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DYLDAM

Detailed Site Investigation

25 - 33 Brighton Avenue, Croydon Park NSW

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Background

Mr Andrew Shehadeh of Dyldam engaged EI Australia Pty Ltd (EI) to conduct a Detailed Site Investigations (DSI) for the property located at 25 - 33 Brighton Avenue, Croydon Park NSW ('the site').

The site is currently occupied by commercial brick buildings and a carpark and is located approximately 10 km southwest of the Sydney central business district (**Figure A.1**). The site comprises of Lot 10 in DP102819 and is situated within the Local Government Area Canterbury-Bankstown Council, covering a total area of approximately 1.47 ha, as depicted in **Figure A.2**.

Objectives

The main objectives of the assessment were to:

- Characterise site environmental conditions in relation to the nature, degree and sources of any soil, vapour and groundwater impacts;
- Target potentially impacted areas identified during the preliminary stages of the assessment for intrusive investigation;
- Understand the influence of site specific, geologic and hydrogeological conditions on the potential fate and transport of any impacts that may be identified;
- Evaluate potential risks that identified impacts may pose to human health and the environment; and
- Where site contamination is confirmed, provide data to assist in the selection and design of appropriate remedial options.

Findings

The work was conducted with reference to the regulatory framework outlined in **Section 1.3** of this report and assessment findings indicated the following:

- The site comprised a rectangular shaped block, covering a total area of approximately 1.47 hectares. The site was bound by Brighton Avenue to the west beyond which were residential and commercial properties; Residential properties to the east; Commercial properties to the north and souths;
- The site was free of statutory notices issued by the NSW EPA/DECC;
- The presence of a diesel bowser and fill points indicated a UST in the South west portion of site in the vicinity of BH7M;
- Soil sampling and analysis were conducted at twenty one (21) targeted test bore locations (BH1M – BH21) down to a maximum depth of 6.4m bgl. Sampling regime was considered to be appropriate for preliminary investigation purposes and comprised judgemental and systematic (triangular grid) sampling patterns, with allowance for structural obstacles (e.g. building walls, underground and overhanging services and other physical obstructions in use by existing operating businesses);
- The sub-surface layers comprised of anthropogenic fill materials underlain by residual clays and sandstone and shale bedrock;

- Groundwater was encountered at depths ranging from 14.35 to 18.25 mAHD;
- Asbestos was reported in fill soils at locations BH3 and BH10M;
- The heavy metals copper, nickel and zinc were identified at levels above the adopted GILS in all groundwater sampling locations. It was concluded that the detected groundwater metal levels do not pose an immediate threat to human health or the environment. Whether these results are treated as exceedances of the GILs, or representative of urban background groundwater conditions, the identified groundwater concentrations are not considered to represent a cause for environmental concern.

On review of the Preliminary Conceptual Site Model (CSM) developed as part of this DSI, it was concluded that the model remains valid for the proposed development. However, due to the absence of the majority of contaminants highlighted within the CSM, the potential risk of complete exposure pathways to exist as highlighted within the CSM, is considered to be low.

Conclusions and Recommendations

Based on the findings of this report and with consideration of the Statement of Limitations (**Section 12**), EI concludes that widespread contamination was not identified at the site. It is concluded that the site can be remediated to allow the site to be used for residential/commercial purposes as outlined in the development plan following demolition of the buildings and in accordance with a remedial action plan to address the remaining USTs and any unknown or unexpected contamination identified during the demolition and construction process.

The proposed development includes demolition of the existing site structures and basement excavations, therefore in view of the above findings and in accordance with the NEPM 2013 guidelines; it is considered that the site can be made suitable for the proposed development on completion of the following recommendations:

1. Preparation of a remedial action plan (RAP) that outlines:
    i. Removal of the identified UST and associate infrastructure including the bowser, feed lined and vent pipes.
    ii. Development of suitable remediation options for identified impacted fill (asbestos) and other excess soil by excavation and disposal or other appropriate method.
    iii. Document waste classification assessment of soil earmarked for any excavation that may occur including piling waste, backfill material from excavations at the site, in accordance with the EPA (2014) Waste Classification Guidelines;
    iv. Document preliminary environmental management consideration and a preliminary validation sampling and quality plan;
2. Implementation of the RAP, and
3. Preparation of a final site validation report by a suitably qualified environmental consultant, certifying site suitability of soils and groundwater for the proposed land use.

1.INTRODUCTION

1.1 Background and Purpose

Mr Andrew Shehadeh of Dyldam engaged EI Australia Pty Ltd (EI) to conduct a Detailed Site Investigations (DSI) for the property located at 25 - 33 Brighton Avenue, Croydon Park NSW ('the site').

The site is currently occupied by commercial brick buildings and a carpark and is located approximately 10 km southwest of the Sydney central business district (**Figure A.1**). The site comprises of Lot 10 in DP102819 and is situated within the Local Government Area Canterbury-Bankstown Council, covering a total area of approximately 1.47 ha, as depicted in **Figure A.2**.

This assessment was conducted as part of an environmental due diligence process and this report is provided in support of a Development Application (DA) to Canterbury-Bankstown Council and for the purpose of enabling the developer to meet its obligations under the Contaminated Land Management Act 1997 (CLM Act), for the assessment and management of contaminated soil and/or groundwater.

1.2 Proposed Development

The proposed development involves the demolition of the existing site structures and the construction of multiple, 4 or 5 storeyed, mixed commercial and residential apartment buildings. Commercial land-uses will occupy the ground floor and will be limited to the front of the buildings adjacent to Brighton Avenue. The development will include a one to two level basement car park.

Copies of selected development drawings area provided in **Appendix C**.

1.3 Regulatory Framework

The following regulatory framework and guidelines were considered during the preparation of this report:

- ANZECC & ARMCANZ (2000) Australian and New Zealand Guidelines for Fresh and Marine Water Quality;
- DECCW (2009) Guidelines for Implementing the Protection of the Environment Operations (Underground Petroleum Storage Systems) Regulation 2014, (UPSS Guidelines);
- DEC (2007) Guidelines for the Assessment and Management of Groundwater Contamination;
- DEC (2017) Guidelines for the NSW Site Auditor Scheme (3nd Edition);
- EPA (1995) Sampling Design Guidelines;
- EPA (2014) Technical Note: Investigation of Service Station Sites;
- NEPC (2013) Schedule B(1) Guideline on Investigation Levels for Soil and Groundwater;
- NEPC (2013) Schedule B(2) Guideline on Site Characterisation;
- *Contaminated Land Management Act* (1997);
- *State Environment Protection Policy* – Remediation of Land (SEPP 55), and
- OEH (2011) Guidelines for Consultants Reporting on Contaminated Sites.

1.4 Project Objectives

In accordance with the Concept Approval (Ref. Clause 38, City of Canterbury-Bankstown Council DA 2013/245) the proponent is required to undertake a detailed contamination assessment for any future development applications. The primary objectives of this investigation were therefore to:

- Evaluate the potential for site contamination on the basis of historical land uses, anecdotal and documentary evidence of possible pollutant sources;
- To investigate the degree of any potential contamination by means of limited intrusive sampling and laboratory analysis, for relevant contaminants; and
- Where site contamination is confirmed, make recommendations for the appropriate management of any contaminated soils and/or groundwater.

1.5 Scope of Works

To achieve the above objectives and generally complying with the OEH (2011) guidelines for consultants reporting on contaminated sites, the scope of works included:

1.5.1Desktop Study

- A review of relevant topographical, geological, hydrogeological and soil landscape maps for the project area;
- Search of historical aerial photographs archived at NSW Land and Property Information to review previous site use and the historical sequence of land development in the neighbouring area;
- A land titles search, also conducted through NSW Land and Property Information for information relating to historical ownership of the site;
- A search of Canterbury-Bankstown Council records for information relating to operational site history and/or relevant environmental incidents;
- A search of NSW EPA Land Information records under the Contaminated Land Management Act (1997) and Protection of the Environment Operations Act (1997);
- Search of SafeWork NSW records for information relating to possible underground tank approvals and locations, and dangerous goods stores; and
- A review of existing underground services on site.

1.5.2Field Work & Laboratory Analysis

- A detailed site walkover inspection;
- Drilling of boreholes at 21 locations (BH1 to BH21), based on the available site history, in accessible areas across the site complying with the minimum sampling protocol recommended under EPA (1995);
- Installation of five groundwater monitoring well to a maximum depth of 6 m (or prior refusal), constructed to standard environmental protocols to investigate potential groundwater contamination;
- Multiple level soil sampling within fill and natural soils and one round of groundwater sampling from the constructed groundwater monitoring well; and
- Laboratory analysis of selected soil and groundwater samples for relevant analytical parameters as determined from the site history survey and field observations during the investigation programme.

1.5.3Data Analysis and Reporting

Preparation of a DSI report to document desk study findings, the conceptual site model, data quality objectives, investigation methodologies and investigation results. The report also provides a record of observations made during the detailed site walkover inspection, borehole 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**, while the site locality is shown in **Figure A.1**.

Table 2-1 Site Identification, Location and Zoning

Attribute	Description
Street Address	25 - 33 Brighton Avenue, Croydon Park NSW
Location Description	Approx. 10 km south west of Sydney CBD, bound by Brighton Avenue (west) and residential dwellings north, east and south. North eastern corner of site: GDA94-MGA56 Easting: 325177.505, Northing: 6247758.513 (Source: http://maps.six.nsw.gov.au).
Site Area	Approx. 0.67 ha (6, 751 m^2, source: http://maps.six.nsw.gov.au)
Site Owner	Dyldam
Lot and Deposited Plan (DP)	Lot 10 in DP102819
State Survey Marks	Three State Survey (SS) marks are situated in close proximity to the site: SS75308D and SS131351 located on the corner of Brighton Ave and Georges Rd (north-east of the site) on the corner of Hampstead Road and The Crescent and SS71393 and SS99220D (north-east of the site) on The Crescent and Kessell Ave. (Source: http://maps.six.nsw.gov.au).
Local Government Authority	Canterbury-Bankstown Council
Parish	Leichhardt
County	Cumberland
Current Zoning	IN2 – Light Industrial (Canterbury City Council Local Environment Plan, 2012)
Current Land Uses	Eastern area – Large commercial warehouse currently in use as a kitchen stone distributer; and Western area – Open air car park associated with warehouse.

At the time of this assessment the site was occupied by a large commercial warehouse with an associated open aired carpark which contained a diesel bowser. The assessment area is illustrated in **Figure A.2**.

2.2 Surrounding Land Use

The site is situated within an area of mixed land uses and current uses. Current uses of surrounding land are described in **Table 2-2**.

Table 2-2 Surrounding Land Uses

Direction Relative to Site	Land Use Description
North	Residential dwellings
South	Residential dwellings
East	Residential dwellings
West	Brighton Ave followed by residential dwellings

Sensitive land uses, such as schools or childcare centres, were not identified within the vicinity the site.

2.3 Regional Setting

Regional topography, geology, soil landscape and hydrogeological information are summarised in **Table 2-3**.

Table 2-3 Regional Setting Information

Attribute	Description
Ground Topography	The site slopes towards the south to south-west based on observations made during the site walkover inspection.
Site Drainage	Site drainage is likely to be consistent with the general slope of the site. Stormwater is likely to be collected by pit and pipe drainage, and drain either to the municipal stormwater system or to Cooks River, located approximately 500 m south of the site.
Regional Geology	With reference to the 1:100,000 scale Geological Series Sheet 9130 (Sydney), the site is located within close proximity to the contact of the Ashfield Shale and Bringelly Shale. Ashfield Shale is described as black to dark-grey shale and laminite, while the Bringelly Shale is described as shale, carbonaceous claystone, laminite, fine to medium-grained lithic sandstone, rare coal and tuff.
Soil Landscapes	The Soil Conservation Service of NSW Soil Landscapes of the Sydney 1:100,000 Sheet (Chapman and Murphy, 2002) indicates that the site overlies the Blacktown soil landscape, which is described as gently undulating rises on the Wianamatta Group shales, with shallow to moderately deep (<100 cm) red and brown podzolic soils on crests, upper slopes and well drained areas; deep (150 – 300 cm) yellow podzolic soils and soloths on lower slopes and in areas of poor drainage.
Acid Sulfate Soil Risk	The Canterbury City Council LEP 2012 Acid Sulfate Soils Map (Sheet_006) shows the site to be within areas mapped as *Class 5* Acid Sulfate Soils (ASS). Class 5 ASS are located within 500 m on adjacent Class 1,2,3 or 4 land. Works in class 5 areas that are likely to lower the water table by 1 mAHD and by which the water table is likely to be lowered below 1 mAHD on adjacent Class 1, 2, 3 or 4 land. With reference to the Prospect Parramatta Acid Sulfate Soil Risk Map (1:25,000 scale; Murphy, 1997), the site is located within an area of no known occurrences.

Attribute	Description
Nearest Surface Water Feature	Cooks River, located approximately 500 m south of the site.
Anticipated Groundwater Flow Direction	South towards Cooks River.

2.4 Groundwater Bore Records and Groundwater Use

An online search of registered groundwater bores was conducted by EI on the 4th of April 2018 through the NSW Office of Water (Ref. http://allwaterdata.water.nsw.gov.au/water.stm). There were no registered bores within about 500m of the site.

2.5 Site Walkover Inspection

EI staff made a number of observations during a detailed site inspection on 19 – 20 March 2018. The recorded observations are summarised in **Table 2-4.**

Table 2-4 Summary of Buildings and Infrastructure

Allotment	Buildings	USTs/ASTs	Observations
25 - 33 Brighton Avenue, Croydon Park NSW	Large commercial warehouse	Diesel bowser and vent pipes indicated a UST on the western portion of site.	The site is occupied by a large commercial warehouse. The warehouse is currently being used as a kitchen stone business . A diesel bowser was observed to be in average condition. The large warehouse has previously been used to store aggregate/cement/metal and steel materials used for building supplies.

Photographs of the site area are provided in **Appendix D**.

3. PREVIOUS INVESTIGATIONS

3.1 Available documents

A previous environmental investigation in the form of a Preliminary Site Investigation was conducted on the site by EI in 2016. DP documented their findings in a report titled *Preliminary Site Investigation, 15 – 33 Brighton Avenue, Croydon Park NSW* (Ref. E22142 AA_Rev0, dated 26 May 2016), which provided an overall indication of contamination of the proposed development. A summary of EI's works and key findings is outlined in **Table 3-1**.

Table 3-1 Summary of Previous Investigation Works and Findings

Assessment Details	Project Tasks and Findings
Preliminary Site Investigation (EI, 2016)	
Background and Objectives	Croydon 88 Pty Ltd ("the Client") engaged Environmental Investigations Australia Pty Ltd (EI) to conduct a Preliminary Site Investigation (PSI) for the property located at address 15-33 Brighton Avenue, Croydon Park NSW ('the site'). This environmental assessment was completed as part of a development application package to Canterbury City Council for the proposed rezoning of the site from industrial to residential with the demolition of existing site structures and the construction of multiple-residential apartment buildings. At the time of this assessment, the site was occupied by six, separate commercial / industrial warehouses. The site covered a total area of 1.47 ha. The main objective of this investigation was to preliminary characterise the environmental conditions of the site on the basis of historical land uses, anecdotal and documentary evidence of possible pollutant sources.
Key Findings	▪ Historical records review of land titles records and historic aerial photography showed that the site was residential in nature until between the late-1940s and 1980s, and has remained industrial as such until present; ▪ A search of Canterbury City Council records identified that various commercial and industrial activities have been undertaken on the site, since at least 1980s. An environmental assessment was undertaken in 2008 at 17 Brighton Ave, which identified evidence of oil spillage, with no precautionary methods in place to prevent discharge into the stormwater system; ▪ At the time of this assessment the site was occupied by six large commercial / industrial warehouses and one former residential dwelling, with unsealed and sealed areas surrounded the sit building; ▪ The site was free of statutory notices issued by the NSW EPA/OEH. Records pertaining to the site were not identified on the List of NSW contaminated sites notified to EPA or the Protection of the Environment Operations (POEO) public register; ▪ There have been no licences issued for the site and surroundings areas under the POEO Act 1997; ▪ A search of SafeWork NSWs Stored Chemical Information Database (SCID) and the microfiche records for the site could not be initiated due landowner consent, which was pending at the time of writing; ▪ The site walkover inspection identified the following areas of environmental concern: - Access to the properties located at 15 – 21 Brighton Ave, Croydon Park was unavailable at the time of writing, however, it is understood that a radiator mechanical workshop occupies the property at 19 Brighton Ave; - Potential for hazardous building materials to be present in site structures was observed across the site;

Assessment Details	Project Tasks and Findings
	- Potential for fill material of unknown origin to be present across the site; - A possible lift / hoist system was identified at 23 Brighton Ave; and - The presence of a diesel underground storage tank and bowser was identified within the south western corner of the site. ▪ A conceptual site model (CSM) and subsequent qualitative risk assessment was derived for the site in this PSI. The CSM identified potential contaminating sources that may occur at the site and evaluated the likelihood for relevant exposure pathways to be completed during and after the proposed development. The risk assessment was conducted with respect to the proposed development, which involves sensitive land use (residential with minimal access to soils). The qualitative risk assessment identified a general medium risk of contamination to be present at the site.
Conclusions and Recommendations	Given the nature and extent of the proposed rezoning and redevelopment, a soil and groundwater sampling program, as well as a hazardous materials survey, are warranted to quantify any contamination risks and to inform the selection and implementation of remedial and risk mitigation measures (if required). Taking into account the above considerations and subject to the statement of limitations, EI concludes that there is a moderate risk associated with soil / and or groundwater contamination on site. EI considers that the site can be made suitable for the proposed residential rezoning and residential development provided a Detailed Site Investigation (DSI) is carried out to assess soil and groundwater conditions at the site. EI provide the following recommendations: ▪ Conduct a detailed site investigation (DSI) to characterise site soils and groundwater to provide baseline data for evaluation of any remedial and management requirements that may be necessary to allow the site to be made suitable for the proposed residential rezoning; and ▪ Conduct a Hazardous Materials Survey (HMS) of current equipment and structures, and stored products, chemicals and wastes present at the site. EI recommend that a HMS is conducted prior to decommissioning and demolition of site structures. The HMS is required to aid post-closure activities and avoid additional site contamination.

4. CONCEPTUAL SITE MODEL

In accordance with NEPM (2013) *Schedule B2 – Guideline on Site Characterisation* and to aid in the assessment of data collection for the site, EI developed a preliminary conceptual site model (CSM) assessing plausible pollutant linkages between potential contamination sources, migration pathways and receptors. The CSM provides a framework for the review of the reliability and useability of the data collected and to identify data gaps in the existing site characterisation.

4.1 Contamination sources

Base on the site history and the site inspection, the primary contaminant sources considered to be present at the site are outlined in **Table 4-1**.

Table 4-1Contaminant Sources

Contaminant Source	Comment	Potential Impacts
Surface filling		A wide range of potential inorganic and organic chemicals and asbestos
Demolition of former buildings		Potential paint and fibrous cement sheeting fragments potentially containing asbestos
Degradation of building surfaces (including fences)		Priority metals particularly Cu, Pb & Zn, paint fragments and asbestos fines.
Underground storage tanks (USTs) or UPSS		Potential impact to soils and groundwater if the UST or associated infrastructure were to leak.
Contamination form off-site sources		Potential groundwater contamination from off-site industrial sources
Potential contamination in areas not accessible during investigations		Potential impact from future demolition due to structure materials

4.2 Chemicals of concern

Based on the findings of the site contamination appraisal, the chemicals of concern at the site and the potential media impacts are outlined in **Table 4-2**. For definitions and abbreviations see glossary at end of report.

Table 4-2 Chemicals Of Concern

Chemical	Soil Impacts[1]	Air Quality Impacts[1]	Groundwater Impacts[1]
Priority metals As, Cd, Cr, Cu, Hg, Ni, Pb, & Zn also commonly known as heavy metals (HMs)	M	L	M
Other metals Be, Co, Cr^{VI}, Mn, Se	L	L	L
Total recoverable hydrocarbons (TRH)	M	L	M
Monocyclic aromatic hydrocarbon compounds benzene, toluene, ethyl benzene and xylenes (BTEX)	M	L	M

Polycyclic aromatic hydrocarbons (PAH) including B(a)P TEQ	M	L	M
Volatile organic compounds (VOCs) including Chlorinated volatile organic compounds (CVOCs)	M	L	M
Organochlorine and Organophosphate pesticides (OCP/ OPP)	M	L	L
Polychlorinated biphenyls (PCB)	M	L	L
Asbestos	M	L	N/A
LNAPL or DNAPL	L	N/A	L
Others (See section 2.3)	L	L	L

Note 1 L – low risk, M – medium/moderate risk, H – high risk, N/A – not applicable (or "-")

4.3 Other chemicals of concern

4.3.1Per or poly-fluoroalkyl substances (PFAS) (This need updating to PFAS NEMP)

The NSW EPA (2017) auditor guidelines require that PFAS is considered in assessing contamination. EI use the following decision tree (**Table 4-3**) based on EnRisk (2016) for prioritising the potential for PFAS to be present on site and whether PFAS sampling of soil and water is required.

Table 4-3 PFAS Decision Tree

Preliminary Screening	Decision
Did fire training occur on-site?	Y/**N**
Did fire training occur, or is an airport or fire station upgradient of or adjacent to the site? [1]	Y/**N**
Have "fuel" fires ever occurred on-site? e.g. ignition of fuel (solvent, petrol, diesel, kero) tanks?	Y/**N**
Have PFAS been used in manufacturing or stored on-site ?[2]	Y/**N**
If Yes to any questions, has site analytical suite been optimised to include preliminary sampling and testing for PFAS in soil (ASLP Testing) and water?	Y/**N**

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, including in the manufacture of non-stick cookware, specialised garments and textiles, Scotchguard™ and similar products (used to protect fabric, furniture, leather and carpets from oils and stains), metal plating and in some types of fire-fighting foam (https://www.nicnas.gov.au/chemical-information/factsheets/chemical-name/perfluorinated-chemicals-pfas)

4.3.2Emerging chemicals

The NSW EPA uses Chemical control orders (CCOs) as a primary legislative tool under the EHC Act (1985) to selectively and specifically control particular chemicals of concern, and limit their potential impact on the environment. CCOs provide the EPA a rapid and flexible mechanism for responding to emerging chemical issues. As with PFAS, EI has considered chemicals controlled by CCOs and other potential emerging chemicals in this assessment as outline in **Table 4-4**.

Table 4-4 Emerging or Controlled Chemicals

Chemicals of Concern (CCO or emerging)	Decision
Were aluminium smelter wastes used or stored on site (CCO,1986)?	Y/**N**
Do dioxin contaminated wastes (CCO,1986) have the potential to impact the site?	Y/**N**

1	
Were organotin products (CCO,1989) used or stored on site ?[2]	Y/**N**
Were polychlorinated biphenyls (PCBs) used or PCB wastes (CCO, 1997) stored on-site?[3]	Y/**N**
Were scheduled chemical or wastes (CCO, 2004) used or stored[4]	Y/**N**
Are other emerging chemicals suspected?[5]	Y/**N**
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	**Y/N**

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. 1,4 dioxane (associated with some cVOCs),

4.4 Potential Sources, Exposure Pathways and Receptors

Potential contamination sources, exposure pathways and human and environmental receptors that were considered relevant for this assessment are summarised along with a qualitative assessment of the potential risks posed by complete exposure pathways in **Table 4-5**.

Table 4-5Preliminary Conceptual Site Model

Site Area	Subsurface Profile	Potential Sources	Potential Contaminants	Media	Sensitive Receptor	Migration & Exposure Pathways	Potential Risk of Complete Exposure Pathway
(overall site area) 25 - 33 Brighton Avenue, Croydon Park NSW	Anthropogenic fill overlying residual clays	Commercial activities, UPSS, asbestos sheeting, filling, termiticides, lead paint, vehicle storage, general waste.	Pesticides, Heavy Metals, Petroleum Hydrocarbons (including PAHs), OCPs, Asbestos, Unknown	Building fabric Soils/Bedrock Groundwater Air/Soil Vapour LNAPL/DNAPL (if present)	Cooks River Site Workers during demolition and construction Future site residents	Seepage into the subsurface soils, bedrock and groundwater. Dermal Contact Ingestion Inhalation	M – H (should contamination be present) M – H (should contamination be present) L (post development)

Notes: L = Low Risk; M = Moderate Risk; H = High Risk

4.5 Data Gaps

Based on information from the site walkover inspection and site history review, EI considered a programme of intrusive investigation was warranted to conduct targeted sampling at locations of known, potential sources of contamination (as listed in **Section 4.1**), with systematic sampling coverage in site areas where operational site history was not documented.

5. SAMPLING, ANALYTICAL AND QUALITY PLAN (SAQP)

The SAQP plays a crucial role in ensuring that the data collected as part of this, and ongoing environmental works carried out at the site are representative, and provide a robust basis for site assessment decisions. This SAQP includes the following:

- Data quality objectives, including a summary of the objectives of the ESA;
- Investigation methodology including media to be sampled, details of analytes and parameters to be monitored and a description of intended sampling points;
- Sampling methods and procedures;
- Field screening methods;
- Analysis Methods;
- Sample handling, preservation and storage; and
- Analytical QA/QC.

5.1 Data Quality Objectives (DQO)

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

Table 5-1 Summary of Project Data Quality Objectives

DQO Steps (NSW DEC, 2006)	Details	Comments (changes during investigation)
1. State the Problem Summarise the contamination problem that will require new environmental data, and identify the resources available to resolve the problem; develop a conceptual site model	The site is to be developed for multi storey commercial/residential development including a one to two level basement. Historical information and site inspection identified the potential for contamination to be present in site soil and/or groundwater, contributed by various potential sources listed in **Section 4.1**. In light of the information derived from the available site history information and site observations, a conceptual site model has also been developed (**Section 4**). The investigation sampling must provide supportive information on the environmental conditions of the site to determine the site's suitability for the proposed development.	
2. Identify the Goal of the Study (Identify the decisions) Identify the decisions that need to be made on the contamination problem and the new environmental data required to make them	Based on the objectives outlined in **Section 1.4** the decisions that need to be made are: ▪ Has the nature, extent and source of any soil, vapour and/or groundwater impacts onsite been defined? ▪ What impact do the site specific, geologic and hydrogeological conditions have on the fate and transport of any impacts that may be identified? ▪ Does the level of impact coupled with the fate and transport of identified COPCs 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, if necessary?	

DQO Steps (NSW DEC, 2006)	Details	Comments (changes during investigation)
3. Identify Information Inputs (Identify inputs to decision) Identify the information needed to support any decision and specify which inputs require new environmental measurements	Inputs to the decision making process include: ▪ Proposed development plans and future land use; ▪ Available historical site information and site information; ▪ Areas of concern identified during the site inspection prior to intrusive investigations; ▪ National and NSW EPA guidelines endorsed under the NSW *Contaminated Land Management Act 1997*; ▪ Investigation sampling (soils and groundwater) and laboratory analysis for COPCs to verify the presence of onsite contamination and to evaluate the potential risks to sensitive receptors; and At the end of the assessment, a decision must be made regarding whether the soils and groundwater are suitable for the proposed development, or if additional investigation or remedial works are required to make the site suitable for proposed use).	
4. Define the Boundaries of the Study Specify the spatial and temporal aspects of the environmental media that the data must represent to support decision	Lateral – The boundaries of the study are 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 the Analytic Approach (Develop a decision rule) To define the parameter of interest, specify the action level, and integrate previous DQO outputs into a single statement that describes a logical basis for choosing from alternative actions	The decision rules for the investigation were: ▪ If the concentrations of contaminants in the soils data exceed the land use criteria; then assess the need to further investigate the extent of impacts onsite. ▪ The waste classification for off-site disposal of excavated materials is determined on the basis of soil sampling and laboratory analysis for a relevant suite of analytical parameters. ▪ Decision criteria for QA/QC measures are defined by the Data Quality Indicators (DQI) in **Table 5-2**.	

DQO Steps (NSW DEC, 2006)	Details	Comments (changes during investigation)
6. Specify Performance or Acceptance Criteria (Specify limits on decision errors) Specify the decision-maker's acceptable limits on decision errors, which are used to establish performance goals for limiting uncertainties in the data	Specific limits for this project are to be in accordance with the appropriate NSW EPA guidance, appropriate indicators of data quality and standard procedures for field sampling and handling: ▪ The null hypothesis for the investigation is that the: - 95% Upper Confidence Limits (UCL) of the mean for contaminants of concern exceed the relevant criteria HIL-A in deep planting area, exceed the relevant HIL-B in the proposed basement area, and HSL-A&B criteria across the site. ▪ Sampling on a 18.2 m grid will allow detection of a circular hotspot with a diameter of nominally 21.5 m with 95% certainty. ▪ The acceptance of the site as validated will be based on the probability that the 95% UCL of the mean of the data will satisfy the given site criteria. Therefore a limit on the decision error will be 5% that a conclusive statement may be incorrect. Concentrations of soil COPC that are below investigation criteria, made or approved by the NSW EPA, will be treated as acceptable and indicative of suitability for the proposed land use(s).	
7. Develop the Detailed Plan for Obtaining Data (Optimise the design for obtaining data) Identify the most resource-effective sampling and analysis design for general data that are expected to satisfy the DQOs	▪ The site area (6,751 m^2) required five (15) sampling points according to EPA (1995) Sampling Design Guidelines. ▪ Soil sampling locations were set using a systematic sampling pattern across the accessible areas of the site. An upper soil profile sample (beneath the concrete hardstand) will be collected at each borehole location and tested for chemicals of concern to assess the conditions of the fill layer, and impacts from activities above ground. Further sampling would also be carried out at deeper soil layers. These samples would be selected for testing based on field observations whilst giving consideration to characterise the subsurface soil stratigraphy.	

5.2 Data Quality Indicators

To ensure that the investigation data collected was of an acceptable quality, the investigation data set was assessed against the data quality indicators (DQI) outlined in **Table 5-2**, which related to both field and laboratory-based procedures. The assessment of data quality is discussed in **Section 7**.

Table 5-2 Data Quality Indicators

Data Quality Objective	Data Quality Indicator	Acceptable Range
Accuracy	Field – Trip blank (laboratory prepared) Laboratory – Laboratory control spike and matrix spike	< laboratory limit of reporting (LOR) Prescribed by the laboratories
Precision	Field – Blind replicate and spilt duplicate Laboratory – Laboratory duplicate and matrix spike duplicate	< 30 % relative percentage difference (RPD [%]) Prescribed by the laboratories
Representativeness	Field – Trip blank (laboratory prepared) Laboratory – Method blank	< laboratory limit of reporting (LOR) Prescribed by the laboratories
Completeness	Completion (%)	-

6. ASSESSMENT METHODOLOGY

6.1 Sampling Rationale

With reference to the preliminary CSM described in **Section 4**, soil and groundwater investigation works were planned in accordance with the following rationale:

- Sampling fill and natural soils from 20 test bore locations located systematically across the site using a grid-based sampling pattern to characterise in-situ soils;
- Sampling groundwater during a single groundwater monitoring event (GME) at five monitoring wells located close to the up gradient and down gradient site boundaries and immediately down gradient of the UST area, to assess for potential groundwater impacts; and
- Laboratory analysis of representative soil and groundwater samples for the identified chemicals of concern.

6.2 Investigation Constraints

The number of test bores drilled and monitoring wells installed during the investigation phase achieved the planned investigation scope described in **Section 5.1**.

6.3 Assessment Criteria

The assessment criteria proposed for this project are outlined in **Table 6-1**. These were selected from available published guidelines that are endorsed by national or state regulatory authorities, with due consideration of the exposure scenario that is expected for various parts of the site, the likely exposure pathways and the identified potential receptors.

Table 6-1 Adopted Investigation Levels for Soil and Groundwater

Environmental Media	Adopted Guidelines	Rationale
Soil	NEPM, 2013 Soil HILs, EILs, HSLs, ESLs & Management Limits for TPHs	**Soil Health-based Investigation Levels (HILs)** Samples were assessed against the NEPM 2013 HIL-B thresholds for residential sites with limited access to soils as the majority of the site is proposed to be covered by hardstand **Ecological Investigation Levels (EILs)** Any retained soils are proposed to be covered by hardstand, hence comparing results to EILs was considered unwarranted. **Soil Health-based Screening Levels (HSLs)** The NEPM 2013 Soil HSL-D thresholds for commercial/industrial sites for vapour intrusion would be applied to assess for potential human health impacts from residual vapours resulting from petroleum, BTEX & naphthalene due to the basements planned use as a carpark. Soils asbestos results to be assessed against the NEPM 2013 Soil HSL thresholds for “all forms of asbestos”. **Management Limits for Petroleum Hydrocarbons** Should the ESLs and HSLs be exceeded for petroleum hydrocarbons, soil samples would also assessed against the NEPM 2013 *Management Limits* for the TRH fractions F1 – F4 to assess propensity for phase-separated hydrocarbons (PSH), fire and explosive hazards & adverse effects on buried infrastructure.

Environmental Media	Adopted Guidelines	Rationale
Groundwater	NEPM, 2013 GILs for Marine Waters	**Groundwater Investigation Levels (GILs) for Marine Water** NEPM 2013 provides GILs for typical, slightly-moderately disturbed aquatic ecosystems, which are based on the ANZECC & ARMCANZ 2000 Trigger Values (TVs) for the 95% level of protection of aquatic ecosystems; however, the 99% TVs were applied for the bio-accumulative metals *cadmium* and *mercury*. The marine criteria were considered relevant as the closest, potential surface water receptor was Cooks River, located 550m south of the site and understood to be tidally influenced.
	NEPM, 2013 Groundwater HSLs for Vapour Intrusion	**Health-based Screening Levels (HSLs)** The NEPM 2013 groundwater HSLs for vapour intrusion were used to assess for potential human health impacts from residual vapours resulting from petroleum, BTEX and naphthalene impacts. The *HSL D* thresholds for industrial/commercial sites were applied for groundwater due to the basements planned use as a carpark.
	NEPM, 2013 GILs for Drinking purposes	**Drinking Water GILs** The NEPM (2013) GILs for drinking water quality were applied for specific parameters, for which freshwater/marine GILs were not provided. These were based on the Australian Drinking Water Guidelines (Ref. NHMRC, 2011).

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 8**.

6.4 Soil Investigation

The soil investigation works conducted at the site are described in **Table 6-2**. Test bore locations are illustrated in **Figure A.2**.

Table 6-2 Summary of Soil Investigation Methodology

Activity/Item	Details
Fieldwork	The site investigation was conducted on 19 and 20 of March 2018. All test bores were completed to target depth or refusal.
Drilling Method & Investigation Depth	Test bore BH2 was drilled using a Hanjin D+B (model), mechanical, track-mounted, solid flight auger drilling rig. Final bore depths were between 0.6and 6.4 mBGL.
Soil Logging	Drilled 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 Unified Soil Classification System (USCS) and Australian Standard (AS) 4482.1-2005. Bore logs are presented in **Appendix E**.

Activity/Item	Details
Field Observations (including visual and olfactory signs of potential contamination)	A summary of field observations is provided, 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 was noted in fill at location BH10M.
Soil Sampling	▪ Soil samples were collected using a dry grab method (unused, dedicated nitrile gloves) & placed into laboratory-supplied, acid-washed, solvent-rinsed glass jars. ▪ Blind field duplicates was separated from the primary samples and placed into glass jars. ▪ A small amount of duplicate was collected from each soil samples and placed into zip-lock bag for Photo-ionisation Detector (PID) screening. ▪ A small amount of duplicate was separated from all fill samples and placed into a zip-lock bag for asbestos analysis.
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* – Dedicated gloves were used for each sample, and any trowel or shovel used was decontaminated between uses.
Sample Preservation	Samples were stored in a refrigerated (ice-filled) chest, whilst on-site and in transit to the laboratory. All samples were submitted and analysed within the required holding period, as documented in laboratory reports discussed in a later section.
Management of Soil Cuttings	Soil cuttings were used as backfill for completed boreholes.
Quality Control & Laboratory Analysis	A number of soil samples were submitted for analysis of previously-identified COPC by SGS Laboratories (SGS). QA/QC testing comprised intra-laboratory duplicates ('field duplicates') tested blind by SGS and an inter-laboratory field duplicate tested blind by Envirolab Services (Envirolab). All samples were transported under strict Chain-of-Custody (COC) conditions and COC certificates and laboratory sample receipt documentation were provided to EI for confirmation purposes, as discussed in **Section 8**.
Soil Vapour Screening	Screening for potential VOCs in collected soil samples was conducted using a Photo-ionisation Detector (PID), as volatile odours were not detected at any sampling location during the course of the fieldwork.

6.5 Groundwater Investigation

The groundwater investigation works conducted at the site are described in **Table 6-3**. Monitoring well locations are illustrated in **Figure A.2**.

Table 6-3 Summary of Groundwater Investigation Methodology

Activity/Item	Details
Fieldwork	Groundwater monitoring wells were installed and developed on 19 and 20 of March 2018; whereas, water level gauging, well purging, field testing and groundwater sampling was conducted on 10.04.2018.

Activity/Item	Details
Well Construction	Test bores were converted to groundwater monitoring wells as follows: ▪ one, 6.1m deep, onsite well identified as BH1M; ▪ one, 6 m deep, onsite well identified as BH4M; ▪ one, 6.2 m deep, onsite well identified as BH7M; ▪ one, 6.1 m deep, onsite well identified as BH10M; and ▪ one, 6.4 m deep, onsite well identified as BH13M. Drilled by Geosense using a track-mounted, Hanjin D+B, mechanical, solid-flight auger rig. Well construction details are tabulated in **Table 8-2** and documented in the bore logs presented in **Appendix E**. All wells were installed to screen the natural within the approximate interval of 3.0 to 6.0 mBGL.
Well Construction (continued)	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 300mm 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, 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 Survey (Elevation and location)	Well elevations at ground level were extrapolated from the spot elevations marked on the survey plan provided by the client. Well elevations at ground level were extrapolated in metres relative to Australian Height Datum (m AHD).
Well Gauging & Groundwater Flow Direction	Monitoring wells were gauged for standing water level (SWL, depth to groundwater) prior to well purging at the commencement of the GME on 10 April 2018. All measured SWLs are shown in **Table 8-2**. A transparent HDPE bailer was used to visually assess for the presence PSH prior to the commencement of well purging. PSH was not detected in either well. Based on the reduced water levels (RWLs, i.e. SWLs corrected to AHD) calculated at each monitoring well (**Table 8-3**). The direction of groundwater flow in the aquifer was inferred to be in a southwest direction. This is consistent with the anticipated groundwater flow direction, as inferred considering the proximity of the site to Cooks River.

Activity/Item	Details
Well Purging & Field Testing	No volatile organic odours were detected during any stage of well purging. Measurement of water quality parameters was conducted repeatedly during well purging and were recorded onto field data sheets (**Appendix F**) once water quality parameters stabilised. In both MW1 and MW3, groundwater was initially observed to be slightly grey/brown in colour with suspended sediments (SS). SS levels reduced as purging was continued. Field measurements for Dissolved Oxygen (DO), Electrical Conductivity (EC) and pH of the purged water were also recorded during well purging. Purged water volumes removed from each well and field test results are summarised in **Table 8-3.**
Groundwater sampling	Groundwater was sampled using a micro-purge system. Water was continuously measured for four parameters (Temperature, EC, Redox, DO, pH). Once three consecutive field measurements were recorded for the purged waters to within ± 10% for DO, ± 3% for EC , ± 0.2 for pH, ± 0.2° for temperature and ± 20 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.
Decontamination Procedure	▪ The micro-purge pump is decontaminated in a solution of potable water and Decon 90 and then rinsed with potable water between measurements/wells between uses. ▪ The micro-purge system employs a disposable bladder and tubing system to further minimise potential contaminates. ▪ All sample containers were supplied by the laboratory for the particular project and only opened once immediately prior to sampling. ▪ Ice packs were used to keep the samples cool when kept in an insulated chest. ▪ 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 filters. All containers were filled with sample to the brim then capped and stored in ice-filled chests, until completion of the fieldwork and during sample transit to the laboratory.
Quality Control & Laboratory Analysis	All groundwater samples were submitted for analysis of previously-identified chemicals of concern by SGS Laboratories (SGS). QA/QC testing comprised intra-laboratory duplicates ('field duplicates') tested blind by SGS and an inter-laboratory field duplicate tested blind by Envirolab Services (Envirolab). All samples were transported under strict Chain-of-Custody (COC) conditions and COC certificates and laboratory sample receipt documentation were provided to EI for confirmation purposes.
Sample Transport	After sampling, refrigerated sample chests were transported to SGS Australia Pty Ltd using strict Chain-of-Custody (COC) procedures. Inter-laboratory duplicate (ILD) samples were forwarded to Envirolab Services Pty Ltd (Envirolab) for QA/QC analysis. A Sample Receipt Advice (SRA) was provided by each laboratory to document sample condition upon receipt. Copies of SRA and COC certificates are presented in **Appendix G**.

7.DATA QUALITY ASSESSMENT

The assessment of data quality is defined as the scientific and statistical evaluation of environmental data to determine if these data meet the objectives of the project (Ref. USEPA 2006). Data quality assessment includes an evaluation of the compliance of the field sampling and laboratory analytical procedures and an assessment of the accuracy and precision of these data from the laboratory quality control measurements obtained.

The data quality assessment process for this assessment included a review of analytical procedures to confirm compliance with established laboratory protocols and an assessment of the accuracy and precision of analytical data from a range of quality control measurements. The QC measures generated from the field sampling and analytical program were as follows:

- suitable records of fieldwork observations including borehole logs;
- relevant and appropriate sampling plan (density, type, and location);
- use of approved and appropriate sampling methods;
- preservation and storage of samples upon collection and during transport to the laboratory;
- complete field and analytical laboratory sample COC procedures and documentation;
- sample holding times within acceptable limits;
- use of appropriate analytical procedures and NATA-accredited laboratories; and
- required LOR (to allow for comparison with adopted IL);
- frequency of conducting quality control measurements;
- laboratory blanks;
- field duplicates;
- laboratory duplicates;
- matrix spike/matrix spike duplicates (MS/MSDs);
- surrogates (or System Monitoring Compounds);
- analytical results for replicated samples, including field and laboratory duplicates and inter-laboratory duplicates, expressed as Relative Percentage Difference (RPD); and
- checking for the occurrence of apparently unusual or anomalous results, e.g. laboratory results that appear to be inconsistent with field observations or measurements.

The findings of the data quality assessment in relation to the soil and groundwater investigations at the site are discussed in detail in **Appendix J**. QA/QC policies and DQOs are presented in **Appendix I**.

On the basis of the analytical data validation procedure employed the overall quality of the soil and groundwater analytical data produced for the site were considered to be of an acceptable standard for interpretive use.

8.RESULTS

8.1 Soil Investigation Results

8.1.1Site Geology and Subsurface Conditions

The general site geology encountered during the drilling of the soil investigation boreholes, installation of monitoring wells may be described as a layer of anthropogenic filling overlying residual clay, with sandstone then shale at depth. The geological information obtained during the investigation is summarised in **Table 8-1** and borehole logs from these works are presented in **Appendix E**.

Table 8-1 Generalised Subsurface Profile (m bgl)

Layer	Description	Depth to top & bottom of layer (m bgl)
Fill	Clayey SAND; fine to coarse grained, dark brown, with angular to sub-angular gravels, no odour.	0.0 – 0.5 (max depth 1.3)
Residual clay	Silty CLAY; low to medium plasticity, orange mottled grey, no odour.	0.5 – 6.1 +
Bedrock	Sandstone /Shale	1.0 - 6.2 +

Notes: + Termination depth of borehole

8.1.2Field Observations and PID Results

Soil samples were obtained from the test bores at various depths ranging between 0.2 m to 5.3 m 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, charcoal) and the following observations were noted:

- No visual or olfactory evidence of hydrocarbon impacts were noted at any of the borehole locations investigated during this assessment;
- Ash was observed in fill soils in boreholes BH10M – BH13M and BH15 – BH17; and
- An elevated VOC concentration was observed at BH13M in sample 5.5-5.6 (64.1ppm), which were field-screened using a portable PID fitted with a 10.9 eV lamp. The PID results are shown in the borehole logs (**Appendix E**).

8.2 Groundwater Investigation Results

8.2.1Monitoring Well Construction

A total of 5 groundwater monitoring wells were installed across the site. Well construction details for the installed groundwater monitoring wells are summarised in **Table 8-2**.

Table 8-2 Monitoring Well Construction Details

Well ID	Bore Depth (m bgl)	RL (GL)	RL (TOC)	Screen Interval (m bgl)	Lithology Screened
BH1M	6.1	17.50	17.40	3.1 – 6.1	Sandstone

BH4M	6.0	17.00	16.90	3.0 – 6.0	Silty Clay
BH7M	6.2	15.70	15.60	3.2 – 6.2	Silty Clay/Weathered Shale
BH10M	6.1	16.17	16.07	3.1 – 6.1	Silty Clay
BH13M	6.4	18.95	18.85	3.4 – 6.4	Shale

Notes:
m bgl = metres below ground level.
RL = Reduced Level – Surveyed elevation in metres relative to Australian Height Datum (m AHD).
TOC = top of well casing .
RL (TOC) = Extrapolated elevation at TOC in m AHD from survey plans.

8.2.2Field Observations and Water Test Results

A single GME was conducted on all wells in 10 April 2018. On this date, standing water levels (SWLs) were measured within each well prior to well purging, the results of which were recorded with well purge volumes and field-based water test results. A summary of the recorded field data is presented in **Table 8-3** and copies of the completed Field Data Sheets are included in **Appendix I**.

Table 8-3 Groundwater Field Data (GME date 10 April 2018)

Well ID	SWL (m BTOC)	RL (TOC)	WL† (m AHD)	Purge Volume (L)	DO (mg/L)	Field pH	Field EC (µS/cm)	Temp (°C)	Redox (mV)	Odours / Turbidity
BH1M	1.40	17.40	16.00	3.0	0.59	5.75	8324	23.63	393.7	No odour/ low to moderate turbidity
BH4M	0.71	16.90	16.19	4.0	0.00	4.30	9893	24.59	443.3	No odour/ High turbidity
BH7M	1.25	15.60	14.35	2.5	0.68	5.37	10480	24.27	398.5	No odour/Low to moderate turbidity
BH10M	0.90	16.07	15.17	3.5	0.11	5.33	11870	21.05	342.8	No odour/ Moderate to high turbidity
BH13M	0.6	18.85	18.25	3.5	0.00	6.35	11910	22.20	200.56	No odour/ Moderate to high turbidity

Notes:
GME – Groundwater monitoring event.
SWL – Standing Water Levels as measured from TOC (top of well casing) prior to groundwater sampling.
m BTOC – metres below top of well.
RL (TOC) – Reduced Level, elevation at TOC in metres relative to Australian Height Datum (m AHD).
† WL = Calculated groundwater level, in m AHD (calculated as RL – SWL)
L – litres (referring to volume of water purged from the well prior to groundwater sample collection).
EC – groundwater electrical conductivity as measured onsite using portable EC meter.
µS/cm – micro Siemens per centimetre (EC units).
DO – Dissolved Oxygen in units of milligrams per litre (mg/L)
Redox - adjusted to Standard Hydrogen Electrode (SHE) by adding field electrode potential (205mV).
All groundwater parameters (pH, EC, redox and DO) were tested on site.

With reference to **Table 8-3**, the field pH data indicated that the groundwater was acidic to slightly acidic (pH ranged from 4.30 to 6.35) with reducing conditions present. Electrical Conductivity (EC) measurements were recorded in the range 8324 to 11910 µS/cm indicating that the groundwater was saline in terms of water salinity.

8.3 Laboratory Analytical Results

8.3.1Soil Analytical Results

A summary of laboratory results showing test sample quantities, minimum/maximum analyte concentrations and samples found to exceed the SILs, is presented in **Table 8-4**. More detailed tabulations of results showing the tested concentrations for individual samples alongside the adopted soil criteria are presented in **Tables B.1** at the end of this report. Completed documentation used to track soil sample movements and laboratory receipt (i.e. COC and SRA forms) are copied in **Appendix G** and all laboratory analytical reports for tested soil samples are presented in **Appendix H**.

Table 8-4 Summary of Soil Analytical Results

No. of primary samples	Analyte	Min. Conc. (mg/kg)	Max. Conc. (mg/kg)	Sample locations exceeding investigation levels
Hydrocarbons				
28	TPH C6–C9	<20	24	None
28	TPH C10-C36	<110	830	None
28	Benzene	<0.1	<0.1	None
28	Toluene	<0.1	0.2	None
28	Ethyl benzene	<0.1	0.2	None
28	Total xylenes	<0.3	1.2	None
PAHs				
28	Carcinogenic PAHs	<0.3	3.2	None
28	Total PAH	<0.8	23	None
28	Benzo(a)pyrene	<0.1	2.3	None
28	Naphthalene	<0.1	0.5	None
OCPs				
21	Aldrin & Dieldrin	<0.1	<0.1	None
21	Chlordane	<0.1	<0.1	None
21	DDT+DDD+DDE	<0.1	<0.1	None
21	Heptachlor	<0.1	<0.1	None
OPPs				
21	Total OPPs	<1.7	<1.7	None
PCBs				
21	Total PCBs	<1.0	<1.0	None
Heavy Metal				
28	Arsenic	<3	25	None
28	Cadmium	<0.3	2.2	None
28	Chromium (Total)	4.9	62	None
28	Copper	1..9	280	None
28	Lead	6	480	None
28	Mercury	<0.05	0.11	None
28	Nickel	<0.5	73	None
28	Zinc	5	2200	None
Asbestos				

No. of primary samples	Analyte	Min. Conc. (mg/kg)	Max. Conc. (mg/kg)	Sample locations exceeding investigation levels
28	Asbestos	No asbestos detected	Asbestos detected	BH3_0.3-0.4, and BH10M_0.3-0.4

Heavy Metals

With reference to **Table B.1**, all heavy metals concentrations were below the corresponding health based SILs for residential settings with non-accessible soils.

TPHs

As shown in **Table B.1**, all total recoverable hydrocarbons (TRH) concentrations were below the corresponding NEPM 2013 health-based HSL-D levels, which were the adopted SILs for TPHs.

BTEX and Naphthalene

All results for BTEX compounds and naphthalene were below the corresponding SILs, as shown in **Table B.1**.

PAHs

As summarised in **Table B.1** there were no exceedances of the adopted health based SILs for PAHs.

Asbestos

As summarised in **Table B.1**, asbestos was detected in fill at locations BH3 and BH10M.

OCPs, OPPs and PCBs

With reference to **Table B.1**, no detectable concentration of any of the screened OCP, OPP and PCB compounds was identified in any of the tested samples. All laboratory PQLs were also within the corresponding SILs.

8.3.2Groundwater Analytical Results

Laboratory analytical results for groundwater samples are summarised in **Table B.2**, which also include the adopted GILs. Completed documentation used to track groundwater sample movements and laboratory receipt (COC and SRA forms) are copied in **Appendix G**. Copies of the laboratory analytical reports are attached in **Appendix H**.

Heavy Metals

With reference to **Table B.2**concentrations in excess of the adopted GILs were identified in all samples for copper, nickel and zinc.

These metals are commonly used as a pigment in paints and as a coating on galvanised metal surfaces. It is considered therefore that the identified groundwater metal concentrations are potentially the result of long-term weathering of metal-based paints, metal coatings and metallic structures (such as suspected UPSS), but not necessarily attributable entirely to onsite contamination sources. It can be inferred that the detected groundwater metal levels do not pose an immediate threat to human health or the environment. Whether these results are treated as exceedances of the GILs, or representative of urban background groundwater conditions, the identified groundwater concentrations are not considered to represent a cause for environmental concern.

TPHs and BTEX

As shown in **Table B.2**, tested TPH and BTEX concentrations were all below the laboratory PQLs and the corresponding GILs.

PAHs and Phenols

As shown in **Table B.2**, tested PAHs and Phenol concentrations were all below the laboratory PQLs and the corresponding GILs.

SVOCs & VOCs (including Naphthalene)

As shown in **Table B.2**, the majority laboratory results for the tested groundwater samples showed non-detectable levels of *naphthalene*, SVOCs and VOCs with the laboratory detection limits well within the adopted GILs. Sample BH13-1 found concentrations of Acetone (2-propanone) above laboratory PQLs.

9.SITE CHARACTERISATION

9.1 Review of Conceptual Site Model

On the basis of investigation findings the preliminary CSM discussed in **Section 4** was considered to appropriately identify contamination sources, migration mechanisms and exposure pathways, as well as potential onsite and offsite receptors. Previously known data gaps, as outlined in **Section 4.4** have largely been addressed; however, the following remaining data gaps need to be addressed in subsequent investigation works:

- The location and size of the identified UST.

9.2 Asbestos Risk

Asbestos was reported in fill at two locations (BH3 and BH10M) within the site.

Excavation of test pits is the preferred method of sampling soil for asbestos impact; however, this was impractical for the assessment of the site, as this would have severely affected the amenity and integrity of the current structures.

10.Conclusions

The property located at 25 - 33 Brighton Avenue, Croydon Park NSW was the subject of a Detailed Site Investigations (DSI) that was conducted in order to assess the nature and degree of on-site contamination associated with current and former uses of the property. Based on the findings of this assessment it was concluded that:

- The site comprised a rectangular shaped block, covering a total area of approximately 1.47 hectares. The site was bound by Brighton Avenue to the west beyond which were residential and commercial properties; Residential properties to the east; Commercial properties to the north and souths;
- The site was free of statutory notices issued by the NSW EPA/DECC;
- The presence of a diesel bowser and fill points indicated a UST in the South west portion of site in the vicinity of BH7M;

- Soil sampling and analysis were conducted at twenty one (21) targeted test bore locations (BH1M – BH21) down to a maximum depth of 6.4m bgl. Sampling regime was considered to be appropriate for preliminary investigation purposes and comprised judgemental and systematic (triangular grid) sampling patterns, with allowance for structural obstacles (e.g. building walls, underground and overhanging services and other physical obstructions in use by existing operating businesses);
- The sub-surface layers comprised of anthropogenic fill materials underlain by residual clays and sandstone and shale bedrock;
- Groundwater was encountered at depths ranging from 14.35 to 18.25 mAHD;
- Asbestos was reported in fill soils at locations BH3 and BH10M;
- The heavy metals copper, nickel and zinc were identified at levels above the adopted GILS in all groundwater sampling locations. It was concluded that the detected groundwater metal levels do not pose an immediate threat to human health or the environment. Whether these results are treated as exceedances of the GILs, or representative of urban background groundwater conditions, the identified groundwater concentrations are not considered to represent a cause for environmental concern.
- On review of the Preliminary Conceptual Site Model (CSM) developed as part of this DSI, it was concluded that the model remains valid for the proposed development. However, due to the absence of the majority of contaminants highlighted within the CSM, the potential risk of complete exposure pathways to exist as highlighted within the CSM, is considered to be low.

Based on the findings of this report and with consideration of the Statement of Limitations (**Section 12**), EI concludes that widespread contamination was not identified at the site. It is concluded that the site can be remediated to allow the site to be used for residential/commercial purposes as outlined in the development plan following demolition of the buildings and in accordance with a remedial action plan to address the remaining USTs and any unknown or unexpected contamination identified during the demolition and construction process.

11.RECOMMENDATIONS

The proposed development includes demolition of the existing site structures and basement excavations, therefore in view of the above findings and in accordance with the NEPM 2013 guidelines; it is considered that the site can be made suitable for the proposed development on completion of the following recommendations:

4. Preparation of a remedial action plan (RAP) that outlines:

   v. Removal of the identified UST and associate infrastructure including the bowser, feed lined and vent pipes.

   vi. Development of suitable remediation options for identified impacted fill (asbestos) and other excess soil by excavation and disposal or other appropriate method.

   vii. Document waste classification assessment of soil earmarked for any excavation that may occur including piling waste, backfill material from excavations at the site, in accordance with the EPA (2014) Waste Classification Guidelines;

viii. Document preliminary environmental management consideration and a preliminary validation sampling and quality plan;

5. Implementation of the RAP, and

6. Preparation of a final site validation report by a suitably qualified environmental consultant, certifying site suitability of soils and groundwater for the proposed land use.

12.STATEMENT OF LIMITATIONS

The findings presented in this report are the result of discrete and specific sampling methodologies used in accordance with best industry practices and standards. Due to the site-specific nature of soil sampling from point locations, it is considered likely that all variations in subsurface conditions across a site cannot be fully defined, no matter how comprehensive the field investigation program.

While normal assessments of data reliability have been made, EI assumes no responsibility or liability for errors in any data obtained from previous assessments conducted on site, regulatory agencies (e.g. Council, EPA), statements from sources outside of EI, or developments resulting from situations outside the scope of works of this project.

Despite all reasonable care and diligence, the ground conditions encountered and concentrations of contaminants measured may not be representative of conditions between the locations sampled and investigated. In addition, site characteristics may change at any time in response to variations in natural conditions, chemical reactions and other events, e.g. groundwater movement and or spillages of contaminating substances. These changes may occur subsequent to EI's investigations and assessment.

EI's assessment is necessarily based upon the result of the site investigation and the restricted program of surface and subsurface sampling, screening and chemical testing which was set out in the proposal. Neither EI, nor any other reputable consultant, can provide unqualified warranties nor does EI assume any liability for site conditions not observed or accessible during the time of the investigations.

This report was prepared for the above named client and no responsibility is accepted for use of any part of this report in any other context or for any other purpose or by other third parties. This report does not purport to provide legal advice.

This report and associated documents remain the property of EI subject to payment of all fees due for this assessment. The report shall not be reproduced except in full and with prior written permission by EI.

