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15 JUBILEE PTY LTD

Detailed Site Investigation

15 Jubilee Avenue, Warriewood NSW

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0	Original	12 August 2020	-
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Executive Summary

Background and Objectives

Mr Joshua Mete of 15 Jubilee Pty Ltd engaged EI Australia (EI) to conduct a Detailed Site Investigation (DSI) of the property located at 15 Jubilee Avenue, Warriewood NSW ('the site').

The site is located approximately 22km north of the Sydney central business district, within the Local Government Area of Northern Beaches Council. It comprised a largely vacant block of land fronting Jubilee Avenue, and was legally identified as Lot 202 in Deposited Plan (DP) 1019363, covering a total area of approximately 4554m².

At the time of this investigation, the site surface was mostly vegetated, with a large metallic shipping container near the north eastern boundary. Redevelopment was proposed for the property and the contamination status of the site was required, to determine if any unacceptable risks were posed to human and environmental receptors.

The primary objectives of this investigation were to:

- Evaluate the potential for site contamination, on the basis of historical land uses and anecdotal and documentary evidence of possible pollutant sources;
- Assess the degree of any potential contamination, by means of intrusive sampling and laboratory analysis for the contaminants of potential concern (COPC); and
- Make recommendations for the appropriate management of any contaminated soils and/or groundwater (if identified).

Key Findings

The key findings of the DSI were:

- The site was a vacant property at the time of this investigation. It originally formed part of the 'Great Warriewood Estate' in the early 1900s.
- The site appeared to have been used as farmland until the 1970s, with both livestock grazing and market (greenhouse) gardening taking place. From the 1970s onwards, the site was mainly used for residential purposes (two houses), or was vacant land.
- The site was free of statutory notices and licensing agreements issued under the *Contaminated Land Management Act 1997* and *Protection of the Environment Operations Act 1997*. The site was not included on the *List of NSW Contaminated Sites Notified to the EPA*.
- Visual evidence of gross contamination, including fragments of fibre cement sheeting (FCS), was not observed on any part of the site. No suspicious odour was detected during the site inspection, or any of the field (sampling) works.
- There was no evidence that an underground storage tank (UST) was present on the site. No above-ground storage tank (AST) was identified.
- The potential for acid sulfate soils (ASS) to be present on the site was extremely low.
- Contaminant concentrations in the representative soil samples were all below the adopted ecological and human health criteria applicable to commercial land use scenarios.

- Contaminant concentrations in the representative groundwater samples were all below the adopted groundwater investigation levels (GILs), with the exception of the heavy metals, copper and zinc. The metal levels were considered to be consistent with natural (background) concentrations for an urbanised area and not present as a result of on-site impacts. The local groundwater was considered suitable for commercial land use.

Conclusion

Based on the findings of this DSI and with due consideration of EI's Statement of Limitations (**Section 10**), it was concluded that the potential for site contamination was low. Both soils and groundwater were considered to be suitable for the proposed (commercial) development, in accordance with *State Environmental Planning Policy* 55 (SEPP 55) - *Remediation of Land.*

Recommendations

EI provide the following recommendations in relation to the proposed development of the property:

- Any soil materials designated for off-site disposal, including *Virgin Excavated Natural Materials* (VENM), are to be classified in accordance the EPA (2014) *Waste Classification Guidelines*; and
- Any material being imported to the site (i.e. for landscaping purposes) should be assessed for potential contamination in accordance with EPA guidelines, and thereby validated as suitable for the intended use.

1. Introduction

1.1 Background and Purpose

Mr Joshua Mete of 15 Jubilee Pty Ltd engaged EI Australia (EI) to conduct a Detailed Site Investigation (DSI) of the property located at 15 Jubilee Avenue, Warriewood NSW ('the site').

The site is located approximately 22km north of the Sydney central business district, within the Local Government Area of Northern Beaches Council (**Figure 1**, **Appendix A**). It comprised a largely vacant block of land fronting Jubilee Avenue, and was legally identified as Lot 202 in Deposited Plan (DP) 1019363, covering a total area of approximately 4554m² (**Figure 1**, **Appendix A**).

At the time of this investigation, the site surface was mostly vegetated, with a large metallic shipping container near the north eastern boundary. Redevelopment was proposed for the property and the contamination status of the site was required, to determine if any unacceptable risks were posed to human and environmental receptors. This report is provided in support of the Development Application (DA) to Northern Beaches Council and for the purpose of enabling the developer to meet its obligations under the *Environmental Planning and Assessment Act 1997*, in particular the requirements of *State Environmental Planning Policy 55 - Remediation of Land* (SEPP55).

1.2 Proposed Development

Based on the supplied plans (**Appendix A**), the proposed development involved construction of a three-level, commercial facility, with storage units, warehouses and offices, overlying a single level basement. The lowest (basement slab) level would require bulk excavation to depths of up to 3m below ground level (BGL) within the eastern portion of the site, and filling of up to 0.8m thickness within the western portion, creating a final (flat) surface at 18.2m Australian Height Datum (AHD). Locally deeper excavations may be required for footings and service trenches.

1.3 Regulatory Framework

In addition to the *Environmental Planning and Assessment Act 1997* and SEPP55, the following regulatory framework and guidelines were considered during this DSI:

- *Contaminated Land Management Act 1997*;
- ANZG (2018) *Australian and New Zealand Guidelines for Fresh and Marine Water Quality*;
- DEC (2007) *Guidelines for the Assessment and Management of Groundwater Contamination*;
- EPA (1995) *Sampling Design Guidelines*;
- EPA (2017) *Guidelines for the NSW Site Auditor Scheme*;
- EPA (2020) *Consultants Reporting on Contaminated Land*;
- NEPC (2013) *Schedule B(1) Guideline on Investigation Levels for Soil and Groundwater*; and
- NEPC (2013) *Schedule B(2) Guideline on Site Characterisation*.

1.4 Project Objectives

The primary objectives of this investigation were to:

- Evaluate the potential for site contamination, on the basis of historical land uses and anecdotal and documentary evidence of possible pollutant sources;
- Assess the degree of any potential contamination, by means of intrusive sampling and laboratory analysis for the contaminants of potential concern (COPC); and
- Make recommendations for the appropriate management of any contaminated soils and/or groundwater (if identified).

1.5 Scope of Works

In order to achieve the above objectives, the scope of works was as follows:

Desktop Study

- Review of relevant (hydro)geological and soil landscape maps for the project area;
- A search of groundwater bore records within close vicinity to the site;
- A site walkover inspection, performed with the assistance of a qualified services locator, whom conducted ground penetrating radar (GPR) to check for underground services;
- A search of historical land title records relating to the site;
- A search of historical aerial photography archived at NSW Land and Property Information, to assist with identifying previous land use, both on-site and in the surrounding area;
- A search of property files archived by Northern Beaches Council, for information relating to operational site history;
- A search of the Stored Chemical Information Database and microfiche records held by SafeWork NSW, for information relating to the storage of hazardous chemicals, including possible underground tank approvals and locations;
- Searches of databases maintained by the NSW Environment Protection Authority (EPA) for statutory notices and licensing agreements issued under the *Contaminated Land Management Act 1997* and *Protection of the Environment Operations Act 1997*; and
- A search of the *List of NSW Contaminated Sites Notified to the EPA*.

Field Work and Laboratory Analysis

- Drilling of boreholes at six locations (BH1-BH6) and excavation of test pits at six locations (TP1-TP6), each into the natural soil horizons;
- Multiple level soil sampling within fill and natural soils at each of the test bores and pit;
- Installation of three groundwater monitoring wells (in bores BH3, BH4 and BH5), each constructed following the standard protocols described under NUDLC (2012) *Minimum Construction Requirements for Water Bores in Australia*;
- One round of sampling from each of the groundwater wells; and
- Laboratory analysis of selected soil and groundwater samples for the COPC.

Data Interpretation and Reporting

This DSI report documents all desk study findings, the conceptual site model, data quality objectives, investigation methodologies and results. It also provides a record of observations made during the detailed site walkover inspection, borehole / test pit and monitoring well construction logs and a discussion of laboratory analytical results in regards to potential risks to human health, the environment and the aesthetic uses of the land.

2. Site Description

2.1 Property Identification, Location, and Physical Setting

The site identification details and associated information are presented in **Table 2-1**. The site locality is shown in **Appendix A**, **Figure 1**.

Table 2-1 Site Identification

Attribute	Description
Site Address	15 Jubilee Avenue, Warriewood NSW
Lot / DP	Lot 202 in DP 1019363
Location Description	The site was bound by: ▪ **North**: Jubilee Avenue, a two lane, asphalt road; ▪ **East**: 19 Jubilee Avenue, low density residential property; ▪ **South**: Two to three storey commercial buildings with basements; and ▪ **West**: A small creek runs along the western site boundary, followed by a three storey commercial building with basement.
Site Coordinates	North eastern corner of site (GDA2020-MGA56): **Easting:** 341580.993 / **Northing:** 6272136.7 (Source: http://maps.six.nsw.gov.au)
Site Area	4554m²
State Survey Marks	A state survey mark, SS141974, is situated at the north western corner of the site, on Jubilee Avenue.
Local Government Authority	Northern Beaches Council
Current Zoning	B7 – Business Park (*Pittwater Local Environmental Plan 2014*)

2.2 Local Land Use

The site is situated within an area of mixed use, as described in **Table 2-2**. The potential local receptors within close proximity to the site are also identified.

Table 2-2 Local Land Use

Direction	Land Use Description	Potential Receptors
North	Jubilee Avenue, followed by commercial buildings (no basements)	Commercial land users Blackmores Limited, a pharmaceutical company
East	Low density residential	Residential land users
South	Commercial	Commercial land users
West	A small tributary of Narrabeen Creek runs along the western boundary, followed by commercial buildings with basements	Commercial land users Ecological receptors of creek

2.3 Regional Setting

Local topography, (hydro)geology and soil landscape information are summarised in **Table 2-3**.

Table 2-3 Regional Setting

Attribute	Description
Topography	The site is located on the south side of the road, within gently west dipping topography. Site levels vary from RL 22.4m in the north eastern corner, to RL 15.5m in the south western corner.
Site Drainage	Site drainage is likely to be consistent with the general slope of the site. Stormwater is likely to drain directly to ground in the absence of hardstand.
Regional Geology	Information on regional sub-surface conditions, referenced from the Department of Mineral Resources *Sydney 1:100,000 Geological Series Sheet 9130* (DMR 1983), indicates the site is underlain bya Newport formation, which typically comprises interbedded laminite, shale, and quartz, to lithic-quartz sandstone, and minor red claystone north of the Hawkesbury River, and clay pellet sandstone south of the Hawkesbury River.
Soil Landscape	The Soil Conservation of NSW *Soil Landscapes of the Sydney 1:100,000 Sheet* (Chapman and Murphy, 1989) indicated that the site overlies a Tuggerah landscape, which is characterised by costal Aeolian strata, commonly a sand or clayey sand with apedal massive structure and porous sandy fabric; well sorted and dominated by medium sized sand grains; pH ranges from strongly acidic (pH 4.5) and neutral (pH 7.0).
Acid Sulphate Soil (ASS) Risk	With reference to the *Hornsby / Mona Vale Acid Sulfate Soil Risk Map* (1:25,000 scale; Murphy, 1997), the subject land lies within the map class description of 'No Known Occurrence'. In such cases, acid sulphate soils (ASS) are not know or expected to occur and "land management activities are not likely to be affected by ASS materials". With reference to the *Pittwater Local Environmental Plan 2014 Acid Sulfate Soils Map*, the subject land lies within a *Class 5* area. ASS were therefore not expected to occur on this site.
Anticipated Groundwater Flow Direction	Inferred to be towards Narrabeen Creek, located approximately 230m south east of the site.

2.4 Groundwater Bore Records and Local Groundwater Use

An online search of groundwater bores registered with WaterNSW was conducted by EI on 23 July 2020 (Ref. https://realtimedata.waternsw.com.au/water.stm). The search revealed there were no registered bores within a 500m radius of the site. Therefore, the beneficial use of groundwater for potable, irrigation or domestic use was unlikely in the local area.

2.5 EPA Online Records

2.5.1 Contaminated Land – Record of EPA Notices

An on-line search of the contaminated land public record of EPA Notices was conducted on 23 July 2020. The contaminated land public record is a searchable database of:

- Orders made under Part 3 of the CLM Act 1997;
- Notices available to the public under Section 58 of the CLM Act 1997;
- Approved voluntary management proposals under the CLM Act 1997 that have not been fully carried out and where the approval of the EPA has not been revoked;
- Site audit statements provided to the EPA under Section 53B of the CLM Act 1997 that relate to significantly contaminated land;
- Where practicable, copies of anything formerly required to be part of the public record; and

- Actions taken by the EPA under Section 35 or 36 of the *Environmentally Hazardous Chemicals Act 1985*.

The search confirmed that the site known as 15 Jubilee Avenue, Warriewood NSW and surrounding lands within close proximity (within 250m radius) were not subject to any regulatory notices relevant to the above legislations.

2.5.2 List of NSW Contaminated Sites Notified to EPA

A search through the *List of NSW Contaminated Sites Notified to the EPA* under Section 60 of the CLM Act 1997 was conducted on 23 July 2020. This list is maintained by EPA and includes properties on which contamination has been identified, but is not deemed to be impacted significantly enough to warrant regulation. The site and localities in proximity (≤250m radius) had not been notified as contaminated to the EPA.

2.5.3 POEO Public Register

A search of the *Protection of the Environment Operations Act* 1997 public register was conducted on 23 July 2020. The public register contains records related to environmental protection licences, applications, notices, audits, pollution studies, and reduction programmes. The search did not identify any properties within close proximity (250m radius).

2.6 Site Inspection

Observations were recorded during a walkover inspection of the site, a summary of which is given below. Refer also to **Appendix A**, **Figure 2**.

- The site surface was covered by grass, weeds and several (scattered) trees. All vegetation was in good condition (i.e. no visible evidence of stress), indicating that the local soils were not an issue with respect to phytotoxicity.
- A large metallic shipping container was situated in the north eastern corner, positioned on a concrete pad. This container and paving were the only structures on the property.
- The site boundaries were marked by metal fencing. Access to the site was achieved via a single ingress/egress located on the norther (western) boundary, fronting Jubilee Avenue.
- No suspicious odour or visual evidence of (gross) contamination was observed at any part of the site, including fragments of fibre cement sheeting (FCS).
- There was no evidence, by way of a fill / dip point or vent, that an underground storage tank (UST) was present on the site. No above-ground storage tank (AST) was present.

3. Site History

3.1 Previous Investigation

This report follows on from a previous investigation competed at the site being, *Phase 1 Environmental Site Assessment Draft for 15 Jubilee Avenue, Warriewood* – prepared by LNC-Lavalin Australia Pty Ltd (dated 21 July 2016). Information relating to site history, based on land titles information and aerial photographs, has been extracted from this report.

Land Titles Information

The information from LNC-Lavalin (2016) was current up to June 2016 and is summarised in **Table 3-1**. Copies of the documents are presented in **Appendix C**.

Table 3-1 Summary of Owner History

Period of Acquisition	Registered Proprietor(s) and Occupations
1908	Henry F Halloran
1908 to 15.04.1930	William James Wilcox, Frank Kleemo, Gerard Vernon Fisk and Charles Salon
15.04.1930 to 02.07.1948	Traiko Ramos (farmer)
02.07.1948 to 13.03.1950	Traiko Ramos (farmer) and Traianos Atanas Georgiu (farmer)
05.02.1979 to 24.03.1987	Alexandra Georgiou (widow) and Mary Phillips (daughter)
04.12.2000 to 27.09.2004	Alexandra Delkou / Anna Belcheff
27.09.2004 to 26.06.2007	Wayne Gordon Brown, Gary Neil Brown, Suzanne Ruby Brown and Jane Lee
26.06.2007 to 04.06.2010	Maitcorp Pty Ltd
2010 to date	Blackmores Limited #

Note 1 # denotes current registered proprietor

Historical Aerial Images

The historical aerial images reviewed by LNC-Lavalin (2016) were:

- **1943:** Six Maps 1943 Imagery – NSW Department of Finance and Services;
- **1955:** NSW 232, Sydney RUN 11 Print 5005, Lands Photo;
- **1961:** NSW 1052, RUN 21, Print 5169, Lands Photo;
- **1970:** NSW 1912, RUN 9, Print 5003, Land and Property Information;
- **1982:** NSW 3260, RUN 1, Print 108, Land and Property Information;
- **1994:** NSW 4245, RUN 5, Print 136, Land and Property Information;
- **2005:** NSW 4941, RUN 5, Print 159, Land and Property Information; and
- **2016:** Google Earth.

Information obtained from these photographs is summarised in **Table 3-2**.

Note that surrounding land use was similar to the site, with much of the area occupied by market gardening from the 1940s to 1970. From 1970 to 1990, significant commercial development occurred in the north, south and west with residential activities increasing in density to the east.

Table 3-2 Summary of Aerial Photograph History

Aerial Photograph	Site Description	Land use
1943	Vacant Land	Former bushland, now cleared
1943, 1955 and 1961	The site comprised an open air garden, four greenhouses in the upper eastern half and open pasture in the lower western half. Small sheds were in the south western and south eastern corners, likely associated with livestock.	Agricultural (south) and market garden (north east)
1970	Market gardening had ceased. Two residential dwellings were present in the north, fronting the street with the remainder of the site found vacant. Sheds remained.	Residential (north) and agricultural (south)
1982, 1994	The dwellings and sheds were removed and the land was occupied by livestock.	Agricultural grazing
2005, 2016	The site appeared unchanged from previous description, except livestock were no longer apparent	Vacant

3.2 SafeWork NSW Search

EI submitted a request to SafeWork NSW for information relating to the storage of dangerous goods, held under their Stored Chemical Information Database (SCID) and microfiche records. The search did not identify any such records for the site. A copy of the correspondence from SafeWork NSW is attached in **Appendix D**.

3.3 PFAS Assessment

EPA (2017) requires that per and poly- fluoroalkyl substances (PFAS) are considered when assessing land contamination. EI use the following decision tree (**Table 3-3**), based on EnRisk (2016), for determining the potential for PFAS to be present on-site and whether PFAS sampling of soil and groundwater is required. In this case, the assessment established that the potential for PFAS contamination was low.

Table 3-3 PFAS Decision Tree

Preliminary Screening	Probability	Justification
Did fire training occur on-site?	Low	No historic activities related to firefighting were identified
Is an airport or fire station up gradient of or adjacent to the site? [1]	Low	Not identified
Have “fuel” fires ever occurred or are USTs on site?	Low	No storage of flammable chemicals identified
Have PFAS been used in manufacturing or stored on-site? [2]	Low	PFAS contamination not expected

Note 1 Runoff from fire training areas may impact surface water, sediment and groundwater.
Note 2 PFAS is used wide range of industrial processes and consumer products, see https://www.nicnas.gov.au/chemical-information/factsheets/chemical-name/perfluorinated-chemicals-pfas
Note 3 If medium or high probability is identified, the sampling will include preliminary sampling and testing for PFAS in water and possibly, soil.

3.4 Emerging Chemicals

The EPA uses Chemical Control Orders (CCOs) as a primary legislative tool under the *Environmentally Hazardous Chemicals Act 1985* to manage chemicals of concern and limit their impact on the environment. CCOs provide the EPA a rapid and flexible mechanism for responding to emerging chemical issues. Similar to PFAS compounds, EI considered the chemicals controlled by CCOs and other potential emerging chemicals for this DSI, as outlined in **Table 3-4** below. In this case, the assessment established there was potential for organochlorine pesticide contamination at the site, due to previous market gardening activities.

Table 3-4 Emerging or Controlled Chemicals

Chemicals of Concern (CCO or emerging)	Decision
Were aluminium smelter wastes used or stored on site (CCO, 1986)?	No
Do dioxin contaminated wastes (CCO, 1986) have the potential to impact the site? [1]	No
Were organotin products (CCO, 1989) used or stored on site? [2]	No
Were polychlorinated biphenyls (PCBs) used or PCB wastes (CCO, 1997) stored on-site? [3]	No
Were scheduled chemical or wastes (CCO, 2004) used or stored on-site? [4]	Likely - organochlorine pesticides
Are other emerging chemicals suspected? [5]	No
If Yes to any questions, has site sampling suite been optimised to include specific sampling for other chemicals of concern in soil, air and water	Yes

Note 1 From burning of certain chemicals, smelting or chemical manufacturing or fire on or near the Site.
Note 2 From anti-fouling paints used or removed at boat & ship yards and marinas.
Note 3 From older transformer oils & electrical capacitors
Note 4 Twenty-four mostly organochlorine pesticides and industrial by-products
Note 5 Other chemicals considered as emerging e.g. 1,4dioxane (associated with some cVOCs).

3.5 Summary of Site History

Land titles and Google searches of the history of Warriewood established that the site originally formed part of the 'Great Warriewood Estate' in the early 1900s. Development of the region began around 1920, with much of the early land uses being agricultural and/or horticultural (i.e. livestock grazing and market gardening).

The site appeared to have been used as farmland until the 1970s, with both livestock grazing and market (greenhouse) gardening taking place. From the 1970s onwards, the site was mainly used for residential purposes (two houses), or was vacant land.

4. Conceptual Site Model

In accordance with NEPC (2013) *Schedule B2 – Guideline on Site Characterisation*, EI developed a conceptual site model (CSM) that assessed plausible linkages between potential contamination sources, migration pathways and receptors. The CSM helps to identify gaps in the existing site characterisation and design the sampling strategy.

4.1 Potential Contamination Sources

Based on the inspection and history review, the potential sources of contamination for this site were as follows:

- Previous commercial activities dating back to the 1920s, including market (greenhouse) gardening and the application of pesticides; and
- The weathering and uncontrolled demolition of exposed building fabrics containing hazardous substances, including potential asbestos-containing materials (ACM), lead-based paints and metallic surfaces.

4.2 Potential Contaminants of Concern

The COPC were:

- The priority heavy metals (HMs), being arsenic (As), cadmium (Cd), chromium (Cr), copper (Cu), lead (Pb), mercury (Hg), nickel (Ni) and zinc (Zn);
- Organochlorine pesticides (OCP);
- Organophosphate pesticides (OPP);
- Total recoverable hydrocarbons (TRH);
- The monocyclic aromatic hydrocarbons benzene, toluene, ethylbenzene and xylenes (BTEX);
- Polycyclic aromatic hydrocarbons (PAH) including naphthalene and benzo(a)pyrene (BαP); and
- Asbestos.

4.3 Potential Pollutant Linkages and Receptors

EI considered there was potential for contamination to be present on the site. The identified receptors were site workers (during excavation and construction), service and maintenance staff, and the residential occupants. Ecological receptors could be exposed via discharging and irrigation of groundwater. An evaluation of the contamination sources, exposure pathways and human and environmental receptors is presented in **Table 4-1**.

4.4 Data Gap

It was concluded that an intrusive (sampling and analysis) component was required for this DSI, to adequately determine whether the site presented an unacceptable contamination risk to the identified receptors.

Table 4-1 Conceptual Site Model

Site Area / Source	Transport Mechanism	Exposure Pathway	Potential Receptor
Previous commercial activities	Physical erosion and wind mobilization during ground disturbance activities (e.g. excavation and earthmoving). Leaching of contaminants from impacted soils exposed to water.	Dermal contact Ingestion Inhalation of dust and/or vapour Uptake (plants)	Site Workers during construction; Future commercial site users and maintenance personnel; and Groundwater (if significant soil impact is identified) Basements users
Weathering and uncontrolled demolition of exposed building fabrics	Release of hazardous materials during uncontrolled demolition of building fabrics	Ingestion Dermal contact Inhalation of airborne contaminants	Construction and maintenance workers; End users of commercial site

5. Sampling, Analytical and Quality Plan

The sampling, analytical and quality plan (SAQP) ensures that the data collected during environmental works at a site are representative and provide a robust basis for assessment decisions. The SAQP for this DSI included the following:

- Data quality objectives, including a summary of the objectives of the DSI;
- Investigation methodology, including the media to be sampled, details of analytes and parameters to be monitored and a description of intended sampling points;
- Sampling procedures (including sample handling, preservation and storage);
- Field screening methods;
- Laboratory analysis methods; and
- Analytical quality assurance / quality control (QA/QC).

5.1 Data Quality Objectives

In accordance with the USEPA (2006) *Data Quality Assessment* and EPA (2017) *Guidelines for the NSW Site Auditor Scheme*, Data Quality Objectives (DQO) were developed by the EI assessment team to determine the appropriate level of data quality needed for the specific requirements of the project. The DQO process that was applied for this DSI is documented in **Table 5-1**.

Table 5-1 Project Data Quality Objectives

DQO Step	Details
1. State the problem	Redevelopment of the land is proposed, for commercial use. The contamination appraisal established there was potential for contamination to exist on the site. Further, intrusive investigation was required, to determine: Is the site suitable for the proposed commercial/industrial development?; and Does the site pose an unacceptable risk to human and/or ecological receptors?
2. Identify the decisions / Goal of the study	Based on the objectives outlined in **Section 1.4,** the following decisions were necessary: ▪ Has the site been adequately characterised, with sufficient and appropriate sampling coverage (vertical and lateral) to assess for the presence of potential contamination sources? ▪ Has the nature, source and extent of any onsite impacts (soil, groundwater, and/or vapour) been defined? ▪ What influence do site-specific, geologic conditions have on the fate and transport of any impacts that may be identified? ▪ Does the degree of impact coupled with the fate and transport of identified contaminants represent an unacceptable risk to identified human and/or environmental receptors on or offsite? ▪ Does the collected data provide sufficient information to allow the selection and design of an appropriate remedial strategy, assuming remedial action is necessary? If not, what are the remaining data gaps requiring closure?

DQO Step	Details
3. Identify inputs to the decision	Inputs to the decision making process included: ▪ Proposed development (land use); ▪ Site history and CSM; ▪ Areas of concern identified during the site inspection; ▪ National and EPA guidelines endorsed under the *NSW Contaminated Land Management Act 1997*; ▪ In-field and laboratory analyses of selected soil and groundwater samples for the COPC, to verify the presence and extent of on-site contamination; ▪ Consideration whether the site can be made suitable for the proposed land use; and ▪ Confirmation that data quality indicators (DQIs) were achieved.
4. Define the boundaries of the study	Lateral – defined as the sites cadastral boundaries. Vertical – From the existing ground level, fill and natural soils. Temporal – Results are valid on the day of data and sample collection and remain valid as long as no changes occur on site or contamination (if present) does not migrate on site or on to the site from off-site sources.
5. Develop a decision rule	The decision rules for the investigation were: ▪ If the concentrations of contaminants in the soil and/or groundwater data exceed the adopted criteria; then assess the need to further investigate the extent of impacts onsite. ▪ Decision criteria for analytical data were defined by the Data Quality Indicators (DQI) in **Table 5-2**.
6. Specify limits on decision errors	Specific limits for this project were in accordance with NEPM and EPA guidelines, standard procedures for field sampling and handling, and the adopted indicators of data quality. To assess the useability of the data, pre-determined DQI for completeness, comparability, representativeness, precision and accuracy were adopted, as presented below in **Table 5-2**. If any of the DQI were not met, further assessment was necessary to determine whether the non-conformance would significantly affect the useability of the data. Corrective actions included requesting further information from samplers and/or analytical laboratories, downgrading of the quality of the data or alternatively, re-collection of samples.
7. Optimise the design for obtaining data	The plan for obtaining data and achieve the decision rules involved: Written instructions were issued to guide field personnel. Soil sampling locations were chosen using a systematic triangular grid, the number ((twelve) complying with the minimum density recommended under the EPA (1995) *Sampling Design Guidelines* for an area of 4554m^2. An upper soil profile sample was collected at each borehole and tested for the COPC, to assess the condition of the fill layer. Further sampling was carried out in deeper soil layers, with samples selected for testing based on field observations (i.e. visual and olfactory evidence). Threegroundwater monitoring wells were installed, to assess local groundwater quality. Review of the results was undertaken to determine if further intrusive investigation (i.e. additional sampling) was warranted.

5.2 Data Quality Indicators

To ensure that the investigation results were of an acceptable quality, the data set was assessed against the data quality indicators (DQI) outlined in **Table 5-2**. Refer to **Section 6** for further Quality Assurance / Quality Control information.

Table 5-2 Data Quality Indicators

QA/QC Measure	Data Quality Indicator	Acceptable Range
Accuracy	Field – Split duplicate Field – Trip blank (laboratory prepared) Field – Trip spike (laboratory prepared) Laboratory – control spike and matrix spike	<30% relative percentage difference (RPD) < laboratory limit of reporting (LOR) 80-120% recovery Prescribed by the laboratories
Precision	Field – Blind duplicate Laboratory – duplicates	<30% RPD Prescribed by the laboratories
Representativeness	Field – Rinsate blank Field – Trip blank (laboratory prepared) Field – Trip spike (laboratory prepared) Laboratory – Method blank The appropriateness of sampling methodologies (including preservation, storage and transport) assessed to confirm minimal opportunity for sample interference or degradation (i.e. volatile loss during transport due to incorrect preservation / transport methods).	< laboratory LOR < laboratory LOR 80-120% recovery Prescribed by the laboratories Compliance with SOPs; checking of SRAs
Completeness	Analytical data sets were evaluated as complete upon confirmation that: ▪ Standard operating procedures (SOPs) were adhered to; ▪ All chain-of- custody (COC) documentation was properly completed and received; and ▪ All analyses were conducted, as per COC instructions.	It could then be considered whether the proportion of “useable data” was sufficient for the purposes of the land use assessment.
Comparability	Adherence to SOPs and regulator-endorsed guidelines. Sampling completed by experienced personnel. NATA-accredited laboratory methodologies employed.	

5.3 Sampling Rationale

With reference to **Section 4** (CSM) and **Section 5.1** (DQO), the soil and groundwater sampling works for this DSI were completed in accordance with the following rationale:

- Sampling fill and natural soils from twelve locations (boreholes BH1-BH6 and test pits TP1-TP6), positioned systematically across the site in a triangular grid-based pattern, to characterise *in situ* soils;
- Installation of three groundwater monitoring wells, positioned in a triangular formation, with the completion of one monitoring (sampling) event to assess local groundwater quality; and
- Laboratory analysis of representative soil and groundwater samples for the identified COPC.

5.4 Soil Sampling

The borehole drilling / test pit excavation and soil sampling works conducted at the site are described in **Table 5-3**. Test bore / pit locations are illustrated in **Appendix A**, **Figure 2**. The test bore / pit log are presented in **Appendix E**.

Table 5-3 Soil Sampling Methodology

Activity/Item	Details
Fieldwork	The field work was conducted on 11 and 12 June 2020 by suitably experienced EI personnel. The works were completed in conjunction with a geotechnical investigation (EI reference E24716.G03_Rev3).
Drilling Method	Test pits TP1 to TP6 were excavated using a 5 tonne digger and boreholes BH1 to BH6 were drilled using a ute-mounted, drilling rig, employing solid flight augers.
Soil Logging	Collected soils were classified in the field with respect to lithological characteristics and evaluated on a qualitative basis for odour and visual signs of contamination. Soil classifications and descriptions were based on Australian Standard (AS) 1726-2017. Logs are presented in **Appendix E**.
Field Observations (including visual and olfactory signs of potential contamination)	A summary of field observations is as follows: ▪ No visual signs of contamination were observed and no suspicious odours were detected during any stage of the field investigation programme; ▪ Fibre cement sheet fragments were not observed in any drilling cuttings; and ▪ Ash or slag was noted during the intrusive investigation.
Soil Sampling	Samples were collected using a dry grab method (with the sampler wearing unused, dedicated nitrile gloves) and placed into laboratory-supplied, acid-washed, solvent-rinsed glass jars and plastic, zip-lock bags (the former for general analytes, the latter for asbestos analyses). Blind and split field duplicates were separated from the primary samples and placed into dedicated glass jars.
Decontamination Procedures	Drilling Equipment - The drilling rods were decontaminated between sampling locations with potable water until the augers were free of all residual materials. Sampling Equipment – sampling equipment (i.e. metal trowel) was scrubbed and washed in a solution of potable water and *Decon 90*, then rinsed with potable water. Dedicated gloves were used for the collection of each sample.
Waste Management	Soil cuttings were used as backfill for completed boreholes.
Sample Preservation and Transport	Samples for laboratory analysis were stored in a refrigerated (ice-filled) chest, whilst on-site and in transit to the corresponding laboratory. Soil samples were transported to SGS Australia Pty Ltd (SGS; the primary laboratory), under strict chain-of-custody (COC) conditions. Signed COC certificates and sample receipt advice (SRA) were provided by SGS for confirmation purposes (**Appendix G**). A split (inter-laboratory) field duplicate was submitted to Envirolab Services Pty Ltd (Envirolab; the secondary laboratory) under strict COC conditions. Signed COC certificates and SRA were provided by Envirolab (**Appendix G**).
Laboratory Analysis and Quality Control	Soil samples were analysed by SGS and Envirolab for the COPC. All samples were analysed within the required holding period, as documented in the corresponding laboratory reports (**Appendix H**). In addition to the split (inter-laboratory) duplicate (analysed by Envirolab), QC testing comprised a blind (intra-laboratory) field duplicate, an equipment rinsate blank, a laboratory-prepared, trip spike soil sample and a laboratory-prepared, trip blank soil sample, all tested by SGS.

5.5 Groundwater Sampling

The groundwater sampling works conducted at the site are described in **Table 5-4**. Monitoring well locations are illustrated in **Appendix A**, **Figure 2**.

Table 5-4 Groundwater Sampling Methodology

Activity/Item	Details
Fieldwork	Groundwater monitoring wells were installed and developed on 11 June 2020 and the GME occurred on 18 June 2020.
Well Construction	Test bores BH3, BH4 and BH5 (each approximately 6m deep) were converted to groundwater monitoring wells. Well construction details are provided in **Table 7-2** and the borelogs presented in **Appendix E.** Well construction was in general accordance with the standards described in NUDLC, 2012 and involved the following: ▪ 50 mm, Class 18 uPVC, threaded, machine-slotted screen and casing, with slotted intervals in shallow wells set to screen to at least 500 mm above the standing water level to allow sampling of phase-separated hydrocarbon product, if present; ▪ Base and top of each well was sealed with a uPVC cap; ▪ Annular, graded sand filter was used to approximately 300 mm above top of screen interval; ▪ Granular bentonite was applied above annular filter to seal the screened interval; ▪ Drill cuttings were used to backfill the bore annulus to just below ground level; and Surface completion comprised a steel road box cover set in neat cement and finished flush with the concrete slab level.
Well Development	Well development was conducted for each well directly following installation. This involved agitation within the full length of the water column using a dedicated, high density polyethylene (HDPE), disposable bailer, followed by removal of water and accumulated sediment using a 12V, HDPE submersible bore pump (Proactive Environmental, model *Super Twister*). Pumping was continued until no further reduction in suspended sediment was observed (i.e. after removal of several well volumes).
Well Gauging and Groundwater Flow Direction	Monitoring wells were gauged for standing water level (SWL) prior to purging. The measured SWLs are shown in **Table 7-2**. A transparent HDPE bailer was used to visually assess for the presence of phase-separated hydrocarbons (PSH) prior to the commencement of well purging. PSH was not detected in any of the wells. Based on the reduced water levels (**Table 7-3**), the direction of groundwater flow in the aquifer was inferred to be south westerly.
Well Purging and Field Testing	No volatile organic odours were detected during any stage of well purging. Measurement of water quality parameters (dissolved oxygen (DO), electrical conductivity (EC), reduction / oxidation potential (Redox), pH and temperature) was conducted repeatedly during well purging and values were recorded onto field data sheets (**Appendix F**). Purged water volumes removed from each well and field test results are summarised in **Table 7-3**.
Groundwater sampling	Groundwater was sampled using a micro-purge system. Water was continuously measured for temperature, EC, Redox, DO and pH. Once three consecutive field measurements were recorded to within ±10% for DO, ±3% for EC, ±0.2 for pH, ±0.2°C for T and ±20mV for Redox, this was considered to indicate that representative groundwater quality had been achieved and final physico-chemical measurements were recorded. Groundwater samples were then collected from the micro-purge sampling pump discharge point.

Activity/Item	Details
Decontamination Procedure	Decontamination was not required as sampling equipment was stored and transported prior to use in factory-sealed, plastic sleeves, while each bailer was dedicated to each individual well. All sample containers were supplied by the laboratory for the particular project and only opened once immediately prior to sampling. While ice was used to keep the samples cool, all melt water was continuously drained from the esky to prevent cross-contamination of samples. The water level probe and water quality kit probes were washed in a solution of potable water and *Decon 90* and then rinsed with potable water between measurements/wells.
Sample Preservation	Sample containers were supplied by the laboratory with the following preservatives: ▪ one, 1 litre amber glass, acid-washed and solvent-rinsed bottle; ▪ two, 40ml glass vials, pre-preserved with dilute hydrochloric acid, Teflon-sealed; and ▪ one, 250mL, HDPE bottle, pre-preserved with dilute nitric acid (1 mL). Samples for metals analysis were field-filtered using 0.45 µm pore-size membranes. All containers were filled with sample to the brim then capped and stored in insulated chests (containing ice bricks), until completion of the fieldwork and during sample transit to the laboratory.
Sample Transport	After sampling, refrigerated sample chests were transported to SGS using strict COC procedures. SRA was provided by the laboratory to document sample condition upon receipt. Copies of the SRA and COC certificates are presented in **Appendix G**. A split (inter-laboratory) field duplicate was submitted to Envirolab under strict COC conditions. Signed COC certificates and sample receipt documentation were provided by Envirolab for confirmation purposes (**Appendix G**).
Quality Control and Laboratory Analysis	Groundwater samples were analysed by SGS and Envirolab for the COPC. All samples were analysed within the required holding period, as documented in the corresponding laboratory reports (**Appendix H**). In addition to the split (inter-laboratory) field duplicate (analysed by Envirolab), QC testing comprised a blind (intra-laboratory) field duplicate, an equipment rinsate blank, a laboratory-prepared, trip spike water sample and a laboratory-prepared, trip blank water sample, all tested by SGS.

5.6 Assessment Criteria

The assessment criteria adopted for this project are outlined in **Table 5-5**. These were selected from available published guidelines that are endorsed by national or state regulatory authorities, with due consideration of the proposed commercial land use scenario.

Table 5-5 Site Acceptance Criteria

Media	Target Receptor	Rationale
Soil	Human Health	**NEPC(2013) Soil Health-based Investigation Levels (HILs) and Health-based Screening Levels (HSLs)** Sample results were assessed against the NEPC (2013) HIL-D and HSL-D thresholds for commercial settings. Aesthetic suitability of site soil was further assessed using the *Management Limits* for TRH.

Media	Target Receptor	Rationale
	Ecological	**NEPC (2013) Ecological Investigation Levels (EILs) and Ecological Screening Levels (ESLs)** NEPC (2013) Commercial D EILs / ESLs were considered for soils from the site boundaries. Note EILs / ESLs only apply to the top 2m (root zone). The EIL for benzo(a)pyrene was taken from CRC Care (2017) *Risk-based management and remediation guidance for benzo(a)pyrene*
Groundwater	Ecological	**NEPC (2013) Groundwater Investigation Levels (GILs) for Fresh Water** Given the nearest receiving waterbody, Narrabeen Creek, is a freshwater feature, the NEPC (2013) GILs for freshwater aquatic ecosystems were adopted. These are based on the ANZG (2018)Trigger Values for 95% level of protection.
	Human Health	**Health-based Screening Levels (HSLs)** The NEPC (2013) Commercial D groundwater HSLs for vapour intrusion were used to assess for potential human health impacts from residual vapours entering indoor air.

For the purposes of this investigation, the adopted soil assessment criteria are referred to as the Soil Investigation Levels (SILs) and the adopted groundwater assessment criteria are referred to as the Groundwater Investigation Levels (GILs). SILs and GILs are presented alongside the analytical results in the corresponding summary tables, which are discussed in **Section 7**.

6. Data Quality Assessment

The assessment of data quality is defined as the scientific and statistical evaluation of environmental results to determine if they meet the objectives of the project (USEPA, 2006). For this DSI, data quality assessment involved an evaluation of the compliance of the field (sampling) and laboratory procedures with established protocols, as well as the accuracy and precision of the associated results from the quality control measures.

6.1 Field QC Assessment

The field QC samples collected during the investigation were as follows (soil and groundwater):

- Intra-laboratory (blind field) duplicates;
- Inter-laboratory (split field) duplicates;
- Trip blanks;
- Trip spikes; and
- A rinsate blank.

Analytical results for the tested QC samples, including RPD values between primary and duplicate samples and percent recoveries, are presented in the corresponding summary table in **Appendix I**.

6.1.1 Intra-Laboratory Duplicates

One blind field duplicate (BFD) soil sample was collected on 11 June 2020, identified as QD1. The sample was a duplicate of the primary soil sample, TP2_0.4-0.5.

One BFD groundwater sample was collected on 18 June 2020, identified as GW-QD1. The primary sample was BH3M-1.

The preparation of a BFD sample involved the collection of a bulk quantity of soil/water from the same sampling point without mixing, before dividing the material into identical sampling vessels. The duplicate sample was then presented blind to the primary laboratory (SGS) to avoid any potential analytical bias. BFD samples were analysed for TRH, BTEX and selected metals.

Calculated RPD values were found to be within the DQI, with the exception of soil arsenic, the variability being due to low analyte concentrations and sample heterogeneity. The reported results were well below the SIL and these variations were acceptable.

6.1.2 Inter-Laboratory Duplicates

One inter-laboratory duplicate (ILD) soil sample was collected on 11 June 2020, identified as QT1. The sample was a duplicate of the primary soil sample, TP2_0.4-0.5.

One ILD groundwater sample was collected on 18 June 2020, identified as GW-QT1. The primary sample was BH3M-1.

The preparation of an ILD sample was identical to the BFD sample. Each was analysed for TRH, BTEX and selected metals by the secondary laboratory (Envirolab). Calculated RPD values were found to be within the DQI, with most concentrations less than the laboratory limits of reporting (LOR).

6.1.3 Trip Blanks

Two trip blank samples were prepared and analysed by the primary laboratory for BTEX. Analytical results for each sample were all below the corresponding laboratory LOR, indicating

that ideal sample transport and handling conditions were achieved (i.e. there was no cross-contamination during sample transport and handling).

6.1.4 Trip Spikes

Two trip spike samples were prepared and analysed by the primary laboratory for BTEX. Analyte recoveries for these samples were 94-101%, which complied with the DQI. It was therefore concluded that satisfactory sample transport and handling conditions were achieved (i.e. there was negligible loss of volatiles, and by default semi-volatiles, during sample transport and handling).

6.1.5 Rinsate Blank

A single equipment rinsate blank was submitted to the primary laboratory for analysis of TRH, BTEX and selected metals. Analytical results were all reported below the laboratory LOR. EI considered that decontamination procedures performed during the field works were effective.

6.1.6 Assessment of Field QC Data

Based on the results of the field QC samples, EI considered the field program carried out during the DSI was appropriate and the data were acceptable.

6.2 Laboratory QC Assessment

6.2.1 Laboratory Accreditation

To undertake all analytical testing, EI commissioned SGS as the primary laboratory and Envirolab as the secondary laboratory. SGS and Envirolab, both established analytical laboratories which operate in accordance with the guidelines set out in ISO/IEC Guide 25 “General requirements for the competence of calibration and testing laboratories”, conducted all respective analyses using National Association Testing Authorities (NATA)-registered procedures.

In relation to contingencies, where the pre-determined DQI were not achieved, in accordance with each laboratory’s QC policy, respective tests were accordingly repeated. Where the results again fell outside the DQI, then sample heterogeneity was assumed and written comment was provided to this effect on the final laboratory certificate. The laboratory QA/QC reports are included in **Appendix H**.

6.2.2 Sample Holding Times

Sample holding times were within the laboratory DQIs, which were consistent with standard environmental protocols.

6.2.3 Test Methods and Practical Quantitation Limits

Practical Quantitation Limits, also known as LORs, for all tested parameters during the assessment of soils and groundwater are presented in the lab reports, **Appendix H**.

6.2.4 Method Blanks

Concentrations of all parameters in method blanks were below the laboratory PQLs and were therefore within the DQI.

6.2.5 Laboratory Duplicate Samples

The laboratory duplicates showed calculated RPDs that were within acceptable ranges and conformed to the DQI, with the exception of calcium and manganese in one sample, and copper, nickel, lead and zinc in two samples, all due to sample heterogeneity.

6.2.6 Laboratory Control Samples

Results for the laboratory control samples were within acceptable ranges and conformed to the DQI.

6.2.7 Matrix Spikes

All matrix spikes for the respective sample batches were within acceptable ranges and conformed to the DQI.

6.2.8 Surrogates

Recovery results for the surrogate samples conformed to the DQI, and were within acceptance criteria.

6.3 Concluding Remarks

All field work, including equipment decontamination and sample preservation and transport, was conducted in accordance with the SAQP and SOPs, which were devised with reference to industry-approved guidelines. Appropriate QC measures were integrated into each sampling event and the DQI were met, or if not, the variability was suitably justified.

All samples, including field QC samples, were transported to the primary and secondary laboratories under refrigerated conditions, using strict COC procedures. Relevant documents (COC forms) were presented with the samples at the times of delivery. All supporting documents (COCs and SRAs) were completed in full and signed, where appropriate. Copies of these were included in the DSI report.

Both contracted laboratories (SGS and Envirolab) were accredited by NATA for the analyses undertaken. All analytical procedures used were industry recognised and endorsed standard methods. Appropriate QC measures were integrated into each testing batch and the DQI were met, or if not, the variability was suitably justified.

All final reports were submitted in full and included all requested analyses, as per the signed COC forms.

The project DQOs specified in **Section 5.1** were considered to have been achieved. The adopted QA/QC program ensured that the data collated during the DSI were accurate, precise and representative of the site conditions. The data were therefore useable for interpretation (site investigation) purposes.

7. Results

7.1 Subsurface Conditions

Based on the test bore / pit logs (**Appendix E**), the site lithology was described as a layer of anthropogenic filling, overlying natural sandy soils, with bedrock expected at depth. More details are presented in **Table 7-1**.

Table 7-1 Summary of Subsurface Conditions

Unit	Material	Depth to Top of Unit (m BEGL)	RL of Top of Unit (m AHD)	Observed Thickness (m)	Comments
1	**Topsoil/Fill**	Surface	17.30 to 21.70	0.10 to 2.20	Topsoil and fill comprising fine to medium grained, brown, silty sand with rootlets, followed by fine to medium grained, pale brown to brown silty to clayey sand.
2	**Alluvial Soil**	0.10 to 2.20	16.00 to 21.20	1.27 to 4.90	Firm to very stiff, low plasticity sandy to silty clay, or clayey sand, with fine to medium ironstone gravels.
3	**Very Low to Low Strength Clay Pellet Sandstone**	1.77 to 7.10	11.10 to 19.93	-	Very low to low strength, distinctly weathered, fine to medium grained sandstone with clay and claystone bands. Not encountered in BH5, TP3, TP4, TP5, or TP6. The depth to bedrock varies across the site, being most shallow at the eastern end (BH1), becoming deeper at the western end (BH6).

Field Observations

Soil samples were obtained from the boreholes and test pits at various depths ranging between 0.1m to 2.5m BGL. All examined soil samples were evaluated on a qualitative basis for odour and visual signs of contamination (e.g. hydrocarbon odours, oil staining, petrochemical filming, asbestos fragments, ash, and charcoal) and the following observations were noted:

- A mild hydrogen sulphide odour was noted at one location being TP6, from a depth greater than 0.8mBGL;
- No slag or visual signs of contamination were noted in any of the boreholes or test pits; and
- No hydrocarbon odours were noted in any of the boreholes / test pit.

7.2 Soil

Laboratory analytical results for the tested soil samples are tabulated against the adopted SILs in **Appendix I**.

A total of 16 primary samples were analysed for the COPC and no concentration exceeded the corresponding SIL. Site soils were thus considered to be acceptable for retention, with respect to the proposed development.

Acid Sulfate Soil Assessment

Apart from the mild hydrogen sulphide odour at TP6 (from 0.8m BGL onwards), indicators of ASS were not observed in any of the examined soils, nor anywhere else across the site. The pH analyses (**Appendix G**) indicated that soils were:

- Moderately acidic to neutral (pH: 4.7-6.7); hence,
- Actual ASS were not expected, since pH_F values were well above the ASSMAC (1998) action value of 4; and
- Potential ASS were also not expected, as all pH_{FOX} values were above the ASSMAC (1998) action value of 3.5, and all pH differences (pH_F less pH_{FOX}) were less than 1, indicating little net acid generating ability.

These results supported the conclusion that ASS is not of concern to the current site, and did not require management during any future soil disturbance.

Waste Classification

Fill sample results were compared to the waste classification criteria prescribed under the EPA (2014) *Waste Classification Guidelines,* to provide a preliminary indication of the waste type(s) which may require off-site disposal. All results complied with the criteria for *General Solid Waste (Non Putrescible).*

7.3 Groundwater

Monitoring Well Construction

Three groundwater monitoring wells were utilised for the GME of this DSI. The available well construction details are provided in **Table 7-2**.

Table 7-2 Monitoring Well Construction Details

Well ID	Well Depth (m BGL)	Well Stick-up (m BGL)	Screen Interval (m BGL)	Lithology Screened
BH3M	5.9	- 0.1	2.9-5.9	Sandy Clay
BH4M	5.86	- 0.1	2.85-5.85	Sandy Clay
BH5M	6.1	- 0.1	3.1-6.1	Sandy Clay

Field Observations

Standing water levels (SWLs) were measured within each well prior to sampling, and presented in **Table 7-3**. The collected samples were evaluated on the basis of odour and visual signs of contamination, with the following observations noted:

- No olfactory or visual evidence of contamination was noted in any monitoring well; and
- No sheens were noted for the groundwater of any monitoring well.

Groundwater field parameters suggest that the local aquifer was acidic and fresh. The inferred hydraulic gradient was south westerly, towards Narrabeen Creek.

Table 7-3 Groundwater Field Data

Well ID	SWL (m BTOC)	SWL (m BGL)	DO (mg/L)	pH	EC (µS/cm)	T (°C)	Redox (mV)	Odour / Turbidity
BH3M	1.0	1.1	2.97	5.73	439	20.47	92.6	None/Med
BH4M	1.7	1.8	2.83	5.29	486	19.51	187.2	None/Med
BH5M	1.50	1.60	1.39	5.18	475	19.2	138.4	None/Med

Note 1 Standing water level measured from top of well casing, prior to groundwater sampling.

Laboratory Analytical Results

Laboratory analytical results for the tested groundwater samples are tabulated against the adopted GILs in **Appendix I**.

All reported concentrations for the COPC were below the adopted GILs, with the exception of the heavy metals, copper (Cu) and zinc (Zn). The metal levels were considered to be consistent with natural (background) concentrations for an urbanised area.

8. Site Characterisation

8.1 Subsurface Conditions

The subsurface of the site was generalised as a layer of anthropogenic filling, overlying natural sandy clays. The fill depth within the eastern part was estimated to be approximately 0.5m thick, increasing to the west, with a maximum thickness of 1.0m (identified at BH6). ASS was not identified and was not expected to require management during the development.

8.2 Soil Impacts

No olfactory indicator of contamination (i.e. suspicious odour), nor any visual signs of contamination (e.g. oil staining, petrochemical filming, asbestos fragments) were noted during the field works of this DSI. Contaminant concentrations in the representative soil samples were all below the adopted ecological and human health criteria applicable to commercial land use scenarios. The soils across the site were considered suitable for on-site retention, and did not pose an unacceptable risk to future users of the property, or its immediate surrounds.

8.3 Waste Classification

Fill material at the site is expected to be classified as *General Solid Waste (Non Putrescible).* Further assessment including toxicity characteristics leaching procedure (TLCP) is required to confirm this. Should fill material require offsite disposal, additional details regarding the volumes and excavation areas and depths may be necessary, in order to produce a Waste Classification Certificate.

8.4 Groundwater Impacts

Concentrations of all COPCs were below the adopted GILs, except for copper and zinc. These metals are essential trace minerals, commonly found within groundwater due to the contact of the waterbody with underlying strata. As the criteria applied was applicable to an open, above ground waterbody, the values applied were representative of the required quality on discharge from the land mass, and do not directly compare to groundwater itself. As such, the elevated concentrations were unlikely to remain within discharged waters, and were commonly associated with urban environments. These elevated results were considered indicative of an urban groundwater system and were not present as a result of on-site impacts. The local groundwater was considered suitable for the commercial land use proposed.

8.5 Review of CSM

The CSM presented in **Section 4** was considered to appropriately identify contamination sources, migration mechanisms and exposure pathways, as well as potential on-site and off-site receptors. Data regarding soil and groundwater quality at the site were obtained and did not indicate an unacceptable risk posed to human or ecological receptors of the land, and no gaps in the dataset remain. The sampling was considered appropriate for use and the results conclude soil and groundwater at the site to pose a low, and acceptable risk to the site's receptors with no further assessment, management or remediation required.

9. Conclusion

The property located at 15 Jubilee Avenue, Warriewood NSW was the subject of a Detailed Site Investigation. The key findings of this DSI were:

- The site was a vacant property at the time of this investigation. It originally formed part of the 'Great Warriewood Estate' in the early 1900s.
- The site appeared to have been used as farmland until the 1970s, with both livestock grazing and market (greenhouse) gardening taking place. From the 1970s onwards, the site was mainly used for residential purposes (two houses), or was vacant land.
- The site was free of statutory notices and licensing agreements issued under the *Contaminated Land Management Act 1997* and *Protection of the Environment Operations Act 1997*. The site was not included on the *List of NSW Contaminated Sites Notified to the EPA*.
- Visual evidence of gross contamination, including fragments of FCS, was not observed on any part of the site. No suspicious odour was detected during the site inspection, or any of the field (sampling) works.
- There was no evidence that a UST was present on the site. No AST was identified.
- The potential for ASS to be present on the site was extremely low.
- Contaminant concentrations in the representative soil samples were all below the adopted ecological and human health criteria applicable to commercial land use scenarios.
- Contaminant concentrations in the representative groundwater samples were all below the adopted GILs, with the exception of the heavy metals, copper and zinc. The metal levels were considered to be consistent with natural (background) concentrations for an urbanised area and not present as a result of on-site impacts. The local groundwater was considered suitable for the commercial land use proposed.

Based on the findings of this DSI and with due consideration of EI's Statement of Limitations (**Section 10**), it was concluded that the potential for site contamination was low. Both soils and groundwater were considered to be suitable for the proposed (commercial) development, in accordance with *State Environmental Planning Policy* 55 (SEPP 55) - *Remediation of Land.*

Recommendations

EI provide the following recommendations in relation to the proposed development of the property:

- Any soil materials designated for off-site disposal, including *Virgin Excavated Natural Materials* (VENM), are to be classified in accordance the EPA (2014) *Waste Classification Guidelines*; and
- Any material being imported to the site (i.e. for landscaping purposes) should be assessed for potential contamination in accordance with EPA guidelines, and thereby validated as suitable for the intended use.

10. Statement of Limitations

This report has been prepared for the exclusive use of 15 Jubilee Pty Ltd, whom is the only intended beneficiary of EI's work. The scope of the investigation carried out for the purpose of this report is limited to that agreed with 15 Jubilee Pty Ltd.

No other party should rely on the document without the prior written consent of EI, and EI undertakes no duty, or accepts any responsibility or liability, to any third party who purports to rely upon this document without EI's approval.

EI has used a degree of care and skill ordinarily exercised in similar investigations by reputable members of the environmental industry in Australia as at the date of this document. No other warranty, expressed or implied, is made or intended. Each section of this report must be read in conjunction with the whole of this report, including its appendices.

The conclusions presented in this report are based on a limited assessment of historical site use and current use of the site. Due to the preliminary nature of this assessment, findings are not based on actual samples collected or testing conducted. EI has relied upon information provided by the Client and other third parties to prepare this document, some of which could not be verified by EI due to the anecdotal or historical nature of the information.

EI's professional opinions are reasonable and based on its professional judgment, experience and training.

EI's professional opinions contained in this document are subject to modification if additional information is obtained through the data searches that have been initiated with government authorities, but for which the requested information is still pending.

Technical opinions may also be amended in the light of further investigation, observations, or validation testing and analysis during remedial activities. In some cases, further testing and analysis may be required, which may result in a further report with different conclusions.

