Personal (exposure) sampling.

Additional Notes:

@ 8:30 am No wind, cloudy

@ 3pm " " , cloudy

24 HR TAT Please

Sampled by:	RYAN O'LEARY
Signature:	
Date:	13 / 9 / 2016

ANALYTICAL REPORT

Accreditation No. 2562

CLIENT DETAILS

Contact	Mechelle Swanepoel
Client	SMEC AUSTRALIA PTY LTD
Address	Sun Micro Building Suite 2, Level 1 243 Northbourne Avenue ACT 2602
Telephone	02 6234 1900
Facsimile	02 6234 1966
Email	mechelle.swanepoel@smec.com
Project	**M474840 CBR Brickwork M3 Strt M2 End**
Order Number	(Not specified)
Samples	1

LABORATORY DETAILS

Manager	Huong Crawford
Laboratory	SGS Alexandria Environmental
Address	Unit 16, 33 Maddox St Alexandria NSW 2015
Telephone	+61 2 8594 0400
Facsimile	+61 2 8594 0499
Email	au.environmental.sydney@sgs.com
SGS Reference	**SE157091 R0**
Date Received	14 Sep 2016
Date Reported	15/09/2016 2:05:28PM

COMMENTS

Accredited for compliance with ISO/IEC 17025. NATA accredited laboratory 2562(4354).

The reporting of Fibres/mL may only be done when volume measurements are conducted by a NATA accredited body. Where this report contains both Fibres/Field and a typical K factor which are NATA endorsed, these may be converted to Fibres/mL using this and your volume readings. Where sampling has been performed by SGS Environmental Services, or by a company that holds accreditation for air sampling volume measurement, results are reported as fibres/mL.

Air volume measurement was performed by Ryan O'Leary of SMEC Australia Pty. Ltd. who has been formally trained and assessed by SGS Alexandria who remain responsible for the data.

Asbestos analysed by Approved Counter Ravee Sivasubramaniam.

SIGNATORIES

Ravee Sivasubramaniam
Hygiene Team Leader

ANALYTICAL REPORT

RESULTS

Method AN601 Airborne Fibre Monitoring

Laboratory Reference	Client Reference and Description	Date Sampled	Fibres/Fields	Concentration Fibres/mL
SE157091.001	19612031 cowl	13 Sep 2016	<1.0 Fibres/100 fields	<0.01

METHOD SUMMARY

SE157091 R0

METHOD	METHODOLOGY SUMMARY
AN601	Airborne asbestos dust and synthetic mineral fibres (SMF) based on the NOHSC (April 2005) guidance note on the membrane filter method NOHSC:3003 (2005) exclusive of sampling. The sample is collected by drawing a volume of air through a membrane filter. The filter is then mounted on a glass slide and the fibres counted according to the specified criteria using phase contrast microscopy.

FOOTNOTES

IS	Insufficient sample for analysis.	LOR	Limit of Reporting
LNR	Sample listed, but not received.	QFH	QC result is above the upper tolerance
*	NATA accreditation does not cover the performance of this service.	QFL	QC result is below the lower tolerance
**	Indicative data, theoretical holding time exceeded.	NA	The sample was not analysed for this analyte

Limit of Reporting (LOR) for Fibre Counting by NOHSC:3003 is 0.01 Fibres per millilitre (Fibres/mL)
Concentration Fibres/mL only covered by the scope of accreditation if sampling performed by SGS .

The QC criteria are subject to internal review according to the SGS QAQC plan and may be provided on request or at this link : http://www.sgs.com.au/~/media/Local/Australia/Documents/Technical%20Documents/MP-AU-ENV-QU-022%20QA%20QC%20Plan.pdf

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Asbestos Air Monitoring Field Sheet

SMEC Australia Pty Ltd
ABN 47 065475 149
Suite 2, level 1, 243 Northbourne Avenue, Lyneham 2602
02 6234 1900
Email: Mechelle.Swanepoel@smec.com

NOHSC: 3003(2005)			
Report Number:	DAY 8	**Date:**	14-9-2016
Client:	LDA		
Site Address:	CANBERRA BRICKWORKS		
Purpose of Test:	Asbestos Air Monitoring		
General Test Area:	Started at M2, then M6, ended at M5		
Rotameter ID:	M474840		
Timer ID:	Casio G Shock		

Sample #	Pump #	S / P *	Location	Flow Start	Time On	Flow Stop	Time Off
19612048	120947	P	Started at M2. Ended at M5.	2	8:15am	2	3:~~30~~ pm

Note: * Static (control) or Personal (exposure) sampling.

Additional Notes:

@ 8:30 am No wind
Rain started at ~10:45 am
@ 12:00 pm Wind northerly 5-7 km/hr.
@ 3:30 pm No wind

24 HR TAT Please

Sampled by:	RYAN O'LEARY
Signature:	
Date:	14 / 09 / 2016

ANALYTICAL REPORT

Accreditation No. 2562

CLIENT DETAILS

Contact	Mechelle Swanepoel
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Telephone	02 6234 1900
Facsimile	02 6234 1966
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Project	**M474840 CBR Brickwork M2 Strt M5 End**
Order Number	(Not specified)
Samples	1

LABORATORY DETAILS

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Laboratory	SGS Alexandria Environmental
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Facsimile	+61 2 8594 0499
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SGS Reference	**SE157159 R0**
Date Received	15 Sep 2016
Date Reported	16/09/2016 12:27:58PM

COMMENTS

Accredited for compliance with ISO/IEC 17025. NATA accredited laboratory 2562(4354).

The reporting of Fibres/mL may only be done when volume measurements are conducted by a NATA accredited body. Where this report contains both Fibres/Field and a typical K factor which are NATA endorsed, these may be converted to Fibres/mL using this and your volume readings. Where sampling has been performed by SGS Environmental Services, or by a company that holds accreditation for air sampling volume measurement, results are reported as fibres/mL.

Air volume measurement was performed by Ryan O'Leary of SMEC Australia Pty. Ltd. who has been formally trained and assessed by SGS Alexandria who remain responsible for the data.

Asbestos analysed by Approved Counter Ravee Sivasubramaniam.

SIGNATORIES

Ravee Sivasubramaniam
Hygiene Team Leader

ANALYTICAL REPORT

SE157159 R0

RESULTS

Method AN601 Airborne Fibre Monitoring

Laboratory Reference	Client Reference and Description	Date Sampled	Fibres/Fields	Concentration Fibres/mL
SE157159.001	19612048 Cowl	14 Sep 2016	<1.0 Fibres/100 fields	<0.01

METHOD SUMMARY

SE157159 R0

METHOD	METHODOLOGY SUMMARY
AN601	Airborne asbestos dust and synthetic mineral fibres (SMF) based on the NOHSC (April 2005) guidance note on the membrane filter method NOHSC:3003 (2005) exclusive of sampling. The sample is collected by drawing a volume of air through a membrane filter. The filter is then mounted on a glass slide and the fibres counted according to the specified criteria using phase contrast microscopy.

FOOTNOTES

IS	Insufficient sample for analysis.	LOR	Limit of Reporting
LNR	Sample listed, but not received.	QFH	QC result is above the upper tolerance
*	NATA accreditation does not cover the performance of this service.	QFL	QC result is below the lower tolerance
**	Indicative data, theoretical holding time exceeded.	NA	The sample was not analysed for this analyte

Limit of Reporting (LOR) for Fibre Counting by NOHSC:3003 is 0.01 Fibres per millilitre (Fibres/mL)
Concentration Fibres/mL only covered by the scope of accreditation if sampling performed by SGS .

The QC criteria are subject to internal review according to the SGS QAQC plan and may be provided on request or at this link : http://www.sgs.com.au/~/media/Local/Australia/Documents/Technical%20Documents/MP-AU-ENV-QU-022%20QA%20QC%20Plan.pdf

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ANALYTICAL REPORT

Accreditation No. 2562

CLIENT DETAILS

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Client	SMEC AUSTRALIA PTY LTD
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Project	**M474840 CBR Brickwork M8 Start M7 End**
Order Number	(Not specified)
Samples	1

LABORATORY DETAILS

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SGS Reference	**SE157400 R0**
Date Received	22 Sep 2016
Date Reported	23/09/2016 10:47:11AM

COMMENTS

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Air volume measurement was performed by Ryan O'Leary of SMEC Australia Pty. Ltd. have has been formally trained and assessed by SGS Alexandria who remain responsible for the data.

Asbestos analysed by Approved Counter Ravee Sivasubramaniam.

SIGNATORIES

S. Ravee Sivasubramaniam
Hygiene Team Leader

ANALYTICAL REPORT

SE157400 R0

RESULTS

Method AN601 Airborne Fibre Monitoring

Laboratory Reference	Client Reference and Description	Date Sampled	Fibres/Fields	Concentration Fibres/mL
SE157400.001	19612019 Cowl	21 Sep 2016	<1.0 Fibres/100 fields	<0.01

METHOD SUMMARY

SE157400 R0

METHOD	METHODOLOGY SUMMARY
AN601	Airborne asbestos dust and synthetic mineral fibres (SMF) based on the NOHSC (April 2005) guidance note on the membrane filter method NOHSC:3003 (2005) exclusive of sampling. The sample is collected by drawing a volume of air through a membrane filter. The filter is then mounted on a glass slide and the fibres counted according to the specified criteria using phase contrast microscopy.

FOOTNOTES

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LNR	Sample listed, but not received.	QFH	QC result is above the upper tolerance
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**	Indicative data, theoretical holding time exceeded.	NA	The sample was not analysed for this analyte

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ANALYTICAL REPORT

Accreditation No. 2562

CLIENT DETAILS

Contact	Mechelle Swanepoel
Client	SMEC AUSTRALIA PTY LTD
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Telephone	02 6234 1900
Facsimile	02 6234 1966
Email	mechelle.swanepoel@smec.com
Project	**M474840 CBR Brkwrk M7 Start, M4, M1 End**
Order Number	(Not specified)
Samples	1

LABORATORY DETAILS

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SGS Reference	**SE157451 R0**
Date Received	26 Sep 2016
Date Reported	26/09/2016 2:04:43PM

COMMENTS

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Air volume measurement was performed by Ryan O'Leary of SMEC Australia Pty. Ltd. have has been formally trained and assessed by SGS Alexandria who remain responsible for the data.
Asbestos analysed by Approved Counter Ravee Sivasubramaniam.

SIGNATORIES

Ravee Sivasubramaniam
Hygiene Team Leader

ANALYTICAL REPORT

RESULTS

Method AN601 Airborne Fibre Monitoring

Laboratory Reference	Client Reference and Description	Date Sampled	Fibres/Fields	Concentration Fibres/mL
SE157451.001	19137297 Cowl	22 Sep 2016	<1.0 Fibres/100 fields	<0.01

METHOD SUMMARY

SE157451 R0

METHOD	METHODOLOGY SUMMARY
AN601	Airborne asbestos dust and synthetic mineral fibres (SMF) based on the NOHSC (April 2005) guidance note on the membrane filter method NOHSC:3003 (2005) exclusive of sampling. The sample is collected by drawing a volume of air through a membrane filter. The filter is then mounted on a glass slide and the fibres counted according to the specified criteria using phase contrast microscopy.

FOOTNOTES

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Preliminary Geotechnical Site Investigation for the Canberra Brickworks

For: Land Development Agency

8 November 2013

AUSTRALIA | ASIA | MIDDLE EAST | AFRICA | PACIFIC

Project Name:	Preliminary (Geotechnical) Site Investigation for the Canberra Brickworks
Project Number:	3002369
Report for:	Land Development Agency

PREPARATION, REVIEW AND AUTHORISATION

Revision #	Date	Prepared by	Reviewed by	Approved for Issue by
0	8 November 2013	Kara Stariha	Simon Baldock	Peter Hicks
1				

ISSUE REGISTER

Distribution List	Dknate Issued	Number of Copies
Land Development Agency:	8 November 2013	1
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EXECUTIVE SUMMARY

SMEC Australia Pty Ltd (SMEC) was engaged by the Land Development Agency (LDA) to undertake a Preliminary Geotechnical and Environmental Site Investigation (PSI) at the Canberra Brickworks, ACT (the Site). This report presents the findings of the geotechnical investigation undertaken at the Site.

The Site covers an approximate area of 45 ha. Features of the Site include a former brickworks, a semi-backfilled quarry, and a former village with open grassland to the south.

The site lies on the Williamsdale soil landscape, with undulating rises and local relief typically below 10% in natural terrain. The site sits on a minor local topographic high, with the ground surface sloping south and south west towards Yarralumla Creek, which discharges into the Molonglo River. Topography and drainage in some areas of the Site have been significantly modified including the brickworks, quarry and road infrastructure.

The subsurface conditions encountered on site are broadly consistent with data published on geological maps and referenced sources. The site sits across two distinct geological regions – the Yarralumla formation, as shown on the 1:100,000 geological sheet and the Deakin Volcanics.

As part of the geotechnical investigation undertaken by SMEC, twenty eight test pits have been excavated at the site. These test pits were positioned to provide information on the ground conditions across the whole of the site, and to investigate potential areas of interest. Test pits were concentrated in the south of the site, where high density residential land use is proposed (see draft masterplan, **Appendix B**). Test pits were also concentrated in the north of the Site to investigate the extent and properties of fill materials within the quarry. The remaining test pits were interspersed across the site to gain information over as large an area as possible.

Three previous investigations have been utilised in the study of this site, the 2006 Robsons' Laboratories' Environmental Investigation – Audit Report of Yarralumla Brickworks, the 2011 Douglas Partners' report on Geotechnical Investigations along Cotter Road, Yarralumla, commissioned as part of SMEC's Cotter Road Stage 1 detailed design, and Lester Firth & Associates' 1986 Old Canberra Brickworks, Conservation Plan.

Six geological units have been found in the testpits carried out for this investigation. These comprise topsoil, residual soil, alluvium, siltstone, sandstone and dacite.

Across the southern, fairly undisturbed portion of the site, topsoil overlies shallow residual soil which extends typically to 0.4-0.8 m bgl. Residual soil consists of low to medium plasticity, very stiff to hard, orange brown and red brown clay with varying amounts of well graded, sub-angular medium grained gravels. Residual soil thickness decreases upslope, resulting in several observable outcrops of weathered siltstone bedrock. Alluvial soils are found at the lowest point of the site, in an old creek bed now used for drainage beneath Adelaide Avenue.

Fill is present in many testpits, although is typically quite shallow in the southern areas of the site. Fill materials varied, although they typically consisted of low plasticity sandy to silty clays. The majority of fill was stiff to hard, however several softer, uncompacted fill layers were interspersed with these, and as such, any proposed development will require additional investigations in close proximity to structures.

Within the brickworks and quarry areas, the natural landscape has been altered by quarrying activities. Significant levels of fill are present, particularly within the quarry. The fill typically comprises whole brick, cobbles and boulders of siltstone quarry offcuts, in addition to glass, bitumen, ash and other anthropogenic materials. Fill is uncompacted, and prone to collapse upon disturbance. Removal of fill will likely be required for any development in this area; however additional investigations will be required to fully delineate the regions of fill.

On the eastern and western edges of the site Deakin Volcanics were observed, in the form of dacitic bedrock. Residual soils comprised low to medium plasticity hard orange-brown sandy clay, with traces of well graded gravels. Gravels were of natural bedrock material. Moisture content was assessed on site as typically dry, although some were dry to moist. There was an easily observable difference in soils between those overlying dacitic and siltstone bedrocks; however both sets of natural soils had typically similar consistencies of very stiff to hard.

The residual soils overlying the dacite and siltstone bedrock are both cohesive in nature, and as such are potentially erodible and dispersive. This much be taken into consideration when planning any future development.

1 INTRODUCTION

1.1 General

SMEC Australia Pty Ltd (SMEC) was engaged by the LDA to undertake a Preliminary Geotechnical and Environmental Site Investigation (PSI) at the Canberra Brickworks, ACT (the Site). This report presents the findings of the Geotechnical Site Investigation undertaken at the Site between the 9th and 11th of September 2013. The results of the environmental investigation are presented in a separate environmental report.

The location of the Site is presented in **Figure 1, Appendix A**. Geotechnical investigation locations (including previous investigations) are presented in **Figure 2, Appendix A**.

1.2 Objectives

The following scope of work was undertaken to meet the objectives of the PSI.

- Review of available background data including:
    - Previous geotechnical reports;
    - Geological maps and memoirs of the area;
    - Available hydrological maps; and
    - Groundwater Bore Search;
- Geomorphological Mapping Exercise across the site to determine potential areas of interest such as gullies and rock outcrops;
- Completion of 28 test pit's to a maximum depth of 3 m bgl across the Site, with Dynamic Cone Penetrometer (DCP) Testing undertaken on all suitable soil horizons;
- Logging of materials encountered in each test pit in accordance with the Unified Soil Classification System (USCS);
- Preparation of this PSI report, discussing the historical data, field methodologies, field testing results and preliminary findings.

1.3 Scope of Geotechnical Investigation

SMEC understands that to assist the LDA with the sale and/or development of the Site that geotechnical data and an interpretation of the geology across the site is required to achieve the following:

- To identify the location and nature of fill;
- To evaluate the general strength of soils above the rock level; and
- To assess the rock level and quality of rock where accessible by testpits and outcrops.

1.4 Limitations

SMEC have carried out the PSI in accordance with Australian Standards AS1289:1997 and AS1726:1993.

1.5 Structure of Report

This PSI has the following structure:

- Section 2 – reviews all available background data and describes the site setting, topography and geology;
- Section 3 – describes the methodology adopted for the site investigation works, detailing test pitting techniques and in-situ testing undertaken;
- Section 4 – presents the results of the site investigation works together with an interpretation of the subsurface conditions present on site.
- Appendix A – Figures
- Appendix B – Development Masterplan
- Appendix C – Test Pit Logs, with explanatory notes and core photos

2 SITE SETTING AND BACKGROUND DATA

2.1 Site Description

The Site covers an approximate area of 45 ha. Features of the Site include a former brickworks, a semi-backfilled quarry, and a former village with open grassland to the south. The Site is bound to the:

- North: Bentham St., Suburb of Yarralumla and the Royal Canberra Golf Course;
- East: Denham St. and Adelaide Avenue, Suburb of Yarralumla;
- South: Dension St., Suburb of Deakin;
- West: Royal Canberra Golf Course

The site lies on the Williamsdale soil landscape, with undulating rises and local relief typically below 10% in natural terrain. The site sits on a minor local high, with the surface sloping south and south west towards Yarralumla Creek, which discharges into the Molonglo River. Topography and drainage in some areas of the Site have been significantly modified including the brickworks, quarry and road infrastructure.

The site has been divided into four sub-regions, described below. The features observed in each sub-region are also depicted in Figure 2, **Appendix A**.

Brickworks

The Canberra Brickworks is located adjacent to the suburb of Yarralumla and the Royal Canberra Golf Course. Access to the brickworks is via Denman St. adjacent south. The brickworks were operational between 1913 and 1976 and are currently used by Thor's Hammer, a wood recycling business.

Former Brickworks Village/Hostel

The Brickworks Village/Hostel (brickworks village) is located immediately south of the brickworks. It comprises several demolished buildings with a former railway easement to the west and south. The extent of the former buildings is unknown. Inspection of this portion of the Site was limited by dense vegetation.

Quarry

The quarry is a large levelled grassed area with several exposed natural limestone and shale bedrock features. The area contains an unknown amount of fill used to level the quarry and to form several large mounds located in the northern and western portions of the area. An artificial lake was also present in the northern portion of the quarry.

Southern Areas

The Southern Areas of the Site comprise pine forests and open grasslands with several major roads (Dudley St, Cotter Rd and Yarra Glen) bisecting the Site east to west.

2.2 Background Information

SMEC has reviewed three previous reports containing geotechnical information, in addition to available soil and geological 1:100,000 reference sheets. The plans and reports reviewed as part of the PSI are listed below:

- Lester Firth & Associates Pty Ltd (June 1986), Old Canberra Brickworks, Conservation Plan, June 1986;
- Robson Laboratories Pty Ltd (October 2006), Environmental Investigation Audit, Yarralumla Brickworks Block 1 Section 102 Yarralumla, Canberra Central, ACT;
- Douglas Partners Pty Ltd (November 2011), Report on Geotechnical Investigation, Subgrade Investigation, Cotter Road Yarralumla, ACT;
- Jenkins, B.R. 2000, Soil Landscapes of the Canberra 1:100,000 Sheet Report, Department of Land and Water Conservation, Sydney; and
- Abell, R. S. 1992, Canberra 1:100 000 scale geological map. 8727. 1st Edition, BMR, Canberra.

A summary of the reports is provided below.

Lester Firth (1986)

Lester Firth Associates prepared a Conservation Plan for the Canberra Brickworks; the purpose of the plan was to outline conservation policies and management options for the brickworks.

The plan reports on the history of the Canberra Brickworks until its closure in 1976, and includes an assessment of the significance of various features of the site, including four geological monument sites within the Quarry Area.

Robson (2006)

An environmental report by Robsons Laboratories, titled *Audit Report of Yarralumla Brickworks* focused primarily on the northern portion of the site, detailing the results of 21 boreholes contained within the brickworks and the old shale quarry.

