



# PRELIMINARY SITE INVESTIGATION

N09301

## **IdealCorp**

Proposed development located at:

14 Lavender Close,

Gillieston Heights NSW 2321

Monday, 5<sup>th</sup> August 2024

**NEO** CONSULTING

## Report Distribution

### Preliminary Site Investigation





Address: 14 Lavender Close, Gillieston Heights NSW 2321

Report No: N09301

Date: Monday, 5<sup>th</sup> August 2024

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## Executive Summary

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NEO Consulting was appointed by IdealCorp (the client) to undertake a Preliminary Site Investigation (PSI) for the property located at No. 14 Lavender Close, Gillieston Heights NSW 2321 (the site). The site is legally defined as Lot 205/-/DP1212073, has an approximate total area of 2, 540m<sup>2</sup>, and is currently zoned as R1 – General Residence.

The proposed plans for the site include:

1. Construction of a childcare facility;
2. Construction of a hardstand carpark;
3. Construction of two (2) outdoor play areas; and
4. Landscaping including construction of a sealed driveway.

The objective of the PSI was to:

- Characterise the FILL to determine if it contains any Contaminants of Potential Concern (CoPC);
- Confirm that the site is suitable for the intended use as a childcare facility; and
- Provide Preliminary Waste Classification for shallow FILL material for off-site disposal, if required.

The following scope of works were undertaken:

- A site inspection to identify potential sources of contamination on site;
- Review of local Council records and planning certificates;
- Review of NSW EPA Contaminated Land Records, POEO Register and PFAS investigation Program maps;
- Review of local geological and hydrogeological information, including an evaluation of the NSW Groundwater registered groundwater bore database;
- Review of Acid Sulphate Soil data maps;
- Development of a Conceptual Site Model (CSM) to identify the connections between potential sources of contamination and exposure pathways, human and/or ecological receptors; and
- Recommendations for additional investigations (if any), based on the identified data gaps and findings of this report.

A preliminary assessment of the site was undertaken via a desktop study and site walkover. Since 1954, the site has remained a cleared block of land with developments happening to the easement running through the centre of the site in approximately February 2018. Since 1954, the surrounding areas have increased in development starting in the northeast then expanding to the southeast in approximately January 2014 and further to the north in December 2022. The site is not registered on the NSW EPA Contaminated Land Records, POEO Register, or the PFAS Investigation Program.

A site inspection was undertaken on the 26<sup>th</sup> July 2024 by NEO Consulting. During inspection, the site was a vacant block of land with one (1) easement running through the centre. (Please see [Appendix A](#) for site images). NEO Consulting undertook a soil sampling program with a judgemental approach in accessing locations across the site to identify areas of contamination. Eight (8) soil samples were obtained from the fill layer (0-0.5m bgl) across the site and submitted to a NATA-accredited laboratory for chemical analysis for targeted Contaminants of Potential Concern (CoPC) that may have impacted the site during historical or present activities and site use.

Analytical results indicate no exceedance of the NEPM Health and Ecological Assessment Criteria for Residential (A) sites. Preliminary Waste Classification based on PSI = General Solid Waste (GSW) as all CoPC meet Specific Contaminant Concentration (SCC), based on the NSW EPA (2014) Waste Classification Guidelines - Part 1: Classifying waste.

The consent authority may be satisfied that the required considerations of CI 4.6 of State Environmental Planning Policy (Resilience and Hazards) 2021 are satisfied for the following reasons:

- 1) Site observations did not indicate significant visible indications of contamination or contaminating sources;
- 2) Analytical results for all analytes were below the NEPM 2013 Health and Ecological Assessment Criteria for Residential (A) sites.

NEO Consulting finds that the site can be made suitable for the proposed developments. Recommendations are in **Section 16** of this report.

# 1. Introduction

## 1.1 Background

NEO Consulting was appointed by IdealCorp (the client) to undertake a Preliminary Site Investigation (PSI) for the property located at No. 14 Lavender Close, Gillieston Heights NSW 2321 (the site). The site is legally defined as Lot 205/-/DP1212073, has an approximate total area of 2,540m<sup>2</sup>, and is currently zoned as R1 – General Residence.

The proposed plans for the site include:

1. Construction of a childcare facility;
2. Construction of a hardstand carpark;
3. Construction of two (2) outdoor play areas; and
4. Landscaping including construction of a sealed driveway.

The objective of the PSI was to:

- Characterise the FILL to determine if it contains any Contaminants of Potential Concern (CoPC);
- Confirm that the site is suitable for the intended use as a childcare facility; and
- Provide Preliminary Waste Classification for shallow FILL material for off-site disposal, if required.

A site inspection was undertaken on the 26<sup>th</sup> July 2024 by NEO Environmental Consultants. Reporting, photographs and sampling were conducted on this day and with reference to the relevant regulatory criteria (**2. Scope of Work**). Further information on the inspection is described in **4. Site Condition**.

## 1.2 Trigger for Assessment

The PSI is required to assess the suitability of the site for the proposed plans as a childcare centre.

## 1.3 Objectives

This report provides an assessment of current and/or historical potentially contaminating activities that may have impacted the soils and groundwater beneath the site.

## 1.4 Statutory and Regulatory Requirements

The PSI has been prepared in general accordance with the following statutory and regulatory requirements:

### Statutory Requirements

- National Environment Protection Council Act 1994;
- Protection of the Environment and Operation Act 1997;
- Contaminated Land Management Act 1997;
- Work Health and Safety Act, 2011.

### Regulatory Requirements

- State Environmental Planning Policy (Resilience and Hazard) 2021;
- NEPC, National Environment Protection (Assessment of Site Contamination) Measures (NEPM), 2013;
- HEPA, PFAS National Environmental Management Plan, Version 2.0, 2020;
- The National Remediation Framework, CRC Care, 2019;
- Protection of the Environment Operations (Waste) Regulations, 2005;
- Work Health and Safety Regulation, 2011;
- NSW EPA, *Contaminated Land Guidelines, Sampling Design Part 1 – Application*, 2022;
- NSW EPA, *Contaminated Land Guidelines, Sampling Design Part 2 – Interpretation*, 2022;
- NSW EPA, *Guidelines on the Duty to Report Contamination under the Contaminated Land Management Act, 1997*;
- NSW EPA, *Resource Recovery Order under Part 9, Clause 93 of the Protection of the Environment Operations (Waste) Regulation, 2014*;
- NSW EPA, *Consultants Reporting on Contaminated Land: Contaminated Land Guidelines*, 2020;

- NSW EPA, *Contaminated Land Management, Guidelines for the NSW Site Auditor Scheme*, 2017 (3<sup>rd</sup> Edition);
- NSW EPA, *Waste Classification Guidelines Part 1: Classifying Waste*, 2014;
- NSW EPA, *Consultants Reporting on Contaminated Land: Contaminated Land Guidelines*, 2020;

## 2. Scope of Work

To meet the requirements in Section 1.4 of this report, the following scope of works were included:

- A site inspection to identify potential sources of contamination on site;
- Review of local Council records and planning certificates;
- Review of NSW EPA Contaminated Land Records, POEO Register and PFAS investigation Program maps;
- Review of local geological and hydrogeological information, including an evaluation of the NSW Groundwater registered groundwater bore database;
- Review of Acid Sulphate Soil data maps;
- Development of a Conceptual Site Model (CSM) to identify the connections between potential sources of contamination and exposure pathways, human and/or ecological receptors; and
- Recommendations for additional investigations (if any), based on the identified data gaps and findings of this report.

## 3. Site Details

Table 1. Site Details

<b>Address</b>	14 Lavender Close, Gillieston Heights NSW 2321
<b>Deposited plan</b>	Lot 205/-/DP1212073
<b>Zoning</b>	R1 – General Residence
<b>Council</b>	Maitland City Council
<b>Locality map</b>	Figure 1, Appendix A
<b>Site Boundary</b>	Figure 2, Appendix A
<b>Area</b>	2,540m <sup>2</sup>

Table 2. Surrounding land-use

<b>Direction</b>	<b>Land-use</b>
North	Cleared land
East	Residential lots
South	Cleared land, possible residential development
West	Vegetated/cleared land

## 4. Site Condition

A site inspection was undertaken on 26<sup>th</sup> July 2024 by NEO Environmental Consultants. During the site inspection, the following observations were noted (Please see Appendix A for site images):

- The site was a vacant block of land;
- One (1) easement ran through the centre of the site;
- A concrete border ran along the eastern side of the easement;
- Surrounding the easement there was an array of large weeds and long grass, while the rest of the site was a mowed lawn;
- A gravel driveway ran along the western and northern perimeter of the site; and
- A section in the western portion of the site contained newly laid turf.



The surrounding sites within a 500m radius include residential lots and vegetated/cleared land. The nearest environmental receptors are the easement running through the Eastern section of the site and Swamp Creek (Approximately 470m NE).

## 5. Site History

### 5.1 History of Site

Since 1954, the site has remained a cleared block of land with developments happening to the easement running through the centre of the site in approximately February 2018. Since 1954, the surrounding areas have increased in development starting in the northeast then expanding to the southeast in approximately January 2014 and further to the north in December 2022.

**Table 3.** History of site and surrounding areas.

Year	Site and Surrounding Areas
1954	The site and part of the surrounding areas are all cleared land and possibly part of large rural blocks. To the northeast of the site, there is a small residential development.
1974 - 1993	The site has remained largely unchanged. The residential development to the northeast of the site has increased.
January 2014 – April 2016	The site has remained largely unchanged. The residential development to the northeast of the site has expanded.
February 2018	The easement running through the centre of the site has undergone development. The residential development to the east of the site has increased.
December 2022	The site has remained largely unchanged. Development to the north of the site has started.
April 2024	The site has remained largely unchanged. The surrounding areas have increased in development.

### 5.2 Section 10.7 (2) Planning Certificate

A Section 10.7 Planning Certificate describes how a property may be used and the restrictions on development. The Planning Certificate is issued under Section 149 of the Environmental Planning and Assessment Act 1979. The Planning Certificate was not provided at the time of writing.

### 5.3 NSW EPA Contaminated Land Register

A search within the NSW EPA contaminated land register was undertaken for the site. No results were found for the site or within 200m of the site.

### 5.4 Protection of the Environment Operation Act (POEO) Public Register

A search on the POEO public register of licensed and delicensed premises (DECC) was undertaken for the site. No results were found for the site or within 200m of the site.

### 5.5 SafeWork NSW Hazardous Goods

A search was not undertaken with SafeWork NSW for historical dangerous goods stored on-site.

### 5.6 Product Spill and Loss History

The visual site inspection carried out found no evidence to suggest major contamination impact on the site.

### 5.7 PFAS Investigation Program

The NSW Government PFAS Investigation Program map indicates the site is not currently listed or located within 1km of a listed site for PFAS contamination investigation and management programs.

## 6. Environmental Setting

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### 6.1 Geology

Data obtained from the Geological Survey of NSW Map of Newcastle 1:250,000, Geological Series Sheet S1: 56 - 2 (Edition 1) 1966, and the Geoscience Australia Stratigraphic Units Database indicate the site is underlain by the Braxton Formation, Maitland Group (Permian). This Formation is regionally characterised by sandstone, siltstone, tillitic, and conglomerate.

### 6.2 Soil Landscape

A review of the regional maps by the NSW Department of Planning, Industry and Environment indicates the site is generally located within the Bolwarra Heights soil landscape. The Bolwarra Heights landscape is usually characterised rolling low hills on Permian sediments in the centre-west of the sheet in the East Maitland Hills region. Slopes are 5–20%, elevation to 100 m, local relief to 80 m. Cleared tall open-forest.

Soils in this area are commonly known to be moderately deep (<150 cm), well-drained Yellow Podzolic Soils, Red Podzolic Soils and Brown Podzolic Soils with some moderately deep (<100 cm), well-drained Lithosols on crests, moderately deep (<140 cm), imperfectly drained yellow Soloths on lower slopes.

### 6.3 Groundwater

A groundwater bore search was conducted on 22<sup>nd</sup> July 2024 and no boreholes were present within a 500m radius of the site. It was beyond the scope of work to study the groundwater flow direction. However, based on the regional topography, groundwater is expected to flow east towards a small easement running through the property.

### 6.4 Topography

The local relief of this area is usually characterised by slopes which are 5–20%, elevation to 100 m, local relief to 80 m

### 6.5 Site Drainage

Site drainage is likely to be consistent with the local topography. Stormwater likely flows east towards an easement running through the site. Additionally, large portions of the site consist of accessible soils, which allow for direct infiltration into the subsoil.

### 6.6 Acid Sulphate Soil

Acid Sulphate Soils (ASS) naturally occur under waterlogged conditions and contain iron sulphide minerals. If these soils remain undisturbed, they are considered harmless. However, if disturbed and subsequently oxidised, this reaction can cause damage to the environment and built structures that overlie the ASS. The potential for ASS has been divided into five (5) classes, with Class 1 the highest at risk of ASS.

A search of the DPIE eSpade map viewer was undertaken and indicated that the site is located within an area of no data. An area within H1: High probability, <1 m below ground surface is located approximately 470m west of the site.

## 7. Areas of Environmental Concern

Based on the above information, the potential Areas of Environmental Concern (AEC) and their associated Contaminants of Potential Concern (CoPC) for the site were identified and summarised.

**Table 4.** Potential Areas and Contaminants of Concern

AEC	Potentially Contaminating / Hazardous Activity	CoPC	Likelihood of Site Impact	Comments
Entire site	Importation of fill material from unknown origin.  Historical on-site use and operations.	Metals, TRH, BTEX, PAH, OPP, OCP	Moderate	Based on site observations during test pit sampling, the presence of imported fill material is likely. Entrained contamination and top-down contamination mechanisms are possible. Historical operations may have given rise to contamination event/s. Historical cut and fill operations are possible. Potential historical agricultural site use. No indication of market gardens or sheep dips based on aerial images.

ABBREVIATIONS: BENZENE, TOLUENE, ETHYLBENZENE AND XYLENE (BTEX), POLYCHLORINATED BIPHENYLS (PCBs), POLYCYCLIC AROMATIC HYDROCARBON (PAH), PER- AND POLYFLUOROALKYL SUBSTANCES (PFAS), TOTAL PETROLEUM HYDROCARBONS (TPH), SYNTHETIC MINERAL FIBRES (SMF), HAZARDOUS MATERIALS SURVEY (HMS).

## 8. Conceptual Site Model

A Conceptual Site Model (CSM) was developed to provide an indication of potential risks associated with contamination source and contamination migration pathways, receptors and exposure mechanisms. The CSM provides a framework for the review of the reliability and useability of the data collected and to identify data gaps in the existing site characterisation. Here, we consider the connections between the following elements:

- Potential contamination sources and their associated CoPC;
- Potential human receptors that may be impacted by the site contamination are current and future site users including occupants to the dwelling/infrastructures on-site, site workers and the general public within the immediate vicinity of the site;
- Potential environmental receptors to the site including but not limited to: groundwater and surface water bodies, residual soils at and/or nearby the site;
- Potential exposure pathways; and
- Whether source-pathway-receptor connections are complete based on current and future site conditions.

**Table 5.** Conceptual Site Model

Potential Receptor	Potential Contaminated Media	Potential Exposure Pathway	Complete connection	Justification/ Control Measures
Site owner and users, general public,	Soil (Fill/topsoil and natural)	Dermal contact, inhalation of fibres/particles	Complete (current) Complete (Future)	Exposure to potentially contaminated soils is possible. Historical site operations may have given rise to contamination events.
Residential occupants of nearby homes, site owner and users, general public,	Soil vapour	Vapour intrusion	Complete (current) Complete (Future)	
Root uptake, microbial community, soil-dwelling invertebrates,	Soils (FILL/topsoil and natural)	Migration of contamination from top-down spills/leaks, leaks	Complete (current) Complete (Future)	Top-down contamination is possible. Contamination entrained within imported fill material is possible.
Easement running through the Eastern section of the site or Swamp Creek (Approximately 470m NE).	LNAPL, dissolved phase groundwater	Transportation of via surface waters. Leaching and migration through groundwater infiltration.	Incomplete (current) Incomplete (Future)	If contamination of surface waters occur, unlikely they will reach these receptors. Ground water flow direction is towards these receptors. Due to existing unsealed surfaces, leachability of contaminants is possible from a surface source.

## 9. Site Assessment Criteria (SAC)

The following SAC were adopted for the investigation.

### 9.1 NEPM Health Investigation Level A (HIL-A) – Residential

HILs are scientific, risk-based guidance levels to be used as in the primary stage of assessing soil contamination to evaluate the potential risks to human health from chronic exposure to contaminants. HILs are applicable to a broad range of metals and organic substances, and generally apply to depths up to 3m below the surface for residential use. Tier 1 HILs are divided into sub-criteria. The sub-criteria appropriate to the site is HIL A – residential with garden/accessible soils.

**Table 6.** HIL-A

Assessment Criteria	NEPM 2013 Residential Soil HIL-A, mg/kg
Pesticides	
HCB	10
Heptachlor	6
Chlordane	50
Aldrin & Dieldrin	6
Endrin	10
DDD+DDE+DDT	240
Endosulfan	270
Methoxychlor	300
Mirex	10
Metals	
Arsenic, As	100
Cadmium, Cd	20
Chromium, Cr	100
Copper, Cu	6,000
Lead, Pb	300
Nickel, Ni	400
Zinc, Zn	7,400
Mercury, Hg	40
Polycyclic Aromatic Hydrocarbons	
Carcinogenic PAH (as BaP TEQ)	3
Total PAH (18)	300
Polychlorinated Biphenyls	
Total PCBs	1

### 9.2 NEPM Health Screening Level A (HSL-A) – Residential

HSLs have been developed for selected petroleum compounds and fractions and are used for the assessment of potential risks to human health from chronic inhalation and direct contact pathways of

petroleum vapour emanating off petroleum contaminated soils (Vapour Risk). HSLs are guided by land-use scenarios, specific soil physicochemical properties and generally apply to depths below surface to >4m. Tier 1 HSLs are divided into sub-criteria. The sub-criteria appropriate to the site is HSL A – residential with garden/accessible soils.

**Table 7.** HSL-A

Assessment Criteria	NEPM 2013 Residential Soil HSL-A for Vapour Intrusion, 0-<1m Depth, Clay, mg/kg	NEPM 2013 Residential Soil HSL-A for Vapour Intrusion, >1-2m Depth, Clay, mg/kg
Monocyclic Aromatic Hydrocarbons		
Benzene	0.7	1
Toluene	480	NL
Ethylbenzene	NL	NL
Xylenes	110	310
Polycyclic Aromatic Hydrocarbons		
Naphthalene	5	NL
Total Recoverable Hydrocarbons		
TRH C6-C10 - BTEX (F1)	50	90
TRH >C10-C16 - N (F2)	280	NL

### 9.3 NEPM Ecological Investigation Level (EIL) – Urban Residential and Public Open Space

Ecological investigation levels (EILs) have been developed to assess the risk for the presence of metals and organic substance in a terrestrial ecosystem. EILs are guided by land-use scenarios, specific soil physicochemical properties and generally apply to the top 2m of soil. The NEPM Soil Quality Guidelines (SQG) for EILs are calculated using the Added Contamination Limit (ACL) to determine the amount of contamination that had to be added to the soil to cause toxicity, including ambient background concentration (ABC).