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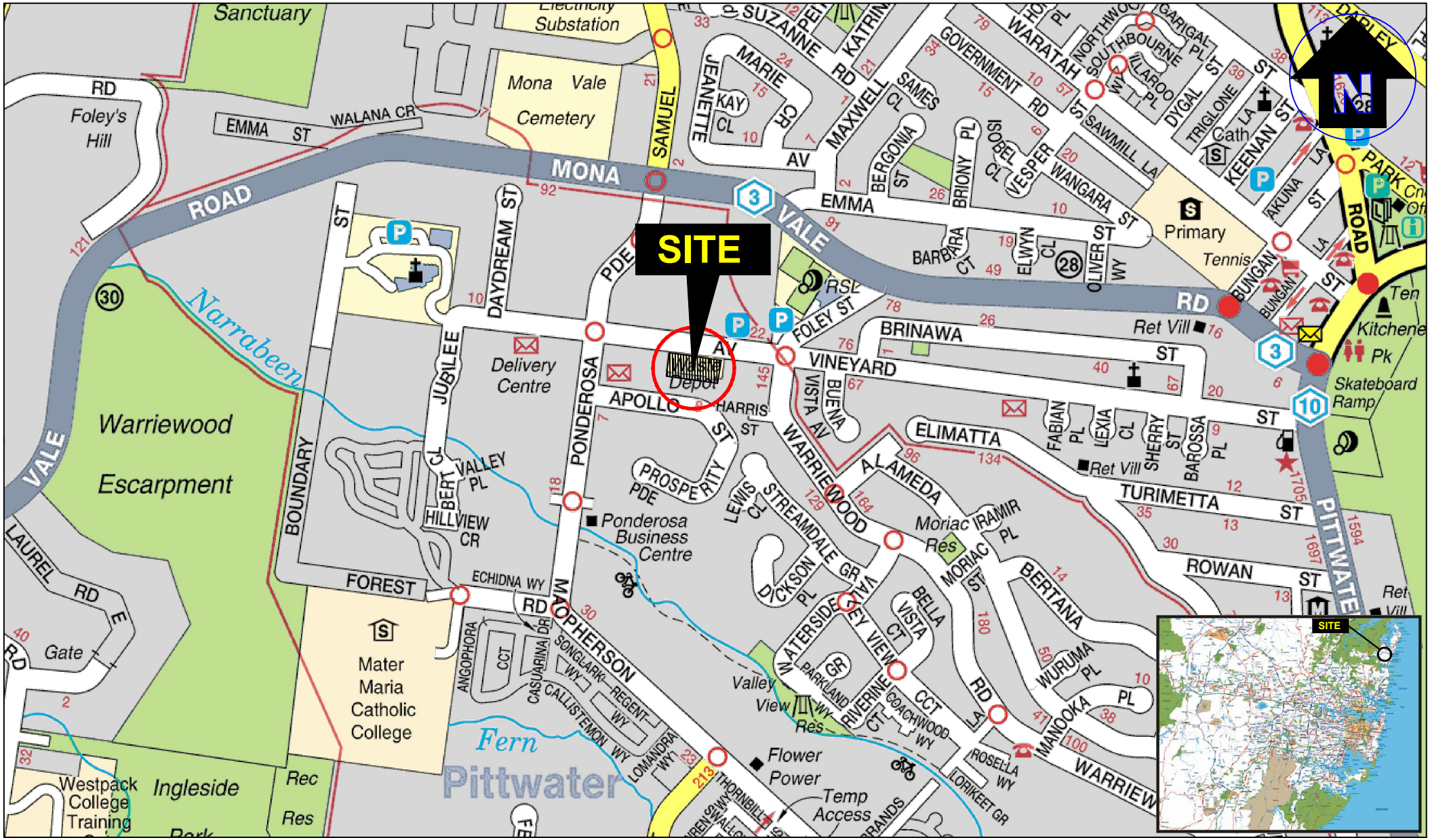
Abbreviations

ACM	Asbestos-Containing Materials
AHD	Australian Height Datum
ASS	Acid Sulfate Soils
AST	Above-ground Storage Tank
B(α)P	Benzo(α)Pyrene (a PAH compound)
BFD	Blind Field Duplicate
BGL	Below Ground Level
BH	Borehole
BTEX	Benzene, Toluene, Ethylbenzene, Xylenes
BTOC	Below Top of Casing
CCO	Chemical Control Order
COC	Chain of Custody
COPC	Contaminants of Potential Concern
CSM	Conceptual Site Model
CVOC	Chlorinated Volatile Organic Compounds (a sub-set of the VOC suite)
DA	Development Application
DNAPL	Dense Non-Aqueous Phase Liquid (also referred to as Phase-Separated Hydrocarbons)
DO	Dissolved Oxygen
DP	Deposited Plan
DSI	Detailed Site Investigation
EC	Electrical Conductivity
EI	EI Australia
EIL	Ecological Investigation Level
EMP	Environmental Management Plan
EPA	Environment Protection Authority (of New South Wales)
ESL	Ecological Screening Level
F1	C_6-C_{10} TRH (less the sum of BTEX concentrations)
F2	>C_{10}-C_{16} TRH (less the concentration of naphthalene)
FCS	Fibre Cement Sheeting
GIL	Groundwater Investigation Level
GIPA	Government Information Public Access
GME	Groundwater Monitoring Event
HDPE	High Density Polyethylene
HIL	Health-based Investigation Level
HM	Heavy Metals
HSL	Health-based Screening Level
ILD	Inter-Laboratory Duplicate
km	Kilometres
L	Litres
LEP	Local Environmental Plan
LGA	Local Government Area
LNAPL	Light Non-Aqueous Phase Liquid (also referred to as Phase-Separated Hydrocarbons)
LOR	Limit of Reporting (limit of reporting for respective laboratory method)
m	Metres
µg/L	Micrograms per Litre
mg/L	Milligrams per Litre
mV	Millivolts
MW	Monitoring Well
N/A	Not Applicable
NATA	National Association of Testing Authorities, Australia

NEPC	National Environment Protection Council
NEPM	National Environment Protection Measure
NSW	New South Wales
OCP	Organochlorine Pesticides
OEH	Office of Environment and Heritage (of New South Wales)
OPP	Organophosphate Pesticides
PAH	Polycyclic Aromatic Hydrocarbons
PCB	Polychlorinated Biphenyls
PFAS	Per- and Poly- Fluroalkyl Substances
pH	Potential Hydrogen (a measure of the acidity or basicity of an aqueous solution)
PQL	Practical Quantitation Limit (limit of detection for respective laboratory method)
PSH	Phase-Separated Hydrocarbons
PSI	Preliminary Site Investigation
QA/QC	Quality Assurance / Quality Control
RAP	Remediation Action Plan
Redox	Reduction-Oxidation Potential
RL	Relative Level
RPD	Relative Percentage Difference
SAQP	Sampling, Analytical and Quality Plan
SCID	Stored Chemical Information Database (maintained by SafeWork NSW)
SIL	Soil Investigation Level
SOP	Standard Operating Procedure
SRA	Sample Receipt Advice (document confirming laboratory receipt of samples)
SWL	Standing Water Level
TCLP	Toxicity Characteristics Leaching Procedure
TDS	Total Dissolved Solids (a measure of water salinity)
TEQ	Toxicity Equivalent Quotient
TPH	Total Petroleum Hydrocarbons (superseded term equivalent to TRH)
TRH	Total Recoverable Hydrocarbons (non-specific analysis of organic compounds)
UCL	Upper Confidence Limit (of the mean)
UPSS	Underground Petroleum Storage System
USEPA	United States Environmental Protection Agency
UST	Underground Storage Tank
VENM	Virgin Excavated Natural Material
VOC	Volatile Organic Compounds (specific organic compounds which are volatile)

Appendix A - Figures



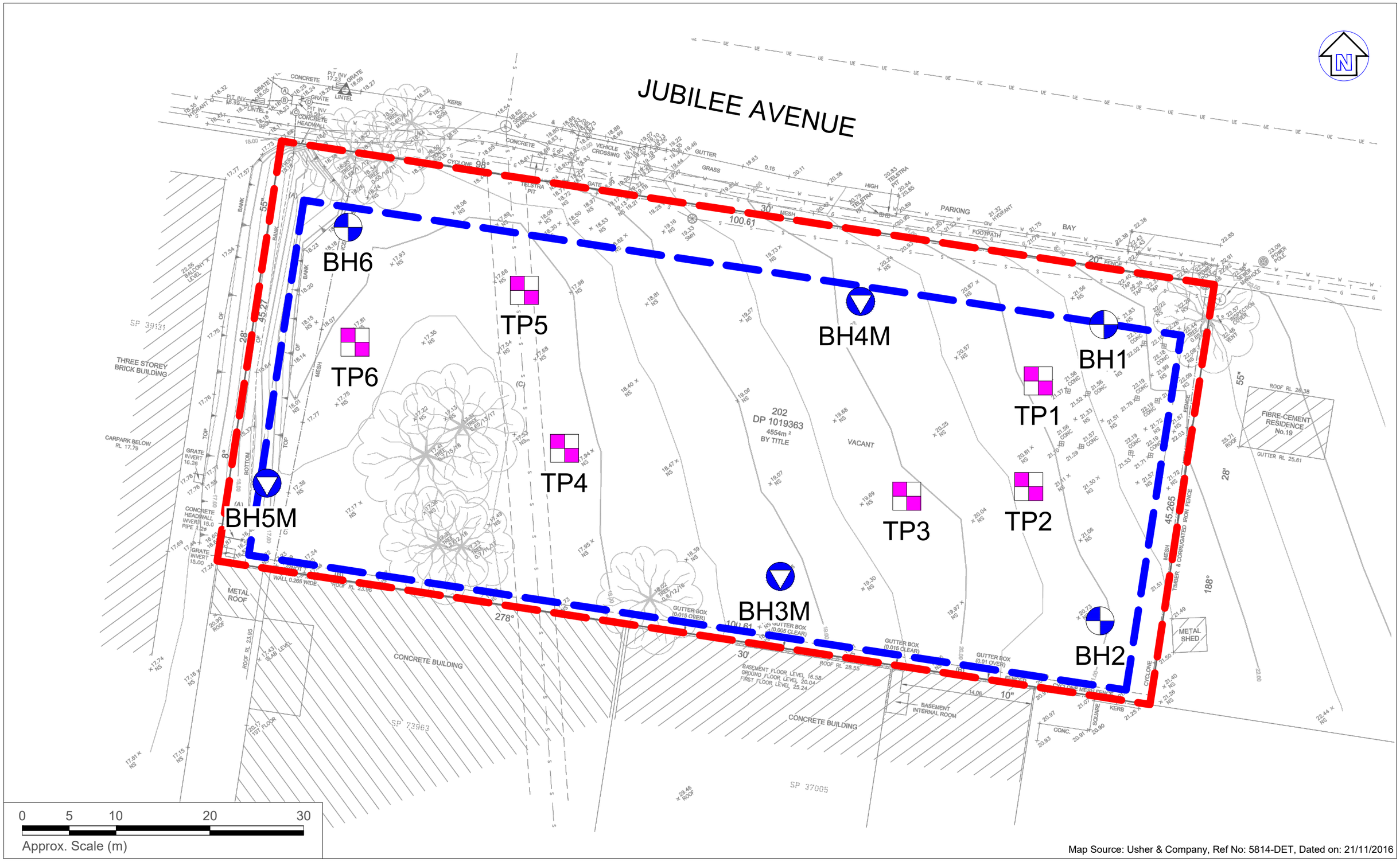
eiaustralia
Contamination | Remediation | Geotechnical
Suite 6.01, 55 Miller Street, PYRMONT 2009
Ph (02) 9516 0722 Fax (02) 9518 5088

Drawn:	AM.H.
Approved:	E.S.
Date:	04-05-21
Scale:	Not To Scale

15 Jubilee Pty Ltd
Detailed Site Investigation
15 Jubilee Avenue, Warriewood NSW
Site Locality Plan

Figure:
1

Project: E24716.E02



Map Source: Usher & Company, Ref No: 5814-DET, Dated on: 21/11/2016

LEGEND

- Approximate site boundary
- Approximate basement boundary
- Approximate borehole location
- Approximate borehole/monitoring well location
- Approximate test pit location

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Contamination | Remediation | Geotechnical
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Ph (02) 9516 0722 Fax (02) 9518 5088

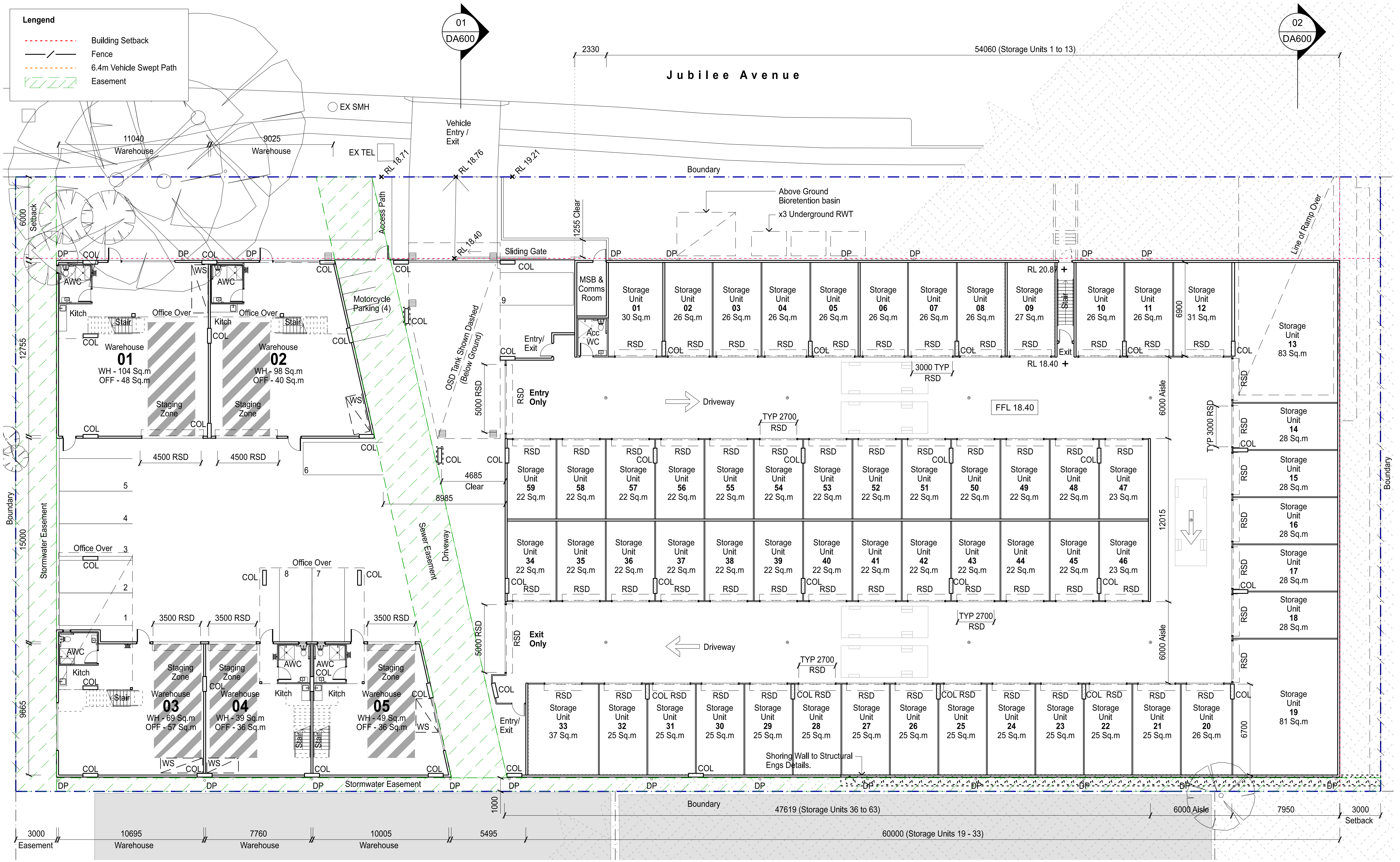
Drawn:	AM.H.
Approved:	E.S.
Date:	04-05-21

15 Jubilee Pty Ltd
Detailed Site Investigation
15 Jubilee Avenue, Warriewood NSW
Borehole Location Plan

Figure: 2

Project: E24716.E02

Appendix B – Proposed Development Plans


Lengend
Building Setback
Fence
6.4m Vehicle Swept Path
Easement
01 DA600
02 DA600
2330
54060 (Storage Units 1 to 13)
Jubilee Avenue
EX SMH
Vehicle Entry / Exit
11040 Warehouse
9025 Warehouse
EX TEL
RL 18.71
RL 18.76
RL 19.21
Boundary
Above Ground Bioretention basin
x3 Underground RWT
Line of Ramp Over
6000 Setback
Access Path
1255 Clear
RL 18.40
Sliding Gate
MSB & Comms Room
Acc WC
Entry/ Exit
Storage Unit 01 30 Sq.m
Storage Unit 02 26 Sq.m
Storage Unit 03 26 Sq.m
Storage Unit 04 26 Sq.m
Storage Unit 05 26 Sq.m
Storage Unit 06 26 Sq.m
Storage Unit 07 26 Sq.m
Storage Unit 08 26 Sq.m
Storage Unit 09 27 Sq.m
RL 20.87
Stair
Exit
RL 18.40
Storage Unit 10 26 Sq.m
Storage Unit 11 26 Sq.m
Storage Unit 12 31 Sq.m
6900
Storage Unit 13 83 Sq.m
Motorcycle Parking (4)
OSD Tank Shown Dashed (Below Ground)
5000 RSD
Entry Only
3000 TYP RSD
Driveway
FFL 18.40
TYP 2700 RSD
6000 Aisle
TYP 3000 RSD
Storage Unit 14 28 Sq.m
Storage Unit 15 28 Sq.m
Storage Unit 16 28 Sq.m
Storage Unit 17 28 Sq.m
Storage Unit 18 28 Sq.m
Storage Unit 19 81 Sq.m
12015
Boundary
AWC
Kitch
Stair
Office Over
Warehouse 01
WH - 104 Sq.m
OFF - 48 Sq.m
Staging Zone
Warehouse 02
WH - 98 Sq.m
OFF - 40 Sq.m
4500 RSD
4500 RSD
12755
4685 Clear
8985
Storage Unit 59 22 Sq.m
Storage Unit 58 22 Sq.m
Storage Unit 57 22 Sq.m
Storage Unit 56 22 Sq.m
Storage Unit 55 22 Sq.m
Storage Unit 54 22 Sq.m
Storage Unit 53 22 Sq.m
Storage Unit 52 22 Sq.m
Storage Unit 51 22 Sq.m
Storage Unit 50 22 Sq.m
Storage Unit 49 22 Sq.m
Storage Unit 48 22 Sq.m
Storage Unit 47 23 Sq.m
Storage Unit 34 22 Sq.m
Storage Unit 35 22 Sq.m
Storage Unit 36 22 Sq.m
Storage Unit 37 22 Sq.m
Storage Unit 38 22 Sq.m
Storage Unit 39 22 Sq.m
Storage Unit 40 22 Sq.m
Storage Unit 41 22 Sq.m
Storage Unit 42 22 Sq.m
Storage Unit 43 22 Sq.m
Storage Unit 44 22 Sq.m
Storage Unit 45 22 Sq.m
Storage Unit 46 23 Sq.m
Sewer Easement
Driveway
Stormwater Easement
15000
Office Over
3500 RSD
3500 RSD
3500 RSD
Warehouse 03
WH - 69 Sq.m
OFF - 57 Sq.m
Warehouse 04
WH - 39 Sq.m
OFF - 36 Sq.m
Warehouse 05
WH - 49 Sq.m
OFF - 36 Sq.m
WS
9665
5000 RSD
Exit Only
TYP 2700 RSD
Storage Unit 33 37 Sq.m
Storage Unit 32 25 Sq.m
Storage Unit 31 25 Sq.m
Storage Unit 30 25 Sq.m
Storage Unit 29 25 Sq.m
Storage Unit 28 25 Sq.m
Storage Unit 27 25 Sq.m
Storage Unit 26 25 Sq.m
Storage Unit 25 25 Sq.m
Storage Unit 24 25 Sq.m
Storage Unit 23 25 Sq.m
Storage Unit 22 25 Sq.m
Storage Unit 21 25 Sq.m
Storage Unit 20 26 Sq.m
6700
Shoring Wall to Structural Engs Details.
Stormwater Easement
1000
Boundary
47619 (Storage Units 36 to 63)
6000 Aisle
7950
3000 Setback
3000 Easement
10695 Warehouse
7760 Warehouse
10005 Warehouse
5495
60000 (Storage Units 19 - 33)

DEVELOPMENT APPLICATION

SBA ARCHITECTS

Commercial Industrial Residential Retail Industrial Design

Suite 702, 83 Mount Street, North Sydney, NSW 2060

T: 02 9929 9988 F: 02 9929 8899

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ISSUE	REV.	DESCRIPTION	DATE
B		Development Application Issue	06.05.2021
A		Development Application Issue	30.04.2021

Proposed Industrial Development

15 Jubilee Avenue, Warriewood, NSW 2102

DRAWING TITLE

Ground Floor Plan

DATE	SCALE	JOB NO.	DRAWING NO.	
06.05.2021	1:250@A3	20259	DA 200	B

Lengend

- Building Setback
- Fence
- 6.4m Vehicle Swept Path
- Easement

Jubilee Avenue

11193

9053

4165

8935

01 - Office
48 Sq.m
FFL 20.90

02 - Office
39.8 Sq.m
FFL 20.90

Entry

Entry

Stair

Stair

Void
(Warehouse)

Void
(Warehouse)

RSD (Below)

RSD (Below)

Driveway (Below)

9545

6570

8535

03 - Office
57 Sq.m
FFL 20.90

04 - Office
36 Sq.m
FFL 20.90

05 - Office
36 Sq.m
FFL 20.90

RSD (Below)

RSD (Below)

Line of Warehouse Below

RSD (Below)

Entry

Entry

Entry

Stair

Stair

Stair

Void
(Warehouse)

Void
(Warehouse)

Void
(Warehouse)

5450

3805

3805

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15 Jubilee Avenue, Warriewood, NSW 2102

DRAWING TITLE
Ground Mezzanine Floor Plan

DATE	SCALE	JOB NO.	DRAWING NO.	
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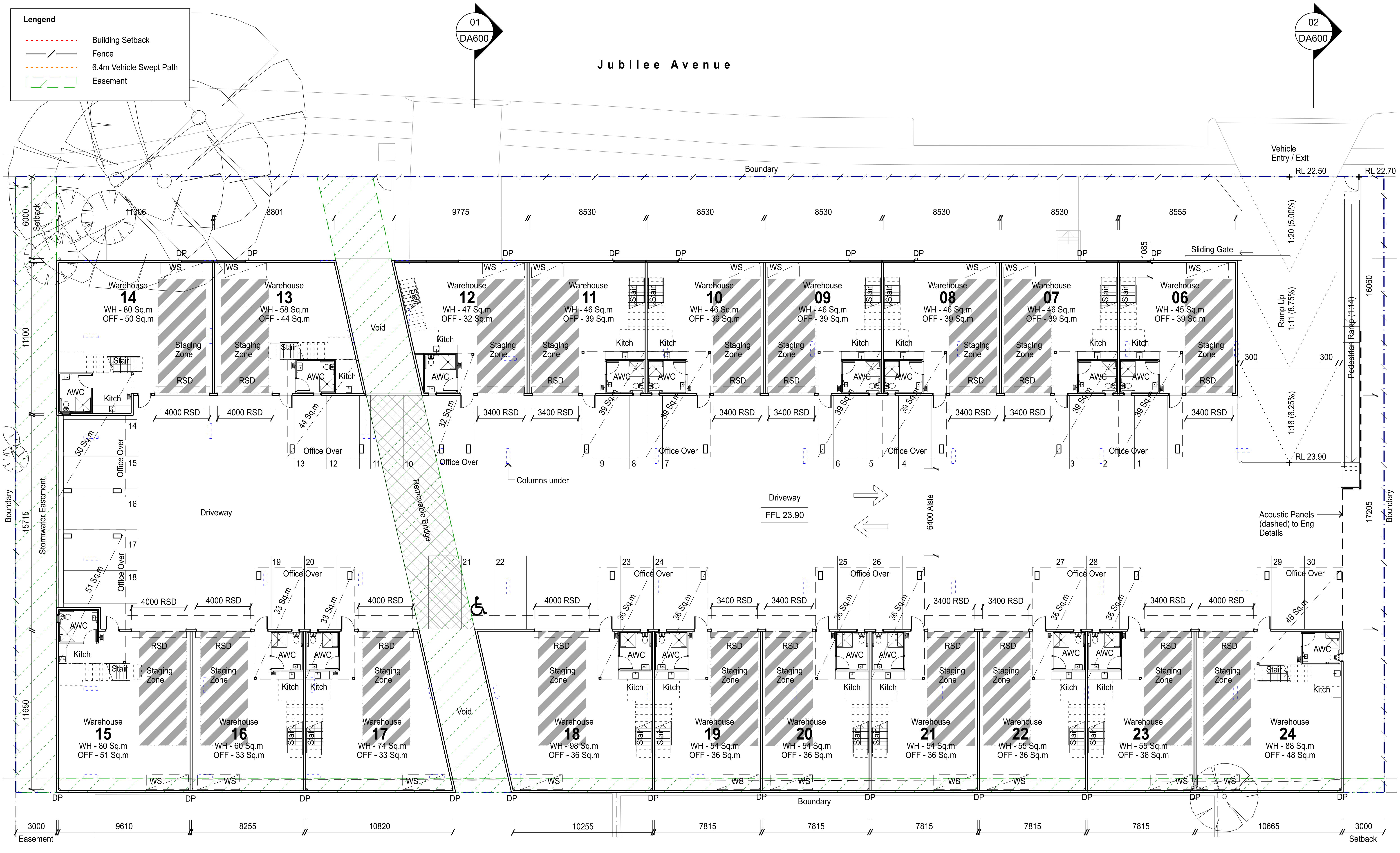

Lengend
Building Setback
Fence
6.4m Vehicle Swept Path
Easement
01 DA600
02 DA600
Jubilee Avenue
Boundary
Vehicle Entry / Exit
RL 22.50
RL 22.70
Sliding Gate
Ramp Up 1:11 (8.75%)
1:20 (5.00%)
1:16 (6.25%)
RL 23.90
Pedestrian Ramp (1:14)
Acoustic Panels (dashed) to Eng Details
Stormwater Easement
Setback
Void
Removable Bridge
Columns under
Driveway
FFL 23.90
6400 Aisle
Warehouse 14 WH - 80 Sq.m OFF - 50 Sq.m
Warehouse 13 WH - 58 Sq.m OFF - 44 Sq.m
Warehouse 12 WH - 47 Sq.m OFF - 32 Sq.m
Warehouse 11 WH - 46 Sq.m OFF - 39 Sq.m
Warehouse 10 WH - 46 Sq.m OFF - 39 Sq.m
Warehouse 09 WH - 46 Sq.m OFF - 39 Sq.m
Warehouse 08 WH - 46 Sq.m OFF - 39 Sq.m
Warehouse 07 WH - 46 Sq.m OFF - 39 Sq.m
Warehouse 06 WH - 45 Sq.m OFF - 39 Sq.m
Warehouse 15 WH - 80 Sq.m OFF - 51 Sq.m
Warehouse 16 WH - 60 Sq.m OFF - 33 Sq.m
Warehouse 17 WH - 74 Sq.m OFF - 33 Sq.m
Warehouse 18 WH - 98 Sq.m OFF - 36 Sq.m
Warehouse 19 WH - 54 Sq.m OFF - 36 Sq.m
Warehouse 20 WH - 54 Sq.m OFF - 36 Sq.m
Warehouse 21 WH - 54 Sq.m OFF - 36 Sq.m
Warehouse 22 WH - 55 Sq.m OFF - 36 Sq.m
Warehouse 23 WH - 55 Sq.m OFF - 36 Sq.m
Warehouse 24 WH - 88 Sq.m OFF - 48 Sq.m
Staging Zone
RSD
WS
DP
AWC
Kitch
Stair
Office Over
4000 RSD
3400 RSD
11306
8801
9775
8530
8555
6000
11100
15715
11650
16060
17205
3000 Easement
9610
8255
10820
10255
7815
10665
3000 Setback

01 DA300 Level 1 Floor Plan 1:250

DEVELOPMENT APPLICATION

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15 Jubilee Avenue, Warriewood, NSW 2102

DRAWING TITLE

Level 1 Floor Plan

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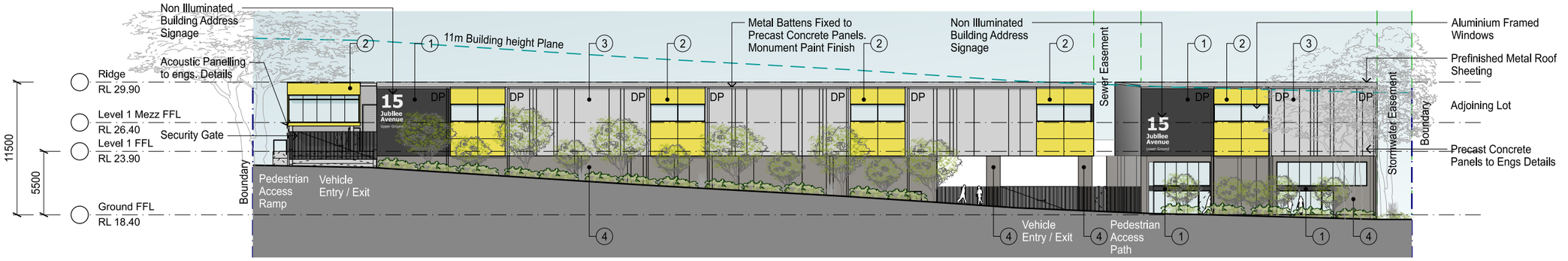
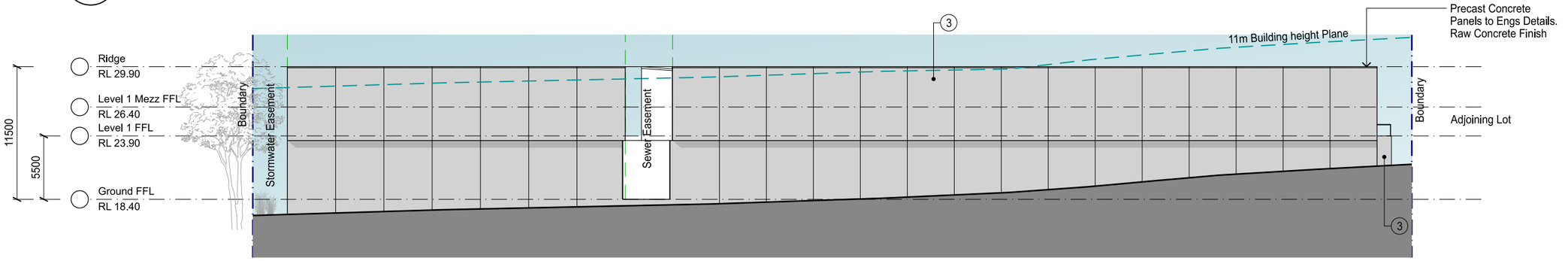


01 DA500 North Elevation 1:400



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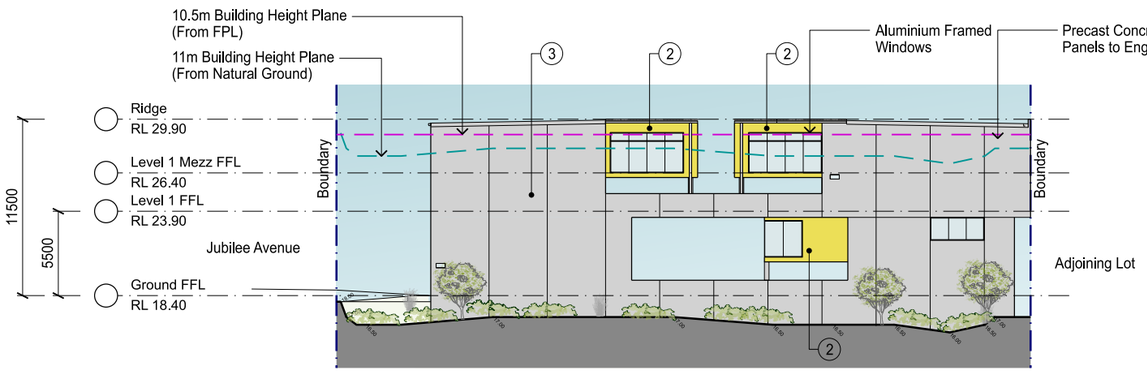
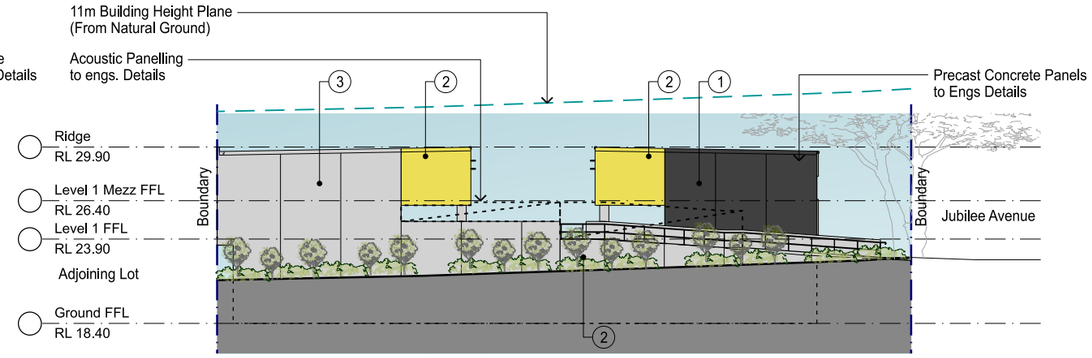


03 DA500 West Elevation 1:400



04 DA500 East Elevation 1:400

External Finishes

1. **Precast Concrete Panels** Dulux - 'Monument'
2. **Precast Concrete Panels and FC Sheeting** Yellow
3. **Prefinished Metal Roof Sheeting, Precast Concrete Panels and Metal Roof Sheeting** Dulux 'Pale Grey'
4. **Precast Concrete Panel Finish** Dulux 'Mole Grey'

Legend

- Natural Ground Line (Existing)
- 11m Building Height Plane From Natural Ground Level
- 10.5m Building Height Plane From Flood Planning Level (FPL - RL18.40)

DEVELOPMENT APPLICATION

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A		Development Application Issue	30.04.2021

Proposed Industrial Development

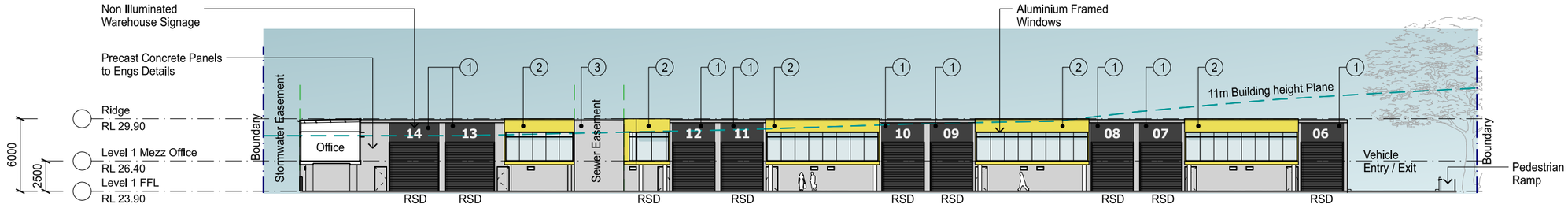
15 Jubilee Avenue, Warriewood, NSW 2102

DRAWING TITLE
Elevations
Sheet 1 of 2

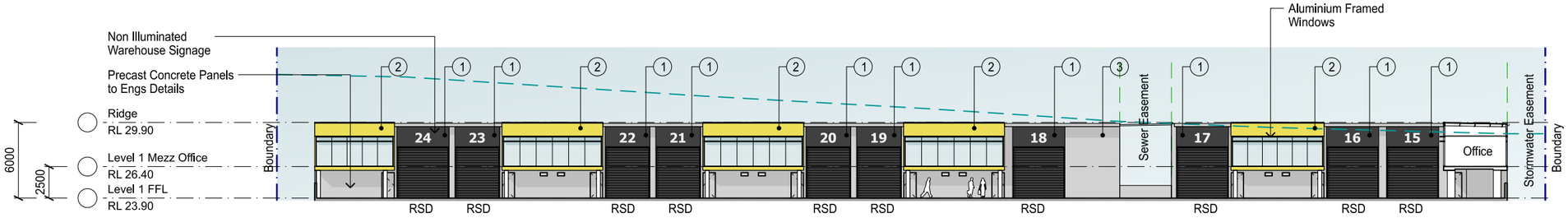
DATE	SCALE	JOB NO.	DRAWING NO.	
06.05.2021	1: 400@A3	20259	DA 500	B

Legend

- Natural Ground Line (Existing)
- 11m Building Height Plane From Natural Ground Level
- 10.5m Building Height Plane From Flood Planning Level (FPL - RL18.40)



01 DA501 North Elevation - Level 1 1:400



02 DA501 South Elevation - Level 1 1:400

External Finishes

1. **Precast Concrete Panels** Dulux - 'Monument'
2. **Precast Concrete Panels and FC Sheeting** Yellow
3. **Prefinished Metal Roof Sheeting, Precast Concrete Panels and Metal Roof Sheeting** Dulux 'Pale Grey'
4. **Precast Concrete Panel Finish** Dulux 'Mole Grey'

DEVELOPMENT APPLICATION

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ISSUE	REV.	DESCRIPTION	DATE
	B	Development Application Issue	06.05.2021
	A	Development Application Issue	30.04.2021

Proposed Industrial Development

15 Jubilee Avenue, Warriewood, NSW 2102

DRAWING TITLE
Elevations
Sheet 2 of 2

DATE	SCALE	JOB NO.	DRAWING NO.	
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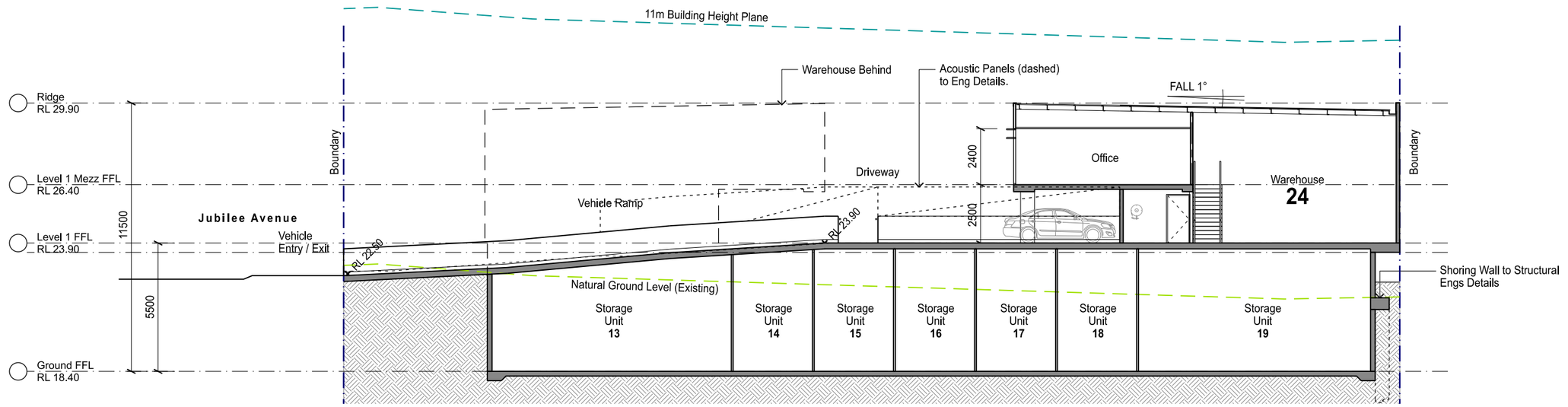
01 DA600 Section 01 1:200



02 DA600 Section 02 1:200

DEVELOPMENT APPLICATION

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Proposed Industrial Development

15 Jubilee Avenue, Warriewood, NSW 2102

DRAWING TITLE
Sections

DATE	SCALE	JOB NO.	DRAWING NO.	
06.05.2021	1:200@A3	20259	DA 600	B

Appendix C – Land Titles

LAND AND PROPERTY INFORMATION NEW SOUTH WALES - HISTORICAL SEARCH

SEARCH DATE
4/7/2016 10:42AM

FOLIO: 202/1019363

First Title(s): OLD SYSTEM
Prior Title(s): A/366630

Recorded	Number	Type of Instrument	C.T. Issue
15/11/2000	DP1019363	DEPOSITED PLAN	FOLIO CREATED EDITION 1
4/12/2000	7262756	TRANSFER	EDITION 2
2/5/2002	8559003	TRANSMISSION APPLICATION	EDITION 3
25/2/2004	AA439783	APPLICATION	EDITION 4
27/9/2004	AA982517	TRANSFER	
27/9/2004	AA982518	MORTGAGE	EDITION 5
9/10/2006	AC653293	DISCHARGE OF MORTGAGE	
9/10/2006	AC653294	MORTGAGE	EDITION 6
18/7/2007	AD274406	DISCHARGE OF MORTGAGE	
18/7/2007	AD274407	TRANSFER	
18/7/2007	AD274408	MORTGAGE	EDITION 7
20/7/2007	AD283708	CAVEAT	
3/1/2008	AD674396	CAVEAT	
2/4/2008	AD862994	CAVEAT	
8/4/2008	AD866120	WITHDRAWAL OF CAVEAT	
8/4/2008	AD866121	WITHDRAWAL OF CAVEAT	
8/4/2008	AD866122	DISCHARGE OF MORTGAGE	
8/4/2008	AD866123	MORTGAGE	EDITION 8
11/6/2010	AF540829	WITHDRAWAL OF CAVEAT	
11/6/2010	AF540830	DISCHARGE OF MORTGAGE	
11/6/2010	AF540831	TRANSFER	EDITION 9

*** END OF SEARCH ***

PRINTED ON 4/7/2016

Form: 97-01T
Licence: 10V/0096/96
Edition: 9812

(1) **TRANSFER**
New South Wales
Real Property Act 1900

7262756Y

STAMP DUTY

Office of State Revenue use only

NEW SOUTH WALES DUTY
04-12-2000 0000480472-001
SECTION 67-ORIGINAL
NO DUTY PAYABLE

(A) **TORRENS TITLE** If appropriate, specify the part or share transferred
LOT 202 / 1019363 NOW BEING 202/1019363

(B) **LODGED BY**

LTO Box	Name, Address or DX and Telephone	CODES
4Q	MARY PHILLIPS 145 WARRIEWOOD ROAD WARRIEWOOD. 2102. Reference (optional):	T TS (s713) TW (Sheriff)

(C) **TRANSFEROR** MARY PHILLIPS (AS Executrix of Will of Alexandra Georgiou)

(D) ~~The transferor acknowledges receipt of the consideration of~~ $ NIL and as regards the land specified above
(E) transfers to the transferee an estate in fee simple.
(F) Encumbrances (if applicable): 1. 2. 3.

(G) **TRANSFEREE**
ALEXANDRA DELKOU
ANNA BELCHEFF

(H) **TENANCY:** TENANTS IN COMMON IN EQUAL SHARES

(I) We certify this dealing correct for the purposes of the Real Property Act 1900. **DATE:** 4.12.2000
Signed in my presence by the transferor who is personally known to me.

Signature of witness: A. Mitic
Signature of transferor: M. Phillips

Name of witness: ANGELA MITIC

Address of witness: 84 BRIDGE ST.
CONISTON, NSW 2500

Signed in my presence by the transferee who is personally known to me.

O. M. Davidson
OLIVE MAY DAVIDSON

A. Delkou

Signature of witness: John F. Healey
Signature of transferee: A. Belcheff

Name of witness: JOHN F. HEALEY

Address of witness: 4 FONTAINEBLEAU ST SANS SOUCI
168 Lennox St Richmond 2753

If signed on the transferee's behalf by a solicitor or licensed conveyancer, insert the signatory's full name and capacity below:

All handwriting must be in block capitals.
A set of notes on this form (97-01T-2) is available from the Land Titles Office.

Page 1 of 1
number additional pages sequentially

Checked by (LTO use): RC86

Form: 01T
Release: 2.1
www.lpi.nsw.gov.au

TRANSFER

New South Wales
Real Property Act 1900

AA982517C

PRIVACY NOTE: this information is legally required and will become part of the public record

STAMP DUTY Office of State Revenue use only

NEW SOUTH WALES DUTY
09-03-2004 0001869915-001
SECTION 18(2)
DUTY $ [redacted]

(A) **TORRENS TITLE** 202/1019363

(B) **LODGED BY**

Delivery Box	Name, Address or DX and Telephone	CODES
1042R	Legal Co [redacted] Reference: 00953208 / Y1	T TW (Sheriff)

(C) **TRANSFEROR** HOWARD ROBILLIARD and STUART MICHAEL PLOWMAN

(D) **CONSIDERATION** The transferor acknowledges receipt of the consideration of $ 1,900,000.00 and as regards

(E) **ESTATE** the land specified above transfers to the transferee an estate in fee simple

(F) **SHARE TRANSFERRED** WHOLE

(G) Encumbrances (if applicable):

(H) **TRANSFEREE** WAYNE GORDON BROWN, GARY NEIL BROWN, SUZANNE RUBY BROWN and JANE LEE

(I) **TENANCY:** Tenants in Common in Equal Shares

(J) **DATE**

I certify that the person(s) signing opposite, with whom I am personally acquainted or as to whose identity I am otherwise satisfied, signed this instrument in my presence.

Signature of witness: A. Zaccagnini

Name of witness: Antonietta Zaccagnini
Address of witness: L4, 79 George St.
Parramatta 2150

Certified correct for the purposes of the Real Property Act 1900 by the transferor.

Signature of transferor: Howard Robilliard

Certified for the purposes of the Real Property Act 1900 by the person whose signature appears below.

Signature:

Signatory's name: JOHN ANTHONY TAYLOR
Signatory's capacity: transferee's solicitor

All handwriting must be in block capitals.

3/3.

Form: 01T
Release: 4.0
www.lpma.nsw.gov.au

TRANSFER

New South Wales
Real Property Act 1900

AF540831N

PRIVACY NOTE: Section 31B of the Real Property Act 1900 (RP Act) authorises the by this form for the establishment and maintenance of the Real Property Act Register. Section 96B RP Act requires that the Register is made available to any person for search upon payment of a fee, if

STAMP DUTY Office of State Revenue use only

Office of State Revenue
NSW Treasury
Client No: 111366057 2933
Duty: $109,515 Trans No: 5854121
Asst details: FS on Agreement for Sale of Land

(A) **TORRENS TITLE** FOLIO IDENTIFIER 202/1019363

(B) **LODGED BY**

Document Collection Box 392 C	Name, Address or DX, Telephone, and any SYDNEY LEGAL AGENTS LLP : 128005 Y Reference: LEMON : BLACKMORES	CODES T TW TJ JT

(C) **TRANSFEROR** MAITCORP PTY LIMITED ACN 071 402 689 (RECEIVERS AND MANAGERS APPOINTED)

(D) **CONSIDERATION** The transferor acknowledges receipt of the consideration of $ 2,255,000.00 and as regards

(E) **ESTATE** the abovementioned land transfers to the transferee an estate in fee simple

(F) **SHARE TRANSFERRED**

(G) Encumbrances (if applicable):

(H) **TRANSFEREE** BLACKMORES LIMITED ABN 35 009 713 437

(I) **TENANCY:**

DATE 4 JUNE 2010

(J) I certify that the person(s) signing opposite, with whom I am personally acquainted or as to whose identity I am otherwise satisfied, signed this instrument in my presence.

Signature of witness: E.L.King

Name of witness: ERIN LOUISE KING
Address of witness: LVL 15, 50 PITT STREET SYDNEY, NSW 2000

Certified correct for the purposes of the Real Property Act 1900 by the authorised officer named below.

Signature of authorised officer: Matt Adams

Authorised officer's name: Matt J Adams
Authority of officer: Joint and Several Receiver and Manager
Signing on behalf of: Maitcorp Pty Ltd ACN 071 402 689 (Receivers & Managers Appointed)

Certified correct for the purposes of the Real Property Act 1900 by the person whose signature appears below.

Signature:

Signatory's name: DAVID JOHN NEALE LEMON
Signatory's capacity: transferee's solicitor

(J) The transferee certifies that the eNOS data relevant to this dealing has been submitted and stored under eNOS ID No. Full name: Signature:

1003

ALL HANDWRITING MUST BE IN BLOCK CAPITALS.

LAND AND PROPERTY MANAGEMENT AUTHORITY

Form: 01T
Release: 3.2
www.lands.nsw.gov.au

(1)

TRANSFER

New South Wales
Real Property Act 1900

AD274407J

PRIVACY NOTE: Section 31B of the Real Property Act 1900 (RP Act) authorises the Reg... by this form for the establishment and maintenance of the Real Property Act Register. Section 96B RP Act requires that the Register is made available to any person for search upon payment of a fee, if any.

STAMP DUTY — Office of State Revenue use only

Office of State Revenue
NSW Treasury
Client No: 1405240 1748
Duty: $2 Trans No: 4369961
Acct details:
27/6/07

(A) FOLIO OF THE REGISTER — FOLIO IDENTIFIER 202/1019363

(B) LODGED BY

Document Collection Box	Name, Address or DX, Telephone, and LLPN if any	CODES
1089X	L. J. & W. RALPH 123765 CITY LEGAL SEARCHING SERVICES 1089X Reference: HGR maitcorp	T TW (Sheriff)

(C) TRANSFEROR — WAYNE GORDON BROWN, GARY NEIL BROWN, SUZANNE RUBY BROWN and JANE LEE

(D) CONSIDERATION — The transferor acknowledges receipt of the consideration of $ 3,000,000.00 and as regards

(E) ESTATE — the above folio of the Register transfers to the ~~transfers~~ transferee an estate in fee simple

(F) SHARE TRANSFERRED

(G) Encumbrances (if applicable):

(H) TRANSFEREE — MAITCORP PTY LTD (ACN 071 402 689)

(I) TENANCY:

DATE 26-06-07

(J) I certify that the person(s) signing opposite, with whom I am personally acquainted or as to whose identity I am otherwise satisfied, signed this instrument in my presence.

Certified correct for the purposes of the Real Property Act 1900 by the transferor.

Signature of witness:

Signature of transferor: See Annexure "A" for execution by Transferor

Name of witness:
Address of witness:

Certified correct for the purposes of the Real Property Act 1900 by the person whose signature appears below.

Signature:

Signatory's name: ANDREW ROBERT FORD
Signatory's capacity: transferee's solicitor

ALL HANDWRITING MUST BE IN BLOCK CAPITALS.
0702

DEPARTMENT OF LANDS
LAND AND PROPERTY INFORMATION DIVISION

ANNEXURE "A"

This is Annexure "A" referred to in Transfer dated 26-06-07 between Wayne Gordon Brown, Gary Neil Brown, Suzanne Ruby Brown and Jane Lee as Transferor and Maitcorp Pty Ltd (ACN 071 402 689) as Transferee.

I certify that Wayne Gordon Brown, with whom I am personally acquainted or as to whose identity I am otherwise satisfied, signed this Transfer in my presence.

Certified correct for the purposes of the Real Property Act 1900 by the Transferor

Signature of Witness: K. Lockett

W.G. Brown

Name of Witness: KERRY LOCKETT

Address of Witness: 12 LUMEAH AVE
ELANORA HEIGHTS

I certify that Gary Neil Brown, with whom I am personally acquainted or as to whose identity I am otherwise satisfied, signed this Transfer in my presence.

Certified correct for the purposes of the Real Property Act 1900 by the Transferor

Signature of Witness:

G.N. Brown

Name of Witness: ROSLYN CLIFFE

Address of Witness: 4/2 BUNCAN GROVE
MONA VALE

I certify that Suzanne Ruby Brown, with whom I am personally acquainted or as to whose identity I am otherwise satisfied, signed this Transfer in my presence.

Signature of Witness: .....

Name of Witness: ROGER CRIMES

Address of Witness: 4/2 BUNCAN LATTE
MONA VALE

Certified correct for the purposes of the Real Property Act 1900 by the Transferor

S.R. Brown

I certify that Jane Lee, with whom I am personally acquainted or as to whose identity I am otherwise satisfied, signed this Transfer in my presence.

Signature of Witness: K. LOCKETT

Name of Witness: KERRY LOCKETT

Address of Witness: 12 LUMEAH AVENUE
ELANORA HEIGHTS

Certified correct for the purposes of the Real Property Act 1900 by the Transferor

J.Lee

Appendix D – SafeWork NSW Search

NSW GOVERNMENT | SafeWork NSW

Locked Bag 2906, Lisarow NSW 2252
Customer Experience 13 10 50
ABN 81 913 830 179 | www.safework.nsw.gov.au

Our Ref: D20/136518

19 June 2020

Ms Emily Scanlon
EI Australia
Suite 6.01
55 Miller St
PYRMONT NSW 2009

Dear Ms Scanlon

RE SITE: 15 Jubilee Ave, Warriewood NSW

I refer to your site search request received by SafeWork NSW on 17 June 2020 requesting information on Storage of Hazardous Chemicals for the above site.

A search of the records held by SafeWork NSW has not located any records pertaining to the above-mentioned premises.

For further information or if you have any questions, please call us on 13 10 50 or email licensing@safework.nsw.gov.auw

Yours sincerely

Customer Service Officer
Customer Experience - Operations
SafeWork NSW

Appendix E – Borehole / Test Pit Logs

BOREHOLE: BH1

eiaustralia
Contamination | Remediation | Geotechnical

Project	Detailed Site Investigation			Sheet	1 OF 1
Location	15 Jubilee Avenue, Warriewood NSW			Date Started	11/6/20
Position	Refer to Figure 2	Surface RL	21.70 m	Date Completed	11/6/20
Job No.	E24716.E02	Contractor	Hagstrom	Logged BY	Date: 29/6/20
Client	15 Jubilee Pty Ltd	Drill Rig	HP Scout	Checked BL/BA	Date: 29/6/20
		Inclination	-90°		

Drilling					Sampling		Field Material Description					
METHOD	PENETRATION RESISTANCE	WATER	DEPTH (metres)	DEPTH RL	SAMPLE OR FIELD TEST	RECOVERED	GRAPHIC LOG	USCS SYMBOL	SOIL/ROCK MATERIAL DESCRIPTION	MOISTURE CONDITION	CONSISTENCY DENSITY	STRUCTURE AND ADDITIONAL OBSERVATIONS
AD/T	L	GWNE	0	0.15 21.55	BH1_0.1-0.2 ES			-	TOPSOIL/FILL: Silty SAND; fine to medium grained, brown, with rootlets, no odour.	M	-	TOPSOIL/FILL
								-	FILL: Clayey SAND; fine to medium grained, pale brown-brown, no odour.	M	-	FILL
				0.50 21.20				CI	Sandy CLAY; medium plasticity, red-brown to orange-brown to pale grey, trace fine to medium and sub-rounded to sub-angular ironstone gravels, no odour.	M (=PL)	F	ALLUVIAL SOIL
			1		BH1_0.7-0.9 ES							
				1.77 19.93				-	CLAY PELLET SANDSTONE; fine to medium grained, red-brown to pale grey, with clay and claystone bands, very low to low strength, distinctly weathered, no odour.	-	-	WEATHERED BEDROCK
	M-H		2									
			3	3.50					Borehole Terminated at 3.50 mBGL; T/C Bit Refusal. Backfilled with Drilling Spoil.			
			4									
			5									
			6									
			7									
			8									
			9									
			10									

This borehole log should be read in conjunction with EI Australia's accompanying standard notes.

BOREHOLE: BH2

eiaustralia
Contamination | Remediation | Geotechnical

Project	Detailed Site Investigation			Sheet	1 OF 1
Location	15 Jubilee Avenue, Warriewood NSW			Date Started	11/6/20
Position	Refer to Figure 2	Surface RL	20.70 m	Date Completed	11/6/20
Job No.	E24716.E02	Contractor	Hagstrom	Logged BY	Date: 29/6/20
Client	15 Jubilee Pty Ltd	Drill Rig	HP Scout	Checked BL/BA	Date: 29/6/20
		Inclination	-90°		

Drilling					Sampling		Field Material Description				
METHOD	PENETRATION RESISTANCE	WATER	DEPTH (metres)	DEPTH RL	SAMPLE OR FIELD TEST	RECOVERED	GRAPHIC LOG	USCS SYMBOL	SOIL/ROCK MATERIAL DESCRIPTION	MOISTURE CONDITION	CONSISTENCY DENSITY	STRUCTURE AND ADDITIONAL OBSERVATIONS
AD/T	L	GWNE	0	0.15 20.55	BH2_0.1-0.2 ES			-	TOPSOIL/FILL: Silty SAND; fine to medium grained, brown, with rootlets, no odour.	M	-	TOPSOIL/FILL
								-	FILL: Silty SAND; fine to medium grained, pale brown-brown, trace clay, no odour.	M	-	FILL
				0.80 19.90				CH	Sandy CLAY; high plasticity, red-brown to orange-brown to pale grey, trace fine to medium and sub-rounded to sub-angular ironstone gravels, no odour.	M (=PL)	F St	ALLUVIAL SOIL
			1		BH2_1.0-1.2 ES							
			2	2.50 18.20				-	CLAY PELLET SANDSTONE; fine to medium grained, red-brown to pale grey, with clay and claystone bands, very low to low strength, distinctly weathered, no odour.	-	-	WEATHERED BEDROCK
	M-H		3									
			4	4.00					Borehole Terminated at 4.00 mBGL; T/C Bit Refusal Backfilled with Drilling Spoil.			
			5									
			6									
			7									
			8									
			9									
			10									

This borehole log should be read in conjunction with EI Australia's accompanying standard notes.