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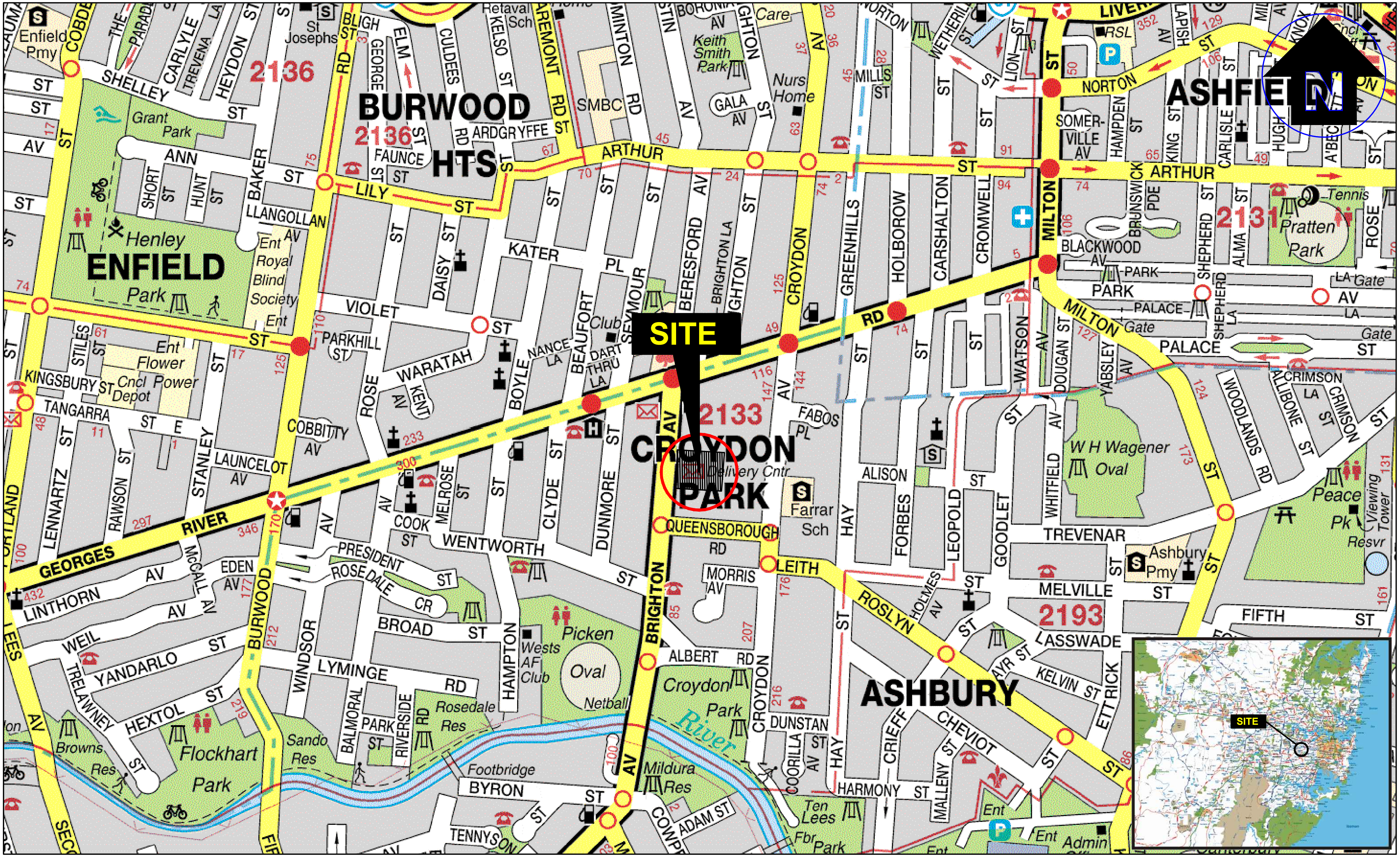
ABBREVIATIONS

ACM	Asbestos-containing materials
ASS	Acid sulfate soils
ANZECC	Australian and New Zealand Environment Conservation Council
ARMCANZ	Agriculture and Resource Management Council of Australia and New Zealand
B(a)P	Benzo(a)Pyrene (a PAH compound), - B(a)P TEQ Toxicity Equivalent Quotient
BH	Borehole
BTEX	Benzene, Toluene, Ethylbenzene, Xylene
COC	Chain of Custody
cVOCs	Chlorinated Volatile Organic Compounds (a sub-set of the VOC analysis suite)
DEC	Department of Environment and Conservation, NSW (see OEH)
DECC	Department of Environment and Climate Change, NSW (see OEH)
DECCW	Department of Environment, Climate Change and Water, NSW (see OEH)
DA	Development Application
DO	Dissolved Oxygen
DP	Deposited Plan
EC	Electrical Conductivity
Eh	Redox potential
EPA	Environment Protection Authority
EMP	Environmental Management Plan
F1	TRH $C_6 – C_{10}$ less the sum of BTEX concentrations (Ref. NEPM 2013, Schedule B1)
F2	TRH $>C_{10} – C_{16}$ less the concentration of naphthalene (Ref. NEPM 2013, Schedule B1)
GIL	Groundwater Investigation Level
GME	Groundwater Monitoring Event
HIL	Health-based Investigation Level
HSL	Health-based Screening Level
km	Kilometres
LNAPL	Light, non-aqueous phase liquid (also referred to as PSH)
DNAPL	Dense, non-aqueous phase liquid
EIL	Ecological Investigation Level
ESL	Ecological Screening Level
m	Metres
m AHD	Metres Australian Height Datum
m BGL	Metres Below Ground Level
mg/m^3	Milligrams per cubic metre
mg/L	Milligrams per litre
µg/L	Micrograms per litre
mV	Millivolts
MW	Monitoring well
NATA	National Association of Testing Authorities, Australia
NEPC	National Environmental Protection Council
NSW	New South Wales
OEH	Office of Environment and Heritage, NSW (formerly DEC, DECC, DECCW)
PAHs	Polycyclic Aromatic Hydrocarbons
pH	Measure of the acidity or basicity of an aqueous solution
PSH	Phase-separated hydrocarbons (also referred to as LNAPL)
PQL	Practical Quantitation Limit (limit of detection for respective laboratory instruments)
QA/QC	Quality Assurance / Quality Control
RAP	Remediation Action Plan
SRA	Sample receipt advice (document confirming laboratory receipt of samples)
SWL	Standing Water Level
TDS	Total dissolved solids (a measure of water salinity)
TCLP	Toxicity Characteristics Leaching Procedure
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
USEPA	United States Environmental Protection Agency
UPSS	Underground Petroleum Storage System
UST	Underground Storage Tank
VOCs	Volatile Organic Compounds (specific organic compounds which are volatile)

Appendix A- Figures



Drawn:	D.R.
Approved:	N.G.
Date:	10-04-18
Scale:	Not To Scale

R01 Croydon 88 Pty Ltd

Detailed Site Investigation

25-33 Brighton Avenue, Croydon Park NSW NSW

Site Locality Plan

Figure: 1

Project: E23775.E02_Rev0

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LEGEND

- Approximate site boundary
- Approximate borehole/monitoring well location
- Approximate borehole location

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Drawn:	D.R.
Approved:	N.G.
Date:	10-04-18

R01 Croydon 88 Pty Ltd
Detailed Site Investigation
25-33 Brighton Avenue, Croydon Park NSW

Sampling Location Plan

Figure: 2

Project: E23775.E02_Rev0

Appendix B- Tables

Table B.1 - Summary of Soil Analytical results

E23775_Dyldam_Croydon Park

Sample ID	Material	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	C^{6}-C^{9}	C^{10}-C^{36}	OCPs (total)	OPPs	Total	Presence / absence
BH1M_0.2-0.3	Fill		10	<0.3	14	13	17	<0.05	1.5	15	<0.3	<0.1	<0.8	<0.1	<0.1	<0.1	<0.1	<0.3	<25	<25	<90	<120	<20	<110	<1	<1.7	<1	No
BH1M_0.8-0.9	Natural		4	<0.3	5.6	22	10	<0.05	1.3	13	<0.3	<0.1	<0.8	<0.1	<0.1	<0.1	<0.1	<0.3	<25	<25	<90	<120	<20	<110	NA	NA	<1	NA
BH2_0.2-0.3	Fill		9	<0.3	17	56	140	0.07	18	2200	3.2	2.3	23	<0.1	<0.1	<0.1	<0.1	<0.3	<25	<25	120	<120	<20	120	<1	<1.7	<1	No
BH3_0.3-0.4	Fill		4	<0.3	62	25	21	<0.05	57	340	0.9	0.6	6.9	0.1	<0.1	<0.1	0.2	1.3	<25	<25	<90	<120	<20	<110	<1	<1.7	<1	Yes
BH4M_0.2-0.3	Fill		8	0.3	11	18	260	<0.05	5.9	140	0.3	0.2	2.2	<0.1	<0.1	<0.1	<0.1	<0.3	<25	<25	<90	<120	<20	<110	<1	<1.7	<1	No
BH5_0.3-0.4	Fill		9	<0.3	22	23	67	0.05	16	87	1	0.6	5.6	<0.1	<0.1	<0.1	<0.1	<0.3	<25	<25	94	<120	<20	<110	<1	<1.7	<1	No
BH6_0.2-0.3	Fill		10	<0.3	13	28	87	<0.05	5.1	69	0.3	0.2	1.3	<0.1	<0.1	<0.1	<0.1	<0.3	<25	<25	<90	<120	<20	<110	<1	<1.7	<1	No
BH7M_0.2-0.3	Fill	19/03/2018	7	<0.3	10	13	34	<0.05	3.1	31	<0.3	<0.1	<0.8	<0.1	<0.1	<0.1	<0.1	<0.3	<25	<25	<90	<120	<20	<110	<1	<1.7	<1	No
BH7M_1.4-1.5	Natural		8	<0.3	4.4	17	11	<0.05	0.7	15	<0.3	<0.1	<0.8	<0.1	<0.1	<0.1	<0.1	<0.3	<25	<25	<90	<120	<20	<110	NA	NA	NA	NA
BH8_0.3-0.4	Fill		8	<0.3	9.1	21	430	<0.05	2.7	280	0.4	0.2	2.2	<0.1	<0.1	<0.1	<0.1	<0.3	<25	<25	<90	<120	<20	<110	<1	<1.7	<1	No
BH9_0.3-0.4	Fill		7	<0.3	18	17	25	<0.05	16	120	<0.3	<0.1	<0.8	<0.1	<0.1	<0.1	<0.1	<0.3	<25	<25	<90	<120	<20	<110	<1	<1.7	<1	No
BH10M_0.3-0.4	Fill		25	2.2	6.4	280	480	0.11	8.4	850	0.5	0.3	3.4	<0.1	<0.1	<0.1	<0.1	<0.3	<25	<25	760	<120	<20	830	<1	<1.7	<1	Yes
BH10M_0.9-1.0	Natural		8	<0.3	6.3	26	11	<0.05	<0.5	5	<0.3	<0.1	<0.8	<0.1	<0.1	<0.1	<0.1	<0.3	<25	<25	<90	<120	<20	<110	NA	NA	NA	NA
BH11_0.3-0.4	Fill		5	<0.3	12	79	6	<0.05	73	62	<0.3	0.1	<0.8	<0.1	<0.1	<0.1	<0.1	<0.3	<25	<25	<90	<120	<20	<110	<1	<1.7	<1	No
BH12_0.5-0.6	Fill		13	<0.3	4.9	20	16	<0.05	0.7	9.1	<0.3	<0.1	<0.8	<0.1	<0.1	<0.1	<0.1	<0.3	<25	<25	<90	<120	<20	<110	<1	<1.7	<1	No
BH13M_0.3-0.4	Fill		4	<0.3	11	18	24	<0.05	14	80	<0.3	<0.1	<0.8	<0.1	<0.1	<0.1	<0.1	<0.3	<25	<25	<90	<120	<20	<110	<1	<1.7	<1	No
BH13M_0.9-1.0	Fill		8	<0.3	4.3	24	23	<0.05	<0.5	12	<0.3	<0.1	<0.8	<0.1	<0.1	<0.1	<0.1	<0.3	<25	<25	<90	<120	<20	<110	NA	NA	NA	NA
BH13M_5.5-5.6	Natural		6	<0.3	10	53	24	<0.05	26	120	<0.3	<0.1	3.8	0.5	<0.1	0.2	0.1	1.2	36	59	<90	<120	24	110	NA	NA	NA	NA
BH14_0.4-0.5	Natural		6	<0.3	17	25	18	<0.05	7.1	23	<0.3	<0.1	<0.8	<0.1	<0.1	<0.1	<0.1	<0.3	<25	<25	<90	<120	<20	<110	<1	<1.7	<1	No
BH15_0.3-0.4	Fill		8	<0.3	27	29	43	<0.05	23	130	<0.3	<0.1	<0.8	<0.1	<0.1	<0.1	<0.1	<0.3	<25	<25	<90	<120	<20	<110	<1	<1.7	<1	No
BH16_0.4-0.5	Fill		5	<0.3	15	54	32	<0.05	14	64	<0.3	<0.1	<0.8	<0.1	<0.1	<0.1	<0.1	<0.3	<25	<25	<90	<120	<20	<110	<1	<1.7	<1	No
BH17_0.5-0.6	Fill	20/03/2018	6	<0.3	23	22	27	<0.05	20	51	<0.3	<0.1	<0.8	<0.1	<0.1	<0.1	<0.1	<0.3	<25	<25	<90	<120	<20	<110	<1	<1.7	<1	No
BH17_1.0-1.1	Fill		5	<0.3	22	21	10	<0.05	19	33	<0.3	<0.1	<0.8	<0.1	<0.1	<0.1	<0.1	<0.3	<25	<25	<90	<120	<20	<110	NA	NA	NA	NA
BH17_1.-1.6	Natural		5	<0.3	5.8	25	7	<0.05	0.6	8.1	<0.3	<0.1	<0.8	<0.1	<0.1	<0.1	<0.1	<0.3	<25	<25	<90	<120	<20	<110	NA	NA	NA	NA
BH18_0.5-0.6	Natural		5	<0.3	5.8	23	12	<0.05	1.3	22	<0.3	<0.1	<0.8	<0.1	<0.1	<0.1	<0.1	<0.3	<25	<25	<90	<120	<20	<110	<1	<1.7	<1	No
BH19_0.5-0.6	Fill		<3	<0.3	6.9	2.8	13	<0.05	<0.5	13	<0.3	<0.1	<0.8	<0.1	<0.1	<0.1	<0.1	<0.3	<25	<25	<90	<120	<20	<110	<1	<1.7	<1	No
BH20_0.4-0.5	Fill		3	<0.3	6.5	1.9	16	<0.05	1.9	31	<0.3	<0.1	<0.8	<0.1	<0.1	<0.1	<0.1	<0.3	<25	<25	<90	<120	<20	<110	<1	<1.7	<1	No
BH21_0.4-0.5	Fill		4	<0.3	7.5	4.5	18	<0.05	1.4	19	<0.3	<0.1	<0.8	<0.1	<0.1	<0.1	<0.1	<0.3	<25	<25	<90	<120	<20	<110	<1	<1.7	<1	No
Statistical Analysis																												
Maximum Concentration			25	2.2	62	280	480	0.11	73	2200	3.2	2.3	23	0.5	<0.1	<0.1	<0.1	<0.3	<25	<25	760	<120	<20	830	0	<1.7	<1	No
SILs																												
HIL B - *Residential with minimal opportunities for garden soil access.*			500	150	500 Cr(VI)	30000	1200	120	1200	60000	4		400												600		1	
HSL D - *Commercial / Industrial* Soil texture classification –Sand [1]			Source depths (0 m to <1 m. BGL)											NL	3	NL	NL	230	260	NL								
			Source depths (1 m to <2 m. BGL)											NL	3	NL	NL	NL	370	NL								
			Source depths (2m to <4 m. BGL)											NL	3	NL	NL	NL	630	NL								
			Source depths (4 m+)											NL	3	NL	NL	NL	NL	NL								
Management Limits – *Residential, parkland and public open space* Coarse grained soil texture[1]																			700	1000	3500	10000						
Asbestos contamination HSL – A&B *Residential* Bonded ACM (%w/w)																												0.01
Asbestos contamination HSL for Non Bonded / Friable Asbestos (%w/w)																												0.001

Notes: All results are recorded in mg/kg (unless otherwise stated)

Highlighted values indicates concentration exceeds Human Health Based Soil Criteria□

Highlighted indicates soil criteria exceeded

HIL B	NEPC 1999 Amendment 2013 'HIL B' Health Based Investigation Levels applicable for residential exposure settings with minimal opportunities for garden soil access.
HSL C	NEPC 1999 Amendment 2013 'HSL C' Health Based Screening Levels based on vapour intrusion values applicable for recreational open space settings.
HSL D	NEPC 1999 Amendment 2013 'HSL D' Health Based Screening Levels based on vapour intrusion values applicable for commercial / industrial settings.
*	Site specific EIL criteria / Conservative ESL criteria (See **Section 7.3**)
NA	'Not Analysed' i.e. the sample was not analysed.
NC	Not Calculated'
ND	'Not detected' i.e. all concentrations of the compounds within the analyte group were found to be below the laboratory limits of detection.
NL	'Not Limiting' - The soil vapour limit exceeds the soil concentration at which the pore water phase cannot dissolve any more of the individual chemical.
NR	No current published criterion.
1	Coarse Grained soil values were applied, being the most conservative of the material types.
2	Combined total of which all Chlordane speciations are assessed against.
3	NSW EPA (2014) CT1 General Solid Waste Thresholds (without leachate test), in Waste Classification Guidelines, Table 1.
4	NSW EPA (2014) CT2 Restricted Solid Waste Thresholds (without leachate test), in Waste Classification Guidelines, Table 1.
5	NSW EPA 2014 TCLP1/SCC1 Maximum values for Leachable concentration and specific contaminant concentration for General Solid Waste Thresholds, Waste Classification Guidelines Table 2.
6	NSW EPA (2014) TCLP2/SCC2 Maximum values for Leachable concentration and specific contaminant concentration for Restricted Solid Waste Thresholds, Waste Classification Guidelines Table 2.
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 B.2 – Summary of Groundwater Investigation Results

Sample ID	Heavy Metals								BTEX				TRHs				PAH		Totatl Phenols	VOCs	
	Arsenic	Cadmium	Chromium	Copper	Lead	Mercury	Nickel	Zinc	Benzene	Toluene	Ethylbenzene	Total Xylene	F1*	F2**	F3 (>C_{16}-C_{34})	F4 (>C_{34}-C_{40})	Naphthalene	Other PAHs		Total VOCs	Acetone (2-propanone)
BH1M-1	<1	1	2	32	2	<0.1	120	600	<0.5	<0.5	<0.5	<1.5	<50	<60	<500	<500	<0.1	<1	<0.01	<10	<10
BH4M-1	<1	<0.1	1	60	4	<0.1	73	280	<0.5	<0.5	<0.5	<1.6	<50	<60	<500	<500	<0.2	<2	<0.02	<10	<10
BH7M-1	<1	0.6	3	53	4	<0.1	170	900	<0.5	<0.5	<0.5	<1.7	<50	<60	<500	<500	<0.3	<3	<0.03	<10	<10
BH10M-1	<1	0.9	2	54	4	<0.1	67	290	<0.5	<0.5	<0.5	<1.8	<50	<60	<500	<500	<0.4	<4	<0.04	<10	<10
BH13M-1	1	<0.1	1	25	2	<0.1	47	84	<0.5	<0.5	<0.5	<1.5	<50	<60	<500	<500	<0.1	<1	<0.01	28	24
GIL																					
GIL (MarineWaters)	NR	0.7[3]	27 (Cr (III)) / 4.4 (Cr (VI))	1.3	4.4	0.1[3]	7	15[1]	500[1]	NR	NR	NR	NR	NR	NR	NR	50	NR	400	NR	
Drinking Waters	10	2	50	2000	10	1	20	NR	1	800	300	600	NR	NR	NR	NR	0.01	NR	NR		
HSL D [2]	NR	NR	NR	NR	NR	NR	NR	NR	5000	NL	NL	NL	6000	NL			NL				

Notes: All results are in units of µg/L.

Highlighted concentration value indicates exceedance of adopted GILs.

GIL Groundwater Investigation Level. All GIL values sourced from *National Environment Protection (Assessment of Site Contamination) Measure 1999 – Amendment 2013*, *Schedule (B1)* - Guideline on Investigation Levels for Soil and Groundwater, (NEPC) Investigation levels apply to Fresh Waters for typical slightly-moderately disturbed systems.

HSL Health-based Screening Level.

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, i.e. where the soil vapour is at equilibrium with the pore water, then the soil vapour source cannot exceed a level that would result in the

NR No recommended soil assessment criteria are currently available for the indicated parameter(s).

N.D. Concentrations of all tested analytes in this group was under laboratory's practical quantifation limit.

* To obtain F1 subtract the sum of BTEX concentrations from the C6-C10 fraction.

** To obtain F2 subtract Naphthalene from the >C10-C16 fraction.

1 Indicated threshold value may not protect key species from chronic toxicity, refer to ANZECC & ARMCANZ (2000) for further guidance.

2 NEPC (2013) Table 1A(4) Groundwater HSL D for vapour intrusion at the contaminant source depth ranges in sands 2m to <4m, which is consistent with the groundwater sampling depth.

3 Chemical for which possible bioaccumulation and secondary poisoning effects should be considered, refer to ANZECC & ARMCANZ (2000) for further guidance.

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Table B.3 Summary of QA/QC Results for Soil Validation Samples
Site: 25 - 33 Brighton Avenue, Croydon Park NSW
Job No: E23775.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																		
20/03/2018	BH8_0.3-0.4	Primary Soil Sample	<25	<25	<90	<120	<0.1	<0.1	<0.1	<0.3	8	<0.3	9.1	21	430	<0.05	2.7	280
20/03/2018	QD1	Intra-laboratory duplicate of BH8_0.3-0.4	<25	<25	<90	<120	<0.1	<0.1	<0.1	<0.3	6	<0.3	8.2	13	320	<0.05	2.9	190
		RPD	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*28.57*	*0.00*	*10.40*	*47.06*	*29.33*	*0.00*	*7.14*	*38.30*
Inter-laboratory Duplicate																		
20/03/2018	BH8_0.3-0.4	Primary Soil Sample	<25	<25	<90	<120	<0.1	<0.1	<0.1	<0.3	8	<0.3	9.1	21	430	<0.05	2.7	280
20/03/2018	QT1	Inter-laboratory duplicate of BH8_0.3-0.4	<25	<50	<100	<100	<0.2	<0.5	<1	<3	<1	1.1	1	14	<1	<0.05	120	590
		RPD	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	160.40	*40.00*	199.30	*0.00*	191.20	71.26
Trip Blanks																		
20/03/2018	Trip Blank	Soil	-	-	-	-	<0.1	<0.1	<0.1	<0.3	-	-	-	-	-	-	-	-
Trip Spikes																		
20/03/2018	Trip Spike	Soil	-	-	-	-	[83%]	[84%]	[84%]	[88%]	-	-	-	-	-	-	-	-
Rinsate Blanks																		
20/03/2018	QR1	De-ionised water	<50	<60	<500	<500	<0.5	<0.5	<0.5	<1.5	<1	<0.1	2	40	3	<0.1	3	110
20/03/2018	QRB1	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

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

Table B.3 Summary of QA/QC Results for Groundwater Samples
Site: 25 - 33 Brighton Avenue, Croydon Park NSW
Job No: E23775.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																		
10/04/2018	BH1M-1	Primary Water Sample	<50	<60	<500	<500	<0.5	<0.5	<0.5	<1.5	<1	1	2	32	2	<0.1	120	600
10/04/2018	GWQD1	Intra-laboratory duplicate of BH1M-1	<50	<60	<500	<500	<0.5	<0.5	<0.5	<1.5	<1	1	1	17	<1	<0.1	110	580
		RPD	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	66.67	61.22	80.00	*0.00*	*8.70*	*3.39*
Inter-laboratory Duplicate																		
10/04/2018	BH1M-1	Primary Water Sample	<50	<60	<500	<500	<0.5	<0.5	<0.5	<1.5	<1	1	2	32	2	<0.1	120	600
10/04/2018	GWQT1	Inter-laboratory duplicate of BH1M-1	<10	<50	<100	<100	<1	<1	<1	<3	<1	1.1	1	14	<1	<0.05	120	590
		RPD	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*NA*	*0.00*	*0.00*	*0.00*	*9.52*	66.67	78.26	80.00	*0.00*	*0.00*	*1.68*
Trip Blanks																		
10/04/2018	Trip Blank	Water	-	-	-	-	<0.5	<0.5	<0.5	<1.5	-	-	-	-	-	-	-	-
Trip Spikes																		
10/04/2018	Trip Spike	Water	-	-	-	-	100%	105%	98%	98%	-	-	-	-	-	-	-	-
Rinsate Blanks																		
10/04/2018	GWQR1	De-ionised water	<50	<60	<500	<500	<0.5	<0.5	<0.5	<1.5	<1	<0.1	<1	<1	<1	<0.1	<1	63

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

Appendix C– Development Plans

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Brighton Avenue Croydon Park

Urban Design Strategy & Preferred Design Option

For Dyldam Pty Ltd, April 2016

Prepared for:
Dyldam

Contents

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BRIGHTON AVENUE

1.0 Introduction

1.1 Executive Summary

This Urban Design Report has been prepared by AE Design Partnership on behalf of Dyldam Pty Ltd. The subject site is located at 27-33 Brighton Avenue Croydon Park (the Site).

The Site is located within Canterbury Local Government Area. The Site is located in a predominantly residential area near corner two arterial roads Brighton Avenue and Georges River Road.

This Report includes a brief analysis of the Site and its context. AE Design Partnership's task is to demonstrate the best built form outcome for the Site taking into account the existing and the proposed controls and to determine any further changes to the controls that are warranted. AE Design Partnership has developed an urban design strategy for the Site in regards to its built form, open space, amenity, public domain, access and streetscape character.

The proposed design option is documented with a set of 2D and 3D envelopes for the subject Site. Additionally, lots located immediately north of the Site 15, 17, 19, 21 and 23-25 Brighton Avenue Croydon Park are included for the purpose of building envelope testing.

The Report also includes indicative floor plans to demonstrate functioning of the proposed building envelopes and the internal residential arrangement with regards to primary controls from the State Environmental Planning Policy 65 Apartment Design Guide.

Street view of the Site No. 27-33 Brighton Avenue and the adjacent site No. 15-25 Brighton Avenue (northern site).

1.2 Objectives

The objectives for this project are to:

- Analyse the Site, its immediate and local context to understand the built form, open space and public domain aspects of the area;
- Formulate urban design strategy for the Site;
- Provide development options derived using the previously formulated design strategy;
- Compare all development options in terms of height of buildings, floor space ratio, gross floor area, solar access performance and indicative number of apartments;
- Present the Urban Design Strategy and the Preferred Design Option to Council (5 storey building envelopes);
- Collate Council feedback; and
- Summarise all of the above including building envelopes and indicative floor plans, as the basis for a Planning Proposal to be submitted to Council.

Cooks River and surrounding parklands located 500m from the Site.

Brighton Avenue is a 30m wide street with a single travel + a parking lane in each direction. A bicycle lane is has been provided within the parking lane. The 30m width also accommodates a large median and wide footpaths on both sides of the street.

A mix of 1-2 storey detached houses and 3 storey residential flat buildings located across the Site on Brighton Avenue.

Footpaths on both sides of Brighton Avenue are approximately 7m wide, adjacent to a 3.3m wide parking lane and a 3.5m travel lane. The central median is within the variable residual street width.

View of Cooks River and Picken Oval from Cooks River Bridge, located 500m south of Site.

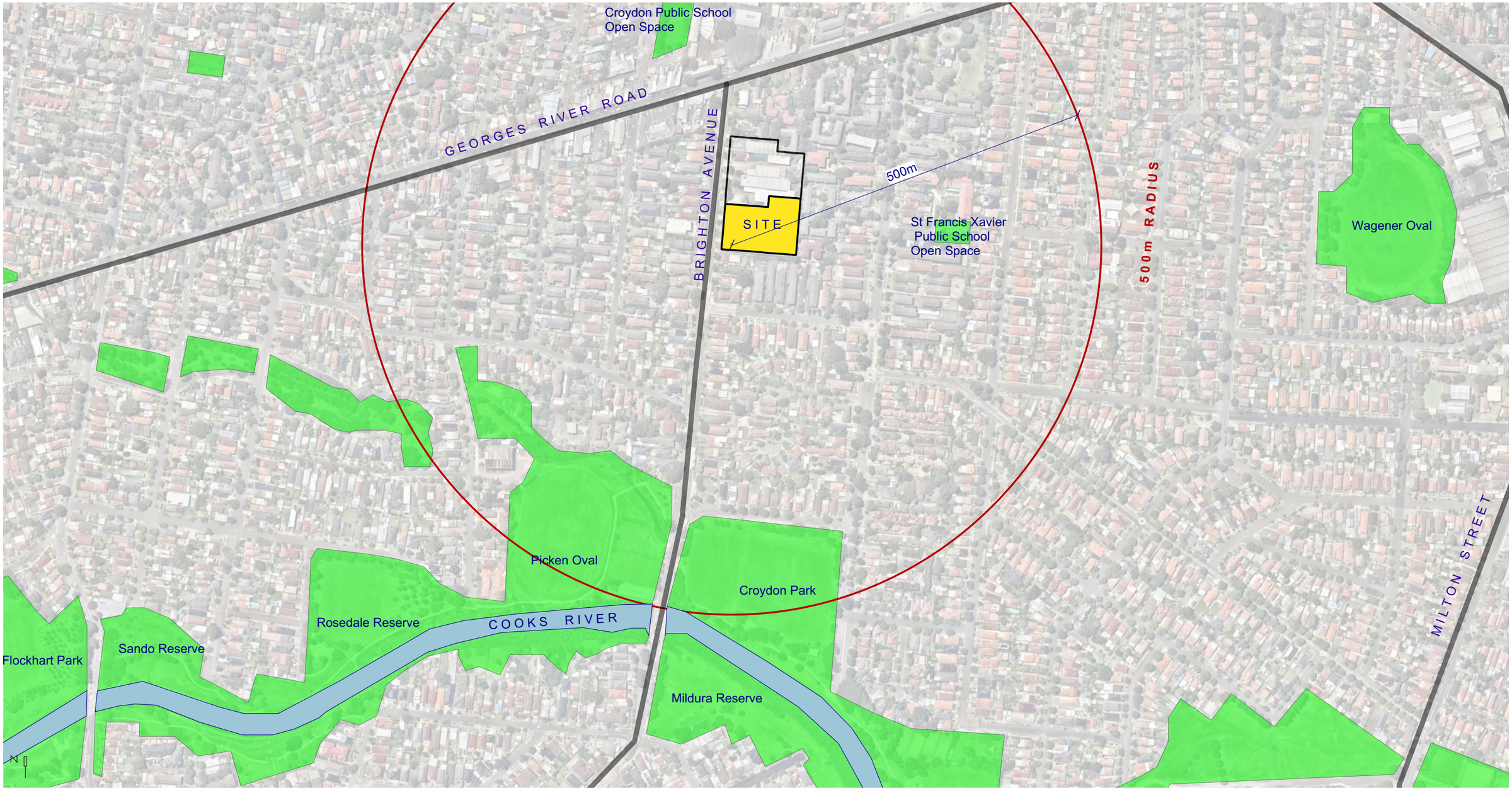
Croydon Public School and Croydon Park shops located at the corner of Brighton Avenue and Georges River Road, approximately 70m from the Site.

2.0 Analysis

2.1 Local Context

The Site is located near corner of two arterial roads Brighton Avenue and Georges River Road. Brighton Avenue connects the Site to Cooks River and the surrounding parklands (Croydon Park, Picken Oval and Mildura Reserve) located within a 500m walking radius from the Site.

Brighton Avenue is an arterial road which connects the Site with Campsie, Clemton Park, Bexley, and further with M5 South Western Motorway and Princes Highway towards south. Georges River Road is also an arterial road which connects Croydon Park with Burwood, Enfield, Strathfield, Lakemba, Punchbowl, and further with M5 South Western Motorway towards west. Georges River Road connects with City West Link via Ashfield Haberfield towards east.



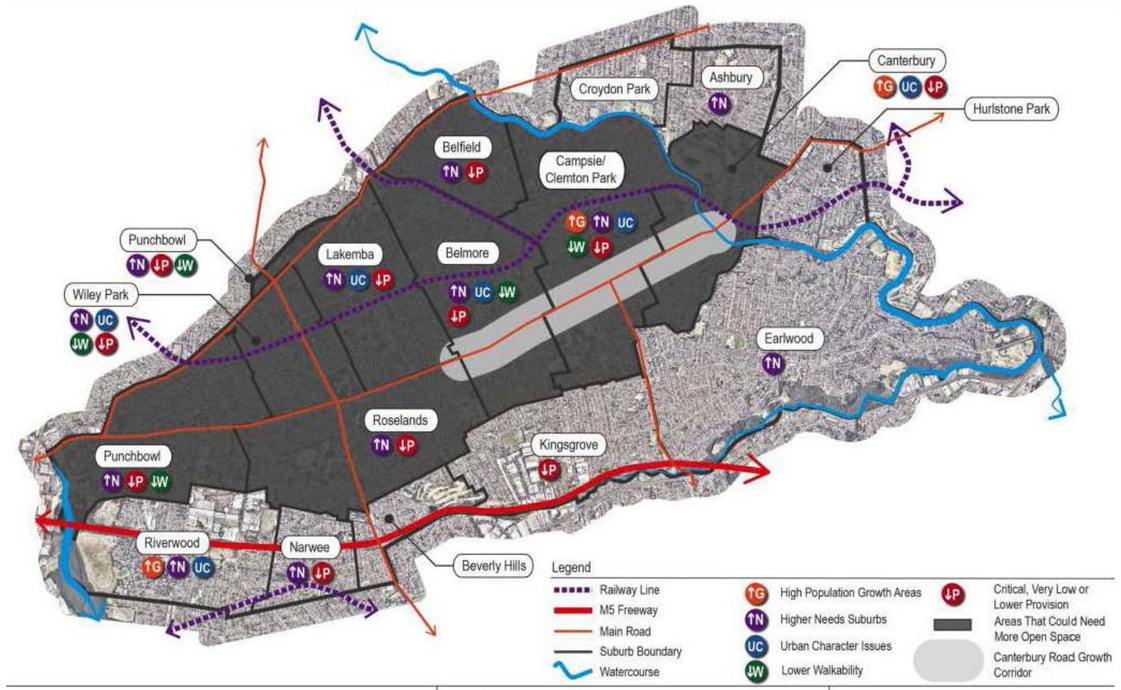
Suburb Provision Analysis
Considers Benchmarks and Industry Thinking
Does not consider potential additional open space being provided (e.g. linked to population growth or to address gaps)

Suburb	Provision (Hectares)	Suburb Land Area Hectares	% of Land Area		Hectares Per 1,000 People				OVERALL PROVISION FINDING
					2011 144,709	2021 161,508	2031 181,459		
ASHBURY	12.4	98	12.7%		3.75	3.74	3.33		GOOD PROVISION
BELFIELD	7.4	119	6.2%		1.50	1.44	1.28		LOWER PROVISION
BELMORE	11.9	282	4.2%		0.90	0.84	0.74		VERY LOW PROVISION
BEVERLY HILLS	19.8	84	23.6%		11.59	10.80	9.62		LOWER WITHOUT GOLF COURSE *
CAMPSIE-CLEMTON PARK	13.3	366	3.6%		0.56	0.45	0.40		CRITICALLY LOW
CANTERBURY	22.7	197	11.5%		3.51	2.12	1.89		LOWER AS POPULATION GROWS
CROYDON PARK	12.9	95	13.6%		2.86	2.78	2.47		RELATIVELY GOOD
EARLWOOD	103.3	562	18.4%		5.83	5.60	4.99		GOOD PROVISION
HURLSTONE PARK	11.4	106	10.8%		2.63	2.49	2.21		RELATIVELY GOOD
KINGSGROVE	12.6	226	5.6%		2.03	2.00	1.78		LOWER PROVISION
LAKEMBA	12.9	218	5.9%		0.79	0.76	0.68		VERY LOW PROVISION
NARWEE	6.7	86	7.8%		1.97	1.84	1.64		LOWER PROVISION
PUNCHBOWL	17.4	263	6.6%		1.49	1.38	1.23		LOWER PROVISION
RIVERWOOD	60.3	243	24.8%		11.33	8.57	7.63		GOOD PROVISION
ROSELANDS	5.2	274	1.9%		0.45	0.42	0.38		CRITICALLY LOW PROVISION
WILEY PARK	9.2	136	6.8%		0.92	0.90	0.80		VERY LOW PROVISION
CANTERBURY LGA	341.3	**3355**	**10.2%**		2.36	2.11	1.88		LOWER PROVISION IN FUTURE

*Note that without the golf course the provision in Beverly Hills is only 2.6 hectares (which represents 1.52 hectares per 1,000 in 2011 and 1.26 hectares per 1,000 people in 2031)

Provision Analysis	Ha/1,000	Land Area	Colour Code
Good Provision	More than 3ha/1000	More than 12.5%	
Relatively Good Provision	2-3 ha per 1,000	10-12%	
Lower Provision	1-2 ha per 1,000	5-9%	
Very Low Provision	0.5 – 1 ha per 1,000	2-4.9%	
Critically Low Provision	Less than 0.5 ha /1,000	Less than 2%	

An excerpt from City of Canterbury's Open Space Review (July 2015) endorsed by the Council



An excerpt from City of Canterbury's Open Space Review (July 2015) - Croydon Park excluded from the areas that could need more open space. The areas requiring more open space are shown in dark grey.

The parklands shown on Page 5 Local Context Analysis serve as recreational spaces for the local residents. Croydon Park currently has a 'Good Provision' of open space as per Canterbury Council's Open Space Needs Review endorsed by the Council (dated July 2015) with 13.6% of Land Area. This provision is at the rate of 2-3ha per 1,000 people and considered as 'Relatively Good Provision' with regards to the residential density. Therefore, a publicly accessible open space as recommended by the Department of Planning's Gateway Determination (September 2015) is not required to be provided on the Site.

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2.2 Site Context

- The Site is located in a predominantly residential area. The subject site and lots located to its north are isolated industrial lots surrounded by R4 High Density Residential zoning.
- There are 3 to 4 storey residential flat buildings located east and south of the Site.
- The area west of Site across Brighton Avenue predominantly includes 1-2 storey detached houses.
- Croydon Park retail strip, Croydon Park Public School and Uniting Church buildings are located at the corner of Brighton Avenue and Georges River Road, 70m north of Site.
- The Site has a 61.5m frontage to Brighton Avenue and 102m depth. The site area is approximately 6,770m^2

Key

- Site
- Residential Flat Buildings
- Detached Houses
- Commercial / Retail
- Public Buildings
- Industrial Buildings (to be demolished)
- X Height of Buildings (number of storeys)

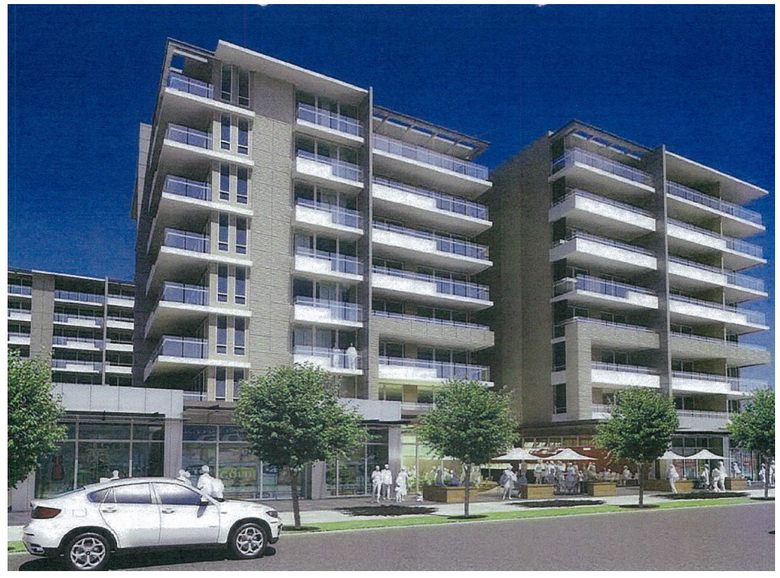
N 0 5 10 25 50m

1:1000@A3

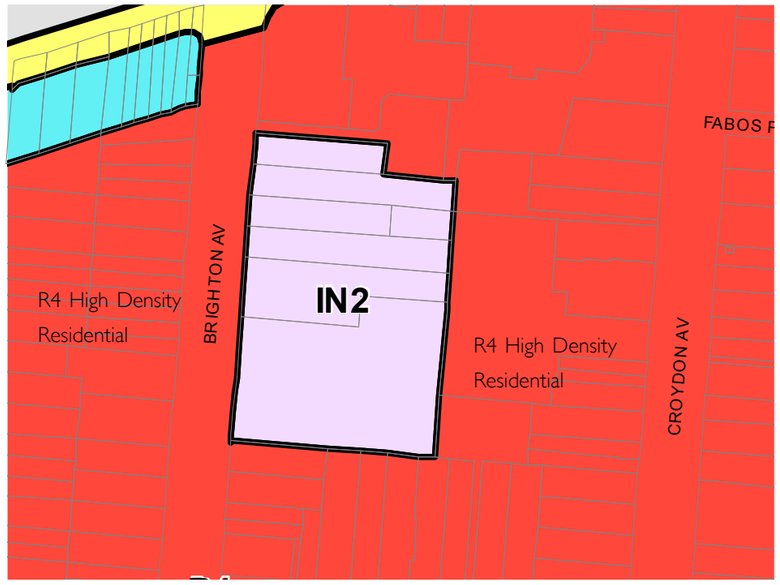
Brighton Avenue Croydon Park
Urban Design Strategy & Design Option

2.3 Planning Context

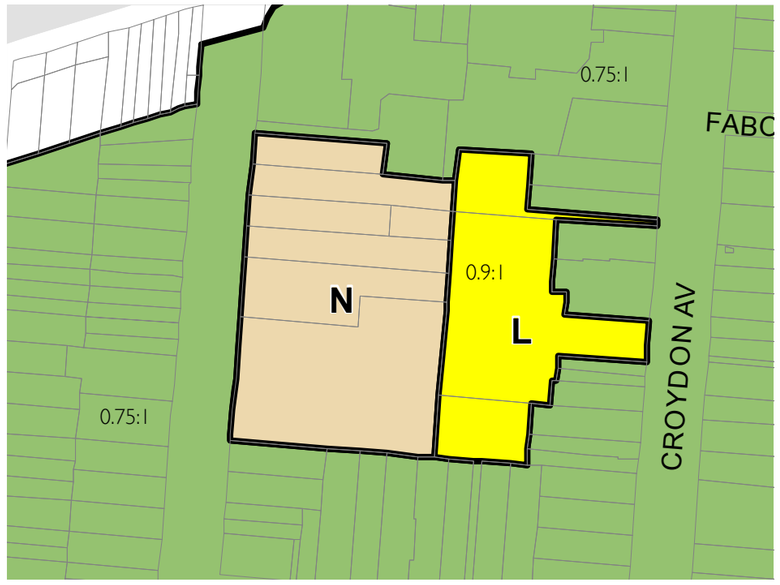
- The Site (including the northern site) is currently zoned in isolation as IN2 Light Industrial, whilst surrounded by R4 High Density Residential zone.
- A floor space ratio of 0.9:1 with a building height limit of 11.5 applies to the lots located along east and 0.75:1 with a building height limit of 8.5m applies to the remaining area.
- The site does not contain any heritage listed items and is not located within a Heritage Conservation Area.



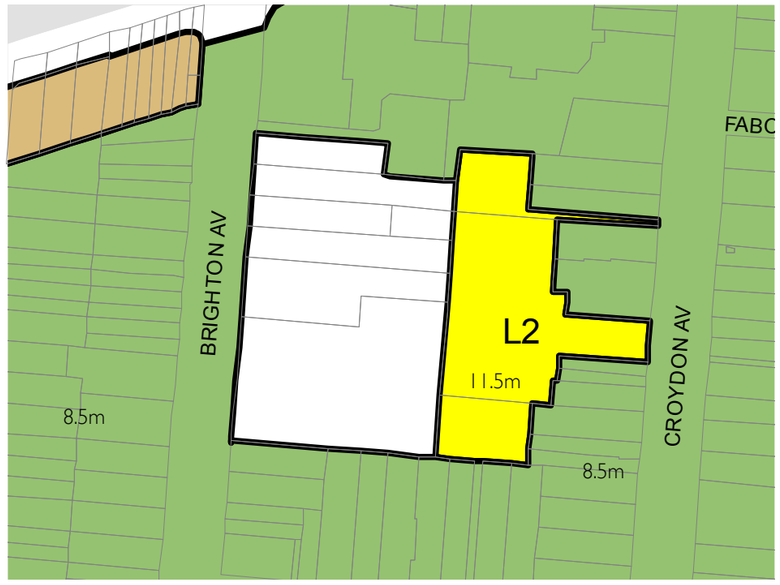
An exerpt from a previously lodged Planning Proposal for the Site to change the zone to R4 High Density, increase building height limit to 26m and increase FSR to 2.5:1, August 2013.



Zone



FSR



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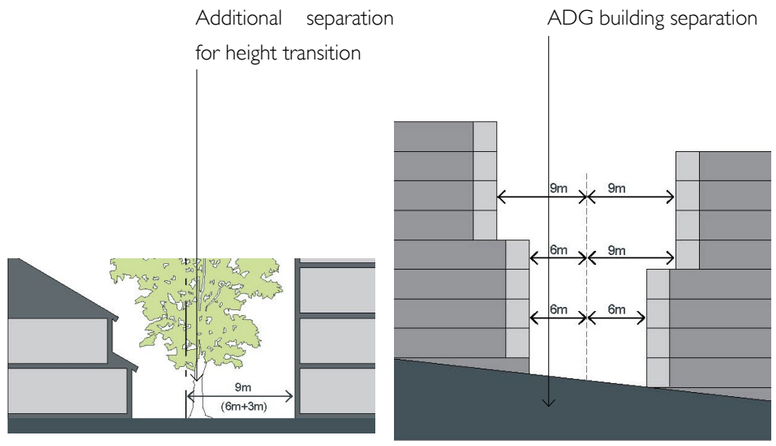
URBAN DESIGN STRATEGY

3.0 Urban Design Strategy

Building Envelopes

- The proposed building envelopes to have a maximum depth of 17m between glass line, consistent with the Apartment Design Guidelines.
- Maximum length of 45m is to apply to building envelopes addressing Brighton Avenue.
- Building envelopes should to be aligned to have a north-south orientation increasing direct solar access to the street and courtyard. A north-south building orientation will generate faster moving shadows and hence reduce the extent of overshadowing hours.
- A desirable building separation, as per SEPP 65 Apartment Design Guide - Building Separation is to be provided to allow adequate sunlight and natural ventilation between buildings.
- The in-between courtyard spaces are to be provided with an acceptable level of residential amenity including visual and acoustic privacy, daylight access and a desirable outlook for buildings with internal address.
- Building separation to be increased by an additional 3m along the eastern and southern boundaries to create building height transition. (The buildings adjacent to east and south of the Site are 2 to 3 storeys. These sites are currently zoned as R4 High Density Residential).



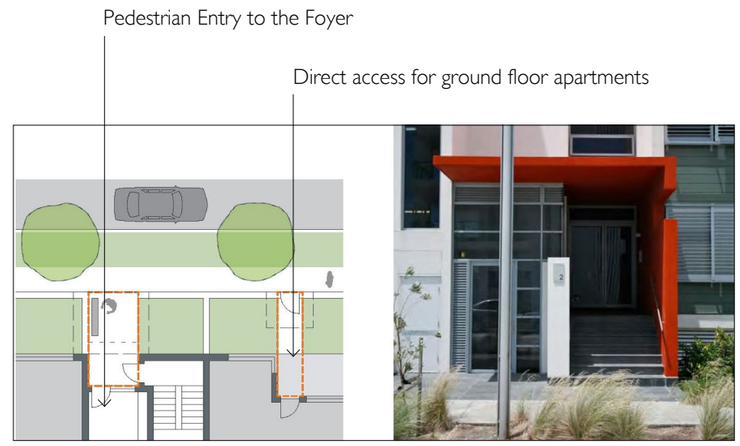
Building Separation

Street Connectivity

- A 3m street setback is to be provided from Brighton Avenue. This setback will be consistent with the existing residential flat buildings along Brighton Avenue.
- The pedestrian entry to the foyer should be clearly defined.
- Most apartments should address Brighton Avenue and improve casual street surveillance, whilst having a north-south orientation and allowing direct solar access in to the street and courtyard.
- Ground floor apartments to have direct street access.

Building Height

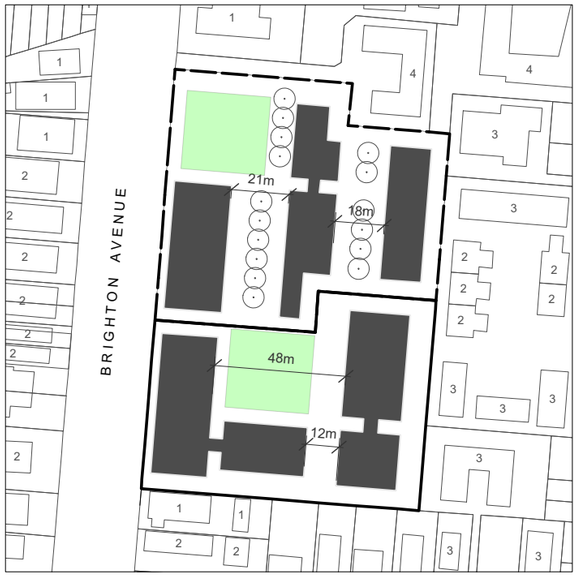
A building height of 5 storeys is considered for the purpose of building envelope testing.



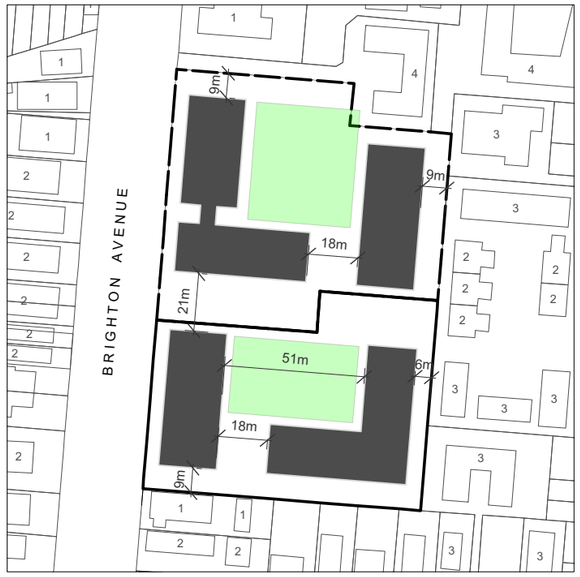
Street Connectivity

Site Layout Configurations

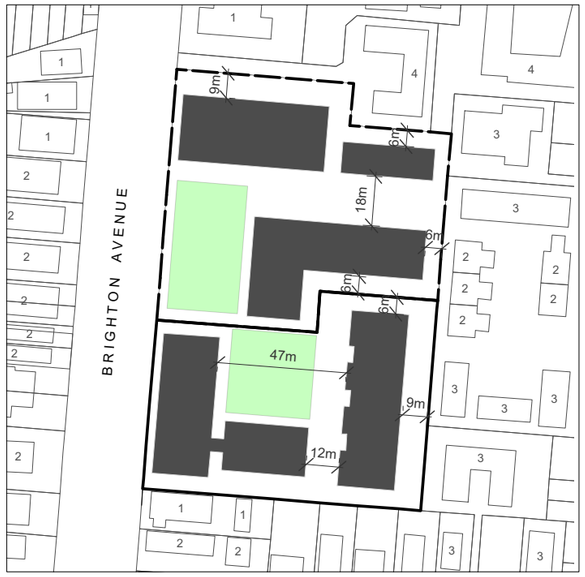
The following options were explored in terms of site layout.
The urban design strategies formed during previous stage are applied to these options.
Option 4 is further used for the purpose of building envelope testing since it has the best outcome in terms of building massing, building separation (internal and with the adjacent sites), solar access and open space location.



Option 1



Option 2



Option 3

Option 4 - Preferred

N

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PROPOSED BUILDING ENVELOPES

4.0 Proposed Building Envelopes

FSR	1.86 : 1
Height of Buildings	5 storeys

The 2D building envelope plan shows the proposed envelopes with the existing 3 storey residential flat buildings to east and south of the Site. Additionally, neighbouring lots located immediately north of the Site 15-25 Brighton Avenue Croydon Park are included in this scheme.

Our local context analysis (see 2.0 Analysis) shows the Cooks River and the adjacent parklands such as Croydon Park, Picken Oval and Mildura Reserve are located within a 500m walking radius from the Site. These parklands serve as recreational spaces for local residents. Croydon Park currently has a Good Provision of open space as per Canterbury Council's Open Space Needs Review (dated July 2015) endorsed by the Council. Therefore, a publicly accessible open space as recommended by the Department of Planning's Gateway Determination (September 2015) is not required to be provided on the Site.

Our building envelope testing suggests a height range of 5 storeys (shown in dark grey) reaches a floor space ratio of 1.86 : 1 for the subject Site and the northern site.

The 5 storey envelopes have an additional 3m upper setback to minimise visual impact when viewed from the neighbouring residential sites on east and west. The pink envelopes are 4 storey in height and are proposed with an additional 3m (6 + 3m) building separation to create a height transition to the existing 3 storey residential flat buildings to east and south.

A central courtyard (43 X 31m) is proposed to achieve an acceptable level of residential amenity including daylight, ventilation, visual and acoustic privacy. The courtyard will create a desirable outlook for the courtyard building which will have apartments with internal address.

The building envelope areas are reduced to 80% to calculate the residential GFA (gross floor area) for FSR calculations. 80% reduction allows for deducting building articulation, balconies, lift shafts, fire egress, stairwells, ducts and external walls (See 4.1 Area Calculations for details).

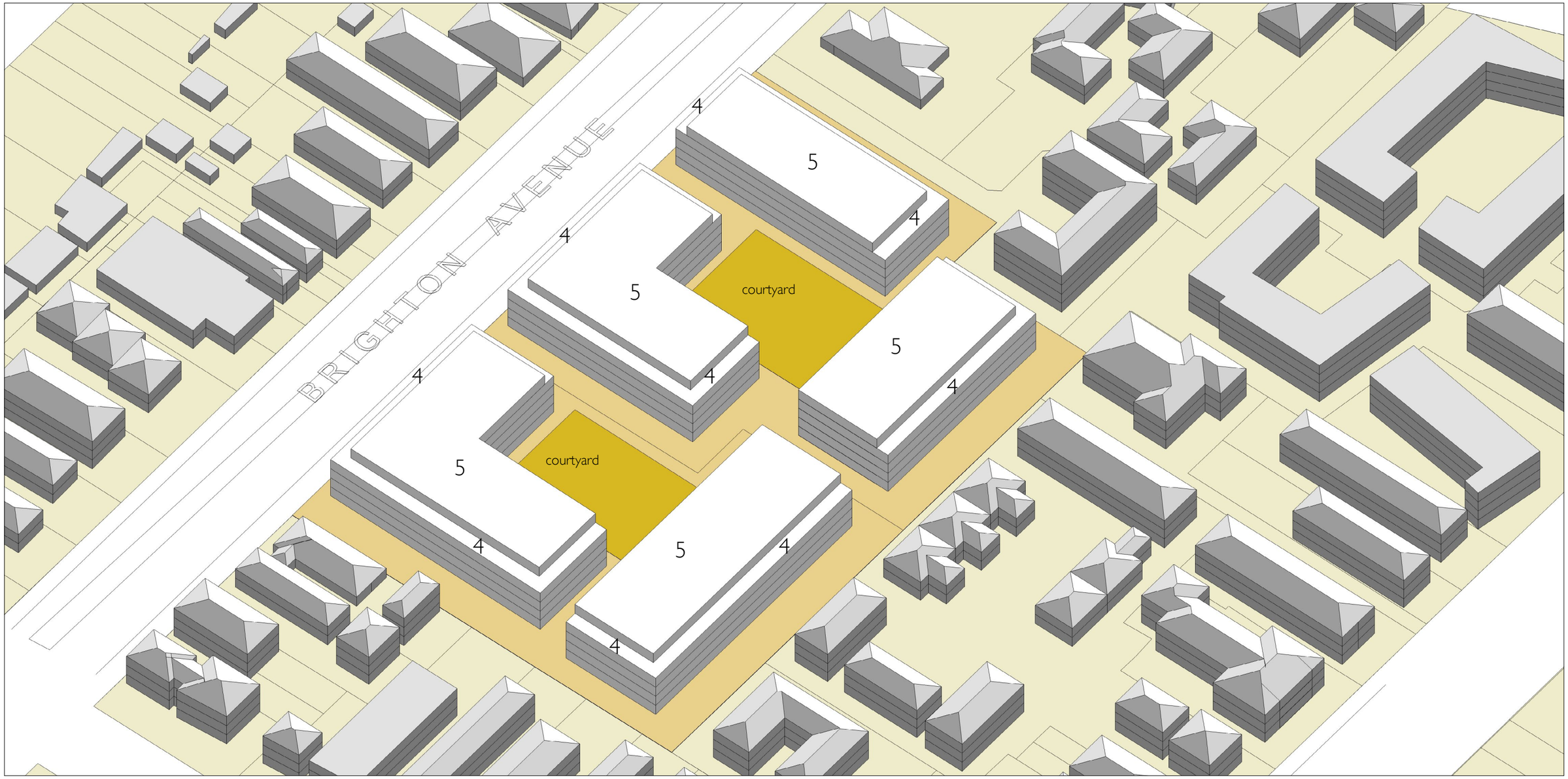
Key

- Site
- 5 Storey Envelope
- 4 Storey Envelope
- Existing Buildings
- Courtyard
- X Height of Buildings (number of storeys)

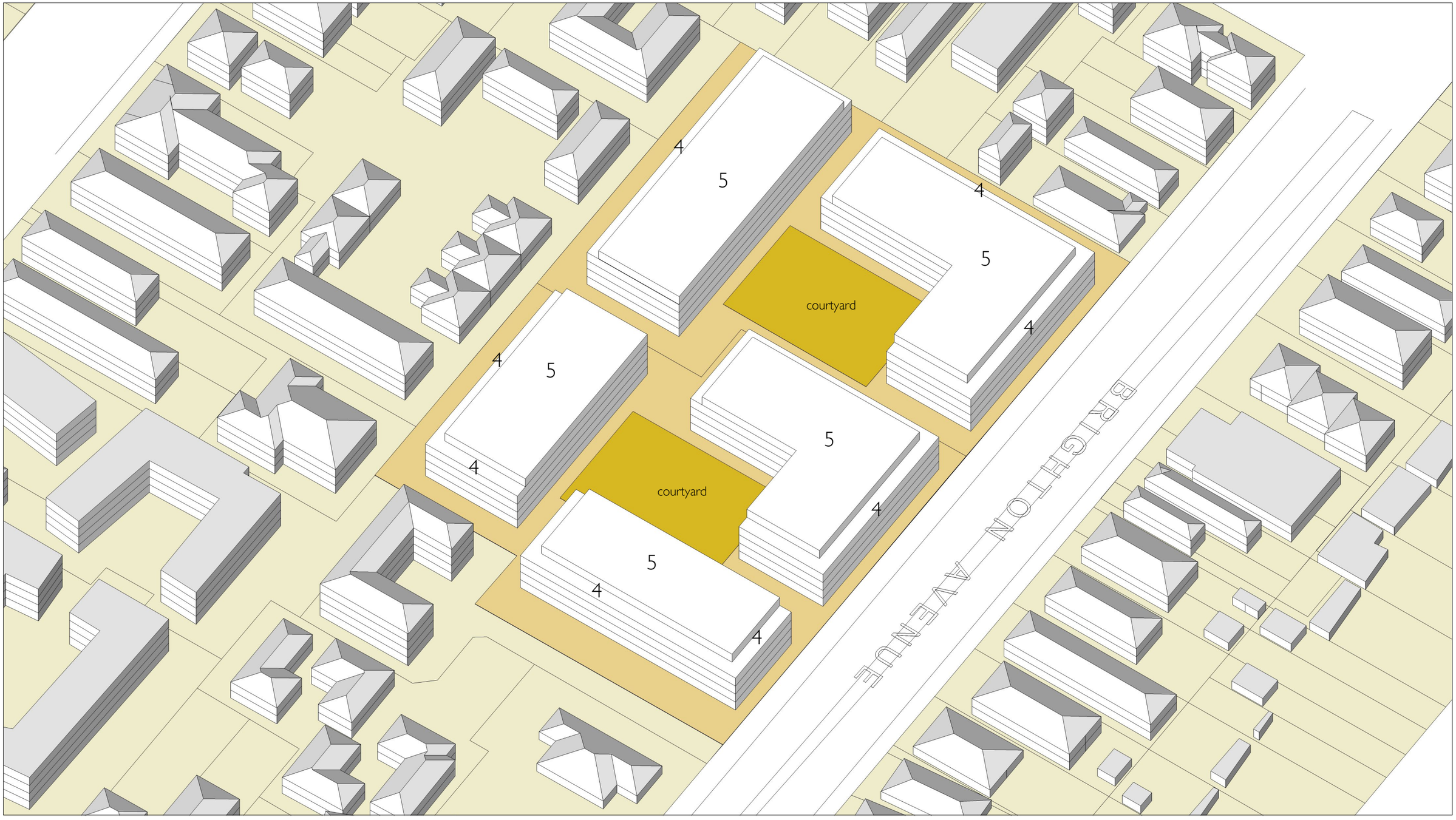
N 0 5 10 25 50m

1:1000@A3

2D Envelope Plan



Isometric View 1



Isometric View 2

4.1 Area Calculations

Subject Site

Site Area		6,770							
Total Gross Floor Area		12,628							
Floor Space Ratio		**1.87**							
total apartments		**178**	approx.						
BUILDING A									
Level	Retail Building Envelope Area (m2)	Residential Building Envelope Area (m2)	Retail Gross Floor Area (m2)	Residential Gross Floor Area (m2)	Total GFA	Residential NLA (m2)	Average No. of Dwellings		
1		1720	0	1376					
2		1720	0	1376					
3		1720	0	1376					
4		1720	0	1376					
5		1365	0	1092					
6				0					
7				0					
8				0					
				0					
Total			**0**	**6596**	**6596**	**5936**	**93**		
BUILDING B									
Level	Retail Building Envelope Area (m2)	Residential Building Envelope Area (m2)	Retail Gross Floor Area (m2)	Residential Gross Floor Area (m2)	Total GFA	Residential NLA (m2)	Average No. of Dwellings		
1		1560	0	1248					
2		1560	0	1248					
3		1560	0	1248					
4		1560	0	1248					
5		1300	0	1040					
6				0					
7				0					
8				0					
				0					
Total			**0**	**6032**	**6032**	**5429**	**85**		
								Apartment Type	**Area**
								1 bedroom = 30%	55m2
								2 bedroom = 70%	70m2
								Apartment Type	**Proposed No.**
								1 bedroom	53
								2 bedroom	125
								TOTAL	**178**

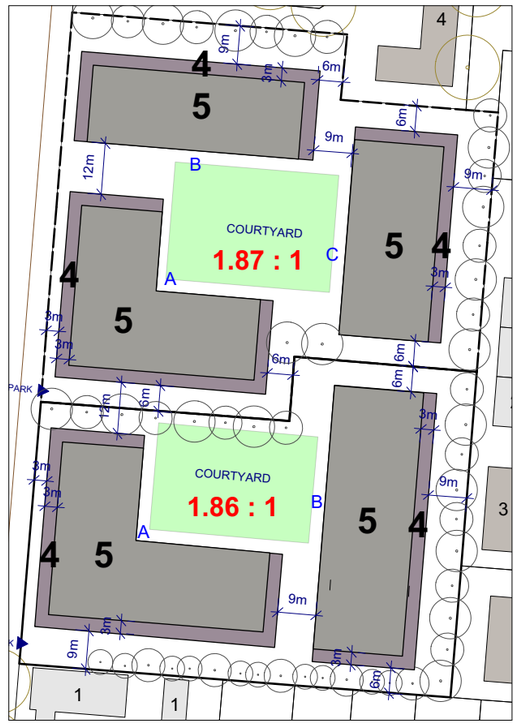
Building	**Retail GFA**	**Residential GFA**	**Total GFA**	**FSR**	**Resi. NLA**	**No. of Units**
A	**0**	**6596**	**6596**		**5936**	**93**
B	**0**	**6032**	**6032**		**5429**	**85**
C	**0**	**0**	**0**		**0**	**0**
TOTAL			**12,628**	**1.87**	**11,365**	**178**

Northern Site

Site Area		8,050					
Total Gross Floor Area		14,992					
Floor Space Ratio		**1.86**					
total apartments		208	approx.				
BUILDING A							
Level	Retail Building Envelope Area (m2)	Residential Building Envelope Area (m2)	Retail Gross Floor Area (m2)	Residential Gross Floor Area (m2)	Total GFA	Residential NLA (m2)	Average No. of Dwellings
1		1565	0	1252			
2		1565	0	1252			
3		1565	0	1252			
4		1565	0	1252			
5		1200	0	960			
6				0			
7				0			
8				0			
				0			
Total			**0**	**5968**	**5968**	**5371**	**83**
BUILDING B							
Level	Retail Building Envelope Area (m2)	Residential Building Envelope Area (m2)	Retail Gross Floor Area (m2)	Residential Gross Floor Area (m2)	Total GFA	Residential NLA (m2)	Average No. of Dwellings
1		1180	0	944			
2		1180	0	944			
3		1180	0	944			
4		1180	0	944			
5		895	0	716			
6				0			
7				0			
8				0			
				0			
Total			**0**	**4492**	**4492**	**4043**	**62**
BUILDING C							
Level	Retail Building Envelope Area (m2)	Residential Building Envelope Area (m2)	Retail Gross Floor Area (m2)	Residential Gross Floor Area (m2)	Total GFA	Residential NLA (m2)	Average No. of Dwellings
1		1175	0	940			
2		1175	0	940			
3		1175	0	940			
4		1175	0	940			
5		965	0	772			
6				0			
7				0			
8				0			
				0			
Total			**0**	**4532**	**4532**	**4079**	**63**

Building	**Retail GFA**	**Residential GFA**	**Total GFA**	**FSR**	**Resi. NLA**	**No. of Units**
A	**0**	**5968**	**5968**		**5371**	**83**
B	**0**	**4492**	**4492**		**4043**	**62**
C	**0**	**4532**	**4532**		**4079**	**63**
TOTAL			**14,992**	**1.86**	**13,493**	**208**

