Supplementary Detailed Site Investigation – Upgrade to Dundas Public School

85 Kissing Point Road, Dundas NSW

Prepared for: RP Infrastructure on behalf of Department of Education

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Background and Objective

ADE Consulting Group Pty Ltd (ADE) was engaged by RP Infrastructure (RP) on behalf of the Department of Education (DoE) to undertake a supplementary Detailed Site Investigation (DSI) to investigate the nature and extent of contamination (if any) within a parcel of land (Area 3) in the southwestern portion of Dundas Public School (DPS). The DSI is required prior to upgrades to the existing DPS at 85 Kissing Point Road, Dundas NSW 2117 (the site).

This DSI has been prepared to support a Review of Environmental Factors (REF) for the Department of Education (DoE) for the upgrade of the Dundas Public School (DPS) (the activity). The purpose of the REF is to assess the potential environmental impacts of the activity prescribed by State Environmental Planning Policy (Transport and Infrastructure) 2021 (T&I SEPP) as "development permitted without consent" on land carried out by or on behalf of a public authority under Part 5 of the Environmental Planning and Assessment Act 1979 (EP&A Act). The activity is to be undertaken pursuant to Chapter 3, Part 3.4, Section 3.37 of the T&I SEPP and in consideration of the stakeholder and community participation plan.

The objectives were to support the REF for the proposed activity by determining whether unacceptable contamination may exist within Area 3 and determine whether further investigation, remediation or management is required prior to the proposed activity as well as provide indicative advice regarding the offsite management of material which may be surplus to requirements during the activity.

Scope of Works

The scope of work consisted of:

- Preliminary works including a review and summary of the findings from the preliminary site investigation undertaken by ADE in 2023 (ADE, 2023) and development of a soil sampling plan.
- Site inspection and an intrusive investigation including the advancement of 4 bore holes 4 test pits across the site using a combination of a mechanical drill rig and excavator to enable assessment of the subsurface lithology and collection of representative soil samples for laboratory analysis.
- Data evaluation and provision of this DSI report with findings and recommendations from the assessment.

Summary of key findings

Key findings are listed below:

- Area 3, part of the new proposed activity, has lain without any buildings since its original use as a farm and throughout the history of Dundas Public School since 1948 where it has been used as an open playing field.
- In 1976, there was a fire caused by arson prompting the demolition and re-build of classrooms north of the school playing fields.
- The school is surrounded by low to medium density residential properties.
- The site is underlain by shallow topsoil / fill comprised of silty sand overlaying natural silty and sandy clay and sandstone bedrock encountered between 0.8 and 1.4 mBGL.
- Observations of subsurface soils at the locations assessed did not note any visual / olfactory indications of contamination or asbestos.

- Analytical soils results were reported:
    - Below the site assessment criteria considering the proposed activity and the continued use of the site as a primary school.
    - Soil material is indicatively classified as General Solid Waste (non-putrescible). Refer to ADE (2024b) for full material characterisation.

Conclusions and Recommendations

Based on the analytical results collected from soil samples analysed across the site, the soils present a low risk of contamination and are considered chemically suitable for the proposed activity and ongoing land-use as a primary school.

The following recommendations to mitigate potential environmental and pollution risks during the activity are made:

- Mitigation measures include the preparation of suitably management plans for construction and potential unexpected finds prior to site preparation and bulk earth works commencing and may include but not necessarily be limited to:
    - Construction environment management plan.
    - Soil and water management plan.
    - Noise and vibration management plan.
- Waste generated by the activity must be disposed in accordance with the POEO Act.

A final classification in accordance with NSW EPA (2014) should be completed considering the minimum sampling densities for the volume of material, ensuring waste is disposed to suitably licenced facilities.

Abbreviations

Abbreviation	Definition
ACM	Asbestos Containing Material
ADE	ADE Consulting Group Pty Ltd
AHD	Australian Height Datum
AS	Australian Standard
BGL	Below Ground Level
BTEX	Benzene, Toluene, Ethylbenzene, Xylenes
COC	Chain of Custody
CoPCs	Contaminants of Potential Concern
CSM	Conceptual Site Model
DP	Deposited Plan
BYDA	Before You Dig Australia
DQO	Data Quality Objectives
DSI	Detailed Site Investigation
EILs	Ecological Investigation Levels
EPA	Environment Protection Authority
EMP	Environmental Management Plan
ESLs	Ecological Screening Levels
HILs	Health Investigation Levels
HSLs	Health Screening Levels
LEP	Local Environmental Plan
LGA	Local Government Area
m BGL	meters Below Ground Level
NATA	National Association of Testing Authorities
NEPC	National Environmental Protection Council
NEPM	National Environmental Protection Measure
NSW	New South Wales
NSW EPA	New South Wales Environment Protection Authority
OPPs	Organophosphorus Pesticides
OCPs	Organochlorine Pesticides
PAHs	Polycyclic Aromatic Hydrocarbons
PFAS	Per-fluoroalkyl substances
PQL	Practical Quantification Limit
PSI	Preliminary Site Investigation
QA/QC	Quality Assurance/Quality Control
RPD	Relative Percent Difference
SAC	Site Assessment Criteria

1 Introduction

ADE Consulting Group Pty Ltd (ADE) was engaged by RP Infrastructure (RP) on behalf of the Department of Education (DoE) to undertake a supplementary Detailed Site Investigation (DSI) to investigate the nature and extent of contamination (if any) within a parcel of land in the southwestern portion of Dundas Public School (DPS). The DSI is required prior to upgrades to the existing DPS at 85 Kissing Point Road, Dundas NSW 2117 (the "site").

This DSI has been prepared to support a Review of Environmental Factors (REF) for the DoE proposed upgrade of DPS (the "activity"). The purpose of the REF is to assess the potential environmental impacts of the activity prescribed by State Environmental Planning Policy (Transport and Infrastructure) 2021 (T&I SEPP) as "development permitted without consent" on land carried out by or on behalf of a public authority under Part 5 of the Environmental Planning and Assessment Act 1979 (EP&A Act). The activity is to be undertaken pursuant to Chapter 3, Part 3.4, Section 3.37 of the T&I SEPP and in consideration of the stakeholder and community participation plan.

This supplementary DSI was a targeted investigation of an area of the site in the southwestern defined as 'Area 3' (the "investigation area") that covers the proposed footprint of the activity.

The site locality and investigation area are shown in **Figure 1** and **Figure 2** in **Appendix A**.

1.1 Proposed activity

The proposed activity involves upgrades to the existing DPS, including the following:

- Creation of 6 new teaching spaces and 2 learning commons in a single-story building
- Installation of covered walkways connecting the new building to the existing school network
- Landscaping and external works around the new building and eastern entry
- Upgrades to site infrastructure and services to support the new building.

The intent of the activity is to increase the number of permanent teaching spaces (PTS) from 9 to 15 and students from 331 to 391.

Refer to **Appendix B** for site plans showing the footprint of the activity.

1.2 Objectives

The objectives were:

- support the REF for the proposed activity by determining whether unacceptable contamination may exist within Area 3 and determine whether further investigation, remediation or management is required prior to commencing the activity.
- provide indicative advice regarding the offsite management of material which may be surplus to requirements (refer to ADE, 2024b).

1.3 Legislation and Guidelines

1.3.1 Legislation

The following legislation was referred to in the course of this investigation:

- *Contaminated Land Management Act 1997 (CLM Act)*
- *Environmental Planning and Assessment Act 1979 (EP&A Act)*
- National Environment Protection Council (NEPC) – *National Environment Protection (Assessment of Site Contamination) Measure 1999 (as Amended 2013)* (ASC NEPM, 2013)
- *Protection of the Environment Operations Act 1997 (POEO Act).*
- *Work Health and Safety Act 2011 (WHS Act).*
- *Work Health and Safety Regulation 2017*

1.3.2 Guidelines

This report was prepared with reference to, or consideration of, the following guidelines:

- NSW Environment Protection Authority (EPA). 2014. *Waste Classification Guidelines – Part 1: Classifying Waste* (NSW EPA, 2014).
- NSW EPA. 2017. Contaminated Land Management: *Guidelines for the NSW Site Auditor Scheme, 3rd edition* (NSW EPA, 2017).
- NSW EPA. 2020. *Guidelines for Consultants Reporting on Contaminated Land,* (NSW EPA, 2020)
- *NSW EPA. 2022. Sampling Design guidelines for contaminated land* (NSW EPA, 2022)
- WA Department of Health (DoH). 2009. *Guidelines for the assessment, remediation and management of asbestos contaminated sites* (WA DoH, 2009)

2 Scope of Work

The scope of work consisted of the following.

- Preliminary works including a review and summary of the findings from the preliminary site investigation undertaken by ADE in 2023 (ADE, 2023), preparation of SWMS, Before You Dig Australia and search and service clearance.
- Site inspection to:
    - Identify site features and any potential activities of environmental concern; and
    - Document evidence of contaminating uses and/or contamination (e.g. staining, odours, potential asbestos containing materials, ACM etc.).
- Intrusive investigation and soil sampling:
    - Advancing 4 boreholes using a mechanical drilling rig to a maximum depth of 5.0 m
    - Advancing 4 test pits using an excavator to a maximum depth of 1.0 m
    - Logging of the soil profile in accordance with Unified Soil Classification System, including indications of visual / olfactory contamination and/or asbestos (if any).
    - Collection of representative soil samples.
- Laboratory analyses of selected soil samples for chemicals of potential concern (CoPC) and asbestos.
- Data evaluation and provision of this DSI report with findings and recommendations from the assessment including:
    - Summary of results of field and laboratory assessment compared to adopted 'Tier 1' criteria.
    - Update of the preliminary Conceptual Site Model (CSM).
    - Conclusion on the suitability of the site for ongoing use as a primary school and contamination risk status of proposed activity with provision of preliminary waste classification advice for fill and natural material.
    - Recommendations for additional assessment required to fill information / data gaps, or remediation planning (if required).

3 Site Identification and Surrounding Environment

3.1 Site location and details

DPS is located at 85 Kissing Point Road, Dundas. The school site is bound by Kissing Point Road to the north and Calder Road to the south. Kenworthy Street is located parallel to the site to the east as is Saint Andrews Street to the west. The site has an area of 1.99 ha and comprises 1 allotment legally known as Lot 3 DP 610.

The site currently comprises an existing co-education primary (K-6) public school with 9 permanent buildings, 6 demountable structures (1 demountable includes 2 classrooms), interconnected covered walkways, play areas, on-grade parking, sports court and green spaces with mature trees.

Majority of the buildings are 1 storey with only one 2-storey building being Building A (Admin/staff hub and amenities building). Buildings are clustered to the north of the site, with the southern part comprising of a large play area/informal sports oval and a sports court.

Area 3 is defined by an area of approximately 890 m^2 where the proposed building will be sited and primarily composed of a sports field.

The site details have been summarised in **Table 1**.

Table 1: Site identification

Site Details	
Site address:	85 Kissing Point Road, Dundas 2117 NSW
Title identification:	Lot 3 in Deposited Plan (DP) 610
Site area:	1.99 ha
Area of Investigation	Area 3, approximately 890 m^2
Council Area:	City of Parramatta Council
Land Use Zoning:	R2 - Low Density Residential
Current Site Owner:	Department of Education, NSW
Current Land Use:	Educational purposes/school (primary school)
Future Uses:	Educational purposes/school (primary school)
Local Environmental Plan	Parramatta Local Government Environmental Plan (PLEP) 2024

3.2 Surrounding features

The surrounding land uses are summarised in **Table 2**.

Table 2: Surrounding land uses

Direction	Description
North	School buildings housing general learning spaces border Area 3 to the north. The school ground is bound to the north by Kissing Point Road, approximately 100 m north of the site, with medium density residential properties beyond. Vineyard Creek Reserve is situated approximately 200 m to the northwest of the site.
East	Low density residential properties, followed by Kenworthy Street and Arrunga Street Reserve.

Direction	Description
South	Beyond the school boundary is Calder Road to the south over which is low density residential properties. Ponds and Subiaco Creek, a tributary to Parramatta River, is approximately 200 m south of the site boundary and flows west.
West	Beyond the school boundary, are high density residential properties and St Andrews Street. 217 m west lies a small commercial businesses shopping village.

4 Environmental setting

The site's environmental setting was developed from a desktop study conducted as part of the Preliminary Site Investigation (PSI, ADE, 2023) and included a review of site topography, geology, soil landscapes, hydrogeology, and other relevant information from readily available sources. The environmental setting has been summarised in **Table 3**.

Table 3: Environmental setting

Attribute	Description
Topography	The site's topography is relatively flat with a slight slope of the school grounds in the south towards Calder Road. As per the *Soil Landscapes of the Penrith 1:100,000 Sheet Report* (Clark and Jones, 1991), the general topography of the surrounding area consists of gently undulating rises on Wianammatta shale with a local relief between 10-30m and slopes generally less than 5% but up to 10%. Crests and ridges are broad and rounded with convex upper slopes grading into concave lower slopes.
Site drainage	The surface of the investigation area is landscaped grass. Rainfall on the site is largely anticipated to be managed through a combination of infiltration in unsealed areas along with transport through the stormwater network. If soils are unable to absorb more water then overland flow will occurring following the site's topography toward the south.
Nearest surface water features	The investigation area sits 330m from Vineyard Creek north of the site and Ponds and Subiaco Creek is situated approximately 325 m south of the investigation area.
Local geology and soil	As shown on the *Soil Landscapes of the Penrith 1:100,000 Sheet Report* (Clark and Jones, 1991), the investigation area falls within the Blacktown soil landscape (code 9130bt) The site resides on Ashfield Shale of the Wianamatta Group which consists of laminite and dark grey siltstone and Bringelly Shale, itself consisting of shale, with occasional calcareous claystone, laminite and coal. This shale is occasionally underlain by claystone and laminite lenses within the Hawkesbury Sandstone. The soils typically consist of shallow to moderately deep (<100 cm) red and brown podzolic soils on crests, upper slopes, and well drained areas and yellow podzolic soils and soloths on lower slopes and areas of poor drainage. The dominant soil materials include brownish-black loam to clay loam which occurs as topsoil. Hard setting brown clay loam to silty clay loam which occurs as an A2 horizon and strongly pedal, mottled brown light clay which occurs as subsoil (B horizon). Texture often increases with depth. Finally above bedrock there is typically Light grey plastic mottled clays.
Hydrogeology & Groundwater	The hydrogeology of the investigation area is characterised by the Glenhaven Hydrogeological Landscape (HGL) (NSW Department of Climate and Change, 2011). Groundwater flow in this HGL is unconfined along structures (bedding, joints, faults) in the fractured bedrock. Flow also occurs through connected pore spaces in sandstone units. Hydraulic conductivity and transmissivity are low to moderate. Any localised perched groundwater (if present) below the site is expected to flow towards Ponds and Subiaco Creek in a southerly direction, consistent with topography.
Acid sulfate soil risk	The department of *eSPADE – Acid Sulfate Soils* risk mapping was reviewed which indicated that the site was not identified as an acid sulfate risk area.

5 Site History and Summary of Previous Report

5.1 History of Dundas Public School

Dundas Public School was first established in 1948 and has been used solely for education purposes since, with community usage extending only to that of the school hall, first built in 2000. Over the last approximately 80 years, the school has seen ongoing development to meet the increased demand including demountable structures, amenities (such as outdoor play equipment, overhead shade etc.), a library, a multipurpose facility. and the construction of the Devlin Building, occurring due to the result of arson-related fire, immediately above the lower playing fields.

The area surrounding the site has seen significant development over the years, with higher density residences constructed around the site and the constructure of a large industrial area to the south of Pond and Subiaco Creek in Rydalmere (~360 m south of the site). Between 1982 and 1986, Kissing Point Road was widened between Spurway Street and Dundas Public School which transformed the suburban street into a major road consisting of six lanes.

5.2 Preliminary Site Investigation

In 2023, ADE completed a PSI (ADE, 2023) for Dundas Public School which included a review of available desktop information (including historic aerials and land titles), a site inspection to assess for potential sources of contamination on and off-site and development of a CSM for the proposed activity. Key findings from ADE (2023) were as follows:

- The area of the school was used as a plant nursery from 1945 until Dundas Public School was established in 1948.
- No signs of gross contamination were identified on site.
- Sources of potential contamination included:
    - The potential for contamination from construction material with lead and asbestos containing products impacting the surficial and/or upper soil profile;
    - Pesticide (OCPs and OPPs) contamination of the surficial and/or upper soil profile as a result of historical use as a nursery and small-scale residential use of pesticides and fertilizers;
    - Potential for contamination via imported fill materials used in the construction of residential dwellings and school infrastructure buildings in the past, as well as potential flattening of the site.
- In addition, a low risk of potential PFAS and heavy metal contamination as a result of firefighting efforts and the demolition of a building as a result of a 1976 arson attack was identified.
- An Asbestos Register last reviewed by EDP in June 2021 was supplied by the client and reviewed by ADE. The register noted that no previous historical fibro (fibre cement) in grounds investigations or events have been recorded against the school.

ADE (2023) concluded there is a low to moderate potential for contamination to have occurred on-site as a result of the past and present land uses with the site being suitable for the proposed activity pending an intrusive investigation.

5.3 Detailed Site Investigation

In 2024, ADE completed a DSI (ADE, 2024a) for Dundas Public School that included intrusive investigations of 2 proposed building footprints in the central portion of the school grounds ('Area 1' and 'Area 2'). A total of 12 boreholes were advanced to assess the subsurface lithology and potential risk from contamination in 'Area 1' and 'Area 2.' All samples analysed returned results below the Health Screening Levels (HSLs) and Health Investigation Levels (HILs) for Residential 'A', which was adopted as the site is a primary school.

From soil samples collected and analysed in the 2 areas, ADE (2024a) concluded there was a low risk of contamination, and these areas were suitable for the proposed activity and ongoing land-use as a primary school.

6 Preliminary Conceptual Site Model

A CSM is an iterative method required by ASC NEPM (2013) that defines the potential sources of contamination, the methods/ pathways through which exposure/ migration may occur and the receptors (human and environmental) that may foreseeably be exposed to contamination.

Where any of the source, pathway or receptor is missing, then the risk linkage status can be considered incomplete, and there is no unacceptable risk.

6.1 Potential Contamination Sources

In view of the proposed activity, the following potential contamination sources were identified during the PSI (ADE, 2023)

- Potential ACM and or lead containing products used during historic construction may be present within the upper soil profile.
- PFAS as a result of firefighting efforts due to the arson attack in 1976.
- Potential for contamination via imported fill materials used in the construction of the classrooms and other buildings in the past.
- Potential heavy metals and pesticide contamination of the surficial and / or upper soil profile from the historical use as a nursey, as well as current use of pesticides and herbicides.

6.2 Chemicals of potential concern

The COPCs were chosen for due diligence to account for a wide range of potential environmental contamination and, ensuring the most sensitive receptors are adequately protected from potential health risks and include:

- Total recoverable hydrocarbons (TRHs)
- Benzene, toluene, ethylbenzene and xylenes (BTEX)
- Polycyclic aromatic hydrocarbons (PAHs)
- Polychlorinated biphenyls (PCBs)

- Organochlorine and organophosphorus pesticides (OCPs/OPPs)
- Heavy metals
- Phenols
- Per- and Polyfluorinated substances (PFAS) common in some types of firefighting foam
- Asbestos
    - Bonded
    - Friable asbestos (FA) / asbestos fines (AF).

6.3 Potential Exposure Pathways

6.3.1 Human

The potential pathways by which contamination could reach potential human receptors are considered to be:

- Direct contact (dermal).
- Ingestion (incidental/ occasional).
- Inhalation (dust/ volatilised organic compounds/ soil particles/ fibres)

6.3.2 Ecological

Potential risk pathways for ecological receptors could include:

- Percolation of potential contaminants and/or leachate through soil pore spaces into groundwater
- Vertical and lateral migration of potential contaminants in groundwater
- Discharge into nearby surface water of Ponds and Subiaco Creek

6.4 Sensitive receptors

Potential human receptors at the site include:

- Current and future users of the site including students and staff
- Residents of neighbouring properties and surrounding site users
- Construction / landscaping workers involved with any future works onsite
- Current and future maintenance workers undertaking subsurface maintenance works.

Potential ecological receptors at the site include:

- Flora and fauna that inhabit or travel through the site
- Soil processes/ organism/ fauna in the top 2 m of the soil profile (i.e. the rhizosphere/ root growing zone)
- Perched water / groundwater.
- Nearby surface water bodies (Vineyard Creek and Ponds and Subiaco Creek).

6.5 Source-Pathway-Receptor linkages

The risk linkage status between the potential sources of contamination and sensitive receptors was summarised within Table 4. The statuses considered were:

- complete (i.e., there is a real risk from contamination to sensitive receptors)
- Potentially complete (i.e., there is a potential risk…)
- Potentially incomplete (i.e., there is unlikely to be a risk)
- Incomplete (i.e., there is no unacceptable risk).

The CSM has been summarised in **Table 4** below.

Table 4: Preliminary Site Model Summary

Potential contamination sources and COPC	Potential Exposure pathways	Receptor	SPR Linkage – risk status	Notes
Hazardous building Materials **Asbestos containing material used in current nearby structures and potential use of lead paint** **Asbestos, Lead**	**Human** - Dermal contact, ingestion, inhalation	**Human** – current and future site users, primary school children, teachers, workers neighbours & visitors	Potentially Incomplete - Low Risk	• Investigation of potential asbestos / lead paint in surface soils requires investigation to establish whether any risk linkages exist that may require further investigation and/or management.
	Ecological – Vertical and lateral migration of potential contaminants through the soil, leaching and migration via groundwater, Plant uptake	**Ecological -** Rhizome soils		
	Ecological – Vertical and lateral migration of potential contaminants through the soil, leaching and migration via groundwater, Plant uptake	**Ecological** – Site fauna, underlying soil processes and soil fauna, groundwater, off site surface water		
Potential uncontrolled fill material **Uncontrolled / uncharacterised imported fill materials - potentially historically used to fill the site during the construction of current structures.** **Heavy metals, TRH, BTEX, PAH, pesticides, asbestos**	**Human** - Dermal contact, ingestion, inhalation	**Human** – current and future site users, primary school children, teachers, workers neighbours & visitors	Potentially Incomplete - Low Risk	• Residual contaminants / hazardous materials in uncontrolled imported fill material (if any) requires investigation to establish whether any risk linkages exist that may require further investigation and/or management.
	Ecological – Vertical and lateral migration of potential contaminants through the soil, leaching and migration via groundwater, Plant uptake	**Ecological** – Site fauna, underlying soil processes and soil fauna, groundwater, off site surface water		
General pest control and pesticides that could have been sprayed during ongoing maintenance of the school's outdoor spaces or used in historic agricultural operations **OCPs, OPPs, Arsenic**	**Human** - Dermal contact, ingestion, inhalation	**Human** – current and future site users, primary school children, teachers, workers neighbours & visitors	Potentially Incomplete - Low Risk	• Prior to becoming a school c.1948, the site was used for agricultural purposes (plant nursery). • The general upkeep of school buildings and gardens may include the use of pesticides and herbicides. • Residual impact from historical chemical / fuel usage from agricultural / gardening operations requires investigation to establish whether any risk linkages exist that may require further investigation and/or management.
	Ecological – Vertical and lateral migration of potential contaminants through the soil, leaching and migration via groundwater, Plant uptake	**Ecological** – Site fauna, underlying soil processes and soil fauna, groundwater, off site surface water		

7 Site investigation criteria

The most conservative investigation and screening level from ASC NEPM (2013) for residential land with accessible soil (Scenario 'A') were adopted.

Typically for contaminant concentration to be considered acceptable for the respective land use criteria, the data set must conform to the following requirements:

- The 95% upper confidence limit (UCL) of the arithmetic mean of analytical results is below the site criteria.
- The arithmetic (or geometric in cases where the data is log-normally distributed) mean is below the site criteria.
- The standard deviation is less than 50% of the site criteria.
- No single sample analytical result is greater than 250% of the site criteria.

7.1 Health-based investigation levels

The health investigation levels (HILs) are applicable for assessing human-health risk via all relevant pathways of exposure.

The HIL A criteria is the most conservative HIL criteria and is based on the protection of human receptors in residential land use scenarios with garden/accessible soil, which also includes childcare centres, preschools and primary schools. The adopted HIL values are summarised in **Table 5**.

Table 5. Health investigations levels for soil contaminants

Analyte	HIL A (mg/kg)
Arsenic (total)	100
Cadmium	20
Chromium (VI)	100
Copper	6,000
Lead	300
Mercury (inorganic)	40
Nickel	400
Zinc	7,400
Carcinogenic PAHs (as BaP TEQ[1])	3
Total PAHs	300
Total PCBs	1
DDT+DDE+DDD	240
Aldrin and Dieldrin	6
Chlordane	50
Endosulfan	270
Endrin	10
Heptachlor	6
Hexachlorobenzene	10
Methoxychlor	300
Chlorpyrifos	160
Cyanide (free)	250

Analyte	HIL A (mg/kg)
Phenols	3,000

1. Carcinogenic PAHs: HIL is based on the 8 carcinogenic PAHs and their TEFs (potency relative to B(a)P) adopted by CCME 2008 (refer Schedule B7). The B(a)P TEQ is calculated by multiplying the concentration of each carcinogenic PAH in the sample by its B(a)P TEF, given below, and summing these products.