BOREHOLE: BH3M

eiaustralia
Contamination | Remediation | Geotechnical

Project	Detailed Site Investigation			Sheet	1 OF 1
Location	15 Jubilee Avenue, Warriewood NSW			Date Started	11/6/20
Position	Refer to Figure 2			Date Completed	11/6/20
Job No.	E24716.E02	Contractor	Hagstrom	Logged BY	Date: 29/6/20
Client	15 Jubilee Pty Ltd	Drill Rig	HP Scout	Checked BL/BA	Date: 29/6/20
		Inclination	-90°		

Drilling					Sampling		Field Material Description						
METHOD	PENETRATION RESISTANCE	WATER	DEPTH (metres)	DEPTH RL	SAMPLE OR FIELD TEST	RECOVERED	GRAPHIC LOG	USCS SYMBOL	SOIL/ROCK MATERIAL DESCRIPTION	MOISTURE CONDITION	CONSISTENCY DENSITY	PIEZOMETER DETAILS ID / Static Water Level	
AD/T	L	11/6/20	0	0.10	BH3M_0.3-0.4 ES			-	TOPSOIL/FILL: Silty SAND; fine to medium grained, with rootlets, no odour.	M	-	BH3M	Backfill
								-	FILL: Silty SAND; fine to medium grained, pale grey, no odour.	M	- L		
	L		1	1.10				C	Sandy CLAY; fine to medium grained, pale grey, trace red mottled brown, no odour.	M (<PL)	L St		
			2	2.00				Cl	Silty CLAY; medium plasticity, red-brown to orange-brown to pale grey, trace fine to medium and sub-rounded to sub-angular ironstone and sandstone gravels, no odour.	M (<PL)	St		Bentonite
				2.80				-	CLAY PELLET SANDSTONE; fine to medium grained, red-brown to pale grey, with clay and claystone bands, very low strength, distinctly weathered, no odour.	-	-		uPVC 50 mm casing
	M		3										
			4										uPVC 50 mm Screen
			5										Sand
	H		6	6.00					Borehole Terminated at 6.00 mBGL; T/C Bit Refusal on Drilling Rig Resistance.				Collapse
			7										
			8										
			9										
			10										

This borehole log should be read in conjunction with EI Australia's accompanying standard notes.

BOREHOLE: BH4M

eiaustralia
Contamination | Remediation | Geotechnical

Project	Detailed Site Investigation			Sheet	1 OF 1
Location	15 Jubilee Avenue, Warriewood NSW			Date Started	11/6/20
Position	Refer to Figure 2	Surface RL	20.20 m	Date Completed	11/6/20
Job No.	E24716.E02	Contractor	Hagstrom	Logged BY	Date: 29/6/20
Client	15 Jubilee Pty Ltd	Drill Rig	HP Scout	Checked BL/BA	Date: 29/6/20
		Inclination	-90°		

Drilling					Sampling		Field Material Description					
METHOD	PENETRATION RESISTANCE	WATER	DEPTH (metres)	DEPTH RL	SAMPLE OR FIELD TEST	RECOVERED	GRAPHIC LOG	USCS SYMBOL	SOIL/ROCK MATERIAL DESCRIPTION	MOISTURE CONDITION	CONSISTENCY DENSITY	PIEZOMETER DETAILS ID / Static Water Level
AD/T	L	11/6/20	0	0.10 20.10				-	TOPSOIL/FILL: Silty ASAND; fine to medium grained, brown, with rootlets, no odour.	-	-	BH4M
					BH4M_0.3-0.4 ES			-	FILL: Silty SAND; fine to medium grained, pale brown-brown, no odour.	M	-	Backfill
			1	1.10 19.10	BH4M_1.3-1.5 ES			Cl	Sandy CLAY; medium plasticity, red-brown to orange-brown to pale grey, trace fine to medium and sub-rounded to sub-angular ironstone gravels, no odour.		St	Bentonite
			2							M (=PL)		uPVC 50 mm Casing
			3								H	
			4	4.00 16.20				-	CLAY PELLET SANDSTONE; fine to medium grained, red-brown, pale grey, with clay and claystone bands, very low strength, distinctly weathered, no odour.			uPVC 50 mm Screen Sand
	M		5							-	-	
			6	6.00					Borehole Terminated at 6.00 mBGL; Target Depth Reached.			Collapse
			7									
			8									
			9									
			10									

This borehole log should be read in conjunction with EI Australia's accompanying standard notes.

BOREHOLE: BH5M

eiaustralia
Contamination | Remediation | Geotechnical

Project	Detailed Site Investigation			Sheet	1 OF 1
Location	15 Jubilee Avenue, Warriewood NSW			Date Started	11/6/20
Position	Refer to Figure 2	Surface RL	17.30 m	Date Completed	11/6/20
Job No.	E24716.E02	Contractor	Hagstrom	Logged BY	Date: 29/6/20
Client	15 Jubilee Pty Ltd	Drill Rig	HP Scout	Checked BL/BA	Date: 29/6/20
		Inclination	-90°		

Drilling					Sampling		Field Material Description					
METHOD	PENETRATION RESISTANCE	WATER	DEPTH (metres)	DEPTH RL	SAMPLE OR FIELD TEST	RECOVERED	GRAPHIC LOG	USCS SYMBOL	SOIL/ROCK MATERIAL DESCRIPTION	MOISTURE CONDITION	CONSISTENCY DENSITY	PIEZOMETER DETAILS ID Static Water Level BH5M
AD/T	L	11/6/20	0	17.30	BH5M_0.1-0.2 ES			-	TOPSOIL/FILL: Silty SAND; fine to medium grained, brown, with rootlets and roots, no odour.			
				0.40								
				16.90	BH5M_0.6-0.8 ES				From 0.4 m, pale brown, no odour.	M	-	
			1	1.00								Backfill
				16.30	BH5M_1.2-1.4 ES			CL-CI	Sandy CLAY; low to medium plasticity, grey, fine to medium grained sand, no odour.			
				2.00						M (=PL)		
			2	15.30	BH5M_2.0-2.2 ES				From 2.0 m, pale grey, no odour.			Bentonite
											St	
			3									uPVC 50 mm Casing
										M (>PL) - W		
			4									uPVC 50 mm Screen
												Sand
			5	5.00								
	M			12.30					From 5.0-5.5 m, red-brown to pale grey, no odour.		VSt	
	L-M									M (=PL) - M (>PL)		
			6	6.08					Borehole Terminated at 6.08 mBGL; Target Depth Reached.			
			7									
			8									
			9									
			10									

This borehole log should be read in conjunction with EI Australia's accompanying standard notes.

BOREHOLE: BH6

eiaustralia
Contamination | Remediation | Geotechnical

Project	Detailed Site Investigation			Sheet	1 OF 1
Location	15 Jubilee Avenue, Warriewood NSW			Date Started	12/6/20
Position	Refer to Figure 2			Date Completed	12/6/20
Job No.	E24716.E02	Contractor	Hagstrom	Logged BY	Date: 29/6/20
Client	15 Jubilee Pty Ltd	Drill Rig	HP Scout	Checked BL/BA	Date: 29/6/20
		Inclination	-90°		

Drilling					Sampling		Field Material Description					
METHOD	PENETRATION RESISTANCE	WATER	DEPTH (metres)	DEPTH RL	SAMPLE OR FIELD TEST	RECOVERED	GRAPHIC LOG	USCS SYMBOL	SOIL/ROCK MATERIAL DESCRIPTION	MOISTURE CONDITION	CONSISTENCY DENSITY	STRUCTURE AND ADDITIONAL OBSERVATIONS
AD/T			0		BH6_0.1-0.2 ES			-	TOPSOIL/FILL: Silty SAND; fine to medium grained, brown, with rootlets, no odour.	M	-	TOPSOIL/FILL
					BH6_0.6-0.8 ES							
			1	1.00				-	FILL: Silty SAND; fine to medium grained, pale brown-brown, no odour.	M	VL - L	FILL
					BH6_1.2-1.4 ES							
	L	11/6/20	2	2.20				CL-CI	Sandy CLAY; low to medium plasticity, pale grey, fine to medium grained sand, no odour.	M (<PL)		ALLUVIAL SOIL
					BH6_2.4-2.6 ES					M (<PL) - W	F	
			3									
			4	4.00					From 4.0 m, with red-brown ironstone bands, no odour.			
	M		5							M (<PL) - M (>PL)	VSt	
			6									
	H		7	7.10							H	
									Borehole Terminated at 7.10 mBGL; T/C Bit Refusal on Bedrock. Backfilled with Drilling Spoil.			
			8									
			9									
			10									

This borehole log should be read in conjunction with EI Australia's accompanying standard notes.

TEST PIT: TP1

eiaustralia
Contamination | Remediation | Geotechnical

Project	Detailed Site Investigation			Sheet	1 OF 1
Location	15 Jubilee Avenue, Warriewood NSW			Date	11/6/20
Position	Refer to Figure 2			Logged	ES
Job No.	E24716.E02	Contractor	Ken Coles Excavation Pty Ltd	Checked	BA
Client	15 Jubilee Pty Ltd	Machine	Excavator		

Excavation					Sampling		Field Material Description					
METHOD	EXCAVATION RESISTANCE	WATER	DEPTH (metres)	DEPTH RL	SAMPLE OR FIELD TEST	RECOVERED	GRAPHIC LOG	USCS SYMBOL	SOIL/ROCK MATERIAL DESCRIPTION	MOISTURE CONDITION	CONSISTENCY DENSITY	STRUCTURE AND ADDITIONAL OBSERVATIONS
E	-	GWNE	0.0	0.20	TP1_0.1-0.2 ES			-	TOPSOIL: Silty SAND; fine to medium grained, poorly graded, brown, with trace roots, root fibres, no odour.	M	-	TOPSOIL
				0.50	TP1_0.4-0.5 ES			-	FILL: SAND; fine to coarse grained, poorly graded, pale brown, no odour.	M	-	FILL
			0.5		TP1_0.7-0.8 ES			SC	Clayey SAND; fine to coarse grained, poorly graded, orange-brown, trace ironstone gravels, no odour.	M	-	AEOLIAN
			1.0	1.40								
			1.5		TP1_1.6-1.7 ES			CL-CI	Sandy CLAY; low to medium plasticity, red mottled pale grey, angular to sub-angular sand, no odour.	M	-	ALLUVIAL
			2.0	2.30								
			2.5						Test Pit Terminated at 2.30 mBGL; Refusal on Bedrock (Clay Pellet Sandstone).			
			3.0									

Sketch & Other Observations

This borehole log should be read in conjunction with EI Australia's accompanying standard notes.

TEST PIT: TP2

Project	Detailed Site Investigation			Sheet	1 OF 1
Location	15 Jubilee Avenue, Warriewood NSW			Date	11/6/20
Position	Refer to Figure 2			Logged	ES
Job No.	E24716.E02	Contractor	Ken Coles Excavation Pty Ltd	Checked	BA
Client	15 Jubilee Pty Ltd	Machine	Excavator		

Excavation					Sampling		Field Material Description				
METHOD	EXCAVATION RESISTANCE	WATER	DEPTH (metres)	DEPTH RL	SAMPLE OR FIELD TEST	RECOVERED	GRAPHIC LOG	USCS SYMBOL	SOIL/ROCK MATERIAL DESCRIPTION	MOISTURE CONDITION	CONSISTENCY DENSITY	STRUCTURE AND ADDITIONAL OBSERVATIONS
E	-	GWNE	0.0	0.20	TP2_0.1-0.2 ES			-	TOPSOIL: Silty SAND; fine to medium grained, poorly graded, brown, with trace roots, root fibres, no odour.	M	-	TOPSOIL
				0.50	TP2_0.4-0.5 ES			-	FILL: SAND; fine to coarse grained, poorly graded, pale brown, no odour.	M	-	FILL
			0.5		TP2_0.7-0.8 ES			SC	Clayey SAND; fine to coarse grained, poorly graded, orange-brown, trace ironstone gravels, no odour.	M	-	AEOLIAN
			1.0		ASS-TP2_1.0							
				1.30				CL-CI	Sandy CLAY; low to medium plasticity, red mottled pale grey, angular to sub-angular sand, no odour.	M	-	ALLUVIAL
			1.5		TP2_1.5-1.6 ES							
				2.00								
			2.0		ASS-TP2_2.0				Test Pit Terminated at 2.00 mBGL; Refusal on Bedrock.			
			2.5									
			3.0									

Sketch & Other Observations

This borehole log should be read in conjunction with EI Australia's accompanying standard notes.

TEST PIT: TP3

eiaustralia
Contamination | Remediation | Geotechnical

Project	Detailed Site Investigation			Sheet	1 OF 1
Location	15 Jubilee Avenue, Warriewood NSW			Date	11/6/20
Position	Refer to Figure 2			Logged	ES
Job No.	E24716.E02	Contractor	Ken Coles Excavation Pty Ltd	Checked	BA
Client	15 Jubilee Pty Ltd	Machine	Excavator		

Excavation					Sampling		Field Material Description					
METHOD	EXCAVATION RESISTANCE	WATER	DEPTH (metres)	DEPTH RL	SAMPLE OR FIELD TEST	RECOVERED	GRAPHIC LOG	USCS SYMBOL	SOIL/ROCK MATERIAL DESCRIPTION	MOISTURE CONDITION	CONSISTENCY DENSITY	STRUCTURE AND ADDITIONAL OBSERVATIONS
E	-	GWNE	0.0	0.20	TP3_0.1-0.2 ES			-	TOPSOIL: Silty SAND; fine to medium grained, poorly graded, brown, with trace roots, root fibres.	M	-	TOPSOIL
			0.5	0.60	TP3_0.4-0.5 ES			-	FILL: SAND; fine to coarse grained, poorly graded, pale brown.	M	-	FILL
			1.0	1.00	TP3_0.8-0.9 ES			SC	Clayey SAND; fine to coarse grained, poorly graded, orange-brown, trace ironstone gravels.	M	-	AEOLIAN
				1.50				CL-CI	Sandy CLAY; low to medium plasticity, red mottled pale grey, angular to sub-angular sand.	M	-	ALLUVIAL
			1.5						Test Pit Terminated at 1.50 mBGL; Target Depth Reached.			
			2.0									
			2.5									
			3.0									

Sketch & Other Observations

This borehole log should be read in conjunction with EI Australia's accompanying standard notes.

TEST PIT: TP4

eiaustralia
Contamination | Remediation | Geotechnical

Project	Detailed Site Investigation			Sheet	1 OF 1
Location	15 Jubilee Avenue, Warriewood NSW			Date	11/6/20
Position	Refer to Figure 2			Logged	ES
Job No.	E24716.E02	Contractor	Ken Coles Excavation Pty Ltd	Checked	BA
Client	15 Jubilee Pty Ltd	Machine	Excavator		

Excavation					Sampling		Field Material Description					
METHOD	EXCAVATION RESISTANCE	WATER	DEPTH (metres)	DEPTH RL	SAMPLE OR FIELD TEST	RECOVERED	GRAPHIC LOG	USCS SYMBOL	SOIL/ROCK MATERIAL DESCRIPTION	MOISTURE CONDITION	CONSISTENCY DENSITY	STRUCTURE AND ADDITIONAL OBSERVATIONS
E	-	GWNE	0.0	0.20	TP4_0.1-0.2 ES			-	TOPSOIL: Silty SAND; fine to medium grained, poorly graded, brown, with trace roots, root fibres, no odour.	M	-	TOPSOIL
			0.5		TP4_0.4-0.5 ES			SC	Clayey SAND; fine to medium grained, poorly graded, pale grey, no odour.	M	-	AEOLIAN/ALLUVIAL
			1.0	1.30					From 1.3 m, grey mottled red, no odour.			
			1.5	1.50					Test Pit Terminated at 1.50 mBGL; Target Depth Reached.			
			2.0									
			2.5									
			3.0									

Sketch & Other Observations

This borehole log should be read in conjunction with EI Australia's accompanying standard notes.

TEST PIT: TP5

Project	Detailed Site Investigation			Sheet	1 OF 1
Location	15 Jubilee Avenue, Warriewood NSW			Date	11/6/20
Position	Refer to Figure 2			Logged	ES
Job No.	E24716.E02	Contractor	Ken Coles Excavation Pty Ltd	Checked	BA
Client	15 Jubilee Pty Ltd	Machine	Excavator		

Excavation					Sampling		Field Material Description					
METHOD	EXCAVATION RESISTANCE	WATER	DEPTH (metres)	DEPTH RL	SAMPLE OR FIELD TEST	RECOVERED	GRAPHIC LOG	USCS SYMBOL	SOIL/ROCK MATERIAL DESCRIPTION	MOISTURE CONDITION	CONSISTENCY DENSITY	STRUCTURE AND ADDITIONAL OBSERVATIONS
E	-	GWNE	0.0	0.20	TP5_0.1-0.2 ES			-	TOPSOIL: Silty SAND; fine to medium grained, poorly graded, brown, with trace roots, root fibres, no odour.	M	-	TOPSOIL
			0.5		TP5_0.4-0.5 ES			SC	Clayey SAND; fine to medium grained, poorly graded, pale grey, no odour.	M	-	AEOLIAN/ALLUVIAL
			1.0	1.50								
			1.5						Test Pit Terminated at 1.50 mBGL; Target Depth Reached.			
			2.0									
			2.5									
			3.0									

Sketch & Other Observations

This borehole log should be read in conjunction with EI Australia's accompanying standard notes.

TEST PIT: TP6

Project	Detailed Site Investigation			Sheet	1 OF 1
Location	15 Jubilee Avenue, Warriewood NSW			Date	11/6/20
Position	Refer to Figure 2			Logged	ES
Job No.	E24716.E02	Contractor	Ken Coles Excavation Pty Ltd	Checked	BA
Client	15 Jubilee Pty Ltd	Machine	Excavator		

Excavation					Sampling		Field Material Description				
METHOD	EXCAVATION RESISTANCE	WATER	DEPTH (metres)	DEPTH RL	SAMPLE OR FIELD TEST	RECOVERED	GRAPHIC LOG	USCS SYMBOL	SOIL/ROCK MATERIAL DESCRIPTION	MOISTURE CONDITION	CONSISTENCY DENSITY	STRUCTURE AND ADDITIONAL OBSERVATIONS
E	-	GWNE	0.0		TP6_0.2-0.3 ES			-	TOPSOIL: Silty SAND; fine to medium grained, poorly graded, brown, with trace roots, root fibres, no odour.	M	-	TOPSOIL
			0.5		TP6_0.6-0.7 ES							
				0.80				SC	Clayey SAND; fine to medium grained, poorly graded, pale grey, with mild sulfur odour.			AEOLIAN/ALLUVIAL
			1.0		TP6_0.9-1.0 ES							
					ASS-TP6_1.0							
			1.5		ASS-TP6_1.5					M	-	
					TP6_1.5-1.6 ES							
			2.0		ASS-TP6_2.0							
				2.50								
			2.5		ASS-TP6_2.5				Test Pit Terminated on Weathered Bedrock at 2.50 mBGL; Target Depth Reached.			
			3.0									

Sketch & Other Observations

This borehole log should be read in conjunction with EI Australia's accompanying standard notes.

Appendix F – Groundwater Field Sheets

WATER SAMPLING FIELD SHEET

eiaustralia

Site Address:	15 Jubilee Ave, Warriewood	Job Number:	E24716
Client:		Date:	18-Jun-20
Field Staff:	Emily	Sampling Location ID	BH3M
Well Location:	BH3M	Round No:	1

MEDIUM ☐Groundwater ☐Surface Water ☐Stormwater ☐Other:

SAMPLING POINT INFO

Well Installation Date:	11/06/2020	Stick up / (down) (m):	-0.1 (+ above ground - below ground)
Initial Well Depth (mBTOC):	5.83 (5.93 mBGL)	Screen Interval (mBTOC):	2.83 - 5.83
Previous Sampling Date:	x	Previous SWL (mBTOC):	x

PID READINGS

PID Headspace (ppm):	X	PID Background (ppm):	X
PID Breathing Space (ppm):	X		

PRE PURGE

Total Well Depth (mBTOC):	5.5 (5.6 mBGL)	Well Head Condition:	good.
SWL (mBTOC):	1.0 (1.1 mBGL)	Water Column (m):	4.5

PHASE SEPARATED HYDROCARBONS (PSH)

Depth to PSH (mBTOC):	X	PSH Visually Confirmed (Bailer):	X
PSH Thickness (mm):	X		

PURGE AND SAMPLE

Sampling Method ☒Bladder ☐Peristaltic ☐Submersible ☐Other:

Depth of Pump Inlet (mBTOC):	3.25	Fill Timer:	10
Pump Pressure Regulator (psi):	25	Discharge Timer:	5
Weather Conditions:	Overcast	Cycle:	CPM4
Pump on time:	8:25	Pump off time:	9:15

WATER QUALITY PARAMETERS

Probe Make and Model: | Bump Test Date and Time:

Time	Volume (L)	SWL (mbtoc)	Temp (°C)	EC (µS/cm)	Redox (mV)	DO (mg/L)	pH (units)	Comments (colour, turbidity, odour, sheen etc.)
8:30	0.5	1.0	20.98	557	118.5	5.14	6.68	- pale pink/ grey
8:33	1.0	1.0	20.54	454	100.6	3.49	6.08	- med turbidity
8:36	1.5	1.0	20.53	448	94.0	3.48	5.88	- no odour
8:39	2.0	1.0	20.47	439	92.6	2.97	5.73	- no sheen
Stabilisation range: 3 consecutive readings			±0.2°C	±3%	±20mV	±10%	±0.2	

OTHER COMMENTS/OBSERVATIONS:

- QAQC from here (GW-QD1 + GW-QT1)

SIGNATURE:

WATER SAMPLING FIELD SHEET

eiaustralia

Site Address:	15 Jubilee Ave, Warriewood	Job Number:	E24716
Client:		Date:	18-Jun-20
Field Staff:	Emily	Sampling Location ID	BH4M
Well Location:	BH4M	Round No:	1
MEDIUM	☐Groundwater ☐Surface Water	☐Stormwater	☐Other:

SAMPLING POINT INFO			
Well Installation Date:	11/06/2020	Stick up / down (m):	-0.1 (+ above ground - below ground)
Initial Well Depth (mBTOC):	5.76 (5.86 mBGL)	Screen Interval (mBTOC):	2.76 - 5.76
Previous Sampling Date:	x	Previous SWL (mBTOC):	x
PID READINGS			
PID Headspace (ppm):	X	PID Background (ppm):	X
PID Breathing Space (ppm):	X		
PRE PURGE			
Total Well Depth (mBTOC):	5.8 (5.9mBGL)	Well Head Condition:	good
SWL (mBTOC):	1.7 (1.8mBGL)	Water Column (m):	4.1
PHASE SEPARATED HYDROCARBONS (PSH)			
Depth to PSH (mBTOC):	X	PSH Visually Confirmed (Bailer):	X
PSH Thickness (mm):	X		
PURGE AND SAMPLE			
Sampling Method	☒Bladder ☐Peristaltic ☐Submersible	☐Other:	
Depth of Pump Inlet (mBTOC):	3.75	Fill Timer:	10
Pump Pressure Regulator (psi):	25	Discharge Timer:	5
Weather Conditions:	Sunny	Cycle:	CPMH
Pump on time:	10:30	Pump off time:	
WATER QUALITY PARAMETERS			
Probe Make and Model:		Bump Test Date and Time:	

Time	Volume (L)	SWL (mbtoc)	Temp (°C)	EC (µS/cm)	Redox (mV)	DO (mg/L)	pH (units)	Comments (colour, turbidity, odour, sheen etc.)
10:30	0.5	1.7	19.78	488	99.2	4.51	5.65	- pale grey
10:33	1.0	1.7	19.61	483	178.9	3.48	5.32	- low-med turbidity
10:36	1.5	1.7	19.53	491	199.8	2.95	5.28	- no odour
10:39	2.0	1.7	19.51	486	187.2	2.83	5.29	- no sheen
Stabilisation range: 3 consecutive readings			±0.2°C	±3%	±20mV	±10%	±0.2	

OTHER COMMENTS/OBSERVATIONS:

SIGNATURE:

WATER SAMPLING FIELD SHEET

eiaustralia

Site Address:	15 Jubilee Ave, Warriewood	Job Number:	E24716
Client:		Date:	18-Jun-20
Field Staff:	Emily	Sampling Location ID	BH5m
Well Location:	BH5M	Round No:	1

MEDIUM ☒Groundwater ☐Surface Water ☐Stormwater ☐Other:

SAMPLING POINT INFO

Well Installation Date:	11/06/2020	Stick up / (down) (m):	-0.1 (+ above ground - below ground)
Initial Well Depth (mBTOC):	5.98 (mBGL)	Screen Interval (mBTOC):	2.98 - 5.98
Previous Sampling Date:	x	Previous SWL (mBTOC):	x

PID READINGS

PID Headspace (ppm):	x	PID Background (ppm):	x
PID Breathing Space (ppm):	x		

PRE PURGE

Total Well Depth (mBTOC):	6.0 (6.1 mBGL)	Well Head Condition:	good
SWL (mBTOC):	1.5	Water Column (m):	4.5

PHASE SEPARATED HYDROCARBONS (PSH)

Depth to PSH (mBTOC):	x	PSH Visually Confirmed (Bailer):	x
PSH Thickness (mm):	x		

PURGE AND SAMPLE

Sampling Method ☒Bladder ☐Peristaltic ☐Submersible ☐Other:

Depth of Pump Inlet (mBTOC):	3.75	Fill Timer:	10
Pump Pressure Regulator (psi):	25	Discharge Timer:	5
Weather Conditions:	overcast	Cycle:	CPM4
Pump on time:	9:40	Pump off time:	10:15

WATER QUALITY PARAMETERS

Probe Make and Model:	Bump Test Date and Time:

Time	Volume (L)	SWL (mbtoc)	Temp (°C)	EC (µS/cm)	Redox (mV)	DO (mg/L)	pH (units)	Comments (colour, turbidity, odour, sheen etc.)
9:44	0.5	1.5	19.89	520	156.8	5.04	5.09	- pale pink/ grey
9:47	1.0	1.5	19.74	527	148.3	3.97	5.23	- med turbidity
9:50	1.5	1.5	19.23	485	139.8	1.79	5.18	- no odour
9:53	2.0	1.5	19.21	477	136.2	1.35	5.17	- no sheen
9:56	2.5	1.5	19.20	475	138.4	1.39	5.18	
Stabilisation range: 3 consecutive readings			±0.2°C	±3%	±20mV	±10%	±0.2	

OTHER COMMENTS/OBSERVATIONS:

SIGNATURE:

Appendix G – COC and SRA Documentation

Sheet 1 of 4

Site: 15 Jubilee Ave, Warriewood NSW

Project No: E24716

Laboratory: SGS Australia
Unit 16, 33 Maddox Street,
ALEXANDRIA NSW 2015
P: 02 8594 0400 F: 02 8594 0499

Sample ID	Laboratory ID	Container Type	Sampling Date	Sampling Time	Sample Matrix: WATER	SOIL	OTHERS (i.e. Fibro, Paint, etc.)	Analysis: HM [A] /TRH/BTEX/PAHs OCP/OP/PCB/Asbestos	HM [A] /TRH/BTEX/PAHs	HM [A] /TRH/BTEX	BTEX	VOCs	Asbestos	Asbestos Quantification	pH / CEC (cation exchange)	pH / EC (electrical conductivity)	Dewatering Suite	sPOCAS	PFAS				TCLP HM [B] / PAH
TP1_0.1-0.2	1	J, ZLB	11/6/20			X		X															
TP1_0.4-0.5																							
TP1_0.7-0.8																							
TP1_1.6-1.7																							
TP2_0.1-0.2																							
TP2_0.4-0.5	2							X															
TP2_0.7-0.8																							
TP2_1.5-1.6																							
TP3_0.1-0.2	3							X															
TP3_0.4-0.5																							
TP3_0.8-0.9	4								X														
TP4_0.1-0.2	5	↓	↓			↓		X															

Comments

HM [A]
Arsenic
Cadmium
Chromium
Copper
Lead
Mercury
Nickel
Zinc

HM [B]
Arsenic
Cadmium
Chromium
Lead
Mercury
Nickel

Dewatering Suite
pH & EC
TDS / Turbidity NTU
Hardness
Total Cyanide
Metals (Al, As, Cd, Cr, Cu, Pb, Hg, Ni, Zn)
TRH (F1, F2, F3, F4)
BTEX
PAH
Total Phenol

SGS EHS Sydney COC
SE207473

LABORATORY TURNAROUND
- [X] Standard
- [ ] 24 Hours
- [ ] 48 Hours
- [ ] 72 Hours
- [ ] Other_____

Container Type:
J= solvent washed, acid rinsed,Teflon sealed, glass jar
S= solvent washed, acid rinsed glass bottle
P= natural HDPE plastic bottle
VC= glass vial, Teflon Septum
ZLB = Zip-Lock Bag

Investigator: I attest that these samples were collected in accordance with standard EI field sampling procedures.

Report with EI Waste Classification Table ☐

Sampler's Name (EI):	Received by (SGS):
Print: Emily Scanlon	Print: Suba
Signature:	Signature:
Date: 12/6/2020	Date: 12/6 14:30

Sampler's Comments:
Please transfer sample "QT1"To Envirolab

IMPORTANT:
Please e-mail laboratory results to: lab@eiaustralia.com.au

eiaustralia
Contamination | Remediation | Geotechnical
Suite 6.01, 55 Miller Street,
PYRMONT NSW 2009
Ph: 9516 0722
lab@eiaustralia.com.au

Sheet 2 of 4

Site:	Project No:
15 Jubilee Ave, Warriewood NSW	E24716

Laboratory: SGS Australia
Unit 16, 33 Maddox Street,
ALEXANDRIA NSW 2015
P: 02 8594 0400 F: 02 8594 0499

Sample ID	Laboratory ID	Container Type	Sampling Date	Sampling Time	Sample Matrix: WATER	SOIL	OTHERS (i.e. Fibro, Paint, etc.)	Analysis: HM [A] /TRH/BTEX/PAHs OCP/OP/PCB/Asbestos	HM [A] /TRH/BTEX/PAHs	HM [A] /TRH/BTEX	BTEX	VOCs	Asbestos	Asbestos Quantification	pH / CEC (cation exchange)	pH / EC (electrical conductivity)	Dewatering Suite	sPOCAS	PFAS				TCLP HM [B] / PAH
TP4_0.4-0.5		J,ZLB	11/6/20			X																	
TP5_0.1-0.2	6	↓	↓			↓		X															
TP5_0.4-0.5	19								X														
TP6_0.2-0.3	7							X															
TP6_0.6-0.7																							
TP6_0.9-1.0																							
TP6_1.5-1.6																							
BH1_0.1-0.2	8							X										Sth 7473					
BH1_0.7-0.9	9								X														
BH2_0.1-0.2	10							X															
BH2_1.0-1.2																							
BH3M_0.3-0.4	11	↓	↓			↓		X															

Comments

HM [A]
Arsenic
Cadmium
Chromium
Copper
Lead
Mercury
Nickel
Zinc

HM [B]
Arsenic
Cadmium
Chromium
Lead
Mercury
Nickel

Dewatering Suite
pH & EC
TDS / Turbidity NTU
Hardness
Total Cyanide
Metals (Al, As, Cd, Cr, Cu, Pb, Hg, Ni, Zn)
TRH (F1, F2, F3, F4)
BTEX
PAH
Total Phenol

LABORATORY TURNAROUND

- [X] Standard
- [ ] 24 Hours
- [ ] 48 Hours
- [ ] 72 Hours
- [ ] Other_____

Container Type:
J= solvent washed, acid rinsed,Teflon sealed, glass jar
S= solvent washed, acid rinsed glass bottle
P= natural HDPE plastic bottle
VC= glass vial, Teflon Septum
ZLB = Zip-Lock Bag

Investigator: I attest that these samples were collected in accordance with standard EI field sampling procedures.

Report with EI Waste Classification Table ☐

Sampler's Name (EI):	Received by (SGS):
Print: Emily Scanlon	Print:
Signature:	Signature:
Date: 12/6/2020	Date: 12/6 @ 23:0

Sampler's Comments:

IMPORTANT:
Please e-mail laboratory results to: lab@eiaustralia.com.au

eiaustralia
Contamination | Remediation | Geotechnical
Suite 6.01, 55 Miller Street,
PYRMONT NSW 2009
Ph: 9516 0722
lab@eiaustralia.com.au

Sheet 3 of 4

Site: 15 Jubilee Ave, Warriewood NSW

Project No: E24716

Laboratory: SGS Australia
Unit 16, 33 Maddox Street,
ALEXANDRIA NSW 2015
P: 02 8594 0400 F: 02 8594 0499

Sample ID	Laboratory ID	Container Type	Sampling Date	Sampling Time	Sample Matrix: WATER	SOIL	OTHERS (i.e. Fibro, Paint, etc.)	Analysis: HM [A] /TRH/BTEX/PAHs OCP/OP/PCB/Asbestos	HM [A] /TRH/BTEX/PAHs	HM [A] /TRH/BTEX	BTEX	VOCs	Asbestos	Asbestos Quantification	pH / CEC (cation exchange)	pH / EC (electrical conductivity)	Dewatering Suite	sPOCAS	PFAS				TCLP HM [B] / PAH
BH4M_0.3-0.4	12	S, ZLB	11/6/20			X		X															
BH4M_1.3-1.5																							
BH5M_0.1-0.2	13							X															
BH5M_0.6-0.8																							
BH5M_1.2-1.4	14								X														
BH5M_2.0-2.2																							
BH6_0.1-0.2	15							X															
BH6_0.6-0.8																							
BH6_1.2-1.4																							
BH6_2.4-2.6	16																						
Soil-QD1	18	VC	LAB PREPARED							X													
Soil-TripBlank-1	17	VC	LAB PREPARED								X												

Comments

HM [A]
Arsenic
Cadmium
Chromium
Copper
Lead
Mercury
Nickel
Zinc

HM [B]
Arsenic
Cadmium
Chromium
Lead
Mercury
Nickel

Dewatering Suite
pH & EC
TDS / Turbidity NTU
Hardness
Total Cyanide
Metals (Al, As, Cd, Cr, Cu, Pb, Hg, Ni, Zn)
TRH (F1, F2, F3, F4)
BTEX
PAH
Total Phenol

LABORATORY TURNAROUND

- [x] Standard
- [ ] 24 Hours
- [ ] 48 Hours
- [ ] 72 Hours
- [ ] Other_____

Container Type:
J= solvent washed, acid rinsed,Teflon sealed, glass jar
S= solvent washed, acid rinsed glass bottle
P= natural HDPE plastic bottle
VC= glass vial, Teflon Septum
ZLB = Zip-Lock Bag

Investigator: I attest that these samples were collected in accordance with standard EI field sampling procedures.

Report with EI Waste Classification Table ☐

Sampler's Name (EI):	Received by (SGS):
Print: Emily Scanlon	Print: Suba
Signature:	Signature:
Date: 12/6/2020	Date: 12/06/20 @ 2:30

Sampler's Comments:

eiaustralia
Contamination | Remediation | Geotechnical
Suite 6.01, 55 Miller Street,
PYRMONT NSW 2009
Ph: 9516 0722
lab@eiaustralia.com.au

IMPORTANT:
Please e-mail laboratory results to: lab@eiaustralia.com.au

Sheet 4 of 4

Site:	Project No:
15 Jubilee Ave, Warriewood NSW	E24716

Laboratory: SGS Australia
Unit 16, 33 Maddox Street,
ALEXANDRIA NSW 2015
P: 02 8594 0400 F: 02 8594 0499

Sample ID	Laboratory ID	Container Type	Sampling Date	Sampling Time	Sample Matrix: WATER	SOIL	OTHERS (i.e. Fibre, Paint, etc.)	Analysis: HM [A] /TRH/BTEX/PAHs OCP/OP/PCB/Asbestos	HM [A] /TRH/BTEX/PAHs	HM [A] /TRH/BTEX	BTEX	VOCs	Asbestos	Asbestos Quantification	pH / CEC (cation exchange)	pH / EC (electrical conductivity)	Dewatering Suite	sPOCAS	PFAS				TCLP HM [B] / PAH
Soil-Trip Spike-1	18	VC	LAB PREPARED			X					X												

Comments

HM [A]
Arsenic
Cadmium
Chromium
Copper
Lead
Mercury
Nickel
Zinc

HM [B]
Arsenic
Cadmium
Chromium
Lead
Mercury
Nickel

Dewatering Suite
pH & EC
TDS / Turbidity NTU
Hardness
Total Cyanide
Metals (Al, As, Cd, Cr, Cu, Pb, Hg, Ni, Zn)
TRH (F1, F2, F3, F4)
BTEX
PAH
Total Phenol

LABORATORY TURNAROUND

- [X] Standard
- [ ] 24 Hours
- [ ] 48 Hours
- [ ] 72 Hours
- [ ] Other_____

Container Type:
J= solvent washed, acid rinsed,Teflon sealed, glass jar
S= solvent washed, acid rinsed glass bottle
P= natural HDPE plastic bottle
VC= glass vial, Teflon Septum
ZLB = Zip-Lock Bag

Investigator: I attest that these samples were collected in accordance with standard EI field sampling procedures.

Report with EI Waste Classification Table ☐

Sampler's Name (EI):	Received by (SGS):
Print: Emily Scanlon	Print: Suba
Signature:	Signature:
Date: 12/6/2020	Date: 12/06/20 02:30

Sampler's Comments:

eiaustralia
Contamination | Remediation | Geotechnical
Suite 6.01, 55 Miller Street,
PYRMONT NSW 2009
Ph: 9516 0722
lab@eiaustralia.com.au

IMPORTANT:
Please e-mail laboratory results to: lab@eiaustralia.com.au

SAMPLE RECEIPT ADVICE

SE207473

CLIENT DETAILS

Contact	Emily Scanlon
Client	EI AUSTRALIA
Address	SUITE 6.01 55 MILLER STREET PYRMONT NSW 2009
Telephone	61 2 9516 0722
Facsimile	(Not specified)
Email	emily.scanlon@eiaustralia.com.au
Project	**E24716 15 Jubilee Ave, Warriewood NSW**
Order Number	**E24716**
Samples	18

LABORATORY DETAILS

Manager	Huong Crawford
Laboratory	SGS Alexandria Environmental
Address	Unit 16, 33 Maddox St Alexandria NSW 2015
Telephone	+61 2 8594 0400
Facsimile	+61 2 8594 0499
Email	au.environmental.sydney@sgs.com
Samples Received	Fri 12/6/2020
Report Due	Fri 19/6/2020
SGS Reference	**SE207473**

SUBMISSION DETAILS

This is to confirm that 18 samples were received on Friday 12/6/2020. Results are expected to be ready by COB Friday 19/6/2020. Please quote SGS reference SE207473 when making enquiries. Refer below for details relating to sample integrity upon receipt.

Samples clearly labelled	Yes	Complete documentation received	Yes
Sample container provider	SGS	Sample cooling method	None
Samples received in correct containers	Yes	Sample counts by matrix	18 Soil
Date documentation received	12/6/2020	Type of documentation received	COC
Samples received in good order	Yes	Samples received without headspace	Yes
Sample temperature upon receipt	14.3°C	Sufficient sample for analysis	Yes
Turnaround time requested	Standard		

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

19 soil samples have been placed on hold as no tests have been assigned for them by the client. These samples will not be processed.

SAMPLE RECEIPT ADVICE

SE207473

CLIENT DETAILS

Client EI AUSTRALIA

Project E24716 15 Jubilee Ave, Warriewood NSW

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	TP1_0.1-0.2	29	14	26	11	7	10	11	7
002	TP2_0.4-0.5	29	14	26	11	7	10	11	7
003	TP3_0.1-0.2	29	14	26	11	7	10	11	7
004	TP3_0.8-0.9	-	-	26	-	7	10	11	7
005	TP4_0.1-0.2	29	14	26	11	7	10	11	7
006	TP5_0.1-0.2	29	14	26	11	7	10	11	7
007	TP6_0.2-0.3	29	14	26	11	7	10	11	7
008	BH1_0.1-0.2	29	14	26	11	7	10	11	7
009	BH1_0.7-0.9	-	-	26	-	7	10	11	7
010	BH2_0.1-0.2	29	14	26	11	7	10	11	7
011	BH3M_0.3-0.4	29	14	26	11	7	10	11	7
012	BH4M_0.3-0.4	29	14	26	11	7	10	11	7
013	BH5M_0.1-0.2	29	14	26	11	7	10	11	7
014	BH5M_1.2-1.4	-	-	26	-	7	10	11	7
015	BH6_0.1-0.2	29	14	26	11	7	10	11	7
016	Soil-QD1	-	-	-	-	7	10	11	7
017	Soil-TripBlank-1	-	-	-	-	-	-	11	-
018	Soil-TripSpike-1	-	-	-	-	-	-	11	-

CONTINUED OVERLEAF

The above table represents SGS' interpretation of the client-supplied Chain Of Custody document.
The numbers shown in the table indicate the number of results requested in each package.
Please indicate as soon as possible should your request differ from these details .
Testing as per this table shall commence immediately unless the client intervenes with a correction .

SAMPLE RECEIPT ADVICE

SE207473

CLIENT DETAILS

Client EI AUSTRALIA

Project E24716 15 Jubilee Ave, Warriewood NSW

SUMMARY OF ANALYSIS

No.	Sample ID	Fibre Identification in soil	Mercury in Soil	Moisture Content
001	TP1_0.1-0.2	2	1	1
002	TP2_0.4-0.5	2	1	1
003	TP3_0.1-0.2	2	1	1
004	TP3_0.8-0.9	-	1	1
005	TP4_0.1-0.2	2	1	1
006	TP5_0.1-0.2	2	1	1
007	TP6_0.2-0.3	2	1	1
008	BH1_0.1-0.2	2	1	1
009	BH1_0.7-0.9	-	1	1
010	BH2_0.1-0.2	2	1	1
011	BH3M_0.3-0.4	2	1	1
012	BH4M_0.3-0.4	2	1	1
013	BH5M_0.1-0.2	2	1	1
014	BH5M_1.2-1.4	-	1	1
015	BH6_0.1-0.2	2	1	1
016	Soil-QD1	-	1	1
017	Soil-TripBlank-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 .

Sheet _____ of _____

Site: 15 Jubilee Ave, Warriewood NSW

Project No: E24716

Laboratory: **Eurofins Environment Testing Aust. P/L**
6 / 16 Mars Road,
Lane Cove NSW 2066
P: 02 9900 8400

Sample ID	Laboratory ID	Container Type	Sampling Date	Sampling Time	WATER	SOIL	OTHERS (i.e. Fibro, Paint, etc.)	HM [A] /TRH/BTEX/PAHs OCP/OP/PCB/Asbestos	HM [A] /TRH/BTEX/PAHs	HM [A] /TRH/BTEX	BTEX	VOCs	Asbestos	Asbestos Quantification	pH / CEC (cation exchange)	pH / EC (electrical conductivity)	Dewatering Suite	sPOCAS	PFAS	pH / PHFox			TCLP HM [B] / PAH
TP2_0.4-0.5	19	J, ZLB	11/6/20			X														X			
ASS_TP2_1.0	20	ZLB	↓			↓														↓			
ASS_TP2_2.0	21	↓																					
TP4_0.4-0.5	22	ZLB, J																					
ASS_TP6_1.0	23	ZLB																					
ASS_TP6_1.5	24	↓																					
ASS_TP6_2.0	25	↓	↓			↓														↓			
ASS_TP6_2.5	26	↓	↓			↓														↓			

Comments

HM [A]
Arsenic
Cadmium
Chromium
Copper
Lead
Mercury
Nickel
Zinc

HM [B]
Arsenic
Cadmium
Chromium
Lead
Mercury
Nickel

Dewatering Suite
pH & EC
TDS / Turbidity NTU
Hardness
Total Cyanide
Metals (Al, As, Cd, Cr, Cu, Pb, Hg, Ni, Zn)
TRH (F1, F2, F3, F4)
BTEX
PAH
Total Phenol

LABORATORY TURNAROUND

- [X] Standard
- [ ] 24 Hours
- [ ] 48 Hours
- [ ] 72 Hours
- [ ] Other_____

Container Type:
J= solvent washed, acid rinsed, Teflon sealed, glass jar
S= solvent washed, acid rinsed glass bottle
P= natural HDPE plastic bottle
VC= glass vial, Teflon Septum
ZLB = Zip-Lock Bag

Investigator: I attest that these samples were collected in accordance with standard EI field sampling procedures.

Report with EI Waste Classification Table ☐

Sampler's Name (EI):	Received by (Eurofins):
Print: Emily Scanlon	Print: Suba
Signature:	Signature:
Date: 12/6/20	Date: 15/06/20 @ 2:30

Sampler's Comments:

IMPORTANT:
Please e-mail laboratory results to: lab@eiaustralia.com.au

eiaustralia
Contamination | Remediation | Geotechnical

Suite 6.01, 55 Miller Street,
PYRMONT NSW 2009
Ph: 9516 0722
lab@eiaustralia.com.au

COC March 2018 FORM v.4 - SGS

SGS Alexandria Environmental

SE207473A COC
Received: 15 – Jun – 2020

Yin, Emily (Sydney)

From: Emily Scanlon - EIAustralia <emily.scanlon@eiaustralia.com.au>
Sent: Tuesday, 16 June 2020 7:24 AM
To: Yin, Emily (Sydney)
Subject: [EXTERNAL] RE: SE207473A - E24716

*** WARNING: this message is from an EXTERNAL SENDER. Please be cautious, particularly with links and attachments. ***

Hi Emily,

I hope you are well.

Yes, please- the samples listed on the COC are correct. No need to sample ASS_TP6_2.5. TP26

Thank you for checking. Have a great day.

Kind Regards,

Emily Scanlon
Environmental Engineer

T 02 9516 0722 M 0466 718 070
E emily.scanlon@eiaustralia.com.au

Suite 6.01, 55 Miller Street
Pyrmont, NSW 2009

www.eiaustralia.com.au

Environmental | Geotechnical | Structural | Civil | Hazardous Materials

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From: Yin, Emily (Sydney) [mailto:Emily.Yin@sgs.com]
Sent: Monday, 15 June 2020 9:16 PM
To: Emily Scanlon - EIAustralia
Subject: SE207473A - E24716

Dear Emily,

Just confirming that these are the samples you want analysed for pH/pHfox.
Also ASS_TP6_2.5 extra sample received.
Do you want it analysed?
Please clarify as soon as possible.
Thank You.

Regards,

Emily Yin

SAMPLE RECEIPT ADVICE

SE207473A

CLIENT DETAILS

Contact	Emily Scanlon
Client	EI AUSTRALIA
Address	SUITE 6.01 55 MILLER STREET PYRMONT NSW 2009
Telephone	61 2 9516 0722
Facsimile	(Not specified)
Email	emily.scanlon@eiaustralia.com.au
Project	**E24716 15 Jubilee Ave, Warriewood NSW**
Order Number	**E24716**
Samples	26

LABORATORY DETAILS

Manager	Huong Crawford
Laboratory	SGS Alexandria Environmental
Address	Unit 16, 33 Maddox St Alexandria NSW 2015
Telephone	+61 2 8594 0400
Facsimile	+61 2 8594 0499
Email	au.environmental.sydney@sgs.com
Samples Received	Mon 15/6/2020
Report Due	Mon 22/6/2020
SGS Reference	**SE207473A**

SUBMISSION DETAILS

This is to confirm that 26 samples were received on Monday 15/6/2020. Results are expected to be ready by COB Monday 22/6/2020. Please quote SGS reference SE207473A when making enquiries. Refer below for details relating to sample integrity upon receipt.

Samples clearly labelled	Yes	Complete documentation received	Yes
Sample container provider	SGS	Sample cooling method	None
Samples received in correct containers	Yes	Sample counts by matrix	7 Soil
Date documentation received	15/6/2020	Type of documentation received	COC
Samples received in good order	Yes	Samples received without headspace	Yes
Sample temperature upon receipt	14.3°C	Sufficient sample for analysis	Yes
Turnaround time requested	Standard		

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

SAMPLE RECEIPT ADVICE

SE207473A

CLIENT DETAILS

Client EI AUSTRALIA

Project E24716 15 Jubilee Ave, Warriewood NSW

SUMMARY OF ANALYSIS

No.	Sample ID	Field pH for Acid Sulphate Soil
002	TP2_0.4-0.5	4
020	ASS_TP2_1.0	4
021	ASS_TP2_2.0	4
022	TP4_0.4-0.5	4
023	ASS_TP6_1.0	4
024	ASS_TP6_1.5	4

CONTINUED OVERLEAF

The above table represents SGS' interpretation of the client-supplied Chain Of Custody document.
The numbers shown in the table indicate the number of results requested in each package.
Please indicate as soon as possible should your request differ from these details .
Testing as per this table shall commence immediately unless the client intervenes with a correction .

SAMPLE RECEIPT ADVICE

SE207473A

CLIENT DETAILS

Client EI AUSTRALIA

Project E24716 15 Jubilee Ave, Warriewood NSW

SUMMARY OF ANALYSIS

No.	Sample ID	Field pH for Acid Sulphate Soil
025	ASS_TP6_2.0	4

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 .

Sheet 1 of 1

Site: 15 Jubilee Ave, Warriewood NSW

Project No: E24716

Laboratory: SGS Australia
Unit 16, 33 Maddox Street,
ALEXANDRIA NSW 2015
P: 02 8594 0400 F: 02 8594 0499

Sample ID	Laboratory ID	Container Type	Sampling Date	Sampling Time	Sample Matrix: WATER	SOIL	OTHERS (i.e. Fibro, Paint, etc.)	Analysis: HM Δ /TRH/BTEX/PAHs OCP/OP/PCB/Asbestos	HM Δ /TRH/BTEX/PAHs	HM Δ /TRH/BTEX	BTEX	VOCs	Asbestos	Asbestos Quantification	pH / CEC (cation exchange)	pH / EC (electrical conductivity)	Dewatering Suite	sPOCAS	PFAS	Phenols (Total)		HOLD	TCLP HM B / PAH
GW_BH3M-1	1	S,P, 2x VC	18/6/20	AM	X				X			X								X			
GW-BH4M-1	2	↓	↓	↓	↓				↓			↓								↓			
GW-BH5M-1	3								↓			↓								↓			
GW-QD-1	4									X													
GW-QR-1	5									X													
GW-QRB-1		↓	↓	↓																	X		
GW-TripBlank-1	6	VC	Lab prepared	↓							X												
GW-TripSpike-1	7	↓	↓	↓	↓						↓												

Comments

HM Δ
Arsenic
Cadmium
Chromium
Copper
Lead
Mercury
Nickel
Zinc

HM B
Arsenic
Cadmium
Chromium
Lead
Mercury
Nickel

Dewatering Suite
pH & EC
TDS / Turbidity NTU
Hardness
Total Cyanide
Metals (Al, As, Cd, Cr, Cu, Pb, Hg, Ni, Zn)
TRH (F1, F2, F3, F4)
BTEX
PAH
Total Phenol

LABORATORY TURNAROUND

- ☐ Standard
- ☐ 24 Hours
- ☐ 48 Hours
- ☒ 72 Hours
- ☐ Other_____

Container Type:
J= solvent washed, acid rinsed,Teflon sealed, glass jar
S= solvent washed, acid rinsed glass bottle
P= natural HDPE plastic bottle
VC= glass vial, Teflon Septum
ZLB = Zip-Lock Bag

Investigator: I attest that these samples were collected in accordance with standard EI field sampling procedures.

Report with EI Waste Classification Table ☐

Sampler's Name (EI):	Received by (SGS):
Print: EMILY SCANLON	Print: Suba
Signature:	Signature:
Date: 18/6/20	Date: 18/06/20 @ 3.00

Sampler's Comments:

SGS EHS Sydney COC
SE207689

IMPORTANT:
Please e-mail laboratory results to: lab@eiaustralia.com.au

eiaustralia
Contamination | Remediation | Geotechnical
Suite 6.01, 55 Miller Street,
PYRMONT NSW 2009
Ph: 9516 0722
lab@eiaustralia.com.au

SAMPLE RECEIPT ADVICE

SE207689

CLIENT DETAILS

Contact	Emily Scanlon
Client	EI AUSTRALIA
Address	SUITE 6.01 55 MILLER STREET PYRMONT NSW 2009
Telephone	61 2 9516 0722
Facsimile	(Not specified)
Email	emily.scanlon@eiaustralia.com.au
Project	**E24716 15 Jubilee Ave Warriewood NSW**
Order Number	**E24716**
Samples	7

LABORATORY DETAILS

Manager	Huong Crawford
Laboratory	SGS Alexandria Environmental
Address	Unit 16, 33 Maddox St Alexandria NSW 2015
Telephone	+61 2 8594 0400
Facsimile	+61 2 8594 0499
Email	au.environmental.sydney@sgs.com
Samples Received	Thu 18/6/2020
Report Due	Tue 23/6/2020
SGS Reference	**SE207689**

SUBMISSION DETAILS

This is to confirm that 7 samples were received on Thursday 18/6/2020. Results are expected to be ready by COB Tuesday 23/6/2020. Please quote SGS reference SE207689 when making enquiries. Refer below for details relating to sample integrity upon receipt.

Samples clearly labelled	Yes	Complete documentation received	Yes
Sample container provider	SGS	Sample cooling method	Ice Bricks
Samples received in correct containers	Yes	Sample counts by matrix	7 Water
Date documentation received	18/6/2020	Type of documentation received	COC
Samples received in good order	Yes	Samples received without headspace	Yes
Sample temperature upon receipt	7.3°C	Sufficient sample for analysis	Yes
Turnaround time requested	Three Days		

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

1 water sample has been placed on hold as no tests have been assigned for it. This sample will not be processed.

SAMPLE RECEIPT ADVICE

SE207689

CLIENT DETAILS

Client EI AUSTRALIA

Project E24716 15 Jubilee Ave Warriewood NSW

SUMMARY OF ANALYSIS

No.	Sample ID	Mercury (dissolved) in Water	PAH (Polynuclear Aromatic Hydrocarbons) in Water	Total Phenolics in Water	Trace Metals (Dissolved) in Water by ICPMS	TRH (Total Recoverable Hydrocarbons) in Water	VOCs in Water	Volatile Petroleum Hydrocarbons in Water
001	GW_BH3M-1	1	22	1	7	9	78	7
002	GW_BH4M-1	1	22	1	7	9	78	7
003	GW_BH5M-1	1	22	1	7	9	78	7
004	GW_QD-1	1	-	-	7	9	11	7
005	GW_QR-1	1	-	-	7	9	11	7
006	GW_Trip Blank-1	-	-	-	-	-	11	-
007	GW_Trip Spike-1	-	-	-	-	-	11	-

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 .

