

The background of the entire page is a low-angle, upward-looking photograph of a modern skyscraper. The building's facade is composed of a grid of glass panels and dark structural elements, reflecting the sky. The perspective creates a strong sense of height and architectural scale.

Site Investigation for Characterisation of Imported Soil

50 Peter Brock Drive, Eastern Creek NSW

Sydney Indoor MX Dome and Eastern Creek Karts
8 October 2020

20160



Quality Management

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This report was prepared in accordance with the scope of services set out in the contract between Zoic Environmental Pty Ltd, ABN 23 154 745 525, and the client.

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Executive Summary

Zoic Environmental Pty Ltd (Zoic) was engaged by City Plan Services Pty Ltd, on behalf of Sydney Indoor MX Dome and Eastern Creek Karts (the client), to conduct an investigation for characterisation of imported material to 50 Peter Brock Drive, Eastern Creek NSW. The site location and layout are shown on Figures 1 and 2 of Appendix A, respectively. The 'site' comprised a portion of the Sydney Premier Karting Park, currently used as an event carpark. This investigation was required to characterise the status of material imported to the site for development of the existing event parking area. The material had been reported imported to the site during the period early 2018 to mid-2019 to create the existing footprint for the carpark.

The objectives of the investigation were to characterise the status of the materials at the site with respect to contamination guidelines, and identify whether there is any risk of harm to human health or the environment from the presence of this material.

The scope of work included:

- A desktop review for the site.
- Site inspection and drilling of 18 boreholes to a maximum depth of 5.5m.
- Field screening of soil samples using a photoionisation detector (PID).
- Recording of investigation locations using GPS.
- Laboratory analysis of selected soil samples for identified contaminants of potential concern (COPC).
- Compilation of this report signed off by a Certified Environmental Practitioner – Site Contamination (CEnvP-SC).

A review of documentation provided by Matt Bartolo, representing the client, showed the materials imported onto the site had been classified as Virgin Excavated Natural Material (VENM) by various consultants. Site observations indicated that the imported materials extended across almost the entire site, noting that imported soils were not observed along some narrow portions of the perimeters of the parking area. Drilling works indicated an average the depth of these soils at approximately 4.0m below ground surface (bgs), with the deepest layer encountered in the south-eastern portion (approximately 5.3m bgs) and shallowest in the north-eastern portion (3.1m bgs). Imported soils observed beneath the surface sandy gravel material during the investigation were generally consistent with VENM materials detailed on documentation provided, primarily comprising clay soil (silty, sandy, and/or gravelly) and shale, with sandstone noted in areas. No anthropogenic materials such as building and construction waste were observed in the soil profile.

Soil analytical data reported all contaminant of potential concern (COPC) concentrations as identified above below the adopted human health and ecological criteria for commercial / industrial land use. No fibre cement fragments were observed on the ground surface during the site inspection, or in soil during the subsurface investigation. Asbestos was not detected in any of the soil samples submitted for laboratory analysis.

No further action is required under Clause 7 of State Environmental Planning Policy (SEPP) No 55: Remediation of Land. As site contamination above adopted criteria was not identified by the investigation detailed in this report, the site is considered to comply with Clause 7(1)(a) of SEPP 55 which requires consideration of 'whether the land is contaminated'. Based on this premise, Clauses 7(1)(b) and 7(1)(c) are not considered relevant to the site.



1. Introduction

Zoic Environmental Pty Ltd (Zoic) was engaged by City Plan Services Pty Ltd, on behalf of Indoor MX Dome and Eastern Creek Karts (the client), to conduct an investigation for characterisation of imported materials to 50 Peter Brock Drive, Eastern Creek NSW. The site location and layout are shown on Figures 1 and 2 of Appendix A, respectively.

The 'site' comprised a portion of the Sydney Premier Karting Park, currently used as an event carpark. This investigation was required to characterise the status of material imported to the site for development of the existing event parking area. The material had been reported imported to the site during the period early 2018 to mid-2019 to create the existing footprint for the carpark.

This investigation has been completed in accordance with relevant guidelines made or approved by the NSW EPA.

1.1 Objectives

The objectives of the investigation were to characterise the status of the materials at the site with respect to contamination guidelines, and identify whether there is any risk of harm to human health or the environment from the presence of this material.

1.2 Scope of Works

The scope of work included:

- A desktop review for the site.
- An inspection to assess site conditions.
- Drilling of 18 boreholes to a maximum depth of 5.5m.
- Collection of soil samples from the 18 boreholes.
- Field screening of soil samples using a photoionisation detector (PID).
- Recording of investigation locations using GPS.
- Laboratory analysis of selected soil samples for heavy metals (arsenic, cadmium, chromium, copper, lead, mercury, nickel, zinc); benzene, toluene, ethylbenzene and xylenes (BTEX); total recoverable hydrocarbons (TRH); polycyclic aromatic hydrocarbons (PAH); organochlorine pesticides (OCP); organophosphorus pesticides (OPP); and asbestos.
- Compilation of this report signed off by a Certified Environmental Practitioner – Site Contamination (CEnvP-SC).



2. Site Identification

Relevant site information and surrounding land use details are provided below.

2.1 Site Identification

Table 2.1: Site Identification Details

Title	Details
Site Address:	50 Peter Brock Drive, Eastern Creek NSW
Current Site Ownership:	Sydney Premier Karting Park
Geographical Coordinates to approximate centre of site:	-33.805908, 150.884009
Site area:	Approximately 1 ha
Local Government Area:	Blacktown City Council
Land Zoning:	IN1 General Industrial
Current Use:	Car park
Future Use:	Car park

2.2 Surrounding Land Use

The land use immediately adjoining the site is described as follows:

Table 2.2 Site Surrounds

Direction	Details
North	Commercial / industrial land use: ORAFOL Australia Distribution Service (reflective and graphics products).
East	Commercial / industrial land use: Workhorse Collision Repairs.
South	Bushland, with Prospect Reservoir beyond.
West	Sydney Premier Karting Park.



3. Background Information

3.1 Site Condition and Environment

Details on the site condition and environmental setting are summarised below using observations from the site inspection, and information sourced from Enviroportal (Contaminated Land WebApp).

Table 3.1 Current Site Condition

Item	Details
Site Description	The site comprised a parking area, which was observed to be elevated from the surrounding area by approximately 1.5 – 3.5m. The site consisted of three parking terraces at differing levels, decreasing in elevation from the south to the north and connected by roadways proximate to the eastern and western site boundaries. The car parking area is accessed from the sites south-western corner. The surface was mostly covered by a sandy gravel material, across the parking and access areas. Remaining site areas (primarily embankments) comprised mostly grassed soil generally consistent with those observed subsurface during the site investigation. Additional site observations are provided in Section 8.
Topography and Drainage	Site parking surfaces were mostly flat, consisting of three terraced areas of differing levels with the southern terrace being the highest terrace. Surface water in levelled parking areas is anticipated to mostly infiltrate surface gravels. Surplus runoff of surface water is anticipated to flow towards the north generally, although some runoff from embankments at the car park perimeters would flow towards the most proximate boundary. No stormwater infrastructure was present onsite. Topographic records indicate that the site area prior to filling is at approximately 80m AHD. The surrounding terrain to the site is flat with a slight slope downward towards the general north noted.
Boundary Condition	The site was surrounded by steel fencing approximately 2m in height, containing barbed wire along eastern and southern boundaries. A gap in fencing was present in the south-western corner where access is gained from the wider karting property, which is fenced with gated access from Peter Brock Drive.
Vegetation	Outside the parking / roadway areas, the site was mostly grassed. Trees were present along the north-western boundary. Areas to the immediate south of site comprise bushland. No stressed vegetation was observed.
Presence of Drums, Wastes and Fill Materials	Site areas were mostly raised from surrounding land, potentially indicative of fill material Small oil drums were observed in the south-eastern corner of the site, with no stains observed on the surrounding ground surface.
Odours	No chemical odours were observed during site works.
Conditions of Buildings and Roads	Site parking areas / roadways comprised a sandy gravel material, with inconsistent ground surfaces observed in some sloped areas potentially indicative of surface water runoff. No buildings were present on the site.
Quality of Surface Water	Surface water was not assessed as part of this investigation.



Relevant Local Sensitive Environments

Sensitive human receptors associated with the site are site occupants (parking area for site events) and site workers (if present).

The closest ecological receptors are trees on the sites north-western boundary and bushland to the immediate south.

The closest surface water receptors are:

- Prospect Reservoir approximately 1km south of site.
- Bungarribee Creek approximately 1km north-east of site.
- Eastern Creek approximately 2km west of site.

3.2 Geology, Hydrogeology and Hydrology

The geology, hydrogeology and hydrology of the site is summarised below.

Table 3.2 Summary of Geology, Hydrogeology and Hydrology

Source	Details
Soil	The Penrith 1:100000 Soil Landscape Map (Department of Primary Industries – DPI) indicates that the site is located on the Blacktown Residual soil landscape group. Landscapes for this group generally comprises gently undulating rises on Wianamatta Group shales, local relief to 30 m, slopes of greater than 5%, and broad rounded crests and ridges with gently inclined slopes. Soils comprise shallow to moderately deep hardsetting mottled texture contrast soil, and red to brown podzolic soils on crests grading to yellow podzolic soils on lower slopes and in drainage lines. Limitations include localised seasonal waterlogging, localised water erosion hazard, moderately reactive highly plastic subsoil, and localised surface movement potential.
Geology	The Penrith 1:100000 Geological Map (9030) indicates that the site is located on Wianamatta Group (Mesozoic) shale, carbonaceous claystone, claystone, laminate, fine to medium grained lithic sandstone, rare coal, and tuff.
Acid Sulfate Soils (ASS)	NSW Department of Planning, Industry and Environment (DPIE) Acid Sulfate Soil Risk Mapping indicates that the site is in an area of no known occurrence.
Fill material	Imported materials were encountered across the site.
Summary of Registered Bores	A search of the DPI database revealed no registered groundwater bores within 1km of the site. The closest registered groundwater bore was located approximately 1.5km to the north-east, which did not detail any standing water level (SWL) information.
Depth to Groundwater	Details are not available, although groundwater was not encountered during the site investigation which extended to a maximum depth of 5.5m below the current ground surface (into natural soils).
Direction and Rate of groundwater Flow	Based on topographical features, groundwater beneath the site is expected to flow towards the general north to north-east towards the nearest receptor Bungarribee Creek.
Nearest Water Body	The nearest water bodies are: • Prospect Reservoir approximately 1km south of site. • Bungarribee Creek approximately 1km north-east of site.

3.3 Site History

Available information on site history is summarised below:



Table 3.3 Summary of Site History

Source	Details
EPA Records	The site is not listed on the EPA's register of contaminated sites, has not been notified as contaminated to the EPA, and is not subject to a licence under the POEO Act (1997)
Dangerous Goods Records	A review of the Dangerous Goods Records for this site was not conducted. No dangerous goods requiring a licence have been reported to be present on the site by Matt Bartolo, who represents the client.
Aerial Photographs	Current and historic aerial photographs were reviewed to identify materials imported to the site associated with construction of the existing carpark, understood to have taken place between early 2018 and mid-2019. Findings from the aerial photograph review are summarised as follows: • 1994: The site comprised undeveloped grassed land. An access road was present to the south of the site, and a dam to the north. The karting track had not yet been developed at the wider 50 Peter Brock Drive site, nor had currently existing commercial properties to the north and east of the site. • 2007: The site primarily remained grassed area. Karting activities to the west had been established. • 2007-2015: The site remained primarily grassed area. Stockpiled materials were visible on the ground surface at times throughout this period. In 2014-2015, material appeared to have been placed along the site's eastern boundary, potentially associated with site works to the east where land development was apparent. • 2018 (May): Material appeared to have been placed across majority of the sites south-western portion. Stockpiles were visible on the sites south-western boundary. • 2018 (December): Additional material was visible across the site, which appeared to have been spread for site coverage. • 2019 (April): Darker surface material had been placed across site surfaces used for parking / access (understood to comprise a sandy gravel material based on site observations). Concrete blocks were present, understood to control parking on the site. Darker surface patches were apparent in areas. A storage container was present in the sites south-eastern corner. • 2020 (August): The site appeared similar to the previous photograph, although additional materials were stored on the ground surface in northern portions of the site (generally consistent with that observed during the site investigation). Patches of lighter material were also visible on darker surface gravels, potentially indicative of runoff. Based on the above review, the site was vacant until sometime between 2015 and May 2018 when the majority of the imported material started to appear which then continued into 2019. This is consistent with the anecdotal information provided by Mr Bartolo to Zoic.

3.4 VENM Documentation

Information provided by the client indicates that virgin excavated natural material (VENM) from various source sites as detailed in Table 3.4 below has been imported to the 50 Peter Brock Drive property, including the site area subject to this investigation. Tracking documents associated with the VENM sites below have been provided in Appendix H, along with relevant certificates.



Table 3.4: Imported VENM Documentation

Document	Report Date	Material Description	Material Classification	Reported Volume at Source Site
Report on Offsite Disposal Classification: 5 Uhrig Road, Lidcombe NSW. Enviroprotect (Vic) Pty Ltd.	April 2018.	Pale grey to dark grey weathered siltstone with minor sand with red mottles. Shale with sandstone laminations.	VENM.	Not detailed.
Report on Offsite Disposal Classification: 76-100 Church Street, Parramatta NSW. Enviroprotect (Vic) Pty Ltd.	April 2018.	Silty clay. Siltstone.	VENM.	50,000m3
Waste Analysis and Classification Report: 6-14 Walker Street, Rhodes NSW. ADE Consulting Group.	24 July 2018.	Dark grey shale.	VENM.	170,000m3
Waste Classification Certificate: Reserve Road, St Leonards NSW. EI Australia.	1 November 2018.	Brown to grey to orange silty clay. Yellow to red to orange sandstone.	VENM.	5000m3.
Waste Classification Certificate: 121 Arbutus Street and 134-136 Cambridge Street, Canley Heights NSW. EI Australia.	5 December 2018.	Brown to grey silty clay and shale.	VENM.	5700m3.
Waste Classification: 17-21 Mary Street, Auburn NSW. ERM.	7 December 2018.	Grey to orange to dark brown sandy clay.	VENM.	30,000m3
VENM Report: 37-39 Punchbowl Road, Belfield NSW. Aargus Pty Ltd.	20 December 2018.	Silty to shaley clay. Shale.	VENM.	Not detailed.
Waste Classification Certificate: 6-8 Cross Street, Hurstville. EI Australia.	15 January 2019.	Grey slightly weathered shale with red mottles.	VENM.	18,000m3.
Waste Classification: 13-19 Glen Street, Eastwood NSW. ERM.	5 February 2019.	Red to orange to grey clay and clayey shale.	VENM.	40,000m3
VENM Soil Classification: 6A, 8, 8B & 8C Monash Road, Gladesville NSW. Geo-Logic Solutions.	14 February 2019.	Brown to grey clay and weathered shale.	VENM.	9000m3
Summary of VENM Certificates Provided	Information provided by Mr Bartolo indicates that VENM from the sites above was imported to the 50 Peter Brock Drive property, including the site, between 2018 and 2019. Certificate dates range from April 2018 to February 2019, which aligns with this information. Noting that volume estimates were not provided for two of the certificates, volumes indicated account for 327,700m3 of material. It is not known, however, what portion of the material from each site was taken to the property. It is noted that tracking documentation received is understood to include partial VENM importation only, based on volumes presented. Zoic has not reviewed the authenticity of VENM certificates or tracking documentation as part of this investigation.			



4. Data Quality Objectives

The data quality objectives (DQO) process is a systematic planning tool based on the scientific method for establishing criteria for data quality and for developing data collection designs. The DQOs define the experimental process required to test a hypothesis. By using the DQO process to plan the investigation effort, the relevant parties can improve the effectiveness, efficiency and defensibility of a decision in a resource and cost-effective manner.

Data quality objectives (DQOs) developed for the validation assessment are discussed in the following sections.

4.1 State the Problem

Investigation was required to characterise the status of the soils imported to the site to form the event parking area and identify whether there is any risk of harm to human health or the environment from the presence of this material.

4.2 Identify the Decision

The following decisions were required to be made during the investigations:

- Have soils at the site been characterised and do they meet the criteria for commercial/industrial sites?
- Are there any human health or ecological risks at the site, based on the findings of this investigation?

4.3 Identified Inputs to the Decision

Inputs in the decision are:

- Site history.
- Physical observations and photographs.
- Field screening of soil samples.
- Soil analytical data.

4.4 Define the Study Boundaries

The approximate site area is shown on Figure 2.

The maximum vertical extent of the investigation was from the existing site surface to approximately 5.5m below ground surface (bgs).

Seasonality was not considered relevant to the investigation.



4.5 Develop a Decision Rule

The decision rules adopted to answer the decisions outlined in Section 4.2 are summarised in the following table:

Table 4.1: Decision Rules

No.	Decision to be Made	Decision Rule
1	Have soils at the site been characterised and do they meet the criteria for commercial/industrial sites?	If reported contaminant concentrations in soil at the site have been compared and meet with the adopted soil criteria (Section 6.1), the answer is yes.
2	Are there any human health or ecological risks at the site, based on the findings of this investigation?	If reported contaminant concentrations in imported materials at the site are not compliant with the adopted soil criteria (Section 6.1), the answer is no, and further action is required.

4.6 Specify Limits of Decision Error

This step is to establish the decision maker's tolerable limits on decision errors, which are used to establish performance goals for limiting uncertainty in the data. Data generated during this project must be appropriate to allow decisions to be made with confidence.

Specific limits for this project have been adopted in accordance with the appropriate guidance from the *NSW EPA National Environment Protection (Assessment of Site Contamination) Measure (NEPC 2013)*, appropriate data quality indicators (DQIs) (used to assess QA/QC) and standard procedures for field sampling and handling.

To assess the usability of the data prior to making decisions, the data was assessed against predetermined DQIs established for the project as discussed below in relation to precision, accuracy, representativeness, comparability, and completeness and sensitivity (PARCCS parameters). The acceptable limit on decision error is 95% compliance with DQIs.

The DQIs and data assessment criteria are summarised in Table 4.2.

Table 4.2: Summary of Quality Assurance/Quality Control

Data Quality Objectives	Frequency	Data Quality Indicator
Precision		
Blind duplicates (intra laboratory) for primary COC only	1/20 Samples	<50% RPD
Laboratory duplicate	1/20 Samples	<50% RPD
Accuracy		
Surrogate spikes	All organic samples	70-130%
Laboratory control samples	1 per lab batch	70-130%
Matrix spikes	1 per lab batch	70-130%
Representativeness		
Sampling appropriate for media and analytes	-	Yes
Samples extracted and analysed within holding times.	-	Organics (7-14 days), inorganics (6 months)
Trip spike (for volatiles)	Not required based on scope of investigation	NA



Data Quality Objectives	Frequency	Data Quality Indicator
Trip blank	Not required based on scope of investigation	NA
Rinsate	Not required based on scope of investigation	NA
Comparability		
Standard operating procedures for sample collection & handling	All samples	Yes
Standard analytical methods used for all analyses	All samples	Yes
Consistent field conditions, sampling staff and laboratory analysis	All samples	Yes
Limits of reporting appropriate and consistent	All samples	Yes
Completeness		
Sample description and COCs completed and appropriate	All samples	Yes
Appropriate documentation	All samples	Yes
Satisfactory frequency and result for QC samples	All samples	Yes
Data from critical samples is considered valid	-	Critical samples valid
Sensitivity		
Analytical methods and limits of recovery appropriate for media and adopted site assessment criteria	-	LOR<= Site assessment criteria

4.7 Optimise the Design for Obtaining Data

With consideration to the investigation objectives, the review of available information, and the evaluation of operational decision rules, a resource-effective sampling and analysis plan is presented in Section 5 of this report.



5. Sampling and Analysis Plan

The rationale behind the sampling and analysis plan is presented in the sections below.

5.1 Sampling Pattern

Based on an estimated footprint of 7,500 – 8,000 m² occupied by the car parking area, 18 sampling points forming a grid were selected to characterise the material based on the sample numbers recommended in the NSW EPA (1995) Sampling Design Guidelines.

Soil investigation locations are shown on Figure 3.

5.2 Soil Sampling Methodology

Intrusive sampling was carried out using a drill rig fitted with a solid flight auger:

- Ground conditions were logged with detail on stratigraphy, discolouration, staining, odours, moisture or other indicators of contamination.
- Field samples were screened for volatiles using a PID.
- Soil samples were taken with clean disposable nitrile gloves directly from the auger with care taken to collect soil that had not come into contact with the auger stem. Samples were then placed in laboratory-supplied sample containers with a Teflon sealed lid.
- Samples were placed in an iced Esky to cool samples.
- Containers were labelled with the sample number, project number and date with samples despatched under a chain of custody.
- Samples were transported to the primary laboratory, Envirolab Services in Sydney, after the completion of soil sampling activities to allow technical holding times for analysis to be achieved and to minimise any interference with the samples.

5.3 Analytical Schedule

Selected soil samples were selectively analysed for a broad range of environmental contaminants including heavy metals, TRH, BTEX, PAH, OCP, OPP, and asbestos to provide representative analysis for material types likely to be present at the site, as discussed in Section 8.2.

5.4 Field QA/QC Sampling

The methodology for obtaining QA/QC samples was conducted as follows:

Duplicate / Triplicate Samples

Soil duplicate and triplicate samples were analysed for the soil sampling event. Each sample was collected from the same sampling point as the primary sample and divided into three separate and unrelated sample containers for analysis at the primary laboratory (intra-laboratory precision) and secondary laboratory (inter-laboratory precision).

- DUP-1 / TRIP-1 = BH2 (0.5)
- DUP-2 / TRIP-2 = BH11 (2.5)



6. Site Investigation Criteria

The criteria below have been developed based on site land use as a car park.

- NEPM (2013) Health Investigation Levels (HIL) and Health Screening Levels (HSL) for Commercial / Industrial land use (D) for coarse soils / 0 to <1m (most conservative).
- NEPM (2013) Ecological Investigation Levels (EIL) and Ecological Screening Levels (ESL) for Commercial / Industrial land use (D) (most conservative pH and CEC).

It is noted that ecological soil criteria are only considered applicable to site areas with vegetation, and ecological receptors potentially exposed to site soils (if apparent).

Table 6.1: Adopted Soil Criteria (mg/kg)

Criteria	Soil HIL D	Soil HSL D	Soil EIL D	Soil ESL D
TRH				
F1		260		215
F2		NL		170
C6-C10				
>C10-C16				
F3 (>C16-C34)				1700
F4 (>C34-C40)				3300
BTEX				
Benzene		3		75
Toluene		NL		135
Ethylbenzene		NL		165
Xylenes (Total)		230		95
PAHs				
Naphthalene		NL	370	
Benzo (a) Pyrene	40			1.4
Total PAHs	4000			
Heavy Metals				
Arsenic	3000		160	
Cadmium	900			
Chromium (VI)	3600		310	
Copper	240000		85	
Lead	1500		1800	
Mercury	730			
Nickel	6000		55	
Zinc	400000		110	
Pesticides				
DDT+DDE+DDD	3600			
DDT			640	



Criteria	Soil HIL D	Soil HSL D	Soil EIL D	Soil ESL D
Aldrin and dieldrin	45			
Chlordane	530			
Endosulfan	2000			
Endrin	100			
Heptachlor	50			
HCB	80			
Methoxychlor	2500			
Chlorpyrifos	2000			
Asbestos				
Asbestos	Presence			



7. Field Observations

Site works were completed on 26-27 August 2020. Observations made during the investigation are detailed below.

7.1 General Site Observations

The key observations made during the site inspection are summarised below.

- The site comprised a parking area, which was observed to be elevated from the surrounding area by approximately 1.5 – 3.5m. The site consisted of three parking terraces at differing levels, decreasing in elevation from the south to the north and connected by roadways proximate to the eastern and western site boundaries. The car parking area is accessed from the sites south-western corner.
- The surface was mostly covered by a sandy gravel material, across the parking and access areas. Remaining site areas (primarily embankments) comprised mostly grassed soil generally consistent with those observed subsurface during the site investigation.
- Concrete blocks interlinked by steel chains were present across the site to control traffic and parking. Materials were stored in the site's south-eastern corner, including household items, wooden crates/poles, tyres, small oil drums, steel fencing, and plastic pipes.
- Two steel containers were present in the sites south-eastern corner, which were not accessible during the investigation. Mr Bartolo advised Zoic that building materials are stored in these containers. No stains were observed on ground surfaces surrounding the containers.
- Disturbance of surface materials was apparent in areas, particularly access paths, embankments and along site boundaries, potentially a result of surface water runoff.
- Trees were present on the north-western site boundary, and on land to the immediate south, which did not exhibit signs of stress.
- No fibre cement fragments were observed on the ground surface during the site walkover completed by Zoic.

7.2 Subsurface Observations

General subsurface observations made during drilling are summarised in Table 7.1 below. Identified depth and thickness ranges are noted to be approximate, based on site observations.

Site investigation indicated an average imported soil depth of approximately 4.0m at the site, with deepest areas in the south-eastern site portion (5.3m bgs) and shallowest in the north-eastern portion (3.1m bgs). Imported soils observed beneath the surface sandy gravel material during the investigation were generally consistent with VENM materials detailed on the documentation provided (Section 3.4), primarily comprising clay soils (silty, sandy, and/or gravelly) and shale, with sandstone noted in some areas. Noted exceptions were silty clay materials with gravels (BH14) and cementitious type material (BH18), neither of which exhibited signs of signs of contamination. No anthropogenic materials such as building and construction waste or fibre cement fragments were observed in the soil profile.

Based on depths of imported soil encountered during site works, there is estimated to be between 30,000 - 40,000m³ of imported soil present across the investigation area. Imported soils were



underlain by natural red to brown silty clay. Natural shale bedrock was encountered at one location (BH1), beneath the natural silty clay at 3.8m bgs.

Table 7.1: Subsurface Observations

Material Description	Locations Encountered	Depth Range (m bgs)	Thickness Range (m)	Anthropogenic Inclusions	Samples Analysed
Sandy gravel, brown to dark grey.	16	0.0 – 0.2	0.2	None observed.	1
Gravelly silty clay, grey to brown to red, with shale and sandstone inclusions in areas.	18	0.2 – 5.3	0.4 – 3.8	None observed.	7
Silty clay, brown to grey to orange, with sandstone inclusions in areas.	9	0.2 – 2.6	1.0 – 2.0	None observed.	3
Silty shale, grey.	9	0.2 – 3.8	0.6 - 2.0	None observed.	3
Sandy clay, light grey.	1	1.8 – 2.1	0.3	None observed.	1
Crushed sandstone, light brown to red.	1	2.6 – 2.8	0.2	None observed.	1
Gravelly sandy clay, grey.	1	1.1 – 2.2	1.1	None observed.	1
Silty clay with gravels, brown to grey.	1	0.0 – 1.2	1.2	None observed.	1

The following observations were also made during the site drilling investigation:

- Groundwater was not encountered during the investigation.
- BH1 was terminated due to refusal in shale bedrock.
- Cementitious material was noted at BH18 0.8-1.0m bgl. This may have been ground grey shale from the drilling process. A grey shale was observed in an adjoining borehole (BH17).
- No stains, odours or fibre cement materials were observed during the site works.
- PID readings were recorded to range from 0.3 – 2.6ppm, indicating little likelihood of the presence of Volatile Organic Compounds.

Borelogs are provided in Appendix C.



8. Laboratory Results

The soil analytical results reported concentrations of heavy metals, TRH, BTEX, PAH, OPP, and OCP below the adopted human health and ecological criteria for all samples analysed. This includes BH18 at 1 metre depth. Asbestos was not detected in any of the soil samples analysed.