Douglas and Partners (2011)

A geotechnical report by Douglas Partners, titled *Geotechnical Investigations along Cotter Road* focused on the south western corner of the site, detailing the results of 3 test pits and 9 boreholes along Cotter Road.

2.3 Regional Geology and Soil Landscape

Reference to the 1:100,000 geological map of Canberra indicates that the site is underlain by the Yarralumla Formation, consisting of calcareous and tuffaceous mudstone and siltstone with minor limestone, calc-silicate hornfels and quartz sandstone. The Deakin Volcanics, consisting of Rhyodacitic ignimbrite and minor volcaniclastic and argillacrous sediments, occur in close proximity to the site, overlying the Yarralumla Formation.

The Yarralumla formation is the only fossiliferous marine unit within the extensive volcanic marker horizons of South Canberra, and is therefore a valuable marker horizon as its fossil fauna provide evidence as to the age of the surrounding volcanics. As one of the only locations from which the Yarralumla Formation can be closely observed, the Canberra Brickworks quarry forms one of Canberra's most important and oldest geological monuments (Lester Firth & Associates Pty Ltd, 1986).

A significant portion of the site has been excavated to provide raw materials for brickmaking. Excess raw materials from the quarry have been mixed with brick offcuts to backfill parts of the quarry, and to create fill mounds around the site, possibly to divert water from the quarry. Robson Laboratories' 2006 Environmental Investigation Audit confirmed the presence of siltstone within the Brickworks area and Quarry. Siltstone was typically moderately to highly weathered, underlying silty clay and fill of varying depths. The nature of fill varied widely across the site, from high plasticity clay to gravels and slag. The limited nature of this investigation, together with the varying depth of the quarry and the inconsistent nature of fill mean that further investigation is required for the full delineation of fill areas.

Douglas Partners' 2011 subgrade investigation details the presence of dacite in the south western corner of the site. The dacite is extremely low strength, extremely weathered, and medium to coarse grained. Dacite was mostly overlain directly by fill, however some test pits recorded natural clayey sand and clayey silt material overlying dacite.

The Canberra Soil Landscape 1:100,000 sheet places the site on the Williamsdale Soil Landscape, with moderately deep, moderately well-drained Yellow Chromosols, Red Kandosols and Brown Kandosols. These soils are typically hardsetting, erodible, and potentially dispersive.

2.4 Regional Hydrogeology

In the Canberra region, groundwater occurs in fractured rock aquifers and in unconsolidated sand in thin alluvial and colluvial aquifers. Yields of bores in fractured rock aquifers are in the range 0.1-5L/s and higher yields are obtained in closely jointed rocks along fault zones.

Groundwater salinity is generally less than 2000 mg/L TDS and largely determined by complex geology and recharge conditions. The depth to groundwater in the Canberra region generally ranges from about 2 to 20m from the surface and is dependent on the underlying geology.

No information on groundwater levels within the site is available.

3 INVESTIGATION METHODOLOGY

3.1 General

Field works were undertaken by a suitably qualified SMEC geotechnical engineer, between 9 September and 11 September 2013.

Fieldwork comprised excavation of 28 test pits across the Site. Test pit locations were selected both to gain information across the whole of the site, and to investigate potential areas of interest. Geotechnical investigations were concentrated to the south of the site, where high density residential land use is proposed (see draft masterplan, **Appendix B**), and to the north, to investigate the extent and properties of the quarry backfill. The remaining test pits were interspersed across the site to gain information over as large an area as possible.

The locations of test pits undertaken as part of this PSI are presented in **Figure 2, Appendix A**, together with locations of previous site investigations.

The GPS coordinates of each test pit were recorded on SMEC field sheets and provided in the attached test pit logs (**Appendix C**).

SMEC notes that the spatial density of site investigations conducted only provides a general idea of the geological features and subsurface material properties. There is the potential for significant variation in the subsurface profile and therefore this report is not sufficient to adequately assess the suitability of the Site for future residential land use or for design of structures. Further investigation must be undertaken once proposed land use is finalised to obtain more specific geotechnical characteristics in order to progress the design.

3.2 Methodology

3.2.1 Service Clearance

Test pit locations were cleared for the presence of underground services by a Telstra accredited plant location contractor referencing utility plans obtained through a Dial Before You Dig (DBYD) search.

3.2.2 Equipment Used

Testpits were undertaken by All Terrain Bobcats, using a Kobelco 8 tonne tracked excavator with a 0.6 m wide bucket. The Limit of Reach for this excavator is approximately 3 m for test pits less than 1 m in width. The excavator allowed access to all testpits whilst minimising disturbance to the surrounding area.

3.2.3 Test Pitting

Test pitting activities were undertaken from 9 September 2013 to 11 September 2013. A total of 28 test pits were excavated across the site to either refusal (on bedrock or competent material) or until the maximum investigation depth of 3 m below ground level.

In several cases refusal occurred in fill or natural soils rather than bedrock. In these cases, a ripper tyne was used to break up the soil or rock, allowing excavation to proceed further.

Test pits were backfilled upon completion, and compacted with the bucket and tracks of the excavator.

A summary of the test pit's completed as part of this PSI is provided below in **Table 3.1**.

Table 3.1: Test Pit ID and locations

Test Pit ID	Easting	Northing	Finished Depth (m)	Reason for Depth	Terminated In	Features
TP1	689880	6090395	1.16	Refusal	Dacite	General Site coverage
TP2	690061	6090208	2.1	Refusal on concrete - Possible abandoned pipe	Fill – Gravelly Sand	
TP3	690156	6090198	2	Refusal	Siltstone	Drainage Point/culvert
TP4	690384	6090131	0.45	Refusal	Siltstone	Targeted for potential high density residential development
TP5	690426	6089969	1.15	Refusal	Siltstone	
TP6	690523	6090005	1.7	Refusal	Siltstone	
TP7	690585	6090029	1.9	Refusal	Sandstone	
TP8	690677	6090064	1.5	Refusal	Dacite	
TP9	690582	6090185	1.26	Refusal	Dacite	
TP10	690692	6090236	1.58	Refusal	Fill - Clay	
TP11	690360	6090237	1.12	Refusal	Siltstone	General coverage
TP12	690156	6090337	1.2	Refusal	Siltstone	Abandoned Rail Easement, potential old creek bed
TP13	690045	6090415	1.3	Refusal	Siltstone	General coverage
TP14	690044	6090417	1.35	Refusal	Dacite	Abandoned Rail Easement
TP15	690003	6090627	2	Refusal	Siltstone	General Coverage – Former Brickworks Village
TP16	690023	6090573	1.15	Refusal	Sandstone	
TP17	690130	6090548	1.7	Refusal	Siltstone	
TP18	690328	6090431	1.37	Refusal	Siltstone	General coverage - Orchard
TP19	689935	6090722	1.1	Refusal	Dacite	General coverage - Former Brickworks
TP20	690043	6090659	1.2	Refusal	Siltstone	
TP21	690222	6090766	1.56	Collapse	Fill - Bricks	
TP22	690128	6090800	1.3	Refusal	Siltstone	
TP23	690166	6090733	2.37	Refusal	Siltstone	General coverage Quarry area
TP24	690226	6090726	0.5	Refusal	Siltstone	
TP25	690255	6090627	3.1	Machine Limit	Fill – Shale and Bricks	
TP26	690222	6090766	3	Collapse	Fill - Bricks	
TP27	690250	6090914	1.3	Refusal	Siltstone	
TP28	690321	6090751	3	Collapse	Fill - Bricks	Fill mound

3.2.4 In-situ Testing

Dynamic Cone Penetrometer (DCP) testing was undertaken at each soil horizon, in accordance with AS1289.6.3.2:1997. The number of blows to extend the DCP 150mm into the ground was recorded. The blow count can be approximately correlated to soil consistency and used to estimate subgrade CBR, and therefore provides a continuous record of material consistency/density with depth.

Pocket Penetrometer readings were taken at regular intervals, providing information on soil consistency together with DCP readings and field tests.

Results for DCP and PP testing are indicated on the test pit logs in **Appendix C.**

3.2.5 Soil Logging

The observed soil characteristics was logged and recorded in accordance with the Unified Soil Classification System (USCS), as outlined in AS1726:1993. Test pit logs are included in **Appendix C**.

4 GEOTECHNICAL INTERPRETATION

4.1 General

The following sections present the interpreted geotechnical model and subsurface conditions at the site. Information extracted from previous geotechnical reports, in conjunction with the findings of this site investigation have been considered in the geotechnical interpretation.

The subsurface materials have been classified and identified using the classification systems for rock and soil units as discussed in Section 4.2.

4.2 Soil Classification

Soils have been described using the Unified Soil Classification System (USCS). The USCS soil classes are broadly divided into three groups: gravels, sands and silts/clays. Each group can be subdivided into five or six units based on the soil consistency and density. The adopted Soil Classification System is presented below in Table 4.1.

Table 4.1 Soil Classification System

Soil Type	USC Symbol	Consistency/Density
Clays and Silts	CL, CI, CH, ML, MI, MH	Very Soft (VS)
		Soft (S)
		Firm (F)
		Stiff (St)
		Very Stiff (VSt)
		Hard (H)
Sands and poorly graded gravels	SW, SP, GP, SM, SC	Very Loose (VL)
		Loose (L)
		Medium Dense (MD)
		Dense (D)
		Very Dense (VD)
Gravels (well graded)	GW, GM, GC	Very Loose (VL)
		Loose (L)
		Medium Dense (MD)
		Dense (D)
		Very Dense (VD)

4.3 Geological Observations

The disused quarry presents several opportunities to identify rock strata and other geological features without additional excavation. Geomorphological mapping was undertaken across the site and several features were noted, including geological structures, rock outcrops, fossils and tuffaceous units. Significant features are displayed in **Figure 3, Appendix A**, and are detailed in Table 4.2.

Table 4.2: Features from Mapping Exercise

Feature	Description	Importance
1	Fill Mound adjacent to artificial lake	Displays fill and natural material.
2	Siltstone outcrop in base of artificial lake	Demonstrates depth to bedrock.
3	Anticline	Allows observation of geological structures.
4	Siltstone outcrop north of artificial lake	Demonstrates depth to bedrock.
5	Siltstone outcrop on peak of hill	Demonstrates depth to bedrock.
6	White, tuffaceous material located between two layers of shale.	Allows observation of geological strata
7	Anticline	Allows observation of geological structures.
8	Siltstone outcrop on slope of hill	Demonstrates depth to bedrock.
9	Siltstone outcrop on slope of hill	Demonstrates depth to bedrock.
10	Siltstone outcrop on peak of hill	Demonstrates depth to bedrock.
11	Fossil observed in siltstone quarry cutting	Allows observation of geological strata

Geological Structures

Two distinct anticlines were observed within the Quarry cut faces. The southernmost anticline strikes at approximately 150 degrees, with bedding planes dipping at approximately 45 degrees towards the East and West. Siltstone can be seen to grade to sandstone from the inner strata to the outer. The northern anticline strikes at approximately 180 degrees, with bedding planes dipping approximately 45 degrees to the northeast and south west.



Photograph 1: Southernmost Anticline, looking south-east, Location 8

Outcrops

Outcrops were observed at several locations across the site, and predominately comprised moderately to highly weathered siltstone. Outcrops in the southern portion of the site are valuable in displaying the depth to bedrock without requiring excavation. Shallow bedrock was observed towards the top of many slopes in the southern area of the site. Outcrops in some portions of the quarry are also valuable in displaying depth to bedrock, however in some cases outcrops are the result of excavation and backfill activities.



Photograph 2: Material outcropping at peak of hill. Location 10.

Fossils

Fossils were observed in some exposed siltstone within the quarry. The fossiliferous nature of the Yarralumla formation makes it an extremely valuable marker horizon as its fossil fauna provide evidence as to the age of the surrounding volcanics. The Canberra Brickworks quarry is one of the only locations from which the Yarralumla Formation and its fossil contents can be closely observed.



Photograph 3: Fossil observed in siltstone outcrop in Quarry - Location 11

Tuffaceous Material

White, tuffaceous material was observed in two outcrops within the quarry region of the site. This is consistent with the description of the Yarralumla Formation provided in the 1:100,000 geological maps. The tuff is poorly cemented, and consists of a fine-grained white clay matrix holding large fragments of fresh siltstone.

The tuffaceous material was not observed in-situ in any of the test pits. However, some small fragments of tuff were observed in the fill material in TP6. Tuff was also noted in a fill mound west of the artificial lake in the quarry. The fill mound consisted of demolition waste, brick and bitumen on the northern edge, and siltstone and tuff fragments on the southern edge.



Photograph 4: Tuff surrounded by moderately weathered siltstone. Location 6.

4.4 Subsurface Unitisation and General Descriptions

Across the majority of the site natural soils comprised red brown residual soils (silty clays and clay) underlain by siltstone, sandstone or dacite bedrock. The top of the bedrock was encountered from ground surface to depths of 1.9m below ground level, and varied in strength and degree of weathering.

The local geology can be distinguished into two geological regions, as displayed in **Figure 4, Appendix A**. Each region had markedly different bedrock and overlying soils. Region 1 (throughout the centre of the site) is typical of the Yarralumla formation, and is discussed in Section 4.4.1. Region

2 (on the western and eastern edges of the site) is typical of the Deakin Volcanics, and is discussed in Section 4.4.2.

Where natural material was not encountered, interpolations were made based on information from surrounding investigations. The boundaries between geological regions are interpolated based on available data. Additional testing is required to more accurately delineate the two regions.

Fill was encountered in 18 test pit locations across the site, to varying depths, and with varying properties. A summary of the fill conditions throughout the site, based on all available geotechnical information, is given in Section 4.4.3.

Test pit logs can be found in **Appendix C**.

Table 4.2: Geotechnical Unit Descriptions

Unit	Base depth bgl (m)	Description
Topsoil		
Unit 1: Topsoil	0.2 – 0.4 m	Low plasticity, firm to stiff clayey silt, dark brown, with sand, and grass rootlets. Dry, no odour, no staining
Region 1		
Unit 2: Residual Soil	0.4 – 0.8	Low to medium plasticity, very stiff to hard, orange brown and red brown clay with some well graded, sub-angular medium grained gravels. Dry, no odour, no staining.
Unit 3: Alluvium	0.4 - 0.7	Medium plasticity, stiff, grey mottled orange gravelly clay. Well graded, sub-rounded gravel.
Unit 4: Siltstone Bedrock	Varies	Fine grained layered siltstone, grading from extremely low strength, extremely weathered, highly fractured orange bedrock to high strength, slightly weathered, slightly fractured grey bedrock
Region 2		
Unit 5: Residual Soil	0.6 - 1	Low to medium plasticity hard orange-brown sandy clay, with traces of well graded gravels. Dry, no odour, some iron staining.
Unit 6: Dacitic Bedrock	Varies	Coarse grained, porphyritic, massive, orange brown, very low strength, highly weathered dacite. Iron staining.

Unit 1: Topsoil

Topsoil was encountered in all test pits across the site other than TP20, which occurred within a bitumen sealed carpark. The topsoil comprised low plasticity stiff to very stiff dark brown clayey silt. Traces of gravel and sand were present in some test pits.

In the southern, undisturbed portion of the site, topsoil was typically between 0.2-0.4 m bgl. Testpits located in the quarry and brickworks areas (TP19-28) had shallower topsoil (0.1-0.3 m) typically overlying fill. The maximum depth of topsoil observed was 0.45 m bgl, in TP6 and TP8, both on the southern portion of the site. The shallowest topsoil was 0.1 m bgl in TP24, 25 and 28, all within the Quarry area.

DCP N values were typically between 5 and 12, and Pocket Penetrometer readings were highly variable, between 100 kPa and 450 kPa.

4.4.1 Region 1

Region 1 consists of two main units – residual soil (Unit 2) and siltstone bedrock (Unit 4). Some alluvium (Unit 3) was observed adjacent to the creek bed. It should be noted that TP7 and TP16 encountered fine grained sandstone, as opposed to the siltstone bedrock encountered predominantly across the region. The southern anticline exposed a grading of materials from moderately weathered orange-brown siltstone to fine grained, yellow-brown sandstone, as displayed in Photograph 1. This suggests the potential for an interbedded siltstone and sandstone stratum.

Unit 2: Residual Soil

Residual soil was encountered in all test pits that reached natural material across the central region of the site. These included TP2-TP7, TP12, TP13, TP15-TP18, TP20, TP23, TP24 and TP27.

Several testpits began and terminated in fill due to collapse, refusal or depths above machine limit. These testpits were TP21, TP22, TP25, TP26 and TP28. These are discussed further in Section 4.4.3.

Residual soils comprised low to medium plasticity, very stiff to hard, orange brown and red brown clay with varying amounts of well graded, sub-angular medium grained gravels. Gravels displayed some rock fabric of the natural bedrock material. Moisture characteristics were assessed on site as typically dry, with some locations indicating dry to moist soils.

Residual soil typically extended to between 0.4-0.8 m below ground level, with a maximum depth of 1.9 m in TP15, and minimum thickness of 0 m in TP11, which encountered topsoil overlying bedrock.

DCP N values were typically between 10 and 17, and Pocket Penetrometer readings were typically between 400-450 kPa.



Photograph 5: Orange brown and red brown clays typical of the residual soil overlying siltstone. TP18.

Unit 3: Alluvium

Alluvium was encountered in TP16 and TP3. Alluvium is associated with water courses, and TP3 was targeted to intersect the bed of a creek noted in historical photographs. TP3 is in fact still a drainage point for the surrounding northern hills, and is adjacent to a culvert underneath Adelaide Avenue. Alluvial gravels in TP3 were noted to be wet.

Unit 3 consists of a medium plasticity, stiff, grey mottled orange gravelly clay. Gravels were well graded and sub-rounded, indicating an alluvial origin.



Photograph 6: Saturated gravelly clay, TP3

Unit 4: Bedrock

The bedrock comprised fine grained layered siltstone, grading from extremely low strength, extremely weathered, highly fractured orange bedrock to high strength, slightly weathered, slightly fractured grey bedrock. Fractures were extensive and typically iron stained in the low to medium strength siltstone.

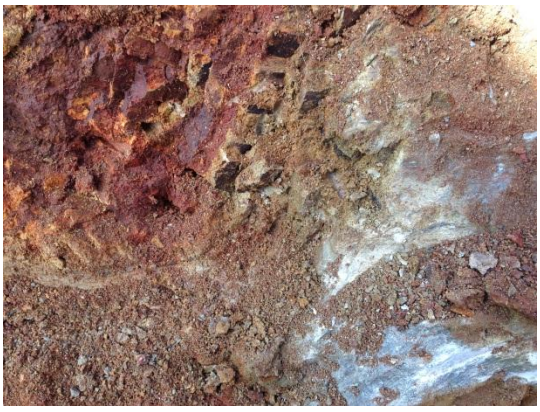
The depth to top of bedrock varies across the site. Bedrock was typically encountered at 0.4-0.7 m bgl in relatively undisturbed areas of the site. However, a significantly larger variation in depth to bedrock is observed in the quarry area.

In the southern, undisturbed portion of the region, the maximum depth to bedrock was 1.9 m at TP15, and the minimum depth to bedrock was 0.17 m at TP4. Rock outcrops were noted in several locations, indicating bedrock at the surface. Natural outcrops were typically noted towards the top of hills, whilst several rock faces were exposed within the quarry from previous excavations.



Photograph 7: Highly weathered, highly fractured siltstone with iron staining in fractures.TP16.

Medium strength siltstone occurred from depths around 0.85-1.1 m. In TP17 corestones were observed. Large blocks of fresh grey high strength siltstone occurred in the midst of moderately weathered orange low strength siltstone, as displayed in Photograph 8 below.



Photograph 8: Corestone of fresh high strength siltstone (bottom right) surrounded by highly weathered, low strength siltstone. TP17

4.4.2 Region 2

Region 2 consisted of two main units – residual soil (Unit 5) and dacite bedrock (Unit 6), and occurred along the western and eastern edges of the site. Units were fairly consistent across the region of the site.

A summary of these units is provided in Table 4.2.

Unit 5: Residual Soil

Residual soils were encountered in all test pits that reached natural material across the western and eastern edges of the site. These included TP1, TP8, TP9, TP14 and TP19

TP10 began and terminated in fill due to refusal. These are discussed further in Section 4.4.3.

Residual soils comprised low to medium plasticity hard orange-brown sandy clay, with traces of well graded gravels. Gravels displayed some rock fabric of the natural bedrock material. Moisture characteristics were assessed on site as typically dry, with some locations indicating dry to moist soils.

Residual soils typically extended to between 0.6-1 m below ground level, with a maximum depth of 1.15 m in TP19 and minimum depth of 0.62 m in TP9.

DCP N values were typically between 20 and 25, and Pocket Penetrometer readings were typically between 400-450 kPa.



Photograph 9: Orange brown and yellow brown clays typical of the residual soil overlying dacite. TP8.

Unit 6: Dacitic Bedrock

The depth to top of dacite varied across the region. Dacite was typically encountered at 0.6-1 m bgl. In the southern, undisturbed portion of the site, the maximum depth to bedrock was 1.15 m in TP19 and the minimum depth was 0.62 m in TP9. No outcrops were observed.

Dacitic bedrock comprised coarse grained, porphyritic, massive, orange brown dacite. The bedrock was typically highly weathered, with very low strength, grading to low strength, moderately weathered dacite below 1.1 m bgl. Iron staining was present.