**Table 8.** Generic EIL

Assessment Criteria	NEPM 2013 Soil Generic EIL for Urban Residential and Public Open Space, mg/kg
Metals	
Arsenic, As	100
Lead, Pb	1100
Pesticides	
DDT	180
Polycyclic Aromatic Hydrocarbons	
Naphthalene	170

### 9.4 NEPM Ecological Screening Level (ESL) – Urban Residential and Public Open Space

ESLs have been developed for selected petroleum hydrocarbons in soil, based on fresh contamination. These parameters are applicable to coarse and fine-grained soil and apply from the surface of the soil to 2m below ground level (bgl), which corresponds with the root and habitat zone for many species.

**Table 9.** ESL

Assessment Criteria	NEPM 2013 Soil ESL for Urban, Residential and Public Open Spaces, Fine-Grained Soil, mg/kg
Monocyclic Aromatic Hydrocarbons	
Benzene	65
Toluene	105
Ethylbenzene	125
Xylenes	45
Polycyclic Aromatic Hydrocarbons	
BaPyr (BaP)	0.7
Total Recoverable Hydrocarbons	
TRH C6-C10	180
TRH >C10-C16	120
TRH >C16-C34 (F3)	1,300
TRH >C34-C40 (F4)	5,600

### 9.5 NEPM Management Limits – Residential, Parkland and Public Open Space

Management Limits for petroleum have been developed for prevention of explosive vapour accumulation, prevention of the formation of observable Light Non-Aqueous Phase Liquids (LNAPL) and protection against effects on buried infrastructure. Residential, parkland and public open space limits have been adopted based on the proposed land use.

**Table 10.** Management Limits

Assessment Criteria	NEPM 2013 Management Limits for Residential, Parkland and Public Open Space, Fine-Grained Soil, mg/kg
Total Recoverable Hydrocarbons	
TRH C6-C10	800
TRH >C10-C16	1,000
TRH >C16-C34 (F3)	3,500
TRH >C34-C40 (F4)	10,000

### 9.6 NEPM Health Screening Level A (HSL-A) – Residential for Asbestos

The assessed soil must not contain Asbestos Containing Materials (ACM) in excess of 0.01%w/w and Asbestos Fines (AF) and Fibrous Asbestos (FA) in excess of 0.001%w/w. Surface soil within the site must be free of visible ACM, Asbestos Fines (AF) and Fibrous Asbestos (FA).

**Table 11.** HSL-A for Asbestos

Assessment Criteria	Health Screening Level (HSL-A) (%w/w) Residential (A)
Asbestos	
ACM	0.01
FA and AF (friable asbestos)	0.001
All forms of asbestos	No visible asbestos for surface soils

## 10. Sampling and Analysis Plan

### 10.1 Sampling Rationale

**Table 12.** Sampling Rationale

Sampling Decision	Chosen Approach	Justification
Sampling pattern	Judgemental sampling	This pattern was selected due to the area of the site, access to underlying soil, the AEC and CoPC as well as the potential heterogeneity of any contamination.
Sampling density	Eight (8) primary soil samples were obtained from eight (8) test pits	This sampling density was selected based on the extent of the potential contaminated area to be detected, feasibility, the site history, distribution of current and historical uses on site, location and condition of structures.
Sampling depths	One (1) sample per test pit	The depths were selected in complement with sampling density and to target depths of potential contaminants.

### 10.2 Field Sampling Methodology

Samples were obtained within a targeted area within the area of proposed development. A shovel was used for each test pit to a depth of up to 0.5m bgl. Soil samples were collected from shallow fill/topsoil (0-0.5m bgl) below the surface with clean nitrile gloves and placed in laboratory supplies containers. All equipment was decontaminated with Decon90 and deionised water between boreholes. Samples were stored on ice in an esky while on-site and in transit to a NATA-accredited laboratory for the analysis of the CoPC under Chain of Custody (COC) documentation.

- BH1-8 collected at 0.5m bgl

### 10.3 Field Quality Assurance & Quality Control Procedures

The following procedures were undertaken to ensure the data quality:

- Selection of appropriate sampling methods;
- Decontamination procedures;
- Appropriate containers selected for planned analyses;
- Appropriate preservation and storage measures to minimise contamination or analyte loss;
- Statement of duplicate frequency;
- Sampling devices and equipment; and
- Field instrument calibrations.

### 10.4 Laboratory Quality Assurance & Quality Control Procedures

The following procedures were undertaken to ensure the data quality:

- A copy of signed chain-of-custody forms acknowledging receipt date, time and temperature and identity of samples included in shipments;



- Record of holding times;
- Analytical methods used, including any deviations or method detection limit;
- Laboratory accreditation for analytical methods used;
- Laboratory performance for the analytical method using duplicates calculated as Relative Percentage Differences (RPD);
- Surrogates used during extraction process;
- Practical quantification limits (PQL);
- Reference laboratory control sample (LCS) used throughout the full method process from extraction to injection;
- Matrix spikes (MS) indicate percentage of recovery of an expected result, via a known concentration if an analyte spiked in a field sub-sample;
- Laboratory blank results (tabulate);
- Results are within control chart limits;
- Instrument detection limit.

## 11. Data Quality Objectives (DQOs)

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The DQOs have been developed in accordance with the NEPM Appendix B of Schedule B2 and provide the type, quantity and quality of data to support decisions regarding the environmental conditions of this site.

**Table 13.** Data Quality Objectives

Step 1: State the problem	The proposed development includes the construction of a childcare facility and hardstand carpark. Ground disturbance is considered likely and therefore contamination condition of the underlying soil is required to be understood. Additionally, the intended future use of the site is considered a human health risk setting due to access to soils through landscaping.
Step 2: Identify the decision/goal of the study	NEO Consulting considered the site history, the use of this site, and the NEPM Guidelines, when identifying the decisions required for the site to be considered suitable for its continued land use. The decisions required to meet these decisions are as follows: <ul style="list-style-type: none"> <li>• Was the sampling, analysis and quality plan designed appropriate to achieve the aim of the PSI?</li> <li>• If present, is on-site contamination capable of migrating off-site?</li> <li>• Are there any unacceptable risks to the future on site or off-site receptors in the soil or groundwater?</li> <li>• Is the site suitable for the proposed development of a childcare centre?</li> </ul>
Step 3: Identify the information inputs	NEO Consulting has identified issues of potential environmental concern; Appropriate identification of CoPC; <ul style="list-style-type: none"> <li>• Soil sampling and analysis programs across the site; and</li> <li>• Analytical results compared with the SAC;</li> </ul>
Step 4: Define the boundaries of the study	The study boundaries are: <ul style="list-style-type: none"> <li>• Lateral boundary: The legal boundary of the site;</li> <li>• Vertical boundary: The ground interface to the maximum depth reached during groundwater sampling; and</li> <li>• Temporal boundary: Constrained to a single visit to the site.</li> </ul>

Step 5: Develop the analytical approach	<p>Here, NEO Consulting integrate the information from steps 1 – 4 to support and justify our proposed analytical approach. Our aim is to confirm if the site is suitable for the proposed development. If the findings of the SAQP identify;</p> <ul style="list-style-type: none"><li>• Any exceedance of the adopted SAC;</li><li>• Groundwater flow direction confirms contamination likely to be transported offsite;</li><li>• Professional opinion that further assessment is required; and/or</li><li>• Adopted RPD for QC data not met.</li></ul> <p>Further assessment may be required to confirm suitability of the site in the form of; Detailed Site Investigation, Data Gap investigation, Remediation Action Plan and Site Validation.</p>
Step 6: Specify performance or acceptance criteria	<p>To determine if the soils and groundwater are within acceptable ranges, we employ the following NEPM criteria:</p> <ul style="list-style-type: none"><li>• Acceptable recovery on all surrogate spikes used in laboratory analyses;</li><li>• Acceptable analytical method to ensure detection limit appropriate for all analytes; and</li><li>• If these conditions are not met, then chemical analysis will require re-testing for all samples with fresh aliquot.</li></ul>
Step 7: Optimise the design for obtaining data	<p>Judgemental sampling pattern within the AEC will provide suitable coverage of the site to produce reliable data in alignment with the Data Quality Indicators (DQIs) to cover precision, accuracy, representativeness, completeness and comparability (PARCC). This sampling pattern will ensure that critical locations are assessed and analysed appropriately for CoPC.</p>

## 12. Analytical Results

Analytical results indicate no exceedances of the NEPM 2013 Health and Ecological Assessment Criteria for Residential (A) sites.

Metals were above the Limit of Reporting (LOR) (instrument detection limit), and below the Site Assessment Criteria – NEPM 2013 HIL-A and Generic EIL.

Other analytical results include:

- No TRH were detected >LOR;
  - No BTEXN were detected >LOR;
  - No PAHs were detected >LOR;
  - No OCP, OPPs or PCBs were detected >LOR;
  - No Asbestos (ACM) was detected >0.01% w/w by the AS4964 method (SGS Method 602).
- Additionally, site observations did not identify any potential Asbestos fragments (visible Asbestos).

Preliminary Waste Classification based on PSI = General Solid Waste (GSW) as all CoPC meet Specific Contaminant Concentration (SCC), based on the NSW EPA (2014) Waste Classification Guidelines - Part 1: Classifying waste.

## 13. Data Quality Indicators

The reliability of field procedures and analytical results were assessed against the following data quality indicators (DQIs):

- Completeness – a measure of the amount of usable data from a data collection activity;

- Comparability – the confidence (qualitative) that data may be considered to be equivalent for each sampling and analytical event;
- Representativeness – the confidence (qualitative) of data representativeness of media present on site;
- Precision – a measure of variability or reproducibility of data; and
- Accuracy – a measure of closeness of the data to the 'true' value.

**Table 14.** Data Quality Indicators (DQIs)

DQI	Considerations	Action
<b>Completeness</b>		
Field	Critical locations sampled	Samples were collection was random (probabilistic) pattern based on the PSI Objectives and CSM. Collection during a single visit to the site.
	Samples collected (depth)	Sampling plan was followed as outlined in Section 10. Samples were obtained to a depth of 0.15mbgl as per the NEPM 2013 Schedule B2 and targeted at characterising FILL layer.
	Experienced sampler	Experienced environmental scientists/consultants led the field team.
	Documentation correct	The NEO environmental scientist/consultants completed a Chain of Custody (CoC), site data collection and bore logs.
Laboratory	CoPC analysed according to the CoC	Analysis of appropriate analytes. Implementation of appropriate sample preparation, chemical extraction and analytical instrument methods.
	Appropriate methods and LOR	NATA approved methods were adopted by the selected analytical laboratory. LORs and practical quantitation limits in accordance with NATA.
	Sample documentation complete	CoC procedures maintained. Certificates of Analysis complete and appended to the report.
	Compliant sample holding times	Samples were received, extracted and injected/analysed within specified holding times.
<b>Comparability</b>		
Field	Sample collection and volume	Uniform methods for sample collection including collection equipment and decontamination procedures. Correct volume of soil per sample. At all sample locations, soil samples were collected from 0.15mbgl within the test pit. Samples were placed in laboratory supplied jars using nitrile gloves replaced between samples.
Laboratory	Sample analytical methods used	The laboratory used is accredited by NATA for the analyses undertaken. Laboratory analytical methods were the same for each sample, for the same analyte, in the same laboratory, and are as stated on the Certificates of Analysis. Appropriate extraction methods and analytical methods, including instrument calibration and Practical Quantification Limits (PQL). These considerations provide qualitative confidence that the data reflects the site conditions. All considerations were undertaken. RPDs were within acceptable ranges.

	Analytical LOR	LOR set by the laboratory are below the adopted Site Assessment Criteria.
	Same laboratories	SGS was used for all sample analysis.
	Analytical units	Laboratory results are expressed in consistent units for each media / analyte and compared with adopted Site Assessment Criteria units.

Representativeness

Field	Appropriate media sampled	Appropriate media were sampled considered to be potentially impacted by the CoPC. These considerations provide qualitative confidence that the data reflects the site conditions.
Laboratory	Appropriate laboratory procedures in accordance with NATA accreditation	Correct documentation and COC procedures undertaken. Implementation of appropriate analytical and instrument methods. Internal methods ensure detection of laboratory artefacts including contaminated extraction equipment, cross-contamination events.

Precision

Field	QA/QC Samples	Field QA/QC sampling were not undertaken.
Laboratory	Analysis of method blank, matrix and surrogate spikes	Laboratory QA/QC samples provide a quantitative measure of analytical precision. These data measure variability between samples. Recoveries on all surrogates and blanks were within acceptable ranges.
	Field duplicates	Field duplicated were not undertaken.

Accuracy

Field	Appropriate field procedures	Correct documentation and COC procedures undertaken including appropriate transportation. Collection during a single visit to the site. Decontamination procedures undertaken between each sample collection.
Laboratory	Analysis of reagent blanks	The reagent blank samples were generally within laboratory acceptance standards.
	Analysis of matrix and surrogate spikes, laboratory control samples	The matrix spike samples were generally within laboratory acceptance standards. Spikes chosen based on appropriateness to avoid coelution with contaminants indigenous to the samples and across varying retention times to map response factor. Control samples analysed at a rate of 1:20.

## 14. Data Gaps

NEO Consulting are satisfied that there are no remaining data gaps significant enough to warrant further investigation.

## 15. Conclusion

Based on the site investigations and analytical results, NEO Consulting considers that the potential for significant contamination of onsite soils to be low.

Therefore, NEO Consulting finds that the site is suitable for the proposed development, providing that the recommendations within **Section 16** of this report are undertaken.

## 16. Recommendations

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Based on the information collected and available during this investigation, NEO Consulting have provided the following recommendations

- Any soils requiring excavation, onsite reuse and/or removal must be classified in accordance with "Waste Classification Guidelines Part 1: Classifying Waste" NSW EPA (2014); and
- A site-specific 'Unexpected Finds Protocol' is to be made available for reference for all occupants and/or site workers in the event unanticipated contamination is discovered.

## Limitations

The findings of this report are based on the Scope of Work outlined in Section 2. NEO Consulting performed the services in a manner consistent with the normal level of care and expertise exercised by members of the environmental consulting profession. No warranties, express or implied are made.

The results of this assessment are based upon the information documented and presented in this report. All conclusions and recommendations regarding the site are the professional opinions of NEO Consulting personnel involved with the project, subject to the qualifications made above. While normal assessments of data reliability have been made, NEO Consulting assumes no responsibility or liability for errors in any data obtained from regulatory agencies, statements from sources outside of NEO Consulting, or developments resulting from situations outside the scope of this project.


The results of this assessment are based on the site conditions identified at the time of the site inspection and validation sampling. NEO Consulting will not be liable to revise the report to account for any changes in site characteristics, regulatory requirements, assessment criteria or the availability of additional information, subsequent to the issue date of this report.

NEO Consulting is not engaged in environmental consulting and reporting for the purpose of advertising sales promoting, or endorsement of any client interests, including raising investment capital, recommending investment decisions, or other publicity purposes.

NEO CONSULTING



Isabella Sciberras  
Graduate Environmental Consultant



Nick Caltabiano  
Project Manager



# APPENDIX A

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Figures and Photographic Log

**NEO** CONSULTING

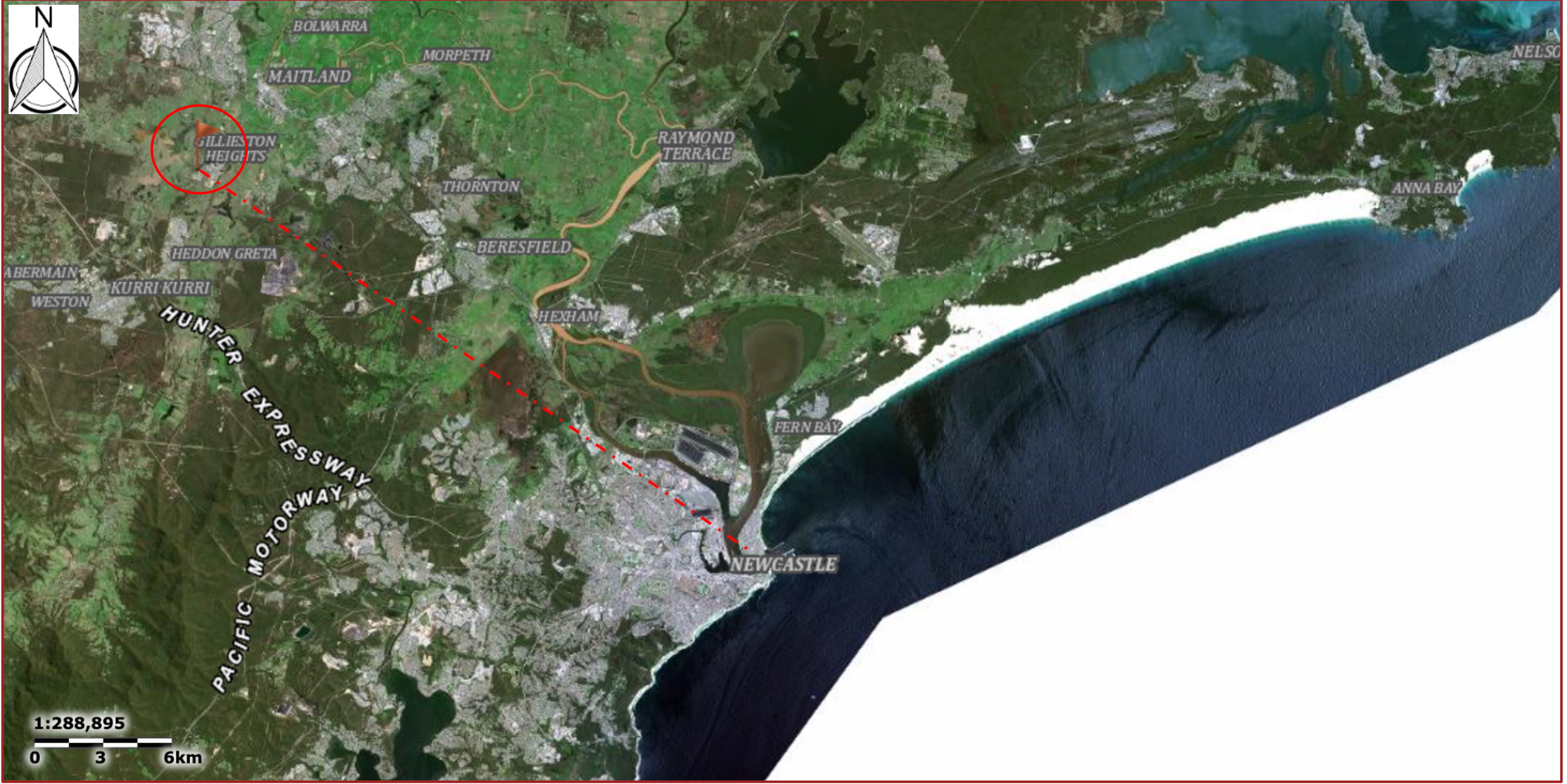
**FIGURE 1** Locality Map

**PROJECT** 14 Lavender Close, Gillieston Heights, NSW, 2321

**SOURCE** Near Maps 2024



The site is approximately 23.43km Northwest of Newcastle.