Northern Site

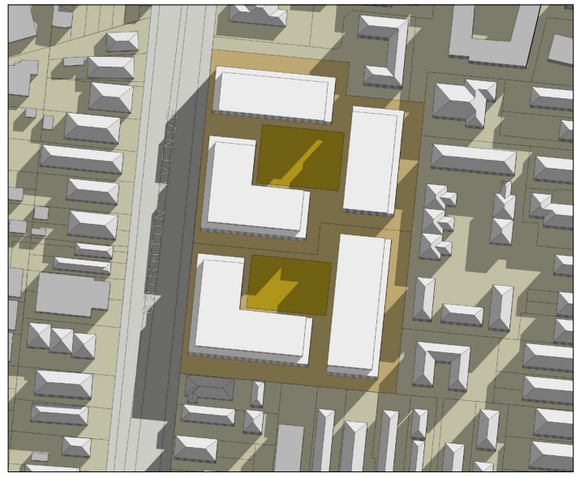


Subject Site

ae design partnership
architecture urban design planning

SOLAR STUDY

Shadow Diagrams - Midwinter



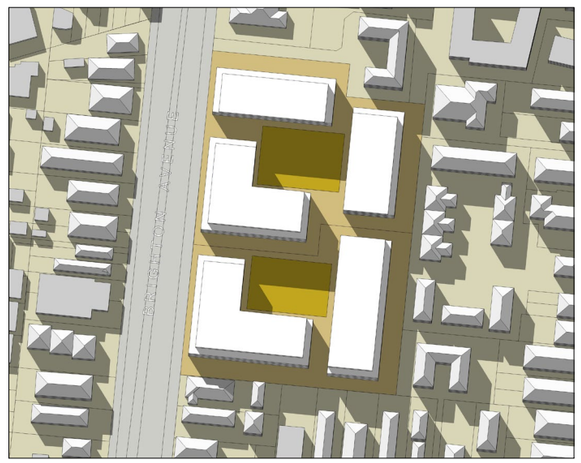
9am - 21st June

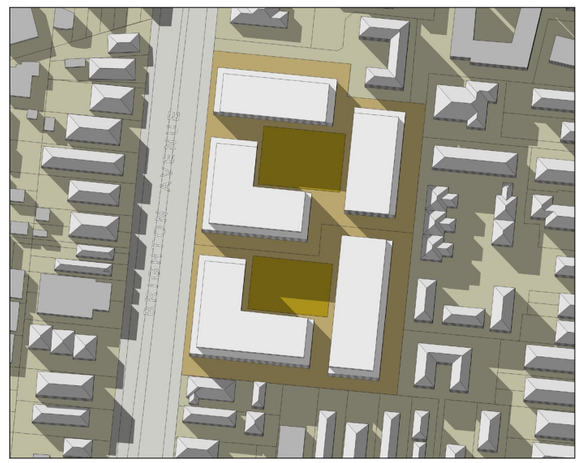

10am - 21st June


11am - 21st June

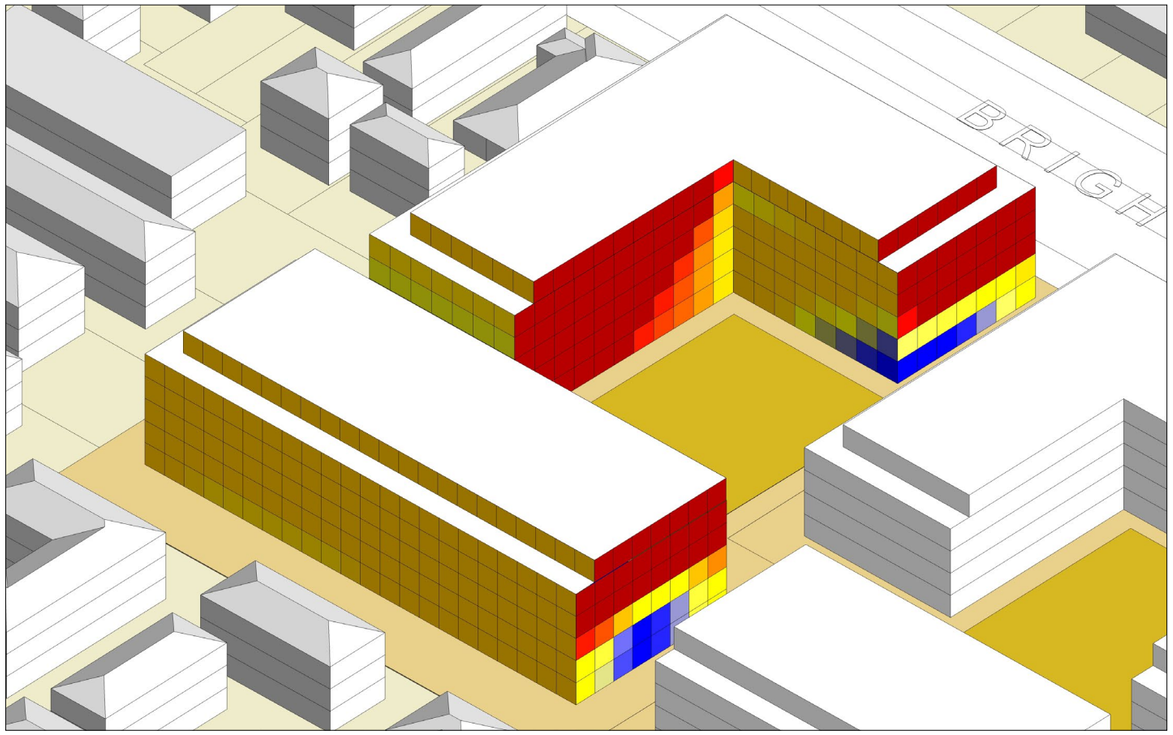

12pm - 21st June

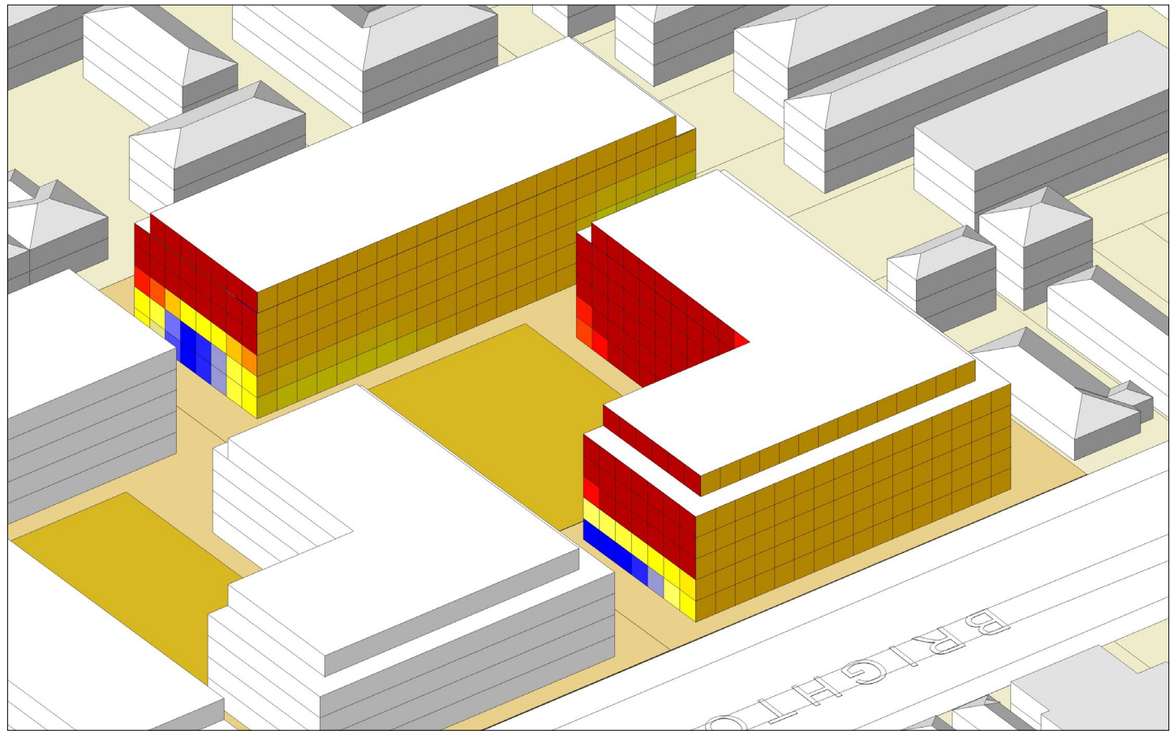

1pm - 21st June


2pm - 21st June

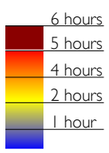

3pm - 21st June

Sun Hours Diagram - Midwinter



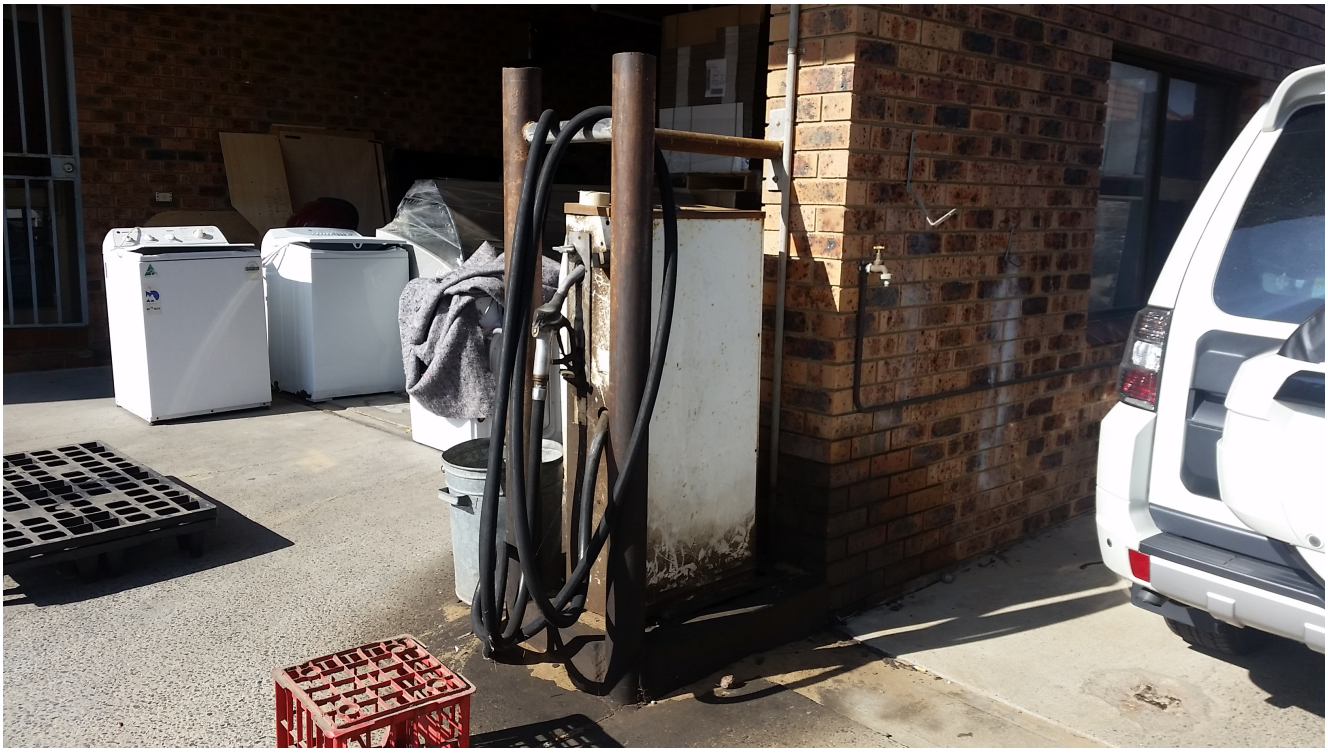


Solar access gradient
9am-3pm mid-winter



Appendix D– Site Photographs


DANGER
LIVE
WIRES
TANK
WATER
USED



Appendix E– Borehole Logs

BOREHOLE: BH1M

eiaustralia
Contamination | Remediation | Geotechnical

Project	Detailed Site Investigation			Sheet	1 OF 1
Location	25-33 Brighton Avenue, Croydon Park NSW			Date Started	19/3/18
Position	Refer to Figure 2			Date Completed	19/3/18
Job No.	E23775	Contractor	Geosense Drilling Pty Ltd	Logged MD	Date:
Client	R01 Croydon 88 Pty Ltd	Drill Rig	Hanjin D&B	Checked	Date:
		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	-	▽	0					-	FILL: Silty CLAY; medium to high plasticity, dark brown, no odour.	-		BH1M: Gatic Cover
				0.40	BH1M_0.2-0.3 ES 0.20-0.30 m 0.20 m PID = 0.2 ppm	■		-	SANDSTONE; light orange-brown, weathered, no odour.			
			1		BH1M_0.8-0.9 ES 0.80-0.90 m 0.80 m PID = 0.2 ppm	■						Grout 50 mm uPVC Casing
			2							M		
			3								-	Bentonite
			4									
			5									Sand 50 mm uPVC Screen
			6	6.10						W		
			7						Hole Terminated at 6.10 m Target Depth Reached. Borehole Converted into Monitoring Well.			
			8									
			9									
			10									

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

BOREHOLE: BH2

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Contamination | Remediation | Geotechnical

Project	Detailed Site Investigation			Sheet	1 OF 1
Location	25-33 Brighton Avenue, Croydon Park NSW			Date Started	19/3/18
Position	Refer to Figure 2			Date Completed	19/3/18
Job No.	E23775	Contractor	Geosense Drilling Pty Ltd	Logged MD	Date:
Client	R01 Croydon 88 Pty Ltd	Drill Rig	Hanjin D&B	Checked	Date:
		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	-	GWNE	0.0					-	FILL: Clayey SAND; fine to coarse grained, dark brown, with angular to sub-angular gravels, no odour.	-		FILL
					BH2_0.2-0.3 ES 0.20-0.30 m 0.20 m PID = 0.2 ppm							
				0.30				CI-CH	Silty CLAY; medium to high plasticity, dark brown, mottled orange, no odour.	M	-	RESIDUAL SOIL
			0.5		BH2_0.4-0.5 ES 0.40-0.50 m 0.40 m PID = 0.3 ppm							
				0.60					Hole Terminated at 0.60 m Target Depth Reached. Backfilled with Drilling Spoil.			
			1.0									
			1.5									
			2.0									

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

BOREHOLE: BH3

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Contamination | Remediation | Geotechnical

Project	Detailed Site Investigation			Sheet	1 OF 1
Location	25-33 Brighton Avenue, Croydon Park NSW			Date Started	19/3/18
Position	Refer to Figure 2			Date Completed	19/3/18
Job No.	E23775	Contractor	Geosense Drilling Pty Ltd	Logged MD	Date:
Client	R01 Croydon 88 Pty Ltd	Drill Rig	Hanjin D&B	Checked	Date:
		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	-	GWNE	0.0							-		
			0.5		BH3_0.3-0.4 ES 0.30-0.40 m 0.30 m PID = 0.2 ppm					M	-	
			1.0		BH3_0.9-1.0 ES 0.90-1.00 m 0.90 m PID = 0.3 ppm							
			1.5									
			2.0									

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

BOREHOLE: BH4M

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Contamination | Remediation | Geotechnical

Project	Detailed Site Investigation			Sheet	1 OF 1
Location	25-33 Brighton Avenue, Croydon Park NSW			Date Started	19/3/18
Position	Refer to Figure 2			Date Completed	19/3/18
Job No.	E23775	Contractor	Geosense Drilling Pty Ltd	Logged MD	Date:
Client	R01 Croydon 88 Pty Ltd	Drill Rig	Hanjin D&B	Checked	Date:
		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 BH4M
AD/T	-	GWNE	0	0.30	BH4M_0.2-0.3 ES 0.20-0.30 m 0.20 m PID = 0.3 ppm			-	FILL: Clayey SAND; fine to coarse grained, dark brown, with angular to sub-angular gravels, no odour.	-		Gatic Cover
			1		BH4M_0.9-1.0 ES 0.90-1.00 m 0.90 m PID = 0.4 ppm			CI-CH	Silty CLAY; medium to high plasticity, dark brown, mottled orange, no odour.	M	-	Grout 50 mm uPVC Casing Bentonite
			2									
			3									
			4									Sand 50 mm uPVC Screen
			5									
			6	6.00					Hole Terminated at 6.00 m Target Depth Reached. Borehole Converted into Monitoring Well.			
			7									
			8									
			9									
			10									

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

BOREHOLE: BH5

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Contamination | Remediation | Geotechnical

Project	Detailed Site Investigation			Sheet	1 OF 1
Location	25-33 Brighton Avenue, Croydon Park NSW			Date Started	19/3/18
Position	Refer to Figure 2			Date Completed	19/3/18
Job No.	E23775	Contractor	Geosense Drilling Pty Ltd	Logged MD	Date:
Client	R01 Croydon 88 Pty Ltd	Drill Rig	Hanjin D&B	Checked	Date:
		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	-	GWNE	0.0					-	FILL: Clayey SAND; fine to coarse grained, dark brown, with angular to sub-angular gravels, no odour.	-		FILL
			0.5		BH5_0.3-0.4 ES 0.30-0.40 m 0.30 m PID = 0.3 ppm						-	
				0.60				CI-CH	Silty CLAY; medium to high plasticity, dark brown, mottled orange, no odour.	M		RESIDUAL SOIL
			1.0	1.00	BH5_0.9-1.0 ES 0.90-1.00 m 0.90 m PID = 0.6 ppm				Hole Terminated at 1.00 m Target Depth Reached. Backfilled with Drilling Spoil.			
			1.5									
			2.0									

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

BOREHOLE: BH6

eiaustralia
Contamination | Remediation | Geotechnical

Project	Detailed Site Investigation			Sheet	1 OF 1
Location	25-33 Brighton Avenue, Croydon Park NSW			Date Started	19/3/18
Position	Refer to Figure 2			Date Completed	19/3/18
Job No.	E23775	Contractor	Geosense Drilling Pty Ltd	Logged MD	Date:
Client	R01 Croydon 88 Pty Ltd	Drill Rig	Hanjin D&B	Checked	Date:
		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
			0.0					-	CONCRETE: 200mm thick.	-		CONCRETE HARDSTAND
				0.20								
AD/T	-	GWNE			BH6_0.2-0.3 ES 0.20-0.30 m 0.20 m PID = 0.2 ppm			-	FILL: Clayey SAND; fine to coarse grained, dark brown, with angular to sub-angular gravels, no odour.		-	FILL
			0.5									
				0.60				CI-CH	Silty CLAY; medium to high plasticity, dark brown, mottled orange, no odour.	M		RESIDUAL SOIL
					BH6_0.9-1.0 ES 0.90-1.00 m 0.90 m PID = 0.2 ppm							
			1.0									
				1.10					Hole Terminated at 1.10 m Target Depth Reached. Backfilled with Drilling Spoil.			
			1.5									
			2.0									

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

BOREHOLE: BH7M

eiaustralia
Contamination | Remediation | Geotechnical

Project	Detailed Site Investigation			Sheet	1 OF 1
Location	25-33 Brighton Avenue, Croydon Park NSW			Date Started	19/3/18
Position	Refer to Figure 2			Date Completed	19/3/18
Job No.	E23775	Contractor	Geosense Drilling Pty Ltd	Logged MD	Date:
Client	R01 Croydon 88 Pty Ltd	Drill Rig	Hanjin D&B	Checked	Date:
		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	-	▽	0	0.20	BH7M_0.2-0.3 ES 0.20-0.30 m 0.20 m PID = 0.2 ppm			-	CONCRETE: 200mm thick.	-	-	BH7M
								-	FILL: Clayey SAND; fine to coarse grained, dark brown, with angular to sub-angular gravels, no odour.			
			1	1.10	BH7M_0.9-1.0 ES 0.90-1.00 m 0.90 m PID = 0.2 ppm			CI-CH	Silty CLAY; medium to high plasticity, dark brown, mottled orange, no odour.	M	-	
					BH7M_1.4-1.5 ES 1.40-1.50 m 1.40 m PID = 0.2 ppm							
			2									
			3									
			4	4.10				-	SHALE; weathered, no odour.			
			5									
			6	6.20						W		
									Hole Terminated at 6.20 m Target Depth Reached. Borehole Converted into Monitoring Well.			
			7									
			8									
			9									
			10									

Gatic Cover
Grout
50 mm uPVC Casing
Bentonite
Sand
50 mm uPVC Screen

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

BOREHOLE: BH8

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Contamination | Remediation | Geotechnical

Project	Detailed Site Investigation			Sheet	1 OF 1
Location	25-33 Brighton Avenue, Croydon Park NSW			Date Started	19/3/18
Position	Refer to Figure 2			Date Completed	19/3/18
Job No.	E23775	Contractor	Geosense Drilling Pty Ltd	Logged MD	Date:
Client	R01 Croydon 88 Pty Ltd	Drill Rig	Hanjin D&B	Checked	Date:
		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
			0.0					-	CONCRETE: 200mm thick.	-		CONCRETE HARDSTAND
				0.20				-	FILL: Clayey SAND; fine to coarse grained, dark brown, with angular to sub-angular gravels, no odour.			FILL
			0.5		BH8_0.3-0.4 ES QD1 QT1 0.30-0.40 m 0.30 m PID = 0.2 ppm							
				0.60				CI-CH	Silty CLAY; medium to high plasticity, dark brown, mottled orange, no odour.			RESIDUAL SOIL
AD/T	-	GWNE								M	-	
			1.0		BH8_0.9-1.0 ES 0.90-1.00 m 0.90 m PID = 0.4 ppm							
				1.40					Hole Terminated at 1.40 m Target Depth Reached. Backfilled with Drilling Spoil.			
			1.5									
			2.0									

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

BOREHOLE: BH9

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Contamination | Remediation | Geotechnical

Project	Detailed Site Investigation			Sheet	1 OF 1
Location	25-33 Brighton Avenue, Croydon Park NSW			Date Started	19/3/18
Position	Refer to Figure 2			Date Completed	19/3/18
Job No.	E23775	Contractor	Geosense Drilling Pty Ltd	Logged MD	Date:
Client	R01 Croydon 88 Pty Ltd	Drill Rig	Hanjin D&B	Checked	Date:
		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	-	GWNE	0.0					-	CONCRETE: 200mm thick.	-		CONCRETE HARDSTAND
				0.20				-	FILL: Gravelly SAND; fine to coarse grained, dark orange, angular to sub-angular gravel, no odour.			FILL
			0.5		BH9_0.3-0.4 ES 0.30-0.40 m 0.30 m PID = 0.6 ppm							
				0.60				-	FILL: Silty CLAY; medium to high plasticity, dark brown, with angular to sub-angular gravels and trace sandstone, no odour.			
			1.0		BH9_0.9-1.0 ES 0.90-1.00 m 0.90 m PID = 0.6 ppm					M	-	
				1.30				CI-CH	Silty CLAY; medium to high plasticity, dark brown, mottled orange, no odour.			RESIDUAL SOIL
			1.5		BH9_1.5-1.6 ES 1.50-1.60 m 1.50 m PID = 0.5 ppm							
				1.70					Hole Terminated at 1.70 m Target Depth Reached. Backfilled with Drilling Spoil.			
			2.0									

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

BOREHOLE: BH10M

eiaustralia
Contamination | Remediation | Geotechnical

Project	Detailed Site Investigation			Sheet	1 OF 1
Location	25-33 Brighton Avenue, Croydon Park NSW			Date Started	19/3/18
Position	Refer to Figure 2			Date Completed	19/3/18
Job No.	E23775	Contractor	Geosense Drilling Pty Ltd	Logged MD	Date:
Client	R01 Croydon 88 Pty Ltd	Drill Rig	Hanjin D&B	Checked	Date:
		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	-	▽	0	0.20				-	CONCRETE: 200mm thick.	-		BH10M
				0.50	BH10M_0.3-0.4 ES 0.30-0.40 m 0.30 m PID = 0.7 ppm			-	FILL: Clayey SAND; fine to coarse grained, dark brown, with ash and angular to sub-angular gravels, no odour.			
			1		BH10M_0.9-1.0 ES 0.90-1.00 m 0.90 m PID = 0.7 ppm			CI-CH	Silty CLAY; medium to high plasticity, dark brown, mottled orange, no odour.	M	-	Gatic Cover Grout 50 mm uPVC Casing Bentonite
			2									
			3									
			4									
			5									
			6	6.10						W		Sand 50 mm uPVC Screen
									Hole Terminated at 6.10 m Target Depth Reached. Borehole Converted into Monitoring Well.			
			7									
			8									
			9									
			10									

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

BOREHOLE: BH11

eiaustralia
Contamination | Remediation | Geotechnical

Project	Detailed Site Investigation			Sheet	1 OF 1
Location	25-33 Brighton Avenue, Croydon Park NSW			Date Started	19/3/18
Position	Refer to Figure 2			Date Completed	19/3/18
Job No.	E23775	Contractor	Geosense Drilling Pty Ltd	Logged MD	Date:
Client	R01 Croydon 88 Pty Ltd	Drill Rig	Hanjin D&B	Checked	Date:
		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	-	GWNE	0.0					-	CONCRETE: 200mm thick.	-		CONCRETE HARDSTAND
				0.20				-	FILL: Clayey SAND; fine to coarse grained, dark brown, with ash and angular to sub-angular gravels, no odour.			FILL
			0.5		BH11_0.3-0.4 ES 0.30-0.40 m 0.30 m PID = 0.6 ppm							
				0.60				CI-CH	Silty CLAY; medium to high plasticity, dark brown, mottled orange, no odour.			RESIDUAL SOIL
			1.0		BH11_0.9-1.0 ES 0.90-1.00 m 0.90 m PID = 0.5 ppm					M	-	
			1.5	1.50					Hole Terminated at 1.50 m Target Depth Reached. Backfilled with Drilling Spoil.			
			2.0									

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

BOREHOLE: BH12

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Contamination | Remediation | Geotechnical

Project	Detailed Site Investigation			Sheet	1 OF 1
Location	25-33 Brighton Avenue, Croydon Park NSW			Date Started	19/3/18
Position	Refer to Figure 2			Date Completed	19/3/18
Job No.	E23775	Contractor	Geosense Drilling Pty Ltd	Logged MD	Date:
Client	R01 Croydon 88 Pty Ltd	Drill Rig	Hanjin D&B	Checked	Date:
		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
			0.0					-	CONCRETE: 200mm thick.	-		CONCRETE HARDSTAND
				0.20				-	FILL: Clayey SAND; fine to coarse grained, dark brown, with ash and angular to sub-angular gravels, no odour.			FILL
AD/T	-	GWNE	0.5		BH12_0.5-0.6 ES 0.50-0.60 m 0.50 m PID = 0.4 ppm					M	-	
				0.70				-	SANDSTONE; light orange-brown, weathered, no odour.			WEATHERED ROCK
			1.0		BH12_1.0-1.1 ES 1.00-1.10 m 1.00 m PID = 0.6 ppm							
				1.10					Hole Terminated at 1.10 m Target Depth Reached. Backfilled with Drilling Spoil.			
			1.5									
			2.0									

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

BOREHOLE: BH13M

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Contamination | Remediation | Geotechnical

Project	Detailed Site Investigation			Sheet	1 OF 1
Location	25-33 Brighton Avenue, Croydon Park NSW			Date Started	20/3/18
Position	Refer to Figure 2			Date Completed	20/3/18
Job No.	E23775	Contractor	Geosense Drilling Pty Ltd	Logged MD	Date:
Client	R01 Croydon 88 Pty Ltd	Drill Rig	Hanjin D&B	Checked	Date:
		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
AD/T	-	▽	0	0.20				-	CONCRETE: 200mm thick.	-		Gatic Cover
				0.60	BH13M_0.3-0.4 ES 0.30-0.40 m			-	FILL: Clayey SAND; fine to coarse grained, dark brown, with ash and angular to sub-angular gravels, no odour.			
			1		BH13M_0.9-1.0 ES 0.90-1.00 m			-	SANDSTONE; light orange-brown, weathered, no odour.			Grout
				1.50				CL-CI	Silty CLAY; low to medium plasticity, orange mottled grey, no odour.			50 mm uPVC Casing
			2									50 mm uPVC Screen
										M		Bentonite
			3	3.20				-	SHALE; weathered, no odour.		-	
			4									
			5									
		▽		5.50	BH13M_5.5-5.6 ES 5.50-5.60 m 5.50 m PID = 64.1 ppm				From 5.5m, moderate hydrocarbon odour.	W		Sand
			6	6.40								
									Hole Terminated at 6.40 m Refusal. Borehole Converted into Monitoring Well.			
			7									
			8									
			9									
			10									

PIEZOMETER DETAILS
ID Static Water Level
BH13M

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

BOREHOLE: BH14

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Project	Detailed Site Investigation			Sheet	1 OF 1
Location	25-33 Brighton Avenue, Croydon Park NSW			Date Started	20/3/18
Position	Refer to Figure 2			Date Completed	20/3/18
Job No.	E23775	Contractor	Geosense Drilling Pty Ltd	Logged MD	Date:
Client	R01 Croydon 88 Pty Ltd	Drill Rig	Hanjin D&B	Checked	Date:
		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
			0.0					-	CONCRETE: 200mm thick.	-		CONCRETE HARDSTAND
				0.20				CI-CH	Silty CLAY; medium to high plasticity, dark brown, mottled orange, no odour.			RESIDUAL SOIL
AD/T	-	GWNE	0.5		BH14_0.4-0.5 ES 0.40-0.50 m 0.40 m PID = 2.2 ppm						-	
				0.80				-	SANDSTONE; light orange-brown, weathered, no odour.	W		WEATHERED ROCK
			1.0		BH14_1.1-1.2 ES 1.10-1.20 m 1.10 m PID = 1.8 ppm							
				1.40					Hole Terminated at 1.40 m Target Depth Reached. Backfilled with Drilling Spoil.			
			1.5									
			2.0									

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

BOREHOLE: BH15

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Project	Detailed Site Investigation			Sheet	1 OF 1
Location	25-33 Brighton Avenue, Croydon Park NSW			Date Started	20/3/18
Position	Refer to Figure 2			Date Completed	20/3/18
Job No.	E23775	Contractor	Geosense Drilling Pty Ltd	Logged MD	Date:
Client	R01 Croydon 88 Pty Ltd	Drill Rig	Hanjin D&B	Checked	Date:
		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	-	GWNE	0.0					-	CONCRETE: 200mm thick.	-		CONCRETE HARDSTAND
				0.20				-	FILL: Clayey SAND; fine to coarse grained, dark brown, with ash and angular to sub-angular gravels, no odour.			FILL
					BH15_0.3-0.4 ES 0.30-0.40 m 0.30 m PID = 1 ppm							
			0.5	0.50				CI-CH	Silty CLAY; medium to high plasticity, dark brown, mottled orange, no odour.			RESIDUAL SOIL
					BH15_0.9-1.0 ES 0.90-1.00 m 0.90 m PID = 1.3 ppm					W	-	
			1.0									
			1.5	1.50					Hole Terminated at 1.50 m Target Depth Reached. Backfilled with Drilling Spoil.			
			2.0									

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

BOREHOLE: BH16

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Contamination | Remediation | Geotechnical

Project	Detailed Site Investigation			Sheet	1 OF 1
Location	25-33 Brighton Avenue, Croydon Park NSW			Date Started	20/3/18
Position	Refer to Figure 2			Date Completed	20/3/18
Job No.	E23775	Contractor	Geosense Drilling Pty Ltd	Logged MD	Date:
Client	R01 Croydon 88 Pty Ltd	Drill Rig	Hanjin D&B	Checked	Date:
		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
			0.0					-	CONCRETE: 200mm thick.	-		CONCRETE HARDSTAND
				0.20				-	FILL: Clayey SAND; fine to coarse grained, dark brown, with ash and angular to sub-angular gravels, no odour.			FILL
AD/T	-	GWNE	0.5		BH16_0.4-0.5 ES 0.40-0.50 m 0.40 m PID = 1.4 ppm					M	-	
					BH16_0.9-1.0 ES 0.90-1.00 m 0.90 m PID = 1.2 ppm							
			1.0	1.00				-	SANDSTONE; light orange-brown, weathered, no odour.			WEATHERED ROCK
					BH16_1.4-1.5 ES 1.40-1.50 m 1.40 m PID = 1.1 ppm							
			1.5	1.50					Hole Terminated at 1.50 m Target Depth Reached. Backfilled with Drilling Spoil.			
			2.0									

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

BOREHOLE: BH17

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Project	Detailed Site Investigation			Sheet	1 OF 1
Location	25-33 Brighton Avenue, Croydon Park NSW			Date Started	20/3/18
Position	Refer to Figure 2			Date Completed	20/3/18
Job No.	E23775	Contractor	Geosense Drilling Pty Ltd	Logged MD	Date:
Client	R01 Croydon 88 Pty Ltd	Drill Rig	Hanjin D&B	Checked	Date:
		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
			0.0					-	CONCRETE: 200mm thick.	-		CONCRETE HARDSTAND
				0.20				-	FILL: Clayey SAND; fine to coarse grained, dark brown, with ash and angular to sub-angular gravels, slight hydrocarbon odour.			FILL
AD/T	-	GWNE	0.5		BH17_0.5-0.6 ES 0.50-0.60 m 0.50 m PID = 8.5 ppm							
			1.0		BH17_1.0-1.1 ES 1.00-1.10 m 1.00 m PID = 6.2 ppm					M	-	
				1.30				-	SANDSTONE; light orange-brown, weathered, slight hydrocarbon odour.			WEATHERED ROCK
			1.5		BH17_1.5-1.6 ES 1.50-1.60 m 1.50 m PID = 3.3 ppm							
				1.90					Hole Terminated at 1.90 m Target Depth Reached. Backfilled with Drilling Spoil.			
			2.0									

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

BOREHOLE: BH18

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Project	Detailed Site Investigation			Sheet	1 OF 1
Location	25-33 Brighton Avenue, Croydon Park NSW			Date Started	20/3/18
Position	Refer to Figure 2			Date Completed	20/3/18
Job No.	E23775	Contractor	Geosense Drilling Pty Ltd	Logged MD	Date:
Client	R01 Croydon 88 Pty Ltd	Drill Rig	Hanjin D&B	Checked	Date:
		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
			0.0					-	CONCRETE: 200mm thick.	-		CONCRETE HARDSTAND
				0.20								
AD/T	-	GWNE						-	SANDSTONE; light orange-brown, weathered, no odour.	M	-	WEATHERED ROCK
			0.5		BH18_0.5-0.6 ES 0.50-0.60 m 0.50 m PID = 1.8 ppm							
				0.70								
									Hole Terminated at 0.70 m Target Depth Reached. Backfilled with Drilling Spoil.			
			1.0									
			1.5									
			2.0									

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

BOREHOLE: BH19

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Project	Detailed Site Investigation			Sheet	1 OF 1
Location	25-33 Brighton Avenue, Croydon Park NSW			Date Started	20/3/18
Position	Refer to Figure 2			Date Completed	20/3/18
Job No.	E23775	Contractor	Geosense Drilling Pty Ltd	Logged MD	Date:
Client	R01 Croydon 88 Pty Ltd	Drill Rig	Hanjin D&B	Checked	Date:
		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
			0.0					-	CONCRETE: 200mm thick.	-		CONCRETE HARDSTAND
				0.20				-	FILL: Clayey SAND; fine to coarse grained, dark brown, with ash and angular to sub-angular gravels, no odour.			FILL
AD/T	-	GWNE	0.5		BH19_0.5-0.6 ES 0.50-0.60 m 0.50 m PID = 2.2 ppm						-	
				0.80				CI-CH	Silty CLAY; medium to high plasticity, dark brown, mottled orange, no odour.	M		RESIDUAL SOIL
			1.0		BH19_1.0-1.1 ES 1.00-1.10 m 1.00 m PID = 1.2 ppm							
				1.40					Hole Terminated at 1.40 m Target Depth Reached. Backfilled with Drilling Spoil.			
			1.5									
			2.0									

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

BOREHOLE: BH20

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Project	Detailed Site Investigation			Sheet	1 OF 1
Location	25-33 Brighton Avenue, Croydon Park NSW			Date Started	20/3/18
Position	Refer to Figure 2			Date Completed	20/3/18
Job No.	E23775	Contractor	Geosense Drilling Pty Ltd	Logged MD	Date:
Client	R01 Croydon 88 Pty Ltd	Drill Rig	Hanjin D&B	Checked	Date:
		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
			0.0					-	CONCRETE: 200mm thick.	-		CONCRETE HARDSTAND
				0.20				-	FILL: Clayey SAND; fine to coarse grained, dark brown, with ash and angular to sub-angular gravels, no odour.			FILL
AD/T	-	GWNE			BH20_0.4-0.5 ES 0.40-0.50 m 0.40 m PID = 1.2 ppm					M	-	
			0.5									
				0.80				CI-CH	Silty CLAY; medium to high plasticity, dark brown, mottled orange, no odour.			RESIDUAL SOIL
			1.0		BH20_1.0-1.1 ES 1.00-1.10 m 1.00 m PID = 1.9 ppm							
				1.30					Hole Terminated at 1.30 m Target Depth Reached. Backfilled with Drilling Spoil.			
			1.5									
			2.0									

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

BOREHOLE: BH21

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Project	Detailed Site Investigation			Sheet	1 OF 1
Location	25-33 Brighton Avenue, Croydon Park NSW			Date Started	20/3/18
Position	Refer to Figure 2			Date Completed	20/3/18
Job No.	E23775	Contractor	Geosense Drilling Pty Ltd	Logged MD	Date:
Client	R01 Croydon 88 Pty Ltd	Drill Rig	Hanjin D&B	Checked	Date:
		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	-	GWNE	0.0					-	FILL: Clayey SAND; fine to coarse grained, dark brown, with ash and angular to sub-angular gravels, no odour.	M	-	FILL
					BH21_0.4-0.5 ES 0.40-0.50 m 0.40 m PID = 2 ppm							
			0.5	*0.50*					Hole Terminated at 0.50 m Refusal. Backfilled with Drilling Spoil.			
			1.0									
			1.5									
			2.0									

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

Appendix F– Field Data Sheets

Site Inspection Card - CLM Projects
Form OP 005 (Rev 2)

EI Australia
Suite 6.01, 55 Miller Street
PYRMONT, NSW, 2009
ABN 42 909 129 957
E service@eiaustralia.com.au
W www.eiaustralia.com.au
T 02 9516 0722

Project Number:	E23775	Engineer Name:	BA
Date:	10-4-18	Time ON Site:	12:30
Travel Time:	30 + 30	Time OFF Site:	5:00

Site Address/Location: 33 BRIGHTON AVE, CROYDON PARK

Climatic Conditions: OVERCAST

Current Site Uses: COMMERCIAL + INDUSTRIAL
↳ KITCHEN STONE BENCHTOPS.

Surrounding Land Uses:

North: RESIDENTIAL APARTMENTS

South: BRIGHTON AVE FOLLOWED BY COMMERCIAL

East: COMMERCIAL/INDUSTRIAL

West: COMMERCIAL/INDUSTRIAL

Current Site Condition

Buildings Structures:

- ☑ slab on ground
- ☐ suspended slab
- ☐ basement ..... Level(s)
- ☐ sub-stations
- ☐ service pits / sumps
- ☐ potential ACM
- ☐ potential lead paint
- ☐ accessible soils (locations)
- ☐ Other (please decsribe):

Soil / Vegetation (overgrown, distressed, bare soil patches):

MOST VEGETATION ONSITE = OVERGROWN. NO DIEBACK

Condition of concrete, bitumen roading, flooring etc.:

PATCHWORK, CRACKING, DEFORMITY ACROSS SITE — AVERAGE.

Evidence of USTs / UPSS Infrastructure:

YES - DIESEL (SE CORNER OF SITE)

Evidence of Groundwater Monitoring Wells:

Presence of Waste / Rubbish / Stockpiles:

UNUSED EQUIPMENT + WAREHOUSE WASTE IN NE CORNER

Unusual Odours:

Signed: Name: Date:

Site Inspection Card - CLM Projects
Form OP-005 (Rev 2)

EI Australia
Suite 6.01, 55 Miller Street
PYRMONT, NSW, 2009
ABN 42 909 129 957
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T 02 9516 0722

Site Topography (slope of site, surface water, drainage, closest receptor etc.)

SLOPING EAST

Hazardous materials / activities: (presence of asbestos, solid or liquid hazardous materials, infrastructure)

→ UNLABELLED TANKS W/ SOLUTION – HOOKED UP & PUMPED FOR OPERATIONS IN THE KITCHEN STONE WAREHOUSE.

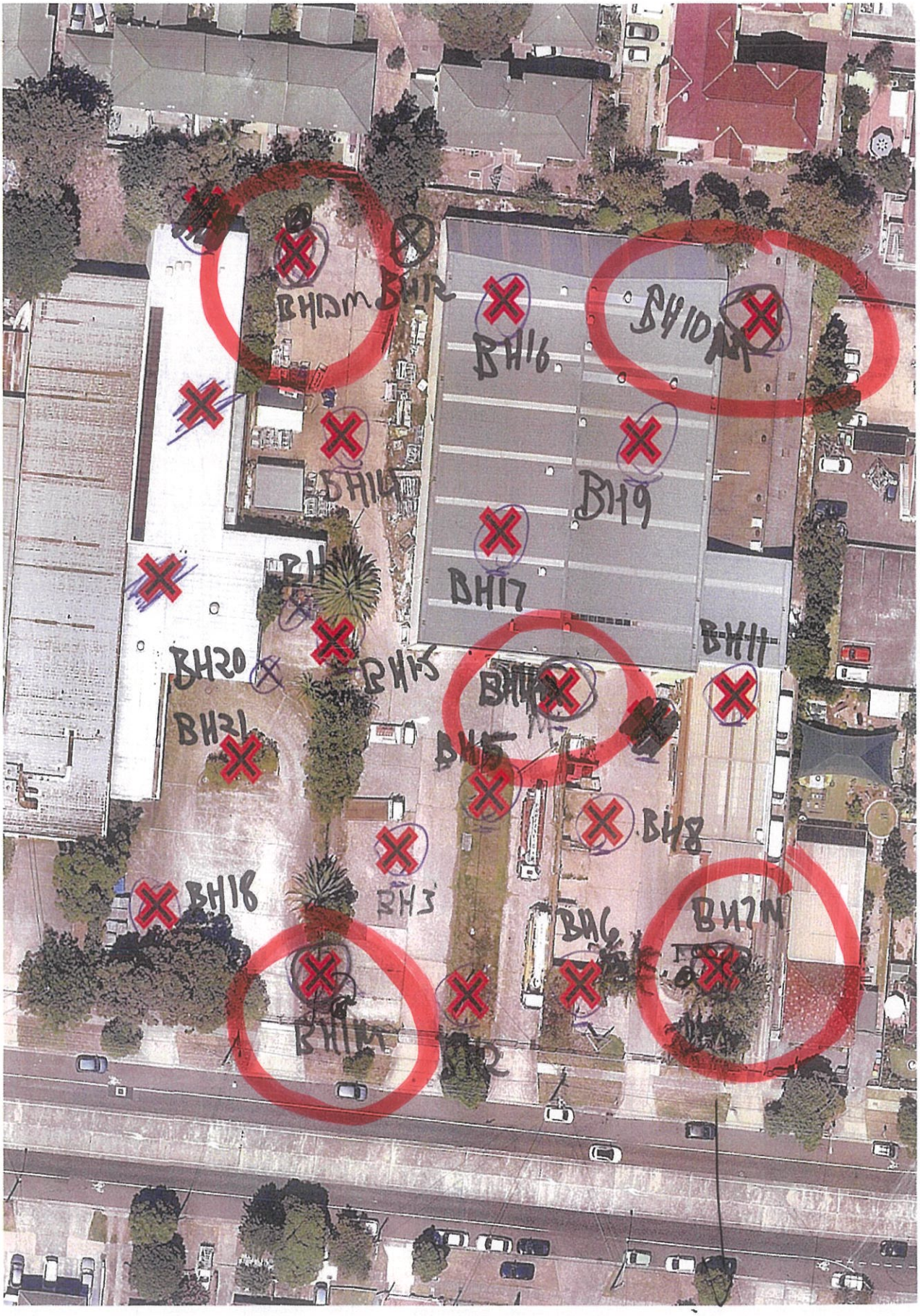
→ LARGE HOISTS

→ GENERATORS + PUMPS

Anecdotal Information:

Notes:

Signed:	Name:	Date:


BH16
BH19
BH17
BH11
BH20
BH21
BH8
BH18
BH3
BH6
UST
DIESEL
DIP + FILL POINT

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Borehole Log

BH No: 1MW
Sheet:
Job No: E23775

Client:	Started:
Principal:	Finished:
Project:	Logged:
Location:	Checked:
Equipment:	Slope: -90° / RL Surface:
Diameter:	Bearing: .. / Datum:

method	water	samples	sample method / QC	depth (m)	PID reading	material code	material description (soil type, particle characteristics or fines plasticity, colour, secondary and minor components)	moisture + density/consistency	Odour (Y/N)	well construction
				0.2-0.3	0.2	F1	Silty CLAY; M-H pls dark brown	M	N	Cement/Cuttings
						N1	~~Weathered SHALE; light orange brown~~			
				0.8-0.9	0.2		Weathered SANDSTONE; light orange-brown	dry	N	
										BENT 0.5-0.8
	GW @ 2.5									SAND-2.0
							EOH @ 6.1			

method		odour index		weathering	
AS	auger screw*	HC	hydrocarbon	XW	extremely weatherd
AD	auger drill*	S	solvent	HW	highly weathered
RR	roller/tricone	Su	sulfur	MW	moderately weathered
W	washbore			SW	slightly weathered
CB	claw or blade bit			FR	fresh
HA	hand auger				
D	diatube				
V	V-bit				
T	TC-bit				
NMLC	NMLC core				
NQ, HQ, PQ	wireline core				

*bit shown by suffix e.g. ADV

odour strength index
- w — weak
- m — moderate
- s — strong
- vs — very strong

water
- level at date / time
- inflow
- complete outflow
- partial outflow

Classification symbols and soil description based on unified classification system. Refer accompanying description sheets for further information.

moisture
- D — dry
- M — moist
- W — wet
- Wp — plastic limit
- Wl — liquid limit

grain size
- vf — very fine
- f — fine
- m — medium
- c — coarse

consistency
- VS — very soft
- S — soft
- F — firm
- St — stiff
- VSt — very stiff
- H — hard
- Fb — friable

density index
- VL — very loose
- L — loose
- MD — medium dense
- D — dense
- VD — very dense

material boundaries
- known boundary
- probable boundary
- ? possible boundary

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Borehole Log

Suite 6.01, 55 Miller Street,
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BH No: 4M
Sheet:
Job No: E23775

Client:			Started:
Principal:			Finished:
Project:			Logged:
Location:			Checked:
Equipment:		Slope: -90°	RL Surface:
Diameter:		Bearing: --	Datum:

drilling information | **material information**

method	water	samples	sample method / QC	depth (m)	PID reading	material code	material description soil type, particle characteristics or fines plasticity, colour, secondary and minor components	moisture + density/consistency	Odour (Y/N)	well construction
				0.2-0.5	0.3		F2			
							N2			
				0.9-1.0	0.4					
							EOH @6.0			
							TDR			

well construction: 1 CEMENT; 2 BENTO; 3; 4 SAND; 5; 6

method
- AS auger screw*
- AD auger drill*
- RR roller/tricone
- W washbore
- CB claw or blade bit
- HA hand auger
- D diatube
- V V-bit
- T TC-bit
- NMLC NMLC core
- NQ, HQ, PQ wireline core

*bit shown by suffix e.g. ADV

odour index
- HC hydrocarbon
- S solvent
- Su sulfur

odour strength index
- w weak
- m moderate
- s strong
- vs very strong

weathering
- XW extremely weatherd
- HW highly weathered
- MW moderately weathered
- SW slightly weathered
- FR fresh

water
- level at date / time
- inflow
- complete outflow
- partial outflow

Classification symbols and soil description based on unified classification system. Refer accompanying description sheets for further information.

moisture
- D dry
- M moist
- W wet
- Wp plastic limit
- Wl liquid limit

grain size
- vf very fine
- f fine
- m medium
- c coarse

consistency
- VS very soft
- S soft
- F firm
- St stiff
- VSt very stiff
- H hard
- Fb friable

density index
- VL very loose
- L loose
- MD medium dense
- D dense
- VD very dense

material boundaries
- known boundary
- probable boundary
- possible boundary

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Borehole Log

Suite 6.01, 55 Miller Street,
Pyrmont, NSW 2009
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service@eiaustralia.com.au

BH No: 7M
Sheet:
Job No: E22775

Client:			Started:
Principal:			Finished:
Project:			Logged:
Location:			Checked:
Equipment:		Slope: -90°	RL Surface:
Diameter:		Bearing: --	Datum:

drilling information | material information

method	water	samples	sample method / QC	depth (m)	PID reading	material code	material description (soil type, particle characteristics or fines plasticity, colour, secondary and minor components)	moisture + density/consistency	Odour (Y/N)	well construction
				0.2-0.3	0.2		Concrete F2	M	N	Cement Slurry
				0.9-1.0	0.2			W	N	
				1.4-1.5	0.2		N2			BENTO
										SAND
							EOH @ 6.2 TDR			
				4.1			Weathered SHALE @ 4.1			

WL @ 5.5

method
AS auger screw*
AD auger drill*
RR roller/tricone
W washbore
CB claw or blade bit
HA hand auger
D diatube
V V-bit
T TC-bit
NMLC NMLC core
NQ, HQ, PQ wireline core
*bit shown by suffix e.g. ADV

odour index
HC hydrocarbon
S solvent
Su sulfur

odour strength index
w weak
m moderate
s strong
vs very strong

weathering
XW extremely weatherd
HW highly weathered
MW moderately weathered
SW slightly weathered
FR fresh

water
level at date / time
inflow
complete outflow
partial outflow

Classification symbols and soil description based on unified classification system. Refer accompanying description sheets for further information.

moisture
D dry
M moist
W wet
Wp plastic limit
Wl liquid limit

grain size
vf very fine
f fine
m medium
c coarse

consistency
VS very soft
S soft
F firm
St stiff
VSt very stiff
H hard
Fb friable

density index
VL very loose
L loose
MD medium dense
D dense
VD very dense

material boundaries
known boundary
probable boundary
possible boundary

eiaustralia
Contamination | Remediation | Geotechnical

Borehole Log

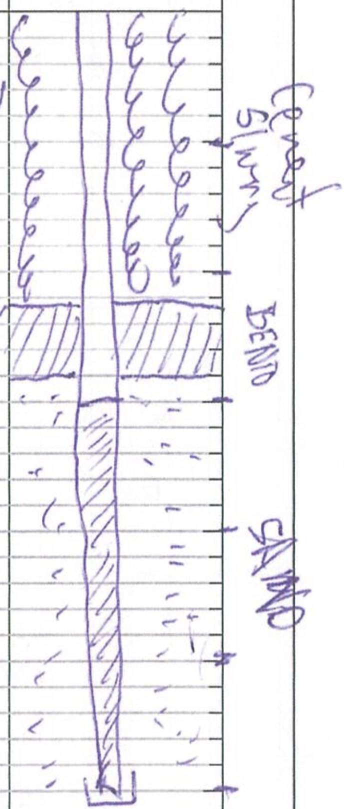
Suite 6.01, 55 Miller Street,
Pyrmont, NSW 2009
Ph: (02) 9516 0722
Fax: (02) 9516 0744
service@eiaustralia.com.au

BH No: 10M
Sheet:
Job No: E23775

Client:	Started:
Principal:	Finished:
Project:	Logged:
Location:	Checked:
Equipment: Slope: -90°	RL Surface:
Diameter: Bearing: --	Datum:

method	water	samples	sample method / QC	depth (m)	PID reading	material code	material description (soil type, particle characteristics or fines plasticity, colour, secondary and minor components)	moisture + density/consistency	Odour (Y/N)
							Concrete 200mm		
				0.3-0.4	0.7		FR- with Ash	M	N
							N2		
				0.9-1.0	0.7			M	N
	LW @ 5.3								
							EOH @ 6.1 TDR		

well construction



method
AS auger screw*
AD auger drill*
RR roller/tricone
W washbore
CB claw or blade bit
HA hand auger
D diatube
V V-bit
T TC-bit
NMLC NMLC core
NQ, HQ, PQ wireline core
*bit shown by suffix e.g. ADV

odour index
HC hydrocarbon
S solvent
Su sulfur

odour strength index
w weak
m moderate
s strong
vs very strong

weathering
XW extremely weatherd
HW highly weathered
MW moderately weathered
SW slightly weathered
FR fresh

water
level at date / time
inflow
complete outflow
partial outflow

Classification symbols and soil description based on unified classification system. Refer accompanying description sheets for further information.

moisture
D dry
M moist
W wet
Wp plastic limit
Wl liquid limit

grain size
vf very fine
f fine
m medium
c coarse

consistency
VS very soft
S soft
F firm
St stiff
VSt very stiff
H hard
Fb friable

density index
VL very loose
L loose
MD medium dense
D dense
VD very dense

material boundaries
known boundary
probable boundary
? possible boundary

eiaustralia
Contamination | Remediation | Geotechnical

Borehole Log

Suite 6.01, 55 Miller Street,
Pyrmont, NSW 2009
Ph: (02) 9516 0722
Fax: (02) 9516 0744
service@eiaustralia.com.au

BH No: 13M
Sheet:
Job No: E23725

Client:
Principal:
Project:
Location:

Started:
Finished:
Logged:
Checked:

Equipment:
Diameter:

Slope: -90°
Bearing: --

RL Surface:
Datum:

drilling information | material information

method	water	samples	sample method / QC	depth (m)	PID reading	material code	material description (soil type, particle characteristics or fines plasticity, colour, secondary and minor components)	moisture + density/consistency	Odour (Y/N)	well construction
							Concrete 200mm			Cement Slurry
				0.5-0.6			F2	M	N	
				0.8-1.0			Weathered SANDSTONE	M	N	
				2.0			CLAY silty CLAY; L-M plas, orange mottled grey			BENT
				3.0			SHALE			
	EWD 5.1			4.0						
				5.0						SAND
					64.1			M	MHC	
				6.0						
							Refusal @ 6.7			

method

AS	auger screw*
AD	auger drill*
RR	roller/tricone
W	washbore
CB	claw or blade bit
HA	hand auger
D	diatube
V	V-bit
T	TC-bit
NMLC	NMLC core
NQ, HQ, PQ	wireline core

*bit shown by suffix e.g. ADV

odour index

HC	hydrocarbon
S	solvent
Su	sulfur

odour strength index

w	weak
m	moderate
s	strong
vs	very strong

weathering

XW	extremely weatherd
HW	highly weathered
MW	moderately weathered
SW	slightly weathered
FR	fresh

water

level at date / time
inflow
complete outflow
partial outflow

Classification symbols and soil description based on unified classification system. Refer accompanying description sheets for further information.

moisture

D	dry
M	moist
W	wet
Wp	plastic limit
Wl	liquid limit

grain size

vf	very fine
f	fine
m	medium
c	coarse

consistency

VS	very soft
S	soft
F	firm
St	stiff
VSt	very stiff
H	hard
Fb	friable

density index

VL	very loose
L	loose
MD	medium dense
D	dense
VD	very dense

material boundaries

known boundary
probable boundary
possible boundary

WATER SAMPLING FIELD SHEET

eiaustralia

Site Address: 25-33 BRIGHTON AVE, CROYDON PARK	Job Number: E23775
Client: DYLDAM	Date: 10-4
Field Staff: BA	Sampling Location ID BH1M
Well Location: BH1M - SEE FIG2	Round No: 1

MEDIUM ☒Groundwater ☐Surface Water ☐Stormwater ☐Other:

SAMPLING POINT INFO

Well Installation Date:	Stick up / down (m): 0.1m (~~above ground~~ - below ground)
Initial Well Depth (mBTOC): 6.0	Screen Interval (mBTOC): 3.0-6.0
Previous Sampling Date: NA	Previous SWL (mBTOC): NA

PID READINGS

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

PRE PURGE

Total Well Depth (mBTOC): 6.00 m	Well Head Condition: GOOD
SWL (mBTOC): 1.40m	Water Column (m): 4.60

PHASE SEPARATED HYDROCARBONS (PSH)

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

PURGE AND SAMPLE

Sampling Method ☑Bladder ☐Peristaltic ☐Submersible ☐Other:

Depth of Pump Inlet (mBTOC): 4.1	Fill Timer: 40
Pump Pressure Regulator (psi): 20	Discharge Timer: 20
Weather Conditions: OVERCAST	Cycle: CM2
Pump on time: 12:35	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.)
12:38	0.5	1.4	23.54	8452	170.4	1.72	5.82	M. TURB, LIGHT BROWN, NO ODOUR,
12:40	1.0	1.8	23.64	8436	176.0	1.63	5.78	NO SHEEN
12:42	1.5	2.2	23.13	8396	180.8	0.69	5.77	
12:44	2.0	2.4	23.50	8374	182.7	0.63	5.75	
12:46	2.5	2.6	23.70	8353	186.1	0.58	5.74	LOW-
12:48	3.0	2.8	23.63	8324	188.7	0.59	5.75	MOD TURB.
Stabilisation range: 3 consecutive readings			±0.2°C	±3%	±20mV	±10%	±0.2	

OTHER COMMENTS/OBSERVATIONS:

GWQD1 / GWQT1

SIGNATURE: BA.

WATER SAMPLING FIELD SHEET

eiaustralia

Site Address: 33 BRIGHTON AVE, CROYDON PARK	Job Number: E23775
Client: DYLDAM	Date: 10-4-18
Field Staff: BA	Sampling Location ID BH4M-1
Well Location: BH4M - SEE FIG 2	Round No: 1

MEDIUM ☒Groundwater ☐Surface Water ☐Stormwater ☐Other:

SAMPLING POINT INFO

Well Installation Date:	Stick up down (m): 0.1 (+above ground - below ground)
Initial Well Depth (mBTOC): 5.9	Screen Interval (mBTOC): 2.9-5.9
Previous Sampling Date:	Previous SWL (mBTOC):

PID READINGS

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

PRE PURGE

Total Well Depth (mBTOC): 5.9	Well Head Condition: GOOD
SWL (mBTOC): 0.71	Water Column (m): 5.19

PHASE SEPARATED HYDROCARBONS (PSH)

Depth to PSH (mBTOC): NA	PSH Visually Confirmed (Bailer): NO
PSH Thickness (mm):	

PURGE AND SAMPLE

Sampling Method ☒Bladder ☐Peristaltic ☐Submersible ☐Other:

Depth of Pump Inlet (mBTOC): 4.0	Fill Timer: 20
Pump Pressure Regulator (psi): 20	Discharge Timer: 10
Weather Conditions: OVERCAST	Cycle: CPM2
Pump on time: 2.35	Pump off time: 2.55.

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.)
2:37	0.5	0.71	25.67	9900	180.3	0.52	5.01	HIGH TURB, BROWN-LIGHT BROWN,
2:39	1.0	0.71	25.59	9920	204.9	0.49	4.62	NO SHEEN, NO ODOUR
2:41	1.5	0.81	25.54	9938	224.7	0.28	4.50	
2:43	2.0	0.81	25.32	9960	230.4	0.18	4.42	
2:45	2.5	0.91	24.73	9954	234.6	0.15	4.37	
2:47	3.0	0.91	24.85	9938	236.9	0.00	4.33	
2:49	3.5	1.01	24.64	9900	237.7	0.00	4.31	
2:51	4.0	1.01	24.59	9893	238.3	0.00	4.30	
Stabilisation range: 3 consecutive readings			±0.2°C	±3%	±20mV	±10%	±0.2	

OTHER COMMENTS/OBSERVATIONS:

SIGNATURE:

WATER SAMPLING FIELD SHEET

eiaustralia

Site Address: 33 BRIGHTON AVE, CROYDON PARK	Job Number: 623775
Client: DYLDAM	Date: 10-4-18
Field Staff: BA	Sampling Location ID BH7M-1
Well Location: BH7M - SEE PG 2	Round No: 1

MEDIUM ☑Groundwater ☐Surface Water ☐Stormwater ☐Other:

SAMPLING POINT INFO

Well Installation Date:	Stick up/down (m): 0.1 (~~above ground~~ - below ground)
Initial Well Depth (mBTOC): 6.1	Screen Interval (mBTOC): ~~N/A~~ 3.1 - 6.1
Previous Sampling Date:	Previous SWL (mBTOC): NA

PID READINGS

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

PRE PURGE

Total Well Depth (mBTOC): ~~6.1~~ 6.1	Well Head Condition: GOOD
SWL (mBTOC): 1.25	Water Column (m): 4.85

PHASE SEPARATED HYDROCARBONS (PSH)

Depth to PSH (mBTOC): NA	PSH Visually Confirmed (Bailer): No
PSH Thickness (mm):	

PURGE AND SAMPLE

Sampling Method ☒Bladder ☐Peristaltic ☐Submersible ☐Other:

Depth of Pump Inlet (mBTOC): 3.8	Fill Timer: 20
Pump Pressure Regulator (psi): 20	Discharge Timer: 10
Weather Conditions: OVERCAST	Cycle: cpm 2
Pump on time: 4:38	Pump off time: 4:55

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.)
4:40	0.5		24.21	10550	189.5	0.64	5.75	MOD-HIGH TURB, LIGHT BROWN, NO
4:42	1.0		24.17	10490	188.9	0.52	5.39	ODOUR, NO SHEEN.
4:44	1.5		24.25	10510	190.8	0.69	5.34	↓ ↓
4:46	2.0		24.24	10516	192.0	0.69	5.33	↓ ↓
4:48	2.5		24.27	10480	193.5	0.68	5.37	LOW-MOD TURB
4:50	3.0							
4:52	3.5							
4:54	4.0							
Stabilisation range: 3 consecutive readings			±0.2°C	±3%	±20mV	±10%	±0.2	

OTHER COMMENTS/OBSERVATIONS:

SIGNATURE:

WATER SAMPLING FIELD SHEET

eiaustralia

Site Address: 33 BRIGHTON AVE, CROYDON PARK	Job Number: E23775
Client: OYLDAM	Date: 10-4-18
Field Staff: BA	Sampling Location ID BH10M-1
Well Location: BH10M - SEE FIG 2	Round No: 1

MEDIUM ☒Groundwater ☐Surface Water ☐Stormwater ☐Other:

SAMPLING POINT INFO

Well Installation Date:	Stick up down (m): 0.1 (- above ground/+ below ground)
Initial Well Depth (mBTOC): 6.0	Screen Interval (mBTOC): 6.0-3.0
Previous Sampling Date:	Previous SWL (mBTOC):

PID READINGS

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

PRE PURGE

Total Well Depth (mBTOC): 6.0	Well Head Condition: GOOD
SWL (mBTOC): 0.9	Water Column (m): 5.1

PHASE SEPARATED HYDROCARBONS (PSH)

Depth to PSH (mBTOC): NA	PSH Visually Confirmed (Bailer): NO
PSH Thickness (mm): NA	

PURGE AND SAMPLE

Sampling Method ☐Bladder ☐Peristaltic ☐Submersible ☐Other:

Depth of Pump Inlet (mBTOC): 4.0	Fill Timer: 20
Pump Pressure Regulator (psi): 20	Discharge Timer: 10
Weather Conditions: OVERCAST	Cycle: CPM2
Pump on time: 3:38	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.)
3:40	0.5	1.0	22.06	11850	151.1	0.86	5.58	MOD - HIGH TURB, LIGHT
3:42	1.0	1.2	21.55	11870	145.1	0.70	5.46	BROWN, NO ODOUR, NO
3:44	1.5	1.3	21.30	11860	143.1	0.49	5.38	SHEEN
3:46	2.0	1.4	21.15	11850	141.7	0.32	5.35	↓ ↓
3:48	2.5	1.5	21.11	11840	140.2	0.21	5.34	
3:50	3.0	1.6	21.07	11850	139.3	0.15	5.34	
3:52	3.5	1.7	21.05	[illegible]	137.8	0.11	5.33	
3:54	4.0			11870				
Stabilisation range: 3 consecutive readings			±0.2°C	±3%	±20mV	±10%	±0.2	

OTHER COMMENTS/OBSERVATIONS:

SIGNATURE:

WATER SAMPLING FIELD SHEET

eiaustralia

Site Address: BRIGHTON AVE, CROYDON PARK	Job Number: 23775
Client: DYLOAM	Date: 10-4-18
Field Staff: LA	Sampling Location ID BH13M-1
Well Location: BH13M - SEE FIG 2	Round No: 1

MEDIUM ☒Groundwater ☐Surface Water ☐Stormwater ☐Other:

SAMPLING POINT INFO

Well Installation Date:	Stick up (m): 0.1 (below ground)
Initial Well Depth (mBTOC): 6.3	Screen Interval (mBTOC): 3.3-6.3
Previous Sampling Date:	Previous SWL (mBTOC):

PID READINGS

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

PRE PURGE

Total Well Depth (mBTOC): 6.3	Well Head Condition: GOOD
SWL (mBTOC): 0.6	Water Column (m):

PHASE SEPARATED HYDROCARBONS (PSH)

Depth to PSH (mBTOC): NA	PSH Visually Confirmed (Bailer): NO
PSH Thickness (mm): NA	

PURGE AND SAMPLE

Sampling Method ☑Bladder ☐Peristaltic ☐Submersible ☐Other:

Depth of Pump Inlet (mBTOC): [redacted] 4.5	Fill Timer: 20
Pump Pressure Regulator (psi): 20	Discharge Timer: 10
Weather Conditions: OVERCAST	Cycle: CPM2
Pump on time: 1:45	Pump off time: 2:05

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.)
1:47	0.5	0.8	23.44	11870	-9.5	0.35	6.48	MOD-HIGH TURB, LIGHT BROWN
1:49	1.0	0.8	22.17	11900	37.5	0.0	6.42	NO ODOUR, NO SHEEN
1:51	1.5	0.9	22.06	11910	-1.9	0.0	6.36	
1:53	2.0	0.9	22.06	11890	0.5	0.0	6.34	
1:55	2.5	1.0	21.98	11870	2.5	0.0	6.30	
1:57	3.0	1.0	22.10	11860	-2.4	0.0	6.33	
1:59	3.5	1.1	22.2	11910	-4.4	0.0	6.35	
Stabilisation range: 3 consecutive readings			±0.2°C	±3%	±20mV	±10%	±0.2	

OTHER COMMENTS/OBSERVATIONS:

SIGNATURE:

Appendix G– Chain of Custody and Sample Receipt Forms

Sheet 1 of 5

Site: 33 Brighton Ave Croydon Park

Project No: E23775

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	TRH/BTEX/Lead	TRH/BTEX	PAHs	VOCs	Asbestos	pH / CEC (cation exchange)	pH / EC (electrical conductivity)	sPOCAS	Hold			TCLP PAHs	TCLP HM A	TCLP HM B
BH1M_0.2-0.3	1	J, ZLB	19-3-18	AM/PM		X		X																
BH1M_0.8-0.9	2								X															
BH2_0.2-0.3	3							X																
BH2_0.4-0.5	-																	X						
BH3_0.3-0.4	4							X																
BH3_0.9-1.0	-																	X						
BH4M_0.2-0.3	5							X																
BH4M_0.9-1.0	-																	X						
BH7_0.3-0.4	6							X																
BH5_0.9-1.0	-																	X						
BH6_0.2-0.3	7							X																
BH6_0.9-1.0		↓	↓	↓		↓												X						

Comments

HM A
Arsenic
Cadmium
Chromium
Copper
Lead
Mercury
Nickel
Zinc

HM B
Arsenic
Cadmium
Chromium
Lead
Mercury
Nickel

X

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

Sampler's Comments

Container Type:
J= solvent washed, acid
S= solvent washed, acid
P= natural HDPE plastic
VC= glass vial, Teflon Se,
ZLB = Zip-Lock Bag

SGS EHS Alexandria Laboratory

SE177041 COC
Received: 21–Mar–2018

Sampler's Name (EI):	Received by (SGS):
MD	
Print Mitchell Dale	Print Aver
Signature MDale	Signature
Date 20-3-18	Date 20/3/18 @ 1120

Please e-mail laboratory results to:

eiaustralia
Contamination Remediation Geotechnical
Suite 6.01, 55 Miller Street, PYRMONT NSW 2009
Ph: 9516 0722

Sheet 2 of 5

Site: 31 Brighton Ave Croydon Park NSW

Project No: E23775

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	TRH/BTEX/Lead	TRH/BTEX	PAHs	VOCs	Asbestos	pH / CEC (cation exchange)	pH / EC (electrical conductivity)	sPOCAS	Hold			TCLP PAHs	TCLP HM A	TCLP HM B
BH7M_0.2-0.3	8	J, ZLB	19-3-18	AM/PM		X		X																
BH7M_0.9-1.0	-																		X					
BH7M_1.4-1.5	9								X															
BH8_0.3-0.4	10							X																
BH8_0.9-1.0	-																		X					
BH9_0.3-0.4	11							X																
BH9_0.9-1.0	-																		X					
BH9_1.5-1.6	-																		X					
BH10M_0.3-0.4	12							X																
BH10M_0.9-1.0	13								X															
BH11_0.3-0.4	14							X																
BH11_0.9-1.0	-																		X					

Comments

HM A
Arsenic
Cadmium
Chromium
Copper
Lead
Mercury
Nickel
Zinc

HM B
Arsenic
Cadmium
Chromium
Lead
Mercury
Nickel

X Standard
— 24 hr TAT
— 48 hr TAT
— 72 hr TAT
— 96 hr TAT
— Other

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

Sampler's Comments:

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

Sampler's Name (EI):	Received by (SGS):
MD	
Print Mitchell Dalga	Print
Signature	Signature
Date 20-3-18	Date 21/3/18

Please e-mail laboratory results to:

eiaustralia
Contamination | Remediation | Geotechnical
Suite 6.01, 55 Miller Street, PYRMONT NSW 2009
Ph: 9516 0722

Sheet 3 of 5

Site: 33 Brighton Ave, Croydon Park NSW

Project No: E23775

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	TRH/BTEX/Lead	TRH/BTEX	PAHs	VOCs	Asbestos	pH / CEC (cation exchange)	pH / EC (electrical conductivity)	sPOCAS	Hold			TCLP PAHs	TCLP HM A	TCLP HM B
BH12_0.5-0.6	15	J, ZLB	19-3-18	Am/Pm		X		X																
BH12_1.0-1.1	"																		X					
BH13M_0.3-0.4	16		20-3-18					X																
BH13M_0.9-1.0	17								X															
BH13M_5.5-5.6	18								X															
BH14_0.4-0.5	19							X																
BH14_1.1-1.2																			X					
BH15_0.3-0.4	20							X																
BH15_0.9-1.0																			X					
BH16_0.4-0.5	21							X																
BH16_0.9-1.0																			X					
BH16_1.4-1.5																			X					

Comments

HM A
Arsenic
Cadmium
Chromium
Copper
Lead
Mercury
Nickel
Zinc

HM B
Arsenic
Cadmium
Chromium
Lead
Mercury
Nickel

X Standard

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

Sampler's Comments:

Sampler's Name (EI): MD

Print: Mitchell Darley

Signature:

Date: 20-3-18

Received by (SGS):

Print:

Signature:

Date: 20/3/18 01:20

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

Please e-mail laboratory results to:

eiaustralia
Contamination | Remediation | Geotechnical
Suite 6.01, 55 Miller Street, PYRMONT NSW 2009
Ph: 9516 0722

Sheet 4 of 5

Site: 33 Brighton Ave Croydon Park NSW

Project No: E23775

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	TRH/BTEX/Lead	TRH/BTEX	PAHs	VOCs	Asbestos	pH / CEC (cation exchange)	pH / EC (electrical conductivity)	sPOCAS	Hold			TCLP PAHs	TCLP HM A	TCLP HM B
BH17_0.5-0.6	22	J,ZLB	20-3-18	AM/PM		X		X																
BH17_1.0-1.1	23	↓	↓	↓		↓			X															
BH17_1.5-1.6	24								X															
BH18_0.5-0.6	25							X																
BH19_0.5-0.6	26							X																
BH19_1.0-1.1	-																	X						
BH20_0.4-0.5	27							X																
BH20_1.0-1.1																		X						
BH21_0.4-0.5	28	↓	↓					X																
QD1	29	J	19-3-18			↓				X														
QR1	30	S, P 2x VC	20-3-18		X					X														
QRB1		↓	↓	↓	X													X						

Comments

HM A
Arsenic
Cadmium
Chromium
Copper
Lead
Mercury
Nickel
Zinc

HM B
Arsenic
Cadmium
Chromium
Lead
Mercury
Nickel

X Soil

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

Sampler's Comments:

	Sampler's Name (EI):	Received by (SGS):
	MD	
Print	Mitchell Dulay	
Signature		
Date	20-3-18	21/3/18 9:20

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

Please e-mail laboratory results to:

eiaustralia
Contamination | Remediation | Geotechnical
Suite 6.01, 55 Miller Street, PYRMONT NSW 2009
Ph: 9516 0722

Sheet 5B of 5

Site: 33 Brighton Ave, Croydon Park NSW

Project No: E29775

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/OPP/PCB/Asbestos	HM[A] /TRH/BTEX/PAHs	HM[A] /TRH/BTEX	TRH/BTEX/Lead	TRH/BTEX	PAHs	VOCs	Asbestos	pH / CEC (cation exchange)	pH / EC (electrical conductivity)	sPOCAS				TCLP PAHs	TCLP HM[A]	TCLP HM[B]
QTS	31	VC	20-3-18	AM/PM	X							X												
QTB	32	VC	"	"	X							X												

Comments

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

HM[B]
Arsenic
Cadmium
Chromium
Lead
Mercury
Nickel

X [illegible]

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

Sampler's Comments:

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

Sampler's Name (EI):	Received by (SGS):
MD	
Print M. Tehll Dale	Print
Signature	Signature
Date 20-3-18	Date 20/3/18 13:20

Please e-mail laboratory results to:

eiaustralia
Contamination Remediation Geotechnical
Suite 6.01, 55 Miller Street, PYRMONT NSW 2009
Ph: 9516 0722

SAMPLE RECEIPT ADVICE

SE177041

CLIENT DETAILS

Contact	Mitchell Duley
Client	EI AUSTRALIA
Address	SUITE 6.01 55 MILLER STREET PYRMONT NSW 2009
Telephone	61 2 95160722
Facsimile	(Not specified)
Email	mitchell.duley@eiaustralia.com.au
Project	**E23775 - 33 Brighton Ave, Croydon Park**
Order Number	**E23775**
Samples	32

LABORATORY DETAILS

Manager	Huong Crawford
Laboratory	SGS Alexandria Environmental
Address	Unit 16, 33 Maddox St Alexandria NSW 2015
Telephone	+61 2 8594 0400
Facsimile	+61 2 8594 0499
Email	au.environmental.sydney@sgs.com
Samples Received	Wed 21/3/2018
Report Due	Wed 28/3/2018
SGS Reference	**SE177041**

SUBMISSION DETAILS

This is to confirm that 32 samples were received on Wednesday 21/3/2018. Results are expected to be ready by COB Wednesday 28/3/2018.
Please quote SGS reference SE177041 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	31 Soil, 1 Water
Date documentation received	21/3/2018	Type of documentation received	COC
Samples received in good order	Yes	Samples received without headspace	Yes
Sample temperature upon receipt	4.1°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

Seventeen soil and one water sample have been placed on hold.