4.4.3 Fill

Fill was encountered at 18 test pit locations across the Site. Across the southern and brickworks portions of the site the fill encountered comprised reworked natural sandy to silty clays. Clays were low plasticity, with varying consistencies and colours. DCP N values ranged between 5 and 25, and Pocket Penetrometer readings varied between 200 and 400 kPa. The majority of fill in the southern areas was hard, with DCP values ranging between 17 and 25, and penetrometer values between 350-400 kPa, however several softer, uncompacted fill layers were interspersed with these. The variable nature of fill means that these values are not representative of fill across the site. Additional investigations should be undertaken for any development occurring on fill.

Within the quarry areas, fill consisted of brick waste, ash, quarry cuttings (shale) with traces of anthropogenic inclusions (glass, metal and bitumen). Fill was uncompacted, and the walls of several testpits collapsed throughout excavation. Ash waste was likely sourced from the operation of the brickworks (combustion of wood and coal) and was identified in fill at both the brickworks and quarry.

With the exception of test pits TP23 to TP28 in the quarry area and TP02, fill generally terminated at a depth of less than 1 m.

Testpits TP2, TP21, TP25, TP26, and TP28 were terminated in fill due to collapse or refusal. Testpits TP21, TP25, TP26, and TP28 occurred in the quarry area and comprised uncompacted brick waste and quarry cuttings. TP23 and TP28 continued to the maximum investigation depth of 3 m.

TP02 was terminated in fill logged to comprise silty cobbles to gravelly sand with traces of brick and bitumen. The test pit terminated at 2 m bgl due to refusal on a concrete pipe. The source of the fill is unknown but is likely attributed to filling to meet the design grade of Cotter road.



Photograph 10: Whole brick fill with clay encountered throughout the Quarry site. TP28.

4.5 Groundwater

Groundwater was not encountered in this investigation. There was some inflow of water in TP3, in a gravel layer approximately 0.5-0.65 m bgl. This test pit was placed to target a low-lying area, adjacent to a culvert allowing drainage underneath Adelaide Avenue. Material below this gravel layer was dry, and water is believed to have been due to stormwater runoff from a recent rain event.

Groundwater was encountered by neither Robson Laboratories nor Douglas Partners in their investigations.

4.6 Interpretation of Subsurface Conditions

The subsurface conditions encountered on site are broadly consistent with data published on geological maps and referenced sources. The site sits across two district geological regions – the Yarralumla formation, as predicted by the 1:100,000 geological sheet, and the Deakin Volcanics.

Across the southern, fairly undisturbed portion of the site, topsoil overlies shallow residual soil which extends typically to 0.4-0.8 m bgl. Residual soil consists of low to medium plasticity, very stiff to hard, orange brown and red brown clay with varying amounts of well graded, sub-angular medium grained gravels. Residual soil thickness decreases upslope, with several exposed outcrops of weathered siltstone.. Alluvial soils are found at the lowest point of the site, in an old creek bed now used for drainage beneath Adelaide Avenue.

Fill is present in many testpits, although is typically quite shallow in the southern areas of the site. Fill materials varied, although they typically consisted of low plasticity sandy to silty clays. The majority of fill was stiff to hard, with DCP values ranging between 17 and 25, and penetrometer values between 350-400 kPa, however several softer, uncompacted fill layers were interspersed with these, and as such, any proposed development will require additional investigations in close proximity to structures.

Within the brickworks and quarry areas, the natural landscape has been altered by quarrying activities. Significant levels of fill are present, particularly within the quarry. The fill encountered comprises whole brick, cobbles and boulders of siltstone quarry offcuts, in addition to glass, bitumen, ash and other anthropogenic materials. Fill is uncompacted, and prone to collapse upon disturbance. Removal of fill will likely be required for any development in this area; however additional investigations will be required to fully delineate the regions of fill.

On the eastern and western edges of the site Deakin Volcanics were observed, in the form of dacitic bedrock. Residual soils comprised low to medium plasticity hard orange-brown sandy clay, with traces of well graded gravels. Gravels were of natural bedrock material. Moisture content was assessed on site as typically dry, although some were dry to moist. There was an easily observable difference in soils between those overlying dacitic and siltstone bedrock, however both sets of natural soils had typically similar consistencies. Although residual soils overlying dacite typically had DCP N values between 20 and 25, and residual soils typically had DCP N values between 10 and 17, Penetrometer readings were typically between 400-450 kPa for both soils.

The residual soils overlying dacite and siltstone bedrock are both cohesive in nature, and as such, are potentially erodible and dispersive. This much be taken into consideration when planning any future development.

5 REFERENCES

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Standards Australia 1997, *AS1289: Method of Testing Soils for Engineering*, Standards Australia, Sydney

Standards Australia 1993, *AS1726: Geotechnical Site Investigations*, Standards Australia, Sydney

APPENDIX A: FIGURES

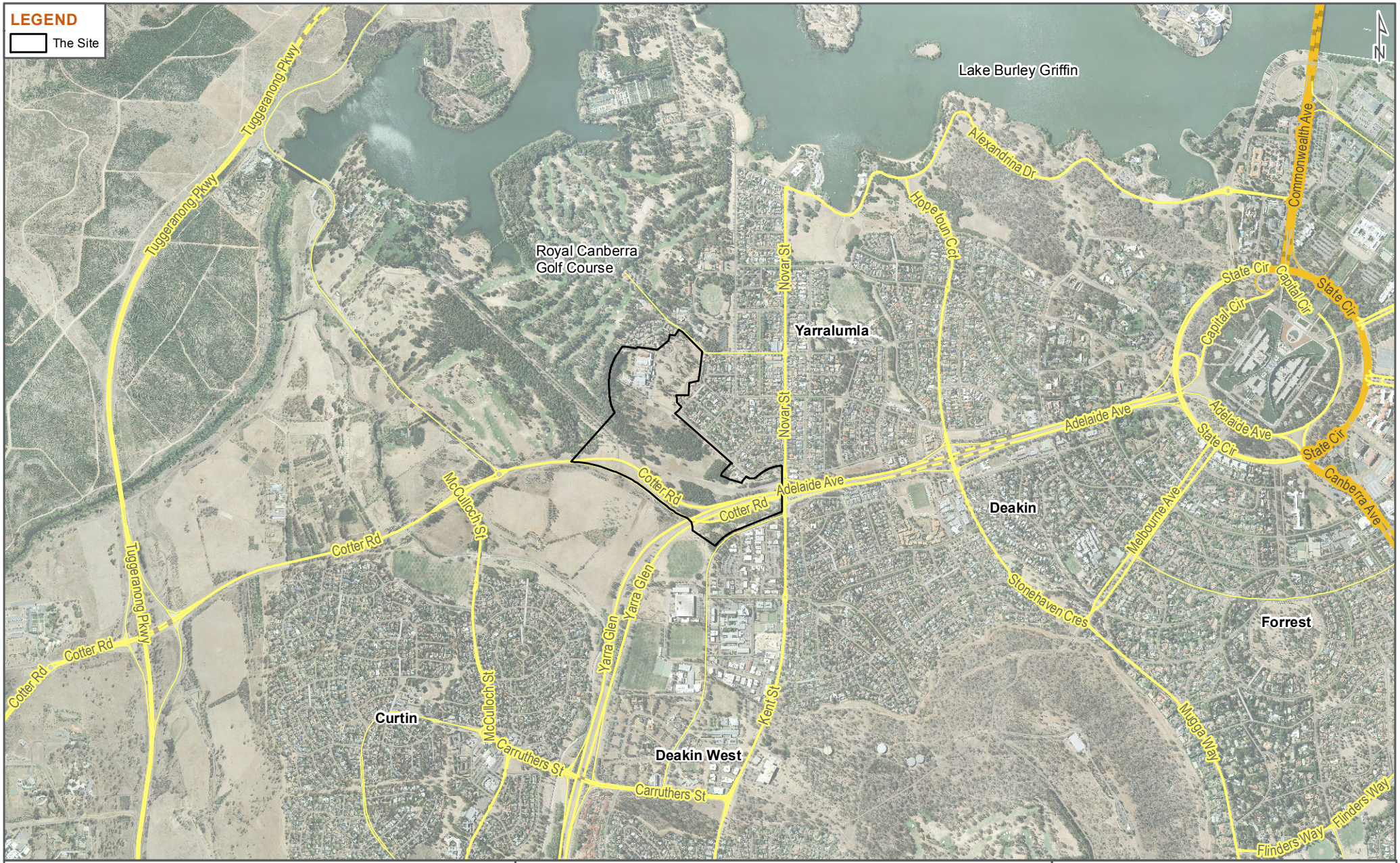


FIG NO. 1	**FIGURE TITLE** Site Location	**DATE** 2/10/2013	0 155 310 620 Meters 1:25,000	**PAGE SIZE** A4	**COORDINATE SYSTEM** ACT Grid 1966
PROJECT NO. 3002369	**PROJECT TITLE** Canberra Brickworks Preliminary Site Investigation	**CREATED BY** J. Seng	**SOURCES** Imagery © Bing Maps, Imagery © Roadnet		

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Location: X:\PROJECT\3002369 Yarralumla Brickworks Site Investigation\6 Delivery\6.2 Figures and Result Tables\6.2.1 GIS\Figure 1.mxd

LEGEND

- The Site
- DP Locations
- SMEC Test Pit Locations
- Robsons TP Locations
- Railway Line
- Site Division

Quarry
Brickworks
Former Brickworks Village
Southern Areas

TP01 TP02 TP03 TP04 TP05 TP06 TP07 TP08 TP09 TP10 TP11 TP12 TP13 TP14 TP15 TP16 TP17 TP18 TP19 TP20 TP21 TP22 TP23 TP24 TP25 TP26 TP27 TP28
rTP 1 rTP 2 rTP 3 rTP 4 rTP 5 rTP 6 rTP 7 rTP 8 rTP 9 rTP 10 rTP 11 rTP 12 rTP 13 rTP 14 rTP 15 rTP 16 rTP 17 rTP 18 rTP 19 rTP 20 rTP 21
SS-1
BH9 BH10 BH11 BH12A BH12 BH13 BH14 BH15 BH16 BH17 BH18
DTP10 DTP11 DTP12 DTP13

Lane Poole Pl
Bentham St
Yarralumla
Loftus St
Novar St
Hutchins St
Mueller St
Ewart St
Gunn St
Banks St
Schomburgk St
Weston St
Hill Cnr
Woolls St
Maxwell St
Blakely Row
Blowin Cl
Drummond Row
Abbott St
Rodway St
Newman St
Fraser Pl
Denman St
Kintore Cres
Guilfoyle St
Dudley St
Adelaide Ave
Cotter Rd
Yarra Glen
Denison St
Jersey St
Newdegate St
Macartney Cres
Garmanston Cres
Nathan St
Kent St
Thesiger Ct
Gells Ct
Dunrossil Dr
Parkes Way
Alexandrina Dr
State Cir
Tuggeranong Pkwy
Barton
Kingston
Forrest
Manuka
Deakin
Deakin West
Curtin
Hughes
Griffith
Mugga Way
Captain Cook Cres
Heysen St
The Site

FIG NO.	FIGURE TITLE
2	**Borehole Locations (all investigations)**

PROJECT NO.	PROJECT TITLE
3002369	Canberra Brickworks Preliminary Site Investigation

DATE	PAGE SIZE	COORDINATE SYSTEM
30/10/2013	A3	ACT Grid 1966

0 50 100 200
1:4,500 Meters

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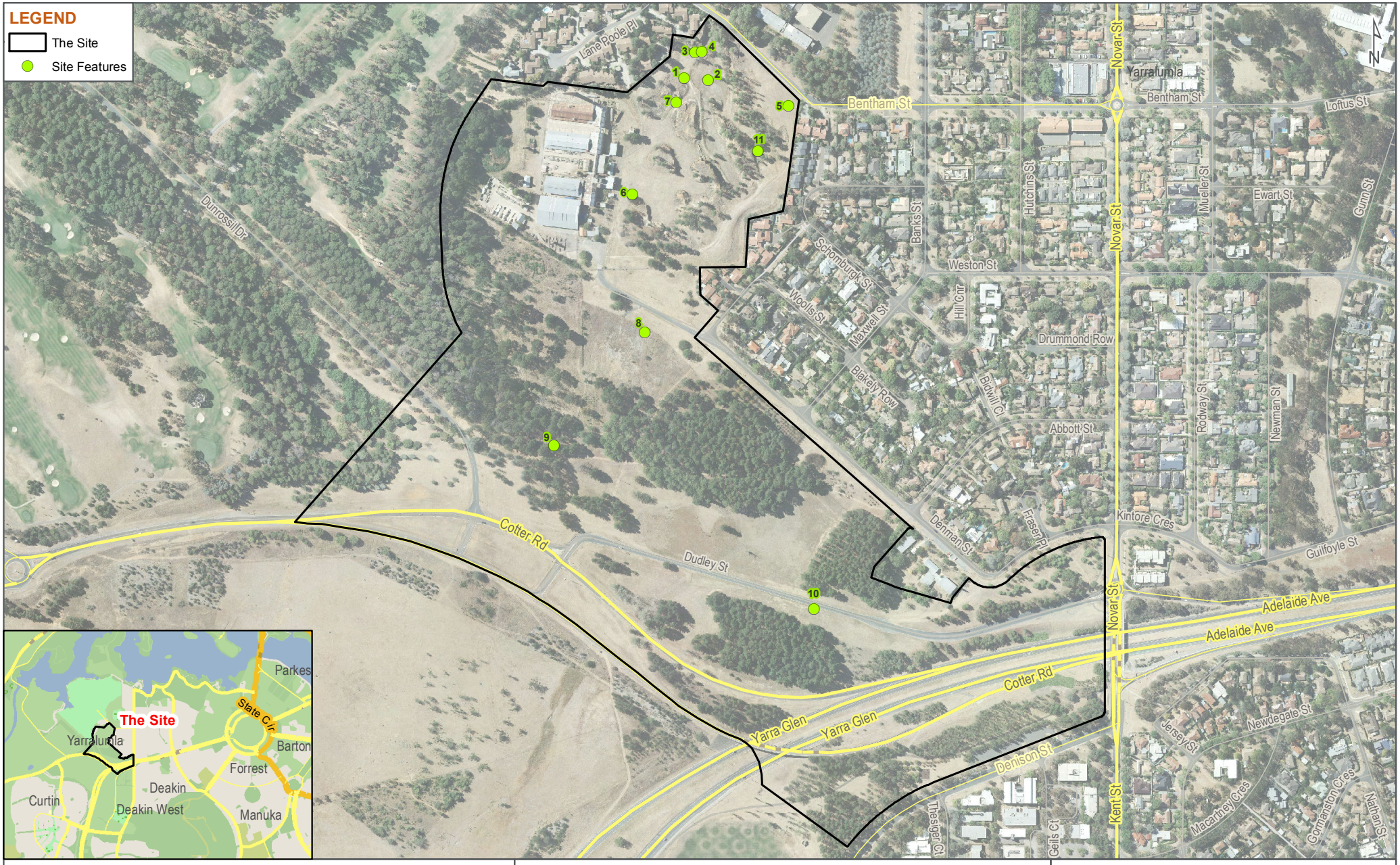


FIG NO. 3	**FIGURE TITLE** Outcrops and Observations	**DATE** 31/10/2013	0 40 80 160 Meters 1:6,500	**PAGE SIZE** A4	**COORDINATE SYSTEM** ACT Grid 1966
PROJECT NO. 3002369	**PROJECT TITLE** Canberra Brickworks Preliminary Site Investigation	**CREATED BY** J. Seng	**SOURCES** Imagery © roadnet, Imagery © Stromlo		

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Location: X:\PROJECT\3002369 Yarralumla Brickworks Site Investigation\6 Delivery\6.2 Figures and Result Tables\6.2.1 GIS\geotech map - fig 3.mxd

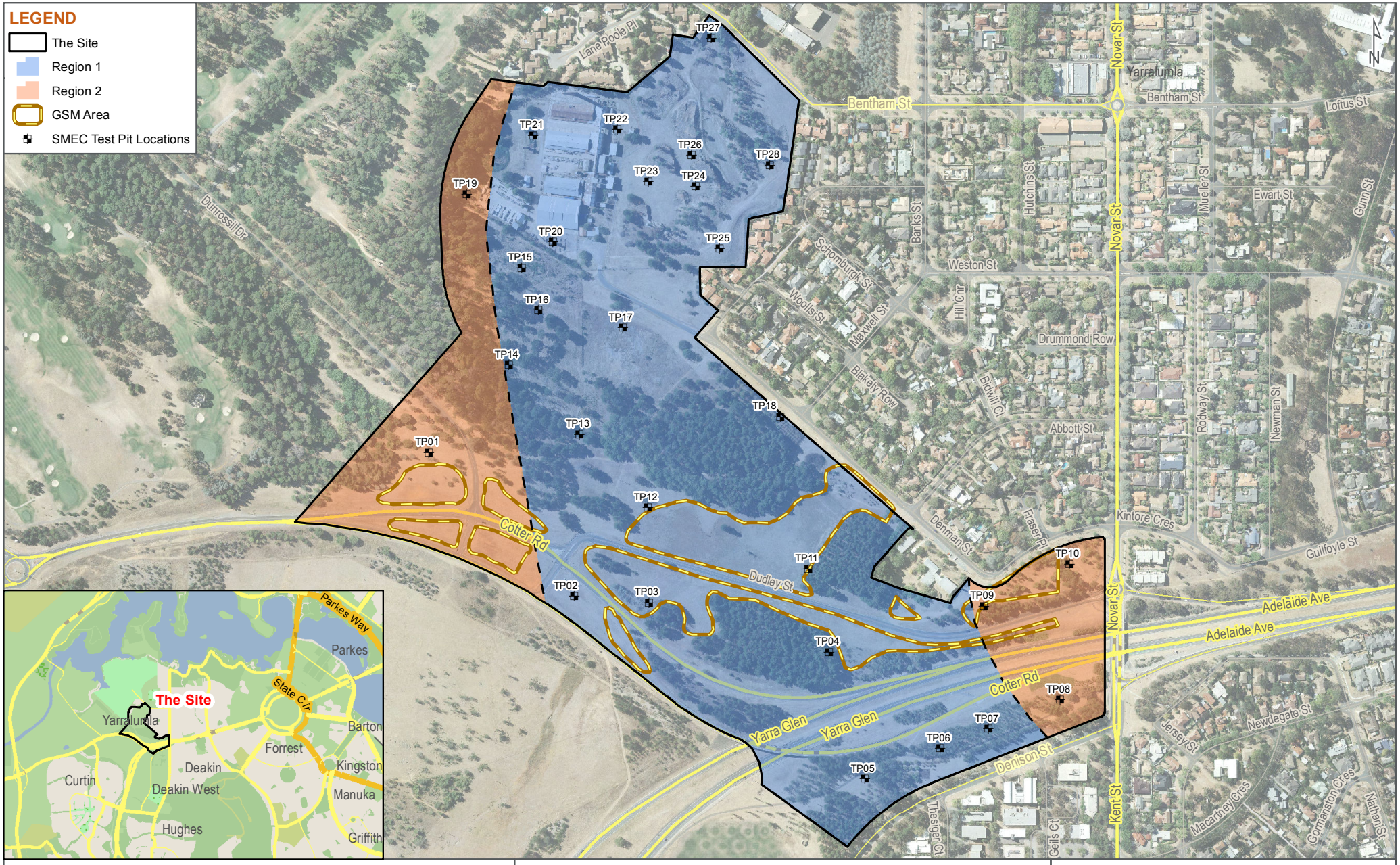


FIG NO. 4	**FIGURE TITLE** Geological Regions	**DATE** 30/10/2013	0 40 80 160 Meters 1:6,500	**PAGE SIZE** A4	**COORDINATE SYSTEM** ACT Grid 1966
PROJECT NO. 3002369	**PROJECT TITLE** Canberra Brickworks Preliminary Site Investigation	**CREATED BY** J. Seng	**SOURCES** Imagery © Roadnet, Imagery © Stromlo		

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Location: X:\PROJECT\3002369 Yarralumla Brickworks Site Investigation\6 Delivery\6.2 Figures and Result Tables\6.2.1 GIS\geotech map - fig 4.mxd

APPENDIX B: DEVELOPMENT MASTERPLAN



ACT Government
Economic Development

Land Development Agency
CANBERRA FIRST

CANBERRA BRICKWORKS AND ENVIRONS

MARCH 2013 BOARD PRESENTATION

APPENDIX C: TEST PIT LOGS

EXCAVATION - GEOLOGICAL LOG

PIT NO : TP01

PROJECT : Old Canberra Brickworks
LOCATION : Yarralumla ACT
CLIENT : Land Development Agency
FEATURE : Geotechnical
FILE / JOB NO : 3002369
SHEET : 1 OF 1

POSITION : E: 689880.000, N: 6090395.000 (56 MGA94)
SURFACE ELEVATION : 585.000 (AHD)

EQUIPMENT TYPE : 8-tonne Excavator
METHOD : Test Pit

DATE EXCAVATED : 10/9/13
LOGGED BY : Kara Stariha
CHECKED BY :

EXCAVATION DIMENSIONS : 2.00 m LONG 0.60 m WIDE

DRILLING | MATERIAL

VE / PENETRATION E F H	SUPPORT	GROUND WATER LEVELS	SAMPLES & FIELD TESTS	ELEVATION (RL) / DEPTH (m)	GRAPHIC LOG	CLASSIFICATION SYMBOL	MATERIAL DESCRIPTION Soil Type, Plasticity or Particle Characteristic, Colour, Secondary and Minor Components	MOISTURE CONDITION	CONSISTENCY RELATIVE DENSITY	DYNAMIC CONE PENETROMETER Blows/150mm	HAND PENETROMETER kPa	STRUCTURE & Other Observations
			TP01-0.0 (0.0-0.2)	585.0 / 0.0		ML	SILT low plasticity, dark brown, trace gravel, rootlets, no odour, no staining	D	F			TOPSOIL
			0.30m TP01-0.5 (0.3-0.5)								0.17: HP In-situ =200 - >450 kPa	
							0.37m					
						GW	Sandy GRAVEL medium grained, to 20 mm, well graded, sub-rounded, grey-brown, with silt, no odour, no staining		D			RESIDUAL SOIL
							0.49m				0.43: HP In-situ =375 - >450 kPa	
				585.5 / 0.5		CL	CLAY low plasticity, grey mottled orange, trace sand, rootlets, no odour, no staining		Fb			
			0.80m TP01-1.0 (0.8-1.0)								0.74: HP In-situ >450 kPa	
				586.0 / 1.0			1.01m					
							DACITE coarse grained, porphyritic, massive, orange with red bands, extremely low strength, highly weathered, highly fractured, no odour, no staining					BEDROCK
							1.16m					
							EXCAVATION TP01 TERMINATED AT 1.16 m Refusal					
				586.5 / 1.5								
				587.0 / 2.0								
				587.5 / 2.5								
				588.0 / 3.0								

PHOTOGRAPHS NOTES ☒ YES ☐ NO

METHOD
- N Natural Exposure
- E Existing Excavation
- BH Backhoe Bucket
- B Bulldozer Blade
- R Ripper

SUPPORT
- T Timbering

PENETRATION
VE E F H VH — No Resistance

WATER
10 Oct., 73 Water Level on Date shown
water inflow
water outflow

SAMPLES & FIELD TESTS
- U50 - Undisturbed Sample 50 mm diameter
- D - Disturbed Sample
- B - Bulk Disturbed Sample
- MC - Moisture Content
- HP - Hand Penetrometer (UCS kPa)
- VS - Vane Shear; P-Peak, R-Remouded (uncorrected kPa)
- PBT - Plate Bearing Test

CLASSIFICATION SYMBOLS & SOIL DESCRIPTION
Based on Unified Classification System

MOISTURE
- D - Dry
- M - Moist
- W - Wet

CONSISTENCY/ RELATIVE DENSITY

VS	- Very Soft
S	- Soft
F	- Firm
St	- Stiff
VSt	- Very Stiff
H	- Hard
VL	- Very Loose
L	- Loose
MD	- Medium Dense
D	- Dense
VD	- Very Dense

See Explanatory Notes for details of abbreviations & basis of descriptions.