**FIGURE 2** Structure Location Map  
**PROJECT** 14 Lavender Close, Gillieston Heights, NSW, 2321

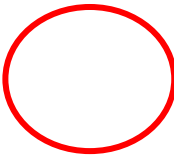
Eight (8) soil sample were taken from the site.

 **BOREHOLE LOCATIONS**



**FIGURE 3** Aerial Image 1954

**PROJECT** 14 Lavender Close, Gillieston Heights, NSW, 2321



**SITE LOCATION**

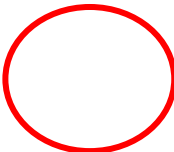
**SOURCE** NSW Historical Imagery 2024

The site and part of the surrounding areas are all cleared land. Part of the surrounding areas are part of a small residential development.



**FIGURE 4** Aerial Image 1974

**PROJECT** 14 Lavender Close, Gillieston Heights, NSW, 2321



**SITE LOCATION**

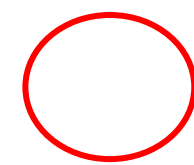
**SOURCE** NSW Historical Imagery 2024

The site has remained largely unchanged. The surrounding areas have increased in development.



**FIGURE 5** Aerial Image 1976

**PROJECT** 14 Lavender Close, Gillieston Heights, NSW, 2321



**SITE LOCATION**

**SOURCE** NSW Historical Imagery 2024

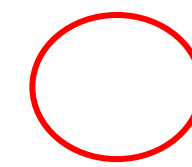
The site has remained largely unchanged. The surrounding areas have increased in development.



100m

**FIGURE 6** Aerial Image 1984

**PROJECT** 14 Lavender Close, Gillieston Heights, NSW, 2321



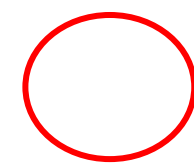
**SITE LOCATION**

**SOURCE** NSW Historical Imagery 2024

The site has remained largely unchanged. The surrounding areas have increased in development.



**FIGURE 7** Aerial Image 1993  
**PROJECT** 14 Lavender Close, Gillieston Heights, NSW, 2321



**SITE LOCATION**  
**SOURCE** NSW Historical Imagery 2024

The site has remained largely unchanged. The surrounding areas have increased in development.



100m

**FIGURE 8** Aerial Image January 2014  
**PROJECT** 14 Lavender Close, Gillieston Heights, NSW, 2321

**SOURCE** Nearmaps 2024



**SITE LOCATION**

The site has remained largely unchanged. The development to the northeast of the site has expanded.



**FIGURE 9** Aerial Image September 2014  
**PROJECT** 14 Lavender Close, Gillieston Heights, NSW, 2321

**SOURCE** Nearthmaps 2024



**SITE LOCATION**

The site has remained largely unchanged. The residential development to the east of the site has increased.



50 m



**FIGURE 10** Aerial Image April 2016

**PROJECT** 14 Lavender Close, Gillieston Heights, NSW, 2321

**SOURCE** Nearthmaps 2024



**SITE LOCATION**

The site has remained largely unchanged. The residential development to the east of the site has increased.



50 m

**FIGURE 11** Aerial Image February 2018  
**PROJECT** 14 Lavender Close, Gillieston Heights, NSW, 2321

**SOURCE** Nearmaps 2024



**SITE LOCATION**

The easement running through the centre of the site has undergone development. The development to the east of the site has increased.



50 m

**FIGURE 12** Aerial Image December 2022

**PROJECT** 14 Lavender Close, Gillieston Heights, NSW, 2321

**SOURCE** Nearmaps 2024



**SITE LOCATION**

The site has remained largely unchanged. Development to the north of the site has started.



50 m

**FIGURE 13** Aerial Image April 2024

**PROJECT** 14 Lavender Close, Gillieston Heights, NSW, 2321

**SOURCE** Nearmaps 2024



**SITE LOCATION**

The site has remained largely unchanged. Development to the north of the site has increased.



50 m



FIGURES 14 - 15 View of site.



**FIGURE 16** Concrete edging on the side of easement running through the middle of the site.



**FIGURE 17** View of easement running through the middle of the site.



FIGURES 18 - 19 Drilling of boreholes.



## APPENDIX B

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Analytical Results and Laboratory Reports

**NEO** CONSULTING



**Table 18.** Total Recoverable Hydrocarbon (TRH) analytical results. Values are presented as mg/kg. NL = Not Limiting. F1 = subtract the sum of BTEX concentrations from the C<sub>6</sub>-C<sub>10</sub> aliphatic hydrocarbon fraction. F2 = subtract Naphthalene from the > C<sub>10</sub>-C<sub>16</sub> aliphatic hydrocarbon fraction.

Assessment Criteria		TRH C <sub>6</sub> -C <sub>10</sub>	TRH C <sub>6</sub> -C <sub>10</sub> - BTEX (F1)	TRH >C <sub>10</sub> -C <sub>16</sub>	TRH >C <sub>10</sub> -C <sub>16</sub> - N (F2)	TRH >C <sub>16</sub> -C <sub>34</sub> (F3)	TRH >C <sub>34</sub> -C <sub>40</sub> (F4)
NEPM 2013 Residential Soil HSL-A for Vapour Intrusion, 0-<1m depth, Clay, mg/kg			50		280		
NEPM 2013 Soil ESL for Urban, Residential and Public Open Spaces, Fine-Grained Soil, mg/kg		180		120		1300	5600
NEPM 2013 Management Limits for Residential, Parkland and Public Open Space, Fine-Grained Soil, mg/kg		800		1000		3500	10 000
Sample	Depth (m)	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
BH1	0.5	<25	<25	<25	<25	<90	<120
BH2	0.5	<25	<25	<25	<25	<90	<120
BH3	0.5	<25	<25	<25	<25	<90	<120
BH4	0.5	<25	<25	<25	<25	<90	<120
BH5	0.5	<25	<25	<25	<25	<90	<120
BH6	0.5	<25	<25	<25	<25	<90	<120
BH7	0.5	<25	<25	<25	<25	<90	<120
BH8	0.5	<25	<25	<25	<25	<90	<120

**Table 19.** Benzene, Toluene, Ethylbenzene and Xylene (BTEX) analytical results. Values are presented as mg/kg. NL = Not Limiting.

Assessment Criteria		Benzene	Toluene	Ethylbenzene	Xylenes
NEPM 2013 Residential Soil HSL-A for Vapour Intrusion, 0-<1m depth, Clay, mg/kg		0.7	480	NL	110
NEPM 2013 Soil ESL for Urban, Residential and Public Open Spaces, Fine-Grained Soil, mg/kg		65	105	125	45
Sample	Depth (m)	mg/kg	mg/kg	mg/kg	mg/kg
BH1	0.5	<0.1	<0.1	<0.1	<0.3
BH2	0.5	<0.1	<0.1	<0.1	<0.3
BH3	0.5	<0.1	<0.1	<0.1	<0.3
BH4	0.5	<0.1	<0.1	<0.1	<0.3
BH5	0.5	<0.1	<0.1	<0.1	<0.3
BH6	0.5	<0.1	<0.1	<0.1	<0.3
BH7	0.5	<0.1	<0.1	<0.1	<0.3
BH8	0.5	<0.1	<0.1	<0.1	<0.3

**Table 20.** Polycyclic Aromatic Hydrocarbon (PAH) analytical results. The carcinogenic PAH (Benzo(a)anthracene (BaAnt); Benzo(a)pyrene (BaPyr or BaP); Benzo(b+j) fluoranthene (BbjFl); Benzo(k)fluoranthene (BkFl); Benzo(g,h,i)perylene (BghiPer); Chrysene (Chr); and Dibenz(a,h)anthracene (DBahAnt)) potency is calculated relative to Benzo(a)pyrene to produce a Toxicity Equivalent Factor (TEF). The Toxicity Equivalent Quotient (TEQ) is calculated by multiplying the concentration of each carcinogenic PAH in the sample by its Benzo(a)pyrene (B(a)P) TEF. Total PAH includes Naphthalene (N), 2-methylnaphthalene (2-MN), 1-methylnaphthalene (1-MN), Acenaphthylene (Acy), Acenaphthene (Ace), Fluorene (F), Phenanthrene (P), Anthracene (Ant), Fluoranthene (Fl), Pyrene (Pyr) and the carcinogenic PAHs. Values are presented as mg/kg. NL = Not Limiting.

Assessment Criteria		Naphthalene	Benzo(a)pyrene	Carcinogenic PAH (as BaP TEQ)	Total PAH (18)
NEPM 2013 Residential Soil HSL-A for Vapour Intrusion, 0-<1m depth, Clay, mg/kg		5			
NEPM 2013 Soil Generic EIL for Urban Residential and Public Open Space, mg/kg		170			
NEPM 2013 Soil ESL for Urban, Residential and Public Open Spaces, Fine-Grained Soil, mg/kg			0.7		
NEPM 2013 Residential Soil HIL-A, mg/kg			1.00 TEF	3	300
Sample	Depth (m)	mg/kg	mg/kg	TEQ (mg/kg)	mg/kg
BH1	0.5	<0.1	<0.1	<0.3	<0.8
BH2	0.5	<0.1	<0.1	<0.3	<0.8
BH3	0.5	<0.1	<0.1	<0.3	<0.8
BH4	0.5	<0.1	<0.1	<0.3	<0.8
BH5	0.5	<0.1	<0.1	<0.3	<0.8
BH6	0.5	<0.1	<0.1	<0.3	<0.8
BH7	0.5	<0.1	<0.1	<0.3	<0.8
BH8	0.5	<0.1	<0.1	<0.3	<0.8

**Table 21.** Heavy Metal analytical results. Values are presented as mg/kg.

Assessment Criteria		Arsenic, As	Cadmium, Cd	Chromium, Cr	Copper, Cu	Lead, Pb	Nickel, Ni	Zinc, Zn	Mercury, Hg
NEPM 2013 Residential Soil HIL-A, mg/kg		100	20	100	6000	300	400	7400	40
NEPM 2013 Soil Generic EIL for Urban Residential and Public Open Space, mg/kg		160				1800			
Sample	Depth (m)	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
BH1	0.5	<b>3</b>	<0.3	<b>5.0</b>	<b>4.1</b>	<b>17</b>	<b>3.8</b>	<b>26</b>	<0.05
BH2	0.5	<b>2</b>	<0.3	<b>4.4</b>	<b>0.6</b>	<b>6</b>	<b>3.7</b>	<b>5.9</b>	<0.05
BH3	0.5	<b>5</b>	<0.3	<b>6.1</b>	<b>21</b>	<b>9</b>	<b>7.4</b>	<b>26</b>	<0.05
BH4	0.5	<b>3</b>	<0.3	<b>4.8</b>	<b>3.7</b>	<b>8</b>	<b>9.3</b>	<b>13</b>	<0.05
BH5	0.5	<b>5</b>	<0.3	<b>9.5</b>	<b>0.8</b>	<b>10</b>	<b>2.6</b>	<b>19</b>	<0.05
BH6	0.5	<b>6</b>	<0.3	<b>7.2</b>	<b>5.9</b>	<b>16</b>	<b>5.4</b>	<b>36</b>	<0.05
BH7	0.5	<1	<0.3	<b>3.9</b>	<b>4.2</b>	<b>6</b>	<b>2.6</b>	<b>10</b>	<0.05
BH8	0.5	<b>3</b>	<0.3	<b>7.7</b>	<b>10</b>	<b>24</b>	<b>5.8</b>	<b>29</b>	<0.05

**Table 22.** Pesticides analytical results. Values are presented as mg/kg.

Assessment Criteria		HCB	Heptachlor	Chlordane	Aldrin & Dieldrin	Endrin	DDT	DDD+DDE +DDT	Endosulfan	Methoxychlor	Mirex
NEPM 2013 Residential Soil HIL-A, mg/kg		10	6	50	6	10		240	270	300	10
NEPM 2013 Soil Generic EIL for Urban Residential and Public Open Space, mg/kg							180				
Sample	Depth (m)	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
BH1	0.5	<0.1	<0.2	<0.2	<0.3	<0.2	<0.2	<0.6	<0.5	<0.1	<0.1
BH2	0.5	<0.1	<0.2	<0.2	<0.3	<0.2	<0.2	<0.6	<0.5	<0.1	<0.1
BH3	0.5	<0.1	<0.2	<0.2	<0.3	<0.2	<0.2	<0.6	<0.5	<0.1	<0.1
BH4	0.5	<0.1	<0.2	<0.2	<0.3	<0.2	<0.2	<0.6	<0.5	<0.1	<0.1
BH5	0.5	<0.1	<0.2	<0.2	<0.3	<0.2	<0.2	<0.6	<0.5	<0.1	<0.1
BH6	0.5	<0.1	<0.2	<0.2	<0.3	<0.2	<0.2	<0.6	<0.5	<0.1	<0.1
BH7	0.5	<0.1	<0.2	<0.2	<0.3	<0.2	<0.2	<0.6	<0.5	<0.1	<0.1
BH8	0.5	<0.1	<0.2	<0.2	<0.3	<0.2	<0.2	<0.6	<0.5	<0.1	<0.1

**Table 23.** Asbestos analytical results. Values are presented as %w/w.

Assessment Criteria		Asbestos		
NEPM 2013 Soil HSL-A, mg/kg		Detected	Bonded ACM	FA and AF
			0.01%w/w	0.001%w/w
Sample	Depth (m)	Y/N	%w/w	%w/w
BH1	0.5	N	<0.01	<0.001
BH2	0.5	N	<0.01	<0.001
BH3	0.5	N	<0.01	<0.001
BH4	0.5	N	<0.01	<0.001
BH5	0.5	N	<0.01	<0.001
BH6	0.5	N	<0.01	<0.001
BH7	0.5	N	<0.01	<0.001
BH8	0.5	N	<0.01	<0.001

In accordance with the NSW EPA Waste Classification Guidelines, Part 1: Classifying Waste, 2014, the following Waste Classification Criteria was employed for the classification of potential waste material. The SCC test is the first test to chemically analyse waste material. This test is used as an initial screening test and can be applied as a stand-alone measure to classify waste if analytical results indicate contaminants are below or equal to the contaminant threshold (CT).

Contaminants <sup>2</sup>	Assessment for Disposal	
	SCC Analysis	
	General Solid Waste <CT1	Restricted Solid Waste <CT2
	Maximum Contaminant Concentration	
	(mg/kg) <sup>1</sup>	(mg/kg) <sup>1</sup>
Benzene	10	40
Toluene	288	1,152
Ethylbenzene	600	2,400
Xylene	1,000	4,000
TRH C <sub>6</sub> -C <sub>9</sub>	650	2,600
TRH C <sub>10</sub> -C <sub>36</sub>	10,000	40,000
Benzo(a)pyrene	0.8	3.2
Total PAH	200	800
Arsenic	100	400
Cadmium	20	80
Chromium	100	400
Copper	-	-
Lead	100	400
Mercury	4	16
Nickel	40	160
Zinc	-	-
Asbestos	Detection <sup>3</sup>	Detection <sup>3</sup>

If the analytical results from the SCC test exceed the CT2 (Restricted Solid Waste), a TCLP test must be undertaken to determine the leachable concentration for only the contaminants that exceeded the previous test.

Contaminants <sup>2</sup>	Assessment for Disposal			
	TCLP Analysis			
	General Solid Waste		Restricted Solid Waste	
	Maximum Contaminant concentration	Maximum TCLP Concentration	Maximum Contaminant Concentration	Maximum TCLP Concentration
	(mg/L) <sup>1</sup>	(mg/L) <sup>1</sup>	(mg/L) <sup>1</sup>	(mg/L) <sup>1</sup>
Benzene	18	0.5	2,000	20
Toluene	-	-	-	-
Ethylbenzene	1,080	30	4,320	120
Xylene	50	1,800	200	7,200
TRH C <sub>6</sub> -C <sub>9</sub>	650	N/A	2,600	N/A
TRH C <sub>10</sub> -C <sub>36</sub>	10,000	N/A	40,000	N/A
Benzo(a)pyrene	0.04	10	0.16	23
Total PAH	200	N/A	800	N/A
Arsenic	500	5	2,000	20
Cadmium	100	1	400	4
Chromium	1,900	5	7,600	20
Copper	-	-	-	-
Lead	1,500	5	6,000	20
Mercury	50	0.2	200	0.8
Nickel	1,050	2	4,200	8
Zinc	-	-	-	-
Asbestos	Detection <sup>3</sup>	-	Detection <sup>3</sup>	-





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Lab ID Number: *(please quote on correspondence)*

### CHAIN OF CUSTODY & ANALYSIS REQUEST

Company Name:	Neo Consulting Pty Ltd	Project Name/No:	N09301
Address:	186 Riverstone Parade	Purchase Order No:	<b>QUOTE NUMBER: 306559v6</b>
	Riverstone NSW 2765	Results Required Date:	Next Day/ <u>3 day</u> /Standard
		Telephone:	0416680375 Fax:
Contact Name:	Nick Caltabiano	Email Results and invoices to :	<a href="mailto:nick@neoconsulting.com.au">nick@neoconsulting.com.au</a> , <a href="mailto:admin@neoconsulting.com.au">admin@neoconsulting.com.au</a>
Quotation No:			<a href="mailto:oskar@neoconsulting.com.au">oskar@neoconsulting.com.au</a> , <a href="mailto:sarah@neoconsulting.com.au">sarah@neoconsulting.com.au</a> , <a href="mailto:ehsan@neoconsulting.com.au">ehsan@neoconsulting.com.au</a> , <a href="mailto:isabella@neoconsulting.com.au">isabella@neoconsulting.com.au</a>

Matrix (Tick as appropriate)	NO. OF CONTAINERS	ANALYSIS REQUESTED										Additional Report Formats
		Soil Sample	Water Sample	Other_Cartridge	CL17	Phenols	Asbestos ID	Asbestos NEPM	BTEX			

SGS ID	Client Sample ID	Sampling Date/ Time	Soil Sample	Water Sample	Other_Cartridge	NO. OF CONTAINERS	CL17	Phenols	Asbestos ID	Asbestos NEPM	BTEX							
1	BH1	30/07/2024	x			1	X		X									
2	BH2	30/07/2024	x			1	X		X									
3	BH3	30/07/2024	x			1	X		X									
4	BH4	30/07/2024	x			1	X		X									
5	BH5	30/07/2024	x			1	X		X									
6	BH6	30/07/2024	x			1	X		X									
7	BH7	30/07/2024	x			1	X		X									
8	BH8	30/07/2024	x			1	X		X									

SGS EHS Sydney COC  
**SE268814**



Relinquished By: Jacob King	Date/Time: 30/07/2024	Received By: <i>P. Subaray</i>	Date/Time: 30/07/24 @ 3:20
Relinquished By:	Date/Time:	Received By:	Date/Time:
Samples Intact: <u>Yes</u> / No	Temperature: °C	Sample Security Sealed: Yes / No	Hazards: e.g. may contain Asbestos

CLIENT DETAILS

LABORATORY DETAILS

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 Client NEO CONSULTING PTY LTD  
 Address PO BOX 279  
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 Facsimile +61 2 8594 0499  
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Project **N09301**  
 Order Number **N09301**  
 Samples 8

SGS Reference **SE268814 R0**  
 Date Received 30/7/2024  
 Date Reported 2/8/2024

COMMENTS

Accredited for compliance with ISO/IEC 17025 - Testing. 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 analysis in soil according to SGS In-house procedures. We therefore cannot guarantee that the sub-sample is representative of the entire sample supplied. SGS Industries and Environment recommends supplying approximately 50-100g of sample in a separate container.