SAMPLE RECEIPT ADVICE

SE177041

CLIENT DETAILS

Client EI AUSTRALIA

Project E23775 - 33 Brighton Ave, Croydon Park

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	BH1M_0.2-0.3	29	14	26	11	7	10	12	8
002	BH1M_0.8-0.9	-	-	26	-	7	10	12	8
003	BH2_0.2-0.3	29	14	26	11	7	10	12	8
004	BH3_0.3-0.4	29	14	26	11	7	10	12	8
005	BH4M_0.2-0.3	29	14	26	11	7	10	12	8
006	BH5_0.3-0.4	29	14	26	11	7	10	12	8
007	BH6_0.2-0.3	29	14	26	11	7	10	12	8
008	BH7M_0.2-0.3	29	14	26	11	7	10	12	8
009	BH7M_1.4-1.5	-	-	26	-	7	10	12	8
010	BH8_0.3-0.4	29	14	26	11	7	10	12	8
011	BH9_0.3-0.4	29	14	26	11	7	10	12	8
012	BH10M_0.3-0.4	29	14	26	11	7	10	12	8
013	BH10M_0.9-1.0	-	-	26	-	7	10	12	8
014	BH11_0.3-0.4	29	14	26	11	7	10	12	8
015	BH12_0.5-0.6	29	14	26	11	7	10	12	8
016	BH13M_0.3-0.4	29	14	26	11	7	10	12	8
017	BH13M_0.9-1.0	-	-	26	-	7	10	12	8
018	BH13M_5.5-5.6	-	-	26	-	7	10	12	8
019	BH14_0.4-0.5	29	14	26	11	7	10	12	8
020	BH15_0.3-0.4	29	14	26	11	7	10	12	8
021	BH16_0.4-0.5	29	14	26	11	7	10	12	8
022	BH17_0.5-0.6	29	14	26	11	7	10	12	8
023	BH17_1.0-1.1	-	-	26	-	7	10	12	8
024	BH17_1.-1.6	-	-	26	-	7	10	12	8

CONTINUED OVERLEAF

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

SAMPLE RECEIPT ADVICE

SE177041

CLIENT DETAILS

Client EI AUSTRALIA

Project E23775 - 33 Brighton Ave, Croydon Park

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
025	BH18_0.5-0.6	29	14	26	11	7	10	12	8
026	BH19_0.5-0.6	29	14	26	11	7	10	12	8
027	BH20_0.4-0.5	29	14	26	11	7	10	12	8
028	BH21_0.4-0.5	29	14	26	11	7	10	12	8
029	QD1	-	-	-	-	7	10	12	8
031	QTS	-	-	-	-	-	-	12	-
032	QTB	-	-	-	-	-	-	12	-

CONTINUED OVERLEAF

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

SAMPLE RECEIPT ADVICE

SE177041

CLIENT DETAILS

Client EI AUSTRALIA

Project E23775 - 33 Brighton Ave, Croydon Park

SUMMARY OF ANALYSIS

No.	Sample ID	Fibre Identification in soil	Mercury in Soil	Moisture Content
001	BH1M_0.2-0.3	2	1	1
002	BH1M_0.8-0.9	-	1	1
003	BH2_0.2-0.3	2	1	1
004	BH3_0.3-0.4	2	1	1
005	BH4M_0.2-0.3	2	1	1
006	BH5_0.3-0.4	2	1	1
007	BH6_0.2-0.3	2	1	1
008	BH7M_0.2-0.3	2	1	1
009	BH7M_1.4-1.5	-	1	1
010	BH8_0.3-0.4	2	1	1
011	BH9_0.3-0.4	2	1	1
012	BH10M_0.3-0.4	2	1	1
013	BH10M_0.9-1.0	-	1	1
014	BH11_0.3-0.4	2	1	1
015	BH12_0.5-0.6	2	1	1
016	BH13M_0.3-0.4	2	1	1
017	BH13M_0.9-1.0	-	1	1
018	BH13M_5.5-5.6	-	1	1
019	BH14_0.4-0.5	2	1	1
020	BH15_0.3-0.4	2	1	1
021	BH16_0.4-0.5	2	1	1
022	BH17_0.5-0.6	2	1	1
023	BH17_1.0-1.1	-	1	1
024	BH17_1.-1.6	-	1	1

CONTINUED OVERLEAF

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

SAMPLE RECEIPT ADVICE

SE177041

CLIENT DETAILS

Client EI AUSTRALIA

Project E23775 - 33 Brighton Ave, Croydon Park

SUMMARY OF ANALYSIS

No.	Sample ID	Fibre Identification in soil	Mercury in Soil	Moisture Content	VOCs in Water	Volatile Petroleum Hydrocarbons in Water
025	BH18_0.5-0.6	2	1	1	-	-
026	BH19_0.5-0.6	2	1	1	-	-
027	BH20_0.4-0.5	2	1	1	-	-
028	BH21_0.4-0.5	2	1	1	-	-
029	QD1	-	1	1	-	-
030	QR1	-	-	-	12	8
032	QTB	-	-	1	-	-

CONTINUED OVERLEAF

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

SAMPLE RECEIPT ADVICE

SE177041

CLIENT DETAILS

Client EI AUSTRALIA

Project E23775 - 33 Brighton Ave, Croydon Park

SUMMARY OF ANALYSIS

No.	Sample ID	Mercury (dissolved) in Water	Trace Metals (Dissolved) in Water by ICPMS	TRH (Total Recoverable Hydrocarbons) in Water
030	QR1	1	7	10

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: 33 BRIGHTON AVE, CROYDON PARK NSW

Project No: E23775

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	PHENOLS (TOTAL)			TCLP HM [B] / PAH
BH1M-1	1	S,P,2xVC	10-4-18	PM	X				X			X								X			
BH4M-1	2	↓	↓	↓	X				X			X								X			
BH7M-1	3				X				X			X								X			
BH10M-1	4				X				X			X								X			
BH13M-1	5				X				X			X								X			
GWBD1	6				X					X													
GWAR1	7				X					X													
GWBRB1		↓	↓	↓	X																		
GWBTB1	8	VC	LAB		X						X												
GWBTS1	9	VC	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 / TDU
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): BA	Received by (SGS):
Print: BENJAMIN AGGAR	Print: Suba
Signature:	Signature:
Date: 11-4-18	Date: 12/04/18 @ 3:45

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 EHS Alexandria Laboratory

SE177844 COC
Received: 11 – Apr – 2018

SAMPLE RECEIPT ADVICE

SE177844

CLIENT DETAILS

Contact	Benjamin Aggar
Client	EI AUSTRALIA
Address	SUITE 6.01 55 MILLER STREET PYRMONT NSW 2009
Telephone	61 2 95160722
Facsimile	(Not specified)
Email	benjamin.aggar@eiaustralia.com.au
Project	**E23775 33 Brighton Ave, Croydon Park NSW**
Order Number	**E23775**
Samples	9

LABORATORY DETAILS

Manager	Huong Crawford
Laboratory	SGS Alexandria Environmental
Address	Unit 16, 33 Maddox St Alexandria NSW 2015
Telephone	+61 2 8594 0400
Facsimile	+61 2 8594 0499
Email	au.environmental.sydney@sgs.com
Samples Received	Wed 11/4/2018
Report Due	Fri 13/4/2018
SGS Reference	**SE177844**

SUBMISSION DETAILS

This is to confirm that 9 samples were received on Wednesday 11/4/2018. Results are expected to be ready by COB Friday 13/4/2018. Please quote SGS reference SE177844 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	9 Water
Date documentation received	11/4/2018	Type of documentation received	COC
Samples received in good order	Yes	Samples received without headspace	Yes
Sample temperature upon receipt	5.3°C	Sufficient sample for analysis	Yes
Turnaround time requested	Two 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

One water sample has been placed on hold.

SAMPLE RECEIPT ADVICE

SE177844

CLIENT DETAILS

Client EI AUSTRALIA

Project E23775 33 Brighton Ave, Croydon Park 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	BH1M-1	1	22	1	7	10	79	8
002	BH4M-1	1	22	1	7	10	79	8
003	BH7M-1	1	22	1	7	10	79	8
004	BH10M-1	1	22	1	7	10	79	8
005	BH13M-1	1	22	1	7	10	79	8
006	GWQD1	1	-	-	7	10	12	8
007	GWQR1	1	-	-	7	10	12	8
008	GWQTB1	-	-	-	-	-	12	-
009	GWQTS1	-	-	-	-	-	12	-

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: ~~E2375~~ 33 Brighton Avenue, Croydon Park

Project No: E2375

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

Sample ID	Laboratory ID	Container Type	Sampling Date	Sampling Time	WATER	SOIL	OTHERS (i.e. Fibro, Paint, etc.)	HM Δ /TRH/BTEX/PAHs OCP/OP/PCB/Asbestos	HM Δ /TRH/BTEX/PAHs	HM Δ /TRH/BTEX	TRH/BTEX/Lead	TRH/BTEX	PAHs	VOCs	Asbestos	pH / CEC (cation exchange)	pH / EC (electrical conductivity)	sPOCAS				TCLP PAHs	TCLP HM Δ	TCLP HM B
QT1	(1)	J	20-03-18	AM/PM		X				X														

Comments

HM Δ
Arsenic
Cadmium
Chromium
Copper
Lead
Mercury
Nickel
Zinc

HM B
Arsenic
Cadmium
Chromium
Lead
Mercury
Nickel

ENVIROLAB

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

Job No: 187794

Date Received: 21/3/2018 22/3

Time Received: 12.30 7.30

Received by: PL

Temp: ~~Cool~~/Ambient

Cooling: ~~Ice~~/Icepack 14.2

Security: ~~Intact~~/Broken/None

LABORATORY TURNAROUND

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

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

Sampler's Name (EI): MD

Print: MICAELA GREEN

Signature:

Date: 20-03-18

Received by (Envirolab):

Print:

Signature:

Date: 22/3/2018 07.30

Sampler's Comments:
please send results to Mitchell Duley @ EI Australia

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

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	Mitchell Duley
Client	EI AUSTRALIA
Address	SUITE 6.01 55 MILLER STREET PYRMONT NSW 2009
Telephone	61 2 95160722
Facsimile	(Not specified)
Email	mitchell.duley@eiaustralia.com.au
Project	**E23775 - 33 Brighton Ave, Croydon Park**
Order Number	**E23775**
Samples	32

LABORATORY DETAILS

Manager	Huong Crawford
Laboratory	SGS Alexandria Environmental
Address	Unit 16, 33 Maddox St Alexandria NSW 2015
Telephone	+61 2 8594 0400
Facsimile	+61 2 8594 0499
Email	au.environmental.sydney@sgs.com
SGS Reference	**SE177041 R0**
Date Received	21/3/2018
Date Reported	28/3/2018

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.

Sample # 4 : Asbestos found in approx 25x10x6mm Cement Sheet Fragments.
Sample # 12 : Asbestos found in approx 3x2x1mm Fibrous Material.

Asbestos analysed by Approved Identifiers Yusuf Kuthpudin and Ravee Sivasubramaniam .

SIGNATORIES

Akheeqar Beniameen
Chemist

Bennet Lo
Senior Organic Chemist/Metals Chemist

Huong Crawford
Production Manager

Ly Kim Ha
Organic Section Head

Ravee Sivasubramaniam
Hygiene Team Leader

VOC's in Soil [AN433] Tested: 23/3/2018

PARAMETER	UOM	LOR	BH1M_0.2-0.3 SOIL - 19/3/2018 SE177041.001	BH1M_0.8-0.9 SOIL - 19/3/2018 SE177041.002	BH2_0.2-0.3 SOIL - 19/3/2018 SE177041.003	BH3_0.3-0.4 SOIL - 19/3/2018 SE177041.004	BH4M_0.2-0.3 SOIL - 19/3/2018 SE177041.005
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	0.2	<0.1
m/p-xylene	mg/kg	0.2	<0.2	<0.2	<0.2	0.8	<0.2
o-xylene	mg/kg	0.1	<0.1	<0.1	<0.1	0.5	<0.1
Total Xylenes	mg/kg	0.3	<0.3	<0.3	<0.3	1.3	<0.3
Total BTEX	mg/kg	0.6	<0.6	<0.6	<0.6	1.6	<0.6
Naphthalene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1

PARAMETER	UOM	LOR	BH5_0.3-0.4 SOIL - 19/3/2018 SE177041.006	BH6_0.2-0.3 SOIL - 19/3/2018 SE177041.007	BH7M_0.2-0.3 SOIL - 19/3/2018 SE177041.008	BH7M_1.4-1.5 SOIL - 19/3/2018 SE177041.009	BH8_0.3-0.4 SOIL - 19/3/2018 SE177041.010
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	BH9_0.3-0.4 SOIL - 19/3/2018 SE177041.011	BH10M_0.3-0.4 SOIL - 19/3/2018 SE177041.012	BH10M_0.9-1.0 SOIL - 19/3/2018 SE177041.013	BH11_0.3-0.4 SOIL - 19/3/2018 SE177041.014	BH12_0.5-0.6 SOIL - 19/3/2018 SE177041.015
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	BH13M_0.3-0.4 SOIL - 20/3/2018 SE177041.016	BH13M_0.9-1.0 SOIL - 20/3/2018 SE177041.017	BH13M_5.5-5.6 SOIL - 20/3/2018 SE177041.018	BH14_0.4-0.5 SOIL - 20/3/2018 SE177041.019	BH15_0.3-0.4 SOIL - 20/3/2018 SE177041.020
Benzene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Toluene	mg/kg	0.1	<0.1	<0.1	0.2	<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	1.0	<0.2	<0.2
o-xylene	mg/kg	0.1	<0.1	<0.1	0.2	<0.1	<0.1
Total Xylenes	mg/kg	0.3	<0.3	<0.3	1.2	<0.3	<0.3
Total BTEX	mg/kg	0.6	<0.6	<0.6	1.4	<0.6	<0.6
Naphthalene	mg/kg	0.1	<0.1	<0.1	0.2	<0.1	<0.1

VOC's in Soil [AN433] Tested: 23/3/2018 (continued)

PARAMETER	UOM	LOR	BH16_0.4-0.5 SOIL - 20/3/2018 SE177041.021	BH17_0.5-0.6 SOIL - 20/3/2018 SE177041.022	BH17_1.0-1.1 SOIL - 20/3/2018 SE177041.023	BH17_1.-1.6 SOIL - 20/3/2018 SE177041.024	BH18_0.5-0.6 SOIL - 20/3/2018 SE177041.025
Benzene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Toluene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Ethylbenzene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
m/p-xylene	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
o-xylene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Total Xylenes	mg/kg	0.3	<0.3	<0.3	<0.3	<0.3	<0.3
Total BTEX	mg/kg	0.6	<0.6	<0.6	<0.6	<0.6	<0.6
Naphthalene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1

PARAMETER	UOM	LOR	BH19_0.5-0.6 SOIL - 20/3/2018 SE177041.026	BH20_0.4-0.5 SOIL - 20/3/2018 SE177041.027	BH21_0.4-0.5 SOIL - 20/3/2018 SE177041.028	QD1 SOIL - 19/3/2018 SE177041.029	QTS SOIL - 20/3/2018 SE177041.031
Benzene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	[83%]
Toluene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	[84%]
Ethylbenzene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	[84%]
m/p-xylene	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	[87%]
o-xylene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	[88%]
Total Xylenes	mg/kg	0.3	<0.3	<0.3	<0.3	<0.3	-
Total BTEX	mg/kg	0.6	<0.6	<0.6	<0.6	<0.6	-
Naphthalene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	-

PARAMETER	UOM	LOR	QTB SOIL - 20/3/2018 SE177041.032
Benzene	mg/kg	0.1	<0.1
Toluene	mg/kg	0.1	<0.1
Ethylbenzene	mg/kg	0.1	<0.1
m/p-xylene	mg/kg	0.2	<0.2
o-xylene	mg/kg	0.1	<0.1
Total Xylenes	mg/kg	0.3	<0.3
Total BTEX	mg/kg	0.6	<0.6
Naphthalene	mg/kg	0.1	<0.1

Volatile Petroleum Hydrocarbons in Soil [AN433] Tested: 23/3/2018

PARAMETER	UOM	LOR	BH1M_0.2-0.3 SOIL - 19/3/2018 SE177041.001	BH1M_0.8-0.9 SOIL - 19/3/2018 SE177041.002	BH2_0.2-0.3 SOIL - 19/3/2018 SE177041.003	BH3_0.3-0.4 SOIL - 19/3/2018 SE177041.004	BH4M_0.2-0.3 SOIL - 19/3/2018 SE177041.005
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	BH5_0.3-0.4 SOIL - 19/3/2018 SE177041.006	BH6_0.2-0.3 SOIL - 19/3/2018 SE177041.007	BH7M_0.2-0.3 SOIL - 19/3/2018 SE177041.008	BH7M_1.4-1.5 SOIL - 19/3/2018 SE177041.009	BH8_0.3-0.4 SOIL - 19/3/2018 SE177041.010
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	BH9_0.3-0.4 SOIL - 19/3/2018 SE177041.011	BH10M_0.3-0.4 SOIL - 19/3/2018 SE177041.012	BH10M_0.9-1.0 SOIL - 19/3/2018 SE177041.013	BH11_0.3-0.4 SOIL - 19/3/2018 SE177041.014	BH12_0.5-0.6 SOIL - 19/3/2018 SE177041.015
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	BH13M_0.3-0.4 SOIL - 20/3/2018 SE177041.016	BH13M_0.9-1.0 SOIL - 20/3/2018 SE177041.017	BH13M_5.5-5.6 SOIL - 20/3/2018 SE177041.018	BH14_0.4-0.5 SOIL - 20/3/2018 SE177041.019	BH15_0.3-0.4 SOIL - 20/3/2018 SE177041.020
TRH C6-C9	mg/kg	20	<20	<20	**24**	<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	**37**	<25	<25
TRH C6-C10 minus BTEX (F1)	mg/kg	25	<25	<25	**36**	<25	<25

PARAMETER	UOM	LOR	BH16_0.4-0.5 SOIL - 20/3/2018 SE177041.021	BH17_0.5-0.6 SOIL - 20/3/2018 SE177041.022	BH17_1.0-1.1 SOIL - 20/3/2018 SE177041.023	BH17_1.-1.6 SOIL - 20/3/2018 SE177041.024	BH18_0.5-0.6 SOIL - 20/3/2018 SE177041.025
TRH C6-C9	mg/kg	20	<20	<20	<20	<20	<20
Benzene (F0)	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
TRH C6-C10	mg/kg	25	<25	<25	<25	<25	<25
TRH C6-C10 minus BTEX (F1)	mg/kg	25	<25	<25	<25	<25	<25

PARAMETER	UOM	LOR	BH19_0.5-0.6 SOIL - 20/3/2018 SE177041.026	BH20_0.4-0.5 SOIL - 20/3/2018 SE177041.027	BH21_0.4-0.5 SOIL - 20/3/2018 SE177041.028	QD1 SOIL - 19/3/2018 SE177041.029
TRH C6-C9	mg/kg	20	<20	<20	<20	<20
Benzene (F0)	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1
TRH C6-C10	mg/kg	25	<25	<25	<25	<25
TRH C6-C10 minus BTEX (F1)	mg/kg	25	<25	<25	<25	<25

TRH (Total Recoverable Hydrocarbons) in Soil [AN403] Tested: 23/3/2018

PARAMETER	UOM	LOR	BH1M_0.2-0.3 SOIL - 19/3/2018 SE177041.001	BH1M_0.8-0.9 SOIL - 19/3/2018 SE177041.002	BH2_0.2-0.3 SOIL - 19/3/2018 SE177041.003	BH3_0.3-0.4 SOIL - 19/3/2018 SE177041.004	BH4M_0.2-0.3 SOIL - 19/3/2018 SE177041.005
TRH C10-C14	mg/kg	20	<20	<20	<20	<20	<20
TRH C15-C28	mg/kg	45	<45	<45	**61**	<45	<45
TRH C29-C36	mg/kg	45	<45	<45	**63**	<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	**120**	<90	<90
TRH >C34-C40 (F4)	mg/kg	120	<120	<120	<120	<120	<120
TRH C10-C36 Total	mg/kg	110	<110	<110	**120**	<110	<110
TRH C10-C40 Total (F bands)	mg/kg	210	<210	<210	<210	<210	<210

PARAMETER	UOM	LOR	BH5_0.3-0.4 SOIL - 19/3/2018 SE177041.006	BH6_0.2-0.3 SOIL - 19/3/2018 SE177041.007	BH7M_0.2-0.3 SOIL - 19/3/2018 SE177041.008	BH7M_1.4-1.5 SOIL - 19/3/2018 SE177041.009	BH8_0.3-0.4 SOIL - 19/3/2018 SE177041.010
TRH C10-C14	mg/kg	20	<20	<20	<20	<20	<20
TRH C15-C28	mg/kg	45	**55**	<45	<45	<45	<45
TRH C29-C36	mg/kg	45	**47**	<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	**94**	<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	BH9_0.3-0.4 SOIL - 19/3/2018 SE177041.011	BH10M_0.3-0.4 SOIL - 19/3/2018 SE177041.012	BH10M_0.9-1.0 SOIL - 19/3/2018 SE177041.013	BH11_0.3-0.4 SOIL - 19/3/2018 SE177041.014	BH12_0.5-0.6 SOIL - 19/3/2018 SE177041.015
TRH C10-C14	mg/kg	20	<20	<20	<20	<20	<20
TRH C15-C28	mg/kg	45	<45	**390**	<45	<45	<45
TRH C29-C36	mg/kg	45	<45	**440**	<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	**760**	<90	<90	<90
TRH >C34-C40 (F4)	mg/kg	120	<120	<120	<120	<120	<120
TRH C10-C36 Total	mg/kg	110	<110	**830**	<110	<110	<110
TRH C10-C40 Total (F bands)	mg/kg	210	<210	**760**	<210	<210	<210

TRH (Total Recoverable Hydrocarbons) in Soil [AN403] Tested: 23/3/2018 (continued)

PARAMETER	UOM	LOR	BH13M_0.3-0.4 SOIL - 20/3/2018 SE177041.016	BH13M_0.9-1.0 SOIL - 20/3/2018 SE177041.017	BH13M_5.5-5.6 SOIL - 20/3/2018 SE177041.018	BH14_0.4-0.5 SOIL - 20/3/2018 SE177041.019	BH15_0.3-0.4 SOIL - 20/3/2018 SE177041.020
TRH C10-C14	mg/kg	20	<20	<20	**52**	<20	<20
TRH C15-C28	mg/kg	45	<45	<45	**59**	<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	**59**	<25	<25
TRH >C10-C16 - Naphthalene (F2)	mg/kg	25	<25	<25	**59**	<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	BH16_0.4-0.5 SOIL - 20/3/2018 SE177041.021	BH17_0.5-0.6 SOIL - 20/3/2018 SE177041.022	BH17_1.0-1.1 SOIL - 20/3/2018 SE177041.023	BH17_1.-1.6 SOIL - 20/3/2018 SE177041.024	BH18_0.5-0.6 SOIL - 20/3/2018 SE177041.025
TRH C10-C14	mg/kg	20	<20	<20	<20	<20	<20
TRH C15-C28	mg/kg	45	<45	<45	<45	<45	<45
TRH C29-C36	mg/kg	45	<45	<45	<45	<45	<45
TRH C37-C40	mg/kg	100	<100	<100	<100	<100	<100
TRH >C10-C16	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	BH19_0.5-0.6 SOIL - 20/3/2018 SE177041.026	BH20_0.4-0.5 SOIL - 20/3/2018 SE177041.027	BH21_0.4-0.5 SOIL - 20/3/2018 SE177041.028	QD1 SOIL - 19/3/2018 SE177041.029
TRH C10-C14	mg/kg	20	<20	<20	<20	<20
TRH C15-C28	mg/kg	45	<45	<45	<45	<45
TRH C29-C36	mg/kg	45	<45	<45	<45	<45
TRH C37-C40	mg/kg	100	<100	<100	<100	<100
TRH >C10-C16	mg/kg	25	<25	<25	<25	<25
TRH >C10-C16 - Naphthalene (F2)	mg/kg	25	<25	<25	<25	<25
TRH >C16-C34 (F3)	mg/kg	90	<90	<90	<90	<90
TRH >C34-C40 (F4)	mg/kg	120	<120	<120	<120	<120
TRH C10-C36 Total	mg/kg	110	<110	<110	<110	<110
TRH C10-C40 Total (F bands)	mg/kg	210	<210	<210	<210	<210

PAH (Polynuclear Aromatic Hydrocarbons) in Soil [AN420] Tested: 23/3/2018

PARAMETER	UOM	LOR	BH1M_0.2-0.3 SOIL - 19/3/2018 SE177041.001	BH1M_0.8-0.9 SOIL - 19/3/2018 SE177041.002	BH2_0.2-0.3 SOIL - 19/3/2018 SE177041.003	BH3_0.3-0.4 SOIL - 19/3/2018 SE177041.004	BH4M_0.2-0.3 SOIL - 19/3/2018 SE177041.005
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	**0.2**	<0.1
1-methylnaphthalene	mg/kg	0.1	<0.1	<0.1	<0.1	**0.2**	<0.1
Acenaphthylene	mg/kg	0.1	<0.1	<0.1	**0.4**	<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	**1.4**	**0.5**	**0.2**
Anthracene	mg/kg	0.1	<0.1	<0.1	**0.4**	**0.1**	<0.1
Fluoranthene	mg/kg	0.1	**0.1**	<0.1	**3.7**	**1.0**	**0.4**
Pyrene	mg/kg	0.1	**0.2**	<0.1	**3.9**	**1.1**	**0.4**
Benzo(a)anthracene	mg/kg	0.1	<0.1	<0.1	**2.1**	**0.6**	**0.2**
Chrysene	mg/kg	0.1	<0.1	<0.1	**1.6**	**0.5**	**0.2**
Benzo(b&j)fluoranthene	mg/kg	0.1	<0.1	<0.1	**2.5**	**0.7**	**0.2**
Benzo(k)fluoranthene	mg/kg	0.1	<0.1	<0.1	**1.3**	**0.4**	**0.1**
Benzo(a)pyrene	mg/kg	0.1	<0.1	<0.1	**2.3**	**0.6**	**0.2**
Indeno(1,2,3-cd)pyrene	mg/kg	0.1	<0.1	<0.1	**1.8**	**0.6**	**0.1**
Dibenzo(ah)anthracene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(ghi)perylene	mg/kg	0.1	<0.1	<0.1	**1.8**	**0.5**	**0.1**
Carcinogenic PAHs, BaP TEQ <LOR=0	TEQ (mg/kg)	0.2	<0.2	<0.2	**3.1**	**0.8**	**0.2**
Carcinogenic PAHs, BaP TEQ <LOR=LOR	TEQ (mg/kg)	0.3	<0.3	<0.3	**3.2**	**0.9**	**0.3**
Carcinogenic PAHs, BaP TEQ <LOR=LOR/2	TEQ (mg/kg)	0.2	<0.2	<0.2	**3.2**	**0.9**	**0.3**
Total PAH (18)	mg/kg	0.8	<0.8	<0.8	**23**	**6.9**	**2.2**
Total PAH (NEPM/WHO 16)	mg/kg	0.8	<0.8	<0.8	**23**	**6.6**	**2.2**

PARAMETER	UOM	LOR	BH5_0.3-0.4 SOIL - 19/3/2018 SE177041.006	BH6_0.2-0.3 SOIL - 19/3/2018 SE177041.007	BH7M_0.2-0.3 SOIL - 19/3/2018 SE177041.008	BH7M_1.4-1.5 SOIL - 19/3/2018 SE177041.009	BH8_0.3-0.4 SOIL - 19/3/2018 SE177041.010
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	**0.2**	**0.1**	<0.1	<0.1	**0.2**
Anthracene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Fluoranthene	mg/kg	0.1	**0.8**	**0.3**	<0.1	<0.1	**0.5**
Pyrene	mg/kg	0.1	**0.9**	**0.3**	<0.1	<0.1	**0.5**
Benzo(a)anthracene	mg/kg	0.1	**0.5**	**0.1**	<0.1	<0.1	**0.2**
Chrysene	mg/kg	0.1	**0.5**	**0.1**	<0.1	<0.1	**0.2**
Benzo(b&j)fluoranthene	mg/kg	0.1	**0.8**	**0.2**	<0.1	<0.1	**0.2**
Benzo(k)fluoranthene	mg/kg	0.1	**0.4**	<0.1	<0.1	<0.1	**0.1**
Benzo(a)pyrene	mg/kg	0.1	**0.6**	**0.2**	<0.1	<0.1	**0.2**
Indeno(1,2,3-cd)pyrene	mg/kg	0.1	**0.5**	<0.1	<0.1	<0.1	**0.1**
Dibenzo(ah)anthracene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(ghi)perylene	mg/kg	0.1	**0.4**	<0.1	<0.1	<0.1	**0.1**
Carcinogenic PAHs, BaP TEQ <LOR=0	TEQ (mg/kg)	0.2	**0.9**	<0.2	<0.2	<0.2	**0.3**
Carcinogenic PAHs, BaP TEQ <LOR=LOR	TEQ (mg/kg)	0.3	**1.0**	**0.3**	<0.3	<0.3	**0.4**
Carcinogenic PAHs, BaP TEQ <LOR=LOR/2	TEQ (mg/kg)	0.2	**0.9**	**0.3**	<0.2	<0.2	**0.3**
Total PAH (18)	mg/kg	0.8	**5.6**	**1.3**	<0.8	<0.8	**2.2**
Total PAH (NEPM/WHO 16)	mg/kg	0.8	**5.6**	**1.3**	<0.8	<0.8	**2.2**

PAH (Polynuclear Aromatic Hydrocarbons) in Soil [AN420] Tested: 23/3/2018 (continued)

PARAMETER	UOM	LOR	BH9_0.3-0.4 SOIL - 19/3/2018 SE177041.011	BH10M_0.3-0.4 SOIL - 19/3/2018 SE177041.012	BH10M_0.9-1.0 SOIL - 19/3/2018 SE177041.013	BH11_0.3-0.4 SOIL - 19/3/2018 SE177041.014	BH12_0.5-0.6 SOIL - 19/3/2018 SE177041.015
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	**0.2**	<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	**0.4**	<0.1	**0.1**	<0.1
Pyrene	mg/kg	0.1	<0.1	**0.4**	<0.1	**0.2**	<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	**0.2**	<0.1	<0.1	<0.1
Benzo(b&j)fluoranthene	mg/kg	0.1	<0.1	**0.5**	<0.1	**0.1**	<0.1
Benzo(k)fluoranthene	mg/kg	0.1	<0.1	**0.3**	<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	**0.4**	<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	**0.3**	<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	**3.4**	<0.8	<0.8	<0.8
Total PAH (NEPM/WHO 16)	mg/kg	0.8	<0.8	**3.4**	<0.8	<0.8	<0.8

PARAMETER	UOM	LOR	BH13M_0.3-0.4 SOIL - 20/3/2018 SE177041.016	BH13M_0.9-1.0 SOIL - 20/3/2018 SE177041.017	BH13M_5.5-5.6 SOIL - 20/3/2018 SE177041.018	BH14_0.4-0.5 SOIL - 20/3/2018 SE177041.019	BH15_0.3-0.4 SOIL - 20/3/2018 SE177041.020
Naphthalene	mg/kg	0.1	<0.1	<0.1	**0.5**	<0.1	<0.1
2-methylnaphthalene	mg/kg	0.1	<0.1	<0.1	**1.5**	<0.1	<0.1
1-methylnaphthalene	mg/kg	0.1	<0.1	<0.1	**1.0**	<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	**0.2**	<0.1	<0.1
Phenanthrene	mg/kg	0.1	<0.1	<0.1	**0.5**	<0.1	<0.1
Anthracene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Fluoranthene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Pyrene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(a)anthracene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Chrysene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(b&j)fluoranthene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(k)fluoranthene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(a)pyrene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Indeno(1,2,3-cd)pyrene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Dibenzo(ah)anthracene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(ghi)perylene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Carcinogenic PAHs, BaP TEQ <LOR=0	TEQ (mg/kg)	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Carcinogenic PAHs, BaP TEQ <LOR=LOR	TEQ (mg/kg)	0.3	<0.3	<0.3	<0.3	<0.3	<0.3
Carcinogenic PAHs, BaP TEQ <LOR=LOR/2	TEQ (mg/kg)	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Total PAH (18)	mg/kg	0.8	<0.8	<0.8	**3.8**	<0.8	<0.8
Total PAH (NEPM/WHO 16)	mg/kg	0.8	<0.8	<0.8	**1.3**	<0.8	<0.8

PAH (Polynuclear Aromatic Hydrocarbons) in Soil [AN420] Tested: 23/3/2018 (continued)

PARAMETER	UOM	LOR	BH16_0.4-0.5 SOIL - 20/3/2018 SE177041.021	BH17_0.5-0.6 SOIL - 20/3/2018 SE177041.022	BH17_1.0-1.1 SOIL - 20/3/2018 SE177041.023	BH17_1.-1.6 SOIL - 20/3/2018 SE177041.024	BH18_0.5-0.6 SOIL - 20/3/2018 SE177041.025
Naphthalene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
2-methylnaphthalene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
1-methylnaphthalene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Acenaphthylene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Acenaphthene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Fluorene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Phenanthrene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Anthracene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Fluoranthene	mg/kg	0.1	<0.1	**0.1**	<0.1	<0.1	<0.1
Pyrene	mg/kg	0.1	<0.1	**0.1**	<0.1	<0.1	<0.1
Benzo(a)anthracene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Chrysene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(b&j)fluoranthene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(k)fluoranthene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(a)pyrene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Indeno(1,2,3-cd)pyrene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Dibenzo(ah)anthracene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(ghi)perylene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Carcinogenic PAHs, BaP TEQ <LOR=0	TEQ (mg/kg)	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Carcinogenic PAHs, BaP TEQ <LOR=LOR	TEQ (mg/kg)	0.3	<0.3	<0.3	<0.3	<0.3	<0.3
Carcinogenic PAHs, BaP TEQ <LOR=LOR/2	TEQ (mg/kg)	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Total PAH (18)	mg/kg	0.8	<0.8	<0.8	<0.8	<0.8	<0.8
Total PAH (NEPM/WHO 16)	mg/kg	0.8	<0.8	<0.8	<0.8	<0.8	<0.8

PARAMETER	UOM	LOR	BH19_0.5-0.6 SOIL - 20/3/2018 SE177041.026	BH20_0.4-0.5 SOIL - 20/3/2018 SE177041.027	BH21_0.4-0.5 SOIL - 20/3/2018 SE177041.028
Naphthalene	mg/kg	0.1	<0.1	<0.1	<0.1
2-methylnaphthalene	mg/kg	0.1	<0.1	<0.1	<0.1
1-methylnaphthalene	mg/kg	0.1	<0.1	<0.1	<0.1
Acenaphthylene	mg/kg	0.1	<0.1	<0.1	<0.1
Acenaphthene	mg/kg	0.1	<0.1	<0.1	<0.1
Fluorene	mg/kg	0.1	<0.1	<0.1	<0.1
Phenanthrene	mg/kg	0.1	<0.1	<0.1	<0.1
Anthracene	mg/kg	0.1	<0.1	<0.1	<0.1
Fluoranthene	mg/kg	0.1	<0.1	<0.1	<0.1
Pyrene	mg/kg	0.1	<0.1	<0.1	<0.1
Benzo(a)anthracene	mg/kg	0.1	<0.1	<0.1	<0.1
Chrysene	mg/kg	0.1	<0.1	<0.1	<0.1
Benzo(b&j)fluoranthene	mg/kg	0.1	<0.1	<0.1	<0.1
Benzo(k)fluoranthene	mg/kg	0.1	<0.1	<0.1	<0.1
Benzo(a)pyrene	mg/kg	0.1	<0.1	<0.1	<0.1
Indeno(1,2,3-cd)pyrene	mg/kg	0.1	<0.1	<0.1	<0.1
Dibenzo(ah)anthracene	mg/kg	0.1	<0.1	<0.1	<0.1
Benzo(ghi)perylene	mg/kg	0.1	<0.1	<0.1	<0.1
Carcinogenic PAHs, BaP TEQ <LOR=0	TEQ (mg/kg)	0.2	<0.2	<0.2	<0.2
Carcinogenic PAHs, BaP TEQ <LOR=LOR	TEQ (mg/kg)	0.3	<0.3	<0.3	<0.3
Carcinogenic PAHs, BaP TEQ <LOR=LOR/2	TEQ (mg/kg)	0.2	<0.2	<0.2	<0.2
Total PAH (18)	mg/kg	0.8	<0.8	<0.8	<0.8
Total PAH (NEPM/WHO 16)	mg/kg	0.8	<0.8	<0.8	<0.8

OC Pesticides in Soil [AN420] Tested: 23/3/2018

PARAMETER	UOM	LOR	BH1M_0.2-0.3 SOIL - 19/3/2018 SE177041.001	BH2_0.2-0.3 SOIL - 19/3/2018 SE177041.003	BH3_0.3-0.4 SOIL - 19/3/2018 SE177041.004	BH4M_0.2-0.3 SOIL - 19/3/2018 SE177041.005	BH5_0.3-0.4 SOIL - 19/3/2018 SE177041.006
Hexachlorobenzene (HCB)	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Alpha BHC	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Lindane	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Heptachlor	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Aldrin	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Beta BHC	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Delta BHC	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Heptachlor epoxide	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
o,p'-DDE	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Alpha Endosulfan	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Gamma Chlordane	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Alpha Chlordane	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
trans-Nonachlor	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
p,p'-DDE	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Dieldrin	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Endrin	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
o,p'-DDD	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
o,p'-DDT	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Beta Endosulfan	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
p,p'-DDD	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
p,p'-DDT	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Endosulfan sulphate	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Endrin Aldehyde	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Methoxychlor	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Endrin Ketone	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Isodrin	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Mirex	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Total CLP OC Pesticides	mg/kg	1	<1	<1	<1	<1	<1

OC Pesticides in Soil [AN420] Tested: 23/3/2018 (continued)

PARAMETER	UOM	LOR	BH6_0.2-0.3 SOIL - 19/3/2018 SE177041.007	BH7M_0.2-0.3 SOIL - 19/3/2018 SE177041.008	BH8_0.3-0.4 SOIL - 19/3/2018 SE177041.010	BH9_0.3-0.4 SOIL - 19/3/2018 SE177041.011	BH10M_0.3-0.4 SOIL - 19/3/2018 SE177041.012
Hexachlorobenzene (HCB)	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Alpha BHC	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Lindane	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Heptachlor	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Aldrin	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Beta BHC	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Delta BHC	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Heptachlor epoxide	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
o,p'-DDE	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Alpha Endosulfan	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Gamma Chlordane	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Alpha Chlordane	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
trans-Nonachlor	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
p,p'-DDE	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Dieldrin	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Endrin	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
o,p'-DDD	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
o,p'-DDT	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Beta Endosulfan	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
p,p'-DDD	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
p,p'-DDT	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Endosulfan sulphate	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Endrin Aldehyde	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Methoxychlor	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Endrin Ketone	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Isodrin	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Mirex	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Total CLP OC Pesticides	mg/kg	1	<1	<1	<1	<1	<1

OC Pesticides in Soil [AN420] Tested: 23/3/2018 (continued)

PARAMETER	UOM	LOR	BH11_0.3-0.4 SOIL - 19/3/2018 SE177041.014	BH12_0.5-0.6 SOIL - 19/3/2018 SE177041.015	BH13M_0.3-0.4 SOIL - 20/3/2018 SE177041.016	BH14_0.4-0.5 SOIL - 20/3/2018 SE177041.019	BH15_0.3-0.4 SOIL - 20/3/2018 SE177041.020
Hexachlorobenzene (HCB)	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Alpha BHC	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Lindane	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Heptachlor	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Aldrin	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Beta BHC	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Delta BHC	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Heptachlor epoxide	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
o,p'-DDE	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Alpha Endosulfan	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Gamma Chlordane	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Alpha Chlordane	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
trans-Nonachlor	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
p,p'-DDE	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Dieldrin	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Endrin	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
o,p'-DDD	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
o,p'-DDT	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Beta Endosulfan	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
p,p'-DDD	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
p,p'-DDT	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Endosulfan sulphate	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Endrin Aldehyde	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Methoxychlor	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Endrin Ketone	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Isodrin	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Mirex	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Total CLP OC Pesticides	mg/kg	1	<1	<1	<1	<1	<1

OC Pesticides in Soil [AN420] Tested: 23/3/2018 (continued)

PARAMETER	UOM	LOR	BH16_0.4-0.5 SOIL - 20/3/2018 SE177041.021	BH17_0.5-0.6 SOIL - 20/3/2018 SE177041.022	BH18_0.5-0.6 SOIL - 20/3/2018 SE177041.025	BH19_0.5-0.6 SOIL - 20/3/2018 SE177041.026	BH20_0.4-0.5 SOIL - 20/3/2018 SE177041.027
Hexachlorobenzene (HCB)	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Alpha BHC	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Lindane	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Heptachlor	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Aldrin	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Beta BHC	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Delta BHC	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Heptachlor epoxide	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
o,p'-DDE	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Alpha Endosulfan	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Gamma Chlordane	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Alpha Chlordane	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
trans-Nonachlor	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
p,p'-DDE	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Dieldrin	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Endrin	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
o,p'-DDD	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
o,p'-DDT	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Beta Endosulfan	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
p,p'-DDD	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
p,p'-DDT	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Endosulfan sulphate	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Endrin Aldehyde	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Methoxychlor	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Endrin Ketone	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Isodrin	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Mirex	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Total CLP OC Pesticides	mg/kg	1	<1	<1	<1	<1	<1

OC Pesticides in Soil [AN420] Tested: 23/3/2018 (continued)

PARAMETER	UOM	LOR	BH21_0.4-0.5 SOIL - 20/3/2018 SE177041.028
Hexachlorobenzene (HCB)	mg/kg	0.1	<0.1
Alpha BHC	mg/kg	0.1	<0.1
Lindane	mg/kg	0.1	<0.1
Heptachlor	mg/kg	0.1	<0.1
Aldrin	mg/kg	0.1	<0.1
Beta BHC	mg/kg	0.1	<0.1
Delta BHC	mg/kg	0.1	<0.1
Heptachlor epoxide	mg/kg	0.1	<0.1
o,p'-DDE	mg/kg	0.1	<0.1
Alpha Endosulfan	mg/kg	0.2	<0.2
Gamma Chlordane	mg/kg	0.1	<0.1
Alpha Chlordane	mg/kg	0.1	<0.1
trans-Nonachlor	mg/kg	0.1	<0.1
p,p'-DDE	mg/kg	0.1	<0.1
Dieldrin	mg/kg	0.2	<0.2
Endrin	mg/kg	0.2	<0.2
o,p'-DDD	mg/kg	0.1	<0.1
o,p'-DDT	mg/kg	0.1	<0.1
Beta Endosulfan	mg/kg	0.2	<0.2
p,p'-DDD	mg/kg	0.1	<0.1
p,p'-DDT	mg/kg	0.1	<0.1
Endosulfan sulphate	mg/kg	0.1	<0.1
Endrin Aldehyde	mg/kg	0.1	<0.1
Methoxychlor	mg/kg	0.1	<0.1
Endrin Ketone	mg/kg	0.1	<0.1
Isodrin	mg/kg	0.1	<0.1
Mirex	mg/kg	0.1	<0.1
Total CLP OC Pesticides	mg/kg	1	<1

OP Pesticides in Soil [AN420] Tested: 23/3/2018

PARAMETER	UOM	LOR	BH1M_0.2-0.3 SOIL - 19/3/2018 SE177041.001	BH2_0.2-0.3 SOIL - 19/3/2018 SE177041.003	BH3_0.3-0.4 SOIL - 19/3/2018 SE177041.004	BH4M_0.2-0.3 SOIL - 19/3/2018 SE177041.005	BH5_0.3-0.4 SOIL - 19/3/2018 SE177041.006
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	BH6_0.2-0.3 SOIL - 19/3/2018 SE177041.007	BH7M_0.2-0.3 SOIL - 19/3/2018 SE177041.008	BH8_0.3-0.4 SOIL - 19/3/2018 SE177041.010	BH9_0.3-0.4 SOIL - 19/3/2018 SE177041.011	BH10M_0.3-0.4 SOIL - 19/3/2018 SE177041.012
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	BH11_0.3-0.4 SOIL - 19/3/2018 SE177041.014	BH12_0.5-0.6 SOIL - 19/3/2018 SE177041.015	BH13M_0.3-0.4 SOIL - 20/3/2018 SE177041.016	BH14_0.4-0.5 SOIL - 20/3/2018 SE177041.019	BH15_0.3-0.4 SOIL - 20/3/2018 SE177041.020
Dichlorvos	mg/kg	0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Dimethoate	mg/kg	0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Diazinon (Dimpylate)	mg/kg	0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Fenitrothion	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Malathion	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Chlorpyrifos (Chlorpyrifos Ethyl)	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Parathion-ethyl (Parathion)	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Bromophos Ethyl	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Methidathion	mg/kg	0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Ethion	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Azinphos-methyl (Guthion)	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Total OP Pesticides*	mg/kg	1.7	<1.7	<1.7	<1.7	<1.7	<1.7

OP Pesticides in Soil [AN420] Tested: 23/3/2018 (continued)

PARAMETER	UOM	LOR	BH16_0.4-0.5 SOIL - 20/3/2018 SE177041.021	BH17_0.5-0.6 SOIL - 20/3/2018 SE177041.022	BH18_0.5-0.6 SOIL - 20/3/2018 SE177041.025	BH19_0.5-0.6 SOIL - 20/3/2018 SE177041.026	BH20_0.4-0.5 SOIL - 20/3/2018 SE177041.027
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	BH21_0.4-0.5 SOIL - 20/3/2018 SE177041.028
Dichlorvos	mg/kg	0.5	<0.5
Dimethoate	mg/kg	0.5	<0.5
Diazinon (Dimpylate)	mg/kg	0.5	<0.5
Fenitrothion	mg/kg	0.2	<0.2
Malathion	mg/kg	0.2	<0.2
Chlorpyrifos (Chlorpyrifos Ethyl)	mg/kg	0.2	<0.2
Parathion-ethyl (Parathion)	mg/kg	0.2	<0.2
Bromophos Ethyl	mg/kg	0.2	<0.2
Methidathion	mg/kg	0.5	<0.5
Ethion	mg/kg	0.2	<0.2
Azinphos-methyl (Guthion)	mg/kg	0.2	<0.2
Total OP Pesticides*	mg/kg	1.7	<1.7

PCBs in Soil [AN420] Tested: 23/3/2018

PARAMETER	UOM	LOR	BH1M_0.2-0.3 SOIL - 19/3/2018 SE177041.001	BH1M_0.8-0.9 SOIL - 19/3/2018 SE177041.002	BH2_0.2-0.3 SOIL - 19/3/2018 SE177041.003	BH3_0.3-0.4 SOIL - 19/3/2018 SE177041.004	BH4M_0.2-0.3 SOIL - 19/3/2018 SE177041.005
Arochlor 1016	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Arochlor 1221	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Arochlor 1232	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Arochlor 1242	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Arochlor 1248	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Arochlor 1254	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Arochlor 1260	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Arochlor 1262	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Arochlor 1268	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Total PCBs (Arochlors)	mg/kg	1	<1	<1	<1	<1	<1

PARAMETER	UOM	LOR	BH5_0.3-0.4 SOIL - 19/3/2018 SE177041.006	BH6_0.2-0.3 SOIL - 19/3/2018 SE177041.007	BH7M_0.2-0.3 SOIL - 19/3/2018 SE177041.008	BH8_0.3-0.4 SOIL - 19/3/2018 SE177041.010	BH9_0.3-0.4 SOIL - 19/3/2018 SE177041.011
Arochlor 1016	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Arochlor 1221	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Arochlor 1232	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Arochlor 1242	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Arochlor 1248	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Arochlor 1254	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Arochlor 1260	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Arochlor 1262	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Arochlor 1268	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Total PCBs (Arochlors)	mg/kg	1	<1	<1	<1	<1	<1

PARAMETER	UOM	LOR	BH10M_0.3-0.4 SOIL - 19/3/2018 SE177041.012	BH11_0.3-0.4 SOIL - 19/3/2018 SE177041.014	BH12_0.5-0.6 SOIL - 19/3/2018 SE177041.015	BH13M_0.3-0.4 SOIL - 20/3/2018 SE177041.016	BH14_0.4-0.5 SOIL - 20/3/2018 SE177041.019
Arochlor 1016	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Arochlor 1221	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Arochlor 1232	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Arochlor 1242	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Arochlor 1248	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Arochlor 1254	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Arochlor 1260	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Arochlor 1262	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Arochlor 1268	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Total PCBs (Arochlors)	mg/kg	1	<1	<1	<1	<1	<1

PCBs in Soil [AN420] Tested: 23/3/2018 (continued)

PARAMETER	UOM	LOR	BH15_0.3-0.4 SOIL - 20/3/2018 SE177041.020	BH16_0.4-0.5 SOIL - 20/3/2018 SE177041.021	BH17_0.5-0.6 SOIL - 20/3/2018 SE177041.022	BH18_0.5-0.6 SOIL - 20/3/2018 SE177041.025	BH19_0.5-0.6 SOIL - 20/3/2018 SE177041.026
Arochlor 1016	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Arochlor 1221	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Arochlor 1232	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Arochlor 1242	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Arochlor 1248	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Arochlor 1254	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Arochlor 1260	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Arochlor 1262	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Arochlor 1268	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Total PCBs (Arochlors)	mg/kg	1	<1	<1	<1	<1	<1

PARAMETER	UOM	LOR	BH20_0.4-0.5 SOIL - 20/3/2018 SE177041.027	BH21_0.4-0.5 SOIL - 20/3/2018 SE177041.028
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	<0.2	<0.2
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

Total Recoverable Elements in Soil/Waste Solids/Materials by ICPOES [AN040/AN320] Tested: 27/3/2018

PARAMETER	UOM	LOR	BH1M_0.2-0.3 SOIL - 19/3/2018 SE177041.001	BH1M_0.8-0.9 SOIL - 19/3/2018 SE177041.002	BH2_0.2-0.3 SOIL - 19/3/2018 SE177041.003	BH3_0.3-0.4 SOIL - 19/3/2018 SE177041.004	BH4M_0.2-0.3 SOIL - 19/3/2018 SE177041.005
Arsenic, As	mg/kg	3	10	4	9	4	8
Cadmium, Cd	mg/kg	0.3	<0.3	<0.3	<0.3	<0.3	0.3
Chromium, Cr	mg/kg	0.3	14	5.6	17	62	11
Copper, Cu	mg/kg	0.5	13	22	56	25	18
Lead, Pb	mg/kg	1	17	10	140	21	260
Nickel, Ni	mg/kg	0.5	1.5	1.3	18	57	5.9
Zinc, Zn	mg/kg	0.5	15	13	2200	340	140

PARAMETER	UOM	LOR	BH5_0.3-0.4 SOIL - 19/3/2018 SE177041.006	BH6_0.2-0.3 SOIL - 19/3/2018 SE177041.007	BH7M_0.2-0.3 SOIL - 19/3/2018 SE177041.008	BH7M_1.4-1.5 SOIL - 19/3/2018 SE177041.009	BH8_0.3-0.4 SOIL - 19/3/2018 SE177041.010
Arsenic, As	mg/kg	3	9	10	7	8	8
Cadmium, Cd	mg/kg	0.3	<0.3	<0.3	<0.3	<0.3	<0.3
Chromium, Cr	mg/kg	0.3	22	13	10	4.4	9.1
Copper, Cu	mg/kg	0.5	23	28	13	17	21
Lead, Pb	mg/kg	1	67	87	34	11	430
Nickel, Ni	mg/kg	0.5	16	5.1	3.1	0.7	2.7
Zinc, Zn	mg/kg	0.5	87	69	31	15	280

PARAMETER	UOM	LOR	BH9_0.3-0.4 SOIL - 19/3/2018 SE177041.011	BH10M_0.3-0.4 SOIL - 19/3/2018 SE177041.012	BH10M_0.9-1.0 SOIL - 19/3/2018 SE177041.013	BH11_0.3-0.4 SOIL - 19/3/2018 SE177041.014	BH12_0.5-0.6 SOIL - 19/3/2018 SE177041.015
Arsenic, As	mg/kg	3	7	25	8	5	13
Cadmium, Cd	mg/kg	0.3	<0.3	2.2	<0.3	<0.3	<0.3
Chromium, Cr	mg/kg	0.3	18	6.4	6.3	12	4.9
Copper, Cu	mg/kg	0.5	17	280	26	79	20
Lead, Pb	mg/kg	1	25	480	11	6	16
Nickel, Ni	mg/kg	0.5	16	8.4	<0.5	73	0.7
Zinc, Zn	mg/kg	0.5	120	850	5.0	62	9.1

PARAMETER	UOM	LOR	BH13M_0.3-0.4 SOIL - 20/3/2018 SE177041.016	BH13M_0.9-1.0 SOIL - 20/3/2018 SE177041.017	BH13M_5.5-5.6 SOIL - 20/3/2018 SE177041.018	BH14_0.4-0.5 SOIL - 20/3/2018 SE177041.019	BH15_0.3-0.4 SOIL - 20/3/2018 SE177041.020
Arsenic, As	mg/kg	3	4	8	6	6	8
Cadmium, Cd	mg/kg	0.3	<0.3	<0.3	<0.3	<0.3	<0.3
Chromium, Cr	mg/kg	0.3	11	4.3	10	17	27
Copper, Cu	mg/kg	0.5	18	24	53	25	29
Lead, Pb	mg/kg	1	24	23	24	18	43
Nickel, Ni	mg/kg	0.5	14	<0.5	26	7.1	23
Zinc, Zn	mg/kg	0.5	80	12	120	23	130

Total Recoverable Elements in Soil/Waste Solids/Materials by ICPOES [AN040/AN320] Tested: 27/3/2018

(continued)

PARAMETER	UOM	LOR	BH16_0.4-0.5 SOIL - 20/3/2018 SE177041.021	BH17_0.5-0.6 SOIL - 20/3/2018 SE177041.022	BH17_1.0-1.1 SOIL - 20/3/2018 SE177041.023	BH17_1.-1.6 SOIL - 20/3/2018 SE177041.024	BH18_0.5-0.6 SOIL - 20/3/2018 SE177041.025
Arsenic, As	mg/kg	3	5	6	5	5	5
Cadmium, Cd	mg/kg	0.3	<0.3	<0.3	<0.3	<0.3	<0.3
Chromium, Cr	mg/kg	0.3	15	23	22	5.8	5.8
Copper, Cu	mg/kg	0.5	54	22	21	25	23
Lead, Pb	mg/kg	1	32	27	10	7	12
Nickel, Ni	mg/kg	0.5	14	20	19	0.6	1.3
Zinc, Zn	mg/kg	0.5	64	51	33	8.1	22

PARAMETER	UOM	LOR	BH19_0.5-0.6 SOIL - 20/3/2018 SE177041.026	BH20_0.4-0.5 SOIL - 20/3/2018 SE177041.027	BH21_0.4-0.5 SOIL - 20/3/2018 SE177041.028	QD1 SOIL - 19/3/2018 SE177041.029
Arsenic, As	mg/kg	3	<3	3	4	6
Cadmium, Cd	mg/kg	0.3	<0.3	<0.3	<0.3	<0.3
Chromium, Cr	mg/kg	0.3	6.9	6.5	7.5	8.2
Copper, Cu	mg/kg	0.5	2.8	1.9	4.5	13
Lead, Pb	mg/kg	1	13	16	18	320
Nickel, Ni	mg/kg	0.5	<0.5	1.9	1.4	2.9
Zinc, Zn	mg/kg	0.5	13	31	19	190

Mercury in Soil [AN312] Tested: 27/3/2018

PARAMETER	UOM	LOR	BH1M_0.2-0.3 SOIL - 19/3/2018 SE177041.001	BH1M_0.8-0.9 SOIL - 19/3/2018 SE177041.002	BH2_0.2-0.3 SOIL - 19/3/2018 SE177041.003	BH3_0.3-0.4 SOIL - 19/3/2018 SE177041.004	BH4M_0.2-0.3 SOIL - 19/3/2018 SE177041.005
Mercury	mg/kg	0.05	<0.05	<0.05	**0.07**	<0.05	<0.05

PARAMETER	UOM	LOR	BH5_0.3-0.4 SOIL - 19/3/2018 SE177041.006	BH6_0.2-0.3 SOIL - 19/3/2018 SE177041.007	BH7M_0.2-0.3 SOIL - 19/3/2018 SE177041.008	BH7M_1.4-1.5 SOIL - 19/3/2018 SE177041.009	BH8_0.3-0.4 SOIL - 19/3/2018 SE177041.010
Mercury	mg/kg	0.05	**0.05**	<0.05	<0.05	<0.05	<0.05

PARAMETER	UOM	LOR	BH9_0.3-0.4 SOIL - 19/3/2018 SE177041.011	BH10M_0.3-0.4 SOIL - 19/3/2018 SE177041.012	BH10M_0.9-1.0 SOIL - 19/3/2018 SE177041.013	BH11_0.3-0.4 SOIL - 19/3/2018 SE177041.014	BH12_0.5-0.6 SOIL - 19/3/2018 SE177041.015
Mercury	mg/kg	0.05	<0.05	**0.11**	<0.05	<0.05	<0.05

PARAMETER	UOM	LOR	BH13M_0.3-0.4 SOIL - 20/3/2018 SE177041.016	BH13M_0.9-1.0 SOIL - 20/3/2018 SE177041.017	BH13M_5.5-5.6 SOIL - 20/3/2018 SE177041.018	BH14_0.4-0.5 SOIL - 20/3/2018 SE177041.019	BH15_0.3-0.4 SOIL - 20/3/2018 SE177041.020
Mercury	mg/kg	0.05	<0.05	<0.05	<0.05	<0.05	<0.05

PARAMETER	UOM	LOR	BH16_0.4-0.5 SOIL - 20/3/2018 SE177041.021	BH17_0.5-0.6 SOIL - 20/3/2018 SE177041.022	BH17_1.0-1.1 SOIL - 20/3/2018 SE177041.023	BH17_1.-1.6 SOIL - 20/3/2018 SE177041.024	BH18_0.5-0.6 SOIL - 20/3/2018 SE177041.025
Mercury	mg/kg	0.05	<0.05	<0.05	<0.05	<0.05	<0.05

PARAMETER	UOM	LOR	BH19_0.5-0.6 SOIL - 20/3/2018 SE177041.026	BH20_0.4-0.5 SOIL - 20/3/2018 SE177041.027	BH21_0.4-0.5 SOIL - 20/3/2018 SE177041.028	QD1 SOIL - 19/3/2018 SE177041.029
Mercury	mg/kg	0.05	<0.05	<0.05	<0.05	<0.05