SMEC AUSTRALIA

UPDATED SMEC LIBRARY_AGS 3_1 RTA 1_1 LIB 08_WITH FENCE TOOL_15-05-2013.GLB Log SMEC EXCAVATION WITH DCP CANBERRA BRICKWORKS REV 2.GPJ <<DrawingFile>> 30/10/2013 13:54 8.30.003

EXCAVATION - GEOLOGICAL LOG

PIT NO : TP02

PROJECT : Old Canberra Brickworks
LOCATION : Yarralumla ACT
CLIENT : Land Development Agency
FEATURE : Geotechnical
FILE / JOB NO : 3002369
SHEET : 1 OF 1

POSITION : E: 690061.000, N: 6090208.000 (56 MGA94)
SURFACE ELEVATION : 594.960 (AHD)

EQUIPMENT TYPE : 8-tonne Excavator
METHOD : Test Pit

DATE EXCAVATED : 10/9/13
LOGGED BY : Kara Stariha
CHECKED BY :

EXCAVATION DIMENSIONS : 2.00 m LONG 0.60 m WIDE

DRILLING | MATERIAL

VE / PENETRATION E F H	SUPPORT	GROUND WATER LEVELS	SAMPLES & FIELD TESTS	ELEVATION (RL)	DEPTH (m)	GRAPHIC LOG	CLASSIFICATION SYMBOL	MATERIAL DESCRIPTION Soil Type, Plasticity or Particle Characteristic, Colour, Secondary and Minor Components	MOISTURE CONDITION	CONSISTENCY RELATIVE DENSITY	DYNAMIC CONE PENETROMETER Blows/150mm	HAND PENETROMETER kPa	STRUCTURE & Other Observations
			TP02-0.0 (0.0-0.2)	595.0	0.0		CL	CLAY low plasticity, dark brown, with sand, with grass rootlets, no odour, no staining	D to M	St			TOPSOIL 0.20: HP In-situ =225 - 450 kPa
			0.40m TP02-0.5 (0.4-0.6)	595.5	0.5		ML	SILT with cobbles low plasticity, dark orange-brown, with gravel, with bitumen, no odour, no staining		S			FILL 0.51: HP In-situ =125 - 150 kPa
			1.00m TP02-1.0 (1.0-1.2)	596.0	1.0			COBBLES coarse, to 400 mm, well graded, angular, grey, with gravel, with clay, no odour, no staining		MD			
			1.20m TP02-1.3 (1.2-1.4)	596.5	1.5		SW	Gravelly SAND coarse grained, to 200 mm, well graded, angular, red-brown, with cobbles, with bitumen, bricks, no odour, no staining	D	D			1.20: HP In-situ =425 - >450 kPa 1.30: bricks observed
			1.80m QC108 TP02-2.0 (1.8-2.0)	597.0	2.0								1.90: asphalt observed
				597.5	2.5			EXCAVATION TP02 TERMINATED AT 2.10 m Refusal on concrete - Possible abandoned pipe					
					3.0								

PHOTOGRAPHS NOTES ☒ YES ☐ NO

METHOD
N Natural Exposure
E Existing Excavation
BH Backhoe Bucket
B Bulldozer Blade
R Ripper

SUPPORT
T Timbering

PENETRATION
VE E F H VH — No Resistance

WATER
10 Oct., 73 Water Level on Date shown
water inflow
water outflow

SAMPLES & FIELD TESTS
U50 - Undisturbed Sample 50 mm diameter
D - Disturbed Sample
B - Bulk Disturbed Sample
MC - Moisture Content
HP - Hand Penetrometer (UCS kPa)
VS - Vane Shear; P-Peak, R-Remouded (uncorrected kPa)
PBT - Plate Bearing Test

CLASSIFICATION SYMBOLS & SOIL DESCRIPTION
Based on Unified Classification System

MOISTURE
D - Dry
M - Moist
W - Wet

CONSISTENCY/ RELATIVE DENSITY

VS	- Very Soft
S	- Soft
F	- Firm
St	- Stiff
VSt	- Very Stiff
H	- Hard
VL	- Very Loose
L	- Loose
MD	- Medium Dense
D	- Dense
VD	- Very Dense

See Explanatory Notes for details of abbreviations & basis of descriptions.

SMEC AUSTRALIA

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EXCAVATION - GEOLOGICAL LOG

PIT NO : TP03

PROJECT : Old Canberra Brickworks
LOCATION : Yarralumla ACT
CLIENT : Land Development Agency
FEATURE : Geotechnical
FILE / JOB NO : 3002369
SHEET : 1 OF 1

POSITION : E: 690156.000, N: 6090198.000 (56 MGA94)
SURFACE ELEVATION : 592.330 (AHD)

EQUIPMENT TYPE : 8-tonne Excavator
METHOD : Test Pit

DATE EXCAVATED : 10/9/13
LOGGED BY : Kara Stariha
CHECKED BY :

EXCAVATION DIMENSIONS : 2.00 m LONG 0.60 m WIDE

DRILLING | MATERIAL

VE / PENETRATION E F H	SUPPORT	GROUND WATER LEVELS	SAMPLES & FIELD TESTS	ELEVATION (RL) / DEPTH (m)	GRAPHIC LOG	CLASSIFICATION SYMBOL	MATERIAL DESCRIPTION Soil Type, Plasticity or Particle Characteristic, Colour, Secondary and Minor Components	MOISTURE CONDITION	CONSISTENCY RELATIVE DENSITY	DYNAMIC CONE PENETROMETER Blows/150mm	HAND PENETROMETER kPa	STRUCTURE & Other Observations
			QC107 TP03-0.0 (0.0-0.2)	0.0 592.5		CL	CLAY low to medium plasticity, dark brown, with medium grained, well graded, sub-rounded gravel, with grass rootlets, no odour, no staining	D to M	S to F		100 200 300 400	TOPSOIL 0.12: HP In-situ =100 - 150 kPa
			0.30m TP03-0.5 (0.3-0.5)	0.24m		CI	CLAY medium plasticity, grey mottled orange, with medium grained, well graded, sub-rounded gravel, no odour, no staining	M	St			ALLUVIUM 0.37: HP In-situ =175 - 75 kPa
				0.5 593.0		CI	Gravelly CLAY medium plasticity, orange mottled grey, with medium to fine grained, well graded, sub-angular gravel, no odour, no staining	W	VSt			0.58: HP In-situ =450 - >450 kPa
			0.80m TP03-1.0 (0.8-1.0)	0.65m 1.0 593.5			SILTSTONE fine grained, layered, grey weathered orange, medium strength, highly weathered, slightly fractured, no odour, iron staining in fractures	M				BEDROCK
			1.80m TP03-2.0 (1.8-2.0)	1.5 594.0								1.65: Ripper used from 1.65 m
				2.00m 2.0 594.5			EXCAVATION TP03 TERMINATED AT 2.00 m Refusal					
				2.5 595.0								
				3.0								

PHOTOGRAPHS NOTES ☒ YES ☐ NO

METHOD
N Natural Exposure
E Existing Excavation
BH Backhoe Bucket
B Bulldozer Blade
R Ripper

SUPPORT
T Timbering

PENETRATION
VE E F H VH — No Resistance

WATER
10 Oct., 73 Water Level on Date shown
water inflow
water outflow

SAMPLES & FIELD TESTS
U50 - Undisturbed Sample 50 mm diameter
D - Disturbed Sample
B - Bulk Disturbed Sample
MC - Moisture Content
HP - Hand Penetrometer (UCS kPa)
VS - Vane Shear; P-Peak, R-Remouded (uncorrected kPa)
PBT - Plate Bearing Test

CLASSIFICATION SYMBOLS & SOIL DESCRIPTION
Based on Unified Classification System

MOISTURE
D - Dry
M - Moist
W - Wet

CONSISTENCY/ RELATIVE DENSITY

VS	- Very Soft
S	- Soft
F	- Firm
St	- Stiff
VSt	- Very Stiff
H	- Hard
VL	- Very Loose
L	- Loose
MD	- Medium Dense
D	- Dense
VD	- Very Dense

See Explanatory Notes for details of abbreviations & basis of descriptions.

SMEC AUSTRALIA

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EXCAVATION - GEOLOGICAL LOG

PIT NO : TP04

PROJECT : Old Canberra Brickworks
LOCATION : Yarralumla ACT
CLIENT : Land Development Agency
FEATURE : Geotechnical
FILE / JOB NO : 3002369
SHEET : 1 OF 1

POSITION : E: 690384.000, N: 6090131.000 (56 MGA94)
SURFACE ELEVATION : 590.490 (AHD)

EQUIPMENT TYPE : 8-tonne Excavator
METHOD : Test Pit

DATE EXCAVATED : 10/9/13
LOGGED BY : Kara Stariha
CHECKED BY :

EXCAVATION DIMENSIONS : 2.00 m LONG 0.60 m WIDE

DRILLING | MATERIAL

VE / E / F / H PENETRATION	SUPPORT	GROUND WATER LEVELS	SAMPLES & FIELD TESTS	ELEVATION (RL) / DEPTH (m)	GRAPHIC LOG	CLASSIFICATION SYMBOL	MATERIAL DESCRIPTION Soil Type, Plasticity or Particle Characteristic, Colour, Secondary and Minor Components	MOISTURE CONDITION	CONSISTENCY RELATIVE DENSITY	DYNAMIC CONE PENETROMETER Blows/150mm 2.5 5.0 7.5 10.0 12.5 15.0 17.5 20.0 22.5	HAND PENETROMETER kPa 100 200 300 400	STRUCTURE & Other Observations
			TP04-0.0 (0.0-0.2)	590.5 0.0		ML	SILT low plasticity, brown, with coarse, angular gravel, with grass rootlets, non odour, non staining		St			TOPSOIL 0.08: HP In-situ >450 - 325 kPa
			0.30m TP04- 0.50 (0.3-0.45)	0.17m			SILTSTONE fine grained, layered, red brown, low strength, moderately weathered, highly fractured, no odour, iron staining in fractures	D				BEDROCK
				0.45m 591.0 0.5			EXCAVATION TP04 TERMINATED AT 0.45 m Refusal					
				591.5 1.0								
				592.0 1.5								
				592.5 2.0								
				593.0 2.5								
				3.0								

PHOTOGRAPHS NOTES ☒ YES ☐ NO

METHOD
N Natural Exposure
E Existing Excavation
BH Backhoe Bucket
B Bulldozer Blade
R Ripper

SUPPORT
T Timbering

PENETRATION
VE E F H VH — No Resistance

WATER
10 Oct., 73 Water Level on Date shown
water inflow
water outflow

SAMPLES & FIELD TESTS
U50 - Undisturbed Sample 50 mm diameter
D - Disturbed Sample
B - Bulk Disturbed Sample
MC - Moisture Content
HP - Hand Penetrometer (UCS kPa)
VS - Vane Shear; P-Peak, R-Remouded (uncorrected kPa)
PBT - Plate Bearing Test

CLASSIFICATION SYMBOLS & SOIL DESCRIPTION
Based on Unified Classification System

MOISTURE
D - Dry
M - Moist
W - Wet

CONSISTENCY/ RELATIVE DENSITY

VS	- Very Soft
S	- Soft
F	- Firm
St	- Stiff
VSt	- Very Stiff
H	- Hard
VL	- Very Loose
L	- Loose
MD	- Medium Dense
D	- Dense
VD	- Very Dense

See Explanatory Notes for details of abbreviations & basis of descriptions.

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EXCAVATION - GEOLOGICAL LOG

PIT NO : TP05

PROJECT : Old Canberra Brickworks
LOCATION : Yarralumla ACT
CLIENT : Land Development Agency
FEATURE : Geotechnical
FILE / JOB NO : 3002369
SHEET : 1 OF 1

POSITION : E: 690426.000, N: 6089969.000 (56 MGA94)
SURFACE ELEVATION : 596.650 (AHD)

EQUIPMENT TYPE : 8-tonne Excavator
METHOD : Test Pit

DATE EXCAVATED : 9/9/13
LOGGED BY : Claudia Rodriquez
CHECKED BY :

EXCAVATION DIMENSIONS : 2.00 m LONG 0.60 m WIDE

DRILLING | MATERIAL

VE / PENETRATION E F H	SUPPORT	GROUND WATER LEVELS	SAMPLES & FIELD TESTS	ELEVATION (RL) / DEPTH (m)	GRAPHIC LOG	CLASSIFICATION SYMBOL	MATERIAL DESCRIPTION Soil Type, Plasticity or Particle Characteristic, Colour, Secondary and Minor Components	MOISTURE CONDITION	CONSISTENCY / RELATIVE DENSITY	DYNAMIC CONE PENETROMETER Blows/150mm	HAND PENETROMETER kPa	STRUCTURE & Other Observations
			TP05-0.0 (0.0-0.2)	0.0 597.0		ML	Clayey SILT low plasticity, dark brown, with clay, grass rootlets, no odour, no staining	D	S			TOPSOIL
			0.40m TP05-0.5 (0.4-0.6)	0.40m 0.5		CL	Silty CLAY low plasticity, red brown, no odour, no staining		H		0.53	RESIDUAL SOIL 0.53: HP In-situ =425 kPa
			0.80m TP05-1.0 (0.8-1.0)	0.65m 597.5			SILTSTONE fine grained, layered, pale orange, extremely low strength, extremely weathered, highly fractured, no odour, iron staining				0.75	ROCK 0.75: HP In-situ >425 kPa
				0.90m 1.0			SILTSTONE fine grained, massive, light grey with orange staining, medium strength, highly weathered, slightly fractured, no odour, iron staining					
				1.15m 598.0 1.5 598.5 2.0 599.0 2.5 599.5 3.0			EXCAVATION TP05 TERMINATED AT 1.15 m Refusal					

PHOTOGRAPHS NOTES ☒ YES ☐ NO

METHOD
N Natural Exposure
E Existing Excavation
BH Backhoe Bucket
B Bulldozer Blade
R Ripper

SUPPORT
T Timbering

PENETRATION
VE E F H VH — No Resistance

WATER
10 Oct., 73 Water Level on Date shown
water inflow
water outflow

SAMPLES & FIELD TESTS
U50 - Undisturbed Sample 50 mm diameter
D - Disturbed Sample
B - Bulk Disturbed Sample
MC - Moisture Content
HP - Hand Penetrometer (UCS kPa)
VS - Vane Shear; P-Peak, R-Remouded (uncorrected kPa)
PBT - Plate Bearing Test

CLASSIFICATION SYMBOLS & SOIL DESCRIPTION
Based on Unified Classification System

MOISTURE
D - Dry
M - Moist
W - Wet

CONSISTENCY/ RELATIVE DENSITY

VS	- Very Soft
S	- Soft
F	- Firm
St	- Stiff
VSt	- Very Stiff
H	- Hard
VL	- Very Loose
L	- Loose
MD	- Medium Dense
D	- Dense
VD	- Very Dense

See Explanatory Notes for details of abbreviations & basis of descriptions.

SMEC AUSTRALIA

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EXCAVATION - GEOLOGICAL LOG

PIT NO : TP06

PROJECT : Old Canberra Brickworks
LOCATION : Yarralumla ACT
CLIENT : Land Development Agency
FEATURE : Geotechnical
FILE / JOB NO : 3002369
SHEET : 1 OF 1

POSITION : E: 690523.000, N: 6090005.000 (56 MGA94)
SURFACE ELEVATION : 598.770 (AHD)

EQUIPMENT TYPE : 8-tonne Excavator
METHOD : Test Pit

DATE EXCAVATED : 9/9/13
LOGGED BY : Claudia Rodriquez
CHECKED BY :

EXCAVATION DIMENSIONS : 2.00 m LONG 0.60 m WIDE

DRILLING | MATERIAL

VE / PENETRATION E F H	SUPPORT	GROUND WATER LEVELS	SAMPLES & FIELD TESTS	ELEVATION (RL) / DEPTH (m)	GRAPHIC LOG	CLASSIFICATION SYMBOL	MATERIAL DESCRIPTION Soil Type, Plasticity or Particle Characteristic, Colour, Secondary and Minor Components	MOISTURE CONDITION	CONSISTENCY RELATIVE DENSITY	DYNAMIC CONE PENETROMETER Blows/150mm 2.5 5.0 7.5 10.0 12.5 15.0 17.5 20.0 22.5	HAND PENETROMETER 100 200 300 400 kPa	STRUCTURE & Other Observations
			TP06-0.0 (0.0-0.2)	0.0 599.0		ML	SILT low plasticity, brown, trace clay, with grass rootlets, no odour, no staining		VSt			TOPSOIL 0.20: HP In-situ >450 kPa
			0.40m TP06-0.5 (0.4-0.6)	0.45m								
			0.80m TP06-1.0 (0.8-1.0)	0.5 599.5		GW	Silty GRAVEL medium grained, to 20 mm, well graded, sub-rounded, light brown, no odour, iron staining	D	D			ALLUVIUM 0.75: HP In-situ >450 kPa
				1.00m 1.0 600.0			SILTSTONE fine grained, layered, orange brown, extremely low strength, extremely weathered, highly fractured, no odour, iron staining in fractures					BEDROCK 1.25: HP In-situ >450 kPa
			1.50m TP06-1.7 (1.5-1.7)	1.50m 1.5			becoming grey weathered orange in fractures					
				1.60m			becoming grey, high strength, slightly weathered, slightly fractured					
				1.70m 600.5			EXCAVATION TP06 TERMINATED AT 1.70 m Refusal					
				2.0 601.0								
				2.5 601.5								
				3.0								

PHOTOGRAPHS NOTES ☒ YES ☐ NO

METHOD
N Natural Exposure
E Existing Excavation
BH Backhoe Bucket
B Bulldozer Blade
R Ripper

SUPPORT
T Timbering

PENETRATION
VE E F H VH — No Resistance

WATER
10 Oct., 73 Water Level on Date shown
water inflow
water outflow

SAMPLES & FIELD TESTS
U50 - Undisturbed Sample 50 mm diameter
D - Disturbed Sample
B - Bulk Disturbed Sample
MC - Moisture Content
HP - Hand Penetrometer (UCS kPa)
VS - Vane Shear; P-Peak, R-Remouded (uncorrected kPa)
PBT - Plate Bearing Test

CLASSIFICATION SYMBOLS & SOIL DESCRIPTION
Based on Unified Classification System

MOISTURE
D - Dry
M - Moist
W - Wet

CONSISTENCY/ RELATIVE DENSITY

VS	- Very Soft
S	- Soft
F	- Firm
St	- Stiff
VSt	- Very Stiff
H	- Hard
VL	- Very Loose
L	- Loose
MD	- Medium Dense
D	- Dense
VD	- Very Dense

See Explanatory Notes for details of abbreviations & basis of descriptions.