PAH species	TEF	PAH species	TEF
Benzo(a)anthracene	0.1	Benzo(g,h,i)perylene	0.01
Benzo(a)pyrene	1	Chrysene	0.01
Benzo(b+j)fluoranthene	0.1	Dibenz(a,h)anthracene	1
Benzo(k)fluoranthene	0.1	Indeno(1,2,3-c,d)pyrene	0.1

7.2 Health screening levels

Health screening levels (HSLs) have been developed for selected petroleum compounds and fractions and apply to human health risk assessment via inhalation and direct contact pathways. The HSLs depend on specific soil physicochemical properties, land use scenarios, and the characteristics of building structures. The soil texture for applications of HSLs at the site is "clay". ASC NEPM (2013) presents HSL A & HSL B (Low – high density residential) Tier 1 screening criteria for BTEX, naphthalene, TRH fractions C6-C10 and C10-C16 for vapour intrusion. Values for clay with depth criterion to < 1 metres was used. The HSL A & HSL B criteria are summarised in **Table 6** and **Table 7** for asbestos (HSL A only due to readily accessible soils).

Table 6. Health screening levels for soil contaminants

Analyte	HSL A & HSL B) (mg/kg) Low – high density residential (Clay)
Benzene	0.7
Toluene	480
Ethylbenzene	NL
Xylene	110
Naphthalene	5
TRH: C6 – C10(F1)3	50
TRH: C10 – C16 (F2)	280

Notes to Table 7

To obtain F1, subtract the sum of BTEX from the C_6-C_{10} fraction.

Table 7. Health screening levels for asbestos contamination in soil

Analyte	HSL A (mg/kg)
Bonded ACM[1]	0.01% w/w
FA and AF (friable asbestos)[2]	0.001% w/w
All forms of asbestos	No visible asbestos for surface soil

Notes to Table 7

1. ACM – Bonded asbestos containing material
2. FA – Fibrous asbestos; AF – Asbestos fines

7.3 Management Limits

Consideration of Management Limits for petroleum hydrocarbons will be undertaken to assess whether the reported soil conditions have the potential to pose a risk to buried infrastructure, or the formation of non-aqueous phase liquid (NAPL). Values for fine grained soils from Table 1 B (7) of Schedule B1 will be adopted as a conservative approach.

A summary of the adopted TRH management limits for this site is provided in **Table 8**.

Table 8. Management limits for TRH fraction in soil

Chemical	Management Limits for TRH (mg/kg dry soil) Residential, parklands and public open space (Fine texture soil)
F1 C_6-C_{10}	800
F2 C_{10}-C_{16}	1,000
F3 >C_{16}-C_{34}	3,500
F4 >C_{34}-C_{40}	10,000

7.4 Ecological Investigation Levels

The ASC NEPM (2013) presents the methodology for deriving terrestrial EILs using both fresh and aged (i.e. >2 years old) contamination for soil with "urban residential/ public open space" land use scenario.

The methodology has been developed to protect soil processes, soil biota (flora and fauna) and terrestrial invertebrates and vertebrates and the resultant EILs are applied to the top 2m of the soil profile, where the majority of processes occur and organisms reside.

As there is no proposed change in the land-use for the site, the adopted scenario is for Urban Residential and Open Space/ Recreation. Site specific EILs have been derived in this DSI and comprise the sum of ambient background concentrations (ABCs) and added contaminant limits (ACLs).

The ACL concentrations ascertained for representative locations are usually based on the site-specific results for either pH alone, or pH and cation exchange capacity (CEC) for metals (Cr, Cu, Ni & Zn). The specific soil properties analysed at one sample location in a previous investigation by ADE (2024a), in natural silty clay and used to calculate the EILs are listed below:

- pH: 5.4
- TOC: 0.84%
- CEC: 5.9 meq/100g
- Fe: 3.3%
- Clay: 60% (estimate)

The EIL criteria presented for arsenic (As), naphthalene and DDT are generic EIL values irrespective of their physiochemical properties sourced from Table 1(B)5 of Schedule B1 of the ASC NEPM (2013). The EILs to be adopted for this assessment are summarised in **Table 9.**

Table 9. Site-specific EIL criteria

Chemical	Site Specific EIL
Cr[2,6]	730
Cu[2,6]	100
Ni [4,6]	55
Zn[5,6]	240
As[1]	100
Pb[1]	1,100
Naphthalene[1]	170
DDT[1]	180

Notes to Table 10

1- Generic EIL, as per Table 1B (5) of Schedule B1 of ASC NEPM (2013).
2- Cr ACL calculated using % clay, % Fe content and adopted as EIL, as per Table 1B (2) of Schedule B1 of NEPM (2013).
3- Cu ACL calculated using CEC, pH data, % organic carbon content, % Fe and adopted as EIL, as per Table 1B (2) of Schedule B1 of NEPM (2013).
4- Ni ACL calculated using CEC and % Fe data and adopted as EIL, as per Table 1B (3) of Schedule B1 of NEPM (2013).
5- Zn ACL calculated using a conservative modelled pH, % Fe and CEC data and adopted as EIL, as per Table 1B (1) of Schedule B1 of NEPM (2013).
6- Aged ACLs derived assuming a low traffic volume.

7.5 Ecological Screening Levels

For petroleum hydrocarbons, ESLs have been derived in ASC NEPM (2013) based upon fraction ranges of hydrocarbons, BTEXN component and benzo(a)pyrene (BaP) together with soil texture classes. These ESLs are of low reliability except for the volatile and semi-volatile hydrocarbon fractions which are of moderate reliability. The ESLs are applicable for assessing risk to terrestrial ecosystems and will be adopted for the investigation to be protective of soils in an urban residential and public open space land use scenario.

The adopted ESLs are designed to be protective of soil fauna, soil processes and plants. The ASC NEPM (2013) states that these factors only apply within the rhizome (i.e. zone in the top two metres of soil) and as such ESL criteria need not be applied to chemical results below this depth. ESL threshold criteria for fine-grained soils are summarised in **Table 10**.

Table 10. Ecological screening levels for soil contaminants

Chemical	ESL – Urban Residential and public open space (for coarse grained soils) (mg/kg)
F1 C6-C10	180
F2 C10-C16	120
F3 >C16-C34	300
F4 >C34-C40	2800
Benzene	50
Toluene	85
Ethylbenzene	70
Xylenes	105
Benzo(a)pyrene	0.7

7.6 Aesthetics

The aesthetic quality of accessible soils should be considered even if analytical testing demonstrates that concentrations of COPCs are within the SAC. There are no quantifiable guidelines in determining if soils are appropriately aesthetic, however ASC NEPM (2013) does indicate that professional judgement concerning the quantity, type and distribution of foreign materials and/ or odours about the specific land use should be employed.

The following scenarios (but not exclusively) would trigger further aesthetic assessment:

- Anthropogenic soil staining; and
- Odorous soils, i.e., petroleum hydrocarbon odours or hydrogen sulfidic odours in soil.

7.7 Waste Classification

To chemically characterise waste for off-site disposal criteria was adopted from NSW EPA (2014) *Waste Classification Guidelines: Part 1 – Classifying Waste*. For chemicals, three possible waste classifications are possible including:

- General Solid Waste.
- Restricted Solid Waste.
- Hazardous Waste.

When characterising waste some additional considerations must be made including whether the waste is pre-classified (e.g., any presence of asbestos is pre-classified as "special waste – asbestos waste") and whether the waste is putrescible or non-putrescible in nature. NSW EPA (2014) provides a six step process to determine the final waste classification for off-site disposal of waste.

8 Investigation Methodology

8.1 Sampling design

A systematic sampling regime of 8 sampling locations was completed for coverage and to collect representative samples of soils from the investigation area, which is appropriate for up to 0.1 ha in accordance with NSW EPA (2022).

8.2 Field programme

8.2.1 Preliminary items

Preliminary works included the following:

- Review and summarise the findings from the desktop study of the site and in order to develop the sampling and analysis plan.
- Preparation of safe work methods statement (SWMS) for fieldworks undertaken.
- Undertake a Before-You Dig-Australia (BYDA) online search of current utilities potentially running onto the site.
- Supervising a qualified utility search subcontractor conducting a scan for underground services and marking out safe locations for intrusive assessment.

8.2.2 Intrusive investigation and soil assessment

The intrusive soil investigation was conducted on 11 October 2024 by a suitably experienced environmental consultant from ADE which included the following:

- Supervision of mechanical drilling by a qualified subcontractor, advancing 4 boreholes using the continuous flight auger method into natural material to a maximum depth of 5.0 metres (m) below ground level (BGL) for a combined soil and geotechnical assessment (ID: BH101 – BH104)
- The advancement of 4 test pits to a maximum depth of 1.0 m BGL using an excavator for a soil contamination assessment.
- Samples of soil material were collected down the soil profile at each location which enabled assessment of material type, texture, moisture, inclusions and indications of visual / olfactory contamination. Subsurface observations were recorded on detailed bore logs.
- Samples were collected in clean glass jars and bags supplied by the laboratory. The jars were filled to capacity to ensure minimal headspace was present and placed directly into an ice filled chilled cooler for transportation to the laboratory.

- Asbestos sampling was undertaken at all locations. At the test pit locations, 10 litre (L) samples were collected and sifted through a 7 millimetre (mm) sieve to identify any potential shards of asbestos within the sample. Afterwards, a 500 millilitre (ml) sample was collected for later submission to the laboratory for AF/FA analysis.
- Semi-quantitative field screening for volatile organic compounds (VOCs) in soil was undertaken at each sampling location using a calibrated photo-ionisation detector (PID) device. Screening involved placing the soil sample in a resealable plastic zip lock bag, agitating the sample then inserting the PID tip into the headspace and recording the reading.
- Collection of 2 intra-laboratory duplicate samples and 2 inter-laboratory duplicate for quality assurance (QA) and quality control (QC) purposes.

8.2.3 Laboratory analysis

Samples were transported in chilled coolers to laboratories accredited by NATA for requisite analytical methods under full chain-of-custody documentation.

All soil samples were submitted to:

- Sydney Laboratory Services (SLS) – Address: 4/10-11 Millennium Ct, Silverwater NSW 2128; and
- Envirolab Servies Sydney (Envirolab) – Address: 12 Ashley St, Chatswood NSW 2067.

SLS was the primary laboratory while Envirolab was the secondary laboratory that received the inter-laboratory duplicate samples.

The analytical schedule has been summarised in **Table 11**.

Table 11: Summary of analytical schedule

Analytes	Number of primary samples analysed	Number of duplicate samples analysed
Heavy Metals *	13	2
BTEX	13	-
TRH	13	1
PAH	13	1
OCP/ OPP	8	1
PCB	8	1
Asbestos w/w	8	-
Asbestos +/-	8	-
pH / EC	5	-

Notes

Heavy Metals	Arsenic, Cadmium, Copper, Chromium, Mercury, Nickel, Lead and Zinc
BTEX	Benzene, toluene, ethylbenzene and total xylenes
TRH	Total Recoverable Hydrocarbon
PAH	Polycyclic Aromatic Hydrocarbons
OCP/OPP	Organochlorine pesticides / Organophosphate pesticides
PCB	Polychlorinated biphenyls
VOC	Volatile organic compounds
Asbestos w/w	Asbestos quantification in soil in accordance with WA DoH (2021) and ASC NEPM (2013)
Asbestos +/-	Asbestos (presence/absence) in soil
PFAS	Per- and polyfluoroalkyl substances
pH/EC	pH, Electrical conductivity

9 Results

9.1 Field observations

9.1.1 Site features

Photographs of the site and the subsurface conditions are presented in **Appendix C** with **Figure 2** presenting site features and sampling locations.

Area 3 was situated at the southwest portion of the school grounds forming part of the sports field with landscaped grass across the surface.

During fieldworks, ADE noted that the site surface within Area 3 was free from any visual signs of contamination. No discoloration or odours were noted and no foreign materials including potential ACM were identified across the site surface.

9.1.2 Soil profile

In-situ shallow soils across the site generally consisted of fill overlaying natural silty clay with sandstone bedrock encountered from approximately 1.4 mBGL. The encountered subsurface profile has been summarised in **Table 12** while bore and test pit logs are provided in **Appendix D**.

Table 12 Soil Profile

Lithology	Approximate Depth Range (m BGL)	Material Description
Fill/Topsoil	0.0 — 0.4	Silty SAND: fine to medium grained, dark brown, trace rootlets.
Natural Soils	0.2 — 0.8/1.4	Sandy CLAY: low to medium plasticity, orange-brown, fine to medium grained.
Bedrock	0.8/1.4 — 3.4	Sandstone: fine to medium grained, brown yellow, extremely weathered, very low strength, with iron indurated bands.
Bedrock	3.4 - 4	Siltstone: fine to medium grained, pale grey, very lot to low strength, highly weathered, ironstone bands. (present at BH101 and bH104)
Bedrock	>3.4	Shale: grey-brown, medium strength, highly weathered.

9.2 Analytical results

Tabulated laboratory results compared to the adopted SAC are presented in **Appendix F** with laboratory transcripts including chain of custody, sample receipt notification and certificate of analysis provided in **Appendix G**.

A summary of the analytical results for soil samples is provided below:

- Low concentrations of heavy metals below adopted SAC with some below the laboratory's limit of reporting (LOR).

- All samples reported concentrations of BTEX, PAH, OCP/ OPP and PCB below LOR.
- Low concentrations of TRHs below adopted SAC with most below LOR
- Asbestos/ asbestos containing material was not detected in any soil samples submitted for laboratory analysis.

9.3 Indicative Waste Classification

An indicative waste characterisation assessment was completed and presented in ADE (2024b) which made the following conclusions:

- No asbestos was observed during sampling or identified in the samples submitted for laboratory screening.
- All chemical concentrations were below the contaminant threshold (CT) for General Solid Waste.
- The material was considered to be non-putrescible in nature.

Therefore, ADE (2024b) provided and indicative waste classification of "General Solid Waste (non-putrescible)" for material within the investigation area. Note that this is considered indicative because the volume of material that may be generated by the activity and require disposal as waste is unknown and the minimum sampling density cannot be determined at this stage.

10 Quality Assurance and Quality Control

To carry out the assessment of the data, the US EPA Guidelines 'Guidance on Assessing Quality Systems' (US EPA, 2003) and 'Guidance on Systematic Planning using the Data Quality Objectives Process' (US EPA, 2006) were used. The guidelines provide general strategy on assessing data quality criteria and performance specifications for decision making.

The seven-step Data quality objectives (DQO) process adopted for this assessment is provided in **Appendix H**.

For the purposes of this review, the Quality Assurance / Quality Control (QA/QC) program adopted includes an assessment of laboratory QA/QC and field QA/QC comprising of intra-laboratory and inter-laboratory duplicates. Further details and information regarding the QA/QC program can be referred to in **Appendix I** and the calculated relative percentage difference (RPDs) between the primary and the intra- and interlaboratory duplicates are presented in **Appendix J**.

The results of the data quality assessment conclude that the analytical results are representative of the conditions of the sampling locations at the time of sampling and are directly usable for the purpose of this assessment.

11 Discussion and Revised Conceptual Site Model

The completed intrusive investigation of soils and quantification of COPC in collected soil samples did not identify a potentially unacceptable risk considering the use of Area 3 as part of a primary school. The updated CSM has been provided in **Table 13**.

Table 13: Updated source pathway receptor analysis

Potential contamination sources and CoPC	Potential Exposure pathways	Receptor	SPR Linkage – risk status	Notes
Hazardous building Materials **Asbestos containing material used in current structures and potential use of lead paint** **Asbestos, Lead**	**Human** - Dermal contact, ingestion, inhalation	**Human** – current and future site users, primary school children, teachers, workers neighbours & visitors	Incomplete - Low Risk	• According to the Asbestos register last revised in 2021 (EDP, 2021) no asbestos was found in Area 3 • There is no history of buildings or structures around Area 3. • Laboratory analysis supported observations with reported lead concentrations <SAC. • Asbestos was not observed during the intrusive investigation or detected in any samples analysed by the laboratory.
	Ecological – Vertical and lateral migration of potential contaminants through the soil, leaching and migration via groundwater, Plant uptake	**Ecological** - Rhizome soils		
	Ecological – Vertical and lateral migration of potential contaminants through the soil, leaching and migration via groundwater, Plant uptake	**Ecological** – Site fauna, underlying soil processes and soil fauna, groundwater, off site surface water		
Potential uncontrolled fill material **Uncontrolled / uncharacterised imported fill materials - potentially historically used to fill the site during the construction of current structures.** **Heavy metals, TRH, BTEX, PAH, pesticides, asbestos**	**Human** - Dermal contact, ingestion, inhalation	**Human** – current and future site users, primary school children, teachers, workers neighbours & visitors	Incomplete - Low Risk	• No visual signs of uncontrolled fill, demolition waste at surface or within soil profile at any test pit or borehole locations. • Laboratory analysis supported observations with reported concentrations of contaminants < LOR and/or below SAC in the analysed samples.
	Ecological – Vertical and lateral migration of potential contaminants through the soil, leaching and migration via groundwater, Plant uptake	**Ecological** – Site fauna, underlying soil processes and soil fauna, groundwater, off site surface water		
General pest control and pesticides that could have been sprayed during ongoing maintenance of the school's outdoor spaces or used in historic agricultural operations **OCPs, OPPs, Arsenic**	**Human** - Dermal contact, ingestion, inhalation	**Human** – current and future site users, primary school children, teachers, workers neighbours & visitors	Incomplete - Low Risk	• At the time of the investigation, ADE was not aware of any notices of spillage or over-applications of pesticides and herbicides at the site. • Laboratory analysis supported observations with reported concentrations of OCPs and OPPs < LOR and Arsenic below LOR and/or below SAC at all areas assessed.
	Ecological – Vertical and lateral migration of potential contaminants through the soil, leaching and migration via groundwater, Plant uptake	**Ecological** – Site fauna, underlying soil processes and soil fauna, groundwater, off site surface water		

12 Conclusion

ADE was engaged by SINSW to undertake a supplementary DSI to determine the suitability of an additional area within the site prior to proposed construction of a new building. The intrusive investigation involved the advancement of 4 bore holes and 4 test pits in Area 3, logging of the subsurface conditions and collection soil samples for laboratory assessment.

Key findings are listed below:

- Area 3, part of the new proposed activity has been used as an open playing field.
- In 1976, there was a fire caused by arson prompting the demolition and re-build of classrooms north of the school playing fields.
- The school is surrounded by low to high density residential properties.
- The site is underlain by shallow topsoil / fill comprised of silty and sandy clay overlaying natural silty and sandy clay and sandstone bedrock encountered at approximately 1.4 mBGL.
- Observations of subsurface soils at the locations assessed did not note any visual / olfactory indications of contamination or asbestos.
- Analytical soils results were reported:
    - Below the site assessment criteria considering the proposed activity and the continued use of the site as a primary school.
    - Soil material is indicatively classified as General Solid Waste (non-putrescible). Refer to ADE (2024b) for full material characterisation.

Based on the analytical results collected from soil samples analysed across the site, the soils present a low risk of contamination and are considered chemically suitable for the proposed activity and ongoing land-use as a primary school.

13 Recommendations

In view of the results and conclusions of the DSI, the following recommendations to mitigate potential environmental and pollution risks during the activity are made:

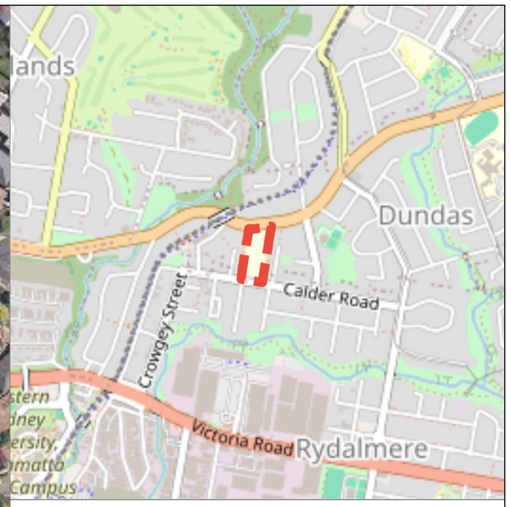
- Mitigation measures include the preparation of suitably management plans for construction and potential unexpected finds prior to site preparation and bulk earth works commencing and may include but not necessarily be limited to:
    - Construction environment management plan.
    - Soil and water management plan.
    - Noise and vibration management plan.
- Waste generated by the activity must be disposed in accordance with the POEO Act.
- A final classification in accordance with NSW EPA (2014) should be completed considering the minimum sampling densities for the volume of material, ensuring waste is disposed to suitably licenced facilities.

14 References

- ADE (2023) Phase I Preliminary Site Investigation – Dundas Public School, 85 Kissing Point Road, Dundas, ref: A101023.0722_PSI_v1f, dated: 27 October 2023
- ADE (2024a) Detailed Site Investigation – Dundas Public School, 85 Kissing Point road, Dundas, ref: A101023.0722.DSI.Dundas_v2f, dated: 23 October 2024.
- ADE (2024b) Material Analysis and Classification Report, 85 Kissing Point Road, Dundas NSW , ref: A11023.0722.MAC1.v1f, dated: 1 November 2024.
- Australian Standard AS 4482.1 Guide to the sampling and investigation of potentially contaminated soil. Part 1: Non-volatile and semi-volatile compounds.
- Australian Standard AS 4482.2 Guide to the sampling and investigation of potentially contaminated soil. Part 2: Volatile substances.
- Clark, N.R., and Jones, D.C., (Eds), 1991. Penrith 1:100,000 Geological Sheet 9030. New South Wales Geological Survey, Sydney.
- Government of Western Australia department of Health. (2021). Guidelines for the Assessment, Remediation and Management of Asbestos Contaminated Sites. (WA DoH, 2021)
- National Environment Protection Council (NEPC) – National Environment Protection (Assessment of Site Contamination) Measure 1999 (as Amended 2013) (ASC NEPM, 2013).
- NSW EPA. (2022). Sampling design guidelines – Part 1. Application.
- NSW EPA. (2021). Contaminated Land – Record of Notices from http://www.epa.nsw.gov.au/prclmapp/aboutregister.aspx
- NSW EPA. (2020) Contaminated Sites: Guidelines for Consultants Reporting on Contaminated Sites.
- NSW EPA. (2017) Contaminated Land Management: Guidelines for the NSW Site Auditor Scheme 3rd Ed.
- NSW EPA. (2014). Waste Classification Guidelines – Part 1: Classifying Waste. Sydney, Australia.
- NSW Government, Department of Planning and Environment. (2023), Soil and Land Information, accessed from The Sharing and Enabling Environmental Data (SEED) Portal [https://datasets.seed.nsw.gov.au/dataset/a62ae869-672f-493d-8fae-bfb32d820b74], date accessed 20/01/2024.
- NSW Government Education School Infrastructure. Asbestos Register (Hazardous Materials and Risk Assessment) Dundas Public School (4029) Last revised by EDP on 17 June 2021
- State Environmental Planning Policy (Planning Systems Resilience 2021)
- State Government of NSW and NSW Department of Climate Change, Energy, the Environment and Water 2011, Western Sydney Hydrogeological Landscapes: May 2011 (First Edition), accessed from The Sharing and Enabling Environmental Data Portal [https://datasets.seed.nsw.gov.au/dataset/bbceaab1-629c-4187-9332-23d899c9b52d], date accessed 2024-11-01.
- Government of Western Australia Department of Health (WA DoH). (2009). Guidelines for the Assessment, Remediation and Management of Asbestos Contaminated Sites in Western Australia.
- Work Health and Safety Act 2011.

  Work Health and Safety Regulation 2017.