Sheet 1 of 4

Site: 15 Jubilee Ave, Warriewood NSW

Project No: E24716

Laboratory: SGS Australia
Unit 16, 33 Maddox Street,
ALEXANDRIA NSW 2015
P: 02 8594 0400 F: 02 8594 0499

Sample ID	Laboratory ID	Container Type	Sampling Date	Sampling Time	Sample Matrix: WATER	SOIL	OTHERS (i.e. Fibro, Paint, etc.)	Analysis: HM [A] /TRH/BTEX/PAHs OCP/OP/PCB/Asbestos	HM [A] /TRH/BTEX/PAHs	HM [A] /TRH/BTEX	BTEX	VOCs	Asbestos	Asbestos Quantification	pH / CEC (cation exchange)	pH / EC (electrical conductivity)	Dewatering Suite	*sPOCAS	PFAS				TCLP HM [B] / PAH
TP1_0.1-0.2		J, ZLB	11/6/20			X		X															
TP1_0.4-0.5																							
TP1_0.7-0.8																							
TP1_1.6-1.7																							
TP2_0.1-0.2																							
TP2_0.4-0.5								X															
TP2_0.7-0.8																							
TP2_1.5-1.6																							
TP3_0.1-0.2								X															
TP3_0.4-0.5																							
TP3_0.8-0.9									X														
TP4_0.1-0.2		↓	↓			↓		X															

ENVIROLAB GROUP
Envirolab Services
12 Ashley St
Chatswood NSW 2067
Ph: (02) 9910 6200

Job No: 244845
Date Received: 15/6/20
~~Time Received:~~ 1448
Received by: CM
~~Temp: Cool/Ambient~~
Cooling: Ice/Icepack
~~Security: Intact/Broken/None~~

Comments

HM [A]
Arsenic
Cadmium
Chromium
Copper
Lead
Mercury
Nickel
Zinc

HM [B]
Arsenic
Cadmium
Chromium
Lead
Mercury
Nickel

Dewatering Suite
pH & EC
TDS / Turbidity NTU
Hardness
Total Cyanide
Metals (Al, As, Cd, Cr, Cu, Pb, Hg, Ni, Zn)
TRH (F1, F2, F3, F4)
BTEX
PAH
Total Phenol

LABORATORY TURNAROUND

- [X] Standard
- [ ] 24 Hours
- [ ] 48 Hours
- [ ] 72 Hours
- [ ] Other_____

Container Type:
J= solvent washed, acid rinsed, Teflon sealed, glass jar
S= solvent washed, acid rinsed glass bottle
P= natural HDPE plastic bottle
VC= glass vial, Teflon Septum
ZLB = Zip-Lock Bag

Investigator: I attest that these samples were collected in accordance with standard EI field sampling procedures.

Report with EI Waste Classification Table ☐

Sampler's Name (EI):	Received by (SGS):
Print: Emily Scanlon	Print: C. Mullens
Signature:	Signature: CM
Date: 12/6/2020	Date: ~~12/6~~ 14:30

Sampler's Comments:
Please transfer sample "QT1" To Envirolab
15/6/20 1448.

IMPORTANT:
Please e-mail laboratory results to: lab@eiaustralia.com.au

eiaustralia
Contamination | Remediation | Geotechnical
Suite 6.01, 55 Miller Street,
PYRMONT NSW 2009
Ph: 9516 0722
lab@eiaustralia.com.au

245184

Sheet 1 of 1

Site: 15 Jubilee Ave, Warriewood NSW

Project No: E24716

Laboratory: Envirolab Services
12 Ashley Street,
CHATSWOOD NSW 2067
P: 02 9910 6200

Sample ID	Laboratory ID	Container Type	Sampling Date	Sampling Time	Sample Matrix: WATER	Sample Matrix: SOIL	Sample Matrix: OTHERS (i.e. Fibro, Paint, etc.)	Analysis: HM [A] /TRH/BTEX/PAHs OCP/OP/PCB/Asbestos	Analysis: HM [A] /TRH/BTEX/PAHs	Analysis: HM [A] /TRH/BTEX	Analysis: BTEX	Analysis: VOCs	Analysis: Asbestos	Analysis: Asbestos Quantification	Analysis: pH / CEC (cation exchange)	Analysis: pH / EC (electrical conductivity)	Analysis: Dewatering Suite	Analysis: sPOCAS	Analysis: PFAS	Analysis:	Analysis:	Analysis:	Analysis: TCLP HM [B] / PAH
GW-QT1		S,P, 2x VC	18/9/20	AM	X				X														

Comments

HM [A]
Arsenic
Cadmium
Chromium
Copper
Lead
Mercury
Nickel
Zinc

HM [B]
Arsenic
Cadmium
Chromium
Lead
Mercury
Nickel

Dewatering Suite
pH & EC
TDS / Turbidity NTU
Hardness
Total Cyanide
Metals (Al, As, Cd, Cr, Cu, Pb, Hg, Ni, Zn)
TRH (F1, F2, F3, F4)
BTEX
PAH
Total Phenol

19/6/20

LABORATORY TURNAROUND

- [x] Standard
- [ ] 24 Hours
- [ ] 48 Hours
- [ ] 72 Hours
- [ ] Other_____

Container Type:
J= solvent washed, acid rinsed,Teflon sealed, glass jar
S= solvent washed, acid rinsed glass bottle
P= natural HDPE plastic bottle
VC= glass vial, Teflon Septum
ZLB = Zip-Lock Bag

Investigator: I attest that these samples were collected in accordance with standard EI field sampling procedures.

Report with EI Waste Classification Table [ ]

Sampler's Name (EI):	Received by (Envirolab)
Print: EMILY SCANLON	Print:
Signature:	Signature:
Date: 18/9/20	Date:

Sampler's Comments:

IMPORTANT:
Please e-mail laboratory results to: lab@eiaustralia.com.au

eiaustralia
Suite 6.01, 55 Miller Street.
PYRMONT NSW 2009
Ph: 9516 0722
lab@eiaustralia.com.au

Appendix H – Laboratory Analytical Reports

ANALYTICAL REPORT

Accreditation No. 2562

CLIENT DETAILS

Contact	Emily Scanlon
Client	EI AUSTRALIA
Address	SUITE 6.01 55 MILLER STREET PYRMONT NSW 2009
Telephone	61 2 9516 0722
Facsimile	(Not specified)
Email	emily.scanlon@eiaustralia.com.au
Project	**E24716 15 Jubilee Ave, Warriewood NSW**
Order Number	**E24716**
Samples	19

LABORATORY DETAILS

Manager	Huong Crawford
Laboratory	SGS Alexandria Environmental
Address	Unit 16, 33 Maddox St Alexandria NSW 2015
Telephone	+61 2 8594 0400
Facsimile	+61 2 8594 0499
Email	au.environmental.sydney@sgs.com
SGS Reference	**SE207473 R0**
Date Received	12/6/2020
Date Reported	19/6/2020

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.

Asbestos analysed by Approved Identifier Yusuf Kuthpudin.

SIGNATORIES

Dong LIANG
Metals/Inorganics Team Leader

Kamrul AHSAN
Senior Chemist

Ly Kim HA
Organic Section Head

Yusuf KUTHPUDIN
Asbestos Analyst

VOC's in Soil [AN433] Tested: 15/6/2020

PARAMETER	UOM	LOR	TP1_0.1-0.2 SOIL - 11/6/2020 SE207473.001	TP2_0.4-0.5 SOIL - 11/6/2020 SE207473.002	TP3_0.1-0.2 SOIL - 11/6/2020 SE207473.003	TP3_0.8-0.9 SOIL - 11/6/2020 SE207473.004	TP4_0.1-0.2 SOIL - 11/6/2020 SE207473.005
Benzene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Toluene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Ethylbenzene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
m/p-xylene	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
o-xylene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Total Xylenes	mg/kg	0.3	<0.3	<0.3	<0.3	<0.3	<0.3
Total BTEX	mg/kg	0.6	<0.6	<0.6	<0.6	<0.6	<0.6
Naphthalene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1

PARAMETER	UOM	LOR	TP5_0.1-0.2 SOIL - 11/6/2020 SE207473.006	TP6_0.2-0.3 SOIL - 11/6/2020 SE207473.007	BH1_0.1-0.2 SOIL - 11/6/2020 SE207473.008	BH1_0.7-0.9 SOIL - 11/6/2020 SE207473.009	BH2_0.1-0.2 SOIL - 11/6/2020 SE207473.010
Benzene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Toluene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Ethylbenzene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
m/p-xylene	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
o-xylene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Total Xylenes	mg/kg	0.3	<0.3	<0.3	<0.3	<0.3	<0.3
Total BTEX	mg/kg	0.6	<0.6	<0.6	<0.6	<0.6	<0.6
Naphthalene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1

PARAMETER	UOM	LOR	BH3M_0.3-0.4 SOIL - 11/6/2020 SE207473.011	BH4M_0.3-0.4 SOIL - 11/6/2020 SE207473.012	BH5M_0.1-0.2 SOIL - 11/6/2020 SE207473.013	BH5M_1.2-1.4 SOIL - 11/6/2020 SE207473.014	BH6_0.1-0.2 SOIL - 11/6/2020 SE207473.015
Benzene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Toluene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Ethylbenzene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
m/p-xylene	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
o-xylene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Total Xylenes	mg/kg	0.3	<0.3	<0.3	<0.3	<0.3	<0.3
Total BTEX	mg/kg	0.6	<0.6	<0.6	<0.6	<0.6	<0.6
Naphthalene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1

PARAMETER	UOM	LOR	Soil-QD1 SOIL - 11/6/2020 SE207473.016	Soil-TripBlank-1 SOIL - 11/6/2020 SE207473.017	Soil-TripSpike-1 SOIL - 11/6/2020 SE207473.018	TP5_0.4-0.5 SOIL - 11/6/2020 SE207473.019
Benzene	mg/kg	0.1	<0.1	<0.1	[94%]	<0.1
Toluene	mg/kg	0.1	<0.1	<0.1	[93%]	<0.1
Ethylbenzene	mg/kg	0.1	<0.1	<0.1	[95%]	<0.1
m/p-xylene	mg/kg	0.2	<0.2	<0.2	[94%]	<0.2
o-xylene	mg/kg	0.1	<0.1	<0.1	[95%]	<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	mg/kg	0.1	<0.1	<0.1	-	<0.1

Volatile Petroleum Hydrocarbons in Soil [AN433] Tested: 15/6/2020

PARAMETER	UOM	LOR	TP1_0.1-0.2 SOIL - 11/6/2020 SE207473.001	TP2_0.4-0.5 SOIL - 11/6/2020 SE207473.002	TP3_0.1-0.2 SOIL - 11/6/2020 SE207473.003	TP3_0.8-0.9 SOIL - 11/6/2020 SE207473.004	TP4_0.1-0.2 SOIL - 11/6/2020 SE207473.005
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	TP5_0.1-0.2 SOIL - 11/6/2020 SE207473.006	TP6_0.2-0.3 SOIL - 11/6/2020 SE207473.007	BH1_0.1-0.2 SOIL - 11/6/2020 SE207473.008	BH1_0.7-0.9 SOIL - 11/6/2020 SE207473.009	BH2_0.1-0.2 SOIL - 11/6/2020 SE207473.010
TRH C6-C9	mg/kg	20	<20	<20	<20	<20	<20
Benzene (F0)	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
TRH C6-C10	mg/kg	25	<25	<25	<25	<25	<25
TRH C6-C10 minus BTEX (F1)	mg/kg	25	<25	<25	<25	<25	<25

PARAMETER	UOM	LOR	BH3M_0.3-0.4 SOIL - 11/6/2020 SE207473.011	BH4M_0.3-0.4 SOIL - 11/6/2020 SE207473.012	BH5M_0.1-0.2 SOIL - 11/6/2020 SE207473.013	BH5M_1.2-1.4 SOIL - 11/6/2020 SE207473.014	BH6_0.1-0.2 SOIL - 11/6/2020 SE207473.015
TRH C6-C9	mg/kg	20	<20	<20	<20	<20	<20
Benzene (F0)	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
TRH C6-C10	mg/kg	25	<25	<25	<25	<25	<25
TRH C6-C10 minus BTEX (F1)	mg/kg	25	<25	<25	<25	<25	<25

PARAMETER	UOM	LOR	Soil-QD1 SOIL - 11/6/2020 SE207473.016	TP5_0.4-0.5 SOIL - 11/6/2020 SE207473.019
TRH C6-C9	mg/kg	20	<20	<20
Benzene (F0)	mg/kg	0.1	<0.1	<0.1
TRH C6-C10	mg/kg	25	<25	<25
TRH C6-C10 minus BTEX (F1)	mg/kg	25	<25	<25

TRH (Total Recoverable Hydrocarbons) in Soil [AN403] Tested: 15/6/2020

PARAMETER	UOM	LOR	TP1_0.1-0.2 SOIL - 11/6/2020 SE207473.001	TP2_0.4-0.5 SOIL - 11/6/2020 SE207473.002	TP3_0.1-0.2 SOIL - 11/6/2020 SE207473.003	TP3_0.8-0.9 SOIL - 11/6/2020 SE207473.004	TP4_0.1-0.2 SOIL - 11/6/2020 SE207473.005
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	TP5_0.1-0.2 SOIL - 11/6/2020 SE207473.006	TP6_0.2-0.3 SOIL - 11/6/2020 SE207473.007	BH1_0.1-0.2 SOIL - 11/6/2020 SE207473.008	BH1_0.7-0.9 SOIL - 11/6/2020 SE207473.009	BH2_0.1-0.2 SOIL - 11/6/2020 SE207473.010
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	BH3M_0.3-0.4 SOIL - 11/6/2020 SE207473.011	BH4M_0.3-0.4 SOIL - 11/6/2020 SE207473.012	BH5M_0.1-0.2 SOIL - 11/6/2020 SE207473.013	BH5M_1.2-1.4 SOIL - 11/6/2020 SE207473.014	BH6_0.1-0.2 SOIL - 11/6/2020 SE207473.015
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

TRH (Total Recoverable Hydrocarbons) in Soil [AN403] Tested: 15/6/2020 (continued)

PARAMETER	UOM	LOR	Soil-QD1 SOIL - 11/6/2020 SE207473.016	TP5_0.4-0.5 SOIL - 11/6/2020 SE207473.019
TRH C10-C14	mg/kg	20	<20	<20
TRH C15-C28	mg/kg	45	<45	<45
TRH C29-C36	mg/kg	45	<45	<45
TRH C37-C40	mg/kg	100	<100	<100
TRH >C10-C16	mg/kg	25	<25	<25
TRH >C10-C16 - Naphthalene (F2)	mg/kg	25	<25	<25
TRH >C16-C34 (F3)	mg/kg	90	<90	<90
TRH >C34-C40 (F4)	mg/kg	120	<120	<120
TRH C10-C36 Total	mg/kg	110	<110	<110
TRH >C10-C40 Total (F bands)	mg/kg	210	<210	<210

PAH (Polynuclear Aromatic Hydrocarbons) in Soil [AN420] Tested: 15/6/2020

PARAMETER	UOM	LOR	TP1_0.1-0.2 SOIL - 11/6/2020 SE207473.001	TP2_0.4-0.5 SOIL - 11/6/2020 SE207473.002	TP3_0.1-0.2 SOIL - 11/6/2020 SE207473.003	TP3_0.8-0.9 SOIL - 11/6/2020 SE207473.004	TP4_0.1-0.2 SOIL - 11/6/2020 SE207473.005
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	**0.2**	<0.1	**0.1**	<0.1	**0.3**
Pyrene	mg/kg	0.1	**0.2**	<0.1	**0.1**	<0.1	**0.4**
Benzo(a)anthracene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	**0.3**
Chrysene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	**0.3**
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	**0.5**
Benzo(a)pyrene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	**0.4**
Indeno(1,2,3-cd)pyrene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	**0.2**
Dibenzo(ah)anthracene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(ghi)perylene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	**0.2**
Carcinogenic PAHs, BaP TEQ <LOR=0	TEQ (mg/kg)	0.2	<0.2	<0.2	<0.2	<0.2	**0.5**
Carcinogenic PAHs, BaP TEQ <LOR=LOR	TEQ (mg/kg)	0.3	<0.3	<0.3	<0.3	<0.3	**0.6**
Carcinogenic PAHs, BaP TEQ <LOR=LOR/2	TEQ (mg/kg)	0.2	<0.2	<0.2	<0.2	<0.2	**0.6**
Total PAH (18)	mg/kg	0.8	<0.8	<0.8	<0.8	<0.8	**2.9**
Total PAH (NEPM/WHO 16)	mg/kg	0.8	<0.8	<0.8	<0.8	<0.8	**2.9**

PARAMETER	UOM	LOR	TP5_0.1-0.2 SOIL - 11/6/2020 SE207473.006	TP6_0.2-0.3 SOIL - 11/6/2020 SE207473.007	BH1_0.1-0.2 SOIL - 11/6/2020 SE207473.008	BH1_0.7-0.9 SOIL - 11/6/2020 SE207473.009	BH2_0.1-0.2 SOIL - 11/6/2020 SE207473.010
Naphthalene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
2-methylnaphthalene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
1-methylnaphthalene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Acenaphthylene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Acenaphthene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Fluorene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Phenanthrene	mg/kg	0.1	<0.1	**0.2**	<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**	**0.8**	<0.1	<0.1	<0.1
Pyrene	mg/kg	0.1	**0.1**	**0.8**	<0.1	<0.1	<0.1
Benzo(a)anthracene	mg/kg	0.1	<0.1	**0.3**	<0.1	<0.1	<0.1
Chrysene	mg/kg	0.1	<0.1	**0.3**	<0.1	<0.1	<0.1
Benzo(b&j)fluoranthene	mg/kg	0.1	<0.1	**0.3**	<0.1	<0.1	<0.1
Benzo(k)fluoranthene	mg/kg	0.1	<0.1	**0.2**	<0.1	<0.1	<0.1
Benzo(a)pyrene	mg/kg	0.1	<0.1	**0.3**	<0.1	<0.1	<0.1
Indeno(1,2,3-cd)pyrene	mg/kg	0.1	<0.1	**0.2**	<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	**0.2**	<0.1	<0.1	<0.1
Carcinogenic PAHs, BaP TEQ <LOR=0	TEQ (mg/kg)	0.2	<0.2	**0.4**	<0.2	<0.2	<0.2
Carcinogenic PAHs, BaP TEQ <LOR=LOR	TEQ (mg/kg)	0.3	<0.3	**0.5**	<0.3	<0.3	<0.3
Carcinogenic PAHs, BaP TEQ <LOR=LOR/2	TEQ (mg/kg)	0.2	<0.2	**0.5**	<0.2	<0.2	<0.2
Total PAH (18)	mg/kg	0.8	<0.8	**3.7**	<0.8	<0.8	<0.8
Total PAH (NEPM/WHO 16)	mg/kg	0.8	<0.8	**3.7**	<0.8	<0.8	<0.8

PAH (Polynuclear Aromatic Hydrocarbons) in Soil [AN420] Tested: 15/6/2020 (continued)

PARAMETER	UOM	LOR	BH3M_0.3-0.4 SOIL - 11/6/2020 SE207473.011	BH4M_0.3-0.4 SOIL - 11/6/2020 SE207473.012	BH5M_0.1-0.2 SOIL - 11/6/2020 SE207473.013	BH5M_1.2-1.4 SOIL - 11/6/2020 SE207473.014	BH6_0.1-0.2 SOIL - 11/6/2020 SE207473.015
Naphthalene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
2-methylnaphthalene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
1-methylnaphthalene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Acenaphthylene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Acenaphthene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Fluorene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Phenanthrene	mg/kg	0.1	<0.1	<0.1	**0.2**	<0.1	**0.3**
Anthracene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Fluoranthene	mg/kg	0.1	<0.1	<0.1	**0.5**	<0.1	**0.7**
Pyrene	mg/kg	0.1	<0.1	<0.1	**0.4**	<0.1	**0.6**
Benzo(a)anthracene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	**0.2**
Chrysene	mg/kg	0.1	<0.1	<0.1	**0.2**	<0.1	**0.2**
Benzo(b&j)fluoranthene	mg/kg	0.1	<0.1	<0.1	**0.1**	<0.1	**0.2**
Benzo(k)fluoranthene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	**0.2**
Benzo(a)pyrene	mg/kg	0.1	<0.1	<0.1	**0.1**	<0.1	**0.2**
Indeno(1,2,3-cd)pyrene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	**0.2**
Dibenzo(ah)anthracene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(ghi)perylene	mg/kg	0.1	<0.1	<0.1	**0.1**	<0.1	**0.2**
Carcinogenic PAHs, BaP TEQ <LOR=0	TEQ (mg/kg)	0.2	<0.2	<0.2	<0.2	<0.2	**0.3**
Carcinogenic PAHs, BaP TEQ <LOR=LOR	TEQ (mg/kg)	0.3	<0.3	<0.3	<0.3	<0.3	**0.4**
Carcinogenic PAHs, BaP TEQ <LOR=LOR/2	TEQ (mg/kg)	0.2	<0.2	<0.2	**0.2**	<0.2	**0.3**
Total PAH (18)	mg/kg	0.8	<0.8	<0.8	**1.7**	<0.8	**3.0**
Total PAH (NEPM/WHO 16)	mg/kg	0.8	<0.8	<0.8	**1.7**	<0.8	**3.0**

PARAMETER	UOM	LOR	TP5_0.4-0.5 SOIL - 11/6/2020 SE207473.019
Naphthalene	mg/kg	0.1	<0.1
2-methylnaphthalene	mg/kg	0.1	<0.1
1-methylnaphthalene	mg/kg	0.1	<0.1
Acenaphthylene	mg/kg	0.1	<0.1
Acenaphthene	mg/kg	0.1	<0.1
Fluorene	mg/kg	0.1	<0.1
Phenanthrene	mg/kg	0.1	<0.1
Anthracene	mg/kg	0.1	<0.1
Fluoranthene	mg/kg	0.1	<0.1
Pyrene	mg/kg	0.1	<0.1
Benzo(a)anthracene	mg/kg	0.1	<0.1
Chrysene	mg/kg	0.1	<0.1
Benzo(b&j)fluoranthene	mg/kg	0.1	<0.1
Benzo(k)fluoranthene	mg/kg	0.1	<0.1
Benzo(a)pyrene	mg/kg	0.1	<0.1
Indeno(1,2,3-cd)pyrene	mg/kg	0.1	<0.1
Dibenzo(ah)anthracene	mg/kg	0.1	<0.1
Benzo(ghi)perylene	mg/kg	0.1	<0.1
Carcinogenic PAHs, BaP TEQ <LOR=0	TEQ (mg/kg)	0.2	<0.2
Carcinogenic PAHs, BaP TEQ <LOR=LOR	TEQ (mg/kg)	0.3	<0.3
Carcinogenic PAHs, BaP TEQ <LOR=LOR/2	TEQ (mg/kg)	0.2	<0.2
Total PAH (18)	mg/kg	0.8	<0.8
Total PAH (NEPM/WHO 16)	mg/kg	0.8	<0.8

OC Pesticides in Soil [AN420] Tested: 15/6/2020

PARAMETER	UOM	LOR	TP1_0.1-0.2 SOIL - 11/6/2020 SE207473.001	TP2_0.4-0.5 SOIL - 11/6/2020 SE207473.002	TP3_0.1-0.2 SOIL - 11/6/2020 SE207473.003	TP3_0.8-0.9 SOIL - 11/6/2020 SE207473.004	TP4_0.1-0.2 SOIL - 11/6/2020 SE207473.005
Hexachlorobenzene (HCB)	mg/kg	0.1	<0.1	<0.1	<0.1	-	<0.1
Alpha BHC	mg/kg	0.1	<0.1	<0.1	<0.1	-	<0.1
Lindane	mg/kg	0.1	<0.1	<0.1	<0.1	-	<0.1
Heptachlor	mg/kg	0.1	<0.1	<0.1	<0.1	-	<0.1
Aldrin	mg/kg	0.1	<0.1	<0.1	<0.1	-	<0.1
Beta BHC	mg/kg	0.1	<0.1	<0.1	<0.1	-	<0.1
Delta BHC	mg/kg	0.1	<0.1	<0.1	<0.1	-	<0.1
Heptachlor epoxide	mg/kg	0.1	<0.1	<0.1	<0.1	-	<0.1
o,p'-DDE	mg/kg	0.1	<0.1	<0.1	<0.1	-	<0.1
Alpha Endosulfan	mg/kg	0.2	<0.2	<0.2	<0.2	-	<0.2
Gamma Chlordane	mg/kg	0.1	<0.1	<0.1	<0.1	-	<0.1
Alpha Chlordane	mg/kg	0.1	<0.1	<0.1	<0.1	-	<0.1
trans-Nonachlor	mg/kg	0.1	<0.1	<0.1	<0.1	-	<0.1
p,p'-DDE	mg/kg	0.1	<0.1	<0.1	<0.1	-	<0.1
Dieldrin	mg/kg	0.2	<0.2	<0.2	<0.2	-	<0.2
Endrin	mg/kg	0.2	<0.2	<0.2	<0.2	-	<0.2
o,p'-DDD	mg/kg	0.1	<0.1	<0.1	<0.1	-	<0.1
o,p'-DDT	mg/kg	0.1	<0.1	<0.1	<0.1	-	<0.1
Beta Endosulfan	mg/kg	0.2	<0.2	<0.2	<0.2	-	<0.2
p,p'-DDD	mg/kg	0.1	<0.1	<0.1	<0.1	-	<0.1
p,p'-DDT	mg/kg	0.1	<0.1	<0.1	<0.1	-	<0.1
Endosulfan sulphate	mg/kg	0.1	<0.1	<0.1	<0.1	-	<0.1
Endrin Aldehyde	mg/kg	0.1	<0.1	<0.1	<0.1	-	<0.1
Methoxychlor	mg/kg	0.1	<0.1	<0.1	<0.1	-	<0.1
Endrin Ketone	mg/kg	0.1	<0.1	<0.1	<0.1	-	<0.1
Isodrin	mg/kg	0.1	<0.1	<0.1	<0.1	-	<0.1
Mirex	mg/kg	0.1	<0.1	<0.1	<0.1	-	<0.1
Total CLP OC Pesticides	mg/kg	1	<1	<1	<1	-	<1

OC Pesticides in Soil [AN420] Tested: 15/6/2020 (continued)

PARAMETER	UOM	LOR	TP5_0.1-0.2 SOIL - 11/6/2020 SE207473.006	TP6_0.2-0.3 SOIL - 11/6/2020 SE207473.007	BH1_0.1-0.2 SOIL - 11/6/2020 SE207473.008	BH1_0.7-0.9 SOIL - 11/6/2020 SE207473.009	BH2_0.1-0.2 SOIL - 11/6/2020 SE207473.010
Hexachlorobenzene (HCB)	mg/kg	0.1	<0.1	<0.1	<0.1	-	<0.1
Alpha BHC	mg/kg	0.1	<0.1	<0.1	<0.1	-	<0.1
Lindane	mg/kg	0.1	<0.1	<0.1	<0.1	-	<0.1
Heptachlor	mg/kg	0.1	<0.1	<0.1	<0.1	-	<0.1
Aldrin	mg/kg	0.1	<0.1	<0.1	<0.1	-	<0.1
Beta BHC	mg/kg	0.1	<0.1	<0.1	<0.1	-	<0.1
Delta BHC	mg/kg	0.1	<0.1	<0.1	<0.1	-	<0.1
Heptachlor epoxide	mg/kg	0.1	<0.1	<0.1	<0.1	-	<0.1
o,p'-DDE	mg/kg	0.1	<0.1	<0.1	<0.1	-	<0.1
Alpha Endosulfan	mg/kg	0.2	<0.2	<0.2	<0.2	-	<0.2
Gamma Chlordane	mg/kg	0.1	<0.1	<0.1	<0.1	-	<0.1
Alpha Chlordane	mg/kg	0.1	<0.1	<0.1	<0.1	-	<0.1
trans-Nonachlor	mg/kg	0.1	<0.1	<0.1	<0.1	-	<0.1
p,p'-DDE	mg/kg	0.1	<0.1	<0.1	<0.1	-	<0.1
Dieldrin	mg/kg	0.2	<0.2	<0.2	<0.2	-	<0.2
Endrin	mg/kg	0.2	<0.2	<0.2	<0.2	-	<0.2
o,p'-DDD	mg/kg	0.1	<0.1	<0.1	<0.1	-	<0.1
o,p'-DDT	mg/kg	0.1	<0.1	<0.1	<0.1	-	<0.1
Beta Endosulfan	mg/kg	0.2	<0.2	<0.2	<0.2	-	<0.2
p,p'-DDD	mg/kg	0.1	<0.1	<0.1	<0.1	-	<0.1
p,p'-DDT	mg/kg	0.1	<0.1	<0.1	<0.1	-	<0.1
Endosulfan sulphate	mg/kg	0.1	<0.1	<0.1	<0.1	-	<0.1
Endrin Aldehyde	mg/kg	0.1	<0.1	<0.1	<0.1	-	<0.1
Methoxychlor	mg/kg	0.1	<0.1	<0.1	<0.1	-	<0.1
Endrin Ketone	mg/kg	0.1	<0.1	<0.1	<0.1	-	<0.1
Isodrin	mg/kg	0.1	<0.1	<0.1	<0.1	-	<0.1
Mirex	mg/kg	0.1	<0.1	<0.1	<0.1	-	<0.1
Total CLP OC Pesticides	mg/kg	1	<1	<1	<1	-	<1

OC Pesticides in Soil [AN420] Tested: 15/6/2020 (continued)

PARAMETER	UOM	LOR	BH3M_0.3-0.4 SOIL - 11/6/2020 SE207473.011	BH4M_0.3-0.4 SOIL - 11/6/2020 SE207473.012	BH5M_0.1-0.2 SOIL - 11/6/2020 SE207473.013	BH5M_1.2-1.4 SOIL - 11/6/2020 SE207473.014	BH6_0.1-0.2 SOIL - 11/6/2020 SE207473.015
Hexachlorobenzene (HCB)	mg/kg	0.1	<0.1	<0.1	<0.1	-	<0.1
Alpha BHC	mg/kg	0.1	<0.1	<0.1	<0.1	-	<0.1
Lindane	mg/kg	0.1	<0.1	<0.1	<0.1	-	<0.1
Heptachlor	mg/kg	0.1	<0.1	<0.1	<0.1	-	<0.1
Aldrin	mg/kg	0.1	<0.1	<0.1	<0.1	-	<0.1
Beta BHC	mg/kg	0.1	<0.1	<0.1	<0.1	-	<0.1
Delta BHC	mg/kg	0.1	<0.1	<0.1	<0.1	-	<0.1
Heptachlor epoxide	mg/kg	0.1	<0.1	<0.1	<0.1	-	<0.1
o,p'-DDE	mg/kg	0.1	<0.1	<0.1	<0.1	-	<0.1
Alpha Endosulfan	mg/kg	0.2	<0.2	<0.2	<0.2	-	<0.2
Gamma Chlordane	mg/kg	0.1	<0.1	<0.1	<0.1	-	<0.1
Alpha Chlordane	mg/kg	0.1	<0.1	<0.1	<0.1	-	<0.1
trans-Nonachlor	mg/kg	0.1	<0.1	<0.1	<0.1	-	<0.1
p,p'-DDE	mg/kg	0.1	<0.1	<0.1	<0.1	-	<0.1
Dieldrin	mg/kg	0.2	<0.2	<0.2	<0.2	-	<0.2
Endrin	mg/kg	0.2	<0.2	<0.2	<0.2	-	<0.2
o,p'-DDD	mg/kg	0.1	<0.1	<0.1	<0.1	-	<0.1
o,p'-DDT	mg/kg	0.1	<0.1	<0.1	<0.1	-	<0.1
Beta Endosulfan	mg/kg	0.2	<0.2	<0.2	<0.2	-	<0.2
p,p'-DDD	mg/kg	0.1	<0.1	<0.1	<0.1	-	<0.1
p,p'-DDT	mg/kg	0.1	<0.1	<0.1	<0.1	-	<0.1
Endosulfan sulphate	mg/kg	0.1	<0.1	<0.1	<0.1	-	<0.1
Endrin Aldehyde	mg/kg	0.1	<0.1	<0.1	<0.1	-	<0.1
Methoxychlor	mg/kg	0.1	<0.1	<0.1	<0.1	-	<0.1
Endrin Ketone	mg/kg	0.1	<0.1	<0.1	<0.1	-	<0.1
Isodrin	mg/kg	0.1	<0.1	<0.1	<0.1	-	<0.1
Mirex	mg/kg	0.1	<0.1	<0.1	<0.1	-	<0.1
Total CLP OC Pesticides	mg/kg	1	<1	<1	<1	-	<1

OC Pesticides in Soil [AN420] Tested: 15/6/2020 (continued)

PARAMETER	UOM	LOR	Soil-QD1 SOIL - 11/6/2020 SE207473.016	TP5_0.4-0.5 SOIL - 11/6/2020 SE207473.019
Hexachlorobenzene (HCB)	mg/kg	0.1	-	-
Alpha BHC	mg/kg	0.1	-	-
Lindane	mg/kg	0.1	-	-
Heptachlor	mg/kg	0.1	-	-
Aldrin	mg/kg	0.1	-	-
Beta BHC	mg/kg	0.1	-	-
Delta BHC	mg/kg	0.1	-	-
Heptachlor epoxide	mg/kg	0.1	-	-
o,p'-DDE	mg/kg	0.1	-	-
Alpha Endosulfan	mg/kg	0.2	-	-
Gamma Chlordane	mg/kg	0.1	-	-
Alpha Chlordane	mg/kg	0.1	-	-
trans-Nonachlor	mg/kg	0.1	-	-
p,p'-DDE	mg/kg	0.1	-	-
Dieldrin	mg/kg	0.2	-	-
Endrin	mg/kg	0.2	-	-
o,p'-DDD	mg/kg	0.1	-	-
o,p'-DDT	mg/kg	0.1	-	-
Beta Endosulfan	mg/kg	0.2	-	-
p,p'-DDD	mg/kg	0.1	-	-
p,p'-DDT	mg/kg	0.1	-	-
Endosulfan sulphate	mg/kg	0.1	-	-
Endrin Aldehyde	mg/kg	0.1	-	-
Methoxychlor	mg/kg	0.1	-	-
Endrin Ketone	mg/kg	0.1	-	-
Isodrin	mg/kg	0.1	-	-
Mirex	mg/kg	0.1	-	-
Total CLP OC Pesticides	mg/kg	1	-	-

OP Pesticides in Soil [AN420] Tested: 15/6/2020

PARAMETER	UOM	LOR	TP1_0.1-0.2 SOIL - 11/6/2020 SE207473.001	TP2_0.4-0.5 SOIL - 11/6/2020 SE207473.002	TP3_0.1-0.2 SOIL - 11/6/2020 SE207473.003	TP4_0.1-0.2 SOIL - 11/6/2020 SE207473.005	TP5_0.1-0.2 SOIL - 11/6/2020 SE207473.006
Dichlorvos	mg/kg	0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Dimethoate	mg/kg	0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Diazinon (Dimpylate)	mg/kg	0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Fenitrothion	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Malathion	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Chlorpyrifos (Chlorpyrifos Ethyl)	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Parathion-ethyl (Parathion)	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Bromophos Ethyl	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Methidathion	mg/kg	0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Ethion	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Azinphos-methyl (Guthion)	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Total OP Pesticides*	mg/kg	1.7	<1.7	<1.7	<1.7	<1.7	<1.7

PARAMETER	UOM	LOR	TP6_0.2-0.3 SOIL - 11/6/2020 SE207473.007	BH1_0.1-0.2 SOIL - 11/6/2020 SE207473.008	BH2_0.1-0.2 SOIL - 11/6/2020 SE207473.010	BH3M_0.3-0.4 SOIL - 11/6/2020 SE207473.011	BH4M_0.3-0.4 SOIL - 11/6/2020 SE207473.012
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	BH5M_0.1-0.2 SOIL - 11/6/2020 SE207473.013	BH6_0.1-0.2 SOIL - 11/6/2020 SE207473.015
Dichlorvos	mg/kg	0.5	<0.5	<0.5
Dimethoate	mg/kg	0.5	<0.5	<0.5
Diazinon (Dimpylate)	mg/kg	0.5	<0.5	<0.5
Fenitrothion	mg/kg	0.2	<0.2	<0.2
Malathion	mg/kg	0.2	<0.2	<0.2
Chlorpyrifos (Chlorpyrifos Ethyl)	mg/kg	0.2	<0.2	<0.2
Parathion-ethyl (Parathion)	mg/kg	0.2	<0.2	<0.2
Bromophos Ethyl	mg/kg	0.2	<0.2	<0.2
Methidathion	mg/kg	0.5	<0.5	<0.5
Ethion	mg/kg	0.2	<0.2	<0.2
Azinphos-methyl (Guthion)	mg/kg	0.2	<0.2	<0.2
Total OP Pesticides*	mg/kg	1.7	<1.7	<1.7

PCBs in Soil [AN420] Tested: 15/6/2020

PARAMETER	UOM	LOR	TP1_0.1-0.2 SOIL - 11/6/2020 SE207473.001	TP2_0.4-0.5 SOIL - 11/6/2020 SE207473.002	TP3_0.1-0.2 SOIL - 11/6/2020 SE207473.003	TP3_0.8-0.9 SOIL - 11/6/2020 SE207473.004	TP4_0.1-0.2 SOIL - 11/6/2020 SE207473.005
Arochlor 1016	mg/kg	0.2	<0.2	<0.2	<0.2	-	<0.2
Arochlor 1221	mg/kg	0.2	<0.2	<0.2	<0.2	-	<0.2
Arochlor 1232	mg/kg	0.2	<0.2	<0.2	<0.2	-	<0.2
Arochlor 1242	mg/kg	0.2	<0.2	<0.2	<0.2	-	<0.2
Arochlor 1248	mg/kg	0.2	<0.2	<0.2	<0.2	-	<0.2
Arochlor 1254	mg/kg	0.2	<0.2	<0.2	<0.2	-	<0.2
Arochlor 1260	mg/kg	0.2	<0.2	<0.2	<0.2	-	<0.2
Arochlor 1262	mg/kg	0.2	<0.2	<0.2	<0.2	-	<0.2
Arochlor 1268	mg/kg	0.2	<0.2	<0.2	<0.2	-	<0.2
Total PCBs (Arochlors)	mg/kg	1	<1	<1	<1	-	<1

PARAMETER	UOM	LOR	TP5_0.1-0.2 SOIL - 11/6/2020 SE207473.006	TP6_0.2-0.3 SOIL - 11/6/2020 SE207473.007	BH1_0.1-0.2 SOIL - 11/6/2020 SE207473.008	BH1_0.7-0.9 SOIL - 11/6/2020 SE207473.009	BH2_0.1-0.2 SOIL - 11/6/2020 SE207473.010
Arochlor 1016	mg/kg	0.2	<0.2	<0.2	<0.2	-	<0.2
Arochlor 1221	mg/kg	0.2	<0.2	<0.2	<0.2	-	<0.2
Arochlor 1232	mg/kg	0.2	<0.2	<0.2	<0.2	-	<0.2
Arochlor 1242	mg/kg	0.2	<0.2	<0.2	<0.2	-	<0.2
Arochlor 1248	mg/kg	0.2	<0.2	<0.2	<0.2	-	<0.2
Arochlor 1254	mg/kg	0.2	<0.2	<0.2	<0.2	-	<0.2
Arochlor 1260	mg/kg	0.2	<0.2	<0.2	<0.2	-	<0.2
Arochlor 1262	mg/kg	0.2	<0.2	<0.2	<0.2	-	<0.2
Arochlor 1268	mg/kg	0.2	<0.2	<0.2	<0.2	-	<0.2
Total PCBs (Arochlors)	mg/kg	1	<1	<1	<1	-	<1

PARAMETER	UOM	LOR	BH3M_0.3-0.4 SOIL - 11/6/2020 SE207473.011	BH4M_0.3-0.4 SOIL - 11/6/2020 SE207473.012	BH5M_0.1-0.2 SOIL - 11/6/2020 SE207473.013	BH5M_1.2-1.4 SOIL - 11/6/2020 SE207473.014	BH6_0.1-0.2 SOIL - 11/6/2020 SE207473.015
Arochlor 1016	mg/kg	0.2	<0.2	<0.2	<0.2	-	<0.2
Arochlor 1221	mg/kg	0.2	<0.2	<0.2	<0.2	-	<0.2
Arochlor 1232	mg/kg	0.2	<0.2	<0.2	<0.2	-	<0.2
Arochlor 1242	mg/kg	0.2	<0.2	<0.2	<0.2	-	<0.2
Arochlor 1248	mg/kg	0.2	<0.2	<0.2	<0.2	-	<0.2
Arochlor 1254	mg/kg	0.2	<0.2	<0.2	<0.2	-	<0.2
Arochlor 1260	mg/kg	0.2	<0.2	<0.2	<0.2	-	<0.2
Arochlor 1262	mg/kg	0.2	<0.2	<0.2	<0.2	-	<0.2
Arochlor 1268	mg/kg	0.2	<0.2	<0.2	<0.2	-	<0.2
Total PCBs (Arochlors)	mg/kg	1	<1	<1	<1	-	<1

PCBs in Soil [AN420] Tested: 15/6/2020 (continued)

PARAMETER	UOM	LOR	Soil-QD1 SOIL - 11/6/2020 SE207473.016	TP5_0.4-0.5 SOIL - 11/6/2020 SE207473.019
Arochlor 1016	mg/kg	0.2	-	-
Arochlor 1221	mg/kg	0.2	-	-
Arochlor 1232	mg/kg	0.2	-	-
Arochlor 1242	mg/kg	0.2	-	-
Arochlor 1248	mg/kg	0.2	-	-
Arochlor 1254	mg/kg	0.2	-	-
Arochlor 1260	mg/kg	0.2	-	-
Arochlor 1262	mg/kg	0.2	-	-
Arochlor 1268	mg/kg	0.2	-	-
Total PCBs (Arochlors)	mg/kg	1	-	-

Total Recoverable Elements in Soil/Waste Solids/Materials by ICPOES [AN040/AN320] Tested: 15/6/2020

PARAMETER	UOM	LOR	TP1_0.1-0.2 SOIL - 11/6/2020 SE207473.001	TP2_0.4-0.5 SOIL - 11/6/2020 SE207473.002	TP3_0.1-0.2 SOIL - 11/6/2020 SE207473.003	TP3_0.8-0.9 SOIL - 11/6/2020 SE207473.004	TP4_0.1-0.2 SOIL - 11/6/2020 SE207473.005
Arsenic, As	mg/kg	1	5	11	8	1	4
Cadmium, Cd	mg/kg	0.3	<0.3	<0.3	<0.3	<0.3	<0.3
Chromium, Cr	mg/kg	0.5	2.8	2.9	3.2	7.6	3.5
Copper, Cu	mg/kg	0.5	12	5.3	24	<0.5	15
Lead, Pb	mg/kg	1	37	7	66	4	34
Nickel, Ni	mg/kg	0.5	<0.5	<0.5	<0.5	<0.5	1.1
Zinc, Zn	mg/kg	2	13	2.7	24	<2.0	16

PARAMETER	UOM	LOR	TP5_0.1-0.2 SOIL - 11/6/2020 SE207473.006	TP6_0.2-0.3 SOIL - 11/6/2020 SE207473.007	BH1_0.1-0.2 SOIL - 11/6/2020 SE207473.008	BH1_0.7-0.9 SOIL - 11/6/2020 SE207473.009	BH2_0.1-0.2 SOIL - 11/6/2020 SE207473.010
Arsenic, As	mg/kg	1	1	2	1	1	10
Cadmium, Cd	mg/kg	0.3	<0.3	<0.3	<0.3	<0.3	0.4
Chromium, Cr	mg/kg	0.5	2.6	3.6	5.2	12	5.7
Copper, Cu	mg/kg	0.5	8.1	5.4	4.1	0.6	23
Lead, Pb	mg/kg	1	14	18	6	5	63
Nickel, Ni	mg/kg	0.5	0.5	1.5	0.8	<0.5	0.9
Zinc, Zn	mg/kg	2	5.1	31	9.8	2.8	76

PARAMETER	UOM	LOR	BH3M_0.3-0.4 SOIL - 11/6/2020 SE207473.011	BH4M_0.3-0.4 SOIL - 11/6/2020 SE207473.012	BH5M_0.1-0.2 SOIL - 11/6/2020 SE207473.013	BH5M_1.2-1.4 SOIL - 11/6/2020 SE207473.014	BH6_0.1-0.2 SOIL - 11/6/2020 SE207473.015
Arsenic, As	mg/kg	1	1	3	6	<1	<1
Cadmium, Cd	mg/kg	0.3	<0.3	<0.3	<0.3	<0.3	<0.3
Chromium, Cr	mg/kg	0.5	0.9	1.8	5.2	7.5	9.4
Copper, Cu	mg/kg	0.5	2.4	6.2	6.8	<0.5	5.2
Lead, Pb	mg/kg	1	5	8	22	11	18
Nickel, Ni	mg/kg	0.5	<0.5	<0.5	1.0	1.9	2.3
Zinc, Zn	mg/kg	2	4.9	6.2	37	<2.0	10

PARAMETER	UOM	LOR	Soil-QD1 SOIL - 11/6/2020 SE207473.016	TP5_0.4-0.5 SOIL - 11/6/2020 SE207473.019
Arsenic, As	mg/kg	1	5	1
Cadmium, Cd	mg/kg	0.3	<0.3	<0.3
Chromium, Cr	mg/kg	0.5	1.8	6.3
Copper, Cu	mg/kg	0.5	5.5	<0.5
Lead, Pb	mg/kg	1	2	4
Nickel, Ni	mg/kg	0.5	<0.5	<0.5
Zinc, Zn	mg/kg	2	2.2	<2.0

Mercury in Soil [AN312] Tested: 15/6/2020

PARAMETER	UOM	LOR	TP1_0.1-0.2 SOIL - 11/6/2020 SE207473.001	TP2_0.4-0.5 SOIL - 11/6/2020 SE207473.002	TP3_0.1-0.2 SOIL - 11/6/2020 SE207473.003	TP3_0.8-0.9 SOIL - 11/6/2020 SE207473.004	TP4_0.1-0.2 SOIL - 11/6/2020 SE207473.005
Mercury	mg/kg	0.05	<0.05	<0.05	<0.05	<0.05	<0.05

PARAMETER	UOM	LOR	TP5_0.1-0.2 SOIL - 11/6/2020 SE207473.006	TP6_0.2-0.3 SOIL - 11/6/2020 SE207473.007	BH1_0.1-0.2 SOIL - 11/6/2020 SE207473.008	BH1_0.7-0.9 SOIL - 11/6/2020 SE207473.009	BH2_0.1-0.2 SOIL - 11/6/2020 SE207473.010
Mercury	mg/kg	0.05	<0.05	<0.05	<0.05	<0.05	<0.05

PARAMETER	UOM	LOR	BH3M_0.3-0.4 SOIL - 11/6/2020 SE207473.011	BH4M_0.3-0.4 SOIL - 11/6/2020 SE207473.012	BH5M_0.1-0.2 SOIL - 11/6/2020 SE207473.013	BH5M_1.2-1.4 SOIL - 11/6/2020 SE207473.014	BH6_0.1-0.2 SOIL - 11/6/2020 SE207473.015
Mercury	mg/kg	0.05	<0.05	<0.05	<0.05	<0.05	<0.05

PARAMETER	UOM	LOR	Soil-QD1 SOIL - 11/6/2020 SE207473.016	TP5_0.4-0.5 SOIL - 11/6/2020 SE207473.019
Mercury	mg/kg	0.05	<0.05	<0.05

Moisture Content [AN002] Tested: 15/6/2020

PARAMETER	UOM	LOR	TP1_0.1-0.2 SOIL - 11/6/2020 SE207473.001	TP2_0.4-0.5 SOIL - 11/6/2020 SE207473.002	TP3_0.1-0.2 SOIL - 11/6/2020 SE207473.003	TP3_0.8-0.9 SOIL - 11/6/2020 SE207473.004	TP4_0.1-0.2 SOIL - 11/6/2020 SE207473.005
% Moisture	%w/w	1	13.8	12.2	14.4	16.5	13.8

PARAMETER	UOM	LOR	TP5_0.1-0.2 SOIL - 11/6/2020 SE207473.006	TP6_0.2-0.3 SOIL - 11/6/2020 SE207473.007	BH1_0.1-0.2 SOIL - 11/6/2020 SE207473.008	BH1_0.7-0.9 SOIL - 11/6/2020 SE207473.009	BH2_0.1-0.2 SOIL - 11/6/2020 SE207473.010
% Moisture	%w/w	1	14.0	11.8	15.5	17.7	14.2

PARAMETER	UOM	LOR	BH3M_0.3-0.4 SOIL - 11/6/2020 SE207473.011	BH4M_0.3-0.4 SOIL - 11/6/2020 SE207473.012	BH5M_0.1-0.2 SOIL - 11/6/2020 SE207473.013	BH5M_1.2-1.4 SOIL - 11/6/2020 SE207473.014	BH6_0.1-0.2 SOIL - 11/6/2020 SE207473.015
% Moisture	%w/w	1	9.8	12.4	10.3	16.9	13.6

PARAMETER	UOM	LOR	Soil-QD1 SOIL - 11/6/2020 SE207473.016	Soil-TripBlank-1 SOIL - 11/6/2020 SE207473.017	TP5_0.4-0.5 SOIL - 11/6/2020 SE207473.019
% Moisture	%w/w	1	11.8	<1.0	18.3

Fibre Identification in soil [AN602] Tested: 18/6/2020

PARAMETER	UOM	LOR	TP1_0.1-0.2 SOIL - 11/6/2020 SE207473.001	TP2_0.4-0.5 SOIL - 11/6/2020 SE207473.002	TP3_0.1-0.2 SOIL - 11/6/2020 SE207473.003	TP4_0.1-0.2 SOIL - 11/6/2020 SE207473.005	TP5_0.1-0.2 SOIL - 11/6/2020 SE207473.006
Asbestos Detected	No unit	-	No	No	No	No	No
Estimated Fibres*	%w/w	0.01	<0.01	<0.01	<0.01	<0.01	<0.01

PARAMETER	UOM	LOR	TP6_0.2-0.3 SOIL - 11/6/2020 SE207473.007	BH1_0.1-0.2 SOIL - 11/6/2020 SE207473.008	BH2_0.1-0.2 SOIL - 11/6/2020 SE207473.010	BH3M_0.3-0.4 SOIL - 11/6/2020 SE207473.011	BH4M_0.3-0.4 SOIL - 11/6/2020 SE207473.012
Asbestos Detected	No unit	-	No	No	No	No	No
Estimated Fibres*	%w/w	0.01	<0.01	<0.01	<0.01	<0.01	<0.01

PARAMETER	UOM	LOR	BH5M_0.1-0.2 SOIL - 11/6/2020 SE207473.013	BH6_0.1-0.2 SOIL - 11/6/2020 SE207473.015
Asbestos Detected	No unit	-	No	No
Estimated Fibres*	%w/w	0.01	<0.01	<0.01

METHOD	METHODOLOGY SUMMARY
AN002	The test is carried out by drying (at either 40°C or 105°C) a known mass of sample in a weighed evaporating basin. After fully dry the sample is re-weighed. Samples such as sludge and sediment having high percentages of moisture will take some time in a drying oven for complete removal of water.
AN040/AN320	A portion of sample is digested with nitric acid to decompose organic matter and hydrochloric acid to complete the digestion of metals. The digest is then analysed by ICP OES with metals results reported on the dried sample basis. Based on USEPA method 200.8 and 6010C.
AN040	A portion of sample is digested with Nitric acid to decompose organic matter and Hydrochloric acid to complete the digestion of metals and then filtered for analysis by ASS or ICP as per USEPA Method 200.8.
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).
AN420	SVOC Compounds: Semi-Volatile Organic Compounds (SVOCs) including OC, OP, PCB, Herbicides, PAH, Phthalates and Speciated Phenols in soils, sediments and waters are determined by GCMS/ECD technique following appropriate solvent extraction process (Based on USEPA 3500C and 8270D).
AN433	VOCs and C6-C9 Hydrocarbons by GC-MS P&T: VOC`s are volatile organic compounds. The sample is presented to a gas chromatograph via a purge and trap (P&T) concentrator and autosampler and is detected with a Mass Spectrometer (MSD). Solid samples are initially extracted with methanol whilst liquid samples are processed directly. References: USEPA 5030B, 8020A, 8260.
AN602	Qualitative identification of chrysotile, amosite and crocidolite in bulk samples by polarised light microscopy (PLM) in conjunction with dispersion staining (DS). AS4964 provides the basis for this document. Unequivocal identification of the asbestos minerals present is made by obtaining sufficient diagnostic `clues`, which provide a reasonable degree of certainty, dispersion staining is a mandatory `clue` for positive identification. If sufficient `clues` are absent, then positive identification of asbestos is not possible. This procedure requires removal of suspect fibres/bundles from the sample which cannot be returned.
AN602	Fibres/material that cannot be unequivocably identified as one of the three asbestos forms, will be reported as unknown mineral fibres (umf) The fibres detected may or may not be asbestos fibres.
AN602	AS4964.2004 Method for the Qualitative Identification of Asbestos in Bulk Samples, Section 8.4, Trace Analysis Criteria, Note 4 states:"Depending upon sample condition and fibre type, the detection limit of this technique has been found to lie generally in the range of 1 in 1,000 to 1 in 10,000 parts by weight, equivalent to 1 to 0.1 g/kg."
AN602	The sample can be reported “no asbestos found at the reporting limit of 0.1 g/kg” (<0.01%w/w) where AN602 section 4.5 of this method has been followed, and if- (a) no trace asbestos fibres have been detected (i.e. no ‘respirable’ fibres): (b) the estimated weight of non-respirable asbestos fibre bundles and/or the estimated weight of asbestos in asbestos-containing materials are found to be less than 0.1g/kg: and (c) these non-respirable asbestos fibre bundles and/or the asbestos containing materials are only visible under stereo-microscope viewing conditions.

FOOTNOTES

*	NATA accreditation does not cover the performance of this service.	-	Not analysed.	UOM	Unit of Measure.
		NVL	Not validated.	LOR	Limit of Reporting.
**	Indicative data, theoretical holding time exceeded.	IS	Insufficient sample for analysis.	↑↓	Raised/lowered Limit of Reporting.
		LNR	Sample listed, but not received.		

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.

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STATEMENT OF QA/QC PERFORMANCE

SE207473 R0

CLIENT DETAILS

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Project	**E24716 15 Jubilee Ave, Warriewood NSW**
Order Number	**E24716**
Samples	19

LABORATORY DETAILS

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SGS Reference	**SE207473 R0**
Date Received	12 Jun 2020
Date Reported	19 Jun 2020

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 (within the SGS Alexandria Environmental laboratory).

SAMPLE SUMMARY

Samples clearly labelled	Yes	Complete documentation received	Yes
Sample container provider	SGS	Sample cooling method	None
Samples received in correct containers	Yes	Sample counts by matrix	18 Soil
Date documentation received	12/6/2020	Type of documentation received	COC
Samples received in good order	Yes	Samples received without headspace	Yes
Sample temperature upon receipt	14.3°C	Sufficient sample for analysis	Yes
Turnaround time requested	Standard		

HOLDING TIME SUMMARY

SE207473 R0

SGS holding time criteria are drawn from current regulations and are highly dependent on sample container preservation as specified in the SGS "Field Sampling Guide for Containers and Holding Time" (ref: GU-(AU)-ENV.001). Soil samples guidelines are derived from NEPM "Schedule B(3) Guideline on Laboratory Analysis of Potentially Contaminated Soils". Water sample guidelines are derived from "AS/NZS 5667.1 : 1998 Water Quality - sampling part 1" and APHA "Standard Methods for the Examination of Water and Wastewater" 21st edition 2005.

Extraction and analysis holding time due dates listed are calculated from the date sampled, although holding times may be extended after laboratory extraction for some analytes. The due dates are the suggested dates that samples may be held before extraction or analysis and still be considered valid.

Extraction and analysis dates are shown in **Green** when within suggested criteria or **Red** with an appended dagger symbol (†) when outside suggested criteria. If the sampled date is not supplied then compliance with criteria cannot be determined. If the received date is after one or both due dates then holding time will fail by default.