SMEC AUSTRALIA

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EXCAVATION - GEOLOGICAL LOG

PIT NO : TP07

PROJECT : Old Canberra Brickworks
LOCATION : Yarralumla ACT
CLIENT : Land Development Agency
FEATURE : Geotechnical
FILE / JOB NO : 3002369
SHEET : 1 OF 1

POSITION : E: 690585.000, N: 6090029.000 (56 MGA94)
SURFACE ELEVATION : 593.470 (AHD)

EQUIPMENT TYPE : 8-tonne Excavator
METHOD : Test Pit

DATE EXCAVATED : 9/9/13
LOGGED BY : Claudia Rodriquez
CHECKED BY :

EXCAVATION DIMENSIONS : 2.00 m LONG 0.60 m WIDE

DRILLING | MATERIAL

VE / PENETRATION E F H	SUPPORT	GROUND WATER LEVELS	SAMPLES & FIELD TESTS	ELEVATION (RL)	DEPTH (m)	GRAPHIC LOG	CLASSIFICATION SYMBOL	MATERIAL DESCRIPTION Soil Type, Plasticity or Particle Characteristic, Colour, Secondary and Minor Components	MOISTURE CONDITION	CONSISTENCY RELATIVE DENSITY	DYNAMIC CONE PENETRO-METER Blows/150mm	HAND PENETRO-METER kPa	STRUCTURE & Other Observations
			TP07-0.0 (0.0-0.2)	593.5	0.0		ML	SILT low plasticity, red brown mottled black, with fine grained gravel, with grass rootlets, no odour, no staining	D	H			TOPSOIL 0.20: HP In-situ >450 kPa
			0.40m TP07-0.5 (0.4-0.6)	594.0	0.5		CL	Gravelly CLAY low plasticity, light grey, well graded, sub-angular gravel, trace sand, no odour, no staining					FILL 0.75: HP In-situ >450 kPa
			0.80m TP07-1.0 (0.8-1.0)	594.5	1.0		CL	CLAY low plasticity, pale brown mottled grey, no odour, no staining					RESIDUAL SOIL 1.25: HP In-situ >450 kPa
			1.70m TP07-1.9 (1.7-1.9)	595.0	1.5			SANDSTONE medium to coarse grained, massive, grey weathered orange, extremely low strength, extremely weathered, no odour, iron staining					BEDROCK 1.60: Ripper from 1.6 m
				595.5	2.0			EXCAVATION TP07 TERMINATED AT 1.90 m Refusal					
				596.0	2.5								
					3.0								

1.00m
1.50m
1.90m

PHOTOGRAPHS NOTES ☒ YES ☐ NO

METHOD
N Natural Exposure
E Existing Excavation
BH Backhoe Bucket
B Bulldozer Blade
R Ripper

SUPPORT
T Timbering

PENETRATION
VE E F H VH — No Resistance

WATER
10 Oct., 73 Water Level on Date shown
water inflow
water outflow

SAMPLES & FIELD TESTS
U50 - Undisturbed Sample 50 mm diameter
D - Disturbed Sample
B - Bulk Disturbed Sample
MC - Moisture Content
HP - Hand Penetrometer (UCS kPa)
VS - Vane Shear; P-Peak, R-Remouded (uncorrected kPa)
PBT - Plate Bearing Test

CLASSIFICATION SYMBOLS & SOIL DESCRIPTION
Based on Unified Classification System

MOISTURE
D - Dry
M - Moist
W - Wet

CONSISTENCY/ RELATIVE DENSITY

VS	- Very Soft
S	- Soft
F	- Firm
St	- Stiff
VSt	- Very Stiff
H	- Hard
VL	- Very Loose
L	- Loose
MD	- Medium Dense
D	- Dense
VD	- Very Dense

See Explanatory Notes for details of abbreviations & basis of descriptions.

SMEC AUSTRALIA

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EXCAVATION - GEOLOGICAL LOG

PIT NO : TP08

PROJECT : Old Canberra Brickworks
LOCATION : Yarralumla ACT
CLIENT : Land Development Agency
FEATURE : Geotechnical
FILE / JOB NO : 3002369
SHEET : 1 OF 1

POSITION : E: 690677.000, N: 6090064.000 (56 MGA94)
SURFACE ELEVATION : 595.930 (AHD)

EQUIPMENT TYPE : 8-tonne Excavator
METHOD : Test Pit

DATE EXCAVATED : 9/9/13
LOGGED BY : Claudia Rodriquez
CHECKED BY :

EXCAVATION DIMENSIONS : 2.00 m LONG 0.60 m WIDE

DRILLING | MATERIAL

VE / PENETRATION E F H	SUPPORT	GROUND WATER LEVELS	SAMPLES & FIELD TESTS	ELEVATION (RL) / DEPTH (m)	GRAPHIC LOG	CLASSIFICATION SYMBOL	MATERIAL DESCRIPTION Soil Type, Plasticity or Particle Characteristic, Colour, Secondary and Minor Components	MOISTURE CONDITION	CONSISTENCY RELATIVE DENSITY	DYNAMIC CONE PENETROMETER Blows/150mm 2.5 5.0 7.5 10.0 12.5 15.0 17.5 20.0 22.5	HAND PENETROMETER 100 200 300 400 kPa	STRUCTURE & Other Observations
			TP08-0.0 (0.0-0.2)	0.0 596.0		ML	SILT low plasticity, dark brown, trace sand, with grass rootlets, no odour, no staining		VSt			TOPSOIL 0.25: HP In-situ =250 - 450 kPa
			0.40m TP08-0.5 (0.4-0.6)	0.45m								
				0.5		CL	Sandy CLAY low plasticity, orange-brown, coarse sand, with fine, well graded, sub-rounded gravel, no odour, no staining		H			FILL 0.50: HP In-situ =250 - >450 kPa
				0.55m 596.5			Sandy Silty CLAY medium plasticity, red-brown, no odour, iron staining	D				RESIDUAL SOIL 0.60: Large patch of iron staining
			0.80m TP08-1.0 (0.8-1.0)			CI			H			0.75: HP In-situ >450 kPa
			1.00m TP08-1.5 (1.3-1.5)	1.00m 1.0 597.0			DACITE coarse grained, porphyritic, massive, orange-brown, extremely low strength, extremely weathered, no odour, no staining					BEDROCK 1.10: Ripper used from 1.1 m
				1.30m			becoming low strength, slightly weathered					
				1.50m 1.5 597.5			EXCAVATION TP08 TERMINATED AT 1.50 m Refusal					
				2.0 598.0								
				2.5 598.5								
				3.0								

PHOTOGRAPHS NOTES ☒ YES ☐ NO

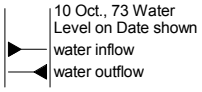
METHOD
- N Natural Exposure
- E Existing Excavation
- BH Backhoe Bucket
- B Bulldozer Blade
- R Ripper

SUPPORT
- T Timbering

PENETRATION



WATER



SAMPLES & FIELD TESTS
- U50 - Undisturbed Sample 50 mm diameter
- D - Disturbed Sample
- B - Bulk Disturbed Sample
- MC - Moisture Content
- HP - Hand Penetrometer (UCS kPa)
- VS - Vane Shear; P-Peak, R-Remouded (uncorrected kPa)
- PBT - Plate Bearing Test

CLASSIFICATION SYMBOLS & SOIL DESCRIPTION
Based on Unified Classification System

MOISTURE
- D - Dry
- M - Moist
- W - Wet

CONSISTENCY/ RELATIVE DENSITY

VS	- Very Soft
S	- Soft
F	- Firm
St	- Stiff
VSt	- Very Stiff
H	- Hard
VL	- Very Loose
L	- Loose
MD	- Medium Dense
D	- Dense
VD	- Very Dense

See Explanatory Notes for details of abbreviations & basis of descriptions.

SMEC AUSTRALIA

UPDATED SMEC LIBRARY_AGS 3_1 RTA 1_1 LIB 08_WITH FENCE TOOL_15-05-2013.GLB Log SMEC EXCAVATION WITH DCP CANBERRA BRICKWORKS REV 2.GPJ <<DrawingFile>> 30/10/2013 13:54 8.30.003

EXCAVATION - GEOLOGICAL LOG

PIT NO : TP09

PROJECT : Old Canberra Brickworks
LOCATION : Yarralumla ACT
CLIENT : Land Development Agency
FEATURE : Geotechnical
FILE / JOB NO : 3002369
SHEET : 1 OF 1

POSITION : E: 690582.000, N: 6090185.000 (56 MGA94)
SURFACE ELEVATION : 592.450 (AHD)

EQUIPMENT TYPE : 8-tonne Excavator
METHOD : Test Pit

DATE EXCAVATED : 10/9/13
LOGGED BY : Kara
CHECKED BY :

EXCAVATION DIMENSIONS : 2.00 m LONG 0.60 m WIDE

DRILLING | MATERIAL

VE / PENETRATION E F H	SUPPORT	GROUND WATER LEVELS	SAMPLES & FIELD TESTS	ELEVATION (RL) / DEPTH (m)	GRAPHIC LOG	CLASSIFICATION SYMBOL	MATERIAL DESCRIPTION Soil Type, Plasticity or Particle Characteristic, Colour, Secondary and Minor Components	MOISTURE CONDITION	CONSISTENCY RELATIVE DENSITY	DYNAMIC CONE PENETRO-METER Blows/150mm	HAND PENETRO-METER kPa	STRUCTURE & Other Observations
			TP09-0.0 (0.0-0.2)	0.0 592.5		ML	SILT low plasticity, light brown, with fine grained sand, with grass rootlets, no odour, no staining		H	2.5 5.0 7.5 10.0 12.5 15.0 17.5 20.0 22.5	100 200 300 400	TOPSOIL 0.20: HP In-situ >450 kPa
			0.40m TP09-0.5 (0.4-0.6)	0.36m 0.5 593.0		CL-CI	CLAY low to medium plasticity, orange-brown, trace fine grained sand, no odour, no staining					RESIDUAL SOIL 0.49: HP In-situ >450 kPa
			0.80m TP09-1.0 (0.8-1.0)	0.62m 1.0 593.5			DACITE coarse grained, porphyritic, massive, orange-brown, low strength, highly weathered, moderately fractured, no odour, iron staining particularly in fractures	D				BEDROCK
				1.06m becoming medium strength, highly weathered, moderately fractured 1.26m			EXCAVATION TP09 TERMINATED AT 1.26 m Refusal					
				1.5 594.0 2.0 594.5 2.5 595.0 3.0								

PHOTOGRAPHS NOTES ☒ YES ☐ NO

METHOD
- N Natural Exposure
- E Existing Excavation
- BH Backhoe Bucket
- B Bulldozer Blade
- R Ripper

SUPPORT
- T Timbering

PENETRATION
VE E F H VH — No Resistance

WATER
10 Oct., 73 Water Level on Date shown
water inflow
water outflow

SAMPLES & FIELD TESTS
- U50 - Undisturbed Sample 50 mm diameter
- D - Disturbed Sample
- B - Bulk Disturbed Sample
- MC - Moisture Content
- HP - Hand Penetrometer (UCS kPa)
- VS - Vane Shear; P-Peak, R-Remouded (uncorrected kPa)
- PBT - Plate Bearing Test

CLASSIFICATION SYMBOLS & SOIL DESCRIPTION
Based on Unified Classification System

MOISTURE
- D - Dry
- M - Moist
- W - Wet

CONSISTENCY/ RELATIVE DENSITY

VS	- Very Soft
S	- Soft
F	- Firm
St	- Stiff
VSt	- Very Stiff
H	- Hard
VL	- Very Loose
L	- Loose
MD	- Medium Dense
D	- Dense
VD	- Very Dense

See Explanatory Notes for details of abbreviations & basis of descriptions.

SMEC AUSTRALIA

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EXCAVATION - GEOLOGICAL LOG

PIT NO : TP10

PROJECT : Old Canberra Brickworks
LOCATION : Yarralumla ACT
CLIENT : Land Development Agency
FEATURE : Geotechnical
FILE / JOB NO : 3002369
SHEET : 1 OF 1

POSITION : E: 690692.000, N: 6090236.000 (56 MGA94)
SURFACE ELEVATION : 596.420 (AHD)

EQUIPMENT TYPE : 8-tonne Excavator
METHOD : Test Pit

DATE EXCAVATED : 10/9/13
LOGGED BY : Kara
CHECKED BY :

EXCAVATION DIMENSIONS : 2.00 m LONG 0.60 m WIDE

DRILLING | MATERIAL

VE / PENETRATION E F H	SUPPORT	GROUND WATER LEVELS	SAMPLES & FIELD TESTS	ELEVATION (RL) / DEPTH (m)	GRAPHIC LOG	CLASSIFICATION SYMBOL	MATERIAL DESCRIPTION Soil Type, Plasticity or Particle Characteristic, Colour, Secondary and Minor Components	MOISTURE CONDITION	CONSISTENCY / RELATIVE DENSITY	DYNAMIC CONE PENETROMETER Blows/150mm	HAND PENETROMETER kPa	STRUCTURE & Other Observations
			TP10-0.0 (0.0-0.2)	596.5 / 0.0		ML	SILT low plasticity, dark brown, with coarse, <20 mm gravel, with grass rootlets, no odour, no staining	D	St			TOPSOIL 0.20: HP In-situ =150 - 225 kPa
			0.40m TP10-0.5 (0.4-0.6)	0.39m		CL	Silty CLAY low plasticity, light orange brown, no odour, no staining		VSt			FILL 0.45: HP In-situ =325 - 450 kPa
			0.90m TP10-1.0 (0.9-1.1)	597.0 / 0.5 / 597.5 / 1.0		CI	CLAY medium plasticity, light orange brown speckled black, trace sand, no odour, no staining		H / Fb			0.85: HP In-situ =450 - >450 kPa
				1.5 / 1.58m			EXCAVATION TP10 TERMINATED AT 1.58 m Refusal					
				598.0 / 2.0 / 598.5 / 2.5 / 599.0 / 3.0								

PHOTOGRAPHS NOTES ☒ YES ☐ NO

METHOD
- N Natural Exposure
- E Existing Excavation
- BH Backhoe Bucket
- B Bulldozer Blade
- R Ripper

SUPPORT
- T Timbering

PENETRATION
VE E F H VH — No Resistance

WATER
10 Oct., 73 Water Level on Date shown
water inflow
water outflow

SAMPLES & FIELD TESTS
- U50 - Undisturbed Sample 50 mm diameter
- D - Disturbed Sample
- B - Bulk Disturbed Sample
- MC - Moisture Content
- HP - Hand Penetrometer (UCS kPa)
- VS - Vane Shear; P-Peak, R-Remouded (uncorrected kPa)
- PBT - Plate Bearing Test

CLASSIFICATION SYMBOLS & SOIL DESCRIPTION
Based on Unified Classification System

MOISTURE
- D - Dry
- M - Moist
- W - Wet

CONSISTENCY/ RELATIVE DENSITY

VS	- Very Soft
S	- Soft
F	- Firm
St	- Stiff
VSt	- Very Stiff
H	- Hard
VL	- Very Loose
L	- Loose
MD	- Medium Dense
D	- Dense
VD	- Very Dense

See Explanatory Notes for details of abbreviations & basis of descriptions.

SMEC AUSTRALIA

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EXCAVATION - GEOLOGICAL LOG

PIT NO : TP11

PROJECT : Old Canberra Brickworks
LOCATION : Yarralumla ACT
CLIENT : Land Development Agency
FEATURE : Geotechnical
FILE / JOB NO : 3002369
SHEET : 1 OF 1

POSITION : E: 690360.000, N: 6090237.000 (56 MGA94)
SURFACE ELEVATION : 584.110 (AHD)

EQUIPMENT TYPE : 8-tonne Excavator
METHOD : Test Pit

DATE EXCAVATED : 10/9/13
LOGGED BY : Kara
CHECKED BY :

EXCAVATION DIMENSIONS : 2.00 m LONG 0.60 m WIDE

DRILLING | MATERIAL

VE / PENETRATION E F H	SUPPORT	GROUND WATER LEVELS	SAMPLES & FIELD TESTS	ELEVATION (RL) / DEPTH (m)	GRAPHIC LOG	CLASSIFICATION SYMBOL	MATERIAL DESCRIPTION Soil Type, Plasticity or Particle Characteristic, Colour, Secondary and Minor Components	MOISTURE CONDITION	CONSISTENCY RELATIVE DENSITY	DYNAMIC CONE PENETROMETER Blows/150mm	HAND PENETROMETER kPa	STRUCTURE & Other Observations
			TP11-0.0 (0.0-0.2)	584.5 0.0		ML	Clayey SILT low plasticity, red-brown, with grass rootlets, no odour, no staining		VSt			TOPSOIL
							0.21m SILTSTONE fine grained, layered, orange brown, low strength, highly weathered, highly fractured, no odour, iron staining in fractures					BEDROCK
			0.40m TP11-0.5 (0.4-0.6)	0.5			0.60m becoming medium strength, slightly weathered, highly fractured	D				0.78: Ripper from 0.78
			1.00m TP11-1.0 (1.0-1.2)	585.0 1.0			1.12m EXCAVATION TP11 TERMINATED AT 1.12 m Refusal					
				585.5 1.5								
				586.0 2.0								
				586.5 2.5								
				587.0 3.0								

PHOTOGRAPHS NOTES ☒ YES ☐ NO

METHOD
N Natural Exposure
E Existing Excavation
BH Backhoe Bucket
B Bulldozer Blade
R Ripper

SUPPORT
T Timbering

PENETRATION
VE E F H VH — No Resistance

WATER
10 Oct., 73 Water Level on Date shown
water inflow
water outflow

SAMPLES & FIELD TESTS
U50 - Undisturbed Sample 50 mm diameter
D - Disturbed Sample
B - Bulk Disturbed Sample
MC - Moisture Content
HP - Hand Penetrometer (UCS kPa)
VS - Vane Shear; P-Peak, R-Remouded (uncorrected kPa)
PBT - Plate Bearing Test

CLASSIFICATION SYMBOLS & SOIL DESCRIPTION
Based on Unified Classification System

MOISTURE
D - Dry
M - Moist
W - Wet

CONSISTENCY/ RELATIVE DENSITY

VS	- Very Soft
S	- Soft
F	- Firm
St	- Stiff
VSt	- Very Stiff
H	- Hard
VL	- Very Loose
L	- Loose
MD	- Medium Dense
D	- Dense
VD	- Very Dense

See Explanatory Notes for details of abbreviations & basis of descriptions.

SMEC AUSTRALIA

UPDATED SMEC LIBRARY_AGS 3_1 RTA 1_1 LIB 08_WITH FENCE TOOL_15-05-2013.GLB Log SMEC EXCAVATION WITH DCP CANBERRA BRICKWORKS REV 2.GPJ <<DrawingFile>> 30/10/2013 13:54 8.30.003

EXCAVATION - GEOLOGICAL LOG

PIT NO : TP12

PROJECT : Old Canberra Brickworks
LOCATION : Yarralumla ACT
CLIENT : Land Development Agency
FEATURE : Geotechnical
FILE / JOB NO : 3002369
SHEET : 1 OF 1

POSITION : E: 690156.000, N: 6090337.000 (56 MGA94)
SURFACE ELEVATION : 585.070 (AHD)

EQUIPMENT TYPE : 8-tonne Excavator
METHOD : Test Pit

DATE EXCAVATED : 10/9/13
LOGGED BY : Kara
CHECKED BY :

EXCAVATION DIMENSIONS : 2.00 m LONG 0.60 m WIDE

DRILLING | MATERIAL

VE / PENETRATION E F H	SUPPORT	GROUND WATER LEVELS	SAMPLES & FIELD TESTS	ELEVATION (RL) / DEPTH (m)	GRAPHIC LOG	CLASSIFICATION SYMBOL	MATERIAL DESCRIPTION Soil Type, Plasticity or Particle Characteristic, Colour, Secondary and Minor Components	MOISTURE CONDITION	CONSISTENCY RELATIVE DENSITY	DYNAMIC CONE PENETROMETER Blows/150mm 2.5 5.0 7.5 10.0 12.5 15.0 17.5 20.0 22.5	HAND PENETROMETER kPa 100 200 300 400	STRUCTURE & Other Observations
			TP12-0. (0.0-0.2)	0.0 585.5 0.5		ML	Sandy SILT low plasticity, dark brown, well graded sand, no odour, no staining	D to M	F			TOPSOIL 0.15: HP In-situ =0 kPa
			0.40m TP12-0.5 (0.4-0.6)	0.31m		ML	Gravelly SILT to 400 mm, low plasticity, dark red-brown, well graded, sub-angular gravel, with cobbles, with boulders, no odour, no staining		F			FILL 0.45: HP In-situ =300 kPa
				586.0 1.0 1.20m			SILTSTONE fine grained, layered, orange brown, low strength, highly weathered, highly fractured, no odour, iron staining, particularly in fractures	D				BEDROCK 0.60: Bitumen observed BEDROCK
				586.5 1.5 587.0 2.0 587.5 2.5 588.0 3.0			EXCAVATION TP12 TERMINATED AT 1.20 m Refusal					1.20: Note: Sample location likely to recieve wash from surrounding area

PHOTOGRAPHS NOTES ☒ YES ☐ NO

METHOD
- N Natural Exposure
- E Existing Excavation
- BH Backhoe Bucket
- B Bulldozer Blade
- R Ripper

SUPPORT
- T Timbering

PENETRATION
VE E F H VH — No Resistance

WATER
10 Oct., 73 Water Level on Date shown
water inflow
water outflow

SAMPLES & FIELD TESTS
- U50 - Undisturbed Sample 50 mm diameter
- D - Disturbed Sample
- B - Bulk Disturbed Sample
- MC - Moisture Content
- HP - Hand Penetrometer (UCS kPa)
- VS - Vane Shear; P-Peak, R-Remouded (uncorrected kPa)
- PBT - Plate Bearing Test

CLASSIFICATION SYMBOLS & SOIL DESCRIPTION
Based on Unified Classification System

MOISTURE
- D - Dry
- M - Moist
- W - Wet

CONSISTENCY/ RELATIVE DENSITY

VS	- Very Soft
S	- Soft
F	- Firm
St	- Stiff
VSt	- Very Stiff
H	- Hard
VL	- Very Loose
L	- Loose
MD	- Medium Dense
D	- Dense
VD	- Very Dense

See Explanatory Notes for details of abbreviations & basis of descriptions.