Asbestos analysed by Approved Identifier Yusuf Kuthupudin

SIGNATORIES

**Akheevar BENIAMEEN**  
 Chemist

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 Senior Chemist

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**Shane MCDERMOTT**  
 Laboratory Manager

**Teresa NGUYEN**  
 Organic Chemist

VOC's in Soil [AN433] Tested: 30/7/2024

PARAMETER	UOM	LOR	BH1	BH2	BH3	BH4	BH5
			SOIL	SOIL	SOIL	SOIL	SOIL
			- 30/7/2024 SE268814.001	- 30/7/2024 SE268814.002	- 30/7/2024 SE268814.003	- 30/7/2024 SE268814.004	- 30/7/2024 SE268814.005
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 (VOC)*	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1

PARAMETER	UOM	LOR	BH6	BH7	BH8
			SOIL	SOIL	SOIL
			- 30/7/2024 SE268814.006	- 30/7/2024 SE268814.007	- 30/7/2024 SE268814.008
Benzene	mg/kg	0.1	<0.1	<0.1	<0.1
Toluene	mg/kg	0.1	<0.1	<0.1	<0.1
Ethylbenzene	mg/kg	0.1	<0.1	<0.1	<0.1
m/p-xylene	mg/kg	0.2	<0.2	<0.2	<0.2
o-xylene	mg/kg	0.1	<0.1	<0.1	<0.1
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 (VOC)*	mg/kg	0.1	<0.1	<0.1	<0.1

Volatile Petroleum Hydrocarbons in Soil [AN433] Tested: 30/7/2024

PARAMETER	UOM	LOR	BH1	BH2	BH3	BH4	BH5
			SOIL	SOIL	SOIL	SOIL	SOIL
			-	-	-	-	-
			30/7/2024 SE268814.001	30/7/2024 SE268814.002	30/7/2024 SE268814.003	30/7/2024 SE268814.004	30/7/2024 SE268814.005
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	BH7	BH8
			SOIL	SOIL	SOIL
			-	-	-
			30/7/2024 SE268814.006	30/7/2024 SE268814.007	30/7/2024 SE268814.008
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: 30/7/2024

PARAMETER	UOM	LOR	BH1	BH2	BH3	BH4	BH5
			SOIL	SOIL	SOIL	SOIL	SOIL
			30/7/2024 SE268814.001	30/7/2024 SE268814.002	30/7/2024 SE268814.003	30/7/2024 SE268814.004	30/7/2024 SE268814.005
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	mg/kg	25	<25	<25	<25	<25	<25
TRH >C10-C16 - Naphthalene (F2)	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 (F bands)	mg/kg	210	<210	<210	<210	<210	<210

PARAMETER	UOM	LOR	BH6	BH7	BH8
			SOIL	SOIL	SOIL
			30/7/2024 SE268814.006	30/7/2024 SE268814.007	30/7/2024 SE268814.008
TRH C10-C14	mg/kg	20	<20	<20	<20
TRH C15-C28	mg/kg	45	<45	<45	<45
TRH C29-C36	mg/kg	45	<45	<45	<45
TRH C37-C40	mg/kg	100	<100	<100	<100
TRH >C10-C16	mg/kg	25	<25	<25	<25
TRH >C10-C16 - Naphthalene (F2)	mg/kg	25	<25	<25	<25
TRH >C16-C34 (F3)	mg/kg	90	<90	<90	<90
TRH >C34-C40 (F4)	mg/kg	120	<120	<120	<120
TRH C10-C36 Total	mg/kg	110	<110	<110	<110
TRH >C10-C40 Total (F bands)	mg/kg	210	<210	<210	<210

PAH (Polynuclear Aromatic Hydrocarbons) in Soil [AN420] Tested: 30/7/2024

PARAMETER	UOM	LOR	BH1	BH2	BH3	BH4	BH5
			SOIL	SOIL	SOIL	SOIL	SOIL
			30/7/2024 SE268814.001	30/7/2024 SE268814.002	30/7/2024 SE268814.003	30/7/2024 SE268814.004	30/7/2024 SE268814.005
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 (mg/kg)	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	BH7	BH8
			SOIL	SOIL	SOIL
			30/7/2024 SE268814.006	30/7/2024 SE268814.007	30/7/2024 SE268814.008
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	<0.1	<0.1
Pyrene	mg/kg	0.1	<0.1	<0.1	<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 (mg/kg)	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 [AN420] Tested: 30/7/2024

PARAMETER	UOM	LOR	BH1	BH2	BH3	BH4	BH5
			SOIL - 30/7/2024 SE268814.001	SOIL - 30/7/2024 SE268814.002	SOIL - 30/7/2024 SE268814.003	SOIL - 30/7/2024 SE268814.004	SOIL - 30/7/2024 SE268814.005
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 (gamma BHC)	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
Total CLP OC Pesticides	mg/kg	1	<1	<1	<1	<1	<1
Total OC VIC EPA	mg/kg	1	<1	<1	<1	<1	<1

OC Pesticides in Soil [AN420] Tested: 30/7/2024 (continued)

PARAMETER	UOM	LOR	BH6	BH7	BH8
			SOIL - 30/7/2024 SE268814.006	SOIL - 30/7/2024 SE268814.007	SOIL - 30/7/2024 SE268814.008
Hexachlorobenzene (HCB)	mg/kg	0.1	<0.1	<0.1	<0.1
Alpha BHC	mg/kg	0.1	<0.1	<0.1	<0.1
Lindane (gamma BHC)	mg/kg	0.1	<0.1	<0.1	<0.1
Heptachlor	mg/kg	0.1	<0.1	<0.1	<0.1
Aldrin	mg/kg	0.1	<0.1	<0.1	<0.1
Beta BHC	mg/kg	0.1	<0.1	<0.1	<0.1
Delta BHC	mg/kg	0.1	<0.1	<0.1	<0.1
Heptachlor epoxide	mg/kg	0.1	<0.1	<0.1	<0.1
o,p'-DDE*	mg/kg	0.1	<0.1	<0.1	<0.1
Alpha Endosulfan	mg/kg	0.2	<0.2	<0.2	<0.2
Gamma Chlordane	mg/kg	0.1	<0.1	<0.1	<0.1
Alpha Chlordane	mg/kg	0.1	<0.1	<0.1	<0.1
trans-Nonachlor	mg/kg	0.1	<0.1	<0.1	<0.1
p,p'-DDE	mg/kg	0.1	<0.1	<0.1	<0.1
Dieldrin	mg/kg	0.2	<0.2	<0.2	<0.2
Endrin	mg/kg	0.2	<0.2	<0.2	<0.2
o,p'-DDD*	mg/kg	0.1	<0.1	<0.1	<0.1
o,p'-DDT*	mg/kg	0.1	<0.1	<0.1	<0.1
Beta Endosulfan	mg/kg	0.2	<0.2	<0.2	<0.2
p,p'-DDD	mg/kg	0.1	<0.1	<0.1	<0.1
p,p'-DDT	mg/kg	0.1	<0.1	<0.1	<0.1
Endosulfan sulphate	mg/kg	0.1	<0.1	<0.1	<0.1
Endrin aldehyde	mg/kg	0.1	<0.1	<0.1	<0.1
Methoxychlor	mg/kg	0.1	<0.1	<0.1	<0.1
Endrin ketone	mg/kg	0.1	<0.1	<0.1	<0.1
Isodrin	mg/kg	0.1	<0.1	<0.1	<0.1
Mirex	mg/kg	0.1	<0.1	<0.1	<0.1
Total CLP OC Pesticides	mg/kg	1	<1	<1	<1
Total OC VIC EPA	mg/kg	1	<1	<1	<1



OP Pesticides in Soil [AN420] Tested: 30/7/2024

PARAMETER	UOM	LOR	BH1	BH2	BH3	BH4	BH5
			SOIL	SOIL	SOIL	SOIL	SOIL
			30/7/2024 SE268814.001	30/7/2024 SE268814.002	30/7/2024 SE268814.003	30/7/2024 SE268814.004	30/7/2024 SE268814.005
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
Total OP Pesticides*	mg/kg	1.7	<1.7	<1.7	<1.7	<1.7	<1.7

PARAMETER	UOM	LOR	BH6	BH7	BH8
			SOIL	SOIL	SOIL
			30/7/2024 SE268814.006	30/7/2024 SE268814.007	30/7/2024 SE268814.008
Dichlorvos	mg/kg	0.5	<0.5	<0.5	<0.5
Dimethoate	mg/kg	0.5	<0.5	<0.5	<0.5
Diazinon (Dimpylate)	mg/kg	0.5	<0.5	<0.5	<0.5
Fenitrothion	mg/kg	0.2	<0.2	<0.2	<0.2
Malathion	mg/kg	0.2	<0.2	<0.2	<0.2
Chlorpyrifos (Chlorpyrifos Ethyl)	mg/kg	0.2	<0.2	<0.2	<0.2
Parathion-ethyl (Parathion)	mg/kg	0.2	<0.2	<0.2	<0.2
Bromophos Ethyl	mg/kg	0.2	<0.2	<0.2	<0.2
Methidathion	mg/kg	0.5	<0.5	<0.5	<0.5
Ethion	mg/kg	0.2	<0.2	<0.2	<0.2
Azinphos-methyl (Guthion)	mg/kg	0.2	<0.2	<0.2	<0.2
Total OP Pesticides*	mg/kg	1.7	<1.7	<1.7	<1.7

PCBs in Soil [AN420] Tested: 30/7/2024

PARAMETER	UOM	LOR	BH1	BH2	BH3	BH4	BH5
			SOIL	SOIL	SOIL	SOIL	SOIL
			- 30/7/2024 SE268814.001	- 30/7/2024 SE268814.002	- 30/7/2024 SE268814.003	- 30/7/2024 SE268814.004	- 30/7/2024 SE268814.005
Arochlor 1016	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Arochlor 1221	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Arochlor 1232	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Arochlor 1242	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Arochlor 1248	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Arochlor 1254	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Arochlor 1260	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Arochlor 1262	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Arochlor 1268	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Total PCBs (Arochlors)	mg/kg	1	<1	<1	<1	<1	<1

PARAMETER	UOM	LOR	BH6	BH7	BH8
			SOIL	SOIL	SOIL
			- 30/7/2024 SE268814.006	- 30/7/2024 SE268814.007	- 30/7/2024 SE268814.008
Arochlor 1016	mg/kg	0.2	<0.2	<0.2	<0.2
Arochlor 1221	mg/kg	0.2	<0.2	<0.2	<0.2
Arochlor 1232	mg/kg	0.2	<0.2	<0.2	<0.2
Arochlor 1242	mg/kg	0.2	<0.2	<0.2	<0.2
Arochlor 1248	mg/kg	0.2	<0.2	<0.2	<0.2
Arochlor 1254	mg/kg	0.2	<0.2	<0.2	<0.2
Arochlor 1260	mg/kg	0.2	<0.2	<0.2	<0.2
Arochlor 1262	mg/kg	0.2	<0.2	<0.2	<0.2
Arochlor 1268	mg/kg	0.2	<0.2	<0.2	<0.2
Total PCBs (Arochlors)	mg/kg	1	<1	<1	<1

Total Recoverable Elements in Soil/Waste Solids/Materials by ICPOES [AN040/AN320] Tested: 30/7/2024

PARAMETER	UOM	LOR	BH1	BH2	BH3	BH4	BH5
			SOIL	SOIL	SOIL	SOIL	SOIL
			- 30/7/2024 SE268814.001	- 30/7/2024 SE268814.002	- 30/7/2024 SE268814.003	- 30/7/2024 SE268814.004	- 30/7/2024 SE268814.005
Arsenic, As	mg/kg	1	<b>3</b>	<b>2</b>	<b>5</b>	<b>3</b>	<b>5</b>
Cadmium, Cd	mg/kg	0.3	<0.3	<0.3	<0.3	<0.3	<0.3
Chromium, Cr	mg/kg	0.5	<b>5.0</b>	<b>4.4</b>	<b>6.1</b>	<b>4.8</b>	<b>9.5</b>
Copper, Cu	mg/kg	0.5	<b>4.1</b>	<b>0.6</b>	<b>21</b>	<b>3.7</b>	<b>0.8</b>
Lead, Pb	mg/kg	1	<b>17</b>	<b>6</b>	<b>9</b>	<b>8</b>	<b>10</b>
Nickel, Ni	mg/kg	0.5	<b>3.8</b>	<b>3.7</b>	<b>7.4</b>	<b>9.3</b>	<b>2.6</b>
Zinc, Zn	mg/kg	2	<b>26</b>	<b>5.9</b>	<b>26</b>	<b>13</b>	<b>19</b>

PARAMETER	UOM	LOR	BH6	BH7	BH8
			SOIL	SOIL	SOIL
			- 30/7/2024 SE268814.006	- 30/7/2024 SE268814.007	- 30/7/2024 SE268814.008
Arsenic, As	mg/kg	1	<b>6</b>	<1	<b>3</b>
Cadmium, Cd	mg/kg	0.3	<0.3	<0.3	<0.3
Chromium, Cr	mg/kg	0.5	<b>7.2</b>	<b>3.9</b>	<b>7.7</b>
Copper, Cu	mg/kg	0.5	<b>5.9</b>	<b>4.2</b>	<b>10</b>
Lead, Pb	mg/kg	1	<b>16</b>	<b>6</b>	<b>24</b>
Nickel, Ni	mg/kg	0.5	<b>5.4</b>	<b>2.6</b>	<b>5.8</b>
Zinc, Zn	mg/kg	2	<b>36</b>	<b>10</b>	<b>29</b>

Mercury in Soil [AN312] Tested: 30/7/2024

			BH1	BH2	BH3	BH4	BH5
			SOIL	SOIL	SOIL	SOIL	SOIL
			-	-	-	-	-
			30/7/2024	30/7/2024	30/7/2024	30/7/2024	30/7/2024
PARAMETER	UOM	LOR	SE268814.001	SE268814.002	SE268814.003	SE268814.004	SE268814.005
Mercury	mg/kg	0.05	<0.05	<0.05	<0.05	<0.05	<0.05

			BH6	BH7	BH8
			SOIL	SOIL	SOIL
			-	-	-
			30/7/2024	30/7/2024	30/7/2024
PARAMETER	UOM	LOR	SE268814.006	SE268814.007	SE268814.008
Mercury	mg/kg	0.05	<0.05	<0.05	<0.05

Moisture Content [AN002] Tested: 30/7/2024

			BH1	BH2	BH3	BH4	BH5
			SOIL	SOIL	SOIL	SOIL	SOIL
			-	-	-	-	-
			30/7/2024	30/7/2024	30/7/2024	30/7/2024	30/7/2024
PARAMETER	UOM	LOR	SE268814.001	SE268814.002	SE268814.003	SE268814.004	SE268814.005
% Moisture	%w/w	1	<b>18.5</b>	<b>14.5</b>	<b>16.6</b>	<b>20.0</b>	<b>15.2</b>

			BH6	BH7	BH8
			SOIL	SOIL	SOIL
			-	-	-
			30/7/2024	30/7/2024	30/7/2024
PARAMETER	UOM	LOR	SE268814.006	SE268814.007	SE268814.008
% Moisture	%w/w	1	<b>16.9</b>	<b>20.3</b>	<b>17.7</b>

Fibre Identification in soil [AS4964/AN602] Tested: 31/7/2024

PARAMETER	UOM	LOR	BH1	BH2	BH3	BH4	BH5
			SOIL	SOIL	SOIL	SOIL	SOIL
			30/7/2024 SE268814.001	30/7/2024 SE268814.002	30/7/2024 SE268814.003	30/7/2024 SE268814.004	30/7/2024 SE268814.005
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
Date Analysed*	No unit	-	01/08/2024 00:00	01/08/2024 00:00	01/08/2024 00:00	01/08/2024 00:00	01/08/2024 00:00

PARAMETER	UOM	LOR	BH6	BH7	BH8
			SOIL	SOIL	SOIL
			30/7/2024 SE268814.006	30/7/2024 SE268814.007	30/7/2024 SE268814.008
Asbestos Detected	No unit	-	No	No	No
Estimated Fibres*	%w/w	0.01	<0.01	<0.01	<0.01
Date Analysed*	No unit	-	01/08/2024 00:00	01/08/2024 00:00	01/08/2024 00:00

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 AAS 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
- 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 Recoverable Hydrocarbons - Silica (TRH-Si) 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).  
Total PAH calculated from individual analyte detections at or above the limit of reporting.
- 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/AS4964** 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/AS4964** Fibres/material that cannot be unequivocally identified as one of the three asbestos forms, will be reported as unknown mineral fibres (umf) The fibres detected may or may not be asbestos fibres.
- AN602/AS4964** 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/reporting limit (RL) 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/AS4964** The sample can be reported "no asbestos found at the reporting limit (RL) 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.
**	Indicative data, theoretical holding time exceeded.	NVL	Not validated.	LOR	Limit of Reporting.
***	Indicates that both * and ** apply.	IS	Insufficient sample for analysis.	↑↓	Raised/lowered Limit of Reporting.
		LNR	Sample listed, but not received.		

Unless it is reported that sampling has been performed by SGS, the samples have been 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 and MU criteria are subject to internal review according to the SGS QAQC plan and may be provided on request or alternatively can be found here: [www.sgs.com.au/en-gb/environment-health-and-safety](http://www.sgs.com.au/en-gb/environment-health-and-safety).

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 Order Number **N09301**  
 Samples 8

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SGS Reference **SE268814 R0**  
 Date Received 30 Jul 2024  
 Date Reported 02 Aug 2024

COMMENTS

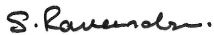
Accredited for compliance with ISO/IEC 17025 - Testing. NATA accredited laboratory 2562(4354).

No respirable fibres detected in all soil samples using trace analysis technique.

A portion of the sample supplied has been sub-sampled for asbestos analysis in soil according to SGS In-house procedures. We therefore cannot guarantee that the sub-sample is representative of the entire sample supplied. SGS Industries and Environment recommends supplying approximately 50-100g of sample in a separate container.