Moisture Content [AN002] Tested: 26/3/2018

PARAMETER	UOM	LOR	BH1M_0.2-0.3 SOIL - 19/3/2018 SE177041.001	BH1M_0.8-0.9 SOIL - 19/3/2018 SE177041.002	BH2_0.2-0.3 SOIL - 19/3/2018 SE177041.003	BH3_0.3-0.4 SOIL - 19/3/2018 SE177041.004	BH4M_0.2-0.3 SOIL - 19/3/2018 SE177041.005
% Moisture	%w/w	0.5	15	6.7	15	5.5	11

PARAMETER	UOM	LOR	BH5_0.3-0.4 SOIL - 19/3/2018 SE177041.006	BH6_0.2-0.3 SOIL - 19/3/2018 SE177041.007	BH7M_0.2-0.3 SOIL - 19/3/2018 SE177041.008	BH7M_1.4-1.5 SOIL - 19/3/2018 SE177041.009	BH8_0.3-0.4 SOIL - 19/3/2018 SE177041.010
% Moisture	%w/w	0.5	15	15	19	17	11

PARAMETER	UOM	LOR	BH9_0.3-0.4 SOIL - 19/3/2018 SE177041.011	BH10M_0.3-0.4 SOIL - 19/3/2018 SE177041.012	BH10M_0.9-1.0 SOIL - 19/3/2018 SE177041.013	BH11_0.3-0.4 SOIL - 19/3/2018 SE177041.014	BH12_0.5-0.6 SOIL - 19/3/2018 SE177041.015
% Moisture	%w/w	0.5	13	19	26	13	11

PARAMETER	UOM	LOR	BH13M_0.3-0.4 SOIL - 20/3/2018 SE177041.016	BH13M_0.9-1.0 SOIL - 20/3/2018 SE177041.017	BH13M_5.5-5.6 SOIL - 20/3/2018 SE177041.018	BH14_0.4-0.5 SOIL - 20/3/2018 SE177041.019	BH15_0.3-0.4 SOIL - 20/3/2018 SE177041.020
% Moisture	%w/w	0.5	14	12	6.1	26	21

PARAMETER	UOM	LOR	BH16_0.4-0.5 SOIL - 20/3/2018 SE177041.021	BH17_0.5-0.6 SOIL - 20/3/2018 SE177041.022	BH17_1.0-1.1 SOIL - 20/3/2018 SE177041.023	BH17_1.-1.6 SOIL - 20/3/2018 SE177041.024	BH18_0.5-0.6 SOIL - 20/3/2018 SE177041.025
% Moisture	%w/w	0.5	12	11	16	16	8.1

PARAMETER	UOM	LOR	BH19_0.5-0.6 SOIL - 20/3/2018 SE177041.026	BH20_0.4-0.5 SOIL - 20/3/2018 SE177041.027	BH21_0.4-0.5 SOIL - 20/3/2018 SE177041.028	QD1 SOIL - 19/3/2018 SE177041.029	QTB SOIL - 20/3/2018 SE177041.032
% Moisture	%w/w	0.5	5.5	6.0	4.6	10	<0.5

Fibre Identification in soil [AN602] Tested: 27/3/2018

PARAMETER	UOM	LOR	BH1M_0.2-0.3 SOIL - 19/3/2018 SE177041.001	BH2_0.2-0.3 SOIL - 19/3/2018 SE177041.003	BH3_0.3-0.4 SOIL - 19/3/2018 SE177041.004	BH4M_0.2-0.3 SOIL - 19/3/2018 SE177041.005	BH5_0.3-0.4 SOIL - 19/3/2018 SE177041.006
Asbestos Detected	No unit	-	No	No	Yes	No	No
Estimated Fibres*	%w/w	0.01	<0.01	<0.01	>0.01	<0.01	<0.01

PARAMETER	UOM	LOR	BH6_0.2-0.3 SOIL - 19/3/2018 SE177041.007	BH7M_0.2-0.3 SOIL - 19/3/2018 SE177041.008	BH8_0.3-0.4 SOIL - 19/3/2018 SE177041.010	BH9_0.3-0.4 SOIL - 19/3/2018 SE177041.011	BH10M_0.3-0.4 SOIL - 19/3/2018 SE177041.012
Asbestos Detected	No unit	-	No	No	No	No	Yes
Estimated Fibres*	%w/w	0.01	<0.01	<0.01	<0.01	<0.01	<0.01

PARAMETER	UOM	LOR	BH11_0.3-0.4 SOIL - 19/3/2018 SE177041.014	BH12_0.5-0.6 SOIL - 19/3/2018 SE177041.015	BH13M_0.3-0.4 SOIL - 20/3/2018 SE177041.016	BH14_0.4-0.5 SOIL - 20/3/2018 SE177041.019	BH15_0.3-0.4 SOIL - 20/3/2018 SE177041.020
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	BH16_0.4-0.5 SOIL - 20/3/2018 SE177041.021	BH17_0.5-0.6 SOIL - 20/3/2018 SE177041.022	BH18_0.5-0.6 SOIL - 20/3/2018 SE177041.025	BH19_0.5-0.6 SOIL - 20/3/2018 SE177041.026	BH20_0.4-0.5 SOIL - 20/3/2018 SE177041.027
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	BH21_0.4-0.5 SOIL - 20/3/2018 SE177041.028
Asbestos Detected	No unit	-	No
Estimated Fibres*	%w/w	0.01	<0.01

VOCs in Water [AN433] Tested: 26/3/2018

PARAMETER	UOM	LOR	QR1 WATER - 20/3/2018 SE177041.030
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
Total Xylenes	µg/L	1.5	<1.5
Total BTEX	µg/L	3	<3
Naphthalene	µg/L	0.5	<0.5

Volatile Petroleum Hydrocarbons in Water [AN433] Tested: 26/3/2018

PARAMETER	UOM	LOR	QR1 WATER - 20/3/2018 SE177041.030
TRH C6-C9	µg/L	40	<40
Benzene (F0)	µg/L	0.5	<0.5
TRH C6-C10	µg/L	50	<50
TRH C6-C10 minus BTEX (F1)	µg/L	50	<50

TRH (Total Recoverable Hydrocarbons) in Water [AN403] Tested: 23/3/2018

PARAMETER	UOM	LOR	QR1 WATER - 20/3/2018 SE177041.030
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
TRH >C10-C16	µg/L	60	<60
TRH >C16-C34 (F3)	µg/L	500	<500
TRH >C34-C40 (F4)	µg/L	500	<500
TRH C10-C36	µg/L	450	<450
TRH C10-C40	µg/L	650	<650
TRH >C10-C16 - Naphthalene (F2)	µg/L	60	<60

Trace Metals (Dissolved) in Water by ICPMS [AN318] Tested: 27/3/2018

PARAMETER	UOM	LOR	QR1 WATER - 20/3/2018 SE177041.030
Arsenic, As	µg/L	1	<1
Cadmium, Cd	µg/L	0.1	<0.1
Chromium, Cr	µg/L	1	**2**
Copper, Cu	µg/L	1	**40**
Lead, Pb	µg/L	1	**3**
Nickel, Ni	µg/L	1	**3**
Zinc, Zn	µg/L	5	**110**

Mercury (dissolved) in Water [AN311(Perth)/AN312] Tested: 27/3/2018

PARAMETER	UOM	LOR	QR1 WATER - 20/3/2018 SE177041.030
Mercury	mg/L	0.0001	<0.0001

METHOD	METHODOLOGY SUMMARY
AN002	The test is carried out by drying (at either 40°C or 105°C) a known mass of sample in a weighed evaporating basin. After fully dry the sample is re-weighed. Samples such as sludge and sediment having high percentages of moisture will take some time in a drying oven for complete removal of water.
AN020	Unpreserved water sample is filtered through a 0.45µm membrane filter and acidified with nitric acid similar to APHA3030B.
AN040/AN320	A portion of sample is digested with nitric acid to decompose organic matter and hydrochloric acid to complete the digestion of metals. The digest is then analysed by ICP OES with metals results reported on the dried sample basis. Based on USEPA method 200.8 and 6010C.
AN040	A portion of sample is digested with Nitric acid to decompose organic matter and Hydrochloric acid to complete the digestion of metals and then filtered for analysis by ASS or ICP as per USEPA Method 200.8.
AN311(Perth)/AN312	Mercury by Cold Vapour AAS in Waters: Mercury ions are reduced by stannous chloride reagent in acidic solution to elemental mercury. This mercury vapour is purged by nitrogen into a cold cell in an atomic absorption spectrometer or mercury analyser. Quantification is made by comparing absorbances to those of the calibration standards. Reference APHA 3112/3500.
AN312	Mercury by Cold Vapour AAS in Soils: After digestion with nitric acid, hydrogen peroxide and hydrochloric acid , mercury ions are reduced by stannous chloride reagent in acidic solution to elemental mercury. This mercury vapour is purged by nitrogen into a cold cell in an atomic absorption spectrometer or mercury analyser . Quantification is made by comparing absorbances to those of the calibration standards. Reference APHA 3112/3500
AN318	Determination of elements at trace level in waters by ICP-MS technique, in accordance with USEPA 6020A.
AN403	Total Recoverable Hydrocarbons: Determination of Hydrocarbons by gas chromatography after a solvent extraction. Detection is by flame ionisation detector (FID) that produces an electronic signal in proportion to the combustible matter passing through it. Total Recoverable Hydrocarbons (TRH) are routinely reported as four alkane groupings based on the carbon chain length of the compounds: C6-C9, C10-C14, C15-C28 and C29-C36 and in recognition of the NEPM 1999 (2013), >C10-C16 (F2), >C16-C34 (F3) and >C34-C40 (F4). F2 is reported directly and also corrected by subtracting Naphthalene (from VOC method AN433) where available.
AN403	Additionally, the volatile C6-C9 fraction may be determined by a purge and trap technique and GC /MS because of the potential for volatiles loss. Total Petroleum Hydrocarbons (TPH) follows the same method of analysis after silica gel cleanup of the solvent extract. Aliphatic/Aromatic Speciation follows the same method of analysis after fractionation of the solvent extract over silica with differential polarity of the eluent solvents .
AN403	The GC/FID method is not well suited to the analysis of refined high boiling point materials (ie lubricating oils or greases) but is particularly suited for measuring diesel, kerosene and petrol if care to control volatility is taken. This method will detect naturally occurring hydrocarbons, lipids, animal fats, phenols and PAHs if they are present at sufficient levels, dependent on the use of specific cleanup /fractionation techniques. Reference USEPA 3510B, 8015B.
AN420	(SVOCs) including OC, OP, PCB, Herbicides, PAH, Phthalates and Speciated Phenols (etc) in soils, sediments and waters are determined by GCMS/ECD technique following appropriate solvent extraction process (Based on USEPA 3500C and 8270D).
AN420	SVOC Compounds: Semi-Volatile Organic Compounds (SVOCs) including OC, OP, PCB, Herbicides, PAH, Phthalates and Speciated Phenols in soils, sediments and waters are determined by GCMS /ECD technique following appropriate solvent extraction process (Based on USEPA 3500C and 8270D).
AN433	VOCs and C6-C9 Hydrocarbons by GC-MS P&T: VOC`s are volatile organic compounds. The sample is presented to a gas chromatograph via a purge and trap (P&T) concentrator and autosampler and is detected with a Mass Spectrometer (MSD). Solid samples are initially extracted with methanol whilst liquid samples are processed directly. References: USEPA 5030B, 8020A, 8260.
AN602	Qualitative identification of chrysotile, amosite and crocidolite in bulk samples by polarised light microscopy (PLM) in conjunction with dispersion staining (DS). AS4964 provides the basis for this document. Unequivocal identification of the asbestos minerals present is made by obtaining sufficient diagnostic `clues`, which provide a reasonable degree of certainty, dispersion staining is a mandatory `clue` for positive identification. If sufficient `clues` are absent, then positive identification of asbestos is not possible. This procedure requires removal of suspect fibres/bundles from the sample which cannot be returned.
AN602	Fibres/material that cannot be unequivocably identified as one of the three asbestos forms, will be reported as unknown mineral fibres (umf) 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.		

Samples analysed as received.
Solid samples expressed on a dry weight basis.

Where "Total" analyte groups are reported (for example, Total PAHs, Total OC Pesticides) the total will be calculated as the sum of the individual analytes, with those analytes that are reported as <LOR being assumed to be zero. The summed (Total) limit of reporting is calculated by summing the individual analyte LORs and dividing by two. For example, where 16 individual analytes are being summed and each has an LOR of 0.1 mg/kg, the "Totals" LOR will be 1.6 / 2 (0.8 mg/kg). Where only 2 analytes are being summed, the " Total" LOR will be the sum of those two LORs.

Some totals may not appear to add up because the total is rounded after adding up the raw values.

If reported, measurement uncertainty follow the ± sign after the analytical result and is expressed as the expanded uncertainty calculated using a coverage factor of 2, providing a level of confidence of approximately 95%, unless stated otherwise in the comments section of this report.

Results reported for samples tested under test methods with codes starting with ARS-SOP, radionuclide or gross radioactivity concentrations are expressed in becquerel (Bq) per unit of mass or volume or per wipe as stated on the report. Becquerel is the SI unit for activity and equals one nuclear transformation per second.
Note that in terms of units of radioactivity:

a. 1 Bq is equivalent to 27 pCi
b. 37 MBq is equivalent to 1 mCi

For results reported for samples tested under test methods with codes starting with ARS-SOP, less than (<) values indicate the detection limit for each radionuclide or parameter for the measurement system used. The respective detection limits have been calculated in accordance with ISO 11929.

The QC criteria are subject to internal review according to the SGS QAQC plan and may be provided on request or alternatively can be found here : http://www.sgs.com.au/~/media/Local/Australia/Documents/Technical%20Documents/MP-AU-ENV-QU-022%20QA%20QC%20Plan.pdf

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ANALYTICAL REPORT

Accreditation No. 2562

CLIENT DETAILS

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Project	**E23775 - 33 Brighton Ave, Croydon Park**
Order Number	**E23775**
Samples	21

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SGS Reference	**SE177041 R0**
Date Received	21 Mar 2018
Date Reported	28 Mar 2018

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.

Sample # 4 : Asbestos found in approx 25x10x6mm Cement Sheet Fragments.
Sample # 12 : Asbestos found in approx 3x2x1mm Fibrous Material.

Asbestos analysed by Approved Identifiers Yusuf Kuthpudin and Ravee Sivasubramaniam .

SIGNATORIES

Akheeqar Beniameen
Chemist

Bennet Lo
Senior Organic Chemist/Metals Chemis

Huong Crawford
Production Manager

Ly Kim Ha
Organic Section Head

Ravee Sivasubramaniam
Hygiene Team Leader

RESULTS

Fibre Identification in soil — Method AN602

Laboratory Reference	Client Reference	Matrix	Sample Description	Date Sampled	Fibre Identification	Est.%w/w*
SE177041.001	BH1M_0.2-0.3	Soil	162g Clay,Rocks	19 Mar 2018	No Asbestos Found	<0.01
SE177041.003	BH2_0.2-0.3	Soil	190g Clay,Sand,Soil, Rocks	19 Mar 2018	No Asbestos Found Organic Fibres Detected	<0.01
SE177041.004	BH3_0.3-0.4	Soil	217g Sand,Soil,Rocks	19 Mar 2018	Chrysotile Asbestos Found	>0.01
SE177041.005	BH4M_0.2-0.3	Soil	198g Sand,Soil,Rocks	19 Mar 2018	No Asbestos Found	<0.01
SE177041.006	BH5_0.3-0.4	Soil	306g Clay,Sand,Soil, Rocks	19 Mar 2018	No Asbestos Found	<0.01
SE177041.007	BH6_0.2-0.3	Soil	192g Clay,Sand,Soil, Rocks	19 Mar 2018	No Asbestos Found	<0.01
SE177041.008	BH7M_0.2-0.3	Soil	226g Clay,Sand,Rock s	19 Mar 2018	No Asbestos Found Synthetic Mineral Fibres Detected	<0.01
SE177041.010	BH8_0.3-0.4	Soil	212g Clay,Sand,Soil, Rocks	19 Mar 2018	No Asbestos Found	<0.01
SE177041.011	BH9_0.3-0.4	Soil	213g Clay,Sand,Rock s	19 Mar 2018	No Asbestos Found	<0.01
SE177041.012	BH10M_0.3-0.4	Soil	198g Clay,Sand,Soil, Rocks	19 Mar 2018	Chrysotile Asbestos Found Organic Fibres Detected	<0.01
SE177041.014	BH11_0.3-0.4	Soil	278g Sand,Soil,Rocks	19 Mar 2018	No Asbestos Found	<0.01
SE177041.015	BH12_0.5-0.6	Soil	214g Clay,Rocks	19 Mar 2018	No Asbestos Found	<0.01
SE177041.016	BH13M_0.3-0.4	Soil	220g Clay,Sand,Rock s	20 Mar 2018	No Asbestos Found	<0.01
SE177041.019	BH14_0.4-0.5	Soil	231g Clay,Rocks	20 Mar 2018	No Asbestos Found	<0.01
SE177041.020	BH15_0.3-0.4	Soil	129g Clay,Soil,Rocks	20 Mar 2018	No Asbestos Found	<0.01
SE177041.021	BH16_0.4-0.5	Soil	262g Clay,Sand,Rock s	20 Mar 2018	No Asbestos Found	<0.01
SE177041.022	BH17_0.5-0.6	Soil	190g Clay,Sand,Rock s	20 Mar 2018	No Asbestos Found	<0.01
SE177041.025	BH18_0.5-0.6	Soil	209g Clay,Rocks	20 Mar 2018	No Asbestos Found	<0.01
SE177041.026	BH19_0.5-0.6	Soil	187g Clay,Sand,Rock s	20 Mar 2018	No Asbestos Found	<0.01
SE177041.027	BH20_0.4-0.5	Soil	237g Clay,Soil,Rocks	20 Mar 2018	No Asbestos Found	<0.01
SE177041.028	BH21_0.4-0.5	Soil	166g Clay,Sand,Rock s	20 Mar 2018	No Asbestos Found	<0.01

METHOD SUMMARY

SE177041 R0

METHOD	METHODOLOGY SUMMARY
AN602	Qualitative identification of chrysotile, amosite and crocidolite in bulk samples by polarised light microscopy (PLM) in conjunction with dispersion staining (DS). AS4964 provides the basis for this document. Unequivocal identification of the asbestos minerals present is made by obtaining sufficient diagnostic `clues`, which provide a reasonable degree of certainty, dispersion staining is a mandatory `clue` for positive identification. If sufficient `clues` are absent, then positive identification of asbestos is not possible. This procedure requires removal of suspect fibres/bundles from the sample which cannot be returned.
AN602	Fibres/material that cannot be unequivocably identified as one of the three asbestos forms, will be reported as unknown mineral fibres (umf) 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.

Sampled by the client.

Where reported: 'Asbestos Detected': Asbestos detected by polarised light microscopy, including dispersion staining.
Where reported: 'No Asbestos Found': No Asbestos Found by polarised light microscopy, including dispersion staining.
Where reported: 'UMF Detected': Mineral fibres of unknown type detected by polarised light microscopy, including dispersion staining. Confirmation by another independent analytical technique may be necessary.

Even after disintegration it can be very difficult, or impossible, to detect the presence of asbestos in some asbestos -containing bulk materials using polarised light microscopy. This is due to the low grade or small length or diameter of asbestos fibres present in the material, or to the fact that very fine fibres have been distributed intimately throughout the materials.

The QC criteria are subject to internal review according to the SGS QAQC plan and may be provided on request or alternatively can be found here : http://www.sgs.com.au/~/media/Local/Australia/Documents/ Technical%20Documents/MP-AU-ENV-QU-022%20QA%20QC%20Plan.pdf

ANALYTICAL REPORT

Accreditation No. 2562

CLIENT DETAILS

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Order Number	**E23775**
Samples	33

LABORATORY DETAILS

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SGS Reference	**SE177041A R0**
Date Received	16/4/2018
Date Reported	17/4/2018

COMMENTS

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

SIGNATORIES

Dong Liang
Metals/Inorganics Team Leader

Trace Metals (Dissolved) in Water by ICPMS [AN318] Tested: 16/4/2018

PARAMETER	UOM	LOR	QRB1 SOIL - 20/3/2018 SE177041A.033
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

Mercury (dissolved) in Water [AN311(Perth)/AN312] Tested: 17/4/2018

PARAMETER	UOM	LOR	QRB1 SOIL - 20/3/2018 SE177041A.033
Mercury	mg/L	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.
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, in accordance with USEPA 6020A.

FOOTNOTES

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

Samples analysed as received.
Solid samples expressed on a dry weight basis.

Where "Total" analyte groups are reported (for example, Total PAHs, Total OC Pesticides) the total will be calculated as the sum of the individual analytes, with those analytes that are reported as <LOR being assumed to be zero. The summed (Total) limit of reporting is calculated by summing the individual analyte LORs and dividing by two. For example, where 16 individual analytes are being summed and each has an LOR of 0.1 mg/kg, the "Totals" LOR will be 1.6 / 2 (0.8 mg/kg). Where only 2 analytes are being summed, the " Total" LOR will be the sum of those two LORs.

Some totals may not appear to add up because the total is rounded after adding up the raw values.

If reported, measurement uncertainty follow the ± sign after the analytical result and is expressed as the expanded uncertainty calculated using a coverage factor of 2, providing a level of confidence of approximately 95%, unless stated otherwise in the comments section of this report.

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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.

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ANALYTICAL REPORT

Accreditation No. 2562

CLIENT DETAILS

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Order Number	**E23775**
Samples	9

LABORATORY DETAILS

Manager	Huong Crawford
Laboratory	SGS Alexandria Environmental
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SGS Reference	**SE177844 R0**
Date Received	11/4/2018
Date Reported	16/4/2018

COMMENTS

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

SIGNATORIES

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Dong Liang
Metals/Inorganics Team Leader

Kamrul Ahsan
Senior Chemist

VOCs in Water [AN433] Tested: 12/4/2018

PARAMETER	UOM	LOR	BH1M-1 WATER - 10/4/2018 SE177844.001	BH4M-1 WATER - 10/4/2018 SE177844.002	BH7M-1 WATER - 10/4/2018 SE177844.003	BH10M-1 WATER - 10/4/2018 SE177844.004	BH13M-1 WATER - 10/4/2018 SE177844.005
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	<5	<5
Chloromethane	µg/L	5	<5	<5	<5	<5	<5
Vinyl chloride (Chloroethene)	µg/L	0.3	<0.3	<0.3	<0.3	<0.3	<0.3
Bromomethane	µg/L	10	<10	<10	<10	<10	<10
Chloroethane	µg/L	5	<5	<5	<5	<5	<5
Trichlorofluoromethane	µg/L	1	<1	<1	<1	<1	<1
Acetone (2-propanone)	µg/L	10	<10	<10	<10	<10	**24**
Iodomethane	µg/L	5	<5	<5	<5	<5	<5
1,1-dichloroethene	µg/L	0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Acrylonitrile	µg/L	0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Dichloromethane (Methylene chloride)	µg/L	5	<5	<5	<5	<5	<5
Allyl chloride	µg/L	2	<2	<2	<2	<2	<2
Carbon disulfide	µg/L	2	<2	<2	<2	<2	<2
trans-1,2-dichloroethene	µg/L	0.5	<0.5	<0.5	<0.5	<0.5	<0.5
MtBE (Methyl-tert-butyl ether)	µg/L	2	<2	<2	<2	<2	<2
1,1-dichloroethane	µg/L	0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Vinyl acetate	µg/L	10	<10	<10	<10	<10	<10
MEK (2-butanone)	µg/L	10	<10	<10	<10	<10	<10
cis-1,2-dichloroethene	µg/L	0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Bromochloromethane	µg/L	0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Chloroform (THM)	µg/L	0.5	<0.5	<0.5	<0.5	<0.5	<0.5
2,2-dichloropropane	µg/L	0.5	<0.5	<0.5	<0.5	<0.5	<0.5
1,2-dichloroethane	µg/L	0.5	<0.5	<0.5	<0.5	<0.5	<0.5
1,1,1-trichloroethane	µg/L	0.5	<0.5	<0.5	<0.5	<0.5	<0.5
1,1-dichloropropene	µg/L	0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Carbon tetrachloride	µg/L	0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Dibromomethane	µg/L	0.5	<0.5	<0.5	<0.5	<0.5	<0.5
1,2-dichloropropane	µg/L	0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Trichloroethene (Trichloroethylene,TCE)	µg/L	0.5	<0.5	<0.5	<0.5	<0.5	<0.5
2-nitropropane	µg/L	100	<100	<100	<100	<100	<100
Bromodichloromethane (THM)	µg/L	0.5	<0.5	<0.5	<0.5	<0.5	<0.5
MIBK (4-methyl-2-pentanone)	µg/L	5	<5	<5	<5	<5	<5
cis-1,3-dichloropropene	µg/L	0.5	<0.5	<0.5	<0.5	<0.5	<0.5
trans-1,3-dichloropropene	µg/L	0.5	<0.5	<0.5	<0.5	<0.5	<0.5
1,1,2-trichloroethane	µg/L	0.5	<0.5	<0.5	<0.5	<0.5	<0.5
1,3-dichloropropane	µg/L	0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Dibromochloromethane (THM)	µg/L	0.5	<0.5	<0.5	<0.5	<0.5	<0.5
2-hexanone (MBK)	µg/L	5	<5	<5	<5	<5	<5
1,2-dibromoethane (EDB)	µg/L	0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Tetrachloroethene (Perchloroethylene,PCE)	µg/L	0.5	<0.5	<0.5	<0.5	<0.5	<0.5
1,1,1,2-tetrachloroethane	µg/L	0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Chlorobenzene	µg/L	0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Bromoform (THM)	µg/L	0.5	<0.5	<0.5	<0.5	<0.5	<0.5
cis-1,4-dichloro-2-butene	µg/L	1	<1	<1	<1	<1	<1
Styrene (Vinyl benzene)	µg/L	0.5	<0.5	<0.5	<0.5	<0.5	<0.5
1,1,2,2-tetrachloroethane	µg/L	0.5	<0.5	<0.5	<0.5	<0.5	<0.5
1,2,3-trichloropropane	µg/L	0.5	<0.5	<0.5	<0.5	<0.5	<0.5
trans-1,4-dichloro-2-butene	µg/L	1	<1	<1	<1	<1	<1

VOCs in Water [AN433] Tested: 12/4/2018 (continued)

PARAMETER	UOM	LOR	BH1M-1 WATER - 10/4/2018 SE177844.001	BH4M-1 WATER - 10/4/2018 SE177844.002	BH7M-1 WATER - 10/4/2018 SE177844.003	BH10M-1 WATER - 10/4/2018 SE177844.004	BH13M-1 WATER - 10/4/2018 SE177844.005
Isopropylbenzene (Cumene)	µg/L	0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Bromobenzene	µg/L	0.5	<0.5	<0.5	<0.5	<0.5	<0.5
n-propylbenzene	µg/L	0.5	<0.5	<0.5	<0.5	<0.5	<0.5
2-chlorotoluene	µg/L	0.5	<0.5	<0.5	<0.5	<0.5	<0.5
4-chlorotoluene	µg/L	0.5	<0.5	<0.5	<0.5	<0.5	<0.5
1,3,5-trimethylbenzene	µg/L	0.5	<0.5	<0.5	<0.5	<0.5	<0.5
tert-butylbenzene	µg/L	0.5	<0.5	<0.5	<0.5	<0.5	<0.5
1,2,4-trimethylbenzene	µg/L	0.5	<0.5	<0.5	<0.5	<0.5	<0.5
sec-butylbenzene	µg/L	0.5	<0.5	<0.5	<0.5	<0.5	<0.5
1,3-dichlorobenzene	µg/L	0.5	<0.5	<0.5	<0.5	<0.5	<0.5
1,4-dichlorobenzene	µg/L	0.3	<0.3	<0.3	<0.3	<0.3	<0.3
p-isopropyltoluene	µg/L	0.5	<0.5	<0.5	<0.5	<0.5	<0.5
1,2-dichlorobenzene	µg/L	0.5	<0.5	<0.5	<0.5	<0.5	<0.5
n-butylbenzene	µg/L	0.5	<0.5	<0.5	<0.5	<0.5	<0.5
1,2-dibromo-3-chloropropane	µg/L	0.5	<0.5	<0.5	<0.5	<0.5	<0.5
1,2,4-trichlorobenzene	µg/L	0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Hexachlorobutadiene	µg/L	0.5	<0.5	<0.5	<0.5	<0.5	<0.5
1,2,3-trichlorobenzene	µg/L	0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Total VOC	µg/L	10	<10	<10	<10	<10	**28**

VOCs in Water [AN433] Tested: 12/4/2018 (continued)

PARAMETER	UOM	LOR	GWQD1 WATER - 10/4/2018 SE177844.006	GWQR1 WATER - 10/4/2018 SE177844.007	GWQTB1 WATER - 10/4/2018 SE177844.008	GWQTS1 WATER - 10/4/2018 SE177844.009
Benzene	µg/L	0.5	<0.5	<0.5	<0.5	[100%]
Toluene	µg/L	0.5	<0.5	<0.5	<0.5	[105%]
Ethylbenzene	µg/L	0.5	<0.5	<0.5	<0.5	[98%]
m/p-xylene	µg/L	1	<1	<1	<1	[98%]
o-xylene	µg/L	0.5	<0.5	<0.5	<0.5	[98%]
Total Xylenes	µg/L	1.5	<1.5	<1.5	<1.5	-
Total BTEX	µg/L	3	<3	<3	<3	-
Naphthalene	µg/L	0.5	<0.5	<0.5	<0.5	-
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: 12/4/2018 (continued)

PARAMETER	UOM	LOR	GWQD1 WATER - 10/4/2018 SE177844.006	GWQR1 WATER - 10/4/2018 SE177844.007	GWQTB1 WATER - 10/4/2018 SE177844.008	GWQTS1 WATER - 10/4/2018 SE177844.009
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: 12/4/2018

PARAMETER	UOM	LOR	BH1M-1 WATER - 10/4/2018 SE177844.001	BH4M-1 WATER - 10/4/2018 SE177844.002	BH7M-1 WATER - 10/4/2018 SE177844.003	BH10M-1 WATER - 10/4/2018 SE177844.004	BH13M-1 WATER - 10/4/2018 SE177844.005
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

PARAMETER	UOM	LOR	GWQD1 WATER - 10/4/2018 SE177844.006	GWQR1 WATER - 10/4/2018 SE177844.007
TRH C6-C9	µg/L	40	<40	<40
Benzene (F0)	µg/L	0.5	<0.5	<0.5
TRH C6-C10	µg/L	50	<50	<50
TRH C6-C10 minus BTEX (F1)	µg/L	50	<50	<50

TRH (Total Recoverable Hydrocarbons) in Water [AN403] Tested: 13/4/2018

PARAMETER	UOM	LOR	BH1M-1 WATER - 10/4/2018 SE177844.001	BH4M-1 WATER - 10/4/2018 SE177844.002	BH7M-1 WATER - 10/4/2018 SE177844.003	BH10M-1 WATER - 10/4/2018 SE177844.004	BH13M-1 WATER - 10/4/2018 SE177844.005
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 >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-C36	µg/L	450	<450	<450	<450	<450	<450
TRH C10-C40	µg/L	650	<650	<650	<650	<650	<650
TRH >C10-C16 - Naphthalene (F2)	µg/L	60	<60	<60	<60	<60	<60

PARAMETER	UOM	LOR	GWQD1 WATER - 10/4/2018 SE177844.006	GWQR1 WATER - 10/4/2018 SE177844.007
TRH C10-C14	µg/L	50	<50	<50
TRH C15-C28	µg/L	200	<200	<200
TRH C29-C36	µg/L	200	<200	<200
TRH C37-C40	µg/L	200	<200	<200
TRH >C10-C16	µg/L	60	<60	<60
TRH >C16-C34 (F3)	µg/L	500	<500	<500
TRH >C34-C40 (F4)	µg/L	500	<500	<500
TRH C10-C36	µg/L	450	<450	<450
TRH C10-C40	µg/L	650	<650	<650
TRH >C10-C16 - Naphthalene (F2)	µg/L	60	<60	<60

PAH (Polynuclear Aromatic Hydrocarbons) in Water [AN420] Tested: 13/4/2018

PARAMETER	UOM	LOR	BH1M-1 WATER - 10/4/2018 SE177844.001	BH4M-1 WATER - 10/4/2018 SE177844.002	BH7M-1 WATER - 10/4/2018 SE177844.003	BH10M-1 WATER - 10/4/2018 SE177844.004	BH13M-1 WATER - 10/4/2018 SE177844.005
Naphthalene	µg/L	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
2-methylnaphthalene	µg/L	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
1-methylnaphthalene	µg/L	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Acenaphthylene	µg/L	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Acenaphthene	µg/L	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Fluorene	µg/L	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Phenanthrene	µg/L	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Anthracene	µg/L	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Fluoranthene	µg/L	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Pyrene	µg/L	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(a)anthracene	µg/L	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Chrysene	µg/L	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(b&j)fluoranthene	µg/L	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(k)fluoranthene	µg/L	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(a)pyrene	µg/L	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Indeno(1,2,3-cd)pyrene	µg/L	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Dibenzo(ah)anthracene	µg/L	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(ghi)perylene	µg/L	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Total PAH (18)	µg/L	1	<1	<1	<1	<1	<1

Total Phenolics in Water [AN289] Tested: 12/4/2018

PARAMETER	UOM	LOR	BH1M-1 WATER - 10/4/2018 SE177844.001	BH4M-1 WATER - 10/4/2018 SE177844.002	BH7M-1 WATER - 10/4/2018 SE177844.003	BH10M-1 WATER - 10/4/2018 SE177844.004	BH13M-1 WATER - 10/4/2018 SE177844.005
Total Phenols	mg/L	0.01	<0.01	<0.01	<0.01	<0.01	<0.01

Trace Metals (Dissolved) in Water by ICPMS [AN318] Tested: 13/4/2018

PARAMETER	UOM	LOR	BH1M-1 WATER - 10/4/2018 SE177844.001	BH4M-1 WATER - 10/4/2018 SE177844.002	BH7M-1 WATER - 10/4/2018 SE177844.003	BH10M-1 WATER - 10/4/2018 SE177844.004	BH13M-1 WATER - 10/4/2018 SE177844.005
Arsenic, As	µg/L	1	<1	<1	<1	<1	1
Cadmium, Cd	µg/L	0.1	1.0	<0.1	0.6	0.9	<0.1
Chromium, Cr	µg/L	1	2	1	3	2	1
Copper, Cu	µg/L	1	32	60	53	54	25
Lead, Pb	µg/L	1	2	4	4	4	2
Nickel, Ni	µg/L	1	120	73	170	67	47
Zinc, Zn	µg/L	5	600	280	900	290	84

PARAMETER	UOM	LOR	GWQD1 WATER - 10/4/2018 SE177844.006	GWQR1 WATER - 10/4/2018 SE177844.007
Arsenic, As	µg/L	1	<1	<1
Cadmium, Cd	µg/L	0.1	1.0	<0.1
Chromium, Cr	µg/L	1	1	<1
Copper, Cu	µg/L	1	17	<1
Lead, Pb	µg/L	1	<1	<1
Nickel, Ni	µg/L	1	110	<1
Zinc, Zn	µg/L	5	580	63

Mercury (dissolved) in Water [AN311(Perth)/AN312] Tested: 13/4/2018

PARAMETER	UOM	LOR	BH1M-1 WATER - 10/4/2018 SE177844.001	BH4M-1 WATER - 10/4/2018 SE177844.002	BH7M-1 WATER - 10/4/2018 SE177844.003	BH10M-1 WATER - 10/4/2018 SE177844.004	BH13M-1 WATER - 10/4/2018 SE177844.005
Mercury	mg/L	0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001

PARAMETER	UOM	LOR	GWQD1 WATER - 10/4/2018 SE177844.006	GWQR1 WATER - 10/4/2018 SE177844.007
Mercury	mg/L	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, in accordance with USEPA 6020A.
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.		

Samples analysed as received.
Solid samples expressed on a dry weight basis.

Where "Total" analyte groups are reported (for example, Total PAHs, Total OC Pesticides) the total will be calculated as the sum of the individual analytes, with those analytes that are reported as <LOR being assumed to be zero. The summed (Total) limit of reporting is calculated by summing the individual analyte LORs and dividing by two. For example, where 16 individual analytes are being summed and each has an LOR of 0.1 mg/kg, the "Totals" LOR will be 1.6 / 2 (0.8 mg/kg). Where only 2 analytes are being summed, the " Total" LOR will be the sum of those two LORs.

Some totals may not appear to add up because the total is rounded after adding up the raw values.

If reported, measurement uncertainty follow the ± sign after the analytical result and is expressed as the expanded uncertainty calculated using a coverage factor of 2, providing a level of confidence of approximately 95%, unless stated otherwise in the comments section of this report.

Results reported for samples tested under test methods with codes starting with ARS-SOP, radionuclide or gross radioactivity concentrations are expressed in becquerel (Bq) per unit of mass or volume or per wipe as stated on the report. Becquerel is the SI unit for activity and equals one nuclear transformation per second.
Note that in terms of units of radioactivity:

a. 1 Bq is equivalent to 27 pCi
b. 37 MBq is equivalent to 1 mCi

For results reported for samples tested under test methods with codes starting with ARS-SOP, less than (<) values indicate the detection limit for each radionuclide or parameter for the measurement system used. The respective detection limits have been calculated in accordance with ISO 11929.

The QC criteria are subject to internal review according to the SGS QAQC plan and may be provided on request or alternatively can be found here : http://www.sgs.com.au/~/media/Local/Australia/Documents/ Technical%20Documents/MP-AU-ENV-QU-022%20QA%20QC%20Plan.pdf

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CERTIFICATE OF ANALYSIS 187794

Client Details

Client	EI Australia
Attention	Lab Email
Address	Suite 6.01, 55 Miller Street, Pyrmont, NSW, 2009

Sample Details

Your Reference	**E23775**
Number of Samples	1 Soil
Date samples received	21/03/2018
Date completed instructions received	22/03/2018

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	29/03/2018
Date of Issue	26/03/2018

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Results Approved By
Jeremy Faircloth, Organics Supervisor
Leon Ow, Chemist

Authorised By

David Springer, General Manager

vTRH(C6-C10)/BTEXN in Soil		
Our Reference		187794-1
Your Reference	UNITS	QT1
Date Sampled		20/03/2018
Type of sample		Soil
Date extracted	-	23/03/2018
Date analysed	-	23/03/2018
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	<1
Surrogate aaa-Trifluorotoluene	%	79

svTRH (C10-C40) in Soil		
Our Reference		187794-1
Your Reference	UNITS	QT1
Date Sampled		20/03/2018
Type of sample		Soil
Date extracted	-	23/03/2018
Date analysed	-	24/03/2018
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	%	82

Acid Extractable metals in soil		
Our Reference		187794-1
Your Reference	UNITS	QT1
Date Sampled		20/03/2018
Type of sample		Soil
Date prepared	-	23/03/2018
Date analysed	-	23/03/2018
Arsenic	mg/kg	<4
Cadmium	mg/kg	<0.4
Chromium	mg/kg	4
Copper	mg/kg	13
Lead	mg/kg	6
Mercury	mg/kg	<0.1
Nickel	mg/kg	8
Zinc	mg/kg	18

Moisture		
Our Reference		187794-1
Your Reference	UNITS	QT1
Date Sampled		20/03/2018
Type of sample		Soil
Date prepared	-	23/03/2018
Date analysed	-	26/03/2018
Moisture	%	15

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-003	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-003	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-014	Soil samples are extracted with methanol and spiked into water prior to analysing by purge and trap GC-MS.
Org-016	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-016	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-6	[NT]
Date extracted	-			23/03/2018	[NT]	[NT]	[NT]	[NT]	23/03/2018	[NT]
Date analysed	-			23/03/2018	[NT]	[NT]	[NT]	[NT]	23/03/2018	[NT]
TRH C_6 - C_9	mg/kg	25	Org-016	<25	[NT]	[NT]	[NT]	[NT]	98	[NT]
TRH C_6 - C_{10}	mg/kg	25	Org-016	<25	[NT]	[NT]	[NT]	[NT]	98	[NT]
Benzene	mg/kg	0.2	Org-016	<0.2	[NT]	[NT]	[NT]	[NT]	115	[NT]
Toluene	mg/kg	0.5	Org-016	<0.5	[NT]	[NT]	[NT]	[NT]	96	[NT]
Ethylbenzene	mg/kg	1	Org-016	<1	[NT]	[NT]	[NT]	[NT]	89	[NT]
m+p-xylene	mg/kg	2	Org-016	<2	[NT]	[NT]	[NT]	[NT]	94	[NT]
o-Xylene	mg/kg	1	Org-016	<1	[NT]	[NT]	[NT]	[NT]	95	[NT]
naphthalene	mg/kg	1	Org-014	<1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Surrogate aaa-Trifluorotoluene	%		Org-016	85	[NT]	[NT]	[NT]	[NT]	82	[NT]

QUALITY CONTROL: svTRH (C10-C40) in Soil						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-6	[NT]
Date extracted	-			23/03/2018	[NT]	[NT]	[NT]	[NT]	23/03/2018	[NT]
Date analysed	-			24/03/2018	[NT]	[NT]	[NT]	[NT]	24/03/2018	[NT]
TRH C_{10} - C_{14}	mg/kg	50	Org-003	<50	[NT]	[NT]	[NT]	[NT]	116	[NT]
TRH C_{15} - C_{28}	mg/kg	100	Org-003	<100	[NT]	[NT]	[NT]	[NT]	98	[NT]
TRH C_{29} - C_{36}	mg/kg	100	Org-003	<100	[NT]	[NT]	[NT]	[NT]	92	[NT]
TRH >C_{10} -C_{16}	mg/kg	50	Org-003	<50	[NT]	[NT]	[NT]	[NT]	116	[NT]
TRH >C_{16} -C_{34}	mg/kg	100	Org-003	<100	[NT]	[NT]	[NT]	[NT]	98	[NT]
TRH >C_{34} -C_{40}	mg/kg	100	Org-003	<100	[NT]	[NT]	[NT]	[NT]	92	[NT]
Surrogate o-Terphenyl	%		Org-003	88	[NT]	[NT]	[NT]	[NT]	97	[NT]

QUALITY CONTROL: Acid Extractable metals in soil					Duplicate				Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-6	[NT]
Date prepared	-			23/03/2018	[NT]	[NT]	[NT]	[NT]	23/03/2018	[NT]
Date analysed	-			23/03/2018	[NT]	[NT]	[NT]	[NT]	23/03/2018	[NT]
Arsenic	mg/kg	4	Metals-020	<4	[NT]	[NT]	[NT]	[NT]	110	[NT]
Cadmium	mg/kg	0.4	Metals-020	<0.4	[NT]	[NT]	[NT]	[NT]	102	[NT]
Chromium	mg/kg	1	Metals-020	<1	[NT]	[NT]	[NT]	[NT]	108	[NT]
Copper	mg/kg	1	Metals-020	<1	[NT]	[NT]	[NT]	[NT]	112	[NT]
Lead	mg/kg	1	Metals-020	<1	[NT]	[NT]	[NT]	[NT]	106	[NT]
Mercury	mg/kg	0.1	Metals-021	<0.1	[NT]	[NT]	[NT]	[NT]	102	[NT]
Nickel	mg/kg	1	Metals-020	<1	[NT]	[NT]	[NT]	[NT]	108	[NT]
Zinc	mg/kg	1	Metals-020	<1	[NT]	[NT]	[NT]	[NT]	109	[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.

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: <5xPQL - any RPD is acceptable; >5xPQL - 0-50% RPD is acceptable.

Matrix Spikes, LCS and Surrogate recoveries: Generally 70-130% for inorganics/metals; 60-140% for organics (+/-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.

Appendix I– Laboratory QA/QC Policies and DQOs

STATEMENT OF QA/QC PERFORMANCE

SE177041 R0

CLIENT DETAILS

Contact	Mitchell Duley
Client	EI AUSTRALIA
Address	SUITE 6.01 55 MILLER STREET PYRMONT NSW 2009
Telephone	61 2 95160722
Facsimile	(Not specified)
Email	mitchell.duley@eiaustralia.com.au
Project	**E23775 - 33 Brighton Ave, Croydon Park**
Order Number	**E23775**
Samples	32

LABORATORY DETAILS

Manager	Huong Crawford
Laboratory	SGS Alexandria Environmental
Address	Unit 16, 33 Maddox St Alexandria NSW 2015
Telephone	+61 2 8594 0400
Facsimile	+61 2 8594 0499
Email	au.environmental.sydney@sgs.com
SGS Reference	**SE177041 R0**
Date Received	21 Mar 2018
Date Reported	28 Mar 2018

COMMENTS

All the laboratory data for each environmental matrix was compared to SGS' stated Data Quality Objectives (DQO). Comments arising from the comparison were made and are reported below.

The data relating to sampling was taken from the Chain of Custody document and was supplied by the Client.
This QA/QC Statement must be read in conjunction with the referenced Analytical Report.
The Statement and the Analytical Report must not be reproduced except in full.

All Data Quality Objectives were met with the exception of the following:

Duplicate	Total Recoverable Elements in Soil/Waste Solids/Materials by ICPOES	2 items
	Total Recoverable Elements in Soil/Waste Solids/Materials by ICPOES	4 items
Matrix Spike	Total Recoverable Elements in Soil/Waste Solids/Materials by ICPOES	1 item

SAMPLE SUMMARY

HOLDING TIME SUMMARY

SE177041 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
BH1M_0.2-0.3	SE177041.001	LB144447	19 Mar 2018	21 Mar 2018	19 Mar 2019	27 Mar 2018	19 Mar 2019	28 Mar 2018
BH2_0.2-0.3	SE177041.003	LB144447	19 Mar 2018	21 Mar 2018	19 Mar 2019	27 Mar 2018	19 Mar 2019	28 Mar 2018
BH3_0.3-0.4	SE177041.004	LB144447	19 Mar 2018	21 Mar 2018	19 Mar 2019	27 Mar 2018	19 Mar 2019	28 Mar 2018
BH4M_0.2-0.3	SE177041.005	LB144447	19 Mar 2018	21 Mar 2018	19 Mar 2019	27 Mar 2018	19 Mar 2019	28 Mar 2018
BH5_0.3-0.4	SE177041.006	LB144447	19 Mar 2018	21 Mar 2018	19 Mar 2019	27 Mar 2018	19 Mar 2019	28 Mar 2018
BH6_0.2-0.3	SE177041.007	LB144447	19 Mar 2018	21 Mar 2018	19 Mar 2019	27 Mar 2018	19 Mar 2019	28 Mar 2018
BH7M_0.2-0.3	SE177041.008	LB144447	19 Mar 2018	21 Mar 2018	19 Mar 2019	27 Mar 2018	19 Mar 2019	28 Mar 2018
BH8_0.3-0.4	SE177041.010	LB144447	19 Mar 2018	21 Mar 2018	19 Mar 2019	27 Mar 2018	19 Mar 2019	28 Mar 2018
BH9_0.3-0.4	SE177041.011	LB144447	19 Mar 2018	21 Mar 2018	19 Mar 2019	27 Mar 2018	19 Mar 2019	28 Mar 2018
BH10M_0.3-0.4	SE177041.012	LB144447	19 Mar 2018	21 Mar 2018	19 Mar 2019	27 Mar 2018	19 Mar 2019	28 Mar 2018
BH11_0.3-0.4	SE177041.014	LB144447	19 Mar 2018	21 Mar 2018	19 Mar 2019	27 Mar 2018	19 Mar 2019	28 Mar 2018
BH12_0.5-0.6	SE177041.015	LB144447	19 Mar 2018	21 Mar 2018	19 Mar 2019	27 Mar 2018	19 Mar 2019	28 Mar 2018
BH13M_0.3-0.4	SE177041.016	LB144447	20 Mar 2018	21 Mar 2018	20 Mar 2019	27 Mar 2018	20 Mar 2019	28 Mar 2018
BH14_0.4-0.5	SE177041.019	LB144447	20 Mar 2018	21 Mar 2018	20 Mar 2019	27 Mar 2018	20 Mar 2019	28 Mar 2018
BH15_0.3-0.4	SE177041.020	LB144447	20 Mar 2018	21 Mar 2018	20 Mar 2019	27 Mar 2018	20 Mar 2019	28 Mar 2018
BH16_0.4-0.5	SE177041.021	LB144447	20 Mar 2018	21 Mar 2018	20 Mar 2019	27 Mar 2018	20 Mar 2019	28 Mar 2018
BH17_0.5-0.6	SE177041.022	LB144447	20 Mar 2018	21 Mar 2018	20 Mar 2019	27 Mar 2018	20 Mar 2019	28 Mar 2018
BH18_0.5-0.6	SE177041.025	LB144447	20 Mar 2018	21 Mar 2018	20 Mar 2019	27 Mar 2018	20 Mar 2019	28 Mar 2018
BH19_0.5-0.6	SE177041.026	LB144447	20 Mar 2018	21 Mar 2018	20 Mar 2019	27 Mar 2018	20 Mar 2019	28 Mar 2018
BH20_0.4-0.5	SE177041.027	LB144447	20 Mar 2018	21 Mar 2018	20 Mar 2019	27 Mar 2018	20 Mar 2019	28 Mar 2018
BH21_0.4-0.5	SE177041.028	LB144447	20 Mar 2018	21 Mar 2018	20 Mar 2019	27 Mar 2018	20 Mar 2019	28 Mar 2018

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
QR1	SE177041.030	LB144361	20 Mar 2018	21 Mar 2018	17 Apr 2018	27 Mar 2018	17 Apr 2018	28 Mar 2018

Mercury in Soil

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

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
BH1M_0.2-0.3	SE177041.001	LB144375	19 Mar 2018	21 Mar 2018	16 Apr 2018	27 Mar 2018	16 Apr 2018	28 Mar 2018
BH1M_0.8-0.9	SE177041.002	LB144375	19 Mar 2018	21 Mar 2018	16 Apr 2018	27 Mar 2018	16 Apr 2018	28 Mar 2018
BH2_0.2-0.3	SE177041.003	LB144375	19 Mar 2018	21 Mar 2018	16 Apr 2018	27 Mar 2018	16 Apr 2018	28 Mar 2018
BH3_0.3-0.4	SE177041.004	LB144375	19 Mar 2018	21 Mar 2018	16 Apr 2018	27 Mar 2018	16 Apr 2018	28 Mar 2018
BH4M_0.2-0.3	SE177041.005	LB144375	19 Mar 2018	21 Mar 2018	16 Apr 2018	27 Mar 2018	16 Apr 2018	28 Mar 2018
BH5_0.3-0.4	SE177041.006	LB144375	19 Mar 2018	21 Mar 2018	16 Apr 2018	27 Mar 2018	16 Apr 2018	28 Mar 2018
BH6_0.2-0.3	SE177041.007	LB144375	19 Mar 2018	21 Mar 2018	16 Apr 2018	27 Mar 2018	16 Apr 2018	28 Mar 2018
BH7M_0.2-0.3	SE177041.008	LB144375	19 Mar 2018	21 Mar 2018	16 Apr 2018	27 Mar 2018	16 Apr 2018	28 Mar 2018
BH7M_1.4-1.5	SE177041.009	LB144375	19 Mar 2018	21 Mar 2018	16 Apr 2018	27 Mar 2018	16 Apr 2018	28 Mar 2018
BH8_0.3-0.4	SE177041.010	LB144375	19 Mar 2018	21 Mar 2018	16 Apr 2018	27 Mar 2018	16 Apr 2018	28 Mar 2018
BH9_0.3-0.4	SE177041.011	LB144375	19 Mar 2018	21 Mar 2018	16 Apr 2018	27 Mar 2018	16 Apr 2018	28 Mar 2018
BH10M_0.3-0.4	SE177041.012	LB144375	19 Mar 2018	21 Mar 2018	16 Apr 2018	27 Mar 2018	16 Apr 2018	28 Mar 2018
BH10M_0.9-1.0	SE177041.013	LB144375	19 Mar 2018	21 Mar 2018	16 Apr 2018	27 Mar 2018	16 Apr 2018	28 Mar 2018
BH11_0.3-0.4	SE177041.014	LB144375	19 Mar 2018	21 Mar 2018	16 Apr 2018	27 Mar 2018	16 Apr 2018	28 Mar 2018
BH12_0.5-0.6	SE177041.015	LB144375	19 Mar 2018	21 Mar 2018	16 Apr 2018	27 Mar 2018	16 Apr 2018	28 Mar 2018
BH13M_0.3-0.4	SE177041.016	LB144375	20 Mar 2018	21 Mar 2018	17 Apr 2018	27 Mar 2018	17 Apr 2018	28 Mar 2018
BH13M_0.9-1.0	SE177041.017	LB144375	20 Mar 2018	21 Mar 2018	17 Apr 2018	27 Mar 2018	17 Apr 2018	28 Mar 2018
BH13M_5.5-5.6	SE177041.018	LB144375	20 Mar 2018	21 Mar 2018	17 Apr 2018	27 Mar 2018	17 Apr 2018	28 Mar 2018
BH14_0.4-0.5	SE177041.019	LB144375	20 Mar 2018	21 Mar 2018	17 Apr 2018	27 Mar 2018	17 Apr 2018	28 Mar 2018
BH15_0.3-0.4	SE177041.020	LB144380	20 Mar 2018	21 Mar 2018	17 Apr 2018	27 Mar 2018	17 Apr 2018	28 Mar 2018
BH16_0.4-0.5	SE177041.021	LB144380	20 Mar 2018	21 Mar 2018	17 Apr 2018	27 Mar 2018	17 Apr 2018	28 Mar 2018
BH17_0.5-0.6	SE177041.022	LB144380	20 Mar 2018	21 Mar 2018	17 Apr 2018	27 Mar 2018	17 Apr 2018	28 Mar 2018
BH17_1.0-1.1	SE177041.023	LB144380	20 Mar 2018	21 Mar 2018	17 Apr 2018	27 Mar 2018	17 Apr 2018	28 Mar 2018
BH17_1.-1.6	SE177041.024	LB144380	20 Mar 2018	21 Mar 2018	17 Apr 2018	27 Mar 2018	17 Apr 2018	28 Mar 2018
BH18_0.5-0.6	SE177041.025	LB144380	20 Mar 2018	21 Mar 2018	17 Apr 2018	27 Mar 2018	17 Apr 2018	28 Mar 2018
BH19_0.5-0.6	SE177041.026	LB144380	20 Mar 2018	21 Mar 2018	17 Apr 2018	27 Mar 2018	17 Apr 2018	28 Mar 2018
BH20_0.4-0.5	SE177041.027	LB144380	20 Mar 2018	21 Mar 2018	17 Apr 2018	27 Mar 2018	17 Apr 2018	28 Mar 2018
BH21_0.4-0.5	SE177041.028	LB144380	20 Mar 2018	21 Mar 2018	17 Apr 2018	27 Mar 2018	17 Apr 2018	28 Mar 2018
QD1	SE177041.029	LB144380	19 Mar 2018	21 Mar 2018	16 Apr 2018	27 Mar 2018	16 Apr 2018	28 Mar 2018

Moisture Content

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

Sample Name	Sample No.	QC Ref

HOLDING TIME SUMMARY

SE177041 R0

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

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

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

Moisture Content (continued)

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

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
BH1M_0.2-0.3	SE177041.001	LB144307	19 Mar 2018	21 Mar 2018	02 Apr 2018	26 Mar 2018	31 Mar 2018	27 Mar 2018
BH1M_0.8-0.9	SE177041.002	LB144307	19 Mar 2018	21 Mar 2018	02 Apr 2018	26 Mar 2018	31 Mar 2018	27 Mar 2018
BH2_0.2-0.3	SE177041.003	LB144307	19 Mar 2018	21 Mar 2018	02 Apr 2018	26 Mar 2018	31 Mar 2018	27 Mar 2018
BH3_0.3-0.4	SE177041.004	LB144307	19 Mar 2018	21 Mar 2018	02 Apr 2018	26 Mar 2018	31 Mar 2018	27 Mar 2018
BH4M_0.2-0.3	SE177041.005	LB144307	19 Mar 2018	21 Mar 2018	02 Apr 2018	26 Mar 2018	31 Mar 2018	27 Mar 2018
BH5_0.3-0.4	SE177041.006	LB144307	19 Mar 2018	21 Mar 2018	02 Apr 2018	26 Mar 2018	31 Mar 2018	27 Mar 2018
BH6_0.2-0.3	SE177041.007	LB144307	19 Mar 2018	21 Mar 2018	02 Apr 2018	26 Mar 2018	31 Mar 2018	27 Mar 2018
BH7M_0.2-0.3	SE177041.008	LB144307	19 Mar 2018	21 Mar 2018	02 Apr 2018	26 Mar 2018	31 Mar 2018	27 Mar 2018
BH7M_1.4-1.5	SE177041.009	LB144307	19 Mar 2018	21 Mar 2018	02 Apr 2018	26 Mar 2018	31 Mar 2018	27 Mar 2018
BH8_0.3-0.4	SE177041.010	LB144307	19 Mar 2018	21 Mar 2018	02 Apr 2018	26 Mar 2018	31 Mar 2018	27 Mar 2018
BH9_0.3-0.4	SE177041.011	LB144307	19 Mar 2018	21 Mar 2018	02 Apr 2018	26 Mar 2018	31 Mar 2018	27 Mar 2018
BH10M_0.3-0.4	SE177041.012	LB144307	19 Mar 2018	21 Mar 2018	02 Apr 2018	26 Mar 2018	31 Mar 2018	27 Mar 2018
BH10M_0.9-1.0	SE177041.013	LB144307	19 Mar 2018	21 Mar 2018	02 Apr 2018	26 Mar 2018	31 Mar 2018	27 Mar 2018
BH11_0.3-0.4	SE177041.014	LB144307	19 Mar 2018	21 Mar 2018	02 Apr 2018	26 Mar 2018	31 Mar 2018	27 Mar 2018
BH12_0.5-0.6	SE177041.015	LB144307	19 Mar 2018	21 Mar 2018	02 Apr 2018	26 Mar 2018	31 Mar 2018	27 Mar 2018
BH13M_0.3-0.4	SE177041.016	LB144307	20 Mar 2018	21 Mar 2018	03 Apr 2018	26 Mar 2018	31 Mar 2018	27 Mar 2018
BH13M_0.9-1.0	SE177041.017	LB144307	20 Mar 2018	21 Mar 2018	03 Apr 2018	26 Mar 2018	31 Mar 2018	27 Mar 2018
BH13M_5.5-5.6	SE177041.018	LB144307	20 Mar 2018	21 Mar 2018	03 Apr 2018	26 Mar 2018	31 Mar 2018	27 Mar 2018
BH14_0.4-0.5	SE177041.019	LB144307	20 Mar 2018	21 Mar 2018	03 Apr 2018	26 Mar 2018	31 Mar 2018	27 Mar 2018
BH15_0.3-0.4	SE177041.020	LB144307	20 Mar 2018	21 Mar 2018	03 Apr 2018	26 Mar 2018	31 Mar 2018	27 Mar 2018
BH16_0.4-0.5	SE177041.021	LB144307	20 Mar 2018	21 Mar 2018	03 Apr 2018	26 Mar 2018	31 Mar 2018	27 Mar 2018
BH17_0.5-0.6	SE177041.022	LB144307	20 Mar 2018	21 Mar 2018	03 Apr 2018	26 Mar 2018	31 Mar 2018	27 Mar 2018
BH17_1.0-1.1	SE177041.023	LB144307	20 Mar 2018	21 Mar 2018	03 Apr 2018	26 Mar 2018	31 Mar 2018	27 Mar 2018
BH17_1.-1.6	SE177041.024	LB144307	20 Mar 2018	21 Mar 2018	03 Apr 2018	26 Mar 2018	31 Mar 2018	27 Mar 2018
BH18_0.5-0.6	SE177041.025	LB144307	20 Mar 2018	21 Mar 2018	03 Apr 2018	26 Mar 2018	31 Mar 2018	27 Mar 2018
BH19_0.5-0.6	SE177041.026	LB144307	20 Mar 2018	21 Mar 2018	03 Apr 2018	26 Mar 2018	31 Mar 2018	27 Mar 2018
BH20_0.4-0.5	SE177041.027	LB144307	20 Mar 2018	21 Mar 2018	03 Apr 2018	26 Mar 2018	31 Mar 2018	27 Mar 2018
BH21_0.4-0.5	SE177041.028	LB144307	20 Mar 2018	21 Mar 2018	03 Apr 2018	26 Mar 2018	31 Mar 2018	27 Mar 2018
QD1	SE177041.029	LB144307	19 Mar 2018	21 Mar 2018	02 Apr 2018	26 Mar 2018	31 Mar 2018	27 Mar 2018
QTB	SE177041.032	LB144307	20 Mar 2018	21 Mar 2018	03 Apr 2018	26 Mar 2018	31 Mar 2018	27 Mar 2018

OC Pesticides in Soil

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

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
BH1M_0.2-0.3	SE177041.001	LB144195	19 Mar 2018	21 Mar 2018	02 Apr 2018	23 Mar 2018	02 May 2018	27 Mar 2018
BH1M_0.8-0.9	SE177041.002	LB144195	19 Mar 2018	21 Mar 2018	02 Apr 2018	23 Mar 2018	02 May 2018	27 Mar 2018
BH2_0.2-0.3	SE177041.003	LB144195	19 Mar 2018	21 Mar 2018	02 Apr 2018	23 Mar 2018	02 May 2018	27 Mar 2018
BH3_0.3-0.4	SE177041.004	LB144195	19 Mar 2018	21 Mar 2018	02 Apr 2018	23 Mar 2018	02 May 2018	27 Mar 2018
BH4M_0.2-0.3	SE177041.005	LB144195	19 Mar 2018	21 Mar 2018	02 Apr 2018	23 Mar 2018	02 May 2018	27 Mar 2018
BH5_0.3-0.4	SE177041.006	LB144195	19 Mar 2018	21 Mar 2018	02 Apr 2018	23 Mar 2018	02 May 2018	27 Mar 2018
BH6_0.2-0.3	SE177041.007	LB144195	19 Mar 2018	21 Mar 2018	02 Apr 2018	23 Mar 2018	02 May 2018	27 Mar 2018
BH7M_0.2-0.3	SE177041.008	LB144195	19 Mar 2018	21 Mar 2018	02 Apr 2018	23 Mar 2018	02 May 2018	27 Mar 2018
BH7M_1.4-1.5	SE177041.009	LB144195	19 Mar 2018	21 Mar 2018	02 Apr 2018	23 Mar 2018	02 May 2018	27 Mar 2018
BH8_0.3-0.4	SE177041.010	LB144195	19 Mar 2018	21 Mar 2018	02 Apr 2018	23 Mar 2018	02 May 2018	27 Mar 2018
BH9_0.3-0.4	SE177041.011	LB144195	19 Mar 2018	21 Mar 2018	02 Apr 2018	23 Mar 2018	02 May 2018	27 Mar 2018
BH10M_0.3-0.4	SE177041.012	LB144195	19 Mar 2018	21 Mar 2018	02 Apr 2018	23 Mar 2018	02 May 2018	27 Mar 2018
BH10M_0.9-1.0	SE177041.013	LB144195	19 Mar 2018	21 Mar 2018	02 Apr 2018	23 Mar 2018	02 May 2018	27 Mar 2018
BH11_0.3-0.4	SE177041.014	LB144195	19 Mar 2018	21 Mar 2018	02 Apr 2018	23 Mar 2018	02 May 2018	27 Mar 2018
BH12_0.5-0.6	SE177041.015	LB144196	19 Mar 2018	21 Mar 2018	02 Apr 2018	23 Mar 2018	02 May 2018	27 Mar 2018
BH13M_0.3-0.4	SE177041.016	LB144196	20 Mar 2018	21 Mar 2018	03 Apr 2018	23 Mar 2018	02 May 2018	27 Mar 2018
BH13M_0.9-1.0	SE177041.017	LB144196	20 Mar 2018	21 Mar 2018	03 Apr 2018	23 Mar 2018	02 May 2018	27 Mar 2018
BH13M_5.5-5.6	SE177041.018	LB144196	20 Mar 2018	21 Mar 2018	03 Apr 2018	23 Mar 2018	02 May 2018	27 Mar 2018
BH14_0.4-0.5	SE177041.019	LB144196	20 Mar 2018	21 Mar 2018	03 Apr 2018	23 Mar 2018	02 May 2018	27 Mar 2018
BH15_0.3-0.4	SE177041.020	LB144196	20 Mar 2018	21 Mar 2018	03 Apr 2018	23 Mar 2018	02 May 2018	27 Mar 2018
BH16_0.4-0.5	SE177041.021	LB144196	20 Mar 2018	21 Mar 2018	03 Apr 2018	23 Mar 2018	02 May 2018	27 Mar 2018
BH17_0.5-0.6	SE177041.022	LB144196	20 Mar 2018	21 Mar 2018	03 Apr 2018	23 Mar 2018	02 May 2018	27 Mar 2018
BH17_1.0-1.1	SE177041.023	LB144196	20 Mar 2018	21 Mar 2018	03 Apr 2018	23 Mar 2018	02 May 2018	27 Mar 2018
BH17_1.-1.6	SE177041.024	LB144196	20 Mar 2018	21 Mar 2018	03 Apr 2018	23 Mar 2018	02 May 2018	27 Mar 2018
BH18_0.5-0.6	SE177041.025	LB144196	20 Mar 2018	21 Mar 2018	03 Apr 2018	23 Mar 2018	02 May 2018	27 Mar 2018
BH19_0.5-0.6	SE177041.026	LB144196	20 Mar 2018	21 Mar 2018	03 Apr 2018	23 Mar 2018	02 May 2018	27 Mar 2018
BH20_0.4-0.5	SE177041.027	LB144196	20 Mar 2018	21 Mar 2018	03 Apr 2018	23 Mar 2018	02 May 2018	27 Mar 2018