Fibre Identification in soil

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

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
TP1_0.1-0.2	SE207473.001	LB202269	11 Jun 2020	12 Jun 2020	11 Jun 2021	18 Jun 2020	11 Jun 2021	19 Jun 2020
TP2_0.4-0.5	SE207473.002	LB202269	11 Jun 2020	12 Jun 2020	11 Jun 2021	18 Jun 2020	11 Jun 2021	19 Jun 2020
TP3_0.1-0.2	SE207473.003	LB202269	11 Jun 2020	12 Jun 2020	11 Jun 2021	18 Jun 2020	11 Jun 2021	19 Jun 2020
TP4_0.1-0.2	SE207473.005	LB202269	11 Jun 2020	12 Jun 2020	11 Jun 2021	18 Jun 2020	11 Jun 2021	19 Jun 2020
TP5_0.1-0.2	SE207473.006	LB202269	11 Jun 2020	12 Jun 2020	11 Jun 2021	18 Jun 2020	11 Jun 2021	19 Jun 2020
TP6_0.2-0.3	SE207473.007	LB202269	11 Jun 2020	12 Jun 2020	11 Jun 2021	18 Jun 2020	11 Jun 2021	19 Jun 2020
BH1_0.1-0.2	SE207473.008	LB202269	11 Jun 2020	12 Jun 2020	11 Jun 2021	18 Jun 2020	11 Jun 2021	19 Jun 2020
BH2_0.1-0.2	SE207473.010	LB202269	11 Jun 2020	12 Jun 2020	11 Jun 2021	18 Jun 2020	11 Jun 2021	19 Jun 2020
BH3M_0.3-0.4	SE207473.011	LB202269	11 Jun 2020	12 Jun 2020	11 Jun 2021	18 Jun 2020	11 Jun 2021	19 Jun 2020
BH4M_0.3-0.4	SE207473.012	LB202269	11 Jun 2020	12 Jun 2020	11 Jun 2021	18 Jun 2020	11 Jun 2021	19 Jun 2020
BH5M_0.1-0.2	SE207473.013	LB202269	11 Jun 2020	12 Jun 2020	11 Jun 2021	18 Jun 2020	11 Jun 2021	19 Jun 2020
BH6_0.1-0.2	SE207473.015	LB202269	11 Jun 2020	12 Jun 2020	11 Jun 2021	18 Jun 2020	11 Jun 2021	19 Jun 2020

Mercury in Soil

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

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
TP1_0.1-0.2	SE207473.001	LB201988	11 Jun 2020	12 Jun 2020	09 Jul 2020	15 Jun 2020	09 Jul 2020	18 Jun 2020
TP2_0.4-0.5	SE207473.002	LB201988	11 Jun 2020	12 Jun 2020	09 Jul 2020	15 Jun 2020	09 Jul 2020	18 Jun 2020
TP3_0.1-0.2	SE207473.003	LB201988	11 Jun 2020	12 Jun 2020	09 Jul 2020	15 Jun 2020	09 Jul 2020	18 Jun 2020
TP3_0.8-0.9	SE207473.004	LB201988	11 Jun 2020	12 Jun 2020	09 Jul 2020	15 Jun 2020	09 Jul 2020	18 Jun 2020
TP4_0.1-0.2	SE207473.005	LB201988	11 Jun 2020	12 Jun 2020	09 Jul 2020	15 Jun 2020	09 Jul 2020	18 Jun 2020
TP5_0.1-0.2	SE207473.006	LB201988	11 Jun 2020	12 Jun 2020	09 Jul 2020	15 Jun 2020	09 Jul 2020	18 Jun 2020
TP6_0.2-0.3	SE207473.007	LB201988	11 Jun 2020	12 Jun 2020	09 Jul 2020	15 Jun 2020	09 Jul 2020	18 Jun 2020
BH1_0.1-0.2	SE207473.008	LB201988	11 Jun 2020	12 Jun 2020	09 Jul 2020	15 Jun 2020	09 Jul 2020	18 Jun 2020
BH1_0.7-0.9	SE207473.009	LB201988	11 Jun 2020	12 Jun 2020	09 Jul 2020	15 Jun 2020	09 Jul 2020	18 Jun 2020
BH2_0.1-0.2	SE207473.010	LB201988	11 Jun 2020	12 Jun 2020	09 Jul 2020	15 Jun 2020	09 Jul 2020	18 Jun 2020
BH3M_0.3-0.4	SE207473.011	LB201988	11 Jun 2020	12 Jun 2020	09 Jul 2020	15 Jun 2020	09 Jul 2020	18 Jun 2020
BH4M_0.3-0.4	SE207473.012	LB201988	11 Jun 2020	12 Jun 2020	09 Jul 2020	15 Jun 2020	09 Jul 2020	18 Jun 2020
BH5M_0.1-0.2	SE207473.013	LB201988	11 Jun 2020	12 Jun 2020	09 Jul 2020	15 Jun 2020	09 Jul 2020	18 Jun 2020
BH5M_1.2-1.4	SE207473.014	LB201988	11 Jun 2020	12 Jun 2020	09 Jul 2020	15 Jun 2020	09 Jul 2020	18 Jun 2020
BH6_0.1-0.2	SE207473.015	LB201988	11 Jun 2020	12 Jun 2020	09 Jul 2020	15 Jun 2020	09 Jul 2020	18 Jun 2020
Soil-QD1	SE207473.016	LB201988	11 Jun 2020	12 Jun 2020	09 Jul 2020	15 Jun 2020	09 Jul 2020	18 Jun 2020
TP5_0.4-0.5	SE207473.019	LB201988	11 Jun 2020	12 Jun 2020	09 Jul 2020	15 Jun 2020	09 Jul 2020	18 Jun 2020

Moisture Content

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

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
TP1_0.1-0.2	SE207473.001	LB201968	11 Jun 2020	12 Jun 2020	25 Jun 2020	15 Jun 2020	20 Jun 2020	17 Jun 2020
TP2_0.4-0.5	SE207473.002	LB201968	11 Jun 2020	12 Jun 2020	25 Jun 2020	15 Jun 2020	20 Jun 2020	17 Jun 2020
TP3_0.1-0.2	SE207473.003	LB201968	11 Jun 2020	12 Jun 2020	25 Jun 2020	15 Jun 2020	20 Jun 2020	17 Jun 2020
TP3_0.8-0.9	SE207473.004	LB201968	11 Jun 2020	12 Jun 2020	25 Jun 2020	15 Jun 2020	20 Jun 2020	17 Jun 2020
TP4_0.1-0.2	SE207473.005	LB201968	11 Jun 2020	12 Jun 2020	25 Jun 2020	15 Jun 2020	20 Jun 2020	17 Jun 2020
TP5_0.1-0.2	SE207473.006	LB201968	11 Jun 2020	12 Jun 2020	25 Jun 2020	15 Jun 2020	20 Jun 2020	17 Jun 2020
TP6_0.2-0.3	SE207473.007	LB201968	11 Jun 2020	12 Jun 2020	25 Jun 2020	15 Jun 2020	20 Jun 2020	17 Jun 2020
BH1_0.1-0.2	SE207473.008	LB201968	11 Jun 2020	12 Jun 2020	25 Jun 2020	15 Jun 2020	20 Jun 2020	17 Jun 2020
BH1_0.7-0.9	SE207473.009	LB201968	11 Jun 2020	12 Jun 2020	25 Jun 2020	15 Jun 2020	20 Jun 2020	17 Jun 2020
BH2_0.1-0.2	SE207473.010	LB201968	11 Jun 2020	12 Jun 2020	25 Jun 2020	15 Jun 2020	20 Jun 2020	17 Jun 2020
BH3M_0.3-0.4	SE207473.011	LB201968	11 Jun 2020	12 Jun 2020	25 Jun 2020	15 Jun 2020	20 Jun 2020	17 Jun 2020
BH4M_0.3-0.4	SE207473.012	LB201968	11 Jun 2020	12 Jun 2020	25 Jun 2020	15 Jun 2020	20 Jun 2020	17 Jun 2020
BH5M_0.1-0.2	SE207473.013	LB201968	11 Jun 2020	12 Jun 2020	25 Jun 2020	15 Jun 2020	20 Jun 2020	17 Jun 2020
BH5M_1.2-1.4	SE207473.014	LB201968	11 Jun 2020	12 Jun 2020	25 Jun 2020	15 Jun 2020	20 Jun 2020	17 Jun 2020
BH6_0.1-0.2	SE207473.015	LB201968	11 Jun 2020	12 Jun 2020	25 Jun 2020	15 Jun 2020	20 Jun 2020	17 Jun 2020
Soil-QD1	SE207473.016	LB201968	11 Jun 2020	12 Jun 2020	25 Jun 2020	15 Jun 2020	20 Jun 2020	17 Jun 2020
Soil-TripBlank-1	SE207473.017	LB201968	11 Jun 2020	12 Jun 2020	25 Jun 2020	15 Jun 2020	20 Jun 2020	17 Jun 2020
TP5_0.4-0.5	SE207473.019	LB201968	11 Jun 2020	12 Jun 2020	25 Jun 2020	15 Jun 2020	20 Jun 2020	17 Jun 2020

OC Pesticides in Soil

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

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
TP1_0.1-0.2	SE207473.001	LB201966	11 Jun 2020	12 Jun 2020	25 Jun 2020	15 Jun 2020	25 Jul 2020	19 Jun 2020
TP2_0.4-0.5	SE207473.002	LB201966	11 Jun 2020	12 Jun 2020	25 Jun 2020	15 Jun 2020	25 Jul 2020	19 Jun 2020
TP3_0.1-0.2	SE207473.003	LB201966	11 Jun 2020	12 Jun 2020	25 Jun 2020	15 Jun 2020	25 Jul 2020	19 Jun 2020
TP3_0.8-0.9	SE207473.004	LB201966	11 Jun 2020	12 Jun 2020	25 Jun 2020	15 Jun 2020	25 Jul 2020	19 Jun 2020
TP4_0.1-0.2	SE207473.005	LB201966	11 Jun 2020	12 Jun 2020	25 Jun 2020	15 Jun 2020	25 Jul 2020	19 Jun 2020

HOLDING TIME SUMMARY

SE207473 R0

SGS holding time criteria are drawn from current regulations and are highly dependent on sample container preservation as specified in the SGS "Field Sampling Guide for Containers and Holding Time" (ref: GU-(AU)-ENV.001). Soil samples guidelines are derived from NEPM "Schedule B(3) Guideline on Laboratory Analysis of Potentially Contaminated Soils". Water sample guidelines are derived from "AS/NZS 5667.1 : 1998 Water Quality - sampling part 1" and APHA "Standard Methods for the Examination of Water and Wastewater" 21st edition 2005.

Extraction and analysis holding time due dates listed are calculated from the date sampled, although holding times may be extended after laboratory extraction for some analytes. The due dates are the suggested dates that samples may be held before extraction or analysis and still be considered valid.

Extraction and analysis dates are shown in **Green** when within suggested criteria or **Red** with an appended dagger symbol (†) when outside suggested criteria. If the sampled date is not supplied then compliance with criteria cannot be determined. If the received date is after one or both due dates then holding time will fail by default.

OC Pesticides in Soil (continued)

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

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
TP5_0.1-0.2	SE207473.006	LB201966	11 Jun 2020	12 Jun 2020	25 Jun 2020	15 Jun 2020	25 Jul 2020	19 Jun 2020
TP6_0.2-0.3	SE207473.007	LB201966	11 Jun 2020	12 Jun 2020	25 Jun 2020	15 Jun 2020	25 Jul 2020	19 Jun 2020
BH1_0.1-0.2	SE207473.008	LB201966	11 Jun 2020	12 Jun 2020	25 Jun 2020	15 Jun 2020	25 Jul 2020	19 Jun 2020
BH1_0.7-0.9	SE207473.009	LB201966	11 Jun 2020	12 Jun 2020	25 Jun 2020	15 Jun 2020	25 Jul 2020	19 Jun 2020
BH2_0.1-0.2	SE207473.010	LB201966	11 Jun 2020	12 Jun 2020	25 Jun 2020	15 Jun 2020	25 Jul 2020	19 Jun 2020
BH3M_0.3-0.4	SE207473.011	LB201966	11 Jun 2020	12 Jun 2020	25 Jun 2020	15 Jun 2020	25 Jul 2020	19 Jun 2020
BH4M_0.3-0.4	SE207473.012	LB201966	11 Jun 2020	12 Jun 2020	25 Jun 2020	15 Jun 2020	25 Jul 2020	19 Jun 2020
BH5M_0.1-0.2	SE207473.013	LB201966	11 Jun 2020	12 Jun 2020	25 Jun 2020	15 Jun 2020	25 Jul 2020	19 Jun 2020
BH5M_1.2-1.4	SE207473.014	LB201966	11 Jun 2020	12 Jun 2020	25 Jun 2020	15 Jun 2020	25 Jul 2020	19 Jun 2020
BH6_0.1-0.2	SE207473.015	LB201966	11 Jun 2020	12 Jun 2020	25 Jun 2020	15 Jun 2020	25 Jul 2020	19 Jun 2020
Soil-QD1	SE207473.016	LB201966	11 Jun 2020	12 Jun 2020	25 Jun 2020	15 Jun 2020	25 Jul 2020	19 Jun 2020
TP5_0.4-0.5	SE207473.019	LB201966	11 Jun 2020	12 Jun 2020	25 Jun 2020	15 Jun 2020	25 Jul 2020	19 Jun 2020

OP Pesticides in Soil

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

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
TP1_0.1-0.2	SE207473.001	LB201966	11 Jun 2020	12 Jun 2020	25 Jun 2020	15 Jun 2020	25 Jul 2020	18 Jun 2020
TP2_0.4-0.5	SE207473.002	LB201966	11 Jun 2020	12 Jun 2020	25 Jun 2020	15 Jun 2020	25 Jul 2020	18 Jun 2020
TP3_0.1-0.2	SE207473.003	LB201966	11 Jun 2020	12 Jun 2020	25 Jun 2020	15 Jun 2020	25 Jul 2020	18 Jun 2020
TP3_0.8-0.9	SE207473.004	LB201966	11 Jun 2020	12 Jun 2020	25 Jun 2020	15 Jun 2020	25 Jul 2020	19 Jun 2020
TP4_0.1-0.2	SE207473.005	LB201966	11 Jun 2020	12 Jun 2020	25 Jun 2020	15 Jun 2020	25 Jul 2020	18 Jun 2020
TP5_0.1-0.2	SE207473.006	LB201966	11 Jun 2020	12 Jun 2020	25 Jun 2020	15 Jun 2020	25 Jul 2020	18 Jun 2020
TP6_0.2-0.3	SE207473.007	LB201966	11 Jun 2020	12 Jun 2020	25 Jun 2020	15 Jun 2020	25 Jul 2020	18 Jun 2020
BH1_0.1-0.2	SE207473.008	LB201966	11 Jun 2020	12 Jun 2020	25 Jun 2020	15 Jun 2020	25 Jul 2020	18 Jun 2020
BH1_0.7-0.9	SE207473.009	LB201966	11 Jun 2020	12 Jun 2020	25 Jun 2020	15 Jun 2020	25 Jul 2020	19 Jun 2020
BH2_0.1-0.2	SE207473.010	LB201966	11 Jun 2020	12 Jun 2020	25 Jun 2020	15 Jun 2020	25 Jul 2020	18 Jun 2020
BH3M_0.3-0.4	SE207473.011	LB201966	11 Jun 2020	12 Jun 2020	25 Jun 2020	15 Jun 2020	25 Jul 2020	18 Jun 2020
BH4M_0.3-0.4	SE207473.012	LB201966	11 Jun 2020	12 Jun 2020	25 Jun 2020	15 Jun 2020	25 Jul 2020	18 Jun 2020
BH5M_0.1-0.2	SE207473.013	LB201966	11 Jun 2020	12 Jun 2020	25 Jun 2020	15 Jun 2020	25 Jul 2020	18 Jun 2020
BH5M_1.2-1.4	SE207473.014	LB201966	11 Jun 2020	12 Jun 2020	25 Jun 2020	15 Jun 2020	25 Jul 2020	19 Jun 2020
BH6_0.1-0.2	SE207473.015	LB201966	11 Jun 2020	12 Jun 2020	25 Jun 2020	15 Jun 2020	25 Jul 2020	18 Jun 2020
Soil-QD1	SE207473.016	LB201966	11 Jun 2020	12 Jun 2020	25 Jun 2020	15 Jun 2020	25 Jul 2020	19 Jun 2020
TP5_0.4-0.5	SE207473.019	LB201966	11 Jun 2020	12 Jun 2020	25 Jun 2020	15 Jun 2020	25 Jul 2020	19 Jun 2020

PAH (Polynuclear Aromatic Hydrocarbons) in Soil

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

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
TP1_0.1-0.2	SE207473.001	LB201966	11 Jun 2020	12 Jun 2020	25 Jun 2020	15 Jun 2020	25 Jul 2020	18 Jun 2020
TP2_0.4-0.5	SE207473.002	LB201966	11 Jun 2020	12 Jun 2020	25 Jun 2020	15 Jun 2020	25 Jul 2020	18 Jun 2020
TP3_0.1-0.2	SE207473.003	LB201966	11 Jun 2020	12 Jun 2020	25 Jun 2020	15 Jun 2020	25 Jul 2020	18 Jun 2020
TP3_0.8-0.9	SE207473.004	LB201966	11 Jun 2020	12 Jun 2020	25 Jun 2020	15 Jun 2020	25 Jul 2020	18 Jun 2020
TP4_0.1-0.2	SE207473.005	LB201966	11 Jun 2020	12 Jun 2020	25 Jun 2020	15 Jun 2020	25 Jul 2020	18 Jun 2020
TP5_0.1-0.2	SE207473.006	LB201966	11 Jun 2020	12 Jun 2020	25 Jun 2020	15 Jun 2020	25 Jul 2020	18 Jun 2020
TP6_0.2-0.3	SE207473.007	LB201966	11 Jun 2020	12 Jun 2020	25 Jun 2020	15 Jun 2020	25 Jul 2020	18 Jun 2020
BH1_0.1-0.2	SE207473.008	LB201966	11 Jun 2020	12 Jun 2020	25 Jun 2020	15 Jun 2020	25 Jul 2020	18 Jun 2020
BH1_0.7-0.9	SE207473.009	LB201966	11 Jun 2020	12 Jun 2020	25 Jun 2020	15 Jun 2020	25 Jul 2020	18 Jun 2020
BH2_0.1-0.2	SE207473.010	LB201966	11 Jun 2020	12 Jun 2020	25 Jun 2020	15 Jun 2020	25 Jul 2020	18 Jun 2020
BH3M_0.3-0.4	SE207473.011	LB201966	11 Jun 2020	12 Jun 2020	25 Jun 2020	15 Jun 2020	25 Jul 2020	18 Jun 2020
BH4M_0.3-0.4	SE207473.012	LB201966	11 Jun 2020	12 Jun 2020	25 Jun 2020	15 Jun 2020	25 Jul 2020	18 Jun 2020
BH5M_0.1-0.2	SE207473.013	LB201966	11 Jun 2020	12 Jun 2020	25 Jun 2020	15 Jun 2020	25 Jul 2020	18 Jun 2020
BH5M_1.2-1.4	SE207473.014	LB201966	11 Jun 2020	12 Jun 2020	25 Jun 2020	15 Jun 2020	25 Jul 2020	18 Jun 2020
BH6_0.1-0.2	SE207473.015	LB201966	11 Jun 2020	12 Jun 2020	25 Jun 2020	15 Jun 2020	25 Jul 2020	18 Jun 2020
Soil-QD1	SE207473.016	LB201966	11 Jun 2020	12 Jun 2020	25 Jun 2020	15 Jun 2020	25 Jul 2020	19 Jun 2020
TP5_0.4-0.5	SE207473.019	LB201966	11 Jun 2020	12 Jun 2020	25 Jun 2020	15 Jun 2020	25 Jul 2020	18 Jun 2020

PCBs in Soil

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

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
TP1_0.1-0.2	SE207473.001	LB201966	11 Jun 2020	12 Jun 2020	25 Jun 2020	15 Jun 2020	25 Jul 2020	19 Jun 2020
TP2_0.4-0.5	SE207473.002	LB201966	11 Jun 2020	12 Jun 2020	25 Jun 2020	15 Jun 2020	25 Jul 2020	19 Jun 2020
TP3_0.1-0.2	SE207473.003	LB201966	11 Jun 2020	12 Jun 2020	25 Jun 2020	15 Jun 2020	25 Jul 2020	19 Jun 2020
TP3_0.8-0.9	SE207473.004	LB201966	11 Jun 2020	12 Jun 2020	25 Jun 2020	15 Jun 2020	25 Jul 2020	19 Jun 2020
TP4_0.1-0.2	SE207473.005	LB201966	11 Jun 2020	12 Jun 2020	25 Jun 2020	15 Jun 2020	25 Jul 2020	19 Jun 2020
TP5_0.1-0.2	SE207473.006	LB201966	11 Jun 2020	12 Jun 2020	25 Jun 2020	15 Jun 2020	25 Jul 2020	19 Jun 2020

HOLDING TIME SUMMARY

SE207473 R0

SGS holding time criteria are drawn from current regulations and are highly dependent on sample container preservation as specified in the SGS "Field Sampling Guide for Containers and Holding Time" (ref: GU-(AU)-ENV.001). Soil samples guidelines are derived from NEPM "Schedule B(3) Guideline on Laboratory Analysis of Potentially Contaminated Soils". Water sample guidelines are derived from "AS/NZS 5667.1 : 1998 Water Quality - sampling part 1" and APHA "Standard Methods for the Examination of Water and Wastewater" 21st edition 2005.

Extraction and analysis holding time due dates listed are calculated from the date sampled, although holding times may be extended after laboratory extraction for some analytes. The due dates are the suggested dates that samples may be held before extraction or analysis and still be considered valid.

Extraction and analysis dates are shown in **Green** when within suggested criteria or **Red** with an appended dagger symbol (†) when outside suggested criteria. If the sampled date is not supplied then compliance with criteria cannot be determined. If the received date is after one or both due dates then holding time will fail by default.

PCBs in Soil (continued)

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

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
TP6_0.2-0.3	SE207473.007	LB201966	11 Jun 2020	12 Jun 2020	25 Jun 2020	15 Jun 2020	25 Jul 2020	19 Jun 2020
BH1_0.1-0.2	SE207473.008	LB201966	11 Jun 2020	12 Jun 2020	25 Jun 2020	15 Jun 2020	25 Jul 2020	19 Jun 2020
BH1_0.7-0.9	SE207473.009	LB201966	11 Jun 2020	12 Jun 2020	25 Jun 2020	15 Jun 2020	25 Jul 2020	19 Jun 2020
BH2_0.1-0.2	SE207473.010	LB201966	11 Jun 2020	12 Jun 2020	25 Jun 2020	15 Jun 2020	25 Jul 2020	19 Jun 2020
BH3M_0.3-0.4	SE207473.011	LB201966	11 Jun 2020	12 Jun 2020	25 Jun 2020	15 Jun 2020	25 Jul 2020	19 Jun 2020
BH4M_0.3-0.4	SE207473.012	LB201966	11 Jun 2020	12 Jun 2020	25 Jun 2020	15 Jun 2020	25 Jul 2020	19 Jun 2020
BH5M_0.1-0.2	SE207473.013	LB201966	11 Jun 2020	12 Jun 2020	25 Jun 2020	15 Jun 2020	25 Jul 2020	19 Jun 2020
BH5M_1.2-1.4	SE207473.014	LB201966	11 Jun 2020	12 Jun 2020	25 Jun 2020	15 Jun 2020	25 Jul 2020	19 Jun 2020
BH6_0.1-0.2	SE207473.015	LB201966	11 Jun 2020	12 Jun 2020	25 Jun 2020	15 Jun 2020	25 Jul 2020	19 Jun 2020
Soil-QD1	SE207473.016	LB201966	11 Jun 2020	12 Jun 2020	25 Jun 2020	15 Jun 2020	25 Jul 2020	19 Jun 2020
TP5_0.4-0.5	SE207473.019	LB201966	11 Jun 2020	12 Jun 2020	25 Jun 2020	15 Jun 2020	25 Jul 2020	19 Jun 2020

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

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

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
TP1_0.1-0.2	SE207473.001	LB201985	11 Jun 2020	12 Jun 2020	08 Dec 2020	15 Jun 2020	08 Dec 2020	18 Jun 2020
TP2_0.4-0.5	SE207473.002	LB201985	11 Jun 2020	12 Jun 2020	08 Dec 2020	15 Jun 2020	08 Dec 2020	18 Jun 2020
TP3_0.1-0.2	SE207473.003	LB201985	11 Jun 2020	12 Jun 2020	08 Dec 2020	15 Jun 2020	08 Dec 2020	18 Jun 2020
TP3_0.8-0.9	SE207473.004	LB201985	11 Jun 2020	12 Jun 2020	08 Dec 2020	15 Jun 2020	08 Dec 2020	18 Jun 2020
TP4_0.1-0.2	SE207473.005	LB201985	11 Jun 2020	12 Jun 2020	08 Dec 2020	15 Jun 2020	08 Dec 2020	18 Jun 2020
TP5_0.1-0.2	SE207473.006	LB201985	11 Jun 2020	12 Jun 2020	08 Dec 2020	15 Jun 2020	08 Dec 2020	18 Jun 2020
TP6_0.2-0.3	SE207473.007	LB201985	11 Jun 2020	12 Jun 2020	08 Dec 2020	15 Jun 2020	08 Dec 2020	18 Jun 2020
BH1_0.1-0.2	SE207473.008	LB201985	11 Jun 2020	12 Jun 2020	08 Dec 2020	15 Jun 2020	08 Dec 2020	18 Jun 2020
BH1_0.7-0.9	SE207473.009	LB201985	11 Jun 2020	12 Jun 2020	08 Dec 2020	15 Jun 2020	08 Dec 2020	18 Jun 2020
BH2_0.1-0.2	SE207473.010	LB201985	11 Jun 2020	12 Jun 2020	08 Dec 2020	15 Jun 2020	08 Dec 2020	18 Jun 2020
BH3M_0.3-0.4	SE207473.011	LB201985	11 Jun 2020	12 Jun 2020	08 Dec 2020	15 Jun 2020	08 Dec 2020	18 Jun 2020
BH4M_0.3-0.4	SE207473.012	LB201985	11 Jun 2020	12 Jun 2020	08 Dec 2020	15 Jun 2020	08 Dec 2020	18 Jun 2020
BH5M_0.1-0.2	SE207473.013	LB201985	11 Jun 2020	12 Jun 2020	08 Dec 2020	15 Jun 2020	08 Dec 2020	18 Jun 2020
BH5M_1.2-1.4	SE207473.014	LB201985	11 Jun 2020	12 Jun 2020	08 Dec 2020	15 Jun 2020	08 Dec 2020	18 Jun 2020
BH6_0.1-0.2	SE207473.015	LB201985	11 Jun 2020	12 Jun 2020	08 Dec 2020	15 Jun 2020	08 Dec 2020	18 Jun 2020
Soil-QD1	SE207473.016	LB201985	11 Jun 2020	12 Jun 2020	08 Dec 2020	15 Jun 2020	08 Dec 2020	18 Jun 2020
TP5_0.4-0.5	SE207473.019	LB201985	11 Jun 2020	12 Jun 2020	08 Dec 2020	15 Jun 2020	08 Dec 2020	18 Jun 2020

TRH (Total Recoverable Hydrocarbons) in Soil

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

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
TP1_0.1-0.2	SE207473.001	LB201966	11 Jun 2020	12 Jun 2020	25 Jun 2020	15 Jun 2020	25 Jul 2020	17 Jun 2020
TP2_0.4-0.5	SE207473.002	LB201966	11 Jun 2020	12 Jun 2020	25 Jun 2020	15 Jun 2020	25 Jul 2020	17 Jun 2020
TP3_0.1-0.2	SE207473.003	LB201966	11 Jun 2020	12 Jun 2020	25 Jun 2020	15 Jun 2020	25 Jul 2020	17 Jun 2020
TP3_0.8-0.9	SE207473.004	LB201966	11 Jun 2020	12 Jun 2020	25 Jun 2020	15 Jun 2020	25 Jul 2020	17 Jun 2020
TP4_0.1-0.2	SE207473.005	LB201966	11 Jun 2020	12 Jun 2020	25 Jun 2020	15 Jun 2020	25 Jul 2020	17 Jun 2020
TP5_0.1-0.2	SE207473.006	LB201966	11 Jun 2020	12 Jun 2020	25 Jun 2020	15 Jun 2020	25 Jul 2020	17 Jun 2020
TP6_0.2-0.3	SE207473.007	LB201966	11 Jun 2020	12 Jun 2020	25 Jun 2020	15 Jun 2020	25 Jul 2020	17 Jun 2020
BH1_0.1-0.2	SE207473.008	LB201966	11 Jun 2020	12 Jun 2020	25 Jun 2020	15 Jun 2020	25 Jul 2020	17 Jun 2020
BH1_0.7-0.9	SE207473.009	LB201966	11 Jun 2020	12 Jun 2020	25 Jun 2020	15 Jun 2020	25 Jul 2020	17 Jun 2020
BH2_0.1-0.2	SE207473.010	LB201966	11 Jun 2020	12 Jun 2020	25 Jun 2020	15 Jun 2020	25 Jul 2020	17 Jun 2020
BH3M_0.3-0.4	SE207473.011	LB201966	11 Jun 2020	12 Jun 2020	25 Jun 2020	15 Jun 2020	25 Jul 2020	17 Jun 2020
BH4M_0.3-0.4	SE207473.012	LB201966	11 Jun 2020	12 Jun 2020	25 Jun 2020	15 Jun 2020	25 Jul 2020	17 Jun 2020
BH5M_0.1-0.2	SE207473.013	LB201966	11 Jun 2020	12 Jun 2020	25 Jun 2020	15 Jun 2020	25 Jul 2020	17 Jun 2020
BH5M_1.2-1.4	SE207473.014	LB201966	11 Jun 2020	12 Jun 2020	25 Jun 2020	15 Jun 2020	25 Jul 2020	17 Jun 2020
BH6_0.1-0.2	SE207473.015	LB201966	11 Jun 2020	12 Jun 2020	25 Jun 2020	15 Jun 2020	25 Jul 2020	17 Jun 2020
Soil-QD1	SE207473.016	LB201966	11 Jun 2020	12 Jun 2020	25 Jun 2020	15 Jun 2020	25 Jul 2020	17 Jun 2020
TP5_0.4-0.5	SE207473.019	LB201966	11 Jun 2020	12 Jun 2020	25 Jun 2020	15 Jun 2020	25 Jul 2020	17 Jun 2020

VOC's in Soil

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

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
TP1_0.1-0.2	SE207473.001	LB201964	11 Jun 2020	12 Jun 2020	25 Jun 2020	15 Jun 2020	25 Jul 2020	17 Jun 2020
TP2_0.4-0.5	SE207473.002	LB201964	11 Jun 2020	12 Jun 2020	25 Jun 2020	15 Jun 2020	25 Jul 2020	17 Jun 2020
TP3_0.1-0.2	SE207473.003	LB201964	11 Jun 2020	12 Jun 2020	25 Jun 2020	15 Jun 2020	25 Jul 2020	17 Jun 2020
TP3_0.8-0.9	SE207473.004	LB201964	11 Jun 2020	12 Jun 2020	25 Jun 2020	15 Jun 2020	25 Jul 2020	17 Jun 2020
TP4_0.1-0.2	SE207473.005	LB201964	11 Jun 2020	12 Jun 2020	25 Jun 2020	15 Jun 2020	25 Jul 2020	17 Jun 2020
TP5_0.1-0.2	SE207473.006	LB201964	11 Jun 2020	12 Jun 2020	25 Jun 2020	15 Jun 2020	25 Jul 2020	17 Jun 2020
TP6_0.2-0.3	SE207473.007	LB201964	11 Jun 2020	12 Jun 2020	25 Jun 2020	15 Jun 2020	25 Jul 2020	17 Jun 2020

HOLDING TIME SUMMARY

SE207473 R0

SGS holding time criteria are drawn from current regulations and are highly dependent on sample container preservation as specified in the SGS "Field Sampling Guide for Containers and Holding Time" (ref: GU-(AU)-ENV.001). Soil samples guidelines are derived from NEPM "Schedule B(3) Guideline on Laboratory Analysis of Potentially Contaminated Soils". Water sample guidelines are derived from "AS/NZS 5667.1 : 1998 Water Quality - sampling part 1" and APHA "Standard Methods for the Examination of Water and Wastewater" 21st edition 2005.

Extraction and analysis holding time due dates listed are calculated from the date sampled, although holding times may be extended after laboratory extraction for some analytes. The due dates are the suggested dates that samples may be held before extraction or analysis and still be considered valid.

Extraction and analysis dates are shown in **Green** when within suggested criteria or **Red** with an appended dagger symbol (†) when outside suggested criteria. If the sampled date is not supplied then compliance with criteria cannot be determined. If the received date is after one or both due dates then holding time will fail by default.

VOC's in Soil (continued)

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

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
BH1_0.1-0.2	SE207473.008	LB201964	11 Jun 2020	12 Jun 2020	25 Jun 2020	15 Jun 2020	25 Jul 2020	17 Jun 2020
BH1_0.7-0.9	SE207473.009	LB201964	11 Jun 2020	12 Jun 2020	25 Jun 2020	15 Jun 2020	25 Jul 2020	17 Jun 2020
BH2_0.1-0.2	SE207473.010	LB201964	11 Jun 2020	12 Jun 2020	25 Jun 2020	15 Jun 2020	25 Jul 2020	17 Jun 2020
BH3M_0.3-0.4	SE207473.011	LB201964	11 Jun 2020	12 Jun 2020	25 Jun 2020	15 Jun 2020	25 Jul 2020	17 Jun 2020
BH4M_0.3-0.4	SE207473.012	LB201964	11 Jun 2020	12 Jun 2020	25 Jun 2020	15 Jun 2020	25 Jul 2020	17 Jun 2020
BH5M_0.1-0.2	SE207473.013	LB201964	11 Jun 2020	12 Jun 2020	25 Jun 2020	15 Jun 2020	25 Jul 2020	17 Jun 2020
BH5M_1.2-1.4	SE207473.014	LB201964	11 Jun 2020	12 Jun 2020	25 Jun 2020	15 Jun 2020	25 Jul 2020	17 Jun 2020
BH6_0.1-0.2	SE207473.015	LB201964	11 Jun 2020	12 Jun 2020	25 Jun 2020	15 Jun 2020	25 Jul 2020	17 Jun 2020
Soil-QD1	SE207473.016	LB201964	11 Jun 2020	12 Jun 2020	25 Jun 2020	15 Jun 2020	25 Jul 2020	17 Jun 2020
Soil-TripBlank-1	SE207473.017	LB201964	11 Jun 2020	12 Jun 2020	25 Jun 2020	15 Jun 2020	25 Jul 2020	17 Jun 2020
Soil-TripSpike-1	SE207473.018	LB201964	11 Jun 2020	12 Jun 2020	25 Jun 2020	15 Jun 2020	25 Jul 2020	17 Jun 2020
TP5_0.4-0.5	SE207473.019	LB201964	11 Jun 2020	12 Jun 2020	25 Jun 2020	15 Jun 2020	25 Jul 2020	17 Jun 2020

Volatile Petroleum Hydrocarbons in Soil

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

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
TP1_0.1-0.2	SE207473.001	LB201964	11 Jun 2020	12 Jun 2020	25 Jun 2020	15 Jun 2020	25 Jul 2020	17 Jun 2020
TP2_0.4-0.5	SE207473.002	LB201964	11 Jun 2020	12 Jun 2020	25 Jun 2020	15 Jun 2020	25 Jul 2020	17 Jun 2020
TP3_0.1-0.2	SE207473.003	LB201964	11 Jun 2020	12 Jun 2020	25 Jun 2020	15 Jun 2020	25 Jul 2020	17 Jun 2020
TP3_0.8-0.9	SE207473.004	LB201964	11 Jun 2020	12 Jun 2020	25 Jun 2020	15 Jun 2020	25 Jul 2020	17 Jun 2020
TP4_0.1-0.2	SE207473.005	LB201964	11 Jun 2020	12 Jun 2020	25 Jun 2020	15 Jun 2020	25 Jul 2020	17 Jun 2020
TP5_0.1-0.2	SE207473.006	LB201964	11 Jun 2020	12 Jun 2020	25 Jun 2020	15 Jun 2020	25 Jul 2020	17 Jun 2020
TP6_0.2-0.3	SE207473.007	LB201964	11 Jun 2020	12 Jun 2020	25 Jun 2020	15 Jun 2020	25 Jul 2020	17 Jun 2020
BH1_0.1-0.2	SE207473.008	LB201964	11 Jun 2020	12 Jun 2020	25 Jun 2020	15 Jun 2020	25 Jul 2020	17 Jun 2020
BH1_0.7-0.9	SE207473.009	LB201964	11 Jun 2020	12 Jun 2020	25 Jun 2020	15 Jun 2020	25 Jul 2020	17 Jun 2020
BH2_0.1-0.2	SE207473.010	LB201964	11 Jun 2020	12 Jun 2020	25 Jun 2020	15 Jun 2020	25 Jul 2020	17 Jun 2020
BH3M_0.3-0.4	SE207473.011	LB201964	11 Jun 2020	12 Jun 2020	25 Jun 2020	15 Jun 2020	25 Jul 2020	17 Jun 2020
BH4M_0.3-0.4	SE207473.012	LB201964	11 Jun 2020	12 Jun 2020	25 Jun 2020	15 Jun 2020	25 Jul 2020	17 Jun 2020
BH5M_0.1-0.2	SE207473.013	LB201964	11 Jun 2020	12 Jun 2020	25 Jun 2020	15 Jun 2020	25 Jul 2020	17 Jun 2020
BH5M_1.2-1.4	SE207473.014	LB201964	11 Jun 2020	12 Jun 2020	25 Jun 2020	15 Jun 2020	25 Jul 2020	17 Jun 2020
BH6_0.1-0.2	SE207473.015	LB201964	11 Jun 2020	12 Jun 2020	25 Jun 2020	15 Jun 2020	25 Jul 2020	17 Jun 2020
Soil-QD1	SE207473.016	LB201964	11 Jun 2020	12 Jun 2020	25 Jun 2020	15 Jun 2020	25 Jul 2020	17 Jun 2020
Soil-TripBlank-1	SE207473.017	LB201964	11 Jun 2020	12 Jun 2020	25 Jun 2020	15 Jun 2020	25 Jul 2020	18 Jun 2020
Soil-TripSpike-1	SE207473.018	LB201964	11 Jun 2020	12 Jun 2020	25 Jun 2020	15 Jun 2020	25 Jul 2020	18 Jun 2020
TP5_0.4-0.5	SE207473.019	LB201964	11 Jun 2020	12 Jun 2020	25 Jun 2020	15 Jun 2020	25 Jul 2020	17 Jun 2020

Surrogate results are evaluated against upper and lower limit criteria established in the SGS QA/QC plan (Ref: MP-(AU)-[ENV]QU-022). At least two of three routine level soil sample surrogate spike recoveries for BTEX/VOC are to be within 70-130% where control charts have not been developed and within the established control limits for charted surrogates. Matrix effects may void this as an acceptance criterion. Water sample surrogate spike recoveries are to be within 40-130%. The presence of emulsions, surfactants and particulates may void this as an acceptance criterion.

Result is shown in **Green** when within suggested criteria or **Red** with an appended reason identifer when outside suggested criteria. Refer to the footnotes section at the end of this report for failure reasons.

OC Pesticides in Soil

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

Parameter	Sample Name	Sample Number	Units	Criteria	Recovery %
Tetrachloro-m-xylene (TCMX) (Surrogate)	TP1_0.1-0.2	SE207473.001	%	60 - 130%	103
	TP2_0.4-0.5	SE207473.002	%	60 - 130%	97
	TP3_0.1-0.2	SE207473.003	%	60 - 130%	103
	TP4_0.1-0.2	SE207473.005	%	60 - 130%	103
	TP5_0.1-0.2	SE207473.006	%	60 - 130%	104
	TP6_0.2-0.3	SE207473.007	%	60 - 130%	98
	BH1_0.1-0.2	SE207473.008	%	60 - 130%	107
	BH2_0.1-0.2	SE207473.010	%	60 - 130%	107
	BH3M_0.3-0.4	SE207473.011	%	60 - 130%	100
	BH4M_0.3-0.4	SE207473.012	%	60 - 130%	103
	BH5M_0.1-0.2	SE207473.013	%	60 - 130%	100
	BH6_0.1-0.2	SE207473.015	%	60 - 130%	95

OP Pesticides in Soil

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

Parameter	Sample Name	Sample Number	Units	Criteria	Recovery %
2-fluorobiphenyl (Surrogate)	TP1_0.1-0.2	SE207473.001	%	60 - 130%	83
	TP2_0.4-0.5	SE207473.002	%	60 - 130%	90
	TP3_0.1-0.2	SE207473.003	%	60 - 130%	85
	TP4_0.1-0.2	SE207473.005	%	60 - 130%	91
	TP5_0.1-0.2	SE207473.006	%	60 - 130%	79
	TP6_0.2-0.3	SE207473.007	%	60 - 130%	77
	BH1_0.1-0.2	SE207473.008	%	60 - 130%	93
	BH2_0.1-0.2	SE207473.010	%	60 - 130%	88
	BH3M_0.3-0.4	SE207473.011	%	60 - 130%	80
	BH4M_0.3-0.4	SE207473.012	%	60 - 130%	91
	BH5M_0.1-0.2	SE207473.013	%	60 - 130%	93
	BH6_0.1-0.2	SE207473.015	%	60 - 130%	80
d14-p-terphenyl (Surrogate)	TP1_0.1-0.2	SE207473.001	%	60 - 130%	85
	TP2_0.4-0.5	SE207473.002	%	60 - 130%	83
	TP3_0.1-0.2	SE207473.003	%	60 - 130%	79
	TP4_0.1-0.2	SE207473.005	%	60 - 130%	85
	TP5_0.1-0.2	SE207473.006	%	60 - 130%	78
	TP6_0.2-0.3	SE207473.007	%	60 - 130%	81
	BH1_0.1-0.2	SE207473.008	%	60 - 130%	82
	BH2_0.1-0.2	SE207473.010	%	60 - 130%	79
	BH3M_0.3-0.4	SE207473.011	%	60 - 130%	82
	BH4M_0.3-0.4	SE207473.012	%	60 - 130%	87
	BH5M_0.1-0.2	SE207473.013	%	60 - 130%	84
	BH6_0.1-0.2	SE207473.015	%	60 - 130%	90

PAH (Polynuclear Aromatic Hydrocarbons) in Soil

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

Parameter	Sample Name	Sample Number	Units	Criteria	Recovery %
2-fluorobiphenyl (Surrogate)	TP1_0.1-0.2	SE207473.001	%	70 - 130%	83
	TP2_0.4-0.5	SE207473.002	%	70 - 130%	90
	TP3_0.1-0.2	SE207473.003	%	70 - 130%	85
	TP3_0.8-0.9	SE207473.004	%	70 - 130%	79
	TP4_0.1-0.2	SE207473.005	%	70 - 130%	91
	TP5_0.1-0.2	SE207473.006	%	70 - 130%	79
	TP6_0.2-0.3	SE207473.007	%	70 - 130%	77
	BH1_0.1-0.2	SE207473.008	%	70 - 130%	93
	BH1_0.7-0.9	SE207473.009	%	70 - 130%	90
	BH2_0.1-0.2	SE207473.010	%	70 - 130%	88
	BH3M_0.3-0.4	SE207473.011	%	70 - 130%	80
	BH4M_0.3-0.4	SE207473.012	%	70 - 130%	91
	BH5M_0.1-0.2	SE207473.013	%	70 - 130%	93
	BH5M_1.2-1.4	SE207473.014	%	70 - 130%	78
	BH6_0.1-0.2	SE207473.015	%	70 - 130%	80
	TP5_0.4-0.5	SE207473.019	%	70 - 130%	96
d14-p-terphenyl (Surrogate)	TP1_0.1-0.2	SE207473.001	%	70 - 130%	85
	TP2_0.4-0.5	SE207473.002	%	70 - 130%	83
	TP3_0.1-0.2	SE207473.003	%	70 - 130%	79
	TP3_0.8-0.9	SE207473.004	%	70 - 130%	79

Surrogate results are evaluated against upper and lower limit criteria established in the SGS QA/QC plan (Ref: MP-(AU)-[ENV]QU-022). At least two of three routine level soil sample surrogate spike recoveries for BTEX/VOC are to be within 70-130% where control charts have not been developed and within the established control limits for charted surrogates. Matrix effects may void this as an acceptance criterion. Water sample surrogate spike recoveries are to be within 40-130%. The presence of emulsions, surfactants and particulates may void this as an acceptance criterion.

Result is shown in **Green** when within suggested criteria or **Red** with an appended reason identifer when outside suggested criteria. Refer to the footnotes section at the end of this report for failure reasons.

PAH (Polynuclear Aromatic Hydrocarbons) in Soil (continued)

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

Parameter	Sample Name	Sample Number	Units	Criteria	Recovery %
d14-p-terphenyl (Surrogate)	TP4_0.1-0.2	SE207473.005	%	70 - 130%	85
	TP5_0.1-0.2	SE207473.006	%	70 - 130%	78
	TP6_0.2-0.3	SE207473.007	%	70 - 130%	81
	BH1_0.1-0.2	SE207473.008	%	70 - 130%	82
	BH1_0.7-0.9	SE207473.009	%	70 - 130%	89
	BH2_0.1-0.2	SE207473.010	%	70 - 130%	79
	BH3M_0.3-0.4	SE207473.011	%	70 - 130%	82
	BH4M_0.3-0.4	SE207473.012	%	70 - 130%	87
	BH5M_0.1-0.2	SE207473.013	%	70 - 130%	84
	BH5M_1.2-1.4	SE207473.014	%	70 - 130%	90
	BH6_0.1-0.2	SE207473.015	%	70 - 130%	90
	TP5_0.4-0.5	SE207473.019	%	70 - 130%	80
d5-nitrobenzene (Surrogate)	TP1_0.1-0.2	SE207473.001	%	70 - 130%	84
	TP2_0.4-0.5	SE207473.002	%	70 - 130%	82
	TP3_0.1-0.2	SE207473.003	%	70 - 130%	82
	TP3_0.8-0.9	SE207473.004	%	70 - 130%	80
	TP4_0.1-0.2	SE207473.005	%	70 - 130%	81
	TP5_0.1-0.2	SE207473.006	%	70 - 130%	81
	TP6_0.2-0.3	SE207473.007	%	70 - 130%	84
	BH1_0.1-0.2	SE207473.008	%	70 - 130%	85
	BH1_0.7-0.9	SE207473.009	%	70 - 130%	88
	BH2_0.1-0.2	SE207473.010	%	70 - 130%	84
	BH3M_0.3-0.4	SE207473.011	%	70 - 130%	77
	BH4M_0.3-0.4	SE207473.012	%	70 - 130%	82
	BH5M_0.1-0.2	SE207473.013	%	70 - 130%	83
	BH5M_1.2-1.4	SE207473.014	%	70 - 130%	81
	BH6_0.1-0.2	SE207473.015	%	70 - 130%	81
	TP5_0.4-0.5	SE207473.019	%	70 - 130%	82

PCBs in Soil

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

Parameter	Sample Name	Sample Number	Units	Criteria	Recovery %
Tetrachloro-m-xylene (TCMX) (Surrogate)	TP1_0.1-0.2	SE207473.001	%	60 - 130%	103
	TP2_0.4-0.5	SE207473.002	%	60 - 130%	97
	TP3_0.1-0.2	SE207473.003	%	60 - 130%	103
	TP4_0.1-0.2	SE207473.005	%	60 - 130%	103
	TP5_0.1-0.2	SE207473.006	%	60 - 130%	104
	TP6_0.2-0.3	SE207473.007	%	60 - 130%	98
	BH1_0.1-0.2	SE207473.008	%	60 - 130%	107
	BH2_0.1-0.2	SE207473.010	%	60 - 130%	107
	BH3M_0.3-0.4	SE207473.011	%	60 - 130%	100
	BH4M_0.3-0.4	SE207473.012	%	60 - 130%	103
	BH5M_0.1-0.2	SE207473.013	%	60 - 130%	100
	BH6_0.1-0.2	SE207473.015	%	60 - 130%	95

VOC's in Soil

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

Parameter	Sample Name	Sample Number	Units	Criteria	Recovery %
Bromofluorobenzene (Surrogate)	TP1_0.1-0.2	SE207473.001	%	60 - 130%	95
	TP2_0.4-0.5	SE207473.002	%	60 - 130%	94
	TP3_0.1-0.2	SE207473.003	%	60 - 130%	92
	TP3_0.8-0.9	SE207473.004	%	60 - 130%	91
	TP4_0.1-0.2	SE207473.005	%	60 - 130%	89
	TP5_0.1-0.2	SE207473.006	%	60 - 130%	89
	TP6_0.2-0.3	SE207473.007	%	60 - 130%	95
	BH1_0.1-0.2	SE207473.008	%	60 - 130%	85
	BH1_0.7-0.9	SE207473.009	%	60 - 130%	98
	BH2_0.1-0.2	SE207473.010	%	60 - 130%	83
	BH3M_0.3-0.4	SE207473.011	%	60 - 130%	88
	BH4M_0.3-0.4	SE207473.012	%	60 - 130%	88
	BH5M_0.1-0.2	SE207473.013	%	60 - 130%	92
	BH5M_1.2-1.4	SE207473.014	%	60 - 130%	91
	BH6_0.1-0.2	SE207473.015	%	60 - 130%	85
	Soil-QD1	SE207473.016	%	60 - 130%	85

Surrogate results are evaluated against upper and lower limit criteria established in the SGS QA /QC plan (Ref: MP-(AU)-[ENV]QU-022). At least two of three routine level soil sample surrogate spike recoveries for BTEX/VOC are to be within 70-130% where control charts have not been developed and within the established control limits for charted surrogates. Matrix effects may void this as an acceptance criterion. Water sample surrogate spike recoveries are to be within 40-130%. The presence of emulsions, surfactants and particulates may void this as an acceptance criterion.

Result is shown in **Green** when within suggested criteria or **Red** with an appended reason identifer when outside suggested criteria. Refer to the footnotes section at the end of this report for failure reasons.

VOC's in Soil (continued)

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

Parameter	Sample Name	Sample Number	Units	Criteria	Recovery %
Bromofluorobenzene (Surrogate)	Soil-TripBlank-1	SE207473.017	%	60 - 130%	90
	Soil-TripSpike-1	SE207473.018	%	60 - 130%	85
	TP5_0.4-0.5	SE207473.019	%	60 - 130%	90
d4-1,2-dichloroethane (Surrogate)	TP1_0.1-0.2	SE207473.001	%	60 - 130%	108
	TP2_0.4-0.5	SE207473.002	%	60 - 130%	106
	TP3_0.1-0.2	SE207473.003	%	60 - 130%	107
	TP3_0.8-0.9	SE207473.004	%	60 - 130%	105
	TP4_0.1-0.2	SE207473.005	%	60 - 130%	106
	TP5_0.1-0.2	SE207473.006	%	60 - 130%	106
	TP6_0.2-0.3	SE207473.007	%	60 - 130%	114
	BH1_0.1-0.2	SE207473.008	%	60 - 130%	104
	BH1_0.7-0.9	SE207473.009	%	60 - 130%	116
	BH2_0.1-0.2	SE207473.010	%	60 - 130%	104
	BH3M_0.3-0.4	SE207473.011	%	60 - 130%	110
	BH4M_0.3-0.4	SE207473.012	%	60 - 130%	109
	BH5M_0.1-0.2	SE207473.013	%	60 - 130%	114
	BH5M_1.2-1.4	SE207473.014	%	60 - 130%	111
	BH6_0.1-0.2	SE207473.015	%	60 - 130%	105
	Soil-QD1	SE207473.016	%	60 - 130%	107
	Soil-TripBlank-1	SE207473.017	%	60 - 130%	112
	Soil-TripSpike-1	SE207473.018	%	60 - 130%	103
	TP5_0.4-0.5	SE207473.019	%	60 - 130%	115
d8-toluene (Surrogate)	TP1_0.1-0.2	SE207473.001	%	60 - 130%	105
	TP2_0.4-0.5	SE207473.002	%	60 - 130%	103
	TP3_0.1-0.2	SE207473.003	%	60 - 130%	103
	TP3_0.8-0.9	SE207473.004	%	60 - 130%	104
	TP4_0.1-0.2	SE207473.005	%	60 - 130%	103
	TP5_0.1-0.2	SE207473.006	%	60 - 130%	103
	TP6_0.2-0.3	SE207473.007	%	60 - 130%	111
	BH1_0.1-0.2	SE207473.008	%	60 - 130%	102
	BH1_0.7-0.9	SE207473.009	%	60 - 130%	114
	BH2_0.1-0.2	SE207473.010	%	60 - 130%	101
	BH3M_0.3-0.4	SE207473.011	%	60 - 130%	107
	BH4M_0.3-0.4	SE207473.012	%	60 - 130%	107
	BH5M_0.1-0.2	SE207473.013	%	60 - 130%	112
	BH5M_1.2-1.4	SE207473.014	%	60 - 130%	110
	BH6_0.1-0.2	SE207473.015	%	60 - 130%	103
	Soil-QD1	SE207473.016	%	60 - 130%	104
	Soil-TripBlank-1	SE207473.017	%	60 - 130%	109
	Soil-TripSpike-1	SE207473.018	%	60 - 130%	103
	TP5_0.4-0.5	SE207473.019	%	60 - 130%	114

Volatile Petroleum Hydrocarbons in Soil

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

Parameter	Sample Name	Sample Number	Units	Criteria	Recovery %
Bromofluorobenzene (Surrogate)	TP1_0.1-0.2	SE207473.001	%	60 - 130%	95
	TP2_0.4-0.5	SE207473.002	%	60 - 130%	94
	TP3_0.1-0.2	SE207473.003	%	60 - 130%	92
	TP3_0.8-0.9	SE207473.004	%	60 - 130%	91
	TP4_0.1-0.2	SE207473.005	%	60 - 130%	89
	TP5_0.1-0.2	SE207473.006	%	60 - 130%	89
	TP6_0.2-0.3	SE207473.007	%	60 - 130%	95
	BH1_0.1-0.2	SE207473.008	%	60 - 130%	85
	BH1_0.7-0.9	SE207473.009	%	60 - 130%	98
	BH2_0.1-0.2	SE207473.010	%	60 - 130%	83
	BH3M_0.3-0.4	SE207473.011	%	60 - 130%	88
	BH4M_0.3-0.4	SE207473.012	%	60 - 130%	88
	BH5M_0.1-0.2	SE207473.013	%	60 - 130%	92
	BH5M_1.2-1.4	SE207473.014	%	60 - 130%	91
	BH6_0.1-0.2	SE207473.015	%	60 - 130%	85
	Soil-QD1	SE207473.016	%	60 - 130%	85
	TP5_0.4-0.5	SE207473.019	%	60 - 130%	90

Surrogate results are evaluated against upper and lower limit criteria established in the SGS QA /QC plan (Ref: MP-(AU)-[ENV]QU-022). At least two of three routine level soil sample surrogate spike recoveries for BTEX/VOC are to be within 70-130% where control charts have not been developed and within the established control limits for charted surrogates. Matrix effects may void this as an acceptance criterion. Water sample surrogate spike recoveries are to be within 40-130%. The presence of emulsions, surfactants and particulates may void this as an acceptance criterion.

Result is shown in **Green** when within suggested criteria or **Red** with an appended reason identifer when outside suggested criteria. Refer to the footnotes section at the end of this report for failure reasons.

Volatile Petroleum Hydrocarbons in Soil (continued) — **Method: ME-(AU)-[ENV]AN433**

Parameter	Sample Name	Sample Number	Units	Criteria	Recovery %
d4-1,2-dichloroethane (Surrogate)	TP1_0.1-0.2	SE207473.001	%	60 - 130%	108
	TP2_0.4-0.5	SE207473.002	%	60 - 130%	106
	TP3_0.1-0.2	SE207473.003	%	60 - 130%	107
	TP3_0.8-0.9	SE207473.004	%	60 - 130%	105
	TP4_0.1-0.2	SE207473.005	%	60 - 130%	106
	TP5_0.1-0.2	SE207473.006	%	60 - 130%	106
	TP6_0.2-0.3	SE207473.007	%	60 - 130%	114
	BH1_0.1-0.2	SE207473.008	%	60 - 130%	104
	BH1_0.7-0.9	SE207473.009	%	60 - 130%	116
	BH2_0.1-0.2	SE207473.010	%	60 - 130%	104
	BH3M_0.3-0.4	SE207473.011	%	60 - 130%	110
	BH4M_0.3-0.4	SE207473.012	%	60 - 130%	109
	BH5M_0.1-0.2	SE207473.013	%	60 - 130%	114
	BH5M_1.2-1.4	SE207473.014	%	60 - 130%	111
	BH6_0.1-0.2	SE207473.015	%	60 - 130%	105
	Soil-QD1	SE207473.016	%	60 - 130%	107
	TP5_0.4-0.5	SE207473.019	%	60 - 130%	115
d8-toluene (Surrogate)	TP1_0.1-0.2	SE207473.001	%	60 - 130%	105
	TP2_0.4-0.5	SE207473.002	%	60 - 130%	103
	TP3_0.1-0.2	SE207473.003	%	60 - 130%	103
	TP3_0.8-0.9	SE207473.004	%	60 - 130%	104
	TP4_0.1-0.2	SE207473.005	%	60 - 130%	103
	TP5_0.1-0.2	SE207473.006	%	60 - 130%	103
	TP6_0.2-0.3	SE207473.007	%	60 - 130%	111
	BH1_0.1-0.2	SE207473.008	%	60 - 130%	102
	BH1_0.7-0.9	SE207473.009	%	60 - 130%	114
	BH2_0.1-0.2	SE207473.010	%	60 - 130%	101
	BH3M_0.3-0.4	SE207473.011	%	60 - 130%	107
	BH4M_0.3-0.4	SE207473.012	%	60 - 130%	107
	BH5M_0.1-0.2	SE207473.013	%	60 - 130%	112
	BH5M_1.2-1.4	SE207473.014	%	60 - 130%	110
	BH6_0.1-0.2	SE207473.015	%	60 - 130%	103
	Soil-QD1	SE207473.016	%	60 - 130%	104
	TP5_0.4-0.5	SE207473.019	%	60 - 130%	114

Blank results are evaluated against the limit of reporting (LOR), for the chosen method and its associated instrumentation, typically 2.5 times the statistically determined method detection limit (MDL).