Asbestos analysed by Approved Identifier Yusuf Kuthpudin

SIGNATORIES



Ravee SIVASUBRAMANIAM  
 Hygiene Team Leader

RESULTS

Fibre Identification in soil

Method AN602

Laboratory Reference	Client Reference	Matrix	Sample Description	Date Sampled	Date Analysed	Fibre Identification	Est.%w/w*
SE268814.001	BH1	Soil	103g Clay, Sand, Soil, Rocks	30 Jul 2024	01 Aug 2024	No Asbestos Found at RL of 0.1g/kg Organic Fibres Detected	<0.01
SE268814.002	BH2	Soil	125g Clay, Sand, Rocks	30 Jul 2024	01 Aug 2024	No Asbestos Found at RL of 0.1g/kg	<0.01
SE268814.003	BH3	Soil	140g Clay, Sand, Rocks	30 Jul 2024	01 Aug 2024	No Asbestos Found at RL of 0.1g/kg	<0.01
SE268814.004	BH4	Soil	137g Clay, Sand, Rocks	30 Jul 2024	01 Aug 2024	No Asbestos Found at RL of 0.1g/kg	<0.01
SE268814.005	BH5	Soil	152g Clay, Sand, Rocks	30 Jul 2024	01 Aug 2024	No Asbestos Found at RL of 0.1g/kg	<0.01
SE268814.006	BH6	Soil	117g Clay, Sand, Soil, Rocks	30 Jul 2024	01 Aug 2024	No Asbestos Found at RL of 0.1g/kg	<0.01
SE268814.007	BH7	Soil	148g Clay, Sand, Rocks	30 Jul 2024	01 Aug 2024	No Asbestos Found at RL of 0.1g/kg	<0.01
SE268814.008	BH8	Soil	174g Clay, Sand, Soil, Rocks	30 Jul 2024	01 Aug 2024	No Asbestos Found at RL of 0.1g/kg Organic Fibres Detected	<0.01

METHOD

METHODOLOGY SUMMARY

AN602/AS4964	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/AS4964	Fibres/material that cannot be unequivocally identified as one of the three asbestos forms, will be reported as unknown mineral fibres (umf) The fibres detected may or may not be asbestos fibres.
AN602/AS4964	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/reporting limit (RL) 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/AS4964	The sample can be reported "no asbestos found at the reporting limit (RL) of 0.1 g/kg" (<0.01%w/w) where AN602 section 4.5 of this method has been followed, and if- <ul style="list-style-type: none"> <li>(a) no trace asbestos fibres have been detected (i.e. no 'respirable' fibres);</li> <li>(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</li> <li>(c) these non-respirable asbestos fibre bundles and/or the asbestos containing materials are only visible under stereo-microscope viewing conditions.</li> </ul>

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.
			***	-	Indicates that both * and ** apply.

(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.

Unless it is reported that sampling has been performed by SGS, the samples have been analysed as received.

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 and MU criteria are subject to internal review according to the SGS QAQC plan and may be provided on request or alternatively can be found here: [www.sgs.com.au/en-gb/environment-health-and-safety](http://www.sgs.com.au/en-gb/environment-health-and-safety).

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Project **N09301**  
 Order Number **N09301**  
 Samples 8

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SGS Reference **SE268814 R0**  
 Date Received 30 Jul 2024  
 Date Reported 02 Aug 2024

### 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.  
 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	PAH (Polynuclear Aromatic Hydrocarbons) in Soil	1 item
	Total Recoverable Elements in Soil/Waste Solids/Materials by ICPOES	2 items
Matrix Spike	Total Recoverable Elements in Soil/Waste Solids/Materials by ICPOES	1 item

### SAMPLE SUMMARY

Sample counts by matrix	8 Soil	Type of documentation received	COC
Date documentation received	30/7/2024	Samples received in good order	Yes
Samples received without headspace	Yes	Sample temperature upon receipt	12.6°C
Sample container provider	SGS	Turnaround time requested	Three Days
Samples received in correct containers	Yes	Sufficient sample for analysis	Yes
Sample cooling method	Ice Bricks	Samples clearly labelled	Yes
Complete documentation received	Yes		

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

### Fibre Identification in soil

Method: ME-(AU)-[ENV]AS4964/AN602

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
BH1	SE268814.001	LB319075	30 Jul 2024	30 Jul 2024	30 Jul 2025	31 Jul 2024	30 Jul 2025	02 Aug 2024
BH2	SE268814.002	LB319075	30 Jul 2024	30 Jul 2024	30 Jul 2025	31 Jul 2024	30 Jul 2025	02 Aug 2024
BH3	SE268814.003	LB319075	30 Jul 2024	30 Jul 2024	30 Jul 2025	31 Jul 2024	30 Jul 2025	02 Aug 2024
BH4	SE268814.004	LB319075	30 Jul 2024	30 Jul 2024	30 Jul 2025	31 Jul 2024	30 Jul 2025	02 Aug 2024
BH5	SE268814.005	LB319075	30 Jul 2024	30 Jul 2024	30 Jul 2025	31 Jul 2024	30 Jul 2025	02 Aug 2024
BH6	SE268814.006	LB319075	30 Jul 2024	30 Jul 2024	30 Jul 2025	31 Jul 2024	30 Jul 2025	02 Aug 2024
BH7	SE268814.007	LB319075	30 Jul 2024	30 Jul 2024	30 Jul 2025	31 Jul 2024	30 Jul 2025	02 Aug 2024
BH8	SE268814.008	LB319075	30 Jul 2024	30 Jul 2024	30 Jul 2025	31 Jul 2024	30 Jul 2025	02 Aug 2024

### Mercury in Soil

Method: ME-(AU)-[ENV]AN312

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
BH1	SE268814.001	LB319012	30 Jul 2024	30 Jul 2024	27 Aug 2024	30 Jul 2024	27 Aug 2024	02 Aug 2024
BH2	SE268814.002	LB319012	30 Jul 2024	30 Jul 2024	27 Aug 2024	30 Jul 2024	27 Aug 2024	02 Aug 2024
BH3	SE268814.003	LB319012	30 Jul 2024	30 Jul 2024	27 Aug 2024	30 Jul 2024	27 Aug 2024	02 Aug 2024
BH4	SE268814.004	LB319012	30 Jul 2024	30 Jul 2024	27 Aug 2024	30 Jul 2024	27 Aug 2024	02 Aug 2024
BH5	SE268814.005	LB319012	30 Jul 2024	30 Jul 2024	27 Aug 2024	30 Jul 2024	27 Aug 2024	02 Aug 2024
BH6	SE268814.006	LB319012	30 Jul 2024	30 Jul 2024	27 Aug 2024	30 Jul 2024	27 Aug 2024	02 Aug 2024
BH7	SE268814.007	LB319012	30 Jul 2024	30 Jul 2024	27 Aug 2024	30 Jul 2024	27 Aug 2024	02 Aug 2024
BH8	SE268814.008	LB319012	30 Jul 2024	30 Jul 2024	27 Aug 2024	30 Jul 2024	27 Aug 2024	02 Aug 2024

### Moisture Content

Method: ME-(AU)-[ENV]AN002

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
BH1	SE268814.001	LB319017	30 Jul 2024	30 Jul 2024	13 Aug 2024	30 Jul 2024	04 Aug 2024	01 Aug 2024
BH2	SE268814.002	LB319017	30 Jul 2024	30 Jul 2024	13 Aug 2024	30 Jul 2024	04 Aug 2024	01 Aug 2024
BH3	SE268814.003	LB319017	30 Jul 2024	30 Jul 2024	13 Aug 2024	30 Jul 2024	04 Aug 2024	01 Aug 2024
BH4	SE268814.004	LB319017	30 Jul 2024	30 Jul 2024	13 Aug 2024	30 Jul 2024	04 Aug 2024	01 Aug 2024
BH5	SE268814.005	LB319017	30 Jul 2024	30 Jul 2024	13 Aug 2024	30 Jul 2024	04 Aug 2024	01 Aug 2024
BH6	SE268814.006	LB319017	30 Jul 2024	30 Jul 2024	13 Aug 2024	30 Jul 2024	04 Aug 2024	01 Aug 2024
BH7	SE268814.007	LB319017	30 Jul 2024	30 Jul 2024	13 Aug 2024	30 Jul 2024	04 Aug 2024	01 Aug 2024
BH8	SE268814.008	LB319017	30 Jul 2024	30 Jul 2024	13 Aug 2024	30 Jul 2024	04 Aug 2024	01 Aug 2024

### OC Pesticides in Soil

Method: ME-(AU)-[ENV]AN420

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
BH1	SE268814.001	LB319013	30 Jul 2024	30 Jul 2024	13 Aug 2024	30 Jul 2024	08 Sep 2024	02 Aug 2024
BH2	SE268814.002	LB319013	30 Jul 2024	30 Jul 2024	13 Aug 2024	30 Jul 2024	08 Sep 2024	02 Aug 2024
BH3	SE268814.003	LB319013	30 Jul 2024	30 Jul 2024	13 Aug 2024	30 Jul 2024	08 Sep 2024	02 Aug 2024
BH4	SE268814.004	LB319013	30 Jul 2024	30 Jul 2024	13 Aug 2024	30 Jul 2024	08 Sep 2024	02 Aug 2024
BH5	SE268814.005	LB319013	30 Jul 2024	30 Jul 2024	13 Aug 2024	30 Jul 2024	08 Sep 2024	02 Aug 2024
BH6	SE268814.006	LB319013	30 Jul 2024	30 Jul 2024	13 Aug 2024	30 Jul 2024	08 Sep 2024	02 Aug 2024
BH7	SE268814.007	LB319013	30 Jul 2024	30 Jul 2024	13 Aug 2024	30 Jul 2024	08 Sep 2024	02 Aug 2024
BH8	SE268814.008	LB319013	30 Jul 2024	30 Jul 2024	13 Aug 2024	30 Jul 2024	08 Sep 2024	02 Aug 2024

### OP Pesticides in Soil

Method: ME-(AU)-[ENV]AN420

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
BH1	SE268814.001	LB319013	30 Jul 2024	30 Jul 2024	13 Aug 2024	30 Jul 2024	08 Sep 2024	02 Aug 2024
BH2	SE268814.002	LB319013	30 Jul 2024	30 Jul 2024	13 Aug 2024	30 Jul 2024	08 Sep 2024	02 Aug 2024
BH3	SE268814.003	LB319013	30 Jul 2024	30 Jul 2024	13 Aug 2024	30 Jul 2024	08 Sep 2024	02 Aug 2024
BH4	SE268814.004	LB319013	30 Jul 2024	30 Jul 2024	13 Aug 2024	30 Jul 2024	08 Sep 2024	02 Aug 2024
BH5	SE268814.005	LB319013	30 Jul 2024	30 Jul 2024	13 Aug 2024	30 Jul 2024	08 Sep 2024	02 Aug 2024
BH6	SE268814.006	LB319013	30 Jul 2024	30 Jul 2024	13 Aug 2024	30 Jul 2024	08 Sep 2024	02 Aug 2024
BH7	SE268814.007	LB319013	30 Jul 2024	30 Jul 2024	13 Aug 2024	30 Jul 2024	08 Sep 2024	02 Aug 2024
BH8	SE268814.008	LB319013	30 Jul 2024	30 Jul 2024	13 Aug 2024	30 Jul 2024	08 Sep 2024	02 Aug 2024

### 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
BH1	SE268814.001	LB319013	30 Jul 2024	30 Jul 2024	13 Aug 2024	30 Jul 2024	08 Sep 2024	02 Aug 2024
BH2	SE268814.002	LB319013	30 Jul 2024	30 Jul 2024	13 Aug 2024	30 Jul 2024	08 Sep 2024	02 Aug 2024
BH3	SE268814.003	LB319013	30 Jul 2024	30 Jul 2024	13 Aug 2024	30 Jul 2024	08 Sep 2024	02 Aug 2024
BH4	SE268814.004	LB319013	30 Jul 2024	30 Jul 2024	13 Aug 2024	30 Jul 2024	08 Sep 2024	02 Aug 2024
BH5	SE268814.005	LB319013	30 Jul 2024	30 Jul 2024	13 Aug 2024	30 Jul 2024	08 Sep 2024	02 Aug 2024
BH6	SE268814.006	LB319013	30 Jul 2024	30 Jul 2024	13 Aug 2024	30 Jul 2024	08 Sep 2024	02 Aug 2024
BH7	SE268814.007	LB319013	30 Jul 2024	30 Jul 2024	13 Aug 2024	30 Jul 2024	08 Sep 2024	02 Aug 2024

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

### 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
BH8	SE268814.008	LB319013	30 Jul 2024	30 Jul 2024	13 Aug 2024	30 Jul 2024	08 Sep 2024	02 Aug 2024

### PCBs in Soil

Method: ME-(AU)-[ENV]AN420

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
BH1	SE268814.001	LB319013	30 Jul 2024	30 Jul 2024	13 Aug 2024	30 Jul 2024	08 Sep 2024	02 Aug 2024
BH2	SE268814.002	LB319013	30 Jul 2024	30 Jul 2024	13 Aug 2024	30 Jul 2024	08 Sep 2024	02 Aug 2024
BH3	SE268814.003	LB319013	30 Jul 2024	30 Jul 2024	13 Aug 2024	30 Jul 2024	08 Sep 2024	02 Aug 2024
BH4	SE268814.004	LB319013	30 Jul 2024	30 Jul 2024	13 Aug 2024	30 Jul 2024	08 Sep 2024	02 Aug 2024
BH5	SE268814.005	LB319013	30 Jul 2024	30 Jul 2024	13 Aug 2024	30 Jul 2024	08 Sep 2024	02 Aug 2024
BH6	SE268814.006	LB319013	30 Jul 2024	30 Jul 2024	13 Aug 2024	30 Jul 2024	08 Sep 2024	02 Aug 2024
BH7	SE268814.007	LB319013	30 Jul 2024	30 Jul 2024	13 Aug 2024	30 Jul 2024	08 Sep 2024	02 Aug 2024
BH8	SE268814.008	LB319013	30 Jul 2024	30 Jul 2024	13 Aug 2024	30 Jul 2024	08 Sep 2024	02 Aug 2024

### Total Recoverable Elements in Soil/Waste Solids/Materials by ICPOES

Method: ME-(AU)-[ENV]AN40/AN320

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
BH1	SE268814.001	LB319011	30 Jul 2024	30 Jul 2024	26 Jan 2025	30 Jul 2024	26 Jan 2025	02 Aug 2024
BH2	SE268814.002	LB319011	30 Jul 2024	30 Jul 2024	26 Jan 2025	30 Jul 2024	26 Jan 2025	02 Aug 2024
BH3	SE268814.003	LB319011	30 Jul 2024	30 Jul 2024	26 Jan 2025	30 Jul 2024	26 Jan 2025	02 Aug 2024
BH4	SE268814.004	LB319011	30 Jul 2024	30 Jul 2024	26 Jan 2025	30 Jul 2024	26 Jan 2025	02 Aug 2024
BH5	SE268814.005	LB319011	30 Jul 2024	30 Jul 2024	26 Jan 2025	30 Jul 2024	26 Jan 2025	02 Aug 2024
BH6	SE268814.006	LB319011	30 Jul 2024	30 Jul 2024	26 Jan 2025	30 Jul 2024	26 Jan 2025	02 Aug 2024
BH7	SE268814.007	LB319011	30 Jul 2024	30 Jul 2024	26 Jan 2025	30 Jul 2024	26 Jan 2025	02 Aug 2024
BH8	SE268814.008	LB319011	30 Jul 2024	30 Jul 2024	26 Jan 2025	30 Jul 2024	26 Jan 2025	02 Aug 2024

### 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
BH1	SE268814.001	LB319013	30 Jul 2024	30 Jul 2024	13 Aug 2024	30 Jul 2024	08 Sep 2024	02 Aug 2024
BH2	SE268814.002	LB319013	30 Jul 2024	30 Jul 2024	13 Aug 2024	30 Jul 2024	08 Sep 2024	02 Aug 2024
BH3	SE268814.003	LB319013	30 Jul 2024	30 Jul 2024	13 Aug 2024	30 Jul 2024	08 Sep 2024	02 Aug 2024
BH4	SE268814.004	LB319013	30 Jul 2024	30 Jul 2024	13 Aug 2024	30 Jul 2024	08 Sep 2024	02 Aug 2024
BH5	SE268814.005	LB319013	30 Jul 2024	30 Jul 2024	13 Aug 2024	30 Jul 2024	08 Sep 2024	02 Aug 2024
BH6	SE268814.006	LB319013	30 Jul 2024	30 Jul 2024	13 Aug 2024	30 Jul 2024	08 Sep 2024	02 Aug 2024
BH7	SE268814.007	LB319013	30 Jul 2024	30 Jul 2024	13 Aug 2024	30 Jul 2024	08 Sep 2024	02 Aug 2024
BH8	SE268814.008	LB319013	30 Jul 2024	30 Jul 2024	13 Aug 2024	30 Jul 2024	08 Sep 2024	02 Aug 2024

### VOC's in Soil

Method: ME-(AU)-[ENV]AN433

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
BH1	SE268814.001	LB319016	30 Jul 2024	30 Jul 2024	13 Aug 2024	30 Jul 2024	13 Aug 2024	01 Aug 2024
BH2	SE268814.002	LB319016	30 Jul 2024	30 Jul 2024	13 Aug 2024	30 Jul 2024	13 Aug 2024	01 Aug 2024
BH3	SE268814.003	LB319016	30 Jul 2024	30 Jul 2024	13 Aug 2024	30 Jul 2024	13 Aug 2024	01 Aug 2024
BH4	SE268814.004	LB319016	30 Jul 2024	30 Jul 2024	13 Aug 2024	30 Jul 2024	13 Aug 2024	01 Aug 2024
BH5	SE268814.005	LB319016	30 Jul 2024	30 Jul 2024	13 Aug 2024	30 Jul 2024	13 Aug 2024	01 Aug 2024
BH6	SE268814.006	LB319016	30 Jul 2024	30 Jul 2024	13 Aug 2024	30 Jul 2024	13 Aug 2024	01 Aug 2024
BH7	SE268814.007	LB319016	30 Jul 2024	30 Jul 2024	13 Aug 2024	30 Jul 2024	13 Aug 2024	01 Aug 2024
BH8	SE268814.008	LB319016	30 Jul 2024	30 Jul 2024	13 Aug 2024	30 Jul 2024	13 Aug 2024	01 Aug 2024

### Volatile Petroleum Hydrocarbons in Soil

Method: ME-(AU)-[ENV]AN433

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
BH1	SE268814.001	LB319016	30 Jul 2024	30 Jul 2024	13 Aug 2024	30 Jul 2024	13 Aug 2024	01 Aug 2024
BH2	SE268814.002	LB319016	30 Jul 2024	30 Jul 2024	13 Aug 2024	30 Jul 2024	13 Aug 2024	01 Aug 2024
BH3	SE268814.003	LB319016	30 Jul 2024	30 Jul 2024	13 Aug 2024	30 Jul 2024	13 Aug 2024	01 Aug 2024
BH4	SE268814.004	LB319016	30 Jul 2024	30 Jul 2024	13 Aug 2024	30 Jul 2024	13 Aug 2024	01 Aug 2024
BH5	SE268814.005	LB319016	30 Jul 2024	30 Jul 2024	13 Aug 2024	30 Jul 2024	13 Aug 2024	01 Aug 2024
BH6	SE268814.006	LB319016	30 Jul 2024	30 Jul 2024	13 Aug 2024	30 Jul 2024	13 Aug 2024	01 Aug 2024
BH7	SE268814.007	LB319016	30 Jul 2024	30 Jul 2024	13 Aug 2024	30 Jul 2024	13 Aug 2024	01 Aug 2024
BH8	SE268814.008	LB319016	30 Jul 2024	30 Jul 2024	13 Aug 2024	30 Jul 2024	13 Aug 2024	01 Aug 2024

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 identifier 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]AN420