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
BH21_0.4-0.5	SE177041.028	LB144196	20 Mar 2018	21 Mar 2018	03 Apr 2018	23 Mar 2018	02 May 2018	27 Mar 2018
QD1	SE177041.029	LB144196	19 Mar 2018	21 Mar 2018	02 Apr 2018	23 Mar 2018	02 May 2018	27 Mar 2018

OP Pesticides in Soil

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

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
BH1M_0.2-0.3	SE177041.001	LB144195	19 Mar 2018	21 Mar 2018	02 Apr 2018	23 Mar 2018	02 May 2018	27 Mar 2018
BH1M_0.8-0.9	SE177041.002	LB144195	19 Mar 2018	21 Mar 2018	02 Apr 2018	23 Mar 2018	02 May 2018	27 Mar 2018
BH2_0.2-0.3	SE177041.003	LB144195	19 Mar 2018	21 Mar 2018	02 Apr 2018	23 Mar 2018	02 May 2018	27 Mar 2018
BH3_0.3-0.4	SE177041.004	LB144195	19 Mar 2018	21 Mar 2018	02 Apr 2018	23 Mar 2018	02 May 2018	27 Mar 2018
BH4M_0.2-0.3	SE177041.005	LB144195	19 Mar 2018	21 Mar 2018	02 Apr 2018	23 Mar 2018	02 May 2018	27 Mar 2018
BH5_0.3-0.4	SE177041.006	LB144195	19 Mar 2018	21 Mar 2018	02 Apr 2018	23 Mar 2018	02 May 2018	27 Mar 2018
BH6_0.2-0.3	SE177041.007	LB144195	19 Mar 2018	21 Mar 2018	02 Apr 2018	23 Mar 2018	02 May 2018	27 Mar 2018
BH7M_0.2-0.3	SE177041.008	LB144195	19 Mar 2018	21 Mar 2018	02 Apr 2018	23 Mar 2018	02 May 2018	27 Mar 2018
BH7M_1.4-1.5	SE177041.009	LB144195	19 Mar 2018	21 Mar 2018	02 Apr 2018	23 Mar 2018	02 May 2018	27 Mar 2018
BH8_0.3-0.4	SE177041.010	LB144195	19 Mar 2018	21 Mar 2018	02 Apr 2018	23 Mar 2018	02 May 2018	27 Mar 2018
BH9_0.3-0.4	SE177041.011	LB144195	19 Mar 2018	21 Mar 2018	02 Apr 2018	23 Mar 2018	02 May 2018	27 Mar 2018
BH10M_0.3-0.4	SE177041.012	LB144195	19 Mar 2018	21 Mar 2018	02 Apr 2018	23 Mar 2018	02 May 2018	27 Mar 2018
BH10M_0.9-1.0	SE177041.013	LB144195	19 Mar 2018	21 Mar 2018	02 Apr 2018	23 Mar 2018	02 May 2018	27 Mar 2018
BH11_0.3-0.4	SE177041.014	LB144195	19 Mar 2018	21 Mar 2018	02 Apr 2018	23 Mar 2018	02 May 2018	27 Mar 2018
BH12_0.5-0.6	SE177041.015	LB144196	19 Mar 2018	21 Mar 2018	02 Apr 2018	23 Mar 2018	02 May 2018	27 Mar 2018
BH13M_0.3-0.4	SE177041.016	LB144196	20 Mar 2018	21 Mar 2018	03 Apr 2018	23 Mar 2018	02 May 2018	27 Mar 2018
BH13M_0.9-1.0	SE177041.017	LB144196	20 Mar 2018	21 Mar 2018	03 Apr 2018	23 Mar 2018	02 May 2018	27 Mar 2018
BH13M_5.5-5.6	SE177041.018	LB144196	20 Mar 2018	21 Mar 2018	03 Apr 2018	23 Mar 2018	02 May 2018	27 Mar 2018
BH14_0.4-0.5	SE177041.019	LB144196	20 Mar 2018	21 Mar 2018	03 Apr 2018	23 Mar 2018	02 May 2018	27 Mar 2018
BH15_0.3-0.4	SE177041.020	LB144196	20 Mar 2018	21 Mar 2018	03 Apr 2018	23 Mar 2018	02 May 2018	27 Mar 2018
BH16_0.4-0.5	SE177041.021	LB144196	20 Mar 2018	21 Mar 2018	03 Apr 2018	23 Mar 2018	02 May 2018	27 Mar 2018
BH17_0.5-0.6	SE177041.022	LB144196	20 Mar 2018	21 Mar 2018	03 Apr 2018	23 Mar 2018	02 May 2018	27 Mar 2018
BH17_1.0-1.1	SE177041.023	LB144196	20 Mar 2018	21 Mar 2018	03 Apr 2018	23 Mar 2018	02 May 2018	27 Mar 2018
BH17_1.-1.6	SE177041.024	LB144196	20 Mar 2018	21 Mar 2018	03 Apr 2018	23 Mar 2018	02 May 2018	27 Mar 2018
BH18_0.5-0.6	SE177041.025	LB144196	20 Mar 2018	21 Mar 2018	03 Apr 2018	23 Mar 2018	02 May 2018	27 Mar 2018
BH19_0.5-0.6	SE177041.026	LB144196	20 Mar 2018	21 Mar 2018	03 Apr 2018	23 Mar 2018	02 May 2018	27 Mar 2018
BH20_0.4-0.5	SE177041.027	LB144196	20 Mar 2018	21 Mar 2018	03 Apr 2018	23 Mar 2018	02 May 2018	27 Mar 2018
BH21_0.4-0.5	SE177041.028	LB144196	20 Mar 2018	21 Mar 2018	03 Apr 2018	23 Mar 2018	02 May 2018	27 Mar 2018
QD1	SE177041.029	LB144196	19 Mar 2018	21 Mar 2018	02 Apr 2018	23 Mar 2018	02 May 2018	27 Mar 2018

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
BH1M_0.2-0.3	SE177041.001	LB144195	19 Mar 2018	21 Mar 2018	02 Apr 2018	23 Mar 2018	02 May 2018	27 Mar 2018
BH1M_0.8-0.9	SE177041.002	LB144195	19 Mar 2018	21 Mar 2018	02 Apr 2018	23 Mar 2018	02 May 2018	27 Mar 2018
BH2_0.2-0.3	SE177041.003	LB144195	19 Mar 2018	21 Mar 2018	02 Apr 2018	23 Mar 2018	02 May 2018	27 Mar 2018
BH3_0.3-0.4	SE177041.004	LB144195	19 Mar 2018	21 Mar 2018	02 Apr 2018	23 Mar 2018	02 May 2018	27 Mar 2018
BH4M_0.2-0.3	SE177041.005	LB144195	19 Mar 2018	21 Mar 2018	02 Apr 2018	23 Mar 2018	02 May 2018	27 Mar 2018
BH5_0.3-0.4	SE177041.006	LB144195	19 Mar 2018	21 Mar 2018	02 Apr 2018	23 Mar 2018	02 May 2018	27 Mar 2018
BH6_0.2-0.3	SE177041.007	LB144195	19 Mar 2018	21 Mar 2018	02 Apr 2018	23 Mar 2018	02 May 2018	27 Mar 2018
BH7M_0.2-0.3	SE177041.008	LB144195	19 Mar 2018	21 Mar 2018	02 Apr 2018	23 Mar 2018	02 May 2018	27 Mar 2018
BH7M_1.4-1.5	SE177041.009	LB144195	19 Mar 2018	21 Mar 2018	02 Apr 2018	23 Mar 2018	02 May 2018	27 Mar 2018
BH8_0.3-0.4	SE177041.010	LB144195	19 Mar 2018	21 Mar 2018	02 Apr 2018	23 Mar 2018	02 May 2018	27 Mar 2018
BH9_0.3-0.4	SE177041.011	LB144195	19 Mar 2018	21 Mar 2018	02 Apr 2018	23 Mar 2018	02 May 2018	27 Mar 2018
BH10M_0.3-0.4	SE177041.012	LB144195	19 Mar 2018	21 Mar 2018	02 Apr 2018	23 Mar 2018	02 May 2018	27 Mar 2018
BH10M_0.9-1.0	SE177041.013	LB144195	19 Mar 2018	21 Mar 2018	02 Apr 2018	23 Mar 2018	02 May 2018	27 Mar 2018
BH11_0.3-0.4	SE177041.014	LB144195	19 Mar 2018	21 Mar 2018	02 Apr 2018	23 Mar 2018	02 May 2018	27 Mar 2018
BH12_0.5-0.6	SE177041.015	LB144196	19 Mar 2018	21 Mar 2018	02 Apr 2018	23 Mar 2018	02 May 2018	27 Mar 2018
BH13M_0.3-0.4	SE177041.016	LB144196	20 Mar 2018	21 Mar 2018	03 Apr 2018	23 Mar 2018	02 May 2018	27 Mar 2018
BH13M_0.9-1.0	SE177041.017	LB144196	20 Mar 2018	21 Mar 2018	03 Apr 2018	23 Mar 2018	02 May 2018	27 Mar 2018
BH13M_5.5-5.6	SE177041.018	LB144196	20 Mar 2018	21 Mar 2018	03 Apr 2018	23 Mar 2018	02 May 2018	27 Mar 2018
BH14_0.4-0.5	SE177041.019	LB144196	20 Mar 2018	21 Mar 2018	03 Apr 2018	23 Mar 2018	02 May 2018	27 Mar 2018
BH15_0.3-0.4	SE177041.020	LB144196	20 Mar 2018	21 Mar 2018	03 Apr 2018	23 Mar 2018	02 May 2018	27 Mar 2018
BH16_0.4-0.5	SE177041.021	LB144196	20 Mar 2018	21 Mar 2018	03 Apr 2018	23 Mar 2018	02 May 2018	27 Mar 2018
BH17_0.5-0.6	SE177041.022	LB144196	20 Mar 2018	21 Mar 2018	03 Apr 2018	23 Mar 2018	02 May 2018	27 Mar 2018
BH17_1.0-1.1	SE177041.023	LB144196	20 Mar 2018	21 Mar 2018	03 Apr 2018	23 Mar 2018	02 May 2018	27 Mar 2018
BH17_1.-1.6	SE177041.024	LB144196	20 Mar 2018	21 Mar 2018	03 Apr 2018	23 Mar 2018	02 May 2018	27 Mar 2018

HOLDING TIME SUMMARY

SE177041 R0

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

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

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

PAH (Polynuclear Aromatic Hydrocarbons) in Soil (continued)

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

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
BH18_0.5-0.6	SE177041.025	LB144196	20 Mar 2018	21 Mar 2018	03 Apr 2018	23 Mar 2018	02 May 2018	27 Mar 2018
BH19_0.5-0.6	SE177041.026	LB144196	20 Mar 2018	21 Mar 2018	03 Apr 2018	23 Mar 2018	02 May 2018	27 Mar 2018
BH20_0.4-0.5	SE177041.027	LB144196	20 Mar 2018	21 Mar 2018	03 Apr 2018	23 Mar 2018	02 May 2018	27 Mar 2018
BH21_0.4-0.5	SE177041.028	LB144196	20 Mar 2018	21 Mar 2018	03 Apr 2018	23 Mar 2018	02 May 2018	27 Mar 2018
QD1	SE177041.029	LB144196	19 Mar 2018	21 Mar 2018	02 Apr 2018	23 Mar 2018	02 May 2018	27 Mar 2018

PCBs in Soil

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

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
BH1M_0.2-0.3	SE177041.001	LB144195	19 Mar 2018	21 Mar 2018	02 Apr 2018	23 Mar 2018	02 May 2018	27 Mar 2018
BH1M_0.8-0.9	SE177041.002	LB144195	19 Mar 2018	21 Mar 2018	02 Apr 2018	23 Mar 2018	02 May 2018	27 Mar 2018
BH2_0.2-0.3	SE177041.003	LB144195	19 Mar 2018	21 Mar 2018	02 Apr 2018	23 Mar 2018	02 May 2018	27 Mar 2018
BH3_0.3-0.4	SE177041.004	LB144195	19 Mar 2018	21 Mar 2018	02 Apr 2018	23 Mar 2018	02 May 2018	27 Mar 2018
BH4M_0.2-0.3	SE177041.005	LB144195	19 Mar 2018	21 Mar 2018	02 Apr 2018	23 Mar 2018	02 May 2018	27 Mar 2018
BH5_0.3-0.4	SE177041.006	LB144195	19 Mar 2018	21 Mar 2018	02 Apr 2018	23 Mar 2018	02 May 2018	27 Mar 2018
BH6_0.2-0.3	SE177041.007	LB144195	19 Mar 2018	21 Mar 2018	02 Apr 2018	23 Mar 2018	02 May 2018	27 Mar 2018
BH7M_0.2-0.3	SE177041.008	LB144195	19 Mar 2018	21 Mar 2018	02 Apr 2018	23 Mar 2018	02 May 2018	27 Mar 2018
BH7M_1.4-1.5	SE177041.009	LB144195	19 Mar 2018	21 Mar 2018	02 Apr 2018	23 Mar 2018	02 May 2018	27 Mar 2018
BH8_0.3-0.4	SE177041.010	LB144195	19 Mar 2018	21 Mar 2018	02 Apr 2018	23 Mar 2018	02 May 2018	27 Mar 2018
BH9_0.3-0.4	SE177041.011	LB144195	19 Mar 2018	21 Mar 2018	02 Apr 2018	23 Mar 2018	02 May 2018	27 Mar 2018
BH10M_0.3-0.4	SE177041.012	LB144195	19 Mar 2018	21 Mar 2018	02 Apr 2018	23 Mar 2018	02 May 2018	27 Mar 2018
BH10M_0.9-1.0	SE177041.013	LB144195	19 Mar 2018	21 Mar 2018	02 Apr 2018	23 Mar 2018	02 May 2018	27 Mar 2018
BH11_0.3-0.4	SE177041.014	LB144195	19 Mar 2018	21 Mar 2018	02 Apr 2018	23 Mar 2018	02 May 2018	27 Mar 2018
BH12_0.5-0.6	SE177041.015	LB144196	19 Mar 2018	21 Mar 2018	02 Apr 2018	23 Mar 2018	02 May 2018	27 Mar 2018
BH13M_0.3-0.4	SE177041.016	LB144196	20 Mar 2018	21 Mar 2018	03 Apr 2018	23 Mar 2018	02 May 2018	27 Mar 2018
BH13M_0.9-1.0	SE177041.017	LB144196	20 Mar 2018	21 Mar 2018	03 Apr 2018	23 Mar 2018	02 May 2018	27 Mar 2018
BH13M_5.5-5.6	SE177041.018	LB144196	20 Mar 2018	21 Mar 2018	03 Apr 2018	23 Mar 2018	02 May 2018	27 Mar 2018
BH14_0.4-0.5	SE177041.019	LB144196	20 Mar 2018	21 Mar 2018	03 Apr 2018	23 Mar 2018	02 May 2018	27 Mar 2018
BH15_0.3-0.4	SE177041.020	LB144196	20 Mar 2018	21 Mar 2018	03 Apr 2018	23 Mar 2018	02 May 2018	27 Mar 2018
BH16_0.4-0.5	SE177041.021	LB144196	20 Mar 2018	21 Mar 2018	03 Apr 2018	23 Mar 2018	02 May 2018	27 Mar 2018
BH17_0.5-0.6	SE177041.022	LB144196	20 Mar 2018	21 Mar 2018	03 Apr 2018	23 Mar 2018	02 May 2018	27 Mar 2018
BH17_1.0-1.1	SE177041.023	LB144196	20 Mar 2018	21 Mar 2018	03 Apr 2018	23 Mar 2018	02 May 2018	27 Mar 2018
BH17_1.-1.6	SE177041.024	LB144196	20 Mar 2018	21 Mar 2018	03 Apr 2018	23 Mar 2018	02 May 2018	27 Mar 2018
BH18_0.5-0.6	SE177041.025	LB144196	20 Mar 2018	21 Mar 2018	03 Apr 2018	23 Mar 2018	02 May 2018	27 Mar 2018
BH19_0.5-0.6	SE177041.026	LB144196	20 Mar 2018	21 Mar 2018	03 Apr 2018	23 Mar 2018	02 May 2018	27 Mar 2018
BH20_0.4-0.5	SE177041.027	LB144196	20 Mar 2018	21 Mar 2018	03 Apr 2018	23 Mar 2018	02 May 2018	27 Mar 2018
BH21_0.4-0.5	SE177041.028	LB144196	20 Mar 2018	21 Mar 2018	03 Apr 2018	23 Mar 2018	02 May 2018	27 Mar 2018
QD1	SE177041.029	LB144196	19 Mar 2018	21 Mar 2018	02 Apr 2018	23 Mar 2018	02 May 2018	27 Mar 2018

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
BH1M_0.2-0.3	SE177041.001	LB144414	19 Mar 2018	21 Mar 2018	15 Sep 2018	27 Mar 2018	15 Sep 2018	28 Mar 2018
BH1M_0.8-0.9	SE177041.002	LB144414	19 Mar 2018	21 Mar 2018	15 Sep 2018	27 Mar 2018	15 Sep 2018	28 Mar 2018
BH2_0.2-0.3	SE177041.003	LB144414	19 Mar 2018	21 Mar 2018	15 Sep 2018	27 Mar 2018	15 Sep 2018	28 Mar 2018
BH3_0.3-0.4	SE177041.004	LB144414	19 Mar 2018	21 Mar 2018	15 Sep 2018	27 Mar 2018	15 Sep 2018	28 Mar 2018
BH4M_0.2-0.3	SE177041.005	LB144414	19 Mar 2018	21 Mar 2018	15 Sep 2018	27 Mar 2018	15 Sep 2018	28 Mar 2018
BH5_0.3-0.4	SE177041.006	LB144414	19 Mar 2018	21 Mar 2018	15 Sep 2018	27 Mar 2018	15 Sep 2018	28 Mar 2018
BH6_0.2-0.3	SE177041.007	LB144414	19 Mar 2018	21 Mar 2018	15 Sep 2018	27 Mar 2018	15 Sep 2018	28 Mar 2018
BH7M_0.2-0.3	SE177041.008	LB144414	19 Mar 2018	21 Mar 2018	15 Sep 2018	27 Mar 2018	15 Sep 2018	28 Mar 2018
BH7M_1.4-1.5	SE177041.009	LB144414	19 Mar 2018	21 Mar 2018	15 Sep 2018	27 Mar 2018	15 Sep 2018	28 Mar 2018
BH8_0.3-0.4	SE177041.010	LB144414	19 Mar 2018	21 Mar 2018	15 Sep 2018	27 Mar 2018	15 Sep 2018	28 Mar 2018
BH9_0.3-0.4	SE177041.011	LB144414	19 Mar 2018	21 Mar 2018	15 Sep 2018	27 Mar 2018	15 Sep 2018	28 Mar 2018
BH10M_0.3-0.4	SE177041.012	LB144414	19 Mar 2018	21 Mar 2018	15 Sep 2018	27 Mar 2018	15 Sep 2018	28 Mar 2018
BH10M_0.9-1.0	SE177041.013	LB144414	19 Mar 2018	21 Mar 2018	15 Sep 2018	27 Mar 2018	15 Sep 2018	28 Mar 2018
BH11_0.3-0.4	SE177041.014	LB144414	19 Mar 2018	21 Mar 2018	15 Sep 2018	27 Mar 2018	15 Sep 2018	28 Mar 2018
BH12_0.5-0.6	SE177041.015	LB144414	19 Mar 2018	21 Mar 2018	15 Sep 2018	27 Mar 2018	15 Sep 2018	28 Mar 2018
BH13M_0.3-0.4	SE177041.016	LB144414	20 Mar 2018	21 Mar 2018	16 Sep 2018	27 Mar 2018	16 Sep 2018	28 Mar 2018
BH13M_0.9-1.0	SE177041.017	LB144414	20 Mar 2018	21 Mar 2018	16 Sep 2018	27 Mar 2018	16 Sep 2018	28 Mar 2018
BH13M_5.5-5.6	SE177041.018	LB144414	20 Mar 2018	21 Mar 2018	16 Sep 2018	27 Mar 2018	16 Sep 2018	28 Mar 2018
BH14_0.4-0.5	SE177041.019	LB144414	20 Mar 2018	21 Mar 2018	16 Sep 2018	27 Mar 2018	16 Sep 2018	28 Mar 2018
BH15_0.3-0.4	SE177041.020	LB144415	20 Mar 2018	21 Mar 2018	16 Sep 2018	27 Mar 2018	16 Sep 2018	28 Mar 2018
BH16_0.4-0.5	SE177041.021	LB144415	20 Mar 2018	21 Mar 2018	16 Sep 2018	27 Mar 2018	16 Sep 2018	28 Mar 2018

HOLDING TIME SUMMARY

SE177041 R0

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

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

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

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

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

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
BH17_0.5-0.6	SE177041.022	LB144415	20 Mar 2018	21 Mar 2018	16 Sep 2018	27 Mar 2018	16 Sep 2018	28 Mar 2018
BH17_1.0-1.1	SE177041.023	LB144415	20 Mar 2018	21 Mar 2018	16 Sep 2018	27 Mar 2018	16 Sep 2018	28 Mar 2018
BH17_1.-1.6	SE177041.024	LB144415	20 Mar 2018	21 Mar 2018	16 Sep 2018	27 Mar 2018	16 Sep 2018	28 Mar 2018
BH18_0.5-0.6	SE177041.025	LB144415	20 Mar 2018	21 Mar 2018	16 Sep 2018	27 Mar 2018	16 Sep 2018	28 Mar 2018
BH19_0.5-0.6	SE177041.026	LB144415	20 Mar 2018	21 Mar 2018	16 Sep 2018	27 Mar 2018	16 Sep 2018	28 Mar 2018
BH20_0.4-0.5	SE177041.027	LB144415	20 Mar 2018	21 Mar 2018	16 Sep 2018	27 Mar 2018	16 Sep 2018	28 Mar 2018
BH21_0.4-0.5	SE177041.028	LB144415	20 Mar 2018	21 Mar 2018	16 Sep 2018	27 Mar 2018	16 Sep 2018	28 Mar 2018
QD1	SE177041.029	LB144415	19 Mar 2018	21 Mar 2018	15 Sep 2018	27 Mar 2018	15 Sep 2018	28 Mar 2018

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
QR1	SE177041.030	LB144357	20 Mar 2018	21 Mar 2018	16 Sep 2018	27 Mar 2018	16 Sep 2018	28 Mar 2018

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
BH1M_0.2-0.3	SE177041.001	LB144195	19 Mar 2018	21 Mar 2018	02 Apr 2018	23 Mar 2018	02 May 2018	27 Mar 2018
BH1M_0.8-0.9	SE177041.002	LB144195	19 Mar 2018	21 Mar 2018	02 Apr 2018	23 Mar 2018	02 May 2018	27 Mar 2018
BH2_0.2-0.3	SE177041.003	LB144195	19 Mar 2018	21 Mar 2018	02 Apr 2018	23 Mar 2018	02 May 2018	27 Mar 2018
BH3_0.3-0.4	SE177041.004	LB144195	19 Mar 2018	21 Mar 2018	02 Apr 2018	23 Mar 2018	02 May 2018	27 Mar 2018
BH4M_0.2-0.3	SE177041.005	LB144195	19 Mar 2018	21 Mar 2018	02 Apr 2018	23 Mar 2018	02 May 2018	27 Mar 2018
BH5_0.3-0.4	SE177041.006	LB144195	19 Mar 2018	21 Mar 2018	02 Apr 2018	23 Mar 2018	02 May 2018	27 Mar 2018
BH6_0.2-0.3	SE177041.007	LB144195	19 Mar 2018	21 Mar 2018	02 Apr 2018	23 Mar 2018	02 May 2018	27 Mar 2018
BH7M_0.2-0.3	SE177041.008	LB144195	19 Mar 2018	21 Mar 2018	02 Apr 2018	23 Mar 2018	02 May 2018	27 Mar 2018
BH7M_1.4-1.5	SE177041.009	LB144195	19 Mar 2018	21 Mar 2018	02 Apr 2018	23 Mar 2018	02 May 2018	27 Mar 2018
BH8_0.3-0.4	SE177041.010	LB144195	19 Mar 2018	21 Mar 2018	02 Apr 2018	23 Mar 2018	02 May 2018	27 Mar 2018
BH9_0.3-0.4	SE177041.011	LB144195	19 Mar 2018	21 Mar 2018	02 Apr 2018	23 Mar 2018	02 May 2018	27 Mar 2018
BH10M_0.3-0.4	SE177041.012	LB144195	19 Mar 2018	21 Mar 2018	02 Apr 2018	23 Mar 2018	02 May 2018	27 Mar 2018
BH10M_0.9-1.0	SE177041.013	LB144195	19 Mar 2018	21 Mar 2018	02 Apr 2018	23 Mar 2018	02 May 2018	27 Mar 2018
BH11_0.3-0.4	SE177041.014	LB144195	19 Mar 2018	21 Mar 2018	02 Apr 2018	23 Mar 2018	02 May 2018	27 Mar 2018
BH12_0.5-0.6	SE177041.015	LB144196	19 Mar 2018	21 Mar 2018	02 Apr 2018	23 Mar 2018	02 May 2018	27 Mar 2018
BH13M_0.3-0.4	SE177041.016	LB144196	20 Mar 2018	21 Mar 2018	03 Apr 2018	23 Mar 2018	02 May 2018	27 Mar 2018
BH13M_0.9-1.0	SE177041.017	LB144196	20 Mar 2018	21 Mar 2018	03 Apr 2018	23 Mar 2018	02 May 2018	27 Mar 2018
BH13M_5.5-5.6	SE177041.018	LB144196	20 Mar 2018	21 Mar 2018	03 Apr 2018	23 Mar 2018	02 May 2018	27 Mar 2018
BH14_0.4-0.5	SE177041.019	LB144196	20 Mar 2018	21 Mar 2018	03 Apr 2018	23 Mar 2018	02 May 2018	27 Mar 2018
BH15_0.3-0.4	SE177041.020	LB144196	20 Mar 2018	21 Mar 2018	03 Apr 2018	23 Mar 2018	02 May 2018	27 Mar 2018
BH16_0.4-0.5	SE177041.021	LB144196	20 Mar 2018	21 Mar 2018	03 Apr 2018	23 Mar 2018	02 May 2018	27 Mar 2018
BH17_0.5-0.6	SE177041.022	LB144196	20 Mar 2018	21 Mar 2018	03 Apr 2018	23 Mar 2018	02 May 2018	27 Mar 2018
BH17_1.0-1.1	SE177041.023	LB144196	20 Mar 2018	21 Mar 2018	03 Apr 2018	23 Mar 2018	02 May 2018	27 Mar 2018
BH17_1.-1.6	SE177041.024	LB144196	20 Mar 2018	21 Mar 2018	03 Apr 2018	23 Mar 2018	02 May 2018	27 Mar 2018
BH18_0.5-0.6	SE177041.025	LB144196	20 Mar 2018	21 Mar 2018	03 Apr 2018	23 Mar 2018	02 May 2018	27 Mar 2018
BH19_0.5-0.6	SE177041.026	LB144196	20 Mar 2018	21 Mar 2018	03 Apr 2018	23 Mar 2018	02 May 2018	27 Mar 2018
BH20_0.4-0.5	SE177041.027	LB144196	20 Mar 2018	21 Mar 2018	03 Apr 2018	23 Mar 2018	02 May 2018	27 Mar 2018
BH21_0.4-0.5	SE177041.028	LB144196	20 Mar 2018	21 Mar 2018	03 Apr 2018	23 Mar 2018	02 May 2018	27 Mar 2018
QD1	SE177041.029	LB144196	19 Mar 2018	21 Mar 2018	02 Apr 2018	23 Mar 2018	02 May 2018	27 Mar 2018

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
QR1	SE177041.030	LB144250	20 Mar 2018	21 Mar 2018	27 Mar 2018	23 Mar 2018	02 May 2018	28 Mar 2018

VOC's in Soil

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

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
BH1M_0.2-0.3	SE177041.001	LB144209	19 Mar 2018	21 Mar 2018	02 Apr 2018	23 Mar 2018	02 May 2018	27 Mar 2018
BH1M_0.8-0.9	SE177041.002	LB144209	19 Mar 2018	21 Mar 2018	02 Apr 2018	23 Mar 2018	02 May 2018	27 Mar 2018
BH2_0.2-0.3	SE177041.003	LB144209	19 Mar 2018	21 Mar 2018	02 Apr 2018	23 Mar 2018	02 May 2018	27 Mar 2018
BH3_0.3-0.4	SE177041.004	LB144209	19 Mar 2018	21 Mar 2018	02 Apr 2018	23 Mar 2018	02 May 2018	27 Mar 2018
BH4M_0.2-0.3	SE177041.005	LB144209	19 Mar 2018	21 Mar 2018	02 Apr 2018	23 Mar 2018	02 May 2018	27 Mar 2018
BH5_0.3-0.4	SE177041.006	LB144209	19 Mar 2018	21 Mar 2018	02 Apr 2018	23 Mar 2018	02 May 2018	27 Mar 2018
BH6_0.2-0.3	SE177041.007	LB144209	19 Mar 2018	21 Mar 2018	02 Apr 2018	23 Mar 2018	02 May 2018	27 Mar 2018
BH7M_0.2-0.3	SE177041.008	LB144209	19 Mar 2018	21 Mar 2018	02 Apr 2018	23 Mar 2018	02 May 2018	27 Mar 2018
BH7M_1.4-1.5	SE177041.009	LB144209	19 Mar 2018	21 Mar 2018	02 Apr 2018	23 Mar 2018	02 May 2018	27 Mar 2018

HOLDING TIME SUMMARY

SE177041 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
BH8_0.3-0.4	SE177041.010	LB144209	19 Mar 2018	21 Mar 2018	02 Apr 2018	23 Mar 2018	02 May 2018	27 Mar 2018
BH9_0.3-0.4	SE177041.011	LB144209	19 Mar 2018	21 Mar 2018	02 Apr 2018	23 Mar 2018	02 May 2018	27 Mar 2018
BH10M_0.3-0.4	SE177041.012	LB144209	19 Mar 2018	21 Mar 2018	02 Apr 2018	23 Mar 2018	02 May 2018	27 Mar 2018
BH10M_0.9-1.0	SE177041.013	LB144209	19 Mar 2018	21 Mar 2018	02 Apr 2018	23 Mar 2018	02 May 2018	27 Mar 2018
BH11_0.3-0.4	SE177041.014	LB144209	19 Mar 2018	21 Mar 2018	02 Apr 2018	23 Mar 2018	02 May 2018	27 Mar 2018
BH12_0.5-0.6	SE177041.015	LB144209	19 Mar 2018	21 Mar 2018	02 Apr 2018	23 Mar 2018	02 May 2018	27 Mar 2018
BH13M_0.3-0.4	SE177041.016	LB144209	20 Mar 2018	21 Mar 2018	03 Apr 2018	23 Mar 2018	02 May 2018	27 Mar 2018
BH13M_0.9-1.0	SE177041.017	LB144209	20 Mar 2018	21 Mar 2018	03 Apr 2018	23 Mar 2018	02 May 2018	27 Mar 2018
BH13M_5.5-5.6	SE177041.018	LB144209	20 Mar 2018	21 Mar 2018	03 Apr 2018	23 Mar 2018	02 May 2018	27 Mar 2018
BH14_0.4-0.5	SE177041.019	LB144209	20 Mar 2018	21 Mar 2018	03 Apr 2018	23 Mar 2018	02 May 2018	27 Mar 2018
BH15_0.3-0.4	SE177041.020	LB144209	20 Mar 2018	21 Mar 2018	03 Apr 2018	23 Mar 2018	02 May 2018	27 Mar 2018
BH16_0.4-0.5	SE177041.021	LB144210	20 Mar 2018	21 Mar 2018	03 Apr 2018	23 Mar 2018	02 May 2018	26 Mar 2018
BH17_0.5-0.6	SE177041.022	LB144210	20 Mar 2018	21 Mar 2018	03 Apr 2018	23 Mar 2018	02 May 2018	26 Mar 2018
BH17_1.0-1.1	SE177041.023	LB144210	20 Mar 2018	21 Mar 2018	03 Apr 2018	23 Mar 2018	02 May 2018	26 Mar 2018
BH17_1.-1.6	SE177041.024	LB144210	20 Mar 2018	21 Mar 2018	03 Apr 2018	23 Mar 2018	02 May 2018	26 Mar 2018
BH18_0.5-0.6	SE177041.025	LB144210	20 Mar 2018	21 Mar 2018	03 Apr 2018	23 Mar 2018	02 May 2018	26 Mar 2018
BH19_0.5-0.6	SE177041.026	LB144210	20 Mar 2018	21 Mar 2018	03 Apr 2018	23 Mar 2018	02 May 2018	26 Mar 2018
BH20_0.4-0.5	SE177041.027	LB144210	20 Mar 2018	21 Mar 2018	03 Apr 2018	23 Mar 2018	02 May 2018	26 Mar 2018
BH21_0.4-0.5	SE177041.028	LB144210	20 Mar 2018	21 Mar 2018	03 Apr 2018	23 Mar 2018	02 May 2018	26 Mar 2018
QD1	SE177041.029	LB144210	19 Mar 2018	21 Mar 2018	02 Apr 2018	23 Mar 2018	02 May 2018	26 Mar 2018
QTS	SE177041.031	LB144210	20 Mar 2018	21 Mar 2018	03 Apr 2018	23 Mar 2018	02 May 2018	26 Mar 2018
QTB	SE177041.032	LB144210	20 Mar 2018	21 Mar 2018	03 Apr 2018	23 Mar 2018	02 May 2018	27 Mar 2018

VOCs in Water

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

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
QR1	SE177041.030	LB144312	20 Mar 2018	21 Mar 2018	27 Mar 2018	26 Mar 2018	05 May 2018	27 Mar 2018

Volatile Petroleum Hydrocarbons in Soil

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

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
BH1M_0.2-0.3	SE177041.001	LB144209	19 Mar 2018	21 Mar 2018	02 Apr 2018	23 Mar 2018	02 May 2018	27 Mar 2018
BH1M_0.8-0.9	SE177041.002	LB144209	19 Mar 2018	21 Mar 2018	02 Apr 2018	23 Mar 2018	02 May 2018	27 Mar 2018
BH2_0.2-0.3	SE177041.003	LB144209	19 Mar 2018	21 Mar 2018	02 Apr 2018	23 Mar 2018	02 May 2018	27 Mar 2018
BH3_0.3-0.4	SE177041.004	LB144209	19 Mar 2018	21 Mar 2018	02 Apr 2018	23 Mar 2018	02 May 2018	27 Mar 2018
BH4M_0.2-0.3	SE177041.005	LB144209	19 Mar 2018	21 Mar 2018	02 Apr 2018	23 Mar 2018	02 May 2018	27 Mar 2018
BH5_0.3-0.4	SE177041.006	LB144209	19 Mar 2018	21 Mar 2018	02 Apr 2018	23 Mar 2018	02 May 2018	27 Mar 2018
BH6_0.2-0.3	SE177041.007	LB144209	19 Mar 2018	21 Mar 2018	02 Apr 2018	23 Mar 2018	02 May 2018	27 Mar 2018
BH7M_0.2-0.3	SE177041.008	LB144209	19 Mar 2018	21 Mar 2018	02 Apr 2018	23 Mar 2018	02 May 2018	27 Mar 2018
BH7M_1.4-1.5	SE177041.009	LB144209	19 Mar 2018	21 Mar 2018	02 Apr 2018	23 Mar 2018	02 May 2018	27 Mar 2018
BH8_0.3-0.4	SE177041.010	LB144209	19 Mar 2018	21 Mar 2018	02 Apr 2018	23 Mar 2018	02 May 2018	27 Mar 2018
BH9_0.3-0.4	SE177041.011	LB144209	19 Mar 2018	21 Mar 2018	02 Apr 2018	23 Mar 2018	02 May 2018	27 Mar 2018
BH10M_0.3-0.4	SE177041.012	LB144209	19 Mar 2018	21 Mar 2018	02 Apr 2018	23 Mar 2018	02 May 2018	27 Mar 2018
BH10M_0.9-1.0	SE177041.013	LB144209	19 Mar 2018	21 Mar 2018	02 Apr 2018	23 Mar 2018	02 May 2018	27 Mar 2018
BH11_0.3-0.4	SE177041.014	LB144209	19 Mar 2018	21 Mar 2018	02 Apr 2018	23 Mar 2018	02 May 2018	27 Mar 2018
BH12_0.5-0.6	SE177041.015	LB144209	19 Mar 2018	21 Mar 2018	02 Apr 2018	23 Mar 2018	02 May 2018	27 Mar 2018
BH13M_0.3-0.4	SE177041.016	LB144209	20 Mar 2018	21 Mar 2018	03 Apr 2018	23 Mar 2018	02 May 2018	27 Mar 2018
BH13M_0.9-1.0	SE177041.017	LB144209	20 Mar 2018	21 Mar 2018	03 Apr 2018	23 Mar 2018	02 May 2018	27 Mar 2018
BH13M_5.5-5.6	SE177041.018	LB144209	20 Mar 2018	21 Mar 2018	03 Apr 2018	23 Mar 2018	02 May 2018	27 Mar 2018
BH14_0.4-0.5	SE177041.019	LB144209	20 Mar 2018	21 Mar 2018	03 Apr 2018	23 Mar 2018	02 May 2018	27 Mar 2018
BH15_0.3-0.4	SE177041.020	LB144209	20 Mar 2018	21 Mar 2018	03 Apr 2018	23 Mar 2018	02 May 2018	27 Mar 2018
BH16_0.4-0.5	SE177041.021	LB144210	20 Mar 2018	21 Mar 2018	03 Apr 2018	23 Mar 2018	02 May 2018	26 Mar 2018
BH17_0.5-0.6	SE177041.022	LB144210	20 Mar 2018	21 Mar 2018	03 Apr 2018	23 Mar 2018	02 May 2018	26 Mar 2018
BH17_1.0-1.1	SE177041.023	LB144210	20 Mar 2018	21 Mar 2018	03 Apr 2018	23 Mar 2018	02 May 2018	26 Mar 2018
BH17_1.-1.6	SE177041.024	LB144210	20 Mar 2018	21 Mar 2018	03 Apr 2018	23 Mar 2018	02 May 2018	26 Mar 2018
BH18_0.5-0.6	SE177041.025	LB144210	20 Mar 2018	21 Mar 2018	03 Apr 2018	23 Mar 2018	02 May 2018	26 Mar 2018
BH19_0.5-0.6	SE177041.026	LB144210	20 Mar 2018	21 Mar 2018	03 Apr 2018	23 Mar 2018	02 May 2018	26 Mar 2018
BH20_0.4-0.5	SE177041.027	LB144210	20 Mar 2018	21 Mar 2018	03 Apr 2018	23 Mar 2018	02 May 2018	26 Mar 2018
BH21_0.4-0.5	SE177041.028	LB144210	20 Mar 2018	21 Mar 2018	03 Apr 2018	23 Mar 2018	02 May 2018	26 Mar 2018
QD1	SE177041.029	LB144210	19 Mar 2018	21 Mar 2018	02 Apr 2018	23 Mar 2018	02 May 2018	26 Mar 2018
QTS	SE177041.031	LB144210	20 Mar 2018	21 Mar 2018	03 Apr 2018	23 Mar 2018	02 May 2018	27 Mar 2018
QTB	SE177041.032	LB144210	20 Mar 2018	21 Mar 2018	03 Apr 2018	23 Mar 2018	02 May 2018	27 Mar 2018

HOLDING TIME SUMMARY

SE177041 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.

Volatile Petroleum Hydrocarbons in Water

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

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
QR1	SE177041.030	LB144312	20 Mar 2018	21 Mar 2018	27 Mar 2018	26 Mar 2018	05 May 2018	27 Mar 2018

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)	BH1M_0.2-0.3	SE177041.001	%	60 - 130%	111
	BH2_0.2-0.3	SE177041.003	%	60 - 130%	113
	BH3_0.3-0.4	SE177041.004	%	60 - 130%	107
	BH4M_0.2-0.3	SE177041.005	%	60 - 130%	113
	BH5_0.3-0.4	SE177041.006	%	60 - 130%	115
	BH6_0.2-0.3	SE177041.007	%	60 - 130%	111
	BH7M_0.2-0.3	SE177041.008	%	60 - 130%	117
	BH8_0.3-0.4	SE177041.010	%	60 - 130%	110
	BH9_0.3-0.4	SE177041.011	%	60 - 130%	115
	BH10M_0.3-0.4	SE177041.012	%	60 - 130%	113
	BH11_0.3-0.4	SE177041.014	%	60 - 130%	115
	BH12_0.5-0.6	SE177041.015	%	60 - 130%	85
	BH13M_0.3-0.4	SE177041.016	%	60 - 130%	93
	BH14_0.4-0.5	SE177041.019	%	60 - 130%	93
	BH15_0.3-0.4	SE177041.020	%	60 - 130%	86
	BH16_0.4-0.5	SE177041.021	%	60 - 130%	82
	BH17_0.5-0.6	SE177041.022	%	60 - 130%	87
	BH18_0.5-0.6	SE177041.025	%	60 - 130%	79
	BH19_0.5-0.6	SE177041.026	%	60 - 130%	90
	BH20_0.4-0.5	SE177041.027	%	60 - 130%	110
	BH21_0.4-0.5	SE177041.028	%	60 - 130%	73

OP Pesticides in Soil

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

Parameter	Sample Name	Sample Number	Units	Criteria	Recovery %
2-fluorobiphenyl (Surrogate)	BH1M_0.2-0.3	SE177041.001	%	60 - 130%	96
	BH2_0.2-0.3	SE177041.003	%	60 - 130%	98
	BH3_0.3-0.4	SE177041.004	%	60 - 130%	94
	BH4M_0.2-0.3	SE177041.005	%	60 - 130%	92
	BH5_0.3-0.4	SE177041.006	%	60 - 130%	102
	BH6_0.2-0.3	SE177041.007	%	60 - 130%	94
	BH7M_0.2-0.3	SE177041.008	%	60 - 130%	94
	BH8_0.3-0.4	SE177041.010	%	60 - 130%	100
	BH9_0.3-0.4	SE177041.011	%	60 - 130%	96
	BH10M_0.3-0.4	SE177041.012	%	60 - 130%	98
	BH11_0.3-0.4	SE177041.014	%	60 - 130%	92
	BH12_0.5-0.6	SE177041.015	%	60 - 130%	98
	BH13M_0.3-0.4	SE177041.016	%	60 - 130%	80
	BH14_0.4-0.5	SE177041.019	%	60 - 130%	84
	BH15_0.3-0.4	SE177041.020	%	60 - 130%	100
	BH16_0.4-0.5	SE177041.021	%	60 - 130%	92
	BH17_0.5-0.6	SE177041.022	%	60 - 130%	104
	BH18_0.5-0.6	SE177041.025	%	60 - 130%	92
	BH19_0.5-0.6	SE177041.026	%	60 - 130%	94
	BH20_0.4-0.5	SE177041.027	%	60 - 130%	102
	BH21_0.4-0.5	SE177041.028	%	60 - 130%	96
d14-p-terphenyl (Surrogate)	BH1M_0.2-0.3	SE177041.001	%	60 - 130%	94
	BH2_0.2-0.3	SE177041.003	%	60 - 130%	94
	BH3_0.3-0.4	SE177041.004	%	60 - 130%	96
	BH4M_0.2-0.3	SE177041.005	%	60 - 130%	90
	BH5_0.3-0.4	SE177041.006	%	60 - 130%	96
	BH6_0.2-0.3	SE177041.007	%	60 - 130%	98
	BH7M_0.2-0.3	SE177041.008	%	60 - 130%	94
	BH8_0.3-0.4	SE177041.010	%	60 - 130%	96
	BH9_0.3-0.4	SE177041.011	%	60 - 130%	98
	BH10M_0.3-0.4	SE177041.012	%	60 - 130%	98
	BH11_0.3-0.4	SE177041.014	%	60 - 130%	96
	BH12_0.5-0.6	SE177041.015	%	60 - 130%	104
	BH13M_0.3-0.4	SE177041.016	%	60 - 130%	78
	BH14_0.4-0.5	SE177041.019	%	60 - 130%	94
	BH15_0.3-0.4	SE177041.020	%	60 - 130%	106
	BH16_0.4-0.5	SE177041.021	%	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.

OP Pesticides in Soil (continued)

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

Parameter	Sample Name	Sample Number	Units	Criteria	Recovery %
d14-p-terphenyl (Surrogate)	BH17_0.5-0.6	SE177041.022	%	60 - 130%	98
	BH18_0.5-0.6	SE177041.025	%	60 - 130%	96
	BH19_0.5-0.6	SE177041.026	%	60 - 130%	86
	BH20_0.4-0.5	SE177041.027	%	60 - 130%	96
	BH21_0.4-0.5	SE177041.028	%	60 - 130%	86

PAH (Polynuclear Aromatic Hydrocarbons) in Soil

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

Parameter	Sample Name	Sample Number	Units	Criteria	Recovery %
2-fluorobiphenyl (Surrogate)	BH1M_0.2-0.3	SE177041.001	%	70 - 130%	96
	BH1M_0.8-0.9	SE177041.002	%	70 - 130%	98
	BH2_0.2-0.3	SE177041.003	%	70 - 130%	98
	BH3_0.3-0.4	SE177041.004	%	70 - 130%	94
	BH4M_0.2-0.3	SE177041.005	%	70 - 130%	92
	BH5_0.3-0.4	SE177041.006	%	70 - 130%	102
	BH6_0.2-0.3	SE177041.007	%	70 - 130%	94
	BH7M_0.2-0.3	SE177041.008	%	70 - 130%	94
	BH7M_1.4-1.5	SE177041.009	%	70 - 130%	90
	BH8_0.3-0.4	SE177041.010	%	70 - 130%	100
	BH9_0.3-0.4	SE177041.011	%	70 - 130%	96
	BH10M_0.3-0.4	SE177041.012	%	70 - 130%	98
	BH10M_0.9-1.0	SE177041.013	%	70 - 130%	92
	BH11_0.3-0.4	SE177041.014	%	70 - 130%	92
	BH12_0.5-0.6	SE177041.015	%	70 - 130%	98
	BH13M_0.3-0.4	SE177041.016	%	70 - 130%	80
	BH13M_0.9-1.0	SE177041.017	%	70 - 130%	92
	BH13M_5.5-5.6	SE177041.018	%	70 - 130%	94
	BH14_0.4-0.5	SE177041.019	%	70 - 130%	84
	BH15_0.3-0.4	SE177041.020	%	70 - 130%	100
	BH16_0.4-0.5	SE177041.021	%	70 - 130%	92
	BH17_0.5-0.6	SE177041.022	%	70 - 130%	104
	BH17_1.0-1.1	SE177041.023	%	70 - 130%	100
	BH17_1.-1.6	SE177041.024	%	70 - 130%	90
	BH18_0.5-0.6	SE177041.025	%	70 - 130%	92
	BH19_0.5-0.6	SE177041.026	%	70 - 130%	94
	BH20_0.4-0.5	SE177041.027	%	70 - 130%	102
	BH21_0.4-0.5	SE177041.028	%	70 - 130%	96
d14-p-terphenyl (Surrogate)	BH1M_0.2-0.3	SE177041.001	%	70 - 130%	94
	BH1M_0.8-0.9	SE177041.002	%	70 - 130%	94
	BH2_0.2-0.3	SE177041.003	%	70 - 130%	94
	BH3_0.3-0.4	SE177041.004	%	70 - 130%	96
	BH4M_0.2-0.3	SE177041.005	%	70 - 130%	90
	BH5_0.3-0.4	SE177041.006	%	70 - 130%	96
	BH6_0.2-0.3	SE177041.007	%	70 - 130%	98
	BH7M_0.2-0.3	SE177041.008	%	70 - 130%	94
	BH7M_1.4-1.5	SE177041.009	%	70 - 130%	90
	BH8_0.3-0.4	SE177041.010	%	70 - 130%	96
	BH9_0.3-0.4	SE177041.011	%	70 - 130%	98
	BH10M_0.3-0.4	SE177041.012	%	70 - 130%	98
	BH10M_0.9-1.0	SE177041.013	%	70 - 130%	96
	BH11_0.3-0.4	SE177041.014	%	70 - 130%	96
	BH12_0.5-0.6	SE177041.015	%	70 - 130%	104
	BH13M_0.3-0.4	SE177041.016	%	70 - 130%	78
	BH13M_0.9-1.0	SE177041.017	%	70 - 130%	100
	BH13M_5.5-5.6	SE177041.018	%	70 - 130%	94
	BH14_0.4-0.5	SE177041.019	%	70 - 130%	94
	BH15_0.3-0.4	SE177041.020	%	70 - 130%	106
	BH16_0.4-0.5	SE177041.021	%	70 - 130%	90
	BH17_0.5-0.6	SE177041.022	%	70 - 130%	98
	BH17_1.0-1.1	SE177041.023	%	70 - 130%	100
	BH17_1.-1.6	SE177041.024	%	70 - 130%	86
	BH18_0.5-0.6	SE177041.025	%	70 - 130%	96

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

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

PAH (Polynuclear Aromatic Hydrocarbons) in Soil (continued)

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

Parameter	Sample Name	Sample Number	Units	Criteria	Recovery %
d14-p-terphenyl (Surrogate)	BH19_0.5-0.6	SE177041.026	%	70 - 130%	86
	BH20_0.4-0.5	SE177041.027	%	70 - 130%	96
	BH21_0.4-0.5	SE177041.028	%	70 - 130%	86
d5-nitrobenzene (Surrogate)	BH1M_0.2-0.3	SE177041.001	%	70 - 130%	92
	BH1M_0.8-0.9	SE177041.002	%	70 - 130%	90
	BH2_0.2-0.3	SE177041.003	%	70 - 130%	94
	BH3_0.3-0.4	SE177041.004	%	70 - 130%	94
	BH4M_0.2-0.3	SE177041.005	%	70 - 130%	92
	BH5_0.3-0.4	SE177041.006	%	70 - 130%	96
	BH6_0.2-0.3	SE177041.007	%	70 - 130%	96
	BH7M_0.2-0.3	SE177041.008	%	70 - 130%	92
	BH7M_1.4-1.5	SE177041.009	%	70 - 130%	88
	BH8_0.3-0.4	SE177041.010	%	70 - 130%	96
	BH9_0.3-0.4	SE177041.011	%	70 - 130%	92
	BH10M_0.3-0.4	SE177041.012	%	70 - 130%	96
	BH10M_0.9-1.0	SE177041.013	%	70 - 130%	98
	BH11_0.3-0.4	SE177041.014	%	70 - 130%	96
	BH12_0.5-0.6	SE177041.015	%	70 - 130%	100
	BH13M_0.3-0.4	SE177041.016	%	70 - 130%	74
	BH13M_0.9-1.0	SE177041.017	%	70 - 130%	96
	BH13M_5.5-5.6	SE177041.018	%	70 - 130%	94
	BH14_0.4-0.5	SE177041.019	%	70 - 130%	84
	BH15_0.3-0.4	SE177041.020	%	70 - 130%	100
	BH16_0.4-0.5	SE177041.021	%	70 - 130%	86
	BH17_0.5-0.6	SE177041.022	%	70 - 130%	90
	BH17_1.0-1.1	SE177041.023	%	70 - 130%	102
	BH17_1.-1.6	SE177041.024	%	70 - 130%	82
	BH18_0.5-0.6	SE177041.025	%	70 - 130%	88
	BH19_0.5-0.6	SE177041.026	%	70 - 130%	82
	BH20_0.4-0.5	SE177041.027	%	70 - 130%	100
	BH21_0.4-0.5	SE177041.028	%	70 - 130%	82

PCBs in Soil

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

Parameter	Sample Name	Sample Number	Units	Criteria	Recovery %
Tetrachloro-m-xylene (TCMX) (Surrogate)	BH1M_0.2-0.3	SE177041.001	%	60 - 130%	111
	BH1M_0.8-0.9	SE177041.002	%	60 - 130%	111
	BH2_0.2-0.3	SE177041.003	%	60 - 130%	113
	BH3_0.3-0.4	SE177041.004	%	60 - 130%	107
	BH4M_0.2-0.3	SE177041.005	%	60 - 130%	113
	BH5_0.3-0.4	SE177041.006	%	60 - 130%	115
	BH6_0.2-0.3	SE177041.007	%	60 - 130%	111
	BH7M_0.2-0.3	SE177041.008	%	60 - 130%	117
	BH8_0.3-0.4	SE177041.010	%	60 - 130%	110
	BH9_0.3-0.4	SE177041.011	%	60 - 130%	115
	BH10M_0.3-0.4	SE177041.012	%	60 - 130%	113
	BH11_0.3-0.4	SE177041.014	%	60 - 130%	115
	BH12_0.5-0.6	SE177041.015	%	60 - 130%	85
	BH13M_0.3-0.4	SE177041.016	%	60 - 130%	93
	BH14_0.4-0.5	SE177041.019	%	60 - 130%	93
	BH15_0.3-0.4	SE177041.020	%	60 - 130%	86
	BH16_0.4-0.5	SE177041.021	%	60 - 130%	82
	BH17_0.5-0.6	SE177041.022	%	60 - 130%	87
	BH18_0.5-0.6	SE177041.025	%	60 - 130%	79
	BH19_0.5-0.6	SE177041.026	%	60 - 130%	90
	BH20_0.4-0.5	SE177041.027	%	60 - 130%	110
	BH21_0.4-0.5	SE177041.028	%	60 - 130%	73

VOC's in Soil

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

Parameter	Sample Name	Sample Number	Units	Criteria	Recovery %
Bromofluorobenzene (Surrogate)	BH1M_0.2-0.3	SE177041.001	%	60 - 130%	79
	BH1M_0.8-0.9	SE177041.002	%	60 - 130%	71
	BH2_0.2-0.3	SE177041.003	%	60 - 130%	83

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

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

VOC's in Soil (continued) — **Method: ME-(AU)-[ENV]AN433**

Parameter	Sample Name	Sample Number	Units	Criteria	Recovery %
Bromofluorobenzene (Surrogate)	BH3_0.3-0.4	SE177041.004	%	60 - 130%	86
	BH4M_0.2-0.3	SE177041.005	%	60 - 130%	72
	BH5_0.3-0.4	SE177041.006	%	60 - 130%	75
	BH6_0.2-0.3	SE177041.007	%	60 - 130%	87
	BH7M_0.2-0.3	SE177041.008	%	60 - 130%	75
	BH7M_1.4-1.5	SE177041.009	%	60 - 130%	94
	BH8_0.3-0.4	SE177041.010	%	60 - 130%	94
	BH9_0.3-0.4	SE177041.011	%	60 - 130%	91
	BH10M_0.3-0.4	SE177041.012	%	60 - 130%	74
	BH10M_0.9-1.0	SE177041.013	%	60 - 130%	78
	BH11_0.3-0.4	SE177041.014	%	60 - 130%	84
	BH12_0.5-0.6	SE177041.015	%	60 - 130%	86
	BH13M_0.3-0.4	SE177041.016	%	60 - 130%	85
	BH13M_0.9-1.0	SE177041.017	%	60 - 130%	72
	BH13M_5.5-5.6	SE177041.018	%	60 - 130%	92
	BH14_0.4-0.5	SE177041.019	%	60 - 130%	71
	BH15_0.3-0.4	SE177041.020	%	60 - 130%	80
	BH16_0.4-0.5	SE177041.021	%	60 - 130%	85
	BH17_0.5-0.6	SE177041.022	%	60 - 130%	83
	BH17_1.0-1.1	SE177041.023	%	60 - 130%	88
	BH17_1.-1.6	SE177041.024	%	60 - 130%	80
	BH18_0.5-0.6	SE177041.025	%	60 - 130%	92
	BH19_0.5-0.6	SE177041.026	%	60 - 130%	86
	BH20_0.4-0.5	SE177041.027	%	60 - 130%	86
	BH21_0.4-0.5	SE177041.028	%	60 - 130%	86
	QD1	SE177041.029	%	60 - 130%	88
	QTS	SE177041.031	%	60 - 130%	100
	QTB	SE177041.032	%	60 - 130%	86
d4-1,2-dichloroethane (Surrogate)	BH1M_0.2-0.3	SE177041.001	%	60 - 130%	88
	BH1M_0.8-0.9	SE177041.002	%	60 - 130%	102
	BH2_0.2-0.3	SE177041.003	%	60 - 130%	92
	BH3_0.3-0.4	SE177041.004	%	60 - 130%	78
	BH4M_0.2-0.3	SE177041.005	%	60 - 130%	83
	BH5_0.3-0.4	SE177041.006	%	60 - 130%	91
	BH6_0.2-0.3	SE177041.007	%	60 - 130%	91
	BH7M_0.2-0.3	SE177041.008	%	60 - 130%	81
	BH7M_1.4-1.5	SE177041.009	%	60 - 130%	86
	BH8_0.3-0.4	SE177041.010	%	60 - 130%	89
	BH9_0.3-0.4	SE177041.011	%	60 - 130%	87
	BH10M_0.3-0.4	SE177041.012	%	60 - 130%	78
	BH10M_0.9-1.0	SE177041.013	%	60 - 130%	71
	BH11_0.3-0.4	SE177041.014	%	60 - 130%	83
	BH12_0.5-0.6	SE177041.015	%	60 - 130%	91
	BH13M_0.3-0.4	SE177041.016	%	60 - 130%	82
	BH13M_0.9-1.0	SE177041.017	%	60 - 130%	82
	BH13M_5.5-5.6	SE177041.018	%	60 - 130%	82
	BH14_0.4-0.5	SE177041.019	%	60 - 130%	72
	BH15_0.3-0.4	SE177041.020	%	60 - 130%	75
	BH16_0.4-0.5	SE177041.021	%	60 - 130%	85
	BH17_0.5-0.6	SE177041.022	%	60 - 130%	79
	BH17_1.0-1.1	SE177041.023	%	60 - 130%	97
	BH17_1.-1.6	SE177041.024	%	60 - 130%	86
	BH18_0.5-0.6	SE177041.025	%	60 - 130%	91
	BH19_0.5-0.6	SE177041.026	%	60 - 130%	84
	BH20_0.4-0.5	SE177041.027	%	60 - 130%	91
	BH21_0.4-0.5	SE177041.028	%	60 - 130%	78
	QD1	SE177041.029	%	60 - 130%	100
	QTS	SE177041.031	%	60 - 130%	102
	QTB	SE177041.032	%	60 - 130%	98
d8-toluene (Surrogate)	BH1M_0.2-0.3	SE177041.001	%	60 - 130%	77
	BH1M_0.8-0.9	SE177041.002	%	60 - 130%	74

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

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

VOC's in Soil (continued) — **Method: ME-(AU)-[ENV]AN433**

Parameter	Sample Name	Sample Number	Units	Criteria	Recovery %
d8-toluene (Surrogate)	BH2_0.2-0.3	SE177041.003	%	60 - 130%	81
	BH3_0.3-0.4	SE177041.004	%	60 - 130%	75
	BH4M_0.2-0.3	SE177041.005	%	60 - 130%	76
	BH5_0.3-0.4	SE177041.006	%	60 - 130%	81
	BH6_0.2-0.3	SE177041.007	%	60 - 130%	84
	BH7M_0.2-0.3	SE177041.008	%	60 - 130%	72
	BH7M_1.4-1.5	SE177041.009	%	60 - 130%	71
	BH8_0.3-0.4	SE177041.010	%	60 - 130%	86
	BH9_0.3-0.4	SE177041.011	%	60 - 130%	70
	BH10M_0.3-0.4	SE177041.012	%	60 - 130%	72
	BH10M_0.9-1.0	SE177041.013	%	60 - 130%	70
	BH11_0.3-0.4	SE177041.014	%	60 - 130%	76
	BH12_0.5-0.6	SE177041.015	%	60 - 130%	75
	BH13M_0.3-0.4	SE177041.016	%	60 - 130%	75
	BH13M_0.9-1.0	SE177041.017	%	60 - 130%	73
	BH13M_5.5-5.6	SE177041.018	%	60 - 130%	86
	BH14_0.4-0.5	SE177041.019	%	60 - 130%	75
	BH15_0.3-0.4	SE177041.020	%	60 - 130%	79
	BH16_0.4-0.5	SE177041.021	%	60 - 130%	77
	BH17_0.5-0.6	SE177041.022	%	60 - 130%	71
	BH17_1.0-1.1	SE177041.023	%	60 - 130%	86
	BH17_1.-1.6	SE177041.024	%	60 - 130%	78
	BH18_0.5-0.6	SE177041.025	%	60 - 130%	82
	BH19_0.5-0.6	SE177041.026	%	60 - 130%	78
	BH20_0.4-0.5	SE177041.027	%	60 - 130%	80
	BH21_0.4-0.5	SE177041.028	%	60 - 130%	71
	QD1	SE177041.029	%	60 - 130%	103
	QTS	SE177041.031	%	60 - 130%	95
	QTB	SE177041.032	%	60 - 130%	85
Dibromofluoromethane (Surrogate)	BH1M_0.2-0.3	SE177041.001	%	60 - 130%	97
	BH1M_0.8-0.9	SE177041.002	%	60 - 130%	95
	BH2_0.2-0.3	SE177041.003	%	60 - 130%	109
	BH3_0.3-0.4	SE177041.004	%	60 - 130%	127
	BH4M_0.2-0.3	SE177041.005	%	60 - 130%	82
	BH5_0.3-0.4	SE177041.006	%	60 - 130%	95
	BH6_0.2-0.3	SE177041.007	%	60 - 130%	117
	BH7M_0.2-0.3	SE177041.008	%	60 - 130%	86
	BH7M_1.4-1.5	SE177041.009	%	60 - 130%	105
	BH8_0.3-0.4	SE177041.010	%	60 - 130%	99
	BH9_0.3-0.4	SE177041.011	%	60 - 130%	102
	BH10M_0.3-0.4	SE177041.012	%	60 - 130%	121
	BH10M_0.9-1.0	SE177041.013	%	60 - 130%	108
	BH11_0.3-0.4	SE177041.014	%	60 - 130%	94
	BH12_0.5-0.6	SE177041.015	%	60 - 130%	108
	BH13M_0.3-0.4	SE177041.016	%	60 - 130%	107
	BH13M_0.9-1.0	SE177041.017	%	60 - 130%	109
	BH13M_5.5-5.6	SE177041.018	%	60 - 130%	116
	BH14_0.4-0.5	SE177041.019	%	60 - 130%	105
	BH15_0.3-0.4	SE177041.020	%	60 - 130%	99
	BH16_0.4-0.5	SE177041.021	%	60 - 130%	75
	BH17_0.5-0.6	SE177041.022	%	60 - 130%	71
	BH17_1.0-1.1	SE177041.023	%	60 - 130%	78
	BH17_1.-1.6	SE177041.024	%	60 - 130%	74
	BH18_0.5-0.6	SE177041.025	%	60 - 130%	79
	BH19_0.5-0.6	SE177041.026	%	60 - 130%	70
	BH20_0.4-0.5	SE177041.027	%	60 - 130%	73
	BH21_0.4-0.5	SE177041.028	%	60 - 130%	70
	QD1	SE177041.029	%	60 - 130%	82
	QTS	SE177041.031	%	60 - 130%	99
	QTB	SE177041.032	%	60 - 130%	80

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

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

VOCs in Water

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

Parameter	Sample Name	Sample Number	Units	Criteria	Recovery %
Bromofluorobenzene (Surrogate)	QR1	SE177041.030	%	40 - 130%	104
d4-1,2-dichloroethane (Surrogate)	QR1	SE177041.030	%	40 - 130%	101
d8-toluene (Surrogate)	QR1	SE177041.030	%	40 - 130%	101
Dibromofluoromethane (Surrogate)	QR1	SE177041.030	%	40 - 130%	100