Result is shown in **Green** when within suggested criteria or **Red** with an appended dagger symbol (†) when outside suggested criteria.

Mercury in Soil

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

Sample Number	Parameter	Units	LOR	Result
LB201988.001	Mercury	mg/kg	0.05	<0.05

OC Pesticides in Soil

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

Sample Number		Parameter	Units	LOR	Result
LB201966.001		Hexachlorobenzene (HCB)	mg/kg	0.1	<0.1
		Alpha BHC	mg/kg	0.1	<0.1
		Lindane	mg/kg	0.1	<0.1
		Heptachlor	mg/kg	0.1	<0.1
		Aldrin	mg/kg	0.1	<0.1
		Beta BHC	mg/kg	0.1	<0.1
		Delta BHC	mg/kg	0.1	<0.1
		Heptachlor epoxide	mg/kg	0.1	<0.1
		Alpha Endosulfan	mg/kg	0.2	<0.2
		Gamma Chlordane	mg/kg	0.1	<0.1
		Alpha Chlordane	mg/kg	0.1	<0.1
		p,p'-DDE	mg/kg	0.1	<0.1
		Dieldrin	mg/kg	0.2	<0.2
		Endrin	mg/kg	0.2	<0.2
		Beta Endosulfan	mg/kg	0.2	<0.2
		p,p'-DDD	mg/kg	0.1	<0.1
		p,p'-DDT	mg/kg	0.1	<0.1
		Endosulfan sulphate	mg/kg	0.1	<0.1
		Endrin Aldehyde	mg/kg	0.1	<0.1
		Methoxychlor	mg/kg	0.1	<0.1
		Endrin Ketone	mg/kg	0.1	<0.1
		Isodrin	mg/kg	0.1	<0.1
		Mirex	mg/kg	0.1	<0.1
	Surrogates	Tetrachloro-m-xylene (TCMX) (Surrogate)	%	-	87

OP Pesticides in Soil

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

Sample Number		Parameter	Units	LOR	Result
LB201966.001		Dichlorvos	mg/kg	0.5	<0.5
		Dimethoate	mg/kg	0.5	<0.5
		Diazinon (Dimpylate)	mg/kg	0.5	<0.5
		Fenitrothion	mg/kg	0.2	<0.2
		Malathion	mg/kg	0.2	<0.2
		Chlorpyrifos (Chlorpyrifos Ethyl)	mg/kg	0.2	<0.2
		Parathion-ethyl (Parathion)	mg/kg	0.2	<0.2
		Bromophos Ethyl	mg/kg	0.2	<0.2
		Methidathion	mg/kg	0.5	<0.5
		Ethion	mg/kg	0.2	<0.2
		Azinphos-methyl (Guthion)	mg/kg	0.2	<0.2
	Surrogates	2-fluorobiphenyl (Surrogate)	%	-	94
		d14-p-terphenyl (Surrogate)	%	-	85

PAH (Polynuclear Aromatic Hydrocarbons) in Soil

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

Sample Number	Parameter	Units	LOR	Result
LB201966.001	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
LB201966.001		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)	%	-	95
		2-fluorobiphenyl (Surrogate)	%	-	94
		d14-p-terphenyl (Surrogate)	%	-	85

PCBs in Soil

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

Sample Number		Parameter	Units	LOR	Result
LB201966.001		Arochlor 1016	mg/kg	0.2	<0.2
		Arochlor 1221	mg/kg	0.2	<0.2
		Arochlor 1232	mg/kg	0.2	<0.2
		Arochlor 1242	mg/kg	0.2	<0.2
		Arochlor 1248	mg/kg	0.2	<0.2
		Arochlor 1254	mg/kg	0.2	<0.2
		Arochlor 1260	mg/kg	0.2	<0.2
		Arochlor 1262	mg/kg	0.2	<0.2
		Arochlor 1268	mg/kg	0.2	<0.2
		Total PCBs (Arochlors)	mg/kg	1	<1
	Surrogates	Tetrachloro-m-xylene (TCMX) (Surrogate)	%	-	87

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

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

Sample Number		Parameter	Units	LOR	Result
LB201985.001		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
LB201966.001		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
LB201964.001	Monocyclic Aromatic	Benzene	mg/kg	0.1	<0.1
	Hydrocarbons	Toluene	mg/kg	0.1	<0.1
		Ethylbenzene	mg/kg	0.1	<0.1
		m/p-xylene	mg/kg	0.2	<0.2
		o-xylene	mg/kg	0.1	<0.1
	Polycyclic VOCs	Naphthalene	mg/kg	0.1	<0.1
	Surrogates	d4-1,2-dichloroethane (Surrogate)	%	-	112
		d8-toluene (Surrogate)	%	-	108
		Bromofluorobenzene (Surrogate)	%	-	102
	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
LB201964.001		TRH C6-C9	mg/kg	20	<20
	Surrogates	d4-1,2-dichloroethane (Surrogate)	%	-	112

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

The RPD is evaluated against the Maximum Allowable Difference (MAD) criteria and can be graphically represented by a curve calculated from the Statistical Detection Limit (SDL) and Limiting Repeatability (LR) using the formula: MAD = 100 x SDL / Mean + LR

Where the Maximum Allowable Difference evaluates to a number larger than 200 it is displayed as 200.

RPD is shown in **Green** when within suggested criteria or **Red** with an appended reason identifer when outside suggested criteria. Refer to the footnotes section at the end of this report for failure reasons.

Mercury in Soil

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

Original	Duplicate	Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE207473.010	LB201988.014	Mercury	mg/kg	0.05	<0.05	0.07	131	29
SE207473.019	LB201988.022	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 %
SE207473.010	LB201968.011	% Moisture	%w/w	1	14.2	14.2	37	0
SE207473.019	LB201968.020	% Moisture	%w/w	1	18.3	19.5	35	6

OC Pesticides in Soil

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

Original	Duplicate		Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE207473.012	LB201966.025		Hexachlorobenzene (HCB)	mg/kg	0.1	<0.1	0	200	0
			Alpha BHC	mg/kg	0.1	<0.1	0	200	0
			Lindane	mg/kg	0.1	<0.1	0	200	0
			Heptachlor	mg/kg	0.1	<0.1	0	200	0
			Aldrin	mg/kg	0.1	<0.1	0	200	0
			Beta BHC	mg/kg	0.1	<0.1	0	200	0
			Delta BHC	mg/kg	0.1	<0.1	0	200	0
			Heptachlor epoxide	mg/kg	0.1	<0.1	0	200	0
			o,p'-DDE	mg/kg	0.1	<0.1	0	200	0
			Alpha Endosulfan	mg/kg	0.2	<0.2	0	200	0
			Gamma Chlordane	mg/kg	0.1	<0.1	0	200	0
			Alpha Chlordane	mg/kg	0.1	<0.1	0	200	0
			trans-Nonachlor	mg/kg	0.1	<0.1	0	200	0
			p,p'-DDE	mg/kg	0.1	<0.1	0	200	0
			Dieldrin	mg/kg	0.2	<0.2	0	200	0
			Endrin	mg/kg	0.2	<0.2	0	200	0
			o,p'-DDD	mg/kg	0.1	<0.1	0	200	0
			o,p'-DDT	mg/kg	0.1	<0.1	0	200	0
			Beta Endosulfan	mg/kg	0.2	<0.2	0	200	0
			p,p'-DDD	mg/kg	0.1	<0.1	0	200	0
			p,p'-DDT	mg/kg	0.1	<0.1	0	200	0
			Endosulfan sulphate	mg/kg	0.1	<0.1	0	200	0
			Endrin Aldehyde	mg/kg	0.1	<0.1	0	200	0
			Methoxychlor	mg/kg	0.1	<0.1	0	200	0
			Endrin Ketone	mg/kg	0.1	<0.1	0	200	0
			Isodrin	mg/kg	0.1	<0.1	0	200	0
			Mirex	mg/kg	0.1	<0.1	0	200	0
			Total CLP OC Pesticides	mg/kg	1	<1	0	200	0
		Surrogates	Tetrachloro-m-xylene (TCMX) (Surrogate)	mg/kg	-	0.15	0.154	30	0

PAH (Polynuclear Aromatic Hydrocarbons) in Soil

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

Original	Duplicate	Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE207473.004	LB201966.023	Naphthalene	mg/kg	0.1	<0.1	0	200	0
		2-methylnaphthalene	mg/kg	0.1	<0.1	0	200	0
		1-methylnaphthalene	mg/kg	0.1	<0.1	0	200	0
		Acenaphthylene	mg/kg	0.1	<0.1	0.0005443423	200	0
		Acenaphthene	mg/kg	0.1	<0.1	0.0004425929	200	0
		Fluorene	mg/kg	0.1	<0.1	0	200	0
		Phenanthrene	mg/kg	0.1	<0.1	0.0012581900	200	0
		Anthracene	mg/kg	0.1	<0.1	0.0013867639	200	0
		Fluoranthene	mg/kg	0.1	<0.1	0	200	0
		Pyrene	mg/kg	0.1	<0.1	0.0006679803	200	0
		Benzo(a)anthracene	mg/kg	0.1	<0.1	0.0062213854	200	0
		Chrysene	mg/kg	0.1	<0.1	0.0058063129	200	0
		Benzo(b&j)fluoranthene	mg/kg	0.1	<0.1	0	200	0
		Benzo(k)fluoranthene	mg/kg	0.1	<0.1	0.0004292737	200	0
		Benzo(a)pyrene	mg/kg	0.1	<0.1	0.0041785487	200	0
		Indeno(1,2,3-cd)pyrene	mg/kg	0.1	<0.1	0	200	0
		Dibenzo(ah)anthracene	mg/kg	0.1	<0.1	0	200	0

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

The RPD is evaluated against the Maximum Allowable Difference (MAD) criteria and can be graphically represented by a curve calculated from the Statistical Detection Limit (SDL) and Limiting Repeatability (LR) using the formula: MAD = 100 x SDL / Mean + LR

Where the Maximum Allowable Difference evaluates to a number larger than 200 it is displayed as 200.

RPD is shown in **Green** when within suggested criteria or **Red** with an appended reason identifer when outside suggested criteria. Refer to the footnotes section at the end of this report for failure reasons.

PAH (Polynuclear Aromatic Hydrocarbons) in Soil (continued)

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

Original	Duplicate		Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE207473.004	LB201966.023		Benzo(ghi)perylene	mg/kg	0.1	<0.1	0	200	0
			Carcinogenic PAHs, BaP TEQ <LOR=0	mg/kg	0.2	<0.2	0	200	0
			Carcinogenic PAHs, BaP TEQ <LOR=LOR	mg/kg	0.3	<0.3	0.242	134	0
			Carcinogenic PAHs, BaP TEQ <LOR=LOR/2	mg/kg	0.2	<0.2	0.121	175	0
			Total PAH (18)	mg/kg	0.8	<0.8	0	200	0
		Surrogates	d5-nitrobenzene (Surrogate)	mg/kg	-	0.4	0.4279802118	30	7
			2-fluorobiphenyl (Surrogate)	mg/kg	-	0.4	0.4616578532	30	15
			d14-p-terphenyl (Surrogate)	mg/kg	-	0.4	0.3921134392	30	1
SE207473.009	LB201966.024		Naphthalene	mg/kg	0.1	<0.1	0	200	0
			2-methylnaphthalene	mg/kg	0.1	<0.1	0	200	0
			1-methylnaphthalene	mg/kg	0.1	<0.1	0	200	0
			Acenaphthylene	mg/kg	0.1	<0.1	0.0007589141	200	0
			Acenaphthene	mg/kg	0.1	<0.1	0.0004214105	200	0
			Fluorene	mg/kg	0.1	<0.1	0	200	0
			Phenanthrene	mg/kg	0.1	<0.1	0.0019188996	200	0
			Anthracene	mg/kg	0.1	<0.1	0.0017922061	200	0
			Fluoranthene	mg/kg	0.1	<0.1	0.0020876892	200	0
			Pyrene	mg/kg	0.1	<0.1	0.0023460494	200	0
			Benzo(a)anthracene	mg/kg	0.1	<0.1	0.0072010530	200	0
			Chrysene	mg/kg	0.1	<0.1	0.0066574639	200	0
			Benzo(b&j)fluoranthene	mg/kg	0.1	<0.1	0.0012834754	200	0
			Benzo(k)fluoranthene	mg/kg	0.1	<0.1	0.0011754442	200	0
			Benzo(a)pyrene	mg/kg	0.1	<0.1	0.0003645687	200	0
			Indeno(1,2,3-cd)pyrene	mg/kg	0.1	<0.1	0.0002882324	200	0
			Dibenzo(ah)anthracene	mg/kg	0.1	<0.1	0	200	0
			Benzo(ghi)perylene	mg/kg	0.1	<0.1	0.0004474051	200	0
			Carcinogenic PAHs, BaP TEQ <LOR=0	mg/kg	0.2	<0.2	0	200	0
			Carcinogenic PAHs, BaP TEQ <LOR=LOR	mg/kg	0.3	<0.3	0.242	134	0
			Carcinogenic PAHs, BaP TEQ <LOR=LOR/2	mg/kg	0.2	<0.2	0.121	175	0
			Total PAH (18)	mg/kg	0.8	<0.8	0	200	0
		Surrogates	d5-nitrobenzene (Surrogate)	mg/kg	-	0.4	0.4331004606	30	1
			2-fluorobiphenyl (Surrogate)	mg/kg	-	0.4	0.4205237598	30	7
			d14-p-terphenyl (Surrogate)	mg/kg	-	0.4	0.3941134628	30	13

PCBs in Soil

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

Original	Duplicate		Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE207473.012	LB201966.025		Arochlor 1016	mg/kg	0.2	<0.2	0	200	0
			Arochlor 1221	mg/kg	0.2	<0.2	0	200	0
			Arochlor 1232	mg/kg	0.2	<0.2	0	200	0
			Arochlor 1242	mg/kg	0.2	<0.2	0	200	0
			Arochlor 1248	mg/kg	0.2	<0.2	0	200	0
			Arochlor 1254	mg/kg	0.2	<0.2	0	200	0
			Arochlor 1260	mg/kg	0.2	<0.2	0	200	0
			Arochlor 1262	mg/kg	0.2	<0.2	0	200	0
			Arochlor 1268	mg/kg	0.2	<0.2	0	200	0
			Total PCBs (Arochlors)	mg/kg	1	<1	0	200	0
		Surrogates	Tetrachloro-m-xylene (TCMX) (Surrogate)	mg/kg	-	0	0.154	30	0

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

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

Original	Duplicate	Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE207473.010	LB201985.014	Arsenic, As	mg/kg	1	10	8	42	24
		Cadmium, Cd	mg/kg	0.3	0.4	0.3	116	1
		Chromium, Cr	mg/kg	0.5	5.7	6.0	39	6
		Copper, Cu	mg/kg	0.5	23	23	32	3
		Nickel, Ni	mg/kg	0.5	0.9	0.8	91	14
		Lead, Pb	mg/kg	1	63	63	32	0
		Zinc, Zn	mg/kg	2	76	70	33	8
SE207473.019	LB201985.022	Arsenic, As	mg/kg	1	1	1	105	11
		Cadmium, Cd	mg/kg	0.3	<0.3	<0.3	200	0
		Chromium, Cr	mg/kg	0.5	6.3	6.0	38	4
		Copper, Cu	mg/kg	0.5	<0.5	<0.5	200	0
		Nickel, Ni	mg/kg	0.5	<0.5	<0.5	197	0

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

The RPD is evaluated against the Maximum Allowable Difference (MAD) criteria and can be graphically represented by a curve calculated from the Statistical Detection Limit (SDL) and Limiting Repeatability (LR) using the formula: MAD = 100 x SDL / Mean + LR

Where the Maximum Allowable Difference evaluates to a number larger than 200 it is displayed as 200.

RPD is shown in **Green** when within suggested criteria or **Red** with an appended reason identifer when outside suggested criteria. Refer to the footnotes section at the end of this report for failure reasons.

Total Recoverable Elements in Soil/Waste Solids/Materials by ICPOES (continued)

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

Original	Duplicate		Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE207473.019	LB201985.022		Lead, Pb	mg/kg	1	4	3	57	12
			Zinc, Zn	mg/kg	2	<2.0	<2.0	200	0

TRH (Total Recoverable Hydrocarbons) in Soil

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

Original	Duplicate		Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE207473.004	LB201966.023		TRH C10-C14	mg/kg	20	<20	0	200	0
			TRH C15-C28	mg/kg	45	<45	0	200	0
			TRH C29-C36	mg/kg	45	<45	0	200	0
			TRH C37-C40	mg/kg	100	<100	0	200	0
			TRH C10-C36 Total	mg/kg	110	<110	0	200	0
			TRH >C10-C40 Total (F bands)	mg/kg	210	<210	0	200	0
		TRH F Bands	TRH >C10-C16	mg/kg	25	<25	0	200	0
			TRH >C10-C16 - Naphthalene (F2)	mg/kg	25	<25	0	200	0
			TRH >C16-C34 (F3)	mg/kg	90	<90	0	200	0
			TRH >C34-C40 (F4)	mg/kg	120	<120	0	200	0
SE207473.009	LB201966.024		TRH C10-C14	mg/kg	20	<20	0	200	0
			TRH C15-C28	mg/kg	45	<45	0	200	0
			TRH C29-C36	mg/kg	45	<45	0	200	0
			TRH C37-C40	mg/kg	100	<100	0	200	0
			TRH C10-C36 Total	mg/kg	110	<110	0	200	0
			TRH >C10-C40 Total (F bands)	mg/kg	210	<210	0	200	0
		TRH F Bands	TRH >C10-C16	mg/kg	25	<25	0	200	0
			TRH >C10-C16 - Naphthalene (F2)	mg/kg	25	<25	0	200	0
			TRH >C16-C34 (F3)	mg/kg	90	<90	0	200	0
			TRH >C34-C40 (F4)	mg/kg	120	<120	0	200	0

VOC's in Soil

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

Original	Duplicate		Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE207473.010	LB201964.014	Monocyclic	Benzene	mg/kg	0.1	<0.1	<0.1	200	0
		Aromatic	Toluene	mg/kg	0.1	<0.1	<0.1	200	0
			Ethylbenzene	mg/kg	0.1	<0.1	<0.1	200	0
			m/p-xylene	mg/kg	0.2	<0.2	<0.2	200	0
			o-xylene	mg/kg	0.1	<0.1	<0.1	200	0
		Polycyclic	Naphthalene	mg/kg	0.1	<0.1	<0.1	200	0
		Surrogates	d4-1,2-dichloroethane (Surrogate)	mg/kg	-	10.4	10.5	50	1
			d8-toluene (Surrogate)	mg/kg	-	10.1	10.2	50	0
			Bromofluorobenzene (Surrogate)	mg/kg	-	8.3	8.4	50	1
		Totals	Total Xylenes	mg/kg	0.3	<0.3	<0.3	200	0
			Total BTEX	mg/kg	0.6	<0.6	<0.6	200	0
SE207473.019	LB201964.024	Monocyclic	Benzene	mg/kg	0.1	<0.1	<0.1	200	0
		Aromatic	Toluene	mg/kg	0.1	<0.1	<0.1	200	0
			Ethylbenzene	mg/kg	0.1	<0.1	<0.1	200	0
			m/p-xylene	mg/kg	0.2	<0.2	<0.2	200	0
			o-xylene	mg/kg	0.1	<0.1	<0.1	200	0
		Polycyclic	Naphthalene	mg/kg	0.1	<0.1	<0.1	200	0
		Surrogates	d4-1,2-dichloroethane (Surrogate)	mg/kg	-	11.5	9.8	50	16
			d8-toluene (Surrogate)	mg/kg	-	11.4	9.6	50	17
			Bromofluorobenzene (Surrogate)	mg/kg	-	9.0	7.8	50	15
		Totals	Total Xylenes	mg/kg	0.3	<0.3	<0.3	200	0
			Total BTEX	mg/kg	0.6	<0.6	<0.6	200	0

Volatile Petroleum Hydrocarbons in Soil

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

Original	Duplicate		Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE207473.010	LB201964.014		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	-	10.4	10.5	30	1
			d8-toluene (Surrogate)	mg/kg	-	10.1	10.2	30	0
			Bromofluorobenzene (Surrogate)	mg/kg	-	8.3	8.4	30	1
		VPH F Bands	Benzene (F0)	mg/kg	0.1	<0.1	<0.1	200	0
			TRH C6-C10 minus BTEX (F1)	mg/kg	25	<25	<25	200	0
SE207473.019	LB201964.024		TRH C6-C10	mg/kg	25	<25	<25	200	0
			TRH C6-C9	mg/kg	20	<20	<20	200	0

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

The RPD is evaluated against the Maximum Allowable Difference (MAD) criteria and can be graphically represented by a curve calculated from the Statistical Detection Limit (SDL) and Limiting Repeatability (LR) using the formula: MAD = 100 x SDL / Mean + LR

Where the Maximum Allowable Difference evaluates to a number larger than 200 it is displayed as 200.

RPD is shown in **Green** when within suggested criteria or **Red** with an appended reason identifer when outside suggested criteria. Refer to the footnotes section at the end of this report for failure reasons.

Volatile Petroleum Hydrocarbons in Soil (continued) — **Method: ME-(AU)-[ENV]AN433**

Original	Duplicate		Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE207473.019	LB201964.024	Surrogates	d4-1,2-dichloroethane (Surrogate)	mg/kg	-	11.5	9.8	30	16
			d8-toluene (Surrogate)	mg/kg	-	11.4	9.6	30	17
			Bromofluorobenzene (Surrogate)	mg/kg	-	9.0	7.8	30	15
		VPH F Bands	Benzene (F0)	mg/kg	0.1	<0.1	<0.1	200	0
			TRH C6-C10 minus BTEX (F1)	mg/kg	25	<25	<25	200	0

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 %
LB201988.002	Mercury	mg/kg	0.05	0.23	0.2	70 - 130	113

OC Pesticides in Soil

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

Sample Number		Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB201966.002		Heptachlor	mg/kg	0.1	0.2	0.2	60 - 140	110
		Aldrin	mg/kg	0.1	0.2	0.2	60 - 140	112
		Delta BHC	mg/kg	0.1	0.2	0.2	60 - 140	110
		Dieldrin	mg/kg	0.2	0.2	0.2	60 - 140	111
		Endrin	mg/kg	0.2	0.2	0.2	60 - 140	108
		p,p'-DDT	mg/kg	0.1	0.2	0.2	60 - 140	76
	Surrogates	Tetrachloro-m-xylene (TCMX) (Surrogate)	mg/kg	-	0.14	0.15	40 - 130	91

OP Pesticides in Soil

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

Sample Number		Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB201966.002		Dichlorvos	mg/kg	0.5	1.5	2	60 - 140	75
		Diazinon (Dimpylate)	mg/kg	0.5	2.0	2	60 - 140	101
		Chlorpyrifos (Chlorpyrifos Ethyl)	mg/kg	0.2	1.8	2	60 - 140	90
		Ethion	mg/kg	0.2	1.6	2	60 - 140	79
	Surrogates	2-fluorobiphenyl (Surrogate)	mg/kg	-	0.4	0.5	40 - 130	90
		d14-p-terphenyl (Surrogate)	mg/kg	-	0.4	0.5	40 - 130	80

PAH (Polynuclear Aromatic Hydrocarbons) in Soil

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

Sample Number		Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB201966.002		Naphthalene	mg/kg	0.1	4.4	4	60 - 140	111
		Acenaphthylene	mg/kg	0.1	4.3	4	60 - 140	108
		Acenaphthene	mg/kg	0.1	4.3	4	60 - 140	108
		Phenanthrene	mg/kg	0.1	4.6	4	60 - 140	116
		Anthracene	mg/kg	0.1	4.2	4	60 - 140	106
		Fluoranthene	mg/kg	0.1	5.1	4	60 - 140	128
		Pyrene	mg/kg	0.1	5.0	4	60 - 140	125
		Benzo(a)pyrene	mg/kg	0.1	4.4	4	60 - 140	110
	Surrogates	d5-nitrobenzene (Surrogate)	mg/kg	-	0.4	0.5	40 - 130	87
		2-fluorobiphenyl (Surrogate)	mg/kg	-	0.4	0.5	40 - 130	90
		d14-p-terphenyl (Surrogate)	mg/kg	-	0.4	0.5	40 - 130	80

PCBs in Soil

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

Sample Number	Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB201966.002	Arochlor 1260	mg/kg	0.2	0.3	0.4	60 - 140	85

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 %
LB201985.002	Arsenic, As	mg/kg	1	340	318.22	80 - 120	108
	Cadmium, Cd	mg/kg	0.3	5.4	5.41	80 - 120	101
	Chromium, Cr	mg/kg	0.5	35	38.31	80 - 120	91
	Copper, Cu	mg/kg	0.5	300	290	80 - 120	104
	Nickel, Ni	mg/kg	0.5	190	187	80 - 120	99
	Lead, Pb	mg/kg	1	97	89.9	80 - 120	108
	Zinc, Zn	mg/kg	2	280	273	80 - 120	103

TRH (Total Recoverable Hydrocarbons) in Soil

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

Sample Number		Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB201966.002		TRH C10-C14	mg/kg	20	33	40	60 - 140	83
		TRH C15-C28	mg/kg	45	<45	40	60 - 140	75
		TRH C29-C36	mg/kg	45	<45	40	60 - 140	75
	TRH F Bands	TRH >C10-C16	mg/kg	25	31	40	60 - 140	78
		TRH >C16-C34 (F3)	mg/kg	90	<90	40	60 - 140	75
		TRH >C34-C40 (F4)	mg/kg	120	<120	20	60 - 140	90

VOC's in Soil

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

Sample Number	Parameter	Units	LOR

Laboratory Control Standard (LCS) results are evaluated against an expected result, typically the concentration of analyte spiked into the control during the sample preparation stage, producing a percentage recovery. The criteria applied to the percentage recovery is established in the SGS QA /QC plan (Ref: MP-(AU)-[ENV]QU-022). For more information refer to the footnotes in the concluding page of this report.

Recovery is shown in **Green** when within suggested criteria or **Red** with an appended dagger symbol (†) when outside suggested criteria.

VOC's in Soil (continued)

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

Sample Number		Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB201964.002	Monocyclic	Benzene	mg/kg	0.1	3.7	5	60 - 140	75
	Aromatic	Toluene	mg/kg	0.1	3.8	5	60 - 140	76
		Ethylbenzene	mg/kg	0.1	3.8	5	60 - 140	76
		m/p-xylene	mg/kg	0.2	7.6	10	60 - 140	76
		o-xylene	mg/kg	0.1	3.8	5	60 - 140	76
	Surrogates	d4-1,2-dichloroethane (Surrogate)	mg/kg	-	10.9	10	70 - 130	109
		d8-toluene (Surrogate)	mg/kg	-	10.9	10	70 - 130	109
		Bromofluorobenzene (Surrogate)	mg/kg	-	9.4	10	70 - 130	94

Volatile Petroleum Hydrocarbons in Soil

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

Sample Number		Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB201964.002		TRH C6-C10	mg/kg	25	71	92.5	60 - 140	77
		TRH C6-C9	mg/kg	20	66	80	60 - 140	83
	Surrogates	d4-1,2-dichloroethane (Surrogate)	mg/kg	-	10.9	10	70 - 130	109
		Bromofluorobenzene (Surrogate)	mg/kg	-	9.4	10	70 - 130	94
	VPH F Bands	TRH C6-C10 minus BTEX (F1)	mg/kg	25	49	62.5	60 - 140	78

Matrix Spike (MS) results are evaluated as the percentage recovery of an expected result, typically the concentration of analyte spiked into a field sub -sample during the sample preparation stage. The original sample's result is subtracted from the sub-sample result before determining the percentage recovery. The criteria applied to the percentage recovery is established in the SGS QA/QC plan (ref: MP-(AU)-[ENV]QU-022). For more information refer to the footnotes in the concluding page of this report.

Recovery is shown in **Green** when within suggested criteria or **Red** with an appended reason identifer when outside suggested criteria. Refer to the footnotes section at the end of this report for failure reasons.

Mercury in Soil

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

QC Sample	Sample Number	Parameter	Units	LOR	Result	Original	Spike	Recovery%
SE207473.001	LB201988.004	Mercury	mg/kg	0.05	0.23	<0.05	0.2	105

OC Pesticides in Soil

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

QC Sample	Sample Number		Parameter	Units	LOR	Result	Original	Spike	Recovery%
SE207473.001	LB201966.004		Hexachlorobenzene (HCB)	mg/kg	0.1	<0.1	<0.1	-	-
			Alpha BHC	mg/kg	0.1	<0.1	<0.1	-	-
			Lindane	mg/kg	0.1	<0.1	<0.1	-	-
			Heptachlor	mg/kg	0.1	0.2	<0.1	0.2	124
			Aldrin	mg/kg	0.1	0.2	<0.1	0.2	125
			Beta BHC	mg/kg	0.1	<0.1	<0.1	-	-
			Delta BHC	mg/kg	0.1	0.2	<0.1	0.2	124
			Heptachlor epoxide	mg/kg	0.1	<0.1	<0.1	-	-
			o,p'-DDE	mg/kg	0.1	<0.1	<0.1	-	-
			Alpha Endosulfan	mg/kg	0.2	<0.2	<0.2	-	-
			Gamma Chlordane	mg/kg	0.1	<0.1	<0.1	-	-
			Alpha Chlordane	mg/kg	0.1	<0.1	<0.1	-	-
			trans-Nonachlor	mg/kg	0.1	<0.1	<0.1	-	-
			p,p'-DDE	mg/kg	0.1	<0.1	<0.1	-	-
			Dieldrin	mg/kg	0.2	0.2	<0.2	0.2	123
			Endrin	mg/kg	0.2	0.2	<0.2	0.2	121
			o,p'-DDD	mg/kg	0.1	<0.1	<0.1	-	-
			o,p'-DDT	mg/kg	0.1	<0.1	<0.1	-	-
			Beta Endosulfan	mg/kg	0.2	<0.2	<0.2	-	-
			p,p'-DDD	mg/kg	0.1	<0.1	<0.1	-	-
			p,p'-DDT	mg/kg	0.1	0.2	<0.1	0.2	89
			Endosulfan sulphate	mg/kg	0.1	<0.1	<0.1	-	-
			Endrin Aldehyde	mg/kg	0.1	<0.1	<0.1	-	-
			Methoxychlor	mg/kg	0.1	<0.1	<0.1	-	-
			Endrin Ketone	mg/kg	0.1	<0.1	<0.1	-	-
			Isodrin	mg/kg	0.1	<0.1	<0.1	-	-
			Mirex	mg/kg	0.1	<0.1	<0.1	-	-
			Total CLP OC Pesticides	mg/kg	1	1	<1	-	-
		Surrogates	Tetrachloro-m-xylene (TCMX) (Surrogate)	mg/kg	-	0.15	0.16	-	100

OP Pesticides in Soil

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

QC Sample	Sample Number		Parameter	Units	LOR	Result	Original	Spike	Recovery%
SE207473.001	LB201966.004		Dichlorvos	mg/kg	0.5	1.7	<0.5	2	84
			Dimethoate	mg/kg	0.5	<0.5	<0.5	-	-
			Diazinon (Dimpylate)	mg/kg	0.5	1.8	<0.5	2	83
			Fenitrothion	mg/kg	0.2	<0.2	<0.2	-	-
			Malathion	mg/kg	0.2	<0.2	<0.2	-	-
			Chlorpyrifos (Chlorpyrifos Ethyl)	mg/kg	0.2	1.6	<0.2	2	81
			Parathion-ethyl (Parathion)	mg/kg	0.2	<0.2	<0.2	-	-
			Bromophos Ethyl	mg/kg	0.2	<0.2	<0.2	-	-
			Methidathion	mg/kg	0.5	<0.5	<0.5	-	-
			Ethion	mg/kg	0.2	1.5	<0.2	2	73
			Azinphos-methyl (Guthion)	mg/kg	0.2	<0.2	<0.2	-	-
			Total OP Pesticides*	mg/kg	1.7	6.5	<1.7	-	-
		Surrogates	2-fluorobiphenyl (Surrogate)	mg/kg	-	0.4	0.4	-	79
			d14-p-terphenyl (Surrogate)	mg/kg	-	0.4	0.4	-	75

PAH (Polynuclear Aromatic Hydrocarbons) in Soil

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

QC Sample	Sample Number	Parameter	Units	LOR	Result	Original	Spike	Recovery%
SE207473.001	LB201966.004	Naphthalene	mg/kg	0.1	4.3	<0.1	4	108
		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	4.1	<0.1	4	102
		Acenaphthene	mg/kg	0.1	4.2	<0.1	4	105
		Fluorene	mg/kg	0.1	<0.1	<0.1	-	-
		Phenanthrene	mg/kg	0.1	4.5	0.1	4	109

Matrix Spike (MS) results are evaluated as the percentage recovery of an expected result, typically the concentration of analyte spiked into a field sub -sample during the sample preparation stage. The original sample's result is subtracted from the sub-sample result before determining the percentage recovery. The criteria applied to the percentage recovery is established in the SGS QA/QC plan (ref: MP-(AU)-[ENV]QU-022). For more information refer to the footnotes in the concluding page of this report.

Recovery is shown in **Green** when within suggested criteria or **Red** with an appended reason identifer when outside suggested criteria. Refer to the footnotes section at the end of this report for failure reasons.

PAH (Polynuclear Aromatic Hydrocarbons) in Soil (continued)

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

QC Sample	Sample Number		Parameter	Units	LOR	Result	Original	Spike	Recovery%
SE207473.001	LB201966.004		Anthracene	mg/kg	0.1	4.4	<0.1	4	109
			Fluoranthene	mg/kg	0.1	4.7	0.2	4	114
			Pyrene	mg/kg	0.1	4.8	0.2	4	116
			Benzo(a)anthracene	mg/kg	0.1	<0.1	<0.1	-	-
			Chrysene	mg/kg	0.1	<0.1	<0.1	-	-
			Benzo(b&j)fluoranthene	mg/kg	0.1	<0.1	<0.1	-	-
			Benzo(k)fluoranthene	mg/kg	0.1	<0.1	<0.1	-	-
			Benzo(a)pyrene	mg/kg	0.1	4.0	<0.1	4	99
			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	4.0	<0.2	-	-
			Carcinogenic PAHs, BaP TEQ <LOR=LOR	TEQ (mg/kg)	0.3	4.2	<0.3	-	-
			Carcinogenic PAHs, BaP TEQ <LOR=LOR/2	TEQ (mg/kg)	0.2	4.1	<0.2	-	-
			Total PAH (18)	mg/kg	0.8	35	<0.8	-	-
		Surrogates	d5-nitrobenzene (Surrogate)	mg/kg	-	0.4	0.4	-	82
			2-fluorobiphenyl (Surrogate)	mg/kg	-	0.4	0.4	-	79
			d14-p-terphenyl (Surrogate)	mg/kg	-	0.4	0.4	-	75

PCBs in Soil

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

QC Sample	Sample Number		Parameter	Units	LOR	Result	Original	Spike	Recovery%
SE207473.001	LB201966.004		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	0.4	<0.2	0.4	99
			Arochlor 1262	mg/kg	0.2	<0.2	<0.2	-	-
			Arochlor 1268	mg/kg	0.2	<0.2	<0.2	-	-
			Total PCBs (Arochlors)	mg/kg	1	<1	<1	-	-
		Surrogates	Tetrachloro-m-xylene (TCMX) (Surrogate)	mg/kg	-	0	0	-	101

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%
SE207473.001	LB201985.004		Arsenic, As	mg/kg	1	58	5	50	105
			Cadmium, Cd	mg/kg	0.3	46	<0.3	50	92
			Chromium, Cr	mg/kg	0.5	56	2.8	50	106
			Copper, Cu	mg/kg	0.5	63	12	50	102
			Nickel, Ni	mg/kg	0.5	53	<0.5	50	106
			Lead, Pb	mg/kg	1	86	37	50	97
			Zinc, Zn	mg/kg	2	66	13	50	105

TRH (Total Recoverable Hydrocarbons) in Soil

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

QC Sample	Sample Number		Parameter	Units	LOR	Result	Original	Spike	Recovery%
SE207473.001	LB201966.004		TRH C10-C14	mg/kg	20	36	<20	40	90
			TRH C15-C28	mg/kg	45	<45	<45	40	85
			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 Bands	TRH >C10-C16	mg/kg	25	36	<25	40	90
			TRH >C10-C16 - Naphthalene (F2)	mg/kg	25	36	<25	-	-
			TRH >C16-C34 (F3)	mg/kg	90	<90	<90	40	83
			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%
SE207473.001	LB201964.004	Monocyclic	Benzene	mg/kg	0.1	3.6	<0.1	5	72
		Aromatic	Toluene	mg/kg	0.1	3.7	<0.1	5	74
			Ethylbenzene	mg/kg	0.1	3.7	<0.1	5	74
			m/p-xylene	mg/kg	0.2	7.6	<0.2	10	76
			o-xylene	mg/kg	0.1	3.8	<0.1	5	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 identifer when outside suggested criteria. Refer to the footnotes section at the end of this report for failure reasons.

VOC's in Soil (continued)

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

QC Sample	Sample Number		Parameter	Units	LOR	Result	Original	Spike	Recovery%
SE207473.001	LB201964.004	Polycyclic	Naphthalene	mg/kg	0.1	<0.1	<0.1	-	-
		Surrogates	d4-1,2-dichloroethane (Surrogate)	mg/kg	-	10.4	10.8	10	104
			d8-toluene (Surrogate)	mg/kg	-	10.5	10.5	10	105
			Bromofluorobenzene (Surrogate)	mg/kg	-	8.9	9.5	10	89
		Totals	Total Xylenes	mg/kg	0.3	11	<0.3	-	-
			Total BTEX	mg/kg	0.6	22	<0.6	-	-

Volatile Petroleum Hydrocarbons in Soil

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

QC Sample	Sample Number		Parameter	Units	LOR	Result	Original	Spike	Recovery%
SE207473.001	LB201964.004		TRH C6-C10	mg/kg	25	68	<25	92.5	74
			TRH C6-C9	mg/kg	20	63	<20	80	79
		Surrogates	d4-1,2-dichloroethane (Surrogate)	mg/kg	-	10.4	10.8	10	104
			d8-toluene (Surrogate)	mg/kg	-	10.5	10.5	10	105
			Bromofluorobenzene (Surrogate)	mg/kg	-	8.9	9.5	-	89
		VPH F	Benzene (F0)	mg/kg	0.1	3.6	<0.1	-	-
		Bands	TRH C6-C10 minus BTEX (F1)	mg/kg	25	46	<25	62.5	73

Matrix spike duplicates are calculated as Relative Percent Difference (RPD) using the formula: RPD = | OriginalResult - ReplicateResult | x 100 / Mean

The original result is the analyte concentration of the matrix spike. The Duplicate result is the analyte concentration of the matrix spike duplicate.

The RPD is evaluated against the Maximum Allowable Difference (MAD) criteria and can be graphically represented by a curve calculated from the Statistical Detection Limit (SDL) and Limiting Repeatability (LR) using the formula: MAD = 100 x SDL / Mean + LR

Where the Maximum Allowable Difference evaluates to a number larger than 200 it is displayed as 200.

RPD is shown in **Green** when within suggested criteria or **Red** with an appended reason identifer when outside suggested criteria. Refer to the footnotes section at the end of this report for failure reasons.

No matrix spike duplicates were required for this job.

Samples analysed as received.

Solid samples expressed on a dry weight basis.

QC criteria are subject to internal review according to the SGS QA/QC plan and may be provided on request or alternatively can be found here: 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.
-	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.

ANALYTICAL REPORT

Accreditation No. 2562

CLIENT DETAILS

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Project	**E24716 15 Jubilee Ave, Warriewood NSW**
Order Number	**E24716**
Samples	12

LABORATORY DETAILS

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SGS Reference	**SE207473 R0**
Date Received	12 Jun 2020
Date Reported	19 Jun 2020

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.

Asbestos analysed by Approved Identifier Yusuf Kuthpudin.

SIGNATORIES

Kamrul AHSAN
Senior Chemist

Ly Kim HA
Organic Section Head

Yusuf KUTHPUDIN
Asbestos Analyst

RESULTS

Fibre Identification in soil — Method AN602

Laboratory Reference	Client Reference	Matrix	Sample Description	Date Sampled	Fibre Identification	Est.%w/w*
SE207473.001	TP1_0.1-0.2	Soil	82g Sand, Soil	11 Jun 2020	No Asbestos Found	<0.01
SE207473.002	TP2_0.4-0.5	Soil	120g Sand	11 Jun 2020	No Asbestos Found	<0.01
SE207473.003	TP3_0.1-0.2	Soil	125g Sand, Soil, Rocks	11 Jun 2020	No Asbestos Found	<0.01
SE207473.005	TP4_0.1-0.2	Soil	138g Sand, Rocks	11 Jun 2020	No Asbestos Found	<0.01
SE207473.006	TP5_0.1-0.2	Soil	77g Sand, Soil, Rocks	11 Jun 2020	No Asbestos Found	<0.01
SE207473.007	TP6_0.2-0.3	Soil	84g Sand, Soil, Rocks, Plant matter	11 Jun 2020	No Asbestos Found Organic Fibres Detected	<0.01
SE207473.008	BH1_0.1-0.2	Soil	371g Clay, Sand, Soil	11 Jun 2020	No Asbestos Found	<0.01
SE207473.010	BH2_0.1-0.2	Soil	168g Sand, Soil, Rocks	11 Jun 2020	No Asbestos Found	<0.01
SE207473.011	BH3M_0.3-0.4	Soil	178g Sand, Rocks	11 Jun 2020	No Asbestos Found	<0.01
SE207473.012	BH4M_0.3-0.4	Soil	187g Sand, Rocks	11 Jun 2020	No Asbestos Found	<0.01
SE207473.013	BH5M_0.1-0.2	Soil	109g Sand, Soil, Rocks	11 Jun 2020	No Asbestos Found	<0.01
SE207473.015	BH6_0.1-0.2	Soil	129g Clay, Sand, Soil, Rocks	11 Jun 2020	No Asbestos Found Organic Fibres Detected	<0.01

METHOD SUMMARY

METHOD	METHODOLOGY SUMMARY
AN602	Qualitative identification of chrysotile, amosite and crocidolite in bulk samples by polarised light microscopy (PLM) in conjunction with dispersion staining (DS). AS4964 provides the basis for this document. Unequivocal identification of the asbestos minerals present is made by obtaining sufficient diagnostic `clues`, which provide a reasonable degree of certainty, dispersion staining is a mandatory `clue` for positive identification. If sufficient `clues` are absent, then positive identification of asbestos is not possible. This procedure requires removal of suspect fibres/bundles from the sample which cannot be returned.
AN602	Fibres/material that cannot be unequivocably identified as one of the three asbestos forms, will be reported as unknown mineral fibres (umf) The fibres detected may or may not be asbestos fibres.
AN602	AS4964.2004 Method for the Qualitative Identification of Asbestos in Bulk Samples , Section 8.4, Trace Analysis Criteria, Note 4 states:"Depending upon sample condition and fibre type, the detection limit of this technique has been found to lie generally in the range of 1 in 1,000 to 1 in 10,000 parts by weight, equivalent to 1 to 0.1 g/kg."
AN602	The sample can be reported “no asbestos found at the reporting limit of 0.1 g/kg” (<0.01%w/w) where AN602 section 4.5 of this method has been followed, and if- (a) no trace asbestos fibres have been detected (i.e. no ‘respirable ’ fibres): (b) the estimated weight of non-respirable asbestos fibre bundles and/or the estimated weight of asbestos in asbestos-containing materials are found to be less than 0.1g/kg: and (c) these non-respirable asbestos fibre bundles and/or the asbestos containing materials are only visible under stereo-microscope viewing conditions.

FOOTNOTES

Amosite	-	Brown Asbestos	NA	-	Not Analysed
Chrysotile	-	White Asbestos	LNR	-	Listed, Not Required
Crocidolite	-	Blue Asbestos	*	-	NATA accreditation does not cover the performance of this service .
Amphiboles	-	Amosite and/or Crocidolite	**	-	Indicative data, theoretical holding time exceeded.

(In reference to soil samples only) This report does not comply with the analytical reporting recommendations in the Western Australian Department of Health Guidelines for the Assessment and Remediation and Management of Asbestos Contaminated sites in Western Australia - May 2009.

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 .

ANALYTICAL REPORT

Accreditation No. 2562

CLIENT DETAILS

Contact	Emily Scanlon
Client	EI AUSTRALIA
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Project	**E24716 15 Jubilee Ave, Warriewood NSW**
Order Number	**E24716**
Samples	26

LABORATORY DETAILS

Manager	Huong Crawford
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SGS Reference	**SE207473A R0**
Date Received	15/6/2020
Date Reported	22/6/2020

COMMENTS

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

SIGNATORIES

Dong LIANG
Metals/Inorganics Team Leader

Field pH for Acid Sulphate Soil [AN104] Tested: 19/6/2020

PARAMETER	UOM	LOR	TP2_0.4-0.5 SOIL - 11/6/2020 SE207473A.002	ASS_TP2_1.0 SOIL - 11/6/2020 SE207473A.020	ASS_TP2_2.0 SOIL - 11/6/2020 SE207473A.021	TP4_0.4-0.5 SOIL - 11/6/2020 SE207473A.022	ASS_TP6_1.0 SOIL - 11/6/2020 SE207473A.023
pHf	pH Units	-	**6.7**	**6.0**	**4.8**	**4.9**	**5.5**
pHfox	pH Units	-	**5.8**	**5.5**	**5.0**	**4.9**	**5.5**
Reaction*	No unit	-	XX	XX	XX	XX	XX
pH Difference*	pH Units	-10	**0.9**	**0.6**	**-0.1**	**0.0**	**0.1**

PARAMETER	UOM	LOR	ASS_TP6_1.5 SOIL - 11/6/2020 SE207473A.024	ASS_TP6_2.0 SOIL - 11/6/2020 SE207473A.025
pHf	pH Units	-	**4.7**	**4.7**
pHfox	pH Units	-	**5.2**	**4.9**
Reaction*	No unit	-	XX	XX
pH Difference*	pH Units	-10	**-0.5**	**-0.2**

METHOD	METHODOLOGY SUMMARY
AN104	pHF is determined on an extract of approximately 2g of as received sample in approximately 10 mL of deionised water with pH determined after standing 30 minutes.
AN104	pHFox is determined on an extract of approximately 2g of as received sample with a few mLs of 30% hydrogen peroxide (adjusted to pH 4.5 to 5.5) with the extract reaction being rated from slight to extreme, with pH determined after reaction is complete and extract has cooled. Referenced to ASS Laboratory Methods Guidelines , method 23Af-Bf, 2004. X Slight Reaction XX Moderate Reaction XXX Strong/High Reaction XXXX Extreme/Vigorous Reaction (gas evolution and heat generation)

FOOTNOTES

*	NATA accreditation does not cover the performance of this service.	-	Not analysed.	UOM	Unit of Measure.
		NVL	Not validated.	LOR	Limit of Reporting.
**	Indicative data, theoretical holding time exceeded.	IS	Insufficient sample for analysis.	↑↓	Raised/lowered Limit of Reporting.
		LNR	Sample listed, but not received.		

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.

STATEMENT OF QA/QC PERFORMANCE

SE207473A R0

CLIENT DETAILS

Contact	Emily Scanlon
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Project	**E24716 15 Jubilee Ave, Warriewood NSW**
Order Number	**E24716**
Samples	26

LABORATORY DETAILS

Manager	Huong Crawford
Laboratory	SGS Alexandria Environmental
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Email	au.environmental.sydney@sgs.com
SGS Reference	**SE207473A R0**
Date Received	15 Jun 2020
Date Reported	22 Jun 2020

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 (within the SGS Alexandria Environmental laboratory).

SAMPLE SUMMARY

Samples clearly labelled	Yes	Complete documentation received	Yes
Sample container provider	SGS	Sample cooling method	None
Samples received in correct containers	Yes	Sample counts by matrix	7 Soil
Date documentation received	15/6/2020	Type of documentation received	COC
Samples received in good order	Yes	Samples received without headspace	Yes
Sample temperature upon receipt	14.3°C	Sufficient sample for analysis	Yes
Turnaround time requested	Standard		

HOLDING TIME SUMMARY

SE207473A R0

SGS holding time criteria are drawn from current regulations and are highly dependent on sample container preservation as specified in the SGS "Field Sampling Guide for Containers and Holding Time" (ref: GU-(AU)-ENV.001). Soil samples guidelines are derived from NEPM "Schedule B(3) Guideline on Laboratory Analysis of Potentially Contaminated Soils". Water sample guidelines are derived from "AS/NZS 5667.1 : 1998 Water Quality - sampling part 1" and APHA "Standard Methods for the Examination of Water and Wastewater" 21st edition 2005.

Extraction and analysis holding time due dates listed are calculated from the date sampled, although holding times may be extended after laboratory extraction for some analytes. The due dates are the suggested dates that samples may be held before extraction or analysis and still be considered valid.

Extraction and analysis dates are shown in **Green** when within suggested criteria or **Red** with an appended dagger symbol (†) when outside suggested criteria. If the sampled date is not supplied then compliance with criteria cannot be determined. If the received date is after one or both due dates then holding time will fail by default.

Field pH for Acid Sulphate Soil — **Method: ME-(AU)-[ENV]AN104**

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
TP2_0.4-0.5	SE207473A.002	LB202350	11 Jun 2020	15 Jun 2020	09 Jul 2020	19 Jun 2020	09 Jul 2020	19 Jun 2020
ASS_TP2_1.0	SE207473A.020	LB202350	11 Jun 2020	15 Jun 2020	09 Jul 2020	19 Jun 2020	09 Jul 2020	19 Jun 2020
ASS_TP2_2.0	SE207473A.021	LB202350	11 Jun 2020	15 Jun 2020	09 Jul 2020	19 Jun 2020	09 Jul 2020	19 Jun 2020
TP4_0.4-0.5	SE207473A.022	LB202350	11 Jun 2020	15 Jun 2020	09 Jul 2020	19 Jun 2020	09 Jul 2020	19 Jun 2020
ASS_TP6_1.0	SE207473A.023	LB202350	11 Jun 2020	15 Jun 2020	09 Jul 2020	19 Jun 2020	09 Jul 2020	19 Jun 2020
ASS_TP6_1.5	SE207473A.024	LB202350	11 Jun 2020	15 Jun 2020	09 Jul 2020	19 Jun 2020	09 Jul 2020	19 Jun 2020
ASS_TP6_2.0	SE207473A.025	LB202350	11 Jun 2020	15 Jun 2020	09 Jul 2020	19 Jun 2020	09 Jul 2020	19 Jun 2020

Surrogate results are evaluated against upper and lower limit criteria established in the SGS QA/QC plan (Ref: MP-(AU)-[ENV]QU-022). At least two of three routine level soil sample surrogate spike recoveries for BTEX/VOC are to be within 70-130% where control charts have not been developed and within the established control limits for charted surrogates. Matrix effects may void this as an acceptance criterion. Water sample surrogate spike recoveries are to be within 40-130%. The presence of emulsions, surfactants and particulates may void this as an acceptance criterion.

Result is shown in **Green** when within suggested criteria or **Red** with an appended reason identifer when outside suggested criteria. Refer to the footnotes section at the end of this report for failure reasons.

No surrogates were required for this job.

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.

No method blanks were required for this job.

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

The RPD is evaluated against the Maximum Allowable Difference (MAD) criteria and can be graphically represented by a curve calculated from the Statistical Detection Limit (SDL) and Limiting Repeatability (LR) using the formula: MAD = 100 x SDL / Mean + LR

Where the Maximum Allowable Difference evaluates to a number larger than 200 it is displayed as 200.

RPD is shown in **Green** when within suggested criteria or **Red** with an appended reason identifer when outside suggested criteria. Refer to the footnotes section at the end of this report for failure reasons.

Field pH for Acid Sulphate Soil — **Method: ME-(AU)-[ENV]AN104**

Original	Duplicate	Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE207637.005	LB202350.015	pHf	pH Units	-	7.326	7.441	30	2
		pHfox	pH Units	-	6.344	6.42	30	1

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.

Sample Number	Parameter	Units	LOR

Matrix Spike (MS) results are evaluated as the percentage recovery of an expected result, typically the concentration of analyte spiked into a field sub -sample during the sample preparation stage. The original sample's result is subtracted from the sub-sample result before determining the percentage recovery. The criteria applied to the percentage recovery is established in the SGS QA/QC plan (ref: MP-(AU)-[ENV]QU-022). For more information refer to the footnotes in the concluding page of this report.

Recovery is shown in **Green** when within suggested criteria or **Red** with an appended reason identifer when outside suggested criteria. Refer to the footnotes section at the end of this report for failure reasons.

No matrix spikes were required for this job.

MATRIX SPIKE DUPLICATES

SE207473A R0

Matrix spike duplicates are calculated as Relative Percent Difference (RPD) using the formula: RPD = | OriginalResult - ReplicateResult | x 100 / Mean

The original result is the analyte concentration of the matrix spike. The Duplicate result is the analyte concentration of the matrix spike duplicate.

The RPD is evaluated against the Maximum Allowable Difference (MAD) criteria and can be graphically represented by a curve calculated from the Statistical Detection Limit (SDL) and Limiting Repeatability (LR) using the formula: MAD = 100 x SDL / Mean + LR

Where the Maximum Allowable Difference evaluates to a number larger than 200 it is displayed as 200.

RPD is shown in **Green** when within suggested criteria or **Red** with an appended reason identifer when outside suggested criteria. Refer to the footnotes section at the end of this report for failure reasons.

No matrix spike duplicates were required for this job.

Samples analysed as received.

Solid samples expressed on a dry weight basis.

QC criteria are subject to internal review according to the SGS QA/QC plan and may be provided on request or alternatively can be found here: 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.
-	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.

ANALYTICAL REPORT

Accreditation No. 2562

CLIENT DETAILS

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Project	**E24716 15 Jubilee Ave Warriewood NSW**
Order Number	**E24716**
Samples	7

LABORATORY DETAILS

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SGS Reference	**SE207689 R0**
Date Received	18/6/2020
Date Reported	23/6/2020

COMMENTS

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

PAH - The Limit of Reporting (LOR) has been raised due to interferences from the sample matrix.