Soil analytical data is summarised in Table 1 of Appendix B. Laboratory Certificates are provided in Appendix D.



9. Evaluation of QA/QC

9.1 Field QA/QC

Soil samples were collected using clean disposable nitrile gloves, with care taken to collect samples from soil mass not in contact with the auger flight. Samples were placed into laboratory supplied containers and stored in a chilled esky.

The QA/QC results for soil duplicate (intra-laboratory) and triplicate (inter-laboratory) samples are presented in Appendix E. Based on the Relative Percent Differences (RPDs) calculations, it was concluded that the collected data is of an acceptable quality to achieve the objectives of this study, with the following comments:

- Soil RPDs calculated for the duplicate samples were within the accepted range, with the exception of total TRH (F3, F4) and some heavy metals.
- Soil RPDs calculated for the triplicate samples were within the accepted range, with the exception of total TRH (F3, F4), total PAH and some heavy metals.

The RPD exceedances above are considered likely to be indicative of the heterogeneous composition of imported materials at the site associated with import procedures. This is not considered to impact the findings of the investigation as all COPC were determined to be well below the adopted criteria (including QA/QC samples).

Calibration certificates for equipment used in the investigation are included as Appendix F.

9.2 Laboratory QA/QC

Samples were received and analysed by the laboratory under chilled conditions and within sample holding times.

Soil laboratory duplicate and triplicate RPDs were within the accepted range.

Detailed QA/QC results are presented on the laboratory testing certificates presented in Appendix F.



10. Conclusions

Zoic Environmental Pty Ltd has been requested to conduct an investigation to characterise material imported onto the Sydney Premier Karting Park, located at 50 Peter Brock Drive Eastern Creek. The material was used to form an event parking area located on the south-eastern part of the facility. Materials were reported to be imported to the site during the period early 2018 to mid-2019 to create the existing footprint for the carpark. A review of historical aerial photos by Zoic, which include the period between 2015 and 2020, support this information.

A review of documentation provided by Mr Bartolo showed that the imported materials had been classified as VENM by various consultants. Site observations indicated that the imported materials extended across most of the site area.

Drilling works which consisted of drilling boreholes at 18 locations indicated an average depth of the materials at approximately 4.0m bgs, with the deepest layer encountered in the south-eastern portion (approximately 5.3m bgs) and shallowest in the north-eastern portion (3.1m bgs). Imported materials observed beneath the surface sandy gravel material during the investigation were generally consistent with VENM materials detailed on the documentation provided (Section 3.4), primarily comprising of clay soil (silty, sandy, and/or gravelly) and shale rock, with sandstone also noted in some areas. No anthropogenic materials such as building and construction waste were observed in the soil profile.

Laboratory analysis of selected soil samples was undertaken with analytical data reporting all COPC concentrations below the adopted human health and ecological criteria for commercial / industrial land use. No fibre cement fragments were observed on the ground surface during the site inspection, or in soil during the subsurface investigation. Asbestos was not detected in any of the soil samples submitted for laboratory analysis.

Based on the findings of this investigation, materials imported onto the site meet the criteria for commercial land use for a car park from a contamination perspective and are suitable to remain on site.

No further action is required under Clause 7 of State Environmental Planning Policy (SEPP) No 55: Remediation of Land. As site contamination above adopted criteria was not identified by the investigation detailed in this report, the site is considered to comply with Clause 7(1)(a) of SEPP 55 which requires consideration of 'whether the land is contaminated'. Based on this premise, Clauses 7(1)(b) and 7(1)(c) are not considered relevant to the site.



11. References

NEPM, 2013. National Environment Protection (Assessment of Site Contamination) Measure, Schedule A and Schedules B(1)-B(9). National Environment Protection Council, Adelaide.

NSW EPA, 2015. Contaminated Sites: Guidelines on the Duty to Report Contamination under the Contaminated Land Management Act 2009. NSW Environmental Protection Authority, Sydney.

NSW EPA, 2017. Contaminated Sites: Guidelines for the NSW Site Auditor Scheme (3rd edition). NSW Environmental Protection Authority, Sydney.

NSW EPA, 2020. Guidelines for Consultants Reporting on Contaminated Land. NSW Environmental Protection Authority, Sydney.



12.Limitations

This report has been prepared for use by the Client who commissioned the works in accordance with the project brief only, and has been based in part on information obtained from the Client and other parties. The findings of this report are based on the scope of work outlined in Section 1. The report has been prepared specifically for the Client for the purposes of the commission, and use by any nominated third party in the agreement between Zoic and the Client. No warranties, express or implied, are offered to any third parties and no liability will be accepted for use or interpretation of this report by any third party (other than where specifically nominated in an agreement with the Client).

This report relates to only this project and all results, conclusions and recommendations made should be reviewed by a competent person with experience in environmental investigations, before being used for any other purpose. This report should not be reproduced without prior approval by the Client, or amended in any way without prior approval by Zoic.

Subject to the scope of work, Zoic's assessment was limited strictly to identifying typical environmental conditions associated with the subject property area and does not include evaluation of any other issues.

Changes to the subsurface conditions may occur subsequent to the investigations described herein, through natural processes or through the intentional or accidental addition of contaminants. The conclusions and recommendations reached in this report are based on the information obtained at the time of the investigation.

This report does not comment on any regulatory obligations based on the findings. This report relates only to the objectives stated and does not relate to any other work conducted for the Client.

The absence of any identified hazardous or toxic materials on the Site should not be interpreted as a guarantee that such materials do not exist on the Site.

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

Zoic is not engaged in environmental assessment and reporting for the purpose of advertising sales promoting, or endorsement of any client interests, including raising investment capital, recommending investment decisions, or other publicity purposes. The Client acknowledges that this report is for its exclusive use.



Appendix A Figures



LEGEND  Approximate site area		Figure 1: Site Location	
This product has been created to support the main report and is not suitable for other purposes. Image courtesy of Google Maps		Site Address: 50 Peter Brock Drive, Eastern Creek NSW	
		Client: City Plan	
		Job Number: 20160	Date: September 2020
Not to Scale			



LEGEND

— Approximate site area

This product has been created to support the main report and is not suitable for other purposes. Image sourced from Nearmap.

0m 35m



Scale indicative only

Figure 2: Site Layout and Surrounds

Site Address: 50 Peter Brock Drive, Eastern Creek NSW

Client: City Plan

Job Number: 20160

Date: September 2020



LEGEND

- Approximate site area
- Borehole location

This product has been created to support the main report and is not suitable for other purposes. Image sourced from Nearmap.

0m 20m



Scale indicative only

Figure 3: Sampling Locations

Site Address: 50 Peter Brock Drive, Eastern Creek NSW

Client: City Plan

Job Number: 20160

Date: September 2020



Appendix B Data Summary Tables

Table 1: Soil Analytical Data

	Petroleum Hydrocarbons									Heavy Metals							
	Benzene	Toluene	Ethylbenzene	Xylenes	TRH-F1	TRH-F2	TRH-F3	TRH-F4	Naphthalene	As	Cd	Cr	Cu	Ni	Pb	Hg	Zn
Soil HIL D										3000	900	3600 (VI)	240000	6000	1500	730	400000
Soil HSL D (<1m, sand)	3	NL	NL	230	260	NL			NL								
Soil EIL									370	160		310	85	55	1800		110
Soil ESL	75	135	165	95	215	170	1700	3300									
BH1 (2.5)	<0.2	<0.5	<1	<3	<25	<50	150	160	<0.1	<4	<0.4	6	24	9	12	<0.1	33
BH2 (0.5)	<0.2	<0.5	<1	<3	<25	<50	100	<100	<0.1	5	<0.4	9	8	2	9	<0.1	8
BH3 (2)	<0.2	<0.5	<1	<3	<25	<50	<100	<100	<0.1	4	<0.4	6	21	17	15	<0.1	60
BH4 (4)	<0.2	<0.5	<1	<3	<25	<50	<100	<100	<0.1	<4	<0.4	11	16	9	13	<0.1	29
BH5 (1)	<0.2	<0.5	<1	<3	<25	<50	<100	<100	0.1	5	<0.4	4	21	7	10	<0.1	30
BH6 (2)	<0.2	<0.5	<1	<3	<25	<50	<100	<100	<0.1	13	<0.4	7	6	3	8	<0.1	13
BH7 (2)	<0.2	<0.5	<1	<3	<25	<50	<100	<100	<0.1	6	<0.4	5	33	14	13	<0.1	58
BH8 (0.1)	<0.2	<0.5	<1	<3	<25	<50	760	1100	<0.1	<4	<0.4	7	10	8	15	<0.1	18
BH8 (2.5)	<0.2	<0.5	<1	<3	<25	<50	<100	<100	<0.1	<4	<0.4	4	2	1	4	<0.1	3
BH9 (2)	<0.2	<0.5	<1	<3	<25	<50	<100	<100	<0.1	<4	<0.4	5	9	6	7	<0.1	21
BH10 (1)	<0.2	<0.5	<1	<3	<25	-	-	-	-	-	-	-	-	-	-	-	-
BH10 (2.1)	<0.2	<0.5	<1	<3	<25	<50	<100	<100	<0.1	7	<0.4	13	24	12	11	<0.1	43
BH11 (2.5)	<0.2	<0.5	<1	<3	<25	<50	<100	<100	<0.1	<4	<0.4	8	20	15	8	<0.1	45
BH12 (1)	<0.2	<0.5	<1	<3	<25	<50	<100	<100	<0.1	4	<0.4	8	8	8	12	<0.1	38
BH13 (1)	<0.2	<0.5	<1	<3	<25	<50	<100	<100	<0.1	4	<0.4	5	21	9	13	<0.1	35
BH14 (1)	<0.2	<0.5	<1	<3	<25	54	<100	<100	<0.1	4	<0.4	15	29	16	15	<0.1	58
BH15 (3.8)	<0.2	<0.5	<1	<3	<25	<50	<100	<100	<0.1	<4	<0.4	11	18	8	15	<0.1	24
BH16 (2.5)	<0.2	<0.5	<1	<3	<25	<50	<100	<100	<0.1	<4	<0.4	5	28	20	16	<0.1	70
BH17 (2.5)	<0.2	<0.5	<1	<3	<25	<50	<100	<100	<0.1	5	<0.4	13	24	16	14	<0.1	57
BH18 (1)	<0.2	<0.5	<1	<3	<25	<50	<100	<100	0.4	5	<0.4	5	37	16	14	<0.1	59
DUP-1	<0.2	<0.5	<1	<3	<25	<50	120	120	<0.1	5	<0.4	13	12	5	12	<0.1	16
DUP-2	<0.2	<0.5	<1	<3	<25	<50	<100	<100	<0.1	<4	<0.4	10	28	33	10	<0.1	60
Trip-1	<0.1	<0.1	<0.1	<0.3	<20	<50	170	200	<0.5	6.5	<0.4	18	18	8.7	24	0.1	24
Trip-2	<0.1	<0.1	<0.1	<0.3	<20	<50	100	140	<0.5	6.9	<0.4	28	28	22	16	<0.1	73

1. All values are mg/kg unless otherwise stated.

	PAH			Pesticides										Asbestos
	B(a)P TEQ	B(a)P	PAHs	DDT+DDE+DDD	DDT	Aldrin & dieldrin	Chlordane	Endosulfan	Endrin	Heptachlor	HCB	Methoxychlor	Chlorpyrifos	Asbestos
Soil HIL D	40		4000	3600		45	530	2000	100	50	80	2500	2000	Presence
Soil HSL D (<1m)														
Soil EIL					640									
Soil ESL		1.4												
BH1 (2.5)	<0.5	<0.05	0.1	<0.1	<0.1	<0.2	<0.2	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	Non-detect
BH2 (0.5)	<0.5	<0.05	0.1	<0.1	<0.1	<0.2	<0.2	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	Non-detect
BH3 (2)	<0.5	<0.05	<0.05	<0.1	<0.1	<0.2	<0.2	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	Non-detect
BH4 (4)	<0.5	<0.05	<0.05	<0.1	<0.1	<0.2	<0.2	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	Non-detect
BH5 (1)	<0.5	<0.05	0.2	<0.1	<0.1	<0.2	<0.2	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	Non-detect
BH6 (2)	<0.5	<0.05	<0.05	<0.1	<0.1	<0.2	<0.2	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	Non-detect
BH7 (2)	<0.5	<0.05	0.1	<0.1	<0.1	<0.2	<0.2	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	Non-detect
BH8 (0.1)	<0.5	0.08	0.4	<0.1	<0.1	<0.2	<0.2	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	Non-detect
BH8 (2.5)	<0.5	0.06	0.59	<0.1	<0.1	<0.2	<0.2	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	Non-detect
BH9 (2)	<0.5	<0.05	<0.05	<0.1	<0.1	<0.2	<0.2	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	Non-detect
BH10 (1)	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH10 (2.1)	<0.5	<0.05	<0.05	<0.1	<0.1	<0.2	<0.2	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	Non-detect
BH11 (2.5)	<0.5	<0.05	<0.05	<0.1	<0.1	<0.2	<0.2	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	Non-detect
BH12 (1)	<0.5	<0.05	<0.05	<0.1	<0.1	<0.2	<0.2	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	Non-detect
BH13 (1)	<0.5	<0.05	<0.05	<0.1	<0.1	<0.2	<0.2	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	Non-detect
BH14 (1)	<0.5	<0.05	0.4	<0.1	<0.1	<0.2	<0.2	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	Non-detect
BH15 (3.8)	<0.5	<0.05	<0.05	<0.1	<0.1	<0.2	<0.2	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	Non-detect
BH16 (2.5)	<0.5	<0.05	0.1	<0.1	<0.1	<0.2	<0.2	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	Non-detect
BH17 (2.5)	<0.5	<0.05	0.3	<0.1	<0.1	<0.2	<0.2	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	Non-detect
BH18 (1)	<0.5	<0.05	0.62	<0.1	<0.1	<0.2	<0.2	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	Non-detect
DUP-1	<0.5	<0.05	0.1	<0.1	<0.1	<0.2	<0.2	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	-
DUP-2	<0.5	<0.05	<0.05	<0.1	<0.1	<0.2	<0.2	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	-
Trip-1	<0.5	<0.5	<0.5	<0.05	<0.05	<0.05	<0.1	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	-
Trip-2	<0.5	<0.5	<0.5	<0.05	<0.05	<0.05	<0.1	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	-

1. All values are mg/kg unless otherwise stated.



Appendix C Borelogs

PROJECT NUMBER 20160	DRILLING COMPANY Geohart	COORDINATES -33.806281, 150.883401
PROJECT NAME DSI City Plan Eastern Creek	DRILLING METHOD Solid Flight Auger	COORD SYS Geographic-GDA94
CLIENT City Plan	TOTAL DEPTH 4.0m	SURFACE ELEVATION -
ADDRESS 50 Peter Brock Drive, Eastern Creek, NSW	DRILLING DATE 27/08/2020	LOGGED BY T.C
		CHECKED BY PM

COMMENTS NO = No Odour, NS = No Staining, NAsb = No Potential Asbestos Containing Material Observed, NI = No Observed Inclusions

Depth (m)	PID	Samples	Water	Graphic Log	Material Description	Moisture	Additional Observations
0.2					FILL: Sandy gravel, dark grey	D	NO, NS, NAsb, NI
0.4					FILL: Brown silty clay with orange mottling and sandstone inclusions, low to medium plasticity	D	NO, NS, NAsb
0.6	0.3	BH1_0.5					
0.8							
1.0							
1.2							
1.4					As above with increased orange colour		
1.6	0.3	BH1_1.5					
1.8							
2.0							
2.2							
2.4							
2.6	0.3	BH1_2.5			FILL: Silty shale, weathered, grey, medium plasticity	D	NO, NS, NAsb, NI
2.8							
3.0							
3.2					SILTY CLAY, orange to red, firm	D	NO, NS, NAsb, NI
3.4	0.3	BH1_3.3					
3.6							
3.8					SHALE, grey, hard	D	NO, NS, NAsb, NI
4.0	0.3	BH1_3.8					
4.2					terminated at 4.0m natural reached		
4.4							
4.6							
4.8							

Disclaimer This bore log is intended for environmental not geotechnical purposes.

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PROJECT NUMBER 20160		DRILLING COMPANY Geohart		COORDINATES -33.806365, 150.88365			
PROJECT NAME DSI City Plan Eastern Creek		DRILLING METHOD Solid Flight Auger		COORD SYS Geographic-GDA94			
CLIENT City Plan		TOTAL DEPTH 4.0m		SURFACE ELEVATION -			
ADDRESS 50 Peter Brock Drive, Eastern Creek, NSW		DRILLING DATE 27/08/2020		LOGGED BY T.C			
				CHECKED BY PM			
COMMENTS NO = No Odour, NS = No Staining, NAsb = No Potential Asbestos Containing Material Observed, NI = No Observed Inclusions							
Depth (m)	PID	Samples	Water	Graphic Log	Material Description	Moisture	Additional Observations
0.2	2.1	BH2_0.5 DUP1 TRIP1			FILL: Sandy gravel, dark grey	D	NO, NS, NAsb, NI
0.4					FILL: Silty clay, grey-orange, firm, medium plasticity	D	NO, NS, NAsb, NI
0.6							
0.8	0.3	BH2_1.5			FILL: Silty weathered shale, grey, medium plasticity	D	NO, NS, NAsb, NI
1.0							
1.2							
1.4	0.3	BH2_2.5			FILL: Gravelly silty clay, grey with red mottling, low to medium plasticity, firm	D	NO, NS, NAsb, NI
1.6							
1.8							
2.0	0.3	BH2_3.5					
2.2							
2.4							
2.6	0.3				SILTY CLAY, topsoil, brown, low plasticity	D	NO, NS, NAsb, NI
2.8					SILTY CLAY, orange-red, firm	D	NO, NS, NAsb, NI
3.0							
3.2	0.3						
3.4							
3.6							
3.8	0.3						
4.0							
4.2							
4.4							
4.6							
4.8							

PROJECT NUMBER 20160	DRILLING COMPANY Geohart	COORDINATES -33.806434, 150.883966
PROJECT NAME DSI City Plan Eastern Creek	DRILLING METHOD Solid Flight Auger	COORD SYS Geographic-GDA94
CLIENT City Plan	TOTAL DEPTH 4.0m	SURFACE ELEVATION -
ADDRESS 50 Peter Brock Drive, Eastern Creek, NSW	DRILLING DATE 27/08/2020	LOGGED BY T.C
		CHECKED BY PM

COMMENTS NO = No Odour, NS = No Staining, NAsb = No Potential Asbestos Containing Material Observed, NI = No Observed Inclusions

Depth (m)	PID	Samples	Water	Graphic Log	Material Description	Moisture	Additional Observations
0.2		BH3_0.1			FILL: Sandy gravel, dark grey	D	NO, NS, NAsb, NI
0.4					FILL: Silty clay, grey-orange, medium plasticity	D	NO, NS, NAsb, NI
1.0	0.3	BH3_1.0					
2.0	0.3	BH3_2.0			FILL: Silty shale, grey, medium plasticity	D	NO, NS, NAsb, NI
3.0	0.3	BH3_3.0			FILL: Gravelly silty clay, grey-red, medium plasticity	D	NO, NS, NAsb, NI
4.0					SILTY CLAY: Orange-red, firm	D	NO, NS, NAsb, NI
4.2					terminated at 4.0m natural reached		
4.4							
4.6							
4.8							

Disclaimer This bore log is intended for environmental not geotechnical purposes.

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PROJECT NUMBER 20160		DRILLING COMPANY Geohart		COORDINATES -33.806475, 150.884213			
PROJECT NAME DSI City Plan Eastern Creek		DRILLING METHOD Solid Flight Auger		COORD SYS Geographic-GDA94			
CLIENT City Plan		TOTAL DEPTH 4.3m		SURFACE ELEVATION -			
ADDRESS 50 Peter Brock Drive, Eastern Creek, NSW		DRILLING DATE 27/08/2020		LOGGED BY T.C			
				CHECKED BY PM			
COMMENTS NO = No Odour, NS = No Staining, NAsb = No Potential Asbestos Containing Material Observed, NI = No Observed Inclusions							
Depth (m)	PID	Samples	Water	Graphic Log	Material Description	Moisture	Additional Observations
					FILL: Sandy gravel, dark grey	D	NO, NS, NAsb, NI
0.2					FILL: Silty clay, grey-orange, medium plasticity	D	NO, NS, NAsb, NI
0.4							
0.6							
0.8							
1	0.5	BH4_1.0					
1.2							
1.4							
1.6							
1.8							
2	0.3	BH4_2.0			FILL: Silty shale, grey, medium plasticity	D	NO, NS, NAsb, NI
2.2							
2.4							
2.6							
2.8					As above with grey/brown silty clay		
3	0.3	BH4_3.0					
3.2							
3.4							
3.6							
3.8							
4	0.3	BH4_4.0			FILL: Gravelly silty clay, grey-red, medium plasticity	D	NO, NS, NAsb, NI
4.2							
					SILTY CLAY: Orange-red, firm	D	NO, NS, NAsb, NI
4.4					terminated at 4.3m natural reached		
4.6							
4.8							

PROJECT NUMBER 20160		DRILLING COMPANY Geohart		COORDINATES -33.806462, 150.884445			
PROJECT NAME DSI City Plan Eastern Creek		DRILLING METHOD Solid Flight Auger		COORD SYS Geographic-GDA94			
CLIENT City Plan		TOTAL DEPTH 4.5m		SURFACE ELEVATION -			
ADDRESS 50 Peter Brock Drive, Eastern Creek, NSW		DRILLING DATE 27/08/2020		LOGGED BY T.C			
				CHECKED BY PM			
COMMENTS NO = No Odour, NS = No Staining, NAsb = No Potential Asbestos Containing Material Observed, NI = No Observed Inclusions							
Depth (m)	PID	Samples	Water	Graphic Log	Material Description	Moisture	Additional Observations
					FILL: Sandy gravel, dark grey	D	NO, NS, NAsb, NI
0.2					FILL: Silty clay, red-grey-orange, medium plasticity	D	NO, NS, NAsb, NI
0.4							
0.6							
0.8							
1	0.9	BH5_1.0					
1.2							
1.4							
1.6							
1.8							
2	0.3	BH5_2.0			FILL: Silty shale, grey, medium plasticity	D	NO, NS, NAsb, NI
2.2							
2.4							
2.6							
2.8					FILL: Gravelly silty clay, grey-brown, medium plasticity	D	NO, NS, NAsb, NI
3	0.3	BH5_3.0					
3.2							
3.4							
3.6							
3.8							
4							
4.2							
4.4							
4.6					terminated at 4.5m program depth		
4.8							

Disclaimer This bore log is intended for environmental not geotechnical purposes.

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PROJECT NUMBER 20160		DRILLING COMPANY Geohart		COORDINATES -33.806307, 150.884310			
PROJECT NAME DSI City Plan Eastern Creek		DRILLING METHOD Solid Flight Auger		COORD SYS Geographic-GDA94			
CLIENT City Plan		TOTAL DEPTH 4.5m		SURFACE ELEVATION -			
ADDRESS 50 Peter Brock Drive, Eastern Creek, NSW		DRILLING DATE 27/08/2020		LOGGED BY T.C			
				CHECKED BY PM			
COMMENTS NO = No Odour, NS = No Staining, NAsb = No Potential Asbestos Containing Material Observed, NI = No Observed Inclusions							
Depth (m)	PID	Samples	Water	Graphic Log	Material Description	Moisture	Additional Observations
					FILL: Sandy gravel, dark grey	D	NO, NS, NAsb, NI
0.2					FILL: Silty clay, red-grey, medium plasticity	D	NO, NS, NAsb, NI
0.4							
0.6							
0.8							
1	0.3	BH6_1.0					
1.2							
1.4							
1.6							
1.8							
2	0.4	BH6_2.0			FILL: Sandy clay, light grey, low plasticity	D	NO, NS, NAsb, NI
2.2					FILL: silty shale, grey, medium plasticity	D	NO, NS, NAsb, NI
2.4							
2.6							
2.8							
3	0.3	BH6_3.0					
3.2							
3.4							
3.6							
3.8					FILL: Gravelly silty clay, grey-brown, low to medium plasticity	M	NO, NS, NAsb, NI
4							
4.2							
4.4	0.4	BH6_4.4					
4.6					terminated at 4.5m program depth		
4.8							

PROJECT NUMBER 20160		DRILLING COMPANY Geohart		COORDINATES -33.806154, 150.884261			
PROJECT NAME DSI City Plan Eastern Creek		DRILLING METHOD Solid Flight Auger		COORD SYS Geographic-GDA94			
CLIENT City Plan		TOTAL DEPTH 5.5m		SURFACE ELEVATION -			
ADDRESS 50 Peter Brock Drive, Eastern Creek, NSW		DRILLING DATE 27/08/2020		LOGGED BY T.C			
				CHECKED BY PM			
COMMENTS NO = No Odour, NS = No Staining, NAsb = No Potential Asbestos Containing Material Observed, NI = No Observed Inclusions							
Depth (m)	PID	Samples	Water	Graphic Log	Material Description	Moisture	Additional Observations
					FILL: Sandy gravel, dark grey	D	NO, NS, NAsb, NI
0.5					FILL: Silty clay, red-grey, medium plasticity	D	NO, NS, NAsb, NI
1	0.3	BH7_1.0					
1.5							
2	0.4	BH7_2.0			FILL: Silty shale, grey, medium plasticity	D	NO, NS, NAsb, NI
2.5					FILL: Gravelly silty clay, brown-grey, low to medium plasticity	M	NO, NS, NAsb, NI
3							
3.5							
4	0.4	BH7_4.0					
4.5							
5							
5.5					SILTY CLAY: Red-orange	M	NO, NS, NAsb, NI
					terminated at 5.5m program depth		

PROJECT NUMBER 20160	DRILLING COMPANY Geohart	COORDINATES -33.806203, 150.884058
PROJECT NAME DSI City Plan Eastern Creek	DRILLING METHOD Solid Flight Auger	COORD SYS Geographic-GDA94
CLIENT City Plan	TOTAL DEPTH 4m	SURFACE ELEVATION -
ADDRESS 50 Peter Brock Drive, Eastern Creek, NSW	DRILLING DATE 27/08/2020	LOGGED BY T.C
		CHECKED BY PM

COMMENTS NO = No Odour, NS = No Staining, NAsb = No Potential Asbestos Containing Material Observed, NI = No Observed Inclusions

Depth (m)	PID	Samples	Water	Graphic Log	Material Description	Moisture	Additional Observations
0.2		BH8_0.1			FILL: Sandy gravel, dark grey	D	NO, NS, NAsb, NI
0.4					FILL: Silty clay, red-grey-orange, medium plasticity	D	NO, NS, NAsb, NI
1.0	0.4	BH8_1.0					
2.4	0.4	BH8_2.5			FILL: Silty shale, grey, medium plasticity	D	NO, NS, NAsb, NI
2.8					FILL: Gravelly silty clay, grey-brown, medium plasticity	D	NO, NS, NAsb, NI
4.0	0.4	BH8_4.0			terminated at 4m program depth		

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PROJECT NUMBER 20160	DRILLING COMPANY Geohart	COORDINATES -33.806193, 150.883771
PROJECT NAME DSI City Plan Eastern Creek	DRILLING METHOD Solid Flight Auger	COORD SYS Geographic-GDA94
CLIENT City Plan	TOTAL DEPTH 4.0m	SURFACE ELEVATION -
ADDRESS 50 Peter Brock Drive, Eastern Creek, NSW	DRILLING DATE 27/08/2020	LOGGED BY T.C
		CHECKED BY PM