Appendix A - Figures



Legend

Dundas Public School - Boundary

0 50 m 100 m

ADE CONSULTING GROUP

Produced by **Datanest.earth**

Title: Site locality		
Client: Schools Infrastructure NSW		Size: A3
Project: SINSW Dundas Public School	Drawn: AS	Figure No.: 1
Date: 27-02-2024	Checked: KA	
Proj No: A101023.0722 (Dundas)	Scale: 1:3000	Version: V1

Legend

- Test pit locations
- Borehole locations
- Investigation area
- Footprint of proposed school building
- Dundas Public School - Boundary

0 5 m 10 m

ADE CONSULTING GROUP

Produced by **Datanest.earth**

Title: Site Features and Sampling Location		
Client: Schools Infrastructure NSW		Size: A3
Project: SINSW Dundas Public School	Drawn: KA	Figure No.: 2
Date: 30-10-2024	Checked: SG	
Proj No: A101023.0722 (Dundas)	Scale: 1:550	Version: V1

Appendix B – Proposed building footprint

TREES LOCATION AND SIZES - TBC BY ARBORIST

SITE BOUNDRY

5M SETBACK LINE FORM THE BOUNDRY

7,500 7,500 7,500 7,500 7,500 7,500 7,500 7,500 7,500

9,000

POTENTIAL FUTURE BUILDING

LC 135m² | GLS 67m² | GLS 67m² | LC 135m² | GLS 67m² | GLS 67m² | GLS 67m² | GLS 67m² | BCR 14m²

9,185

5,435

6,000

BUILDING F
SINGLE STOREY
CLASSROOM BUILDING

POTENTIAL TOILET BLOCK POSITION

PLANTER BOXES

PLAYGROUND
SOFT FALL SURFACE

SHIPPING CONTAINER

SHIPPING CONTAINER

GRASS AREA

BUILDING E
SINGLE STOREY
CLASSROOM BUILDING

BUILDING A
DOUBLE STOREY
CLASSROOM AND ADMIN
BUILDING

BITUMEN CARPARK

INDICATIVE 20M x 40M SPORT FIELD

PORTABLE NETTED GOAL

PORTABLE NETTED GOAL

PORTABLE NETTED GOAL

PORTABLE NETTED GOAL

SYNTHETIC
SOFT FALL
SURFACE

SINGLE STOREY
DEMOUNTABLE

BUILDING B
SINGLE STOREY
CLASSROOM BUILDING

TIMBER DECK SEATING

POTENTIAL FUTURE BUILDING

PLAYGROUND

FUTURE PEDESTRIAN ACCESS

BUILDING I

GRASS PARKING

STAFF CARPARKING

GARDEN

GARDEN

GARDEN

GARDEN

SYNTHETIC
SOFT FALL
SURFACE

ARTIFICIAL GRASS

COVERED CONCRETE

BUILDING D
SINGLE STOREY
CLASSROOM BUILDING

GRASS

CONCRETE

TOILET BLOCK

TOILET BLOCK

5M SETBACK LINE FORM THE BOUNDRY

EASTERN ENTRY

7,500 7,500 7,500 7,500

1 **SECTION**
PROPOSED FUTURE PLAN - 1:500 Option 1
SCALE: 1:500

fulton trotter
ARCHITECTS

N

0 2.5 5 10 15 Scale 1:500 @ A3 25m

PROPOSED FUTURE PLAN - OPTION 1

DUNDAS PUBLIC SCHOOL FOR SCHOOL INFRASTRUCTURE NSW

6/57CT/0 , RJ,/2 Qdu9

plot date: Friday, 23 August 2024, 11:47 AM file location: BIMcloud: FTA-SYD-BIM26 - BIMcloud Basic for Archicad 26/7068DU01 Dundas Public School

Appendix C – Photographs

Photograph 1: Borehole location BH104 facing south.

Photograph 2: Facing north along western boundary

Photograph 3: Test Pit TP103 showing representative soil profile present across the site.

Photograph 4: Borehole BH103 showing representative natural material across the site – silty clay overlaying weathered sandstone

Photograph 5: Representative sample of sandstone bedrock encountered across the site

Appendix D - Borehole logs

NON-CORE DRILL HOLE - GEOLOGICAL LOG

HOLE NO : BH101

FILE / JOB NO : A201023.0722.01
SHEET : 1 OF 1

CLIENT : School Infrustructure NSW PROJECT : Dundas Public School
LOCATION : 85 Kissing Point Rd, Dundas NSW 2117

POSITION : E: 318201.0, N: 6257760.0 () SURFACE ELEVATION : ANGLE FROM HORIZONTAL : 90°

RIG TYPE : Drill Rig MOUNTING : Ute Mounted CONTRACTOR : Fico Group DRILLER : Sean

DATE STARTED : 11/10/2024 DATE COMPLETED : 11/10/2024 DATE LOGGED : 11/10/2024 LOGGED BY : CH CHECKED BY :

DRILLING						MATERIAL					
PROGRESS: DRILLING & CASING	PROGRESS: WATER	DRILLING PENETRATION	GROUND WATER LEVELS	SAMPLES & FIELD TESTS	DEPTH (m) RL (m AHD)	GRAPHIC LOG	GROUP SYMBOL	MATERIAL DESCRIPTION Soil Type, Colour, Plasticity or Particle Characteristic Secondary and Minor Components	MOISTURE CONDITION	CONSISTENCY RELATIVE DENSITY	STRUCTURE & Other Observations
AD/V		E	Not Encountered	SPT 6,8,9 N=17	0.0			<TOPSOIL> Silty SAND: fine to medium grained, dark brown, trace rootlets.			TOPSOIL
					0.20m						
					0.5		CL-Cl	Sandy CLAY: low to medium plasticity, orange-brown, fine to medium grained.	w<PL	St to VSt	RESIDUAL SOIL
				0.95m	0.80m						
AD/T					1.0			SANDSTONE: fine to medium grained, brown yellow, extremely weathered, very low strength, with iron indurated bands.			
					1.30m						
		H		SPT 13/50mm HB 1.55m	1.5			SANDSTONE: fine to medum grained, pale grey, orange-brown, low strength with iron indurated bands.			ROCK
					2.0						
					2.5			@2.4 Becoming low to medium strength.		H	
					3.0						
		H			3.40m						
					3.5			SILTSTONE: pale orange-grey, highly to moderately weathered medium to high strength.			
					4.0						
					4.50m						
					4.5			SHALE: grey, medium strength, moderately weathered.			
					5.00m						
					5.0			Hole Terminated at 5.00 m Target depth Reached			
					5.5						
					6.0						

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

NON-CORE DRILL HOLE - GEOLOGICAL LOG

HOLE NO : BH102

FILE / JOB NO : A201023.0722.01
SHEET : 1 OF 1

CLIENT : School Infrustructure NSW PROJECT : Dundas Public School
LOCATION : 85 Kissing Point Rd, Dundas NSW 2117

POSITION : E: 318195.0, N: 6257750.0 () SURFACE ELEVATION : ANGLE FROM HORIZONTAL : 90°

RIG TYPE : Drill Rig MOUNTING : Ute Mounted CONTRACTOR : Fico Group DRILLER : Sean

DATE STARTED : 11/10/2024 DATE COMPLETED : 11/10/2024 DATE LOGGED : 11/10/2024 LOGGED BY : CH CHECKED BY :

DRILLING						MATERIAL					
PROGRESS: DRILLING & CASING	PROGRESS: WATER	DRILLING PENETRATION	GROUND WATER LEVELS	SAMPLES & FIELD TESTS	DEPTH (m) RL (m AHD)	GRAPHIC LOG	GROUP SYMBOL	MATERIAL DESCRIPTION Soil Type, Colour, Plasticity or Particle Characteristic Secondary and Minor Components	MOISTURE CONDITION	CONSISTENCY RELATIVE DENSITY	STRUCTURE & Other Observations
AD/V		E	Not Encountered	SPT 4,15,23 N=38	0.0			<TOPSOIL> Silty SAND: fine to medium grained, brown, rootlets.			TOPSOIL
				0.95m	0.20m						
					0.5		CL-Cl	Sandy CLAY: low to medium plasticity, orange-brown, fine to medium grained.	w<PL	St - VSt	RESIDUAL SOIL
					0.80m						
AD/T		H			1.0			SANDSTONE: fine to medium grained, pale grey, orange-brown, very low strength, with extremely weathered clay bands			ROCK
					1.5						
					2.0						
					2.5			@2.3m Becoming low to medium strength		H	
					3.0						
		F			3.40m			SHALE: dark grey, brown, medium to high strength, moderately weathered.			
					3.5						
					4.0						
					4.5						
					5.00m			Hole Terminated at 5.00 m Target depth Reached			
					5.0						
					5.5						
					6.0						

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

NON-CORE DRILL HOLE - GEOLOGICAL LOG

HOLE NO : BH103

FILE / JOB NO : A201023.0722.01
SHEET : 1 OF 1

CLIENT : School Infrustructure NSW PROJECT : Dundas Public School
LOCATION : 85 Kissing Point Rd, Dundas NSW 2117

POSITION : E: 318190.0, N: 6257725.0 () SURFACE ELEVATION : ANGLE FROM HORIZONTAL : 90°

RIG TYPE : Drill Rig MOUNTING : Ute Mounted CONTRACTOR : Fico Group DRILLER : Sean

DATE STARTED : 11/10/2024 DATE COMPLETED : 11/10/2024 DATE LOGGED : 11/10/2024 LOGGED BY : CH CHECKED BY :

DRILLING						MATERIAL					
PROGRESS: DRILLING & CASING	PROGRESS: WATER	DRILLING PENETRATION	GROUND WATER LEVELS	SAMPLES & FIELD TESTS	DEPTH (m) RL (m AHD)	GRAPHIC LOG	GROUP SYMBOL	MATERIAL DESCRIPTION Soil Type, Colour, Plasticity or Particle Characteristic Secondary and Minor Components	MOISTURE CONDITION	CONSISTENCY RELATIVE DENSITY	STRUCTURE & Other Observations
AD/V		E			0.0			<TOPSOIL> Silty SAND: fine to medium grained, black, trace rootlets.			TOPSOIL
					0.20m						
							SM	Silty SAND: fine to medium grained, yellow.	M	L to MD	RESIDUAL SOIL
					0.50m						
AD/T		H	Not Encountered	SPT 26 HB 0.65m	0.5			SANDSTONE: fine to medium grained, orange-brown, low strength, with iron indurated bands.			ROCK
					1.0						
					1.5			@1.6m Becoming pale grey, red-brown, low to medium strength.			
					2.0						
					2.50m						
		H			2.5			SANDSTONE: fine to medium grained, yellow-brown, low to medium strength, highly weathered.		H	
					3.0						
					3.30m						
					3.5			SHALE: grey, low to medium strength, moderately weathered.			
		H			4.0						
					4.5						
					5.00m						
					5.0			Hole Terminated at 5.00 m Target depth Reached			
					5.5						
					6.0						

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

NON-CORE DRILL HOLE - GEOLOGICAL LOG

HOLE NO : BH104

FILE / JOB NO : A201023.0722.01
SHEET : 1 OF 1

CLIENT : School Infrustructure NSW PROJECT : Dundas Public School
LOCATION : 85 Kissing Point Rd, Dundas NSW 2117

POSITION : E: 318205.0, N: 6257730.0 () SURFACE ELEVATION : ANGLE FROM HORIZONTAL : 90°

RIG TYPE : Drill Rig MOUNTING : Ute Mounted CONTRACTOR : Fico Group DRILLER : Sean

DATE STARTED : 11/10/2024 DATE COMPLETED : 11/10/2024 DATE LOGGED : 11/10/2024 LOGGED BY : CH CHECKED BY :

DRILLING					MATERIAL					
PROGRESS: DRILLING & CASING	PROGRESS: WATER	DRILLING PENETRATION	GROUND WATER LEVELS	SAMPLES & FIELD TESTS	DEPTH (m) RL (m AHD)	GRAPHIC LOG	GROUP SYMBOL	MATERIAL DESCRIPTION Soil Type, Colour, Plasticity or Particle Characteristic Secondary and Minor Components	MOISTURE CONDITION	CONSISTENCY RELATIVE DENSITY	STRUCTURE & Other Observations
					0.0			<TOPSOIL> Clayey SILT, black, trace.			TOPSOIL
								0.20m			
								<FILL> Silty SAND: fine grained, yellow-brown.			FILL
				0.40m				0.40m			
AD/V		E	Not Encountered	U 0.68m	0.5		CI-CH	Silty CLAY: medium to high plasticity, orange-brown.			RESIDUAL SOIL
								0.90m			
				SPT 8,9,15 N=24	1.0		CL-CI	Sandy CLAY: low to medium plasticity, orange-brown mottled red-brown, trace iron indurated bands.	w<PL	VSt	
				1.35m				1.40m			
AD/T		H			1.5			SANDSTONE: fine to medium grained, pale grey, red-brown, very low to low strength, with iron indurated bands.			ROCK
					2.0			@2.2 With clay bands.			
					2.5						
					3.0			3.00m SANDSTONE: fine to medium grained, yellow-brown, medium strength.		H	
								3.40m			
					3.5			SILTSTONE: pale grey, very low to low strength, highly weathered, with iron indurated bands.			
					4.0			4.00m SHALE, grey brown, medium strength, highly to moderately weathered.			
					4.5						
					5.0			5.00m Hole Terminated at 5.00 m Target depth Reached			
					5.5						
					6.0						

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

ADE CONSULTING GROUP
UNIT 6 / 7 MILLENNIUM COURT
SILVERWATER NSW 2128
Telephone: 1300976922

TEST PIT NUMBER TP101

CLIENT SINSW
PROJECT NAME Environmental Site Assessment
PROJECT NUMBER A101023.0722.00
PROJECT LOCATION Dundas PS, 85 Kissing Point Rd, Dundas, NSW

DATE STARTED 11/10/24 **COMPLETED** 11/10/24 **R.L. SURFACE** **DATUM** m
EXCAVATION CONTRACTOR ANC Foster Pty Ltd **SLOPE** --- **BEARING** N/A
EQUIPMENT 3.5 T Excavator **COORDINATES**
TEST PIT DIAMETER **LOGGED BY** MH **CHECKED BY** KA
NOTES

Method	Water	RL (m)	Depth (m)	Graphic Log	Classification Symbol	Material Description	Moisture Content	Consistency	PID (ppm)	Samples Tests Remarks	Additional Observations
E						**FILL**: Silty SAND: fine to medium grained, brown, with rootlets and surficial vegetation, with inclusions of mixed gravels , sub-angular	M	L	<1	TP101_0.0-0.1	
					CLS	**NATURAL**: Sandy CLAY: low to medium plasticity, yellow brown, sand is fine to medium grained, minor inclusions of red ironstone angular cobbles	M	F	<1	TP101_0.3-0.4	
			0.5							TP101_0.5-0.6	
			1.0			**NATURAL**: SANDSTONE: fine to medium grained, brown yellow, highly weathered, with ironstone gravels	M		<1		
			1.5			TP101 terminated at 1.1m					
			2.0								

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TEST PIT NUMBER TP102

CLIENT SINSW
PROJECT NAME Environmental Site Assessment
PROJECT NUMBER A101023.0722.00
PROJECT LOCATION Dundas PS, 85 Kissing Point Rd, Dundas, NSW

DATE STARTED 11/10/24 **COMPLETED** 11/10/24 **R.L. SURFACE** **DATUM** m
EXCAVATION CONTRACTOR ANC Foster Pty Ltd **SLOPE** --- **BEARING** N/A
EQUIPMENT 3.5 T Excavator **COORDINATES**
TEST PIT DIAMETER **LOGGED BY** MH **CHECKED BY** KA
NOTES

Method	Water	RL (m)	Depth (m)	Graphic Log	Classification Symbol	Material Description	Moisture Content	Consistency	PID (ppm)	Samples Tests Remarks	Additional Observations
E						**FILL**: Silty SAND: fine to medium grained, brown, with rootlets and surficial vegetation, with inclusions of mixed gravels , sub-angular	M	L	<1	TP102_0.0-0.1	
					CLS	**NATURAL**: Sandy CLAY: low to medium plasticity, brown, sand is fine to medium grained.	M	F	<1	TP102_0.3-0.4	
			0.5		CLS	**NATURAL**: Sandy CLAY: medium plasticity, red brown, sand is fine grained.	M	St	<1	TP102_0.5-0.6	
					CLS	**NATURAL**: SANDSTONE: fine to medium grained, pale grey - orange, extremely low strength, with clay bands and inclusions of red ironstone cobbles.	M		<1		
			1.0			TP102 terminated at 0.9m					
			1.5								
			2.0								

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SILVERWATER NSW 2128
Telephone: 1300976922

TEST PIT NUMBER TP103

CLIENT SINSW **PROJECT NAME** Environmental Site Assessment

PROJECT NUMBER A101023.0722.00 **PROJECT LOCATION** Dundas PS, 85 Kissing Point Rd, Dundas, NSW

DATE STARTED 11/10/24 **COMPLETED** 11/10/24 **R.L. SURFACE** --- **DATUM** m

EXCAVATION CONTRACTOR ANC Foster Pty Ltd **SLOPE** --- **BEARING** N/A

EQUIPMENT 3.5 T Excavator **COORDINATES** ---

TEST PIT DIAMETER --- **LOGGED BY** MH **CHECKED BY** KA

NOTES ---

Method	Water	RL (m)	Depth (m)	Graphic Log	Classification Symbol	Material Description	Moisture Content	Consistency	PID (ppm)	Samples Tests Remarks	Additional Observations
E						**FILL**: Silty SAND: fine to medium grained, brown, with rootlets and surficial vegetation	M	L	<1	TP104_0.0-0.1	
					CLS	**NATURAL**: Silty SAND: fine to medium grained, yellow.	M	D	<1	TP103_0.3-0.4	
			0.5		CLS	**NATURAL**: Sandy CLAY: medium plasticity, red brown, sand is fine grained.	M	F	<1	TP103_0.5-0.6	inclusion of small tree root at 0.6 mBGL.
						NATURAL: SANDSTONE: fine to medium grained, brown yellow, highly weathered, with red ironstone gravels	M		<1		
						TP103 terminated at 0.8m					
			1.0								
			1.5								
			2.0								

ADE CONSULTING GROUP
UNIT 6 / 7 MILLENNIUM COURT
SILVERWATER NSW 2128
Telephone: 1300976922

TEST PIT NUMBER TP104

CLIENT SINSW **PROJECT NAME** Environmental Site Assessment

PROJECT NUMBER A101023.0722.00 **PROJECT LOCATION** Dundas PS, 85 Kissing Point Rd, Dundas, NSW

DATE STARTED 11/10/24 **COMPLETED** 11/10/24 **R.L. SURFACE** --- **DATUM** m

EXCAVATION CONTRACTOR ANC Foster Pty Ltd **SLOPE** --- **BEARING** N/A

EQUIPMENT 3.5 T Excavator **COORDINATES** ---

TEST PIT DIAMETER --- **LOGGED BY** MH **CHECKED BY** KA

NOTES ---

Method	Water	RL (m)	Depth (m)	Graphic Log	Classification Symbol	Material Description	Moisture Content	Consistency	PID (ppm)	Samples Tests Remarks	Additional Observations
E						**FILL**: Clayey SAND: fine to medium grained, brown, with rootlets and surficial vegetation	M	L	<1		
					CLS	**NATURAL**: Sandy CLAY: medium plasticity, red brown, sand is fine grained	M	F	<1		
			0.5		CLS	**NATURAL**: Sandy CLAY: medium plasticity, red brown, sand is fine grained, with trace inclusions of red ironstone cobbles.	M	St	<1	TP104_0.5-0.6	
			1.0		CLS	**NATURAL**: Sandy CLAY: medium plasticity, orange red mottled, sand is fine grained, with trace ironstone bands.	M		<1		
			1.5			TP104 terminated at 1.4m					refusal at 1.4 on sandstone bedrock
			2.0								

Appendix E - PID Calibration certificate

AES
sensing safety

Calibration and Service Report – PID

Company:	ADE Consulting Group (NSW) P	**Manufacturer:**	RAE	**Serial #:**	595-002222
Contact:	Michelle Ridley	**Instrument:**	MINIRAE LITE SN: 595-002222	**Asset #:**	PID 3
Address:	Unit 6 7 Millennium Court Silverwater	**Model:**	MINIRAE LITE	**Part #:**	059-A126-000
		Configuration:	VOC 10.6EV	**Sold:**	20.02.2017
		Wireless:	-	**Last Cal:**	19.01.2024
Phone:	1300796922	**Network ID:**	-	**Job #:**	167578
Fax:		**Unit ID:**	-	**Cal Spec:**	
Email:	michelle.ridley@ade.group	**Details:**		**Order #:**	PID 3

Calibration Certificate

Sensor	Type	Serial No.	Span Gas	Concentration	Traceability Lot #	CF	Reading	
							Zero	Span
Oxygen								
LEL								
PID	050-0000-004. 10.6EV 1/2 INCH LAMP	S023060055TC/1062R012710	Isobutylene	100ppm	WO443753-1		0	100.0
Battery	059-3051-000. MINIRAE 3000 LI-ION BATTERY	159TCW0532						
Toxic 1								
Toxic 2								
Toxic 3								
Toxic 4								
Toxic 5								
Toxic 6	PGM-7350							

Calibrated/Repaired by: JERRY JI Date: 23.07.2024 Next Due: 23.01.2025

AES
sensing safety

Calibration and Service Report – PID

Company:	ADE Consulting Group (NSW) P	**Manufacturer:**	RAE	**Serial #:**	595-002222
Contact:	Michelle Ridley	**Instrument:**	MINIRAE LITE SN: 595-002222	**Asset #:**	PID 3
Address:	Unit 6 7 Millennium Court Silverwater	**Model:**	MINIRAE LITE	**Part #:**	059-A126-000
		Configuration:	VOC 10.6EV	**Sold:**	20.02.2017
		Wireless:	-	**Last Cal:**	19.01.2024
Phone:	1300796922	**Network ID:**	-	**Job #:**	167578
Fax:		**Unit ID:**	-	**Cal Spec:**	
Email:	michelle.ridley@ade.group	**Details:**		**Order #:**	PID 3

Item	Test	Pass/Fail	Comments	Serial Number
Battery	NiCd, NiMH, Dry cell, LiIon	P		
Charger	Power Supply	P		
	Cradle, Travel Charger	P		
Pump	Flow	x	Cleaned pump, >450ml/min	
Filter	Filter, fitting, etc	x	Replaced	
Alarms	Audible, visual, vibration	P		
Display	Operation	P		
Switches	Operation	P		
PCB	Operation	P		
Connectors	Condition	P		
Firmware	Version	P	V2.22A Fumigation	
Datalogger	Operation	P		
Monitor Housing	Condition	P	Cleaned, decontaminated	
Case	Condition / Type	-		
Sensors				
PID	Lamp	P	Cleaned	
PID	Sensor	P	Cleaned	
THP	Sensor	P		

Engineer's Report

Cleaned lamp, lamp housing and sensor electrode
Checked moisture sensitivity
Cleaned pump assembly, checked flowrate and stall values
Checked unit settings and PC configuration
Unit serviced and calibrated.