SIGNATORIES

Dong LIANG
Metals/Inorganics Team Leader

Ly Kim HA
Organic Section Head

Shane MCDERMOTT
Inorganic/Metals Chemist

VOCs in Water [AN433] Tested: 22/6/2020

PARAMETER	UOM	LOR	GW_BH3M-1 WATER - 18/6/2020 SE207689.001	GW_BH4M-1 WATER - 18/6/2020 SE207689.002	GW_BH5M-1 WATER - 18/6/2020 SE207689.003	GW_QD-1 WATER - 18/6/2020 SE207689.004	GW_QR-1 WATER - 18/6/2020 SE207689.005
Benzene	µg/L	0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Toluene	µg/L	0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Ethylbenzene	µg/L	0.5	<0.5	<0.5	<0.5	<0.5	<0.5
m/p-xylene	µg/L	1	<1	<1	<1	<1	<1
o-xylene	µg/L	0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Total Xylenes	µg/L	1.5	<1.5	<1.5	<1.5	<1.5	<1.5
Total BTEX	µg/L	3	<3	<3	<3	<3	<3
Naphthalene	µg/L	0.5	<0.5	**0.5**	<0.5	<0.5	<0.5
Dichlorodifluoromethane (CFC-12)	µg/L	5	<5	<5	<5	-	-
Chloromethane	µg/L	5	<5	<5	<5	-	-
Vinyl chloride (Chloroethene)	µg/L	0.3	<0.3	<0.3	<0.3	-	-
Bromomethane	µg/L	10	<10	<10	<10	-	-
Chloroethane	µg/L	5	<5	<5	<5	-	-
Trichlorofluoromethane	µg/L	1	<1	<1	<1	-	-
Acetone (2-propanone)	µg/L	10	<10	<10	<10	-	-
Iodomethane	µg/L	5	<5	<5	<5	-	-
1,1-dichloroethene	µg/L	0.5	<0.5	<0.5	<0.5	-	-
Acrylonitrile	µg/L	0.5	<0.5	<0.5	<0.5	-	-
Dichloromethane (Methylene chloride)	µg/L	5	<5	<5	<5	-	-
Allyl chloride	µg/L	2	<2	<2	<2	-	-
Carbon disulfide	µg/L	2	<2	<2	<2	-	-
trans-1,2-dichloroethene	µg/L	0.5	<0.5	<0.5	<0.5	-	-
MtBE (Methyl-tert-butyl ether)	µg/L	2	<2	<2	<2	-	-
1,1-dichloroethane	µg/L	0.5	<0.5	<0.5	<0.5	-	-
Vinyl acetate	µg/L	10	<10	<10	<10	-	-
MEK (2-butanone)	µg/L	10	<10	<10	<10	-	-
cis-1,2-dichloroethene	µg/L	0.5	<0.5	<0.5	<0.5	-	-
Bromochloromethane	µg/L	0.5	<0.5	<0.5	<0.5	-	-
Chloroform (THM)	µg/L	0.5	<0.5	<0.5	<0.5	-	-
2,2-dichloropropane	µg/L	0.5	<0.5	<0.5	<0.5	-	-
1,2-dichloroethane	µg/L	0.5	<0.5	<0.5	<0.5	-	-
1,1,1-trichloroethane	µg/L	0.5	<0.5	<0.5	<0.5	-	-
1,1-dichloropropene	µg/L	0.5	<0.5	<0.5	<0.5	-	-
Carbon tetrachloride	µg/L	0.5	<0.5	<0.5	<0.5	-	-
Dibromomethane	µg/L	0.5	<0.5	<0.5	<0.5	-	-
1,2-dichloropropane	µg/L	0.5	<0.5	<0.5	<0.5	-	-
Trichloroethene (Trichloroethylene,TCE)	µg/L	0.5	<0.5	<0.5	<0.5	-	-
2-nitropropane	µg/L	100	<100	<100	<100	-	-
Bromodichloromethane (THM)	µg/L	0.5	<0.5	<0.5	<0.5	-	-
MIBK (4-methyl-2-pentanone)	µg/L	5	<5	<5	<5	-	-
cis-1,3-dichloropropene	µg/L	0.5	<0.5	<0.5	<0.5	-	-
trans-1,3-dichloropropene	µg/L	0.5	<0.5	<0.5	<0.5	-	-
1,1,2-trichloroethane	µg/L	0.5	<0.5	<0.5	<0.5	-	-
1,3-dichloropropane	µg/L	0.5	<0.5	<0.5	<0.5	-	-
Dibromochloromethane (THM)	µg/L	0.5	<0.5	<0.5	<0.5	-	-
2-hexanone (MBK)	µg/L	5	<5	<5	<5	-	-
1,2-dibromoethane (EDB)	µg/L	0.5	<0.5	<0.5	<0.5	-	-
Tetrachloroethene (Perchloroethylene,PCE)	µg/L	0.5	<0.5	<0.5	<0.5	-	-
1,1,1,2-tetrachloroethane	µg/L	0.5	<0.5	<0.5	<0.5	-	-
Chlorobenzene	µg/L	0.5	<0.5	<0.5	<0.5	-	-
Bromoform (THM)	µg/L	0.5	<0.5	<0.5	<0.5	-	-
cis-1,4-dichloro-2-butene	µg/L	1	<1	<1	<1	-	-
Styrene (Vinyl benzene)	µg/L	0.5	<0.5	<0.5	<0.5	-	-
1,1,2,2-tetrachloroethane	µg/L	0.5	<0.5	<0.5	<0.5	-	-
1,2,3-trichloropropane	µg/L	0.5	<0.5	<0.5	<0.5	-	-
trans-1,4-dichloro-2-butene	µg/L	1	<1	<1	<1	-	-

VOCs in Water [AN433] Tested: 22/6/2020 (continued)

PARAMETER	UOM	LOR	GW_BH3M-1 WATER - 18/6/2020 SE207689.001	GW_BH4M-1 WATER - 18/6/2020 SE207689.002	GW_BH5M-1 WATER - 18/6/2020 SE207689.003	GW_QD-1 WATER - 18/6/2020 SE207689.004	GW_QR-1 WATER - 18/6/2020 SE207689.005
Isopropylbenzene (Cumene)	µg/L	0.5	<0.5	<0.5	<0.5	-	-
Bromobenzene	µg/L	0.5	<0.5	<0.5	<0.5	-	-
n-propylbenzene	µg/L	0.5	<0.5	<0.5	<0.5	-	-
2-chlorotoluene	µg/L	0.5	<0.5	<0.5	<0.5	-	-
4-chlorotoluene	µg/L	0.5	<0.5	<0.5	<0.5	-	-
1,3,5-trimethylbenzene	µg/L	0.5	<0.5	<0.5	<0.5	-	-
tert-butylbenzene	µg/L	0.5	<0.5	<0.5	<0.5	-	-
1,2,4-trimethylbenzene	µg/L	0.5	<0.5	<0.5	<0.5	-	-
sec-butylbenzene	µg/L	0.5	<0.5	<0.5	<0.5	-	-
1,3-dichlorobenzene	µg/L	0.5	<0.5	<0.5	<0.5	-	-
1,4-dichlorobenzene	µg/L	0.3	<0.3	<0.3	<0.3	-	-
p-isopropyltoluene	µg/L	0.5	<0.5	<0.5	<0.5	-	-
1,2-dichlorobenzene	µg/L	0.5	<0.5	<0.5	<0.5	-	-
n-butylbenzene	µg/L	0.5	<0.5	<0.5	<0.5	-	-
1,2-dibromo-3-chloropropane	µg/L	0.5	<0.5	<0.5	<0.5	-	-
1,2,4-trichlorobenzene	µg/L	0.5	<0.5	<0.5	<0.5	-	-
Hexachlorobutadiene	µg/L	0.5	<0.5	<0.5	<0.5	-	-
1,2,3-trichlorobenzene	µg/L	0.5	<0.5	<0.5	<0.5	-	-
Total VOC	µg/L	10	<10	<10	<10	-	-

VOCs in Water [AN433] Tested: 22/6/2020 (continued)

PARAMETER	UOM	LOR	GW_Trip Blank-1 WATER - 18/6/2020 SE207689.006	GW_Trip Spike-1 WATER - 18/6/2020 SE207689.007
Benzene	µg/L	0.5	<0.5	[100%]
Toluene	µg/L	0.5	<0.5	[100%]
Ethylbenzene	µg/L	0.5	<0.5	[100%]
m/p-xylene	µg/L	1	<1	[101%]
o-xylene	µg/L	0.5	<0.5	[101%]
Total Xylenes	µg/L	1.5	<1.5	-
Total BTEX	µg/L	3	<3	-
Naphthalene	µg/L	0.5	<0.5	-
Dichlorodifluoromethane (CFC-12)	µg/L	5	-	-
Chloromethane	µg/L	5	-	-
Vinyl chloride (Chloroethene)	µg/L	0.3	-	-
Bromomethane	µg/L	10	-	-
Chloroethane	µg/L	5	-	-
Trichlorofluoromethane	µg/L	1	-	-
Acetone (2-propanone)	µg/L	10	-	-
Iodomethane	µg/L	5	-	-
1,1-dichloroethene	µg/L	0.5	-	-
Acrylonitrile	µg/L	0.5	-	-
Dichloromethane (Methylene chloride)	µg/L	5	-	-
Allyl chloride	µg/L	2	-	-
Carbon disulfide	µg/L	2	-	-
trans-1,2-dichloroethene	µg/L	0.5	-	-
MtBE (Methyl-tert-butyl ether)	µg/L	2	-	-
1,1-dichloroethane	µg/L	0.5	-	-
Vinyl acetate	µg/L	10	-	-
MEK (2-butanone)	µg/L	10	-	-
cis-1,2-dichloroethene	µg/L	0.5	-	-
Bromochloromethane	µg/L	0.5	-	-
Chloroform (THM)	µg/L	0.5	-	-
2,2-dichloropropane	µg/L	0.5	-	-
1,2-dichloroethane	µg/L	0.5	-	-
1,1,1-trichloroethane	µg/L	0.5	-	-
1,1-dichloropropene	µg/L	0.5	-	-
Carbon tetrachloride	µg/L	0.5	-	-
Dibromomethane	µg/L	0.5	-	-
1,2-dichloropropane	µg/L	0.5	-	-
Trichloroethene (Trichloroethylene,TCE)	µg/L	0.5	-	-
2-nitropropane	µg/L	100	-	-
Bromodichloromethane (THM)	µg/L	0.5	-	-
MIBK (4-methyl-2-pentanone)	µg/L	5	-	-
cis-1,3-dichloropropene	µg/L	0.5	-	-
trans-1,3-dichloropropene	µg/L	0.5	-	-
1,1,2-trichloroethane	µg/L	0.5	-	-
1,3-dichloropropane	µg/L	0.5	-	-
Dibromochloromethane (THM)	µg/L	0.5	-	-
2-hexanone (MBK)	µg/L	5	-	-
1,2-dibromoethane (EDB)	µg/L	0.5	-	-
Tetrachloroethene (Perchloroethylene,PCE)	µg/L	0.5	-	-
1,1,1,2-tetrachloroethane	µg/L	0.5	-	-
Chlorobenzene	µg/L	0.5	-	-
Bromoform (THM)	µg/L	0.5	-	-
cis-1,4-dichloro-2-butene	µg/L	1	-	-
Styrene (Vinyl benzene)	µg/L	0.5	-	-
1,1,2,2-tetrachloroethane	µg/L	0.5	-	-
1,2,3-trichloropropane	µg/L	0.5	-	-
trans-1,4-dichloro-2-butene	µg/L	1	-	-

VOCs in Water [AN433] Tested: 22/6/2020 (continued)

PARAMETER	UOM	LOR	GW_Trip Blank-1 WATER - 18/6/2020 SE207689.006	GW_Trip Spike-1 WATER - 18/6/2020 SE207689.007
Isopropylbenzene (Cumene)	µg/L	0.5	-	-
Bromobenzene	µg/L	0.5	-	-
n-propylbenzene	µg/L	0.5	-	-
2-chlorotoluene	µg/L	0.5	-	-
4-chlorotoluene	µg/L	0.5	-	-
1,3,5-trimethylbenzene	µg/L	0.5	-	-
tert-butylbenzene	µg/L	0.5	-	-
1,2,4-trimethylbenzene	µg/L	0.5	-	-
sec-butylbenzene	µg/L	0.5	-	-
1,3-dichlorobenzene	µg/L	0.5	-	-
1,4-dichlorobenzene	µg/L	0.3	-	-
p-isopropyltoluene	µg/L	0.5	-	-
1,2-dichlorobenzene	µg/L	0.5	-	-
n-butylbenzene	µg/L	0.5	-	-
1,2-dibromo-3-chloropropane	µg/L	0.5	-	-
1,2,4-trichlorobenzene	µg/L	0.5	-	-
Hexachlorobutadiene	µg/L	0.5	-	-
1,2,3-trichlorobenzene	µg/L	0.5	-	-
Total VOC	µg/L	10	-	-

Volatile Petroleum Hydrocarbons in Water [AN433] Tested: 22/6/2020

PARAMETER	UOM	LOR	GW_BH3M-1 WATER - 18/6/2020 SE207689.001	GW_BH4M-1 WATER - 18/6/2020 SE207689.002	GW_BH5M-1 WATER - 18/6/2020 SE207689.003	GW_QD-1 WATER - 18/6/2020 SE207689.004	GW_QR-1 WATER - 18/6/2020 SE207689.005
TRH C6-C9	µg/L	40	<40	<40	<40	<40	<40
Benzene (F0)	µg/L	0.5	<0.5	<0.5	<0.5	<0.5	<0.5
TRH C6-C10	µg/L	50	<50	<50	<50	<50	<50
TRH C6-C10 minus BTEX (F1)	µg/L	50	<50	<50	<50	<50	<50

TRH (Total Recoverable Hydrocarbons) in Water [AN403] Tested: 22/6/2020

PARAMETER	UOM	LOR	GW_BH3M-1 WATER - 18/6/2020 SE207689.001	GW_BH4M-1 WATER - 18/6/2020 SE207689.002	GW_BH5M-1 WATER - 18/6/2020 SE207689.003	GW_QD-1 WATER - 18/6/2020 SE207689.004	GW_QR-1 WATER - 18/6/2020 SE207689.005
TRH C10-C14	µg/L	50	<50	<50	<50	<50	<50
TRH C15-C28	µg/L	200	<200	<200	<200	<200	<200
TRH C29-C36	µg/L	200	<200	<200	<200	<200	<200
TRH C37-C40	µg/L	200	<200	<200	<200	<200	<200
TRH >C10-C16	µg/L	60	<60	<60	<60	<60	<60
TRH >C10-C16 - Naphthalene (F2)	µg/L	60	<60	<60	<60	<60	<60
TRH >C16-C34 (F3)	µg/L	500	<500	<500	<500	<500	<500
TRH >C34-C40 (F4)	µg/L	500	<500	<500	<500	<500	<500
TRH C10-C40	µg/L	320	<320	<320	<320	<320	<320

PAH (Polynuclear Aromatic Hydrocarbons) in Water [AN420] Tested: 22/6/2020

PARAMETER	UOM	LOR	GW_BH3M-1 WATER - 18/6/2020 SE207689.001	GW_BH4M-1 WATER - 18/6/2020 SE207689.002	GW_BH5M-1 WATER - 18/6/2020 SE207689.003
Naphthalene	µg/L	0.1	<0.2↑	<0.5↑	<0.3↑
2-methylnaphthalene	µg/L	0.1	<0.1	**0.3**	**0.3**
1-methylnaphthalene	µg/L	0.1	<0.1	**0.3**	**0.2**
Acenaphthylene	µg/L	0.1	<0.1	<0.1	<0.1
Acenaphthene	µg/L	0.1	<0.1	<0.1	<0.1
Fluorene	µg/L	0.1	<0.1	<0.1	<0.1
Phenanthrene	µg/L	0.1	<0.1	<0.1	<0.1
Anthracene	µg/L	0.1	<0.1	<0.1	<0.1
Fluoranthene	µg/L	0.1	<0.1	<0.1	<0.1
Pyrene	µg/L	0.1	<0.1	<0.1	<0.1
Benzo(a)anthracene	µg/L	0.1	<0.1	<0.1	<0.1
Chrysene	µg/L	0.1	<0.1	<0.1	<0.1
Benzo(b&j)fluoranthene	µg/L	0.1	<0.1	<0.1	<0.1
Benzo(k)fluoranthene	µg/L	0.1	<0.1	<0.1	<0.1
Benzo(a)pyrene	µg/L	0.1	<0.1	<0.1	<0.1
Indeno(1,2,3-cd)pyrene	µg/L	0.1	<0.1	<0.1	<0.1
Dibenzo(ah)anthracene	µg/L	0.1	<0.1	<0.1	<0.1
Benzo(ghi)perylene	µg/L	0.1	<0.1	<0.1	<0.1
Total PAH (18)	µg/L	1	<1	**1**	**1**

Total Phenolics in Water [AN289] Tested: 22/6/2020

PARAMETER	UOM	LOR	GW_BH3M-1 WATER - 18/6/2020 SE207689.001	GW_BH4M-1 WATER - 18/6/2020 SE207689.002	GW_BH5M-1 WATER - 18/6/2020 SE207689.003
Total Phenols	mg/L	0.01	<0.01	<0.01	<0.01

Trace Metals (Dissolved) in Water by ICPMS [AN318] Tested: 22/6/2020

PARAMETER	UOM	LOR	GW_BH3M-1 WATER - 18/6/2020 SE207689.001	GW_BH4M-1 WATER - 18/6/2020 SE207689.002	GW_BH5M-1 WATER - 18/6/2020 SE207689.003	GW_QD-1 WATER - 18/6/2020 SE207689.004	GW_QR-1 WATER - 18/6/2020 SE207689.005
Arsenic, As	µg/L	1	<1	<1	<1	<1	<1
Cadmium, Cd	µg/L	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Chromium, Cr	µg/L	1	<1	<1	<1	<1	<1
Copper, Cu	µg/L	1	5	16	15	3	<1
Lead, Pb	µg/L	1	<1	<1	<1	<1	<1
Nickel, Ni	µg/L	1	2	2	3	1	<1
Zinc, Zn	µg/L	5	18	25	21	17	<5

Mercury (dissolved) in Water [AN311(Perth)/AN312] Tested: 22/6/2020

PARAMETER	UOM	LOR	GW_BH3M-1 WATER - 18/6/2020 SE207689.001	GW_BH4M-1 WATER - 18/6/2020 SE207689.002	GW_BH5M-1 WATER - 18/6/2020 SE207689.003	GW_QD-1 WATER - 18/6/2020 SE207689.004	GW_QR-1 WATER - 18/6/2020 SE207689.005
Mercury	mg/L	0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001

METHOD	METHODOLOGY SUMMARY
AN020	Unpreserved water sample is filtered through a 0.45µm membrane filter and acidified with nitric acid similar to APHA3030B.
AN289	Analysis of Total Phenols in Soil Sediment and Water: Steam distillable phenols react with 4-aminoantipyrine at pH 7.9±0.1 in the presence of potassium ferricyanide to form a coloured antipyrine dye analysed by Discrete Analyser. Reference APHA 5530 B/D.
AN311(Perth)/AN312	Mercury by Cold Vapour AAS in Waters: Mercury ions are reduced by stannous chloride reagent in acidic solution to elemental mercury. This mercury vapour is purged by nitrogen into a cold cell in an atomic absorption spectrometer or mercury analyser. Quantification is made by comparing absorbances to those of the calibration standards. Reference APHA 3112/3500.
AN318	Determination of elements at trace level in waters by ICP-MS technique,, referenced to USEPA 6020B and USEPA 200.8 (5.4).
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). Where F2 is corrected for Naphthalene, the VOC data for Naphthalene is used.
AN403	Additionally, the volatile C6-C9/C6-C10 fractions may be determined by a purge and trap technique and GC/MS because of the potential for volatiles loss. Total Recoveerable Hydrocarbons - Silica (TRH-Silica) 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).
AN433	VOCs and C6-C9 Hydrocarbons by GC-MS P&T: VOC`s are volatile organic compounds. The sample is presented to a gas chromatograph via a purge and trap (P&T) concentrator and autosampler and is detected with a Mass Spectrometer (MSD). Solid samples are initially extracted with methanol whilst liquid samples are processed directly. References: USEPA 5030B, 8020A, 8260.

FOOTNOTES

*	NATA accreditation does not cover the performance of this service.	-	Not analysed.	UOM	Unit of Measure.
		NVL	Not validated.	LOR	Limit of Reporting.
**	Indicative data, theoretical holding time exceeded.	IS	Insufficient sample for analysis.	↑↓	Raised/lowered Limit of Reporting.
		LNR	Sample listed, but not received.		

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.

STATEMENT OF QA/QC PERFORMANCE

SE207689 R0

CLIENT DETAILS

Contact	Emily Scanlon
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Project	**E24716 15 Jubilee Ave Warriewood NSW**
Order Number	**E24716**
Samples	7

LABORATORY DETAILS

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SGS Reference	**SE207689 R0**
Date Received	18 Jun 2020
Date Reported	23 Jun 2020

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 (within the SGS Alexandria Environmental laboratory).

SAMPLE SUMMARY

HOLDING TIME SUMMARY

SE207689 R0

SGS holding time criteria are drawn from current regulations and are highly dependent on sample container preservation as specified in the SGS "Field Sampling Guide for Containers and Holding Time" (ref: GU-(AU)-ENV.001). Soil samples guidelines are derived from NEPM "Schedule B(3) Guideline on Laboratory Analysis of Potentially Contaminated Soils". Water sample guidelines are derived from "AS/NZS 5667.1 : 1998 Water Quality - sampling part 1" and APHA "Standard Methods for the Examination of Water and Wastewater" 21st edition 2005.

Extraction and analysis holding time due dates listed are calculated from the date sampled, although holding times may be extended after laboratory extraction for some analytes. The due dates are the suggested dates that samples may be held before extraction or analysis and still be considered valid.

Extraction and analysis dates are shown in **Green** when within suggested criteria or **Red** with an appended dagger symbol (†) when outside suggested criteria. If the sampled date is not supplied then compliance with criteria cannot be determined. If the received date is after one or both due dates then holding time will fail by default.

Mercury (dissolved) in Water

Method: ME-(AU)-[ENV]AN311(Perth)/AN312

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
GW_BH3M-1	SE207689.001	LB202404	18 Jun 2020	18 Jun 2020	16 Jul 2020	22 Jun 2020	16 Jul 2020	23 Jun 2020
GW_BH4M-1	SE207689.002	LB202404	18 Jun 2020	18 Jun 2020	16 Jul 2020	22 Jun 2020	16 Jul 2020	23 Jun 2020
GW_BH5M-1	SE207689.003	LB202404	18 Jun 2020	18 Jun 2020	16 Jul 2020	22 Jun 2020	16 Jul 2020	23 Jun 2020
GW_QD-1	SE207689.004	LB202404	18 Jun 2020	18 Jun 2020	16 Jul 2020	22 Jun 2020	16 Jul 2020	23 Jun 2020
GW_QR-1	SE207689.005	LB202404	18 Jun 2020	18 Jun 2020	16 Jul 2020	22 Jun 2020	16 Jul 2020	23 Jun 2020

PAH (Polynuclear Aromatic Hydrocarbons) in Water

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

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
GW_BH3M-1	SE207689.001	LB202403	18 Jun 2020	18 Jun 2020	25 Jun 2020	22 Jun 2020	01 Aug 2020	23 Jun 2020
GW_BH4M-1	SE207689.002	LB202403	18 Jun 2020	18 Jun 2020	25 Jun 2020	22 Jun 2020	01 Aug 2020	23 Jun 2020
GW_BH5M-1	SE207689.003	LB202403	18 Jun 2020	18 Jun 2020	25 Jun 2020	22 Jun 2020	01 Aug 2020	23 Jun 2020
GW_QD-1	SE207689.004	LB202403	18 Jun 2020	18 Jun 2020	25 Jun 2020	22 Jun 2020	01 Aug 2020	23 Jun 2020
GW_QR-1	SE207689.005	LB202403	18 Jun 2020	18 Jun 2020	25 Jun 2020	22 Jun 2020	01 Aug 2020	23 Jun 2020

Total Phenolics in Water

Method: ME-(AU)-[ENV]AN289

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
GW_BH3M-1	SE207689.001	LB202407	18 Jun 2020	18 Jun 2020	16 Jul 2020	22 Jun 2020	16 Jul 2020	22 Jun 2020
GW_BH4M-1	SE207689.002	LB202407	18 Jun 2020	18 Jun 2020	16 Jul 2020	22 Jun 2020	16 Jul 2020	22 Jun 2020
GW_BH5M-1	SE207689.003	LB202407	18 Jun 2020	18 Jun 2020	16 Jul 2020	22 Jun 2020	16 Jul 2020	22 Jun 2020

Trace Metals (Dissolved) in Water by ICPMS

Method: ME-(AU)-[ENV]AN318

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
GW_BH3M-1	SE207689.001	LB202424	18 Jun 2020	18 Jun 2020	15 Dec 2020	22 Jun 2020	15 Dec 2020	23 Jun 2020
GW_BH4M-1	SE207689.002	LB202424	18 Jun 2020	18 Jun 2020	15 Dec 2020	22 Jun 2020	15 Dec 2020	23 Jun 2020
GW_BH5M-1	SE207689.003	LB202424	18 Jun 2020	18 Jun 2020	15 Dec 2020	22 Jun 2020	15 Dec 2020	23 Jun 2020
GW_QD-1	SE207689.004	LB202424	18 Jun 2020	18 Jun 2020	15 Dec 2020	22 Jun 2020	15 Dec 2020	23 Jun 2020
GW_QR-1	SE207689.005	LB202424	18 Jun 2020	18 Jun 2020	15 Dec 2020	22 Jun 2020	15 Dec 2020	23 Jun 2020

TRH (Total Recoverable Hydrocarbons) in Water

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

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
GW_BH3M-1	SE207689.001	LB202403	18 Jun 2020	18 Jun 2020	25 Jun 2020	22 Jun 2020	01 Aug 2020	23 Jun 2020
GW_BH4M-1	SE207689.002	LB202403	18 Jun 2020	18 Jun 2020	25 Jun 2020	22 Jun 2020	01 Aug 2020	23 Jun 2020
GW_BH5M-1	SE207689.003	LB202403	18 Jun 2020	18 Jun 2020	25 Jun 2020	22 Jun 2020	01 Aug 2020	23 Jun 2020
GW_QD-1	SE207689.004	LB202403	18 Jun 2020	18 Jun 2020	25 Jun 2020	22 Jun 2020	01 Aug 2020	23 Jun 2020
GW_QR-1	SE207689.005	LB202403	18 Jun 2020	18 Jun 2020	25 Jun 2020	22 Jun 2020	01 Aug 2020	23 Jun 2020

VOCs in Water

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

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
GW_BH3M-1	SE207689.001	LB202434	18 Jun 2020	18 Jun 2020	25 Jun 2020	22 Jun 2020	01 Aug 2020	23 Jun 2020
GW_BH4M-1	SE207689.002	LB202434	18 Jun 2020	18 Jun 2020	25 Jun 2020	22 Jun 2020	01 Aug 2020	23 Jun 2020
GW_BH5M-1	SE207689.003	LB202434	18 Jun 2020	18 Jun 2020	25 Jun 2020	22 Jun 2020	01 Aug 2020	23 Jun 2020
GW_QD-1	SE207689.004	LB202434	18 Jun 2020	18 Jun 2020	25 Jun 2020	22 Jun 2020	01 Aug 2020	23 Jun 2020
GW_QR-1	SE207689.005	LB202434	18 Jun 2020	18 Jun 2020	25 Jun 2020	22 Jun 2020	01 Aug 2020	23 Jun 2020
GW_Trip Blank-1	SE207689.006	LB202434	18 Jun 2020	18 Jun 2020	25 Jun 2020	22 Jun 2020	01 Aug 2020	23 Jun 2020
GW_Trip Spike-1	SE207689.007	LB202434	18 Jun 2020	18 Jun 2020	25 Jun 2020	22 Jun 2020	01 Aug 2020	23 Jun 2020

Volatile Petroleum Hydrocarbons in Water

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

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
GW_BH3M-1	SE207689.001	LB202434	18 Jun 2020	18 Jun 2020	25 Jun 2020	22 Jun 2020	01 Aug 2020	23 Jun 2020
GW_BH4M-1	SE207689.002	LB202434	18 Jun 2020	18 Jun 2020	25 Jun 2020	22 Jun 2020	01 Aug 2020	23 Jun 2020
GW_BH5M-1	SE207689.003	LB202434	18 Jun 2020	18 Jun 2020	25 Jun 2020	22 Jun 2020	01 Aug 2020	23 Jun 2020
GW_QD-1	SE207689.004	LB202434	18 Jun 2020	18 Jun 2020	25 Jun 2020	22 Jun 2020	01 Aug 2020	23 Jun 2020
GW_QR-1	SE207689.005	LB202434	18 Jun 2020	18 Jun 2020	25 Jun 2020	22 Jun 2020	01 Aug 2020	23 Jun 2020
GW_Trip Blank-1	SE207689.006	LB202434	18 Jun 2020	18 Jun 2020	25 Jun 2020	22 Jun 2020	01 Aug 2020	23 Jun 2020
GW_Trip Spike-1	SE207689.007	LB202434	18 Jun 2020	18 Jun 2020	25 Jun 2020	22 Jun 2020	01 Aug 2020	23 Jun 2020

Surrogate results are evaluated against upper and lower limit criteria established in the SGS QA/QC plan (Ref: MP-(AU)-[ENV]QU-022). At least two of three routine level soil sample surrogate spike recoveries for BTEX/VOC are to be within 70-130% where control charts have not been developed and within the established control limits for charted surrogates. Matrix effects may void this as an acceptance criterion. Water sample surrogate spike recoveries are to be within 40-130%. The presence of emulsions, surfactants and particulates may void this as an acceptance criterion.

Result is shown in **Green** when within suggested criteria or **Red** with an appended reason identifer when outside suggested criteria. Refer to the footnotes section at the end of this report for failure reasons.

PAH (Polynuclear Aromatic Hydrocarbons) in Water

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

Parameter	Sample Name	Sample Number	Units	Criteria	Recovery %
2-fluorobiphenyl (Surrogate)	GW_BH3M-1	SE207689.001	%	40 - 130%	56
	GW_BH4M-1	SE207689.002	%	40 - 130%	58
	GW_BH5M-1	SE207689.003	%	40 - 130%	68
d14-p-terphenyl (Surrogate)	GW_BH3M-1	SE207689.001	%	40 - 130%	104
	GW_BH4M-1	SE207689.002	%	40 - 130%	118
	GW_BH5M-1	SE207689.003	%	40 - 130%	100
d5-nitrobenzene (Surrogate)	GW_BH3M-1	SE207689.001	%	40 - 130%	62
	GW_BH4M-1	SE207689.002	%	40 - 130%	52
	GW_BH5M-1	SE207689.003	%	40 - 130%	66

VOCs in Water

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

Parameter	Sample Name	Sample Number	Units	Criteria	Recovery %
Bromofluorobenzene (Surrogate)	GW_BH3M-1	SE207689.001	%	40 - 130%	102
	GW_BH4M-1	SE207689.002	%	40 - 130%	103
	GW_BH5M-1	SE207689.003	%	40 - 130%	103
	GW_QD-1	SE207689.004	%	40 - 130%	104
	GW_QR-1	SE207689.005	%	40 - 130%	103
	GW_Trip Blank-1	SE207689.006	%	40 - 130%	101
	GW_Trip Spike-1	SE207689.007	%	40 - 130%	97
d4-1,2-dichloroethane (Surrogate)	GW_BH3M-1	SE207689.001	%	40 - 130%	99
	GW_BH4M-1	SE207689.002	%	40 - 130%	99
	GW_BH5M-1	SE207689.003	%	40 - 130%	99
	GW_QD-1	SE207689.004	%	40 - 130%	100
	GW_QR-1	SE207689.005	%	40 - 130%	99
	GW_Trip Blank-1	SE207689.006	%	40 - 130%	98
	GW_Trip Spike-1	SE207689.007	%	40 - 130%	101
d8-toluene (Surrogate)	GW_BH3M-1	SE207689.001	%	40 - 130%	99
	GW_BH4M-1	SE207689.002	%	40 - 130%	99
	GW_BH5M-1	SE207689.003	%	40 - 130%	99
	GW_QD-1	SE207689.004	%	40 - 130%	99
	GW_QR-1	SE207689.005	%	40 - 130%	99
	GW_Trip Blank-1	SE207689.006	%	40 - 130%	98
	GW_Trip Spike-1	SE207689.007	%	40 - 130%	101

Volatile Petroleum Hydrocarbons in Water

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

Parameter	Sample Name	Sample Number	Units	Criteria	Recovery %
Bromofluorobenzene (Surrogate)	GW_BH3M-1	SE207689.001	%	40 - 130%	102
	GW_BH4M-1	SE207689.002	%	40 - 130%	103
	GW_BH5M-1	SE207689.003	%	40 - 130%	103
	GW_QD-1	SE207689.004	%	40 - 130%	104
	GW_QR-1	SE207689.005	%	40 - 130%	103
d4-1,2-dichloroethane (Surrogate)	GW_BH3M-1	SE207689.001	%	60 - 130%	99
	GW_BH4M-1	SE207689.002	%	60 - 130%	99
	GW_BH5M-1	SE207689.003	%	60 - 130%	99
	GW_QD-1	SE207689.004	%	60 - 130%	100
	GW_QR-1	SE207689.005	%	60 - 130%	99
d8-toluene (Surrogate)	GW_BH3M-1	SE207689.001	%	40 - 130%	99
	GW_BH4M-1	SE207689.002	%	40 - 130%	99
	GW_BH5M-1	SE207689.003	%	40 - 130%	99
	GW_QD-1	SE207689.004	%	40 - 130%	99
	GW_QR-1	SE207689.005	%	40 - 130%	99

Blank results are evaluated against the limit of reporting (LOR), for the chosen method and its associated instrumentation, typically 2.5 times the statistically determined method detection limit (MDL).

Result is shown in **Green** when within suggested criteria or **Red** with an appended dagger symbol (†) when outside suggested criteria.

Mercury (dissolved) in Water

Method: ME-(AU)-[ENV]AN311(Perth)/AN312

Sample Number	Parameter	Units	LOR	Result
LB202404.001	Mercury	mg/L	0.0001	<0.0001

PAH (Polynuclear Aromatic Hydrocarbons) in Water

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

Sample Number		Parameter	Units	LOR	Result
LB202403.001		Naphthalene	µg/L	0.1	<0.1
		2-methylnaphthalene	µg/L	0.1	<0.1
		1-methylnaphthalene	µg/L	0.1	<0.1
		Acenaphthylene	µg/L	0.1	<0.1
		Acenaphthene	µg/L	0.1	<0.1
		Fluorene	µg/L	0.1	<0.1
		Phenanthrene	µg/L	0.1	<0.1
		Anthracene	µg/L	0.1	<0.1
		Fluoranthene	µg/L	0.1	<0.1
		Pyrene	µg/L	0.1	<0.1
		Benzo(a)anthracene	µg/L	0.1	<0.1
		Chrysene	µg/L	0.1	<0.1
		Benzo(a)pyrene	µg/L	0.1	<0.1
		Indeno(1,2,3-cd)pyrene	µg/L	0.1	<0.1
		Dibenzo(ah)anthracene	µg/L	0.1	<0.1
		Benzo(ghi)perylene	µg/L	0.1	<0.1
	Surrogates	d5-nitrobenzene (Surrogate)	%	-	68
		2-fluorobiphenyl (Surrogate)	%	-	74
		d14-p-terphenyl (Surrogate)	%	-	96

Total Phenolics in Water

Method: ME-(AU)-[ENV]AN289

Sample Number	Parameter	Units	LOR	Result
LB202407.001	Total Phenols	mg/L	0.01	<0.01

Trace Metals (Dissolved) in Water by ICPMS

Method: ME-(AU)-[ENV]AN318

Sample Number	Parameter	Units	LOR	Result
LB202424.001	Arsenic, As	µg/L	1	<1
	Cadmium, Cd	µg/L	0.1	<0.1
	Chromium, Cr	µg/L	1	<1
	Copper, Cu	µg/L	1	<1
	Lead, Pb	µg/L	1	<1
	Nickel, Ni	µg/L	1	<1
	Zinc, Zn	µg/L	5	<5

TRH (Total Recoverable Hydrocarbons) in Water

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

Sample Number	Parameter	Units	LOR	Result
LB202403.001	TRH C10-C14	µg/L	50	<50
	TRH C15-C28	µg/L	200	<200
	TRH C29-C36	µg/L	200	<200
	TRH C37-C40	µg/L	200	<200

VOCs in Water

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

Sample Number		Parameter	Units	LOR	Result
LB202434.001	Fumigants	2,2-dichloropropane	µg/L	0.5	<0.5
		1,2-dichloropropane	µg/L	0.5	<0.5
		cis-1,3-dichloropropene	µg/L	0.5	<0.5
		trans-1,3-dichloropropene	µg/L	0.5	<0.5
		1,2-dibromoethane (EDB)	µg/L	0.5	<0.5
	Halogenated Aliphatics	Dichlorodifluoromethane (CFC-12)	µg/L	5	<5
		Chloromethane	µg/L	5	<5
		Vinyl chloride (Chloroethene)	µg/L	0.3	<0.3
		Bromomethane	µg/L	10	<10
		Chloroethane	µg/L	5	<5
		Trichlorofluoromethane	µg/L	1	<1
		Iodomethane	µg/L	5	<5

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.

VOCs in Water (continued)

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

Sample Number		Parameter	Units	LOR	Result
LB202434.001	Halogenated Aliphatics	1,1-dichloroethene	µg/L	0.5	<0.5
		Dichloromethane (Methylene chloride)	µg/L	5	<5
		Allyl chloride	µg/L	2	<2
		trans-1,2-dichloroethene	µg/L	0.5	<0.5
		1,1-dichloroethane	µg/L	0.5	<0.5
		cis-1,2-dichloroethene	µg/L	0.5	<0.5
		Bromochloromethane	µg/L	0.5	<0.5
		1,2-dichloroethane	µg/L	0.5	<0.5
		1,1,1-trichloroethane	µg/L	0.5	<0.5
		1,1-dichloropropene	µg/L	0.5	<0.5
		Carbon tetrachloride	µg/L	0.5	<0.5
		Dibromomethane	µg/L	0.5	<0.5
		Trichloroethene (Trichloroethylene,TCE)	µg/L	0.5	<0.5
		1,1,2-trichloroethane	µg/L	0.5	<0.5
		1,3-dichloropropane	µg/L	0.5	<0.5
		Tetrachloroethene (Perchloroethylene,PCE)	µg/L	0.5	<0.5
		1,1,1,2-tetrachloroethane	µg/L	0.5	<0.5
		cis-1,4-dichloro-2-butene	µg/L	1	<1
		1,1,2,2-tetrachloroethane	µg/L	0.5	<0.5
		1,2,3-trichloropropane	µg/L	0.5	<0.5
		trans-1,4-dichloro-2-butene	µg/L	1	<1
		1,2-dibromo-3-chloropropane	µg/L	0.5	<0.5
		Hexachlorobutadiene	µg/L	0.5	<0.5
	Halogenated Aromatics	Chlorobenzene	µg/L	0.5	<0.5
		Bromobenzene	µg/L	0.5	<0.5
		2-chlorotoluene	µg/L	0.5	<0.5
		4-chlorotoluene	µg/L	0.5	<0.5
		1,3-dichlorobenzene	µg/L	0.5	<0.5
		1,4-dichlorobenzene	µg/L	0.3	<0.3
		1,2-dichlorobenzene	µg/L	0.5	<0.5
		1,2,4-trichlorobenzene	µg/L	0.5	<0.5
		1,2,3-trichlorobenzene	µg/L	0.5	<0.5
	Monocyclic Aromatic Hydrocarbons	Benzene	µg/L	0.5	<0.5
		Toluene	µg/L	0.5	<0.5
		Ethylbenzene	µg/L	0.5	<0.5
		m/p-xylene	µg/L	1	<1
		o-xylene	µg/L	0.5	<0.5
		Styrene (Vinyl benzene)	µg/L	0.5	<0.5
		Isopropylbenzene (Cumene)	µg/L	0.5	<0.5
		n-propylbenzene	µg/L	0.5	<0.5
		1,3,5-trimethylbenzene	µg/L	0.5	<0.5
		tert-butylbenzene	µg/L	0.5	<0.5
		1,2,4-trimethylbenzene	µg/L	0.5	<0.5
		sec-butylbenzene	µg/L	0.5	<0.5
		p-isopropyltoluene	µg/L	0.5	<0.5
		n-butylbenzene	µg/L	0.5	<0.5
	Nitrogenous Compounds	Acrylonitrile	µg/L	0.5	<0.5
	Oxygenated Compounds	Acetone (2-propanone)	µg/L	10	<10
		MtBE (Methyl-tert-butyl ether)	µg/L	2	<2
		Vinyl acetate	µg/L	10	<10
		MEK (2-butanone)	µg/L	10	<10
		MIBK (4-methyl-2-pentanone)	µg/L	5	<5
		2-hexanone (MBK)	µg/L	5	<5
	Polycyclic VOCs	Naphthalene	µg/L	0.5	<0.5
	Sulphonated	Carbon disulfide	µg/L	2	<2
	Surrogates	d4-1,2-dichloroethane (Surrogate)	%	-	96
		d8-toluene (Surrogate)	%	-	96
		Bromofluorobenzene (Surrogate)	%	-	100
	Trihalomethanes	Chloroform (THM)	µg/L	0.5	<0.5
		Bromodichloromethane (THM)	µg/L	0.5	<0.5
		Dibromochloromethane (THM)	µg/L	0.5	<0.5

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.

VOCs in Water (continued) — Method: ME-(AU)-[ENV]AN433

Sample Number		Parameter	Units	LOR	Result
LB202434.001	Trihalomethanes	Bromoform (THM)	µg/L	0.5	<0.5

Volatile Petroleum Hydrocarbons in Water — Method: ME-(AU)-[ENV]AN433

Sample Number		Parameter	Units	LOR	Result
LB202434.001		TRH C6-C9	µg/L	40	<40
	Surrogates	d4-1,2-dichloroethane (Surrogate)	%	-	96
		d8-toluene (Surrogate)	%	-	96
		Bromofluorobenzene (Surrogate)	%	-	100

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

The RPD is evaluated against the Maximum Allowable Difference (MAD) criteria and can be graphically represented by a curve calculated from the Statistical Detection Limit (SDL) and Limiting Repeatability (LR) using the formula: MAD = 100 x SDL / Mean + LR

Where the Maximum Allowable Difference evaluates to a number larger than 200 it is displayed as 200.

RPD is shown in **Green** when within suggested criteria or **Red** with an appended reason identifer when outside suggested criteria. Refer to the footnotes section at the end of this report for failure reasons.

Mercury (dissolved) in Water

Method: ME-(AU)-[ENV]AN311(Perth)/AN312

Original	Duplicate	Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE207693.001	LB202404.014	Mercury	µg/L	0.0001	0	-0.02	200	0
SE207724.038	LB202404.018	Mercury	µg/L	0.0001	-0.006	-0.004	200	0

Total Phenolics in Water

Method: ME-(AU)-[ENV]AN289

Original	Duplicate	Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE207599.005	LB202407.014	Total Phenols	mg/L	0.01	0.00625	0.0092	200	0

Trace Metals (Dissolved) in Water by ICPMS

Method: ME-(AU)-[ENV]AN318

Original	Duplicate	Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE207693.001	LB202424.014	Arsenic, As	µg/L	1	1.02	1.032	112	1
		Cadmium, Cd	µg/L	0.1	-0.004	-0.004	200	0
		Chromium, Cr	µg/L	1	0.651	0.618	173	0
		Copper, Cu	µg/L	1	0.818	0.822	137	0
		Lead, Pb	µg/L	1	-0.003	0.002	200	0
		Nickel, Ni	µg/L	1	2.608	2.476	54	5
		Zinc, Zn	µg/L	5	2.426	1.852	200	0
SE207730.004	LB202424.028	Arsenic, As	µg/L	1	2.487	2.351	56	6
		Cadmium, Cd	µg/L	0.1	0.122	0.132	94	8
		Chromium, Cr	µg/L	1	0.791	0.778	142	0
		Copper, Cu	µg/L	1	0.097	0.092	200	0
		Lead, Pb	µg/L	1	0.055	0.07	200	0
		Nickel, Ni	µg/L	1	15.21	15.271	22	0
		Zinc, Zn	µg/L	5	43.193	44.738	26	4
SE207730.005	LB202424.029	Arsenic, As	µg/L	1	-0.015	-0.016	200	0
		Cadmium, Cd	µg/L	0.1	0	0.001	200	0
		Chromium, Cr	µg/L	1	0.029	0.008	200	0
		Copper, Cu	µg/L	1	-0.008	-0.064	200	0
		Lead, Pb	µg/L	1	0.085	0.004	200	0
		Nickel, Ni	µg/L	1	-0.011	0.014	200	0
		Zinc, Zn	µg/L	5	2.036	2.035	200	0

VOCs in Water

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

Original	Duplicate		Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE207689.002	LB202434.013	Fumigants	2,2-dichloropropane	µg/L	0.5	<0.5	0.0012151501	200	0
			1,2-dichloropropane	µg/L	0.5	<0.5	0.0022259148	200	0
			cis-1,3-dichloropropene	µg/L	0.5	<0.5	0	200	0
			trans-1,3-dichloropropene	µg/L	0.5	<0.5	0.0088365569	200	0
			1,2-dibromoethane (EDB)	µg/L	0.5	<0.5	0	200	0
		Halogenated	Dichlorodifluoromethane (CFC-12)	µg/L	5	<5	0.0036475682	200	0
		Aliphatics	Chloromethane	µg/L	5	<5	0	200	0
			Vinyl chloride (Chloroethene)	µg/L	0.3	<0.3	0.0111705625	200	0
			Bromomethane	µg/L	10	<10	0.0404876532	200	0
			Chloroethane	µg/L	5	<5	0.0043438696	200	0
			Trichlorofluoromethane	µg/L	1	<1	0.0030505429	200	0
			Iodomethane	µg/L	5	<5	0.0339065832	200	0
			1,1-dichloroethene	µg/L	0.5	<0.5	0.0043302392	200	0
			Dichloromethane (Methylene chloride)	µg/L	5	<5	0	200	0
			Allyl chloride	µg/L	2	<2	0	200	0
			trans-1,2-dichloroethene	µg/L	0.5	<0.5	0.0379827116	200	0
			1,1-dichloroethane	µg/L	0.5	<0.5	0.0460921699	200	0
			cis-1,2-dichloroethene	µg/L	0.5	<0.5	0.0007611866	200	0
			Bromochloromethane	µg/L	0.5	<0.5	0	200	0
			1,2-dichloroethane	µg/L	0.5	<0.5	0.0173793646	200	0
			1,1,1-trichloroethane	µg/L	0.5	<0.5	0	200	0
			1,1-dichloropropene	µg/L	0.5	<0.5	0	200	0
			Carbon tetrachloride	µg/L	0.5	<0.5	0	200	0
			Dibromomethane	µg/L	0.5	<0.5	0	200	0
			Trichloroethene (Trichloroethylene,TCE)	µg/L	0.5	<0.5	0.0055109262	200	0

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

The RPD is evaluated against the Maximum Allowable Difference (MAD) criteria and can be graphically represented by a curve calculated from the Statistical Detection Limit (SDL) and Limiting Repeatability (LR) using the formula: MAD = 100 x SDL / Mean + LR

Where the Maximum Allowable Difference evaluates to a number larger than 200 it is displayed as 200.

RPD is shown in **Green** when within suggested criteria or **Red** with an appended reason identifer when outside suggested criteria. Refer to the footnotes section at the end of this report for failure reasons.

VOCs in Water (continued)

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

Original	Duplicate		Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE207689.002	LB202434.013	Halogenated	1,1,2-trichloroethane	µg/L	0.5	<0.5	0	200	0
		Aliphatics	1,3-dichloropropane	µg/L	0.5	<0.5	0	200	0
			Tetrachloroethene (Perchloroethylene,PCE)	µg/L	0.5	<0.5	0.0029030266	200	0
			1,1,1,2-tetrachloroethane	µg/L	0.5	<0.5	0	200	0
			cis-1,4-dichloro-2-butene	µg/L	1	<1	0	200	0
			1,1,2,2-tetrachloroethane	µg/L	0.5	<0.5	0.0022125424	200	0
			1,2,3-trichloropropane	µg/L	0.5	<0.5	0	200	0
			trans-1,4-dichloro-2-butene	µg/L	1	<1	0	200	0
			1,2-dibromo-3-chloropropane	µg/L	0.5	<0.5	0	200	0
			Hexachlorobutadiene	µg/L	0.5	<0.5	0	200	0
		Halogenated	Chlorobenzene	µg/L	0.5	<0.5	0.0155090989	200	0
		Aromatics	Bromobenzene	µg/L	0.5	<0.5	0.0464521015	200	0
			2-chlorotoluene	µg/L	0.5	<0.5	0	200	0
			4-chlorotoluene	µg/L	0.5	<0.5	0	200	0
			1,3-dichlorobenzene	µg/L	0.5	<0.5	0.0081647077	200	0
			1,4-dichlorobenzene	µg/L	0.3	<0.3	0.0076447680	200	0
			1,2-dichlorobenzene	µg/L	0.5	<0.5	0.0346267370	200	0
			1,2,4-trichlorobenzene	µg/L	0.5	<0.5	0.0028372078	200	0
			1,2,3-trichlorobenzene	µg/L	0.5	<0.5	0	200	0
		Monocyclic	Benzene	µg/L	0.5	<0.5	0.0304888061	200	0
		Aromatic	Toluene	µg/L	0.5	<0.5	0.0650854041	200	0
			Ethylbenzene	µg/L	0.5	<0.5	0.0360366403	200	0
			m/p-xylene	µg/L	1	<1	0.1060814070	200	0
			o-xylene	µg/L	0.5	<0.5	0.0337219027	200	0
			Styrene (Vinyl benzene)	µg/L	0.5	<0.5	0.0045604311	200	0
			Isopropylbenzene (Cumene)	µg/L	0.5	<0.5	0.0074422157	200	0
			n-propylbenzene	µg/L	0.5	<0.5	0.0030507041	200	0
			1,3,5-trimethylbenzene	µg/L	0.5	<0.5	0.0056984738	200	0
			tert-butylbenzene	µg/L	0.5	<0.5	0.0016982594	200	0
			1,2,4-trimethylbenzene	µg/L	0.5	<0.5	0.0148941383	200	0
			sec-butylbenzene	µg/L	0.5	<0.5	0	200	0
			p-isopropyltoluene	µg/L	0.5	<0.5	0.0087155150	200	0
			n-butylbenzene	µg/L	0.5	<0.5	0.0088748163	200	0
		Nitrogenous	Acrylonitrile	µg/L	0.5	<0.5	0.0124407831	200	0
		Oxygenated	Acetone (2-propanone)	µg/L	10	<10	0.4935624134	200	0
		Compounds	MtBE (Methyl-tert-butyl ether)	µg/L	2	<2	0.0100218756	200	0
			Vinyl acetate	µg/L	10	<10	0.0245005669	200	0
			MEK (2-butanone)	µg/L	10	<10	0	200	0
			MIBK (4-methyl-2-pentanone)	µg/L	5	<5	0.0095701809	200	0
			2-hexanone (MBK)	µg/L	5	<5	0	200	0
		Polycyclic	Naphthalene	µg/L	0.5	0.5	0.4495694576	132	6
		Sulphonated	Carbon disulfide	µg/L	2	<2	0.0124739687	200	0
		Surrogates	d4-1,2-dichloroethane (Surrogate)	µg/L	-	9.9	9.4791970204	30	4
			d8-toluene (Surrogate)	µg/L	-	9.9	9.5181719079	30	4
			Bromofluorobenzene (Surrogate)	µg/L	-	10.3	9.5819896656	30	7
		Trihalomethan	Chloroform (THM)	µg/L	0.5	<0.5	0.0558923952	200	0
		es	Bromodichloromethane (THM)	µg/L	0.5	<0.5	0.0035430374	200	0
			Dibromochloromethane (THM)	µg/L	0.5	<0.5	0	200	0
			Bromoform (THM)	µg/L	0.5	<0.5	0	200	0

Volatile Petroleum Hydrocarbons in Water

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

Original	Duplicate		Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE207689.002	LB202434.016		TRH C6-C10	µg/L	50	<50	0	200	0
			TRH C6-C9	µg/L	40	<40	0	200	0
		Surrogates	d4-1,2-dichloroethane (Surrogate)	µg/L	-	9.9	9.4791970204	30	4
			d8-toluene (Surrogate)	µg/L	-	9.9	9.5181719079	30	4
			Bromofluorobenzene (Surrogate)	µg/L	-	10.3	9.5819896656	30	7
		VPH F Bands	Benzene (F0)	µg/L	0.5	<0.5	0.0304888061	200	0
			TRH C6-C10 minus BTEX (F1)	µg/L	50	<50	0	200	0

Laboratory Control Standard (LCS) results are evaluated against an expected result, typically the concentration of analyte spiked into the control during the sample preparation stage, producing a percentage recovery. The criteria applied to the percentage recovery is established in the SGS QA /QC plan (Ref: MP-(AU)-[ENV]QU-022). For more information refer to the footnotes in the concluding page of this report.

Recovery is shown in **Green** when within suggested criteria or **Red** with an appended dagger symbol (†) when outside suggested criteria.

PAH (Polynuclear Aromatic Hydrocarbons) in Water

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

Sample Number		Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB202403.002		Naphthalene	µg/L	0.1	29	40	60 - 140	72
		Acenaphthylene	µg/L	0.1	27	40	60 - 140	68
		Acenaphthene	µg/L	0.1	33	40	60 - 140	83
		Phenanthrene	µg/L	0.1	38	40	60 - 140	94
		Anthracene	µg/L	0.1	32	40	60 - 140	81
		Fluoranthene	µg/L	0.1	37	40	60 - 140	92
		Pyrene	µg/L	0.1	37	40	60 - 140	92
		Benzo(a)pyrene	µg/L	0.1	39	40	60 - 140	96
	Surrogates	d5-nitrobenzene (Surrogate)	µg/L	-	0.3	0.5	40 - 130	62
		2-fluorobiphenyl (Surrogate)	µg/L	-	0.3	0.5	40 - 130	68
		d14-p-terphenyl (Surrogate)	µg/L	-	0.5	0.5	40 - 130	94

Total Phenolics in Water

Method: ME-(AU)-[ENV]AN289

Sample Number	Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB202407.002	Total Phenols	mg/L	0.01	0.24	0.25	80 - 120	95

Trace Metals (Dissolved) in Water by ICPMS

Method: ME-(AU)-[ENV]AN318

Sample Number	Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB202424.002	Arsenic, As	µg/L	1	19	20	80 - 120	97
	Cadmium, Cd	µg/L	0.1	22	20	80 - 120	110
	Chromium, Cr	µg/L	1	22	20	80 - 120	111
	Copper, Cu	µg/L	1	22	20	80 - 120	112
	Lead, Pb	µg/L	1	21	20	80 - 120	107
	Nickel, Ni	µg/L	1	22	20	80 - 120	108
	Zinc, Zn	µg/L	5	21	20	80 - 120	103

TRH (Total Recoverable Hydrocarbons) in Water

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

Sample Number		Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB202403.002		TRH C10-C14	µg/L	50	1200	1200	60 - 140	98
		TRH C15-C28	µg/L	200	1500	1200	60 - 140	121
		TRH C29-C36	µg/L	200	1300	1200	60 - 140	106
	TRH F Bands	TRH >C10-C16	µg/L	60	1300	1200	60 - 140	111
		TRH >C16-C34 (F3)	µg/L	500	1500	1200	60 - 140	126
		TRH >C34-C40 (F4)	µg/L	500	580	600	60 - 140	97

VOCs in Water

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

Sample Number		Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB202434.002	Halogenated	1,1-dichloroethene	µg/L	0.5	42	45.45	60 - 140	92
	Aliphatics	1,2-dichloroethane	µg/L	0.5	51	45.45	60 - 140	112
		Trichloroethene (Trichloroethylene,TCE)	µg/L	0.5	50	45.45	60 - 140	110
	Halogenated	Chlorobenzene	µg/L	0.5	56	45.45	60 - 140	122
	Monocyclic	Benzene	µg/L	0.5	46	45.45	60 - 140	100
	Aromatic	Toluene	µg/L	0.5	46	45.45	60 - 140	101
		Ethylbenzene	µg/L	0.5	46	45.45	60 - 140	100
		m/p-xylene	µg/L	1	91	90.9	60 - 140	101
		o-xylene	µg/L	0.5	46	45.45	60 - 140	102
	Surrogates	d4-1,2-dichloroethane (Surrogate)	µg/L	-	10.3	10	60 - 140	103
		d8-toluene (Surrogate)	µg/L	-	10.2	10	70 - 130	102
		Bromofluorobenzene (Surrogate)	µg/L	-	9.7	10	70 - 130	97
	Trihalomethan	Chloroform (THM)	µg/L	0.5	55	45.45	60 - 140	121

Volatile Petroleum Hydrocarbons in Water

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

Sample Number		Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB202434.002		TRH C6-C10	µg/L	50	730	946.63	60 - 140	78
		TRH C6-C9	µg/L	40	630	818.71	60 - 140	78
	Surrogates	d4-1,2-dichloroethane (Surrogate)	µg/L	-	10.3	10	60 - 140	103
		d8-toluene (Surrogate)	µg/L	-	10.2	10	70 - 130	102
		Bromofluorobenzene (Surrogate)	µg/L	-	9.7	10	70 - 130	97
	VPH F Bands	TRH C6-C10 minus BTEX (F1)	µg/L	50	460	639.67	60 - 140	72

Matrix Spike (MS) results are evaluated as the percentage recovery of an expected result, typically the concentration of analyte spiked into a field sub -sample during the sample preparation stage. The original sample's result is subtracted from the sub-sample result before determining the percentage recovery. The criteria applied to the percentage recovery is established in the SGS QA/QC plan (ref: MP-(AU)-[ENV]QU-022). For more information refer to the footnotes in the concluding page of this report.

Recovery is shown in **Green** when within suggested criteria or **Red** with an appended reason identifer when outside suggested criteria. Refer to the footnotes section at the end of this report for failure reasons.