COMMENTS NO = No Odour, NS = No Staining, NAsb = No Potential Asbestos Containing Material Observed, NI = No Observed Inclusions

Depth (m)	PID	Samples	Water	Graphic Log	Material Description	Moisture	Additional Observations
0.2					FILL: Sandy gravel, dark grey	D	NO, NS, NAsb, NI
0.4					FILL: Silty clay, grey-orange, medium plasticity	D	NO, NS, NAsb, NI
1.0	0.3	BH9_1.0					
2.6	0.4	BH9_2.6			FILL: Crushed sandstone, light brown-red	D	NO, NS, NAsb, NI
3.0	0.4				FILL: Silty shale, grey, medium plasticity	D	NO, NS, NAsb, NI
3.2					FILL: Gravelly silty clay, brown-grey with shale inclusions	D	NO, NS, NAsb, NI
4.0	0.4	BH9_4.0			terminated at 4m program depth		

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PROJECT NUMBER 20160		DRILLING COMPANY Geohart		COORDINATES -33.805896, 150.883801			
PROJECT NAME DSI City Plan Eastern Creek		DRILLING METHOD Solid Flight Auger		COORD SYS Geographic-GDA94			
CLIENT City Plan		TOTAL DEPTH 4m		SURFACE ELEVATION -			
ADDRESS 50 Peter Brock Drive, Eastern Creek, NSW		DRILLING DATE 27/08/2020		LOGGED BY T.C			
				CHECKED BY PM			
COMMENTS NO = No Odour, NS = No Staining, NAsb = No Potential Asbestos Containing Material Observed, NI = No Observed Inclusions							
Depth (m)	PID	Samples	Water	Graphic Log	Material Description	Moisture	Additional Observations
0.2	2.6	BH10_1.0			FILL: Sandy gravel, dark grey	D	NO, NS, NAsb, NI
0.4					FILL: Silty shale, grey, medium plasticity	D	NO, NS, NAsb, NI
0.6							
0.8							
1	0.4	BH10_2.1			FILL: Gravelly sandy clay, brown-grey	D	NO, NS, NAsb, NI
1.2							
1.4							
1.6							
1.8	0.4	BH10_3.0			FILL: Silty clay, red-brown, low plasticity	D	NO, NS, NAsb, NI
2							
2.2							
2.4							
2.6					SILTY CLAY: red-brown, firm, medium plasticity	D	NO, NS, NAsb, NI
2.8							
3							
3.2							
3.4							
3.6							
3.8							
4							
4.2					terminated at 4m program depth		
4.4							
4.6							
4.8							

PROJECT NUMBER 20160	DRILLING COMPANY Geohart	COORDINATES -33.805908, 150.884009
PROJECT NAME DSI City Plan Eastern Creek	DRILLING METHOD Solid Flight Auger	COORD SYS Geographic-GDA94
CLIENT City Plan	TOTAL DEPTH 4.3m	SURFACE ELEVATION -
ADDRESS 50 Peter Brock Drive, Eastern Creek, NSW	DRILLING DATE 27/08/2020	LOGGED BY T.C
		CHECKED BY PM

COMMENTS NO = No Odour, NS = No Staining, NAsb = No Potential Asbestos Containing Material Observed, NI = No Observed Inclusions

Depth (m)	PID	Samples	Water	Graphic Log	Material Description	Moisture	Additional Observations
0.2					FILL: Sandy gravel, dark grey	D	NO, NS, NAsb, NI
0.4					FILL: Gravelly silty clay, brown-grey within shale inclusions, low to medium plasticity	D	NO, NS, NAsb
1.0	0.4	BH11_1.0					
2.4	0.4	BH11_2.5					
3.6	0.4	BH11_3.7					
4.0					SILTY CLAY: red-brown, firm, medium plasticity	D	NO, NS, NAsb, NI
4.4					terminated at 4.3m program depth		
4.6							
4.8							

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PROJECT NUMBER 20160		DRILLING COMPANY Geohart		COORDINATES -33.805970, 150.884354			
PROJECT NAME DSI City Plan Eastern Creek		DRILLING METHOD Solid Flight Auger		COORD SYS Geographic-GDA94			
CLIENT City Plan		TOTAL DEPTH 4.5m		SURFACE ELEVATION -			
ADDRESS 50 Peter Brock Drive, Eastern Creek, NSW		DRILLING DATE 27/08/2020		LOGGED BY T.C			
				CHECKED BY PM			
COMMENTS NO = No Odour, NS = No Staining, NAsb = No Potential Asbestos Containing Material Observed, NI = No Observed Inclusions							
Depth (m)	PID	Samples	Water	Graphic Log	Material Description	Moisture	Additional Observations
					FILL: Sandy gravel, dark grey	D	NO, NS, NAsb, NI
0.2					FILL: Gravelly silty clay, brown-grey, low to medium plasticity. Sandstone inclusions between 1m-2.5m	D	NO, NS, NAsb, NI
0.4							
0.6							
0.8							
1	0.4	BH12_1.0					
1.2							
1.4							
1.6							
1.8							
2							
2.2							
2.4	0.4	BH12_2.5					
2.6							
2.8							
3							
3.2							
3.4							
3.6							
3.8							
4	0.4	BH12_4.0					
4.2							
4.4					SILTY CLAY: red-brown, firm, medium plasticity	D	NO, NS, NAsb, NI
4.6					terminated at 4.5m program depth		
4.8							

PROJECT NUMBER 20160		DRILLING COMPANY Geohart		COORDINATES -33.805721, 150.884244			
PROJECT NAME DSI City Plan Eastern Creek		DRILLING METHOD Solid Flight Auger		COORD SYS Geographic-GDA94			
CLIENT City Plan		TOTAL DEPTH 4.3m		SURFACE ELEVATION -			
ADDRESS 50 Peter Brock Drive, Eastern Creek, NSW		DRILLING DATE 27/08/2020		LOGGED BY T.C			
				CHECKED BY PM			
COMMENTS NO = No Odour, NS = No Staining, NAsb = No Potential Asbestos Containing Material Observed, NI = No Observed Inclusions							
Depth (m)	PID	Samples	Water	Graphic Log	Material Description	Moisture	Additional Observations
					FILL: Sandy gravel, dark grey	D	NO, NS, NAsb, NI
0.2					FILL: Gravelly silty clay, brown-grey with crushed sandstone inclusions @1.0m, low to medium plasticity Moist from 0.8-1.1m	D	NO, NS, NAsb, NI
0.4							
0.6							
0.8							
1	0.4	BH13_1.0					
1.2							
1.4							
1.6							
1.8							
2							
2.2					As above with increased red-grey colour from 2.0m, dry		
2.4	0.4	BH13_2.5					
2.6							
2.8							
3							
3.2							
3.4							
3.6							
3.8	0.4	BH13_3.8					
4	0.4	BH13_4.0			SILTY CLAY: red-brown, firm, medium plasticity	D	NO, NS, NAsb, NI
4.2							
4.4					terminated at 4.3m program depth		
4.6							
4.8							

PROJECT NUMBER 20160	DRILLING COMPANY Geohart	COORDINATES -33.805705, 150.883964
PROJECT NAME DSI City Plan Eastern Creek	DRILLING METHOD Solid Flight Auger	COORD SYS Geographic-GDA94
CLIENT City Plan	TOTAL DEPTH 4.4m	SURFACE ELEVATION -
ADDRESS 50 Peter Brock Drive, Eastern Creek, NSW	DRILLING DATE 27/08/2020	LOGGED BY T.C
		CHECKED BY PM

COMMENTS NO = No Odour, NS = No Staining, NAsb = No Potential Asbestos Containing Material Observed, NI = No Observed Inclusions

Depth (m)	PID	Samples	Water	Graphic Log	Material Description	Moisture	Additional Observations
0.2					FILL: Gravels with silty clay, brown - grey	D	NO, NS, NAsb
0.4		BH14_0.5					
0.6	1.8				As above with less gravel inclusions		
0.8							
1.0	2.6	BH14_1.0					
1.2					FILL: Gravelly silty clay, brown-grey with sandstone inclusions	D	NO, NS, NAsb, NI
1.4							
1.6							
1.8							
2.0							
2.2							
2.4		BH14_2.5					
2.6	0.4						
2.8							
3.0							
3.2							
3.4							
3.6							
3.8							
4.0							
4.2					SILTY CLAY: orange-brown	D	NO, NS, NAsb, NI
4.4					terminated at 4.4m program depth		
4.6							
4.8							

Disclaimer This bore log is intended for environmental not geotechnical purposes.

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PROJECT NUMBER 20160	DRILLING COMPANY Geohart	COORDINATES -33.805649, 150.883729
PROJECT NAME DSI City Plan Eastern Creek	DRILLING METHOD Solid Flight Auger	COORD SYS Geographic-GDA94
CLIENT City Plan	TOTAL DEPTH 4.5m	SURFACE ELEVATION -
ADDRESS 50 Peter Brock Drive, Eastern Creek, NSW	DRILLING DATE 27/08/2020	LOGGED BY T.C
		CHECKED BY PM

COMMENTS NO = No Odour, NS = No Staining, NAsb = No Potential Asbestos Containing Material Observed, NI = No Observed Inclusions

Depth (m)	PID	Samples	Water	Graphic Log	Material Description	Moisture	Additional Observations
0.2					FILL: Sandy gravel, dark grey	D	NO, NS, NAsb, NI
0.4					FILL: Gravelly silty clay, brown-grey-orange, medium plasticity	D	NO, NS, NAsb, NI
0.6							
0.8							
1.0	0.6	BH15_1.0					
1.2							
1.4							
1.6					As above with silty shale inclusions		
1.8							
2.0							
2.2							
2.4							
2.6	0.6	BH15_2.5					
2.8					FILL: Gravelly silty clay, brown-grey, with sandstone and orange clay inclusions, low to medium plasticity	M	NO, NS, NAsb
3.0							
3.2							
3.4							
3.6							
3.8	0.6	BH15_3.8					
4.0					SILTY CLAY: Red-brown	M	NO, NS, NAsb, NI
4.2							
4.4							
4.6					terminated at 4.5m program depth		
4.8							

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PROJECT NUMBER 20160	DRILLING COMPANY Geohart	COORDINATES -33.805450, 150.883592
PROJECT NAME DSI City Plan Eastern Creek	DRILLING METHOD Solid Flight Auger	COORD SYS Geographic-GDA94
CLIENT City Plan	TOTAL DEPTH 3.5m	SURFACE ELEVATION -
ADDRESS 50 Peter Brock Drive, Eastern Creek, NSW	DRILLING DATE 27/08/2020	LOGGED BY T.C
		CHECKED BY PM

COMMENTS NO = No Odour, NS = No Staining, NAsb = No Potential Asbestos Containing Material Observed, NI = No Observed Inclusions

Depth (m)	PID	Samples	Water	Graphic Log	Material Description	Moisture	Additional Observations
0.0	0.6	BH16_0.1			FILL: Sandy gravel, dark grey	D	NO, NS, NAsb, NI
0.2					FILL: Gravelly silty clay, brown-grey with sandstone inclusions	D	NO, NS, NAsb
0.4							
0.6							
0.8							
1.0	0.6	BH16_1.0					
1.2							
1.4							
1.6							
1.8							
2.0							
2.2							
2.4							
2.6	0.6	BH16_2.5					
2.8							
3.0					SILTY CLAY: grey-orange	D	NO, NS, NAsb, NI
3.2							
3.4							
3.6					terminated at 3.5m program depth		
3.8							
4.0							
4.2							
4.4							
4.6							
4.8							

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PROJECT NUMBER 20160	DRILLING COMPANY Geohart	COORDINATES -33.805520, 150.883930
PROJECT NAME DSI City Plan Eastern Creek	DRILLING METHOD Solid Flight Auger	COORD SYS Geographic-GDA94
CLIENT City Plan	TOTAL DEPTH 3.5m	SURFACE ELEVATION -
ADDRESS 50 Peter Brock Drive, Eastern Creek, NSW	DRILLING DATE 27/08/2020	LOGGED BY T.C
		CHECKED BY PM

COMMENTS NO = No Odour, NS = No Staining, NAsb = No Potential Asbestos Containing Material Observed, NI = No Observed Inclusions

Depth (m)	PID	Samples	Water	Graphic Log	Material Description	Moisture	Additional Observations
0.0	0.4	BH17_0.1			FILL: Sandy gravel, dark grey	D	NO, NS, NAsb, NI
0.2					FILL: Gravelly silty clay, brown-grey with shale	D	NO, NS, NAsb
0.4							
0.6							
0.8							
1.0	0.4	BH17_1.0					
1.2							
1.4							
1.6							
1.8							
2.0							
2.2							
2.4							
2.6	0.3	BH17_2.5					
2.8					As above with some shale inclusions		
3.0					SILTY CLAY: grey-orange	M	NO, NS, NAsb, NI
3.2							
3.4							
3.6					terminated at 3.5m program depth		
3.8							
4.0							
4.2							
4.4							
4.6							
4.8							

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PROJECT NUMBER 20160		DRILLING COMPANY Geohart		COORDINATES -33.805584, 150.884217			
PROJECT NAME DSI City Plan Eastern Creek		DRILLING METHOD Solid Flight Auger		COORD SYS Geographic-GDA94			
CLIENT City Plan		TOTAL DEPTH 3.5m		SURFACE ELEVATION -			
ADDRESS 50 Peter Brock Drive, Eastern Creek, NSW		DRILLING DATE 27/08/2020		LOGGED BY T.C			
				CHECKED BY PM			
COMMENTS NO = No Odour, NS = No Staining, NAsb = No Potential Asbestos Containing Material Observed, NI = No Observed Inclusions							
Depth (m)	PID	Samples	Water	Graphic Log	Material Description	Moisture	Additional Observations
0.2	0.4	BH18_0.1			FILL: Sandy gravel, dark grey	D	NO, NS, NAsb, NI
0.4					FILL: Gravelly silty clay, brown-grey	D-M	NO, NS, NAsb Cementitious inclusions from 0.8-1.1m (possibly ground shale)
1.0	0.4	BH18_1.0					
2.4	0.4	BH18_2.5			As above with red-brown clay inclusions. Moist at 2.5m.		
3.0					SILTY CLAY: grey-orange	M	NO, NS, NAsb, NI
3.6					terminated at 3.5m program depth		
3.8							
4.0							
4.2							
4.4							
4.6							
4.8							



Appendix D Laboratory Certificates

CERTIFICATE OF ANALYSIS 250027

Client Details

Client	Zoic Environmental
Attention	Tyler Creese
Address	Suite 1, Level 9, 189 Kent Street, Sydney, NSW, 2000

Sample Details

Your Reference	19160
Number of Samples	64 Soil
Date samples received	28/08/2020
Date completed instructions received	28/08/2020

Analysis Details

Please refer to the following pages for results, methodology summary and quality control data.
 Samples were analysed as received from the client. Results relate specifically to the samples as received.
 Results are reported on a dry weight basis for solids and on an as received basis for other matrices.
Please refer to the last page of this report for any comments relating to the results.

Report Details

Date results requested by	04/09/2020
Date of Issue	03/09/2020
NATA Accreditation Number 2901. This document shall not be reproduced except in full.	
Accredited for compliance with ISO/IEC 17025 - Testing. Tests not covered by NATA are denoted with *	

Asbestos Approved By

Analysed by Asbestos Approved Identifier: Lucy Zhu
 Authorised by Asbestos Approved Signatory: Lucy Zhu

Results Approved By

Dragana Tomas, Senior Chemist
 Ken Nguyen, Reporting Supervisor
 Lucy Zhu, Asbestos Supervisor
 Steven Luong, Organics Supervisor

Authorised By



Nancy Zhang, Laboratory Manager

vTRH(C6-C10)/BTEXN in Soil

Our Reference		250027-3	250027-5	250027-10	250027-15	250027-16
Your Reference	UNITS	BH1	BH2	BH3	BH4	BH5
Depth		2.5	0.5	2.0	4.0	1.0
Date Sampled		27/08/2020	27/08/2020	27/08/2020	27/08/2020	27/08/2020
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	31/08/2020	31/08/2020	31/08/2020	31/08/2020	31/08/2020
Date analysed	-	31/08/2020	01/09/2020	01/09/2020	01/09/2020	01/09/2020
TRH C ₆ - C ₉	mg/kg	<25	<25	<25	<25	<25
TRH C ₆ - C ₁₀	mg/kg	<25	<25	<25	<25	<25
vTPH C ₆ - C ₁₀ less BTEX (F1)	mg/kg	<25	<25	<25	<25	<25
Benzene	mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
Toluene	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Ethylbenzene	mg/kg	<1	<1	<1	<1	<1
m+p-xylene	mg/kg	<2	<2	<2	<2	<2
o-Xylene	mg/kg	<1	<1	<1	<1	<1
naphthalene	mg/kg	<1	<1	<1	<1	<1
Total +ve Xylenes	mg/kg	<3	<3	<3	<3	<3
Surrogate aaa-Trifluorotoluene	%	128	134	98	135	134

vTRH(C6-C10)/BTEXN in Soil

Our Reference		250027-20	250027-24	250027-26	250027-28	250027-31
Your Reference	UNITS	BH6	BH7	BH8	BH8	BH9
Depth		2.0	2.0	0.1	2.5	2.0
Date Sampled		27/08/2020	27/08/2020	27/08/2020	27/08/2020	27/08/2020
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	31/08/2020	31/08/2020	31/08/2020	31/08/2020	31/08/2020
Date analysed	-	31/08/2020	01/09/2020	01/09/2020	31/08/2020	31/08/2020
TRH C ₆ - C ₉	mg/kg	<25	<25	<25	<25	<25
TRH C ₆ - C ₁₀	mg/kg	<25	<25	<25	<25	<25
vTPH C ₆ - C ₁₀ less BTEX (F1)	mg/kg	<25	<25	<25	<25	<25
Benzene	mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
Toluene	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Ethylbenzene	mg/kg	<1	<1	<1	<1	<1
m+p-xylene	mg/kg	<2	<2	<2	<2	<2
o-Xylene	mg/kg	<1	<1	<1	<1	<1
naphthalene	mg/kg	<1	<1	<1	<1	<1
Total +ve Xylenes	mg/kg	<3	<3	<3	<3	<3
Surrogate aaa-Trifluorotoluene	%	120	131	96	126	101

vTRH(C6-C10)/BTEXN in Soil

Our Reference		250027-33	250027-34	250027-37	250027-39	250027-42
Your Reference	UNITS	BH10	BH10	BH11	BH12	BH13
Depth		1.0	2.1	2.5	1.0	1.0
Date Sampled		27/08/2020	27/08/2020	27/08/2020	27/08/2020	27/08/2020
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	31/08/2020	31/08/2020	31/08/2020	31/08/2020	31/08/2020
Date analysed	-	31/08/2020	31/08/2020	31/08/2020	31/08/2020	31/08/2020
TRH C ₆ - C ₉	mg/kg	<25	<25	<25	<25	<25
TRH C ₆ - C ₁₀	mg/kg	<25	<25	<25	<25	<25
vTPH C ₆ - C ₁₀ less BTEX (F1)	mg/kg	<25	<25	<25	<25	<25
Benzene	mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
Toluene	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Ethylbenzene	mg/kg	<1	<1	<1	<1	<1
m+p-xylene	mg/kg	<2	<2	<2	<2	<2
o-Xylene	mg/kg	<1	<1	<1	<1	<1
naphthalene	mg/kg	<1	<1	<1	<1	<1
Total +ve Xylenes	mg/kg	<3	<3	<3	<3	<3
Surrogate aaa-Trifluorotoluene	%	132	132	133	123	124

vTRH(C6-C10)/BTEXN in Soil

Our Reference		250027-47	250027-51	250027-53	250027-56	250027-57
Your Reference	UNITS	BH14	BH15	BH16	BH17	BH18
Depth		1.0	3.8	2.5	2.5	1.0
Date Sampled		27/08/2020	27/08/2020	27/08/2020	27/08/2020	27/08/2020
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	31/08/2020	31/08/2020	31/08/2020	31/08/2020	31/08/2020
Date analysed	-	31/08/2020	01/09/2020	01/09/2020	31/08/2020	31/08/2020
TRH C ₆ - C ₉	mg/kg	<25	<25	<25	<25	<25
TRH C ₆ - C ₁₀	mg/kg	<25	<25	<25	<25	<25
vTPH C ₆ - C ₁₀ less BTEX (F1)	mg/kg	<25	<25	<25	<25	<25
Benzene	mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
Toluene	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Ethylbenzene	mg/kg	<1	<1	<1	<1	<1
m+p-xylene	mg/kg	<2	<2	<2	<2	<2
o-Xylene	mg/kg	<1	<1	<1	<1	<1
naphthalene	mg/kg	<1	<1	<1	<1	<1
Total +ve Xylenes	mg/kg	<3	<3	<3	<3	<3
Surrogate aaa-Trifluorotoluene	%	128	121	133	133	95

vTRH(C6-C10)/BTEXN in Soil			
Our Reference		250027-60	250027-61
Your Reference	UNITS	DUP-1	DUP-2
Depth		-	-
Date Sampled		27/08/2020	27/08/2020
Type of sample		Soil	Soil
Date extracted	-	31/08/2020	31/08/2020
Date analysed	-	01/09/2020	31/08/2020
TRH C ₆ - C ₉	mg/kg	<25	<25
TRH C ₆ - C ₁₀	mg/kg	<25	<25
vTPH C ₆ - C ₁₀ less BTEX (F1)	mg/kg	<25	<25
Benzene	mg/kg	<0.2	<0.2
Toluene	mg/kg	<0.5	<0.5
Ethylbenzene	mg/kg	<1	<1
m+p-xylene	mg/kg	<2	<2
o-Xylene	mg/kg	<1	<1
naphthalene	mg/kg	<1	<1
Total +ve Xylenes	mg/kg	<3	<3
Surrogate aaa-Trifluorotoluene	%	131	112

svTRH (C10-C40) in Soil

Our Reference		250027-3	250027-5	250027-10	250027-15	250027-16
Your Reference	UNITS	BH1	BH2	BH3	BH4	BH5
Depth		2.5	0.5	2.0	4.0	1.0
Date Sampled		27/08/2020	27/08/2020	27/08/2020	27/08/2020	27/08/2020
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	31/08/2020	31/08/2020	31/08/2020	31/08/2020	31/08/2020
Date analysed	-	31/08/2020	01/09/2020	31/08/2020	31/08/2020	31/08/2020
TRH C ₁₀ - C ₁₄	mg/kg	<50	<50	<50	<50	<50
TRH C ₁₅ - C ₂₈	mg/kg	<100	<100	<100	<100	<100
TRH C ₂₉ - C ₃₆	mg/kg	150	110	<100	<100	<100
TRH >C ₁₀ -C ₁₆	mg/kg	<50	<50	<50	<50	<50
TRH >C ₁₀ - C ₁₆ less Naphthalene (F2)	mg/kg	<50	<50	<50	<50	<50
TRH >C ₁₆ -C ₃₄	mg/kg	150	100	<100	<100	<100
TRH >C ₃₄ -C ₄₀	mg/kg	160	<100	<100	<100	<100
Total +ve TRH (>C10-C40)	mg/kg	310	100	<50	<50	<50
Surrogate o-Terphenyl	%	95	90	92	87	85

svTRH (C10-C40) in Soil

Our Reference		250027-20	250027-24	250027-26	250027-28	250027-31
Your Reference	UNITS	BH6	BH7	BH8	BH8	BH9
Depth		2.0	2.0	0.1	2.5	2.0
Date Sampled		27/08/2020	27/08/2020	27/08/2020	27/08/2020	27/08/2020
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	31/08/2020	31/08/2020	31/08/2020	31/08/2020	31/08/2020
Date analysed	-	31/08/2020	31/08/2020	01/09/2020	31/08/2020	31/08/2020
TRH C ₁₀ - C ₁₄	mg/kg	<50	<50	<50	<50	<50
TRH C ₁₅ - C ₂₈	mg/kg	<100	<100	<100	<100	<100
TRH C ₂₉ - C ₃₆	mg/kg	<100	<100	960	<100	<100
TRH >C ₁₀ -C ₁₆	mg/kg	<50	<50	<50	<50	<50
TRH >C ₁₀ - C ₁₆ less Naphthalene (F2)	mg/kg	<50	<50	<50	<50	<50
TRH >C ₁₆ -C ₃₄	mg/kg	<100	<100	760	<100	<100
TRH >C ₃₄ -C ₄₀	mg/kg	<100	<100	1,100	<100	<100
Total +ve TRH (>C10-C40)	mg/kg	<50	<50	1,800	<50	<50
Surrogate o-Terphenyl	%	88	81	100	89	81

svTRH (C10-C40) in Soil

Our Reference		250027-34	250027-37	250027-39	250027-42	250027-47
Your Reference	UNITS	BH10	BH11	BH12	BH13	BH14
Depth		2.1	2.5	1.0	1.0	1.0
Date Sampled		27/08/2020	27/08/2020	27/08/2020	27/08/2020	27/08/2020
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	31/08/2020	31/08/2020	31/08/2020	31/08/2020	31/08/2020
Date analysed	-	31/08/2020	31/08/2020	31/08/2020	31/08/2020	01/09/2020
TRH C ₁₀ - C ₁₄	mg/kg	<50	<50	<50	<50	<50
TRH C ₁₅ - C ₂₈	mg/kg	<100	<100	<100	<100	<100
TRH C ₂₉ - C ₃₆	mg/kg	<100	<100	<100	<100	<100
TRH >C ₁₀ -C ₁₆	mg/kg	<50	<50	<50	<50	54
TRH >C ₁₀ - C ₁₆ less Naphthalene (F2)	mg/kg	<50	<50	<50	<50	54
TRH >C ₁₆ -C ₃₄	mg/kg	<100	<100	<100	<100	<100
TRH >C ₃₄ -C ₄₀	mg/kg	<100	<100	<100	<100	<100
Total +ve TRH (>C10-C40)	mg/kg	<50	<50	<50	<50	50
Surrogate o-Terphenyl	%	84	85	76	79	82

svTRH (C10-C40) in Soil

Our Reference		250027-51	250027-53	250027-56	250027-57	250027-60
Your Reference	UNITS	BH15	BH16	BH17	BH18	DUP-1
Depth		3.8	2.5	2.5	1.0	-
Date Sampled		27/08/2020	27/08/2020	27/08/2020	27/08/2020	27/08/2020
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	31/08/2020	31/08/2020	31/08/2020	31/08/2020	31/08/2020
Date analysed	-	01/09/2020	01/09/2020	01/09/2020	01/09/2020	31/08/2020
TRH C ₁₀ - C ₁₄	mg/kg	<50	<50	<50	<50	<50
TRH C ₁₅ - C ₂₈	mg/kg	<100	<100	<100	<100	<100
TRH C ₂₉ - C ₃₆	mg/kg	<100	<100	<100	<100	150
TRH >C ₁₀ -C ₁₆	mg/kg	<50	<50	<50	<50	<50
TRH >C ₁₀ - C ₁₆ less Naphthalene (F2)	mg/kg	<50	<50	<50	<50	<50
TRH >C ₁₆ -C ₃₄	mg/kg	<100	<100	<100	<100	120
TRH >C ₃₄ -C ₄₀	mg/kg	<100	<100	<100	<100	120
Total +ve TRH (>C10-C40)	mg/kg	<50	<50	<50	<50	240
Surrogate o-Terphenyl	%	87	77	87	75	89

svTRH (C10-C40) in Soil		
Our Reference		250027-61
Your Reference	UNITS	DUP-2
Depth		-
Date Sampled		27/08/2020
Type of sample		Soil
Date extracted	-	31/08/2020
Date analysed	-	01/09/2020
TRH C ₁₀ - C ₁₄	mg/kg	<50
TRH C ₁₅ - C ₂₈	mg/kg	<100
TRH C ₂₉ - C ₃₆	mg/kg	<100
TRH >C ₁₀ -C ₁₆	mg/kg	<50
TRH >C ₁₀ - C ₁₆ less Naphthalene (F2)	mg/kg	<50
TRH >C ₁₆ -C ₃₄	mg/kg	<100
TRH >C ₃₄ -C ₄₀	mg/kg	<100
Total +ve TRH (>C10-C40)	mg/kg	<50
Surrogate o-Terphenyl	%	75