Parameter	Sample Name	Sample Number	Units	Criteria	Recovery %
Tetrachloro-m-xylene (TCMX) (Surrogate)	BH1	SE268814.001	%	60 - 130%	102
	BH2	SE268814.002	%	60 - 130%	102
	BH3	SE268814.003	%	60 - 130%	105
	BH4	SE268814.004	%	60 - 130%	100
	BH5	SE268814.005	%	60 - 130%	101
	BH6	SE268814.006	%	60 - 130%	102
	BH7	SE268814.007	%	60 - 130%	103
	BH8	SE268814.008	%	60 - 130%	100

**OP Pesticides in Soil**

Method: ME-(AU)-[ENV]AN420

Parameter	Sample Name	Sample Number	Units	Criteria	Recovery %
2-fluorobiphenyl (Surrogate)	BH1	SE268814.001	%	60 - 130%	88
	BH2	SE268814.002	%	60 - 130%	92
	BH3	SE268814.003	%	60 - 130%	88
	BH4	SE268814.004	%	60 - 130%	90
	BH5	SE268814.005	%	60 - 130%	87
	BH6	SE268814.006	%	60 - 130%	90
	BH7	SE268814.007	%	60 - 130%	89
	BH8	SE268814.008	%	60 - 130%	91
d14-p-terphenyl (Surrogate)	BH1	SE268814.001	%	60 - 130%	95
	BH2	SE268814.002	%	60 - 130%	94
	BH3	SE268814.003	%	60 - 130%	92
	BH4	SE268814.004	%	60 - 130%	91
	BH5	SE268814.005	%	60 - 130%	95
	BH6	SE268814.006	%	60 - 130%	94
	BH7	SE268814.007	%	60 - 130%	93
	BH8	SE268814.008	%	60 - 130%	93

**PAH (Polynuclear Aromatic Hydrocarbons) in Soil**

Method: ME-(AU)-[ENV]AN420

Parameter	Sample Name	Sample Number	Units	Criteria	Recovery %
2-fluorobiphenyl (Surrogate)	BH1	SE268814.001	%	70 - 130%	88
	BH2	SE268814.002	%	70 - 130%	92
	BH3	SE268814.003	%	70 - 130%	88
	BH4	SE268814.004	%	70 - 130%	90
	BH5	SE268814.005	%	70 - 130%	87
	BH6	SE268814.006	%	70 - 130%	90
	BH7	SE268814.007	%	70 - 130%	89
	BH8	SE268814.008	%	70 - 130%	91
d14-p-terphenyl (Surrogate)	BH1	SE268814.001	%	70 - 130%	95
	BH2	SE268814.002	%	70 - 130%	94
	BH3	SE268814.003	%	70 - 130%	92
	BH4	SE268814.004	%	70 - 130%	91
	BH5	SE268814.005	%	70 - 130%	95
	BH6	SE268814.006	%	70 - 130%	94
	BH7	SE268814.007	%	70 - 130%	93
	BH8	SE268814.008	%	70 - 130%	93
d5-nitrobenzene (Surrogate)	BH1	SE268814.001	%	70 - 130%	96
	BH2	SE268814.002	%	70 - 130%	98
	BH3	SE268814.003	%	70 - 130%	94
	BH4	SE268814.004	%	70 - 130%	94
	BH5	SE268814.005	%	70 - 130%	94
	BH6	SE268814.006	%	70 - 130%	95
	BH7	SE268814.007	%	70 - 130%	96
	BH8	SE268814.008	%	70 - 130%	95

**PCBs in Soil**

Method: ME-(AU)-[ENV]AN420

Parameter	Sample Name	Sample Number	Units	Criteria	Recovery %
TCMX (Surrogate)	BH1	SE268814.001	%	60 - 130%	108
	BH2	SE268814.002	%	60 - 130%	107
	BH3	SE268814.003	%	60 - 130%	111
	BH4	SE268814.004	%	60 - 130%	106
	BH5	SE268814.005	%	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 identifier 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]AN420

Parameter	Sample Name	Sample Number	Units	Criteria	Recovery %
TCMX (Surrogate)	BH6	SE268814.006	%	60 - 130%	107
	BH7	SE268814.007	%	60 - 130%	108
	BH8	SE268814.008	%	60 - 130%	105

VOC's in Soil

Method: ME-(AU)-[ENV]AN433

Parameter	Sample Name	Sample Number	Units	Criteria	Recovery %
Bromofluorobenzene (Surrogate)	BH1	SE268814.001	%	60 - 130%	78
	BH2	SE268814.002	%	60 - 130%	90
	BH3	SE268814.003	%	60 - 130%	80
	BH4	SE268814.004	%	60 - 130%	85
	BH5	SE268814.005	%	60 - 130%	94
	BH6	SE268814.006	%	60 - 130%	95
	BH7	SE268814.007	%	60 - 130%	91
	BH8	SE268814.008	%	60 - 130%	88
d4-1,2-dichloroethane (Surrogate)	BH1	SE268814.001	%	60 - 130%	85
	BH2	SE268814.002	%	60 - 130%	95
	BH3	SE268814.003	%	60 - 130%	79
	BH4	SE268814.004	%	60 - 130%	91
	BH5	SE268814.005	%	60 - 130%	93
	BH6	SE268814.006	%	60 - 130%	99
	BH7	SE268814.007	%	60 - 130%	103
	BH8	SE268814.008	%	60 - 130%	97
d8-toluene (Surrogate)	BH1	SE268814.001	%	60 - 130%	85
	BH2	SE268814.002	%	60 - 130%	94
	BH3	SE268814.003	%	60 - 130%	80
	BH4	SE268814.004	%	60 - 130%	91
	BH5	SE268814.005	%	60 - 130%	94
	BH6	SE268814.006	%	60 - 130%	99
	BH7	SE268814.007	%	60 - 130%	99
	BH8	SE268814.008	%	60 - 130%	94

Volatile Petroleum Hydrocarbons in Soil

Method: ME-(AU)-[ENV]AN433

Parameter	Sample Name	Sample Number	Units	Criteria	Recovery %
Bromofluorobenzene (Surrogate)	BH1	SE268814.001	%	60 - 130%	78
	BH2	SE268814.002	%	60 - 130%	90
	BH3	SE268814.003	%	60 - 130%	80
	BH4	SE268814.004	%	60 - 130%	85
	BH5	SE268814.005	%	60 - 130%	94
	BH6	SE268814.006	%	60 - 130%	95
	BH7	SE268814.007	%	60 - 130%	91
	BH8	SE268814.008	%	60 - 130%	88
d4-1,2-dichloroethane (Surrogate)	BH1	SE268814.001	%	60 - 130%	85
	BH2	SE268814.002	%	60 - 130%	95
	BH3	SE268814.003	%	60 - 130%	79
	BH4	SE268814.004	%	60 - 130%	91
	BH5	SE268814.005	%	60 - 130%	93
	BH6	SE268814.006	%	60 - 130%	99
	BH7	SE268814.007	%	60 - 130%	103
	BH8	SE268814.008	%	60 - 130%	97
d8-toluene (Surrogate)	BH1	SE268814.001	%	60 - 130%	85
	BH2	SE268814.002	%	60 - 130%	94
	BH3	SE268814.003	%	60 - 130%	80
	BH4	SE268814.004	%	60 - 130%	91
	BH5	SE268814.005	%	60 - 130%	94
	BH6	SE268814.006	%	60 - 130%	99
	BH7	SE268814.007	%	60 - 130%	99
	BH8	SE268814.008	%	60 - 130%	94



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)-ENVJAN312

Sample Number	Parameter	Units	LOR	Result
LB319012.001	Mercury	mg/kg	0.05	<0.05

OC Pesticides in Soil

Method: ME-(AU)-ENVJAN420

Sample Number	Parameter	Units	LOR	Result
LB319013.001	Alpha BHC	mg/kg	0.1	<0.1
	Hexachlorobenzene (HCB)	mg/kg	0.1	<0.1
	Beta BHC	mg/kg	0.1	<0.1
	Lindane (gamma BHC)	mg/kg	0.1	<0.1
	Delta BHC	mg/kg	0.1	<0.1
	Heptachlor	mg/kg	0.1	<0.1
	Aldrin	mg/kg	0.1	<0.1
	Isodrin	mg/kg	0.1	<0.1
	Heptachlor epoxide	mg/kg	0.1	<0.1
	Gamma Chlordane	mg/kg	0.1	<0.1
	Alpha Chlordane	mg/kg	0.1	<0.1
	Alpha Endosulfan	mg/kg	0.2	<0.2
	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
	Endrin aldehyde	mg/kg	0.1	<0.1
	Endosulfan sulphate	mg/kg	0.1	<0.1
	p,p'-DDT	mg/kg	0.1	<0.1
Endrin ketone	mg/kg	0.1	<0.1	
Methoxychlor	mg/kg	0.1	<0.1	
Mirex	mg/kg	0.1	<0.1	
Surrogates	Tetrachloro-m-xylene (TCMX) (Surrogate)	%	-	107

OP Pesticides in Soil

Method: ME-(AU)-ENVJAN420

Sample Number	Parameter	Units	LOR	Result	
LB319013.001	Azinphos-methyl (Guthion)	mg/kg	0.2	<0.2	
	Bromophos Ethyl	mg/kg	0.2	<0.2	
	Chlorpyrifos (Chlorpyrifos Ethyl)	mg/kg	0.2	<0.2	
	Diazinon (Dimpylate)	mg/kg	0.5	<0.5	
	Dichlorvos	mg/kg	0.5	<0.5	
	Dimethoate	mg/kg	0.5	<0.5	
	Ethion	mg/kg	0.2	<0.2	
	Fenitrothion	mg/kg	0.2	<0.2	
	Malathion	mg/kg	0.2	<0.2	
	Methodathion	mg/kg	0.5	<0.5	
	Parathion-ethyl (Parathion)	mg/kg	0.2	<0.2	
	Surrogates	2-fluorobiphenyl (Surrogate)	%	-	95
		d14-p-terphenyl (Surrogate)	%	-	99

PAH (Polynuclear Aromatic Hydrocarbons) in Soil

Method: ME-(AU)-ENVJAN420

Sample Number	Parameter	Units	LOR	Result
LB319013.001	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
LB319013.001	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)	%	-	101
	2-fluorobiphenyl (Surrogate)	%	-	95
	d14-p-terphenyl (Surrogate)	%	-	99

**PCBs in Soil**

Method: ME-(AU)-[ENV]AN420

Sample Number	Parameter	Units	LOR	Result
LB319013.001	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	TCMX (Surrogate)	%	-	112

**Total Recoverable Elements in Soil/Waste Solids/Materials by ICPOES**

Method: ME-(AU)-[ENV]AN040/AN320

Sample Number	Parameter	Units	LOR	Result
LB319011.001	Arsenic, As	mg/kg	1	<1
	Cadmium, Cd	mg/kg	0.3	<0.3
	Chromium, Cr	mg/kg	0.5	<0.5
	Copper, Cu	mg/kg	0.5	<0.5
	Nickel, Ni	mg/kg	0.5	<0.5
	Lead, Pb	mg/kg	1	<1
	Zinc, Zn	mg/kg	2	<2.0

**TRH (Total Recoverable Hydrocarbons) in Soil**

Method: ME-(AU)-[ENV]AN403

Sample Number	Parameter	Units	LOR	Result
LB319013.001	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	
LB319016.001	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 (VOC)*	mg/kg	0.1	<0.1
	Surrogates	d4-1,2-dichloroethane (Surrogate)	%	-	96
		d8-toluene (Surrogate)	%	-	99
		Bromofluorobenzene (Surrogate)	%	-	96
	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
LB319016.001	TRH C6-C9	mg/kg	20	<20
	Surrogates	d4-1,2-dichloroethane (Surrogate)	%	96

Duplicates are calculated as Relative Percentage Difference (RPD) using the formula:  $RPD = |OriginalResult - ReplicateResult| \times 100 / Mean$

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:  $MAD = 100 \times SDL / Mean + LR$

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 identifier when outside suggested criteria. Refer to the footnotes section at the end of this report for failure reasons.

NOTE: The RPD reported is calculated from the unrounded data for the original and replicate result. Manual calculation of the RPD from the rounded data reported may

Mercury in Soil

Method: ME-(AU)-[ENV]AN312

Original	Duplicate	Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE268775.002	LB319012.014	Mercury	mg/kg	0.05	<0.05	<0.05	200	0
SE268814.008	LB319012.023	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 %
SE268775.001	LB319017.011	% Moisture	%w/w	1	11.2	11.8	39	5
SE268814.008	LB319017.021	% Moisture	%w/w	1	17.7	17.7	36	0

OC Pesticides in Soil

Method: ME-(AU)-[ENV]AN420

Original	Duplicate	Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %	
SE268814.008	LB319013.023	Alpha BHC	mg/kg	0.1	<0.1	<0.1	200	0	
		Hexachlorobenzene (HCB)	mg/kg	0.1	<0.1	<0.1	200	0	
		Beta BHC	mg/kg	0.1	<0.1	<0.1	200	0	
		Lindane (gamma BHC)	mg/kg	0.1	<0.1	<0.1	200	0	
		Delta BHC	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	
		Isodrin	mg/kg	0.1	<0.1	<0.1	200	0	
		Heptachlor epoxide	mg/kg	0.1	<0.1	<0.1	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	
		Alpha Endosulfan	mg/kg	0.2	<0.2	<0.2	200	0	
		o,p'-DDE*	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	
		Beta Endosulfan	mg/kg	0.2	<0.2	<0.2	200	0	
		o,p'-DDD*	mg/kg	0.1	<0.1	<0.1	200	0	
		p,p'-DDD	mg/kg	0.1	<0.1	<0.1	200	0	
		Endrin aldehyde	mg/kg	0.1	<0.1	<0.1	200	0	
		Endosulfan sulphate	mg/kg	0.1	<0.1	<0.1	200	0	
		o,p'-DDT*	mg/kg	0.1	<0.1	<0.1	200	0	
		p,p'-DDT	mg/kg	0.1	<0.1	<0.1	200	0	
		Endrin ketone	mg/kg	0.1	<0.1	<0.1	200	0	
		Methoxychlor	mg/kg	0.1	<0.1	<0.1	200	0	
		Mirex	mg/kg	0.1	<0.1	<0.1	200	0	
		trans-Nonachlor	mg/kg	0.1	<0.1	<0.1	200	0	
		Total CLP OC Pesticides	mg/kg	1	<1	<1	200	0	
		Total OC VIC EPA	mg/kg	1	<1	<1	200	0	
		Surrogates	Tetrachloro-m-xylene (TCMX) (Surrogate)	mg/kg	-	0.15	0.15	30	1

OP Pesticides in Soil

Method: ME-(AU)-[ENV]AN420

Original	Duplicate	Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %	
SE268814.008	LB319013.023	Azinphos-methyl (Guthion)	mg/kg	0.2	<0.2	<0.2	200	0	
		Bromophos Ethyl	mg/kg	0.2	<0.2	<0.2	200	0	
		Chlorpyrifos (Chlorpyrifos Ethyl)	mg/kg	0.2	<0.2	<0.2	200	0	
		Diazinon (Dimpylate)	mg/kg	0.5	<0.5	<0.5	200	0	
		Dichlorvos	mg/kg	0.5	<0.5	<0.5	200	0	
		Dimethoate	mg/kg	0.5	<0.5	<0.5	200	0	
		Ethion	mg/kg	0.2	<0.2	<0.2	200	0	
		Fenitrothion	mg/kg	0.2	<0.2	<0.2	200	0	
		Malathion	mg/kg	0.2	<0.2	<0.2	200	0	
		Methidathion	mg/kg	0.5	<0.5	<0.5	200	0	
		Parathion-ethyl (Parathion)	mg/kg	0.2	<0.2	<0.2	200	0	
		Total OP Pesticides*	mg/kg	1.7	<1.7	<1.7	200	0	
		Surrogates	2-fluorobiphenyl (Surrogate)	mg/kg	-	0.5	0.5	30	4
			d14-p-terphenyl (Surrogate)	mg/kg	-	0.5	0.5	30	6

PAH (Polynuclear Aromatic Hydrocarbons) in Soil

Method: ME-(AU)-[ENV]AN420

Original	Duplicate	Parameter	Units	LOR
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Duplicates are calculated as Relative Percentage Difference (RPD) using the formula:  $RPD = |OriginalResult - ReplicateResult| \times 100 / Mean$

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:  $MAD = 100 \times SDL / Mean + LR$

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 identifier when outside suggested criteria. Refer to the footnotes section at the end of this report for failure reasons.

NOTE: The RPD reported is calculated from the unrounded data for the original and replicate result. Manual calculation of the RPD from the rounded data reported may

PAH (Polynuclear Aromatic Hydrocarbons) in Soil (continued)

Method: ME-(AU)-ENVJAN420

Original	Duplicate	Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE268775.002	LB319013.014	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	129	39
		Anthracene	mg/kg	0.1	<0.1	<0.1	200	0
		Fluoranthene	mg/kg	0.1	0.1	<0.1	144	20
		Pyrene	mg/kg	0.1	0.2	<0.1	93	76
		Benzo(a)anthracene	mg/kg	0.1	<0.1	<0.1	200	0
		Chrysene	mg/kg	0.1	<0.1	<0.1	170	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*	mg/kg	0.2	<0.2	<0.2	200	0
		Carcinogenic PAHs, BaP TEQ <LOR=LOR/2*	mg/kg	0.2	<0.2	<0.2	175	0
		Carcinogenic PAHs, BaP TEQ <LOR=LOR*	mg/kg	0.3	<0.3	<0.3	134	0
		Total PAH (18)	mg/kg	0.8	<0.8	<0.8	71	133
		Surrogates		d5-nitrobenzene (Surrogate)	mg/kg	-	0.4	0.4
2-fluorobiphenyl (Surrogate)	mg/kg			-	0.4	0.4	30	1
d14-p-terphenyl (Surrogate)	mg/kg			-	0.4	0.4	30	2
SE268814.008	LB319013.023	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*	mg/kg	0.2	<0.2	<0.2	200	0
		Carcinogenic PAHs, BaP TEQ <LOR=LOR/2*	mg/kg	0.2	<0.2	<0.2	175	0
		Carcinogenic PAHs, BaP TEQ <LOR=LOR*	mg/kg	0.3	<0.3	<0.3	134	0
		Total PAH (18)	mg/kg	0.8	<0.8	<0.8	200	0
		Surrogates		d5-nitrobenzene (Surrogate)	mg/kg	-	0.5	0.5
2-fluorobiphenyl (Surrogate)	mg/kg			-	0.5	0.5	30	4
d14-p-terphenyl (Surrogate)	mg/kg			-	0.5	0.5	30	6

PCBs in Soil

Method: ME-(AU)-ENVJAN420

Original	Duplicate	Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE268814.008	LB319013.023	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

Duplicates are calculated as Relative Percentage Difference (RPD) using the formula:  $RPD = |OriginalResult - ReplicateResult| \times 100 / Mean$

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:  $MAD = 100 \times SDL / Mean + LR$

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 identifier when outside suggested criteria. Refer to the footnotes section at the end of this report for failure reasons.