Mercury (dissolved) in Water

Method: ME-(AU)-[ENV]AN311(Perth)/AN312

QC Sample	Sample Number	Parameter	Units	LOR	Result	Original	Spike	Recovery%
SE207678.001	LB202404.004	Mercury	mg/L	0.0001	0.0066	-0.024	0.008	83

Total Phenolics in Water

Method: ME-(AU)-[ENV]AN289

QC Sample	Sample Number	Parameter	Units	LOR	Result	Original	Spike	Recovery%
SE207474.001	LB202407.004	Total Phenols	mg/L	0.01	0.29	0.06	0.25	93

Trace Metals (Dissolved) in Water by ICPMS

Method: ME-(AU)-[ENV]AN318

QC Sample	Sample Number	Parameter	Units	LOR	Result	Original	Spike	Recovery%
SE207678.001	LB202424.004	Arsenic, As	µg/L	1	22	0.051	20	108
		Cadmium, Cd	µg/L	0.1	23	-0.006	20	113
		Chromium, Cr	µg/L	1	22	0.02	20	108
		Copper, Cu	µg/L	1	19	-0.914	20	102
		Lead, Pb	µg/L	1	22	0.035	20	109
		Nickel, Ni	µg/L	1	19	0.083	20	97
		Zinc, Zn	µg/L	5	16	0.856	20	78

VOCs in Water

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

QC Sample	Sample Number		Parameter	Units	LOR	Result	Original	Spike	Recovery%
SE207689.004	LB202434.017	Monocyclic	Benzene	µg/L	0.5	52	<0.5	45.45	115
		Aromatic	Toluene	µg/L	0.5	49	<0.5	45.45	107
			Ethylbenzene	µg/L	0.5	48	<0.5	45.45	105
			m/p-xylene	µg/L	1	96	<1	90.9	106
			o-xylene	µg/L	0.5	48	<0.5	45.45	105
		Polycyclic	Naphthalene	µg/L	0.5	43	<0.5	-	-
		Surrogates	d4-1,2-dichloroethane (Surrogate)	µg/L	-	10	10.0	-	101
			d8-toluene (Surrogate)	µg/L	-	10	9.9	-	101
			Bromofluorobenzene (Surrogate)	µg/L	-	9.5	10.4	-	95

Volatile Petroleum Hydrocarbons in Water

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

QC Sample	Sample Number		Parameter	Units	LOR	Result	Original	Spike	Recovery%
SE207689.004	LB202434.017		TRH C6-C10	µg/L	50	0.86	<50	946.63	91
			TRH C6-C9	µg/L	40	0.74	<40	818.71	91
		Surrogates	d4-1,2-dichloroethane (Surrogate)	µg/L	-	0.0	10.0	-	101
			d8-toluene (Surrogate)	µg/L	-	0.0	9.9	-	101
			Bromofluorobenzene (Surrogate)	µg/L	-	0.0	10.4	-	95
		VPH F	Benzene (F0)	µg/L	0.5	0.052	<0.5	-	-
		Bands	TRH C6-C10 minus BTEX (F1)	µg/L	50	0.57	<50	639.67	89

Matrix spike duplicates are calculated as Relative Percent Difference (RPD) using the formula: RPD = | OriginalResult - ReplicateResult | x 100 / Mean

The original result is the analyte concentration of the matrix spike. The Duplicate result is the analyte concentration of the matrix spike duplicate.

The RPD is evaluated against the Maximum Allowable Difference (MAD) criteria and can be graphically represented by a curve calculated from the Statistical Detection Limit (SDL) and Limiting Repeatability (LR) using the formula: MAD = 100 x SDL / Mean + LR

Where the Maximum Allowable Difference evaluates to a number larger than 200 it is displayed as 200.

RPD is shown in **Green** when within suggested criteria or **Red** with an appended reason identifer when outside suggested criteria. Refer to the footnotes section at the end of this report for failure reasons.

No matrix spike duplicates were required for this job.

Samples analysed as received.

Solid samples expressed on a dry weight basis.

QC criteria are subject to internal review according to the SGS QA/QC plan and may be provided on request or alternatively can be found here: 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.
-	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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CERTIFICATE OF ANALYSIS 244845

Client Details

Client	EI Australia
Attention	Lab Email, Emily Scanlon
Address	Suite 6.01, 55 Miller Street, Pyrmont, NSW, 2009

Sample Details

Your Reference	**E24716, 15 Jubilee Ave Warriewood**
Number of Samples	1 soil
Date samples received	15/06/2020
Date completed instructions received	15/06/2020

Analysis Details

Please refer to the following pages for results, methodology summary and quality control data.

Samples were analysed as received from the client. Results relate specifically to the samples as received.

Results are reported on a dry weight basis for solids and on an as received basis for other matrices.

Report Details

Date results requested by	22/06/2020
Date of Issue	22/06/2020

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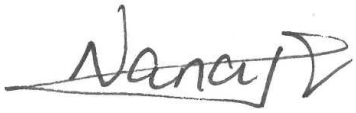
Results Approved By
Dragana Tomas, Senior Chemist
Jaimie Loa-Kum-Cheung, Metals Supervisor
Ken Nguyen, Reporting Supervisor

Authorised By



Nancy Zhang, Laboratory Manager

vTRH(C6-C10)/BTEXN in Soil		
Our Reference		244845-1
Your Reference	UNITS	QT1
Date Sampled		11/06/2020
Type of sample		soil
Date extracted	-	18/06/2020
Date analysed	-	19/06/2020
TRH C_6 - C_9	mg/kg	<25
TRH C_6 - C_{10}	mg/kg	<25
vTPH C_6 - C_{10} less BTEX (F1)	mg/kg	<25
Benzene	mg/kg	<0.2
Toluene	mg/kg	<0.5
Ethylbenzene	mg/kg	<1
m+p-xylene	mg/kg	<2
o-Xylene	mg/kg	<1
naphthalene	mg/kg	<1
Total +ve Xylenes	mg/kg	<3
Surrogate aaa-Trifluorotoluene	%	92

svTRH (C10-C40) in Soil		
Our Reference		244845-1
Your Reference	UNITS	QT1
Date Sampled		11/06/2020
Type of sample		soil
Date extracted	-	18/06/2020
Date analysed	-	19/06/2020
TRH C_{10} - C_{14}	mg/kg	<50
TRH C_{15} - C_{28}	mg/kg	<100
TRH C_{29} - C_{36}	mg/kg	<100
TRH >C_{10} -C_{16}	mg/kg	<50
TRH >C_{10} - C_{16} less Naphthalene (F2)	mg/kg	<50
TRH >C_{16} -C_{34}	mg/kg	<100
TRH >C_{34} -C_{40}	mg/kg	<100
Total +ve TRH (>C10-C40)	mg/kg	<50
Surrogate o-Terphenyl	%	86

Acid Extractable metals in soil		
Our Reference		244845-1
Your Reference	UNITS	QT1
Date Sampled		11/06/2020
Type of sample		soil
Date prepared	-	18/06/2020
Date analysed	-	18/06/2020
Arsenic	mg/kg	5
Cadmium	mg/kg	<0.4
Chromium	mg/kg	3
Copper	mg/kg	6
Lead	mg/kg	3
Mercury	mg/kg	<0.1
Nickel	mg/kg	<1
Zinc	mg/kg	4

Moisture		
Our Reference		244845-1
Your Reference	UNITS	QT1
Date Sampled		11/06/2020
Type of sample		soil
Date prepared	-	18/06/2020
Date analysed	-	19/06/2020
Moisture	%	12

Method ID	Methodology Summary
Inorg-008	Moisture content determined by heating at 105+/-5 °C for a minimum of 12 hours.
Metals-020	Determination of various metals by ICP-AES.
Metals-021	Determination of Mercury by Cold Vapour AAS.
Org-020	Soil samples are extracted with Dichloromethane/Acetone and waters with Dichloromethane and analysed by GC-FID. F2 = (>C10-C16)-Naphthalene as per NEPM B1 Guideline on Investigation Levels for Soil and Groundwater (HSLs Tables 1A (3, 4)). Note Naphthalene is determined from the VOC analysis.
Org-020	Soil samples are extracted with Dichloromethane/Acetone and waters with Dichloromethane and analysed by GC-FID. F2 = (>C10-C16)-Naphthalene as per NEPM B1 Guideline on Investigation Levels for Soil and Groundwater (HSLs Tables 1A (3, 4)). Note Naphthalene is determined from the VOC analysis. Note, the Total +ve TRH PQL is reflective of the lowest individual PQL and is therefore "Total +ve TRH" is simply a sum of the positive individual TRH fractions (>C10-C40).
Org-023	Soil samples are extracted with methanol and spiked into water prior to analysing by purge and trap GC-MS.
Org-023	Soil samples are extracted with methanol and spiked into water prior to analysing by purge and trap GC-MS. Water samples are analysed directly by purge and trap GC-MS. F1 = (C6-C10)-BTEX as per NEPM B1 Guideline on Investigation Levels for Soil and Groundwater.
Org-023	Soil samples are extracted with methanol and spiked into water prior to analysing by purge and trap GC-MS. Water samples are analysed directly by purge and trap GC-MS. F1 = (C6-C10)-BTEX as per NEPM B1 Guideline on Investigation Levels for Soil and Groundwater. Note, the Total +ve Xylene PQL is reflective of the lowest individual PQL and is therefore "Total +ve Xylenes" is simply a sum of the positive individual Xylenes.

QUALITY CONTROL: vTRH(C6-C10)/BTEXN in Soil						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-3	[NT]
Date extracted	-			18/06/2020	[NT]	[NT]	[NT]	[NT]	18/06/2020	[NT]
Date analysed	-			19/06/2020	[NT]	[NT]	[NT]	[NT]	19/06/2020	[NT]
TRH C_6 - C_9	mg/kg	25	Org-023	<25	[NT]	[NT]	[NT]	[NT]	95	[NT]
TRH C_6 - C_{10}	mg/kg	25	Org-023	<25	[NT]	[NT]	[NT]	[NT]	95	[NT]
Benzene	mg/kg	0.2	Org-023	<0.2	[NT]	[NT]	[NT]	[NT]	89	[NT]
Toluene	mg/kg	0.5	Org-023	<0.5	[NT]	[NT]	[NT]	[NT]	94	[NT]
Ethylbenzene	mg/kg	1	Org-023	<1	[NT]	[NT]	[NT]	[NT]	93	[NT]
m+p-xylene	mg/kg	2	Org-023	<2	[NT]	[NT]	[NT]	[NT]	99	[NT]
o-Xylene	mg/kg	1	Org-023	<1	[NT]	[NT]	[NT]	[NT]	96	[NT]
naphthalene	mg/kg	1	Org-023	<1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Surrogate aaa-Trifluorotoluene	%		Org-023	105	[NT]	[NT]	[NT]	[NT]	119	[NT]

QUALITY CONTROL: svTRH (C10-C40) in Soil						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-4	[NT]
Date extracted	-			18/06/2020	[NT]	[NT]	[NT]	[NT]	18/06/2020	[NT]
Date analysed	-			18/06/2020	[NT]	[NT]	[NT]	[NT]	18/06/2020	[NT]
TRH C_{10} - C_{14}	mg/kg	50	Org-020	<50	[NT]	[NT]	[NT]	[NT]	104	[NT]
TRH C_{15} - C_{28}	mg/kg	100	Org-020	<100	[NT]	[NT]	[NT]	[NT]	84	[NT]
TRH C_{29} - C_{36}	mg/kg	100	Org-020	<100	[NT]	[NT]	[NT]	[NT]	92	[NT]
TRH >C_{10} -C_{16}	mg/kg	50	Org-020	<50	[NT]	[NT]	[NT]	[NT]	104	[NT]
TRH >C_{16} -C_{34}	mg/kg	100	Org-020	<100	[NT]	[NT]	[NT]	[NT]	84	[NT]
TRH >C_{34} -C_{40}	mg/kg	100	Org-020	<100	[NT]	[NT]	[NT]	[NT]	92	[NT]
Surrogate o-Terphenyl	%		Org-020	88	[NT]	[NT]	[NT]	[NT]	74	[NT]

QUALITY CONTROL: Acid Extractable metals in soil						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-3	[NT]
Date prepared	-			18/06/2020	[NT]	[NT]	[NT]	[NT]	18/06/2020	[NT]
Date analysed	-			18/06/2020	[NT]	[NT]	[NT]	[NT]	18/06/2020	[NT]
Arsenic	mg/kg	4	Metals-020	<4	[NT]	[NT]	[NT]	[NT]	113	[NT]
Cadmium	mg/kg	0.4	Metals-020	<0.4	[NT]	[NT]	[NT]	[NT]	106	[NT]
Chromium	mg/kg	1	Metals-020	<1	[NT]	[NT]	[NT]	[NT]	104	[NT]
Copper	mg/kg	1	Metals-020	<1	[NT]	[NT]	[NT]	[NT]	104	[NT]
Lead	mg/kg	1	Metals-020	<1	[NT]	[NT]	[NT]	[NT]	103	[NT]
Mercury	mg/kg	0.1	Metals-021	<0.1	[NT]	[NT]	[NT]	[NT]	79	[NT]
Nickel	mg/kg	1	Metals-020	<1	[NT]	[NT]	[NT]	[NT]	106	[NT]
Zinc	mg/kg	1	Metals-020	<1	[NT]	[NT]	[NT]	[NT]	110	[NT]

Result Definitions

NT	Not tested
NA	Test not required
INS	Insufficient sample for this test
PQL	Practical Quantitation Limit
<	Less than
>	Greater than
RPD	Relative Percent Difference
LCS	Laboratory Control Sample
NS	Not specified
NEPM	National Environmental Protection Measure
NR	Not Reported

Quality Control Definitions

Blank	This is the component of the analytical signal which is not derived from the sample but from reagents, glassware etc, can be determined by processing solvents and reagents in exactly the same manner as for samples.
Duplicate	This is the complete duplicate analysis of a sample from the process batch. If possible, the sample selected should be one where the analyte concentration is easily measurable.
Matrix Spike	A portion of the sample is spiked with a known concentration of target analyte. The purpose of the matrix spike is to monitor the performance of the analytical method used and to determine whether matrix interferences exist.
LCS (Laboratory Control Sample)	This comprises either a standard reference material or a control matrix (such as a blank sand or water) fortified with analytes representative of the analyte class. It is simply a check sample.
Surrogate Spike	Surrogates are known additions to each sample, blank, matrix spike and LCS in a batch, of compounds which are similar to the analyte of interest, however are not expected to be found in real samples.

Australian Drinking Water Guidelines recommend that Thermotolerant Coliform, Faecal Enterococci, & E.Coli levels are less than 1cfu/100mL. The recommended maximums are taken from "Australian Drinking Water Guidelines", published by NHMRC & ARMC 2011.

The recommended maximums for analytes in urine are taken from “2018 TLVs and BEIs”, as published by ACGIH (where available). Limit provided for Nickel is a precautionary guideline as per Position Paper prepared by AIOH Exposure Standards Committee, 2016.

Guideline limits for Rinse Water Quality reported as per analytical requirements and specifications of AS 4187, Amdt 2 2019, Table 7.2

Laboratory Acceptance Criteria

Duplicate sample and matrix spike recoveries may not be reported on smaller jobs, however, were analysed at a frequency to meet or exceed NEPM requirements. All samples are tested in batches of 20. The duplicate sample RPD and matrix spike recoveries for the batch were within the laboratory acceptance criteria.

Filters, swabs, wipes, tubes and badges will not have duplicate data as the whole sample is generally extracted during sample extraction.

Spikes for Physical and Aggregate Tests are not applicable.

For VOCs in water samples, three vials are required for duplicate or spike analysis.

Duplicates: >10xPQL - RPD acceptance criteria will vary depending on the analytes and the analytical techniques but is typically in the range 20%-50% – see ELN-P05 QA/QC tables for details; <10xPQL - RPD are higher as the results approach PQL and the estimated measurement uncertainty will statistically increase.

Matrix Spikes, LCS and Surrogate recoveries: Generally 70-130% for inorganics/metals (not SPOCAS); 60-140% for organics/SPOCAS (+/-50% surrogates) and 10-140% for labile SVOCs (including labile surrogates), ultra trace organics and speciated phenols is acceptable.

In circumstances where no duplicate and/or sample spike has been reported at 1 in 10 and/or 1 in 20 samples respectively, the sample volume submitted was insufficient in order to satisfy laboratory QA/QC protocols.

When samples are received where certain analytes are outside of recommended technical holding times (THTs), the analysis has proceeded. Where analytes are on the verge of breaching THTs, every effort will be made to analyse within the THT or as soon as practicable.

Where sampling dates are not provided, Envirolab are not in a position to comment on the validity of the analysis where recommended technical holding times may have been breached.

Measurement Uncertainty estimates are available for most tests upon request.

Analysis of aqueous samples typically involves the extraction/digestion and/or analysis of the liquid phase only (i.e. NOT any settled sediment phase but inclusive of suspended particles if present), unless stipulated on the Envirolab COC and/or by correspondence. Notable exceptions include certain Physical Tests (pH/EC/BOD/COD/Apparent Colour etc.), Solids testing, total recoverable metals and PFAS where solids are included by default.

Samples for Microbiological analysis (not Amoeba forms) received outside of the 2-8°C temperature range do not meet the ideal cooling conditions as stated in AS2031-2012.

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CERTIFICATE OF ANALYSIS 245184

Client Details

Client	EI Australia
Attention	Emily Scanlon
Address	Suite 6.01, 55 Miller Street, Pyrmont, NSW, 2009

Sample Details

Your Reference	**E24716, 15 Jubilee Ave Warriewood**
Number of Samples	1 Water
Date samples received	18/06/2020
Date completed instructions received	19/06/2020

Analysis Details

Please refer to the following pages for results, methodology summary and quality control data.

Samples were analysed as received from the client. Results relate specifically to the samples as received.

Results are reported on a dry weight basis for solids and on an as received basis for other matrices.

Report Details

Date results requested by	25/06/2020
Date of Issue	25/06/2020

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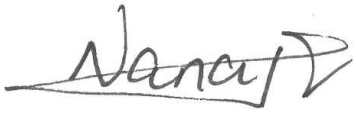
Results Approved By
Dragana Tomas, Senior Chemist
Josh Williams, Senior Chemist
Loren Bardwell, Senior Chemist

Authorised By



Nancy Zhang, Laboratory Manager

vTRH(C6-C10)/BTEXN in Water		
Our Reference		245184-1
Your Reference	UNITS	GW-QT-1
Date Sampled		18/06/2020
Type of sample		Water
Date extracted	-	22/06/2020
Date analysed	-	24/06/2020
TRH C_6 - C_9	µg/L	<10
TRH C_6 - C_{10}	µg/L	<10
TRH C_6 - C_{10} less BTEX (F1)	µg/L	<10
Benzene	µg/L	<1
Toluene	µg/L	<1
Ethylbenzene	µg/L	<1
m+p-xylene	µg/L	<2
o-xylene	µg/L	<1
Naphthalene	µg/L	<1
Surrogate Dibromofluoromethane	%	104
Surrogate toluene-d8	%	98
Surrogate 4-BFB	%	102

svTRH (C10-C40) in Water		
Our Reference	UNITS	245184-1
Your Reference		GW-QT-1
Date Sampled		18/06/2020
Type of sample		Water
Date extracted	-	22/06/2020
Date analysed	-	22/06/2020
TRH C_{10} - C_{14}	µg/L	<50
TRH C_{15} - C_{28}	µg/L	<100
TRH C_{29} - C_{36}	µg/L	<100
TRH >C_{10} - C_{16}	µg/L	<50
TRH >C_{10} - C_{16} less Naphthalene (F2)	µg/L	<50
TRH >C_{16} - C_{34}	µg/L	<100
TRH >C_{34} - C_{40}	µg/L	<100
Surrogate o-Terphenyl	%	112

PAHs in Water		
Our Reference	UNITS	245184-1
Your Reference		GW-QT-1
Date Sampled		18/06/2020
Type of sample		Water
Date extracted	-	22/06/2020
Date analysed	-	22/06/2020
Naphthalene	µg/L	<1
Acenaphthylene	µg/L	<1
Acenaphthene	µg/L	<1
Fluorene	µg/L	<1
Phenanthrene	µg/L	<1
Anthracene	µg/L	<1
Fluoranthene	µg/L	<1
Pyrene	µg/L	<1
Benzo(a)anthracene	µg/L	<1
Chrysene	µg/L	<1
Benzo(b,j+k)fluoranthene	µg/L	<2
Benzo(a)pyrene	µg/L	<1
Indeno(1,2,3-c,d)pyrene	µg/L	<1
Dibenzo(a,h)anthracene	µg/L	<1
Benzo(g,h,i)perylene	µg/L	<1
Benzo(a)pyrene TEQ	µg/L	<5
Total +ve PAH's	µg/L	NIL (+)VE
Surrogate p-Terphenyl-d14	%	90

HM in water - dissolved		
Our Reference	UNITS	245184-1
Your Reference		GW-QT-1
Date Sampled		18/06/2020
Type of sample		Water
Date prepared	-	22/06/2020
Date analysed	-	22/06/2020
Arsenic-Dissolved	µg/L	<1
Cadmium-Dissolved	µg/L	<0.1
Chromium-Dissolved	µg/L	<1
Copper-Dissolved	µg/L	7
Lead-Dissolved	µg/L	<1
Mercury-Dissolved	µg/L	<0.05
Nickel-Dissolved	µg/L	2
Zinc-Dissolved	µg/L	16

Method ID	Methodology Summary
Metals-021	Determination of Mercury by Cold Vapour AAS.
Metals-022	Determination of various metals by ICP-MS.
Org-020	Soil samples are extracted with Dichloromethane/Acetone and waters with Dichloromethane and analysed by GC-FID. F2 = (>C10-C16)-Naphthalene as per NEPM B1 Guideline on Investigation Levels for Soil and Groundwater (HSLs Tables 1A (3, 4)). Note Naphthalene is determined from the VOC analysis.
Org-022/025	Soil samples are extracted with Dichloromethane/Acetone and waters with Dichloromethane and analysed by GC-MS/GC-MSMS. Benzo(a)pyrene TEQ as per NEPM B1 Guideline on Investigation Levels for Soil and Groundwater - 2013.
Org-023	Water samples are analysed directly by purge and trap GC-MS.
Org-023	Soil samples are extracted with methanol and spiked into water prior to analysing by purge and trap GC-MS. Water samples are analysed directly by purge and trap GC-MS. F1 = (C6-C10)-BTEX as per NEPM B1 Guideline on Investigation Levels for Soil and Groundwater.

QUALITY CONTROL: vTRH(C6-C10)/BTEXN in Water						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-W3	[NT]
Date extracted	-			22/06/2020	[NT]	[NT]	[NT]	[NT]	22/06/2020	[NT]
Date analysed	-			24/06/2020	[NT]	[NT]	[NT]	[NT]	24/06/2020	[NT]
TRH C_6 - C_9	µg/L	10	Org-023	<10	[NT]	[NT]	[NT]	[NT]	108	[NT]
TRH C_6 - C_{10}	µg/L	10	Org-023	<10	[NT]	[NT]	[NT]	[NT]	108	[NT]
Benzene	µg/L	1	Org-023	<1	[NT]	[NT]	[NT]	[NT]	103	[NT]
Toluene	µg/L	1	Org-023	<1	[NT]	[NT]	[NT]	[NT]	101	[NT]
Ethylbenzene	µg/L	1	Org-023	<1	[NT]	[NT]	[NT]	[NT]	108	[NT]
m+p-xylene	µg/L	2	Org-023	<2	[NT]	[NT]	[NT]	[NT]	114	[NT]
o-xylene	µg/L	1	Org-023	<1	[NT]	[NT]	[NT]	[NT]	112	[NT]
Naphthalene	µg/L	1	Org-023	<1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Surrogate Dibromofluoromethane	%		Org-023	105	[NT]	[NT]	[NT]	[NT]	97	[NT]
Surrogate toluene-d8	%		Org-023	99	[NT]	[NT]	[NT]	[NT]	100	[NT]
Surrogate 4-BFB	%		Org-023	101	[NT]	[NT]	[NT]	[NT]	113	[NT]

QUALITY CONTROL: svTRH (C10-C40) in Water						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-W1	[NT]
Date extracted	-			22/06/2020	1	22/06/2020	22/06/2020		22/06/2020	[NT]
Date analysed	-			22/06/2020	1	22/06/2020	22/06/2020		22/06/2020	[NT]
TRH C_{10} - C_{14}	µg/L	50	Org-020	<50	1	<50	<50	0	101	[NT]
TRH C_{15} - C_{28}	µg/L	100	Org-020	<100	1	<100	<100	0	94	[NT]
TRH C_{29} - C_{36}	µg/L	100	Org-020	<100	1	<100	<100	0	97	[NT]
TRH >C_{10} - C_{16}	µg/L	50	Org-020	<50	1	<50	<50	0	101	[NT]
TRH >C_{16} - C_{34}	µg/L	100	Org-020	<100	1	<100	<100	0	94	[NT]
TRH >C_{34} - C_{40}	µg/L	100	Org-020	<100	1	<100	<100	0	97	[NT]
Surrogate o-Terphenyl	%		Org-020	111	1	112	89	23	88	[NT]

QUALITY CONTROL: PAHs in Water						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-W3	[NT]
Date extracted	-			22/06/2020	1	22/06/2020	22/06/2020		22/06/2020	[NT]
Date analysed	-			22/06/2020	1	22/06/2020	22/06/2020		22/06/2020	[NT]
Naphthalene	µg/L	1	Org-022/025	<1	1	<1	<1	0	110	[NT]
Acenaphthylene	µg/L	1	Org-022/025	<1	1	<1	<1	0	[NT]	[NT]
Acenaphthene	µg/L	1	Org-022/025	<1	1	<1	<1	0	[NT]	[NT]
Fluorene	µg/L	1	Org-022/025	<1	1	<1	<1	0	132	[NT]
Phenanthrene	µg/L	1	Org-022/025	<1	1	<1	<1	0	90	[NT]
Anthracene	µg/L	1	Org-022/025	<1	1	<1	<1	0	[NT]	[NT]
Fluoranthene	µg/L	1	Org-022/025	<1	1	<1	<1	0	98	[NT]
Pyrene	µg/L	1	Org-022/025	<1	1	<1	<1	0	94	[NT]
Benzo(a)anthracene	µg/L	1	Org-022/025	<1	1	<1	<1	0	[NT]	[NT]
Chrysene	µg/L	1	Org-022/025	<1	1	<1	<1	0	72	[NT]
Benzo(b,j+k)fluoranthene	µg/L	2	Org-022/025	<2	1	<2	<2	0	[NT]	[NT]
Benzo(a)pyrene	µg/L	1	Org-022/025	<1	1	<1	<1	0	94	[NT]
Indeno(1,2,3-c,d)pyrene	µg/L	1	Org-022/025	<1	1	<1	<1	0	[NT]	[NT]
Dibenzo(a,h)anthracene	µg/L	1	Org-022/025	<1	1	<1	<1	0	[NT]	[NT]
Benzo(g,h,i)perylene	µg/L	1	Org-022/025	<1	1	<1	<1	0	[NT]	[NT]
Surrogate p-Terphenyl-d14	%		Org-022/025	65	1	90	92	2	105	[NT]

QUALITY CONTROL: HM in water - dissolved						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-W2	[NT]
Date prepared	-			22/06/2020	[NT]	[NT]	[NT]	[NT]	22/06/2020	[NT]
Date analysed	-			22/06/2020	[NT]	[NT]	[NT]	[NT]	22/06/2020	[NT]
Arsenic-Dissolved	µg/L	1	Metals-022	<1	[NT]	[NT]	[NT]	[NT]	92	[NT]
Cadmium-Dissolved	µg/L	0.1	Metals-022	<0.1	[NT]	[NT]	[NT]	[NT]	98	[NT]
Chromium-Dissolved	µg/L	1	Metals-022	<1	[NT]	[NT]	[NT]	[NT]	103	[NT]
Copper-Dissolved	µg/L	1	Metals-022	<1	[NT]	[NT]	[NT]	[NT]	103	[NT]
Lead-Dissolved	µg/L	1	Metals-022	<1	[NT]	[NT]	[NT]	[NT]	106	[NT]
Mercury-Dissolved	µg/L	0.05	Metals-021	<0.05	[NT]	[NT]	[NT]	[NT]	101	[NT]
Nickel-Dissolved	µg/L	1	Metals-022	<1	[NT]	[NT]	[NT]	[NT]	94	[NT]
Zinc-Dissolved	µg/L	1	Metals-022	<1	[NT]	[NT]	[NT]	[NT]	97	[NT]

Result Definitions

NT	Not tested
NA	Test not required
INS	Insufficient sample for this test
PQL	Practical Quantitation Limit
<	Less than
>	Greater than
RPD	Relative Percent Difference
LCS	Laboratory Control Sample
NS	Not specified
NEPM	National Environmental Protection Measure
NR	Not Reported

Quality Control Definitions

Blank	This is the component of the analytical signal which is not derived from the sample but from reagents, glassware etc, can be determined by processing solvents and reagents in exactly the same manner as for samples.
Duplicate	This is the complete duplicate analysis of a sample from the process batch. If possible, the sample selected should be one where the analyte concentration is easily measurable.
Matrix Spike	A portion of the sample is spiked with a known concentration of target analyte. The purpose of the matrix spike is to monitor the performance of the analytical method used and to determine whether matrix interferences exist.
LCS (Laboratory Control Sample)	This comprises either a standard reference material or a control matrix (such as a blank sand or water) fortified with analytes representative of the analyte class. It is simply a check sample.
Surrogate Spike	Surrogates are known additions to each sample, blank, matrix spike and LCS in a batch, of compounds which are similar to the analyte of interest, however are not expected to be found in real samples.

Australian Drinking Water Guidelines recommend that Thermotolerant Coliform, Faecal Enterococci, & E.Coli levels are less than 1cfu/100mL. The recommended maximums are taken from "Australian Drinking Water Guidelines", published by NHMRC & ARMC 2011.

The recommended maximums for analytes in urine are taken from “2018 TLVs and BEIs”, as published by ACGIH (where available). Limit provided for Nickel is a precautionary guideline as per Position Paper prepared by AIOH Exposure Standards Committee, 2016.

Guideline limits for Rinse Water Quality reported as per analytical requirements and specifications of AS 4187, Amdt 2 2019, Table 7.2

Laboratory Acceptance Criteria

Duplicate sample and matrix spike recoveries may not be reported on smaller jobs, however, were analysed at a frequency to meet or exceed NEPM requirements. All samples are tested in batches of 20. The duplicate sample RPD and matrix spike recoveries for the batch were within the laboratory acceptance criteria.

Filters, swabs, wipes, tubes and badges will not have duplicate data as the whole sample is generally extracted during sample extraction.

Spikes for Physical and Aggregate Tests are not applicable.

For VOCs in water samples, three vials are required for duplicate or spike analysis.

Duplicates: >10xPQL - RPD acceptance criteria will vary depending on the analytes and the analytical techniques but is typically in the range 20%-50% – see ELN-P05 QA/QC tables for details; <10xPQL - RPD are higher as the results approach PQL and the estimated measurement uncertainty will statistically increase.

Matrix Spikes, LCS and Surrogate recoveries: Generally 70-130% for inorganics/metals (not SPOCAS); 60-140% for organics/SPOCAS (+/-50% surrogates) and 10-140% for labile SVOCs (including labile surrogates), ultra trace organics and speciated phenols is acceptable.

In circumstances where no duplicate and/or sample spike has been reported at 1 in 10 and/or 1 in 20 samples respectively, the sample volume submitted was insufficient in order to satisfy laboratory QA/QC protocols.

When samples are received where certain analytes are outside of recommended technical holding times (THTs), the analysis has proceeded. Where analytes are on the verge of breaching THTs, every effort will be made to analyse within the THT or as soon as practicable.

Where sampling dates are not provided, Envirolab are not in a position to comment on the validity of the analysis where recommended technical holding times may have been breached.

Measurement Uncertainty estimates are available for most tests upon request.

Analysis of aqueous samples typically involves the extraction/digestion and/or analysis of the liquid phase only (i.e. NOT any settled sediment phase but inclusive of suspended particles if present), unless stipulated on the Envirolab COC and/or by correspondence. Notable exceptions include certain Physical Tests (pH/EC/BOD/COD/Apparent Colour etc.), Solids testing, total recoverable metals and PFAS where solids are included by default.

Samples for Microbiological analysis (not Amoeba forms) received outside of the 2-8°C temperature range do not meet the ideal cooling conditions as stated in AS2031-2012.

Appendix I – Result Summary Tables

Table T1 - Summary of Soil Analytical Results **E24716 - Warriewood**

Sample ID	Sampling Date	Heavy Metals								PAHs				BTEX				TRH				Pesticides		PCBs	Asbestos
		As	Cd	Cr#	Cu	Pb	Hg	Ni	Zn	Carcinogenic PAHs (as B(a)P TEQ)	Benzo(a)pyrene	Total PAHs	Naphthalene	Benzene	Toluene	Ethylbenzene	Total Xylenes	F1	F2	F3	F4	OCPs	OPPs	Total PCB	Presence / Absence
FILL																									
TP1_0.1-0.2	11/06/2020	5	<0.3	2.8	12	37	<0.5	<0.05	<0.5	<0.3	<0.1	<0.8	<0.1	<0.1	<0.1	<0.1	<0.3	<25	<25	<90	<120	<1	<1.7	<1	Absent
TP2_0.4-0.5		11	<0.3	2.9	5.3	7	<0.5	<0.05	<0.5	<0.3	<0.1	<0.8	<0.1	<0.1	<0.1	<0.1	<0.3	<25	<25	<90	<120	<1	<1.7	<1	Absent
TP3_0.1-0.2		8	<0.3	3.2	24	66	<0.5	<0.05	<0.5	<0.3	<0.1	<0.8	<0.1	<0.1	<0.1	<0.1	<0.3	<25	<25	<90	<120	<1	<1.7	<1	Absent
TP4_0.1-0.2		4	<0.3	3.5	15	34	1.10	<0.05	1.1	0.6	0.4	2.9	<0.1	<0.1	<0.1	<0.1	<0.3	<25	<25	<90	<120	<1	<1.7	<1	Absent
TP5_0.1-0.2		1	<0.3	2.6	8.1	14	0.50	<0.05	0.5	<0.3	<0.1	<0.8	<0.1	<0.1	<0.1	<0.1	<0.3	<25	<25	<90	<120	<1	<1.7	<1	Absent
TP6_0.2-0.3		2	<0.3	3.6	5.4	18	1.50	<0.05	1.5	0.5	0.3	3.7	<0.1	<0.1	<0.1	<0.1	<0.3	<25	<25	<90	<120	<1	<1.7	<1	Absent
BH1_0.1-0.2		1	<0.3	5.2	4.1	6	0.80	<0.05	0.8	<0.3	<0.1	<0.8	<0.1	<0.1	<0.1	<0.1	<0.3	<25	<25	<90	<120	<1	<1.7	<1	Absent
BH2_0.1-0.2		10	0.4	5.7	23	63	0.90	<0.05	0.9	<0.3	<0.1	<0.8	<0.1	<0.1	<0.1	<0.1	<0.3	<25	<25	<90	<120	<1	<1.7	<1	Absent
BH3M_0.3-0.4		1	<0.3	0.9	2.4	5	<0.5	<0.05	<0.5	<0.3	<0.1	<0.8	<0.1	<0.1	<0.1	<0.1	<0.3	<25	<25	<90	<120	<1	<1.7	<1	Absent
BH4M_0.3-0.4		3	<0.3	1.8	6.2	8	<0.5	<0.05	<0.5	<0.3	<0.1	<0.8	<0.1	<0.1	<0.1	<0.1	<0.3	<25	<25	<90	<120	<1	<1.7	<1	Absent
BH5M_0.1-0.2		6	<0.3	5.2	6.8	22	1.00	<0.05	1	<0.3	0.1	1.7	<0.1	<0.1	<0.1	<0.1	<0.3	<25	<25	<90	<120	<1	<1.7	<1	Absent
BH6_0.1-0.2	12/06/2020	<1	<0.3	9.4	5.2	18	2.30	<0.05	2.3	0.4	0.2	3	<0.1	<0.1	<0.1	<0.1	<0.3	<25	<25	<90	<120	<1	<1.7	<1	Absent
NATURAL																									
TP3_0.8-0.9	11/06/2020	1	<0.3	7.6	<0.5	4	<0.05	<0.5	<2	<0.3	<0.1	<0.8	<0.1	<0.1	<0.1	<0.1	<0.3	<25	<25	<90	<120	NA	NA	NA	NA
TP5_0.4-0.5		1	<0.3	6.3	<0.5	4	<0.05	<0.5	<2	<0.3	<0.1	<0.8	<0.1	<0.1	<0.1	<0.1	<0.3	<25	<25	<90	<120	NA	NA	NA	NA
BH1_0.7-0.9		1	<0.3	12	0.6	5	<0.05	<0.5	2.8	<0.3	<0.1	<0.8	<0.1	<0.1	<0.1	<0.1	<0.3	<25	<25	<90	<120	NA	NA	NA	NA
BH5M_1.2-1.4		<1	<0.3	7.5	<0.5	11	<0.05	1.9	<2	<0.3	<0.1	<0.8	<0.1	<0.1	<0.1	<0.1	<0.3	<25	<25	<90	<120	NA	NA	NA	NA
Statistic Summary																									
Maximium		11	0.4	12	24	66	2.3	1.9	2.8	0.6	0.4	3.7	<0.1	<0.1	<0.1	<0.1	<0.3	<25	<25	<90	<120	<1	<1.7	<1	Absent
NEPC (2013) Site Suitability																									
HIL D - *Commercial / industrial*		3,000	900	3,600 Cr(VI)	240,000	1,500	730	6,000	400,000	40		4,000										3,600		7	
HSL D - Commercial / Industrial Soil texture classification – Clay	Source depths (0 m to <1 m. BGL)												NL	4	NL	NL	NL	310	NL						
	Source depths (1 m to <2 m. BGL)												NL	6	NL	NL	NL	480	NL						
	Source depths (2 m to <4 m. BGL)												NL	9	NL	NL	NL	NL	NL						
	Source depths (4 m + BGL)												NL	20	NL	NL	NL	NL	NL						
EILs / ESLs - Urban residential and public open space [1] [2]		160		310		1,800		55		0.7			370	75	135	165	180	215	170	1,700	3,300				
Management Limits – *Commercial and Industrial* [1]																		700	1,000	3,500	10,000				
Asbestos Contamination Non-Friable Asbestos (%w/w)																									0.01
Asbestos Contamination Friable Asbestos (%w/w)																									0.001

Notes:

All results are recorded in mg/kg

HIL D	NEPC 1999 Amendment 2013 'HIL D' - Health based commercial / industrial soils settings.
HSL D	NEPC 1999 Amendment 2013 'HSL D' Health Based Screening Levels applicable for vapour intrusion values applicable for commercial / industrial.
#	Thresholds are for Chromium VI.
NR	No current published criterion.
NL	Not Limiting' If the derived soil vapour limit exceeds the soil concentration at which the pore water phase cannot dissolve any more of the individual chemical
NC	Not calculated
NA	'Not Analysed' i.e. the sample was not analysed.
1	As strata contains both sand and clay, the most conserative soil assessment criteria values were applied (coarse grained).
2	EIL criteria is derived from a site specific Added Contaminant Limit (ACL) with the Ambient Background Concentration (ABC) for a high traffic NSW suburb.
3	The ecological criteria for benzo(α)pyrene was sourced from CRC Care (2017) Technical Report No. 39 Risk-based management and remediation guidance for benzo(a)pyrene.
F1	To obtain F1 subtract the sum of BTEX concentrations from the C6-C10 fraction.
F2	To obtain F2 subtract naphthalene from the >C10-C16 fraction.
F3	(>C16-C34)
F4	(>C34-C40)

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Table T2: Summary of Results for Waste Classification

E24716 - Warriewood

Sample ID	Heavy Metals								PAHs		BTEX				TPH		OC Pesticides	OP Pesticides	PCBs	Asbestos (Absence/Presence)
	As	Cd	Cr	Cu	Pb	Hg	Ni	Zn	Benzo(a)pyrene	Total PAHs	Benzene	Toluene	Ethylbenzene	Total Xylenes	C_6-C_9	C_{10}-C_{36}				
FILL																				
TP1_0.1-0.2	5	<0.3	3	12.0	37	<0.5	<0.05	<0.5	<0.1	<0.8	<0.1	<0.1	<0.1	<0.3	<20	<110	<1	<1.7	<1	Absent
TP2_0.4-0.5	11	<0.3	3	5.3	7	<0.5	<0.05	<0.5	<0.1	<0.8	<0.1	<0.1	<0.1	<0.3	<20	<110	<1	<1.7	<1	Absent
TP3_0.1-0.2	8	<0.3	3	24.0	66	<0.5	<0.05	<0.5	<0.1	<0.8	<0.1	<0.1	<0.1	<0.3	<20	<110	<1	<1.7	<1	Absent
TP4_0.1-0.2	4	<0.3	4	15.0	34	1.10	<0.05	1	0.4	2.9	<0.1	<0.1	<0.1	<0.3	<20	<110	<1	<1.7	<1	Absent
TP5_0.1-0.2	1	<0.3	3	8.1	14	0.50	<0.05	1	<0.1	<0.8	<0.1	<0.1	<0.1	<0.3	<20	<110	<1	<1.7	<1	Absent
TP6_0.2-0.3	2	<0.3	4	5.4	18	1.50	<0.05	2	0.3	3.7	<0.1	<0.1	<0.1	<0.3	<20	<110	<1	<1.7	<1	Absent
BH1_0.1-0.2	1	<0.3	5	4.1	6	0.80	<0.05	1	<0.1	<0.8	<0.1	<0.1	<0.1	<0.3	<20	<110	<1	<1.7	<1	Absent
BH2_0.1-0.2	10	0.4	6	23.0	63	0.90	<0.05	1	<0.1	<0.8	<0.1	<0.1	<0.1	<0.3	<20	<110	<1	<1.7	<1	Absent
BH3M_0.3-0.4	1	<0.3	1	2.4	5	<0.5	<0.05	<0.5	<0.1	<0.8	<0.1	<0.1	<0.1	<0.3	<20	<110	<1	<1.7	<1	Absent
BH4M_0.3-0.4	3	<0.3	2	6.2	8	<0.5	<0.05	<0.5	<0.1	<0.8	<0.1	<0.1	<0.1	<0.3	<20	<110	<1	<1.7	<1	Absent
BH5M_0.1-0.2	6	<0.3	5	6.8	22	1.00	<0.05	1	0.1	1.7	<0.1	<0.1	<0.1	<0.3	<20	<110	<1	<1.7	<1	Absent
BH6_0.1-0.2	<1	<0.3	9	5.2	18	2.30	<0.05	2	0.2	3	<0.1	<0.1	<0.1	<0.3	<20	<110	<1	<1.7	<1	Absent
Statistical Analysis																				
Maximum concentration	11	0.4	9.4	24	66	2.3	<0.05	2.3	0.4	3.7	<0.1	<0.1	<0.1	<0.3	<20	<110	<1	<1.7	<1	Absent
Classification																				
GENERAL SOLID WASTE (NON-PUTRESCIBLE)																				
Waste Classification Criteria																				
NSW EPA 2014 [1] General Solid Waste — CT1 (mg/kg)	100	20	100		100	4	40		0.8	200	10	288	600	1,000	650	10,000				
NSW EPA 2014 [1] General Solid Waste — TCLP1 (mg/L) / SCC1 (mg/kg)	5.0 / 500	1.0 / 100	5 / 1,900		5 / 1,500	0.2 / 50	2 / 1,050		0.04 / 10	NR / 200	0.5 / 18	14.4 / 518	30 / 1,080	50 / 1,800	NR / 650	NR / 10,000				
NSW EPA 2014 Restricted Solid Waste [2] — CT2 (mg/kg)	400	80	400		400	16	160		3.2	800	40	1,152	2,400	4,000	2,600	40,000				
NSW EPA 2014 Restricted Solid Waste [2] — TCLP2 (mg/L) / SCC2 (mg/kg)	20 / 2000	4 / 400	20 / 7600		20 / 6000	0.8 / 200	8 / 4200		0.16 / 23	NR / 800	2 / 72	57.6 / 2073	120 / 4320	200 / 7200	NR / 2600	NR / 40,000				
Special Waste / Scheduled Waste [3,4]																	> 2 mg/kg - Scheduled Waste [4]		> 2 mg/kg - PCB Waste [5]	Where detected classification is Special Waste (Asbestos Waste)
ENM Order — Maximum Average Concentration (mg/kg)	20	0.5	75	100	50	0.5	30	150	0.5	20	NR	NR	NR	NR	NR	250				
ENM Order — Absolute Maximum Concentration (mg/kg)	40	1	150	200	100	1	60	300	1	40	0.5	65	25	15	NR	500				

Notes:

All results are recorded in mg/kg (unless otherwise stated)

ND	'Not detected' i.e. all concentrations of the compounds within the analyte group were found to be below the laboratory limits of detection.
NA	'Not Analysed' i.e. the sample was not analysed.
NC	Not Calculated'
NR	Not Referenced' i.e. No published criteria available
1	NSW EPA 2014 General Solid Waste Thresholds, in Waste Classification Guidelines, Table 1 (CT1) and Table 2 (TCLP1 / SCC1)
2	NSW EPA 2014 Restricted Solid Waste Thresholds, in Waste Classification Guidelines, Table 1 (CT2) and Table 2 (TCLP2 / SCC2)
3	NSW EPA Scheduled Chemical Wastes Chemical Control Order 2004. Section 4.14
4	NSW EPA Polychlorinated Biphenyl (PCB) Chemical Control Order 1997. Where PCBs are reported at concentrations >2 mg/kg and <50 mg/kg, material is non-scheduled PCB waste. Where PCBs are reported at concentrations >50 mg/kg, material is scheduled PCB
	Indicates waste criteria met

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Sample ID	Material	Analysis			
		pH (f)	pH(fox)	Reaction	pH Difference
TP2_0.4-0.5	SAND	6.7	5.8	Moderate Reaction	0.9
ASS_TP2_1.0	Clayey SAND	6.0	5.5	Moderate Reaction	0.6
ASS_TP2_2.0	Sandy CLAY	4.8	5.0	Moderate Reaction	-0.1
TP4_0.4-0.5	Clayey SAND	4.9	4.9	Moderate Reaction	0.0
ASS_TP6_1.0	Clayey SAND	5.5	5.5	Moderate Reaction	0.1
ASS_TP6_1.5	Clayey SAND	4.7	5.2	Moderate Reaction	-0.5
ASS_TP6_2.0	Clayey SAND	4.7	4.9	Moderate Reaction	-0.2
ASS SILs					
ASSMAC (1998) Criteria	**Field pH Indicator of AASS**	≤ 4	pHFOX >3 and ≤4, less positive and SPOCAS test required to confirm	NR	
			pHFOX >4 and ≤5, neither positive or negative, SPOCAS test required to confirm		
			pHFOX >5 and little or no drop in pH, sulfur trail in SPOCAS should be used.		
	Field pH Indicator of PASS	NR	pHfox <3 and a strong reaction to peroxide, indicates a high level of certainty.		>1

Notes:

AASS	Actual Acid Sulfate Soils
NA	Not Analysed
NR	No availbale criterion
PASS	Potential Acid Sulfate Soils
pHF	Field pH

PH Field Indicators (ASSMAC 1998)

pHF<=4, indicates that actual acid sulfate soil are present with sulphides being oxidised in the past resulting in acid soil (and soil pore water) conditions.

pHF values >4 and <5.5 are acid and may be the result of some previous or limited oxidation of sulfides but is not confirmatory of actual ASS.

If pHFOX is more than one pH unit below the pHF, it may indicate potential acid sulfate soils.

pHFOX <3 and a strong reaction to peroxide, indicates a high level of certainty of a potential acid sulfate soils.

pHFOX >3 and <=4 is less positive for presence of actual acid sulfate soils and laboratory analyses is need to confirm if sulphides are present.

pHFOX >4 and <=5 is neither positive or negative for presence of actual acid sulfate soils. Laboratory analyses by SPOCAS is need to confirm if oxidisable sulphides are present.

pHFOX >5 and little or no drop in pH from the field value indicates little net acid generating ability. The sulfur trail in the SPOCAS method should be used to check for absence of oxidisable sulfides.

Table T4 - Summary of Groundwater Analytical Results **E24716 - Warriewood**

Sample ID	Sampling Date	Heavy Metals								PAHs			BTEX					TRHs				VOC	
		As	Cd	Cr	Cu	Pb	Hg	Ni	Zn	Total PAHs	Benzo(a)pyrene	Naphthalene	Benzene	Toluene	Ethylbenzene	o-xylene	m/p-xylene	F1	F2	F3	F4	Naphthalene	Total Phenols
GW_BH3M-1	18/6/2020	<1	<0.1	<1	5	<1	<0.1	2	18	<1.058[8]	<0.1	<0.2[8]	<0.5	<0.5	<0.5	<0.5	<1	<50	<60	<500	<500	<0.5	<10
GW_BH4M-1		<1	<0.1	<1	16	<1	<0.1	2	25	1	<0.1	<0.5[8]	<0.5	<0.5	<0.5	<0.5	<1	<50	<60	<500	<500	0.5	<10
GW_BH5M-1		<1	<0.1	<1	15	<1	<0.1	3	21	1	<0.1	<0.3[8]	<0.5	<0.5	<0.5	<0.5	<1	<50	<60	<500	<500	<0.5	<10
Statistical Analysis																							
Maximum Concentration		<1	<0.1	<1	16	<1	<0.1	3	25	1	<0.1	<0.1	<0.5	<0.5	<0.5	<0.5	<1	<50	<60	<500	<500	0.5	<10
GILs																							
NEPM (2013) HSL D *Commercial / Industrial* [1]	2m to <4m											NL	5,000	NL	NL	NL	NL	6,000	NL				
	4m to <8m											NL	5,000	NL	NL	NL	NL	6,000	NL				
	8m +											NL	5,000	NL	NL	NL	NL	7,000	NL				
ANZG (2018) Fresh Waters [2]		24 (AsIII) 13 (AsV)	0.2	1 [4] (Cr VI)	1.4	3.4	0.06 [3]	11	8 [4]		0.1	16	950	180 [5]	80 [5]	350	275 [5]	50 [6]	60 [6]	500 [6]	500 [6]	16	320
ANZG (2018) Marine Waters [2]			0.7 [3]	27 (Cr III) 4.4 (Cr IV)	1.3	4.4	0.1 [3]	7	15 [4]			50 [4]	500 [4]	180 [5]	5 [5]	350 [5]	275 [5]	50 [6]	60 [6]	500 [6]	500 [6]	50 [4]	400
ANZG (2018) Recreational Water [7]		100	20		1,000 *	100	10	200	3,000*				10	25*	3*	20 *	20 *						

Notes:

Highlighted indicates criteria exceeds human health criteria

Highlighted indicates criteria exceeds ecological health criteria

Highlighted indicates criteria exceeded

All values are µg/L unless stated otherwise

NL	Not Limiting
NA	'Not Analysed' i.e. the sample was not analysed.
ND	Not Detected - i.e. concentration below the laboratory PQL
F1	To obtain F1 subtract the sum of BTEX concentrations from the C6-C10 fraction.
F2	To obtain F2 subtract naphthalene from the >C10-C16 fraction.
F3	(>C16-C34)
F4	(>C34-C40)
1	NEPM (2013) Table 1A(4) Groundwater HSL D for vapour intrusion in sand, as a conservative approach.
2	NEPM (2013) Groundwater Investigation Levels for fresh and marine water quality, based on ANZECC & ARMCANZ (2000).
3	Chemical for which possible bioaccumulation and secondary poisoning effects should be considered, refer to ANZG (2018) for further guidance.
4	Figure may not protect key species from chronic toxicity, refer to ANZECC & ARMCANZ (2000) for further guidance
5	Low reliability toxicity data, refer to ANZECC & ARMCANZ (2000)
6	In lack of a criteria the laboratory PQL has been used (DEC, 2007).
7	Based on NHMRC (2011 - update August 2018 v.3.5) Drinking Water Guidelines. The lowest of the Health Guideline x10 or the Aesthetic Guideline has been chosen as the assessment criteria. Aesthetic based criteria have been indicated by *
8	The Limit of Reporting (LOR) has been riased due to interferences from the sample matrix.

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Table T5.1 - Summary of QA/QC Results for Soil Samples
Site: 15 Jubilee Ave, Warriewood NSW
Job No: E24716.E02

Date	Sample Identification	Description	TRH				BTEX				Heavy Metals							
			F1	F2	F3	F4	Benzene	Toluene	Ethylbenzene	Xylene (total)	Arsenic	Cadmium	Chromium (Total)	Copper	Lead	Mercury	Nickel	Zinc
Intra-laboratory Duplicate																		
11/6/2020	TP2_0.4-0.5	Primary Soil Sample	<25	<25	<90	<120	<0.1	<0.1	<0.1	<0.3	11	<0.3	2.9	5.3	7	<0.05	<0.5	2.7
11/6/2020	Soil-QD1	Intra-laboratory duplicate of TP2_0.4-0.5	<25	<25	<90	<120	<0.1	<0.1	<0.1	<0.3	5	<0.3	1.8	5.5	2	<0.05	<0.5	2.2
		RPD	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	75.00	*0.00*	*46.81*	*3.70*	111.11	*38.46*	*0.00*	*20.41*
Inter-laboratory Duplicate																		
11/6/2020	TP2_0.4-0.5	Primary Soil Sample	<25	<25	<90	<120	<0.1	<0.1	<0.1	<0.3	11	<0.3	2.9	5.3	7	<0.05	<0.5	2.7
11/6/2020	Soil-QT1	Inter-laboratory duplicate of TP2_0.4-0.5	<25	<50	<100	<100	<0.2	<0.5	<1	<3	5	<0.4	3	6	3	<0.1	<1	4
		RPD	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*3.39*	*12.39*	80.00	*0.00*	*12.90*	*38.81*
Trip Blanks																		
11/6/2020	Soil-TripBlank-1	Soil	-	-	-	-	<0.1	<0.1	<0.1	<0.3	-	-	-	-	-	-	-	-
Trip Spikes																		
11/6/2020	Soil-TripSpike-1	Soil	-	-	-	-	[94%]	[93%]	[95%]	[94%]	[95%]	-	-	-	-	-	-	-

52.17 Indicates values where a single result is found to be less than detection, with the duplicate sample found to be over the detection limit.
82.35 RPD exceeds 30-50% range referenced from AS4482.1 (2005)

NOTE: All soil results are reported in mg/kg . All water results are reported in µg/L.

F1 = TRH C6-C10 less the sum of BTEX
F2 = TRH >C10-C16 less naphthalene
F3 = TRH >C16-C34
F4 = TRH >C34-C40

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Table T5.2 - Summary of QA/QC Results for Groundwater Samples
Site: 15 Jubilee Ave, Warriewood NSW
Job No: E24716.E02

Date	Sample Identification	Description	TRH				BTEX				Heavy Metals							
			F1	F2	F3	F4	Benzene	Toluene	Ethylbenzene	Xylene (total)	Arsenic	Cadmium	Chromium (Total)	Copper	Lead	Mercury	Nickel	Zinc
Intra-laboratory Duplicate																		
18/6/2020	GW_BH3M-1	Primary Water Sample	<50	<60	<500	<500	<0.5	<0.5	<0.5	<1.5	<1	<0.1	<1	5	<1	<0.0001	2	18
18/6/2020	GW-QD1	Intra-laboratory duplicate of BH101M	<50	<60	<500	<500	<0.5	<0.5	<0.5	<1.5	<1	<0.1	<1	3	<1	<0.0001	1	17
RPD			*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*50.00*	*0.00*	*0.00*	66.67	*5.71*
Inter-laboratory Duplicate																		
18/6/2020	GW_BH3M-1	Primary Water Sample	<50	<60	<500	<500	<0.5	<0.5	<0.5	<1.5	<1	<0.1	<1	5	<1	<0.0001	2	18
18/6/2020	GW-QT1	Inter-laboratory duplicate of BH101M	<10	<50	<100	<100	<1	<1	<1	<3	<1	<0.1	<1	7	<1	<0.05	2	16
RPD			*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*NA*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*33.33*	*0.00*	*0.00*	*0.00*	*11.76*
Trip Blanks																		
18/6/2020	GW_Trip Blank-1	Water	-	-	-	-	<0.5	<0.5	<0.5	<1.5	-	-	-	-	-	-	-	-
Trip Spikes																		
18/6/2020	GW_Trip Spike-1	Water	-	-	-	-	[100%]	[100%]	[100%]	[101%]	-	-	-	-	-	-	-	-
Rinsate Blanks																		
18/6/2020	GW_QR-1	De-ionised water	<50	<60	<500	<500	<0.5	<0.5	<0.5	<1.5	<1	<0.1	<1	<1	<1	<0.1	<1	<5
18/6/2020	GW_QRB-1	De-ionised water	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

52.17 Indicates values where a single result is found to be less than detection, with the duplicate sample found to be over the detection limit.
82.35 RPD exceeds 30-50% range referenced from AS4482.1 (2005)

F1 = TRH C6-C10 less the sum of BTEX
F2 = TRH >C10-C16 less naphthalene
F3 = TRH >C16-C34
F2 = TRH >C34-C40

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