PAHs in Soil						
Our Reference		250027-3	250027-5	250027-10	250027-15	250027-16
Your Reference	UNITS	BH1	BH2	BH3	BH4	BH5
Depth		2.5	0.5	2.0	4.0	1.0
Date Sampled		27/08/2020	27/08/2020	27/08/2020	27/08/2020	27/08/2020
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	31/08/2020	31/08/2020	31/08/2020	31/08/2020	31/08/2020
Date analysed	-	31/08/2020	31/08/2020	31/08/2020	31/08/2020	31/08/2020
Naphthalene	mg/kg	<0.1	<0.1	<0.1	<0.1	0.1
Acenaphthylene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Acenaphthene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Fluorene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Phenanthrene	mg/kg	0.1	<0.1	<0.1	<0.1	0.1
Anthracene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Fluoranthene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Pyrene	mg/kg	<0.1	0.1	<0.1	<0.1	<0.1
Benzo(a)anthracene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Chrysene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(b,j+k)fluoranthene	mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
Benzo(a)pyrene	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
Indeno(1,2,3-c,d)pyrene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Dibenzo(a,h)anthracene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(g,h,i)perylene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Total +ve PAH's	mg/kg	0.1	0.1	<0.05	<0.05	0.2
Benzo(a)pyrene TEQ calc (zero)	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(a)pyrene TEQ calc(half)	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(a)pyrene TEQ calc(PQL)	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Surrogate <i>p</i> -Terphenyl-d14	%	115	101	98	103	101

PAHs in Soil						
Our Reference		250027-20	250027-24	250027-26	250027-28	250027-31
Your Reference	UNITS	BH6	BH7	BH8	BH8	BH9
Depth		2.0	2.0	0.1	2.5	2.0
Date Sampled		27/08/2020	27/08/2020	27/08/2020	27/08/2020	27/08/2020
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	31/08/2020	31/08/2020	31/08/2020	31/08/2020	31/08/2020
Date analysed	-	31/08/2020	31/08/2020	31/08/2020	31/08/2020	31/08/2020
Naphthalene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Acenaphthylene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Acenaphthene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Fluorene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Phenanthrene	mg/kg	<0.1	0.1	<0.1	0.1	<0.1
Anthracene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Fluoranthene	mg/kg	<0.1	<0.1	<0.1	0.2	<0.1
Pyrene	mg/kg	<0.1	<0.1	0.2	0.2	<0.1
Benzo(a)anthracene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Chrysene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(b,j+k)fluoranthene	mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
Benzo(a)pyrene	mg/kg	<0.05	<0.05	0.08	0.06	<0.05
Indeno(1,2,3-c,d)pyrene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Dibenzo(a,h)anthracene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(g,h,i)perylene	mg/kg	<0.1	<0.1	0.2	<0.1	<0.1
Total +ve PAH's	mg/kg	<0.05	0.1	0.4	0.59	<0.05
Benzo(a)pyrene TEQ calc (zero)	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(a)pyrene TEQ calc(half)	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(a)pyrene TEQ calc(PQL)	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Surrogate p-Terphenyl-d14	%	100	101	98	98	99

PAHs in Soil						
Our Reference		250027-34	250027-37	250027-39	250027-42	250027-47
Your Reference	UNITS	BH10	BH11	BH12	BH13	BH14
Depth		2.1	2.5	1.0	1.0	1.0
Date Sampled		27/08/2020	27/08/2020	27/08/2020	27/08/2020	27/08/2020
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	31/08/2020	31/08/2020	31/08/2020	31/08/2020	31/08/2020
Date analysed	-	31/08/2020	31/08/2020	31/08/2020	31/08/2020	31/08/2020
Naphthalene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Acenaphthylene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Acenaphthene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Fluorene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Phenanthrene	mg/kg	<0.1	<0.1	<0.1	<0.1	0.2
Anthracene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Fluoranthene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Pyrene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(a)anthracene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Chrysene	mg/kg	<0.1	<0.1	<0.1	<0.1	0.1
Benzo(b,j+k)fluoranthene	mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
Benzo(a)pyrene	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
Indeno(1,2,3-c,d)pyrene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Dibenzo(a,h)anthracene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(g,h,i)perylene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Total +ve PAH's	mg/kg	<0.05	<0.05	<0.05	<0.05	0.4
Benzo(a)pyrene TEQ calc (zero)	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(a)pyrene TEQ calc(half)	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(a)pyrene TEQ calc(PQL)	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Surrogate p-Terphenyl-d14	%	99	98	98	100	106

PAHs in Soil						
Our Reference		250027-51	250027-53	250027-56	250027-57	250027-60
Your Reference	UNITS	BH15	BH16	BH17	BH18	DUP-1
Depth		3.8	2.5	2.5	1.0	-
Date Sampled		27/08/2020	27/08/2020	27/08/2020	27/08/2020	27/08/2020
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	31/08/2020	31/08/2020	31/08/2020	31/08/2020	31/08/2020
Date analysed	-	31/08/2020	31/08/2020	31/08/2020	31/08/2020	31/08/2020
Naphthalene	mg/kg	<0.1	<0.1	<0.1	0.4	<0.1
Acenaphthylene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Acenaphthene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Fluorene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Phenanthrene	mg/kg	<0.1	0.1	0.2	0.2	<0.1
Anthracene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Fluoranthene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Pyrene	mg/kg	<0.1	<0.1	<0.1	<0.1	0.1
Benzo(a)anthracene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Chrysene	mg/kg	<0.1	<0.1	0.1	<0.1	<0.1
Benzo(b,j+k)fluoranthene	mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
Benzo(a)pyrene	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
Indeno(1,2,3-c,d)pyrene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Dibenzo(a,h)anthracene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(g,h,i)perylene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Total +ve PAH's	mg/kg	<0.05	0.1	0.3	0.62	0.1
Benzo(a)pyrene TEQ calc (zero)	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(a)pyrene TEQ calc(half)	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(a)pyrene TEQ calc(PQL)	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Surrogate p-Terphenyl-d14	%	107	105	108	105	92

PAHs in Soil		
Our Reference		250027-61
Your Reference	UNITS	DUP-2
Depth		-
Date Sampled		27/08/2020
Type of sample		Soil
Date extracted	-	31/08/2020
Date analysed	-	31/08/2020
Naphthalene	mg/kg	<0.1
Acenaphthylene	mg/kg	<0.1
Acenaphthene	mg/kg	<0.1
Fluorene	mg/kg	<0.1
Phenanthrene	mg/kg	<0.1
Anthracene	mg/kg	<0.1
Fluoranthene	mg/kg	<0.1
Pyrene	mg/kg	<0.1
Benzo(a)anthracene	mg/kg	<0.1
Chrysene	mg/kg	<0.1
Benzo(b,j+k)fluoranthene	mg/kg	<0.2
Benzo(a)pyrene	mg/kg	<0.05
Indeno(1,2,3-c,d)pyrene	mg/kg	<0.1
Dibenzo(a,h)anthracene	mg/kg	<0.1
Benzo(g,h,i)perylene	mg/kg	<0.1
Total +ve PAH's	mg/kg	<0.05
Benzo(a)pyrene TEQ calc (zero)	mg/kg	<0.5
Benzo(a)pyrene TEQ calc(half)	mg/kg	<0.5
Benzo(a)pyrene TEQ calc(PQL)	mg/kg	<0.5
Surrogate <i>p</i> -Terphenyl-d14	%	110

Organochlorine Pesticides in soil						
Our Reference		250027-3	250027-5	250027-10	250027-15	250027-16
Your Reference	UNITS	BH1	BH2	BH3	BH4	BH5
Depth		2.5	0.5	2.0	4.0	1.0
Date Sampled		27/08/2020	27/08/2020	27/08/2020	27/08/2020	27/08/2020
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	31/08/2020	31/08/2020	31/08/2020	31/08/2020	31/08/2020
Date analysed	-	31/08/2020	31/08/2020	31/08/2020	31/08/2020	31/08/2020
alpha-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
HCB	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
beta-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
gamma-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Heptachlor	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
delta-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aldrin	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Heptachlor Epoxide	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
gamma-Chlordane	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
alpha-chlordane	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endosulfan I	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
pp-DDE	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Dieldrin	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endrin	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endosulfan II	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
pp-DDD	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endrin Aldehyde	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
pp-DDT	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endosulfan Sulphate	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Methoxychlor	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Total +ve DDT+DDD+DDE	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Surrogate TCMX	%	109	97	93	99	97

Organochlorine Pesticides in soil						
Our Reference		250027-20	250027-24	250027-26	250027-28	250027-31
Your Reference	UNITS	BH6	BH7	BH8	BH8	BH9
Depth		2.0	2.0	0.1	2.5	2.0
Date Sampled		27/08/2020	27/08/2020	27/08/2020	27/08/2020	27/08/2020
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	31/08/2020	31/08/2020	31/08/2020	31/08/2020	31/08/2020
Date analysed	-	31/08/2020	31/08/2020	31/08/2020	31/08/2020	31/08/2020
alpha-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
HCB	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
beta-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
gamma-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Heptachlor	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
delta-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aldrin	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Heptachlor Epoxide	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
gamma-Chlordane	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
alpha-chlordane	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endosulfan I	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
pp-DDE	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Dieldrin	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endrin	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endosulfan II	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
pp-DDD	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endrin Aldehyde	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
pp-DDT	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endosulfan Sulphate	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Methoxychlor	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Total +ve DDT+DDD+DDE	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Surrogate TCMX	%	96	96	92	103	93

Organochlorine Pesticides in soil						
Our Reference		250027-34	250027-37	250027-39	250027-42	250027-47
Your Reference	UNITS	BH10	BH11	BH12	BH13	BH14
Depth		2.1	2.5	1.0	1.0	1.0
Date Sampled		27/08/2020	27/08/2020	27/08/2020	27/08/2020	27/08/2020
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	31/08/2020	31/08/2020	31/08/2020	31/08/2020	31/08/2020
Date analysed	-	31/08/2020	31/08/2020	31/08/2020	31/08/2020	31/08/2020
alpha-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
HCB	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
beta-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
gamma-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Heptachlor	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
delta-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aldrin	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Heptachlor Epoxide	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
gamma-Chlordane	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
alpha-chlordane	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endosulfan I	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
pp-DDE	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Dieldrin	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endrin	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endosulfan II	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
pp-DDD	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endrin Aldehyde	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
pp-DDT	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endosulfan Sulphate	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Methoxychlor	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Total +ve DDT+DDD+DDE	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Surrogate TCMX	%	95	95	95	95	99

Organochlorine Pesticides in soil						
Our Reference		250027-51	250027-53	250027-56	250027-57	250027-60
Your Reference	UNITS	BH15	BH16	BH17	BH18	DUP-1
Depth		3.8	2.5	2.5	1.0	-
Date Sampled		27/08/2020	27/08/2020	27/08/2020	27/08/2020	27/08/2020
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	31/08/2020	31/08/2020	31/08/2020	31/08/2020	31/08/2020
Date analysed	-	31/08/2020	31/08/2020	31/08/2020	31/08/2020	31/08/2020
alpha-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
HCB	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
beta-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
gamma-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Heptachlor	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
delta-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aldrin	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Heptachlor Epoxide	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
gamma-Chlordane	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
alpha-chlordane	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endosulfan I	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
pp-DDE	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Dieldrin	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endrin	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endosulfan II	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
pp-DDD	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endrin Aldehyde	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
pp-DDT	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endosulfan Sulphate	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Methoxychlor	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Total +ve DDT+DDD+DDE	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Surrogate TCMX	%	102	102	102	101	90

Organochlorine Pesticides in soil		
Our Reference		250027-61
Your Reference	UNITS	DUP-2
Depth		-
Date Sampled		27/08/2020
Type of sample		Soil
Date extracted	-	31/08/2020
Date analysed	-	31/08/2020
alpha-BHC	mg/kg	<0.1
HCB	mg/kg	<0.1
beta-BHC	mg/kg	<0.1
gamma-BHC	mg/kg	<0.1
Heptachlor	mg/kg	<0.1
delta-BHC	mg/kg	<0.1
Aldrin	mg/kg	<0.1
Heptachlor Epoxide	mg/kg	<0.1
gamma-Chlordane	mg/kg	<0.1
alpha-chlordane	mg/kg	<0.1
Endosulfan I	mg/kg	<0.1
pp-DDE	mg/kg	<0.1
Dieldrin	mg/kg	<0.1
Endrin	mg/kg	<0.1
Endosulfan II	mg/kg	<0.1
pp-DDD	mg/kg	<0.1
Endrin Aldehyde	mg/kg	<0.1
pp-DDT	mg/kg	<0.1
Endosulfan Sulphate	mg/kg	<0.1
Methoxychlor	mg/kg	<0.1
Total +ve DDT+DDD+DDE	mg/kg	<0.1
Surrogate TCMX	%	105

Organophosphorus Pesticides in Soil						
Our Reference		250027-3	250027-5	250027-10	250027-15	250027-16
Your Reference	UNITS	BH1	BH2	BH3	BH4	BH5
Depth		2.5	0.5	2.0	4.0	1.0
Date Sampled		27/08/2020	27/08/2020	27/08/2020	27/08/2020	27/08/2020
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	31/08/2020	31/08/2020	31/08/2020	31/08/2020	31/08/2020
Date analysed	-	31/08/2020	31/08/2020	31/08/2020	31/08/2020	31/08/2020
Dichlorvos	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Dimethoate	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Diazinon	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Chlorpyrifos-methyl	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Ronnel	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Fenitrothion	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Malathion	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Chlorpyrifos	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Parathion	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Bromophos-ethyl	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Ethion	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Azinphos-methyl (Guthion)	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Surrogate TCMX	%	109	97	93	99	97

Organophosphorus Pesticides in Soil						
Our Reference		250027-20	250027-24	250027-26	250027-28	250027-31
Your Reference	UNITS	BH6	BH7	BH8	BH8	BH9
Depth		2.0	2.0	0.1	2.5	2.0
Date Sampled		27/08/2020	27/08/2020	27/08/2020	27/08/2020	27/08/2020
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	31/08/2020	31/08/2020	31/08/2020	31/08/2020	31/08/2020
Date analysed	-	31/08/2020	31/08/2020	31/08/2020	31/08/2020	31/08/2020
Dichlorvos	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Dimethoate	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Diazinon	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Chlorpyrifos-methyl	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Ronnel	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Fenitrothion	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Malathion	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Chlorpyrifos	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Parathion	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Bromophos-ethyl	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Ethion	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Azinphos-methyl (Guthion)	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Surrogate TCMX	%	96	96	92	103	93

Organophosphorus Pesticides in Soil						
Our Reference		250027-34	250027-37	250027-39	250027-42	250027-47
Your Reference	UNITS	BH10	BH11	BH12	BH13	BH14
Depth		2.1	2.5	1.0	1.0	1.0
Date Sampled		27/08/2020	27/08/2020	27/08/2020	27/08/2020	27/08/2020
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	31/08/2020	31/08/2020	31/08/2020	31/08/2020	31/08/2020
Date analysed	-	31/08/2020	31/08/2020	31/08/2020	31/08/2020	31/08/2020
Dichlorvos	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Dimethoate	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Diazinon	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Chlorpyrifos-methyl	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Ronnel	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Fenitrothion	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Malathion	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Chlorpyrifos	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Parathion	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Bromophos-ethyl	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Ethion	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Azinphos-methyl (Guthion)	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Surrogate TCMX	%	95	95	95	95	99

Organophosphorus Pesticides in Soil						
Our Reference		250027-51	250027-53	250027-56	250027-57	250027-60
Your Reference	UNITS	BH15	BH16	BH17	BH18	DUP-1
Depth		3.8	2.5	2.5	1.0	-
Date Sampled		27/08/2020	27/08/2020	27/08/2020	27/08/2020	27/08/2020
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	31/08/2020	31/08/2020	31/08/2020	31/08/2020	31/08/2020
Date analysed	-	31/08/2020	31/08/2020	31/08/2020	31/08/2020	31/08/2020
Dichlorvos	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Dimethoate	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Diazinon	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Chlorpyrifos-methyl	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Ronnel	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Fenitrothion	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Malathion	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Chlorpyrifos	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Parathion	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Bromophos-ethyl	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Ethion	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Azinphos-methyl (Guthion)	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Surrogate TCMX	%	102	102	102	101	90

Organophosphorus Pesticides in Soil		
Our Reference		250027-61
Your Reference	UNITS	DUP-2
Depth		-
Date Sampled		27/08/2020
Type of sample		Soil
Date extracted	-	31/08/2020
Date analysed	-	31/08/2020
Dichlorvos	mg/kg	<0.1
Dimethoate	mg/kg	<0.1
Diazinon	mg/kg	<0.1
Chlorpyrifos-methyl	mg/kg	<0.1
Ronnel	mg/kg	<0.1
Fenitrothion	mg/kg	<0.1
Malathion	mg/kg	<0.1
Chlorpyrifos	mg/kg	<0.1
Parathion	mg/kg	<0.1
Bromophos-ethyl	mg/kg	<0.1
Ethion	mg/kg	<0.1
Azinphos-methyl (Guthion)	mg/kg	<0.1
Surrogate TCMX	%	105

Acid Extractable metals in soil

Our Reference		250027-3	250027-5	250027-10	250027-15	250027-16
Your Reference	UNITS	BH1	BH2	BH3	BH4	BH5
Depth		2.5	0.5	2.0	4.0	1.0
Date Sampled		27/08/2020	27/08/2020	27/08/2020	27/08/2020	27/08/2020
Type of sample		Soil	Soil	Soil	Soil	Soil
Date prepared	-	31/08/2020	31/08/2020	31/08/2020	31/08/2020	31/08/2020
Date analysed	-	31/08/2020	31/08/2020	31/08/2020	31/08/2020	31/08/2020
Arsenic	mg/kg	<4	5	4	<4	5
Cadmium	mg/kg	<0.4	<0.4	<0.4	<0.4	<0.4
Chromium	mg/kg	6	9	6	11	4
Copper	mg/kg	24	8	21	16	21
Lead	mg/kg	12	9	15	13	10
Mercury	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Nickel	mg/kg	9	2	17	9	7
Zinc	mg/kg	33	8	60	29	30

Acid Extractable metals in soil

Our Reference		250027-20	250027-24	250027-26	250027-28	250027-31
Your Reference	UNITS	BH6	BH7	BH8	BH8	BH9
Depth		2.0	2.0	0.1	2.5	2.0
Date Sampled		27/08/2020	27/08/2020	27/08/2020	27/08/2020	27/08/2020
Type of sample		Soil	Soil	Soil	Soil	Soil
Date prepared	-	31/08/2020	31/08/2020	31/08/2020	31/08/2020	31/08/2020
Date analysed	-	31/08/2020	31/08/2020	31/08/2020	31/08/2020	31/08/2020
Arsenic	mg/kg	13	6	<4	<4	<4
Cadmium	mg/kg	<0.4	<0.4	<0.4	<0.4	<0.4
Chromium	mg/kg	7	5	7	4	5
Copper	mg/kg	6	33	10	2	9
Lead	mg/kg	8	13	15	4	7
Mercury	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Nickel	mg/kg	3	14	8	1	6
Zinc	mg/kg	13	58	18	3	21

Acid Extractable metals in soil

Our Reference		250027-34	250027-37	250027-39	250027-42	250027-47
Your Reference	UNITS	BH10	BH11	BH12	BH13	BH14
Depth		2.1	2.5	1.0	1.0	1.0
Date Sampled		27/08/2020	27/08/2020	27/08/2020	27/08/2020	27/08/2020
Type of sample		Soil	Soil	Soil	Soil	Soil
Date prepared	-	31/08/2020	31/08/2020	31/08/2020	31/08/2020	31/08/2020
Date analysed	-	31/08/2020	31/08/2020	31/08/2020	31/08/2020	31/08/2020
Arsenic	mg/kg	7	<4	4	4	4
Cadmium	mg/kg	<0.4	<0.4	<0.4	<0.4	<0.4
Chromium	mg/kg	13	8	8	5	15
Copper	mg/kg	24	20	8	21	29
Lead	mg/kg	11	8	12	13	15
Mercury	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Nickel	mg/kg	12	15	8	9	16
Zinc	mg/kg	43	45	38	35	58

Acid Extractable metals in soil

Our Reference		250027-51	250027-53	250027-56	250027-57	250027-60
Your Reference	UNITS	BH15	BH16	BH17	BH18	DUP-1
Depth		3.8	2.5	2.5	1.0	-
Date Sampled		27/08/2020	27/08/2020	27/08/2020	27/08/2020	27/08/2020
Type of sample		Soil	Soil	Soil	Soil	Soil
Date prepared	-	31/08/2020	31/08/2020	31/08/2020	31/08/2020	31/08/2020
Date analysed	-	31/08/2020	31/08/2020	31/08/2020	31/08/2020	31/08/2020
Arsenic	mg/kg	<4	<4	5	5	5
Cadmium	mg/kg	<0.4	<0.4	<0.4	<0.4	<0.4
Chromium	mg/kg	11	5	13	5	13
Copper	mg/kg	18	28	24	37	12
Lead	mg/kg	15	16	14	14	12
Mercury	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Nickel	mg/kg	8	20	16	16	5
Zinc	mg/kg	24	70	57	59	16

Acid Extractable metals in soil		
Our Reference		250027-61
Your Reference	UNITS	DUP-2
Depth		-
Date Sampled		27/08/2020
Type of sample		Soil
Date prepared	-	31/08/2020
Date analysed	-	31/08/2020
Arsenic	mg/kg	<4
Cadmium	mg/kg	<0.4
Chromium	mg/kg	10
Copper	mg/kg	28
Lead	mg/kg	10
Mercury	mg/kg	<0.1
Nickel	mg/kg	33
Zinc	mg/kg	60

Moisture						
Our Reference	UNITS	250027-3	250027-5	250027-10	250027-15	250027-16
Your Reference		BH1	BH2	BH3	BH4	BH5
Depth		2.5	0.5	2.0	4.0	1.0
Date Sampled		27/08/2020	27/08/2020	27/08/2020	27/08/2020	27/08/2020
Type of sample		Soil	Soil	Soil	Soil	Soil
Date prepared	-	31/08/2020	31/08/2020	31/08/2020	31/08/2020	31/08/2020
Date analysed	-	01/09/2020	01/09/2020	01/09/2020	01/09/2020	01/09/2020
Moisture	%	9.2	18	11	15	11

Moisture						
Our Reference	UNITS	250027-20	250027-24	250027-26	250027-28	250027-31
Your Reference		BH6	BH7	BH8	BH8	BH9
Depth		2.0	2.0	0.1	2.5	2.0
Date Sampled		27/08/2020	27/08/2020	27/08/2020	27/08/2020	27/08/2020
Type of sample		Soil	Soil	Soil	Soil	Soil
Date prepared	-	31/08/2020	31/08/2020	31/08/2020	31/08/2020	31/08/2020
Date analysed	-	01/09/2020	01/09/2020	01/09/2020	01/09/2020	01/09/2020
Moisture	%	15	9.8	9.0	10	13

Moisture						
Our Reference	UNITS	250027-33	250027-34	250027-37	250027-39	250027-42
Your Reference		BH10	BH10	BH11	BH12	BH13
Depth		1.0	2.1	2.5	1.0	1.0
Date Sampled		27/08/2020	27/08/2020	27/08/2020	27/08/2020	27/08/2020
Type of sample		Soil	Soil	Soil	Soil	Soil
Date prepared	-	31/08/2020	31/08/2020	31/08/2020	31/08/2020	31/08/2020
Date analysed	-	01/09/2020	01/09/2020	01/09/2020	01/09/2020	01/09/2020
Moisture	%	6.5	20	13	12	18

Moisture						
Our Reference	UNITS	250027-47	250027-51	250027-53	250027-56	250027-57
Your Reference		BH14	BH15	BH16	BH17	BH18
Depth		1.0	3.8	2.5	2.5	1.0
Date Sampled		27/08/2020	27/08/2020	27/08/2020	27/08/2020	27/08/2020
Type of sample		Soil	Soil	Soil	Soil	Soil
Date prepared	-	31/08/2020	31/08/2020	31/08/2020	31/08/2020	31/08/2020
Date analysed	-	01/09/2020	01/09/2020	01/09/2020	01/09/2020	01/09/2020
Moisture	%	6.9	18	12	9.9	11

Moisture			
Our Reference		250027-60	250027-61
Your Reference	UNITS	DUP-1	DUP-2
Depth		-	-
Date Sampled		27/08/2020	27/08/2020
Type of sample		Soil	Soil
Date prepared	-	31/08/2020	31/08/2020
Date analysed	-	01/09/2020	01/09/2020
Moisture	%	18	18

Asbestos ID - soils						
Our Reference	UNITS	250027-3	250027-5	250027-10	250027-15	250027-16
Your Reference		BH1	BH2	BH3	BH4	BH5
Depth		2.5	0.5	2.0	4.0	1.0
Date Sampled		27/08/2020	27/08/2020	27/08/2020	27/08/2020	27/08/2020
Type of sample		Soil	Soil	Soil	Soil	Soil
Date analysed	-	02/09/2020	02/09/2020	02/09/2020	02/09/2020	02/09/2020
Sample mass tested	g	Approx. 50g	Approx. 60g	Approx. 45g	Approx. 40g	Approx. 50g
Sample Description	-	Brown coarse-grained soil & rocks	Brown coarse-grained soil & rocks	Brown coarse-grained soil & rocks	Brown coarse-grained soil & rocks	Brown coarse-grained soil & rocks
Asbestos ID in soil	-	No asbestos detected at reporting limit of 0.1g/kg	No asbestos detected at reporting limit of 0.1g/kg	No asbestos detected at reporting limit of 0.1g/kg	No asbestos detected at reporting limit of 0.1g/kg	No asbestos detected at reporting limit of 0.1g/kg
		Organic fibres detected	Organic fibres detected	Organic fibres detected	Organic fibres detected	Organic fibres detected
Trace Analysis	-	No asbestos detected	No asbestos detected	No asbestos detected	No asbestos detected	No asbestos detected

Asbestos ID - soils						
Our Reference	UNITS	250027-20	250027-24	250027-26	250027-28	250027-31
Your Reference		BH6	BH7	BH8	BH8	BH9
Depth		2.0	2.0	0.1	2.5	2.0
Date Sampled		27/08/2020	27/08/2020	27/08/2020	27/08/2020	27/08/2020
Type of sample		Soil	Soil	Soil	Soil	Soil
Date analysed	-	02/09/2020	02/09/2020	02/09/2020	02/09/2020	02/09/2020
Sample mass tested	g	Approx. 80g	Approx. 55g	Approx. 35g	Approx. 40g	Approx. 40g
Sample Description	-	Grey coarse-grained soil & rocks	Brown coarse-grained soil & rocks	Black coarse-grained soil & rocks	Grey coarse-grained soil & rocks	Brown coarse-grained soil & rocks
Asbestos ID in soil	-	No asbestos detected at reporting limit of 0.1g/kg Organic fibres detected	No asbestos detected at reporting limit of 0.1g/kg Organic fibres detected	No asbestos detected at reporting limit of 0.1g/kg Organic fibres detected	No asbestos detected at reporting limit of 0.1g/kg Organic fibres detected	No asbestos detected at reporting limit of 0.1g/kg Organic fibres detected
Trace Analysis	-	No asbestos detected	No asbestos detected	No asbestos detected	No asbestos detected	No asbestos detected