SMEC AUSTRALIA

UPDATED SMEC LIBRARY_AGS 3_1 RTA 1_1 LIB 08_WITH FENCE TOOL_15-05-2013.GLB Log SMEC EXCAVATION WITH DCP CANBERRA BRICKWORKS REV 2.GPJ <<DrawingFile>> 30/10/2013 13:54 8.30.003

EXCAVATION - GEOLOGICAL LOG

PIT NO : TP13

PROJECT : Old Canberra Brickworks
LOCATION : Yarralumla ACT
CLIENT : Land Development Agency
FEATURE : Geotechnical
FILE / JOB NO : 3002369
SHEET : 1 OF 1

POSITION : E: 690045.000, N: 6090415.000 (56 MGA94)
SURFACE ELEVATION : 583.820 (AHD)

EQUIPMENT TYPE : 8-tonne Excavator
METHOD : Test Pit

DATE EXCAVATED : 10/9/13
LOGGED BY : Kara
CHECKED BY :

EXCAVATION DIMENSIONS : 2.00 m LONG 0.60 m WIDE

DRILLING | MATERIAL

VE / PENETRATION E F H	SUPPORT	GROUND WATER LEVELS	SAMPLES & FIELD TESTS	ELEVATION (RL) / DEPTH (m)	GRAPHIC LOG	CLASSIFICATION SYMBOL	MATERIAL DESCRIPTION Soil Type, Plasticity or Particle Characteristic, Colour, Secondary and Minor Components	MOISTURE CONDITION	CONSISTENCY / RELATIVE DENSITY	DYNAMIC CONE PENETROMETER Blows/150mm	HAND PENETROMETER kPa	STRUCTURE & Other Observations
			TP13-0.0 (0.0-0.2)	0.0 584.0		ML	SILT low plasticity, brown, with clay, with grass rootlets, no odour, no staining	D	F		100 200 300 400	TOPSOIL 0.15: HP In-situ =50 - 375 kPa
			0.40m TP13-0.5 (0.4-0.6)	0.32m 0.5		CL	CLAY low plasticity, red-brown, with sand, with gravel, no odour, no staining		H			RESIDUAL SOIL 0.55: HP In-situ =425 - >450 kPa
			0.80m TP13-1.0 (0.8-1.0)	0.69m 584.5 1.0 585.0			SILTSTONE fine grained, amorphous, layered, grey weathered orange, high strength, fresh, moderately weathered, no odour, iron staining in fractures					BEDROCK
				1.30m 1.5 585.5 2.0 586.0 2.5 586.5 3.0			EXCAVATION TP13 TERMINATED AT 1.30 m Refusal					

PHOTOGRAPHS NOTES ☒ YES ☐ NO

METHOD
N Natural Exposure
E Existing Excavation
BH Backhoe Bucket
B Bulldozer Blade
R Ripper

SUPPORT
T Timbering

PENETRATION
VE E F H VH — No Resistance

WATER
10 Oct., 73 Water Level on Date shown
water inflow
water outflow

SAMPLES & FIELD TESTS
U50 - Undisturbed Sample 50 mm diameter
D - Disturbed Sample
B - Bulk Disturbed Sample
MC - Moisture Content
HP - Hand Penetrometer (UCS kPa)
VS - Vane Shear; P-Peak, R-Remouded (uncorrected kPa)
PBT - Plate Bearing Test

CLASSIFICATION SYMBOLS & SOIL DESCRIPTION
Based on Unified Classification System

MOISTURE
D - Dry
M - Moist
W - Wet

CONSISTENCY/ RELATIVE DENSITY

VS	- Very Soft
S	- Soft
F	- Firm
St	- Stiff
VSt	- Very Stiff
H	- Hard
VL	- Very Loose
L	- Loose
MD	- Medium Dense
D	- Dense
VD	- Very Dense

See Explanatory Notes for details of abbreviations & basis of descriptions.

SMEC AUSTRALIA

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EXCAVATION - GEOLOGICAL LOG

PIT NO : TP14

PROJECT : Old Canberra Brickworks
LOCATION : Yarralumla ACT
CLIENT : Land Development Agency
FEATURE : Geotechnical
FILE / JOB NO : 3002369
SHEET : 1 OF 1

POSITION : E: 690044.000, N: 6090417.000 (56 MGA94)
SURFACE ELEVATION : 597.420 (AHD)

EQUIPMENT TYPE : 8-tonne Excavator
METHOD : Test Pit

DATE EXCAVATED : 9/9/13
LOGGED BY : Claudia Rodriquez
CHECKED BY :

EXCAVATION DIMENSIONS : 2.00 m LONG 0.60 m WIDE

DRILLING | MATERIAL

VE / PENETRATION E F H	SUPPORT	GROUND WATER LEVELS	SAMPLES & FIELD TESTS	ELEVATION (RL) / DEPTH (m)	GRAPHIC LOG	CLASSIFICATION SYMBOL	MATERIAL DESCRIPTION Soil Type, Plasticity or Particle Characteristic, Colour, Secondary and Minor Components	MOISTURE CONDITION	CONSISTENCY RELATIVE DENSITY	DYNAMIC CONE PENETROMETER Blows/150mm 2.5 5.0 7.5 10.0 12.5 15.0 17.5 20.0 22.5	HAND PENETROMETER 100 200 300 400 kPa	STRUCTURE & Other Observations
			TP14-0.0 (0.0-0.2)	0.0 597.5		ML	Clayey SILT low plasticity, dark brown, with grass rootlets, no odour, no staining	D to M	St			TOPSOIL
				0.25m								
			0.40m TP14-0.5 (0.4-0.6)	0.5 598.0		CL	Silty CLAY low plasticity, red brown, no odour, no staining		VSt		0.50: HP In-situ =125 - 350 kPa	FILL
			0.80m TP14-1.0 (0.8-1.0)	0.80m								
				1.0 598.5		SW	Gravelly SAND orange brown, fine to coarse grained, well graded, sub-rounded gravel, no odour, iron staining		VD		1.00: HP In-situ =300 - >450 kPa	RESIDUAL SOIL
				1.15m			DACITE coarse grained, porphyritic, massive, orange brown, very low strength, highly weathered, no odour, iron staining					BEDROCK
				1.35m			EXCAVATION TP14 TERMINATED AT 1.35 m Refusal					
				1.5 599.0								
				2.0 599.5								
				2.5 600.0								
				3.0								

PHOTOGRAPHS NOTES ☒ YES ☐ NO

METHOD
N Natural Exposure
E Existing Excavation
BH Backhoe Bucket
B Bulldozer Blade
R Ripper

SUPPORT
T Timbering

PENETRATION
VE E F H VH — No Resistance

WATER
10 Oct., 73 Water Level on Date shown
water inflow
water outflow

SAMPLES & FIELD TESTS
U50 - Undisturbed Sample 50 mm diameter
D - Disturbed Sample
B - Bulk Disturbed Sample
MC - Moisture Content
HP - Hand Penetrometer (UCS kPa)
VS - Vane Shear; P-Peak, R-Remouded (uncorrected kPa)
PBT - Plate Bearing Test

CLASSIFICATION SYMBOLS & SOIL DESCRIPTION
Based on Unified Classification System

MOISTURE
D - Dry
M - Moist
W - Wet

CONSISTENCY/ RELATIVE DENSITY

VS	- Very Soft
S	- Soft
F	- Firm
St	- Stiff
VSt	- Very Stiff
H	- Hard
VL	- Very Loose
L	- Loose
MD	- Medium Dense
D	- Dense
VD	- Very Dense

See Explanatory Notes for details of abbreviations & basis of descriptions.

SMEC AUSTRALIA

UPDATED SMEC LIBRARY_AGS 3_1 RTA 1_1 LIB 08_WITH FENCE TOOL_15-05-2013.GLB Log SMEC EXCAVATION WITH DCP CANBERRA BRICKWORKS REV 2.GPJ <<DrawingFile>> 30/10/2013 13:54 8.30.003

EXCAVATION - GEOLOGICAL LOG

PIT NO : TP15

PROJECT : Old Canberra Brickworks
LOCATION : Yarralumla ACT
CLIENT : Land Development Agency
FEATURE : Geotechnical
FILE / JOB NO : 3002369
SHEET : 1 OF 1

POSITION : E: 690003.000, N: 6090627.000 (56 MGA94)
SURFACE ELEVATION : 595.880 (AHD)

EQUIPMENT TYPE : 8-tonne Excavator
METHOD : Test Pit

DATE EXCAVATED : 9/9/13
LOGGED BY : Claudia Rodriquez
CHECKED BY :

EXCAVATION DIMENSIONS : 2.00 m LONG 0.60 m WIDE

DRILLING | MATERIAL

VE / PENETRATION E F H	SUPPORT	GROUND WATER LEVELS	SAMPLES & FIELD TESTS	ELEVATION (RL) / DEPTH (m)	GRAPHIC LOG	CLASSIFICATION SYMBOL	MATERIAL DESCRIPTION (Soil Type, Plasticity or Particle Characteristic, Colour, Secondary and Minor Components)	MOISTURE CONDITION	CONSISTENCY / RELATIVE DENSITY	DYNAMIC CONE PENETROMETER Blows/150mm	HAND PENETROMETER kPa	STRUCTURE & Other Observations
			QC103 QC104 TP15-0.0 (0.0-0.2)	0.0 596.0		ML	SILT low plasticity, dark brown, with sand, with medium grained, sub-angular gravel, with grass rootlets and bricks, no odour, no staining	D	F		100 200 300 400	TOPSOIL 0.15: HP In-situ =75 - 400 kPa
				0.20m			SILT low plasticity, red-brown, with clay, with glass and charcoal, no odour, iron staining					FILL
			0.40m TP15-05 (0.4-0.6)	0.5 596.5		ML						0.60: HP In-situ =375 - >450 kPa
			0.80m TP15-1.0 (0.8-1.0)	1.0								
				1.00m			Silty CLAY low plasticity, orange mottled black, with sand, no odour, iron staining	D to M	H			RESIDUAL SOIL
			1.80m TP15-2.0 (1.8-2.0)	1.5 597.0 597.5		CL						
				1.90m			SILTSTONE fine grained, amorphous, layered, grey, low strength, moderately weathered, moderately fractured, no odour, iron staining in fractures					BEDROCK
				2.0 598.0			EXCAVATION TP15 TERMINATED AT 2.00 m Refusal					
				2.5 598.5								
				3.0								

PHOTOGRAPHS NOTES ☒ YES ☐ NO

METHOD
- N Natural Exposure
- E Existing Excavation
- BH Backhoe Bucket
- B Bulldozer Blade
- R Ripper

SUPPORT
- T Timbering

PENETRATION
VE E F H VH — No Resistance

WATER
10 Oct., 73 Water Level on Date shown
water inflow
water outflow

SAMPLES & FIELD TESTS
- U50 - Undisturbed Sample 50 mm diameter
- D - Disturbed Sample
- B - Bulk Disturbed Sample
- MC - Moisture Content
- HP - Hand Penetrometer (UCS kPa)
- VS - Vane Shear; P-Peak, R-Remouded (uncorrected kPa)
- PBT - Plate Bearing Test

CLASSIFICATION SYMBOLS & SOIL DESCRIPTION
Based on Unified Classification System

MOISTURE
- D - Dry
- M - Moist
- W - Wet

CONSISTENCY/ RELATIVE DENSITY

VS	- Very Soft
S	- Soft
F	- Firm
St	- Stiff
VSt	- Very Stiff
H	- Hard
VL	- Very Loose
L	- Loose
MD	- Medium Dense
D	- Dense
VD	- Very Dense

See Explanatory Notes for details of abbreviations & basis of descriptions.

SMEC AUSTRALIA

UPDATED SMEC LIBRARY_AGS 3_1 RTA 1_1 LIB 08_WITH FENCE TOOL_15-05-2013.GLB Log SMEC EXCAVATION WITH DCP CANBERRA BRICKWORKS REV 2.GPJ <<DrawingFile>> 30/10/2013 13:54 8.30.003

EXCAVATION - GEOLOGICAL LOG

PIT NO : TP16

PROJECT : Old Canberra Brickworks
LOCATION : Yarralumla ACT
CLIENT : Land Development Agency
FEATURE : Geotechnical
FILE / JOB NO : 3002369
SHEET : 1 OF 1

POSITION : E: 690023.000, N: 6090573.000 (56 MGA94)
SURFACE ELEVATION : 593.710 (AHD)

EQUIPMENT TYPE : 8-tonne Excavator
METHOD : Test Pit

DATE EXCAVATED : 9/9/13
LOGGED BY : Claudia Rodriquez
CHECKED BY :

EXCAVATION DIMENSIONS : 2.00 m LONG 0.60 m WIDE

DRILLING | MATERIAL

VE / PENETRATION E F H	SUPPORT	GROUND WATER LEVELS	SAMPLES & FIELD TESTS	ELEVATION (RL) / DEPTH (m)	GRAPHIC LOG	CLASSIFICATION SYMBOL	MATERIAL DESCRIPTION Soil Type, Plasticity or Particle Characteristic, Colour, Secondary and Minor Components	MOISTURE CONDITION	CONSISTENCY RELATIVE DENSITY	DYNAMIC CONE PENETROMETER Blows/150mm	HAND PENETROMETER kPa	STRUCTURE & Other Observations
			TP16-0.0 (0.0-0.2)	0.0 / 594.0		GW	Silty GRAVEL coarse grained, well graded, sub-angular, dark brown, with cobbles, no odour, iron staining in gravel	D to M	VD			TOPSOIL 0.15: HP In-situ =175 kPa
			0.40m TP16-0.5 (0.4-0.6)	0.30m / 0.5		CL	Gravelly CLAY low plasticity, red-brown, natural sandstone, medium grained, subrounded gravel, with sand, no odour, iron staining in gravel		VSt			RESIDUAL SOIL 0.40: HP In-situ =300 - >450 kPa 0.60: HP In-situ =450 - >450 kPa
			0.75m TP16-1.0 (0.8-1.0)	0.75m / 594.5 / 1.0			SANDSTONE medium to coarse grained, massive, red/orange brown, very low strength, extremely weathered, no odour, iron staining along fractures					BEDROCK
				1.15m / 595.0 / 1.5			EXCAVATION TP16 TERMINATED AT 1.15 m Refusal					
				595.5 / 2.0								
				596.0 / 2.5								
				596.5 / 3.0								

PHOTOGRAPHS NOTES ☒ YES ☐ NO

METHOD
N Natural Exposure
E Existing Excavation
BH Backhoe Bucket
B Bulldozer Blade
R Ripper

SUPPORT
T Timbering

PENETRATION
VE E F H VH — No Resistance

WATER
10 Oct., 73 Water Level on Date shown
water inflow
water outflow

SAMPLES & FIELD TESTS
U50 - Undisturbed Sample 50 mm diameter
D - Disturbed Sample
B - Bulk Disturbed Sample
MC - Moisture Content
HP - Hand Penetrometer (UCS kPa)
VS - Vane Shear; P-Peak, R-Remouded (uncorrected kPa)
PBT - Plate Bearing Test

CLASSIFICATION SYMBOLS & SOIL DESCRIPTION
Based on Unified Classification System

MOISTURE
D - Dry
M - Moist
W - Wet

CONSISTENCY/ RELATIVE DENSITY

VS	- Very Soft
S	- Soft
F	- Firm
St	- Stiff
VSt	- Very Stiff
H	- Hard
VL	- Very Loose
L	- Loose
MD	- Medium Dense
D	- Dense
VD	- Very Dense

See Explanatory Notes for details of abbreviations & basis of descriptions.

SMEC AUSTRALIA

UPDATED SMEC LIBRARY_AGS 3_1 RTA 1_1 LIB 08_WITH FENCE TOOL_15-05-2013.GLB Log SMEC EXCAVATION WITH DCP CANBERRA BRICKWORKS REV 2.GPJ <<DrawingFile>> 30/10/2013 13:54 8.30.003

EXCAVATION - GEOLOGICAL LOG

PIT NO : TP17

PROJECT : Old Canberra Brickworks
LOCATION : Yarralumla ACT
CLIENT : Land Development Agency
FEATURE : Geotechnical
FILE / JOB NO : 3002369
SHEET : 1 OF 1

POSITION : E: 690130.000, N: 6090548.000 (56 MGA94)
SURFACE ELEVATION : 591.270 (AHD)

EQUIPMENT TYPE : 8-tonne Excavator
METHOD : Test Pit

DATE EXCAVATED : 9/9/13
LOGGED BY : Claudia Rodriquez
CHECKED BY :

EXCAVATION DIMENSIONS : 2.00 m LONG 0.60 m WIDE

DRILLING | MATERIAL

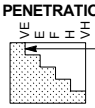
VE / PENETRATION E F H	SUPPORT	GROUND WATER LEVELS	SAMPLES & FIELD TESTS	ELEVATION (RL) / DEPTH (m)	GRAPHIC LOG	CLASSIFICATION SYMBOL	MATERIAL DESCRIPTION Soil Type, Plasticity or Particle Characteristic, Colour, Secondary and Minor Components	MOISTURE CONDITION	CONSISTENCY RELATIVE DENSITY	DYNAMIC CONE PENETROMETER Blows/150mm 2.5 5.0 7.5 10.0 12.5 15.0 17.5 20.0 22.5	HAND PENETROMETER kPa 100 200 300 400	STRUCTURE & Other Observations
			QC102 TP17-0.0 (0.0-0.2)	0.0 591.5		CL	Sandy CLAY low to medium plasticity, orange brown, with coarse, to 15 mm, well graded gravel, with grass rootlets, with bitumen and glass, no odour, no staining					TOPSOIL
			0.40m TP17-0.5 (0.4-0.6)	0.20m 0.5 592.0		CL	Sandy CLAY coarse, to 15 mm, well graded, low to medium plasticity, orange brown, with gravel, with bitumen and glass, no odour, no staining		H			FILL 0.25: HP In-situ =425 - >450 kPa
			0.80m TP17-1.0 (0.8-1.0)	0.50m 1.0 592.5			SILTSTONE fine grained, layered, grey weathered orange, very low strength, highly weathered, highly fractured, interspersed with fresh, grey, high strength shale corestones ~500 mm in diameter from ~ 0.6 m., no odour, iron staining in fractures	D				BEDROCK
				1.70m 1.5 593.0			EXCAVATION TP17 TERMINATED AT 1.70 m Refusal					
				2.0 593.5								
				2.5 594.0								
				3.0								

PHOTOGRAPHS NOTES ☒ YES ☐ NO

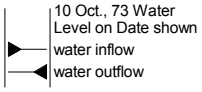
METHOD
- N Natural Exposure
- E Existing Excavation
- BH Backhoe Bucket
- B Bulldozer Blade
- R Ripper

SUPPORT
- T Timbering

PENETRATION



WATER



SAMPLES & FIELD TESTS
- U50 - Undisturbed Sample 50 mm diameter
- D - Disturbed Sample
- B - Bulk Disturbed Sample
- MC - Moisture Content
- HP - Hand Penetrometer (UCS kPa)
- VS - Vane Shear; P-Peak, R-Remouded (uncorrected kPa)
- PBT - Plate Bearing Test

CLASSIFICATION SYMBOLS & SOIL DESCRIPTION
Based on Unified Classification System

MOISTURE
- D - Dry
- M - Moist
- W - Wet

CONSISTENCY/ RELATIVE DENSITY

VS	- Very Soft
S	- Soft
F	- Firm
St	- Stiff
VSt	- Very Stiff
H	- Hard
VL	- Very Loose
L	- Loose
MD	- Medium Dense
D	- Dense
VD	- Very Dense

See Explanatory Notes for details of abbreviations & basis of descriptions.