NOTE: The RPD reported is calculated from the unrounded data for the original and replicate result. Manual calculation of the RPD from the rounded data reported may

PCBs in Soil (continued)

Method: ME-(AU)-[ENV]JAN420

Original	Duplicate	Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE268814.008	LB319013.023	Arochlor 1268	mg/kg	0.2	<0.2	<0.2	200	0
		Total PCBs (Arochlors)	mg/kg	1	<1	<1	200	0
		Surrogates	mg/kg	-	0	0	30	1

Total Recoverable Elements in Soil/Waste Solids/Materials by ICPOES

Method: ME-(AU)-[ENV]JAN040/AN320

Original	Duplicate	Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE268775.002	LB319011.014	Arsenic, As	mg/kg	1	2	2	88	14
		Cadmium, Cd	mg/kg	0.3	<0.3	<0.3	200	0
		Chromium, Cr	mg/kg	0.5	12	10	34	16
		Copper, Cu	mg/kg	0.5	4.5	5.0	40	11
		Nickel, Ni	mg/kg	0.5	5.5	4.7	40	14
		Lead, Pb	mg/kg	1	6	6	47	7
		Zinc, Zn	mg/kg	2	14	20	42	41
SE268814.008	LB319011.023	Arsenic, As	mg/kg	1	3	3	65	13
		Cadmium, Cd	mg/kg	0.3	<0.3	<0.3	200	0
		Chromium, Cr	mg/kg	0.5	7.7	7.0	37	10
		Copper, Cu	mg/kg	0.5	10	6.2	36	49 @
		Nickel, Ni	mg/kg	0.5	5.8	4.0	40	37
		Lead, Pb	mg/kg	1	24	17	35	37 @
		Zinc, Zn	mg/kg	2	29	22	38	26

TRH (Total Recoverable Hydrocarbons) in Soil

Method: ME-(AU)-[ENV]JAN403

Original	Duplicate	Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE268775.002	LB319013.014	TRH C10-C14	mg/kg	20	60	61	63	1
		TRH C15-C28	mg/kg	45	<45	<45	177	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 (F bands)	mg/kg	210	<210	<210	200	0
		TRH F Bands						
		TRH >C10-C16	mg/kg	25	61	61	71	1
		TRH >C10-C16 - Naphthalene (F2)	mg/kg	25	61	61	71	1
		TRH >C16-C34 (F3)	mg/kg	90	<90	<90	200	0
		TRH >C34-C40 (F4)	mg/kg	120	<120	<120	200	0
SE268814.008	LB319013.023	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 (F bands)	mg/kg	210	<210	<210	200	0
		TRH F Bands						
		TRH >C10-C16	mg/kg	25	<25	<25	200	0
		TRH >C10-C16 - Naphthalene (F2)	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]JAN433

Original	Duplicate	Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %	
SE268814.001	LB319016.014	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 (VOC)*	mg/kg	0.1	<0.1	<0.1	200	0
		Surrogates	d4-1,2-dichloroethane (Surrogate)	mg/kg	-	8.5	9.8	50	14
			d8-toluene (Surrogate)	mg/kg	-	8.5	9.7	50	13
			Bromofluorobenzene (Surrogate)	mg/kg	-	7.8	9.1	50	16
		Totals	Total BTEX*	mg/kg	0.6	<0.6	<0.6	200	0
			Total Xylenes*	mg/kg	0.3	<0.3	<0.3	200	0
SE268814.008	LB319016.022	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

Duplicates are calculated as Relative Percentage Difference (RPD) using the formula:  $RPD = |OriginalResult - ReplicateResult| \times 100 / Mean$

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:  $MAD = 100 \times SDL / Mean + LR$

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 identifier when outside suggested criteria. Refer to the footnotes section at the end of this report for failure reasons.

NOTE: The RPD reported is calculated from the unrounded data for the original and replicate result. Manual calculation of the RPD from the rounded data reported may

VOC's in Soil (continued)

Method: ME-(AU)-[ENV]AN433

Original	Duplicate	Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %	
SE268814.008	LB319016.022	Polycyclic	Naphthalene (VOC)*	mg/kg	0.1	<0.1	<0.1	200	0
		Surrogates	d4-1,2-dichloroethane (Surrogate)	mg/kg	-	9.7	10.5	50	8
			d8-toluene (Surrogate)	mg/kg	-	9.4	10.3	50	10
			Bromofluorobenzene (Surrogate)	mg/kg	-	8.8	9.4	50	7
		Totals	Total BTEX*	mg/kg	0.6	<0.6	<0.6	200	0
			Total Xylenes*	mg/kg	0.3	<0.3	<0.3	200	0

Volatile Petroleum Hydrocarbons in Soil

Method: ME-(AU)-[ENV]AN433

Original	Duplicate	Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %	
SE268814.001	LB319016.014	TRH C6-C10	TRH C6-C10	mg/kg	25	<25	<25	200	0
			TRH C6-C9	mg/kg	20	<20	<20	200	0
		Surrogates	d4-1,2-dichloroethane (Surrogate)	mg/kg	-	8.5	9.8	50	14
			d8-toluene (Surrogate)	mg/kg	-	8.5	9.7	50	13
			Bromofluorobenzene (Surrogate)	mg/kg	-	7.8	9.1	50	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		
SE268814.008	LB319016.022	TRH C6-C10	TRH C6-C10	mg/kg	25	<25	<25	200	0
			TRH C6-C9	mg/kg	20	<20	<20	200	0
		Surrogates	d4-1,2-dichloroethane (Surrogate)	mg/kg	-	9.7	10.5	50	8
			d8-toluene (Surrogate)	mg/kg	-	9.4	10.3	50	10
			Bromofluorobenzene (Surrogate)	mg/kg	-	8.8	9.4	50	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	<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 %
LB319012.002	Mercury	mg/kg	0.05	0.22	0.2	80 - 120	110

**OC Pesticides in Soil**

Method: ME-(AU)-[ENV]AN420

Sample Number	Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB319013.002	Delta BHC	mg/kg	0.1	0.2	0.2	60 - 140	81
	Heptachlor	mg/kg	0.1	0.2	0.2	60 - 140	82
	Aldrin	mg/kg	0.1	0.2	0.2	60 - 140	80
	Dieldrin	mg/kg	0.2	<0.2	0.2	60 - 140	74
	Endrin	mg/kg	0.2	<0.2	0.2	60 - 140	83
	p,p'-DDT	mg/kg	0.1	0.2	0.2	60 - 140	99
Surrogates	Tetrachloro-m-xylene (TCMX) (Surrogate)	mg/kg	-	0.15	0.15	40 - 130	102

**OP Pesticides in Soil**

Method: ME-(AU)-[ENV]AN420

Sample Number	Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %	
LB319013.002	Chlorpyrifos (Chlorpyrifos Ethyl)	mg/kg	0.2	1.8	2	60 - 140	92	
	Diazinon (Dimpylate)	mg/kg	0.5	1.7	2	60 - 140	87	
	Dichlorvos	mg/kg	0.5	1.3	2	60 - 140	67	
	Ethion	mg/kg	0.2	1.6	2	60 - 140	78	
	Surrogates	2-fluorobiphenyl (Surrogate)	mg/kg	-	0.5	0.5	40 - 130	95
		d14-p-terphenyl (Surrogate)	mg/kg	-	0.5	0.5	40 - 130	97

**PAH (Polynuclear Aromatic Hydrocarbons) in Soil**

Method: ME-(AU)-[ENV]AN420

Sample Number	Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %	
LB319013.002	Naphthalene	mg/kg	0.1	4.0	4	60 - 140	100	
	Acenaphthylene	mg/kg	0.1	4.1	4	60 - 140	102	
	Acenaphthene	mg/kg	0.1	4.1	4	60 - 140	102	
	Phenanthrene	mg/kg	0.1	4.3	4	60 - 140	106	
	Anthracene	mg/kg	0.1	4.2	4	60 - 140	105	
	Fluoranthene	mg/kg	0.1	4.0	4	60 - 140	99	
	Pyrene	mg/kg	0.1	4.6	4	60 - 140	115	
	Benzo(a)pyrene	mg/kg	0.1	4.6	4	60 - 140	116	
	Surrogates	d5-nitrobenzene (Surrogate)	mg/kg	-	0.5	0.5	40 - 130	94
		2-fluorobiphenyl (Surrogate)	mg/kg	-	0.5	0.5	40 - 130	95
		d14-p-terphenyl (Surrogate)	mg/kg	-	0.5	0.5	40 - 130	97

**PCBs in Soil**

Method: ME-(AU)-[ENV]AN420

Sample Number	Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB319013.002	Arochlor 1260	mg/kg	0.2	0.5	0.4	60 - 140	129

**Total Recoverable Elements in Soil/Waste Solids/Materials by ICPOES**

Method: ME-(AU)-[ENV]AN040/AN320

Sample Number	Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB319011.002	Arsenic, As	mg/kg	1	320	318.22	80 - 120	101
	Cadmium, Cd	mg/kg	0.3	5.0	4.81	70 - 130	103
	Chromium, Cr	mg/kg	0.5	39	38.31	80 - 120	102
	Copper, Cu	mg/kg	0.5	280	290	80 - 120	98
	Nickel, Ni	mg/kg	0.5	180	187	80 - 120	96
	Lead, Pb	mg/kg	1	93	89.9	80 - 120	104
	Zinc, Zn	mg/kg	2	270	273	80 - 120	99

**TRH (Total Recoverable Hydrocarbons) in Soil**

Method: ME-(AU)-[ENV]AN403

Sample Number	Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %	
LB319013.002	TRH C10-C14	mg/kg	20	38	40	60 - 140	94	
	TRH C15-C28	mg/kg	45	45	40	60 - 140	113	
	TRH C29-C36	mg/kg	45	<45	40	60 - 140	96	
	TRH F Bands	TRH >C10-C16	mg/kg	25	41	40	60 - 140	102
		TRH >C16-C34 (F3)	mg/kg	90	<90	40	60 - 140	114
		TRH >C34-C40 (F4)	mg/kg	120	<120	20	60 - 140	87

**VOC's in Soil**

Method: ME-(AU)-[ENV]AN433

Sample Number	Parameter	Units	LOR
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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 %	
LB319016.002	Monocyclic	Benzene	mg/kg	0.1	3.8	5	60 - 140	76
	Aromatic	Toluene	mg/kg	0.1	4.2	5	60 - 140	85
		Ethylbenzene	mg/kg	0.1	4.1	5	60 - 140	81
		m/p-xylene	mg/kg	0.2	8.1	10	60 - 140	81
		o-xylene	mg/kg	0.1	4.1	5	60 - 140	82
	Surrogates	d4-1,2-dichloroethane (Surrogate)	mg/kg	-	9.2	10	70 - 130	92
		d8-toluene (Surrogate)	mg/kg	-	9.3	10	70 - 130	93
		Bromofluorobenzene (Surrogate)	mg/kg	-	9.8	10	70 - 130	98

Volatile Petroleum Hydrocarbons in Soil

Method: ME-(AU)-[ENV]AN433

Sample Number	Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %	
LB319016.002	TRH C6-C10	mg/kg	25	71	92.5	60 - 140	77	
	TRH C6-C9	mg/kg	20	64	80	60 - 140	80	
	Surrogates	d4-1,2-dichloroethane (Surrogate)	mg/kg	-	9.2	10	70 - 130	92
		Bromofluorobenzene (Surrogate)	mg/kg	-	9.8	10	70 - 130	98
	VPH F Bands	TRH C6-C10 minus BTEX (F1)	mg/kg	25	47	62.5	60 - 140	75



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 identifier 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%
SE268701.001	LB319012.004	Mercury	mg/kg	0.05	0.23	<0.05	0.2	104

OC Pesticides in Soil

Method: ME-(AU)-[ENV]AN420

QC Sample	Sample Number	Parameter	Units	LOR	Result	Original	Spike	Recovery%
SE268701.001	LB319013.004	Alpha BHC	mg/kg	0.1	<0.1	<0.1	-	-
		Hexachlorobenzene (HCB)	mg/kg	0.1	<0.1	<0.1	-	-
		Beta BHC	mg/kg	0.1	<0.1	<0.1	-	-
		Lindane (gamma BHC)	mg/kg	0.1	<0.1	<0.1	-	-
		Delta BHC	mg/kg	0.1	0.2	<0.1	0.2	84
		Heptachlor	mg/kg	0.1	0.2	<0.1	0.2	83
		Aldrin	mg/kg	0.1	0.2	<0.1	0.2	82
		Isodrin	mg/kg	0.1	<0.1	<0.1	-	-
		Heptachlor epoxide	mg/kg	0.1	<0.1	<0.1	-	-
		Gamma Chlordane	mg/kg	0.1	<0.1	<0.1	-	-
		Alpha Chlordane	mg/kg	0.1	<0.1	<0.1	-	-
		Alpha Endosulfan	mg/kg	0.2	<0.2	<0.2	-	-
		o,p'-DDE*	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	76
		Endrin	mg/kg	0.2	<0.2	<0.2	0.2	85
		Beta Endosulfan	mg/kg	0.2	<0.2	<0.2	-	-
		o,p'-DDD*	mg/kg	0.1	<0.1	<0.1	-	-
		p,p'-DDD	mg/kg	0.1	<0.1	<0.1	-	-
		Endrin aldehyde	mg/kg	0.1	<0.1	<0.1	-	-
		Endosulfan sulphate	mg/kg	0.1	<0.1	<0.1	-	-
		o,p'-DDT*	mg/kg	0.1	<0.1	<0.1	-	-
		p,p'-DDT	mg/kg	0.1	0.2	<0.1	0.2	102
		Endrin ketone	mg/kg	0.1	<0.1	<0.1	-	-
		Methoxychlor	mg/kg	0.1	<0.1	<0.1	-	-
		Mirex	mg/kg	0.1	<0.1	<0.1	-	-
		trans-Nonachlor	mg/kg	0.1	<0.1	<0.1	-	-
		Total CLP OC Pesticides	mg/kg	1	1	<1	-	-
		Total OC VIC EPA	mg/kg	1	1	<1	-	-
	Surrogates	Tetrachloro-m-xylene (TCMX) (Surrogate)	mg/kg	-	0.16	0.17	-	108

OP Pesticides in Soil

Method: ME-(AU)-[ENV]AN420

QC Sample	Sample Number	Parameter	Units	LOR	Result	Original	Spike	Recovery%
SE268701.001	LB319013.004	Azinphos-methyl (Guthion)	mg/kg	0.2	<0.2	<0.2	-	-
		Bromophos Ethyl	mg/kg	0.2	<0.2	<0.2	-	-
		Chlorpyrifos (Chlorpyrifos Ethyl)	mg/kg	0.2	1.9	<0.2	2	95
		Diazinon (Dimpylate)	mg/kg	0.5	1.8	<0.5	2	91
		Dichlorvos	mg/kg	0.5	1.3	<0.5	2	66
		Dimethoate	mg/kg	0.5	<0.5	<0.5	-	-
		Ethion	mg/kg	0.2	1.7	<0.2	2	87
		Fenitrothion	mg/kg	0.2	<0.2	<0.2	-	-
		Malathion	mg/kg	0.2	<0.2	<0.2	-	-
		Methidathion	mg/kg	0.5	<0.5	<0.5	-	-
		Parathion-ethyl (Parathion)	mg/kg	0.2	<0.2	<0.2	-	-
		Total OP Pesticides*	mg/kg	1.7	6.8	<1.7	-	-
	Surrogates	2-fluorobiphenyl (Surrogate)	mg/kg	-	0.5	0.5	-	91
		d14-p-terphenyl (Surrogate)	mg/kg	-	0.5	0.5	-	94

PAH (Polynuclear Aromatic Hydrocarbons) in Soil

Method: ME-(AU)-[ENV]AN420

QC Sample	Sample Number	Parameter	Units	LOR	Result	Original	Spike	Recovery%
SE268701.001	LB319013.004	Naphthalene	mg/kg	0.1	4.0	<0.1	4	99
		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	4.0	<0.1	4	100
		Acenaphthene	mg/kg	0.1	4.0	<0.1	4	100
		Fluorene	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 identifier 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%	
SE268701.001	LB319013.004	Phenanthrene	mg/kg	0.1	4.1	<0.1	4	103	
		Anthracene	mg/kg	0.1	4.0	<0.1	4	99	
		Fluoranthene	mg/kg	0.1	4.0	<0.1	4	99	
		Pyrene	mg/kg	0.1	4.5	<0.1	4	110	
		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	4.7	<0.1	4	116	
		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 (mg/kg)	0.2	4.7	<0.2	-	-	
		Carcinogenic PAHs, BaP TEQ <LOR=LOR/2*	TEQ (mg/kg)	0.2	4.7	<0.2	-	-	
		Carcinogenic PAHs, BaP TEQ <LOR=LOR*	TEQ (mg/kg)	0.3	4.8	<0.3	-	-	
		Total PAH (18)	mg/kg	0.8	33	<0.8	-	-	
		Surrogates	d5-nitrobenzene (Surrogate)	mg/kg	-	0.5	0.5	-	92
		2-fluorobiphenyl (Surrogate)	mg/kg	-	0.5	0.5	-	91	
d14-p-terphenyl (Surrogate)	mg/kg	-	0.5	0.5	-	94			

PCBs in Soil

Method: ME-(AU)-[ENV]AN420

QC Sample	Sample Number	Parameter	Units	LOR	Result	Original	Spike	Recovery%
SE268701.001	LB319013.004	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	0.5	<0.2	0.4	133
		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	TCMX (Surrogate)	mg/kg	-	0	0	-	113	

Total Recoverable Elements in Soil/Waste Solids/Materials by ICPOES

Method: ME-(AU)-[ENV]AN040/AN320

QC Sample	Sample Number	Parameter	Units	LOR	Result	Original	Spike	Recovery%
SE268701.001	LB319011.004	Arsenic, As	mg/kg	1	57	4	50	107
		Cadmium, Cd	mg/kg	0.3	46	<0.3	50	92
		Chromium, Cr	mg/kg	0.5	63	24	50	79
		Copper, Cu	mg/kg	0.5	60	7.9	50	105
		Nickel, Ni	mg/kg	0.5	55	6.6	50	96
		Lead, Pb	mg/kg	1	100	98	50	12 @
		Zinc, Zn	mg/kg	2	100	62	50	79

TRH (Total Recoverable Hydrocarbons) in Soil

Method: ME-(AU)-[ENV]AN403

QC Sample	Sample Number	Parameter	Units	LOR	Result	Original	Spike	Recovery%	
SE268701.001	LB319013.004	TRH C10-C14	mg/kg	20	52	<20	40	125	
		TRH C15-C28	mg/kg	45	52	<45	40	116	
		TRH C29-C36	mg/kg	45	<45	<45	40	75	
		TRH C37-C40	mg/kg	100	<100	<100	-	-	
		TRH C10-C36 Total	mg/kg	110	<110	<110	-	-	
		TRH >C10-C40 Total (F bands)	mg/kg	210	<210	<210	-	-	
		TRH F	TRH >C10-C16	mg/kg	25	53	<25	40	126
		Bands	TRH >C10-C16 - Naphthalene (F2)	mg/kg	25	53	<25	-	-
		TRH >C16-C34 (F3)	mg/kg	90	<90	<90	40	86	
		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%	
SE268701.001	LB319016.004	Monocyclic	Benzene	mg/kg	0.1	3.6	<0.1	5	71
		Aromatic	Toluene	mg/kg	0.1	4.1	<0.1	5	82
		Ethylbenzene	mg/kg	0.1	4.0	<0.1	5	79	
		m/p-xylene	mg/kg	0.2	8.0	<0.2	10	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.