Asbestos ID - soils						
Our Reference	UNITS	250027-34	250027-37	250027-39	250027-42	250027-47
Your Reference		BH10	BH11	BH12	BH13	BH14
Depth		2.1	2.5	1.0	1.0	1.0
Date Sampled		27/08/2020	27/08/2020	27/08/2020	27/08/2020	27/08/2020
Type of sample		Soil	Soil	Soil	Soil	Soil
Date analysed	-	02/09/2020	02/09/2020	02/09/2020	02/09/2020	02/09/2020
Sample mass tested	g	Approx. 35g	Approx. 45g	Approx. 40g	Approx. 70g	Approx. 50g
Sample Description	-	Brown coarse-grained soil & rocks	Brown coarse-grained soil & rocks	Grey coarse-grained soil & rocks	Grey coarse-grained soil & rocks	Brown coarse-grained soil & rocks
Asbestos ID in soil	-	No asbestos detected at reporting limit of 0.1g/kg Organic fibres detected	No asbestos detected at reporting limit of 0.1g/kg Organic fibres detected	No asbestos detected at reporting limit of 0.1g/kg Organic fibres detected	No asbestos detected at reporting limit of 0.1g/kg Organic fibres detected	No asbestos detected at reporting limit of 0.1g/kg Organic fibres detected
Trace Analysis	-	No asbestos detected	No asbestos detected	No asbestos detected	No asbestos detected	No asbestos detected

Asbestos ID - soils					
Our Reference		250027-51	250027-53	250027-56	250027-57
Your Reference	UNITS	BH15	BH16	BH17	BH18
Depth		3.8	2.5	2.5	1.0
Date Sampled		27/08/2020	27/08/2020	27/08/2020	27/08/2020
Type of sample		Soil	Soil	Soil	Soil
Date analysed	-	02/09/2020	02/09/2020	02/09/2020	02/09/2020
Sample mass tested	g	Approx. 60g	Approx. 70g	Approx. 40g	Approx. 45g
Sample Description	-	Brown coarse-grained soil & rocks	Brown coarse-grained soil & rocks	Brown coarse-grained soil & rocks	Brown coarse-grained soil & rocks
Asbestos ID in soil	-	No asbestos detected at reporting limit of 0.1g/kg Organic fibres detected	No asbestos detected at reporting limit of 0.1g/kg Organic fibres detected	No asbestos detected at reporting limit of 0.1g/kg Organic fibres detected	No asbestos detected at reporting limit of 0.1g/kg Organic fibres detected
Trace Analysis	-	No asbestos detected	No asbestos detected	No asbestos detected	No asbestos detected

Method ID	Methodology Summary
ASB-001	Asbestos ID - Qualitative identification of asbestos in bulk samples using Polarised Light Microscopy and Dispersion Staining Techniques including Synthetic Mineral Fibre and Organic Fibre as per Australian Standard 4964-2004.
Inorg-008	Moisture content determined by heating at 105+/-5 °C for a minimum of 12 hours.
Metals-020	Determination of various metals by ICP-AES.
Metals-021	Determination of Mercury by Cold Vapour AAS.
Org-020	Soil samples are extracted with Dichloromethane/Acetone and waters with Dichloromethane and analysed by GC-FID. F2 = (>C10-C16)-Naphthalene as per NEPM B1 Guideline on Investigation Levels for Soil and Groundwater (HSLs Tables 1A (3, 4)). Note Naphthalene is determined from the VOC analysis.
Org-020	Soil samples are extracted with Dichloromethane/Acetone and waters with Dichloromethane and analysed by GC-FID. F2 = (>C10-C16)-Naphthalene as per NEPM B1 Guideline on Investigation Levels for Soil and Groundwater (HSLs Tables 1A (3, 4)). Note Naphthalene is determined from the VOC analysis. Note, the Total +ve TRH PQL is reflective of the lowest individual PQL and is therefore "Total +ve TRH" is simply a sum of the positive individual TRH fractions (>C10-C40).
Org-022	Determination of VOCs sampled onto coconut shell charcoal sorbent tubes, that can be desorbed using carbon disulphide, and analysed by GC-MS.
Org-022/025	Soil samples are extracted with Dichloromethane/Acetone and waters with Dichloromethane and analysed by GC-MS/GC-MSMS.
Org-022/025	Soil samples are extracted with dichloromethane/acetone and waters with dichloromethane and analysed by GC-MS/GC-MSMS. Note, the Total +ve reported DDD+DDE+DDT PQL is reflective of the lowest individual PQL and is therefore simply a sum of the positive individually report DDD+DDE+DDT.

Method ID	Methodology Summary
Org-022/025	Soil samples are extracted with Dichloromethane/Acetone and waters with Dichloromethane and analysed by GC-MS and/or GC-MS/MS. Benzo(a)pyrene TEQ as per NEPM B1 Guideline on Investigation Levels for Soil and Groundwater - 2013. For soil results:- 1. 'EQ PQL' values are assuming all contributing PAHs reported as <PQL are actually at the PQL. This is the most conservative approach and can give false positive TEQs given that PAHs that contribute to the TEQ calculation may not be present. 2. 'EQ zero' values are assuming all contributing PAHs reported as <PQL are zero. This is the least conservative approach and is more susceptible to false negative TEQs when PAHs that contribute to the TEQ calculation are present but below PQL. 3. 'EQ half PQL' values are assuming all contributing PAHs reported as <PQL are half the stipulated PQL. Hence a mid-point between the most and least conservative approaches above. Note, the Total +ve PAHs PQL is reflective of the lowest individual PQL and is therefore "Total +ve PAHs" is simply a sum of the positive individual PAHs.
Org-023	Soil samples are extracted with methanol and spiked into water prior to analysing by purge and trap GC-MS.
Org-023	Soil samples are extracted with methanol and spiked into water prior to analysing by purge and trap GC-MS. Water samples are analysed directly by purge and trap GC-MS. F1 = (C6-C10)-BTX as per NEPM B1 Guideline on Investigation Levels for Soil and Groundwater.
Org-023	Soil samples are extracted with methanol and spiked into water prior to analysing by purge and trap GC-MS. Water samples are analysed directly by purge and trap GC-MS. F1 = (C6-C10)-BTX 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-7	250027-5
Date extracted	-			31/08/2020	3	31/08/2020	31/08/2020		31/08/2020	31/08/2020
Date analysed	-			01/09/2020	3	31/08/2020	01/09/2020		31/08/2020	31/08/2020
TRH C ₆ - C ₉	mg/kg	25	Org-023	<25	3	<25	<25	0	90	96
TRH C ₆ - C ₁₀	mg/kg	25	Org-023	<25	3	<25	<25	0	90	96
Benzene	mg/kg	0.2	Org-023	<0.2	3	<0.2	<0.2	0	80	88
Toluene	mg/kg	0.5	Org-023	<0.5	3	<0.5	<0.5	0	105	110
Ethylbenzene	mg/kg	1	Org-023	<1	3	<1	<1	0	85	89
m+p-xylene	mg/kg	2	Org-023	<2	3	<2	<2	0	91	96
o-Xylene	mg/kg	1	Org-023	<1	3	<1	<1	0	86	91
naphthalene	mg/kg	1	Org-023	<1	3	<1	<1	0	[NT]	[NT]
Surrogate aaa-Trifluorotoluene	%		Org-023	117	3	128	135	5	112	127

QUALITY CONTROL: vTRH(C6-C10)/BTEXN in Soil					Duplicate			Spike Recovery %		
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-8	250027-61
Date extracted	-			[NT]	34	31/08/2020	31/08/2020		31/08/2020	31/08/2020
Date analysed	-			[NT]	34	31/08/2020	01/09/2020		01/09/2020	31/08/2020
TRH C ₆ - C ₉	mg/kg	25	Org-023	[NT]	34	<25	<25	0	93	74
TRH C ₆ - C ₁₀	mg/kg	25	Org-023	[NT]	34	<25	<25	0	93	74
Benzene	mg/kg	0.2	Org-023	[NT]	34	<0.2	<0.2	0	85	64
Toluene	mg/kg	0.5	Org-023	[NT]	34	<0.5	<0.5	0	108	84
Ethylbenzene	mg/kg	1	Org-023	[NT]	34	<1	<1	0	87	70
m+p-xylene	mg/kg	2	Org-023	[NT]	34	<2	<2	0	93	76
o-Xylene	mg/kg	1	Org-023	[NT]	34	<1	<1	0	90	72
naphthalene	mg/kg	1	Org-023	[NT]	34	<1	<1	0	[NT]	[NT]
Surrogate aaa-Trifluorotoluene	%		Org-023	[NT]	34	132	130	2	111	112

QUALITY CONTROL: vTRH(C6-C10)/BTEXN in Soil					Duplicate			Spike Recovery %		
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	[NT]	[NT]
Date extracted	-			[NT]	60	31/08/2020	31/08/2020		[NT]	[NT]
Date analysed	-			[NT]	60	01/09/2020	31/08/2020		[NT]	[NT]
TRH C ₆ - C ₉	mg/kg	25	Org-023	[NT]	60	<25	<25	0	[NT]	[NT]
TRH C ₆ - C ₁₀	mg/kg	25	Org-023	[NT]	60	<25	<25	0	[NT]	[NT]
Benzene	mg/kg	0.2	Org-023	[NT]	60	<0.2	<0.2	0	[NT]	[NT]
Toluene	mg/kg	0.5	Org-023	[NT]	60	<0.5	<0.5	0	[NT]	[NT]
Ethylbenzene	mg/kg	1	Org-023	[NT]	60	<1	<1	0	[NT]	[NT]
m+p-xylene	mg/kg	2	Org-023	[NT]	60	<2	<2	0	[NT]	[NT]
o-Xylene	mg/kg	1	Org-023	[NT]	60	<1	<1	0	[NT]	[NT]
naphthalene	mg/kg	1	Org-023	[NT]	60	<1	<1	0	[NT]	[NT]
Surrogate aaa-Trifluorotoluene	%		Org-023	[NT]	60	131	131	0	[NT]	[NT]

QUALITY CONTROL: svTRH (C10-C40) in Soil					Duplicate			Spike Recovery %		
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-7	250027-5
Date extracted	-			31/08/2020	3	31/08/2020	31/08/2020		31/08/2020	31/08/2020
Date analysed	-			31/08/2020	3	31/08/2020	31/08/2020		31/08/2020	31/08/2020
TRH C ₁₀ - C ₁₄	mg/kg	50	Org-020	<50	3	<50	<50	0	102	115
TRH C ₁₅ - C ₂₈	mg/kg	100	Org-020	<100	3	<100	<100	0	75	78
TRH C ₂₉ - C ₃₆	mg/kg	100	Org-020	<100	3	150	<100	40	77	#
TRH >C ₁₀ -C ₁₆	mg/kg	50	Org-020	<50	3	<50	<50	0	102	115
TRH >C ₁₆ -C ₃₄	mg/kg	100	Org-020	<100	3	150	<100	40	75	78
TRH >C ₃₄ -C ₄₀	mg/kg	100	Org-020	<100	3	160	<100	46	77	#
Surrogate o-Terphenyl	%		Org-020	89	3	95	89	7	122	75

QUALITY CONTROL: svTRH (C10-C40) in Soil					Duplicate			Spike Recovery %		
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-8	250027-61
Date extracted	-			[NT]	34	31/08/2020	31/08/2020		31/08/2020	31/08/2020
Date analysed	-			[NT]	34	31/08/2020	31/08/2020		31/08/2020	01/09/2020
TRH C ₁₀ - C ₁₄	mg/kg	50	Org-020	[NT]	34	<50	<50	0	101	85
TRH C ₁₅ - C ₂₈	mg/kg	100	Org-020	[NT]	34	<100	<100	0	78	75
TRH C ₂₉ - C ₃₆	mg/kg	100	Org-020	[NT]	34	<100	<100	0	77	91
TRH >C ₁₀ -C ₁₆	mg/kg	50	Org-020	[NT]	34	<50	<50	0	101	85
TRH >C ₁₆ -C ₃₄	mg/kg	100	Org-020	[NT]	34	<100	<100	0	78	75
TRH >C ₃₄ -C ₄₀	mg/kg	100	Org-020	[NT]	34	<100	<100	0	77	91
Surrogate o-Terphenyl	%		Org-020	[NT]	34	84	81	4	125	113

QUALITY CONTROL: svTRH (C10-C40) in Soil					Duplicate			Spike Recovery %		
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	[NT]	[NT]
Date extracted	-			[NT]	60	31/08/2020	31/08/2020		[NT]	[NT]
Date analysed	-			[NT]	60	31/08/2020	31/08/2020		[NT]	[NT]
TRH C ₁₀ - C ₁₄	mg/kg	50	Org-020	[NT]	60	<50	<50	0	[NT]	[NT]
TRH C ₁₅ - C ₂₈	mg/kg	100	Org-020	[NT]	60	<100	<100	0	[NT]	[NT]
TRH C ₂₉ - C ₃₆	mg/kg	100	Org-020	[NT]	60	150	<100	40	[NT]	[NT]
TRH >C ₁₀ -C ₁₆	mg/kg	50	Org-020	[NT]	60	<50	<50	0	[NT]	[NT]
TRH >C ₁₆ -C ₃₄	mg/kg	100	Org-020	[NT]	60	120	<100	18	[NT]	[NT]
TRH >C ₃₄ -C ₄₀	mg/kg	100	Org-020	[NT]	60	120	<100	18	[NT]	[NT]
Surrogate o-Terphenyl	%		Org-020	[NT]	60	89	85	5	[NT]	[NT]

QUALITY CONTROL: PAHs in Soil					Duplicate			Spike Recovery %		
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-7	250027-5
Date extracted	-			31/08/2020	3	31/08/2020	31/08/2020		31/08/2020	31/08/2020
Date analysed	-			31/08/2020	3	31/08/2020	31/08/2020		31/08/2020	31/08/2020
Naphthalene	mg/kg	0.1	Org-022/025	<0.1	3	<0.1	<0.1	0	84	84
Acenaphthylene	mg/kg	0.1	Org-022/025	<0.1	3	<0.1	<0.1	0	[NT]	[NT]
Acenaphthene	mg/kg	0.1	Org-022/025	<0.1	3	<0.1	<0.1	0	87	86
Fluorene	mg/kg	0.1	Org-022/025	<0.1	3	<0.1	<0.1	0	84	82
Phenanthrene	mg/kg	0.1	Org-022/025	<0.1	3	0.1	0.1	0	93	92
Anthracene	mg/kg	0.1	Org-022/025	<0.1	3	<0.1	<0.1	0	[NT]	[NT]
Fluoranthene	mg/kg	0.1	Org-022/025	<0.1	3	<0.1	<0.1	0	88	83
Pyrene	mg/kg	0.1	Org-022/025	<0.1	3	<0.1	<0.1	0	89	83
Benzo(a)anthracene	mg/kg	0.1	Org-022/025	<0.1	3	<0.1	<0.1	0	[NT]	[NT]
Chrysene	mg/kg	0.1	Org-022/025	<0.1	3	<0.1	<0.1	0	94	88
Benzo(b,j,k)fluoranthene	mg/kg	0.2	Org-022/025	<0.2	3	<0.2	<0.2	0	[NT]	[NT]
Benzo(a)pyrene	mg/kg	0.05	Org-022/025	<0.05	3	<0.05	<0.05	0	81	71
Indeno(1,2,3-c,d)pyrene	mg/kg	0.1	Org-022/025	<0.1	3	<0.1	<0.1	0	[NT]	[NT]
Dibenzo(a,h)anthracene	mg/kg	0.1	Org-022/025	<0.1	3	<0.1	<0.1	0	[NT]	[NT]
Benzo(g,h,i)perylene	mg/kg	0.1	Org-022/025	<0.1	3	<0.1	<0.1	0	[NT]	[NT]
Surrogate p-Terphenyl-d14	%		Org-022/025	112	3	115	100	14	102	100

QUALITY CONTROL: PAHs in Soil					Duplicate			Spike Recovery %		
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-8	250027-61
Date extracted	-			[NT]	34	31/08/2020	31/08/2020		31/08/2020	31/08/2020
Date analysed	-			[NT]	34	31/08/2020	31/08/2020		31/08/2020	31/08/2020
Naphthalene	mg/kg	0.1	Org-022/025	[NT]	34	<0.1	<0.1	0	92	90
Acenaphthylene	mg/kg	0.1	Org-022/025	[NT]	34	<0.1	<0.1	0	[NT]	[NT]
Acenaphthene	mg/kg	0.1	Org-022/025	[NT]	34	<0.1	<0.1	0	91	91
Fluorene	mg/kg	0.1	Org-022/025	[NT]	34	<0.1	<0.1	0	96	96
Phenanthrene	mg/kg	0.1	Org-022/025	[NT]	34	<0.1	<0.1	0	97	97
Anthracene	mg/kg	0.1	Org-022/025	[NT]	34	<0.1	<0.1	0	[NT]	[NT]
Fluoranthene	mg/kg	0.1	Org-022/025	[NT]	34	<0.1	<0.1	0	95	96
Pyrene	mg/kg	0.1	Org-022/025	[NT]	34	<0.1	<0.1	0	93	95
Benzo(a)anthracene	mg/kg	0.1	Org-022/025	[NT]	34	<0.1	<0.1	0	[NT]	[NT]
Chrysene	mg/kg	0.1	Org-022/025	[NT]	34	<0.1	<0.1	0	98	94
Benzo(b,j,k)fluoranthene	mg/kg	0.2	Org-022/025	[NT]	34	<0.2	<0.2	0	[NT]	[NT]
Benzo(a)pyrene	mg/kg	0.05	Org-022/025	[NT]	34	<0.05	<0.05	0	95	88
Indeno(1,2,3-c,d)pyrene	mg/kg	0.1	Org-022/025	[NT]	34	<0.1	<0.1	0	[NT]	[NT]
Dibenzo(a,h)anthracene	mg/kg	0.1	Org-022/025	[NT]	34	<0.1	<0.1	0	[NT]	[NT]
Benzo(g,h,i)perylene	mg/kg	0.1	Org-022/025	[NT]	34	<0.1	<0.1	0	[NT]	[NT]
Surrogate p-Terphenyl-d14	%		Org-022/025	[NT]	34	99	99	0	107	109

QUALITY CONTROL: PAHs in Soil						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	[NT]	[NT]
Date extracted	-			[NT]	60	31/08/2020	31/08/2020		[NT]	[NT]
Date analysed	-			[NT]	60	31/08/2020	31/08/2020		[NT]	[NT]
Naphthalene	mg/kg	0.1	Org-022/025	[NT]	60	<0.1	<0.1	0	[NT]	[NT]
Acenaphthylene	mg/kg	0.1	Org-022/025	[NT]	60	<0.1	<0.1	0	[NT]	[NT]
Acenaphthene	mg/kg	0.1	Org-022/025	[NT]	60	<0.1	<0.1	0	[NT]	[NT]
Fluorene	mg/kg	0.1	Org-022/025	[NT]	60	<0.1	<0.1	0	[NT]	[NT]
Phenanthrene	mg/kg	0.1	Org-022/025	[NT]	60	<0.1	<0.1	0	[NT]	[NT]
Anthracene	mg/kg	0.1	Org-022/025	[NT]	60	<0.1	<0.1	0	[NT]	[NT]
Fluoranthene	mg/kg	0.1	Org-022/025	[NT]	60	<0.1	<0.1	0	[NT]	[NT]
Pyrene	mg/kg	0.1	Org-022/025	[NT]	60	0.1	<0.1	0	[NT]	[NT]
Benzo(a)anthracene	mg/kg	0.1	Org-022/025	[NT]	60	<0.1	<0.1	0	[NT]	[NT]
Chrysene	mg/kg	0.1	Org-022/025	[NT]	60	<0.1	<0.1	0	[NT]	[NT]
Benzo(b,j+k)fluoranthene	mg/kg	0.2	Org-022/025	[NT]	60	<0.2	<0.2	0	[NT]	[NT]
Benzo(a)pyrene	mg/kg	0.05	Org-022/025	[NT]	60	<0.05	<0.05	0	[NT]	[NT]
Indeno(1,2,3-c,d)pyrene	mg/kg	0.1	Org-022/025	[NT]	60	<0.1	<0.1	0	[NT]	[NT]
Dibenzo(a,h)anthracene	mg/kg	0.1	Org-022/025	[NT]	60	<0.1	<0.1	0	[NT]	[NT]
Benzo(g,h,i)perylene	mg/kg	0.1	Org-022/025	[NT]	60	<0.1	<0.1	0	[NT]	[NT]
Surrogate p-Terphenyl-d14	%		Org-022/025	[NT]	60	92	111	19	[NT]	[NT]

QUALITY CONTROL: Organochlorine Pesticides in soil						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-7	250027-5
Date extracted	-			31/08/2020	3	31/08/2020	31/08/2020		31/08/2020	31/08/2020
Date analysed	-			31/08/2020	3	31/08/2020	31/08/2020		31/08/2020	31/08/2020
alpha-BHC	mg/kg	0.1	Org-022/025	<0.1	3	<0.1	<0.1	0	80	80
HCB	mg/kg	0.1	Org-022/025	<0.1	3	<0.1	<0.1	0	[NT]	[NT]
beta-BHC	mg/kg	0.1	Org-022/025	<0.1	3	<0.1	<0.1	0	79	77
gamma-BHC	mg/kg	0.1	Org-022/025	<0.1	3	<0.1	<0.1	0	[NT]	[NT]
Heptachlor	mg/kg	0.1	Org-022/025	<0.1	3	<0.1	<0.1	0	83	85
delta-BHC	mg/kg	0.1	Org-022/025	<0.1	3	<0.1	<0.1	0	[NT]	[NT]
Aldrin	mg/kg	0.1	Org-022/025	<0.1	3	<0.1	<0.1	0	92	92
Heptachlor Epoxide	mg/kg	0.1	Org-022/025	<0.1	3	<0.1	<0.1	0	90	88
gamma-Chlordane	mg/kg	0.1	Org-022/025	<0.1	3	<0.1	<0.1	0	[NT]	[NT]
alpha-chlordane	mg/kg	0.1	Org-022/025	<0.1	3	<0.1	<0.1	0	[NT]	[NT]
Endosulfan I	mg/kg	0.1	Org-022/025	<0.1	3	<0.1	<0.1	0	[NT]	[NT]
pp-DDE	mg/kg	0.1	Org-022/025	<0.1	3	<0.1	<0.1	0	87	89
Dieldrin	mg/kg	0.1	Org-022/025	<0.1	3	<0.1	<0.1	0	89	89
Endrin	mg/kg	0.1	Org-022/025	<0.1	3	<0.1	<0.1	0	71	80
Endosulfan II	mg/kg	0.1	Org-022/025	<0.1	3	<0.1	<0.1	0	[NT]	[NT]
pp-DDD	mg/kg	0.1	Org-022/025	<0.1	3	<0.1	<0.1	0	74	72
Endrin Aldehyde	mg/kg	0.1	Org-022/025	<0.1	3	<0.1	<0.1	0	[NT]	[NT]
pp-DDT	mg/kg	0.1	Org-022/025	<0.1	3	<0.1	<0.1	0	[NT]	[NT]
Endosulfan Sulphate	mg/kg	0.1	Org-022/025	<0.1	3	<0.1	<0.1	0	86	84
Methoxychlor	mg/kg	0.1	Org-022/025	<0.1	3	<0.1	<0.1	0	[NT]	[NT]
Surrogate TCMX	%		Org-022/025	106	3	109	96	13	96	97

QUALITY CONTROL: Organochlorine Pesticides in soil						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-8	250027-61
Date extracted	-			[NT]	34	31/08/2020	31/08/2020		31/08/2020	31/08/2020
Date analysed	-			[NT]	34	31/08/2020	31/08/2020		31/08/2020	31/08/2020
alpha-BHC	mg/kg	0.1	Org-022/025	[NT]	34	<0.1	<0.1	0	92	97
HCB	mg/kg	0.1	Org-022/025	[NT]	34	<0.1	<0.1	0	[NT]	[NT]
beta-BHC	mg/kg	0.1	Org-022/025	[NT]	34	<0.1	<0.1	0	92	94
gamma-BHC	mg/kg	0.1	Org-022/025	[NT]	34	<0.1	<0.1	0	[NT]	[NT]
Heptachlor	mg/kg	0.1	Org-022/025	[NT]	34	<0.1	<0.1	0	91	91
delta-BHC	mg/kg	0.1	Org-022/025	[NT]	34	<0.1	<0.1	0	[NT]	[NT]
Aldrin	mg/kg	0.1	Org-022/025	[NT]	34	<0.1	<0.1	0	99	101
Heptachlor Epoxide	mg/kg	0.1	Org-022/025	[NT]	34	<0.1	<0.1	0	93	95
gamma-Chlordane	mg/kg	0.1	Org-022/025	[NT]	34	<0.1	<0.1	0	[NT]	[NT]
alpha-chlordane	mg/kg	0.1	Org-022/025	[NT]	34	<0.1	<0.1	0	[NT]	[NT]
Endosulfan I	mg/kg	0.1	Org-022/025	[NT]	34	<0.1	<0.1	0	[NT]	[NT]
pp-DDE	mg/kg	0.1	Org-022/025	[NT]	34	<0.1	<0.1	0	92	96
Dieldrin	mg/kg	0.1	Org-022/025	[NT]	34	<0.1	<0.1	0	95	99
Endrin	mg/kg	0.1	Org-022/025	[NT]	34	<0.1	<0.1	0	86	89
Endosulfan II	mg/kg	0.1	Org-022/025	[NT]	34	<0.1	<0.1	0	[NT]	[NT]
pp-DDD	mg/kg	0.1	Org-022/025	[NT]	34	<0.1	<0.1	0	94	97
Endrin Aldehyde	mg/kg	0.1	Org-022/025	[NT]	34	<0.1	<0.1	0	[NT]	[NT]
pp-DDT	mg/kg	0.1	Org-022/025	[NT]	34	<0.1	<0.1	0	[NT]	[NT]
Endosulfan Sulphate	mg/kg	0.1	Org-022/025	[NT]	34	<0.1	<0.1	0	76	84
Methoxychlor	mg/kg	0.1	Org-022/025	[NT]	34	<0.1	<0.1	0	[NT]	[NT]
Surrogate TCMX	%		Org-022/025	[NT]	34	95	100	5	104	104