SMEC AUSTRALIA

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EXCAVATION - GEOLOGICAL LOG

PIT NO : TP18

PROJECT : Old Canberra Brickworks
LOCATION : Yarralumla ACT
CLIENT : Land Development Agency
FEATURE : Geotechnical
FILE / JOB NO : 3002369
SHEET : 1 OF 1

POSITION : E: 690328.000, N: 6090431.000 (56 MGA94)
SURFACE ELEVATION : 596.560 (AHD)

EQUIPMENT TYPE : 8-tonne Excavator
METHOD : Test Pit

DATE EXCAVATED : 10/9/13
LOGGED BY : Kara
CHECKED BY :

EXCAVATION DIMENSIONS : 2.00 m LONG 0.60 m WIDE

DRILLING | MATERIAL

VE / PENETRATION E F H	SUPPORT	GROUND WATER LEVELS	SAMPLES & FIELD TESTS	ELEVATION (RL)	DEPTH (m)	GRAPHIC LOG	CLASSIFICATION SYMBOL	MATERIAL DESCRIPTION Soil Type, Plasticity or Particle Characteristic, Colour, Secondary and Minor Components	MOISTURE CONDITION	CONSISTENCY RELATIVE DENSITY	DYNAMIC CONE PENETROMETER Blows/150mm	HAND PENETROMETER kPa	STRUCTURE & Other Observations
			TP18-0.0 (0.0-0.1)	597.0	0.0		SW	Clayey SAND medium grained, well graded, dark brown, trace gravel, with grass rootlets, no odour, no staining	D to M	MD			TOPSOIL 0.20: HP In-situ =200 - 275 kPa
			0.40m TP18-0.5 (0.4-0.6)		0.34m		CI	CLAY medium plasticity, red brown, trace gravel, no odour, no staining		St			RESIDUAL SOIL 0.45: HP In-situ =175 - 375 kPa
				597.5	0.5 0.54m			SILTSTONE fine grained, layered, orange mottled grey and red, extremely low strength, extremely weathered, highly fractured, no odour, iron staining particularly in fractures					BEDROCK 0.70: HP In-situ =350 - >475 kPa
			1.00m TP18-1.0 (1.0-1.2)		0.88m 0.95m 1.0			becoming grey weathered orange, very low strength, highly weathered, moderately fractured becoming medium strength, slightly weathered, moderately fractured					
				598.0	1.37m 1.5			EXCAVATION TP18 TERMINATED AT 1.37 m Refusal					
				598.5	2.0								
				599.0	2.5								
				599.5	3.0								

PHOTOGRAPHS NOTES ☒ YES ☐ NO

METHOD
N Natural Exposure
E Existing Excavation
BH Backhoe Bucket
B Bulldozer Blade
R Ripper

SUPPORT
T Timbering

PENETRATION
VE E F H VH — No Resistance

WATER
10 Oct., 73 Water Level on Date shown
water inflow
water outflow

SAMPLES & FIELD TESTS
U50 - Undisturbed Sample 50 mm diameter
D - Disturbed Sample
B - Bulk Disturbed Sample
MC - Moisture Content
HP - Hand Penetrometer (UCS kPa)
VS - Vane Shear; P-Peak, R-Remouded (uncorrected kPa)
PBT - Plate Bearing Test

CLASSIFICATION SYMBOLS & SOIL DESCRIPTION
Based on Unified Classification System

MOISTURE
D - Dry
M - Moist
W - Wet

CONSISTENCY/ RELATIVE DENSITY

VS	- Very Soft
S	- Soft
F	- Firm
St	- Stiff
VSt	- Very Stiff
H	- Hard
VL	- Very Loose
L	- Loose
MD	- Medium Dense
D	- Dense
VD	- Very Dense

See Explanatory Notes for details of abbreviations & basis of descriptions.

SMEC AUSTRALIA

UPDATED SMEC LIBRARY_AGS 3_1 RTA 1_1 LIB 08_WITH FENCE TOOL_15-05-2013.GLB Log SMEC EXCAVATION WITH DCP CANBERRA BRICKWORKS REV 2.GPJ <<DrawingFile>> 30/10/2013 13:54 8.30.003

EXCAVATION - GEOLOGICAL LOG

PIT NO : TP19

PROJECT : Old Canberra Brickworks
LOCATION : Yarralumla ACT
CLIENT : Land Development Agency
FEATURE : Geotechnical
FILE / JOB NO : 3002369
SHEET : 1 OF 1

POSITION : E: 689935.000, N: 6090722.000 (56 MGA94)
SURFACE ELEVATION : 589.000 (AHD)

EQUIPMENT TYPE : 8-tonne Excavator
METHOD : Test Pit

DATE EXCAVATED : 11/9/13
LOGGED BY : Claudia Rodriquez
CHECKED BY :

EXCAVATION DIMENSIONS : 2.00 m LONG 0.60 m WIDE

DRILLING | MATERIAL

VE / PENETRATION E F H	SUPPORT	GROUND WATER LEVELS	SAMPLES & FIELD TESTS	ELEVATION (RL)	DEPTH (m)	GRAPHIC LOG	CLASSIFICATION SYMBOL	MATERIAL DESCRIPTION Soil Type, Plasticity or Particle Characteristic, Colour, Secondary and Minor Components	MOISTURE CONDITION	CONSISTENCY RELATIVE DENSITY	DYNAMIC CONE PENETROMETER Blows/150mm 2.5 5.0 7.5 10.0 12.5 15.0 17.5 20.0 22.5	HAND PENETROMETER 100 200 300 400 kPa	STRUCTURE & Other Observations
			TP19-0.0 (0.0-0.2)	589.0	0.0		CL	CLAY low plasticity, dark brown, with silt, with grass rootlets, no odour, no staining	D to M	F			TOPSOIL 0.00: ACM Fragments observed in vicinity TOPSOIL
					0.18m								
			0.30m TP19-0.3 (0.3-0.5)				CI	CLAY medium plasticity, orange brown mottled grey, trace sand, trace well graded, sub-angular gravel, no odour, no staining	M	VSt			RESIDUAL SOIL
			0.50m TP19-1.0 (0.8-1.0)	589.5	0.5								0.50: HP In-situ =325 - >450 kPa 0.60: Decomposed organic matter observed - possible tree root
					0.79m								
								DACITE coarse grained, porphyritic, massive, orange brown mottled red, extremely low strength, extremely weathered, no odour, iron staining					BEDROCK
					0.98m								
				590.0	1.0			becoming low strength, highly weathered					
					1.10m								
								EXCAVATION TP19 TERMINATED AT 1.10 m Refusal					
				590.5	1.5								
				591.0	2.0								
				591.5	2.5								
				592.0	3.0								

PHOTOGRAPHS NOTES ☒ YES ☐ NO

METHOD
- N Natural Exposure
- E Existing Excavation
- BH Backhoe Bucket
- B Bulldozer Blade
- R Ripper

SUPPORT
- T Timbering

PENETRATION
VE E F H VH — No Resistance

WATER
10 Oct., 73 Water Level on Date shown
water inflow
water outflow

SAMPLES & FIELD TESTS
- U50 - Undisturbed Sample 50 mm diameter
- D - Disturbed Sample
- B - Bulk Disturbed Sample
- MC - Moisture Content
- HP - Hand Penetrometer (UCS kPa)
- VS - Vane Shear; P-Peak, R-Remouded (uncorrected kPa)
- PBT - Plate Bearing Test

CLASSIFICATION SYMBOLS & SOIL DESCRIPTION
Based on Unified Classification System

MOISTURE
- D - Dry
- M - Moist
- W - Wet

CONSISTENCY/ RELATIVE DENSITY

VS	- Very Soft
S	- Soft
F	- Firm
St	- Stiff
VSt	- Very Stiff
H	- Hard
VL	- Very Loose
L	- Loose
MD	- Medium Dense
D	- Dense
VD	- Very Dense

See Explanatory Notes for details of abbreviations & basis of descriptions.

SMEC AUSTRALIA

UPDATED SMEC LIBRARY_AGS 3_1 RTA 1_1 LIB 08_WITH FENCE TOOL_15-05-2013.GLB Log SMEC EXCAVATION WITH DCP CANBERRA BRICKWORKS REV 2.GPJ <<DrawingFile>> 30/10/2013 13:54 8.30.003

EXCAVATION - GEOLOGICAL LOG

PIT NO : TP20

PROJECT : Old Canberra Brickworks
LOCATION : Yarralumla ACT
CLIENT : Land Development Agency
FEATURE : Geotechnical
FILE / JOB NO : 3002369
SHEET : 1 OF 1

POSITION : E: 690043.000, N: 6090659.000 (56 MGA94)
SURFACE ELEVATION : 583.000 (AHD)

EQUIPMENT TYPE : 8-tonne Excavator
METHOD : Test Pit

DATE EXCAVATED : 11/9/13
LOGGED BY : Claudia Rodriquez
CHECKED BY :

EXCAVATION DIMENSIONS : 2.00 m LONG 0.60 m WIDE

DRILLING | MATERIAL

VE / PENETRATION E F H	SUPPORT	GROUND WATER LEVELS	SAMPLES & FIELD TESTS	ELEVATION (RL) / DEPTH (m)	GRAPHIC LOG	CLASSIFICATION SYMBOL	MATERIAL DESCRIPTION Soil Type, Plasticity or Particle Characteristic, Colour, Secondary and Minor Components	MOISTURE CONDITION	CONSISTENCY RELATIVE DENSITY	DYNAMIC CONE PENETROMETER Blows/150mm	HAND PENETROMETER kPa	STRUCTURE & Other Observations
			TP20-0.0 (0.0-0.2)	583.0 0.0		GP	0.05m GRAVEL medium to coarse grained, to 20 mm, poorly graded, angular, grey, DGB, well compacted gravel sealed carpark, no odour, no staining		D			FILL
						CI	CLAY medium plasticity, light brown, with coarse, to 20 mm, well graded, angular, shale and brick gravel, with bitumen and brick, no odour, no staining		St			
							0.27m SILTSTONE fine grained, amorphous, layered, grey weathered orange, low to medium strength, moderately weathered, highly fractured, no odour, iron staining in fractures					BEDROCK
			0.40m TP20-0.5 (0.4-0.6)	583.5 0.5			0.47m becoming medium to high strength, slightly weathered, moderately fractured	D				
			1.00m TP20-1.0 (1.0-1.2)	584.0 1.0			1.20m EXCAVATION TP20 TERMINATED AT 1.20 m Refusal					
				584.5 1.5								
				585.0 2.0								
				585.5 2.5								
				586.0 3.0								

PHOTOGRAPHS NOTES ☒ YES ☐ NO

METHOD
- N Natural Exposure
- E Existing Excavation
- BH Backhoe Bucket
- B Bulldozer Blade
- R Ripper

SUPPORT
- T Timbering

PENETRATION
VE E F H VH — No Resistance

WATER
10 Oct., 73 Water Level on Date shown
water inflow
water outflow

SAMPLES & FIELD TESTS
- U50 - Undisturbed Sample 50 mm diameter
- D - Disturbed Sample
- B - Bulk Disturbed Sample
- MC - Moisture Content
- HP - Hand Penetrometer (UCS kPa)
- VS - Vane Shear; P-Peak, R-Remouded (uncorrected kPa)
- PBT - Plate Bearing Test

CLASSIFICATION SYMBOLS & SOIL DESCRIPTION
Based on Unified Classification System

MOISTURE
- D - Dry
- M - Moist
- W - Wet

CONSISTENCY/ RELATIVE DENSITY

VS	- Very Soft
S	- Soft
F	- Firm
St	- Stiff
VSt	- Very Stiff
H	- Hard
VL	- Very Loose
L	- Loose
MD	- Medium Dense
D	- Dense
VD	- Very Dense

See Explanatory Notes for details of abbreviations & basis of descriptions.

SMEC AUSTRALIA

UPDATED SMEC LIBRARY_AGS 3_1 RTA 1_1 LIB 08_WITH FENCE TOOL_15-05-2013.GLB Log SMEC EXCAVATION WITH DCP CANBERRA BRICKWORKS REV 2.GPJ <<DrawingFile>> 30/10/2013 13:54 8.30.003

EXCAVATION - GEOLOGICAL LOG

PIT NO : TP21

PROJECT : Old Canberra Brickworks
LOCATION : Yarralumla ACT
CLIENT : Land Development Agency
FEATURE : Geotechnical
FILE / JOB NO : 3002369
SHEET : 1 OF 1

POSITION : E: 690222.000, N: 6090766.000 (56 MGA94)
SURFACE ELEVATION : 588.000 (AHD)

EQUIPMENT TYPE : 8-tonne Excavator
METHOD : Test Pit

DATE EXCAVATED : 11/9/13
LOGGED BY : Claudia Rodriquez
CHECKED BY :

EXCAVATION DIMENSIONS : 2.00 m LONG 0.60 m WIDE

DRILLING | MATERIAL

VE / PENETRATION E F H	SUPPORT	GROUND WATER LEVELS	SAMPLES & FIELD TESTS	ELEVATION (RL) / DEPTH (m)	GRAPHIC LOG	CLASSIFICATION SYMBOL	MATERIAL DESCRIPTION Soil Type, Plasticity or Particle Characteristic, Colour, Secondary and Minor Components	MOISTURE CONDITION	CONSISTENCY / RELATIVE DENSITY	DYNAMIC CONE PENETROMETER Blows/150mm	HAND PENETROMETER kPa	STRUCTURE & Other Observations
			TP21-0.0 (0.0-0.2)	588.0 0.0		ML	Gravelly SILT low plasticity, dark brown, coarse, to 20 mm, well graded, sub-angular gravel, with grass rootlets, with brick, no odour, no staining		S			TOPSOIL
				0.14m			Silty COBBLES coarse, to 400 mm, well graded, angular, red-brown, with boulders, combination of bricks, tiles, quarry refuse (shale), and white tuff fragments. Also ash, coal and bitumen observed, no odour, no staining	D	VL			FILL
			0.40m TP21-0.5 (0.4-0.6)	588.5 0.5								
			0.80m TP21-1.0 (0.8-1.0)	589.0 1.0								
				589.5 1.5								
				1.56m			EXCAVATION TP21 TERMINATED AT 1.56 m Collapse					
				590.0 2.0								
				590.5 2.5								
				591.0 3.0								

PHOTOGRAPHS NOTES ☒ YES ☐ NO

METHOD
- N Natural Exposure
- E Existing Excavation
- BH Backhoe Bucket
- B Bulldozer Blade
- R Ripper

SUPPORT
- T Timbering

PENETRATION
VE E F H VH — No Resistance

WATER
10 Oct., 73 Water Level on Date shown
water inflow
water outflow

SAMPLES & FIELD TESTS
- U50 - Undisturbed Sample 50 mm diameter
- D - Disturbed Sample
- B - Bulk Disturbed Sample
- MC - Moisture Content
- HP - Hand Penetrometer (UCS kPa)
- VS - Vane Shear; P-Peak, R-Remouded (uncorrected kPa)
- PBT - Plate Bearing Test

CLASSIFICATION SYMBOLS & SOIL DESCRIPTION
Based on Unified Classification System

MOISTURE
- D - Dry
- M - Moist
- W - Wet

CONSISTENCY/ RELATIVE DENSITY

VS	- Very Soft
S	- Soft
F	- Firm
St	- Stiff
VSt	- Very Stiff
H	- Hard
VL	- Very Loose
L	- Loose
MD	- Medium Dense
D	- Dense
VD	- Very Dense

See Explanatory Notes for details of abbreviations & basis of descriptions.

SMEC AUSTRALIA

UPDATED SMEC LIBRARY_AGS 3_1 RTA 1_1 LIB 08_WITH FENCE TOOL_15-05-2013.GLB Log SMEC EXCAVATION WITH DCP CANBERRA BRICKWORKS REV 2.GPJ <<DrawingFile>> 30/10/2013 13:54 8.30.003

EXCAVATION - GEOLOGICAL LOG

PIT NO : TP22

PROJECT : Old Canberra Brickworks
LOCATION : Yarralumla ACT
CLIENT : Land Development Agency
FEATURE : Geotechnical
FILE / JOB NO : 3002369
SHEET : 1 OF 1

POSITION : E: 690128.000, N: 6090800.000 (56 MGA94)
SURFACE ELEVATION : 586.000 (AHD)

EQUIPMENT TYPE : 8-tonne Excavator
METHOD : Test Pit

DATE EXCAVATED : 11/9/13
LOGGED BY : Claudia Rodriquez
CHECKED BY :

EXCAVATION DIMENSIONS : 2.00 m LONG 0.60 m WIDE

DRILLING | MATERIAL

VE / PENETRATION E F H	SUPPORT	GROUND WATER LEVELS	SAMPLES & FIELD TESTS	ELEVATION (RL) / DEPTH (m)	GRAPHIC LOG	CLASSIFICATION SYMBOL	MATERIAL DESCRIPTION (Soil Type, Plasticity or Particle Characteristic, Colour, Secondary and Minor Components)	MOISTURE CONDITION	CONSISTENCY / RELATIVE DENSITY	DYNAMIC CONE PENETROMETER Blows/150mm	HAND PENETROMETER kPa	STRUCTURE & Other Observations
			TP22-0.0 (0.0-0.2)	586.0 0.0		CL	Sandy CLAY low plasticity, brown, with metal, with grass rootlets, no odour, no staining	D	St			TOPSOIL
				0.19m		SW	Gravelly SAND brown, medium grained, well graded, angular shale gravel, with clay, with ash and bitumen, no odour, no staining	D to M	MD			FILL
			0.40m QC113 TP22-0.5 (0.4-0.6)	0.38m 586.5 0.5		GW	Sandy GRAVEL medium grained, well graded, angular, grey speckled white, with ash and bitumen, no odour, no staining					0.45: HP In-situ =350 - >450 kPa
				0.54m		CL	Sandy CLAY low plasticity, brown mottled red, with ash, bitumen and bricks, no odour, no staining	M	VSt			
			0.80m TP22-1.0 (0.8-1.0)	587.0 1.0								0.75: HP In-situ >450 kPa
				1.25m								
				1.30m			SILTSTONE fine grained, amorphous, layered, grey, high strength, slightly weathered, moderately fractured, no odour, iron staining in fractures					BEDROCK
				587.5 1.5			EXCAVATION TP22 TERMINATED AT 1.30 m Refusal					
				588.0 2.0								
				588.5 2.5								
				589.0 3.0								

PHOTOGRAPHS NOTES ☒ YES ☐ NO

METHOD
N Natural Exposure
E Existing Excavation
BH Backhoe Bucket
B Bulldozer Blade
R Ripper

SUPPORT
T Timbering

PENETRATION
VE E F H VH — No Resistance

WATER
10 Oct., 73 Water Level on Date shown
water inflow
water outflow

SAMPLES & FIELD TESTS
U50 - Undisturbed Sample 50 mm diameter
D - Disturbed Sample
B - Bulk Disturbed Sample
MC - Moisture Content
HP - Hand Penetrometer (UCS kPa)
VS - Vane Shear; P-Peak, R-Remouded (uncorrected kPa)
PBT - Plate Bearing Test

CLASSIFICATION SYMBOLS & SOIL DESCRIPTION
Based on Unified Classification System

MOISTURE
D - Dry
M - Moist
W - Wet

CONSISTENCY/ RELATIVE DENSITY

VS	- Very Soft
S	- Soft
F	- Firm
St	- Stiff
VSt	- Very Stiff
H	- Hard
VL	- Very Loose
L	- Loose
MD	- Medium Dense
D	- Dense
VD	- Very Dense

See Explanatory Notes for details of abbreviations & basis of descriptions.