Volatile Petroleum Hydrocarbons in Soil

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

Parameter	Sample Name	Sample Number	Units	Criteria	Recovery %
Bromofluorobenzene (Surrogate)	BH1M_0.2-0.3	SE177041.001	%	60 - 130%	79
	BH1M_0.8-0.9	SE177041.002	%	60 - 130%	71
	BH2_0.2-0.3	SE177041.003	%	60 - 130%	83
	BH3_0.3-0.4	SE177041.004	%	60 - 130%	86
	BH4M_0.2-0.3	SE177041.005	%	60 - 130%	72
	BH5_0.3-0.4	SE177041.006	%	60 - 130%	75
	BH6_0.2-0.3	SE177041.007	%	60 - 130%	87
	BH7M_0.2-0.3	SE177041.008	%	60 - 130%	75
	BH7M_1.4-1.5	SE177041.009	%	60 - 130%	94
	BH8_0.3-0.4	SE177041.010	%	60 - 130%	94
	BH9_0.3-0.4	SE177041.011	%	60 - 130%	91
	BH10M_0.3-0.4	SE177041.012	%	60 - 130%	74
	BH10M_0.9-1.0	SE177041.013	%	60 - 130%	78
	BH11_0.3-0.4	SE177041.014	%	60 - 130%	84
	BH12_0.5-0.6	SE177041.015	%	60 - 130%	86
	BH13M_0.3-0.4	SE177041.016	%	60 - 130%	85
	BH13M_0.9-1.0	SE177041.017	%	60 - 130%	72
	BH13M_5.5-5.6	SE177041.018	%	60 - 130%	92
	BH14_0.4-0.5	SE177041.019	%	60 - 130%	71
	BH15_0.3-0.4	SE177041.020	%	60 - 130%	80
	BH16_0.4-0.5	SE177041.021	%	60 - 130%	85
	BH17_0.5-0.6	SE177041.022	%	60 - 130%	83
	BH17_1.0-1.1	SE177041.023	%	60 - 130%	88
	BH17_1.-1.6	SE177041.024	%	60 - 130%	80
	BH18_0.5-0.6	SE177041.025	%	60 - 130%	92
	BH19_0.5-0.6	SE177041.026	%	60 - 130%	86
	BH20_0.4-0.5	SE177041.027	%	60 - 130%	86
	BH21_0.4-0.5	SE177041.028	%	60 - 130%	86
	QD1	SE177041.029	%	60 - 130%	88
d4-1,2-dichloroethane (Surrogate)	BH1M_0.2-0.3	SE177041.001	%	60 - 130%	88
	BH1M_0.8-0.9	SE177041.002	%	60 - 130%	102
	BH2_0.2-0.3	SE177041.003	%	60 - 130%	92
	BH3_0.3-0.4	SE177041.004	%	60 - 130%	78
	BH4M_0.2-0.3	SE177041.005	%	60 - 130%	83
	BH5_0.3-0.4	SE177041.006	%	60 - 130%	91
	BH6_0.2-0.3	SE177041.007	%	60 - 130%	91
	BH7M_0.2-0.3	SE177041.008	%	60 - 130%	81
	BH7M_1.4-1.5	SE177041.009	%	60 - 130%	86
	BH8_0.3-0.4	SE177041.010	%	60 - 130%	89
	BH9_0.3-0.4	SE177041.011	%	60 - 130%	87
	BH10M_0.3-0.4	SE177041.012	%	60 - 130%	78
	BH10M_0.9-1.0	SE177041.013	%	60 - 130%	71
	BH11_0.3-0.4	SE177041.014	%	60 - 130%	83
	BH12_0.5-0.6	SE177041.015	%	60 - 130%	91
	BH13M_0.3-0.4	SE177041.016	%	60 - 130%	82
	BH13M_0.9-1.0	SE177041.017	%	60 - 130%	82
	BH13M_5.5-5.6	SE177041.018	%	60 - 130%	82
	BH14_0.4-0.5	SE177041.019	%	60 - 130%	72
	BH15_0.3-0.4	SE177041.020	%	60 - 130%	75
	BH16_0.4-0.5	SE177041.021	%	60 - 130%	85
	BH17_0.5-0.6	SE177041.022	%	60 - 130%	79
	BH17_1.0-1.1	SE177041.023	%	60 - 130%	97
	BH17_1.-1.6	SE177041.024	%	60 - 130%	86
	BH18_0.5-0.6	SE177041.025	%	60 - 130%	91

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

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

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

Parameter	Sample Name	Sample Number	Units	Criteria	Recovery %
d4-1,2-dichloroethane (Surrogate)	BH19_0.5-0.6	SE177041.026	%	60 - 130%	84
	BH20_0.4-0.5	SE177041.027	%	60 - 130%	91
	BH21_0.4-0.5	SE177041.028	%	60 - 130%	78
	QD1	SE177041.029	%	60 - 130%	100
d8-toluene (Surrogate)	BH1M_0.2-0.3	SE177041.001	%	60 - 130%	77
	BH1M_0.8-0.9	SE177041.002	%	60 - 130%	74
	BH2_0.2-0.3	SE177041.003	%	60 - 130%	81
	BH3_0.3-0.4	SE177041.004	%	60 - 130%	75
	BH4M_0.2-0.3	SE177041.005	%	60 - 130%	76
	BH5_0.3-0.4	SE177041.006	%	60 - 130%	81
	BH6_0.2-0.3	SE177041.007	%	60 - 130%	84
	BH7M_0.2-0.3	SE177041.008	%	60 - 130%	72
	BH7M_1.4-1.5	SE177041.009	%	60 - 130%	71
	BH8_0.3-0.4	SE177041.010	%	60 - 130%	86
	BH9_0.3-0.4	SE177041.011	%	60 - 130%	70
	BH10M_0.3-0.4	SE177041.012	%	60 - 130%	72
	BH10M_0.9-1.0	SE177041.013	%	60 - 130%	70
	BH11_0.3-0.4	SE177041.014	%	60 - 130%	76
	BH12_0.5-0.6	SE177041.015	%	60 - 130%	75
	BH13M_0.3-0.4	SE177041.016	%	60 - 130%	75
	BH13M_0.9-1.0	SE177041.017	%	60 - 130%	73
	BH13M_5.5-5.6	SE177041.018	%	60 - 130%	86
	BH14_0.4-0.5	SE177041.019	%	60 - 130%	75
	BH15_0.3-0.4	SE177041.020	%	60 - 130%	79
	BH16_0.4-0.5	SE177041.021	%	60 - 130%	77
	BH17_0.5-0.6	SE177041.022	%	60 - 130%	71
	BH17_1.0-1.1	SE177041.023	%	60 - 130%	86
	BH17_1.-1.6	SE177041.024	%	60 - 130%	78
	BH18_0.5-0.6	SE177041.025	%	60 - 130%	82
	BH19_0.5-0.6	SE177041.026	%	60 - 130%	78
	BH20_0.4-0.5	SE177041.027	%	60 - 130%	80
	BH21_0.4-0.5	SE177041.028	%	60 - 130%	71
	QD1	SE177041.029	%	60 - 130%	103
Dibromofluoromethane (Surrogate)	BH1M_0.2-0.3	SE177041.001	%	60 - 130%	97
	BH1M_0.8-0.9	SE177041.002	%	60 - 130%	95
	BH2_0.2-0.3	SE177041.003	%	60 - 130%	109
	BH3_0.3-0.4	SE177041.004	%	60 - 130%	127
	BH4M_0.2-0.3	SE177041.005	%	60 - 130%	82
	BH5_0.3-0.4	SE177041.006	%	60 - 130%	95
	BH6_0.2-0.3	SE177041.007	%	60 - 130%	117
	BH7M_0.2-0.3	SE177041.008	%	60 - 130%	86
	BH7M_1.4-1.5	SE177041.009	%	60 - 130%	105
	BH8_0.3-0.4	SE177041.010	%	60 - 130%	99
	BH9_0.3-0.4	SE177041.011	%	60 - 130%	102
	BH10M_0.3-0.4	SE177041.012	%	60 - 130%	121
	BH10M_0.9-1.0	SE177041.013	%	60 - 130%	108
	BH11_0.3-0.4	SE177041.014	%	60 - 130%	94
	BH12_0.5-0.6	SE177041.015	%	60 - 130%	108
	BH13M_0.3-0.4	SE177041.016	%	60 - 130%	107
	BH13M_0.9-1.0	SE177041.017	%	60 - 130%	109
	BH13M_5.5-5.6	SE177041.018	%	60 - 130%	116
	BH14_0.4-0.5	SE177041.019	%	60 - 130%	105
	BH15_0.3-0.4	SE177041.020	%	60 - 130%	99
	BH16_0.4-0.5	SE177041.021	%	60 - 130%	75
	BH17_0.5-0.6	SE177041.022	%	60 - 130%	71
	BH17_1.0-1.1	SE177041.023	%	60 - 130%	78
	BH17_1.-1.6	SE177041.024	%	60 - 130%	74
	BH18_0.5-0.6	SE177041.025	%	60 - 130%	79
	BH19_0.5-0.6	SE177041.026	%	60 - 130%	70
	BH20_0.4-0.5	SE177041.027	%	60 - 130%	73
	BH21_0.4-0.5	SE177041.028	%	60 - 130%	70

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

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

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

Parameter	Sample Name	Sample Number	Units	Criteria	Recovery %
Dibromofluoromethane (Surrogate)	QD1	SE177041.029	%	60 - 130%	82

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

Parameter	Sample Name	Sample Number	Units	Criteria	Recovery %
Bromofluorobenzene (Surrogate)	QR1	SE177041.030	%	40 - 130%	104
d4-1,2-dichloroethane (Surrogate)	QR1	SE177041.030	%	60 - 130%	101
d8-toluene (Surrogate)	QR1	SE177041.030	%	40 - 130%	101
Dibromofluoromethane (Surrogate)	QR1	SE177041.030	%	40 - 130%	100

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
LB144361.001	Mercury	mg/L	0.0001	<0.0001

Mercury in Soil

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

Sample Number	Parameter	Units	LOR	Result
LB144375.001	Mercury	mg/kg	0.05	<0.05
LB144380.001	Mercury	mg/kg	0.05	<0.05

OC Pesticides in Soil

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

Sample Number		Parameter	Units	LOR	Result
LB144195.001		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)	%	-	105
LB144196.001		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)	%	-	94

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

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

OP Pesticides in Soil

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

Sample Number		Parameter	Units	LOR	Result
LB144195.001		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)	%	-	102
		d14-p-terphenyl (Surrogate)	%	-	98
LB144196.001		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)	%	-	96
		d14-p-terphenyl (Surrogate)	%	-	96

PAH (Polynuclear Aromatic Hydrocarbons) in Soil

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

Sample Number		Parameter	Units	LOR	Result
LB144195.001		Naphthalene	mg/kg	0.1	<0.1
		2-methylnaphthalene	mg/kg	0.1	<0.1
		1-methylnaphthalene	mg/kg	0.1	<0.1
		Acenaphthylene	mg/kg	0.1	<0.1
		Acenaphthene	mg/kg	0.1	<0.1
		Fluorene	mg/kg	0.1	<0.1
		Phenanthrene	mg/kg	0.1	<0.1
		Anthracene	mg/kg	0.1	<0.1
		Fluoranthene	mg/kg	0.1	<0.1
		Pyrene	mg/kg	0.1	<0.1
		Benzo(a)anthracene	mg/kg	0.1	<0.1
		Chrysene	mg/kg	0.1	<0.1
		Benzo(a)pyrene	mg/kg	0.1	<0.1
		Indeno(1,2,3-cd)pyrene	mg/kg	0.1	<0.1
		Dibenzo(ah)anthracene	mg/kg	0.1	<0.1
		Benzo(ghi)perylene	mg/kg	0.1	<0.1
		Total PAH (18)	mg/kg	0.8	<0.8
	Surrogates	d5-nitrobenzene (Surrogate)	%	-	98
		2-fluorobiphenyl (Surrogate)	%	-	102
		d14-p-terphenyl (Surrogate)	%	-	98
LB144196.001		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

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
LB144196.001		Benzo(a)pyrene	mg/kg	0.1	<0.1
		Indeno(1,2,3-cd)pyrene	mg/kg	0.1	<0.1
		Dibenzo(ah)anthracene	mg/kg	0.1	<0.1
		Benzo(ghi)perylene	mg/kg	0.1	<0.1
		Total PAH (18)	mg/kg	0.8	<0.8
	Surrogates	d5-nitrobenzene (Surrogate)	%	-	100
		2-fluorobiphenyl (Surrogate)	%	-	96
		d14-p-terphenyl (Surrogate)	%	-	96

PCBs in Soil

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

Sample Number		Parameter	Units	LOR	Result
LB144195.001		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)	%	-	105
LB144196.001		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)	%	-	94

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

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

Sample Number	Parameter	Units	LOR	Result
LB144414.001	Arsenic, As	mg/kg	3	<3
	Cadmium, Cd	mg/kg	0.3	<0.3
	Chromium, Cr	mg/kg	0.3	<0.3
	Copper, Cu	mg/kg	0.5	<0.5
	Nickel, Ni	mg/kg	0.5	<0.5
	Lead, Pb	mg/kg	1	<1
	Zinc, Zn	mg/kg	0.5	<0.5
LB144415.001	Arsenic, As	mg/kg	3	<3
	Cadmium, Cd	mg/kg	0.3	<0.3
	Chromium, Cr	mg/kg	0.3	<0.3
	Copper, Cu	mg/kg	0.5	<0.5
	Nickel, Ni	mg/kg	0.5	<0.5
	Lead, Pb	mg/kg	1	<1
	Zinc, Zn	mg/kg	0.5	<0.5

Trace Metals (Dissolved) in Water by ICPMS

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

Sample Number	Parameter	Units	LOR	Result
LB144357.001	Arsenic, As	µg/L	1	<1
	Cadmium, Cd	µg/L	0.1	<0.1
	Chromium, Cr	µg/L	1	<1
	Copper, Cu	µg/L	1	<1
	Lead, Pb	µg/L	1	<1
	Nickel, Ni	µg/L	1	<1
	Zinc, Zn	µg/L	5	<5

TRH (Total Recoverable Hydrocarbons) in Soil

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

Sample Number	Parameter	Units	LOR

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

TRH (Total Recoverable Hydrocarbons) in Soil (continued)

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

Sample Number	Parameter	Units	LOR	Result
LB144195.001	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
LB144196.001	TRH C10-C14	mg/kg	20	<20
	TRH C15-C28	mg/kg	45	<45
	TRH C29-C36	mg/kg	45	<45
	TRH C37-C40	mg/kg	100	<100
	TRH C10-C36 Total	mg/kg	110	<110

TRH (Total Recoverable Hydrocarbons) in Water

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

Sample Number	Parameter	Units	LOR	Result
LB144250.001	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

VOC's in Soil

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

Sample Number		Parameter	Units	LOR	Result
LB144209.001	Monocyclic Aromatic	Benzene	mg/kg	0.1	<0.1
	Hydrocarbons	Toluene	mg/kg	0.1	<0.1
		Ethylbenzene	mg/kg	0.1	<0.1
		m/p-xylene	mg/kg	0.2	<0.2
		o-xylene	mg/kg	0.1	<0.1
	Polycyclic VOCs	Naphthalene	mg/kg	0.1	<0.1
	Surrogates	Dibromofluoromethane (Surrogate)	%	-	72
		d4-1,2-dichloroethane (Surrogate)	%	-	100
		d8-toluene (Surrogate)	%	-	86
		Bromofluorobenzene (Surrogate)	%	-	71
	Totals	Total BTEX	mg/kg	0.6	<0.6
LB144210.001	Monocyclic Aromatic	Benzene	mg/kg	0.1	<0.1
	Hydrocarbons	Toluene	mg/kg	0.1	<0.1
		Ethylbenzene	mg/kg	0.1	<0.1
		m/p-xylene	mg/kg	0.2	<0.2
		o-xylene	mg/kg	0.1	<0.1
	Polycyclic VOCs	Naphthalene	mg/kg	0.1	<0.1
	Surrogates	Dibromofluoromethane (Surrogate)	%	-	75
		d4-1,2-dichloroethane (Surrogate)	%	-	86
		d8-toluene (Surrogate)	%	-	83
		Bromofluorobenzene (Surrogate)	%	-	91
	Totals	Total BTEX	mg/kg	0.6	<0.6

VOCs in Water

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

Sample Number		Parameter	Units	LOR	Result
LB144312.001	Monocyclic Aromatic	Benzene	µg/L	0.5	<0.5
	Hydrocarbons	Toluene	µg/L	0.5	<0.5
		Ethylbenzene	µg/L	0.5	<0.5
		m/p-xylene	µg/L	1	<1
		o-xylene	µg/L	0.5	<0.5
	Polycyclic VOCs	Naphthalene	µg/L	0.5	<0.5
	Surrogates	Dibromofluoromethane (Surrogate)	%	-	109
		d4-1,2-dichloroethane (Surrogate)	%	-	100
		d8-toluene (Surrogate)	%	-	98
		Bromofluorobenzene (Surrogate)	%	-	103

Volatile Petroleum Hydrocarbons in Soil

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

Sample Number		Parameter	Units	LOR	Result
LB144209.001		TRH C6-C9	mg/kg	20	<20
	Surrogates	Dibromofluoromethane (Surrogate)	%	-	72
		d4-1,2-dichloroethane (Surrogate)	%	-	100
		d8-toluene (Surrogate)	%	-	86
LB144210.001		TRH C6-C9	mg/kg	20	<20

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

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

Volatile Petroleum Hydrocarbons in Soil (continued)

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

Sample Number		Parameter	Units	LOR	Result
LB144210.001	Surrogates	Dibromofluoromethane (Surrogate)	%	-	75
		d4-1,2-dichloroethane (Surrogate)	%	-	86
		d8-toluene (Surrogate)	%	-	83

Volatile Petroleum Hydrocarbons in Water

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

Sample Number		Parameter	Units	LOR	Result
LB144312.001		TRH C6-C9	µg/L	40	<40
	Surrogates	Dibromofluoromethane (Surrogate)	%	-	109
		d4-1,2-dichloroethane (Surrogate)	%	-	100
		d8-toluene (Surrogate)	%	-	98
		Bromofluorobenzene (Surrogate)	%	-	103

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 %
SE177082.002	LB144361.014	Mercury	µg/L	0.0001	-0.0268	-0.0244	200	0
SE177109.009	LB144361.024	Mercury	µg/L	0.0001	-0.0274	-0.0186	200	0

Mercury in Soil

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

Original	Duplicate	Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE177010.001	LB144380.024	Mercury	mg/kg	0.05	0.05	<0.05	131	7
SE177041.010	LB144375.014	Mercury	mg/kg	0.05	<0.05	0.05	142	8
SE177041.019	LB144375.024	Mercury	mg/kg	0.05	<0.05	<0.05	200	0
SE177041.029	LB144380.014	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 %
SE177041.004	LB144307.011	% Moisture	%w/w	0.5	5.5	5.5	48	1
SE177041.014	LB144307.022	% Moisture	%w/w	0.5	13	8.9	39	39
SE177041.024	LB144307.033	% Moisture	%w/w	0.5	16	17	36	3
SE177118.003	LB144307.043	% Moisture	%w/w	0.5	12	12	38	1

OC Pesticides in Soil

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

Original	Duplicate		Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE177041.004	LB144195.014		Hexachlorobenzene (HCB)	mg/kg	0.1	<0.1	<0.1	200	0
			Alpha BHC	mg/kg	0.1	<0.1	<0.1	200	0
			Lindane	mg/kg	0.1	<0.1	<0.1	200	0
			Heptachlor	mg/kg	0.1	<0.1	<0.1	200	0
			Aldrin	mg/kg	0.1	<0.1	<0.1	200	0
			Beta BHC	mg/kg	0.1	<0.1	<0.1	200	0
			Delta BHC	mg/kg	0.1	<0.1	<0.1	200	0
			Heptachlor epoxide	mg/kg	0.1	<0.1	<0.1	200	0
			o,p'-DDE	mg/kg	0.1	<0.1	<0.1	200	0
			Alpha Endosulfan	mg/kg	0.2	<0.2	<0.2	200	0
			Gamma Chlordane	mg/kg	0.1	<0.1	<0.1	200	0
			Alpha Chlordane	mg/kg	0.1	<0.1	<0.1	200	0
			trans-Nonachlor	mg/kg	0.1	<0.1	<0.1	200	0
			p,p'-DDE	mg/kg	0.1	<0.1	<0.1	200	0
			Dieldrin	mg/kg	0.2	<0.2	<0.2	200	0
			Endrin	mg/kg	0.2	<0.2	<0.2	200	0
			o,p'-DDD	mg/kg	0.1	<0.1	<0.1	200	0
			o,p'-DDT	mg/kg	0.1	<0.1	<0.1	200	0
			Beta Endosulfan	mg/kg	0.2	<0.2	<0.2	200	0
			p,p'-DDD	mg/kg	0.1	<0.1	<0.1	200	0
			p,p'-DDT	mg/kg	0.1	<0.1	<0.1	200	0
			Endosulfan sulphate	mg/kg	0.1	<0.1	<0.1	200	0
			Endrin Aldehyde	mg/kg	0.1	<0.1	<0.1	200	0
			Methoxychlor	mg/kg	0.1	<0.1	<0.1	200	0
			Endrin Ketone	mg/kg	0.1	<0.1	<0.1	200	0
			Isodrin	mg/kg	0.1	<0.1	<0.1	200	0
			Mirex	mg/kg	0.1	<0.1	<0.1	200	0
			Total CLP OC Pesticides	mg/kg	1	<1	<1	200	0
		Surrogates	Tetrachloro-m-xylene (TCMX) (Surrogate)	mg/kg	-	0.16	0.16	30	0
SE177041.011	LB144195.026		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

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

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

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

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

OC Pesticides in Soil (continued)

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

Original	Duplicate		Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE177041.011	LB144195.026		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	-	0.17	0.168	30	2
SE177041.022	LB144196.022		Hexachlorobenzene (HCB)	mg/kg	0.1	<0.1	0	200	0
			Alpha BHC	mg/kg	0.1	<0.1	0	200	0
			Lindane	mg/kg	0.1	<0.1	0	200	0
			Heptachlor	mg/kg	0.1	<0.1	0	200	0
			Aldrin	mg/kg	0.1	<0.1	0	200	0
			Beta BHC	mg/kg	0.1	<0.1	0	200	0
			Delta BHC	mg/kg	0.1	<0.1	0	200	0
			Heptachlor epoxide	mg/kg	0.1	<0.1	0	200	0
			o,p'-DDE	mg/kg	0.1	<0.1	0	200	0
			Alpha Endosulfan	mg/kg	0.2	<0.2	0	200	0
			Gamma Chlordane	mg/kg	0.1	<0.1	0	200	0
			Alpha Chlordane	mg/kg	0.1	<0.1	0	200	0
			trans-Nonachlor	mg/kg	0.1	<0.1	0	200	0
			p,p'-DDE	mg/kg	0.1	<0.1	0	200	0
			Dieldrin	mg/kg	0.2	<0.2	0	200	0
			Endrin	mg/kg	0.2	<0.2	0	200	0
			o,p'-DDD	mg/kg	0.1	<0.1	0	200	0
			o,p'-DDT	mg/kg	0.1	<0.1	0	200	0
			Beta Endosulfan	mg/kg	0.2	<0.2	0	200	0
			p,p'-DDD	mg/kg	0.1	<0.1	0	200	0
			p,p'-DDT	mg/kg	0.1	<0.1	0	200	0
			Endosulfan sulphate	mg/kg	0.1	<0.1	0	200	0
			Endrin Aldehyde	mg/kg	0.1	<0.1	0	200	0
			Methoxychlor	mg/kg	0.1	<0.1	0	200	0
			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	-	0.13	0.143	30	10

OP Pesticides in Soil

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

Original	Duplicate		Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE177041.004	LB144195.014		Dichlorvos	mg/kg	0.5	<0.5	<0.5	200	0
			Dimethoate	mg/kg	0.5	<0.5	<0.5	200	0
			Diazinon (Dimpylate)	mg/kg	0.5	<0.5	<0.5	200	0
			Fenitrothion	mg/kg	0.2	<0.2	<0.2	200	0
			Malathion	mg/kg	0.2	<0.2	<0.2	200	0
			Chlorpyrifos (Chlorpyrifos Ethyl)	mg/kg	0.2	<0.2	<0.2	200	0
			Parathion-ethyl (Parathion)	mg/kg	0.2	<0.2	<0.2	200	0
			Bromophos Ethyl	mg/kg	0.2	<0.2	<0.2	200	0
			Methidathion	mg/kg	0.5	<0.5	<0.5	200	0
			Ethion	mg/kg	0.2	<0.2	<0.2	200	0
			Azinphos-methyl (Guthion)	mg/kg	0.2	<0.2	<0.2	200	0
			Total OP Pesticides*	mg/kg	1.7	<1.7	<1.7	200	0
		Surrogates	2-fluorobiphenyl (Surrogate)	mg/kg	-	0.5	0.5	30	6

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

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

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

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

OP Pesticides in Soil (continued)

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

Original	Duplicate		Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE177041.004	LB144195.014	Surrogates	d14-p-terphenyl (Surrogate)	mg/kg	-	0.5	0.5	30	6
SE177041.011	LB144195.027		Dichlorvos	mg/kg	0.5	<0.5	0	200	0
			Dimethoate	mg/kg	0.5	<0.5	0	200	0
			Diazinon (Dimpylate)	mg/kg	0.5	<0.5	0	200	0
			Fenitrothion	mg/kg	0.2	<0.2	0	200	0
			Malathion	mg/kg	0.2	<0.2	0	200	0
			Chlorpyrifos (Chlorpyrifos Ethyl)	mg/kg	0.2	<0.2	0.01	200	0
			Parathion-ethyl (Parathion)	mg/kg	0.2	<0.2	0.01	200	0
			Bromophos Ethyl	mg/kg	0.2	<0.2	0	200	0
			Methidathion	mg/kg	0.5	<0.5	0	200	0
			Ethion	mg/kg	0.2	<0.2	0.03	200	0
			Azinphos-methyl (Guthion)	mg/kg	0.2	<0.2	0	200	0
			Total OP Pesticides*	mg/kg	1.7	<1.7	0	200	0
		Surrogates	2-fluorobiphenyl (Surrogate)	mg/kg	-	0.5	0.5	30	4
			d14-p-terphenyl (Surrogate)	mg/kg	-	0.5	0.5	30	2
SE177041.022	LB144196.022		Dichlorvos	mg/kg	0.5	<0.5	0	200	0
			Dimethoate	mg/kg	0.5	<0.5	0	200	0
			Diazinon (Dimpylate)	mg/kg	0.5	<0.5	0.01	200	0
			Fenitrothion	mg/kg	0.2	<0.2	0	200	0
			Malathion	mg/kg	0.2	<0.2	0	200	0
			Chlorpyrifos (Chlorpyrifos Ethyl)	mg/kg	0.2	<0.2	0	200	0
			Parathion-ethyl (Parathion)	mg/kg	0.2	<0.2	0.01	200	0
			Bromophos Ethyl	mg/kg	0.2	<0.2	0.01	200	0
			Methidathion	mg/kg	0.5	<0.5	0	200	0
			Ethion	mg/kg	0.2	<0.2	0.04	200	0
			Azinphos-methyl (Guthion)	mg/kg	0.2	<0.2	0	200	0
			Total OP Pesticides*	mg/kg	1.7	<1.7	0	200	0
		Surrogates	2-fluorobiphenyl (Surrogate)	mg/kg	-	0.5	0.45	30	14
			d14-p-terphenyl (Surrogate)	mg/kg	-	0.5	0.45	30	9

PAH (Polynuclear Aromatic Hydrocarbons) in Soil

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

Original	Duplicate		Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE177041.004	LB144195.014		Naphthalene	mg/kg	0.1	0.1	0.1	117	9
			2-methylnaphthalene	mg/kg	0.1	0.2	0.2	84	5
			1-methylnaphthalene	mg/kg	0.1	0.2	0.2	95	6
			Acenaphthylene	mg/kg	0.1	<0.1	<0.1	155	0
			Acenaphthene	mg/kg	0.1	<0.1	<0.1	200	0
			Fluorene	mg/kg	0.1	<0.1	<0.1	200	0
			Phenanthrene	mg/kg	0.1	0.5	0.4	52	13
			Anthracene	mg/kg	0.1	0.1	<0.1	130	10
			Fluoranthene	mg/kg	0.1	1.0	0.8	41	16
			Pyrene	mg/kg	0.1	1.1	0.9	40	21
			Benzo(a)anthracene	mg/kg	0.1	0.6	0.5	50	18
			Chrysene	mg/kg	0.1	0.5	0.4	51	21
			Benzo(b&j)fluoranthene	mg/kg	0.1	0.7	0.6	45	18
			Benzo(k)fluoranthene	mg/kg	0.1	0.4	0.3	58	22
			Benzo(a)pyrene	mg/kg	0.1	0.6	0.5	48	16
			Indeno(1,2,3-cd)pyrene	mg/kg	0.1	0.6	0.5	50	16
			Dibenzo(ah)anthracene	mg/kg	0.1	<0.1	<0.1	200	0
			Benzo(ghi)perylene	mg/kg	0.1	0.5	0.4	54	16
			Carcinogenic PAHs, BaP TEQ <LOR=0	TEQ (mg/kg)	0.2	0.8	0.7	36	17
			Carcinogenic PAHs, BaP TEQ <LOR=LOR	TEQ (mg/kg)	0.3	0.9	0.8	45	15
			Carcinogenic PAHs, BaP TEQ <LOR=LOR/2	TEQ (mg/kg)	0.2	0.9	0.8	34	16
			Total PAH (18)	mg/kg	0.8	6.9	5.7	43	19
		Surrogates	d5-nitrobenzene (Surrogate)	mg/kg	-	0.5	0.5	30	4
			2-fluorobiphenyl (Surrogate)	mg/kg	-	0.5	0.5	30	6
			d14-p-terphenyl (Surrogate)	mg/kg	-	0.5	0.5	30	6
SE177041.011	LB144195.027		Naphthalene	mg/kg	0.1	<0.1	0.01	200	0
			2-methylnaphthalene	mg/kg	0.1	<0.1	0.01	200	0
			1-methylnaphthalene	mg/kg	0.1	<0.1	0.01	200	0
			Acenaphthylene	mg/kg	0.1	<0.1	0.01	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 %
SE177041.011	LB144195.027		Acenaphthene	mg/kg	0.1	<0.1	0	200	0
			Fluorene	mg/kg	0.1	<0.1	0	200	0
			Phenanthrene	mg/kg	0.1	<0.1	0.05	200	0
			Anthracene	mg/kg	0.1	<0.1	0.01	200	0
			Fluoranthene	mg/kg	0.1	<0.1	0.07	163	0
			Pyrene	mg/kg	0.1	<0.1	0.06	184	0
			Benzo(a)anthracene	mg/kg	0.1	<0.1	0.03	200	0
			Chrysene	mg/kg	0.1	<0.1	0.03	200	0
			Benzo(b&j)fluoranthene	mg/kg	0.1	<0.1	0.03	200	0
			Benzo(k)fluoranthene	mg/kg	0.1	<0.1	0.02	200	0
			Benzo(a)pyrene	mg/kg	0.1	<0.1	0.02	200	0
			Indeno(1,2,3-cd)pyrene	mg/kg	0.1	<0.1	0.01	200	0
			Dibenzo(ah)anthracene	mg/kg	0.1	<0.1	0	200	0
			Benzo(ghi)perylene	mg/kg	0.1	<0.1	0	200	0
			Carcinogenic PAHs, BaP TEQ <LOR=0	TEQ (mg/kg)	0.2	<0.2	0	200	0
			Carcinogenic PAHs, BaP TEQ <LOR=LOR	TEQ (mg/kg)	0.3	<0.3	0.242	134	0
			Carcinogenic PAHs, BaP TEQ <LOR=LOR/2	TEQ (mg/kg)	0.2	<0.2	0.121	175	0
			Total PAH (18)	mg/kg	0.8	<0.8	0	200	0
		Surrogates	d5-nitrobenzene (Surrogate)	mg/kg	-	0.5	0.48	30	4
			2-fluorobiphenyl (Surrogate)	mg/kg	-	0.5	0.5	30	4
			d14-p-terphenyl (Surrogate)	mg/kg	-	0.5	0.5	30	2
SE177041.022	LB144196.022		Naphthalene	mg/kg	0.1	<0.1	0.03	200	0
			2-methylnaphthalene	mg/kg	0.1	<0.1	0.04	200	0
			1-methylnaphthalene	mg/kg	0.1	<0.1	0.03	200	0
			Acenaphthylene	mg/kg	0.1	<0.1	0.01	200	0
			Acenaphthene	mg/kg	0.1	<0.1	0.01	200	0
			Fluorene	mg/kg	0.1	<0.1	0.01	200	0
			Phenanthrene	mg/kg	0.1	<0.1	0.11	135	10
			Anthracene	mg/kg	0.1	<0.1	0.02	200	0
			Fluoranthene	mg/kg	0.1	0.1	0.19	93	38
			Pyrene	mg/kg	0.1	0.1	0.19	91	30
			Benzo(a)anthracene	mg/kg	0.1	<0.1	0.09	163	0
			Chrysene	mg/kg	0.1	<0.1	0.09	163	0
			Benzo(b&j)fluoranthene	mg/kg	0.1	<0.1	0.09	163	0
			Benzo(k)fluoranthene	mg/kg	0.1	<0.1	0.05	200	0
			Benzo(a)pyrene	mg/kg	0.1	<0.1	0.09	163	0
			Indeno(1,2,3-cd)pyrene	mg/kg	0.1	<0.1	0.03	200	0
			Dibenzo(ah)anthracene	mg/kg	0.1	<0.1	0	200	0
			Benzo(ghi)perylene	mg/kg	0.1	<0.1	0.04	200	0
			Carcinogenic PAHs, BaP TEQ <LOR=0	TEQ (mg/kg)	0.2	<0.2	0	200	0
			Carcinogenic PAHs, BaP TEQ <LOR=LOR	TEQ (mg/kg)	0.3	<0.3	0.242	134	0
			Carcinogenic PAHs, BaP TEQ <LOR=LOR/2	TEQ (mg/kg)	0.2	<0.2	0.121	175	0
			Total PAH (18)	mg/kg	0.8	<0.8	0.49	200	0
		Surrogates	d5-nitrobenzene (Surrogate)	mg/kg	-	0.5	0.43	30	5
			2-fluorobiphenyl (Surrogate)	mg/kg	-	0.5	0.45	30	14
			d14-p-terphenyl (Surrogate)	mg/kg	-	0.5	0.45	30	9

PCBs in Soil

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

Original	Duplicate		Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE177041.004	LB144195.014		Arochlor 1016	mg/kg	0.2	<0.2	<0.2	200	0
			Arochlor 1221	mg/kg	0.2	<0.2	<0.2	200	0
			Arochlor 1232	mg/kg	0.2	<0.2	<0.2	200	0
			Arochlor 1242	mg/kg	0.2	<0.2	<0.2	200	0
			Arochlor 1248	mg/kg	0.2	<0.2	<0.2	200	0
			Arochlor 1254	mg/kg	0.2	<0.2	<0.2	200	0
			Arochlor 1260	mg/kg	0.2	<0.2	<0.2	200	0
			Arochlor 1262	mg/kg	0.2	<0.2	<0.2	200	0
			Arochlor 1268	mg/kg	0.2	<0.2	<0.2	200	0
			Total PCBs (Arochlors)	mg/kg	1	<1	<1	200	0
		Surrogates	Tetrachloro-m-xylene (TCMX) (Surrogate)	mg/kg	-	0	0	30	0
SE177041.011	LB144195.026		Arochlor 1016	mg/kg	0.2	<0.2	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.

PCBs in Soil (continued)

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

Original	Duplicate		Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE177041.011	LB144195.026		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	0.168	30	2
SE177041.022	LB144196.022		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	0.143	30	10

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 %
SE177010.001	LB144415.024	Arsenic, As	mg/kg	3	13	13	38	2
		Cadmium, Cd	mg/kg	0.3	<0.3	<0.3	139	0
		Chromium, Cr	mg/kg	0.3	6.3	8.0	37	24
		Copper, Cu	mg/kg	0.5	26	22	32	18
		Nickel, Ni	mg/kg	0.5	11	10	35	6
		Lead, Pb	mg/kg	1	25	26	34	4
		Zinc, Zn	mg/kg	0.5	180	170	31	6
SE177041.010	LB144414.014	Arsenic, As	mg/kg	3	8	9	42	16
		Cadmium, Cd	mg/kg	0.3	<0.3	<0.3	136	0
		Chromium, Cr	mg/kg	0.3	9.1	12	35	31
		Copper, Cu	mg/kg	0.5	21	13	33	42 ②
		Nickel, Ni	mg/kg	0.5	2.7	2.5	49	6
		Lead, Pb	mg/kg	1	430	440	30	1
		Zinc, Zn	mg/kg	0.5	280	270	31	3
SE177041.019	LB144414.024	Arsenic, As	mg/kg	3	6	6	46	3
		Cadmium, Cd	mg/kg	0.3	<0.3	<0.3	200	0
		Chromium, Cr	mg/kg	0.3	17	9.2	34	57 ②
		Copper, Cu	mg/kg	0.5	25	25	32	2
		Nickel, Ni	mg/kg	0.5	7.1	6.3	37	11
		Lead, Pb	mg/kg	1	18	17	36	4
		Zinc, Zn	mg/kg	0.5	23	24	39	2
SE177041.029	LB144415.014	Arsenic, As	mg/kg	3	6	8	44	19
		Cadmium, Cd	mg/kg	0.3	<0.3	<0.3	150	0
		Chromium, Cr	mg/kg	0.3	8.2	14	34	55 ②
		Copper, Cu	mg/kg	0.5	13	22	33	52 ②
		Nickel, Ni	mg/kg	0.5	2.9	3.8	45	27
		Lead, Pb	mg/kg	1	320	490	30	42 ②
		Zinc, Zn	mg/kg	0.5	190	310	31	47 ②

Trace Metals (Dissolved) in Water by ICPMS

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

Original	Duplicate	Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE177082.001	LB144357.014	Arsenic, As	µg/L	1	5.18	5.083	34	2
		Cadmium, Cd	µg/L	0.1	0.035	0.041	200	0
		Chromium, Cr	µg/L	1	2.056	2.166	62	5
		Copper, Cu	µg/L	1	63.813	64.345	17	1
		Lead, Pb	µg/L	1	3.893	3.976	40	2
		Nickel, Ni	µg/L	1	8.31	8.307	27	0
		Zinc, Zn	µg/L	5	136.039	135.198	19	1

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

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

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

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

Trace Metals (Dissolved) in Water by ICPMS (continued)

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

Original	Duplicate	Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE177202.001	LB144357.020	Arsenic, As	µg/L	1	1.519	1.434	83	6
		Cadmium, Cd	µg/L	0.1	0.045	0.05	200	0
		Chromium, Cr	µg/L	1	1.738	1.753	72	1
		Copper, Cu	µg/L	1	43.5	43.838	17	1
		Lead, Pb	µg/L	1	2.306	2.301	58	0
		Nickel, Ni	µg/L	1	3.853	3.783	41	2
		Zinc, Zn	µg/L	5	58.389	60.286	23	3

TRH (Total Recoverable Hydrocarbons) in Soil

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

Original	Duplicate		Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE177041.004	LB144195.014		TRH C10-C14	mg/kg	20	<20	<20	200	0
			TRH C15-C28	mg/kg	45	<45	<45	200	0
			TRH C29-C36	mg/kg	45	<45	<45	200	0
			TRH C37-C40	mg/kg	100	<100	<100	200	0
			TRH C10-C36 Total	mg/kg	110	<110	<110	200	0
			TRH C10-C40 Total (F bands)	mg/kg	210	<210	<210	200	0
		TRH F Bands	TRH >C10-C16	mg/kg	25	<25	<25	200	0
			TRH >C10-C16 - Naphthalene (F2)	mg/kg	25	<25	<25	200	0
			TRH >C16-C34 (F3)	mg/kg	90	<90	<90	200	0
			TRH >C34-C40 (F4)	mg/kg	120	<120	<120	200	0
SE177041.011	LB144195.026		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
SE177041.022	LB144196.021		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

TRH (Total Recoverable Hydrocarbons) in Water

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

Original	Duplicate		Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE177041.030	LB144250.021		TRH C10-C14	µg/L	50	<50	0	200	0
			TRH C15-C28	µg/L	200	<200	0	200	0
			TRH C29-C36	µg/L	200	<200	0	200	0
			TRH C37-C40	µg/L	200	<200	0	200	0
			TRH C10-C36	µg/L	450	<450	0	200	0
			TRH C10-C40	µg/L	650	<650	0	200	0
		TRH F Bands	TRH >C10-C16	µg/L	60	<60	0	200	0
			TRH >C10-C16 - Naphthalene (F2)	µg/L	60	<60	0	200	0
			TRH >C16-C34 (F3)	µg/L	500	<500	0	200	0
			TRH >C34-C40 (F4)	µg/L	500	<500	0	200	0

VOC's in Soil

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

Original	Duplicate		Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE177041.010	LB144209.014	Monocyclic Aromatic	Benzene	mg/kg	0.1	<0.1	<0.1	200	0
			Toluene	mg/kg	0.1	<0.1	<0.1	200	0
			Ethylbenzene	mg/kg	0.1	<0.1	<0.1	200	0
			m/p-xylene	mg/kg	0.2	<0.2	<0.2	200	0
			o-xylene	mg/kg	0.1	<0.1	<0.1	200	0
		Polycyclic	Naphthalene	mg/kg	0.1	<0.1	<0.1	200	0

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

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

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

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

VOC's in Soil (continued)

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

Original	Duplicate		Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE177041.010	LB144209.014	Surrogates	Dibromofluoromethane (Surrogate)	mg/kg	-	5.0	6.0	50	20
			d4-1,2-dichloroethane (Surrogate)	mg/kg	-	4.4	4.3	50	3
			d8-toluene (Surrogate)	mg/kg	-	4.3	4.2	50	3
			Bromofluorobenzene (Surrogate)	mg/kg	-	4.7	4.2	50	12
		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
SE177041.020	LB144209.025	Monocyclic	Benzene	mg/kg	0.1	<0.1	<0.1	200	0
		Aromatic	Toluene	mg/kg	0.1	<0.1	<0.1	200	0
			Ethylbenzene	mg/kg	0.1	<0.1	<0.1	200	0
			m/p-xylene	mg/kg	0.2	<0.2	<0.2	200	0
			o-xylene	mg/kg	0.1	<0.1	<0.1	200	0
		Polycyclic	Naphthalene	mg/kg	0.1	<0.1	<0.1	200	0
		Surrogates	Dibromofluoromethane (Surrogate)	mg/kg	-	5.0	5.9	50	16
			d4-1,2-dichloroethane (Surrogate)	mg/kg	-	3.7	3.6	50	3
			d8-toluene (Surrogate)	mg/kg	-	4.0	3.8	50	4
			Bromofluorobenzene (Surrogate)	mg/kg	-	4.0	4.0	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
SE177041.021	LB144210.014	Monocyclic	Benzene	mg/kg	0.1	<0.1	<0.1	200	0
		Aromatic	Toluene	mg/kg	0.1	<0.1	<0.1	200	0
			Ethylbenzene	mg/kg	0.1	<0.1	<0.1	200	0
			m/p-xylene	mg/kg	0.2	<0.2	<0.2	200	0
			o-xylene	mg/kg	0.1	<0.1	<0.1	200	0
		Polycyclic	Naphthalene	mg/kg	0.1	<0.1	<0.1	200	0
		Surrogates	Dibromofluoromethane (Surrogate)	mg/kg	-	3.8	3.7	50	3
			d4-1,2-dichloroethane (Surrogate)	mg/kg	-	4.3	4.2	50	1
			d8-toluene (Surrogate)	mg/kg	-	3.9	3.8	50	1
			Bromofluorobenzene (Surrogate)	mg/kg	-	4.2	4.1	50	2
		Totals	Total Xylenes	mg/kg	0.3	<0.3	<0.3	200	0
			Total BTEX	mg/kg	0.6	<0.6	<0.6	200	0
SE177041.029	LB144210.026	Monocyclic	Benzene	mg/kg	0.1	<0.1	0.04	200	0
		Aromatic	Toluene	mg/kg	0.1	<0.1	0.01	200	0
			Ethylbenzene	mg/kg	0.1	<0.1	0	200	0
			m/p-xylene	mg/kg	0.2	<0.2	0	200	0
			o-xylene	mg/kg	0.1	<0.1	0	200	0
		Polycyclic	Naphthalene	mg/kg	0.1	<0.1	0	200	0
		Surrogates	Dibromofluoromethane (Surrogate)	mg/kg	-	4.1	4.11	50	0
			d4-1,2-dichloroethane (Surrogate)	mg/kg	-	5.0	4.97	50	0
			d8-toluene (Surrogate)	mg/kg	-	5.1	4.39	50	16
			Bromofluorobenzene (Surrogate)	mg/kg	-	4.4	4.3	50	3
		Totals	Total Xylenes	mg/kg	0.3	<0.3	0	200	0
			Total BTEX	mg/kg	0.6	<0.6	0.05	200	0

VOCs in Water

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

Original	Duplicate		Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE177107.002	LB144312.022	Monocyclic	Benzene	µg/L	0.5	0.03	0.02	200	0
		Aromatic	Toluene	µg/L	0.5	0.05	0.03	200	0
			Ethylbenzene	µg/L	0.5	0.02	0.01	200	0
			m/p-xylene	µg/L	1	0.04	0.01	200	0
			o-xylene	µg/L	0.5	0.01	0.01	200	0
		Polycyclic	Naphthalene	µg/L	0.5	0.01	0.01	200	0
		Surrogates	Dibromofluoromethane (Surrogate)	µg/L	-	5.58	5.54	30	1
			d4-1,2-dichloroethane (Surrogate)	µg/L	-	4.97	4.94	30	1
			d8-toluene (Surrogate)	µg/L	-	4.76	4.76	30	0
			Bromofluorobenzene (Surrogate)	µg/L	-	5.32	4.91	30	8
SE177107.009	LB144312.023	Monocyclic	Benzene	µg/L	0.5	0.03	0.02	200	0
		Aromatic	Toluene	µg/L	0.5	0.04	0.03	200	0
			Ethylbenzene	µg/L	0.5	0.02	0.01	200	0
			m/p-xylene	µg/L	1	0.02	0.01	200	0
			o-xylene	µg/L	0.5	0.01	0.01	200	0
		Polycyclic	Naphthalene	µg/L	0.5	0	0	200	0

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

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

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

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

VOCs in Water (continued)

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

Original	Duplicate		Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE177107.009	LB144312.023	Surrogates	Dibromofluoromethane (Surrogate)	µg/L	-	5.68	5.46	30	4
			d4-1,2-dichloroethane (Surrogate)	µg/L	-	5.06	4.96	30	2
			d8-toluene (Surrogate)	µg/L	-	4.93	4.64	30	6
			Bromofluorobenzene (Surrogate)	µg/L	-	5.19	4.91	30	6

Volatile Petroleum Hydrocarbons in Soil

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

Original	Duplicate		Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE177041.010	LB144209.014		TRH C6-C10	mg/kg	25	<25	<25	200	0
			TRH C6-C9	mg/kg	20	<20	<20	200	0
		Surrogates	Dibromofluoromethane (Surrogate)	mg/kg	-	5.0	6.0	30	20
			d4-1,2-dichloroethane (Surrogate)	mg/kg	-	4.4	4.3	30	3
			d8-toluene (Surrogate)	mg/kg	-	4.3	4.2	30	3
			Bromofluorobenzene (Surrogate)	mg/kg	-	4.7	4.2	30	12
		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
SE177041.020	LB144209.025		TRH C6-C10	mg/kg	25	<25	<25	200	0
			TRH C6-C9	mg/kg	20	<20	<20	200	0
		Surrogates	Dibromofluoromethane (Surrogate)	mg/kg	-	5.0	5.9	30	16
			d4-1,2-dichloroethane (Surrogate)	mg/kg	-	3.7	3.6	30	3
			d8-toluene (Surrogate)	mg/kg	-	4.0	3.8	30	4
			Bromofluorobenzene (Surrogate)	mg/kg	-	4.0	4.0	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
SE177041.021	LB144210.014		TRH C6-C10	mg/kg	25	<25	<25	200	0
			TRH C6-C9	mg/kg	20	<20	<20	200	0
		Surrogates	Dibromofluoromethane (Surrogate)	mg/kg	-	3.8	3.7	30	3
			d4-1,2-dichloroethane (Surrogate)	mg/kg	-	4.3	4.2	30	1
			d8-toluene (Surrogate)	mg/kg	-	3.9	3.8	30	1
			Bromofluorobenzene (Surrogate)	mg/kg	-	4.2	4.1	30	2
		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
SE177041.029	LB144210.026		TRH C6-C10	mg/kg	25	<25	0	200	0
			TRH C6-C9	mg/kg	20	<20	0	200	0
		Surrogates	Dibromofluoromethane (Surrogate)	mg/kg	-	4.1	4.11	30	0
			d4-1,2-dichloroethane (Surrogate)	mg/kg	-	5.0	4.97	30	0
			d8-toluene (Surrogate)	mg/kg	-	5.1	4.39	30	16
			Bromofluorobenzene (Surrogate)	mg/kg	-	4.4	4.3	30	3
		VPH F Bands	Benzene (F0)	mg/kg	0.1	<0.1	0.04	200	0
			TRH C6-C10 minus BTEX (F1)	mg/kg	25	<25	-0.05	200	0

Volatile Petroleum Hydrocarbons in Water

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

Original	Duplicate		Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE177107.002	LB144312.022		TRH C6-C10	µg/L	50	0	0	200	0
			TRH C6-C9	µg/L	40	0	0	200	0
		Surrogates	Dibromofluoromethane (Surrogate)	µg/L	-	5.58	5.54	30	1
			d4-1,2-dichloroethane (Surrogate)	µg/L	-	4.97	4.94	30	1
			d8-toluene (Surrogate)	µg/L	-	4.76	4.76	30	0
			Bromofluorobenzene (Surrogate)	µg/L	-	5.32	4.91	30	8
		VPH F Bands	Benzene (F0)	µg/L	0.5	0.03	0.02	200	0
			TRH C6-C10 minus BTEX (F1)	µg/L	50	-0.15	-0.08	200	0
SE177107.009	LB144312.023		TRH C6-C10	µg/L	50	0	0	200	0
			TRH C6-C9	µg/L	40	0	0	200	0
		Surrogates	Dibromofluoromethane (Surrogate)	µg/L	-	5.68	5.46	30	4
			d4-1,2-dichloroethane (Surrogate)	µg/L	-	5.06	4.96	30	2
			d8-toluene (Surrogate)	µg/L	-	4.93	4.64	30	6
			Bromofluorobenzene (Surrogate)	µg/L	-	5.19	4.91	30	6
		VPH F Bands	Benzene (F0)	µg/L	0.5	0.03	0.02	200	0
			TRH C6-C10 minus BTEX (F1)	µg/L	50	-0.12	-0.08	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 %
LB144375.002	Mercury	mg/kg	0.05	0.19	0.2	70 - 130	97
LB144380.002	Mercury	mg/kg	0.05	0.20	0.2	70 - 130	99

OC Pesticides in Soil

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

Sample Number		Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB144195.002		Heptachlor	mg/kg	0.1	0.2	0.2	60 - 140	122
		Aldrin	mg/kg	0.1	0.2	0.2	60 - 140	124
		Delta BHC	mg/kg	0.1	0.2	0.2	60 - 140	119
		Dieldrin	mg/kg	0.2	0.2	0.2	60 - 140	118
		Endrin	mg/kg	0.2	0.2	0.2	60 - 140	113
		p,p'-DDT	mg/kg	0.1	0.2	0.2	60 - 140	93
	Surrogates	Tetrachloro-m-xylene (TCMX) (Surrogate)	mg/kg	-	0.16	0.15	40 - 130	106
LB144196.002		Heptachlor	mg/kg	0.1	0.2	0.2	60 - 140	83
		Aldrin	mg/kg	0.1	0.2	0.2	60 - 140	86
		Delta BHC	mg/kg	0.1	0.2	0.2	60 - 140	76
		Dieldrin	mg/kg	0.2	<0.2	0.2	60 - 140	87
		Endrin	mg/kg	0.2	0.2	0.2	60 - 140	113
		p,p'-DDT	mg/kg	0.1	0.2	0.2	60 - 140	79
	Surrogates	Tetrachloro-m-xylene (TCMX) (Surrogate)	mg/kg	-	0.13	0.15	40 - 130	86

OP Pesticides in Soil

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

Sample Number		Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB144195.002		Dichlorvos	mg/kg	0.5	1.7	2	60 - 140	84
		Diazinon (Dimpylate)	mg/kg	0.5	1.5	2	60 - 140	77
		Chlorpyrifos (Chlorpyrifos Ethyl)	mg/kg	0.2	1.8	2	60 - 140	90
		Ethion	mg/kg	0.2	1.5	2	60 - 140	77
	Surrogates	2-fluorobiphenyl (Surrogate)	mg/kg	-	0.5	0.5	40 - 130	100
		d14-p-terphenyl (Surrogate)	mg/kg	-	0.5	0.5	40 - 130	102
LB144196.002		Dichlorvos	mg/kg	0.5	1.9	2	60 - 140	95
		Diazinon (Dimpylate)	mg/kg	0.5	1.9	2	60 - 140	96
		Chlorpyrifos (Chlorpyrifos Ethyl)	mg/kg	0.2	1.8	2	60 - 140	90
		Ethion	mg/kg	0.2	1.6	2	60 - 140	80
	Surrogates	2-fluorobiphenyl (Surrogate)	mg/kg	-	0.5	0.5	40 - 130	102
		d14-p-terphenyl (Surrogate)	mg/kg	-	0.5	0.5	40 - 130	98

PAH (Polynuclear Aromatic Hydrocarbons) in Soil

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

Sample Number		Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB144195.002		Naphthalene	mg/kg	0.1	3.8	4	60 - 140	96
		Acenaphthylene	mg/kg	0.1	3.9	4	60 - 140	96
		Acenaphthene	mg/kg	0.1	3.9	4	60 - 140	97
		Phenanthrene	mg/kg	0.1	4.4	4	60 - 140	110
		Anthracene	mg/kg	0.1	4.7	4	60 - 140	118
		Fluoranthene	mg/kg	0.1	4.6	4	60 - 140	114
		Pyrene	mg/kg	0.1	4.5	4	60 - 140	114
		Benzo(a)pyrene	mg/kg	0.1	3.7	4	60 - 140	93
	Surrogates	d5-nitrobenzene (Surrogate)	mg/kg	-	0.5	0.5	40 - 130	96
		2-fluorobiphenyl (Surrogate)	mg/kg	-	0.5	0.5	40 - 130	100
		d14-p-terphenyl (Surrogate)	mg/kg	-	0.5	0.5	40 - 130	102
LB144196.002		Naphthalene	mg/kg	0.1	4.1	4	60 - 140	103
		Acenaphthylene	mg/kg	0.1	4.3	4	60 - 140	107
		Acenaphthene	mg/kg	0.1	4.0	4	60 - 140	101
		Phenanthrene	mg/kg	0.1	4.1	4	60 - 140	102
		Anthracene	mg/kg	0.1	4.4	4	60 - 140	110
		Fluoranthene	mg/kg	0.1	4.3	4	60 - 140	107
		Pyrene	mg/kg	0.1	4.2	4	60 - 140	105
		Benzo(a)pyrene	mg/kg	0.1	4.8	4	60 - 140	120
	Surrogates	d5-nitrobenzene (Surrogate)	mg/kg	-	0.5	0.5	40 - 130	100
		2-fluorobiphenyl (Surrogate)	mg/kg	-	0.5	0.5	40 - 130	102
		d14-p-terphenyl (Surrogate)	mg/kg	-	0.5	0.5	40 - 130	98

PCBs in Soil

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

Sample Number	Parameter	Units	LOR

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

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

PCBs in Soil (continued)

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

Sample Number	Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB144195.002	Arochlor 1260	mg/kg	0.2	0.5	0.4	60 - 140	122
LB144196.002	Arochlor 1260	mg/kg	0.2	0.5	0.4	60 - 140	115

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 %
LB144414.002	Arsenic, As	mg/kg	3	340	325	80 - 120	105
	Cadmium, Cd	mg/kg	0.3	450	416.6	69 - 131	109
	Chromium, Cr	mg/kg	0.3	38	35.2	80 - 120	107
	Copper, Cu	mg/kg	0.5	350	314	80 - 120	111
	Nickel, Ni	mg/kg	0.5	200	183	80 - 120	109
	Lead, Pb	mg/kg	1	99	91.5	80 - 120	108
	Zinc, Zn	mg/kg	0.5	300	275	80 - 120	109
LB144415.002	Arsenic, As	mg/kg	3	340	325	80 - 120	106
	Cadmium, Cd	mg/kg	0.3	480	416.6	69 - 131	115
	Chromium, Cr	mg/kg	0.3	37	35.2	80 - 120	106
	Copper, Cu	mg/kg	0.5	350	314	80 - 120	112
	Nickel, Ni	mg/kg	0.5	200	183	80 - 120	109
	Lead, Pb	mg/kg	1	99	91.5	80 - 120	108
	Zinc, Zn	mg/kg	0.5	300	275	80 - 120	109

Trace Metals (Dissolved) in Water by ICPMS

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

Sample Number	Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB144357.002	Arsenic, As	µg/L	1	20	20	80 - 120	101
	Cadmium, Cd	µg/L	0.1	21	20	80 - 120	103
	Chromium, Cr	µg/L	1	21	20	80 - 120	105
	Copper, Cu	µg/L	1	21	20	80 - 120	104
	Lead, Pb	µg/L	1	21	20	80 - 120	103
	Nickel, Ni	µg/L	1	21	20	80 - 120	106
	Zinc, Zn	µg/L	5	21	20	80 - 120	105

TRH (Total Recoverable Hydrocarbons) in Soil

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

Sample Number		Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB144195.002		TRH C10-C14	mg/kg	20	38	40	60 - 140	95
		TRH C15-C28	mg/kg	45	<45	40	60 - 140	105
		TRH C29-C36	mg/kg	45	<45	40	60 - 140	75
	TRH F Bands	TRH >C10-C16	mg/kg	25	43	40	60 - 140	108
		TRH >C16-C34 (F3)	mg/kg	90	<90	40	60 - 140	90
		TRH >C34-C40 (F4)	mg/kg	120	<120	20	60 - 140	75
LB144196.002		TRH C10-C14	mg/kg	20	45	40	60 - 140	113
		TRH C15-C28	mg/kg	45	<45	40	60 - 140	98
		TRH C29-C36	mg/kg	45	<45	40	60 - 140	78
	TRH F Bands	TRH >C10-C16	mg/kg	25	44	40	60 - 140	110
		TRH >C16-C34 (F3)	mg/kg	90	<90	40	60 - 140	88
		TRH >C34-C40 (F4)	mg/kg	120	<120	20	60 - 140	75

TRH (Total Recoverable Hydrocarbons) in Water

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

Sample Number		Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB144250.002		TRH C10-C14	µg/L	50	1100	1200	60 - 140	95
		TRH C15-C28	µg/L	200	1400	1200	60 - 140	114
		TRH C29-C36	µg/L	200	1500	1200	60 - 140	124
	TRH F Bands	TRH >C10-C16	µg/L	60	1300	1200	60 - 140	105
		TRH >C16-C34 (F3)	µg/L	500	1500	1200	60 - 140	123
		TRH >C34-C40 (F4)	µg/L	500	760	600	60 - 140	127

VOC's in Soil

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

Sample Number		Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB144209.002	Monocyclic	Benzene	mg/kg	0.1	2.0	2.9	60 - 140	70
	Aromatic	Toluene	mg/kg	0.1	3.2	2.9	60 - 140	109
		Ethylbenzene	mg/kg	0.1	2.1	2.9	60 - 140	74
		m/p-xylene	mg/kg	0.2	4.5	5.8	60 - 140	77
		o-xylene	mg/kg	0.1	2.0	2.9	60 - 140	70
	Surrogates	Dibromofluoromethane (Surrogate)	mg/kg	-	4.9	5	60 - 140	98

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 %
LB144209.002	Surrogates	d4-1,2-dichloroethane (Surrogate)	mg/kg	-	4.6	5	60 - 140	91
		d8-toluene (Surrogate)	mg/kg	-	4.2	5	60 - 140	83
		Bromofluorobenzene (Surrogate)	mg/kg	-	5.0	5	60 - 140	99
LB144210.002	Monocyclic	Benzene	mg/kg	0.1	2.1	2.9	60 - 140	72
	Aromatic	Toluene	mg/kg	0.1	2.1	2.9	60 - 140	71
		Ethylbenzene	mg/kg	0.1	2.3	2.9	60 - 140	79
		m/p-xylene	mg/kg	0.2	4.5	5.8	60 - 140	77
		o-xylene	mg/kg	0.1	2.3	2.9	60 - 140	78
	Surrogates	Dibromofluoromethane (Surrogate)	mg/kg	-	3.6	5	60 - 140	73
		d4-1,2-dichloroethane (Surrogate)	mg/kg	-	4.3	5	60 - 140	86
		d8-toluene (Surrogate)	mg/kg	-	4.0	5	60 - 140	80
		Bromofluorobenzene (Surrogate)	mg/kg	-	4.3	5	60 - 140	86

VOCs in Water

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

Sample Number		Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB144312.002	Monocyclic	Benzene	µg/L	0.5	50	45.45	60 - 140	110
	Aromatic	Toluene	µg/L	0.5	50	45.45	60 - 140	109
		Ethylbenzene	µg/L	0.5	49	45.45	60 - 140	109
		m/p-xylene	µg/L	1	99	90.9	60 - 140	109
		o-xylene	µg/L	0.5	49	45.45	60 - 140	109
	Surrogates	Dibromofluoromethane (Surrogate)	µg/L	-	3.6	5	60 - 140	72
		d4-1,2-dichloroethane (Surrogate)	µg/L	-	4.0	5	60 - 140	80
		d8-toluene (Surrogate)	µg/L	-	4.2	5	60 - 140	84
		Bromofluorobenzene (Surrogate)	µg/L	-	4.5	5	60 - 140	89

Volatile Petroleum Hydrocarbons in Soil

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

Sample Number		Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB144209.002		TRH C6-C10	mg/kg	25	<25	24.65	60 - 140	80
		TRH C6-C9	mg/kg	20	<20	23.2	60 - 140	73
	Surrogates	Dibromofluoromethane (Surrogate)	mg/kg	-	4.9	5	60 - 140	98
		d4-1,2-dichloroethane (Surrogate)	mg/kg	-	4.6	5	60 - 140	91
		d8-toluene (Surrogate)	mg/kg	-	4.2	5	60 - 140	83
		Bromofluorobenzene (Surrogate)	mg/kg	-	5.0	5	60 - 140	99
	VPH F Bands	TRH C6-C10 minus BTEX (F1)	mg/kg	25	<25	7.25	60 - 140	82
LB144210.002		TRH C6-C10	mg/kg	25	<25	24.65	60 - 140	80
		TRH C6-C9	mg/kg	20	<20	23.2	60 - 140	66
	Surrogates	Dibromofluoromethane (Surrogate)	mg/kg	-	3.6	5	60 - 140	73
		d4-1,2-dichloroethane (Surrogate)	mg/kg	-	4.3	5	60 - 140	86
		d8-toluene (Surrogate)	mg/kg	-	4.0	5	60 - 140	80
		Bromofluorobenzene (Surrogate)	mg/kg	-	4.3	5	60 - 140	86
	VPH F Bands	TRH C6-C10 minus BTEX (F1)	mg/kg	25	<25	7.25	60 - 140	90

Volatile Petroleum Hydrocarbons in Water

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

Sample Number		Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB144312.002		TRH C6-C10	µg/L	50	930	946.63	60 - 140	98
		TRH C6-C9	µg/L	40	760	818.71	60 - 140	93
	Surrogates	Dibromofluoromethane (Surrogate)	µg/L	-	4.3	5	60 - 140	85
		d4-1,2-dichloroethane (Surrogate)	µg/L	-	4.4	5	60 - 140	87
		d8-toluene (Surrogate)	µg/L	-	4.7	5	60 - 140	94
		Bromofluorobenzene (Surrogate)	µg/L	-	4.5	5	60 - 140	89
	VPH F Bands	TRH C6-C10 minus BTEX (F1)	µg/L	50	630	639.67	60 - 140	98

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

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

Mercury (dissolved) in Water

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

QC Sample	Sample Number	Parameter	Units	LOR	Result	Original	Spike	Recovery%
SE177041.030	LB144361.004	Mercury	mg/L	0.0001	0.0069	<0.0001	0.008	87