QUALITY CONTROL: Organochlorine Pesticides in soil						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	[NT]	[NT]
Date extracted	-			[NT]	60	31/08/2020	31/08/2020		[NT]	[NT]
Date analysed	-			[NT]	60	31/08/2020	31/08/2020		[NT]	[NT]
alpha-BHC	mg/kg	0.1	Org-022/025	[NT]	60	<0.1	<0.1	0	[NT]	[NT]
HCB	mg/kg	0.1	Org-022/025	[NT]	60	<0.1	<0.1	0	[NT]	[NT]
beta-BHC	mg/kg	0.1	Org-022/025	[NT]	60	<0.1	<0.1	0	[NT]	[NT]
gamma-BHC	mg/kg	0.1	Org-022/025	[NT]	60	<0.1	<0.1	0	[NT]	[NT]
Heptachlor	mg/kg	0.1	Org-022/025	[NT]	60	<0.1	<0.1	0	[NT]	[NT]
delta-BHC	mg/kg	0.1	Org-022/025	[NT]	60	<0.1	<0.1	0	[NT]	[NT]
Aldrin	mg/kg	0.1	Org-022/025	[NT]	60	<0.1	<0.1	0	[NT]	[NT]
Heptachlor Epoxide	mg/kg	0.1	Org-022/025	[NT]	60	<0.1	<0.1	0	[NT]	[NT]
gamma-Chlordane	mg/kg	0.1	Org-022/025	[NT]	60	<0.1	<0.1	0	[NT]	[NT]
alpha-chlordane	mg/kg	0.1	Org-022/025	[NT]	60	<0.1	<0.1	0	[NT]	[NT]
Endosulfan I	mg/kg	0.1	Org-022/025	[NT]	60	<0.1	<0.1	0	[NT]	[NT]
pp-DDE	mg/kg	0.1	Org-022/025	[NT]	60	<0.1	<0.1	0	[NT]	[NT]
Dieldrin	mg/kg	0.1	Org-022/025	[NT]	60	<0.1	<0.1	0	[NT]	[NT]
Endrin	mg/kg	0.1	Org-022/025	[NT]	60	<0.1	<0.1	0	[NT]	[NT]
Endosulfan II	mg/kg	0.1	Org-022/025	[NT]	60	<0.1	<0.1	0	[NT]	[NT]
pp-DDD	mg/kg	0.1	Org-022/025	[NT]	60	<0.1	<0.1	0	[NT]	[NT]
Endrin Aldehyde	mg/kg	0.1	Org-022/025	[NT]	60	<0.1	<0.1	0	[NT]	[NT]
pp-DDT	mg/kg	0.1	Org-022/025	[NT]	60	<0.1	<0.1	0	[NT]	[NT]
Endosulfan Sulphate	mg/kg	0.1	Org-022/025	[NT]	60	<0.1	<0.1	0	[NT]	[NT]
Methoxychlor	mg/kg	0.1	Org-022/025	[NT]	60	<0.1	<0.1	0	[NT]	[NT]
Surrogate TCMX	%		Org-022/025	[NT]	60	90	107	17	[NT]	[NT]

QUALITY CONTROL: Organophosphorus Pesticides in Soil					Duplicate			Spike Recovery %		
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-7	250027-5
Date extracted	-			31/08/2020	3	31/08/2020	31/08/2020		31/08/2020	31/08/2020
Date analysed	-			31/08/2020	3	31/08/2020	31/08/2020		31/08/2020	31/08/2020
Dichlorvos	mg/kg	0.1	Org-022/025	<0.1	3	<0.1	<0.1	0	78	84
Dimethoate	mg/kg	0.1	Org-022/025	<0.1	3	<0.1	<0.1	0	[NT]	[NT]
Diazinon	mg/kg	0.1	Org-022/025	<0.1	3	<0.1	<0.1	0	[NT]	[NT]
Chlorpyrifos-methyl	mg/kg	0.1	Org-022/025	<0.1	3	<0.1	<0.1	0	[NT]	[NT]
Ronnel	mg/kg	0.1	Org-022/025	<0.1	3	<0.1	<0.1	0	86	84
Fenitrothion	mg/kg	0.1	Org-022/025	<0.1	3	<0.1	<0.1	0	83	85
Malathion	mg/kg	0.1	Org-022/025	<0.1	3	<0.1	<0.1	0	80	76
Chlorpyrifos	mg/kg	0.1	Org-022/025	<0.1	3	<0.1	<0.1	0	89	91
Parathion	mg/kg	0.1	Org-022/025	<0.1	3	<0.1	<0.1	0	90	76
Bromophos-ethyl	mg/kg	0.1	Org-022	<0.1	3	<0.1	<0.1	0	[NT]	[NT]
Ethion	mg/kg	0.1	Org-022/025	<0.1	3	<0.1	<0.1	0	91	91
Azinphos-methyl (Guthion)	mg/kg	0.1	Org-022/025	<0.1	3	<0.1	<0.1	0	[NT]	[NT]
Surrogate TCMX	%		Org-022/025	106	3	109	96	13	96	97

QUALITY CONTROL: Organophosphorus Pesticides in Soil					Duplicate			Spike Recovery %		
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-8	250027-61
Date extracted	-			[NT]	34	31/08/2020	31/08/2020		31/08/2020	31/08/2020
Date analysed	-			[NT]	34	31/08/2020	31/08/2020		31/08/2020	31/08/2020
Dichlorvos	mg/kg	0.1	Org-022/025	[NT]	34	<0.1	<0.1	0	84	86
Dimethoate	mg/kg	0.1	Org-022/025	[NT]	34	<0.1	<0.1	0	[NT]	[NT]
Diazinon	mg/kg	0.1	Org-022/025	[NT]	34	<0.1	<0.1	0	[NT]	[NT]
Chlorpyrifos-methyl	mg/kg	0.1	Org-022/025	[NT]	34	<0.1	<0.1	0	[NT]	[NT]
Ronnel	mg/kg	0.1	Org-022/025	[NT]	34	<0.1	<0.1	0	93	95
Fenitrothion	mg/kg	0.1	Org-022/025	[NT]	34	<0.1	<0.1	0	91	97
Malathion	mg/kg	0.1	Org-022/025	[NT]	34	<0.1	<0.1	0	100	80
Chlorpyrifos	mg/kg	0.1	Org-022/025	[NT]	34	<0.1	<0.1	0	95	99
Parathion	mg/kg	0.1	Org-022/025	[NT]	34	<0.1	<0.1	0	90	94
Bromophos-ethyl	mg/kg	0.1	Org-022	[NT]	34	<0.1	<0.1	0	[NT]	[NT]
Ethion	mg/kg	0.1	Org-022/025	[NT]	34	<0.1	<0.1	0	91	99
Azinphos-methyl (Guthion)	mg/kg	0.1	Org-022/025	[NT]	34	<0.1	<0.1	0	[NT]	[NT]
Surrogate TCMX	%		Org-022/025	[NT]	34	95	100	5	104	104

QUALITY CONTROL: Organophosphorus Pesticides in Soil						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	[NT]	[NT]
Date extracted	-			[NT]	60	31/08/2020	31/08/2020		[NT]	[NT]
Date analysed	-			[NT]	60	31/08/2020	31/08/2020		[NT]	[NT]
Dichlorvos	mg/kg	0.1	Org-022/025	[NT]	60	<0.1	<0.1	0	[NT]	[NT]
Dimethoate	mg/kg	0.1	Org-022/025	[NT]	60	<0.1	<0.1	0	[NT]	[NT]
Diazinon	mg/kg	0.1	Org-022/025	[NT]	60	<0.1	<0.1	0	[NT]	[NT]
Chlorpyrifos-methyl	mg/kg	0.1	Org-022/025	[NT]	60	<0.1	<0.1	0	[NT]	[NT]
Ronnel	mg/kg	0.1	Org-022/025	[NT]	60	<0.1	<0.1	0	[NT]	[NT]
Fenitrothion	mg/kg	0.1	Org-022/025	[NT]	60	<0.1	<0.1	0	[NT]	[NT]
Malathion	mg/kg	0.1	Org-022/025	[NT]	60	<0.1	<0.1	0	[NT]	[NT]
Chlorpyrifos	mg/kg	0.1	Org-022/025	[NT]	60	<0.1	<0.1	0	[NT]	[NT]
Parathion	mg/kg	0.1	Org-022/025	[NT]	60	<0.1	<0.1	0	[NT]	[NT]
Bromophos-ethyl	mg/kg	0.1	Org-022	[NT]	60	<0.1	<0.1	0	[NT]	[NT]
Ethion	mg/kg	0.1	Org-022/025	[NT]	60	<0.1	<0.1	0	[NT]	[NT]
Azinphos-methyl (Guthion)	mg/kg	0.1	Org-022/025	[NT]	60	<0.1	<0.1	0	[NT]	[NT]
Surrogate TCMX	%		Org-022/025	[NT]	60	90	107	17	[NT]	[NT]

QUALITY CONTROL: Acid Extractable metals in soil					Duplicate			Spike Recovery %		
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-7	250027-5
Date prepared	-			31/08/2020	3	31/08/2020	31/08/2020		31/08/2020	31/08/2020
Date analysed	-			31/08/2020	3	31/08/2020	31/08/2020		31/08/2020	31/08/2020
Arsenic	mg/kg	4	Metals-020	<4	3	<4	4	0	96	75
Cadmium	mg/kg	0.4	Metals-020	<0.4	3	<0.4	<0.4	0	99	75
Chromium	mg/kg	1	Metals-020	<1	3	6	4	40	94	77
Copper	mg/kg	1	Metals-020	<1	3	24	21	13	93	89
Lead	mg/kg	1	Metals-020	<1	3	12	10	18	98	81
Mercury	mg/kg	0.1	Metals-021	<0.1	3	<0.1	<0.1	0	107	95
Nickel	mg/kg	1	Metals-020	<1	3	9	9	0	100	77
Zinc	mg/kg	1	Metals-020	<1	3	33	34	3	96	74

QUALITY CONTROL: Acid Extractable metals in soil					Duplicate			Spike Recovery %		
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-8	250027-61
Date prepared	-			[NT]	34	31/08/2020	31/08/2020		31/08/2020	31/08/2020
Date analysed	-			[NT]	34	31/08/2020	31/08/2020		31/08/2020	31/08/2020
Arsenic	mg/kg	4	Metals-020	[NT]	34	7	6	15	102	84
Cadmium	mg/kg	0.4	Metals-020	[NT]	34	<0.4	<0.4	0	107	81
Chromium	mg/kg	1	Metals-020	[NT]	34	13	13	0	102	81
Copper	mg/kg	1	Metals-020	[NT]	34	24	26	8	101	89
Lead	mg/kg	1	Metals-020	[NT]	34	11	11	0	108	86
Mercury	mg/kg	0.1	Metals-021	[NT]	34	<0.1	<0.1	0	99	87
Nickel	mg/kg	1	Metals-020	[NT]	34	12	13	8	108	#
Zinc	mg/kg	1	Metals-020	[NT]	34	43	44	2	103	#

QUALITY CONTROL: Acid Extractable metals in soil					Duplicate			Spike Recovery %		
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	[NT]	[NT]
Date prepared	-			[NT]	60	31/08/2020	31/08/2020		[NT]	[NT]
Date analysed	-			[NT]	60	31/08/2020	31/08/2020		[NT]	[NT]
Arsenic	mg/kg	4	Metals-020	[NT]	60	5	5	0	[NT]	[NT]
Cadmium	mg/kg	0.4	Metals-020	[NT]	60	<0.4	<0.4	0	[NT]	[NT]
Chromium	mg/kg	1	Metals-020	[NT]	60	13	11	17	[NT]	[NT]
Copper	mg/kg	1	Metals-020	[NT]	60	12	12	0	[NT]	[NT]
Lead	mg/kg	1	Metals-020	[NT]	60	12	11	9	[NT]	[NT]
Mercury	mg/kg	0.1	Metals-021	[NT]	60	<0.1	<0.1	0	[NT]	[NT]
Nickel	mg/kg	1	Metals-020	[NT]	60	5	4	22	[NT]	[NT]
Zinc	mg/kg	1	Metals-020	[NT]	60	16	12	29	[NT]	[NT]

Result Definitions

NT	Not tested
NA	Test not required
INS	Insufficient sample for this test
PQL	Practical Quantitation Limit
<	Less than
>	Greater than
RPD	Relative Percent Difference
LCS	Laboratory Control Sample
NS	Not specified
NEPM	National Environmental Protection Measure
NR	Not Reported

Quality Control Definitions

Blank	This is the component of the analytical signal which is not derived from the sample but from reagents, glassware etc, can be determined by processing solvents and reagents in exactly the same manner as for samples.
Duplicate	This is the complete duplicate analysis of a sample from the process batch. If possible, the sample selected should be one where the analyte concentration is easily measurable.
Matrix Spike	A portion of the sample is spiked with a known concentration of target analyte. The purpose of the matrix spike is to monitor the performance of the analytical method used and to determine whether matrix interferences exist.
LCS (Laboratory Control Sample)	This comprises either a standard reference material or a control matrix (such as a blank sand or water) fortified with analytes representative of the analyte class. It is simply a check sample.
Surrogate Spike	Surrogates are known additions to each sample, blank, matrix spike and LCS in a batch, of compounds which are similar to the analyte of interest, however are not expected to be found in real samples.
Australian Drinking Water Guidelines recommend that Thermotolerant Coliform, Faecal Enterococci, & E.Coli levels are less than 1cfu/100mL. The recommended maximums are taken from "Australian Drinking Water Guidelines", published by NHMRC & ARMC 2011.	
The recommended maximums for analytes in urine are taken from "2018 TLVs and BEIs", as published by ACGIH (where available). Limit provided for Nickel is a precautionary guideline as per Position Paper prepared by AIOH Exposure Standards Committee, 2016.	
Guideline limits for Rinse Water Quality reported as per analytical requirements and specifications of AS 4187, Amdt 2 2019, Table 7.2	

Laboratory Acceptance Criteria

Duplicate sample and matrix spike recoveries may not be reported on smaller jobs, however, were analysed at a frequency to meet or exceed NEPM requirements. All samples are tested in batches of 20. The duplicate sample RPD and matrix spike recoveries for the batch were within the laboratory acceptance criteria.

Filters, swabs, wipes, tubes and badges will not have duplicate data as the whole sample is generally extracted during sample extraction.

Spikes for Physical and Aggregate Tests are not applicable.

For VOCs in water samples, three vials are required for duplicate or spike analysis.

Duplicates: >10xPQL - RPD acceptance criteria will vary depending on the analytes and the analytical techniques but is typically in the range 20%-50% – see ELN-P05 QA/QC tables for details; <10xPQL - RPD are higher as the results approach PQL and the estimated measurement uncertainty will statistically increase.

Matrix Spikes, LCS and Surrogate recoveries: Generally 70-130% for inorganics/metals (not SPOCAS); 60-140% for organics/SPOCAS (+/-50% surrogates) and 10-140% for labile SVOCs (including labile surrogates), ultra trace organics and speciated phenols is acceptable.

In circumstances where no duplicate and/or sample spike has been reported at 1 in 10 and/or 1 in 20 samples respectively, the sample volume submitted was insufficient in order to satisfy laboratory QA/QC protocols.

When samples are received where certain analytes are outside of recommended technical holding times (THTs), the analysis has proceeded. Where analytes are on the verge of breaching THTs, every effort will be made to analyse within the THT or as soon as practicable.

Where sampling dates are not provided, Envirolab are not in a position to comment on the validity of the analysis where recommended technical holding times may have been breached.

Measurement Uncertainty estimates are available for most tests upon request.

Analysis of aqueous samples typically involves the extraction/digestion and/or analysis of the liquid phase only (i.e. NOT any settled sediment phase but inclusive of suspended particles if present), unless stipulated on the Envirolab COC and/or by correspondence. Notable exceptions include certain Physical Tests (pH/EC/BOD/COD/Apparent Colour etc.), Solids testing, total recoverable metals and PFAS where solids are included by default.

Samples for Microbiological analysis (not Amoeba forms) received outside of the 2-8°C temperature range do not meet the ideal cooling conditions as stated in AS2031-2012.

Report Comments

TRH Soil C10-C40 NEPM - # Percent recovery for the matrix spike is not possible to report as the high concentration of analytes in sample 250027-5 has caused interference.

Acid Extractable Metals in Soil: # Percent recovery is not possible to report due to the inhomogeneous nature of the element/s in the sample/s. However an acceptable recovery was obtained for the LCS.

Asbestos: Excessive sample volume was provided for asbestos analysis. A portion of the supplied sample was sub-sampled according to Envirolab procedures. We cannot guarantee that this sub-sample is indicative of the entire sample. Envirolab recommends supplying 40-50g (50mL) of sample in its own container as per AS4964-2004.

Note: Samples were sub-sampled from bags provided by the client.

CHAIN OF CUSTODY - Client



ENVIROLAB SERVICES

Client: Zoic Environmental		Client Project Name and Number: 19160	EnviroLab Services 12 Ashley St, Chatswood, NSW, 2067 Phone: 02 9910 6200 Fax: 02 9910 6201 E-mail: ahie@envirolabservices.com.au Contact: Aileen Hie
Project Mgr: T.Creese		PO No.:	
Sampler: TC		EnviroLab Services Quote No.:	
Address:		Date results required:	
Email: tyler.creese@zoic.com.au		Or choose <u>standard</u>	
Phone: 61481775243 Fax:		Note: Inform lab in advance if urgent turnaround is required - surcharge applies	

Sample Information				Tests Required												Comments
EnviroLab Sample ID	Client Sample ID	Date sampled	Type of sample	Com-60	56	Arb-60	(AS4964)									Provide as much information about the sample as you can
1	BH1 (0.5)	27/8/20	Soil													
2	BH1 (1.5)															
3	BH1 (2.5)			X		X										
4	BH1 (2.3)															
NZ	BH1 (3.8)															
5	BH2 (0.5)			X		X										
6	BH2 (1.5)															
7	BH2 (2.5)															
8	BH2 (3.5)															
9	BH3 (1.0)															
10	BH3 (2.0)			X		X										
11	BH3 (3.0)															
12	BH4 (1.0)															
13	BH4 (2.0)															
14	BH4 (3.0)															
15	BH4 (4.0)			X		X										
16	BH5 (1.0)			X		X										
17	BH5 (2.0)															
18	BH5 (3.0)															
19	BH6 (1.0)															
20	BH6 (2.0)			X		X										
21	BH6 (3.0)															
22	BH6 (4.0)															
23	BH7 (1.0)						- NO									
24	BH7 (2.0)			X		X										
25	BH7 (4.0)															

EnviroLab Services
 12 Ashley St
 Chatswood NSW 2067
 Ph: 02 9910 6200
 Job No: 250027
 Date Received: 28/08/2020
 Time Received: 15:12
 Received by: [Signature]
 Temp: Cool/Ambient
 Cooling: Icepack
 Security: Intact/Broken/None

Relinquished by (company): Zoic	Received by (company): ELS Sydney	Samples Received: (Cool) or Ambient (circle one)
Print Name: Tyler Creese	Print Name: Rihazeen	Temperature Received at: 7.9 (if applicable)
Date & Time: 28/8/20	Date & Time: 28/08/2020	Transported by: Hand delivered / courier
Signature: [Signature]	Signature: [Signature]	Page No:

CHAIN OF CUSTODY - Client



ENVIROLAB SERVICES

Client: Zoic Environmental		Client Project Name and Number: 19160		EnviroLab Services	
Project Mgr: T.Creese		PO No.:		12 Ashley St, Chatswood, NSW, 2067	
Sampler: TC		EnviroLab Services Quote No.:		Phone: 02 9910 6200	
Address:		Date results required:		Fax: 02 9910 6201	
Email: tyler.creese@zoic.com.au		Or choose: <u>standard</u>		E-mail: ahie@envirolabservices.com.au	
Phone: 61481775243		Note: Inform lab in advance if urgent turnaround is required - surcharge applies		Contact: Aileen Hie	

Sample information				Tests Required														Comments
EnviroLab Sample ID	Client Sample ID	Date sampled	Type of sample	Combs 5b	Asbestos (AS9464)	TEH (6-9) BTEX												Provide as much information about the sample as you can
26	BH8 (0.1)	27/8/20	Soil															
27	BH8 (1.0)																	
28	BH8 (2.5)			X	X													
29	BH8 (4.0)																	
30	BH9 (1.0)																	
31	BH9 (2.5)			X	X													
32	BH9 (4.0)																	
33	BH10 (1.0)					X												
34	BH10 (2.1)			X	X													
35	BH10 (3.0)																	
36	BH11 (1.0)																	
37	BH11 (2.5)			X	X													
38	BH11 (3.7)																	
39	BH12 (1.0)			X	X													
40	BH12 (2.5)																	
41	BH12 (4.0)																	
42	BH13 (1.0)			X	X													
43	BH13 (2.5)																	
44	BH13 (3.8)																	
45	BH13 (4.0)																	
46	BH14 (0.5)																	
47	BH14 (1.0)			X	X													
48	BH14 (2.0)			X	-10													
49	BH15 (1.0)																	
50	BH15 (2.5)																	
51	BH15 (3.8)			X	X													

Relinquished by (company): Zoic		Received by (company): ELS Sydney		Samples Received: <u>Cool</u> or Ambient (circle one)	
Print Name: Tyler Creese		Print Name: R. Imzeen		Temperature Received at: 7.9 (if applicable)	
Date & Time: 27/8/2020		Date & Time: 27/08/2020 15.12		Transported by: <u>Hand delivered</u> / courier	
Signature: <i>[Signature]</i>		Signature: <i>[Signature]</i>		Page No:	

CHAIN OF CUSTODY - Client



ENVIROLAB SERVICES

Client: Zoic Environmental		Client Project Name and Number: 19160	Envirolab Services 12 Ashley St, Chatswood, NSW, 2067 Phone: 02 9910 6200 Fax: 02 9910 6201 E-mail: ahie@envirolabservices.com.au Contact: Aileen Hie
Project Mgr: T.Creese		PO No.:	
Sampler: TC		Envirolab Services Quote No.:	
Address:		Date results required:	
Email: tyler.creese@zoic.com.au		Or choose: <u>standard</u>	
Phone: 61481775243	Fax:	Note: Inform lab in advance if urgent turnaround is required - surcharge applies	

Sample Information				Tests Required												Comments
Envirolab Sample ID	Client Sample ID	Date sampled	Type of sample	Combo 56	Asbestos (AS4964)											Provide as much information about the sample as you can
52	BH16 (1.0)	27/8/20	Soil	Combo 56	Asbestos (AS4964)											Combo 56 =
53	BH16 (2.5)			X	X											TRH/BTEX, PAH
54	BH17 (0.1)															PCP/OPP, 8 metals
55	BH17 (1.0)															
56	BH17 (2.5)			X	X											
57	BH18 (1.0)			X	X											
58	BH18 (2.5)															
59	BH18 (3.5)															
60	Tri-1			X												
61	Tri-2			X												
-	Tri-1			Please send to aro for X												
-	Tri-2			Please send to aro for X												
62	BH03 (0.1)	27/8	Soil													
63	BH14 (4.0)															
64	BH16 (0.1)															

Relinquished by (company): Zoic	Received by (company): ELS Sydney	Samples Received: <u>Cool</u> or Ambient (circle one)
Print Name: Tyler Creese	Print Name: R. Lhazeeen	Temperature Received at: 7.3 (if applicable)
Date & Time: 28/8/2020	Date & Time: 28/08/2020	Transported by: Hand delivered / courier
Signature:	Signature:	Page No:

SAMPLE RECEIPT ADVICE

Client Details

Client	Zoic Environmental
Attention	Tyler Creese

Sample Login Details

Your reference	19160
Envirolab Reference	250027
Date Sample Received	28/08/2020
Date Instructions Received	28/08/2020
Date Results Expected to be Reported	04/09/2020

Sample Condition

Samples received in appropriate condition for analysis	Yes
No. of Samples Provided	64 Soil
Turnaround Time Requested	Standard
Temperature on Receipt (°C)	7.9
Cooling Method	Ice Pack
Sampling Date Provided	YES

Comments

Nil

Please direct any queries to:

Aileen Hie

Phone: 02 9910 6200
Fax: 02 9910 6201
Email: ahie@envirolab.com.au

Jacinta Hurst

Phone: 02 9910 6200
Fax: 02 9910 6201
Email: jhurst@envirolab.com.au

Analysis Underway, details on the following page:



Envirolab Services Pty Ltd

ABN 37 112 535 645

12 Ashley St Chatswood NSW 2067

ph 02 9910 6200 fax 02 9910 6201

customerservice@envirolab.com.au

www.envirolab.com.au

Sample ID	VTRH(C6-C10)/BTEXN in Soil	svTRH (C10-C40) in Soil	PAHs in Soil	Organochlorine Pesticides in soil	Organophosphorus Pesticides in Soil	Acid Extractable metals in soil	Asbestos ID - soils	On Hold
BH1-0.5								✓
BH1-1.5								✓
BH1-2.5	✓	✓	✓	✓	✓	✓	✓	
BH1-3.3								✓
BH2-0.5	✓	✓	✓	✓	✓	✓	✓	
BH2-1.5								✓
BH2-2.5								✓
BH2-3.5								✓
BH3-1.0								✓
BH3-2.0	✓	✓	✓	✓	✓	✓	✓	
BH3-3.0								✓
BH4-1.0								✓
BH4-2.0								✓
BH4-3.0								✓
BH4-4.0	✓	✓	✓	✓	✓	✓	✓	
BH5-1.0	✓	✓	✓	✓	✓	✓	✓	
BH5-2.0								✓
BH5-3.0								✓
BH6-1.0								✓
BH6-2.0	✓	✓	✓	✓	✓	✓	✓	
BH6-3.0								✓
BH6-4.4								✓
BH7-1.0								✓
BH7-2.0	✓	✓	✓	✓	✓	✓	✓	
BH7-4.0								✓
BH8-0.1								✓
BH8-1.0								✓
BH8-2.5	✓	✓	✓	✓	✓	✓	✓	
BH8-4.0								✓
BH9-1.0								✓
BH9-2.0	✓	✓	✓	✓	✓	✓	✓	
BH9-4.0								✓



Envirolab Services Pty Ltd

ABN 37 112 535 645

12 Ashley St Chatswood NSW 2067

ph 02 9910 6200 fax 02 9910 6201

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Sample ID	VTRH(C6-C10)/BTEXN in Soil	svTRH (C10-C40) in Soil	PAHs in Soil	Organochlorine Pesticides in soil	Organophosphorus Pesticides in Soil	Acid Extractable metals in soil	Asbestos ID - soils	On Hold
BH10-1.0	✓							
BH10-2.1	✓	✓	✓	✓	✓	✓	✓	
BH10-3.0								✓
BH11-1.0								✓
BH11-2.5	✓	✓	✓	✓	✓	✓	✓	
BH11-3.7								✓
BH12-1.0	✓	✓	✓	✓	✓	✓	✓	
BH12-2.5								✓
BH12-4.0								✓
BH13-1.0	✓	✓	✓	✓	✓	✓	✓	
BH13-2.5								✓
BH13-3.8								✓
BH13-4.0								✓
BH14-0.5								✓
BH14-1.0	✓	✓	✓	✓	✓	✓	✓	
BH14-2.6								✓
BH15-1.0								✓
BH15-2.5								✓
BH15-3.8	✓	✓	✓	✓	✓	✓	✓	
BH16-1.0								✓
BH16-2.5	✓	✓	✓	✓	✓	✓	✓	
BH17-0.1								✓
BH17-1.0								✓
BH17-2.5	✓	✓	✓	✓	✓	✓	✓	
BH18-1.0	✓	✓	✓	✓	✓	✓	✓	
BH18-2.5								✓
BH18-3.5								✓
DUP-1	✓	✓	✓	✓	✓	✓		
DUP-2	✓	✓	✓	✓	✓	✓		
BH3-0.1								✓
BH14-4.0								✓
BH16-0.1								✓

The '✓' indicates the testing you have requested. **THIS IS NOT A REPORT OF THE RESULTS.**

Additional Info

Sample storage - Waters are routinely disposed of approximately 1 month and soils approximately 2 months from receipt.

Requests for longer term sample storage must be received in writing.

Please contact the laboratory immediately if observed settled sediment present in water samples is to be included in the extraction and/or analysis (exceptions include certain Physical Tests (pH/EC/BOD/COD/Apparent Colour etc.), Solids testing, Total Recoverable metals and PFAS analysis where solids are included by default.

TAT for Micro is dependent on incubation. This varies from 3 to 6 days.

Zoic Environmental Pty Ltd
Suite 1, Level 9, 189 Kent Street
Sydney
NSW 2000



NATA Accredited
Accreditation Number 1261
Site Number 18217

Accredited for compliance with ISO/IEC 17025 – Testing
The results of the tests, calibrations and/or
measurements included in this document are traceable
to Australian/national standards.