Appendix F - Results Summary Table

			Asbestos		Inorganics			Metals								TPH			
			Asbestos - Boned ACM	Asbestos - AF and FA	Moisture Content	Electrical Conductivity (Lab)	pH 1:5 soil:water	Arsenic	Cadmium	Chromium (III+VI)	Copper	Lead	Mercury	Nickel	Zinc	C6-C9 Fraction	C10-C14 Fraction	C15-C28 Fraction	C29-C36 Fraction
					%	dS/m	-	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
EQL								5	0.1	1	5	5	0.1	1	5	25	50	100	100
NEPM 2013 Table 1B(7) Management Limits in Res / Parkland, Fine Soil																			
NEPM 2013 Table 1A(3) Res A/B Soil HSL for Vapour Intrusion, Sand																			
NEPM 2013 Res A Asbestos HSL			0.01	0.01															
NEPM 2013 Generic EILs								40											
NEPM 2013 Table 1B(6) ESLs for Urban Res, Fine Soil																			
NEPM 2013 Table 1A(1) HILs Res A Soil								100	20		6,000	300	40	400	7,400				
Field ID	**Date**																		
BH101_0.0-0.1	**11 Oct 2024**		<0.01	-	9.8	-	-	<5.0	<0.10	13.1	5.4	17.3	<0.10	2.0	25.9	<25	<50	<100	<100
BH102_0.0-0.1	**11 Oct 2024**		<0.01	-	6.4	-	-	<5.0	<0.10	18.9	6.6	18.3	<0.10	1.2	15.3	<25	<50	<100	<100
BH103_0.0-0.1	**11 Oct 2024**		<0.01	-	7.8	-	-	<5.0	<0.10	14.3	6.8	15.3	<0.10	2.1	22.9	<25	<50	335	<100
BH104_0.0-0.1	**11 Oct 2024**		<0.01	-	11.5	-	-	<5.0	<0.10	18.9	8.8	20.1	<0.10	1.5	16.3	<25	<50	126	<100
BH104_1.3-1.4	**11 Oct 2024**		<0.01	-	13.8	0.03	5.3	9.2	<0.10	21.2	<5.0	16.2	<0.10	<1.0	<5.0	<25	<50	<100	<100
TP101_0.0-0.1	**11 Oct 2024**		-	<0.01	5.5	-	-	<5.0	<0.10	7.7	6.6	9.6	<0.10	<1.0	22.2	<25	<50	<100	<100
TP101_0.3-0.4	**11 Oct 2024**		-	<0.01	18.1	0.02	5.6	7.7	<0.10	24.1	<5.0	11.0	<0.10	<1.0	<5.0	<25	<50	<100	<100
TP102_0.0-0.1	**11 Oct 2024**		-	<0.01	3.1	-	-	<5.0	<0.10	10.9	6.6	27.3	<0.10	1.0	27.5	<25	<50	<100	<100
TP102_0.3-0.4	**11 Oct 2024**		-	<0.01	5.0	0.01	6.3	<5.0	<0.10	9.7	5.4	10.5	<0.10	<1.0	6.6	<25	<50	<100	<100
TP103_0.0-0.1	**11 Oct 2024**		-	<0.01	5.0	-	-	<5.0	<0.10	18.0	7.5	15.3	<0.10	1.4	25.9	<25	<50	164	<100
TP103_0.3-0.4	**11 Oct 2024**		-	<0.01	6.1	0.01	6.2	5.4	<0.10	12.7	<5.0	8.8	<0.10	<1.0	8.4	<25	<50	<100	<100
TP104_0.0-0.1	**11 Oct 2024**		-	<0.01	7.6	-	-	<5.0	<0.10	21.3	5.6	15.7	<0.10	1.3	17.4	<25	<50	<100	<100
TP104_0.3-0.4	**11 Oct 2024**		-	<0.01	6.1	0.02	6.8	<5.0	<0.10	14.6	5.2	8.7	<0.10	1.2	6.3	<25	<50	<100	<100
Statistics																			
Number of Results					**13**	**5**	**5**	**13**	**13**	**13**	**13**	**13**	**13**	**13**	**13**	**13**	**13**	**13**	**13**
Number of Detects					**13**	**5**	**5**	**3**	**0**	**13**	**10**	**13**	**0**	**8**	**11**	**0**	**0**	**3**	**0**
Minimum Concentration					**3.1**	**0.01**	**5.3**	**<5**	**<0.1**	**7.7**	**<5**	**8.7**	**<0.1**	**1**	**<5**	**<25**	**<50**	**<100**	**<100**
Maximum Concentration					**18.1**	**0.03**	**6.8**	**9.2**	**<0.1**	**24.1**	**8.8**	**27.3**	**<0.1**	**2.1**	**27.5**	**<25**	**<50**	**335**	**<100**

Environmental Standards

NEPM, NEPM 2013 Table 1B(7) Management Limits in Res / Parkland, Coarse Soil
2013, NEPM 2013 Table 1A(3) Res A/B Soil HSL for Vapour Intrusion, Sand
2013, NEPM 2013 Table 1B(6) ESLs for Areas of Ecological Significance, Coarse Soil
2013, NEPM 2013 Table 1A(1) HILs Res A Soil

		TRH						PCBs									
	C10-C36 Fraction (Sum)	C6-C10 Fraction (F1)	C6-C10 (F1 minus BTEX)	>C10-C16 Fraction (F2)	>C16-C34 Fraction (F3)	>C34-C40 Fraction (F4)	>C10-C40 Fraction (Sum)	Arochlor 1016	Arochlor 1221	Arochlor 1232	Arochlor 1242	Arochlor 1248	Arochlor 1254	Arochlor 1260	PCBs (Sum of total)	Naphthalene	Acenaphthylene
	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
EQL	100	35	35	50	100	100	100	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.3	0.3
NEPM 2013 Table 1B(7) Management Limits in Res / Parkland, Fine Soil		800		1,000	3,500	10,000											
NEPM 2013 Table 1A(3) Res A/B Soil HSL for Vapour Intrusion, Sand			45 | 70 | 110 | 200													3	
NEPM 2013 Res A Asbestos HSL																	
NEPM 2013 Generic EILs																10	
NEPM 2013 Table 1B(6) ESLs for Urban Res, Fine Soil			180	120	1,300	5,600											
NEPM 2013 Table 1A(1) HILs Res A Soil															1		
Field ID	**Date**																
BH101_0.0-0.1	**11 Oct 2024**	<100	<35	<35	<50	<100	<100	<100	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.30	<0.30
BH102_0.0-0.1	**11 Oct 2024**	<100	<35	<35	<50	<100	<100	<100	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.30	<0.30
BH103_0.0-0.1	**11 Oct 2024**	335	<35	<35	<50	354	<100	354	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.30	<0.30
BH104_0.0-0.1	**11 Oct 2024**	126	<35	<35	<50	150	<100	150	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.30	<0.30
BH104_1.3-1.4	**11 Oct 2024**	<100	<35	<35	<50	105	<100	105	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.30	<0.30
TP101_0.0-0.1	**11 Oct 2024**	<100	<35	<35	<50	<100	<100	<100	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.30	<0.30
TP101_0.3-0.4	**11 Oct 2024**	<100	<35	<35	<50	<100	<100	<100	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.30	<0.30
TP102_0.0-0.1	**11 Oct 2024**	<100	<35	<35	<50	<100	<100	<100	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.30	<0.30
TP102_0.3-0.4	**11 Oct 2024**	<100	<35	<35	<50	<100	<100	<100	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.30	<0.30
TP103_0.0-0.1	**11 Oct 2024**	164	<35	<35	<50	191	<100	191	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.30	<0.30
TP103_0.3-0.4	**11 Oct 2024**	<100	<35	<35	<50	<100	<100	<100	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.30	<0.30
TP104_0.0-0.1	**11 Oct 2024**	<100	<35	<35	<50	<100	<100	<100	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.30	<0.30
TP104_0.3-0.4	**11 Oct 2024**	<100	<35	<35	<50	<100	<100	<100	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.30	<0.30

Statistics

Number of Results	**13**	**13**	**13**	**13**	**13**	**13**	**13**	**13**	**13**	**13**	**13**	**13**	**13**	**13**	**13**	**13**	**13**
Number of Detects	**3**	**0**	**0**	**0**	**4**	**0**	**4**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
Minimum Concentration	**<100**	**<35**	**<35**	**<50**	**<100**	**<100**	**<100**	**<0.5**	**<0.5**	**<0.5**	**<0.5**	**<0.5**	**<0.5**	**<0.5**	**<0.5**	**<0.3**	**<0.3**
Maximum Concentration	**335**	**<35**	**<35**	**<50**	**354**	**<100**	**354**	**<0.5**	**<0.5**	**<0.5**	**<0.5**	**<0.5**	**<0.5**	**<0.5**	**<0.5**	**<0.3**	**<0.3**

Environmental Standards

NEPM, NEPM 2013 Table 1B(7) Management Limits in Res / Parkland, Coarse Soil
2013, NEPM 2013 Table 1A(3) Res A/B Soil HSL for Vapour Intrusion, Sand
2013, NEPM 2013 Table 1B(6) ESLs for Areas of Ecological Significance, Coarse Soil
2013, NEPM 2013 Table 1A(1) HILs Res A Soil

	PAH															
	Acenaphthene	Fluorene	Anthracene	Phenanthrene	Pyrene	Fluoranthene	Chrysene	Benzo(a)anthracene	Benzo(a) pyrene	Benzo(b+j+k)fluoranthene	Benzo(g,h,i)perylene	Dibenz(a,h)anthracene	Indeno(1,2,3-c,d)pyrene	PAHs (Sum of total)	Benzene	Toluene
	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
EQL	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.5	0.5
NEPM 2013 Table 1B(7) Management Limits in Res / Parkland, Fine Soil																
NEPM 2013 Table 1A(3) Res A/B Soil HSL for Vapour Intrusion, Sand															0.5 | 0.5 | 0.5 | 0.5	160 | 220 | 310 | 540
NEPM 2013 Res A Asbestos HSL																
NEPM 2013 Generic EILs																
NEPM 2013 Table 1B(6) ESLs for Urban Res, Fine Soil									0.7						65	105
NEPM 2013 Table 1A(1) HILs Res A Soil														300		
Field ID **Date**																
BH101_0.0-0.1 **11 Oct 2024**	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.50	<0.50
BH102_0.0-0.1 **11 Oct 2024**	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.50	<0.50
BH103_0.0-0.1 **11 Oct 2024**	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.50	<0.50
BH104_0.0-0.1 **11 Oct 2024**	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.50	<0.50
BH104_1.3-1.4 **11 Oct 2024**	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.50	<0.50
TP101_0.0-0.1 **11 Oct 2024**	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.50	<0.50
TP101_0.3-0.4 **11 Oct 2024**	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.50	<0.50
TP102_0.0-0.1 **11 Oct 2024**	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.50	<0.50
TP102_0.3-0.4 **11 Oct 2024**	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.50	<0.50
TP103_0.0-0.1 **11 Oct 2024**	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.50	<0.50
TP103_0.3-0.4 **11 Oct 2024**	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.50	<0.50
TP104_0.0-0.1 **11 Oct 2024**	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.50	<0.50
TP104_0.3-0.4 **11 Oct 2024**	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.50	<0.50

Statistics

Number of Results	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13
Number of Detects	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Minimum Concentration	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.5	<0.5
Maximum Concentration	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.5	<0.5

Environmental Standards

NEPM, NEPM 2013 Table 1B(7) Management Limits in Res / Parkland, Coarse Soil
2013, NEPM 2013 Table 1A(3) Res A/B Soil HSL for Vapour Intrusion, Sand
2013, NEPM 2013 Table 1B(6) ESLs for Areas of Ecological Significance, Coarse Soil
2013, NEPM 2013 Table 1A(1) HILs Res A Soil

	BTEX					Organophosphorous Pesticides											
	Ethylbenzene	Xylene (m & p)	Xylene (o)	Xylene Total	Total BTEX	Chlorpyrifos	Chlorpyrifos-methyl	Diazinon	Ethoprop	Methyl parathion	Ronnel	4,4-DDE	a-BHC	Aldrin	b-BHC	Chlordane (cis)	Chlordane (trans)
	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
EQL	1	2	1	2	2	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
NEPM 2013 Table 1B(7) Management Limits in Res / Parkland, Fine Soil																	
NEPM 2013 Table 1A(3) Res A/B Soil HSL for Vapour Intrusion, Sand	55			40 | 60 | 95 | 170													
NEPM 2013 Res A Asbestos HSL																	
NEPM 2013 Generic EILs																	
NEPM 2013 Table 1B(6) ESLs for Urban Res, Fine Soil	125			45													
NEPM 2013 Table 1A(1) HILs Res A Soil						160											
Field ID	**Date**																
BH101_0.0-0.1	**11 Oct 2024**	<1.0	<2.0	<1.0	<2.0	<2.00	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10
BH102_0.0-0.1	**11 Oct 2024**	<1.0	<2.0	<1.0	<2.0	<2.00	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10
BH103_0.0-0.1	**11 Oct 2024**	<1.0	<2.0	<1.0	<2.0	<2.00	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10
BH104_0.0-0.1	**11 Oct 2024**	<1.0	<2.0	<1.0	<2.0	<2.00	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10
BH104_1.3-1.4	**11 Oct 2024**	<1.0	<2.0	<1.0	<2.0	<2.00	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10
TP101_0.0-0.1	**11 Oct 2024**	<1.0	<2.0	<1.0	<2.0	<2.00	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10
TP101_0.3-0.4	**11 Oct 2024**	<1.0	<2.0	<1.0	<2.0	<2.00	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10
TP102_0.0-0.1	**11 Oct 2024**	<1.0	<2.0	<1.0	<2.0	<2.00	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10
TP102_0.3-0.4	**11 Oct 2024**	<1.0	<2.0	<1.0	<2.0	<2.00	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10
TP103_0.0-0.1	**11 Oct 2024**	<1.0	<2.0	<1.0	<2.0	<2.00	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10
TP103_0.3-0.4	**11 Oct 2024**	<1.0	<2.0	<1.0	<2.0	<2.00	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10
TP104_0.0-0.1	**11 Oct 2024**	<1.0	<2.0	<1.0	<2.0	<2.00	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10
TP104_0.3-0.4	**11 Oct 2024**	<1.0	<2.0	<1.0	<2.0	<2.00	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10

Statistics

Number of Results	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13
Number of Detects	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Minimum Concentration	<1	<2	<1	<2	<2	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Maximum Concentration	<1	<2	<1	<2	<2	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1

Environmental Standards

NEPM, NEPM 2013 Table 1B(7) Management Limits in Res / Parkland, Coarse Soil
2013, NEPM 2013 Table 1A(3) Res A/B Soil HSL for Vapour Intrusion, Sand
2013, NEPM 2013 Table 1B(6) ESLs for Areas of Ecological Significance, Coarse Soil
2013, NEPM 2013 Table 1A(1) HILs Res A Soil

	Organochlorine Pesticides														Pesticides	Halogenated Benzenes
	d-BHC	DDD	DDT	Dieldrin	Endosulfan I	Endosulfan II	Endosulfan sulphate	Endrin	Endrin aldehyde	Endrin ketone	g-BHC (Lindane)	Heptachlor	Heptachlor epoxide	Methoxychlor	DEF	Hexachlorobenzene
	mg/kg	mg/kg	ug/kg	ug/kg	mg/kg	mg/kg	mg/kg	ug/kg	mg/kg	mg/kg	ug/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
EQL	0.1	0.1	100	100	0.2	0.2	0.1	200	0.1	0.1	100	0.1	0.1	0.1	0.1	0.1
NEPM 2013 Table 1B(7) Management Limits in Res / Parkland, Fine Soil																
NEPM 2013 Table 1A(3) Res A/B Soil HSL for Vapour Intrusion, Sand																
NEPM 2013 Res A Asbestos HSL																
NEPM 2013 Generic EILs			3,000													
NEPM 2013 Table 1B(6) ESLs for Urban Res, Fine Soil																
NEPM 2013 Table 1A(1) HILs Res A Soil								10,000				6		300		10
Field ID	**Date**																
BH101_0.0-0.1	**11 Oct 2024**	<0.10	<0.10	<100	<100	<0.20	<0.20	<0.10	<200	<0.10	<0.10	<100	<0.10	<0.10	<0.10	<0.10	<0.10
BH102_0.0-0.1	**11 Oct 2024**	<0.10	<0.10	<100	<100	<0.20	<0.20	<0.10	<200	<0.10	<0.10	<100	<0.10	<0.10	<0.10	<0.10	<0.10
BH103_0.0-0.1	**11 Oct 2024**	<0.10	<0.10	<100	<100	<0.20	<0.20	<0.10	<200	<0.10	<0.10	<100	<0.10	<0.10	<0.10	<0.10	<0.10
BH104_0.0-0.1	**11 Oct 2024**	<0.10	<0.10	<100	<100	<0.20	<0.20	<0.10	<200	<0.10	<0.10	<100	<0.10	<0.10	<0.10	<0.10	<0.10
BH104_1.3-1.4	**11 Oct 2024**	<0.10	<0.10	<100	<100	<0.20	<0.20	<0.10	<200	<0.10	<0.10	<100	<0.10	<0.10	<0.10	<0.10	<0.10
TP101_0.0-0.1	**11 Oct 2024**	<0.10	<0.10	<100	<100	<0.20	<0.20	<0.10	<200	<0.10	<0.10	<100	<0.10	<0.10	<0.10	<0.10	<0.10
TP101_0.3-0.4	**11 Oct 2024**	<0.10	<0.10	<100	<100	<0.20	<0.20	<0.10	<200	<0.10	<0.10	<100	<0.10	<0.10	<0.10	<0.10	<0.10
TP102_0.0-0.1	**11 Oct 2024**	<0.10	<0.10	<100	<100	<0.20	<0.20	<0.10	<200	<0.10	<0.10	<100	<0.10	<0.10	<0.10	<0.10	<0.10
TP102_0.3-0.4	**11 Oct 2024**	<0.10	<0.10	<100	<100	<0.20	<0.20	<0.10	<200	<0.10	<0.10	<100	<0.10	<0.10	<0.10	<0.10	<0.10
TP103_0.0-0.1	**11 Oct 2024**	<0.10	<0.10	<100	<100	<0.20	<0.20	<0.10	<200	<0.10	<0.10	<100	<0.10	<0.10	<0.10	<0.10	<0.10
TP103_0.3-0.4	**11 Oct 2024**	<0.10	<0.10	<100	<100	<0.20	<0.20	<0.10	<200	<0.10	<0.10	<100	<0.10	<0.10	<0.10	<0.10	<0.10
TP104_0.0-0.1	**11 Oct 2024**	<0.10	<0.10	<100	<100	<0.20	<0.20	<0.10	<200	<0.10	<0.10	<100	<0.10	<0.10	<0.10	<0.10	<0.10
TP104_0.3-0.4	**11 Oct 2024**	<0.10	<0.10	<100	<100	<0.20	<0.20	<0.10	<200	<0.10	<0.10	<100	<0.10	<0.10	<0.10	<0.10	<0.10

Statistics

Number of Results	**13**	**13**	**13**	**13**	**13**	**13**	**13**	**13**	**13**	**13**	**13**	**13**	**13**	**13**	**13**	**13**
Number of Detects	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
Minimum Concentration	**<0.1**	**<0.1**	**<100**	**<100**	**<0.2**	**<0.2**	**<0.1**	**<200**	**<0.1**	**<0.1**	**<100**	**<0.1**	**<0.1**	**<0.1**	**<0.1**	**<0.1**
Maximum Concentration	**<0.1**	**<0.1**	**<100**	**<100**	**<0.2**	**<0.2**	**<0.1**	**<200**	**<0.1**	**<0.1**	**<100**	**<0.1**	**<0.1**	**<0.1**	**<0.1**	**<0.1**

Environmental Standards

NEPM, NEPM 2013 Table 1B(7) Management Limits in Res / Parkland, Coarse Soil
2013, NEPM 2013 Table 1A(3) Res A/B Soil HSL for Vapour Intrusion, Sand
2013, NEPM 2013 Table 1B(6) ESLs for Areas of Ecological Significance, Coarse Soil
2013, NEPM 2013 Table 1A(1) HILs Res A Soil

Appendix G - Analytical Reports and Chain of Custody

ADE CONSULTING GROUP

ESA-F-02
Chain of Custody (Internal)

Date Printed: 17/10/2024

02

Document Revision Date: 22/08/2022

ESA-F-02 COC - Chain Of Custody (Internal: Sydney Laboratory Services)

FULL PROJECT NUMER (e.g., : A201021.1725.05)	A10123.0722.00
PROJECT PHASE (e.g.,: C01)	009 (Dundas PS - VAR02)
PROJECT TASK (e.g.,: C11)	L05
SAMPLES DELIVERED BY:	Karin Azzam
SAMPLERS:	MaH, CH
TURNAROUND (BUSINESS DAY - BD):	SAME DAY: ☐ 1-BD: ☐ 2-BD: ☐ 3-BD: ☐ 5 BD (STD): ☑
SAMPLING DATE:	
AFTER TEST STORAGE:	ROOM TEMP: ☐ FRIDGE: ☐ FREEZER: ☑ > >4 WEEKS: ☐ OTHER: ☐
REPORT FORMAT:	HARD COPY: ☐ E-MAIL: ☑
CONSULTANTS SIGNATURE:	CONSULTANTS EMAIL: madison.hollamby@ade.group
PROJECT MANAGERS SIGNATURE: Digitally signed by Karin Azzam DN: cn=Karin Azzam, c=AU, o=ADE group, ou=Environmental, email=karin.azzam@ade.group Date: 2024.10.17 15:22:09 +11'00'	PROJECT MANAGERS E-MAIL: karin.azzam@ade.group

LABORATORY REFERENCE NO. (Lab use ONLY): A10123.0722.00/009/L05

RECEIVED BY: KJ
SIGNATURE:
SAMPLES: 22 CHILLED: ☑ PRESERVED: ☐ PRESERVATION METHOD: ☐ CUSTODY SEAL INTACT: ☐
MINIMAL HEADSPACE: ☑ WITHIN HOLDING TIME: ☑
DATE: 17/10/24 TIME: 3:27 TEMPERATURE UPON RECEIPT: 10 °C T46
LIMS LOT NO. 2404710 LIMS/EXCEL SIGNATURE:
COMMENTS:

LIMS Sample ID (Lab Use) 2024036	Sample ID (ADE)	MATRIX	SAMPLE DATE	TYPE & PRESERVATIVE	NO. OF SAMPLE CONTAINERS	SL01 (Standard Suite)	SL02 - ENM full suite	OH03 (Pres./Abs. Asbestos in Soil 65g)	OH07 (500g NEPM)	HOLD
954	TP101_0.0-0.1	Soil	11/10/2024	G, B	2	X			X	
955	TP101_0.3-0.4	Soil	11/10/2024	G, B	2		X		X	
	TP101_0.5-0.6	Soil	11/10/2024	G, B	2					X
956	TP102_0.0-0.1	Soil	11/10/2024	G, B	2	X			X	
957	TP102_0.3-0.4	Soil	11/10/2024	G, B	2		X		X	
	TP102_0.5-0.6	Soil	11/10/2024	G, B	2					X
958	TP103_0.0-0.1	Soil	11/10/2024	G, B	2	X			X	
959	TP103_0.3-0.4	Soil	11/10/2024	G, B	2		X		X	
	TP103_0.5-0.6	Soil	11/10/2024	G, B	2					X
960	TP104_0.0-0.1	Soil	11/10/2024	G, B	2	X			X	
961	TP104_0.3-0.4	Soil	11/10/2024	G, B	2		X		X	
	TP104_0.5-0.6	Soil	11/10/2024	G, B	2					X
962	BH101_0.0-0.1	Soil	11/10/2024	G, B	2	X		X		
963	BH101_0.4-0.5	Soil	11/10/2024	G, B	2			X		
964	BH102_0.0-0.1	Soil	11/10/2024	G, B	2	X		X		
965	BH102_0.4-0.5	Soil	11/10/2024	G, B	2			X		
966	BH103_0.0-0.1	Soil	11/10/2024	G, B	2	X		X		
967	BH103_0.4-0.5	Soil	11/10/2024	G, B	2			X		
968	BH104_0.0-0.1	Soil	11/10/2024	G, B	2	X		X		
969	BH104_1.3-1.4	Soil	11/10/2024	G, B	2		X	X		
970	BR01	Soil	11/10/2024	G	1	X				
	BR02	Soil	11/10/2024	G	1					X

NOTES

POTENTIAL HAZARDOUS CONTAMINANTS:
☐ ASBESTOS ☐ HYDROCARBONS
☐ LEAD/ARSENIC ☐ NO KNOWN CONTAMINATION
☐ OTHER:______

LAB PLEASE *EMAIL COC RECEIPT: ☑

Sample Comments

Comments:

Container Type and Preservative: P = Unpreserved Plastic; PN = Nitric Preserved Plastic; ORC = Nitric Preserved ORC; PNA = Sodium Hydroxide Preserved Plastic; PC = HCl preserved Plastic; VC = Vial HCl Preserved; SP = Sulfuric Preserved Plastic; VB = Vial Sodium Bisulphate Preserved; VS = Vial Sulfuric Preserved; V = Unpreserved Vial; G = Amber Glass Unpreserved; SG = Sulfuric Preserved Amber Glass; F = Formaldehyde Preserved Glass; HS = HCl preserved Speciation bottle; Z = Zinc Acetate Preserved Bottle; E = EDTA Preserved Bottle; ST = Sterile Bottle; J = Unpreserved Glass Jar; ASS = Plastic Bag for Acid Sulfate Soils; B = Unpreserved Bag.

Page 1 of 1

24/10/24

Sydney Laboratory Services

A division of A. D. Envirotech Australia Pty Ltd
Unit 4/10-11 Millennium Court,
Silverwater 2128
Ph: (02) 9648-6669

A.B.N. 52 093 452 950

Analysis report: A101023.0722.00

Laboratory LOT NO: 2404710

Date Received: 17.10.2024
Date Analysed: 18.10.2024
Report Date: 22.10.2024
Client: ADE Consulting Group
Job Location: As Received
Analytical method: Polarised Light Microscopy with dispersion staining (ADE method ABI)

*Asbestos identification as per "National Environment Protection (Assessment of site contamination) Measure, Schedule B1" and "The Guidelines from the Assessment, Remediation and Management of Asbestos-Contaminated Sites in Western Australia - May 2009" is not coverd by NATA scope of accreditation

Analysis performed by:

Grace (Weichen) Jia
Approved asbestos identifier

Results Authorised By:

Grace (Weichen) Jia
Approved Signatory

General Comments:

Sydney Laboratory Services is responsible for all the information in the report, except that provided by the customer. All sampling information included in the report has been provided by the client.

Sample analysed as received.
Samples are stored for minimum period of 1 month if longer time is not advised by client.
Asbestos ID - Identification of asbestos in soil samples using Polarised Light Microscopy and Dispersion Staining Techniques. Minimum 500mL soil sample was analysed as recommended by "National Environment Protection (Assessment of site contamination) Measure, Schedule B1 and "The Guidelines from the Assessment, Remediation and Management of Asbestos-Contaminated Sites in Western Australia - May 2009" with a reporting limit of 0.01g/kg (0.001% w/w) for friable asbestos and 0.1g/kg (0.01% w/w) for bonded asbestos.
This form of analysis is outside the scope of NATA accreditation.
Bonded asbestos containing material (bonded ACM) : Bonded ACM comprises asbestos-containing-material which is in sound condition, although possibly broken or fragmented, and where the asbestos is bound in a matrix such as cement or resin.This term is restricted to material that cannot pass a 7 mm x 7 mm sieve.
Fibrous asbestos (FA): FA comprises friable asbestos material and includes severely weathered cement sheet, insulation products and woven asbestos material. This type of friable asbestos is defined here as asbestos material that is in a degraded condition such that it can be broken or crumbled by hand pressure. This material is typically unbonded or was previously bonded and is now significantly degraded (crumbling).
Asbestos fines (AF): AF includes free fibres, small fibre bundles and also small fragments of bonded ACM that pass through a 7 mm x 7 mm sieve.
Note: The screening level of 0.001% w/w asbestos in soil for FA and AF (i.e. non-bonded/friable asbestos) only applies where the FA and AF are able to be quantified by gravimetric procedures. This screening level is not applicable to free fibres.