SMEC AUSTRALIA

UPDATED SMEC LIBRARY_AGS 3_1 RTA 1_1 LIB 08_WITH FENCE TOOL_15-05-2013.GLB Log SMEC EXCAVATION WITH DCP CANBERRA BRICKWORKS REV 2.GPJ <<DrawingFile>> 30/10/2013 13:54 8.30.003

EXCAVATION - GEOLOGICAL LOG

PIT NO : TP23

PROJECT : Old Canberra Brickworks
LOCATION : Yarralumla ACT
CLIENT : Land Development Agency
FEATURE : Geotechnical
FILE / JOB NO : 3002369
SHEET : 1 OF 1

POSITION : E: 690166.000, N: 6090733.000 (56 MGA94)
SURFACE ELEVATION : 605.500 (AHD)

EQUIPMENT TYPE : 8-tonne Excavator
METHOD : Test Pit

DATE EXCAVATED : 11/9/13
LOGGED BY : Claudia Rodriquez
CHECKED BY :

EXCAVATION DIMENSIONS : 2.00 m LONG 0.60 m WIDE

DRILLING | MATERIAL

VE / PENETRATION E F H	SUPPORT	GROUND WATER LEVELS	SAMPLES & FIELD TESTS	ELEVATION (RL) / DEPTH (m)	GRAPHIC LOG	CLASSIFICATION SYMBOL	MATERIAL DESCRIPTION Soil Type, Plasticity or Particle Characteristic, Colour, Secondary and Minor Components	MOISTURE CONDITION	CONSISTENCY / RELATIVE DENSITY	DYNAMIC CONE PENETROMETER Blows/150mm 2.5 5.0 7.5 10.0 12.5 15.0 17.5 20.0 22.5	HAND PENETROMETER kPa 100 200 300 400	STRUCTURE & Other Observations
			TP23-0.0 (0.0-0.2)	605.5 / 0.0		ML	Sandy SILT low plasticity, brown, with grass rootlets, with brick, no odour, no staining		St			TOPSOIL 0.15: HP In-situ =375 - 450 kPa
			0.40m TP23-0.5 (0.4-0.6)	606.0 / 0.5			0.30m Sandy CLAY medium plasticity, brown, with coarse, to 300 mm, angular gravel, cobbles and boulders of fresh siltstone (quarry cuttings), brick, bitumen, no odour, no staining					FILL 0.50: HP In-situ =350 - 450 kPa
			0.80m TP23-1.0 (0.8-1.0)	606.5 / 1.0		CI		D	St			
			1.80m TP23-2.0 (1.8-2.0)	607.0 / 1.5			1.59m SILTSTONE fine grained, amorphous, layered, orange-brown, medium strength, slightly weathered, highly fractured, no odour, iron staining particularly in fractures					BEDROCK
				607.5 / 2.0			2.37m EXCAVATION TP23 TERMINATED AT 2.37 m Refusal					2.37: No ACM observed
				608.0 / 2.5								
				608.5 / 3.0								

PHOTOGRAPHS NOTES ☒ YES ☐ NO

METHOD
N Natural Exposure
E Existing Excavation
BH Backhoe Bucket
B Bulldozer Blade
R Ripper

SUPPORT
T Timbering

PENETRATION
VE E F H VH — No Resistance

WATER
10 Oct., 73 Water Level on Date shown
water inflow
water outflow

SAMPLES & FIELD TESTS
U50 - Undisturbed Sample 50 mm diameter
D - Disturbed Sample
B - Bulk Disturbed Sample
MC - Moisture Content
HP - Hand Penetrometer (UCS kPa)
VS - Vane Shear; P-Peak, R-Remouded (uncorrected kPa)
PBT - Plate Bearing Test

CLASSIFICATION SYMBOLS & SOIL DESCRIPTION
Based on Unified Classification System

MOISTURE
D - Dry
M - Moist
W - Wet

CONSISTENCY/ RELATIVE DENSITY

VS	- Very Soft
S	- Soft
F	- Firm
St	- Stiff
VSt	- Very Stiff
H	- Hard
VL	- Very Loose
L	- Loose
MD	- Medium Dense
D	- Dense
VD	- Very Dense

See Explanatory Notes for details of abbreviations & basis of descriptions.

SMEC AUSTRALIA

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EXCAVATION - GEOLOGICAL LOG

PIT NO : TP24

PROJECT : Old Canberra Brickworks
LOCATION : Yarralumla ACT
CLIENT : Land Development Agency
FEATURE : Geotechnical
FILE / JOB NO : 3002369
SHEET : 1 OF 1

POSITION : E: 690226.000, N: 6090726.000 (56 MGA94)
SURFACE ELEVATION : 597.500 (AHD)

EQUIPMENT TYPE : 8-tonne Excavator
METHOD : Test Pit

DATE EXCAVATED : 11/9/13
LOGGED BY : Claudia Rodriquez
CHECKED BY :

EXCAVATION DIMENSIONS : 2.00 m LONG 0.60 m WIDE

DRILLING | MATERIAL

VE / PENETRATION (E F H)	SUPPORT	GROUND WATER LEVELS	SAMPLES & FIELD TESTS	ELEVATION (RL) / DEPTH (m)	GRAPHIC LOG	CLASSIFICATION SYMBOL	MATERIAL DESCRIPTION (Soil Type, Plasticity or Particle Characteristic, Colour, Secondary and Minor Components)	MOISTURE CONDITION	CONSISTENCY / RELATIVE DENSITY	DYNAMIC CONE PENETROMETER Blows/150mm	HAND PENETROMETER kPa	STRUCTURE & Other Observations
			TP24-0.0 (0.0-0.2)	597.5 0.0		ML	Sandy SILT low plasticity, brown, with grass rootlets, bitumen and bricks, no odour, no staining	D	St			TOPSOIL
				0.10m		CI	Gravelly CLAY medium plasticity, orange-brown, medium grained, to 200 mm, well graded, angular, possible DGB or quarry cuttings gravel, no odour, no staining	M	St			FILL
				0.30m		CL	Gravelly CLAY low plasticity, light grey, medium grained, shale, to 100 mm, well graded, sub-rounded gravel, possible quarry cuttings , no odour, no staining		F			
			0.40m TP24-0.5 (0.4-0.5)	0.40m								BEDROCK
				0.50m			SILTSTONE fine grained, amorphous, layered, dark grey, high strength, slightly weathered, moderately fractured, no odour, iron staining in fractures					
				598.0 0.5			EXCAVATION TP24 TERMINATED AT 0.50 m Refusal					
				598.5 1.0								
				599.0 1.5								
				599.5 2.0								
				600.0 2.5								
				600.5 3.0								

PHOTOGRAPHS NOTES ☒ YES ☐ NO

METHOD
N Natural Exposure
E Existing Excavation
BH Backhoe Bucket
B Bulldozer Blade
R Ripper

SUPPORT
T Timbering

PENETRATION
VE E F H VH — No Resistance

WATER
10 Oct., 73 Water Level on Date shown
water inflow
water outflow

SAMPLES & FIELD TESTS
U50 - Undisturbed Sample 50 mm diameter
D - Disturbed Sample
B - Bulk Disturbed Sample
MC - Moisture Content
HP - Hand Penetrometer (UCS kPa)
VS - Vane Shear; P-Peak, R-Remouded (uncorrected kPa)
PBT - Plate Bearing Test

CLASSIFICATION SYMBOLS & SOIL DESCRIPTION
Based on Unified Classification System

MOISTURE
D - Dry
M - Moist
W - Wet

CONSISTENCY/ RELATIVE DENSITY

VS	- Very Soft
S	- Soft
F	- Firm
St	- Stiff
VSt	- Very Stiff
H	- Hard
VL	- Very Loose
L	- Loose
MD	- Medium Dense
D	- Dense
VD	- Very Dense

See Explanatory Notes for details of abbreviations & basis of descriptions.

SMEC AUSTRALIA

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EXCAVATION - GEOLOGICAL LOG

PIT NO : TP25

PROJECT : Old Canberra Brickworks
LOCATION : Yarralumla ACT
CLIENT : Land Development Agency
FEATURE : Geotechnical
FILE / JOB NO : 3002369
SHEET : 1 OF 1

POSITION : E: 690255.000, N: 6090627.000 (56 MGA94)
SURFACE ELEVATION : 601.000 (AHD)

EQUIPMENT TYPE : 8-tonne Excavator
METHOD : Test Pit

DATE EXCAVATED : 11/9/13
LOGGED BY : Claudia Rodriquez
CHECKED BY :

EXCAVATION DIMENSIONS : 2.00 m LONG 0.60 m WIDE

DRILLING | MATERIAL

VE / PENETRATION E F H	SUPPORT	GROUND WATER LEVELS	SAMPLES & FIELD TESTS	ELEVATION (RL) / DEPTH (m)	GRAPHIC LOG	CLASSIFICATION SYMBOL	MATERIAL DESCRIPTION Soil Type, Plasticity or Particle Characteristic, Colour, Secondary and Minor Components	MOISTURE CONDITION	CONSISTENCY / RELATIVE DENSITY	DYNAMIC CONE PENETROMETER Blows/150mm 2.5 5.0 7.5 10.0 12.5 15.0 17.5 20.0 22.5	HAND PENETROMETER kPa 100 200 300 400	STRUCTURE & Other Observations
			TP25-0.0 (0.0-0.2)	601.0 0.0		Cl	0.10m CLAY medium plasticity, light brown, with coarse, well graded, angular gravel, with brick, glass and grass rootlets, no odour, no staining		St			TOPSOIL FILL
			0.50m TP25-0.5 (0.4-0.6)	601.5 0.5			Clayey COBBLES coarse, well graded, angular, light brown and grey, with fresh to slightly weathered shale boulders, some bricks and glass, no odour, no staining, reworked natural material, possible quarry cuttings					0.10: reworked natural material, possible quarry cuttings 0.30: metal pipe observed
			1.00m TP25-1.0 (0.8-1.0)	602.0 1.0								
				602.5 1.5				D	MD			
			2.00m TP25-2.0 (1.9-2.1)	603.0 2.0								2.00: rusted metal container - possibly old drum
				603.5 2.5								
			3.00m TP25-3.0 (2.8-3.0)	604.0 3.0			3.00m EXCAVATION TP25 TERMINATED AT 3.10 m Machine Limit					3.00: bitumen and ash observed
				604.5 3.5								

PHOTOGRAPHS NOTES ☒ YES ☐ NO

METHOD
- N Natural Exposure
- E Existing Excavation
- BH Backhoe Bucket
- B Bulldozer Blade
- R Ripper

SUPPORT
- T Timbering

PENETRATION
VE E F H VH — No Resistance

WATER
10 Oct., 73 Water Level on Date shown
water inflow
water outflow

SAMPLES & FIELD TESTS
- U50 - Undisturbed Sample 50 mm diameter
- D - Disturbed Sample
- B - Bulk Disturbed Sample
- MC - Moisture Content
- HP - Hand Penetrometer (UCS kPa)
- VS - Vane Shear; P-Peak, R-Remouded (uncorrected kPa)
- PBT - Plate Bearing Test

CLASSIFICATION SYMBOLS & SOIL DESCRIPTION
Based on Unified Classification System

MOISTURE
- D - Dry
- M - Moist
- W - Wet

CONSISTENCY/ RELATIVE DENSITY

VS	- Very Soft
S	- Soft
F	- Firm
St	- Stiff
VSt	- Very Stiff
H	- Hard
VL	- Very Loose
L	- Loose
MD	- Medium Dense
D	- Dense
VD	- Very Dense

See Explanatory Notes for details of abbreviations & basis of descriptions.

SMEC AUSTRALIA

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EXCAVATION - GEOLOGICAL LOG

PIT NO : TP26

PROJECT : Old Canberra Brickworks
LOCATION : Yarralumla ACT
CLIENT : Land Development Agency
FEATURE : Geotechnical
FILE / JOB NO : 3002369
SHEET : 1 OF 1

POSITION : E: 690222.000, N: 6090766.000 (56 MGA94)
SURFACE ELEVATION : 588.000 (AHD)

EQUIPMENT TYPE : 8-tonne Excavator
METHOD : Test Pit

DATE EXCAVATED : 11/9/13
LOGGED BY : Claudia Rodriquez
CHECKED BY :

EXCAVATION DIMENSIONS : 2.00 m LONG 0.60 m WIDE

DRILLING | MATERIAL

VE / PENETRATION E F H	SUPPORT	GROUNDWATER LEVELS	SAMPLES & FIELD TESTS	ELEVATION (RL) / DEPTH (m)	GRAPHIC LOG	CLASSIFICATION SYMBOL	MATERIAL DESCRIPTION Soil Type, Plasticity or Particle Characteristic, Colour, Secondary and Minor Components	MOISTURE CONDITION	CONSISTENCY RELATIVE DENSITY	DYNAMIC CONE PENETROMETER Blows/150mm	HAND PENETROMETER kPa	STRUCTURE & Other Observations
			TP26-0.0 (0.0-0.2)	588.0 0.0		ML	SILT low plasticity, dark brown, with sand, with glass, grass rootlets, no odour, no staining		St			TOPSOIL
			0.40m QC110 TP26-0.5 (0.4-0.6)	588.5 0.5			0.34m COBBLES coarse, to 250 mm, poorly graded, angular, red-brown, whole bricks , with metal, ash, bitumen, no odour, no staining		MD			FILL
			0.80m TP26-1.0 (0.8-1.0)	589.0 1.0		Cl	0.56m CLAY medium plasticity, grey and brown, with silt, with bitumen, ash, no odour, no staining		St			
			1.80m TP26-2.0 (1.8-2.0)	589.5 1.5			1.10m COBBLES coarse, to 250 mm, poorly graded, angular, red-brown, whole bricks , metal, ash, bitumen, no odour, no staining	D	L			2.00: Metal engine part observed
			2.80m TP26-3.0 (2.8-3.0)	590.0 2.0								
				590.5 2.5								
				591.0 3.0			3.00m EXCAVATION TP26 TERMINATED AT 3.00 m Collapse					
				591.5 3.5								

PHOTOGRAPHS NOTES ☒ YES ☐ NO

METHOD
- N Natural Exposure
- E Existing Excavation
- BH Backhoe Bucket
- B Bulldozer Blade
- R Ripper

SUPPORT
- T Timbering

PENETRATION
VE E F H VH — No Resistance

WATER
10 Oct., 73 Water Level on Date shown
water inflow
water outflow

SAMPLES & FIELD TESTS
- U50 - Undisturbed Sample 50 mm diameter
- D - Disturbed Sample
- B - Bulk Disturbed Sample
- MC - Moisture Content
- HP - Hand Penetrometer (UCS kPa)
- VS - Vane Shear; P-Peak, R-Remouded (uncorrected kPa)
- PBT - Plate Bearing Test

CLASSIFICATION SYMBOLS & SOIL DESCRIPTION
Based on Unified Classification System

MOISTURE
- D - Dry
- M - Moist
- W - Wet

CONSISTENCY/ RELATIVE DENSITY

VS	- Very Soft
S	- Soft
F	- Firm
St	- Stiff
VSt	- Very Stiff
H	- Hard
VL	- Very Loose
L	- Loose
MD	- Medium Dense
D	- Dense
VD	- Very Dense

See Explanatory Notes for details of abbreviations & basis of descriptions.

SMEC AUSTRALIA

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EXCAVATION - GEOLOGICAL LOG

PIT NO : TP27

PROJECT : Old Canberra Brickworks
LOCATION : Yarralumla ACT
CLIENT : Land Development Agency
FEATURE : Geotechnical
FILE / JOB NO : 3002369
SHEET : 1 OF 1

POSITION : E: 690250.000, N: 6090914.000 (56 MGA94)
SURFACE ELEVATION : 594.000 (AHD)

EQUIPMENT TYPE : 8-tonne Excavator
METHOD : Test Pit

DATE EXCAVATED : 11/9/13
LOGGED BY : Claudia Rodriquez
CHECKED BY :

EXCAVATION DIMENSIONS : 2.00 m LONG 0.60 m WIDE

DRILLING | MATERIAL

VE / PENETRATION E F H	SUPPORT	GROUND WATER LEVELS	SAMPLES & FIELD TESTS	ELEVATION (RL) / DEPTH (m)	GRAPHIC LOG	CLASSIFICATION SYMBOL	MATERIAL DESCRIPTION Soil Type, Plasticity or Particle Characteristic, Colour, Secondary and Minor Components	MOISTURE CONDITION	CONSISTENCY RELATIVE DENSITY	DYNAMIC CONE PENETROMETER Blows/150mm 2.5 5.0 7.5 10.0 12.5 15.0 17.5 20.0 22.5	HAND PENETROMETER 100 200 300 400 kPa	STRUCTURE & Other Observations
			TP27-0.0 (0.0-0.7)	594.0 0.0		CL	Gravelly CLAY low plasticity, dark brown, coarse, angular gravel, with grass rootlets, no odour, no staining		St			TOPSOIL
							0.28m COBBLES coarse, to 300 mm, well graded, angular, grey, with shale boulders, reworked natural material - probably quarry cuttings, overlying fine grained, fresh, high strength natural outcrops, no odour, no staining	D	L			0.15: HP In-situ =200 - >450 kPa FILL
			0.40m TP27-0.5 (0.4-0.6)	594.5 0.5								
			0.80m TP27-1.0 (0.8-1.0)	595.0 1.0			1.05m fill ending at 1.05 m, becoming unworked siltstone - high strength, fresh, moderately fractured					BEDROCK
							1.30m EXCAVATION TP27 TERMINATED AT 1.30 m Refusal					
				595.5 1.5								
				596.0 2.0								
				596.5 2.5								
				597.0 3.0								

PHOTOGRAPHS NOTES ☒ YES ☐ NO

METHOD
- N Natural Exposure
- E Existing Excavation
- BH Backhoe Bucket
- B Bulldozer Blade
- R Ripper

SUPPORT
- T Timbering

PENETRATION
VE E F H VH — No Resistance

WATER
10 Oct., 73 Water Level on Date shown
water inflow
water outflow

SAMPLES & FIELD TESTS
- U50 - Undisturbed Sample 50 mm diameter
- D - Disturbed Sample
- B - Bulk Disturbed Sample
- MC - Moisture Content
- HP - Hand Penetrometer (UCS kPa)
- VS - Vane Shear; P-Peak, R-Remouded (uncorrected kPa)
- PBT - Plate Bearing Test

CLASSIFICATION SYMBOLS & SOIL DESCRIPTION
Based on Unified Classification System

MOISTURE
- D - Dry
- M - Moist
- W - Wet

CONSISTENCY/ RELATIVE DENSITY

VS	- Very Soft
S	- Soft
F	- Firm
St	- Stiff
VSt	- Very Stiff
H	- Hard
VL	- Very Loose
L	- Loose
MD	- Medium Dense
D	- Dense
VD	- Very Dense

See Explanatory Notes for details of abbreviations & basis of descriptions.

SMEC AUSTRALIA

UPDATED SMEC LIBRARY_AGS 3_1 RTA 1_1 LIB 08_WITH FENCE TOOL_15-05-2013.GLB Log SMEC EXCAVATION WITH DCP CANBERRA BRICKWORKS REV 2.GPJ <<DrawingFile>> 30/10/2013 13:54 8.30.003

EXCAVATION - GEOLOGICAL LOG

PIT NO : TP28

PROJECT : Old Canberra Brickworks
LOCATION : Yarralumla ACT
CLIENT : Land Development Agency
FEATURE : Geotechnical
FILE / JOB NO : 3002369
SHEET : 1 OF 1

POSITION : E: 690321.000, N: 6090751.000 (56 MGA94)
SURFACE ELEVATION : 597.000 (AHD)

EQUIPMENT TYPE : 8-tonne Excavator
METHOD : Test Pit

DATE EXCAVATED : 11/9/13
LOGGED BY : Claudia Rodriquez
CHECKED BY :

EXCAVATION DIMENSIONS : 2.00 m LONG 0.60 m WIDE

DRILLING | MATERIAL

VE / PENETRATION E F H	SUPPORT	GROUND WATER LEVELS	SAMPLES & FIELD TESTS	ELEVATION (RL) / DEPTH (m)	GRAPHIC LOG	CLASSIFICATION SYMBOL	MATERIAL DESCRIPTION Soil Type, Plasticity or Particle Characteristic, Colour, Secondary and Minor Components	MOISTURE CONDITION	CONSISTENCY RELATIVE DENSITY	DYNAMIC CONE PENETROMETER Blows/150mm 2.5 5.0 7.5 10.0 12.5 15.0 17.5 20.0 22.5	HAND PENETROMETER 100 200 300 400 kPa	STRUCTURE & Other Observations
			TP28-0.0 (0.0-0.2)	597.0 0.0		CI	Gravelly CLAY medium plasticity, dark brown, medium grained, well sorted, angular gravel, with sand, with brick, glass, bitumen, and grass rootlets, no odour, no staining		St			TOPSOIL
				0.10m			Clayey COBBLES coarse, to 250 mm, poorly graded, angular, red-brown, whole brick fill , with sand, with glass and bitumen, no odour, no staining					FILL
			0.40m TP28-0.5 (0.4-0.6)	597.5 0.5								
				598.0 1.0								
				598.5 1.5				D	L			
				599.0 2.0								
				599.5 2.5								
				3.00m			EXCAVATION TP28 TERMINATED AT 3.00 m Collapse					
				600.0 3.0								
				600.5 3.5								

PHOTOGRAPHS NOTES ☒ YES ☐ NO

METHOD
- N Natural Exposure
- E Existing Excavation
- BH Backhoe Bucket
- B Bulldozer Blade
- R Ripper

SUPPORT
- T Timbering

PENETRATION
VE E F H VH — No Resistance

WATER
10 Oct., 73 Water Level on Date shown
water inflow
water outflow

SAMPLES & FIELD TESTS
- U50 - Undisturbed Sample 50 mm diameter
- D - Disturbed Sample
- B - Bulk Disturbed Sample
- MC - Moisture Content
- HP - Hand Penetrometer (UCS kPa)
- VS - Vane Shear; P-Peak, R-Remouded (uncorrected kPa)
- PBT - Plate Bearing Test

CLASSIFICATION SYMBOLS & SOIL DESCRIPTION
Based on Unified Classification System

MOISTURE
- D - Dry
- M - Moist
- W - Wet

CONSISTENCY/ RELATIVE DENSITY

VS	- Very Soft
S	- Soft
F	- Firm
St	- Stiff
VSt	- Very Stiff
H	- Hard
VL	- Very Loose
L	- Loose
MD	- Medium Dense
D	- Dense
VD	- Very Dense

See Explanatory Notes for details of abbreviations & basis of descriptions.

SMEC AUSTRALIA

UPDATED SMEC LIBRARY_AGS 3_1 RTA 1_1 LIB 08_WITH FENCE TOOL_15-05-2013.GLB Log SMEC EXCAVATION WITH DCP CANBERRA BRICKWORKS REV 2.GPJ <<DrawingFile>> 30/10/2013 13:54 8.30.003