Attention: **Tyler Creese**

Report **741110-S**
Project name **19160**
Project ID **19160**
Received Date **Aug 31, 2020**

Client Sample ID			TRIP-1	TRIP-2
Sample Matrix			Soil	Soil
Eurofins Sample No.			S20-Au50893	S20-Au50894
Date Sampled			Aug 27, 2020	Aug 27, 2020
Test/Reference	LOR	Unit		
Total Recoverable Hydrocarbons - 1999 NEPM Fractions				
TRH C6-C9	20	mg/kg	< 20	< 20
TRH C10-C14	20	mg/kg	< 20	< 20
TRH C15-C28	50	mg/kg	68	< 50
TRH C29-C36	50	mg/kg	160	100
TRH C10-C36 (Total)	50	mg/kg	228	100
BTEX				
Benzene	0.1	mg/kg	< 0.1	< 0.1
Toluene	0.1	mg/kg	< 0.1	< 0.1
Ethylbenzene	0.1	mg/kg	< 0.1	< 0.1
m&p-Xylenes	0.2	mg/kg	< 0.2	< 0.2
o-Xylene	0.1	mg/kg	< 0.1	< 0.1
Xylenes - Total*	0.3	mg/kg	< 0.3	< 0.3
4-Bromofluorobenzene (surr.)	1	%	91	89
Total Recoverable Hydrocarbons - 2013 NEPM Fractions				
Naphthalene ^{N02}	0.5	mg/kg	< 0.5	< 0.5
TRH C6-C10	20	mg/kg	< 20	< 20
TRH C6-C10 less BTEX (F1) ^{N04}	20	mg/kg	< 20	< 20
TRH >C10-C16	50	mg/kg	< 50	< 50
TRH >C10-C16 less Naphthalene (F2) ^{N01}	50	mg/kg	< 50	< 50
TRH >C16-C34	100	mg/kg	170	100
TRH >C34-C40	100	mg/kg	200	140
TRH >C10-C40 (total)*	100	mg/kg	370	240
Polycyclic Aromatic Hydrocarbons				
Benzo(a)pyrene TEQ (lower bound) *	0.5	mg/kg	< 0.5	< 0.5
Benzo(a)pyrene TEQ (medium bound) *	0.5	mg/kg	0.6	0.6
Benzo(a)pyrene TEQ (upper bound) *	0.5	mg/kg	1.2	1.2
Acenaphthene	0.5	mg/kg	< 0.5	< 0.5
Acenaphthylene	0.5	mg/kg	< 0.5	< 0.5
Anthracene	0.5	mg/kg	< 0.5	< 0.5
Benz(a)anthracene	0.5	mg/kg	< 0.5	< 0.5
Benzo(a)pyrene	0.5	mg/kg	< 0.5	< 0.5
Benzo(b&j)fluoranthene ^{N07}	0.5	mg/kg	< 0.5	< 0.5
Benzo(g,h,i)perylene	0.5	mg/kg	< 0.5	< 0.5
Benzo(k)fluoranthene	0.5	mg/kg	< 0.5	< 0.5
Chrysene	0.5	mg/kg	< 0.5	< 0.5

Client Sample ID			TRIP-1	TRIP-2
Sample Matrix			Soil	Soil
Eurofins Sample No.			S20-Au50893	S20-Au50894
Date Sampled			Aug 27, 2020	Aug 27, 2020
Test/Reference	LOR	Unit		
Polycyclic Aromatic Hydrocarbons				
Dibenz(a,h)anthracene	0.5	mg/kg	< 0.5	< 0.5
Fluoranthene	0.5	mg/kg	< 0.5	< 0.5
Fluorene	0.5	mg/kg	< 0.5	< 0.5
Indeno(1,2,3-cd)pyrene	0.5	mg/kg	< 0.5	< 0.5
Naphthalene	0.5	mg/kg	< 0.5	< 0.5
Phenanthrene	0.5	mg/kg	< 0.5	< 0.5
Pyrene	0.5	mg/kg	< 0.5	< 0.5
Total PAH*	0.5	mg/kg	< 0.5	< 0.5
2-Fluorobiphenyl (surr.)	1	%	80	87
p-Terphenyl-d14 (surr.)	1	%	77	86
Organochlorine Pesticides				
Chlordanes - Total	0.1	mg/kg	< 0.1	< 0.1
4,4'-DDD	0.05	mg/kg	< 0.05	< 0.05
4,4'-DDE	0.05	mg/kg	< 0.05	< 0.05
4,4'-DDT	0.05	mg/kg	< 0.05	< 0.05
α-BHC	0.05	mg/kg	< 0.05	< 0.05
Aldrin	0.05	mg/kg	< 0.05	< 0.05
β-BHC	0.05	mg/kg	< 0.05	< 0.05
δ-BHC	0.05	mg/kg	< 0.05	< 0.05
Dieldrin	0.05	mg/kg	< 0.05	< 0.05
Endosulfan I	0.05	mg/kg	< 0.05	< 0.05
Endosulfan II	0.05	mg/kg	< 0.05	< 0.05
Endosulfan sulphate	0.05	mg/kg	< 0.05	< 0.05
Endrin	0.05	mg/kg	< 0.05	< 0.05
Endrin aldehyde	0.05	mg/kg	< 0.05	< 0.05
Endrin ketone	0.05	mg/kg	< 0.05	< 0.05
γ-BHC (Lindane)	0.05	mg/kg	< 0.05	< 0.05
Heptachlor	0.05	mg/kg	< 0.05	< 0.05
Heptachlor epoxide	0.05	mg/kg	< 0.05	< 0.05
Hexachlorobenzene	0.05	mg/kg	< 0.05	< 0.05
Methoxychlor	0.2	mg/kg	< 0.2	< 0.2
Toxaphene	1	mg/kg	< 1	< 1
Aldrin and Dieldrin (Total)*	0.05	mg/kg	< 0.05	< 0.05
DDT + DDE + DDD (Total)*	0.05	mg/kg	< 0.05	< 0.05
Vic EPA IWRG 621 OCP (Total)*	0.1	mg/kg	< 0.2	< 0.2
Vic EPA IWRG 621 Other OCP (Total)*	0.1	mg/kg	< 0.2	< 0.2
Dibutylchloroendate (surr.)	1	%	83	73
Tetrachloro-m-xylene (surr.)	1	%	71	82
Organophosphorus Pesticides				
Azinphos-methyl	0.2	mg/kg	< 0.2	< 0.2
Bolstar	0.2	mg/kg	< 0.2	< 0.2
Chlorfenvinphos	0.2	mg/kg	< 0.2	< 0.2
Chlorpyrifos	0.2	mg/kg	< 0.2	< 0.2
Chlorpyrifos-methyl	0.2	mg/kg	< 0.2	< 0.2
Coumaphos	2	mg/kg	< 2	< 2
Demeton-S	0.2	mg/kg	< 0.2	< 0.2
Demeton-O	0.2	mg/kg	< 0.2	< 0.2
Diazinon	0.2	mg/kg	< 0.2	< 0.2
Dichlorvos	0.2	mg/kg	< 0.2	< 0.2

Client Sample ID			TRIP-1	TRIP-2
Sample Matrix			Soil	Soil
Eurofins Sample No.			S20-Au50893	S20-Au50894
Date Sampled			Aug 27, 2020	Aug 27, 2020
Test/Reference	LOR	Unit		
Organophosphorus Pesticides				
Dimethoate	0.2	mg/kg	< 0.2	< 0.2
Disulfoton	0.2	mg/kg	< 0.2	< 0.2
EPN	0.2	mg/kg	< 0.2	< 0.2
Ethion	0.2	mg/kg	< 0.2	< 0.2
Ethoprop	0.2	mg/kg	< 0.2	< 0.2
Ethyl parathion	0.2	mg/kg	< 0.2	< 0.2
Fenitrothion	0.2	mg/kg	< 0.2	< 0.2
Fensulfothion	0.2	mg/kg	< 0.2	< 0.2
Fenthion	0.2	mg/kg	< 0.2	< 0.2
Malathion	0.2	mg/kg	< 0.2	< 0.2
Merphos	0.2	mg/kg	< 0.2	< 0.2
Methyl parathion	0.2	mg/kg	< 0.2	< 0.2
Mevinphos	0.2	mg/kg	< 0.2	< 0.2
Monocrotophos	2	mg/kg	< 2	< 2
Naled	0.2	mg/kg	< 0.2	< 0.2
Omethoate	2	mg/kg	< 2	< 2
Phorate	0.2	mg/kg	< 0.2	< 0.2
Pirimiphos-methyl	0.2	mg/kg	< 0.2	< 0.2
Pyrazophos	0.2	mg/kg	< 0.2	< 0.2
Ronnel	0.2	mg/kg	< 0.2	< 0.2
Terbufos	0.2	mg/kg	< 0.2	< 0.2
Tetrachlorvinphos	0.2	mg/kg	< 0.2	< 0.2
Tokuthion	0.2	mg/kg	< 0.2	< 0.2
Trichloronate	0.2	mg/kg	< 0.2	< 0.2
Triphenylphosphate (surr.)	1	%	82	90
Heavy Metals				
Arsenic	2	mg/kg	6.5	6.9
Cadmium	0.4	mg/kg	< 0.4	< 0.4
Chromium	5	mg/kg	30	22
Copper	5	mg/kg	18	28
Lead	5	mg/kg	24	16
Mercury	0.1	mg/kg	0.1	< 0.1
Nickel	5	mg/kg	8.7	22
Zinc	5	mg/kg	24	73
% Moisture	1	%	19	18

Sample History

Where samples are submitted/analysed over several days, the last date of extraction and analysis is reported.
A recent review of our LIMS has resulted in the correction or clarification of some method identifications. Due to this, some of the method reference information on reports has changed. However, no substantive change has been made to our laboratory methods, and as such there is no change in the validity of current or previous results.

If the date and time of sampling are not provided, the Laboratory will not be responsible for compromised results should testing be performed outside the recommended holding time.

Description	Testing Site	Extracted	Holding Time
Total Recoverable Hydrocarbons - 1999 NEPM Fractions - Method: LTM-ORG-2010 TRH C6-C40	Sydney	Sep 01, 2020	14 Days
BTEX - Method: LTM-ORG-2010 TRH C6-C40	Sydney	Sep 01, 2020	14 Days
Total Recoverable Hydrocarbons - 2013 NEPM Fractions - Method: LTM-ORG-2010 TRH C6-C40	Sydney	Sep 01, 2020	14 Days
Total Recoverable Hydrocarbons - 2013 NEPM Fractions - Method: LTM-ORG-2010 TRH C6-C40	Sydney	Sep 01, 2020	
Polycyclic Aromatic Hydrocarbons - Method: LTM-ORG-2130 PAH and Phenols in Soil and Water	Sydney	Sep 01, 2020	14 Days
Organochlorine Pesticides - Method: LTM-ORG-2220 OCP & PCB in Soil and Water	Sydney	Sep 01, 2020	14 Days
Organophosphorus Pesticides - Method: LTM-ORG-2200 Organophosphorus Pesticides by GC-MS	Sydney	Sep 01, 2020	14 Days
Metals M8 - Method: LTM-MET-3040 Metals in Waters, Soils & Sediments by ICP-MS	Sydney	Sep 01, 2020	180 Days
% Moisture - Method: LTM-GEN-7080 Moisture	Sydney	Aug 31, 2020	14 Days

Australia

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IANZ # 1290

ABN: 50 005 085 521 web: www.eurofins.com.au email: EnviroSales@eurofins.com

Company Name: Zoic Environmental Pty Ltd
Address: Suite 1, Level 9, 189 Kent Street
Sydney
NSW 2000

Project Name: 19160
Project ID: 19160

Order No.:
Report #: 741110
Phone: 02 9251 8070
Fax:

Received: Aug 31, 2020 1:20 PM
Due: Sep 7, 2020
Priority: 5 Day
Contact Name: Tyler Creese

Eurofins Analytical Services Manager : Asim Khan

Sample Detail

Moisture Set

Eurofins Suite B10

Melbourne Laboratory - NATA Site # 1254 & 14271

Sydney Laboratory - NATA Site # 18217

Brisbane Laboratory - NATA Site # 20794

Perth Laboratory - NATA Site # 23736

Newcastle Laboratory

External Laboratory

No	Sample ID	Sample Date	Sampling Time	Matrix	LAB ID		
1	TRIP-1	Aug 27, 2020		Soil	S20-Au50893	X	X
2	TRIP-2	Aug 27, 2020		Soil	S20-Au50894	X	X

Test Counts

2 2

Internal Quality Control Review and Glossary

General

1. Laboratory QC results for Method Blanks, Duplicates, Matrix Spikes, and Laboratory Control Samples follows guidelines delineated in the National Environment Protection (Assessment of Site Contamination) Measure 1999, as amended May 2013 and are included in this QC report where applicable. Additional QC data may be available on request.
2. All soil/sediment/solid results are reported on a dry basis, unless otherwise stated.
3. All biota/food results are reported on a wet weight basis on the edible portion, unless otherwise stated.
4. Actual LORs are matrix dependant. Quoted LORs may be raised where sample extracts are diluted due to interferences.
5. Results are uncorrected for matrix spikes or surrogate recoveries except for PFAS compounds.
6. SVOC analysis on waters are performed on homogenised, unfiltered samples, unless noted otherwise.
7. Samples were analysed on an 'as received' basis.
8. Information identified on this report with blue colour, indicates data provided by customer, that may have an impact on the results.
9. This report replaces any interim results previously issued.

Holding Times

Please refer to 'Sample Preservation and Container Guide' for holding times (QS3001).

For samples received on the last day of holding time, notification of testing requirements should have been received at least 6 hours prior to sample receipt deadlines as stated on the SRA.

If the Laboratory did not receive the information in the required timeframe, and regardless of any other integrity issues, suitably qualified results may still be reported.

Holding times apply from the date of sampling, therefore compliance to these may be outside the laboratory's control.

For VOCs containing vinyl chloride, styrene and 2-chloroethyl vinyl ether the holding time is 7 days however for all other VOCs such as BTEX or C6-10 TRH then the holding time is 14 days.

****NOTE:** pH duplicates are reported as a range NOT as RPD

Units

mg/kg: milligrams per kilogram

mg/L: milligrams per litre

ug/L: micrograms per litre

ppm: Parts per million

ppb: Parts per billion

%: Percentage

org/100mL: Organisms per 100 millilitres

NTU: Nephelometric Turbidity Units

MPN/100mL: Most Probable Number of organisms per 100 millilitres

Terms

Dry	Where a moisture has been determined on a solid sample the result is expressed on a dry basis.
LOR	Limit of Reporting.
SPIKE	Addition of the analyte to the sample and reported as percentage recovery.
RPD	Relative Percent Difference between two Duplicate pieces of analysis.
LCS	Laboratory Control Sample - reported as percent recovery.
CRM	Certified Reference Material - reported as percent recovery.
Method Blank	In the case of solid samples these are performed on laboratory certified clean sands and in the case of water samples these are performed on de-ionised water.
Surr - Surrogate	The addition of a like compound to the analyte target and reported as percentage recovery.
Duplicate	A second piece of analysis from the same sample and reported in the same units as the result to show comparison.
USEPA	United States Environmental Protection Agency
APHA	American Public Health Association
TCLP	Toxicity Characteristic Leaching Procedure
COC	Chain of Custody
SRA	Sample Receipt Advice
QSM	US Department of Defense Quality Systems Manual Version 5.3
CP	Client Parent - QC was performed on samples pertaining to this report
NC	Non-Client Parent - QC performed on samples not pertaining to this report, QC is representative of the sequence or batch that client samples were analysed within.
TEQ	Toxic Equivalency Quotient

QC - Acceptance Criteria

RPD Duplicates: Global RPD Duplicates Acceptance Criteria is 30% however the following acceptance guidelines are equally applicable:

Results <10 times the LOR : No Limit

Results between 10-20 times the LOR : RPD must lie between 0-50%

Results >20 times the LOR : RPD must lie between 0-30%

Surrogate Recoveries: Recoveries must lie between 20-130% Phenols & 50-150% PFASs

PFAS field samples that contain surrogate recoveries in excess of the QC limit designated in QSM 5.3 where no positive PFAS results have been reported have been reviewed and no data was affected.

WA DWER (n=10): PFBA, PFPeA, PFHxA, PFHpA, PFOA, PFBS, PFHxS, PFOS, 6:2 FTSA, 8:2 FTSA

QC Data General Comments

1. Where a result is reported as a less than (<), higher than the nominated LOR, this is due to either matrix interference, extract dilution required due to interferences or contaminant levels within the sample, high moisture content or insufficient sample provided.
2. Duplicate data shown within this report that states the word "BATCH" is a Batch Duplicate from outside of your sample batch, but within the laboratory sample batch at a 1:10 ratio. The Parent and Duplicate data shown is not data from your samples.
3. Organochlorine Pesticide analysis - where reporting LCS data, Toxaphene & Chlordane are not added to the LCS.
4. Organochlorine Pesticide analysis - where reporting Spike data, Toxaphene is not added to the Spike.
5. Total Recoverable Hydrocarbons - where reporting Spike & LCS data, a single spike of commercial Hydrocarbon products in the range of C12-C30 is added and it's Total Recovery is reported in the C10-C14 cell of the Report.
6. pH and Free Chlorine analysed in the laboratory - Analysis on this test must begin within 30 minutes of sampling. Therefore laboratory analysis is unlikely to be completed within holding time. Analysis will begin as soon as possible after sample receipt.
7. Recovery Data (Spikes & Surrogates) - where chromatographic interference does not allow the determination of Recovery the term "INT" appears against that analyte.
8. Polychlorinated Biphenyls are spiked only using Aroclor 1260 in Matrix Spikes and LCS.
9. For Matrix Spikes and LCS results a dash " - " in the report means that the specific analyte was not added to the QC sample.
10. Duplicate RPDs are calculated from raw analytical data thus it is possible to have two sets of data.

Quality Control Results

Test	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Method Blank							
Total Recoverable Hydrocarbons - 1999 NEPM Fractions							
TRH C6-C9	mg/kg	< 20			20	Pass	
TRH C10-C14	mg/kg	< 20			20	Pass	
TRH C15-C28	mg/kg	< 50			50	Pass	
TRH C29-C36	mg/kg	< 50			50	Pass	
Method Blank							
BTEX							
Benzene	mg/kg	< 0.1			0.1	Pass	
Toluene	mg/kg	< 0.1			0.1	Pass	
Ethylbenzene	mg/kg	< 0.1			0.1	Pass	
m&p-Xylenes	mg/kg	< 0.2			0.2	Pass	
o-Xylene	mg/kg	< 0.1			0.1	Pass	
Xylenes - Total*	mg/kg	< 0.3			0.3	Pass	
Method Blank							
Total Recoverable Hydrocarbons - 2013 NEPM Fractions							
Naphthalene	mg/kg	< 0.5			0.5	Pass	
TRH C6-C10	mg/kg	< 20			20	Pass	
TRH >C10-C16	mg/kg	< 50			50	Pass	
TRH >C16-C34	mg/kg	< 100			100	Pass	
TRH >C34-C40	mg/kg	< 100			100	Pass	
Method Blank							
Polycyclic Aromatic Hydrocarbons							
Acenaphthene	mg/kg	< 0.5			0.5	Pass	
Acenaphthylene	mg/kg	< 0.5			0.5	Pass	
Anthracene	mg/kg	< 0.5			0.5	Pass	
Benz(a)anthracene	mg/kg	< 0.5			0.5	Pass	
Benzo(a)pyrene	mg/kg	< 0.5			0.5	Pass	
Benzo(b&j)fluoranthene	mg/kg	< 0.5			0.5	Pass	
Benzo(g,h,i)perylene	mg/kg	< 0.5			0.5	Pass	
Benzo(k)fluoranthene	mg/kg	< 0.5			0.5	Pass	
Chrysene	mg/kg	< 0.5			0.5	Pass	
Dibenz(a,h)anthracene	mg/kg	< 0.5			0.5	Pass	
Fluoranthene	mg/kg	< 0.5			0.5	Pass	
Fluorene	mg/kg	< 0.5			0.5	Pass	
Indeno(1,2,3-cd)pyrene	mg/kg	< 0.5			0.5	Pass	
Naphthalene	mg/kg	< 0.5			0.5	Pass	
Phenanthrene	mg/kg	< 0.5			0.5	Pass	
Pyrene	mg/kg	< 0.5			0.5	Pass	
Method Blank							
Organochlorine Pesticides							
Chlordanes - Total	mg/kg	< 0.1			0.1	Pass	
4,4'-DDD	mg/kg	< 0.05			0.05	Pass	
4,4'-DDE	mg/kg	< 0.05			0.05	Pass	
4,4'-DDT	mg/kg	< 0.05			0.05	Pass	
a-BHC	mg/kg	< 0.05			0.05	Pass	
Aldrin	mg/kg	< 0.05			0.05	Pass	
b-BHC	mg/kg	< 0.05			0.05	Pass	
d-BHC	mg/kg	< 0.05			0.05	Pass	
Dieldrin	mg/kg	< 0.05			0.05	Pass	
Endosulfan I	mg/kg	< 0.05			0.05	Pass	
Endosulfan II	mg/kg	< 0.05			0.05	Pass	

Test	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Endosulfan sulphate	mg/kg	< 0.05			0.05	Pass	
Endrin	mg/kg	< 0.05			0.05	Pass	
Endrin aldehyde	mg/kg	< 0.05			0.05	Pass	
Endrin ketone	mg/kg	< 0.05			0.05	Pass	
g-BHC (Lindane)	mg/kg	< 0.05			0.05	Pass	
Heptachlor	mg/kg	< 0.05			0.05	Pass	
Heptachlor epoxide	mg/kg	< 0.05			0.05	Pass	
Hexachlorobenzene	mg/kg	< 0.05			0.05	Pass	
Methoxychlor	mg/kg	< 0.2			0.2	Pass	
Toxaphene	mg/kg	< 1			1	Pass	
Method Blank							
Organophosphorus Pesticides							
Azinphos-methyl	mg/kg	< 0.2			0.2	Pass	
Bolstar	mg/kg	< 0.2			0.2	Pass	
Chlorfenvinphos	mg/kg	< 0.2			0.2	Pass	
Chlorpyrifos	mg/kg	< 0.2			0.2	Pass	
Chlorpyrifos-methyl	mg/kg	< 0.2			0.2	Pass	
Coumaphos	mg/kg	< 2			2	Pass	
Demeton-S	mg/kg	< 0.2			0.2	Pass	
Demeton-O	mg/kg	< 0.2			0.2	Pass	
Diazinon	mg/kg	< 0.2			0.2	Pass	
Dichlorvos	mg/kg	< 0.2			0.2	Pass	
Dimethoate	mg/kg	< 0.2			0.2	Pass	
Disulfoton	mg/kg	< 0.2			0.2	Pass	
EPN	mg/kg	< 0.2			0.2	Pass	
Ethion	mg/kg	< 0.2			0.2	Pass	
Ethoprop	mg/kg	< 0.2			0.2	Pass	
Ethyl parathion	mg/kg	< 0.2			0.2	Pass	
Fenitrothion	mg/kg	< 0.2			0.2	Pass	
Fensulfothion	mg/kg	< 0.2			0.2	Pass	
Fenthion	mg/kg	< 0.2			0.2	Pass	
Malathion	mg/kg	< 0.2			0.2	Pass	
Merphos	mg/kg	< 0.2			0.2	Pass	
Methyl parathion	mg/kg	< 0.2			0.2	Pass	
Mevinphos	mg/kg	< 0.2			0.2	Pass	
Monocrotophos	mg/kg	< 2			2	Pass	
Naled	mg/kg	< 0.2			0.2	Pass	
Omethoate	mg/kg	< 2			2	Pass	
Phorate	mg/kg	< 0.2			0.2	Pass	
Pirimiphos-methyl	mg/kg	< 0.2			0.2	Pass	
Pyrazophos	mg/kg	< 0.2			0.2	Pass	
Ronnel	mg/kg	< 0.2			0.2	Pass	
Terbufos	mg/kg	< 0.2			0.2	Pass	
Tetrachlorvinphos	mg/kg	< 0.2			0.2	Pass	
Tokuthion	mg/kg	< 0.2			0.2	Pass	
Trichloronate	mg/kg	< 0.2			0.2	Pass	
Method Blank							
Heavy Metals							
Arsenic	mg/kg	< 2			2	Pass	
Cadmium	mg/kg	< 0.4			0.4	Pass	
Chromium	mg/kg	< 5			5	Pass	
Copper	mg/kg	< 5			5	Pass	
Lead	mg/kg	< 5			5	Pass	
Mercury	mg/kg	0.1			0.1	Pass	

Test	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Nickel	mg/kg	< 5			5	Pass	
Zinc	mg/kg	< 5			5	Pass	
LCS - % Recovery							
Total Recoverable Hydrocarbons - 1999 NEPM Fractions							
TRH C6-C9	%	103			70-130	Pass	
TRH C10-C14	%	78			70-130	Pass	
LCS - % Recovery							
BTEX							
Benzene	%	119			70-130	Pass	
Toluene	%	112			70-130	Pass	
Ethylbenzene	%	116			70-130	Pass	
m&p-Xylenes	%	107			70-130	Pass	
o-Xylene	%	113			70-130	Pass	
Xylenes - Total*	%	109			70-130	Pass	
LCS - % Recovery							
Total Recoverable Hydrocarbons - 2013 NEPM Fractions							
Naphthalene	%	91			70-130	Pass	
TRH C6-C10	%	101			70-130	Pass	
TRH >C10-C16	%	77			70-130	Pass	
LCS - % Recovery							
Polycyclic Aromatic Hydrocarbons							
Acenaphthene	%	102			70-130	Pass	
Acenaphthylene	%	101			70-130	Pass	
Anthracene	%	106			70-130	Pass	
Benz(a)anthracene	%	103			70-130	Pass	
Benzo(a)pyrene	%	102			70-130	Pass	
Benzo(b&j)fluoranthene	%	95			70-130	Pass	
Benzo(g,h,i)perylene	%	111			70-130	Pass	
Benzo(k)fluoranthene	%	114			70-130	Pass	
Chrysene	%	102			70-130	Pass	
Dibenz(a,h)anthracene	%	105			70-130	Pass	
Fluoranthene	%	104			70-130	Pass	
Fluorene	%	105			70-130	Pass	
Indeno(1,2,3-cd)pyrene	%	113			70-130	Pass	
Naphthalene	%	117			70-130	Pass	
Phenanthrene	%	96			70-130	Pass	
Pyrene	%	105			70-130	Pass	
LCS - % Recovery							
Organochlorine Pesticides							
Chlordanes - Total	%	84			70-130	Pass	
4,4'-DDD	%	81			70-130	Pass	
4,4'-DDE	%	76			70-130	Pass	
4,4'-DDT	%	86			70-130	Pass	
a-BHC	%	83			70-130	Pass	
Aldrin	%	77			70-130	Pass	
b-BHC	%	79			70-130	Pass	
d-BHC	%	71			70-130	Pass	
Dieldrin	%	81			70-130	Pass	
Endosulfan I	%	83			70-130	Pass	
Endosulfan II	%	78			70-130	Pass	
Endosulfan sulphate	%	77			70-130	Pass	
Endrin	%	100			70-130	Pass	
Endrin aldehyde	%	81			70-130	Pass	
Endrin ketone	%	81			70-130	Pass	