Client Sample ID.	Laboratory Sample No.	Sample Description/Matrix	Sample Dimensions (cm) unless stated otherwise	Weight (Dry Weight)	Trace Analysis Completed Y/N	Result	Comments
TP101_0.0-0.1	2024036954	Granulated Dark Soil	500mL	594 grams	Yes, no trace asbestos detected by polarized light microscopy including dispersion staining.	No Chrysotile asbestos detected by polarized light microscopy including dispersion staining.	Nil
						No Amosite asbestos detected by polarized light microscopy including dispersion staining.	Nil
						No Crocidolite asbestos detected by polarized light microscopy including dispersion staining.	Nil
						No Synthetic Mineral Fibres detected by polarized light microscopy including dispersion staining.	Nil
						Organic fibres detected by polarized light microscopy including dispersion staining.	Nil
TP101_0.3-0.4	2024036955	Granulated Dark Soil	500mL	523 grams	Yes, no trace asbestos detected by polarized light microscopy including dispersion staining.	No Chrysotile asbestos detected by polarized light microscopy including dispersion staining.	Nil
						No Amosite asbestos detected by polarized light microscopy including dispersion staining.	Nil
						No Crocidolite asbestos detected by polarized light microscopy including dispersion staining.	Nil
						No Synthetic Mineral Fibres detected by polarized light microscopy including dispersion staining.	Nil
						Organic fibres detected by polarized light microscopy including dispersion staining.	Nil
TP102_0.0-0.1	2024036956	Granulated Dark Soil	500mL	503 grams	Yes, no trace asbestos detected by polarized light microscopy including dispersion staining.	No Chrysotile asbestos detected by polarized light microscopy including dispersion staining.	Nil
						No Amosite asbestos detected by polarized light microscopy including dispersion staining.	Nil
						No Crocidolite asbestos detected by polarized light microscopy including dispersion staining.	Nil
						No Synthetic Mineral Fibres detected by polarized light microscopy including dispersion staining.	Nil
						Organic fibres detected by polarized light microscopy including dispersion staining.	Nil
TP102_0.3-0.4	2024036957	Granulated Dark Soil	500mL	644 grams	Yes, no trace asbestos detected by polarized light microscopy including dispersion staining.	No Chrysotile asbestos detected by polarized light microscopy including dispersion staining.	Nil
						No Amosite asbestos detected by polarized light microscopy including dispersion staining.	Nil
						No Crocidolite asbestos detected by polarized light microscopy including dispersion staining.	Nil
						No Synthetic Mineral Fibres detected by polarized light microscopy including dispersion staining.	Nil
						Organic fibres detected by polarized light microscopy including dispersion staining.	Nil
TP103_0.0-0.1	2024036958	Granulated Dark Soil	500mL	438 grams	Yes, no trace asbestos detected by polarized light microscopy including dispersion staining.	No Chrysotile asbestos detected by polarized light microscopy including dispersion staining.	Nil
						No Amosite asbestos detected by polarized light microscopy including dispersion staining.	Nil
						No Crocidolite asbestos detected by polarized light microscopy including dispersion staining.	Nil
						No Synthetic Mineral Fibres detected by polarized light microscopy including dispersion staining.	Nil
						Organic fibres detected by polarized light microscopy including dispersion staining.	Nil
TP103_0.3-0.4	2024036959	Granulated Dark Soil	500mL	694 grams	Yes, no trace asbestos detected by polarized light microscopy including dispersion staining.	No Chrysotile asbestos detected by polarized light microscopy including dispersion staining.	Nil
						No Amosite asbestos detected by polarized light microscopy including dispersion staining.	Nil
						No Crocidolite asbestos detected by polarized light microscopy including dispersion staining.	Nil
						No Synthetic Mineral Fibres detected by polarized light microscopy including dispersion staining.	Nil
						Organic fibres detected by polarized light microscopy including dispersion staining.	Nil
TP104_0.0-0.1	2024036960	Granulated Dark Soil	500mL	570 grams	Yes, no trace asbestos detected by polarized light microscopy including dispersion staining.	No Chrysotile asbestos detected by polarized light microscopy including dispersion staining.	Nil
						No Amosite asbestos detected by polarized light microscopy including dispersion staining.	Nil
						No Crocidolite asbestos detected by polarized light microscopy including dispersion staining.	Nil
						No Synthetic Mineral Fibres detected by polarized light microscopy including dispersion staining.	Nil
						Organic fibres detected by polarized light microscopy including dispersion staining.	Nil
TP104_0.3-0.4	2024036961	Granulated Dark Soil	500mL	551 grams	Yes, no trace asbestos detected by polarized light microscopy including dispersion staining.	No Chrysotile asbestos detected by polarized light microscopy including dispersion staining.	Nil
						No Amosite asbestos detected by polarized light microscopy including dispersion staining.	Nil
						No Crocidolite asbestos detected by polarized light microscopy including dispersion staining.	Nil
						No Synthetic Mineral Fibres detected by polarized light microscopy including dispersion staining.	Nil
						Organic fibres detected by polarized light microscopy including dispersion staining.	Nil

Sydney Laboratory Services

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Unit 4/10-11 Millennium Court,
Silverwater 2128
Ph: (02) 9648-6669

A.B.N. 52 093 452 950

Analysis report: A101023.0722.00
Laboratory LOT NO: 2404710

Date Received: 17.10.2024
Date Analysed: 18.10.2024
Report Date: 18.10.2024
Client: ADE Consulting Group
Analytical method: ABI-P-01: Procedure for the Analysis and ID of Bulk Samples for Asbestos

Analysis performed by:

Grace (Weichen) Jia
Approved asbestos identifier

Results Authorised By:

Grace (Weichen) Jia
Approved Signatory

This report supersedes all previous reports with the same reference. This report shall not be reproduced except in full

Accreditation No.14664.
Accredited for compliance with ISO/IEC 17025 - Testing.

Tests not covered by NATA are denoted with *.

General Comments:

Sydney Laboratory Services is responsible for all the information in the report, except that provided by the customer. All sampling information included in the report has been provided by the client.

Sample analysed as received.
Samples are stored for minimum period of 4 weeks, if longer time is not advised by client.
All positive/negative results have been confirmed by polarized light microscopy including dispersion staining.
ABI-P-01: Qualitative Identification of asbestos in bulk samples using Polarised Light Microscopy and Dispersion Staining Techniques as per AS4964.

Accreditation No.14664.
Accredited for compliance with ISO/IEC 17025 - Testing.

Tests not covered by NATA are denoted with *.

Client Sample ID.	Laboratory Sample No.	Sample Description/Matrix	Sample Dry Weight (g)	Trace Analysis (> 5 Fibres)	Asbestos ID in Soil (AS4964) >0.1g/kg	Weight Total ACM (g)	Comments
BH101_0.0-0.1	2024036962	Granulated dark soil	86.00	ND	No asbestos detected at the reporting limit of 0.1g/kg Organic fibres detected	N/A	Nil
BH101_0.4-0.5	2024036963	Granulated dark soil	117.00	ND	No asbestos detected at the reporting limit of 0.1g/kg Organic fibres detected	N/A	Nil
BH102_0.0-0.1	2024036964	Granulated dark soil	139.00	ND	No asbestos detected at the reporting limit of 0.1g/kg Organic fibres detected	N/A	Nil
BH102_0.4-0.5	2024036965	Granulated dark soil	135.00	ND	No asbestos detected at the reporting limit of 0.1g/kg Organic fibres detected	N/A	Nil
BH103_0.0-0.1	2024036966	Granulated dark soil	129.00	ND	No asbestos detected at the reporting limit of 0.1g/kg Organic fibres detected	N/A	Nil

Client Sample ID.	Laboratory Sample No.	Sample Description/Matrix	Sample Dry Weight (g)	Trace Analysis (> 5 Fibres)	Asbestos ID in Soil (AS4964) >0.1g/kg	Weight Total ACM (g)	Comments
BH103_0.4-0.5	2024036967	Granulated dark soil	99.00	ND	No asbestos detected at the reporting limit of 0.1g/kg Organic fibres detected	N/A	Nil
BH104_0.0-0.1	2024036968	Granulated dark soil	87.00	ND	No asbestos detected at the reporting limit of 0.1g/kg Organic fibres detected	N/A	Nil
BH104_1.3-1.4	2024036969	Granulated dark soil	82.00	ND	No asbestos detected at the reporting limit of 0.1g/kg Organic fibres detected	N/A	Nil

Batch Number : 2404710

Report Number : A101023.0722.00 (954-970)

Sydney Laboratory Services

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Unit 4/10-11 Millennium Court,
Silverwater 2128
Ph: (02) 9648-6669

Accreditation No.14664
Accredited for compliance with ISO/IEC 17025 - Testing.

This certificate of analysis contains General Comments and Analytical Results. Quality Control Report and Laboratory Quality Acceptance Criteria have been issued separately.

This report supersedes any previous report(s) with this reference. This document shall not be reproduced, except in full.

This report has been electronically signed by authorised signatories below.

Authorised By

Domenico Grieco

General Comments

Samples are analysed on as received basis. Sampling is not covered by NATA accreditation.

Where moisture determination has been performed, results are reported on dry weight basis.

Where the PQL of reported result differs from standard PQL, this may be due to high moisture content, insufficient sample (reduced weight employed) or matrix interference.

Samples were analysed within holding time described by laboratory internal procedures if not stated otherwise. If samples delivered do not meet required analytical criteria, results will be marked with ^.

However surrogate standards are added to samples, results are not corrected for standards recoveries.

Analysis of VOC in water samples are performed on unfiltered waters (as received) spiked with surrogates and injection standards only.

Results for the analysis of metals is only for acid soluble trace metals unless indicated otherwise.

SLS is responsible for all the information in the report, except that provided by the customer.

All sampling information included in the report has been provided by customer.

Information provided by the customer can affect the validity of the results.

Certificate of Analysis

Contact:	Karin Azzam	**Date Reported:**	24/10/2024
Customer:	ADE Consulting Group	**No. of Samples:**	14
Address:	Unit 6 7 Millennium Court Silverwater NSW	**Date Received:**	18/10/2024
		Date of Analysis:	18/10/2024

Cust Ref: A101023.0722.00.009 L05

Comment: Samples TP103_0.0-0.1 & BH103_0.0-0.1 (958 & 966) have been re-extracted and re-analysed for TRH/TPH and results are confirmed.

Glossary:

*NATA accreditation does not cover the performance of this service
ND-not detected,
NT-not tested
INS-Insufficient material to perform the test
LCS-Laboratory Control Sample
RPD-Relative Percent Difference
N/A-Not Applicable
< less than
> greater than
PQL- Practical Quantitation Limit
^Analytical result might be compromised due to sample condition or holding time requirements
Reaction rate 1 = Slight
Reaction rate 2 = Moderate
Reaction rate 3 = High
Reaction rate 4 = Vigorous

Batch Number : 2404710

Report Number : A101023.0722.00 (954-970)

Certificate of Analysis

	Sample ID:	2024036954	2024036955	2024036956	2024036957	2024036958	2024036959	2024036960	2024036961	2024036962	2024036964	2024036966
	Sample Name	TP101_0.0-0.1	TP101_0.3-0.4	TP102_0.0-0.1	TP102_0.3-0.4	TP103_0.0-0.1	TP103_0.3-0.4	TP104_0.0-0.1	TP104_0.3-0.4	BH101_0.0-0.1	BH102_0.0-0.1	BH103_0.0-0.1
Parameter	*Units*	*PQL*	Sample Date: 11/10/2024	11/10/2024	11/10/2024	11/10/2024	11/10/2024	11/10/2024	11/10/2024	11/10/2024	11/10/2024	11/10/2024	11/10/2024
ESA-P-ORG7 & ORG8													
Benzene	mg/kg	0.5	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Toluene	mg/kg	0.5	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Ethylbenzene	mg/kg	1	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
m.p Xylene	mg/kg	2	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0
o Xylene	mg/kg	1	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Sum of BTEX	mg/kg	2	<2.00	<2.00	<2.00	<2.00	<2.00	<2.00	<2.00	<2.00	<2.00	<2.00	<2.00
Total Xylenes	mg/kg	2	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0
Fluorobenzene (Surr.)	%		117	118	118	124	123	120	120	119	116	118	122
C6-C10	mg/kg	35	<35	<35	<35	<35	<35	<35	<35	<35	<35	<35	<35
C6-C10 minus BTEX	mg/kg	35	<35	<35	<35	<35	<35	<35	<35	<35	<35	<35	<35
C6-C9	mg/kg	25	<25	<25	<25	<25	<25	<25	<25	<25	<25	<25	<25
ESA-P-16													
EC	dS/m		-	0.02	-	0.01	-	0.01	-	0.02	-	-	-
ESA-MP-01,ICP-01													
Arsenic	mg/kg	5	<5.0	7.7	<5.0	<5.0	<5.0	5.4	<5.0	<5.0	<5.0	<5.0	<5.0
Cadmium	mg/kg	0.1	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10
Chromium	mg/kg	1	7.7	24.1	10.9	9.7	18.0	12.7	21.3	14.6	13.1	18.9	14.3
Copper	mg/kg	5	6.6	<5.0	6.6	5.4	7.5	<5.0	5.6	5.2	5.4	6.6	6.8
Lead	mg/kg	5	9.6	11.0	27.3	10.5	15.3	8.8	15.7	8.7	17.3	18.3	15.3
Mercury	mg/kg	0.1	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10
Nickel	mg/kg	1	<1.0	<1.0	1.0	<1.0	1.4	<1.0	1.3	1.2	2.0	1.2	2.1
Zinc	mg/kg	5	22.2	<5.0	27.5	6.6	25.9	8.4	17.4	6.3	25.9	15.3	22.9
ESA-P-12													
% Moisture Content	%		5.5	18.1	3.1	5.0	5.0	6.1	7.6	6.1	9.8	6.4	7.8

Sydney Laboratory Services
A division of A. D. Envirotech Australia Pty Ltd
Unit 4/10-11 Millennium Court
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Certificate of Analysis

	Sample ID:	2024036954	2024036955	2024036956	2024036957	2024036958	2024036959	2024036960	2024036961	2024036962	2024036964	2024036966
	Sample Name	TP101_0.0-0.1	TP101_0.3-0.4	TP102_0.0-0.1	TP102_0.3-0.4	TP103_0.0-0.1	TP103_0.3-0.4	TP104_0.0-0.1	TP104_0.3-0.4	BH101_0.0-0.1	BH102_0.0-0.1	BH103_0.0-0.1
Parameter	Units	PQL	Sample Date: 11/10/2024	11/10/2024	11/10/2024	11/10/2024	11/10/2024	11/10/2024	11/10/2024	11/10/2024	11/10/2024	11/10/2024	11/10/2024
ESA-P-ORG(12 - 15)												
Acenaphthene	mg/kg	0.3	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30
Acenaphthylene	mg/kg	0.3	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30
Anthracene	mg/kg	0.3	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30
Benzo[a]anthracene	mg/kg	0.3	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30
Benzo[a]pyrene	mg/kg	0.3	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30
Benzo[g,h,i]perylene	mg/kg	0.3	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30
Benzo[b,k]fluoranthene	mg/kg	0.3	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30
Chrysene	mg/kg	0.3	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30
Dibenzo[a,h]anthracene	mg/kg	0.3	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30
Fluoranthene	mg/kg	0.3	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30
Fluorene	mg/kg	0.3	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30
Indeno(1,2,3-cd)pyrene	mg/kg	0.3	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30
Naphthalene	mg/kg	0.3	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30
Phenanthrene	mg/kg	0.3	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30
Pyrene	mg/kg	0.3	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30
PAHs Total	mg/kg	0.3	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30
Benzo(a)pyrene TEQ (Zero)	mg/kg	0.3	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30
Benzo(a)pyrene TEQ (Half PQL)	mg/kg	0.3	0.35	0.35	0.35	0.35	0.35	0.35	0.35	0.35	0.35	0.35	0.35
Benzo(a)pyrene TEQ (PQL)	mg/kg	0.3	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70
p-Terphenyl-d14 (Surr.)	%		112	114	114	109	106	103	104	116	111	109	106
aldrin	mg/kg	0.1	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10
a-BHC	mg/kg	0.1	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10
b-BHC	mg/kg	0.1	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10
d-BHC	mg/kg	0.1	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10
g-BHC (lindane)	mg/kg	0.1	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10

Certificate of Analysis

	Sample ID:	2024036954	2024036955	2024036956	2024036957	2024036958	2024036959	2024036960	2024036961	2024036962	2024036964	2024036966
	Sample Name	TP101_0.0-0.1	TP101_0.3-0.4	TP102_0.0-0.1	TP102_0.3-0.4	TP103_0.0-0.1	TP103_0.3-0.4	TP104_0.0-0.1	TP104_0.3-0.4	BH101_0.0-0.1	BH102_0.0-0.1	BH103_0.0-0.1
Parameter	Units	PQL	Sample Date: 11/10/2024	11/10/2024	11/10/2024	11/10/2024	11/10/2024	11/10/2024	11/10/2024	11/10/2024	11/10/2024	11/10/2024	11/10/2024
cis-chlordane	mg/kg	0.1	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10
trans-chlordane	mg/kg	0.1	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10
4,4'-DDD	mg/kg	0.1	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10
4,4'-DDE	mg/kg	0.1	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10
4,4'-DDT	mg/kg	0.1	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10
dieldrin	mg/kg	0.1	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10
endosulfan I	mg/kg	0.2	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
endosulfan II	mg/kg	0.2	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
endosulfan sulfate	mg/kg	0.1	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10
endrin	mg/kg	0.2	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
endrin aldehyde	mg/kg	0.1	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10
endrin ketone	mg/kg	0.1	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10
heptachlor	mg/kg	0.1	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10
heptachlor epoxide	mg/kg	0.1	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10
hexachlorobenzene	mg/kg	0.1	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10
methoxychlor	mg/kg	0.1	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10
TCMX (Surr.)	%		140	139	141	135	132	128	128	143	136	134	129
chlorpyrifos	mg/kg	0.1	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10
chlorpyrifos methyl	mg/kg	0.1	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10
diazinon	mg/kg	0.1	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10
fenchlorphos	mg/kg	0.1	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10
methyl parathion	mg/kg	0.1	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10
prophos	mg/kg	0.1	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10
tributylphosphorotrithioite	mg/kg	0.1	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10
PCBs Total	mg/kg	0.5	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Aroclor 1016	mg/kg	0.5	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50

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Certificate of Analysis

	Sample ID:	2024036954	2024036955	2024036956	2024036957	2024036958	2024036959	2024036960	2024036961	2024036962	2024036964	2024036966
	Sample Name	TP101_0.0-0.1	TP101_0.3-0.4	TP102_0.0-0.1	TP102_0.3-0.4	TP103_0.0-0.1	TP103_0.3-0.4	TP104_0.0-0.1	TP104_0.3-0.4	BH101_0.0-0.1	BH102_0.0-0.1	BH103_0.0-0.1
Parameter	Units	PQL	Sample Date: 11/10/2024	11/10/2024	11/10/2024	11/10/2024	11/10/2024	11/10/2024	11/10/2024	11/10/2024	11/10/2024	11/10/2024	11/10/2024
Aroclor 1221	mg/kg	0.5	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Aroclor 1232	mg/kg	0.5	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Aroclor 1242	mg/kg	0.5	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Aroclor 1248	mg/kg	0.5	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Aroclor 1254	mg/kg	0.5	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Aroclor 1260	mg/kg	0.5	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
2-fluorobiphenyl (Surr.)	%		113	112	115	110	106	103	105	116	110	109	105
ESA-P-21													
pH(Ave. of 3 Reading)	-		-	5.6	-	6.3	-	6.2	-	6.8	-	-	-
ESA-P-ORG(3,8)													
>C10-C16	mg/kg	50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50
>C16-C34	mg/kg	100	<100	<100	<100	<100	191	<100	<100	<100	<100	<100	354
>C34-C40	mg/kg	100	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100
>C10-C40 (Sum of total)	mg/kg	100	<100	<100	<100	<100	191	<100	<100	<100	<100	<100	354
>C10-C14	mg/kg	50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50
>C15-C28	mg/kg	100	<100	<100	<100	<100	164	<100	<100	<100	<100	<100	335
>C29-C36	mg/kg	100	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100
>C10-C36 (Sum of total)	mg/kg	100	<100	<100	<100	<100	164	<100	<100	<100	<100	<100	335

Batch Number : 2404710

Report Number : A101023.0722.00 (954-970)

Certificate of Analysis

	Sample ID:	2024036968	2024036969	2024036970
	Sample Name	BH104_0.0-0.1	BH104_1.3-1.4	BR01
Parameter	Units	PQL	11/10/2024	11/10/2024	11/10/2024
ESA-P-ORG7 & ORG8					
Benzene	mg/kg	0.5	<0.50	<0.50	<0.50
Toluene	mg/kg	0.5	<0.50	<0.50	<0.50
Ethylbenzene	mg/kg	1	<1.0	<1.0	<1.0
m.p Xylene	mg/kg	2	<2.0	<2.0	<2.0
o Xylene	mg/kg	1	<1.0	<1.0	<1.0
Sum of BTEX	mg/kg	2	<2.00	<2.00	<2.00
Total Xylenes	mg/kg	2	<2.0	<2.0	<2.0
Fluorobenzene (Surr.)	%		118	116	119
C6-C10	mg/kg	35	<35	<35	<35
C6-C10 minus BTEX	mg/kg	35	<35	<35	<35
C6-C9	mg/kg	25	<25	<25	<25
ESA-P-16					
EC	dS/m		-	0.03	-
ESA-MP-01,ICP-01					
Arsenic	mg/kg	5	<5.0	9.2	6.8
Cadmium	mg/kg	0.1	<0.10	<0.10	<0.10
Chromium	mg/kg	1	18.9	21.2	15.6
Copper	mg/kg	5	8.8	<5.0	<5.0
Lead	mg/kg	5	20.1	16.2	11.0
Mercury	mg/kg	0.1	<0.10	<0.10	<0.10
Nickel	mg/kg	1	1.5	<1.0	1.1
Zinc	mg/kg	5	16.3	<5.0	7.4
ESA-P-12					
% Moisture Content	%		11.5	13.8	10.4

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Certificate of Analysis

	Sample ID:	2024036968	2024036969	2024036970
	Sample Name	BH104_0.0-0.1	BH104_1.3-1.4	BR01
Parameter	Units	PQL	11/10/2024	11/10/2024	11/10/2024
ESA-P-ORG(12 - 15)					
Acenaphthene	mg/kg	0.3	<0.30	<0.30	<0.30
Acenaphthylene	mg/kg	0.3	<0.30	<0.30	<0.30
Anthracene	mg/kg	0.3	<0.30	<0.30	<0.30
Benzo[a]anthracene	mg/kg	0.3	<0.30	<0.30	<0.30
Benzo[a]pyrene	mg/kg	0.3	<0.30	<0.30	<0.30
Benzo[g,h,i]perylene	mg/kg	0.3	<0.30	<0.30	<0.30
Benzo[b,k]fluoranthene	mg/kg	0.3	<0.30	<0.30	<0.30
Chrysene	mg/kg	0.3	<0.30	<0.30	<0.30
Dibenzo[a,h]anthracene	mg/kg	0.3	<0.30	<0.30	<0.30
Fluoranthene	mg/kg	0.3	<0.30	<0.30	<0.30
Fluorene	mg/kg	0.3	<0.30	<0.30	<0.30
Indeno(1,2,3-cd)pyrene	mg/kg	0.3	<0.30	<0.30	<0.30
Naphthalene	mg/kg	0.3	<0.30	<0.30	<0.30
Phenanthrene	mg/kg	0.3	<0.30	<0.30	<0.30
Pyrene	mg/kg	0.3	<0.30	<0.30	<0.30
PAHs Total	mg/kg	0.3	<0.30	<0.30	<0.30
Benzo(a)pyrene TEQ (Zero)	mg/kg	0.3	<0.30	<0.30	<0.30
Benzo(a)pyrene TEQ (Half PQL)	mg/kg	0.3	0.35	0.35	0.35
Benzo(a)pyrene TEQ (PQL)	mg/kg	0.3	0.70	0.70	0.70
p-Terphenyl-d14 (Surr.)	%		117	110	116
aldrin	mg/kg	0.1	<0.10	<0.10	<0.10
a-BHC	mg/kg	0.1	<0.10	<0.10	<0.10
b-BHC	mg/kg	0.1	<0.10	<0.10	<0.10
d-BHC	mg/kg	0.1	<0.10	<0.10	<0.10
g-BHC (lindane)	mg/kg	0.1	<0.10	<0.10	<0.10

Certificate of Analysis

	Sample ID:	2024036968	2024036969	2024036970
	Sample Name	BH104_0.0-0.1	BH104_1.3-1.4	BR01
Parameter	Units	PQL	11/10/2024	11/10/2024	11/10/2024
cis-chlordane	mg/kg	0.1	<0.10	<0.10	<0.10
trans-chlordane	mg/kg	0.1	<0.10	<0.10	<0.10
4,4'-DDD	mg/kg	0.1	<0.10	<0.10	<0.10
4,4'-DDE	mg/kg	0.1	<0.10	<0.10	<0.10
4,4'-DDT	mg/kg	0.1	<0.10	<0.10	<0.10
dieldrin	mg/kg	0.1	<0.10	<0.10	<0.10
endosulfan I	mg/kg	0.2	<0.20	<0.20	<0.20
endosulfan II	mg/kg	0.2	<0.20	<0.20	<0.20
endosulfan sulfate	mg/kg	0.1	<0.10	<0.10	<0.10
endrin	mg/kg	0.2	<0.20	<0.20	<0.20
endrin aldehyde	mg/kg	0.1	<0.10	<0.10	<0.10
endrin ketone	mg/kg	0.1	<0.10	<0.10	<0.10
heptachlor	mg/kg	0.1	<0.10	<0.10	<0.10
heptachlor epoxide	mg/kg	0.1	<0.10	<0.10	<0.10
hexachlorobenzene	mg/kg	0.1	<0.10	<0.10	<0.10
methoxychlor	mg/kg	0.1	<0.10	<0.10	<0.10
TCMX (Surr.)	%		142	132	140
chlorpyrifos	mg/kg	0.1	<0.10	<0.10	<0.10
chlorpyrifos methyl	mg/kg	0.1	<0.10	<0.10	<0.10
diazinon	mg/kg	0.1	<0.10	<0.10	<0.10
fenchlorphos	mg/kg	0.1	<0.10	<0.10	<0.10
methyl parathion	mg/kg	0.1	<0.10	<0.10	<0.10
prophos	mg/kg	0.1	<0.10	<0.10	<0.10
tributylphosphorotrithioite	mg/kg	0.1	<0.10	<0.10	<0.10
PCBs Total	mg/kg	0.5	<0.50	<0.50	<0.50
Aroclor 1016	mg/kg	0.5	<0.50	<0.50	<0.50

Batch Number : 2404710

Report Number : A101023.0722.00 (954-970)

Certificate of Analysis

	Sample ID:	2024036968	2024036969	2024036970
	Sample Name	BH104_0.0-0.1	BH104_1.3-1.4	BR01
Parameter	***Units***	***PQL***	11/10/2024	11/10/2024	11/10/2024
Aroclor 1221	mg/kg	0.5	<0.50	<0.50	<0.50
Aroclor 1232	mg/kg	0.5	<0.50	<0.50	<0.50
Aroclor 1242	mg/kg	0.5	<0.50	<0.50	<0.50
Aroclor 1248	mg/kg	0.5	<0.50	<0.50	<0.50
Aroclor 1254	mg/kg	0.5	<0.50	<0.50	<0.50
Aroclor 1260	mg/kg	0.5	<0.50	<0.50	<0.50
2-fluorobiphenyl (Surr.)	%		117	108	114
ESA-P-21					
pH(Ave. of 3 Reading)	-		-	5.3	-
ESA-P-ORG(3,8)					
>C10-C16	mg/kg	50	<50	<50	<50
>C16-C34	mg/kg	100	150	105	<100
>C34-C40	mg/kg	100	<100	<100	<100
>C10-C40 (Sum of total)	mg/kg	100	150	105	<100
>C10-C14	mg/kg	50	<50	<50	<50
>C15-C28	mg/kg	100	126	<100	<100
>C29-C36	mg/kg	100	<100	<100	<100
>C10-C36 (Sum of total)	mg/kg	100	126	<100	<100

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Accreditation No.14664
Accredited for compliance with ISO/IEC 17025 - Testing.