Mercury in Soil

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

QC Sample	Sample Number	Parameter	Units	LOR	Result	Original	Spike	Recovery%
SE177041.001	LB144375.004	Mercury	mg/kg	0.05	0.22	<0.05	0.2	97
SE177041.020	LB144380.004	Mercury	mg/kg	0.05	0.23	<0.05	0.2	97

OC Pesticides in Soil

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

QC Sample	Sample Number		Parameter	Units	LOR	Result	Original	Spike	Recovery%
SE177015.001	LB144195.027		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	122
			Aldrin	mg/kg	0.1	0.2	<0.1	0.2	124
			Beta BHC	mg/kg	0.1	<0.1	<0.1	-	-
			Delta BHC	mg/kg	0.1	0.2	<0.1	0.2	122
			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	119
			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	99
			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	-	0.16	0.16	-	108
SE177041.015	LB144196.021		Hexachlorobenzene (HCB)	mg/kg	0.1		<0.1	-	-
			Alpha BHC	mg/kg	0.1		<0.1	-	-
			Lindane	mg/kg	0.1		<0.1	-	-
			Heptachlor	mg/kg	0.1		<0.1	0.2	89
			Aldrin	mg/kg	0.1		<0.1	0.2	93
			Beta BHC	mg/kg	0.1		<0.1	-	-
			Delta BHC	mg/kg	0.1		<0.1	0.2	84
			Heptachlor epoxide	mg/kg	0.1		<0.1	-	-
			o,p'-DDE	mg/kg	0.1		<0.1	-	-
			Alpha Endosulfan	mg/kg	0.2		<0.2	-	-
			Gamma Chlordane	mg/kg	0.1		<0.1	-	-
			Alpha Chlordane	mg/kg	0.1		<0.1	-	-
			trans-Nonachlor	mg/kg	0.1		<0.1	-	-
			p,p'-DDE	mg/kg	0.1		<0.1	-	-
			Dieldrin	mg/kg	0.2		<0.2	0.2	94
			Endrin	mg/kg	0.2		<0.2	0.2	122
			o,p'-DDD	mg/kg	0.1		<0.1	-	-
			o,p'-DDT	mg/kg	0.1		<0.1	-	-
			Beta Endosulfan	mg/kg	0.2		<0.2	-	-
			p,p'-DDD	mg/kg	0.1		<0.1	-	-

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

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

OC Pesticides in Soil (continued)

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

QC Sample	Sample Number		Parameter	Units	LOR	Result	Original	Spike	Recovery%
SE177041.015	LB144196.021		p,p'-DDT	mg/kg	0.1		<0.1	0.2	82
			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	-	-
			Total CLP OC Pesticides	mg/kg	1		<1	-	-
		Surrogates	Tetrachloro-m-xylene (TCMX) (Surrogate)	mg/kg	-		0.13	-	85

OP Pesticides in Soil

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

QC Sample	Sample Number		Parameter	Units	LOR	Result	Original	Spike	Recovery%
SE177015.004	LB144195.026		Dichlorvos	mg/kg	0.5	1.7	<0.5	2	83
			Dimethoate	mg/kg	0.5	<0.5	<0.5	-	-
			Diazinon (Dimpylate)	mg/kg	0.5	1.7	<0.5	2	84
			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	1.7	<0.2	2	86
			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	1.6	<0.2	2	79
			Azinphos-methyl (Guthion)	mg/kg	0.2	<0.2	<0.2	-	-
			Total OP Pesticides*	mg/kg	1.7	6.6	<1.7	-	-
		Surrogates	2-fluorobiphenyl (Surrogate)	mg/kg	-	0.5	0.5	-	98
			d14-p-terphenyl (Surrogate)	mg/kg	-	0.5	0.5	-	104
SE177041.015	LB144196.021		Dichlorvos	mg/kg	0.5		<0.5	2	77
			Dimethoate	mg/kg	0.5		<0.5	-	-
			Diazinon (Dimpylate)	mg/kg	0.5		<0.5	2	83
			Fenitrothion	mg/kg	0.2		<0.2	-	-
			Malathion	mg/kg	0.2		<0.2	-	-
			Chlorpyrifos (Chlorpyrifos Ethyl)	mg/kg	0.2		<0.2	2	80
			Parathion-ethyl (Parathion)	mg/kg	0.2		<0.2	-	-
			Bromophos Ethyl	mg/kg	0.2		<0.2	-	-
			Methidathion	mg/kg	0.5		<0.5	-	-
			Ethion	mg/kg	0.2		<0.2	2	77
			Azinphos-methyl (Guthion)	mg/kg	0.2		<0.2	-	-
			Total OP Pesticides*	mg/kg	1.7		<1.7	-	-
		Surrogates	2-fluorobiphenyl (Surrogate)	mg/kg	-		0.5	-	96
			d14-p-terphenyl (Surrogate)	mg/kg	-		0.5	-	90

PAH (Polynuclear Aromatic Hydrocarbons) in Soil

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

QC Sample	Sample Number	Parameter	Units	LOR	Result	Original	Spike	Recovery%
SE177015.004	LB144195.026	Naphthalene	mg/kg	0.1	4.1	<0.1	4	102
		2-methylnaphthalene	mg/kg	0.1	<0.1	<0.1	-	-
		1-methylnaphthalene	mg/kg	0.1	<0.1	<0.1	-	-
		Acenaphthylene	mg/kg	0.1	4.0	<0.1	4	100
		Acenaphthene	mg/kg	0.1	3.9	<0.1	4	99
		Fluorene	mg/kg	0.1	<0.1	<0.1	-	-
		Phenanthrene	mg/kg	0.1	4.6	<0.1	4	116
		Anthracene	mg/kg	0.1	5.0	<0.1	4	124
		Fluoranthene	mg/kg	0.1	4.8	<0.1	4	119
		Pyrene	mg/kg	0.1	4.7	<0.1	4	118
		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	4.8	<0.1	4	121
		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	4.8	<0.2	-	-

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%
SE177015.004	LB144195.026		Carcinogenic PAHs, BaP TEQ <LOR=LOR	TEQ (mg/kg)	0.3	5.0	<0.3	-	-
			Carcinogenic PAHs, BaP TEQ <LOR=LOR/2	TEQ (mg/kg)	0.2	4.9	<0.2	-	-
			Total PAH (18)	mg/kg	0.8	36	<0.8	-	-
		Surrogates	d5-nitrobenzene (Surrogate)	mg/kg	-	0.5	0.5	-	92
			2-fluorobiphenyl (Surrogate)	mg/kg	-	0.5	0.5	-	98
			d14-p-terphenyl (Surrogate)	mg/kg	-	0.5	0.5	-	104
SE177041.015	LB144196.021		Naphthalene	mg/kg	0.1		<0.1	4	101
			2-methylnaphthalene	mg/kg	0.1		<0.1	-	-
			1-methylnaphthalene	mg/kg	0.1		<0.1	-	-
			Acenaphthylene	mg/kg	0.1		<0.1	4	107
			Acenaphthene	mg/kg	0.1		<0.1	4	100
			Fluorene	mg/kg	0.1		<0.1	-	-
			Phenanthrene	mg/kg	0.1		<0.1	4	99
			Anthracene	mg/kg	0.1		<0.1	4	108
			Fluoranthene	mg/kg	0.1		<0.1	4	105
			Pyrene	mg/kg	0.1		<0.1	4	99
			Benzo(a)anthracene	mg/kg	0.1		<0.1	-	-
			Chrysene	mg/kg	0.1		<0.1	-	-
			Benzo(b&j)fluoranthene	mg/kg	0.1		<0.1	-	-
			Benzo(k)fluoranthene	mg/kg	0.1		<0.1	-	-
			Benzo(a)pyrene	mg/kg	0.1		<0.1	4	123
			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	-	-
		Surrogates	d5-nitrobenzene (Surrogate)	mg/kg	-		0.5	-	92
			2-fluorobiphenyl (Surrogate)	mg/kg	-		0.5	-	96
			d14-p-terphenyl (Surrogate)	mg/kg	-		0.5	-	90

PCBs in Soil

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

QC Sample	Sample Number		Parameter	Units	LOR	Original	Spike	Recovery%
SE177041.002	LB144195.027		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	0.4	117
			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)	mg/kg	-	0	-	107
SE177041.015	LB144196.021		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	0.4	114
			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)	mg/kg	-	0	-	89

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

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

QC Sample	Sample Number	Parameter	Units	LOR

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

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

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

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

QC Sample	Sample Number	Parameter	Units	LOR	Result	Original	Spike	Recovery%
SE177041.001	LB144414.004	Arsenic, As	mg/kg	3	50	10	50	82
		Cadmium, Cd	mg/kg	0.3	46	<0.3	50	93
		Chromium, Cr	mg/kg	0.3	59	14	50	89
		Copper, Cu	mg/kg	0.5	63	13	50	99
		Nickel, Ni	mg/kg	0.5	46	1.5	50	90
		Lead, Pb	mg/kg	1	59	17	50	84
		Zinc, Zn	mg/kg	0.5	61	15	50	91
SE177041.020	LB144415.004	Arsenic, As	mg/kg	3	55	8	50	96
		Cadmium, Cd	mg/kg	0.3	53	<0.3	50	107
		Chromium, Cr	mg/kg	0.3	69	27	50	83
		Copper, Cu	mg/kg	0.5	88	29	50	117
		Nickel, Ni	mg/kg	0.5	63	23	50	80
		Lead, Pb	mg/kg	1	110	43	50	142 ⑨
		Zinc, Zn	mg/kg	0.5	180	130	50	88

Trace Metals (Dissolved) in Water by ICPMS

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

QC Sample	Sample Number	Parameter	Units	LOR	Result	Original	Spike	Recovery%
SE176947B.00	LB144357.004	Zinc, Zn	µg/L	5	160	140	20	98

TRH (Total Recoverable Hydrocarbons) in Soil

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

QC Sample	Sample Number		Parameter	Units	LOR	Result	Original	Spike	Recovery%
SE177015.004	LB144195.027		TRH C10-C14	mg/kg	20	39	<20	40	98
			TRH C15-C28	mg/kg	45	<45	<45	40	85
			TRH C29-C36	mg/kg	45	<45	<45	40	93
			TRH C37-C40	mg/kg	100	<100	<100	-	-
			TRH C10-C36 Total	mg/kg	110	<110	<110	-	-
			TRH C10-C40 Total (F bands)	mg/kg	210	<210	<210	-	-
		TRH F Bands	TRH >C10-C16	mg/kg	25	38	<25	40	95
			TRH >C10-C16 - Naphthalene (F2)	mg/kg	25	38	<25	-	-
			TRH >C16-C34 (F3)	mg/kg	90	<90	<90	40	88
			TRH >C34-C40 (F4)	mg/kg	120	<120	<120	-	-
SE177041.015	LB144196.022		TRH C10-C14	mg/kg	20		<20	40	100
			TRH C15-C28	mg/kg	45		<45	40	90
			TRH C29-C36	mg/kg	45		<45	40	78
			TRH C37-C40	mg/kg	100		<100	-	-
			TRH C10-C36 Total	mg/kg	110		<110	-	-
			TRH C10-C40 Total (F bands)	mg/kg	210		<210	-	-
		TRH F Bands	TRH >C10-C16	mg/kg	25		<25	40	100
			TRH >C10-C16 - Naphthalene (F2)	mg/kg	25		<25	-	-
			TRH >C16-C34 (F3)	mg/kg	90		<90	40	83
			TRH >C34-C40 (F4)	mg/kg	120		<120	-	-

VOC's in Soil

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

QC Sample	Sample Number		Parameter	Units	LOR	Result	Original	Spike	Recovery%
SE177041.001	LB144209.004	Monocyclic Aromatic	Benzene	mg/kg	0.1	1.9	<0.1	2.9	64
			Toluene	mg/kg	0.1	2.8	<0.1	2.9	97
			Ethylbenzene	mg/kg	0.1	1.9	<0.1	2.9	66
			m/p-xylene	mg/kg	0.2	4.0	<0.2	5.8	69
			o-xylene	mg/kg	0.1	1.8	<0.1	2.9	62
		Polycyclic	Naphthalene	mg/kg	0.1	<0.1	<0.1	-	-
		Surrogates	Dibromofluoromethane (Surrogate)	mg/kg	-	5.4	4.9	-	107
			d4-1,2-dichloroethane (Surrogate)	mg/kg	-	4.6	4.4	-	91
			d8-toluene (Surrogate)	mg/kg	-	3.5	3.9	-	70
			Bromofluorobenzene (Surrogate)	mg/kg	-	4.5	3.9	-	91
		Totals	Total Xylenes	mg/kg	0.3	5.8	<0.3	-	-
			Total BTEX	mg/kg	0.6	12	<0.6	-	-

VOCs in Water

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

QC Sample	Sample Number	Parameter	Units	LOR

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

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

VOCs in Water (continued)

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

QC Sample	Sample Number		Parameter	Units	LOR	Original	Spike	Recovery%
SE177107.006	LB144312.025	Monocyclic	Benzene	µg/L	0.5	0.03	45.45	108
		Aromatic	Toluene	µg/L	0.5	0.04	45.45	116
			Ethylbenzene	µg/L	0.5	0.02	45.45	129
			m/p-xylene	µg/L	1	0.02	90.9	111
			o-xylene	µg/L	0.5	0.01	45.45	122
		Polycyclic	Naphthalene	µg/L	0.5	0.01	-	-
		Surrogates	Dibromofluoromethane (Surrogate)	µg/L	-	5.9	-	125
			d4-1,2-dichloroethane (Surrogate)	µg/L	-	5.21	-	110
			d8-toluene (Surrogate)	µg/L	-	5.06	-	70
			Bromofluorobenzene (Surrogate)	µg/L	-	5.01	-	114

Volatile Petroleum Hydrocarbons in Soil

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

QC Sample	Sample Number		Parameter	Units	LOR	Result	Original	Spike	Recovery%
SE177009.001	LB144210.004		TRH C6-C10	mg/kg	25	<25	0	24.65	81
			TRH C6-C9	mg/kg	20	<20	0	23.2	79
		Surrogates	Dibromofluoromethane (Surrogate)	mg/kg	-	3.6	3.53	-	72
			d4-1,2-dichloroethane (Surrogate)	mg/kg	-	4.2	4.17	-	84
			d8-toluene (Surrogate)	mg/kg	-	3.9	4	-	78
			Bromofluorobenzene (Surrogate)	mg/kg	-	4.6	4.32	-	92
		VPH F	Benzene (F0)	mg/kg	0.1	2.0	0.04	-	-
		Bands	TRH C6-C10 minus BTEX (F1)	mg/kg	25	<25	-0.09	7.25	92
SE177041.001	LB144209.004		TRH C6-C10	mg/kg	25	<25	<25	24.65	72
			TRH C6-C9	mg/kg	20	<20	<20	23.2	72
		Surrogates	Dibromofluoromethane (Surrogate)	mg/kg	-	5.4	4.9	-	107
			d4-1,2-dichloroethane (Surrogate)	mg/kg	-	4.6	4.4	-	91
			d8-toluene (Surrogate)	mg/kg	-	3.5	3.9	-	70
			Bromofluorobenzene (Surrogate)	mg/kg	-	4.5	3.9	-	91
		VPH F	Benzene (F0)	mg/kg	0.1	1.9	<0.1	-	-
		Bands	TRH C6-C10 minus BTEX (F1)	mg/kg	25	<25	<25	7.25	73

Volatile Petroleum Hydrocarbons in Water

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

QC Sample	Sample Number		Parameter	Units	LOR	Result	Original	Spike	Recovery%
SE177107.006	LB144312.025		TRH C6-C10	µg/L	50	870	0	946.63	91
			TRH C6-C9	µg/L	40	740	0	818.71	90
		Surrogates	Dibromofluoromethane (Surrogate)	µg/L	-	0.0	5.9	-	125
			d4-1,2-dichloroethane (Surrogate)	µg/L	-	0.0	5.21	-	110
			d8-toluene (Surrogate)	µg/L	-	0.0	5.06	-	70
			Bromofluorobenzene (Surrogate)	µg/L	-	0.0	5.01	-	114
		VPH F	Benzene (F0)	µg/L	0.5	49	0.03	-	-
		Bands	TRH C6-C10 minus BTEX (F1)	µg/L	50	550	-0.12	639.67	86

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

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

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

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

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

No matrix spike duplicates were required for this job.

Samples analysed as received.

Solid samples expressed on a dry weight basis.

QC criteria are subject to internal review according to the SGS QA/QC plan and may be provided on request or alternatively can be found here: http://www.sgs.com.au/~/media/Local/Australia/Documents/Technical Documents/MP-AU-ENV-QU-022 QA QC Plan.pdf

*	NATA accreditation does not cover 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 Analytical Report comments for further information.

STATEMENT OF QA/QC PERFORMANCE

SE177041A R0

CLIENT DETAILS

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Project	**E23775 33 Brighton Ave, Croydon Park Add**
Order Number	**E23775**
Samples	33

LABORATORY DETAILS

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SGS Reference	**SE177041A R0**
Date Received	16 Apr 2018
Date Reported	17 Apr 2018

COMMENTS

All the laboratory data for each environmental matrix was compared to SGS' stated Data Quality Objectives (DQO). Comments arising from the comparison were made and are reported below.

The data relating to sampling was taken from the Chain of Custody document and was supplied by the Client.
This QA/QC Statement must be read in conjunction with the referenced Analytical Report.
The Statement and the Analytical Report must not be reproduced except in full.

All Data Quality Objectives were met (within the SGS Alexandria Environmental laboratory).

SAMPLE SUMMARY

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	1 Water
Date documentation received	16/4/18@11:02am	Type of documentation received	Email
Samples received in good order	Yes	Samples received without headspace	Yes
Sample temperature upon receipt	4.1°C	Sufficient sample for analysis	Yes
Turnaround time requested	Next Day		

HOLDING TIME SUMMARY

SE177041A 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
QRB1	SE177041A.033	LB145819	20 Mar 2018	16 Apr 2018	17 Apr 2018	17 Apr 2018	17 Apr 2018	17 Apr 2018

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
QRB1	SE177041A.033	LB145728	20 Mar 2018	16 Apr 2018	16 Sep 2018	16 Apr 2018	16 Sep 2018	16 Apr 2018

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.

Mercury (dissolved) in Water — Method: ME-(AU)-[ENV]AN311(Perth)/AN312

Sample Number	Parameter	Units	LOR	Result
LB145819.001	Mercury	mg/L	0.0001	<0.0001

Trace Metals (Dissolved) in Water by ICPMS — Method: ME-(AU)-[ENV]AN318

Sample Number	Parameter	Units	LOR	Result
LB145728.001	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

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 %
SE177774.001	LB145819.014	Mercury	µg/L	0.0001	-0.0098	-0.0008	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.

Trace Metals (Dissolved) in Water by ICPMS — **Method: ME-(AU)-[ENV]AN318**

Sample Number	Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB145728.002	Arsenic, As	µg/L	1	19	20	80 - 120	96
	Cadmium, Cd	µg/L	0.1	21	20	80 - 120	106
	Chromium, Cr	µg/L	1	22	20	80 - 120	108
	Copper, Cu	µg/L	1	22	20	80 - 120	112
	Lead, Pb	µg/L	1	21	20	80 - 120	106
	Nickel, Ni	µg/L	1	22	20	80 - 120	108
	Zinc, Zn	µg/L	5	21	20	80 - 120	105

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

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

Mercury (dissolved) in Water

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

QC Sample	Sample Number	Parameter	Units	LOR	Result	Original	Spike	Recovery%
SE177922.001	LB145819.004	Mercury	mg/L	0.0001	0.0064	-0.0018	0.008	81

Trace Metals (Dissolved) in Water by ICPMS

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

QC Sample	Sample Number	Parameter	Units	LOR	Result	Original	Spike	Recovery%
SE177041A.03	LB145728.004	Arsenic, As	µg/L	1	19	<1	20	97
3		Cadmium, Cd	µg/L	0.1	21	<0.1	20	106
		Chromium, Cr	µg/L	1	23	1	20	109
		Copper, Cu	µg/L	1	22	<1	20	112
		Lead, Pb	µg/L	1	23	<1	20	108
		Nickel, Ni	µg/L	1	22	<1	20	110
		Zinc, Zn	µg/L	5	22	<5	20	110

MATRIX SPIKE DUPLICATES

SE177041A R0

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

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

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

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

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

No matrix spike duplicates were required for this job.

Samples analysed as received.

Solid samples expressed on a dry weight basis.

QC criteria are subject to internal review according to the SGS QA/QC plan and may be provided on request or alternatively can be found here: http://www.sgs.com.au/~/media/Local/Australia/Documents/Technical Documents/MP-AU-ENV-QU-022 QA QC Plan.pdf

*	NATA accreditation does not cover 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 Analytical Report comments for further information.

STATEMENT OF QA/QC PERFORMANCE

SE177844 R0

CLIENT DETAILS

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Project	**E23775 33 Brighton Ave, Croydon Park NSW**
Order Number	**E23775**
Samples	9

LABORATORY DETAILS

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SGS Reference	**SE177844 R0**
Date Received	11 Apr 2018
Date Reported	16 Apr 2018

COMMENTS

All the laboratory data for each environmental matrix was compared to SGS' stated Data Quality Objectives (DQO). Comments arising from the comparison were made and are reported below.

The data relating to sampling was taken from the Chain of Custody document and was supplied by the Client.
This QA/QC Statement must be read in conjunction with the referenced Analytical Report.
The Statement and the Analytical Report must not be reproduced except in full.

All Data Quality Objectives were met (within the SGS Alexandria Environmental laboratory).

SAMPLE SUMMARY

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	9 Water
Date documentation received	11/4/2018	Type of documentation received	COC
Samples received in good order	Yes	Samples received without headspace	Yes
Sample temperature upon receipt	5.3°C	Sufficient sample for analysis	Yes
Turnaround time requested	Two Days		

HOLDING TIME SUMMARY

SE177844 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
BH1M-1	SE177844.001	LB145535	10 Apr 2018	11 Apr 2018	08 May 2018	13 Apr 2018	08 May 2018	13 Apr 2018
BH4M-1	SE177844.002	LB145535	10 Apr 2018	11 Apr 2018	08 May 2018	13 Apr 2018	08 May 2018	13 Apr 2018
BH7M-1	SE177844.003	LB145535	10 Apr 2018	11 Apr 2018	08 May 2018	13 Apr 2018	08 May 2018	13 Apr 2018
BH10M-1	SE177844.004	LB145535	10 Apr 2018	11 Apr 2018	08 May 2018	13 Apr 2018	08 May 2018	13 Apr 2018
BH13M-1	SE177844.005	LB145535	10 Apr 2018	11 Apr 2018	08 May 2018	13 Apr 2018	08 May 2018	13 Apr 2018
GWQD1	SE177844.006	LB145535	10 Apr 2018	11 Apr 2018	08 May 2018	13 Apr 2018	08 May 2018	13 Apr 2018
GWQR1	SE177844.007	LB145535	10 Apr 2018	11 Apr 2018	08 May 2018	13 Apr 2018	08 May 2018	13 Apr 2018

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
BH1M-1	SE177844.001	LB145572	10 Apr 2018	11 Apr 2018	17 Apr 2018	13 Apr 2018	23 May 2018	16 Apr 2018
BH4M-1	SE177844.002	LB145572	10 Apr 2018	11 Apr 2018	17 Apr 2018	13 Apr 2018	23 May 2018	16 Apr 2018
BH7M-1	SE177844.003	LB145572	10 Apr 2018	11 Apr 2018	17 Apr 2018	13 Apr 2018	23 May 2018	16 Apr 2018
BH10M-1	SE177844.004	LB145572	10 Apr 2018	11 Apr 2018	17 Apr 2018	13 Apr 2018	23 May 2018	16 Apr 2018
BH13M-1	SE177844.005	LB145572	10 Apr 2018	11 Apr 2018	17 Apr 2018	13 Apr 2018	23 May 2018	16 Apr 2018
GWQD1	SE177844.006	LB145572	10 Apr 2018	11 Apr 2018	17 Apr 2018	13 Apr 2018	23 May 2018	16 Apr 2018
GWQR1	SE177844.007	LB145572	10 Apr 2018	11 Apr 2018	17 Apr 2018	13 Apr 2018	23 May 2018	16 Apr 2018

Total Phenolics in Water

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

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
BH1M-1	SE177844.001	LB145516	10 Apr 2018	11 Apr 2018	08 May 2018	12 Apr 2018	08 May 2018	13 Apr 2018
BH4M-1	SE177844.002	LB145516	10 Apr 2018	11 Apr 2018	08 May 2018	12 Apr 2018	08 May 2018	13 Apr 2018
BH7M-1	SE177844.003	LB145516	10 Apr 2018	11 Apr 2018	08 May 2018	12 Apr 2018	08 May 2018	13 Apr 2018
BH10M-1	SE177844.004	LB145516	10 Apr 2018	11 Apr 2018	08 May 2018	12 Apr 2018	08 May 2018	13 Apr 2018
BH13M-1	SE177844.005	LB145516	10 Apr 2018	11 Apr 2018	08 May 2018	12 Apr 2018	08 May 2018	13 Apr 2018

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
BH1M-1	SE177844.001	LB145525	10 Apr 2018	11 Apr 2018	07 Oct 2018	13 Apr 2018	07 Oct 2018	16 Apr 2018
BH4M-1	SE177844.002	LB145525	10 Apr 2018	11 Apr 2018	07 Oct 2018	13 Apr 2018	07 Oct 2018	16 Apr 2018
BH7M-1	SE177844.003	LB145525	10 Apr 2018	11 Apr 2018	07 Oct 2018	13 Apr 2018	07 Oct 2018	16 Apr 2018
BH10M-1	SE177844.004	LB145525	10 Apr 2018	11 Apr 2018	07 Oct 2018	13 Apr 2018	07 Oct 2018	16 Apr 2018
BH13M-1	SE177844.005	LB145525	10 Apr 2018	11 Apr 2018	07 Oct 2018	13 Apr 2018	07 Oct 2018	16 Apr 2018
GWQD1	SE177844.006	LB145525	10 Apr 2018	11 Apr 2018	07 Oct 2018	13 Apr 2018	07 Oct 2018	16 Apr 2018
GWQR1	SE177844.007	LB145525	10 Apr 2018	11 Apr 2018	07 Oct 2018	13 Apr 2018	07 Oct 2018	16 Apr 2018

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
BH1M-1	SE177844.001	LB145572	10 Apr 2018	11 Apr 2018	17 Apr 2018	13 Apr 2018	23 May 2018	16 Apr 2018
BH4M-1	SE177844.002	LB145572	10 Apr 2018	11 Apr 2018	17 Apr 2018	13 Apr 2018	23 May 2018	16 Apr 2018
BH7M-1	SE177844.003	LB145572	10 Apr 2018	11 Apr 2018	17 Apr 2018	13 Apr 2018	23 May 2018	16 Apr 2018
BH10M-1	SE177844.004	LB145572	10 Apr 2018	11 Apr 2018	17 Apr 2018	13 Apr 2018	23 May 2018	16 Apr 2018
BH13M-1	SE177844.005	LB145572	10 Apr 2018	11 Apr 2018	17 Apr 2018	13 Apr 2018	23 May 2018	16 Apr 2018
GWQD1	SE177844.006	LB145572	10 Apr 2018	11 Apr 2018	17 Apr 2018	13 Apr 2018	23 May 2018	16 Apr 2018
GWQR1	SE177844.007	LB145572	10 Apr 2018	11 Apr 2018	17 Apr 2018	13 Apr 2018	23 May 2018	16 Apr 2018

VOCs in Water

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

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
BH1M-1	SE177844.001	LB145514	10 Apr 2018	11 Apr 2018	17 Apr 2018	12 Apr 2018	22 May 2018	13 Apr 2018
BH4M-1	SE177844.002	LB145514	10 Apr 2018	11 Apr 2018	17 Apr 2018	12 Apr 2018	22 May 2018	13 Apr 2018
BH7M-1	SE177844.003	LB145514	10 Apr 2018	11 Apr 2018	17 Apr 2018	12 Apr 2018	22 May 2018	13 Apr 2018
BH10M-1	SE177844.004	LB145514	10 Apr 2018	11 Apr 2018	17 Apr 2018	12 Apr 2018	22 May 2018	13 Apr 2018
BH13M-1	SE177844.005	LB145514	10 Apr 2018	11 Apr 2018	17 Apr 2018	12 Apr 2018	22 May 2018	13 Apr 2018
GWQD1	SE177844.006	LB145514	10 Apr 2018	11 Apr 2018	17 Apr 2018	12 Apr 2018	22 May 2018	13 Apr 2018
GWQR1	SE177844.007	LB145514	10 Apr 2018	11 Apr 2018	17 Apr 2018	12 Apr 2018	22 May 2018	13 Apr 2018
GWQTB1	SE177844.008	LB145514	10 Apr 2018	11 Apr 2018	17 Apr 2018	12 Apr 2018	22 May 2018	13 Apr 2018
GWQTS1	SE177844.009	LB145514	10 Apr 2018	11 Apr 2018	17 Apr 2018	12 Apr 2018	22 May 2018	13 Apr 2018

Volatile Petroleum Hydrocarbons in Water

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

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
BH1M-1	SE177844.001	LB145514	10 Apr 2018	11 Apr 2018	17 Apr 2018	12 Apr 2018	22 May 2018	13 Apr 2018
BH4M-1	SE177844.002	LB145514	10 Apr 2018	11 Apr 2018	17 Apr 2018	12 Apr 2018	22 May 2018	13 Apr 2018
BH7M-1	SE177844.003	LB145514	10 Apr 2018	11 Apr 2018	17 Apr 2018	12 Apr 2018	22 May 2018	13 Apr 2018

HOLDING TIME SUMMARY

SE177844 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.

Volatile Petroleum Hydrocarbons in Water (continued)

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

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
BH10M-1	SE177844.004	LB145514	10 Apr 2018	11 Apr 2018	17 Apr 2018	12 Apr 2018	22 May 2018	13 Apr 2018
BH13M-1	SE177844.005	LB145514	10 Apr 2018	11 Apr 2018	17 Apr 2018	12 Apr 2018	22 May 2018	13 Apr 2018
GWQD1	SE177844.006	LB145514	10 Apr 2018	11 Apr 2018	17 Apr 2018	12 Apr 2018	22 May 2018	13 Apr 2018
GWQR1	SE177844.007	LB145514	10 Apr 2018	11 Apr 2018	17 Apr 2018	12 Apr 2018	22 May 2018	13 Apr 2018
GWQTB1	SE177844.008	LB145514	10 Apr 2018	11 Apr 2018	17 Apr 2018	12 Apr 2018	22 May 2018	13 Apr 2018
GWQTS1	SE177844.009	LB145514	10 Apr 2018	11 Apr 2018	17 Apr 2018	12 Apr 2018	22 May 2018	13 Apr 2018

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)	BH1M-1	SE177844.001	%	40 - 130%	44
	BH4M-1	SE177844.002	%	40 - 130%	48
	BH7M-1	SE177844.003	%	40 - 130%	44
	BH10M-1	SE177844.004	%	40 - 130%	44
	BH13M-1	SE177844.005	%	40 - 130%	48
d14-p-terphenyl (Surrogate)	BH1M-1	SE177844.001	%	40 - 130%	64
	BH4M-1	SE177844.002	%	40 - 130%	56
	BH7M-1	SE177844.003	%	40 - 130%	62
	BH10M-1	SE177844.004	%	40 - 130%	66
	BH13M-1	SE177844.005	%	40 - 130%	58
d5-nitrobenzene (Surrogate)	BH1M-1	SE177844.001	%	40 - 130%	44
	BH4M-1	SE177844.002	%	40 - 130%	44
	BH7M-1	SE177844.003	%	40 - 130%	42
	BH10M-1	SE177844.004	%	40 - 130%	44
	BH13M-1	SE177844.005	%	40 - 130%	46

VOCs in Water

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

Parameter	Sample Name	Sample Number	Units	Criteria	Recovery %
Bromofluorobenzene (Surrogate)	BH1M-1	SE177844.001	%	40 - 130%	102
	BH4M-1	SE177844.002	%	40 - 130%	111
	BH7M-1	SE177844.003	%	40 - 130%	107
	BH10M-1	SE177844.004	%	40 - 130%	105
	BH13M-1	SE177844.005	%	40 - 130%	129
	GWQD1	SE177844.006	%	40 - 130%	81
	GWQR1	SE177844.007	%	40 - 130%	78
	GWQTB1	SE177844.008	%	40 - 130%	79
	GWQTS1	SE177844.009	%	40 - 130%	105
d4-1,2-dichloroethane (Surrogate)	BH1M-1	SE177844.001	%	40 - 130%	97
	BH4M-1	SE177844.002	%	40 - 130%	81
	BH7M-1	SE177844.003	%	40 - 130%	112
	BH10M-1	SE177844.004	%	40 - 130%	105
	BH13M-1	SE177844.005	%	40 - 130%	107
	GWQD1	SE177844.006	%	40 - 130%	115
	GWQR1	SE177844.007	%	40 - 130%	105
	GWQTB1	SE177844.008	%	40 - 130%	101
	GWQTS1	SE177844.009	%	40 - 130%	90
d8-toluene (Surrogate)	BH1M-1	SE177844.001	%	40 - 130%	91
	BH4M-1	SE177844.002	%	40 - 130%	107
	BH7M-1	SE177844.003	%	40 - 130%	92
	BH10M-1	SE177844.004	%	40 - 130%	93
	BH13M-1	SE177844.005	%	40 - 130%	105
	GWQD1	SE177844.006	%	40 - 130%	85
	GWQR1	SE177844.007	%	40 - 130%	112
	GWQTB1	SE177844.008	%	40 - 130%	115
	GWQTS1	SE177844.009	%	40 - 130%	106
Dibromofluoromethane (Surrogate)	BH1M-1	SE177844.001	%	40 - 130%	89
	BH4M-1	SE177844.002	%	40 - 130%	77
	BH7M-1	SE177844.003	%	40 - 130%	106
	BH10M-1	SE177844.004	%	40 - 130%	96
	BH13M-1	SE177844.005	%	40 - 130%	107
	GWQD1	SE177844.006	%	40 - 130%	114
	GWQR1	SE177844.007	%	40 - 130%	102
	GWQTB1	SE177844.008	%	40 - 130%	99
	GWQTS1	SE177844.009	%	40 - 130%	89

Volatile Petroleum Hydrocarbons in Water

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

Parameter	Sample Name	Sample Number	Units	Criteria	Recovery %
Bromofluorobenzene (Surrogate)	BH1M-1	SE177844.001	%	40 - 130%	78
	BH4M-1	SE177844.002	%	40 - 130%	80
	BH7M-1	SE177844.003	%	40 - 130%	87
	BH10M-1	SE177844.004	%	40 - 130%	75
	BH13M-1	SE177844.005	%	40 - 130%	77

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

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

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

Parameter	Sample Name	Sample Number	Units	Criteria	Recovery %
Bromofluorobenzene (Surrogate)	GWQD1	SE177844.006	%	40 - 130%	81
	GWQR1	SE177844.007	%	40 - 130%	78
d4-1,2-dichloroethane (Surrogate)	BH1M-1	SE177844.001	%	60 - 130%	97
	BH4M-1	SE177844.002	%	60 - 130%	82
	BH7M-1	SE177844.003	%	60 - 130%	113
	BH10M-1	SE177844.004	%	60 - 130%	105
	BH13M-1	SE177844.005	%	60 - 130%	107
	GWQD1	SE177844.006	%	60 - 130%	115
	GWQR1	SE177844.007	%	60 - 130%	105
d8-toluene (Surrogate)	BH1M-1	SE177844.001	%	40 - 130%	76
	BH4M-1	SE177844.002	%	40 - 130%	70
	BH7M-1	SE177844.003	%	40 - 130%	81
	BH10M-1	SE177844.004	%	40 - 130%	87
	BH13M-1	SE177844.005	%	40 - 130%	83
	GWQD1	SE177844.006	%	40 - 130%	85
	GWQR1	SE177844.007	%	40 - 130%	112
Dibromofluoromethane (Surrogate)	BH1M-1	SE177844.001	%	40 - 130%	86
	BH4M-1	SE177844.002	%	40 - 130%	75
	BH7M-1	SE177844.003	%	40 - 130%	103
	BH10M-1	SE177844.004	%	40 - 130%	94
	BH13M-1	SE177844.005	%	40 - 130%	103
	GWQD1	SE177844.006	%	40 - 130%	114
	GWQR1	SE177844.007	%	40 - 130%	102

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
LB145535.001	Mercury	mg/L	0.0001	<0.0001

PAH (Polynuclear Aromatic Hydrocarbons) in Water

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

Sample Number		Parameter	Units	LOR	Result
LB145572.001		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)	%	-	60
		2-fluorobiphenyl (Surrogate)	%	-	68
		d14-p-terphenyl (Surrogate)	%	-	72

Total Phenolics in Water

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

Sample Number	Parameter	Units	LOR	Result
LB145516.001	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
LB145525.001	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
LB145572.001	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
LB145514.001	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
LB145514.001	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	Dibromofluoromethane (Surrogate)	%	-	85
		d4-1,2-dichloroethane (Surrogate)	%	-	96
		d8-toluene (Surrogate)	%	-	119
		Bromofluorobenzene (Surrogate)	%	-	116
	Trihalomethanes	Chloroform (THM)	µg/L	0.5	<0.5
		Bromodichloromethane (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
LB145514.001	Trihalomethanes	Dibromochloromethane (THM)	µg/L	0.5	<0.5
		Bromoform (THM)	µg/L	0.5	<0.5

Volatile Petroleum Hydrocarbons in Water

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

Sample Number		Parameter	Units	LOR	Result
LB145514.001		TRH C6-C9	µg/L	40	<40
	Surrogates	Dibromofluoromethane (Surrogate)	%	-	85
		d4-1,2-dichloroethane (Surrogate)	%	-	96
		d8-toluene (Surrogate)	%	-	119
		Bromofluorobenzene (Surrogate)	%	-	116

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 %
SE177844.007	LB145535.011	Mercury	µg/L	0.0001	<0.0001	<0.0001	200	0

Total Phenolics in Water

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

Original	Duplicate	Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE177354.026	LB145516.004	Total Phenols	mg/L	0.01	-0.00365	-0.0045	200	0

Trace Metals (Dissolved) in Water by ICPMS

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

Original	Duplicate	Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE177844.002	LB145525.014	Arsenic, As	µg/L	1	<1	<1	184	0
		Cadmium, Cd	µg/L	0.1	<0.1	<0.1	130	0
		Chromium, Cr	µg/L	1	1	1	96	8
		Copper, Cu	µg/L	1	60	61	17	3
		Lead, Pb	µg/L	1	4	4	39	7
		Nickel, Ni	µg/L	1	73	75	16	2
		Zinc, Zn	µg/L	5	280	290	17	1
SE177844.007	LB145525.020	Arsenic, As	µg/L	1	<1	<1	200	0
		Cadmium, Cd	µg/L	0.1	<0.1	<0.1	200	0
		Chromium, Cr	µg/L	1	<1	<1	200	0
		Copper, Cu	µg/L	1	<1	<1	200	0
		Lead, Pb	µg/L	1	<1	<1	200	0
		Nickel, Ni	µg/L	1	<1	<1	200	0
		Zinc, Zn	µg/L	5	63	64	23	0

VOCs in Water

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

Original	Duplicate		Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE177844.001	LB145514.022	Fumigants	2,2-dichloropropane	µg/L	0.5	<0.5	0	200	0
			1,2-dichloropropane	µg/L	0.5	<0.5	0	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	200	0
			1,2-dibromoethane (EDB)	µg/L	0.5	<0.5	0	200	0
		Halogenated	Dichlorodifluoromethane (CFC-12)	µg/L	5	<5	0	200	0
		Aliphatics	Chloromethane	µg/L	5	<5	0	200	0
			Vinyl chloride (Chloroethene)	µg/L	0.3	<0.3	0	200	0
			Bromomethane	µg/L	10	<10	0	200	0
			Chloroethane	µg/L	5	<5	0	200	0
			Trichlorofluoromethane	µg/L	1	<1	0	200	0
			Iodomethane	µg/L	5	<5	0	200	0
			1,1-dichloroethene	µg/L	0.5	<0.5	0	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	200	0
			1,1-dichloroethane	µg/L	0.5	<0.5	0	200	0
			cis-1,2-dichloroethene	µg/L	0.5	<0.5	0	200	0
			Bromochloromethane	µg/L	0.5	<0.5	0	200	0
			1,2-dichloroethane	µg/L	0.5	<0.5	0	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	200	0
			1,1,2-trichloroethane	µg/L	0.5	<0.5	0	200	0
			1,3-dichloropropane	µg/L	0.5	<0.5	0	200	0
			Tetrachloroethene (Perchloroethylene,PCE)	µg/L	0.5	<0.5	0	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	200	0
			1,2,3-trichloropropane	µg/L	0.5	<0.5	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.

VOCs in Water (continued)

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

Original	Duplicate		Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE177844.001	LB145514.022	Halogenated Aliphatics	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 Aromatics	Chlorobenzene	µg/L	0.5	<0.5	0	200	0
			Bromobenzene	µg/L	0.5	<0.5	0	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	200	0
			1,4-dichlorobenzene	µg/L	0.3	<0.3	0	200	0
			1,2-dichlorobenzene	µg/L	0.5	<0.5	0	200	0
			1,2,4-trichlorobenzene	µg/L	0.5	<0.5	0	200	0
			1,2,3-trichlorobenzene	µg/L	0.5	<0.5	0	200	0
		Monocyclic Aromatic	Benzene	µg/L	0.5	<0.5	0.04	200	0
			Toluene	µg/L	0.5	<0.5	0.09	200	0
			Ethylbenzene	µg/L	0.5	<0.5	0.01	200	0
			m/p-xylene	µg/L	1	<1	0.02	200	0
			o-xylene	µg/L	0.5	<0.5	0.01	200	0
			Styrene (Vinyl benzene)	µg/L	0.5	<0.5	0	200	0
			Isopropylbenzene (Cumene)	µg/L	0.5	<0.5	0	200	0
			n-propylbenzene	µg/L	0.5	<0.5	0	200	0
			1,3,5-trimethylbenzene	µg/L	0.5	<0.5	0	200	0
			tert-butylbenzene	µg/L	0.5	<0.5	0	200	0
			1,2,4-trimethylbenzene	µg/L	0.5	<0.5	0	200	0
			sec-butylbenzene	µg/L	0.5	<0.5	0	200	0
			p-isopropyltoluene	µg/L	0.5	<0.5	0	200	0
			n-butylbenzene	µg/L	0.5	<0.5	0	200	0
		Nitrogenous	Acrylonitrile	µg/L	0.5	<0.5	0	200	0
		Oxygenated Compounds	Acetone (2-propanone)	µg/L	10	<10	0	200	0
			MtBE (Methyl-tert-butyl ether)	µg/L	2	<2	0	200	0
			Vinyl acetate	µg/L	10	<10	0	200	0
			MEK (2-butanone)	µg/L	10	<10	0	200	0
			MIBK (4-methyl-2-pentanone)	µg/L	5	<5	0	200	0
			2-hexanone (MBK)	µg/L	5	<5	0	200	0
		Polycyclic	Naphthalene	µg/L	0.5	<0.5	0.02	200	0
		Sulphonated	Carbon disulfide	µg/L	2	<2	0	200	0
		Surrogates	Dibromofluoromethane (Surrogate)	µg/L	-	4.4	5.61	30	24
			d4-1,2-dichloroethane (Surrogate)	µg/L	-	4.9	5.82	30	18
			d8-toluene (Surrogate)	µg/L	-	4.5	4.94	30	9
			Bromofluorobenzene (Surrogate)	µg/L	-	5.1	5.1	30	0
		Trihalomethanes	Chloroform (THM)	µg/L	0.5	<0.5	0	200	0
			Bromodichloromethane (THM)	µg/L	0.5	<0.5	0	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 %
SE177764.002	LB145514.024	Surrogates	Dibromofluoromethane (Surrogate)	µg/L	-	5.28	5.88	30	11
			d4-1,2-dichloroethane (Surrogate)	µg/L	-	5.17	5.96	30	14
			d8-toluene (Surrogate)	µg/L	-	5	5.02	30	0
			Bromofluorobenzene (Surrogate)	µg/L	-	3.95	3.96	30	0
		VPH F Bands	Benzene (F0)	µg/L	0.5	0	0	200	0
SE177844.001	LB145514.022		TRH C6-C10	µg/L	50	<50	0	200	0
			TRH C6-C9	µg/L	40	<40	0	200	0
		Surrogates	Dibromofluoromethane (Surrogate)	µg/L	-	4.3	5.5	30	24
			d4-1,2-dichloroethane (Surrogate)	µg/L	-	4.9	5.86	30	18
			d8-toluene (Surrogate)	µg/L	-	3.8	5	30	27
			Bromofluorobenzene (Surrogate)	µg/L	-	3.9	3.95	30	1
		VPH F Bands	Benzene (F0)	µg/L	0.5	<0.5	0.04	200	0
			TRH C6-C10 minus BTEX (F1)	µg/L	50	<50	-0.17	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 %
LB145572.002		Naphthalene	µg/L	0.1	33	40	60 - 140	82
		Acenaphthylene	µg/L	0.1	36	40	60 - 140	91
		Acenaphthene	µg/L	0.1	31	40	60 - 140	78
		Phenanthrene	µg/L	0.1	40	40	60 - 140	100
		Anthracene	µg/L	0.1	35	40	60 - 140	88
		Fluoranthene	µg/L	0.1	39	40	60 - 140	97
		Pyrene	µg/L	0.1	38	40	60 - 140	96
		Benzo(a)pyrene	µg/L	0.1	34	40	60 - 140	86
	Surrogates	d5-nitrobenzene (Surrogate)	µg/L	-	0.3	0.5	40 - 130	50
		2-fluorobiphenyl (Surrogate)	µg/L	-	0.3	0.5	40 - 130	52
		d14-p-terphenyl (Surrogate)	µg/L	-	0.3	0.5	40 - 130	50

Total Phenolics in Water

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

Sample Number	Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB145516.002	Total Phenols	mg/L	0.01	0.21	0.25	80 - 120	86

Trace Metals (Dissolved) in Water by ICPMS

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

Sample Number	Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB145525.002	Arsenic, As	µg/L	1	19	20	80 - 120	96
	Cadmium, Cd	µg/L	0.1	18	20	80 - 120	92
	Chromium, Cr	µg/L	1	19	20	80 - 120	97
	Copper, Cu	µg/L	1	20	20	80 - 120	98
	Lead, Pb	µg/L	1	19	20	80 - 120	97
	Nickel, Ni	µg/L	1	19	20	80 - 120	97
	Zinc, Zn	µg/L	5	19	20	80 - 120	95

TRH (Total Recoverable Hydrocarbons) in Water

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

Sample Number		Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB145572.002		TRH C10-C14	µg/L	50	1000	1200	60 - 140	86
		TRH C15-C28	µg/L	200	1200	1200	60 - 140	102
		TRH C29-C36	µg/L	200	1500	1200	60 - 140	122
	TRH F Bands	TRH >C10-C16	µg/L	60	1200	1200	60 - 140	96
		TRH >C16-C34 (F3)	µg/L	500	1300	1200	60 - 140	111
		TRH >C34-C40 (F4)	µg/L	500	780	600	60 - 140	129

VOCs in Water

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

Sample Number		Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB145514.002	Halogenated	1,1-dichloroethene	µg/L	0.5	50	45.45	60 - 140	111
	Aliphatics	1,2-dichloroethane	µg/L	0.5	50	45.45	60 - 140	110
		Trichloroethene (Trichloroethylene,TCE)	µg/L	0.5	50	45.45	60 - 140	109
	Halogenated	Chlorobenzene	µg/L	0.5	49	45.45	60 - 140	109
	Monocyclic	Benzene	µg/L	0.5	50	45.45	60 - 140	110
	Aromatic	Toluene	µg/L	0.5	49	45.45	60 - 140	109
		Ethylbenzene	µg/L	0.5	50	45.45	60 - 140	109
		m/p-xylene	µg/L	1	99	90.9	60 - 140	109
		o-xylene	µg/L	0.5	49	45.45	60 - 140	108
	Surrogates	Dibromofluoromethane (Surrogate)	µg/L	-	5.2	5	60 - 140	104
		d4-1,2-dichloroethane (Surrogate)	µg/L	-	4.8	5	60 - 140	96
		d8-toluene (Surrogate)	µg/L	-	4.4	5	60 - 140	88
		Bromofluorobenzene (Surrogate)	µg/L	-	5.0	5	60 - 140	99
	Trihalomethan	Chloroform (THM)	µg/L	0.5	50	45.45	60 - 140	110

Volatile Petroleum Hydrocarbons in Water

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

Sample Number		Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB145514.002		TRH C6-C10	µg/L	50	740	946.63	60 - 140	78
		TRH C6-C9	µg/L	40	950	818.71	60 - 140	116
	Surrogates	Dibromofluoromethane (Surrogate)	µg/L	-	4.8	5	60 - 140	97
		d4-1,2-dichloroethane (Surrogate)	µg/L	-	4.6	5	60 - 140	91
		d8-toluene (Surrogate)	µg/L	-	4.4	5	60 - 140	88
		Bromofluorobenzene (Surrogate)	µg/L	-	5.6	5	60 - 140	112
	VPH F Bands	TRH C6-C10 minus BTEX (F1)	µg/L	50	430	639.67	60 - 140	67

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%
SE177844.001	LB145535.004	Mercury	mg/L	0.0001	0.0081	<0.0001	0.008	101

Trace Metals (Dissolved) in Water by ICPMS

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

QC Sample	Sample Number	Parameter	Units	LOR	Result	Original	Spike	Recovery%
SE177311RE.0	LB145525.004	Cadmium, Cd	µg/L	0.1	20	<0.1	20	99

VOCs in Water

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

QC Sample	Sample Number		Parameter	Units	LOR	Original	Spike	Recovery%
SE177844.006	LB145514.021	Monocyclic	Benzene	µg/L	0.5	<0.5	45.45	93
		Aromatic	Toluene	µg/L	0.5	<0.5	45.45	93
			Ethylbenzene	µg/L	0.5	<0.5	45.45	95
			m/p-xylene	µg/L	1	<1	90.9	95
			o-xylene	µg/L	0.5	<0.5	45.45	97
		Polycyclic	Naphthalene	µg/L	0.5	<0.5	-	-
		Surrogates	Dibromofluoromethane (Surrogate)	µg/L	-	5.7	-	92
			d4-1,2-dichloroethane (Surrogate)	µg/L	-	5.7	-	96
			d8-toluene (Surrogate)	µg/L	-	4.2	-	82
			Bromofluorobenzene (Surrogate)	µg/L	-	4.1	-	87

Volatile Petroleum Hydrocarbons in Water

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

QC Sample	Sample Number		Parameter	Units	LOR	Original	Spike	Recovery%
SE177844.006	LB145514.021		TRH C6-C10	µg/L	50	<50	946.63	69
			TRH C6-C9	µg/L	40	<40	818.71	75
		Surrogates	Dibromofluoromethane (Surrogate)	µg/L	-	5.7	-	92
			d4-1,2-dichloroethane (Surrogate)	µg/L	-	5.7	-	96
			d8-toluene (Surrogate)	µg/L	-	4.2	-	82
			Bromofluorobenzene (Surrogate)	µg/L	-	4.1	-	87
		VPH F	Benzene (F0)	µg/L	0.5	<0.5	-	-
		Bands	TRH C6-C10 minus BTEX (F1)	µg/L	50	<50	639.67	61

MATRIX SPIKE DUPLICATES

SE177844 R0

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

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

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

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

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

No matrix spike duplicates were required for this job.

Samples analysed as received.

Solid samples expressed on a dry weight basis.

QC criteria are subject to internal review according to the SGS QA/QC plan and may be provided on request or alternatively can be found here: http://www.sgs.com.au/~/media/Local/Australia/Documents/Technical Documents/MP-AU-ENV-QU-022 QA QC Plan.pdf

*	NATA accreditation does not cover 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 Analytical Report comments for further information.

Appendix J- QA/QC Assessment

J1QUALITY CONTROL PROGRAM

J1.1PROJECT QA/QC PROTOCOLS

The overall quality assurance comprises an assessment of the reliability of the field procedures and the laboratory results against standard industry practices, documented sampling and analysis plans or remediation action plans. A summary of the project QA/QC protocols to be followed during the investigation works is presented in **Table J-1.**

Table J-1QA/QC Protocols

Task	Description	Project
Field QA/QC		
General	Work was be undertaken following standard field procedures which are based on industry accepted standard practice.	Soil samples were generally collected directly off the drilling rods or hand auger. Soil samples were placed in 250 gram glass jars, which were filled to minimise headspace, and sealed using Teflon-coated lids.
	All fieldwork was supervised by a suitably qualified and experienced scientist or engineer.	Yes
Soil screening with PID	The PID was serviced and calibrated as per the manufacturer requirements. PID calibrated at the beginning and end of each day of fieldwork.	Yes
Equipment decontamination / Rinsate Samples	Sampling equipment to be decontaminated after the collection of each sample by washing with phosphate-free detergent (such as Decon 90) and potable water, followed by a final distilled water rinse. One rinsate blank would be collected per sampling event and analysed for the primary contaminants. All results should be non-detect.	Part Rinsate samples were collected for both soil and groundwater sampling events. Analytes were below the laboratory PQLs, with the exception of zinc in the groundwater. And chromium, copper, lead, nickel and zinc in the soil investigation. The metals found in reinstate were low in comparison to the corresponding groundwater and soil results. EI considers decontamination procedures were adequate and the collected data is still valid.
Transport	Samples were stored in ice-brick cooled cooler box and transported to the primary and secondary laboratories. To ensure the integrity of the samples from collection to receipt by the analytical laboratory, samples were sent by courier to the laboratories under 'chain of custody' describing sample preservation, and transport duration.	Yes

Task	Description	Project
Trip Blanks	Trip blank samples were prepared and analysed by the primary laboratory for BTEX and naphthalene. Analytical results for trip blank samples below the laboratory PQLs, indicate that ideal sample transport and handling conditions are achieved.	Yes
Trip Spikes	Trip spike samples were prepared and analysed by the primary laboratory for BTEX. Acceptance criteria of BTEX spike recoveries are between 70% - 130%.	Yes Volatile contamination was not identified in any of soil samples or detected through field soil vapour screening with PID or unusual odour. Samples were stored under chilled / refrigerated conditions on site and in the laboratory and thus potential volatile losses were minimised. The absence of trip spike result does not affect the overall reliability of the data. Recoveries of the trip spike for Solis and GMEs was within the acceptance criteria.
QA samples	Field and laboratory QA samples will be analysed as follows: intra-laboratory and inter-laboratory duplicate samples will be collected at a rate of 1 pair per 20 primary samples	Part See **Table J-2** Calculated RPD (**table B.3)** values between most primary and field duplicate samples are within the acceptance criteria (**Section J1.2**), with the exception of: • Between soil sample BH8_0.3-0.4 and QT1: o Chromium (160.40%) o Lead (199.30%) o Nickel (191.20%) o Zinc (71.26%) • Between water sample BH1M-1 and GWQD1: o Chromium (66.67%) o Copper (61.22%) o Lead (80.00%) • Between water sample BH1M-1 and GWQT1: o Chromium (66.67%) o Copper (78.26%) o Lead (80.00%) The exceedances were considered a result of sample heterogeneity. RPD exceedances in question do not affect the overall conclusion drawn in regards to soil and groundwater conditions at the site.
Laboratory QA/QC		

Task	Description	Project
Laboratory analysis	The laboratories selected are NATA accredited for the analytes selected and perform their own internal QA/QC programs	Yes SGS - primary laboratory Envirolab - secondary laboratory The laboratory QA/QC reports are included in **Appendix I.**
	Appropriate detection limits were used for the analyses to be undertaken.	Practical Quantitation Limits for all tested parameters during the assessment of soils and groundwater are presented in summary tables **Table B.1 – B.2**
	Methods followed are generally in accordance with the requirements of NEPM (2013).	Yes
Holding Times	Holding times are the maximum permissible elapsed time in days from the collection of the sample to its extraction and/or analysis. All extraction and analyses should be completed within standard guidelines.	Yes
Laboratory Duplicates	Laboratory duplicates are field samples that are split in the laboratory and subsequently analysed a number of times in the same batch. These sub-samples are selected by the laboratory to assess the accuracy and precision of the analytical method. The selected laboratories should undertake QA/QC procedures such as calibration standards, laboratory control samples, surrogates, reference materials, sample duplicates and matrix spikes. Intra-laboratory duplicates should be performed at a frequency of 1 per 10 samples.	The Laboratory duplicate samples for the analysis batches showed most calculated RPDs that were within acceptable ranges and conformed to the DAC. Exceptions are noted to be: • SE177041.010 o Copper (42%). • SE177041.019 o Chromium (57%) • SE177041.029 o Chromium (55%) o Copper (52%) o Lead (42%) o Zinc (47%) Exceedances of the acceptable ranges were attributed to sample heterogeneity.
Laboratory Control Standard	A laboratory control standard is a standard reference material used in preparing primary standards. The concentration should be equivalent to a mid-range standard to confirm the primary calibration. Laboratory control samples should be performed on a frequency of 1 per 20 samples or at least one per analytical run.	The Laboratory Control Samples for the analysis batches were within acceptable ranges.

Task	Description	Project
Matrix Spikes / Matrix Spike Duplicates (MS/MSD)	MS/MSDs are field samples to which a predetermined stock solution of known concentration has been added. The samples are then analysed for recovery of the known addition. Recoveries should be within the stated laboratory control limits of 70 to 130% and duplicates should have RPDs of less than 50%.	Most MS / MSD for the analysis batches were within acceptable ranges with the exception of: • SE177041.020: o Lead (142%) Recovery failure was attributed to sample heterogeneity.
Surrogate Spikes	Surrogate spikes provide a means of checking, for every analysis that no gross errors have occurred at any stage of the procedure leading to significant analyte loss. Recoveries should be within the stated laboratory control limits of 70 to 130%.	Surrogate spikes for the analysis batches were within acceptable ranges.
QA/QC Conclusion	The QA/QC indicators should either all comply with the required standards or showed no variations that would have no significant effect on the quality of the data.	EI considers that although a small number of discrepancies were identified, which in most cases could be attributed to the heterogeneous nature of the submitted samples, the data generally confirms that the analytical results for the various phases of laboratory testing were valid and useable for interpretation purposes.

J1.2 Calculation of Relative Percentage Difference (RPD)

The RPD values were calculated using the following equation:

$$RPD = \frac{|C_O - C_R|}{[(C_O + C_R)/2]} \times 100$$

Where:

C_O = Concentration obtained for the primary sample; and

C_R = Concentration obtained for the blind replicate or split duplicate sample.

Data precision would be deemed acceptable if RPDs are found to be less than 30%. RPDs that exceed this range may be considered acceptable where:

- Results are less than 10 times the limits of reporting (LOR);
- Results are less than 20 times the LOR and the RPD is less than 50%; or
- Heterogeneous materials or volatile compounds are encountered.

In cases where RPD value was considered unacceptable, the analytical results of primary and duplicate samples were both reviewed against the adopted assessment criteria. If the review indicates the variations in data between the primary and duplicate samples would result in a different conclusion (e.g. the higher concentration is failing the assessment criteria), the need for re-sampling / validation would be considered.

J2FIELD QA/QC DATA PROGRAM

J2.1FIELD QA SAMPLING PROGRAM

The field quality assurance/quality control (QA/QC) samples collected during the investigation works are summarised on **Table J-2.** Inter-lab duplicates were analysed by the secondary laboratory, Envirolab. Analytical results of the Field QA samples are tabulated in **Table J-3**, alongside calculated RPDs between the primary and field duplicate samples.

Table J-2Field QA Sampling Program

Activity	Matrix	No. Primary Samples	Primary Sample ID	Intra-Lab Duplicate ID	Inter-Lab Duplicate ID	No. of Duplicates	Duplicate Ratio
Field QA Samples - Duplicates							
Soil Investigation	Soil	28	BH8_0.3-0.4	QD1	QT1	2	1:14
GME	Water	5	BH1M-1	GWQD1	GWQT1	2	2:5
Other Field QA Samples							
Soil Investigation	Soil	TB1 – trip blank TS1 – trip spike					
	Water	QR1 – rinsate QRB1 – rinsate blank					
GME	Water	GWQR - Rinsate GWTB – Trip blank GWTS – Trip spike					

J2.2Field Data Quality Indicators

A discussion of the field data quality indicators is presented below.

Table J-4Field Data Quality Indicators

QA/QC Measures	Field Data Quality Indicators	Conformance / Comments
Precision – A quantitative measure of the variability (or reproducibility) of data	Standard operation procedures appropriate and complied with	Yes
Completeness – A measure of the amount of useable data from a data collection activity	Each critical location sampled	Yes
	Samples collected at targeted locations and depth	Yes
	SAQP appropriate and complied with	Yes
	Experienced sampler	Yes
	Field documentation correct	Yes

QA/QC Measures	Field Data Quality Indicators	Conformance / Comments
Comparability – The confidence (expressed qualitatively) that data may be considered to be equivalent for each sampling and analytical event	Same sampling method used on each occasion/location	Yes
	Experienced sampler	Yes
	Climatic conditions (temperature, rainfall, wind)	Climate conditions were recorded to be fine. These climatic conditions unlikely had significant influence on the results of the investigation.
	Same type of samples collected (filtered, size, fractions)	Yes
Representativeness – The confidence (expressed qualitatively) that data are representative of each medium present onsite	Appropriate media sampled according to SAQP	Yes
	Each media identified in SAQP sampled	Yes
	Appropriate sample collection methodologies, handling, storage and preservation techniques used	Yes
	Consistency between field observations and laboratory results.	Yes
Accuracy – A quantitative measure of the closeness of reported data to the "true" value	Standard operation procedures appropriate and complied with	Yes
	Calibration of instruments against known standards	Yes

J2.3 CONCLUSION FOR THE FIELD QA/QC

Based on the above review of the field QA/QC data EI considered the field QA/QC programme carried out during the investigations to be appropriate and the results to be acceptable.

J3LABORATORY QA/QC

J3.1LABORATORY ACCREDITATION

Primary and intra-laboratory duplicate samples were analysed by SGS Alexandria Environmental, NSW; inter-laboratory triplicate samples were analysed by Envirolab, Chatswood NSW; all laboratories are accredited by NATA for the analyses undertaken.

A discussion of the laboratory DQIs is presented below.

Table J-5Lab Data Quality Indicators

QA/QC Measures	Laboratory Data Quality Indicators	Conformance/Comments
Completeness – A measure of the amount of useable data from a data collection activity	All critical samples analysed according to SAQP and proposal	Yes
	All analytes analysed according to SAQP in proposal	Yes
	Appropriate methods and PQLs	Yes
	Sample documentation complete	Yes
	Sample holding times complied with	Yes
Comparability – The confidence (expressed qualitatively) that data may be considered to be equivalent for each sampling and analytical event	Same sample analytical methods used (including clean-up)	Yes
	Same Sample PQLs	Yes
	Same laboratories (NATA-accredited)	Yes
	Same units	Yes
Representativeness – The confidence (expressed qualitatively) that data are representative of each medium present onsite	All key samples analysed according to SAQP in the proposal.	Yes
	Analysis of laboratory-prepared volatile trip spikes and trip blanks	Yes
Precision – A quantitative measure of the variability (or reproducibility) of data	Analysis of laboratory and inter-laboratory duplicates	Yes
	Analysis of field duplicates	Yes
Accuracy – A quantitative measure of the closeness of reported data to the	Analysis of rinsate blanks	Yes
	Analysis of reagent blanks	Not applicable
	Analysis of method blanks	Yes

QA/QC Measures	Laboratory Data Quality Indicators	Conformance/Comments
"true" value	Analysis of matrix spikes (MS)	Yes
	Analysis of matrix spike duplicates (MSD)	Yes
	Analysis of surrogate spikes	Yes
	Analysis of reference materials	Not applicable
	Analysis of laboratory control samples	Yes
	Analysis of laboratory-prepared spikes	Yes

Overall, it is considered that the laboratory data quality objectives for this project have been attained.

J3.2Conclusions on Lab QA/QC

Based on the laboratory QA/QC results EI considers that although a small number of discrepancies were identified, which in most cases could be attributed to the non-homogenous nature of the submitted samples, the data generally confirms that the analytical results for the various phases of laboratory testing were valid and useable for interpretation purposes.

J4Summary of Project QA/QC

The sampling methods (including sample preservation, transport and decontamination procedures) and laboratory methods followed during this investigation works were mostly consistent with EI protocols and meeting the DQOs for this project. Some discrepancies from the DQOs were reported however they were considered to not be detrimental to the validity of collected data. It is therefore considered that the data is sufficiently precise and accurate and that the results can be relied upon for interpretation.