Recovery is shown in **Green** when within suggested criteria or **Red** with an appended reason identifier 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%	
SE268701.001	LB319016.004	Monocyclic	o-xylene	mg/kg	0.1	4.0	<0.1	5	80
		Polycyclic	Naphthalene (VOC)*	mg/kg	0.1	<0.1	<0.1	-	-
		Surrogates	d4-1,2-dichloroethane (Surrogate)	mg/kg	-	7.5	7.6	10	75
			d8-toluene (Surrogate)	mg/kg	-	7.4	7.3	10	74
			Bromofluorobenzene (Surrogate)	mg/kg	-	8.3	8.0	10	83
		Totals	Total BTEX*	mg/kg	0.6	24	<0.6	-	-
			Total Xylenes*	mg/kg	0.3	12	<0.3	-	-

Volatile Petroleum Hydrocarbons in Soil

Method: ME-(AU)-[ENV]AN433

QC Sample	Sample Number	Parameter	Units	LOR	Result	Original	Spike	Recovery%	
SE268701.001	LB319016.004	TRH C6-C10	mg/kg	25	83	<25	92.5	89	
		TRH C6-C9	mg/kg	20	74	<20	80	93	
		Surrogates	d4-1,2-dichloroethane (Surrogate)	mg/kg	-	7.5	7.6	10	75
			d8-toluene (Surrogate)	mg/kg	-	7.4	7.3	10	74
			Bromofluorobenzene (Surrogate)	mg/kg	-	8.3	8.0	-	83
		VPH F	Benzene (F0)	mg/kg	0.1	3.6	<0.1	-	-
		Bands	TRH C6-C10 minus BTEX (F1)	mg/kg	25	59	<25	62.5	94

Matrix spike duplicates are calculated as Relative Percent Difference (RPD) using the formula:  $RPD = | \text{OriginalResult} - \text{ReplicateResult} | \times 100 / \text{Mean}$

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:  $MAD = 100 \times \text{SDL} / \text{Mean} + \text{LR}$

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 identifier when outside suggested criteria. Refer to the footnotes section at the

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: [https://www.sgs.com.au/~media/Local/Australia/Documents/Technical Documents/MP-AU-ENV-QU-022\\_QA\\_QC\\_Plan.pdf](https://www.sgs.com.au/~media/Local/Australia/Documents/Technical Documents/MP-AU-ENV-QU-022_QA_QC_Plan.pdf)

- \* NATA accreditation does not cover the performance of this service.
- \*\* Indicative data, theoretical holding time exceeded.
- \*\*\* Indicates that both \* and \*\* apply.
- 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 relevant report comments for further information.

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### CLIENT DETAILS

Contact Admin  
 Client NEO CONSULTING PTY LTD  
 Address PO BOX 279  
 RIVERSTONE NSW 2765

Telephone 0416 680 375  
 Facsimile (Not specified)  
 Email admin@neoconsulting.com.au

Project **N09301**  
 Order Number **N09301**  
 Samples 8

### LABORATORY DETAILS

Manager Shane McDermott  
 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 30/7/2024  
 Report Due Fri 2/8/2024  
 SGS Reference **SE268814**

### SUBMISSION DETAILS

This is to confirm that 8 samples were received on Tuesday 30/7/2024. Results are expected to be ready by COB Friday 2/8/2024. Please quote SGS reference SE268814 when making enquiries. Refer below for details relating to sample integrity upon receipt.

Sample counts by matrix	8 Soil	Type of documentation received	COC
Date documentation received	30/7/2024	Samples received in good order	Yes
Samples received without headspace	Yes	Sample temperature upon receipt	12.6°C
Sample container provider	SGS	Turnaround time requested	Three Days
Samples received in correct containers	Yes	Sufficient sample for analysis	Yes
Sample cooling method	Ice Bricks	Samples clearly labelled	Yes
Complete documentation received	Yes		

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

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CLIENT DETAILS

Client **NEO CONSULTING PTY LTD**

Project **N09301**

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 Elements in Soil/Waste	TRH (Total Recoverable Hydrocarbons) in Soil	VOC's in Soil	Volatile Petroleum Hydrocarbons in Soil
001	BH1	30	14	26	11	7	10	11	7
002	BH2	30	14	26	11	7	10	11	7
003	BH3	30	14	26	11	7	10	11	7
004	BH4	30	14	26	11	7	10	11	7
005	BH5	30	14	26	11	7	10	11	7
006	BH6	30	14	26	11	7	10	11	7
007	BH7	30	14	26	11	7	10	11	7
008	BH8	30	14	26	11	7	10	11	7

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.

CLIENT DETAILS

Client **NEO CONSULTING PTY LTD**

Project **N09301**

SUMMARY OF ANALYSIS

No.	Sample ID	Fibre Identification in soil	Mercury in Soil	Moisture Content
001	BH1	3	1	1
002	BH2	3	1	1
003	BH3	3	1	1
004	BH4	3	1	1
005	BH5	3	1	1
006	BH6	3	1	1
007	BH7	3	1	1
008	BH8	3	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 .





## APPENDIX C

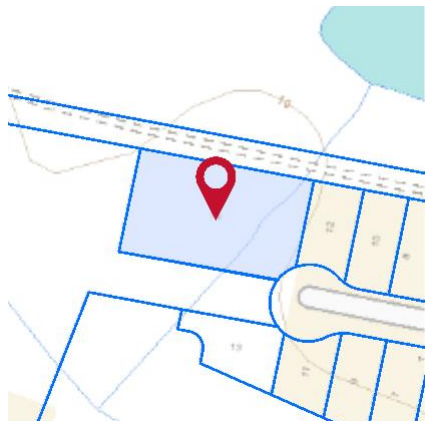
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Property Reports and Relevant Site Data

**NEO** CONSULTING

# Property Report

14 LAVENDER CLOSE GILLIESTON HEIGHTS 2321



## Property Details

Address: 14 LAVENDER CLOSE GILLIESTON HEIGHTS 2321  
Lot/Section /Plan No: 205/-/DP1212073  
Council: MAITLAND CITY COUNCIL

## Summary of planning controls

Planning controls held within the Planning Database are summarised below. The property may be affected by additional planning controls not outlined in this report. Please contact your council for more information.

Local Environmental Plans	Maitland Local Environmental Plan 2011 (pub. 16-12-2011)
Land Zoning	R1 - General Residential: (pub. 21-4-2023)
Height Of Building	NA
Floor Space Ratio	NA
Minimum Lot Size	450 m <sup>2</sup>
Heritage	NA
Land Reservation Acquisition	NA
Foreshore Building Line	NA
Acid Sulfate Soils	Class 5
Urban Release Area	Urban Release Area
Greenfield Housing Code Area	Complying Development Code: <a href="https://www.planningportal.nsw.gov.au/greenfield-housing-code">https://www.planningportal.nsw.gov.au/greenfield-housing-code</a>

Building type: 1-2 storey homes, residential alterations and additions

Development consent authority: Council or accredited certifier

Note: Applications which meet all relevant requirements in the State Environmental Planning Policy (Exempt and Complying Development Codes) 2008 may be approved within 20 days. Exclusions may apply.

<https://legislation.nsw.gov.au/#/view/EPI/2008/572/full>

This report provides general information only and does not replace a Section 10.7 Certificate (formerly Section 149)

## Detailed planning information

### State Environmental Planning Policies which apply to this property

State Environmental Planning Policies can specify planning controls for certain areas and/or types of development. They can also identify the development assessment system that applies and the type of environmental assessment that is required.

- State Environmental Planning Policy (Biodiversity and Conservation) 2021: Allowable Clearing Area (pub. 21-10-2022)
- State Environmental Planning Policy (Biodiversity and Conservation) 2021: Land Application (pub. 2-12-2021)
- State Environmental Planning Policy (Biodiversity and Conservation) 2021: Subject Land (pub. 2-12-2021)
- State Environmental Planning Policy (Exempt and Complying Development Codes) 2008: Greenfield Housing Code Area (pub. 6-5-2018)
- State Environmental Planning Policy (Exempt and Complying Development Codes) 2008: Land Application (pub. 12-12-2008)
- State Environmental Planning Policy (Housing) 2021: Land Application (pub. 26-11-2021)
- State Environmental Planning Policy (Industry and Employment) 2021: Land Application (pub. 2-12-2021)
- State Environmental Planning Policy (Planning Systems) 2021: Land Application (pub. 2-12-2021)
- State Environmental Planning Policy (Primary Production) 2021: Land Application (pub. 2-12-2021)
- State Environmental Planning Policy (Resilience and Hazards) 2021: Land Application (pub. 2-12-2021)
- State Environmental Planning Policy (Resources and Energy) 2021: Land Application (pub. 2-12-2021)
- State Environmental Planning Policy (Sustainable Buildings) 2022: Land Application (pub. 29-8-2022)
- State Environmental Planning Policy (Transport and Infrastructure) 2021: Land Application (pub. 2-12-2021)

This report provides general information only and does not replace a Section 10.7 Certificate (formerly Section 149)



# Property Report

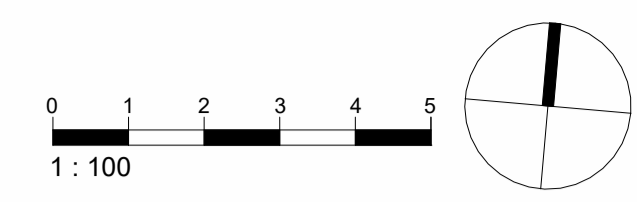
14 LAVENDER CLOSE GILLIESTON HEIGHTS 2321

## Other matters affecting the property

Information held in the Planning Database about other matters affecting the property appears below. The property may also be affected by additional planning controls not outlined in this report. Please speak to your council for more information

Bushfire Prone Land	Vegetation Buffer
Housing and Productivity Contribution	Lower Hunter - Base HPC
Local Aboriginal Land Council	MINDARIBBA
Mine Subsidence Development	Guideline: 2
	Full Guideline <a href="#">Development guidelines</a>
	Note Development guidelines are subject to change.
Mine Subsidence District	MAITLAND WEST
Regional Plan Boundary	Hunter

This report provides general information only and does not replace a Section 10.7 Certificate (formerly Section 149)



**ABBREVIATIONS**

ENG. - ENGINEER  
 EX. - EXISTING  
 FFL - FINISHED FLOOR LEVEL  
 FSL - FINISHED SILL LEVEL  
 GL - GROUND LINE  
 GLZ - GLAZING  
 EX.GL - EXISTING GROUND LINE  
 REQ. - REQUIREMENTS

XX.XX - PROPOSED LEVEL  
 XX.XX - EXISTING LEVEL  
 XX.XX - SPOT LEVEL (PLAN)  
 XX.XX - SPOT LEVEL (ELEVATION)

**LANDSCAPE LEGEND**

EXISTING TREE / TREE TO BE RETAINED  
 TREE TO BE REMOVED  
 NEW TREE  
 LANDSCAPING / BUFFER  
 TURF / ARTIFICIAL TURF  
 EXTERNAL FLOOR FINISH

--- LINE OF STRUCTURAL ROOT ZONE (SRZ)  
 --- LINE OF TREE EXCLUSION ZONE (TEZ)  
 --- LINE OF TREE PROTECTION ZONE (TPZ)

NOTE: REFER TO ARBORIST REPORT FOR FURTHER DETAILS

- GENERAL NOTES**
- ALL EXISTING BUILDING ELEMENTS TO BE CHECKED ON SITE U.N.O
  - DEMOLITION TO BE IN ACCORDANCE WITH AUSTRALIAN STANDARDS AND TO BE CARRIED OUT BY A LICENCED CONTRACTOR U. N.O
  - REFER TO SW DRAWINGS FOR DRAINAGE DESIGN.
  - REFER TO LANDSCAPE DRAWINGS FOR LANDSCAPE DESIGN.
  - KITCHEN AREA TO BE ACCORDANCE WITH NSW AS4674, FOOD ACT 2003, FOOD REGULATION 2015 AND FOOD STANDARD CODES 3.2.2 AND 3.2.3.
  - CONSTRUCTION TO BE IN ACCORDANCE WITH BTA REPORT FROM FIREBIRD (GET REFERENCES FROM REPORT) AND BE BAL 19.
  - REFERENCE THE PLANNING FOR BUSHFIRE PROTECTION AS REFERENCED IN THE REPORT.

ISSUE	DATE	DESCRIPTION
A	XX.06.2024	ISSUED FOR DEVELOPMENT APPLICATION

**ASSOCIATED CONSULTANTS**

ACOUSTIC	MULLER
GEOTECH	IDEALCORP
CIVIL/FLOOR	PAVEY
TRAFFIC	PAVEY
WASTE	PAVEY
BUSHFIRE	FIREBIRD CO
PLANNER	LS

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**CLIENT**

S. PINGALA

**ARCHITECT**

ArtMade Architects

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**PROJECT**

CHILDCARE CENTRE

**PROJECT ADDRESS**

14 LAVENDER CLOSE, GILLIESTON HEIGHTS, NSW 2321

**SHEET NAME**

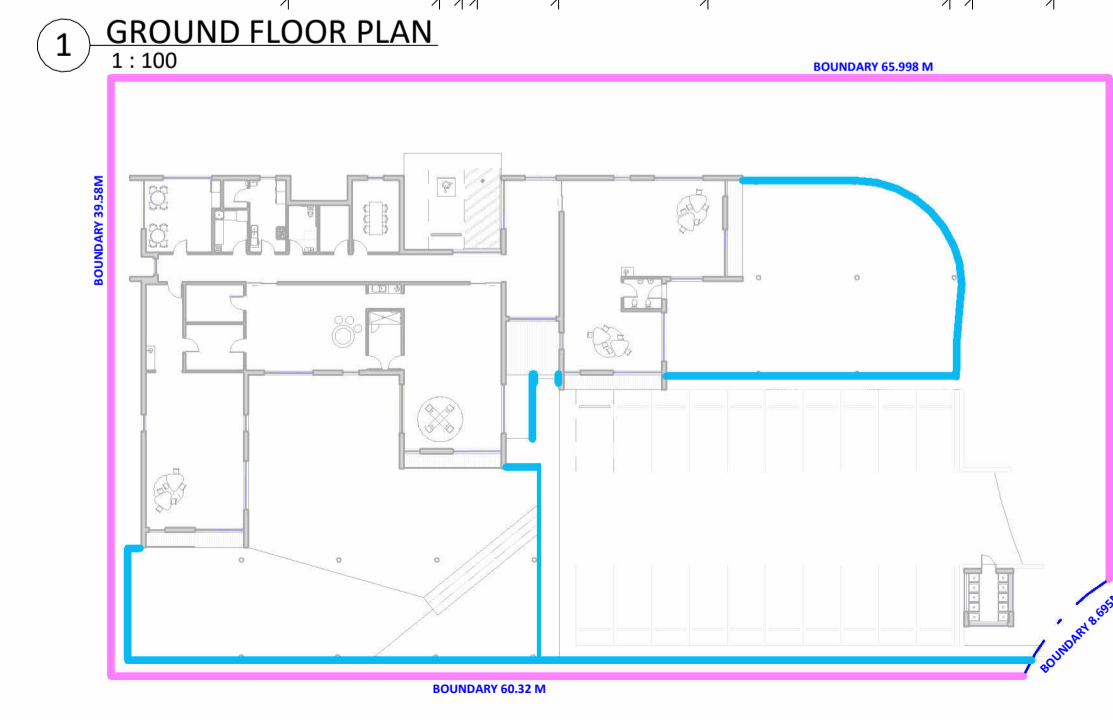
GROUND FLOOR PLAN

**ISSUED FOR DEVELOPMENT APPLICATION**

Project number	Sheet No.	Issue	Phase
24749	DA03.01	A	DA

Sheet Size: A1  
 Scale: As indicated  
 L.G.A.: MAITLAND

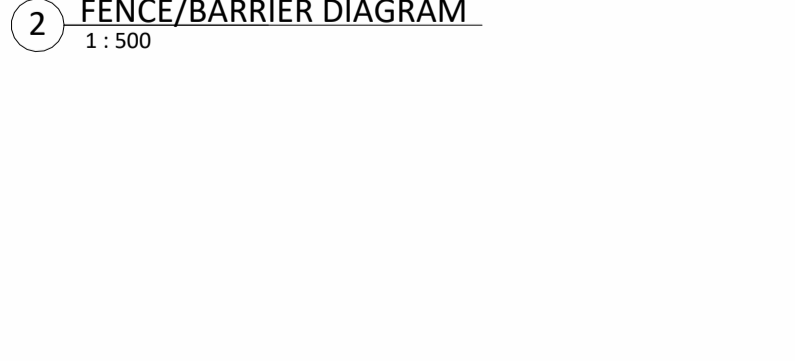
Drawn By: KG1/BR  
 Checked By: AS/SS  
 Date: XX.06.2024



**DA - FENCE LEGEND**

- 1.8M HT BOUNDARY FENCE (REFER TO DETAIL 01)
- 1.2M HT FORWARD OF BUILDING LINE (REFER TO DETAIL 02)
- ?

NOTE:  
 ALL ACOUSTIC BARRIERS IN ACCORDANCE WITH ACOUSTIC REPORT.  
 REFER TO SHEET ADS.01 FOR FENCE DETAILS.



**INDOOR PLAYROOM SCHEDULE**

ROOM	AGE	NO. CHLDN	NO. STAFF	UNENCUMBERED REQ AREA	AREA
PLAYROOM 1	AGE 3-5	30	3	97.5 m²	122.60 m²
PLAYROOM 2	AGE 3-5	20	2	65 m²	66.20 m²
PLAYROOM 3	AGE 0-2	12	3	39 m²	40.25 m²
PLAYROOM 4	AGE 2-3	20	4	65 m²	66.10 m²
TOTAL		82	12	266.5 m²	295.15 m²

**OUTDOOR PLAY AREA SCHEDULE**

AREA	AGE	NO. CHLDN	REQ AREA	AREA
OUTDOOR PLAY AREA 1	(AGE 3-5)	30	210 m²	210.05 m²
OUTDOOR PLAY AREA 2	(AGE 0-5)	52	364 m²	374.55 m²
TOTAL		82	574 m²	584.60 m²

**INTERNAL STORAGE SCHEDULE**

NAME	NO. CHLDN	REQ VOL	VOL
INT ST. 1	30	6.00 m³	3.55 m³
INT ST. 2	20	4.00 m³	6.30 m³
INT ST. 3	12	2.40 m³	8.40 m³
INT ST. 4	20	4.00 m³	5.85 m³
TOTAL	82	16.40 m³	24.10 m³

**EXTERNAL STORAGE SCHEDULE**

NAME	NO. CHLDN	REQ VOL	VOL
EX ST. 1	52	15.60 m³	15.65 m³
EX ST. 2	30	9.00 m³	12.10 m³
TOTAL	82	24.60 m³	27.75 m³

**PARKING SCHEDULE**

PARKING	NO. SPACES
ACCESSIBLE	1
STAFF	10
VISITOR	10
TOTAL	21

**NOT FOR CONSTRUCTION**