This Quality Control Report contains results of QAQC samples analysis and the Laboratory Acceptance Criteria.

This report supersedes any previous report(s) with this reference. This document shall not be reproduced, except in full.

This report has been electronically signed by authorised signatories below.

Authorised By

Domenico Grieco

General Comments

Duplicate samples and matrix spike may not be prepared on smaller jobs, however are analysed at frequency. QAQC samples shown within the report as e.g. Batch Blank, Batch Matrix Spike were performed on samples not reported on that Certificate of Analysis.

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 the same manner as for samples.
Duplicate This is the interlaboratory split of a random sample from the processed batch
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.
Surr. (Surrogate Spike) Surrogates are known additions to each sample, blank and matrix spike or LCS in a batch. Surrogates are chosen as a compounds which are similar to the analyte of interest, however are not expected to be found in real samples.

Laboratory Acceptance Criteria

Blank shall be < PQL
Matrix Spikes and LCS: Generally 70-130% for inorganics/metals, 60-140% for organics/PFAS is acceptable. Matrix heterogeneity may result in matrix spike analyses falling outside these limits
RPD Duplicates: Global RPD Duplicates Acceptance Criteria is 30% however the following acceptance guidelines are equally applicable:
Results <10 times the PQL : No Limit
Results between 10-20 times the PQL : RPD must lie between 0-50%
Results >20 times the PQL : RPD must lie between 0-30%
Surrogate Recoveries : Recoveries must lie between 50-150%

SLS is responsible for all the information in the report, except that provided by the customer.

All sampling information included in the report has been provided by customer.

Information provided by the customer can affect the validity of the results.

Quality Control Report

Contact:	Karin Azzam	**Date Reported:**	24/10/2024
Customer:	ADE Consulting Group	**No. of Samples:**	20
Address:	Unit 6 7 Millennium Court Silverwater NSW	**Date Received:**	18/10/2024
		Date of Analysis:	18/10/2024

Cust Ref: A101023.0722.00.009 L05

Glossary:

*NATA accreditation does not cover the performance of this service
ND-not detected,
NT-not tested
INS-Insufficient material to perform the test
LCS-Laboratory Control Sample
RPD-Relative Percent Difference
N/A-Not Applicable
< less than
> greater than
PQL- Practical Quantitation Limit
^Analytical result might be compromised due to sample condition or holding time requirements
Reaction rate 1 = Slight
Reaction rate 2 = Moderate
Reaction rate 3 = High
Reaction rate 4 = Vigorous

Quality Control Report

	Sample ID:	D202403695501	D202403696601
	Sample Name	TP101_0.3-0.4	BH103_0.0-0.1

Parameter	Units	PQL		
ESA-MP-01,ICP-01				
Arsenic			Pass	Pass
Cadmium			Pass	Pass
Chromium			Pass	Pass
Copper			Pass	Pass
Lead			Pass	Pass
Mercury			Pass	Pass
Nickel			Pass	Pass
Zinc			Pass	Pass

	Sample ID:	D202403695502	D202403696602
	Sample Name	TP101_0.3-0.4	BH103_0.0-0.1

Parameter	Units	PQL		
ESA-P-ORG7 & ORG8				
Benzene			Pass	Pass
Toluene			Pass	Pass
Ethylbenzene			Pass	Pass
m.p Xylene			Pass	Pass
o Xylene			Pass	Pass
Fluorobenzene (Surr.)	%		125	119
C6-C10			Pass	Pass
C6-C9			Pass	Pass

	Sample ID:	D202403695503	D202403696603
	Sample Name	TP101_0.3-0.4	BH103_0.0-0.1

Parameter	Units	PQL		

ESA-P-ORG(12 - 15)				
Acenaphthene			Pass	Pass
Acenaphthylene			Pass	Pass
Anthracene			Pass	Pass
Benzo[a]anthracene			Pass	Pass
Benzo[a]pyrene			Pass	Pass
Benzo[g,h,i]perylene			Pass	Pass
Benzo[b,k]fluoranthene			Pass	Pass
Chrysene			Pass	Pass
Dibenzo[a,h]anthracene			Pass	Pass
Fluoranthene			Pass	Pass
Fluorene			Pass	Pass
Indeno(1,2,3-cd)pyrene			Pass	Pass
Naphthalene			Pass	Pass
Phenanthrene			Pass	Pass
Pyrene			Pass	Pass
p-Terphenyl-d14 (Surr.)	%		104	113
aldrin			Pass	Pass
a-BHC			Pass	Pass
b-BHC			Pass	Pass
d-BHC			Pass	Pass
g-BHC (lindane)			Pass	Pass
cis-chlordane			Pass	Pass
trans-chlordane			Pass	Pass
4,4'-DDD			Pass	Pass
4,4'-DDE			Pass	Pass
4,4'-DDT			Pass	Pass
dieldrin			Pass	Pass
endosulfan I			Pass	Pass
endosulfan II			Pass	Pass
endosulfan sulfate			Pass	Pass

endrin			Pass	Pass
endrin aldehyde			Pass	Pass
endrin ketone			Pass	Pass
heptachlor			Pass	Pass
heptachlor epoxide			Pass	Pass
hexachlorobenzene			Pass	Pass
methoxychlor			Pass	Pass
TCMX (Surr.)	%		131	136
chlorpyrifos			Pass	Pass
chlorpyrifos methyl			Pass	Pass
diazinon			Pass	Pass
fenchlorphos			Pass	Pass
methyl parathion			Pass	Pass
prophos			Pass	Pass
tributylphosphorotrithioite			Pass	Pass
Aroclor 1016			Pass	Pass
Aroclor 1221			Pass	Pass
Aroclor 1232			Pass	Pass
Aroclor 1242			Pass	Pass
Aroclor 1248			Pass	Pass
Aroclor 1254			Pass	Pass
Aroclor 1260			Pass	Pass
2-fluorobiphenyl (Surr.)	%		103	111

		Sample ID:	**D202403695504**	**D202403696604**
		Sample Name	**TP101_0.3-0.4**	**BH103_0.0-0.1**
Parameter	***Units***	***PQL***		
ESA-P-ORG(3,8)				
>C10-C16			Pass	Pass
>C16-C34			Pass	Pass
>C34-C40			Pass	Pass
>C10-C14			Pass	Pass
>C15-C28			Pass	Pass
>C29-C36			Pass	Pass

		Sample ID:	**Q2024008659**
		Sample Name	
Parameter	***Units***	***PQL***	Metals Blank - Soil
ESA-MP-01,ICP-01			
Arsenic	mg/kg	5	<5.0
Cadmium	mg/kg	0.1	<0.10
Chromium	mg/kg	1	<1.0
Copper	mg/kg	5	<5.0
Lead	mg/kg	5	<5.0
Mercury	mg/kg	0.1	<0.10
Nickel	mg/kg	1	<1.0
Zinc	mg/kg	5	<5.0

Sample ID:	**Q2024008660**
Sample Name	

Parameter	*Units*	*PQL*	Metals Blank Sp-Soil
ESA-MP-01,ICP-01			
Arsenic	%		108
Cadmium	%		95
Chromium	%		100
Copper	%		98
Lead	%		94
Mercury	%		109
Nickel	%		98
Zinc	%		100

Sample ID:	**Q2024008695**
Sample Name	

Parameter	*Units*	*PQL*	BTEX Blank - Soil
ESA-P-ORG7 & ORG8			
Benzene	mg/kg	0.5	<0.50
Toluene	mg/kg	0.5	<0.50
Ethylbenzene	mg/kg	1	<1.0
m.p Xylene	mg/kg	2	<2.0
o Xylene	mg/kg	1	<1.0
C6-C10	mg/kg	35	<35
C6-C9	mg/kg	25	<25

	Sample ID:	Q2024008696
	Sample Name	

Parameter	Units	PQL	BTEX Blank Sp-Soil
ESA-P-ORG7 & ORG8			
Benzene	%		85
Toluene	%		113
Ethylbenzene	%		79
m.p Xylene	%		70
o Xylene	%		65
Fluorobenzene (Surr.)	%		115

	Sample ID:	Q2024008697
	Sample Name	

Parameter	Units	PQL	PCB Blank - Soil
ESA-P-ORG(12 - 15)			
Acenaphthene	mg/kg	0.3	<0.30
Acenaphthylene	mg/kg	0.3	<0.30
Anthracene	mg/kg	0.3	<0.30
Benzo[a]anthracene	mg/kg	0.3	<0.30
Benzo[a]pyrene	mg/kg	0.3	<0.30
Benzo[g,h,i]perylene	mg/kg	0.3	<0.30
Benzo[b,k]fluoranthene	mg/kg	0.3	<0.30
Chrysene	mg/kg	0.3	<0.30
Dibenzo[a,h]anthracene	mg/kg	0.3	<0.30
Fluoranthene	mg/kg	0.3	<0.30
Fluorene	mg/kg	0.3	<0.30
Indeno(1,2,3-cd)pyrene	mg/kg	0.3	<0.30
Naphthalene	mg/kg	0.3	<0.30
Phenanthrene	mg/kg	0.3	<0.30
Pyrene	mg/kg	0.3	<0.30
aldrin	mg/kg	0.1	<0.10

a-BHC	mg/kg	0.1	<0.10
b-BHC	mg/kg	0.1	<0.10
d-BHC	mg/kg	0.1	<0.10
g-BHC (lindane)	mg/kg	0.1	<0.10
cis-chlordane	mg/kg	0.1	<0.10
trans-chlordane	mg/kg	0.1	<0.10
4,4'-DDD	mg/kg	0.1	<0.10
4,4'-DDE	mg/kg	0.1	<0.10
4,4'-DDT	mg/kg	0.1	<0.10
dieldrin	mg/kg	0.1	<0.10
endosulfan I	mg/kg	0.2	<0.20
endosulfan II	mg/kg	0.2	<0.20
endosulfan sulfate	mg/kg	0.1	<0.10
endrin	mg/kg	0.2	<0.20
endrin aldehyde	mg/kg	0.1	<0.10
endrin ketone	mg/kg	0.1	<0.10
heptachlor	mg/kg	0.1	<0.10
heptachlor epoxide	mg/kg	0.1	<0.10
hexachlorobenzene	mg/kg	0.1	<0.10
methoxychlor	mg/kg	0.1	<0.10
chlorpyrifos	mg/kg	0.1	<0.10
chlorpyrifos methyl	mg/kg	0.1	<0.10
diazinon	mg/kg	0.1	<0.10
fenchlorphos	mg/kg	0.1	<0.10
methyl parathion	mg/kg	0.1	<0.10
prophos	mg/kg	0.1	<0.10
tributylphosphorotrithioite	mg/kg	0.1	<0.10
Aroclor 1016	mg/kg	0.5	<0.50
Aroclor 1221	mg/kg	0.5	<0.50
Aroclor 1232	mg/kg	0.5	<0.50
Aroclor 1242	mg/kg	0.5	<0.50

Aroclor 1248	mg/kg	0.5	<0.50
Aroclor 1254	mg/kg	0.5	<0.50
Aroclor 1260	mg/kg	0.5	<0.50

Sample ID: **Q2024008698**

Sample Name

Parameter	***Units***	***PQL***	PCB Blank Sp - Soil
ESA-P-ORG(12 - 15)			
Acenaphthene	%		103
Anthracene	%		100
Fluoranthene	%		97
Naphthalene	%		109
Phenanthrene	%		101
Pyrene	%		98
p-Terphenyl-d14 (Surr.)	%		111
aldrin	%		92
endrin	%		117
hexachlorobenzene	%		93
TCMX (Surr.)	%		138
chlorpyrifos	%		82
diazinon	%		96
2-fluorobiphenyl (Surr.)	%		112
Aroclor 1016	%		104

Sample ID:	**Q2024008699**
Sample Name	

Parameter	*Units*	*PQL*	TRH Blank-Soil
ESA-P-ORG(3,8)			
>C10-C16	mg/kg	50	<50
>C16-C34	mg/kg	100	<100
>C34-C40	mg/kg	100	<100
>C10-C14	mg/kg	50	<50
>C15-C28	mg/kg	100	<100
>C29-C36	mg/kg	100	<100

Sample ID:	**Q2024008700**
Sample Name	

Parameter	*Units*	*PQL*	TRH Blank Spike-Soil
ESA-P-ORG(3,8)			
>C10-C16	%		111
>C10-C14	%		104

Sample ID:	**S202403695401**
Sample Name	**TP101_0.0-0.1**

Parameter	*Units*	*PQL*	
ESA-MP-01,ICP-01			
Arsenic	%		101
Cadmium	%		102
Chromium	%		103
Copper	%		105
Lead	%		99
Mercury	%		110
Nickel	%		103
Zinc	%		104

Sample ID:	**S202403695402**
Sample Name	**TP101_0.0-0.1**

Parameter	*Units*	*PQL*	
ESA-P-ORG-07 & 08			
Benzene	%		77
Toluene	%		117
Ethylbenzene	%		80
m.p Xylene	%		77
o Xylene	%		66
Fluorobenzene (Surr.)	%		119

Sample ID:	**S202403695403**
Sample Name	**TP101_0.0-0.1**

Parameter	*Units*	*PQL*	
ESA-P-ORG(12 - 15)			
Acenaphthene	%		105
Anthracene	%		102
Fluoranthene	%		102
Naphthalene	%		111
Phenanthrene	%		103
Pyrene	%		100
p-Terphenyl-d14 (Surr.)	%		116
aldrin	%		94
endrin	%		68
hexachlorobenzene	%		95
TCMX (Surr.)	%		138
chlorpyrifos	%		81
diazinon	%		101
Aroclor 1016	%		122
2-fluorobiphenyl (Surr.)	%		115

Sample ID:	**S202403695404**
Sample Name	**TP101_0.0-0.1**

Parameter	*Units*	*PQL*	
ESA-P-ORG(3,8)			
>C10-C16	%		100
>C10-C14	%		96

Sydney Laboratory Services
A division of A. D. Envirotech Australia Pty Ltd
Unit 4/10-11 Millennium Court
Silverwater 2128
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Sydney Laboratory Services

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Silverwater 2128
Ph: (02) 9648-6669

CLIENT DETAILS

Client	ADE Consulting Group
Contact	Karin Azzam
Samplers	Madison Hollamby

SAMPLE RECEIPT DETAILS

Project Number	A101023.0722.00/009/L05		
SLS Reference	2404710		
Number of samples	22		
Date samples received	7.10.2024		
Time samples received	3:27 PM		
Samples Received By	Krista Johnsotn		
Temperature upon receipt (°C)	N/A	**Thermometer Ref NO.**	N/A
Turn Around Time requested	5 Working Days		
Expected Report Date	**24.10.2024**		

CONDITION OF SAMPLES UPON RECEIVAL

No errors in COC provided.	✓
All samples were received in good condition.	✓
Evidence of chilling for samples.	✓
Appropriate use of sample containers have been used.	✓
Samples were delivered within holding time of analysis requested.	✓
Samples to be tested for volatiles received with zero headspace.	✓
Custody Seal intact (if used)	N/A

COMMENTS

This Report Contains:

Sample receipt non-conformities.
Summary of samples and requested analysis.
Requested report deliverables.

CONTACT US FOR ANY QUERIES

If you have any questions with respect to these samples please contact:

Email	sls@ade.group	**Contact**	Krista Johnston
Phone	(+61) 0451 524 289	**Signed**	

Sydney Laboratory Services

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A.C.N. 093 452 950
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Silverwater 2128
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INFORMATION SUMMARY

SLS Reference	2404710
Project Number	A101023.0722.00/009/L05
Client	ADE Consulting Group
Contact	Karin Azzam
Samplers	Madison Hollamby

ANALYSIS UNDERWAY - Details of the following samples

			SUMMARY OF SAMPLES AND ANALYSIS REQUESTED				
Laboratory Sample ID	Sampling Date	Client Sample ID	SL01	SL02	OH03	OH07	HOLD
2024036954	11.10.2024	TP101_0.0-0.1	X			X	
2024036955	11.10.2024	TP101_0.3-0.4		X		X	
	11.10.2024	TP101_0.5-0.6					X
2024036956	11.10.2024	TP102_0.0-0.1	X			X	
2024036957	11.10.2024	TP102_0.3-0.4		X		X	
	11.10.2024	TP102_0.5-0.6					X
2024036958	11.10.2024	TP103_0.0-0.1	X			X	
2024036959	11.10.2024	TP103_0.3-0.4		X		X	
	11.10.2024	TP103_0.5-0.6					X
2024036960	11.10.2024	TP104_0.0-0.1	X			X	
2024036961	11.10.2024	TP104_0.3-0.4		X		X	
	11.10.2024	TP104_0.5-0.6					X
2024036962	11.10.2024	BH101_0.0-0.1	X		X		
2024036963	11.10.2024	BH101_0.4-0.5			X		
2024036964	11.10.2024	BH102_0.0-0.1	X		X		
2024036965	11.10.2024	BH102_0.4-0.5			X		
2024036966	11.10.2024	BH103_0.0-0.1	X		X		
2024036967	11.10.2024	BH103_0.4-0.5			X		
2024036968	11.10.2024	BH104_0.0-0.1	X		X		
2024036969	11.10.2024	BH104_1.3-1.4		X	X		
2024036970	11.10.2024	BR01	X				
	11.10.2024	BR02					X

CHAIN OF CUSTODY FORM - Client

ENVIROLAB GROUP National phone number 1300 424 344

Sydney Lab - Envirolab Services
12 Ashley St, Chatswood, NSW 2067
✆ 02 9910 6200 | ✉ sydney@envirolab.com.au

Perth Lab - MPL Laboratories
16-18 Hayden Crt, Myaree, WA 6154
✆ 08 9317 2505 | ✉ lab@mpl.com.au

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25 Research Drive, Croydon South, VIC 3136
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✆ 08 7087 6800 | ✉ adelaide@envirolab.com.au

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20a, 10-20 Depot St, Banyo, QLD 4014
✆ 07 3266 9532 | ✉ brisbane@envirolab.com.au

Darwin Office - Envirolab Services
Unit 20/119 Reichardt Road, Winnellie, NT 0820
✆ 08 8967 1201 | ✉ darwin@envirolab.com.au

ENVIROLAB GROUP National phone number 1300 424 344

Client: ADE group	Client Project Name/Number/Site etc (ie report title): A101023.0722.009.L21
Contact Person: Karin Azzam	
Project Mgr: Karin Azzam	PO No.: A101023.0722.009.L21
Sampler: Madison Hollamby	Envirolab Quote No. :
Address: U6/7 Millennium Court, Silverwater NSW 2128	Date results required: Or choose: standard / same day / 1 day / 2 day / 3 day *Note: Inform lab in advance if urgent turnaround is required - surcharges apply*
Phone: Mob: 0490 072 877	Additional report format: esdat /
Email: karin.azzam@ade.group, Madison.hollamby@ade.group	Lab Comments:

Sample Information					Tests Required															Comments
Envirolab Sample ID	Client Sample ID or information	Depth	Date sampled	Type of sample	Combination 6		HOLD													Provide as much information about the sample as you can
1	SR01		11/10/2024	Soil	☒															
2	SR02		11/10/2024	Soil			☒													

☐ *Please tick the box if observed settled sediment present in water samples is to be included in the extraction and/or analysis*

Relinquished by (Company): ADE	Received by (Company): ES SYD	Lab Use Only	
Print Name: Karin Azzam	Print Name: Nan Dinh	Job number: 364004	Cooling: Ice / Ice pack / None
Date & Time: 15/01/2024	Date & Time: 15/10/24 18:40	Temperature: 8	Security seal: Intact / Broken / None
Signature:	Signature:	TAT Req - SAME day / 1 / 2 / 3 / 4 / STD	

Envirolab Services Pty Ltd
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12 Ashley St Chatswood NSW 2067
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customerservice@envirolab.com.au
www.envirolab.com.au

CERTIFICATE OF ANALYSIS 364004

Client Details

Client	ADE CONSULTING GROUP PTY LTD
Attention	Karin Azzam
Address	Unit 6, 7 Millenium Court, Silverwater, NSW, 2128

Sample Details

Your Reference	**A101023.0722.009.L21**
Number of Samples	2 Soil
Date samples received	15/10/2024
Date completed instructions received	15/10/2024

Analysis Details

Please refer to the following pages for results, methodology summary and quality control data.

Samples were analysed as received from the client. Results relate specifically to the samples as received.

Results are reported on a dry weight basis for solids and on an as received basis for other matrices.