Test				Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
g-BHC (Lindane)				%	82			70-130	Pass	
Heptachlor				%	86			70-130	Pass	
Heptachlor epoxide				%	80			70-130	Pass	
Hexachlorobenzene				%	79			70-130	Pass	
Methoxychlor				%	98			70-130	Pass	
LCS - % Recovery										
Organophosphorus Pesticides										
Diazinon				%	112			70-130	Pass	
Dimethoate				%	110			70-130	Pass	
Ethion				%	117			70-130	Pass	
Fenitrothion				%	119			70-130	Pass	
Methyl parathion				%	126			70-130	Pass	
Mevinphos				%	129			70-130	Pass	
LCS - % Recovery										
Heavy Metals										
Arsenic				%	120			80-120	Pass	
Cadmium				%	116			80-120	Pass	
Chromium				%	115			80-120	Pass	
Copper				%	109			80-120	Pass	
Lead				%	113			80-120	Pass	
Mercury				%	101			80-120	Pass	
Nickel				%	112			80-120	Pass	
Zinc				%	106			80-120	Pass	
Test	Lab Sample ID	QA Source		Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Spike - % Recovery										
Total Recoverable Hydrocarbons - 1999 NEPM Fractions					Result 1					
TRH C6-C9	S20-Se02746	NCP	%	89				70-130	Pass	
TRH C10-C14	S20-Se00877	NCP	%	81				70-130	Pass	
Spike - % Recovery										
BTEX					Result 1					
Benzene	S20-Se02746	NCP	%	100				70-130	Pass	
Toluene	S20-Se02746	NCP	%	102				70-130	Pass	
Ethylbenzene	S20-Se02746	NCP	%	103				70-130	Pass	
m&p-Xylenes	S20-Se02746	NCP	%	97				70-130	Pass	
o-Xylene	S20-Se02746	NCP	%	103				70-130	Pass	
Xylenes - Total*	S20-Se02746	NCP	%	99				70-130	Pass	
Spike - % Recovery										
Total Recoverable Hydrocarbons - 2013 NEPM Fractions					Result 1					
Naphthalene	S20-Se02746	NCP	%	118				70-130	Pass	
TRH C6-C10	S20-Se02746	NCP	%	91				70-130	Pass	
TRH >C10-C16	S20-Se00877	NCP	%	77				70-130	Pass	
Spike - % Recovery										
Polycyclic Aromatic Hydrocarbons					Result 1					
Acenaphthene	S20-Se03860	NCP	%	77				70-130	Pass	
Acenaphthylene	S20-Se03860	NCP	%	75				70-130	Pass	
Anthracene	S20-Se03860	NCP	%	77				70-130	Pass	
Benz(a)anthracene	S20-Se03860	NCP	%	75				70-130	Pass	
Benzo(a)pyrene	S20-Se03860	NCP	%	80				70-130	Pass	
Benzo(b&j)fluoranthene	S20-Se03860	NCP	%	71				70-130	Pass	
Benzo(g,h,i)perylene	S20-Se03860	NCP	%	77				70-130	Pass	
Benzo(k)fluoranthene	S20-Se03860	NCP	%	93				70-130	Pass	
Chrysene	S20-Se03860	NCP	%	78				70-130	Pass	
Dibenz(a,h)anthracene	S20-Se03860	NCP	%	80				70-130	Pass	
Fluoranthene	S20-Se03860	NCP	%	77				70-130	Pass	

Test	Lab Sample ID	QA Source	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Fluorene	S20-Se03860	NCP	%	81			70-130	Pass	
Indeno(1.2.3-cd)pyrene	S20-Se03860	NCP	%	79			70-130	Pass	
Naphthalene	S20-Se03860	NCP	%	97			70-130	Pass	
Phenanthrene	S20-Se03860	NCP	%	75			70-130	Pass	
Pyrene	S20-Se03860	NCP	%	79			70-130	Pass	
Spike - % Recovery									
Organochlorine Pesticides				Result 1					
Chlordanes - Total	S20-Au48085	NCP	%	98			70-130	Pass	
4.4'-DDD	S20-Au48085	NCP	%	122			70-130	Pass	
4.4'-DDE	S20-Au48085	NCP	%	92			70-130	Pass	
4.4'-DDT	S20-Se03860	NCP	%	76			70-130	Pass	
a-BHC	S20-Au48085	NCP	%	100			70-130	Pass	
Aldrin	S20-Au48085	NCP	%	95			70-130	Pass	
b-BHC	S20-Au48085	NCP	%	92			70-130	Pass	
d-BHC	S20-Au48085	NCP	%	87			70-130	Pass	
Dieldrin	S20-Au48085	NCP	%	96			70-130	Pass	
Endosulfan I	S20-Au48085	NCP	%	102			70-130	Pass	
Endosulfan II	S20-Au48085	NCP	%	97			70-130	Pass	
Endosulfan sulphate	S20-Au48085	NCP	%	93			70-130	Pass	
Endrin	S20-Au48085	NCP	%	108			70-130	Pass	
Endrin aldehyde	S20-Au48085	NCP	%	101			70-130	Pass	
Endrin ketone	S20-Au48085	NCP	%	103			70-130	Pass	
g-BHC (Lindane)	S20-Au48085	NCP	%	97			70-130	Pass	
Heptachlor	S20-Au48085	NCP	%	91			70-130	Pass	
Heptachlor epoxide	S20-Au48085	NCP	%	98			70-130	Pass	
Hexachlorobenzene	S20-Au48085	NCP	%	89			70-130	Pass	
Methoxychlor	S20-Au48085	NCP	%	75			70-130	Pass	
Spike - % Recovery									
Organophosphorus Pesticides				Result 1					
Diazinon	S20-Se03860	NCP	%	84			70-130	Pass	
Dimethoate	S20-Se05557	NCP	%	114			70-130	Pass	
Ethion	S20-Se03860	NCP	%	100			70-130	Pass	
Fenitrothion	S20-Se03860	NCP	%	74			70-130	Pass	
Methyl parathion	S20-Se03860	NCP	%	81			70-130	Pass	
Mevinphos	S20-Se03860	NCP	%	122			70-130	Pass	
Spike - % Recovery									
Heavy Metals				Result 1					
Copper	S20-Se02745	NCP	%	119			75-125	Pass	
Lead	S20-Se02745	NCP	%	125			75-125	Pass	
Mercury	S20-Se02745	NCP	%	116			75-125	Pass	
Nickel	S20-Se02745	NCP	%	125			75-125	Pass	
Zinc	S20-Se02745	NCP	%	111			75-125	Pass	
Test	Lab Sample ID	QA Source	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Duplicate									
Total Recoverable Hydrocarbons - 1999 NEPM Fractions				Result 1	Result 2	RPD			
TRH C6-C9	S20-Au50864	NCP	mg/kg	< 20	< 20	<1	30%	Pass	
TRH C10-C14	S20-Se00073	NCP	mg/kg	< 20	< 20	<1	30%	Pass	
TRH C15-C28	S20-Se00073	NCP	mg/kg	< 50	< 50	<1	30%	Pass	
TRH C29-C36	S20-Se00073	NCP	mg/kg	< 50	< 50	<1	30%	Pass	

Duplicate								
BTX				Result 1	Result 2	RPD		
Benzene	S20-Au50864	NCP	mg/kg	< 0.1	< 0.1	<1	30%	Pass
Toluene	S20-Au50864	NCP	mg/kg	< 0.1	< 0.1	<1	30%	Pass
Ethylbenzene	S20-Au50864	NCP	mg/kg	< 0.1	< 0.1	<1	30%	Pass
m&p-Xylenes	S20-Au50864	NCP	mg/kg	< 0.2	< 0.2	<1	30%	Pass
o-Xylene	S20-Au50864	NCP	mg/kg	< 0.1	< 0.1	<1	30%	Pass
Xylenes - Total*	S20-Au50864	NCP	mg/kg	< 0.3	< 0.3	<1	30%	Pass
Duplicate								
Total Recoverable Hydrocarbons - 2013 NEPM Fractions				Result 1	Result 2	RPD		
Naphthalene	S20-Au50864	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass
TRH C6-C10	S20-Au50864	NCP	mg/kg	< 20	< 20	<1	30%	Pass
TRH >C10-C16	S20-Se00073	NCP	mg/kg	< 50	< 50	<1	30%	Pass
TRH >C16-C34	S20-Se00073	NCP	mg/kg	< 100	< 100	<1	30%	Pass
TRH >C34-C40	S20-Se00073	NCP	mg/kg	< 100	< 100	<1	30%	Pass
Duplicate								
Polycyclic Aromatic Hydrocarbons				Result 1	Result 2	RPD		
Acenaphthene	S20-Au48083	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass
Acenaphthylene	S20-Au48083	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass
Anthracene	S20-Au48083	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass
Benz(a)anthracene	S20-Au48083	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass
Benzo(a)pyrene	S20-Au48083	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass
Benzo(b&j)fluoranthene	S20-Au48083	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass
Benzo(g,h,i)perylene	S20-Au48083	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass
Benzo(k)fluoranthene	S20-Au48083	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass
Chrysene	S20-Au48083	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass
Dibenz(a,h)anthracene	S20-Au48083	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass
Fluoranthene	S20-Au48083	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass
Fluorene	S20-Au48083	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass
Indeno(1,2,3-cd)pyrene	S20-Au48083	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass
Naphthalene	S20-Au48083	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass
Phenanthrene	S20-Au48083	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass
Pyrene	S20-Au48083	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass
Duplicate								
Organochlorine Pesticides				Result 1	Result 2	RPD		
Chlordanes - Total	S20-Au48083	NCP	mg/kg	< 0.1	< 0.1	<1	30%	Pass
4,4'-DDD	S20-Au48083	NCP	mg/kg	< 0.05	< 0.05	<1	30%	Pass
4,4'-DDE	S20-Au48083	NCP	mg/kg	< 0.05	< 0.05	<1	30%	Pass
4,4'-DDT	S20-Au48083	NCP	mg/kg	< 0.05	< 0.05	<1	30%	Pass
a-BHC	S20-Au48083	NCP	mg/kg	< 0.05	< 0.05	<1	30%	Pass
Aldrin	S20-Au48083	NCP	mg/kg	< 0.05	< 0.05	<1	30%	Pass
b-BHC	S20-Au48083	NCP	mg/kg	< 0.05	< 0.05	<1	30%	Pass
d-BHC	S20-Au48083	NCP	mg/kg	< 0.05	< 0.05	<1	30%	Pass
Dieldrin	S20-Au48083	NCP	mg/kg	< 0.05	< 0.05	<1	30%	Pass
Endosulfan I	S20-Au48083	NCP	mg/kg	< 0.05	< 0.05	<1	30%	Pass
Endosulfan II	S20-Au48083	NCP	mg/kg	< 0.05	< 0.05	<1	30%	Pass
Endosulfan sulphate	S20-Au48083	NCP	mg/kg	< 0.05	< 0.05	<1	30%	Pass
Endrin	S20-Au48083	NCP	mg/kg	< 0.05	< 0.05	<1	30%	Pass
Endrin aldehyde	S20-Au48083	NCP	mg/kg	< 0.05	< 0.05	<1	30%	Pass
Endrin ketone	S20-Au48083	NCP	mg/kg	< 0.05	< 0.05	<1	30%	Pass
g-BHC (Lindane)	S20-Au48083	NCP	mg/kg	< 0.05	< 0.05	<1	30%	Pass
Heptachlor	S20-Au48083	NCP	mg/kg	< 0.05	< 0.05	<1	30%	Pass
Heptachlor epoxide	S20-Au48083	NCP	mg/kg	< 0.05	< 0.05	<1	30%	Pass
Hexachlorobenzene	S20-Au48083	NCP	mg/kg	< 0.05	< 0.05	<1	30%	Pass
Methoxychlor	S20-Au48083	NCP	mg/kg	< 0.2	< 0.2	<1	30%	Pass

Duplicate								
Organophosphorus Pesticides				Result 1	Result 2	RPD		
Azinphos-methyl	S20-Au48083	NCP	mg/kg	< 0.2	< 0.2	<1	30%	Pass
Bolstar	S20-Au48083	NCP	mg/kg	< 0.2	< 0.2	<1	30%	Pass
Chlorfenvinphos	S20-Au48083	NCP	mg/kg	< 0.2	< 0.2	<1	30%	Pass
Chlorpyrifos	S20-Au48083	NCP	mg/kg	< 0.2	< 0.2	<1	30%	Pass
Chlorpyrifos-methyl	S20-Au48083	NCP	mg/kg	< 0.2	< 0.2	<1	30%	Pass
Coumaphos	S20-Au48083	NCP	mg/kg	< 2	< 2	<1	30%	Pass
Demeton-S	S20-Au48083	NCP	mg/kg	< 0.2	< 0.2	<1	30%	Pass
Demeton-O	S20-Au48083	NCP	mg/kg	< 0.2	< 0.2	<1	30%	Pass
Diazinon	S20-Au48083	NCP	mg/kg	< 0.2	< 0.2	<1	30%	Pass
Dichlorvos	S20-Au48083	NCP	mg/kg	< 0.2	< 0.2	<1	30%	Pass
Dimethoate	S20-Au48083	NCP	mg/kg	< 0.2	< 0.2	<1	30%	Pass
Disulfoton	S20-Au48083	NCP	mg/kg	< 0.2	< 0.2	<1	30%	Pass
EPN	S20-Au48083	NCP	mg/kg	< 0.2	< 0.2	<1	30%	Pass
Ethion	S20-Au48083	NCP	mg/kg	< 0.2	< 0.2	<1	30%	Pass
Ethoprop	S20-Au48083	NCP	mg/kg	< 0.2	< 0.2	<1	30%	Pass
Ethyl parathion	S20-Au48083	NCP	mg/kg	< 0.2	< 0.2	<1	30%	Pass
Fenitrothion	S20-Au48083	NCP	mg/kg	< 0.2	< 0.2	<1	30%	Pass
Fensulfthion	S20-Au48083	NCP	mg/kg	< 0.2	< 0.2	<1	30%	Pass
Fenthion	S20-Au48083	NCP	mg/kg	< 0.2	< 0.2	<1	30%	Pass
Malathion	S20-Au48083	NCP	mg/kg	< 0.2	< 0.2	<1	30%	Pass
Merphos	S20-Au48083	NCP	mg/kg	< 0.2	< 0.2	<1	30%	Pass
Methyl parathion	S20-Au48083	NCP	mg/kg	< 0.2	< 0.2	<1	30%	Pass
Mevinphos	S20-Au48083	NCP	mg/kg	< 0.2	< 0.2	<1	30%	Pass
Monocrotophos	S20-Au48083	NCP	mg/kg	< 2	< 2	<1	30%	Pass
Naled	S20-Au48083	NCP	mg/kg	< 0.2	< 0.2	<1	30%	Pass
Omethoate	S20-Au48083	NCP	mg/kg	< 2	< 2	<1	30%	Pass
Phorate	S20-Au48083	NCP	mg/kg	< 0.2	< 0.2	<1	30%	Pass
Pirimiphos-methyl	S20-Au48083	NCP	mg/kg	< 0.2	< 0.2	<1	30%	Pass
Pyrazophos	S20-Au48083	NCP	mg/kg	< 0.2	< 0.2	<1	30%	Pass
Ronnel	S20-Au48083	NCP	mg/kg	< 0.2	< 0.2	<1	30%	Pass
Terbufos	S20-Au48083	NCP	mg/kg	< 0.2	< 0.2	<1	30%	Pass
Tetrachlorvinphos	S20-Au48083	NCP	mg/kg	< 0.2	< 0.2	<1	30%	Pass
Tokuthion	S20-Au48083	NCP	mg/kg	< 0.2	< 0.2	<1	30%	Pass
Trichloronate	S20-Au48083	NCP	mg/kg	< 0.2	< 0.2	<1	30%	Pass
Duplicate								
Heavy Metals				Result 1	Result 2	RPD		
Arsenic	S20-Se02763	NCP	mg/kg	< 2	2.4	79	30%	Fail Q15
Cadmium	S20-Se02763	NCP	mg/kg	< 0.4	< 0.4	<1	30%	Pass
Chromium	S20-Se02763	NCP	mg/kg	7.2	9.9	32	30%	Fail Q15
Copper	S20-Se02763	NCP	mg/kg	24	53	77	30%	Fail
Lead	S20-Se02763	NCP	mg/kg	7.5	11	40	30%	Fail Q15
Mercury	S20-Se02763	NCP	mg/kg	0.2	0.2	2.0	30%	Pass
Nickel	S20-Se02763	NCP	mg/kg	14	18	28	30%	Pass
Zinc	S20-Se02763	NCP	mg/kg	48	66	31	30%	Fail Q15
Duplicate								
				Result 1	Result 2	RPD		
% Moisture	S20-Se00013	NCP	%	28	28	<1	30%	Pass

Comments

Sample Integrity

Custody Seals Intact (if used)	N/A
Attempt to Chill was evident	Yes
Sample correctly preserved	Yes
Appropriate sample containers have been used	Yes
Sample containers for volatile analysis received with minimal headspace	Yes
Samples received within HoldingTime	Yes
Some samples have been subcontracted	No

Qualifier Codes/Comments

Code	Description
N01	F2 is determined by arithmetically subtracting the "naphthalene" value from the ">C10-C16" value. The naphthalene value used in this calculation is obtained from volatiles (Purge & Trap analysis).
N02	Where we have reported both volatile (P&T GCMS) and semivolatile (GCMS) naphthalene data, results may not be identical. Provided correct sample handling protocols have been followed, any observed differences in results are likely to be due to procedural differences within each methodology. Results determined by both techniques have passed all QAQC acceptance criteria, and are entirely technically valid.
N04	F1 is determined by arithmetically subtracting the "Total BTEX" value from the "C6-C10" value. The "Total BTEX" value is obtained by summing the concentrations of BTEX analytes. The "C6-C10" value is obtained by quantitating against a standard of mixed aromatic/aliphatic analytes.
N07	Please note:- These two PAH isomers closely co-elute using the most contemporary analytical methods and both the reported concentration (and the TEQ) apply specifically to the total of the two co-eluting PAHs
Q15	The RPD reported passes Eurofins Environment Testing's QC - Acceptance Criteria as defined in the Internal Quality Control Review and Glossary page of this report.

Authorised By

Asim Khan	Analytical Services Manager
Andrew Sullivan	Senior Analyst-Organic (NSW)
Gabriele Cordero	Senior Analyst-Metal (NSW)



Glenn Jackson

General Manager

Final report - this Report replaces any previously issued Report

- Indicates Not Requested

* Indicates NATA accreditation does not cover the performance of this service

Measurement uncertainty of test data is available on request or please [click here](#).

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CHAIN OF CUSTODY - Client



ENVIROLAB SERVICES

Client: Zoic Environmental		Client Project Name and Number: 19160	Envirolab Services 12 Ashley St, Chatswood, NSW, 2067 Phone: 02 9910 6200 Fax: 02 9910 6201 E-mail: ahie@envirolabservices.com.au Contact: Aileen Hie
Project Mgr: T.Creese		PO No.:	
Sampler: TC		Envirolab Services Quote No.:	
Address:		Date results required:	
Email: <u>tyler.creese@zoic.com.au</u>		Or choose: <u>standard</u>	
Phone: 61481775243 Fax:		Note: Inform lab in advance if urgent turnaround is required - surcharge applies	

Sample Information				Tests Required										Comments
Envirolab Sample ID	Client Sample ID	Date sampled	Type of sample	Combo 56	Asbestos (AS4964)									Provide as much information about the sample as you can
52	BH16 (1.0)	27/8/20	Soil											Combo 56 =
53	BH16 (2.5)			X	X									TRH/BTEX, PAH
54	BH17 (0.1)													DCP/OPP, 8 metals
55	BH17 (1.0)													
56	BH17 (2.5)			X	X									
57	BH18 (1.0)			X	X									
58	BH18 (2.5)													
59	BH18 (3.5)													
60	Rep-1			X										
61	Rep-2			X										
-	Rep-1													Please send to arofls X
-	Rep-2													Please send to arofls X
62	BH03 (0.1)	27/8	Soil											Extra rec'd - 20
63	BH14 (4.0)													
64	BH16 (0.1)													

Relinquished by (company): Zoic	Received by (company): ELS Sydney	Samples Received: <u>Cool</u> or Ambient (circle one)
Print Name: Tyler Creese	Print Name: R. L. Hazeen	Temperature Received at: 7.3 (if applicable)
Date & Time: 31/08/2020 11:25am	Date & Time: 23/02/2020	Transported by: <u>Hand delivered</u> / courier
Signature: <i>[Signature]</i>	Signature: <i>[Signature]</i>	Page No:

Hand, Grove Emfins 31/8 1:20 # 741110

Australia
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NATA # 1261
Site # 1254 & 14271

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Phone : +64 9 526 45 51
IANZ # 1327

Christchurch

43 Detroit Drive
Rolleston, Christchurch 7675
Phone : 0800 856 450
IANZ # 1290

Sample Receipt Advice

Company name: Zoic Environmental Pty Ltd
Contact name: Tyler Creese
Project name: 19160
Project ID: 19160
Turnaround time: 5 Day
Date/Time received: Aug 31, 2020 1:20 PM
Eurofins reference: 741110

Sample Information

- ✓ A detailed list of analytes logged into our LIMS, is included in the attached summary table.
- ✓ All samples have been received as described on the above COC.
- ✓ COC has been completed correctly.
- ✓ Attempt to chill was evident.
- ✓ Appropriately preserved sample containers have been used.
- ✓ All samples were received in good condition.
- ✓ Samples have been provided with adequate time to commence analysis in accordance with the relevant holding times.
- ✓ Appropriate sample containers have been used.
- ✓ Sample containers for volatile analysis received with zero headspace.
- ✗ Split sample sent to requested external lab.
- ✗ Some samples have been subcontracted.
- N/A Custody Seals intact (if used).

Notes

Contact

If you have any questions with respect to these samples, please contact your Analytical Services Manager:

Asim Khan on phone : or by email: AsimKhan@eurofins.com

Results will be delivered electronically via email to Tyler Creese - tyler.creese@zoic.com.au.



Appendix E RPD Tables

Field ID	Matrix Type	Date	BTEX			TRH				PAH			Metals								Pesticides	
			Benzene mg/kg	Toluene mg/kg	Ethylbenzene mg/kg	Xylene Total mg/kg	TRH F1 mg/kg	TRH F2 mg/kg	TRF F3 mg/kg	TRH F4 mg/kg	Benzo(a)pyrene mg/kg	Naphthalene mg/kg	Total PAH mg/kg	As mg/kg	Cd mg/kg	Cr mg/kg	Co mg/kg	Ni mg/kg	Pb mg/kg	Hg mg/kg	Zn mg/kg	Total Pesticides mg/kg
BH2 (0.5)	Soil	27/08/2020	0.0	0.0	0.0	0.0	0.0	100.0	50.0	0.0	0.0	0.0	0.1	5	0.0	9	8	2	9	0.0	8	0.0
DUP-1	Soil	27/08/2020	0.0	0.0	0.0	0.0	0.0	120.0	120.0	0.0	0.0	0.1	5	0.0	0.0	13	12	5	12	0.0	16	0.0
			0	0	0	0	0	18	82	0	0	0	0	0	0	36	40	86	29	0	67	0
BH2 (0.5)	Soil	27/08/2020	0.0	0.0	0.0	0.0	0.0	100.0	50.0	0.0	0.0	0.1	5	0.0	0.0	9	8	2	9	0.0	8	0.0
TRIP-1	Soil	27/08/2020	0.0	0.0	0.0	0.0	0.0	170.0	200.0	0.0	0.0	0.25	2	0.0	0.0	10	28	33	10	0.0	60	0.0
			0	0	0	0	0	52	120	0	0	86	86	0	0	11	111	177	11	0	153	0
BH11 (2.5)	Soil	27/08/2020	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	2	0.0	0.0	8	20	15	8	0.05	45	0.0
DUP-2	Soil	27/08/2020	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	6.5	0.0	0.0	18	18	8.7	24	0.1	24	0.0
			0	0	0	0	0	0.0	0.0	0	0	0	106	0	0	77	11	53	100	67	61	0
BH11 (2.5)	Soil	27/08/2020	0.0	0.0	0.0	0.0	0.0	50.0	50.0	0.0	0.0	0.0	2	0.0	0.0	8	20	15	8	0.0	45	0.0
TRIP-2	Soil	27/08/2020	0.0	0.0	0.0	0.0	0.0	100.0	140.0	0.0	0.0	0.0	6.9	0.0	0.0	28	28	22	16	0.0	73	0.0
			0	0	0	0	0	67	95	0	0	0	110	0	0	111	33	38	67	0	47	0

* Where consistent between samples, values beneath the laboartory LOR have been identified as 0 for the purpose of RPD calculations. Half of the LOR value was adopted otherwise.



Appendix F QA/QC Assessment



DQO	Frequency	Achieved?	DQI	DQI Met?
Precision				
Intra-Laboratory Field Duplicates and Triplicates.	1/20 samples	Yes	Some RDP exceedances. See Appendix G and justification in Section 10.	Yes, noting justifications made in Section 10 of this report.
Laboratory duplicates	1/20 samples	Yes	No RDP exceedances.	Yes.
Laboratory method blanks	1/10 samples	Yes	< LOR Not required for asbestos	Yes
Accuracy				
Matrix spikes	1/10 samples	Yes	Acceptable laboratory limits (Appendix F).	Within acceptable laboratory limits.
Laboratory control spike	1/10 samples	Yes	Acceptable recoveries: 70 to 130%	Yes
Surrogate spike	1/10 samples	Yes	As LCS.	Yes.
Representativeness				
Sampling handling storage and transport appropriate for media and analytes	All	Yes	Received by laboratory cooled and with container in good condition	Yes
Samples extracted and analysed within holding times.	All	Yes	Hold Times: 7 days - organics 6 months – inorganics	Yes
Comparability				
Standard operating procedures used for sample collection and handling (including decontamination)	All Samples	Yes	Yes	Yes
Standard analytical methods used for all analyses	All Samples	Yes	Yes	Yes
Consistent field conditions, sampling staff and laboratory analysis	All Samples	Yes	Yes	Yes
Limits of reporting appropriate and consistent	All Samples	Yes	Yes	Yes
Completeness				
Sample description and COCs completed and appropriate	All Samples	Yes	Yes	Yes, included as relevant appendices.



DQO	Frequency	Achieved?	DQI	DQI Met?
Appropriate documentation for testing	All Samples	Yes	Yes	Yes



Appendix G Calibration Certificates

PID Calibration Certificate

Instrument PhoCheck Tiger
Serial No. T-114170



Air-Met Scientific Pty Ltd
1300 137 067

Item	Test	Pass	Comments			
Battery	Charge Condition	✓				
	Fuses	✓				
	Capacity	✓				
	Recharge OK?	✓				
Switch/keypad	Operation	✓				
Display	Intensity	✓				
	Operation (segments)	✓				
Grill Filter	Condition	✓				
	Seal	✓				
Pump	Operation	✓				
	Filter	✓				
	Flow	✓				
	Valves, Diaphragm	✓				
PCB	Condition	✓				
Connectors	Condition	✓				
Sensor	PID	✓	10.6ev			
Alarms	Beeper	✓	Low	High	TWA	STEL
	Settings	✓	50ppm	100ppm	N/A	N/A
Software	Version	✓				
Data logger	Operation	✓				
Download	Operation	✓				
Other tests:						

Certificate of Calibration

This is to certify that the above instrument has been calibrated to the following specifications:

Sensor	Serial no	Calibration gas and concentration	Certified	Gas bottle No		Instrument Reading
PID Lamp		92ppm Isobutylene	NATA	SY245		92.3ppm

Calibrated by: _____ Sarah Lian

Calibration date: 21/08/2020

Next calibration due: 17/02/2021