Report Details

Date results requested by	22/10/2024
Date of Issue	17/10/2024

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Results Approved By
Giovanni Agosti, Group Technical Manager
Timothy Toll, Senior Chemist

Authorised By
Nancy Zhang, Laboratory Manager

vTRH(C6-C10)/BTEXN in Soil		
Our Reference		364004-1
Your Reference	UNITS	SR01
Date Sampled		11/10/2024
Type of sample		Soil
Date extracted	-	16/10/2024
Date analysed	-	16/10/2024
TRH C_6 - C_9	mg/kg	<25
TRH C_6 - C_{10}	mg/kg	<25
vTRH C_6 - C_{10} less BTEX (F1)	mg/kg	<25
Benzene	mg/kg	<0.2
Toluene	mg/kg	<0.5
Ethylbenzene	mg/kg	<1
m+p-xylene	mg/kg	<2
o-Xylene	mg/kg	<1
Naphthalene	mg/kg	<1
Total +ve Xylenes	mg/kg	<1
Surrogate aaa-Trifluorotoluene	%	107

svTRH (C10-C40) in Soil		
Our Reference		364004-1
Your Reference	UNITS	SR01
Date Sampled		11/10/2024
Type of sample		Soil
Date extracted	-	16/10/2024
Date analysed	-	17/10/2024
TRH C_{10} - C_{14}	mg/kg	<50
TRH C_{15} - C_{28}	mg/kg	<100
TRH C_{29} - C_{36}	mg/kg	<100
Total +ve TRH (C10-C36)	mg/kg	<50
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		364004-1
Your Reference	UNITS	SR01
Date Sampled		11/10/2024
Type of sample		Soil
Date extracted	-	16/10/2024
Date analysed	-	17/10/2024
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 p-Terphenyl-d14	%	133

Organochlorine Pesticides in soil		
Our Reference		364004-1
Your Reference	UNITS	SR01
Date Sampled		11/10/2024
Type of sample		Soil
Date extracted	-	16/10/2024
Date analysed	-	17/10/2024
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
Mirex	mg/kg	<0.1
Total +ve DDT+DDD+DDE	mg/kg	<0.1
Total Positive Aldrin+Dieldrin	mg/kg	<0.1
Surrogate 4-Chloro-3-NBTF	%	129

Organophosphorus Pesticides in Soil		
Our Reference		364004-1
Your Reference	UNITS	SR01
Date Sampled		11/10/2024
Type of sample		Soil
Date extracted	-	16/10/2024
Date analysed	-	17/10/2024
Dichlorvos	mg/kg	<0.1
Mevinphos	mg/kg	<0.1
Phorate	mg/kg	<0.1
Dimethoate	mg/kg	<0.1
Diazinon	mg/kg	<0.1
Disulfoton	mg/kg	<0.1
Chlorpyrifos-methyl	mg/kg	<0.1
Parathion-Methyl	mg/kg	<0.1
Ronnel	mg/kg	<0.1
Fenitrothion	mg/kg	<0.1
Malathion	mg/kg	<0.1
Chlorpyriphos	mg/kg	<0.1
Fenthion	mg/kg	<0.1
Parathion	mg/kg	<0.1
Bromophos-ethyl	mg/kg	<0.1
Methidathion	mg/kg	<0.1
Fenamiphos	mg/kg	<0.1
Ethion	mg/kg	<0.1
Phosalone	mg/kg	<0.1
Azinphos-methyl (Guthion)	mg/kg	<0.1
Coumaphos	mg/kg	<0.1
Surrogate 4-Chloro-3-NBTF	%	129

PCBs in Soil		
Our Reference		364004-1
Your Reference	UNITS	SR01
Date Sampled		11/10/2024
Type of sample		Soil
Date extracted	-	16/10/2024
Date analysed	-	17/10/2024
Aroclor 1016	mg/kg	<0.1
Aroclor 1221	mg/kg	<0.1
Aroclor 1232	mg/kg	<0.1
Aroclor 1242	mg/kg	<0.1
Aroclor 1248	mg/kg	<0.1
Aroclor 1254	mg/kg	<0.1
Aroclor 1260	mg/kg	<0.1
Total +ve PCBs (1016-1260)	mg/kg	<0.1
Surrogate 2-Fluorobiphenyl	%	121

Acid Extractable metals in soil		
Our Reference		364004-1
Your Reference	UNITS	SR01
Date Sampled		11/10/2024
Type of sample		Soil
Date prepared	-	16/10/2024
Date analysed	-	16/10/2024
Arsenic	mg/kg	9
Cadmium	mg/kg	<0.4
Chromium	mg/kg	18
Copper	mg/kg	2
Lead	mg/kg	11
Mercury	mg/kg	<0.1
Nickel	mg/kg	4
Zinc	mg/kg	11

Moisture		
Our Reference		364004-1
Your Reference	UNITS	SR01
Date Sampled		11/10/2024
Type of sample		Soil
Date prepared	-	16/10/2024
Date analysed	-	17/10/2024
Moisture	%	12

Method ID	Methodology Summary
Inorg-008	Moisture content determined by heating at 105+/-5 °C for a minimum of 12 hours.
Metals-020	Determination of various metals by ICP-AES.
Metals-021	Determination of Mercury by Cold Vapour AAS.
Org-020	Soil samples are extracted with Dichloromethane/Acetone and waters with Dichloromethane and analysed by GC-FID. F2 = (>C10-C16)-Naphthalene as per NEPM B1 Guideline on Investigation Levels for Soil and Groundwater (HSLs Tables 1A (3, 4)). Note Naphthalene is determined from the VOC analysis.
Org-020	Soil samples are extracted with Dichloromethane/Acetone and waters with Dichloromethane and analysed by GC-FID. F2 = (>C10-C16)-Naphthalene as per NEPM B1 Guideline on Investigation Levels for Soil and Groundwater (HSLs Tables 1A (3, 4)). Note Naphthalene is determined from the VOC analysis. Note, the Total +ve TRH PQL is reflective of the lowest individual PQL and is therefore "Total +ve TRH" is simply a sum of the positive individual TRH fractions (>C10-C40).
Org-021/022/025	Soil samples are extracted with dichloromethane/acetone and waters with dichloromethane and analysed by GC-ECD and/or GC-MS/GC-MSMS. Note, the Total +ve PCBs PQL is reflective of the lowest individual PQL and is therefore" Total +ve PCBs" is simply a sum of the positive individual PCBs.
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)-BTEX as per NEPM B1 Guideline on Investigation Levels for Soil and Groundwater.
Org-023	Soil samples are extracted with methanol and spiked into water prior to analysing by purge and trap GC-MS. Water samples are analysed directly by purge and trap GC-MS. F1 = (C6-C10)-BTEX as per NEPM B1 Guideline on Investigation Levels for Soil and Groundwater. Note, the Total +ve Xylene PQL is reflective of the lowest individual PQL and is therefore "Total +ve Xylenes" is simply a sum of the positive individual Xylenes.

QUALITY CONTROL: vTRH(C6-C10)/BTEXN in Soil						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-2	[NT]
Date extracted	-			16/10/2024	[NT]	[NT]	[NT]	[NT]	16/10/2024	[NT]
Date analysed	-			16/10/2024	[NT]	[NT]	[NT]	[NT]	16/10/2024	[NT]
TRH C_6 - C_9	mg/kg	25	Org-023	<25	[NT]	[NT]	[NT]	[NT]	109	[NT]
TRH C_6 - C_{10}	mg/kg	25	Org-023	<25	[NT]	[NT]	[NT]	[NT]	109	[NT]
Benzene	mg/kg	0.2	Org-023	<0.2	[NT]	[NT]	[NT]	[NT]	108	[NT]
Toluene	mg/kg	0.5	Org-023	<0.5	[NT]	[NT]	[NT]	[NT]	97	[NT]
Ethylbenzene	mg/kg	1	Org-023	<1	[NT]	[NT]	[NT]	[NT]	112	[NT]
m+p-xylene	mg/kg	2	Org-023	<2	[NT]	[NT]	[NT]	[NT]	114	[NT]
o-Xylene	mg/kg	1	Org-023	<1	[NT]	[NT]	[NT]	[NT]	110	[NT]
Naphthalene	mg/kg	1	Org-023	<1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Surrogate aaa-Trifluorotoluene	%		Org-023	109	[NT]	[NT]	[NT]	[NT]	99	[NT]

QUALITY CONTROL: svTRH (C10-C40) in Soil						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-2	[NT]
Date extracted	-			16/10/2024	[NT]	[NT]	[NT]	[NT]	16/10/2024	[NT]
Date analysed	-			17/10/2024	[NT]	[NT]	[NT]	[NT]	17/10/2024	[NT]
TRH C_{10} - C_{14}	mg/kg	50	Org-020	<50	[NT]	[NT]	[NT]	[NT]	78	[NT]
TRH C_{15} - C_{28}	mg/kg	100	Org-020	<100	[NT]	[NT]	[NT]	[NT]	86	[NT]
TRH C_{29} - C_{36}	mg/kg	100	Org-020	<100	[NT]	[NT]	[NT]	[NT]	129	[NT]
TRH >C_{10} -C_{16}	mg/kg	50	Org-020	<50	[NT]	[NT]	[NT]	[NT]	78	[NT]
TRH >C_{16} -C_{34}	mg/kg	100	Org-020	<100	[NT]	[NT]	[NT]	[NT]	86	[NT]
TRH >C_{34} -C_{40}	mg/kg	100	Org-020	<100	[NT]	[NT]	[NT]	[NT]	129	[NT]
Surrogate o-Terphenyl	%		Org-020	104	[NT]	[NT]	[NT]	[NT]	85	[NT]

QUALITY CONTROL: PAHs in Soil						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-2	364004-1
Date extracted	-			16/10/2024	[NT]	[NT]	[NT]	[NT]	16/10/2024	16/10/2024
Date analysed	-			17/10/2024	[NT]	[NT]	[NT]	[NT]	17/10/2024	17/10/2024
Naphthalene	mg/kg	0.1	Org-022/025	<0.1	[NT]	[NT]	[NT]	[NT]	100	100
Acenaphthylene	mg/kg	0.1	Org-022/025	<0.1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Acenaphthene	mg/kg	0.1	Org-022/025	<0.1	[NT]	[NT]	[NT]	[NT]	114	112
Fluorene	mg/kg	0.1	Org-022/025	<0.1	[NT]	[NT]	[NT]	[NT]	102	98
Phenanthrene	mg/kg	0.1	Org-022/025	<0.1	[NT]	[NT]	[NT]	[NT]	108	110
Anthracene	mg/kg	0.1	Org-022/025	<0.1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Fluoranthene	mg/kg	0.1	Org-022/025	<0.1	[NT]	[NT]	[NT]	[NT]	106	110
Pyrene	mg/kg	0.1	Org-022/025	<0.1	[NT]	[NT]	[NT]	[NT]	104	108
Benzo(a)anthracene	mg/kg	0.1	Org-022/025	<0.1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Chrysene	mg/kg	0.1	Org-022/025	<0.1	[NT]	[NT]	[NT]	[NT]	100	104
Benzo(b,j+k)fluoranthene	mg/kg	0.2	Org-022/025	<0.2	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Benzo(a)pyrene	mg/kg	0.05	Org-022/025	<0.05	[NT]	[NT]	[NT]	[NT]	100	104
Indeno(1,2,3-c,d)pyrene	mg/kg	0.1	Org-022/025	<0.1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Dibenzo(a,h)anthracene	mg/kg	0.1	Org-022/025	<0.1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Benzo(g,h,i)perylene	mg/kg	0.1	Org-022/025	<0.1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Surrogate p-Terphenyl-d14	%		Org-022/025	123	[NT]	[NT]	[NT]	[NT]	111	113

QUALITY CONTROL: Organochlorine Pesticides in soil					Duplicate				Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-2	364004-1
Date extracted	-			16/10/2024	[NT]	[NT]	[NT]	[NT]	16/10/2024	16/10/2024
Date analysed	-			17/10/2024	[NT]	[NT]	[NT]	[NT]	17/10/2024	17/10/2024
alpha-BHC	mg/kg	0.1	Org-022/025	<0.1	[NT]	[NT]	[NT]	[NT]	104	106
HCB	mg/kg	0.1	Org-022/025	<0.1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
beta-BHC	mg/kg	0.1	Org-022/025	<0.1	[NT]	[NT]	[NT]	[NT]	108	104
gamma-BHC	mg/kg	0.1	Org-022/025	<0.1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Heptachlor	mg/kg	0.1	Org-022/025	<0.1	[NT]	[NT]	[NT]	[NT]	92	100
delta-BHC	mg/kg	0.1	Org-022/025	<0.1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Aldrin	mg/kg	0.1	Org-022/025	<0.1	[NT]	[NT]	[NT]	[NT]	90	92
Heptachlor Epoxide	mg/kg	0.1	Org-022/025	<0.1	[NT]	[NT]	[NT]	[NT]	116	120
gamma-Chlordane	mg/kg	0.1	Org-022/025	<0.1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
alpha-chlordane	mg/kg	0.1	Org-022/025	<0.1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Endosulfan I	mg/kg	0.1	Org-022/025	<0.1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
pp-DDE	mg/kg	0.1	Org-022/025	<0.1	[NT]	[NT]	[NT]	[NT]	106	108
Dieldrin	mg/kg	0.1	Org-022/025	<0.1	[NT]	[NT]	[NT]	[NT]	118	122
Endrin	mg/kg	0.1	Org-022/025	<0.1	[NT]	[NT]	[NT]	[NT]	98	106
Endosulfan II	mg/kg	0.1	Org-022/025	<0.1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
pp-DDD	mg/kg	0.1	Org-022/025	<0.1	[NT]	[NT]	[NT]	[NT]	106	112
Endrin Aldehyde	mg/kg	0.1	Org-022/025	<0.1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
pp-DDT	mg/kg	0.1	Org-022/025	<0.1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Endosulfan Sulphate	mg/kg	0.1	Org-022/025	<0.1	[NT]	[NT]	[NT]	[NT]	76	92
Methoxychlor	mg/kg	0.1	Org-022/025	<0.1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Mirex	mg/kg	0.1	Org-022/025	<0.1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Surrogate 4-Chloro-3-NBTF	%		Org-022/025	128	[NT]	[NT]	[NT]	[NT]	112	112

QUALITY CONTROL: Organophosphorus Pesticides in Soil					Duplicate				Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-2	364004-1
Date extracted	-			16/10/2024	[NT]	[NT]	[NT]	[NT]	16/10/2024	16/10/2024
Date analysed	-			17/10/2024	[NT]	[NT]	[NT]	[NT]	17/10/2024	17/10/2024
Dichlorvos	mg/kg	0.1	Org-022/025	<0.1	[NT]	[NT]	[NT]	[NT]	98	94
Mevinphos	mg/kg	0.1	Org-022/025	<0.1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Phorate	mg/kg	0.1	Org-022/025	<0.1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Dimethoate	mg/kg	0.1	Org-022/025	<0.1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Diazinon	mg/kg	0.1	Org-022/025	<0.1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Disulfoton	mg/kg	0.1	Org-022/025	<0.1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Chlorpyrifos-methyl	mg/kg	0.1	Org-022/025	<0.1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Parathion-Methyl	mg/kg	0.1	Org-022/025	<0.1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Ronnel	mg/kg	0.1	Org-022/025	<0.1	[NT]	[NT]	[NT]	[NT]	92	94
Fenitrothion	mg/kg	0.1	Org-022/025	<0.1	[NT]	[NT]	[NT]	[NT]	98	96
Malathion	mg/kg	0.1	Org-022/025	<0.1	[NT]	[NT]	[NT]	[NT]	96	100
Chlorpyriphos	mg/kg	0.1	Org-022/025	<0.1	[NT]	[NT]	[NT]	[NT]	98	100
Fenthion	mg/kg	0.1	Org-022/025	<0.1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Parathion	mg/kg	0.1	Org-022/025	<0.1	[NT]	[NT]	[NT]	[NT]	96	96
Bromophos-ethyl	mg/kg	0.1	Org-022/025	<0.1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Methidathion	mg/kg	0.1	Org-022/025	<0.1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Fenamiphos	mg/kg	0.1	Org-022/025	<0.1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Ethion	mg/kg	0.1	Org-022/025	<0.1	[NT]	[NT]	[NT]	[NT]	106	108
Phosalone	mg/kg	0.1	Org-022/025	<0.1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Azinphos-methyl (Guthion)	mg/kg	0.1	Org-022/025	<0.1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Coumaphos	mg/kg	0.1	Org-022/025	<0.1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Surrogate 4-Chloro-3-NBTF	%		Org-022/025	128	[NT]	[NT]	[NT]	[NT]	112	112

QUALITY CONTROL: PCBs in Soil					Duplicate				Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-2	364004-1
Date extracted	-			16/10/2024	[NT]	[NT]	[NT]	[NT]	16/10/2024	16/10/2024
Date analysed	-			17/10/2024	[NT]	[NT]	[NT]	[NT]	17/10/2024	17/10/2024
Aroclor 1016	mg/kg	0.1	Org-021/022/025	<0.1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Aroclor 1221	mg/kg	0.1	Org-021/022/025	<0.1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Aroclor 1232	mg/kg	0.1	Org-021/022/025	<0.1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Aroclor 1242	mg/kg	0.1	Org-021/022/025	<0.1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Aroclor 1248	mg/kg	0.1	Org-021/022/025	<0.1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Aroclor 1254	mg/kg	0.1	Org-021/022/025	<0.1	[NT]	[NT]	[NT]	[NT]	125	120
Aroclor 1260	mg/kg	0.1	Org-021/022/025	<0.1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Surrogate 2-Fluorobiphenyl	%		Org-021/022/025	120	[NT]	[NT]	[NT]	[NT]	103	109

QUALITY CONTROL: Acid Extractable metals in soil					Duplicate				Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-2	[NT]
Date prepared	-			16/10/2024	[NT]	[NT]	[NT]	[NT]	16/10/2024	[NT]
Date analysed	-			16/10/2024	[NT]	[NT]	[NT]	[NT]	16/10/2024	[NT]
Arsenic	mg/kg	4	Metals-020	<4	[NT]	[NT]	[NT]	[NT]	106	[NT]
Cadmium	mg/kg	0.4	Metals-020	<0.4	[NT]	[NT]	[NT]	[NT]	93	[NT]
Chromium	mg/kg	1	Metals-020	<1	[NT]	[NT]	[NT]	[NT]	97	[NT]
Copper	mg/kg	1	Metals-020	<1	[NT]	[NT]	[NT]	[NT]	103	[NT]
Lead	mg/kg	1	Metals-020	<1	[NT]	[NT]	[NT]	[NT]	96	[NT]
Mercury	mg/kg	0.1	Metals-021	<0.1	[NT]	[NT]	[NT]	[NT]	124	[NT]
Nickel	mg/kg	1	Metals-020	<1	[NT]	[NT]	[NT]	[NT]	99	[NT]
Zinc	mg/kg	1	Metals-020	<1	[NT]	[NT]	[NT]	[NT]	94	[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.

Where matrix spike recoveries fall below the lower limit of the acceptance criteria (e.g. for non-labile or standard Organics <60%), positive result(s) in the parent sample will subsequently have a higher than typical estimated uncertainty (MU estimates supplied on request) and in these circumstances the sample result is likely biased significantly low.

Measurement Uncertainty estimates are available for most tests upon request.

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

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

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SAMPLE RECEIPT ADVICE

Client Details

Client	ADE CONSULTING GROUP PTY LTD
Attention	Karin Azzam

Sample Login Details

Your reference	A101023.0722.009.L21
Envirolab Reference	364004
Date Sample Received	15/10/2024
Date Instructions Received	15/10/2024
Date Results Expected to be Reported	22/10/2024

Sample Condition

Samples received in appropriate condition for analysis	Yes
No. of Samples Provided	2 Soil
Turnaround Time Requested	Standard
Temperature on Receipt (°C)	8
Cooling Method	Ice
Sampling Date Provided	YES

Comments

Nil

Please direct any queries to:

Aileen Hie	Jacinta Hurst
Phone: 02 9910 6200	**Phone: 02 9910 6200**
Fax: 02 9910 6201	**Fax: 02 9910 6201**
Email: ahie@envirolab.com.au	**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
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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	PCBs in Soil	Acid Extractable metalsin soil	On Hold
SR01	✓	✓	✓	✓	✓	✓	✓	
SR02								✓

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.

Appendix H – Data Quality Objectives

As stated in *Section 18 Appendix B* of Schedule B2 – Guideline on Site Characterisation in the ASC NEPM (2013), the data quality objectives (DQO) process is a seven-step iterative planning approach used to define the type, quantity and quality of data needed to support decisions relating to the environmental condition of a site.

The seven-step planning approach facilitates the development of qualitative and quantitative statements that specify the quality of the data required to support decision making within the scope of the investigation. This process utilises systematic planning and statistical hypothesis testing to differentiate between two or more clearly defined alternatives.

The seven-step DQO process adopted for this assessment is provided below.

Step 1 – State the Problem

This targeted DSI is required for due diligence purposes to investigate the contamination risk status from current and historical use, prior to the proposed construction of a new building to accommodate new general learning spaces.

A review of available historical information and previous environmental investigations have inferred that the site has a low potential for contamination resulting from past and present land uses. Potential sources of contamination were identified to include; the potential for uncontrolled fill to exist on site, migration of contaminants from offsite sources.

An environmental investigation was therefore undertaken to assess soil conditions within the site. The following data collected was then used to evaluate and characterise the soil condition across the site to inform the need for remediation and further management (if required).

Step 2 – Identify the Decision

The purpose of the investigation is to focus on current and future human health and environmental risks associated with potential contamination. The decisions that need to be made on the contamination status of the site include:

- The extent of contamination (if present) in soil that would preclude the current land use of the site;
- The extent of contamination (if present) in soil at the site that has the potential to:
- Impact upon a possible future land use of the site
- Create a human or environmental risk within the site; and
- Migrate to surrounding receptors.
- If contamination above the adopted criteria is identified, then a further assessment would be undertaken to assess feasible remediation/management options (if required)

The contamination would be considered not to pose a risk if analytical results for the media sampled and analysed are less than the adopted SAC presented in **Section 7** (main report). or are determined by a site-specific risk assessment not to represent an unacceptable risk to human health and/or the environment. Where an unacceptable risk is indicated, remediation and/or management options will need to be considered to address the risk and meet the site objectives.

Step 3- Identify Inputs to the Decision

To address the decision questions outlined in Step 2 of the DQOs, the following inputs to the decision have been identified:

- A review of previous environmental investigations undertaken at the site;
- A review of the historical and current use of the site;
- Investigation of the existing soil conditions at the site; and
- Comparison of soil analytical results with the site assessment criteria as outlined in the soil assessment criteria.

The COPCs selected were determined through on-site observations following the completion of a comprehensive desktop study.

Step 4 – Define the Boundaries of the Study

This step provides a detailed description of the spatial and temporal boundaries of the study area. These characteristics define the population of interest and any practical considerations for the study area (refer to **Table H1).**

Table H1. Summary of the Study Boundaries.

Spatial Boundaries	The works performed for this report cover the proposed activity area, or construction footprint. The vertical boundaries of the proposed investigations are limited to a maximum depth 5.0 m BGL in soil. No assessment of groundwater was undertaken.
Temporal Boundaries	The investigation works were undertaken on the 11th of October 2024.
Investigation Limit	The limit of the investigation has been undertaken to provide information as to the level and type of soil contamination within the site.
Constraints	Time, cost, and accessibility considered constraints to the investigation.
Receptors of Concern	The potential receptors of concern are outlined in Section 6.4

Step 5 – Develop a Decision Rule

The primary objectives of the proposed contamination investigation are to assess the potential for unknown contamination at the site to present a risk in the proposed activity as a primary school. The decision rules to assess the suitability of the site will be as follows:

- QA/QC assessment indicates that the data is usable.
- Where contaminant concentrations for each sample are below the adopted investigation levels, then no further assessment/remediation is required with respect to that chemical/media/area; and
- Where contaminant concentrations are reported to exceed the adopted investigation levels, then additional investigation and/or management (including remediation) may be required.

In considering whether or not contaminant concentrations exceed investigation levels, statistical measures of central tendency will be used. The 95% upper confidence limit of the mean will be calculated for contamination levels in samples grouped spatially. Outliers or hotspots will be assessed as samples that contain greater than 250% of the investigation level. The distribution of the results will be assessed, and appropriate adjustments may be made prior to analysis if the data distribution is log-normal. This process is described further below.

The types of data quality required during the fieldwork, the laboratory components of the investigation and the acceptable limits for this data as provided in **Section 7** and **Section 8.2.3.** A summary of the decision rules is included in **Table G2.**

Step 6 – Specify Acceptable Limits on Decision Errors

This step is to establish the specific limits on decision errors, which were used to determine the targets for limiting uncertainty in the data. Data generated during the environmental investigation needs to be appropriate to allow decisions to be made with confidence. The specific limits for this investigation were based on appropriate guidance from the NSW EPA, NEPC (2013), AS 2005 and appropriate indicators of DQIs used to assess QA / QC for field sampling and handling.

There are two sources of error for input to decisions:

- Sampling errors, which occur when the samples collected are not representative of the conditions within the investigation area; and
- Measurement errors, which occur during sample collection, handling, preparation, analysis and data reduction.

The null hypothesis for this study is:

Contaminant concentrations within the soil beneath the site are above the adopted investigation levels.

These errors may lead to the following decision errors:

- Type I - deciding that the soil and/or groundwater is not contaminated and, therefore, the site is suitable for the proposed activity when the reverse is true; and
- Type II - deciding that the soil and/or groundwater is contaminated and, therefore, the site is not suitable for the proposed activity when the reverse is true.

The acceptable limit on decision errors is a 5% probability of a false negative (i.e., assessing that the average concentrations of CoPC are less than the adopted soil, groundwater and surface water investigation levels when they are actually greater than the investigation levels).

Where data sets are sufficiently populated, the 95% upper confidence limit (UCL) of the arithmetic mean will be used to calculate this probability. The 95% UCLs are to be less than the investigation level and standard deviation of the sample population shall be less than 50% of the investigation level.

The investigation levels for assessment are nominated in **Section 7** of this report. The statistical approach is further elaborated in **Section 7.**

To assess the suitability of the analytical data obtained prior to making decisions, the data was assessed against Data Quality Indicators (DQIs) to assess precision, accuracy, representativeness, comparability, and completeness (PARCC parameters), as outlined in AS 2005. The acceptable limit on decision error was 95% compliance with the DQIs. The pre-determined DQIs specified for the investigation works are discussed below in relation to the PARCC parameters as summarised in **Table H2.**

Table H2. Summary of Acceptable Limits on Decision Errors.

Precision	• Sampling and analysis of field blind duplicates and split replicates to be undertaken at a minimum rate of 1 pair per every 20 samples. • Laboratory duplicate analysis to be undertaken by the testing laboratory at a minimum rate of 1 per 20 samples. • Field and laboratory RPD values to be less than 30% for analytical results greater than (>) 30 times the laboratory LOR, less than (<) 50 % for analytical results between 10 and 30 times the laboratory LOR and a control limit of ± the LOR if either the sample or duplicate value is less than 10 times the laboratory LOR.
Accuracy	• Laboratory surrogate spike recoveries were to be within 70 – 130% for all organic analyses (if applicable). • Laboratory control sample (LCS) recoveries to be assessed at a rate of one (1) sample per laboratory batch. LCS recoveries were to be within 70 – 130% (if applicable). • Matrix spike (MS) recoveries are to be assessed at a rate of one sample per laboratory batch. LCS recoveries were to be within 70 – 130% (if applicable).
Representativeness	• Appropriate sampling methods undertaken for all samples. • All samples were extracted and analysed within holding times.

Comparability	• Sampling was completed in accordance with the recommended methods outlined within Section 5, Systematic planning for the collection of environmental data, in Schedule B2 of NEPM (2013), AS 2005 and ADE Standard Operating Procedures (SOPs) which are in line with industry standards. • Standard analytical methodologies were used by laboratories that were NATA accredited for the requested analyses. • Laboratory LORs were appropriate and consistent for the objectives of the validation assessment.
Completeness	• Field documentation complete and appropriate for all samples to meet the objectives of the assessment. • Sample description and CoC documentation complete and appropriate for all samples to meet the objectives of the validation assessment. • The sampling frequency and findings of the QA/QC sample review valid for >95% of samples.

Step 7 – Optimise the Design for Obtaining Data

The organisation of the data collection and analysis design for optimising the generation of data to satisfy the DQOs and the objective of the investigation has been achieved via the following procedures outlined in **Table H3.**

Table H3. Summary of Procedures to be Undertaken to Optimize the Design for Obtaining Data.

Pre-approved Work Plan	The sampling plan for the investigation at the site has been developed to assess the concentrations of contaminants present in soils at the site through the implementation of the components outlined within NEPM (2013), AS 4482.1 (2005) and AS/NZS 5667.1 (1998).
Compliance with EPA Guidelines	• Use of appropriate techniques for the sampling, storage, and transportation of samples. • Implementation of NATA certified laboratory using analytical procedures as outlined in ASC NEPM (2013). • Use of a secondary laboratory for split samples which is NATA certified for the required analyses.

Appendix I – Data Quality Assessment

A summary of the Quality Assurance / Quality Control (QA/QC) results for the soil analysis is shown below in **Table I1**. Refer to **Appendix J – RPD calculations** for further information and data analysis.

Table I1 Summary of Soil Sample QA/QC Analysis.

Sample collection & handling measures appropriate?	Yes. The samples were in proper custody between the field and reaching the laboratory in a good condition, documented in a signed chain of custody form (refer to **Appendix G**) Samples were properly and adequately preserved and refrigerated and all analytical holding times were met.
Field Duplicate Samples	Two intra-laboratory (blind) duplicates (ID: BR1, BR2) and two inter-laboratory (split) duplicates (ID: SR1, SR2) were collected and analysed from the sampling event. Results from the blind duplicate and split duplicate samples are presented in **Appendix J**. Reported concentrations in parent samples were compared to those reported in blind and split duplicate samples and relative percent difference (RPDs) were calculated. All RPDs were reported within acceptable range (as outlined in **Table H2**) except for one marginal exceedance for Lead (RPD: 45) of the tolerance between SR2 and the parent sample. This lone exceedance can be attributed to the inherent heterogenous nature of fill material and is not considered to invalidate the data set.
Laboratory QA/QC results acceptable?	Yes. ADE considers that the internal QA/QC undertaken by the laboratories is satisfactory (refer to **Appendix G** for the laboratory quality control report).
Decontamination procedures	Dedicated disposable materials (such as nitrile gloves) were changed between each sampling point. All disposable sampling equipment/materials were collected and removed before leaving the site. Equipment rinsate blank not required due to use of dedicated equipment.
Trip Blank, Trip Spike	No Trip Blank and Trip Spike used. None of the samples reported BTEX concentrations exceeding the SAC and were below the LOR for the laboratory hence the absence of the trip spike and blank will not affect the outcome of this assessment. The laboratory results were consistent with field observations including no odours or PID readings greater than 1.0 ppm.
Field & Laboratory Data Usable?	ADE considers that the analytical results are representative of the conditions of the sampling locations at the time of sampling and are directly usable for the purpose of this assessment.

Data Review

Quality control reports from the laboratories subcontracted for sample analyses were reviewed. Laboratory blank samples, duplicate samples, control samples, spiked samples and method blanks were evaluated.

Chain of Custody

Australian Standard AS 4482.1 defines the chain-of-custody documentation as the link in the transfer of samples between the time of collection and arrival at the laboratory.

The CoC utilised by ADE included the items recommended by the Standard:

- The person transferred the samples;
- The person who received the samples;
- Date the samples were collected;
- Date the samples were received at the laboratory; and
- Contact name and details for the client.

Copies of the CoCs completed during this investigation are provided in in **Appendix G – Analytical Reports and Chain of Custody**

Field Equipment Calibration

Field equipment requiring calibration included the use of a photo-ionisation detector (PID). The PID was calibrated by an external qualified technician before the sampling events (refer to **Appendix E** for the calibration certificate).

Laboratory Analytical Methodology and Accreditation

All chemical analysis was undertaken by NATA accredited laboratories. Refer to **Appendix G – Analytical Reports and Chain of Custody Documentation** for the details of the adopted laboratory analytical methods and their respective accreditations. The laboratory methodologies and the respective accreditations of SLS and Envirolab were deemed suitable for the required analyses.

Detection Limits / Practical Quantification Limits

The laboratory limit of reporting (LOR) should be at least half the SAC for to ensure that suitable resolution and accuracy to evaluate the risk to receptors are captured.

The LORs were sufficient to accurately quantify detectable contaminants.

Record of Holding Times

All primary and QAQC samples collected over the course of the investigation were submitted within the recommended holding times of the required analysis. As such, the holding times of the samples to the final submission to the laboratories used (SLS and Envirolab) meet the recommended holding time criteria, with all samples analysed within 7 days (or specific to an analyte) from the time of collection.

Laboratory Method Blanks

The assessment of method blank results was to determine the existence and magnitude of contamination resulting from laboratory activities.

The assessment of blank analysis results was carried out to determine the existence and magnitude of contamination resulting from laboratory activities. No contaminants were found in the blanks analysed by the laboratory.

Laboratory Spikes and Surrogates

The laboratory limit of 70-130% for inorganics / metals, and 60-140% for organics was used to validate matrix spikes and laboratory control samples. The laboratory limit of 50-150% was implemented to validate surrogate recoveries for organic analytes.

Summary

The acceptable limits on decision errors to be applied in the investigation and the manner of addressing possible decision errors have been applied. The data is considered suitable for its intended use in operations, decision making and planning as per step 6 of the Data quality objectives and assessment.

Appendix J – RPD Calculations

	Lab Report Number	A101023.0722.00 (954-970)	A101023.0722.00 (954-970)	
	Field ID	TP103_0.3-0.4	BR01	
	Date	11 Oct 2024	11 Oct 2024	
	Sample type	Primary	intra-laboratory duplicate	
	Matrix Type	Soil	Soil	RPD
Analyte	**Unit**	EQL		
Physical				
Moisture Content	**%**	0.1	6.1	10.4	52
Metals				
Arsenic	**mg/kg**	4	5.4	6.8	23
Cadmium	**mg/kg**	0.1	<0.10	<0.10	0
Chromium (III+VI)	**mg/kg**	1	12.7	15.6	20
Copper	**mg/kg**	1	<5.0	<5.0	0
Lead	**mg/kg**	1	8.8	11.0	22
Mercury	**mg/kg**	0.1	<0.10	<0.10	0
Nickel	**mg/kg**	1	<1.0	1.1	10
Zinc	**mg/kg**	1	8.4	7.4	13
BTEX				
Benzene	**mg/kg**	0.2	<0.50	<0.50	0
Toluene	**mg/kg**	0.5	<0.50	<0.50	0
Ethylbenzene	**mg/kg**	1	<1.0	<1.0	0
Xylene (m & p)	**mg/kg**	2	<2.0	<2.0	0
Xylene (o)	**mg/kg**	1	<1.0	<1.0	0
Xylene Total	**mg/kg**	1	<2.0	<2.0	0
Total BTEX	**mg/kg**	2	<2.00	<2.00	0
PAH				
Naphthalene	**mg/kg**	0.1	<0.30	<0.30	0
Naphthalene (VOC)	**mg/kg**	1			
Acenaphthylene	**mg/kg**	0.1	<0.30	<0.30	0
Acenaphthene	**mg/kg**	0.1	<0.30	<0.30	0
Fluorene	**mg/kg**	0.1	<0.30	<0.30	0
Anthracene	**mg/kg**	0.1	<0.30	<0.30	0
Phenanthrene	**mg/kg**	0.1	<0.30	<0.30	0
Pyrene	**mg/kg**	0.1	<0.30	<0.30	0
Fluoranthene	**mg/kg**	0.1	<0.30	<0.30	0
Chrysene	**mg/kg**	0.1	<0.30	<0.30	0
Benzo(a)anthracene	**mg/kg**	0.1	<0.30	<0.30	0
Benzo(a) pyrene	**mg/kg**	0.05	<0.30	<0.30	0
Benzo(a)pyrene TEQ (LOR)	**mg/kg**	0.3	0.70	0.70	0
Benzo(b+j+k)fluoranthene	**mg/kg**	0.2	<0.30	<0.30	0
Benzo(g,h,i)perylene	**mg/kg**	0.1	<0.30	<0.30	0
Dibenz(a,h)anthracene	**mg/kg**	0.1	<0.30	<0.30	0
Indeno(1,2,3-c,d)pyrene	**mg/kg**	0.1	<0.30	<0.30	0
Benzo(a)pyrene TEQ calc (Half)	**mg/kg**	0.3	0.35	0.35	0
Benzo(a)pyrene TEQ calc (Zero)	**mg/kg**	0.3	<0.30	<0.30	0
PAHs (Sum of total)	**mg/kg**	0.3	<0.30	<0.30	0
PAHs (Sum of positives)	**mg/kg**	0.05			
Halogenated Benzenes				
Hexachlorobenzene	**mg/kg**	0.1	<0.10	<0.10	0
TPH				
C6-C9 Fraction	**mg/kg**	25	<25	<25	0
C10-C14 Fraction	**mg/kg**	50	<50	<50	0
C15-C28 Fraction	**mg/kg**	100	<100	<100	0
C29-C36 Fraction	**mg/kg**	100	<100	<100	0
C10-C36 Fraction (Sum)	**mg/kg**	50	<100	<100	0
Inorganics				
Electrical Conductivity (Lab)	**dS/m**		0.01		
pH 1:5 soil:water	**-**		6.2		
TRH				
C6-C10 Fraction (F1)	**mg/kg**	25	<35	<35	0
C6-C10 (F1 minus BTEX)	**mg/kg**	25	<35	<35	0
>C10-C16 Fraction (F2)	**mg/kg**	50	<50	<50	0
>C10-C16 Fraction (F2 minus Naphthalene)	**mg/kg**	50			
>C16-C34 Fraction (F3)	**mg/kg**	100	<100	<100	0
>C34-C40 Fraction (F4)	**mg/kg**	100	<100	<100	0
>C10-C40 Fraction (Sum)	**mg/kg**	50	<100	<100	0
PCBs				
Arochlor 1016	**mg/kg**	0.1	<0.50	<0.50	0
Arochlor 1221	**mg/kg**	0.1	<0.50	<0.50	0
Arochlor 1232	**mg/kg**	0.1	<0.50	<0.50	0
Arochlor 1242	**mg/kg**	0.1	<0.50	<0.50	0
Arochlor 1248	**mg/kg**	0.1	<0.50	<0.50	0
Arochlor 1254	**mg/kg**	0.1	<0.50	<0.50	0
Arochlor 1260	**mg/kg**	0.1	<0.50	<0.50	0
PCBs (Sum of total)	**mg/kg**	0.1	<0.50	<0.50	0

			Lab Report Number	A101023.0722.00 (954-970)	A101023.0722.00 (954-970)	
			Field ID	TP103_0.3-0.4	BR01	
			Date	11 Oct 2024	11 Oct 2024	
			Sample type	Primary	intra-laboratory duplicate	
			Matrix Type	Soil	Soil	RPD
Organophosphorous Pesticides						
Azinophos methyl	**mg/kg**	0.1				
Bromophos-ethyl	**mg/kg**	0.1				
Chlorpyrifos	**mg/kg**	0.1		<0.10	<0.10	0
Chlorpyrifos-methyl	**mg/kg**	0.1		<0.10	<0.10	0
Coumaphos	**mg/kg**	0.1				
DEF	**mg/kg**	0.1		<0.10	<0.10	0
Diazinon	**mg/kg**	0.1		<0.10	<0.10	0
Dichlorvos	**mg/kg**	0.1				
Dimethoate	**mg/kg**	0.1				
Disulfoton	**mg/kg**	0.1				
Ethion	**mg/kg**	0.1				
Ethoprop	**mg/kg**	0.1		<0.10	<0.10	0
Fenamiphos	**mg/kg**	0.1				
Fenitrothion	**mg/kg**	0.1				
Fenthion	**mg/kg**	0.1				
Malathion	**mg/kg**	0.1				
Methidathion	**mg/kg**	0.1				
Methyl parathion	**mg/kg**	0.1		<0.10	<0.10	0
Mevinphos (Phosdrin)	**mg/kg**	0.1				
Parathion	**mg/kg**	0.1				
Phorate	**mg/kg**	0.1				
Ronnel	**mg/kg**	0.1		<0.10	<0.10	0
Phosalone	**mg/kg**	0.1				
Organochlorine Pesticides						
Aldrin + Dieldrin	**mg/kg**	0.1				
a-BHC	**mg/kg**	0.1		<0.10	<0.10	0
b-BHC	**mg/kg**	0.1		<0.10	<0.10	0
d-BHC	**mg/kg**	0.1		<0.10	<0.10	0
g-BHC (Lindane)	**mg/kg**	0.1		<0.10	<0.10	0
Chlordane (cis)	**mg/kg**	0.1		<0.10	<0.10	0
Chlordane (trans)	**mg/kg**	0.1		<0.10	<0.10	0
DDT	**mg/kg**	0.1		<0.10	<0.10	0
DDT+DDE+DDD	**ug/kg**	100				
4,4-DDE	**mg/kg**	0.1		<0.10	<0.10	0
DDD	**mg/kg**	0.1		<0.10	<0.10	0
Aldrin	**mg/kg**	0.1		<0.10	<0.10	0
Dieldrin	**mg/kg**	0.1		<0.10	<0.10	0
Endosulfan I	**mg/kg**	0.1		<0.20	<0.20	0
Endosulfan II	**mg/kg**	0.1		<0.20	<0.20	0
Endosulfan sulphate	**mg/kg**	0.1		<0.10	<0.10	0
Endrin	**mg/kg**	0.1		<0.20	<0.20	0
Endrin aldehyde	**mg/kg**	0.1		<0.10	<0.10	0
Endrin ketone	**mg/kg**	0.1		<0.10	<0.10	0
Heptachlor	**mg/kg**	0.1		<0.10	<0.10	0
Heptachlor epoxide	**mg/kg**	0.1		<0.10	<0.10	0
Methoxychlor	**mg/kg**	0.1		<0.10	<0.10	0
Mirex	**mg/kg**	0.1				

***RPDs have only been considered where a concentration is greater than 1 times the EQL.**

****Elevated RPDs are highlighted as per QAQC Profile settings (Acceptable RPDs for each EQL multiplier range are: 100 (1 - 10 x EQL); 50 (10 - 20 x EQL); 30 (> 20 x EQ**

*****Interlab Duplicates are matched on a per compound basis as methods vary between laboratories. Any methods in the row header relate to those used in the prir**

	Lab Report Number	A101023.0722.00 (954-970)	364004	
	Field ID	TP103_0.3-0.4	SR01	
	Date	11 Oct 2024	11 Oct 2024	
	Sample type	Primary	inter-laboratory duplicate	
	Matrix Type	Soil	Soil	RPD
Analyte	Unit	EQL		
Physical				
Moisture Content	%	0.1	6.1	12	65
Metals				
Arsenic	mg/kg	4	5.4	9	50
Cadmium	mg/kg	0.1	<0.10	<0.4	0
Chromium (III+VI)	mg/kg	1	12.7	18	35
Copper	mg/kg	1	<5.0	2	0
Lead	mg/kg	1	8.8	11	22
Mercury	mg/kg	0.1	<0.10	<0.1	0
Nickel	mg/kg	1	<1.0	4	120
Zinc	mg/kg	1	8.4	11	27
BTEX				
Benzene	mg/kg	0.2	<0.50	<0.2	0
Toluene	mg/kg	0.5	<0.50	<0.5	0
Ethylbenzene	mg/kg	1	<1.0	<1	0
Xylene (m & p)	mg/kg	2	<2.0	<2	0
Xylene (o)	mg/kg	1	<1.0	<1	0
Xylene Total	mg/kg	1	<2.0	<1	0
Total BTEX	mg/kg	2	<2.00		
PAH				
Naphthalene	mg/kg	0.1	<0.30	<0.1	0
Naphthalene (VOC)	mg/kg	1		<1	
Acenaphthylene	mg/kg	0.1	<0.30	<0.1	0
Acenaphthene	mg/kg	0.1	<0.30	<0.1	0
Fluorene	mg/kg	0.1	<0.30	<0.1	0
Anthracene	mg/kg	0.1	<0.30	<0.1	0
Phenanthrene	mg/kg	0.1	<0.30	<0.1	0
Pyrene	mg/kg	0.1	<0.30	<0.1	0
Fluoranthene	mg/kg	0.1	<0.30	<0.1	0
Chrysene	mg/kg	0.1	<0.30	<0.1	0
Benzo(a)anthracene	mg/kg	0.1	<0.30	<0.1	0
Benzo(a) pyrene	mg/kg	0.05	<0.30	<0.05	0
Benzo(a)pyrene TEQ (LOR)	mg/kg	0.3	0.70	<0.5	33
Benzo(b+j+k)fluoranthene	mg/kg	0.2	<0.30	<0.2	0
Benzo(g,h,i)perylene	mg/kg	0.1	<0.30	<0.1	0
Dibenz(a,h)anthracene	mg/kg	0.1	<0.30	<0.1	0
Indeno(1,2,3-c,d)pyrene	mg/kg	0.1	<0.30	<0.1	0
Benzo(a)pyrene TEQ calc (Half)	mg/kg	0.3	0.35	<0.5	0
Benzo(a)pyrene TEQ calc (Zero)	mg/kg	0.3	<0.30	<0.5	0
PAHs (Sum of total)	mg/kg	0.3	<0.30		
PAHs (Sum of positives)	mg/kg	0.05		<0.05	
Halogenated Benzenes				
Hexachlorobenzene	mg/kg	0.1	<0.10	<0.1	0
TPH				
C6-C9 Fraction	mg/kg	25	<25	<25	0
C10-C14 Fraction	mg/kg	50	<50	<50	0
C15-C28 Fraction	mg/kg	100	<100	<100	0
C29-C36 Fraction	mg/kg	100	<100	<100	0
C10-C36 Fraction (Sum)	mg/kg	50	<100	<50	0
Inorganics				
Electrical Conductivity (Lab)	dS/m		0.01		
pH 1:5 soil:water	-		6.2		
TRH				
C6-C10 Fraction (F1)	mg/kg	25	<35	<25	0
C6-C10 (F1 minus BTEX)	mg/kg	25	<35	<25	0
>C10-C16 Fraction (F2)	mg/kg	50	<50	<50	0
>C10-C16 Fraction (F2 minus Naphthalene)	mg/kg	50		<50	
>C16-C34 Fraction (F3)	mg/kg	100	<100	<100	0
>C34-C40 Fraction (F4)	mg/kg	100	<100	<100	0
>C10-C40 Fraction (Sum)	mg/kg	50	<100	<50	0
PCBs				
Arochlor 1016	mg/kg	0.1	<0.50	<0.1	0
Arochlor 1221	mg/kg	0.1	<0.50	<0.1	0
Arochlor 1232	mg/kg	0.1	<0.50	<0.1	0
Arochlor 1242	mg/kg	0.1	<0.50	<0.1	0
Arochlor 1248	mg/kg	0.1	<0.50	<0.1	0
Arochlor 1254	mg/kg	0.1	<0.50	<0.1	0
Arochlor 1260	mg/kg	0.1	<0.50	<0.1	0
PCBs (Sum of total)	mg/kg	0.1	<0.50	<0.1	0

			Lab Report Number	A101023.0722.00 (954-970)	364004	
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			Sample type	Primary	inter-laboratory duplicate	
			Matrix Type	Soil	Soil	RPD
Organophosphorous Pesticides						
Azinophos methyl	mg/kg	0.1			<0.1	
Bromophos-ethyl	mg/kg	0.1			<0.1	
Chlorpyrifos	mg/kg	0.1		<0.10	<0.1	0
Chlorpyrifos-methyl	mg/kg	0.1		<0.10	<0.1	0
Coumaphos	mg/kg	0.1			<0.1	
DEF	mg/kg	0.1		<0.10		
Diazinon	mg/kg	0.1		<0.10	<0.1	0
Dichlorvos	mg/kg	0.1			<0.1	
Dimethoate	mg/kg	0.1			<0.1	
Disulfoton	mg/kg	0.1			<0.1	
Ethion	mg/kg	0.1			<0.1	
Ethoprop	mg/kg	0.1		<0.10		
Fenamiphos	mg/kg	0.1			<0.1	
Fenitrothion	mg/kg	0.1			<0.1	
Fenthion	mg/kg	0.1			<0.1	
Malathion	mg/kg	0.1			<0.1	
Methidathion	mg/kg	0.1			<0.1	
Methyl parathion	mg/kg	0.1		<0.10	<0.1	0
Mevinphos (Phosdrin)	mg/kg	0.1			<0.1	
Parathion	mg/kg	0.1			<0.1	
Phorate	mg/kg	0.1			<0.1	
Ronnel	mg/kg	0.1		<0.10	<0.1	0
Phosalone	mg/kg	0.1			<0.1	
Organochlorine Pesticides						
Aldrin + Dieldrin	mg/kg	0.1			<0.1	
a-BHC	mg/kg	0.1		<0.10	<0.1	0
b-BHC	mg/kg	0.1		<0.10	<0.1	0
d-BHC	mg/kg	0.1		<0.10	<0.1	0
g-BHC (Lindane)	mg/kg	0.1		<0.10	<0.1	0
Chlordane (cis)	mg/kg	0.1		<0.10	<0.1	0
Chlordane (trans)	mg/kg	0.1		<0.10	<0.1	0
DDT	mg/kg	0.1		<0.10	<0.1	0
DDT+DDE+DDD	ug/kg	100			<100	
4,4-DDE	mg/kg	0.1		<0.10	<0.1	0
DDD	mg/kg	0.1		<0.10	<0.1	0
Aldrin	mg/kg	0.1		<0.10	<0.1	0
Dieldrin	mg/kg	0.1		<0.10	<0.1	0
Endosulfan I	mg/kg	0.1		<0.20	<0.1	0
Endosulfan II	mg/kg	0.1		<0.20	<0.1	0
Endosulfan sulphate	mg/kg	0.1		<0.10	<0.1	0
Endrin	mg/kg	0.1		<0.20	<0.1	0
Endrin aldehyde	mg/kg	0.1		<0.10	<0.1	0
Endrin ketone	mg/kg	0.1		<0.10		
Heptachlor	mg/kg	0.1		<0.10	<0.1	0
Heptachlor epoxide	mg/kg	0.1		<0.10	<0.1	0
Methoxychlor	mg/kg	0.1		<0.10	<0.1	0
Mirex	mg/kg	0.1			<0.1	

***RPDs have only been considered where a concentration is greater than 1 times**

****Elevated RPDs are highlighted as per QAQC Profile settings (Acceptable RPDs fL))**

*****Interlab Duplicates are matched on a per compound basis as methods vary bnary laboratory**

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